SUZUKI

TS185ER

SERVICE MANUAL

99500-21106-01E

FOREWORD

This manual has been prepared to provide service operators with necessary information for the maintenance and the repairs of the motorcycle. The contents are made plain so that less-experienced mechanics may carry out the proper jobs according to the items of assembly and disassembly instructions.

For fully qualified mechanics, the necessary service data for the inspections and repairs is provided in this manual. Since it is above all important on servicing a motorcycle to know thoroughly its construction and the necessary data, it is highly recommended for those who are engaged in servicing TS185ER to study beforehand this manual not withstanding their technical ability.

We trust the publication of this manual would be of assistance in the service activity as well as in the study of model TS185ER.

Data, photo, etc. contained in this service manual are valid as of the time of issue and subject to alteration without notice due to the improvement of quality and other reasons.

SUZUKI MOTOR CORPORATION
Motorcycle Service Department

NOTE :

There may be some differences among models depending on specifications. If the service data differ, it is noted there by using the following symbols.
The series of symbols on the left stand for the countries and areas on the right.

E-01 ..... General	E-22 ..... Germany
E-02 ..... England	E-24 ..... Australia
E-04 ..... France	E-26 ..... Denmark
E-06 ..... S. Africa	E-28 ..... Canada
E-09 ..... Central & South America	E-30 ..... Singapore
E-21 ..... Belgium	

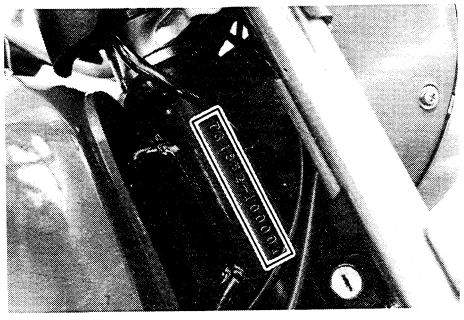
* Denmark version motorcycle (E-26) is not equipped turn signal lights.

GROUP INDEX

GENERAL INFORMATION

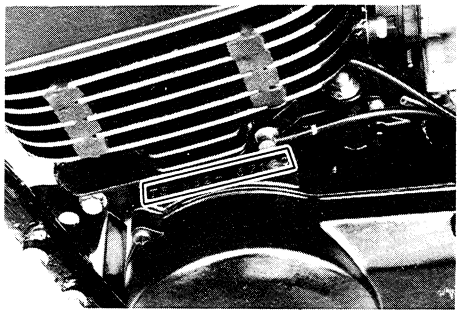
CONTENTS

SERIAL NUMBER LOCATIONS



FRAME NUMBER

The frame (or VIN) serial number is stamped on the right side of the steering head pipe.



ENGINE NUMBER

The engine serial number is located on the left side crankcase.

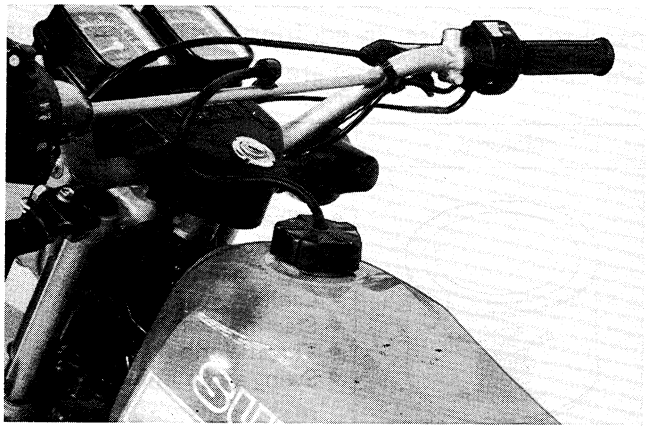
These numbers are required especially for registering the machine and ordering spare parts.

FUEL AND OIL RECOMMENDATIONS

Be sure to use the specified fuel and oils. The following are the specifications:

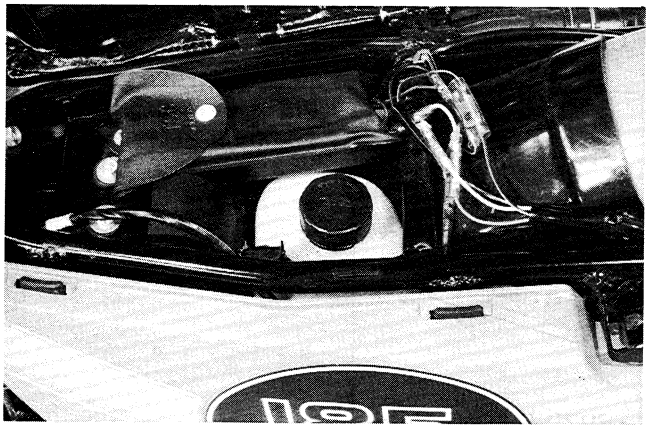
FUEL

Gasoline used should be graded 85 to 95 octane in Research Method, and should be unleaded or low-lead where they are available.



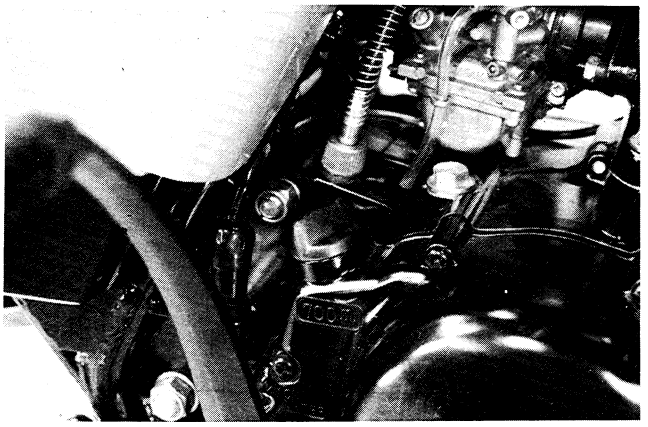
ENGINE OIL

For the SUZUKI CCI system, use of SUZUKI CCI or CCI SUPER OIL is highly recommended, but if they are not available, a good quality two-stroke oil (non diluent type) should be used.



TRANSMISSION OIL

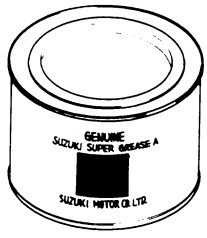
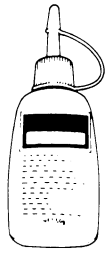
Use a good quality SAE 20W/40 multi-grade motor oil.



SPECIAL MATERIALS

MATERIALS REQUIRED FOR MAINTENANCE

The materials shown are required for maintenance works on the Model TS185ER, and should be kept on hand for ready use. In addition, such standard materials as cleaning fluids, lubricants, etc., should also be available. Methods of use are discussed in the test of this manual on later pages.

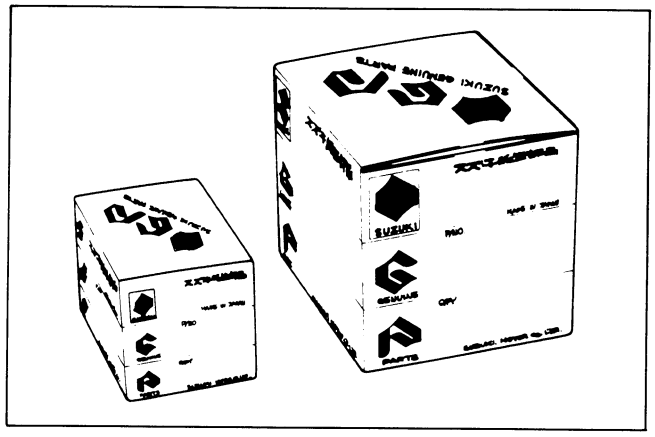
Material	Use
 SUZUKI SUPER GREASE "A" 99000-25010	• Oil seals • Wheel bearings • Speedometer gear • Brake cam shaft • Cables • Steering stem bearings • Throttle grip • Swing arm bushings
 SUZUKI BOND No. 4 99000-31030	• Crankcase mating surface • Front fork damper rod bolt
 THREAD LOCK SUPER "1303B" 99000-32030	• 2 nd drive gear
 THREAD LOCK "1342" 99000-32050	• Rotor nut • Bearing retainer screws • Cam stopper bolt • Cam guide screws • Kick starter stopper screw

Material	Use
 THREAD LOCK CEMENT 99000-32040	• Reed valve securing screws • Front fork damper rod bolt

REPLACEMENT PARTS

When you replace any parts, use only genuine SUZUKI replacement parts, or their equivalent. Genuine SUZUKI parts are high quality parts which are designed and built specifically for SUZUKI vehicles.

CAUTION:
Use of replacement parts which are not equivalent in quality to genuine SUZUKI parts can lead to performance problems and damage.



SERVICING GUIDANCE

To ensure that the SUZUKI motorcycle is kept in tip-top running order, regular inspection and servicing are necessary. The work involved will be carried out more effectively and quickly if the guidance items listed below are followed.

- Keep away from open fires when servicing the machine.
- Before starting servicing work, thoroughly clean dust and mud off the machine to avoid getting the disassembled parts dirty.
- Use new gaskets, "O" rings, cotter pins, circlips, etc. in place of the old ones when reassembling.
- The initial tightening order of bolts and nuts is from large to small, from inside to outside diagonally, finally tightening them to the specified torque in the same order. On the other hand, when loosening bolts and nuts, loosen them gradually in the reverse order. Do not loosen one bolt or nut completely on its own.
- When replacing a part or lubricating greasing parts, use high quality or specified products.
- The appropriate special tool must be used when indicated.
- To prevent damage to or loss of a disassembled part, careful attention must be paid to the handling and storing method. Before reassembling, clean each part and apply oil or grease to the part when indicated.
- Take care when handling battery electrolyte and brake fluid, as these liquids are harmful to skin, paint, chrome and clothing.
- When working with one or more persons, work safely and as a team.
- A basic concept for service personnel is to learn the construction and function of all parts and grasp the essential maintenance points.

Warning, caution and note are included in this manual occasionally, describing the following contents.

WARNING ..... The parsonal safety of the rider may be involved. Disregarding this information could result in injury to the rider.

CAUTION ..... These instructions point out special service procedures or precautions that must be followed to avoid damaging the machine.

NOTE ..... This provides special information to make maintenance easier or important instructions clearer.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 160 mm (85.0 in)
Overall width	835 mm (32.9 in)
Overall height	1 125 mm (44.3 in)
Wheelbase	1 375 mm (54.1 in)
Ground clearance	255 mm (10.0 in)
Dry mass	102 kg (225 lbs)

ENGINE

Type	Two-stroke, air-cooled
Intake system	Piston and reed valve
Number of cylinder	1
Bore	64.0 mm (2.520 in)
Stroke	57.0 mm (2.244 in)
Piston displacement	183 cm^3 (11.2 cu. in)
Corrected compression ratio	6.2 : 1
Carburetor	MIKUNI VM29SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	SUZUKI "CCI"

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	3.210 (61/19)
Final reduction	3.250 (39/12)
Gear ratios, Low	2.750 (33/12)
2nd	1.812 (29/16)
3rd	1.250 (25/20)
4th	1.000 (23/23)
Top	0.800 (20/25)
Drive chain	DAIDO D.I.D.520K or TAKASAGO RK520, 96 links

CHASSIS

Front suspension	Telescopic, oil dampened
Rear suspension	Swing arm, oil dampened, spring 5-way adjustable
Steering angle	40° (right & left)
Caster	59° 00′
Trail	141 mm (5.55 in)
Turning radius	2.4 m (7.9 ft)
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	2.75-21 4PR 3.00-21 4PR (for Bangladesh)
Rear tire size	4.10-18 4PR

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	21.5° B.T.D.C. at 6 000 r/min
Spark plug	NGK BP7ES or NIPPON DENSO W22EP NGK BPR7ES or NIPPON DENSO W22EPR – Only for S. Africa (E-06)
Battery	6V 14.4 kC (4 Ah)/10 HR
Generator	Flywheel magneto
Fuse	15A

CAPACITIES

Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)
reserve	1.5 L (1.6/1.3 US/Imp qt)
Engine oil tank	1.2 L (1.3/1.1 US/Imp qt)
Front fork oil	166 ml (5.61/5.84 US/Imp oz)
Transmission oil	700 ml (0.74/0.62 US/Imp pt)

PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

CONTENTS

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. Traveling distances are expressed in terms of kilometers and miles.

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

PERIODIC MAINTENANCE CHART

ENGINE

Item \ Interval	Intial 1 000 km (600 miles)	Every 3 000 km (2 000 miles)	Every 6 000 km (4 000 miles)	Every 12 000 km (8 000 miles)
Battery	Inspect	Inspect	–	–
Engine bolts and nuts	Inspect	Inspect	–	–
Cylinder head, cylinder and muffler	–	–	Remove carbon	–
Air cleaner	–	Clean	–	–
Spark plug	Inspect	Inspect	Replace	–
Ignition timing	Inspect	Inspect	–	–
Carburetor	Inspect	Inspect	–	Overhaul
Oil pump	Inspect	Inspect	–	–
Fuel lines	Replace every 4 years			
Fuel strainer	Clean	–	Clean	–
Clutch	Inspect	Inspect	–	–
Transmission oil	Change	–	Change	–

CHASSIS

Item \ Interval	Initial 1 000 km (600 miles)	Every 3 000 km (2 000 miles)	Every 12 000 km (8 000 miles)
Drive chain	Inspect and clean every 1 000 km (600 miles)		
Brakes	Inspect	Inspect	–
Tires	Inspect	Inspect	–
Steering	Inspect	Inspect	–
Front fork oil	Change	–	Change
Bolt and nuts	Inspect	Inspect	–

LUBRICATION CHART

The maintenance schedule, which follows, is based on odometer indication and is calculated to achieve the ultimate goal of motorcycle maintenance in the most economical manner.

Interval / Item	Initial and every 6 000 km (4 000 miles)	Every 12 000 km (8 000 miles)
Throttle cable	Motor oil	–
Throttle grip	–	Grease
Clutch cable	Motor oil	–
Brake cable	Motor oil	–
Speedometer cable	–	Grease
Speedometer gear box	–	Grease
Tachometer cable	–	Grease
Drive chain	Motor oil every 1 000 km (600 miles)	
Brake pedal	Grease or oil	–
Brake cam shaft	–	Grease
Steering stem bearings	Grease every 2 years or 20 000 km (12 000 miles)	
Swing arm bearings		

NOTE:

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

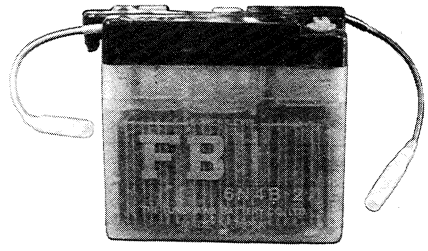
MAINTENANCE AND TUNE-UP PROCEDURES

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

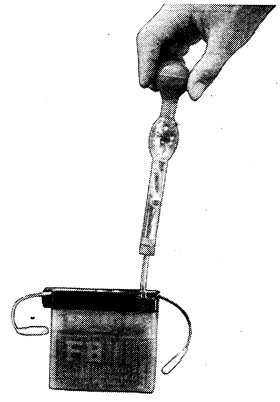
BATTERY

Inspect Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

Battery specifications	
Type	6N4B-2A
Voltage	6V
Capacity	14.4 kC (4 Ah)
Electrolyte specific gravity	1.26 at 20°C (68°F)



Remove the right frame cover and battery holder plate to check the battery. Check electrolyte for level and specific gravity. Add distilled water, as necessary, to keep the surface of the electrolyte above the LOWER level line but not above the UPPER level line. For checking specific gravity, use a hydrometer to determine the charge condition.

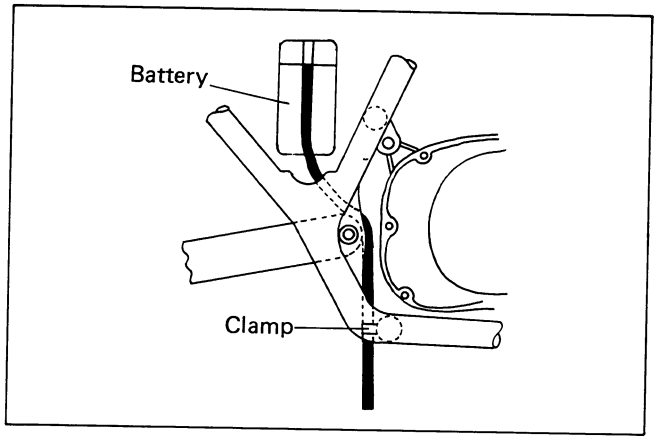


09900 - 28403	Hydrometer

Standard specific gravity	1.26 at 20°C

An S.G. reading of 1.20 (at 20°C) or under means that the battery needs recharging. Remove the battery from the machine and charge it with a battery charger.

CAUTION:
Never charge a battery while still in the machine as damage may result to the battery or regulator.

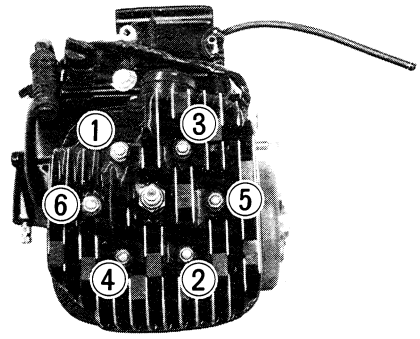


Check that the vent pipe is tightly secured and undamaged, and is routed as shown.

ENGINE BOLTS AND NUTS

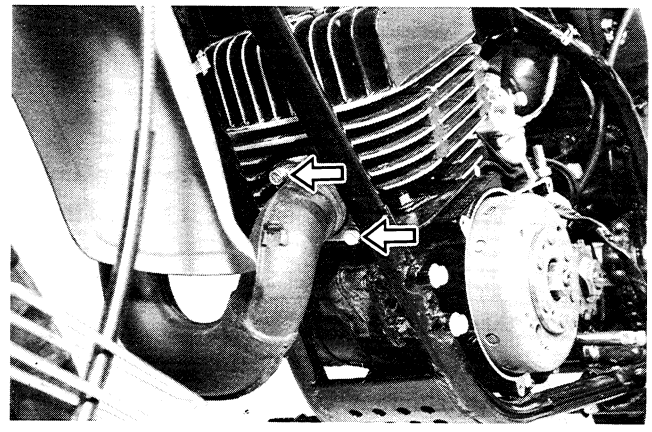
Inspect Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

Retighten cylinder head nuts and exhaust pipe clamp bolts as specified torque according to the following tightening order.



Tightening torque:

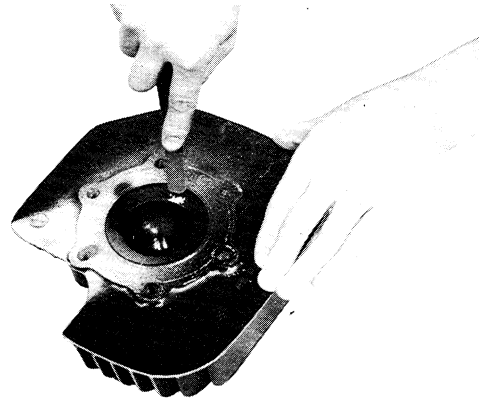
	N·m	kg-m
Cylinder head nut	13 – 23	1.3 – 2.3
Exhaust pipe clamp bolt	4 – 7	0.4 – 0.7



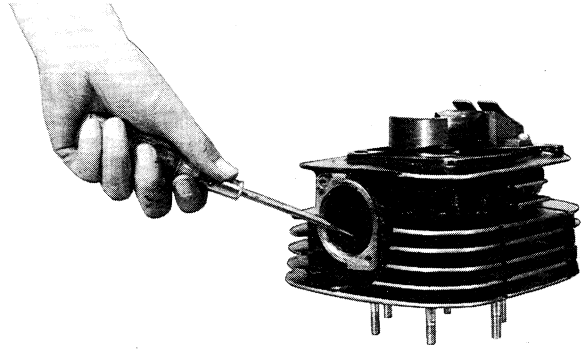
CYLINDER HEAD, CYLINDER AND MUFFLER

Remove carbon every 6 000 km (4 000 mi)

Carbon deposits in the combustion chamber of the cylinder head and at the piston crown will raise the compression ratio and may cause pre-ignition or overheating. Carbon deposited at the exhaust port of the cylinder will prevent the flow of exhaust, reducing the output. Remove carbon deposits periodically.



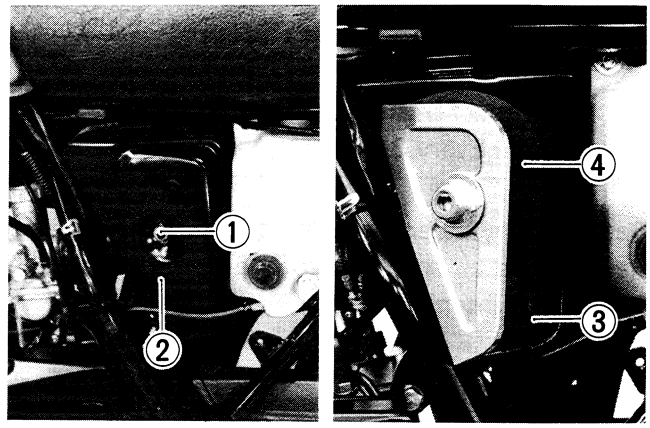
CAUTION:
Be careful not to damage the surface of the combustion chamber and exhaust port when removing carbon.



AIR CLEANER

Clean Every 3 000 km (2 000 mi)

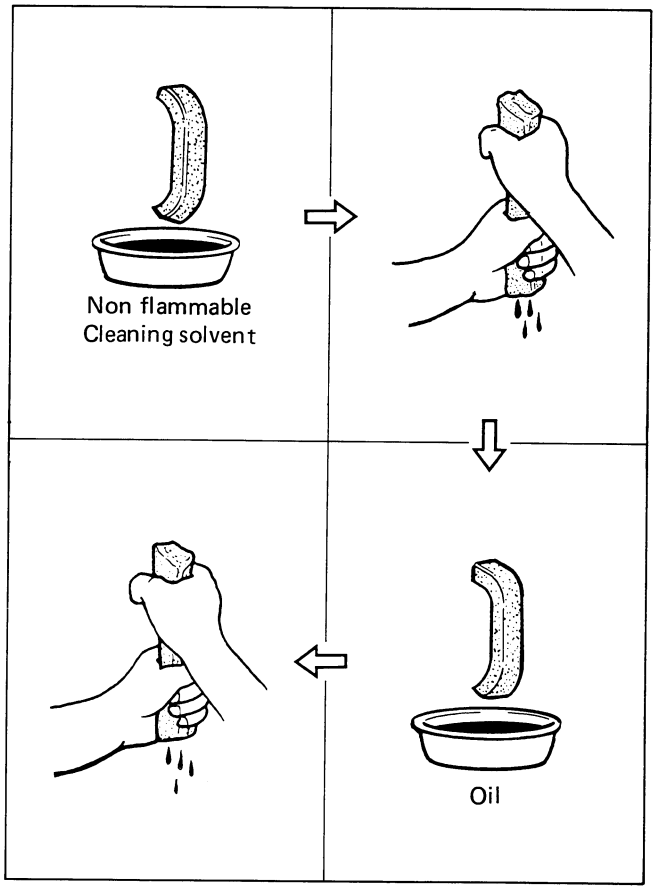
Remove left frame cover.
Remove securing nut ① and take off cleaner case cover ② .
Unhook the steel band ③ and take off cleaner element ④.



Wash the element with non-flammable cleaning solvent. After wringing the solvent out of the element, soak it into the two stroke engine lubricant.

Wring out all excess lubricant to make the element slightly wet with lubricant, and fit it snugly to the case.

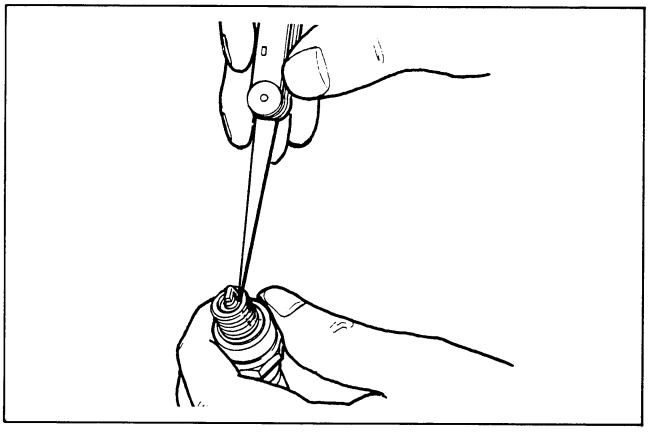
CAUTION:
Before and during the cleaning operation, inspect the element to see if it is torn or worn. A torn or worn element must be replaced.



SPARK PLUG

Inspect Initial 1 000 km (600 mi)
and Every 3 000 km (2 000 mi)
Replace Every 6 000 km (4 000 mi)

Neglecting the spark plug eventually leads to difficult starting and poor performance. If the spark plug is used for a long period, the electrode gradually burns away and carbon builds up along the inside part. In accordance with the Periodic Inspection Chart, the spark plug should be inspected or replaced.



Carbon deposits on the spark plug will prevent good sparking and cause misfiring. Clean the deposits off periodically.
If the center electrode is fairly worn down, the plug should be replaced, if scheduled and the plug gap set to the proper gap.

09900 - 20804	Thickness gauge

Spark plug gap	0.6 – 0.8 mm (0.024 – 0.031 in)

Check spark plug for burnt condition. If abnormal, replace the plug as indicated below.

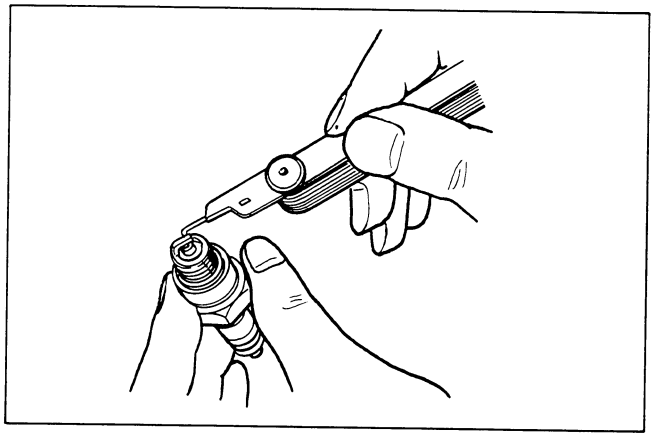
General and the Others

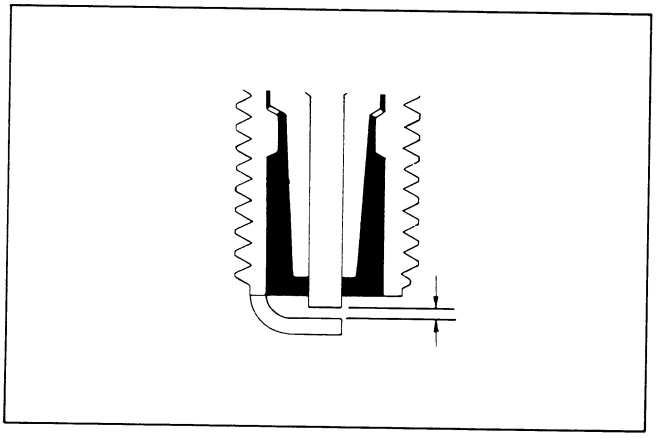
NGK	NIPPON DENSO	REMARKS
BP6ES	W20EP	If the standard plug is apt to wet foul, replace with this plug.
BP7ES	W22EP	Standard
BP8ES	W24EP	If the standard plug is apt to over-heat, replace with this plug.

Only for S. Africa (E-06)

NGK	NIPPON DENSO	REMARKS
BPR6ES	W20EPR	If the standard plug is apt to wet foul, replace with this plug.
BPR7ES	W22EPR	Standard
BPR8ES	W24EPR	If the standard plug is apt to over-heat, replace with this plug.

Tighten the spark plug in the cylinder head with the specified torque.



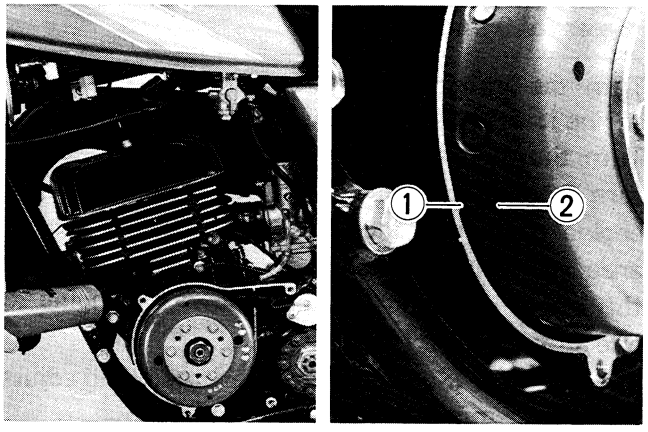


Spark plug tightening torque	25 – 30 N·m (2.5 – 3.0 kg-m)

IGNITION TIMING

Inspect Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

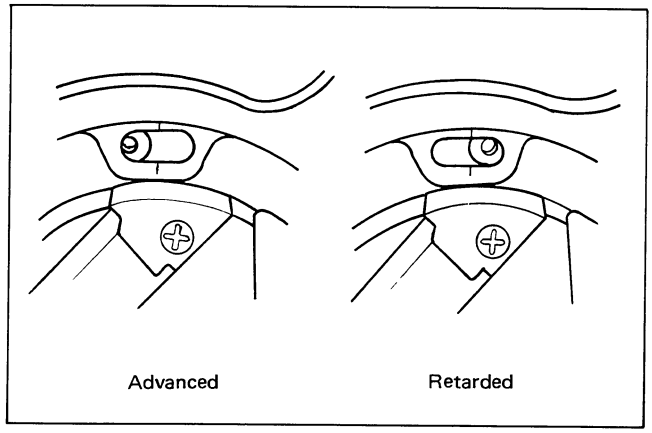
Remove magneto cover and clip the timing light cord to the high-tention cord.
Start the engine and aim the light from the timing light at the aligning mark ① on the crankcase.
Raise the engine speed to 6 000 r/min.
At this time, the ignition timing is proper if the aligning mark ① is aligned to the line ② on the magneto rotor when the timing light flashes.



09900 - 27311	Timing light

If the ignition timing is not correct, adjust the ignition timing according to the procedure below.

Remove rotor by using special tools.
Loosen the stator fitting screws.
Align the index line ① on the stator to the center of the screw.



CARBURETOR

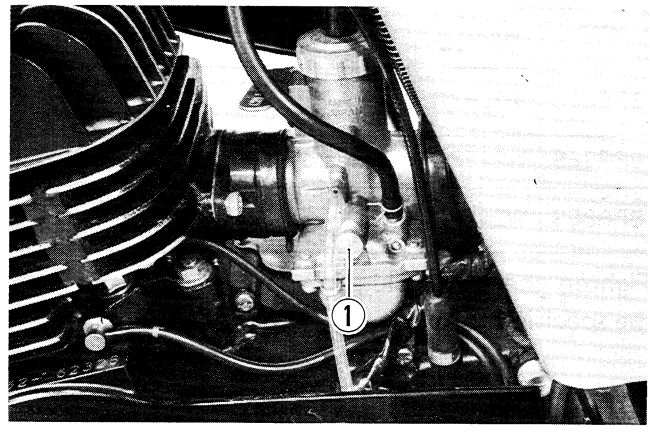
Inspect Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

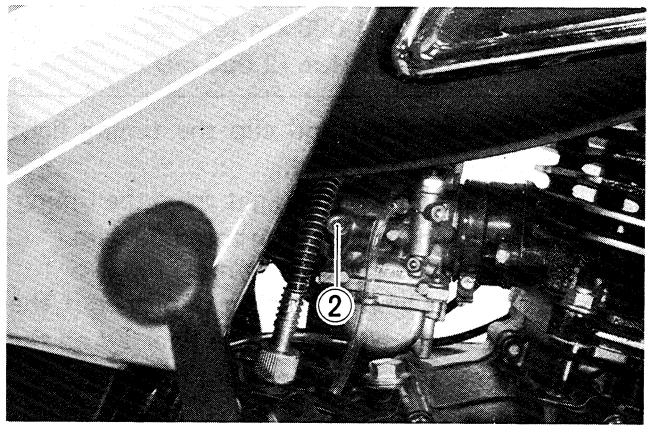
Idle rpm adjustment:
Start the engine and allow it to warm up.

> NOTE:
> **A warm engine means an engine which has been run averaging 30 mph (50 km/h) in top gear for 9 minutes.**

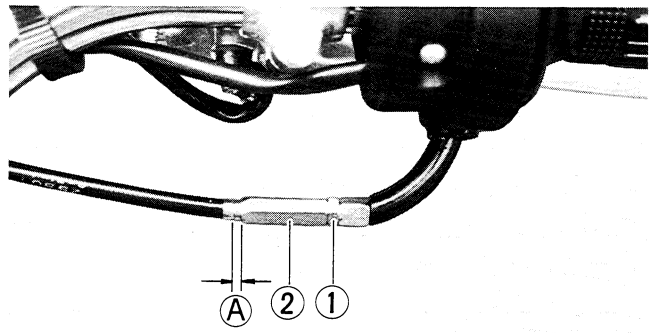
Turn the throttle valve stop screw ① so that engine idles at 1 300 r/min.
Turn the pilot air screw ② in or out around 1/4 turn from the original setting (1¼ turn out). The engine r/min will increase or decrease in accordance with the turning of the pilot air screw. Set this screw in a position that allows the engine to idle at the highest r/min.
Turn the throttle valve stop screw again and adjust the idling r/min at 1 150 – 1 450 r/min.

Idle r/min	1 300 ± 150 r/min





Throttle cable adjustment:
Loosen the lock nut ①.
Adjust the cable slack to 0.5 – 1.0 mm (0.02 – 0.04 in) Ⓐ by turning adjuster ②. After adjusting the slack, tighten the lock nut ①.

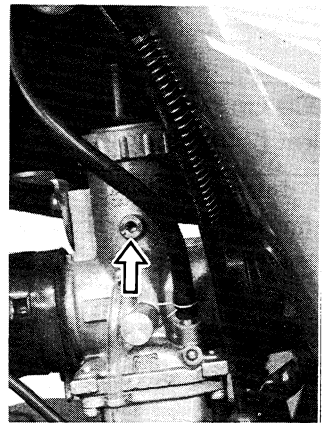


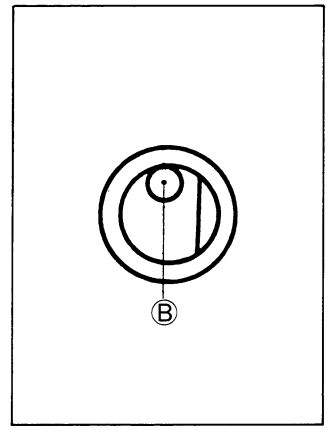
CAUTION:
This adjustment could affect the oil pump lever adjustment. Therefore, readjust the oil pump lever cable as necessary.

OIL PUMP

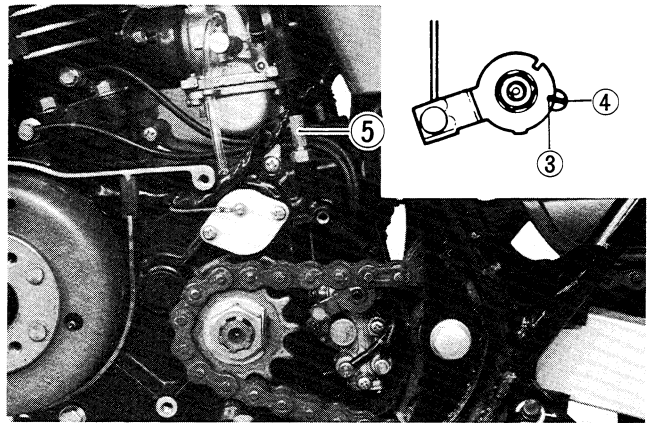
Inspect Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

Turn the throttle grip until the dent mark Ⓑ on the throttle valve comes to the upper part of the hole.





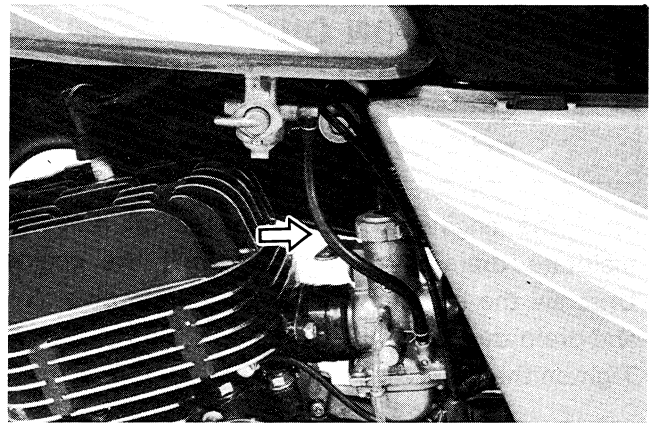
Check whether the mark ③ on the oil pump control lever is aligned with the index mark ④ when the throttle valve is positioned as above.
If the marks are not aligned, adjust by means of the cable adjuster ⑤ to align them.



CAUTION:
This adjustment could affect the throttle cable play, so readjust the throttle cable play if necessary.

FUEL LINES

Replace every two years

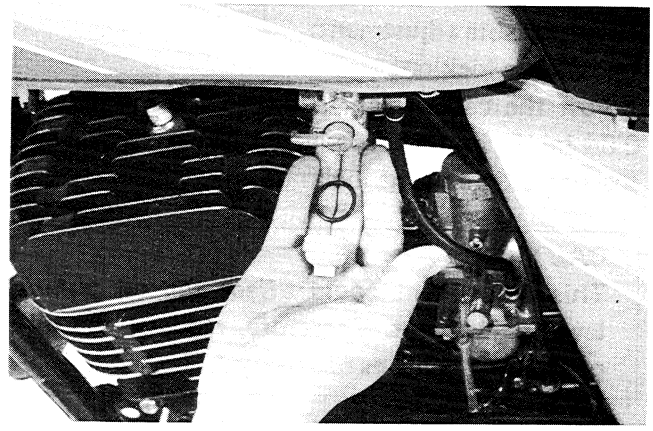


FUEL STRAINER CUP

Clean every 10 000 km (6 000 mi)

Turn the fuelcock to OFF position.
Remove the fuel strainer cup and clean with non-flammable cleaning solvent.

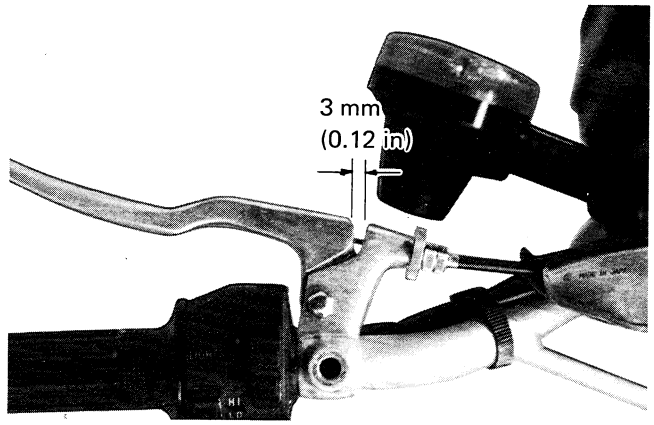
NOTE:
Do not overtighten the fuel strainer cap.

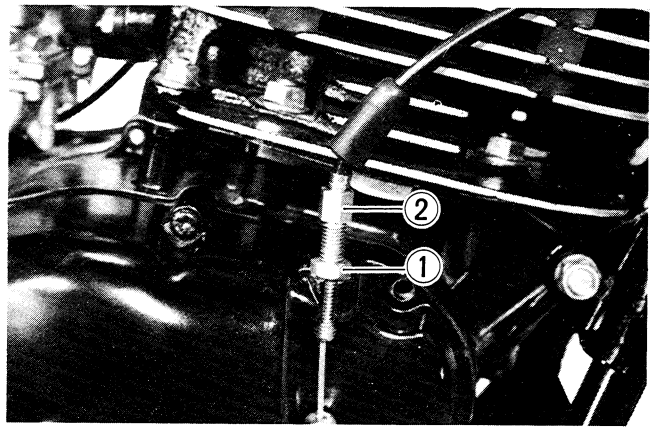


CLUTCH

Inspect Initial 1 000 km (600 mi)
and Every 3 000 km (2 000 mi)

Clutch play should be 3 mm (0.12 in) as measured at the clutch lever holder before the clutch begins to disengage.
Loosen the lock nut ① and adjust the clutch play by turning the adjuster ② in or out to acquire the specified play.
Tighten the lock nut while holding the adjuster in position.

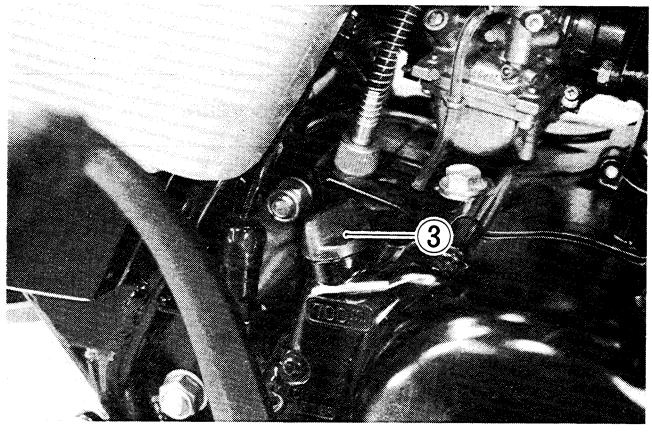




TRANSMISSION OIL

Change Initial 1 000 km (600 mi)
and Every 6 000 km (4 000 mi)

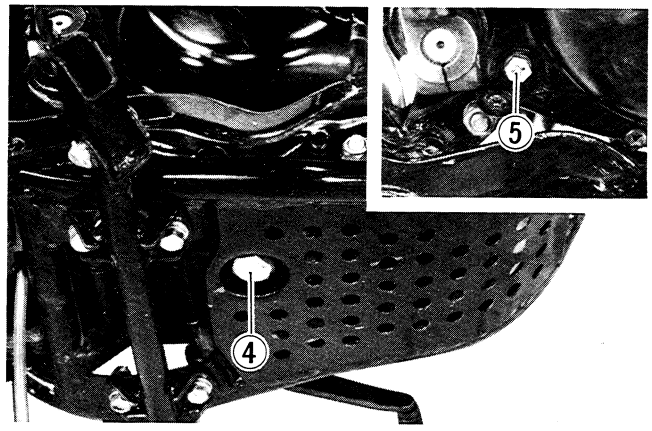
Start the engine to warm up the oil, this will facilitate draining of oil. Shut off the engine. Unscrew the oil filler cap ③ and drain plug ④ , and drain the oil completely.
Tighten the drain plug.



Pour a good quality SAE 20W/40 multigrade motor oil.
Check the oil level with the oil level screw ⑤ .

Capacity	700 ml (0.74/0.62 US/Imp qt)

NOTE:
The motorcycle must be placed vertically when performing this inspection.



DRIVE CHAIN

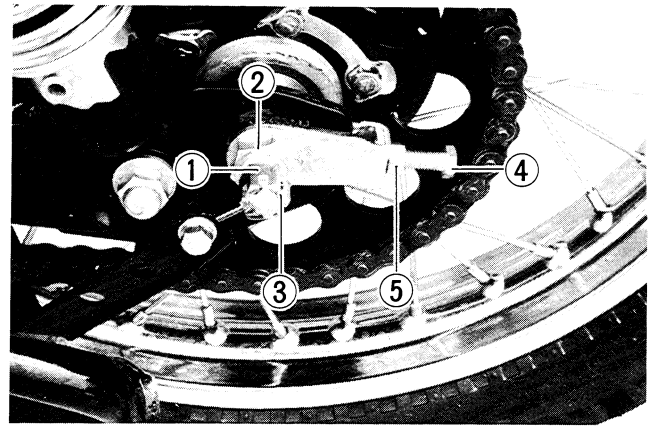
Inspect Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

Visually inspect the drive chain for the below-listed possible problems.

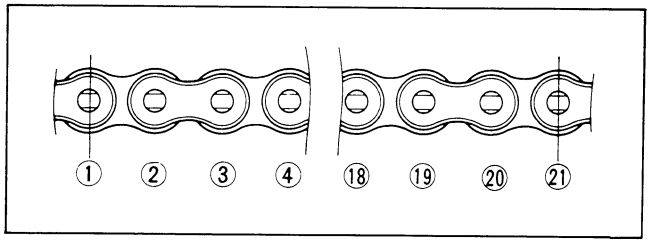
- Loose pins
- Twisted or seized links
- Damaged rollers
- Excessive wear
- Rusted links

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

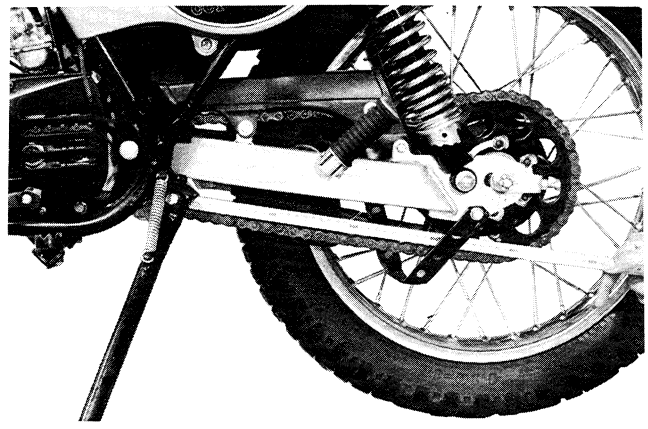
Checking:
Loosen the axle nut ① and axle sleeve nut ② after pulling off cotter pin ③ . Tense the drive chain fully by tightening the adjusters ④ after loosening the lock nut ⑤ .



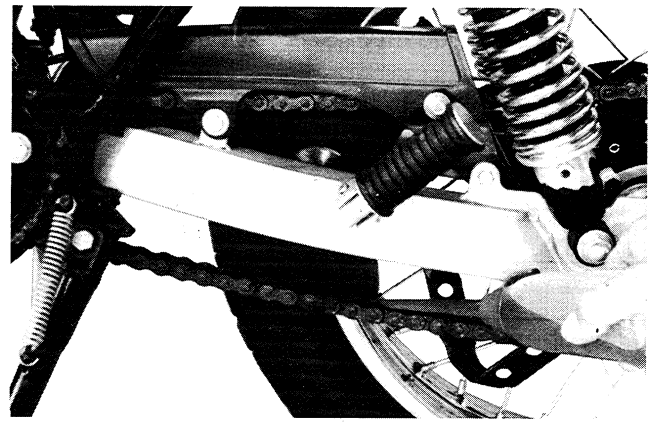
Count out 21 pins (20 pitch) on the chain and measure the distance between the two. If the distance exceeds the following limit, the chain must be replaced.



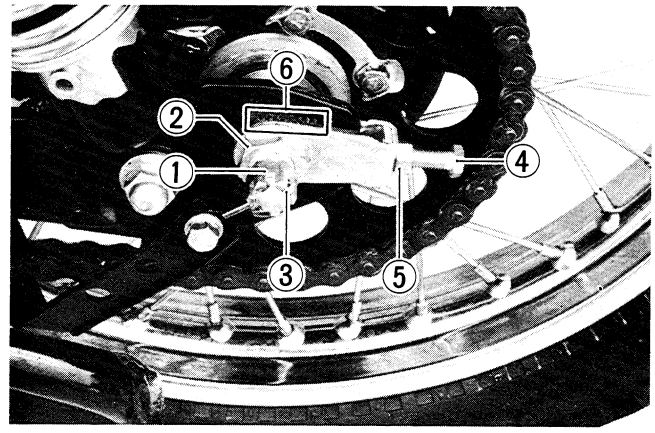
Service limit	323.0 mm (12.72 in)



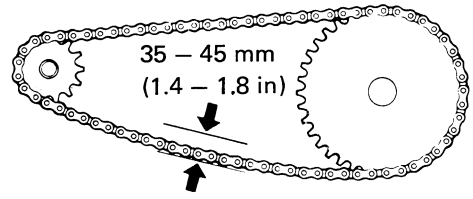
Cleaning and lubricating:
Wash the drive chain in cleaning solvent and lubricate it with chain lube or motor oil. If the motorcycle operates under dusty conditions, frequent rapid acceleration or at sustained high speeds, the drive chain should be cleaned and lubricated more often.



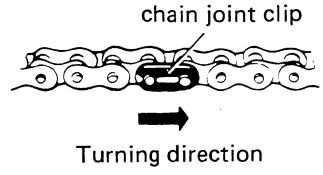
Adjusting:
Loosen the axle nut ① and axle sleeve nut ② after pulling off cotter pin ③ . Adjust the slack to 35 – 45 mm (1.4 – 1.8 in) by turning adjuster ④ after loosening the lock nut ⑤ .
The mark on both chain adjusters must be at the same position on the scale ⑥ .
Tighten the axle nut ① and axle sleeve nut ② with specified torque.



Tightening torque	
Axle nut	30 – 70 N·m (3.0 – 7.0 kg-m)
Axle sleeve nut	55 – 70 N·m (5.5 – 7.0 kg-m)



WARNING:
The drive chain joint clip should be attached in the way that the slit end will face opposite direction of rotation.



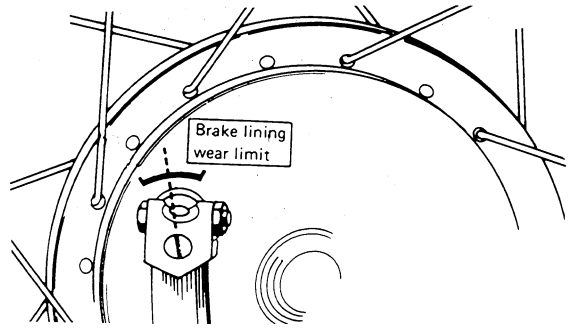
BRAKE SHOE WEAR

Inspect Initial 1 000 km (600 mi) and Every 3 000 lm (2 000 mi)

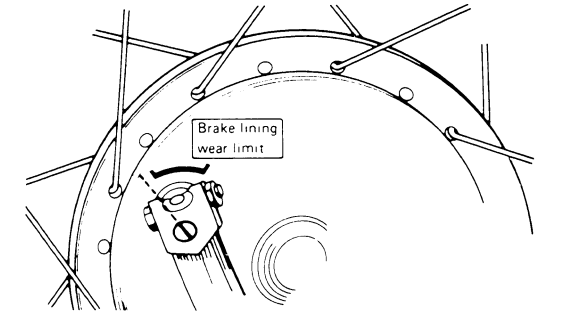
BRAKES

This motorcycle is equipped with brake lining wear limit indicator on front and rear. As shown in Fig., at the condition of normal lining wear, the extension line of the index mark on the brake cam shaft should be within the range embossed on the brake panel with brake on.

To check wear of the brake lining, perform the following steps.
First check if the brake system is properly adjusted.
While operating the brake, check to see that the extension line of the index mark is within the range on the brake panel.
If the index mark is beyond the range as shown in the Fig., the brake shoe assembly should be replaced with a new set of shoes.



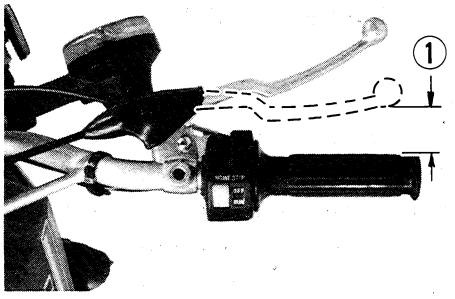
The extension line of the index mark is within the range.

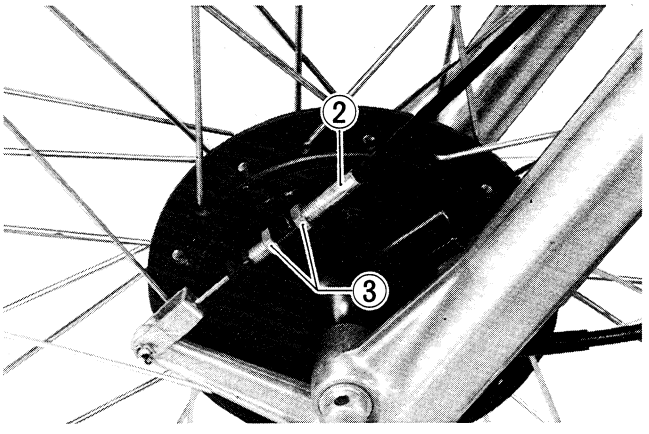


The extension line of the index mark is beyond the range.

FRONT BRAKE ADJUSTMENT

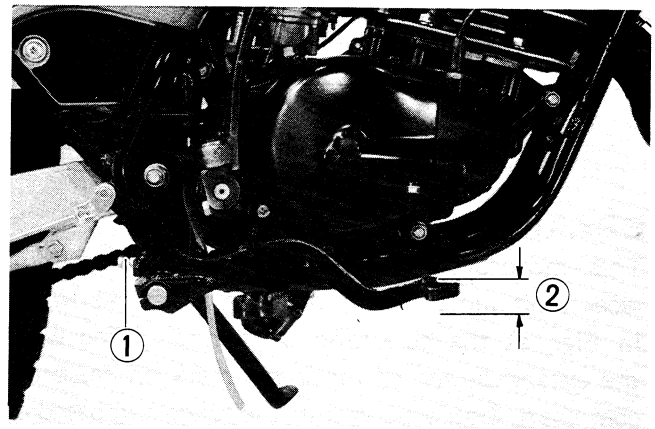
Measure the distance between the brake lever end and throttle grip when brake is fully applied. Adjust the distance ① to 20 – 30 mm (0.8 – 1.2 in) by sliding the adjuster ② after loosening the lock nuts ③.

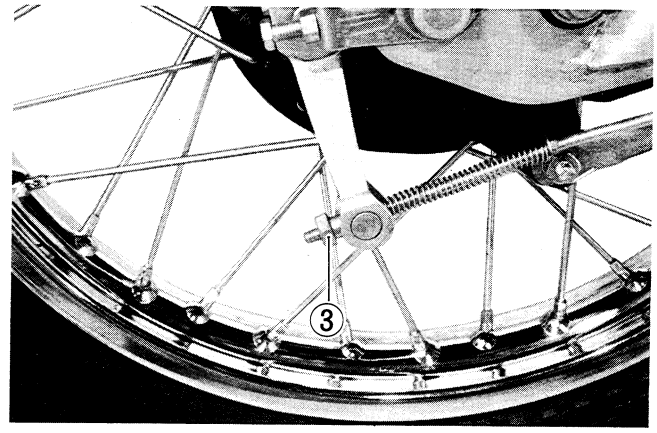




REAR BRAKE ADJUSTMENT

When adjusting the travel of brake pedal, first set the brake pedal at its proper position for comfortable riding by turning the brake pedal stopper ①, and then adjust the free travel ② to 20 – 30 mm (0.8 – 1.2 in) by turning adjusting nut ③.





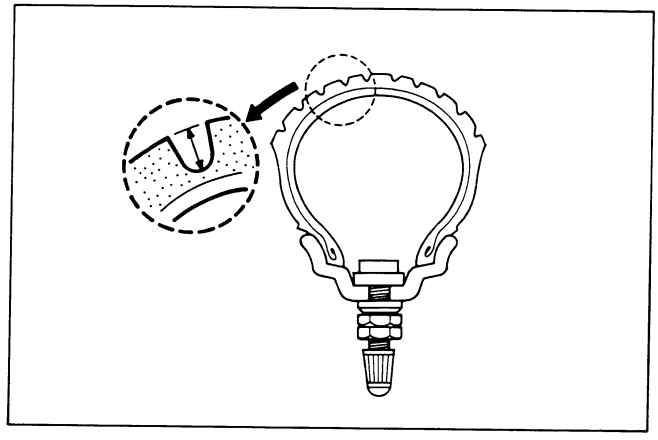
TIRE

Inspect Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

Tire tread condition:

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

Service Limit	Front & Rear 4.0 mm (0.16 in)



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

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm^2	psi	kPa	kg/cm^2	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

CAUTION:
The standard tire fitted on this motorcycle is 2.75-21 4PR or 3.00-21 4PR (for Bangladesh) for front and 4.10-18 4PR for rear.
The use of a tire other than the standard may cause instability. It is highly recommended to use a SUZUKI Genuine Tire.

STEERING

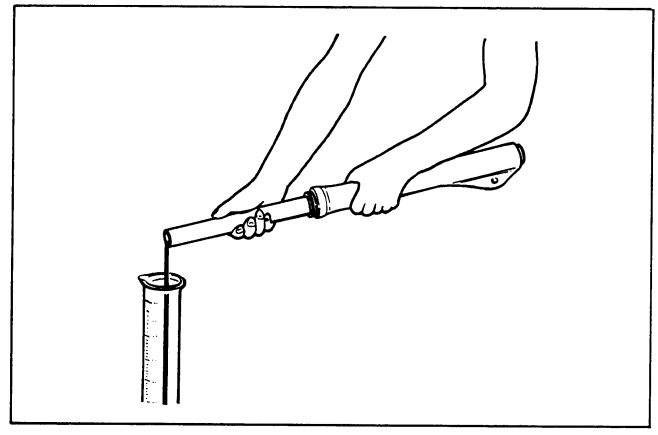
Check Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

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 wheel straight ahead, grasp lower fork tubes near the axle and pull forward. If play is found, perform steering bearing adjustment as described in page (6-26) of this manual.

FRONT FORK OIL

Change Initial 1 000 km (600 mi) and Every 12 000 km (8 000 mi)

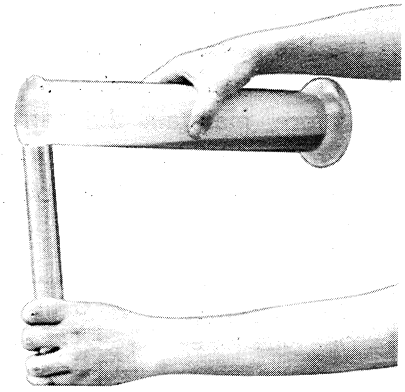
Remove front wheel (See page 6-1).
Remove front fork right and left (See page 6-15).
Invert the fork and stroke it several times to let out the oil inside. Under this condition (inverted condition), hold the fork for a few minutes.



Pour fork oil which meets following specification.

Specified amount (each leg)	166 ml (5.61/5.84 US/Imp oz)

Specification	Mixture SAE 10W/30:ATF = 1 : 1



Tightening torque:

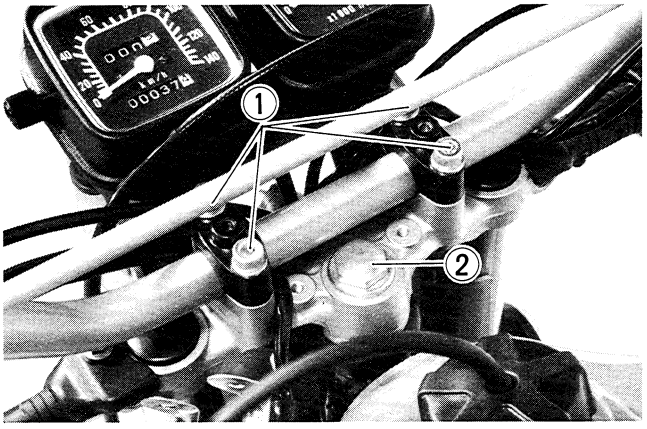
ITEM	N·m	kg-m
Handlebar clamp bolt	12 – 20	1.2 – 2.0
Front fork upper clamp bolt	20 – 30	2.0 – 3.0
Front fork cap bolt	15 – 30	1.5 – 3.0
Front fork lower clamp bolt	25 – 35	2.5 – 3.5

CHASSIS BOLTS AND NUTS

Check Initial 1 000 km (600 mi) and Every 3 000 km (2 000 mi)

The bolts and nuts listed hereunder are important safety parts. They must be retightened, as necessary, to the specified torque with a torque wrench. (Refer to page 2-16 for the position of the following bolts and nuts on the motorcycle.)

ITEM	N·m	kg-m
① Handlebar clamp bolt	12 – 20	1.2 – 2.0
② Steering stem head bolt	35 – 55	3.5 – 5.5
③ Front fork upper clamp bolt (R & L)	20 – 30	2.0 – 3.0
④ Front fork lower clamp bolt (R & L)	25 – 35	2.5 – 3.5
⑤ Front axle nut	30 – 70	3.0 – 7.0
⑥ Swing arm pivot nut	45 – 70	4.5 – 7.0
⑦ Rear torque link bolt and nut	10 – 15	1.0 – 1.5
⑧ Rear shock absorber fitting nut	20 – 30	2.0 – 3.0
⑨ Rear axle sleeve nut	55 – 70	5.5 – 7.0
⑩ Rear axle nut	30 – 70	3.0 – 7.0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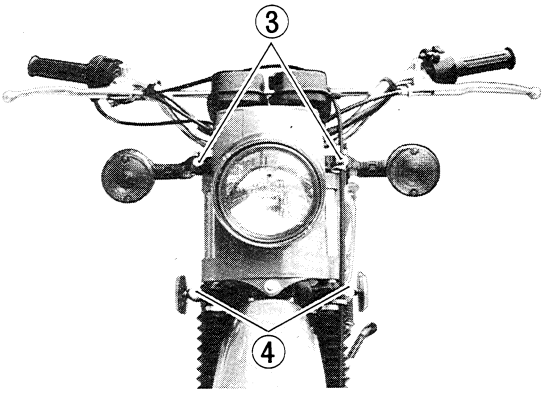
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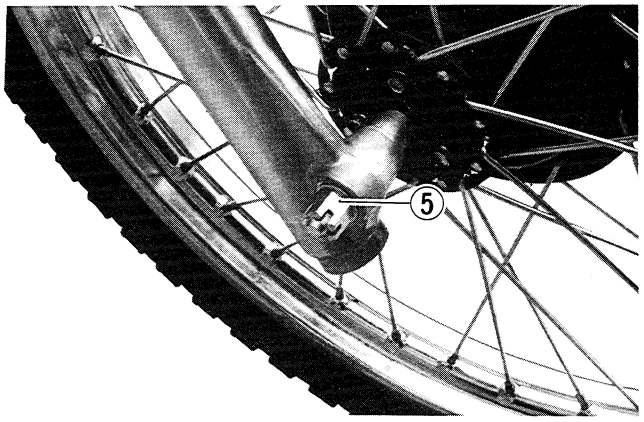
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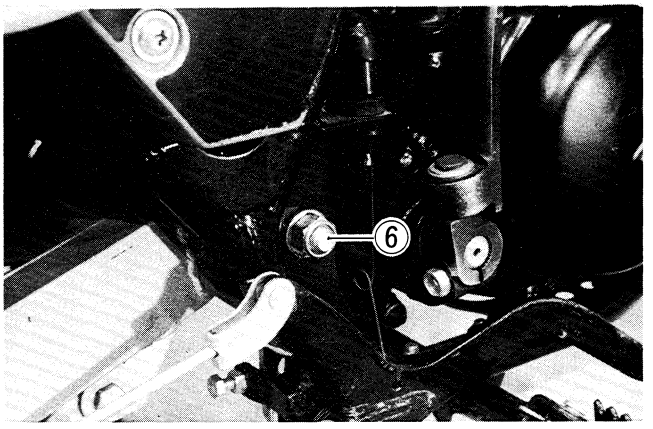
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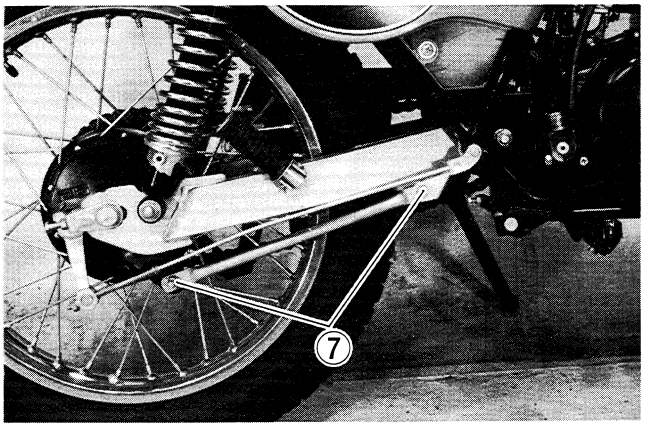
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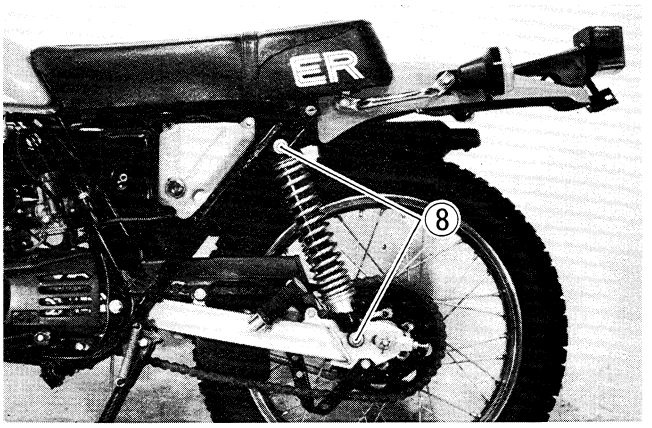
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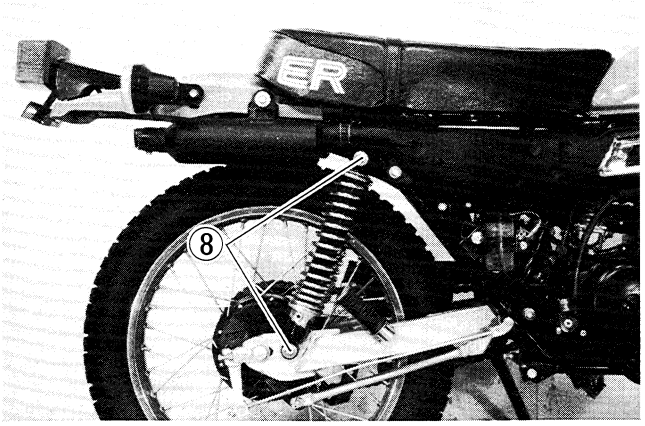
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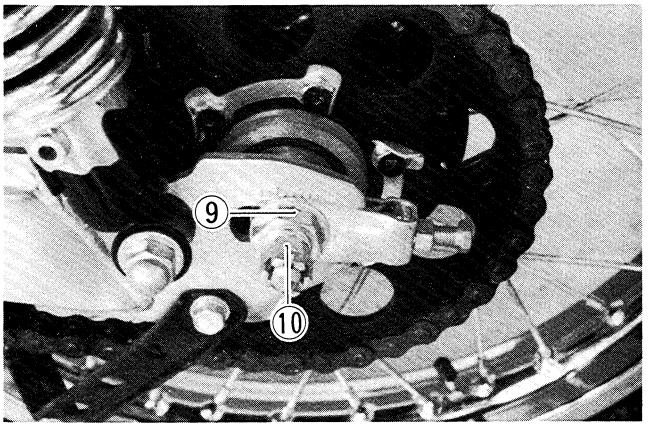
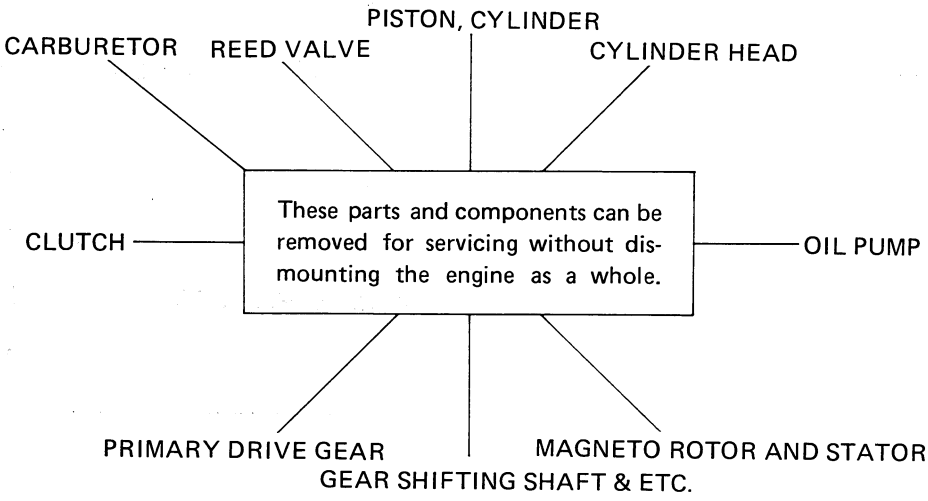

9
10

SERVICING ENGINE

CONTENTS

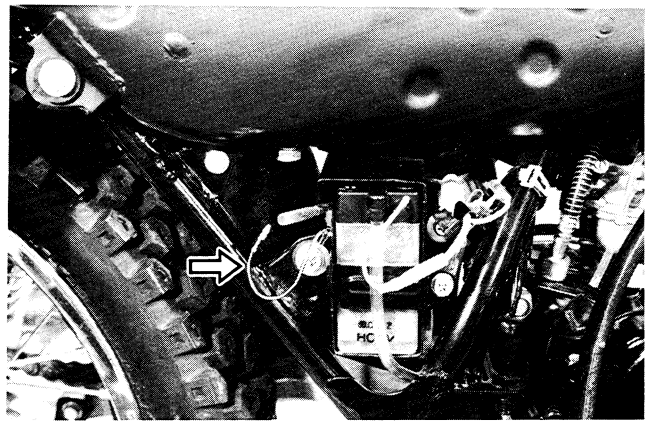
ENGINE COMPONENTS REMOVAL WITH ENGINE IN PLACE



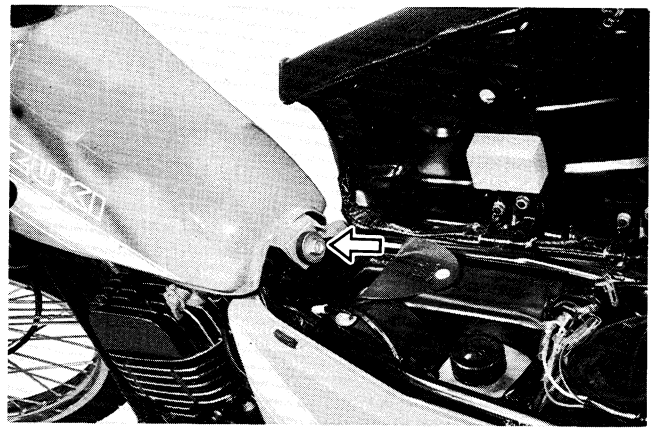
ENGINE REMOVAL

Before taking the engine out of the frame, wash the engine with a steam cleaner and drain transmission oil. The procedure of engine removal is sequentially explained in the following steps.

