# 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**

# GROUP INDEX



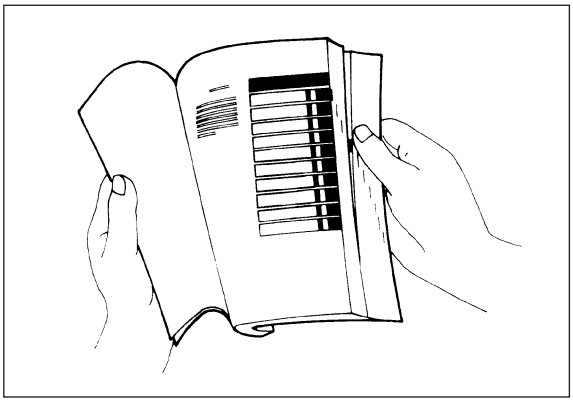
***Revised 09/07***

# SUPPLEMENTS

# HOW TO USE THIS MANUAL

## TO LOCATE WHAT YOU ARE LOOKING FOR:

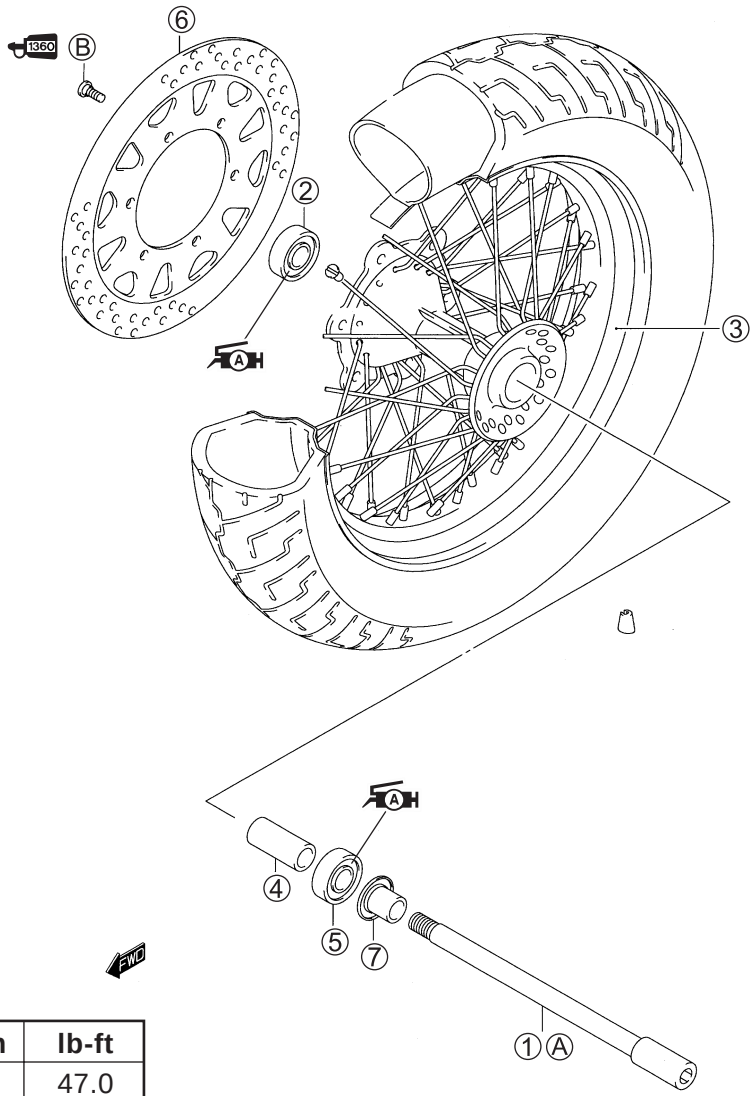
1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help find the item and page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



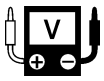
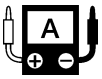
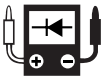

① Front axle
② Bearing (R)
③ Front wheel
④ Spacer
⑤ Bearing (L)
⑥ Brake disc
⑦ Spacer

