

## FOREWORD

This manual contains an introductory description on the SUZUKI GSX-R600 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

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 information required to properly inspect and service GSX-R600 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.

## GROUP INDEX

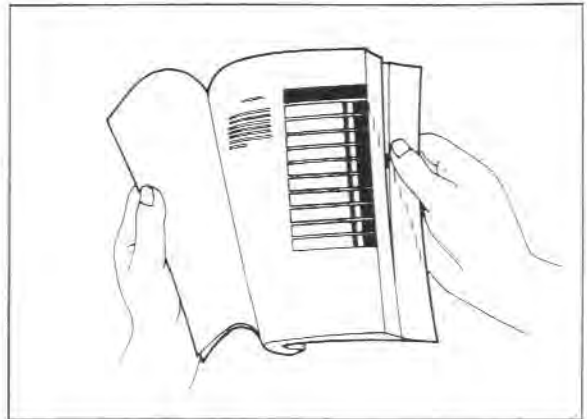
|                              |    |
|------------------------------|----|
| GENERAL INFORMATION          | 1  |
| PERIODIC MAINTENANCE         | 2  |
| ENGINE                       | 3  |
| FUEL AND LUBRICATION SYSTEM  | 4  |
| COOLING SYSTEM               | 5  |
| CHASSIS                      | 6  |
| ELECTRICAL SYSTEM            | 7  |
| SERVICING INFORMATION        | 8  |
| EMISSION CONTROL INFORMATION | 9  |
| GSX-R600W ('98-MODEL)        | 10 |
| GSX-R600X ('99-MODEL)        | 11 |

**SUZUKI MOTOR CORPORATION**  
Motorcycle Service Department

## HOW TO USE THIS MANUAL

### TO LOCATE WHAT YOU ARE LOOKING FOR:

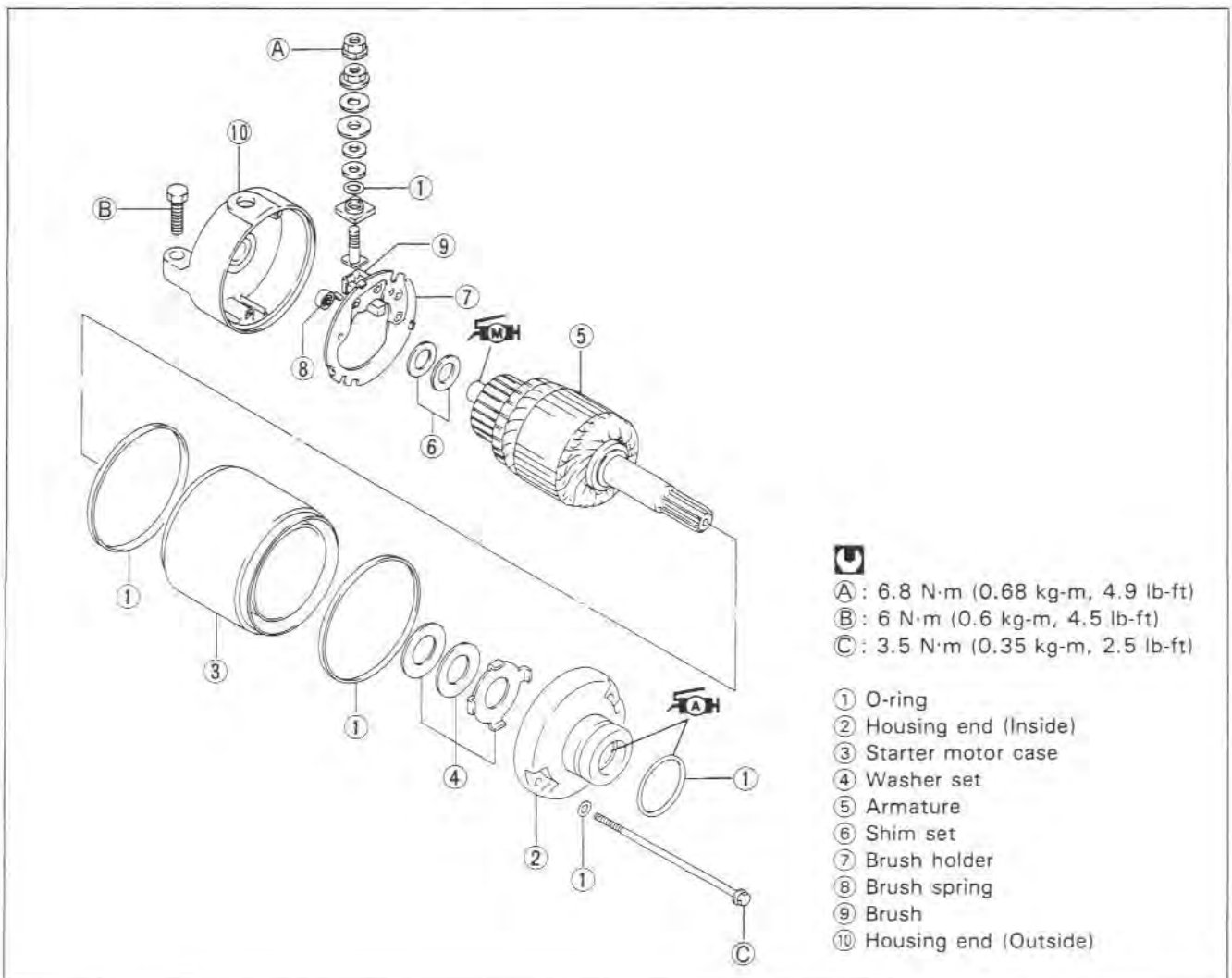
1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help find the item and page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



