SUZUKI GSF600

SERVICE MANUAL



FOREWORD

This manual contains an introductory description on SUZUKI GSF600 and procedures for its inspection/service and overhaul of its main components.

Other information considered as generally known is not included.

Read GENERAL INFORMATION section to familiarize yourself with outline of the vehicle and MAINTENANCE and other sections to use as a quide for proper inspection and service.

This manual will help you know the vehicle better so that you can assure your customers of your optimum and quick service.

- * This manual has been prepared on the basis of the latest specification at the time of publication.
 - If modification has been made since then, difference may exist between the content of this manual and the actual vehicle.
- * Illustrations in this manual are used to show the basic principles of operation and work procedures.
 - They may not represent the actual vehicle exactly in detail.
- * This manual is intended for those who have enough knowledge and skills for servicing SUZUKI vehicles. Without such knowledge and skills, you should not attempt servicing by relying on this manual only.

Instead, please contact your nearby authorized SUZUKI motorcycle dealer.

SUZUKI MOTOR CORPORATION

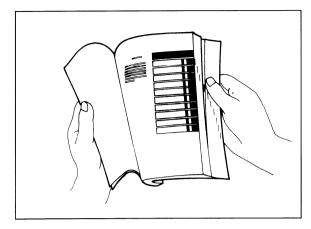
Motorcycle Service Department

GROUP INDEX GENERAL INFORMATION PERIODIC MAINTENANCE **ENGINE** FUEL AND LUBRICATION SYSTEM **CHASSIS ELECTRICAL SYSTEM** SERVICING INFORMATION GSF600T ('96-MODEL) GSF600ST ('96-MODEL) GSF600V/SV ('97-MODEL) GSF600W/SW ('98-MODEL) GSF600X/SX ('99-MODEL)

HOW TO USE THIS MANUAL

TO LOCATE WHAT YOU ARE LOOKING FOR:

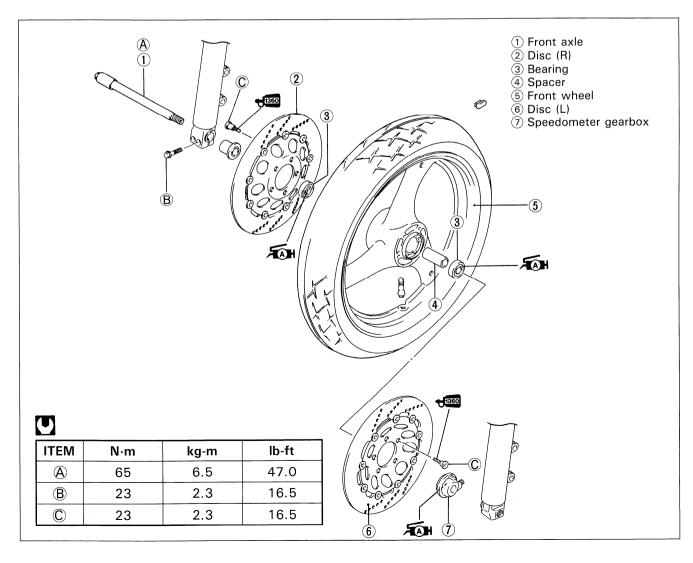
- 1. The text of this manual is divided into sections.
- 2. As the title of these sections are listed on the previous page as GROUP INDEX, select the section where what you are looking for belong.
- 3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
- 4. On the first page of each section, its contents are listed. Find the item and page you need.



COMPONENT PARTS AND WORK TO BE DONE

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

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.	1303	Apply THREAD LOCK SUPER "1303". 99000-32030
OIL	Apply oil. Use engine oil unless otherwise specified.	FORK	Use fork oil. 99000-99044-10G
FAH	Apply SUZUKI SUPER GREASE "A". 99000-25010	BF	Apply or use brake fluid.
FSH	Apply SUZUKI SILICONE GREASE. 99000-25100	Ų V	Measure in voltage range.
₹®H	Apply SUZUKI MOLY PASTE. 99000-25140	₽ Q	Measure in resistance range.
1207B	Apply SUZUKI BOND ''1207B''. 99000-31140	A	Measure in current range.
1342	Apply THREAD LOCK ''1342''. 99000-32050	TOOL	Use special tool.
1360	Apply THREAD LOCK SUPER "1360". 99000-32130		

GENERAL INFORMATION

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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.

A CAUTION

Indicates a potential hazard that could result in vehicle 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

A WARNING

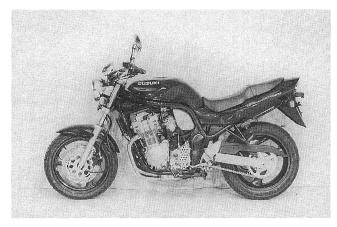
- Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the vehicle.
- When 2 or more persons work together, pay attention to the safety of each other.
- When it is necessary to run the engine indoors, make sure that exhaust gas is 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 or exhaust system during or for a while after engine operation.
- After servicing fuel, oil, exhaust or brake systems, check all lines and fittings related to the system for leaks.

A 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, and also lubricated when specified.
- When use of a certain type of lubricant, bond, or sealant is specified, be sure to use the specified type.
- 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.
- Tighten cylinder head and case bolts and nuts, beginning with larger diameter and ending with smaller diameter, from inside to outside diagonally, to the specified tightening torque.
- Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, 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.
- Do not use self-locking nuts a few times over.
- Use a torque wrench to tighten fastners to the torque values when specified. Wipe off grease or oil if a thread is smeared with them.
- After reassembly, check parts for tightness and operation.
- To protect environment, do not unlawfully dispose of used motor oil and other fluids: batteries, and tires.
- To protect Earth's natural resouces, properly dispose of used vehicles and parts.

SUZUKI GSF600S ('95-MODEL)



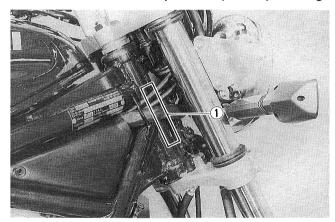


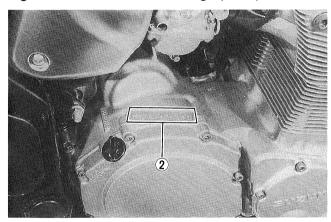
RIGHT SIDE LEFT SIDE

*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 AND OIL RECOMMENDATION

FUEL (For U.S.A. model)

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

FUEL (For Canadian model)

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

FUEL (For the other models)

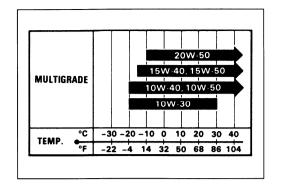
Gasoline used should be graded 85-95 octane (Research Method) or higher. An unleaded gasoline type is recommended.

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

SUZUKI recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or an oil which is rated SE or SF under the API (American Petroleum Institute) classification system. The viscosity rating is SAE 10W/40. If an SAE 10W/40 motor oil is not available, select an alternate according to the right chart.

ENGINE OIL (For the other models)

Make sure that the engine oil you use comes under API classification of SE or SF and that its viscosity rating is SAE 10W/40. If an SAE 10W/40 motor oil is not available, select an alternate according to the right chart.



BRAKE FLUID

Specification and classification: DOT 4

A WARNING

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

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

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

FRONT FORK OIL

Use fork oil # 10

BREAK-IN PROCEDURES

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

Keep to these break-in engine speed limits:

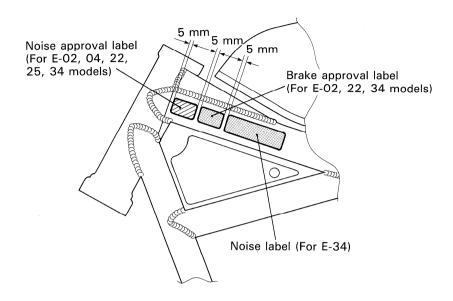
Initial 800 km (500 miles): Below 6 000 r/min Up to 1 600 km (1 000 miles): Below 9 000 r/min Over 1 600 km (1 000 miles): Below 12 000 r/min

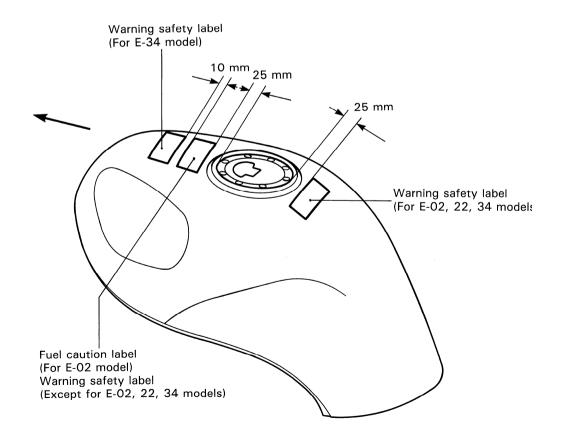
• Upon reaching an odometer reading of 1 600 km (1 000 miles) you can subject the motorcycle to full throttle operation. However, do not exceed 12 000 r/min at any time.

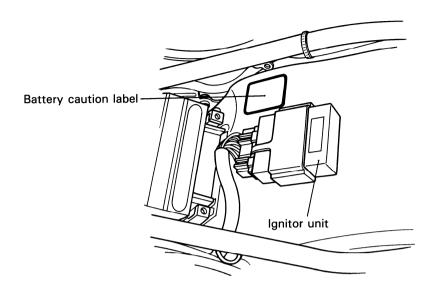
CYLINDER IDENTIFICATION

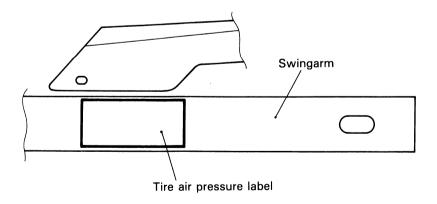
The four cylinders of this engine are identified as No.1, No.2, No.3 and No.4 cylinder, as counted from left to right (as viewed by the rider on the seat).

INFORMATION LABELS









SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 155 mm (84.8 in) For E-15,16,17,22
	2 085 mm (82.0 in) For the others
Overall width	745 mm (29.3 in)
Overall height	1 100 mm (43.3 in)
Wheelbase	1 430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.6 in)
Dry mass	196 kg (432 lbs)

ENGINE

Four-stroke, air-cooled, DOHC
4
62.6 mm (2.464 in)
48.7 mm (1.917 in)
599 cm³ (36.5 cu. in)
KEIHIN CVK32, four
Non-woven fabric element
Electric starter
Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Primary reduction ratio .	1.744 (75/43)
Final reduction ratio	3.133 (47/15)
Gear ratios, Low	3.083 (37/12)
2nd	2.062 (33/16)
3rd	1.647 (28/17)
4th	1.400 (28/20)
5th	1.227 (27/22)
Тор	1.095 (23/21)
· · · · · · · · · · · · · · · · · · ·	RK50MF0Z ₁ , 110 links

CHASSIS

CHA5515	
Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type system, oil damped, coil spring, spring pre-
	load 7-way adjustable
Steering angle	35° (right & left)
Caster	64° 50′
Trail	100 mm (3.9 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	110/70-17 54H
Rear tire size	150/70-17 69H
Front fork stroke	130 mm (5.1 in)
Rear wheel travel	121 mm (4.8 in)
FLECTRICAL	
ELECTRICAL	
Ignition type	Electronic Ignition (Fully Transistorized)
Ignition timing	
	13° B.T.D.C. at 1 500 r/min For the others
Spark plug	
Battery	
Generator	
Main fuse	
Fuse	
Headlight	
Position light	
Turn signal light	12V 21W
Tail/Brake light	12V 5/21W
License plate light	
Speedometer light	12V 1.7W x 2
Tachometer light	12V 1.7W x 2
Neutral indicator light	12V 3W
High beam indicator light	12V 1.7W
Turn signal indicator light	12V 3.4W
Oil pressure indicator light	
0.4.0.4.017150	
CAPACITIES	
Fuel tank, including reserve	
	4.5 L (1.1/0.9 US/Imp gal)
Engine oil, oil change	
with filter change	
overhaul	
	EQ4 1 /47 C/10 Q LIC/lean

These specifications are subject to change without notice.

COUNTRY OR AREA

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

SYMBOL	COUNTRY or AREA	
E-02	England	
E-04	France	
E-15	Finland	
E-16	Norway	
E-17	Sweden	
E-18	Switzerland	
E-21	Belgium	
E-22	Germany	
E-24	Australia	
E-25	Netherlands	
E-28	Canada	
E-34	Italy	
E-39	Austria	
E-53	Spain	

(E-15,16 and 17 countries are included in E-22.) E-21 and 53 countries are included in E-34. E-39 countrie is included in E-18.

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PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE SCHEDULE

The chart below lists the recommended intervals for all the required periodic service work necessary to keep the motorcycle operating at peak performance and economy. Mileages are expressed in terms of kilometer, miles and time for your convenience.

NOTE:

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

PERIODIC MAINTENANCE CHART

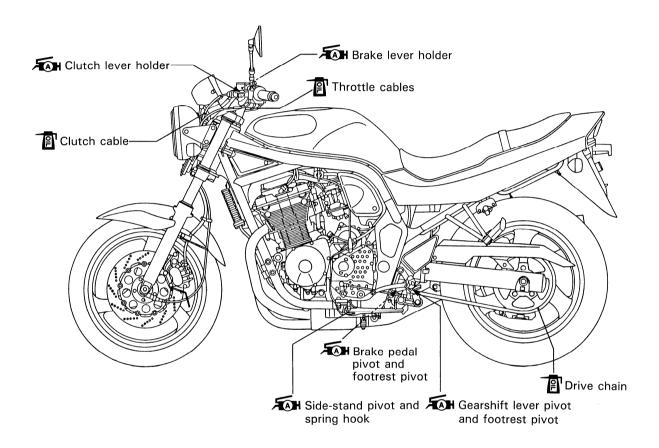
Interval	km	1 000	6 000	12 000	18 000	24 000
	miles	600	4 000	7 500	11 000	15 000
Item	months	2	12	24	36	48
Cylinder head nuts & exhaust pipe bol	ts	Т	Т	Т	Т	Т
Valve clearance		I	I	I	ı	l
Air cleaner		_	I	I	R	I
Spark plug				R	I	R
Engine oil		R	R	R	R	R
Engine oil filter		R		R		R
Fuel line		_	I		ı	I
La contraction de la contracti		Replace every 4 years				
Engine idle rpm (Carburetor)		1	I			I
Throttle cable play (Carburetor)			I	1	l	I
Clutch		_	l	I	I	İ
Drive chain		1 .	1	ı	I	l
Drive chain		Lubricate every 1 000 km (600 miles)				
Brakes		I	l	I	I	1
Brake hose			· I	1	I	I
brake nose		Replace every 4 years				
D. J. W. J.		_	I	I	1	I
Brake fluid		Replace every 2 years				
Tire			1	I	1	1
Steering		l		I	_	I
Front fork		_	_	I		I
Rear suspension				I	_	l
Chassis bolts and nuts		Т	Т	Т	Т	Т

I = Inspection and adjust, clean, lubricate or replace as necessary C = Clean R = Replace T = Tighten

LUBRICATION POINTS

Proper lubrication is important for smooth operation and long life of each working part of the motorcycle.

Major lubrication points are indicated below.



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.

MAINTENANCE AND TUNE-UP PROCEDURES

This section describes the servicing procedures for each item of the Periodic Maintenance requirements.

CYLINDER HEAD NUTS AND EXHAUST PIPE BOLTS

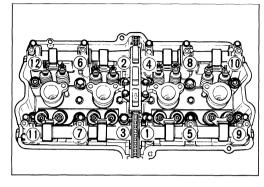
Tighten Initially at 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months).

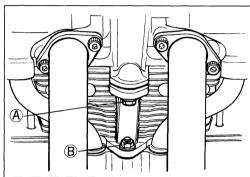
CYLINDER HEAD

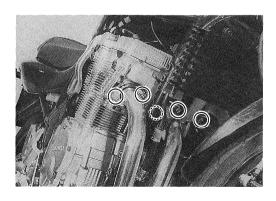
- Remove the seat and fuel tank.
- · Remove the cylinder head cover.
- First loosen and retighten the nuts to the specified torque with a torque wrench sequentially in ascending numerical order with the engine cold.
- Cylinder head nut: 38 N·m (3.8 kg-m, 27.5 lb-ft)
- After firmly tighten the cylinder head nuts, tighten the bolt and nut (A) and B) to the specified torque.
- Cylinder head bolt (A): 10 N·m (1.0 kg-m, 7.0 lb-ft) Cylinder nut (B): 9 N·m (0.9 kg-m, 6.5 lb-ft)
- When installing the cylinder head cover, apply SUZUKI BOND NO. 1207B to the head cover groove and cam end caps. (Refer to page 3-63.)
- ■1207B 99000-31140: SUZUKI BOND NO. 1207B
- Tighten the head cover bolts to the specified torque.
- Cylinder head cover bolt: 14 N·m (1.4 kg-m, 10.0 lb-ft)

EXHAUST PIPE

- Tighten the exhaust pipe clamp bolts to the specified torque.
- Exhaust pipe bolt: 23 N·m (2.3 kg-m, 16.5 lb-ft)







VALVE CLEARANCE

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

- · Remove the seat and fuel tank.
- Remove the all spark plugs.
- Remove the cylinder head cover.

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

Valve clearance adjustment must be checked and adjusted 1) at the time of periodic inspection, 2) when the valve mechanism is serviced, and 3) when the camshafts are disturbed by removing them for servicing.

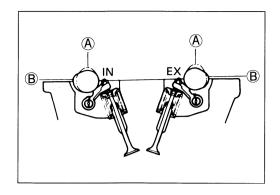
Valve clearance (when cold):

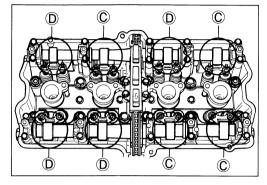
IN.: 0.10-0.15 mm (0.004-0.006 in)EX.: 0.18-0.23 mm (0.007-0.009 in)

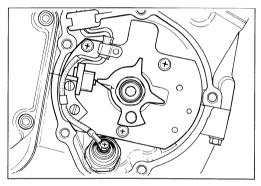
NOTE:

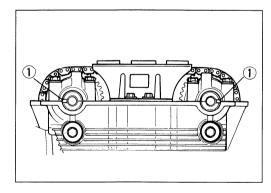
- * The cam must be at positions, (A) or (B), in order to check the valve clearance or to adjust valve clearance. Clearance readings should not be taken with the cam in any other position than these two positions.
- * The clearance specification is for COLD state.
- * To turn the crankshaft for clearance checking, be sure to use a 19-mm wrench and rotate in the normal running direction. All spark plugs should be removed.
- Turn crankshaft to bring the "T" mark on the rotor to the center of pick up coil and also to bring the notches 1 in the right ends of both camshafts (Ex and In) to the positions shown. In this condition, read the valve clearance at the valves © (In and Ex of No.1 cylinder, Ex of No.2 and In of No.3).
- Use thickness gauge between adjusting screw and valve stem end. If clearance is off the specification, bring it into the specified range by using the special tool.

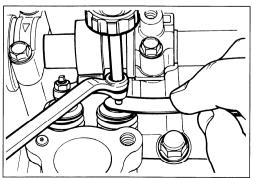
09900-20803: Thickness gauge 09917-14910: Valve adjuster driver





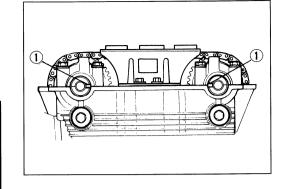






- Turn the crankshaft 360° (one rotation) to bring the "T" mark on the rotor to the center of pick up coil and also to bring the notches ① to the positions shown.

0 0	Notch ① position		
Cam Position	Intake Camshaft	Exhaust Camshaft	
©	€	Θ	
0	•	Ð	



 When installing the cylinder head cover, apply SUZUKI BOND NO.1207B to the head cover groove and cam end caps. (Refer to page 3-63.)

■1207B 99000-31140: SUZUKI BOND NO. 1207B

 Tighten the cylinder head cover bolts to the specified torque.

Cylinder head cover bolt: 14 N·m

(1.4 kg-m, 10.0 lb-ft)

A CAUTION

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

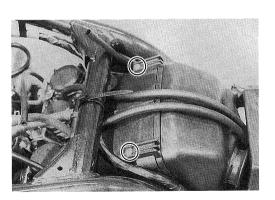
AIR CLEANER

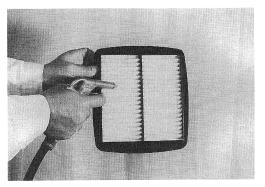
Inspect Every 6 000 km (4 000 miles, 12 months) and Replace Every 18 000 km (11 000 miles, 36 months).

- Remove the seat and fuel tank.
- Remove the air cleaner element by removing the screws.
- Carefully use air hose to blow the dust from the cleaner element.

A CAUTION

Always use air pressure on the inside of the air cleaner element. If air pressure is used on the outside, dirt will be forced into the pores of the air cleaner element thus restricting air flow through the air cleaner element.





- · Reinstall the cleaned or new air cleaner element in the reverse order of removal.
- When installing the air cleaner element in the cleaner case, make sure that the smark (A) comes upward.

A CAUTION

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

NOTE:

When you clean the air cleaner element, drain water from the air cleaner drain hose by removing the drain plug.

SPARK PLUG

Inspect at 6 000 km (4 000 miles, 12 months), 18 000 km (11 000 miles, 36 months) and Replace Every 12 000 km (7 500 miles, 24 months).

- Remove the seat and fuel tank.
- Remove all the spark plugs.

NOTE:

If it is difficult to remove the spark plug cap, pry up it with a screwdriver.

09930-10121: Spark plug socket wrench set

09930-14530: Universal joint

09914-24510: T-handle

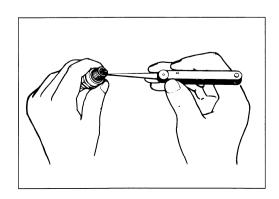
09900-20803: Thickness gauge

	Standard	Cold type	Hot type
NGK	CR9EK	CR10EK	CR8EK
ND	U27ETR	U31ETR	U24ETR

CARBON DEPOSIT

Check to see the carbon deposit on the plug.

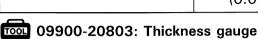
If the carbon is deposited, remove it with a spark plug cleaner machine or carefully using a tool with a pointed end.



SPARK PLUG GAP

Measure the plug gap with a thickness gauge if it is correct. If not, adjust it to the following gap.

Spark plug gap	Standard	
	0.6-0.7 mm	
	(0.024-0.028 in)	



ELECTRODE'S CONDITION

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, damaged thread, etc.

A CAUTION

Confirm the thread size and reach when replacing the plug. If the reach is too short, carbon will be deposited on the screw portion of the plug hole and engine damage may result.

ENGINE OIL AND OIL FILTER

(ENGINE OIL)

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

(OIL FILTER)

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

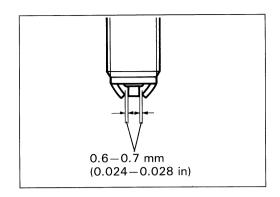
Oil should be changed while the engine is warm. Oil filter replacement at the above intervals, should be done together with the engine oil change.

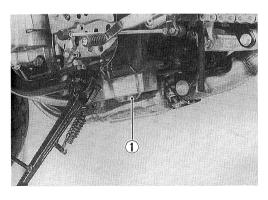
- Keep the motorcycle upright.
- Place an oil pan below the engine, and drain the oil by removing the drain plug (1) and filler cap (2).
- Remove the oil filter (3) by using the special tool.
- Apply engine oil lightly to the gasket of the new filter before installation.
- Install the new filter turning it by hand until you feel that the filter gasket contacts the mounting surface. Then tighten it 2 turns using the special tool.

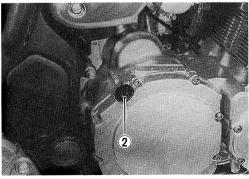


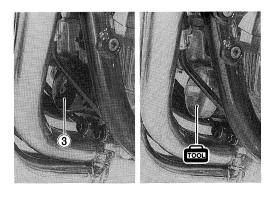
NOTE:

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









- Fit the drain plug ① securely, and pour fresh oil through the oil filler. The engine will hold about 3.3 L of oil. Use an API classification of SE or SF oil with SAE 10W/40 viscosity.
- Start up the engine and allow it to run for several seconds at idling speed.
- Turn off the engine and wait about one minute, then check the oil level through the inspection window ④ . If the level is below mark "F", add oil to that level.

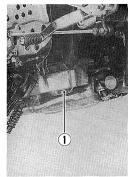
NECESSARY AMOUNT OF ENGINE OIL

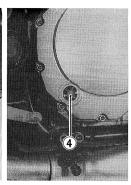
Oil change: 3.3 L (3.4/2.9 US/Imp qt) Filter change: 3.5 L (3.6/3.0 US/Imp qt) Overhaul engine: 4.6 L (4.9/4.0 US/Imp qt)

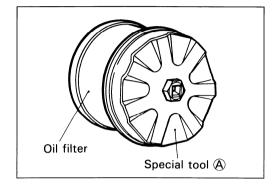
A CAUTION

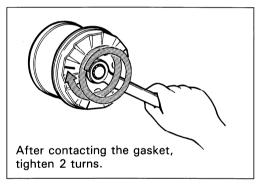
Use SUZUKI MOTORCYCLE GENUINE OIL FILTER only,

since the other make's genuine filters and after-market parts may differ in thread specifications (thread diameter and pitch), filtering performance and durability, which could cause engine damage or oil leaks. Suzuki automobile genuine oil filter is also not usable for the motorcycles.



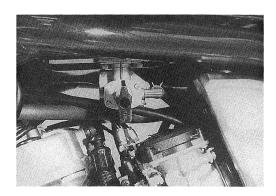






FUEL LINE

Inspect Every 6 000 km (4 000 miles, 12 months). Replace Every 4 years.



CARBURETOR

IDLE RPM (Idling adjustment)

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

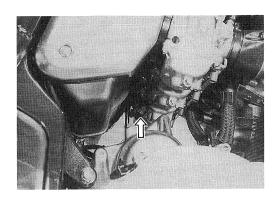
NOTE:

Make this adjustment when the engine is hot.

- Connect a tachometer.
- Start up the engine and set its speed at anywhere between
 1 100 and 1 300 r/min by turning throttle stop screw.

Engine idle speed: 1 200^{+100}_{-50} r/min ... For E-18,39

1 200 \pm 100 r/min ... For the others



THROTTLE CABLE PLAY ADJUSTMENT

To adjust the cable play, adjust the returning cable first and then adjust the pulling cable.

Returning cable play (A)

The returning cable play (A) should be zero. Adjust the throttle cable play with the following procedures.

- Loosen the lock nut ① and turn the adjuster ② in or out until the specified play is obtained.
- Tighten the lock nut 1 while holding the adjuster.

Pulling cable play (B)

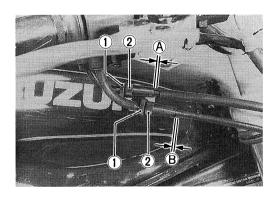
There should be 0.5-1.0 mm (0.02-0.04 in) play B in the throttle cable. Adjust the throttle cable play in the same manner as the returning cable play adjustment.

Throttle cable play (A): Zero mm

(B): 0.5-1.0 mm (0.02-0.04 in)

A 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.

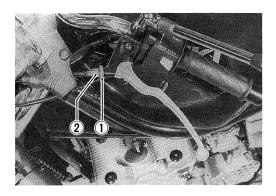


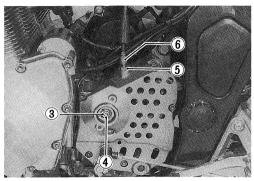
CLUTCH

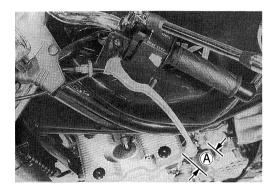
Inspect Initially at 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months).

- Loosen the lock nut 1 and turn in the adjuster 2 all the way into the clutch lever assembly.
- Remove the clutch release cover.
- Loosen the lock nut 3 and turn out the adjusting screw
 4 two or three rotations.
- From that position, slowly turn in the adjusting screw 4 to feel resistance.
- From this position, turn out the adjusting screw 4 ¼ –
 ½ rotation, and tighten the lock nut 3.
- Loosen the lock nut ⑤, and turn the cable adjuster ⑥ to obtain 10-15 mm (0.4-0.6 in) of free play ⑥ at the clutch lever end.
- Tighten the lock nuts (5 and 3).

Clatch lever play \triangle : 10-15 mm (0.4-0.6 in)







DRIVE CHAIN

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

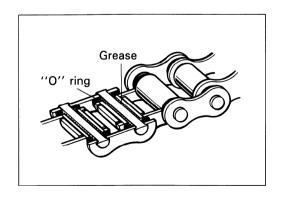
Visually check the drive chain for the possible defects listed below. (Support the motorcycle by a jack and a wooden block, turn the rear wheel slowly by hand with the transmission shifted to Neutral.)

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

If any defects are found, the drive chain must be replaced.

NOTE:

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



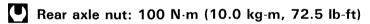
CHECKING

- Loosen the axle nut (1).
- Tense the drive chain fully by turning both chain adjuster bolts ② .
- 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.

	Service Limit	
Drive chain 20-pitch length	319.4 mm (12.6 in)	

ADJUSTING

- Loosen or tighten both chain adjuster bolts ② until the chain has 25-35 mm (1.0-1.4 in) of slack in the middle between engine and rear sprockets. The mark ③ on both chain adjusters must be at the same position on the scale to ensure that the front and rear wheels are correctly aligned.
- Place the motorcycle on its side-stand for accurate adjustment.
- After adjusting the drive chain, tighten the axle nut 1 to the specified torque.
- Tighten both chain adjuster bolts ② securely.



CLEANING AND LUBRICATING

• Wash the chain with kerosene. If the chain tends to rust quickly, the intervals must be shortened.

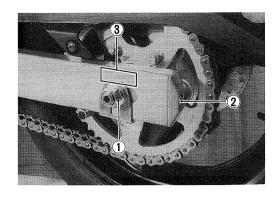
A CAUTION

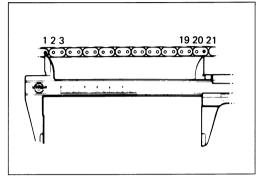
Do not use trichlene, gasoline or any similar fluids: These fluids have too great a dissolving power for this chain and, what is more important, they can damage the "O"-rings (or seals) confining the grease in the bush to pin clearance. Remember, high durability comes from the presence of grease in that clearance.

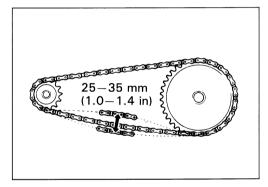
 After washing and drying the chain, oil it with a heavyweight motor oil.

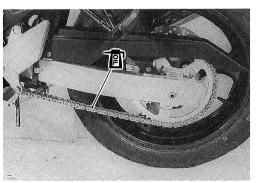
A CAUTION

- * Do not use any oil sold commercially as "drive chain oil". Such oil can damage the "O"-rings (or seals).
- * The standard drive chain is RK50MF0Z₁. SUZUKI recommends that this standard drive chain should be used for the replacement.









BRAKE

(BRAKE)

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

(BRAKE HOSE AND BRAKE FLUID)

Inspect Every 6 000 km (4 000 miles, 12 months). Replace hoses Every 4 years. Replace fluid Every 2 years.

BRAKE FLUID LEVEL

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





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 or petroleum-based. Do not use any brake fluid taken from old, used or unsealed containers. Never re-use brake fluid left over from the last servicing or stored for a long period.

A WARNING

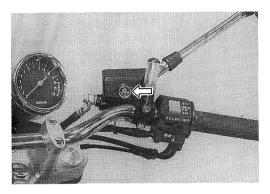
Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and oil leakage before riding.

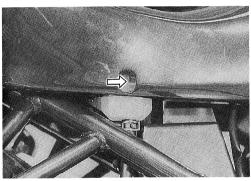
BRAKE PADS

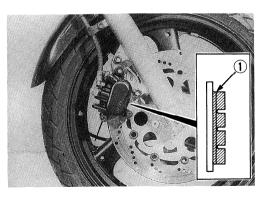
The extent of brake pad wear can be checked by observing the grooved limit line ① on the pad. When the wear exceeds the grooved limit line, replace the pads with new ones. (Refer to pages 5-14 and 5-40.)

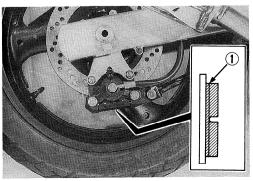
A CAUTION

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









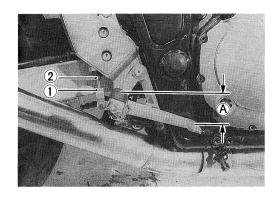
BRAKE PEDAL HEIGHT

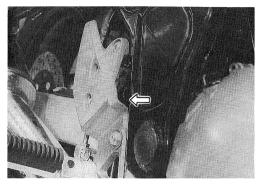
- Loosen the lock nut ① and rotate the push rod ② to locate brake pedal 45 mm (1.8 in) ⓐ below the top face of the footrest.
- Retighten the lock nut 1 to secure the push rod 2 in the proper position.

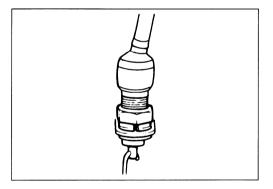
Brake pedal height (A): 45 mm (1.8 in)



Adjust the rear brake light switch so that the brake light will come on just before pressure is felt when the brake pedal is depressed.







AIR BLEEDING THE BRAKE FLUID CIRCUIT

Air trapped in the fluid circuit acts like a cushion to absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the brake caliper. The presence of air is indicated by "sponginess" of the brake lever and also by lack of braking force. Considering the danger to which such trapped air exposes the machine and rider, it is essential that, after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit be purged of air in the following manner:

- Fill up the master cylinder reservoir to the "UPPER" line. Replace the reservoir cap to prevent entry of dirt.
- Attach a pipe to the caliper bleeder valve, and insert the free end of the pipe into a receptacle.

Air bleeder valve: 8 N·m (0.8 kg-m, 6.0 lb-ft)

- Front brake: Bleed the air from the air bleeder valve.
- Squeeze and release the brake lever several times in rapid succession and squeeze the lever fully without releasing it. Loosen the bleeder valve by turning it a quarter of a turn so that the brake fluid runs into the receptacle; this will remove the tension of the brake lever causing it to touch the handlebar grip. Then, close the valve, pump and squeeze the lever, and open the valve. Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.

NOTE:

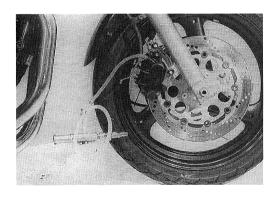
Replenish the brake fluid in the reservoir as necessary while bleeding the brake system. Make sure that there is always some fluid visible in the reservoir.

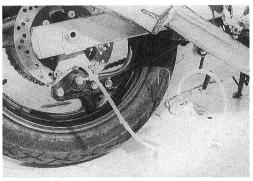
 Close the bleeder valve, and disconnect the pipe. Fill the reservoir with brake fluid to the "UPPER" end of the inspection window.

A CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc.

 The only difference between bleeding the front and rear brakes is that the rear master cylinder is actuated by a pedal.





TIRE

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

TIRE TREAD CONDITION

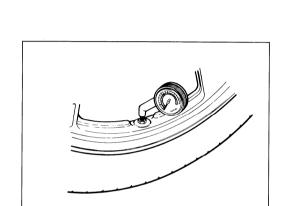
Operating the motorcycle with excessively worn tires will decrease riding stability and consequently invite a dangerous situation. It is highly recommended to replace a tire when the remaining depth of tire tread reaches the following specification.

Tire tread depth limit: FRONT 1.6 mm (0.06 in)
REAR 2.0 mm (0.08 in)

TIRE PRESSURE

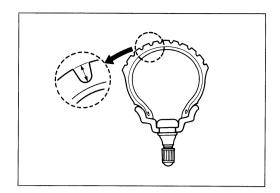
If the tire pressure is too high or too low, steering will be adversely affected and tire wear increased. Therefore, maintain the correct tire pressure for good roadability or shorter tire life will result. Cold inflation tire pressure is as follows.

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36



A CAUTION

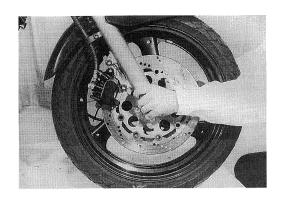
The standard tire fitted on this motorcycle is 110/70-17 for front (BRIDGESTONE G601G) and 150/70-17 for rear (BRIDGESTONE G602). The use of tires other than those specified may cause instability. It is highly recommended to use a SUZUKI Genuine Tire.



STEERING

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

Taper roller type bearings are used on the steering system for better handling. Steering should be adjusted properly for smooth turning of handlebars and safe running. Overtight steering prevents smooth turning of the handlebars and too loose steering will cause poor stability. Check that there is no play in the front fork assembly by supporting the machine so that the front wheel is off the ground, with the wheel straight ahead, grasp the lower fork tubes near the axle and pull forward. If play is found, perform steering bearing adjustment as described in page 5-31 of this manual.



FRONT FORK

Inspect 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 page 5-21.)

REAR SUSPENSION

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

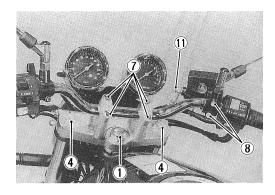
Inspect the rear shock absorber for oil leakage and check that there is no play in the swingarm assembly.

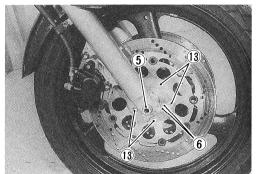
CHASSIS BOLTS AND NUTS

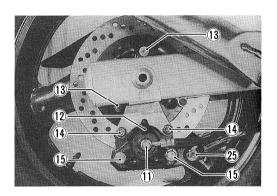
Tighten Initially at 1 000 km (600 miles, 2 months) and Every 6 000 km (4 000 miles, 12 months) thereafter.

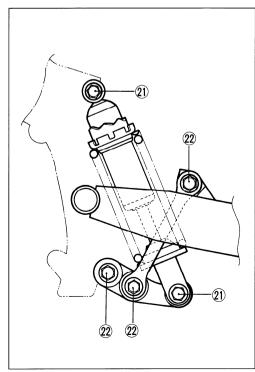
Check that all chassis bolts and nuts are tightened to their specified torque. (Refer to page 2-18 for the locations of the following nuts and bolts on the motorcycle.)

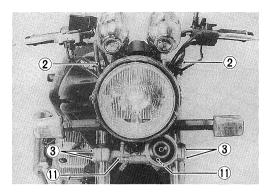
Item	N⋅m	kg-m	lb-ft
① Steering stem head nut	65	6.5	47.0
② Front fork upper clamp bolt	23	2.3	16.5
③ Front fork lower clamp bolt	23	2.3	16.5
④ Front fork cap bolt	23	2.3	16.5
⑤ Front axle	65	6.5	47.0
Front axle pinch bolt	23	2.3	16.5
7 Handlebars clamp bolt	23	2.3	16.5
8 Front brake master cylinder mounting bolt	10	1.0	7.0
Front brake caliper mounting bolt	25	2.5	18.0
10 Front brake caliper pad mounting bolt	18	1.8	13.0
① Brake hose union bolt (Front & Rear)	23	2.3	16.5
① Air bleeder valve (Front & Rear)	8	0.8	6.0
Brake disc bolt (Front & Rear)	23	2.3	16.5
(4) Rear brake caliper mounting bolt	25	2.5	18.0
15 Rear brake caliper housing bolt	33	3.3	24.0
(16) Rear brake master cylinder mounting bolt	23	2.3	16.5
Rear brake master cylinder rod lock nut	18	1.8	13.0
® Front footrest bracket mounting bolt	23	2.3	16.5
19 Front footrest nut	39	3.9	28.0
② Swingarm pivot nut	100	10.0	72.5
② Rear shock absorber mounting nut (Upper & Lower)	50	5.0	36.0
② Rear cushion lever/rod mounting nut	85	8.5	61.5
② Rear axle nut	100	10.0	72.5
② Rear sprocket nut	60	6.0	43.5
② Rear torque link nut	35	3.5	25.5

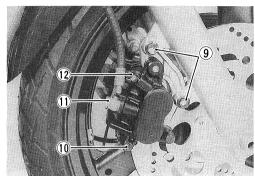


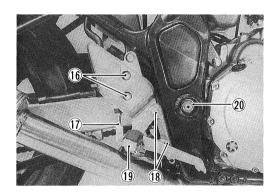


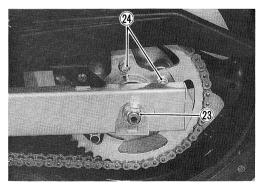












COMPRESSION PRESSURE CHECK

The compression of a cylinder is a good indicator of its internal condition.

The decision to overhaul the cylinder is often based on the results of a compression test. Periodic maintenance records kept at your dealership should include compression readings for each maintenance service.

COMPRESSION PRESSURE SPECIFICATION

Standard	Limit	Difference
1 000-1 500 kPa	800 kPa	200 kPa
(10-15 kg/cm ²)	(8 kg/cm²)	(^{2 kg/cm²})
142-213 psi	114 psi	28 psi

Low compression pressure can indicate any of the following conditions:

- * Excessively worn cylinder wall
- * Worn-down piston or piston rings
- * Piston rings stuck in grooves
- * Poor seating of valves
- * Ruptured or otherwise defective cylinder head gasket

Overhaul the engine in the following cases:

- * Compression pressure in one of the cylinders is less than 800 kPa (8 kg/cm², 114 psi).
- * Difference in compression pressure between any two cylinders is more than 200 kPa (2 kg/cm², 28 psi).
- * All compression pressure are below 1 000 kPa (10 kg/cm², 142 psi) even when they measure more than 800 kPa (8 kg/cm², 114 psi).

COMPRESSION TEST PROCEDURE

NOTE:

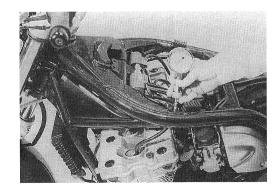
- * Before testing the engine for compression pressure, make sure that the cylinder head bolts are tightened to the specified torque values and valves are properly adjusted.
- * Have the engine warmed up by idling before testing.
- * Be sure that the battery used is in fully-charged condition.

Remove the parts concerned and test the compression pressure in the following manner.

- Remove the seat and fuel tank.
- Remove all the spark plugs.
- Fit the compression gauge in one of the plug holes, while taking care that the connection tight.
- Keep the throttle grip in full-open position.
- While cranking the engine a few seconds with the starter, and record the maximum gauge reading as the compression of that cylinder.
- Repeat this procedure with the other cylinders.

100L 09915-64510: Compression gauge

09915-63310: Adaptor



OIL PRESSURE CHECK

Check periodically the oil pressure in the engine to judge roughly the condition of the moving parts.

OIL PRESSURE SPECIFICATION

Above 300 kPa (3.0 kg/cm², 43 psi) Below 600 kPa (6.0 kg/cm², 85 psi)

at 3 000 r/min., Oil temp, at 60°C (140°F)

If the oil pressure is lower or higher than the specification, the following causes may be considered.

LOW OIL PRESSURE

- * Clogged oil filter
- * Oil leakage from the oil passage way
- * Damaged O-ring
- * Defective oil pump
- * Combination of above items

HIGH OIL PRESSURE

- * Used a engine oil which is too high viscosity
- * Clogged oil passage way
- * Combination of above items

OIL PRESSURE TEST PROCEDURE

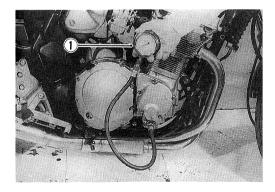
Start the engine and check if the oil pressure indicator light is turned on. If it keeps on lighting, check the oil pressure indicator light circuit. If it is in good condition, check the oil pressure in the following manner.

- Remove the main oil gallery plug.
- Install the oil pressure gauge (1) with adaptor in the position shown in the figure.
- Warm up the engine as follows: Summer 10 min. at 2 000 r/min. Winter 20 min. at 2 000 r/min.
- After warming up, increase the engine speed to 3 000 r/min. (with the engine tachometer), and read the oil pressure gauge.

100L 09915-74510: Oil pressure gauge

09915-74540: Adaptor

09915-77330: Meter (for high pressure)



2

ENGINE

CONTENTS
ENGINE COMPONENTS REMOVABLE WITH ENGINE IN PLACE 3- 1
ENGINE REMOVAL AND REINSTALLATION 3- 2
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ENGINE COMPONENTS REMOVABLE WITH ENGINE IN PLACE

The parts listed below can be removed and reinstalled without removing the engine from the frame. Refer to the page listed in each section for removal and reinstallation instructions.

ENGINE CENTER

	See p	age		
Exhaust pipe/muffler	3	- 4	i	
Oil hose	3	- 9		
Oil filter	3	- 9		
Oil cooler	3	- 5		
Oil pan	3	-19	,	
Engine oil pressure				
regulator	3	-49		
Oil sump filter	3	3-17		
Carburetors	3	3-	1	
Cam chain tensioner	3	- 9	and	62
Cylinder head cover	3	3- 9	and	63
Cylinder head breather				
cover	3	3- 9	ł	
Camshafts	3	3-10	and	58
Cylinder head	3	3-1C	and	58
Cylinder	3	3-11	and	57
Pistons	3	3-11	and	56
Starter motor	3	3-12	and	55
Generator	3	3-12	and	54

ENGINE LEFT SIDE

ENGINE RIGHT SIDE

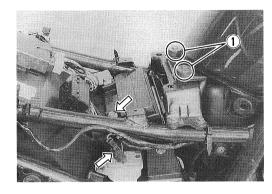
2.10.112 1.1.0111 0.152
See page
Clutch cover 3-12 and 52
Signal generator 3-12 and 53
Oil pressure switch 3-52
Clutch pressure, drive and
driven plates 3-13 and 52
Clutch sleeve hub 3-13 and 51
Oil pump driven gear 3-14 and 51
Generator/oil pump drive
gears 3-14 and 51
Primary driven gear 3-14 and 51
Gearshift shaft 3-14 and 50
Gearshift cam pawl and
cam driven gear 3-14 and 50

ENGINE REMOVAL AND REINSTALLATION

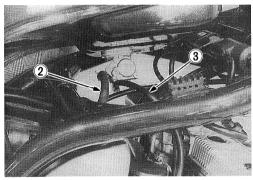
ENGINE REMOVAL

Before taking the engine out of the frame, wash the engine with a steam cleaner. The procedure of engine removal is sequentially explained in the following steps, and engine installation is effected by reversing the removal procedure.

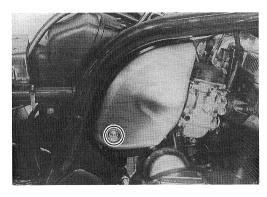
- Remove the seat.
- Remove the frame cover assembly. (See page 5-2.)
- Disconnect the battery
 — lead wire terminal and battery
 — lead wire coupler.
- Remove the fuel tank mounting bolts ①.



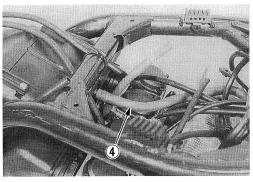
- Turn the fuel tap to "ON" position and disconnect the fuel hose ② and vacuum hose ③ from the fuel tap.
- Remove the fuel tank.



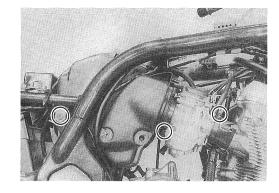
Remove the air cleaner box covers, left and right.



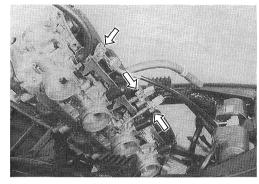
• Remove the breather hose 4.



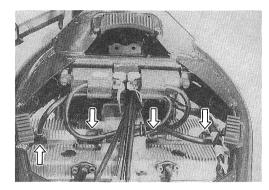
- Remove the air cleaner box mounting screws, left and right.
- Loosen the respective carburetor clamp screws.
- Slightly move the air cleaner box backward.



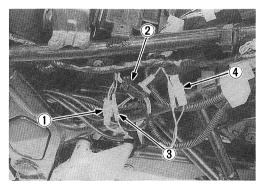
• Remove the carburetor assembly by disconnecting the throttle cables and starter cable.

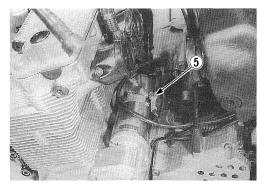


• Disconnect all the spark plug caps.

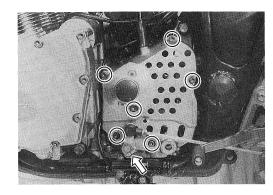


- Disconnect the various lead wires.
 - 1 Signal generator
 - 2 Generator
 - 3 Oil pressure switch
 - 4 Neutral switch
 - **5** Starter motor





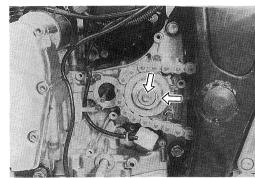
- Remove the gearshift lever by removing its mounting bolt.
- Remove the engine sprocket cover by removing the bolts.



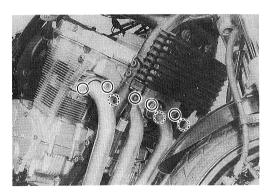
- Remove the engine sprocket bolt and nut while depressing the rear brake pedal.
- Remove the engine sprocket.

NOTE:

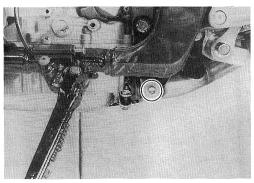
If it is difficult to remove the engine sprocket, loosen the axle nut and chain adjusters to provide additional chain slack.



• Remove the eight exhaust pipe clamp bolts.



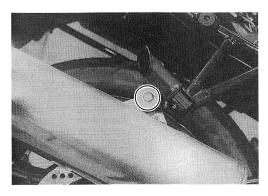
Remove the muffler mounting bolts, then remove the exhaust pipe/muffler assembly.



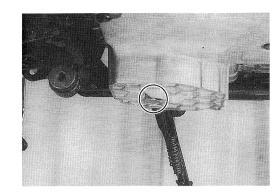
NOTE:

When installing a new exhaust pipe/muffler connector, clean any old dried sealer from the exhaust pipe and from inside the muffler and the exhaust gas sealer should be applied to both the inside and outside of the exhaust pipe/muffler connector.

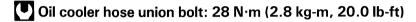
EXHAUST GAS SEALER: PERMATEX 1372

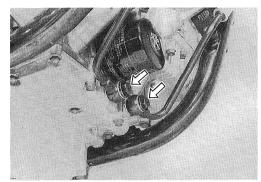


• Remove the oil drain plug to drain out engine oil.

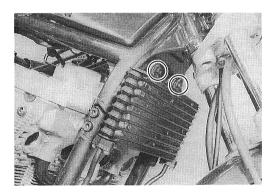


• Remove the oil cooler hose union bolts.





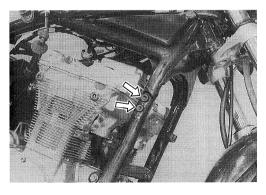
• Remove the oil cooler by removing its mounting bolts.

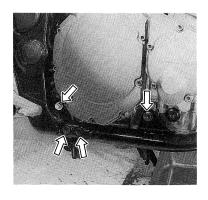


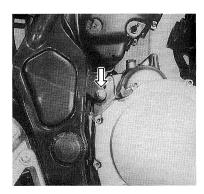
- Support the engine with a proper engine jack.
- Remove the frame down tube mounting bolts and nuts.
- Remove the engine mounting bolts, nuts, spacer and brackets.
- Gradually lower the engine assembly.

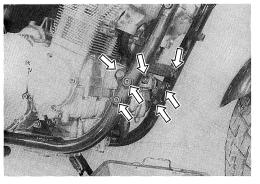
NOTE:

If it is difficult to remove the engine, remove the cylinder head breather cover to provide additional clearance.









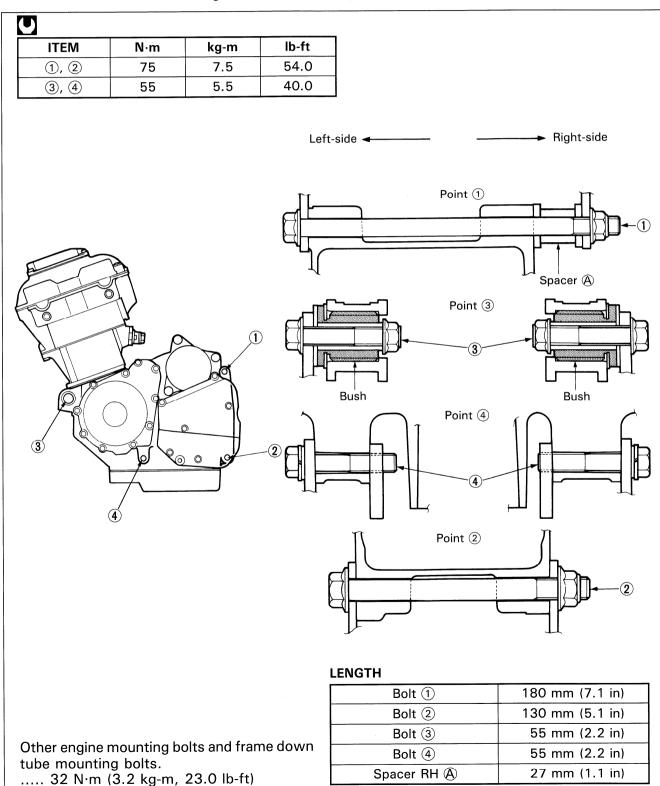
ENGINE REINSTALLATION

Reinstall the engine in the reverse order of engine removal.

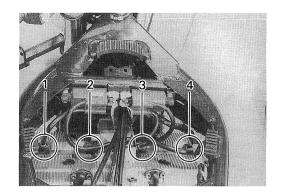
• Insert the two long bolts from left side. Install the brackets, spacer, bolts and nuts properly, as shown in the following illustration.

NOTE:

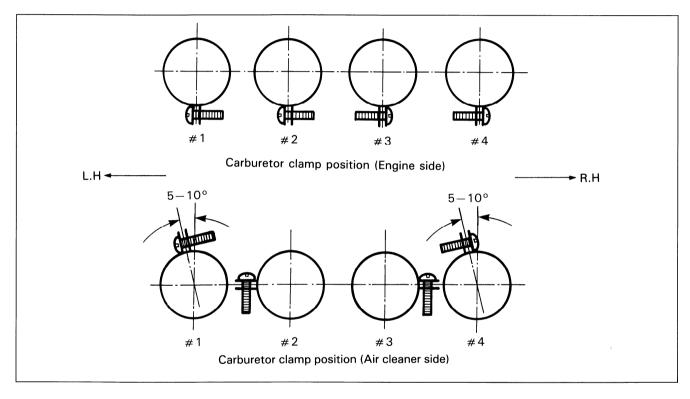
The engine mounting nuts are self-locking. Once the nut has been removed, it is no longer of any use. Be sure to use new nuts and tighten them to the specified torque.



 Replace the plug caps on the spark plugs so that their code markings correspond to the cylinder numbers arranged in the order of 1, 2, 3, and 4 from the left hand.

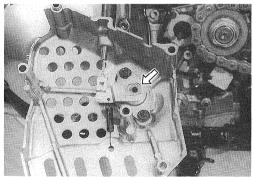


• Locate the carburetor clamps, as shown in the illustration.

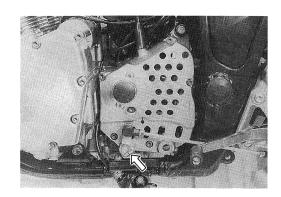


 Before installing the engine sprocket cover, apply a small quantity of SUZUKI SUPER GREASE "A" to the clutch release mechanism.

₩99000-25010: SUZUKI SUPER GREASE "A"



Install the gearshift lever to the gearshift shaft in the correct position.

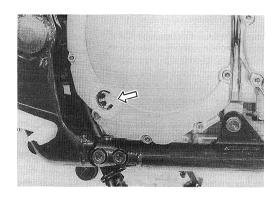


- Tighten the engine sprocket nut, engine sprocket bolt, rear axle nut, exhaust pipe bolts and muffler mounting bolts to the specified torque. (See page 7-22.)
- After remounting the engine, route wiring harnesses, cables and hoses properly by referring to the sections, for wire routing, cable routing and hose routing. (See pages 7-9 through 18.)
- Adjust the following items to the specification.

		гαί	JG.
*	Throttle cable play	2-	9
*	Idling adjustment	4-	9
*	Balancing carburetors	4-1	6
*	Drive chain	2-1	0

- Pour 4.6 L (4.9/4.0 US/Imp qt) of engine oil SAE 10W/40 graded SE or SF into the engine after overhauling engine.
- Start up the engine and allow it run for several minutes at idle speed. About several minutes after stopping engine, check that the oil level remains between the marks of oil level inspection window.

Change	3 300 ml (3.4/2.9 US/Imp qt)
Filter change	3 500 ml (3.6/3.0 US/Imp qt)
Overhaul	4 600 ml (4.9/4.0 US/Imp qt)



ENGINE DISASSEMBLY

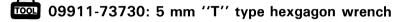
• Remove the oil filter (1) by using the special tool.

09915-40610: Oil filter wrench

NOTE:

Refer to page 2-7 for installation procedures.

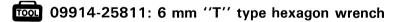
• Remove the left and right oil hoses (2) by removing the bolts.



 After removing the spring holder bolt 3 and spring 4, remove the cam chain tensioner (5) by removing the mounting bolts.

09911-73730: 5 mm "T" type hexagon wrench

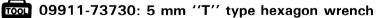
Remove the cylinder head cover by removing the bolts.

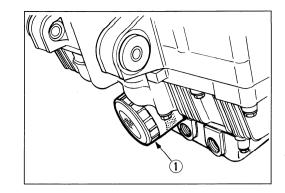


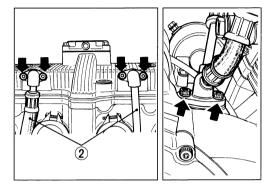
NOTE:

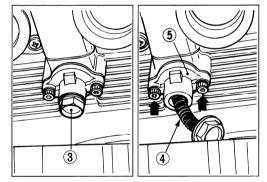
The cylinder head breather cover is to be removed only when replacing it or when removing the engine from the frame.

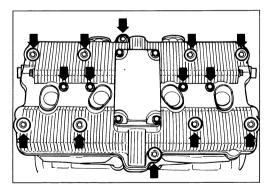
Remove the signal generator cover by removing the bolts.

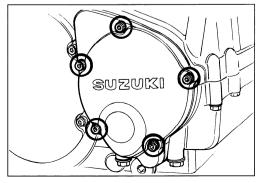




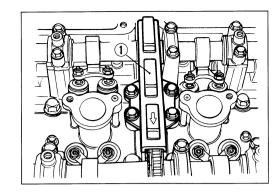








Remove the cam chain guide ①.

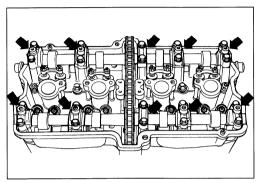


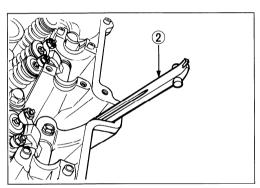
• Remove the ten camshaft journal holders by removing the bolts.

NOTE:

Be sure to loosen camshaft journal holder bolts evenly by shifting the wrench diagonally.

- Remove the two camshafts; intake and exhaust.
- Remove the cam chain guide 2.



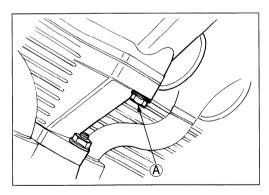


• The cylinder head becomes free for removal when its one 6-mm bolt (A) and twelve 10-mm nuts are removed.



100L 09911-74510: Long socket 14 mm

09914-24510: T-handle



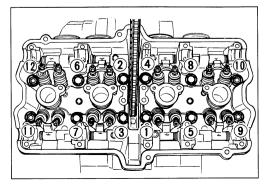
NOTE:

When loosening the cylinder head nuts, loosen each nut little by little, in a descending order, according to the numbers cast on a cylinder head.

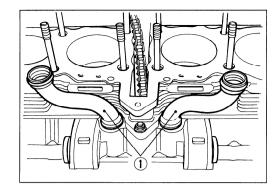
· Lift the cylinder head up to grip its both ends. If it does not come off, lightly tap on the finless portions of it with a plastic mallet.



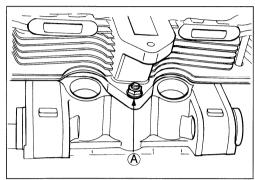
Be careful not to damage the fins when removing or handling the cylinder head.



• Remove the left and right oil pipes (1).



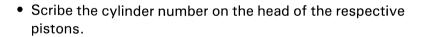
• Remove the cylinder nut (A).

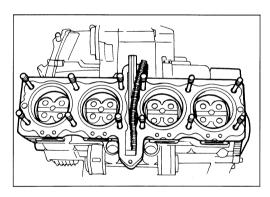


 Firmly grip both ends of the cylinder block and lift it straight up. If the block does not come off, lightly tap on the finless portions of the block with a plastic mallet to make the gasketed joint loose.

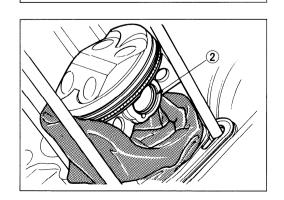
A CAUTION

Be careful not to damage the fins when removing or handling the cylinder block.

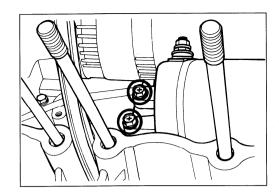




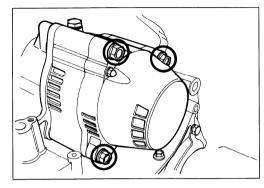
- Place a cloth beneath the piston so as not to drop any parts in the crankcase, and remove the circlip ② with longnose pliers.
- Draw out the piston pin. Place each piston pin in the same piston as that it was removed from.



• Remove the starter motor by removing the bolts.



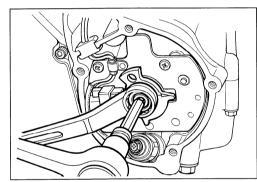
• Remove the generator by removing the bolts.



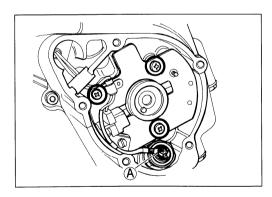
• Remove the signal generator rotor by removing the bolt.



09900-00410: Hexagon wrench set



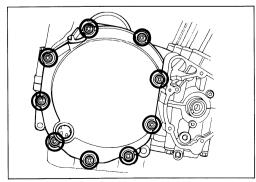
- Disconnect the oil pressure switch lead wire (A).
- Remove the signal generator stator by removing the screws.



• Remove the clutch cover by removing the bolts.

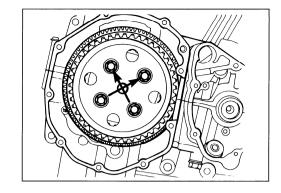


09911-73730: 5 mm "T" type hexagon wrench

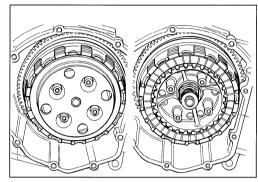


• Holding the conrod with a conrod stopper, remove the clutch spring set bolts in a criss-cross manner.

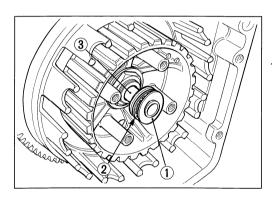


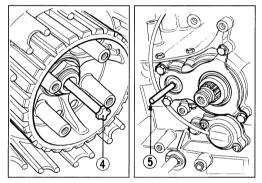


• Remove the clutch pressure plate, clutch drive plates and clutch driven plates.



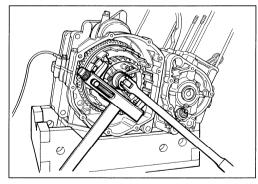
Remove the thrust washer ①, bearing ② and clutch push piece ③, and then draw out the clutch push rods, ④ and ⑤.



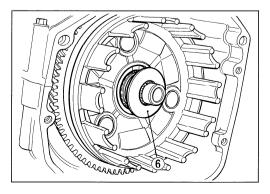


• Firmly secure the clutch sleeve hub to remove mounting nut with a clutch sleeve hub holder, and then remove the clutch sleeve hub.

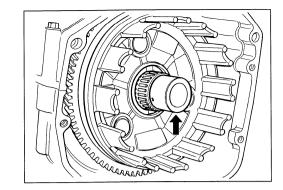




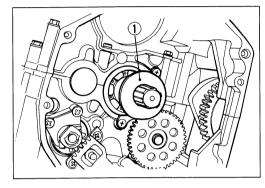
• Remove the thrust washer (6) .



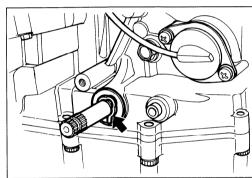
- With the spacer and bearing removed, the primary driven gear (integral with the clutch housing) is free to disengage from the primary drive gear.
- Remove the primary driven gear assembly with the generator/oil pump drive gears.



• Remove the thrust washer 1).



• Remove the clip and washer from the gearshift shaft.



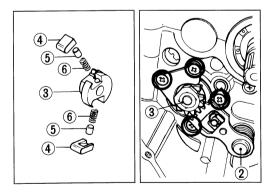
• Draw out the gearshift shaft 2, and then remove the cam driven gear 3.



09900-09003: Impact driver set

NOTE:

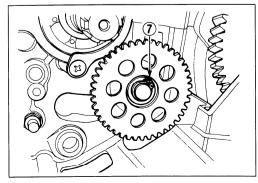
When removing the cam driven gear, do not lose the gearshifting pawl 4, pin 5 and spring 6.



• Remove the oil pump driven gear by removing the circlip (7).

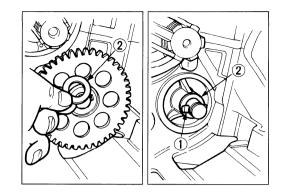


09900-06107: Snap ring pliers



NOTE:

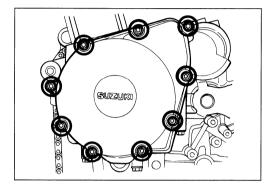
Do not lose the circlip, pin 1 and two washers 2.



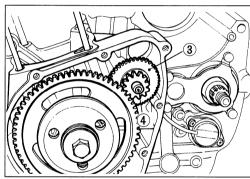
• Remove the starter clutch cover by removing the bolts.



1001 09911-73730: 5 mm "T" type hexagon wrench



• Remove the starter idle gear (3) and its shaft (4).



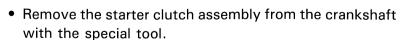
• Loosen the starter clutch mounting bolt with the special tool.



09920-34810: Starter clutch holder

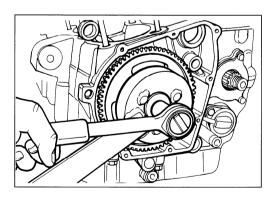
NOTE:

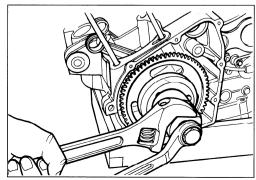
When removing the starter clutch assembly from the crankshaft, do not remove the starter clutch mounting bolt after loosening because it is used in conjuction with the special tool.



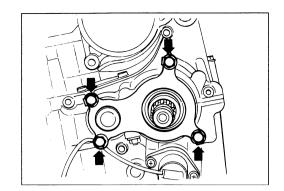


100L 09930-33720: Rotor remover





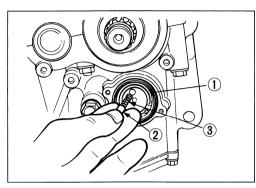
• Flatten the lock portion of the oil seal retainer and remove it by removing the four bolts.



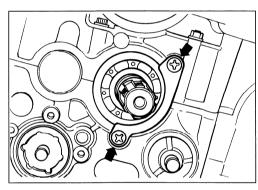
• Remove the neutral position indicator switch by removing the screws.

NOTE:

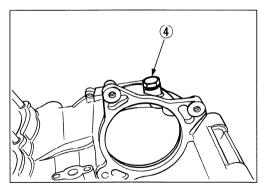
Do not lose the O-ring 1 , switch contact 2 and its spring



• Remove the countershaft bearing retainer by removing the screws.



