# Kawasaki Ninja ZX-10R


# Motorcycle Service Manual

# Quick Reference Guide



This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.
- Refer to the sectional table of contents for the exact pages to locate the desired topic or procedure.

Kawasaki

# Ninja ZX–10R

# Motorcycle Service Manual

## LIST OF ABBREVIATIONS

| | | | |
|---|---|---|---|
| A | ampere(s) | lb | pound(s) |
| ABDC | after bottom dead center | m | meter(s) |
| AC | alternating current | min | minute(s) |
| ATDC | after top dead center | N | newton(s) |
| BBDC | before bottom dead center | Pa | pascal(s) |
| BDC | bottom dead center | PS | horsepower |
| BTDC | before top dead center | psi | pound(s) per square inch |
| °C | degree(s) Celsius | r | revolution |
| DC | direct current | rpm | revolution(s) per minute |
| F | farad(s) | TDC | top dead center |
| °F | degree(s) Fahrenheit | TIR | total indicator reading |
| ft | foot, feet | V | volt(s) |
| g | gram(s) | W | watt(s) |
| h | hour(s) | Ω | ohm(s) |
| L | liter(s) | | |

**Read OWNER'S MANUAL before operating.**

# EMISSION CONTROL INFORMATION

To protect the environment in which we all live, Kawasaki has incorporated crankcase emission (1) and exhaust emission (2) control systems in compliance with applicable regulations of the United States Environmental Protection Agency and California Air Resources Board. Additionally, Kawasaki has incorporated an evaporative emission control system (3) in compliance with applicable regulations of the California Air Resources Board on vehicles sold in California only.

1. Crankcase Emission Control System

This system eliminates the release of crankcase vapors into the atmosphere. Instead, the vapors are routed through an oil separator to the inlet side of the engine. While the engine is operating, the vapors are drawn into combustion chamber, where they are burned along with the fuel and air supplied by the fuel injection system.

2. Exhaust Emission Control System

This system reduces the amount of pollutants discharged into the atmosphere by the exhaust of this motorcycle. The fuel, ignition, and exhaust systems of this motorcycle have been carefully designed and constructed to ensure an efficient engine with low exhaust pollutant levels.

The exhaust system of this model motorcycle manufactured primarily for sale in California includes a catalytic converter system.

3. Evaporative Emission Control System

Vapors caused by fuel evaporation in the fuel system are not vented into the atmosphere. Instead, fuel vapors are routed into the running engine to be burned, or stored in a canister when the engine is stopped. Liquid fuel is caught by a vapor separator and returned to the fuel tank.

The Clean Air Act, which is the Federal law covering motor vehicle pollution, contains what is commonly referred to as the Act's "tampering provisions."

"Sec. 203(a) The following acts and the causing thereof are prohibited...

(3)(A) for any person to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title prior to its sale and delivery to the ultimate purchaser, or for any manufacturer or dealer knowingly to remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser.

(3)(B) for any person engaged in the business of repairing, servicing, selling, leasing, or trading motor vehicles or motor vehicle engines, or who operates a fleet of motor vehicles knowingly to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title following its sale and delivery to the ultimate purchaser..."

## NOTE

○ *The phrase "remove or render inoperative any device or element of design" has been generally interpreted as follows:*

1. *Tampering does not include the temporary removal or rendering inoperative of devices or elements of design in order to perform maintenance.*
2. *Tampering could include:*
   a. *Maladjustment of vehicle components such that the emission standards are exceeded.*
   b. *Use of replacement parts or accessories which adversely affect the performance or durability of the motorcycle.*
   c. *Addition of components or accessories that result in the vehicle exceeding the standards.*
   d. *Permanently removing, disconnecting, or rendering inoperative any component or element of design of the emission control systems.*

**WE RECOMMEND THAT ALL DEALERS OBSERVE THESE PROVISIONS OF FEDERAL LAW, THE VIOLATION OF WHICH IS PUNISHABLE BY CIVIL PENALTIES NOT EXCEEDING $10,000 PER VIOLATION.**

# TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

- Replacement of the original exhaust system or muffler with a component not in compliance with Federal regulations.
- Removal of the muffler(s) or any internal portion of the muffler(s).
- Removal of the air box or air box cover.
- Modifications to the muffler(s) or air inlet system by cutting, drilling, or other means if such modifications result in increased noise levels.

# Foreword

This manual is designed primarily for use by trained mechanics in a properly equipped shop. However, it contains enough detail and basic information to make it useful to the owner who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and workshop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the owner has insufficient experience or doubts his ability to do the work, all adjustments, maintenance, and repair should be carried out only by qualified mechanics.

In order to perform the work efficiently and to avoid costly mistakes, read the text, thoroughly familiarize yourself with the procedures before starting work, and then do the work carefully in a clean area. Whenever special tools or equipment are specified, do not use makeshift tools or equipment. Precision measurements can only be made if the proper instruments are used, and the use of substitute tools may adversely affect safe operation.

**For the duration of the warranty period,** we recommend that all repairs and scheduled maintenance be performed in accordance with this service manual. Any owner maintenance or repair procedure not performed in accordance with this manual may void the warranty.

To get the longest life out of your vehicle:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki Motorcycle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki motorcycles are introduced by the Special Tool Catalog or Manual. Genuine parts provided as spare parts are listed in the Parts Catalog.
- Follow the procedures in this manual carefully. Don't take shortcuts.
- Remember to keep complete records of maintenance and repair with dates and any new parts installed.

## How to Use This Manual

In preparing this manual, we divided the product into its major systems. These systems became the manual's chapters. All information for a particular system from adjustment through disassembly and inspection is located in a single chapter.

The Quick Reference Guide shows you all of the product's system and assists in locating their chapters. Each chapter in turn has its own comprehensive Table of Contents.

The Periodic Maintenance Chart is located in the Periodic Maintenance chapter. The chart gives a time schedule for required maintenance operations.

If you want spark plug information, for example, go to the Periodic Maintenance Chart first. The chart tells you how frequently to clean and gap the plug. Next, use the Quick Reference Guide to locate the Periodic Maintenance chapter. Then, use the Table of Contents on the first page of the chapter to find the Spark Plug section.

Whenever you see these WARNING and CAUTION symbols, heed their instructions! Always follow safe operating and maintenance practices.

**⚠ WARNING**

**This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.**

**CAUTION**

**This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.**

This manual contains four more symbols (in addition to WARNING and CAUTION) which will help you distinguish different types of information.

## NOTE

○ *This note symbol indicates points of particular interest for more efficient and convenient operation.*

● Indicates a procedural step or work to be done.

○ Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a NOTE.