Ⓐ Front axle
Ⓑ Brake disc mounting bolt

| ITEM | N·m | kgf·m | lb-ft |
|---|---|---|---|
| Ⓐ | 65 | 6.5 | 47.0 |
| Ⓑ | 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.<br>Data beside it indicates specified torque. |  | Use engine coolant.<br>99000-99032-11X |
|  | Apply oil. Use engine oil unless otherwise specified. |  | Use fork oil.<br>99000-99001-SS8 |
|  | Apply molybdenum oil solution. (Mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1:1) |  | Apply or use brake fluid. |
|  | Apply SUZUKI SUPER GREASE “A”.<br>99000-25030 |  | Measure in voltage range. |
|  | Apply SUZUKI MOLY PASTE.<br>99000-25140 |  | Measure in resistance range. |
|  | Apply SUZUKI BOND “1207B”.<br>99104-31140 |  | Measure in current range. |
|  | Apply SUZUKI BOND “1216”.<br>99104-31160 |  | Measure in diode test range. |
|  | Apply THREAD LOCK SUPER “1303”.<br>99000-32030 |  | Measure in continuity test range. |
|  | Apply THREAD LOCK “1342”.<br>99000-32050 |  | Use special tool. |
|  | Apply THREAD LOCK SUPER “1360”.<br>99000-32130 |  | 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.<br>Data beside it indicates specified torque. | LLC | Use engine coolant.<br>99000-99032-11X |
| OIL | Apply oil. Use engine oil unless otherwise specified. | FORK | Use fork oil.<br>99000-99001-SS8 |
| M/O | Apply molybdenum oil solution.<br>(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”.<br>99000-25010 | V | Measure in voltage range. |
| M | Apply SUZUKI MOLY PASTE.<br>99000-25140 | Ω | Measure in resistance range. |
| 1207B | Apply SUZUKI BOND “1207B”.<br>99000-31140 | A | Measure in current range. |
| 1216 | Apply SUZUKI BOND “1216”.<br>99104-31160 | | Measure in diode test range. |
| 1303 | Apply THREAD LOCK SUPER “1303”.<br>99000-32030 | | Measure in continuity test range. |
| 1342 | Apply THREAD LOCK “1342”.<br>99000-32050 | TOOL | Use special tool. |
| 1360 | Apply THREAD LOCK SUPER “1360”.<br>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)

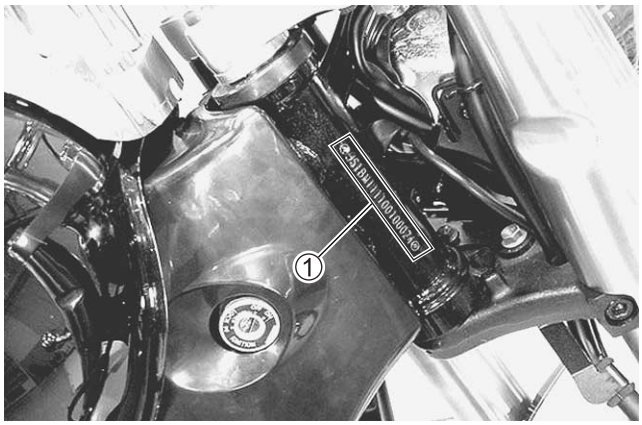
RIGHT SIDE

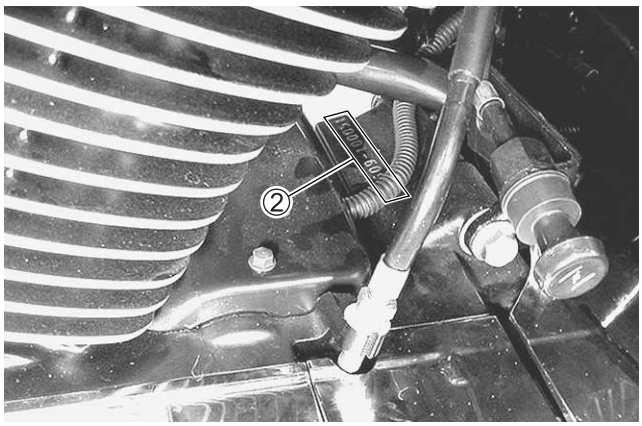
LEFT SIDE

* 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)

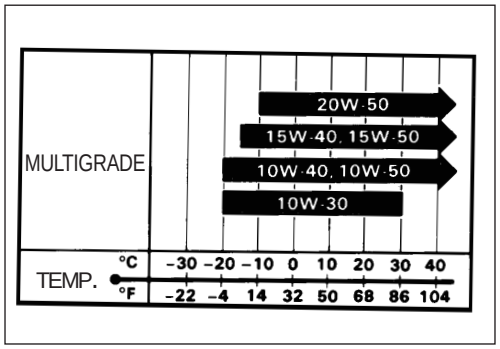
1. Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) method or 91 octane or higher rated by the Research Method.
2. Suzuki recommends that customers use alcohol-free unleaded gasoline whenever possible.
3. Use of blended gasoline containing MTBE (Methyl Tertiary Butyl Ether) is 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.

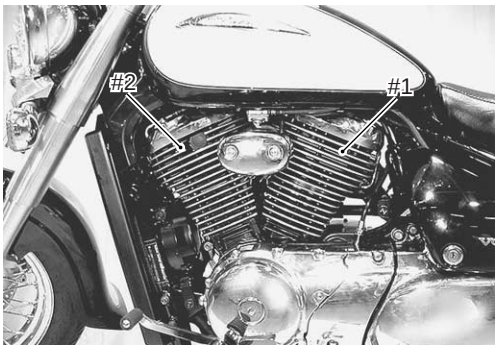
• Keep to these break-in throttle positions during the break-in period.