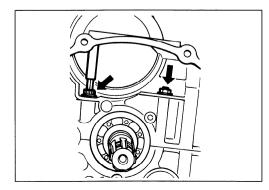
• Remove the plug 4 on the upper crankcase.

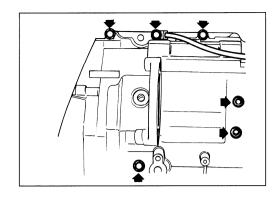


• Remove the upper crankcase tightening bolts and nut.

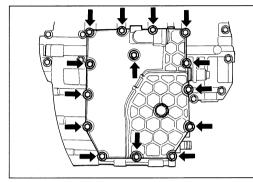


09911-73730: 5 mm "T" type hexagon wrench

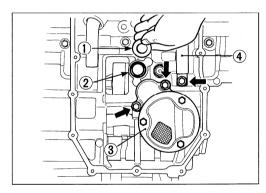




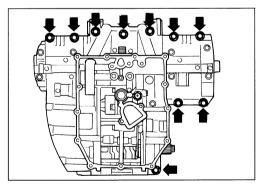
• Remove the oil pan by removing the bolts.

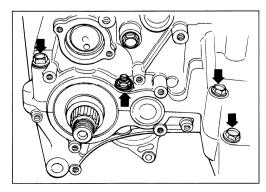


- Remove the shim ① and O-ring ②.
- Remove the oil sump filter 3 by removing the two bolts.
- Remove the oil return pipe 4 by removing the bolt.



• Remove the lower crankcase tightening bolts and nut.





- Remove the main oil gallery plug (A).
- When removing the crankshaft tightening bolts, loosen them in the descending order of numbers assigned to these bolts.

NOTE:

- * Two allen bolts are used for tightening crankshaft at the portion (B).
- * When installing the main oil gallery plug (A), replace the O-ring with new one and tighten it to the specified torque.





Make sure that all bolts are removed without fail. Hammer lightly the lower crankcase side with a plastic hammer to separate the upper and lower crankcase halves and then lift the latter.



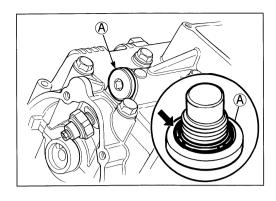
Do not drop the crankshaft journal bearings from the lower crankcase.

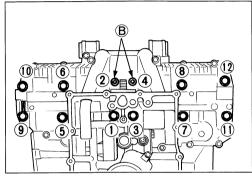
 Remove the crankshaft assembly from the upper crankcase.

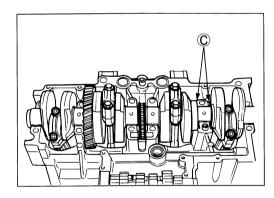
NOTE:

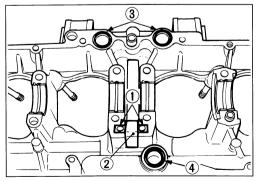
Bear in mind that the crankshaft thrust bearings © are located between shaft and case.

- Remove the two dampers 1 and cam chain guide 2.
- Remove the O-rings, 3 and 4.

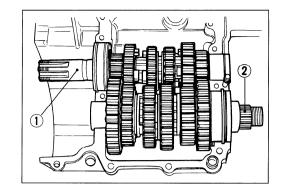






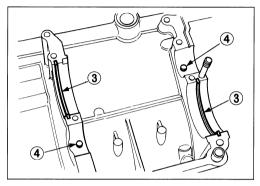


 \bullet Remove the countershaft assembly 1 and driveshaft assembly 2 .

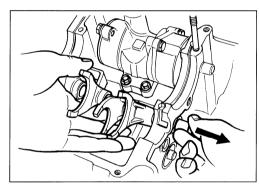


NOTE:

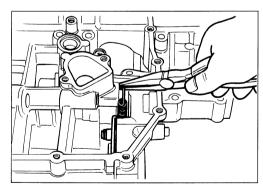
Do not lose the C-rings (3) and bearing pins (4) .



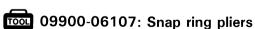
Hold the gearshift forks by hand to draw out the gearshift fork shaft from the lower crankcase.



• Unhook the gearshift cam stopper spring from the lower crankcase.



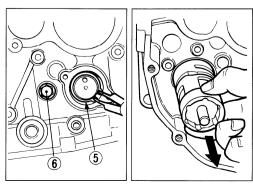
• Remove the circlip (5) from the gearshift cam, then draw out the gearshift cam from the other side.



NOTE:

When replacing the gearshift cam stopper bolt (6), apply a small quantity of THREAD LOCK "1342" to the bolt.





• Remove the gearshift cam stopper ① by removing the circlip ②.

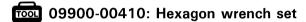
09900-06107: Snap ring pliers

NOTE:

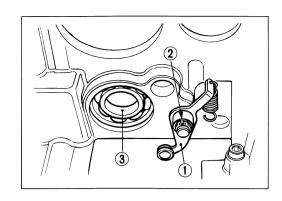
Rotate the bearing $\ \ \,$ in the crankcase by hand to inspect for abnormal noise and smooth rotation.

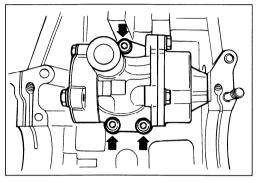
Replace the bearing if there is anything unusual.

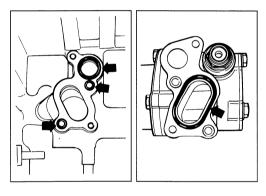
Remove the oil pump assembly by removing the mounting bolts.



• Remove the O-rings and dowel pins.







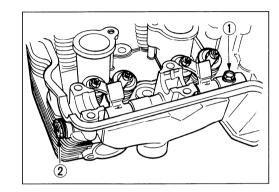
ENGINE COMPONENTS INSPECTION AND SERVICE CYLINDER HEAD SERVICE

A CAUTION

Be sure to identify each removed part as to its location, and lay the parts out in groups designated as "No.1", "No.2", "Exhaust", "Inlet", so that each will be restored to the original location during assembly.

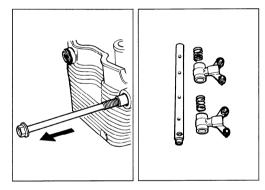
NOTE:

* When removing rocker arm shaft, remove the rocker arm shaft set bolt (1) and plug (2), and then screw 8 mm bolt into the rocker arm shaft end and pull it out. Tighten the set bolt (1) and plug (2) to the specified torque. Removal of valves completes ordinary disassembling work. If valve guides have to be removed for replacement after inspecting related parts, carry out the steps shown in valve guide servicing.



100L 09900-00410: Hexagon wrench set

Rocker arm shaft set bolt (1): 9 N·m (0.9 kg-m, 6.5 lb-ft) Cylinder head plug 2: 28 N·m (2.8 kg-m, 20.0 lb-ft)



• Using special tools, compress the valve spring and remove the two cotter halves (3) from valve stem.

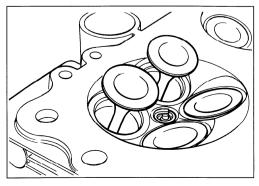
100L 09916-14510: Valve lifter

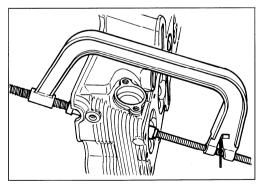
09910-14910: Valve lifter attachment

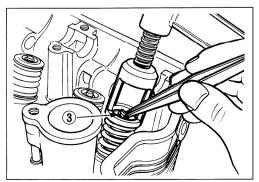
09916-84511: Tweezers

 Remove the valve spring retainer, inner and outer valve springs.

- Remove the valve spring seat.
- Remove the valve from the other side.







CYLINDER HEAD DISTORTION

Decarbonize the combustion chambers.

Check the gasketed surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places indicated. If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder head.

1001 09900-20803: Thickness gauge

Service Limit: 0.2 mm (0.008 in.)



Support the valve with "V" blocks, as shown, and check its runout with a dial gauge.

The valve must be replaced if the runout exceeds the limit.

09900-20606: Dial gauge (1/100 mm)

09900-20701: Magnetic stand 09900-21304: V-block (100 mm)

Service Limit: 0.05 mm (0.002 in)



Place the dial gauge at right angles to the valve head face, and measure the valve head radial runout.

If it measures more than the limit, replace the valve.



09900-20606: Dial gauge (1/100 mm)

09900-20701: Magnetic stand 09900-21304: V-block (100 mm)

Service Limit: 0.03 mm (0.001 in.)

VALVE FACE WEAR

Visually inspect each valve for wear of its seating face. Replace any valve with an abnormally worn face. The thickness $\widehat{\mathsf{T}}$ decreases as the wear of the face advances. Measure the thickness and, if the thickness is found to have been reduced to the limit, replace it.



TOOL 09900-20102: Vernier calipers

Service Limit \widehat{T} : 0.5 mm (0.02 in)

VALVE STEM DEFLECTION

Lift the valve about 10 mm (0.39 in) from the valve seat. Measure the valve stem deflection in two directions, "X" and "Y", perpendicular to each other, by positioning the dial gauge as shown. If the deflection measured exceeds the limit, (see below) then determine whether the valve or the guide should be replaced with a new one.

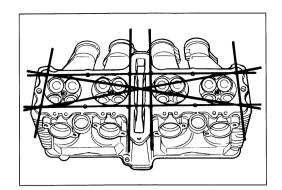


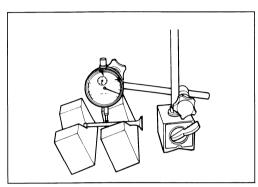
09900-20606: Dial gauge (1/100 mm)

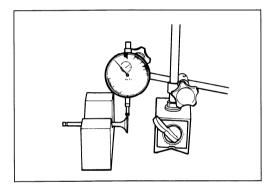
09900-20701: Magnetic stand

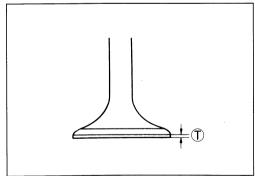
Service Limit

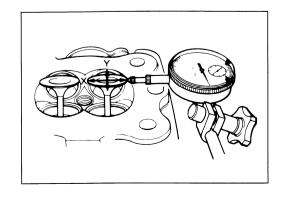
Intake and exhaust valves: 0.35 mm (0.014 in)











VALVE STEM WEAR

If the valve stem is worn down to the limit, as measured with a micrometer, where the clearance is found to be in excess of the limit indicated, replace the valve; if the stem is within the limit, then replace the guide. After replacing valve or guide, be sure to recheck the clearance.

09900-20205: Micrometer (0-25 mm)

Standard

Intake valves : 4.965-4.980 mm (0.1955-0.1961 in) Exhaust valves: 4.955-4.960 mm (0.1947-0.1953 in)

VALVE GUIDE SERVICING

• Using the valve guide remover ①, drive the valve guide out toward the intake or exhaust camshaft side.

09916-44310: Valve guide remover/installer

NOTE:

- * Discard the removed valve guide subassemblies.
- * Only oversized valve guides are available as replacement parts. (Part No. 11116-06B70)
- Re-finish the valve guide holes in cylinder head with the reamer and handle.

09916-34580: Valve guide reamer 09916-34542: Reamer handle

- Fit a ring to each valve guide. Be sure to use new rings.
- Oil the stem hole, too, of each valve guide and drive the guide into the guide hole with the valve guide installer.

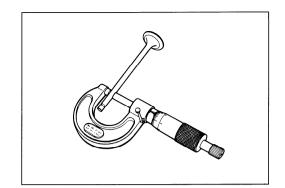
09916-44310: Valve guide remover/installer

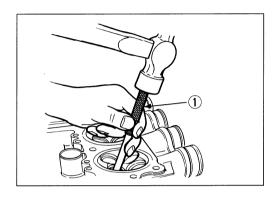
A CAUTION

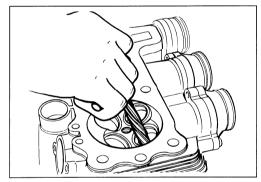
Failure to oil the valve guide hole before driving the new guide into place may result in a damaged guide or head.

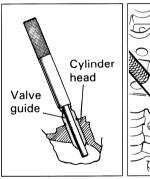
 After fitting the valve guides, re-finish their guiding bores with the reamer. Be sure to clean and oil the guides after reaming.

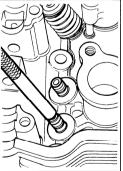
09916-34570: Valve guide reamer 09916-34542: Reamer handle

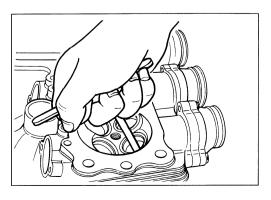












VALVE SEAT WIDTH

- Coat the valve seat uniformly with Prussian blue. Fit the valve and tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating contact. In this operation, use the valve lapper to hold the valve head.
- The ring-like dye impression left on the valve face must be continuous-without any break. In addition, the width of the dye ring, which is the visualized seat "width", must be within the following specification:



Valve seat width : 0.9-1.1 mm (0.035-0.043 in)

If either requirement is not met, correct the seat by servicing is as follows:



The valve seats for both intake and exhaust valves are machined to two different angles. (The seat contact surface is cut 45°.)

	INTAKE		EXHAUST
45°	N-122	45°	N-122
15°	N-121	15°	N-121



TOOL Valve seat cutter: (N-121) and (N-122)

Solid pilot: (N-100-5.0)



The valve seat contact area must be inspected after each cut.



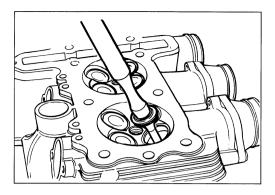
09916-20610: Valve seat cutter (N-121) 09916-20620: Valve seat cutter (N-122) 09916-24311: Solid pilot (N-100-5.0)

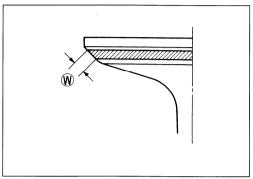
09916-21110: Valve seat cutter set

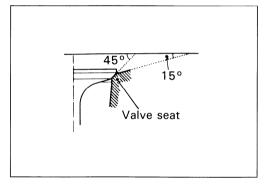
- Insert the solid pilot (1) with a slight rotation. Seat the pilot snugly. Install the 45° cutter, attachment and T-handle.
- Using the 45° cutter, descale and clean up the seat with one or two turns.
- Inspect the seat by the previously described seat width measurement procedure. If the seat is pitted or burned, additional seat conditioning with the 45° cutter is required.

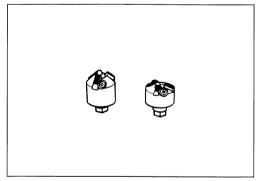
NOTE:

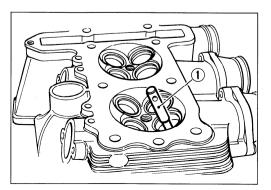
Cut only the minimum amount necessary from the seat to prevent the possibility of the valve stem becoming too close to the rocker arm for correct valve contact angle.



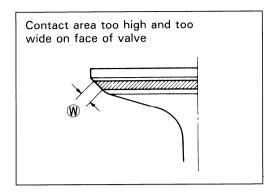




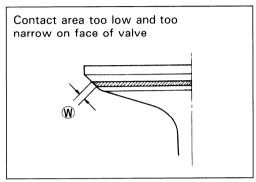




If the contact area is too high on the valve, or if it is too wide, use the 15° cutter to lower and narrow the contact area.



If the contact area is too low or too narrow, use the 45° cutter to raise and widen the contact area.

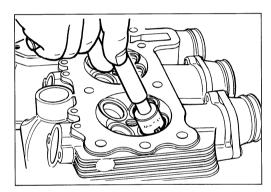


 After the desired seat position and width is achieved, use the 45° cutter very lightly to clean up any burrs caused by the previous cutting operations.

▲ CAUTION

DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.

Clean and assemble the head and valve components. Fill
the intake and exhaust ports with gasoline to check for
leaks. If any leaks occur, inspect the valve seat and face
for burrs or other things that could prevent the valve from
sealing.

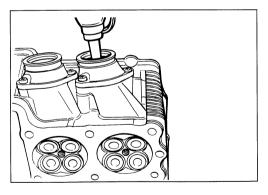


AWARNING

Always use extreme caution when handling gasoline.

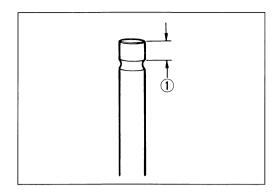


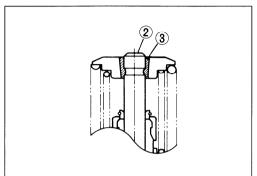
After servicing the valve seats, be sure to check the valve clearance after the cylinder head has been reinstalled. (see page 2-4.)



VALVE STEM END CONDITION

Inspect the valve stem end face for pitting and wear. If pitting or wear or the stem end face are present, the valve stem end should be resurfaced, providing that the length ① will not be reduced to less than 2.5 mm. If this length becomes less than 2.5 mm the valve should be replaced. After installing a valve whose stem end has been ground off as above, check to ensure that the face ② of the valve stem end is above the cotters ③.





VALVE SPRING

The force of the coil spring keeps the valve seat tight. Weakened spring result in reduced engine power output, and often account for the chattering noise coming from the valve mechanism.

Check the valve springs for proper strength by measuring their free length and also by the force required to compress them. If the spring length is less than the service limit, or if the force required to compress the spring does not fall within the range specified, replace both the inner and outer springs as a set.

09900-20102: Vernier calipers

Valve spring free length (IN & EX)

Service limit INNER: 35.0 mm (1.38 in) OUTER: 38.4 mm (1.51 in)

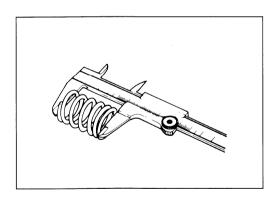
Valve spring tension (IN & EX)

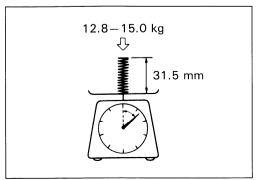
INNER: 5.6-6.6 kg/28 mm

(12.3-14.6 lbs/1.10 in)

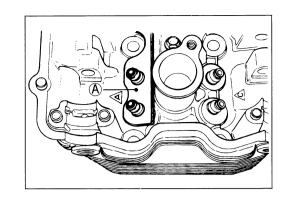
Standard OUTER: 12.8—15.0 kg/31.5 mm

(28.2-33.1 lbs/1.24 in)





• Locate the plate (A) on the cylinder head of exhaust side.



REASSEMBLY

• Oil each oil seal, and press-fit them into position with the valve guide installer.

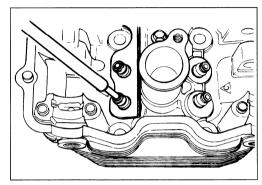


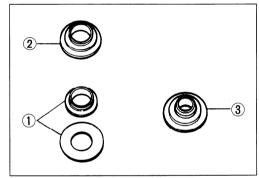
09916-44310: Valve guide remover/installer

A CAUTION

Do not reuse the oil seals.

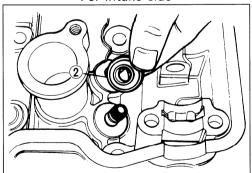
• Install the valve spring lower seats, ① (for exhaust) and (2) (for intake). Be careful not to confuse the lower seat with the spring retainer 3.





For Exhaust side

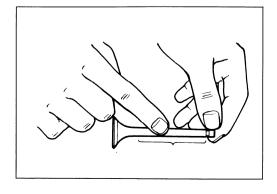
For Intake side



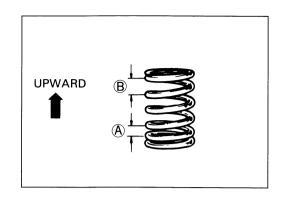
· Insert the valves, with their stems coated with high quality molybdenum disulfide lubricant (SUZUKI MOLY PASTE) all around and along the full stem length without any break.



When inserting each valve, take care not to damage the lip of the oil seal.



 Install the valve springs with the small-pitch portion A facing cylinder head. B Large-pitch portion.



• Put on the valve spring retainer, and using the valve lifter, press down the springs, fit the cotter halves to the stem end, and release the lifter to allow the cotter (1) to wedge in between retainer and stem. Be sure that the rounded lip 2 of the cotter fits snugly into the groove 3 in the stem end.



09916-14510: Valve lifter

09916-14521: Valve lifter attachment

09916-84511: Tweezers



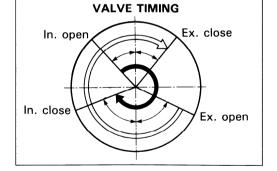
Be sure to locate each spring and valve to their original positions.



CAMSHAFT

Both camshafts should be checked for runout and also for wear of cams and journals if the engine has been noted as giving abnormal noise or vibration or lack power output. Any of these conditions may be caused by camshafts worn down or distorted to the service limit.

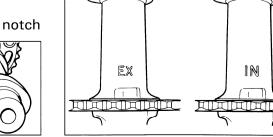
Country	In. open	In. close	Ex. open	Ex. close
E-18	15°	65°	64°	20°
E-02 and others	36°	54°	59°	21°



The exhaust camshaft can be distinguished from that of the intake by the embossed letters "EX" (for exhaust) as against letters "IN" (for intake).

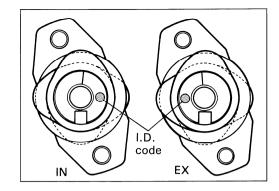
Similarly, the right end can be distinguished by the notch

from the left end.



The following each I.D. code on the camshaft is identified by the stamped marks for the respective countries.

Country	Intake cams	Exhaust cams
E18	Р	Р
E-02 and others	0	0



CAM WEAR

Worn-down cams are often the cause of mistimed valve operation resulting in reduced power output.

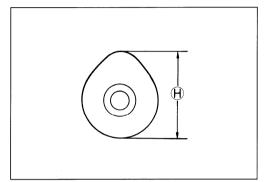
The limit of cam wear is specified for both intake and exhaust cams in terms of cam height \bigoplus , which is to be measured with a micrometer. Replace camshafts if found worn down to the limit.



09900-20202: Micrometer (25-50 mm)

Cam height (H) Service Limit

Country	Intake cams	Exhaust cams
E-18	32.08 mm (1.2630 in)	31.80 mm (1.2520 in)
E-02 and others	32.83 mm (1.2925 in)	32.55 mm (1.2815 in)



CAMSHAFT JOURNAL WEAR

Determine whether or not each journal is worn down to the limit by measuring the oil clearance with the camshaft installed in place. Use the plastigauge (1) to read the clearance at the widest portion, which is specified as follows:

Camshaft-Journal oil clearance (IN & EX) Service Limit: 0.150 mm (0.0059 in)



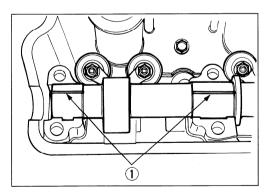
TOOL 09900-22301: Plastigauge

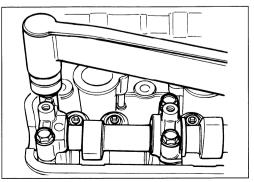
NOTE:

Install each holder to their original positions. (page 3-64.)

Tighten the camshaft holder bolts evenly and diagonally to the specified torque.

Camshaft holder bolt: 10 N·m (1.0 kg-m, 7.0 lb-ft)

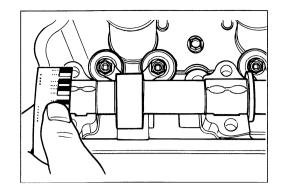




NOTE:

Do not rotate the camshafts with the plastigauge in place.

Remove the camshaft holders, and read the width of the compressed plastigauge with envelope scale. This measurement should be taken at the widest part.



If the camshaft journal oil clearance measured exceeds the limit, measure the inside diameter of the camshaft journal holder and outside diameter of the camshaft journal. Replace the camshaft or the cylinder head depending upon which one exceeds the specification.



09900-20602: Dial gauge (1/1000 mm, 1 mm) 09900-22403: Small bore gauge (18-35 mm)

Standard

Journal holder I.D. (IN & EX): 22.012-22.025 mm (0.8666 - 0.8671 in)

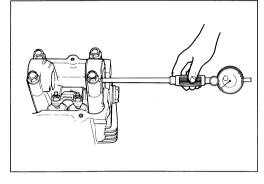


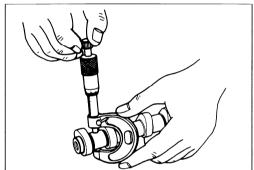
09900-20205: Micrometer (0-25 mm)

Standard

Camshaft journal O.D. (IN & EX): 21.959-21.980 mm

(0.8645 - 0.8654 in)





CAMSHAFT RUNOUT

Measure the runout with a dial gauge. Replace the camshaft if the runout exceeds the limit.

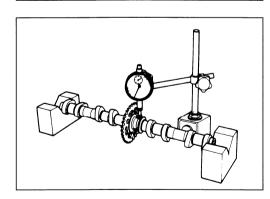
Camshaft runout (IN & EX)

Service Limit: 0.1 mm (0.004 in)



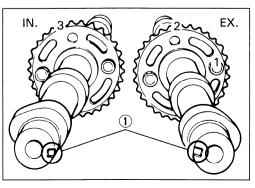
1001 09900-20606: Dial gauge (1/100 mm, 10 mm)

09900-20701: Magnetic stand 09900-21304: V-block (100 mm)



CAM SPROCKET

The fixed position of each cam sprocket on each camshaft is determined by arrow mark "3" (on INTAKE sprocket) or arrow marks "1" and "2" (on EXHAUST sprocket) located (as shown) in reference to the notch (1) in the right end of each camshaft.

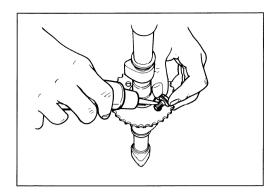


REASSEMBLY

 Apply THREAD LOCK SUPER "1303" to the threads of cam sprocket bolts, and tighten them to the following torque value:

99000-32030: THREAD LOCK SUPER "1303"

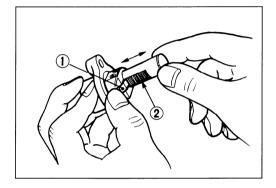
Cam sprocket bolt: 25 N·m (2.5 kg-m, 18.0 lb-ft)



CAM CHAIN TENSIONER

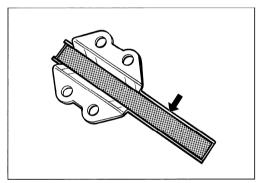
The cam chain tensioner is maintained at the proper tension by an automatically adjusted tensioner.

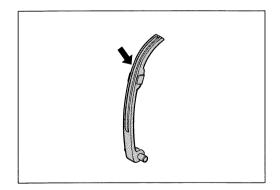
Unlock the ratchet mechanism 1, and move the push rod 2 in place to see if it slides smoothly. If any stickiness is noted or ratchet mechanism is faulty, replace the cam chain tensioner assembly with a new one.

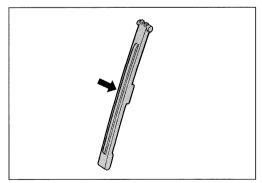


CAM CHAIN GUIDE

Check the contacting surface of the cam chain guide for wear and damage. If it is found to be damaged, replace it with new one.







CYLINDER BLOCK DISTORTION

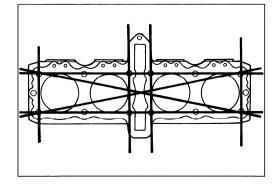
Check the gasketed surface of the cylinder block for distortion with a straightedge and thickness gauge, taking a clearance reading at several places as indicated. If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder block.

TOOL

09900-20803: Thickness gauge

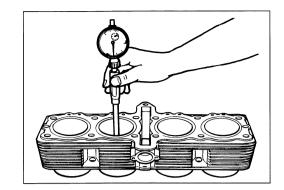
Cylinder distortion

Service Limit: 0.2 mm (0.008 in)



CYLINDER BORE

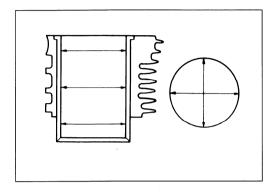
Measure the cylinder bore diameter at six places. If any one of the measurements exceeds the limit, overhaul the cylinder and replace the piston with an oversize piston. The remaining cylinders must be also rebored accordingly. Otherwise, the imbalance might cause excess vibration.



Cylinder bore

Service Limit: 62.690 mm (2.4681 in)

100L 09900-20508: Cylinder gauge set

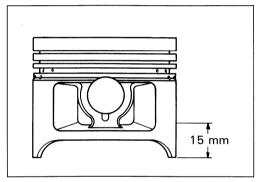


PISTON DIAMETER

Using a micrometer, measure the piston's outside diameter at the place shown in Fig. If the measurement is less than the limit, replace the piston.

Service Limit: 62.480 mm (2.4598 in)

09900-20203: Micrometer (50-75 mm)

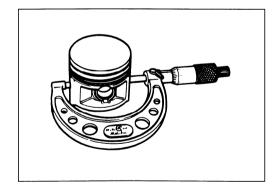


PISTON-CYLINDER CLEARANCE

As a result of the above measurement, if the piston clearance exceeds the following limit, overhaul the cylinder and use an oversize piston, or replace both cylinder and piston.

Service Limit: 0.12 mm (0.0047 in)

Piston oversize: 0.5, 1.0 mm



PISTON RING-GROOVE CLEARANCE

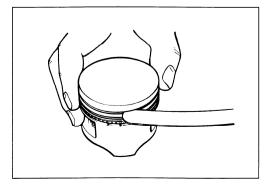
Using a thickness gauge, measure the side clearances of the 1st and 2nd rings. If any of the clearances exceeds the limit, replace both piston and piston rings.

09900-20803: Thickness gauge

Piston ring-groove clearance

Service Limit

1st & 2nd: 0.18 mm (0.007 in)



Piston ring groove width

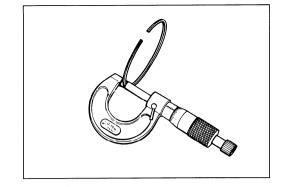
1st: 0.81 - 0.83 mm (0.032 - 0.033 in)Standard 2nd: 1.01-1.03 mm (0.040-0.041 in)

Oil: 2.01-2.03 mm (0.079-0.080 in)

Piston ring thickness

Standard 1st: 0.77-0.79 mm (0.030-0.031 in)

2nd: 0.97-0.99 mm (0.038-0.039 in)



PISTON RING FREE END GAP AND PISTON RING END GAP

Before installing piston rings, measure the free end gap of each ring using vernier calipers. Next, fit the ring in the cylinder, and measure each ring end gap using a thickness

If any ring has an excess end gap, replace the ring.

Piston ring free end gap

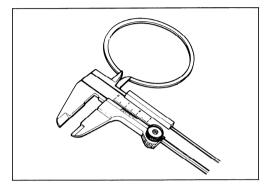
Service Limit $\frac{1st : 6.9 \text{ mm } (0.27 \text{ in})}{2nd: 5.4 \text{ mm } (0.21 \text{ in})}$

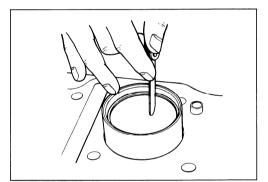
100L 09900-20102: Vernier calipers

Piston ring end gap Service Limit

1st & 2nd: 0.7 mm (0.03 in)

TOOL 09900-20803: Thickness gauge





Oversize piston ring

The following two types of oversize piston ring are used. They bear the following identification numbers.

	1st	2nd
0.5 mm	50	50
1.0 mm	100	100

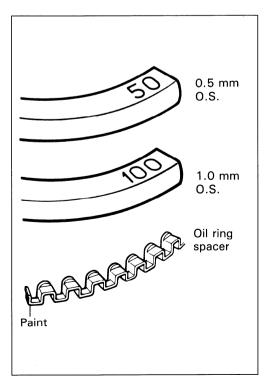
Oversize oil ring

The following two types of oversize oil ring are available as optional parts. They bear the following identification marks.

SIZE	COLOR
STD	NIL
0.5 mm O.S.	Painted red
1.0 mm O.S.	Painted yellow

Oversize side rail

Just measure out side diameter to identify the size.



PISTON PIN AND PIN BORE

Using a small bore gauge, measure the piston pin bore inside diameter, and using a micrometer, measure the piston pin outside diameter. If the difference between these two measurements is more than the limits, replace both piston and piston pin.

Piston pin bore I.D.

Service Limit: 18.030 mm (0.7098 in)

09900-20602: Dial gauge (1/1000 mm, 1 mm) 09900-22403: Small bore gauge (18-35 mm)

Using a micrometer, measure the piston pin outside diameter at three positions.

Piston pin O.D.

Service Limit: 17.980 mm (0.7079 in)

09900-20205: Micrometer (0-25 mm)



Using a small bore gauge, measure the conrod small end inside diameter.

09900-20602: Dial gauge (1/1000 mm, 1 mm) 09900-22403: Small bore gauge (18-35 mm)

Conrod small end I.D.

Service Limit: 18.040 mm (0.7102 in)

If the conrod small end inside diameter exceeds the abovementioned limit, replace the conrod.

CONROD BIG END SIDE CLEARANCE

Check the conrod side clearance by using a thickness gauge. If the clearance exceeds the limit, replace conrod or crankshaft.

Service Limit: 0.3 mm (0.01 in)

09900-20803: Thickness gauge

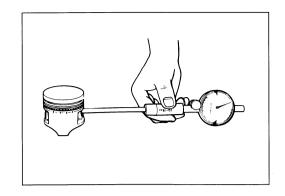
Standard

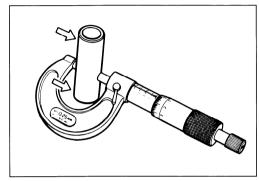
Big end width: 20.95-21.00 mm (0.825-0.827 in)

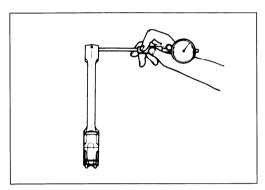
Standard

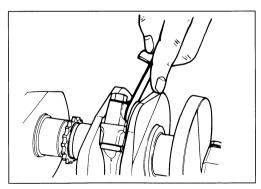
Crank pin width: 21.10-21.15 mm (0.831-0.833 in)

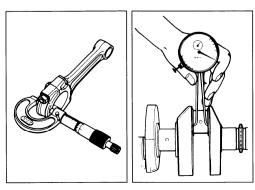
09900-20205: Micrometer (0-25 mm) 09900-20605: Dial calipers (10-34 mm)





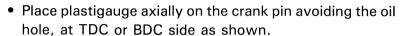






CONROD-CRANK PIN BEARING SELECTION

- Remove the bearing cap nuts, and tap the bearing cap lightly with plastic hammer to remove the bearing cap.
- Remove the rods, and mark them to identify the cylinder position.
- Inspect the bearing surfaces for any sign of fusion, pitting, burn, or flaws. If any, replace them with a specified set of bearings.



Tighten the bearing cap nuts with two-step torque values.

Initial tightening torque: 20 N·m

(2.0 kg-m, 14.5 lb-ft)

Final tightening torque: 35 N·m

(3.5 kg-m, 25.5 lb-ft)

09900-22301: Plastigauge

NOTE:

When fitting bearing cap to crank pin, be sure to discriminate one end from the other, namely front and rear.

NOTE:

Never rotate the crankshaft or conrod when a piece of plastigauge is in the clearance.

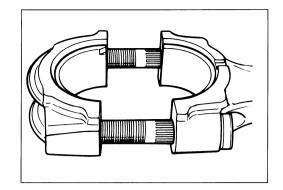
 Remove the caps, and measure the width of compressed plastigauge with envelope scale. This measurement should be taken at the widest part.

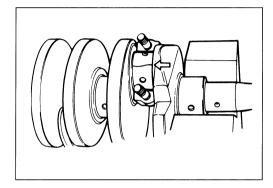
Crank pin bearing oil clearance

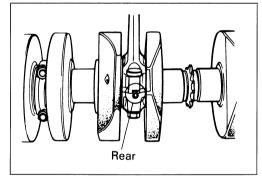
Standard: 0.032-0.056 mm (0.0013-0.0022 in)

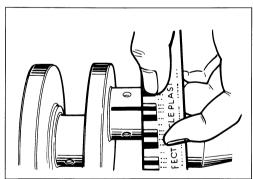
Service Limit: 0.080 mm (0.0031 in)

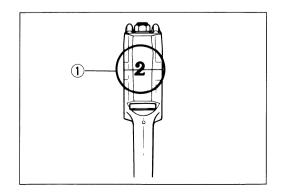
- If oil clearance exceeds the service limit, select the specified bearings from the bearing selection table.
- Check the corresponding conrod I.D. code number ①,
 "1" or "2".







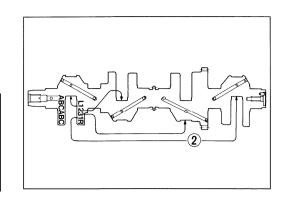




Check the corresponding crank pin O.D. code number
2, "1", "2" or "3".

Bearing selection table

		Crank pin O.D. ②		
	Code	1	2	3
Conrod	1	Green	Black	Brown
I.D. ①	2	Black	Brown	Yellow

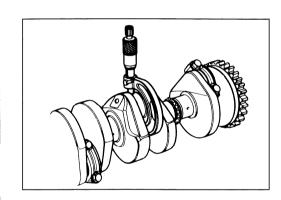


Conrod I.D. specification

Code	I.D. specification
1	37.000-37.008 mm (1.4567-1.4570 in)
2	37.008-37.016 mm (1.4570-1.4573 in)

Crank pin O.D. specification

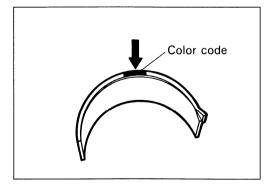
Code	O.D. specification
1	33.992-34.000 mm (1.3383-1.3386 in)
2	33.984-33.992 mm (1.3380-1.3383 in)
3	33.976—33.984 mm (1.3376—1.3380 in)



09900-20202: Micrometer (25-50 mm)

Bearing thickness

Color (Part No.)	Thickness
Green	1.480-1.484 mm
(12164-17E01-0A0)	(0.0583-0.0584 in)
Black	1.484-1.488 mm
(12164-17E01-0B0)	(0.0584-0.0586 in)
Brown	1.488-1.492 mm
(12164-17E01-0C0)	(0.0586-0.0587 in)
Yellow	1.492-1.496 mm
(12164-17E01-0D0)	(0.0587-0.0589 in)

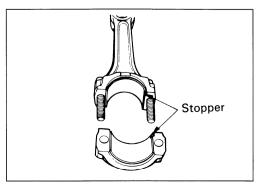


A CAUTION

Bearing should be replaced as a set.

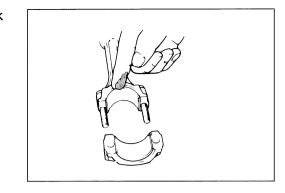
BEARING ASSEMBLY

 When fitting the bearings to the bearing cap and conrod, be sure to fix the stopper part first, and press in the other end.



 Apply engine oil or SUZUKI MOLY PASTE to the crank pin and bearing surface.

₩99000-25140: SUZUKI MOLY PASTE



- When mounting the conrod on the crankshaft, make sure that numeral figure (1) of the conrod faces rearward.
- Tighten the bearing cap nuts with specified torque.

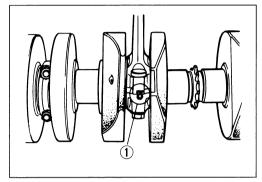
Initial tightening torque: 20 N·m

(2.0 kg-m, 14.5 lb-ft)

Final tightening torque : 35 N·m

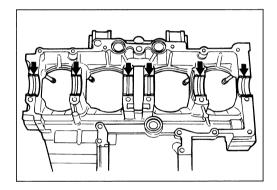
(3.5 kg-m, 25.5 lb-ft)

• Check the conrod movement for smooth turning.



CRANKCASE-CRANKSHAFT BEARING SELECTION

 Inspect each bearing of upper and lower crankcases for any damage.

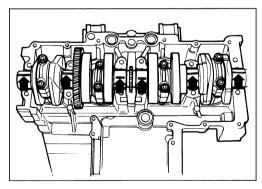


 Place the plastigauge on each crankshaft journal in the usual manner.

09900-22301: Plastigauge

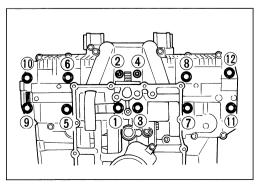
NOTE:

Do not place the plastigauge on the oil hole, and do not rotate the shaft when plastigauge is in place.



 Mate the lower crankcase with the upper crankcase, and tighten the crankshaft tightening bolts with specified torque value in the indicated order.

Tightening torque	Initial Tightening	Final Tightening	
8 mm bolt	13 N·m 1.3 kg-m 9.5 lb-ft	22 N·m 2.2 kg-m 16.0 lb-ft	



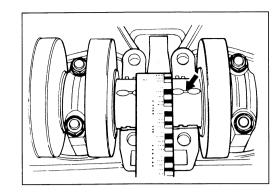
· Remove the lower crankcase, and measure the width of compressed plastigauge in the usual manner.

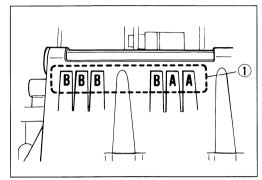
Crank journal bearing oil clearance

Standard: 0.020-0.044 mm (0.0008-0.0017 in)

Service Limit: 0.08 mm (0.0031 in)

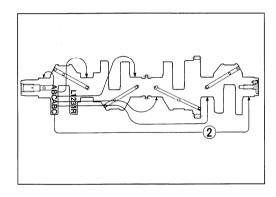
- If the width at the widest part exceeds the limit, replace the set of bearings with new ones by referring to the selection table.
- Check the corresponding crankcase journal I.D. code number (1), "A" or "B" which are stamped on the rear of upper crankcase.
- Check the corresponding crankshaft journal O.D. code number (2), "A", "B" or "C" which are stamped on the crankshaft.





Bearing selection table

		Crankshaft O.D. ②		
	Code	A B C		
Crankcase	Α	Green	Black	Brown
I.D. ①	В	Black	Brown	Yellow

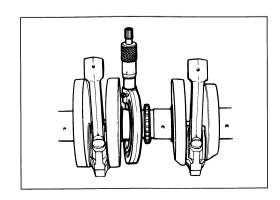


Crankcase I.D. specification

Code	I.D. specification	
А	35.000-35.008 mm (1.3780-1.3783 in)	
В	35.008-35.016 mm (1.3783-1.3786 in)	

Crankshaft journal O.D. specification

Code	O.D. specification		
А	31.992—32.000 mm (1.2595—1.2598 in)		
В	31.984—31.992 mm (1.2592—1.2595 in)		
С	31.976-31.984 mm (1.2589-1.2592 in)		





09900-20202: Micrometer (25-50 mm)

Bearing thickness specification (Grooved bearing with oil hole For lower case)

Color (Part No.)	Specification
Green	1.486-1.490 mm
(12229-27A00-0A0)	(0.0585-0.0587 in)
Black	1.490-1.494 mm
(12229-27A00-0B0)	(0.0587-0.0588 in)
Brown	1.494-1.498 mm
(12229-27A00-0C0)	(0.0588-0.0590 in)
Yellow	1.498-1.502 mm
(12229-27A00-0D0)	(0.0590-0.0591 in)

NOTE:

- * Grooved bearings have the same specification as the Grooved bearing with oil hole.
- * These parts numbers are shown as follows. 12229-27A10-XXX. (Grooved bearing)



 With the crankshaft, right-side thrust bearing and left-side thrust bearing inserted in the upper crankcase, use a thickness gauge to measure the thrust clearance on the left-side.
 R: Right-side thrust bearing

R: Right-side thrust bearingL: Left-side thrust bearing

NOTE:

Push the crankshaft to the left-side, so that there is no clearance on the right-side thrust bearing.

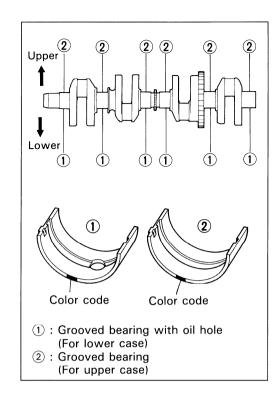
Thrust clearance

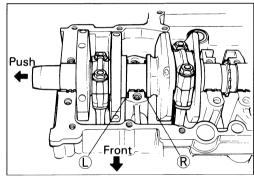
Standard: 0.04-0.09 mm (0.002-0.004 in)

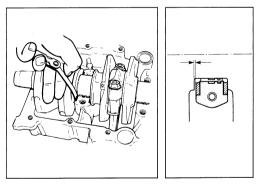
If the thrust clearance exceeds the standard range, adjust the thrust clearance by the following procedures:

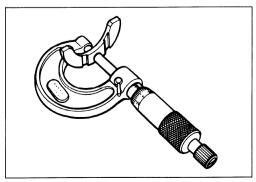
 Remove the right-side thrust bearing and measure its thickness with a micrometer. If the thickness of the rightside thrust bearing is below standard, replace with a new bearing and once again perform the thrust clearance measurement listed above, checking to make sure it is within standard.

Right-side thrust bearing thickness Standard: 2.445-2.465 mm (0.0963-0.0970 in)

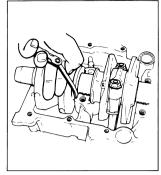


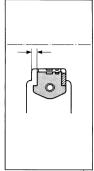






- If the right-side thrust bearing is within the standard range, reinsert the right-side thrust bearing and remove the leftside thrust bearing.
- · As shown in the illustration, use a thickness gauge to measure the clearance before inserting of the left-side thrust bearing, and select a left-side thrust bearing from the selection table.





Thrust bearing selection table

Clearance before inserting left-side thrust bearing	erting left-side Color Thrust bearing (Part No.) thickness		Thrust clearance
2.540-2.565 mm	White	2.475-2.500 mm	
(0.1000-0.1010 in)	(12228-43416)	(0.0974-0.0984 in)	
2.515-2.540 mm	Yellow	2.450-2.475 mm	
(0.0990-0.1000 in)	(12228-43415)	(0.0965-0.0974 in)	
2.490 — 2.515 mm	Green	2.425-2.450 mm	0.04-0.09 mm
(0.0980-0.0990 in)	(12228-43414)	(0.0955-0.0965 in)	
2.465-2.490 mm	Blue	2.400-2.425 mm	(0.002-0.004 in)
(0.0970-0.0980 in)	(12228-43413)	(0.0945-0.0955 in)	
2.440-2.465 mm	Black	2.375-2.400 mm	
(0.0961-0.0970 in)	(12228-43412)	(0.0935-0.0945 in)	
2.415-2.440 mm	Red	2.350-2.375 mm	
(0.0951-0.0961 in)	(12228-43411)	(0.0925-0.0935 in)	

 After selecting a left-side thrust bearing, insert it and again perform the thrust clearance measurement to make sure it falls within the standard range.

NOTE:

Right-side thrust bearing color code and part No. are as fol-Iows. BROWN (12228-19C00).

CRANKSHAFT RUNOUT

Support the crankshaft with "V" blocks as shown, with the two end journals resting on the blocks. Set up the dial gauge, as shown, and rotate the crankshaft slowly to read the runout. Replace the crankshaft if the runout is greater than the limit.

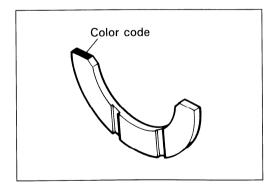


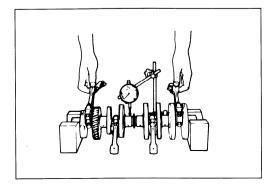
09900-20606: Dial gauge (1/100 mm, 10 mm)

09900-20701: Magnetic stand 09900-21304: V-block (100 mm)

Crankshaft runout

Service Limit: 0.05 mm (0.002 in)



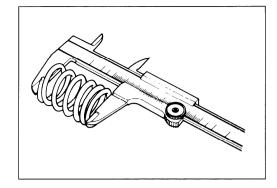


CLUTCH SPRING FREE LENGTH

Measure the free length of each clutch spring with a vernier calipers, and determine the elastic strength of each. Replace any spring not within the limit.

09900-20102: Vernier calipers

Service Limit: 69.5 mm (2.74 in)



CLUTCH DRIVE AND DRIVEN PLATES CLUTCH DRIVE PLATE

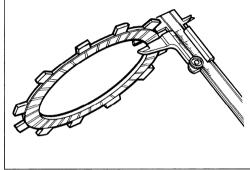
Measure the total thickness and claw width of each drive plate with vernier calipers. Replace the drive plates found to have worn down to the limit.

Thickness

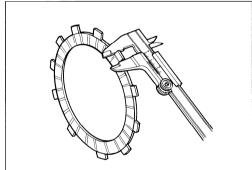
Service limit: 2.35 mm (0.093 in)

Claw width

Service limit: 15.0 mm (0.59 in)



Measuring thickness



Measuring claw width

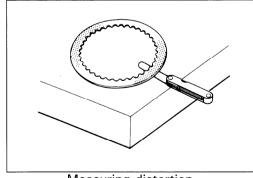
CLUTCH DRIVEN PLATE

Measure each driven plate for distortion with a thickness gauge. Replace driven plates which exceed the limit.

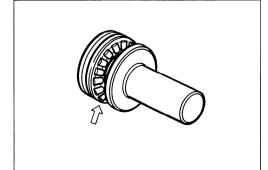


TOOL 09900-20803: Thickness gauge

Service Limit: 0.1 mm (0.004 in)



Measuring distortion



CLUTCH RELEASE BEARING

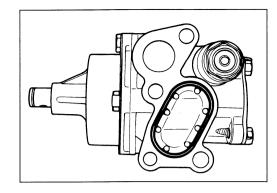
Inspect the clutch release bearing for any abnormality, particularly cracks, to decide whether it can be reused or should be replaced.

Smooth engagement and disengagement of the clutch depends on the condition of this bearing.

OIL PUMP

A CAUTION

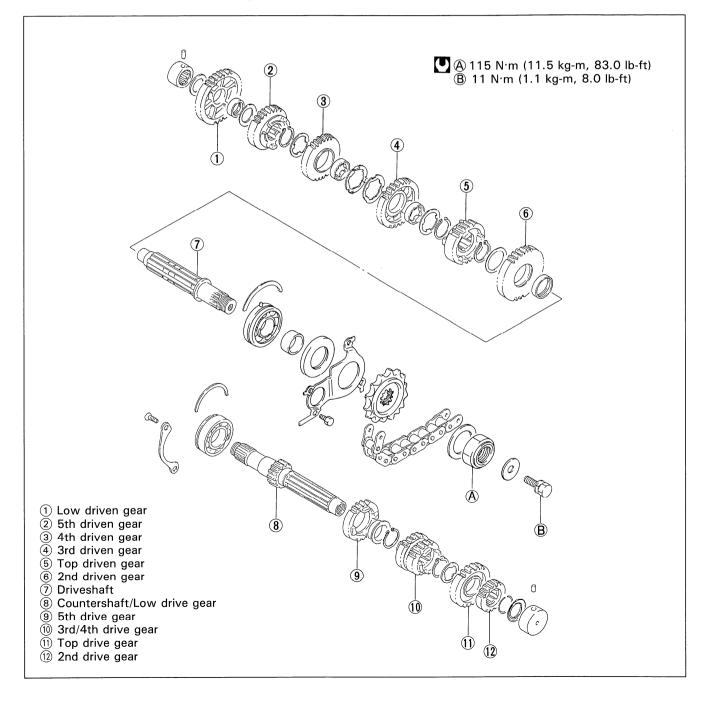
Do not attempt to disassemble the oil pump assembly. The oil pump is available only as an assembly.



TRANSMISSION

DISASSEMBLY

• Disassemble the transmission gears as shown in the illustration.



REASSEMBLY

Assemble the countershaft and driveshaft in the reverse order of disassembly. Pay attention to the following points:

NOTE:

- * Before installing the gears, rotate the bearing by hand to inspect for abnormal noise and smooth rotation. Replace the bearing if there is anything unusual.
- * Before installing the gears, lightly coat moly paste or engine oil to the driveshaft and countershaft.
- * Before installing the oil seal, apply grease to the oil seal lip.

FMH99000-25140: SUZUKI MOLY PASTE

₩99000-25010: SUZUKI SUPER GREASE "A"

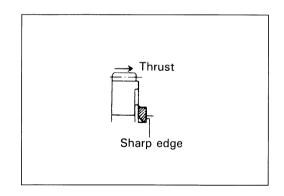
A CAUTION

- * Never reuse a circlip. After a circlip has been removed from a shaft, it should be discarded, a new circlip must be installed.
- * When installing a new circlip, care must be taken not to expand the end gap larger than required to slip the circlip over the shaft.
- * After installing a circlip, always insure that it is completely seated in its groove and securely fitted.

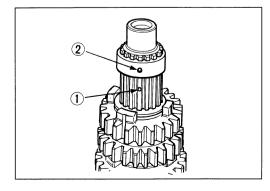
NOTE:

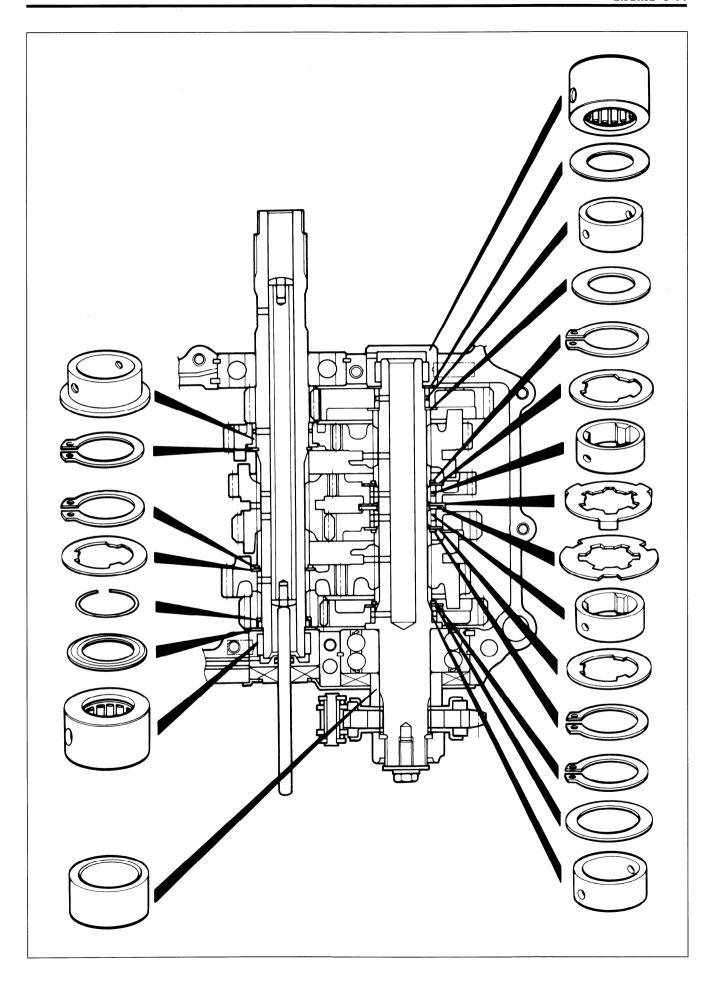
In reassembling the transmission, attention must be given to the locations and positions of washers and circlips. The cross sectional view given here will serve as a reference for correctly mounting the gears, washers and circlips. (Refer to page 3-44.)

When installing a new circlip, pay attention to the direction of the circlip. Fit it to the side where the thrust is as shown in the illustration.



 When installing the gear bushing onto the shaft, align the shaft oil hole ① with the bushing oil hole ②.





GEARSHIFT FORK-GROOVE CLEARANCE

Using a thickness gauge, check the gearshift fork clearance in the groove of its gear.

The clearance for each of the three gearshift forks plays an important role in the smoothness and positiveness of the shifting action.

Gearshift fork-Groove clearance

Standard : 0.10-0.30 mm (0.004-0.012 in)

Service Limit: 0.50 mm (0.020 in)

If the clearance checked is noted to exceed the limit specified, replace the fork or its gear, or both.

100L 09900-20803: Thickness gauge 09900-20102: Vernier calipers



No.1 & No.3 4.80-4.90 mm

Standard: (0.189-0.193 in)

> No.2 5.00-5.10 mm

(0.197 - 0.201 in)

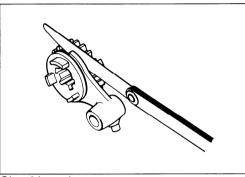
Shift fork thickness

No.1 & No.3 4.60-4.70 mm

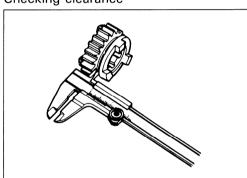
Standard: (0.181 - 0.185 in)

> 4.80-4.90 mm No.2

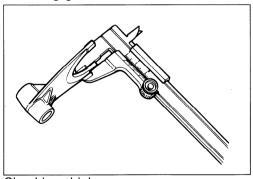
> > (0.189 - 0.193 in)



Checking clearance



Checking groove width



Checking thickness

ENGINE REASSEMBLY

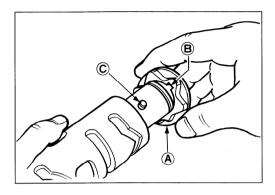
The engine is reassembled by carrying out the steps of disassembly in the reversed order, but there are a number of steps which demand special descriptions or precautionary measures.

NOTE:

Apply engine oil to each running and sliding part before reassembling.

NOTE:

When installing the gearshift cam stopper plate (A), align the pin groove (B) with the pin (C) as shown in the figure.

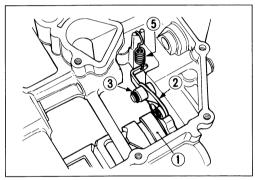


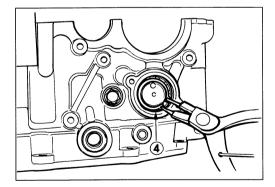
- Install the gearshift cam related parts.
- (1) Gearshift cam
- (2) Gearshift cam stopper
- (3) Circlip
- (4) Circlip
- Spring

A CAUTION

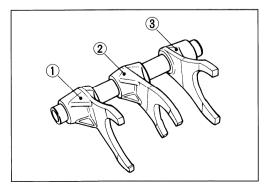
Always use new circlips, 3 and 4.

 Position the gearshift cam in Neutral position as shown in the figure, so that the gearshift forks and transmission gears can be installed easily.





- Install the gearshift forks to the crankcase in the correct position and direction.
- 1) For Top driven gear
- 2 For 3rd/4th drive gear
- 3 For 5th driven gear



• Fit the O-rings, ① and ②, and dowel pins ③ to the correct position, as shown in the figures.

A CAUTION

Replace the O-rings with new ones to prevent oil leakage.

• Install the oil pump to the lower crankcase with three bolts and tighten them to the specified torque.

NOTE:

Apply a small quantity of THREAD LOCK "1342" to the bolts.

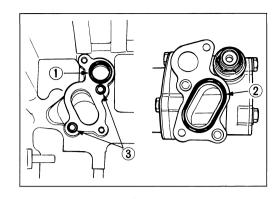
+342 99000-32050: THREAD LOCK "1342"

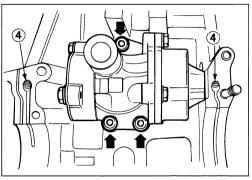
Oil pump mounting bolt: 10 N·m (1.0 kg-m, 7.0 lb-ft)

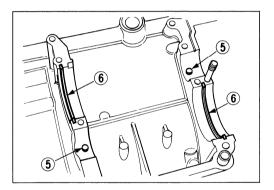
NOTE:

Check the oil jets 4 fitted on the lower crankcase for clogging.

• Fit the bearing pins (5) and C-rings (6) on the upper crankcase.







• Install the countershaft assembly and driveshaft assembly on the upper crankcase.

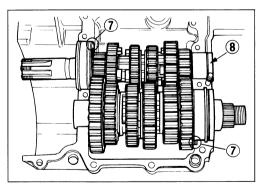
NOTE:

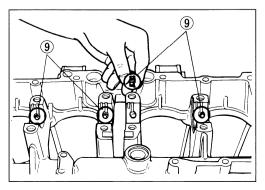
- * Be sure to install the bearing dowel pins 7 in their respective positions.
- * Install the countershaft end cap to the position (8) .
- * Make sure that the countershaft turns freely while holding the driveshaft. If not, shift the gear to the neutral position.

NOTE:

Before fitting the crankshaft journal bearings, check the piston oil jets (9) fitted on the upper crankcase for clogging.

9 Piston oil jet (4 pcs)For upper case





 When fitting the crankshaft journal bearings to the upper and lower crankcases, be sure to fix the stopper part 1 first and press the other end. (Refer to page 3-39.)

A CAUTION

Do not touch the bearing surfaces with your hands. Grasp by the edge of the bearing shell.

• Install the cam chain guide ② and two dampers ③ properly.

NOTE:

Be sure to face the arrow mark on the damper to the front and rear, not to the left and right.

• Fit the O-rings, 4 and 5.

A CAUTION

Replace the O-rings with new ones to prevent oil leakage.

 Before installing the crankshaft, apply SUZUKI MOLY PASTE to each journal bearing lightly.

√M 99000-25140: SUZUKI MOLY PASTE

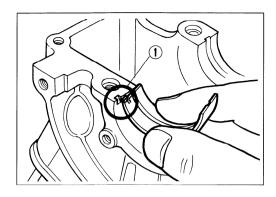
- Install the crankshaft with the cam chain to the upper crankcase.
- Insert the right and left-thrust bearings with oil grooved facing the crank web. (Refer to page 3-39.)
- Clean the mating surfaces of the crankcases before matching the upper and lower ones.
- Install the dowel pins to the upper crankcase.
- Apply SUZUKI BOND NO. 1207B to the mating surface of the lower crankcase in the following procedure.

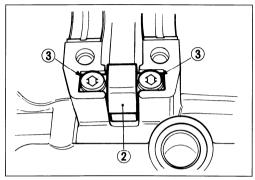
■1207B 99000-31140: SUZUKI BOND NO. 1207B

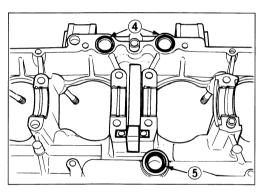
NOTE:

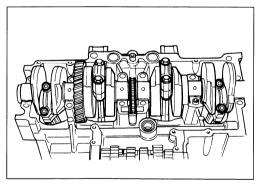
Use of SUZUKI BOND NO. 1207B is as follows:

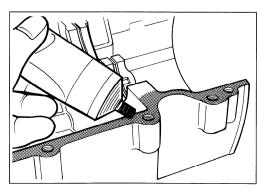
- * Make surfaces free from moisture, oil, dust and other foreign materials.
- * Spread on surfaces thinly to form an even layer, and assemble the cases within few minutes.
- * Take extreme care not to apply any BOND NO. 1207B to the bearing surfaces.
- * Apply to cornered surface as it forms a comparatively thick film.









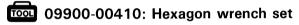


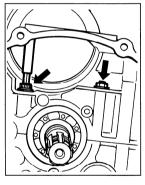
- Fix the right oil pipe (A) with No. (1) bolt.
- Fit the copper washers to the No. (9) and No. (11) bolts.
- Locate two allen bolts at position (B) and ten 8-mm bolts.
- Tighten the crankshaft tightening 8-mm bolts in the ascending order of numbers assigned to these bolts, tightening each bolt a little at a time to equalize the pressure.
 Tighten the lower and upper crankcase tightening bolts and nuts to the specified torque values.

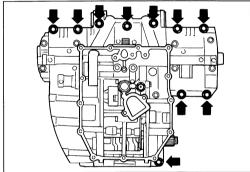
Crankcase bolt	Initial tightening			Final tightening		
Claricase boil	N∙m	kg-m	lb-ft	N∙m	kg-m	lb-ft
6 mm bolt	6	0.6	4.5	13	1.3	9.5
8 mm bolt	13	1.3	9.5	22	2.2	16.0

NOTE:

- * Install the main oil gallery plug. (Refer to page 3-18.)
- * Fit the engine ground wire © to the correct position as shown in the figure.





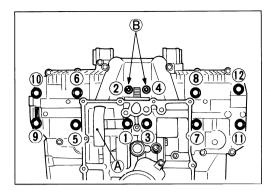


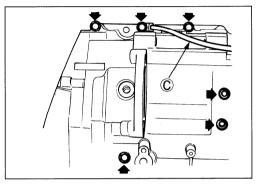
- Install the left oil pipe ① with bolt.
- Fit a new O-ring (2) and shim (3).
- Fit a new gasket and install the oil sump filter ④ with two bolts.

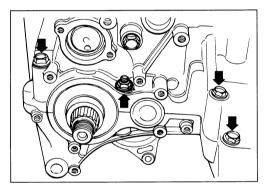
A CAUTION

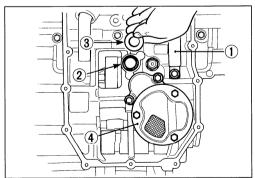
Replace the gasket and O-ring with new ones to prevent oil leakage.

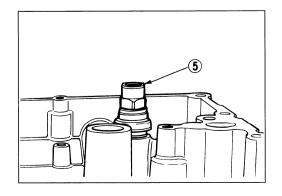
- Seat the washer and install the oil pressure regulator (5) to the oil pan and tighten it to the specified torque.
- Oil pressure regulator: 28 N·m (2.8 kg-m, 20.0 lb-ft)











• Fit a new gasket and install the oil pan. Tighten the oil pan bolts to the specified torque.

Oil pan bolt: 14 N·m (1.4 kg-m, 10.0 lb-ft)

NOTE:

Fit a new gasket to the oil pan bolt (A) correctly position as shown.

A CAUTION

Use a new gasket to prevent oil leakage.

• Tighten the engine oil drain plug to the specified torque.

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

• Install the countershaft bearing retainer with two screws.

NOTE:

Apply a small quantity of THREAD LOCK "1342" to the two screws.

+1342 99000-32050: THREAD LOCK "1342"

- Install each gearshift pawl ① into the cam driven gear ②.

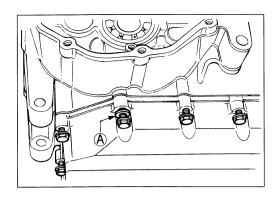
 The large shoulder @must face to the outside as shown.
- When installing the cam guide 3 and pawl lifter 4, apply a small quantity of THREAD LOCK "1342" to the screws.

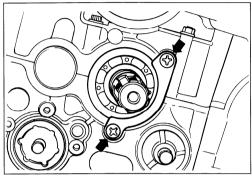
√342 99000-32050: THREAD LOCK "1342"

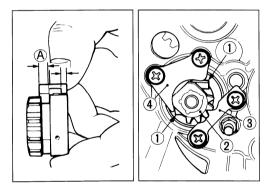
09900-09003: Impact driver set

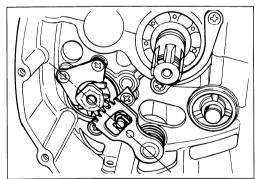
• Install the gearshift shaft with the center of shift gear on shaft aligned the center of gearshift cam driven gear.

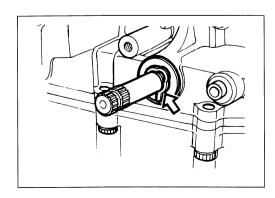
• Install the washer and fix the gearshift shaft with the circlip.





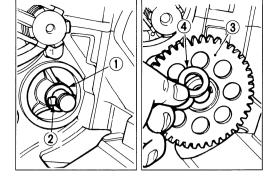






- Install the washer ①, pin ②, oil pump driven gear ③ and washer ④.
- Fix the oil pump driven gear with the circlip.

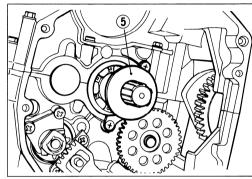
09900-06107: Snap ring pliers



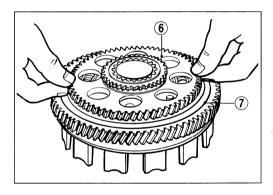
• Install the thrust washer (5) onto the countershaft.

NOTE:

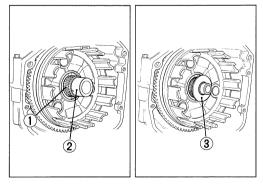
Flat surface of washer is positioned outside.



• Install the generator/oil pump drive gears 6 onto the primary driven gear 7.