## COMPONENT PARTS AND WORK TO BE DONE

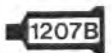
Under the name of each system or unit, is its exploded view. Work instructions and other service information such as the tightening torque, lubricating points and locking agent points, are provided.

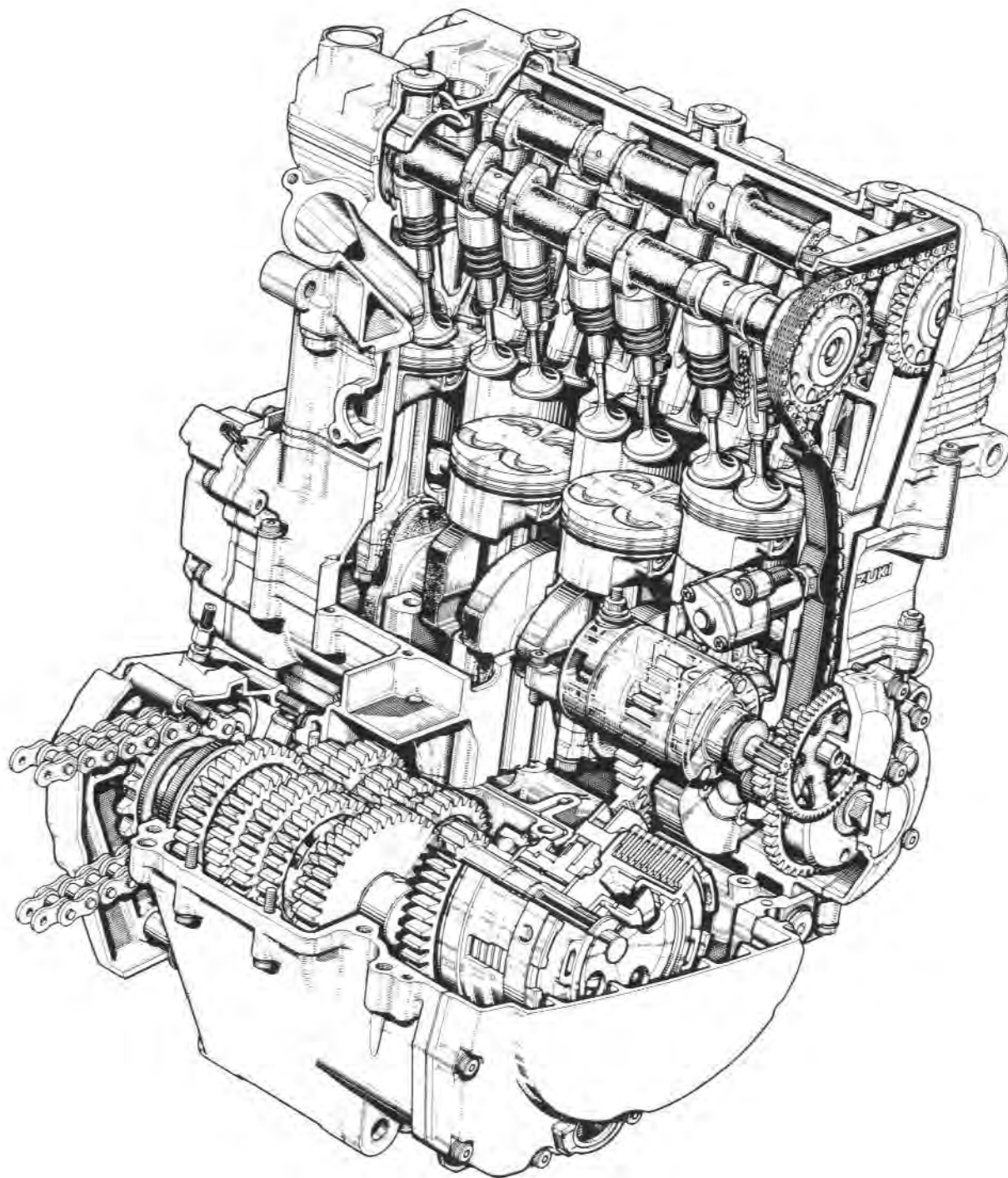
Example: Starter motor



## SYMBOL

Listed in the table below are the symbols indicating instructions and other information necessary for servicing and meaning associated with them respectively.

| SYMBOL                                                                              | DEFINITION                                                             | SYMBOL                                                                              | DEFINITION                        |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|
|    | Torque control required.<br>Data beside it indicates specified torque. |    | Measure in voltage range.         |
|    | Apply oil. Use engine oil unless otherwise specified.                  |    | Measure in resistance range.      |
|    | Apply SUZUKI SUPER GREASE "A".<br>99000-25030                          |    | Measure in current range.         |
|    | Apply SUZUKI MOLY PASTE.<br>99000-25140                                |    | Measure in diode test range       |
|    | Apply SUZUKI BOND "1207B"<br>99104-31140                               |    | Measure in continuity test range. |
|  | Apply THREAD LOCK SUPER "1303".<br>99000-32030                         |  | Use special tool.                 |
|  | Apply THREAD LOCK "1342"<br>99000-32050                                |  | Use engine coolant.               |
|  | Apply THREAD LOCK SUPER "1360".<br>99000-32130                         |  | Use fork oil.<br>99000-99044-10G  |
