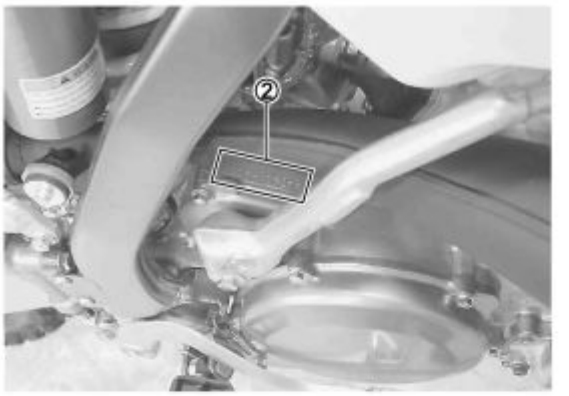
SUZUKI

RM

250

OWNER'S SERVICE MANUAL

SERIAL NUMBER LOCATION



The frame number ① is stamped on the steering head as shown in the photograph. The engine serial number ② is stamped on the right side of the crankcase assembly.
Write down the serial numbers here for your future reference.

Frame No.	

Engine No.	

INSPECTION BEFORE PRACTICE

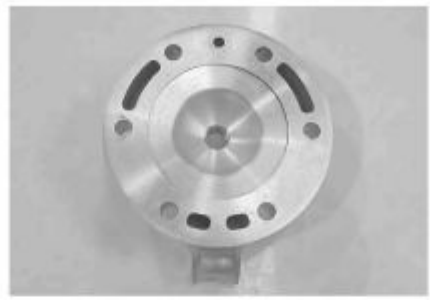
WHAT TO CHECK	CHECK FOR
Spark plug	• Heat range, fouled electrode, tightness • Loose high-tension cord
Air cleaner element	Lubrication
Transmission oil	Oil level
Coolant	Coolant level
Cooling system	• Radiator hose damage • Engine coolant leak
Clutch	• Play • Smooth operation
Throttle	• Play • Smooth operation
Brake fluid	Fluid level
Brakes	• Brake lever position • Brake pedal height • Operation
Drive chain	Slack, lubrication, chain joint clip condition
Drive chain guide/buffer	Wear, damage
Suspension	• Smooth operation • Front fork air pressure
Wheels	• Spoke tension • Rim lock tightness
Tires	Tire pressure
Steering	Smoothness, play
Exhaust pipe	Firm fixation
Bolts and nuts	Tightening torque (☞19-7)

INSPECTION BEFORE RACE

WHAT TO CHECK	CHECK FOR
All items of inspection before practice above plus.	
Air cleaner	Cleanliness
Clutch	Clutch disc plates wear and distortion
Brake pads	Wear
Sprockets	Wear
Fuel tank	• Leakage • Fuel filter clogging
Fuel hose	Damage
Exhaust pipe	Damage
Piston and Cylinder	• Combustion Chamber carbon deposit • Piston head carbon deposit • Piston and cylinder wear

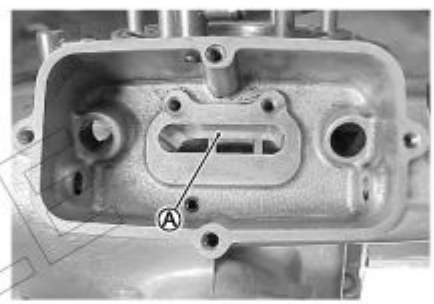
CYLINDER HEAD, CYLINDER AND PISTON

CYLINDER HEAD



- Remove the cylinder head. (☞4-3)
- Remove carbon deposits from combustion chamber surface.
- Inspect for pinholes, cracks and other damage.

CYLINDER

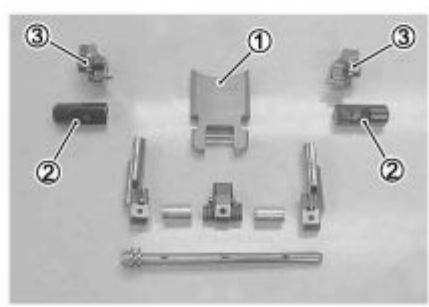


- Remove the cylinder. (☞4-3)
- Remove carbon deposits from the exhaust port and the exhaust valve chamber Ⓐ.
- Check for scratches and wear on the cylinder sleeve.

PISTON

- Remove the piston. (☞4-4)
- Remove carbon deposits from the top surface of the piston.
- Check for scratches, cracks, and wear around the piston bosses.
- Remove minor scuffs with #1 000 – #1 200 sand paper.
- Check piston ring wear. Remove carbon deposits from the piston ring grooves.

EXHAUST VALVE



- Remove the exhaust valve. (☞11-3)
- Remove carbon deposits from the exhaust valve ①, exhaust side valves ② and exhaust valve cams ③.
- Check for wear and damage.

NOTE:

If tar drops from the exhaust valve breather hose when the motorcycle is parked, change engine oil brand because some engine oil can accumulate tar in the exhaust valve chamber.

ENGINE DISMOUNTING

- Drain transmission oil. (☞2-9)
- Drain engine coolant. (☞2-12)
- Remove the seat.
- Remove the fuel tank with the radiator cover.
- Remove the carburetor. (☞9-10)

- Remove the exhaust pipe fitting springs with the special tool.

