SUZUKI

RF900R

SERVICE MANUAL

All Out Racing Performance Motorcycle Parts 440-985-3853
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SUZUKI MOTOR CORPORATION PRINTED IN JAPAN JANUARY, '94
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FOREWORD

This manual contains an introductory description on SUZUKI RF900R 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 guide 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.

IMPORTANT

All street-legal Suzuki motorcycles with engine displacement of 50cc or greater are subject to Environmental Protection agency emission regulations. These regulations set specific standards for exhaust emission output levels as well as particular servicing requirements. This manual includes specific information required to properly inspect and service RF900R in accordance with all EPA regulations. It is strongly recommended that the chapter on Emission Control, Periodic Servicing and Carburetion be thoroughly reviewed before any type of service work is performed.

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

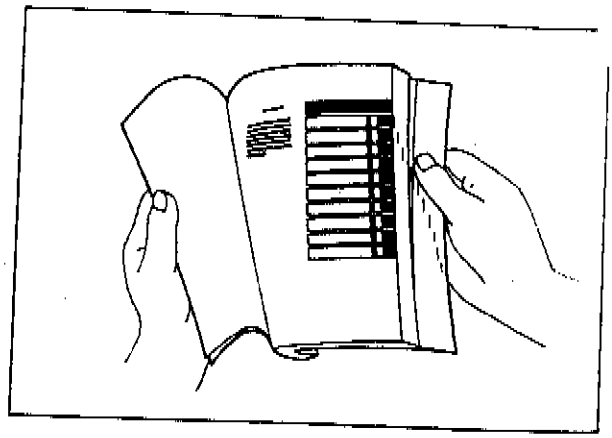
GROUP INDEX

SUZUKI MOTOR CORPORATION
Motorcycle Service Department

HOW TO USE THIS MANUAL

TO LOCATE WHAT YOU ARE LOOKING FOR:

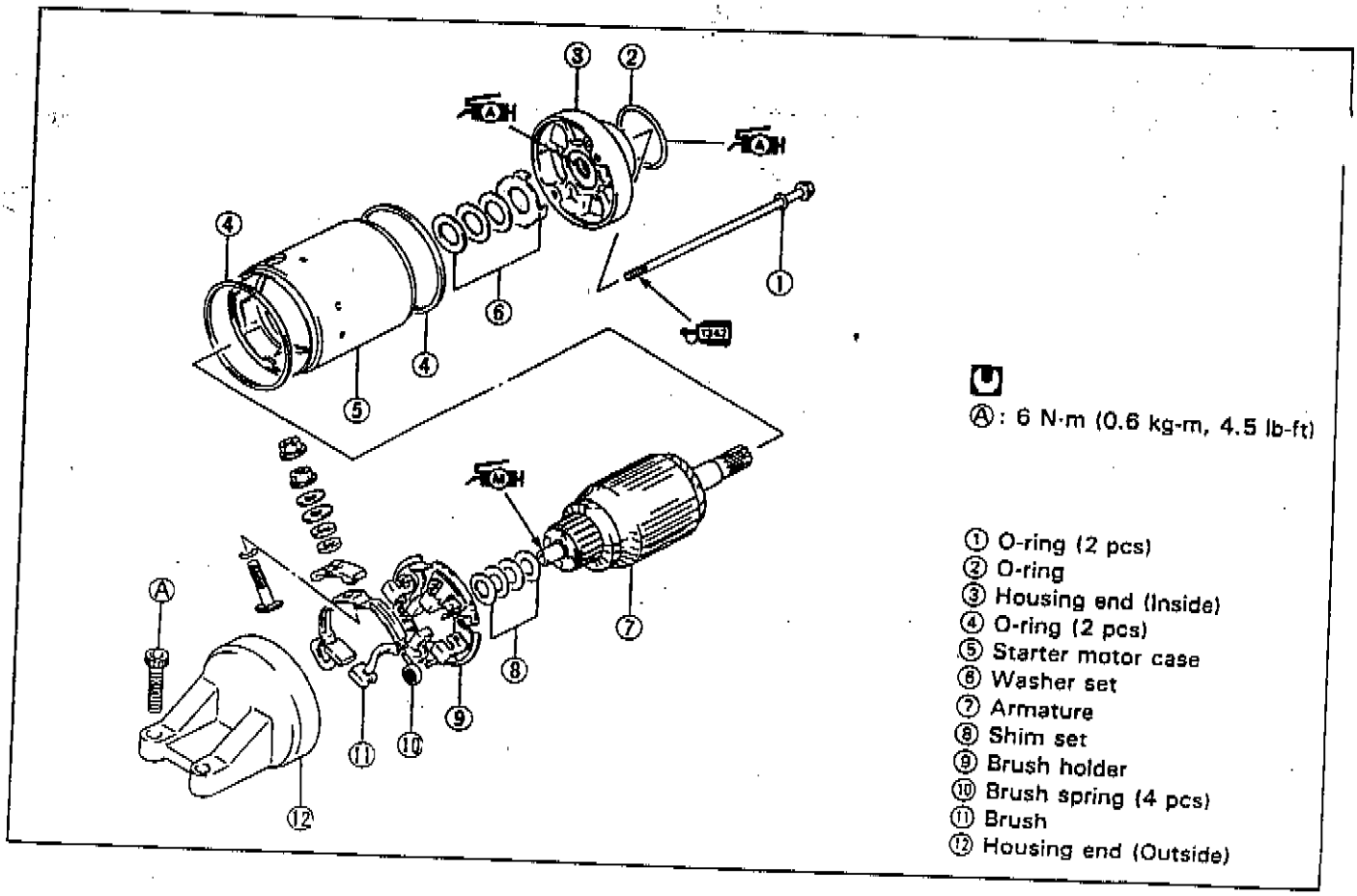
1. The text of this manual is divided into sections.
2. As the title of these sections are listed on the previous page as GROUP INDEX, select the section where what you are looking for belong.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. 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: Starter motor



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.		Apply THREAD LOCK SUPER "1303".
	Apply oil. Use engine oil unless otherwise specified.		Apply or use brake fluid.
	Apply SUZUKI SUPER GREASE "A".		Measure in voltage range.
	Apply SUZUKI SILICONE GREASE.		Measure in resistance range.
	Apply SUZUKI MOLY PASTE.		Measure in current range.
	Apply SUZUKI BOND "1207B".		Use special tool.
	Apply THREAD LOCK "1342".		Use engine coolant.
	Apply THREAD LOCK SUPER "1360".		Use fork oil.

