

## MODEL APPLICATION

Year	Model	Beginning Frame No.
2002	ZX1200-B1	JKAZX9B1□2A000001 or JKAZXT20ABA035001 or JKAZX9B1 □2A035001 or ZXT20B-000001
2003	ZX1200-B2	JKAZX9B1□3A008001 or JKAZXT20ABA041001 or ZXT20B-008001
2004	ZX1200-B3	JKAZX9B1□4A012001 or JKAZXT20ABA045001 or ZXT20B-012001
2005	ZX1200-B4	JKAZX9B1□5A016001 or JKAZXT20ABA048001 or ZXT20B-016001
2006	ZX1200B6F	JKAZX9B1□6A019001 or JKAZXT20ABA050001 or ZXT20B-019001

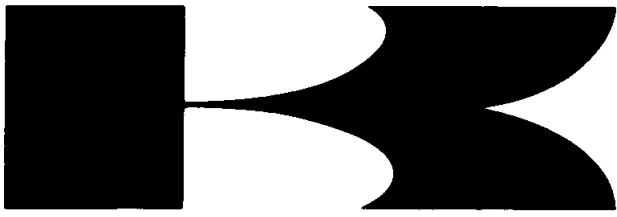
□: This digit in the frame number changes from one machine to another.



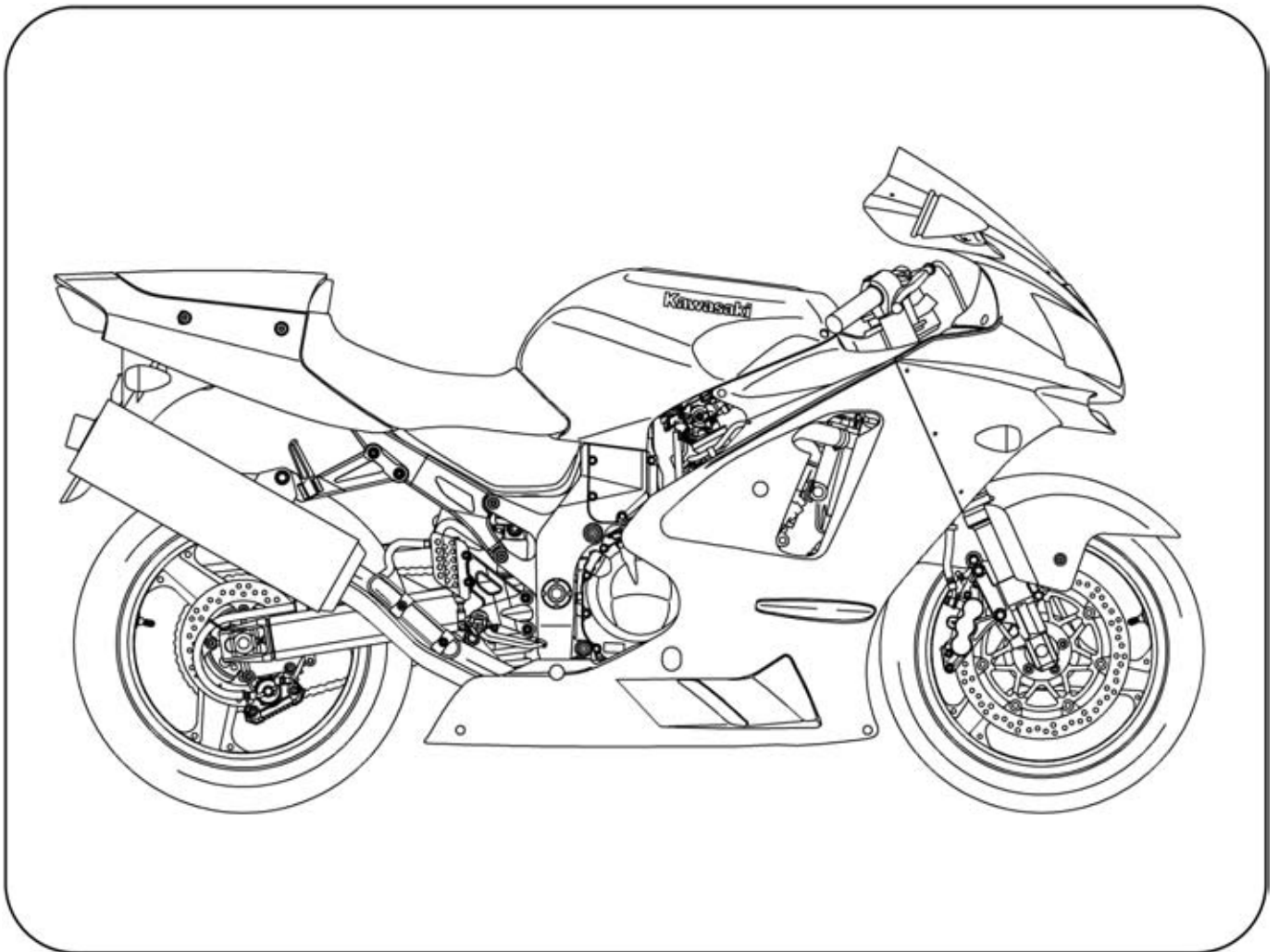
**KAWASAKI HEAVY INDUSTRIES, LTD.**  
Consumer Products & Machinery Company

**Part No.99924-1278-06**

Printed in Japan



# **Kawasaki Ninja ZX-12R**



## **Motorcycle Service Manual**

# Quick Reference Guide

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## 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.**

# 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 Service 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.

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## How to Use This Manual

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In this manual, the product is divided into its major systems and these systems make up the manual's chapters. 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.

For example, if you want ignition coil information, use the Quick Reference Guide to locate the Electrical System chapter. Then, use the Table of Contents on the first page of the chapter to find the Ignition Coil 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

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## 1-2 GENERAL INFORMATION

### Before Servicing

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Before starting to service a motorcycle, careful reading of the applicable section is recommended to eliminate unnecessary work. Photographs, diagrams, notes, cautions, warnings, and detailed descriptions have been included wherever necessary. Nevertheless, even a detailed account has limitations, a certain amount of basic knowledge is also required for successful work.

#### Especially note the following:

(1) Dirt

Before removal and disassembly, clean the motorcycle. Any dirt entering the engine or other parts will work as an abrasive and shorten the life of the motorcycle. For the same reason, before installing a new part, clean off any dust or metal filings.

(2) Battery Cables

Disconnect the ground (–) cable from the battery before performing any disassembly operations on the motorcycle. This prevents the engine from accidentally turning over while work is being carried out, sparks from being generated while disconnecting the leads from electrical parts, as well as damage to the electrical parts themselves. For reinstallation, first connect the positive cable to the positive (+) terminal of the battery.

(3) Installation, Assembly

Generally, installation or assembly is the reverse of removal or disassembly. But if this Service Manual has installation or assembly procedures, follow them. Note parts locations and cable, lead, and hose routing during removal or disassembly so they can be installed or assembled in the same way. It is preferable to mark and record the locations and routing as much as possible.

(4) Tightening Sequence

Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them evenly in a cross pattern. This is to avoid distortion of the part and/or causing gas or oil leakage. Conversely when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter turn and then remove them. Where there is a tightening sequence indication in this Service Manual, the bolts, nuts, or screws must be tightened in the order and method indicated.

(5) Torque

When torque values are given in this Service Manual, use them. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.

(6) Force

Common sense should dictate how much force is necessary in assembly and disassembly. If a part seems especially difficult to remove or install, stop and examine what may be causing the problem. Whenever tapping is necessary, tap lightly using a wooden or plastic-faced mallet. Use an impact driver for screws (particularly for the removal of screws held by a locking agent) in order to avoid damaging the screw heads.

(7) Edges

Watch for sharp edges, especially during major engine disassembly and assembly. Protect your hands with gloves or a piece of thick cloth when lifting the engine or turning it over.

(8) High-Flash Point Solvent

A high-flash point solvent is recommended to reduce fire danger. A commercial solvent commonly available in North America is Stoddard solvent (generic name). Always follow manufacturer and container directions regarding the use of any solvent.

(9) Gasket, O-ring

Do not reuse a gasket or O-ring once it has been in service. The mating surfaces around the gasket should be free of foreign matter and perfectly smooth to avoid oil or compression leakage.

(10) Liquid Gasket, Non-Permanent Locking Agent

Follow manufacturer's directions for cleaning and preparing surfaces where these compounds will be used. Apply sparingly. Excessive amounts may block engine oil passages and cause serious damage. An example of non-permanent locking agent commonly available in North America is Loctite Lock'n Seal (Blue).

(11) Press

A part installed using a press or driver, such as a wheel bearing, should first be coated with oil on its outer or inner circumference so that it will go into place smoothly.

**Before Servicing**

**(12)Ball Bearing and Needle Bearing**

Do not remove a ball bearing or a needle bearing unless it is absolutely necessary. Replace any ball or needle bearings that were removed with new ones, as removal generally damages bearings. Install bearings with the marked side facing out applying pressure evenly with a suitable driver. Only press on the race that forms the press fit with the base component to avoid damaging the bearings. This prevents severe stress on the balls or needles and races, and prevent races and balls or needles from being dented. Press a ball bearing until it stops at the stopper in the hole or on the shaft.

**(13)Oil Seal and Grease Seal**

Replace any oil or grease seals that were removed with new ones, as removal generally damages seals. When pressing in a seal which has manufacturer's marks, press it in with the marks facing out. Seals should be pressed into place using a suitable driver, which contacts evenly with the side of seal, until the face of the seal is even with the end of the hole. Before a shaft passes through a seal, apply little high temperature grease on the lips to reduce rubber to metal friction.

**(14)Circlip, Retaining Ring, and Cotter Pin**

Replace any circlips and retaining rings, and cotter pins that were removed with new ones, as removal weakens and deforms them. When installing circlips and retaining rings, take care to compress or expand them only enough to install them and no more.

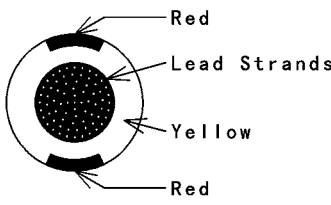

**(15)Lubrication**

Engine wear is generally at its maximum while the engine is warming up and before all the rubbing surfaces have an adequate lubricative film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface which has lost its lubricative film. Old grease and dirty oil should be cleaned off. Deteriorated grease has lost its lubricative quality and may contain abrasive foreign particles.

Don't use just any oil or grease. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended. This manual makes reference to molybdenum disulfide grease (MoS<sub>2</sub>) and molybdenum disulfide oil in the assembly of certain engine and chassis parts. The molybdenum disulfide oil is a mixture of engine oil and molybdenum disulfide grease with a weight ratio (10 : 1), which can be made in your work shop. Always check manufacturer recommendations before using such special lubricants.

**(16)Electrical Leads**

All the electrical leads are either single-color or two-color and, with only a few exceptions, must be connected to leads of the same color. On any of the two-color leads there is a greater amount of one color and a lesser amount of a second color, so a two-color lead is identified by first the primary color and then the secondary color. For example, a yellow lead with thin red stripes is referred to as a "yellow/red" lead; it would be a "red/yellow" lead if the colors were reversed to make red the main color.

Lead (cross-section)	Color Indicated on the Lead	Color Indicated on the Wiring Diagram
	<p>Yellow/Red</p>	

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**(17)Replacement Parts**

When there is a replacement instruction, replace these parts with new ones every time they are removed. These replacement parts will be damaged or lose their original function once removed.



## 1-4 GENERAL INFORMATION

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### Before Servicing

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#### (18) Inspection

When parts have been disassembled, visually inspect these parts for the following conditions or other damage. If there is any doubt as to the condition of them, replace them with new ones.

Abrasion	Crack	Hardening	Warp
Bent	Dent	Scratch	Wear
Color change	Deterioration	Seizure	

#### (19) Specifications

Specification terms are defined as follows:

"Standards" show dimensions or performances which brand-new parts or systems have.

"Service Limits" indicate the usable limits. If the measurement shows excessive wear or deteriorated performance, replace the damaged parts.

#### (20) Instrument

Use a meter that has enough accuracy for an accurate measurement.

Read the manufacturer's instructions thoroughly before using the meter.

Incorrect values may lead to improper adjustments.

Model Identification

ZX1200-B1 Left Side View



ZX1200-B1 Right Side View



# 1-6 GENERAL INFORMATION

## General Specifications

Items	ZX1200-B1 ~ B6F
<b>Dimensions</b> Overall Length Overall Width Overall Height Wheelbase Road Clearance Seat Height Dry Mass Curb Mass: Front Rear Fuel Tank Capacity	2 085 mm (82.09 in.) 740 mm (29.13 in.) 1 200 mm (47.24 in.) 1 450 mm (57.09 in.) 120 mm (4.72 in.) 820 mm (32.28 in.) 210 kg (463 lb) 125 kg (276 lb) 121 kg (267 lb) 19.0 L (5.0 US gal)
<b>Performance</b> Minimum Turning Radius	3.0 m (9.8 ft)
<b>Engine</b> Type Cooling System Bore and Stroke Displacement Compression Ratio Maximum Horsepower  Maximum Torque  Carburetion System  Starting System Ignition System Timing Advance Ignition Timing Spark Plugs Cylinder Numbering Method Firing Order	4-stroke, DOHC, 4-cylinder Liquid-cooled 83.0 × 55.4 mm (3.27 × 2.18 in.) 1 199 cm <sup>3</sup> (73.16 cu in.) 12.2 (HF) 131 kW (178 PS) @9 500 r/min (rpm), (AU) ZX1200-B1/B2: 130 kW (177 PS) @10 500 r/min (rpm), (AU) ZX1200-B3 ~: 131 kW (178 PS) @10 500 r/min (rpm), (HR) 78.2 kW (106.4 PS) @8 500 r/min (rpm), (MY) ZX1200-B1/B2: 131 kW (178 PS) @ 9 500 r/min (rpm), (MY) ZX1200-B3 ~: 128 kW (174 PS) @9 500 r/min (rpm) (US), (CA) – – – (HF, AU) 134 N·m (13.7 kgf·m, 99 ft·lb) @7 500 r/min (rpm), (MY) ZX1200-B1/B2: 134 N·m (13.7 kgf·m, 99 ft·lb) @7 500 r/min (rpm), (MY) ZX1200-B3 ~: 130 N·m (13.3 kgf·m, 96 ft·lb) @7 500 r/min (rpm), (HR) 111 N·m (11.3 kgf·m, 82 ft·lb) @5 000 r/min (rpm), (US), (CA) – – – FI (Fuel Injection), ZX1200-B1/B2: MIKUNI 46 EIS × 4 ZX1200-B3 ~: KEIHIN (φ46 × 4) Electric starter Battery and coil (transistorized) Electronically advanced (digital igniter in ECU) 10° BTDC @1 000 r/min (rpm) NGK CR9EKPA Left to right, 1-2-3-4 1-2-4-3

**General Specifications**

Items	ZX1200-B1 ~ B6F
<p>Valve Timing:</p> <p>Inlet:</p> <p>    Open</p> <p>    Close</p> <p>    Duration</p> <p>Exhaust:</p> <p>    Open</p> <p>    Close</p> <p>    Duration</p> <p>Lubrication System</p> <p>Engine Oil:</p> <p>    Grade</p> <p>    Viscosity</p> <p>    Capacity</p>	<p>46° BTDC</p> <p>74° ABDC</p> <p>300°</p> <p>69° BBDC</p> <p>45° ATDC</p> <p>294°</p> <p>Forced lubrication (wet sump with cooler)</p> <p>API SE, SF or SG</p> <p>API SH or SJ with JASO MA</p> <p>SAE 10W-40</p> <p>3.6 L (3.8 US qt)</p>
<p><b>Drive Train</b></p> <p>Primary Reduction System:</p> <p>    Type</p> <p>    Reduction Ratio</p> <p>Clutch Type</p> <p>Transmission:</p> <p>    Type</p> <p>    Gear Ratios:</p> <p>        1st</p> <p>        2nd</p> <p>        3rd</p> <p>        4th</p> <p>        5th</p> <p>        6th</p> <p>Final Drive System:</p> <p>    Type</p> <p>    Reduction Ratio</p> <p>    Overall Drive Ratio</p>	<p>Gear</p> <p>1.596 (83/52)</p> <p>Wet, multi disc</p> <p>6-speed, constant mesh, return shift</p> <p>2.429 (34/14)</p> <p>1.824 (31/17)</p> <p>1.440 (36/25)</p> <p>1.250 (30/24)</p> <p>1.130 (26/23)</p> <p>1.033 (31/30)</p> <p>Chain drive</p> <p>2.556 (46/18)</p> <p>4.215 @Top gear</p>
<p><b>Frame</b></p> <p>    Type</p> <p>    Caster (Rake Angle)</p> <p>    Trail</p> <p>Front Tire:</p> <p>    Type</p> <p>    Size</p> <p>Rear Tire:</p> <p>    Type</p> <p>    Size</p>	<p>Press backbone</p> <p>23.5°</p> <p>98 mm (3.86 in.)</p> <p>Tubeless</p> <p>120/70 ZR17 M/C (58W)</p> <p>Tubeless</p> <p>200/50 ZR17 M/C (75W)</p>

# 1-8 GENERAL INFORMATION

## General Specifications

Items	ZX1200-B1 ~ B6F
<p>Rim Size:</p> <p>Front</p> <p>Rear</p> <p>Front Suspension:</p> <p>Type</p> <p>Wheel Travel</p> <p>Rear Suspension:</p> <p>Type</p> <p>Wheel Travel</p> <p>Brake Type:</p> <p>Front</p> <p>Rear</p>	<p>17 × 3.50</p> <p>17 × 6.00</p> <p>Telescopic fork (upside-down)</p> <p>120 mm (4.72 in.)</p> <p>Swingarm (uni-trak)</p> <p>140 mm (5.51 in.)</p> <p>Dual discs</p> <p>Single disc</p>
<p><b>Electrical Equipment</b></p> <p>Battery</p> <p>Headlight:</p> <p>Type</p> <p>Bulb</p> <p>Tail/Brake Light</p> <p>Alternator:</p> <p>Type</p> <p>Rated Output</p>	<p>12 V 12 Ah</p> <p>Semi-sealed beam</p> <p>12 V 60/55 W (quartz-halogen) × 2</p> <p>12 V 5/21 W × 2</p> <p>Three-phase AC</p> <p>31 A/14 V @5 000 r/min (rpm)</p>

Specifications are subject to change without notice, and may not apply to every country.

AU: Australian Model

US: U.S.A. Model

CA: Canadian Model

MY: Malaysian Model

HF: WVTA Approval Model with Honeycomb Catalytic Converter (Full Power Model)

HR: WVTA Approval Model with Honeycomb Catalytic Converter (Restricted Power Model)

## Technical Information - KAWASAKI LOW EXHAUST EMISSION SYSTEM

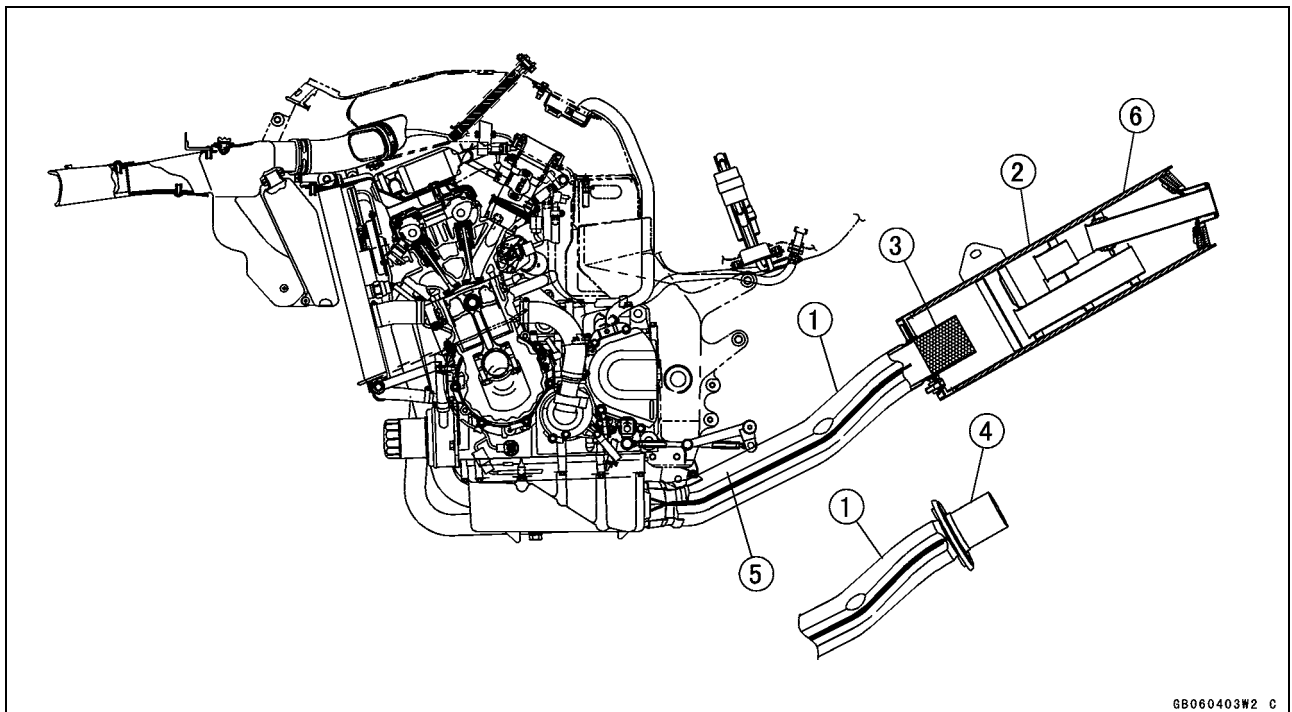
Since the emission regulations become more severe, Kawasaki has adopted a type of simplified KAWASAKI LOW EXHAUST EMISSION SYSTEM (KLEEN), which have no catalyst protection system, according to each regulation of different countries.

The muffler with built-in catalyst has the same durability as the conventional muffler, however, do not use leaded gasoline and do not coast with the ignition system OFF. Running the engine without ignition damages catalyst.

Refer to the ZX900E Service Manual (Part No. 99924-1255) for more information about the KLEEN (theory, maintenance, and handling precautions), including the secondary air injection system.

### Honeycomb Type Catalytic Converter

- The converter is a three-way catalytic converter, and its surface is covered with alumina upon which platinum and rhodium are applied, and has a cylindrical metallic honeycomb structure made by bending a corrugated sheet and a flat sheet of stainless steel into a spiral of increasing diameter. The honeycomb structure is convenient for the catalytic converter because it has a large surface area but small size to react effectively and has low exhaust resistance. In addition, its inherent strength helps resist vibration, and has simple structure welded directly on the muffler body.
- Generally, the temperature of the exhaust gas must be higher than activation temperature, so the converters are installed in the exhaust manifold rear end where the temperature of exhaust gas is still high. And, the converters will be activated even under low load conditions.
- After the exhaust gas is diluted with the secondary air injection, the catalytic converter works well because of rich oxygen to reduce CO, HC, and NO<sub>x</sub>. Accordingly, we can keep the exhaust gas emission within regulation.
- This type of converter works more efficiently as a three-way catalytic converter to reduce CO, HC, and NO<sub>x</sub> than the pipe type catalytic converter because of its more and denser catalysts.



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1. Manifold
2. Muffler Body
3. Honeycomb Type Catalyst
4. Non-Catalyst
5. Mark for Manifold
6. Mark for Muffler Body

# 1-10 GENERAL INFORMATION

## Technical Information - KAWASAKI LOW EXHAUST EMISSION SYSTEM

### Exhaust System (ZX1200-B1/B2)

MANIFOLD	MUFFLER BODY	ITEM NAME	ORG PRODUCT
<p><b>Non-Catalyst</b></p> <hr/> <p>P/No. 39178-1335 Mark : KHI M 063</p>	<p><b>Non-Catalyst</b></p> <hr/> <p>P/No. 18090-1997 Mark : KHI K 412 TITANIUM</p>	AUSTRALIA	ZX1200-B1 ~
<p><b>Honeycomb Type Catalyst</b></p> <hr/> <p>P/No. 39178-1338 Mark : KHI M 070</p>	<p><b>Non-Catalyst</b></p> <hr/> <p>P/No. 18090-1995 Mark : KHI K 400 TITANIUM</p>	HF HU HR ISRAEL  MALAYSIA	ZX1200-B1H ~ ZX1200-B1H ~  ZX1200-B1 ~ ZX1200-B1H ~ ZX1200-B1 ~
<p><b>Honeycomb Type Catalyst</b></p> <hr/> <p>P/No. 39178-1336 Mark : KHI M 070</p>	<p><b>Non-Catalyst</b></p> <hr/> <p>P/No. 18090-1996 Mark : KHI K 400 EPA Noise Emission Control Information TITANIUM</p>	U.S.A. (CALIF) U.S.A. CANADA	ZX1200-B1L ~ ZX1200-B1 ~ ZX1200-B1 ~

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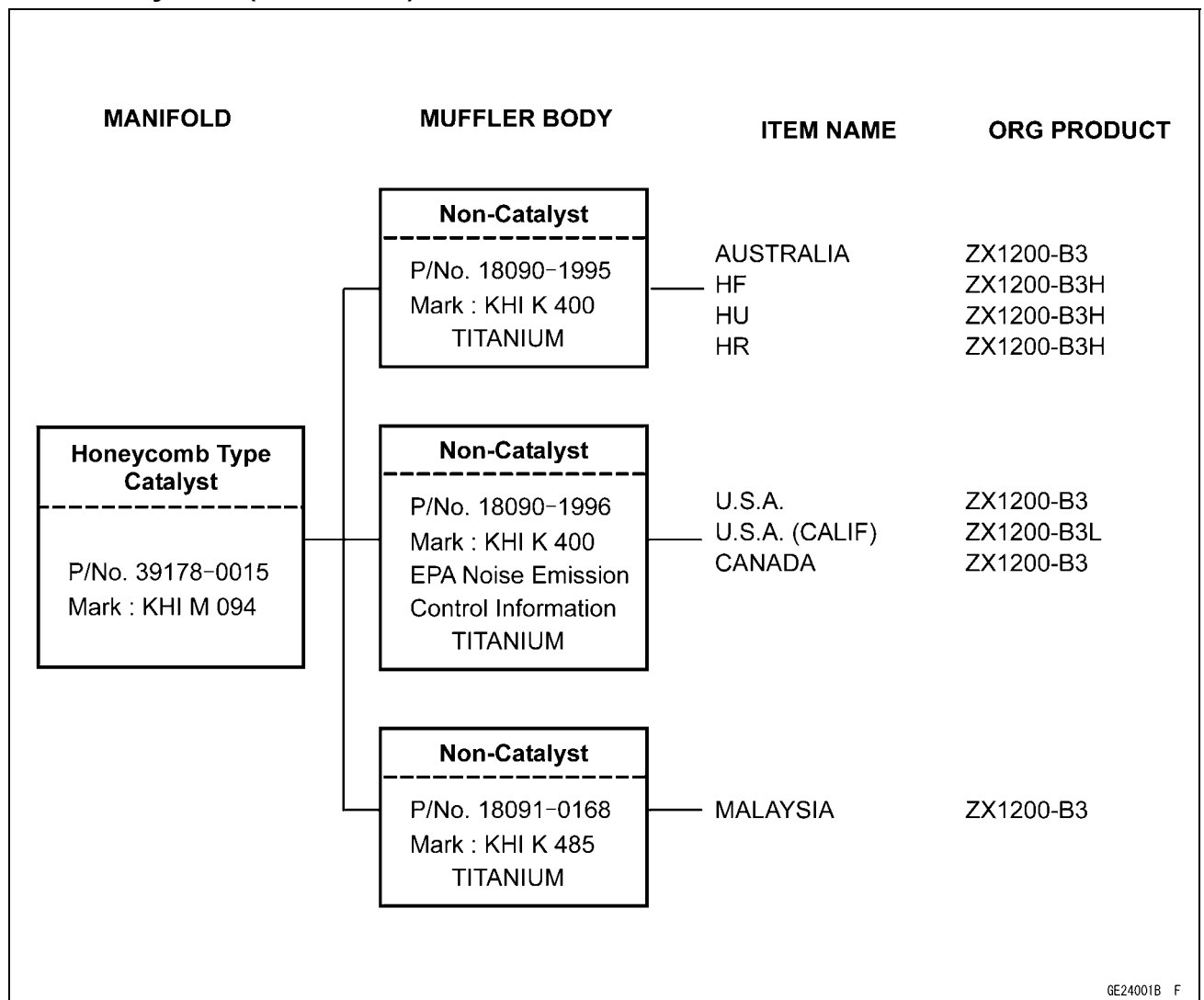
HF: WVTA Approval Model with Honeycomb Catalytic Converter (Full Power Model)

HU: WVTA Approval Model with Honeycomb Catalytic Converter (Left Side Traffic Full Power Model)

HR: WVTA Approval Model with Honeycomb Catalytic Converter (Restricted Power Model)

Technical Information - KAWASAKI LOW EXHAUST EMISSION SYSTEM

Exhaust System (ZX1200-B3)



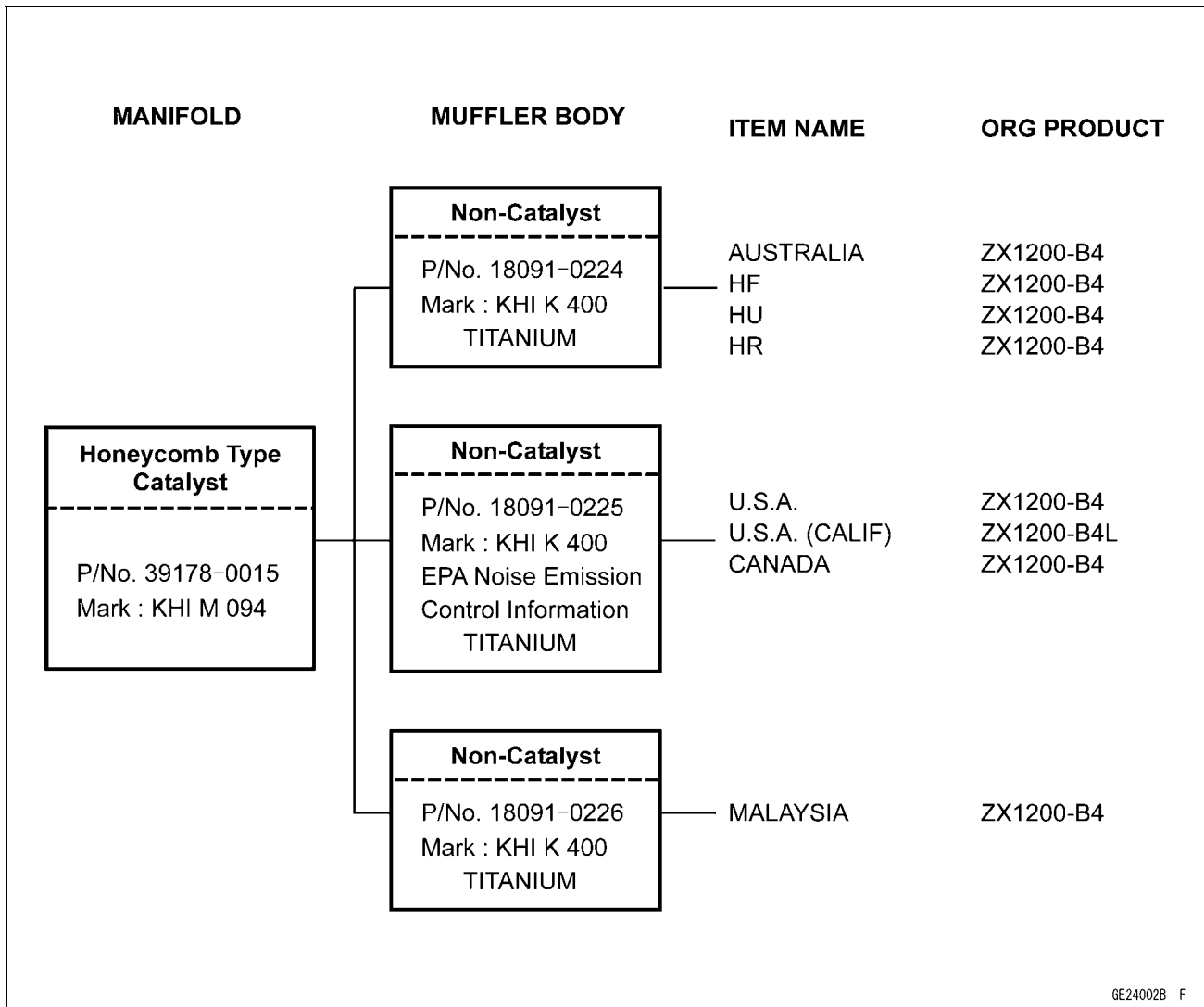
HF: WVTA Approval Model with Honeycomb Catalytic Converter (Full Power Model)  
 HU: WVTA Approval Model with Honeycomb Catalytic Converter (Left Side Traffic Full Power Model)  
 HR: WVTA Approval Model with Honeycomb Catalytic Converter (Restricted Power Model)



# 1-12 GENERAL INFORMATION

## Technical Information - KAWASAKI LOW EXHAUST EMISSION SYSTEM

### Exhaust System (ZX1200-B4)



HF: WVTA Approval Model with Honeycomb Catalytic Converter (Full Power Model)  
 HU: WVTA Approval Model with Honeycomb Catalytic Converter (Left Side Traffic Full Power Model)  
 HR: WVTA Approval Model with Honeycomb Catalytic Converter (Restricted Power Model)



## 1-14 GENERAL INFORMATION

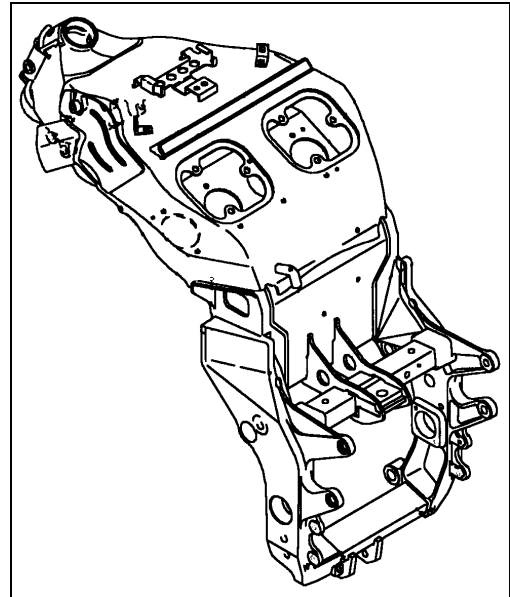
### Technical Information - Monocoque Frame

Why a monocoque? Like all breakthrough innovations, the choice appears quite obvious after the fact. When large-section aluminium spars are wrapped around an already wide, large-displacement in-line Four engine, the resulting package must of necessity be wide. The ZX-12R's all-aluminium box-section monocoque chassis eliminates these perimeter spars in favor of a large box section running over the top of the engine.

This frame design surpasses the levels of chassis stiffness and strength associated with conventional aluminium twin-beam frames, but with considerably less breadth. Without the twin beams or other frame elements running around the side of the engine, the fairing can be much narrower, resulting in a much slimmer overall package and significantly better aerodynamics. Further, in a radical departure, the hollow structure also doubles as an airbox for the Ram Air system, eliminating the need for a space-consuming, conventional airbox.

And ultimately, it is the synergy of combining a compact, massively powerful engine with this super stiff and slim chassis structure that explains much of the ZX-12R's superlative high-speed performance.

- All-new frame-integrated Ram Air system adds considerable horsepower in the higher speed ranges.
- Monocoque frame allows for the use of perfectly straight, highly efficient inlet ports.
- Using the frame backbone as an airbox saves space and creates a very efficient airbox.
- Battery mounts inside the frame and the battery cover is a structural element.
- Revolutionary new all-aluminum monocoque frame for high rigidity and lightweight.
- Huge box section and heat-treated cast steering head/swingarm pivot areas realize an extremely stiff structure and contribute to the ZX-12R's superb high-speed stability and nimble, super sport handling performance.
- By eliminating the dual large-section beams of conventional aluminum frames, this frame design makes possible a much narrower and more compact overall package and greatly improves aerodynamics.



## Technical Information - Spark Plug

ZX1200-B is equipped with the Kawasaki recommended spark plug (NGK CR9EKPA). By using the Kawasaki recommended spark plug, the idling stability, the fuel consumption improvement, and the maintenance free spark plug is planned.

This spark plug is calculated 3 or 4 times as durable as the usual one (NGK CR9EK).

### Feature

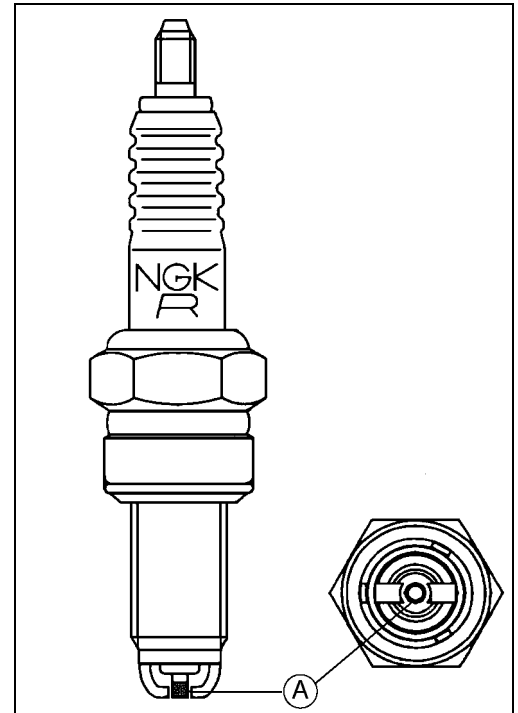
1. This spark plug is more superior to the usual one with the ignition for the ignition point protruding.
2. Further, this spark plug is superior to the usual one with the endurance for the Pt alloy [A] covering around the center electrode and for the opposed area improvement of the side electrodes.

### Specification

1. Standard Spark Plug CR9EKPA, two side electrodes, M10 threads
2. Hotter Spark Plug CR8EKPA, two side electrodes, M10 threads

### CAUTION

**Use only the recommender spark plug. Do not use other spark plug, even though it may fit, because it could cause the engine failure of the idling stability, etc.**



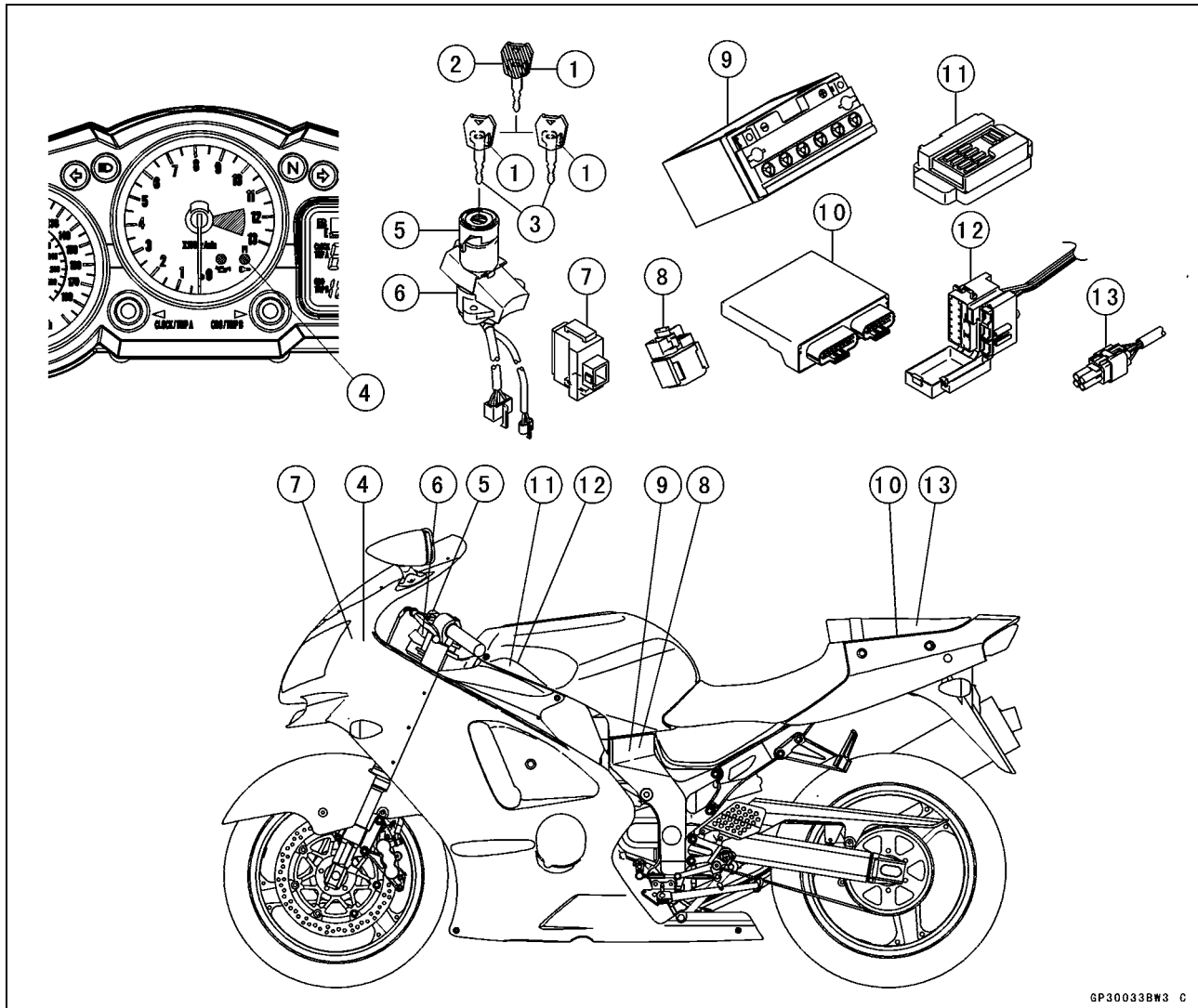
# 1-16 GENERAL INFORMATION

## Technical Information - Immobilizer System (ZX1200-B3 ~: Equipped Model)

### 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 and sub-throttle valve actuator will not operate and the engine will not start.