★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

In most chapters an exploded view illustration of the system components follows the Table of Contents. In these illustrations you will find the instructions indicating which parts require specified tightening torque, oil, grease or a locking agent during assembly.

# General Information



## Table of Contents

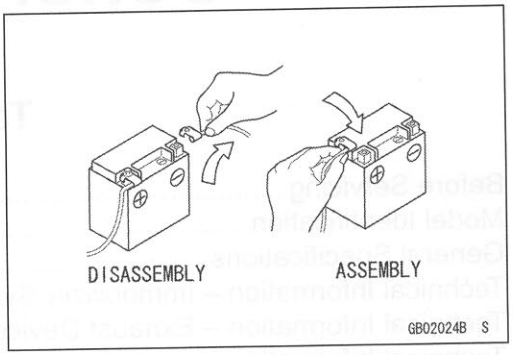
## Before Servicing

Before starting to perform an inspection service or carry out a disassembly and reassembly operation on a motorcycle, read the precautions given below. To facilitate actual operations, notes, illustrations, photographs, cautions, and detailed descriptions have been included in each chapter wherever necessary. This section explains the items that require particular attention during the removal and reinstallation or disassembly and reassembly of general parts.

Especially note the following:

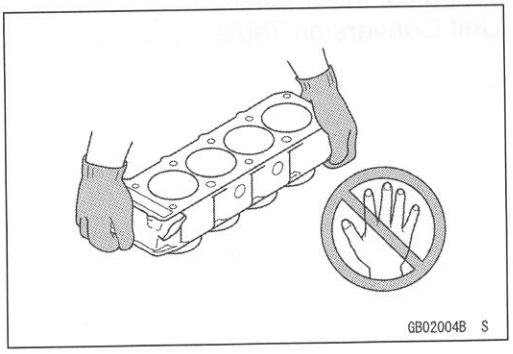
*Battery Ground*

Before completing any service on the motorcycle, disconnect the battery wires from the battery to prevent the engine from accidentally turning over. Disconnect the ground wire (–) first and then the positive (+). When completed with the service, first connect the positive (+) wire to the positive (+) terminal of the battery then the negative (-) wire to the negative terminal.



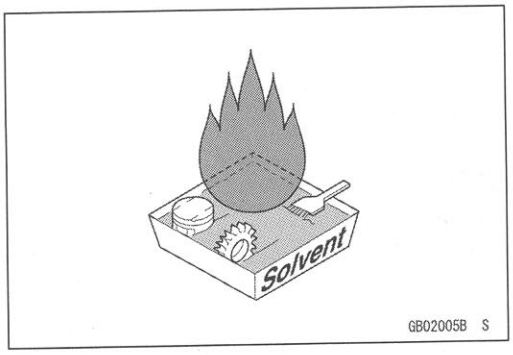

*Edges of Parts*

Lift large or heavy parts wearing gloves to prevent injury from possible sharp edges on the parts.



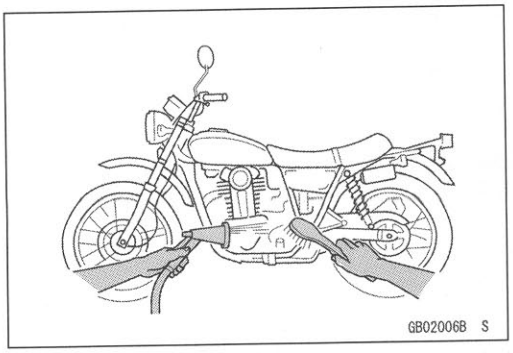

*Solvent*

Use a high flush point solvent when cleaning parts. High flush point solvent should be used according to directions of the solvent manufacturer.




*Cleaning vehicle before disassembly*

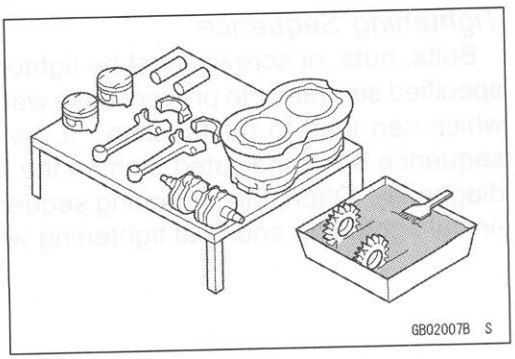
Clean the vehicle thoroughly before disassembly. Dirt or other foreign materials entering into sealed areas during vehicle disassembly can cause excessive wear and decrease performance of the vehicle.



## Before Servicing

*Arrangement and Cleaning of Removed Parts*

Disassembled parts are easy to confuse. Arrange the parts according to the order the parts were disassembled and clean the parts in order prior to assembly.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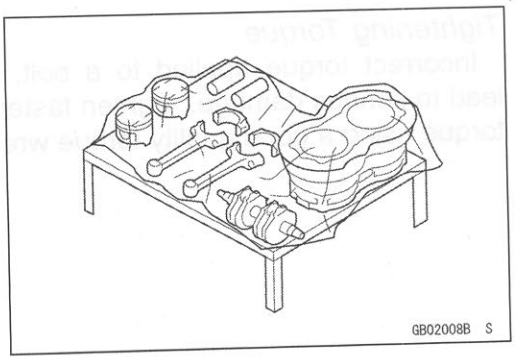
*Storage of Removed Parts*

After all the parts including subassembly parts have been cleaned, store the parts in a clean area. Put a clean cloth or plastic sheet over the parts to protect from any foreign materials that may collect before re-assembly.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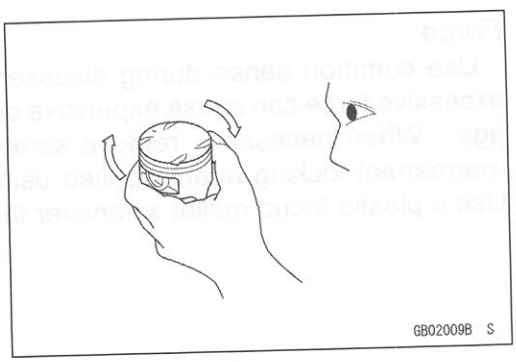
*Inspection*

Reuse of worn or damaged parts may lead to serious accident. Visually inspect removed parts for corrosion, discoloration, or other damage. Refer to the appropriate sections of this manual for service limits on individual parts. Replace the parts if any damage has been found or if the part is beyond its service limit.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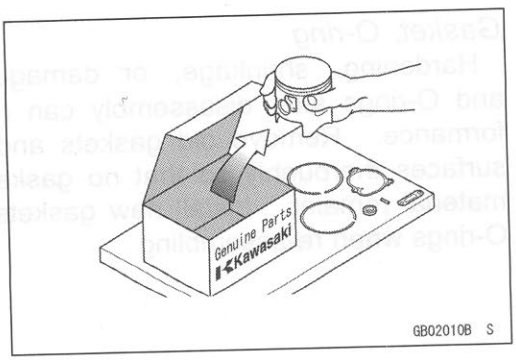
*Replacement Parts*

Replacement Parts must be KAWASAKI genuine or recommended by KAWASAKI. Gaskets, O rings, Oil seals, Grease seals, circlips or cotter pins must be replaced with new ones whenever disassembled.