GENERAL INFORMATION

1

CONTENTS

WARNING/CAUTION/NOTE

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

⚠ WARNING

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

⚠ CAUTION

Indicates a potential hazard that could result in 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

⚠ WARNING

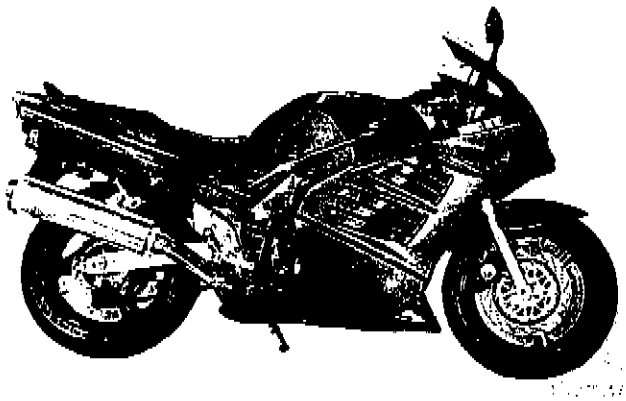
- **Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the vehicle.**
- **When 2 or more persons work together, pay attention to the safety of each other.**
- **When it is necessary to run the engine indoors, make sure that exhaust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

⚠ CAUTION

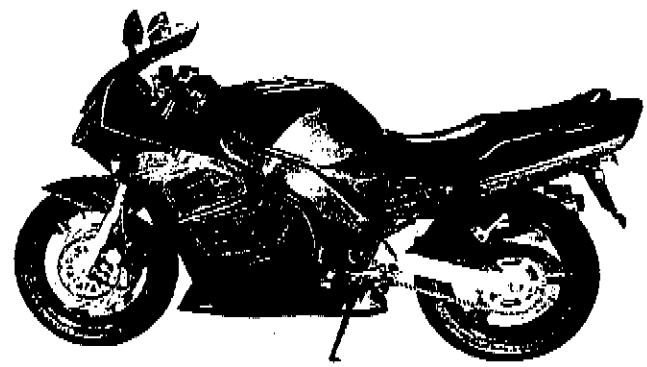
- If parts replacement is necessary, replace the parts with Suzuki Genuine Parts or their equivalent.
- When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order and orientation.
- Be sure to use special tools when instructed.
- Make sure that all parts used in reassembly are clean, 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, engine coolant and other fluids: batteries, and tires.
- To protect Earth's natural resouces, properly dispose of used vehicles and parts.

SUZUKI RF900RR ('94-MODEL)



RIGHT SIDE

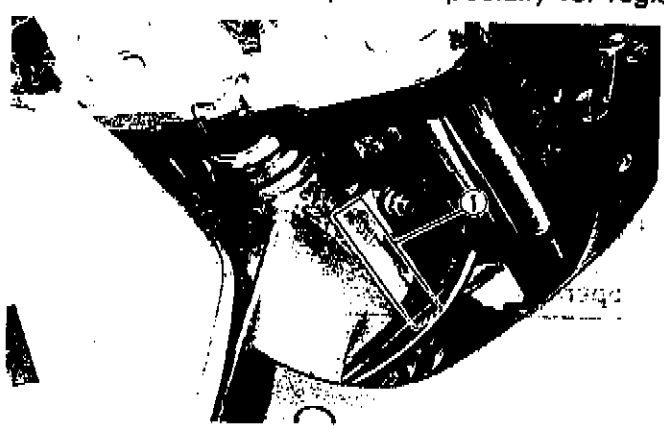


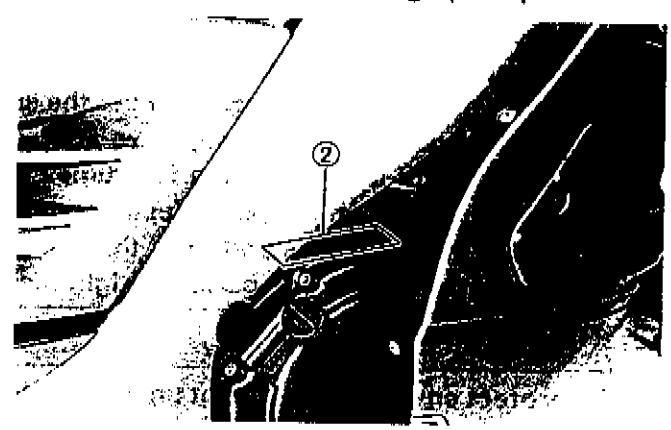
LEFT SIDE

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

SERIAL NUMBER LOCATION

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





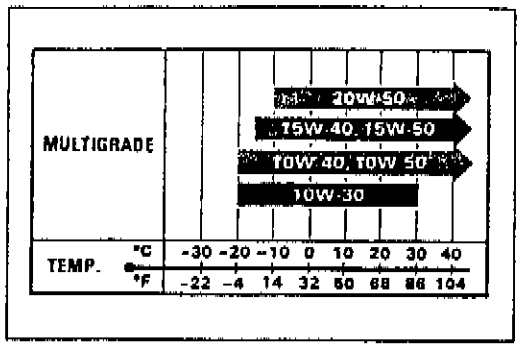
FUEL, OIL AND ENGINE COOLANT RECOMMENDATION

FUEL

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

ENGINE OIL

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.



BRAKE FLUID

Specification and classification: DOT4

⚠ 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

ENGINE COOLANT

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

WATER FOR MIXING

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

ANTI-FREEZE/ENGINE COOLANT

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

LIQUID AMOUNT OF WATER/ENGINE COOLANT

Solution capacity (total): 2450 ml (2.6/2.2 US/Imp qt)

For engine coolant mixture information, refer to cooling system section, page 5-4.

⚠ CAUTION

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

BREAK-IN PROCEDURES

During manufacture only the best possible materials are used and all machined parts are finish 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:

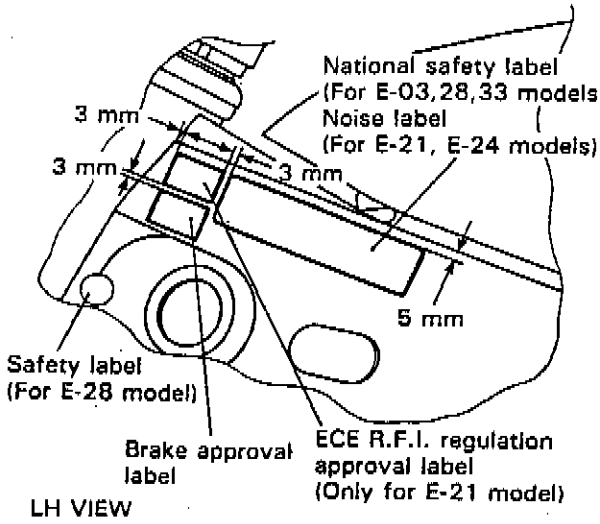
Initial 800 km (500 miles): Below 6000 r/min
Up to 1600 km (1000 miles): Below 9000 r/min
Over 1600 km (1000 miles): Below 12000 r/min

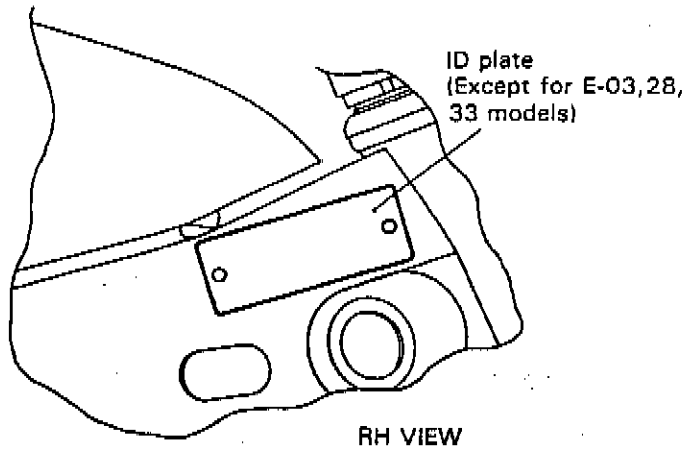
- Upon reaching an odometer reading of 1600 km (1000 miles) you can subject the motorcycle to full throttle operation. However, do not exceed 12000 r/min at any time.