**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.

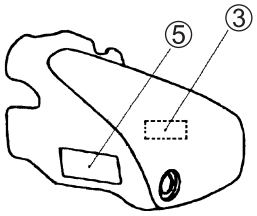
## CYLINDER IDENTIFICATION

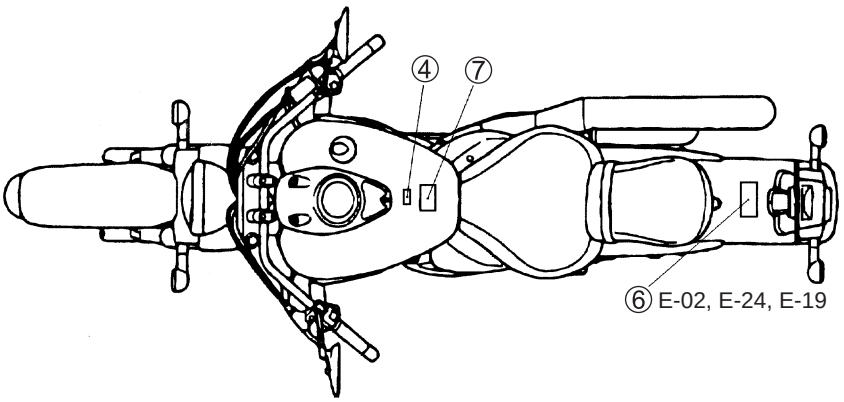
The engine cylinders are identified as #1 and #2, as counted from rear to front (as viewed by the rider on the seat).

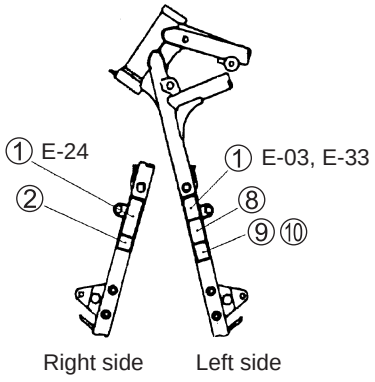


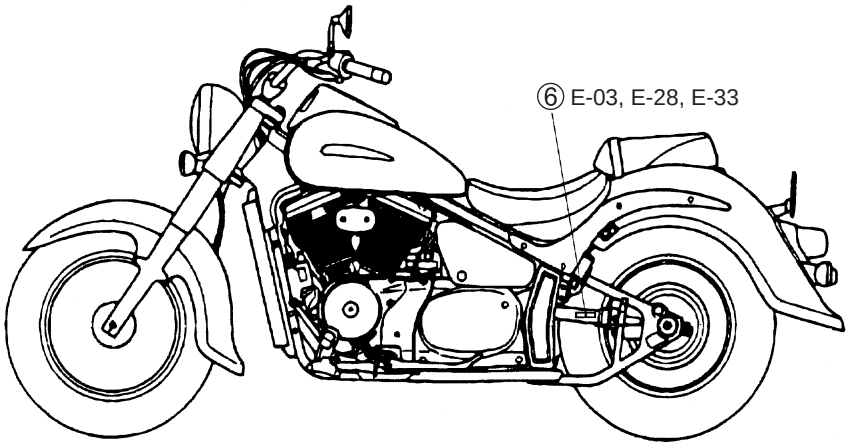
# INFORMATION LABELS

| 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 $cm^3$ (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 or 130/90-16M/C 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 ..... E-02, 19, 24<br>12 V 21/5 W ..... E-03, 28, 33 |
| 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/lmp gal) |
| Engine oil, oil change | 3 000 ml (3.2/2.6 US/lmp qt) |
| with filter change | 3 400 ml (3.6/3.0 US/lmp qt) |
| overhaul | 3 700 ml (3.9/3.3 US/lmp qt) |
| Final gear oil | 200 – 220 ml (6.8/7.0 – 7.4/7.7 US/lmp qt) |
| Engine coolant | 1 500 ml (1.5/1.3 US/lmp qt) |
| Front fork oil (each leg) | 412 ml (13.9/14.5 US/lmp 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 | | | | | | |
|---|---|---|---|---|---|---|
| | km | 1 000 | 6 000 | 12 000 | 18 000 | 24 000 |
| | miles | 600 | 4 000 | 7 500 | 11 000 | 15 000 |
| | months | 1 | 6 | 12 | 18 | 24 |
| 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 | | - | - | I | - | I |
| (E-33 only) | | 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 |
| Front forks | | - | - | I | - | I |
| Rear suspension | | - | - | I | - | I |
| Exhaust pipe bolts and muffler bolt and nut | | T | - | T | - | T |
| Chassis bolts and nuts | | T | T | T | T | T |