|  | Apply or use brake fluid.                                              |                                                                                     |                                   |



# GENERAL INFORMATION

1

## CONTENTS

|                                                          |             |
|----------------------------------------------------------|-------------|
| <b>WARNING/CAUTION/NOTE .....</b>                        | <b>1- 1</b> |
| <b>GENERAL PRECAUTIONS .....</b>                         | <b>1- 1</b> |
| <b>SUZUKI GSX-R600V ('97-MODEL) .....</b>                | <b>1- 3</b> |
| <b>SERIAL NUMBER LOCATION .....</b>                      | <b>1- 3</b> |
| <b>FUEL, OIL AND ENGINE COOLANT RECOMMENDATION .....</b> | <b>1- 3</b> |
| <b>FUEL .....</b>                                        | <b>1- 3</b> |
| <b>ENGINE OIL .....</b>                                  | <b>1- 4</b> |
| <b>BRAKE FLUID .....</b>                                 | <b>1- 4</b> |
| <b>FRONT FORK OIL .....</b>                              | <b>1- 4</b> |
| <b>ENGINE COOLANT .....</b>                              | <b>1- 4</b> |
| <b>WATER FOR MIXING .....</b>                            | <b>1- 4</b> |
| <b>ANTI-FREEZE/ENGINE COOLANT .....</b>                  | <b>1- 4</b> |
| <b>LIQUID AMOUNT OF WATER/ENGINE COOLANT .....</b>       | <b>1- 4</b> |
| <b>BREAK-IN PROCEDURES .....</b>                         | <b>1- 5</b> |
| <b>CYLINDER IDENTIFICATION .....</b>                     | <b>1- 5</b> |
| <b>INFORMATION LABELS .....</b>                          | <b>1- 6</b> |
| <b>SPECIFICATIONS .....</b>                              | <b>1- 8</b> |
| <b>COUNTRY OR AREA .....</b>                             | <b>1-10</b> |