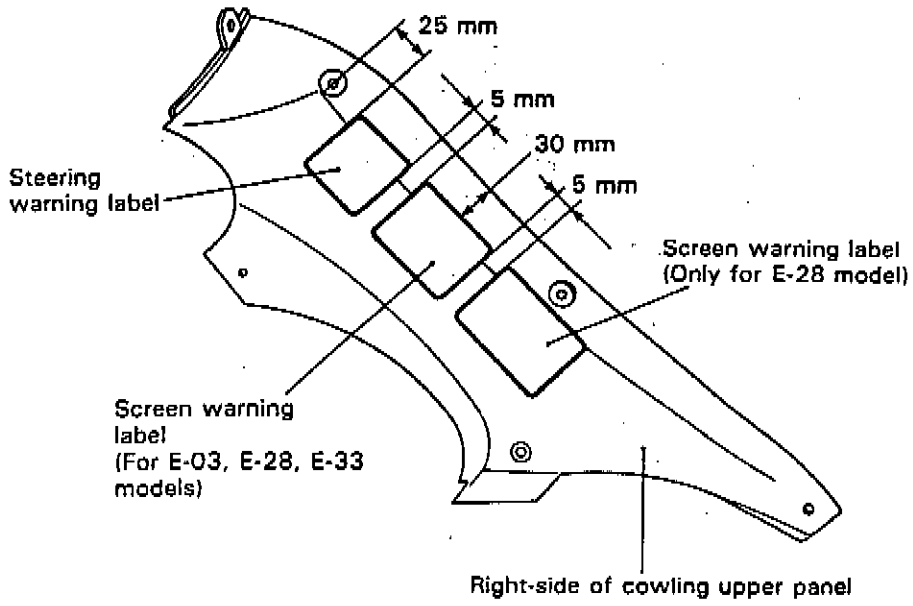
CYLINDER IDENTIFICATION

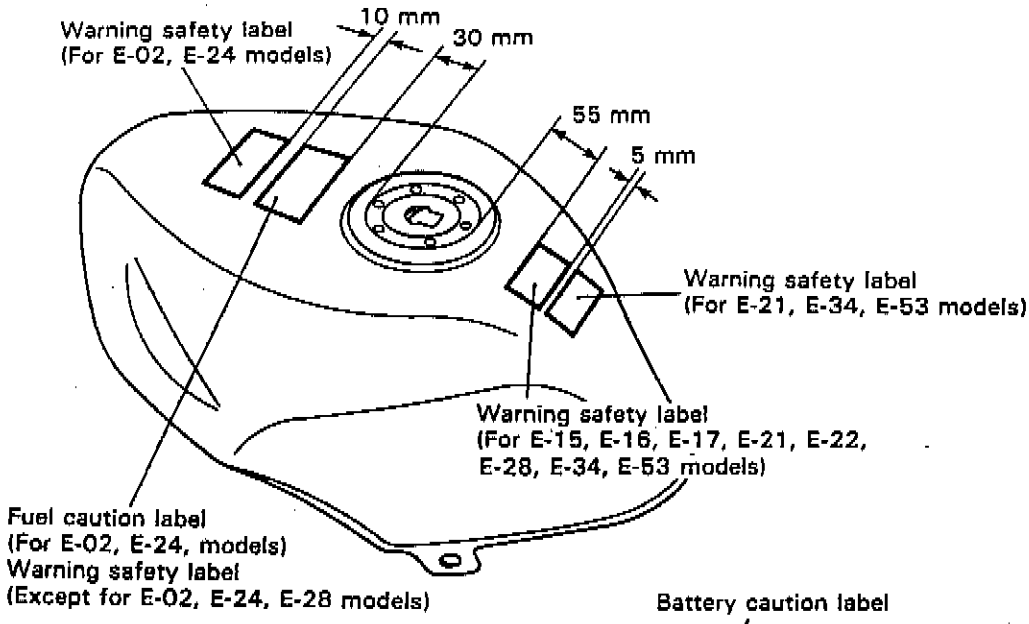
The four cylinders of this engine are identified as No.1, No.2, No.3 and No.4 cylinder, as counted from left to right (as viewed by the rider on the seat).

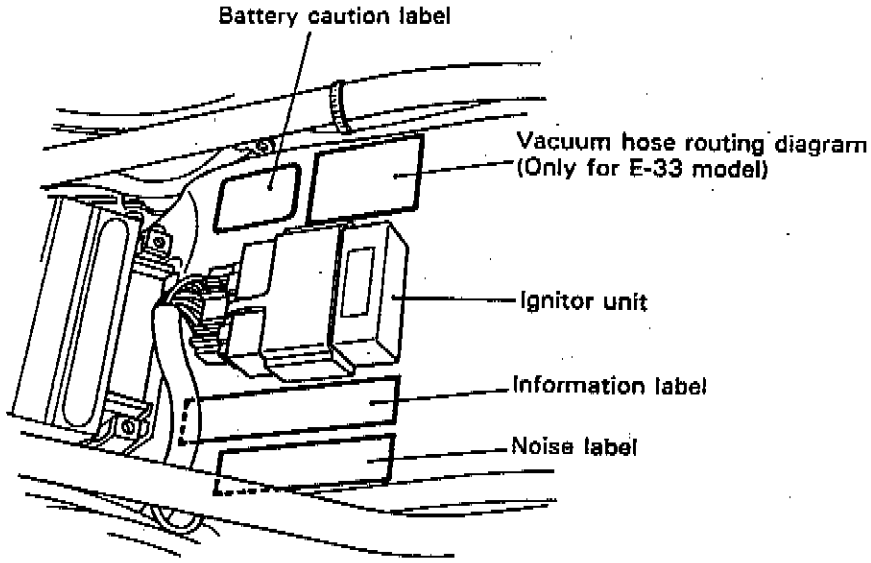
INFORMATION LABELS

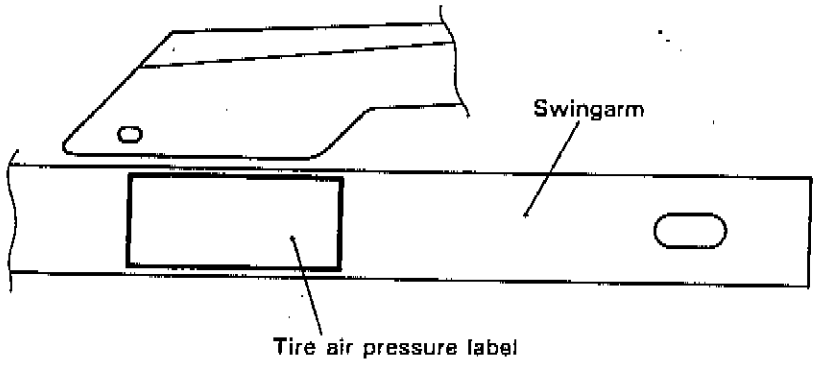







Warning safety label
(For E-02, E-24 models)
10 mm
30 mm
55 mm
5 mm
Warning safety label
(For E-21, E-34, E-53 models)
Warning safety label
(For E-15, E-16, E-17, E-21, E-22,
E-28, E-34, E-53 models)
Fuel caution label
(For E-02, E-24, models)
Warning safety label
(Except for E-02, E-24, E-28 models)


Battery caution label
Vacuum hose routing diagram
(Only for E-33 model)
Ignitor unit
Information label
Noise label


Swingarm
Tire air pressure label

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 130 mm (83.9 in)	For E-02,03,04,21,24, 25,28,33,34,53
	2 155 mm (84.8 in)	For E-15,16,17,18,22, 39
Overall width	730 mm (28.7 in)	
Overall height	1 165 mm (45.9 in)	
Wheelbase	1 440 mm (56.7 in)	
Ground clearance	115 mm (4.5 in)	
Dry mass	203 kg (447 lbs)	
	206 kg (454 lbs)	E-33 only

