

SUZUKI

GSF1250/S/A/SA

SERVICE MANUAL



FOREWORD

This manual contains an introductory description on the SUZUKI GSF1250/S/A/SA and procedures for its inspection/service and overhaul of its main components.

Other information considered as generally known is not included.

Read the GENERAL INFORMATION section to familiarize yourself with the motorcycle and its maintenance. Use this section as well as other sections to use as a guide for proper inspection and service.

This manual will help you know the motorcycle better so that you can assure your customers of fast and reliable service.

** This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual motorcycle.*

** Illustrations in this manual are used to show the basic principles of operation and work procedures. They may not represent the actual motorcycle exactly in detail.*

** This manual is written for persons who have enough knowledge, skills and tools, including special tools, for servicing SUZUKI motorcycles. If you do not have the proper knowledge and tools, ask your authorized SUZUKI motorcycle dealer to help you.*

▲ WARNING

Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual.

Improper repair may result in injury to the mechanic and may render the motorcycle unsafe for the rider and passenger.

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Section 00

Precautions

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Precautions

Precautions

Warning / Caution / Note

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

⚠ WARNING

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

⚠ CAUTION

Indicates a potential hazard that could result in motorcycle damage.

NOTE

Indicates special information to make maintenance easier or instructions clearer.

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

General Precautions

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⚠ WARNING

- Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the motorcycle.
- When 2 or more persons work together, pay attention to the safety of each other.
- When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoors.
- When working with toxic or flammable materials, make sure that the area you work in is well ventilated and that you follow all of the material manufacturer's instructions.
- Never use gasoline as a cleaning solvent.

- To avoid getting burned, do not touch the engine, engine oil, oil cooler and exhaust system until they have cooled.
- After servicing the fuel, oil, water, exhaust or brake systems, check all lines and fittings related to the system for leaks.

⚠ CAUTION

- If parts replacement is necessary, replace the parts with Suzuki Genuine Parts or their equivalent.
- When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order and orientation.
- Be sure to use special tools when instructed.
- Make sure that all parts used in reassembly are clean. Lubricate them when specified.
- Use the specified lubricant, bond, or sealant.
- When removing the battery, disconnect the negative (-) cable first and then the positive (+) cable.
- When reconnecting the battery, connect the positive (+) cable first and then the negative (-) cable, and replace the terminal cover on the positive (+) terminal.
- When performing service to electrical parts, if the service procedures do not require use of battery power, disconnect the negative (-) cable the battery.
- When tightening the cylinder head or case bolts and nuts, tighten the larger sizes first. Always tighten the bolts and nuts diagonally from the inside toward outside and to the specified tightening torque.
- Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, self-locking nuts, cotter pins, circlips and certain other parts as specified, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
- Never reuse a circlip. When installing a new circlip, take care not to expand the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure that it is completely seated in its groove and securely fitted.

- Use a torque wrench to tighten fasteners to the specified torque. Wipe off grease and oil if a thread is smeared with them.
- After reassembling, check parts for tightness and proper operation.
- To protect the environment, do not unlawfully dispose of used motor oil, engine coolant and other fluids: batteries, and tires.
- To protect Earth's natural resources, properly dispose of used motorcycle and parts.

Precautions for Electrical Circuit Service

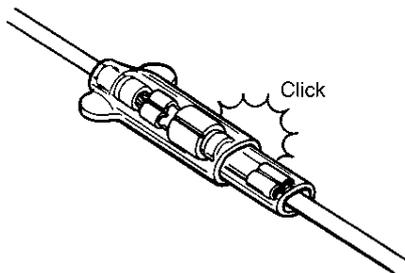
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When handling the electrical parts or servicing the FI and ABS systems, observe the following points for the safety of the systems.

Electrical Parts

Connector / Coupler

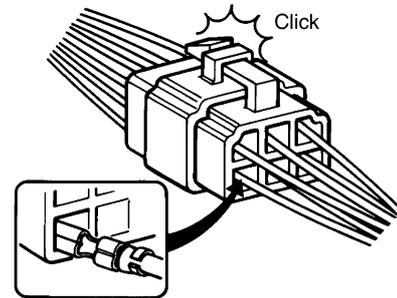
- When connecting a connector, be sure to push it in until a click is felt.



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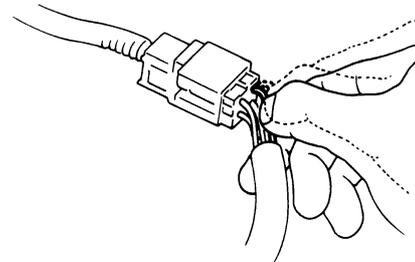
- With a lock type coupler, be sure to release the lock when disconnecting, and push it in fully to engage the lock when connecting.
- When disconnecting the coupler, be sure to hold the coupler body and do not pull the lead wires.
- Inspect each terminal on the connector/coupler for looseness or bending.

- Inspect each terminal for corrosion and contamination. The terminals must be clean and free of any foreign material which could impede proper terminal contact.



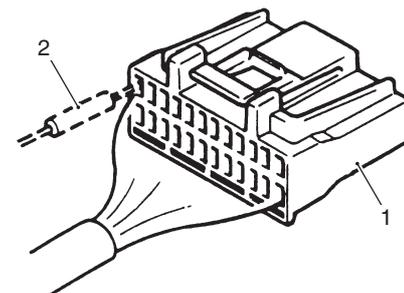
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- Inspect each lead wire circuit for poor connection by shaking it by hand lightly. If any abnormal condition is found, repair or replace.



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- When taking measurements at electrical connectors using a tester probe, be sure to insert the probe from the wire harness side (rear) of the connector/coupler.



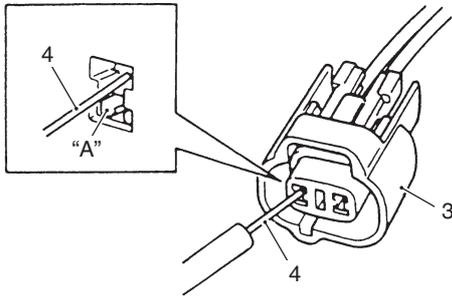
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1. Coupler	2. Probe
------------	----------

- When connecting meter probe from the terminal side of the coupler (where connection from harness side not being possible), use extra care not to force and cause the male terminal to bend or the female terminal to open. Connect the probe as shown to avoid opening of female terminal. Never push in the probe where male terminal is supposed to fit.

00-3 Precautions:

- Check the male connector for bend and female connector for excessive opening. Also check the coupler for locking (looseness), corrosion, dust, etc.

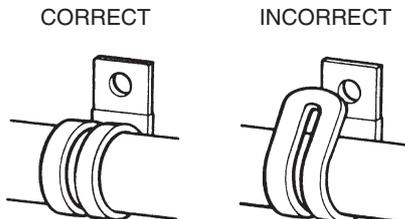


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3. Coupler	4. Probe	"A": Where male terminal fits
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Clamp

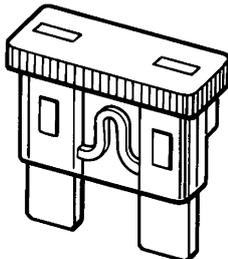
- Clamp the wire harness at such positions as indicated in "Wiring Harness Routing Diagram in Section 9A (Page 9A-8)".
- Bend the clamp properly so that the wire harness is clamped securely.
- In clamping the wire harness, use care not to allow it to hang down.
- Do not use wire or any other substitute for the band type clamp.



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Fuse

- When a fuse is blown, always investigate the cause to correct it and then replace the fuse.
- Do not use a fuse of different capacity.
- Do not use wire or any other substitute for the fuse.



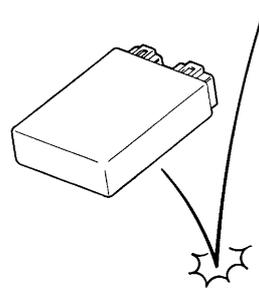
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Switch

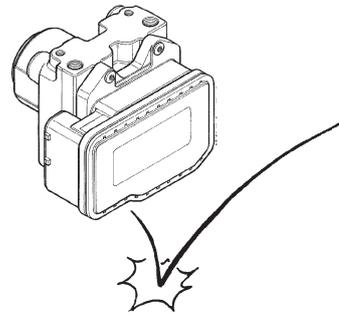
Never apply grease material to switch contact points to prevent damage.

ECM / ABS control unit / HU / Various sensors

- Since each component is a high-precision part, great care should be taken not to apply any severe impacts during removal and installation.

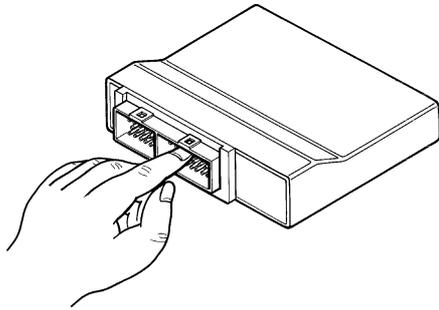


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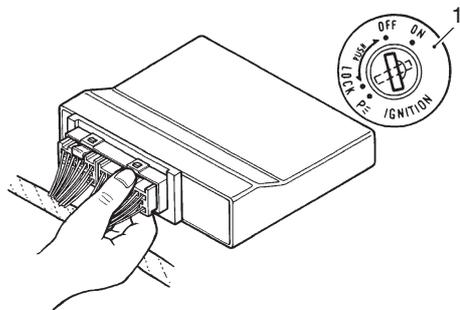
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- Be careful not to touch the electrical terminals of the electronic parts (ECM, ABS control unit/HU, etc.). The static electricity from your body may damage them.



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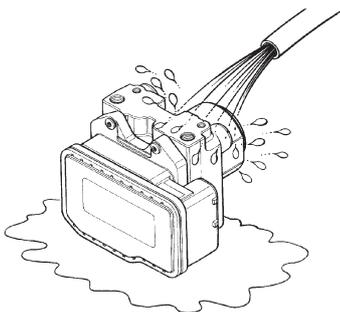
- When disconnecting and connecting the coupler, make sure to turn OFF the ignition switch, or electronic parts may get damaged.



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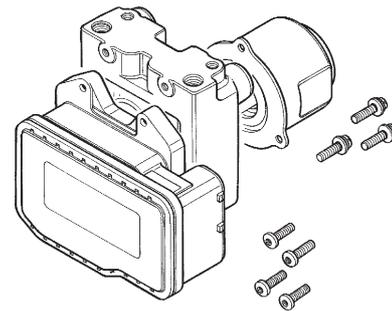
1. Ignition switch

- Never allow dust or water to contact the ABS control unit/HU.



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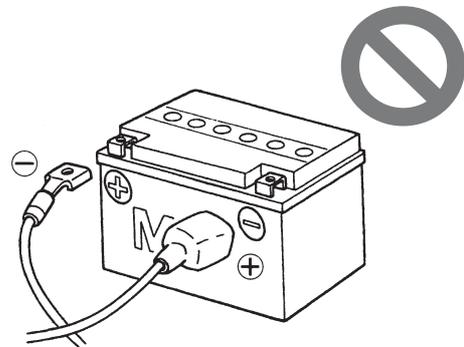
- The ABS control unit/HU cannot be disassembled. Replace the whole unit with a new one.



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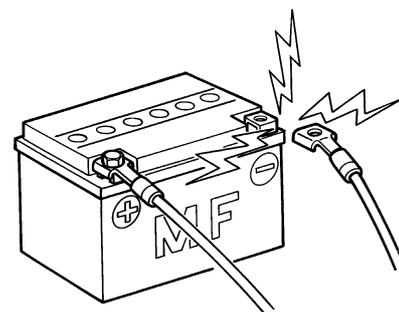
Battery

- Battery connection in reverse polarity is strictly prohibited. Such a wrong connection will damage the components of the FI and ABS systems instantly when reverse power is applied.



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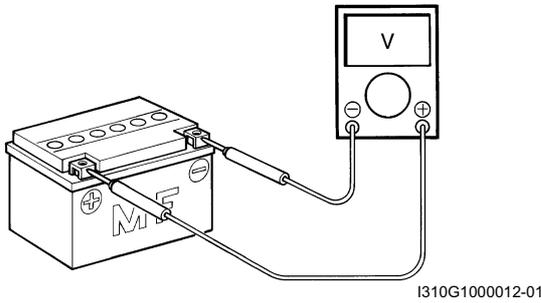
- Removing any battery terminal of a running engine is strictly prohibited. The moment such removal is made, damaging counter electromotive force will be applied to the electronic unit which may result in serious damage.



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00-5 Precautions:

- Before measuring voltage at each terminal, check to make sure that battery voltage is 11 V or higher. Terminal voltage check with a low battery voltage will lead to erroneous diagnosis.



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- Never connect any tester (voltmeter, ohmmeter, or whatever) to the electronic unit when its coupler is disconnected. Otherwise, damage to electronic unit may result.
- Never connect an ohmmeter to the electronic unit with its coupler connected. If attempted, damage to ECM or sensors may result.
- Be sure to use a specified voltmeter/ohmmeter. Otherwise, accurate measurements may not be obtained and personal injury may result.

Electrical Circuit Inspection Procedure

While there are various methods for electrical circuit inspection, described here is a general method to check for open and short circuit using an ohmmeter and a voltmeter.

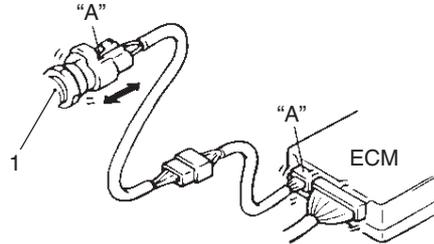
Open circuit check

Possible causes for the open circuit are as follows. As the cause can exist in the connector/coupler or terminal, they need to be checked carefully.

- Loose connection of connector/coupler
- Poor contact of terminal (due to dirt, corrosion or rust, poor contact tension, entry of foreign object etc.)
- Wire harness being open.
- Poor terminal-to-wire connection.

When checking system circuits including an electronic control unit such as ECM, ABS control unit/HU, etc., it is important to perform careful check, starting with items which are easier to check.

- 1) Disconnect the negative (-) cable from the battery.
- 2) Check each connector/coupler at both ends of the circuit being checked for loose connection. Also check for condition of the coupler lock if equipped.



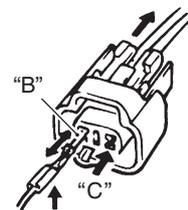
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1. Sensor	"A": Check for loose connection
-----------	---------------------------------

- 3) Using a test male terminal, check the female terminals of the circuit being checked for contact tension.

Check each terminal visually for poor contact (possibly caused by dirt, corrosion, rust, entry of foreign object, etc.). At the same time, check to make sure that each terminal is fully inserted in the coupler and locked.

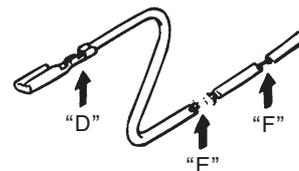
If contact tension is not enough, rectify the contact to increase tension or replace. The terminals must be clean and free of any foreign material which could impede proper terminal contact.



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"B": Check contact tension by inserting and removing.
"C": Check each terminal for bend and proper alignment.

- 4) Using continuity inspect or voltage check procedure as described below, inspect the wire harness terminals for open circuit and poor connection. Locate abnormality, if any.

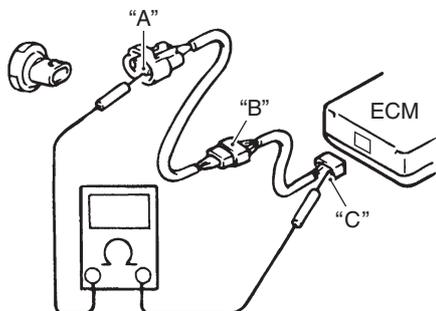


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"D": Looseness of crimping
"E": Open
"F": Thin wire (A few strands left)

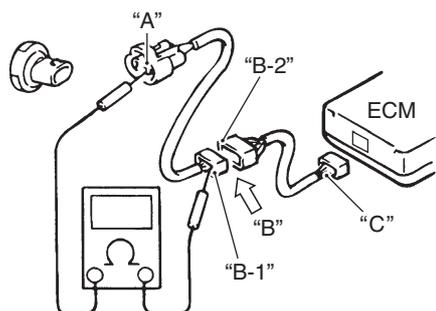
Continuity check

- 1) Measure resistance across coupler "B" (between "A" and "C" in figure).
If no continuity is indicated (infinity or over limit), the circuit is open between terminals "A" and "C".



I705H1000006-02

- 2) Disconnect the coupler "B" and measure resistance between couplers "A" and "B-1".
If no continuity is indicated, the circuit is open between couplers "A" and "B-1". If continuity is indicated, there is an open circuit between couplers "B-2" and "C" or an abnormality in coupler "B-2" or coupler "C".



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Voltage check

If voltage is supplied to the circuit being checked, voltage check can be used as circuit check.

- 1) With all connectors/couplers connected and voltage applied to the circuit being checked, measure voltage between each terminal and body ground.
- 2) If measurements were taken as shown in the figure and results were listed in the following, it means that the circuit is open between terminals "A" and "B".

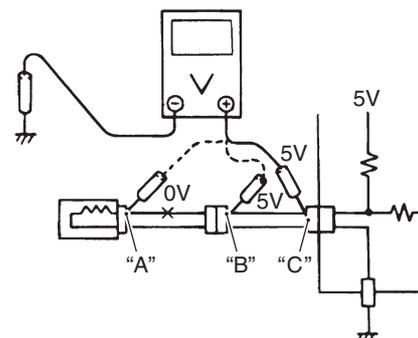
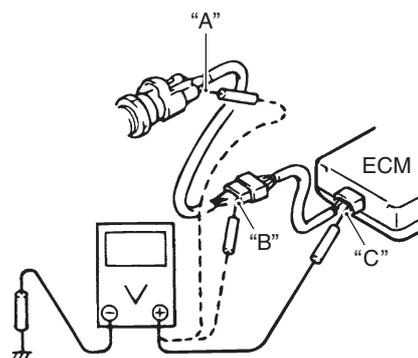
Voltage between

- "A" and body ground: Approx. 5 V
- "B" and body ground: Approx. 5 V
- "C" and body ground: 0 V

- 3) Also, if measured values are as listed following, a resistance (abnormality) exists which causes the voltage drop in the circuit between terminals "A" and "B".

Voltage between

- "A" and body ground: Approx. 5 V
- "B" and body ground: Approx. 5 V – 2 V voltage drop
- "C" and body ground: 3 V – 2 V voltage drop



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Short circuit check (Wire harness to ground)

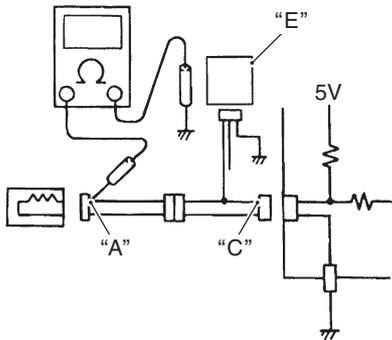
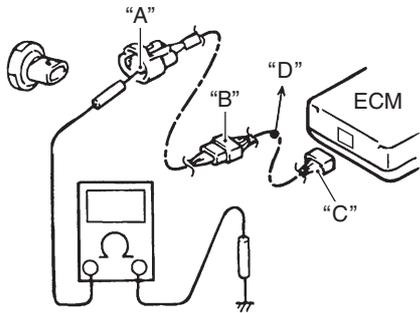
- 1) Disconnect the negative (-) cable from the battery.
- 2) Disconnect the connectors/couplers at both ends of the circuit to be checked.

NOTE

If the circuit to be checked branches to other parts as shown, disconnect all connectors/couplers of those parts. Otherwise, diagnosis will be wrong.

00-7 Precautions:

- 3) Measure resistance between terminal at one end of circuit ("A" terminal in figure) and body ground. If continuity is indicated, there is a short circuit to ground between terminals "A" and "C".

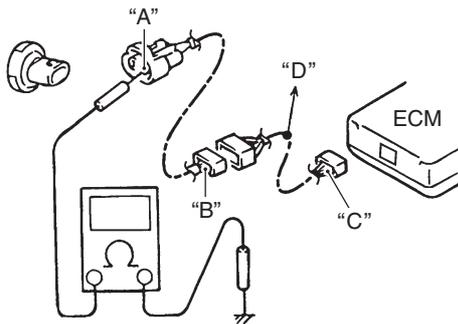


I705H1000008-01

"D": To other parts

"E": Other parts

- 4) Disconnect the connector/coupler included in circuit (coupler "B") and measure resistance between terminal "A" and body ground. If continuity is indicated, the circuit is shorted to the ground between terminals "A" and "B".