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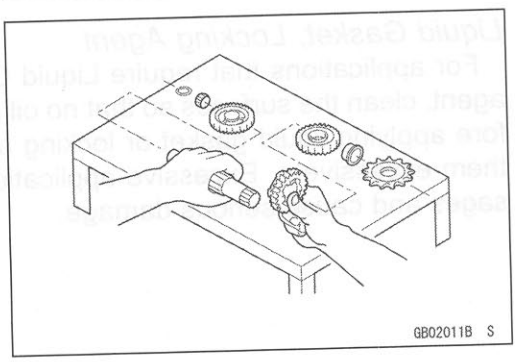
*Assembly Order*

In most cases assembly order is the reverse of disassembly, however, if assembly order is provided in this Service Manual, follow the procedures given.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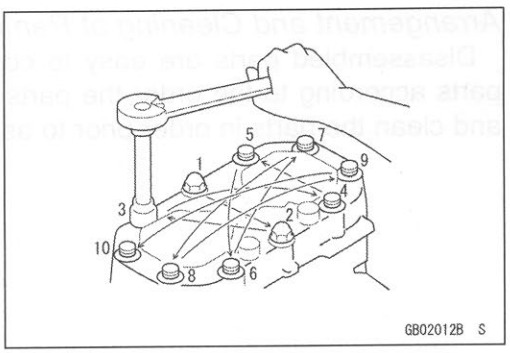
## Before Servicing

*Tightening Sequence*

Bolts, nuts, or screws must be tightened according to the specified sequence to prevent case warpage or deformation which can lead to malfunction. If the specified tightening sequence is not indicated, tighten the fasteners alternating diagonally. Often, the tightening sequence is followed twice -initial tightening and final tightening with torque wrench.



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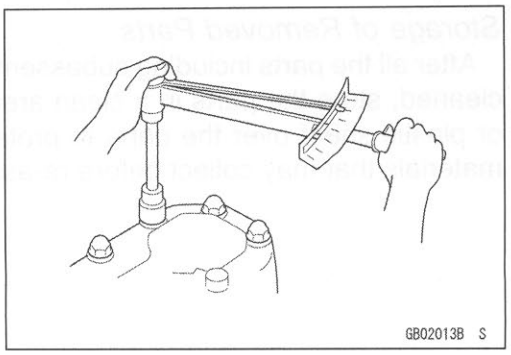
*Tightening Torque*

Incorrect torque applied to a bolt, nut, or screw may lead to serious damage. Tighten fasteners to the specified torque using a good quality torque wrench.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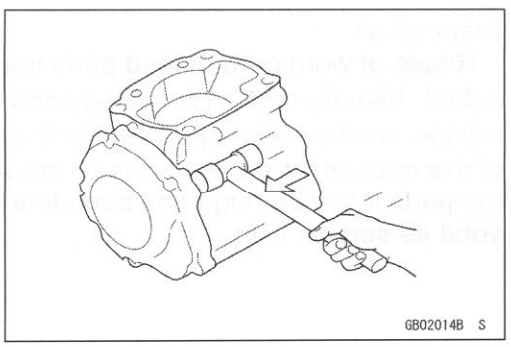
*Force*

Use common sense during disassembly and assembly, excessive force can cause expensive or hard to repair damage. When necessary, remove screws that have a non -permanent locking agent applied using an impact driver. Use a plastic-faced mallet whenever tapping is necessary.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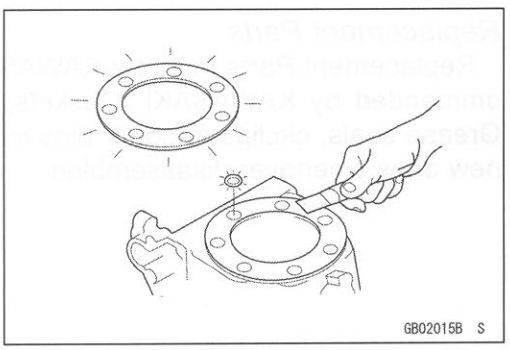
*Gasket, O-ring*

Hardening, shrinkage, or damage of both gaskets and O-rings after disassembly can reduce sealing performance. Remove old gaskets and clean the sealing surfaces thoroughly so that no gasket material or other material remains. Install new gaskets and replace used O-rings when re-assembling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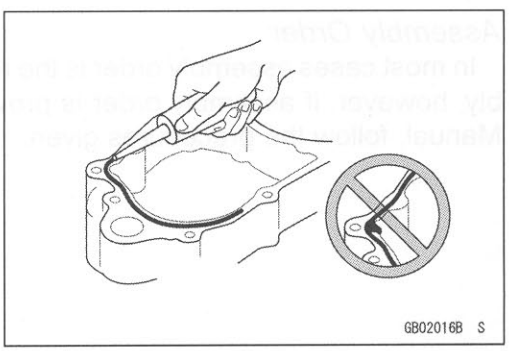
*Liquid Gasket, Locking Agent*

For applications that require Liquid Gasket or a Locking agent, clean the surfaces so that no oil residue remains before applying liquid gasket or locking agent. Do not apply them excessively. Excessive application can clog oil passages and cause serious damage.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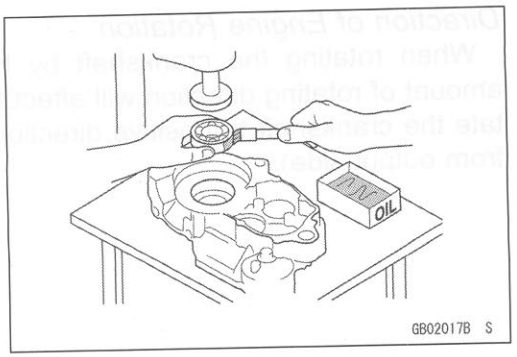
## Before Servicing

### *Press*

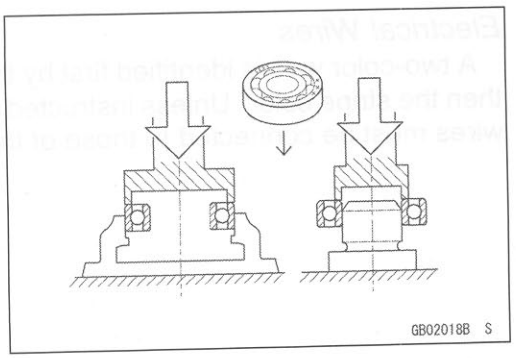
For items such as bearings or oil seals that must be pressed into place, apply small amount of oil to the contact area. Be sure to maintain proper alignment and use smooth movements when installing.