ENGINE

Type	Four-stroke, Water-cooled, DOHC, TSCC
Number of cylinders	4
Bore	73.0 mm (2.874 in)
Stroke	56.0 mm (2.205 in)
Piston displacement	937 cm^3 (57.2 cu. in)
Carburetor	MIKUNI BDST36
Air cleaner	Non-woven fabric element
Starter system	Electric starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	1.565 (72/46)
Final reduction ratio	2.866 (43/15)
Gear ratios, Low	2.714 (38/14)
2nd	1.809 (38/21)
3rd	1.409 (31/22)
4th	1.181 (26/22)
Top	1.038 (27/26)
Drive chain	TAKASAGO RK532GSV2, 110 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped, spring pre-load fully adjustable.
Rear suspension	Link type system, oil damped, coil spring, spring pre-load 7-way adjustable, rebound damping force 4-way adjustable and compression damping force fully adjustable.
Steering angle	30° (right & left)
Caster	65° 30'
Trail	102 mm (4.02 in)
Turning radius	3.2 m (10.5 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	120/70 ZR17, tubeless
Rear tire size	170/60 ZR17, tubeless
Front fork stroke	120 mm (4.7 in)
Rear wheel travel	130 mm (5.1 in)

ELECTRICAL

Ignition type	Electronic Ignition (Fully Transistorized)
Ignition timing	4° B.T.D.C. at 1500 r/min ... For E-03,18,33,39 7° B.T.D.C. at 1500 r/min ... For the others
Spark plug	N.G.K.: CR9E, NIPPONDENSO U27ESR-N
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
Turn signal light	12V 21W
Parking or city light	12V 4W ..... Except for E-03,24,28,33
Taillight	12V 5W
Brake light	12V 21W x 2
License plate light	12V 5W
Speedometer light	12V 1.7W x 2
Tachometer light	12V 1.7W x 2
Engine coolant temp. meter light	12V 1.7W
Neutral indicator light	12V 3.4W
High beam indicator light	12V 3.4W
Turn signal indicator light	12V 3.4W
Oil pressure indicator light	12V 3.4W
Fuel level indicator light	12V 3.4W

CAPACITIES

Fuel tank, including reserve	21.0 L (5.5/4.6 US/Imp gal)
Engine oil, oil change	3 000 ml (3.2/2.6 US/Imp qt)
with filter change	3 300 ml (3.5/2.9 US/Imp qt)
overhaul	3 900 ml (4.1/3.4 US/Imp qt)
Front fork oil	459 ml (15.5/16.2 US/Imp oz) ... For E-03,33 466 ml (15.8/16.4 US/Imp oz) ... For the others
Engine coolant	2 450 ml (2.6/2.2 US/Imp qt)

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-03	U.S.A. (except California)
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-33	California (U.S.A.)
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.)

PERIODIC MAINTENANCE

2

CONTENTS

PERIODIC MAINTENANCE SCHEDULE

IMPORTANT: The periodic maintenance intervals and service requirements have been established in accordance with EPA regulations. Following these instructions will ensure that the motorcycl will not exceed emission standards and it will also ensure the reliability and performance of the motorcycle.

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 however, it is not necessary for ensuring emission level compliance.

PERIODIC MAINTENANCE CHART

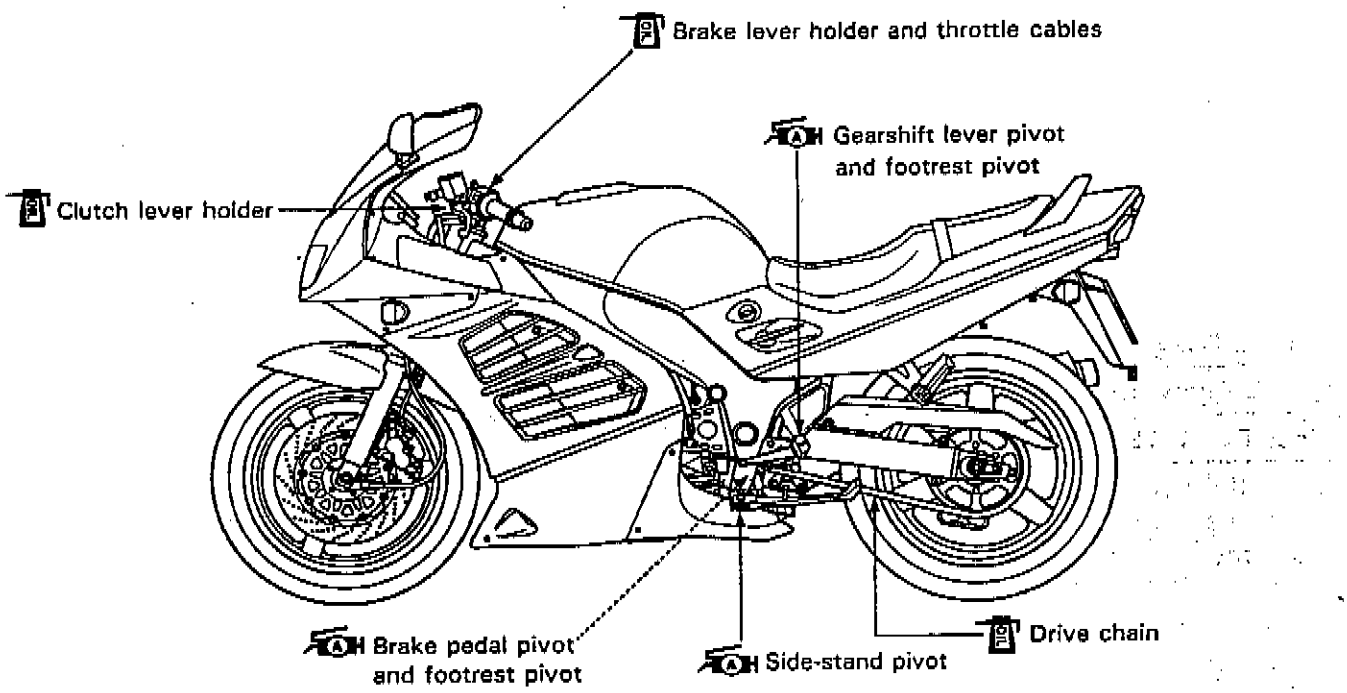
Item \ Interval	km	1000	6000	12000	18000	24000
	miles	600	4000	7500	11000	15000
	months	2	12	24	36	48
Exhaust pipe bolts		—	T	T	T	T
Air cleaner		—	I	I	R	I
Tappet clearance		—	—	I	—	I
Spark plug		—	I	R	I	R
Engine oil		R	R	R	R	R
Engine oil filter		R	—	R	—	R
Fuel line (EVAP hose . . . . . California model only)		—	I	I	I	I
		Replace every 4 years				
Fuel filter		—	—	C	—	C
Engine idle rpm (Carburetor)		I	I	I	I	I
Throttle cable play (Carburetor)		I	I	I	I	I
Clutch hose		—	I	I	I	I
		Replace every 4 years				
Clutch fluid		—	—	I	—	I
		Replace every 2 years				
Drive chain		I	I	I	I	I
		Lubricate every 1000 km (600 miles)				
Radiator hose		—	I	I	I	I
		Replace every 4 years				
Engine coolant		Replace every 2 years				
Brake		I	I	I	I	I
Brake hose		—	I	I	I	I
		Replace every 4 years				
Brake fluid		—	I	I	I	I
		Replace every 2 years				
Tire		—	I	I	I	I
Steering		I	—	I	—	I
Front fork		—	—	I	—	I
Rear suspension		—	—	I	—	I
Chassis bolts and nuts		T	T	T	T	T

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

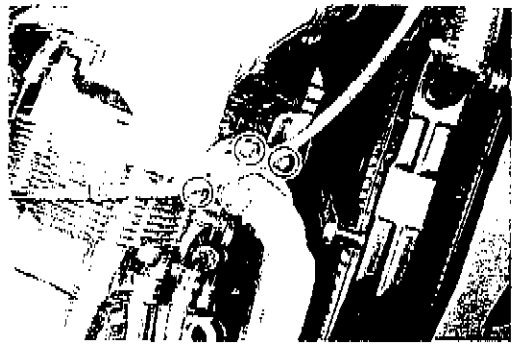
This section describes the servicing procedures for each item of the Periodic Maintenance requirements.