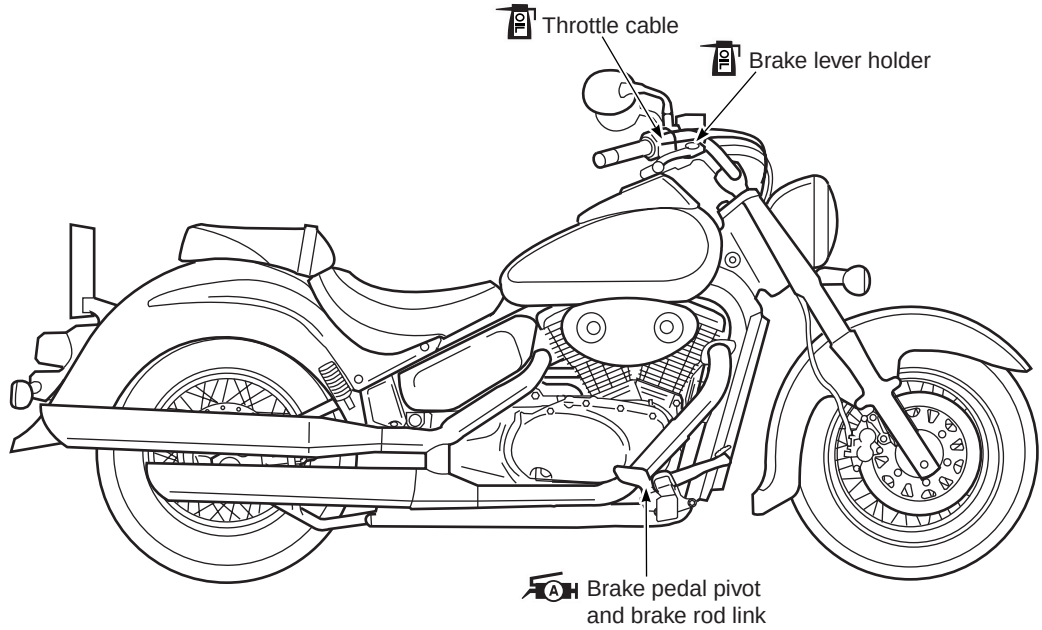
*I = Inspect and adjust, clean, lubricate or replace as necessary.*

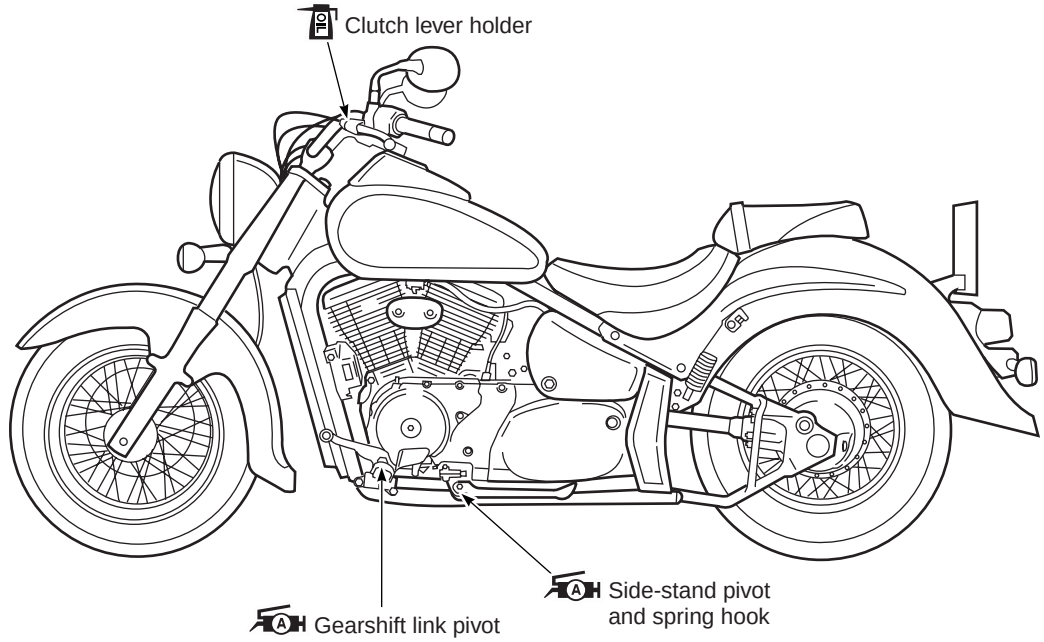
*R = Replace*

*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

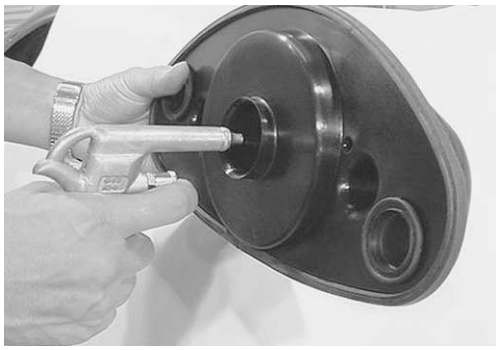
This section describes the servicing procedures for each item mentioned in the Periodic Maintenance chart.

## 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.*

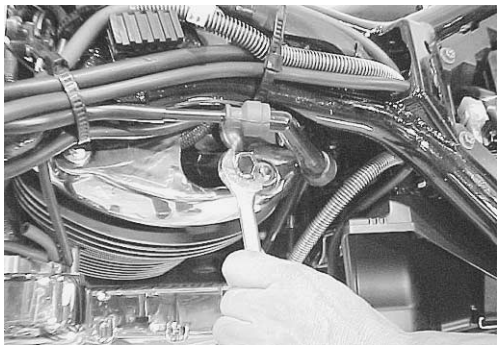
- Remove the drain plugs from the air cleaner box to allow any water to drain out.