### Related Parts and Function



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

### 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 (ZX1200-B3 ~: Equipped Model)

**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**

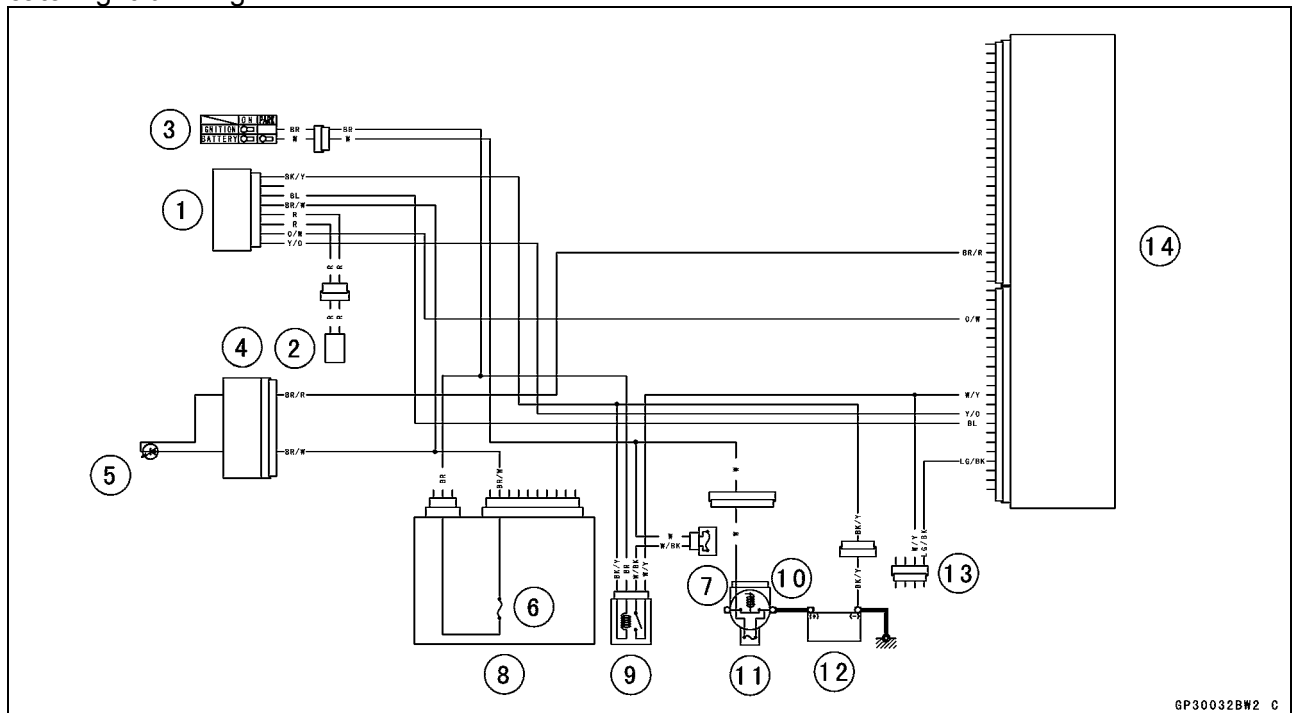
The amplifier (which is approximately the same size as a match box), amplifies signals from the antenna and the ECU.

**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. Immobilizer Amplifier | 9. ECU Main Relay                                    |
| 2. Immobilizer Antenna   | 10. Starter Relay                                    |
| 3. Ignition Switch       | 11. Main Fuse 30 A                                   |
| 4. Meter Unit            | 12. Battery 12 V 12 Ah                               |
| 5. FI Indicator Light    | 13. Immobilizer/Kawasaki Diagnostic System Connector |
| 6. Ignition Fuse 10 A    | 14. Electronic Control Unit (ECU)                    |
| 7. ECU Fuse 15 A         |  |
| 8. Junction Box          |  |

## 1-18 GENERAL INFORMATION

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### Technical Information - Immobilizer System (ZX1200-B3 ~: Equipped Model)

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#### *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.

**Torque and Locking Agent**

The following tables list the tightening torque for the major fasteners requiring use of a non-permanent locking agent or liquid gasket.

Letters used in the “Remarks” column mean:

- L: Apply a non-permanent locking agent to the threads.
- M: Apply molybdenum disulfide grease.
- MO: Apply molybdenum disulfide oil solution.
- O: Apply oil to the threads and seating surface.
- S: Tighten the fasteners following the specified sequence.
- SS: Apply silicone sealant.
- St: Stake the fasteners to prevent loosening.
- R: Replacement Parts

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

**Basic Torque for General Fasteners**

Threads dia.(mm)	Torque		
	N·m	kgf·m	ft·lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in·lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in·lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
<b>Fuel System (DFI)</b>				
Inlet Air Pressure Sensor Bolt	12	1.2	106 in·lb	
Inlet Air Pressure Sensor Bracket Nut	12	1.2	106 in·lb	
Atmospheric Pressure Sensor Bolts	12	1.2	106 in·lb	
Gear Position Switch Screws	4.0	0.40	35 in·lb	L
Crankshaft Sensor Bolts	6.0	0.60	53 in·lb	
Camshaft Position Sensor Bolt	12	1.2	106 in·lb	
Crankshaft Position Sensor Rotor Bolt	12	1.2	106 in·lb	L
Delivery Pipe Screws (ZX1200-B1/B2)	5.0	0.50	44 in·lb	
Delivery Pipe Screws (ZX1200-B3 ~)	3.4	0.35	30 in·lb	
Nipple Assy Screws	3.4	0.35	31 in·lb	
Inlet Air Temperature Sensor	7.8	0.80	69 in·lb	
Fuel Level Sensor Bolts	6.9	0.70	61 in·lb	L
Fuel Pump Bolts	6.9	0.70	61 in·lb	L, S
Fuel Hose Clamp Bolts	1.5	0.15	13 in·lb	
<b>Cooling System</b>				
Cooling Hose Clamp Screws	2.0	0.20	18 in·lb	



# 1-20 GENERAL INFORMATION

## Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Coolant Fitting Nozzle (ZX1200-B1/B2)	12	1.2	106 in·lb	L
Coolant Drain Plug (Water Pump)	12	1.2	106 in·lb	
Coolant Drain Plug (Cylinder)	10	1.0	89 in·lb	
Radiator Fan Switch	18	1.8	13	
Water Temperature Sensor	25	2.5	18	SS
Water Pump Impeller Bolt	10	1.0	89 in·lb	
Water Pump Cover Bolts	12	1.2	106 in·lb	
Cooling Pipe Bolt	12	1.2	106 in·lb	
Thermostat Housing Cover Bolts	8.0	0.80	71 in·lb	L
Fitting Bolts	12	1.2	106 in·lb	
<b>Engine Top End</b>				
Spark Plugs	13	1.3	115 in·lb	
Air Suction Valve Cover Bolts	12	1.2	106 in·lb	
Baffle Plate Bolts	10	1.0	89 in·lb	
Cylinder Head Cover Bolts	10	1.0	89 in·lb	
Camshaft Chain Tensioner Mounting Bolts	12	1.2	106 in·lb	L
Camshaft Cap Bolts	12	1.2	106 in·lb	
Upper Camshaft Chain Guide Bolts	12	1.2	106 in·lb	
Front Camshaft Chain Guide Bolt (Upper)	25	2.5	18	
Front Camshaft Chain Guide Bolt (Lower)	12	1.2	106 in·lb	
Rear Camshaft Chain Guide Bolt	25	2.5	18	
Camshaft Position Sensor Bolt	12	1.2	106 in·lb	
Camshaft Position Sensor Rotor Bolt	12	1.2	106 in·lb	L
Cylinder Head Bolts: M11 First Tighten	23	2.3	17	MO, S (Washer)
Cylinder Head Bolts: M11 Final Tighten	59	6.0	44	MO, S (Washer)
Cylinder Head Bolts: M7	20	2.0	15	S
Cylinder Head Jacket Plugs	22	2.2	16	L
Throttle Body Holder Bolts	12	1.2	106 in·lb	
Muffler Body Connection Nuts	34	3.5	25	
Guard Mounting Bolts	12	1.2	106 in·lb	
Exhaust Pipe Holder Studs	–	–	–	(Stopped)
Crankshaft Sensor Cover Bolts	15	1.5	11	L
<b>Clutch</b>				
Clutch Lever Clamp Bolts	7.8	0.80	69 in·lb	S
Clutch Cover Bolts	15	1.5	11	L (2)
Clutch Cover Damper Plate Bolts	7.0	0.70	62 in·lb	L
Clutch Spring Bolts	8.8	0.90	78 in·lb	
Clutch Hub Nut	135	14	100	R
<b>Engine Lubrication System</b>				
Oil Level Gauge Bolts	12	1.2	106 in·lb	

**Torque and Locking Agent**

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Oil Filler Plug	1.5 or Hand -Tight	0.15 or Hand -Tight	13 in·lb or Hand -Tight	
Engine Oil Drain Plug	20	2.0	15	
Oil Filter (Cartridge Type)	31	3.2	23	EO, R
Oil Cooler Passage Bolt	78	7.8	58	EO
Oil Cooler Mounting Bolts	25	2.5	18	L
Oil Pan Bolts	15	1.5	11	L (1)
Oil Pipe Holder Bolts	12	1.2	106 in·lb	L
Oil Pressure Relief Valve	15	1.5	11	L
Oil Pressure Switch	15	1.5	11	SS
Oil Pressure Switch Terminal Screw	1.5	0.15	13 in·lb	
Water Pump Impeller Bolt	10	1.0	89 in·lb	
<b>Engine Removal/Installation</b>				
Engine Mounting Bolts and Nuts: M12	59	6.0	44	
Engine Mounting Bolts and Nuts: M8	25	2.5	18	
Engine Mounting Bracket Bolt: M10	44	4.5	32	
Adjusting Collars	25	2.5	18	
<b>Crankshaft/Transmission</b>				
Breather Plate Bolts	10	1.0	89 in·lb	L
Breather Tube Bracket Bolts	12	1.2	106 in·lb	
Crankcase Bolts: M10	50	5.0	37	MO, S
Upper Crankcase Bolts: M8, L85	28	2.8	21	S
Upper Crankcase Bolts: M7	25	2.5	18	S
Lower Crankcase Bolts: M8, L99	23	2.3	17	S
Lower Crankcase Bolts: M7	20	2.0	15	S
Oil Passage Plugs (Each Side)	20	2.0	15	L
Connecting Rod Big End Nuts	in the text	←	←	←
Timing Rotor Bolt	39	4.0	29	
Starter Torque Limiter Cover Bolts	12	1.2	106 in·lb	L
Oil Pressure Switch	15	1.5	11	SS
Gear Positioning Lever Bolt	10	1.0	89 in·lb	L
Shift Shaft Return Spring Pin (Bolt)	30	3.0	22	L
Speed Sensor Bolt	12	1.2	106 in·lb	L
Shift Drum Bearing Holder Bolt	12	1.2	106 in·lb	L
Shift Drum Bearing Holder Screw	5.4	0.55	48 in·lb	L
Shift Drum Cam Bolt	12	1.2	106 in·lb	L
Balancer Shaft Clamp Lever Bolt	25	2.5	18	L
Balancer Shaft Clamp Bolt	12	1.2	106 in·lb	
Oil Pipe Holder Bolts (Crankshaft Pipe)	12	1.2	106 in·lb	L
Oil Pipe Holder Bolt (Transmission Pipe)	12	1.2	106 in·lb	
Oil Nozzle	2.5	0.25	22 in·lb	St
Starter Clutch Shaft Bolt	25	2.5	18	L

# 1-22 GENERAL INFORMATION

## Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Starter Clutch Shaft Plate Bolt	12	1.2	106 in·lb	L
<b>Wheels/Tires</b>				
Front Axle Clamp Bolts	20	2.0	15	AL
Front Axle Nut	127	13	94	
Rear Axle Nut	127	13	94	
Rear Sprocket Nuts	59	6.0	44	
Air Valve Cap	0.15	0.015	1.3 in·lb	
<b>Final Drive</b>				
Engine Sprocket Nut	127	13	94	MO
Engine Sprocket Cover Bolts	12	1.2	106 in·lb	
Chain Guide Bolt	12	1.2	106 in·lb	L
Rear Sprocket Nuts	59	6.0	44	
Rear Axle Nut	127	13	94	
<b>Brakes</b>				
Bleed Valves	7.8	0.80	69 in·lb	
Brake Hose Banjo Bolts	34	3.5	25	
Brake Lever Pivot Bolt	1.2	0.12	11 in·lb	Si
Brake Lever Pivot Bolt Locknut	6.0	0.60	52 in·lb	
Front Reservoir Cap Screws	1.5	0.15	13 in·lb	
Front Brake Light Switch Screws	1.2	0.12	11 in·lb	
Front Master Cylinder Clamp Bolts	8.8	0.90	78 in·lb	S
Front Caliper Mounting Bolts	34	3.5	25	
Front Caliper Assembly Bolts	21	2.1	15	
Brake Disc Mounting Bolts	27	2.8	20	L
Front Brake Pad Spring Bolts (ZX1200-B1/B2)	3.0	0.30	27 in·lb	
Front Brake Pad Pins (ZX1200-B3 ~)	15	1.5	11	
Rear Master Cylinder Mounting Bolts	25	2.5	18	
Rear Master Cylinder Push Rod Locknut	18	1.8	13	
Rear Caliper Mounting Bolts	25	2.5	18	
Rear Caliper Assembly Bolts	30	3.0	22	
Brake Pedal Mounting Bolt	8.8	0.90	78 in·lb	
<b>Suspension</b>				
Front Fork Clamp Bolts (Upper)	20	2.0	15	
Front Fork Clamp Bolts (Lower)	20	2.0	15	AL
Front Fork Top Plugs	23	2.3	17	
Piston Rod Nut	28	2.8	21	
Front Fork Bottom Allen Bolts	40	4.0	30	L
Front Axle Clamp Bolts	20	2.0	15	AL
Rear Shock Absorber Bracket Nut	59	6.0	44	
Rear Shock Absorber Nuts (Upper and Lower)	34	3.5	25	
Swingarm Pivot Shaft Nut	127	13	94	
Swingarm Pivot Shaft Lock Nut	98	10	72	

**Torque and Locking Agent**

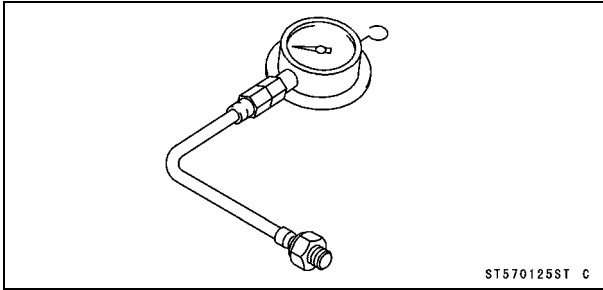
Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Uni-Track:				
Rocker Arm Nut	34	3.5	25	
Tie-rod Nuts	59	6.0	44	
<b>Steering</b>				
Steering Stem Head Nut (ZX1200-B1/B2)	54	5.5	40	
Steering Stem Head Nut (ZX1200-B3 ~)	78	8.0	57	
Steering Stem Nut	20	2.0	15	
Handlebar Bolts	34	3.5	25	L
Handlebar Weight Bolts	–	–	–	L
Handlebar Switch Housing Screws	3.5	0.36	31 in·lb	
<b>Frame</b>				
Wind Shield Mounting Screws	0.40	0.040	3.5 in·lb	
Rear Frame Bolts and Nuts	44	4.5	32	
Front Footpeg Holder Bolts	25	2.5	18	
Rear Footpeg Holder Bolts	34	3.5	25	
Side Stand Bracket Bolts	49	5.0	36	
Side Stand Mounting Bolt and Nut	44	4.5	32	
Side Stand Switch Bolt	8.8	0.90	78 in·lb	L
<b>Electrical System</b>				
Spark Plugs	13	1.3	115 in·lb	
Tail/Brake Light Assy Mounting Nuts	6.0	0.60	53 in·lb	
Crankshaft Sensor Cover Bolts	15	1.5	11	L
Crankshaft Sensor Bolts	6.0	0.60	53 in·lb	
Camshaft Position Sensor Bolt	12	1.2	106 in·lb	
Timing Rotor Bolt	39	4.0	29	
Alternator Rotor Bolt	110	11	81	
Stator Coil Bolts	22	2.2	16	L
Alternator Lead Holding Plate Bolts	8.5	0.87	75 in·lb	L
Oil Pressure Switch	15	1.5	11	SS
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in·lb	
Alternator Cover Bolts	15	1.5	11	
Starter Motor Mounting Bolts	12	1.2	106 in·lb	
Handlebar Switch Housing Screws	3.5	0.36	31 in·lb	
Radiator Fan Switch	18	1.8	13	
Water Temperature Sensor	25	2.5	18	SS
Gear Position Switch Screws	4.0	0.40	35 in·lb	L
Speed Sensor Bolt	12	1.2	106 in·lb	
Fuel Level Sensor Bolts	6.9	0.70	61 in·lb	
Front Brake Switch Light Screw	12	1.2	106 in·lb	
Engine Ground Lead Terminal Bolt	10	1.0	89 in·lb	

# 1-24 GENERAL INFORMATION

## Special Tools and Sealant

**Oil Pressure Gauge, 5 kgf/cm<sup>2</sup>:**

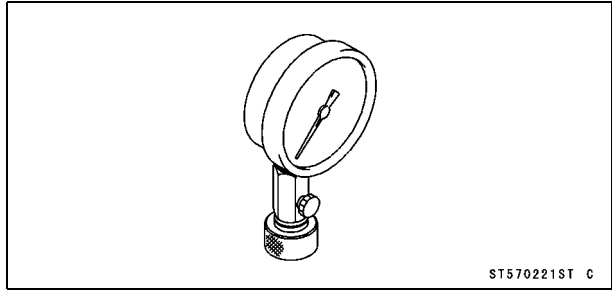
**57001-125**



ST570125ST C

**Compression Gauge, 20 kgf/cm<sup>2</sup>:**

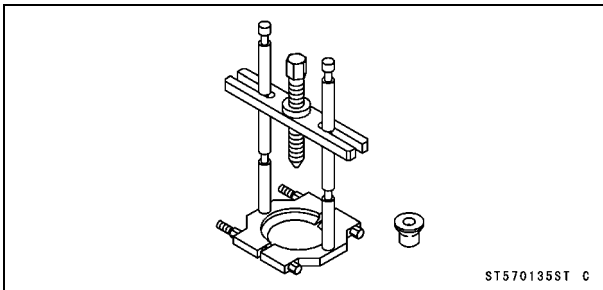
**57001-221**



ST570221ST C

**Bearing Puller:**

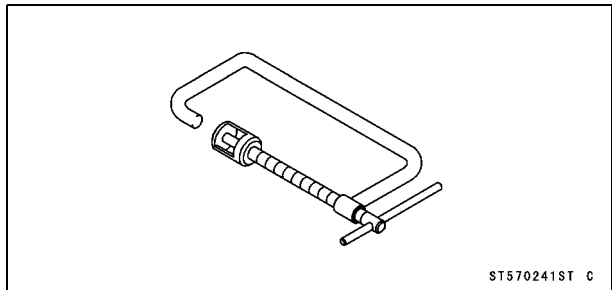
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ST570135ST C

**Valve Spring Compressor Assembly:**

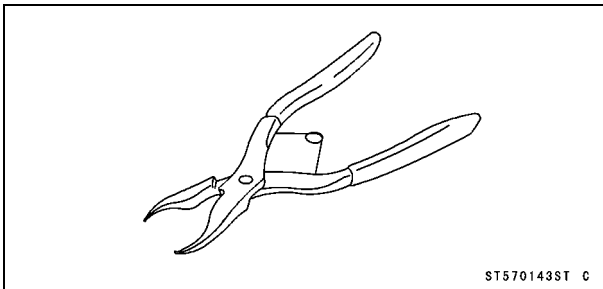
**57001-241**



ST570241ST C

**Inside Circlip Pliers:**

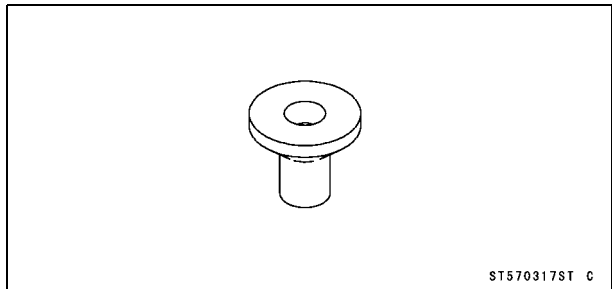
**57001-143**



ST570143ST C

**Bearing Puller Adapter:**

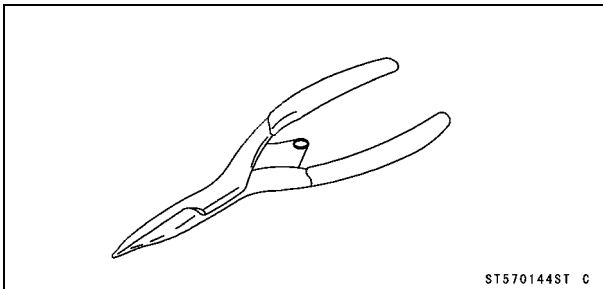
**57001-317**



ST570317ST C

**Outside Circlip Pliers:**

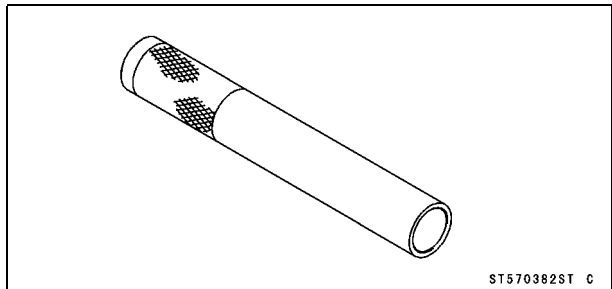
**57001-144**



ST570144ST C

**Bearing Driver,  $\phi 32$ :**

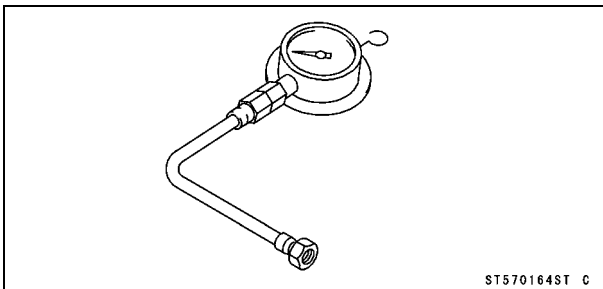
**57001-382**



ST570382ST C

**Oil Pressure Gauge, 10 kgf/cm<sup>2</sup>:**

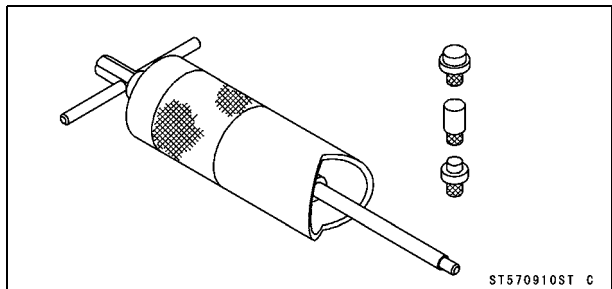
**57001-164**



ST570164ST C

**Piston Pin Puller Assembly:**

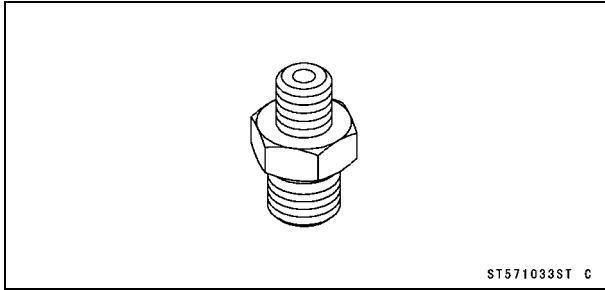
**57001-910**



ST570910ST C

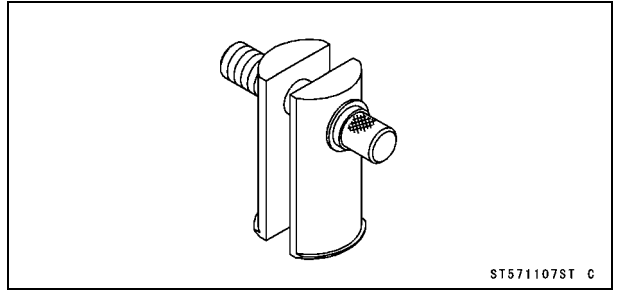
**Special Tools and Sealant**

**Oil Pressure Gauge Adapter, PT 1/8:  
57001-1033**



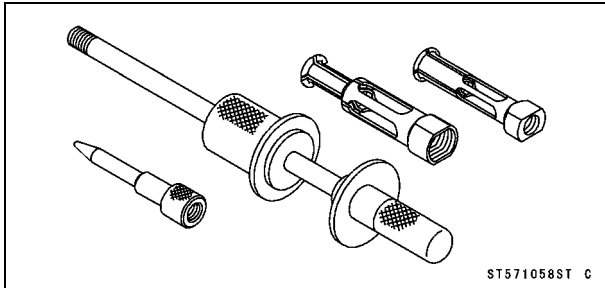
ST571033ST C

**Head Pipe Outer Race Remover ID > 37 mm:  
57001-1107**



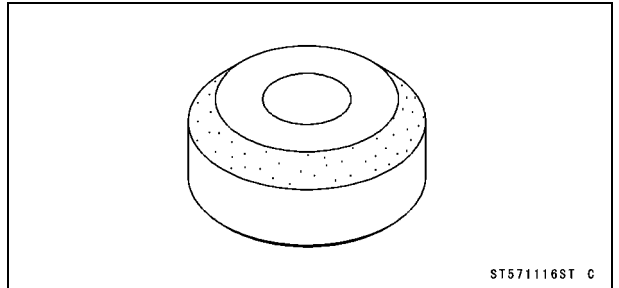
ST571107ST C

**Oil Seal & Bearing Remover:  
57001-1058**



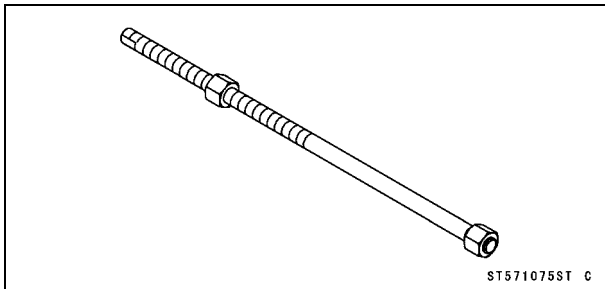
ST571058ST C

**Valve Seat Cutter, 45° -  $\phi$ 35:  
57001-1116**



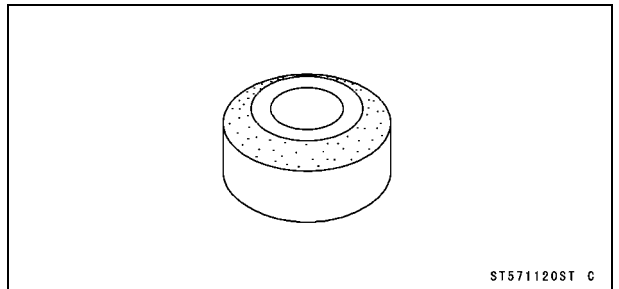
ST571116ST C

**Head Pipe Outer Race Press Shaft:  
57001-1075**



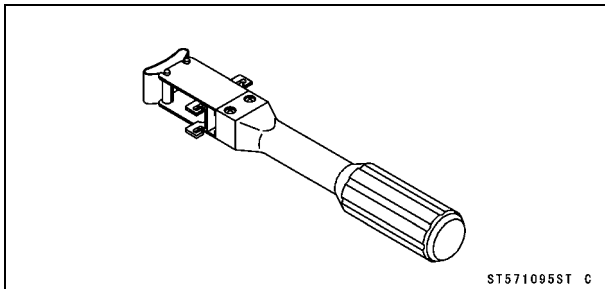
ST571075ST C

**Valve Seat Cutter, 30° -  $\phi$ 30:  
57001-1120**



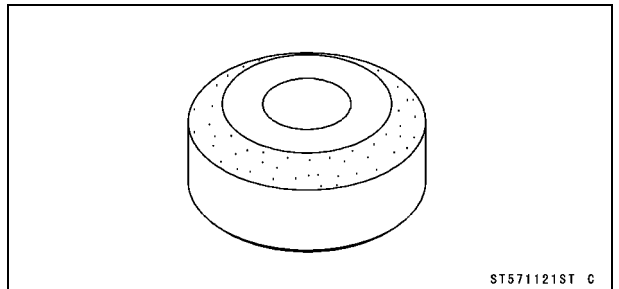
ST571120ST C

**Piston Ring Compressor Grip:  
57001-1095**



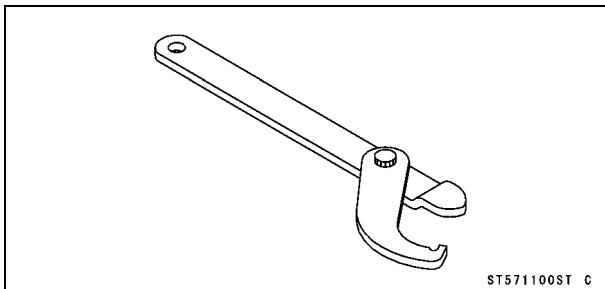
ST571095ST C

**Valve Seat Cutter, 32° -  $\phi$ 35:  
57001-1121**



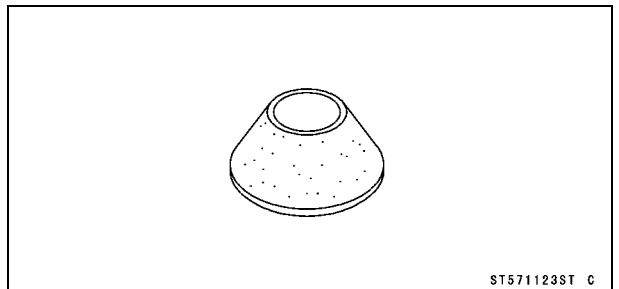
ST571121ST C

**Steering Stem Nut Wrench:  
57001-1100**



ST571100ST C

**Valve Seat Cutter, 60° -  $\phi$ 30:  
57001-1123**



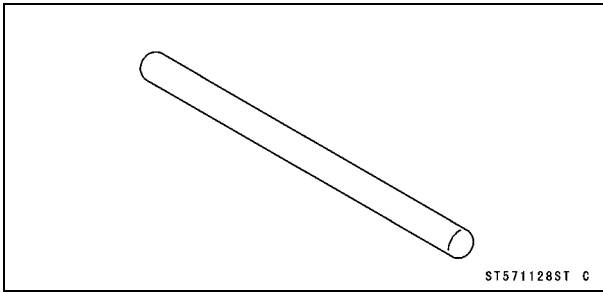
ST571123ST C

# 1-26 GENERAL INFORMATION

## Special Tools and Sealant

**Valve Seat Cutter Holder Bar:**

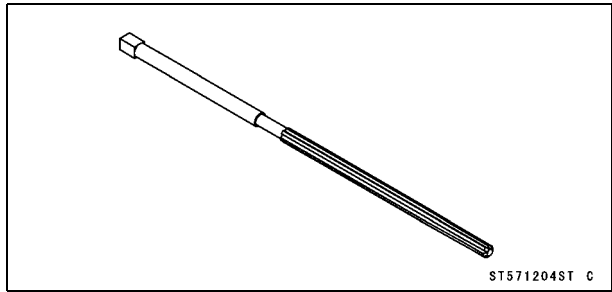
**57001-1128**



ST571128ST C

**Valve Guide Reamer,  $\phi 5$ :**

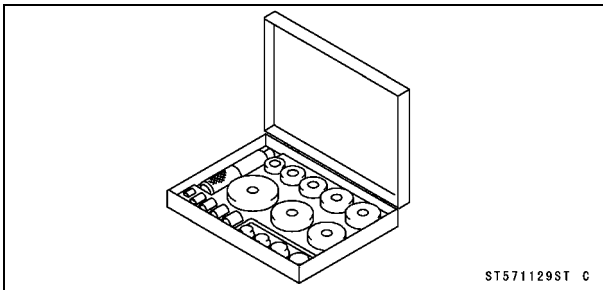
**57001-1204**



ST571204ST C

**Bearing Driver Set:**

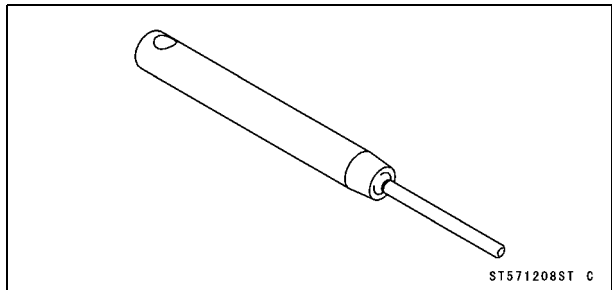
**57001-1129**



ST571129ST C

**Valve Seat Cutter Holder,  $\phi 5$ :**

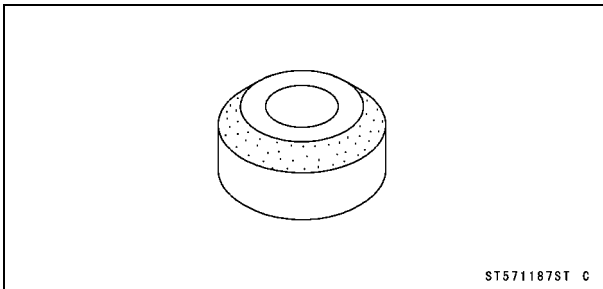
**57001-1208**



ST571208ST C

**Valve Seat Cutter,  $45^\circ - \phi 30$ :**

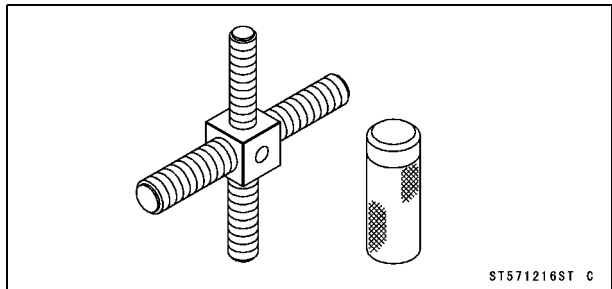
**57001-1187**



ST571187ST C

**Rotor Puller, M16/M18/M20/M22  $\times$  1.5:**

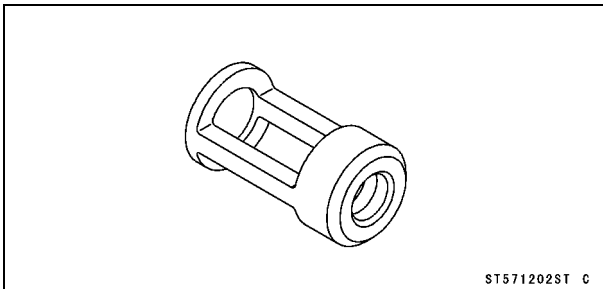
**57001-1216**



ST571216ST C

**Valve Spring Compressor Adapter,  $\phi 22$ :**

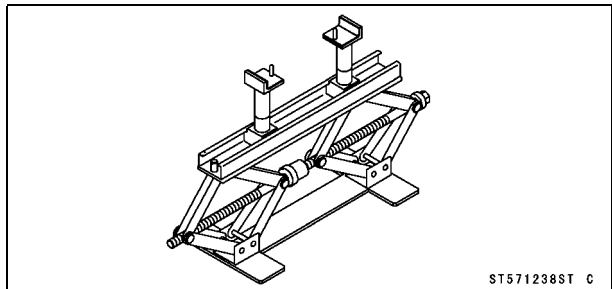
**57001-1202**



ST571202ST C

**Jack:**

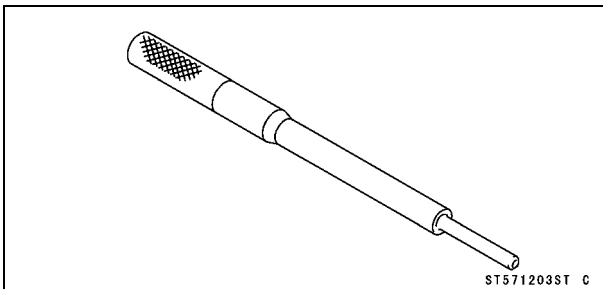
**57001-1238**



ST571238ST C

**Valve Guide Arbor,  $\phi 5$ :**

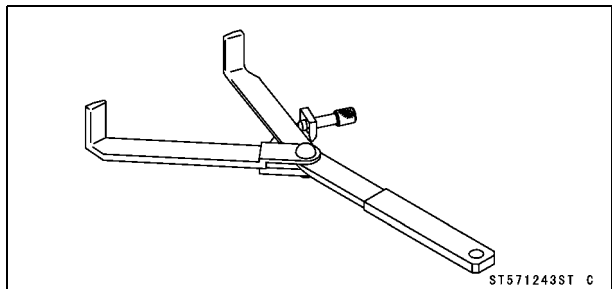
**57001-1203**



ST571203ST C

**Clutch Holder:**

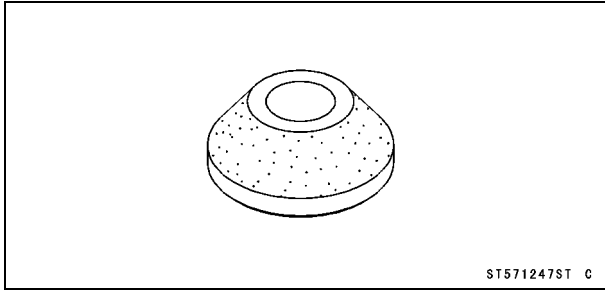
**57001-1243**



ST571243ST C

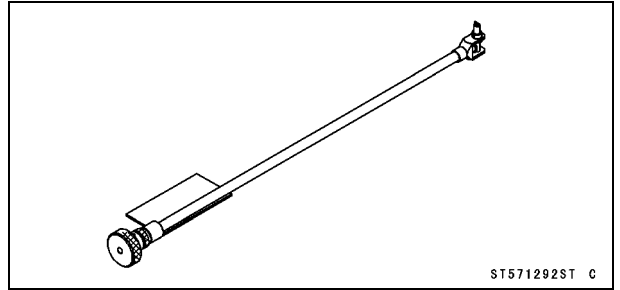
Special Tools and Sealant

Valve Seat Cutter, 55° -  $\phi 35$ :  
57001-1247



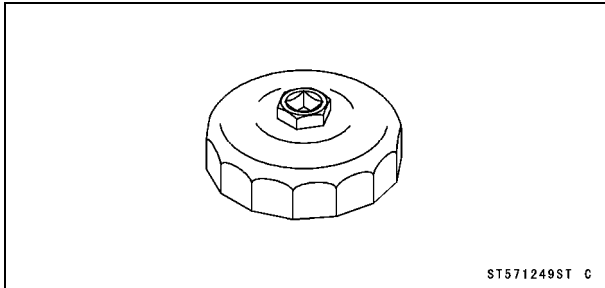
ST571247ST C

Pilot Screw Adjuster, C:  
57001-1292



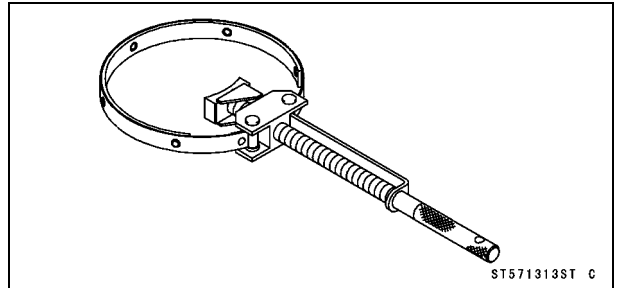
ST571292ST C

Oil Filter Wrench:  
57001-1249



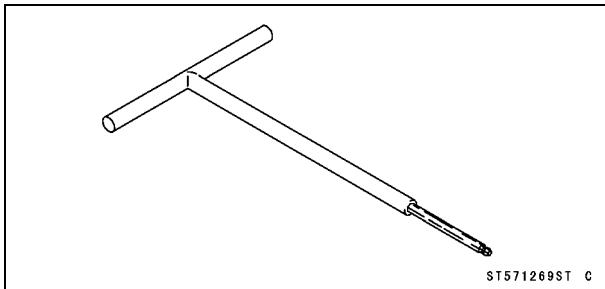
ST571249ST C

Flywheel Holder:  
57001-1313



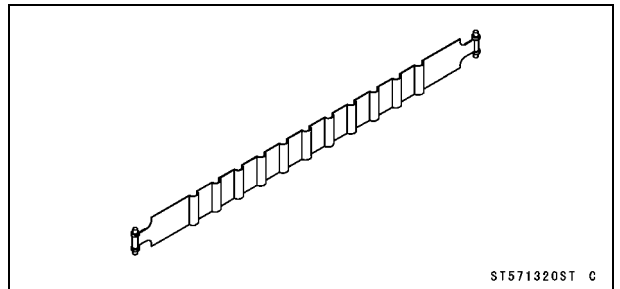
ST571313ST C

Carburetor Drain Plug Wrench, Hex 3:  
57001-1269



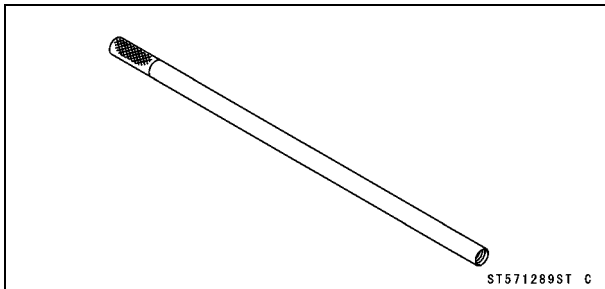
ST571269ST C

Piston Ring Compressor Belt,  $\phi 80 \sim \phi 91$ :  
57001-1320



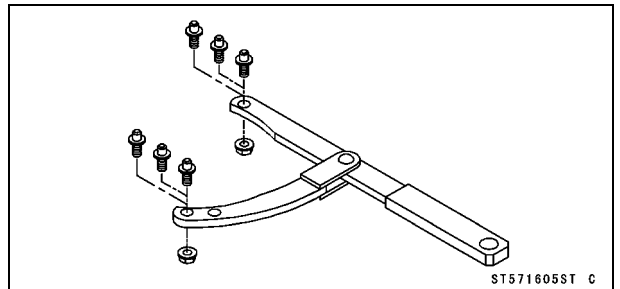
ST571320ST C

Fork Piston Rod Puller, M12 × 1.25:  
57001-1289



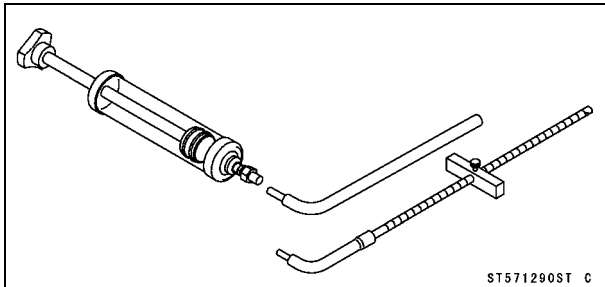
ST571289ST C

Flywheel & Pulley Holder:  
57001-1605



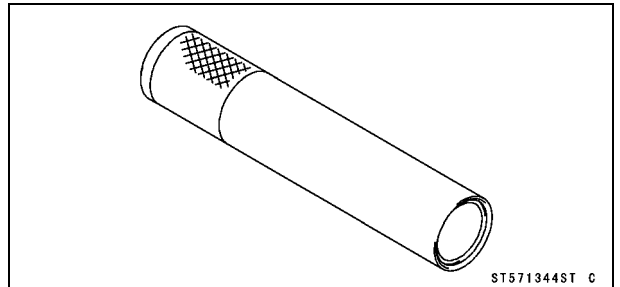
ST571605ST C

Fork Oil Level Gauge:  
57001-1290



ST571290ST C

Steering Stem Bearing Driver,  $\phi 42.5$ :  
57001-1344



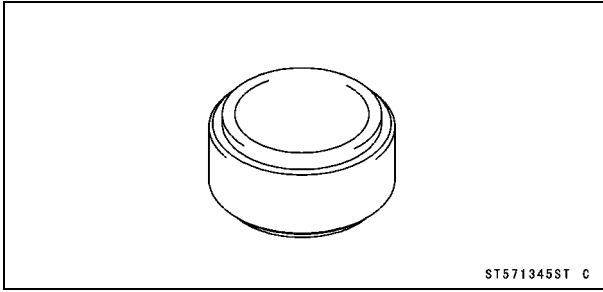
ST571344ST C



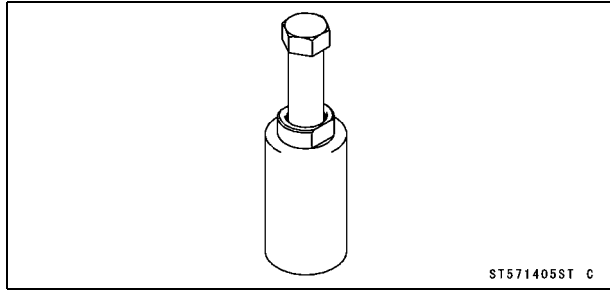
# 1-28 GENERAL INFORMATION

## Special Tools and Sealant

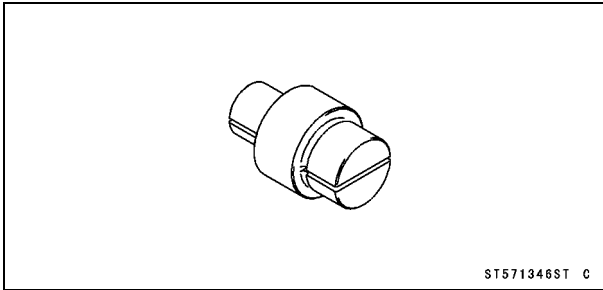
**Steering Stem Bearing Driver Adapter,  $\phi 41.5$ :**  
57001-1345