Remove right frame cover and disconnect battery ⊖ lead wire.

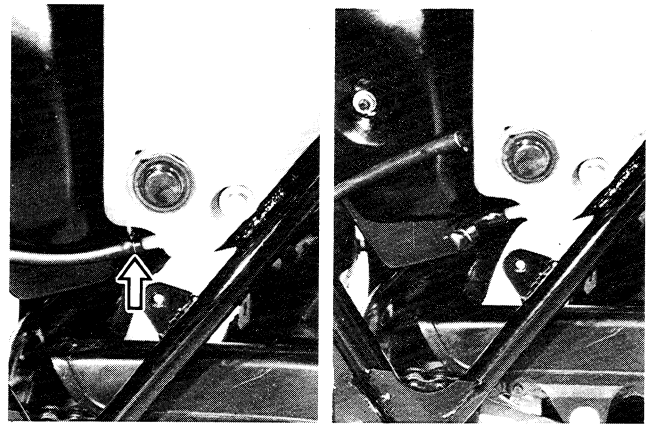


Open the seat and remove fuel tank securing bolt. Take off fuel tank.



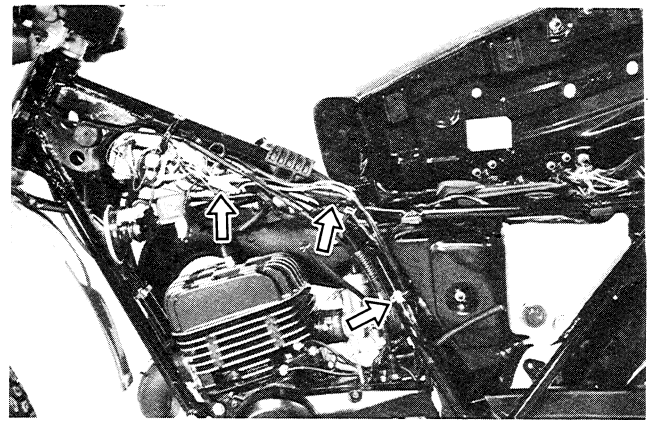
NOTE:
When taking off fuel tank, turn the fuel cock lever to "OFF" position and disconnect fuel hose.

Remove left frame cover and disconnect oil hose from oil tank.

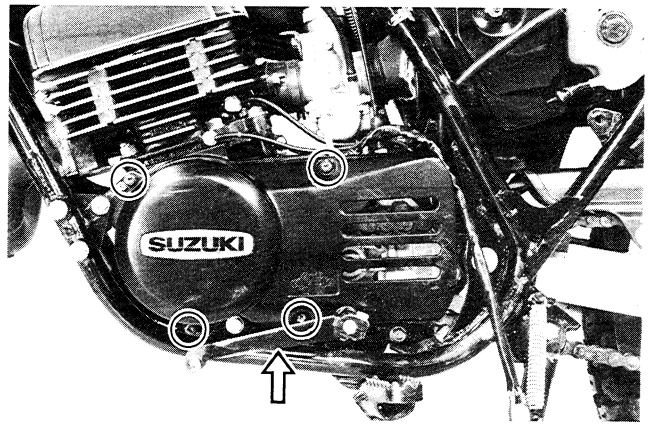


> **NOTE:**
> **When disconnecting the oil hose, plug the oil tank outlet with a suitable cap.**

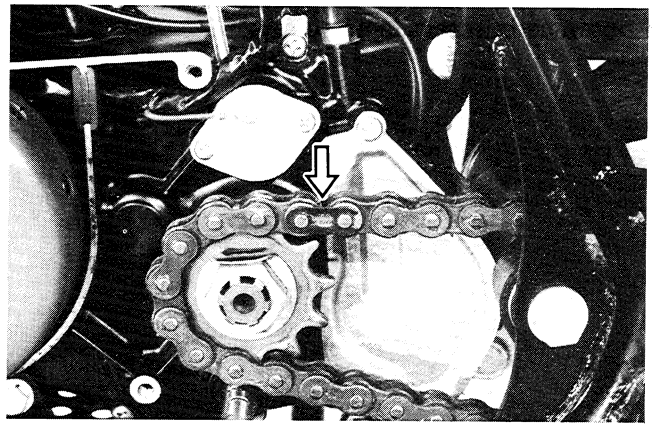
Disconnect lead wires from the magneto and unhook the clamps from the lead wire.



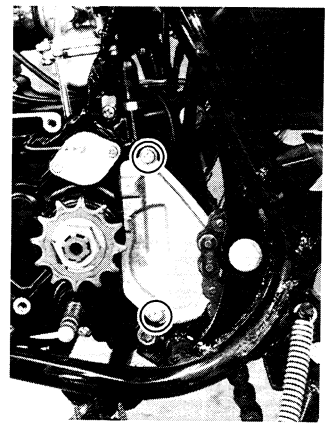
Disconnect gearshift lever and remove magneto cover.

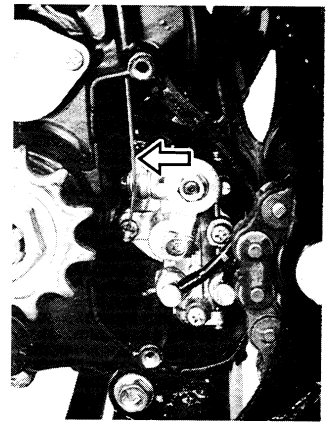


Disconnect drive chain by removing clip.

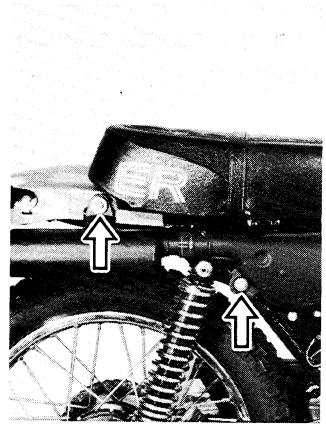


Remove oil pump cover and disconnect oil pump control cable.



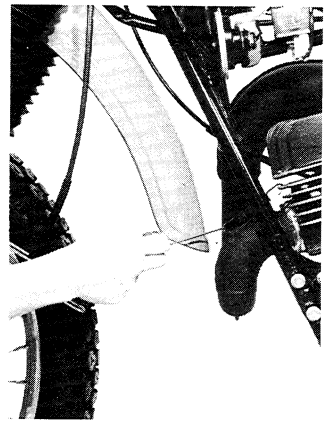


Remove three muffler fitting bolts.

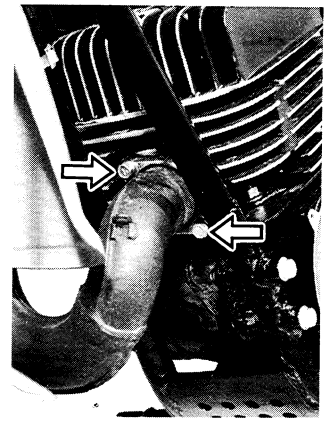


Unhook the muffler holding spring by using special tool.

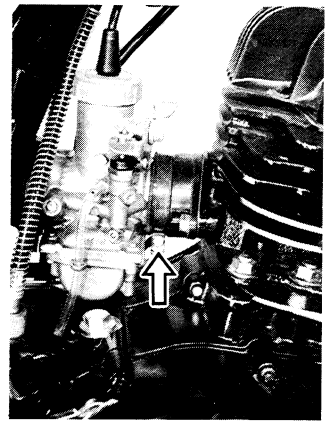
09920 - 20310	Spring hook

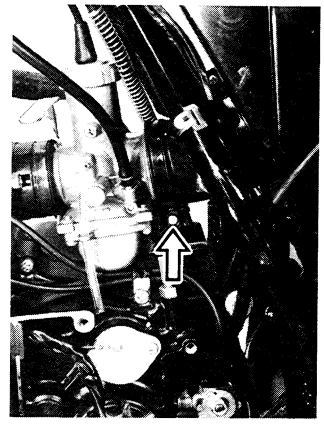


Remove two muffler clamp bolts and take off muffler.

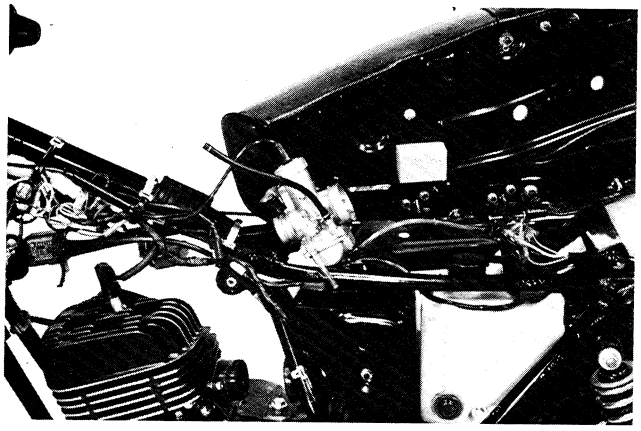


Loosen carburetor clamp screws.

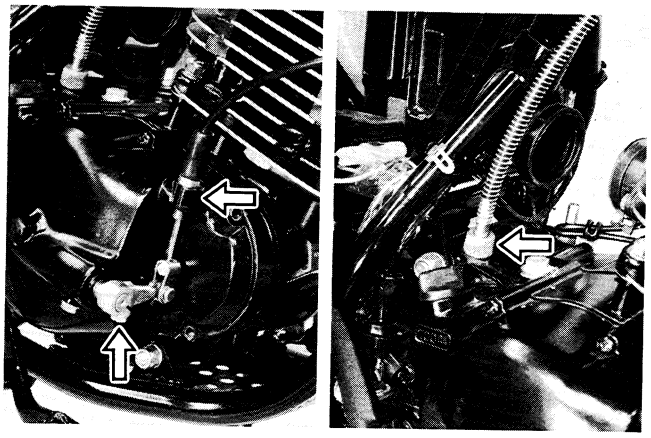




Take off carburetor and put it on the frame.



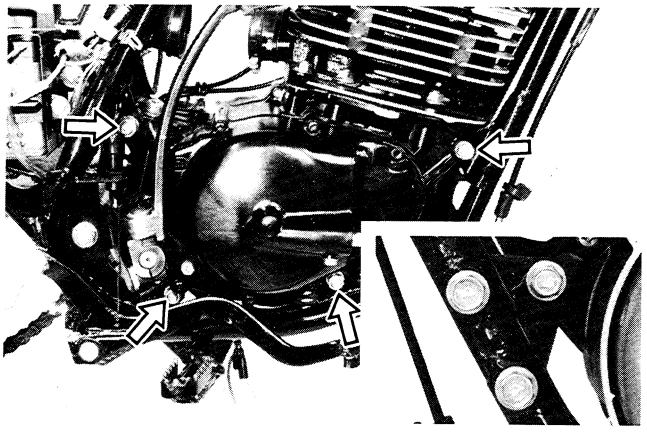
Disconnect clutch cable and tachometer cable.



Remove engine mounting bolts and dismount the engine.

NOTE:
Dismounting the engine from left side makes the job easier.

CAUTION:
The removed engine mounting nuts should be replaced.



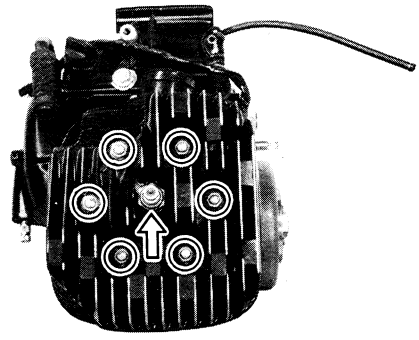
ENGINE REMOUNTING

Engine remounting is effected by reversing the removal procedure.

After remounting the engine, route wiring harness and cables properly by referring to the sections, WIRE ROUTING and CABLE ROUTING, and adjust the following items to the specification.

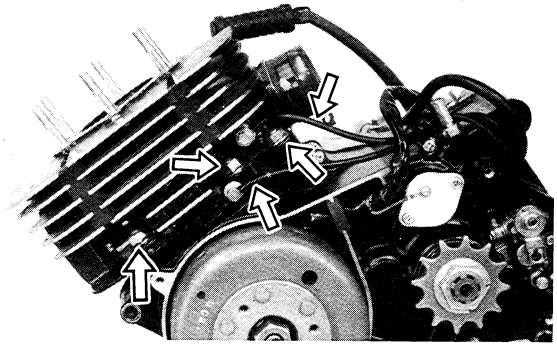
ENGINE DISASSEMBLY

Remove spark plug and cylinder head.

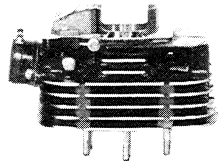


Remove cylinder.

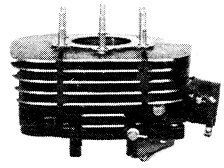
NOTE:
When removing the cylinder, disconnect two oil hoses.



CAUTION:
Place the removed cylinder on the table upside down to prevent distortion of the reed valve stopper.



CORRECT



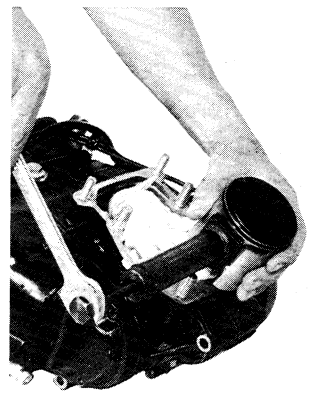
INCORRECT

Remove piston pin circlip.

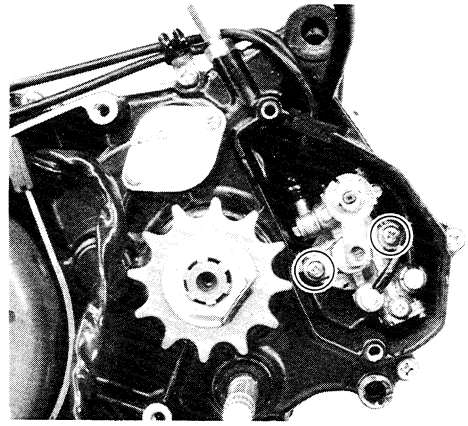
NOTE:
When removing piston pin circlip, place a rag beneath the piston so as not to drop the parts in the crankcase.

Draw out piston pin by using special tool.

09910 - 34510	Piston pin puller

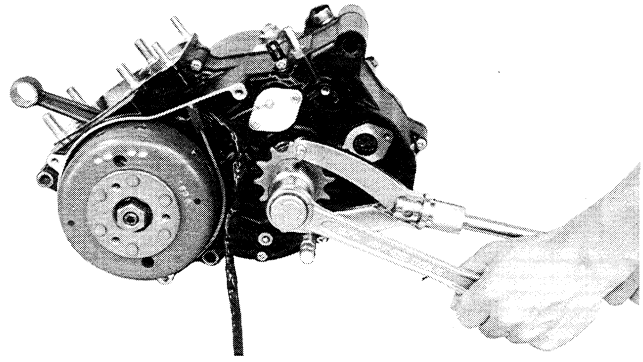


Remove oil pump.



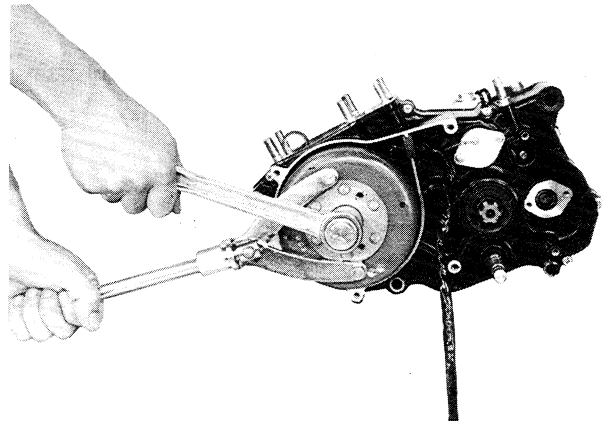
Flatten the lock washer and remove engine sprocket nut by using special tool.
Pull off engine sprocket.

09930 - 40113	Rotor holder



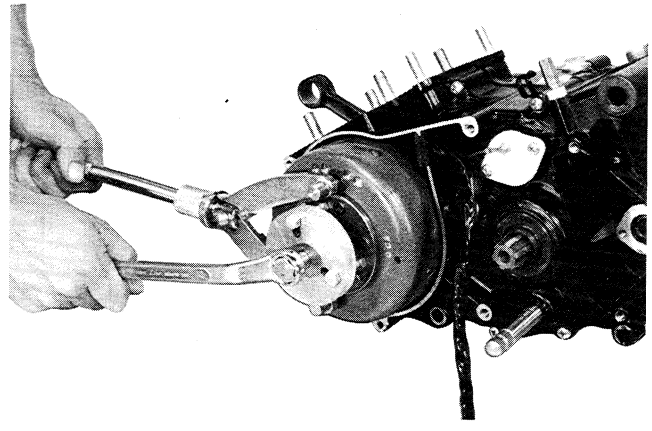
Remove rotor nut by using special tool.

09930 - 40113	Rotor holder

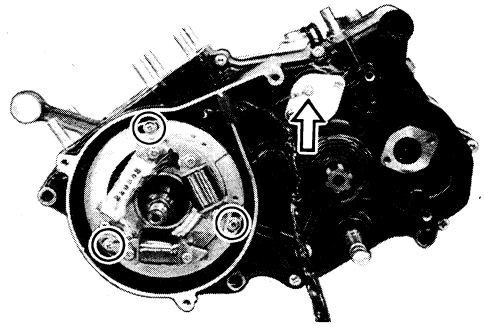


Draw out rotor by using special tools.

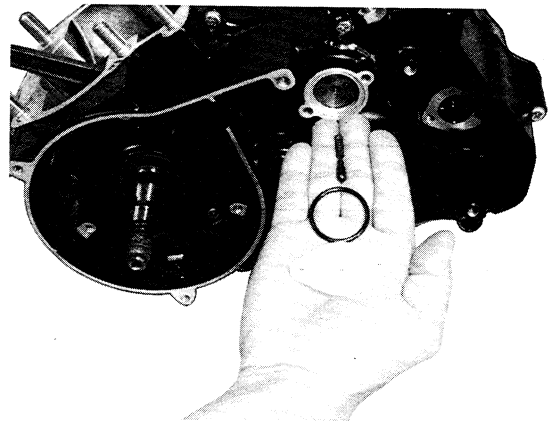
09930 - 30713	Flywheel rotor remover
09930 - 40113	Rotor holder



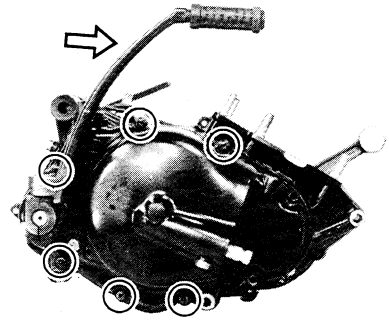
Remove three stator securing screws and disconnect neutral lead wire.
Take off stator.



Remove neutral switch body, O-ring contact point and spring.

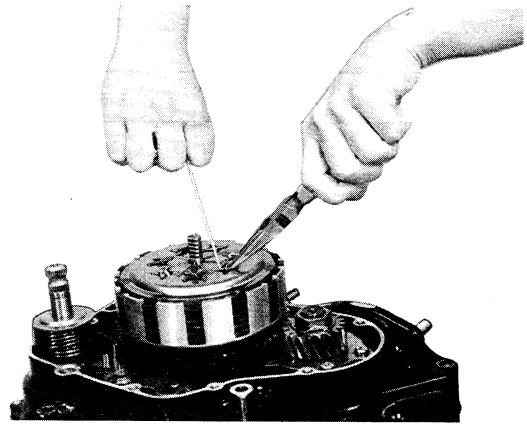


Remove kick starter lever.
Remove the clutch cover securing screws by using impact driver.
Remove clutch cover.



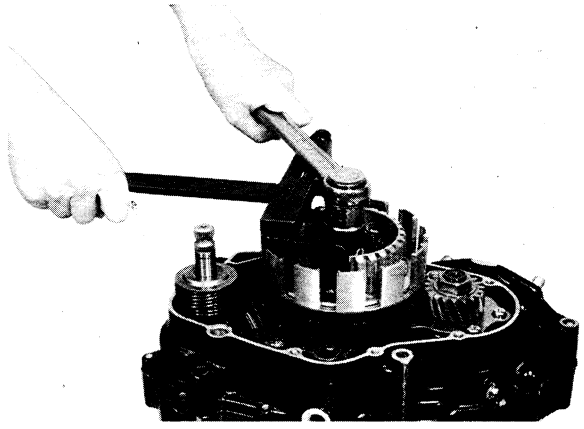
Remove clutch spring pins by using special tool.

09920 - 20310	Spring hook

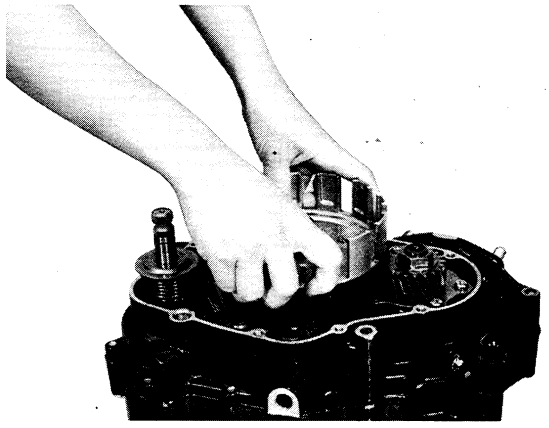


Draw out pressure plate, drive plates, and driven plates.
Flatten the lock washer and remove clutch sleeve hub nut by using special tool.

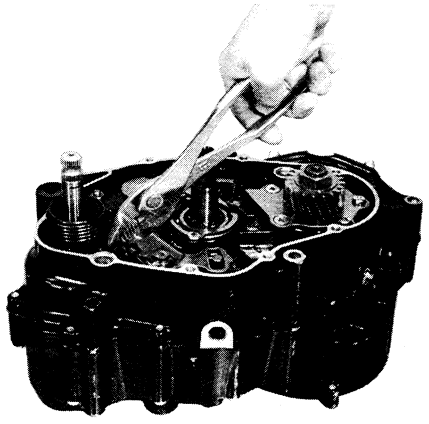
09920 - 53710	Clutch sleeve hub holder



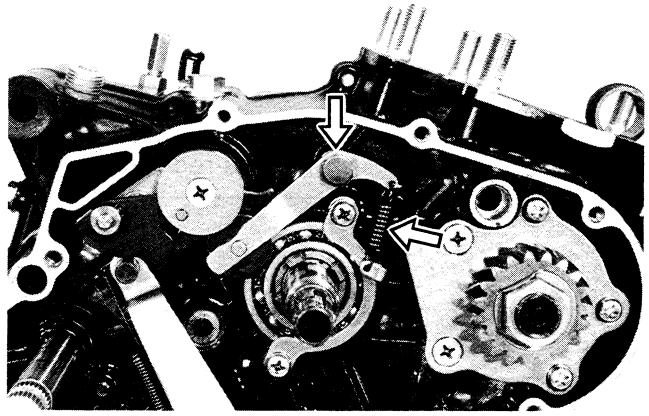
Pull out clutch housing.



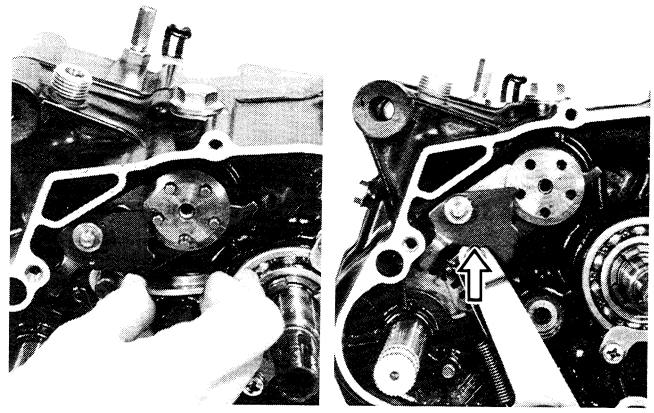
Remove spring holder, spring guide and kick starter return spring.



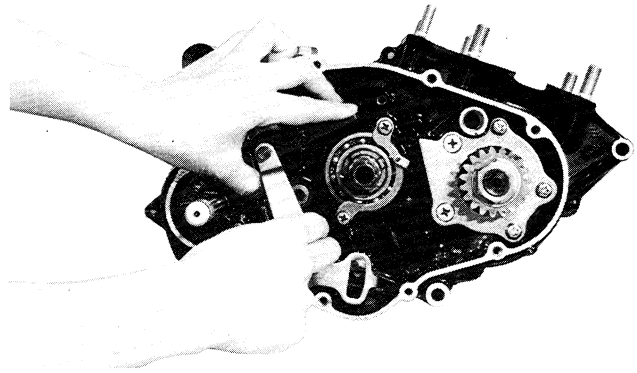
Remove gearshift cam stopper.



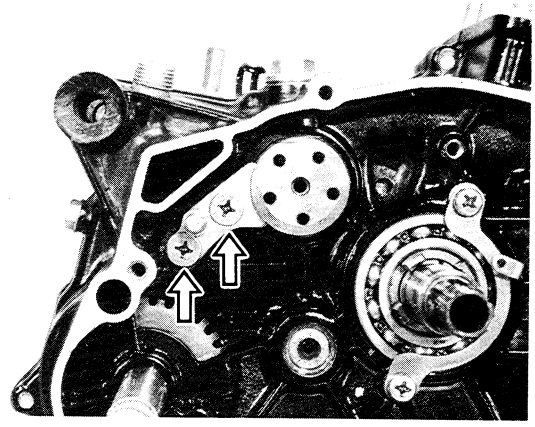
Remove gearshift cam drive pin retainer by using impact driver and pull off drive pins.
Pull off cam stopper pawl.



Draw out gearshifting shaft.

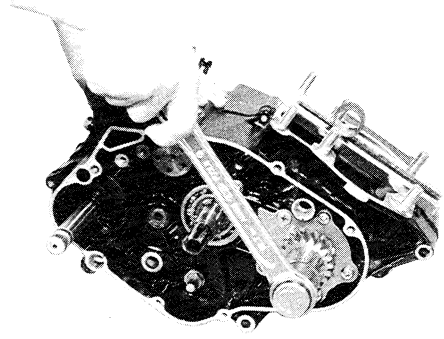


Remove gearshift cam stopper by using impact driver.

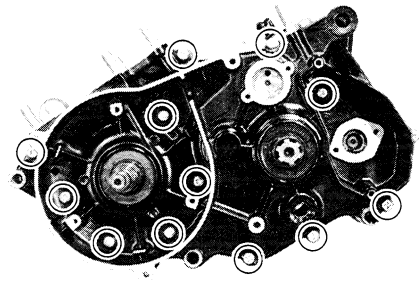


Flatten the lock washer and remove primary drive gear nut by using special tool.
Remove primary drive gear.

09910 - 20115	Con-rod holder

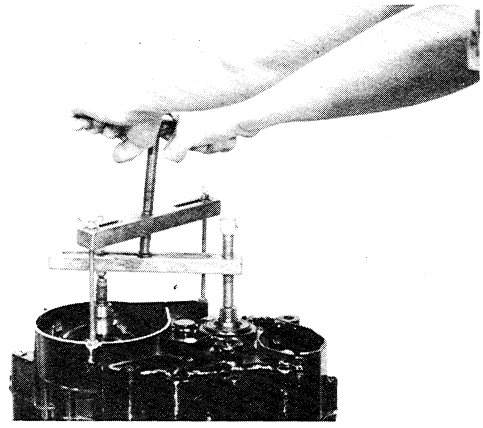


Remove crankcase securing screws by using impact driver.

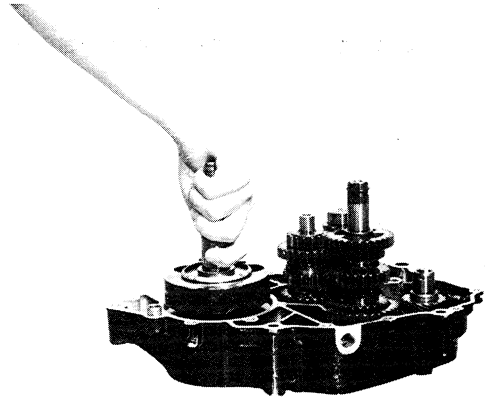


Separate the crankcase by using special tool.

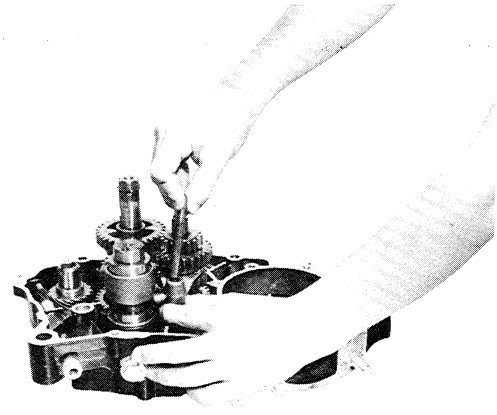
09920 - 13120	Crankcase separating tool.



Pull off crankshaft.

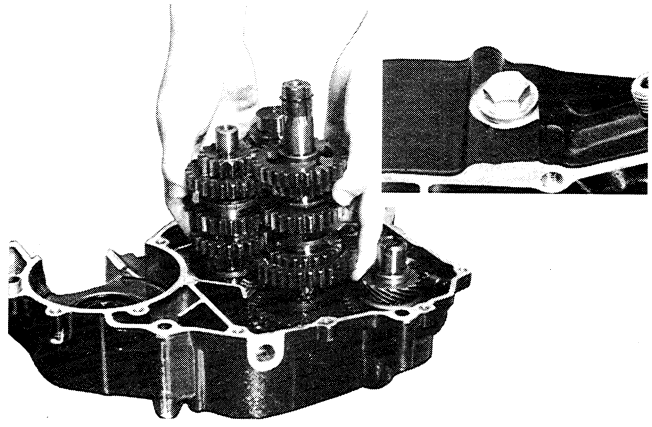


Remove gearshift fork shaft and gearshift fork.

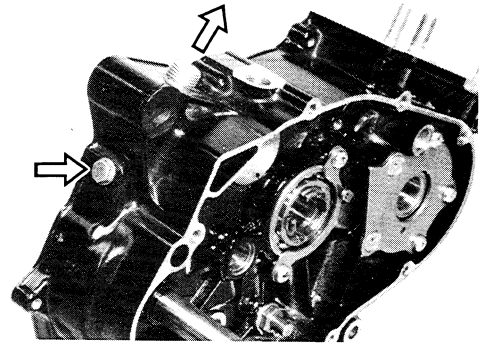


Draw out countershaft, driveshaft and gearshift cam at the same time.

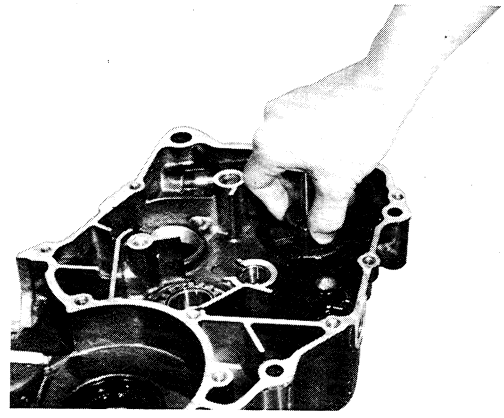
CAUTION:
Remove neutral stopper before removing gearshift cam to prevent damage to the components.



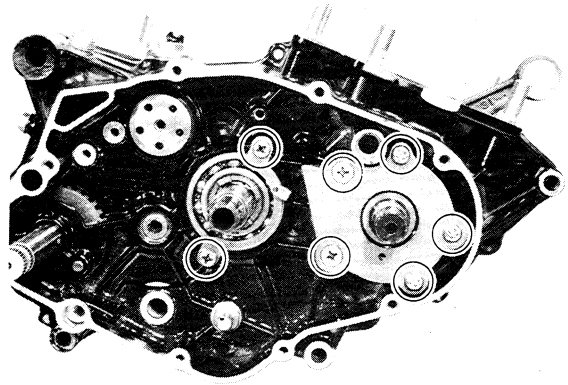
Remove stopper bolt and pull off tachometer driven gear.



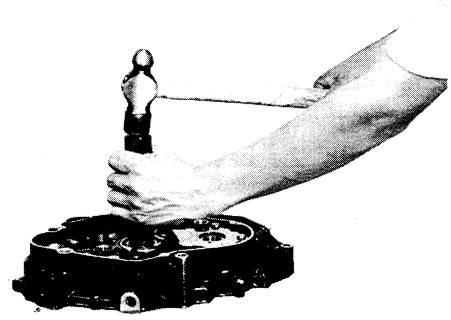
Remove kickstarter drive gear and kickshaft.



Remove bearing retainers by using impact driver.

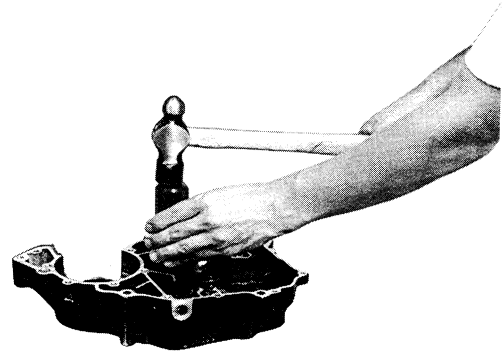


Drive out kick starter driven gear by using bearing installer.



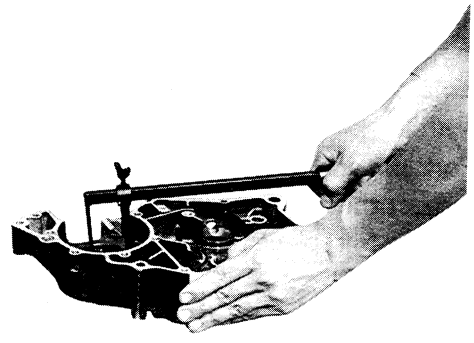
Drive out the each bearing with bearing installers.

09913-70122	Bearing installer
09913-76010	
09913-85210	



Pull out each oil seals by using special tool.

09913 - 50121	Oil seal remover



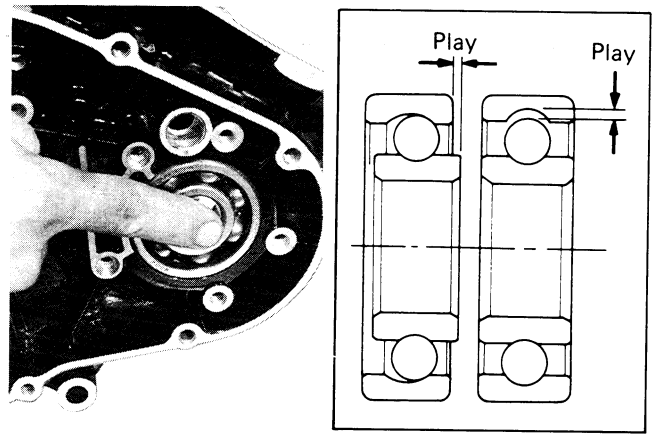
ENGINE COMPONENTS INSPECTION AND SERVICING

BEARINGS

Wash the bearing with cleaning solvent and lubricate with motor oil before inspecting.

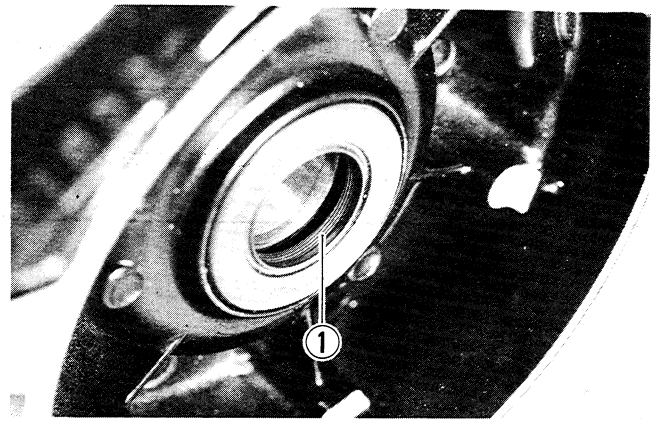
Inspect the play of each bearings inner race by hand with the bearing still installed in the crankcase.

Rotate the inner race by hand to inspect for an abnormal noise and a smooth rotation. Replace the bearing if there is something unusual.



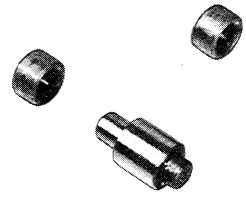
OIL SEALS

Damage to the lip ① of the oil seal may result in leakage of the mixture or oil. Inspect for damage and be sure to replace damaged parts if there are any.



GEAR AND SHIFTING FORKS

Upon disassembling the engine, immediately inspect the transmission internals, visually examining the gears for damage and checking the meshed condition of gear teeth.



Fork pin and spacer

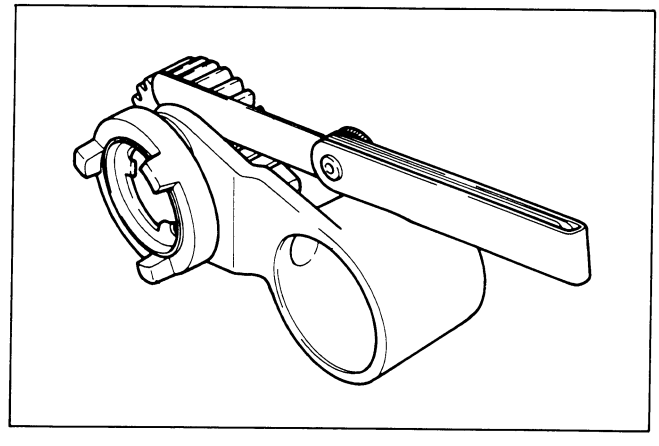
Inspect the shifting fork pin and spacer for damage. Be sure to replace damaged parts if any.

Shift fork to groove clearance

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

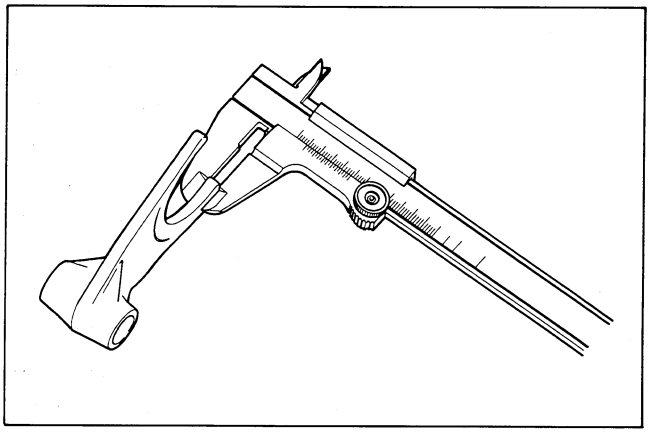
09900-20804	Thickness gauge

	Service Limit
No. 1, No. 2 and No. 3	0.60 mm (0.024 in)



	STD
Shift fork thickness	5.30 – 5.40 mm (0.209 – 0.213 in)
Shift fork groove width	5.60 – 5.70 mm (0.220 – 0.224 in)

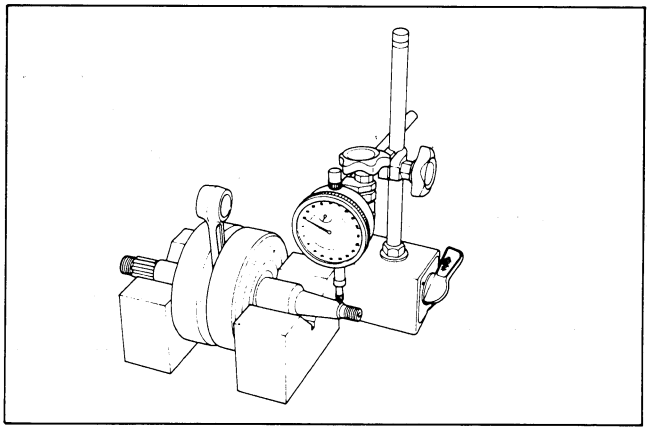
09900 - 20102	Vernier calipers



CRANKSHAFT

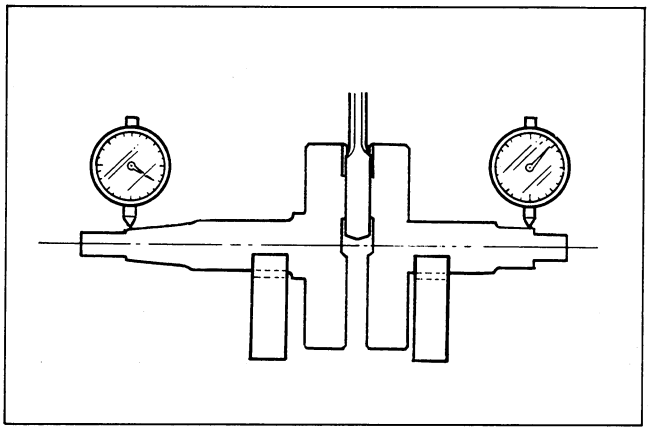
Support crankshaft by "V" blocks, with the dial gauge rigged to read the runout. Runout is total dial reading, and is specified to be within the following limit:

Service Limit	0.05 mm (0.002 in)



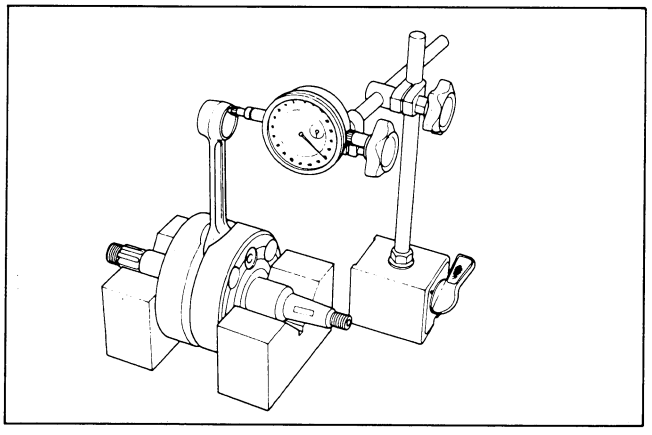
Excessive crankshaft runout is often responsible for abnormal engine vibration. Such vibration shortens engine life.

09900 - 20606	Dial gauge
09900 - 20701	Magnetic stand



Wear on the big end of the connecting rod can be estimated by checking the movement of the small end of the rod. This method can also check the extent of wear on the parts of the connecting rod's big end. If wear exceeds the limit, connecting rod, crank pin and crank pin bearing should all be replaced.

Service Limit	3.0 mm (0.12 in)



CLUTCH PLATES

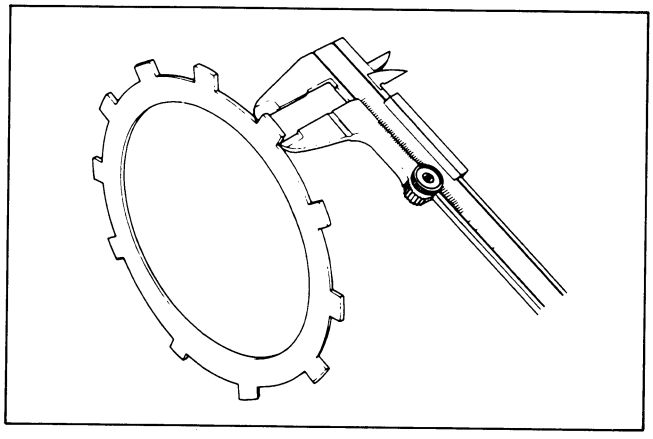
Clutch plates in service remain in oily condition as if they were lubricated with oil. Because of this condition, both drive and driven plates are subject to little wearing action and therefore last much longer. Their life depends largely on the quality of oil used in the clutch and also on the way the clutch is operated.

These plates are expendable, they are meant to be replaced when found worn down or distorted to the respective limit: use a caliper to check thickness and a thickness gauge and surface plate to check distortion.

09900 - 20101	Vernier caliper
09900 - 20804	Thickness gauge

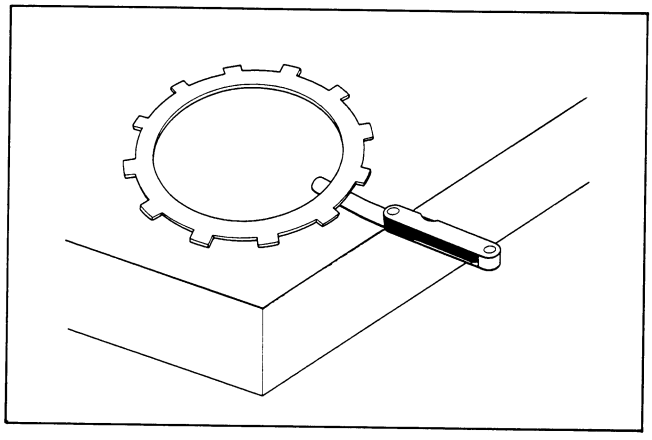
Drive plate claw width:

Service Limit	11.3 mm (0.44 in)



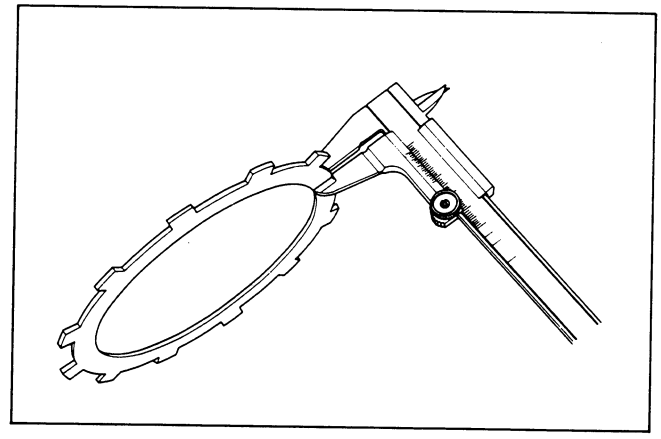
Drive plate distortion:

Service Limit	0.4 mm (0.016 in)



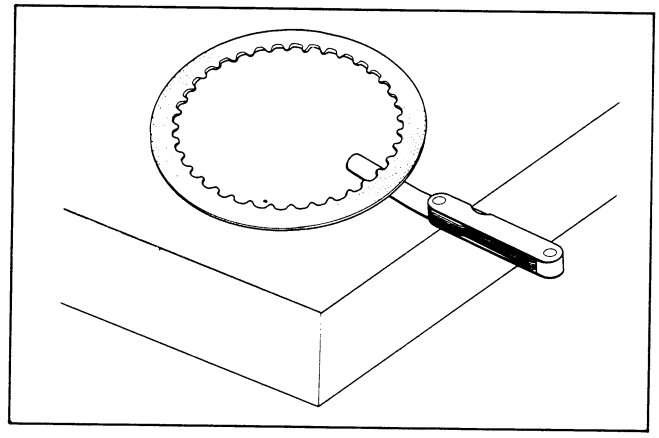
Drive plate thickness:

Service Limit	2.6 mm (0.10 in)



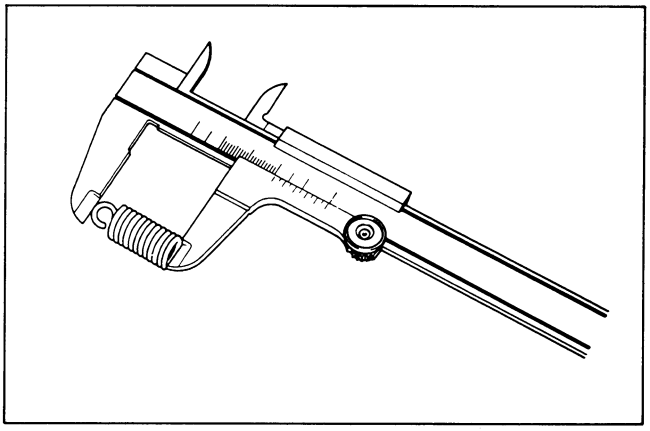
Driven plate distortion:

Service Limit	0.1 mm (0.004 in)



CLUTCH SPRING

Clutch springs which have lost their tension also cause clutch slipping, resulting in loss of power and rapid wear of the clutch plates. Remove the clutch springs and measure their free length with calipers.



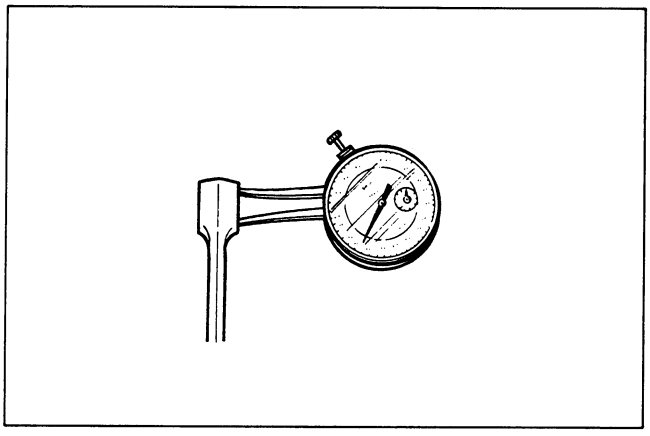
NOTE:
If one of them is beyond the specified service limit, renew all of them at a time.

Service Limit	32.6 mm (1.28 in)

09900 - 20101	Vernier calipers

CONNECTING ROD

Measure the con-rod small end bore with the caliper gauge.

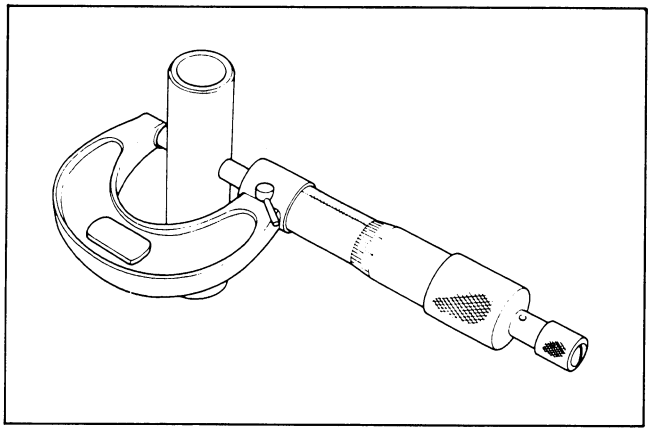


Service Limit	21.040 mm (0.8283 in)

09900 - 20605	Dial calipers

PISTON PIN

Measure the piston pin outside diameter with the micrometer.

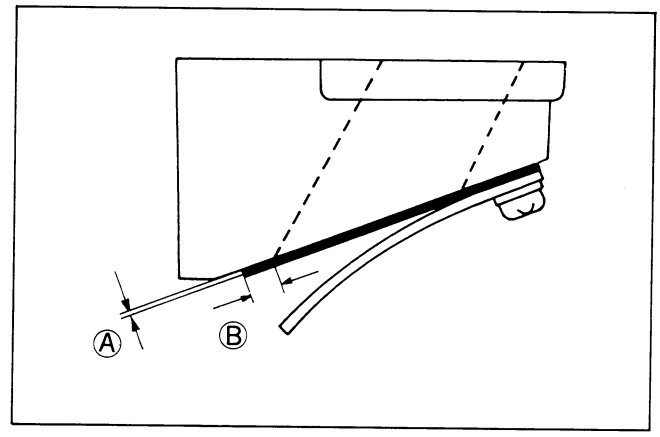


Service Limit	15.980 mm (0.6291 in)

09900-20205	Micro meter

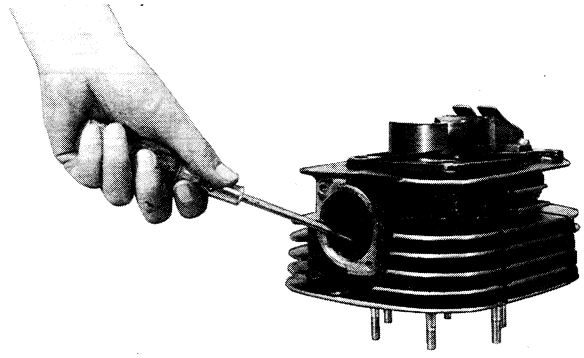
REED VALVE

Check the clearance Ⓐ between reed valve and its seat and the dimension Ⓑ . If the clearance Ⓐ is noted to exceed 0.2 mm (0.008 in), replace the whole reed valve assembly. The dimension Ⓑ is at least 1.0 mm (0.04 in).

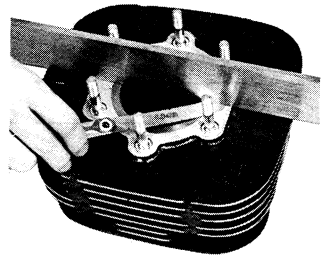


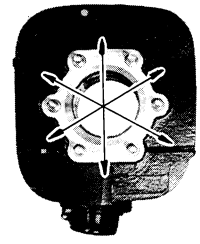
CYLINDER

Decarbon the exhaust port and the upper part of the cylinder, taking care not to damage the cylinder wall surface.



Check the gasketed surface of the cylinder 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.

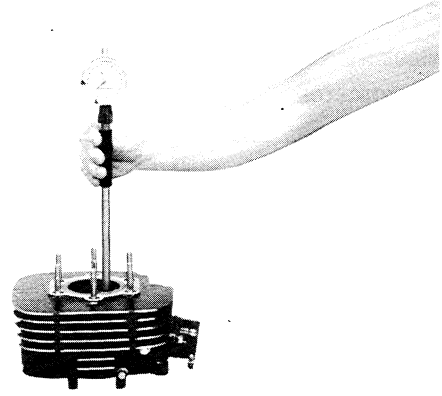




Service Limit	0.05 mm (0.002 in)

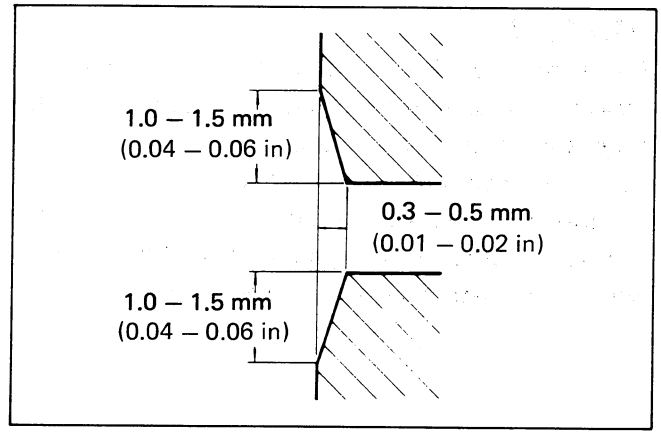
The wear of the cylinder wall is determined from diameter reading taken at 20 mm (0.8 in) from the top of the cylinder with a cylinder gauge. If the wear thus determined exceeds the limit indicated below, rework the bore to the next oversize by using a boring machine or replace the cylinder with a new one. Oversize pistons are available in two sizes: 0.5 mm (0.0196 in) and 1.0 mm (0.0394 in) oversizes.

STD	Service Limit
64.000 – 64.015 mm (2.5197 – 2.5203 in)	64.080 mm (2.5228 in)



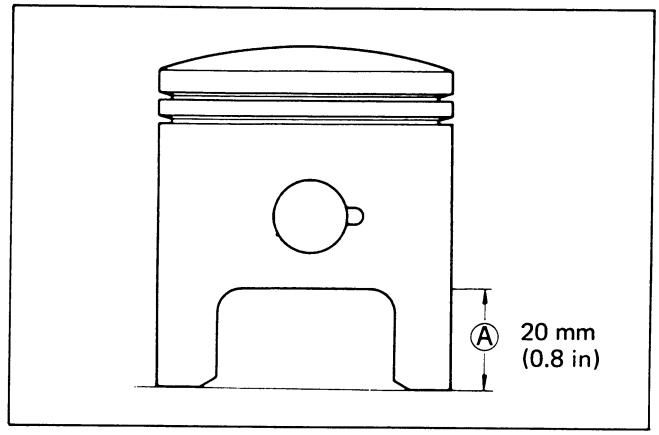
09900 - 20508	Cylinder gauge set

After reworking the bore to an oversize, be sure to chamfer the edges of ports and smoothen the chamfered edges with emery paper. To chamfer, use a scraper, taking care not to nick the wall surface.



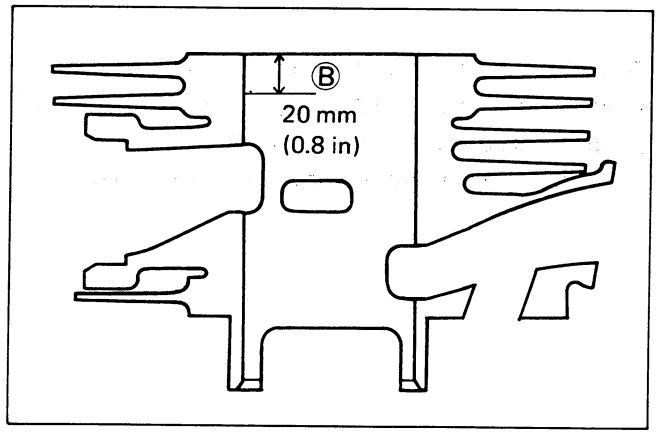
NOTE:
Minor surface flaws on the cylinder wall due to seizure or similar abnormalities can be finished by grinding the flaws off with fine-grain emery paper (#400). If the flaws are deep grooves or otherwise persist, the cylinder must be reworked with a boring machine to the next oversize.

Measure the piston outside diameter at the place shown in Fig. If the measurement is less than the limit, replace the piston with a new one.



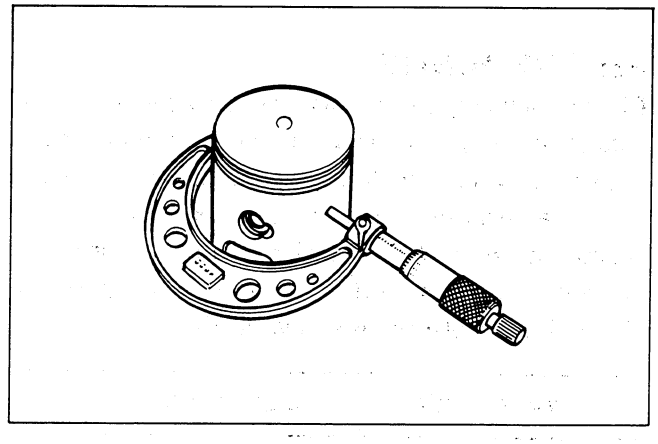
STD	Service Limit
63.945 – 63.960 mm (2.5175 – 2.5181 in)	63.880 mm (2.5150 in)

09900 - 20203	Micrometer



Cylinder-to-piston clearance is the difference between cylinder bore diameter and piston diameter. The measurement for the bore diameter will be made at Ⓑ 20 mm (0.8 in) from the cylinder top surface and the piston diameter will be made at Ⓐ 20 mm (0.8 in) above the piston skirt end.

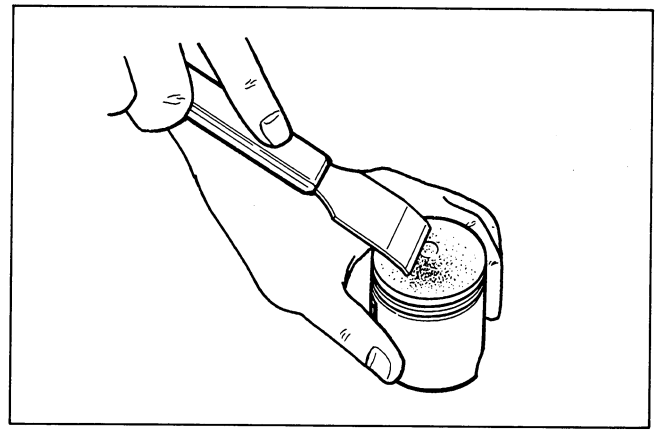
STD	Service Limit
0.050 – 0.060 mm (0.0020 – 0.0024 in)	0.120 mm (0.0047 in)

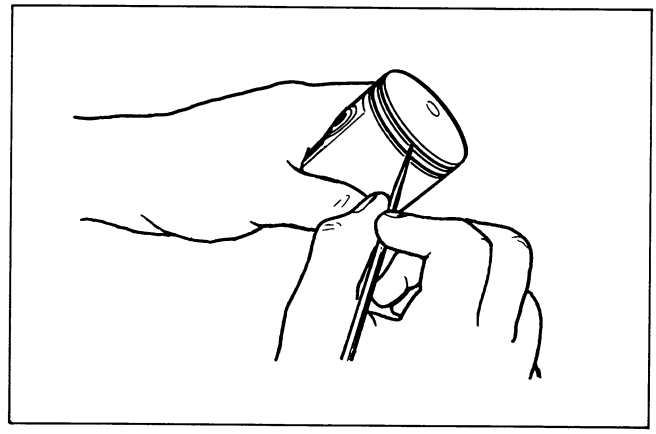


PISTON

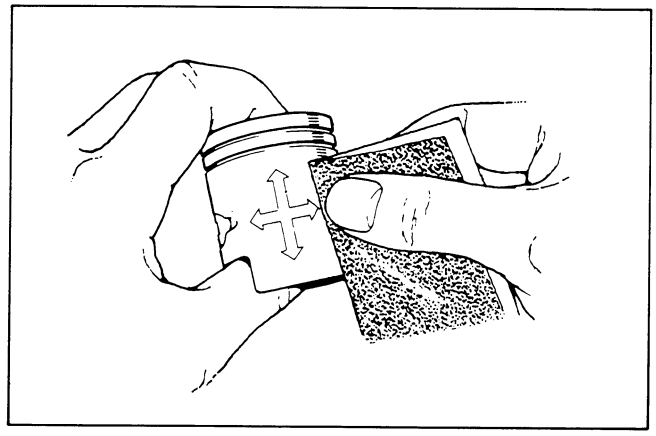
Decarbon the piston and piston ring grooves, as shown in Fig. After cleaning the grooves, fit the rings and rotate them in their respective grooves to be sure that they move smoothly.