## 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 2 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, water, exhaust or brake systems, check all 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 and orientation.
- 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 lubricant, bond, or sealant.
- When removing the battery, disconnect the negative cable first and then the positive cable. When reconnecting the battery, connect the positive cable first and then the negative cable, and replace the terminal cover on the positive terminal.
- When performing service to electrical parts, if the service procedures not require use of battery power, disconnect the negative cable the battery.
- When tightening the cylinder head and case bolts and nuts, tighten the larger sizes first. Always tighten the bolts and nuts from the inside working out, in a crisscross manner.
- Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, self-locking nuts, cotter pins, circlips and certain other parts as specified, 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 that 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 and other fluids: batteries, and tires.
- To protect Earth's natural resources, properly dispose of used motorcycle and parts.

## SUZUKI GSX-R600V ('97-MODEL)



RIGHT SIDE



LEFT SIDE

\*Difference between photographs and actual motorcycles 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 rear 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 U.S.A. model)

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 guideline 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 Canadian model)

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

#### FUEL (For the other models)

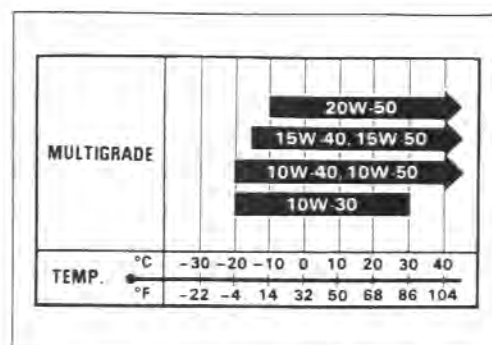
Gasoline used should be graded 85—95 octane (Research Method) or higher. An unleaded gasoline type is recommended.

## ENGINE OIL (For U.S.A. model)

SUZUKI recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or an oil which is rated 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 models)

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.



## BRAKE FLUID

Specification and classification; DOT 4

### ⚠ WARNING

Since the brake system of this motorcycle is filled with a glycol-based brake fluid by the manufacturer, do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will result.

Do not use any brake fluid taken from old or used or unsealed containers.

Never re-use brake fluid left over from a previous servicing, which has been stored for a long period.

## FRONT FORK OIL

Use fork oil # 10.

## ENGINE COOLANT

Use an anti-freeze/engine coolant compatible with an aluminum radiator, mixed with distilled water only.

## WATER FOR MIXING

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

## ANTI-FREEZE/ENGINE COOLANT

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

## LIQUID AMOUNT OF WATER/ENGINE COOLANT

Solution capacity (total): 2 550 ml (2.7/2.2 US/Imp qt)

For engine coolant mixture information, refer to cooling system section, page 5-4.

### ⚠ CAUTION

Mixing of anti-freeze/engine coolant should be limited to 60%. Mixing beyond it would reduce its efficiency. If the anti-freeze/engine coolant mixing ratio is below 50%, rust inhabiting performance is greatly reduced. Be sure to mix it above 50% even though the atmospheric temperature does not go down to the freezing point.

## BREAK-IN PROCEDURES

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

- Keep to these break-in engine speed limits:

Initial 800 km ( 500 miles): Below 6 500 r/min

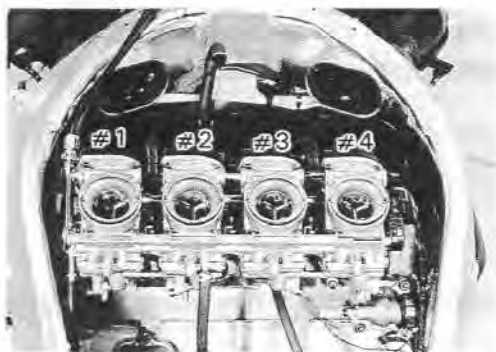
Up to 1 600 km (1000 miles): Below 10 000 r/min