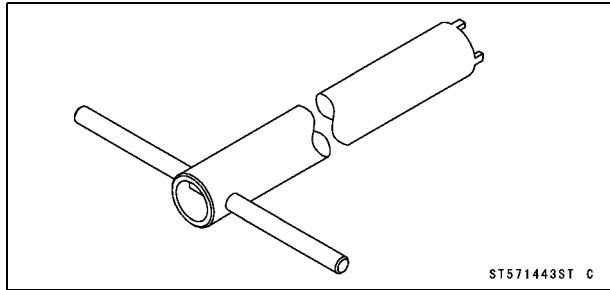
**Flywheel Puller Assembly, M38  $\times$  1.5/M35  $\times$  1.5:**  
57001-1405



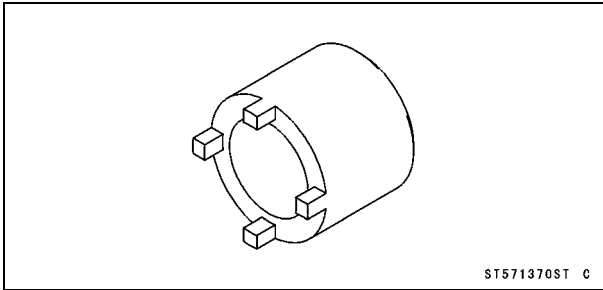
**Bearing Remover Head,  $\phi 25 \times \phi 28$ :**  
57001-1346



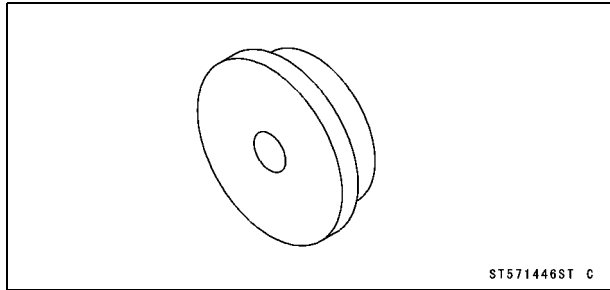
**Fork Cylinder Holder:**  
57001-1443



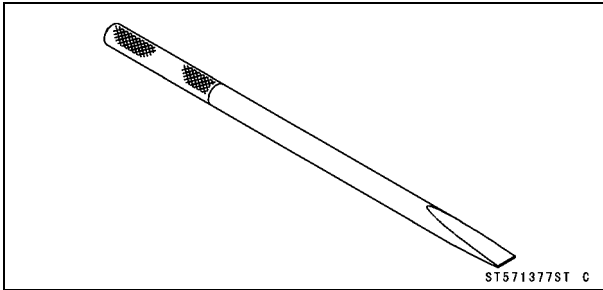
**Socket Wrench:**  
57001-1370



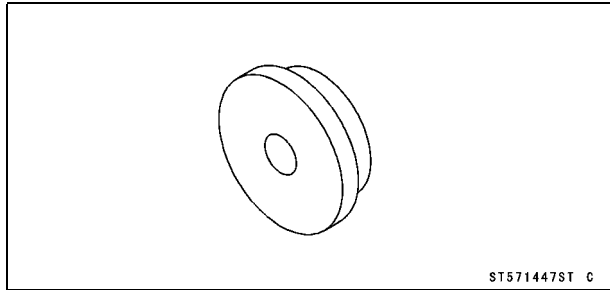
**Head Pipe Outer Race Driver,  $\phi 55$ :**  
57001-1446



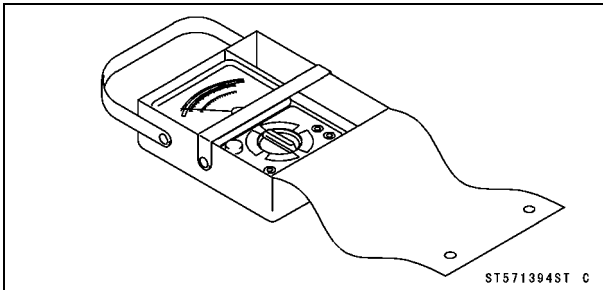
**Bearing Remover Shaft,  $\phi 13$ :**  
57001-1377



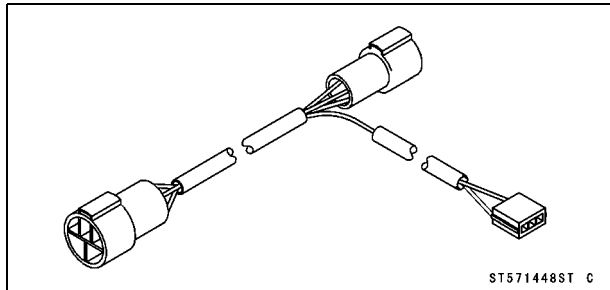
**Head Pipe Outer Race Driver,  $\phi 47$ :**  
57001-1447



**Hand Tester:**  
57001-1394

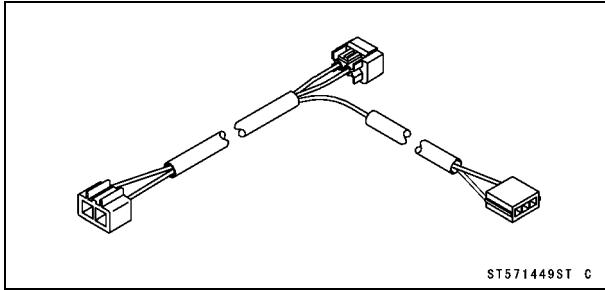


**Lead Wire - Voltage Regulator Adapter:**  
57001-1448

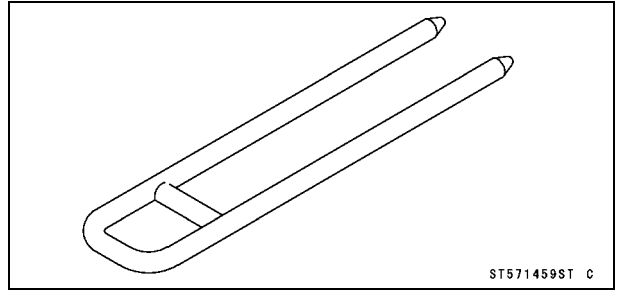


Special Tools and Sealant

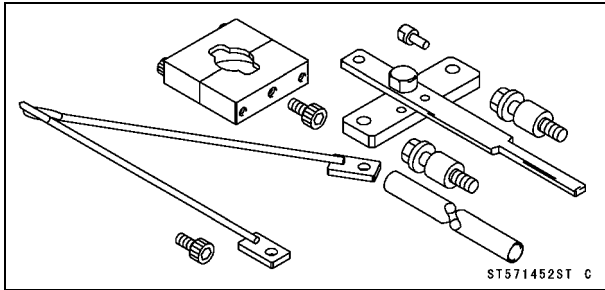
Lead Wire - Peak Voltage Adapter:  
57001-1449



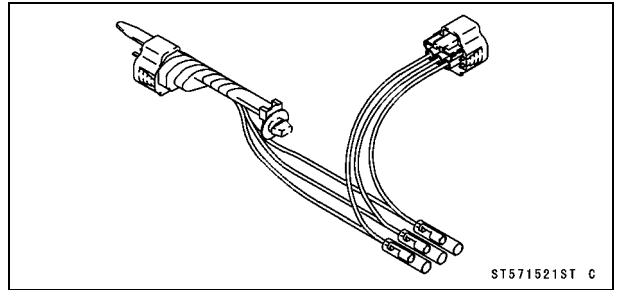
Piston Base,  $\phi 10$ :  
57001-1459



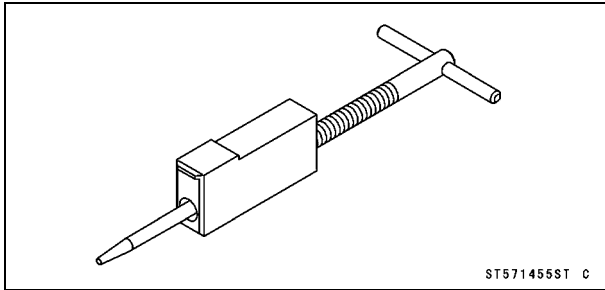
Fork Spring Compressor Set:  
57001-1452



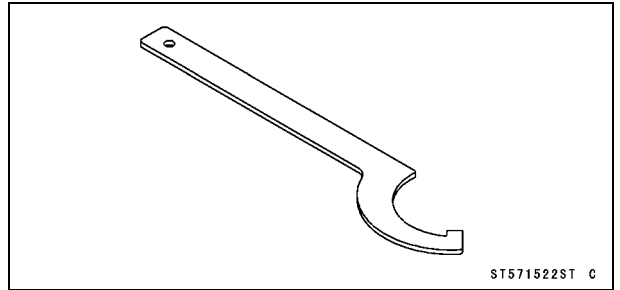
Throttle Sensor Setting Adapter:  
57001-1521



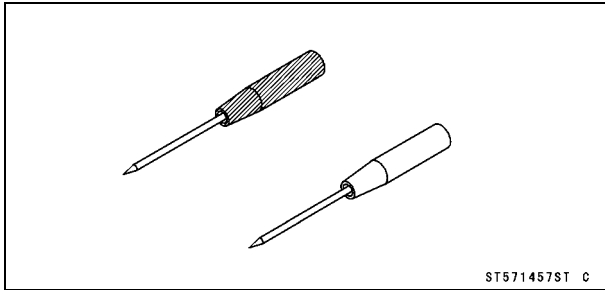
Clutch Gear Setting Screw:  
57001-1455



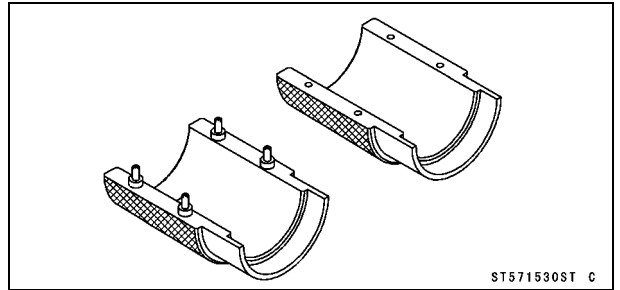
Hook Wrench T = 3.2 R37:  
57001-1522



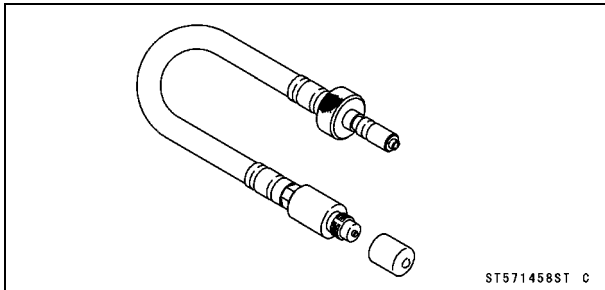
Needle Adapter Set:  
57001-1457



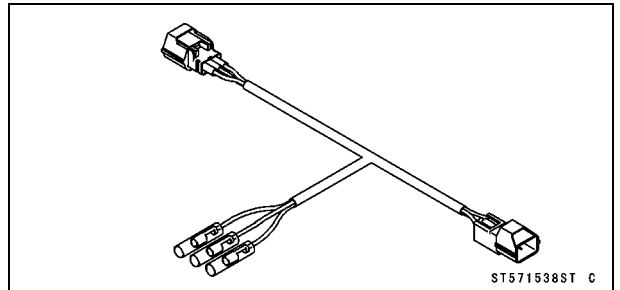
Fork Oil Seal Driver,  $\phi 43$ :  
57001-1530



Compression Gauge Adapter, M10  $\times$  1.0:  
57001-1458



Throttle Sensor Setting Adapter:  
57001-1538

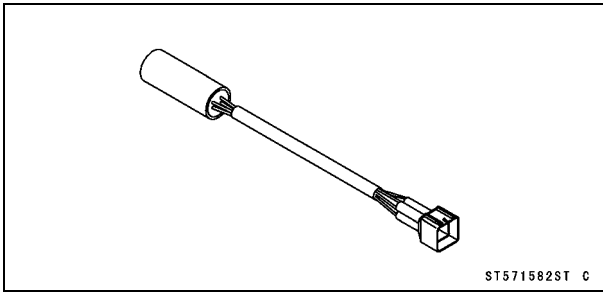


# 1-30 GENERAL INFORMATION

## Special Tools and Sealant

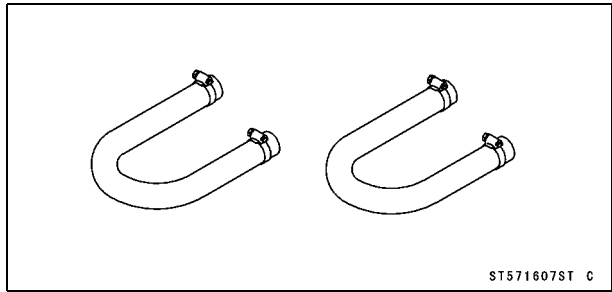
**Key Registration Unit:**

**57001-1582**



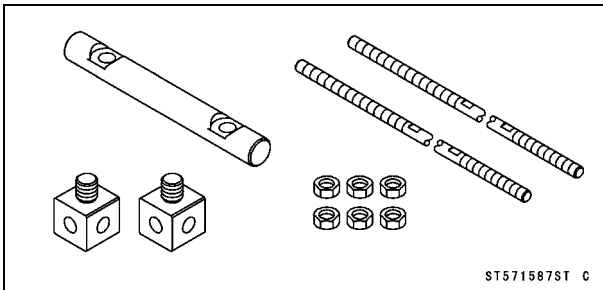
**Fuel Hose:**

**57001-1607**



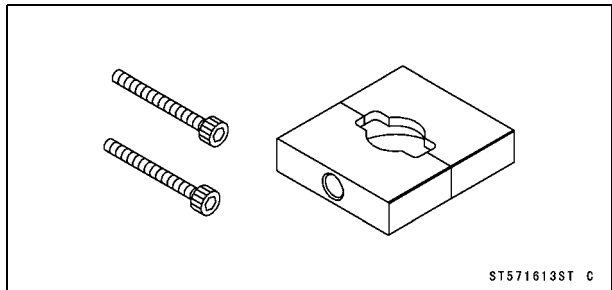
**Fork Spring Compressor:**

**57001-1587**



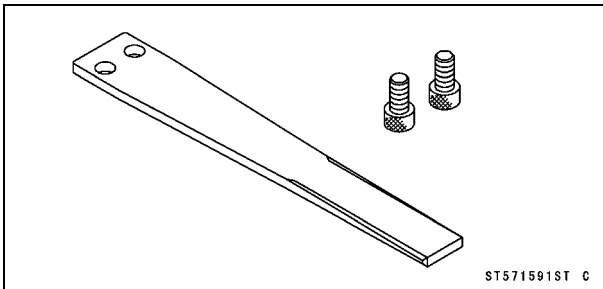
**Clamp:**

**57001-1613**



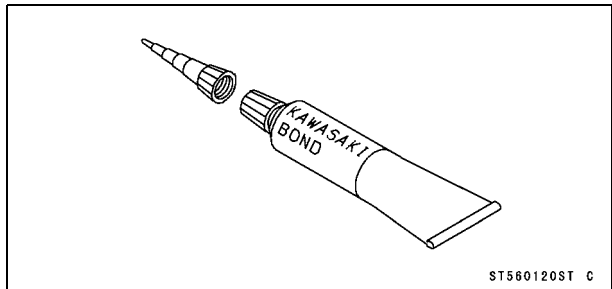
**Grip:**

**57001-1591**



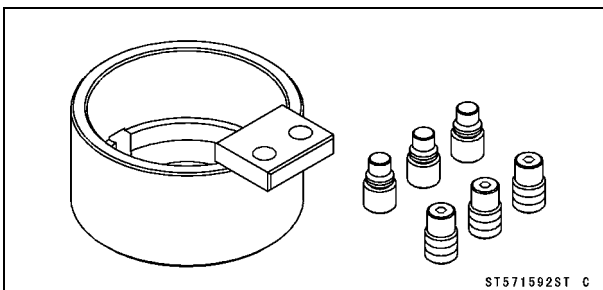
**Kawasaki Bond (Silicone Sealant):**

**56019-120**



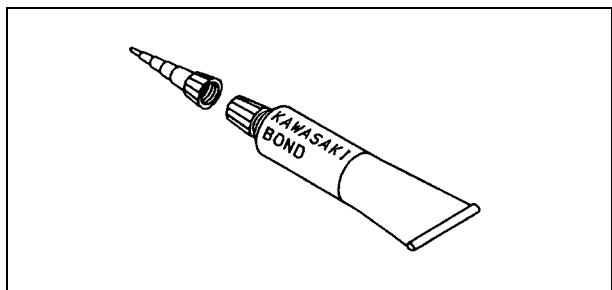
**Rotor holder:**

**57001-1592**



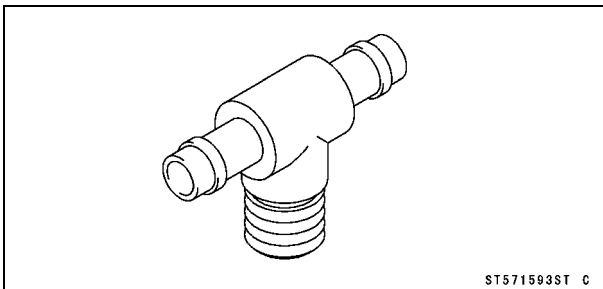
**Kawasaki Bond (Liquid Gasket - Black) TB1215:**

**92104-1062**

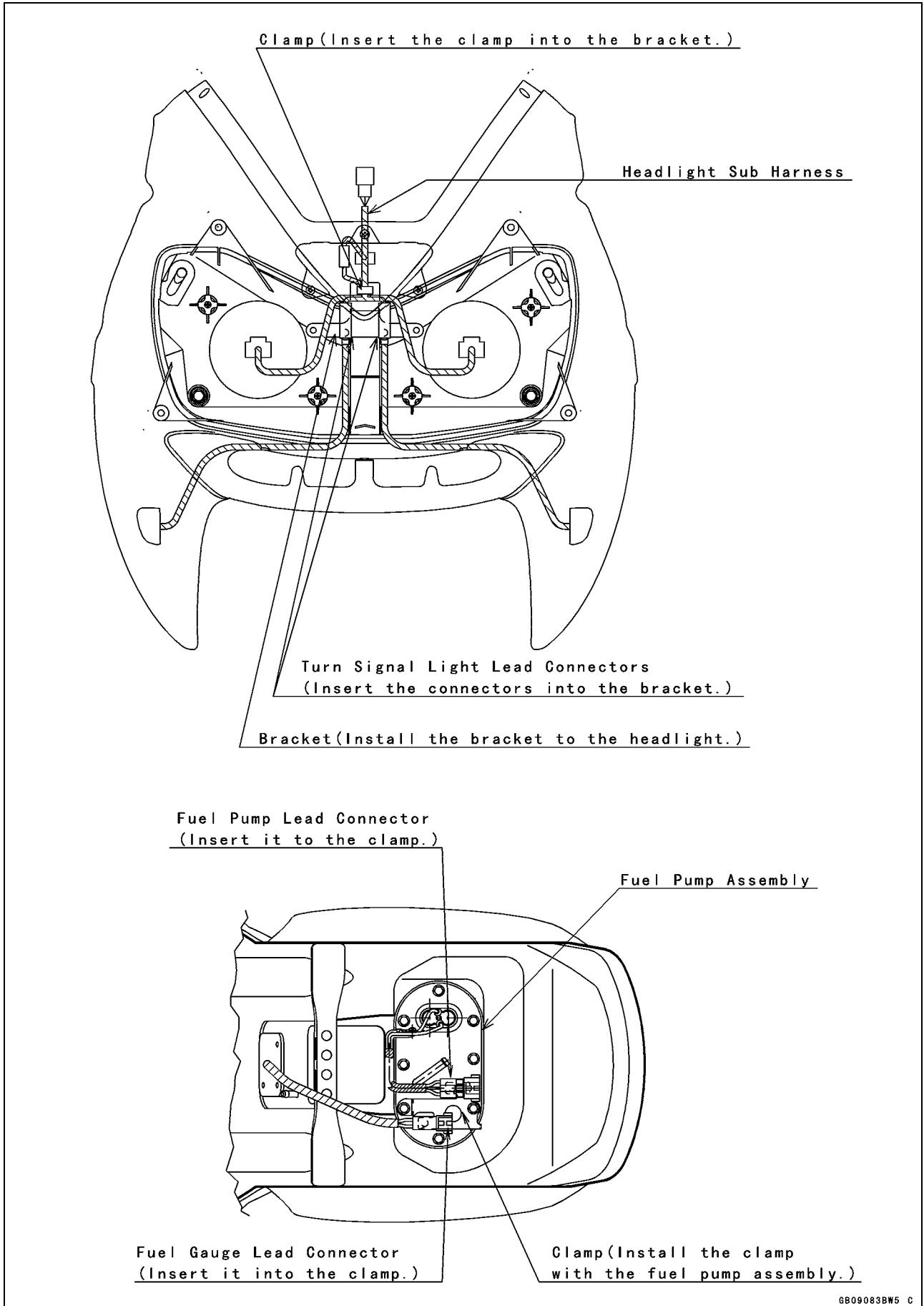


**Fuel Pressure Gauge Adapter:**

**57001-1593**

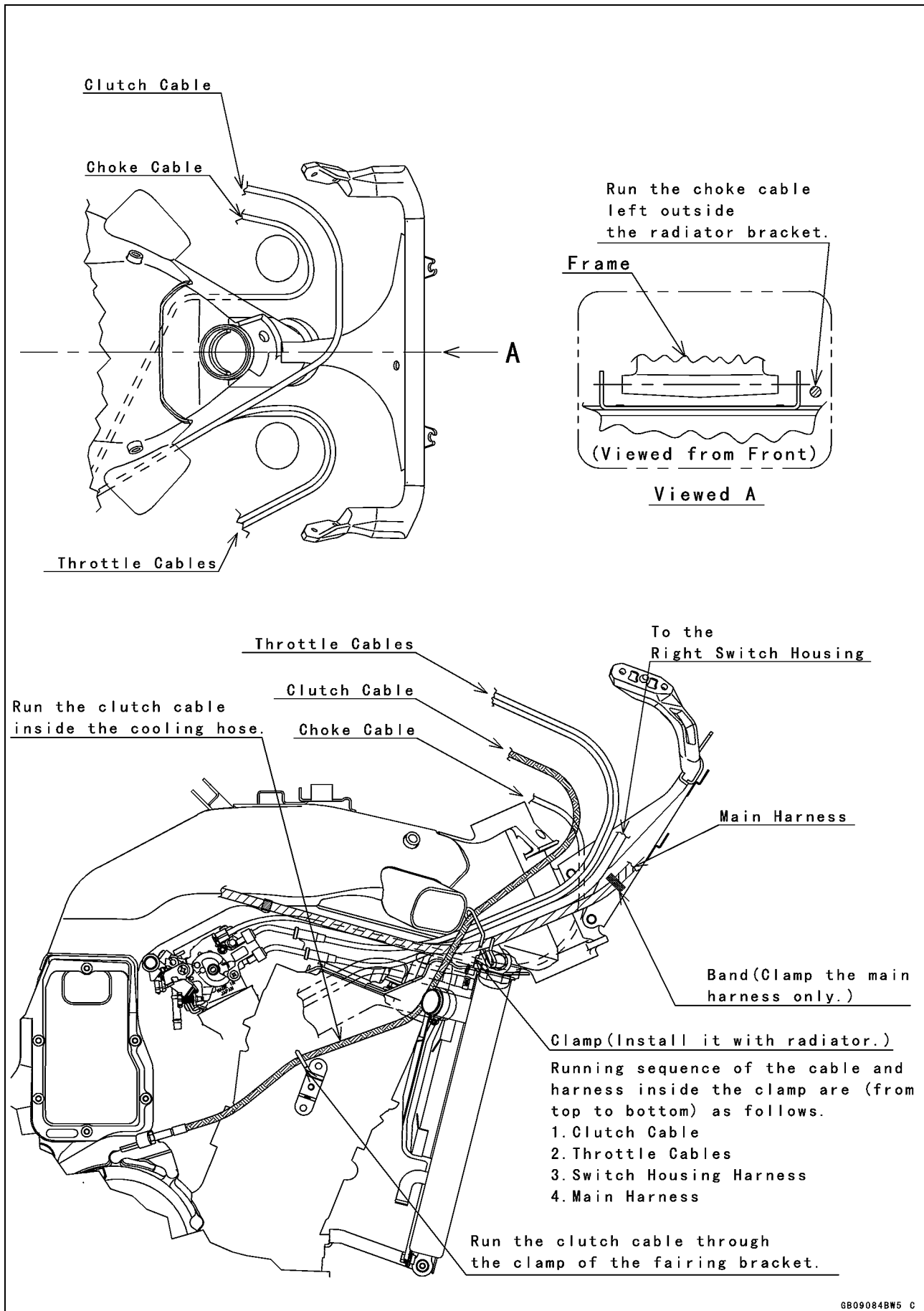


Cable, Wire, and Hose Routing



# 1-32 GENERAL INFORMATION

## Cable, Wire, and Hose Routing



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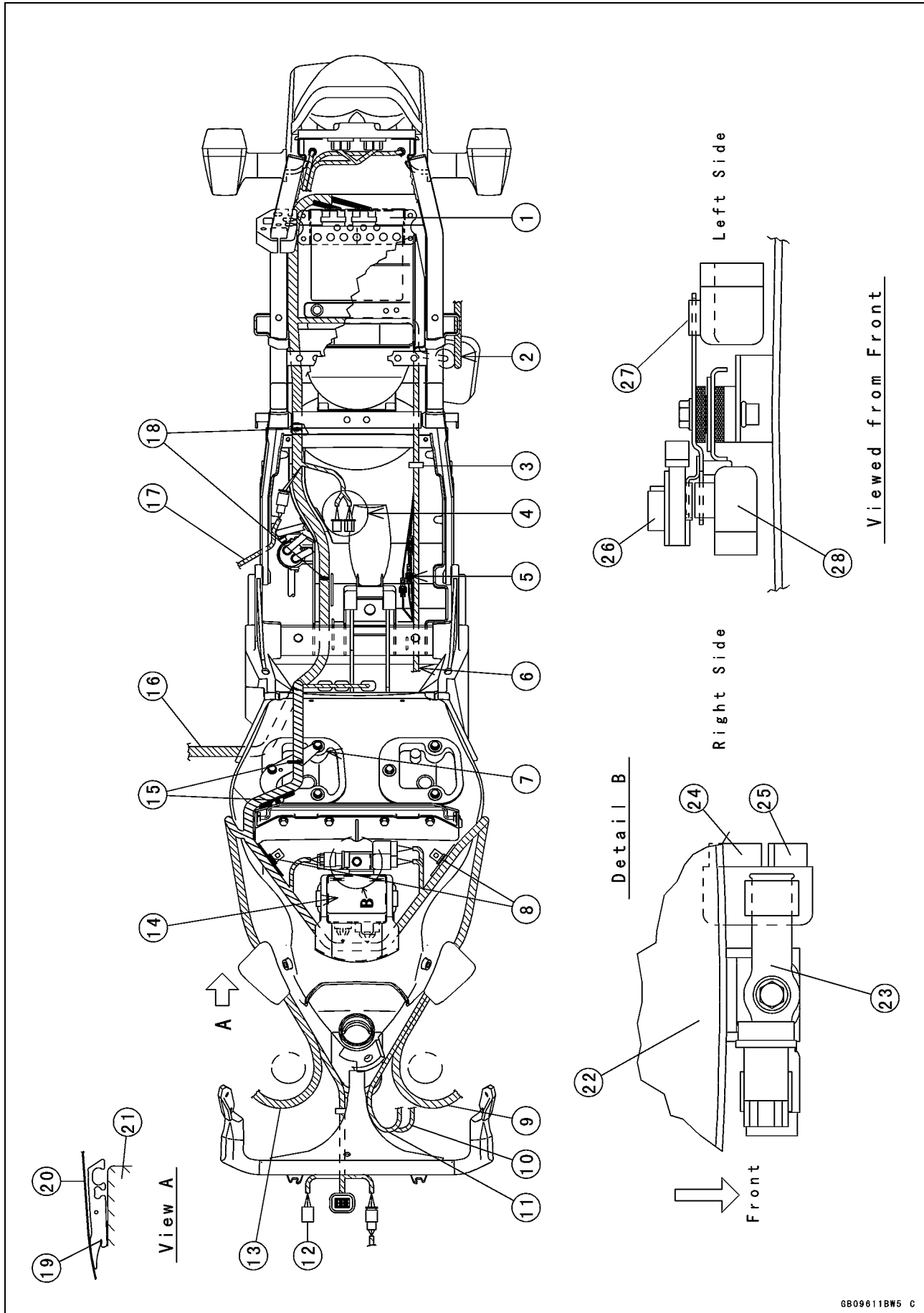
**Cable, Wire, and Hose Routing**

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Dummy Page

# 1-34 GENERAL INFORMATION

## Cable, Wire, and Hose Routing



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**Cable, Wire, and Hose Routing**

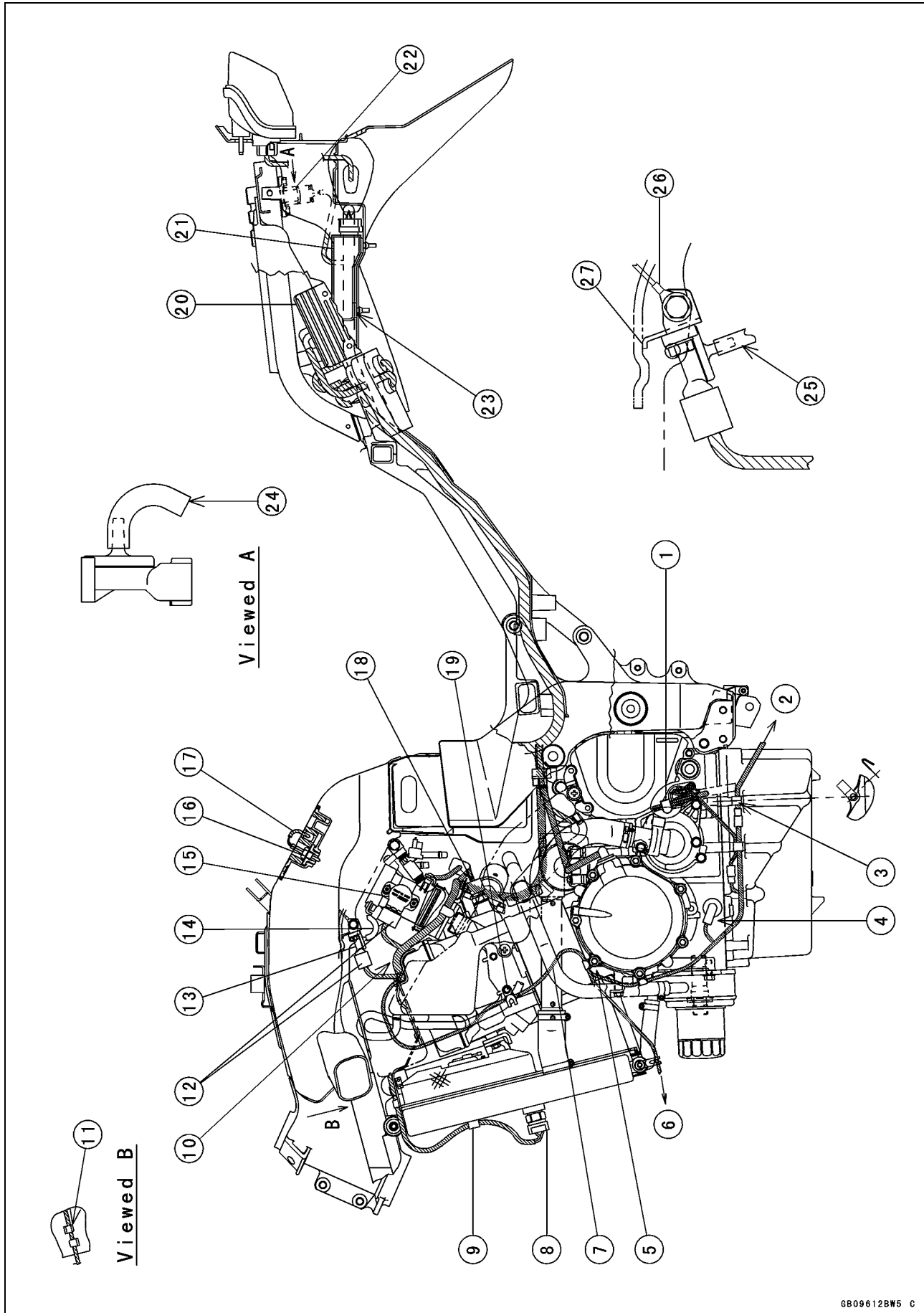
---

1. ECU Guard
2. Connect the connectors of the Regulator/Rectifier leads.
3. Clamp
4. Connect the connectors of the fuel pump and fuel gauge leads.
5. Connect the connector of the Regulator/Rectifier and Alternator Leads (ZX1200-B3 ~)
6. To Alternator
7. Install the clamp with air cleaner cap.
8. Insert the harness into the clamps
9. To Left Switch Housing
10. To Immobilizer Antenna (ZX1200-B3 ~)
11. To Ignition Switch
12. Immobilizer Amplifier Connector (ZX1200-B3 ~)
13. To Right Switch Housing
14. Junction Box
15. Put the harness into the holes of the clamp.
16. To Battery Tray
17. To Rear Brake Light Switch
18. Put the harness into the holes of the fenders.
19. Crankshaft Sensor Lead
20. Right Lower Fairing
21. Engine
22. Fuel Tank
23. Bracket (Install the bracket with the fuel tank)
24. Fan Relay
25. Fuel Pump Relay
26. ECU 15 A Fuse
27. Fuel Pump and Fan Relay
28. ECU Relay.