## 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.

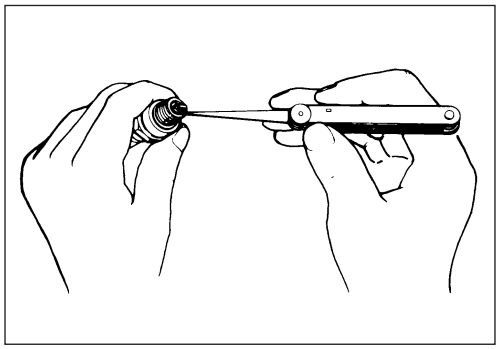


**HEAT RANGE**

- 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**

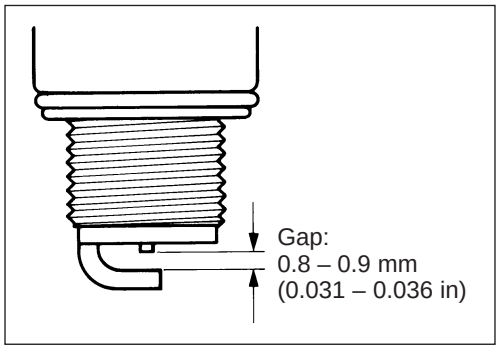
- Check carbon deposits on the spark plug.
- If carbon is deposited, remove it using a spark plug cleaner machine or carefully use a tool with a pointed end.

**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**



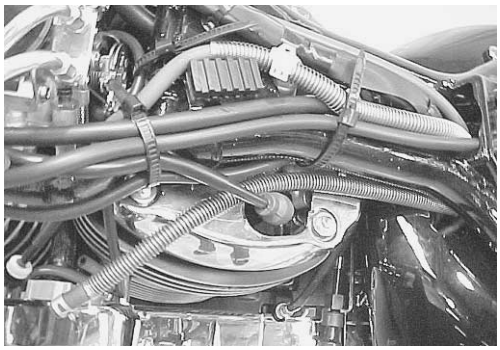

**ELECTRODE'S CONDITION**

- 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**

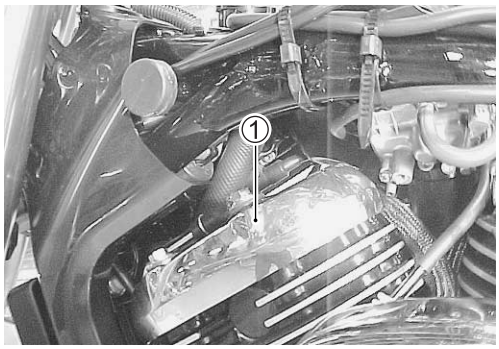
**Do not crossthread or over tighten the spark plug, or the spark plug will damage the aluminum threads of the cylinder head.**

- Install the spark plug caps.

## VALVE CLEARANCE

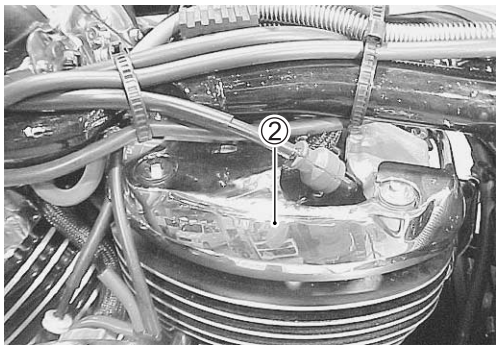
Valve clearance must be checked and adjusted when:
(1) the valve mechanism is service, and
(2) the camshafts are serviced.
Check and adjust the clearance to the specification.

**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)**



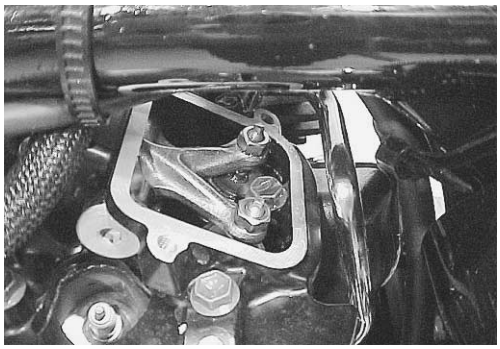

*NOTE:*

* *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.*

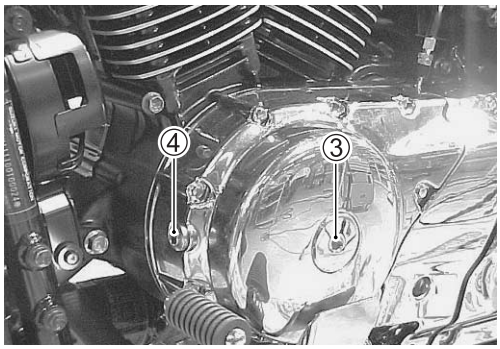



- Remove the front and rear seats. (☞7-2)
- Remove the fuel tank. (☞5-3)
- Remove the cylinder head cover caps (①, ②).
- Remove the spark plug caps.

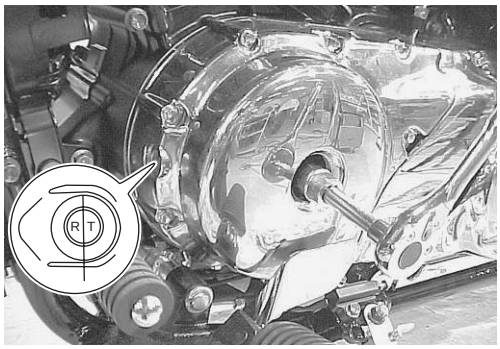
- Remove all the inspection caps.
- Remove all the spark plugs.