### *Ball Bearing and Needle Bearing*

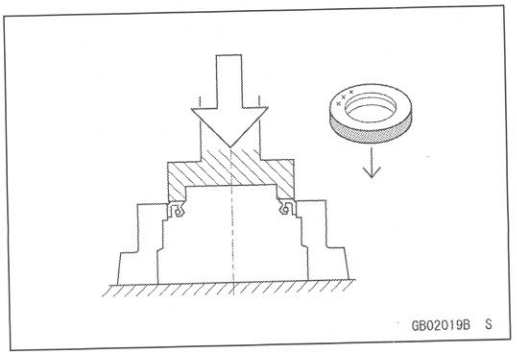
Do not remove pressed ball or needle unless removal is absolutely necessary. Replace with new ones whenever removed. Press bearings with the manufacturer and size marks facing out. Press the bearing into place by putting pressure on the correct bearing race as shown.

Pressing the incorrect race can cause pressure between the inner and outer race and result in bearing damage.



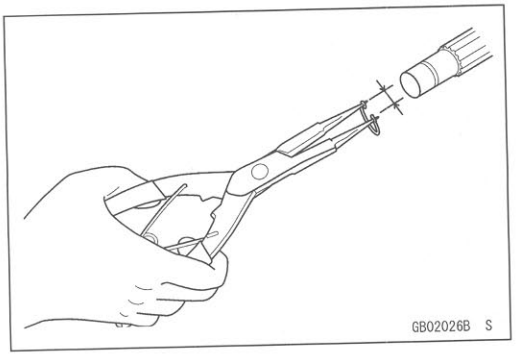

### *Oil Seal, Grease Seal*

Do not remove pressed oil or grease seals unless removal is necessary. Replace with new ones whenever removed. Press new oil seals with manufacture and size marks facing out. Make sure the seal is aligned properly when installing.



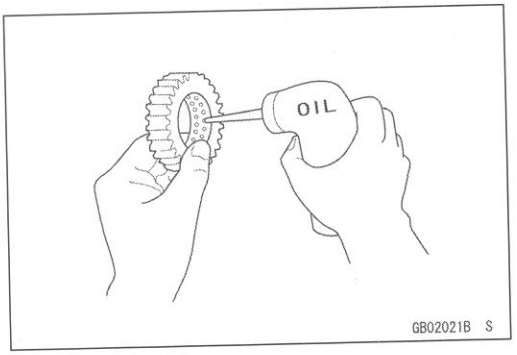

### *Circlips, Cotter Pins*

Replace circlips or cotter pins that were removed with new ones. Take care not to open the clip excessively when installing to prevent deformation.




### *Lubrication*

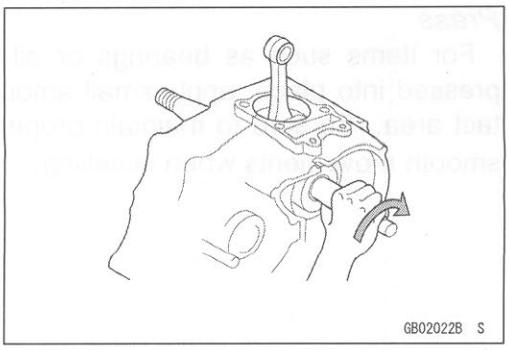
It is important to lubricate rotating or sliding parts during assembly to minimize wear during initial operation. Lubrication points are called out throughout this manual, apply the specific oil or grease as specified.



## Before Servicing

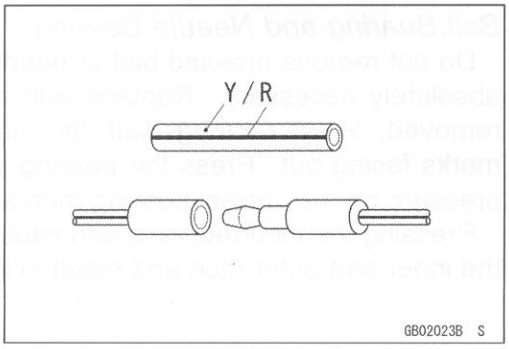
*Direction of Engine Rotation*

When rotating the crankshaft by hand, the free play amount of rotating direction will affect the adjustment. Rotate the crankshaft to positive direction (clockwise viewed from output side).




*Electrical Wires*

A two-color wire is identified first by the primary color and then the stripe color. Unless instructed otherwise, electrical wires must be connected to those of the same color.



## Model Identification

### ZX1000–C1 (Europe) Left Side View


### ZX1000–C1 (Europe) Right Side View

## Model Identification

### ZX1000–C1 (US and Canada) Left Side View


### ZX1000–C1 (US and Canada) Right Side View

## General Specifications

| Items | ZX1000–C1 (Ninja ZX–10R) |
|---|---|
| **Dimensions** | |
| Overall Length | 2 045 mm (80.5 in.) |
| Overall Width | 705 mm (27.8 in.) |
| Overall Height | 1 115 mm (43.9 in.) |
| Wheelbase | 1 385 mm (54.5 in.) |
| Road Clearance | 125 mm (4.9 in.) |
| Seat Height | 825 mm (32.5 in.) |
| Dry Mass | 170 kg (375 lb) |
| Curb Mass: | |
| Front | 102 kg (225 lb) |
| Rear | 94 kg (207 lb) |
| Fuel Tank Capacity | 17 L (4.5 US gal) |
| **Performance** | |
| Minimum Turning Radius | 3.3 m (10.8 ft) |
| **Engine** | |
| Type | 4-stroke, DOHC, 4-cylinder |
| Cooling System | Liquid-cooled |
| Bore and Stroke | 76.0 × 55.0 mm (3.0 × 2.2 in.) |
| Displacement | 998 mL (60.9 cu in.) |
| Compression Ratio | 12.7 : 1 |
| Maximum Horsepower | 128.4 kW (175 PS) @11 700 r/min (rpm),<br>(FR) 78.2 kW (106 PS) @11 500 r/min (rpm),<br>(CA), (CAL), (US) – – – |
| Maximum Torque | 115 N·m (11.7 kgf·m, 49 ft·lb) @9 500 r/min (rpm),<br>(CA), (CAL), (FR), (US) – – – |
| Carburetion System | FI (Fuel injection), MIKUNI 43EIDW |
| Starting System | Electric starter |
| Ignition System | Battery and coil (transistorized) |
| Timing Advance | Electronically advanced (digital igniter in ECU) |
| Ignition Timing | 10° BTDC @1 100 r/min (rpm) |
| Spark Plug | NGK CR9EIA–9 |
| Cylinder Numbering Method | Left to right, 1–2–3–4 |
| Firing Order | 1–2–4–3 |
| Valve Timing: | |
| Inlet: | |
| Open | 46° BTDC |
| Close | 74° ABDC |
| Duration | 300° |
| Exhaust: | |
| Open | 66° BBDC |
| Close | 46° ATDC |
| Duration | 292° |
| Lubrication System | Forced lubrication (wet sump with cooler) |