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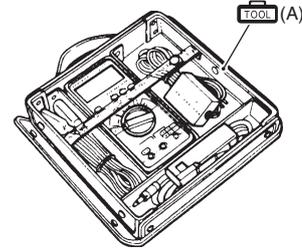
"D": To other parts

Using The Multi-Circuit Testers

- Use the Suzuki multi-circuit tester set.
- Use well-charged batteries in the tester.
- Be sure to set the tester to the correct testing range.

Special tool

 (A): 09900-25008 (Multi-circuit tester set)



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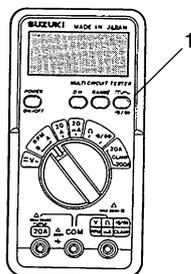
Using the testers

- Incorrectly connecting the (+) and (-) probes may cause the inside of the tester to be burned.
- If the voltage and current are not known, make measurements using the highest range.
- When measuring the resistance with the multi-circuit tester (1), ∞ will be shown as 10.00 M Ω and "1" flashes in the display.
- Check that no voltage is applied before making the measurement. If voltage is applied the tester may be damaged.

- After using the tester, turn the power off.

Special tool

TOOL : 09900-25008 (Multi-circuit tester set)



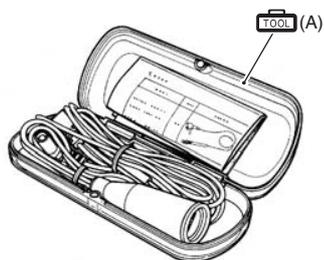
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NOTE

- When connecting the multi-circuit tester, use the needle pointed probe to the back side of the lead wire coupler and connect the probes of tester to them.
- Use the needle pointed probe to prevent the rubber of the water proof coupler from damage.
- When using the multi-circuit tester, do not strongly touch the terminal of the ECM coupler with a needle pointed tester probe to prevent the terminal damage or terminal bend.

Special tool

TOOL (A): 09900-25009 (Needle pointed probe set)



I649G1000025-02

00-9 Precautions:

Section 0

General Information

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General Information

General Description

Symbols

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

Symbol	Definition
	Torque control required. Data beside it indicate specified torque.
	Apply oil. Use engine oil unless otherwise specified.
	Apply molybdenum oil solution. (Mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1:1).
	Apply SUZUKI SUPER GREASE "A" or equivalent. 99000-25010
	Apply SUZUKI MOLY PASTE or equivalent. 99000-25140
	Apply SUZUKI SILICONE GREASE or equivalent. 99000-25100
	Apply SUZUKI BOND "1207B" or equivalent. 99000-31140
	Apply SUZUKI BOND "1215" or equivalent. 99000-31110
	Apply THREAD LOCK SUPER "1303" or equivalent. 99000-32030
	Apply THREAD LOCK SUPER "1322" or equivalent. 99000-32110
	Apply THREAD LOCK SUPER "1360" or equivalent. 99000-32130
	Use engine coolant or equivalent. 99000-99032-11X
	Use fork oil or equivalent. 99000-99001-SS8
	Apply or use brake fluid.
	Use special tool.
	Do not reuse.
	Note on reassembly.

Abbreviations

B718H10101002

A:
ABDC: After Bottom Dead Center
ABS: Anti-lock brake system
AC: Alternating Current
ACL: Air Cleaner, Air Cleaner Box
API: American Petroleum Institute
ATDC: After Top Dead Center
A/F: Air Fuel Mixture
B:
BBDC: Before Bottom Dead Center
BTDC: Before Top Dead Center
B+: Battery Positive Voltage
C:
CKP Sensor: Crankshaft Position Sensor (CKPS)
CKT: Circuit
CLP Switch: Clutch Lever Position Switch (Clutch Switch)

CO: Carbon Monoxide
CPU: Central Processing Unit
D:
DC: Direct Current
DMC: Dealer Mode Coupler
DOHC: Double Over Head Camshaft
DRL: Daytime Running Light
DTC: Diagnostic Trouble code
E:
ECM: Engine Control Module Engine Control Unit (ECU) (FI Control Unit)
ECT Sensor: Engine Coolant Temperature Sensor (ECTS)
 Water Temp. Sensor (WTS)
F:
FI: Fuel Injection, Fuel Injector
FP: Fuel pump
FPR: Fuel Pressure Regulator

FP Relay: Fuel Pump Relay
G:
GEN: Generator
GND: Ground
GP Switch: Gear Position Switch
H:
HC: Hydrocarbons
HO2 sensor: Heated Oxygen Sensor (HO2S)
I:
IAP Sensor: Intake Air Pressure Sensor (IAPS)
IAT Sensor: Intake Air Temperature Sensor (IATS)
IG: Ignition
ISC Valve: Idle Speed Control Valve (ISCV)
J:
JASO: Japanese Automobile Standards Organization
L:
LCD: Liquid Crystal Display
LED: Light Emitting Diode (Malfunction Indicator Lamp)
LH: Left Hand
M:
MAL-CODE: Malfunction Code (Diagnostic Code)
Max: Maximum
MIL: Malfunction Indicator Lamp (LED)
Min: Minimum
N:
NOx: Nitrogen Oxides
O:
OHC: Over Head Camshaft
OPS: Oil Pressure Switch
P:
PAIR: Pulsed Secondary Air Injection
PCV: Positive Crankcase Ventilation (Crankcase Breather)
R:
RH: Right Hand
ROM: Read Only Memory
S:
SAE: Society of Automotive Engineers
SDS: Suzuki Diagnosis System
STC System: Secondary Throttle Control System (STCS)
STP Sensor: Secondary Throttle Position Sensor (STPS)
ST Valve: Secondary Throttle Valve (STV)
STV Actuator: Secondary Throttle Valve Actuator (STVA)
T:
TO Sensor: Tip-over Sensor (TOS)
TP Sensor: Throttle Position Sensor (TPS)

SAE-to-Former SUZUKI Term

B718H10101012

This list shows SAE (Society of Automotive Engineers) J1930 terms and abbreviations which may be used in this manual in compliance with SAE recommendations, as well as their former SUZUKI names.

Ex. SAE term (Abbreviation): Former SUZUKI term

A:

Air Cleaner (ACL): Air Cleaner, Air Cleaner Box

B:

Battery Positive Voltage (B+): Battery Voltage, +B
C:
Crankshaft Position Sensor (CKP Sensor): Crankshaft Position Sensor (CKPS), Crank Angle
D:
Data Link Connector (DLC): Dealer Mode Coupler
Diagnostic Test Mode (DTM): —
Diagnostic Trouble Code (DTC): Diagnostic Code, Malfunction Code
E:
Electronic Ignition (EI): —
Engine Control Module (ECM): Engine Control Module (ECM), FI Control Unit, Engine Control Unit (ECU)
Engine Coolant Level (ECL): Coolant Level
Engine Coolant Temperature (ECT): Coolant Temperature, Engine Coolant Temperature, Water Temperature
Engine Speed (RPM): Engine Speed (RPM)
Evaporative Emission (EVAP): Evaporative Emission
Evaporative Emission Canister (EVAP Canister): — (Canister)
F:
Fan Control (FC): —
Fuel Level Sensor: Fuel Level Sensor, Fuel Level Gauge
Fuel Pump (FP): Fuel Pump (FP)
G:
Generator (GEN): Generator
Ground (GND): Ground (GND, GRD)
H:
Hydrocarbons (HC): Hydrocarbons
Heated Oxygen Sensor (HO2S): Heated Oxygen Sensor (HO2S), O2 sensor
I:
Ignition Control Module (ICM): —
Intake Air Temperature (IAT): Intake Air Temperature (IAT), Air Temperature
Idle Speed Control (ISC): —
Ignition Control (IC): Electronic Spark Advance (ESA)
Ignition Control Module (ICM): —
Intake Air Temperature (IAT): Intake Air Temperature (IAT), Air Temperature
M:
Malfunction Indicator Lamp (MIL): LED Lamp, Malfunction Indicator Lamp (MIL)
Manifold Absolute Pressure (MAP): Intake Air Pressure (IAP), Intake Vacuum
Mass Air Flow (MAF): Air Flow
O:
On-Board Diagnostic (OBD): Self-Diagnosis Function, Diagnostic
Open Loop (OL): —
P:
Programmable Read Only Memory (PROM): —
Pulsed Secondary Air Injection (PAIR): Pulse Air Control (PAIR)
Purge Valve (Purge Valve): Purge Valve (SP Valve)
R:
Random Access Memory (RAM): —

0A-3 General Information:

Read Only Memory (ROM): ROM

S:

Secondary Air Injection (AIR): —

Secondary Throttle Control System (STCS): STC System (STCS)

Secondary Throttle Valve (STV): ST Valve (STV)

Secondary Throttle Valve Actuator (STVA): STV Actuator (STVA)

T:

Throttle Body (TB): Throttle Body (TB)

Throttle Body Fuel Injection (TBI): Throttle Body Fuel Injection (TBI)

Throttle Position Sensor (TP Sensor): TP Sensor (TPS)

V:

Voltage Regulator (VR): Voltage Regulator

Volume Air Flow (VAF): Air Flow

Vehicle Side View

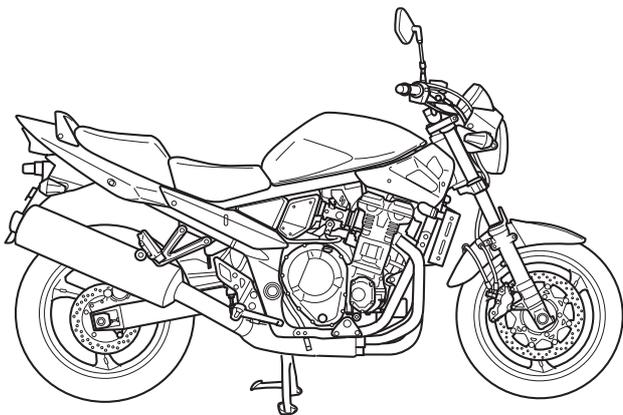
B718H10101003

NOTE

Difference between illustration and actual motorcycles may exist depending on the markets.

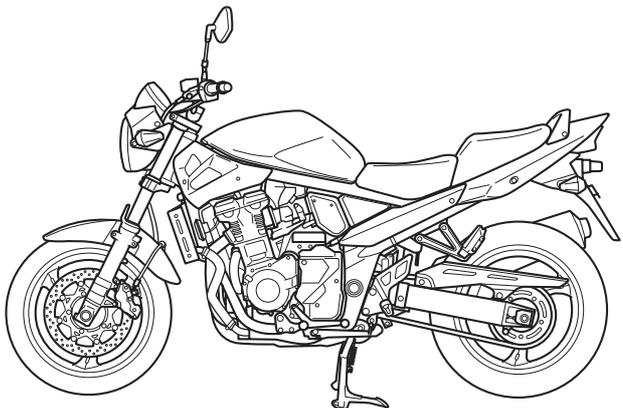
SUZUKI GSF1250 (2007-model)

Right Side



I718H1010001-01

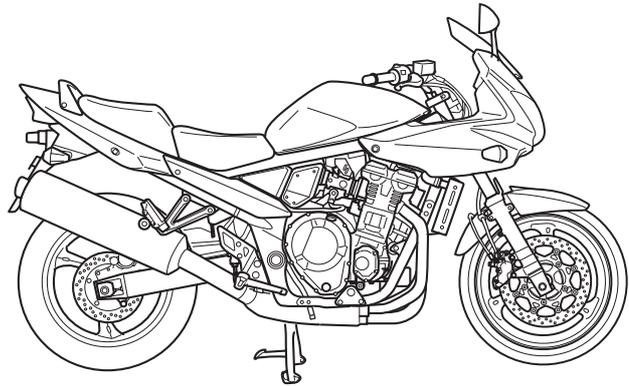
Left Side



I718H1010002-02

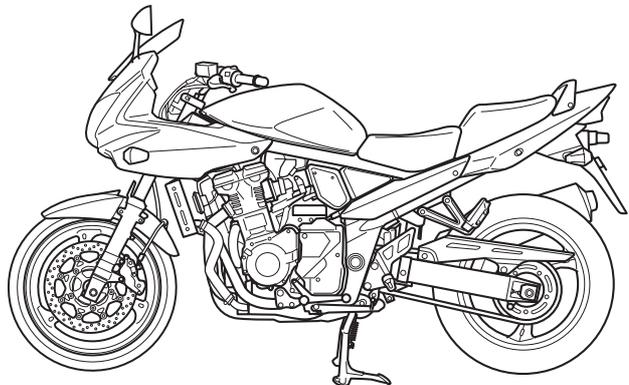
SUZUKI GSF1250S (2007-model)

Right Side



I718H1010003-01

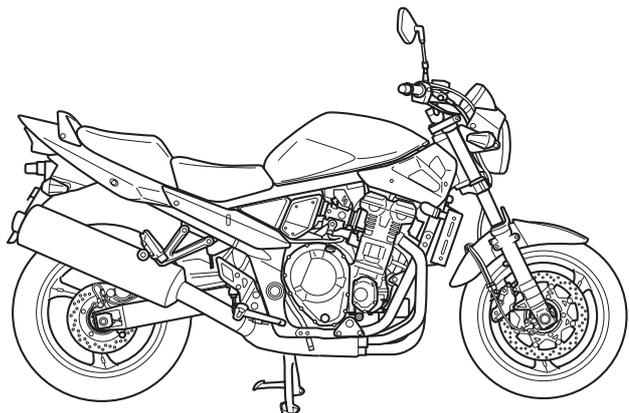
Left Side



I718H1010004-02

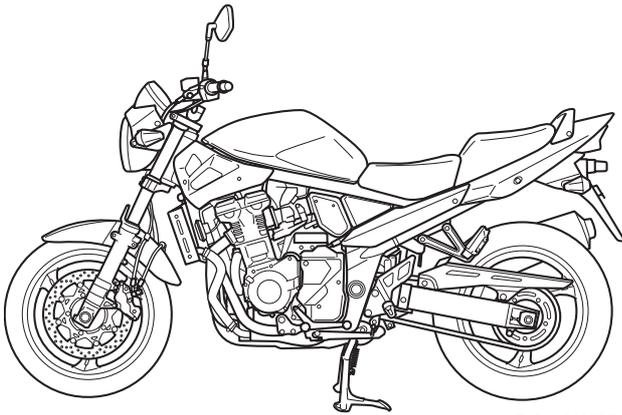
SUZUKI GSF1250A (2007-model)

Right Side



I718H1010005-01

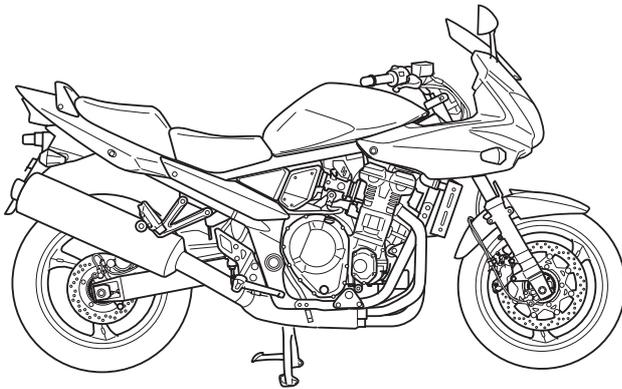
Left Side



I718H1010006-01

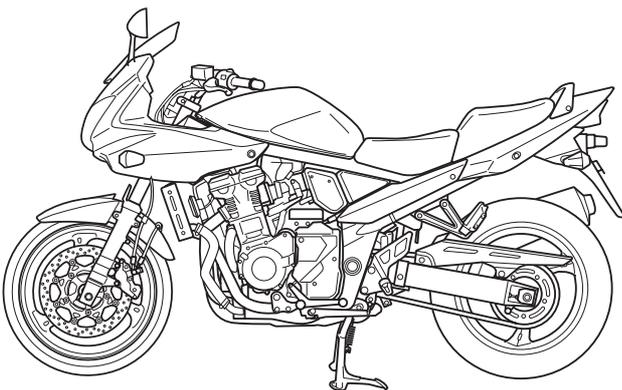
SUZUKI GSF1250SA (2007-model)

Right Side



I718H1010009-02

Left Side

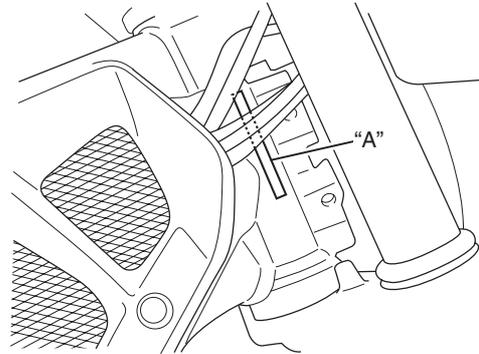


I718H1010010-03

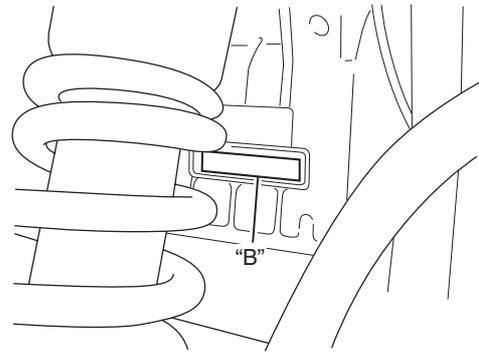
Vehicle Identification Number

B718H10101004

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



I718H1010011-03



I718H1010012-03

Fuel and Oil Recommendation

B718H10101005

Fuel (For USA and Canada)

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

Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.

Fuel (For Other Countries)

Gasoline used should be graded 91 octane (Research Method) or higher. Unleaded gasoline is recommended.

Engine Oil (For USA)

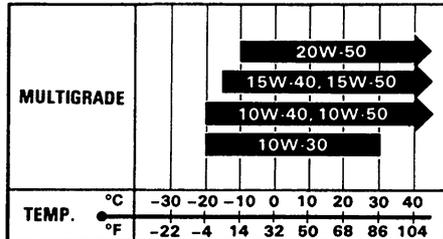
Oil quality is a major contributor to your engine's performance and life. Always select good quality engine oil.

Suzuki recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or equivalent engine oil. Use of SF/SG or SH/SJ in API with MA in JASO. Suzuki recommends the use of SAE 10W-40 engine oil. If SAE 10W-40 engine oil is not available, select and alternative according to the chart.

0A-5 General Information:

Engine Oil (For Other Countries)

Oil quality is a major contributor to your engine's performance and life. Always select good quality engine oil. Use of SF/SG or SH/SJ in API with MA in JASO. Suzuki recommends the use of SAE 10W-40 engine oil. If SAE 10W-40 engine oil is not available, select an alternative according to the chart.



I310G1010005-01

Brake Fluid

Specification and classification: DOT 4

⚠ WARNING

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

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

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

Front Fork Oil

Use fork oil SS8 or an equivalent fork oil.

Engine Coolant Recommendation

B718H10101011

Engine Coolant

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

Water for mixing

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

Anti-freeze/Engine coolant

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

Suzuki recommends the use of SUZUKI COOLANT anti-freeze/engine coolant. If this is not available, use an equivalent which is compatible with an aluminum radiator.

Liquid amount of water/Engine coolant

Solution capacity (total)

3 250 ml (3.4/2.9 US/Imp qt)

For engine coolant mixture information, refer to "Engine Coolant Description in Section 1F (Page 1F-1)".

⚠ CAUTION

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

BREAK-IN Procedures

B718H10101006

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

1) Keep to these break-in engine speed limits:

Speed limits

Initial 800 km (500 miles): Below 4 500 r/min

Up to 1 600 km (1 000 miles): Below 7 000 r/min

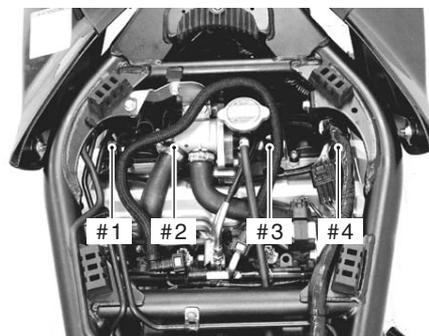
Over 1 600 km (1 000 miles): Below 9 500 r/min

2) Upon reaching an odometer reading of 1 600 km (1 000 miles) you can subject the motorcycle to full throttle operation. However, do not exceed 9 500 r/min at any time.

Cylinder Identification

B718H10101007

The four cylinders of this engine are identified as #1, 2, 3 and #4 cylinder, as counted from left to right (as viewed by the rider on the seat).