Carbon in the groove is liable to cause the piston ring to get stuck in the groove, and this condition will lead to reduced engine power output.





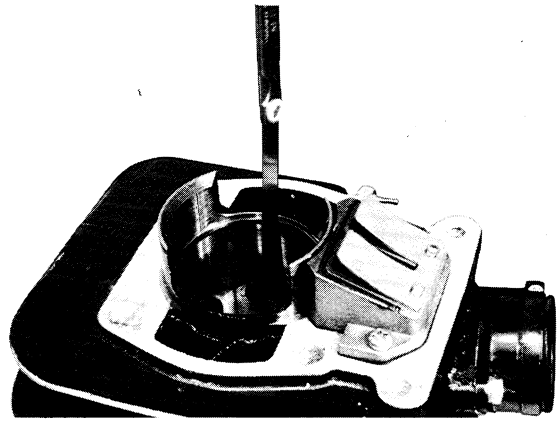
A piston its sliding surface is badly grooved or scuffed due to overheating must be replaced. Shallow grooves or minor scuff can be removed by grinding with emery paper of about #400.



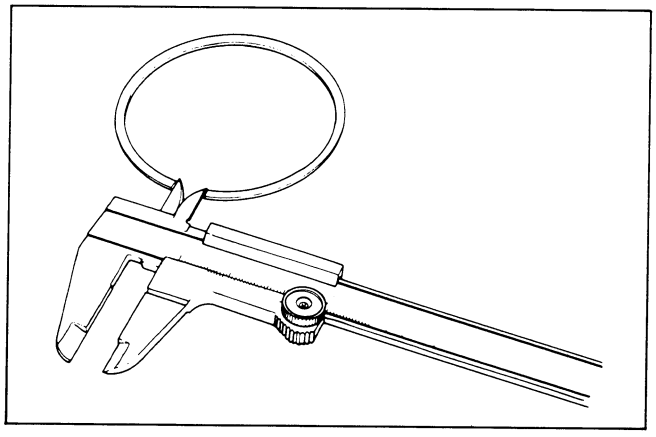
PISTON RINGS

Check each ring for end gap, reading the gap with a thickness gauge, as shown in Fig. If the end gap is found to exceed the limit, indicated below, replace it with a new one. The end gap of each ring is to be measured with the ring fitted squarely into the cylinder bore and held at the least worn part near the cylinder bottom, as shown in Fig.

Service Limit	0.80 mm (0.031 in)



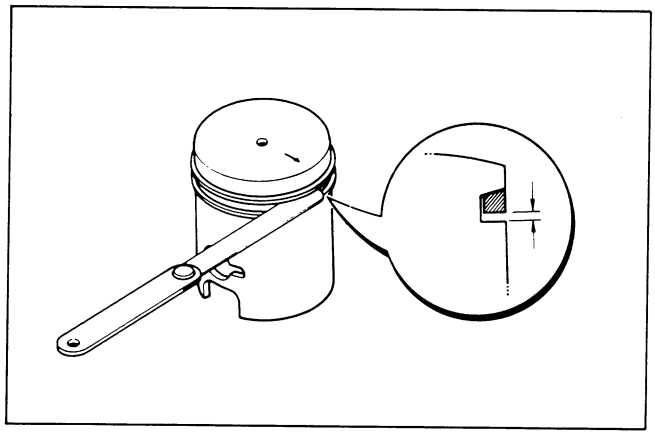
As the piston ring wears, its end gap increases reducing engine power output because of the resultant blowby through the enlarged gap. Here lies the importance of using piston rings with end gaps within the limit.



Measure the piston ring free end gap to check the spring tension.

Service Limit	6.4 mm (0.25 in)

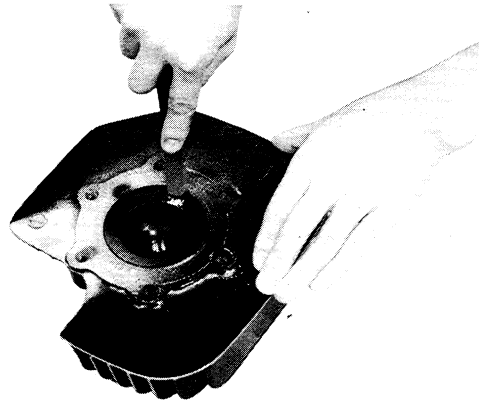
Fix the piston ring in the piston ring groove, measure the ring side clearance with the thickness gauge while matching the sliding surfaces of piston and ring.



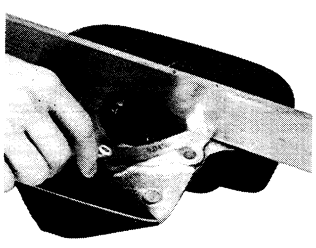
STD clearance	0.02 – 0.06 mm (0.001 – 0.002 in)

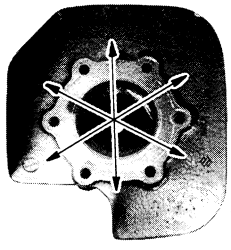
CYLINDER HEAD

Remove the carbon and clean the cylinder head. Check the scratch on the mating surface.



Check 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.





Service Limit	0.05 mm (0.002 in)

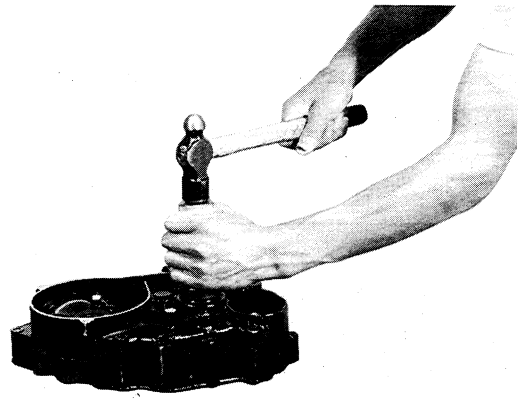
ENGINE REASSEMBLY

Reassemble the engine in the reverse order of disassembly, and also carry out the following steps.

OIL SEALS

Insert the oil seal into the crankcase by using oil seal installer.

09913 - 70122	Bearing installer
09913 - 76010	
09913 - 85210	



NOTE:
When fitting the oil seal in the crankcase, insert it slowly.

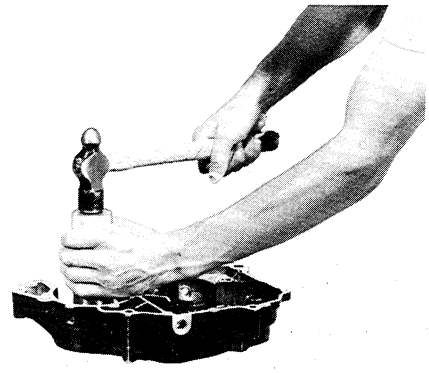
Apply SUZUKI Super Grease "A" to the lip of the oil seal.

99000 - 25010	Suzuki Super Grease "A"

BEARINGS

Insert the bearings into the crankcase by using bearing installers.

09913-70122	Bearing installer
09913-76010	
09913-85210	

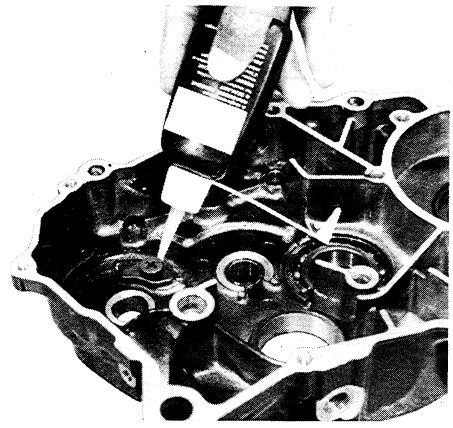


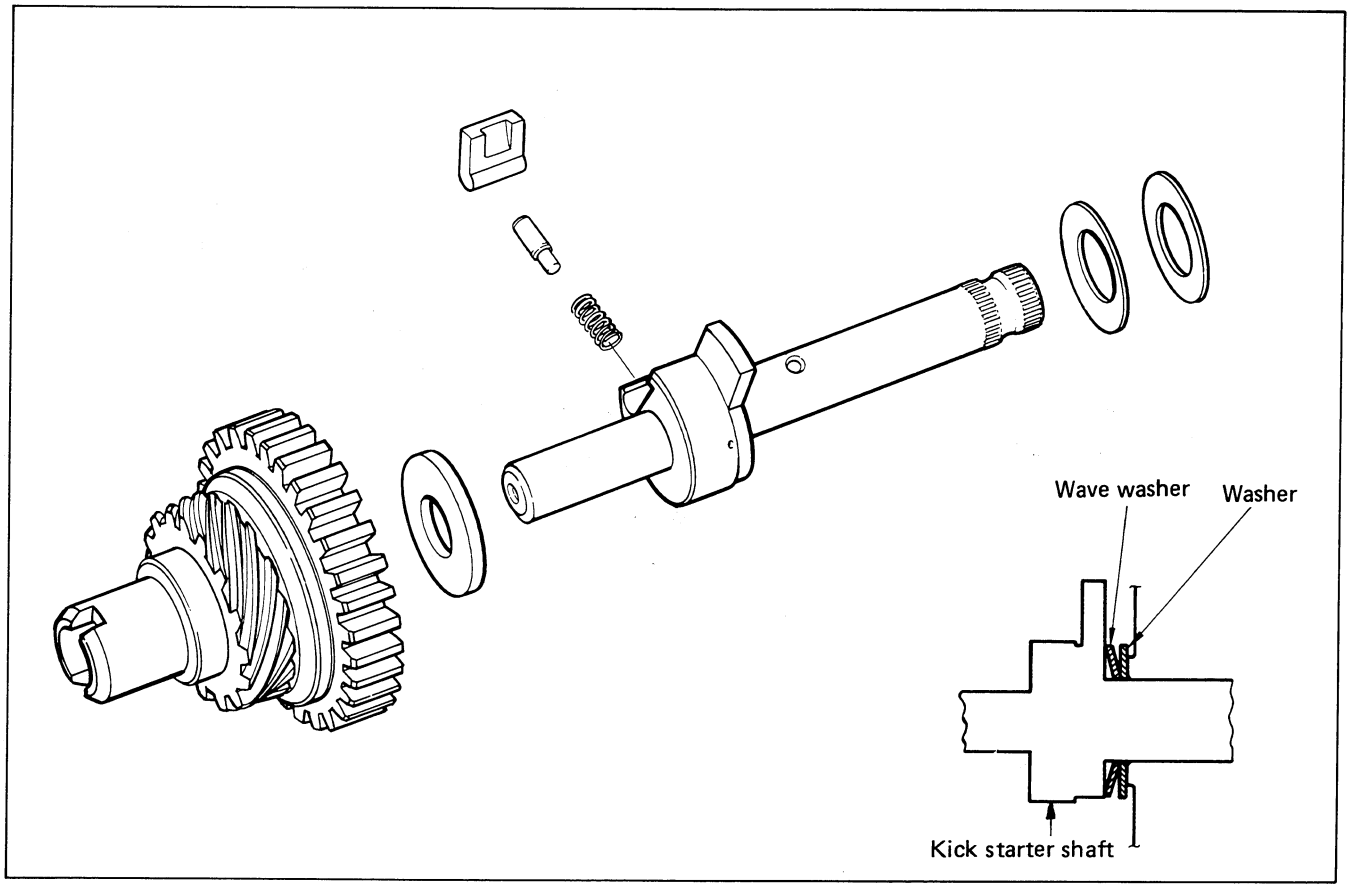
NOTE:
Apply engine oil to each running and sliding part before reassembling.

KICK STARTER

Apply Thread Lock "1342" to the kick starter pawl lifter securing screws.

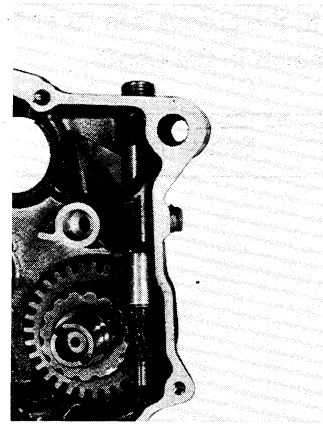
99000 - 32050	THREAD LOCK "1342"

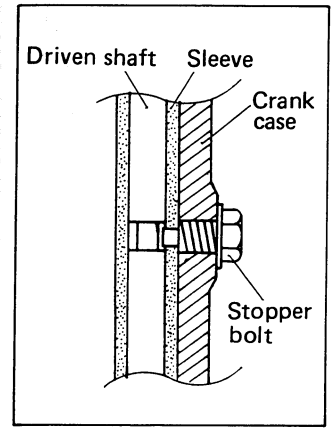




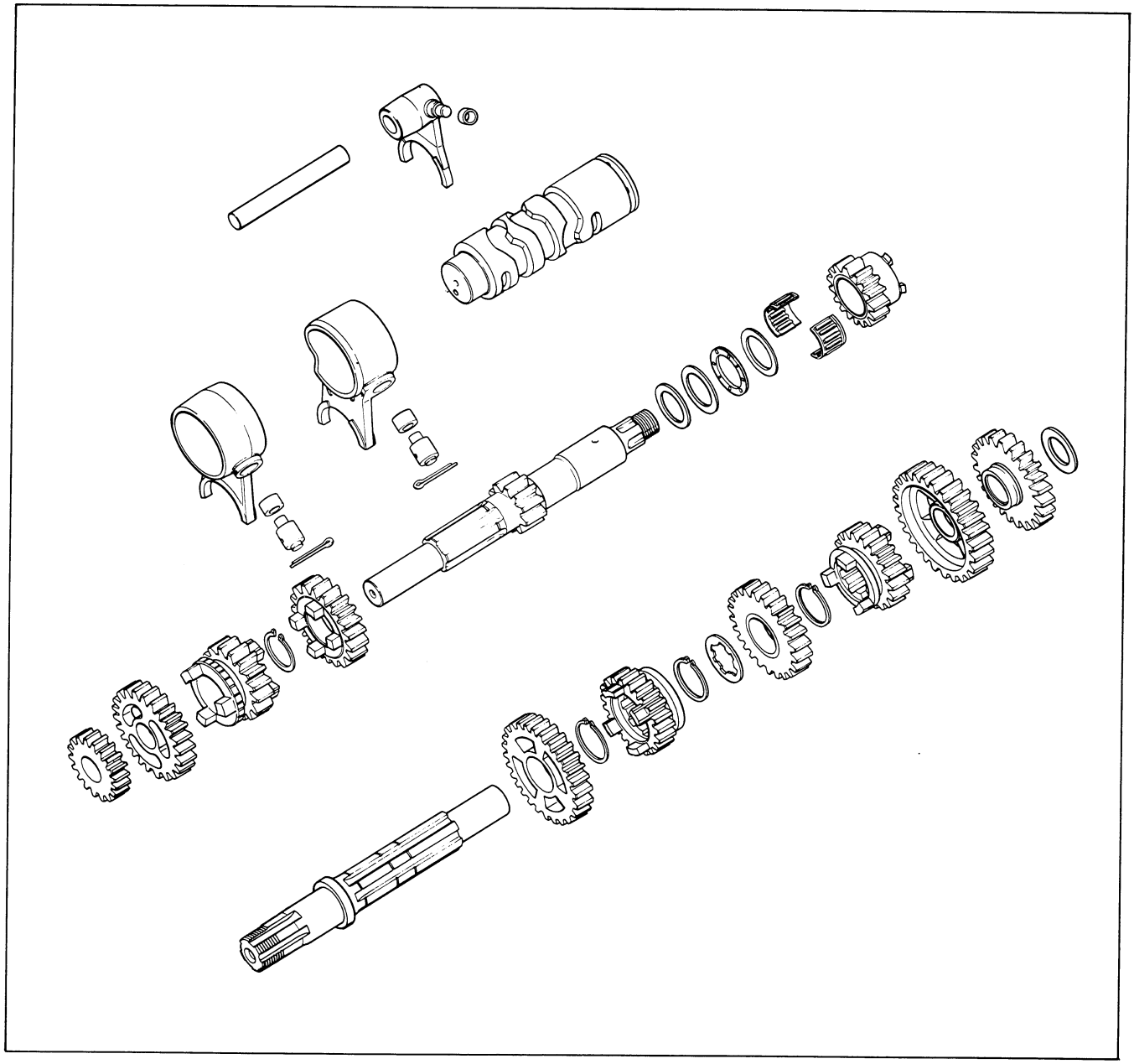
TACHOMETER DRIVEN GEAR

Install the tachometer driven gear as shown in figure.



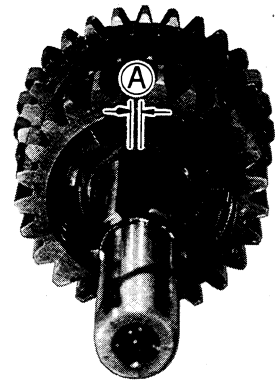


TRANSMISSION

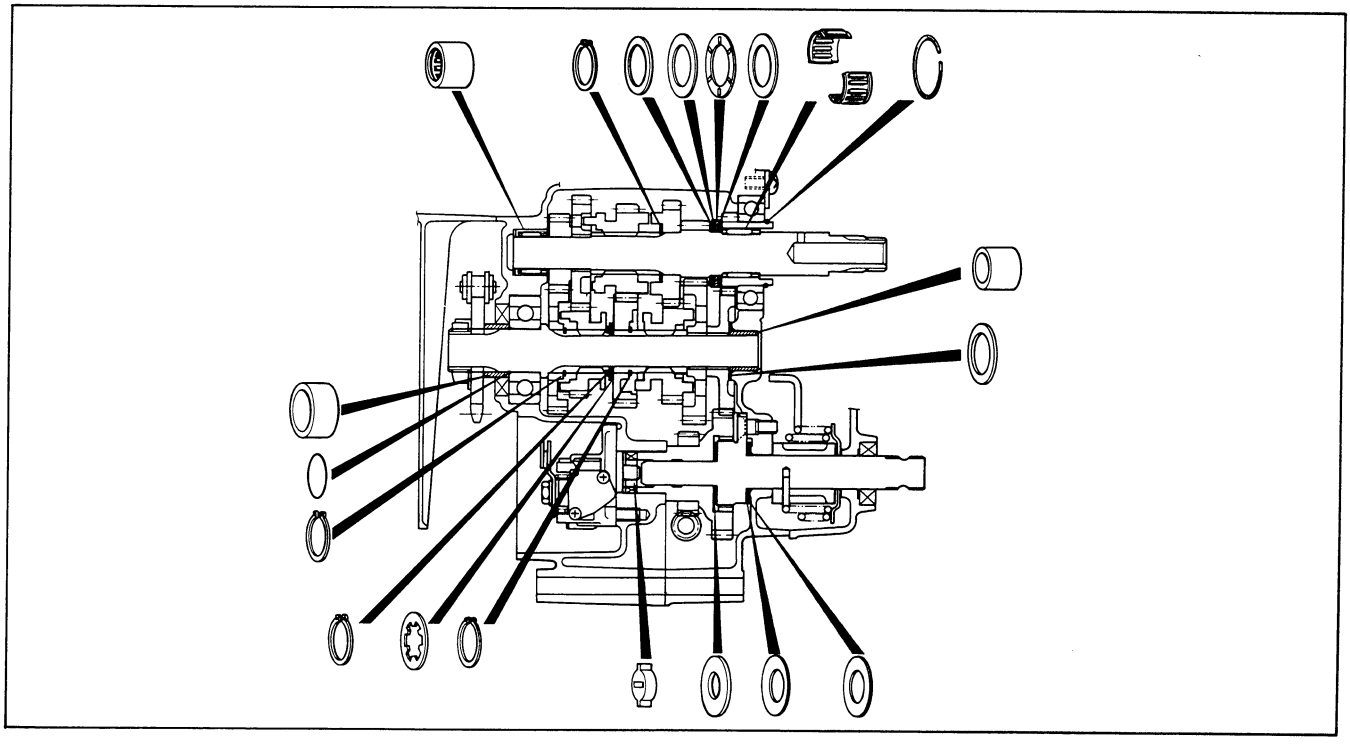


When seating the circlip, in the groove and its ends, Ⓐ should be located as shown in the photo.

09900 - 06104	Snap ring pliers

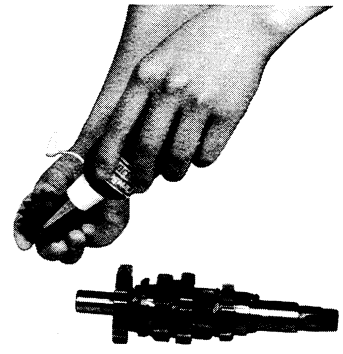


In reassembling the transmission, attention must be given to the location and position of washers and circlips. The cross sectional view given here will serve as a reference for correctly mounting the gears, washers and circlips.



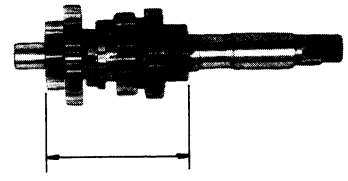
The 2nd drive gear ① has been press-fitted onto the countershaft. Remove it using a hydraulic press.

Before reassembling, coat the internal face of the 2nd drive gear with SUZUKI lock super "1303B" and install so that the length Ⓐ is 78.2 – 78.3 mm (3.079 – 3.083 in).

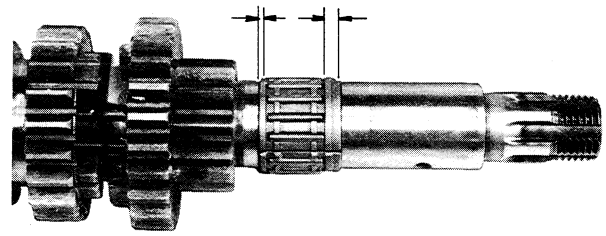


99000 - 32030	THREAD LOCK SUPER "1303B"

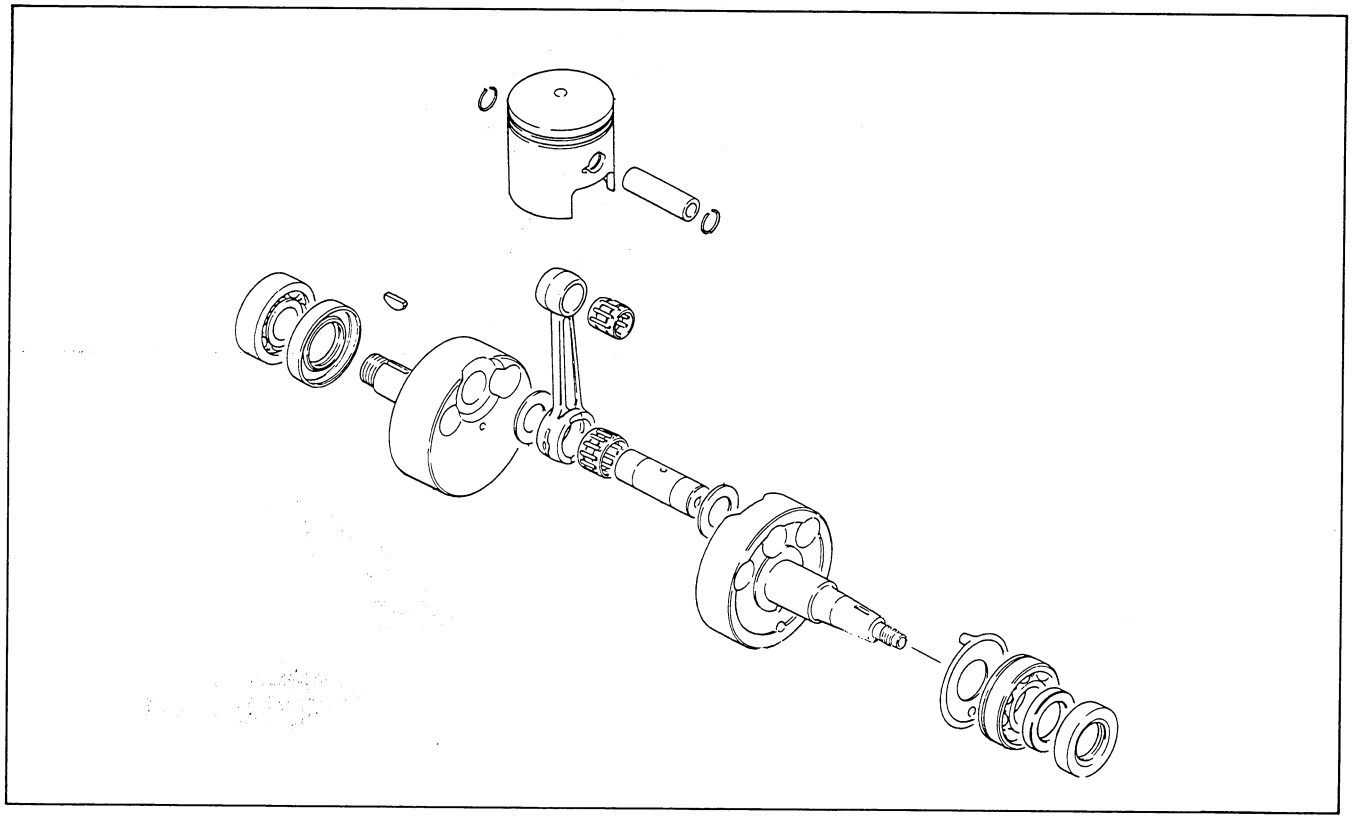
STD Width
78.0 $^{+0.3}_{+0.2}$ mm (3.071 $^{+0.012}_{+0.008}$ in)



A needle bearing in two halves is used between kick driven gear and countershaft.
When installing this bearing, make sure the stepped half (the one with a longer cage) comes to the clutch side.

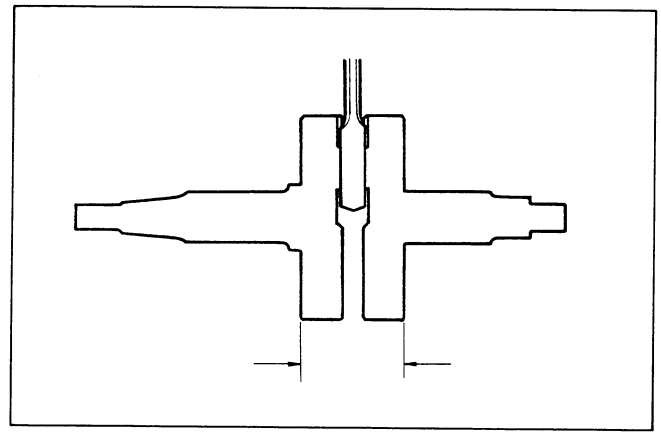


CRANKSHAFT



Decide the length between the webs referring to the figure below when rebuilding the crankshaft.

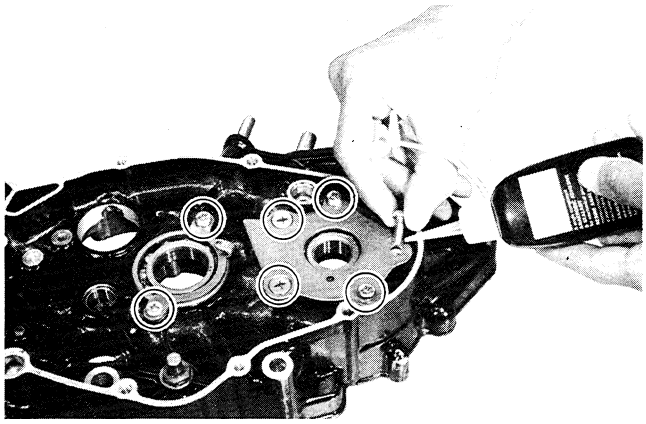
STD web to web width
56.0 ± 0.1 mm (2.205 ± 0.004 in)



BEARING RETAINER

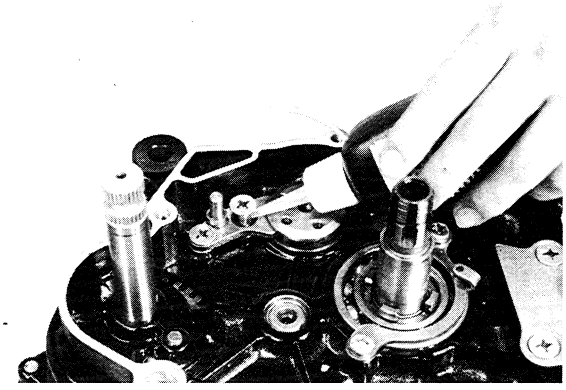
Apply Thread Lock "1342" to the bearing retainer securing screws.

99000 - 32050	THREAD LOCK "1342"



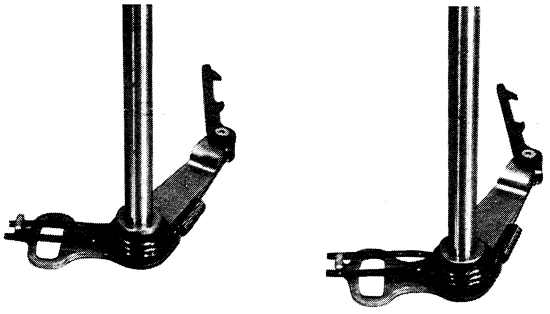
CAM GUIDE

Apply Thread Lock "1342" to the gearshifting cam guide securing screws.



GEARSHIFTING SHAFT

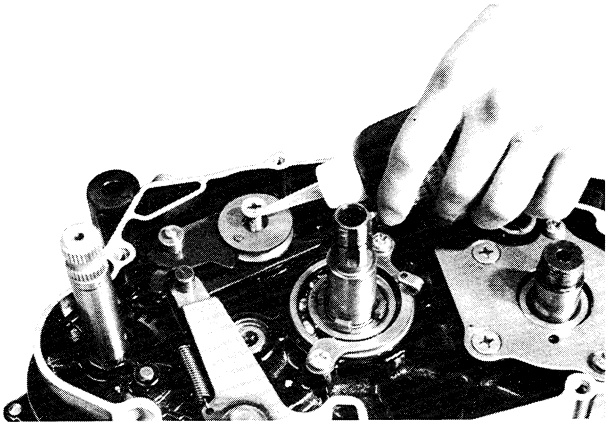
Attach the spring to the gearshift shaft correctly as indicated in figure.



CORRECT INCORRECT

CAM DRIVE PIN RETAINER

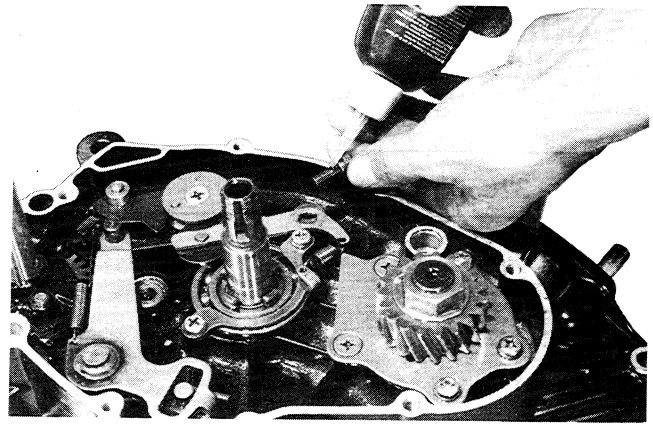
Apply Thread Lock "1342" to the gearshifting cam drive pin retainer securing screw.



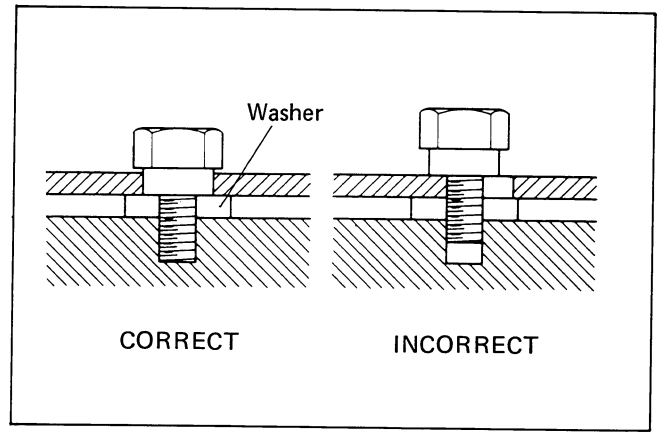
CAM STOPPER

Apply Thread Lock "1342" to the cam stopper fitting bolt.

99000 -32050	THREAD LOCK "1342"

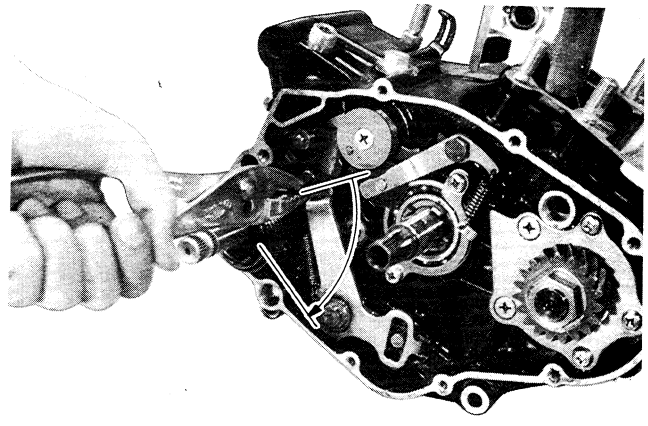


CAUTION:
Fit the cam stopper as illustrated.



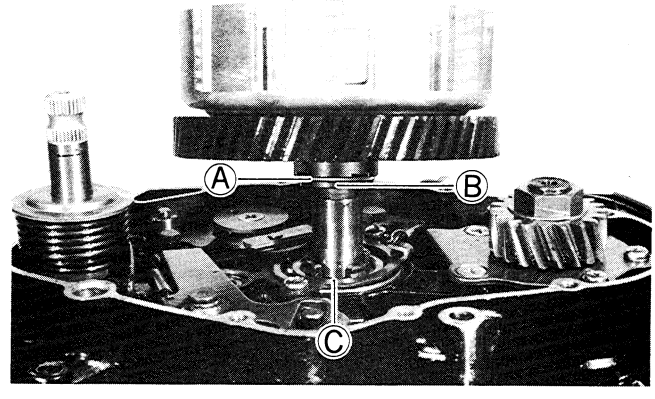
KICK STARTER RETURN SPRING

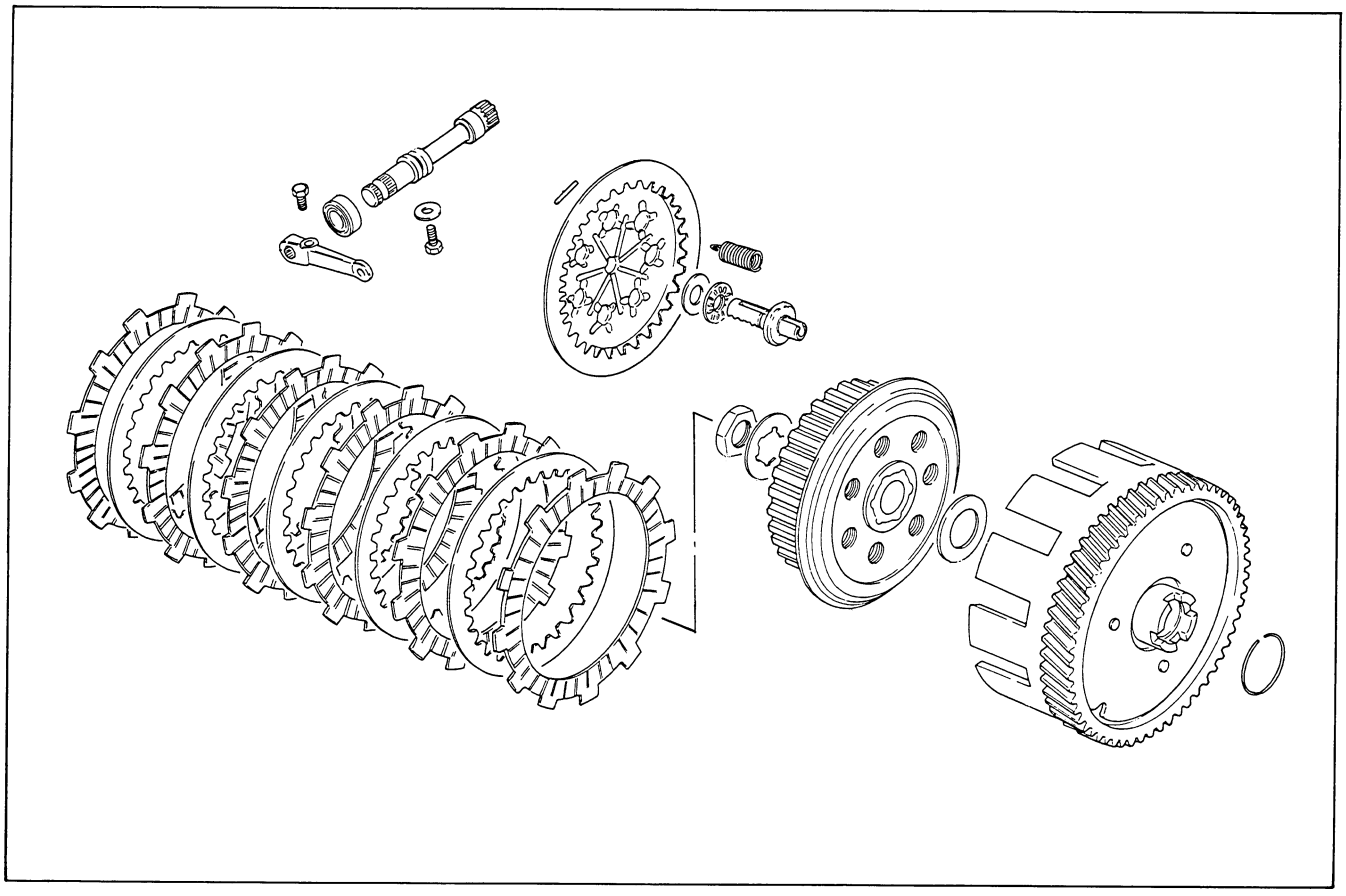
Hitch one end of return spring to the hole provided in kick starter shaft: rotate the spring about 90 degree clockwise; and hitch the other end to crank-case stopper.



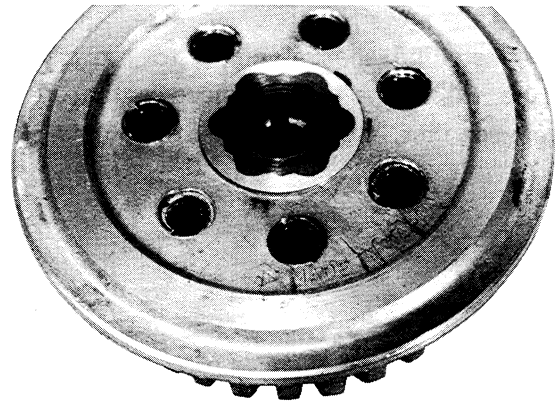
CLUTCH

After fitting the clip Ⓐ to the primary driven gear groove.
Match the boss Ⓑ of the primary driven gear with the groove Ⓒ of the kick starter driven gear.





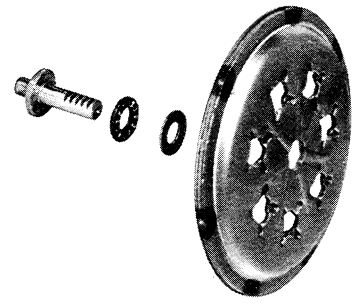
Be sure that the ends of the clutch spring bottom are kept at the same height as the bottom surface of the clutch sleeve hub.



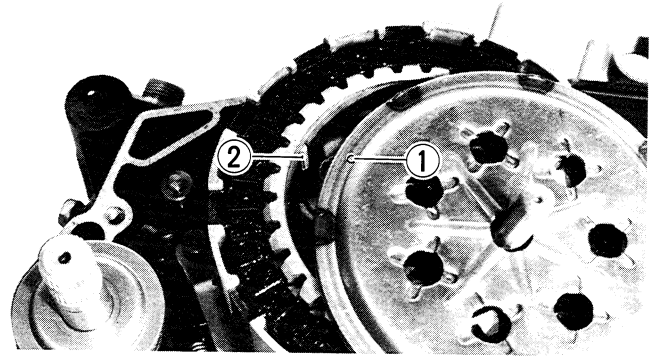
NOTE:

Make sure that the spring does not pop out of hub bottom surface.

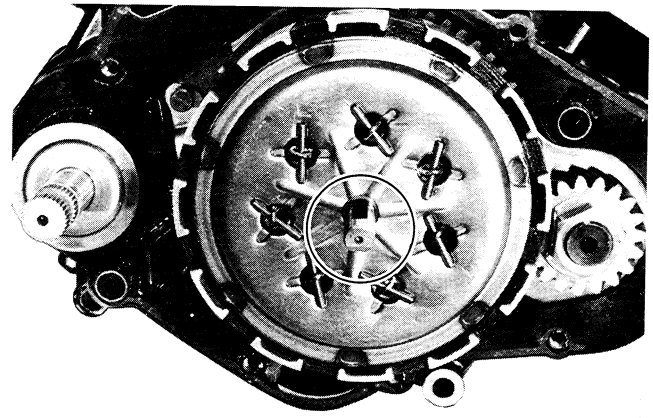
When installing the clutch release rack in the clutch pressure plate, assemble correctly the thrust bearing and thrust washer to the clutch release rack as figure.



Install the clutch pressure plate so that mark ① on the plate is aligned with boss ② in the clutch sleeve hub.

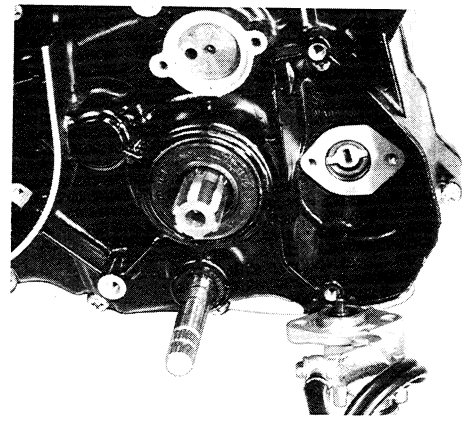


Place the two positioning pins and new gasket properly.
When replacing clutch cover, make sure that the rack gear should positively engage the pinion (rack gear side is bottom).



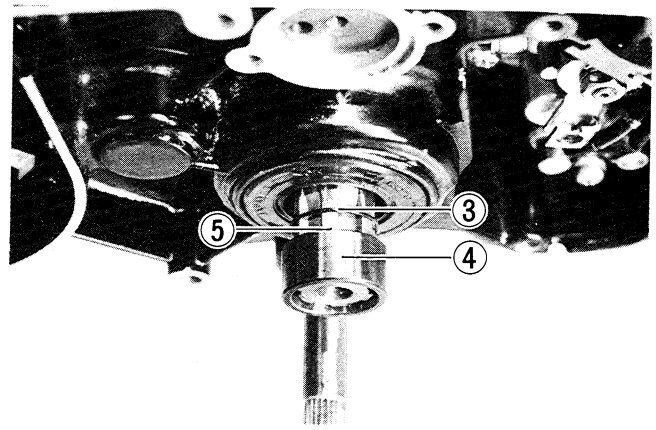
OIL PUMP

When installing the oil pump to the crankcase, be sure to fit the driving piece in the oil pump drive piece first, and then install the oil pump.



ENGINE SPROCKET

The O-ring ③ located next to the spacer ④ on the drive shaft is for sealing the clearance between the spacer and the shaft. When reassembling the engine sprocket, be sure to set the O-ring in the indicated place and large chamfered side ⑤ of the spacer facing the O-ring.



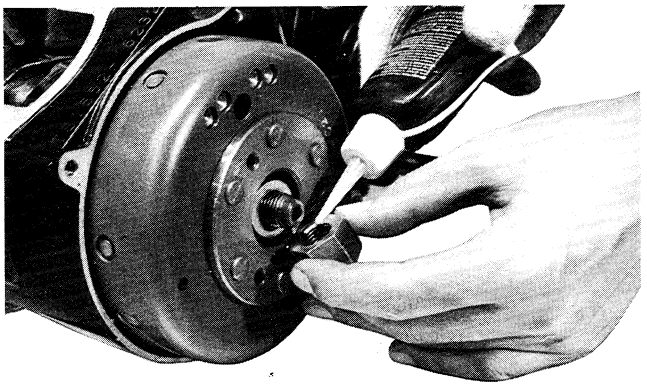
STATOR

When fitting the stator, align the index line ① on the stator with the center of screw.

ROTOR

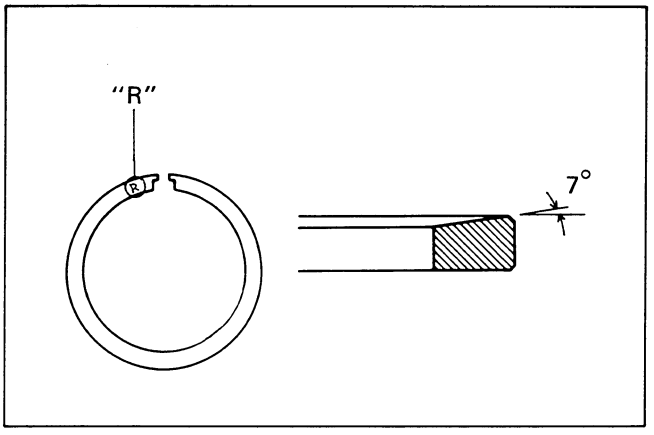
Apply Thread Lock "1342" to the rotor nut.

99000 - 32050	THREAD LOCK "1342"

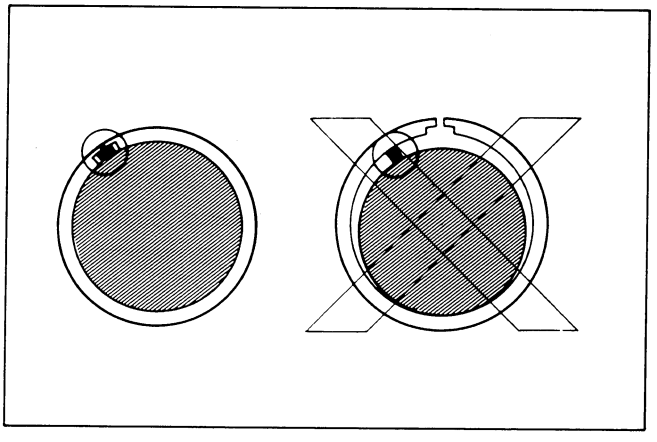


PISTON RINGS

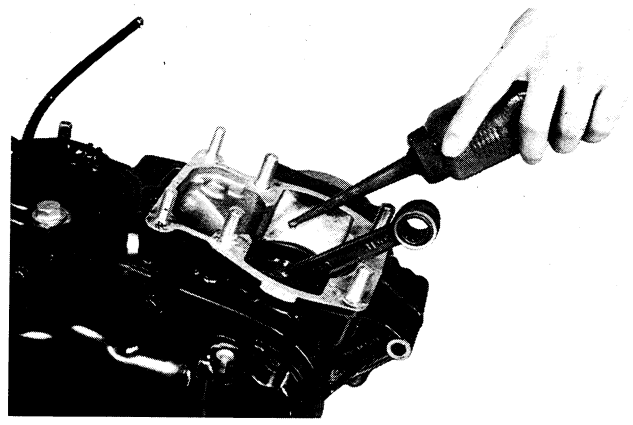
The two piston rings are key-stone type and both are identical, there being no need to discriminate one from the other. The punched park, as show in Fig., should face the cylinder head side.



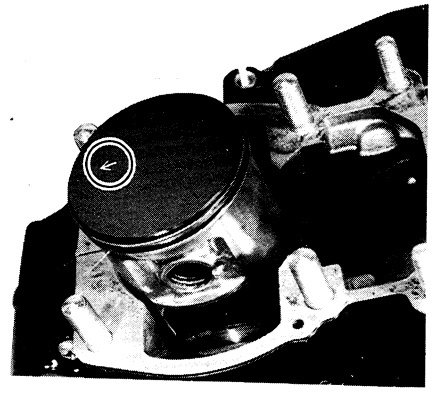
Each ring in place should be so positioned as to hug the locating pin.



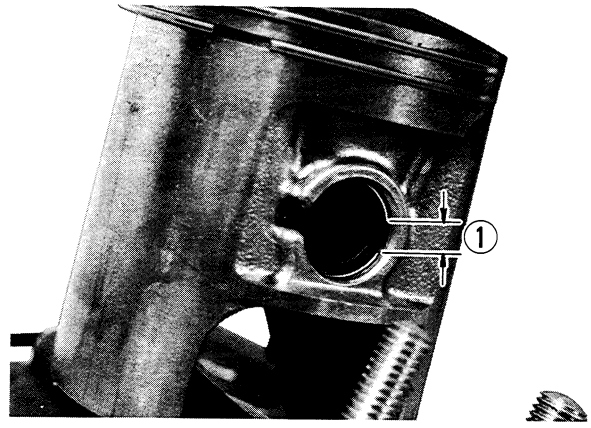
Before connecting the piston to the connecting rod, be sure to apply SUZUKI CCI SUPER Oil or two-stroke oil to the connecting rod big end and small end bearings.



The arrow mark on the piston crown points to the exhaust port side.

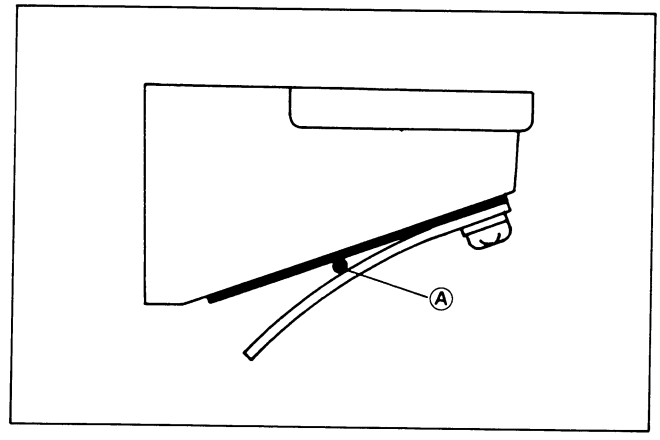


The circlip should be mounted in such a position ① that the mating ends of the circlip do not coincide with the groove portion of the piston.



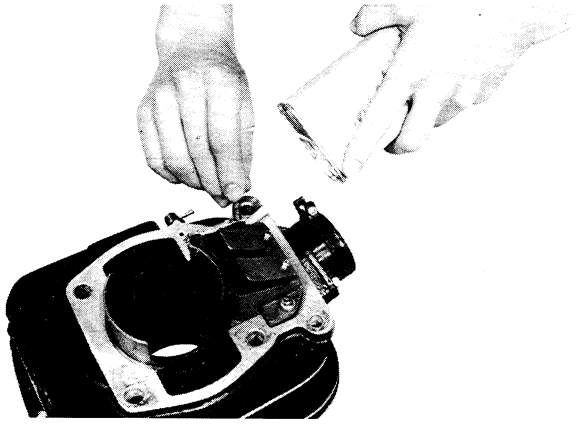
REED VALVE

The reed valve is located on the underside of the inlet port. Before securing the cylinder to the crankcase, examine the reed valve carefully, making sure that there is no foreign matter Ⓐ stuck between reed valve and valve stopper. Poor engine performance is often due to neglect of this attention.



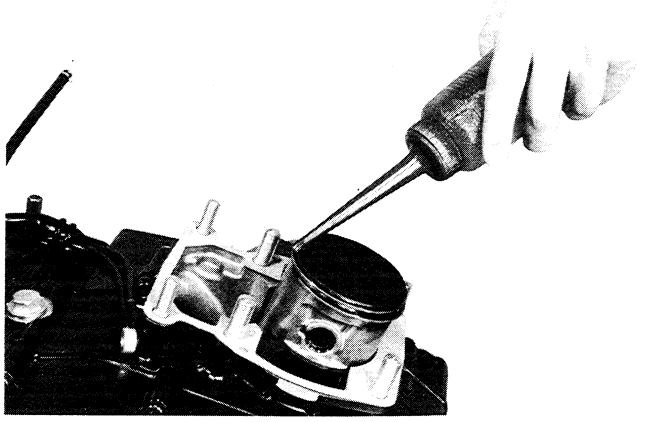
When fixing the reed valve to the cylinder, apply Thread Lock Cement to the reed valve securing screws.

99000 - 32040	Thread Lock Cement



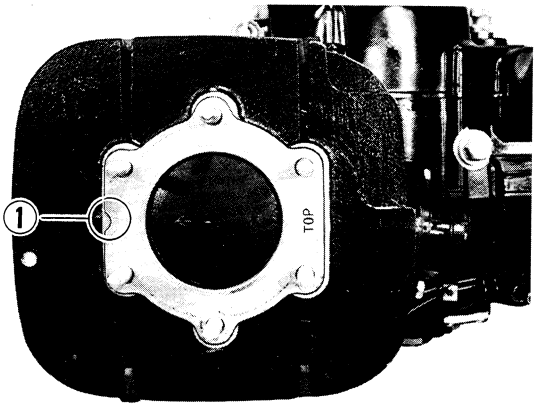
CYLINDER

Before inserting the piston in the cylinder, be sure to apply SUZUKI CCI SUPER Oil or two-stroke oil to the outer surfaces of the piston and position ring grooves.



CYLINDER HEAD GASKET

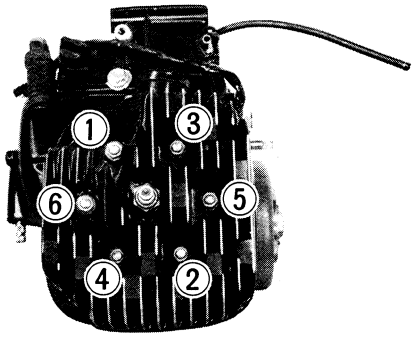
When installing the cylinder head gasket, note notch mark ① for front side and stamped mark "TOP" on upper side.



CYLINDER HEAD

Tighten the cylinder head nut with the following order and specified torque.

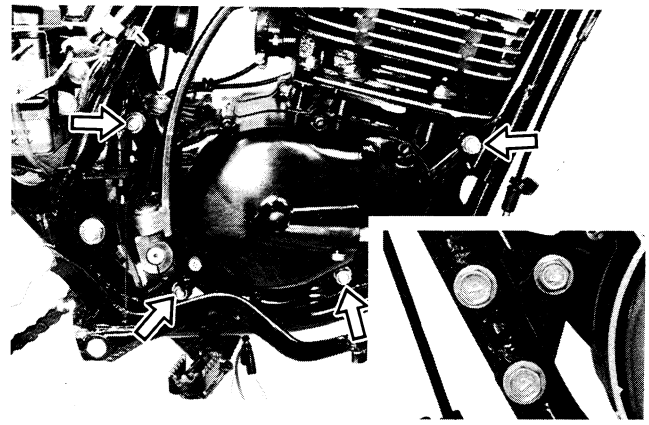
Tightening torque	13 – 23 N·m (1.3 – 2.3 kg-m)



MOUNTING BOLTS

Tighten the engine mounting bolts with specified torque.

8 mm	18 – 28 N·m (1.8 – 2.8 kg-m)
10 mm	40 – 60 N·m (4.0 – 6.0 kg-m)



ENGINE REMOUNTING

Refer to the engine removal section, page 3–1 to 3–4, to remount the engine.

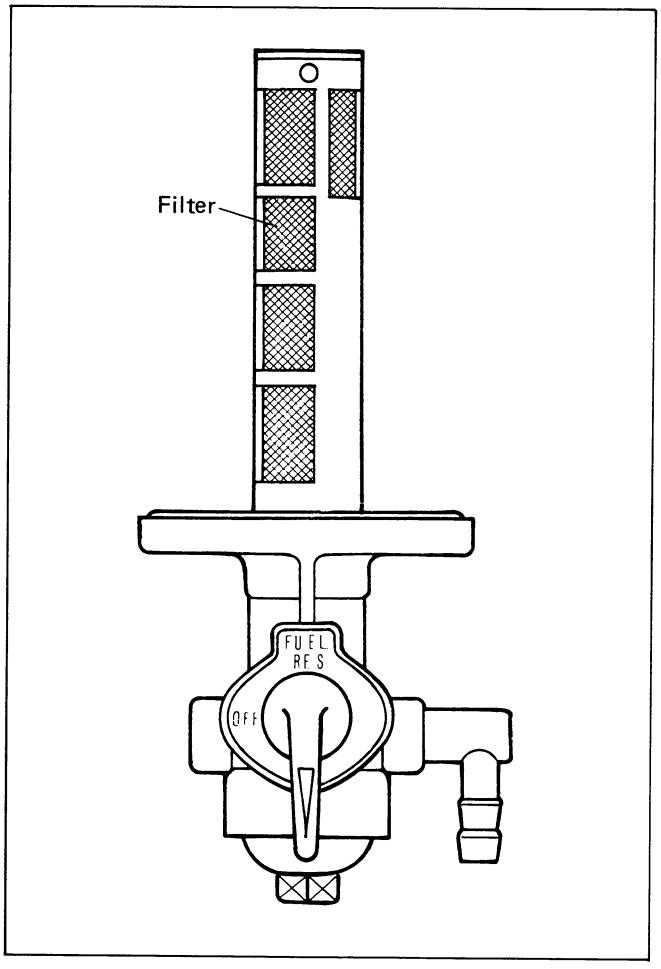
FUEL AND LUBRICATION SYSTEM

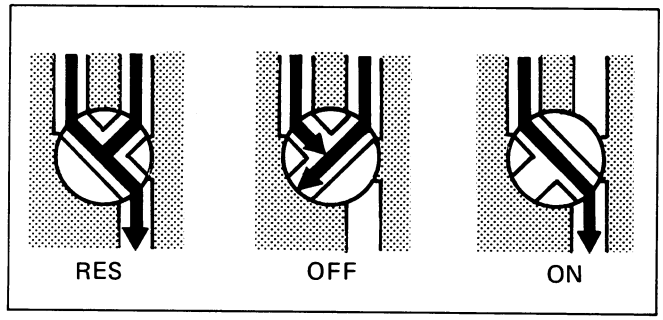
CONTENTS

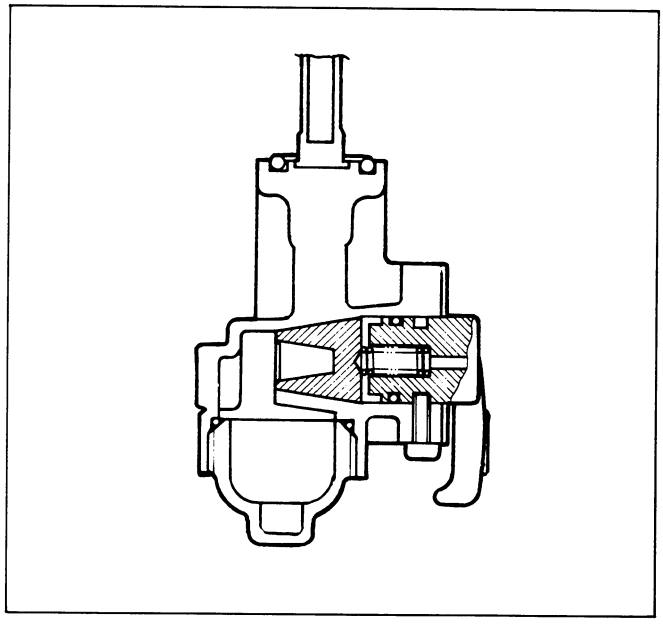
FUEL TANK AND COCK

The fuel tank is provided with a tank cap and fuel cock. An air vent is provided in the tank cap to supply gasoline smoothly to the carburetor. The fuel cock has the structure as shown in Fig. A valve is provided at the top of the fuel cock 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.

Generally, water or other impurities are contained in gasoline. A filter is provided to remove them and cup to deposit them.







CLEAN

The fuel cock filter will collect impurities, and therefore must be periodically checked and cleaned.

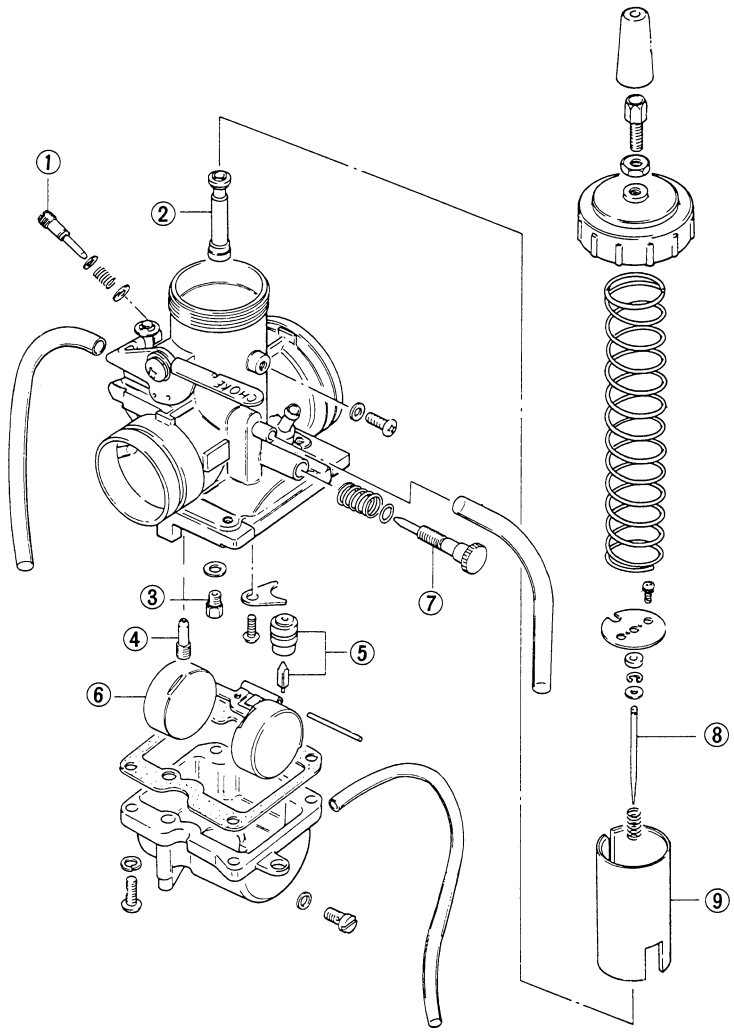
The fuel tank should be cleaned at the same time the fuel cock filter is being cleaned.

INSPECTION

If the fuel leaks from the cap or from around the fuel cock, the cup gasket or cock gasket may be damaged. Visually inspect these parts, and replace them if necessary. Examine the air vent in the cap to see if it is obstructed. Use compressed air to clean an obstructed vent.

CARBURETOR

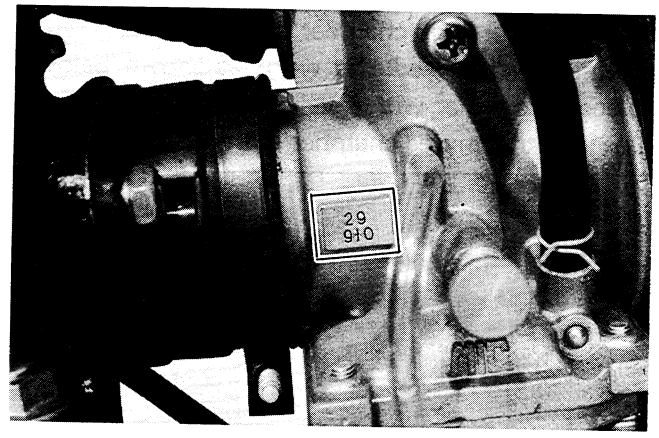
CONSTRUCTION



① Pilot air screw
② Needle jet
③ Main jet
④ Pilot jet
⑤ Needle valve
⑥ Float
⑦ Idle adjust screw

CARBURETOR SPECIFICATIONS

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29
I.D. No.		29910
Idle r/min.		1300 ± 150 r/min.
Float height		24.0 ± 1.0 (0.94 ± 0.04)
Main jet	(M. J.)	# 195
Air jet	(A. J.)	0.7
Jet needle	(J. N.)	5DH48–3
Needle jet	(N. J.)	P – 1
Cut-away	(C. A.)	2.5
Pilot jet	(P. J.)	# 25
By pass	(B. P.)	1.0
Pilot outlet	(P. O.)	0.6
Air screw	(A. S.)	1¼
Valve seat	(V. S.)	2.0
Starter jet	(G. S.)	80
Throttle cable play		0.5 – 1.0 (0.02 – 0.04)

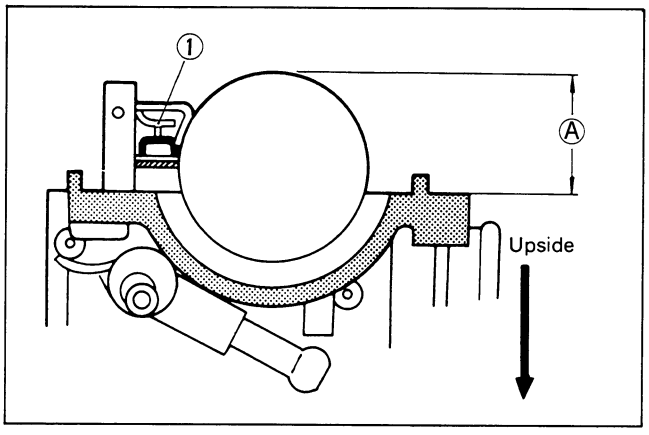


I.D. number location

FLOAT HEIGHT ADJUSTMENT

To check the float height, invert the carburetor body, holding the float arm pin so that the pin will not slip off. With the float arm kept free, measure the height Ⓐ while float arm is just in contact with needle valve by using the caliper. Bend the tongue ① as necessary to bring the height Ⓐ to this valve.