## General Specifications

| Items | ZX1000–C1 (Ninja ZX–10R) |
|---|---|
| Engine oil: | |
| Type | API SE, SF or SG<br>API SH or SJ with JASO MA |
| Viscosity | SAE10W–40 |
| Capacity | 3.7 L (3.9 US qt) |
| **Drive Train** | |
| Primary Reduction System: | |
| Type | Gear |
| Reduction Ratio | 1.611 (87/54) |
| Clutch Type | Wet multi disc |
| Transmission: | |
| Type | 6–speed, constant mesh, return shift |
| Gear Ratios: | |
| 1st | 2.533 (38/15) |
| 2nd | 2.053 (39/19) |
| 3rd | 1.737 (33/19) |
| 4th | 1.524 (32/21) |
| 5th | 1.381 (29/21) |
| 6th | 1.304 (30/23) |
| Final Drive System: | |
| Type | Chain drive |
| Reduction Ratio | 2.294 (39/17) |
| Overall Drive Ratio | 4.821 @Top gear |
| **Frame** | |
| Type | Tubular, diamond |
| Caster (Rake Angle) | 24° |
| Trail | 102 mm (4.0 in.) |
| Front Tire: | |
| Type | Tubeless |
| Size | 120/70 ZR17 M/C (58W) |
| Rear Tire: | |
| Type | Tubeless |
| Size | 190/50 ZR17 M/C (73W) |
| Front Suspension: | |
| Type | Telescopic fork (upside-down) |
| Wheel Travel | 120 mm (4.7 in.) |
| Rear Suspension: | |
| Type | Swingarm (uni-trak) |
| Wheel Travel | 125 mm (4.9 in.) |
| Brake Type: | |
| Front | Dual discs |
| Rear | Single disc |

## General Specifications

| Items | ZX1000–C1 (Ninja ZX–10R) |
|---|---|
| **Electrical Equipment** | |
| Battery | 12 V 10 Ah |
| Headlight: | |
| Type | Semi-sealed beam |
| Bulb: | |
| High | 12 V 55 W (quartz-halogen) × 2 |
| Low | 12 V 55 W (quartz-halogen) |
| Tail/Brake Light | 12 V 0.5/4.1 W (LED) |
| Alternator: | |
| Type | Three-phase AC |
| Rated Output | 30.3 A, 14 V @5 000 r/min (rpm) |

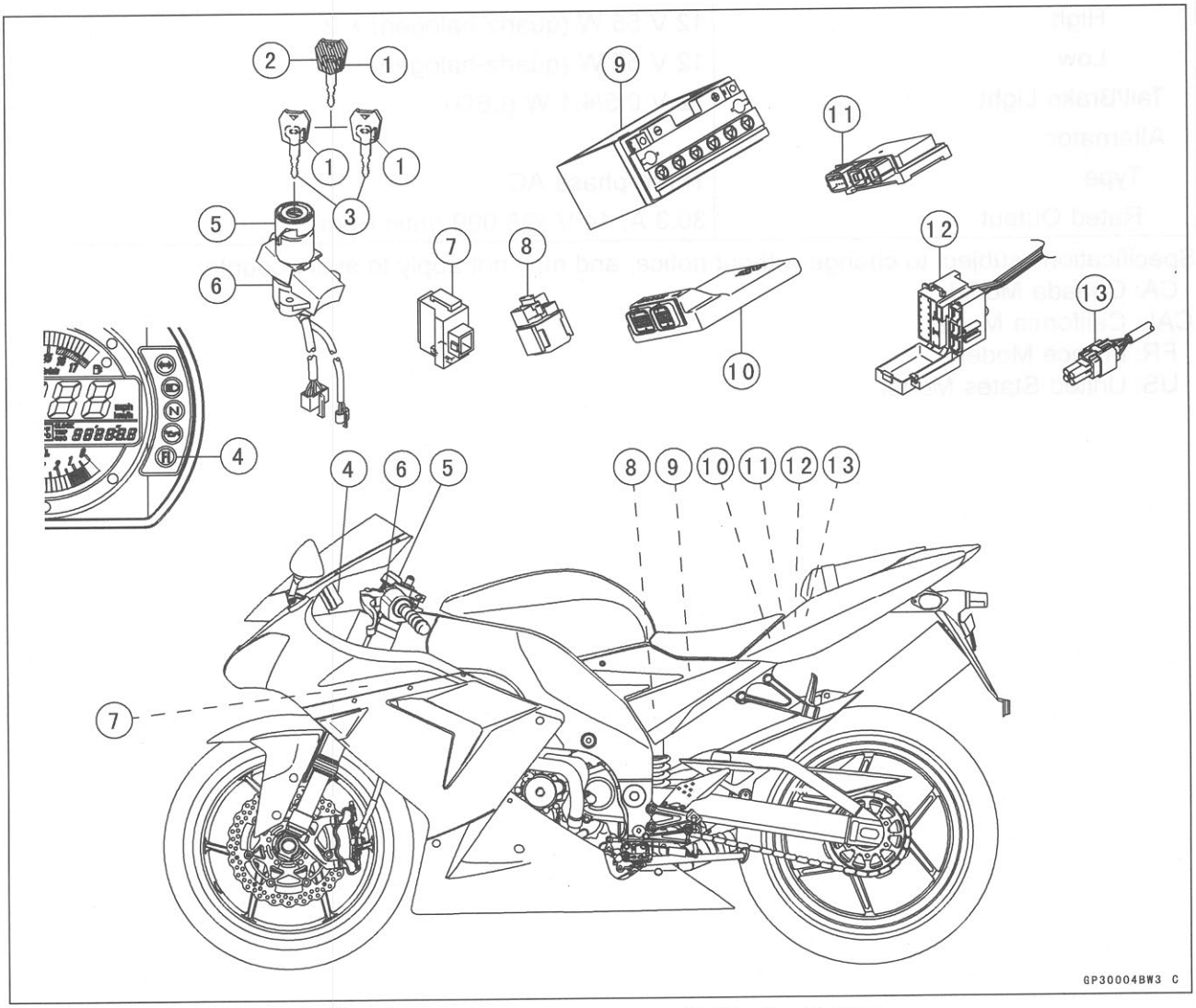
Specifications subject to change without notice, and may not apply to every country.
CA: Canada Model
CAL: California Model
FR: France Model
US: United States Model

## Technical Information – Immobilizer System

*Overview*

This system provides a theft proof device by means of matching a code between the inbuilt key transponder and the ECU (Electronic Control Unit). If this code does not match, the fuel pump, injectors, ignition system, sub-throttle valve actuator and exhaust butterfly valve actuator will not operate and the engine will not start.

