

**SUZUKI**



**TL 1000S**

**SERVICE MANUAL**

## FOREWORD

This manual contains an introductory description on the SUZUKI TL1000S and procedures for its inspection/service and overhaul of its main components. Other information considered as generally known is not included.

Read the GENERAL INFORMATION section to familiarize yourself with the motorcycle and its maintenance. Use this section as well as other sections to use as a guide for proper inspection and service. This manual will help you know the motorcycle better so that you can assure your customers of fast and reliable service.

- \* This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual motorcycle.
- \* Illustrations in this manual are used to show the basic principles of operation and work procedures. They may not represent the actual motorcycle exactly in detail.
- \* This manual is written for persons who have enough knowledge, skills and tools, including special tools, for servicing SUZUKI motorcycles. If you do not have the proper knowledge and tools, ask your authorized SUZUKI motorcycle dealer to help you.

### WARNING

Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual. Improper repair may result in injury to the mechanic and may render the motorcycle unsafe for the rider and passenger.

## IMPORTANT

All street-legal Suzuki motorcycles with engine displacement of 50 cc or greater are subject to Environmental Protection agency emission regulations. These regulations set specific standards for exhaust emission output levels as well as particular servicing requirements. This manual includes specific information required to properly inspect and service TL1000S in accordance with all EPA regulations. It is strongly recommended that the chapter on Emission Control, Periodic Servicing and Carburetion be thoroughly reviewed before any type of service work is performed.

Further information concerning the EPA emission regulations and U.S. Suzuki's emission control program can be found in the U.S. SUZUKI EMISSION CONTROL PROGRAM MANUAL/SERVICE BULLETIN.