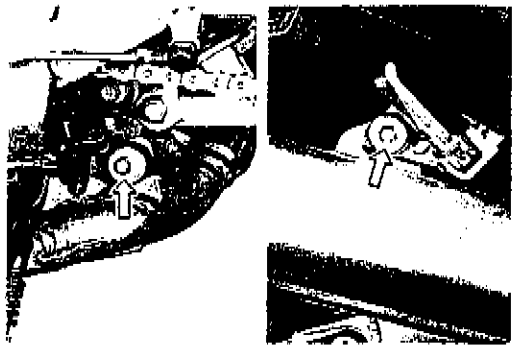
EXHAUST PIPE BOLTS

Tighten Every 6000 km (4000 miles, 12 months).

- Remove the lower cowling assembly. (Refer to pages 6-2 and 3.)
- Remove the radiator mounting bolts. (Refer to page 3-4.)
- Tighten the exhaust pipe clamp bolts and muffler mounting bolts to the specified torque with a torque wrench.

Exhaust pipe clamp bolt & Muffler mounting bolt: 23 N·m (2.3 kg-m, 16.5 lb-ft)

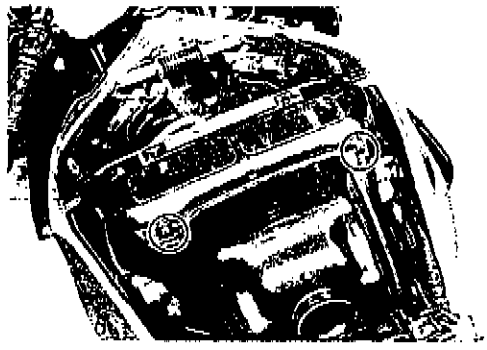




AIR CLEANER

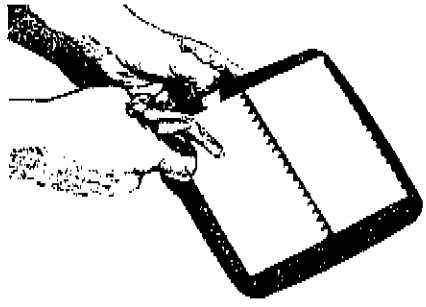
Inspect Every 6000 km (4000 miles, 12 months) and Replace Every 18000 km (11000 miles, 36 months).

- Remove the seat, frame cover assembly and fuel tank. (Refer to pages 6-4, 6-5 and 4-5.)
- Remove the air cleaner element by removing the screws.
- Carefully use air hose to blow the dust from the cleaner element.



⚠ CAUTION

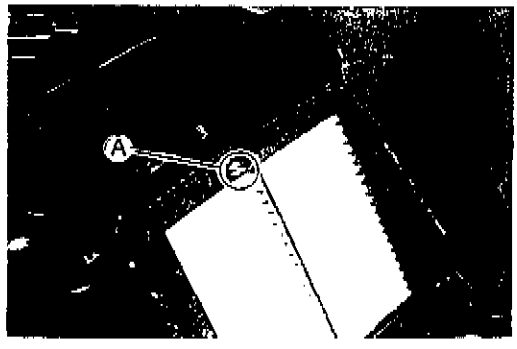
Always use air pressure on the inside of the air cleaner element. If air pressure is used on the outside, dirt will be forced into the pores of the air cleaner element thus restricting air flow through the air cleaner element.



- 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 ⏏ mark Ⓐ comes upward.

⚠ 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.

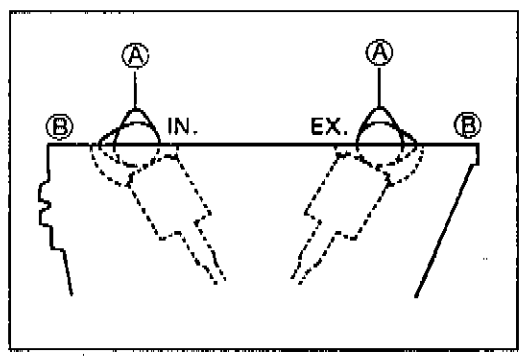
TAPPET CLEARANCE

Inspect Every 12000 km (7500 miles, 24 months).

- Remove the seat, frame cover assembly, lower cowling assembly and fuel tank. (Refer to pages 6-2, 6-3, 6-4, 6-5 and 4-5.)
- Remove the air cleaner box and carburetors. (Refer to pages 3-2 and 3.)
- Remove all the spark plugs.
- Remove the cylinder head cover. (Refer to page 3-10.)

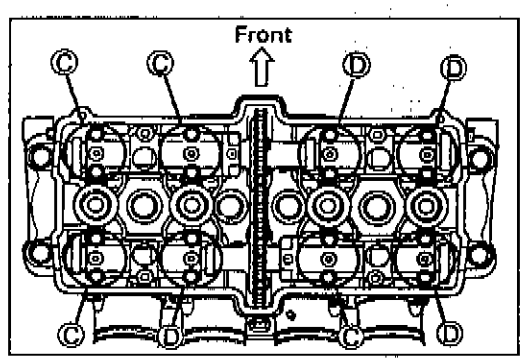
The tappet clearance specification is different for intake and exhaust valves.
Tappet clearance adjustment must be checked and adjusted, 1) at the time of periodic inspection, 2) when the valve mechanism is serviced, and 3) when the camshafts are disturbed by removing them for servicing.

Tappet clearance (when cold):
IN. : 0.10—0.20 mm (0.004—0.008 in)
EX.: 0.20—0.30 mm (0.008—0.012 in)



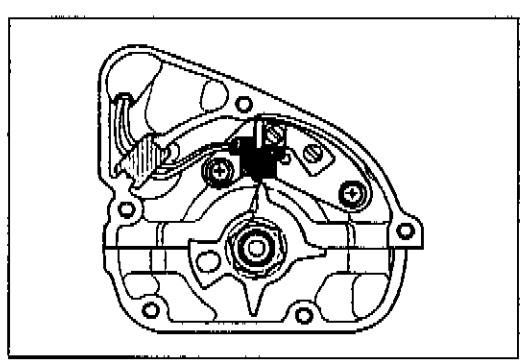
NOTE:

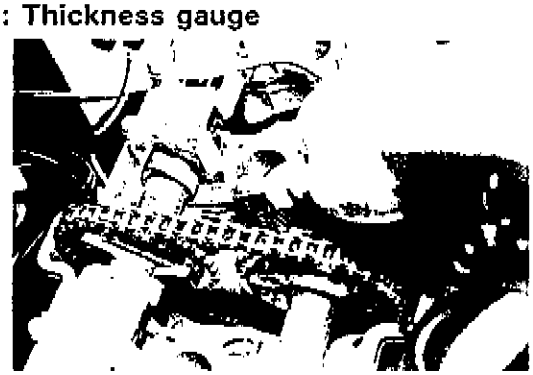
* *The cam must be at positions, Ⓐ or Ⓑ, in order to check the tappet clearance, or to adjust tappet clearance. Clearance readings should not be taken with the cam in any other position than these two positions.*
* *The clearance specification is for COLD state.*
* *To turn the crankshaft for clearance checking, be sure to use a 19-mm wrench, and rotate in the normal running direction. All spark plugs should be removed.*