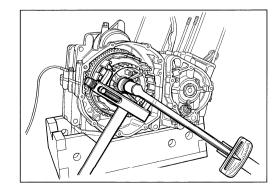
- Install the primary driven gear assembly onto the countershaft, and apply engine oil to the needle bearing ① and spacer ②.
- Install the thrust washer ③ onto the countershaft.



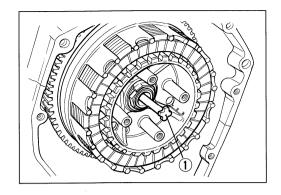
- Install the clutch sleeve hub onto the countershaft.
- Tighten the clutch sleeve hub nut to the specified torque.

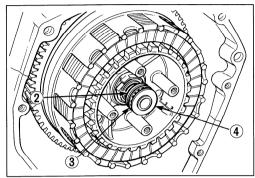
Clutch sleeve hub nut: 90 N·m (9.0 kg-m, 65.0 lb-ft)

09920-53740: Clutch sleeve hub holder

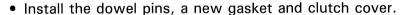


- Insert the clutch drive plates and driven plates one by one into the clutch sleeve hub in the prescribed order, drive plate first.
- Install the clutch push rod ①, clutch push piece ②, bearing ③ and thrust washer ④ onto the countershaft.





- Install the clutch pressure plate and tighten the clutch spring set bolts diagonally to the specified torque.
- Clutch spring set bolt: 12 N·m (1.2 kg-m, 8.5 lb-ft)
- Coat SUZUKI BOND NO.1207B lightly to the mating surfaces (A) between upper and lower crankcases.
- ■1207B 99000-31140: SUZUKI BOND NO.1207B



• Tighten the clutch cover bolts securely.

NOTE:

Fit the two gaskets to the clutch cover bolts ® correctly as shown in the figure.

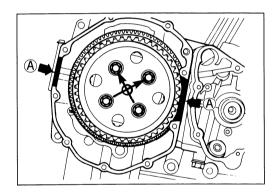
A CAUTION

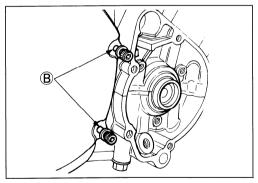
Use only new gasket to prevent oil leakage.

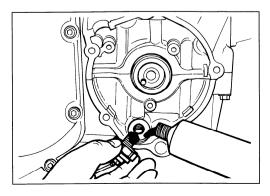
NOTE:

When installing the oil pressure switch, apply SUZUKI BOND NO.1207B to its thread lightly.

■1207B 99000-31140: SUZUKI BOND NO.1207B







- Install the signal generator stator with three screws.
- Make sure to fit the slot (1) on the back surface of the signal generator rotor over the locating pin (2) at the end of crankshaft.

NOTF:

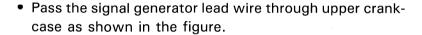
SUZUKI BOND NO.1207B should be applied to the groove of the signal generator lead wire grommet 3.

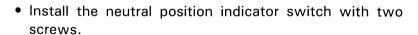
■1207B 99000-31140: SUZUKI BOND NO.1207B

• Hold the crankshaft turning nut and tighten the rotor bolt to the specified torque.

100L 09900-00410: Hexagon wrench set

Signal generator rotor bolt: 25 N·m (2.5 kg-m, 18.0 lb-ft)

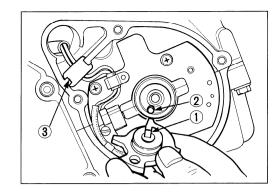


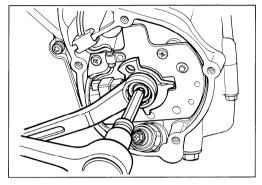


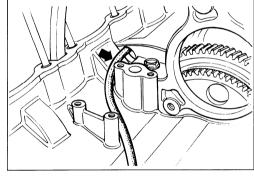
NOTE:

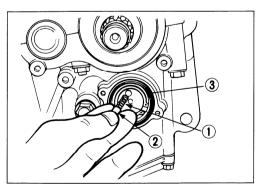
When installing the neutral position indicator switch, be sure to locate the spring (1), switch contact (2) and O-ring (3).

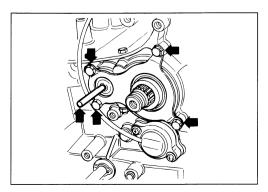
- Install the oil seal retainer with four bolts, and positively bend the lock portion of the retainer.
- Insert the clutch push rod into the countershaft.











 Degrease the tapered portion of the starter clutch and also the crankshaft. Use nonflammable cleaning solvent to wipe off the oily or greasy matter to make these surfaces completely dry.

NOTE:

Apply a small quantity of THREAD LOCK SUPER "1303" to the thread of starter clutch mounting bolt.

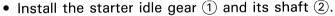
+333 99000-32030: THREAD LOCK SUPER "1303"

• Tighten the starter clutch mounting bolt to the specified torque with the special tool.

Starter clutch mounting bolt: 150 N·m

(15.0 kg-m, 108.5 lb-ft)

09920-34810: Starter clutch holder



■1207B 99000-31140: SUZUKI BOND NO.1207B

• Install the dowel pin, a new gasket and starter clutch cover, and tighten the cover bolts securely.

NOTE:

Fit the gasket to the starter clutch cover bolt (A) correctly as shown in the figure.

A CAUTION

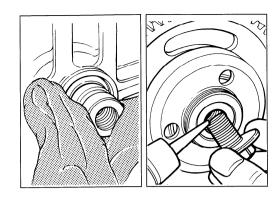
Use a new gasket to prevent oil leakage.

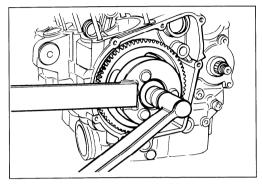
- Install the generator with three bolts.
- Generator mounting bolt: 25 N·m (2.5 kg-m, 18.0 lb-ft)

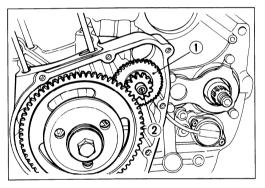
NOTE:

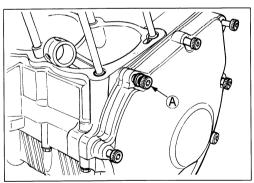
Apply SUZUKI SUPER GREASE "A" to the generator O-ring.

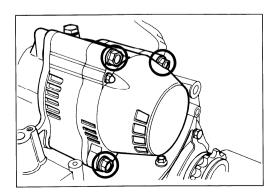
▲ 99000-25010: SUZUKI SUPER GREASE "A"











Install the starter motor with two bolts.

NOTE:

- * Apply SUZUKI SUPER GREASE "A" to the starter motor O-ring.
- * Apply a small quantity of THREAD LOCK "1342" to the two bolts.

99000-32050: THREAD LOCK "1342"

Æ 99000-25010: SUZUKI SUPER GREASE "A"

- Install the piston rings in the order of oil ring, 2nd ring and top ring.
- Top ring and 2nd (middle) ring differ in the shape of ring face, and the face of top ring is chrome-plated where as that of ring is not.
- Top and 2nd (middle) rings have letter "R" and "RN" marked on the side.

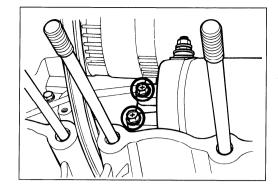
NOTE:

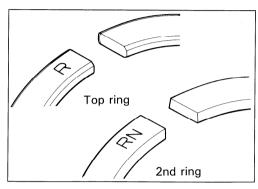
Be sure to bring the marked side to top when fitting them to the piston.

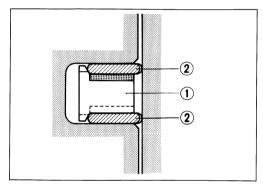
The first member to go into the oil ring groove is a spacer
 1. After placing spacer, fit the two side rails
 2. Side designations, top and bottom, are not applied to the spacer and side rails: you can position each either way.

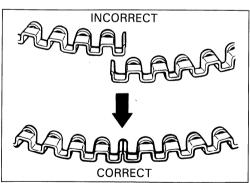
A CAUTION

When installing the spacer, be careful not to allow its two ends to overlap in the groove.

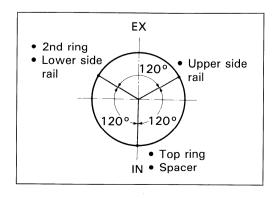






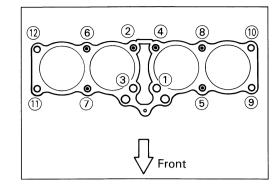


 Position the gaps of the three rings as shown. Before inserting each piston into the cylinder, check that the gaps are so located.



CYLINDER STUD BOLT LOCATION

Item No.	Color	Length
1 3 9 10 11 12	Black	150 mm (5.91 in)
5 7	Silver	150 mm (5.91 in)
2 4 6 8	Silver	143 mm (5.63 in)

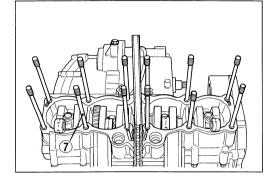


NOTE:

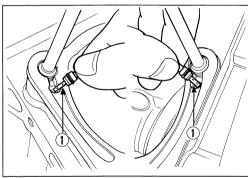
When reinstalling the cylinder stud bolt ⑦, apply SUZUKI BOND NO.1207B lightly to the stud bolt thread.

Cylinder stud bolt: 16 N·m (1.6 kg-m, 11.5 lb-ft)

■1207B 99000-31140: SUZUKI BOND NO.1207B



• Check the oil jets ① fitted on the crankcase for colgging.



NOTE:

When fitting the piston, turn the triangle mark on the piston head to exhaust side.

- Be sure to install the pistons in the cylinder from which they were removed in disassembly, refer to the letter mark, "1" through "4", scribed on the piston.
- Have each piston pin moly paste oiled lightly before installing it.
- Place a cloth beneath the piston, and install the circlips 2).

NOTE:

Be sure to use new circlips.

- Place the dowel pins and new cylinder gasket on the crankcase.
- Before putting on the cylinder block, oil the big and small ends of each conrod and also the sliding surface of each piston.

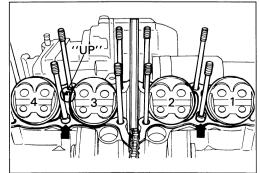


Be sure to identify the top surface by "UP" mark on the cylinder gasket as shown in the Fig.



Use a new gasket to prevent oil leakage.





- Install piston ring holders in the indicated manner. Some light resistance must be overcome to lower the cylinder block.
- With No.2 and No.3 pistons in place, install No.1 and No.4 pistons, and insert them into the cylinder.

09916-74521: Holder body

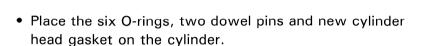
09916-74530: Band (bore 55-65 mm)

NOTE:

Do not overtighten the special tool bands or the pistons entry into the cylinders will be difficult.

• Tighten the cylinder base nut (A) to the specified torque.

Cylinder base nut: 9 N·m (0.9 kg-m, 6.5 lb-ft)



A CAUTION

Replace the O-rings and gasket with new ones to prevent oil leakage.

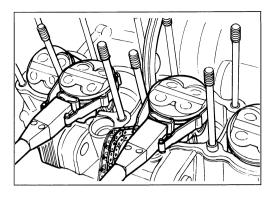
- Be sure to replace the cylinder head gasket with new one to prevent gas leakage.
- Fit the new O-rings ① onto the oil pipes and apply SUZUKI SUPER GREASE "A" to the O-rings.
- Install the right and left oil pipes.

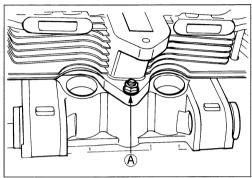
A CAUTION

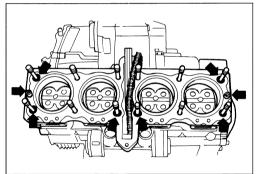
Replace the O-rings ① with new ones to prevent oil leakage.

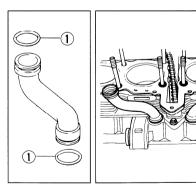
₹AH99000-25010: SUZUKI SUPER GREASE "A"

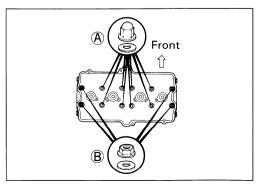
- Place the cylinder head on the cylinder.
- Cylinder head nuts and washers must be fitted in the correct positions, as shown in the illustration.
 - (A) Copper washer with cap nut (8 pcs)
 - (B) Steel washer with normal nut (4 pcs)





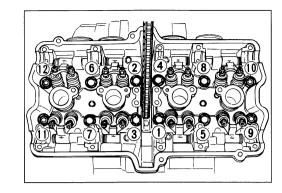






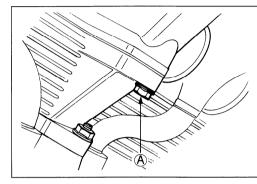
 Tighten the twelve 10-mm nuts to the specified torque with a torque wrench sequentially in the ascending order of numbers.

Cylinder head nut: 38 N·m (3.8 kg-m, 27.5 lb-ft)

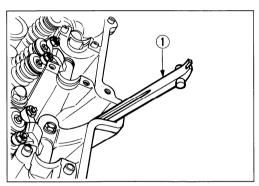


• After firmly tightening the twelve 10-mm nuts, install one 6-mm bolt (A) and tighten it to the specified torque.

Cylinder head bolt: 10 N·m (1.0 kg-m, 7.0 lb-ft)



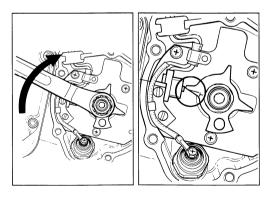
Place the cam chain guide ① properly.



 While holding down the cam chain, rotate the crankshaft in normal direction to bring the "T" mark on the rotor to the center of pick-up coil.

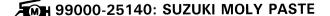
A CAUTION

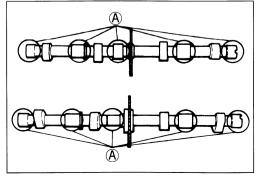
To turn over crankshaft, torque nut with a 19 mm wrench. Never try to rotate crankshaft by putting a 6 mm T-type wrench over the bolt.



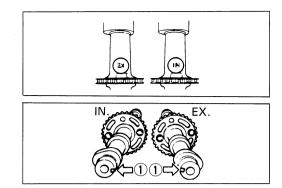
NOTE:

Just before placing the camshaft on the cylinder head, apply SUZUKI MOLY PASTE to its journals, fully coating each journal (A) with the paste, taking care not to leave any dry spot. Apply engine oil to the camshaft journal holders.





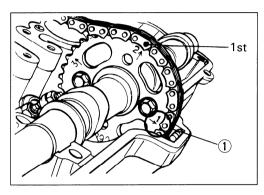
• The exhaust camshaft can be distinguished from that of the intake by the embossed letters "EX" (for exhaust) as against letters "IN" (for intake). Similarly, the right end can be distinguished by the notch ① at the right end.

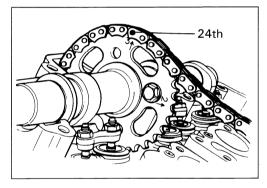


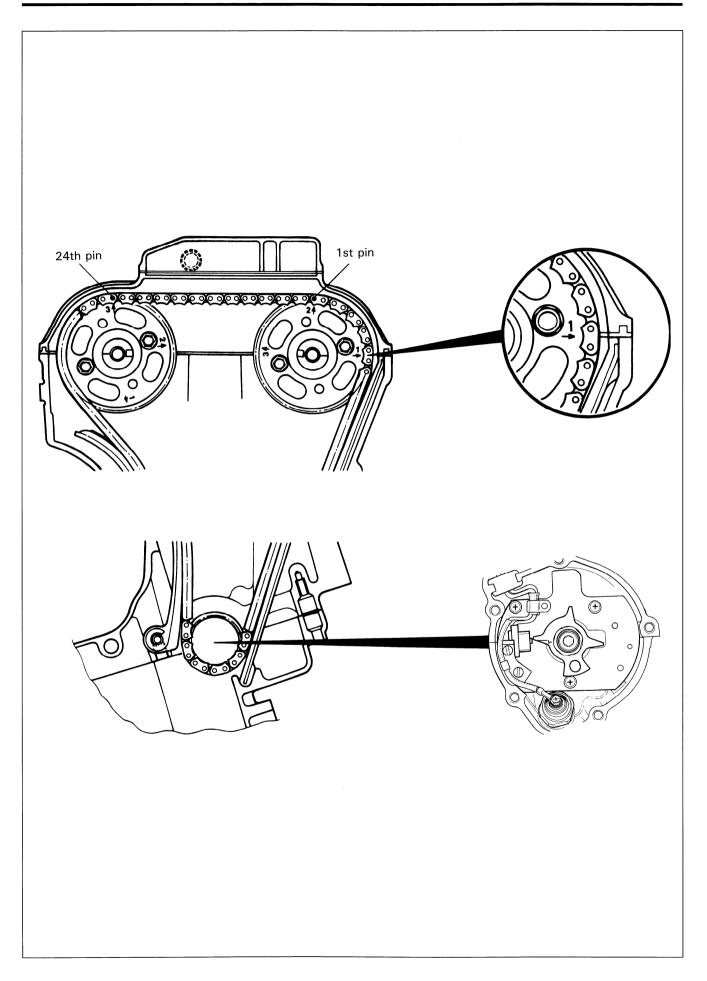
- With "T" mark accurately lined up with the timing mark, hold the camshaft steady and lightly pull up the chain to remove the slack between the crank sprocket and exhaust sprocket.
- The exhaust sprocket bears an arrow marked "1" indicated as 1. Turn over the exhaust camshaft so that the arrow points flush with the gasketed surface of the cylinder head.
- Engage the cam chain with this sprocket.
- The other arrow marked "2" is now pointing straight upward. Count the chain roller pins toward the intake camshaft, starting from the roller pin directly above this arrow marked "2" and ending with the 24th roller pin. Engage the cam chain with intake sprocket, locating the 24th pin at the above the arrow marked "3" on the intake sprocket.

NOTE:

The cam chain is now riding on all three sprockets. Be careful not to disturb the crankshaft until the camshaft journal holders and cam chain tensioner are secured.







- Each camshaft journal holder is identified with a cast-on letter. Install the dowel pins to each camshaft journal holder.
- Fasten the camshaft journal holders evenly by tightening the camshaft journal holder bolts sequentially. (Try to equalize the pressure by shifting the wrench in this above manner, to fasten the shafts evenly.)

NOTE:

Damage to head or camshaft journal holder thrust surfaces may result if the camshaft journal holders are not drawn down evenly.

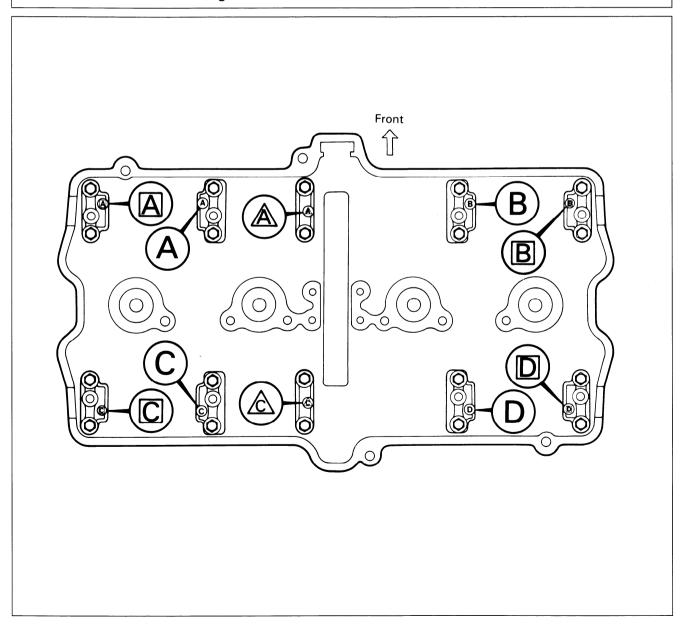
• Tighten the camshaft journal holder bolts to the specified torque.

Camshaft journal holder bolt: 10 N·m (1.0 kg-m, 7.0 lb-ft)

A CAUTION

The camshaft journal holder bolts are made of a special material and much superior in strength, compared with other types of high strength bolts.

Take special care not to use other types of bolts instead of these special bolts. To identify these bolts, each of them has a figure "9" on its head.



• Install the cam chain guide with four bolts and tighten them to the specified torque.

Cam chain guide mounting bolt: 10 N·m

(1.0 kg-m, 7.0 lb-ft)

NOTE:

Be sure to face the arrow mark on the cam chain guide to the front side.

After removing the spring holder bolt ① and spring, unlock the ratchet mechanism ② and push in the push rod
 ③ all the way.

NOTE:

Before installing the cam chain tensioner, turn the crankshaft clockwise to remove the cam chain slack between the crank sprocket and exhaust sprocket.

 Install a new gasket and the cam chain tensioner to the cylinder block with two bolts and tighten them to the specified torque.



Insert the spring into the cam chain tensioner and tighten the spring holder bolt 1 to the specified torque.

Cam chain tensioner spring holder bolt: 35 N·m (3.5 kg-m, 25.5 lb-ft)

A CAUTION

After installing the cam chain tensioner, check to be sure that the tensioner work properly by checking the slack of cam chain.

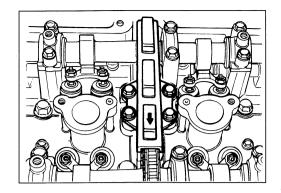
 Pour about 50 ml of engine oil in each oil pocket in the head.

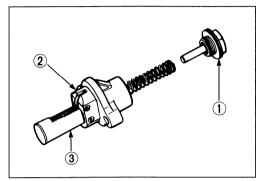
NOTE:

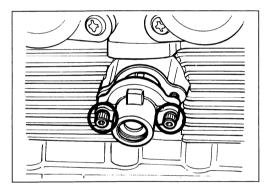
Turn the crankshaft and check that all the moving parts such as cam follower, camshaft, work properly.

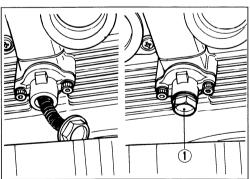
A CAUTION

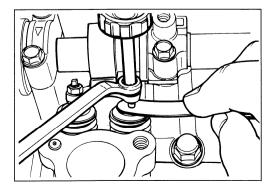
Be sure to check and adjust the valve clearance. (Refer to page 2-4.)





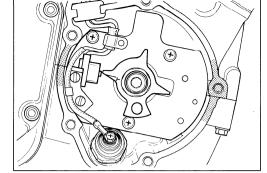






 Coat SUZUKI BOND NO.1207B lightly to the mating surfaces between upper and lower crankcases as shown in the Fig.

■1207B 99000-31140: SUZUKI BOND NO.1207B



 Install a new gasket and the signal generator cover with five bolts.

NOTE:

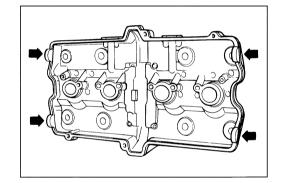
Fit a gasket to the signal generator cover bolt (A) correctly as shown in the Fig.

A CAUTION

Use a new gasket to prevent oil leakage.

- Before installing the cylinder head cover gaskets on the cylinder head cover, apply SUZUKI BOND NO.1207B to the grooves of the head cover.
- Apply SUZUKI BOND NO.1207B to the four cam end caps of the gasket as shown in the Fig.

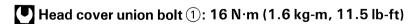
■1207B 99000-31140: SUZUKI BOND NO.1207B



- Place the cylinder head cover on the cylinder head.
- Fit the four gaskets to each head cover union bolt ① and tighten them to the specified torque.

A CAUTION

Replace the gaskets with new ones to prevent oil leakage.

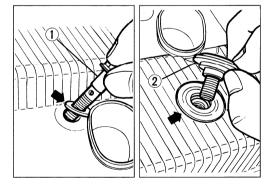


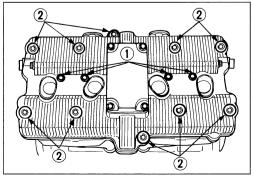
- Place the eight gaskets to each position correctly.
- Tighten the head cover bolts 2 to the specified torque.

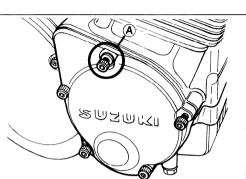
A CAUTION

Replace the gaskets with new ones to prevent oil leakage.







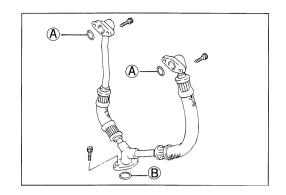


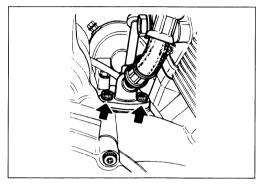
• Install the left and right oil hoses and tighten their mounting bolts to the specified torque.

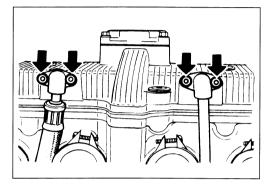
A CAUTION

Replace the O-rings (A) and B) with new ones to prevent oil leakage.

Oil hose mounting bolt: 10 N·m (1.0 kg-m, 7.0 lb-ft)







NOTE:

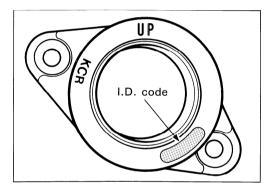
When replacing the intake pipes, identify the different intake pipes according to each I.D. code.

(1-26E0 for No.1)

(1-26E0 for No.2)

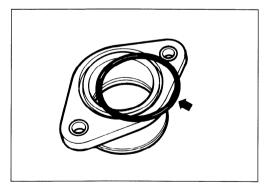
(3-26E0 for No.3)

(3-26E0 for No.4)



A CAUTION

Use a new O-ring to prevent sucking air from the joint.



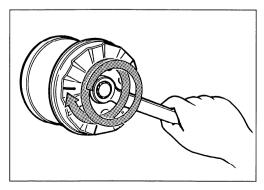
 Install the oil filter turning it by hand until you feel that the filter gasket contacts the mounting surface. Then tighten it 2 turns by using the special tool.



09915-40610: Oil filter wrench

NOTE:

Before installing the oil filter, apply engine oil lightly to its O-ring.



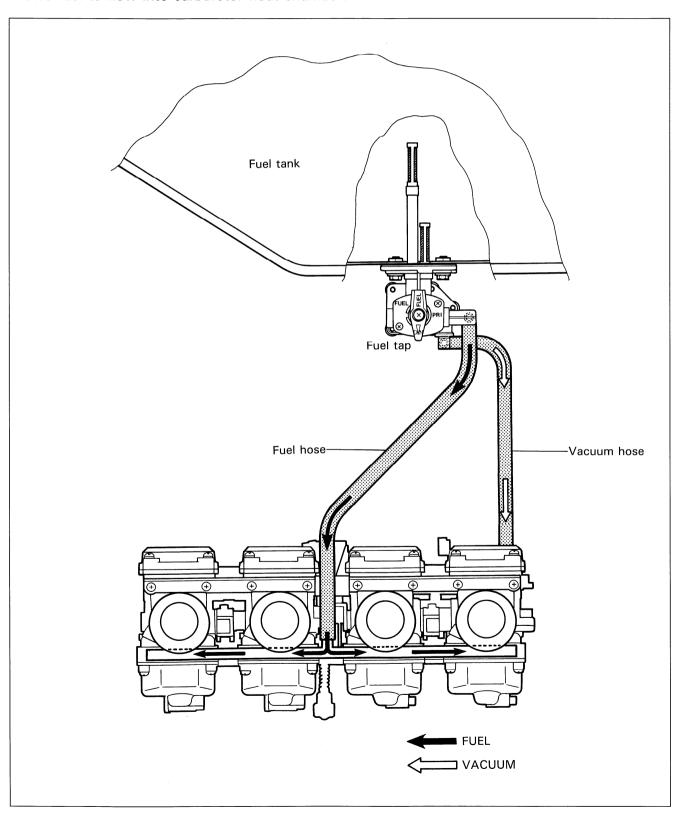
4

FUEL AND LUBRICATION SYSTEM

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FUEL SYSTEM

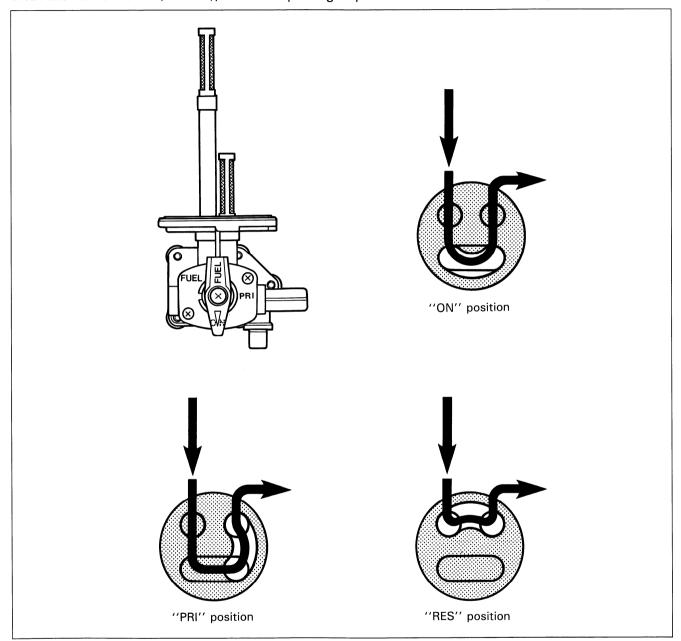
When turning starter motor, negative pressure is generated in the combustion chamber. This negative pressure works on the diaphragm of fuel tap through passage way provided in the carburetor main bore and vacuum hose, and diaphragm builds up a negative pressure which is higher than the spring pressure. Fuel valve in the fuel tap is forced to open due to diaphragm operation, and thus allows fuel to flow into carburetor float chamber.



FUEL TAP

FUEL TAP MECHANISM

A valve is provided at the end of the fuel tap lever and can switch over to "OFF", "ON" and "RES". With the valve "ON" (normal), the main passage opens. With the valve "OFF", both holes close.

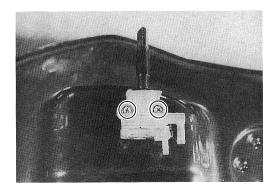


FUEL TAP/FUEL FILTER REMOVAL

- Remove the seat and frame cover assembly. (Refer to pages 5-1 and 2.)
- Remove the fuel tank. (Refer to page 4-3.)
- Remove the fuel tap by removing the mounting bolts.
- Remove the fuel filter from the fuel tap.

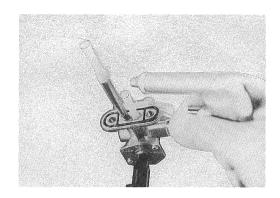
A WARNING

Gasoline is very explosive. Extreme care must be taken. Gaskets and O-ring must be replaced with new ones to prevent fuel leakage.



INSPECTION AND CLEANING

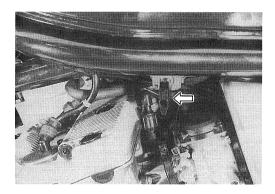
If the fuel filter is dirty with sediment or rust, fuel will not flow smoothly and loss in engine power may result. Clean the fuel filter with compressed air.



FUEL TANK

FUEL TANK REMOVAL

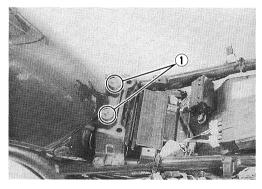
- Remove the seat and frame cover assembly. (Refer to pages 5-1 and 2.)
- Turn the fuel tap to "ON" position.

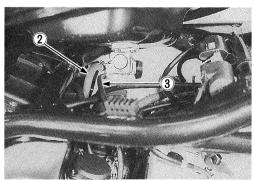


- Remove the fuel tank mounting bolts (1).
- Slide the fuel tank backward and lift up it, and disconnect the fuel hose ② and vacuum hose ③.
- Remove the fuel tank.

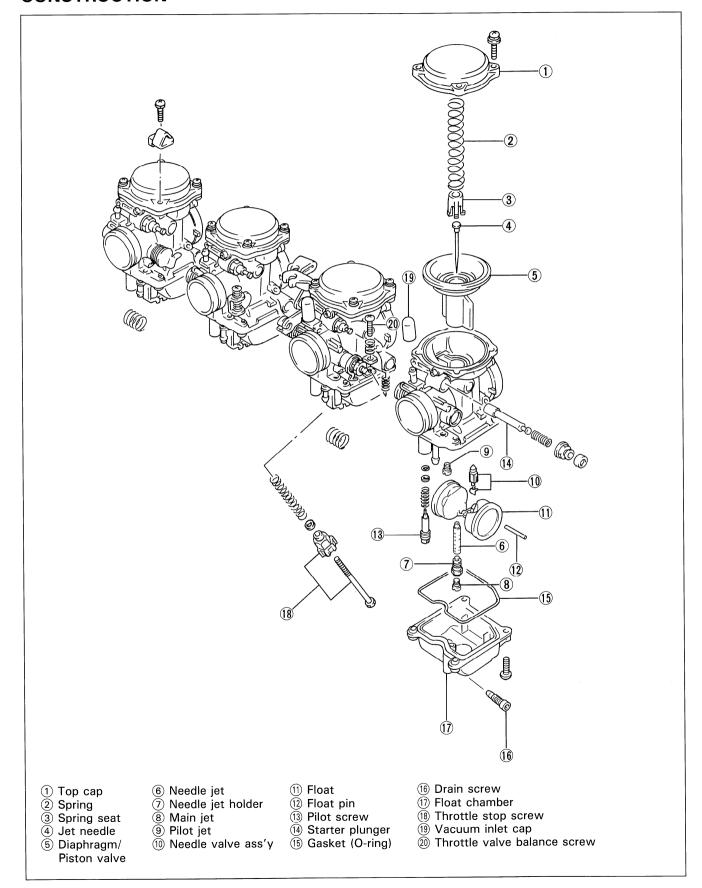
A WARNING

Gasoline is very explosive. Extreme care must be taken.





CARBURETOR CONSTRUCTION



CARBURETOR

ITEM		SPECIFICATION		
		E-02,04,34	E-22	
Carburetor type		KEIHIN CVK32	←	
Bore size		32 mm	←	
I.D. No.		26E0	26E3	
ldle r/min.		1 200 ± 100 r/min.	←	
Float height		17±1.0 mm (0.67±0.04 in)	←	
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	
Main air jet	(M.A.J.)	#90	←	
Jet needle	(J.N.)	N1QJ	←	
Pilot jet	(P.J.)	#35	←	
Pilot air jet	(P.A.J.)	#150	←	
Valve seat	(V.S.)	2.4 mm	←	
Pilot screw	(P.S.)	1% turns back	←	
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	

CARBURETOR

ITEM		SPECIFICATION		
		E-22 (U-type)	E-18	
Carburetor type		KEIHIN CVK32	←	
Bore size		32 mm	←	
I.D. No.		26E4	26E2	
ldle r/min.		1 200 ± 100 r/min.	1 200 ⁺¹⁰⁰ ₋₅₀ r/min.	
Float height		17±1.0 mm (0.67±0.04 in)	-	
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	#100 (No.1&4), #102 (No.2&3)	
Main air jet	(M.A.J.)	#90	←	
Jet needle	(J.N.)	N1QJ	N76L	
Pilot jet	(P.J.)	#35	←	
Pilot air jet	(P.A.J.)	#150	←	
Valve seat	(V.S.)	2.4 mm	←	
Pilot screw	(P.S.)	1% turns back	21/8 turns back	
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	

E-02: England

E-18: Switzerland

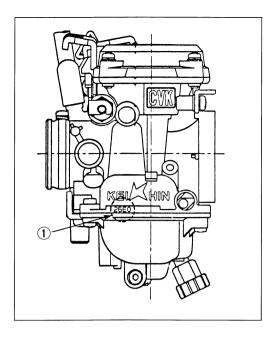
E-34: Italy

E-04: France

E-22: Germany

I.D. NO. LOCATION

Each carburetor has I.D. Number ① printed on the carburetor body according to its specification.



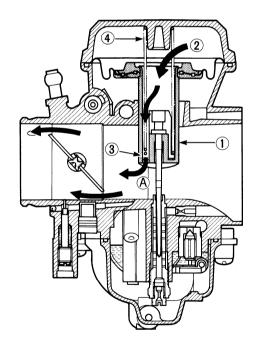
DIAPHRAGM AND PISTON OPERATION

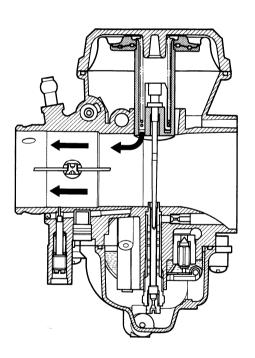
The carburetor is a variable-venturi type, whose venturi cross section area is increased or decreased automatically by the piston valve ① which moves according to the negative pressure present on the downstream side of the venturi ④. Negative pressure is admitted into the diaphragm chamber ② through an orifice ③ provided in the piston valve ①.

Rising negative pressure overcomes the spring 4 force, causing the piston valve 1 to rise to increase the said area and thus prevent the air velocity from increasing. Thus, air velocity in the venturi passage is kept relatively constant for improved fuel atomization and for securing optimum ratio of fuel/air mixture.

LOWER POSITION OF PISTON VALVE

UPPER POSITION OF PISTON VALVE

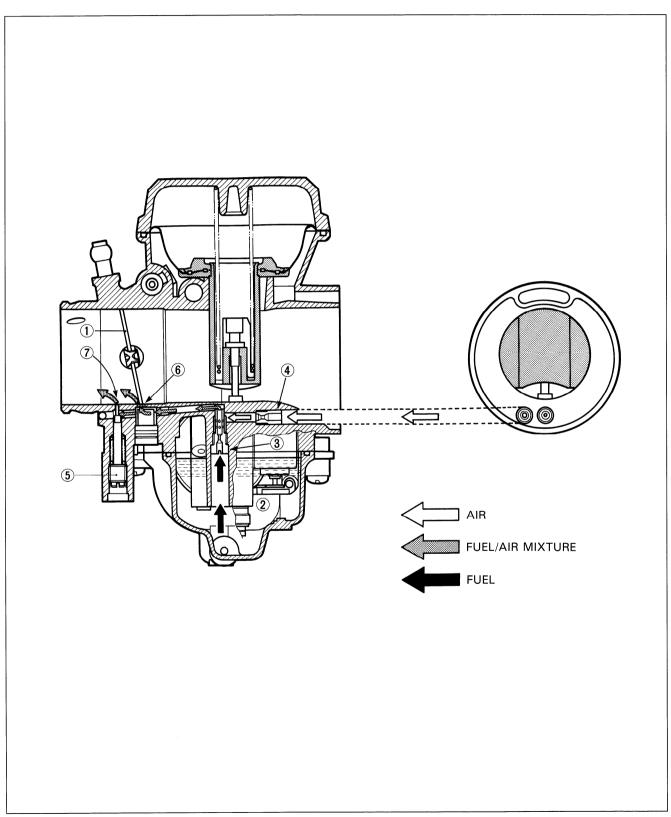






SLOW SYSTEM

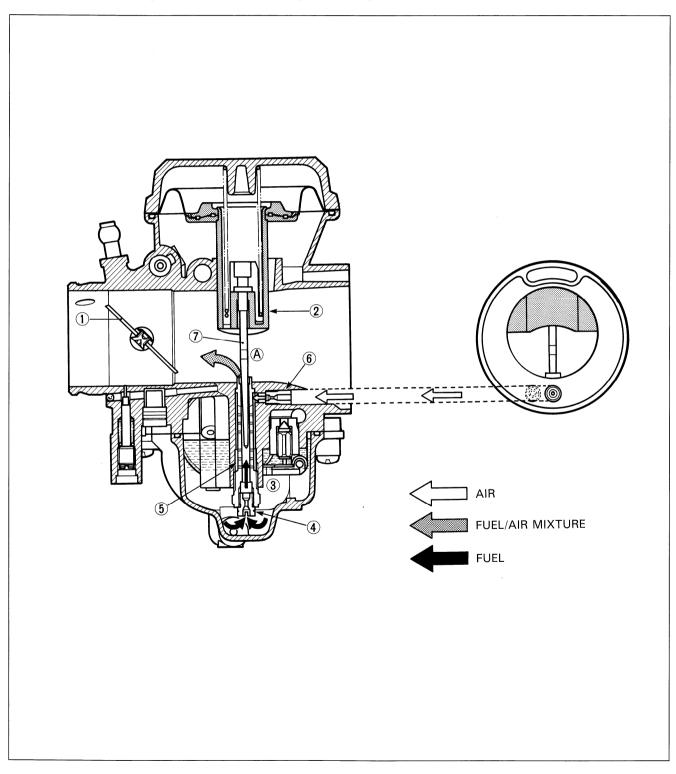
This system supplies fuel during engine operation with throttle valve 1 closed or slight opened. The fuel from float chamber 2 is metered by pilot jet 3 where it mixes with air coming in through pilot air jet 4. This mixture, rich with fuel, then goes up through pilot passage to pilot screw 5. A part of the mixture is discharged into the main bore out of bypass ports 6. The remainder of mixture is metered by pilot screw 5 and sprayed out into the main bore through pilot outlet 7.



MAIN SYSTEM

As throttle valve ① is opened, engine speed rises, and this increases negative pressure in the venturi ②. Consequently the piston valve ② moves upward.

Meanwhile, the fuel in float chamber $\ 3$ is metered by main jet $\ 4$, and the metered fuel enters needle jet $\ 5$, in which it mixes with the air admitted through main air jet $\ 6$ to form an emulsion. The emulsified fuel then passes through the clearance between needle jet $\ 5$ and jet needle $\ 7$, and is discharged into the venturi $\ 4$, in which it meets main air stream being drawn by the engine. Mixture proportioning is accomplished in needle jet $\ 5$; the clearance through which the emulsified fuel must flow in large or small, depending ultimately on throttle position.



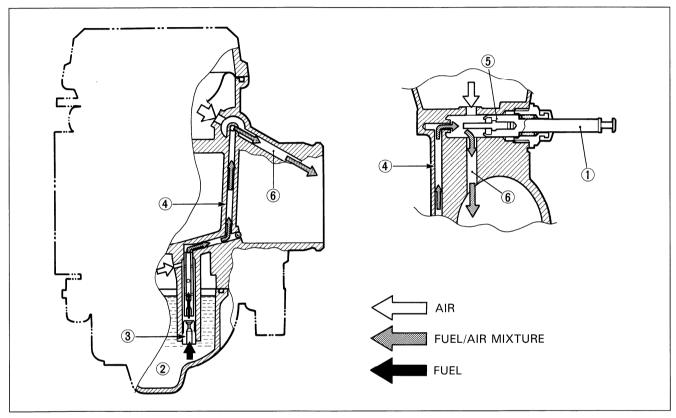
STARTER (ENRICHENER) SYSTEM

Pulling up the starter shaft 1, fuel is drawn into the starter circuit from the float chamber 2. Starter jet 3 meters this fuel, which then flows into fuel pipe 4 and mixes with the air coming from the float chamber 2. The mixture, rich in fuel content, reaches starter plunger 5 and mixes again with the air coming through a passage extending from behind the diaphragm.

The two successive mixings of fuel with air are such that proper fuel/air mixture for starting is produced when the mixture is sprayed out through starter outlet port 6 into the main bore.

NOTF:

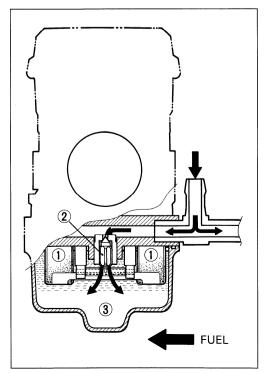
An enrichener (starter) is operated almost the same way as a choke.



FLOAT SYSTEM

Floats ① and needle valve ② are associated with the same mechanism, so that, as the floats ① move up and down, the needle valve ② too moves likewise.

When fuel level is up in float chamber ③, floats ① are up and needle valve ② remains pushed up against valve seat. Under this condition, no fuel enters the float chamber ③. As the fuel level falls, floats ① go down and needle valve ② unseats itself to admit fuel into the chamber ③. In this manner, needle valve ② admits and shuts off fuel alternately to maintain a practically constant fuel level inside the float chamber ③.

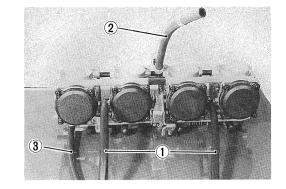


REMOVAL

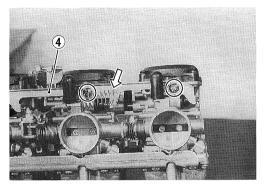
• Remove the carburetor assembly. (Refer to page 3-3.)

DISASSEMBLY

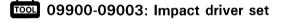
• Disconnect the air vent hoses ①, fuel hose ② and vacuum hose ③.

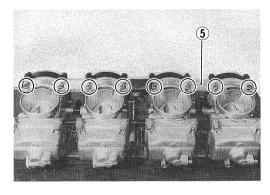


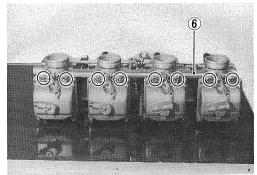
 Remove the starter (enrichener) plate 4 by removing the spring and fitting screws.



- Remove the upper and lower carburetor set plates, (5) and
 (6).
- Separate the carburetor assembly into two pairs of carburetors.



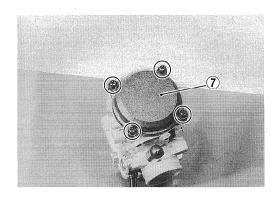




• Remove the carburetor top cap 7.

A CAUTION

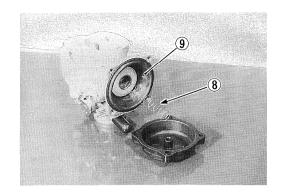
Do not blow the carburetor body with compressed air, before removing the diaphragm. It may cause a damage to the diaphragm.

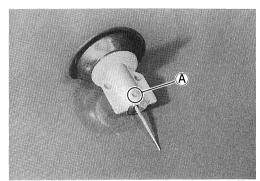


• Remove the piston valve return spring (8) and piston valve with diaphragm 9.

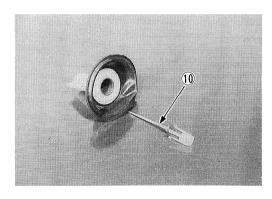
NOTE:

When installing the piston valve into the carburetor body, face the dent mark (A) on the piston valve to the air cleaner side.





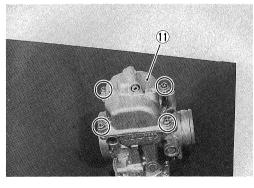
• Remove the jet needle (10) out of the piston valve.



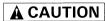
• Remove the float chamber body 11.



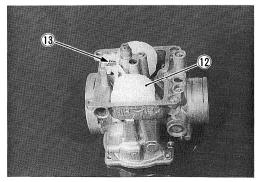
09900-09003: Impact driver set



• Remove the float assembly 12 and needle valve 13.



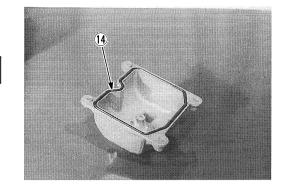
Do not use a wire for cleaning the valve seat.



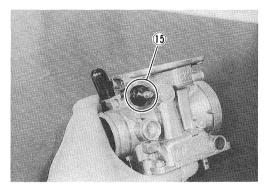
• Remove the O-ring 14.

A CAUTION

Use a new O-ring to prevent fuel leakage.



• Remove the starter (enrichener) plunger assembly (15).



• Remove the main jet (6), pilot jet (17) and pilot screw (18).

A CAUTION

Do not use a wire for cleaning of passage and jets.

NOTE:

Before removing the pilot screw (18), determine the setting by slowly turning it clockwise and count the number of turns required to lightly seat the screw. This counted number is important when reassembling pilot screw to original position.

• Remove the main air jet (19) and pilot air jet (20).

A CAUTION

Do not use a wire for cleaning of passage and jets.

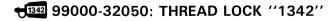
Remove two throttle valve ② by removing the screws.



These two screws are locked by punching these ends. Once removing the screws, they will be damaged.

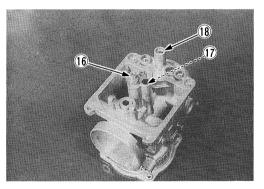
NOTE:

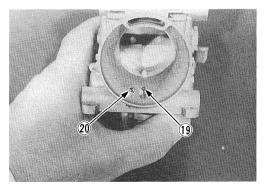
Apply a small quantity of THREAD LOCK "1342" to the screws, when installing the throttle valve to its shaft.

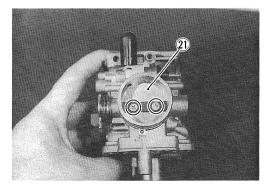




Face the stamped side of throttle valve to outside.







CARBURETOR JET INSPECTION

Check following items for any damage or clogging.

* Pilot jet

* Needle valve

* Main jet

* Starter (Enrichener) jet

* Main air jet

* Gasket and O-ring

* Pilot air jet

* Throttle shaft oil seal

* Needle jet air bleeding hole

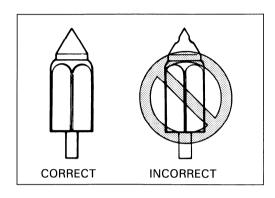
* Diaphragm

* Float

* Pilot outlet and by-pass holes

NEEDLE VALVE INSPECTION

If foreign matter is caught between the valve seat and the needle, the gasoline will continue flowing and cause it to overflow. If the seat and needle are worn beyond the permissible limits, similar trouble will occur. Conversely, if the needle sticks, the gasoline will not flow into the float chamber. Clean the float chamber and float parts with gasoline. If the needle is worn as shown in the illustration, replace it together with a valve seat. Clean the fuel passage of the mixing chamber with compressed air.

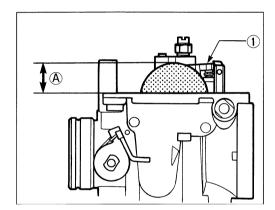


FLOAT HEIGHT ADJUSTMENT

To check the float height, invert the carburetor body, with the float arm kept free, measure the height (A) while float arm is just in contact with needle valve by using calipers. Bend the tongue (1) as necessary to bring the height (A) to this value.

Float height \triangle : 17 ± 1.0 mm (0.67 ± 0.04 in)

09900-20102: Vernier calipers



REASSEMBLY AND REMOUNTING

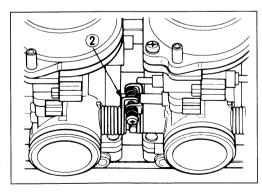
Reassemble and remount the carburetor assembly in the reverse order of disassembly and removal.

Pay attention to the following points:

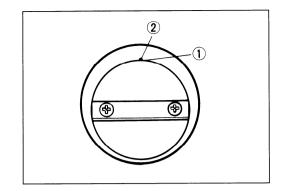
 When engaging two carburetors, position the throttle valve control lever ② correctly.

A CAUTION

- Replace the O-rings and seals with new ones.
- Make sure that the pipes and seals are positioned correctly, when engaging the carburetors.



• Set each throttle valve in such a way that its top end (1) meets the foremost by-pass (2). This is accomplished by turning the throttle stop screw and throttle valve balance screw.



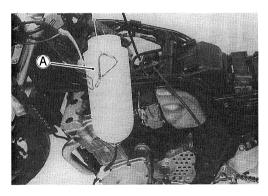
- After all wok is completed, mount the carburetors on the engine and the following adjustments are necessary.
 - * Engine idle r/min Page 2- 9
 - * Throttle cable play Page 2- 9
 - * Balancing carburetors Page 4-16

BALANCE OF CARBURETORS

Check the four carburetors for balancing movement according to the following procedures.

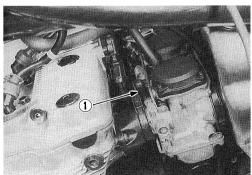
NOTE:

When balancing the carburetors, remove the fuel tank and fuel should be supplied by a separate fuel tank (A).



CALIBRATING EACH GAUGE

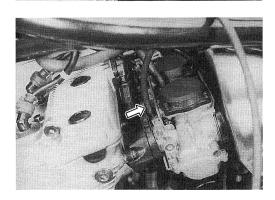
- Remove the vacuum hose from No.4 carburetor and fit a proper cap to the vacuum inlet of the No.4 carburetor.
- · Start up the engine and run it in idling condition for warming up.
- Stop the warmed-up engine.
- Remove the vacuum inlet cap ① for No.1 or No.4 cylinder.



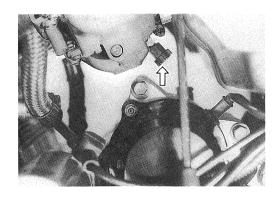
• Connect one of the four rubber hoses of balancer gauge to this inlet.



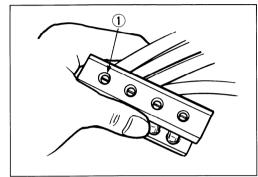
TOOL 09913-13121: Carburetor balancer

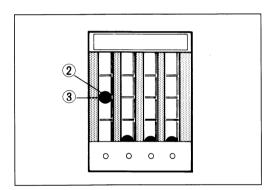


 Start up the engine and keep it running at 1 750 r/min by turning throttle stop screw.

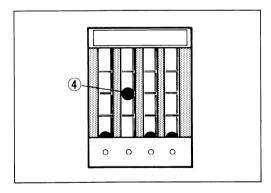


Turn the air screw ① of the gauge so that the vacuum acting on the tube of that hose will bring the steel ball
② in the tube to the center line ③ .





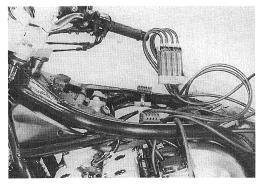
- After making sure that the steel ball stays steady at the center line, disconnect the hose from inlet and connect the next hose to the inlet.
- Turn air screw to bring the other steel ball 4 to the center line
- Repeat the above process on the third and fourth hoses. The balancer gauge is now ready for use in balancing the carburetors.



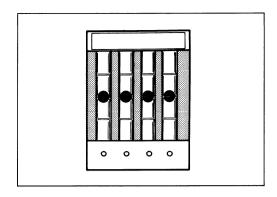
BALANCING CARBURETORS

For balancing all the carburetor movement, remove all the vacuum inlet caps from each carburetor. Connect the balancer gauge hoses to these vacuum inlets and adjust the balance of four carburetors as follows:

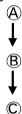
• Start up the engine and keep it running at 1 750 r/min to see engine tachometer reading.

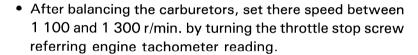


A correctly adjusted carburetor has the steel balls in the Nos. 1 through 4 tubes at the same level.

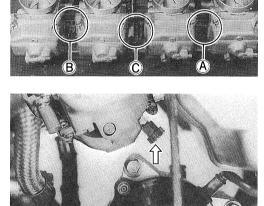


- If the steel balls are not in correct positions, adjust the throttle valve balance screws correctly.
- · Adjusting order is as follows.





Idle r/min: 1 200 ± 100 r/min



LUBRICATION SYSTEM

OIL PRESSURE

Refer to page 2-20.

OIL FILTER

Refer to page 2-7.

OIL SUMP FILTER

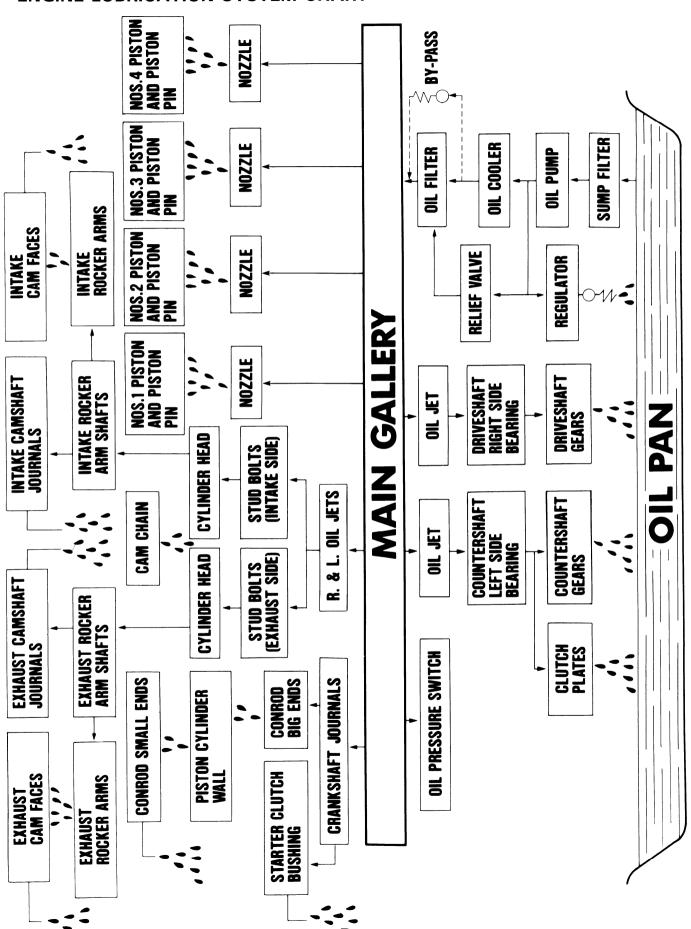
When you wash the oil pan, check to be sure that the oil sump filter is free from any sign of rupture, also wash the filter clean periodically.

A CAUTION

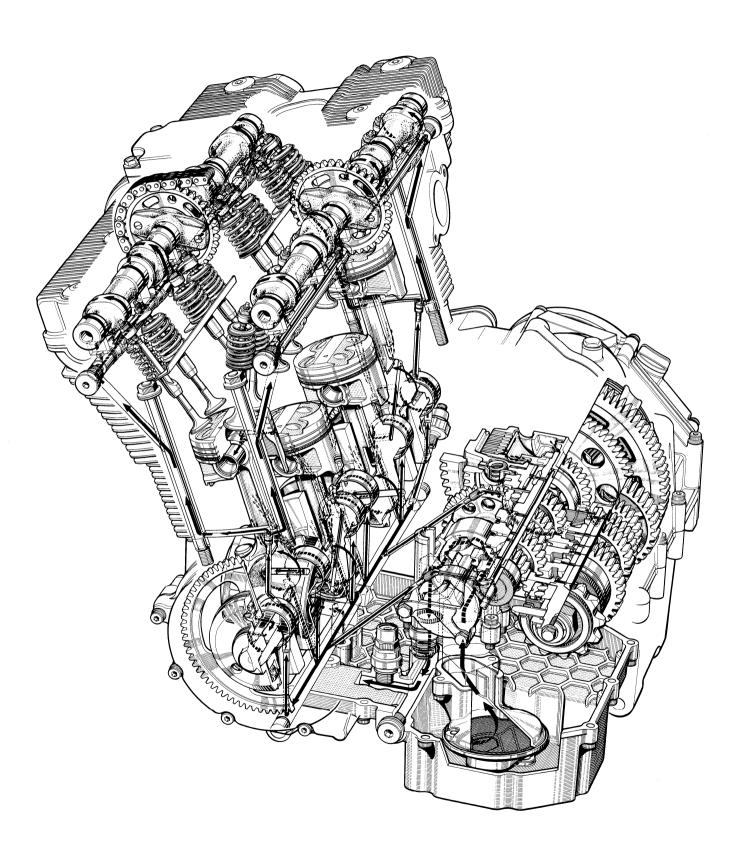
Replace the oil pan gasket with a new one to prevent oil leakage.

(Refer to pages 3-49 and 3-50.)

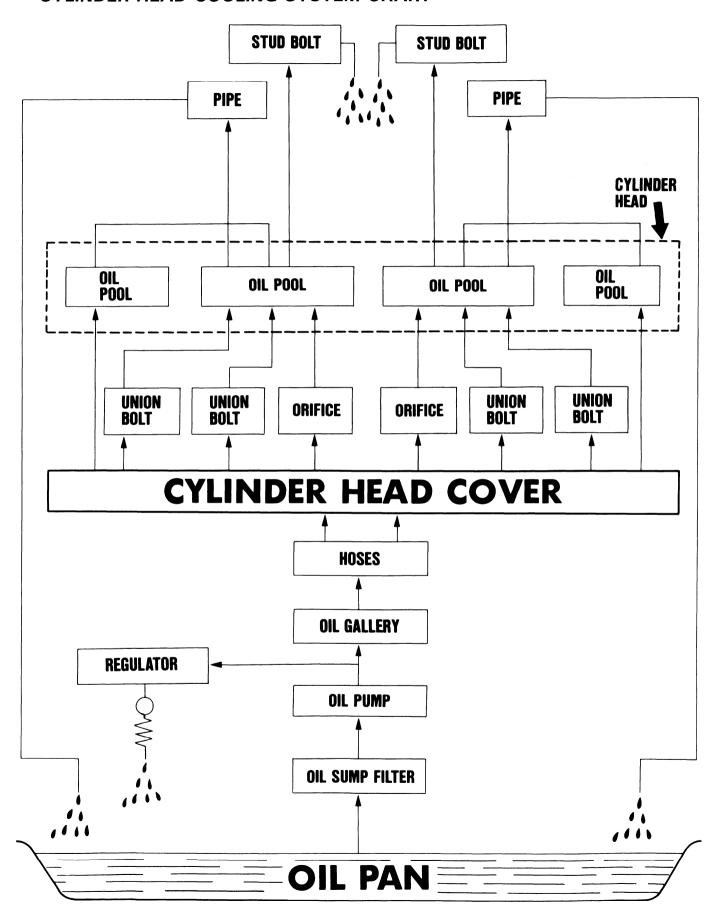
ENGINE LUBRICATION SYSTEM CHART



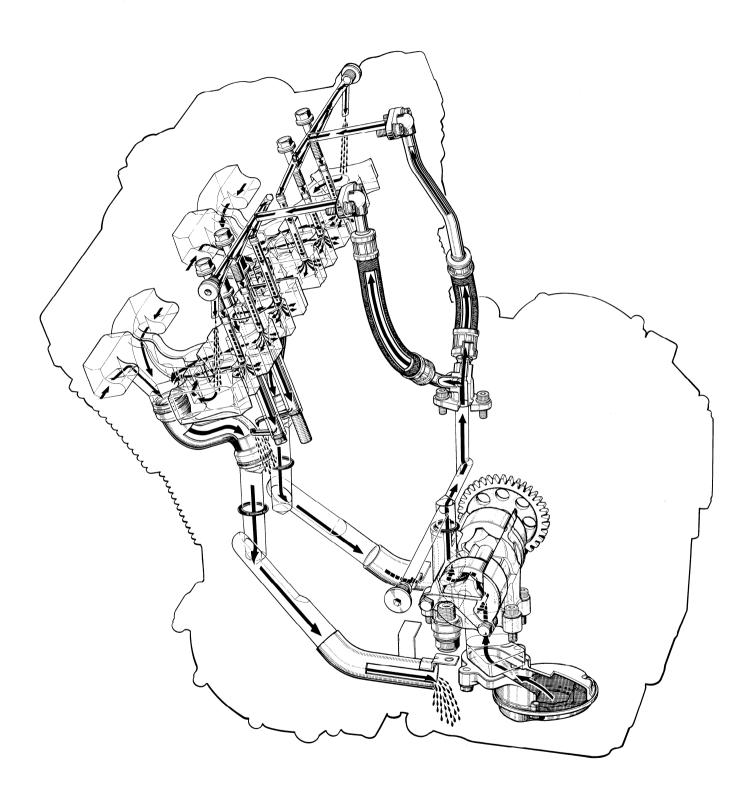
ENGINE LUBRICATION SYSTEM



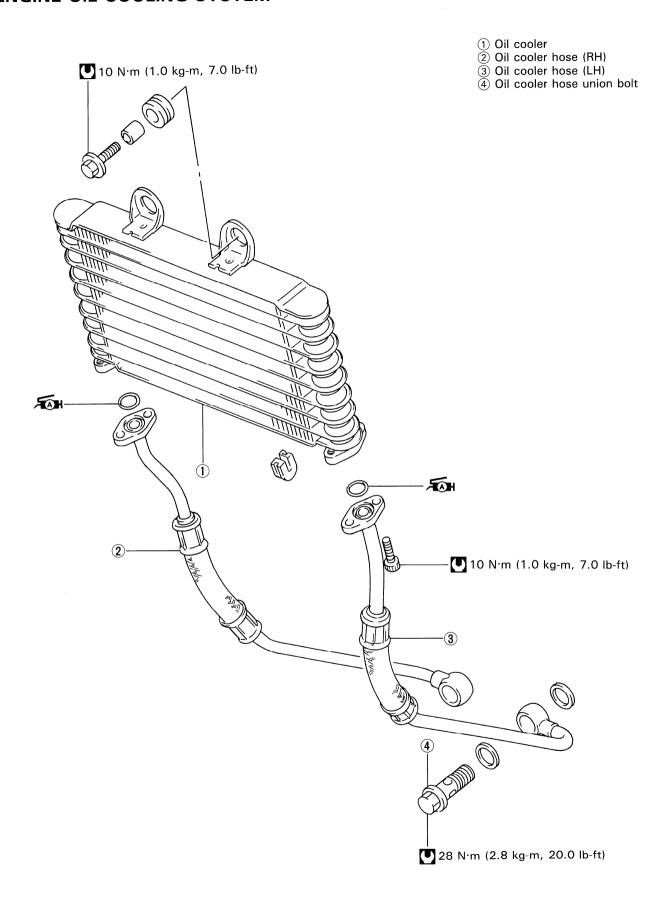
CYLINDER HEAD COOLING SYSTEM CHART



CYLINDER HEAD COOLING SYSTEM



ENGINE OIL COOLING SYSTEM

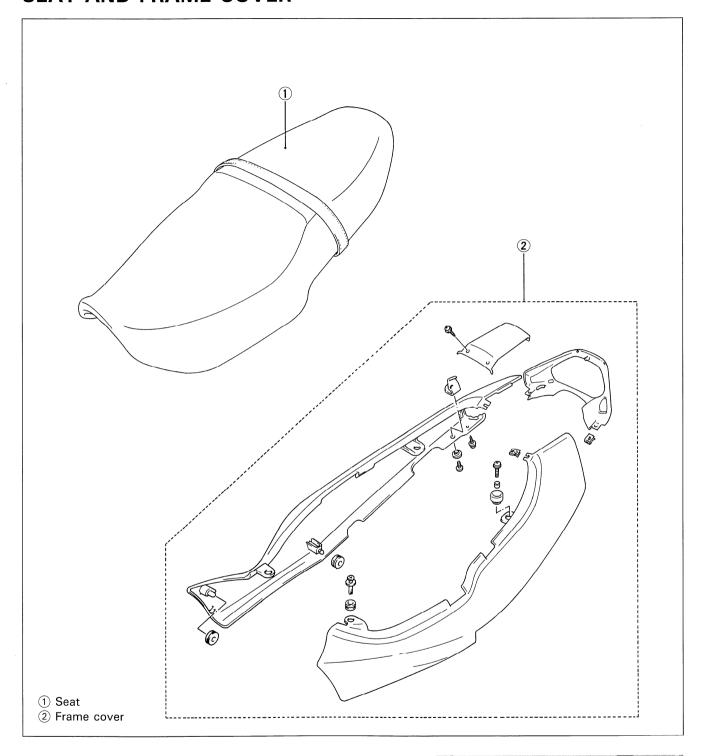


5

CHASSIS

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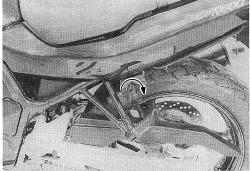
SEAT AND FRAME COVER



REMOVAL

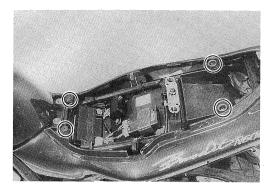
SEAT

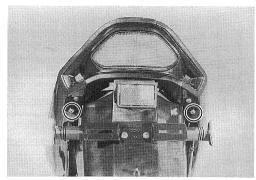
• Remove the seat with the ignition key.



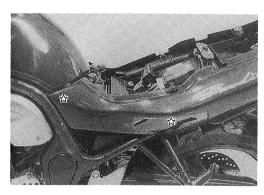
FRAME COVER

- Remove the seat. (Refer to page 5-1.)
- Remove the frame cover mounting screws.



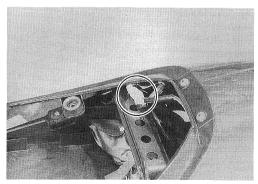


• Extract the hooked parts of frame cover, left and right.