## GROUP INDEX

### GENERAL INFORMATION

1

### PERIODIC MAINTENANCE

2

### ENGINE

3

### FI SYSTEM AND INTAKE AIR SYSTEM

4

### COOLING SYSTEM

5

### CHASSIS

6

### ELECTRICAL SYSTEM

7

### SERVICING INFORMATION

8

### EMISSION CONTROL INFORMATION

9

### TL1000SW ('98-MODEL)

10

### TL1000SX ('99-MODEL)

11

### TL1000SY ('00-MODEL)

12

### TL1000SK1 ('01-MODEL)

13

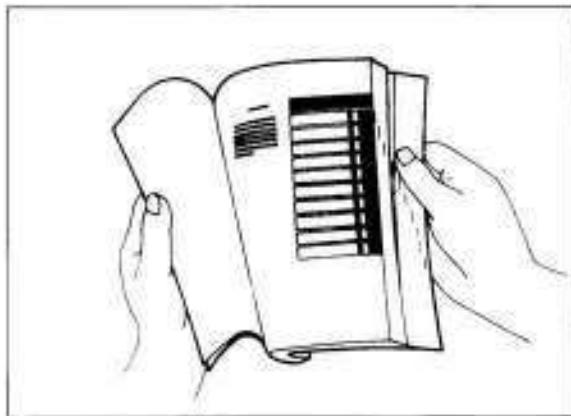
**SUZUKI MOTOR CORPORATION**

*Motorcycle Service Department*

# HOW TO USE THIS MANUAL

## TO LOCATE WHAT YOU ARE LOOKING FOR:

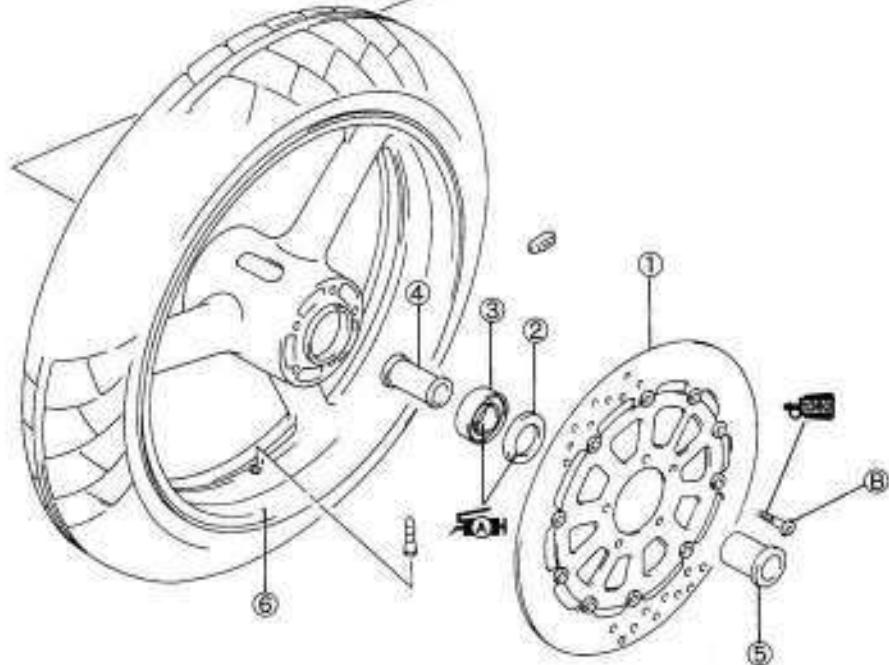
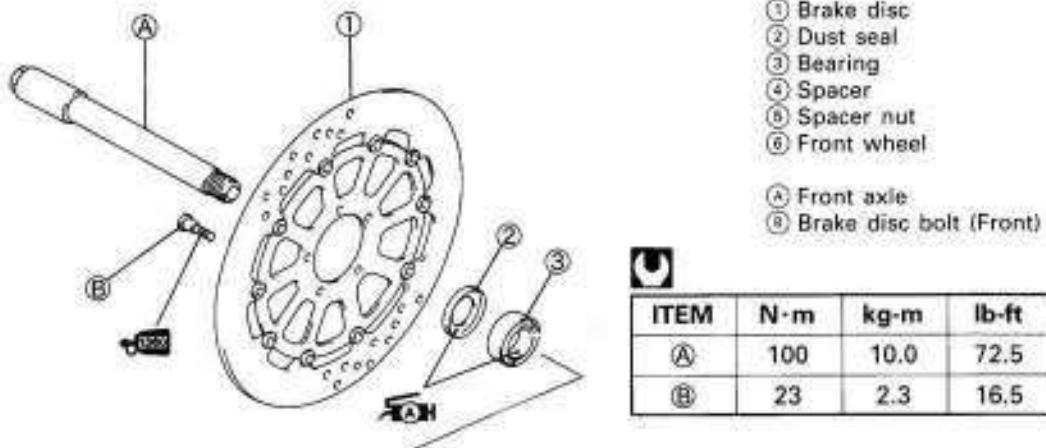
1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help find the item and page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



## COMPONENT PARTS AND WORK TO BE DONE

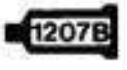
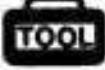
Under the name of each system or unit, is its exploded view. Work instructions and other service information such as the tightening torque, lubricating points and locking agent points, are provided.

Example: Front wheel



## SYMBOL

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

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.		Measure in voltage range.
	Apply oil. Use engine oil unless otherwise specified.		Measure in resistance range.
	Apply SUZUKI SUPER GREASE "A". 99000-25030		Measure in current range.
	Apply SUZUKI MOLY PASTE. 99000-25140		Measure in diode test range.
	Apply SUZUKI BOND "1207B". 99104-31140		Measure in continuity test range.
	Apply THREAD LOCK SUPER "1303". 99000-32030		Use special tool.
	Apply THREAD LOCK "1342". 99000-32050		Use engine coolant.
	Apply THREAD LOCK SUPER "1360". 99000-32130		Use fork oil. 99000-99044-L01
	Apply or use brake fluid.		

## ABBREVIATIONS MAY BE USED IN THIS MANUAL

### A

ACL	: Air Cleaner, Air Cleaner Box
ATDC	: After Top Dead Center
ATM Pressure	: Atmospheric Pressure
	: Atmospheric Pressure Sensor (APS)
API	: American Petroleum Institute
AC	: Alternating Current
ABDC	: After Bottom Dead Center
A/F	: Air Fuel Mixture

### B

B+	: Battery Positive Voltage
BTDC	: Before Top Dead Center
BBDC	: Before Bottom Dead Center

### C

CKT	: Circuit
CKP Sensor	: Crankshaft Position Sensor (CKPS)
CMP Sensor	: Camshaft Position Sensor (CMPS)
CO	: Carbon Monoxide
CLP Switch	: Clutch Lever Position Switch (Clutch Switch)
CPU	: Central Processing Unit

### D

DC	: Direct Current
DMC	: Dealer Mode Coupler
DOHC	: Double Over Head Camshaft
DRL	: Daytime Running Light