I718H1010013-01

Country and Area Codes

B718H10101008

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

Code	Country or Area	Effective Frame No.
GSF1250 K7 (E-02)	U.K.	JS1CH122200100001 –
GSF1250 K7 (E-19)	E.U.	JS1CH122100100001 –
GSF1250S K7 (E-02)	U.K.	JS1CH111200100001 –
GSF1250S K7 (E-03)	U.S.A (Except for California)	JS1GW72A 72100001 –
GSF1250S K7 (E-19)	E.U.	JS1CH111100100001 –
GSF1250S K7 (E-24)	Australia	JS1CH111300100001 –
GSF1250S K7 (E-28)	Canada	JS1GW72A 72100001 –
GSF1250S K7 (E-33)	California (U.S.A)	JS1GW72A 72100001 –
GSF1250A K7 (E-02)	U.K.	JS1CH124200100001 –
GSF1250A K7 (E-19)	E.U.	JS1CH124100100001 –
GSF1250SA K7 (E-02)	U.K.	JS1CH113200100001 –
GSF1250SA K7 (E-03)	U.S.A (Except for California)	JS1GW72B 72100001 –
GSF1250SA K7 (E-19)	E.U.	JS1CH113100100001 –
GSF1250SA K7 (E-24)	Australia	JS1CH113300100001 –
GSF1250SA K7 (E-28)	Canada	JS1GW72B 72100001 –
GSF1250SA K7 (E-33)	California (U.S.A)	JS1GW72B 72100001 –

Wire Color Symbols

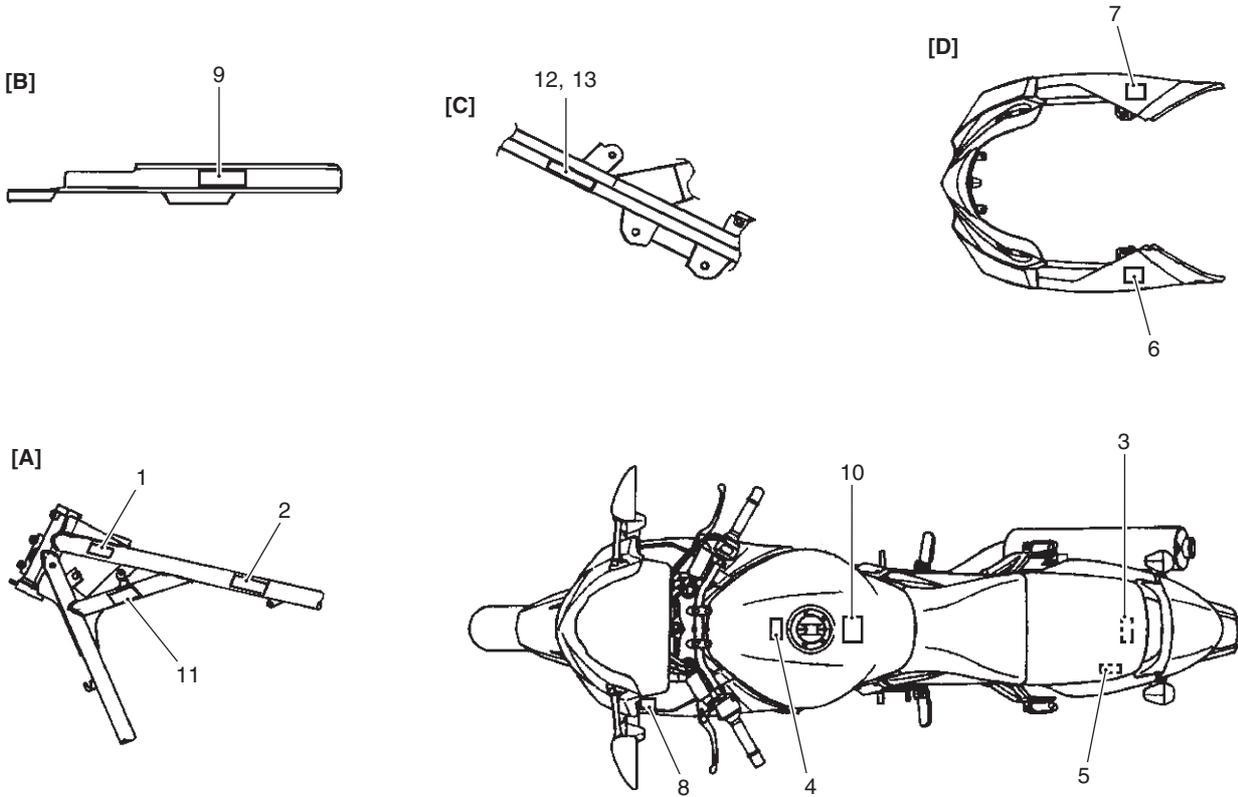
B718H10101009

Symbol	Wire Color	Symbol	Wire Color
B	Black	Bl/Y	Blue with Yellow tracer
Bl	Blue	Br/B	Brown with Black tracer
Br	Brown	G/B	Green with Black tracer
Dbr	Dark brown	G/Y	Green with Yellow tracer
Dg	Dark green	Gr/B	Gray with Black tracer
G	Green	Gr/R	Gray with Red tracer
Gr	Gray	Gr/W	Gray with White tracer
Lbl	Light blue	Gr/Y	Gray with Yellow tracer
Lg	Light green	O/G	Orange with Green tracer
O	Orange	O/R	Orange with Red tracer
P	Pink	O/W	Orange with White tracer
R	Red	O/Y	Orange with Yellow tracer
W	White	P/B	Pink with Black tracer
Y	Yellow	P/W	Pink with White tracer
B/Bl	Black with Blue tracer	R/B	Red with Black tracer
B/Br	Black with Brown tracer	R/Bl	Red with Blue tracer
B/G	Black with Green tracer	W/B	White with Black tracer
B/Lg	Black with Light green tracer	W/Bl	White with Blue tracer
B/O	Black with Orange tracer	W/G	White with Green tracer
B/R	Black with Red tracer	W/R	White with Red tracer
B/W	Black with White tracer	W/Y	White with Yellow tracer
B/Y	Black with Yellow tracer	Y/B	Yellow with Black tracer
Bl/B	Blue with Black tracer	Y/Bl	Yellow with Blue tracer
Bl/G	Blue with Green tracer	Y/R	Yellow with Red tracer
Bl/W	Blue with White tracer	Y/W	Yellow with White tracer

0A-7 General Information:

Warning, Caution and Information Labels Location

B718H10101010



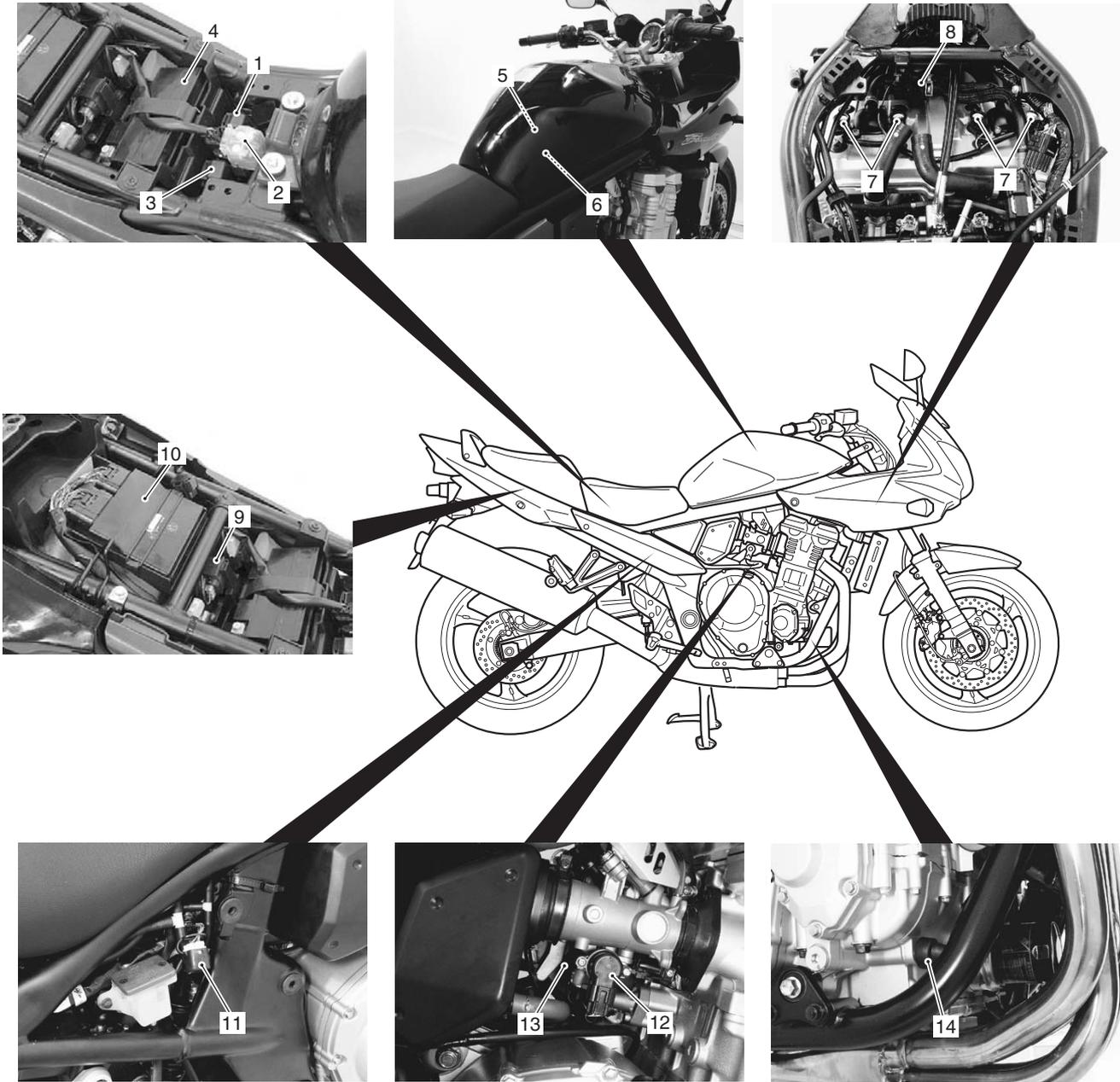
I718H1010016-02

	GSF1250/A	GSF1250S/SA
1. Noise label	—	For E-03, 24, 33
2. Information label	—	For E-03, 28, 33
3. Vacuum hose routing label	—	For E-33
4. Fuel caution label	For E-02	For E-02, 24
5. Manual notice label	—	For E-03, 33
6. Screen label	—	For E-03, 19, 24, 28, 33
7. Screen label	—	For E-28
8. Warning steering label	—	For E-03, 19, 24, 28, 33
9. Tire information label	For E-02, 19	For E-03, 19, 24, 28, 33
10. General warning label	For E-02, 19	For E-03, 19, 24, 28, 33
11. ICES Canada label	—	For E-28
12. I.D. plate	For E-02, 19	For E-02, 19, 24
13. Safety plate	—	For E-03, 28, 33
[A]: Frame head (Left side)		
[B]: Chain cover		
[C]: Frame side tube (Right side)		
[D]: Cowling body		

Component Location

Electrical Components Location

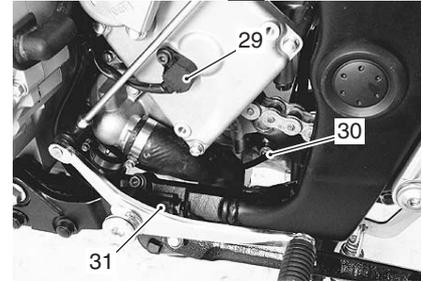
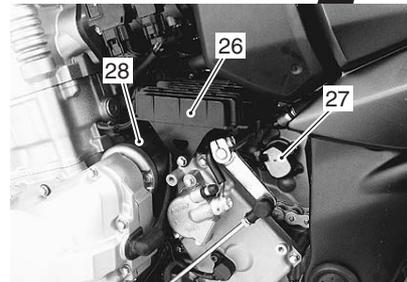
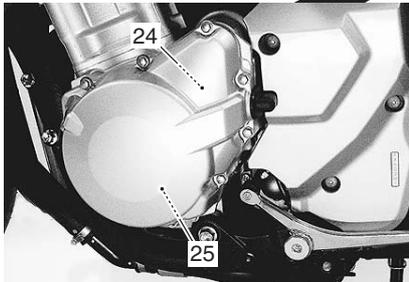
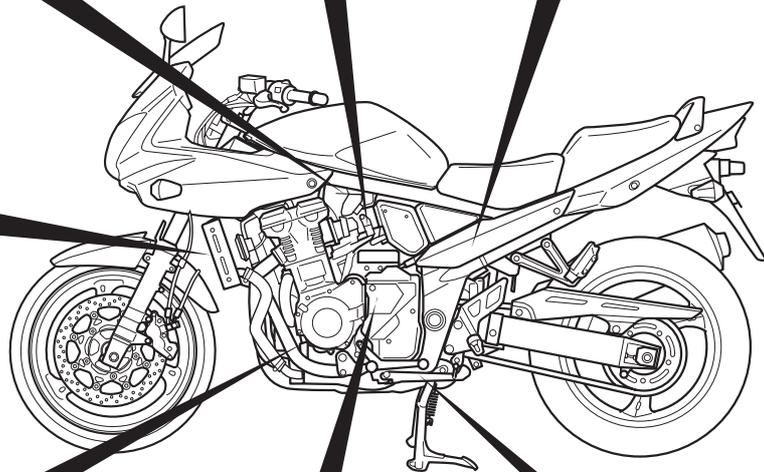
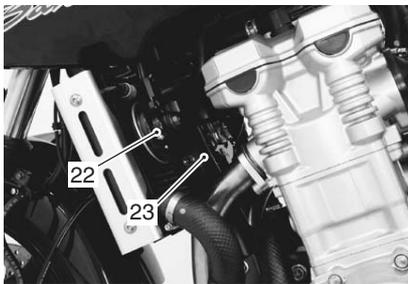
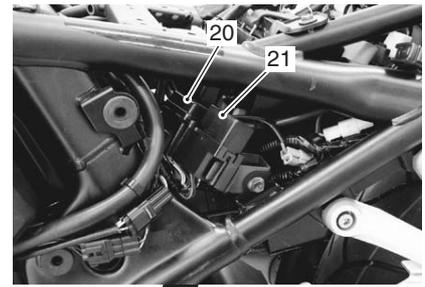
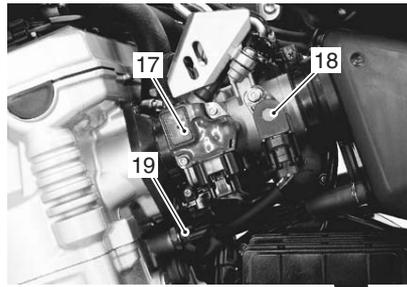
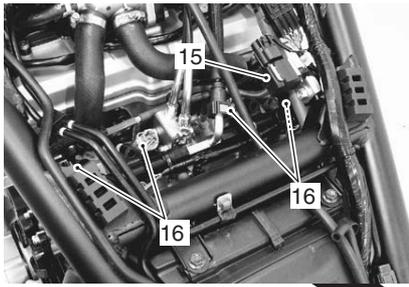
B718H10103001



I718H1010014-03

1. Fuel pump relay	6. Fuel level gauge	11. Mode selection switch coupler
2. Starter relay/Main fuse	7. Ignition coil/plug cap	12. ISC valve
3. Cooling fan relay	8. PAIR control solenoid valve	13. STV actuator
4. Battery	9. TO sensor	14. Oil pressure switch
5. Fuel pump	10. ECM	

0A-9 General Information:



I718H1010015-04

15. IAP sensor (No.1)	21. Turn signal/side-stand relay	27. GP switch
16. Fuel injector	22. Horn	28. Starter motor
17. IAP/TP/IAT sensor	23. Cooling fan	29. Speed sensor
18. STP sensor	24. CKP sensor	30. HO2 sensor
19. ECT sensor	25. Generator	31. Side-stand switch
20. Fuse box	26. Regulator/rectifier	

Specifications

Specifications (GSF1250/S)

B718H10107002

NOTE

These specifications are subject to change without notice.

Dimensions and dry mass

Item	Specification	Remark
Overall length	2 130 mm (83.9 in)	
Overall width	790 mm (31.1 in)	
Overall height	1 095 mm (43.1 in)	GSF1250
	1 235 mm (48.6 in)	GSF1250S
Wheelbase	1 485 mm (58.5 in)	
Ground clearance	135 mm (5.3 in)	
Seat height	785/805 mm (30.9/31.7 in)	Low/High
Dry mass	222 kg (489 lbs)	GSF1250
	225 kg (496 lbs)	GSF1250S

Engine

Item	Specification	Remark
Type	4-stroke, liquid-cooled, DOHC	
Number of cylinders	4	
Bore	79.0 mm (3.110 in)	
Stroke	64.0 mm (2.519 in)	
Displacement	1 255 cm ³ (76.6 cu. in)	
Compression ratio	10.5 : 1	
Carburetor	Fuel injection	
Air cleaner	Non-woven fabric element	
Starter system	Electric	
Lubrication system	Wet sump	
Idle speed	1 200 ± 100 r/min	

Drive train

Item	Specification	Remark
Clutch	Wet multi-plate type	
Transmission	6-speed constant mesh	
Gearshift pattern	1-down, 5-up	
Primary reduction ratio	1.537 (83/54)	
Gear ratios	Low	3.076 (40/13)
	2nd	2.058 (35/17)
	3rd	1.550 (31/20)
	4th	1.304 (30/23)
	5th	1.160 (29/25)
	Top	1.071 (30/28)
Final reduction ratio	2.388 (43/18)	
Drive chain	RK GB50GSVZ3, 118 links	

0A-11 General Information:

Chassis

Item	Specification	Remark
Front suspension	Telescopic, coil spring, oil damped	
Rear suspension	Link type, coil spring, oil damped	
Front suspension stroke	130 mm (5.1 in)	
Rear wheel travel	136 mm (5.4 in)	
Steering angle	35° (right & left)	
Caster	25° 20'	
Tail	104 mm (4.09 in)	
Turning radius	2.8 m (9.2 ft)	
Front brake	Disc brake, twin	
Rear brake	Disc brake	
Front tire size	120/70ZR17M/C (58W), tubeless	
Rear tire size	180/55ZR17M/C (73W), tubeless	

Electrical

Item	Specification	Remark
Ignition type	Electronic ignition (Transistorized)	
Ignition timing	8° B.T.D.C. at 1 200 r/min	
Spark plug	NGK CR7E or DENSO U22ESR-N	
Battery	12 V 36 kC (10 Ah)/10 HR	
Generator	Three-phase A.C. generator	
Main fuse	30 A	
Fuse	10/10/15/15/10/15 A	
Headlight	12 V 60/55 W (H4)	GSF1250
	12 V 55 W (H7) + 12 V 55 W (H7)	GSF1250S
Position light	12 V 5 W	GSF1250
	12 V 5 W x 2	GSF1250S
Turn signal light	12 V 21 W	
Brake light/Taillight	12 V 21/5 W	
License plate light	12 V 5 W	
Speedometer light	LED	
Tachometer light	LED	
Neutral indicator light	LED	
High beam indicator light	LED	
Turn signal indicator light	LED	
Oil pressure indicator light	LED	
Coolant temperature indicator light	LED	
Fuel injection indicator light	LED	

Capacities

Item	Specification	Remark
Fuel tank	18.5 L (4.9/4.1 US/Imp gal)	E-33
	19.0 L (5.0/4.2 US/Imp gal)	Others
Engine oil	Oil change	3 000 ml (3.2/2.6 US/Imp qt)
	With filter change	3 500 ml (3.7/3.1 US/Imp qt)
	Overhaul	3 700 ml (3.9/3.3 US/Imp qt)
Coolant	3.3 L (3.5/2.9 US/Imp gal)	

Specifications (GSF1250A/SA)

B718H10107001

NOTE

These specifications are subject to change without notice.