☆: hooked part

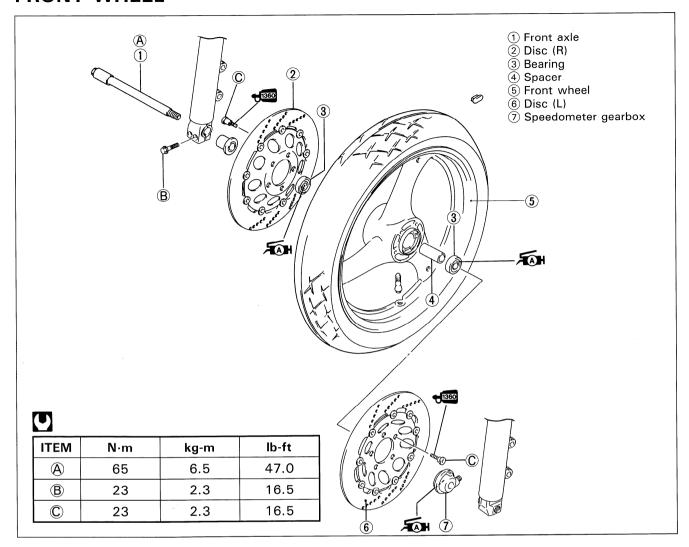
• Remove the frame cover after disconnecting the tail/brake light lead wire coupler.



REMOUNTING

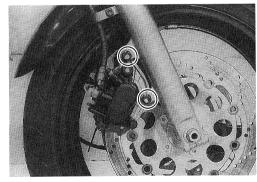
Remount the seat and frame cover in the reverse order of its removal.

FRONT WHEEL



REMOVAL

- Remove the brake calipers, left and right.
- Loosen the axle pinch bolts (1).
- Loosen the front axle 2.
- Raise the front wheel off the ground with a jack or wooden block.
- Remove the axle and front wheel.

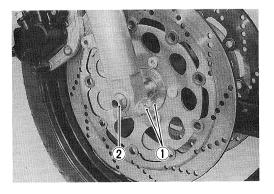


A CAUTION

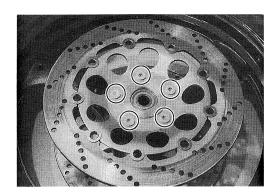
Do not operate the brake lever while removing the calipers.

NOTE:

After removing the front wheel, fit the calipers temporarily to the original positions.



Remove the brake discs from the front wheel.



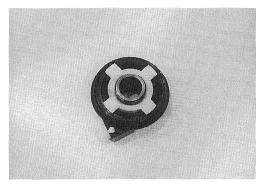
INSPECTION AND DISASSEMBLY

SPEEDOMETER GEARBOX DUST SEAL

Inspect the lip of the dust seal for damage.

TIRE

Refer to page 5-8.

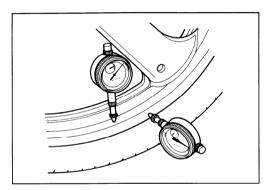


FRONT WHEEL

Inspect the wheel runout.

Excessive runout is usually due to worn or loosen wheel bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the runout, replace the wheel.

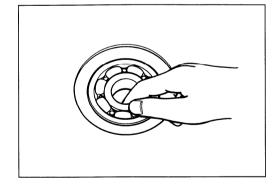
Service Limit (Axial and Radial): 2.0 mm (0.08 in)



WHEEL BEARING

Rotate the inner race by finger to inspect for abnormal play, noise and smooth rotation while the wheel bearings are in the wheel.

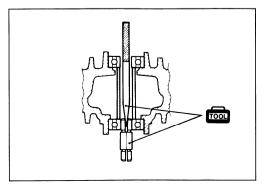
Replace the bearing in the following procedure if there is anything unusual.



- Insert the attachment of bearing remover to the bearing as shown.
- Insert the wedge of bearing remover to the attachment from the opposite side, lock the wedge in the slit of attachment.

100L 09941-50111: Bearing remover

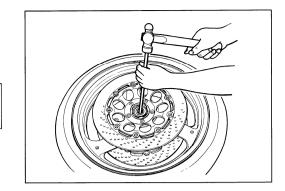
09941-50120: Bearing remover attachment



 Drive out the wheel bearings by knocking the bearing remover.

A CAUTION

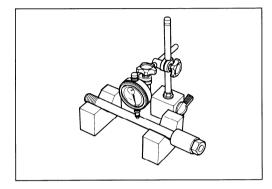
The removed bearings should be replaced with new ones.



FRONT AXLE

Using a dial gauge, check the axle for runout. If the runout exceeds the limit, replace the axle.

Service Limit: 0.25 mm (0.010 in)



REASSEMBLY AND REMOUNTING

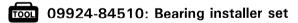
Reassemble and remount the front wheel in the reverse order of removal and disassembly. Pay attention to the following points:

WHEEL BEARING

Apply SUZUKI SUPER GREASE "A" to the bearings before installing.



 Install the wheel bearings as follows by using the used bearing and special tool.



A CAUTION

First install the left wheel bearing, then install the right wheel bearing. Refer to page 5-7 for details. The sealed cover on the bearing must face to the outside.

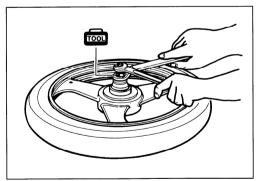
BRAKE DISC

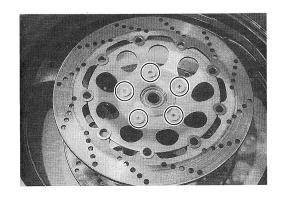
 Make sure that the brake disc is clean and free of any greasy matter. Apply THREAD LOCK SUPER "1360" to the disc mounting bolts and tighten them to the specified torque.

99000-32130: THREAD LOCK SUPER "1360"

Brake disc bolt: 23 N·m (2.3 kg-m, 16.5 lb-ft)





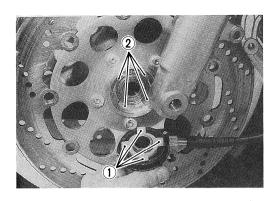


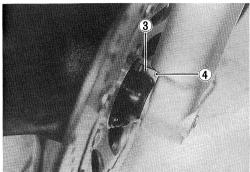
SPEEDOMETER GEARBOX

 Before installing the speedometer gearbox, apply grease to its dust seal lip and align the drive lugs 1 to the recesses 2 of the wheel hub and attach the speedometer gearbox to the wheel hub.

99000-25010: SUZUKI SUPER GREASE "A"

• Touch the stopper ③ on the speedometer gearbox to the lug ④ on the left front fork.

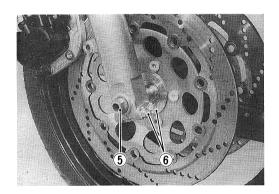




FRONT AXLE

- Tighten the front axle to the specified torque and then moving the motorcycle up and down.
- Tighten the pinch bolts to the specified torque.

Front axle 5: 100 N·m (10.0 kg-m, 72.5 lb-ft)
Pinch bolt 6: 23 N·m (2.3 kg-m, 16.5 lb-ft)

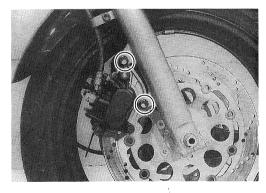


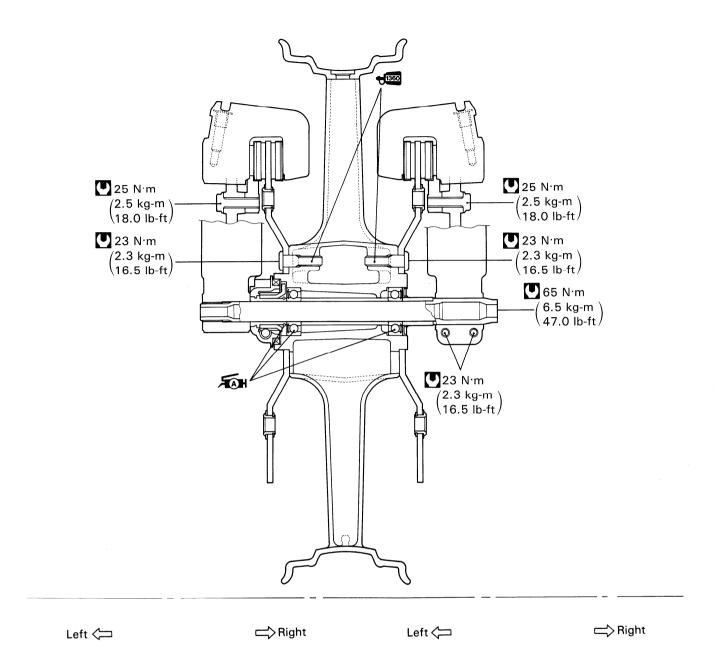
BRAKE CALIPER

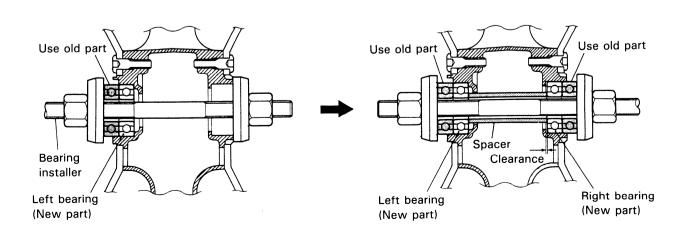
• Tighten the brake caliper mounting bolts to the specified torque.

Caliper mounting bolt: 25 N·m (2.5 kg-m, 18.0 lb-ft)

Push the pistons all the way into the caliper and remount the calipers.



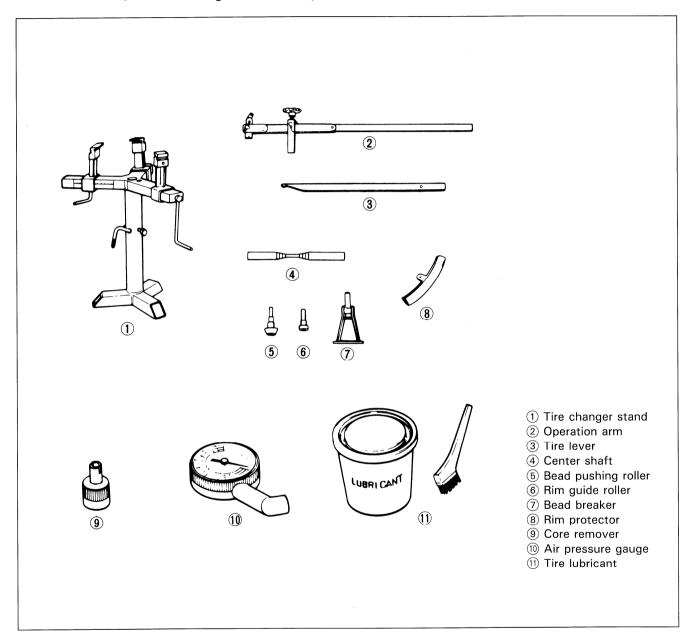




TIRE AND WHEEL

TIRE REMOVAL

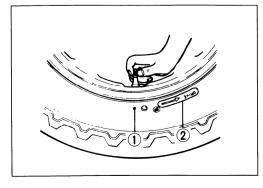
The most critical factor of a tubeless tire is the seal between the wheel rim and the tire bead. Because of this, we recommend using a tire changer which is also more efficient than tire levers. For tire removal, the following tools are required.



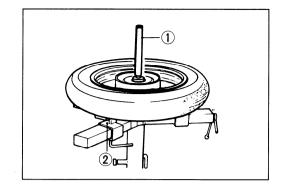
• Remove the valve core from the valve stem, and deflate the tire completely.

NOTE:

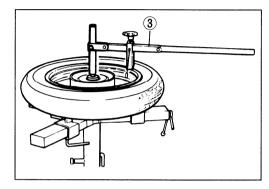
Mark the tire with chalk to note the position ① of the tire on the rim and rotational direction ② of the tire.



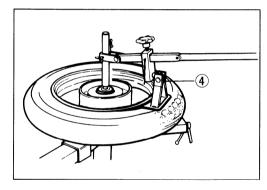
• Place the center shaft ① to the wheel, and fix the wheel with the rim holder ② .



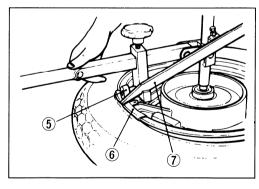
• Attach the operation arm (3) to the center shaft.



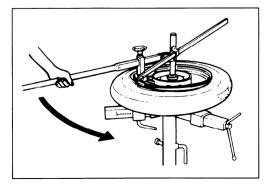
Attach the bead breaker 4 to the operation arm, and dismount the bead from the rim. Turn the wheel over and dismount the other bead from the rim.



- Install the rim guide roller 5 .
- Install the rim protector (6), and raise the bead with the tire lever (7).



• Set the tire lever against the operation arm, and rotate the lever around the rim. Repeat this procedure to remove the other bead from the rim.

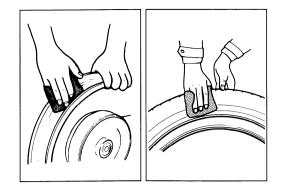


INSPECTION

WHEEL

Wipe off any rubber substance or rust from the wheel, and inspect the wheel rim. If any one of the following items is observed, replace it with a new wheel.

- * A distortion or crack.
- * Any scratches or flaws in the bead seating area.
- * Wheel runout (Axial & Radial) of more than 2.0 mm (0.08 in).



TIRE

Thoroughly inspect the removed tire, and if any one of the following items is observed, do not repair the tire. Replace with a new one.

- * A puncture or a split whose total length or diameter exceeds 6.0 mm (0.24 in).
- * A scratch or split at the side wall.
- * Tread depth less than 1.6 mm (0.06 in) in the front tire and less than 2.0 mm (0.08 in) in the rear tire.

09900-20805: Tire depth gauge

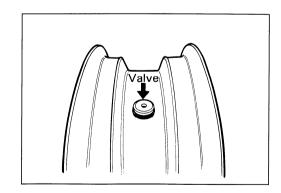
- * Ply separation.
- * Tread separation.
- * Tread wear is extraordinarily deformed or distributed around the tire.
- * Scratches at the bead.
- * Cord is cut.
- * Damage from skidding (flat spots).
- * Abnormality in the inner liner.

NOTE:

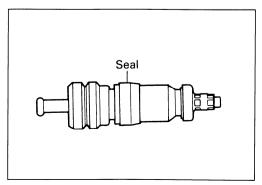
When repairing a flat tire, follow the repair instructions and use only recommended repairing materials.

VALVE INSPECTION

Inspect the valve after the tire is removed from the rim, and replace with a new valve if the seal rubber has any splits or scratches.



Inspect the removed valve core and replace with the new one if the seal is abnormally deformed or worn.

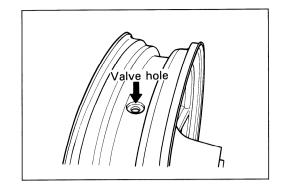


VALVE INSTALLATION

Any dust or rust around the valve hole must be cleaned off. Then install the valve in the rim.

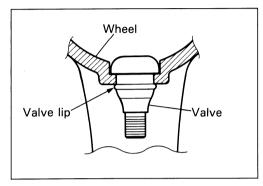
NOTE:

To properly install the valve into the valve hole, apply a special tire luburicant or neutral soapy liquid to the valve.



A CAUTION

Be careful not to damage the lip of valve.

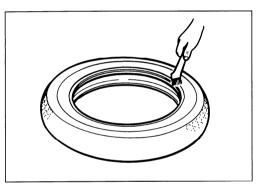


TIRE INSTALLATION

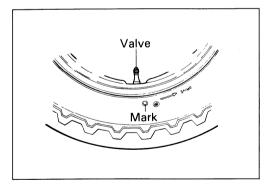
 Apply a special tire lubricant or neutral soapy liquid to the tire bead.

A CAUTION

Never apply grease, oil or gasoline to the tire bead.



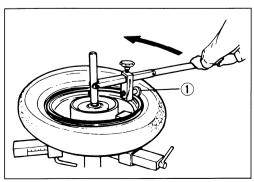
 When installing the tire, make certain that the directional arrow faces the direction of wheel rotation and align the balancing mark of the tire with the valve as shown.



- Set the bead pushing roller (1).
- Rotate the operation arm around the rim to mount the bead completely. Do the bottom bead first, then the upper bead.
- Remove the wheel from the tire changer, and install the valve core in the valve stem.

NOTE:

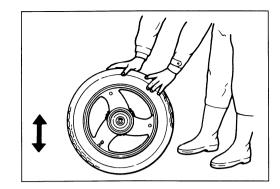
Before installing the valve core, inspect the core.



 Bounce the tire several times while rotating. This makes the tire bead expand outwards, and thus makes inflation easier.

NOTE:

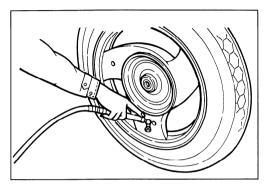
Before inflating, confirm that the balance mark lines up with the valve stem.



• Pump up the tire with air.

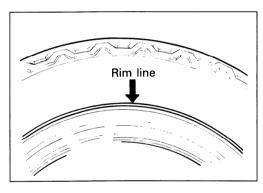
A WARNING

Do not inflate the tire to more than 400 kPa (4.0 kg/cm², 56 psi). The tire could burst with sufficient force to cause severe injury. Never stand directly over the tire while inflating it.



NOTE:

Check the "rim line" cast on the tire side walls. It must be equidistant from the wheel rim all the way around. If the distance between the rim line and wheel rim varies, this indicates that the bead is not properly seated. If this is so, deflate the tire completely, and unseat the bead for both sides. Coat the bead with lubricant, and try again.



 After tire is properly seated to the wheel rim, adjust the air-pressure to the recommended pressure. Correct the wheel balance if necessary.

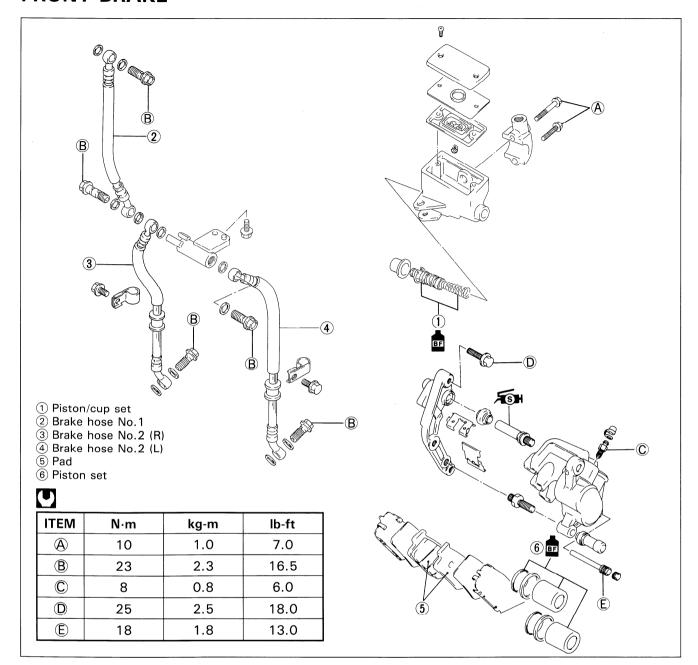
A WARNING

- Do not run a repaired tire more than 50 km/h (30 mph) within 24 hours after tire repairing, since the patch may not be completely cured.
- Do not exceed 130 km/h (80 mph) with a repaired tire.

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FRONT BRAKE



A WARNING

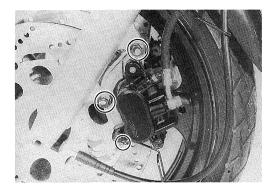
- This brake system is filled with a ethylene glycol-based DOT 4 brake fluid. Do not use or mix different types of fluid such as silicone-based or petroleum-based.
- Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for long periods.
- When storing the brake fluid, seal the container completely and keep away from children.
- When replenishing brake fluid, take care not to get dust into fluid.
- When washing brake components, use fresh brake fluid. Never use cleaning solvent.
- A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the disc with high quality brake cleaner or neutral detergent.

A CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc.

BRAKE PAD REPLACEMENT

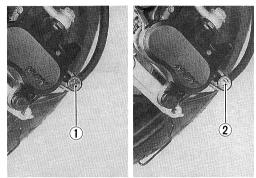
 Remove the caliper by removing the mounting bolts and speedometer cable guide bolt (for left caliper).

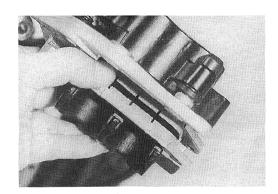


- Remove the brake pad mounting bolt cap (1).
- Remove the brake pads by removing the pad mounting bolt (2).

A CAUTION

- * Do not oprate the brake lever while dismounting the pads.
- * Replace the brake pads as a set, otherwise braking performance will be adversely affected.





• Remount the new pads.

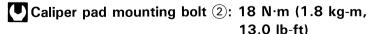
A WARNING

Make sure that the pads are properly engaged with the guide plate as shown in the illustration.

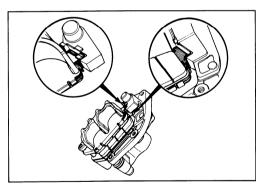
NOTE:

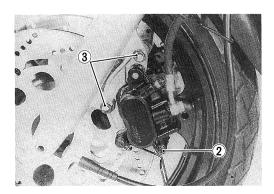
After replacing the brake pads, pump with the brake lever few times to operate the brake correctly and then check the brake fluid level.

• Tighten the caliper pad mounting bolt 2 and caliper mounting bolt 3 to the specified torque.



Caliper mounting bolt 3: 25 N·m (2.5 kg-m, 18,0 lb-ft)





BRAKE FLUID REPLACEMENT

- Place the motorcycle on a level surface and keep the handlebars straight.
- Remove the master cylinder reservoir cap and diaphragm.
- Suck up the old brake fluid as much as possible.
- Fill the reservoir with fresh brake fluid.

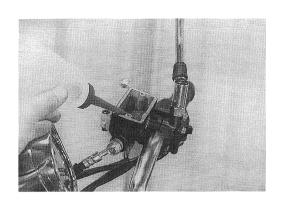


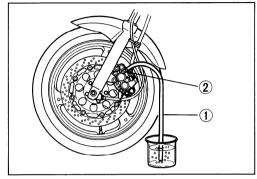
Specification and classification: DOT 4

- Connect a clear hose 1 to the air bleeder valve 2, and insert the free end of hose into a receptacle.
- Loosen the bleeder valve and pump the brake lever until no more old brake fluid flows out of the bleeder valve.
- Close the air bleeder valve, and disconnect a clear hose.
 Fill the reservoir with fresh brake fluid to the upper end of the inspection window.



Bleed air in brake fluid circuit. (Refer to page 2-14.)







CALIPER REMOVAL AND DISASSEMBLY

- Disconnect the brake hose from the caliper by removing the union bolt and catch the brake fluid in a suitable receptacle.
- Remove the brake caliper by removing the caliper mounting bolts and speedometer cable guide bolt (for left caliper).

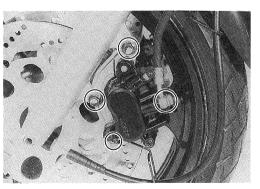
A CAUTION

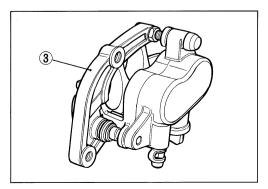
Never reuse the brake fluid left over from previous servicing and stored for long periods.

A WARNING

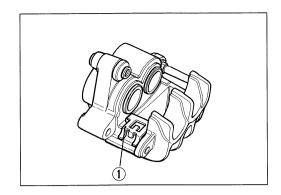
Brake fluid, if it leaks, will interfere with safe running and descolor painted surfaces. Check the brake hose and hose joints for cracks and oil leakage.

- Remove the pads.
- Remove the caliper holder 3.





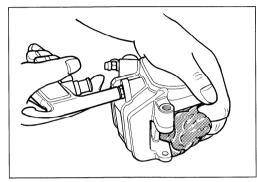
• Remove the spring 1.



• Place a rag over the piston to prevent its popping out and push out the piston with an air gun.

A CAUTION

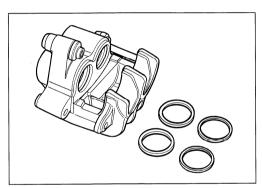
Do not use high pressure air to prevent piston damage.



• Remove the dust seals and piston seals.

▲ CAUTION

Do not reuse the dust seals and piston seals to prevent fluid leakage.



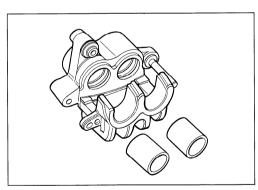
CALIPER INSPECTION

CALIPER

Inspect the caliper cylinder wall for nicks, scratches or other damage.

PISTON

Inspect the piston surface for any scratches or other damage.



RUBBER PARTS

The removed rubber parts should be replaced with new ones.

CALIPER REASSEMBLY AND REMOUNTING

Reassemble the caliper in the reverse order of removal and disassembly. Pay attention to the following points:

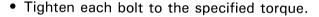
 Wash the caliper bores and pistons with specified brake fluid. Particularly wash the dust seal grooves and piston seal grooves.



Specification and classificatin: DOT 4

A CAUTION

- Wash the caliper components with fresh brake fluid before reassembly.
- Do not wipe the brake fluid off after washing the components.
- When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvent such as gasoline, kerosine or the others.
- Replace the piston seals and dust seals with new ones when reassembly. Apply the brake fluid to both seals when installing them.



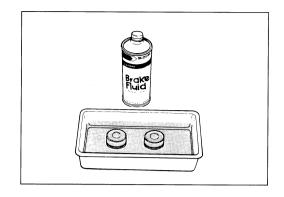
Caliper mounting bolt ①: 25 N·m (2.5 kg-m, 18.0 lb-ft)
Pads mounting bolt ②: 18 N·m (1.8 kg-m, 13.0 lb-ft)
Brake hose union bolt ③: 23 N·m (2.3 kg-m, 16.5 lb-ft)

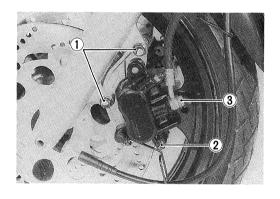
NOTE:

Before remounting the caliper, push the piston all the way into the caliper.

A CAUTION

Bleed air from the system after reassembling the caliper. (Refer to page 2-14.)





BRAKE DISC INSPECTION

• Remove the front and rear wheels. (Refer to pages 5-3) and 5-34.)

Visually check the brake disc for damage or cracks.

Measure the thickness with a micrometer.

Replace the disc if the thickness is less than the service limit or if damage is found.

Service Limit

Front disc: 4.0 mm (0.16 in) Rear disc: 4.5 mm (0.18 in)

09900-20205: Micrometer (0-25 mm)

Measure the runout with a dial gauge.

Replace the disc if the runout exceeds the service limit.

Service Limit

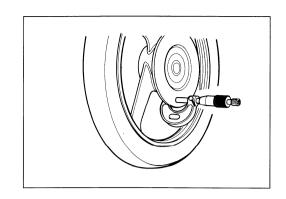
Front and Rear disc: 0.3 mm (0.012 in)

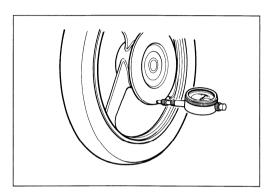
09900-20606: Dial gauge (1/100 mm)

09900-20701: Magnetic stand

• Remove the disc. (Refer to pages 5-4 and 5-35.)

• Install the disc. (Refer to pages 5-5 and 5-37.)





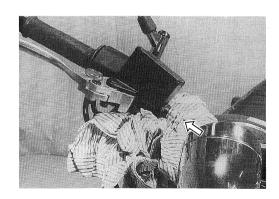
MASTER CYLINDER REMOVAL AND **DISASSEMBLY**

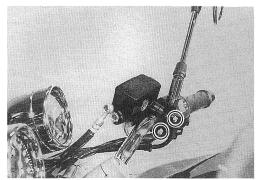
• Place a rag underneath the union bolt on the master cylinder to catch any spilled drops of brake fluid. Remove the union bolt and disconnect the brake hose/master cylinder joint.



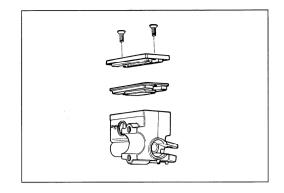
Immediately and completely wipe off any brake fluid contacting any part of the motorcycle. The fluid reacts chemically with paint, plastics and rubber materials, etc. and will damage them severely.

- Disconnect the front brake light switch lead wires.
- Remove the master cylinder assembly.





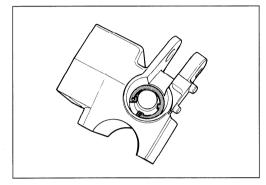
- Remove the brake lever and brake light switch.
- Remove the reservoir cap and diaphragm.
- Drain brake fluid.



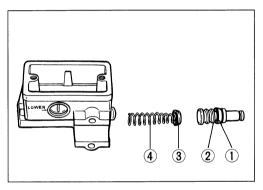
• Remove the circlip after removing the boot.



100L 09900-06108: Snap ring pliers



- Remove the piston/secondary cup, primary cup and spring.
- 1 Secondary cup
- 2 Piston
- (3) Primary cup
- 4 Return spring

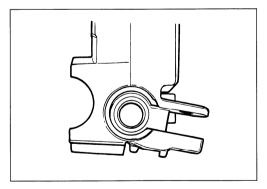


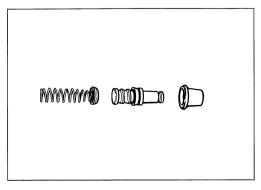
MASTER CYLINDER INSPECTION

Inspect the master cylinder bore for any scratches or other damage.

Inspect the piston surface for any scratches or other damage.

Inspect the primary cup, secondary cup and dust seal for wear or damage.





MASTER CYLINDER REASSEMBLY AND REMOUNTING

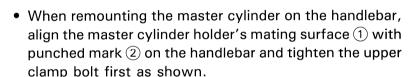
Reassemble the master cylinder in the reverse order of removal and disassembly. Pay attention to the following points:

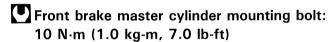
A CAUTION

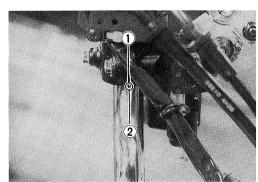
- * Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
- * Do not wipe the components with a rag.
- * Apply brake fluid to the cylinder bore and all the component to be inserted into the bore.



Specification and classification: DOT 4

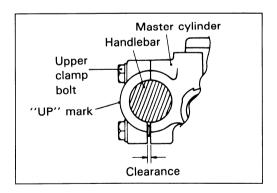


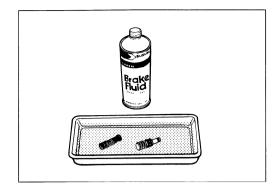




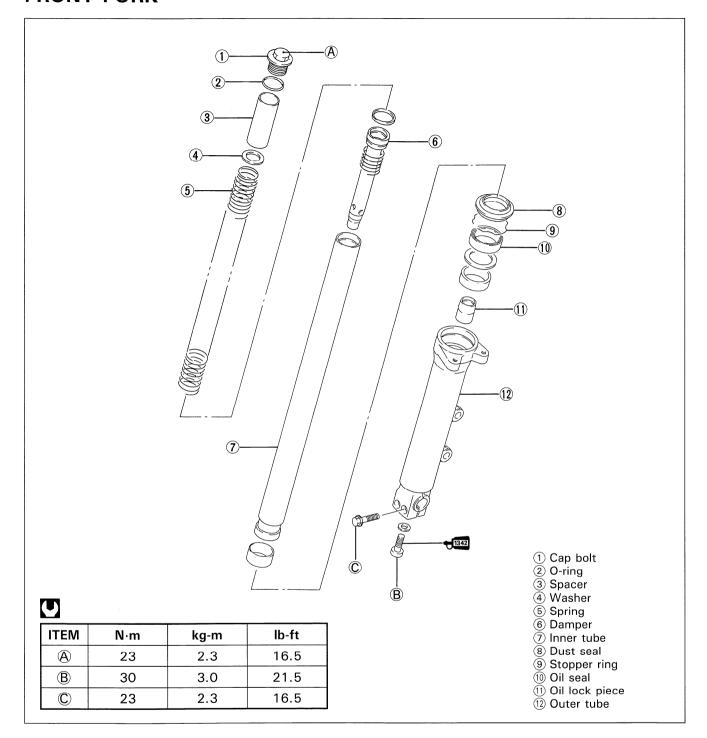
A CAUTION

Bleed air from the system after reassembling master cylinder. (Refer to page 2-14.)



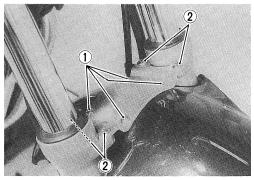


FRONT FORK

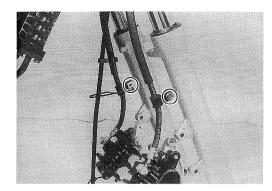


REMOVAL AND DISASSEMBLY

- Remove the front wheel. (Refer to page 5-3.)
- Remove the front fender by removing the four screws ①.
- Remove the front fender brace by removing the four screws 2.



 Remove the brake hose clamps with speedometer cable guide.



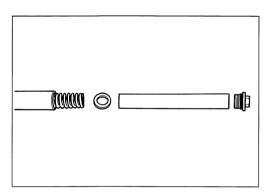
• Remove the front fork after loosening the front fork upper and lower clamp bolts.

NOTE:

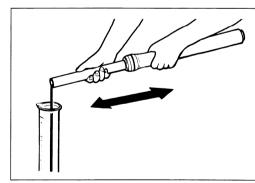
Slightly loosen the front fork cap bolt to facilitate later disassembly.



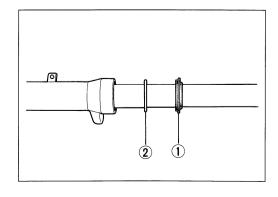
• Remove the cap bolt, spacer, washer and spring.



- Invert the fork and stroke it several times to drain out fork oil.
- Hold the fork inverted for a few-minutes to drain oil.



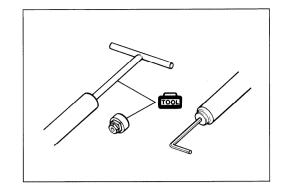
• Remove the dust seal ① and stopper ring ②.



• Remove the damper rod bolt with a 8-mm hexagon wrench and special tools.

09940-34520: "T" handle

09940-34592: Attachment "G"



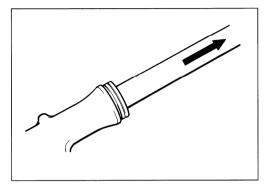
• Remove the oil seal by slowly pulling out the inner tube.

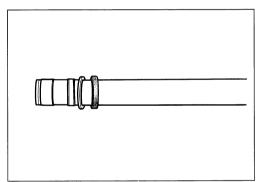
NOTE:

Be careful not to damage the inside of the tube.

A CAUTION

The outer tube and inner tube "ANTI-FRICTION" metals must be replaced along with oil seal and dust seal, when assembling the front fork.



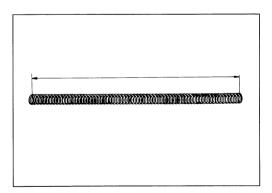


INSPECTION

FORK SPRING

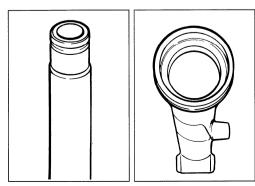
Measure the fork spring free length. If it is shorter than the service limit, replace it with a new one.

Service Limit: 303 mm (11.9 in)



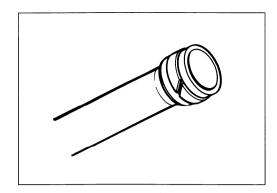
INNER AND OUTER TUBE

Inspect the inner tube sliding surface and outer tube sliding surface for any scuffing.



DAMPER ROD RING

Inspect the damper rod ring for wear or damage.



REASSEMBLY AND REMOUNTING

Reassemble and remount the front fork in the reverse order of removal and disassembly. Pay attention to the following points:

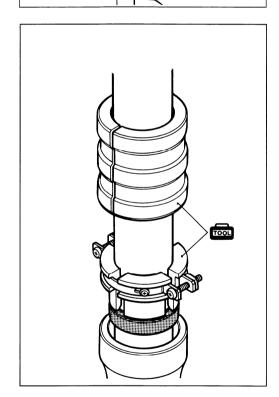


- Hold the inner tube vertically and clean the metal groove and install the ANTI-FRICTION metal by hand as shown.
- Install the outer tube metal ①, washer ② and oil seal ③ with the special tool.



A CAUTION

Use special care to prevent damage to the "Teflon" coated surface of the Anti-friction metal when mounting it.

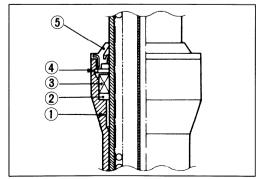


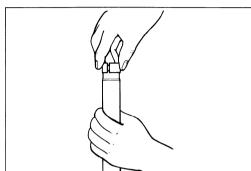
• Install the oil seal stopper ring 4 .

A CAUTION

Make sure that the oil seal stopper ring fitted securely.

• Install the dust seal 5.





DAMPER ROD BOLT

Apply THREAD LOCK "1342" to the damper rod bolt and tighten it to the specified torque with a 8-mm hexagon wrench and special tools.

99000-32050: THREAD LOCK "1342"

Damper rod bolt: 23 N·m (2.3 kg-m, 16.5 lb-ft)

09940-34520: "T" handle 09940-34592: Attachment "G"

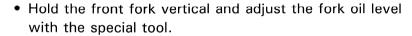
FORK OIL

• Pour specified fork oil into the inner tube.

Fork oil type: Fork oil #10

99000-99044-10G: SUZUKI FORK OIL #10

Capacity (each leg): 521 ml (17.6/18.3 US/Imp oz)



09943-74111: Fork oil level gauge

Oil level: 97 mm (3.8 in)

NOTE:

When adjusting the oil level, remove the fork spring and compress the inner tube fully.

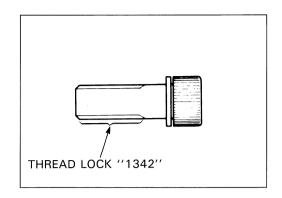
FORK SPRING

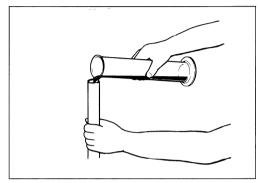
Install the fork spring as shown in the photograph.

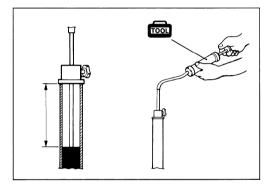
NOTE:

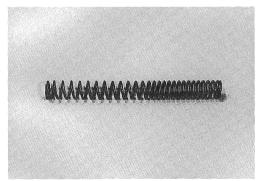
Close-pitch end of spring should position upper.

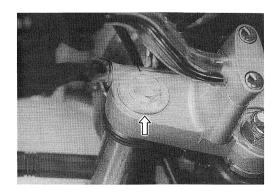
When remounting the front fork assembly, align the upper surface of the inner tube with the upper surface of the steering stem upper bracket.







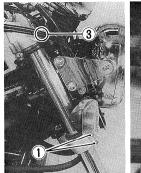


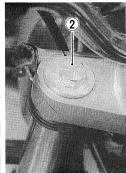


• Tighten the bolts to the specified torque.



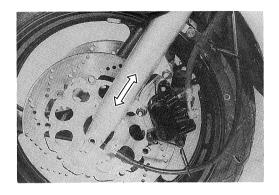
Item	N⋅m	kg-m	lb-ft
① Fork lower clamp bolt	23	2.3	16.5
② Fork cap bolt	23	2.3	16.5
③ Fork upper clamp bolt	23	2.3	16.5



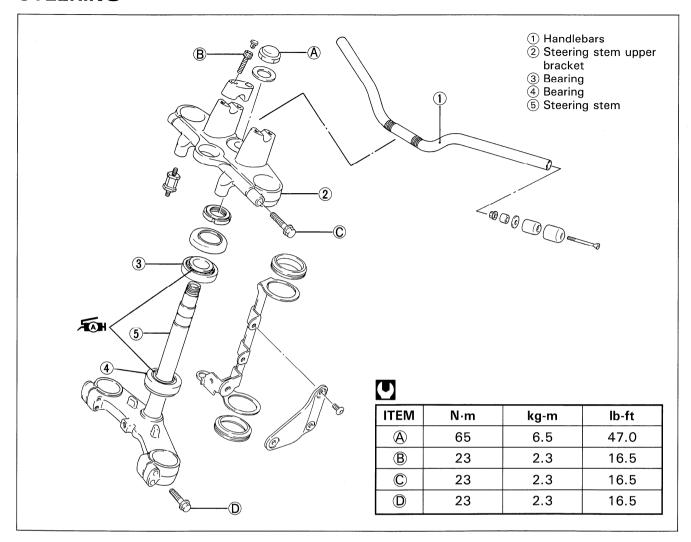


NOTE:

Before tightening the fender brace mounting screws, move the front fork up and down 4 or 5 times.

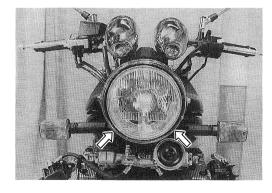


STEERING

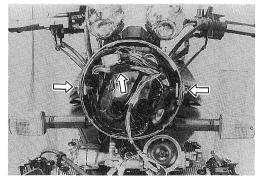


REMOVAL AND DISASSEMBLY

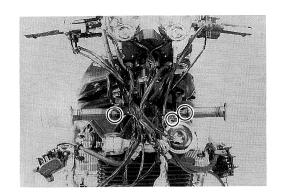
- Remove the front wheel. (Refer to page 5-3.)
- Remove the front fork. (Refer to page 5-21.)
- Remove the headlight by removing the its mounting screws.



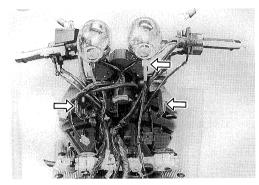
- Disconnect the lead wire couplers.
- Remove the headlight housing.



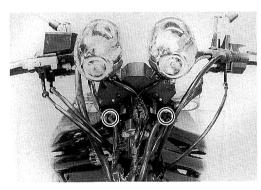
• Remove the horn and turn signal lights.



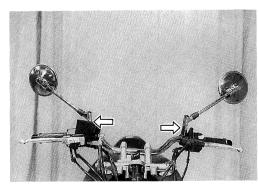
• Remove the speedometer cable and headlight housing holders.



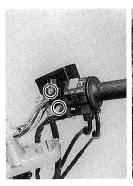
• Remove the speedometer.



• Remove the rear view mirrors.



• Remove the front brake master cylinder with brake calipers.



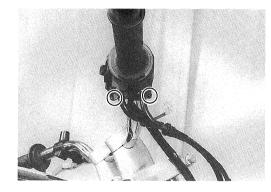


- Remove the left handlebar switch.
- Disconnect the clutch cable.

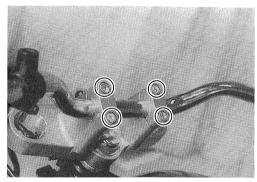




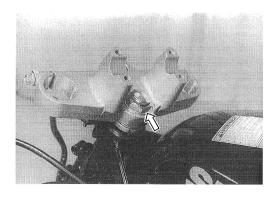
- Remove the handlebar weight.
- Remove the right handlebar switch.



• Remove the handlebars by removing the clamp bolt caps and clamp bolts.



• Remove the steering stem upper bracket by removing the nut.



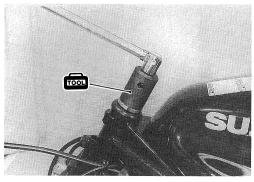
• Remove the steering stem nut with the special tool.



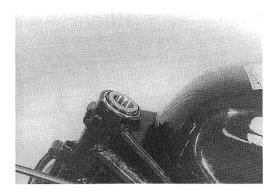
• Draw out the steering stem lower bracket.

NOTE:

Hold the steering stem lower bracket by hand to prevent it from falling.



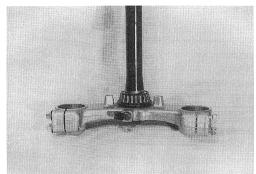
• Remove the steering stem upper bearing.



INSPECTION AND DISASSEMBLY

Inspect the removed parts for the following abnormalities.

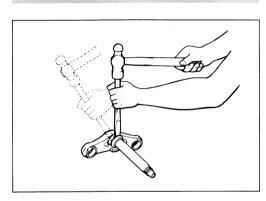
- * Handlebar distortion
- * Race wear and brinelling
- * Bearing wear or damage
- * Abnormal noise of bearing
- * Distortion of steering stem



• Remove the steering stem lower bearing with a chisel.

A CAUTION

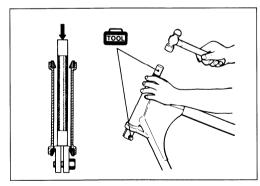
The removed bearing should be replaced with a new one.



• Drive out the steering stem bearing races, upper and lower with the special tools.



09941-54911: Bearing outer race remover 09941-74910: Steering bearing installer



REASSEMBLY AND REMOUNTING

Reassemble and remount the steering stem in the reverse order of removal and disassembly. Pay attention to the following points:

OUTER RACE

• Press in the upper and lower outer races with the special tool.



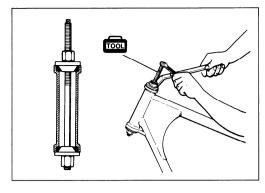
09941-34513: Steering outer race installer

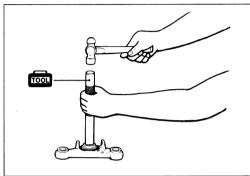
BEARING

• Press in the lower bearing with the special tool.



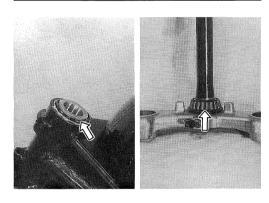
100L 09941-74910: Steering bearing installer





 Apply grease to the upper and lower bearings before remounting the steering stem.

▲ 199000-25010: SUZUKI SUPER GREASE "A"



STEERING STEM NUT

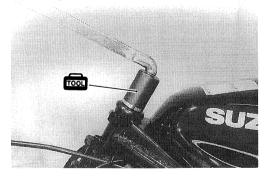
• Tighten the steering stem nut to the specified torque.



09940-14911: Steering stem nut wrench



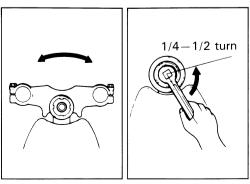
Stem nut: 45 N·m (4.5 kg-m, 32.5 lb-ft)



- Turn the steering stem lower bracket about five or six times to the left and right so that the taper roller bearing will be seated properly.
- Turn back the stem nut by 1/4-1/2 turn.

NOTE:

This adjustment will vary from motorcycle to motorcycle.

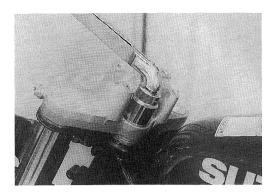


• Tighten the steering stem head nut to the specified torque.

Steering stem head nut: 65 N·m (6.5 kg-m, 47.0 lb-ft)

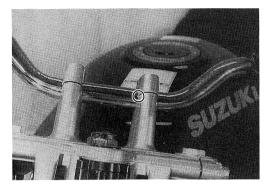
NOTE:

Before tighten the steering stem head nut, install the front forks temporarily.



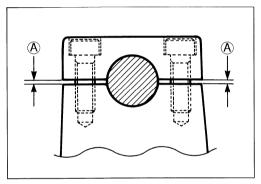
HANDLEBARS

 Set the handlebars to match its punched mark to the matting face of the handlebars clamps as shown in the photograph.



• Secure the each handlebars clamp in such a way that the clearances (A) ahead and behind the handlebars are equalized.

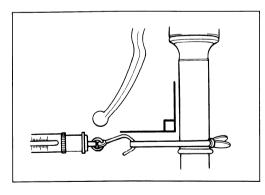
Handlebars clamp bolt: 23 N·m (2.3 kg-m, 16.5 lb-ft)



STEERING TENSION ADJUSTMENT

Check the steering movement in the following procedure.

- By supporting the motorcycle with a jack, lift the front wheel until it is off the floor by 20-30 mm (0.8-1.2 in).
- Check to make sure that the cables and wire harnesses are properly routed.
- With the front wheel in the straight ahead state, hitch the spring scale (special tool) on one handlebars grip end as shown in the figure and read the graduation when the handlebars starts moving. Do the same on the other grip end.



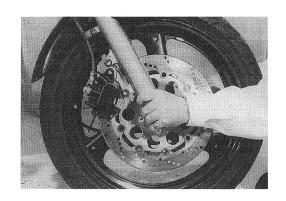
Initial force: 200-500 grams

TOOL 09940-92710: Spring scale

- If the initial force read on the scale when the handlebars starts turning is either too heavy or too light, adjust it till it satisfies the specification.
 - 1) First, loosen the front fork upper clamp bolts and steering stem head nut, and then adjust the steering stem nut by loosening or tightening it.
 - 2) Tighten the head nut and clamp bolts to the specified torque and re-check the initial force with the spring scale according to the previously described procedure.
 - 3) If the initial force is found within the specified range, adjustment has been completed.

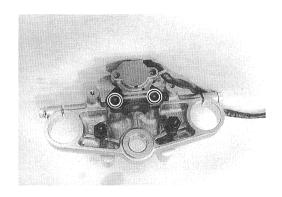


Hold the front fork legs, move them back and forth and make sure that the steering is not loose.



IGNITION SWITCH REMOVAL AND REMOUNTING

• To remove the ignition switch, remove the bolt to detach the ignition switch from the steering stem upper bracket by using a center punch and hammer.

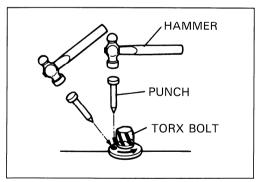


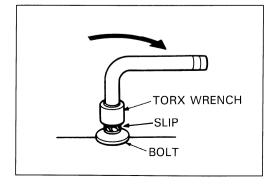
- To install the ignition switch, always use the new special bolt and follow the procedures below:
- Using the special bolts, attach the ignition switch on the steering stem upper bracket in place and run in the bolts with the special tool.

09930-11910: Torx wrench

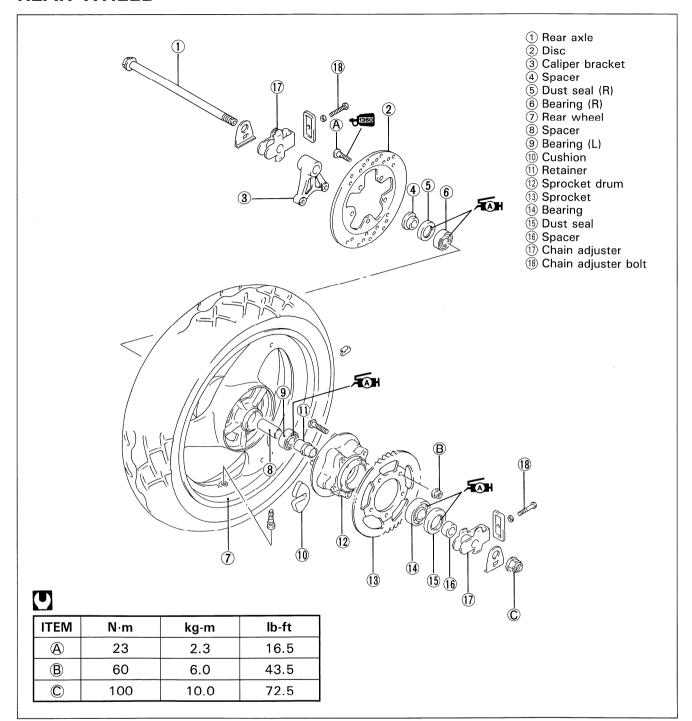
 Continue turning the tool until the tool slips from the bolt head or the bolt head breaks off, then the bolt has be-

come tightened to the proper specification.





REAR WHEEL

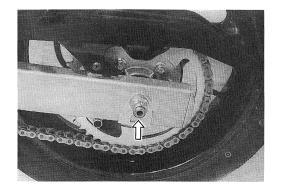


REMOVAL

- Support the motorcycle with a jack.
- Remove the axle nut and rear axle.
- Remove the rear wheel by disengaging the drive chain.

A CAUTION

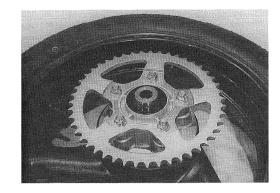
Do not operate the brake pedal while dismounting the rear wheel.



 Draw out the rear sprocket mounting drum from the wheel.

NOTE:

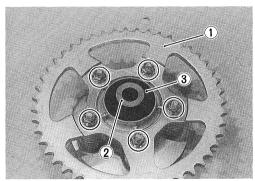
Slightly loosen the rear sprocket mounting nuts to facilitate later disassembly before separate the mounting drum.



- Remove the rear sprocket 1) from its mounting drum.
- Remove the spacer ② and dust seal ③ .

A CAUTION

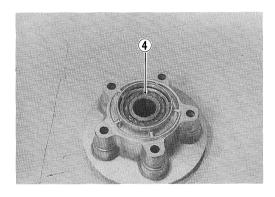
The removed dust seal should be replaced with a new one.



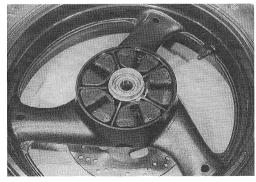
• Remove the drum retainer, draw out the sprocket mounting drum bearing 4 using an appropriate tool.

A CAUTION

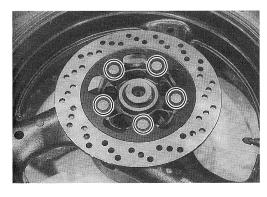
The removed bearing should be replaced with a new one.



· Remove the cushions.



• Remove the brake disc from the wheel.



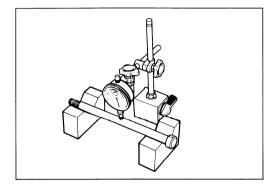
INSPECTION AND DISASSEMBLY

TIRE	Refer to page 5-8.
REAR WHEEL	Refer to page 5-4.
WHEEL BEARING	Refer to page 5-4.

REAR AXLE

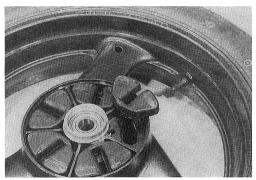
Using a dial gauge, check the rear axle for runout. If the runout exceeds the limit, replace the rear axle.

Service Limit: 0.25 mm (0.010 in)



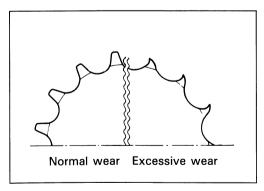
CUSHION

Inspect the cushion for wear and damage.



SPROCKET

Inspect the sprocket teeth for wear. If they are worn as shown, replace the sprockets and drive chain as a set.



REASSEMBLY AND REMOUNTING

Reassemble and remount the rear wheel in the reverse order of removal and disassembly. Pay attention to the following points:

WHEEL BEARING

• Apply grease to the bearings before installing.

₹AH99000-25010: SUZUKI SUPER GREASE "A"



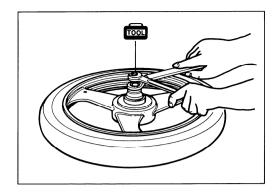
• Install the wheel bearings with the special tool.

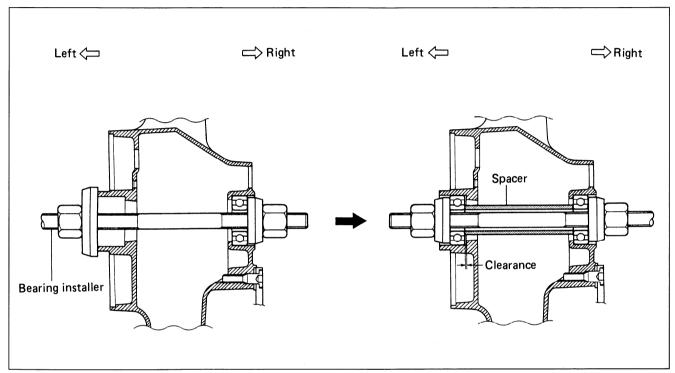


100L 09941-34513: Bearing installer set

NOTE:

First install the right wheel bearing, then install the left wheel bearing.





MOUNTING DRUM BEARING

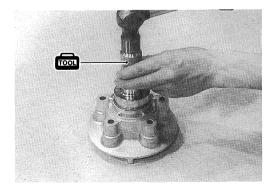
• Install the new bearing with the special tool.



1001 09913-75520: Bearing installer

NOTE:

Apply grease to the bearing and oil seal lip before assembling rear wheel.



BRAKE DISC

• Apply THREAD LOCK SUPER "1360" to the disc bolts and tighten them to the specified torque.

NOTE:

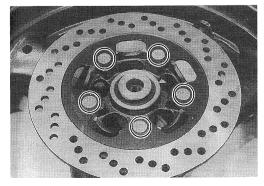
Make sure that the brake disc is clean and free of any greasy matter.



99000-32130: THREAD LOCK SUPER "1360"



Brake disc bolt: 23 N·m (2.3 kg-m, 16.5 lb-ft)



REAR SPROCKET

 Tighten the sprocket mounting nuts to the specified torque.

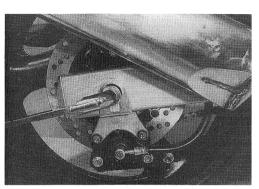
Rear sprocket nut: 60 N·m (6.0 kg-m, 43.5 lb-ft)

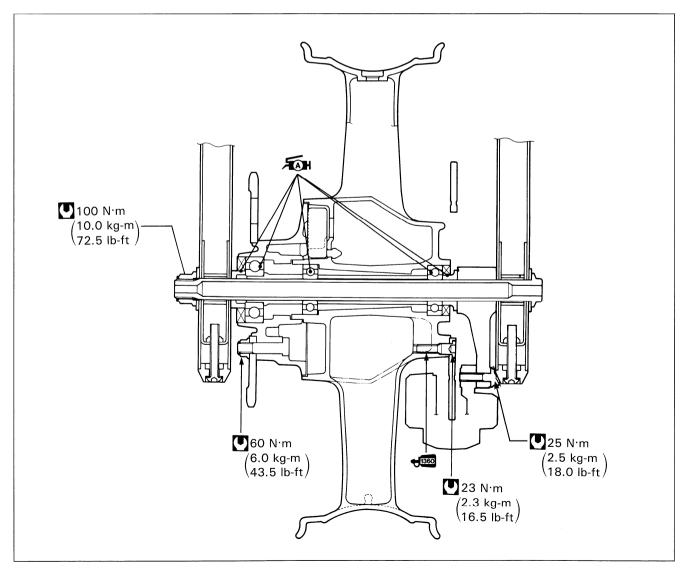
NOTE:

Face the stamped mark on the sprocket to outside.

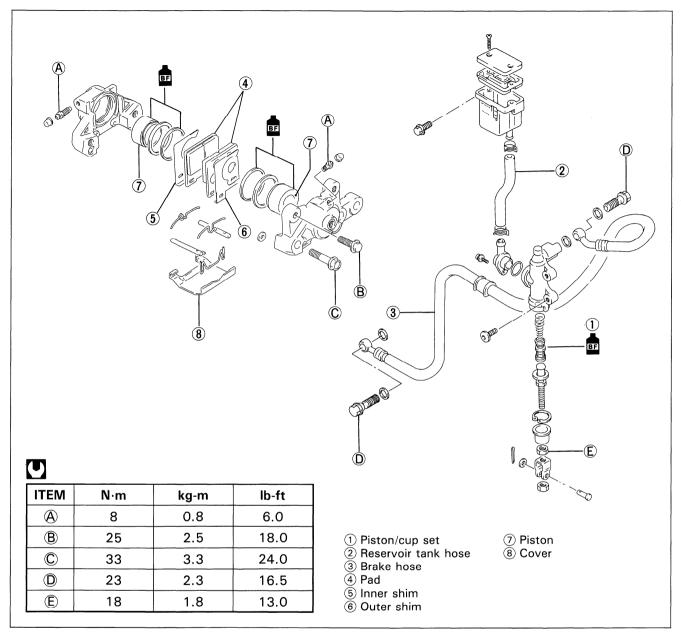
REAR AXLE

- Adjust the chain slack after rear wheel installation. (Refer to page 2-11.)
- Tighten the rear axle nut to the specified torque.
- Rear axle nut: 100 N·m (10.0 kg-m, 72.5 lb-ft)
- Tighten both chain adjuster nuts securely.





REAR BRAKE



A WARNING

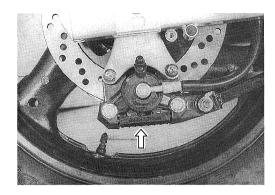
- * This brake system is filled with a ethylene glycol-based DOT 4 brake fluid. Do not use or mix different types of fluid such as silicone-based or petroleum-based.
- * Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for long periods.
- * When storing the brake fluid, seal the container completely and keep away from children.
- * When replenishing brake fluid, take care not to get dust into fluid.
- * When washing brake components, use fresh brake fluid. Never use cleaning solvent.
- * A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the disc with high quality brake cleaner or neutral detergent.

A CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc.

BRAKE PAD REPLACEMENT

• Remove the cover.



- Remove the clip (1).
- Remove the pads with shims by removing the pad mounting pins ② and springs ③.

▲ CAUTION

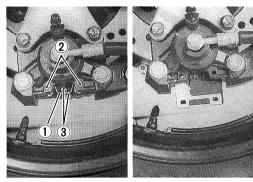
- * Do not operate the brake pedal while dismounting the pads.
- * Replace the brake pad as a set, otherwise braking performance will be adversely affected.
- Remount the new brake pads and shims.

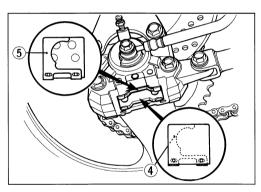


Be sure to install the shims (4, 5) properly as shown in the illustration.

NOTE:

After replacing the brake pads, pump with the brake pedal few times to operate the brake correctly and then check the brake fluid level.





BRAKE FLUID REPLACEMENT

- Remove the seat. (Refer to page 5-1.)
- Remove the frame cover. (Refer to page 5-2.)
- Replace the brake fluid in the same manner of the front brake.

Specification and classification: DOT 4

A CAUTION

Bleed air in the brake fluid circuit. (Refer to page 2-14.)

CALIPER REMOVAL AND DISASSEMBLY

 Remove the union bolt 1 and catch the brake fluid in a suitable receptacle.

A CAUTION

Never reuse the brake fluid left over from previous servicing and stored for long periods.

A WARNING

Brake fluid, if it leaks, will interfere with safe running and discolor painted surfaces. Check the brake hose and hose joints for cracks and oil leakage.

• Remove the caliper mounting bolts (2) and nut (3).

NOTE:

Slightly loosen the caliper housing bolts 4 to facilitate later disassembly before removing the caliper mounting bolts.

- Remove the pads. (Refer to page 5-40.)
- Remove the caliper housing bolts 4.
- Separate the caliper halves.
- Remove the O-ring (5).

NOTE:

Once separate the caliper halves, replace the O-ring (5) with a new one.

 Place a rag over the piston to prevent it from popping out and push out the piston by using an air gun.

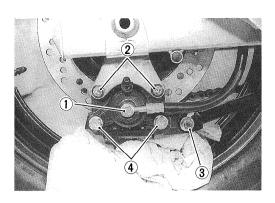
A CAUTION

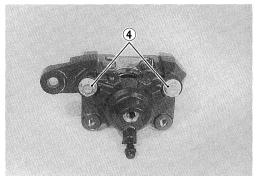
Do not use high pressure air to prevent piston damage.

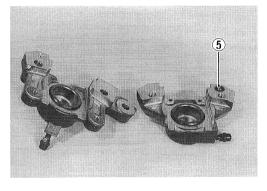
• Remove the dust seals and piston seals.

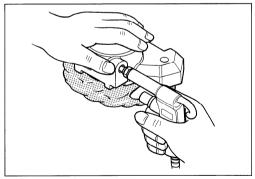
A CAUTION

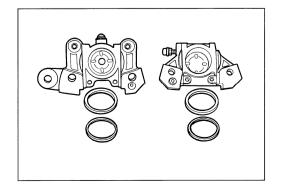
Do not reuse the dust seals and piston seals to prevent fluid leakage.











CALIPER INSPECTION

CYLINDER	Refer	to	page	5-16
PISTON	Refer	to	page	5-16
DISC	Refer	to	page	5-18

CALIPER REASSEMBLY AND REMOUNTING

Reassemble and remount the caliper in the reverse order of removal and disassembly. Pay attention to the following points:

A CAUTION

- * Wash the caliper components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
- * Apply brake fluid to the caliper bore and piston to be inserted into the bore.



Specification and classification: DOT 4

• Tighten each bolt to the specified torque.



Rear brake caliper

housing bolt 1 : 33 N·m (3.3 kg-m, 24.0 lb-ft)

Rear brake caliper

mounting bolt ②: 25 N·m (2.5 kg-m, 18.0 lb-ft)

Brake hose

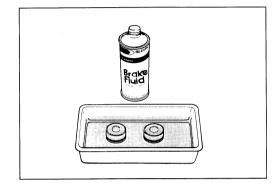
union bolt ③ : 23 N·m (2.3 kg-m, 16.5 lb-ft)

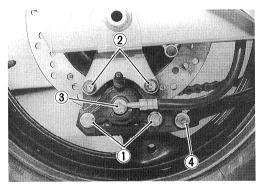
Rear torque link

nut (4) : 35 N·m (3.5 kg-m, 25.5 lb-ft)

A CAUTION

Bleed air from the system after reassembling the caliper. (Refer to page 2-14.)





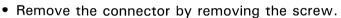
MASTER CYLINDER REMOVAL AND DISASSEMBLY

- Remove the seat. (Refer to page 5-1.)
- Remove the frame cover. (Refer to page 5-2.)
- Place a cloth underneath the union bolt ① on the master cylinder to catch spilled drops of brake fluid.
- Loosen the lock nut 2 .
- Remove the master cylinder mounting bolts ③ .

A CAUTION

Immediately and completely wipe off any brake fluid contacting any part of the motorcycle. The fluid reacts chemically with paint, plastics and rubber materials, etc. and will damage them severely.

 Remove the reservoir tank by removing the its mounting bolt 4 and brake hose 5.

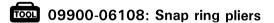


• Remove the O-ring (6).

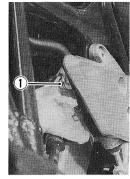
NOTE:

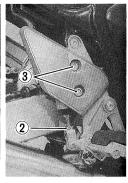
Once separate the connector from the master cylinder, replace the O-ring (6) with a new one.

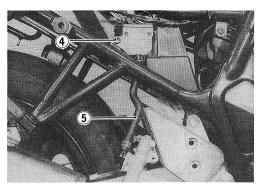
 Pull out the dust seal then remove the circlip with the special tool.



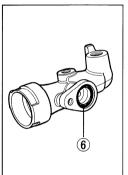


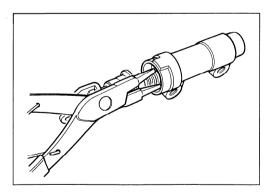


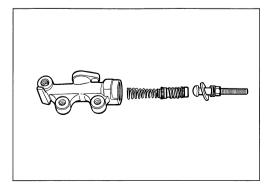












MASTER CYLINDER INSPECTION

CYLINDER, PISTON AND CUP SET

Inspect the cylinder bore wall for any scratches or other damage. Inspect the piston surface for any scratches or other damage. Inspect the cup set and each rubber part for damage.

MASTER CYLINDER REASSEMBLY AND REMOUNTING

Reassemble and remount the master cylinder in the reverse order of removal and disassembly. Pay attention to the following points:

A CAUTION

- * Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them.
- * Apply brake fluid to the cylinder bore and all the component to be inserted into the bore.



Specification and classification: DOT 4

MASTER CYLINDER BOLTS

• Tighten each bolt to the specified torque.