### E

ECM	: Engine Control Module
	: Engine Control Unit (ECU)
	: (FI Control Unit)
ECT Sensor	: Engine Coolant Temperature Sensor (ECTS), Water Temp. Sensor (WTS)
EVAP	: Evaporative Emission
EVAP Canister	: Evaporative Emission Canister (Canister)

### F

FI	: Fuel Injection, Fuel Injector
FP	: Fuel Pump
FP Relay	: Fuel Pump Relay
FPR	: Fuel Pressure Regulator

### G

GEN	: Generator
GND	: Ground
GP Switch	: Gear Position Switch

### H

HC	: Hydrocarbons
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### I

IAC Valve Actuator	: Intake Air Control Valve Actuator
IAT Sensor	: Intake Air Temperature Sensor (IATS)
IAP Sensor	: Intake Air Pressure Sensor (IAPS)

### IG

IG	: Ignition
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### L

LCD	: Liquid Crystal Display
LED	: Light Emitting Diode (Malfunction Indicator Lamp)
LH	: Left Hand

### M

MAL-Code	: Malfunction Code (Diagnostic Code)
Max	: Maximum
Min	: Minimum
MIL	: Malfunction Indicator Lamp (LED)

### N

NOx	: Nitrogen Oxides
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### O

OHC	: Over Head Camshaft
OPS	: Oil Pressure Switch

### P

PCV	: Positive Crankcase Ventilation (Crankcase Breather)
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### R

RH	: Right Hand
ROM	: Read Only Memory

### S

SAE	: Society of Automotive Engineers
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### T

TO Sensor	: Tip Over Sensor (TOS)
TP Sensor	: Throttle Position Sensor (TPS)

### V

VCSV	: Vacuum Control Solenoid Valve
VD	: Vacuum Damper
VTV	: Vacuum Transmitting Valve

## SAE-TO-FORMER SUZUKI TERM (ONLY FOR U.S.A.)

This table lists 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.

SAE TERM		FORMER SUZUKI TERM
FULL TERM	ABBREVIATION	
A		
Air Cleaner	ACL	Air Cleaner, Air Cleaner Box
B		
Barometric Pressure	BARO	Barometric Pressure, Atmospheric Pressure
Battery Positive Voltage	B+	Battery Voltage, + B
C		
Camshaft Position Sensor	CMP Sensor	Camshaft Position Sensor (CMPS)
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)
Purge Valve	Purge Valve	Purge Valve (SP Valve)
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)

SAE TERMS		FORMER SUZUKI TERM
FULL TERM	ABBREVIATION	
I		
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, Intake Vacuum
Mass Air Flow	MAF	Air Flow
O		
On-Board Diagnostic	ODB	Self-Diagnosis Function Diagnostic
Open Loop	OL	—
P		
Programmable Read Only Memory	PROM	—
Pulsed Secondary Air Injection	PAIR	Pulse Air Control (PAIR)
R		
Random Access Memory	RAM	—
Read Only Memory	ROM	ROM
S		
Secondary Air Injection	AIR	—
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

# GENERAL INFORMATION

## CONTENTS

<b>WARNING/CAUTION/NOTE .....</b>	<b>1- 1</b>
<b>GENERAL PRECAUTIONS .....</b>	<b>1- 1</b>
<b>SUZUKI TL1000SV ('97-MODEL) .....</b>	<b>1- 3</b>
<b>SERIAL NUMBER LOCATION .....</b>	<b>1- 3</b>
<b>FUEL, OIL AND ENGINE COOLANT RECOMMENDATION .....</b>	<b>1- 3</b>
<b>    FUEL .....</b>	<b>1- 3</b>
<b>    ENGINE OIL .....</b>	<b>1- 4</b>
<b>    BRAKE FLUID .....</b>	<b>1- 4</b>
<b>    FRONT FORK OIL .....</b>	<b>1- 4</b>
<b>    ENGINE COOLANT .....</b>	<b>1- 4</b>
<b>    WATER FOR MIXING .....</b>	<b>1- 4</b>
<b>    ANTI-FREEZE/ENGINE COOLANT .....</b>	<b>1- 4</b>
<b>    LIQUID AMOUNT OF WATER/ENGINE COOLANT .....</b>	<b>1- 4</b>
<b>    BREAK-IN PROCEDURES .....</b>	<b>1- 5</b>
<b>    CYLINDER IDENTIFICATION .....</b>	<b>1- 5</b>
<b>    INFORMATION LABELS .....</b>	<b>1- 6</b>
<b>    SPECIFICATIONS .....</b>	<b>1- 7</b>
<b>    COUNTRY OR AREA .....</b>	<b>1- 9</b>

## WARNING/CAUTION/NOTE

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

### **▲ WARNING**

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

### **▲ CAUTION**

Indicates a potential hazard that could result in motorcycle damage.