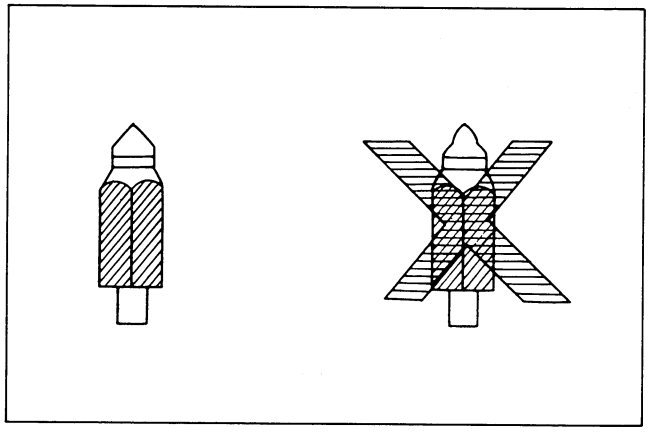
Float height	24.0 ± 1.0 mm (0.94 ± 0.04 in)



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 out beyond the permissible limits, similar trouble will occur. Conversely, if the needle sticks, the gasoline will not flow into the float chamber.

Remove the carburetor, float chamber and floats, and clean the float chamber and float parts with gasoline. If the needle is worn as shown below, replace it together with a valve seat. Clean the fuel passage of the mixing chamber with compressed air.



DIAGNOSIS OF CARBURETOR

Whether the carburetor is producing a proper mixture of fuel and air can be checked by making a road test (simulating the way the user operates the machine) with a standard spark plug (NGK BP7ES or NIPPON DENSO W22EP) fitted to the engine. After the road test, remove the spark plug, and observe the appearance of the plug as well as the surfaces of the piston crown. The color observed tells whether the mixture is too rich or too lean.

MIXTURE ADJUSTMENT

- This adjustment is effected mainly by main jet and jet needle.
  Before doing so, check to be sure that the float height is correctly set and that the overflow pipe, inlet hose and air cleaner are in sound condition.
- Find out at which throttle position the engine lacks power or otherwise performs poorly. Drive the machine at that throttle position for a distance of about 10 km, after which the spark plug and piston crown should be inspected for color and appearance.
- The mixture can be made "richer" or "leaner" in three ways: namely, by alterring main jet, jet needle and air adjusting screw. Effectiveness of these ways depends on the throttle position, as shown in this chart.

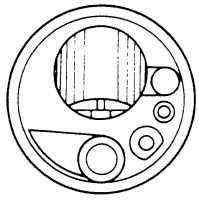
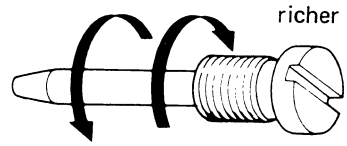
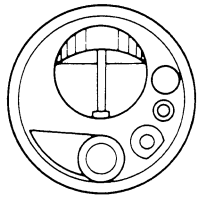
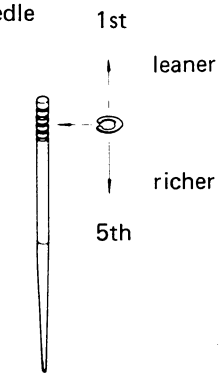
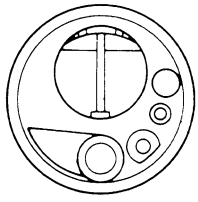
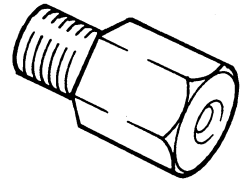
Throttle opening	1/4	1/2	3/4	Full
Pilot air screw				
Jet needle				
Main jet				

NOTE:
If the machine is tested at 1/2 throttle resulting in a color and appearance indicating a mixture that is too rich or too lean, perform adjustment by means of jet needle and air adjusting screw.

CARBURETION

Adequate carburetion is determined according to the results of various tests, mainly concerning engine power, fuel consumption and cooling effect of fuel on engine, and jet settings are made so as to satisfy and balance all of these conditions. Therefore, the jet should not be replaced with a size other than the original, and the positions of adjustable parts should not be changed except when compensating for the mixture ratio due to altitude differences or other climatic conditions. When adjustment is necessary, refer to the following.

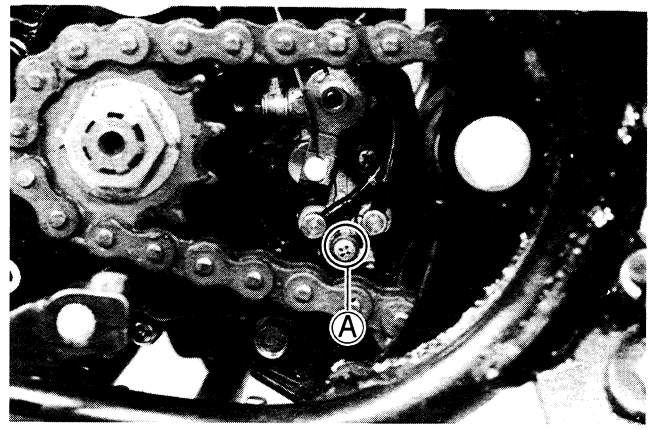
Fuel-air mixture ratio can be changed as follows:

Throttle Opening	Method of Changing Ratio	Standard setting
 Slight	Air adjusting screw 	1¼ turns back
 Medium	Jet needle 	5DH48 – 3rd Groove
 High	Main jet  Larger number: richer mixture Smaller number: leaner mixture	# 195

OIL PUMP

AIR BLEEDING

Whenever evidence is noted of some air having penetrated into the oil pipe from the oil tank in a machine brought in for servicing, or if the oil pump has to be removed for servicing, be sure to carry out an air bleeding operation with the oil pump in place before returning the machine to the user. How to bleed the air: With the engine not running; loosen screw Ⓐ , to let out the air; and, after making sure that the trapped air has all been bled, tighten the screw securely.

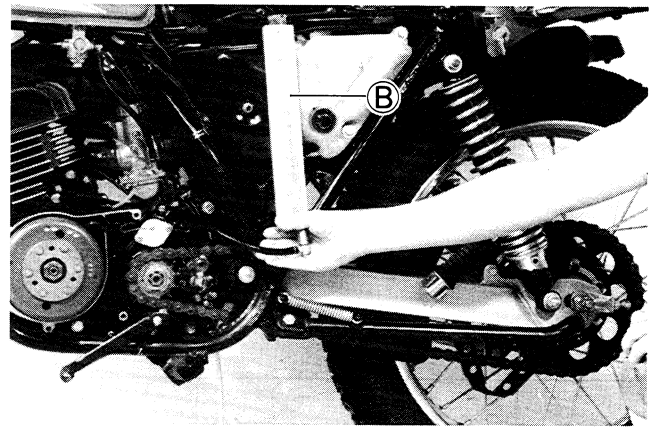


CHECKING OIL PUMP

Use the special tool Ⓑ to check the pump for capacity by measuring the amount of oil the pump draws during the specified interval.

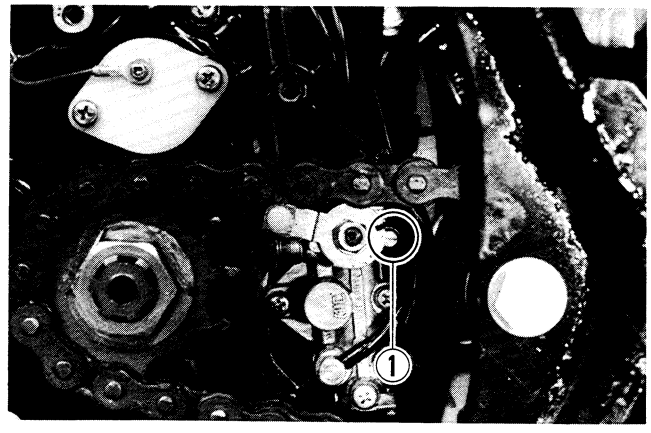
The checking procedure follows:

Have the tool Ⓑ filled with SUZUKI CCI SUPER OIL, and connect it to the suction side of the pump.



Run the engine at 2 000 r/min.

Hold the oil pump control lever in fully open position ① and let the pump draw the oil for 2 minutes. The pump is working properly if the special tool indicates any where between 1.53 and 1.90 ml.



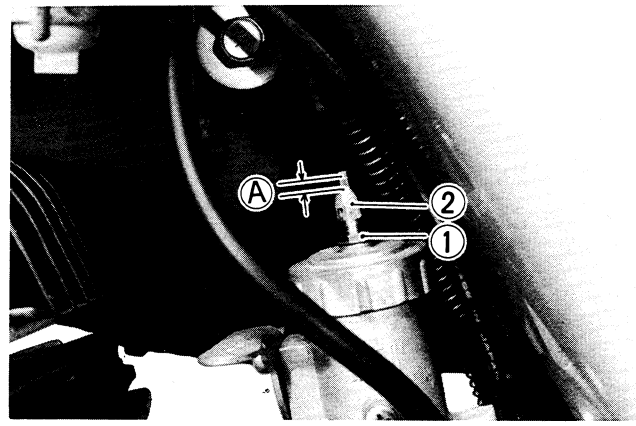
09900 - 21602	CCI Oil gauge

Oil pump discharge rate	1.53—1.90 ml (0.052/0.054—0.064/0.067 US/Imp oz)

CONTROL CABLES

THROTTLE CABLE ADJUSTMENT

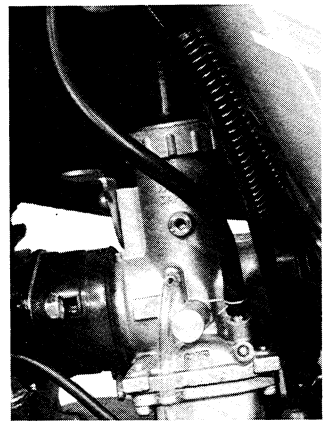
Loosen the lock nut ①.
Adjust the cable slack to 0.5 – 1.0 mm (0.02 – 0.04 in) Ⓐ by turning adjuster ②.
After adjusting the slack, tighten the lock nut ①.

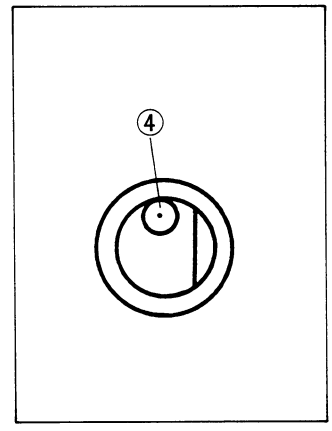


CAUTION:
This adjustment could affect the oil pump lever adjustment. Therefore, readjust the oil pump lever cable as necessary.

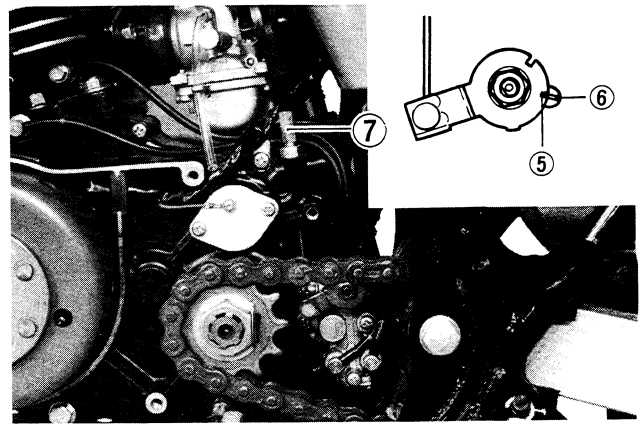
OIL PUMP CABLE ADJUSTMENT

Turn the throttle grip until the dent mark ④ on the throttle valve comes to the upper part of the hole.
Check whether the mark ⑤ on the oil pump control lever is aligned with the index mark ⑥ when the throttle valve is positioned as above. If the mark are not aligned, adjust by means of the cable adjuster ⑦ to align them.





CAUTION:
Oil pump cable adjustment must be done after the throttle cable adjustment.



ELECTRICAL SYSTEM

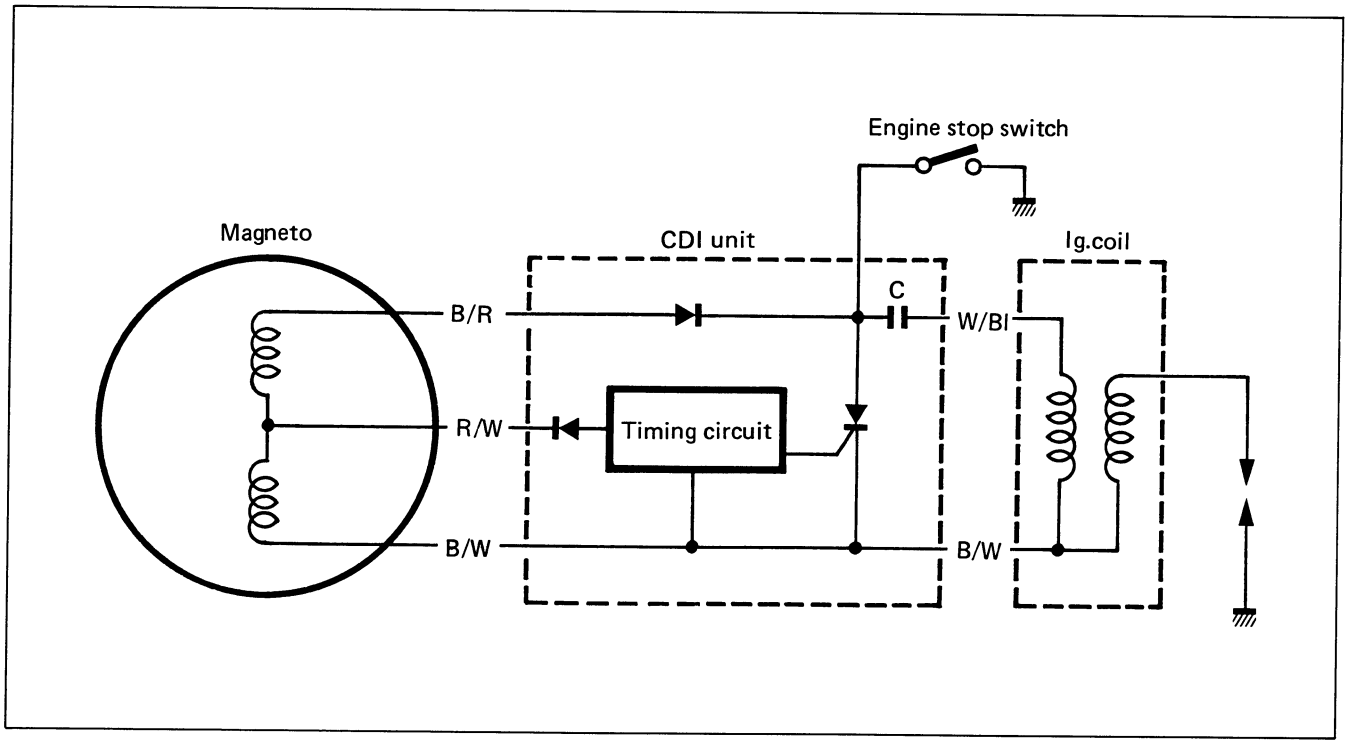
CONTENTS

IGNITION SYSTEM

DESCRIPTION

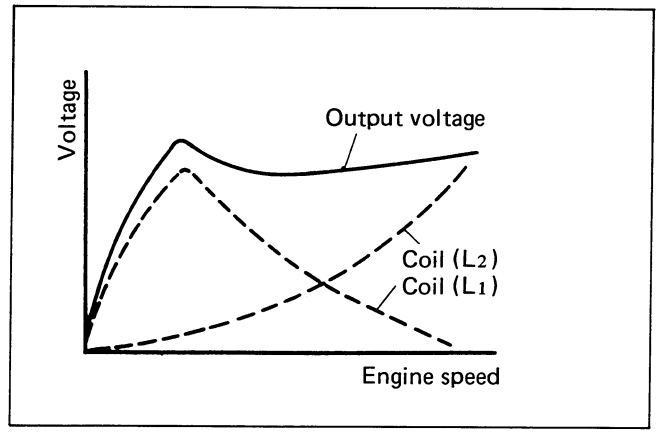
The magneto has three coils to meet all electric power needs - charging, lighting loads and ignition. Unlike conventional magneto units, it is of a contactless type, i.e., no contact breaker is used. Ignition energy is produced by a SUZUKI "PEI" system, to which the energy for initiating each ignition is supplied from the low-speed and high-speed coils mounted in the magneto. The PEI system is highlighted by these three advantages:

- For the entire speed range from low-speed to high-speed, the sparking voltage induced in the secondary side of the ignition coil is stable.
- No need for frequent checking and servicing of the ignition system since there are no mechanical contact points as in ordinary contact breakers.
- Ignition timing is corrected electronically to suit each level of engine speed.

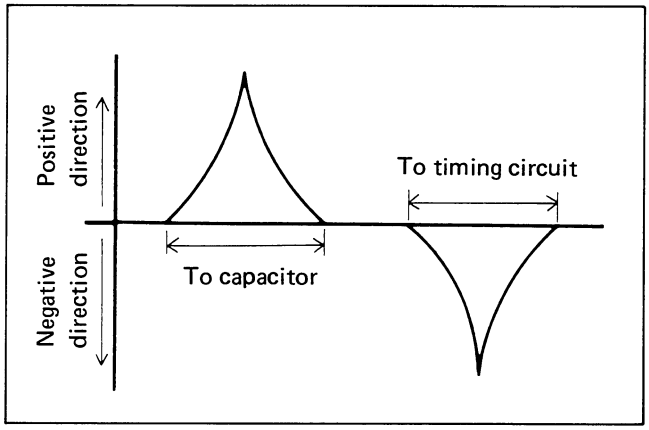


PEI Operating principles

When the engine is running in low-speed range, primary coil voltage for charging the condenser is supplied mainly front coil (L1); in high-speed range, however, coil (L2) supplies most of the voltage. The sum of these two output voltages is relatively constant over the normal engine speed range as will be shown in Fig.



During half a revolution of the magneto rotor, two pulses of energy are supplied from the primary coils (L1) and (L2), to the CDI unit. One pulse is positive and the other negative as shown in Fig.



It is the positive pulse that charges the condenser C, the negative pulse applies to the timing circuit and triggers the SCR into conductive state.
As the SCR becomes conductive, the condenser discharges instantly through the SCR and the primary winding of the ignition coil to induce the high-voltage surge in the secondary winding. The high voltage current causes the spark plug to spark two times by each rotation of crankshaft.

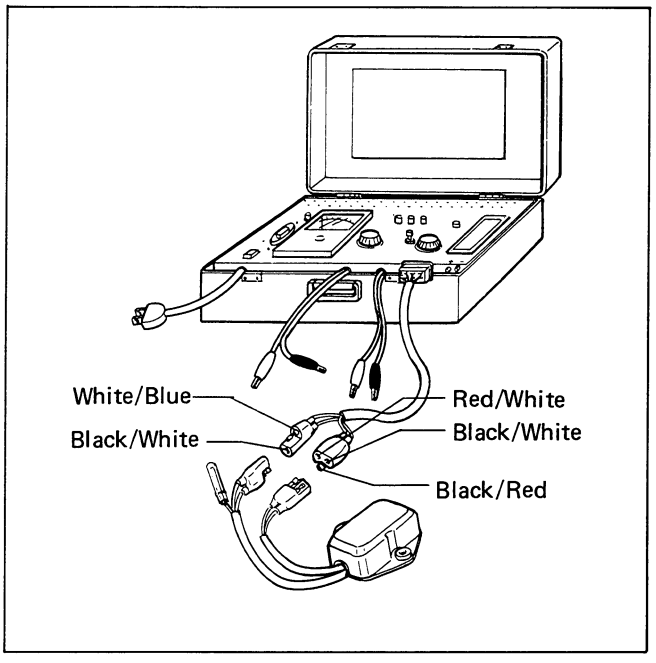
CDI UNIT INSPECTION

The purpose of inspecting the CDI unit is to determine whether or not the unit is electrically in good condition. There are two ways to inspect. One is simpler and based on the use of a special tool, which is the Type SS-II SUZUKI electro tester; the other involves the use of SUZUKI Pocket Tester.

Checking with electro tester

Connect the CDI unit to the electro tester, as shown in Fig. Twist the selector knob to "PEI" range, and turn on the power switch. The "PEI" indicator lamp will light up to tell that the CDI unit is in good, sound condition; if the lamp will not light up, it means, that the CDI is defective and needs to be replaced.

09900 - 28106	Electro tester

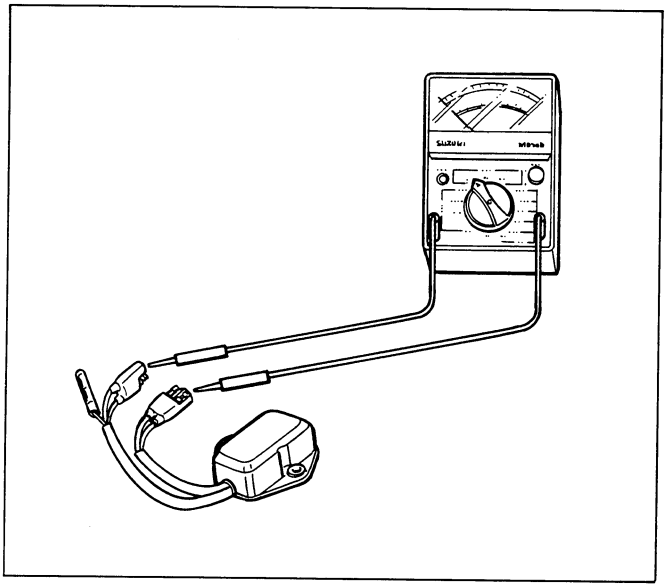


Checking with pocket tester

Use a SUZUKI pocket tester in reference to the following chart by adhering to these rules:

- Before starting to check the "CDI" unit, be sure to have all lead-wire couplers unmade.
- Just before putting your pocket tester to two "CDI" terminals, briefly short-circuit them with a jumper.

09900-25002	Pocket tester



Checking chart:

Negative (–) Pointer to Touch	Positive (+) Probe Pointer to Touch				
	Black/ Yellow	Black/ White	Black/ Red	Red/ White	White/ Blue
Black/ Yellow		CON	Approx. 2MΩ	CON	CON
Black/ White	ON		Approx. 2MΩ	ON	CON
Black/ Red	ON	CON		CON	CON
Red/ White	OFF	OFF	OFF		OFF
White/ Blue	CON	CON	CON	CON	

Term	Significance
ON	The tester shows circuit continuity.
OFF	The tester shows infinitely large resistance or, for short, infinity.
CON	The indicating hand deflects a little but promptly returns to the infinity end of the scale.

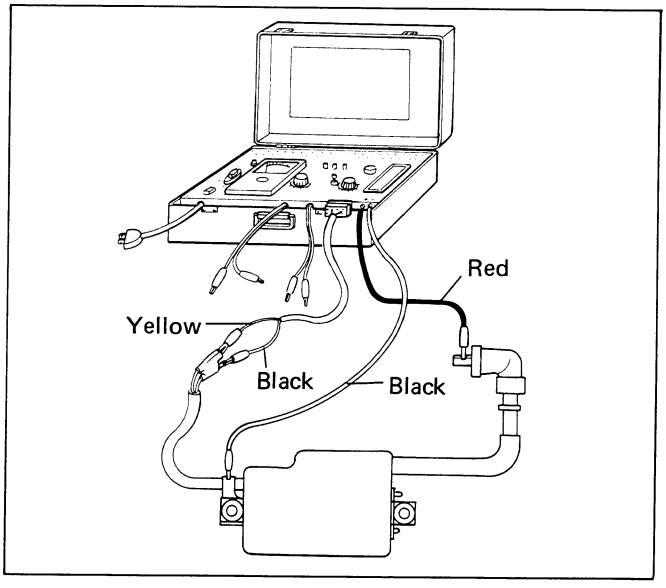
This chart presupposes that the "CDI" unit is in sound condition; "ON", "OFF", CON and each resistance in the boxes of the chart refer to what your pocket tester will indicate when its positive and negative pins are put to the indicated terminals of a good "CDI" unit.

IGNITION COIL INSPECTION

The ignition coil is essentially a transformer which changes low voltage into high. For this reason there are two windings; the first (low voltage – input side) is the primary coil and the second (high voltage – output) the secondary coil.

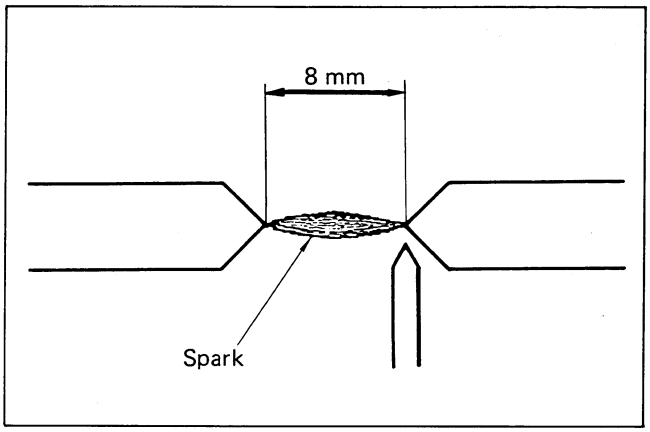
Checking with electro tester

- Set the power switch to "OFF".
- Connect the coil test leads with the yellow tip attached to the coils W/Bl wire and the black tip to the B/W lead wire (ground). Connect the high tension leads with the red ⊕ lead attached to the spark plug cord and the black ⊖ lead to the coils mounting bracket (ground).



- Set the test selector knob to "IG. COIL".
- Switch the power ON.
- Note the spark in the spark gap window. It should be strong and continuous, not intermittent, across a preset 8 mm (0.3 in) gap. Allow the spark to jump the test gap for at least five minutes continuously, to insure proper operation under the temperature conditions of actual riding.

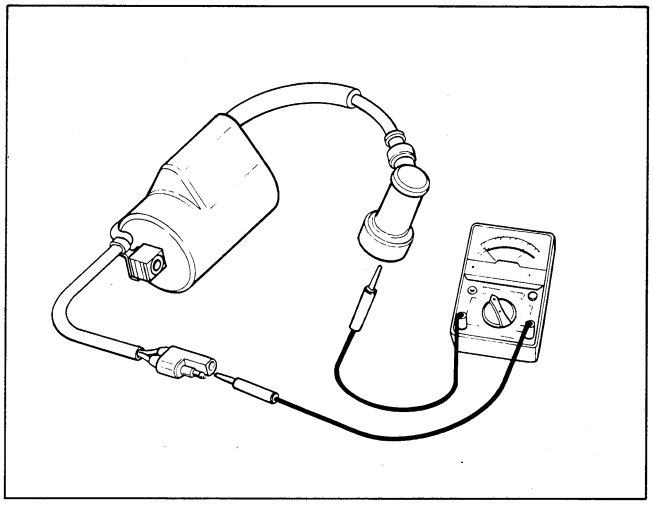
09900 - 28106	Electro tester



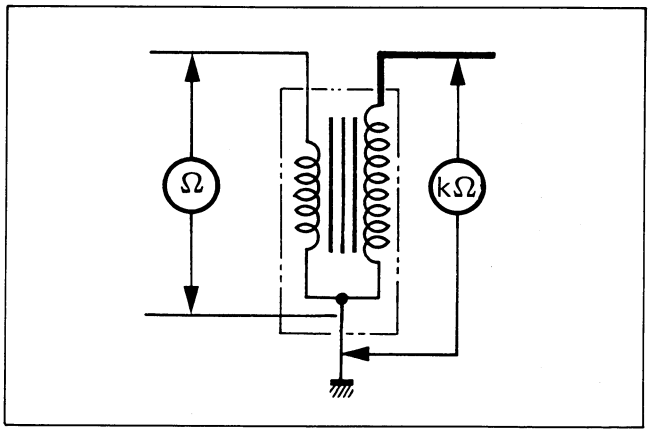
Checking with pocket tester

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.

09900 - 25002	Pocket tester



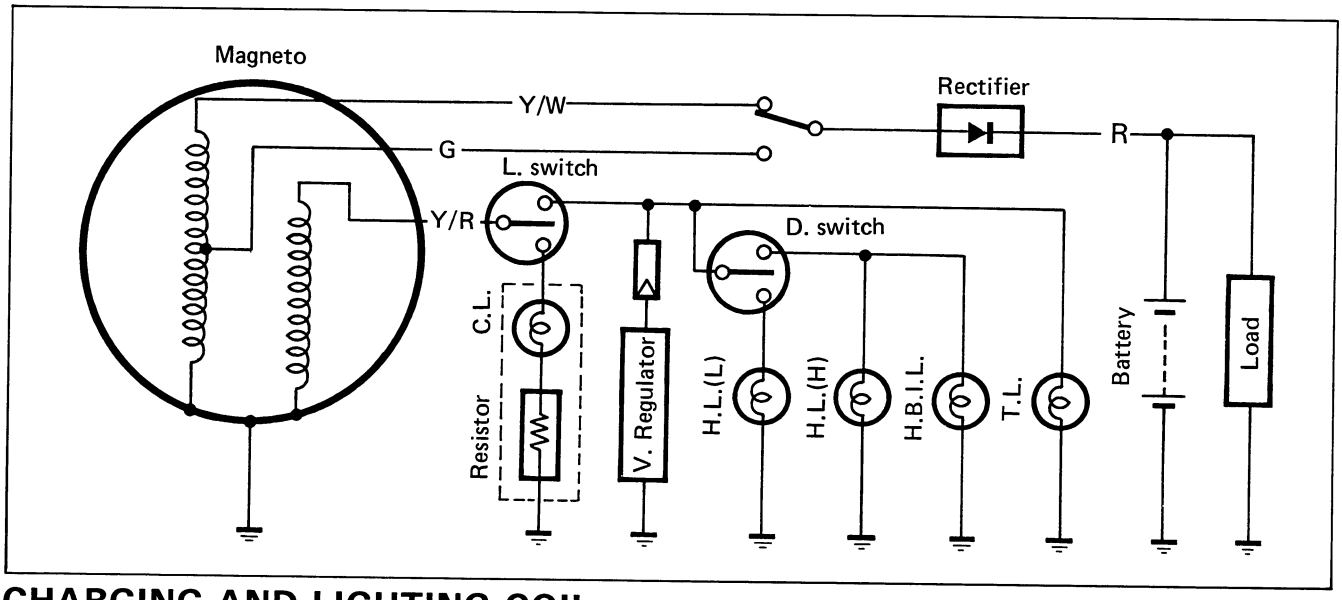
STD resistance	Primary	W/Bl – B/W
		Approx. 0–1 Ω
	Secondary	Plug cap – Ground
		Approx. 20–21 kΩ



CHARGING AND LIGHTING SYSTEM

DESCRIPTION

The charging system uses the flywheel magneto as shown in the figure. The charging and lighting coils are mounted on the magneto stator and generate AC as the flywheel rotor turns. The charging and lighting system incorporates two circuits, for charging and lighting. These circuits are engaged by setting the ignition key to the ON position. AC generated in the charging coil flows to the rectifier where it is changed to DC. This DC then charges the battery. On the other hand, lighting coil supplies AC current to the headlight, taillight and high beam indicator light under the regulated condition.



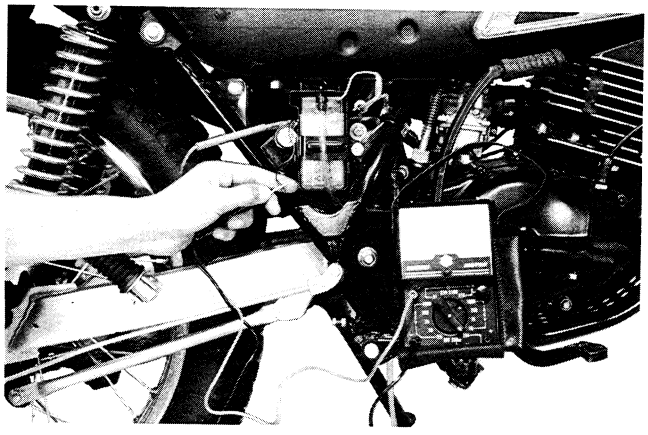
CHARGING AND LIGHTING COIL PERFORMANCE

Charging performance check:

Set the pocket tester knob to DC Ampere range 20A.

Start the engine.

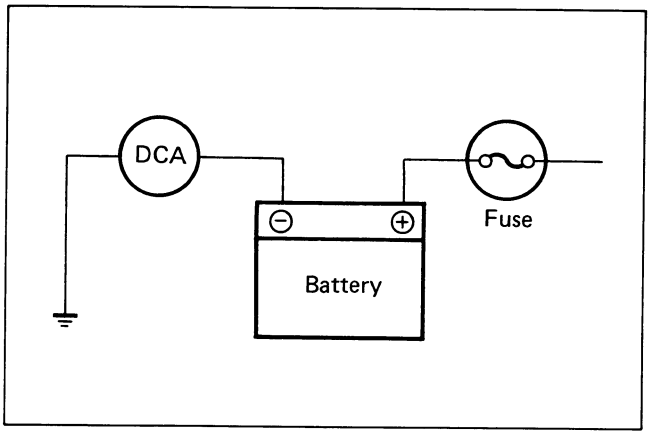
Check that the proper charging occurs at the various engine speeds shown in the following chart. (Values in the table indicate minimum limit. Therefore, they should be more than indicated under normal condition.)



NOTE:

Be sure to use a battery which is completely charged. When connecting the pocket tester terminals, be sure to differentiate the two terminals, plus (+) and minus (–).

09900 - 25002	Pocket tester

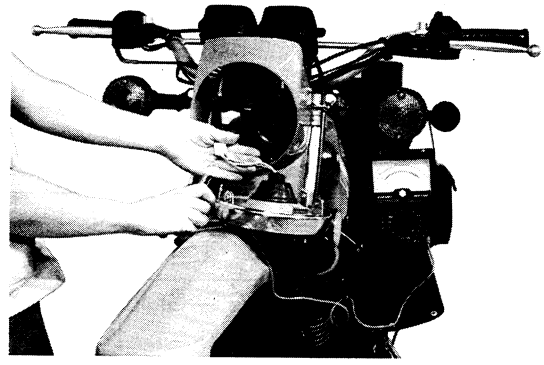


STD charging rate	
When connecting G lead wire	Above 1.1 A at 2 000 r/min Below 3.2 A at 8 000 r/min
When connecting Y/W lead wire	Above 1.1 A at 2 000 r/min Below 3.2 A at 8 000 r/min

09900 - 25002	Pocket tester

Lighting performance check

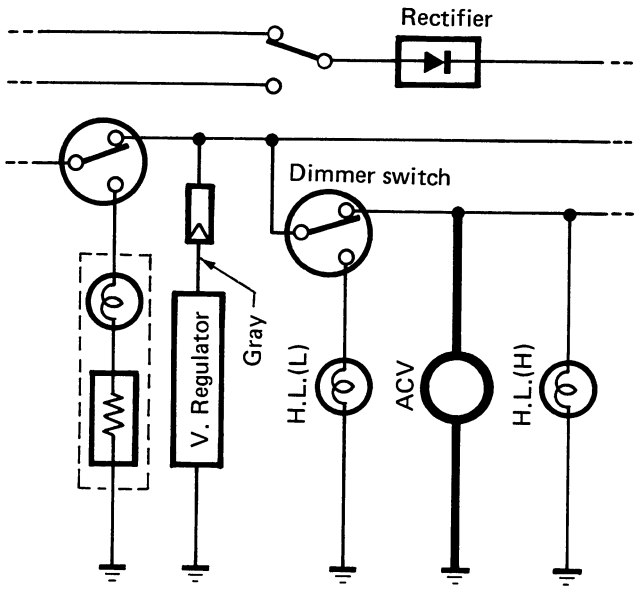
Set the pocket tester knob (ACV 10 range).
Connect the terminal as shown in figure.
Turn the dimmer switch to HI position.
Start the engien.
Check that the voltmeter reads as follows.



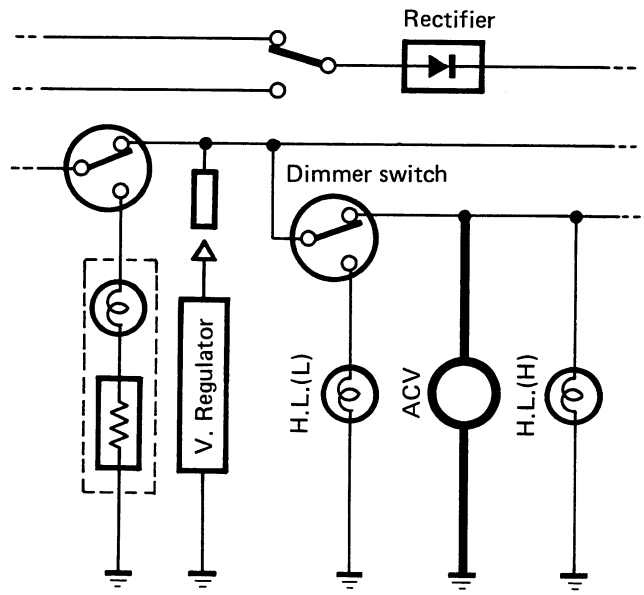
CAUTION:
When making low speed (at 2 500 r/min) performance test, disconnect the voltage regulator lead wire (gray color side). When making high speed (at 8 000 r/min) test, reconnect the regulator properly.

STD Lighting coil output
Above 5.7 V at 2 500 r/min Below 7.8 V at 8 000 r/min

High speed test



Low speed test



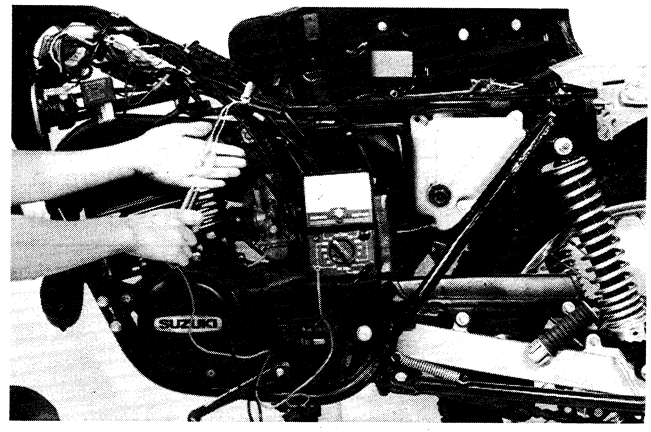
MAGNETO

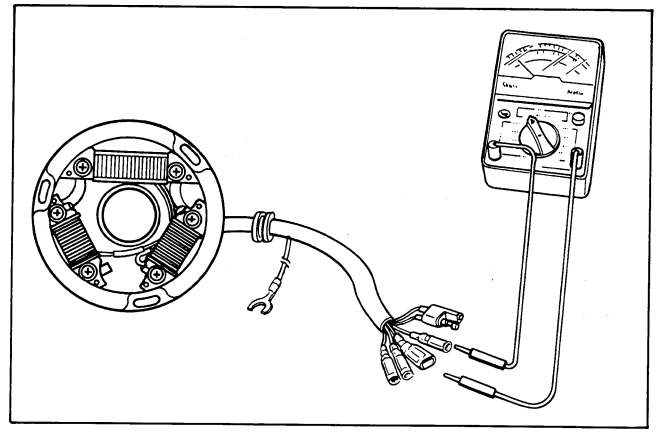
Checking stator coils

Use a SUZUKI pocket tester or an ohm meter and measure the each coils for resistance.

09900 - 25002	Pocket tester

STD magneto coil resistance		
L2 coil	B/R – R/W	Approx. 30 – 40 Ω
L1 coil	R/W – B/W	Approx. 160 – 240 Ω
Charging	Y/W – Ground	Approx. 1 – 2 Ω
Charging	G – Ground	Approx. 0 – 1 Ω
Lighting	Y/R – Ground	Approx. 0 – 1 Ω





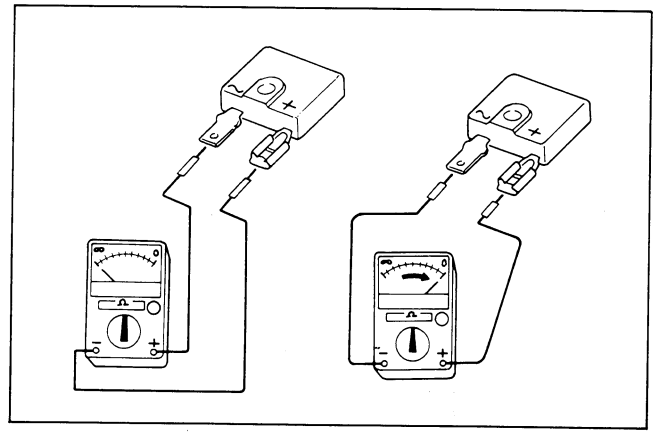
SILICON RECTIFIER

The silicon rectifier converts AC to DC by allowing current to pass in one direction only. Check the silicon rectifier for continuity.

Set the pocket tester to the "Ω x 1" scale. Contact the pocket tester plus terminal (+) to the rectifier AC terminal (~) and minus terminal (–) to plus terminal (+).

Reverse the test connections.

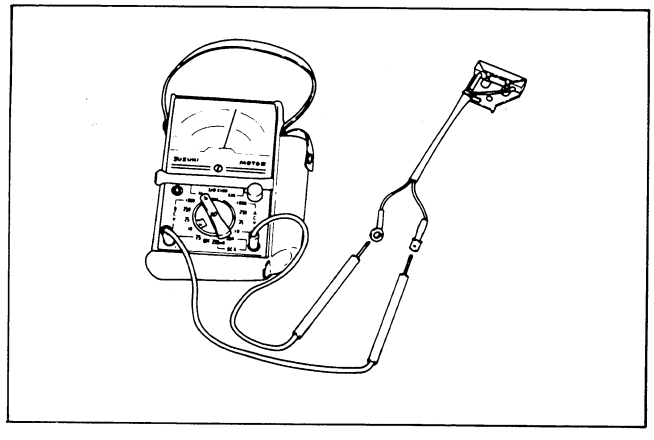
If first step shows no continuity and 2nd step shows any continuity, the rectifier is sound condition.



RESISTOR (Only for E-04 and E-22)

Use a SUZUKI pocket tester or an ohm meter and measure the resistance.

STD Resistance	1.8 – 2.2 Ω



BATTERY

Specifications

Type designation	6N4B-2A
Capacity	14.4 kC (4 Ah)
Standard electrolyte S.G.	1.26 at 20°C (68°F)

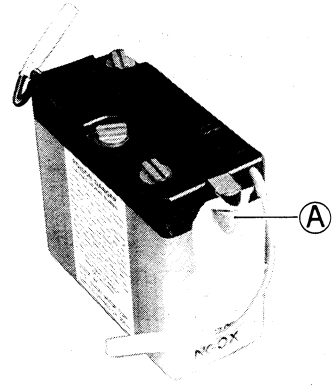
In fitting the battery to the motorcycle, connect the breather tube to the battery vent.

INITIAL CHARGING

Filling electrolyte

Remove short sealed tube before filling electrolyte. Fill battery with electrolyte (dilute sulfuric acid solution with acid concentration of 35.0% by weight, having a specific gravity of 1.26 at 20°C (68°F)) up to indicated UPPER LEVEL. Filling electrolyte should be always cooled below 30°C (86°F) before filling into battery. Leave battery standing for half an hour after filling. Add additional electrolyte if necessary.

Charge battery with current as described in the tables shown below.

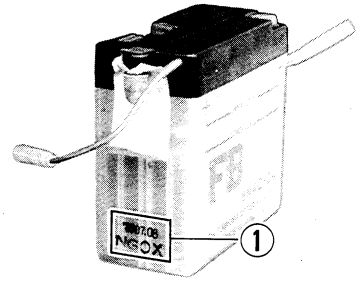


Ⓐ Sealed tube

Maximum charging current	0.4 A

Charging time

The charging time for a new battery is determined by the number of months that have elapsed since the date of manufacture.



Confirmation for date of manufacture

Date of manufacture is indicated by a three-part number ① , as follows, each indicating month, date and year.

Near the end of charging period, adjust the specific gravity of electrolyte to value specified. After charging, adjust the electrolyte level to the UPPER LEVEL with DISTILLED WATER.

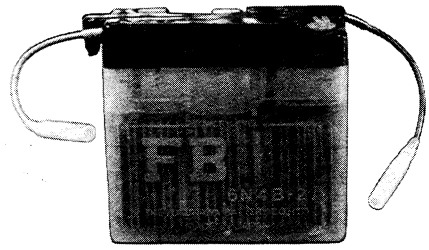
Months after manufacturing	Within 6	Within 9	Within 12	Over 12
Necessary charging hours	20	30	40	60

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.

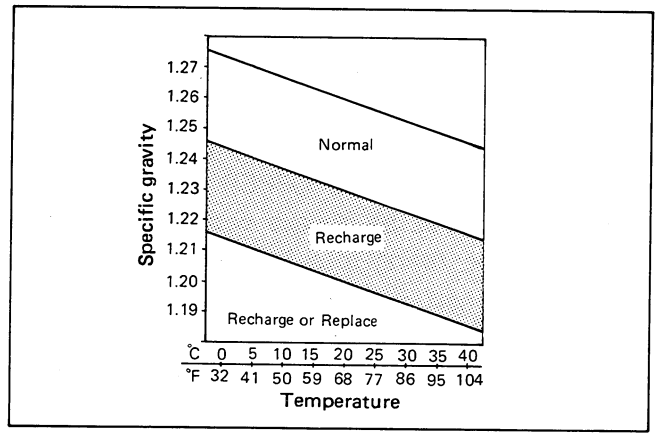
If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

Check the electrolyte level and add distilled water, as necessary, to raise the electrolyte to each cell's upper level.
Check the battery for proper charge by taking an electrolyte S.G. reading. If the reading is 1.20 or less, as corrected to 20°C (68°F), it means that the battery is still in a run-down condition and needs recharging.

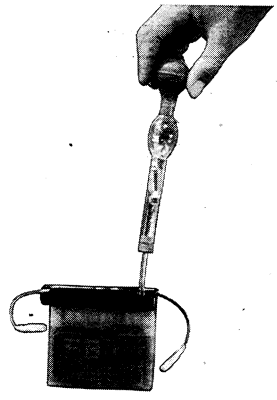


BASED ON S.G. READING RECHARGING OPERATION

To correct a S.G. reading 20°C (68°F), use following table.



To read the S.G. on the hydrometer, bring the electrolyte in the hydrometer to eye level and read the graduations on the float scale bordering on the meniscus (curved-up portion of electrolyte surface), as shown in figure.

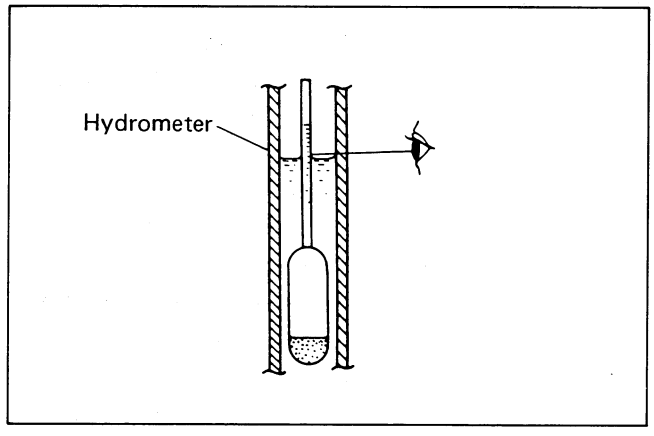


Check the reading (as corrected to 20°C) with Chart to determine the recharging time in hours by constant-current charging at a charging rate of 0.4 amperes (which is a tenth of the capacity of the present battery).

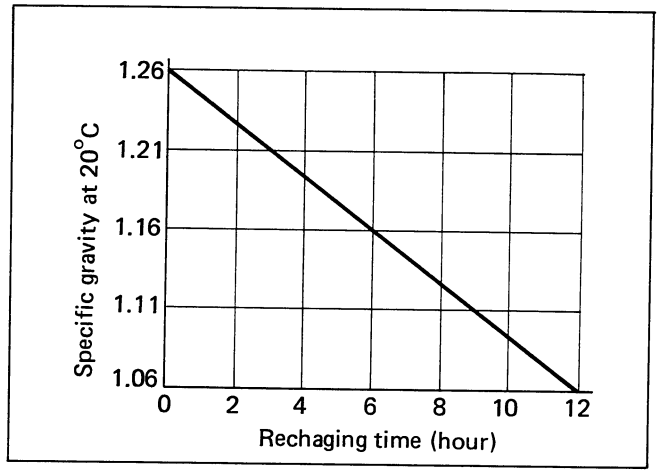
Be careful not to permit the electrolyte temperature to exceed 45°C (113°F), at any time, during the recharging operation. Interrupt the operation, as necessary, to let the electrolyte cool down. Recharge the battery to the specification.

Electrolyte specific gravity	1.26 at 20°C (68°F)

CAUTION:
Constant-voltage charging, otherwise called "quick" charging, is not recommendable for it could shorten the life of the battery.



09900 - 28403	Hydrometer



SERVICE LIFE

Lead oxide is applied to the pole plate of the battery which will come off gradually during the service. When the bottom of the battery case becomes full of the sediment, the battery cannot be used any more. If the battery is not charged for a long time, lead sulfate is generated on the surface of the pole plate and will deteriorate the performance (sulfation). Replace the battery with new one in such a case.

STORING

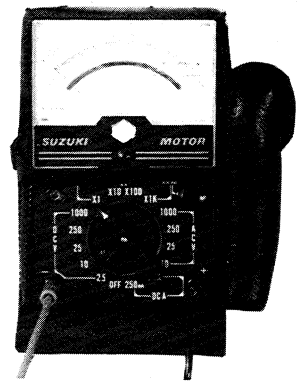
When a battery is left for a long term without using, it is apt to subject to sulfation. When the motorcycle is not used for more than 1 month (especially during the winter season), recharge the battery once a month at least.

WARNING:

- **Before charging a battery, remove the seal cap from each cell.**
- **Keep fire and sparks away from a battery being charged.**
- **When removing a battery from the motorcycle, be sure to remove the (–) terminal first.**

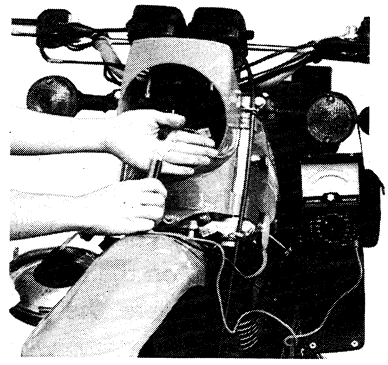
SWITCHES

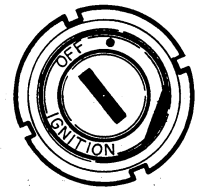
Be sure to turn the tester knob to OHM (Ω) as shown in figure before checking continuity of the following section.



IGNITION SWITCH

	B/W	B/Y	R	O
OFF	○	○		
ON			○	○





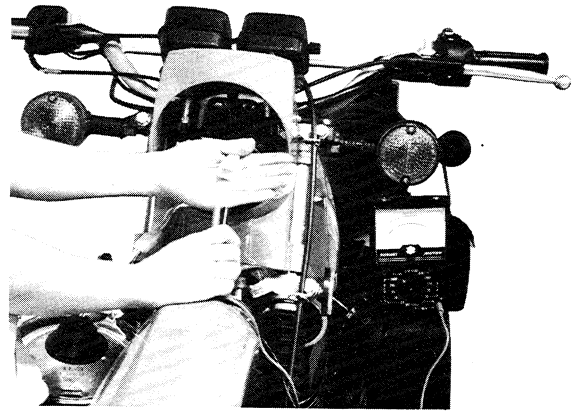
LIGHTING SWITCH

Type I

	G/W	W/R	Y/W	Y/R	Gr	O	Br
OFF	○	○					
ON		○	○	○	○	○	○

Type II

	G/W	W/R	Y/W	Y/R	Gr	Br/W	O	Br
OFF	○	○						
S		○	○	○	○	○	○	○
ON		○	○	○	○		○	○

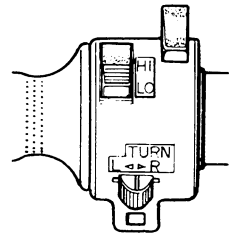


DIMMER SWITCH

	W	Y	Gr
HI		○	○
LO	○		○

TURN SIGNAL LIGHT SWITCH

	B	Lbl	Lg
R		○	○
·			
L	○	○	

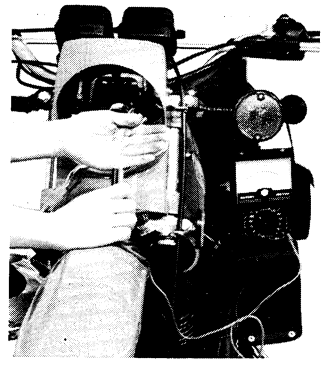


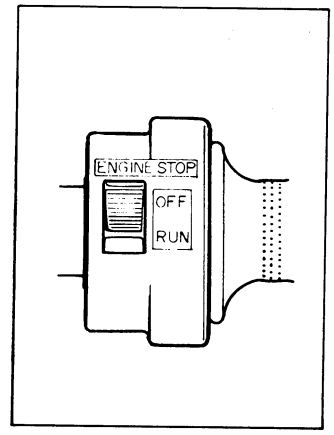
HORN SWITCH

	G	B/W
OFF		
ON (push)	○	○

ENGINE STOP SWITCH

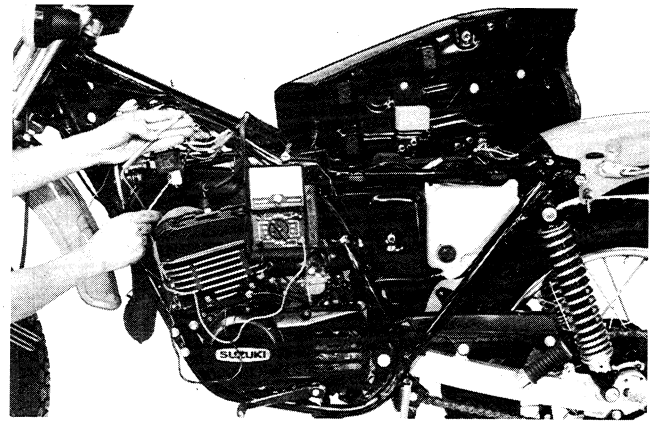
	B/Y	B/W
OFF	○———	———○
RUN		





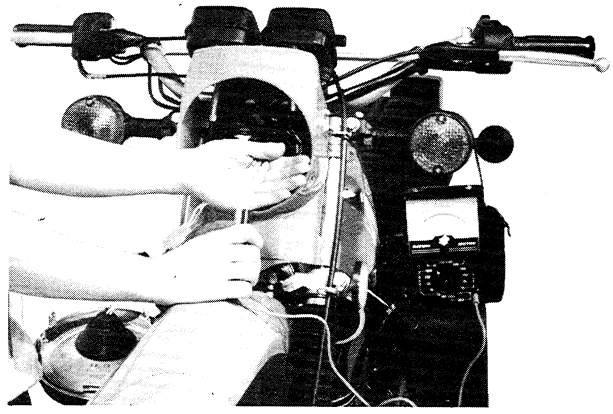
NEUTRAL SWITCH

Wire color / Position	Bl	Ground
1st, 2nd, 3rd, 4th and Top		
Neutral	○———	———○



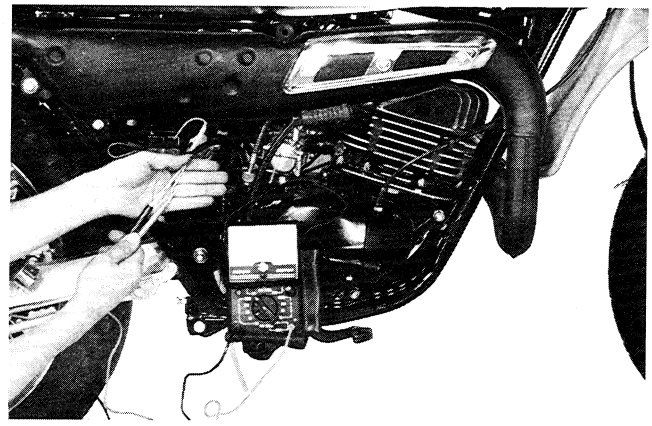
FRONT BRAKE LIGHT SWITCH

	O	W
OFF		
ON	○———	———○



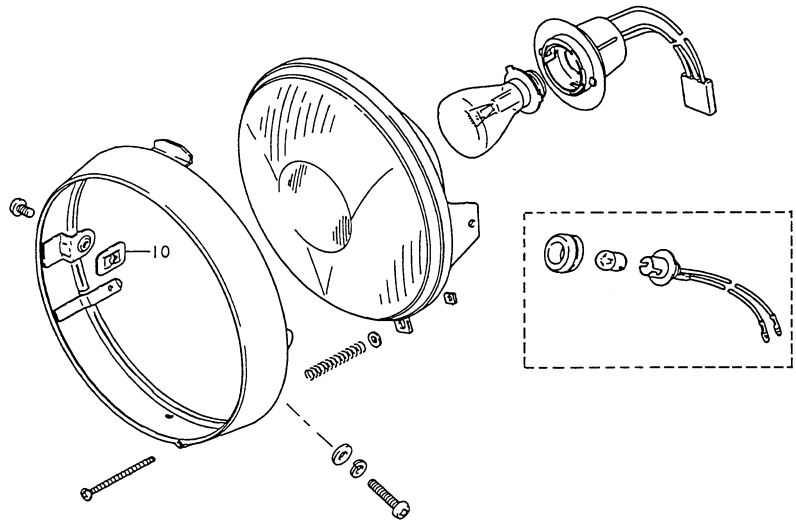
REAR BRAKE LIGHT SWITCH

	O	W
OFF		
ON	○———	———○

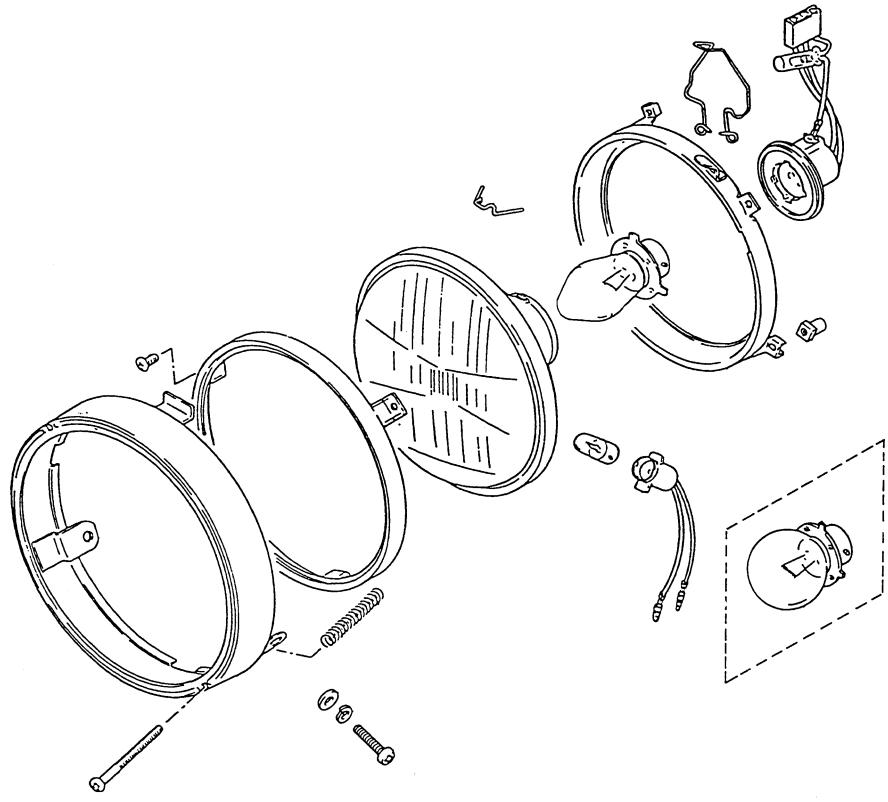


LAMPS
HEADLIGHT

TYPE I

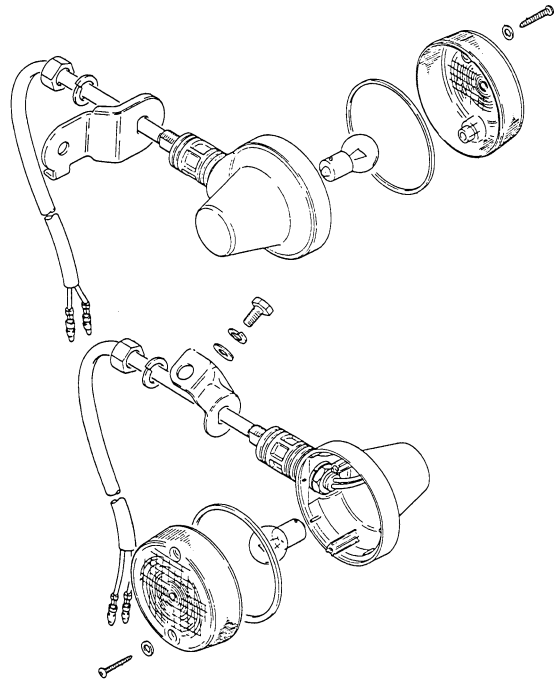


TYPE II

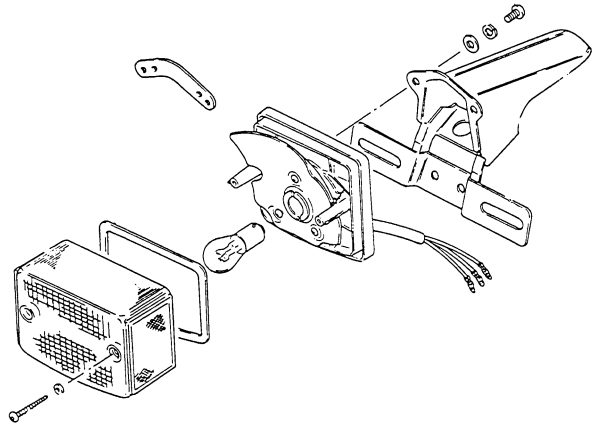


TURN SIGNAL LIGHT

TYPE I



TAIL/BRAKE LIGHT



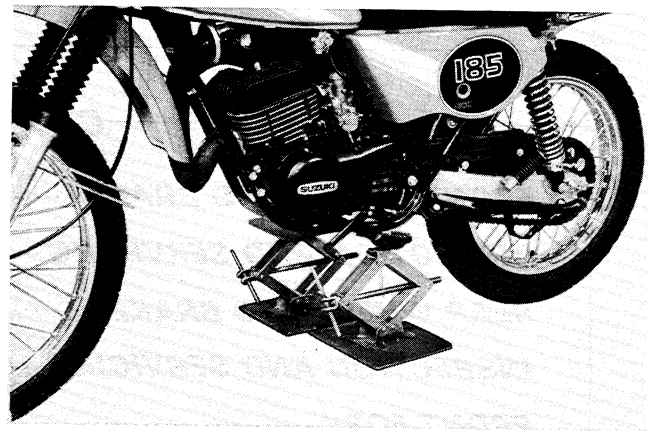
CHASSIS

CONTENTS

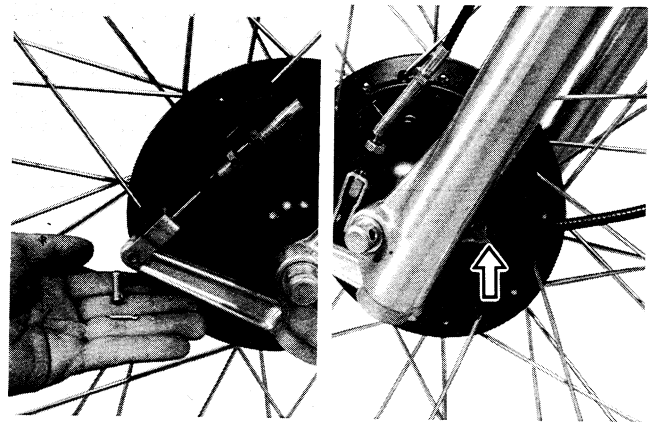
FRONT WHEEL AND BRAKE

REMOVAL

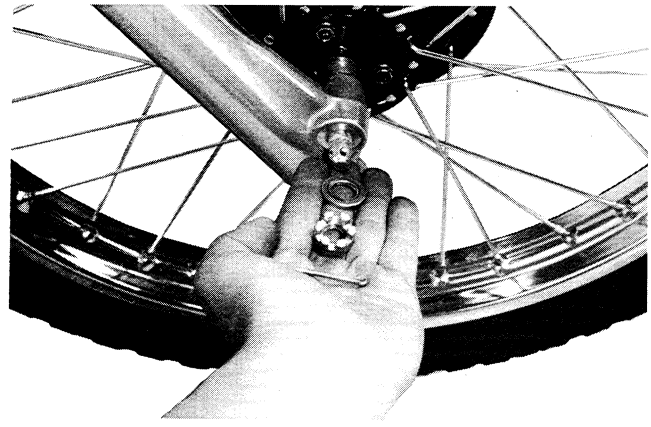
Support the machine by jack.



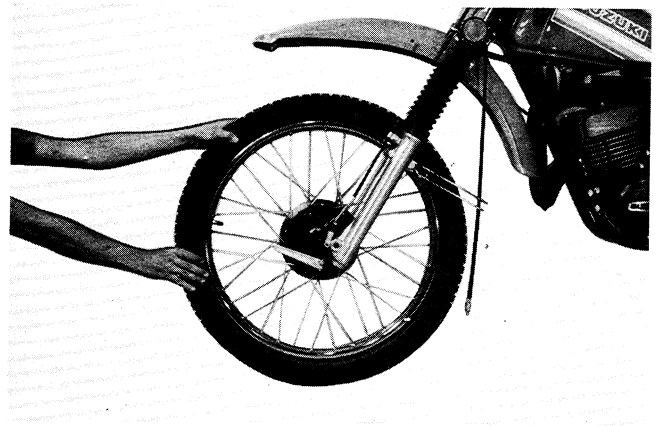
Disconnect brake cable and speedometer cable.