# 1-36 GENERAL INFORMATION

## Cable, Wire, and Hose Routing (ZX1200-B1/B2)



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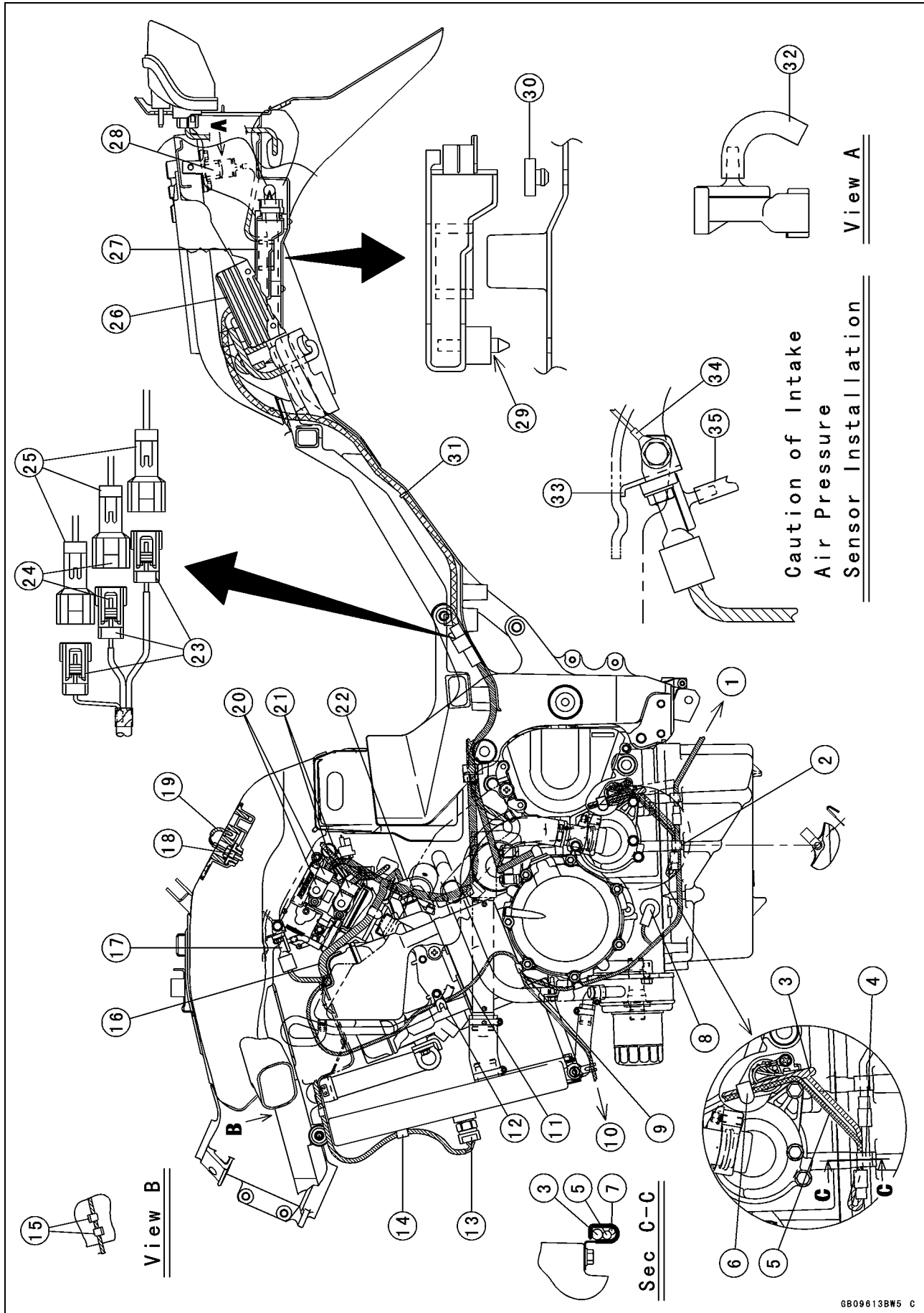
**Cable, Wire, and Hose Routing (ZX1200-B1/B2)**

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1. Clamp the leads so that the speed sensor lead is out side.
2. To Side Stand Switch
3. Clamp the side stand switch lead.
4. Install the rubber cap of the oil pressure warning light switch as shown.
5. Clamp the harness just before the diverging point.
6. To Horn
7. Run the harness between the water pipe and hose.
8. Fan Switch
9. Clamp the fan switch lead.
10. Run the harness over the cover.
11. Run the fan switch lead through the clamps of baffle plate.
12. Do not connect the throttle sensor lead connector to the intake air pressure sensor, because the pressure sensor is broken by the opposite electrical connection.
13. Intake Air Pressure Sensor
14. Run the tube left side of the boss on the throttle body.
15. Throttle sensor
16. Intake Air Temperature Sensor
17. After connecting the connector insert it into the damper.
18. Water Temperature Sensor
19. Clamp the horn lead and reserve tank hose.
20. Regulator/Rectifier
21. ECU
22. Atmospheric Pressure Sensor
23. Insert the dumpers of the ECU into the holes of the fender.
24. Position the tube end downward.
25. Connect the vacuum tube of the throttle body.
26. Tighten the sensor bracket bolt with the ground lead.
27. Touch the stopper of the bracket onto the frame.

# 1-38 GENERAL INFORMATION

## Cable, Wire, and Hose Routing (ZX1200-B3 ~)



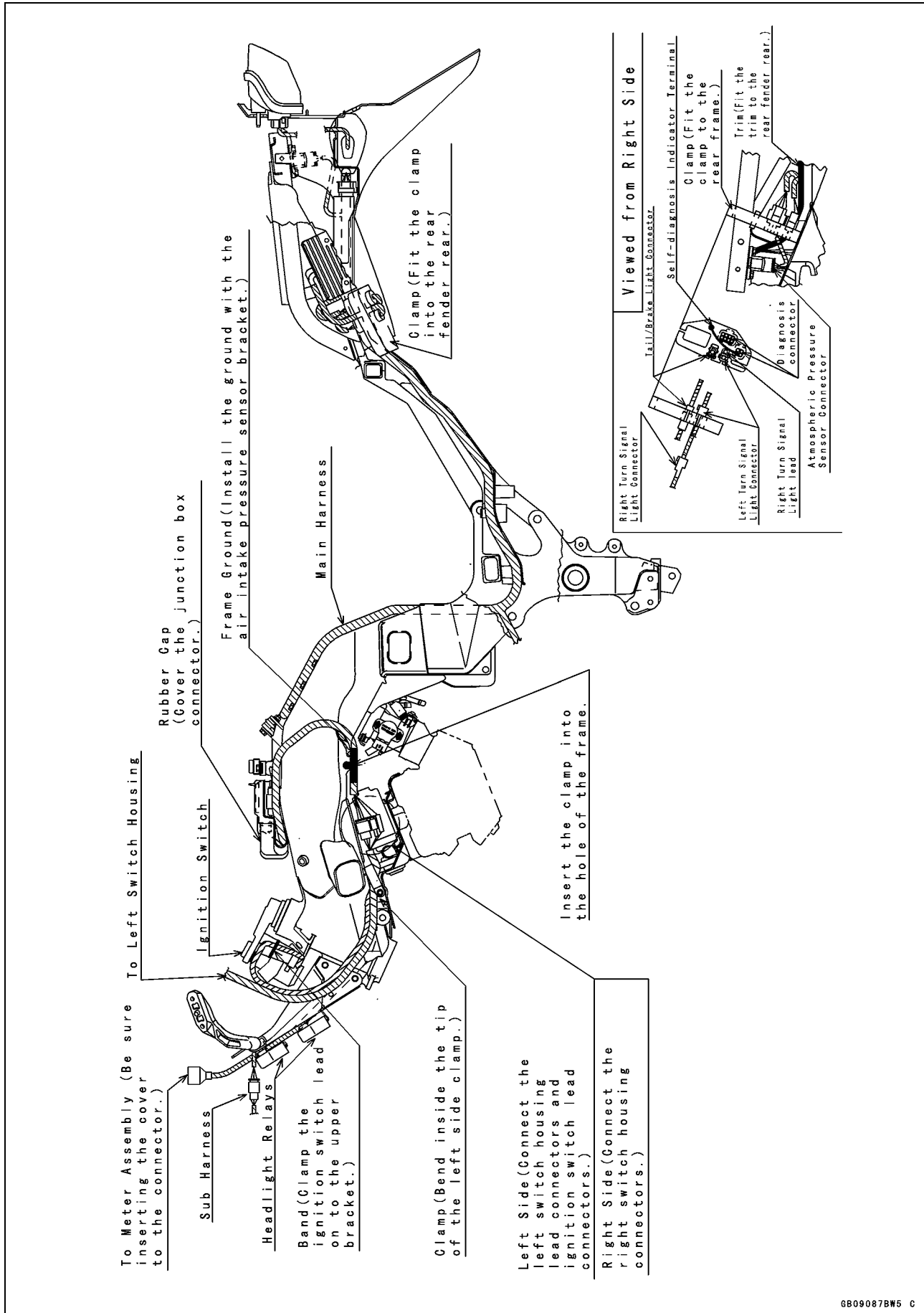
**Cable, Wire, and Hose Routing (ZX1200-B3 ~)**

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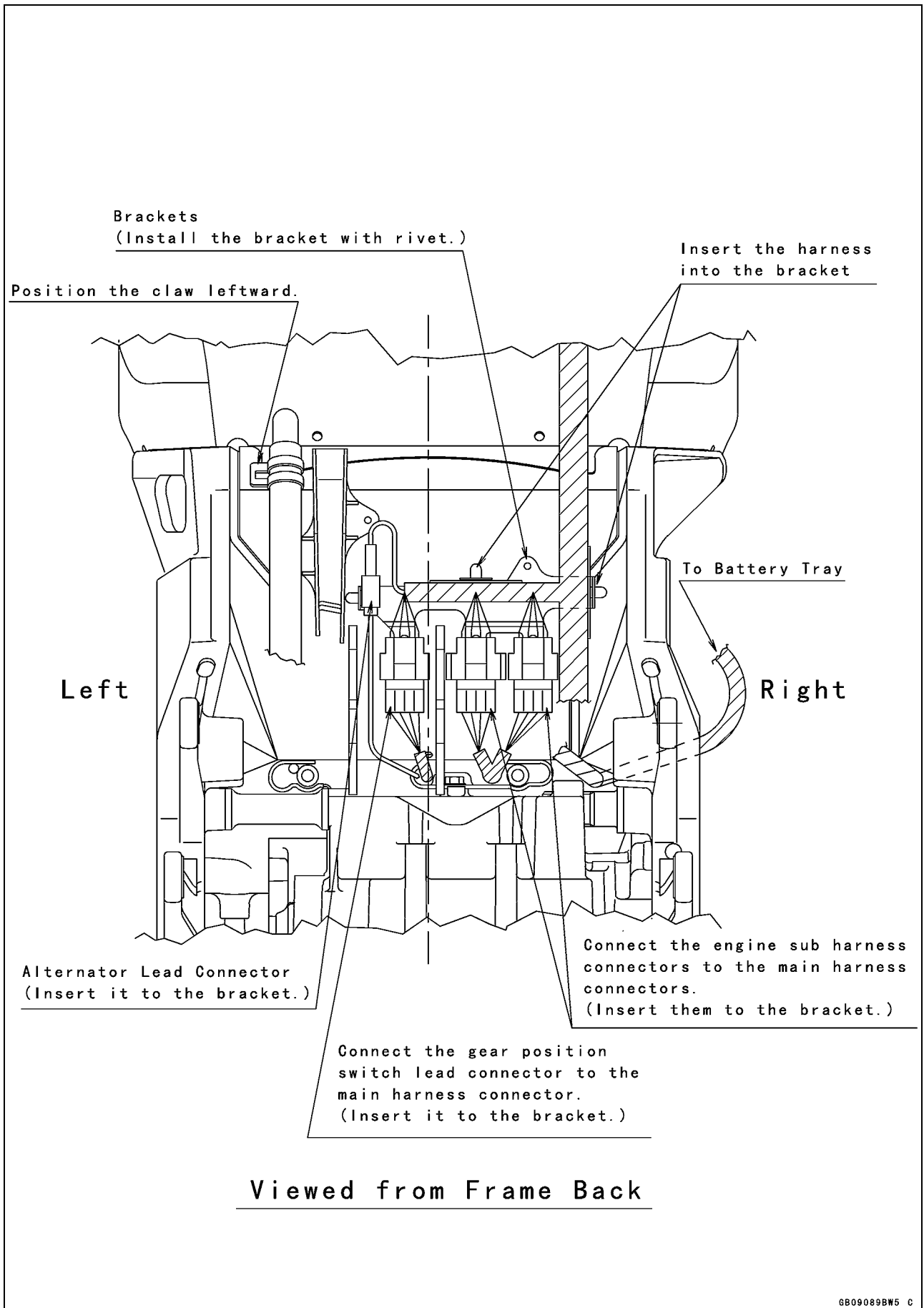
1. To Side Stand Switch
2. Clamp the side stand switch lead.
3. Gear Position Switch Lead
4. Clamp the speed sensor lead, gear position switch lead and sub harness, for prevent of the speed sensor connector movement.
5. Speed Sensor Lead
6. Clamp the leads so that the speed sensor lead is out side.
7. Sub Harness
8. Install the rubber cap of the oil pressure warning light switch as shown.
9. Clamp the harness just before the diverging point.
10. To Horn
11. Run the harness between the water pipe and hose.
12. Clamp the horn lead and reserve tank hose.
13. Fan Switch
14. Clamp the fan switch lead.
15. Run the fan switch lead through the clamps of baffle plate.
16. Run the harness over the cover.
17. Intake Air Pressure Sensor
18. Intake Air Temperature Sensor
19. After connecting the connector insert it into the damper.
20. Sub Throttle Sensor
21. Main Throttle Sensor
22. Water Temperature Sensor
23. From Alternator.
24. White Connector
25. From Regulator/Rectifier
26. Regulator/Rectifier
27. ECU
28. Atmospheric Pressure Sensor
29. Insert the dumpers of the ECU into the holes of the fender.
30. Damper (Other than Europe and United Kingdom Model)
31. Through the harness into the clamp.
32. Position the tube end downward.
33. Touch the stopper of the bracket onto the frame.
34. Tighten the sensor bracket bolt with the ground lead.
35. Connect the vacuum tube of the throttle body.

# 1-40 GENERAL INFORMATION

## Cable, Wire, and Hose Routing

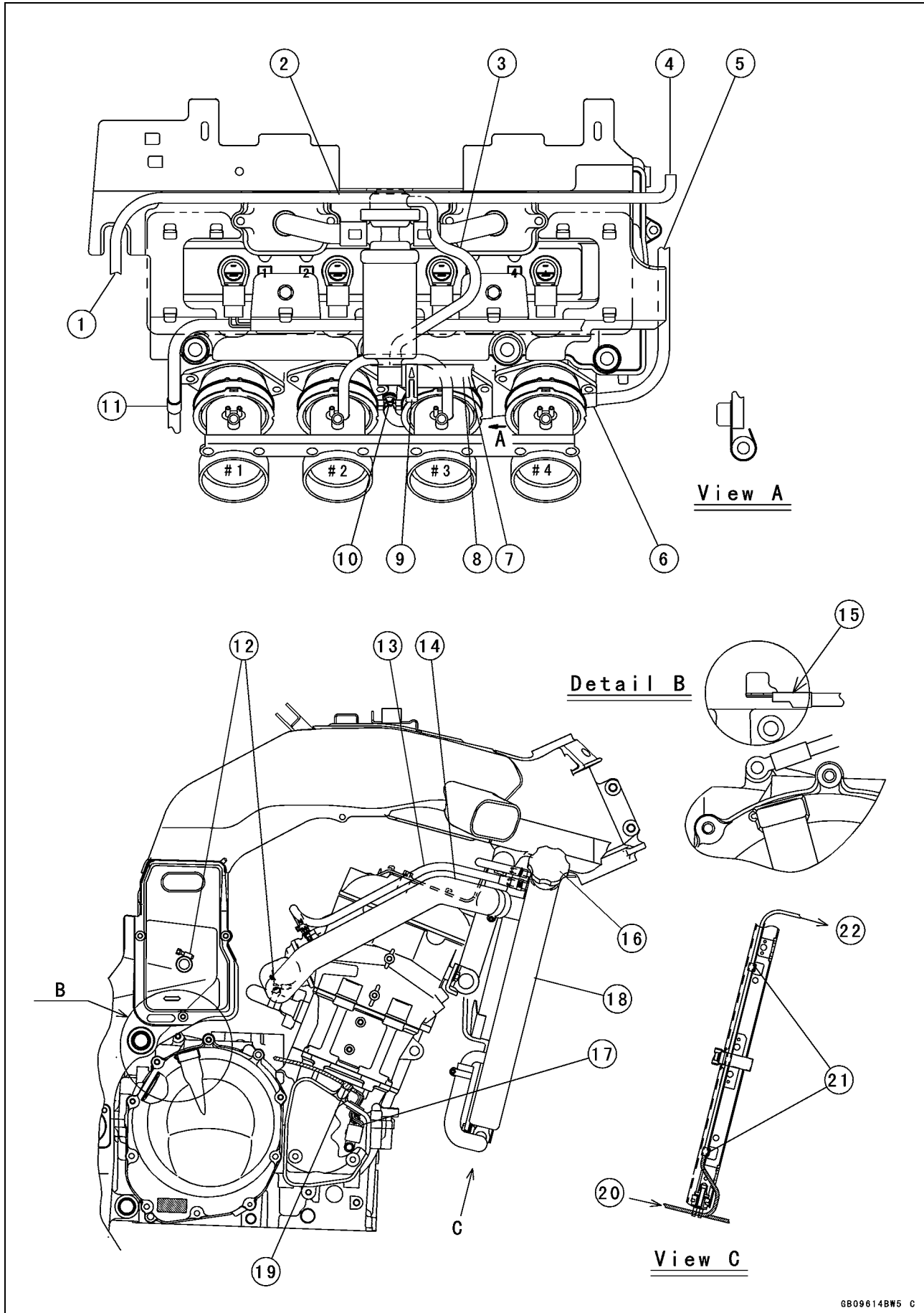


Cable, Wire, and Hose Routing



# 1-42 GENERAL INFORMATION

## Cable, Wire, and Hose Routing (ZX1200-B1/B2)



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**Cable, Wire, and Hose Routing (ZX1200-B1/B2)**

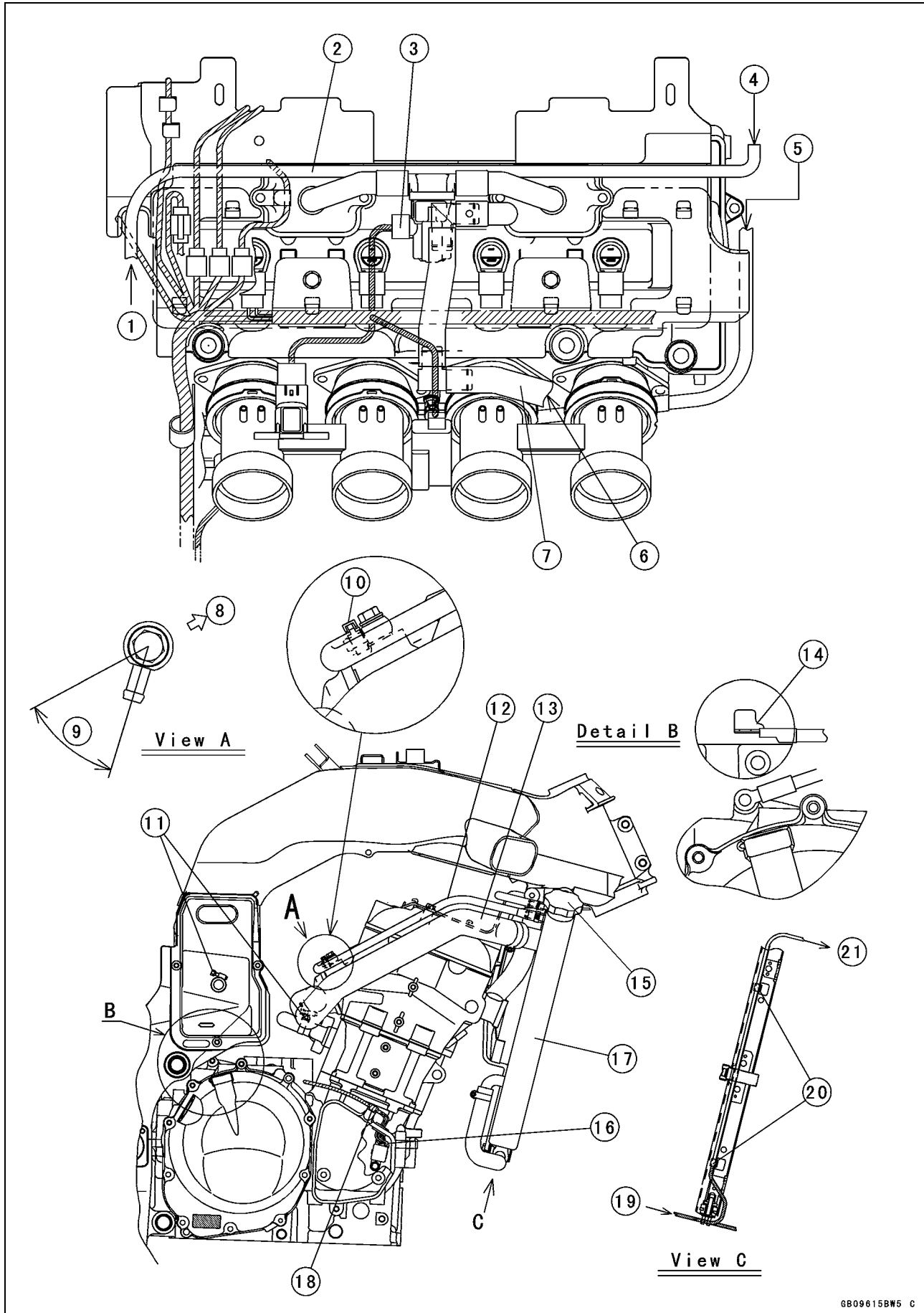
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1. To the reserve tank bottom.
2. Cooling Reserve Tank Hose
3. Vacuum Hose
4. To the radiator filler neck portion.
5. To the radiator.
6. Clamp
7. To the hole of frame.
8. Tube
9. Clamp (Position the claw rearward.)
10. Clamp
11. Clamp
12. Position the clamp screws as shown.
13. Cooling Tube
14. Cooling Pipe
15. Flat Side
16. Radiator Cap
17. Run the lead front the bracket.
18. Radiator
19. Clamp
20. To the subharness.
21. Clamps
22. To the horn.



# 1-44 GENERAL INFORMATION

## Cable, Wire, and Hose Routing (ZX1200-B3 ~)



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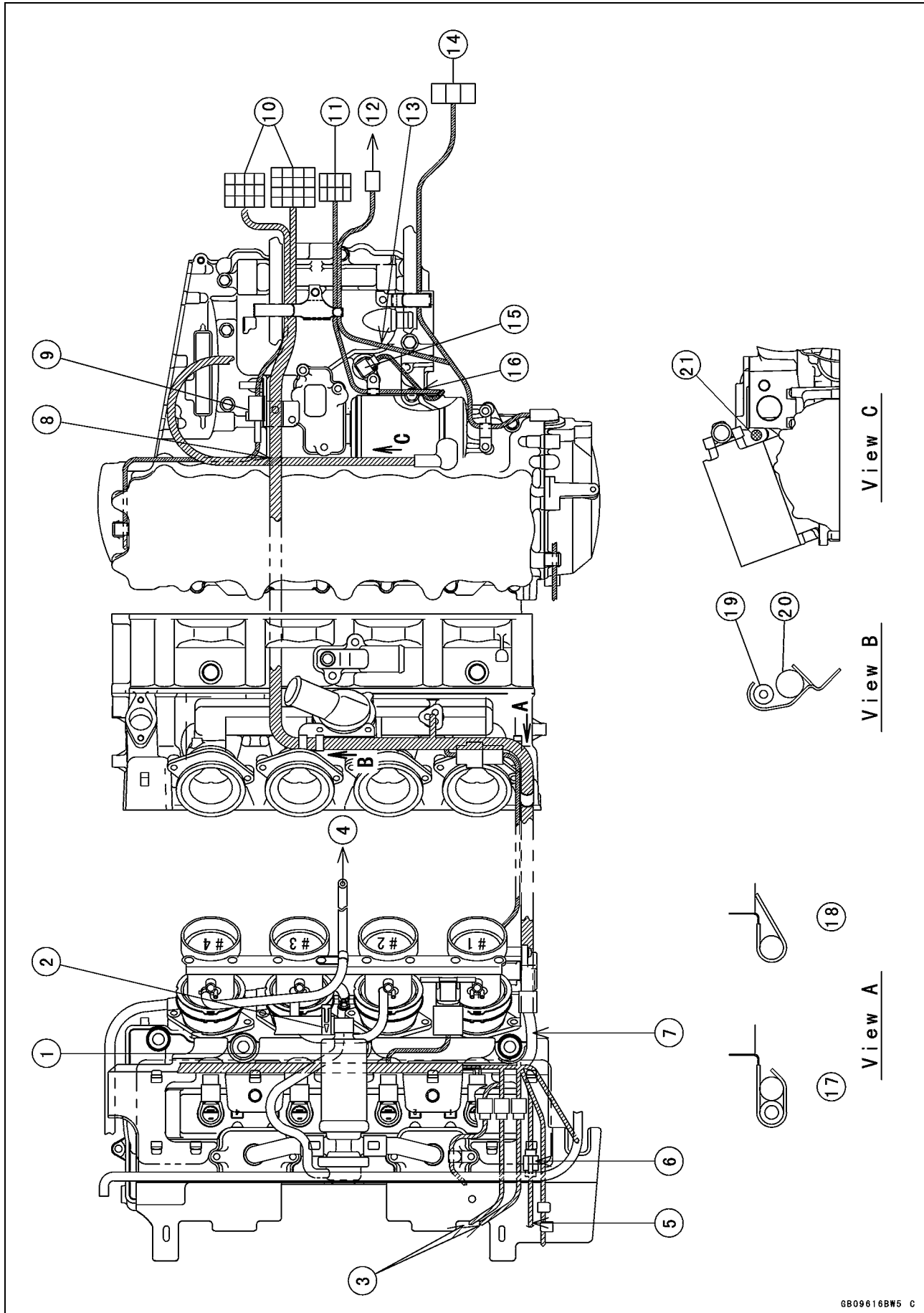
**Cable, Wire, and Hose Routing (ZX1200-B3 ~)**

---

1. To the reserve tank bottom.
2. Cooling Reserve Tank Hose
3. Air Suction Vanlve
4. To the radiator filler neck portion.
5. To the radiator.
6. To the hole of frame.
7. Tube
8. Clamp (Position the claw rearward.)
9. About 45°
10. Clamp
11. Position the clamp screws as shown.
12. Cooling Tube
13. Cooling Pipe
14. Flat Side
15. Radiator Cap
16. Run the lead front the bracket.
17. Radiator
18. Clamp
19. To the sub harness.
20. Clamps
21. To the horn.

# 1-46 GENERAL INFORMATION

## Cable, Wire, and Hose Routing (ZX1200-B1/B2)



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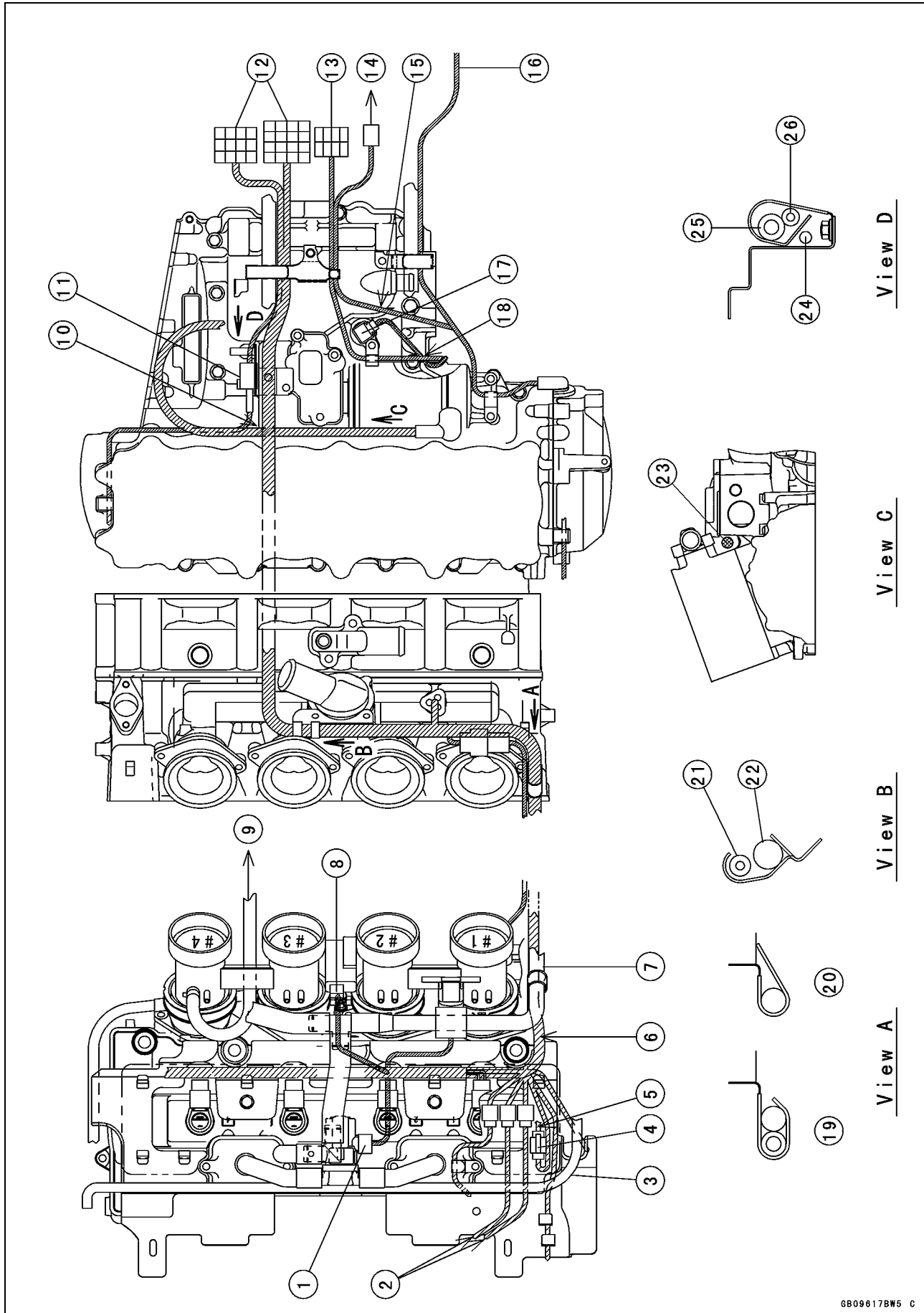
**Cable, Wire, and Hose Routing (ZX1200-B1/B2)**

---

1. Run the vacuum sensor lead above the evaporative tube (California model only).
2. Clamp (Position the clamp rearward.)
3. Run the fan leads as shown.
4. To the separator (California model only)
5. To Main Harness
6. Fan Relay (Signal) Connector
7. Run the engine sub harness outside the lip of the head cover.
8. Run the starter motor cable under the engine sub harness.
9. Fix the crankshaft sensor lead connector.
10. Engine Sub Harness Connector
11. Gear Position Switch Lead Connector
12. To Headlight Relay
13. Run the headlight relay lead under the fuel tube.
14. Alternator Lead Connector
15. Speed Sensor
16. Run the speed sensor lead back the bolt and under the gear position switch lead for prevent of the lead lift up.
17. California Model only
18. Other than California Model
19. Cooling Hose
20. Harness
21. Starter Motor Cable

# 1-48 GENERAL INFORMATION

## Cable, Wire, and Hose Routing (ZX1200-B3 ~)



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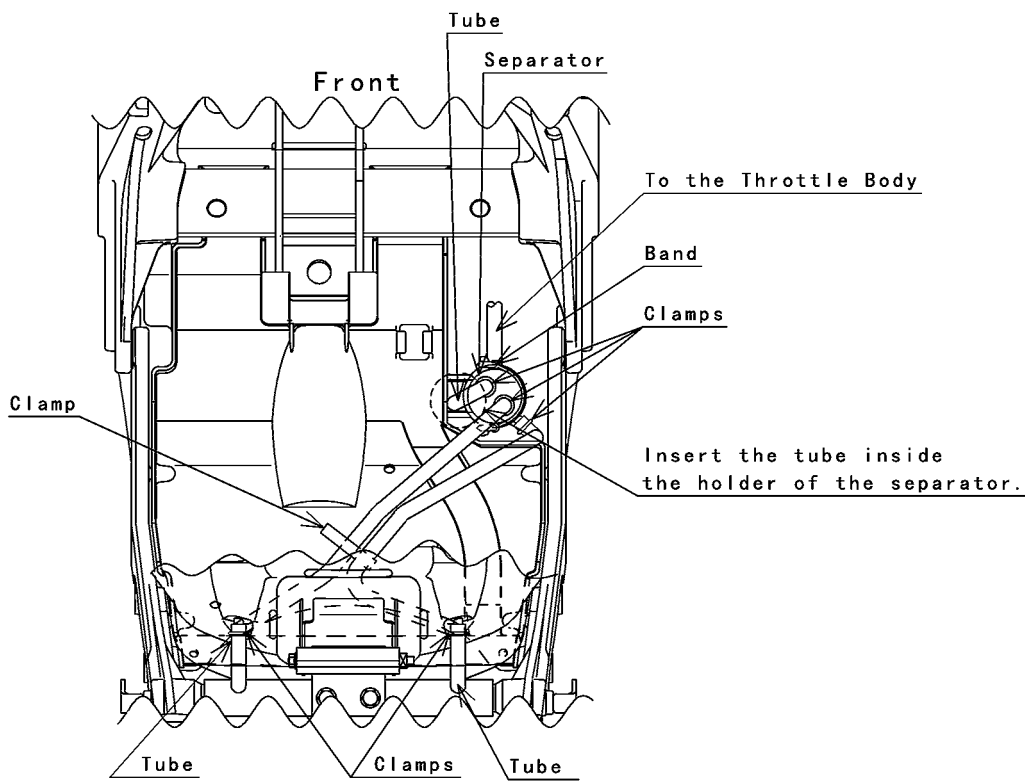
**Cable, Wire, and Hose Routing (ZX1200-B3 ~)**

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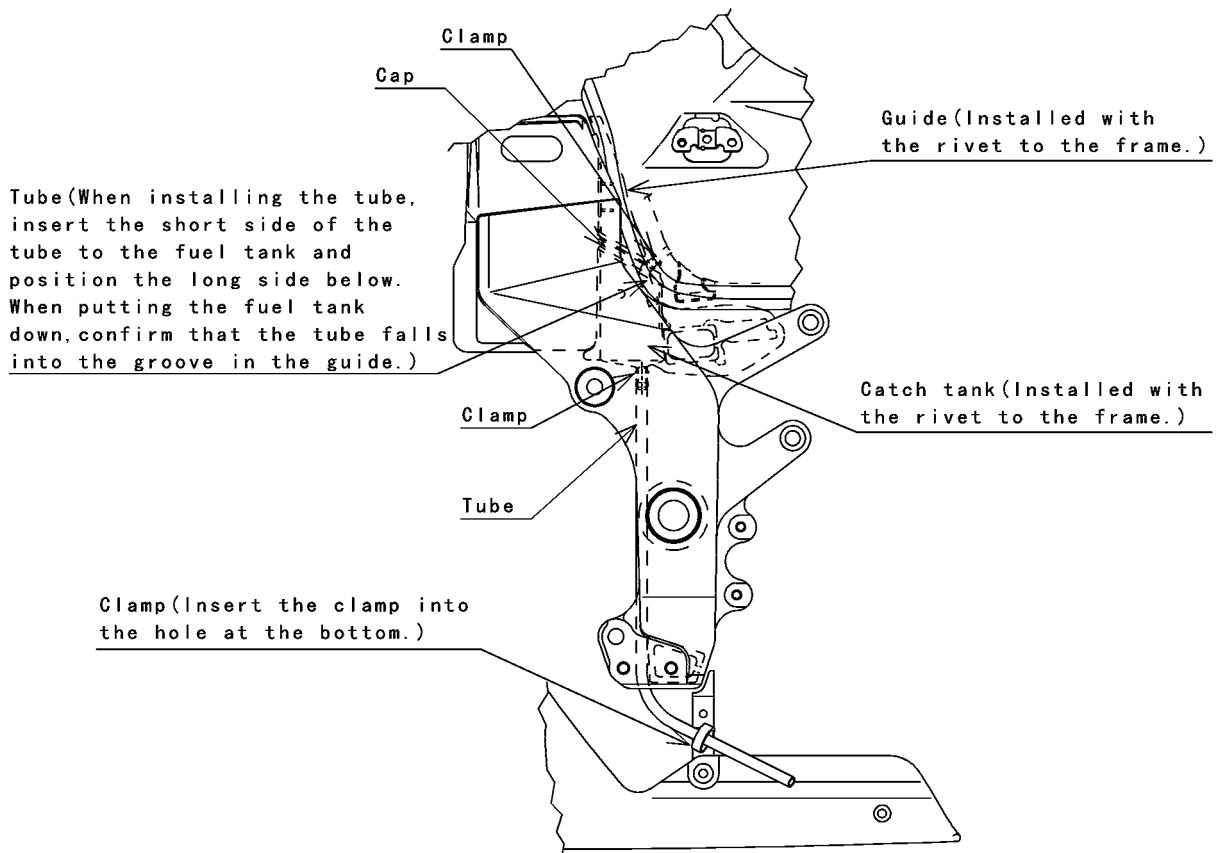
1. Air Switching Valve
2. Run the fan leads as shown.
3. Run the water hose on the fan leads and fan switch lead.
4. Fan Relay (Signal) Connector
5. To Main Harness
6. Run the engine sub harness outside the lib of the head cover.
7. To Canister (California Model only)
8. Actuator
9. To Separator (California Model only)
10. Run the starter motor cable under the engine sub harness.
11. Fix the crankshaft sensor lead connector.
12. Engine Sub Harness
13. Gear Position Switch Lead Connector
14. To Headlight Relay
15. Run the headlight relay lead under the fuel tube.
16. Alternator Lead Connector
17. Speed Sensor
18. Run the speed sensor lead back the bolt and under the gear position switch lead for privent of the lead lift up.
19. California Model only
20. Other than California Model
21. Cooling Hose
22. Harness
23. Starter Moter Cable
24. Crankshaft Sensor Lead
25. Fuel Supply Hose
26. Tube (Throttle Body-Separator) (California Model only)



Cable, Wire, and Hose Routing



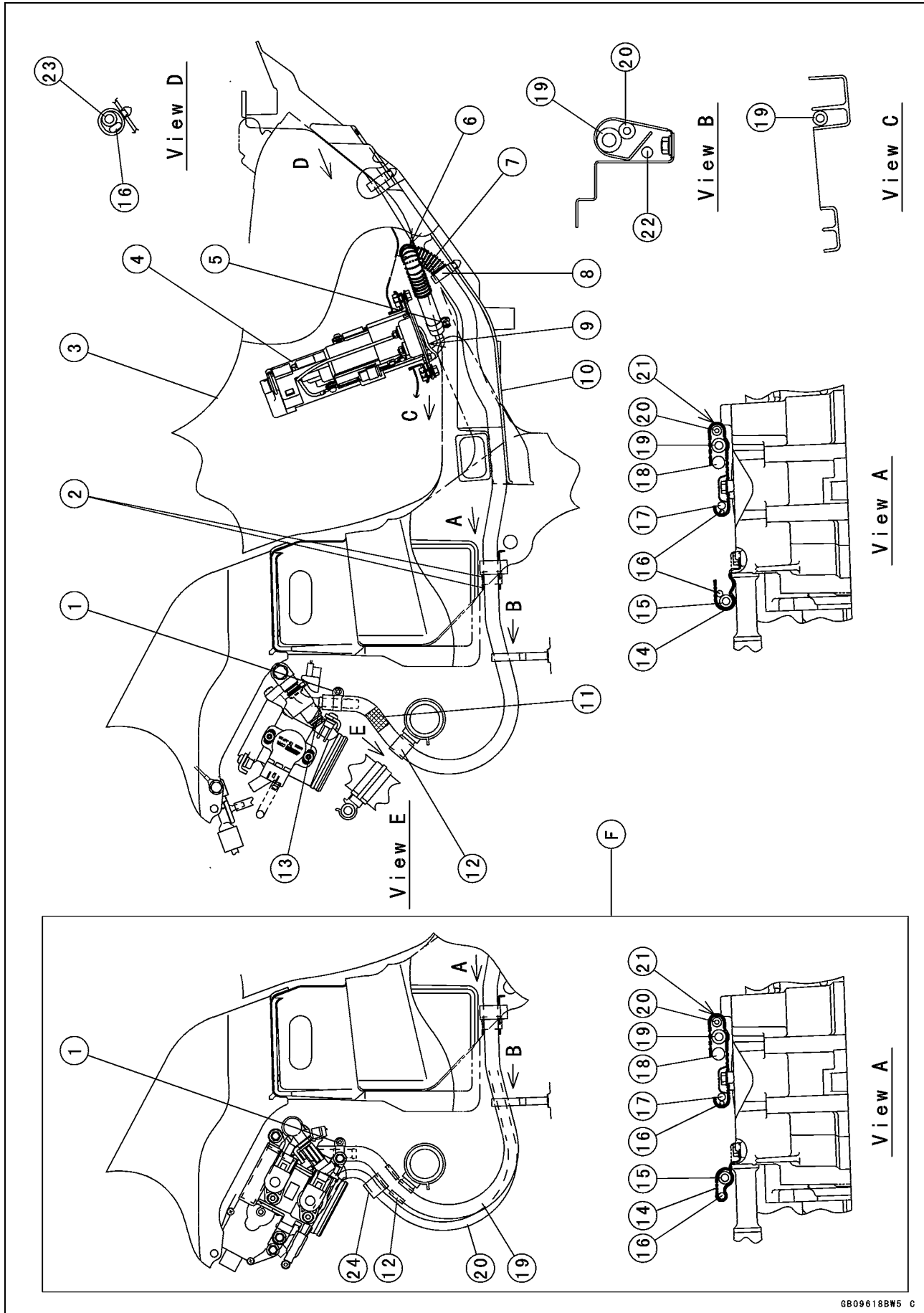
Viewed from Upper of the Frame





# 1-52 GENERAL INFORMATION

## Cable, Wire, and Hose Routing



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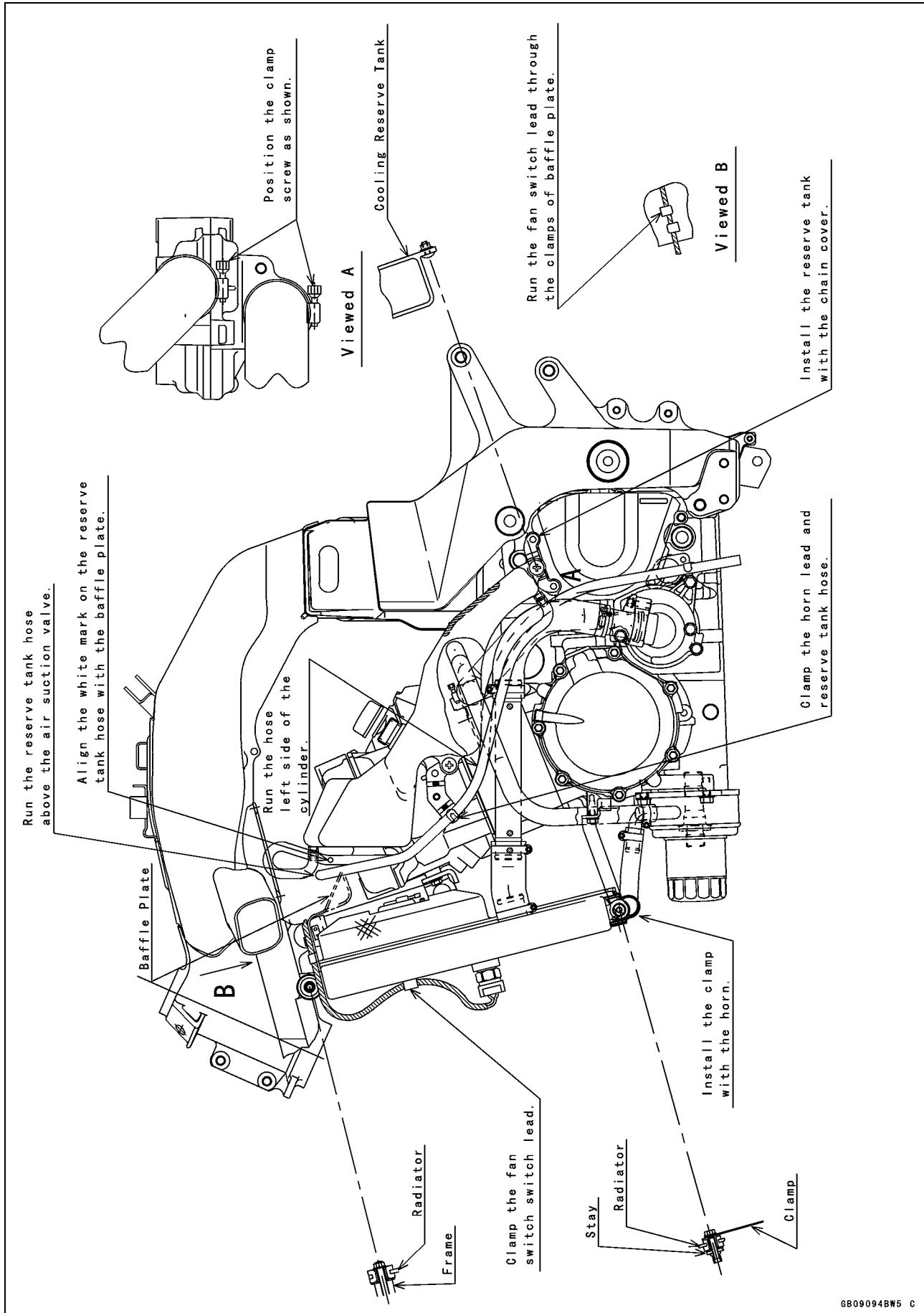
**Cable, Wire, and Hose Routing**