*Related Parts and Function*




1. Transponder (Inside Keys)
2. Master Key
3. User Keys
4. FI Indicator Light
5. Immobilizer Antenna
6. Ignition Switch
7. Immobilizer Amplifier
8. Starter Relay
9. Battery
10. Electronic Control Unit (ECU)
11. Relay Box
12. Fuse Box
13. Immobilizer/Kawasaki Diagnostic System Connector

**Master Key (1 piece)**

The master key (colored red) has an inbuilt transponder, containing a master key code. These codes are unique to each key. This code and an additional two user key codes must be registered in the ECU for the system to operate. The master key is necessary when registering user keys and should not be used as the main key to start the motorcycle except in emergencies (loss or damage of user keys). It should be kept in a safe place.

## Technical Information – Immobilizer System

**Transponder (in Keys)**

The transponder (made by Texas Instruments, Inc.) has an integrated circuit with a unique code that also calculates data sent by the ECU. When the ignition switch is turned ON, the transponder is excited by the radio wave transmitted from the antenna and then transmits a unique code to the antenna.

**User Key (2 pieces)**

The user keys (colored black) should be used when riding the motorcycle. These keys have unique codes which differ from the master key. Up to a maximum of five user key codes can be stored by the ECU at any one time. These codes can not be registered to the ECU without firstly registering the master key code.

**Antenna**

The antenna transmits a radio wave to excite the transponder, receives the code from the transponder and then transmits the code to the ECU through the amplifier.

**Ignition Switch**

The ignition switch turns the main circuit ON and OFF.

**Amplifier**

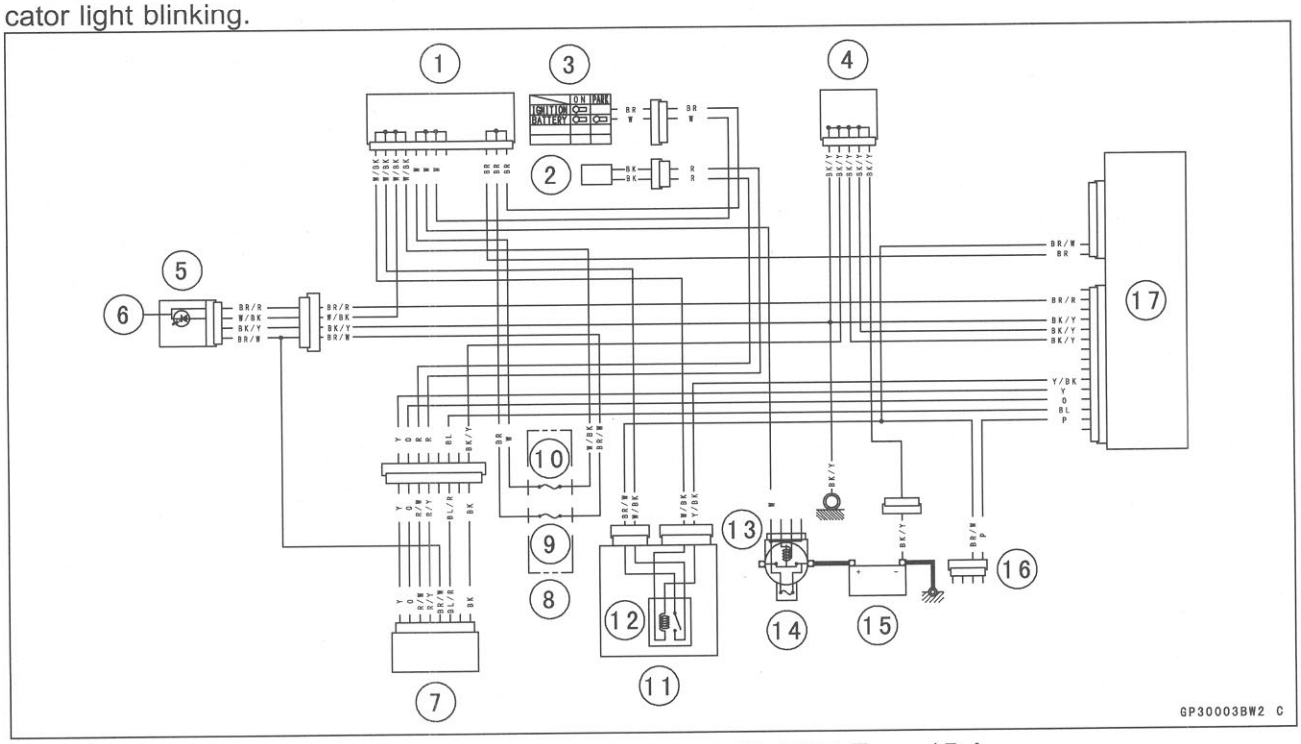
The amplifier (which is approximately the same size as a match box), amplifies signals from the antenna and the ECU.

**ECU**

The ECU has the capacity to store a maximum of six key code memories (one master and five user keys). The owner can have a total of five user keys at any one time. The master key memory can not be rewritten after initial registration, whereas the user key memories can be rewritten as necessary. When the ECU communicates with the transponder, a cipher generator changes the code every time it is used to avoid cloning.

**FI Indicator Light**

The condition or the failure of the immobilizer system is indicated by various patterns of the FI indicator light blinking.




1. Joint Connector 4
2. Immobilizer Antenna
3. Ignition Switch
4. Joint Connector 2
5. Meter Unit
6. FI Indicator Light
7. Immobilizer Amplifier
10. ECU Fuse 15 A
11. Relay Box
12. ECU Main Relay
13. Starter Relay
14. Main Fuse 30 A
15. Battery 12 V 10 Ah
16. Immobilizer/Kawasaki Diagnostic System

## Technical Information – Immobilizer System

*Sequence of Operation*

1. Turn ON the ignition switch, the ECU, amplifier and antenna start working, and the meter assembly FI indicator lights up.
2. The transponder excited by radio waves transmitted from the antenna receives the ciphered code from the ECU.
3. The transponder transmits the calculated result from the key's unique code to the ECU.
4. The ECU compares this with its memorized code, and if they match the engine can start. At this time, the FI indicator in the meter assembly is switched off.