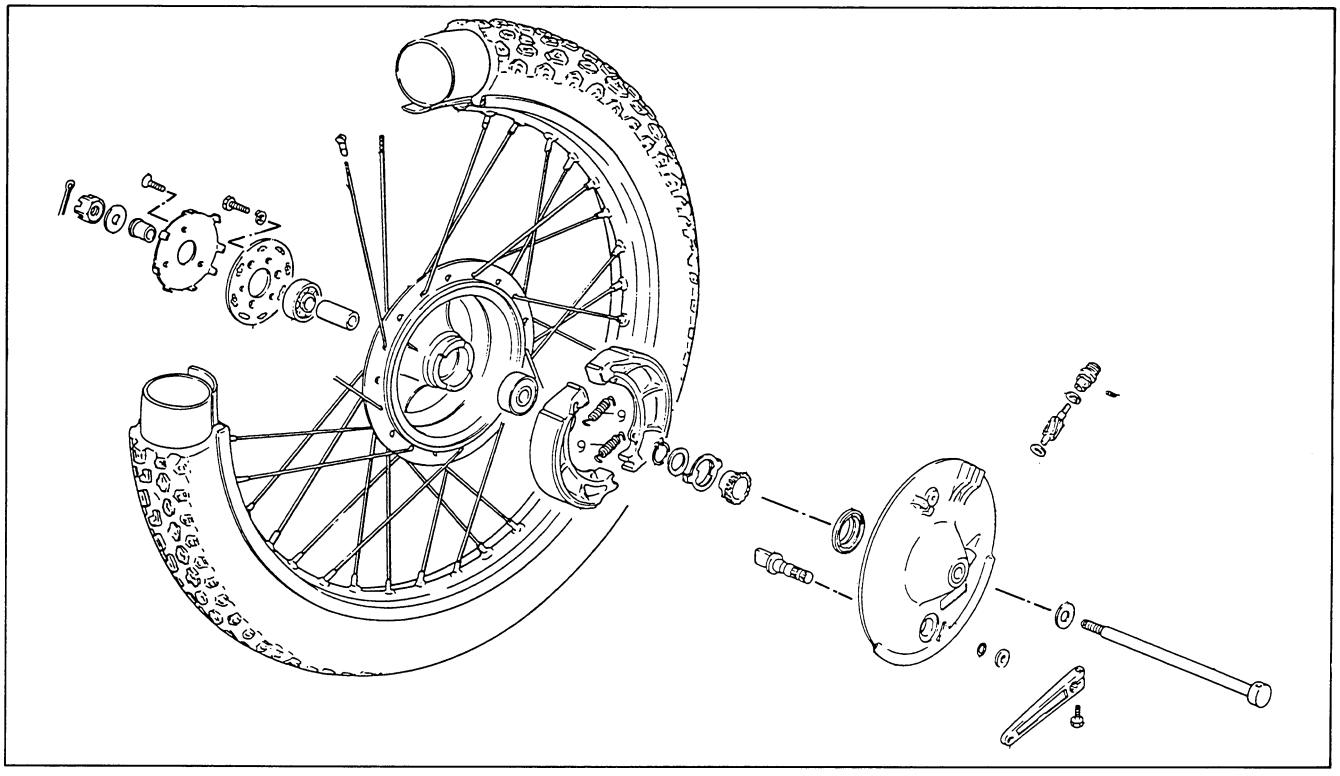
Remove axle nut after pulling off cotter pin.



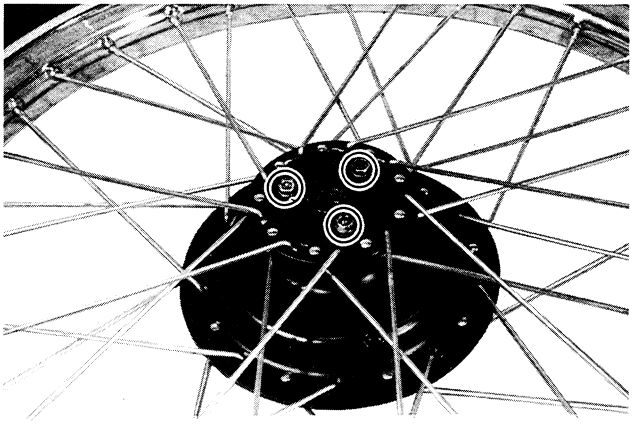
Draw out axle shaft and take off front wheel.



DISASSEMBLY

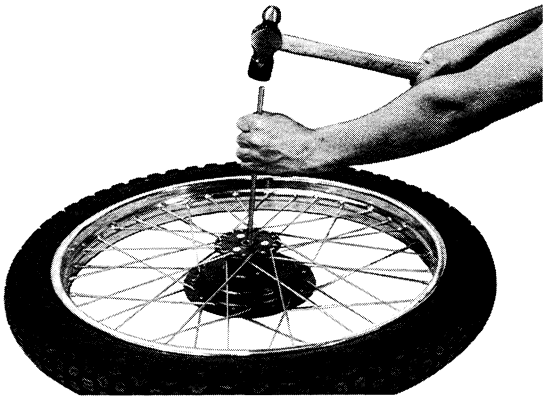


Remove hub flange.



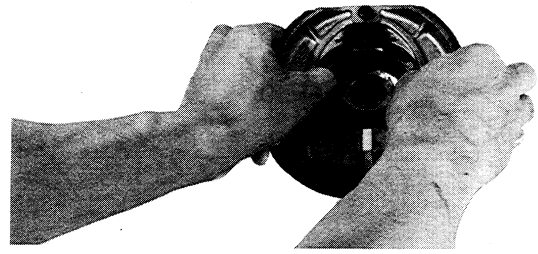
Drive out wheel bearings right and left.

CAUTION:
The removed bearing should be replaced.

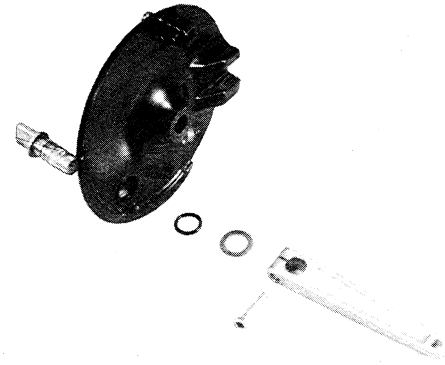


BRAKE PANEL DISASSEMBLY

Remove the brake shoes.



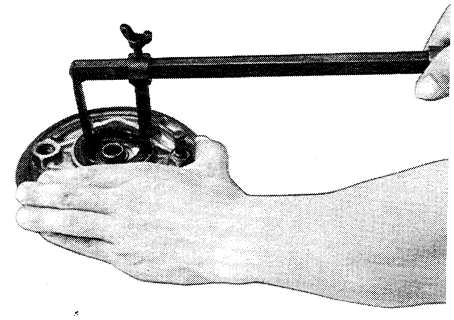
Remove brake cam lever, washer, O-ring and brake cam.



Draw out brake panel oil seal by using special tool.

CAUTION:
The removed oil seal should be replaced.

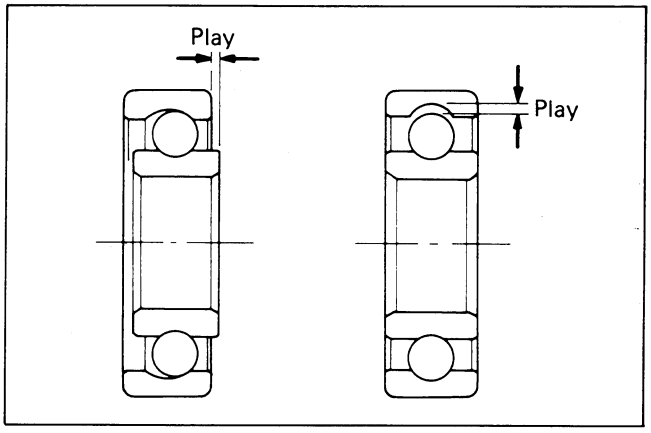
09913 - 50121	Oil seal remover



INSPECTION AND SERVICING

WHEEL BEARINGS

Inspect the play of wheel bearing inner race by hand while installed it in the wheel hub.
Rotate the inner race by hand to inspect an abnormal noise and a smooth rotation. Replace the bearing if there is something unusual.

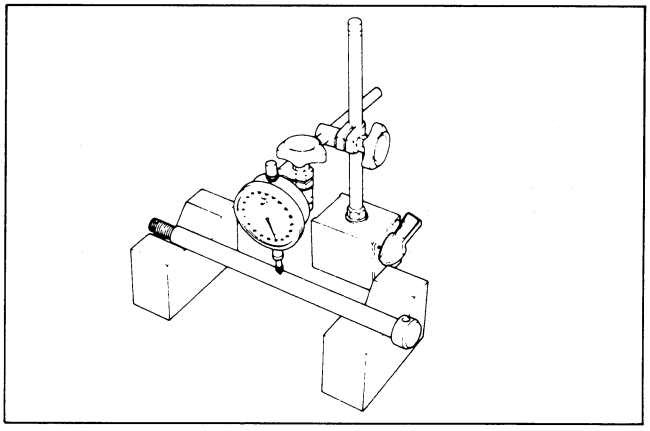


AXLE SHAFT

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

Service Limit	0.25 mm (0.010 in)

09900 - 20606	Dial gauge
09900 - 20701	Magnetic stand

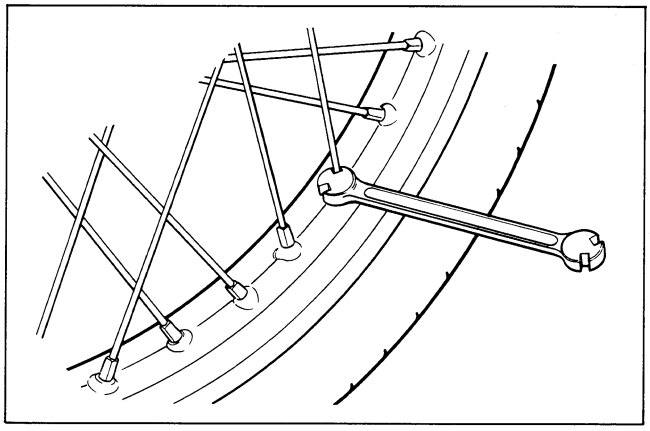


SPOKE NIPPLE

Check that all nipples are tight, and retighten them as necessary using special tool.

09940 - 60113	Spoke nipple wrench

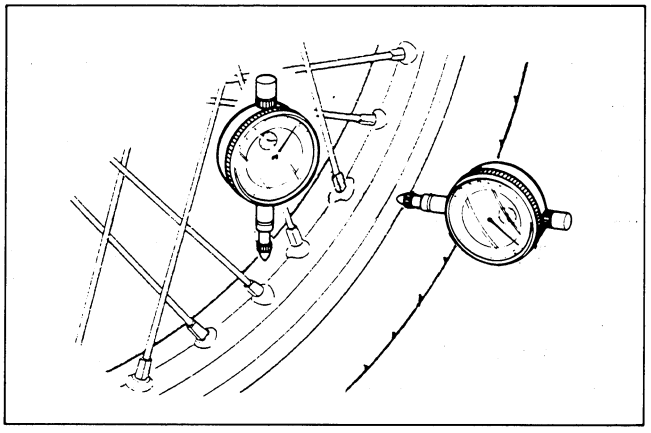
Tightening torque	4 – 5 N·m (0.4 – 0.5 kg-m)



WHEEL AND WHEEL RIM

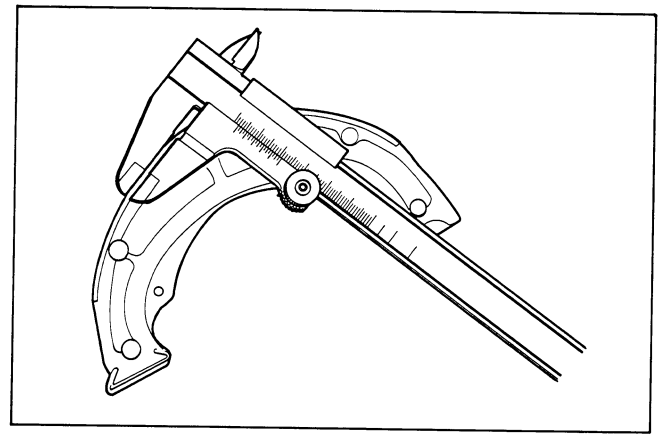
Make sure that the wheel rim runout checked as shown does not exceed the service limit. An excessive runout is usually due to worn or loose wheel bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the runout, adjust the tension of the spokes, and, if this proves to be of no effect, replace the wheel rim.

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



BRAKE SHOES

Check the brake shoe for wear by the indicator embossed on the both front and rear brake panels. If the extension line exceeds the range, remove the wheel and inspect the following items.
Check the brake shoe and decide whether it should be replaced or not from the thickness of the brake shoe lining.



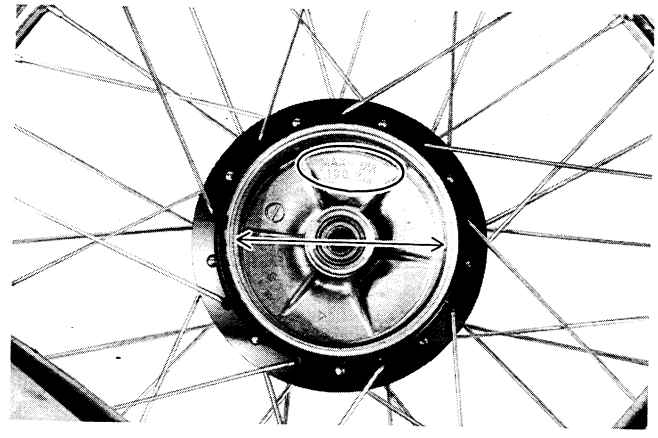
Service Limit	1.5 mm (0.06 in)

CAUTION:
Replace the brake shoe with a set, otherwise braking performance will be adversely affected.

09900 - 20101	Vernier calipers

BRAKE DRUM

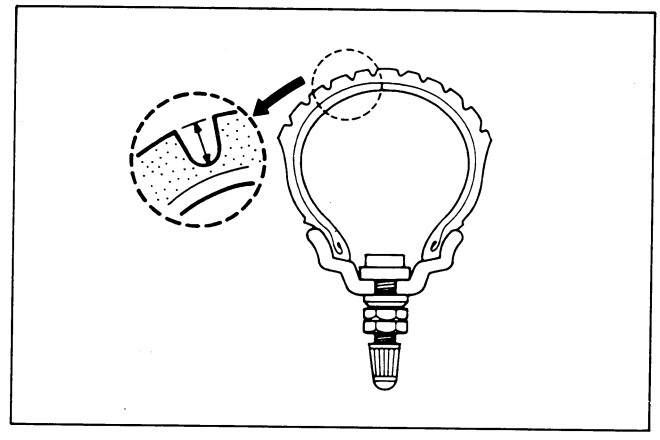
Measure the brake drum I.D. to determine the extent of wear and, if the limit is exceeded by the wear noted, replace the drum. The value of this limit is indicated inside the drum.



Service Limit	130.7 mm (5.15 in)

TIRE

For proper braking and riding stability, the tire should have sufficient groove depth from the tread surface. If the groove depth, measured as shown in the figure, reaches the wear limit, replace the tire.

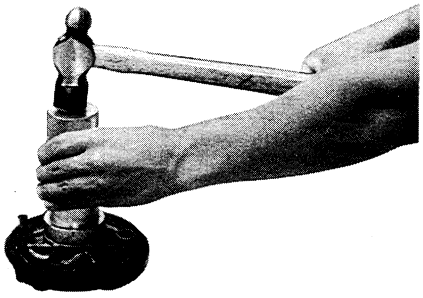


Wear Limit	4.0 mm (0.16 in)

09900 - 20805	Tire depth gauge

REASSEMBLY

Reassemble and remount the front wheel in the reverse order of disassembly and removal, and also carry out the following steps.

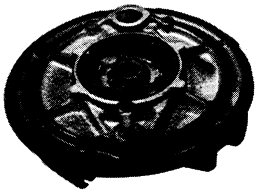


BRAKE PANEL

Install the brake panel oil seal with a oil seal installer.

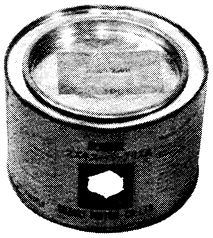
Apply grease to the oil seal lip and speedometer drive gear.
Apply grease to the brake cam.

99000 - 25010	Suzuki Super Grease "A"



WHEEL BEARINGS

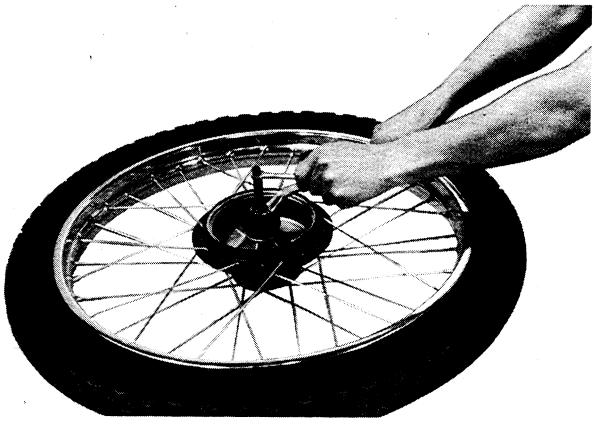
Apply grease to the wheel bearings before installing.

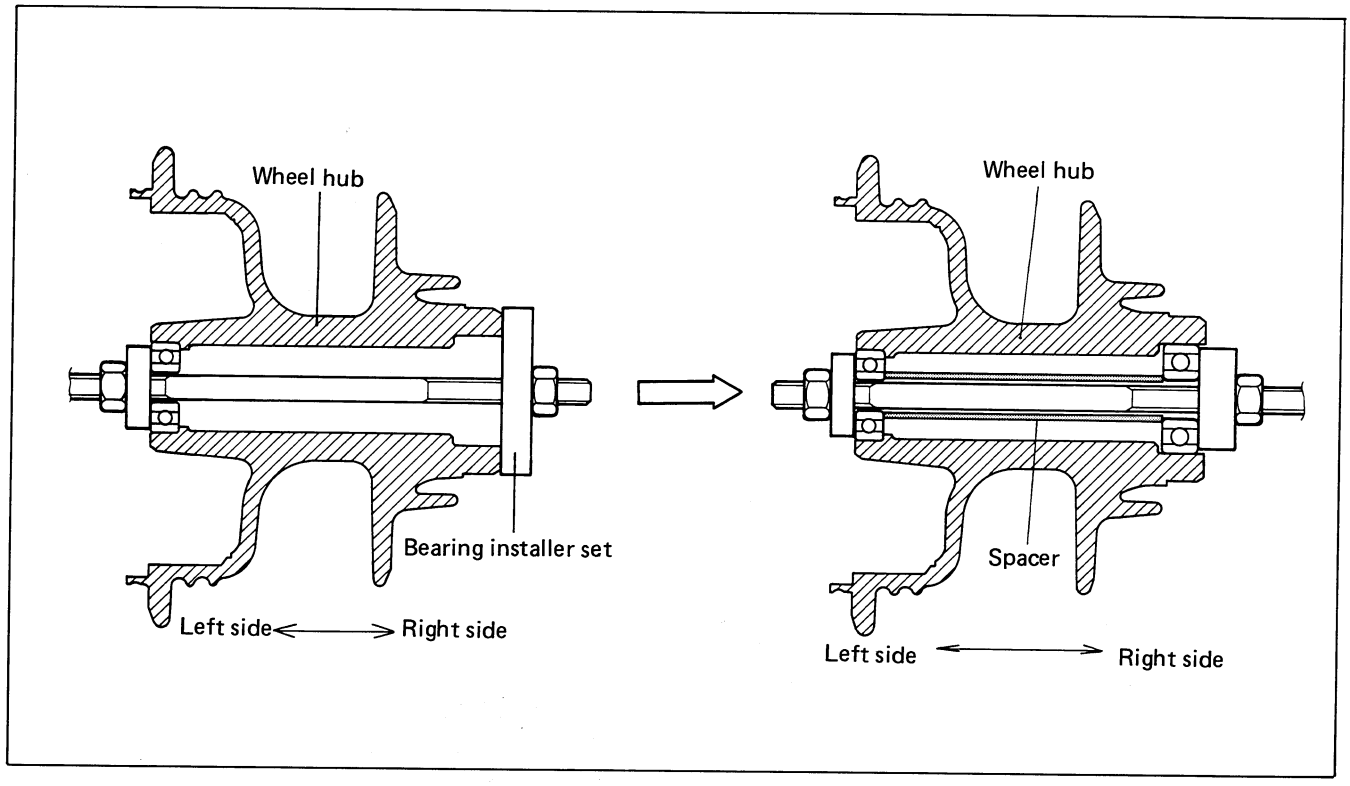


Install the wheel bearings as follows by using special tool.

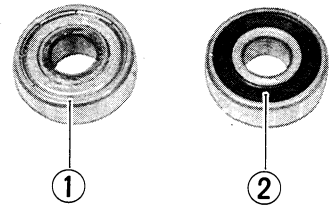
CAUTION:
First install the wheel bearing for left side.

09924 - 84510	Bearing installer set



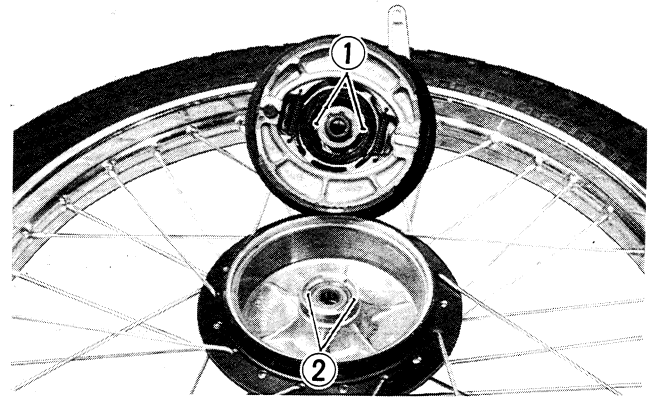


CAUTION:
Make sure to identify each bearing, the left side (iron plate sealed type) ① and right side (rubber sealed type) ② .



BRAKE PANEL

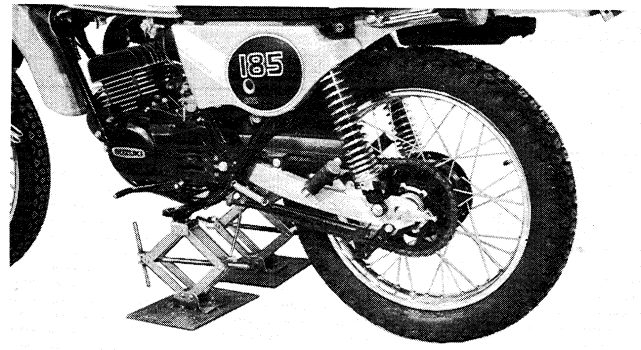
When installing the brake panel, align the two drive pawls ① and hub groove ② .



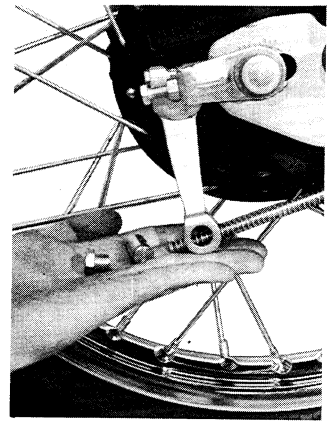
REAR WHEEL AND BRAKE

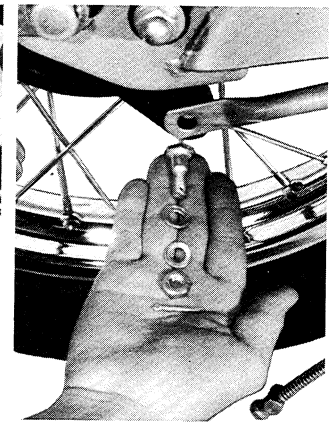
REMOVAL

Support the machine by jack.

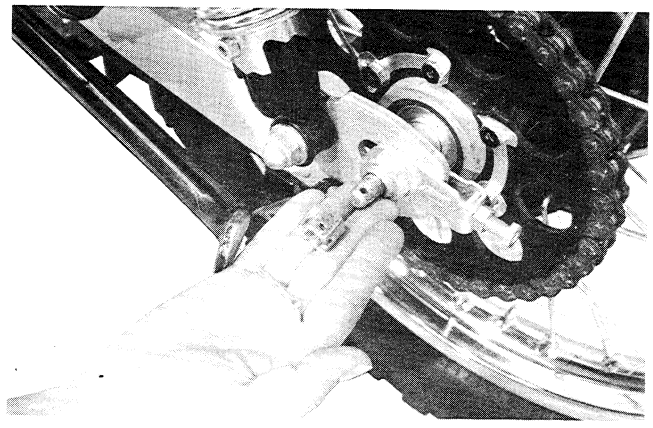


Remove brake adjuster and torque link nut.



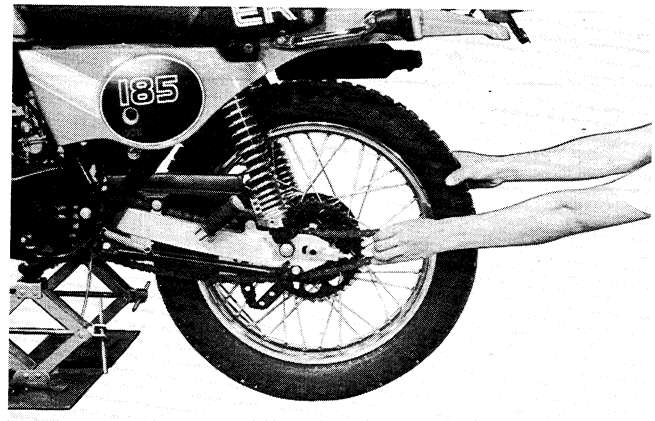


Remove the cotter pin and axle nut.

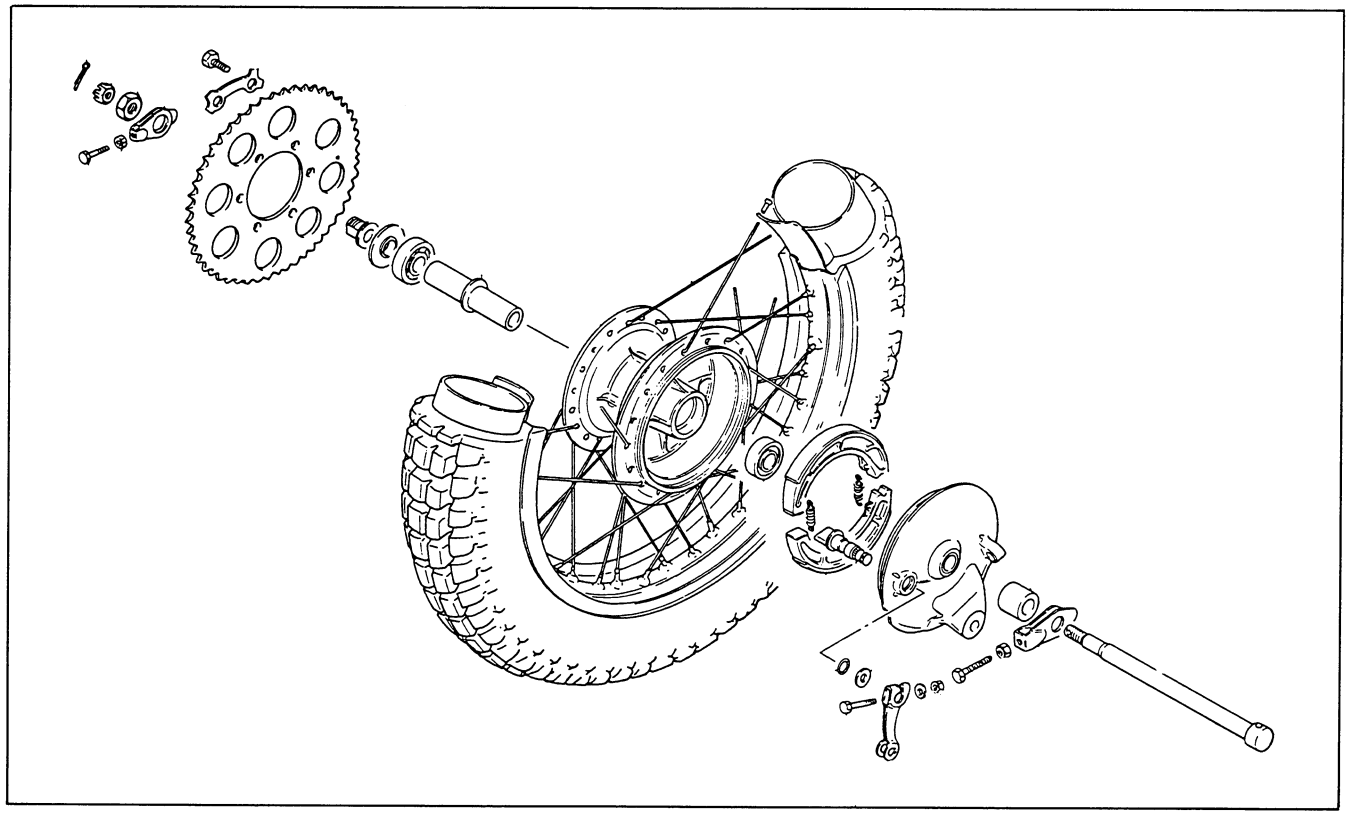


Draw out axle shaft and take off rear wheel.

NOTE:
Disconnect drive chain from the sprocket when taking off the wheel.



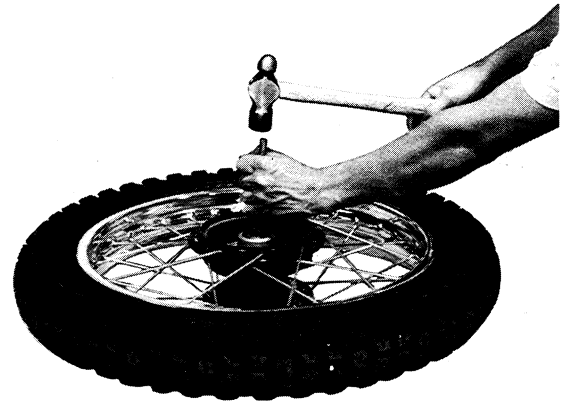
DISASSEMBLY



Flatten the lock washer and remove rear sprocket.

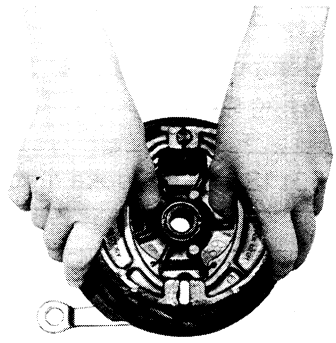
Drive out wheel bearings right and left.

CAUTION:
The removed bearing should be replaced.

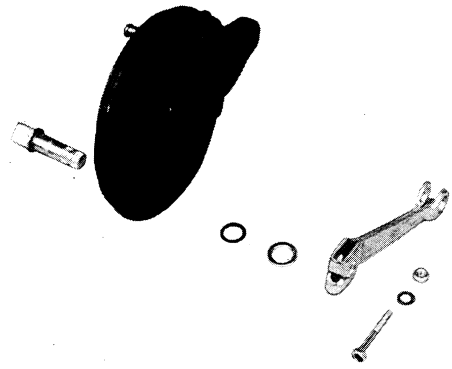


BRAKE PANEL DISASSEMBLY

Remove the brake shoes.



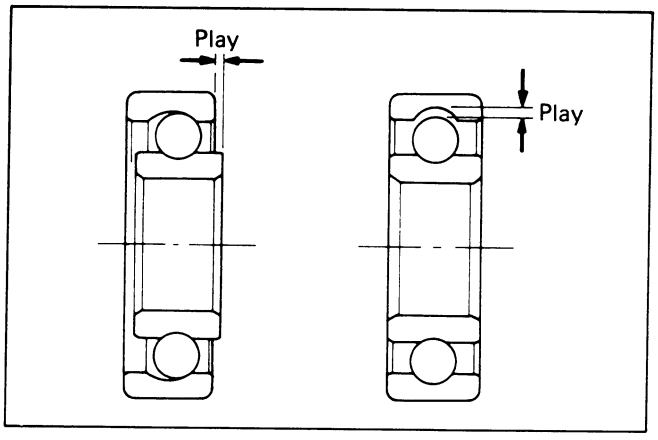
Remove brake cam lever, washer, O-ring and brake cam.



INSPECTION AND SERVICING

WHEEL BEARINGS

Inspect the play of wheel bearing inner race by hand while installed it in the wheel hub. Rotate the inner race by hand to inspect an abnormal noise and a smooth rotation. Replace the bearing if there is something unusual.

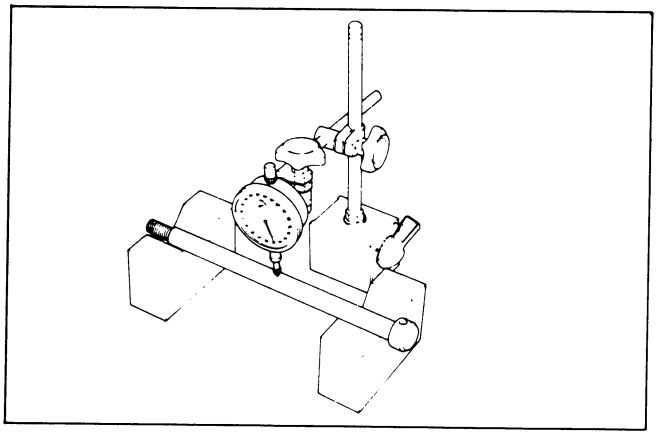


AXLE SHAFT

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

Service Limit	0.25 mm (0.010 in)

09900 - 20606	Dial gauge
09900 - 20701	Magnetic stand

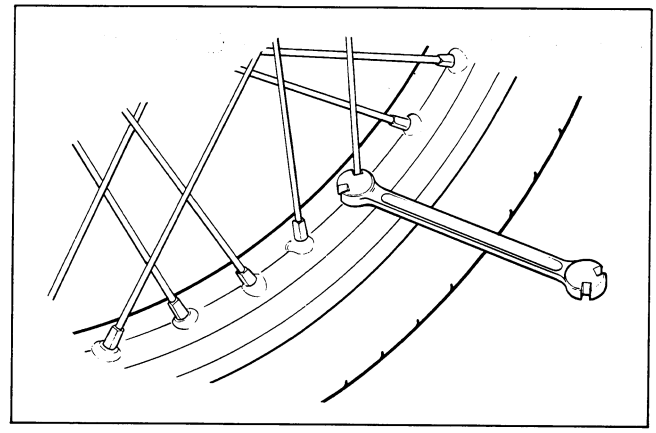


SPOKE NIPPLE

Check that all nipples are tight, and retighten them as necessary using special tool.

09940 - 60113	Spoke nipple wrench

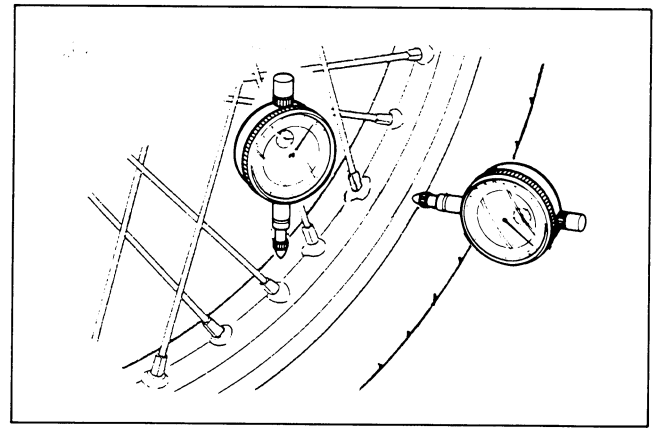
Tightening torque	4 – 5 N·m (0.4 – 0.5 kg-m)



WHEEL RIM

Make sure that the wheel rim runout checked as shown does not exceed the service limit. An excessive runout is usually due to worn or loose wheel bearings and can be reduced by replacing the bearings. If bearing replacement fails to reduce the runout, adjust the tension of the spokes, and, if this proves to be of no effect, replace the wheel rim.

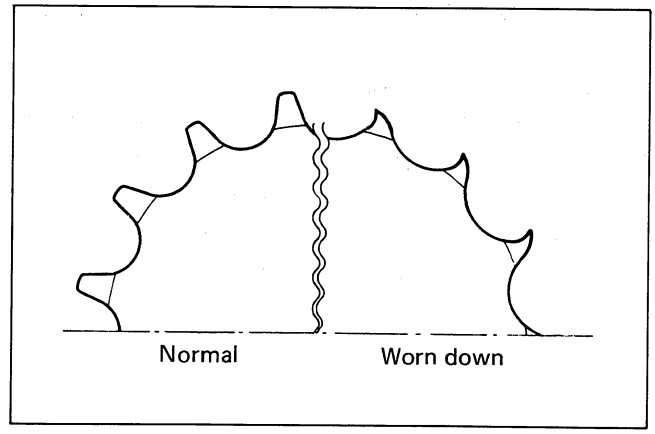
Service Limit (Axial and Radial)	2.0 mm (0.08 in)



SPROCKETS

Sprockets that have become excessively worn cause chain noise and greatly accelerate chain and sprocket wear.

Visually inspect the sprocket teeth. If they are worn as illustrated, replace the sprocket.

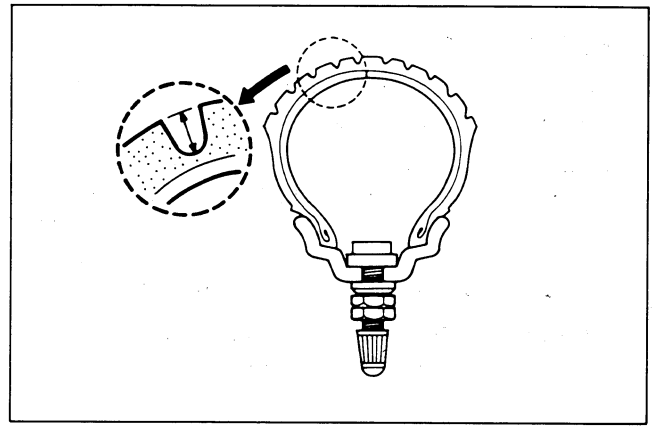


TIRE

For proper braking and riding stability, the tire should have sufficient groove depth from the tread surface. If the groove depth, measured as shown in the figure, reaches the wear limit, replace the tire.

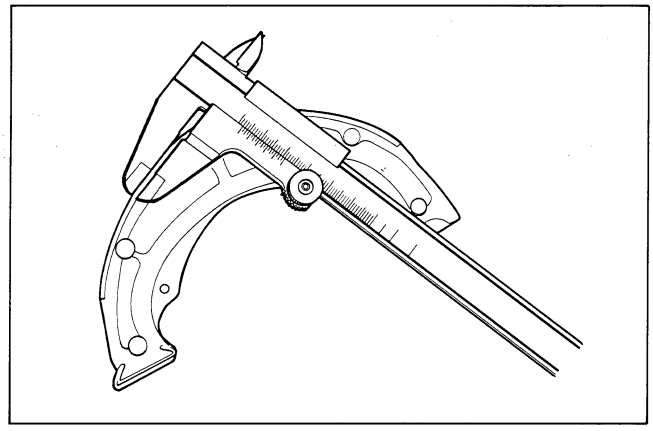
Wear Limit	4.0 mm (0.16 in)

09900 - 20805	Tire depth gauge



BRAKE SHOES

Check the brake shoe for wear by the indicator embossed on the both front and rear brake panels. If the extension line exceeds the range, remove the wheel and inspect the following items.
Check the brake shoe and decide whether it should be replaced or not from the thickness of the brake shoe lining.



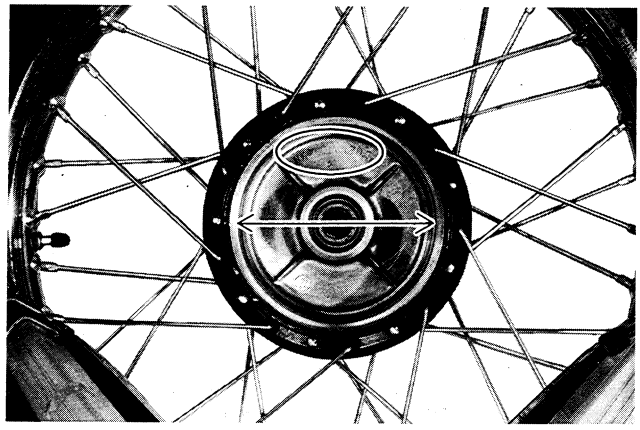
Service Limit	1.5 mm (0.06 in)

NOTE:
Replace the brake shoe with a set, otherwise braking performance will be adversely affected.

09900 - 20101	Vernier caliper

BRAKE DRUM

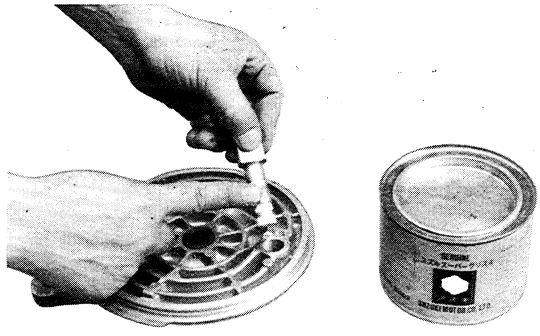
Measure the brake drum I.D. to determine the extent of wear and, if the limit is exceeded by the wear noted, replace the drum. The value of this limit is indicated inside the drum.



Service Limit	130.7 mm (5.15 in)

REASSEMBLY

Reassemble and remount the front fork in the reverse order of disassembly and removal and also carry out the following steps:



BRAKE PANEL

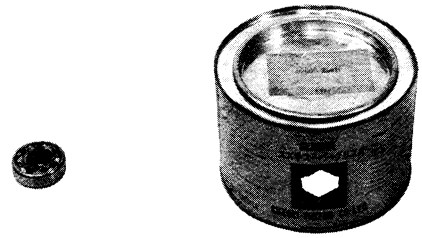
Apply grease to the brake cam.

99000 - 25010	Suzuki Super Grease "A"

WHEEL BEARINGS

Apply grease to the bearing before installing.

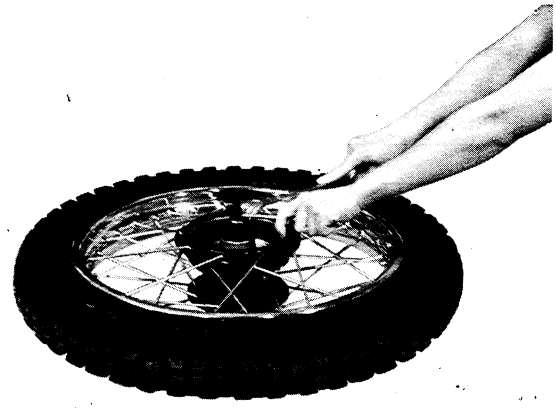
99000 - 25010	Suzuki Super Grease "A"

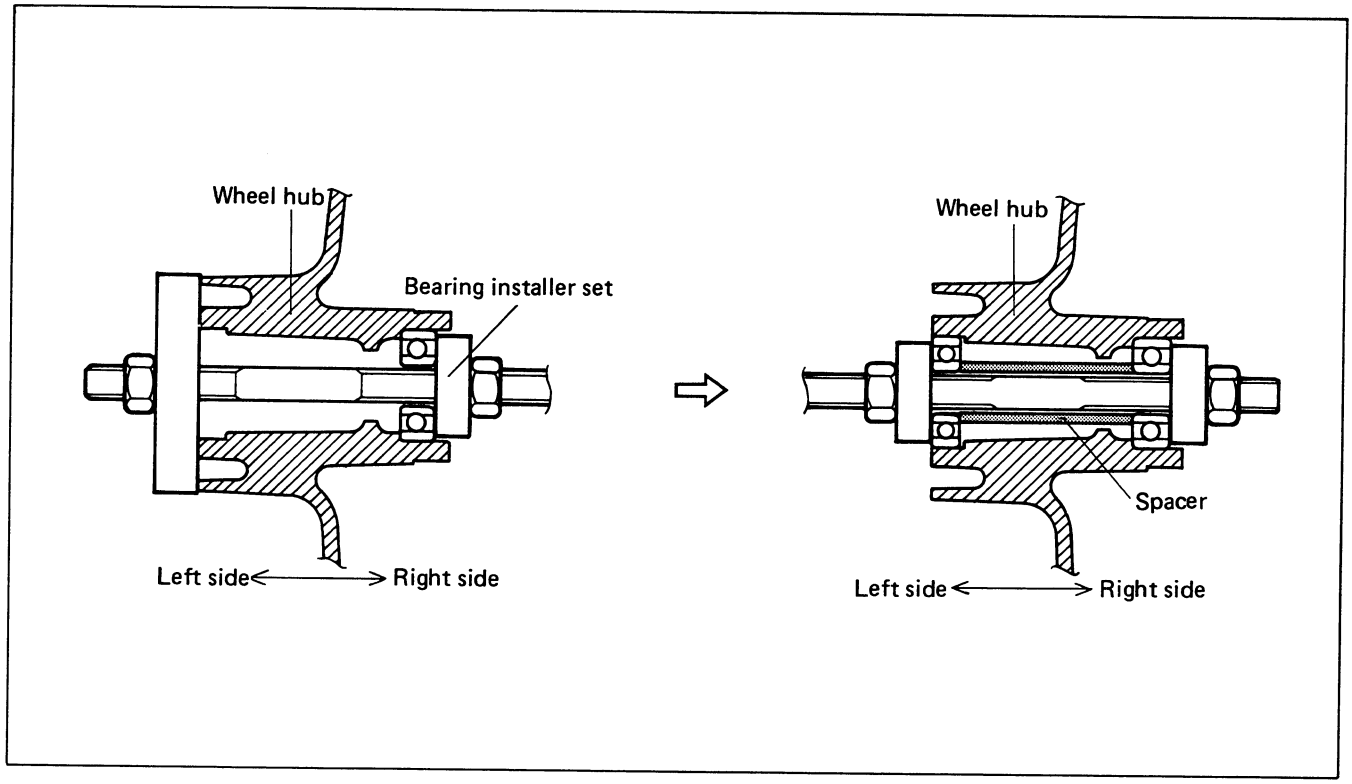


Install the wheel bearings by using special tool as shown.

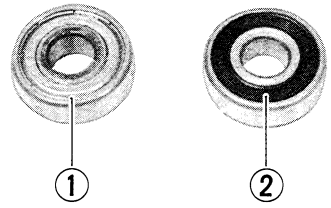
CAUTION:
First install the wheel bearing for right side.

09924 - 84510	Bearing installer set





CAUTION:
Make sure to identify each bearing, the right side (iron plate sealed type) ① and left side (rubber sealed type) ② .

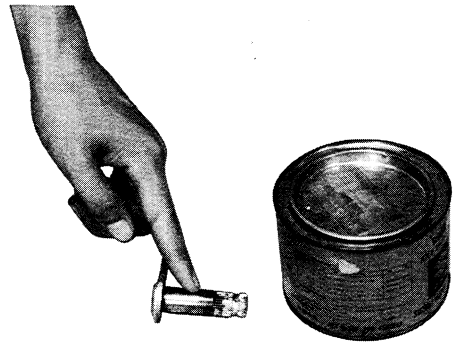


CAUTION:
Adjust the drive chain slack and rear brake pedal free travel after installation of the rear wheel.

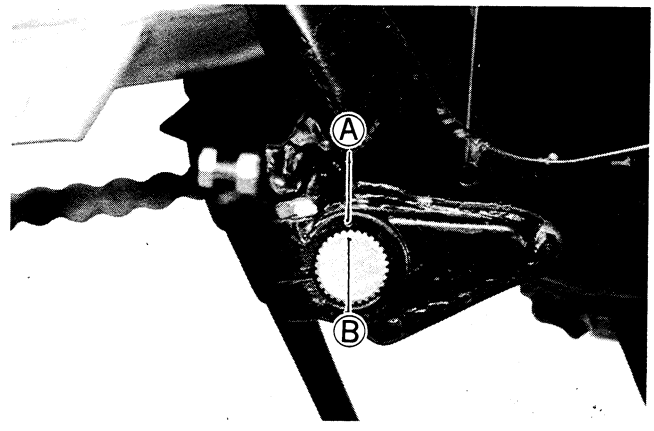
REAR BRAKE PEDAL REINSTALLATION

Apply grease to the brake pedal arm shaft.

99000 - 25010	Suzuki Super Grease "A"

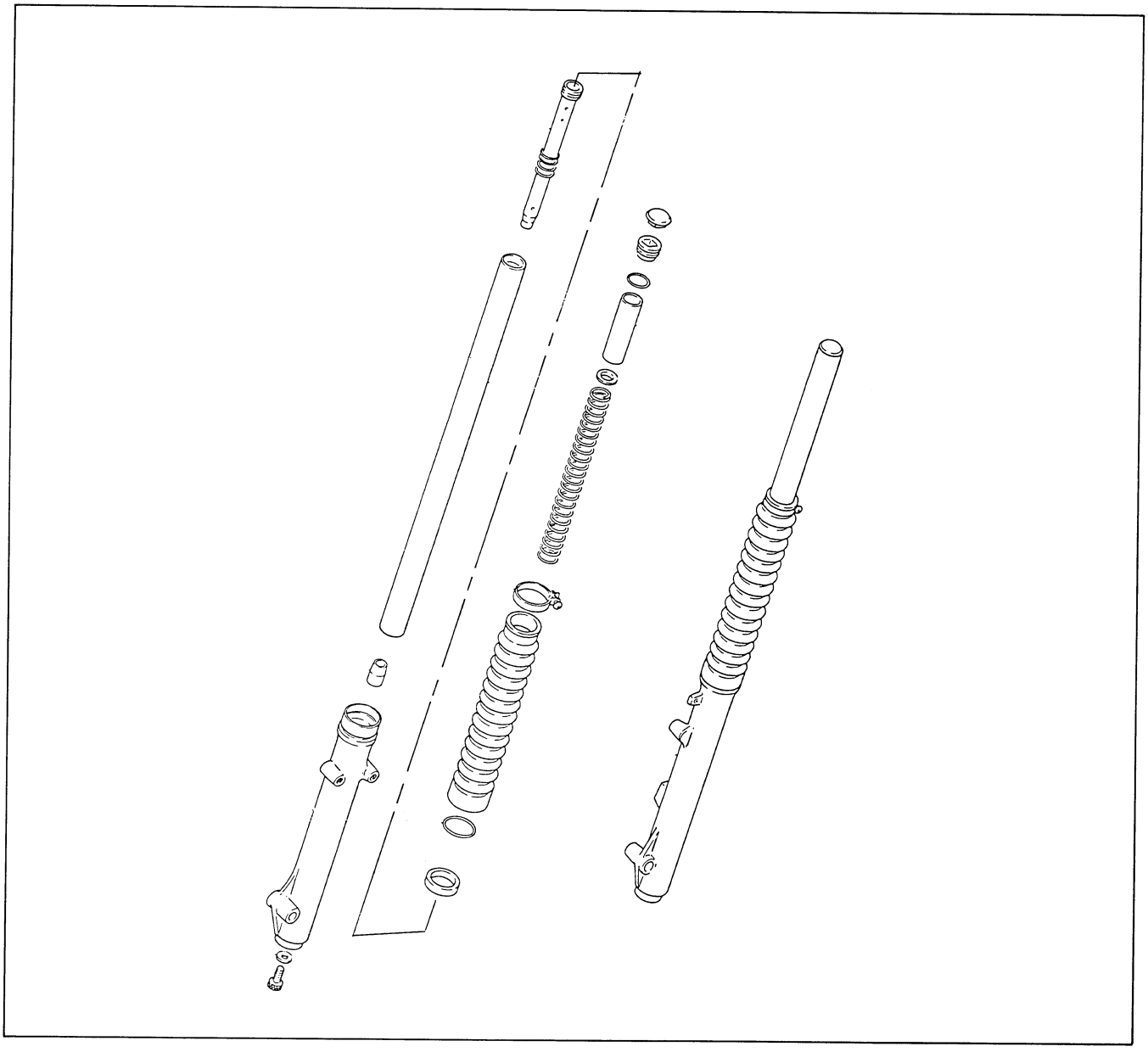


When installing the rear brake pedal, align the punched marks Ⓐ and Ⓑ .

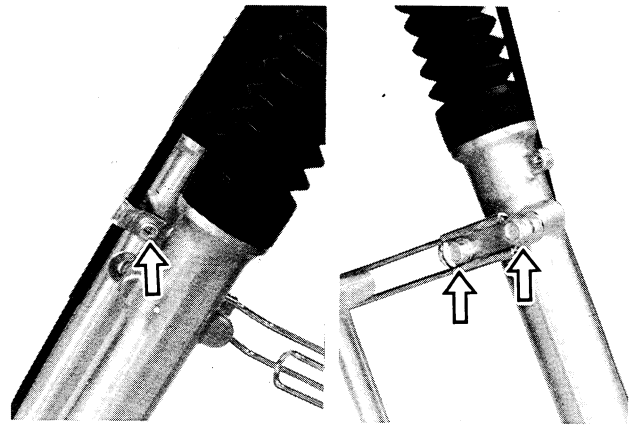


FRONT FORK

REMOVAL AND DISASSEMBLY

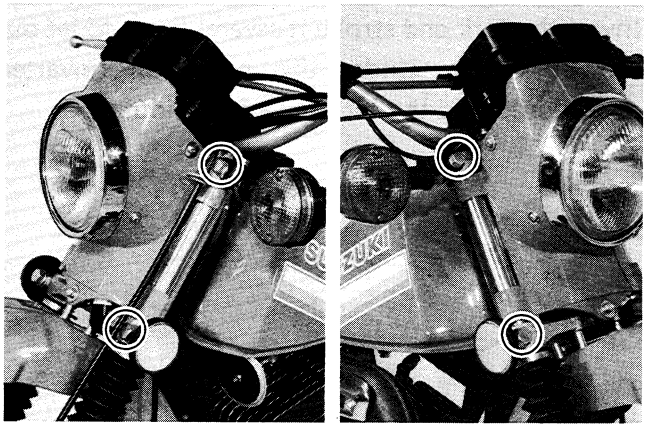


Remove front wheel (See page 6-1).
Remove front brake cable guide and speedometer cable guide.

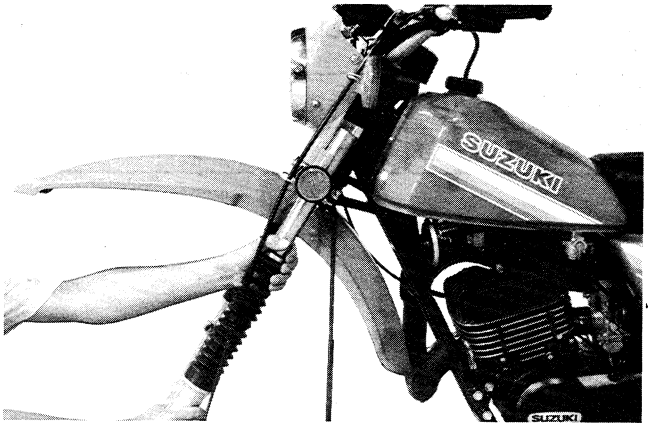


Loosen front fork upper and lower clamp bolts.

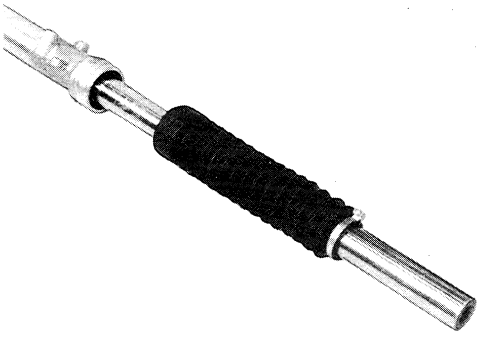
NOTE:
Slightly loosen the front fork cap bolt to facilitate later disassembly after loosening upper clamp bolt.



Pull down front fork assembly.

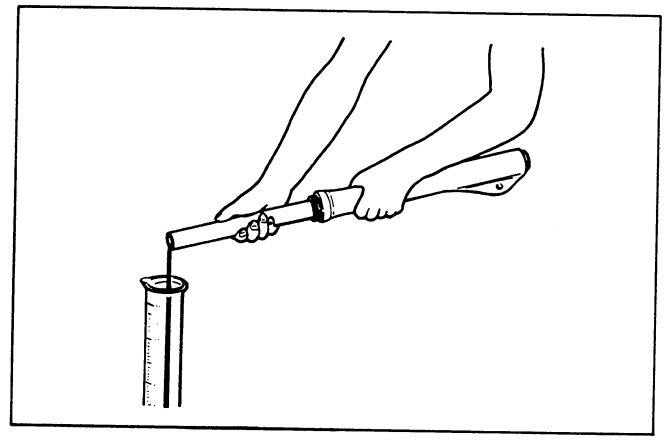


Loosen clamp screw and slide off the dust boot.



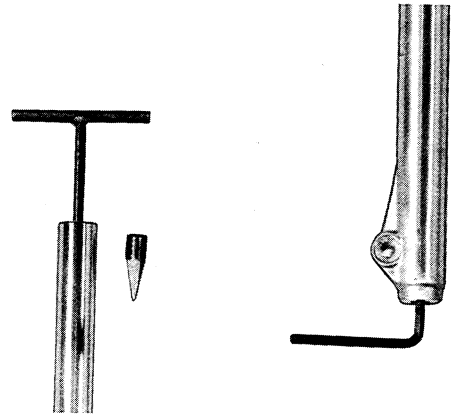
Remove front fork cap bolt, spacer, spring seat and spring.

Invert the fork and stroke it several times to let out the oil inside. Under this condition (inverted condition), hold the fork for a few minutes.

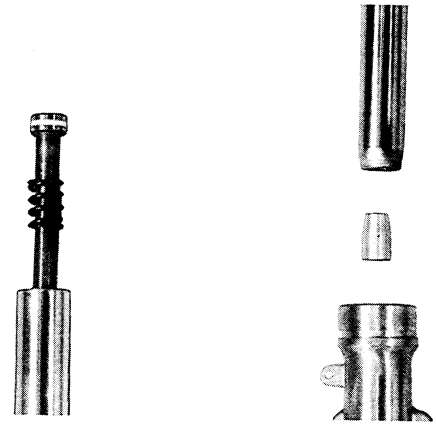


Remove damper rod bolt by using special tools.

09940-34520	Fork tool handle
09940-34561	Attachment D



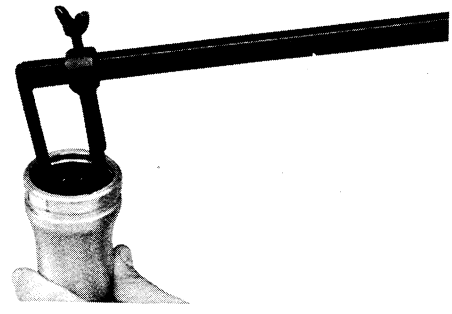
Draw out damper rod and rebound spring.
Remove inner tube and oil lock piece.



Remove snap ring and draw out oil seal by using special tool.

CAUTION:
The removed oil seal should be replaced.

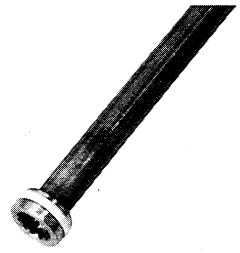
09913 - 50120	Oil seal remover



INSPECTION

DAMPER ROD

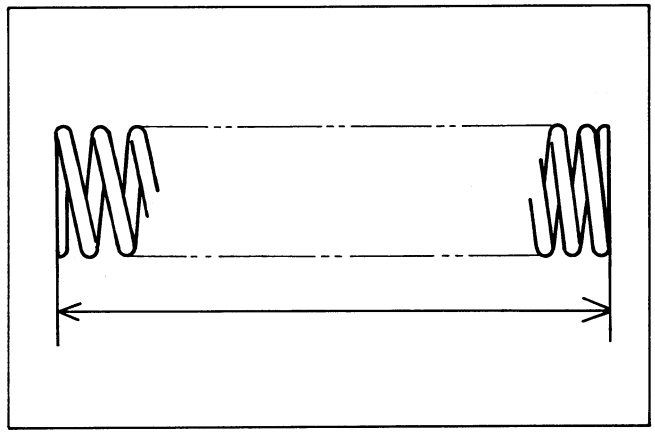
Inspect damper rod ring for wear or damage.



FORK SPRING

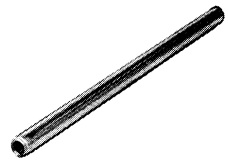
Measure the fork spring free length.
If it is shorter than service limit, replace it.

Service Limit	473.0 mm (18.62 in)



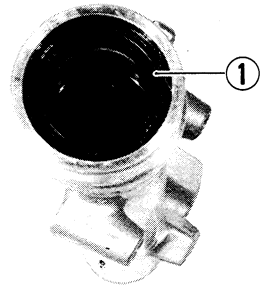
INNER TUBE

Inspect inner tube outer surface for any scuffing.



OUTERTUBE AND OIL SEAL

Inspect outer tube and metal inner surface for any scuffing.
Inspect the lip ① of oil seal for any damage or wear.
If it is damaged, replace it.



REASSEMBLY

Reassemble and remount the steering stem in the reverse order of disassembly and removal and also carry out the following steps:

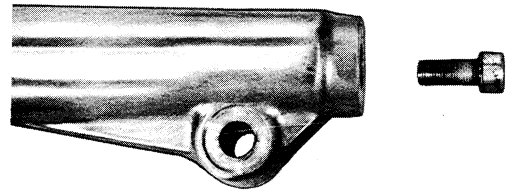
DAMPER ROD BOLT

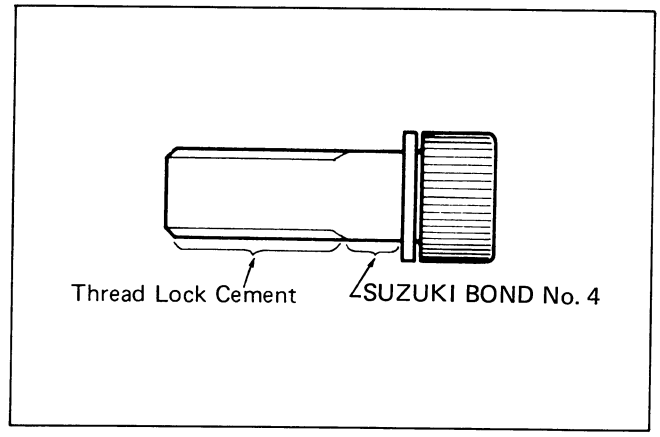
Apply Thread Lock Cement to the threads and Bond No. 4 to the sealing washer and tighten to the specified torque.

Tightening torque	20 – 26 N·m (2.0 – 2.6 kg-m)

99000 - 31030	SUZUKI BOND No. 4
99000 - 32040	Thread Lock Cement

09940 - 34520	Fork tool handle
09940 - 34561	Attachment D

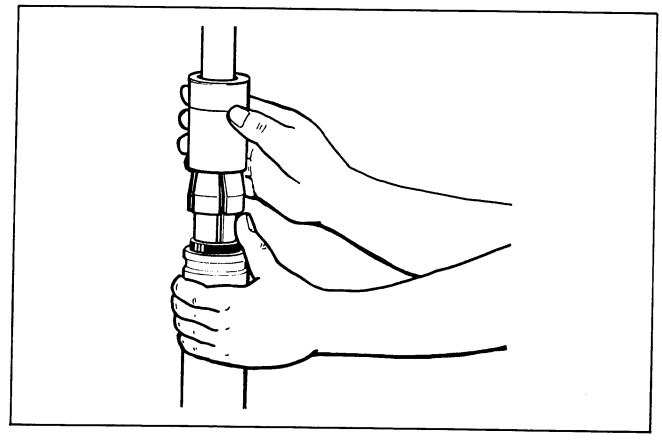




OIL SEAL

Install the oil seal to the outer tube by using special tool.

09940 - 50112	Oil seal installer

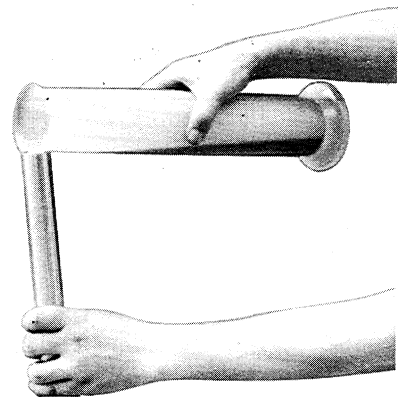


FORK OIL

For the fork oil, be sure to use a fork oil whose viscocity rating meets specifications below.

Fork oil type	Mixture SAE 10W/30 : A.T.F.

Capacity	166 ml (5.61/5.84 US/Imp oz)

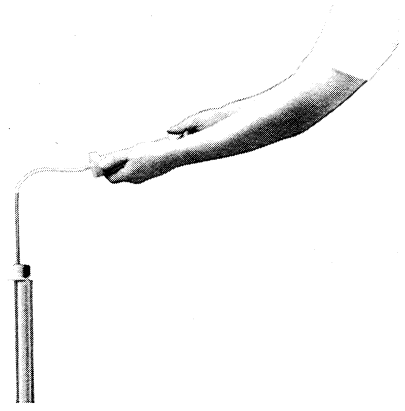


Adjust the fork oil level with a special tool.