- 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 "R I T" line on the rotor is aligned with the center of hole on the generator cover.

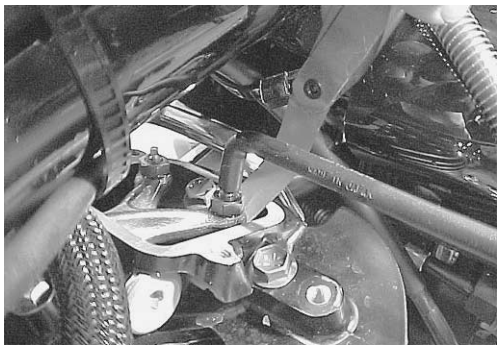



- To inspect the No.1 engine's valve clearance, insert the thickness gauge to the clearance between the valve stem end and the adjusting screw on the rocker arms.

**TOOL 09900-20806: Thickness gauge**

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

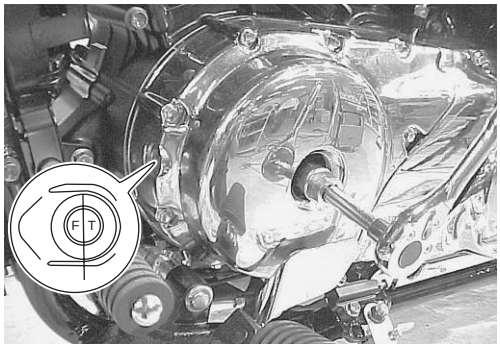
**TOOL 09917-10410: Valve adjust driver**



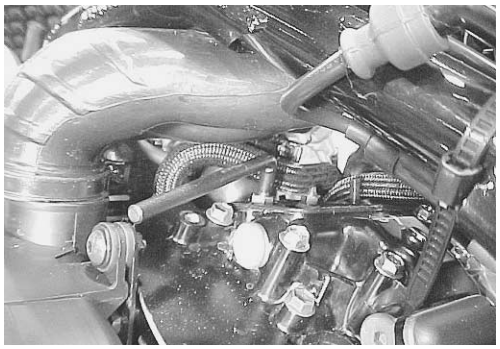
**⚠ CAUTION**

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

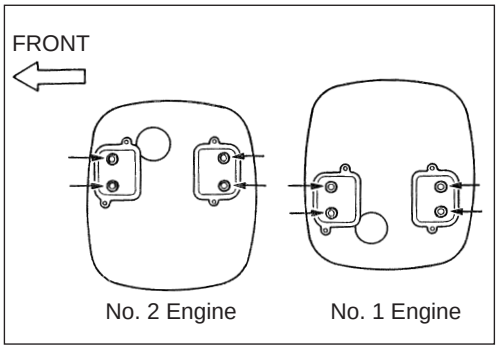
- Rotate the generator rotor 450 degrees (1-¼ turns) and align the "F I T" line on the rotor with the center of hole on the generator cover.



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



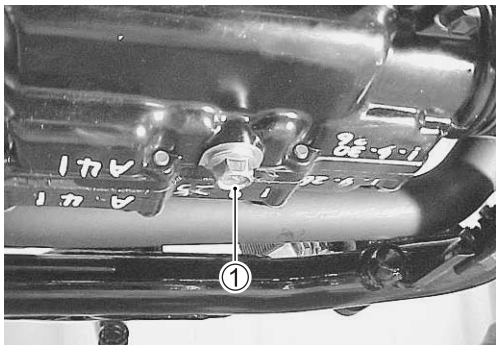
*NOTE:*
*Use the thickness gauge from the arrow marks as shown in the illustration.*




## ENGINE OIL AND OIL FILTER

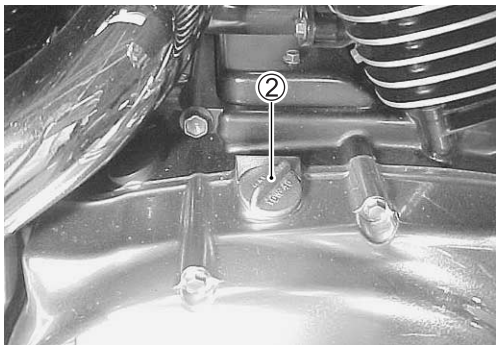
### ENGINE OIL REPLACEMENT

- 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.

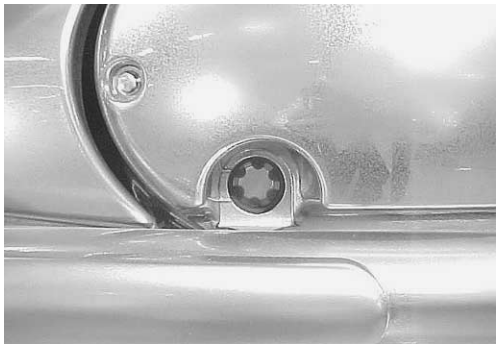



- Tighten the drain plug ① to the specified torque, and pour fresh oil through the oil filler. The engine will hold about 3.0 L (3.2/2.6 US/Imp qt) of oil. Use an API classification of SF or SG oil with SAE 10W/40 viscosity.