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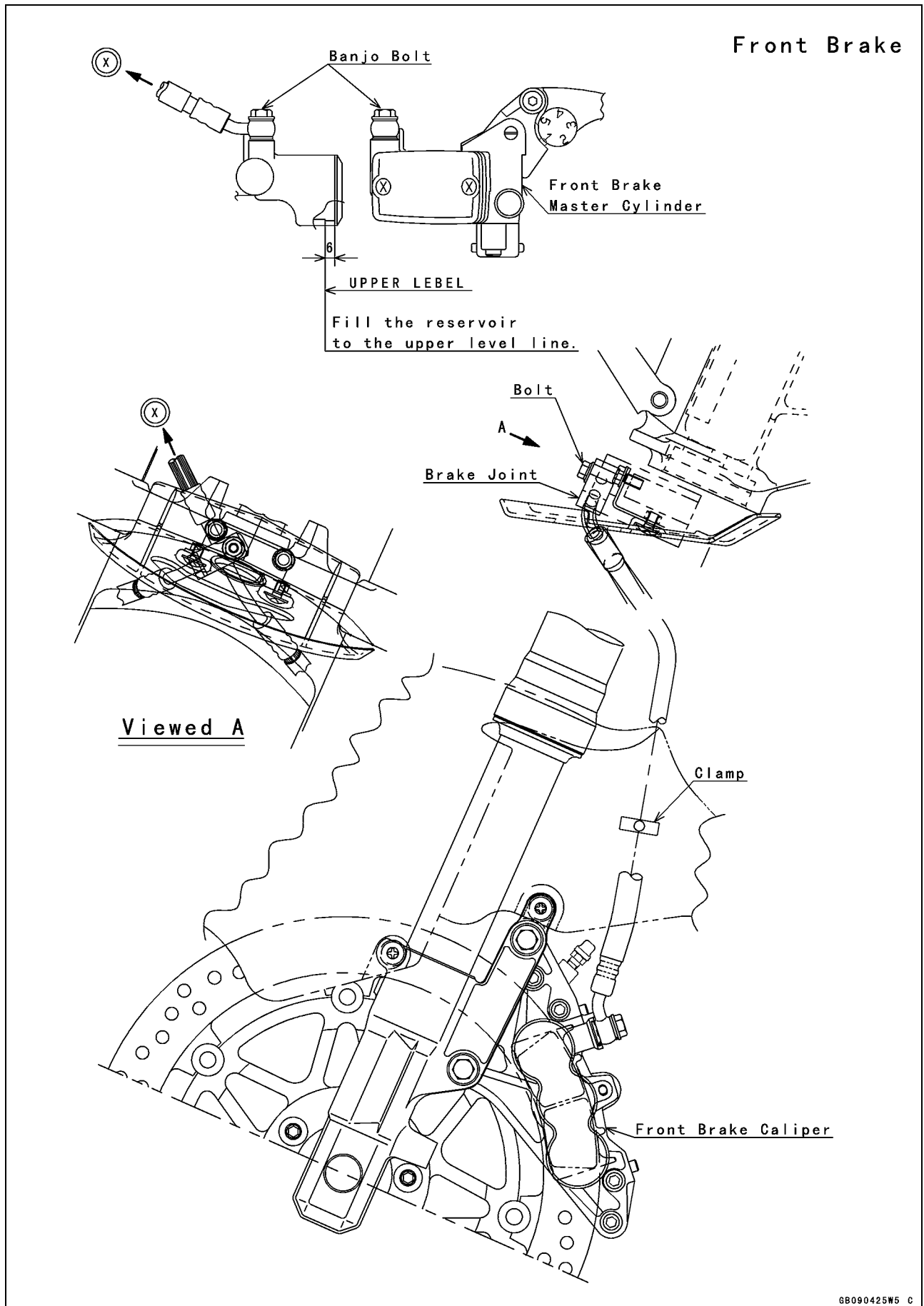
1. Face the clamp screw head rightward.
  2. Connect the clamp end and position mark of tube.
  3. Fuel Tank
  4. Fuel Pump
  5. Position the clamp screw downward.
  6. Spring Protection (Put it on the fuel hose between the clamp and other after installing the clamps.)
  7. Fuel Supply Hose (Do not twist the hose, when installing it on the fitting of the fuel pump.)
  8. Clamp
  9. Do not pull the leads, when installing the screw of clamp.
  10. Rear Fender Front
  11. Black Tape
  12. Clamp the cooling hoses and fuel hoses.
  13. Insert the fuel hose to bottom.
  14. Clamp
  15. Tube (California Model only)
  16. Alternator Leads
  17. Gear Position Switch Lead
  18. Engine Sub Harness
  19. Fuel Supply Hose
  20. Tube
  21. Harness Bracket
  22. Crank Shaft Sensor Lead
  23. Tube (California Mode only)
  24. Clump
- F: ZX1200-B3 ~

# 1-54 GENERAL INFORMATION

## Cable, Wire, and Hose Routing

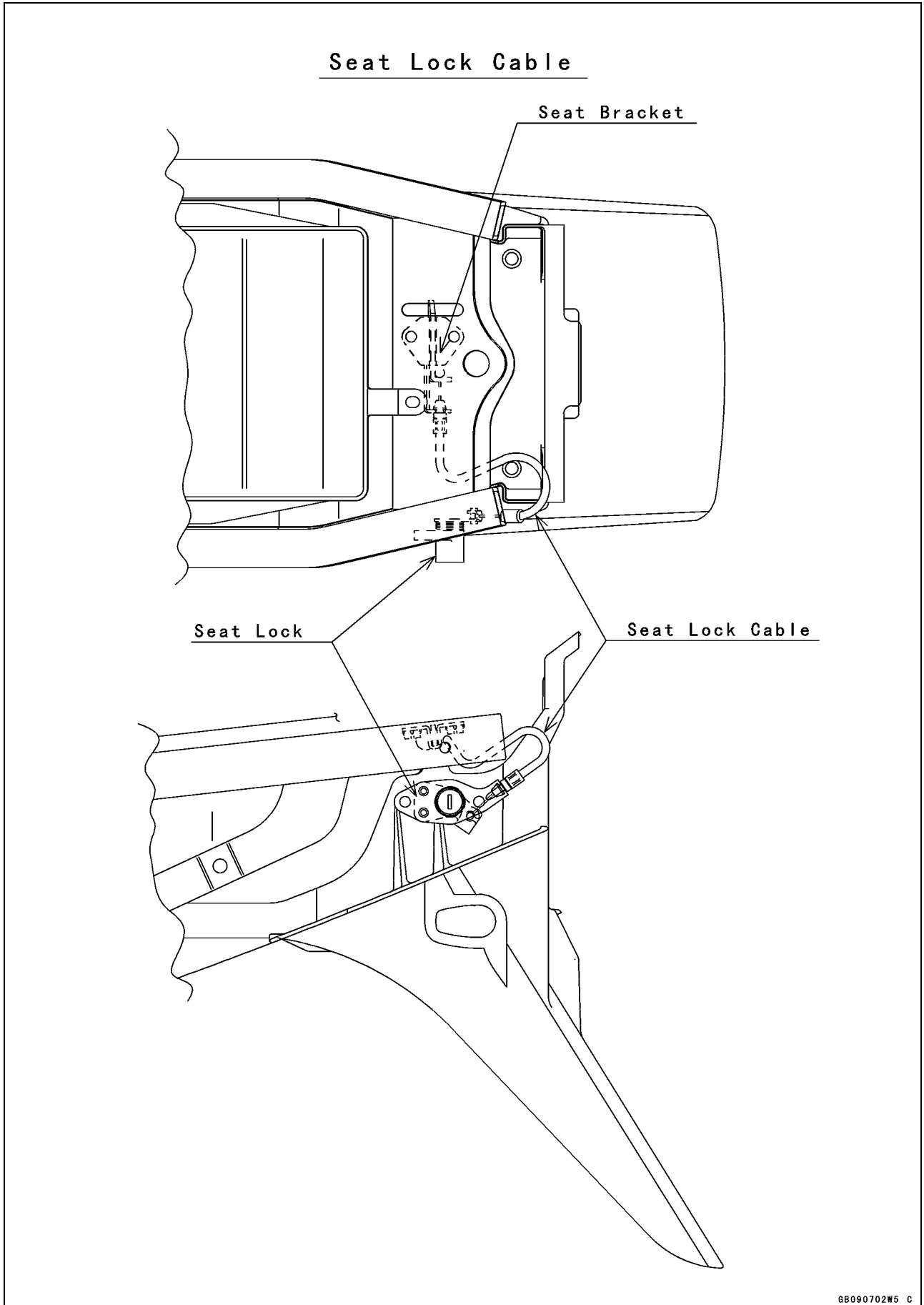


Cable, Wire, and Hose Routing



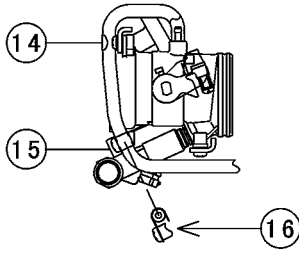
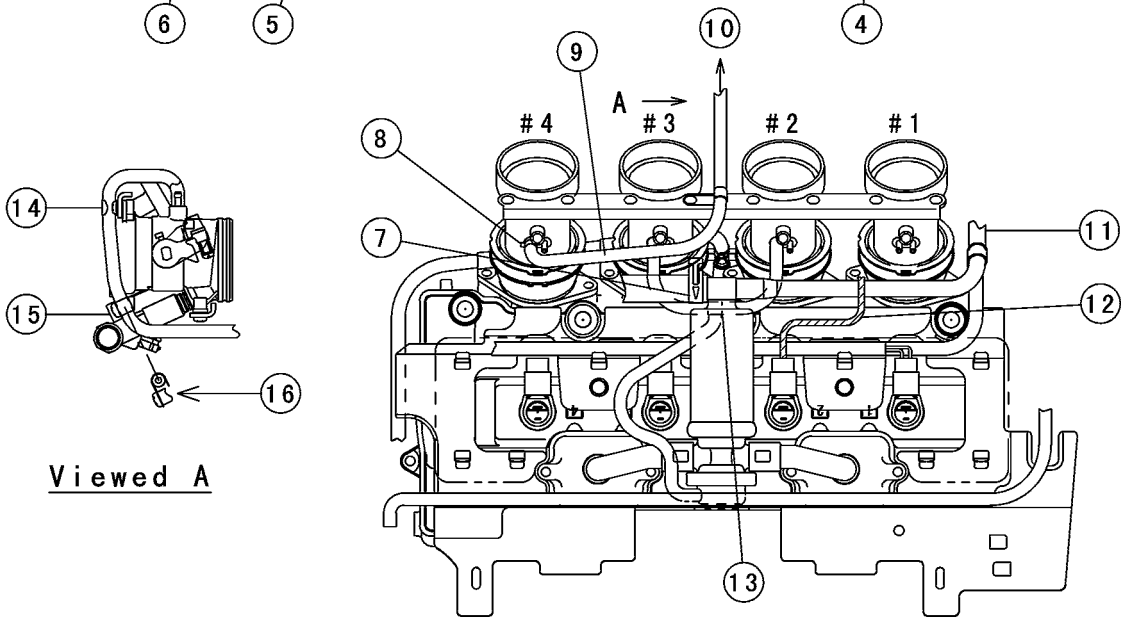
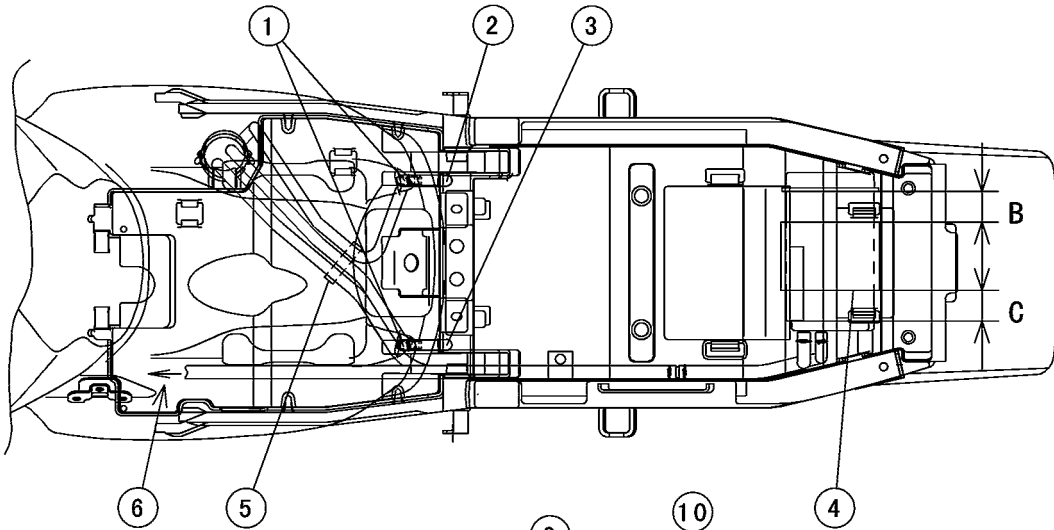


Cable, Wire, and Hose Routing

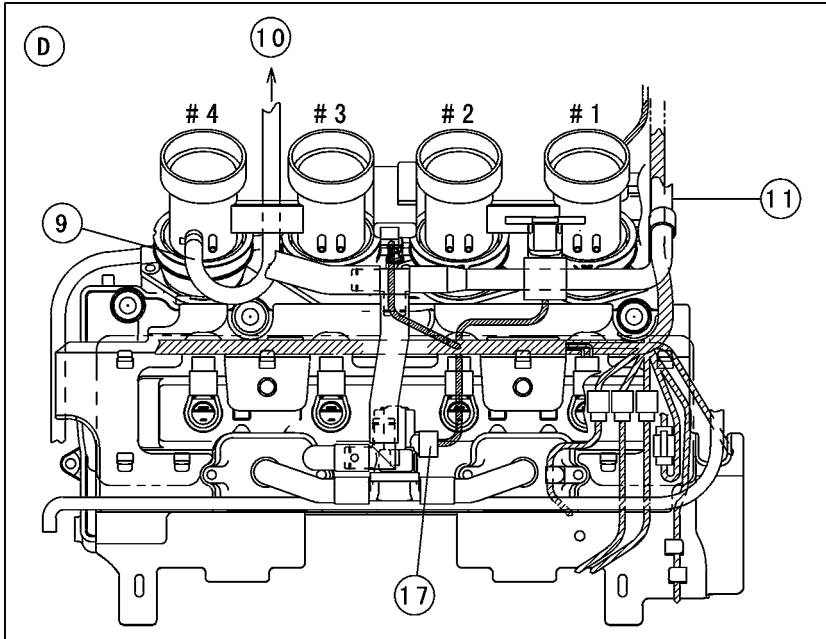


# 1-58 GENERAL INFORMATION

## Cable, Wire, and Hose Routing



Viewed A



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**Cable, Wire, and Hose Routing**

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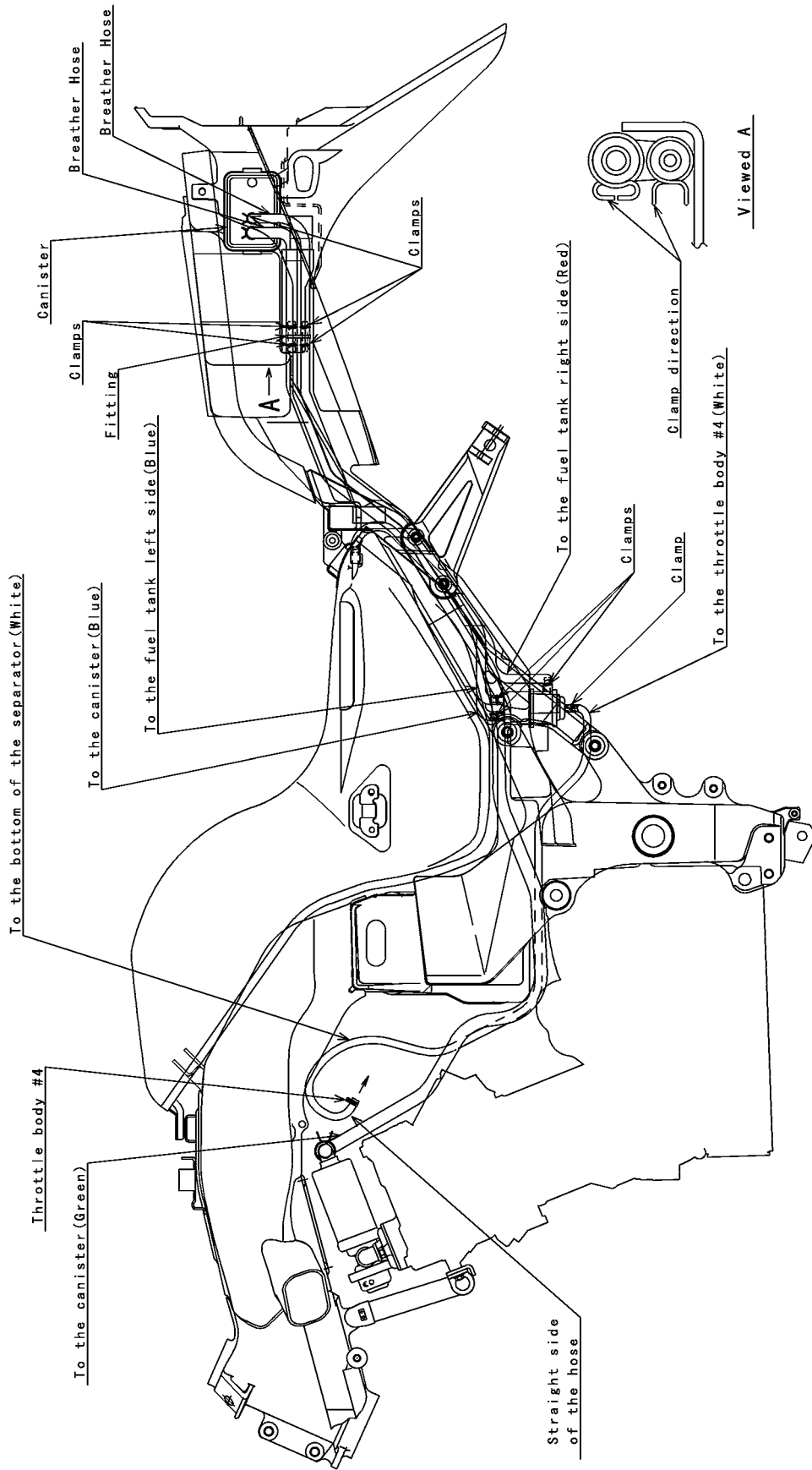
1. Clamps
2. Return Hose (Red)
3. Breather Hose (Blue)
4. Band C are same dimension.
5. Insert the clamp into the hole of the frame.
6. To Vacuum Switch Valve  
    To Air Switching Valve (ZX1200-B3 ~)
7. Clamp (Position the claw rearward.)
8. Clamp (Position the claw right side.)
9. Straight side.
10. To Separator
11. To Canister
12. Run the vacuum sensor lead above the evaporative tube.
13. Fitting
14. Bend the clamp outward.
15. Bend the clamp inward.
16. Bend the direction of the clamp.
17. Air Switching Valve  
    D: ZX1200-B3 ~



# 1-60 GENERAL INFORMATION

## Cable, Wire, and Hose Routing

### California Model



**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

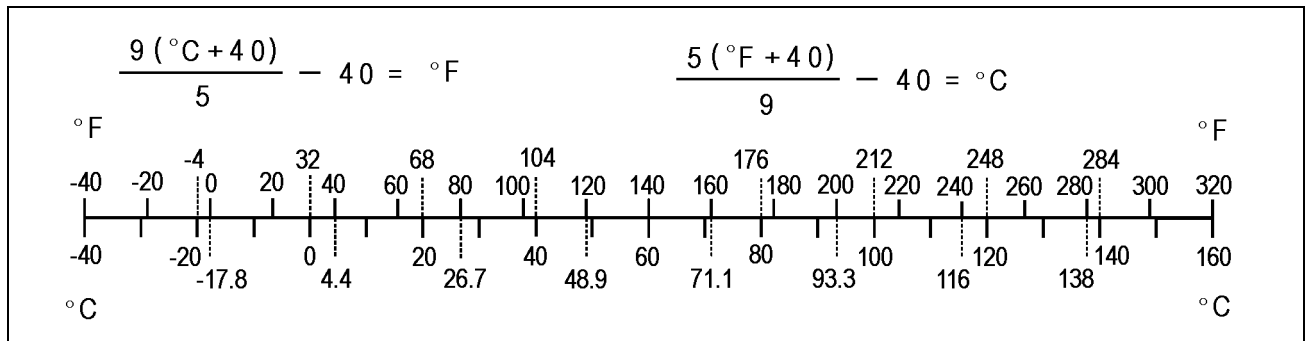
**Units of Volume:**

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 Temperature:**



**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/cm <sup>2</sup>
kPa	×	0.1450	=	psi
kPa	×	0.7501	=	cmHg
kgf/cm <sup>2</sup>	×	98.07	=	kPa
kgf/cm <sup>2</sup>	×	14.22	=	psi
cmHg	×	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



# Periodic Maintenance

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## 2-2 PERIODIC MAINTENANCE

### Periodic Maintenance Chart (U.S.A. and Canada Model)

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.**

OPERATION	FREQUENCY ↓ Every	*Odometer Reading × 1000 km (× 1000 mile)							Refer- ence
		1 (0.6)	6 (4)	12 (7.5)	18 (12)	24 (15)	30 (20)	36 (24)	
Steering - inspect †		•	•	•	•	•	•	•	2-45
Steering stem bearing - lubricate	2 years					•			2-47
Brake hoses, connections - inspect †			•	•	•	•	•	•	2-30
Brake fluid level - inspect †	month	•	•	•	•	•	•	•	2-31
Brake fluid - change	2 years					•			2-31
Brake pad wear - inspect † #			•	•	•	•	•	•	2-32
Brake master cylinder cup and dust cover - replace	4 years								2-33
Caliper piston fluid and dust seal - replace	4 years								2-33
Brake light switches - inspect †		•	•	•	•	•	•	•	2-33
Tire wear - inspect †			•	•	•	•	•	•	2-26
Front fork oil - change	2 years					•			2-34
Front fork oil leak - inspect †				•		•		•	2-44
Rear shock absorber oil leak - inspect †				•		•		•	2-44
Swingarm pivot, Unit-track linkage - lubricate				•		•		•	2-44
Clutch adjust - inspect †		•	•	•	•	•	•	•	2-24
Drive chain slack - inspect † #	1 000 km								2-27
Drive chain wear - inspect † #			•	•	•	•	•	•	2-28
Drive chain roller wear - inspect † #			•	•	•	•	•	•	2-29
Drive chain - lubricate #	600 km								2-30
Spark plug (e) - clean and gap †			•	•	•	•	•	•	2-47
Fuel hoses, connections - inspect †			•	•	•	•	•	•	2-8
Throttle control system (e) - inspect †		•	•	•	•	•	•	•	2-9
Idle speed (e) - inspect †		•		•		•		•	2-10
Engine vacuum sychronization (e) - inspect †				•		•		•	2-11
Air cleaner element (e) - clean † # (ZX1200-B1/B2)				•		•		•	2-15
Air cleaner element (e) - replace † # (ZX1200-B3 ~)					•				2-15
Evaporative emission control system (e) (CAL) - inspect †		•	•	•	•	•	•	•	2-16
Air suction valve (e) - inspect †			•	•	•	•	•	•	2-19
Valve clearance (e) - inspect †				•		•		•	2-20
Cooling hoses, connections - inspect †		•							2-17
Coolant - change	2 years					•			2-17

## PERIODIC MAINTENANCE 2-3

### Periodic Maintenance Chart (U.S.A. and Canada Model)

OPERATION	FREQUENCY	*Odometer Reading × 1000 km (× 1000 mile)							
	Whichever comes first ↓ Every	1 (0.6)	6 (4)	12 (7.5)	18 (12)	24 (15)	30 (20)	36 (24)	Refer- ence
Engine oil - change #	6 months	•	•	•	•	•	•	•	2-25
Oil filter - replace		•		•		•		•	2-25
General lubrication - perform				•		•		•	2-48
Nuts, bolts, and fasteners tightness - inspect †		•		•		•		•	2-48

#: Service more frequently when operating in severe conditions; dusty, wet, muddy, high speed, or frequent starting/stopping.

\*: For higher odometer readings, repeat at the frequency interval established here.

†: Replace, add, adjust, clean, or torque if necessary.

CAL: California Model only

e: Emission Related Items

## 2-4 PERIODIC MAINTENANCE

### Periodic Maintenance Chart (Other than U.S.A. and Canada Model)

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.**

OPERATION	FREQUENCY	*Odometer Reading × 1000 km (× 1000 mile)							Refer- ence
	Whichever comes first ↓ Every	1 (0.6)	6 (4)	12 (7.5)	18 (12)	24 (15)	30 (20)	36 (24)	
Steering - inspect †		•	•	•	•	•	•	•	2-45
Steering stem bearing - lubricate	2 years					•			2-47
Brake hoses, connections - inspect †			•	•	•	•	•	•	2-30
Brake fluid level - inspect †	month	•	•	•	•	•	•	•	2-31
Brake fluid - change	2 years					•			2-31
Brake pad wear - inspect † #			•	•	•	•	•	•	2-32
Brake master cylinder cup and dust cover - replace	4 years								2-33
Caliper piston fluid and dust seal - replace	4 years								2-33
Brake light switches - inspect †		•	•	•	•	•	•	•	2-33
Tire wear - inspect †			•	•	•	•	•	•	2-26
Front fork oil - change	2 years					•			2-34
Front fork oil leak - inspect †				•		•		•	2-44
Rear shock absorber oil leak - inspect †				•		•		•	2-44
Swingarm pivot, Unit-track linkage - lubricate				•		•		•	2-44
Clutch adjust - inspect †		•	•	•	•	•	•	•	2-24
Drive chain slack - inspect † #	1 000 km								2-27
Drive chain wear - inspect † #			•	•	•	•	•	•	2-28
Drive chain roller wear - inspect † #			•	•	•	•	•	•	2-29
Drive chain - lubricate #	600 km								2-30
Spark plug - clean and gap †			•	•	•	•	•	•	2-47
Fuel hoses, connections - inspect †			•	•	•	•	•	•	2-8
Throttle control system - inspect †		•	•	•	•	•	•	•	2-9
Idle speed - inspect †		•		•		•		•	2-10
Engine vacuum synchronization - inspect †				•		•		•	2-11
Air cleaner element - clean † # (ZX1200-B1/B2)				•		•		•	2-15
Air cleaner element - replace † # (ZX1200-B3 ~)					•				2-15
Air suction valve - inspect †			•	•	•	•	•	•	2-19
Valve clearance - inspect †						•			2-20
Cooling hoses, connections - inspect †		•							2-17
Coolant - change	2 years					•			2-17
Engine oil - change #	6 months	•	•	•	•	•	•	•	2-25
Oil filter - replace		•		•		•		•	2-25

## PERIODIC MAINTENANCE 2-5

### Periodic Maintenance Chart (Other than U.S.A. and Canada Model)

OPERATION	FREQUENCY	*Odometer Reading × 1000 km (× 1000 mile)							
		Whichever comes first  ↓ Every	1 (0.6)	6 (4)	12 (7.5)	18 (12)	24 (15)	30 (20)	36 (24)
General lubrication - perform				•		•		•	2-48
Nuts, bolts, and fasteners tightness - inspect †		•		•		•		•	2-48

#: Service more frequently when operating in severe conditions; dusty, wet, muddy, high speed, or frequent starting/stopping.

\*: For higher odometer readings, repeat at the frequency interval established here.

†: Replace, add, adjust, clean, or torque if necessary.



## 2-6 PERIODIC MAINTENANCE

### Specifications

Item	Standard	Service Limit
<b>Fuel System (DFI)</b>		
Throttle Grip Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	---
Idle Speed	1 000 ±50 r/min (rpm)	---
Throttle Body Vacuum	26 ±1.333 kPa (195 ±10 mmHg)	---
Air Cleaner Element:		
ZX1200-B1/B2	Polyurethane foam	---
ZX1200-B3 ~	Paper Filter	---
Air Cleaner Element Oil	SE, SF or SG SAE30, or High-quality air filter oil	---
<b>Cooling System</b>		
Coolant:		
Type (Recommended)	Permanent type antifreeze	---
Color	Green	---
Mixed Ratio	Soft water 50%, Coolant 50%	---
Freezing Point	- 35°C (- 31°F)	---
Total Amount	3.6 L (3.8 US qt)	---
<b>Engine Top End</b>		
Valve Clearance:		
Exhaust	0.22 ~ 0.31 mm (0.0087 ~ 0.0122 in.)	---
Inlet	0.15 ~ 0.24 mm (0.0059 ~ 0.0094 in.)	---
<b>Clutch</b>		
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	---
<b>Engine Lubrication System</b>		
Engine Oil:		
Type	API SE, SF or SG API SH or SJ with JASO MA	---
Viscosity	SAE 10W-40	---
Capacity	2.5 L (2.6 US qt, when filter is not removed)	---
	2.8 L (3.0 US qt, when filter is removed)	---
	3.6 L (3.8 US qt, when engine is completely disassembled and dry)	---
Level	Between upper and lower level lines (after idling or running)	---
<b>Tires</b>		
Tread Depth:		
Front: DUNLOP D208FJ	4.0 mm (0.16 in.)	1 mm (0.04 in.) (AT, CH, DE): 1.6 mm (0.063 in.) Up to 130 km/h (80 mph)
Rear: DUNLOP D208J	5.4 mm (0.21 in.)	2 mm (0.08 in.) Over 130 km/h (80 mph) 3 mm (0.12 in.)

**Specifications**

Item	Standard	Service Limit
Air Pressure: (when Cold)		
Front	Up to 182 kg (401 lb) load: 290 kPa (2.9 kgf/cm <sup>2</sup> , 42 psi)	— — —
Rear	Up to 182 kg (401 lb) load: 290 kPa (2.9 kgf/cm <sup>2</sup> , 42 psi)	— — —
<b>Final Drive</b>		
Drive Chain Slack	25 ~ 35 mm (0.98 ~ 1.4 in.)	— — —
Drive Chain Roller Distance	Less than 6 mm (0.236 in.)	6.2 mm (0.244 in.)
Drive Chain 20-link Length	317.5 ~ 318.2 mm (12.50 ~ 12.53 in.)	323 mm (12.7 in.)
<b>Brakes</b>		
Brake Fluid:		
Grade	DOT4	— — —
Brake Pad Lining Thickness:		
Front and Rear	4 mm (0.12 in.)	1 mm (0.04 in.)
Brake Light Timing:		
Front	Pulled ON	— — —
Rear	ON after about 10 mm (0.39 in.) of pedal travel	— — —
<b>Suspension</b>		
Fork Oil:		
Viscosity	KAYABA KHL15-10 (SAE 0 W) or equivalent	— — —
Amount (per Side):		
When Changing Oil	approx. 420 mL (14.2 US oz)	— — —
After Disassembly and Completely Dry	490 ±4 mL (16.6 ±0.1 US oz)	— — —
Fork Oil Level:	93 ±2 mm (3.66 ±0.08 in.)	— — —
(Fully Compressed, without Spring)	(from the top of the outer tube)	
<b>Electrical System</b>		
Spark Plug Gap	0.7 ~ 0.9 mm (0.028 ~ 0.035 in.)	— — —

AT: Republic of Austria

CH: Swiss Confederation

DE: Federal Republic of Germany

**Special Tools - Steering Stem Nut Wrench: 57001-1100**

**Jack: 57001-1238**

**Oil Filter Wrench: 57001-1249**

**Fork Piston Rod Puller, M12 × 1.25: 57001-1289**

**Fork Oil Level Gauge: 57001-1290**

**Pilot Screws Adjuster, C: 57001-1292**

**Fork Spring Compressor Set: 57001-1452**

**Fork Spring Compressor: 57001-1587**

**Clamp: 57001-1613**

## 2-8 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

#### Fuel System (DFI)

##### Fuel Hose and Connection Inspection

○The fuel hoses are designed to be used throughout the motorcycle's life without any maintenance, however, if the motorcycle is not properly handled, the high pressure inside the fuel line can cause fuel to leak [A] or the hose to burst. Remove the fuel tank (see Fuel System (DFI) chapter) and check the fuel hose.

★Replace the fuel hose if any fraying, cracks [B] or bulges [C] are noticed.

● Check that the hoses are securely connected and clamps are tightened correctly.

● When installing, route the hoses according to Cable, Wire, and Hose Routing section in the General Information chapter.

● When installing the fuel hoses, avoid sharp bending, kinking, flattening or twisting, and route the fuel hoses with a minimum of bending so that the fuel flow will not be obstructed.

★Replace the hose if it has been sharply bent or kinked.

● Install the hose clamps in the position shown, and securely tighten the clamp screws to the specified torque. Check the fuel system for leaks after hose installation.

Fuel Hose [A]

Clamp [B]

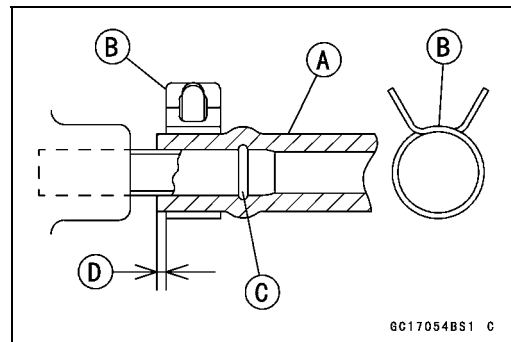
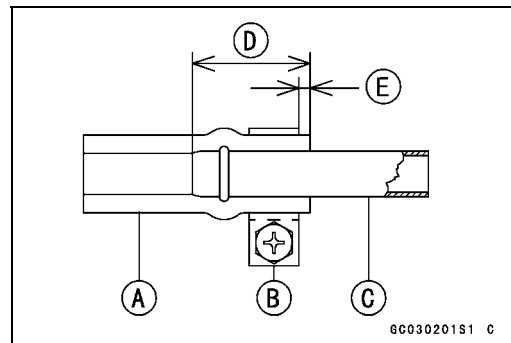
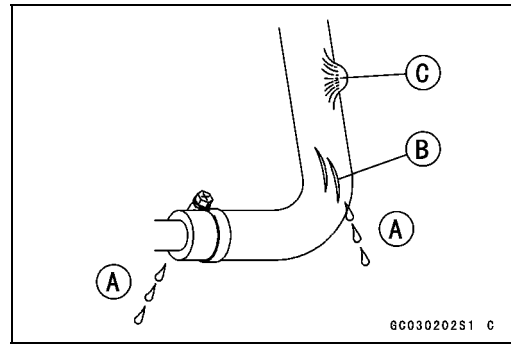
Fuel Pipe [C]

18 ~ 22 mm (0.70 ~ 0.87 in.) [D]

2 ~ 3 mm (0.08 ~ 0.12 in.) [E]

● Fit the fuel hose [A] onto the pipe fully and install the plate clamp [B] beyond the raised rib [C].

1 ~ 2 mm (0.04 ~ 0.08 in.)



**Periodic Maintenance Procedures**

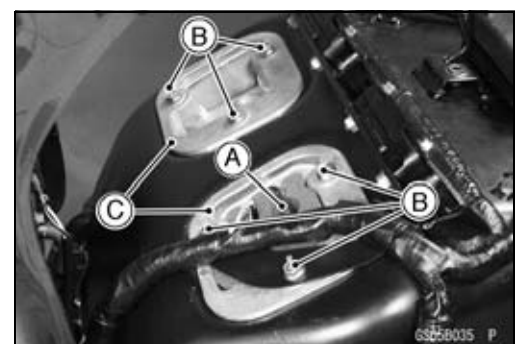
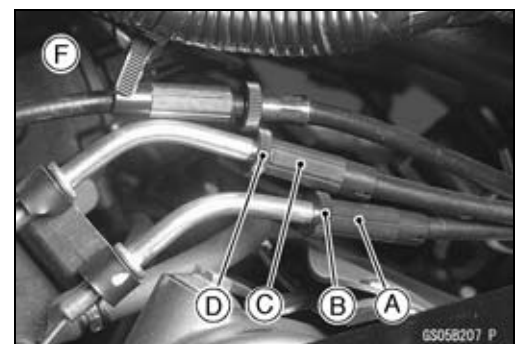
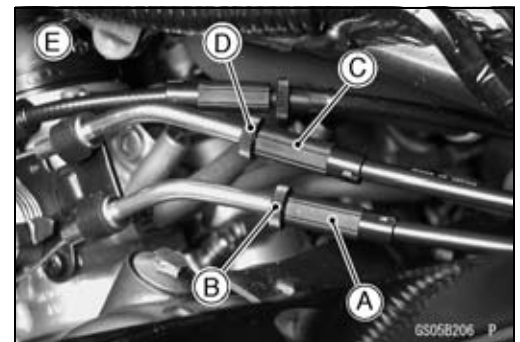
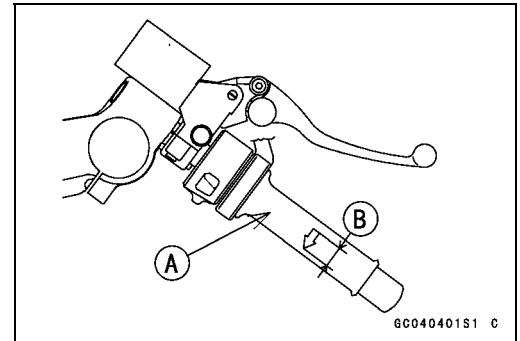
*Throttle Control System Inspection*

- Check the throttle grip free play [B].
- ★ If the free play is incorrect, adjust the throttle cables.