Brake hose

union bolt (1): 23 N·m (2.3 kg-m, 16.5 lb-ft)

Master cylinder

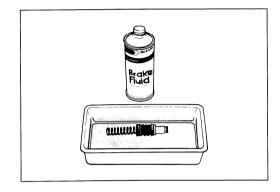
mounting bolt (2): 23 N·m (2.3 kg-m, 16.5 lb-ft)

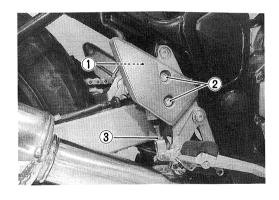
Master cylinder

rod lock nut ③: 18 N·m (1.8 kg-m, 13.0 lb-ft)

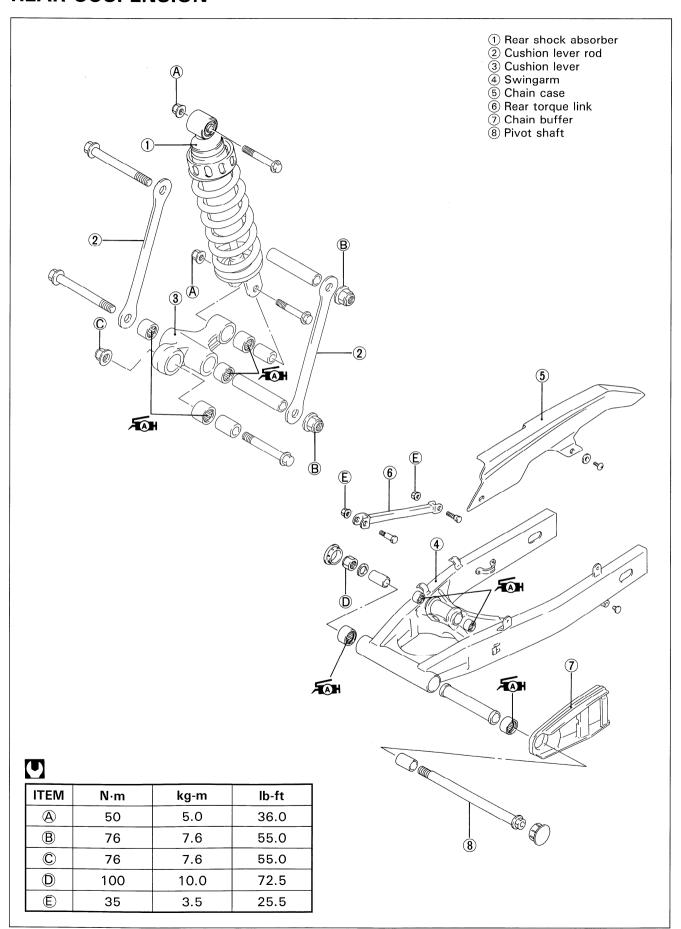
A CAUTION

Bleed air from the system after reassembling master cylinder. (Refer to page 2-14.)



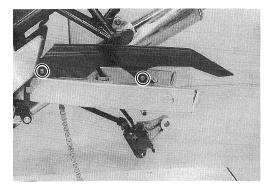


REAR SUSPENSION

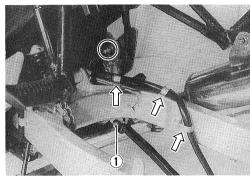


REMOVAL

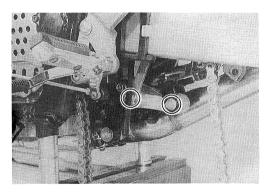
- Remove the seat and frame covers. (Refer to page 5-1.)
- Remove the rear wheel. (Refer to page 5-34.)
- Remove the chain case.



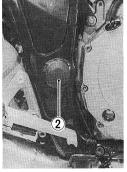
- Remove the rear torque link mounting nut and bolt ①.
- Remove the brake caliper union bolt.
- Remove the brake hose from the brake hose guide and hose clamps.

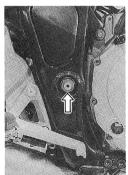


 Remove the cushion lever rod and shock absorber lower mounting nuts and bolts.

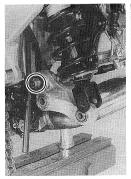


- Remove the right and left caps 2.
- Remove the swingarm by removing the pivot nut and shaft.



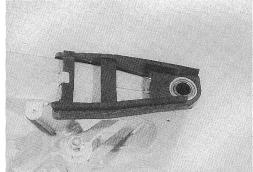


- Remove the cushion lever.
- Remove the shock absorber.

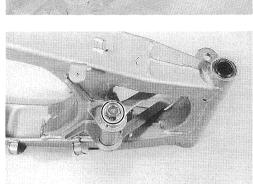




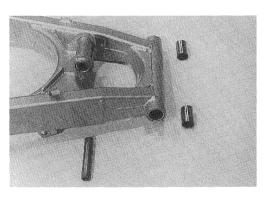
• Remove the chain buffer.



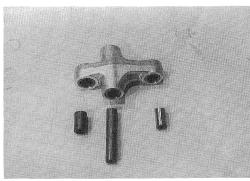
• Remove the cushion rods.



• Remove the swingarm spacers.



• Remove the cushion lever spacers.



INSPECTION AND DISASSEMBLY

SWINGARM

Inspect the spacer for any flaws or other damage.

Inspect the swingarm for wear or damage.

Insert the spacer into bearing and check the play to move the spacer up and down.

If excessive play is noted, replace the bearing with a new one.

 Draw out the swingarm bearings and spacer with the special tools.

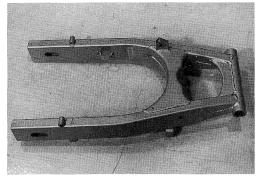
09923-74510: Bearing remover 09930-30102: Sliding shaft

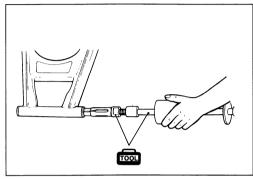


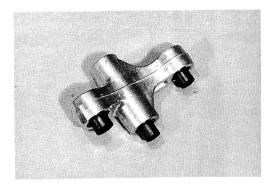
The romoved bearing should be replaced with new

CUSHION LEVER

Inspect the spacer for any flaws or other damage. Insert the spacer into bearing and check the play to move the spacer up and down. If an excessive play is noted, replace the bearing with a new one.







Draw out the bearing with the special tools.



100L 09923-73210: Bearing puller 09930-30102: Sliding shaft

A CAUTION

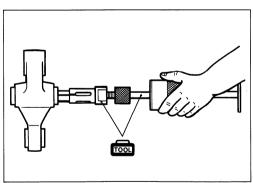
The removed bearings should be replaced with new ones.

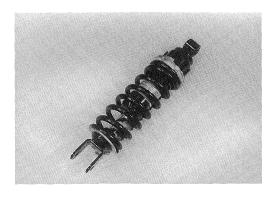


Inspect the shock absorber body for damage and oil leakage. If any defects are found, replace the shock absorber with new one.

A CAUTION

Do not attempt to disassemble the rear shock absorber unit. It is unserviceable.





SWINGARM PIVOT SHAFT

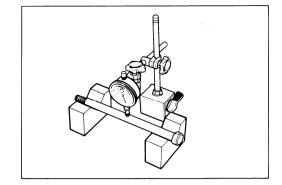
Using a dial gauge, check the pivot shaft runout and replace it if the runout exceeds the limit.



09900-20606: Dial gauge (1/100 mm)

09900-20701: Magnetic stand 09900-21304: V-block (100 mm)

Service Limit: 0.3 mm (0.01 in)



REASSEMBLY AND REMOUNTING

Reassemble and remount the swingarm and shock absorber in the reverse order of removal and disassembly, and also carry out the following steps:

SWINGARM BEARING

• Press the bearing into the swingarm pivot with the special tool.



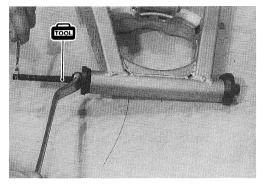
09941-34513: Steering race installer

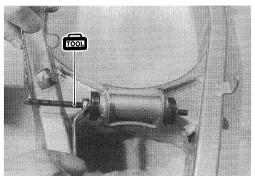
NOTE:

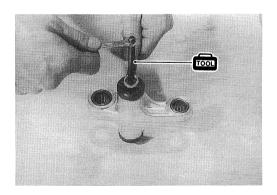
When reinstalling the bearing, stamped mark of bearing is positioned outside.

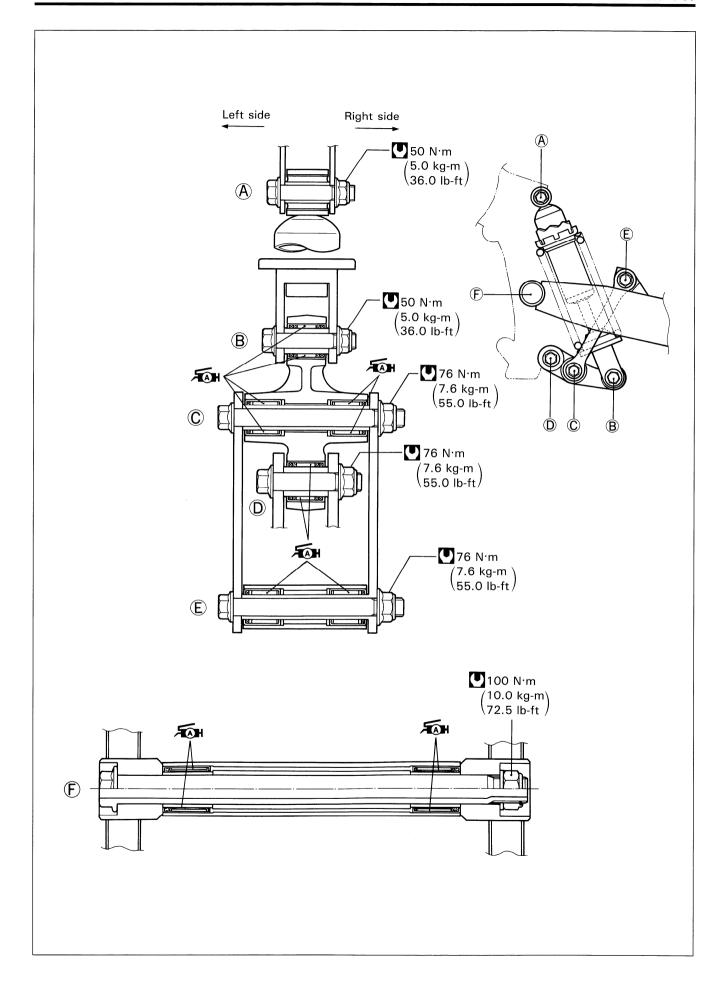
• Apply grease to the spacers and bearings.











FINAL INSPECTION AND ADJUSTMENT

After installing the rear suspension and wheel, the following adjustments are required before driving.

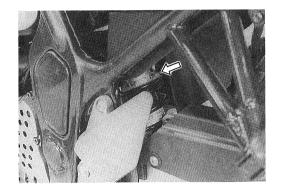
- * Drive chain
- * Rear brake
- * Tire pressure
- * Chassis bolts and nuts
- * Shock absorber

SUSPENSION SETTING

After installing the rear suspension, adjust the spring preload as follows.

SPRING PRE-LOAD ADJUSTMENT

The set position "7" provides the stiffest spring pre-load. The set position "1" provides the softest spring pre-load. (STD position: "4")



6

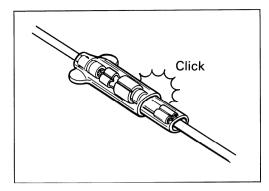
ELECTRICAL SYSTEM

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SERVICING ······		
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CAUTIONS IN SERVICING

CONNECTOR

- When connecting a connector, be sure to push it in untill a click is felt.
- Inspect the connector for corrosion, contamination and breakage in its cover.



COUPLER

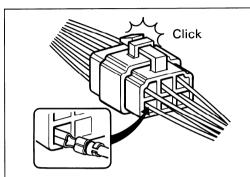
- With a lock type coupler, be sure to release the lock before disconnecting it and push it in fully till the lock works when connecting it.
- When disconnecting the coupler, be sure to hold the coupler itself and do not pull the lead wires.
- Inspect each terminal on the coupler for being loose or bent.
- Inspect each terminal for corrosion and contamination.

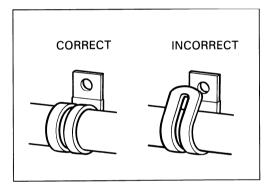


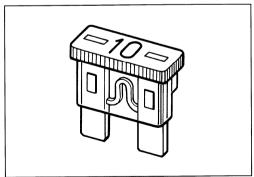
- Clamp the wire harness at such positions as indicated in "WIRE HARNESS ROUTING" (Refer to page 7-9.).
- Bend the clamp properly so that the wire harness is clamped securely.
- In clamping the wire harness, use care not to allow it to hang down.
- Do not use wire or any other substitute for the band type clamp.

FUSE

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

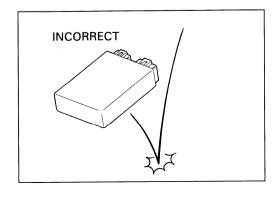






SEMI-CONDUCTOR EQUIPPED PART

- Be careful not to drop the part with a semi-conductor built in such as a ignitor unit.
- When inspecting this part, follow inspection instruction strictly. Neglecting proper procedure may cause damage to this part.

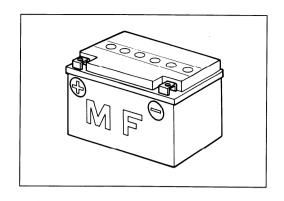


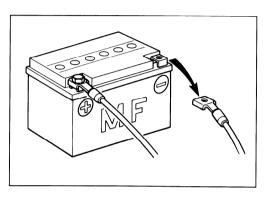
BATTERY

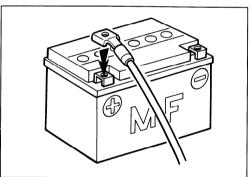
- The MF battery used in this vehicle does not require maintenance as inspection of electrolyte level and replenishment of water.
- No hydrogen gas is produced during normal charging of the battery, but such gas may be produced when it is overcharged. Therefore, do not bring fire near the battery while it is being charged.
- Note that the charging system for the MF battery is different from that of an ordinary battery. Do not replace with an ordinary battery.

CONNECTING BATTERY

- When disconnecting terminals from the battery for disassembly or servicing, be sure to disconnect the negative () terminal first.
- When connecting terminals to the battery, be sure to connect the positive (+) terminal first.
- If the terminal is found corroded, remove the battery, pour warm water over it and clean with a wire brush.
- Upon completion of connection, apply grease lightly.
- Put a cover over the positive (+) terminal.





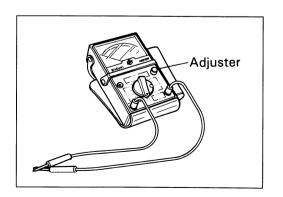


WIRING PROCEDURE

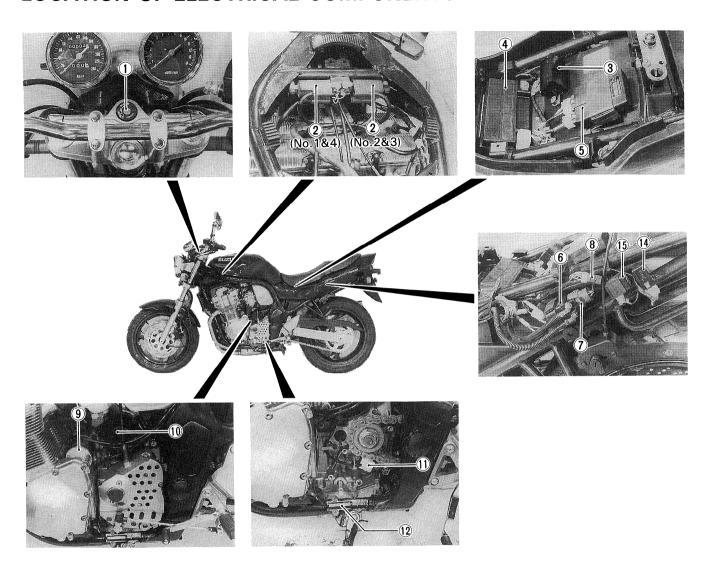
 Route the wire harness properly according to "WIRE HAR-NESS ROUTING" (Refer to page 7-9).

USING POCKET TESTER

- Be sure to use positive (
) and negative (
) probes of the tester properly. Their false use may cause damage in the tester.
- If the voltage and current values are not known, start measuring in the higher range.
- Before measuring the resistance and after changing the resistance range, always perform 0 Ω adjustment.
- Taking a measurement where voltage is applied in the resistance range may cause damage in the tester. When measuring resistance, check to make sure that no voltage is applied there.
- After using the tester, turn the switch to the OFF position.



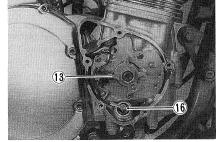
LOCATION OF ELECTRICAL COMPONENTS



- 1 : Ignition switch
 2 : Ignition coil
 3 : Fuse box
 4 : Battery
 5 : Ignitor
 6 : Starter relay
 7 : Main fuse

- 8 : Diode9 : Starter motor
- (10): Generator
- (11): Neutral switch
- 12: Side-stand switch
- (13): Signal generator
- (14): Side-stand relay
- 15: Turn signal relay (i) : Oil pressure switch





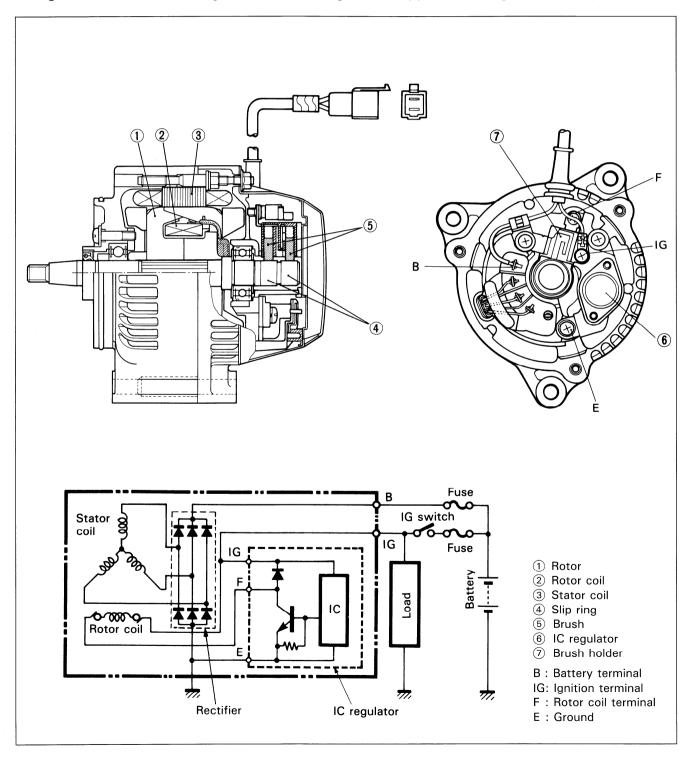
CHARGING SYSTEM

DESCRIPTION (GENERATOR WITH IC REGULATOR)

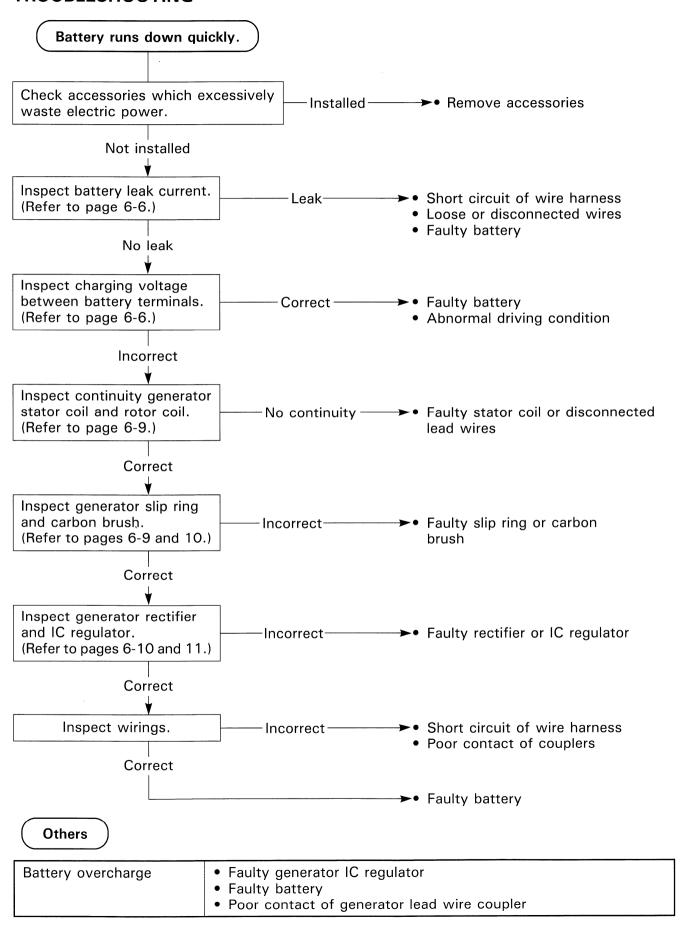
The generator features a solid-state regulator that is mounted inside the generator. All regulator components are enclosed into a solid mold, and this unit is attached to the brush holder frame. The regulator voltage setting cannot be adjusted.

Two brushes carry current through the two slip rings to the rotor coil mounted on the rotor. The stator windings are assembled on the inside of a laminated core that forms part of the generator

housing. A rectifier bridge connected to the stator windings contains six diodes, and electrically changes the stator A.C. voltages to a D.C. voltage which appears at the generator output terminal.



TROUBLESHOOTING



INSPECTION

BATTERY LEAK CURRENT INSPECTION

- Turn the ignition switch to the OFF position.
- Remove the seat.
- Disconnect the battery lead wire.

Note that leakage is indicated if the needle swings even a little when the milliampare meter of the pocket tester is connected between a — terminal and the lead wire of the battery as shown.



100L 09900-25002: Pocket tester

A CAUTION

- * Because the leak current might be large, turn the tester to high range first when connecting an ammeter.
- * Do not turn the ignition switch to the ON position when measuring current.

When leakage is found, look for the part where the needle does not swing through the couplers and connectors are removed one by one.

CHARGING OUTPUT INSPECTION

- Remove the seat.
- Start the engine and keep it running at 5 000 r/min. Measure the DC voltage between the battery terminals (+) and
 with a pocket tester. If the tester reads under 13.5V, check the stator coil, rectifier and IC regulator mounted in the generator.

A CAUTION

If the pocket tester is set to read current or resistance and a voltage is applied across the test probes, damage will result. Therefore, it is important that the tester knob on the pocket tester be set the proper position before making any measurements.

NOTE:

When making this test, be sure that the battery is fullycharged condition.



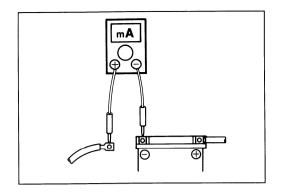
100L 09900-25002: Pocket tester

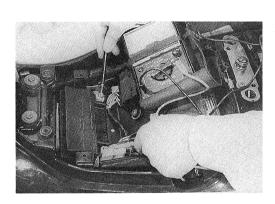


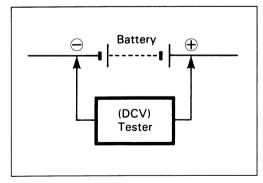
Tester knob indication: DC 25V

Charging output

Standard: Above 13.5V at 5 000 r/min.

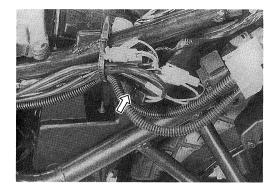




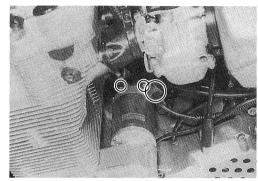


REMOVAL AND DISASSEMBLY

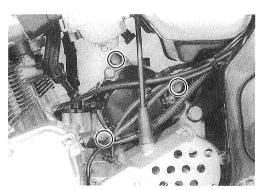
- Remove the seat and frame cover assembly. (Refer to page 5-1.)
- Disconnect the generator lead wire coupler.



• Remove the starter motor.



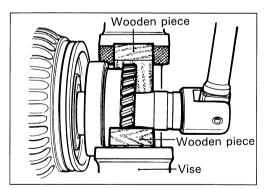
- · Remove the engine sprocket cover.
- Remove the generator by removing the mounting bolts.



 Hold the generator driven gear to use a vise and proper pieces of woods, and remove the generator driven gear nut.

A CAUTION

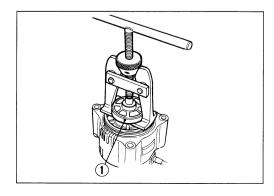
Do not hold the damper housing with a vise, or damage or breakage of damper housing will result.



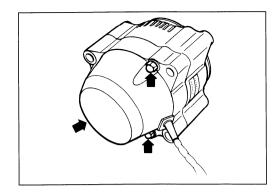
Remove the damper housing ① with bearing remover.



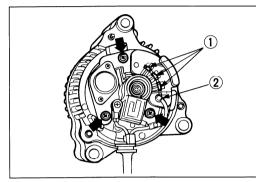
TOOL 09913-61510: Bearing remover



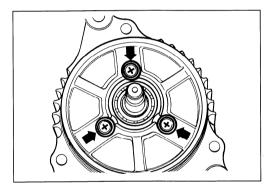
• Remove the generator end cover.



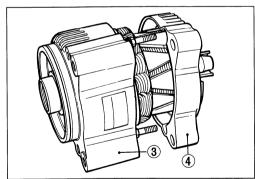
- Disconnect the stator coil lead wires ① and battery lead wire ② to use a soldering iron.
- Remove the brush holder, IC regulator and rectifier to remove three screws.



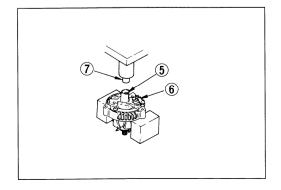
• Remove the three bearing retainer screws.



• Separate the generator housing ③ from generator end housing ④.



• Remove the rotor 5 from generator end housing 6 to use a hand press 7 as shown.



INSPECTION

ROTOR BEARING

Inspect the rotor bearings for abnormal noise and smooth rotation to rotate them by hand.

If there is anything unusual, remove the bearing with a bearing remover.



09913-60910: Bearing remover

A CAUTION

The removed bearing should be replaced with a new one.

GENERATOR DRIVEN GEAR DAMPER

Inspect the dampers for wear and damage. If any defects are found, replace the dampers as a set.

NOTE:

When installing the dampers, apply MOLY PASTE to the damper surface.



STATOR COIL CONTINUITY CHECK

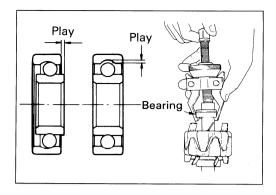
Check the continuity between the lead wires of the stator with a pocket tester.

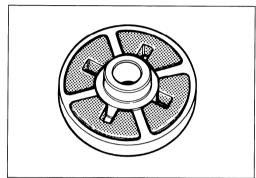
If there is no continuity, replace the stator.

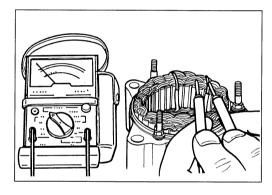
Also check that the stator core is insulated.

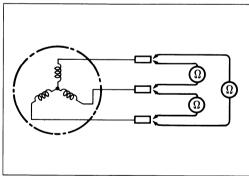
09900-25002: Pocket tester

Tester knob indication: X 1 Ω range









ROTOR COIL CONTINUITY CHECK

Check the continuity between the two slip rings of the rotor with a pocket tester.

If there is no continuity, replace the rotor.

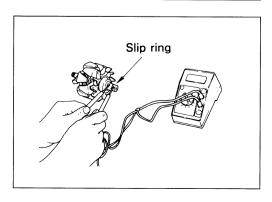
Also check that the rotor is insulated.



TOOL 09900-25002: Pocket tester



 \square Tester knob indication: X 1 Ω range



SLIP RING

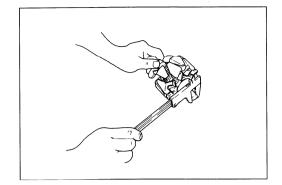
If the slip ring surface is dirty, polish it with #400 fine emery paper to protect the charging performance. After polishing, wipe the slip ring with a clean dry cloth.



09900-20102: Vernier calipers (200 mm)

Slip ring O.D.

Service Limit: 14.0 mm (0.55 in)



CARBON BRUSH

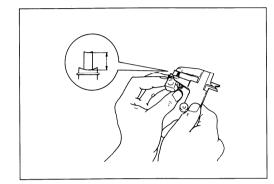
Measure the length of the brushes as shown. If it less than the service limit, replace them with new ones.



09900-20102: Vernier calipers (200 mm)

Brush length

Service Limit: 4.5 mm (0.18 in)



RECTIFIER

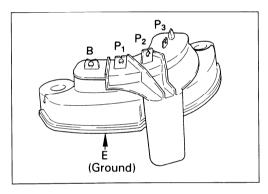
Check the continuity between terminals and ground. Put one tester lead to terminal "B" and the other lead to ground or other terminals; then swap the two leads. Of the two tester indications, one should be continuity, and the other should be infinity (non continuity). If not, replace the rectifier assembly.

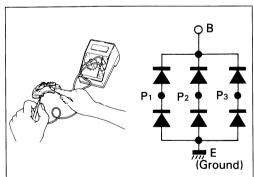


09900-25002: Pocket tester



 \square Tester knob indication: X 1 Ω range





IC REGULATOR

Use a variable DC power source, switch, bulb and pocket tester, check the IC regulator, which requires two steps described below:

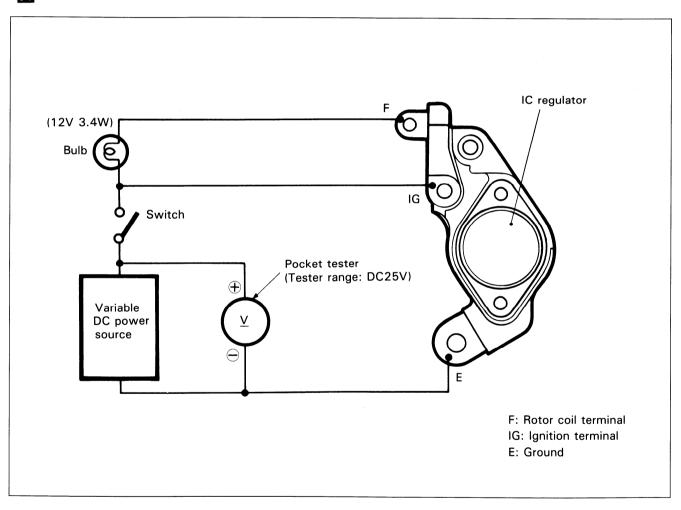
First check:

Set the variable DC power source to 12V and turn the switch to the ON position. If the bulb does not light, replace the IC regulator. If the bulb is lighting ON, this IC regulator has passed the first check.

Second check:

Under the above condition, set the variable DC power source to 14.5V, if the bulb goes out, the IC regulator is in good condition. If the bulb remains lit, replace the IC regulator.

09900-25002: Pocket tester



REASSEMBLY AND REMOUNTING

Reassemble and remount the generator in the reverse order of removal and disassembly. Pay attention to the following points:

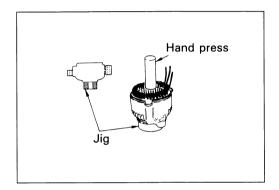
A CAUTION

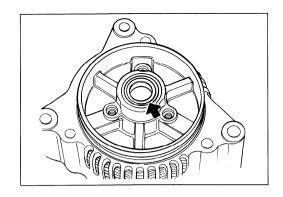
The removed oil seal should be replaced with a new one.

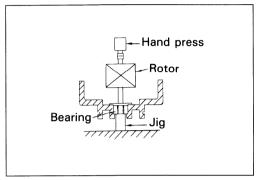
• Apply grease to the lip of the oil seal.

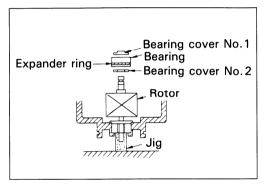
₩ 99000-25010: SUZUKI SUPER GREASE "A"

• Install the bearing and rotor by using a hand-press.



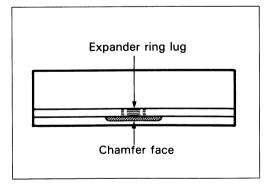






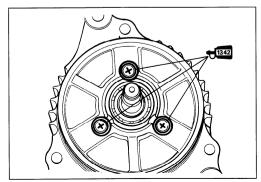
NOTE:

Before reinstalling the slip ring side bearing to the generator end housing, turn the expander ring and align the expander ring lug with the center of the chamfer of the bearing outer race.

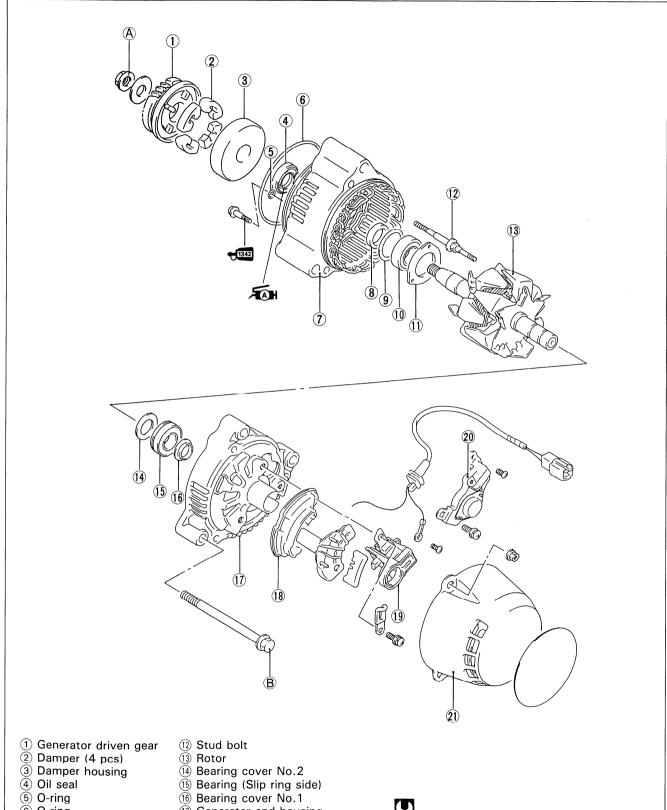


- Fit the three O-rings to the bearing retainer screws.
- Apply a small quantity of Thread Lock "1342" to the bearing retainer screws.

+1342 99000-32050: THREAD LOCK "1342"



REASSEMBLY INFORMATION



- 6 O-ring
- (7) Generator housing
- Spacer
- Bearing cover
- 10 Bearing
- 11 Retainer

- (16) Bearing cover No.1
- (17) Generator end housing
- (18) Rectifier
- 19 Brush holder
- 20 IC regulator
- ② Generator end cover

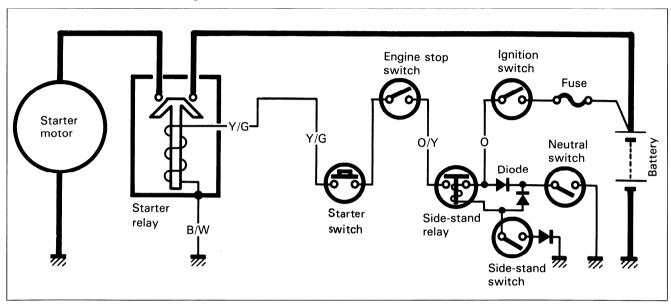


ITEM	N⋅m	kg-m	lb-ft
A	60	6.0	43.5
B	25	2.5	18.0

STARTER SYSTEM AND SIDE-STAND/IGNITION INTERLOCK SYSTEM

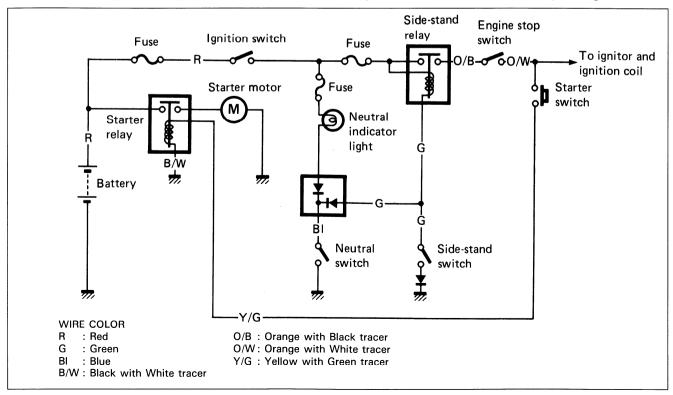
STARTER SYSTEM DESCRIPTION

The starter system is shown in the diagram below: namely, the starter motor, starter relay, side-stand relay, side-stand switch, neutral switch, starter switch, engine stop switch, IG switch and battery. Depressing the starter switch (on the right handlebars switch box) energizes the relay, causing the contact points to close which connects the starter motor to the battery. The motor draws about 80 amperes to start the engine.



SIDE-STAND/IGNITION INTERLOCK SYSTEM DESCRIPTION

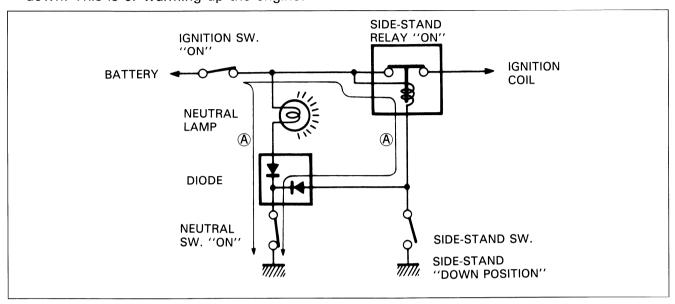
This side-stand/ignition interlock system is to prevent starting the motorcycle with the side-stand left down. The system is operated by an electric circuit provided between the battery and ignition coil.



The circuit consists of relay, lamp, diode and switches and decides to live the ignition coil depending on the position of the TRANSMISSION and SIDE-STAND with the neutral and side-stand switches working mutually.

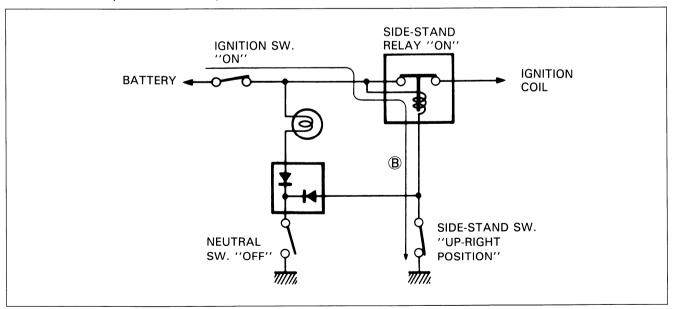
The ignition coil lives only in two situations as follows.

1. Transmission: "NEUTRAL (ON)" Side-stand: "DOWN (OFF)"
The current flow (A) turns "ON" the relay and the ignition coil lives even the side-stand is kept down. This is or warming up the engine.

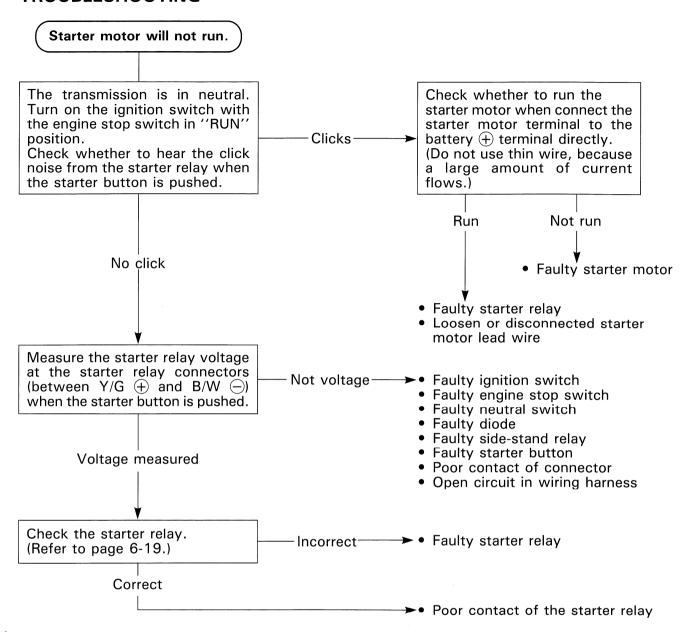


2. Side-stand: "UP-RIGHT (ON)"

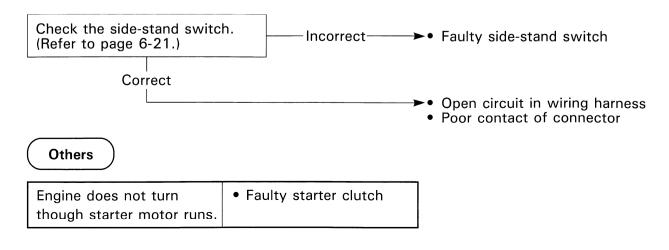
The current flow (B) turns "ON" the relay and the ignition coil lives. The engine can be easily started at any transmission position.



TROUBLESHOOTING

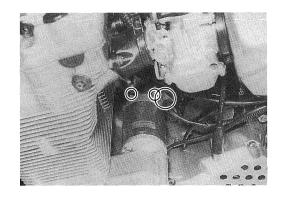


Starter motor runs when the transmission is in neutral, but does not run with the transmission in any position except neutral, with the side-stand up position.

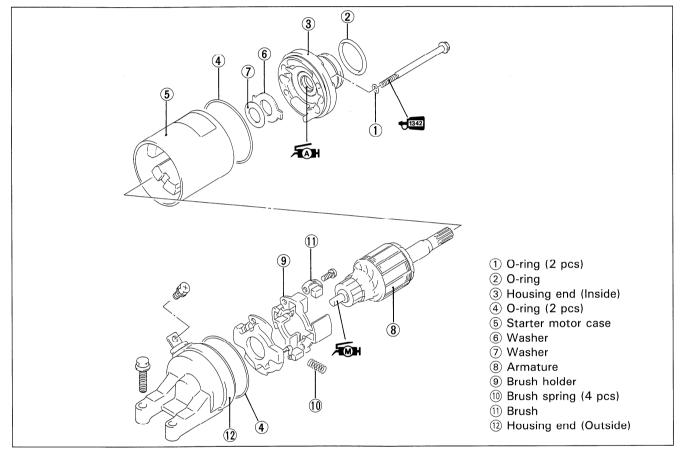


STARTER MOTOR REMOVAL AND DISASSEMBLY

• Disconnect the starter motor lead wire and remove the starter motor by removing the mounting bolts.



• Disassemble the starter motor as shown in the illustration.

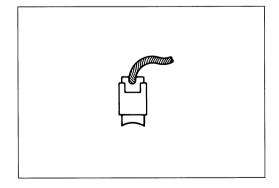


STARTER MOTOR INSPECTION

CARBON BRUSH

Inspect the brushed for abnormal wear, crack or smoothness in the brush holder.

If the brush has failed, replace the brush sub assy.

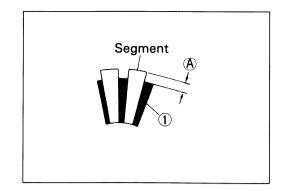


COMMUTATOR

Inspect the commutator for discoloration, abnormal wear or undercut $\widehat{\mathbb{A}}$.

If the commutator is abnormally worn, replace the armature. When surface is descolored, polish it with #400 sand paper and clean it with dry cloth.

If there is no undercut, scrape out the insulator ① with saw blade.

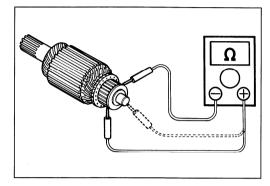


ARMATURE COIL INSPECTION

Check for continuity between each segment.

Check for continuity between each segment and the armature shaft.

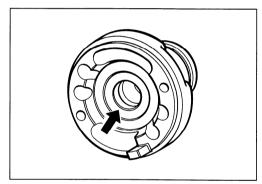
If there is no continuity between the segments or there is continuity between the segments and shaft, replace the armature with a new one.



OIL SEAL INSPECTION

Check the seal lip for damage or leakage.

If any damage is found, replace the bracket.



STARTER MOTOR REASSEMBLY

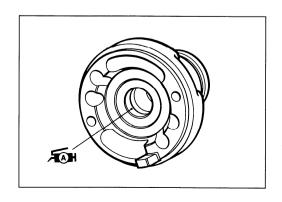
Reassemble the starter motor in the reverse order of disassembly. Pay attention to the following points:

A CAUTION

Replace the O-rings with new ones to prevent oil leakage and moisture.

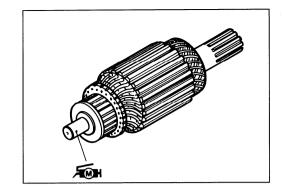
 Apply SUZUKI SUPER GREASE "A" to the lip of the oil seal.

₹AH99000-25010: SUZUKI SUPER GREASE "A"



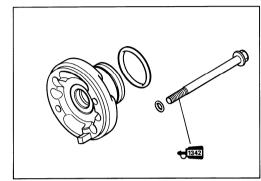
 Apply a small quantity of MOLY PASTE to the armature shaft.

→ MH 99000-25140: SUZUKI MOLY PASTE



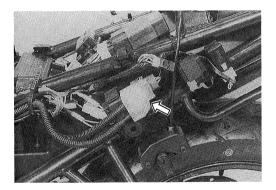
 Apply a small quantity of THREAD LOCK "1342" to the starter motor housing bolts.

+1342 99000-32050: THREAD LOCK "1342"



STARTER RELAY INSPECTION

- Remove the seat and frame cover assembly. (Refer to pages 5-1 and 5-2.)
- Remove the cover.
- Disconnect the starter motor lead wire and battery lead wire at the starter relay which is located behind the left frame cover.
- Disconnect the lead wire coupler from the starter relay:



Apply 12 volts to 1 and 2 terminals, inspect the continuity between the terminals, positive and negative. If the starter relay is in sound condition, continuity is found.

100L 09900-25002: Pocket tester

 \square Tester knob indication: X 1 Ω range



Do not apply a battery voltage more than 5 seconds to the starter relay as it may overheat and cause damage to the relay coil.

Check the coil for "open", "ground" and ohmic resistance. The coil is in good condition if the resistance is as follows.

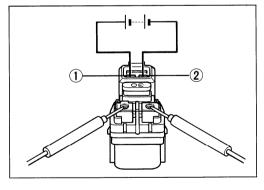


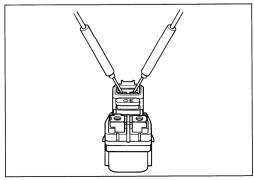
09900-25002: Pocket tester

Tester knob indication: X 1 Ω range

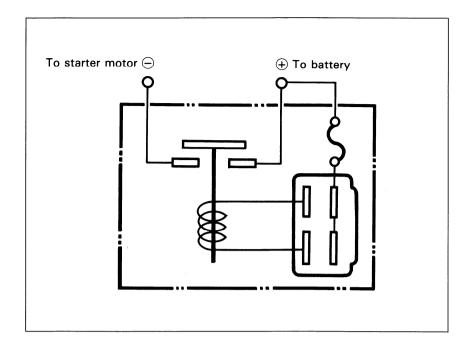
Starter relay resistance

Standard: $3-5\Omega$





STARTER RELAY CIRCUIT **DIAGRAM**



SIDE-STAND/IGNITION INTERLOCK SYSTEM PART INSPECTION

If the interlock system does not operate properly, check each component. If any abnormality is found, replace the component with a new one.



100L 09900-25002: Pocket tester

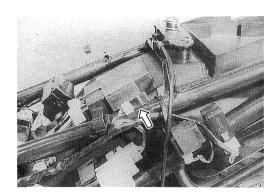
DIODE

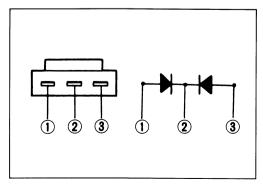
The diode is located behind the left frame cover.

The diode can pass current only in one direction.

Check the continuity between 1 and 2. If one way continuity the diode is in good condition.

Also check the continuity between ② and ③ as required.

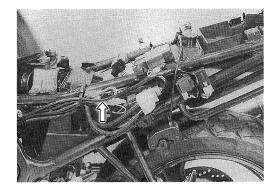




NEUTRAL SWITCH

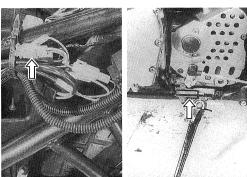
The neutral lead wire coupler is located behind the left frame cover.

- Remove the seat and frame cover assembly.
- Disconnect the neutral switch lead and check the continuity between Blue and Ground with the transmission in "NEUTRAL".



SIDE-STAND SWITCH

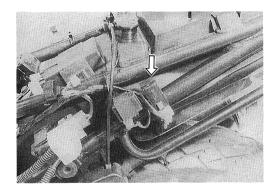
	Green (⊝ Proboe)	Black/White (+) Proboe)
ON (UP-right position)	0	0
OFF (Down position)		



SIDE-STAND/IGNITION INTERLOCK RELAY

The side-stand/ignition interlock relay is located behind the left frame cover.

• Remove the seat and frame cover assembly.

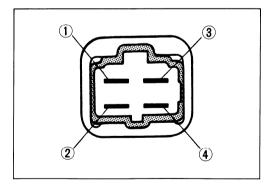


First, check the insulation between ① and ② terminals with pocket tester. Then apply 12 volts to ③ and ④ terminals, \oplus to ③ and \ominus to ④ , and check the continuity between ① and ② .

If there is no continuity, replace it with a new one.

09900-25002: Pocket tester

Tester knob indication: X 1 Ω range



IGNITION SYSTEM (DIGITAL IGNITOR)

DESCRIPTION

The fully transistorized ignition system consists of a signal generator, ignitor unit (including 8-BIT MICROCOMPUTER and CERAMIC 4MHZ VIBRATOR), ignition coils and spark plugs. The characteristic of the ignition timing is programmed and stored in the "ROM" (READ ONLY MEMORY) of the ignitor unit.

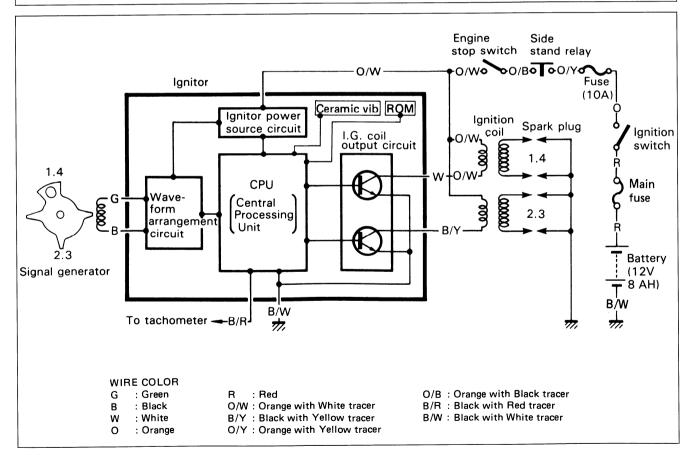
The signal generator comprises the rotor tip and pickup coil.

The signal generator is mounted at the right end of the crankshaft. The induced signal in the signal generator is sent to wave-form arrangement circuit, and CPU receives this signal and calculates the best ignition timing from the signal of ceramic vibrator and data stored in the ROM. The CPU outputs signal to the transistor of the I.G. coil output circuit which is connected to the primary windings of the ignition coil which is turned OFF and ON accordingly, thus it induces the secondary current on the ignition coil secondary windings and produce the spark between spark plug gaps.

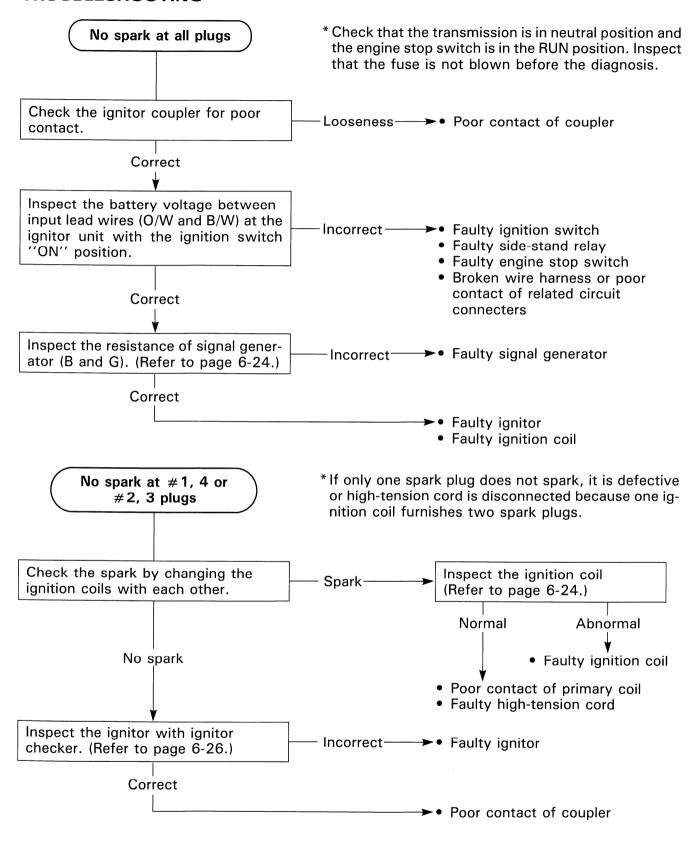
Ignition cut-off circuit is incorporated in the ignitor unit to prevent over-running engine. If engine r/min. reaches 12 000 r/min., this circuit cuts off the ignition primary current for all spark plugs.

A CAUTION

Engine can run over 12 000 r/min. without load, even if the ignition cut-off circuit is effective, and it may cause engine damage. Do not run the engine without load over 12 000 r/min. at anytime.



TROUBLESHOOTING



INSPECTION

IGNITION COIL (Checking with Electro Tester)

- Remove the fuel tank.
- Remove the ignition coils.

Make sure that the three-needle sparking distance of electro tester is set at 8 mm (0.3 in).

With the tester and jumper wire, test the ignition coil for sparking performance in accordance with the following two steps.

STEP (1): Connect the jumper wire to the spark plug cap and ignition coil ground.

STEP (2): Switch over the jumper wire to the other plug cap and ground.

If no sparking or orange color sparking occures in the above conditions, it may be caused by defective coil.

100L 09900-28106: Electro tester

Spark performance: Over 8 mm (0.3 in)

IGNITION COIL (Checking with Pocket Tester)

A SUZUKI pocket tester or an ohm meter may be used, instead of the electro tester. In either case, the ignition coil is to be checked for continuity in both primary and secondary windings. Exact ohmic readings are not necessary, but, if the windings are in sound condition, their continuity will be noted with these approximate ohmic values.



1001 09900-25002: Pocket tester

Ignition coil resistance

Primary: $2-4 \Omega$ (+) tap -(-) tap)

Tester knob indication: X 1 Ω range

Secondary: 30-40 k Ω (Plug cap-Plug cap)

Tester knob indication: X 1 k Ω range

SIGNAL GENERATOR (Checking with Pocket Tester)

- Remove the seat and frame cover assembly.
- Disconnect the lead wires.

Measure the resistance between lead wires. If the resistance is infinity or less than the specifications, the signal generator must be replaced.

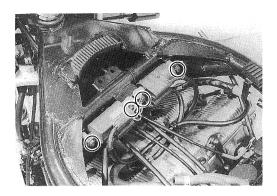


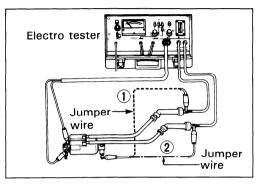
1001 09900-25002: Pocket tester

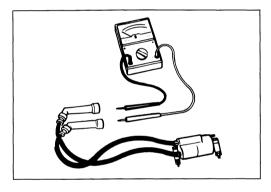
Signal coil resistance: Approx. $135-200\Omega$

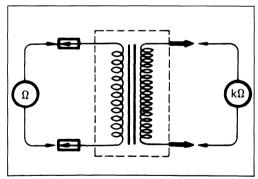
(Black — Green)

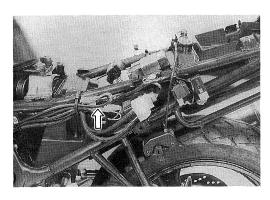
Tester knob indication: X 100 Ω range











SPARK PLUGS

- Remove the fuel tank.
- Remove all the spark plugs.

Carbon Deposit

Check to see the carbon deposit on the plug. If the carbon is deposited, remove it with a spark plug cleaner machine or carefully using a tool with a pointed end.

Spark Plug Gap

Measure the plug gap with a thickness gauge if it is correct. If not, adjust it to the following gap.

09900-20803: Thickness gauge

Spark plug gap

Standard: 0.6-0.7 mm (0.024-0.028 in)



Check to see a worn or burnt condition of the electrode. If it is extremely worn or burnt, replace the plug. Also replace the plug if it has a broken insulator, damaged thread, etc.

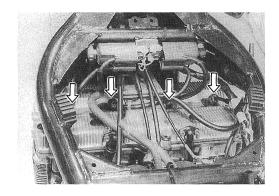
Heat Range

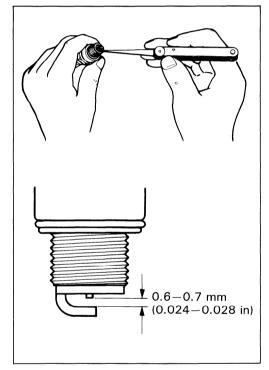
NGK CR9EK should be used as the standard. However, the heat range of the spark plug should be selected to meet the requirements of speed, actual load, fuel and etc. Proper heat range would be indicated if all insulators were LIGHT BROWN in color. If they are baked white, they should be replaced with a cold type plug NGK CR10EK or NIPPON-DENSO U31ETR.

	Standard	Cold type	Hot type
NGK	CR9EK	CR10EK	CR8EK
NIPPONDENSO	U27ETR	U31ETR	U24ETR

A CAUTION

Confirm the thread size and reach when replacing the plug. If the reach is too short, carbon will be deposited on the screw portion of the plug hole and engine damage may result.





IGNITOR UNIT (Checking with Digital Ignitor Checker)

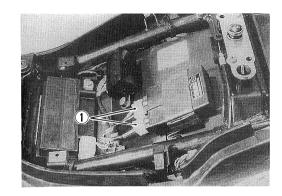
This section explains the checking procedure for the ignitor unit using Digital Ignitor Checker (special tool).

With this checker, the ignitor unit can be checked either on the machine or off the machine. The following explains the checking procedure on the machine.

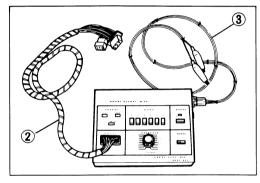
09931-94490: Digital ignitor checker

WIRING PROCEDURE:

- Remove the seat.
- Disconnect two ignitor lead wire couplers ① at the ignitor unit.



- Prepare the ignitor checker lead wire "MODE 1-A" 2
 which comes supplied with the ignitor checker and connect its end to the ignitor unit and another end to the checker.
- Connect the power source leads 3 to the battery.



A CAUTION

- * Be sure that the BLACK lead is connected to the battery \bigcirc terminal and RED lead to the \oplus terminal.
- * Before connecting the power source leads, make sure that both "POWER" button and "START" switch are in "off" position (POWER button not depressed).

NOTE:

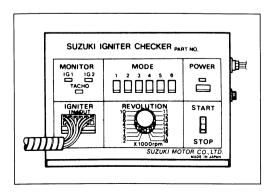
Be sure that the battery used is in fully-charged condition.

CHECK PROCEDURE:

With all the lead wires properly connected, check the ignitor unit in the following four steps.

First Step:

Depress ''MODE 1'' button then ''POWER'' button. This time, ''POWER'' lamp should come on, if not, battery is undercharged.



Second Step:

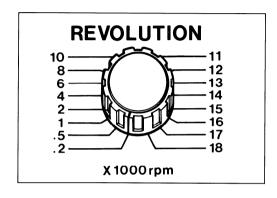
Set ''REVOLUTION'' dial pointer to ''.2'' position in which the checker produces the ignition primary current pulses simulating 200 r/min of engine revolution when ''START'' switch is turned on. With ''START'' switch is turned to ON position, check that three ''MONITOR'' lamps turn on and off in slow frequency in order of 1 - 2 - 3 or 1 - 3 - 2 as illustrated.

MONITOR IG1 @ IG2 TACHO 1 3

Third Step:

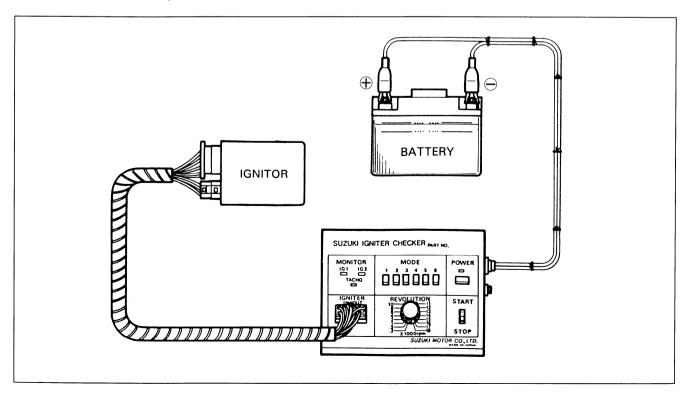
Turn "REVOLUTION" dial up gradually (assuming the engine gradually revved up) and check that the MONITOR lamp flash frequency as explained in the second step above increases. As the dial pointer passes beyond the graduation "4" (4 000 r/min), all the three lamps should show continuously lighted.

When REVOLUTION dial pointer reaches ''12'' (12 000 r/min), MONITOR ''IG1'' and ''IG2'' lamps should go off while ''TACHO'' lamp stays on. This is because the ignition ''cut-off'' provided in this motorcycle ignition system functions at $12\,000\pm100$ r/min. If the lamps go off at the graduation below ''12'', the engine can not perform properly and therefore the ignitor unit must be replaced.



Fourth Step:

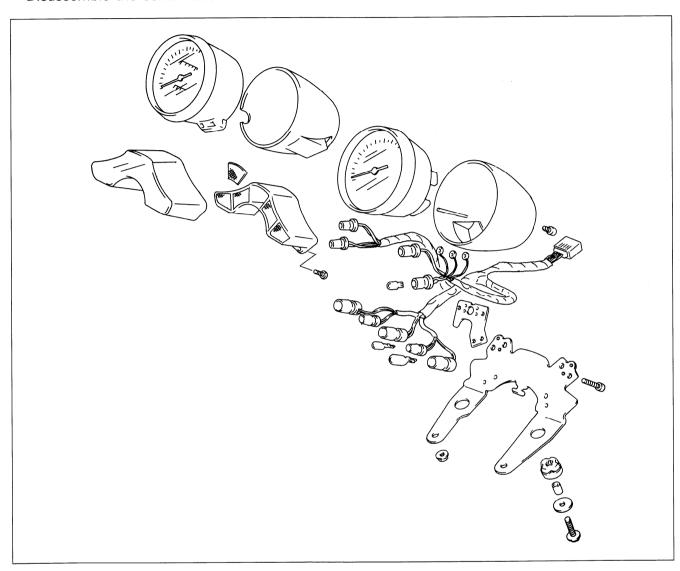
Turn "START" switch to STOP position. If the "IG1" or "IG2", or both lamps remain light more than 5 seconds, the ignitor unit must be replaced.



COMBINATION METER

REMOVAL AND DISASSEMBLY

- Remove the combination meter. (Refer to page 5-4.)
- Disassemble the combination meter as follows.



INSPECTION

Using the pocket tester, check the continuity between lead wires in the diagram on next page.

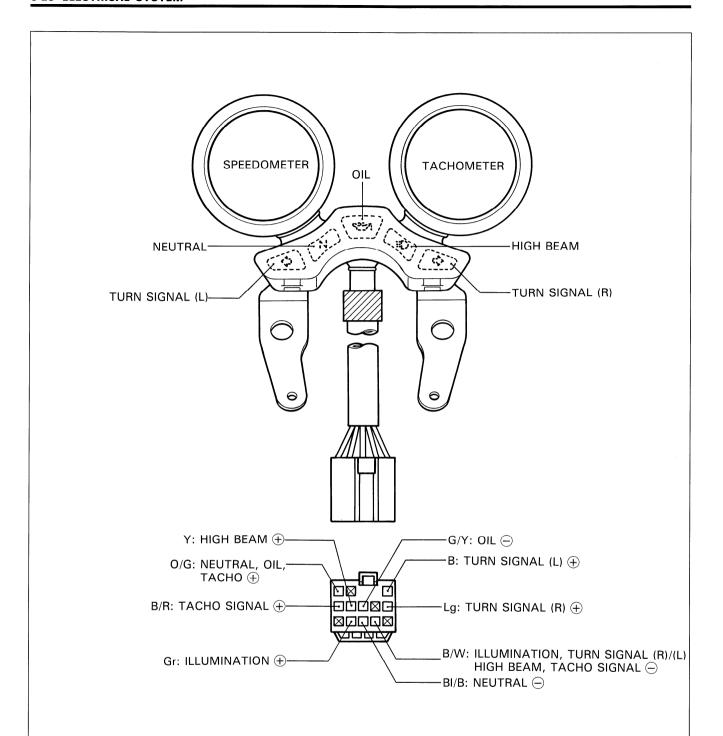
If the continuity measured is incorrect, replace the respective parts.

09900-25002: Pocket tester

Tester knob indication: X 1 Ω range

NOTE:

When making this test, it is not necessary to remove the combination meter.



ITEM	+ Probe of	Probe of
112101	tester to:	tester to:
OIL	O/G	G/Y
TURN (L)	В	B/W
TACHO SIGNAL	B/R	B/W
HIGH BEAM	Y	B/W
TURN (R)	Lg	B/W
NEUTRAL	O/G	BI/B
ILLUMI	Gr	B/W
TACHO	O/G	B/W

G/Y: Green with Yellow tracer

B : Black

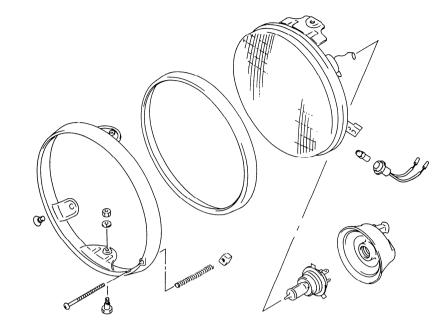
B/R : Black with Red tracer

Y : Yellow Lg : Light green Gr : Gray

BI/B: Blue with Black tracer B/W: Black with White tracer O/G: Orange with Green tracer

LAMPS

HEADLIGHT



Headlight bulb: 12V 60/55W Position light bulb: 12V 4W

NOTE:

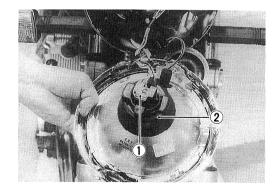
Adjust the headlight, both vertical and horizontal, after reassembling.

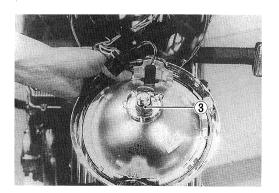
BULB REPLACEMENT

- Remove the headlight. (Refer to page 5-2.)
- Disconnect the socket ① and remove the rubber cap ②.
- Remove the bulb 3 by removing the bulb holder spring.
- Reassemble the bulb in the reverse order of removal.

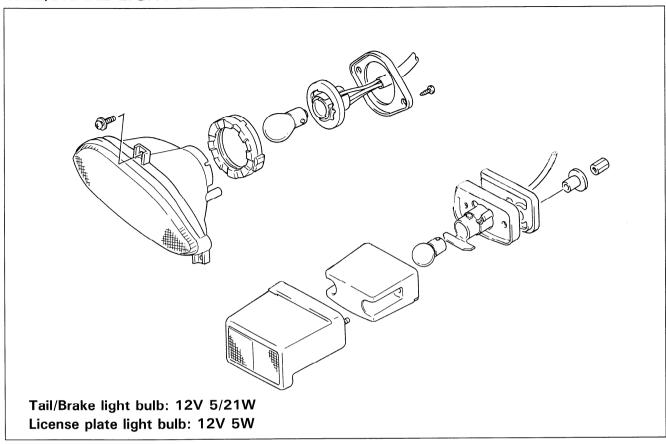
A CAUTION

If you touch the bulb with your bare hands, clean it with a cloth moistened with alcohol or soapy water to prevent early failure.