Over 1 600 km (1000 miles): Below 13 400 r/min

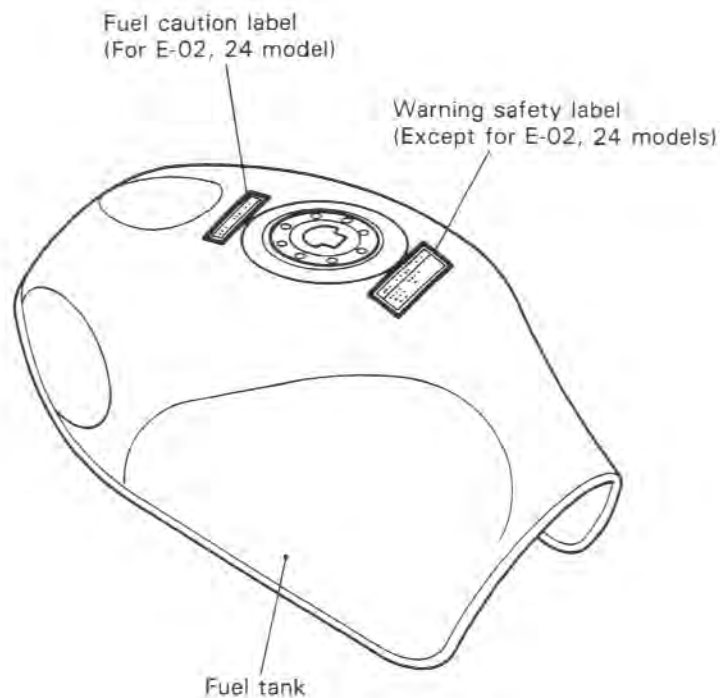
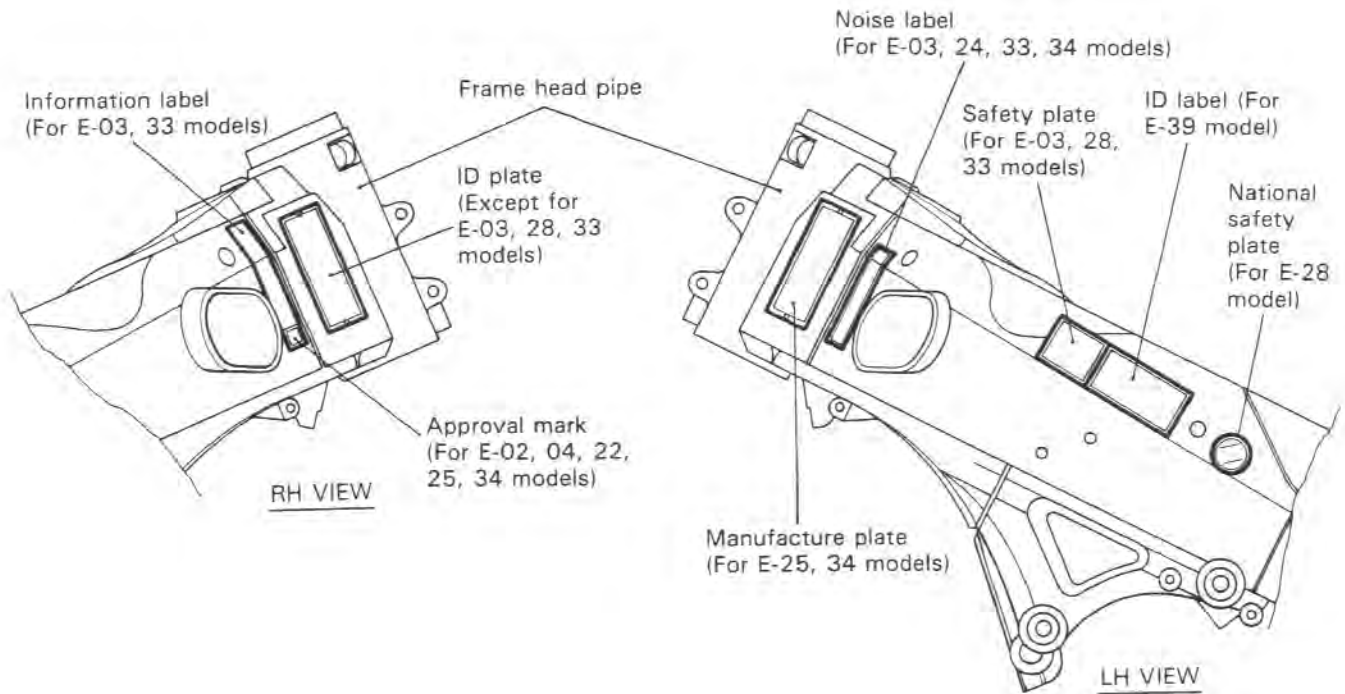
- Upon reaching an odometer reading of 1 600 km (1 000 miles) you can subject the motorcycle to full throttle operation. However, do not exceed 13 400 r/min at any time.