**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

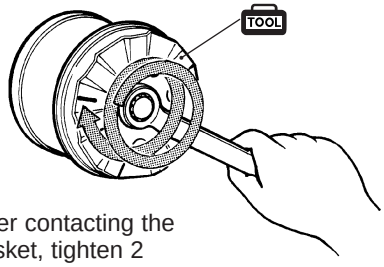
- Drain the engine oil as described in the engine oil replacement procedure.
- Remove the oil filter with the special tool.

**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.*




After contacting the gasket, tighten 2 turns.

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

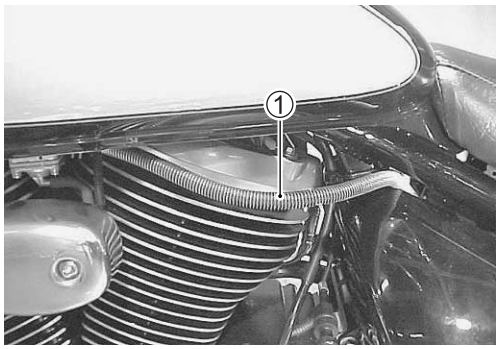
**DATA NECESSARY AMOUNT OF ENGINE OIL:**
**Oil change: 3.0 L (3.2/2.6 US/Imp qt)**
**Oil and filter change: 3.4 L (3.6/3.0 US/Imp qt)**
**Engine overhaul: 3.7 L (3.9/3.3 US/Imp qt)**

**⚠ 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.

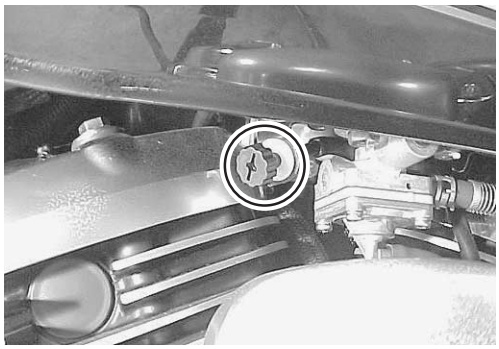



## ENGINE IDLE SPEED

*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**

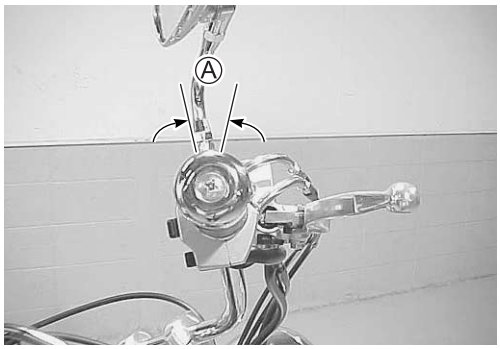


## PAIR (AIR SUPPLY) SYSTEM

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

## THROTTLE CABLE PLAY

Adjust the throttle cable play Ⓐ as follows.



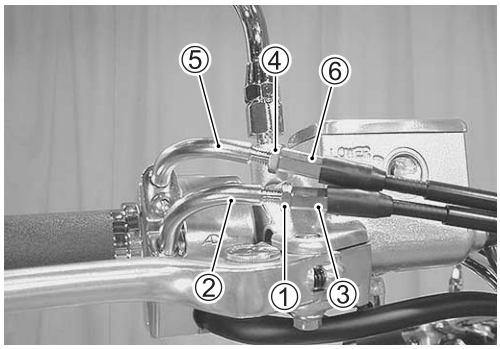

### MINOR ADJUSTMENT

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

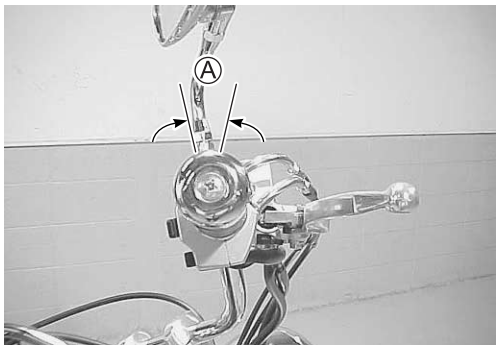
- Remove the fuel tank. (☞5-3)
- Loosen the lock nuts ① of the throttle returning cable ②.
- Turn the returning cable adjuster ③ to obtain proper cable play.
- Loosen the lock nuts ④ of the throttle pulling cable ⑤.
- Turn the pulling cable adjuster ⑥ in or out until the throttle cable play Ⓐ should 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.