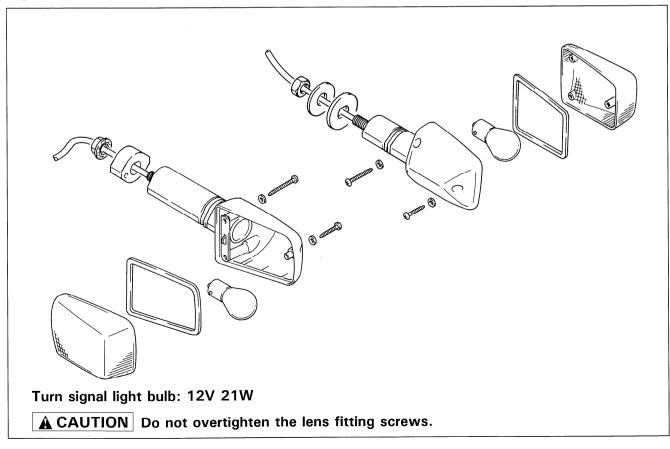




TAIL/BRAKE LIGHT AND LICENSE PLATE LIGHT



TURN SIGNAL LIGHT



SWITCHES

Inspect each switch for continuity with the pocket tester. If any abnormality is found, replace the respective switch assemblies with new ones.



09900-25002: Pocket tester



Tester knob indication: X 1 Ω range

IGNITION SWITCH

Color Position	R	0	Gr	Br	O/Y	B/W
OFF						
ON	0	-0	0	_0	\bigcirc	-0
LOCK						
Р	\Diamond			\bigcirc		

LIGHTING SWITCH

Color Position	O/BI	Gr	O/R	Y/W
OFF				
•	$\overline{\bigcirc}$	0		
ON	0—	-0	0	-0

DIMMER SWITCH

Color Position	Y/W	W	Υ
HI	0-		
LO	0-	 0	

TURN SIGNAL SWITCH

Color	Lg	Lbl	В
L		0-	
PUSH			
R	0	-0	

PASSING LIGHT SWITCH

Color	O/R	Υ
•		
PUSH	0	

ENGINE STOP SWITCH

Color	O/B	O/W
OFF		
RUN	0	

STARTER BUTTON

Color Position	O/W	Y/G
•		
PUSH	0	

HORN BUTTON

Color Position	B/BI	B/W
•		
PUSH	0-	0

FRONT BRAKE SWITCH

Color Position	В	В
OFF		
ON	0	 0

REAR BRAKE SWITCH

Color Position	O/G	W/B
OFF		
ON	0	0

WIRE COLOR

B : Black Lbl: Light blue R: Red Br : Brown Lg : Light green Y: Yellow Gr: Gray O: Orange W: White

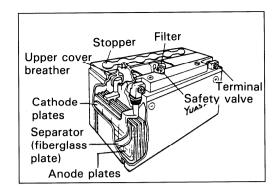
B/W: Black with White tracer O/B : Orange with Black tracer O/BI: Orange with Blue tracer O/G: Orange with Green tracer O/R: Orange with Red tracer O/W: Orange with White tracer O/Y: Orange with Yellow tracer W/B: White with Black tracer Y/G: Yellow with Green tracer Y/W: Yellow with White tracer

B/BI: Black with Blue tracer

BATTERY

SPECIFICATIONS

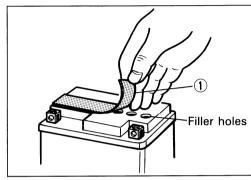
Type designation	YTX9-BS
Capacity	12V, 28.8 kC (8 Ah)/10HR
Standard electrolyte S.G.	1.320 at 20°C (68°F)



INITIAL CHARGING

Filling electrolyte

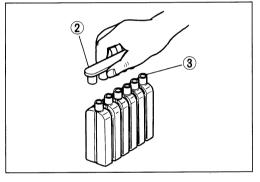
Remove the aluminum tape ① sealing the battery electrolyte filler holes.



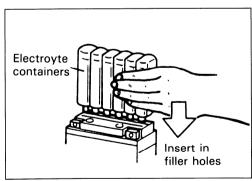
• Remove the caps (2) .

NOTE:

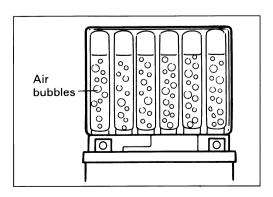
- * After filling the electrolyte completely, use the removed cap ② as the sealed caps of battery-filler holes.
- * Do not remove or pierce the sealed areas ③ of the electrolyte container.



 Insert the nozzles of the electrolyte container into the battery's electrolyte filler holes, holding the container firmly so that it does not fall. Take precaution not to allow any of the fluid to spill.



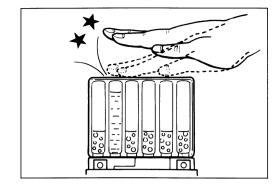
Make sure air bubbles are coming up each electrolyte container, and leave in this position for about more than 20 minutes.



NOTE:

If no air bubbles are coming up from a filler port, tap the bottom of the two or three times.

Never remove the container from the battery.



- After confirming that the electrolyte has entered the battery completely, remove the electrolyte containers from the battery. Wait for around 20 minutes.
- Insert the caps into the filler holes, pressing in firmly so that the top of the caps do not protrude above the upper surface of the battery's top cover.

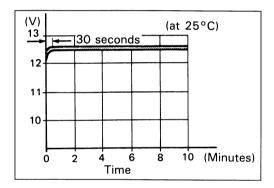


- * Never use anything except the specified battery.
- * Once install the caps to the battery; do not remove the caps.
- Using SUZUKI pocket tester, measure the battery voltage.
 The tester should indicate more than 12.5—12.6V (DC) as shown in the Fig. If the battery voltage is lower than the specification, charge the battery with a battery charger. (Refer to the recharging operation.)

NOTE:

Initial charging for a new battery is recommended if two years have elapsed since the date of manufacture.

Insert the caps firmly.



SERVICING

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one. If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

RECHARGING OPERATION

• Using the pocket tester, check the battery voltage. If the voltage reading is less than the 12.0V (DC), recharge the battery with a battery charger.

A CAUTION

When recharging the battery, remove the battery from the motorcycle.

NOTE:

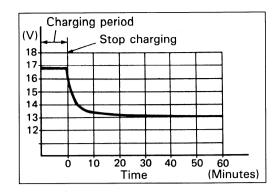
Do not remove the caps on the battery top while recharging.

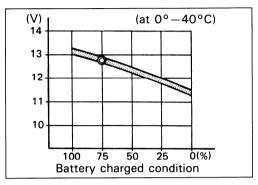
Recharging time: 4A for one hour or 0.9A for 5 hours

A CAUTION

Be careful not to permit the charging current to exceed 4A at any time.

- After recharging, wait for more than 30 minutes and check the battery voltage with a pocket tester.
- If the battery voltage is less than the 12.5V, recharge the battery again.
- If battery voltage is still less than 12.5V, after recharging, replace the battery with a new one.
- When the motorcycle is not used for a long period, check the battery every 1 month to prevent the battery discharge.





SERVICING INFORMATION

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TROUBLESHOOTING

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start, or is hard to start.	Compression too low 1. Out of adjustment valve clearance. 2. Worn valve guides or poor seating of valves. 3. Mistiming valves. 4. Excessively worn piston rings. 5. Worn-down cylinder bores. 6. Too slowly starter motor cranks. 7. Poor seating of spark plugs.	Adjust. Repair or replace. Adjust. Replace. Replace or rebore. See electrical section. Retighten.
	Plugs not sparking 1. Fouled spark plugs. 2. Wet spark plugs. 3. Defective ignition coil. 4. Open or short in high-tension cords. 5. Defective signal generator or ignitor unit.	Clean. Clean and dry. Replace. Replace. Replace.
	No fuel reaching the carburetors 1. Clogged fuel tank vent hose. 2. Clogged or defective fuel tap. 3. Defective carburetor needle valve. 4. Clogged fuel hose or fuel filter.	Clean or replace. Clean or replace. Replace. Clean or replace.
Engine stalls easily.	 Fouled spark plugs. Defective signal generator or ignitor unit. Clogged fuel hose. Clogged jets in carburetors. Out of adjustment valve clearance. 	Clean. Replace. Clean. Clean. Adjust.
Noisy engine.	Excessive valve chatter 1. Too large valve clearance. 2. Weakened or broken valve springs. 3. Worn down rocker arm or rocker arm shaft. 4. Worn and burnt camshaft journal. Noise seems to come from piston 1. Worn down pistons or cylinders. 2. Fouled with carbon combustion chambers. 3. Worn piston pins or piston pin bore. 4. Worn piston rings or ring grooves.	Adjust. Replace. Replace. Replace. Clean. Replace. Replace.
	Noise seems to come from timing chain 1. Stretched chain. 2. Worn sprockets. 3. Not working tension adjuster. Noise seems to come from clutch 1. Worn splines of countershaft or hub. 2. Worn teeth of clutch plates. 3. Distorted clutch plates, driven and drive. 4. Worn clutch release bearing. 5. Weakened clutch dampers.	Replace. Replace. Repair or replace.

Complaint	Symptom and possible causes	Remedy
Noisy engine.	Noise seems to come from crankshaft 1. Due to wear rattling bearings. 2. Worn and burnt big-end bearings. 3. Worn and burnt journal bearings. 4. Too large thrust clearance.	Replace. Replace. Replace. Replace thrust bearing.
	Noise seems to come from transmission 1. Worn or rubbing gears. 2. Badly worn splines. 3. Worn or rubbing primary gears. 4. Badly worn bearings.	Replace. Replace. Replace. Replace.
Slipping clutch.	 Out of adjustment or loss of play clutch control. Weakened clutch springs. Worn or distorted pressure plate. Distorted clutch plates, driven and drive. 	Adjust. Replace. Replace. Replace.
Dragging clutch.	 Clutch control out of adjustment or loss of play. Some clutch springs weakened while others are not. Distorted pressure plate or clutch plate. 	Adjust Replace. Replace.
Transmission will not shift.	 Broken gearshift cam. Distorted gearshift forks. Worn gearshift pawl. 	Replace. Replace. Replace.
Transmission will not shift back.	 Broken return spring on shift shaft. Rubbing or stickly shift shaft. Distorted or worn gearshift forks. 	Replace. Repair or replace. Replace.
Transmission jumps out of gear.	 Worn shifting gears on driveshaft or countershaft. Distorted or worn gearshift forks. Weakened stopper spring on gearshift stopper. Worn gearshift pawl. 	Replace. Replace. Replace. Replace.
Engine idles poorly.	 Out of adjustment valve clearance. Poor seating of valves. Defective valve guides. Worn rocker arms or arm shafts. Too wide spark plug gaps. Defective ignition coil. Defective signal generator or ignitor unit. Out of adjustment in carburetors float-chamber fuel level. Clogged jets or imbalance of carburetors. 	Adjust. Replace or repair. Replace. Replace. Adjust or replace. Replace. Replace. Adjust. Clean or adjust.

Complaint	Symptom and possible causes	Remedy
Engine runs poorly in high speed range.	 Weakened valve springs. Worn camshafts. Valve timing out of adjustment. Too narrow spark plug gaps. Ignition not advanced sufficiently due to poorly working timing advance circuit. Defective ignition coil. Defective signal generator or ignitor unit. Too low float-chamber fuel level. Clogged air cleaner element. Clogged fuel hose, resulting in inadequate fuel supply to carburetors. 	Replace. Replace. Adjust. Adjust. Replace ignitor unit. Replace. Replace. Adjust. Clean. Clean and prime.
Dirty or heavy exhaust smoke.	 Too much engine oil in the engine. Worn piston rings or cylinders. Worn valve guides. Scored or scuffed cylinder walls. Worn valves stems. Defective stem seal. Worn oil ring side rails. 	Check with inspection window drain out excess oil. Replace. Replace. Rebore or replace. Replace. Replace. Replace. Replace. Replace.
Engine lacks power.	 Loss of valve clearance. Weakened valve springs. Out of adjustment valve timing. Worn piston rings or cylinders. Poor seating of valves. Fouled spark plug. Incorrect spark plug. Clogged jets in carburetors. Out of adjustment float-chamber fuel level. Clogged air cleaner element. Loose carburetor balancing screw. Sucking air from intake pipe. Too much engine oil. 	Adjust. Replace. Adjust. Replace. Repair. Clean or replace. Adjust or replace. Clean. Adjust. Clean. Retighten. Retighten or replace. Drain out excess oil.
Engine overheats.	 Heavy carbon deposit on piston crowns. Not enough oil in the engine. Defective oil pump or clogged oil circuit. Too low in float chambers fuel level. Sucking air from intake pipes. Use incorrect engine oil. 	Clean. Add oil. Replace or clean. Adjust. Retighten or replace. Change.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Trouble with starting.	 Clogged starter jet. Clogged starter pipe. Air leaking from a joint between starter body and carburetor. Air leaking from carburetor's joint or vacuum 	Clean. Clean. Check starter body and carburetor for tightness, adjust and replace gasket. Check and adjust.
	gauge joint. 5. Not operation properly starter plunger.	Check and adjust.
Idling or low-speed trouble.	 Clogged or loose pilot jet, pilot air jet. Air leaking from carburetor's joint, vacuum gauge joint, or starter. Clogged pilot outlet or bypass. Not fully closed starter plunger. 	Check and clean. Check and adjust. Check and clean. Check and adjust.
Medium-or high speed trouble.	 Clogged main jet or main air jet. Clogged needle jet. Not operating properly throttle valve. Clogged fuel filter. 	Check and clean. Check and clean. Check throttle valve for operation. Check and clean.
Overflow and fuel level fluctuations.	 Worn or damaged needle valve. Broken spring in needle valve. Not working properly float. Foreign matter has adhered to needle valve. Too high or low fuel level. 	Replace. Replace. Check and adjust. Clean. Adjust float height.

CHASSIS

Complaint	Symptom and possible causes	Remedy
Heavy steering.	 Overtightened steering stem nut. Broken bearing in steering stem. Distorted steering stem. Not enough pressure in tires. 	Adjust. Replace. Replace. Adjust.
Wobbly handlebars.	 Loss of balance between right and left front forks. Distorted front fork. Distorted front axle or crooked tire. 	Replace. Repair or replace. Replace.
Wobby front wheel.	 Distorted wheel rim. Worn front wheel bearings. Defective or incorrect tire. Loose axle or axle pinch bolts. Incorrect front fork oil level. 	Replace. Replace. Replace. Retighten. Adjust.
Front suspension too soft.	Weakened springs. Not enough fork oil.	Replace. Replenish.
Front suspension too stiff.	Too viscous fork oil. Too much fork oil.	Replace. Drain excess oil.
Noisy front suspension.	 Not enough fork oil. Loose bolts on suspension. 	Replenish. Retighten.

Complaint	Symptom and possible causes	Remedy
Wobbly rear wheel.	 Distorted wheel rim. Worn rear wheel bearing or swingarm bearings. Defective or incorrect tire. Worn swingarm and rear suspension related bearings. Loose nuts or bolts on rear suspensions. 	Replace. Replace. Replace. Replace. Retighten.
Rear suspension too soft.	 Weakened shock absorber spring. Improperly set rear suspension adjuster. Leakage oil of shock absorber. 	Replace. Adjust. Replace.
Rear suspension too stiff.	 Improperly set rear suspension adjuster. Bent shock absorber shaft. Bent swingarm. Worn swingarm and rear suspension related bearings. 	Adjust. Replace. Replace. Replace.
Noisy rear suspension.	 Loose nuts or bolts on rear suspension. Worn swingarm and rear suspension related bearings. 	Retighten. Replace.

BRAKES

Complaint	Symptom and possible causes	Remedy
Insufficient brake power.	 Leakage of brake fluid from hydraulic system. Worn pads. Oil adhesion of engaging surface of pads. Worn disc. Air in hydraulic system. 	Repair or replace. Replace. Clean disc and pads. Replace. Bleed air.
Brake squeaking.	 Carbon adhesion on pad surface. Tilted pad. Damaged wheel bearing. Loosen front-wheel axle or rear-wheel axle. Worn pads. Foreign material in brake fluid. Clogged return port of master cylinder. 	Repair surface with sandpaper. Modify pad fitting or replace. Replace. Tighten to specified torque. Replace. Replace brake fluid. Disassemble and clean master cylinder.
Excessive brake lever or pedal stroke.	 Air in hydraulic system. Insufficient brake fluid. Improper quality of brake fluid. 	Bleed air. Replenish fluid to specified level; bleed air. Replace with correct fluid.
Leakage of brake fluid.	 Insufficient tightening of connection joints. Cracked hose. Worn piston and/or cup. 	Tighten to specified torque. Replace. Replace piston and/or cup.

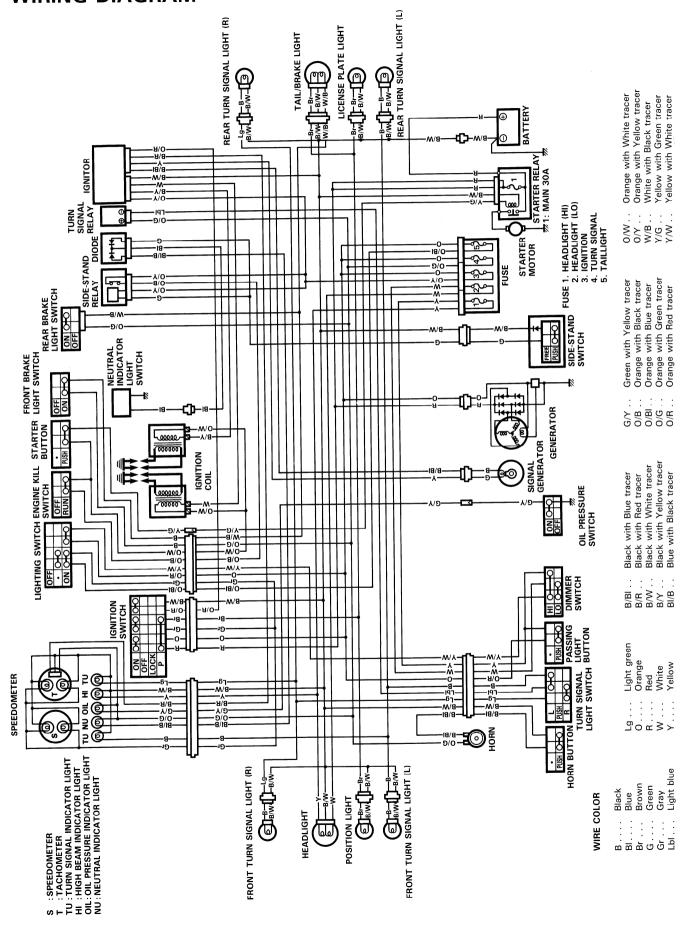
ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	 Defective ignition coil. Defective spark plugs. Defective signal generator or ignitor unit. 	Replace. Replace. Replace.
Spark plug soon become fouled with carbon.	 Mixture too rich. Idling speed set too high. Incorrect gasoline. Dirty element in air cleaner. Too cold spark plugs. 	Adjust carburetors. Adjust carburetors. Change. Clean. Replace with hot type plugs.
Spark plugs become fouled too soon.	 Worn piston rings. Worn piston or cylinders. Excessive clearance of valve stems in valve guides. Worn stem oil seal. 	Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	 Too hot spark plugs. Overheated the engine. Loose spark plugs. Too lean mixture. 	Replace with cold type plugs. Tune up. Retighten. Adjust carburetors.
Generator does not charge.	 Open or short lead wires, or loose lead connections. Shorted, grounded or open generator coils. Shorted or panctured IC regulator or rectifier. 	Repair or replace or retighten. Replace. Replace.
Generator does charge, but charging rate is below the specification.	 Lead wires tend to get shorted or open-circuited or loosely connected at terminals. Grounded or open-circuited stator coils or generator. Defective IC regulator or rectifier. Defective cell plates in the battery. 	Repair or retighten. Replace. Replace. Replace the battery.
Generator overcharges.	 Internal short-circuit in the battery. Damaged or defective IC regulator. Poorly grounded IC regulator. 	Replace the battery. Replace. Clean and tighten ground connection.
Unstable charging.	 Lead wire insulation frayed due to vibration, resulting in intermittent shorting. Internally shorted generator. Defective IC regulator or rectifier. 	Repair or replace. Replace. Replace.
Starter button is not effective.	 Run down battery. Defective switch contacts. Not seating properly brushes on commutator in starter motor. Defective starter relay/starter interlock switch. 	Repair or replace. Replace. Repair or replace. Replace.

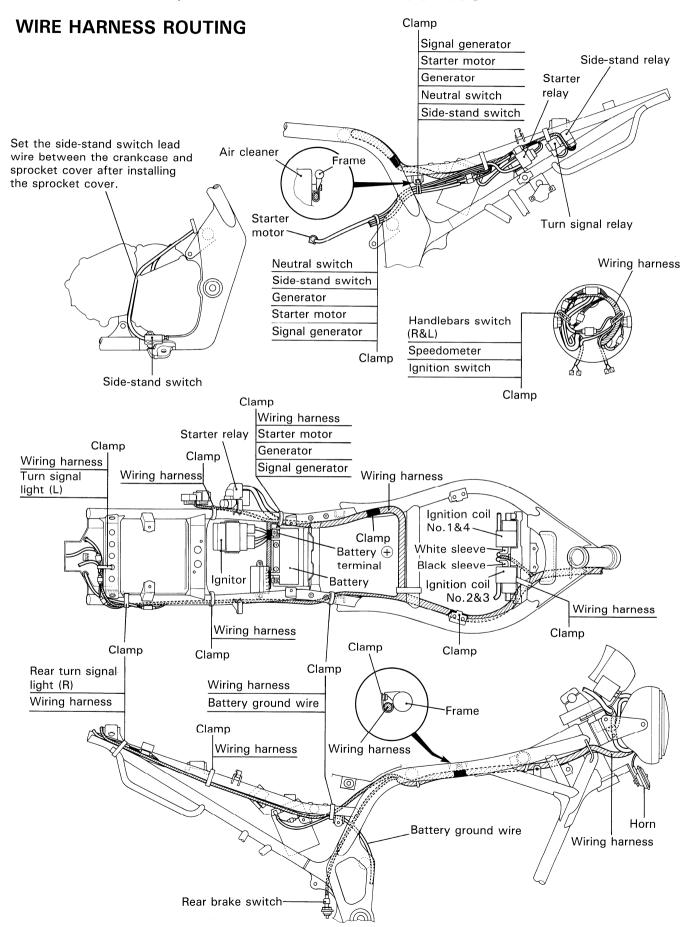
BATTERY

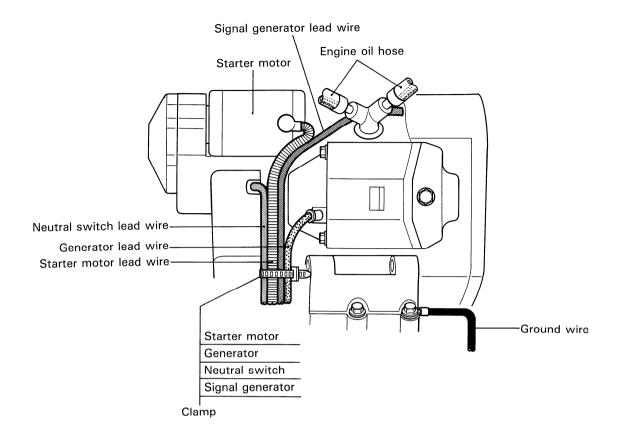
Complaint	Symptom and possible causes	Remedy
"Sulfation", acidic white powdery substance or spots on surfaces of cell plates.	 Cracked battery case. Battery has been left in a run-down condition for a long time. 	Replace the battery. Replace the battery.
Battery runs down quickly.	 Not correct the charging system. Cell plates have lost much of their active material as a result of overcharging. A short-circuit condition exists within the battery. Too low battery voltage. Too old battery. 	Check the generator, IC regulator or rectifier and circuit connections and make necessary adjustments to obtain specified charging operation. Replace the battery, and correct the charging system. Replace the battery. Recharge the battery fully. Replace the battery.
Battery ''sulfation''.	 Too low or too high charging rate. (When not in use batteries should be checked at least once a month to avoid sulfation.) Left unused the battery for too long in cold climate. 	Replace the battery. Replace the battery, if badly sulfated.
Battery discharges too rapidly.	Dirty container top and sides.	Clean.

WIRING DIAGRAM

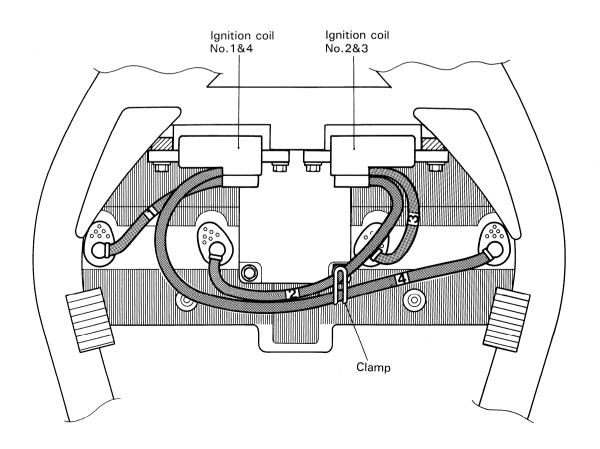


WIRE HARNESS, CABLE AND HOSE ROUTING

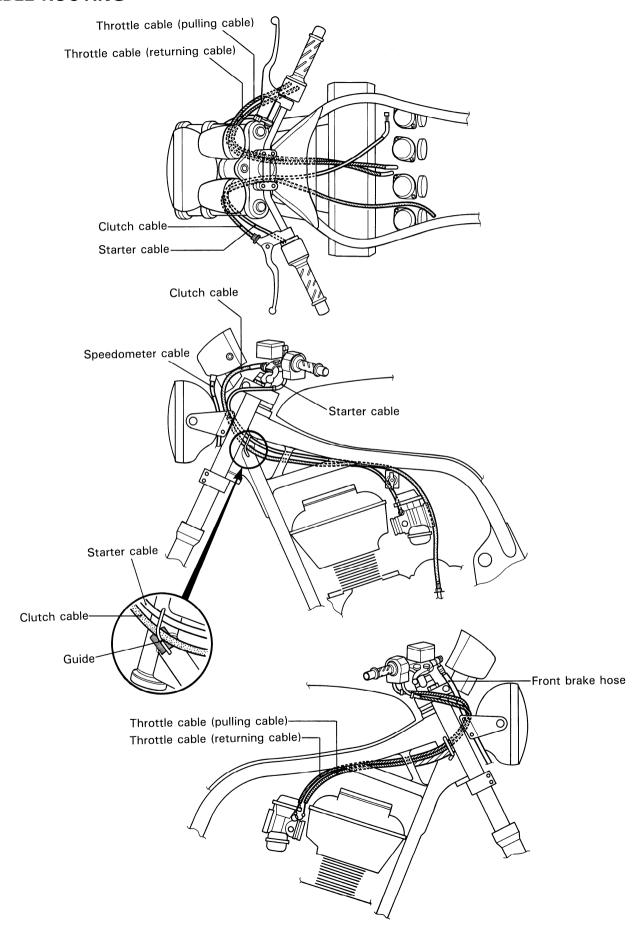


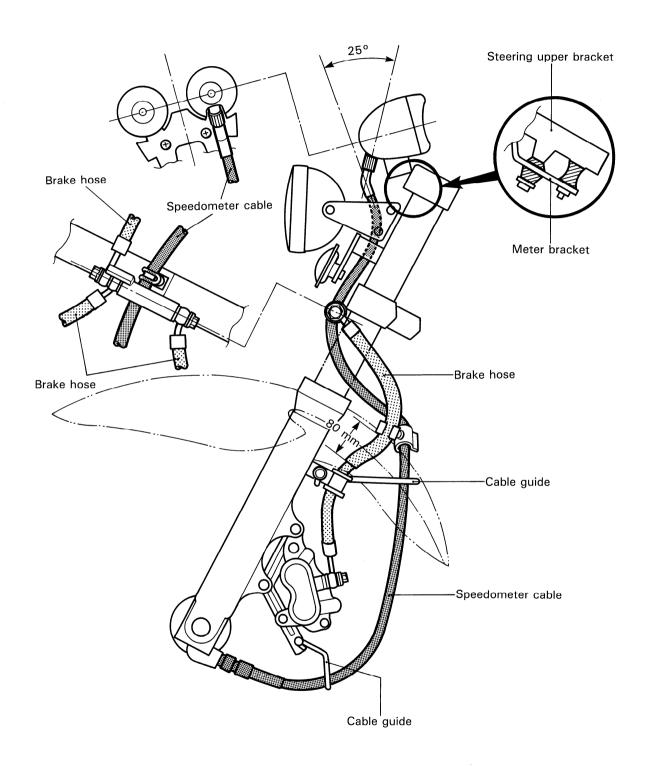


HIGH-TENSION CORD ROUTING

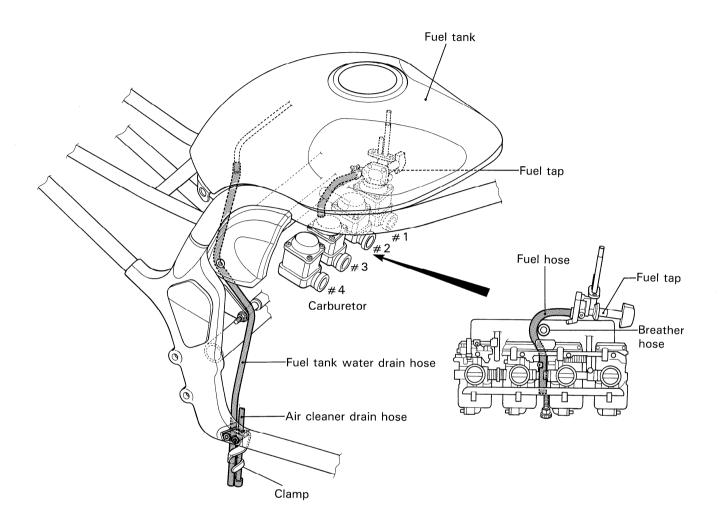


CABLE ROUTING

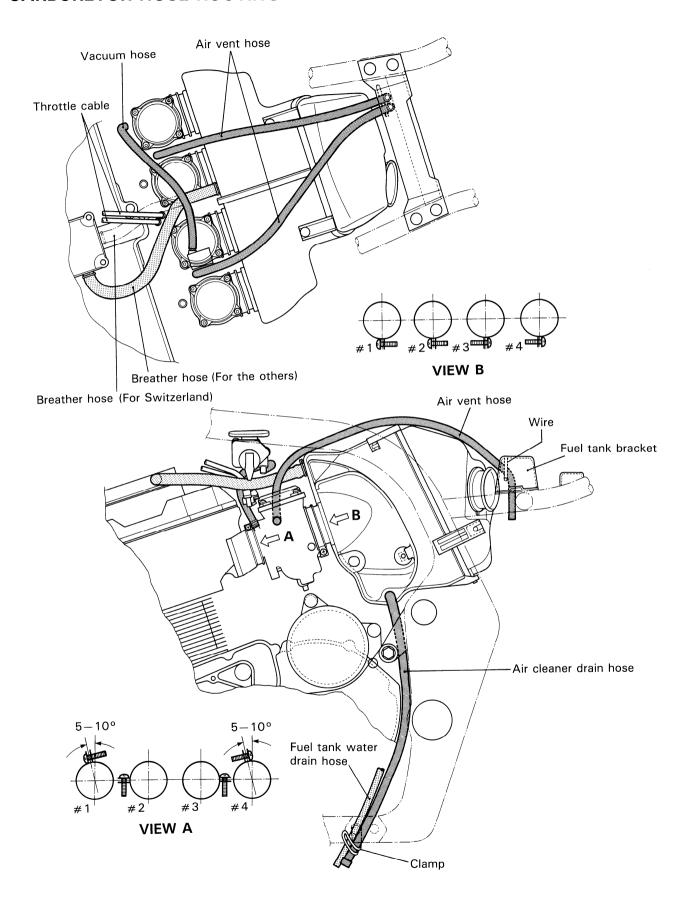




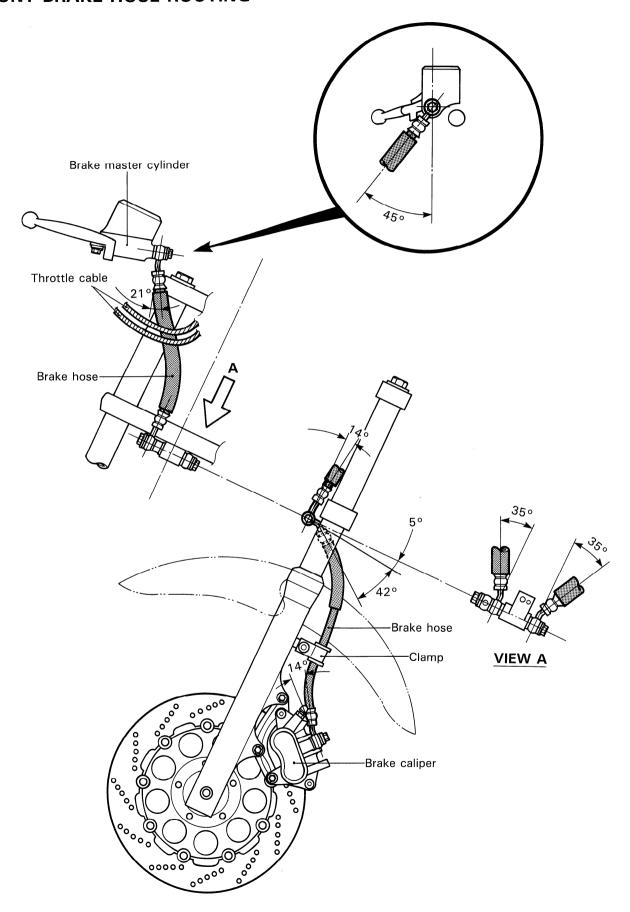
FUEL SYSTEM HOSE ROUTING



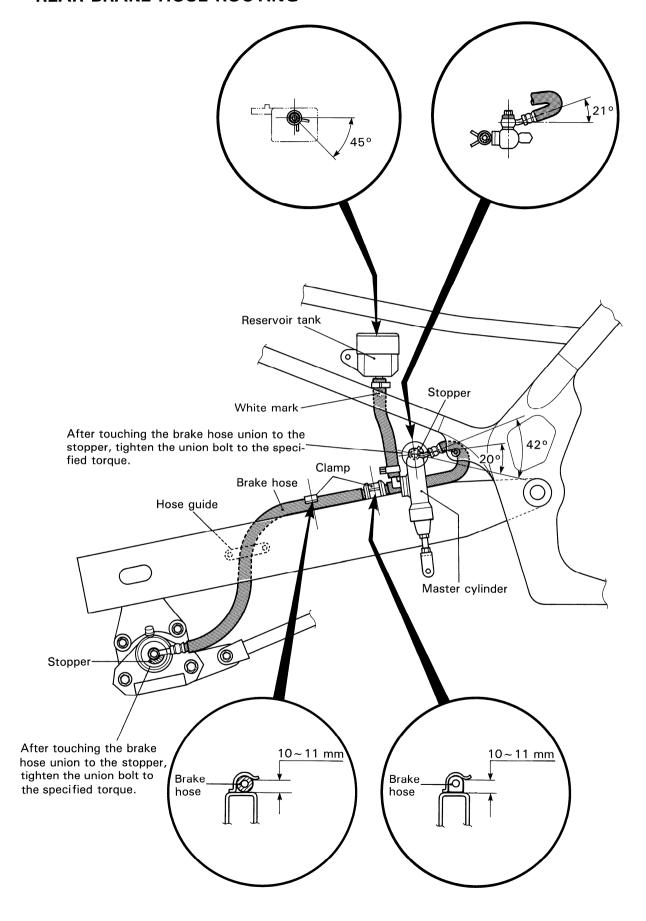
CARBURETOR HOSE ROUTING



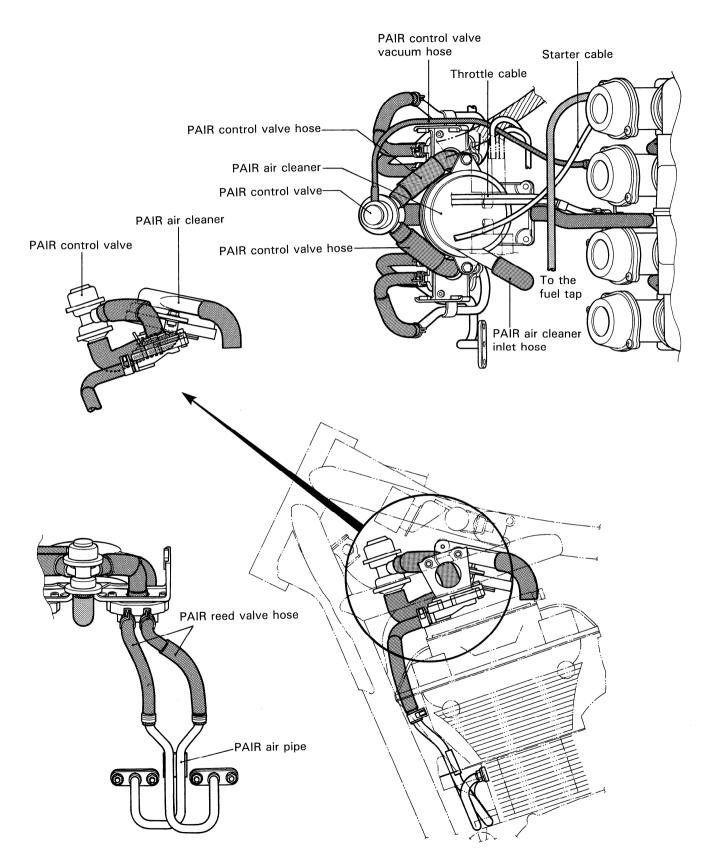
FRONT BRAKE HOSE ROUTING



REAR BRAKE HOSE ROUTING

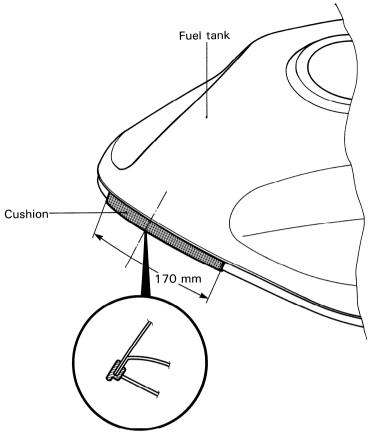


PAIR (AIR SUPPLY) SYSTEM HOSE ROUTING (For Switzerland)

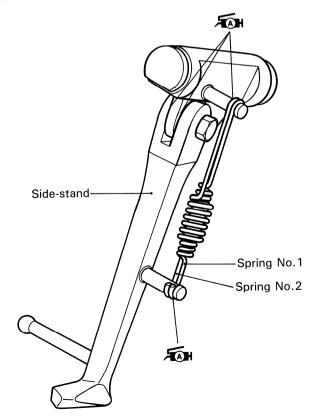


FUEL TANK CUSHION AND SIDE-STAND SPRING



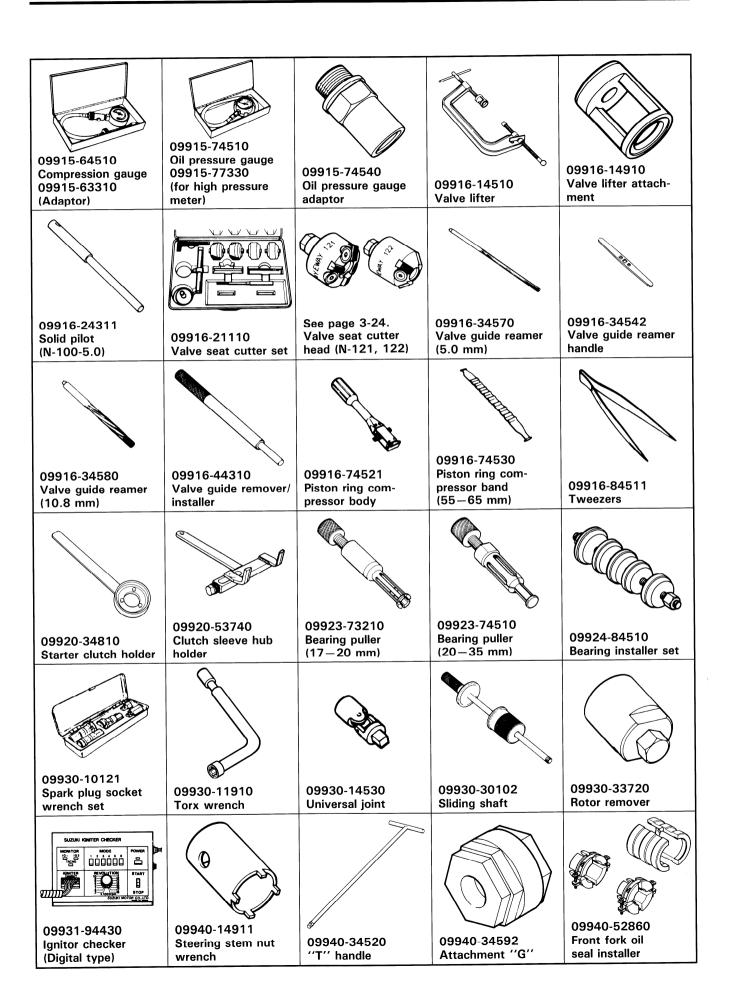


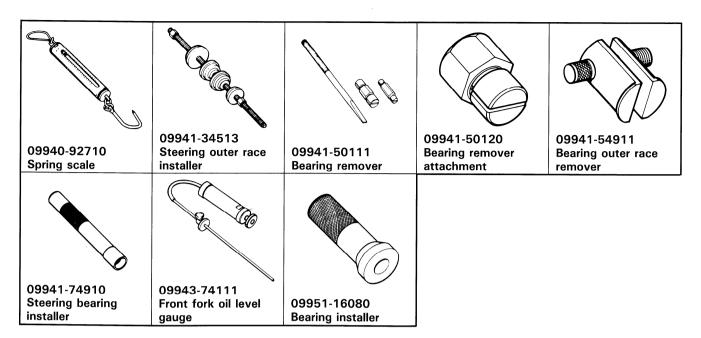
SIDE-STAND SPRING



SPECIAL TOOLS







NOTE:

When ordering the special tool, please confirm whether it is available or not.

TIGHTENING TORQUE

ENGINE

ITEM	N⋅m	kg-m	lb-ft
Cylinder head cover bolt (8 pcs)	14	1.4	10.0
Cylinder head cover plug	15	1.5	11.0
Cylinder head cover union bolt	16	1.6	11.5
Cylinder head nut [M: 10]	38	3.8	27.5
Cylinder head bolt [M: 6]	10	1.0	7.0
Cylinder head plug	28	2.8	20.0
Cylinder base nut	9	0.9	6.5
Cylinder stud bolt	15	1.5	11.0
Valve clearance adjuster lock nut	10	1.0	7.0
Rocker arm shaft set bolt	9	0.9	6.5
Camshaft journal holder bolt	10	1.0	7.0
Cam sprocket bolt	25	2.5	18.0
Oil cooler hose union bolt	28	2.8	20.0
Oil hose mounting bolt	10	1.0	7.0
Cam chain tensioner mounting bolt	7	0.7	5.0
Cam chain tensioner spring holder bolt	35	3.5	25.5
Conrod bearing cap nut	35	3.5	25.5
Starter clutch mounting bolt	150	15.0	108.5
Signal generator bolt	25	2.5	18.0
Crankcase bolt [M: 6]	13	1.3	9.5
[M: 8]	22	2.2	16.0
Oil pump mounting bolt	10	1.0	7.0
Oil drain plug	23	2.3	16.5
Oil pan bolt	14	1.4	10.0
Gearshift cam stopper bolt	19	1.9	13.5
Clutch sleeve hub nut	90	9.0	65.0
Clutch spring set bolt	12	1.2	8.5
Exhaust pipe bolt	23	2.3	16.5
Muffler mounting bolt	23	2.3	16.5
Engine sprocket nut	115	11.5	83.0
Engine sprocket nut stopper bolt	11	1.1	8.0
Engine mounting bolt [L: 55]	55	5.5	40.0
Engine mounting bolt [L:130 and 180]	75	7.5	54.0
Generator driven gear nut	60	6.0	43.5
Generator mounting bolt	25	2.5	18.0
Oil cooler mounting bolt	10	1.0	7.0
Oil pressure regulator	28	2.8	20.0
Oil pressure switch	14	1.4	10.0

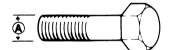
CHASSIS

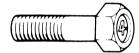
ITEM	N⋅m	kg-m	lb-ft
Steering stem head nut	65	6.5	47.0
Front fork upper clamp bolt	23	2.3	16.5
Front fork lower clamp bolt	23	2.3	16.5
Front fork cap bolt	23	2.3	16.5
Front fork damper rod bolt	30	3.0	21.5
Front axle	65	6.5	47.0
Front axle pinch bolt	23	2.3	16.5
Handlebars clamp bolt	23	2.3	16.5
Front brake master cylinder mounting bolt	10	1.0	7.0
Front brake caliper mounting bolt	25	2.5	18.0
Front brake caliper pad mounting bolt	18	1.8	13.0
Brake hose union bolt (Front & Rear)	23	2.3	16.5
Air bleeder valve (Front & Rear)	8	0.8	6.0
Brake disc bolt (Front & Rear)	23	2.3	16.5
Front footrest bracket mounting bolt	23	2.3	16.5
Front footrest nut	39	3.9	28.0
Swingarm pivot nut	100	10.0	72.5
Rear shock absorber mounting nut (Upper & Lower)	50	5.0	36.0
Rear cushion lever/rod mounting nut	76	7.6	55.0
Rear brake caliper mounting bolt	25	2.5	18.0
Rear brake caliper housing bolt	33	3.3	24.0
Rear brake master cylinder mounting bolt	23	2.3	16.5
Rear brake master cylinder rod lock nut	18	1.8	13.0
Rear axle nut	100	10.0	72.5
Rear sprocket nut	60	6.0	43.5
Rear torque link nut	35	3.5	25.5

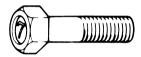
TIGHTENING TORQUE CHART

For other bolts and nuts listed previously, refer to this chart:

Bolt Diameter Conventi		onal or ''4'' ma	rked bolt	''7'' marked bolt		t
(mm)	N∙m	kg-m	lb-ft	N·m	kg-m	lb-ft
4	1.5	0.15	1.0	2	0.2	1.5
5	3	0.3	2.0	5	0.5	3.5
6	6	0.6	4.5	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







Conventional bolt

"4" marked bolt

"7" marked bolt

SERVICE DATA

VALVE + GUIDE

ITEM **STANDARD** LIMIT Valve diam. 23 IN. (0.9)20 EX. (0.8)Valve lift 6.6 E-18 (0.26)IN. 7.8 Others (0.31)6.1 E-18 (0.24)EX. 7.3 Others (0.29) $0.10 - 0.1\overline{5}$ Valve clearance (when cold) IN. (0.004 - 0.006) $0.18 - 0.2\overline{3}$ EX. (0.007 - 0.009)Valve guide to valve stem 0.020 - 0.047IN. clearance (0.0008 - 0.0019)0.030 - 0.057EX. (0.0012 - 0.0022)Valve stem deflection 0.35 IN. & EX. (0.014)Valve guide I.D. 5.000 - 5.012IN. & EX. (0.1969 - 0.1973)4.965 - 4.980Valve stem O.D. IN. (0.1955 - 0.1961)4.955 - 4.970EX. (0.1950 - 0.1957)Valve stem runout 0.05 IN. & EX. (0.002)Valve head thickness 0.5 IN. & EX. (0.02)2.5 Valve stem end length IN. & EX. (0.10)Valve seat width 0.9 - 1.1IN. & EX. (0.035 - 0.043)Valve head radial runout 0.03 IN. & EX. (0.001)Valve spring free length 35.0 **INNER** (IN. & EX.) (1.38)38.4 OUTER (1.51)5.6-6.6 kg (12.3-14.6 lbs) Valve spring tension (IN. & EX.) INNER at length 28 mm (1.10 in) 12.8-15.0 kg (28.2-33.1 lbs) **OUTER** at length 31.5 mm (1.24 in)

Unit: mm (in)

Unit: mm (in)

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STAND	ARD	LIMIT
Cam height	INI	E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
	EX.	E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EA.	Others	32.85—32.89 (1.2933—1.2949)	32.55 (1.2815)
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.	22.012-22.025 (0.8666-0.8671)		
Camshaft journal O.D.	IN. & EX. 21.959-21.980 (0.8645-0.8654)			
Camshaft runout	IN. & EX. ——		0.10 (0.004)	
Cam chain pin (at arrow ''3'')	24th pin			
Rocker arm I.D.	IN. & EX. 12.000-12.018 (0.4724-0.4731)			
Rocker arm shaft O.D.	IN. & EX. 11.973-11.984 (0.4714-0.4718)			
Cylinder head distortion			0.20 (0.008)	

CYLINDER + PISTON + PISTON RING

ITENA	STANDARD LIMIT				
ITEM			LIMIT		
Compression pressure		1 000-1 500 kPa			
			/10-15 kg/cm ² \	/8 kg/cm²∖	
			\ 142—213 psi /	│	
Compression pressure difference			•	200 kPa	
Compression pressure difference	1			/2 kg/cm ² \	
				\ 28 psi /	
Piston to cylinder clearance			0.040-0.050	0.120	
			(0.0016-0.0020)	(0.0047)	
Cylinder bore			62.600-62.615	62.690	
27			(2.4646 – 2.4652)	(2.4681)	
B' · I'				(2.1001)	
Piston diam.	62.555-62.570			62.480	
			(2.4628 - 2.4634)	(2.4598)	
	Measu	re 15	5 mm (0.6 in) from the skirt end.	(2.1000)	
Cylinder distortion			0.20		
- , 			(0.008)		
Dieter view free and non			0.0		
Piston ring free end gap	1st	R	Approx. (0.34)	6.9	
			Approx. (0.34)	(0.27)	
	2nd R Approx.		6.7	5.4	
	2nd	l K	Approx. (0.26)	(0.21)	
Piston ring end gap			0.1-0.3	0.7	
rioton inig cha gap	1st		(0.004-0.012)	(0.03)	
	2nd		0.3-0.5	0.7	
		4	(0.012-0.020)	(0.03)	

ITEM		STANDARD	LIMIT
Piston ring to groove clearance	1st		0.180 (0.007)
	2nd		0.150 (0.006)
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)	
	2nd	1.01 – 1.03 (0.039 – 0.040)	
	Oil	2.01-2.03 (0.079-0.080)	
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)	
	2nd	0.97-0.99 (0.038-0.039)	<u></u>
Piston pin bore	18.002—18.008 (0.7087—0.7090)		18.030 (0.7098)
Piston pin O.D.	17.996—18.000 (0.7085—0.7086)		17.980 (0.7079)

Unit: mm (in)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976-34.000 (1.3376-1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	
Crankshaft journal width	24.00-24.05 (0.945-0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT	
Primary reduction ra	atio	1.744 (75/43)			
Final reduction ratio)		3.133	(47/15)	
Gear ratios	Low		3.083	(37/12)	
	2nd		2.062	(33/16)	
	3rd		1.647	(28/17)	
	4th		1.400	(28/20)	
	5th		1.227	(27/22)	
	Тор		1.095	(23/21)	
Shift fork to groove	clearance	No.1, No.2 0.1-0.3 & No.3 (0.004-0.012)		0.50 (0.020)	
Shift fork groove width		No.1 & No.3	(0	4.8-4.9 .189-0.193)	
		No.2	(0	5.0-5.1 .197-0.201)	
Shift fork thickness		No.1 & No.3	4.6-4.7 (0.181-0.185)		
			4.8-4.9 (0.189-0.193)		
Drive chain		Type		RK50MFOZ ₁	
		Links		110 links	
		20-pitch length			319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heig	ht	35 (1.38)			

CARBURETOR

ITEM		SPECIFIC	CATION
ITEIVI		E-02,04,34	E-22
Carburetor type		KEIHIN CVK32	←
Bore size		32 mm	←
I.D. No.		26E0	26E3
Idle r/min.		1 200 ± 100 r/min.	←
Float height		17±1.0 mm (0.67±0.04 in)	←
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←
Main air jet	(M.A.J.)	#90	←
Jet needle	(J.N.)	N1QJ	←
Pilot jet	(P.J.)	#35	←
Pilot air jet	(P.A.J.)	#150	←
Valve seat	(V.S.)	2.4 mm	←
Pilot screw	(P.S.)	1% turns back	←
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←

CARBURETOR

ITEM		SPECIFICATION			
		E-22 (U-type)	E-18		
Carburetor type		KEIHIN CVK32	←		
Bore size		32 mm	←		
I.D. No.		26E4	26E2		
Idle r/min.		1 200 ± 100 r/min.	1 200 ⁺¹⁰⁰ ₋₅₀ r/min.		
Float height		17±1.0 mm (0.67±0.04 in)	←		
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	# 100 (No.1&4), # 102 (No.2&3)		
Main air jet	(M.A.J.)	#90	←		
Jet needle	(J.N.)	N1QJ	N76L		
Pilot jet	(P.J.)	#35	←		
Pilot air jet	(P.A.J.)	#150	←		
Valve seat	(V.S.)	2.4 mm	←		
Pilot screw	(P.S.)	1% turns back	21/8 turns back		
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←		
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←		

ELECTRICAL Unit: mm (in)

**	ITEM			SP	ECIFICATION	NOTE													
Ignition timi	ng		4° B.T.D.C. Below 1 500 r/min.		E-18,39														
			13° B.T.D.C. Below 1 500 r/min.		The others														
Firing order					1.2.4.3														
Spark plug			Type		NGK: CR9EK ND.: U27ETR														
			Gap		0.6 - 0.7 (0.024 - 0.028)														
Spark perfo	rmance		C	ver 8	3 (0.3) at 1 atm.														
Signal coil r	esistance			Appro	ox. 135—200 Ω	Tester range: (x 100 Ω)													
Ignition coil	resistance		Primary		\oplus tap $- \bigcirc$ tap Approx. 2 $-$ 4 Ω	Tester range: (x 1 Ω)													
			Secondary		Plug cap—Plug cap Approx. $30-40 \text{ k}\Omega$	Tester range: (x 1 kΩ)													
Generator			Slip ring C).D.	Limit: 14.0 (0.55)														
			Brush len	gth	Limit: 4.5 (0.18)	N.D.													
Regulated v	oltage		Abov	e 13.	5 V at 5 000 r/min.														
Starter relay	resistance				$3-5 \Omega$														
Battery	Type designate	tion			YTX9-BS														
	Capacity		12\	/ 28.8	3 kC (8 Ah)/10 HR														
	Standard electrolyte S	G.	1.320 at 20°C (68°F)																
Fuse size	Lloodlight	HI	15 A																
	Headlight	LO	15 A																
	Turn signa		15 A		15 A														
	Ignition		10 A		10 A		10 A		10 A										
	Taillight		10 A		10 A		10 A		10 A		10 A		10 A		10 A		10 A		
	Main		30 A																

WATTAGE Unit: W

ITEM		SPECIFICATION	
Headlight	HI	60	
	LO	55	
Parking or position light	t	4	
Tail/Brake light		5/21	
Turn signal light		21	
Speedometer light		1.7	
Tachometer light		1.7	
Turn signal indicator light		3.4	
High beam indicator light		1.7	
Neutral indicator light		3	
Oil pressure indicator light		3.4	
License light		5	

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal height		45 (1.8)	
Brake disc thickness	Front	4.5±0.2 (0.177±0.008)	4.0 (0.15)
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)
Brake disc runout			0.30 (0.012)
Master cylinder bore	Front	14.000 — 14.043 (0.5512 — 0.5529)	
	Rear	12.700—12.743 (0.5000—0.5017)	
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)	
	Rear	12.657—12.684 (0.4983—0.4994)	
Brake caliper cylinder bore	Front	25.400 – 25.450 (1.0000 – 1.0020)	
	Rear	38.180-38.256 (1.5031-1.5061)	
Brake caliper piston diam.	Front	25.335-25.368 (0.9974-0.9987)	
	Rear	38.098-38.148 (1.5000-1.5019)	
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)
Tire size	Front	110/70-17 54H	
	Rear	150/70-17 69H	
Tire tread depth	Front		1.6 (0.06)
	Rear		2.0 (0.08)

SUSPENSION Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	97 (3.8)		
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa kg/cm² psi			kPa	kg/cm ²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		SPECIFICATION	NOTE
Fuel type	Gasoline use octane or hig recommende		
Fuel tank including reserve	(5	19.0 L .0/4.1 US/Imp gal)	
reserve	(1	4.5 L .1/0.9 US/Imp gal)	
Engine oil type	SAE		
Engine oil capacity	Change 3 300 ml (3.4/2.9 US/Imp qt)		
	Filter change 3 500 ml (3.6/3.0 US/Imp qt)		
	Overhaul 4 600 ml (4.9/4.0 US/lmp qt)		
Front fork oil type			
Front fork oil capacity (each leg)	(17		
Brake fluid type		DOT 4	

GSF600T ('96-MODEL)

SPECIFICATIONS 8- 1 SERVICE DATA 8- 3

NOTE:

The specifications and service data are the same as those of the S-MODEL.

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SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 155 mm (84.8 in) For E-15,16,17,22
2	2 085 mm (82.0 in) For the others
Overall width	745 mm (29.3 in)
Overall height 1	l 100 mm (43.3 in)
Wheelbase 1	l 430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.6 in)
Dry mass	196 kg (432 lbs)

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	62.6 mm (2.464 in)
Stroke	48.7 mm (1.917 in)
Piston displacement	599 cm ³ (36.5 cu. in)
Carburetor	KEIHIN CVK32, four
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Clutch		Wet multi-plate type
Transmissio	n	6-speed constant mesh
Gearshift pa	attern	1-down, 5-up
Primary redu	uction ratio	1.744 (75/43)
Final reduct	ion ratio	3.133 (47/15)
Gear ratios, Low		3.083 (37/12)
	2nd	2.062 (33/16)
	3rd	1.647 (28/17)
	4th	1.400 (28/20)
	5th	1.227 (27/22)
	Top	1.095 (23/21)
Drive chain		RK50MF0Z ₁ , 110 links

CHASSIS

UIAUUU	
Front suspension	Telescopic, coil spring, oil damped
	Link type system, oil damped, coil spring, spring pre-
	load 7-way adjustable
Steering angle	35° (right & left)
Caster	64° 50′
Trail	100 mm (3.9 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	
Front tire size	
Rear tire size	
Front fork stroke	
Rear wheel travel	
ELECTRICAL	
Ignition type	Electronic Ignition (Fully Transistorized)
Ignition timing	4° B.T.D.C. at 1 500 r/min For E-18
	13° B.T.D.C. at 1 500 r/min For the others
Spark plug	N.G.K.: CR9EK, NIPPONDENSO U27ETR
Battery	12V 28.8 kC (8 Ah)/10 HR
Generator	Three-phase A.C. Generator
Main fuse	
Fuse	15/15/15/10/10A
Headlight	
Position light	
Turn signal light	
Tail/Brake light	12V 5/21W
License plate light	
Speedometer light	12V 1.7W x 2
Tachometer light	
Neutral indicator light	
High beam indicator light	
Turn signal indicator light	
Oil pressure indicator light	

CAPACITIES

Fuel tank, including reserve 19.0 L (5.0/4.1 US/Imp gal)
reserve
Engine oil, oil change 3 300 ml (3.4/2.9 US/Imp qt)
with filter change 3 500 ml (3.6/3.0 US/Imp qt)
overhaul
Front fork oil

These specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

ITEM	STANDARD		ARD	LIMIT
Valve diam.	IN.	23 (0.9)		
	EX.		20 (0.8)	-
Valve lift	INI	E-18	6.6 (0.26)	
	IN.	Others	7.8 (0.31)	
	EX.	E-18	6.1 (0.24)	
	LX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		30-0.057 12-0.0022)	
Valve stem deflection	IN. & EX.			0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000-5.012 (0.1969-0.1973)		
Valve stem O.D.	IN.	4.965-4.980 (0.1955-0.1961)		
	EX.	4.955—4.970 (0.1950—0.1957)		
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
Valve seat width	IN. & EX.).9-1.1 35-0.043)	
Valve head radial runout	IN. & EX.			0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)	INNER	5.6-6.6 kg (12.3-14.6 lbs) at length 28 mm (1.10 in)		
	OUTER	(28.2	8-15.0 kg 2-33.1 lbs) 31.5 mm (1.24 in)	

Unit: mm (in)

Unit: mm (in)

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STANDARD		
Cam height	INI	E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
	EV.	E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EX.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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.	22.012-22.025 (0.8666-0.8671)		
Camshaft journal O.D.	IN. & EX. 21.959-21.980 (0.8645-0.8654)			
Camshaft runout	IN. & EX. ——		0.10 (0.004)	
Cam chain pin (at arrow "3")		24th p	oin	
Rocker arm I.D.	IN. & EX. 12.000-12.018 (0.4724-0.4731)			
Rocker arm shaft O.D.	IN. & EX. 11.973—11.984 (0.4714—0.4718)			
Cylinder head distortion			_	0.20 (0.008)

CYLINDER + PISTON + PISTON RING

ITEM			STANDARD	LIMIT
Compression pressure	1 000-1 500 kPa (10-15 kg/cm²) 142-213 psi			800 kPa (8 kg/cm²) 114 psi
Compression pressure difference				200 kPa (2 kg/cm²) 28 psi
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore			62.600-62.615 (2.4646-2.4652)	62.690 (2.4681)
Piston diam.	62.555-62.570 (2.4628-2.4634) Measure 15 mm (0.6 in) from the skirt end.			62.480 (2.4598)
Cylinder distortion				0.20 (0.008)
Piston ring free end gap	1st R Approx. 8.6 (0.34)		6.9 (0.27)	
	2nd R Approx. 6.7 (0.26)		5.4 (0.21)	
Piston ring end gap	1st 0.1-0.3 (0.004-0.012)		0.7 (0.03)	
	2nd	d	0.3-0.5 (0.012-0.020)	0.7 (0.03)

ITEM		STANDARD	LIMIT
Piston ring to groove clearance	1st		0.180 (0.007)
	2nd		0.150 (0.006)
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)	
	2nd	1.01-1.03 (0.039-0.040)	
	Oil	2.01 – 2.03 (0.079 – 0.080)	
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)	
	2nd	0.97-0.99 (0.038-0.039)	
Piston pin bore	18.002 – 18.008 (0.7087 – 0.7090)		18.030 (0.7098)
Piston pin O.D.	17.996-18.000 (0.7085-0.7086)		17.980 (0.7079)

Unit: mm (in)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976—34.000 (1.3376—1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	
Crankshaft journal width	24.00—24.05 (0.945—0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STAN	DARD	LIMIT	
Primary reduction ra	atio	1.744		(75/43)	
Final reduction ratio			3.133	(47/15)	
Gear ratios	Low		3.083	(37/12)	
	2nd		2.062	(33/16)	
	3rd		1.647	(28/17)	
	4th		1.400	(28/20)	
	5th		1.227	(27/22)	
	Тор		1.095	(23/21)	
Shift fork to groove	clearance	No.1, No.2 & No.3	(0	0.1-0.3 .004-0.012)	0.50 (0.020)
Shift fork groove width		No.1 & No.3	4.8-4.9 (0.189-0.193)		
		No.2	(0	5.0-5.1 .197-0.201)	
Shift fork thickness	Shift fork thickness		(0	4.6-4.7 .181-0.185)	
		No.2	(0	4.8-4.9 .189-0.193)	
Drive chain	, , , , , , , , , , , , , , , , , , , ,	Type		RK50MFOZ1	
		Links		110 links	
		20-pitch	length		319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heig	ht	35 (1.38)			

CARBURETOR

ITEM		SPECIFIC	CATION
		E-02,04,25,34,37	E-17,22
Carburetor type		KEIHIN CVK32	←
Bore size		32 mm	←
i.D. No.		26E0	26E3
ldle r/min.		1 200 ± 100 r/min.	←
Float height		17±1.0 mm (0.67±0.04 in)	←
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←
Main air jet	(M.A.J.)	# 90	←
Jet needle	(J.N.)	N1QJ	←
Pilot jet	(P.J.)	#35	←
Pilot screw	(P.S.)	1% turns back	←
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	. ←
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←

CARBURETOR

ITEM		SPECIFICATION	
		E-22 (U-type)	E-18
Carburetor type		KEIHIN CVK32	←
Bore size		32 mm	←
I.D. No.		26E4	26E2
ldle r/min.		1 200 ± 100 r/min.	←
Float height		17±1.0 mm (0.67±0.04 in)	←
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	# 100 (No.1&4), # 102 (No.2&3)
Main air jet	(M.A.J.)	#90	←
Jet needle	(J.N.)	N1QJ	N76L
Pilot jet	(P.J.)	#35	←
Pilot screw	(P.S.)	1% turns back	21/8 turns back
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←

Unit: mm (in)

ELECTRICAL

	ITEM		SPECIFICATION			NOTE
Ignition timing		4° B.T.D.C. at 1 500 r/min.		E-18		
		13° B.T.D.C. at 1 500 r/min.		The others		
Firing order					1.2.4.3	
Spark plug					NGK: CR9EK ND.: U27ETR	
			Gap		0.6-0.7 (0.024-0.028)	
Spark perfo	rmance			Over 8	3 (0.3) at 1 atm.	
Signal coil	resistance			Appro	ox. 135—200 Ω	Tester range: (x 100 Ω)
Ignition coil	Ignition coil resistance		Primary	\bigoplus tap— \bigoplus tap Approx. 2—4 Ω		Tester range: (x 1 Ω)
			Secondary Plug cap—Plug cap Approx. $30-40 \text{ k}\Omega$		Tester range: (x 1 kΩ)	
Generator			Slip ring C	D.D.	Limit: 14.0 (0.55)	
			Brush length Limit: 4.5 (0.18)		N.D.	
Regulated v	oltage		Above 13.5 V at 5 000 r/min.			
Starter rela	y resistance		3-5 Ω			
Battery	Typę designa	tion	YTX9-BS			
	Capacity		12V 28.8 kC (8 Ah)/10 HR			
Standa electrolyte		.G.	1.320 at 20°C (68°F)			
Fuse size	Fuse size HI		15 A			
	Headlight	LO	15 A			
	Turn signa	1		15 A		
	Ignition		10 A			
	Taillight		10 A			
	Main		30 A			

WATTAGE Unit: W

ITEM		SPECIFICATION	
Headlight	HI	60	
	LO	55	
Parking or position light	•	4	
Tail/Brake light		5/21	
Turn signal light		21	
Speedometer light		1.7	
Tachometer light		1.7	
Turn signal indicator light		3.4	
High beam indicator light		1.7	
Neutral indicator light		3	
Oil pressure indicator lig	ght	3.4	
License light		5	

BRAKE + WHEEL

ITEM	STANDARD		LIMIT
Rear brake pedal height		45 (1.8)	
Brake disc thickness	Front	4.5 ± 0.2 (0.177 ± 0.008)	4.0 (0.15)
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)
Brake disc runout			0.30 (0.012)
Master cylinder bore	Front	14.000-14.043 (0.5512-0.5529)	
	Rear	12.700 — 12.743 (0.5000 — 0.5017)	
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)	
	Rear	12.657—12.684 (0.4983—0.4994)	
Brake caliper cylinder bore	Front	25.400 — 25.450 (1.0000 — 1.0020)	
	Rear	38.180 – 38.256 (1.5031 – 1.5061)	
Brake caliper piston diam.	Front	25.335-25.368 (0.9974-0.9987)	
	Rear	38.098-38.148 (1.5000-1.5019)	
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)
Tire size	Front	110/70-17 54H	
	Rear	150/70-17 69H	
Tire tread depth	Front		1.6 (0.06)
	Rear		2.0 (0.08)

Unit: mm (in)

SUSPENSION Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	97 (3.8)		
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		SPECIFICATION	NOTE	
Fuel type	octane or hi	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including reserve		19.0 L (5.0/4.1 US/Imp gal)		
reserve	- I	4.5 L I.1/0.9 US/Imp gal)		
Engine oil type	SAE 10	SAE 10W/40, API SE, SF or SG		
Engine oil capacity	Change	3 300 ml (3.4/2.9 US/Imp qt)		
	Filter change	3 500 ml (3.6/3.0 US/lmp qt)		
	Overhaul	4 600 ml (4.9/4.0 US/Imp qt)		
Front fork oil type		Fork oil #10		
Front fork oil capacity (eac		521 ml (17.6/18.3 US/Imp oz)		
Brake fluid type		DOT 4		

9

GSF600ST ('96-MODEL)

FOREWORD

This chapter describes service data and servicing procedures which differ from those of the GSF600T ('96-MODEL).