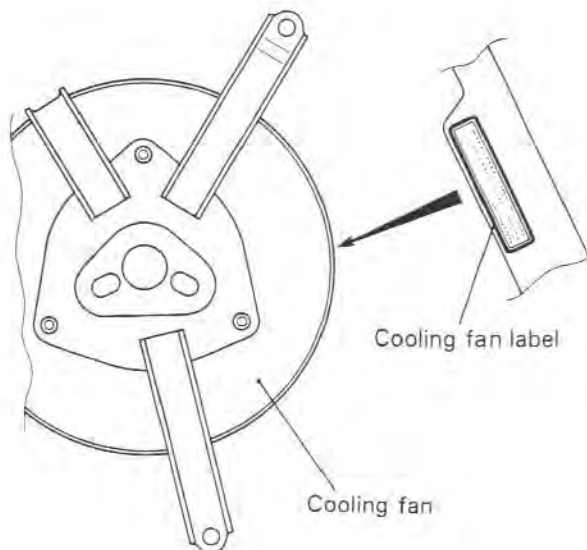
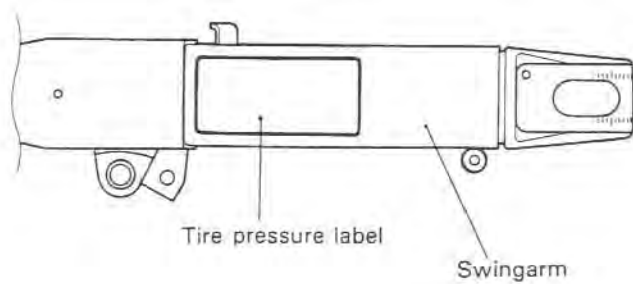
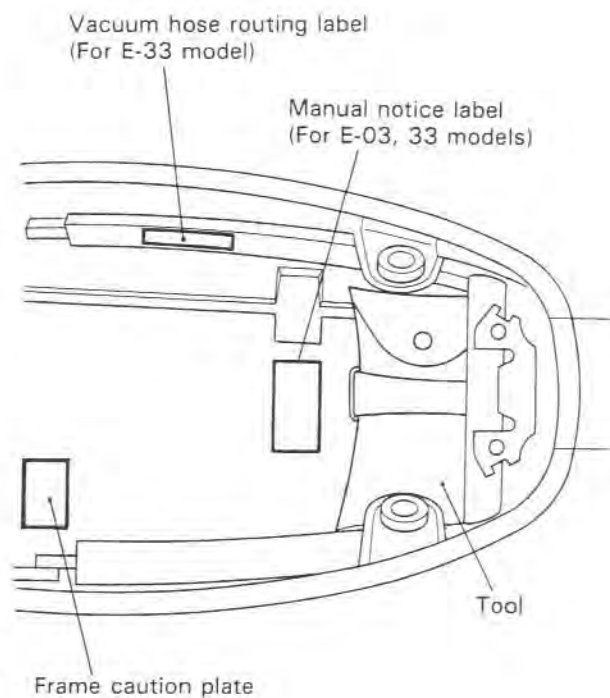
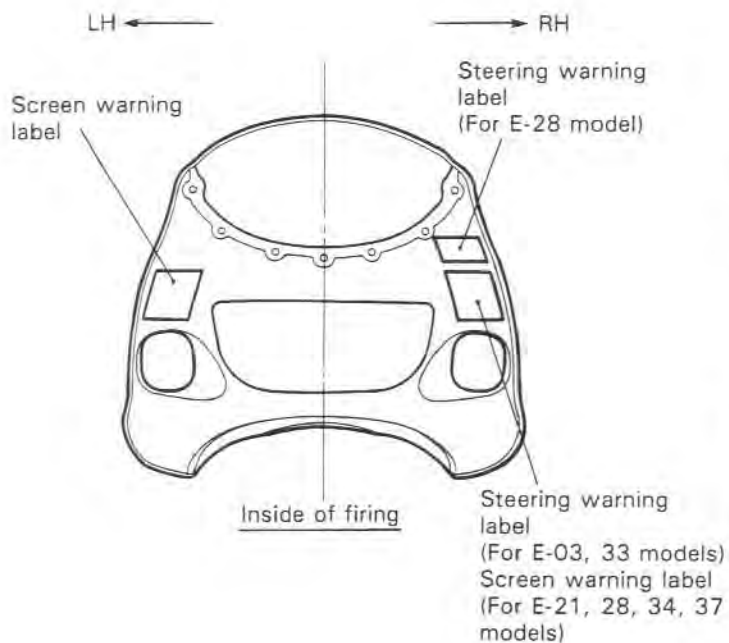
## CYLINDER IDENTIFICATION