Dimensions and dry mass

Item	Specification	Remark
Overall length	2 130 mm (83.9 in)	
Overall width	790 mm (31.1 in)	
Overall height	1 095 mm (43.1 in)	GSF1250A
	1 235 mm (48.6 in)	GSF1250SA
Wheelbase	1 485 mm (58.5 in)	
Ground clearance	135 mm (5.3 in)	
Seat height	785/805 mm (30.9/31.7 in)	Low/High
Dry mass	226 kg (498 lbs)	GSF1250A
	229 kg (504 lbs)	GSF1250SA

Engine

Item	Specification	Remark
Type	4-stroke, liquid-cooled, DOHC	
Number of cylinders	4	
Bore	79.0 mm (3.110 in)	
Stroke	64.0 mm (2.519 in)	
Displacement	1 255 cm ³ (76.6 cu. in)	
Compression ratio	10.5 : 1	
Carburetor	Fuel injection	
Air cleaner	Non-woven fabric element	
Starter system	Electric	
Lubrication system	Wet sump	
Idle speed	1 200 ± 100 r/min	

Drive train

Item	Specification	Remark
Clutch	Wet multi-plate type	
Transmission	6-speed constant mesh	
Gearshift pattern	1-down, 5-up	
Primary reduction ratio	1.537 (83/54)	
Gear ratios	Low	3.076 (40/13)
	2nd	2.058 (35/17)
	3rd	1.550 (31/20)
	4th	1.304 (30/23)
	5th	1.160 (29/25)
	Top	1.071 (30/28)
Final reduction ratio	2.388 (43/18)	
Drive chain	RK GB50GSVZ3, 118 links	

0A-13 General Information:

Chassis

Item	Specification	Remark
Front suspension	Telescopic, coil spring, oil damped	
Rear suspension	Link type, coil spring, oil damped	
Front suspension stroke	130 mm (5.1 in)	
Rear wheel travel	136 mm (5.4 in)	
Steering angle	35° (right & left)	
Caster	25° 20'	
Tail	104 mm (4.09 in)	
Turning radius	2.8 m (9.2 ft)	
Front brake	Disc brake, twin	
Rear brake	Disc brake	
Front tire size	120/70ZR17M/C (58W), tubeless	
Rear tire size	180/55ZR17M/C (73W), tubeless	

Electrical

Item	Specification	Remark
Ignition type	Electronic ignition (Transistorized)	
Ignition timing	8° B.T.D.C. at 1 200 r/min	
Spark plug	NGK CR7E or DENSO U22ESR-N	
Battery	12 V 36 kC (10 Ah)/10 HR	
Generator	Three-phase A.C. generator	
Main fuse	30 A	
Fuse	10/10/15/15/15/10/20/15 A	
Headlight	12 V 60/55 W (H4)	GSF1250A
	12 V 55 W (H7) + 12 V 55 W (H7)	GSF1250SA
Position light	12 V 5 W	GSF1250A
	12 V 5 W x 2	GSF1250SA
Turn signal light	12 V 21 W	
Brake light/Taillight	12 V 21/5 W	
License plate light	12 V 5 W	
Speedometer light	LED	
Tachometer light	LED	
Neutral indicator light	LED	
High beam indicator light	LED	
Turn signal indicator light	LED	
Oil pressure indicator light	LED	
Coolant temperature indicator light	LED	
Fuel injection indicator light	LED	
ABS indicator light	LED	

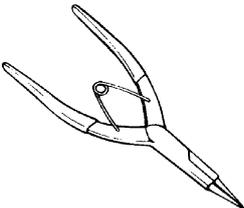
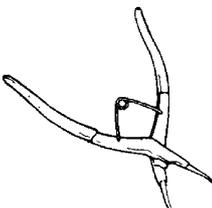
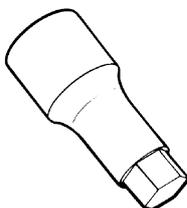
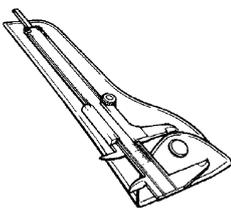
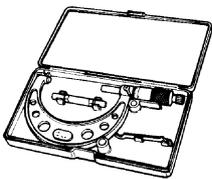
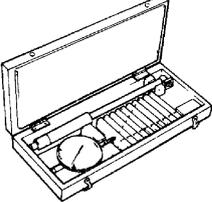
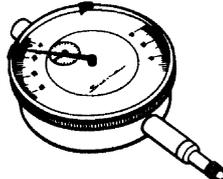
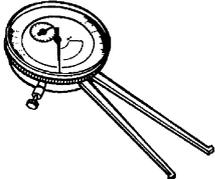
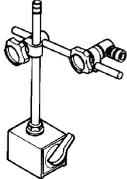
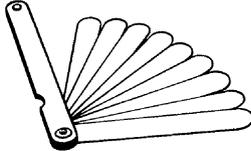
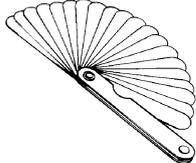
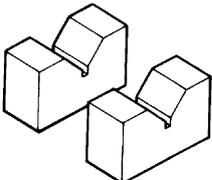
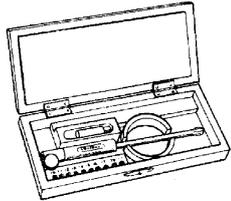
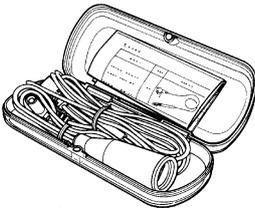
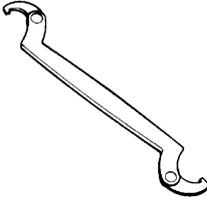
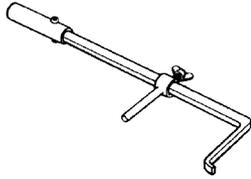
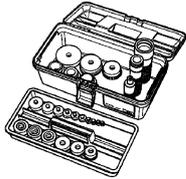
Capacities

Item	Specification	Remark
Fuel tank	18.5 L (4.9/4.1 US/Imp gal)	E-33
	19.0 L (5.0/4.2 US/Imp gal)	Others
Engine oil	Oil change	3 000 ml (3.2/2.6 US/Imp qt)
	With filter change	3 500 ml (3.7/3.1 US/Imp qt)
	Overhaul	3 700 ml (3.9/3.3 US/Imp qt)
Coolant	3.3 L (3.5/2.9 US/Imp gal)	

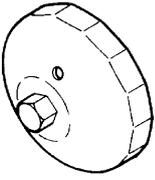
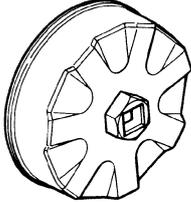
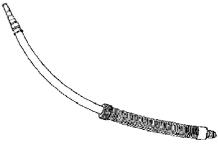
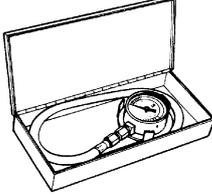
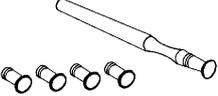
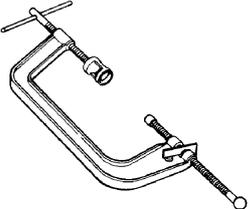
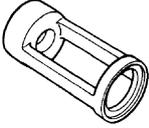
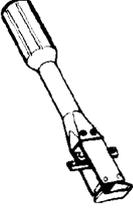
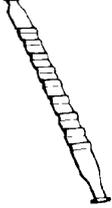
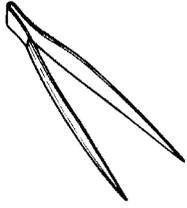
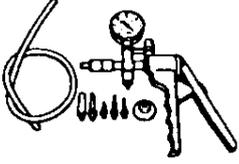
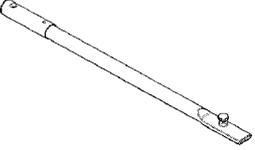
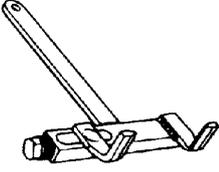
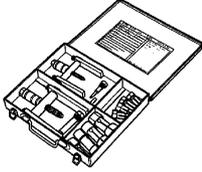
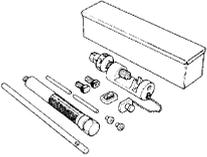
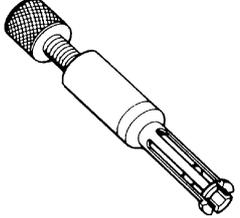
Special Tools and Equipment

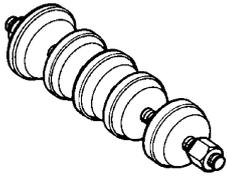
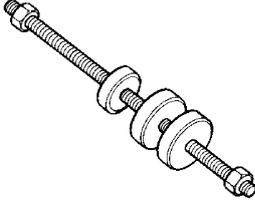
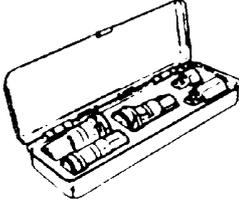
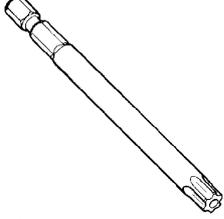
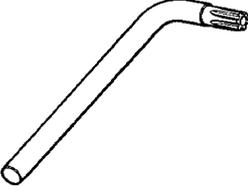
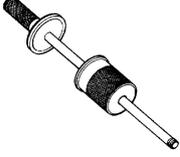
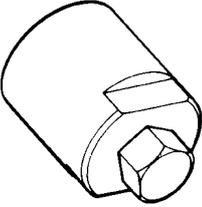
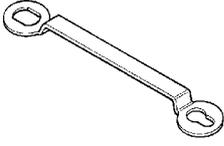
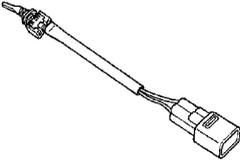
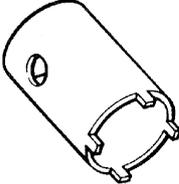
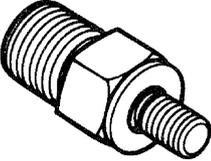
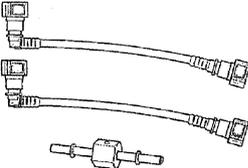
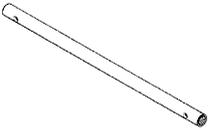
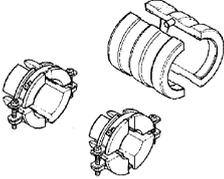
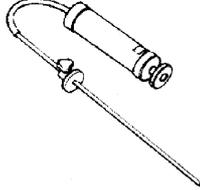
Special Tool

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 <p>09900-06107 Snap ring pliers</p>	 <p>09900-06108 Snap ring pliers</p>	 <p>09900-18740 Hexagon socket (24 mm)</p>	 <p>09900-20102 Vernier calipers (1/20 mm, 200 mm)</p>	 <p>09900-20202 Micrometer (1/100 mm, 25 – 50 mm)</p>
 <p>09900-20204 Micrometer (75 – 100 mm)</p>	 <p>09900-20205 Micrometer (0 – 25 mm)</p>	 <p>09900-20508 Cylinder gauge set</p>	 <p>09900-20602 Dial gauge (1/1000 mm, 1 mm)</p>	 <p>09900-20605 Dial calipers (1/100 mm, 10 – 34 mm)</p>
 <p>09900-20607 Dial gauge (1/100 mm, 10 mm)</p>	 <p>09900-20701 Magnetic stand</p>	 <p>09900-20803 Thickness gauge</p>	 <p>09900-20805 Tire depth gauge</p>	 <p>09900-20806 Thickness gauge</p>
 <p>09900-21304 V-block (100 mm)</p>	 <p>09900-22301 Plastigauge (0.025 – 0.076 mm)</p>	 <p>09900-22302 Plastigauge (0.051 – 0.152 mm)</p>	 <p>09900-22403 Small bore gauge (18 – 35 mm)</p>	 <p>09900-25008 Multi-circuit tester set</p>
 <p>09900-25009 Needle pointed probe set</p>	 <p>09904-41010 SDS set</p>	 <p>09910-60611 Universal clamp wrench</p>	 <p>09913-50121 Oil seal remover</p>	 <p>09913-70210 Bearing installer set</p>

0A-15 General Information:

 <p>09915-40610 Oil filter wrench</p>	 <p>09915-40611 Oil filter wrench</p>	 <p>09915-63311 Compression gauge attachment</p>	 <p>09915-64512 Compression gauge</p>	 <p>09915-74521 Oil pressure gauge hose</p>
 <p>09915-74540 Oil pressure gauge attachment</p>	 <p>09915-77331 Meter (for high pressure)</p>	 <p>09916-10911 Valve lapper set</p>	 <p>09916-14510 Valve spring compressor</p>	 <p>09916-14521 Valve spring compressor attachment</p>
 <p>09916-33210 Valve guide reamer (4.5 mm)</p>	 <p>09916-34542 Reamer handle</p>	 <p>09916-34580 Valve guide reamer (10.8 mm)</p>	 <p>09916-43211 Valve guide remover/installer</p>	 <p>09916-43230 Attachment</p>
 <p>09916-74521 Holder body</p>	 <p>09916-74550 Band (Piston diam.: 73 - 85 mm)</p>	 <p>09916-84511 Valve adjuster driver</p>	 <p>09917-47011 Vacuum pump gauge</p>	 <p>09920-31020 Extension handle</p>
 <p>09920-53740 Clutch sleeve hub holder</p>	 <p>09921-20210 Bearing remover</p>	 <p>09921-20240 Bearing remover set</p>	 <p>09922-22711 Drive chain cutting and joining tool</p>	 <p>09923-73210 Bearing remover</p>

 <p>09923-74511 Bearing remover</p>	 <p>09924-84510 Bearing installer set</p>	 <p>09924-84521 Bearing installer set</p>	 <p>09930-10121 Spark plug wrench set</p>	 <p>09930-11920 Torx bit (JT40H)</p>
 <p>09930-11940 Bit holder</p>	 <p>09930-11950 Torx wrench</p>	 <p>09930-30104 Rotor remover slide shaft</p>	 <p>09930-34970 Rotor remover set</p>	 <p>09930-44530 Rotor holder</p>
 <p>09930-82710 Mode select switch</p>	 <p>09930-82720 Mode select switch</p>	 <p>09940-14911 Steering stem nut wrench</p>	 <p>09940-40211 Fuel pressure gauge adapter</p>	 <p>09940-40220 Fuel pressure gauge hose attachment</p>
 <p>09940-52841 Inner rod holder</p>	 <p>09940-52861 Front fork oil seal installer</p>	 <p>09940-92720 Spring scale</p>	 <p>09941-34513 Steering race installer</p>	 <p>09941-54911 Bearing outer race remover</p>
 <p>09941-74911 Steering bearing installer</p>	 <p>09943-74111 Fork oil level gauge</p>	 <p>99565-01010-010 CD-ROM Ver.10</p>		

Maintenance and Lubrication

Precautions

Precautions for Maintenance

B718H1020001

The "Periodic Maintenance Schedule Chart" lists the recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at peak performance and economy. Maintenance intervals are expressed in terms of kilometers, miles and months for your convenience.

NOTE

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

General Description

Recommended Fluids and Lubricants

B718H10201001

Refer to "Fuel and Oil Recommendation in Section 0A (Page 0A-4)". and "Engine Coolant Recommendation in Section 0A (Page 0A-5)".

Scheduled Maintenance

Periodic Maintenance Schedule Chart

B718H10205001

NOTE

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

R = Replace.

T = Tighten.

Item	Interval					
	km	1 000	6 000	12 000	18 000	24 000
	miles	600	4 000	7 500	11 000	14 500
months	2	12	24	36	48	
Air cleaner element	—	I	I	R	I	I
Exhaust pipe bolts, muffler bolts and nut	T	—	T	—	T	T
Valve clearance	—	—	—	—	I	I
Spark plugs	—	I	R	I	R	R
Fuel line	—	I	I	I	I	I
Evaporative emission control system (E-33 only)	—	—	I	—	I	I
Engine oil	R	R	R	R	R	R
Engine oil filter	R	—	—	R	—	—
Throttle cable play	I	I	I	I	I	I
Throttle valve synchronization	I (E-33 only)	—	I	—	I	I
PAIR (air supply) system	—	—	I	—	I	I
Engine coolant	Replace every 2 years.					
Radiator hose	—	I	I	I	I	I
Clutch hose	—	I	I	I	I	I
Clutch fluid	Replace every 4 years.					
	—	I	I	I	I	I
Drive chain	Replace every 2 years.					
	I	I	I	I	I	I
Brakes	Clean and lubricate every 1 000 km (600 miles).					
	I	I	I	I	I	I
Brake hose	—	I	I	I	I	I
	Replace every 4 years.					

Item	Interval					
	km	1 000	6 000	12 000	18 000	24 000
	miles	600	4 000	7 500	11 000	14 500
	months	2	12	24	36	48
Brake fluid	—					
Tires	—					
Steering		—		—		
Front forks	—	—		—		
Rear suspension	—	—		—		
Chassis bolts and nuts	T	T	T	T	T	T

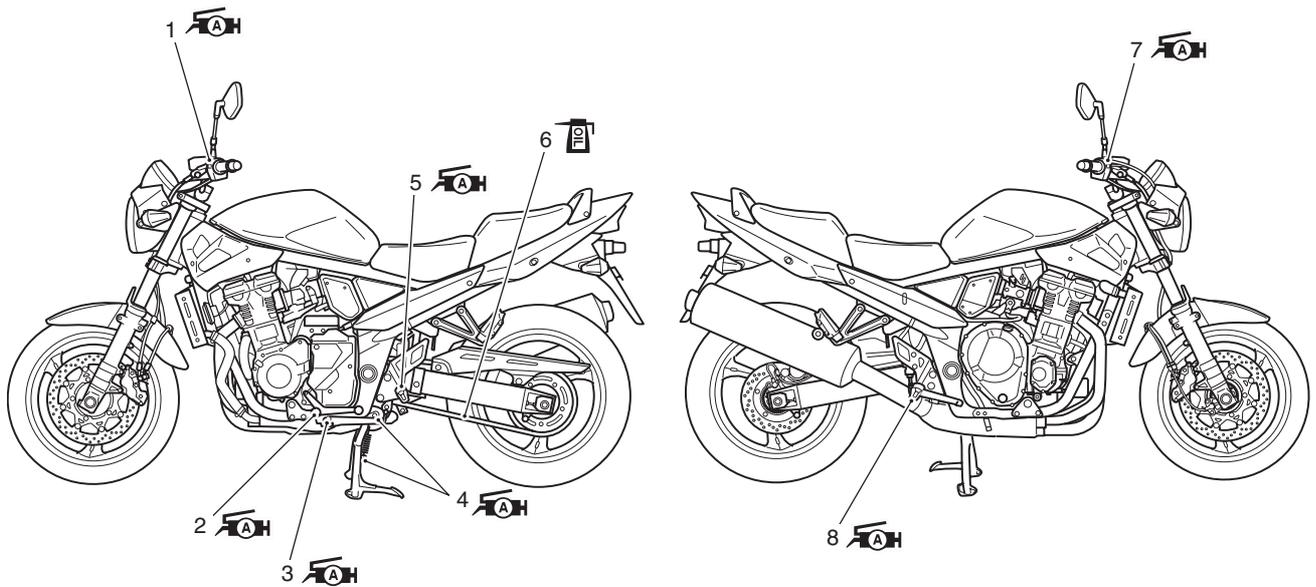
Lubrication Points

B718H10205002

Proper lubrication is important for smooth operation and long life of each working part of the motorcycle. Major lubrication points are indicated as follows.

NOTE

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



I718H1020006-02

1. Clutch lever holder	6. Drive chain
2. Gearshift lever pivot	7. Brake lever holder
3. Side-stand pivot and spring hook	8. Brake pedal pivot and footrest pivot
4. Center stand pivot and spring hook	: Apply oil.
5. Footrest pivot	: Apply grease.

Repair Instructions

Air Cleaner Element Replacement

B718H10206001

Replace air cleaner element

Every 18 000 km (11 000 miles, 36 months)

Refer to “Air Cleaner Element Removal and Installation in Section 1D (Page 1D-6)”.

Air Cleaner Element Inspection and Cleaning

B718H10206002

Inspect air cleaner element

Every 6 000 km (4 000 miles, 12 months)

Inspection

- 1) Remove the air cleaner element. Refer to “Air Cleaner Element Removal and Installation in Section 1D (Page 1D-6)”.
- 2) Inspect the air cleaner element for clogging. If it is clogged with dirt, replace it with a new one.

⚠ CAUTION

If driving under dusty conditions, clean the air cleaner element more frequently. The surest way to accelerate engine wear is to operate the engine without the element or to use a torn element. Make sure that the air cleaner is in good condition at all times. Life of the engine depends largely on this component.



I718H1020009-01

- 3) After finishing the air cleaner element inspection, reinstall the removed parts.

Cleaning

- 1) Remove the air cleaner element. Refer to “Air Cleaner Element Removal and Installation in Section 1D (Page 1D-6)”.
- 2) Carefully use compressed air to clean the air cleaner element.

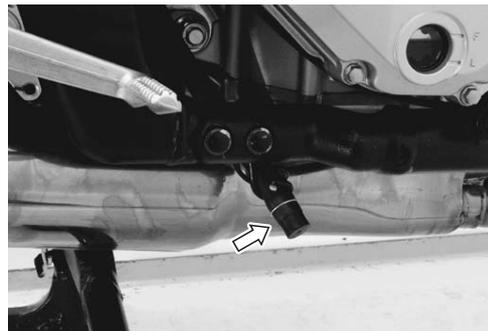
⚠ CAUTION

Always apply compressed air to the inside of the air cleaner element. If compressed air is applied to the outside, dirt will be forced into the pores of the air cleaner element, restricting air flow through the air cleaner element.



I718H1020010-01

- 3) After cleaning the air cleaner element, reinstall the removed parts.
- 4) Drain water from the air cleaner by removing the drain plug.