### **NOTE:**

*Indicates special information to make maintenance easier or instructions clearer.*

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

## GENERAL PRECAUTIONS

### **▲ WARNING**

- \* Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the motorcycle.
- \* When 2 or more persons work together, pay attention to the safety of each other.
- \* When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoors.
- \* When working with toxic or flammable materials, make sure that the area you work in is well-ventilated and that you follow all of the material manufacturer's instructions.
- \* Never use gasoline as a cleaning solvent.
- \* To avoid getting burned, do not touch the engine, engine oil, radiator and exhaust system until they have cooled.
- \* After servicing the fuel, oil, water, exhaust or brake systems, check all lines and fittings related to the system for leaks.

**▲ CAUTION**

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

- \* To protect the environment, do not unlawfully dispose of used motor oil, engine coolant and other fluids: batteries, and tires.
- \* To protect Earth's natural resources, properly dispose of used motorcycle and parts.

## SUZUKI TL1000SV ('97-MODEL)



RIGHT SIDE

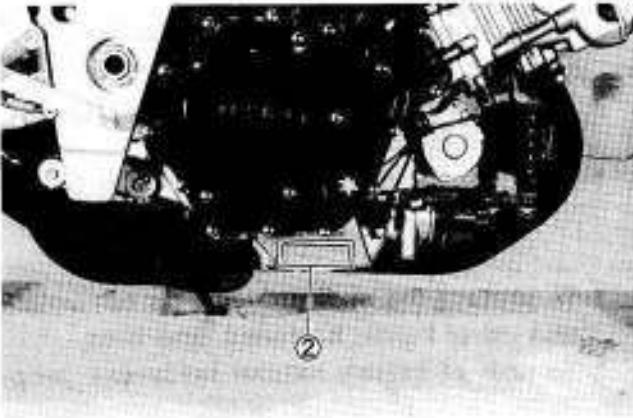
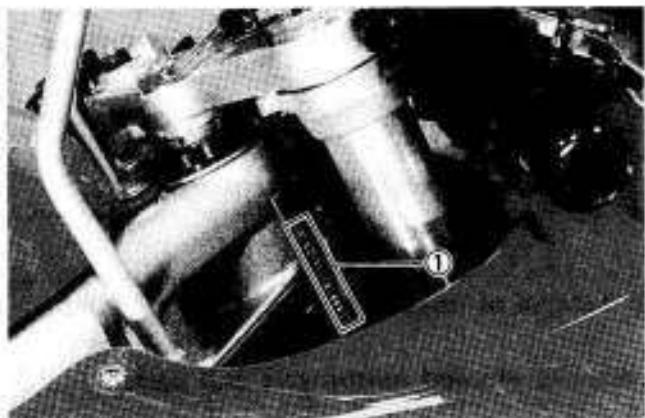


LEFT SIDE

\*Difference between photographs and actual motorcycles depends on the markets.

## SERIAL NUMBER LOCATION

The frame serial number or V.I.N. (Vehicle Identification Number) ① is stamped on the right side of the steering head pipe. The engine serial number ② is located on the right side of the crankcase. These numbers are required especially for registering the machine and ordering spare parts.



## FUEL, OIL AND ENGINE COOLANT RECOMMENDATION

## FUEL

1. Use only unleaded gasoline of at least 87 pump octane ( $\frac{R+M}{2}$ ) method or 91 octane or higher rated by the research method.
2. Suzuki recommends that customers use alcohol free, unleaded gasoline whenever possible.
3. Use of blended gasoline containing MTBE (Methyl Tertiary Butyl Ether) is permitted.
4. Use of blended gasoline/alcohol fuel is permitted, provided that the fuel contains not more than 10% ethanol. Gasoline/alcohol fuel may contain up to 5% methanol if appropriate cosolvents and corrosion inhibitors are present in it.
5. If the performance of the vehicle is unsatisfactory while using blended gasoline/alcohol fuel, you should switch to alcohol-free unleaded gasoline.
6. Failure to follow these guideline could possibly void applicable warranty coverage. Check with your fuel supplier to make sure that the fuel you intend to use meets the requirements listed above.