## Technical Information – Exhaust Device System

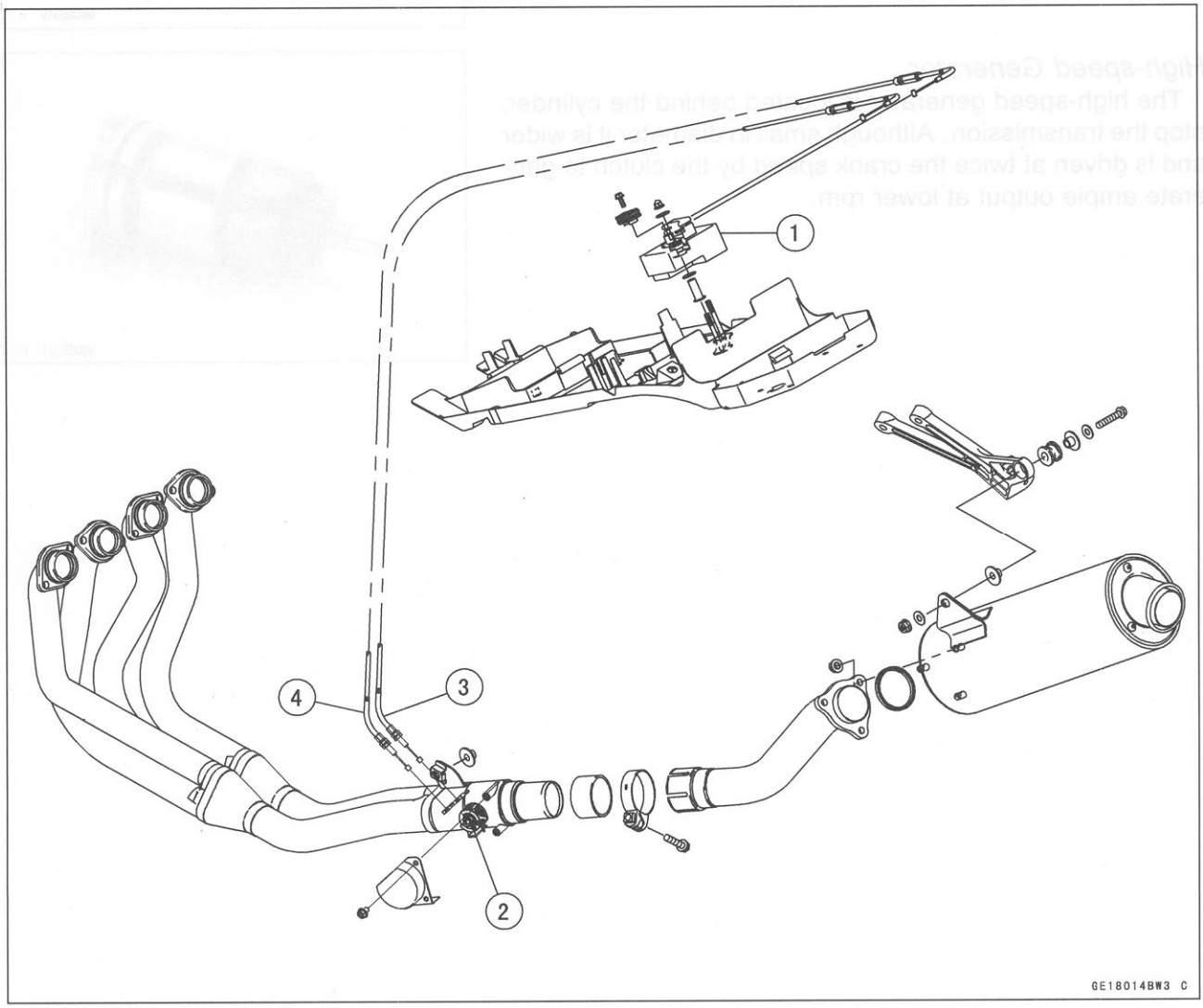
### Exhaust Device System

The exhaust device system consists of the ECU, exhaust butterfly valve, exhaust butterfly valve actuator and exhaust device cables.

Exhaust butterfly valve is installed in the exhaust pipe end. Exhaust butterfly valve actuator is under the seat. The exhaust butterfly valve is operated by the exhaust device cables. Exhaust device system is designed to improve the engine torque at low engine rpms and to reduce the exhaust noise.

Information on RPM, the throttle position, and the gear position sensor is sent to ECU and controlled.

The instruction from ECU is received, exhaust butterfly valve actuator is moved, and exhaust butterfly valve is opened and closed through the cable.

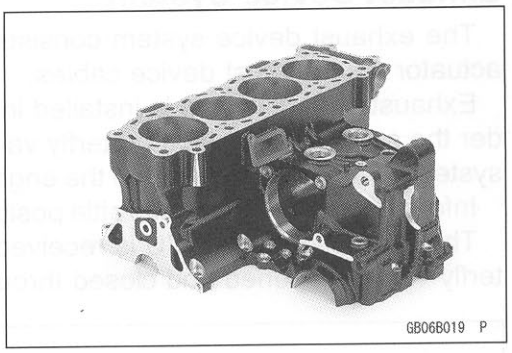



1. Exhaust Butterfly Valve Actuator
2. Exhaust Butterfly Valve
3. Open Cable (Yellow)
4. Close Cable (Green)

## Technical Information

*Crankcase Upper*

Crankcase upper and cylinder are a one piece casting, permitting light weight and compact engine.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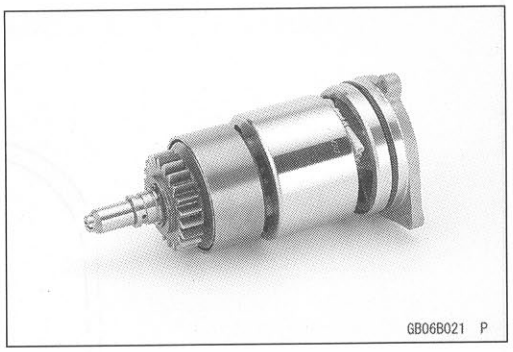
*High-speed Generator*

The high-speed generator is located behind the cylinder, atop the transmission. Although small in diameter it is wider and is driven at twice the crank speed by the clutch to generate ample output at lower rpm.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## Unit Conversion Table