I718H1020011-01

- 5) Reinstall the drain plug.

Exhaust Pipe Bolt and Muffler Bolt Inspection

B718H10206005

Tighten exhaust pipe bolts, muffler bolt and nut
Initially at 1 000 km (600 miles, 2 months) and every 12 000 km (7 500 miles, 24 months) thereafter.

Check the exhaust pipe bolts, muffler bolts and nut to the specified torque.

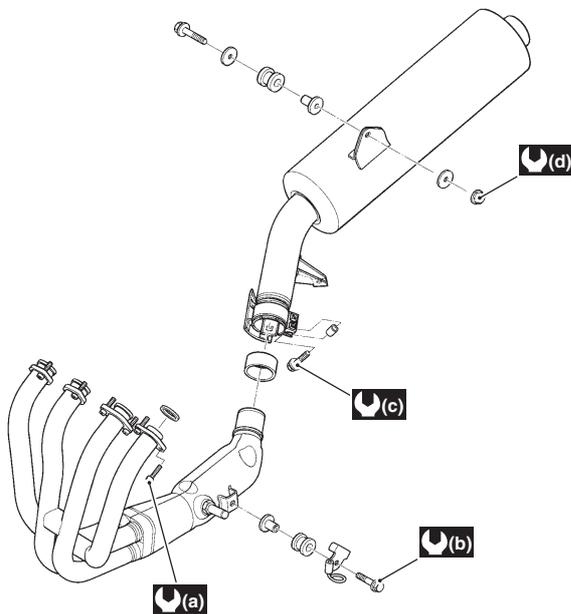
Tightening torque

Exhaust pipe bolt (a): 23 N·m (2.3 kgf-m, 16.5 lb-ft)

Exhaust pipe mounting bolt (b): 23 N·m (2.3 kgf-m, 16.5 lb-ft)

Muffler connecting bolt (c): 23 N·m (2.3 kgf-m, 16.5 lb-ft)

Muffler mounting bolt (d): 26 N·m (2.6 kgf-m, 19.0 lb-ft)



I718H1020007-04

Spark Plug Replacement

B718H10206003

Replace spark plug

Every 12 000 km (7 500 miles, 24 months)

Refer to "Ignition Coil / Plug Cap and Spark Plug Removal and Installation in Section 1H (Page 1H-4)".

Spark Plug Inspection and Cleaning

B718H10206004

Inspect spark plug

Every 6 000 km (4 000 miles, 12 months)

Heat Range

- 1) Remove the spark plugs. Refer to "Ignition Coil / Plug Cap and Spark Plug Removal and Installation in Section 1H (Page 1H-4)".
- 2) Check spark plug heat range by observing electrode color.
If it appears white or glazed, replace the spark plug with colder type one.

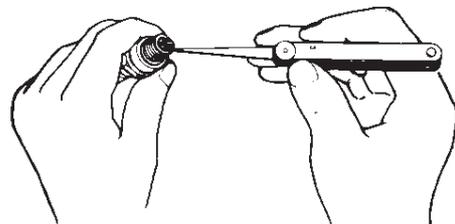
Heat range

	Standard	Cold type	Hot type
NGK	CR7E	CR8E	CR6E
DENSO	U22ESR-N	U24ESR-N	U20ESR-N

- 3) After finishing the spark plug inspection, reinstall the removed parts.

Carbon Deposits

- 1) Remove the spark plugs. Refer to "Ignition Coil / Plug Cap and Spark Plug Removal and Installation in Section 1H (Page 1H-4)".
- 2) Check carbon deposits on the spark plug.
If carbon is deposited, remove it using a spark plug cleaner machine or carefully use a tool with a pointed end.



I649G1020010-01

- 3) After finishing the spark plug inspection, reinstall the removed parts.

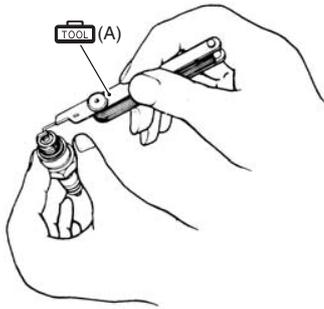
0B-5 Maintenance and Lubrication:

Spark Plug Gap

- 1) Remove the spark plugs. Refer to "Ignition Coil / Plug Cap and Spark Plug Removal and Installation in Section 1H (Page 1H-4)".
- 2) Measure the spark plug gap using a thickness gauge. Adjust the spark plug gap if necessary.

Spark plug gap

0.7 – 0.8 mm (0.028 – 0.030 in)



I649G1020011-03

- 3) After finishing the spark plug inspection, reinstall the removed parts.

Electrodes Condition

- 1) Remove the spark plugs. Refer to "Ignition Coil / Plug Cap and Spark Plug Removal and Installation in Section 1H (Page 1H-4)".
- 2) Check to see the worn or burnt condition of the electrodes. If it is extremely worn or burnt, replace the plug. And also replace the plug if it has a broken insulator, or damaged thread.
- 3) After finishing the spark plug inspection, reinstall the removed parts.

Valve Clearance Inspection and Adjustment

B718H10206006

Inspect valve clearance

Initially at 1 000 km (600 miles, 2 months) and every 12 000 km (7 500 miles, 24 months) thereafter.

Inspection

Valve clearance adjustment must be checked and adjusted, a) at the time of periodic inspection, b) when the valve mechanism is serviced, and c) when the camshafts are removed for servicing.

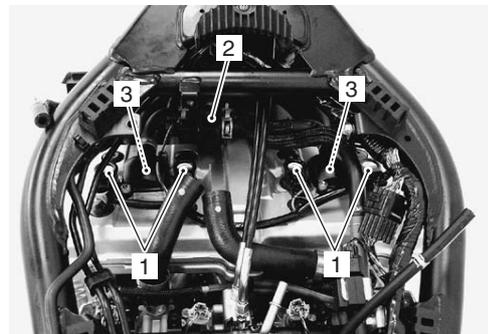
- 1) Remove the fuel tank. Refer to "Fuel Tank Removal and Installation in Section 1G (Page 1G-9)".
- 2) Remove the frame head covers. (GSF1250/A) Refer to "Exterior Parts Removal and Installation in Section 9D (Page 9D-6)".

- 3) Move the cowling by removing the screws. (GSF1250S/SA)



I718H1020012-01

- 4) Drain a small amount of engine coolant and remove the thermostat connector. Refer to "Thermostat Connector / Thermostat Removal and Installation in Section 1F (Page 1F-9)".
- 5) Remove the ignition coil/caps (1) and spark plugs. Refer to "Ignition Coil / Plug Cap and Spark Plug Removal and Installation in Section 1H (Page 1H-4)".
- 6) Remove the PAIR control solenoid valve (2) and reed valves (3). Refer to "PAIR Control Solenoid Valve Removal and Installation in Section 1B (Page 1B-6)" and "PAIR Reed Valve Removal and Installation in Section 1B (Page 1B-6)".



I718H1020013-02

- 7) Remove the cylinder head cover. Refer to "Engine Top Side Disassembly in Section 1D (Page 1D-24)".

NOTE

The valve clearance specification is different for both intake and exhaust valves.

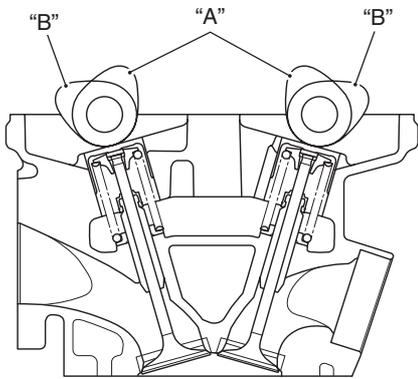
Valve clearance (When cold)

IN.: 0.10 – 0.20 mm (0.004 – 0.008 in)

EX.: 0.20 – 0.30 mm (0.008 – 0.012 in)

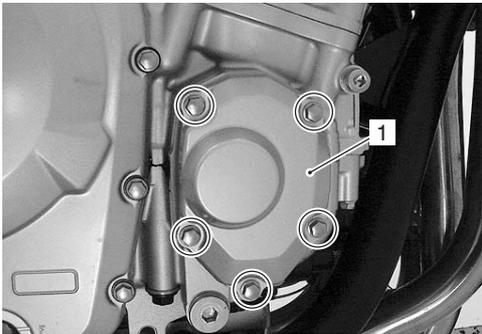
NOTE

- The cam must be at positions, “A” or “B”, when checking or adjusting the valve clearance. Clearance readings should not be taken with the cam in any other position than these two positions.
- The valve clearance should be taken when each cylinder is at Top Dead Center (TDC) of compression stroke.
- The clearance specification is for COLD state.
- To turn the crankshaft for clearance checking, be sure to use a wrench, and rotate in the normal running direction.



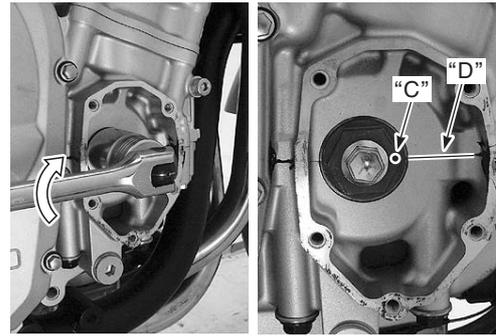
I718H1020001-03

8) Remove the right crankshaft cover (1).

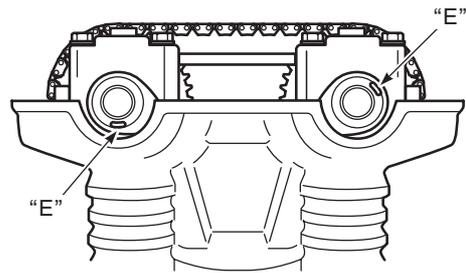


I718H1140011-01

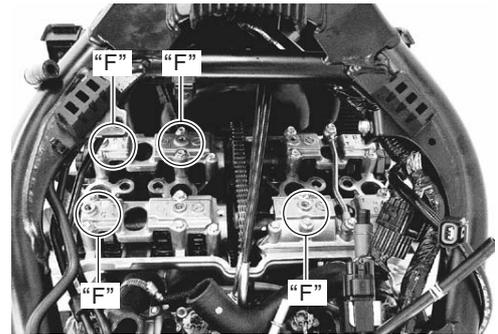
- 9) Turn the crankshaft clockwise and align the match mark “C” on the crankshaft with the mating surfaces “D” of the crankcases. Also, position the notches “E” on the right end of each camshaft as shown. Then, measure the following valve clearances “F”.
- Cylinder #1: Intake and exhaust valve clearances
 - Cylinder #2: Exhaust valve clearance
 - Cylinder #3: Intake valve clearance



I718H1020014-01



I718H1020015-02



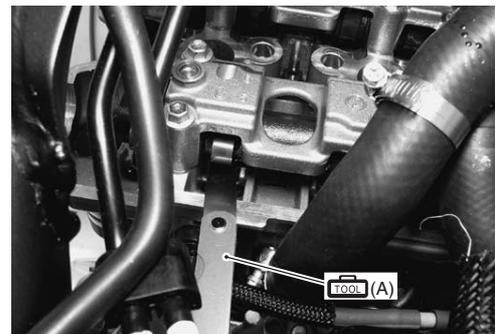
I718H1020016-01

Camshaft position	Notch “E” position faces outside
Measuring position	“F”

10) Insert the thickness gauge between the tappet and the cam. If the clearance is out of specification, adjust it to the specified range.

Special tool

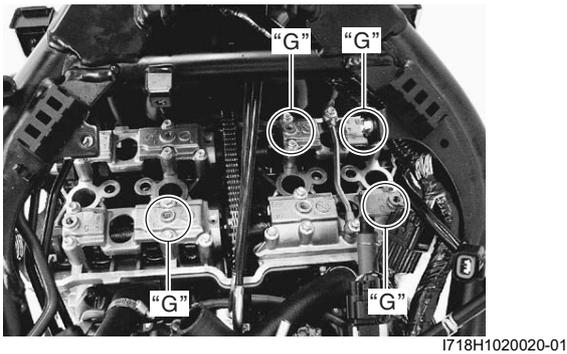
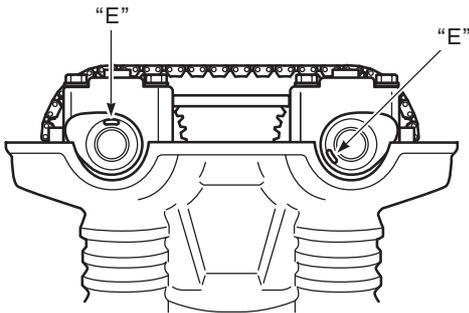
 (A): 09900-20803 (Thickness gauge)



I718H1020017-01

0B-7 Maintenance and Lubrication:

- 11) Turn the crankshaft clockwise 360° (one full rotation) and align the match mark on the crankshaft with the mating surfaces of crankcases. Also, position the notches "E" on the right end of each camshaft as shown. Then, measure the following valve clearances "G".
 - Cylinder #2: Intake valve clearance
 - Cylinder #3: Exhaust valve clearance
 - Cylinder #4: Intake and exhaust valve clearances
- 12) Measure the valve clearances of the remaining valves "E" and adjust them if necessary.



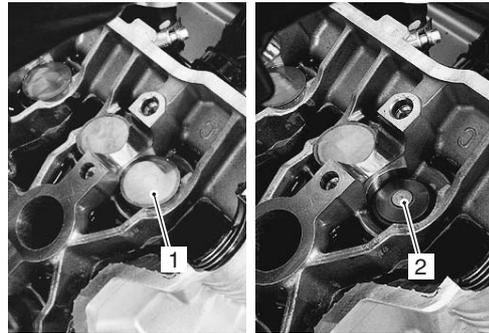
Camshaft position	Notch "E" position faces inside
Measuring position	"G"

Adjustment

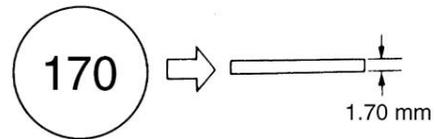
The clearance is adjusted by replacing the existing tappet shim with a thicker or thinner shim.

- 1) Remove the intake or exhaust camshafts. Refer to "Engine Top Side Disassembly in Section 1D (Page 1D-24)".

- 2) Remove the tappet (1) and shim (2) by fingers or magnetic hand.



- 3) Check the figures printed on the shim. These figures indicate the thickness of the shim, as illustrated.



- 4) Select a replacement shim that will provide a clearance within the specified range. For the purpose of this adjustment, a total of 21 sizes of tappet shim are available ranging from 1.20 to 2.20 mm in steps of 0.05 mm.

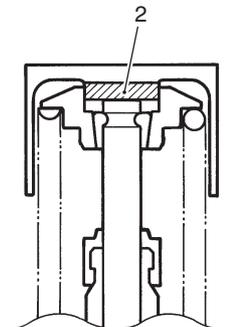
CAUTION

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

- 5) Fit the selected shim (2) to the valve stem end, with numbers toward tappet. Be sure to check shim size with micrometer to ensure its size.

NOTE

- Be sure to apply engine oil to tappet shim top and bottom faces.
- When seating the tappet shim, be sure the figure printed surface faces the tappet.



TAPPET SHIM SELECTION TABLE [INTAKE]
TAPPET SHIM NO. (12892-05C00-XXX)

TAPPET SHIM SET (12800-05830)

MEASURED TAPPET CLEARANCE (mm)	SUFFIX NO.	SPECIFIED CLEARANCE/NO ADJUSTMENT REQUIRED																			
		120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
0.00-0.04	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20
0.05-0.09	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20
0.10-0.20	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20
0.21-0.25	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20
0.26-0.30	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20
0.31-0.35	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20
0.36-0.40	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.41-0.45	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.46-0.50	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.51-0.55	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.56-0.60	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.61-0.65	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.66-0.70	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.71-0.75	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.76-0.80	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.81-0.85	1.95	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.86-0.90	2.00	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.91-0.95	2.05	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
0.96-1.00	2.10	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
1.01-1.05	2.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
1.06-1.10	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
1.11-1.15	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20

(INTAKE SIDE)

(EXHAUST SIDE)

HOW TO USE THIS CHART:

- I. Measure tappet clearance. "ENGINE IS COLD"
- II. Measure present shim size.
- III. Match clearance in vertical column with present shim size in horizontal column.

EXAMPLE

Tappet clearance is 0.23 mm
Present shim size 1.70 mm
Shim size to be used 1.80 mm

TAPPET SHIM SELECTION TABLE [EXHAUST]
TAPPET SHIM NO. (12892-05C00-XXX)

TAPPET SHIM SET (12800-05830)

MEASURED TAPPET CLEARANCE (mm)	SUFFIX NO.	PRESENT SHIM SIZE (mm)	SPECIFIED CLEARANCE/NO ADJUSTMENT REQUIRED																				
			120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
0.05-0.09		1.20																					
0.10-0.14		1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	
0.15-0.19		1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	
0.20-0.30		1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	
0.31-0.35		1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20			
0.36-0.40		1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20				
0.41-0.45		1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20					
0.46-0.50		1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20						
0.51-0.55		1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20							
0.56-0.60		1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20								
0.61-0.65		1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20									
0.66-0.70		1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20										
0.71-0.75		1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20											
0.76-0.80		1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20												
0.81-0.85		1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20													
0.86-0.90		1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20														
0.91-0.95		1.90	1.95	2.00	2.05	2.10	2.15	2.20															
0.96-1.00		1.95	2.00	2.05	2.10	2.15	2.20																
1.01-1.05		2.00	2.05	2.10	2.15	2.20																	
1.06-1.10		2.05	2.10	2.15	2.20																		
1.11-1.15		2.10	2.15	2.20																			
1.16-1.20		2.15	2.20																				
1.21-1.25		2.20																					

HOW TO USE THIS CHART:

- I. Measure tappet clearance. "ENGINE IS COLD"
- II. Measure present shim size.
- III. Match clearance in vertical column with present shim size in horizontal column.

EXAMPLE

Tappet clearance is 0.33 mm
Present shim size 1.70 mm
Shim size to be used 1.80 mm

- 6) Install the camshafts and cam chain tension adjuster. Refer to "Engine Top Side Assembly in Section 1D (Page 1D-28)".
- 7) Rotate the engine so that the tappet is depressed fully. This will squeeze out oil trapped between the shim and the tappet that could cause an incorrect measurement, then check the clearance again to confirm that it is within the specified range.
- 8) After finishing the tappet clearance adjustment, reinstall the removed parts. Refer to "Engine Top Side Assembly in Section 1D (Page 1D-28)".

Fuel Line Inspection

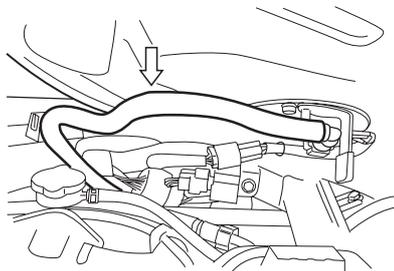
B718H10206007

Inspect fuel line

Every 6 000 km (4 000 miles, 12 months)

Inspect the fuel line in the following procedures:

- 1) Remove the seat. Refer to "Exterior Parts Removal and Installation in Section 9D (Page 9D-6)".
- 2) Remove the fuel tank mounting bolts. Refer to "Fuel Tank Removal and Installation in Section 1G (Page 1G-9)".
- 3) Lift up the fuel tank.
- 4) Inspect the fuel feed hose for damage and fuel leakage. If any defects are found, the fuel feed hose must be replaced.



I718H1020008-07

- 5) After finishing the Fuel feed hose Inspection, reinstall the removed parts.

Evaporative Emission Control System Inspection (E-33 Only)

B718H10206034

Inspect evaporative emission control system

Every 12 000 km (7 500 miles, 24 months)

Inspect the evaporative emission control system periodically (E-33 only).

Engine Oil and Filter Replacement

B718H10206008

Replace engine oil

Initially at 1 000 km (600 miles, 2 months) and every 6 000 km (4 000 miles, 12 months) thereafter.

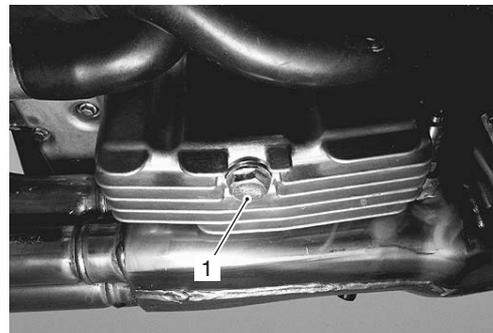
Replace oil filter

Initially at 1 000 km (600 miles, 2 months) and every 18 000 km (11 000 miles, 36 months) thereafter.