The four cylinders of this engine are identified as No.1, No.2, No.3 and No.4 cylinder, as counted from left to right (as viewed by the rider on the seat).



## INFORMATION LABELS





## SPECIFICATIONS

### DIMENSIONS AND DRY MASS

|                        |                          |                          |
|------------------------|--------------------------|--------------------------|
| Overall length .....   | 2 100 mm (82.7 in) ..... | For E-18,22,24,39 models |
|                        | 2 065 mm (81.3 in) ..... | For other models         |
| Overall width .....    | 720 mm (28.3 in)         |                          |
| Overall height .....   | 1 135 mm (44.7 in)       |                          |
| Wheelbase .....        | 1 390 mm (54.7 in)       |                          |
| Ground clearance ..... | 130 mm ( 5.1 in)         |                          |
| Seat height .....      | 830 mm (32.7 in)         |                          |
| Dry mass .....         | 175 kg (386 lbs) .....   | For E-18,33,39 models    |
|                        | 174 kg (384 lbs) .....   | For other models         |

### ENGINE

|                            |                                        |
|----------------------------|----------------------------------------|
| Type .....                 | Four-stroke, Liquid-cooled, DOHC, TSCC |
| Number of cylinders .....  | 4                                      |
| Tappet clearance, IN ..... | 0.10—0.20 mm (0.004—0.008 in)          |
| EX .....                   | 0.20—0.30 mm (0.008—0.012 in)          |
| Bore .....                 | 65.5 mm (2.579 in)                     |
| Stroke .....               | 44.5 mm (1.752 in)                     |
| Piston displacement .....  | 600 cm <sup>3</sup> (36.6 cu. in)      |
| Compression ratio .....    | 12.0 : 1                               |
| Carburetor .....           | MIKUNI BDSR36                          |
| Air cleaner .....          | Non-woven fabric element               |
| Starter system .....       | Electric starter                       |
| Lubrication system .....   | Wet sump                               |

### TRANSMISSION

|                               |                                    |
|-------------------------------|------------------------------------|
| Clutch .....                  | Wet multi-plate type               |
| Transmission .....            | 6-speed constant mesh              |
| Gearshift pattern .....       | 1-down, 5-up                       |
| Primary reduction ratio ..... | 1.756 (72/41)                      |
| Gear ratios, Low .....        | 2.866 (43/15)                      |
| 2nd .....                     | 2.058 (35/17)                      |
| 3rd .....                     | 1.650 (33/20)                      |
| 4th .....                     | 1.428 (30/21)                      |
| 5th .....                     | 1.285 (27/21)                      |
| Top .....                     | 1.181 (26/22)                      |
| Final reduction ratio .....   | 2.812 (45/16)                      |
| Drive chain .....             | RK525SMOZ <sub>2</sub> , 108 links |