**Throttle Grip Free Play**

**Standard: 2 ~ 3 mm (0.08 ~ 0.12 in.)**

- Check that the throttle grip [A] moves smoothly from full open to close, and the throttle closes quickly and completely in all steering position by the return spring.
  - ★ If the throttle grip does not return properly, check the throttle cables routing, grip free play, and cable damage. Then lubricate the throttle cable.
  - Run the engine at the idle speed, and turn the handlebar all the way to the right and left to ensure that the idle speed does not change.
  - ★ If the idle speed increase, check the throttle cable free play and the cables routing.
  - Remove the right lower inner cover (see Frame chapter).
  - Loosen the locknuts.
  - Screw both throttle cable adjuster to give the throttle grip plenty of play.
  - Completely close the throttle grip, turn the accelerator cable adjuster [A] to eliminate any cable free play, and tighten the adjuster locknut [B].
  - Turn the decelerator cable adjuster [C] to adjust the throttle grip free play to 2 ~ 3 mm (0.08 ~ 0.12 in.).
  - Tighten the deaccelerator cable locknut [D] securely.
  - ★ If the free play cannot be adjusted with the adjusters, replace the cable.
- ZX1200-B1/B2 [E]  
ZX1200-B3 [F] ~

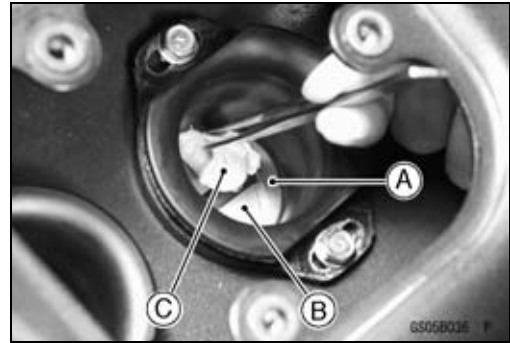


- Check the throttle bore for cleanliness as follows:
  - Set up the fuel tank (see Fuel System (DFI) chapter).
  - Disconnect the inlet air temperature sensor connector [A].
  - Remove:
    - Air Cleaner Cap Bolts [B]
    - Right and Left Air Cleaner Caps [C]

## 2-10 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- In accordance with the Periodic Maintenance Chart, check the throttle bores [A] at the butterfly valves [B] and around them for carbon deposits by opening the valves.
- ★ If any carbon accumulates, wipe the carbon off the throttle bores around the butterfly valves, using a lint-free cloth [C] penetrated with high-flash point solvent.



#### Idle Speed Inspection

- Start the engine and warm it up thoroughly.
- With the engine idling, turn the handlebar to both sides [A].
- ★ If handlebar movement changes the idle speed, the throttle cables may be improperly adjusted or incorrectly routed, or damaged. Be sure to correct any of these conditions before riding (see Cable Routing Section in General Information chapter).



#### **⚠ WARNING**

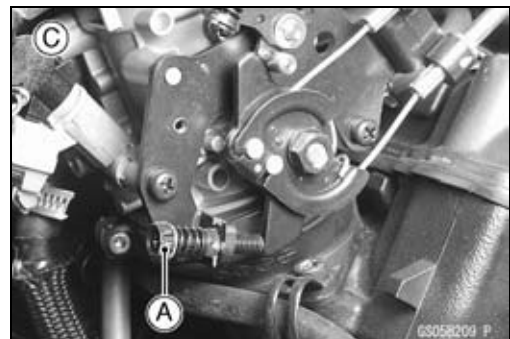
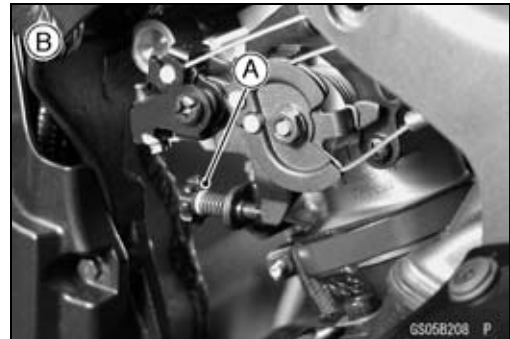
**Operation with improperly adjusted, incorrectly routed, or damaged cables could result in an unsafe riding condition.**

- Check the idle speed.
- ★ If the idle speed is out of specified range, adjust it.

#### Idle Speed

**Standard: 1 000 ±50 r/min (rpm)**

- Start the engine and warm it up thoroughly.
  - Turn the adjusting screw [A] until the idle speed is correct.
  - Open and close the throttle a few times to make sure that the idle speed is within the specified range. Readjust if necessary.
- ZX1200-B1/B2 [B]  
ZX1200-B3 [C] ~



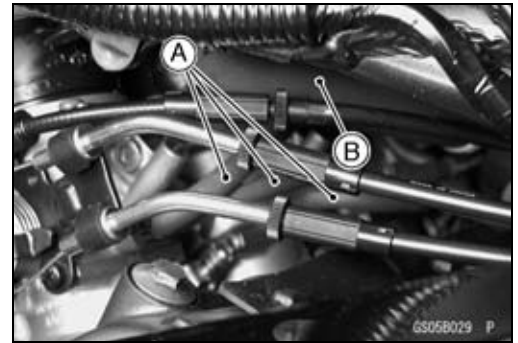
**Periodic Maintenance Procedures**

*Engine Vacuum Synchronization Inspection  
(ZX1200-B1/B2)*

**NOTE**

○ *These procedures are explained on the assumption that the inlet and exhaust system of the engine are in good condition.*

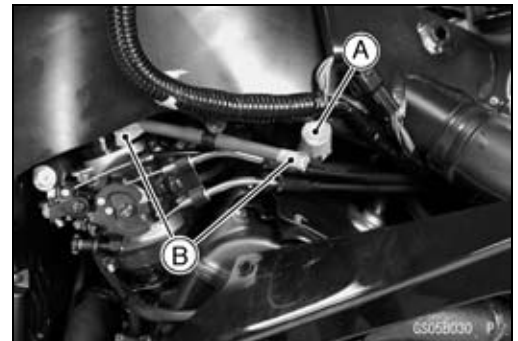
- Remove the lower inner covers (see Frame chapter).
- Set up the fuel tank (see Fuel System (DFI) chapter).
- Pull out the vacuum switch valve hose [B] from the air cleaner.
- Pull off the three vacuum hoses [A] and rubber cap from the right fittings on the throttle bodies.



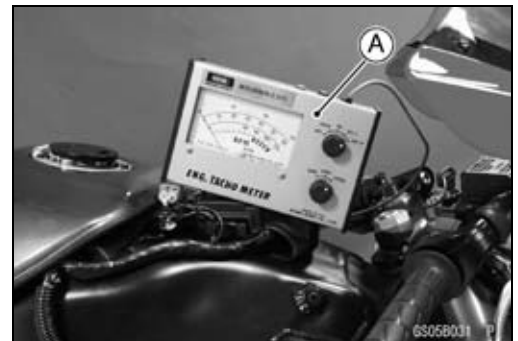
**CAUTION**

**Do not remove the atmospheric pressure hose.**

- Completely close the removed hoses [A] and [B] of the clean air system with the proper plugs.
- Completely close the clean air system hole of the air cleaner with the proper plug.



- Start the engine and warm it up thoroughly.
- Check the engine speed, using the engine revolution tester [A] for high accuracy.
- ★ If the engine speed is out of 1 000 rpm, set the engine speed to 1 000 rpm.



**CAUTION**

**Do not adjust the engine speed by the tachometer in the meter unit.**

- Connect the vacuum gauge hoses [A] to the right fittings on the throttle bodies.
- Connect the vacuum gauge hoses to the vacuum gauge [B].
- Start the engine and left it idle to measure the inlet vacuum.
- ★ If the vacuum is incorrect, adjust the synchronization.



**Engine Vacuum**

**Standard:**      **26 ±1.333 kPa (195 ±10 mmHg) at Idle  
Speed 1 000 ±50 r/min (rpm)**

## 2-12 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- Turn the adjusting screw [A] to synchronize the throttle valves.
- First synchronize the left two or the right two throttle valves by means of the left and right adjusting screws. Then synchronize the left two throttle valves and the right two throttle valves using the center adjusting screw.
- ★ If the throttle valves synchronization cannot be obtained by using the adjusting screws, check for dirt or blockage, and then check the inlet parts connection.

**Special Tool - Pilot Screw Adjuster, C: 57001-1292 [B]**

- Check the throttle valve synchronization again

#### NOTE

○ Do not turn the bypass screws [A] carelessly during throttle valve synchronization. You may cause poor running at low engine speed or irregular throttle sensor output voltage.

- Remove the vacuum gauge hoses and install the removed parts.
- Check the idle speed.

#### Engine Vacuum Synchronization Inspection (ZX1200-B3 ~)

#### NOTE

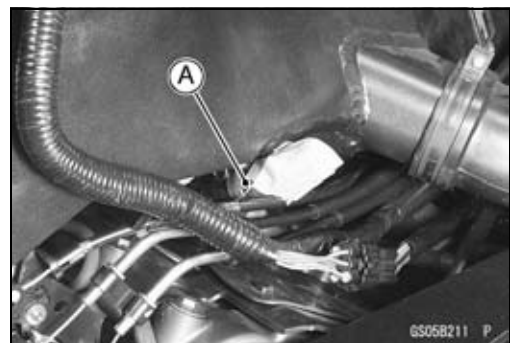
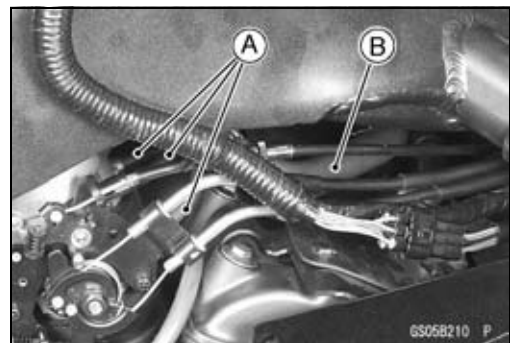
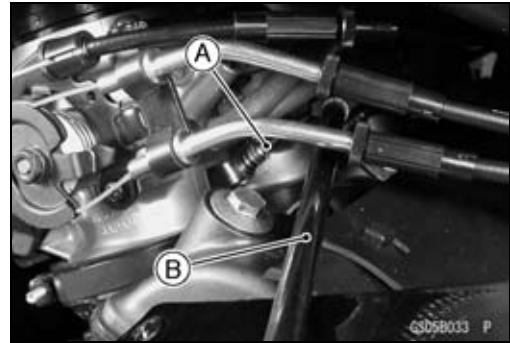
○ These procedures are explained on the assumption that the inlet and exhaust systems of the engine are in good condition.

- Situate the motorcycle so that it is vertical.
- Remove the lower inner covers (see Frame chapter).
- Set up the fuel tank (see Fuel System (DFI) chapter).
- Pull off the vacuum hoses [A] and rubber cap(s) from the right fittings of each throttle body.
- Pull off the air switching valve hose [B] from the air cleaner housing.

#### CAUTION

**Do not remove the atmospheric pressure hose.**

- Plug:  
Air Switching Valve Hose [A] and its Air Cleaner Housing Hole



**Periodic Maintenance Procedures**

- Start the engine and warm it up thoroughly.
- Check the idle speed.  
Tachometer [A]
- Open and close the throttle.
- ★ If the idle speed is out of the specified range, adjust it.

**CAUTION**

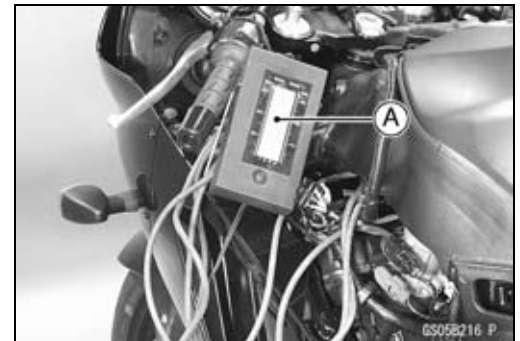
**Do not measure the idle speed by the tachometer of the meter unit.**



- Connect a commercially available vacuum gauge [A] to these right fittings of the throttle body.
- While idling the engine, inspect the engine vacuum, using the vacuum gauge.

**Engine Vacuum**

**Standard: 26 ±1.333 kPa (195 ±10 mmHg) at Idle Speed 1 000 ±50 r/min (rpm)**



- ★ If any vacuum is not within the specifications, first synchronize the balance of the left (#1, #2) and right (#3, #4) assemblies.

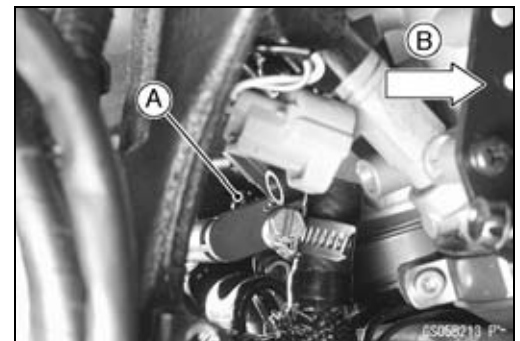
**Example**

- #1: 165 mmHg
- #2: 190 mmHg
- #3: 170 mmHg
- #4: 200 mmHg

- With the engine at the correct idle speed, equalize the lower vacuum of #1 and #2 (example 165 mmHg) to the lower vacuum of #3 and #4 (example 170 mmHg) by turning the center adjusting screw [A].

**Special Tool - Pilot Screw Adjuster, C: 57001-1292**

Front [B]



**NOTE**

○After adjustment, the final vacuum measurement between the lowest throttle valves may not be 165 mmHg (in this example). The goal is to have the lower two vacuums between the left (1 and 2) and right (3 and 4) banks be the same.

- Open and close the throttle after each measurement and adjust the idle speed as necessary.
- Once the throttle valves have been synchronized, inspect the main throttle sensor's output voltage to ensure proper operation (procedure is at the end of this section).



## 2-14 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- ★ If any one vacuum measurement is out of the standard measurement after left and right synchronization, turn in the bypass screw [A] until it seat fully but not tightly.

#### CAUTION

**Do not over tighten them. They could be damaged, requiring replacement.**

- Turn out the bypass screw of the higher vacuum between #1 and #2 to the lower vacuum.
- Turn out the bypass screw of the higher vacuum between #3 and #4 to the lower vacuum.
- Open and close the throttle valves after each measurement and adjust the idle speed as necessary.
- Inspect the vacuums as before.
- ★ If all vacuums are within the specification, finish the engine vacuum synchronization.
- ★ If any vacuum can not be adjusted within the specification, remove the bypass screws #1 ~ #4 and clean them.
- Remove the bypass screw [A], spring [B], washer [C] and O-ring [D].
- Check the bypass screw and its hole for carbon deposits.
- ★ If any carbon accumulates, wipe the carbon off the bypass screw and the hole, using a cotton pad penetrated with a high-flash point solvent.
- Replace the O-ring with a new one.
- Check the tapered portion [E] of the bypass screw for wear or damage.
- ★ If the bypass screw is worn or damaged, replace it.
- Turn in the bypass screw until it seats fully but not tightly.
- Repeat the same procedure for other bypass screws.
- Repeat the synchronization.
- ★ If the vacuums are correct, check the output voltage of the main throttle sensor (see Output Voltage Inspection of Main Throttle Sensor in the Fuel System (DFI) chapter).

#### Main Throttle Sensor Output Voltage

##### Connections to ECU

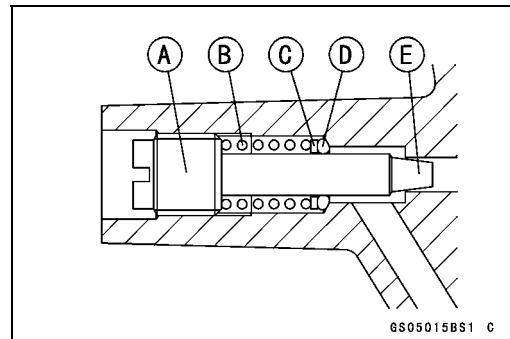
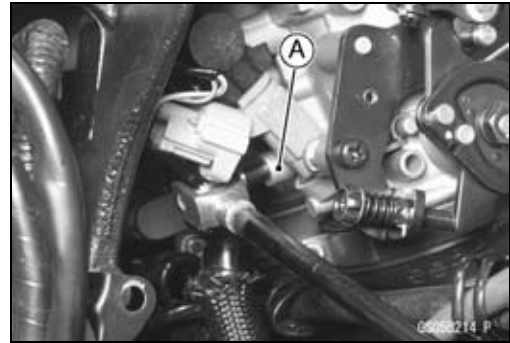
Meter (+) → Y/W lead (terminal 7)

Meter (-) → BR/BK lead (terminal 28)

##### Standard:

**1.06 ~ 1.10 V DC (at idle throttle opening)**

- ★ If the output voltage is out of the range, check the throttle input voltage (see Input Voltage Inspection of Main Throttle Sensor in the Fuel System (DFI) chapter).
- Remove the vacuum gauge hoses and install the vacuum hoses and rubber caps on the original position as shown.



**Periodic Maintenance Procedures**

*Air Cleaner Element Cleaning (ZX1200-B1/B2)/  
Element Replacement (ZX1200-B3 ~)*

**NOTE**

- *In dusty areas, the element should be cleaned more frequently than the recommended interval.*
- *After riding through rain or on muddy roads, the element should be cleaned immediately.*

**⚠ WARNING**

If dirt or dust is allowed to pass through into the throttle assy, the throttle may become stuck, possibly causing accident.

**CAUTION**

If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

**⚠ WARNING**

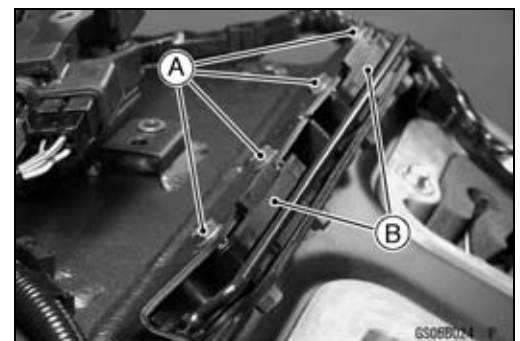
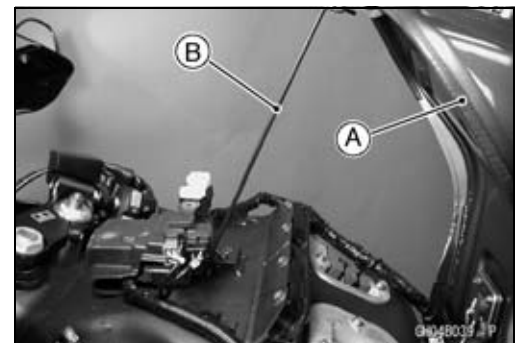
Clean the element in a well-ventilated area, and take care that there are no sparks or flame anywhere near the working area; this includes any appliance with a pilot light.  
Because of the danger of highly flammable liquids, do not use gasoline or a low flash-point solvent to clean the element.

- Remove:
  - Seats (see Frame chapter)
  - Fuel Tank Cover (see Fuel Tank Removal section in Fuel System (DFI) chapter)
- Set up the fuel tank [A] with the supporting rod [B].

**CAUTION**

Do not insert the supporting rod into the bolt hole, or the thread of the bolt hole could be damaged.

- Unscrew the nuts [A] and remove the bolts.
- Pull out the elements [B].

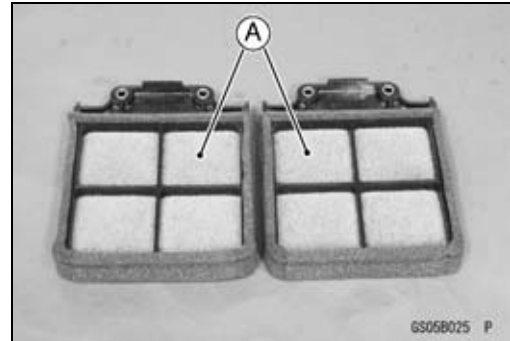


## 2-16 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

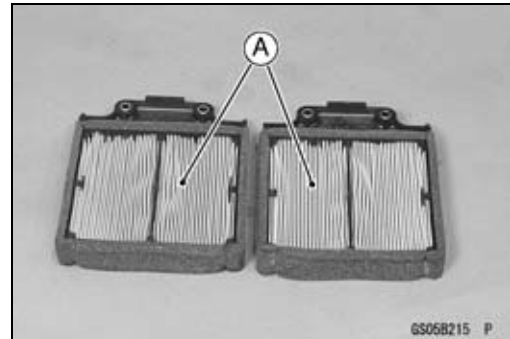
#### ZX1200-B1/B2

- Clean the element [A] in cleaning solvent, and then dry it with compressed air or by shaking it.
- After cleaning, saturate a clean, lint-free towel with SE, SF, SG class SAE-30 oil or high-quality air filter oil, and apply the oil to the element by tapping the element outside with the towel.
- Inspect the element before installing it.
- ★ If the element is broken, or the frame is damaged or bent, replace the element.

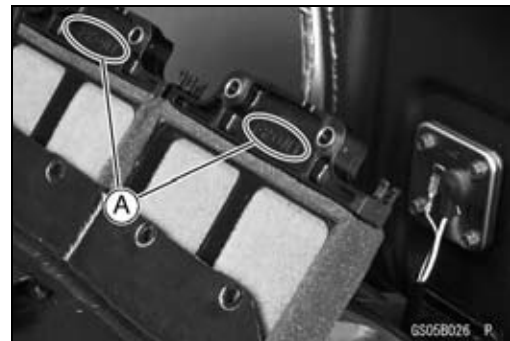


#### ZX1200-B3 ~

- Discard the air cleaner elements and replace it.  
Air Cleaner Elements [A]



- Install the elements [A] with the mark side (FRONT) facing front.



#### Evaporative Emission Control System Inspection (CAL)

- Inspect the canister as follows.
  - Remove:
    - Seats (see Frame chapter)
    - Storage Box (see Frame chapter)
  - Remove the canister [A], and disconnect the hoses from the canister.
  - Visually inspect the canister for cracks and other damage.
  - ★ If the canister has any cracks or bad damage, replace it with a new one.



#### NOTE

- The canister is designed to work well through the motorcycle's life without any maintenance if it is used under normal conditions.

## Periodic Maintenance Procedures

- Check the liquid/vapor separator as follows:
  - Remove:
    - Seat (see Frame chapter)
    - Fuel Tank Cover (see Fuel Tank Removal section in Fuel System (DFI) chapter)
    - Supporting Rod (see Fuel Tank Removal section in Fuel System (DFI) chapter)
  - Disconnect the hoses from the separator, and remove the separator [A] from the motorcycle right side.
  - Visually inspect the separator for cracks and other damage.
- ★ If the separator has any cracks or damage, replace it with a new one.
  - To prevent the gasoline from flowing into or out of the canister, hold the separator perpendicular to the ground.
- Check the hoses of the evaporative emission control system as follows:
  - Check that the hoses are securely connected and clips are in position.
  - Replace any kinked, deteriorated or damaged hoses.
  - Route the hoses according to Cable, Wire, and Hose Routing section in the General Information chapter. Refer to the diagram of the evaporative emission control system in the Fuel System (DFI) chapter too.
  - When installing the hoses, avoid sharp bending, kinking, flattening or twisting, and route the hoses with a minimum of bending so that the emission flow will not be obstructed.

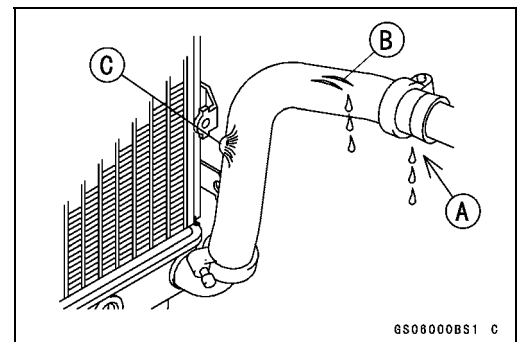


## Cooling System

### Cooling Hose and Connection Inspection

- The high pressure inside the cooling hose can cause coolant to leak [A] or the hose to burst if the line is not properly maintained. Visually inspect the hoses for signs of deterioration. Squeeze the hoses. A hose should not be hard and brittle, nor should it be soft or swollen.
- ★ Replace the hose if any fraying, cracks [B] or bulges [C] are noticed.
- Check that the hoses are securely connected and clamps are tightened correctly.

**Torque - Cooling Hose Clamp Screws: 2.0 N·m (0.20 kgf·m, 18 in·lb)**



### Coolant Change

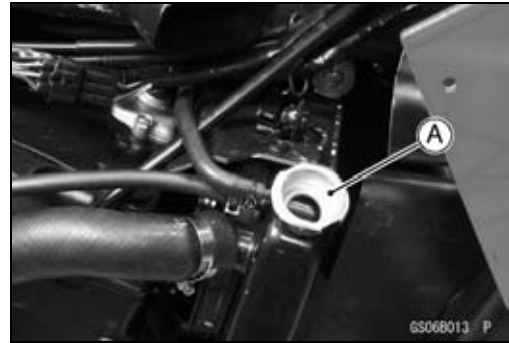
#### **⚠ WARNING**

**To avoid burns, do not remove the radiator cap or try to change the coolant when the engine is still hot. Wait until it cools down. Coolant on tires will make them slippery and can cause an accident and injury. Immediately wipe up or wash away any coolant that spills on the frame, engine, or other painted parts. Since coolant is harmful to the human body, do not use for drinking.**

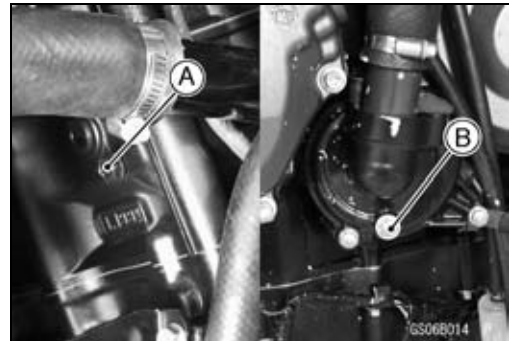
## 2-18 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

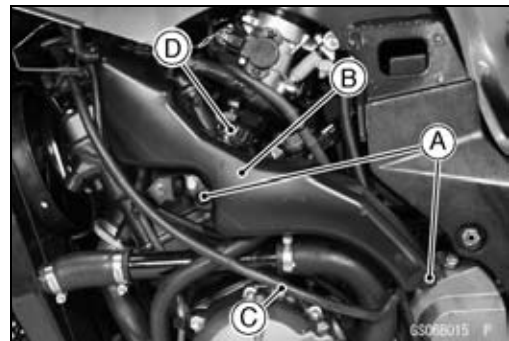
- Remove:
  - Right Lower Inner Cover (see Frame chapter)
  - Right Air Inlet Duct (see Fuel System (DFI) chapter)
  - Radiator Cap [A]
- Remove the radiator cap in two steps. First turn the cap counterclockwise to the first stop. Then push and turn it further in the same direction and remove the cap.



- Remove:
  - Left Lower Fairing (see Frame chapter)
- Place a containers under the drain plugs [A] and [B] at the bottom of the water pump cover and cylinder.
- Drain the coolant from the radiator and engine by removing the drain plugs.



- Remove:
  - Mounting Screws [A] and Reserve Tank [B]
  - Hose [C]
- Remove the cap [D] and pour the coolant into a container.

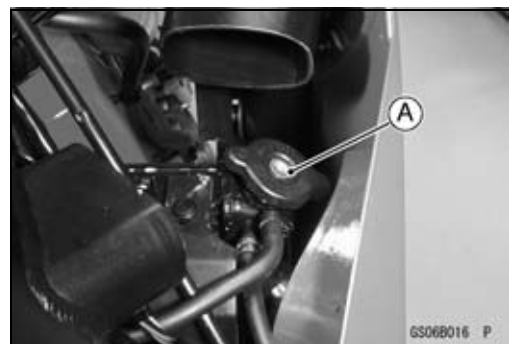


- Install the reserve tank.
- Tighten the drain plugs with the washers.
- Replace the drain plug gasket with new one if it is damaged.

**Torque - Coolant Drain Plug (Water Pump): 12 N·m (1.2 kgf·m, 106 in·lb)**

**Coolant Drain Plug (Cylinder): 10 N·m (1.0 kgf·m, 89 in·lb)**

- Fill the radiator up to the radiator filler neck [A] with coolant, and install the radiator cap.



#### NOTE

○ Pour in the coolant slowly so that it can expel the air from the engine and radiator.

- Fill the reserve tank up to the full level line with coolant, and install the cap.

#### CAUTION

**Soft or distilled water must be used with the antifreeze (see below for antifreeze) in the cooling system.**

**If hard water is used in the system, it causes scales accumulation in the water passages, and considerably reduces the efficiency of the cooling system.**

**Periodic Maintenance Procedures**

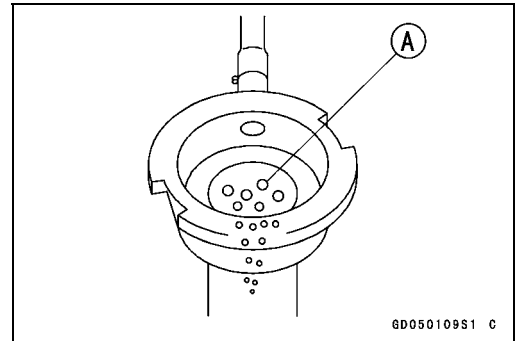
**Water and Coolant Mixture Ratio (Recommended)**

- Soft Water:** 50%
- Coolant:** 50%
- Freezing Point:** - 35°C (- 31°F)
- Total Amount:** 3.6 L (3.8 US qt)

**NOTE**

○ Choose a suitable mixture ratio by referring to the coolant manufacturer's directions.

- Bleed the air from the cooling system as follows.
  - Start the engine with the radiator cap removed and run it until no more air bubbles [A] can be seen in the coolant.
  - Tap the radiator hoses to force any air bubbles caught inside.
  - Stop the engine and add coolant up to the radiator filler neck.
- Install the radiator cap.
- Start the engine, warm it up thoroughly until the radiator fan turns on and then stop the engine.
- Check the coolant level in the reserve tank after the engine cools down.
- ★ If the coolant level is lower than the low level line, add coolant to the full level line.



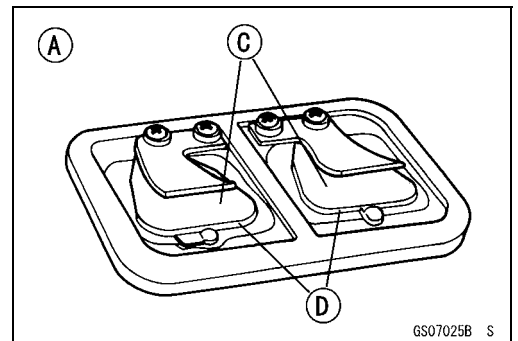
**CAUTION**

**Do not add more coolant above the full level line.**

**Engine Top End**

*Air Suction Valve Inspection*

- Remove the air suction valve (see Air Suction Valve Removal section in Engine Top End chapter).
  - ZX1200-B1/B2 [A]
  - ZX1200-B3 [B] ~
- Visually inspect the reeds [C] for cracks, folds, warps, heat damage, or other damage.
  - ★ If there is any doubt as to the condition of the reed, replace the air suction valve as an assembly.
- Check the reed contact areas [D] of the valve holder for grooves, scratches, any signs of separation from the holder, or heat damage.
  - ★ If there is any doubt as to the condition of the reed contact areas, replace the air suction valve as an assembly.
  - ★ If any carbon or other foreign particles have accumulated between the reed and the reed contact area, wash the valve assembly with a high flash-point solvent.



**CAUTION**

**Do not scrape off the deposits with a scraper as this could damage the rubber, requiring replacement of the suction valve assembly.**

## 2-20 PERIODIC MAINTENANCE

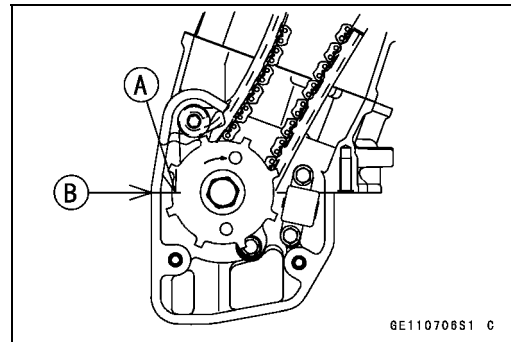
### Periodic Maintenance Procedures

#### Valve Clearance Inspection

##### NOTE

○ Valve clearance must be checked and adjusted when the engine is cold (at room temperature).

- Remove:
  - Lower Fairings with Lower Inner Fairing (see Frame chapter)
  - Crankshaft Sensor Cover (see Electrical System chapter)
  - Cylinder Head Cover (see Cylinder Head Cover Removal section in Engine Top End chapter)
- Position the crankshaft at #1, #4 piston TDC.
  - TDC Mark [A] for #1, #4 Pistons
  - Timing Mark [B] (crankcase halves mating surface)



- ★ If just after the camshaft cap is installed, rotate the crankshaft two turns in the right direction.
- Measure the valve clearance between the cam and the valve lifter with a thickness gauge [A].



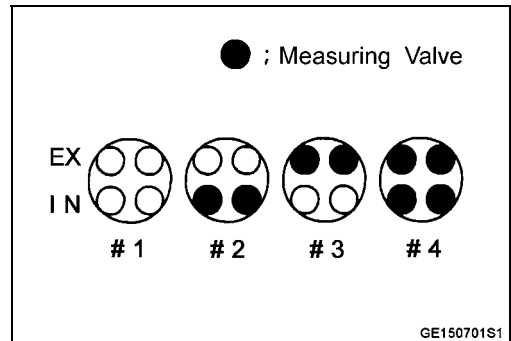
##### Valve Clearance

###### Standard:

Exhaust	0.22 ~ 0.31 mm (0.0087 ~ 0.0122 in.)
Inlet	0.15 ~ 0.24 mm (0.0059 ~ 0.0094 in.)

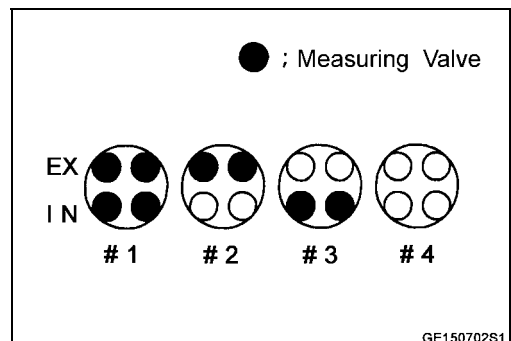
○ When positioning #4 piston TDC at the end of the compression stroke:

- Inlet valve clearance of #2 and #4 cylinders
- Exhaust valve clearance of #3 and #4 cylinders



○ When positioning #1 piston TDC at the end of the compression stroke:

- Inlet valve clearance of #1 and #3 cylinders
- Exhaust valve clearance of #1 and #2 cylinders



- ★ If the valve clearance is not within the specified range, first record the clearance, and then adjust it.

---

**Periodic Maintenance Procedures**

---

- To change the valve clearance, remove the camshaft chain tensioner, camshafts and valve lifters. Replace the shim with one of a different thickness.

**NOTE**

- *Mark and record the valve lifter and shim locations so they can be reinstalled in their original positions.*
- *If there is no clearance, select a shim which is several sizes smaller and then measure the clearance.*
- To select a new shim which brings the valve clearance within the specified range, refer to the Valve Clearance Adjustment Charts.
- Apply molybdenum disulfide oil to the valve lifters and apply engine oil to the shims.
- Install the camshafts. Be sure to time the camshafts properly (see Camshaft Installation).
- Remeasure any valve clearance that was adjusted. Readjust if necessary.

<b>CAUTION</b>
<b>Do not put shim stock under the shim. This may cause the shim to pop out at high rpm, causing extensive engine damage.</b>
<b>Do not grind the shim. This may cause it to fracture, causing extensive engine damage.</b>



# 2-22 PERIODIC MAINTENANCE

## Periodic Maintenance Procedures

### INLET VALVE CLEARANCE ADJUSTMENT CHART

	Present Shim																				Example	
Part No. (92025)	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	
Mark	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	00	
Thickness (mm)	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	

Valve Clearance Measurement (mm)	Specified Clearance / No Change Required																				
	0.00 ~ 0.02	—	—	—	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75
0.03 ~ 0.06	—	—	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85
0.07 ~ 0.11	—	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90
0.12 ~ 0.14	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95
0.15 ~ 0.24	Specified Clearance / No Change Required																				
0.25 ~ 0.27	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	
0.28 ~ 0.32	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00		
0.33 ~ 0.37	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00			
0.38 ~ 0.42	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00				
0.43 ~ 0.47	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00					
0.48 ~ 0.52	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00						
0.53 ~ 0.57	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00							
0.58 ~ 0.62	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00								
0.63 ~ 0.67	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00									
0.68 ~ 0.72	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00										
0.73 ~ 0.77	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00											
0.78 ~ 0.82	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00												
0.83 ~ 0.87	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00													
0.88 ~ 0.92	2.70	2.75	2.80	2.85	2.90	2.95	3.00														
0.93 ~ 0.97	2.75	2.80	2.85	2.90	2.95	3.00															
0.98 ~ 1.02	2.80	2.85	2.90	2.95	3.00																
1.03 ~ 1.07	2.85	2.90	2.95	3.00																	
1.08 ~ 1.12	2.90	2.95	3.00																		
1.13 ~ 1.17	2.95	3.00																			
1.18 ~ 1.22	3.00																				

Install the shim of this thickness (mm).

1. Measure the clearance (when engine is cold).
2. Check present shim size.
3. Match clearance in vertical column with present shim size in horizontal column.
4. Install the shim specified where the lines intersect. This shim will give the proper clearance.

**Example:**

Present shim is **2.60 mm**.  
 Measured clearance is **0.35 mm**.  
 Replace **2.60 mm** shim with **2.75 mm** shim.

5. Remeasure the valve clearance and readjust if necessary.

Periodic Maintenance Procedures

EXHAUST VALVE CLEARANCE ADJUSTMENT CHART

	Present Shim																				
Part No. (92025)	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890
Mark	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	00
Thickness (mm)	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00

Valve Clearance Measurement (mm)	Present Shim																				
	1870	1871	1872	1873	1874	1875	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890
0.00 ~ 0.04	—	—	—	—	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75
0.05 ~ 0.09	—	—	—	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80
0.10 ~ 0.14	—	—	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85
0.15 ~ 0.19	—	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90
0.20 ~ 0.21	—	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95
0.22 ~ 0.31	Specified Clearance / No Change Required																				
0.32 ~ 0.34	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	
0.35 ~ 0.39	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00		
0.40 ~ 0.44	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00			
0.45 ~ 0.49	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00				
0.50 ~ 0.54	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00					
0.55 ~ 0.59	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00						
0.60 ~ 0.64	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00							
0.65 ~ 0.69	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00								
0.70 ~ 0.74	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00									
0.75 ~ 0.79	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00										
0.80 ~ 0.84	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00											
0.85 ~ 0.89	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00												
0.90 ~ 0.94	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00													
0.95 ~ 0.99	2.70	2.75	2.80	2.85	2.90	2.95	3.00														
1.00 ~ 1.04	2.75	2.80	2.85	2.90	2.95	3.00															
1.05 ~ 1.09	2.80	2.85	2.90	2.95	3.00																
1.10 ~ 1.14	2.85	2.90	2.95	3.00																	
1.15 ~ 1.19	2.90	2.95	3.00																		
1.20 ~ 1.24	2.95	3.00																			
1.25 ~ 1.29	3.00																				

1. Measure the clearance (when engine is cold).
2. Check present shim size.
3. Match clearance in vertical column with present shim size in horizontal column.
4. Install the shim specified where the lines intersect. This shim will give the proper clearance.

**Example:**

Present shim is **2.65 mm**.  
 Measured clearance is **0.42 mm**.  
 Replace **2.65 mm** shim with **2.80 mm** shim.

5. Remeasure the valve clearance and readjust if necessary.

## 2-24 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

#### Clutch

##### Clutch Adjust Inspection

- Pull the clutch lever just enough to take up the free play [A].
- Measure the gap between the lever and the lever holder.
- ★ If the gap is too wide, the clutch may not release fully. If the gap is too narrow, the clutch may not engage fully. In either case, adjust it.

##### Clutch Lever Free Play

Standard: 2 ~ 3 mm (0.08 ~ 0.12 in.)