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

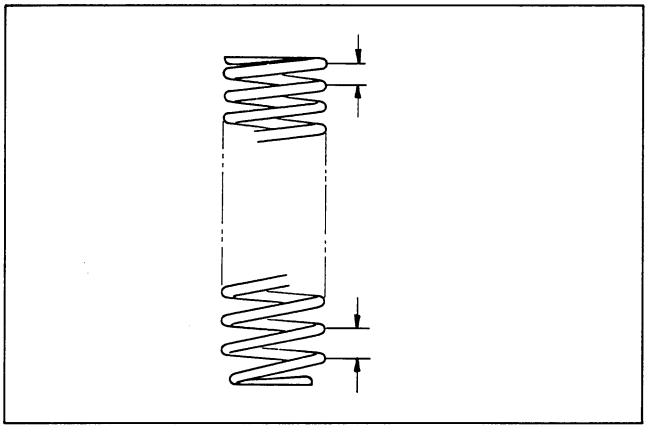
09943 - 74111	Fork oil level gauge

Oil level	167 mm (6.6 in)



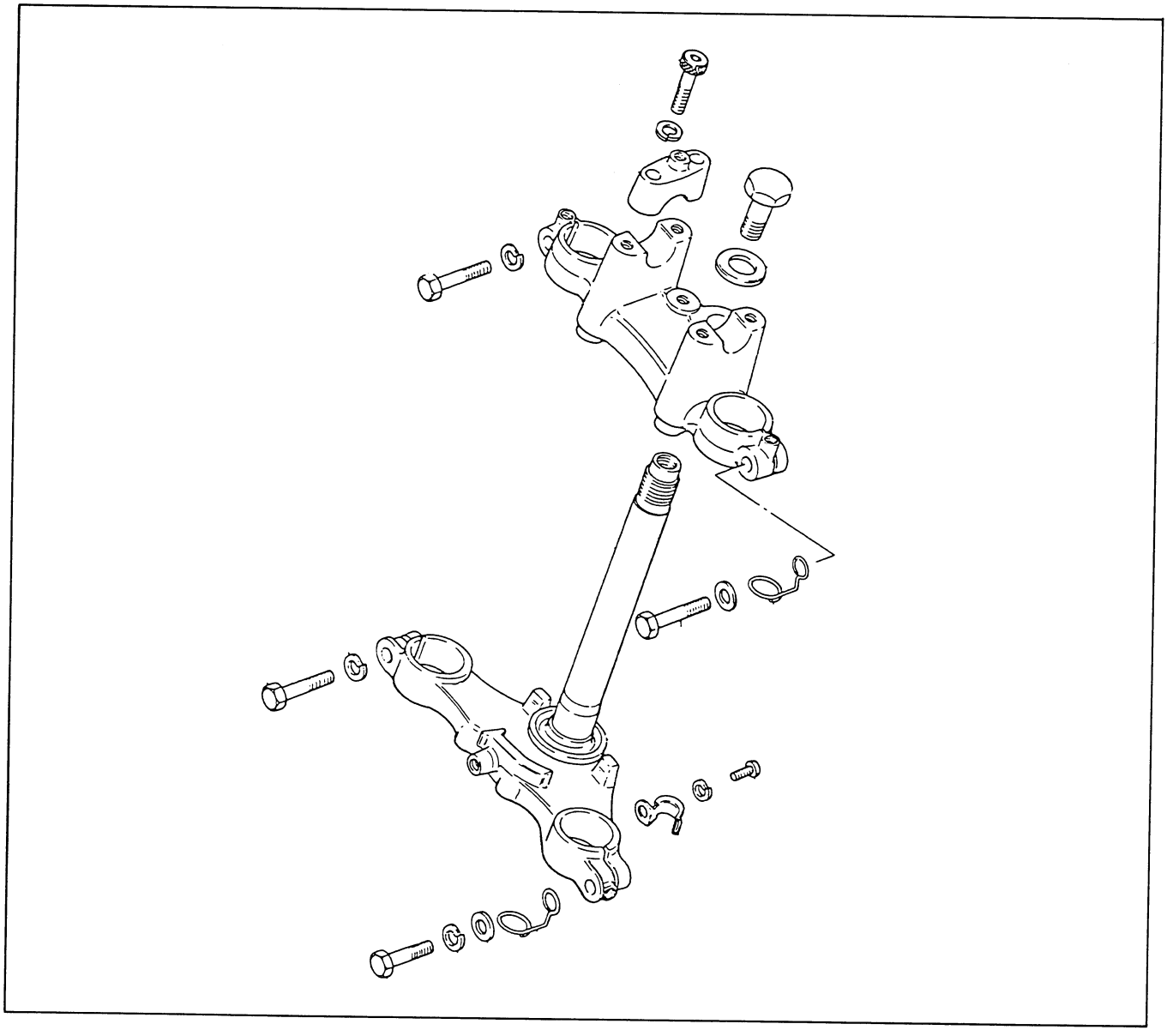
FORK SPRING

When installing the fork spring, large pitch side should position in bottom.



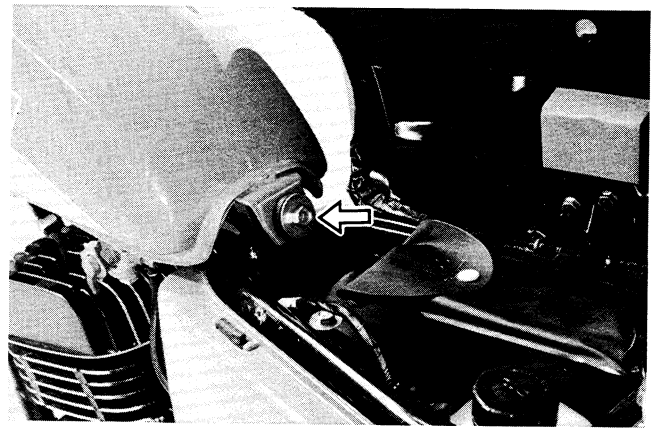
STEERING STEM

REMOVAL AND DISASSEMBLY

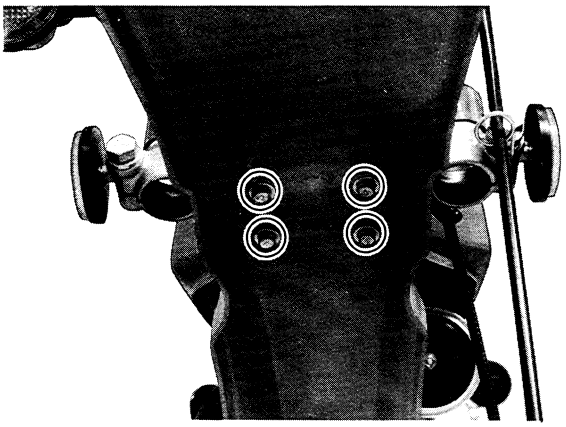


Remove front wheel (See page 6-1).
Remove front fork (See page 6-15).
Open the seat and take off fuel tank.

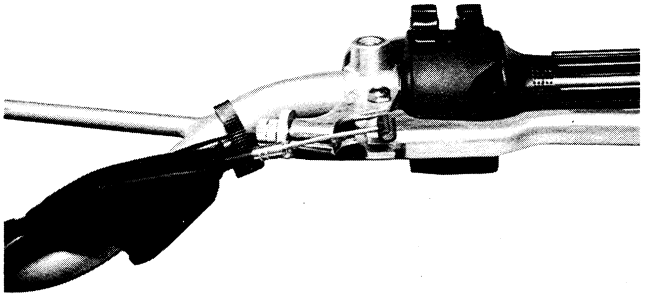
NOTE:
When taking off the fuel tank, disconnect fuel hose, and confirm that fuel cock is in off position.



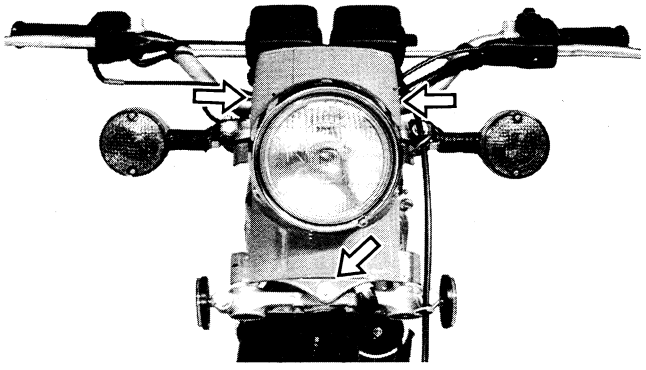
Remove front fender.



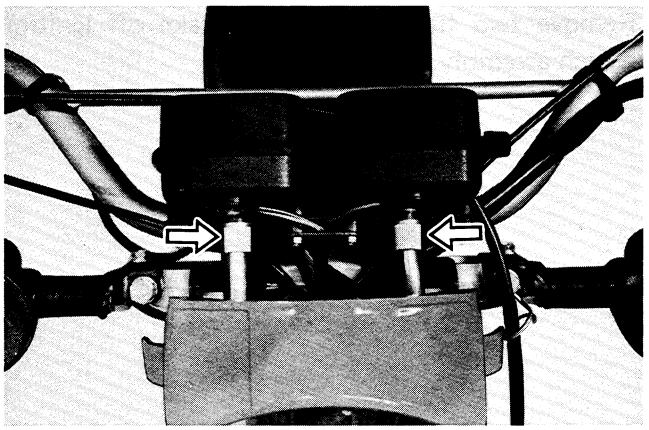
Disconnect clutch cable.



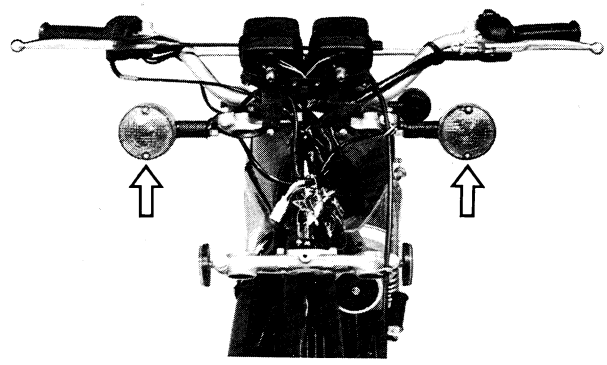
Remove three headlight housing securing screws.



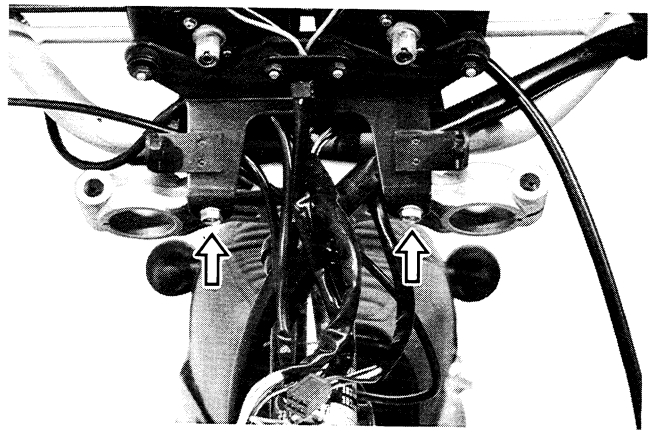
Disconnect speedometer and tachometer cables.
Disconnect each lead wire and take off headlight housing.



Remove right and left turn signal lights.

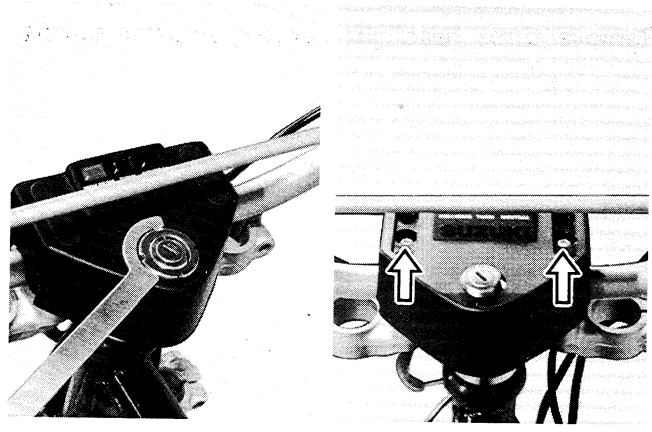


Remove meter assembly.

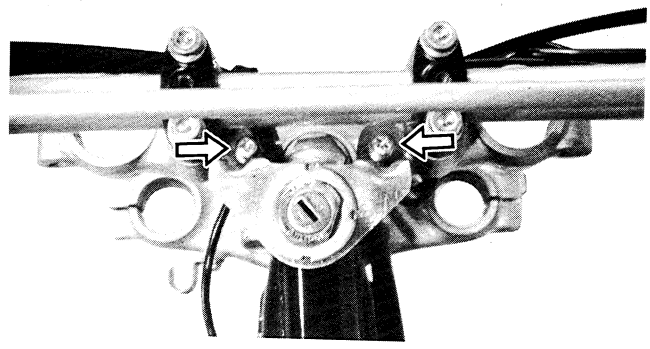


Remove ignition switch securing nut by using special tool.
Remove two fitting screws and take off handlebars cover.

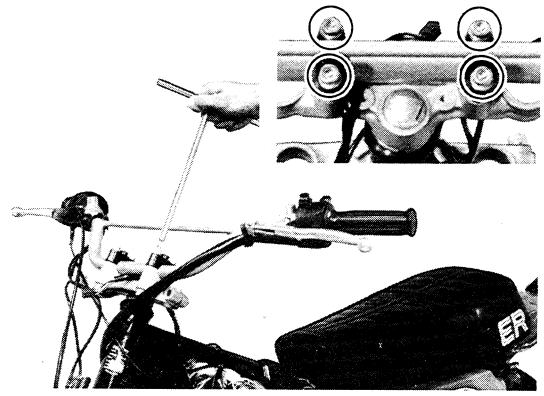
09932 - 11910	Ignition switch wrench



Remove two fitting screws and take off ignition switch assembly.



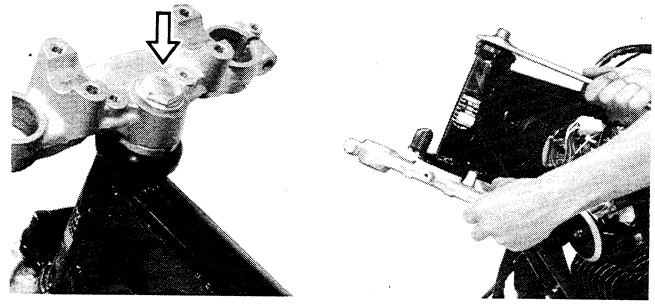
Remove handlebars.



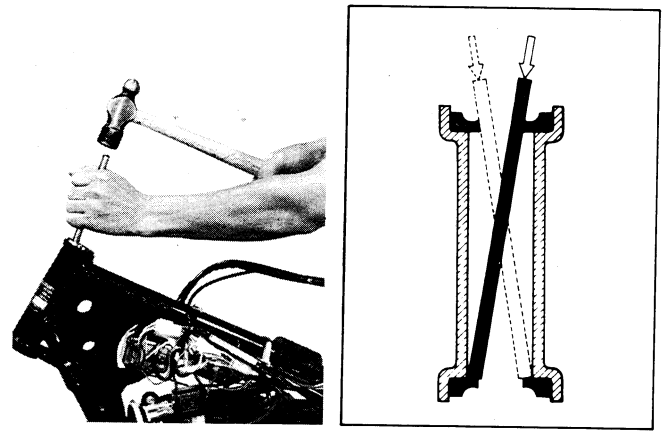
Remove steering stem head bolt and remove steering stem upper bracket.
Remove steering stem nut by using special tool.

NOTE:
Hold the steering stem lower bracket by hand to prevent dropping.

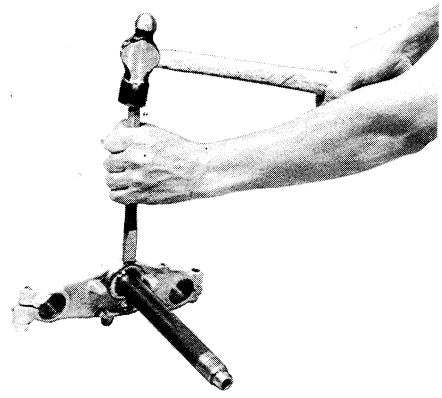
09910 - 60610	Universal clamp wrench



Drive out upper and lower bearing inner races.



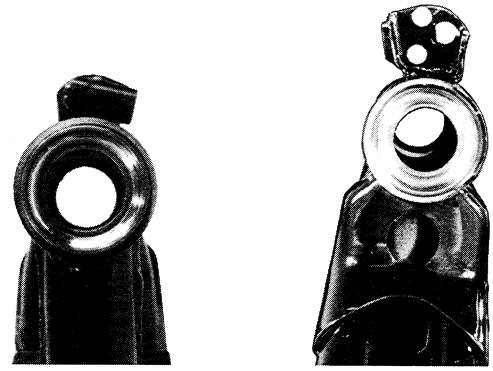
Remove lower bearing outer race by chisel.

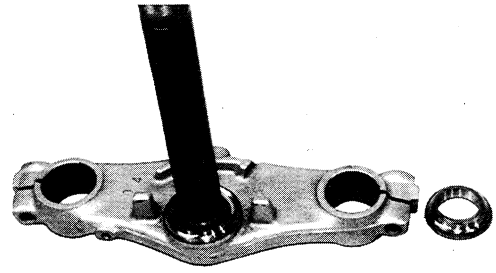


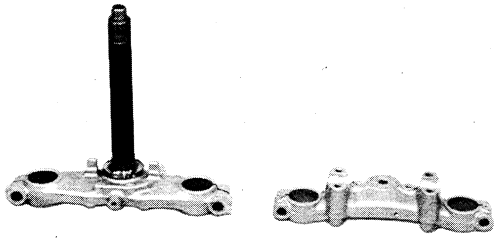
INSPECTION

Inspect and check the removed parts for the following abnormalities.

- Bearing race wear and brinelling.
- Worn or damaged steel balls.
- Distortion of steering stem upper and lower brackets.







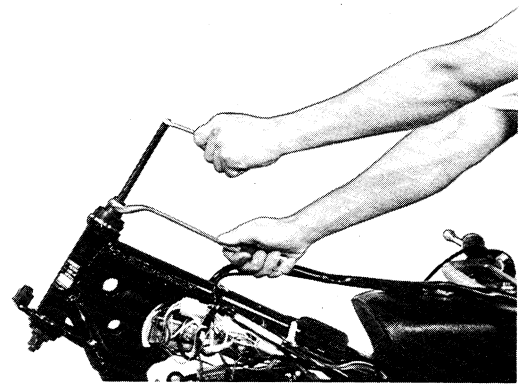
REASSEMBLY

Reassemble and remount the steering stem in the reverse order of disassembly and removal and also carry out the following steps:

INNER RACES

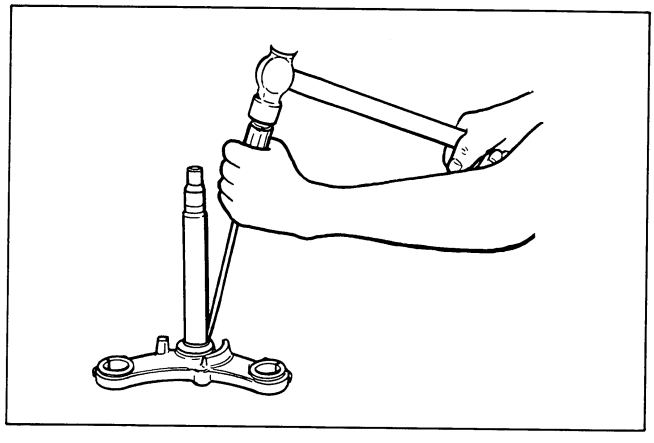
Press in the upper and lower inner races by using special tool.

09941 - 34511	Steering inner race installer



OUTER RACES

Press in the lower bearing outer race.

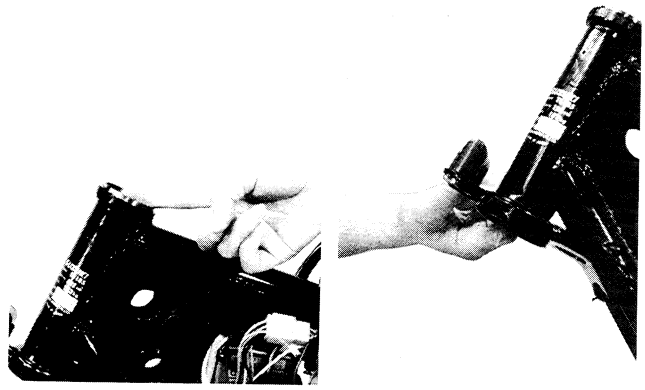


STEEL BALL

Apply grease when installing the upper and lower steel balls.

99000 - 25010	Suzuki Super Grease "A"

Number of balls	Upper	22
	Lower	18

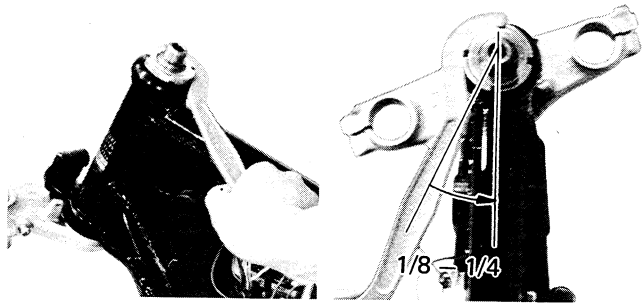


STEERING STEM NUT

Tighten the steering stem nut by using special tool until resistance is felt, then loosen it 1/8 – 1/4 turn.

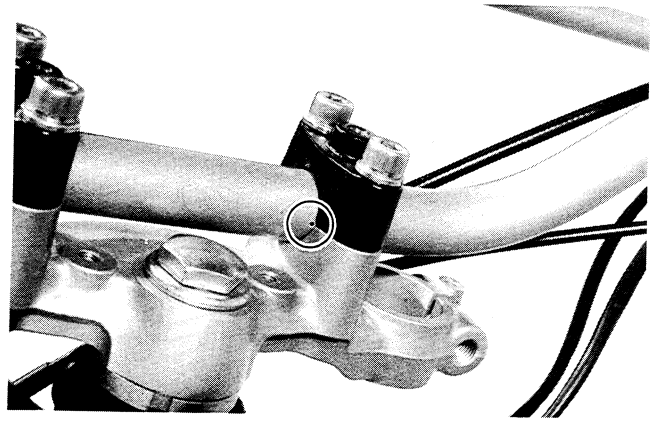
NOTE:
This adjustment will vary from motorcycle to motorcycle.

Make sure that the steering turns smoothly and easily left to right.

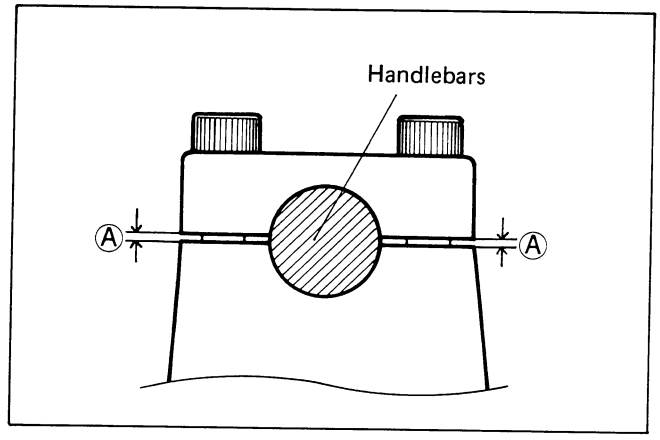


HANDLEBARS

Set the handlebars to match its dent mark to the mating surface between steering stem and handlebars clamp as shown.

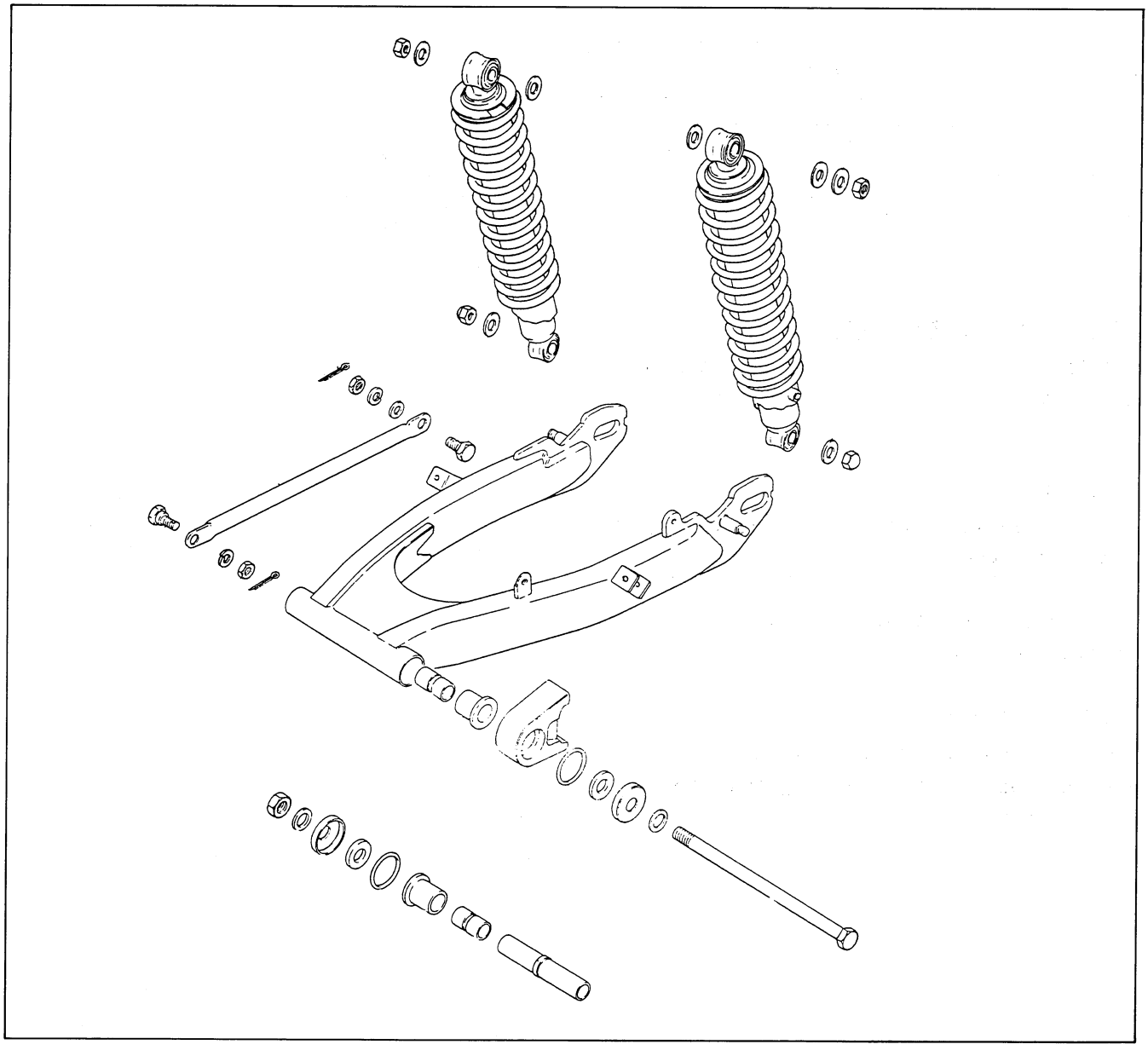


Secure the each handlebars clamp in such a way that the clearances Ⓐ ahead of and behind the handlebars are equalized.



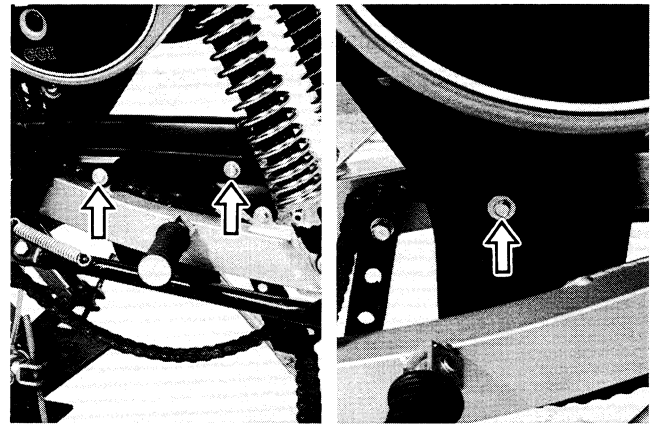
REAR SUSPENSION

CONSTRUCTION

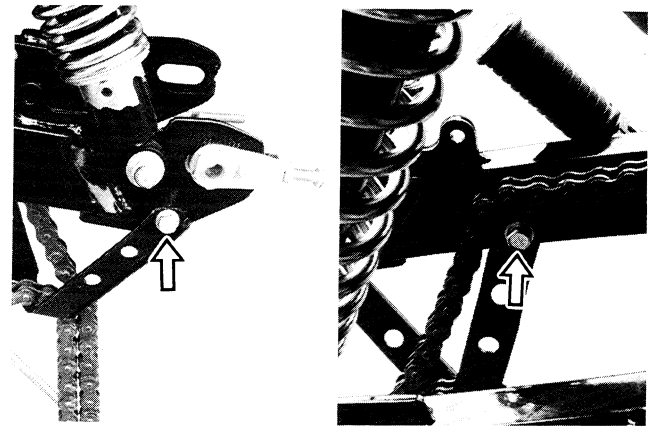


REMOVAL AND DISASSEMBLY

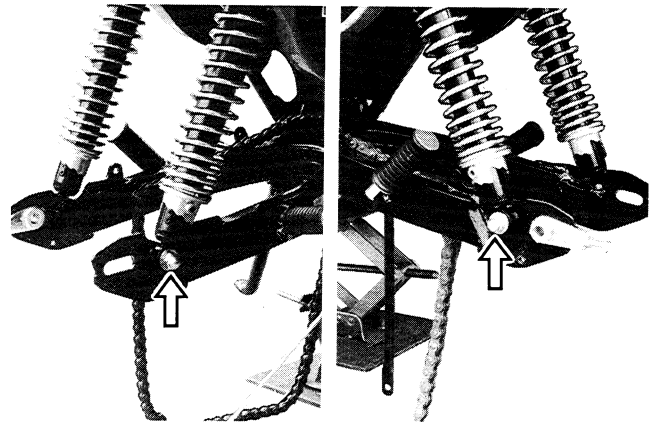
Remove rear wheel (See page 6-8).
Remove chain case.



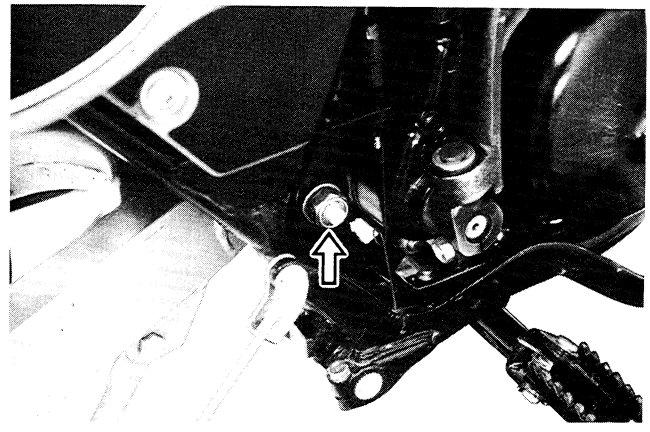
Remove chain guard.



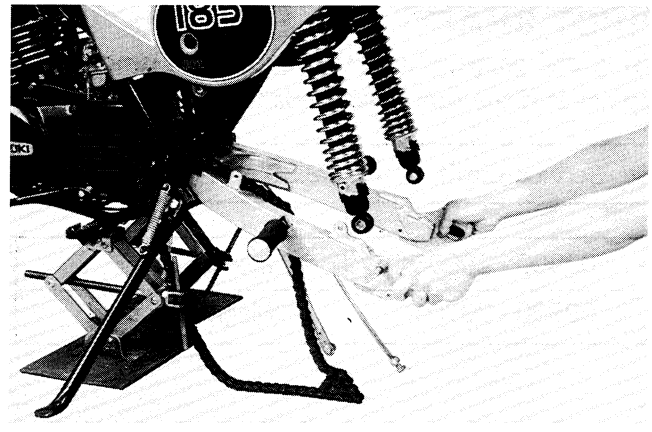
Remove rear shock absorber fitting bolts right and left for down side.



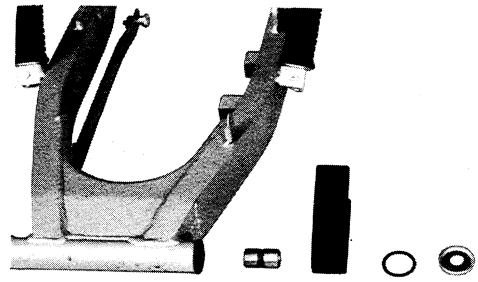
Remove swingarm pivot nut and pull off pivot shaft.



Take off swingarm.

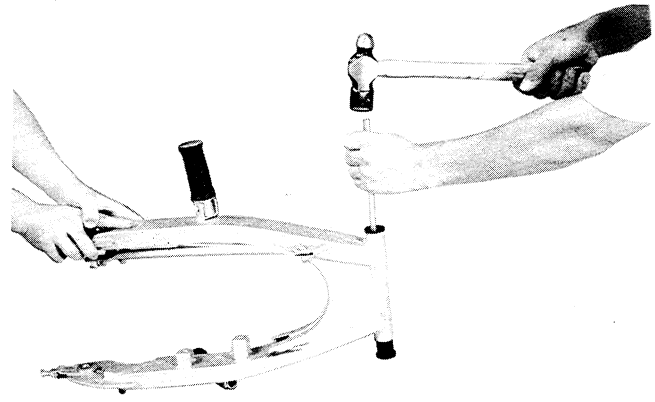


Remove dust cover, O-ring, chain buffer and outer spacer.



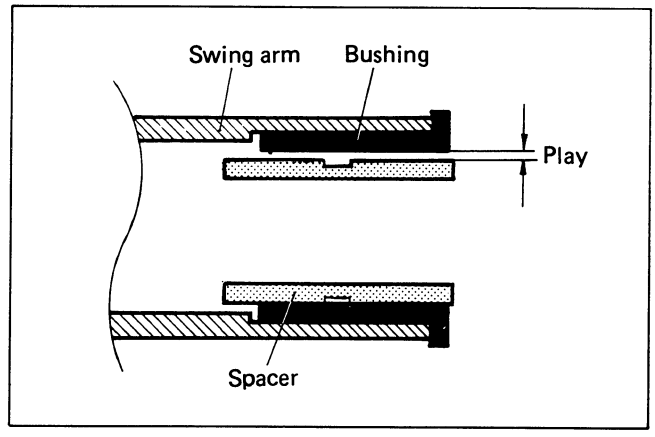
Drive out right and left bushings.

CAUTION:
The removed bushings should be replaced.



INSPECTION

Inspect the play of swingarm bushing inner spacer by hand while fixing it in the swingarm.
Replace the bushing and spacer if there is any play.

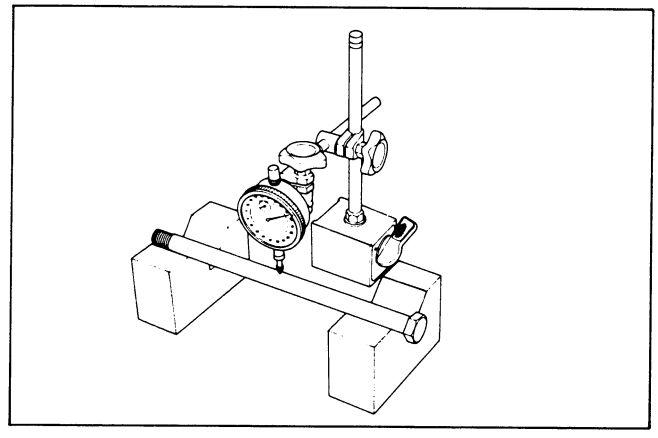


PIVOT SHAFT

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

Service Limit	0.30 mm (0.012 in)

09900 - 20606	Dial gauge
09900 - 20701	Magnetic stand



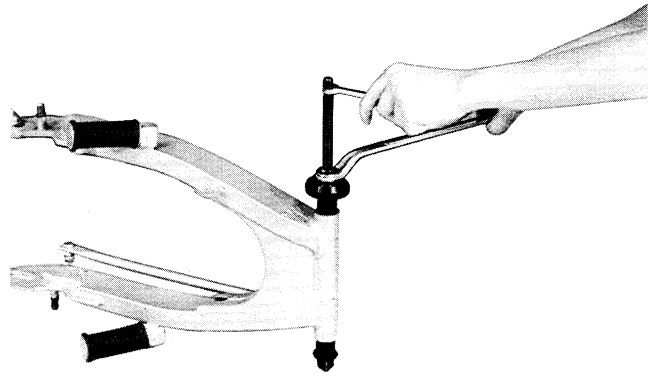
REASSEMBLY

Reassemble and remount the swing arm in the reverse order of disassembly and removal, and also carry out the following steps:

BUSHINGS

Press in the bushings by using special tool.

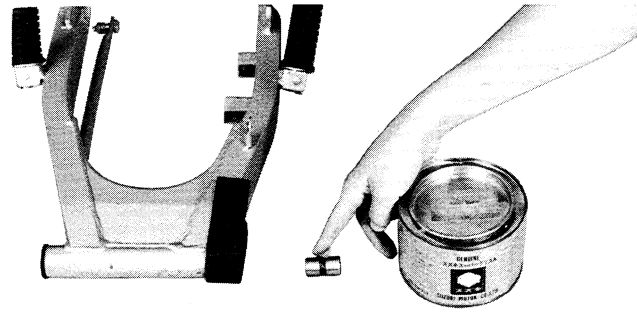
09941 - 34511	Bearing installer



OUTER SPACER

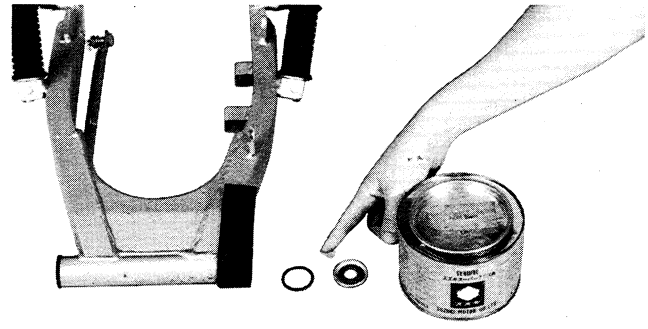
Apply grease to the outer spacer before installing.

99000 - 25010	Suzuki Super Grease "A"



DUST COVER AND O RING

Apply grease to the dust cover and O-ring before installing.



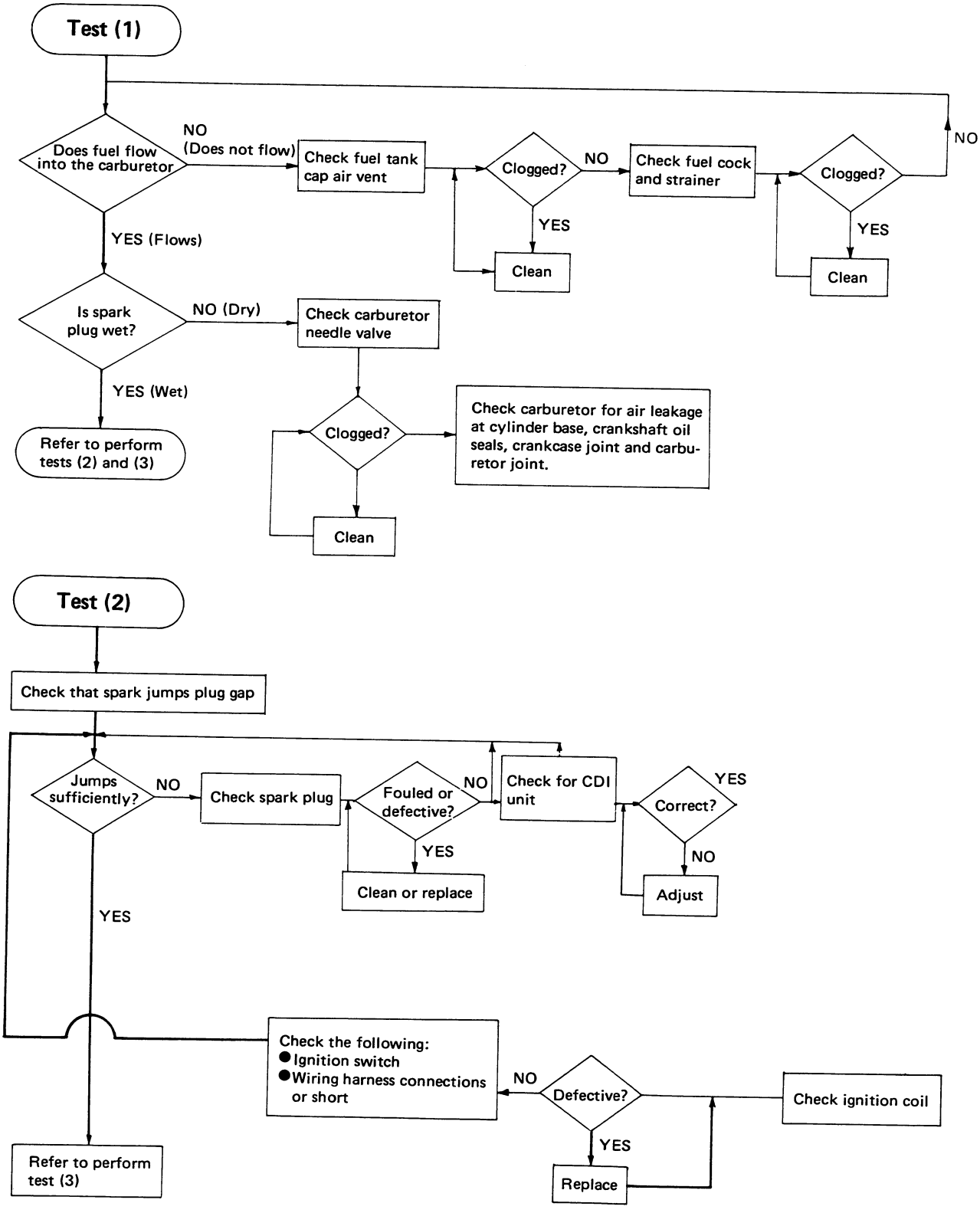
SERVICING INFORMATION

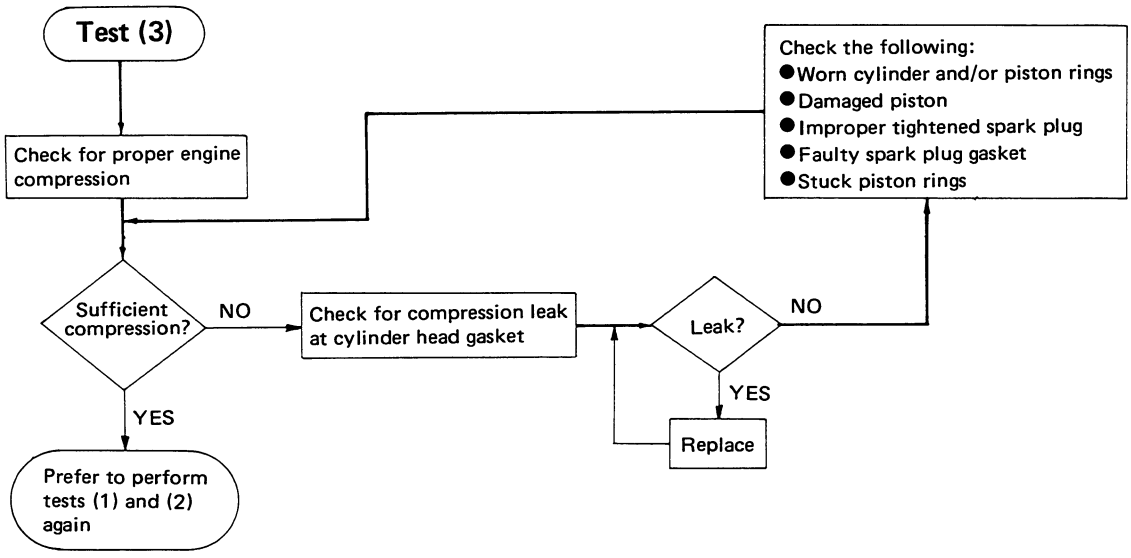
CONTENTS

TROUBLESHOOTING

ENGINE DIFFICULT TO START

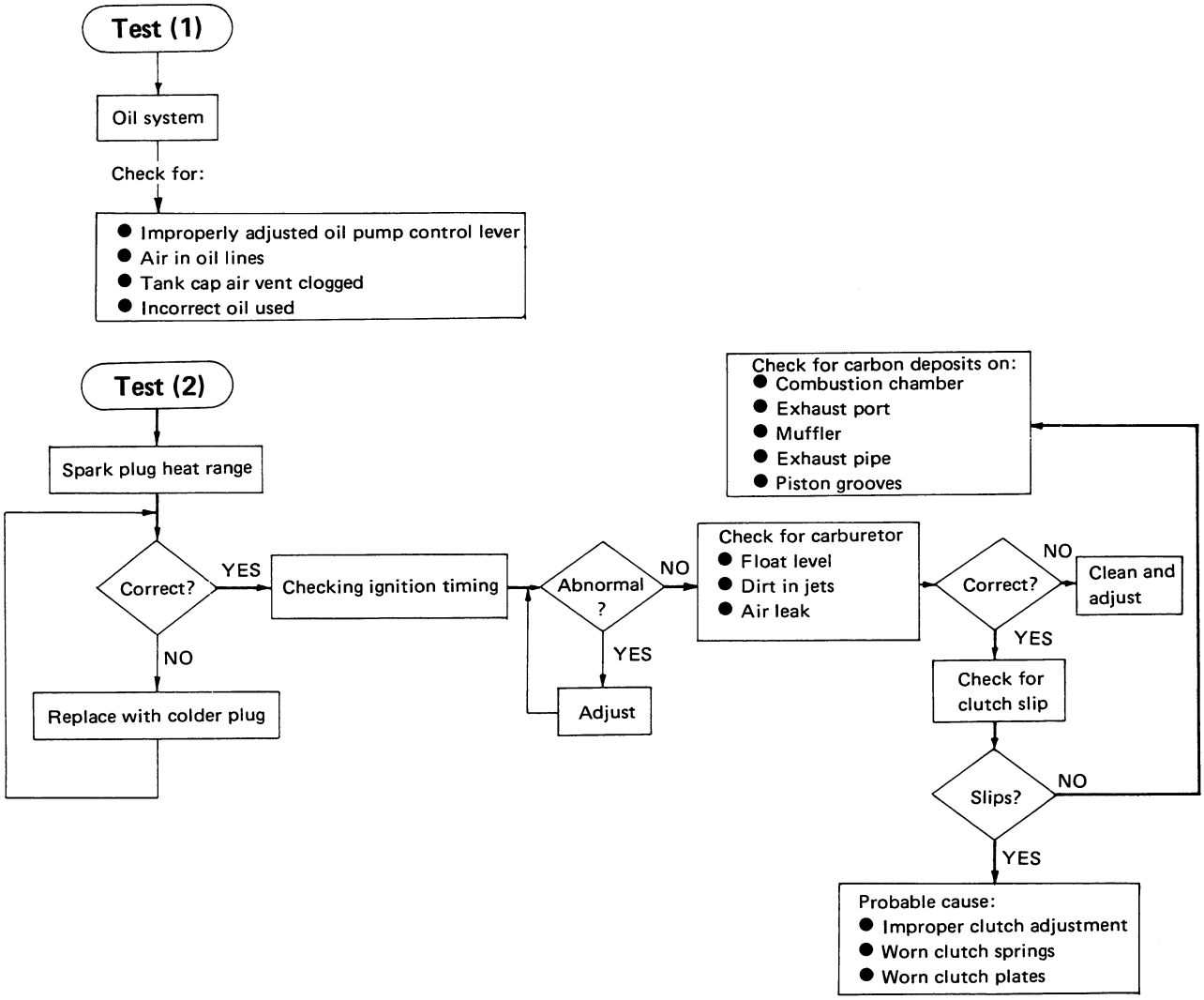
First check that there is fuel in the tank. If there is a sufficient amount of fuel, check the following.





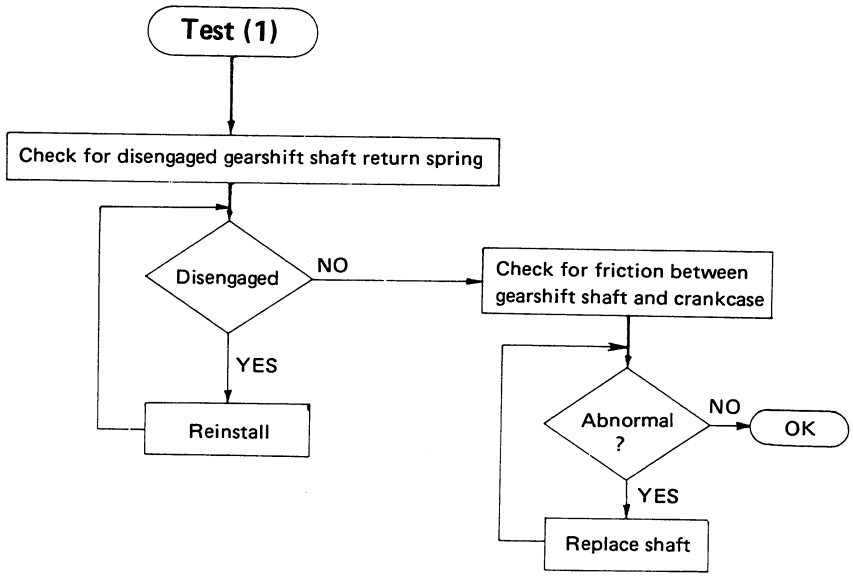
ENGINE OVERHEATS

If the engine tends to overheat during low-speed running, check the condition of the lubrication system, the brakes (for dragging) and cylinder fin cleanliness. If no abnormality is found, make the following checks:

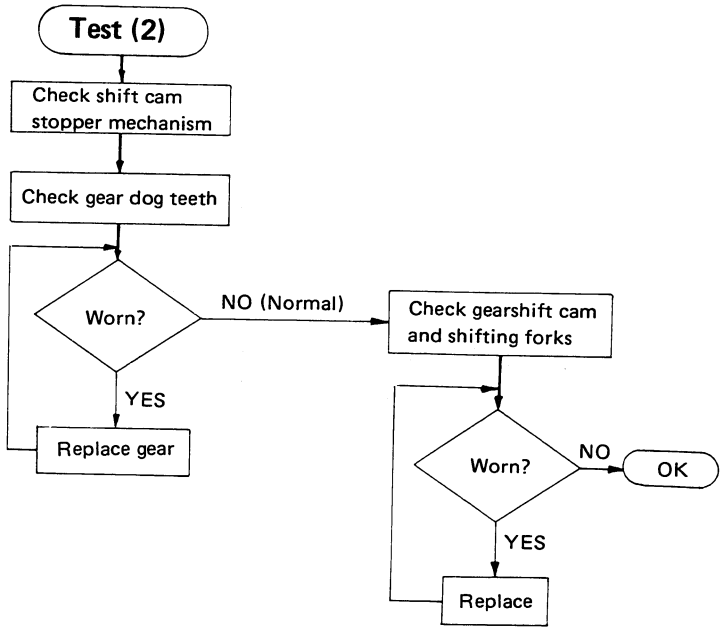


GEAR SHIFT PROBLEMS

Case 1 Gear shift lever does not return to normal position

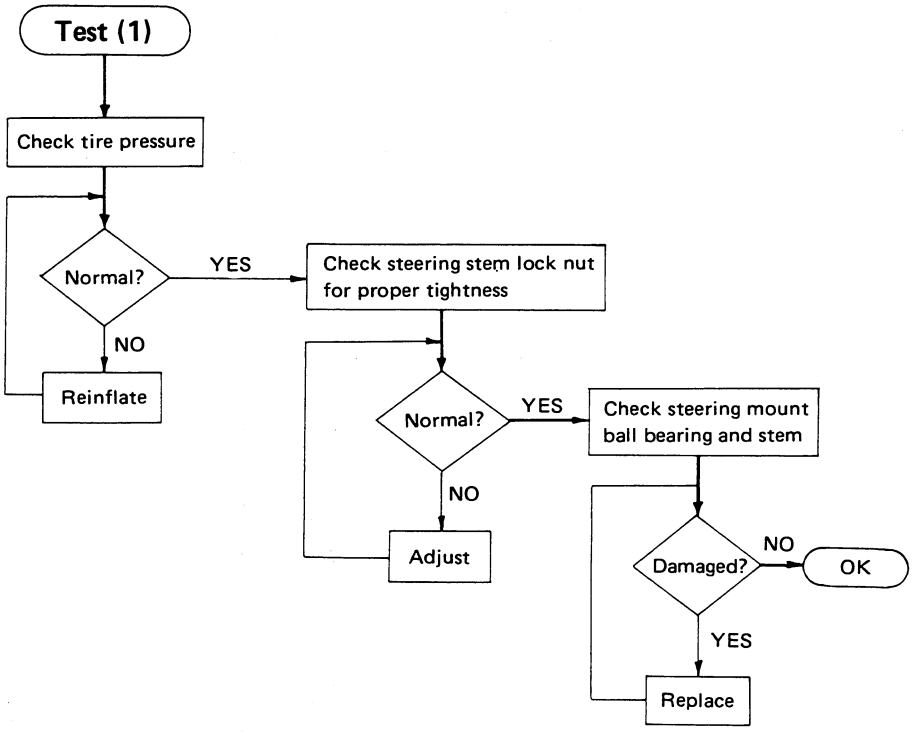


Case 2 Gears disengage while running

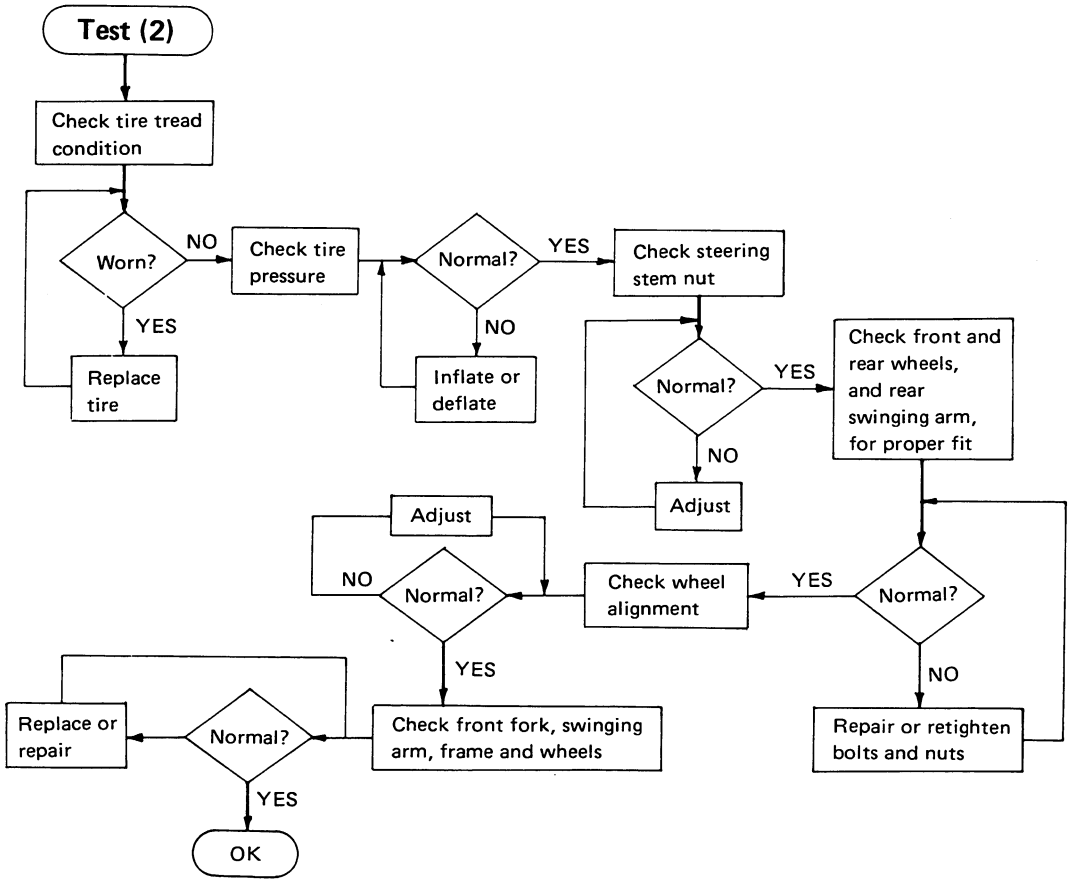


POOR STABILITY AND STEERING

Handlebars feels stiff to turn



Handlebars operation unstable



TIGHTENING TORQUE

Tighten all bolts and nuts described below to the proper torque using an accurate torque wrench. If sufficiently tightened, a bolt or nut may become damaged or fall off, possible resulting in damage to the motorcycle and injury to the rider. A bolt or nut which is over-tightend may become damaged, stripped, or break and then fall out. The following tables list the tightening torque for the major bolts and nuts of engine and chassis.
When checking the tightening torque of the bolts and nuts, first loosen the bolt or nut by half a turn and then tighten to specified torque.

CHASSIS

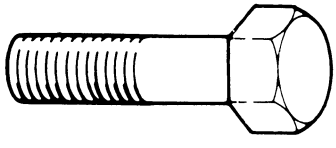
ITEM	N·m	kg-m
Front axle nut	30 – 70	3.0 – 7.0
Front brake cam lever bolt	5 – 8	0.5 – 0.8
Front fork damper rod bolt	20 – 30	2.0 – 3.0
Front fork cap bolt	15 – 30	1.5 – 3.0
Front fork upper clamp bolt	20 – 30	2.0 – 3.0
Front fork lower clamp bolt	25 – 35	2.5 – 3.5
Steering stem head bolt	35 – 55	3.5 – 5.5
Handlebar clamp bolt	12 – 20	1.2 – 2.0
Front footrest bar bolt	15 – 20	1.5 – 2.0
Brake pedal arm bolt	6 – 9	0.6 – 0.9
Swing arm pivot nut	45 – 70	4.5 – 7.0
Rear torque link bolt and nut	10 – 15	1.0 – 1.5
Rear shock absorber fitting nut	20 – 30	2.0 – 3.0
Rear axle nut	30 – 70	3.0 – 7.0
Rear axle sleeve nut	55 – 70	5.5 – 7.0
Rear brake cam lever bolt and nut	5 – 8	0.5 – 0.8

ENGINE

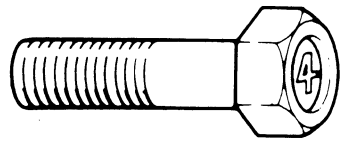
ITEM		N·m	kg-m
Cylinder head nut		13 – 23	1.3 – 2.3
Cylinder nut	(8 mm)	13 – 23	1.3 – 2.3
	(10 mm)	25 – 40	2.5 – 40
Primary drive gear nut		40 – 60	4.0 – 6.0
Clutch sleeve hub nut		30 – 50	3.0 – 5.0
Magneto rotor nut		55 – 65	5.5 – 6.5
Engine sprocket nut		40 – 60	4.0 – 6.0
Engine mounting bolt and nut	(8 mm)	18 – 28	1.8 – 2.8
	(10 mm)	40 – 60	4.0 – 6.0

The table below, relating tightening torque to thread diameter, lists the basic torque for the general bolts and nuts used on Suzuki Motorcycles. However, the actual torque that is necessary may vary among bolts and nuts with the same thread diameter. Refer to this table for only the bolts and nuts not included in the above tables "Engine" and "Chassis". All of the values are for use with dry, solvent-cleaned threads.