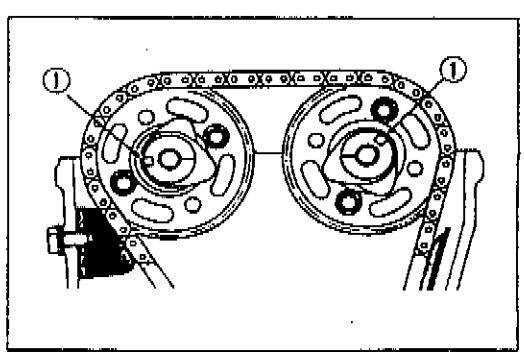


- Turn crankshaft to bring the "T" mark on the rotor to the center of pick-up coil and also to bring the notches ① in the right ends of both camshafts (Ex and In) to the positions shown. In this condition, read the tappet clearance at the valves Ⓒ (In and Ex of No.1 cylinder, Ex of No.2 and In of No.3).
- Use a thickness gauge between the tappet and the cam. If the clearance is out of specification, bring it into the specified range.

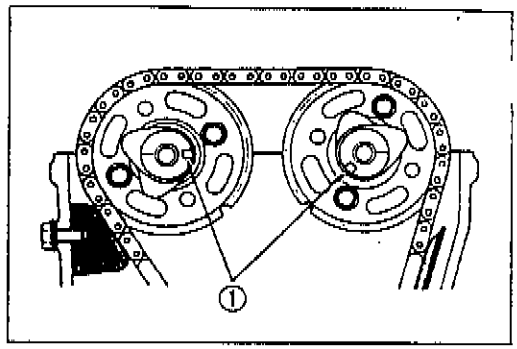
TOOL **09900-20803: Thickness gauge**







- 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.
- Read the clearance at the remaining valves Ⓓ and adjust the clearance if necessary.



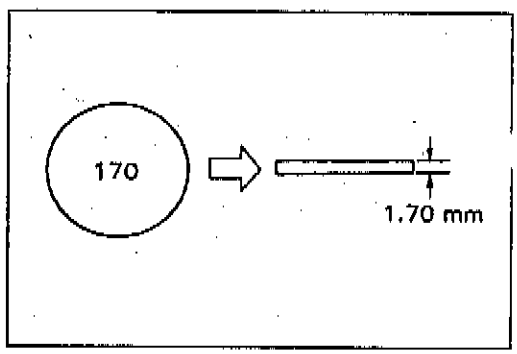
Cam Position	Notch ① position	
	Intake Camshaft	Exhaust Camshaft
Ⓒ	⊖	⊖
Ⓓ	⊖	⊖

TAPPET CLEARANCE ADJUSTMENT

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

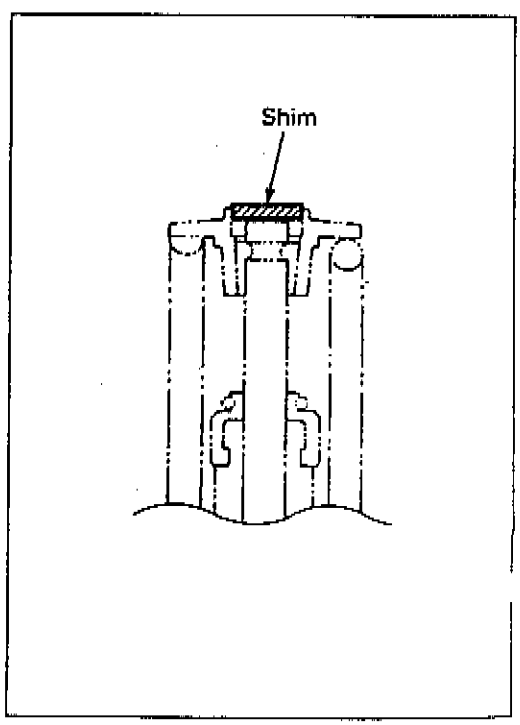
- Remove the intake or exhaust camshafts. (Refer to page 3-11.)
- Remove the tappet and shim by fingers or magnetic hand. (Refer to page 3-22.)

- Check the figures printed on the shim. These figures indicate the thickness of the shim, as illustrated.
- Select a replacement shim that will provide a clearance within the specified range. For the purpose of this adjustment, a total of 21 sizes of tappet shim are available ranging from 1.20 to 2.20 mm in steps of 0.05 mm. Fit the selected shim to the valve stem end, with numbers toward tappet. Be sure to check shim size with micrometer to ensure its size.
  Refer to the tappet shim selection table for details.



NOTE:

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



- After replacing the tappet shim and camshafts, rotate the engine so that the tappet is depressed fully. This will squeeze out oil trapped between the shim and the tappet that could cause an incorrect measurement, then check the clearance again to confirm that it is within the specified range.
- When installing the cylinder head cover, apply SUZUKI BOND NO.1207B to the head cover groove and cam end caps. (Refer to page 3-66.)
- Tighten the head cover bolts to the specified torque. (Refer to page 3-67.)

TAPPET SHIM SELECTION TABLE [INTAKE]

TAPPET SHIM NO.(12892-05C00-× × ×)

TAPPET SHIM SET NO. (12800-05820)

(INTAKE SIDE)

MEASURED TAPPET CLEARANCE (mm) \ SUFFIX NO. / PRESENT SHIM SIZE (mm)	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20
0.00–0.04			1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10
0.05–0.09		1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15
0.10–0.20	SPECIFIED CLEARANCE/NO ADJUSTMENT REQUIRED																				
0.21–0.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20	2.20	
0.26–0.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20			
0.31–0.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20				
0.36–0.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20					
0.41–0.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20						
0.46–0.50	1.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20							
0.51–0.55	1.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20								
0.56–0.60	1.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20									
0.61–0.65	1.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20										
0.66–0.70	1.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20											
0.71–0.75	1.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20												
0.76–0.80	1.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20													
0.81–0.85	1.90	1.95	2.00	2.05	2.10	2.15	2.20														
0.86–0.90	1.95	2.00	2.05	2.10	2.15	2.20															
0.91–0.95	2.00	2.05	2.10	2.15	2.20																
0.96–1.00	2.05	2.10	2.15	2.20																	
1.01–1.05	2.10	2.15	2.20																		
1.06–1.10	2.15	2.20																			
1.11–1.15	2.20																				

HOW TO USE THIS CHART:

I. Measure tappet clearance. "ENGINE IS COLD"

II. Measure present shim size.

III. Match clearance in vertical column with present shim size in horizontal column.

EXAMPLE

Tappet clearance is 0.23 mm

Present shim size 1.70 mm

Shim size to be used 1.80 mm

TAPPET SHIM SELECTION TABLE (EXHAUST)

TAPPET SHIM NO.(12892-05C00-x x x)

TAPPET SHIM SET NO. (12800-05820)

(EXHAUST SIDE)

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

HOW TO USE THIS CHART:

I. Measure tappet clearance. "ENGINE IS COLD"

II. Measure present shim size.

III. Match clearance in vertical column with present shim size in horizontal column.

EXAMPLE

Tappet clearance is 0.33 mm

Present shim size 1.70 mm

Shim size to be used 1.80 mm

SPARK PLUG

Inspect at 6000 km (4000 miles, 12 months), 18000 km (11000 miles, 36 months) and Replace Every 12000 km (7500 miles, 24 months).

- Remove the seat, frame cover assembly and fuel tank. (Refer to pages 6-4, 6-5 and 4-5.)
- Remove all the spark plugs.