#### ⚠ WARNING

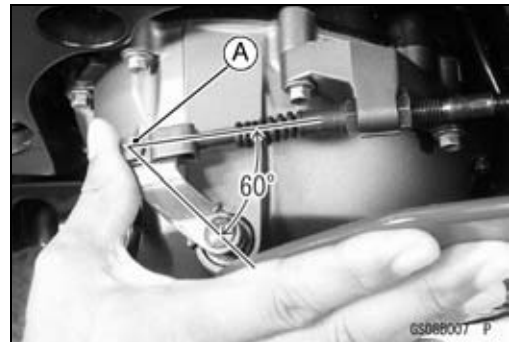
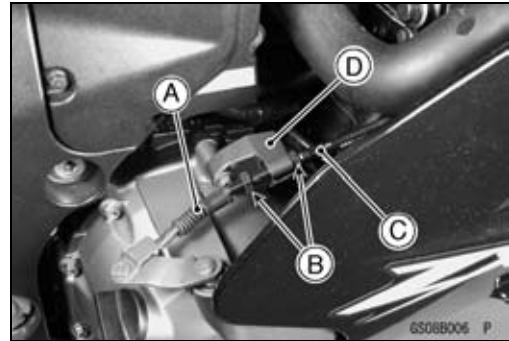
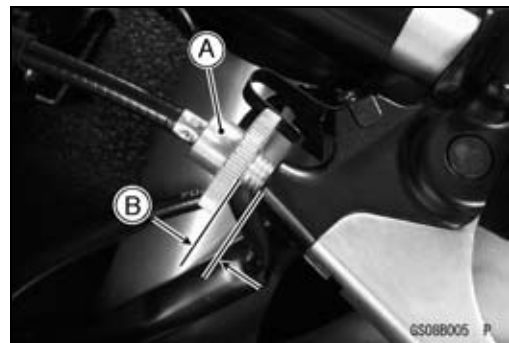
To avoid a serious burn, never touch the engine or muffler during clutch adjustment.

- Turn the adjuster [A] so that 5 ~ 6 mm (0.20 ~ 0.24 in.) [B] of threads are visible.
- Slide the dust cover [A] at the clutch cable lower end out of place.
- Loosen both adjusting nuts [B] at the clutch cover as far as they will go.
- Pull the clutch outer cable [C] tight and tighten the adjusting nuts against the bracket [D].
- Slip the rubber dust cover back onto place.
- Turn the adjuster at the clutch lever until the free play is correct.
- Push the release lever [A] toward the front of the motorcycle until it becomes hard to turn.
- At this time, the release lever should have the proper angle shown.
- ★ If the angle is wrong, check the clutch and release parts for wear.

#### ⚠ WARNING

Be sure that the outer cable end at the clutch lever is fully seated in the adjuster at the clutch lever, or it could slip into place later, creating enough cable play to prevent clutch disengagement.

- After the adjustment, start the engine and check that the clutch does not slip and that it releases properly.

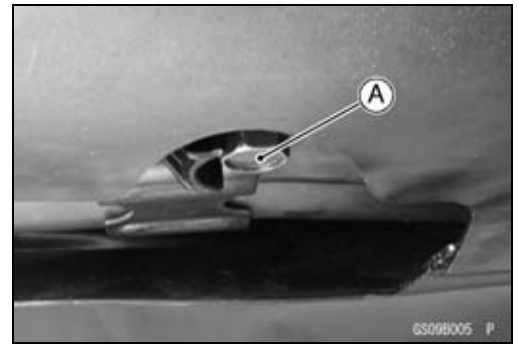


Periodic Maintenance Procedures

Engine Lubrication System

Engine Oil Change

- Support the motorcycle perpendicular to the ground after warming up the engine.
  - Remove the engine oil drain plug [A] to drain the oil.
  - The oil in the oil filter can be drained by removing the filter (see Oil Filter Change).
  - Replace the drain plug gasket with a new one if it is damaged.
  - Tighten the drain plug.
- Torque - Engine Oil Drain Plug: 20 N·m (2.0 kgf·m, 15 ft·lb)**
- Pour in the specified type and amount of oil.

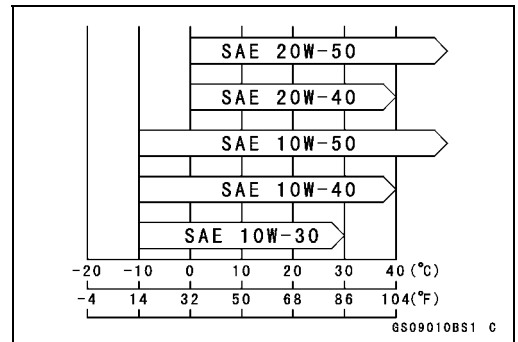


Engine Oil

- Grade: API SE, SF or SG  
API SH or SJ with JASO MA
- Viscosity: SAE 10W-40
- Amount: 2.5 L (2.6 US qt, when filter is not removed)  
2.8 L (3.0 US qt, when filter is removed)  
3.6 L (3.8 US qt, when engine is completely dry)

NOTE

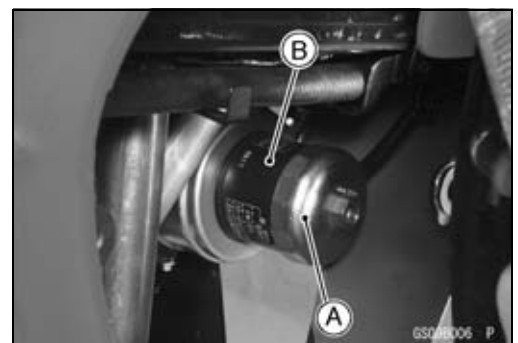
- Although 10W-40 engine oil is the recommended oil for most conditions, the oil viscosity may need to be changed to accommodate atmospheric conditions in your riding area.



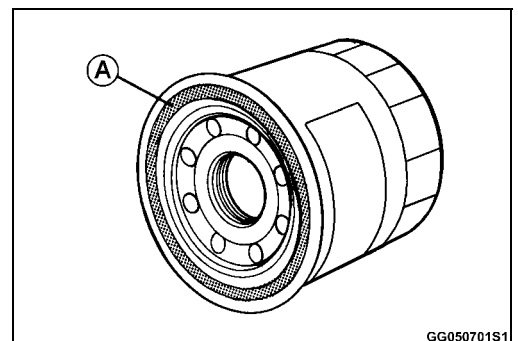
Oil Filter Replace

- Drain the engine oil (see Engine Oil Change).
- Remove:
  - Lower Inner Fairing (see Frame chapter)
- Remove the oil filter [B] with the oil filter wrench [A].

**Special Tool - Oil Filter Wrench: 57001-1249**



- Replace the filter with a new one.
  - Apply engine oil to the gasket [A] before installation.
  - Tighten the filter with the oil filter wrench.
- Torque - Oil Filter: 31 N·m (3.2 kgf·m, 23 ft·lb)**
- Pour in the specified type and amount of oil (see Engine Oil Change).



## 2-26 PERIODIC MAINTENANCE

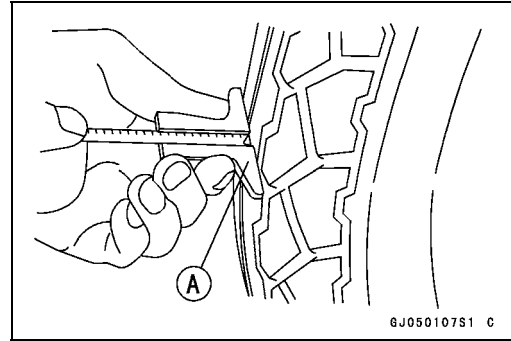
### Periodic Maintenance Procedures

#### Wheels/Tires

##### Tire Wear Inspection

As the tire tread wears down, the tire becomes more susceptible to puncture and failure. An accepted estimate is that 90% of all tire failures occur during the last 10% of tread life (90% worn). So it is false economy and unsafe to use the tires until they are bald.

- Remove any imbedded stones or other foreign particles from the tread.
  - Visually inspect the tire for cracks and cuts, replacing the tire in case of damage. Swelling or high spots indicate internal damage, requiring tire replacement.
  - Measure the tread depth at the center of the tread with a depth gage [A]. Since the tire may wear unevenly, take measurement at several places.
- ★ If any measurement is less than the service limit, replace the tire.



##### Tread Depth

###### Standard:

Front	4.0 mm (0.16 in.) (DUNLOP)
Rear:	5.4 mm (0.21 in.) (DUNLOP)

###### Standard:

Front	1 mm (0.04 in.)
	(AT, CH, DE) 1.6 mm (0.06 in.)
Rear:	2 mm (0.08 in.)
	(Up to 130 km/h, 80 mph)
	3 mm (0.12 in.)
	(Over 130 km/h, 80 mph)

#### **⚠ WARNING**

To ensure safe handling and stability, use only the recommended standard tires for replacement, inflated to the standard pressure. Use the same manufacturer's tires on both front and rear wheels.

#### **NOTE**

- Most countries may have their own regulations a minimum tire tread depth: be sure to follow them.
- Check and balance the wheel when a tire is replaced with a new one.

Periodic Maintenance Procedures

Final Drive

Drive Chain Slack Inspection

**NOTE**

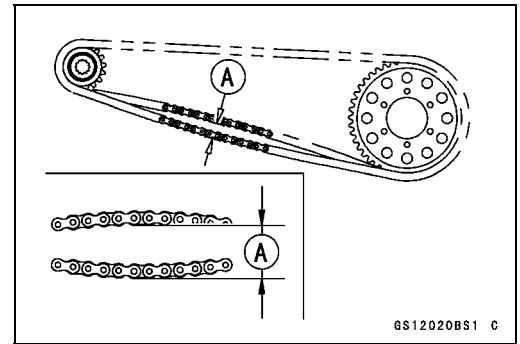
- Check the slack with the motorcycle setting on its side stand.
- Clean the chain if it is dirty, and lubricate it if it appears dry.

- Check the wheel alignment.
- Rotate the rear wheel to find the position where the chain is tightest.
- Measure the vertical movement (chain slack) [A] midway between the sprockets.
- ★ If the chain slack exceeds the standard, adjust it.

**Chain Slack**

**Standard:** 25 ~ 35 mm (0.98 ~ 1.4 in.)

- Remove the cotter pin [A], and loosen the axle nut [B].
- Loosen the both chain adjuster locknuts [C].
- Turn the chain adjusters [D] forward or rearward until the drive chain has the correct amount of chain slack.
- The right and left notches [E] on the alignment indicators [F] should point to the same marks or positions [G] on the swingarm.



GS12020BS1 C

**⚠ WARNING**

**Misalignment of the wheel will result in abnormal wear and may result in an unsafe riding condition.**

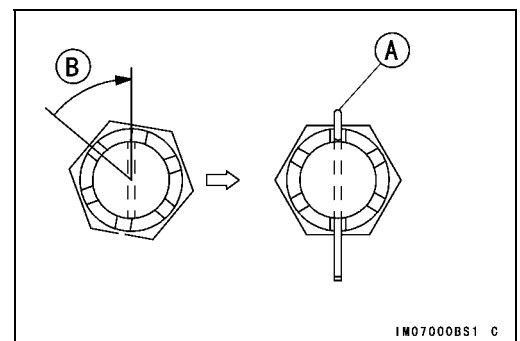
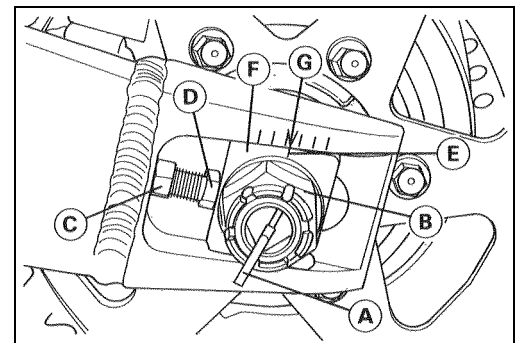
- Tighten both chain adjuster locknuts securely.
- Tighten the axle nut.

**Torque - Rear Axle Nut: 125 N·m (13 kgf·m, 92 ft·lb)**

- Turn the wheel, measure the chain slack again at the tightest position, and readjust if necessary.
- Insert a new cotter pin [A].

**NOTE**

- When inserting the cotter pin, if the slots in the nut do not align with the cotter pin hole in the axle, tighten the nut clockwise [B] up to next alignment.
- It should be within 30 degree.
- Loosen once and tighten again when the slot goes past the nearest hole.

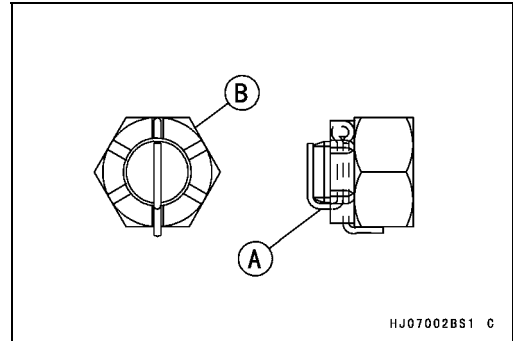


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## 2-28 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- Bend the cotter pin [A] over the nut [B].



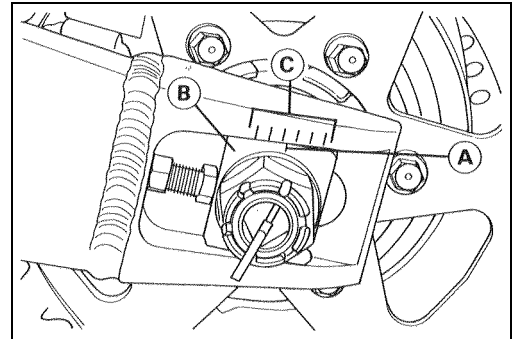
- Check that the right and left notches [A] on the alignment indicators [B] point to the same marks or positions [C] on the swingarm.
- ★ If they are not, adjust the chain slack and align the wheel alignment.

#### NOTE

○ Wheel alignment can be also be checked using the straightedge or string method.

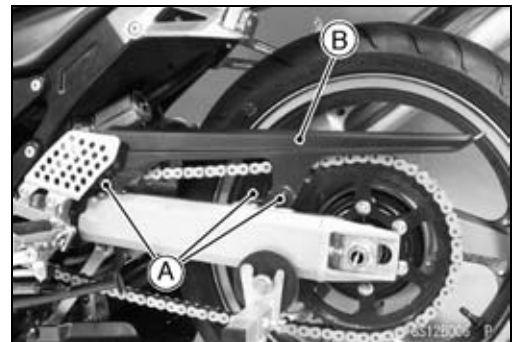
#### **⚠ WARNING**

Misalignment of the wheel will result in abnormal wear, and may result in an unsafe riding condition.



#### Drive Chain Wear Inspection

- Remove:
  - Mounting Screws [A]
  - Chain Cover [B]



**Periodic Maintenance Procedures**

- Rotate the rear wheel to inspect the drive chain for cracked, worn or damaged rollers [B], pins [F] and links [E, C]
- ★ If there is any irregularity, replace the drive chain

**Drive Chain Roller Wear**

- Measure the distance [A] between the rollers [B] in the inner link plates [C] with Vernier calipers to inspect wear between the roller and bushing. Since the roller and bushing may wear unqually, take measurements at six places.

**NOTE**

○ Do not measure the distance [G] between the rollers [D] in the outer link plates [E] to inspect wear between the bushing and pin [F].

- ★ If any measurements exceed the service limit, replace the chain. Also, replace the front and rear sprockets when the drive chain is replaced.

**Rollers Distance**

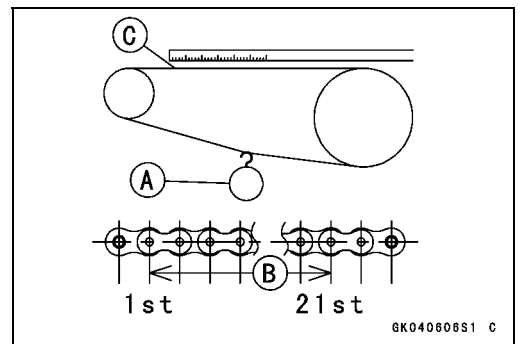
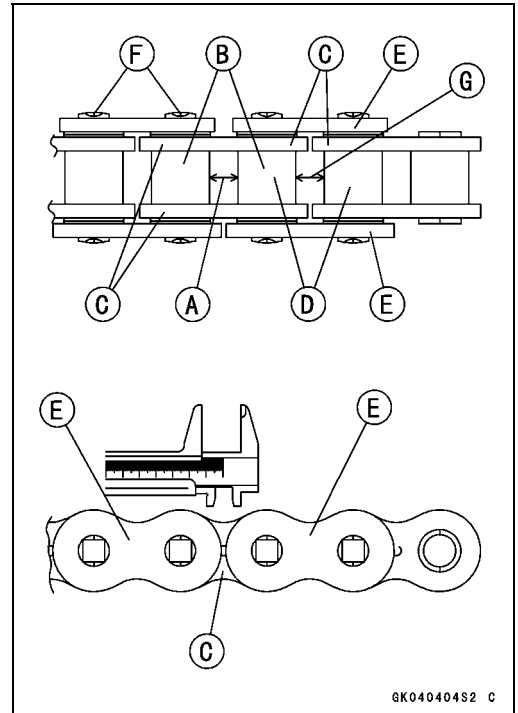
- Standard:** Less than 6 mm (0.236 in.)
- Service Limit:** 6.2 mm (0.244 in.)

**Drive Chain Wear**

- Stretch the chain taut by hanging a 98 N (10 kg, 20 lb) weight [A] on the chain
- Measure the length of 20 links [B] on the straight part [C] of the chain from the pin center of the 1st pin to the pin center of the 21st pin. Since the chain may wear unevenly, take measurements at several places.
- ★ If any measurements exceed the service limit, replace the chain. Also, replace the front and rear sprockets when the drive chain is replaced.

**Drive Chain 20-link Length**

- Standard:** 317.5 ~ 318.2 mm (12.50 ~ 12.53 in.)
- Service Limit:** 323 mm (12.7 in.)



**⚠ WARNING**

If the drive chain wear exceeds the service limit, replace the chain or an unsafe riding condition may result. A chain that breaks or jumps off the sprockets could snag on the engine sprocket or lock the rear wheel, severely damaging the motorcycle and causing it to go out of control.

For safety, use only the standard chain. It is an endless type and should not be cut for installation.

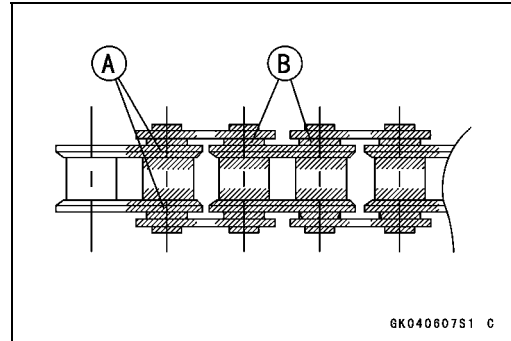


## 2-30 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

#### Drive Chain Lubrication

- If a special lubricant is not available, a heavy oil such as SAE 90 is preferred to lighter oil because it will stay on the chain longer and provide better lubrication.
- If the chain appears especially dirty, clean it before lubrication.
  - Oil Applied Grease [A]
  - O-rings [B]



#### CAUTION

The O-rings between the side plates seal the lubricant between the pin and the bushing. To avoid damaging the O-rings and resultant loss of lubricant, observe the following rules.

Use only kerosene or diesel oil for cleaning an O-ring drive chain.

Any other cleaning solution such as gasoline or trichloroethylene will cause deterioration and swelling of the O-ring.

Immediately blow the chain dry with compressed air after cleaning.

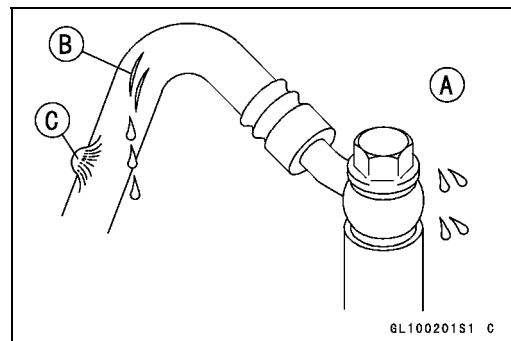
Complete cleaning and drying the chain within 10 minutes.

- Apply oil to the sides of the rollers so that oil will penetrate to the rollers and bushings. Apply oil to the O-rings so that the O-rings will be coated with oil.
- Wipe off any excess oil.

#### Brakes

##### Brake Hose, Connection Inspection

- Inspect the brake hose and fitting for deterioration, cracks and signs of leakage.
- The high pressure inside the brake line can cause fluid to leak [A] or the hose to burst if the line is not properly maintained. Bend and twist the rubber hose while examining it.
- ★ Replace it if any cracks [B], bulges [C] or fluid leak are noticed.
- ★ Tighten any loose fittings.



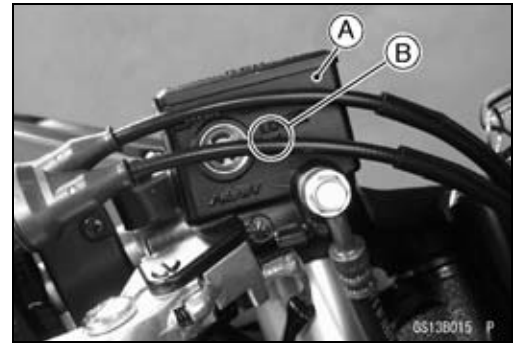
Periodic Maintenance Procedures

*Brake Fluid Level Inspection*

- Check that the brake fluid level in the front brake reservoir [A] is above the lower level line [B].

**NOTE**

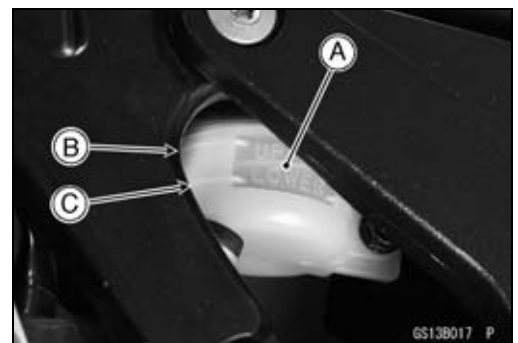
○ Hold the reservoir horizontal by turning the handlebar when checking brake fluid level.



- ★ If the fluid level is lower than the lower level line, fill the reservoir to the upper level line [A] in the reservoir [B].



- Check that the brake fluid level in the rear brake reservoir [A] is between the upper [B] and the lower [C] level lines.
- ★ If the fluid level is lower than the lower level line, remove the seats and fill the reservoir to the upper level line.



**⚠ WARNING**

Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that is already in the reservoir are unidentified. After changing the fluid, use only the same type and brand of fluid thereafter.

**Recommended Disc Brake Fluid**

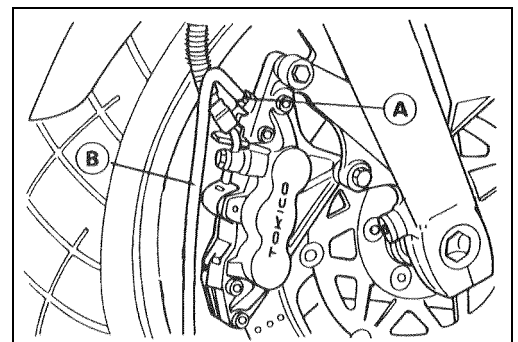
Grade: DOT4

*Brake Fluid Change*

**NOTE**

○ The procedure to change the front brake fluid is as follows. Changing the rear brake fluid is the same as for the front brake.

- Level the brake fluid reservoir.
- Remove the reservoir cap and diaphragm.
- Remove the rubber cap from the bleed valve [A] on the caliper.
- Attach a clear plastic hose [B] to the bleed valve, and run the other end of the hose into a container.
- Fill the reservoir with fresh specified brake fluid.



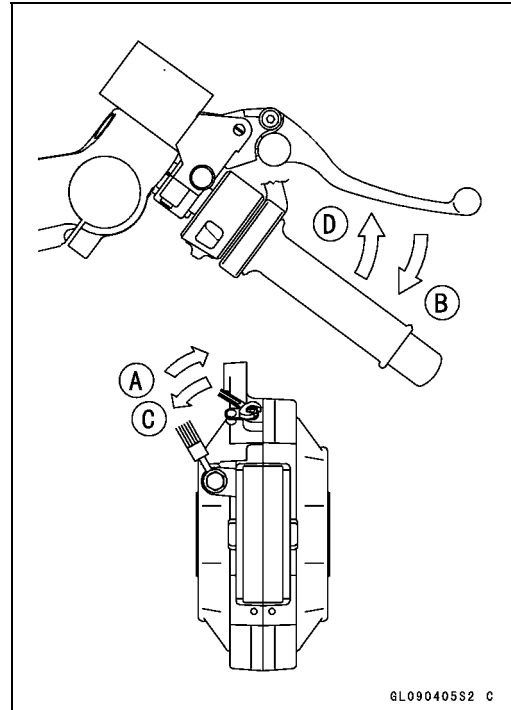
## 2-32 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- Change the brake fluid as follows:
  - Repeat this operation until fresh brake fluid comes out from the plastic hose or the color of the fluid changes.
  - 1. Open the bleed valve [C].
  - 2. Apply the brake and hold it [B].
  - 3. Close the bleed valve [A].
  - 4. Release the brake [D].

#### NOTE

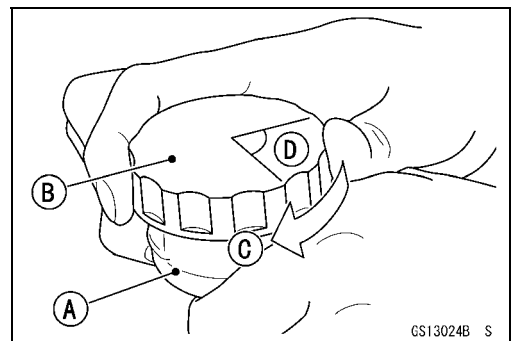
- The fluid level must be checked often during the changing operation and replenished with fresh brake fluid. If the fluid in the reservoir runs out any time during the changing operation, the brakes will need to be bled since air will have entered the brake line.
- Front brake: Repeat the above steps for the other caliper.
- Rear brake: Repeat the above steps for the other bleed valve.



- Remove the clear plastic hose.
- Follow the procedure below to install rear brake fluid reservoir cap correctly.
- First, tighten the rear brake fluid reservoir cap [B] clockwise [C] by hand until the resistance is felt fully; then, tighten the cap an additional 1/6 turn [D] while holding the brake fluid reservoir [A] body.
- Tighten the front reservoir cap screws.

**Torque - Front Reservoir Cap Screws: 1.5 N·m (0.15 kgf·m, 13 in·lb)**

- Tighten the bleed valve, and install the rubber cap.
- Torque - Bleed Valve: 7.8 N·m (0.80 kgf·m, 69 in·lb)**
- After changing the fluid, check the brake for good braking power, no brake drag, and no fluid leakage.
- ★ If necessary, bleed the air from the lines.

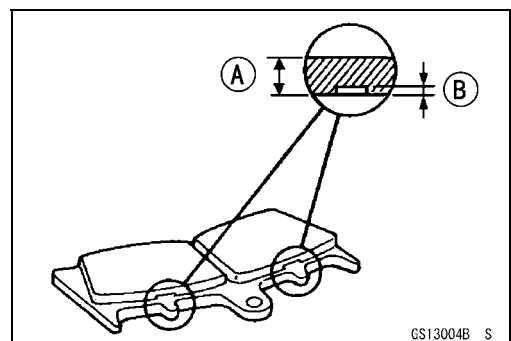


#### Front Brake Pad Wear Inspection

- Remove the brake pads (see Brakes chapter).
- Check the lining thickness [A] of the pads in each caliper.
- ★ If the lining thickness of either pad is less than the service limit [B], replace both pads in the caliper as a set (see Brakes chapter).

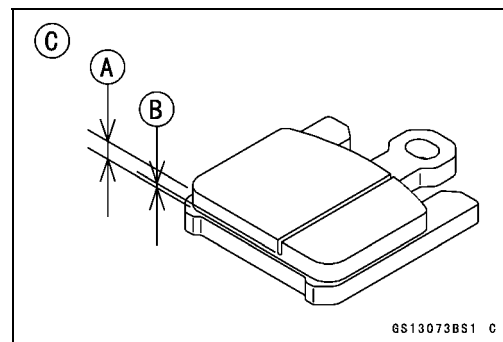
#### Pad Lining Thickness

- Standard: 4 mm (0.12 in.)**  
**Service Limit: 1 mm (0.04 in.)**



Periodic Maintenance Procedures

ZX1200-B3 [C] ~



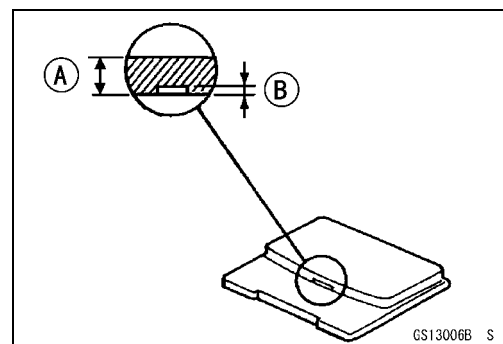
**Rear Brake Pad Wear Inspection**

- Remove the brake pads (see Brakes chapter).
- Check the lining thickness [A] of the pads in each caliper.
- ★ If the lining thickness of either pad is less than the service limit [B], replace both pads in the caliper as a set (see Brakes chapter).

**Pad Lining Thickness**

**Standard:** 4 mm (0.12 in.)

**Service Limit:** 1 mm (0.04 in.)



**Brake/Master Cylinder Cup and Dust Cover Replace**

- Refer to the Master Cylinder section in the Brakes chapter for Brake/Master Cylinder Cup and Dust Seal Replacement.

**Caliper Piston/Dust Seal Replace**

- Refer to the Calipers section in the Brakes chapter for Caliper Fluid/Dust Seals Replacement.

**Front Brake Light Switch Inspection**

- Turn on the ignition switch.
- The brake light should go on when the front brake lever is applied.
- ★ If it does not, replace the switch.

**Rear Brake Light Switch Inspection/Adjustment**

- Turn on the ignition switch.
- Check the operation of the rear brake light switch by depressing the brake pedal.
- ★ If it does not as specified, adjust the brake light timing.

**Brake Light Timing**

**Standard:** On after about 10 mm (0.39 in.) of pedal travel [A]



## 2-34 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- While holding the switch body, turn the adjusting nut [A] to adjust the switch.

#### CAUTION

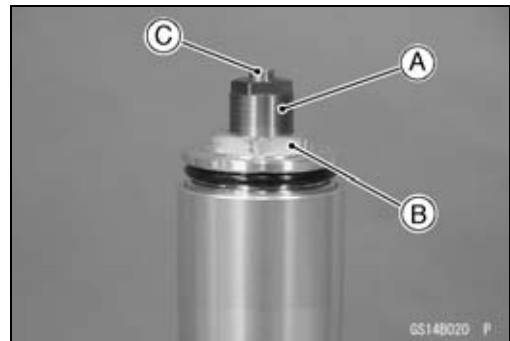
To avoid damaging the electrical connections inside the switch, be sure that the switch body does not turn during adjustment.



### Suspension

#### Front Fork Oil Change (ZX1200-B1/B2)

- Remove the front fork (see Front Fork Removal in Suspension chapter).
- Turn the spring preload adjuster [A] counterclockwise until the fully position.
- Turn the rebound damping adjuster [C] clockwise until the fully tightened position.
- Unscrew the top plug [B] out of the inner tube.



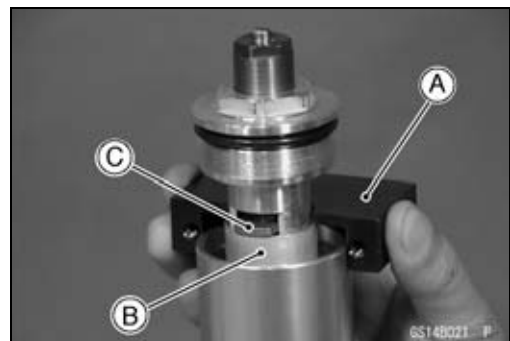
- Hold the bottom of the front fork with a vice.



- How to remove the top plug from the push rod with the front fork spring compressor set is as follows.

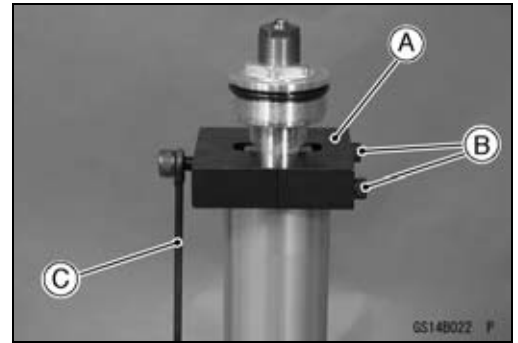
#### Special Tool - Fork Spring Compressor Set: 57001-1452

- Set the front fork holder [A] on the spacer [B] top end along with the stopper [C].

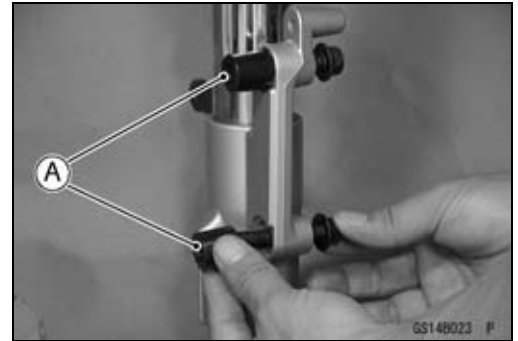


**Periodic Maintenance Procedures**

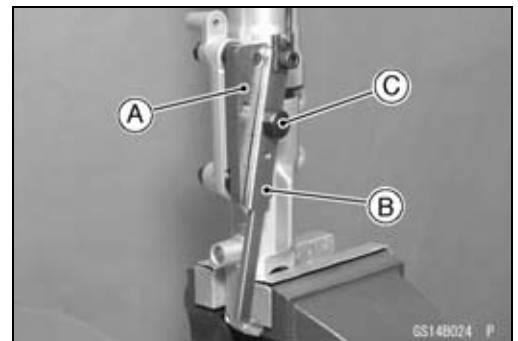
○Tighten the bolts [B] to hold the outer tube by using the front fork holder [A], and install the rod [C] to the holder.



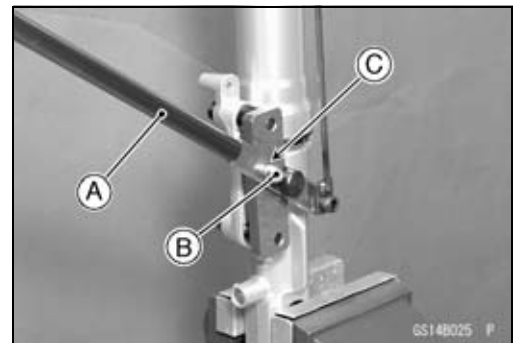
○Install the two collars [A] to the brake caliper mounting holes of the front fork bracket.



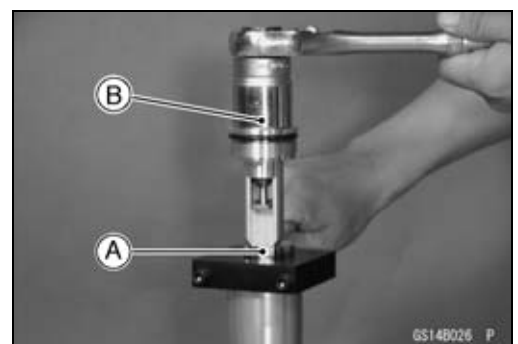
○Install the holder plate [A] and lever [B] on these collars with the bolt [C].



○Compress the outer tube holding the front fork by using the lever [A] of the spring compressor to insert the stopper [B] into the hole [C] with the lever hole aligned with the holder hole.



○Holding the piston rod nut [A], remove top plug [B] from the push rod with wrenches.



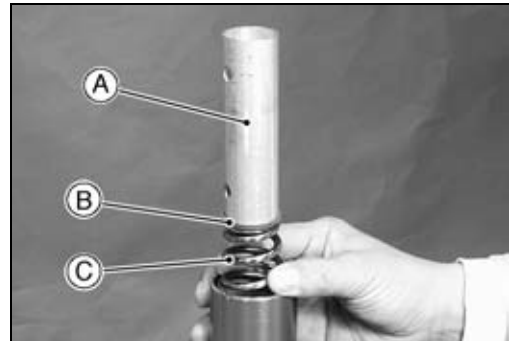
## 2-36 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

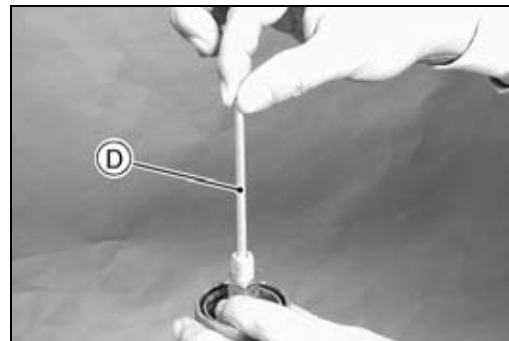
- Push the top of the outer tube to remove the stopper from the spring compressor.
- Remove the front fork spring compressor set.



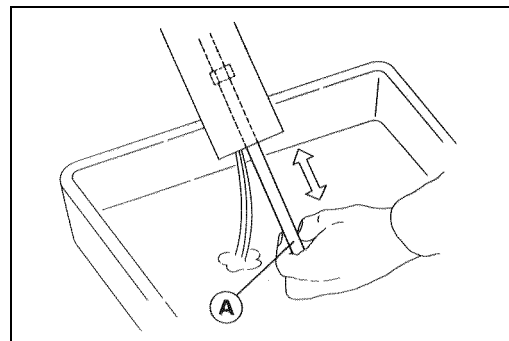
- Remove:
  - Spacer [A]
  - Spring Seat [B]
  - Fork Spring [C]



- Remove:
  - Rebound Damping Adjuster Rod [D]



- Drain the fork oil into a suitable container.
- Pump the piston rod [A] up and down at least ten times to expel the oil from the fork.



- Hold the fork tube upright, press the outer tube [A] and the piston rod all the way down.
- Pour in the type and amount of fork oil specified.

#### Fork Oil

##### Viscosity

**KAYABA KHL15-10 (SAE 0 W) or equivalent**

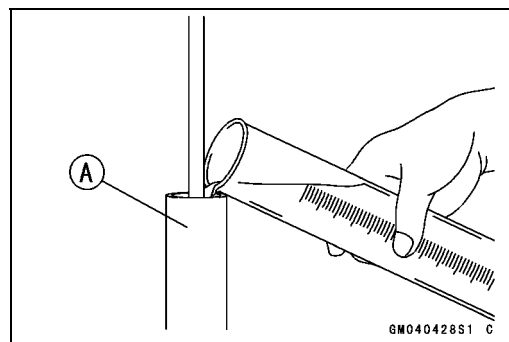
##### Amount (per side):

##### When changing oil:

**approx. 420 mL (14.2 US oz)**

##### After disassembly and completely dry:

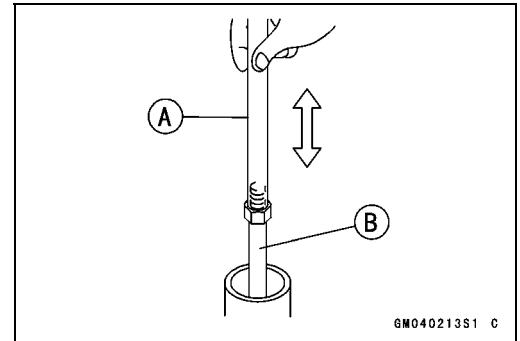
**490 ±4 mL (16.6 ±0.1 US oz)**



Periodic Maintenance Procedures

- ★ If necessary, measure the oil level as follows.
- Hold the inner tube vertically in a vise.
- Using the piston rod puller [A], move the piston rod [B] up and down more than ten times in order to expel all the air from the fork oil.

**Special Tool - Fork Piston Rod Puller, M12 × 1.25: 57001-1289**



- Pump the inner tube several times to expel air bubbles.
- Remove the piston rod puller.
- Wait until the oil level settles.
- With the fork fully compressed and the piston rod fully pushed in, insert a tape measure or rod into the inner tube, and measure the distance from the top of the outer tube to the oil.

**Oil Level (fully compressed, without spring)**

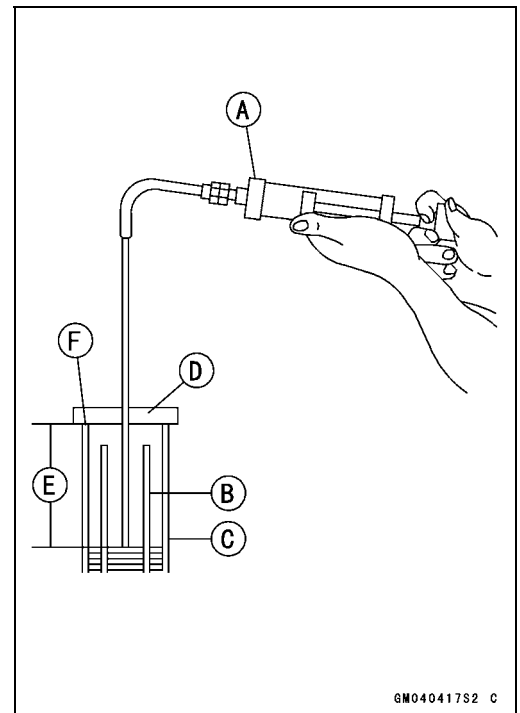
**Standard: 93 ±2 mm (3.66 ±0.08 in.)**  
(from the top of the outer tube)

**NOTE**

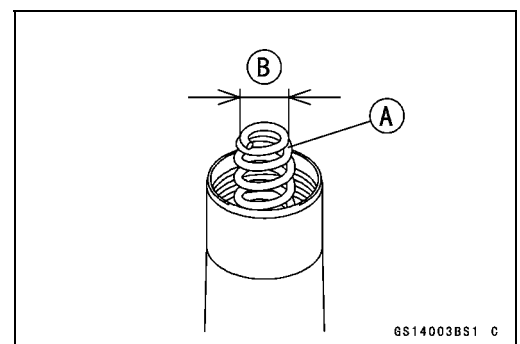
○ Fork oil level may also be measured using the fork oil level gauge.