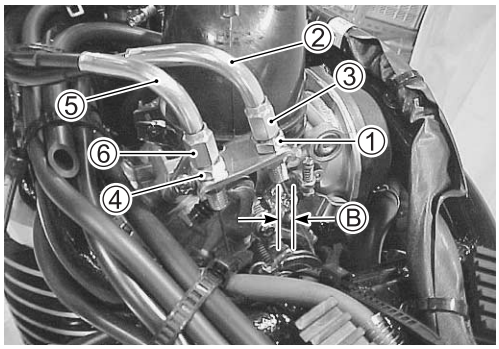
**DATA Throttle cable play Ⓐ: 2.0 – 4.0 mm (0.08 – 0.16 in)**

- 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.**

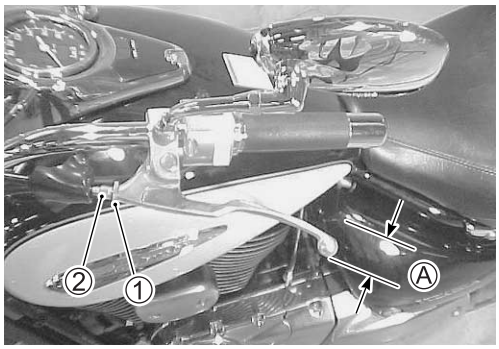


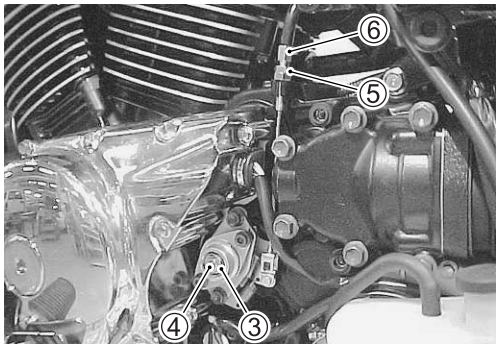




## CLUTCH

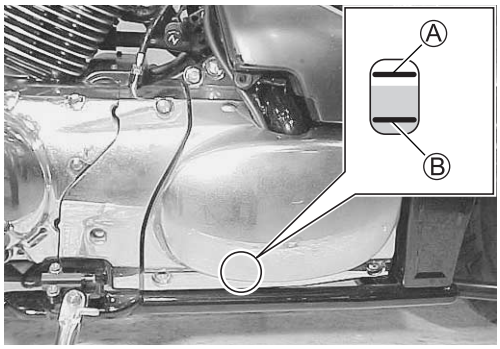
- Loosen the lock nut ①.
- Turn in the adjuster ② all the way into the clutch lever assembly.
- Remove the clutch release cover.
- Loosen the lock nut ③ and turn out the adjusting screw ④ two or three rotations.
- From that position, slowly turn in the adjusting screw ④ to feel resistance.
- From this 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

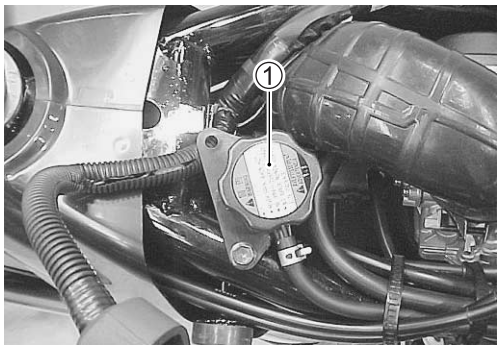



### ENGINE COOLANT LEVEL CHECK

- 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.

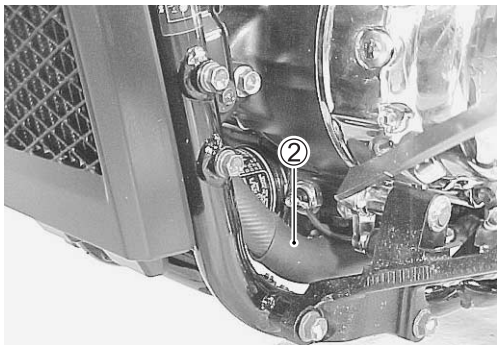
### ENGINE COOLANT CHANGE




- 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!**

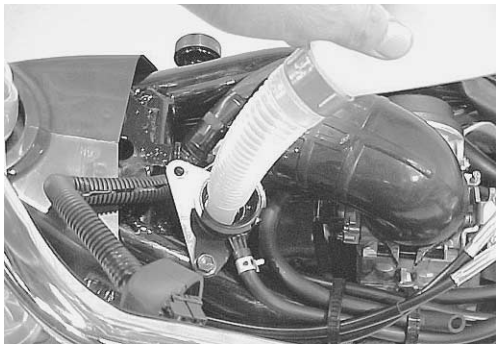



- Flush the radiator with fresh water if necessary.
- Connect the radiator hose ② securely.
- Pour the specified engine coolant up to the radiator inlet.

**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



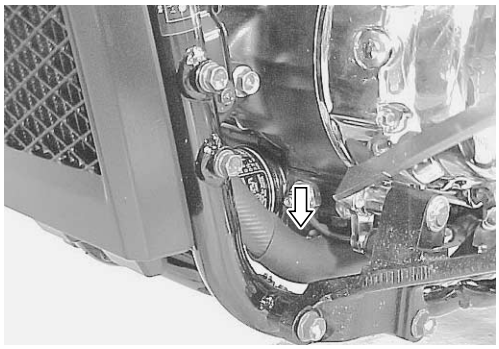
- Add engine coolant up to the radiator inlet.
- Support the motorcycle upright.
- Slowly swing the motorcycle, right and left, to bleed the air trapped in the cooling circuit.
- Add engine coolant up to the radiator inlet.
- Start up the engine and bleed air from the radiator inlet completely.
- Add 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):**
**1 500 ml (1.6/1.3 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.