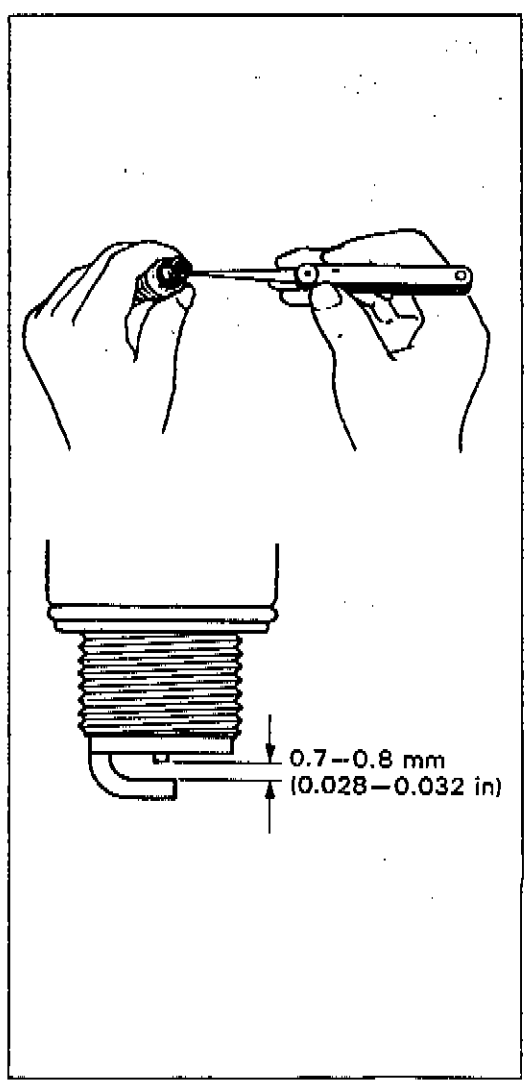
NOTE:
If it is difficult to remove the spark plug cap, pry up it with a screwdriver.

TOOL 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	CR9E	CR10E	CR8E
ND	U27ESR-N	U31ESR-N	U24ESR-N

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.

	Standard
Spark plug gap	0.7–0.8 mm (0.028–0.032 in)

TOOL 09900-20803: Thickness gauge

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.

⚠ 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 1000 km (600 miles, 2 months) and Every 6000 km (4000 miles, 12 months) thereafter.

(OIL FILTER)
Replace Initially at 1000 km (600 miles, 2 months) and Every 12000 km (7500 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. (Do not lose the washer and spring washer fitted on the oil cooler union bolt.) See page 3-69.
- 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 oil filter wrench. (Special tool Ⓐ)

TOOL 09915-40610: Oil filter wrench

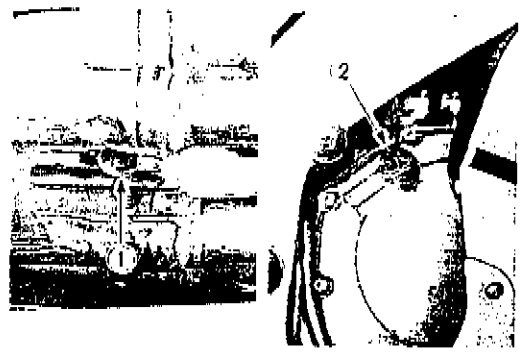
NOTE:
To properly tighten the filter, use the special tool. Never tighten the filter by hand.

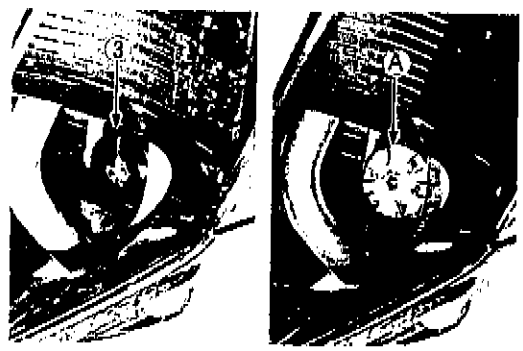
- Fit the drain plug ① securely, and pour fresh oil through the oil filler. The engine will hold about 3.3 L (3.5 US qt) of oil. Use an API classification of SE or SF oil with SAE 10W/40 viscosity.
- Start up the engine and allow it to run for several seconds at idling speed.
- Turn off the engine and 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.

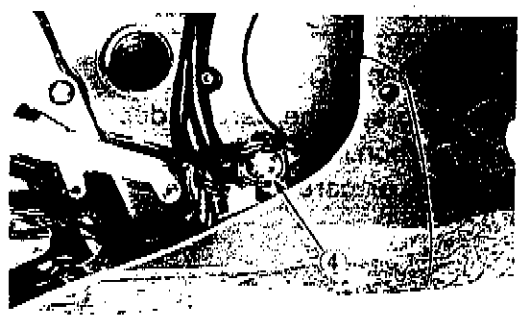
NECESSARY AMOUNT OF ENGINE OIL
Oil change: 3.0 L (3.2/2.6 US/Imp qt)
Filter change: 3.3 L (3.5/2.9 US/Imp qt)
Overhaul engine: 3.9 L (4.1/3.4 US/Imp qt)

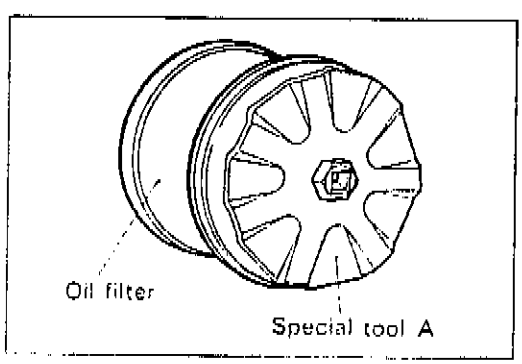
⚠ CAUTION

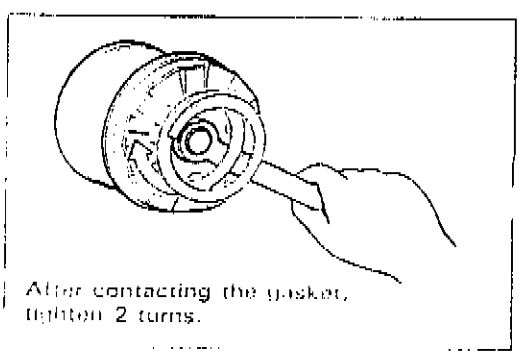
Use SUZUKI MOTORCYCLE GENUINE OIL FILTER only, since the other make's genuine filters and after-market parts may differ in thread specifications (thread diameter and pitch), filtering performance and durability, which could cause engine damage or oil leaks. Suzuki automobile genuine oil filter is also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











FUEL LINE (EVAP HOSE ... California model only)

Inspect Every 6000 km (4000 miles, 12 months).
Replace Every 4 years.

FUEL FILTER

Clean Every 12000 km (7500 miles, 24 months).

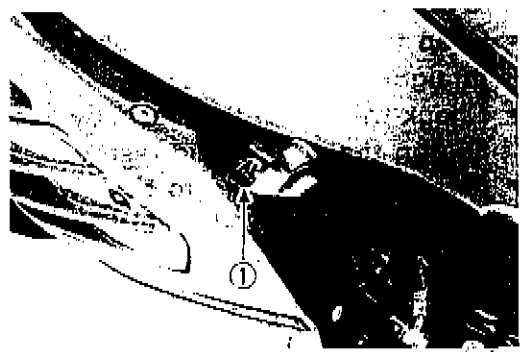
(Refer to page 4-5.)