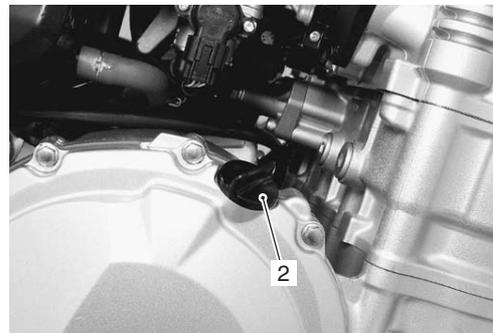
Oil should be changed while the engine is warm. Oil filter replacement at the above intervals, should be done together with the engine oil change.

Engine Oil Replacement

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



I718H1020021-02



I718H1020022-01

0B-11 Maintenance and Lubrication:

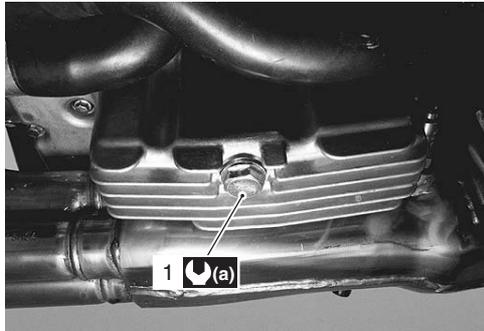
- 3) Tighten the oil drain plug (1) to the specified torque.

⚠ CAUTION

Replace the gasket washer with a new one.

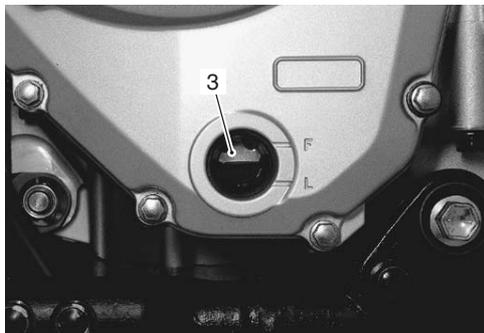
Tightening torque

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



I718H1020023-02

- 4) Pour new oil through the oil filler. When performing an oil change (without oil filter replacement), the engine will hold about 3.0 L (3.2/2.6 US/Imp qt) of oil. Use of SF/SG or SH/SJ in API with MA in JASO.
- 5) Start up the engine and allow it to run for several minutes at idling speed.
- 6) Turn off the engine and wait about three minutes, then check the oil level through the inspection window (3). If the level is below the "L" mark, add oil to the "F" mark. If the level is above the "F" mark, drain the oil until the level reaches the "F" mark.



I718H1020024-02

Oil Level Inspection

- 1) Keep the motorcycle upright with the center stand.
- 2) Start up the engine and allow it to run for several minutes at idle speed.

- 3) Turn off the engine and wait about three minutes, then check the oil level through the inspection window (1). If the level is below mark "L", add oil to "F" level. If the level is above mark "F", drain oil to "F" level.



I718H1020027-01

Oil Filter Replacement

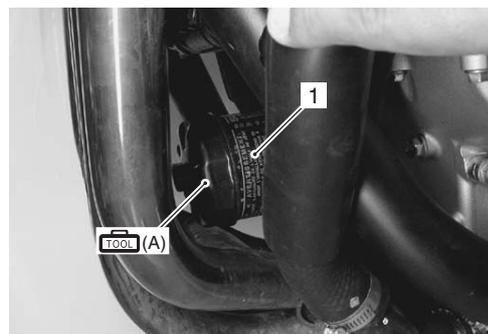
- 1) Drain engine oil as described in the engine oil replacement procedure.
- 2) Remove the oil filter (1) using the special tool.

NOTE

- Remove the oil filter wrench once the oil filter has come loose.
- Remove the oil filter from the left side of the vehicle. Push the radiator hose aside if it interferes with the removal operation.

Special tool

TOOL (A): 09915-40611 (Oil filter wrench)



I718H1020025-03

- 3) Apply engine oil lightly to the O-ring of new oil filter, before installation.

⚠ CAUTION

ONLY USE A GENUINE SUZUKI MOTORCYCLE OIL FILTER.

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

- 4) Install a new oil filter. Turn it by hand until you feel that the oil filter O-ring contacts the oil filter mounting surface. Then, tighten the oil filter two full turns (or to specified torque) using the special tool.

NOTE

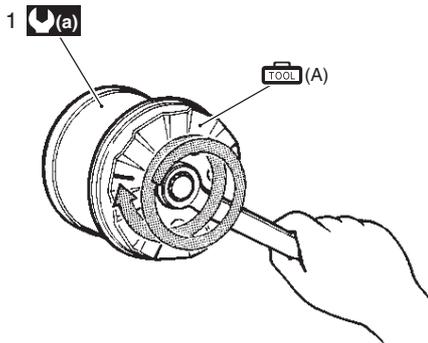
To properly tighten the oil filter, use the special tool. Never tighten the oil filter by hand only.

Special tool

 (A): 09915-40611 (Oil filter wrench)

Tightening torque

Oil filter (a): 20 N·m (2.0 kgf·m, 14.5 lb·ft)



I718H1020026-01

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

Necessary amount of engine oil

Oil change: 3 000 ml (3.2/2.6 US/lmp qt)

Oil and filter change: 3 500 ml (3.7/3.1 US/lmp qt)

Engine overhaul: 3 700 ml (3.9/3.3 US/lmp qt)

Throttle Cable Play Inspection and Adjustment

B718H10206009

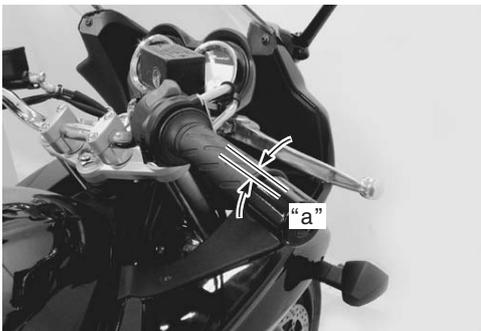
Inspect throttle cable play

Initially at 1 000 km (6 000 miles, 2 months) and every 6 000 km (4 000 miles, 12 months) thereafter.

Inspect and adjust the throttle cable play “a” as follows.

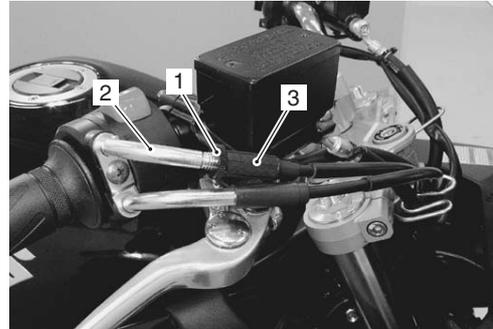
Throttle cable play “a”

2.0 – 4.0 mm (0.08 – 0.16 in)



I718H1020063-01

- 1) Loosen the lock-nut (1) of the throttle pulling cable (2).
- 2) Turn the adjuster (3) in or out until the throttle cable play “a” (at the throttle grip) is between 2 – 4 mm (0.08 – 0.16 in).
- 3) Tighten the lock-nut (1) while holding the adjuster (3).



I718H1020064-02

WARNING

After the adjustment is completed, check that handlebar movement does not raise the engine idle speed and that the throttle grip returns smoothly and automatically.

Throttle Valve Synchronization

B718H10206011

Inspect throttle valve synchronization

Every 12 000 km (7 500 miles, 24 months)

Inspect the throttle valve synchronization periodically. Refer to “Throttle Valve Synchronization in Section 1D (Page 1D-15)”.

PAIR System Inspection

B718H10206012

Inspect PAIR system

Every 12 000 km (7 500 miles, 24 months)

Inspect the PAIR (air supply) system periodically. Refer to “PAIR System Inspection in Section 1B (Page 1B-6)”.

Cooling System Inspection

B718H10206031

Inspect cooling system

Every 6 000 km (4 000 miles, 6 months)

Replace engine coolant

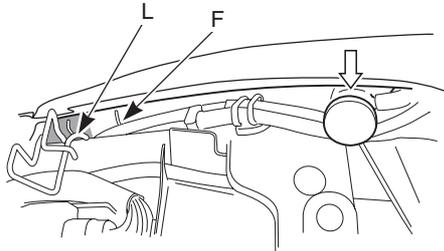
Every 2 years

Engine Coolant Level Inspection

- 1) Keep the motorcycle upright with the center stand.
- 2) Remove the seat. Refer to “Exterior Parts Construction in Section 9D (Page 9D-2)”.

0B-13 Maintenance and Lubrication:

- 3) Check the engine coolant level by observing the full and lower lines on the engine coolant reservoir tank. If the level is below the lower line, add engine coolant to the full line from the engine coolant reservoir tank filler.



I718H1020065-02

- 4) Reinstall the seat.

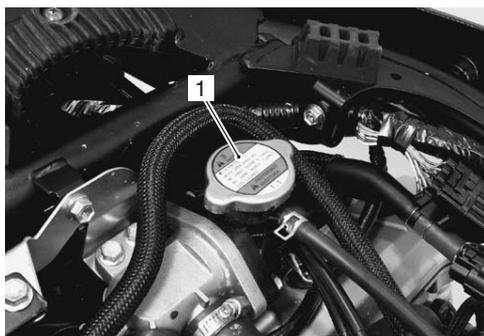
Engine Coolant Change

Refer to "Engine Coolant Description in Section 1F (Page 1F-1)".

▲ WARNING

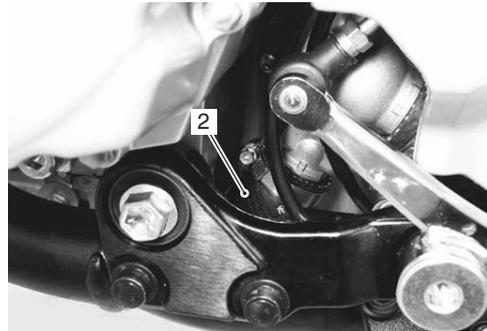
Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor. Engine coolant may be harmful if swallowed or if it comes in contact with skin or eyes. If engine coolant gets into the eyes or in contact with the skin, flush thoroughly with plenty of water.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

- 1) Remove the fuel tank. Refer to "Fuel Tank Removal and Installation in Section 1G (Page 1G-9)".
- 2) Remove the radiator cap (1).



I718H1020029-01

- 3) Drain engine coolant by disconnecting the water pump outlet hose (2).



I718H1020030-01

- 4) Flush the radiator with fresh water if necessary.
- 5) Reconnect the water pump outlet hose.
- 6) Pour the specified engine coolant up to the thermostat connector inlet.

**Engine coolant capacity (excluding reservoir)
3 000 ml (3.2/2.6 US/Imp qt)**

- 7) Bleed air from the cooling circuit.
- 8) After changing engine coolant, reinstall the removed parts.

Air Bleeding From the Cooling Circuit

- 1) Support the motorcycle upright with the center stand.
- 2) Lift up the fuel tank by removing the mounting bolts. Refer to "Fuel Tank Removal and Installation in Section 1G (Page 1G-9)".
- 3) Place a rag under the thermostat connector.
- 4) Pour engine coolant up to the thermostat connector inlet.



I718H1020031-02

- 5) Slowly swing the motorcycle, right and left, to bleed the air trapped in the cooling circuit.
- 6) Add engine coolant up to the thermostat connector inlet.
- 7) Start up the engine and bleed air from the thermostat connector inlet completely.
- 8) Add engine coolant up to the thermostat connector inlet.
- 9) Repeat the 6), 7) procedures until no air bleeds from the thermostat connector inlet.
- 10) Close the radiator cap securely.
- 11) After warming up and cooling down the engine several times, add the engine coolant up to the full level of the reservoir.

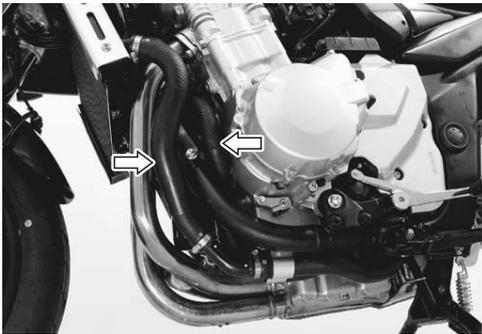
⚠ CAUTION

Make sure that the radiator is filled with engine coolant up to the reservoir full level.

- 12) Reinstall the removed parts.

Radiator Hose Inspection

Check the radiator hoses for crack, damage or engine coolant leakage. If any defect is found, replace the radiator hose with a new one.



I718H1020032-01



I718H1020033-01

Clutch System Inspection

B718H10206013

Inspect clutch hose and clutch fluid
Every 6 000 km (4 000 miles, 12 months)

⚠ WARNING

The clutch system of this motorcycle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-based or petroleum-based. Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for a long period of time. Check the clutch hose and hose joints for cracks and fluid leakage.

Clutch Fluid Level Check

- 1) Keep the motorcycle upright and place the handlebars straight.
- 2) Check the clutch fluid level by observing the lower limit line on the clutch fluid reservoir.
When the clutch fluid level is below the lower limit line, replenish with clutch fluid that meets the following specification.

BF: Brake fluid (DOT 4)



I718H1020034-01

Clutch Hose Inspection

- 1) Remove the seat and left frame cover. Refer to "Exterior Parts Removal and Installation in Section 9D (Page 9D-6)".
- 2) Remove the fuel tank. Refer to "Fuel Tank Removal and Installation in Section 1G (Page 1G-9)".

0B-15 Maintenance and Lubrication:

- 3) Inspect the clutch hose for crack, damage or clutch fluid leakage. If it is damaged, replace the clutch hose with a new one.



I718H1020035-01

- 4) After finishing the clutch hose inspection, reinstall the removed parts.

Clutch Hose Replacement

B718H10206014

Replace clutch hose Every 4 years

Refer to "Clutch Hose Removal and Installation in Section 5C (Page 5C-5)".

Clutch Fluid Replacement

B718H10206016

Replace clutch fluid Every 2 years

Refer to "Clutch Fluid Replacement in Section 5C (Page 5C-4)".

Air Bleeding from Clutch Fluid Circuit

Refer to "Air Bleeding from Clutch Fluid Circuit in Section 5C (Page 5C-4)".

Drive Chain Inspection and Adjustment

B718H10206017

Inspect drive chain

Initially at 1 000 km (600 miles, 2 months) and every 6 000 km (4 000 miles, 12 months) thereafter.

Drive Chain Visual Check

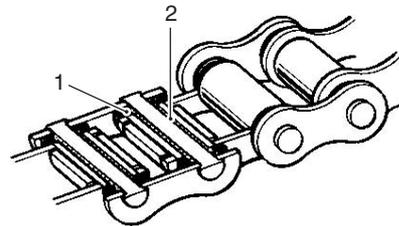
- 1) With the transmission in neutral, support the motorcycle using the center-stand and turn the rear wheel slowly by hand.

- 2) Visually check the drive chain for the possible defects listed as follows. If any defects are found, the drive chain must be replaced. Refer to "Drive Chain Replacement in Section 3A (Page 3A-7)".

- Loose pins
- Damaged rollers
- Dry or rusted links
- Kinked or binding links
- Excessive wear
- Improper chain adjustment
- Missing O-ring seals

NOTE

When replacing the drive chain, replace the drive chain and sprockets as a set.



I649G1020032-01

1. O-ring seal

2. Grease

Drive Chain Length Inspection

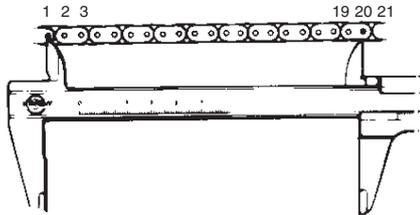
- 1) Loosen the axle nut (1).
- 2) Loosen the chain adjuster lock-nuts (2).
- 3) Give tension to the drive chain fully by turning both chain adjuster bolts (3).



I718H1020036-02

- Count out 21 pins (20 pitches) on the chain and measure the distance between the two points. If the distance exceeds the service limit, the chain must be replaced.

Drive chain 20-pitch length
Service limit: 319.4 mm (12.57 in)



I649G1020034-01

- After finishing the drive chain length inspection, adjust the drive chain slack.

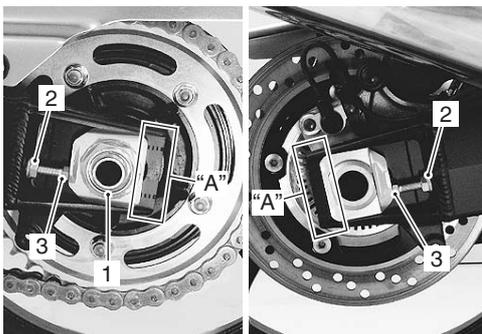
Drive Chain Slack Adjustment

- Place the motorcycle on its center stand for fine adjustment.
- Loosen the axle nut (1).
- Loosen the chain adjuster lock-nuts (2).
- Loosen or tighten both chain adjuster bolts (3) until there is 20 – 30 mm (0.8 – 1.2 in) “a” of slack at the middle of the chain between the engine and rear sprockets as shown.

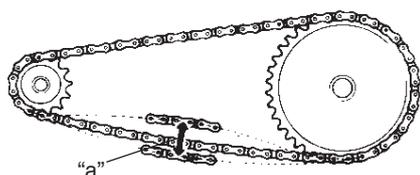
⚠ CAUTION

The reference marks “A” on both sides of the swingarm and the edge of each chain adjuster must be aligned to ensure that the front and rear wheels are correctly aligned.

Drive chain slack “a”
Standard 20 – 30 mm (0.8 – 1.2 in)



I718H1020037-02



I649G1020036-01

- After adjusting the drive chain, tighten the axle nut (1) to the specified torque.

Tightening torque

Rear axle nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

- Tighten both chain adjuster lock-nuts (2) securely.
- Recheck the drive chain slack after tightening the axle nut.

Drive Chain Cleaning and Lubricating

B718H10206018

Clean and lubricate drive chain
Every 1 000 km (600 miles)

Clean and lubricate the drive chain in the following procedures:

- Clean the drive chain with kerosine. If the drive chain tends to rust quickly, the intervals must be shortened.

⚠ CAUTION

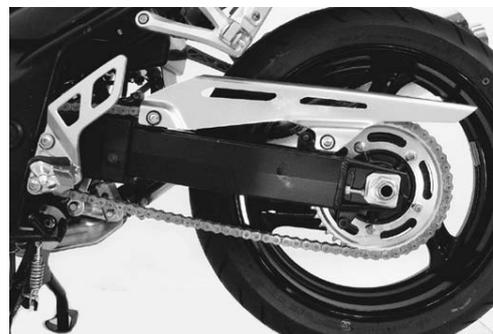
Do not use trichloroethylene, gasoline or any similar solvent.

These fluids have too great a dissolving power for this chain and they can damage the O-rings. Use only kerosine to clean the drive chain.

- After cleaning and drying the chain, oil it with a heavyweight motor oil.

⚠ CAUTION

- Do not use any oil sold commercially as “drive chain oil”. Such oil can damage the O-rings.
- The standard drive chain is a RK GB50GSVZ3. SUZUKI recommends to use this standard drive chain as a replacement.



I718H1020038-01

Brake System Inspection

B718H10206019

Inspect brake system

Initially at 1 000 km (600 miles, 2 months) and every 6 000 km (4 000 miles, 12 months) thereafter.

Inspect brake hose and brake fluid

Every 6 000 km (4 000 miles, 12 months)

⚠ WARNING

- The brake system of this motorcycle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-based and petroleum-based fluids. Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for a long period of time.
- Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and oil leakage before riding.

Brake Fluid Level Check

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

BF: Brake fluid (DOT 4)



I718H1020039-01



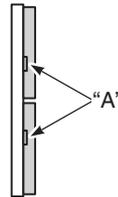
I718H1020040-01

Brake Pads Check

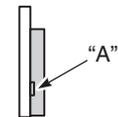
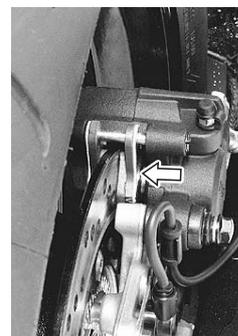
The extent of brake pad wear can be checked by observing the grooved limit line "A" on the pad. When the wear exceeds the grooved limit line, replace the pads with new ones. Refer to "Front Brake Pad Replacement in Section 4B (Page 4B-2)" and "Rear Brake Pad Replacement in Section 4C (Page 4C-2)".

⚠ CAUTION

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



I718H1020041-01



I718H1020042-01

Front and Rear Brake Hose Inspection

- 1) Remove the seat, right frame cover and fuel tank. (GSF1250A/SA) Refer to “Exterior Parts Construction in Section 9D (Page 9D-2)” and “Fuel Tank Removal and Installation in Section 1G (Page 1G-9)”.
- 2) Inspect the brake hoses and hose joints for crack, damage or brake oil leakage. If any defects are found, replace the brake hose with a new one. Refer to “Front Brake Hose Removal and Installation in Section 4A (Page 4A-12)” and “Rear Brake Hose Removal and Installation in Section 4A (Page 4A-13)”.