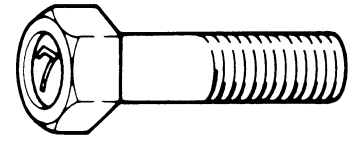
Bolt Diameter (mm)	Conventional or "4" marked bolt		"7" marked bolt	
	N·m	kg-m	N·m	kg-m
4	1.0 – 2.0	0.1 – 0.2	1.5 – 3.0	0.15 – 0.3
5	2.0 – 4.0	0.2 – 0.4	3.0 – 6.0	0.3 – 0.6
6	4.0 – 7.0	0.4 – 0.7	8.0 – 12.0	0.8 – 1.2
8	10.0 – 16.0	1.0 – 1.6	18.0 – 28.0	1.8 – 2.8
10	22.0 – 35.0	2.2 – 3.5	40.0 – 60.0	4.0 – 6.0
12	35.0 – 55.0	3.5 – 5.5	70.0 – 100.0	7.0 – 10.0
14	50.0 – 80.0	5.0 – 8.0	110.0 – 160.0	11.0 – 16.0
16	80.0 – 130.0	8.0 – 13.0	170.0 – 250.0	17.0 – 25.0
18	130.0 – 190.0	13.0 – 19.0	200.0 – 280.0	20.0 – 28.0



Conventional bolt



"4" marked bolt

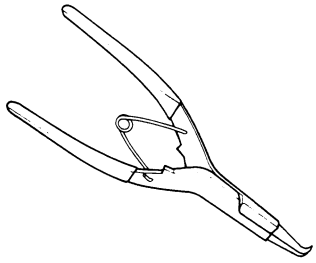
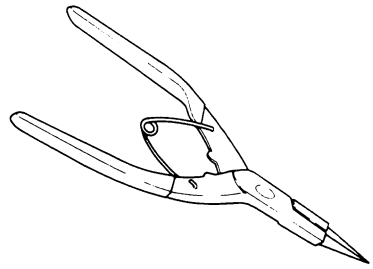
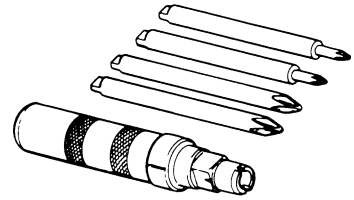
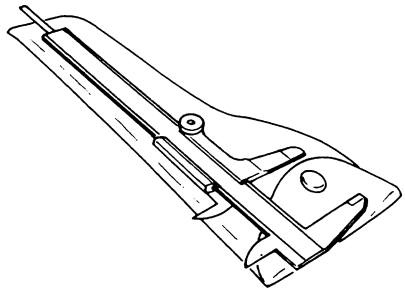
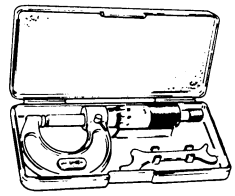
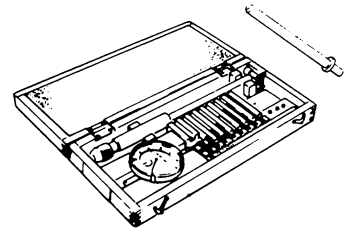
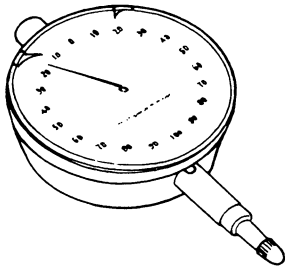
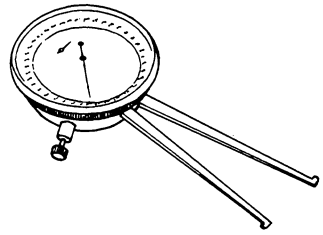
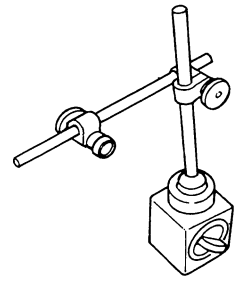
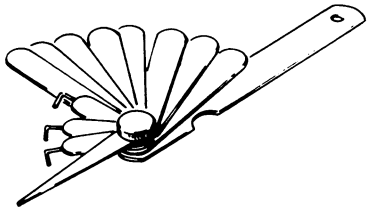
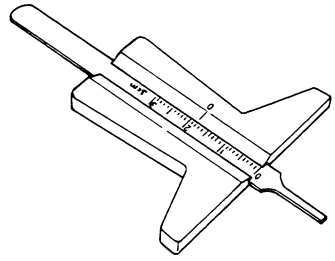
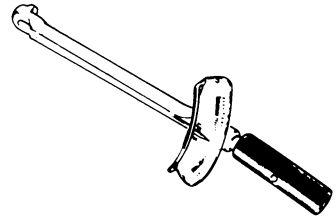
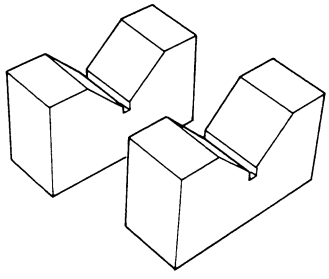
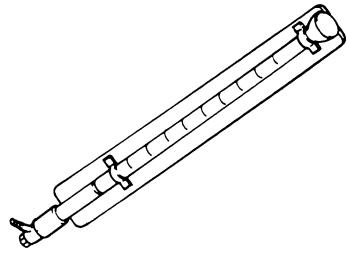
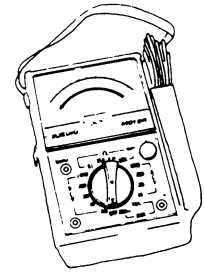


"7" marked bolt

SPECIAL TOOLS

Item	Part No.	Part Name
1	09900-06104	Snap ring pliers (opening type)
2	09900-06107	Snap ring pliers (opening type)
3	09900-09003	Shock driver set
4	09900-20101	Vernier calipers
5	09900-20205	Micro meter (0 – 25 mm)
	09900-20202	Micro meter (25 – 50 mm)
	09900-20203	Micro meter (50 – 75 mm)
6	09900-20508	Cylinder gauge set
7	09900-20606	Dial gauge
8	09900-20605	Dial calipers
9	09900-20701	Magnetic stand
10	09900-20804	Thickness gauge
11	09900-20805	Tire depth gauge
12	09900-21102	Torque wrench (0 – 1.2 kg-m)
	09900-21103	Torque wrench (1.0 – 9.0 kg-m)
13	09900-21303	V block set
14	09900-21602	CCI oil gauge
15	09900-25002	Pocket tester
16	09900-26003	Engine speed tester
17	09900-27311	Timing light (Dry cell type)
18	09900-28106	Electro tester
19	09900-28403	Hydrometer
20	09910-10710	Stud bolt installer
	09910-11510	Stud bolt installer
21	09910-20115	Con-rod holder
22	09910-34510	Piston pin puller
23	09910-60610	Universal clamp wrench
24	09920-13120	Crankcase separating tool
25	09900-00411	Hexagon wrench set
26	09913-50121	Oil seal remover
27	09913-70122	Bearing installer
28	09913-76010	Bearing installer
29	09913-80112	Drive pinion race installer
30	09913-85210	Bearing installer

Item	Part No.	Part Name
31	09914-25811	"T" type hexagon wrench (6mm)
32	09920-20310	Clutch spring hook
33	09920-53710	Clutch sleeve hub holder
34	09924-84510	Bearing installer set
35	09930-10111	Spark plug wrench
36	09930-30713	Flywheel rotor remover
37	09930-40113	Rotor holder
38	09932-11910	Ignition switch wrench
39	09940-34520	Fork tool handle
	09940-34561	Ⓐ Attachment "D"
40	09940-50112	Front fork oil seal installer
41	09940-60113	Spoke nipple wrench
42	09941-34511	Steering race and swinging arm bearing installer
43	09943-74111	Front fork oil level gauge
44	96200-41330	Tire pressure gauge

① 	② 	③ 
④ 	⑤ 	⑥ 
⑦ 	⑧ 	⑨ 
⑩ 	⑪ 	⑫ 
⑬ 	⑭ 	⑮ 

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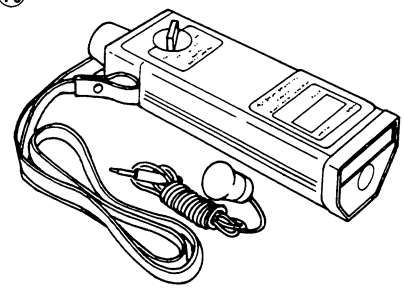

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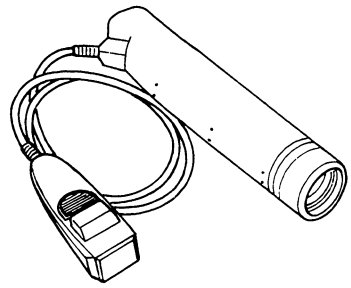

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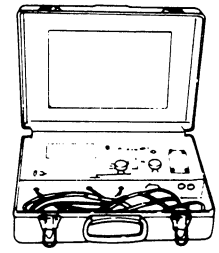

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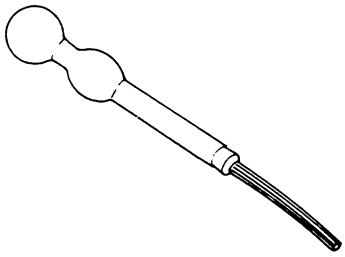

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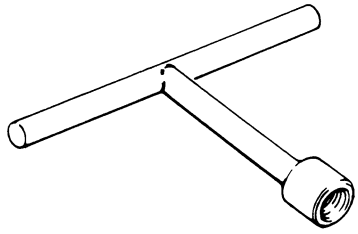

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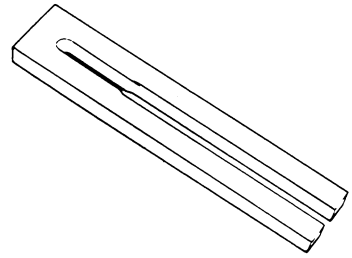

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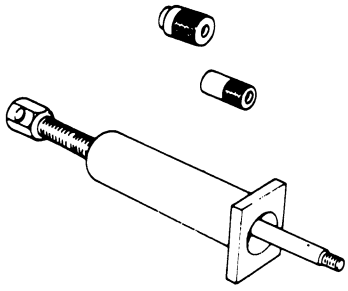

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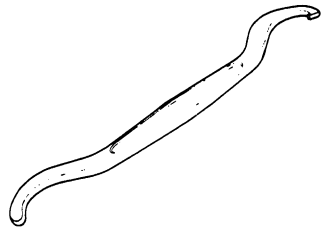

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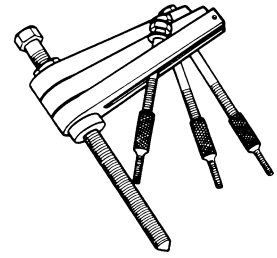

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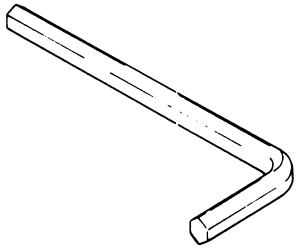

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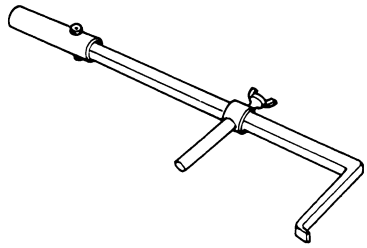

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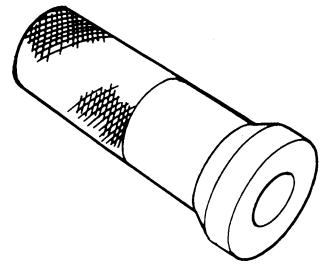

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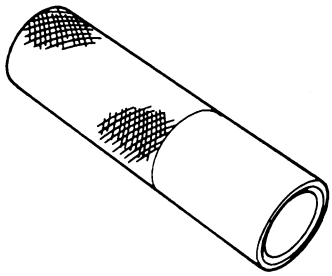

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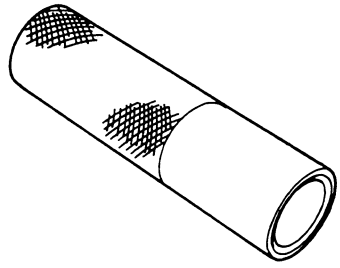

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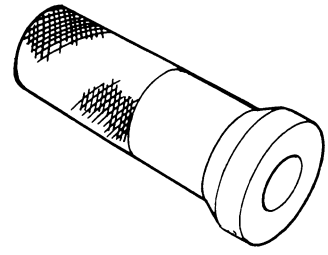
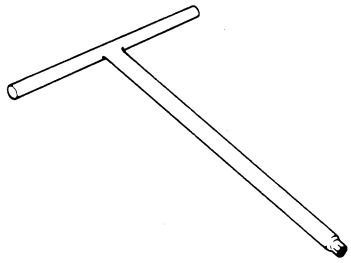
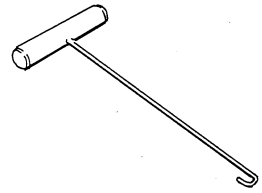
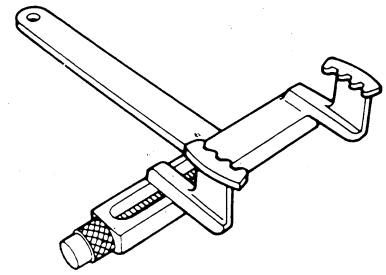
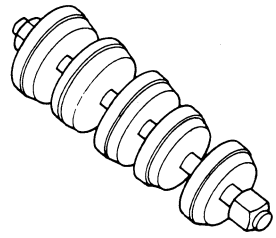
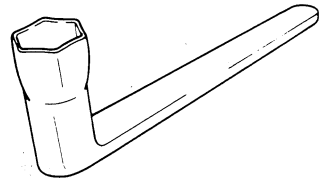
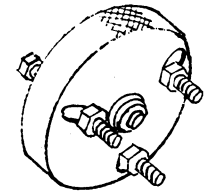
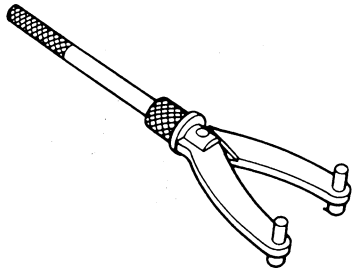
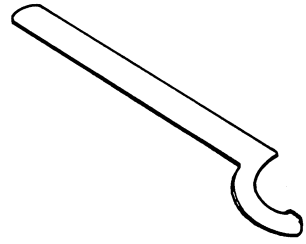
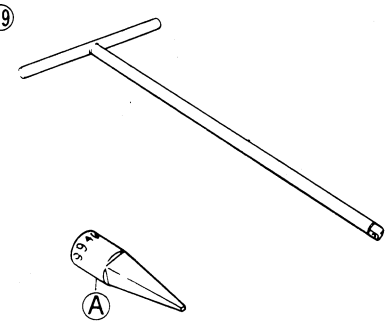
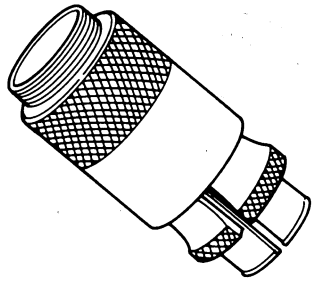
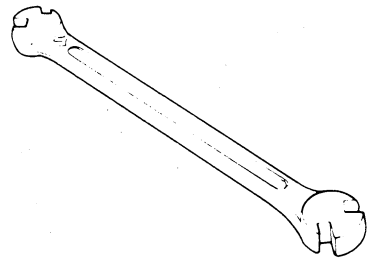
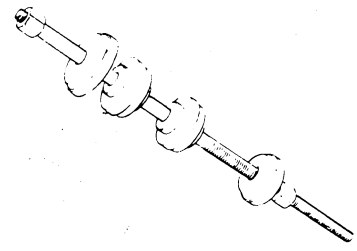
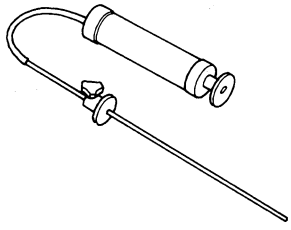
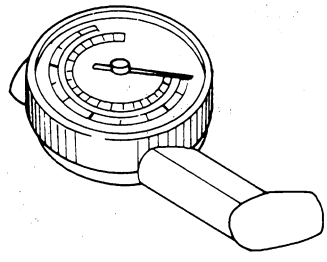


㉛ 	㉜ 	㉝ 
㉞ 	㉟ 	㊱ 
㊲ 	㊳ 	㊴ 
㊵ 	㊶ 	㊷ 
㊸ 	㊹ 	

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050 – 0.060 (0.0020 – 0.0024)			0.120 (0.0047)
Cylinder bore	64.000 – 64.015 (2.5197 – 2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945 – 63.960 (2.5175 – 2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	———			0.05 (0.002)
Cylinder head distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15 – 0.35 (0.006 – 0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02 – 0.06 (0.001 – 0.002)	———
	2nd		0.02 – 0.06 (0.001 – 0.002)	———
Piston pin bore	15.998 – 16.006 (0.6298 – 0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995 – 16.000 (0.6297 – 0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003 – 21.011 (0.8269 – 0.8272)	21.040 (0.8283)
Conrod deflection	———	3.0 (0.12)
Crank web to web width	56.0 ± 0.1 (2.205 ± 0.004)	———
Crankshaft runout	———	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
CCI pump discharge rate (Full open)	1.53—1.90 ml (0.052/0.054—0.064/0.067 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH + PRIMARY GEAR

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	2 – 3 (0.08 – 0.12)	———
Drive plate thickness	2.9 – 3.1 (0.11 – 0.12)	2.6 (0.10)
Drive plate distortion	———	0.4 (0.016)
Drive plate claw width	11.8 – 12.0 (0.46 – 0.47)	11.3 (0.44)
Driven plate thickness	1.6 ± 0.06 (0.063 ± 0.002)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	32.6 (1.28)

TRANSMISSION

ITEM	STANDARD		LIMIT
Primary reduction ratio	3.210 (61/19)		———
Final reduction ratio	3.250 (39/12)		———
Gear ratios	Low	2.750 (33/12)	———
	2nd	1.812 (29/16)	———
	3rd	1.250 (25/20)	———
	4th	1.000 (23/23)	———
	Top	0.800 (20/25)	———
Shift fork to groove clearance	No1,No.2 No.3	0.20 – 0.40 (0.008 – 0.016)	0.60 (0.024)
Shift fork groove width	No.1,No.2 No.3	5.60 – 5.70 (0.220 – 0.224)	———
Shift fork thickness	No.1,No.2 No.3	5.30 – 5.40 (0.209 – 0.213)	———
Countershaft length (Low to 2nd)	No.1,No.2 No.3	$78.0^{+0.3}_{+0.2}$ $(3.071^{+0.012}_{+0.008})$	———

DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	D.I.D.: 520K TAKASAGO: RK520	———
	Links	96	———
	20 pitch length	———	323.0 (12.72)
Drive chain slack	35 – 45 (1.4–1.8)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29
I.D. No.		29910
Idle r/min.		1300 ± 150 r/min.
Float height		24.0 ± 1.0 (0.94 ± 0.04)
Main jet	(M. J.)	# 195
Air jet	(A. J.)	0.7
Jet needle	(J. N.)	5DH48–3
Needle jet	(N. J.)	P – 1
Cut-away	(C. A.)	2.5
Pilot jet	(P. J.)	# 25
By pass	(B. P.)	1.0
Pilot outlet	(P. O.)	0.6
Air screw	(A. S.)	1¼
Valve seat	(V. S.)	2.0
Starter jet	(G. S.)	80
Throttle cable play		0.5 – 1.0 (0.02 – 0.04)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	21.5° ± 2° B.T.D.C. at 6 000 r/min		
Spark plug	Type	NGK BP7ES NIPPON DENSO W22EP	
	Gap	0.6 – 0.8 (0.024 – 0.031)	
Spark performance	Over 8 (0.3) at 1 atm		
Ignition coil resistance	Primary	W/Bl – B/W Approx. 0 – 1 Ω	
	Secondary	Plug cap – Ground Approx. 20 – 21 kΩ	
Magneto coil resistance	L_2 coil	B/R – R/W Approx. 30 – 40 Ω	
	L_1 coil	R/W –B/W Approx. 160 – 240 Ω	
	Charging	Y/W – Ground Approx. 1 – 2 Ω	
	Charging	G – Ground Approx. 0 – 1 Ω	
	Lighting	Y/R – Ground Approx. 0 – 1 Ω	
Charging rate	When connecting G lead wire	Above 1.1 A at 2 000 r/min. Below 3.2 A at 8 000 r/min.	
	When connecting Y/W lead wire	Above 1.1 A at 2 000 r/min. Below 3.2 A at 8 000 r/min.	
Lighting coil output	Above 5.7 V at 2 500 r/min. Below 7.8 V at 8 000 r/min.		
Regulated voltage	6.7 – 7.3 V		
Resistor resistance	1.8 – 2.2 Ω		Only for E-04 and E-22
Battery	Type designation	6N4B – 2A	
	Capacity	6V 14.4kC (4Ah) 10HR	
	Standard electrolyte S.G.	1.26 at 20° C (68° F)	
Fuse size		15A	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20 – 30 (0.8 – 1.2)		———
Rear brake pedal free travel	20 – 30 (0.8 – 1.2)		———
Brake drum I.D.	Front	———	130.7 (5.15)
	Rear	———	130.7 (5.15)
Brake lining thickness	———		1.5 (0.06)
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.01)
	Rear	———	0.25 (0.01)
Tire size	Front	2.75 – 21 4PR	———
		*3.00 – 21 4PR	———
	Rear	4.10 – 18 4PR	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

NOTE:
* For Bangladesh model

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swing arm pivot shaft runout	———	0.6 (0.02)	

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85 to 95 octane in Research Method, and should be unleaded or low-lead where they are available.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (1.6/1.3 US/Imp qt)		
Engine oil type	For the suzuki CCI system, use of SUZUKI CCI or CCI SUPER OIL is highly recommended, but if they are not available, a good quality two-stroke oil (non diluent type) should be used.		
Engine oil tank capacity	1.2 L (1.27/1.06 US/Imp qt)		
Transmission oil type	SAE 20W/40		
Transmission oil capacity	Change	700 ml (0.74/0.62 US/Imp qt)	
	Overhaul	750 ml (0.79/0.66 US/Imp qt)	
Front fork oil type	Mixture SAE 10W/30 : A.T.F.		
Front fork oil capacity (each leg)	166ml (5.61/5.84 US/Imp oz)		

TIRE PRESSURE

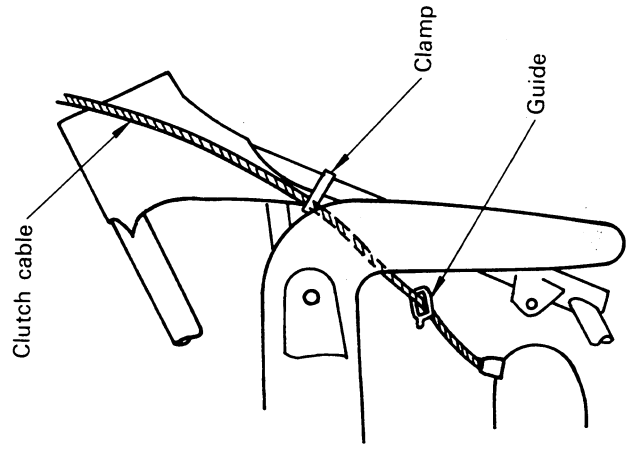
COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm^2	psi	kPa	kg/cm^2	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

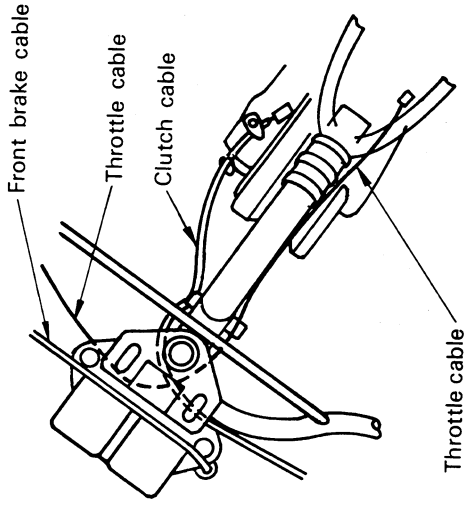
WATTAGE

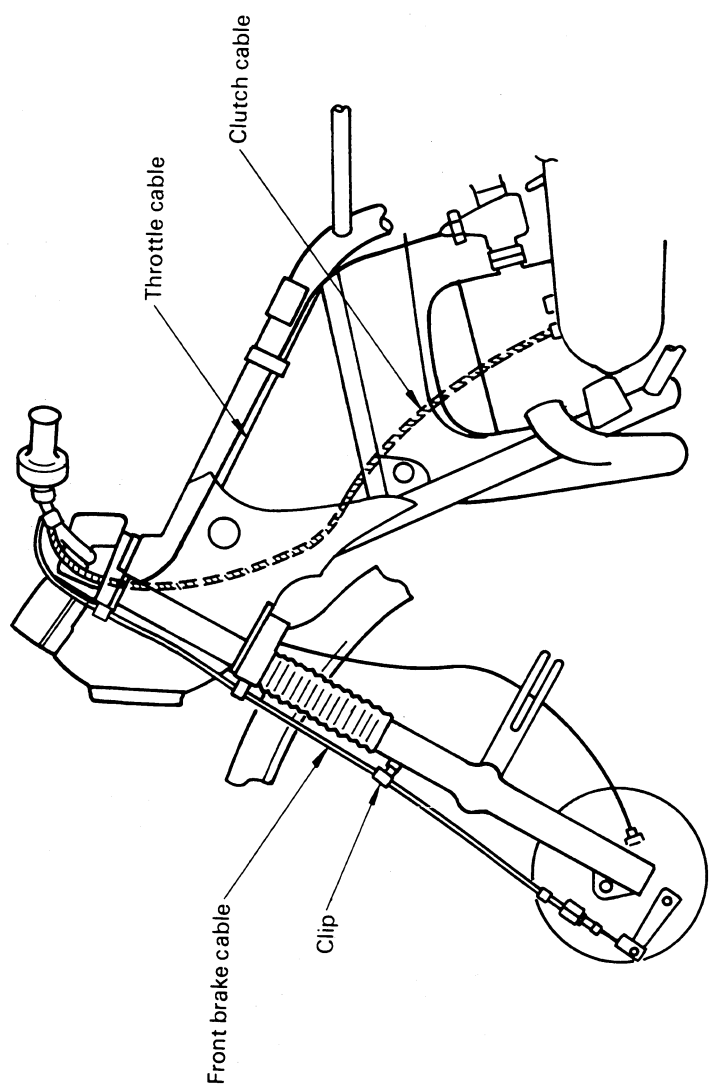
Unit: (W)

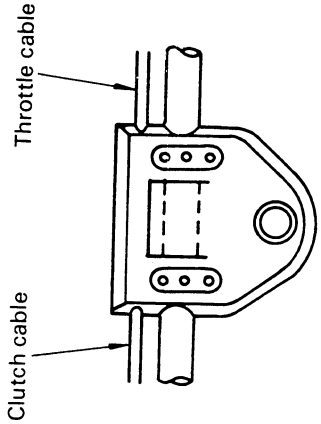
ITEM		SPECIFICATION									
		E-01	E-06	E-09	E-24	E-30	E-02	E-04	E-21	E-22	E-26	E-28
Headlight	HI	25										30
	LO	25										30
Parking or city light		–					4					–
Tail/Brake light		5.3/25					5/21					5.3/25
Turn signal light		17					18	21			10	17
Speedometer light		3										
Tachometer light		3										
Turn signal indicator light		3										
High beam indicator light		1.7										
Neutral indicator light		3										

CABLE ROUTING

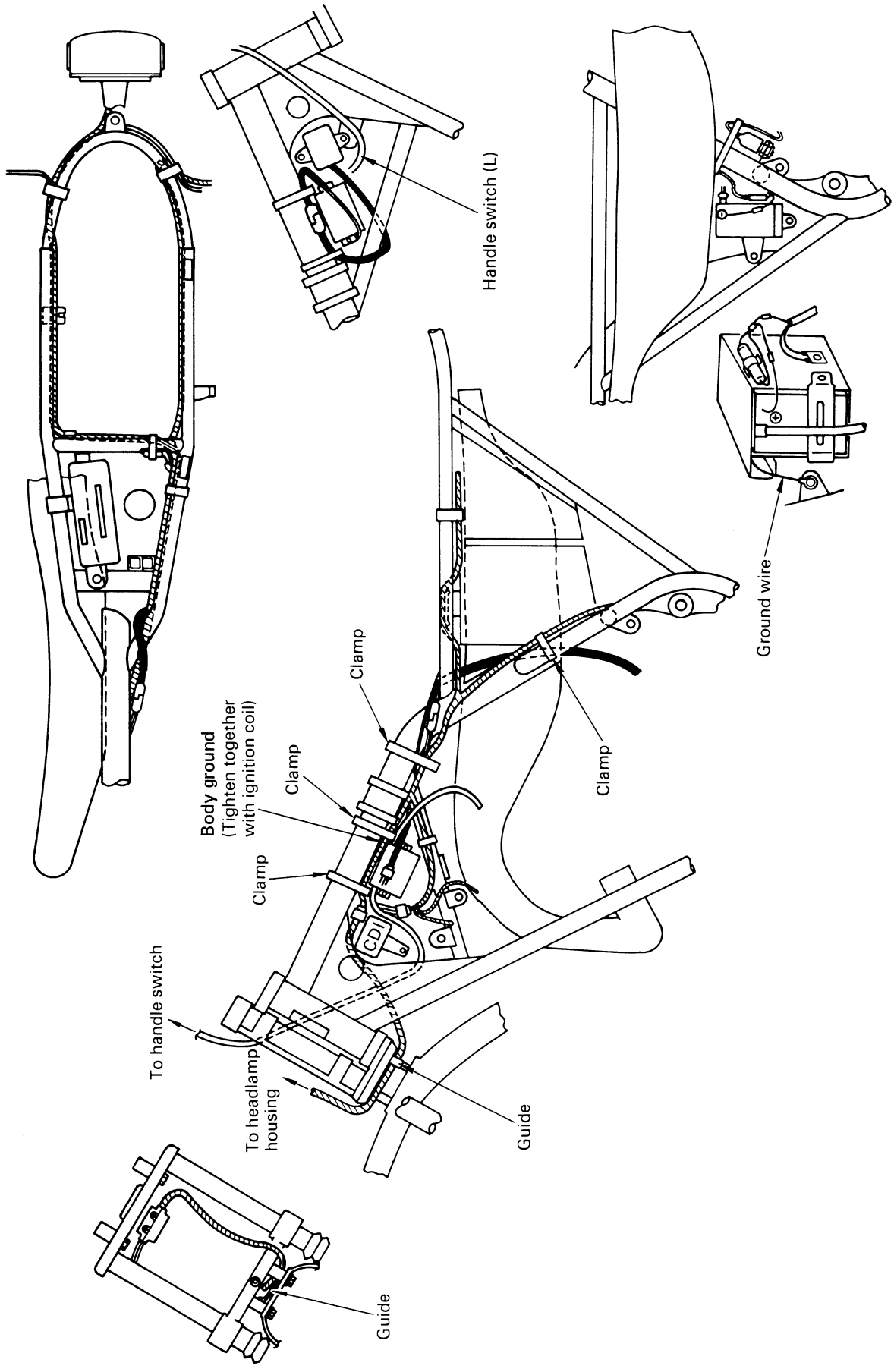




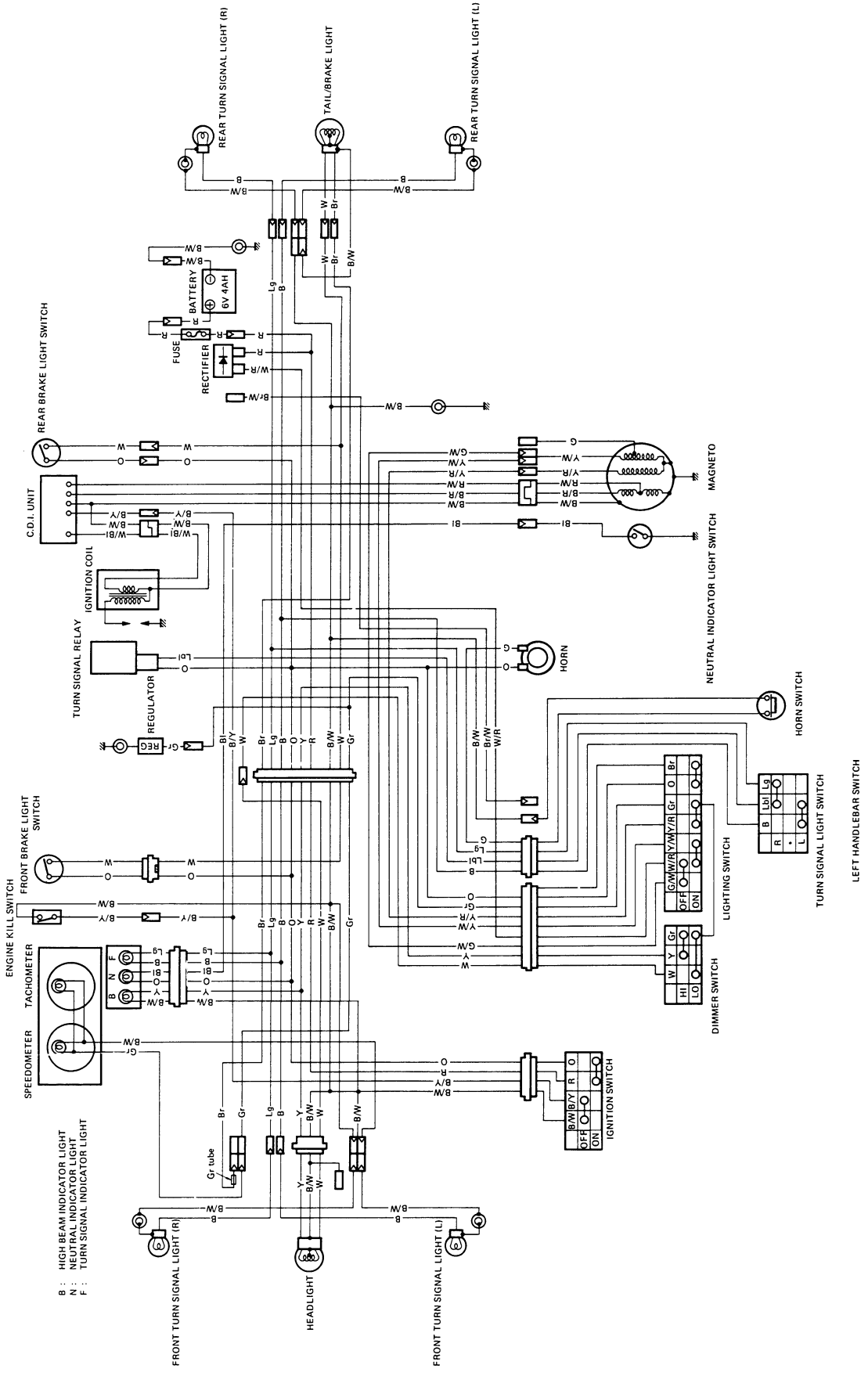




WIRE ROUTING



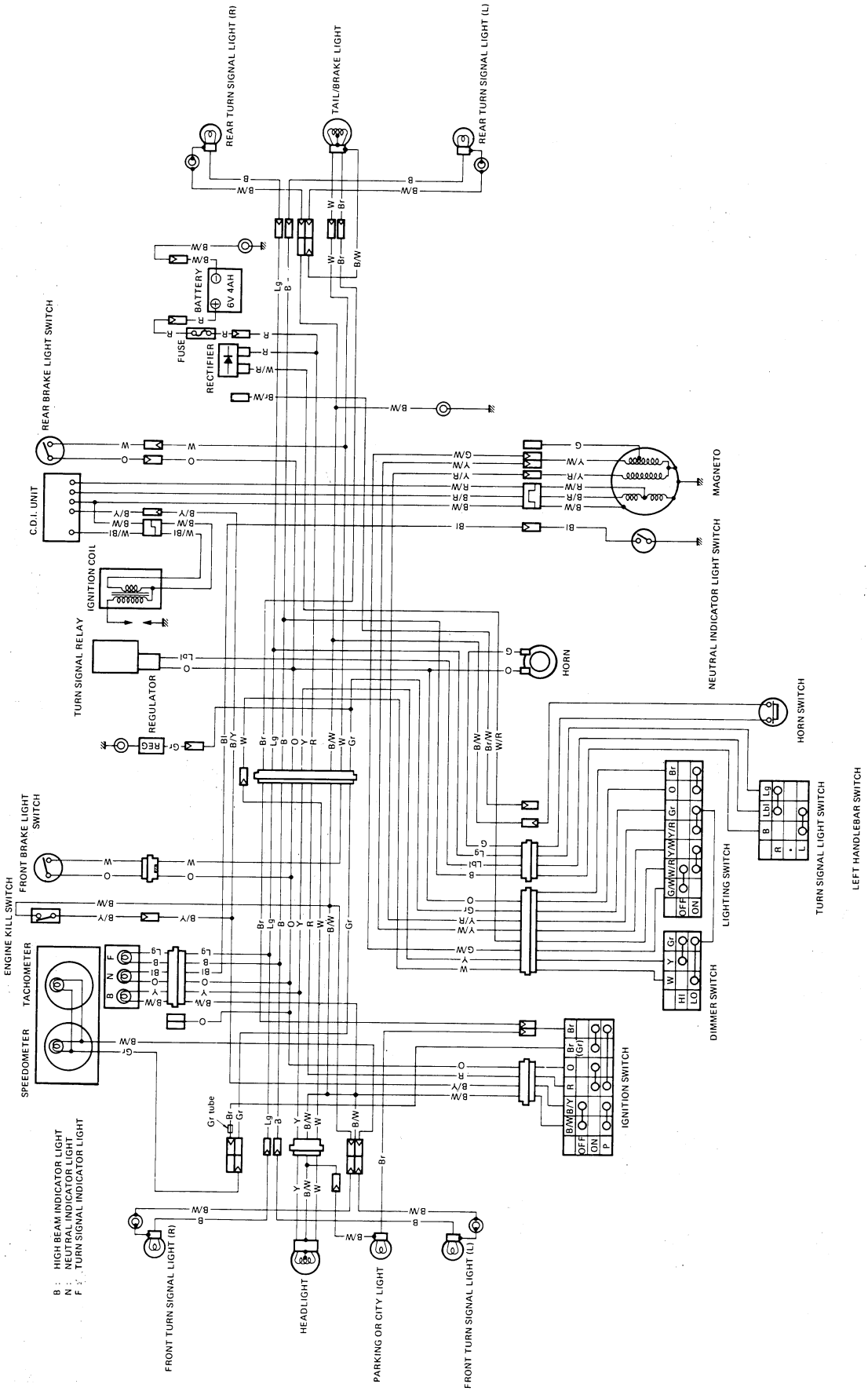
WIRING DIAGRAM (For General E-01 and The others)



WIRE COLOR

B ..... Black	Lbl ..... Light blue	Y ..... Yellow	R/W ..... Red with white tracer
Bl ..... Blue	Lg ..... Light green	B/R ..... Black with Red tracer	W/R ..... White with red tracer
Br ..... Brown	O ..... Orange	B/W ..... Black with white tracer	Y/R ..... Yellow with red tracer
G ..... Green	R ..... Red	B/Y ..... Black with yellow tracer	Y/W ..... Yellow with white tracer
Gr ..... Gray	W ..... White	G/W ..... Green with white tracer	

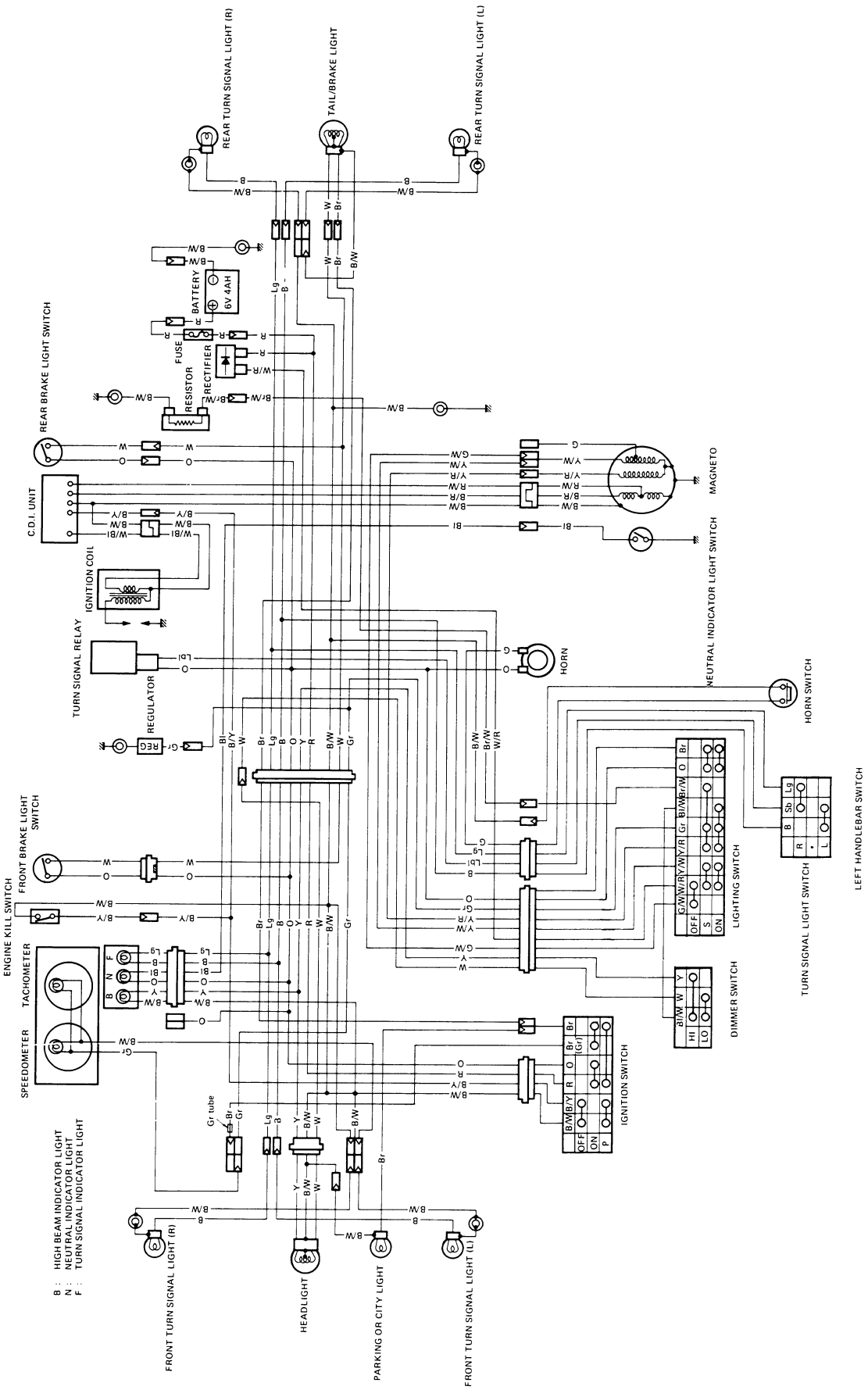
WIRING DIAGRAM (For England E-02 and Belgium E-21)



WIRE COLOR

B	Black	Lbl	Light blue	Y	Yellow
Bl	Blue	Lg	Light green	B/R	Black with Red tracer
Br	Brown	O	Orange	B/W	Black with white tracer
G	Green	R	Red	B/Y	Black with yellow tracer
Gr	Gray	W	White	G/W	Green with white tracer
				R/W	Red with white tracer
				W/R	White with red tracer
				Y/R	Yellow with red tracer
				Y/W	Yellow with white tracer

WIRING DIAGRAM (For France E-04)

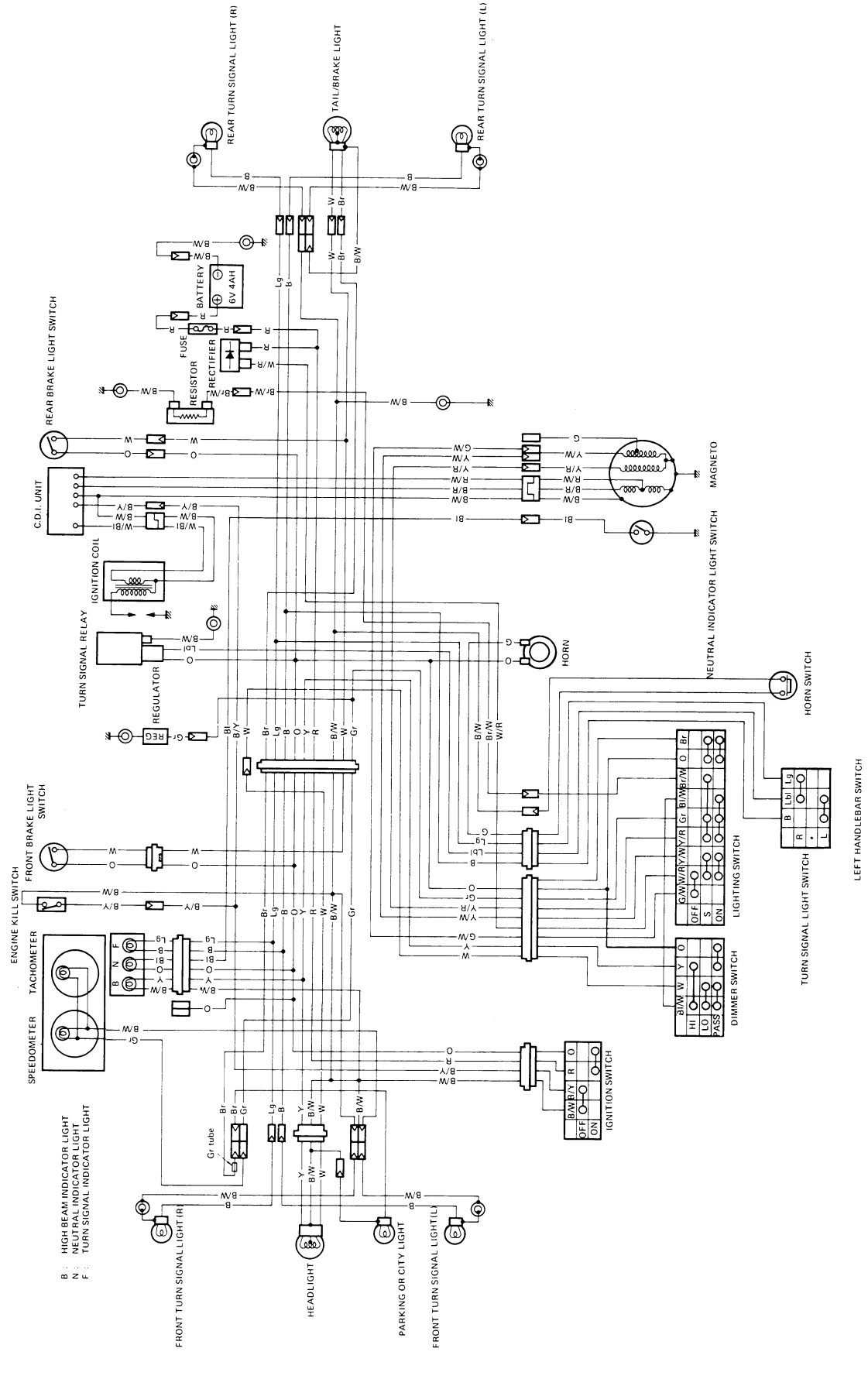


WIRE COLOR

B	Black	Lbl	Light blue	Y	Yellow
Bl	Blue	Lg	Light green	B/R	Black with Red tracer
Br	Brown	O	Orange	B/W	Black with white tracer
G	Green	R	Red	B/Y	Black with yellow tracer
Gr	Gray	W	White	G/W	Green with white tracer

R/W	Red with white tracer
W/R	White with red tracer
Y/R	Yellow with red tracer
Y/W	Yellow with white tracer

WIRING DIAGRAM (For W.Germany E-22)

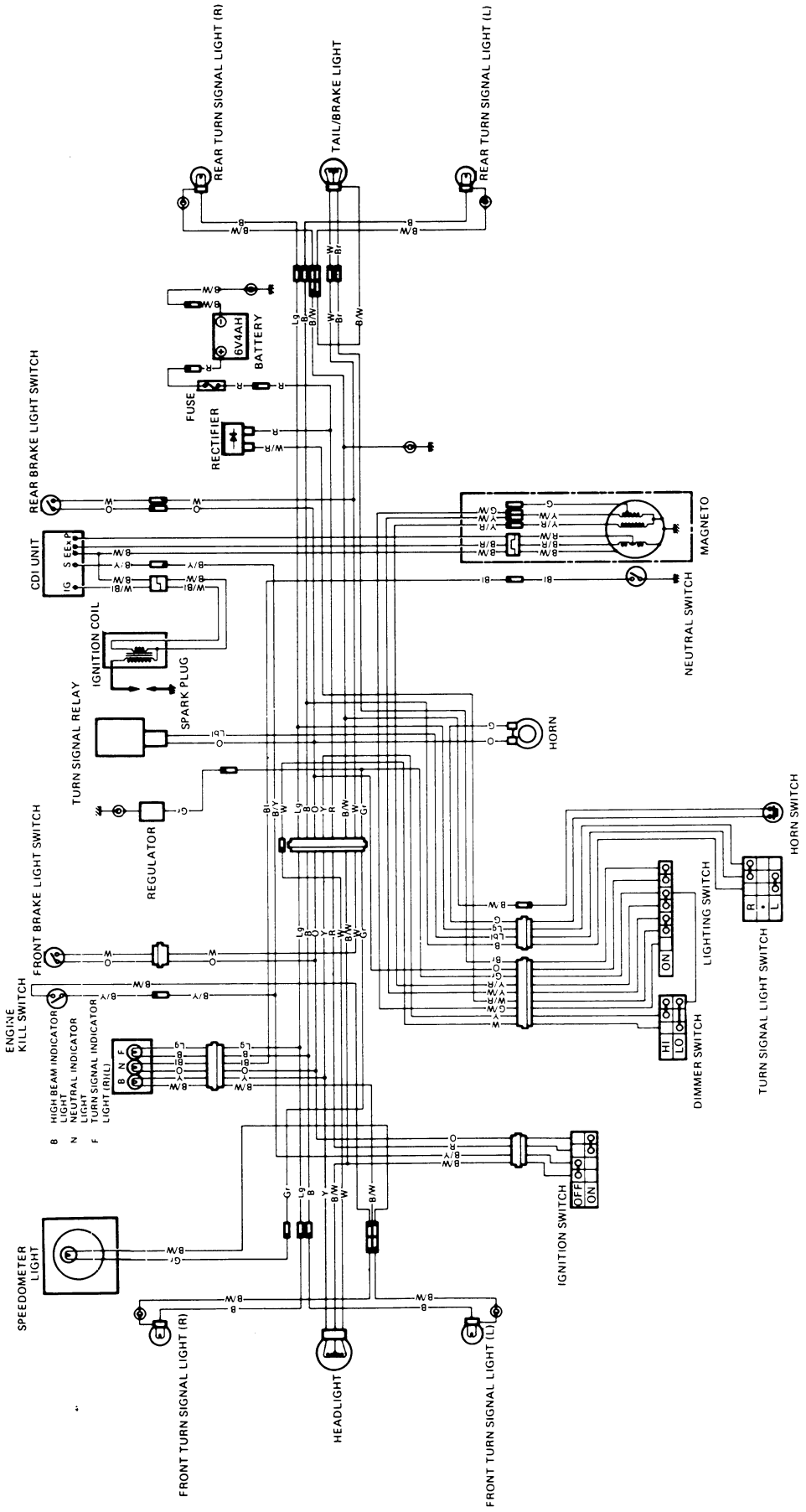


WIRE COLOR

B	Black	Lbl	Light blue	Y	Yellow
Bl	Blue	Lg	Light green	B/R	Black with Red tracer
Br	Brown	O	Orange	B/W	Black with white tracer
G	Green	R	Red	B/Y	Black with yellow tracer
Gr	Gray	W	White	G/W	Green with white tracer

R/W	Red with white tracer		
W/R	White with red tracer		
Y/R	Yellow with red tracer		
Y/W	Yellow with white tracer		

WIRING DIAGRAM (For Canada E-28)



WIRE COLOR

B	Black	Lbl	Light blue	Y	Yellow	R/W	Red with white tracer
Bl	Blue	Lg	Light green	B/R	Black with Red tracer	W/R	White with red tracer
Br	Brown	O	Orange	B/W	Black with white tracer	Y/R	Yellow with red tracer
G	Green	R	Red	B/Y	Black with yellow tracer	Y/W	Yellow with white tracer
Gr	Gray	W	White	G/W	Green with white tracer		

TS185ERL ('90-MODEL)

This section describes up-to-date service procedures which differ from those of the TS185ERX models.

Please refer to the sections I through 7 for details which are not given in this section.

CONTENTS

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 160 mm (85.0 in)
Overall width	835 mm (32.9 in)
Overall height	1 125 mm (44.3 in)
Wheelbase	1 375 mm (54.1 in)
Ground clearance	255 mm (10.0 in)
Dry mass	102 kg (225 lbs)

ENGINE

Type	Two-stroke, air-cooled
Number of cylinder	1
Bore	64.0 mm (2.520 in)
Stroke	57.0 mm (2.244 in)
Piston displacement	183 cm^3 (11.2 cu. in)
Compression ratio	6.2 : 1
Carburetor	MIKUNI VM 29SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	SUZUKI "CCI"

TRANSMISSION

Clutch		Wet multi-plate type
Transmission		5-speed constant mesh
Gearshift pattern		1-down 4-up
Primary reduction		3.210 (61/19)
Final reduction		3.250 (39/12)
Gear ratios,	Low	2.750 (33/12)
	2nd	1.812 (29/16)
	3rd	1.250 (25/20)
	4th	1.000 (23/23)
	5th	0.800 (20/25)
Drive chain		DAIDO D.I.D. 520K or TAKASAGO RK520, 96 links

CHASSIS

Front suspension	Telescopic, coil spring, oil dampened
Rear suspension	Swinging arm, oil damped, spring 5-way adjustable
Steering angle	40° (right & left)
Caster	59°
Trail	141 mm (5.55 in.)
Turning radius	2.4 m (7.9 ft.)
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	2.75-21 4PR
Rear tire size	4.10-18 4PR

ELECTRICAL

Ignition type	SUZUKI "PEI" (CDI)
Ignition timing	21.5° B.T.D.C. at 6 000 r/min
Spark plug	NGK BP7ES or NIPPON DENSO W22EP
Battery	6V 14.4 kC (4Ah)/10HR
Fuse	15A
Headlight	6V 25/25W
Tail/Brake light	6V 5.3/25 W
Turn signal light	6V 17 W
Speedometer light	6V 3 W
Tachometer light	6V 3 W
Neutral indicator light	6V 3 W
High beam indicator light	6V 1.7 W
Turn signal indicator light	6V 3 W

CAPACITIES

Fuel tank (including reserve)	7.0 L (1.8/1.5 US/Imp gal)
(reserve)	1.5 L (0.4/0.3 US/Imp gal)
Engine oil	1.2 L (1.3/1.1 US/Imp qt)
Transmission oil	700 ml (0.7/0.6 US/Imp qt)
Front fork oil	166 ml (5.61/5.84 US/Imp oz)

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050—0.060 (0.0020—0.0024)			0.120 (0.0047)
Cylinder bore	64.000—64.015 (2.5197—2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945—63.960 (2.5175—2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	———			0.05 (0.002)
Cylinder head distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15—0.35 (0.006—0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02—0.06 (0.001—0.002)	———
	2nd		0.02—0.06 (0.001—0.002)	———
Piston pin bore	15.998—16.006 (0.6298—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003—21.011 (0.8269—0.8272)	21.040 (0.8283)
Conrod deflection	———	3.0 (0.12)
Crank web to web width	56.0 ± 0.1 (2.205 ± 0.004)	———
Crankshaft runout	———	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
CCI pump discharge rate (Full open)	1.53—1.90 ml (0.052/0.054—0.064/0.067 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	2–3 (0.08–0.12)	———
Drive plate thickness	2.9–3.1 (0.11–0.12)	2.6 (0.10)
Drive plate distortion	———	0.4 (0.016)
Drive plate claw width	11.8–12.0 (0.46–0.47)	11.3 (0.44)
Driven plate thickness	1.6±0.06 (0.063±0.002)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	32.6 (1.28)

TRANSMISSION

ITEM	STANDARD		LIMIT
Primary reduction ratio	3.210 (61/19)		———
Final reduction ratio	3.250 (39/12)		———
Gear ratios	Low	2.750 (33/12)	———
	2nd	1.812 (29/16)	———
	3rd	1.250 (25/20)	———
	4th	1.000 (23/23)	———
	Top	0.800 (20/25)	———
Shift fork to groove clearance	No.1, No.2 No.3	0.20–0.40 (0.008–0.016)	0.60 (0.024)
Shift fork groove width	No.1, No.2 No.3	5.60–5.70 (0.220–0.224)	———
Shift fork thickness	No.1 No.2 No.3	5.30–5.40 (0.209–0.213)	———
Countershaft length (Low to 2nd)	No.1 No.2 No.3	$78.0 \pm \frac{0.3}{0.2}$ $(3.071 \pm \frac{0.012}{0.008})$	———

DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	D.I.D.: 520K TAKASAGO: RK520	———
	Links	96	———
	20-pitch length	———	323.0 (12.72)
Drive chain slack	35–45 (1.4–1.8)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29
I.D. No.		29910
Idle r/min.		1 300 ± 150 r/min.
Float height		24.0 ± 1.0 mm (0.94 ± 0.04 in)
Main jet	(M.J.)	#195
Air jet	(A.J.)	0.7
Jet needle	(J.N.)	5DH48-3
Needle jet	(N.J.)	P-1
Cut-away	(C.A.)	2.5
Pilot jet	(P.J.)	#25
By-pass	(B.P.)	1.0
Pilot outlet	(P.O.)	0.6
Air screw	(A.S.)	1 ¼
Valve seat	(V.S.)	2.0
Starter jet	(G.S.)	80
Throttle cable play		0.5 – 1.0 mm (0.02 – 0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		21.5° ± 2° B.T.D.C. at 6 000 r/min.		
Spark plug		Type	NGK BP7ES NIPPON DENSO W22EP	
		Gap	0.6 – 0.8 (0.024 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	W/Bl – B/W Approx. 0 – 1 Ω	
		Secondary	Plug cap – Ground Approx. 20 – 21 kΩ	
Magneto coil resistance		L_2 coil	B/R – R/W Approx. 30 – 40 Ω	
		L_1 coil	R/W – B/W Approx. 160 – 240 Ω	
		Charging	Y/W – Ground Approx. 1 – 2 Ω	
		Charging	G – Ground Approx. 0 – 1 Ω	
		Lighting	Y/R – Ground Approx. 0 – 1 Ω	
Charging rate	When connecting G lead wire	Above 1.1 A at 2 000 r/min. Below 3.2 A at 8 000 r/min.		
	When connecting Y/W lead wire	Above 1.1 A at 2 000 r/min. Below 3.2 A at 8 000 r/min.		
Lighting coil output		Above 5.7V at 2 500 r/min. Below 7.8V at 8 000 r/min.		

ITEM		SPECIFICATION	NOTE
Regulated voltage		6.7—7.3 V	
Battery	Type designation	6N4B—2A	
	Capacity	6V 14.4kC (4Ah) 10HR	
	Standard electrolyte S.G.	1.26 at 20°C (68°F)	
Fuse size		15A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
		E-24
Headlight	HI	25
	LO	25
Parking or city light		—
Tail/Brake light		5.3/25
Turn signal light		17
Speedometer light		3
Tachometer light		3
Turn signal indicator light		3
High beam indicator light		1.7
Neutral indicator light		3

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20—30 (0.8—1.2)		—
Rear brake pedal free travel	20—30 (0.8—1.2)		—
Brake drum I.D.	Front	—	130.7 (5.15)
	Rear	—	130.7 (5.15)
Brake lining thickness	—		1.5 (0.06)
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel axle runout	Front	—	0.25 (0.01)
	Rear	—	0.25 (0.01)
Tire size	Front	2.75—21 4PR	—
	Rear	4.10—18 4PR	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swing arm pivot shaft runout	———	0.6 (0.02)	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm^2	psi	kPa	kg/cm^2	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85—95 octane or higher. An unleaded type gasoline is recommended.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (0.4/0.3 US/Imp gal)		
Engine oil type	SUZUKI CCI or CCI SUPER OIL		
Engine oil tank capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 20W/40		
Transmission oil capacity	Change	700 ml (0.7/0.6 US/Imp qt)	
	Overhaul	750 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	166 ml (5.6/5.8 US/Imp oz)		

TS 185ERM ('91-MODEL)

CONTENTS

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050—0.060 (0.0020—0.0024)			0.120 (0.0047)
Cylinder bore	64.000—64.015 (2.5197—2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945—63.960 (2.5175—2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	——			0.05 (0.002)
Cylinder head distortion	——			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15—0.35 (0.006—0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02—0.06 (0.001—0.002)	——
	2nd		0.02—0.06 (0.001—0.002)	——
Piston pin bore	15.998—16.006 (0.6298—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003—21.011 (0.8269—0.8272)	21.040 (0.8283)
Conrod deflection	——	3.0 (0.12)
Crank web to web width	56.0 ± 0.1 (2.205 ± 0.004)	——
Crankshaft runout	——	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
CCI pump discharge rate (Full open)	1.53—1.90 ml (0.052/0.054—0.064/0.067 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	2–3 (0.08–0.12)	———
Drive plate thickness	2.9–3.1 (0.11–0.12)	2.6 (0.10)
Drive plate distortion	———	0.25 (0.010)
Drive plate claw width	11.8–12.0 (0.46–0.47)	11.3 (0.44)
Driven plate thickness	1.6±0.06 (0.063±0.002)	———
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	32.6 (1.28)

TRANSMISSION

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.210 (61/19)	———
Final reduction ratio		3.250 (39/12)	———
Gear ratios	Low	2.750 (33/12)	———
	2nd	1.812 (29/16)	———
	3rd	1.250 (25/20)	———
	4th	1.000 (23/23)	———
	Top	0.800 (20/25)	———
Shift fork to groove clearance	No.1, No.2 No.3	0.20–0.40 (0.008–0.016)	0.60 (0.024)
Shift fork groove width	No.1, No.2 No.3	5.60–5.70 (0.220–0.224)	———
Shift fork thickness	No.1 No.2 No.3	5.30–5.40 (0.209–0.213)	———
Countershaft length (Low to 2nd)	No.1 No.2 No.3	$78.0 \pm \frac{0.3}{0.2}$ $(3.071 \pm \frac{0.012}{0.008})$	———

DRIVE CHAIN

Unit: mm (in)

ITEM		STANDARD	LIMIT
Drive chain	Type	D.I.D.: 520K TAKASAGO: RK520	———
	Links	96	———
	20-pitch length	———	323.0 (12.72)
Drive chain slack		35–45 (1.4–1.8)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29
I.D. No.		29910
Idle r/min.		1 300 ± 150 r/min.
Float height		24.0 ± 1.0 mm (0.94 ± 0.04 in)
Main jet	(M.J.)	#195
Air jet	(A.J.)	0.7
Jet needle	(J.N.)	5DH48-3
Needle jet	(N.J.)	P-1
Cut-away	(C.A.)	2.5
Pilot jet	(P.J.)	#25
By-pass	(B.P.)	1.0
Pilot outlet	(P.O.)	0.6
Air screw	(A.S.)	1 ¼
Valve seat	(V.S.)	2.0
Starter jet	(G.S.)	80
Throttle cable play		0.5 – 1.0 mm (0.02 – 0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		21.5° ± 2° B.T.D.C. at 6 000 r/min.		
Spark plug		Type	NGK BP7ES NIPPON DENSO W22EP	
		Gap	0.6 – 0.8 (0.024 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	W/Bl – B/W Approx. 0 – 1 Ω	
		Secondary	Plug cap – Ground Approx. 20 – 21 kΩ	
Magneto coil resistance		L_2 coil	B/R – R/W Approx. 30 – 40 Ω	
		L_1 coil	R/W – B/W Approx. 160 – 240 Ω	
		Charging	Y/W – Ground Approx. 1 – 2 Ω	
		Charging	G – Ground Approx. 0 – 1 Ω	
		Lighting	Y/R – Ground Approx. 0 – 1 Ω	
Charging rate	When connecting G lead wire	Above 1.1 A at 2 000 r/min. Below 3.2 A at 8 000 r/min.		
	When connecting Y/W lead wire	Above 1.1 A at 2 000 r/min. Below 3.2 A at 8 000 r/min.		
Lighting coil output		Above 5.7V at 2 500 r/min. Below 7.8V at 8 000 r/min.		

ITEM		SPECIFICATION	NOTE
Regulated voltage		6.7—7.3 V	
Battery	Type designation	6N4B—2A	
	Capacity	6V 14.4kC (4Ah) 10HR	
	Standard electrolyte S.G.	1.26 at 20°C (68°F)	
Fuse size		15A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
		E-24
Headlight	HI	25
	LO	25
Parking or city light		——
Tail/Brake light		5.3/25
Turn signal light		17
Speedometer light		3
Tachometer light		3
Turn signal indicator light		3
High beam indicator light		1.7
Neutral indicator light		3

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20—30 (0.8—1.2)		——
Rear brake pedal free travel	20—30 (0.8—1.2)		——
Brake drum I.D.	Front	——	130.7 (5.15)
	Rear	——	130.7 (5.15)
Brake lining thickness	——		1.5 (0.06)
Wheel rim runout	Axial	——	2.0 (0.08)
	Radial	——	2.0 (0.08)
Wheel axle runout	Front	——	0.25 (0.01)
	Rear	——	0.25 (0.01)
Tire size	Front	2.75—21 4PR	——
	Rear	4.10—18 4PR	——
Tire tread depth	Front	——	4.0 (0.16)
	Rear	——	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swing arm pivot shaft runout	———	0.6 (0.02)	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm^2	psi	kPa	kg/cm^2	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85—95 octane or higher. An unleaded type gasoline is recommended.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (0.4/0.3 US/Imp gal)		
Engine oil type	SUZUKI CCI or CCI SUPER OIL		
Engine oil tank capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 20W/40		
Transmission oil capacity	Change	700 ml (0.7/0.6 US/Imp qt)	
	Overhaul	750 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	166 ml (5.6/5.8 US/Imp oz)		

TS185ERN ('92-MODEL)

FOREWORD

This section describes service procedures which differ from those of the TS185ERM.

NOTE:
Any differences between TS185ERM and TS185ERN in specifications and service data are clearly indicated with the asterisk marks (*).
Please refer to the sections 1 through 9 for details which are not given in this section.

CONTENTS

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 160 mm (85.0 in)
Overall width	835 mm (32.9 in)
Overall height	1 125 mm (44.3 in)
Wheelbase	1 375 mm (54.1 in)
Ground clearance	255 mm (10.0 in)
Dry mass	102 kg (225 lbs)

ENGINE

Type	Two-stroke, air-cooled
Number of cylinders	1
Bore	64.0 mm (2.520 in)
Stroke	57.0 mm (2.244 in)
Piston displacement	183 cm^3 (11.2 cu. in)
Compression ratio	6.2 : 1
Carburetor	MIKUNI VM29SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Suzuki "CCI"

TRANSMISSION

Clutch	Wet malti-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	3.210 (61/19)
Gear ratios, Low	2.750 (33/12)
2nd	1.812 (29/16)
3rd	1.250 (25/20)
4th	1.000 (23/23)
5th	0.800 (20/25)
Final reduction	3.250 (39/12)
Drive chain	DAIDO D.I.D. 520K or TAKASAGO RK520, 96 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Swingarm, oil damped, spring preload 5-way adjustable
Steering angle	40° (right & left)
Caster	59°
Trail	141 mm (5.55 in)
Turning radius	2.4 m (7.9 ft)
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	2.75-21 4PR
Rear tire size	4.10-18 4PR

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	21.5° B.T.D.C. at 6 000 r/min
Spark plug	NGK BP7ES or NIPPON DENSO W22EP
Battery	*12V 10.8kC (3 Ah)/10 HR
Fuse	15A
Headlight	*12V 35/35W
Tail/Brake light	*12V 5/21W
Turn signal light	*12V 21W
Speedometer light	*12V 1.7W
Tachometer light	*12V 1.7W
Neutral indicator light	*12V 3.4W
High beam indicator light	*12V 1.7W
Turn signal indicator light	*12V 3.4W

CAPACITIES

Fuel tank, including reserve	7.0 L (1.8/1.5 US/Imp gal)
reserve	1.5 L (0.4/0.3 US/Imp gal)
Engine oil tank	1.2 L (1.3/1.1 US/Imp qt)
Transmission oil	700 ml (0.7/0.6 US/Imp qt)
Front fork oil (each leg)	166 ml (5.6/5.8 US/Imp oz)

Asterisk mark (*) indicates the New "N" model specifications.
These specifications are subject to change without notice.

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050—0.060 (0.0020—0.0024)			0.120 (0.0047)
Cylinder bore	64.000—64.015 (2.5197—2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945—63.960 (2.5175—2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	—			0.05 (0.002)
Cylinder head distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15—0.35 (0.006—0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02—0.06 (0.001—0.002)	—
	2nd		0.02—0.06 (0.001—0.002)	—
Piston pin bore	15.998—16.006 (0.6298—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003—21.011 (0.8269—0.8272)	21.040 (0.8283)
Conrod deflection	—	3.0 (0.12)
Crank web to web width	56.0 ± 0.1 (2.205 ± 0.004)	—
Crankshaft runout	—	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
Oil pump discharge rate (Full open)	1.53—1.90 ml (0.052/0.054—0.064/0.067 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	2—3 (0.08—0.12)	——
Drive plate thickness	2.9—3.1 (0.11—0.12)	2.6 (0.10)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.3 (0.44)
Driven plate distortion	——	0.1 (0.004)
Clutch spring free length	——	32.6 (1.28)

TRANSMISSION

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.210 (61/19)	——
Final reduction ratio		3.250 (39/12)	——
Gear ratios	Low	2.750 (33/12)	——
	2nd	1.812 (29/16)	——
	3rd	1.250 (25/20)	——
	4th	1.000 (23/23)	——
	Top	0.800 (20/25)	——
Shift fork to groove clearance	No.1, No.2 No.3	0.20—0.40 (0.008—0.016)	0.60 (0.024)
Shift fork groove width	No.1, No.2 No.3	5.60—5.70 (0.220—0.224)	——
Shift fork thickness	No.1, No.2 No.3	5.30—5.40 (0.209—0.213)	——
Countershaft length (Low to 2nd)	No.1, No.2 No.3	$78.0\ ^{+0.3}_{-0.2}$ $(3.071\ ^{+0.012}_{-0.008})$	——

DRIVE CHAIN

Unit: mm (in)

ITEM		STANDARD	LIMIT
Drive chain	Type	D.I.D.: 520K TAKASAGO: RK520	——
	Links	96	——
	20-pitch length	——	323.0 (12.72)
Drive chain slack		35—45 (1.4—1.8)	——

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29 mm
I.D. No.		29910
Idle r/min.		1 300 ± 150 r/min.
Float height		24.0 ± 1.0 mm (0.94 ± 0.04 in)
Main jet	(M.J.)	#195
Air jet	(A.J.)	0.7 mm
Jet needle	(J.N.)	5DH48-3rd
Needle jet	(N.J.)	P-1
Cut-away	(C.A.)	2.5
Pilot jet	(P.J.)	#25
By-pass	(B.P.)	1.0 mm
Pilot outlet	(P.O.)	0.6 mm
Air screw	(A.S.)	1¼ turns back
Valve seat	(V.S.)	2.0 mm
Starter jet	(G.S.)	#80
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	21.5° ± 2°B.T.D.C. at 6 000 r/min.		
Spark plug	Type	NGK BP7ES NIPPONDENSO W22EP	
	Gap	0.6—0.8 (0.024—0.031)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	W/Bl—B/W Approx. 0—1 Ω	
	Secondary	Plug cap—Ground Approx. 15—25 kΩ	
Magneto coil resistance	Power source	B/R—R/W Approx.*30—50 Ω	
		R/W—B/W Approx. 160—240 Ω	
	Charging	W/R—B/W Approx.*0.5—2 Ω	
	Lighting	Y/W—B/W Approx.*0.1—1 Ω	
Generator no-load voltage	Charging	W/R—B/W More than*35 V (AC) at 5 000 r/min.	
	Lighting	Y/W—B/W More than*35 V (AC) at 5 000 r/min.	

Asterisk mark (*) indicates the New "N" model specifications.

ITEM		SPECIFICATION	NOTE
Regulated voltage		*12.5—16.0 V at 5 000 r/min.	
Battery	Type designation	*YT4L-BS	
	Capacity	*12V 10.8kC (3Ah)/10HR	
	Standard electrolyte S.G.	*1.32 at 20°C (68°F)	
Fuse size		15A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	* 35
	LO	* 35
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		* 3.4

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20—30 (0.8—1.2)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Brake drum I.D.	Front	———	130.7 (5.15)
	Rear	———	130.7 (5.15)
Brake lining thickness	———		1.5 (0.06)
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.01)
	Rear	———	0.25 (0.01)
Tire size	Front	2.75-21 4PR	———
	Rear	4.10-18 4PR	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

Asterisk mark (*) indicates the New "N" model specifications.