CARBURETOR

IDLE RPM (Idling adjustment)

Inspect Initially at 1000 km (600 miles, 2 months) and Every 6000 km (4000 miles, 12 months) thereafter.

NOTE:
Make this adjustment when the engine is hot.



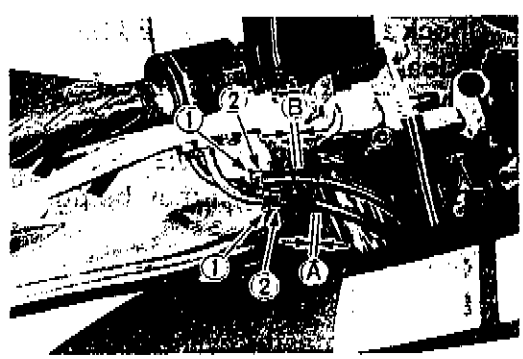
- Connect a tachometer.
- Start up the engine and set its speed at anywhere between 1100 and 1300 r/min by turning throttle stop screw ① .

Engine idle speed:
1200 ± 100 r/min ..... U.S.A.
1200 ± 50 r/min ..... California (U.S.A.)

THROTTLE CABLE PLAY

Pulling cable play Ⓐ

There should be 0.5 — 1.0 mm (0.02 — 0.04 in) play Ⓐ in the throttle cable. 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.

Returning cable play Ⓑ

- Adjust the returning cable to the specified play in the same manner as the pulling cable play adjustment.

Throttle cable play (Ⓐ and Ⓑ): 0.5 — 1.0 mm (0.02 — 0.04 in)

⚠ WARNING

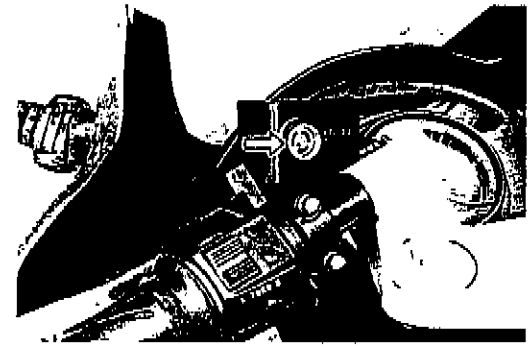
After the adjustment is completed, check that handlebar movement does not raise the engine idle speed and that the throttle grip returns smoothly and automatically.

CLUTCH

(CLUTCH FLUID)
Inspect Every 12000 km (7500 miles, 24 months).
Replace fluid Every 2 years.

(CLUTCH HOSE)
Inspect Every 6000 km (4000 miles, 12 months).
Replace hose Every 4 years.

CLUTCH FLUID LEVEL



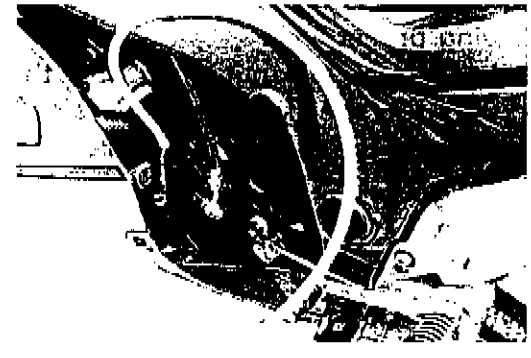
- Keep the motorcycle upright and place the handlebars straight.
- Check the clutch fluid level by observing the lower limit line on the clutch fluid reservoir.
- If the level is found to be lower than the lower mark, replenish with BRAKE FLUID that the following specification.

Specification and classification: DOT4

⚠ WARNING

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

BLEEDING AIR FROM THE CLUTCH FLUID CIRCUIT



The clutch fluid circuit may be purged of air in the following manner.

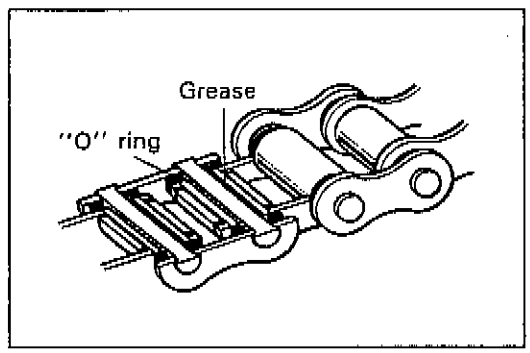
- Keep the motorcycle upright and place the handlebars straight.
- Fill up the master cylinder reservoir to the upper end of the inspection window. Replace the reservoir cap to prevent entry of dirt.
- Attach a pipe to the bleeder valve and insert the free end of the pipe into a receptacle.
- Squeeze and release the clutch 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 fluid runs into the receptacle; this will remove the tension of the clutch 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.
- Close the bleeder valve, and disconnect the pipe. Fill the reservoir with brake fluid to the upper end of the inspection window.

DRIVE CHAIN

Inspect Initially at 1000 km (600 miles, 2 months) and Every 6000 km (4000 miles, 12 months) thereafter. Lubricate Every 1000 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
* Damaged rollers
* Dry or rusted links
* Kinked or binding links
* Excessive wear
* Improper chain adjustment
* Missing O-ring seals

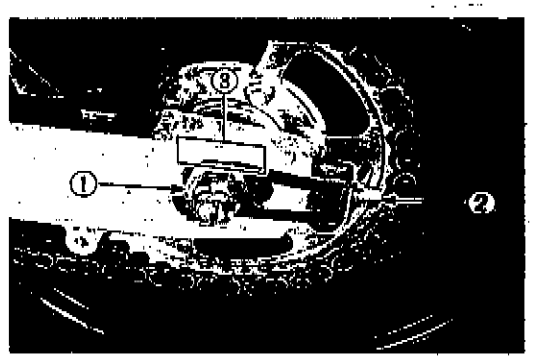


If any defects are found, the drive chain must be replaced.

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

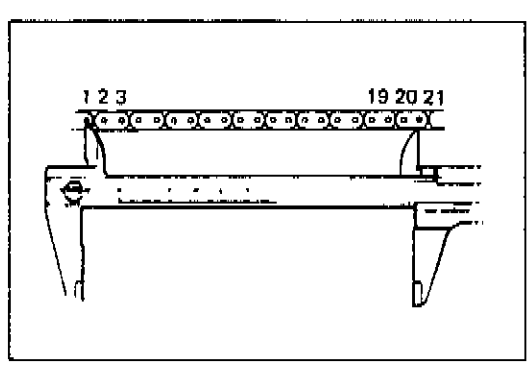
CHECKING

- Remove the axle cotter pin. (For E-03, 28 and 33 models)
- Loosen the axle nut ①.
- Tense the drive chain fully by turning both chain adjusters ②.



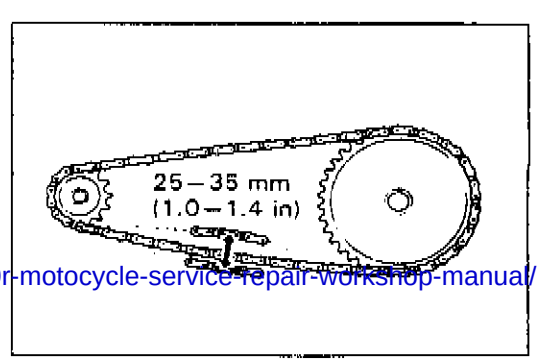
- Count out 21 pins (20 pitches) on the chain and measure the distance between the two points. If the distance exceeds the service limit, the chain must be replaced.

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



ADJUSTING

- Loosen or tighten both chain adjusters 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 securely.
- Tighten both chain adjusters ② securely.



Rear axle nut: 100 N·m (10 kg-m, 72.5 lb-ft)