**CHASSIS**

|                         |                                                                                                                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Front suspension .....  | Telescopic, coil spring, oil damped, spring pre-load fully adjustable, rebound damping force fully adjustable.                                         |
| Rear suspension .....   | Link type system, gas/oil damped, coil spring, spring pre-load fully adjustable, rebound damping force and compression damping force fully adjustable. |
| Front fork stroke ..... | 120 mm (4.7 in)                                                                                                                                        |
| Rear wheel travel ..... | 133 mm (5.2 in)                                                                                                                                        |
| Steering angle .....    | 30° (right & left)                                                                                                                                     |
| Caster .....            | 24°                                                                                                                                                    |
| Trail .....             | 96 mm (3.8 in)                                                                                                                                         |
| Turning radius .....    | 3.1 mm (10.2 ft)                                                                                                                                       |
| Front brake .....       | Disc brake, twin, hydraulically operated                                                                                                               |
| Rear brake .....        | Disc brake, hydraulically operated                                                                                                                     |
| Front tire size .....   | 120/70 ZR17 (58W), tubeless                                                                                                                            |
| Rear tire size .....    | 180/55 ZR17 (73W), tubeless                                                                                                                            |

**ELECTRICAL**

|                                   |                                                                                          |
|-----------------------------------|------------------------------------------------------------------------------------------|
| Ignition type .....               | Electronic ignition (CDI)                                                                |
| Ignition timing .....             | 5° B.T.D.C. at 1 500 r/min                                                               |
| Spark plug .....                  | N.G.K. CR9E, NIPPONDENSO U27ESR-N                                                        |
| Battery .....                     | 12V 28.8 kC (8 Ah)/10HR                                                                  |
| Generator .....                   | Three-phase A.C. Generator                                                               |
| Main fuse .....                   | 30A                                                                                      |
| Fuse .....                        | 15/15/10/15/10A                                                                          |
| Headlight .....                   | 12V 55/50W × 2 ..... E-02,03,24,28,33 models<br>12V 55W + 12V 55W ..... For other models |
| Turn signal light .....           | 12V 21W                                                                                  |
| Front position light .....        | 12V 5W ..... Except for E-03,24,28,33 models                                             |
| Tail/Brake light .....            | 12V 5/21W × 2                                                                            |
| Speedometer light .....           | 12V 1.7W                                                                                 |
| Tachometer light .....            | 12V 1.7W                                                                                 |
| Neutral indicator light .....     | 12V 1.7W                                                                                 |
| High beam indicator light .....   | 12V 1.7W                                                                                 |
| Turn signal indicator light ..... | 12V 1.7W                                                                                 |
| Fuel indicator light .....        | 12V 1.7W                                                                                 |

**CAPACITIES**

|                                    |                              |
|------------------------------------|------------------------------|
| Fuel tank, including reserve ..... | 18.0 L (4.8/4.0 US/Imp gal)  |
| Engine oil, oil change .....       | 2 600 ml (2.7/2.3 US/Imp qt) |
| with filter change .....           | 2 800 ml (3.0/2.5 US/Imp qt) |
| overhaul .....                     | 3 500 ml (3.7/3.1 US/Imp qt) |
| Coolant .....                      | 2 550 ml (2.7/2.2 US/Imp qt) |

These specifications are subject to change without notice.

## COUNTRY OR AREA

The series of symbols on the left stand for the countries or area on the right.

| SYMBOL | COUNTRY or AREA            |
|--------|----------------------------|
| E-02   | England                    |
| E-03   | U.S.A. (except California) |
| E-04   | France                     |
| E-15   | Finland                    |
| E-16   | Norway                     |
| E-17   | Sweden                     |
| E-18   | Switzerland                |
| E-21   | Belgium                    |
| E-22   | Germany                    |
| E-24   | Australia                  |
| E-25   | Netherlands                |
| E-28   | Canada                     |
| E-33   | California (U.S.A.)        |
| E-34   | Italy                      |
| E-37   | Brazil                     |
| E-39   | Austria                    |
| E-53   | Spain                      |

E-21 and 53 countries are included in E-34.

E-15 and 16 countries are included in E-17.