NOTE:

- * Any differences between GSF600T ('96-MODEL) and GSF600ST ('96-MODEL) in specifications and service data are clearly indicated with the asterisk marks (*).
- * Please refer to the chapters 1 through 8 for details which are not given in this chapter.

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COUNTRY OR AREA

E-02: U.K. E-17: Sweden E-24: Australia E-33: California (U.S.A.)
E-03: U.S.A. E-18: Switzerland E-25: Netherlands E-34: Italy
E-04: France E-21: Belgium E-26: Denmark E-39: Austria
E-15: Finland E-22: Germany E-28: Canada E-53: Spain

E-16: Norway

E-15,16 and 26 countries are included in E-17.

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

E-39 country is included in E-18.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 155 mm (84.8 in)E-15,16,17,22
	2 085 mm (82.1 in)The others
Overall width	745 mm (29.3 in)
Overall height	* 1 205 mm (47.4 in)
Wheelbase	1 430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.7 in)
Dry mass	*205 kg (451 lbs)E-33
	*202 kg (445 lbs)The others

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	62.6 mm (2.465 in)
Stroke	48.7 mm (1.917 in)
Piston displacement	599 cm³ (36.6 cu. in)
Compression ratio	11.3 : 1
Carburetor	KEIHIN CVK32, four
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Clutch		Wet multi-plate type
Transmissio	n	6-speed constant mesh
Gearshift pa	ttern	1-down, 5-up
Primary redu	uction ratio	1.744 (75/43)
Final reduct	ion ratio	3.200 (48/15)E-03,33
		3.133 (47/15)The others
Gear ratios,	Low	3.083 (37/12)
	2nd	2.062 (33/16)
	3rd	1.647 (28/17)
	4th	1.400 (28/20)
	5th	1.227 (27/22)
	Top	1.095 (23/21)
Drive chain		RK50MF0Z ₁ , 112 linksE-03,33
		RK50MFOZ ₁ , 110 linksThe others

Specification marked with asterisk mark (*) are exclusive to GSF600ST.

CHASSIS

CHASSIS	
Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type system, oil damped, coil spring, spring pre-load 7-way adjustable
Steering angle	35° (right & left)
Caster	64° 50′
Trail	100 mm (3.9 in)
Turning radius	
Front brake	,
Rear brake	
Front tire size	110/70-17 54HE-03,28,33 * 110/70 ZR17The others
Rear tire size	150/70-17 69HE-03,28,33 * 150/70 ZR17The others
Front fork stroke	130 mm (5.1 in)
Rear wheel travel	121 mm (4.8 in)
ELECTRICAL	
Ignition type	Electronic Ignition (Fully Transistorized)
Ignition timing	4° B.T.D.C. at 1 500 r/min For E-03,18, 33,39
	13° B.T.D.C. at 1 500 r/min For the others
Spark plug	N.G.K.: CR9EK, NIPPONDENSO: U27ETR
Battery	12V 28.8 kC (8 Ah)/10 HR
Generator	Three-phase A.C. Generator
Main fuse	30A
Fuse	15/15/15/10/10A
Headlight	12V 60/55W
Parking or position light	
Turn signal light	12V 21W
Tail/Brake light	
License plate light	
Speedometer light	
Tachometer light	
Neutral indicator light	
High beam indicator light	12V 1.7W
Turn signal indicator light	
Oil pressure indicator light	12V 3.4W
CAPACITIES	
Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.5 L (1.2/1.0 US/Imp gal)
Engine oil, oil change	3 300 ml (3.5/2.9 US/Imp qt)
with filter change	3 500 ml (3.7/3.1 US/Imp qt)
overhaul	4 600 ml (4.9/4.0 US/Imp qt)
Front fork oil	*522 ml (17.6/18.4 US/Imp oz)E-03,28,33
	521 ml (17.6/18.3 US/Imp oz)The others

Specifications marked with asterisk mark (*) are exclusive to GSF600ST. These specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM		LIMIT		
Valve diam.	IN.	STAND	23 (0.9)	
	IIV.			
	EX.	20 (0.8)		
Valve lift		E-18	6.6 (0.26)	
	IN.	Others	7.8 (0.31)	
	E.V.	E-18	6.1 (0.24)	
	EX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		0.030-0.057 (0.0012-0.0022)	
Valve stem deflection	IN. & EX.			0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000-5.012 (0.1969-0.1973)		
Valve stem O.D.	IN.	4.965—4.980 (0.1955—0.1961)		
	EX.	4.955—4.970 (0.1950—0.1957)		
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
Valve seat width	IN. & EX.		0.9-1.1 35-0.043)	
Valve head radial runout	IN. & EX.			0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)			3—14.6 lbs) 28 mm (1.10 in)	
	OUTER	(28.	8-15.0 kg 2-33.1 lbs) 31.5 mm (1.24 in)	

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STAND	ARD	LIMIT
Cam height		E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
	EV.	E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EX.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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.	22.012-22.025 (0.8666-0.8671)		<u></u>
Camshaft journal O.D.	IN. & EX. 21.959—21.980 (0.8645—0.8654)			
Camshaft runout	IN. & EX. ——		0.10 (0.004)	
Cam chain pin (at arrow "3")	24th pin			
Rocker arm I.D.	IN. & EX. 12.000-12.018 (0.4724-0.4731)			
Rocker arm shaft O.D.	IN. & EX.	11.973—11.984 (0.4714—0.4718)		
Cylinder head distortion				

CYLINDER + PISTON + PISTON RING

CYLINDER + PISTON + PISTO	Unit: mm (in)			
ITEM			STANDARD	LIMIT
Compression pressure	1 000-1 500 kPa (10-15 kg/cm²) 142-213 psi			800 kPa (8 kg/cm²) 114 psi
Compression pressure difference				200 kPa (2 kg/cm²) 28 psi
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore	62.600-62.615 (2.4646-2.4652)			62.690 (2.4681)
Piston diam.	62.555-62.570 (2.4628-2.4634) Measure 15 mm (0.6 in) from the skirt end.			62.480 (2.4598)
Cylinder distortion				0.20 (0.008)
Piston ring free end gap	1st R Approx. 8.6 (0.34)			6.9 (0.27)
	2nd R Approx. 6.7 (0.26)			5.4 (0.21)
Piston ring end gap	1st 0.1-0.3 (0.004-0.012)			0.7 (0.03)
	2nd	d	0.3-0.5 (0.012-0.020)	0.7 (0.03)

ITEM		STANDARD	LIMIT		
Piston ring to groove clearance	1st		0.180 (0.007)		
	2nd		0.150 (0.006)		
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)			
	2nd	1.01 – 1.03 (0.039 – 0.040)			
	Oil	2.01 – 2.03 (0.079 – 0.080)	Amountain		
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)			
	2nd	0.97-0.99 (0.038-0.039)			
Piston pin bore		18.002—18.008 (0.7087—0.7090)			
Piston pin O.D.		17.996—18.000 (0.7085—0.7086)			

Unit: mm (in)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976—34.000 (1.3376—1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	
Crankshaft journal width	24.00-24.05 (0.945-0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD			LIMIT
Primary reduction r	atio		1.744 (75/43)		
Final reduction	E-03,33		3.200 (48/15)		
ratio	The others		3.133 (4	7/15)	
Gear ratios	Low		3.083 (3	7/12)	
	2nd		2.062 (3	3/16)	
	3rd		1.647 (2	8/17)	
	4th		1.400 (2	8/20)	
	5th		1.227 (2	7/22)	
	Тор		1.095 (2	3/21)	
Shift fork to groove	clearance	No.1, No.2 & No.3		0.1-0.3 (0.004-0.012)	
Shift fork groove w	Shift fork groove width		4.8-4.9 (0.189-0.193)		
		No.2	5.0-5.1 (0.197-0.201)		
Shift fork thickness	3	No.1 & No.3	4.6-4.7 (0.181-0.185)		
		No.2	4.8-4.9 (0.189-0.193)		
Drive chain		Type	RK50MFOZ₁		
		Links	E-03,33	112 links	
		LIIIKS	The others	110 links	
		20-pitch length			319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heig	jht	35 (1.38)			

CARBURETOR

ITEM		SPECIFI	SPECIFICATION			
I I LIVI		E-03	E-33			
Carburetor type		KEIHIN CVK32	←			
Bore size		32 mm	←			
I.D. No.		26E1	26E5			
ldle r/min.		1 200 ± 100 r/min.	←			
Float height		17±1.0 mm (0.67±0.04 in)	←			
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←			
Main air jet	(M.A.J.)	#90	←			
Jet needle	(J.N.)	N1QA	N76L			
Pilot jet	(P.J.)	#35	←			
Pilot air jet	(P.A.J.)	#155	# 150			
Valve seat	(V.S.)	2.4 mm	-			
Pilot screw	(P.S.)	PRE-SET	←			
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←			
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←			

CARBURETOR

ITEM		SPECIFI	SPECIFICATION				
I I LIVI		E-02,04,25,28,34	E-17,22,24				
Carburetor type		KEIHIN CVK32	←				
Bore size		32 mm	←				
I.D. No.		26E0	26E3				
ldle r/min.		1 200 ± 100 r/min.	←				
Float height		17±1.0 mm (0.67±0.04 in)	←				
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←				
Main air jet	(M.A.J.)	#90	←				
Jet needle	(J.N.)	N1QJ	←				
Pilot jet	(P.J.)	#35	-				
Pilot air jet	(P.A.J.)	#150	←				
Valve seat	(V.S.)	2.4 mm	←				
Pilot screw	(P.S.)	1% turns back	←				
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←				
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←				

CARBURETOR

ITEM	SPECIF	SPECIFICATION			
ITEM	E-22 (U-type)	E-18			
Carburetor type	KEIHIN CVK32	←			
Bore size	32 mm	←			
I.D. No.	26E4	26E2			
Idle r/min.	1 200 ± 100 r/min.	1 200 ⁺¹⁰⁰ ₋₅₀ r/min.			

ITENA		SPECIFICATION			
ITEM		E-22 (U-type) E-18			
Float height		17±1.0 mm (0.67±0.04 in)	←		
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	#100 (No.1&4), #102 (No.2&3)		
Main air jet	(M.A.J.)	# 90	←		
Jet needle	(J.N.)	N1QJ	N76L		
Pilot jet	(P.J.)	#35	←		
Pilot air jet	(P.A.J.)	#150	←		
Valve seat	(V.S.)	2.4 mm	←		
Pilot screw	(P.S.)	1% turns back	21/8 turns back		
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←		
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←		

ELECTRICAL Unit: mm (in)

	INICAL					NOTE
	ITEM		SPECIFICATION			NOTE
Ignition timi	ng		4° B.T.D.C. at 1 500 r/min.			E-03,18,33,39
			13°	B.T.D	.C. at 1 500 r/min.	The others
Firing order					1.2.4.3	
Spark plug			Туре		NGK: CR9EK ND.: U27ETR	
			Gap		0.6-0.7 (0.024-0.028)	
Spark perfo	rmance		Ċ	ver 8	(0.3) at 1 atm.	
Signal coil r	esistance			Appro	x. 135—200 Ω	Tester range: (x 100 Ω)
Ignition coil	nition coil resistance		Primary	\bigoplus tap $- \bigcirc$ tap Approx. 2 $-4~\Omega$		Tester range: (x 1 Ω)
			Secondary Plug cap—Plug cap Approx. $30-40 \text{ k}\Omega$			Tester range: (x 1 kΩ)
Generator			Slip ring O.D. Limit: 14.0 (0.55)		N. D	
			Brush length Limit: 4.5 (0.18)		N.D.	
Regulated v	oltage		Above 13.5 V at 5 000 r/min.			
Starter rela	y resistance				$3-5 \Omega$	
Battery	Type designat	tion			YTX9-BS	
,	Capacity		12\	/ 28.8	3 kC (8 Ah)/10 HR	
	Standard electrolyte S.	.G.	1.320 at 20°C (68°F)			
Fuse size		HI	15 A			
	Headlight	LO	15 A			
	Turn signa	i	15 A			
	Ignition		10 A			
	Taillight		10 A			
	Main				30 A	

WATTAGE Unit: W

ITEM		SPECIFI	CATION
		E-03,28,33	The others
Headlight	HI	60	←
	LO	55	←
Parking or position ligh	t		4
Tail/Brake light		5/21	←
Turn signal light		21	←
Speedometer light		1.7	←
Tachometer light		1.7	←
Turn signal indicator lig	ht	3.4	←
High beam indicator light		1.7	←
Neutral indicator light		3	←
Oil pressure indicator light		3.4	←
License light		5	←

Unit: mm (in)

BRAKE + WHEEL

ITEM STANDARD LIMIT 45 Rear brake pedal height (1.8)Brake disc thickness 4.0 4.5 ± 0.2 Front (0.177 ± 0.008) (0.15) 5.0 ± 0.2 4.5 Rear (0.197 ± 0.008) (0.18)Brake disc runout 0.30 (0.012)14.000 - 14.043Master cylinder bore Front (0.5512 - 0.5529)12.700 - 12.743Rear (0.5000 - 0.5017)Master cylinder piston diam. 13.957 - 13.984Front (0.5353 - 0.5506)12.657 - 12.684Rear (0.4983 - 0.4994)Brake caliper cylinder bore 25.400 - 25.450Front (1.0000 - 1.0020)38.180 - 38.256Rear (1.5031 - 1.5061)25.335 - 25.368Brake caliper piston diam. Front (0.9974 - 0.9987)38.098 - 38.148Rear (1.5000 - 1.5019)Wheel rim runout 2.0 Axial (0.08)2.0 Radial (0.08)Wheel axle runout 0.25 Front (0.010)0.25 Rear (0.010)

ITEM		STANDARD		
Tire size	Front	E-03,28,33	110/70-17 54H	
	Front	The others	*110/70 ZR17	
	Book	E-03,28,33	150/70-17 69H	
	Rear	The others	*150/70 ZR17	
Tire tread depth	Front			1.6 (0.06)
	Rear			2.0 (0.08)

SUSPENSION

SUSPENSION			Unit: mm (in)
ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	*96 (3.8)		E-03,28,33
	97 (3.8)		The others
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

Specifications marked with asterisk mark (*) are exclusive to GSF600ST.

FUEL + OIL

ITEM		SPECIFICATION	NOTE						
Fuel type	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. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		pump octane ($\frac{R+M}{2}$ method) 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.		pump octane ($\frac{R+M}{2}$ method) 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.		pump octane ($\frac{R+M}{2}$ method) 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-03,33
	pump octane	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.							
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		octane or higher. An unleaded gasoline is The others		The others				
Fuel tank including reserve	19.0 L (5.0/4.2 US/Imp gal)								
reserve	4.5 L (1.2/1.0 US/Imp gal)								
Engine oil type	SAE 10W/40, API SE, SF or SG								
Engine oil capacity	Change	3 300 ml (3.5/2.9 US/Imp qt)							
	Filter change	3 500 ml (3.7/3.1 US/lmp qt)							
	Overhaul	4 600 ml (4.9/4.0 US/lmp qt)							
Front fork oil type	Fork oil #10								
Front fork oil capacity (each leg)	* 522 ml (17.6/18.4 US/Imp oz)		E-03,28,33						
	521 ml (17.6/18.3 US/Imp oz)		The others						
Brake fluid type	DOT 4								

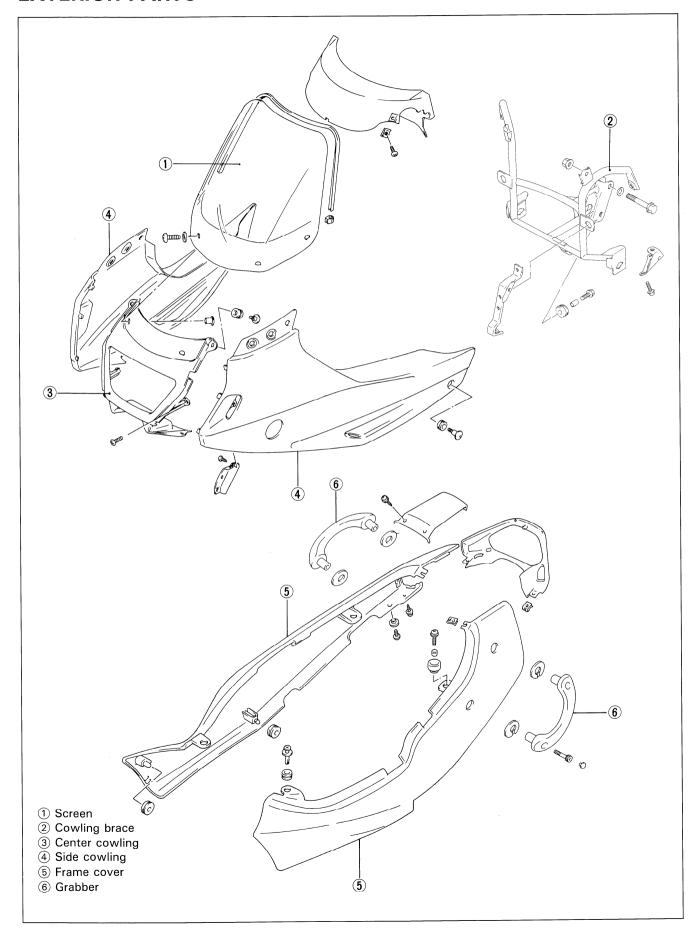
Specifications marked with asterisk mark (*) are exclusive to GSF600ST.

TIGHTENING TORQUE CHASSIS

ITEM	N⋅m	kg-m	lb-ft
Steering stem head nut	65	6.5	47.0
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	30	3.0	21.5
Front axle	65	6.5	47.0
Front axle pinch bolt	23	2.3	16.5
Handlebars clamp bolt	23	2.3	16.5
Front brake master cylinder mounting bolt	10	1.0	7.0
Front brake caliper mounting bolt	25	2.5	18.0
Front brake caliper pad mounting bolt	18	1.8	13.0
Brake hose union bolt (Front & Rear)	23	2.3	16.5
Air bleeder valve (Front & Rear)	8	0.8	6.0
Brake disc bolt (Front & Rear)	23	2.3	16.5
Front footrest bracket mounting bolt	23	2.3	16.5
Front footrest nut	39	3.9	28.0
Swingarm pivot nut	100	10.0	72.5
Rear shock absorber mounting nut (Upper & Lower)	50	5.0	36.0
Rear cushion lever/rod mounting nut	76	7.6	55.0
Rear brake caliper mounting bolt	25	2.5	18.0
Rear brake caliper housing bolt	33	3.3	24.0
Rear brake master cylinder mounting bolt	23	2.3	16.5
Rear brake master cylinder rod lock nut	18	1.8	13.0
Rear axle nut	100	10.0	72.5
Rear sprocket nut	60	6.0	43.5
Rear torque link nut	35	3.5	25.5
Cowling brace mounting bolt and nut	*35	*3.5	* 25.5

Specifications marked with asterisk mark (*) are exclusive to GSF600ST.

EXTERIOR PARTS



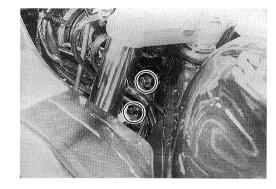
REMOVAL COWLING

• Remove the cowling mounting screws.

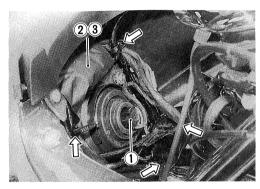




• Remove the cowling brace mounting bolts and nut.

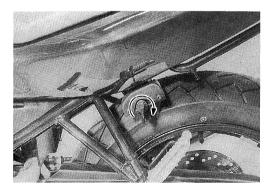


- Remove the lead wire clamps.
- Disconnect the lead wire couplers (headlight ①, front turn signla lights, handlebar switches ②, speedo/tachometer ③, horn).
- Remove the cowling with headlight.



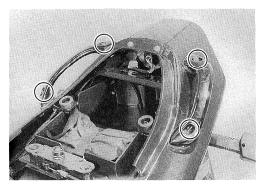
SEAT

• Remove the seat with the ignition key.

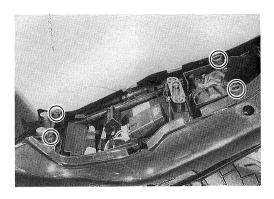


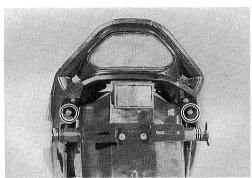
FRAME COVER

- Remove the seat.
- Remove the grabbers.

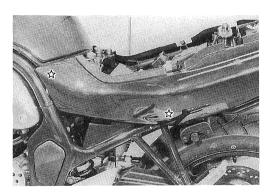


• Remove the frame cover mounting screws.



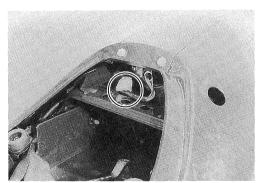


• Extract the hooked parts of frame cover, left and right.



☆: hooked part

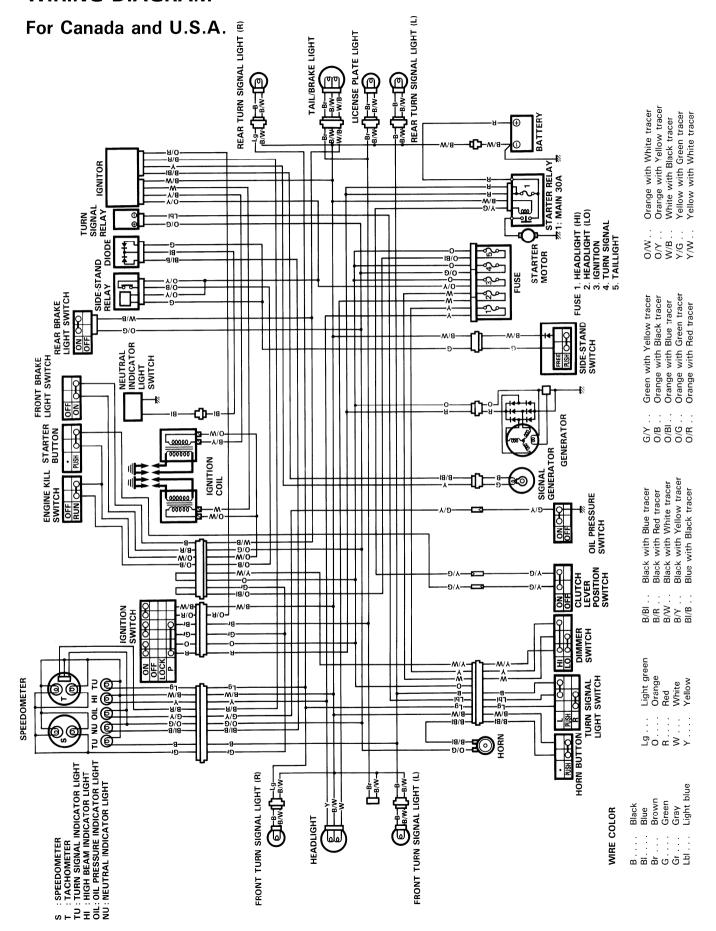
• Remove the frame cover after disconnecting the tail/brake light lead wire coupler.

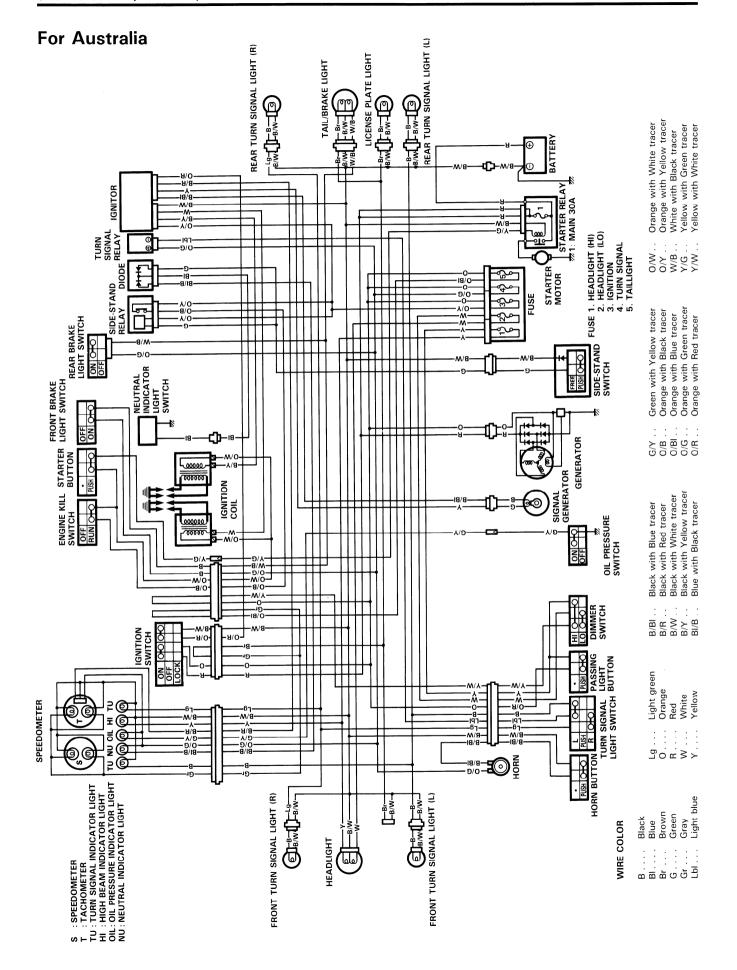


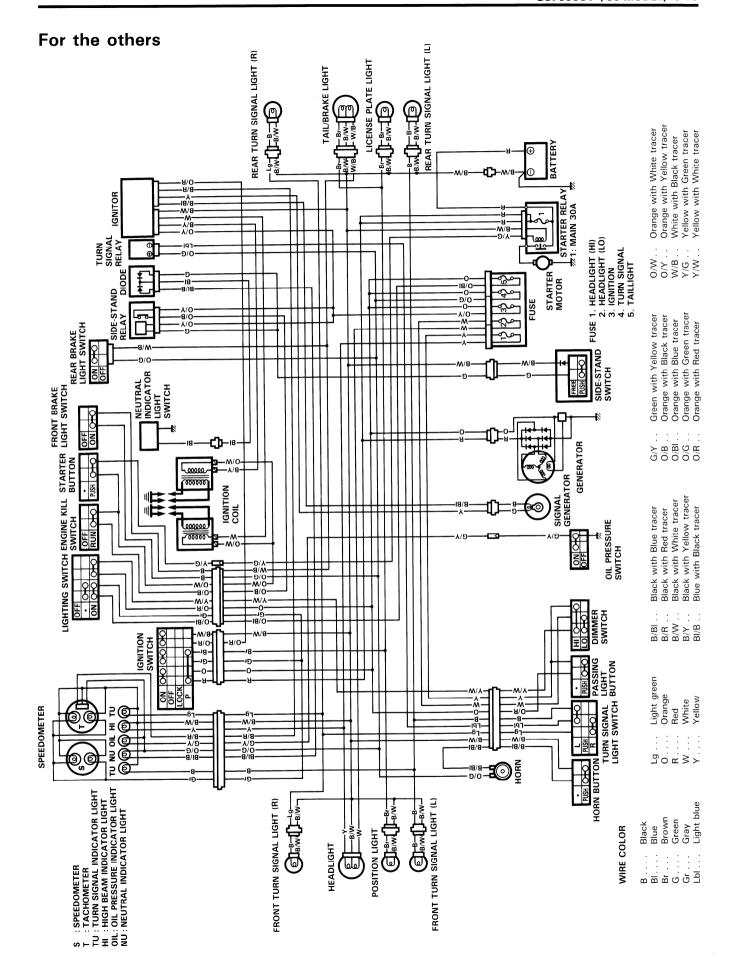
REMOUNTING

Remount the seat and frame cover in the reverse order of its removal.

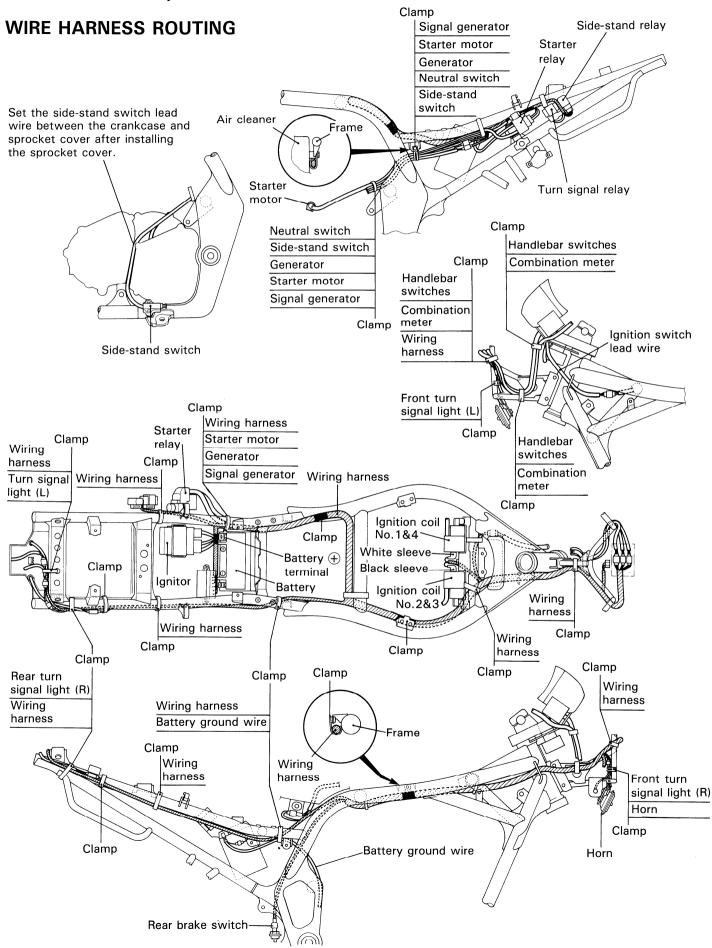
WIRING DIAGRAM



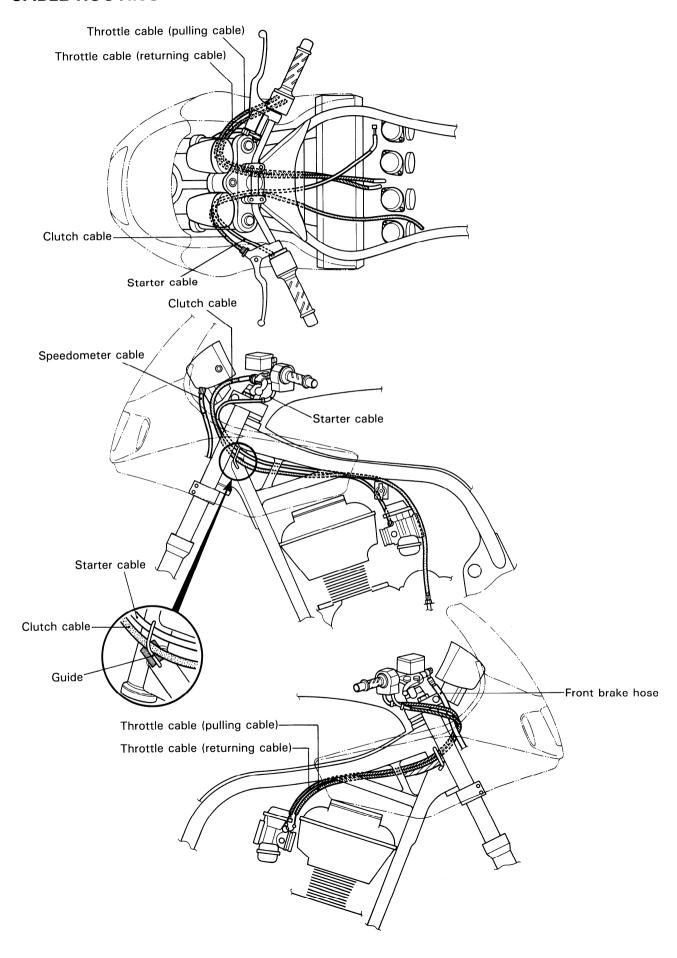


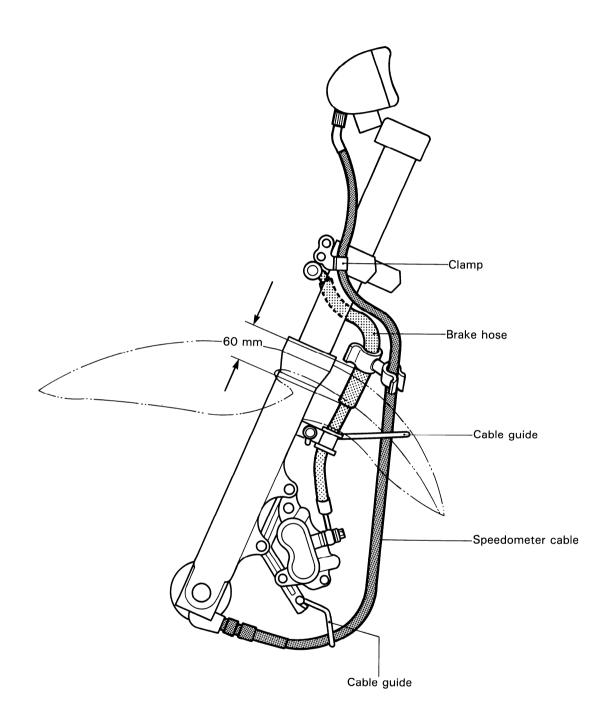


WIRE HARNESS, CABLE AND HOSE ROUTING

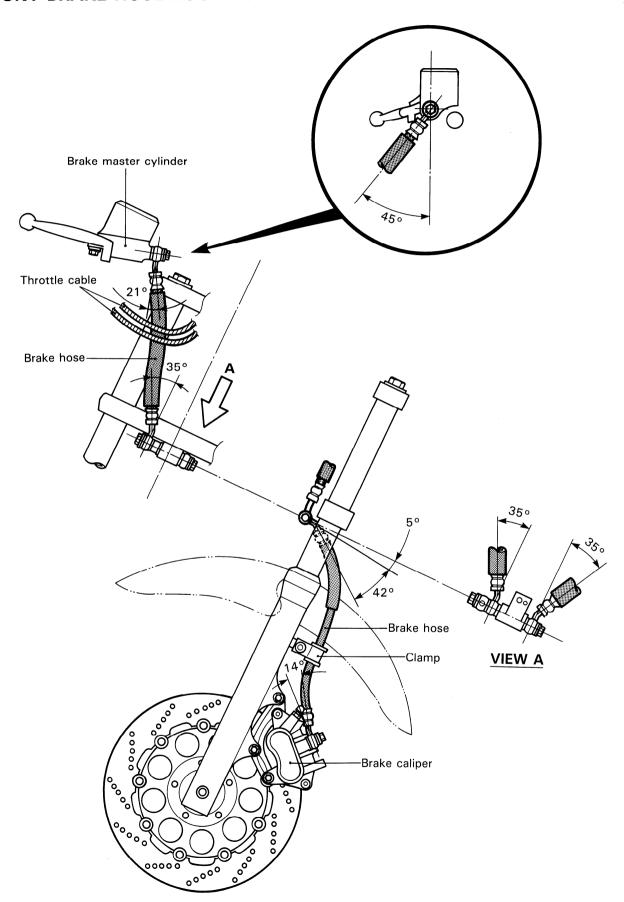


CABLE ROUTING

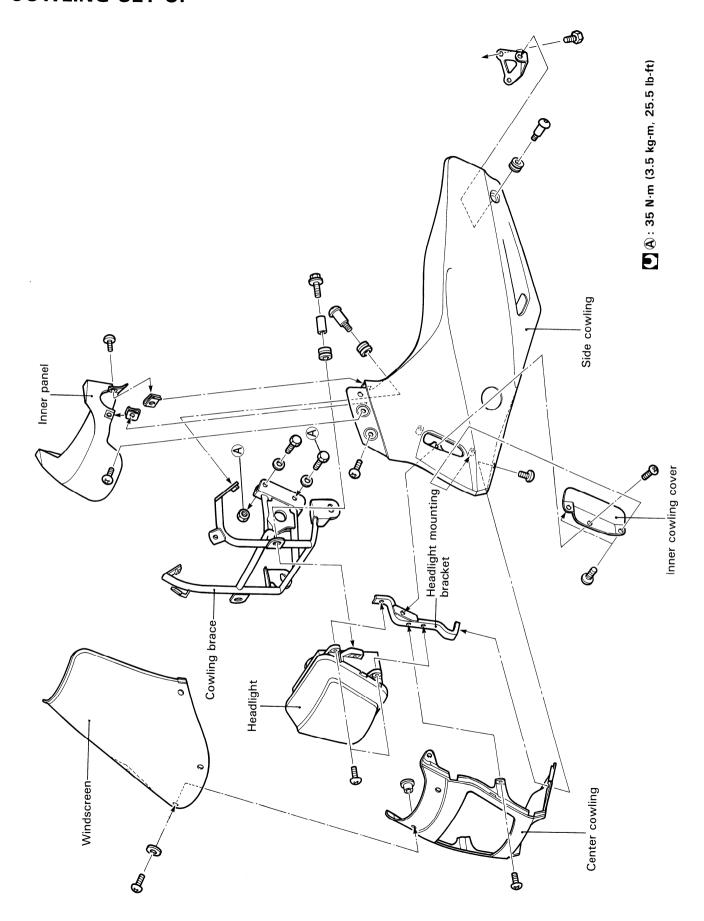




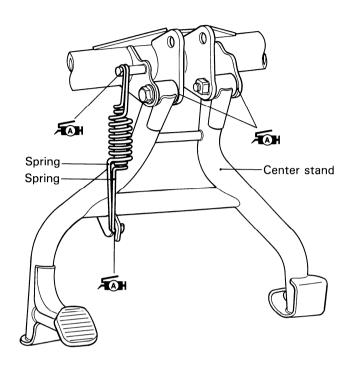
FRONT BRAKE HOSE ROUTING



COWLING SET-UP



CENTER STAND SPRING



GSF600V/SV ('97-MODEL)

FOREWORD

This chapter describes service data and servicing procedures which differ from those of the GSF600T/ST ('96-MODEL).

NOTE:

- * Any differences between GSF600T/ST ('96-MODEL) and GSF600V/SV ('97-MODEL) in specifications and service data are clearly indicated with the asterisk marks (*).
- * Please refer to the chapters 1 through 9 for details which are not given in this chapter.

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WIRE HARNESS ROUTING	10-2	?9

COUNTRY OR AREA

E-02: U.K.	E-17: Sweden	E-25: Netherlands	E-34: Italy
E-03: U.S.A.	E-18: Switzerland	E-26: Denmark	E-37: Brazil
E-04: France	E-21: Belgium	E-28: Canada	E-39: Austria
E-15: Finland	E-22: Germany	E-33: California (U.S.A.)	E-53: Spain
E-16: Norway	E-24: Australia		

E-15,16 and 26 countries are included in E-1 7.

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

E-39 country is included in E-18.

10

SPECIFICATIONS GSF600V DIMENSIONS AND DRY MASS

Overall length 2	155 mm (84.8 in) For E-17,18,22
	085 mm (82.0 in) For the others
Overall width	745 mm (29.3 in)
Overall height 1	100 mm (43.3 in)
Wheelbase 1	430 mm (56.2 in)
Ground clearance	125 mm(4.9 in)
Seat height	805 mm (31.6 in)
Dry mass	196 kg (432 lbs)

ENGINE

Type Number of cylinders	
Bore	
Stroke	. 48.7 mm (1.917 in)
Piston displacement	. 599 cm³ (36.5 cu. in)
Compression ratio	11.3 : 1
Carburetor	KEIHIN CVK32, four
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Primary reduction ratio	1.744 (75/43)
Final reduction ratio	3.133 (47/15)
Gear ratios, Low	3.083 (37/12)
2nd	2.062 (33/16)
3rd	1.647 (28/17)
4th	1.400 (28/20)
5th	1.227 (27/22)
Top	1.095 (23/21)
Drive chain	RK50MF0Z ₁ , 110 links

CHASSIS

Front suspension	. Telescopic, coil spring, oil damped
Rear suspension	. Link type system, oil damped, coil spring, spring pre-
	load 7-way adjustable
Steering angle	. 35° (right & left)
Caster	. 25° 10′
Trail	. 100 mm (3.9 in)
Turning radius	. 2.8 m (9.2 ft)
Front brake	. Disc brake, twin
Rear brake	. Disc brake
Front tire size	. 110/70-17 54H
Rear tire size	. 150/70-17 69H
Front fork stroke	. 130 mm (5.1 in)
Rear wheel travel	. 121 mm (4.8 in)

ELECTRICAL

Ignition type	
Spark plug	N.G.K.: CR9EK, NIPPONDENSO U27ETR
Battery	12V 28.8 kC (8 Ah)/10 HR
Generator	Three-phase A.C. Generator
Main fuse	30A
Fuse	15/15/15/10/10A
Headlight	12V 60/55W
Position light	12V 4W
Turn signal light	12V 21W
Tail/Brake light	12V 5/21W
License plate light	12V 5W
Speedometer light*	14V 0.84W × 2
Tachometer light*	14V 0.84W × 2
Neutral indicator light	12V 3W
High beam indicator light	12V 1.7W
Turn signal indicator light	12V 3.4W × 2
Oil pressure indicator light	12V 3.4W

CAPACITIES

Fuel tank, including reserve 19.0 L (5.0/4.2 US/Imp gal)
reserve
Engine oil, oil change
with filter change 3 500 ml (3.6/3.0 US/Imp qt)
overhaul 4 600 ml (4.9/4.0 US/Imp qt)
Front fork oil

These specifications are subject to change without notice.

GSF600SV DIMENSIONS AND DRY MASS

Overall length	2 155 mm (84.8 in)E-17,18,22
	2 085 mm (82.1 in)The others
Overall width	745 mm (29.3 in)
Overall height	1 205 mm (47.4 in)
Wheelbase	1 430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.7 in)
Dry mass	205 kg (451 lbs)E-33
	202 kg (445 lbs)The others

ENGINE

Type	Four-stroke, air-cooled, DONG
Number of cylinders	4
Bore	62.6 mm (2.465 in)
Stroke	48.7 mm (1.917 in)
Piston displacement	599 cm³ (36.6 cu. in)
Compression ratio	11.3 : 1
Carburetor	KEIHIN CVK32, four
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Transmission		Wet multi-plate type 6-speed constant mesh 1-down, 5-up	
•	tio	1.744 (75/43)	
Final reduction ratio		3.200 (48/15)E-03,33	
		3.133 (47/15)The others	
Gear ratios, Low		3.083 (37/12)	
2nd		2.062 (33/16)	
3rd		1.647 (28/17)	
4th		1.400 (28/20)	
5th		1.227 (27/22)	
Top		1.095 (23/21)	
Drive chain		RK50MF0Z ₁ , 112 linksE-03,33	
		RK50MFOZ ₁ , 110 linksThe oth	ers

CHASSIS

CHASSIS	
Front suspension	
Steering angle	35° (right & left)
Caster	25° 10′
Trail	100 mm (3.9 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	110/70-17 54HE-03,28,33
	110/70 ZR17The others
Rear tire size	
	150/70 ZR17The others
Front fork stroke	,
Rear wheel travel	121 mm (4.8 in)
ELECTRICAL	
	Florida 1 1 20 (F.B. T. 174 1 D)
Ignition type	
Ignition timing	
	33
Charlender	13° B.T.D.C. below 1 500 r/min For the others
Spark plug	
Battery	
Generator	
Main fuse	
Fuse	
Headlight	
Parking or position light	·
Turn signal light	
Tail/Brake light	
License plate light	
Speedometer light	
Tachometer light	
High beam indicator light	
Turn signal indicator light	
Oil pressure indicator light	120 3.400
CAPACITIES	
Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.5 L (1.2/1.0 US/Imp gal)
Engine oil, oil change	3 300 ml (3.5/2.9 US/Imp gt)
with filter change	3 500 ml (3.7/3.1 US/Imp qt)
overhaul	4 600 ml (4.9/4.0 US/Imp qt)
Front fork oil	• •
	521 ml (17.6/18.3 US/Imp oz)The others
	(

These specifications are subject to change without notice.

SERVICE DATA GSF600V

VALVE + GUIDE Unit: mm (in)

ITEM		STANDA	LIMIT	
Valve diam.	IN.	23 (0.9)		
	EX.	20 (0.8)		
Valve lift		E-18	6.6 (0.26)	
	IN.	Others	7.8 (0.31)	
	E.V.	E-18	6.1 (0.24)	
	EX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		30-0.057 12-0.0022)	
Valve stem deflection	IN. & EX.			0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000-5.012 (0.1969-0.1973)		
Valve stem O.D.	IN.		65-4.980 55-0.1961)	
	EX.		55-4.970 50-0.1957)	
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
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.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)	INNER	(12. at length	6—6.6 kg 3—14.6 lbs) 28 mm (1.10 in)	
	OUTER	(28.	8—15.0 kg 2—33.1 lbs) 31.5 mm (1.24 in)	

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STANDARD		
Cam height	IN.	E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IIN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
	EX.	E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EA.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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.	22.012-22.025 (0.8666-0.8671)		
Camshaft journal O.D.	IN. & EX.	IN. & EX. 21.959-21.980 (0.8645-0.8654)		
Camshaft runout	IN. & EX. ——		0.10 (0.004)	
Cam chain pin (at arrow ''3'')	24th pin			
Rocker arm I.D.	IN. & EX.	& EX. 12.000-12.018 (0.4724-0.4731)		
Rocker arm shaft O.D.	IN. & EX.		73-11.984 14-0.4718)	
Cylinder head distortion			_	0.20

CYLINDER + PISTON + PISTON RING

CYLINDER + PISTON + PIST	Unit: mm (in)			
ITEM			LIMIT	
Compression pressure			800 kPa (8 kg/cm²) 114 psi	
Compression pressure difference	;		200 kPa (2 kg/cm²) 28 psi	
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore			62.690 (2.4681)	
Piston diam.	62.555 - 62.570 (2.4628 $-$ 2.4634) Measure 15 mm (0.6 in) from the skirt end.			62.480 (2.4598)
Cylinder distortion				0.20 (0.008)
Piston ring free end gap	1st	R	Approx. 8.6 (0.34)	6.9 (0.27)
	2nd	R	Approx. (0.26)	5.4 (0.21)
Piston ring end gap	1st 0.1-0.3 (0.004-0.012)		0.7 (0.03)	
	2nd	d	0.3-0.5 (0.012-0.020)	0.7 (0.03)

ITEM		STANDARD		
Piston ring to groove clearance	1st		0.180 (0.007)	
	2nd		0.150 (0.006)	
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)		
	2nd	1.01 – 1.03 (0.039 – 0.040)		
	Oil	2.01-2.03 (0.079-0.080)		
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)		
	2nd	0.97-0.99 (0.038-0.039)		
Piston pin bore		18.002—18.008 (0.7087—0.7090)		
Piston pin O.D.		17.996—18.000 (0.7085—0.7086)	17.980 (0.7079)	

Unit: mm (in)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976—34.000 (1.3376—1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	
Crankshaft journal width	24.00-24.05 (0.945-0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM			STAN	DARD	LIMIT
Primary reduction ra	atio	1.744 (75/43)			
Final reduction ratio)	3.133 (47		(47/15)	
Gear ratios	Low		3.083	(37/12)	
	2nd		2.062	(33/16)	
	3rd		1.647	(28/17)	
	4th		1.400	(28/20)	
	5th		1.227	(27/22)	
	Тор		1.095	(23/21)	
Shift fork to groove	clearance	No.1, No.2 & No.3	(C	0.1-0.3 0.004-0.012)	0.50 (0.020)
Shift fork groove w	Shift fork groove width		& 4.8-4.9 3 (0.189-0.193)		
		No.2	No.2 5.0-5.1 (0.197-0.201)		
Shift fork thickness		No.1 & No.3	4.6-4.7 (0.181-0.185)		
		No.2 4.8-4.9 (0.189-0.193)			
Drive chain		Туре	RK50MFOZ₁		
		Links	110 links		
		20-pitch length			319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heigl	nt			5 38)	

CARBURETOR

ITEM			SPECIFICATION				
IIEW		E-04,25,34	E-17,22	E-02			
Carburetor type		KEIHIN CVK32		←			
Bore size		32 mm	←	←			
I.D. No.		26E0	26E3	*26E7			
ldle r/min.		1 200 ± 100 r/min.	←	←			
Float height		17±1.0 mm (0.67±0.04 in)	←	←			
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	←			
Main air jet	(M.A.J.)	# 90	←	←			
Jet needle	(J.N.)	N1QJ	←	←			
Pilot jet	(P.J.)	#35	←	←			
Pilot screw	(P.S.)	1% turns back	←	←			
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←			
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←			

CARBURETOR

		SPECIFICATION				
ITEM		E-22 (U-type) E-37		E-18		
Carburetor type		KEIHIN CVK32	←	←		
Bore size		32 mm	←	←		
I.D. No.		26E4	*26E6	26E2		
Idle r/min.		1 200 ± 100 r/min.	←	1 200 ⁺¹⁰⁰ ₋₅₀ r/min.		
Float height		17±1.0 mm (0.67±0.04 in)	-	←		
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	-	#100 (No.1&4), #102 (No.2&3)		
Main air jet	(M.A.J.)	#90	←	←		
Jet needle	(J.N.)	N1QJ	←	N76L		
Pilot jet	(P.J.)	#35	←	←		
Pilot screw	(P.S.)	1% turns back	←	21/8 turns back		
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←		
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←		

ELECTRICAL Unit: mm (in)

	ITEM			SPE	CIFICATION	NOTE					
Ignition timir	ng		4° B.	T.D.C	c. below 1 500 r/min.	E-18					
		ĺ	13° B.T.D.C. below 1 500 r/min.		The others						
Firing order					1.2.4.3						
Spark plug			Type		NGK: CR9EK ND.: U27ETR						
			Gap		0.6-0.7 (0.024-0.028)						
Spark perfor	mance		C	ver 8	(0.3) at 1 atm.						
Signal coil re	esistance			Appro	x. 135—200 Ω	Tester range: $(x 100 \Omega)$					
Ignition coil	resistance		Primary	\oplus tap $- \ominus$ tap Approx. 2-4 Ω		Tester range: (x 1 Ω)					
			Secondary $\begin{array}{c} \text{Plug cap-Plug cap} \\ \text{Approx. 30-40 k}\Omega \end{array}$		Tester range: $(x \ 1 \ k\Omega)$						
Generator			Slip ring O.D. Limit: 14.0 (0.55)		N.D.						
			Brush length Limit: 4.5 (0.18)		N.D.						
Regulated vo	oltage		Above 13.5 V at 5 000 r/min.								
Starter relay	resistance				3-5 Ω						
Battery	Type designat	ion			YTX9-BS						
	Capacity		12\	/ 28.8	3 kC (8 Ah)/10 HR						
	Standard electrolyte S.	G.	1.320 at 20°C (68°F)								
Fuse size	l le e di abt	HI	15 A								
	Headlight	LO	15 A								
	Turn signa		15 A								
	Ignition		10 A		10 A		10 A		10 A		
	Taillight				10 A						
	Main	_			30 A						

WATTAGE Unit: W

ITEM		SPECIFICATION
Headlight	HI	60
	LO	55
Parking or position ligh	t	4
Tail/Brake light		5/21
Turn signal light		21
Speedometer light		*0.84
Tachometer light		*0.84
Turn signal indicator lig	jht	3.4
High beam indicator lig	ht	1.7
Neutral indicator light		3
Oil pressure indicator li	ght	3.4
License light		5

BRAKE + WHEEL Unit: mm (in)

ITEM		LIMIT	
Rear brake pedal height		45 (1.8)	
Brake disc thickness	Front	4.5±0.2 (0.177±0.008)	4.0 (0.15)
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)
Brake disc runout			0.30 (0.012)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	
	Rear	12.700—12.743 (0.5000—0.5017)	
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)	
	Rear	12.657—12.684 (0.4983—0.4994)	
Brake caliper cylinder bore	Front	25.400—25.450 (1.0000—1.0020)	
	Rear	38.180—38.256 (1.5031—1.5061)	
Brake caliper piston diam.	Front	Front 25.335-25.368 (0.9974-0.9987)	
	Rear	38.098-38.148 (1.5000-1.5019)	
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	J17×MT3.00	
	Rear	J17×MT4.50	
Tire size	Front	110/70-17 54H	
	Rear	150/70-17 69H	
Tire tread depth	Front		1.6 (0.06)
	Rear		2.0 (0.08)

SUSPENSION Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	97 (3.8)		
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		SPECIFICATION	NOTE	
Fuel type	Gasoline use octane or hig recommende			
Fuel tank including reserve	(5	19.0 L .0/4.2 US/Imp gal)		
reserve	(1			
Engine oil type	SAE 1	SAE 10W/40, API SF or SG		
Engine oil capacity	Change 3 300 ml (3.4/2.9 US/lmp qt)			
	Filter change	3 500 ml (3.6/3.0 US/lmp qt)		
	Overhaul			
Front fork oil type				
Front fork oil capacity (each leg)	(17			
Brake fluid type		DOT 4		

GSF600SV VALVE + GUIDE

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ITEM		STANDARD		
Valve diam.	IN.		23 (0.9)	
	EX.		20 (0.8)	
Valve lift	IN.	E-18	6.6 (0.26)	
	IIV.	Others	7.8 (0.31)	
	EX.	E-18	6.1 (0.24)	
	EX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		30-0.057 12-0.0022)	
Valve stem deflection	IN. & EX.			0.35 (0.014)
Valve guide I.D.	IN. & EX.		00-5.012 69-0.1973)	
Valve stem O.D.	IN.	4.9 (0.19		
	EX.	4.9 (0.19		
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
Valve seat width	IN. & EX.).9—1.1 35—0.043)	
Valve head radial runout	IN. & EX.			0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)	INNER	(12.3 at length	6–6.6 kg 3–14.6 lbs) 28 mm (1.10 in)	
	OUTER	(28.2	3—15.0 kg 2—33.1 lbs) 1.5 mm (1.24 in)	

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STAND	ARD	LIMIT
Cam height		E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
	EV.	E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EX.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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.	22.012—22.025 (0.8666—0.8671)		
Camshaft journal O.D.	IN. & EX.	21.959—21.980 (0.8645—0.8654)		
Camshaft runout	IN. & EX.			0.10 (0.004)
Cam chain pin (at arrow "3")		24th բ	oin	
Rocker arm I.D.	IN. & EX.	12.000-12.018 (0.4724-0.4731)		
Rocker arm shaft O.D.	IN. & EX.	11.973—11.984 (0.4714—0.4718)		
Cylinder head distortion				0.20 (0.008)

CYLINDER + PISTON + PISTON RING

ITEM			STANDARD	LIMIT
Compression pressure			800 kPa (8 kg/cm²) 114 psi	
Compression pressure difference				200 kPa (2 kg/cm²) 28 psi
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore			62.690 (2.4681)	
Piston diam.	62.555-62.570 (2.4628-2.4634) Measure 15 mm (0.6 in) from the skirt end.			62.480 (2.4598)
Cylinder distortion				0.20 (0.008)
Piston ring free end gap	1st R Approx. 8.6 (0.34)		6.9 (0.27)	
	2nd R Approx. 6.7 (0.26)		5.4 (0.21)	
Piston ring end gap	1st 0.1-0.3 (0.004-0.012)			0.7 (0.03)
	2nd	d	0.3-0.5 (0.012-0.020)	0.7 (0.03)

ITEM		STANDARD	LIMIT
Piston ring to groove clearance	1st		0.180 (0.007)
	2nd		0.150 (0.006)
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)	
	2nd	1.01 — 1.03 (0.039 — 0.040)	
	Oil	2.01 — 2.03 (0.079 — 0.080)	
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)	
	2nd	0.97-0.99 (0.038-0.039)	
Piston pin bore	18.002—18.008 (0.7087—0.7090)		18.030 (0.7098)
Piston pin O.D.		17.980 (0.7079)	

CONROD + CRANKSHAFT

		т
ITEM	STANDARD	LIMIT
Conrod small end I.D.	18.010-18.018	18.040
	(0.7091-0.7094)	(0.7102)
Conrod big end side clearance	0.10-0.20	0.30
	(0.004-0.008)	(0.01)
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	0.080
	(0.0013-0.0022)	(0.0031)
Crank pin O.D.	33.976-34.000	
	(1.3376—1.3386)	
Crankshaft journal oil	0.020 - 0.044	0.080
clearance	(0.0008-0.0017)	(0.0031)
Crankshaft journal O.D.	31.976-32.000	
	(1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09	
	(0.002 - 0.004)	
Crankshaft journal width	24.00-24.05	
	(0.945-0.947)	
Crankshaft runout		0.05
		(0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM	ITEM			STANDARD			
Primary reduction r	atio		1.744 (7	5/43)			
Final reduction	E-03,33	3.200 (48/15)					
ratio	The others		3.133 (4	7/15)			
Gear ratios	Low		3.083 (3	7/12)			
	2nd		2.062 (3	3/16)			
	3rd		1.647 (2	8/17)			
	4th		1.400 (2	8/20)			
	5th		1.227 (2	7/22)			
	Тор		1.095 (2	3/21)			
Shift fork to groove	e clearance	No.1, No.2 & No.3			0.50 (0.020)		
Shift fork groove w	vidth	No.1 & 4.8-4.9 No.3 (0.189-0.193)					
		No.2	No.2 5.0-5.1 (0.197-0.201)				
Shift fork thickness	3	No.1 & No.3	4.6-4.7 (0.181-0.185)				
		No.2	4.8-4.9 (0.189-0.193)				
Drive chain		Type	RK50MFOZ ₁				
		Links	E-03,33	112 links			
		Links	The others	110 links			
		20-pitch length			319.4 (12.57)		
Drive chain slack		25-35 (0.98-1.38)					
Gearshift lever heig	jht	35 (1.38)					

CARBURETOR

ITEM			SPECIFICATION				
I I CIVI		E-03	E-28	E-33			
Carburetor type		KEIHIN CVK32	←	←			
Bore size		32 mm	←	←			
I.D. No.		26E1	*←	26E5			
ldle r/min.		1 200 ± 100 r/min.	←	←			
Float height		17±1.0 mm (0.67±0.04 in)	←	←			
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	←			
Main air jet	(M.A.J.)	#90	←	←			
Jet needle	(J.N.)	N1QA	* ←	N76L			
Pilot jet	(P.J.)	#35	←	←			
Pilot screw	(P.S.)	PRE-SET	←	←			
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←			
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←			

CARBURETOR

ITEM		SPECIFICATION				
		E-04,25,34	E-17,22,24	E-02		
Carburetor type		KEIHIN CVK32	←	←		
Bore size		32 mm	←	←		
I.D. No.		26E0	26E3	*26E7		
ldle r/min.		1 200 ± 100 r/min.	←	←		
Float height		17±1.0 mm (0.67±0.04 in)	←	←		
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	←		
Main air jet	(M.A.J.)	#90	←	←		
Jet needle	(J.N.)	N1QJ	←	←		
Pilot jet	(P.J.)	#35	←	←		
Pilot screw	(P.S.)	1% turns back	←	←		
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	-	←		
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←		

CARBURETOR

ITEM	SPECIFIC	ATION
I I EIVI	E-22 (U-type)	E-18
Carburetor type	KEIHIN CVK32	←
Bore size	32 mm	←
I.D. No.	26E4	26E2
ldle r/min.	1 200 ± 100 r/min.	1 200+100

ITEM		SPECIFICATION				
IICIVI		E-22 (U-type)	E-18			
Float height		$17 \pm 1.0 \text{ mm } (0.67 \pm 0.04 \text{ in})$	←			
Main jet (M.J.)		#98 (No.1&4), #100 (No.2&3)	#100 (No.1&4), #102 (No.2&3)			
Main air jet	(M.A.J.)	#90	· ←			
Jet needle	(J.N.)	N1QJ	N76L			
Pilot jet	(P.J.)	#35	←			
Pilot air jet	(P.A.J.)	#150	←			
Valve seat	(V.S.)	2.4 mm	←			
Pilot screw	(P.S.)	1% turns back	21/8 turns back			
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←			
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←			

ELECTRICAL Unit: mm (in)

	ITEM			SPE	CIFICATION	NOTE					
Ignition timi	Ignition timing		4° B.T.D.C. below 1 500 r/min.		E-03,18,33						
			13° B	.T.D.C	C. below 1 500 r/min.	The others					
Firing order					1.2.4.3						
Spark plug			Type		NGK: CR9EK ND.: U27ETR						
			Gap		0.6-0.7 (0.024-0.028)						
Spark perfo	rmance		C	Over 8	(0.3) at 1 atm.						
Signal coil r	esistance			Appro	x. 135—200 Ω	Tester range: (x 100 Ω)					
Ignition coil	resistance		Primary	Primary \bigoplus tap — \bigoplus tap Approx. 2-4 Ω		Tester range: (x 1 Ω)					
			Secondary $\begin{array}{c} \text{Plug cap-Plug cap} \\ \text{Approx. } 30-40 \text{ k}\Omega \end{array}$		Tester range: $(x \ 1 \ k\Omega)$						
Generator			Slip ring O.D. Limit: 14.0 (0.55)		N.B.						
			Brush length Limit: 4.5 (0.18)		N.D.						
Regulated v	oltage		Above 13.5 V at 5 000 r/min.								
Starter relay	resistance				$3-5 \Omega$						
Battery	Type designate	tion			YTX9-BS						
	Capacity		12\	/ 28.8	3 kC (8 Ah)/10 HR						
	Standard electrolyte S	G.	1.320 at 20°C (68°F)								
Fuse size	Headlight	HI			15 A						
	Headilght	LO	15 A								
	Turn signa		15 A			15 A					
	Ignition		10 A		10 A		10 A		10 A		
	Taillight		10 A								
	Main		30 A								

WATTAGE

Unit: W

ITEM		SPECIFICATION		
		E-03,28,33	The others	
Headlight	HI	60	←	
	LO	55	←	
Parking or position ligh	t		4	
Tail/Brake light		5/21	←	
Turn signal light		21	←	
Speedometer light		*0.84	*←	
Tachometer light		*0.84	*←	
Turn signal indicator light		3.4	←	
High beam indicator light		1.7	←	
Neutral indicator light		3	←	
Oil pressure indicator light		3.4	←	
License light		5	←	

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake pedal height	45 (1.8)		
Brake disc thickness	Front	4.5±0.2 (0.177±0.008)	4.0 (0.15)
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)
Brake disc runout			0.30 (0.012)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	
	Rear	12.700—12.743 (0.5000—0.5017)	
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)	
	Rear	12.657—12.684 (0.4983—0.4994)	
Brake caliper cylinder bore	Front	25.400-25.450 (1.0000-1.0020)	
	Rear	38.180-38.256 (1.5031-1.5061)	
Brake caliper piston diam.	Front	25.335-25.368 (0.9974-0.9987)	
	Rear	38.098-38.148 (1.5000-1.5019)	
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)

ITEM		STANDARD		
Wheel rim size	Front	J17×MT3.00		
	Rear	J17	J17×MT4.50	
Tire size	Front	E-03,28,33	110/70-17 54H	
	110111	The others	110/70 ZR17	
	Rear	E-03,28,33	150/70-17 69H	
	Mear	The others	150/70 ZR17	
Tire tread depth	Front	Front ——		1.6 (0.06)
	Rear			2.0 (0.08)

SUSPENSION Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	96 (3.8)		E-03,28,33
	97 (3.8)		The others
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		SPECIFICATION	NOTE
Fuel type	Use only unler pump octane higher rated Gasoline control Butyl Ether), less than 5% cosolvents permissible.	E-03,33	
	pump octane	eaded gasoline of at least 87 $(\frac{R+M}{2})$ method) or 91 octane ed by the Research Method.	E-28
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		The others
Fuel tank including reserve	19.0 L (5.0/4.2 US/Imp gal)		
reserve	4.5 L (1.2/1.0 US/Imp gal)		
Engine oil type	SAE 10W/40, API SF or SG		
Engine oil capacity	Change	3 300 ml (3.5/2.9 US/Imp qt)	
	Filter change	3 500 ml (3.7/3.1 US/Imp qt)	
	Overhaul	4 600 ml (4.9/4.0 US/lmp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	522 ml (17.6/18.4 US/Imp oz)		E-03,28,33
	521 ml (17.6/18.3 US/Imp oz)		The others
Brake fluid type			

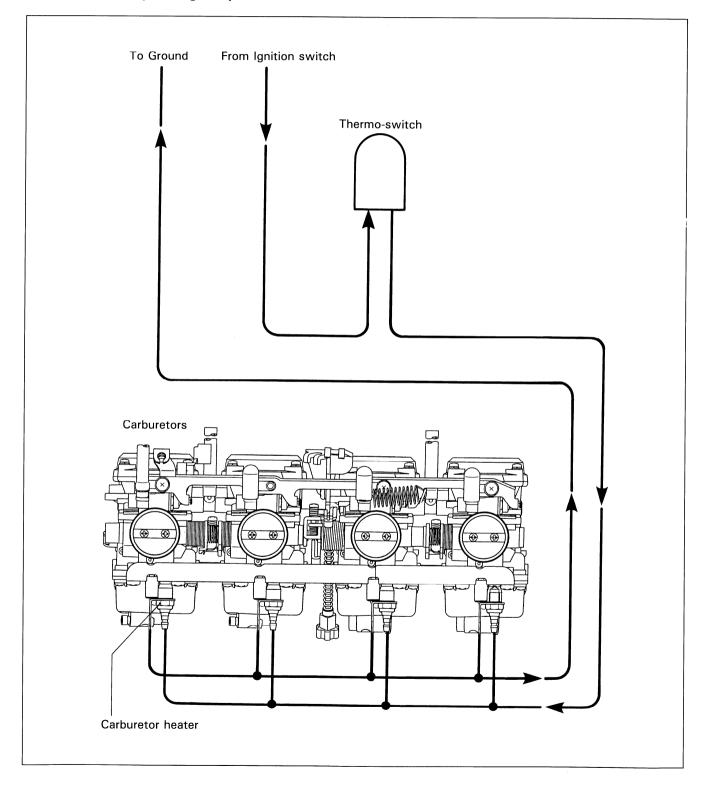
CARBURETOR HEATER (U.K. only)

The carburetor heater is equipped beneath each carburetor float chamber body.

This system consists of the carburetor heaters, the thermo-switch and wiring.

The carburetor heater provides better fuel atomization when the atomospheric temperature is lower than 9°C, that turns the thermo-switch ON automatically.

Thermo-switch operating temperature: Below 9°C



CARBURETOR HEATER INSPECTION

Check the carburetor heater, which requires following two inspection:

- Remove the fuel tank.
- Disconnect each lead wire going into the respective carburetor heaters.
- 1. Check each heater coil for open and ohmic resistance with a pocket tester.

The coil is in good condition if the resistance is as follows.

NOTE:

When making this test, be sure that the carburetor heater is in a cold condition.

09900-25002: Pocket tester

Tester knob indication: \times 1 Ω range

Heater coil resistance Standard: 12 $-18~\Omega$

2. Connect 12V battery to the carburetor heater terminals and ckeck the carburetor float chamber temperature with your hand which is warmed up after 5 minutes. If the carburetor float chamber temperature is not warmed up, replace the carburetor heater with a new one.

A WARNING

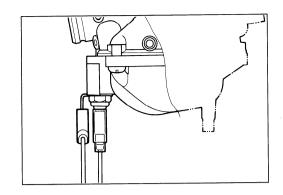
Do not touch the carburetor heater directly to prevent burn.

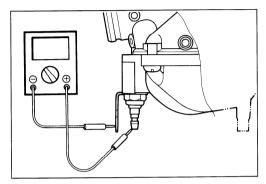
CARBURETOR HEATER REASSEMBLY

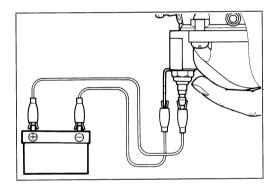
Before installing the carburetor heater, apply a small quantity of the THERMO-GREASE to the carburetor heater and tighten it to the specified torque.

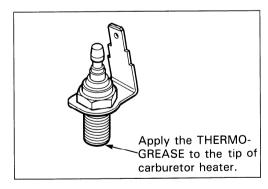
★GH99000-59029: THERMO-GREASE

Carburetor heater: 3 N·m (0.3 kg-m, 2.0 lb-ft)







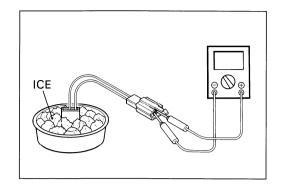


THERMO-SWITCH INSPECTION

The thermo-switch is located under the fuel tank.