I718H1020043-01



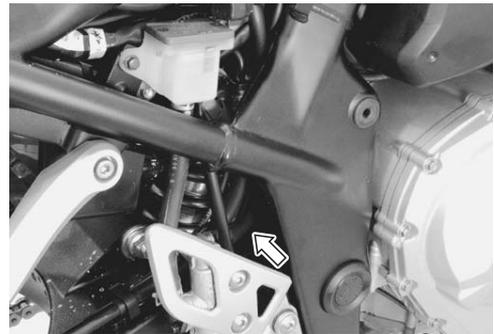
I718H1020044-01

GSF1250A/SA only



I718H1020045-01

GSF1250A/SA only



I718H1020046-01

- 3) Reinstall the removed parts. (GSF1250A/SA)

Brake Pedal Height Inspection and Adjustment

- 1) Inspect the brake pedal height “a” between the pedal top face and footrest. Adjust the brake pedal height if necessary.

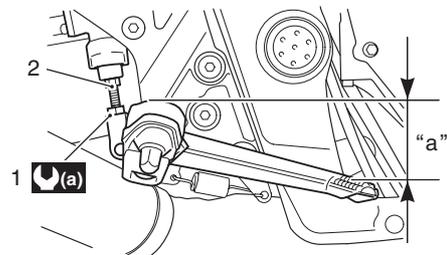
Brake pedal height “a”

Standard: 50 – 60 mm (2.0 – 2.4 in)

- 2) Loosen the lock-nut (1).
- 3) Turn the push rod (2) until the brake pedal becomes 50 – 60 mm (2.0 – 2.4 in.) “a” below the top of the footrest.
- 4) Tighten the lock-nut (1) securely.

Tightening torque

Rear master cylinder rod lock-nut (a): 18 N·m (1.8 kgf-m, 13.0 lb-ft)



I718H1020066-07

Brake Hose Replacement

Replace brake hose

Every 4 years

Refer to “Front Brake Hose Removal and Installation in Section 4A (Page 4A-12)” and “Rear Brake Hose Removal and Installation in Section 4A (Page 4A-13)”.

Brake Fluid Replacement

Replace brake fluid

Every 2 years

Refer to “Brake Fluid Replacement in Section 4A (Page 4A-10)”.

0B-19 Maintenance and Lubrication:

Air Bleeding from Brake Fluid Circuit

Refer to "Air Bleeding from Brake Fluid Circuit in Section 4A (Page 4A-8)".

Rear Brake Light Switch Adjustment

Refer to "Rear Brake Light Switch Inspection and Adjustment in Section 4A (Page 4A-8)".

Tire Inspection

B718H10206024

Inspect tire

Every 6 000 km (4 000 miles, 12 months)

Tire Tread Condition

Operating the motorcycle with excessively worn tires will decrease riding stability and consequently invite a dangerous situation. It is highly recommended to replace a tire when the remaining depth of tire tread reaches the following specification.

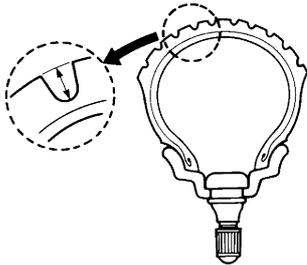
Special tool

 : 09900-20805 (Tire depth gauge)

Tire tread depth (Service limit)

Front: 1.6 mm (0.06 in.)

Rear: 2.0 mm (0.08 in.)



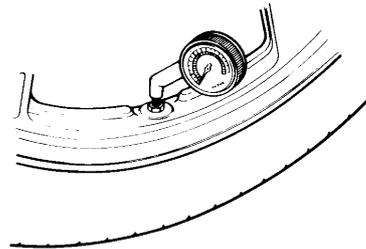
I310G1020068-01

Tire Pressure

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

Cold inflation tire pressure

	Solo riding			Dual riding		
	kPa	kgf/cm ²	psi	kPa	kgf/cm ²	psi
Front	250	2.50	36	250	2.50	36
Rear	290	2.90	42	290	2.90	42



I310G1020069-01

CAUTION

The standard tire fitted on this motorcycle is 120/70 ZR17 M/C (58W) for front and 180/55 ZR17 M/C (73W) for rear. The use of tires other than those specified may cause instability. It is highly recommended to use the specified tires.

Tire type

DUNLOP

- Front: D218FT
- Rear: D218N

Steering System Inspection

B718H10206025

Inspect steering system

Initially at 1 000 km (600 miles, 2 months) and every 12 000 km (7 500 miles, 24 months) thereafter.

Steering should be adjusted properly for smooth turning of handlebars and safe running. Overtighten steering prevents smooth turning of the handlebars and too loose steering will cause poor stability.

- 1) Check that there is no play in the front fork.
- 2) Support the motorcycle so that the front wheel is off the ground, with the wheel facing straight ahead, grasp the lower fork tubes near the axle and pull forward.

If play is found, readjust the steering. Refer to "Steering Tension Adjustment in Section 6B (Page 6B-10)".



I718H1020048-03

Front Fork Inspection

B718H10206026

Inspect front fork

Every 12 000 km (7 500 miles, 24 months)

Inspect the front forks for oil leakage, scoring or scratches on the outer surface of the inner tubes. Replace any defective parts, if necessary. Refer to "Front Fork Disassembly and Assembly in Section 2B (Page 2B-4)".



I718H1020049-01

Rear Suspension Inspection

B718H10206027

Inspect rear suspension

Every 12 000 km (7 500 miles, 24 months)

Inspect the rear shock absorbers for oil leakage and check that there is no play in the swingarm. Replace any defective parts, if necessary. Refer to "Rear Shock Absorber Removal and Installation in Section 2C (Page 2C-3)", "Cushion Lever Removal and Installation in Section 2C (Page 2C-5)" and "Swingarm / Cushion Rod Removal and Installation in Section 2C (Page 2C-7)".



I718H1020050-01



I718H1020051-01

0B-21 Maintenance and Lubrication:

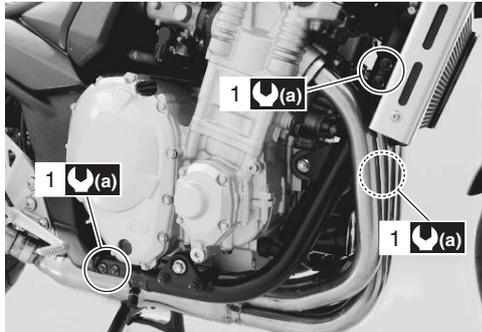
Chassis Bolt and Nut Inspection

B718H10206028

Tighten chassis bolt and nut

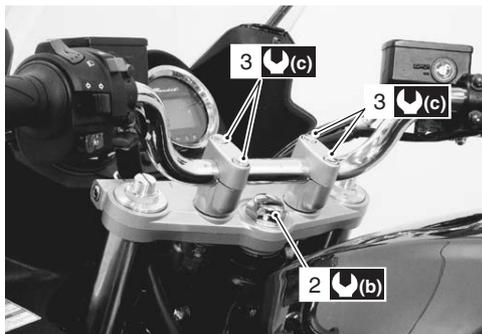
Initially at 1 000 km (600 miles, 2 months) and every 6 000 km (4 000 miles, 12 months) thereafter.

Check that all chassis bolts and nuts are tightened to their specified torque.



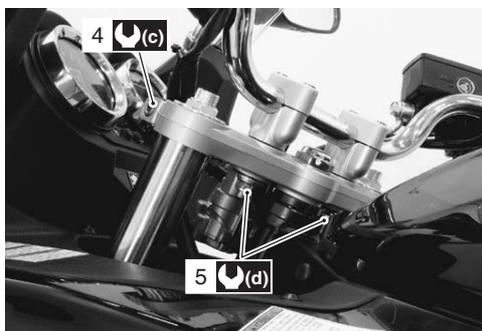
I718H1020052-01

1. Frame down tube
(a) : 50 N·m (5.0 kgf-m, 36.0 lb-ft)



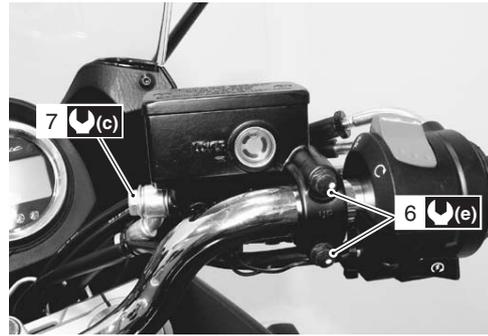
I718H1020053-01

2. Steering stem head nut
3. Handlebar holder bolt
(b) : 65 N·m (6.5 kgf-m, 47.0 lb-ft)
(c) : 23 N·m (2.3 kgf-m, 16.5 lb-ft)



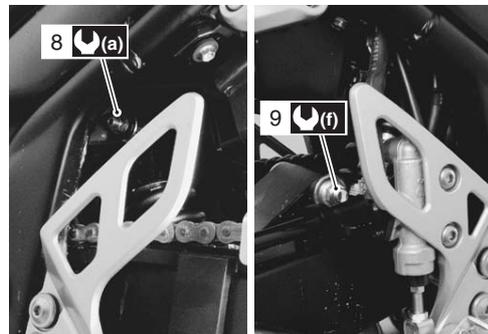
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4. Front fork upper clamp bolt
5. Handlebar holder set nut
(c) : 23 N·m (2.3 kgf-m, 16.5 lb-ft)
(d) : 45 N·m (4.5 kgf-m, 32.5 lb-ft)



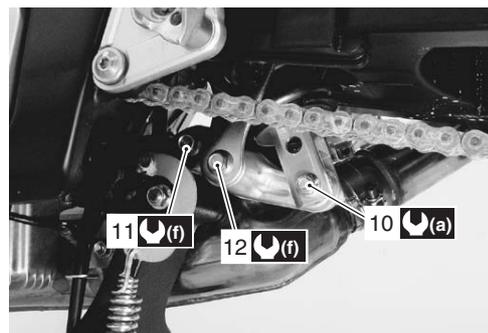
I718H1020055-02

6. Front brake master cylinder mounting bolt
7. Brake hose union bolt
(c) : 23 N·m (2.3 kgf-m, 16.5 lb-ft)
(e) : 10 N·m (1.0 kgf-m, 7.0 lb-ft)



I718H1020056-01

8. Rear shock absorber mounting nut (Upper)
9. Cushion rod mounting nut
(a) : 50 N·m (5.0 kgf-m, 36.0 lb-ft)
(f) : 78 N·m (7.8 kgf-m, 56.5 lb-ft)



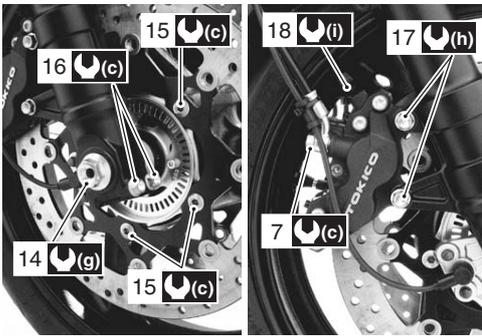
I718H1020057-01

10. Rear shock absorber mounting nut (Lower)
11. Cushion lever mounting nut
12. Cushion rod mounting nut
(a) : 50 N·m (5.0 kgf-m, 36.0 lb-ft)
(f) : 78 N·m (7.8 kgf-m, 56.5 lb-ft)



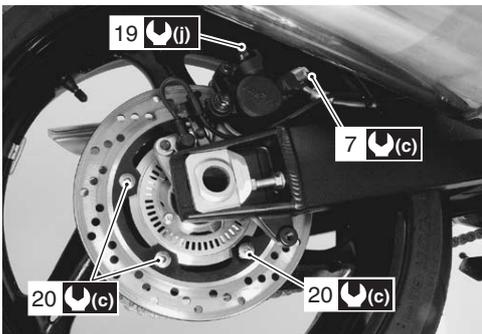
I718H1020058-01

13. Front fork lower clamp bolt
: 23 N-m (2.3 kgf-m, 16.5 lb-ft)



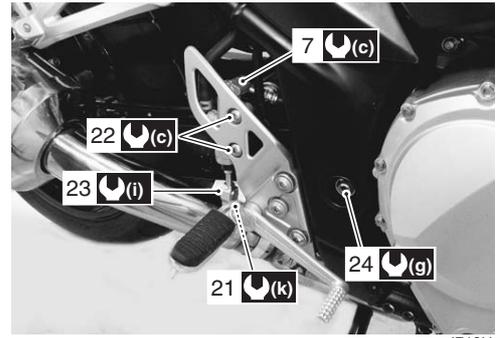
I718H1020059-01

7. Brake hose union bolt
14. Front axle bolt
15. Brake disc bolt (Front)
16. Front axle pinch bolt
17. Front brake caliper mounting bolt
18. Air bleeder valve (Front brake)
: 23 N-m (2.3 kgf-m, 16.5 lb-ft)
: 100 N-m (10.0 kgf-m, 72.5 lb-ft)
: 26 N-m (2.6 kgf-m, 19.0 lb-ft)
: 7.5 N-m (0.75 kgf-m, 5.5 lb-ft)



I718H1020060-01

7. Brake hose union bolt
19. Air bleeder valve (Rear brake)
20. Brake disc bolt (Rear)
: 23 N-m (2.3 kgf-m, 16.5 lb-ft)
: 6 N-m (0.6 kgf-m, 4.5 lb-ft)



I718H1020061-02

7. Brake hose union bolt
21. Front footrest bolt
22. Rear brake master cylinder mounting bolt
23. Rear brake master cylinder rod lock-nut
24. Swingarm pivot nut
: 23 N-m (2.3 kgf-m, 16.5 lb-ft)
: 100 N-m (10.0 kgf-m, 72.5 lb-ft)
: 18 N-m (1.8 kgf-m, 13.0 lb-ft)
: 35 N-m (3.5 kgf-m, 25.5 lb-ft)



I718H1020062-02

25. Rear sprocket nut
: 100 N-m (10.0 kgf-m, 72.5 lb-ft)

Compression Pressure Check

B718H10206029

Refer to "Compression Pressure Check in Section 1D (Page 1D-3)".

Oil Pressure Check

B718H10206030

Refer to "Oil Pressure Check in Section 1E (Page 1E-3)".

SDS check

B718H10206033

Refer to "SDS Check in Section 1A (Page 1A-15)".

Specifications

Tightening Torque Specifications

B718H10207001

Fastening part	Tightening torque			Note
	N·m	kgf-m	lb-ft	
Exhaust pipe bolt	23	2.3	16.5	☞ (Page 0B-4)
Exhaust pipe mounting bolt	23	2.3	16.5	☞ (Page 0B-4)
Muffler connecting bolt	23	2.3	16.5	☞ (Page 0B-4)
Muffler mounting bolt	26	2.6	19.0	☞ (Page 0B-4)
Oil drain plug	23	2.3	16.5	☞ (Page 0B-11)
Oil filter	20	2.0	14.5	☞ (Page 0B-12)
Rear axle nut	100	10.0	72.5	☞ (Page 0B-16)
Rear master cylinder rod lock-nut	18	1.8	13.0	☞ (Page 0B-18)

NOTE

The specified tightening torque is also described in the following.
 “Chassis Bolt and Nut Inspection (Page 0B-21)”

Reference:

For the tightening torque of fastener not specified in this section, refer to “Tightening Torque Specifications in Section 0C (Page 0C-7)”.

Special Tools and Equipment

Recommended Service Material

B718H10208001

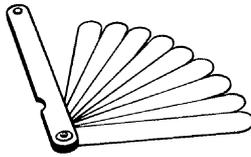
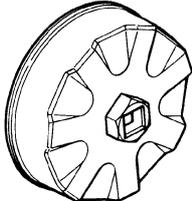
Material	SUZUKI recommended product or Specification	Note
Brake fluid	DOT 4	☞ (Page 0B-14) / ☞ (Page 0B-17)

NOTE

Required service material is also described in the following.
 “Lubrication Points (Page 0B-2)”

Special Tool

B718H10208002

09900-20803 Thickness gauge ☞ (Page 0B-6)	09900-20805 Tire depth gauge ☞ (Page 0B-19)
	
09915-40611 Oil filter wrench ☞ (Page 0B-11) / ☞ (Page 0B-12)	
	

Service Data

Specifications

Service Data

B718H10307001

Valve + Guide

Unit: mm (in)

Item		Standard	Limit
Valve diam.	IN.	31 (1.22)	—
	EX.	27 (1.06)	—
Valve clearance (when cold)	IN.	0.10 – 0.20 (0.004 – 0.008)	—
	EX.	0.20 – 0.30 (0.008 – 0.012)	—
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	—
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve guide I.D.	IN. & EX.	4.500 – 4.512 (0.1772 – 0.1776)	—
Valve stem O.D.	IN.	4.475 – 4.490 (0.1762 – 0.1768)	—
	EX.	4.455 – 4.470 (0.1754 – 0.1760)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length	IN. & EX.	—	39.6 (1.56)
Valve spring tension	IN. & EX.	Approx. 147 N (15.0 kgf, 33.1 lbs) at length 36.0 mm (1.42 in)	—

Camshaft + Cylinder Head

Unit: mm (in)

Item		Standard	Limit
Cam height	IN.	35.28 – 35.33 (1.389 – 1.391)	34.98 (1.377)
	EX.	34.18 – 34.23 (1.346 – 1.348)	33.88 (1.334)
Camshaft journal oil clearance	IN. & EX.	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	24.012 – 24.025 (0.9454 – 0.9459)	—
Camshaft journal O.D.	IN. & EX.	23.959 – 23.980 (0.9433 – 0.9441)	—
Camshaft runout	IN. & EX.	—	0.10 (0.004)
Cam chain pin (at arrow "3")		16th pin	—
Cylinder head distortion		—	0.20 (0.008)

0C-2 Service Data:**Cylinder + Piston + Piston Ring**

Unit: mm (in)

Item	Standard			Limit
Compression pressure	1 300 – 1 700 kPa (13 – 17 kgf/cm ² , 185 – 242 psi)			1 000 kPa (10 kgf/cm ² , 142 psi)
Compression pressure difference	—			200 kPa (2 kgf/cm ² , 28 psi)
Piston-to-cylinder clearance	0.025 – 0.035 (0.0010 – 0.0014)			0.120 (0.0047)
Cylinder bore	79.000 – 79.015 (3.1102 – 3.1108)			Nicks or Scratches
Piston diam.	78.970 – 78.985 (3.1090 – 3.1096) Measure 15 mm (0.6 in) from the skirt end.			78.880 (3.1055)
Cylinder distortion	—			0.02 (0.008)
Piston ring free end gap	1st	IN	Approx. 9 (0.35)	7.2 (0.28)
	2nd	N	Approx. 9.5 (0.37)	7.6 (0.30)
Piston ring end gap	1st	IN	0.06 – 0.21 (0.002 – 0.008)	0.5 (0.020)
	2nd	N	0.06 – 0.21 (0.002 – 0.008)	0.5 (0.020)
Piston ring-to-groove clearance	1st		—	0.180 (0.0071)
	2nd		—	0.150 (0.0059)
Piston ring groove width	1st		1.01 – 1.03 (0.040 – 0.041)	—
	2nd		0.81 – 0.83 (0.032 – 0.033)	—
	Oil		1.51 – 1.53 (0.059 – 0.060)	—
Piston ring thickness	1st		0.97 – 0.99 (0.038 – 0.039)	—
	2nd		0.77 – 0.79 (0.030 – 0.031)	—
Piston pin bore I.D.	18.002 – 18.008 (0.7087 – 0.7090)			18.030 (0.7098)
Piston pin O.D.	17.996 – 18.000 (0.7085 – 0.7087)			17.980 (0.7079)

Conrod + Crankshaft

Unit: mm (in)

Item	Standard		Limit
Conrod small end I.D.	18.010 – 18.018 (0.7091 – 0.7094)		18.040 (0.7102)
Conrod big end side clearance	0.10 – 0.20 (0.004 – 0.008)		0.30 (0.012)
Conrod big end width	20.95 – 21.00 (0.825 – 0.827)		—
Crank pin width	21.10 – 21.15 (0.831 – 0.833)		—
Conrod big end oil clearance	0.032 – 0.056 (0.0013 – 0.0022)		0.080 (0.0031)
Crank pin O.D.	37.976 – 38.000 (1.4951 – 1.4961)		—
Crankshaft journal oil clearance	0.016 – 0.040 (0.0006 – 0.0016)		0.080 (0.0031)
Crankshaft journal O.D.	33.976 – 34.000 (1.3376 – 1.3386)		—
Crankshaft thrust clearance	0.055 – 0.110 (0.0022 – 0.0043)		—
Crankshaft thrust bearing thickness	Right side	2.425 – 2.450 (0.0955 – 0.0965)	—
	Left side	2.350 – 2.500 (0.0925 – 0.0984)	—
Crankshaft runout	—		0.05 (0.002)