### Prefixes for Units:

| Prefix | Symbol | Power |
|---|---|---|
| mega | M | × 1 000 000 |
| kilo | k | × 1 000 |
| centi | c | × 0.01 |
| milli | m | × 0.001 |
| micro | μ | × 0.000001 |

### Units of Mass:

| | | | | |
|---|---|---|---|---|
| kg | × | 2.205 | = | lb |
| g | × | 0.03527 | = | oz |

### Units of Volume:

| | | | | |
|---|---|---|---|---|
| L | × | 0.2642 | = | gal (US) |
| L | × | 0.2200 | = | gal (imp) |
| L | × | 1.057 | = | qt (US) |
| L | × | 0.8799 | = | qt (imp) |
| L | × | 2.113 | = | pint (US) |
| L | × | 1.816 | = | pint (imp) |
| mL | × | 0.03381 | = | oz (US) |
| mL | × | 0.02816 | = | oz (imp) |
| mL | × | 0.06102 | = | cu in |

### Units of Force:

| | | | | |
|---|---|---|---|---|
| N | × | 0.1020 | = | kg |
| N | × | 0.2248 | = | lb |
| kg | × | 9.807 | = | N |
| kg | × | 2.205 | = | lb |

### Units of Length:

| | | | | |
|---|---|---|---|---|
| km | × | 0.6214 | = | mile |
| m | × | 3.281 | = | ft |
| mm | × | 0.03937 | = | in |

### Units of Torque:

| | | | | |
|---|---|---|---|---|
| N·m | × | 0.1020 | = | kgf·m |
| N·m | × | 0.7376 | = | ft·lb |
| N·m | × | 8.851 | = | in·lb |
| kgf·m | × | 9.807 | = | N·m |
| kgf·m | × | 7.233 | = | ft·lb |
| kgf·m | × | 86.80 | = | in·lb |

### Units of Pressure:

| | | | | |
|---|---|---|---|---|
| kPa | × | 0.01020 | = | kgf/cm² |
| kPa | × | 0.1450 | = | psi |
| kPa | × | 0.7501 | = | cm Hg |
| kgf/cm² | × | 98.07 | = | kPa |
| kgf/cm² | × | 14.22 | = | psi |
| cm Hg | × | 1.333 | = | kPa |

### Units of Speed:

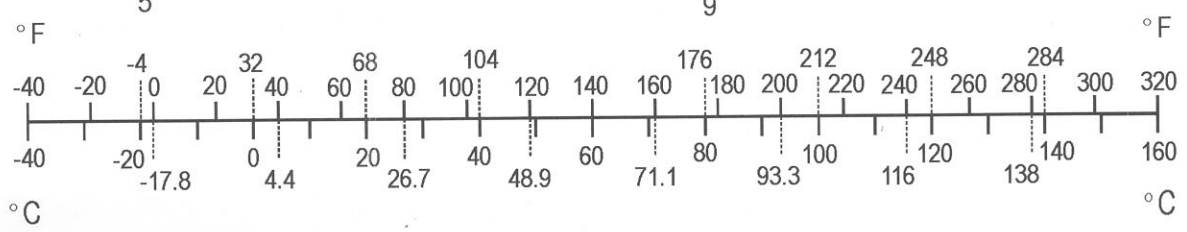
| | | | | |
|---|---|---|---|---|
| km/h | × | 0.6214 | = | mph |

### Units of Power:

| | | | | |
|---|---|---|---|---|
| kW | × | 1.360 | = | PS |
| kW | × | 1.341 | = | HP |
| PS | × | 0.7355 | = | kW |
| PS | × | 0.9863 | = | HP |

### Units of Temperature:

$$\frac{9\,(°C + 40)}{5} - 40 = °F \qquad \frac{5\,(°F + 40)}{9} - 40 = °C$$



# Periodic Maintenance



## Table of Contents

## Periodic Maintenance Chart

The scheduled maintenance must be done in accordance with this chart to keep the motorcycle in good running condition. **The initial maintenance is vitally important and must not be neglected.**

### Periodic Inspection

| INSPECTION | FREQUENCY: Whichever comes first ➡ / Every ⬇ | * ODOMETER READING × 1000 km (× 1000 mile): 1 (0.6) | 6 (4) | 12 (7.5) | 18 (12) | 24 (15) | 30 (20) | 36 (24) | See Page |
|---|---|---|---|---|---|---|---|---|---|
| **Steering System** | | | | | | | | | |
| Steering play - inspect | year | • | | • | | • | | • | 2–15 |
| Steering stem bearings - lubricate | 2 year | | | | | • | | | 2–16 |
| **Brake System** | | | | | | | | | |
| Brake fluid leak (brake hose and pipe) - inspect | year | • | • | • | • | • | • | • | 2–16 |
| Brake hose damage - inspect | year | • | • | • | • | • | • | • | 2–17 |
| Brake hose installation condition - inspect | year | • | • | • | • | • | • | • | 2–17 |
| Brake operation (effectiveness, play, no drag) - inspect | year | • | • | • | • | • | • | • | 2–17 |
| Brake fluid level - inspect | 6 month | • | • | • | • | • | • | • | 2–17 |
| Brake pad wear - inspect # | | | • | • | • | • | • | • | 2–18 |
| Brake light switch operation - inspect | | • | • | • | • | • | • | • | 2–18 |
| **Wheels and Tires** | | | | | | | | | |
| Tire air pressure - inspect | year | | | • | | • | | • | 2–19 |
| Wheel/tire damage - inspect | | | | • | | • | | • | 2–19 |
| Tire tread wear, abnormal wear - inspect | | | | • | | • | | • | 2–19 |
| Wheel bearing damage - inspect | year | | | • | | • | | • | 2–20 |
| **Suspensions** | | | | | | | | | |
| Front forks/rear shock absorber operation (smooth stroke) - inspect | | | | • | | • | | • | 2–20 |
| Front forks/rear shock absorber oil leak - inspect | year | | | • | | • | | • | 2–21 |
| Rocker arm operation - inspect | | | | • | | • | | • | 2–21 |
| Tie-rods operation - inspect | | | | • | | • | | • | 2–21 |
| **Clutch and Drive Train** | | | | | | | | | |
| Clutch operation (play, disengagement, engagement) - inspect | | | • | | • | | • | | 2–22 |
| Drive chain lubrication condition - inspect | Every 600 km after driving in rain | | | | | | | | 2–23 |
| Drive chain slack - inspect# | Every 1 000 km | | | | | | | | 2–23 |
| Drive chain wear - inspect # | Every 12 000 km | | | | | | | | 2–25 |
| Chain guide wear - inspect | Every 12 000 km | | | | | | | | 2–26 |
| ***Electrical System*** | | | | | | | | | |