- Remove the thermo-switch by disconnecting the lead wire's coupler.
- Immerse the thermo-switch in ice contained in a pan and wait about few minutes, then check the continuity between the lead wires of the thermo-switch with a pocket tester.

If there is no continuity, replace the thermo-switch with a new one.





TOOL 09900-25002: Pocket tester



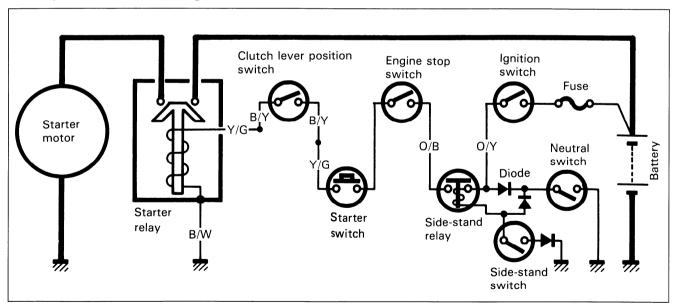
lacktriangle Tester knob indication : imes 1k Ω range

STARTER SYSTEM AND SIDE-STAND/IGNITION INTERLOCK **SYSTEM**

STARTER SYSTEM DESCRIPTION

The starter system is shown in the diagram below: namely, the starter motor, starter relay, side-stand relay, side-stand switch, neutral switch, clutch lever position switch, starter switch, engine stop switch, IG switch and battery.

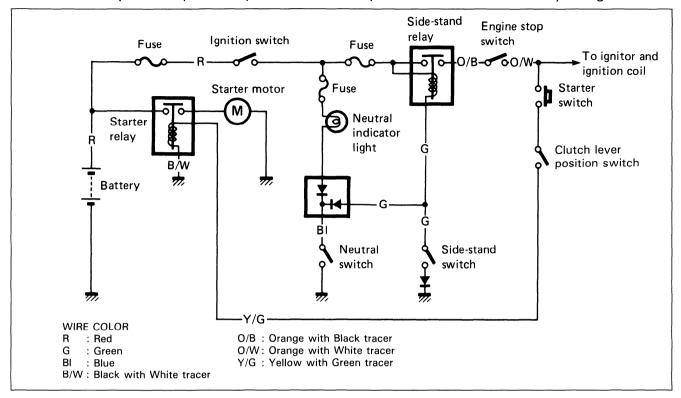
Depressing the starter switch (on the right handlebars switch box) energizes the relay, causing the contact points to close which connects the starter motor to the battery. The motor draws about 80 amperes to start the engine.



NOTE: Clutch lever position switch is added. (Except for Canada and U.S.A.)

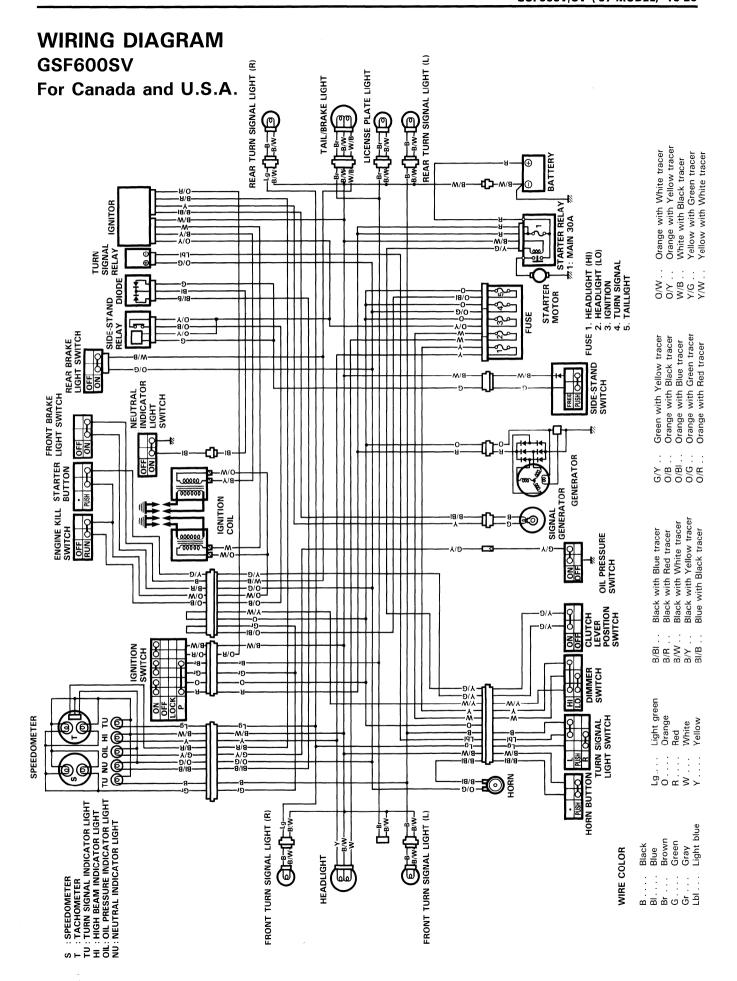
SIDE-STAND/IGNITION INTERLOCK SYSTEM DESCRIPTION

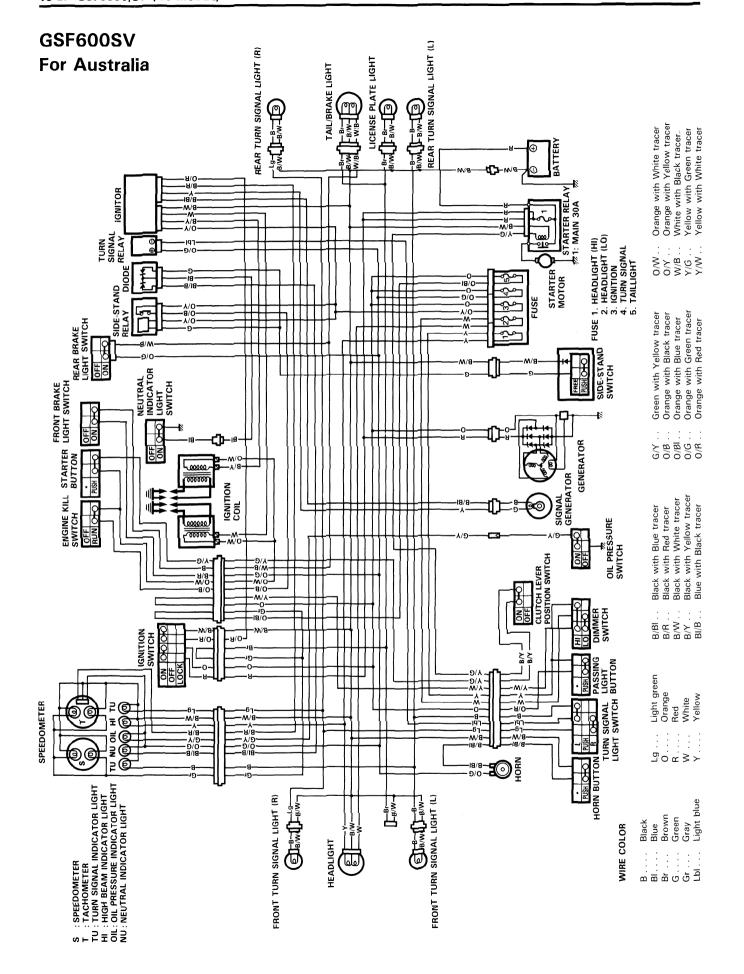
This side-stand/ignition interlock system is to prevent starting the motorcycle with the side-stand left down. The system is operated by an electric circuit provided between the battery and ignition coil.

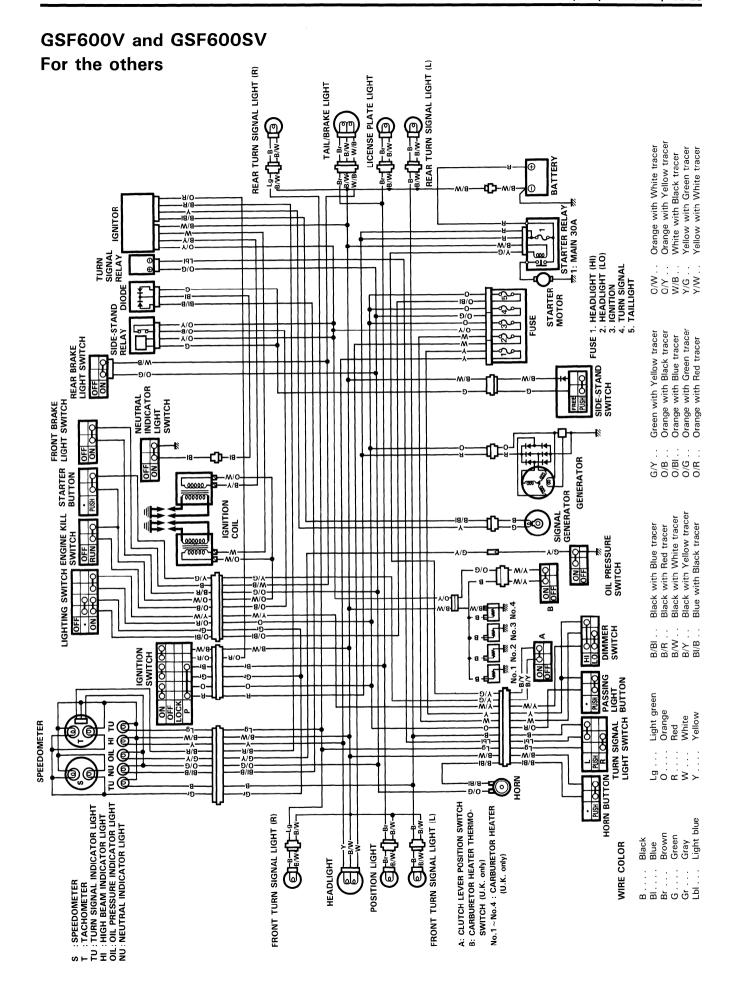


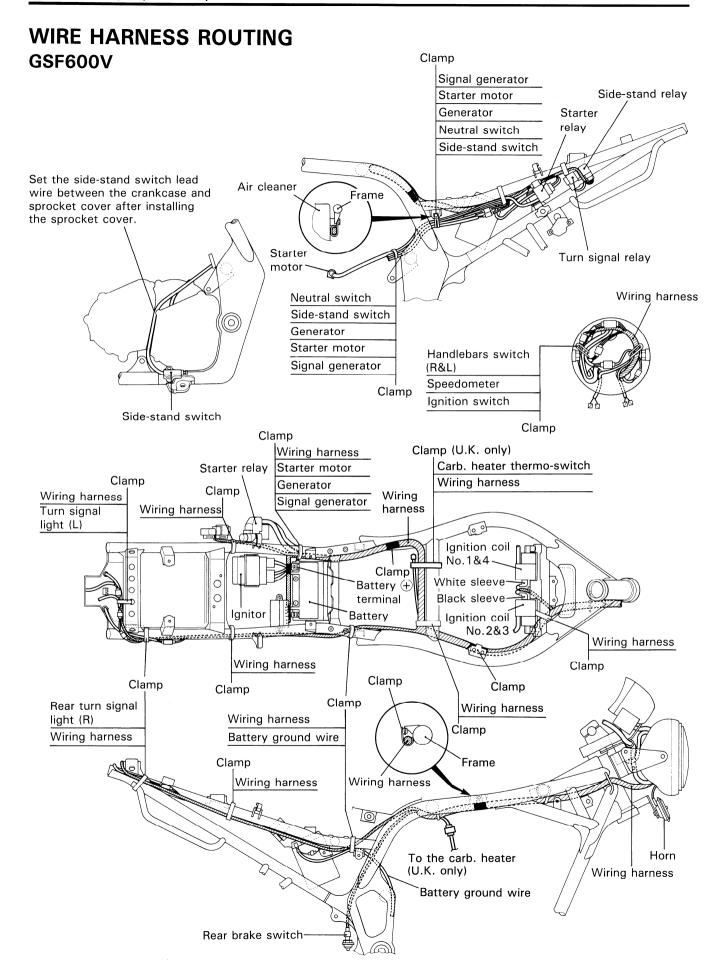
CLUTCH LEVER POSITION SWITCH

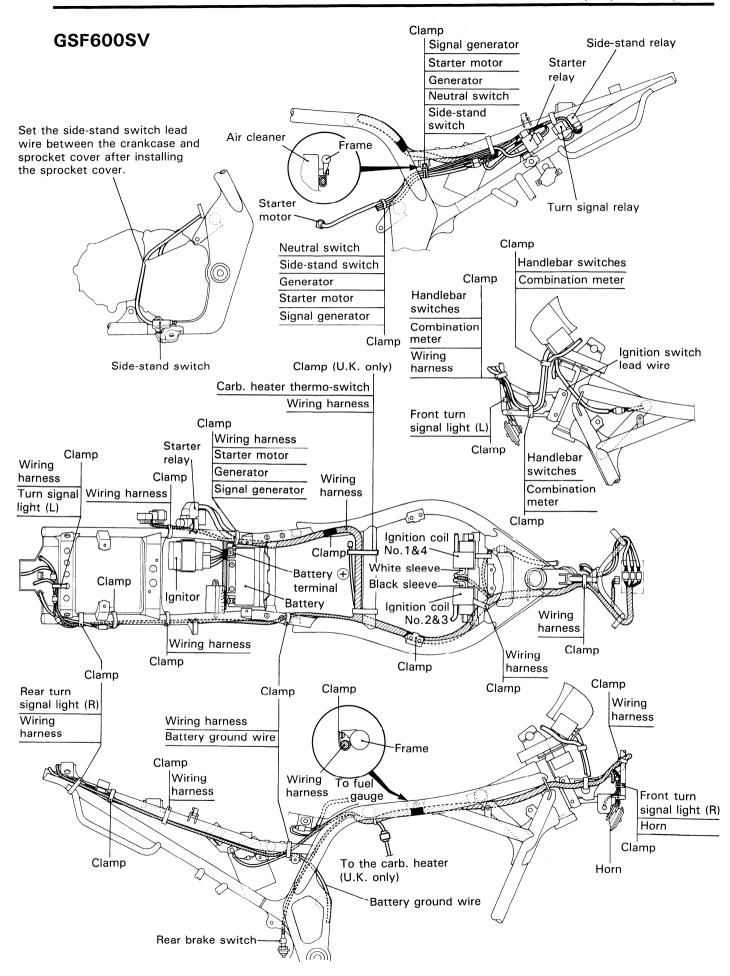
Color Position	B/Y	В/Ү
ON	0	
OFF		











GSF600W/SW ('98-MODEL)

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SERVICE DATA	11- 5	,

NOTE:

Asterisk mark (*) indicates the GSF600W/SW ('98-MODEL) specifications. Please refer to the chapters 1 through 10 for details which are not given in this chapter.

SPECIFICATIONS

GSF600W

DIMENSIONS AND DRY MASS

Overall length	2 155 mm (84.8 in) For E-17,18,22
	2 085 mm (82.0 in) For the others
Overall width	745 mm (29.3 in)
Overall height	1 100 mm (43.3 in)
Wheelbase	1 430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.6 in)
Dry mass	*198 kg (436 lbs)

ENGINE

Four-stroke, air-cooled, DOHC
4
62.6 mm (2.464 in)
48.7 mm (1.917 in)
599 cm³ (36.5 cu. in)
11.3 : 1
KEIHIN CVK32, four
Non-woven fabric element
Electric starter
Wet sump

TRANSMISSION

Clutch\	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	
Primary reduction ratio	1.744 (75/43)
Final reduction ratio	3.133 (47/15)
Gear ratios, Low	3.083 (37/12)
2nd	2.062 (33/16)
3rd	1.647 (28/17)
4th	1.400 (28/20)
5th	1.227 (27/22)
Top	1.095 (23/21)
Drive chain	

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type system, oil damped, coil spring, spring pre-
	load 7-way adjustable
Steering angle	35° (right & left)
Caster	25° 10′
Trail	100 mm (3.9 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	110/70-17 54H
Rear tire size	150/70-17 69H
Front fork stroke	130 mm (5.1 in)
Rear wheel travel	121 mm (4.8 in)

ELECTRICAL

Spark plug N.G.K.: CR9EK, DENSO U27ETR Battery 12V 28.8 kC (8 Ah)/10 HR Generator Three-phase A.C. Generator Main fuse 30A Fuse 15/15/15/10/10A
Generator
Main fuse
Fuse
Headlight 12V 60/55W
Position light 12V 4W
Turn signal light
Brake light/Taillight
License plate light 12V 5W
Speedometer light
Tachometer light
Neutral indicator light 12V 3W
High beam indicator light 12V 1.7W
Turn signal indicator light
Oil pressure indicator light 12V 3.4W

CAPACITIES

Fuel tank, including reserve	9.0 L (5.0/4.2 US/Imp gal)
reserve 2	4.5 L (1.2/1.0 US/Imp gal)
Engine oil, oil change 3	300 ml (3.4/2.9 US/Imp qt)
with filter change 3	500 ml (3.6/3.0 US/Imp qt)
overhaul 4	600 ml (4.9/4.0 US/Imp qt)
Front fork oil	521 ml (17.6/18.3 US/Imp oz)

These specifications are subject to change without notice.

GSF600SW

DIMENSIONS AND DRY MASS

Overall length	2 155 mm (84.8 in)E-17,18,22
2	? 085 mm (82.1 in)The others
Overall width	745 mm (29.3 in)
Overall height 1	205 mm (47.4 in)
Wheelbase 1	430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.7 in)
Dry mass	205 kg (451 lbs)E-33
	202 kg (445 lbs)The others

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	62.6 mm (2.465 in)
Stroke	48.7 mm (1.917 in)
Piston displacement	599 cm³ (36.6 cu. in)
Compression ratio	11.3 : 1
Carburetor	KEIHIN CVK32, four
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Clutch Transmission	·
Gearshift pattern	
Primary reduction ratio	1.744 (75/43)
Final reduction ratio	3.200 (48/15)E-03,33
	3.133 (47/15)The others
Gear ratios, Low	3.083 (37/12)
2nd	2.062 (33/16)
3rd	1.647 (28/17)
4th	1.400 (28/20)
5th	1.227 (27/22)
Top	1.095 (23/21)
Drive chain	
	RK50MFOZ $_1$, 110 linksThe others

CHASSIS

CHASSIS	
Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type system, oil damped, coil spring, spring pre-
	load 7-way adjustable
Steering angle	35° (right & left)
Caster	25° 10′
Trail	100 mm (3.9 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	
	110/70 ZR17 (54W)The others
Rear tire size	150/70-17 69HE-03,28,33
	150/70 ZR17 (69W)The others
Front fork stroke	130 mm (5.1 in)
Rear wheel travel	
	·
ELECTRICAL	
Ignition type	Electronic Ignition (Fully Transistorized)
Ignition timing	4° B.T.D.C. below 1 500 r/min For E-03,18,
	33
	13° B.T.D.C. below 1 500 r/min For the others
Spark plug	N.G.K.: CR9EK, DENSO: U27ETR
Battery	12V 28.8 kC (8 Ah)/10 HR
Generator	
Main fuse	
Fuse	15/15/15/10/10A
Headlight	
Parking or position light	
Turn signal light	
Brake light/Taillight	
License plate light	
Speedometer light	
Tachometer light	
Neutral indicator light	
High beam indicator light	
Turn signal indicator light	
Oil pressure indicator light	
On pressure indicator light	12 0.400
CAPACITIES	
Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
	4.5 L (1.2/1.0 US/Imp gal)
Engine oil, oil change	
with filter change	3 500 ml (3.7/3.1 US/Imp at)
overhaul	
Front fork oil	• • •
	521 ml (17.6/18.3 US/Imp oz)The others
	5 (, , , , , , , , , , , , , , , ,

These specifications are subject to change without notice.

SERVICE DATA

GSF600W

VALVE + GUIDE

Unit: mm (in)

ITEM		STANDARD L		
Valve diam.	IN.	23 (0.9)		
	EX.	20 (0.8)		
Valve lift		E-18	6.6 (0.26)	
	IN.	Others	7.8 (0.31)	
	F.V.	E-18	6.1 (0.24)	
	EX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		30-0.057 12-0.0022)	Additional Production Communications
Valve stem deflection	IN. & EX.			0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000-5.012 (0.1969-0.1973)		
Valve stem O.D.	IN.	4.965-4.980 (0.1955-0.1961)		
	EX.		4.955—4.970 (0.1950—0.1957)	
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
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.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)	INNER	(12.) at len	6–6.6 kg 3–14.6 lbs) gth 28 (1.10)	
	OUTER	(28.2	8—15.0 kg 2—33.1 lbs) th 31.5 (1.24)	

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STANDARD		
Cam height	INI	E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
	FV	E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EX.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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.	22.012—22.025 (0.8666—0.8671)		
Camshaft journal O.D.	IN. & EX. 21.959-21.980 (0.8645-0.8654)			
Camshaft runout	IN. & EX. ——		0.10 (0.004)	
Cam chain pin (at arrow "3")	24th pin			
Rocker arm I.D.	IN. & EX. 12.000-12.018 (0.4724-0.4731)			
Rocker arm shaft O.D.	IN. & EX. 11.973-11.984 (0.4714-0.4718)			
Cylinder head distortion			-	0.20 (0.008)

CYLINDER + PISTON + PISTON RING

ITEM			STANDARD	LIMIT
Compression pressure	1 000-1 500 kPa (10-15 kg/cm²) (142-213 psi		800 kPa (8 kg/cm²) 114 psi	
Compression pressure difference			200 kPa (2 kg/cm²) 28 psi	
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore			62.690 (2.4681)	
Piston diam.	62.555—62.570 (2.4628—2.4634) Measure 15 (0.6) from the skirt end.		62.480 (2.4598)	
Cylinder distortion			0.20 (0.008)	
Piston ring free end gap	1st	R	Approx. 8.6 (0.34)	6.9 (0.27)
	2nd	R	Approx. (0.26)	5.4 (0.21)
Piston ring end gap	1st 0.1-0.3 (0.004-0.012)		0.7 (0.03)	
	2nd 0.3-0.5 (0.012-0.020)		0.7 (0.03)	

ITEM		STANDARD	LIMIT
Piston ring to groove clearance	1st		0.180 (0.007)
	2nd		0.150 (0.006)
Piston ring groove width	1st	0.81 - 0.83 (0.032 - 0.033)	
	2nd	1.01 – 1.03 (0.039 – 0.040)	
	Oil	2.01 – 2.03 (0.079 – 0.080)	
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)	
	2nd	0.97-0.99 (0.038-0.039)	
Piston pin bore	18.002 – 18.008 (0.7087 – 0.7090)		18.030 (0.7098)
Piston pin O.D.	17.996—18.000 (0.7085—0.7086)		17.980 (0.7079)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976—34.000 (1.3376—1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	
Crankshaft journal width	24.00—24.05 (0.945—0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH

ITEM	STANDARD	LIMIT
Clutch lever play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD			LIMIT
Primary reduction ra	ntio	1.744 (75/43)			
Final reduction ratio			3.133	(47/15)	
Gear ratios	Low		3.083	(37/12)	
	2nd		2.062	(33/16)	
	3rd		1.647	(28/17)	
	4th		1.400	(28/20)	
	5th		1.227	(27/22)	
	Тор		1.095	(23/21)	
Shift fork to groove	clearance	No.1, No.2 & No.3 (0.004-0.012)		0.50 (0.020)	
Shift fork groove w	Shift fork groove width		(0	4.8-4.9 .189-0.193)	
			5.0-5.1 (0.197-0.201)		
Shift fork thickness		No.1 & No.3	4.6-4.7 (0.181-0.185)		
		No.2	4.8-4.9 (0.189-0.193)		
Drive chain		Type	RK50MFOZ ₁		
			110 links		
		20-pitch length			319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heigl	nt	35 (1.38)			

CARBURETOR

ITEM			SPECIFICATION				
I I EIVI		E-04,25,34	E-17,22	E-02			
Carburetor type		KEIHIN CVK32	←	←			
Bore size		32 mm	← .	←			
I.D. No.		26E0	26E3	26E7			
ldle r/min.		1 200 ± 100 r/min.	←	←			
Float height		17±1.0 mm (0.67±0.04 in)	←	←			
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	-	←			
Main air jet	(M.A.J.)	# 90	←	←			
Jet needle	(J.N.)	N1QJ	←	←			
Pilot jet	(P.J.)	#35	←	←			
Pilot screw	(P.S.)	1% turns back	←	←			
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←			
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←			

CARBURETOR

ITEM			SPECIFICATION	
		E-22 (U-type)	E-37	E-18
Carburetor type		KEIHIN CVK32	←	←
Bore size		32 mm	←	←
I.D. No.		26E4	26E6	26E2
Idle r/min.		1 200 ± 100 r/min.	←	1 200 ⁺¹⁰⁰ ₋₅₀ r/min.
Float height		17±1.0 mm (0.67±0.04 in)	←	←
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	-	# 100 (No.1&4), # 102 (No.2&3)
Main air jet	(M.A.J.)	# 90	←	←
Jet needle	(J.N.)	N1QJ	←	N76L
Pilot jet	(P.J.)	# 35	←	←
Pilot screw	(P.S.)	1% turns back	←	21/8 turns back
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←

ELECTRICAL Unit: mm (in)

	ITEM			SPE	CIFICATION	NOTE
Ignition timir	ng		4° B	.T.D.C	c. below 1 500 r/min.	E-18
		13° B	13° B.T.D.C. below 1 500 r/min.		The others	
Firing order					1.2.4.3	
Spark plug			Type NGK: CR9EK ND.: U27ETR			
			Gap		0.6-0.7 (0.024-0.028)	
Spark perfor	mance		(Over 8	(0.3) at 1 atm.	
Signal coil re	esistance			Appro	x. 135—200 Ω	Tester range: $(x 100 \Omega)$
Ignition coil	resistance		Primary	\bigoplus tap $-\bigcirc$ tap Approx. 2-4 Ω		Tester range: (x 1 Ω)
			Secondary		Plug cap—Plug cap Approx. $30-40 \text{ k}\Omega$	Tester range: (x 1 kΩ)
Generator			Slip ring O.D. Limit: 14.0 (0.55)		N.D.	
			Brush len	gth	Limit: 4.5 (0.18)	N.D.
Regulated vo	oltage		Above 13.5 V at 5 000 r/min.			
Starter relay	resistance				3-5 Ω	
Battery	Type designat	ion			YTX9-BS	
	Capacity		12	√ 28.8	3 kC (8 Ah)/10 HR	
	Standard electrolyte S.	G.	1.320 at 20°C (68°F)			
Fuse size	11	Н	15 A			
	Headlight	LO				
	Turn signal		15 A			
	Ignition		10 A			
	Taillight		10 A			
	Main		30 A			

WATTAGE Unit: W

ITEM	ITEM SPECIFICATION		
Headlight HI		60	
_	LO	55	
Parking or position light		4	
Brake light/Taillight		21/5	
Turn signal light		21	
Speedometer light		0.84 × 2	
Tachometer light		0.84 × 2	
Turn signal indicator lig	ht	3.4 × 2	
High beam indicator lig	ht	1.7	
Neutral indicator light			
Oil pressure indicator lig	ght 3.4		
License light 5		5	

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD				
Rear brake pedal height		45 (1.8)				
Brake disc thickness	Front	4.5±0.2 (0.177±0.008)	4.0 (0.15)			
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)			
Brake disc runout			0.30 (0.012)			
Master cylinder bore	Front	14.000 — 14.043 (0.5512 — 0.5529)				
	Rear	12.700—12.743 (0.5000—0.5017)				
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)				
	Rear	12.657—12.684 (0.4983—0.4994)				
Brake caliper cylinder bore	Front	25.400 – 25.450 (1.0000 – 1.0020)				
	Rear	38.180-38.256 (1.5031-1.5061)				
Brake caliper piston diam.	Front	25.335 — 25.368 (0.9974 — 0.9987)				
	Rear	38.098-38.148 (1.5000-1.5019)				
Wheel rim runout	Axial		2.0 (0.08)			
	Radial		2.0 (0.08)			
Wheel axle runout	Front		0.25 (0.010)			
	Rear	<u></u>	0.25 (0.010)			
Wheel rim size	Front	J17×MT3.00				
	Rear	J17 × MT4.50				
Tire size	Front	110/70-17 54H				
	Rear	150/70-17 69H				
Tire tread depth	Front		1.6 (0.06)			
	Rear		2.0 (0.08)			

SUSPENSION Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	97 (3.8)		
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa	kg/cm ²	psi	kPa	kg/cm ²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		SPECIFICATION	NOTE		
Fuel type	Gasoline use octane or hig recommende				
Fuel tank capacity	Including reserve	19.0 L (5.0/4.2 US/Imp gal)			
	Only reserve	4.5 L (1.2/1.0 US/Imp gal)			
Engine oil type	SAE	SAE 10W/40, API SF or SG			
Engine oil capacity	Oil change				
	Oil and filter change	3 500 ml (3.6/3.0 US/Imp qt)			
	Engine overhaul	4 600 ml (4.9/4.0 US/Imp qt)			
Front fork oil type					
Front fork oil capacity (each leg)	(17				
Brake fluid type		DOT 4			

GSF600SW

VALVE + GUIDE

ITEM		LIMIT		
Valve diam.	IN.		23 (0.9)	
	EX.		20 (0.8)	
Valve lift	101	E-18	6.6 (0.26)	
	IN.	Others	7.8 (0.31)	
	EX.	E-18	6.1 (0.24)	
	EX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		30-0.057 12-0.0022)	
Valve stem deflection	IN. & EX.			0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000-5.012 (0.1969-0.1973)		
Valve stem O.D.	IN.	4.965-4.980 (0.1955-0.1961)		
	EX.		55—4.970 50—0.1957)	
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
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.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)	INNER	(12.3 at leng	6—6.6 kg -–14.6 lbs) th 28 (1.10)	
	OUTER	(28.2	3—15.0 kg —33.1 lbs) h 31.5 (1.24)	

Unit: mm (in)

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STAND	ARD	LIMIT
Cam height		E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
		E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EX.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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. 22.012-22.025 (0.8666-0.8671)			
Camshaft journal O.D.	IN. & EX. 21.959—21.980 (0.8645—0.8654)			
Camshaft runout	IN. & EX. ——		0.10 (0.004)	
Cam chain pin (at arrow "3")	24th pin			
Rocker arm I.D.	IN. & EX. 12.000-12.018 (0.4724-0.4731)			
Rocker arm shaft O.D.	IN. & EX.	& EX. 11.973-11.984 (0.4714-0.4718)		
Cylinder head distortion			_	0.20 (0.008)

CYLINDER + PISTON + PISTON RING

ITEM		***	STANDARD	LIMIT
Compression pressure	1 000-1 500 kPa (10-15 kg/cm²) (142-213 psi			800 kPa (8 kg/cm²) 114 psi
Compression pressure difference				200 kPa (2 kg/cm²) 28 psi
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore			62.600—62.615 (2.4646—2.4652)	62.690 (2.4681)
Piston diam.	62.555-62.570 (2.4628-2.4634) Measure 15 (0.6) from the skirt end.			62.480 (2.4598)
Cylinder distortion	·			0.20 (0.008)
Piston ring free end gap	1st R Approx. 8.6 (0.34)		6.9 (0.27)	
	2nd R Approx. 6.7 (0.26)		5.4 (0.21)	
Piston ring end gap			0.1-0.3 (0.004-0.012)	0.7 (0.03)
	2nd	d	0.3-0.5 (0.012-0.020)	0.7 (0.03)

ITEM		STANDARD	LIMIT
Piston ring to groove clearance	1st		0.180 (0.007)
	2nd		0.150 (0.006)
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)	
	2nd	1.01 – 1.03 (0.039 – 0.040)	
	Oil	2.01 – 2.03 (0.079 – 0.080)	
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)	
	2nd	0.97-0.99 (0.038-0.039)	
Piston pin bore	18.002—18.008 (0.7087—0.7090)		18.030 (0.7098)
Piston pin O.D.	17.996—18.000 (0.7085—0.7086)		17.980 (0.7079)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976-34.000 (1.3376-1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976-32.000 (1.2589-1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	
Crankshaft journal width	24.00-24.05 (0.945-0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH

ITEM	STANDARD	LIMIT
Clutch lever play	10-15 (0.4-0.6)	
Clutch release screw	½ –¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit:	mm	(in)	Except	ratio

ITEM		STANDA		ARD	LIMIT
Primary reduction ra	atio		1.744 (7	5/43)	
Final reduction	E-03,33		3.200 (4	8/15)	
ratio	The others		3.133 (4	7/15)	
Gear ratios	Low		3.083 (3	7/12)	
	2nd		2.062 (3	3/16)	
	3rd		1.647 (2	8/17)	
	4th		1.400 (2	8/20)	
	5th		1.227 (2	7/22)	
	Тор		1.095 (2	3/21)	
Shift fork to groove	clearance	No.1, No.2 & No.3		0.1-0.3 04-0.012)	0.50 (0.020)
Shift fork groove w	idth	No.1 & No.3	4.8-4.9 (0.189-0.193)		
		No.2	5.0-5.1 (0.197-0.201)		
Shift fork thickness		No.1 & No.3	4.6-4.7 (0.181-0.185)		
		No.2	4.8-4.9 (0.189-0.193)		
Drive chain		Type	RK50MFOZ ₁		
		Links	E-03,33	112 links	
		LINKS	The others	110 links	
		20-pitch length			319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heig	ht	35 (1.38)			

CARBURETOR

ITEM			SPECIFICATION	
ITEIVI	I I CIVI		E-28	E-33
Carburetor type		KEIHIN CVK32	←	←
Bore size		32 mm	←	←
I.D. No.		26E1	←	26E5
Idle r/min.		1 200 ± 100 r/min.	←	←
Float height		17±1.0 mm (0.67±0.04 in)	←	←
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	←
Main air jet	(M.A.J.)	# 90	←	←
Jet needle	(J.N.)	N1QA	←	N76L
Pilot jet	(P.J.)	# 35	←	←
Pilot screw	(P.S.)	PRE-SET	←	←
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←

CARBURETOR

ITEM		SPECIFICATION			
		E-04,25,34	E-17,22,24	E-02	
Carburetor type		KEIHIN CVK32	←	←	
Bore size		32 mm	←	←	
I.D. No.		26E0	26E3	26E7	
Idle r/min.		1 200 ± 100 r/min.	←	←	
Float height		17±1.0 mm (0.67±0.04 in)	←	←	
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	←	
Main air jet	(M.A.J.)	# 90	←	←	
Jet needle	(J.N.)	N1QJ	←	←	
Pilot jet	(P.J.)	# 35	←	←	
Pilot screw	(P.S.)	1% turns back	-	←	
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←	
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←	

CARBURETOR

	SPECIFICA	ATION
ITEM	E-22 (U-type)	E-18
Carburetor type	KEIHIN CVK32	-
Bore size	32 mm	←
I.D. No.	26E4	26E2
ldle r/min.	1 200 ± 100 r/min.	1 200+100 50

ITEM		SPECIFICATION		
		E-22 (U-type)	E-18	
Float height		17±1.0 mm (0.67±0.04 in)	-	
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	# 100 (No.1&4), # 102 (No.2&3)	
Main air jet	(M.A.J.)	#90	-	
Jet needle	(J.N.)	N1QJ	N76L	
Pilot jet	(P.J.)	#35	←	
Pilot screw	(P.S.)	1% turns back	21/8 turns back	
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	-	

ELECTRICAL

Unit: mm (in) ITEM **SPECIFICATION** NOTE E-03,18,33 4° B.T.D.C. below 1 500 r/min. Ignition timing 13° B.T.D.C. below 1 500 r/min. The others 1.2.4.3 Firing order NGK: CR9EK Spark plug Type ND.: U27ETR 0.6 - 0.7Gap (0.024 - 0.028)Over 8 (0.3) at 1 atm. Spark performance Tester range: Signal coil resistance Approx. $135-200 \Omega$ $(x 100 \Omega)$ \bigoplus tap- \bigoplus tap Approx. 2-4 Ω Tester range: Ignition coil resistance Primary $(x \ 1 \ \Omega)$ Plug cap—Plug cap Tester range: Secondary Approx. $30-40 \text{ k}\Omega$ $(x 1 k\Omega)$ Limit: 14.0 (0.55) Slip ring O.D. Generator N.D. Limit: 4.5 (0.18) Brush length Above 13.5 V at 5 000 r/min. Regulated voltage $3-5\Omega$ Starter relay resistance YTX9-BS Type designation Battery 12V 28.8 kC (8 Ah)/10 HR Capacity Standard 1.320 at 20°C (68°F) electrolyte S.G. Fuse size Ш 15 A Headlight LO 15 A 15 A Turn signal Ignition 10 A Taillight 10 A Main 30 A

WATTAGE Unit: W

		SPECIFICATION		
ITEM		E-03,28,33	The others	
Headlight	HI	60	←	
	LO	55	←	
Parking or position lig	nt		4	
Brake light/Taillight		21/5	←	
Turn signal light		21	←	
Speedometer light		0.84 × 2	←	
Tachometer light		0.84 × 2	←	
Turn signal indicator light		3.4 × 2	←	
High beam indicator light		1.7	←	
Neutral indicator light		3	←	
Oil pressure indicator	light	3.4	←	
License light		5	←	

BRAKE + WHEEL

EEL Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake pedal height	45 (1.8)		
Brake disc thickness	Front	4.5±0.2 (0.177±0.008)	4.0 (0.15)
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)
Brake disc runout			0.30 (0.012)
Master cylinder bore	Front	14.000 — 14.043 (0.5512 — 0.5529)	
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)	
	Rear	12.657—12.684 (0.4983—0.4994)	
Brake caliper cylinder bore	Front	25.400 – 25.450 (1.0000 – 1.0020)	
	Rear	38.180-38.256 (1.5031-1.5061)	
Brake caliper piston diam.	Front	25.335—25.368 (0.9974—0.9987)	
	Rear	38.098 – 38.148 (1.5000 – 1.5019)	
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)

ITEM		STANDARD		
Wheel rim size	Front	J17×MT3.00		
	Rear	J17 × MT4.50		
Tire size	Front	E-03,28,33 110/70-17 54H		
	Front	The others 110/70 ZR17 (54W	<u>') </u>	
	Rear	E-03,28,33 150/70-17 69H		
	near	The others 150/70 ZR17 (69W	/)	
Tire tread depth	Front		1.6 (0.06)	
	Rear		2.0 (0.08)	

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	96 (3.8)		E-03,28,33
	97 (3.8)		The others
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		SPECIFICATION	NOTE
Fuel type	Use only unl pump octane higher rated Gasoline con Butyl Ether) less than 5° cosolvents permissible.	E-03,33	
	Use only unleaded gasoline of at least 87 pump octane (R+M)/2 method) or 91 octane or higher rated by the Research Method. Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		E-28
			The others
Fuel tank capacity	Including reserve	19.0 L (5.0/4.2 US/Imp gal)	
	Only reserve	4.5 L (1.2/1.0 US/Imp gal)	
Engine oil type	SAE 10W/40, API SF or SG		
Engine oil capacity	Oil change	3 300 ml (3.5/2.9 US/lmp qt)	
	Oil and filter change	3 500 ml (3.7/3.1 US/lmp qt)	
	Engine overhaul	4 600 ml (4.9/4.0 US/lmp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	522 ml (17.6/18.4 US/Imp oz)		E-03,28,33
	521 ml (17.6/18.3 US/Imp oz)		The others
Brake fluid type	DOT 4		

GSF600X/SX ('99-MODEL)

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NOTE:

The specifications and service data are the same as the W-MODEL.

Please refer to the chapters 1 through 11 for details which are not given in this chapter.

SPECIFICATIONS GSF600X DIMENSIONS AND DRY MASS

DIVILIACIONO AND DITT MACO	
Overall length 2	155 mm (84.8 in) For E-17,18,22
2	085 mm (82.0 in) For the others
Overall width	745 mm (29.3 in)
Overall height 1	100 mm (43.3 in)
Wheelbase 1	430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.6 in)
Dry mass	198 kg (436 lbs)

ENGINE

Four-stroke, air-cooled, DOHC
4
62.6 mm (2.464 in)
48.7 mm (1.917 in)
599 cm³ (36.5 cu. in)
11.3 : 1
KEIHIN CVK32, four
Non-woven fabric element
Electric starter
Wet sump

TRANSMISSION

	Wet multi-plate type
	1-down, 5-up
	1.744 (75/43)
Final reduction ratio	3.133 (47/15)
Gear ratios, Low	3.083 (37/12)
2nd	2.062 (33/16)
3rd	1.647 (28/17)
4th	1.400 (28/20)
5th	1.227 (27/22)
Top	1.095 (23/21)
Drive chain	RK50MF0Z ₁ , 110 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type system, oil damped, coil spring, spring pre-
	load 7-way adjustable, *rebound damping force
	4-way adjustable
Steering angle	35° (right & left)
Caster	25° 10′
Trail	100 mm (3.9 in)
Turning radius	2.8 m (9.2 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	110/70-17 54H
Rear tire size	150/70-17 69H
Front fork stroke	130 mm (5.1 in)
Rear wheel travel	121 mm (4.8 in)

ELECTRICAL

Ignition type	Electronic Ignition (Fully Transistorized)
Ignition timing	4° B.T.D.C. at 1 200 r/min For E-18
	13° B.T.D.C. at 1 500 r/min For the others
Spark plug	N.G.K.: CR9EK, DENSO U27ETR
Battery	12V 28.8 kC (8 Ah)/10 HR
Generator	Three-phase A.C. Generator
Main fuse	30A
Fuse	15/15/15/10/10A
Headlight	12V 60/55W
Position light	12V 4W
Turn signal light	
Brake light/Taillight	12V 21/5W
License plate light	12V 5W
Speedometer light	14V 0.84W × 2
Tachometer light	14V 0.84W × 2
Neutral indicator light	
High beam indicator light	12V 1.7W
Turn signal indicator light	12V 3.4W × 2
Oil pressure indicator light	12V 3.4W

CAPACITIES

Fuel tank, including reserve 19.0 L (5.0/4.2 US/Imp gal)
reserve
Engine oil, oil change
with filter change
overhaul 4 600 ml (4.9/4.0 US/Imp qt)
Front fork oil

These specifications are subject to change without notice.

GSF600SX DIMENSIONS AND DRY MASS

Overall length	2 155 mm (84.8 in)E-17,18,22
	2 085 mm (82.1 in)The others
Overall width	745 mm (29.3 in)
Overall height	1 205 mm (47.4 in)
Wheelbase	1 430 mm (56.2 in)
Ground clearance	125 mm (4.9 in)
Seat height	805 mm (31.7 in)
Dry mass	205 kg (451 lbs)E-33
	202 kg (445 lbs)The others

ENGINE

Type	Four-stroke, air-cooled, DOHC
Number of cylinders	4
Bore	62.6 mm (2.465 in)
Stroke	48.7 mm (1.917 in)
Piston displacement	599 cm³ (36.6 cu. in)
Compression ratio	11.3 : 1
Carburetor	KEIHIN CVK32, four
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

	n	
	ttern	•
•	ıction ratio	•
Final reducti	on ratio	3.200 (48/15)E-03,33
		3.133 (47/15)The others
Gear ratios,	Low	3.083 (37/12)
	2nd	2.062 (33/16)
	3rd	
	4th	1.400 (28/20)
	5th	1.227 (27/22)
	Top	1.095 (23/21)
Drive chain		RK50MFOZ ₁ , 112 linksE-03,33
		RK50MFOZ ₁ , 110 linksThe others

CHASSIS

CHASSIS	
Front suspension	Telescopic, coil spring, oil damped Link type system, oil damped, coil spring, spring pre-
Rear suspension	load 7-way adjustable, *rebound damping force
	4-way adjustable
Steering angle	
Caster	25° 10′
Trail	
Turning radius	
Front brake	
Rear brake	
Front tire size	110/70-17 54HE-03,28,33
	110/70 ZR17 (54W)The others
Rear tire size	
	150/70 ZR17 (69W)The others
Front fork stroke	
Rear wheel travel	121 mm (4.8 in)
ELECTRICAL	
Ignition type	Electronic Ignition (Fully Transistorized)
Ignition timing	
	13° B.T.D.C. at 1 500 r/min For the others
Spark plug	
Battery	
Generator	
Main fuse	
Fuse	
Headlight	
Parking or position light	12V 4WExcept for E-03,24,28,33
Turn signal light	
Brake light/Taillight	12V 21/5W
License plate light	
Speedometer light	14V 0.84W × 2
Tachometer light	14V 0.84W × 2
Neutral indicator light	
High beam indicator light	
Turn signal indicator light	
Oil pressure indicator light	. 12V 3.4W
CAPACITIES	
Fuel tank, including reserve	. 19.0 L (5.0/4.2 US/Imp gal)
	4.5 L (1.2/1.0 US/Imp gal)
Engine oil, oil change	
with filter change	. 3 500 ml (3.7/3.1 US/Imp qt)
overhaul	
Front fork oil	
	521 ml (17.6/18.3 US/Imp oz)The others

These specifications are subject to change without notice.

SERVICE DATA

GSF600X

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD			LIMIT
Valve diam.	IN.	23 (0.9)		
	EX.	20 (0.8)		
Valve lift	INI	E-18	6.6 (0.26)	
	IN.	Others	7.8 (0.31)	
	F.V.	E-18	6.1 (0.24)	
	EX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		30-0.057 12-0.0022)	
Valve stem deflection	IN. & EX.			
Valve guide I.D.	IN. & EX.	5.000-5.012 (0.1969-0.1973)		
Valve stem O.D.	IN.	4.965—4.980 (0.1955—0.1961)		
	EX.		55-4.970 50-0.1957)	
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
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.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)	INNER	(12.3 at leng	6-6.6 kg 3-14.6 lbs) gth 28 (1.10)	
	OUTER	(28.2	3-15.0 kg 2-33.1 lbs) th 31.5 (1.24)	<u>-</u>

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM	STANDARD			LIMIT
Cam height		E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13-33.17 (1.3043-1.3059)	32.83 (1.2925)
		E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EX.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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.	22.012—22.025 (0.8666—0.8671)		
Camshaft journal O.D.	IN. & EX.	21.959—21.980 (0.8645—0.8654)		
Camshaft runout	IN. & EX. ——		0.10 (0.004)	
Cam chain pin (at arrow "3")	24th pin			
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)		
Rocker arm shaft O.D.	IN. & EX.		973—11.984 714—0.4718)	
Cylinder head distortion			_	0.20 (0.008)

CYLINDER + PISTON + PISTON RING

ITEM			STANDARD	LIMIT
Compression pressure	1 000-1 500 kPa (10-15 kg/cm²) 142-213 psi			800 kPa (8 kg/cm²) 114 psi
Compression pressure difference			200 kPa (2 kg/cm²) 28 psi	
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore			62.690 (2.4681)	
Piston diam.	62.555—62.570 (2.4628—2.4634) Measure 15 (0.6) from the skirt end.			62.480 (2.4598)
Cylinder distortion				0.20 (0.008)
Piston ring free end gap	1st	R	Approx. 8.6 (0.34)	6.9 (0.27)
	2nd	R	Approx. (0.26)	5.4 (0.21)
Piston ring end gap	1st 0.1-0.3 (0.004-0.012)		0.7 (0.03)	
	2nd 0.3-0.5 (0.012-0.020)		0.7 (0.03)	

ITEM		STANDARD	LIMIT
Piston ring to groove clearance	1st		0.180 (0.007)
	2nd		0.150 (0.006)
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)	
	2nd	1.01 – 1.03 (0.039 – 0.040)	
	Oil	2.01 – 2.03 (0.079 – 0.080)	
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)	
	2nd	0.97-0.99 (0.038-0.039)	
Piston pin bore	18.002—18.008 (0.7087—0.7090)		18.030 (0.7098)
Piston pin O.D.	17.996—18.000 (0.7085—0.7086)		17.980 (0.7079)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976—34.000 (1.3376—1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	
Crankshaft journal width	24.00—24.05 (0.945—0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM			STAN	DARD	LIMIT
Primary reduction ra	atio	1.744 (75/43)			
Final reduction ratio			3.133	(47/15)	
Gear ratios	Low		3.083	(37/12)	
	2nd		2.062	(33/16)	
	3rd		1.647	(28/17)	
	4th		1.400	(28/20)	
	5th		1.227	(27/22)	
	Тор		1.095	(23/21)	
Shift fork to groove	clearance	No.1, No.2 & No.3	(C	0.1-0.3 0.004-0.012)	0.50 (0.020)
Shift fork groove w	Shift fork groove width		4.8-4.9 (0.189-0.193)		
		No.2	5.0-5.1 (0.197-0.201)		
Shift fork thickness		No.1 & No.3	4.6-4.7 (0.181-0.185)		
		No.2	4.8-4.9 (0.189-0.193)		
Drive chain		Type	RK50MFOZ₁		
		Links		110 links	
		20-pitch length			319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heigl	nt			5 38)	

CARBURETOR

ITEM			SPECIFICATION				
TI LIVI		E-04,25,34 E-17,22 E-02					
Carburetor type		KEIHIN CVK32	←	←			
Bore size		32 mm	←	←			
I.D. No.		26E0	26E3	26E7			
ldle r/min.		1 200 ± 100 r/min.	←				
Float height		17±1.0 mm (0.67±0.04 in)	←	←			
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	←			
Main air jet	(M.A.J.)	#90	←	←			
Jet needle	(J.N.)	N1QJ	←	←			
Pilot jet	(P.J.)	#35	-	←			
Pilot screw	(P.S.)	1% turns back	-	←			
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←			
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←			

CARBURETOR

ITENA			SPECIFICATION	
ITEM		E-22 (U-type)	P-37	E-18
Carburetor type		KEIHIN CVK32	←	←
Bore size		32 mm	←	←
I.D. No.	:	26E4	26E6	26E2
ldle r/min.		1 200 ± 100 r/min.	←	1 200 ⁺¹⁰⁰ ₋₅₀ r/min.
Float height		17±1.0 mm (0.67±0.04 in)	-	←
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	#100 (No.1&4), #102 (No.2&3)
Main air jet	(M.A.J.)	#90	←	←
Jet needle	(J.N.)	N1QJ	←	N76L
Pilot jet	(P.J.)	#35		←
Pilot screw	(P.S.)	1% turns back	←	21/8 turns back
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←	←

ELECTRICAL

I	TEM			SPE	CIFICATION	NOTE
Ignition timin	g		4º B.	T.D.C	C. below 1 500 r/min.	E-18
_		13° B.T.D.C. below 1 500 r/min.		The others		
Firing order					1.2.4.3	
Spark plug			Туре		NGK: CR9EK ND.: U27ETR	
			Gap		0.6 - 0.7 (0.024 - 0.028)	
Spark perform	mance		C)ver 8	3 (0.3) at 1 atm.	
Signal coil re	sistance			Appro	ox. 135—200 Ω	Tester range: $(x 100 \Omega)$
Ignition coil I	resistance		Primary	$\begin{array}{c c} & \oplus tap - \ominus tap \\ Approx. \ \ 2 - 4 \ \Omega \end{array}$		Tester range: (x 1 Ω)
			Secondary Plug cap—Plug cap Approx. 30—40 kΩ		Tester range: $(x \ 1 \ k\Omega)$	
Generator			Slip ring O.D. Limit: 14.0 (0.55)		N.D.	
			Brush length Limit: 4.5 (0.18)		N.D.	
Regulated vo	oltage		Abov	⁄е 13.	.5 V at 5 000 r/min.	
Starter relay	resistance				3-5 Ω	
Battery	Type designat	ion			YTX9-BS	
	Capacity		12	√ 28.	8 kC (8 Ah)/10 HR	
	Standard electrolyte S.	G.	1.320 at 20°C (68°F)			
Fuse size	11	HI			15 A	
	Headlight	LO			15 A	
	Turn signa	ĺ	15 A			
	Ignition		10 A		10 A	
	Taillight				10 A	
	Main				30 A	

WATTAGE Unit: W

ITEM		SPECIFICATION
Headlight HI		60
	LO	55
Parking or position light		4
Brake light/Taillight		21/5
Turn signal light		21
Speedometer light		0.84 × 2
Tachometer light		0.84 × 2
Turn signal indicator lig	ht	3.4 × 2
High beam indicator light		1.7
Neutral indicator light		3
Oil pressure indicator light		3.4
License light		5

BRAKE + WHEEL

ITEM		STANDARD		
Rear brake pedal height		45 (1.8)		
Brake disc thickness	Front	4.5±0.2 (0.177±0.008)	4.0 (0.15)	
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)	
Brake disc runout			0.30 (0.012)	
Master cylinder bore	Front	14.000 — 14.043 (0.5512 — 0.5529)		
	Rear	12.700—12.743 (0.5000—0.5017)		
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)		
	Rear	12.657—12.684 (0.4983—0.4994)		
Brake caliper cylinder bore	Front	25.400 — 25.450 (1.0000 — 1.0020)		
	Rear	38.180-38.256 (1.5031-1.5061)		
Brake caliper piston diam.	Front	25.335—25.368 (0.9974—0.9987)		
	Rear	38.098-38.148 (1.5000-1.5019)		
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	J17×MT3.00		
	Rear	J17 × MT4.50		
Tire size	Front	110/70-17 54H		
	Rear	150/70-17 69H		
Tire tread depth	Front		1.6 (0.06)	
	Rear		2.0 (0.08)	

Unit: mm (in)

SUSPENSION

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130 (5.12)		
Front fork spring free length		281 (11.1)	
Front fork oil level	97 (3.8)		
Rear wheel travel	121 (4.8)		
Swingarm pivot shaft runout		0.3 (0.01)	

TIRE PRESSURE

COLD INFLATION	SOLO RIDING			DUAL RIDING		
TIRE PRESSURE	kPa kg/cm² psi			kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		SPECIFICATION	NOTE		
Fuel type	Gasoline use or higher. An mended.				
Fuel tank capacity	Including reserve	19.0 L (5.0/4.2 US/Imp gal)			
	Only reserve	4.5 L (1.2/1.0 US/lmp gal)			
Engine oil type	SAE	SAE 10W/40, API SF or SG			
Engine oil capacity	Oil 3 300 ml change (3.4/2.9 US/Imp qt)				
	Oil and filter change	3 500 ml (3.6/3.0 US/lmp qt)			
	Engine overhaul	4 600 ml (4.9/4.0 US/lmp qt)			
Front fork oil type					
Front fork oil capacity (each leg)	(17				
Brake fluid type		DOT 4			

SERVICE DATA

GSF600SX

VALVE + **GUIDE**

ITEM		STAND	LIMIT	
Valve diam.	IN.		23 (0.9)	
	EX.		20 (0.8)	
Valve lift		E-18	6.6 (0.26)	
	IN.	Others	7.8 (0.31)	
	FV	E-18	6.1 (0.24)	
	EX.	Others	7.3 (0.29)	
Valve clearance (when cold)	IN.		10-0.15 04-0.006)	
	EX.		18-0.23 07-0.009)	
Valve guide to valve stem clearance	IN.		20-0.047 08-0.0019)	
	EX.		30-0.057 12-0.0022)	
Valve stem deflection	IN. & EX.			0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.000-5.012 (0.1969-0.1973)		
Valve stem O.D.	IN.	4.965—4.980 (0.1955—0.1961)		
	EX.	4.9 (0.19		
Valve stem runout	IN. & EX.			0.05 (0.002)
Valve head thickness	IN. & EX.			0.5 (0.02)
Valve stem end length	IN. & EX.			2.5 (0.10)
Valve seat width	IN. & EX.		0.9-1.1 35-0.043)	
Valve head radial runout	IN. & EX.			0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER			35.0 (1.38)
	OUTER			38.4 (1.51)
Valve spring tension (IN. & EX.)	INNER	(12.) at len	6—6.6 kg 3—14.6 lbs) gth 28 (1.10)	
	OUTER	12.8—15.0 kg (28.2—33.1 lbs) at length 31.5 (1.24)		

Unit: mm (in)

Unit: mm (in)

CAMSHAFT + CYLINDER HEAD

ITEM		STAND	ARD	LIMIT
Cam height	INI	E-18	32.38-32.42 (1.2748-1.2764)	32.08 (1.2630)
	IN.	Others	33.13—33.17 (1.3043—1.3059)	32.83 (1.2925)
	F.V.	E-18	32.10-32.14 (1.2638-1.2654)	31.80 (1.2520)
	EX.	Others	32.85-32.89 (1.2933-1.2949)	32.55 (1.2815)
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.	22.012-22.025 (0.8666-0.8671)		
Camshaft journal O.D.	IN. & EX.	21.959—21.980 (0.8645—0.8654)		
Camshaft runout	IN. & EX.			0.10 (0.004)
Cam chain pin (at arrow ''3'')		24th p	oin	
Rocker arm I.D.	IN. & EX.	12.000-12.018 (0.4724-0.4731)		
Rocker arm shaft O.D.	IN. & EX.	11.973—11.984 (0.4714—0.4718)		
Cylinder head distortion			_	0.20 (0.008)

CYLINDER + PISTON + PISTON RING

ITEM			STANDARD	LIMIT
Compression pressure	1 000-1 500 kPa (10-15 kg/cm²) 142-213 psi			800 kPa (8 kg/cm²) 114 psi
Compression pressure difference			200 kPa (2 kg/cm²) 28 psi	
Piston to cylinder clearance			0.040-0.050 (0.0016-0.0020)	0.120 (0.0047)
Cylinder bore	62.600-62.615 (2.4646-2.4652)			62.690 (2.4681)
Piston diam.	62.555—62.570 (2.4628—2.4634) Measure 15 (0.6) from the skirt end.			62.480 (2.4598)
Cylinder distortion				0.20 (0.008)
Piston ring free end gap	1st R Approx. 8.6 (0.34)		6.9 (0.27)	
	2nd R Approx. 6.7 (0.26)		5.4 (0.21)	
Piston ring end gap	1st 0.1-0.3 (0.004-0.012)		0.7 (0.03)	
	2nd	t	0.3-0.5 (0.012-0.020)	0.7 (0.03)

ITEM		STANDARD	LIMIT
Piston ring to groove clearance	1st		0.180 (0.007)
	2nd		0.150 (0.006)
Piston ring groove width	1st	0.81-0.83 (0.032-0.033)	
	2nd	1.01-1.03 (0.039-0.040)	
	Oil	2.01-2.03 (0.079-0.080)	
Piston ring thickness	1st	0.77-0.79 (0.030-0.031)	
	2nd	0.97-0.99 (0.038-0.039)	
Piston pin bore	18.002—18.008 (0.7087—0.7090)		18.030 (0.7098)
Piston pin O.D.	17.996—18.000 (0.7085—0.7086)		17.980 (0.7079)

CONROD + CRANKSHAFT

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 (0.01)
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.	33.976—34.000 (1.3376—1.3386)	
Crankshaft journal oil clearance	0.020-0.044 (0.0008-0.0017)	0.080 (0.0031)
Crankshaft journal O.D.	31.976—32.000 (1.2589—1.2598)	
Crankshaft thrust clearance	0.04-0.09 (0.002-0.004)	Table Control
Crankshaft journal width	24.00-24.05 (0.945-0.947)	
Crankshaft runout		0.05 (0.002)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.898 (75/43 x 37/34)	
Oil pressure (at 60°C,140°F)	Above 300 kPa (3.0 kg/cm²) Below 600 kPa (6.0 kg/cm²) at 3 000 r/min.	

CLUTCH Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10-15 (0.4-0.6)	
Clutch release screw	½—¼ turn back	
Drive plate thickness	2.65-2.95 (0.104-0.116)	2.35 (0.093)
Driven plate distortion		0.10 (0.004)
Clutch spring free length		69.5 (2.74)

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM			STANDA	ARD	LIMIT
Primary reduction ra	atio		1.744 (7	5/43)	
Final reduction	E-03,33	3.200 (48/15)			
ratio	The others	·	3.133 (4	7/15)	
Gear ratios	Low		3.083 (3	7/12)	
	2nd		2.062 (3	3/16)	
	3rd		1.647 (2	8/17)	
	4th		1.400 (2	8/20)	
	5th		1.227 (2	7/22)	
	Тор		1.095 (2	3/21)	
Shift fork to groove	clearance	No.1, No.2 & No.3		0.1-0.3 04-0.012)	0.50 (0.020)
Shift fork groove w	Shift fork groove width		& 4.8-4.9 3 (0.189-0.193)		
		No.2	5.0-5.1 (0.197-0.201)		
Shift fork thickness		No.1 & No.3	4.6-4.7 (0.181-0.185)		
		No.2	4.8-4.9 (0.189-0.193)		
Drive chain		Type	RK50MFOZ₁		
		Links	E-03,33	112 links	
		LIIIKS	The others	110 links	
		20-pitch length			319.4 (12.57)
Drive chain slack		25-35 (0.98-1.38)			
Gearshift lever heig	ht		35 (1.38	3)	

CARBURETOR

ITEM		SPECIFICATION				
I LIVI	I I EIVI		E-28	E-33		
Carburetor type		KEIHIN CVK32	←	←		
Bore size		32 mm	←	←		
I.D. No.		26E1	←	26E5		
ldle r/min.		1 200 ± 100 r/min.	←	· ←		
Float height		17±1.0 mm (0.67±0.04 in)	-	←		
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	-	←		
Main air jet	(M.A.J.)	# 90	←	←		
Jet needle	(J.N.)	N1QA	←	N76L		
Pilot jet	(P.J.)	#35	←	←		
Pilot screw	(P.S.)	PRE-SET	←	←		
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←		
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	· ·	←		

CARBURETOR

ITEM		SPECIFICATION				
I LIVI		E-04,25,34	E-17,22,24	E-02		
Carburetor type		KEIHIN CVK32	←	←		
Bore size		32 mm	←	←		
I.D. No.		26E0	26E3	26E7		
Idle r/min.		1 200 ± 100 r/min.	←	←		
Float height		17±1.0 mm (0.67±0.04 in)	←	←		
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	←	←		
Main air jet	(M.A.J.)	# 90	←	←		
Jet needle	(J.N.)	N1QJ	←	←		
Pilot jet	(P.J.)	#35	←	←		
Pilot screw	(P.S.)	1% turns back	←	←		
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←	←		
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	← .	←		

CARBURETOR

ITEM	SPECIFICATION			
	E-22 (U-type)	E-18		
Carburetor type	KEIHIN CVK32	←		
Bore size	32 mm	←		
I.D. No.	26E4	26E2		
ldle r/min.	1 200 ± 100 r/min.	1 200+100		

ITENA		SPECIFICATION				
ITEM		E-22 (U-type)	E-18			
Float height		17±1.0 mm (0.67±0.04 in)	←			
Main jet	(M.J.)	#98 (No.1&4), #100 (No.2&3)	# 100 (No.1&4), # 102 (No.2&3)			
Main air jet	(M.A.J.)	# 90	←			
Jet needle	(J.N.)	N1QJ	N76L			
Pilot jet	(P.J.)	# 35	←			
Pilot screw	(P.S.)	1% turns back	21/8 turns back			
Throttle cable play (pulling cable)		0.5-1.0 mm (0.02-0.04 in)	←			
Choke cable play		0.5-1.0 mm (0.02-0.04 in)	←			

ELECTRICAL

Unit: mm (in)

	ITEM			SPI	CIFICATION	NOTE
Ignition timir	ng		4° B.T.D.C. below 1 500 r/min.			E-03,18,33
			13° B.T.D.C. below 1 500 r/min.			The others
Firing order					1.2.4.3	
Spark plug			Type		NGK: CR9EK ND.: U27ETR	
			Gap		0.6-0.7 (0.024-0.028)	
Spark perfor	mance		(Over 8	(0.3) at 1 atm.	
Signal coil re	esistance			Appro	x. 135—200 Ω	Tester range: $(x 100 \Omega)$
Ignition coil	resistance		Primary		\oplus tap $ \ominus$ tap Approx. 2 $-$ 4 Ω	Tester range: (x 1 Ω)
			Secondary		Plug cap—Plug cap Approx. $30-40 \text{ k}\Omega$	Tester range: $(x \ 1 \ k\Omega)$
Generator			Slip ring O.D. Limit: 14.0 (0.55)		N.D	
			Brush length Limit: 4.5 (0.18)		N.D.	
Regulated vo	oltage		Abov	⁄е 13.	5 V at 5 000 r/min.	
Starter relay	resistance				3-5 Ω	
Battery	Type designat	ion			YTX9-BS	
	Capacity		12	√ 28.8	3 kC (8 Ah)/10 HR	
	Standard electrolyte S.	G.	1.320 at 20°C (68°F)			
Fuse size	l loodliabt	НІ		15 A		
	Headlight	LO		15 A		
	Turn signal		15 A			
	Ignition		10 A		10 A	
	Taillight				10 A	
	Main				30 A	

WATTAGE Unit: W

ITEM		SPECIFIC	ATION
I I EIVI		E-03,28,33	The others
Headlight	HI	60	←
	LO	55	←
Parking or position light	t		4
Brake light/Taillight		21/5	←
Turn signal light		21	←
Speedometer light		0.84 × 2	←
Tachometer light		0.84 × 2	←
Turn signal indicator lig	ht	3.4 × 2	←
High beam indicator lig	ht	1.7	←
Neutral indicator light		3	←
Oil pressure indicator light		3.4	←
License light		5	←

BRAKE + WHEEL Unit: mm (in)

ITEM		LIMIT	
Rear brake pedal height			
Brake disc thickness	Front	4.5±0.2 (0.177±0.008)	4.0 (0.15)
	Rear	5.0±0.2 (0.197±0.008)	4.5 (0.18)
Brake disc runout		0.30 (0.012)	
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	
	Rear	12.700—12.743 (0.5000—0.5017)	
Master cylinder piston diam.	Front	13.957—13.984 (0.5353—0.5506)	
	Rear	12.657—12.684 (0.4983—0.4994)	
Brake caliper cylinder bore	Front	25.400 — 25.450 (1.0000 — 1.0020)	
	Rear	38.180-38.256 (1.5031-1.5061)	
Brake caliper piston diam.	Front	25.335—25.368 (0.9974—0.9987)	
	Rear	38.098-38.148 (1.5000-1.5019)	
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)

ITEM		STANDARD LIMIT
Wheel rim size	Front	J17 × MT3.00
	Rear	J17 × MT4.50
Tire size	Front	E-03,28,33 110/70-17 54H ——
	Fiont	The others 110/70 ZR17 (54W)
	Rear	E-03,28,33 150/70-17 69H
	Neai	The others 150/70 ZR17 (69W)
Tire tread depth	Front	1.6 (0.06)
	Rear	2.0 (0.08)

SUSPENSION

Unit: mm (in) LIMIT NOTE ITEM **STANDARD** 130 Front fork stroke (5.12)Front fork spring free length 281 (11.1)96 Front fork oil level E-03,28,33 (3.8)97 The others (3.8)Rear wheel travel 121 (4.8)0.3 Swingarm pivot shaft runout (0.01)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	225	2.25	33	225	2.25	33
REAR	250	2.50	36	250	2.50	36

FUEL + OIL

ITEM		NOTE	
Fuel type	Use only unl pump octane higher rated Gasoline con Butyl Ether) less than 50 cosolvents permissible.	E-03,33	
	Use only unl pump octane or higher rate	E-28	
	Gasoline use or higher. Ai mended.	The others	
Fuel tank capacity	Including reserve	19.0 L (5.0/4.2 US/Imp gal)	
	Only reserve	4.5 L (1.2/1.0 US/Imp gal)	
Engine oil type	SAE		
Engine oil capacity	Oil change	3 300 ml (3.5/2.9 US/Imp qt)	
	Oil and filter change	3 500 ml (3.7/3.1 US/lmp qt)	
	Engine overhaul	4 600 ml (4.9/4.0 US/Imp qt)	
Front fork oil type			
Front fork oil capacity (each leg)	(17	E-03,28,33	
	(17	The others	
Brake fluid type		•	

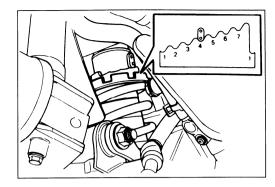
REAR SUSPENSION (Except for P-37)

SUSPENSION SETTING

SPRING PRE-LOAD ADJUSTMENT

The set position "1" provides the softest spring pre-load. The set position "7" provides the stiffest spring pre-load.

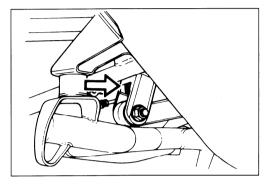
(STD position: "3") ... For E-03, 28, 33 (STD position: "4") ... For the others



DAMPING FORCE ADJUSTMENT

The set position "1" provides the smallest damping force. The set position "4" provides the greatest damping force.

(STD position: ''1'') ... For E-03, 28, 33 (STD position: ''2'') ... For the others



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