Oil Pump

Item	Standard	Limit
Oil pressure (at 60 °C, 140 °F)	100 – 400 kPa (1.0 – 4.0 kgf/cm ² , 14 – 57 psi) at 3 000 r/min	—

Clutch

Unit: mm (in)

Item	Standard	Limit
Clutch drive plate thickness	No.1, 2, 3 3.72 – 3.88 (0.146 – 0.153)	3.42 (0.135)
Clutch drive plate claw width	No.1, 2, 3 13.9 – 14.0 (0.547 – 0.551)	13.1 (0.52)
Clutch driven plate distortion	—	0.10 (0.004)
Clutch spring free length	65.0 (2.56)	61.8 (2.43)
Clutch master cylinder bore	14.000 – 14.043 (0.5511 – 0.5529)	—
Clutch master cylinder piston diam.	13.957 – 13.984 (0.5495 – 0.5506)	—
Clutch release cylinder bore	38.18 – 38.23 (1.503 – 1.505)	—
Clutch release cylinder piston diam.	38.08 – 38.13 (1.500 – 1.501)	—
Clutch fluid type	Brake fluid DOT 4	—

Transmission + Drive Chain

Unit: mm (in) Except ratio

Item	Standard	Limit
Primary reduction ratio	1.537 (83/54)	—
Final reduction ratio	2.388 (43/18)	—
Gear ratios	1st	3.076 (40/13)
	2nd	2.058 (35/17)
	3rd	1.550 (31/20)
	4th	1.304 (30/23)
	5th	1.160 (29/25)
	Top	1.071 (30/28)
Shift fork to groove clearance	No.1, 2, 3 0.1 – 0.3 (0.004 – 0.012)	0.5 (0.02)
Shift fork groove width	No.1, 2, 3 5.0 – 5.1 (0.197 – 0.201)	—
Shift fork thickness	4.8 – 4.9 (0.189 – 0.193)	—
Drive chain	Type	RK GB50GSVZ3
	Links	118 links
	20-pitch length	—
Drive chain slack (on center stand)	20 – 30 (0.8 – 1.2)	—
Gearshift lever height	45 – 55 (1.8 – 2.2)	—

Thermostat + Radiator + Fan + Coolant

Item	Standard/Specification	Note
Thermostat valve opening temperature	Approx. 82 °C (180 °F)	—
Thermostat valve lift	8 mm (0.31 in) and over at 95 °C (203 °F)	—
ECT sensor resistance	20 °C (68 °F)	Approx. 2.45 kΩ
	50 °C (122 °F)	Approx. 0.811 kΩ
	80 °C (176 °F)	Approx. 0.318 kΩ
	110 °C (230 °F)	Approx. 0.142 kΩ
Radiator cap valve opening pressure	93 – 123 kPa (0.93 – 1.23 kgf/cm ² , 13.2 – 17.5 psi)	—
Cooling fan operating temperature	OFF→ON	Approx. 105 °C (221 °F)
	ON→OFF	Approx. 100 °C (212 °F)
Engine coolant type	Use an antifreeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.	—
Engine coolant	Reservoir tank side	Approx. 250 ml (0.3/0.2 US/Imp qt)
	Engine side	Approx. 3 000 ml (3.2/2.6 US/Imp qt)

0C-4 Service Data:**Injector + Fuel Pump + Fuel Pressure Regulator**

Item	Specification	Note
Injector resistance	11 – 13 Ω at 20 °C (68 °F)	
Fuel pump discharge amount	166 ml (5.6/5.8 US/Imp oz) and more/10 sec.	
Fuel pressure regulator operating set pressure	Approx. 300 kPa (3.0 kgf/cm ² , 43 psi)	

FI Sensors + Secondary Throttle Valve Actuator

Item	Standard/Specification	Note
CKP sensor resistance	90 – 150 Ω	
CKP sensor peak voltage	2.0 V and more	When cranking
IAP sensor input voltage (No.1)	4.5 – 5.5 V	
IAP sensor output voltage (No.1)	Approx. 2.7 V at idle speed	
IAP sensor input voltage (No.2)	4.5 – 5.5 V	
IAP sensor output voltage (No.2)	2.0 – 3.0 V at idle speed	
TP sensor input voltage	4.5 – 5.5 V	
TP sensor output voltage	Closed	Approx. 1.1 V
	Opened	Approx. 4.3 V
ECT sensor input voltage	4.5 – 5.5 V	
ECT sensor output voltage	0.15 – 4.85 V	
ECT sensor resistance	Approx. 2.45 k Ω at 20 °C (68 °F)	
IAT sensor input voltage	4.5 – 5.5 V	
IAT sensor output voltage	Approx. 2.4 V at 20 °C (68 °F)	
IAT sensor resistance	Approx. 2.56 k Ω at 20 °C (68 °F)	
TO sensor resistance	16.5 – 22.3 k Ω	
TO sensor voltage	Normal	0.4 – 1.4 V
	Leaning	3.7 – 4.4 V
		When leaning 65°
GP switch voltage	0.6 V and more	From 1st to Top
Injector voltage	Battery voltage	
Ignition coil primary peak voltage	80 V and more	When cranking
STP sensor input voltage	4.5 – 5.5 V	
STP sensor output voltage	Closed	Approx. 0.6 V
	Opened	Approx. 4.5 V
STV actuator resistance	Approx. 7.0 Ω	
ISC valve resistance	Approx. 20 Ω at 20 °C (68 °F)	
HO2 sensor resistance	Approx. 8 Ω at 23 °C (73 °F)	
HO2 sensor output voltage		0.3 V and less at idle speed
		0.6 V and more at 3 000 r/min
PAIR control solenoid valve resistance	18 – 22 Ω at 20 – 30 °C (68 – 86 °F)	
EVAP purge control valve	Approx. 32 Ω at 20 °C (68 °F)	E-33 only

Throttle Body

Item	Specification
Bore size	36 mm
I.D. No.	18H1 (For E-33), 18H0 (For the others)
Idle r/min.	1 200 \pm 100 r/min.
Fast idle r/min.	1 200 – 2 000 r/min. (When cold engine)
Throttle cable play	2.0 – 4.0 mm (0.08 – 0.16 in)

Electrical

Unit: mm

Item		Specification		Note
Firing order		1 · 2 · 4 · 3		
Spark plug	Type	NGK: CR7E DENSO: U22ESR-N		
	Gap	0.7 – 0.8 (0.028 – 0.031)		
Spark performance		Over 8 (0.3) at 1 atm.		
CKP sensor resistance		90 – 150 Ω		
CKP sensor peak voltage		2.0 V and more		When cranking
Ignition coil resistance	Primary	1.1 – 1.9 Ω		Terminal – Terminal
	Secondary	10.8 – 16.2 kΩ		Plug cap – Terminal
Ignition coil primary peak voltage		80 V and more		
Generator coil resistance		0.2 – 0.8 Ω		
Generator maximum output		Approx. 400 W at 5 000 r/min		
Generator no-load voltage (When engine is cold)		60 V (AC) and more at 5 000 r/min		
Regulated voltage		14.0 – 15.5 V at 5 000 r/min		
Starter motor brush length	Standard	12.0 (0.47)		
	Limit	6.5 (0.26)		
Starter relay resistance		3 – 6 Ω		
Battery	Type designation		FT12A-BS	
	Capacity		12 V 36 kC (10 Ah)/10 HR	
	Standard electrolyte S.G.		1.330 at 20 °C (68 °F)	
Fuse size	Headlight	HI	10 A	
		LO	10 A	
	Fuel		10 A	
	Ignition		15 A	
	Signal		15 A	
	Fan		15 A	
	Main		30 A	
	ABS motor (GSF1250A/SA only)		20 A	
ABS valve (GSF1250A/SA only)		15 A		

Wattage

Unit: W

Item		Specification	
		GSF1250/A	GSF1250S/SA
Headlight	HI	60	55
	LO	55	←
Position/Parking light		5	5 x 2
Brake light/Taillight		21/5	←
Turn signal light		21 x 4	←
License plate light		5	←
Speedometer light		LED	←
Tachometer light		LED	←
Turn signal indicator light		LED x 2	←
High beam indicator light		LED	←
Neutral position indicator light		LED	←
Oil pressure indicator light		LED	←
FI indicator light		LED	←
Engine coolant temp. indicator light		LED	←
ABS indicator light (GSF1250A/SA only)		LED	←

0C-6 Service Data:**Brake + Wheel**

Unit: mm (in)

Item	Standard		Limit	
Rear brake pedal height	50 – 60 (2.0 – 2.4)		—	
Brake disc thickness	Front	4.8 – 5.2 (0.189 – 0.205)	4.5 (0.18)	
	Rear	4.8 – 5.2 (0.189 – 0.205)	4.5 (0.18)	
Brake disc runout	—		0.30 (0.012)	
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	—	
	Rear	14.000 – 14.043 (0.5512 – 0.5529)	—	
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	—	
	Rear	13.957 – 13.984 (0.5495 – 0.5506)	—	
Brake caliper cylinder bore	Front	Leading	27.050 – 27.126 (1.0650 – 1.0680)	—
		Trailing	30.280 – 30.356 (1.1921 – 1.1951)	—
	Rear	38.180 – 38.230 (1.5031 – 1.5051)		—
Brake caliper piston diam.	Front	Leading	26.920 – 26.970 (1.0598 – 1.0618)	—
		Trailing	30.150 – 30.200 (1.1870 – 1.1890)	—
	Rear	38.080 – 38.130 (1.4992 – 1.5012)		—
Brake fluid type	DOT 4		—	
Wheel rim runout	Axial	—	2.0 (0.08)	
	Radial	—	2.0 (0.08)	
Wheel axle runout	Front	—	0.25 (0.010)	
	Rear	—	0.25 (0.010)	
Wheel rim size	Front	17 M/C x MT3.50	—	
	Rear	17 M/C x MT5.50	—	

Tire

Item	Standard		Limit
Cold inflation tire pressure (Solo riding)	Front	250 kPa (2.50 kgf/cm ² , 36 psi)	—
	Rear	290 kPa (2.90 kgf/cm ² , 42 psi)	—
Cold inflation tire pressure (Dual riding)	Front	250 kPa (2.50 kgf/cm ² , 36 psi)	—
	Rear	290 kPa (2.90 kgf/cm ² , 42 psi)	—
Tire size	Front	120/70 ZR17 M/C (58 W)	—
	Rear	180/55 ZR17 M/C (73 W)	—
Tire type	Front	DUNLOP D218FT	—
	Rear	DUNLOP D218N	—
Tire tread depth (Recommended depth)	Front	—	1.6 mm (0.06 in)
	Rear	—	2.0 mm (0.08 in)

Suspension

Unit: mm (in)

Item	Standard		Limit
Front fork stroke	130 (5.1)		—
Front fork inner tube O.D.	43 (1.7)		—
Front fork spring free length	390.4 (15.37)		382 (15.0)
Front fork oil level (Without spring, outer tube fully compressed)	GSF1250/A	143 (5.6)	—
	GSF1250S/ SA	144 (5.7)	—
Front fork oil type	SUZUKI FORK OIL SS-08 or an equivalent fork oil		—
Front fork oil capacity (Each leg)	GSF1250/A	472 ml (16.0/16.6 US/lmp oz)	—
	GSF1250S/ SA	471 ml (15.9/16.6 US/lmp oz)	—
Front fork spring adjuster	3rd groove from top		—
Rear shock absorber spring adjuster	GSF1250/A	3rd position	—
	GSF1250S/ SA	4th position	—
Rear shock absorber damping force adjuster	Rebound	1-1/4 turns out from stiffest position	—
Rear wheel travel	136 (5.4)		—
Swingarm pivot shaft runout	—		0.3 (0.01)

Fuel + Oil

Item	Specification		Note
Fuel type	Use only unleaded gasoline of at least 87 pump octane (R/2 + M/2) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03, 28, 33
	Gasoline used should be graded 91 octane or higher. An unleaded gasoline type is recommended.		Others
Fuel tank capacity	Including reserve	18.5 L (4.9/4.1 US/lmp gal)	E-33
		19 L (5.0/4.2 US/lmp gal)	Others
Engine oil type	SAE 10 W-40, API SF/SG or SH/SJ with JASO MA		
Engine oil capacity	Change	3 000 ml (3.2/2.6 US/lmp qt)	
	Filter change	3 500 ml (3.7/3.1 US/lmp qt)	
	Overhaul	3 700 ml (3.9/3.3 US/lmp qt)	

Tightening Torque Specifications

B718H10307002

Engine

Item		N-m	kgf-m	lb-ft
Exhaust pipe bolt		23	2.3	16.5
Exhaust pipe mounting bolt		23	2.3	16.5
Muffler connecting bolt		23	2.3	16.5
Muffler mounting nut		26	2.6	19.0
Speed sensor rotor bolt		25	2.5	18.0
Speed sensor bolt		6.5	0.65	4.7
Engine sprocket nut		115	11.5	83.0
Engine mounting nut	Front upper	55	5.5	40.0
	Rear upper	88	8.8	63.5
	Rear lower	88	8.8	63.5
Engine mounting bolt	Center lower	47	4.7	34.0
Engine mounting No.1 bracket bolt		23	2.3	16.5
Engine mounting No.2 bracket bolt		23	2.3	16.5
Cylinder head cover bolt		14	1.4	10.0
Spark plug		11	1.1	8.0
Camshaft journal holder bolt		10	1.0	7.0
Oil pipe mounting bolt		10	1.0	7.0
Camshaft sprocket bolt	Initial	16	1.6	11.5
	Final	25	2.5	18.0
Cam chain tension adjuster cap bolt		23	2.3	16.6
Cam chain tension adjuster mounting bolt		10	1.0	7.0
Cylinder head bolt	[L: 175]	Initial	25	2.5
		Final	42	4.2
	[L: 65]	10	1.0	7.0
Water jacket plug		30	3.0	21.5
Water inlet connector bolt		10	1.0	7.0
Balancer shaft arm bolt		10	1.0	7.0
Balancer shaft mounting bolt		10	1.0	7.0
PAIR reed valve cover bolt		11	1.1	8.0
Clutch sleeve hub nut		150	15.0	108.5
Clutch spring set bolt		10	1.0	7.0
Starter clutch cover bolt		25	2.5	18.0
Generator rotor bolt		120	12.0	87.0
Generator stator set bolt		11	1.1	8.0
Gearshift cam stopper bolt		10	1.0	7.0
Gearshift cam stopper plate bolt		13	1.3	9.5
Gearshift arm stopper		19	1.9	13.5
Gearshift lever bolt		40	4.0	29.0
Gearshift shaft end bolt		10	1.0	7.0
Oil pressure switch		14	1.4	10.0

0C-8 Service Data:

Item			N·m	kgf·m	lb·ft
Oil pressure switch lead wire bolt			1.5	0.15	1.1
Crankcase bolt	[M6]	(initial)	6	0.6	4.5
		(Final)	11	1.1	8.0
	[M8]	(initial)	15	1.5	11.0
		(Final)	26	2.6	19.0
Crankshaft journal bolt	[M9]	(initial)	18	1.8	13.0
		(Final)	32	3.2	23.0
Oil gallery plug	[M6]		10	1.0	7.0
	[M8]		10	1.0	7.0
	[M12]		15	1.5	11.0
	[M16]		35	3.5	25.5
Oil gallery bolt			10	1.0	7.0
Oil gallery jet			22	2.2	16.0
Oil drain plug			23	2.3	16.5
Piston cooling oil jet bolt			10	1.0	7.0
Oil pump mounting bolt			10	1.0	7.0
Conrod cap bolt	initial		21	2.1	15.0
	Final		90° (1/4 turn)		
Gearshift fork shaft retainer screw			10	1.0	7.0
Countershaft bearing retainer screw			12	1.2	8.5
Push rod oil seal bolt			12	1.2	8.5
Oil filter			20	2.0	14.5
Oil cooler union bolt			70	7.0	50.5
Starter motor lead wire mounting bolt			5	0.5	3.5
Brush housing set nut			7	0.7	5.0
Starter motor housing bolt			5	0.5	3.5

FI System and Intake Air System

Item	N·m	kgf·m	lb·ft
CKP sensor mounting bolt	11	1.1	8.0
Fuel delivery pipe mounting screw	3.5	0.35	2.5
Fuel pump mounting bolt	10	1.0	7.0
STPS mounting screw	3.5	0.35	2.5
ISC valve mounting screw	3.5	0.35	2.5
GP switch mounting bolt	6.5	0.65	4.7
HO2 sensor	25	2.5	18.0

Cooling System

Item	N·m	kgf·m	lb·ft
Impeller securing bolt	8	0.8	6.0
Water pump case screw	6	0.6	4.5
Water pump mounting bolt	10	1.0	7.0
Water pump air vent bolt	13	1.3	9.5
Water hose clamp bolt	2	0.2	1.5
ECT sensor	18	1.8	13.0
Thermostat cover bolt	10	1.0	7.0

Chassis

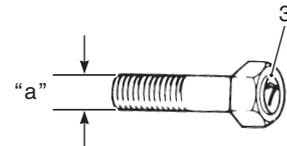
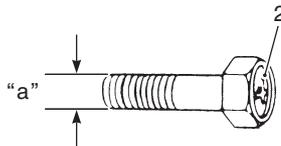
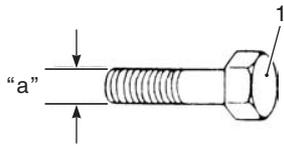
Item	N-m	kgf-m	lb-ft
Steering stem head nut	65	6.5	47.0
Steering stem nut	Tighten 45 N·m (4.5 kgf-m, 32.5 lb-ft) then turn back 1/2 – 1/4.		
Front fork upper clamp bolt	23	2.3	16.5
Front fork lower clamp bolt	23	2.3	16.5
Front fork cap bolt	23	2.3	16.5
Front fork damper rod bolt	20	2.0	14.5
Inner rod lock-nut	20	2.0	14.5
Front axle bolt	100	10.0	72.5
Front axle pinch bolt	23	2.3	16.5
Handlebar holder bolt	23	2.3	16.5
Handlebar holder set nut	45	4.5	32.5
Master cylinder mounting bolt (Front brake and Clutch)	10	1.0	7.0
Front brake caliper housing bolt	22	2.2	16.0
Front brake caliper mounting bolt	26	2.6	19.0
Front brake pad mounting pin	16	1.6	11.5
Brake hose union bolt	23	2.3	16.5
Brake pipe flare nut (GSF1250A/SA only)	16	1.6	11.5
Air bleeder valve (Front brake caliper)	7.5	0.75	5.5
Air bleeder valve (Rear brake caliper)	6.0	0.6	4.5
Air bleeder valve (Clutch)	6.0	0.6	4.5
Side-stand bolt	50	5.0	36.0
Side-stand nut	40	4.0	29.0
Side-stand switch mounting bolt	14	1.4	10.0
Rear combination light mounting bolt	2	0.2	1.5
Brake disc bolt (front and Rear)	23	2.3	16.5
Front footrest bolt	35	3.5	25.5
Swingarm pivot nut	100	10.0	72.5
Rear shock absorber mounting nut (upper and Lower)	50	5.0	36.0
Cushion lever mounting nut	78	7.8	56.5
Cushion rod mounting nut	78	7.8	56.5
Rear brake caliper mounting bolt	22	2.2	16.0
Rear brake caliper sliding pin	27	2.7	19.5
Rear brake pad mounting pin	18	1.8	13.0
Pad pin plug	2.5	0.25	1.8
Rear brake master cylinder mounting bolt	23	2.3	16.5
Rear brake master cylinder rod lock-nut	18	1.8	13.0
Rear footrest bracket mounting bolt	23	2.3	16.5
Rear axle nut	100	10.0	72.5
Rear sprocket nut	60	6.0	43.5
Frame down tube bolt	50	5.0	36.0
Brake lever pivot bolt	6	0.6	4.5
Brake lever pivot bolt lock-nut	6	0.6	4.5
Clutch lever pivot bolt	6	0.6	4.5
Clutch lever pivot bolt lock-nut	6	0.6	4.5
Licence light mounting bolt	5	0.5	3.5
Front reflex refractor (For E-03, 24, 28, 33)	1.8	0.18	1.3
Front side refractor bolt (For E-03, 24, 28, 33)	4.5	0.45	3.25
Rear side refractor nut (For E-03, 28, 33)	4.5	0.45	3.25

0C-10 Service Data:

Tightening Torque Chart

For other bolts and nuts not listed in the preceding page, refer to this chart:

Bolt Diameter "a" (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	4.5	0.45	3.0
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



1. Conventional bolt	2. "4" marked bolt	3. "7" marked bolt
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