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swingarm pivot shaft runout	———	0.6 (0.02)	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

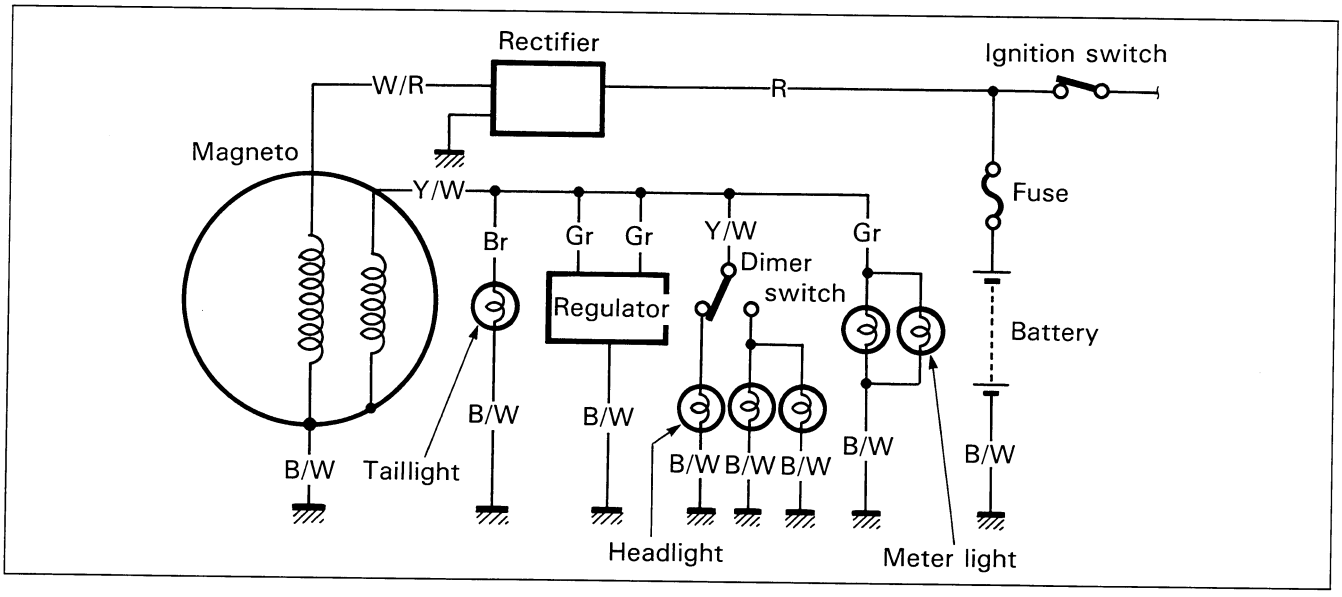
FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (0.4/0.3 US/Imp gal)		
Engine oil type	SUZUKI CCI SUPER OIL		
Engine oil tank capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 10W/40		
Transmission oil capacity	Change	700 ml (0.7/0.6 US/Imp qt)	
	Overhaul	750 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	166 ml (5.6/5.8 US/Imp oz)		

CHARGING AND LIGHTING SYSTEM

DESCRIPTION

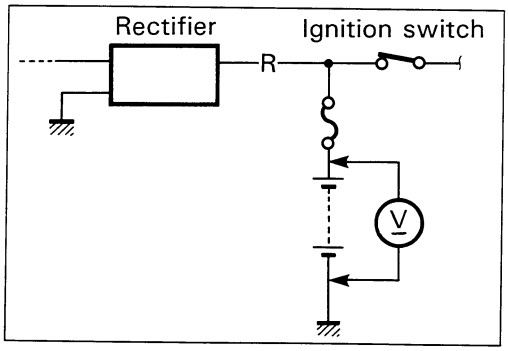
The charging system uses the flywheel magneto as shown in the figure. The charging and lighting coils are mounted on the magneto stator and generate AC as the flywheel rotor turns. The charging and lighting system incorporates two circuits, for charging and lighting. These circuits are engaged by setting the ignition key to the ON position. AC generated in the charging coil flows to the rectifier where it is changed to DC. This DC then charges the battery. On the other hand, lighting coil supplies AC current to the headlight, meter light, taillight and high beam indicator light under the regulated condition.



INSPECTION

CHARGING OUTPUT

- Remove the right frame cover.
- Start the engine and keep it running at 5 000 r/min with the dimmer switch turned high position.
- Using the pocket tester, measure the DC voltage between the battery ⊕ and ⊖ terminals. If the tester reads under 12.5V or over 16.0V, check the AC generator no-load performance and rectifier.

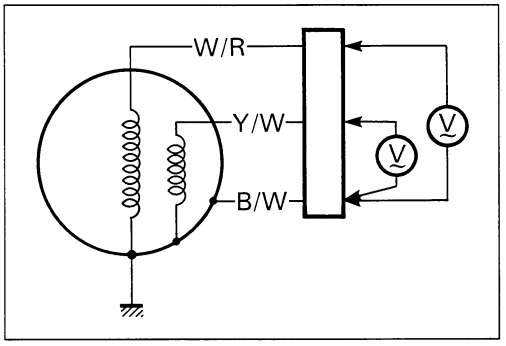


NOTE:
When making this test, be sure that the battery is in fully charged condition.

STD charging output: 12.5—16.0V (DC) at 5 000 r/min

09900-25002: Pocket tester

AC GENERATOR NO-LOAD PERFORMANCE

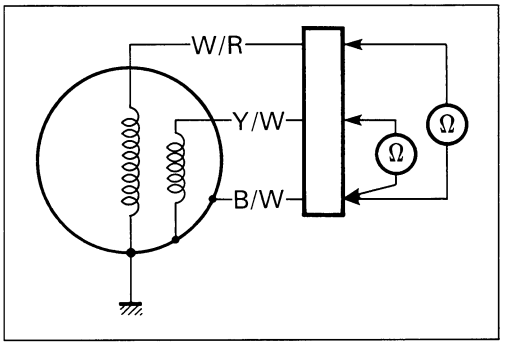


- Remove the fuel tank.
- Disconnect the AC generator lead wire coupler.
- Start the engine and keep it running at 5 000 r/min.
- Measure the AC voltage with the pocket tester as shown in the illustration. If the tester reads under the 35V, the generator is faulty.

STD No-load performance: More than 35V (AC) at (W/R—B/W and Y/W—B/W) 5 000 r/min

09900-25002: Pocket tester

AC GENERATOR STATOR COIL



Using the pocket tester, check the continuity between the lead wires of the stator as shown in the illustration.

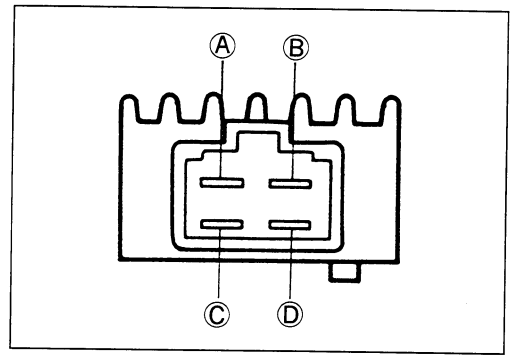
STD resistance: 0.5—2.0 Ω (W/R—B/W)
0.1—1.0 Ω (Y/W—B/W)

09900-25002: Pocket tester

NOTE:
When making this test, it is not necessary to remove the AC generator.

REGULATOR AND RECTIFIER

REGULATOR



• Disconnect the lead wire coupler.

Using pocket tester (x 1kΩ range), measure the resistance between the terminals.

If the resistance checked is incorrect, replace the regulator.

Unit: Approx. kΩ

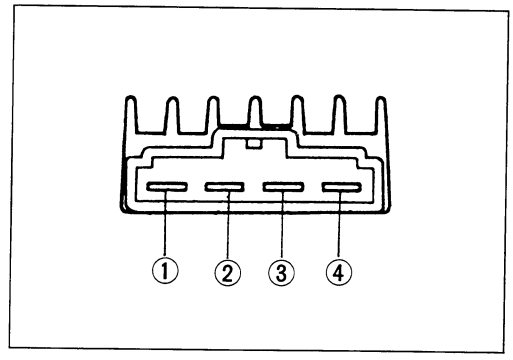
⊖ Probe of tester to:	⊕ Probe of tester to: Ⓐ	Ⓑ	Ⓒ	Ⓓ
Ⓐ		∞	20—50	∞
Ⓑ	∞		∞	5—20
Ⓒ	20—50	∞		∞
Ⓓ	∞	∞	∞	

09900-25002: Pocket tester

CAUTION:

As transistors, capacitors, zener diodes, etc. are used inside this regulator, the resistance values will deffer when an ohmmeter other than the SUZUKI pocket tester is used.

RECTIFIER



• Disconnect the lead wire coupler.

Using pocket tester (x 1kΩ range), measure the resistance between the terminals.

If the resistance checked is incorrect, replace the rectifier.

Unit: Approx. kΩ

⊖ Probe of tester to:	⊕ Probe of tester to: ①	②	③	④
①		10—100	∞	∞
②	10—100		∞	∞
③	∞	∞		5—30
④	∞	∞	∞	

09900-25002: Pocket tester

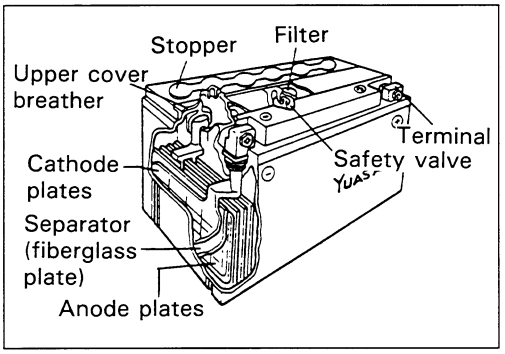
CAUTION:

As transistors, capacitors, zener diodes, etc. are used inside this rectifier, the resistance values will deffer when an ohmmeter other than the SUZUKI pocket tester is used.

BATTERY

SPECIFICATIONS

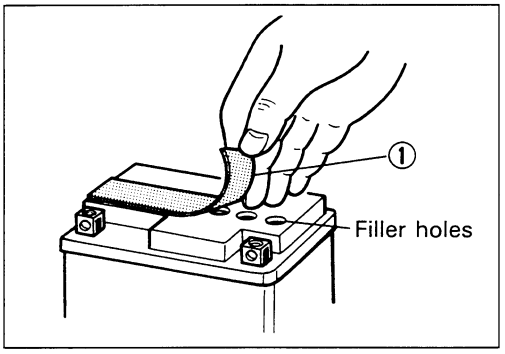
Type designation	YT4L—BS
Capacity	12V, 10.8kC (3Ah)/10HR
Standard electrolyte S.G.	1.320 at 20°C (68°F)



INITIAL CHARGING

Filling electrolyte

- Remove the aluminum tape ① sealing the battery electrolyte filler holes.

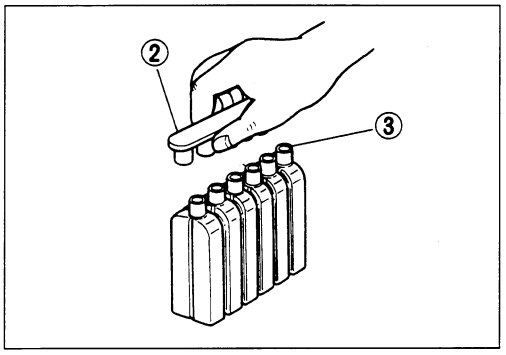


- Remove the caps ② .

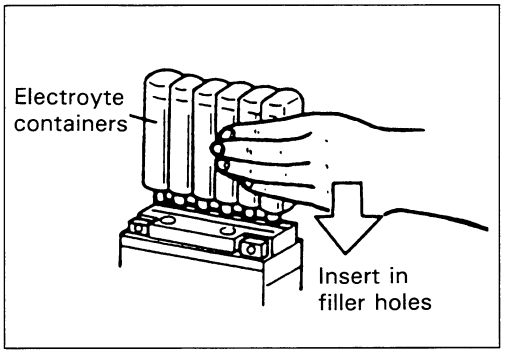
NOTE:

* *After filling the electrolyte completely, use the removed cap ② as the sealed caps of battery-filler holes.*

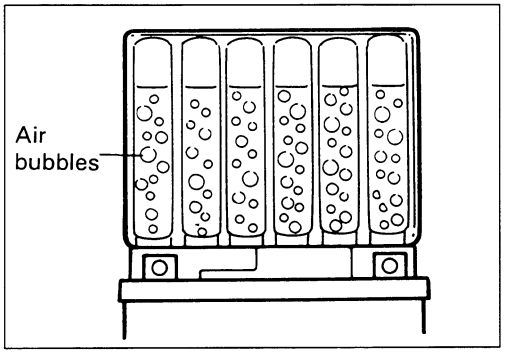
* *Do not remove or pierce the sealed areas ③ of the electrolyte container.*



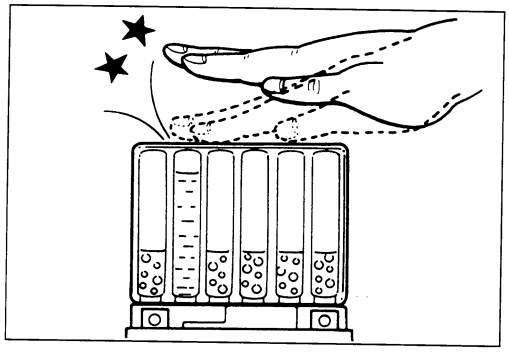
- Insert the nozzles of the electrolyte container into the battery's electrolyte filler holes, holding the container firmly so that it does not fall. Take precaution not to allow any of the fluid to spill.



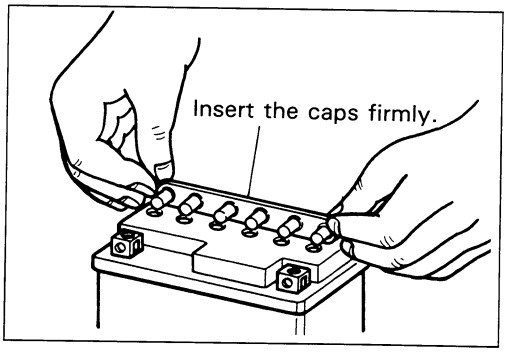
- Make sure air bubbles are coming up each electrolyte container, and leave in this position for about more than 20 minutes.



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.

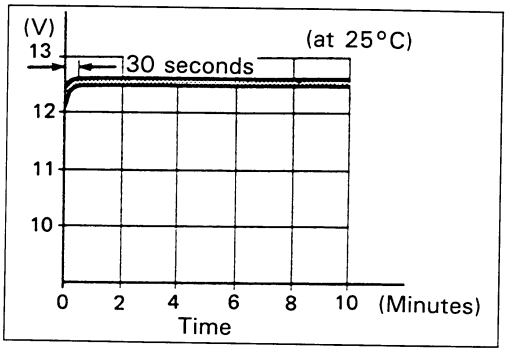


- After confirming that the electrolyte has entered the battery completely, remove the electrolyte containers from the battery. Wait for around 20 minutes.
- Insert the caps into the filler holes, pressing in firmly so that the top of the caps do not protrude above the upper surface of the battery's top cover.



CAUTION:
* **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 12.5V (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 on page 12.)



NOTE:
Initial charging for a new battery is recommended if two years have elapsed since the date of manufacture.

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.

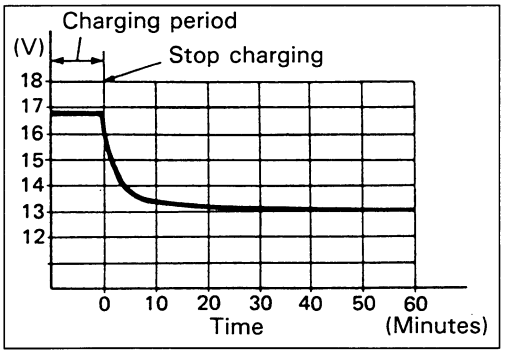
CAUTION:
When recharging the battery, remove the battery from the motorcycle.

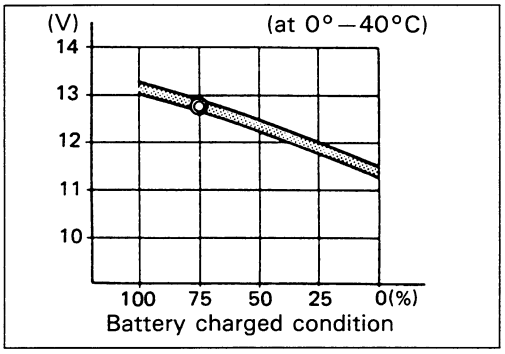
NOTE:
Do not remove the caps on the battery top while recharging.

Recharging time: 0.4A for 5 hours or 4A for half an hour

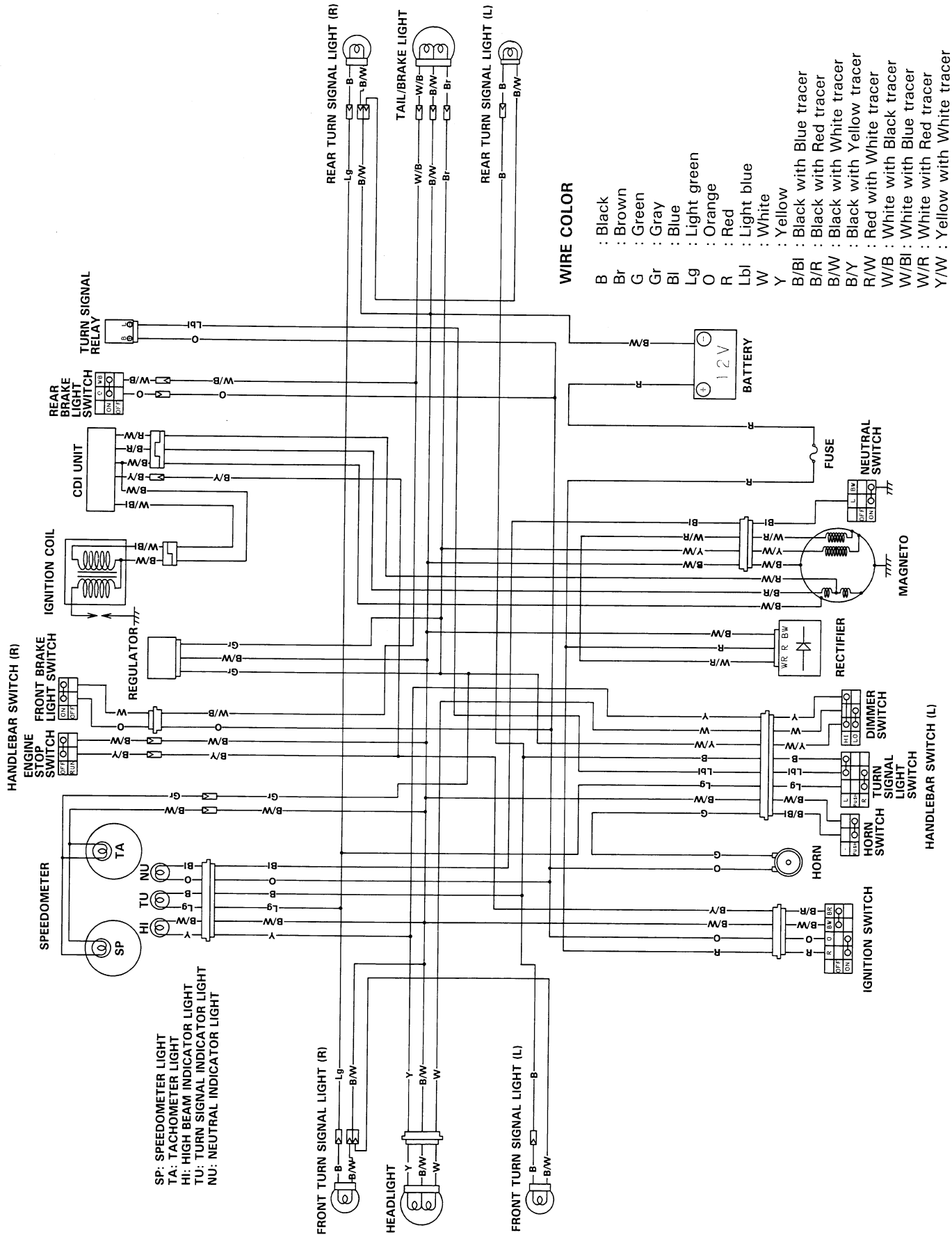
CAUTION:
Be careful not to permit the charging current to exceed 4A at any time.

- 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 a battery is left for a long term without using, it is subject to discharge. When the motorcycle is not used for more than 1 month (especially during the winter season), check the battery voltage once a month at least.



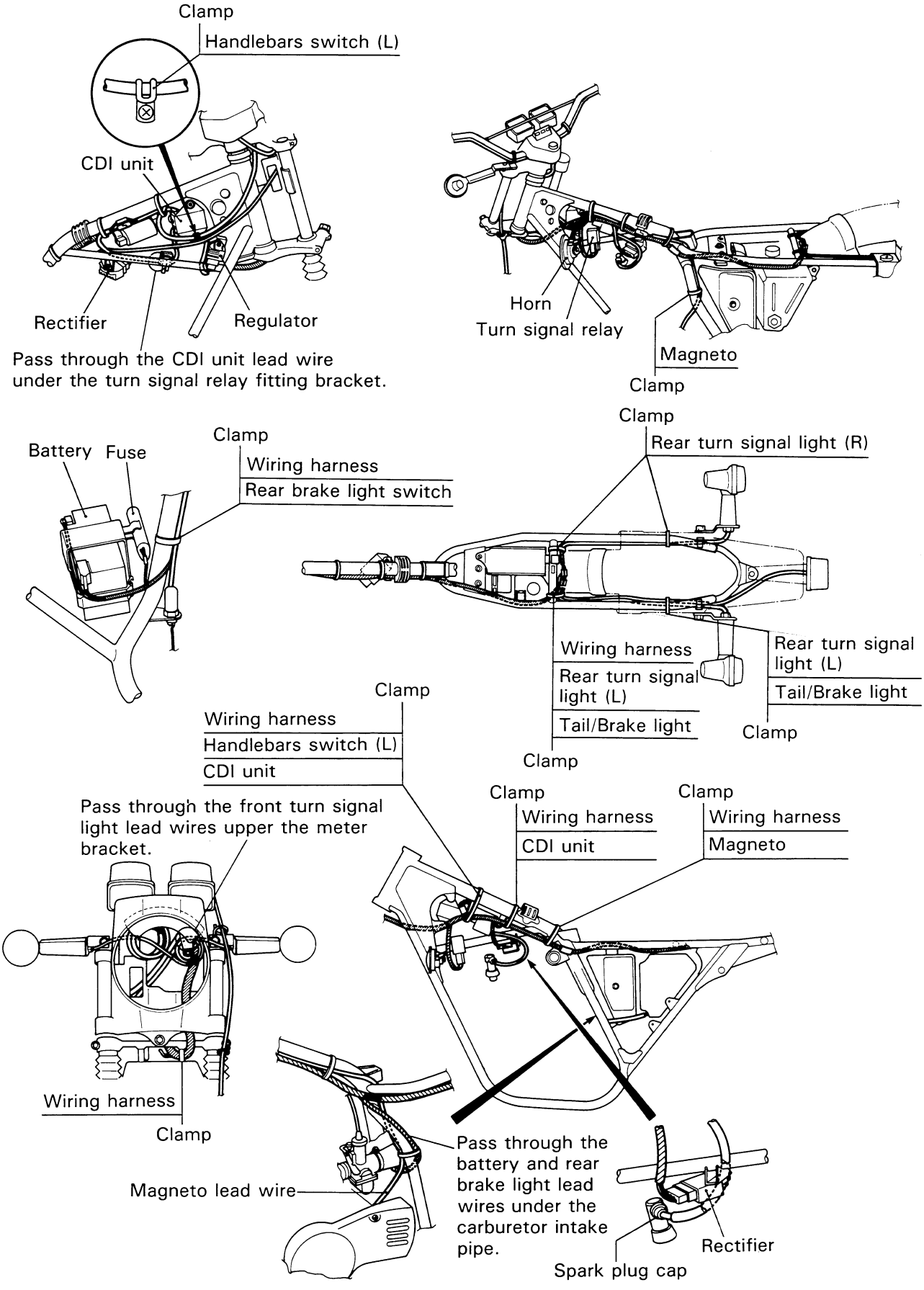


WIRING DIAGRAM

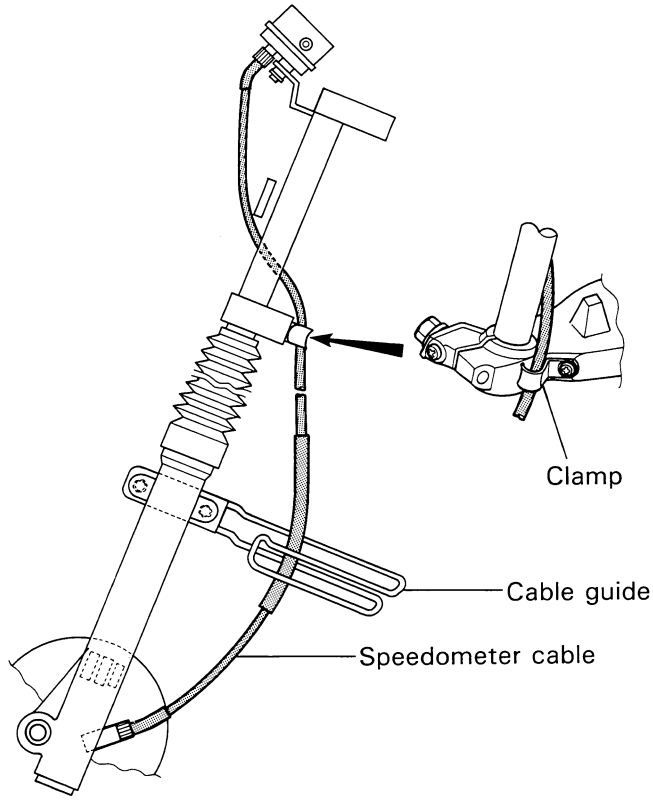


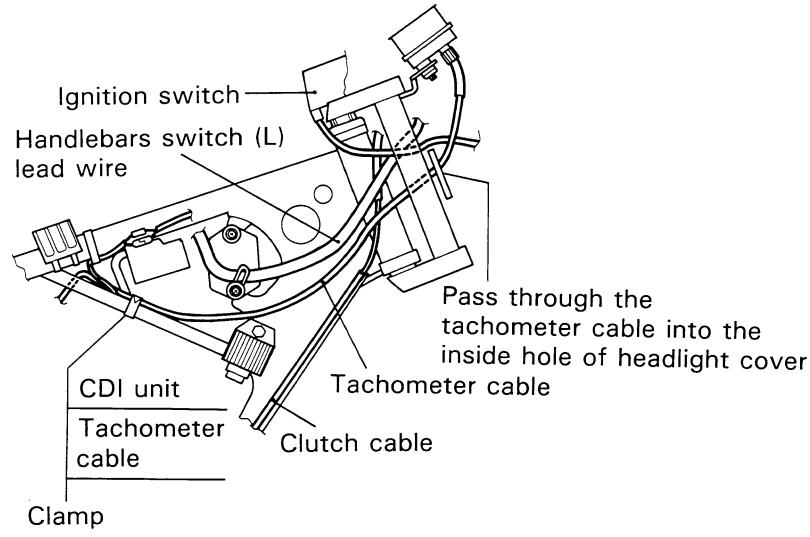
WIRE, CABLE AND HOSE ROUTING

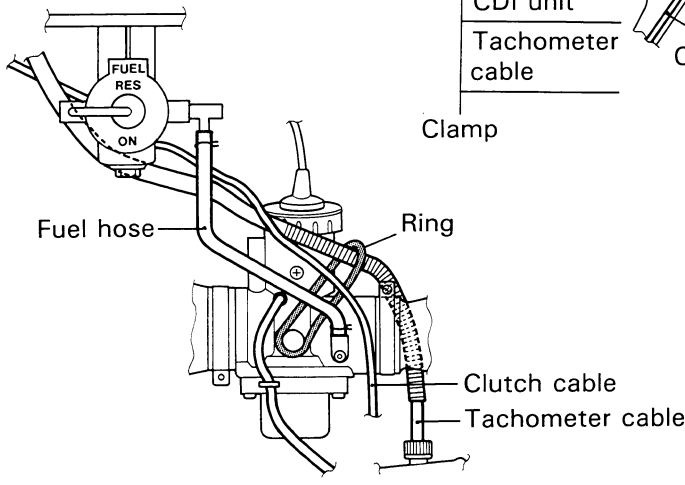
WIRE ROUTING



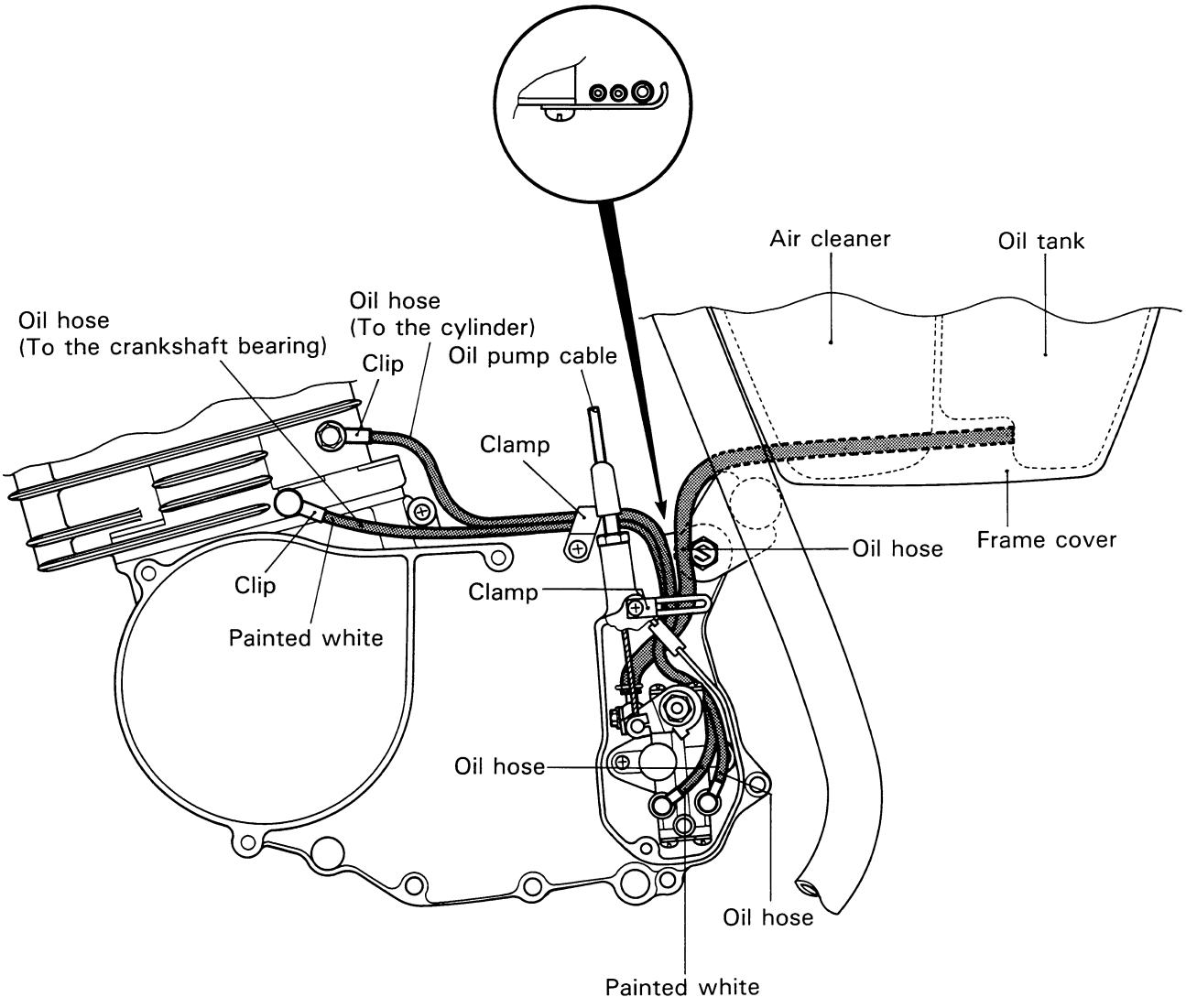
CABLE ROUTING







HOSE ROUTING



TS185ERP ('93-MODEL)

CONTENTS

SPECIFICATIONS

DIMENSIONS AND DRY MASS	
Overall length	2 160 mm (85.0 in)
Overall width	835 mm (32.9 in)
Overall height	1 125 mm (44.3 in)
Wheelbase	1 375 mm (54.1 in)
Ground clearance	255 mm (10.0 in)
Dry mass	102 kg (225 lbs)
ENGINE	
Type	Two-stroke, air-cooled
Number of cylinder	1
Bore	64.0 mm (2.520 in)
Stroke	57.0 mm (2.244 in)
Piston displacement	183 cm^3 (11.2 cu. in)
Compression ratio	6.2 : 1
Carburetor	VM29SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Suzuki "CCI"
TRANSMISSION	
Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	3.210 (61/19)
Gear ratios, Low	2.750 (33/12)
2nd	1.812 (29/16)
3rd	1.250 (25/20)
4th	1.000 (23/23)
5th	0.800 (20/25)
Final reduction ratio	3.250 (39/12)
Drive chain	D.I.D. 520K or RK520, 96 links
CHASSIS	
Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Swinging arm, oil damped, spring preload 5-way adjustable
Steering angle	40° (right & left)
Caster	59°
Trail	141 mm (5.55 in)
Turning radius	2.4 m (7.9 ft)
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	2.75-21 4PR
Rear tire size	4.10-18 4PR
ELECTRICAL	
Ignition type	SUZUKI "PEI"
Ignition timing	21.5° B.T.D.C. at 6000 r/min
Spark plug	NGK BP7ES or NIPPONDENSO W22EP ... E-24 NIPPONDENSO W22EPR ... E-06
Battery	12V 10.8 kC (3 Ah)/10HR ... E-24 6V 14.4 kC (4 Ah)/10 HR ... E-06
Fuse	15A
Headlight	12V 35/35W . . . E-24 6V 25/25W . . . E-06
Tail/Brake light	12V 5/21W . . . E-24 6V 5.3/25W. . . E-06
Turn signal light	12V 21W . . . . . E-24 6V 17W E-06
Speedometer light	12V 1.7W . . . . . E-24 6V 3.0W E-06
Tachometer light	12V 1.7W . . . . . E-24 6V 3.0W E-06
Neutral indicator light	12V 3.4W . . . . . E-24 6V 3.0W E-06
High beam indicator light	12V 1.7W . . . . . E-24 6V 1.7W E-06
Turn signal indicator light	12V 3.4W . . . . . E24 6V 3.0W E-06
CAPACITIES	
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)
reserve	1.5 L (0.4/0.3 US/Imp gal)
Engine oil tank	1.2 L (1.3/1.1 US/Imp qt)
Transmission oil	700 ml (0.7/0.6 US/Imp qt)
Front fork oil (each leg)	166 ml (5.6/5.8 US/Imp oz)

These specifications are subject to change without notice.

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050—0.060 (0.0020—0.0024)			0.120 (0.0047)
Cylinder bore	64.000—64.015 (2.5197—2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945—63.960 (2.5175—2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	—			0.05 (0.002)
Cylinder head distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15—0.35 (0.006—0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02—0.06 (0.001—0.002)	—
	2nd		0.02—0.06 (0.001—0.002)	—
Piston pin bore	15.998—16.006 (0.6298—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003—21.011 (0.8269—0.8272)	21.040 (0.8283)
Conrod deflection	—	3.0 (0.12)
Crank web to web width	56.0 ± 0.1 (2.205 ± 0.004)	—
Crankshaft runout	—	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
Oil pump discharge rate (Full open)	1.53—1.90 ml (0.052/0.054—0.064/0.067 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	2—3 (0.08—0.12)	———
Drive plate thickness	2.9—3.1 (0.11—0.12)	2.6 (0.10)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.3 (0.44)
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	32.6 (1.28)

TRANSMISSION

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.210 (61/19)	———
Final reduction ratio		3.250 (39/12)	———
Gear ratios	Low	2.750 (33/12)	———
	2nd	1.812 (29/16)	———
	3rd	1.250 (25/20)	———
	4th	1.000 (23/23)	———
	Top	0.800 (20/25)	———
Shift fork to groove clearance	No.1, No.2 No.3	0.20—0.40 (0.008—0.016)	0.60 (0.024)
Shift fork groove width	No.1, No.2 No.3	5.60—5.70 (0.220—0.224)	———
Shift fork thickness	No.1, No.2 No.3	5.30—5.40 (0.209—0.213)	———
Countershaft length (Low to 2nd)	No.1, No.2 No.3	$78.0 \pm^{0.3}_{0.2}$ $(3.071 \pm^{0.012}_{0.008})$	———

DRIVE CHAIN

Unit: mm (in)

ITEM		STANDARD	LIMIT
Drive chain	Type	D.I.D.: 520K TAKASAGO: RK520	———
	Links	96	———
	20-pitch length	———	323.0 (12.72)
Drive chain slack		35—45 (1.4—1.8)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29 mm
I.D. No.		29910
Idle r/min.		1 300 ± 150 r/min.
Float height		24.0 ± 1.0 mm (0.94 ± 0.04 in)
Main jet	(M.J.)	#195
Air jet	(A.J.)	0.7 mm
Jet needle	(J.N.)	5DH48-3rd
Needle jet	(N.J.)	P-1
Cut-away	(C.A.)	2.5
Pilot jet	(P.J.)	#25
By-pass	(B.P.)	1.0 mm
Pilot outlet	(P.O.)	0.6 mm
Air screw	(A.S.)	1¼ turns back
Valve seat	(V.S.)	2.0 mm
Starter jet	(G.S.)	#80
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		21.5° B.T.D.C. at 6 000 r/min.		
Spark plug		Type	ND W22EPR	E-06
			NGK BP7ES ND W22EP	E-24
		Gap	0.6—0.8 (0.024—0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0—1 Ω (W/Bl—B/W)	
		Secondary	15—25 kΩ (Plug cap—Ground)	
Magneto coil resistance		Power source	30—50 Ω (B/R—R/W)	E-24
			160—240 Ω (R/W—B/W)	
		Charging	0.5—2 Ω (W/R—B/W)	
		Lighting	0.1—1 Ω (Y/W—B/W)	
		L_2 coil	30—40 Ω (B/R—R/W)	E-06
		L_1 coil	160—240 Ω (R/W—B/W)	
		Charging	1—2 Ω (Y/W—Ground)	
		Charging	0—1 Ω (G—Ground)	
		Lighting	0—1 Ω (Y/R—Ground)	
Generator no-load voltage		Charging	More than 35 V (AC) at 5 000 r/min. (W/R—B/W)	E-24
		Lighting	More than 35 V (AC) at 5 000 r/min. (Y/W—B/W)	
Charging rate	When connecting G lead wire	Above 1.1A at 2 000 r/min. Below 3.2A at 8 000 r/min.		E-06
	When connecting Y/W lead wire	Above 1.1A at 2 000 r/min. Below 3.2A at 8 000 r/min.		

ITEM		SPECIFICATION	NOTE
Lighting coil output		Above 5.7V at 2 500 r/min. Below 7.8V at 8 000 r/min.	E-06
Regulated voltage		12.5—16.0 V at 5 000 r/min.	E-24
Battery	Type designation	6N4B-2A	E-06
		YT4L-BS	E-24
	Capacity	6V 14.4kC (4Ah)/10HR	E-06
		12V 10.8kC (3Ah)/10HR	E-24
	Standard electrolyte S.G.	1.26 at 20°C (68°F)	E-06
		1.32 at 20°C (68°F)	E-24
Fuse size		15A	

WATTAGE

Unit: W

ITEM		SPECIFICATION	
		E-06 (6V)	E-24 (12V)
Headlight	HI	25	35
	LO	25	35
Tail/Brake light		5.3/25	5/21
Turn signal light		17	21
Speedometer light		3	1.7
Tachometer light		3	1.7
Turn signal indicator light		3	3.4
High beam indicator light		1.7	1.7
Neutral indicator light		3	3.4

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20—30 (0.8—1.2)		—
Rear brake pedal free travel	20—30 (0.8—1.2)		—
Brake drum I.D.	Front	—	130.7 (5.15)
	Rear	—	130.7 (5.15)
Brake lining thickness	—		1.5 (0.06)
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel axle runout	Front	—	0.25 (0.01)
	Rear	—	0.25 (0.01)
Tire size	Front	2.75-21 4PR	—
	Rear	4.10-18 4PR	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swingarm pivot shaft runout	———	0.6 (0.02)	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (0.4/0.3 US/Imp gal)		
Engine oil type	SUZUKI CCI SUPER OIL		
Engine oil tank capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 10W/40		
Transmission oil capacity	Change	700 ml (0.7/0.6 US/Imp qt)	
	Overhaul	750 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	166 ml (5.6/5.8 US/Imp oz)		

TS185ERR ('94-MODEL)

CONTENTS

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 160 mm (85.0 in)
Overall width	835 mm (32.9 in)
Overall height	1 125 mm (44.3 in)
Wheelbase	1 375 mm (54.1 in)
Ground clearance	255 mm (10.0 in)
Dry mass	102 kg (225 lbs)

ENGINE

Type	Two-stroke, air-cooled
Number of cylinder	1
Bore	64.0 mm (2.520 in)
Stroke	57.0 mm (2.244 in)
Piston displacement	183 cm^3 (11.2 cu. in)
Compression ratio	6.2 : 1
Carburetor	VM29SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Suzuki "CCI"

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	3.210 (61/19)
Gear ratios, Low	2.750 (33/12)
2nd	1.812 (29/16)
3rd	1.250 (25/20)
4th	1.000 (23/23)
5th	0.800 (20/25)
Final reduction ratio	3.250 (39/12)
Drive chain	D.I.D. 520K or RK520, 96 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Swinging arm, oil damped, spring preload 5-way adjustable
Steering angle	40° (right & left)
Caster	59°
Trail	141 mm (5.55 in)
Turning radius	2.4 m (7.9 ft)
Front brake	Drum brake
Rear brake	Drum brake
Front tire size	2.75-21 4PR
Rear tire size	4.10-18 4PR

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	21.5° B.T.D.C. at 6000 r/min
Spark plug	NGK BP7ES or NIPPONDENSO W22EP
Battery	12V 10.8 kC (3 Ah)/10HR
Fuse	15A
Headlight	12V 35/35W
Tail/Brake light	12V 5/21W
Turn signal light	12V 21W
Speedometer light	12V 1.7W
Tachometer light	12V 1.7W
Neutral indicator light	12V 3.4W
High beam indicator light	12V 1.7W
Turn signal indicator light	12V 3.4W

CAPACITIES

Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)
reserve	1.5 L (0.4/0.3 US/Imp gal)
Engine oil tank	1.2 L (1.3/1.1 US/Imp qt)
Transmission oil	700 ml (0.7/0.6 US/Imp qt)
Front fork oil (each leg)	166 ml (5.6/5.8 US/Imp oz)

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050—0.060 (0.0020—0.0024)			0.120 (0.0047)
Cylinder bore	64.000—64.015 (2.5197—2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945—63.960 (2.5175—2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	———			0.05 (0.002)
Cylinder head distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15—0.35 (0.006—0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02—0.06 (0.001—0.002)	———
	2nd		0.02—0.06 (0.001—0.002)	———
Piston pin bore	15.998—16.006 (0.6298—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003—21.011 (0.8269—0.8272)	21.040 (0.8283)
Conrod deflection	———	3.0 (0.12)
Crank web to web width	56.0±0.1 (2.205±0.004)	———
Crankshaft runout	———	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
Oil pump discharge rate (Full open)	1.53—1.90 ml (0.052/0.054—0.064/0.067 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10—15 (0.4—0.6)	———
Drive plate thickness	2.9—3.1 (0.11—0.12)	2.6 (0.10)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.3 (0.44)
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	32.6 (1.28)

TRANSMISSION

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.210 (61/19)	———
Final reduction ratio		3.250 (39/12)	———
Gear ratios	Low	2.750 (33/12)	———
	2nd	1.812 (29/16)	———
	3rd	1.250 (25/20)	———
	4th	1.000 (23/23)	———
	Top	0.800 (20/25)	———
Shift fork to groove clearance	No.1, No.2 No.3	0.20—0.40 (0.008—0.016)	0.60 (0.024)
Shift fork groove width	No.1, No.2 No.3	5.60—5.70 (0.220—0.224)	———
Shift fork thickness	No.1, No.2 No.3	5.30—5.40 (0.209—0.213)	———
Countershaft length (Low to 2nd)	No.1, No.2 No.3	$78.0 \pm^{0.3}_{0.2}$ $(3.071 \pm^{0.012}_{0.008})$	———

DRIVE CHAIN

Unit: mm (in)

ITEM		STANDARD	LIMIT
Drive chain	Type	D.I.D.: 520K TAKASAGO: RK520	———
	Links	96	———
	20-pitch length	———	323.0 (12.72)
Drive chain slack		35—45 (1.4—1.8)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29 mm
I.D. No.		29910
Idle r/min.		1 300 ± 150 r/min.
Float height		24.0 ± 1.0 mm (0.94 ± 0.04 in)
Main jet	(M.J.)	#195
Air jet	(A.J.)	0.7 mm
Jet needle	(J.N.)	5DH48-3rd
Needle jet	(N.J.)	P-1
Cut-away	(C.A.)	2.5
Pilot jet	(P.J.)	#25
By-pass	(B.P.)	1.0 mm
Pilot outlet	(P.O.)	0.6 mm
Air screw	(A.S.)	1¼ turns back
Valve seat	(V.S.)	2.0 mm
Starter jet	(G.S.)	#80
Throttle cable play		3—6 mm (0.12—0.24 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		21.5° B.T.D.C. at 6 000 r/min.		
Spark plug		Type	NGK BP7ES ND W22EP	
		Gap	0.6—0.8 (0.024—0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0—1 Ω (W/Bl—B/W)	
		Secondary	15—25 kΩ (Plug cap—Ground)	
Magneto coil resistance		Power source	30—50 Ω (B/R—R/W)	
			160—240 Ω (R/W—B/W)	
		Charging	0.5—2 Ω (W/R—B/W)	
		Lighting	0.1—1 Ω (Y/W—B/W)	
Generator no-load voltage		Charging	More than 35 V (AC) at 5 000 r/min. (W/R—B/W)	
		Lighting	More than 35 V (AC) at 5 000 r/min. (Y/W—B/W)	
Regulated voltage		12.5—16.0 V at 5 000 r/min.		
Battery	Type designation	YT4L-BS		
	Capacity	12V 10.8kC (3Ah)/10HR		
	Standard electrolyte S.G.	1.32 at 20°C (68°F)		
Fuse size		15A		

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	35
	LO	35
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		3.4

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20—30 (0.8—1.2)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Brake drum I.D.	Front	———	130.7 (5.15)
	Rear	———	130.7 (5.15)
Brake lining thickness	———		1.5 (0.06)
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.01)
	Rear	———	0.25 (0.01)
Tire size	Front	2.75-21 4PR	———
	Rear	4.10-18 4PR	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swingarm pivot shaft runout	———	0.6 (0.02)	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (0.4/0.3 US/Imp gal)		
Engine oil type	SUZUKI CCI SUPER OIL		
Engine oil tank capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 10W/40		
Transmission oil capacity	Change	700 ml (0.7/0.6 US/Imp qt)	
	Overhaul	750 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	166 ml (5.6/5.8 US/Imp oz)		

TS185ERW ('98-MODEL)

CONTENTS

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 160 mm (85.0 in)
Overall width	835 mm (32.9 in)
Overall height	1 125 mm (44.3 in)
Wheelbase	1 375 mm (54.1 in)
Ground clearance	255 mm (10.0 in)
Dry mass	102 kg (225 lbs)

ENGINE

Type	Two-stroke, air-cooled
Number of cylinder	1
Bore	64.0 mm (2.520 in)
Stroke	57.0 mm (2.244 in)
Piston displacement	183 cm^3 (11.2 cu. in)
Compression ratio	6.2 : 1
Carburetor	VM29SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Suzuki "CCI"

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	3.210 (61/19)
Gear ratios, Low	2.750 (33/12)
2nd	1.812 (29/16)
3rd	1.250 (25/20)
4th	1.000 (23/23)
5th	0.800 (20/25)
Final reduction ratio	3.250 (39/12)
Drive chain	D.I.D. 520K, 96 links

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Swinging arm, oil damped, spring preload 5-way adjustable
Steering angle	40° (right & left)
Caster	31°
Trail	141 mm (5.55 in)
Turning radius	2.4 m (7.9 ft)
Front brake	Drum brake
Rear brake	Drum brake
Front tire size	2.75-21 4PR
Rear tire size	4.10-18 4PR

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	21.5° B.T.D.C. at 6000 r/min
Spark plug	DENSO W22EPR
Battery	12V 10.8 kC (3 Ah)/10HR
Fuse	15A
Headlight	12V 35/35W
Brake light/Taillight	12V 21/5W
Turn signal light	12V 21W
Speedometer light	12V 1.7W
Tachometer light	12V 1.7W
Neutral indicator light	12V 3.4W
High beam indicator light	12V 1.7W
Turn signal indicator light	12V 3.4W

CAPACITIES

Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)
reserve	1.5 L (0.4/0.3 US/Imp gal)
Engine oil tank	1.2 L (1.3/1.1 US/Imp qt)
Transmission oil	700 ml (0.7/0.6 US/Imp qt)
Front fork oil (each leg)	166 ml (5.6/5.8 US/Imp oz)

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050—0.060 (0.0020—0.0024)			0.120 (0.0047)
Cylinder bore	64.000—64.015 (2.5197—2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945—63.960 (2.5175—2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	—			0.05 (0.002)
Cylinder head distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15—0.35 (0.006—0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02—0.06 (0.001—0.002)	—
	2nd		0.02—0.06 (0.001—0.002)	—
Piston pin bore	15.998—16.006 (0.6298—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003—21.011 (0.8269—0.8272)	21.040 (0.8283)
Conrod deflection	—	3.0 (0.12)
Crank web to web width	56.0±0.1 (2.205±0.004)	—
Crankshaft runout	—	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
Oil pump discharge rate (Full open)	1.27—1.55 ml (0.043/0.045—0.052/0.055 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10—15 (0.4—0.6)	———
Drive plate thickness	2.9—3.1 (0.11—0.12)	2.6 (0.10)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.3 (0.44)
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	32.6 (1.28)

TRANSMISSION

ITEM	STANDARD		LIMIT
Primary reduction ratio	3.210 (61/19)		———
Final reduction ratio	3.250 (39/12)		———
Gear ratios	Low	2.750 (33/12)	———
	2nd	1.812 (29/16)	———
	3rd	1.250 (25/20)	———
	4th	1.000 (23/23)	———
	Top	0.800 (20/25)	———
Shift fork to groove clearance	No.1, No.2 No.3	0.20—0.40 (0.008—0.016)	0.60 (0.024)
Shift fork groove width	No.1, No.2 No.3	5.60—5.70 (0.220—0.224)	———
Shift fork thickness	No.1, No.2 No.3	5.30—5.40 (0.209—0.213)	———
Countershaft length (Low to 2nd)	No.1, No.2 No.3	$78.0 \pm^{0.3}_{0.2}$ ($3.071 \pm^{0.012}_{0.008}$)	———

DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	D.I.D.: 520K	———
	Links	96	———
	20-pitch length	———	323.0 (12.72)
Drive chain slack	35—45 (1.4—1.8)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29 mm
I.D. No.		29910
Idle r/min.		1 300 ± 150 r/min.
Float height		24.0 ± 1.0 mm (0.94 ± 0.04 in)
Main jet	(M.J.)	#195
Air jet	(A.J.)	0.7 mm
Jet needle	(J.N.)	5DH48-3rd
Needle jet	(N.J.)	P-1
Cut-away	(C.A.)	2.5
Pilot jet	(P.J.)	#25
By-pass	(B.P.)	1.0 mm
Pilot outlet	(P.O.)	0.6 mm
Air screw	(A.S.)	1¼ turns back
Valve seat	(V.S.)	2.0 mm
Starter jet	(G.S.)	#80
Throttle cable play		3—6 mm (0.1—0.2 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		21.5° B.T.D.C. at 6 000 r/min.		
Spark plug		Type	ND W22EPR	
		Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0—1 Ω (W/Bl—B/W)	
		Secondary	15—25 kΩ (Plug cap—Ground)	
Magneto coil resistance		Power source	30—50 Ω (B/R—R/W)	
			160—240 Ω (R/W—B/W)	
		Charging	0.5—2 Ω (W/R—B/W)	
		Lighting	0.1—1 Ω (Y/W—B/W)	
Generator no-load voltage (When cold)		Charging	More than 35 V (AC) at 5 000 r/min. (W/R—B/W)	
		Lighting	More than 35 V (AC) at 5 000 r/min. (Y/W—B/W)	
Regulated voltage		12.5—16.0 V at 5 000 r/min.		
Battery	Type designation	YT4L-BS		
	Capacity	12V 10.8kC (3Ah)/10HR		
	Standard electrolyte S.G.	1.32 at 20°C (68°F)		
Fuse size		15A		

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	35
	LO	35
Brake light/Taillight		21/5
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		3.4

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20—30 (0.8—1.2)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Brake drum I.D.	Front	———	130.7 (5.15)
	Rear	———	130.7 (5.15)
Brake lining thickness	———		1.5 (0.06)
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.01)
	Rear	———	0.25 (0.01)
Tire size	Front	2.75-21 4PR	———
	Rear	4.10-18 4PR	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swingarm pivot shaft runout	———	0.6 (0.02)	

TIRE PRESSURE

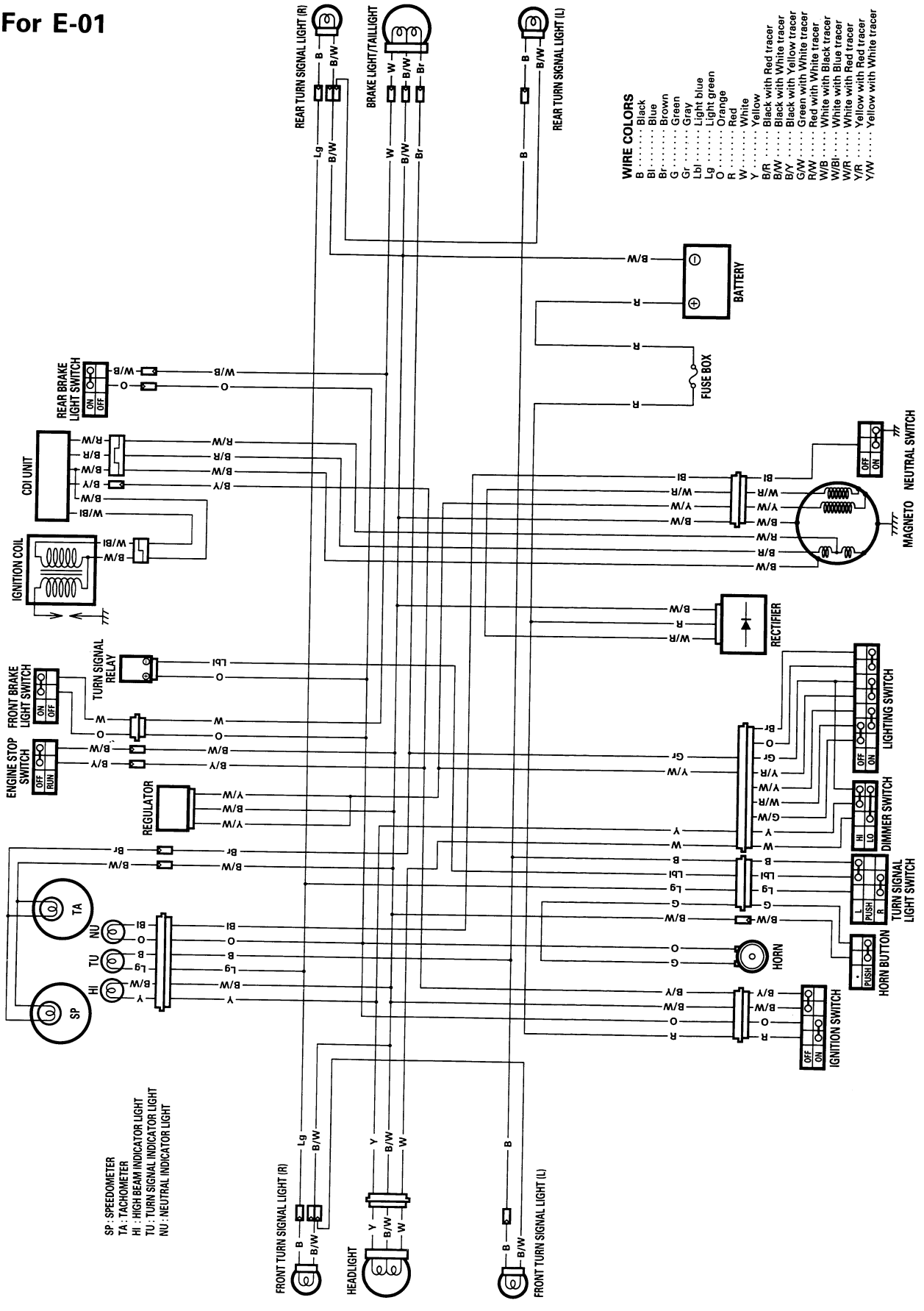
COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (0.4/0.3 US/Imp gal)		
Engine oil type	SUZUKI CCI SUPER OIL or JASO FC oil		
Engine oil tank capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 10W/40		
Transmission oil capacity	Change	700 ml (0.7/0.6 US/Imp qt)	
	Overhaul	750 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	166 ml (5.6/5.8 US/Imp oz)		

WIRING DIAGRAM

For E-01



TS185ERX ('99-MODEL)

CONTENTS

SPECIFICATIONS

DIMENSIONS AND DRY MASS	
Overall length	2 160 mm (85.0 in)
Overall width	835 mm (32.9 in)
Overall height	1 125 mm (44.3 in)
Wheelbase	1 375 mm (54.1 in)
Ground clearance	255 mm (10.0 in)
Dry mass	102 kg (225 lbs)
ENGINE	
Type	Two-stroke, air-cooled
Number of cylinder	1
Bore	64.0 mm (2.520 in)
Stroke	57.0 mm (2.244 in)
Displacement	183 cm^3 (11.2 cu. in)
Compression ratio	6.2 : 1
Carburetor	VM29SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Suzuki "CCI"
Idle speed	1 200–1 400 r/min
TRANSMISSION	
Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio	3.210 (61/19)
Gear ratios, Low	2.750 (33/12)
2nd	1.812 (29/16)
3rd	1.250 (25/20)
4th	1.000 (23/23)
5th	0.800 (20/25)
Final reduction ratio	3.250 (39/12)
Drive chain	D.I.D. 520K, 96 links
CHASSIS	
Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Swinging arm, oil damped, spring preload 5-way adjustable
Steering angle	40° (right and left)
Caster	31°
Trail	141 mm (5.55 in)
Turning radius	2.4 m (7.9 ft)
Front brake	Drum brake
Rear brake	Drum brake
Front tire size	2.75-21 45P
Rear tire size	4.10-18 59P
ELECTRICAL	
Ignition type	Electronic ignition (CDI)
Ignition timing	21.5° B.T.D.C. at 6 000 r/min
Spark plug	DENSO W22EPR
Battery	12V 10.8 kC (3 Ah)/10HR
Fuse	15A
Headlight	12V 35/35W
Brake light/Taillight	12V 21/5W
Turn signal light	12V 21W
Speedometer light	12V 1.7W
Tachometer light	12V 1.7W
Neutral indicator light	12V 3.4W
High beam indicator light	12V 1.7W
Turn signal indicator light	12V 3.4W
CAPACITIES	
Fuel tank, including reserve	7.0 L (1.8/1.5 US/Imp gal)
reserve	1.5 L (0.4/0.3 US/Imp gal)
Engine oil tank	1.2 L (1.3/1.1 US/Imp qt)
Transmission oil	700 ml (0.7/0.6 US/Imp qt)
Front fork oil (each leg)	166 ml (5.6/5.8 US/Imp oz)

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Piston to cylinder clearance	0.050—0.060 (0.0020—0.0024)			0.120 (0.0047)
Cylinder bore	64.000—64.015 (2.5197—2.5203) Measure at 20 (0.8) from the top surface.			64.080 (2.5228)
Piston diam.	63.945—63.960 (2.5175—2.5181) Measure at 26 (1.0) from the skirt end.			63.880 (2.5150)
Cylinder distortion	—			0.05 (0.002)
Cylinder head distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 8.0 (0.31)	6.4 (0.25)
	2nd	R	Approx. 8.0 (0.31)	6.4 (0.25)
Piston ring end gap	0.15—0.35 (0.006—0.014)			0.80 (0.031)
Piston ring to groove clearance	1st		0.02—0.06 (0.001—0.002)	—
	2nd		0.02—0.06 (0.001—0.002)	—
Piston pin bore	15.998—16.006 (0.6298—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.995—16.000 (0.6297—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	21.003—21.011 (0.8269—0.8272)	21.040 (0.8283)
Conrod deflection	—	3.0 (0.12)
Crank web to web width	56.0±0.1 (2.205±0.004)	—
Crankshaft runout	—	0.05 (0.002)

OIL PUMP

ITEM	SPECIFICATION
Oil pump reduction ratio	5.529 (61/19 x 29/18 x 31/29)
Oil pump discharge rate (Full open)	1.27—1.55 ml (0.043/0.045—0.052/0.055 US/Imp oz) for 2 minutes at 2 000 r/min.

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10—15 (0.4—0.6)	———
Drive plate thickness	2.9—3.1 (0.11—0.12)	2.6 (0.10)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.3 (0.44)
Driven plate distortion	———	0.1 (0.004)
Clutch spring free length	———	32.6 (1.28)

TRANSMISSION

ITEM	STANDARD		LIMIT
Primary reduction ratio	3.210 (61/19)		———
Final reduction ratio	3.250 (39/12)		———
Gear ratios	Low	2.750 (33/12)	———
	2nd	1.812 (29/16)	———
	3rd	1.250 (25/20)	———
	4th	1.000 (23/23)	———
	Top	0.800 (20/25)	———
Shift fork to groove clearance	No.1, No.2 No.3	0.20—0.40 (0.008—0.016)	0.60 (0.024)
Shift fork groove width	No.1, No.2 No.3	5.60—5.70 (0.220—0.224)	———
Shift fork thickness	No.1, No.2 No.3	5.30—5.40 (0.209—0.213)	———
Countershaft length (Low to 2nd)	No.1, No.2 No.3	$78.0 \pm^{0.3}_{0.2}$ ($3.071 \pm^{0.012}_{0.008}$)	———

DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	D.I.D.: 520K	———
	Links	96	———
	20-pitch length	———	323.0 (12.72)
Drive chain slack	35—45 (1.4—1.8)		———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM29SS
Bore size		29 mm
I.D. No.		29910
Idle r/min.		1 300 ± 150 r/min.
Float height		24.0 ± 1.0 mm (0.94 ± 0.04 in)
Main jet	(M.J.)	#195
Jet needle	(J.N.)	5DH48-3rd
Needle jet	(N.J.)	P-1
Pilot jet	(P.J.)	#25
Air screw	(A.S.)	1¼ turns back
Starter jet	(G.S.)	#80
Throttle cable play		3—6 mm (0.1—0.2 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		21.5° B.T.D.C. at 6 000 r/min.		
Spark plug		Type	ND W22EPR	
		Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0—1 Ω (W/Bl—B/W)	
		Secondary	15—25 kΩ (Plug cap—Ground)	
Magneto coil resistance		Power source	30—50 Ω (B/R—R/W)	
			160—240 Ω (R/W—B/W)	
		Charging	0.5—2 Ω (W/R—B/W)	
		Lighting	0.1—1 Ω (Y/W—B/W)	
Generator no-load voltage (When cold)		Charging	More than 35 V (AC) at 5 000 r/min. (W/R—B/W)	
		Lighting	More than 35 V (AC) at 5 000 r/min. (Y/W—B/W)	
Regulated voltage		12.5—16.0 V at 5 000 r/min.		
Battery	Type designation	YT4L-BS		
	Capacity	12V 10.8kC (3Ah)/10HR		
	Standard electrolyte S.G.	1.32 at 20°C (68°F)		
Fuse size		15A		

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	35
	LO	35
Brake light/Taillight		21/5
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		3.4

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20—30 (0.8—1.2)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Brake drum I.D.	Front	———	130.7 (5.15)
	Rear	———	130.7 (5.15)
Brake lining thickness	———		1.5 (0.06)
Wheel rim runout	Axial	———	2.0 (0.08)
	Radial	———	2.0 (0.08)
Wheel axle runout	Front	———	0.25 (0.01)
	Rear	———	0.25 (0.01)
Tire size	Front	2.75-21 4PR	———
	Rear	4.10-18 4PR	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	180 (7.1)	———	
Front fork spring free length	———	473.0 (18.62)	
Front fork oil level	167 (6.6)	———	
Rear wheel travel	130 (5.12)	———	
Swingarm pivot shaft runout	———	0.6 (0.02)	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING			DUAL RIDING		
	kPa	kg/cm²	psi	kPa	kg/cm²	psi
FRONT	150	1.5	21	150	1.5	21
REAR	175	1.75	25	200	2.0	28

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		
Fuel tank including reserve	7.0 L (1.8/1.5 US/Imp gal)		
reserve	1.5 L (0.4/0.3 US/Imp gal)		
Engine oil type	SUZUKI CCI SUPER OIL or JASO FC oil		
Engine oil tank capacity	1.2 L (1.3/1.1 US/Imp qt)		
Transmission oil type	SAE 10W/40		
Transmission oil capacity	Change	700 ml (0.7/0.6 US/Imp qt)	
	Overhaul	750 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	Fork oil #10		
Front fork oil capacity (each leg)	166 ml (5.6/5.8 US/Imp oz)		

Prepared by

SUZUKI MOTOR CORPORATION

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