**Special Tool - Fork Oil Level Gauge: 57001-1290 [A]**

- With the fork fully compressed and without fork spring, insert the gauge tube into the inner tube [B] and position the stopper across the top end [F] of the outer tube [C].
- Set the gauge stopper [D] so that its lower side shows the oil level distance specified [E].
- Pull the handle slowly to pump out the excess oil until the oil no longer comes out.
- ★ If no oil is pumped out, there is insufficient oil in the inner tube. Pour in enough oil, then pump out the excess oil as shown above.



- Install the fork spring [A] with the smaller end facing [B] upward.
- Install:  
Spring Seat  
Spacer

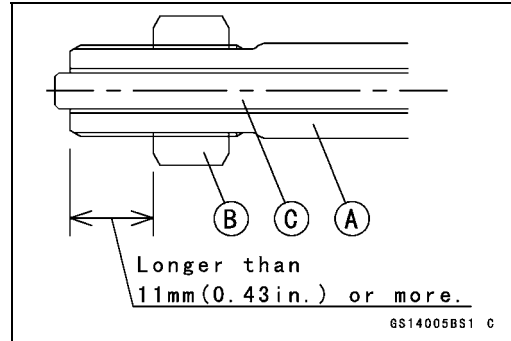




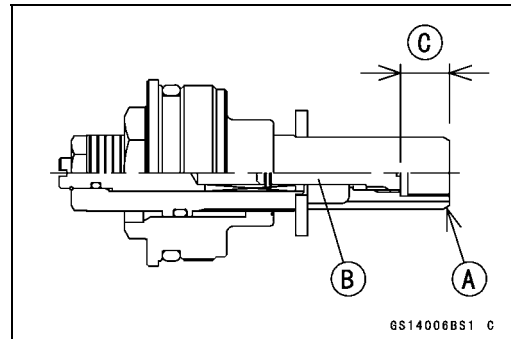
## 2-38 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

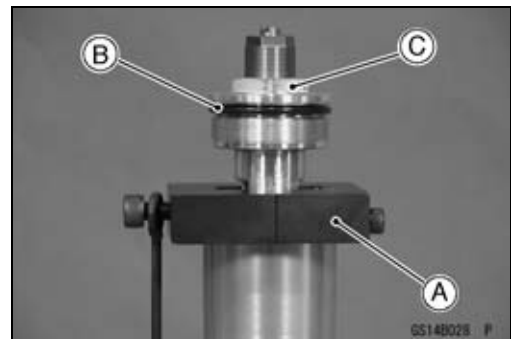
- Screw the fork piston rod puller onto the end of the rod.  
**Special Tool - Fork Piston Rod Puller, M12 × 1.25: 57001-1289**
- Pull the puller up above the inner tube top.
- Remove the fork piston rod puller.
- Screw the rod nut [B] onto the piston rod [A] as shown.
- Insert the rebound damping adjuster rod [C] into the piston rod.



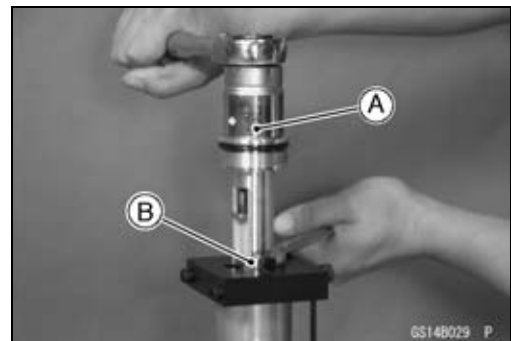
- Check the distance [C] between the bottom end [A] of the top plug and rebound damping adjuster [B] with a pair of vernier caliper.  
13 mm (0.51 in.) [C]



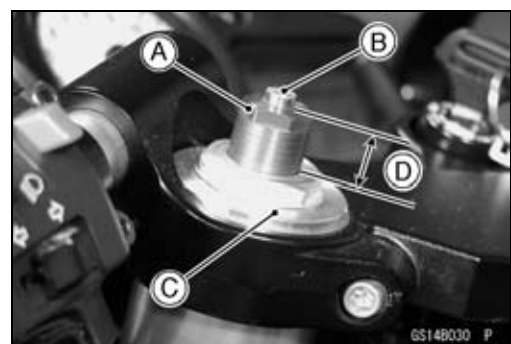
- Hold the spacer and outer tube with the fork spring compressor set [A] to compress it.  
**Special Tool - Fork Spring Compressor Set: 57001-1452**
- Check the O-ring [B] on the top plug and replace it with a new one if damaged.
- Screw in the top plug [C] stopped onto the piston rod.



- Holding the top plug [A] with a wrench, tighten the piston rod nut [B] against the top plug.  
**Torque - Piston Rod Nut: 28 N·m (2.8 kgf·m, 21 ft·lb)**
- Remove the fork spring compressor set.



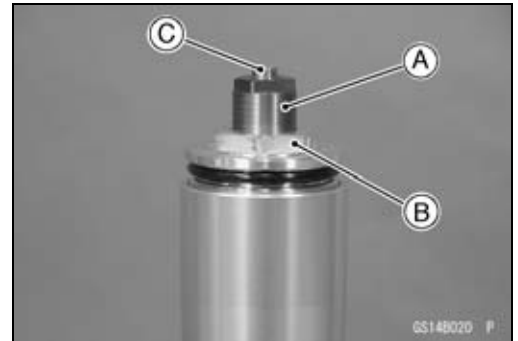
- Raise the outer tube and screw the top plug into it and install it to the steering stem.
- Screw in the spring preload adjuster [A] of the top plug so that the distance between the adjuster top and the top plug surface [C] is 17 mm (0.67 in.) [D].
- Turn in the rebound damping adjuster [B] until the fully tightened position and turn backward the 1 1/2 turns.
- Install the front fork (see Front Fork Installation).



**Periodic Maintenance Procedures**

*Front Fork Oil Change (ZX1200-B3 ~)*

- Remove the front fork (see Front Fork Removal in Suspension chapter).
- Hold the inner tube lower end in a vise.
- Turn the spring preload adjuster [A] counterclockwise until the fully position.
- Turn the rebound damping adjuster [C] clockwise until the fully tightened position.
- Unscrew the top plug [B] out of the inner tube.

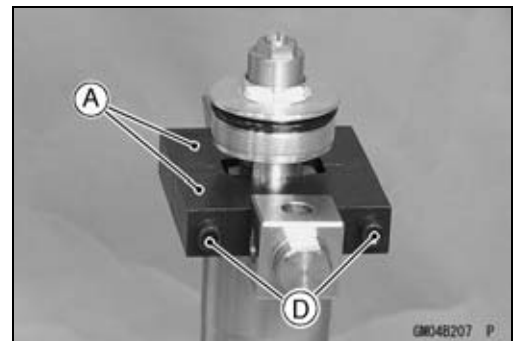
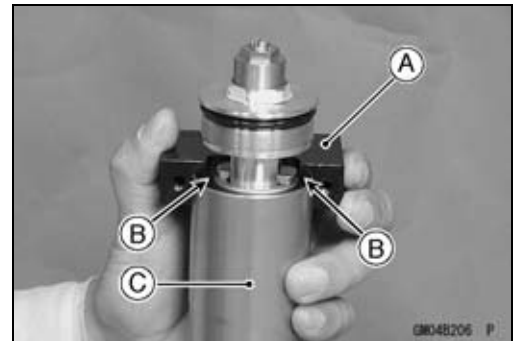


- Install the clamps [A] as shown.

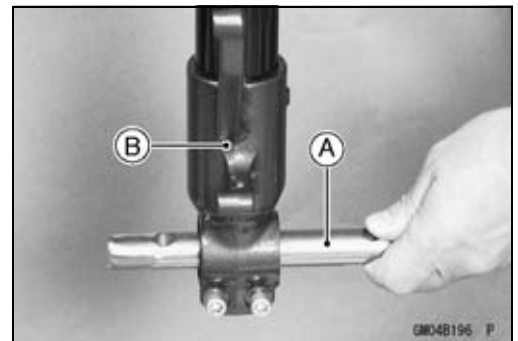
**NOTE**

○ Set the clamps so that the cutout [B] of the upper side does not touch the tongue shape of stopper, pull up the outer tube [C] to hold it by the clamps, and then tighten the two bolts [D]. The outer tube is used as a guide.

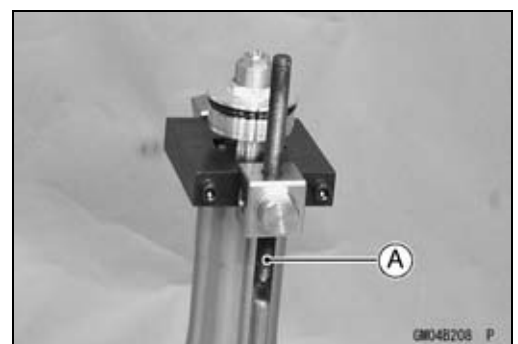
**Special Tools - Fork Spring Compressor: 57001-1587**  
**Clamp: 57001-1613**



- Insert the holder bar [A] into the axle hole of the front fork [B].



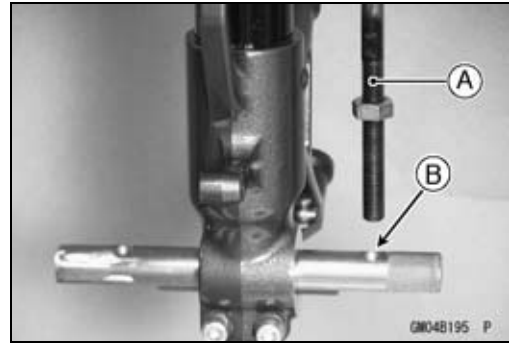
- Insert the compression shaft [A] and install the nut.



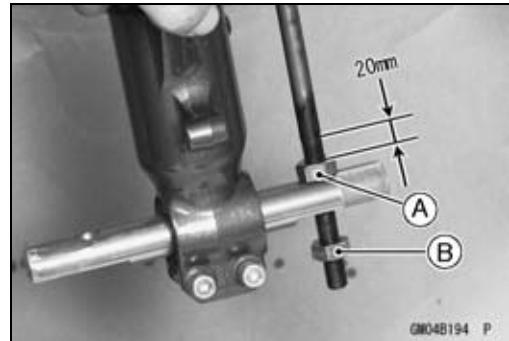
## 2-40 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- Insert the lower end of the compression shaft [A] into the hole [B] of the holder bar.



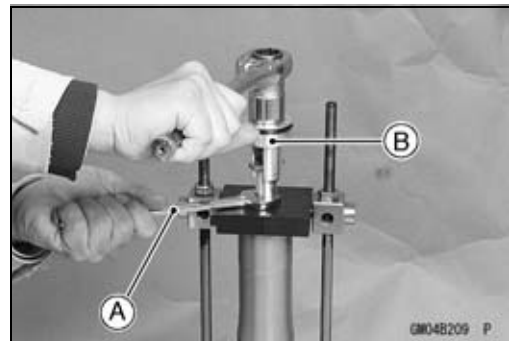
- Screw the adjust nut [A] onto the compression shaft as shown.
- Screw the locknut [B].
- Set the other side compression shaft same process.



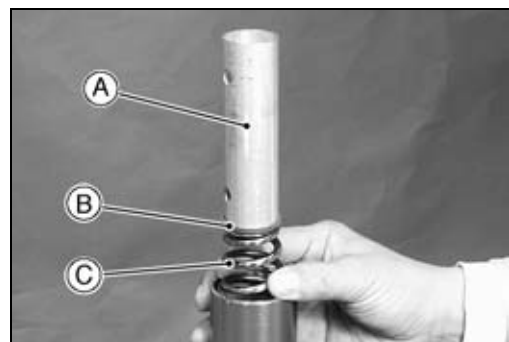
- Screw in one side nut [A] come out the piston rod nut.



- Holding the piston rod nut with a wrench [A], remove the top plug [B] from the piston rod.

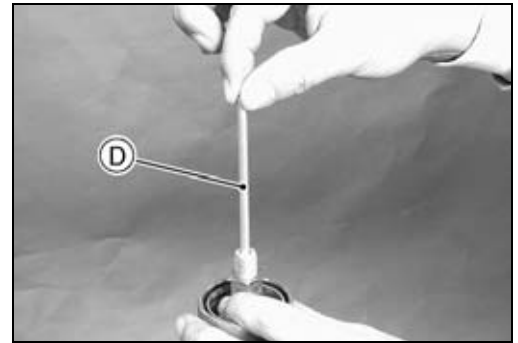


- Remove:
  - Spacer [A]
  - Spring Seat [B]
  - Fork Spring [C]

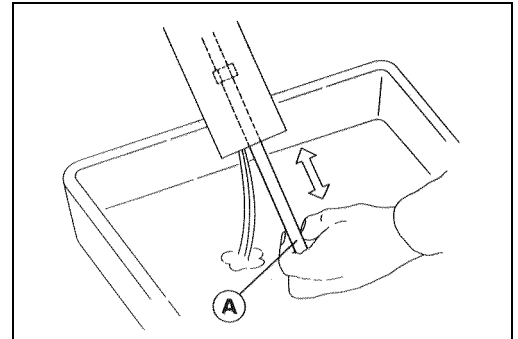


Periodic Maintenance Procedures

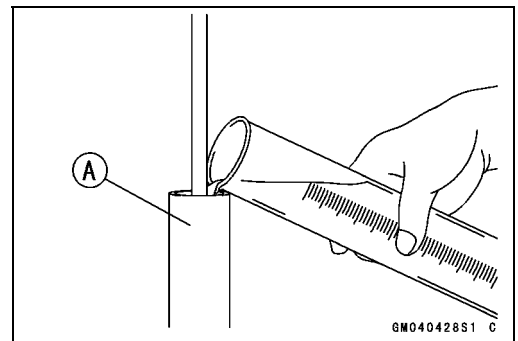
- Remove:  
Rebound Damping Adjuster Rod [D]



- Drain the fork oil into a suitable container.
- Pump the piston rod [A] up and down at least ten times to expel the oil from the fork.



- Hold the fork tube upright, press the outer tube [A] and the piston rod all the way down.
- Pour in the type and amount of fork oil specified.



**Fork Oil**

**Viscosity**

**KAYABA KHL15-10 (SAE 0 W) or equivalent**

**Amount (per side):**

**When changing oil:**

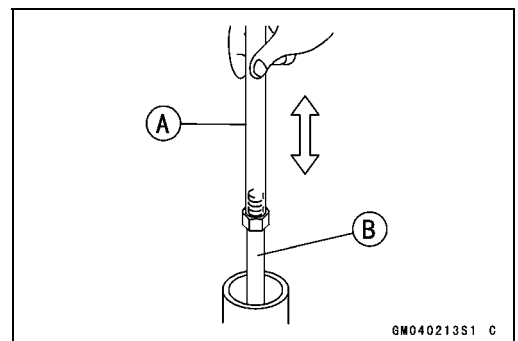
**approx. 420 mL (14.2 US oz)**

**After disassembly and completely dry:**

**490 ±4 mL (16.6 ±0.1 US oz)**

- ★ If necessary, measure the oil level as follows.
- Hold the inner tube vertically in a vise.
- Using the piston rod puller [A], move the piston rod [B] up and down more than ten times in order to expel all the air from the fork oil.

**Special Tool - Fork Piston Rod Puller, M12 × 1.25: 57001-1289**



- Pump the inner tube several times to expel air bubbles.
- Remove the piston rod puller.
- Wait until the oil level settles.
- With the fork fully compressed and the piston rod fully pushed in, insert a tape measure or rod into the inner tube, and measure the distance from the top of the outer tube to the oil.

## 2-42 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

Oil Level (fully compressed, without spring)

Standard: 93 ±2 mm (3.66 ±0.08 in.)

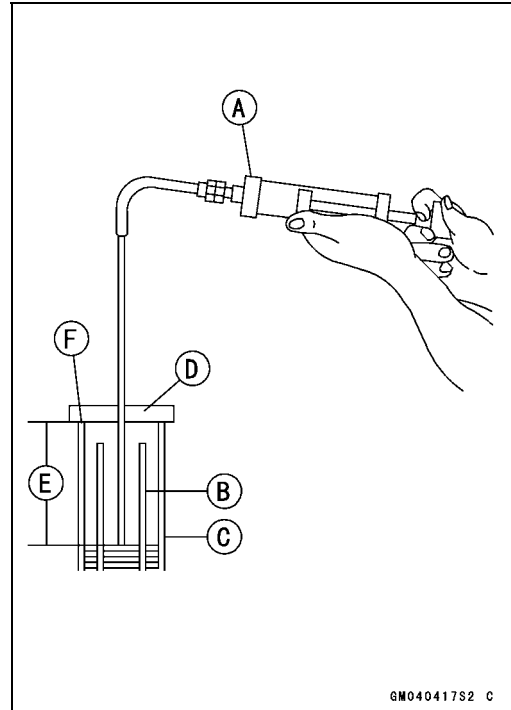
(from the top of the outer tube)

#### NOTE

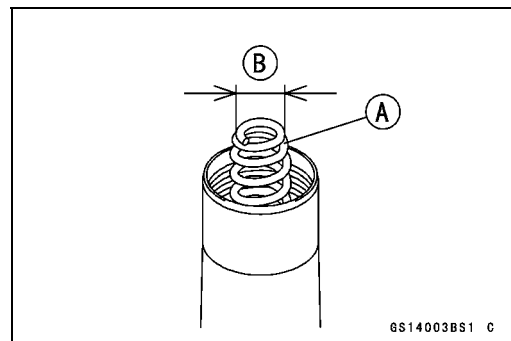
○ Fork oil level may also be measured using the fork oil level gauge.

**Special Tool - Fork Oil Level Gauge: 57001-1290 [A]**

- With the fork fully compressed and without fork spring, insert the gauge tube into the inner tube [B] and position the stopper across the top end [F] of the outer tube [C].
- Set the gauge stopper [D] so that its lower side shows the oil level distance specified [E].
- Pull the handle slowly to pump out the excess oil until the oil no longer comes out.
- ★ If no oil is pumped out, there is insufficient oil in the inner tube. Pour in enough oil, then pump out the excess oil as shown above.

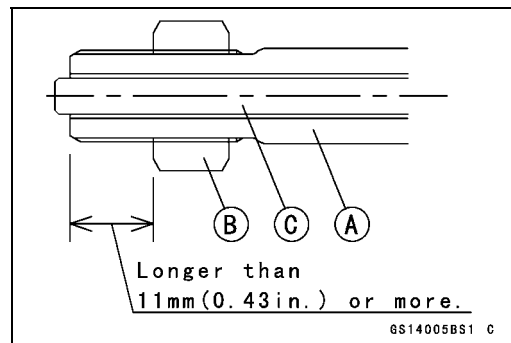


- Install the fork spring [A] with the smaller end facing [B] upward.
- Install:  
Spring Seat  
Spacer

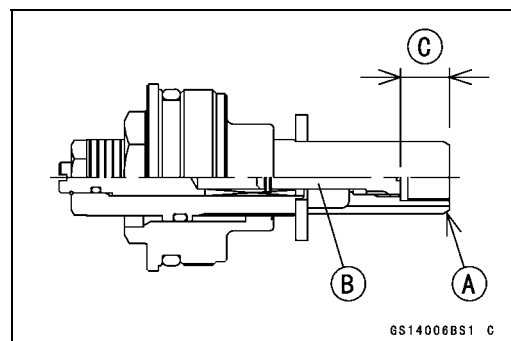


- Screw the fork piston rod puller onto the end of the rod.  
**Special Tool - Fork Piston Rod Puller, M12 × 1.25: 57001-1289**

- Pull the puller up above the inner tube top.
- Remove the fork piston rod puller.
- Screw the rod nut [B] onto the piston rod [A] as shown.
- Insert the rebound damping adjuster rod [C] into the piston rod.



- Check the distance [C] between the bottom end [A] of the top plug and rebound damping adjuster [B] with a pair of vernier caliper.  
13 mm (0.51 in.) [C]



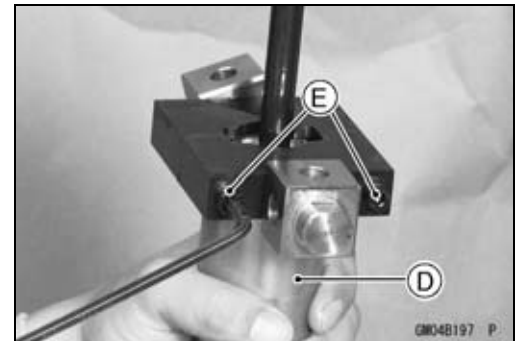
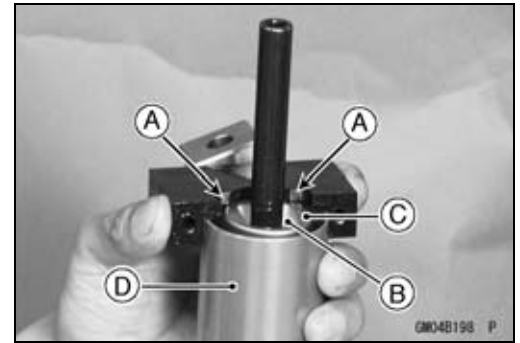
Periodic Maintenance Procedures

- Set the fork spring compressor on the spacer using the outer tube as a guide.

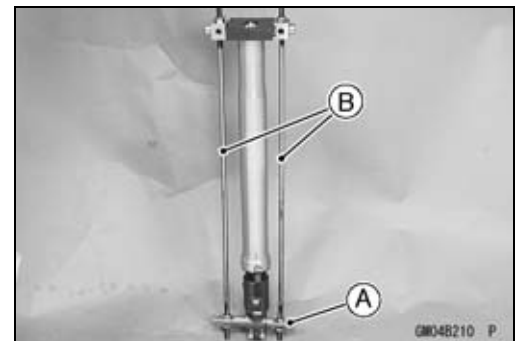
**Special Tools - Fork Spring Compressor: 57001-1587**  
**Clamp: 57001-1613**

**NOTE**

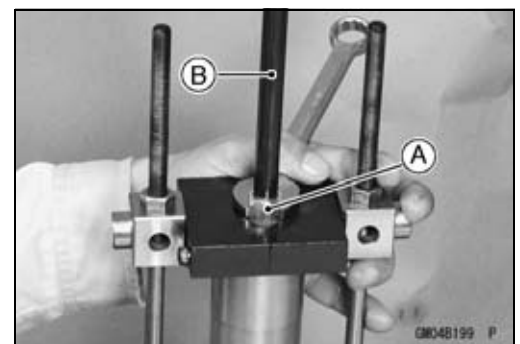
○ Set the clamps so that the cutout [A] of the upper side does not fit the hole [B] of spacer [C], pull up the outer tube [D] to hold it by the clamps, and then tighten the two bolts [E]. The outer tube is used as a guide.



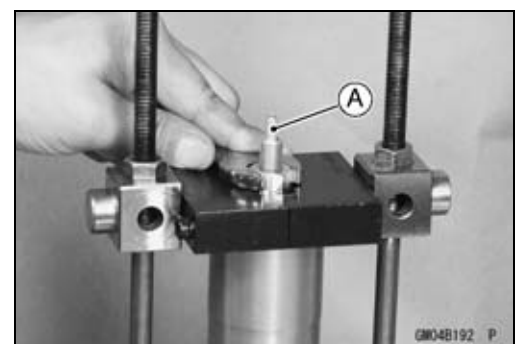
- Set the holder bar [A], and compression shafts [B].



- Hold the piston rod nut [A].
- Remove the piston rod puller [B].



- Install the rebound damping adjuster rod [A].



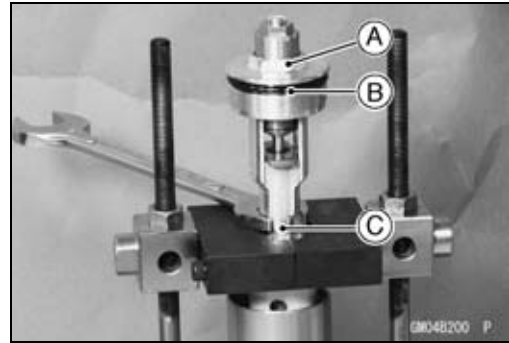
## 2-44 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

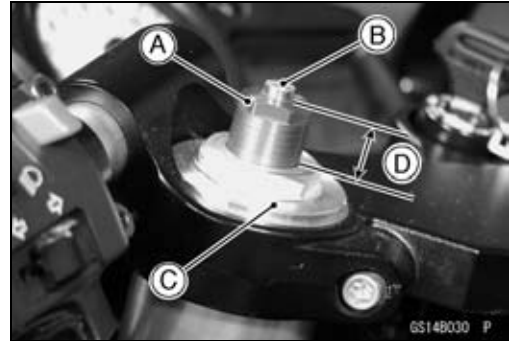
- Screw in the top plug [A] stopped onto the piston rod.
- Check the O-ring [B] on the top plug and replace it with a new one if damaged.
- Holding the top plug with a wrench, tighten the piston rod nut [C] against the top plug.

**Torque - Piston Rod Nut: 28 N·m (2.8 kgf·m, 21 ft·lb)**

- While holding up the fork spring compressor, pull out the fork spring stopper.
- Remove the fork spring compressor.

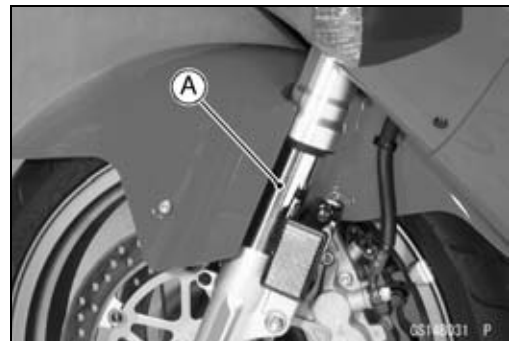


- Raise the outer tube and screw the top plug into it and install it to the steering stem.
- Screw in the spring preload adjuster [A] of the top plug so that the distance between the adjuster top and the top plug surface [C] is 17 mm (0.67 in.) [D].
- Turn in the rebound damping adjuster [B] until the fully tightened position and turn backward the 7th click.
- Install the front fork (see Front Fork Installation).



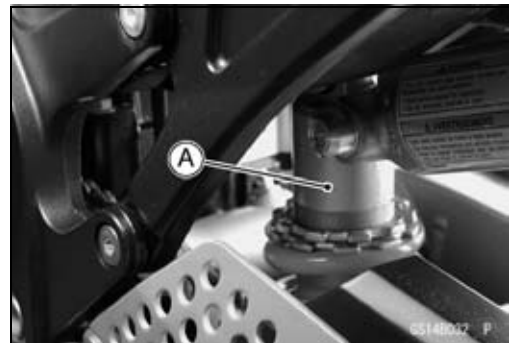
#### Front Fork Oil Leak Inspection

- Visually inspect the front forks [A] for oil leakage, scoring or scratches on the outer surface of the outer tubes.
- ★ Replace or repair any defective parts, if necessary.



#### Rear Shock Absorber Oil Leak Inspection

- Visually inspect the shock absorbers [A] for oil leakage.
- ★ If they are oil leaked, one unit feels weaker than the other, replace both shock absorber as a set.



#### Swingarm Pivot Lubrication

- The grease nipple [A] is equipped for the lubrication of swingarm bearing. Force grease into the nipple until the grease comes out from right side of the swingarm pivot, and wipe off any excess of it.



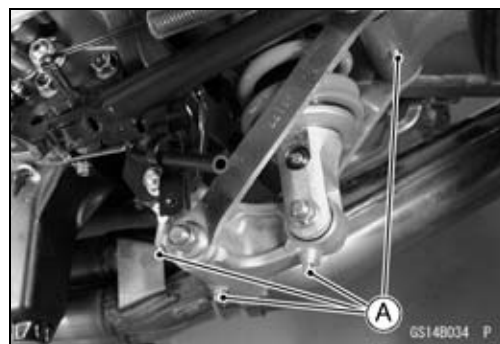
## Periodic Maintenance Procedures

### Unit-trak Linkage Lubrication

In order for the tie-rod and rocker arm to function safely and wear slowly, it should be lubricated in accordance with the Periodic Maintenance Chart.

#### ZX1200-B1 ~ B3

- For the rocker arm and tie-rod needle bearings, there are grease nipples [A] on the rocker arm and swingarm for lubrication. Force grease into the nipples until it comes out at both sides of the rocker arm and tie-rod, and wipe off any excess.



## Steering

### Steering Inspection

- Remove:
  - Lower Fairings (see Frame chapter)
- Check the steering.
- Lift the front wheel off the ground using the jack.

#### Special Tool - Jack: 57001-1238

- With the front wheel pointing straight ahead, alternately tap each end of the handlebar. The front wheel should swing fully left and right from the force of gravity until the fork hits the stop.
- ★ If the wheel binds or catches before the stop, the steering is too tight.
- Feel for steering looseness by pushing and pulling the forks.
- ★ If you feel looseness, the steering is too loose.



### NOTE

- The cables and wiring will have some effect on the motion of the fork which must be taken into account. Be sure the leads and cables are properly routed.
- The bearings must be in good condition and properly lubricated in order for any test to be valid.

#### ZX1200-B1/B2

- Remove the stem head nut to take off the lock washer [A].





## 2-46 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

- Adjust the steering.

**Special Tool - Steering Stem Nut Wrench: 57001-1100 [B]**

- ★ If the steering is too tight, loosen the stem nut [A] a fraction of a turn.
- ★ If the steering is too loose, tighten the nut a fraction of a turn.

#### NOTE

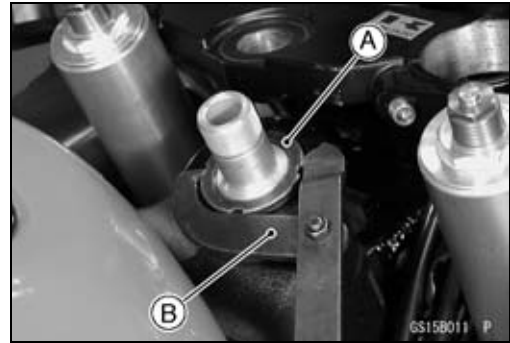
○ Turn the stem nut 1/8 turn at a time maximum.

- Tighten the head nut.

**Torque - Steering Stem Head Nut: 54 N·m (5.5 kgf·m, 40 ft·lb)**

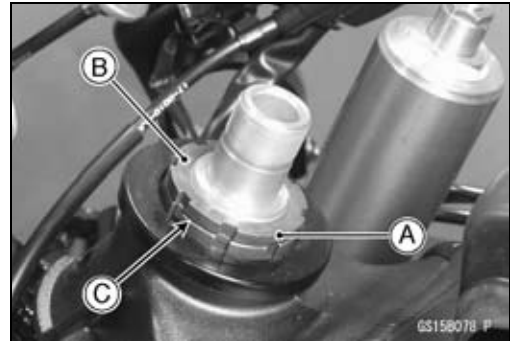
- Check the steering again

- ★ If the steering is still too tight or too loose, repeat the adjustment.



#### ZX1200-B3 ~

- Loosen the upper fork clamp bolts on both side.
- Remove the stem head nut and washer.
- Remove the steering stem head together with the handlebar installed.
- Bend the claw washer tabs [A].
- Remove the steering stem locknut [B] and claw washer [C].



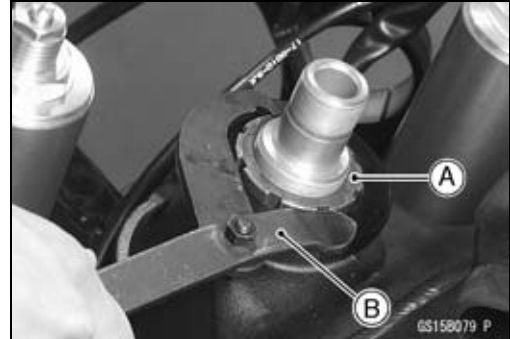
- Adjust the stem nut [A] with the stem nut wrench [B] by tightening to the specified torque.

**Special Tool - Steering Stem Nut Wrench: 57001-1100**

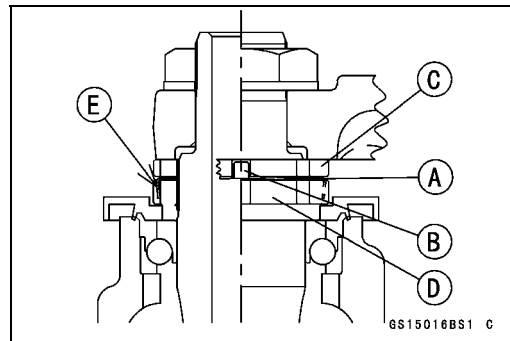
**Torque - Steering Stem Nut: 20 N·m (2.0 kgf·m, 15 ft·lb)**

#### NOTE

○ Turn the stem nut 1/8 turn at time maximum.



- Install the claw washer [A] so that its bent side [B] faces upward, and engage the bent claws with the grooves of stem locknut [C].
- Hand tighten the stem locknut until it touches the claw washer.
- Tighten the stem locknut clockwise until the claws are aligned with the grooves of stem nut [D], and bend the 2 claws downward [E].



- Tighten:

**Torque - Steering Stem Head Nut: 78 N·m (8.0 kgf·m, 57 ft·lb)**

**Front Fork Clamp Bolts (Upper): 20 N·m (2.0 kgf·m, 14 ft·lb)**

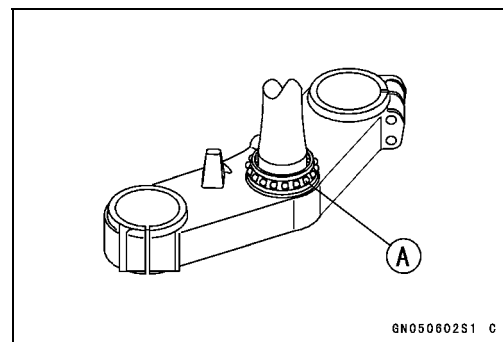
- Check the steering again.

- ★ If the steering is still too tight or too loose, repeat the adjustment.

## Periodic Maintenance Procedures

### Steering Stem Bearing Lubrication

- Remove the steering stem.
- Using a high flash-point solvent, wash the upper and lower ball bearings in the cages, and wipe the upper and lower outer races, which are press-fitted into the frame head pipe, clean off old grease and dirt.
- Visually check the outer races and the ball bearings.
- ★ Replace the bearing assemblies if they show wear or damage.
- Pack the upper and lower ball bearings [A] in the cages with grease, and apply a light coat of grease to the upper and lower outer races.
- Install the steering stem, and adjust the steering.



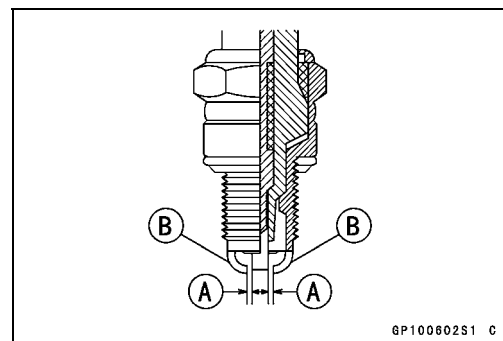
## Electrical System

### Spark Plug Cleaning and Inspection

- Remove the spark plug (see Electrical System chapter).
- Clean the spark plug, preferably in a sandblasting device, and then clean off any abrasive particles. The plug may also be cleaned using a brush or other suitable tool.
- ★ If the spark plug electrodes are corroded or damaged, or if the insulator is cracked, replace the plug. Use the standard spark plug or optional spark plug.
- Measure the gap [A] with a wire-type thickness gauge.
- ★ If the gaps are incorrect, carefully bend the side electrode [B] with a suitable tool to obtain the correct gaps.

**Spark Plug Gap: 0.7 ~ 0.9 mm (0.028 ~ 0.035 in.)**

- Install the spark plugs (see Electrical System chapter).
- Torque - Spark Plugs: 13 N·m (1.3 kgf·m, 115 in·lb)**



## General Lubrication

### Lubrication Perform

- Before lubricating each part, clean off any rusty spots with rust remover and wipe off any grease, oil, dirt, or grime.
- Lubricate the points listed below with indicated lubricant.

### NOTE

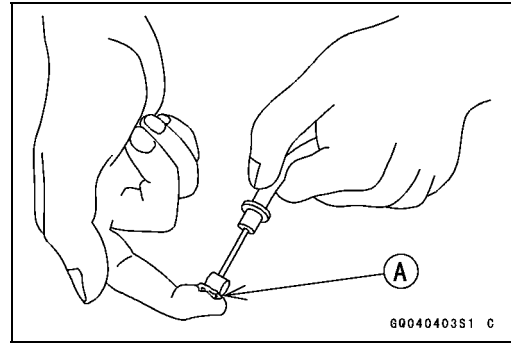
- *Whenever the vehicle has been operated under wet or rainy conditions, or especially after using a high-pressure water spray, perform the general lubrication.*

## 2-48 PERIODIC MAINTENANCE

### Periodic Maintenance Procedures

#### Points: Lubricate with Grease.

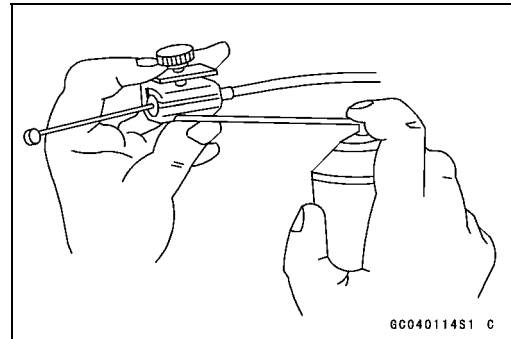
- Clutch Inner Cable Upper and Lower Ends [A]
- Throttle Inner Cable Upper and Lower Ends
- Choke Inner Cable Upper and Lower Ends
- Clutch Lever Pivot (Apply silicone grease)
- Brake Lever Pivot (Apply silicone grease)
- Brake Pedal Pivot
- Rear Brake Push Rod Joint
- Side Stand
- Tie-Rod Pivots
- Rocker Arm Pivots



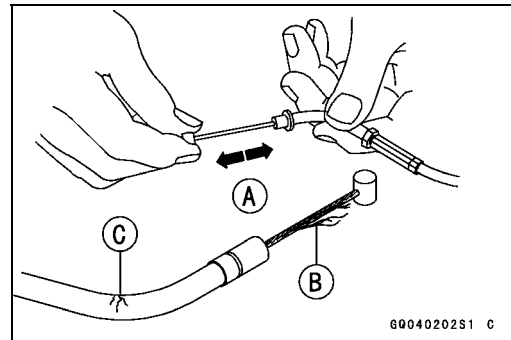
#### Cables: Lubricate with Cable Lubricant.

- Choke Cable
- Throttle Cables
- Clutch Cable

- Lubricate the cables by seeping the oil between the cable and housing.
- The cable may be lubricated by using a commercially available pressure cable lubricator with an aerosol cable lubricant.



- With the cable disconnected at both ends, the cable should move freely [A] within the cable housing.
- ★ If cable movement is not free after lubricating, if the cable is frayed [B], or if the cable housing is kinked [C], replace the cable.



### Nut, Bolt, and Fastener Tightness

#### *Tightness Inspection*

- Check the tightness of the bolts and nuts listed here. Also, check to see that each cotter pin is in place and in good condition.

#### **NOTE**

○ For the engine fasteners, check the tightness of them when the engine is cold (at room temperature).

- ★ If there are loose fasteners, retighten them to the specified torque following the specified tightening sequence. Refer to the appropriate chapter for torque specifications. If torque specifications are not in the appropriate chapter, see the Basic Torque for General Fasteners Table. For each fastener, first loosen it by 1/2 turn, then tighten it.
- ★ If cotter pins are damaged, replace them with new ones.

---

**Periodic Maintenance Procedures**

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**Nut, Bolt and Fastener to be checked**

Wheels:

- Front Axle Nut
- Front Axle Clamp Bolts
- Rear Axle Nut
- Rear Axle Nut Cotter Pin

Brakes:

- Front Master Cylinder Clamp Bolts
- Caliper Mounting Bolts
- Caliper Assembly Bolts
- Rear Master Cylinder Mounting Bolts
- Brake Lever Pivot Nut Locknut
- Brake Pedal Mounting Bolt
- Brake Rod Joint Cotter Pin

Suspension:

- Front Fork Clamp Bolts
- Front Fender Mounting Screws
- Rear Shock Absorber Nuts
- Swingarm Pivot Shaft Nut
- Uni-Track Link Nuts

Steering:

- Steering Stem Head Nut
- Handlebar Bolts

Engine:

- Engine Mounting Bolts and Nuts
- Shift Pedal Bolt
- Muffler Mounting Bolts
- Exhaust Pipe Holder Nuts
- Muffler Connecting Clamp Bolt
- Clutch Lever Pivot Nut

Others:

- Side Stand Mounting Bolt
- Footpeg Mounting Bolts
- Footpeg Bracket Mounting Bolts

# Fuel System (DFI)

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