09920-20310: Spring hook

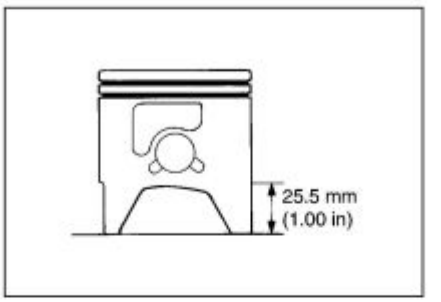
- Remove the exhaust pipe.

CONROD

- Measure the conrod small end bore. (☞8-8)

PISTON AND PISTON RING

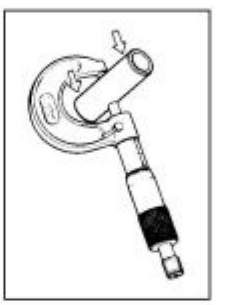
- Remove carbon deposits from the piston.
- Inspect the piston for wear, scratches and damage.
- Measure the piston outer diameter at 25.5 mm (1.00 in) from the skirt end.



DATA **Piston diam**
Service limit: 66.280 mm (2.6100 in)

TOOL **09900-20203: Micrometer (50 – 75 mm)**

- Measure the piston pin bore and piston pin diameter.

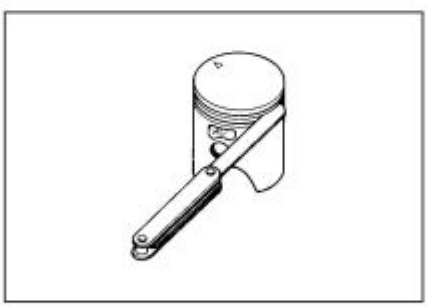


DATA **Piston pin bore**
Service limit: 18.030 mm (0.7098 in)

DATA **Piston pin O.D**
Service limit: 17.980 mm (0.7079 in)

TOOL **09900-20605: Dial caliper**
09900-20205: Micrometer

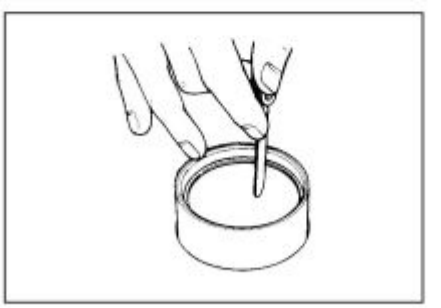
- Remove carbon deposits from piston ring and piston ring groove.
- Measure the clearances with the thickness gauge.



DATA **Piston ring to groove clearance**
Standard: 0.020 – 0.060 mm (0.0008 – 0.0024 in)

TOOL **09900-20803: Thickness gauge**

- Remove the piston rings from the piston ring grooves.
- Fit the piston ring into the cylinder and measure the piston ring end gap with the thickness gauge.



DATA **Piston ring end gap**
Service limit: 0.50 mm (0.020 in)

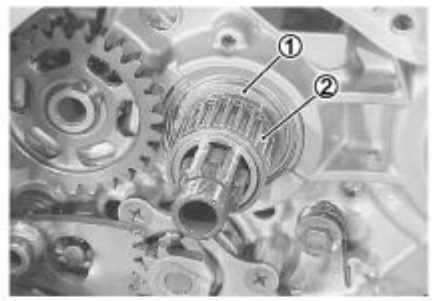
TOOL **09900-20803: Thickness gauge**

INSTALLATION

Install the clutch assembly in the reverse order of removal. Pay attention to the following points.

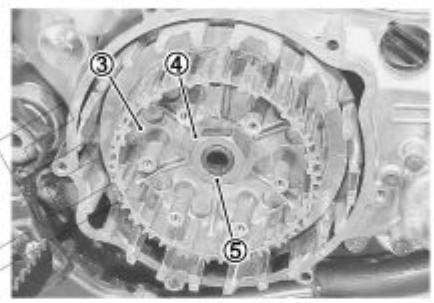
PRIMARY DRIVEN GEAR

- Apply transmission oil to the spacer ① and needle bearing ②.



- Fit the clutch sleeve hub ③, new lock washer ④ and clutch sleeve hub nut ⑤.

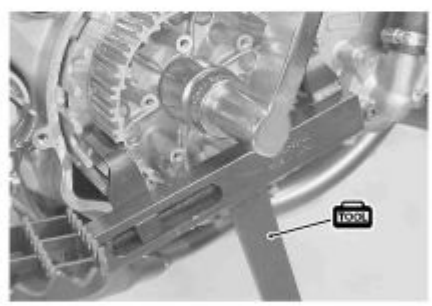
NOTE:
The flat side of the nut must face outside.



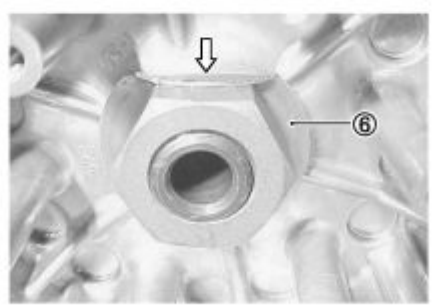
- Tighten the clutch sleeve hub nut with the special tool to the specified torque.

TOOL 09920-53740: Clutch sleeve hub holder

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

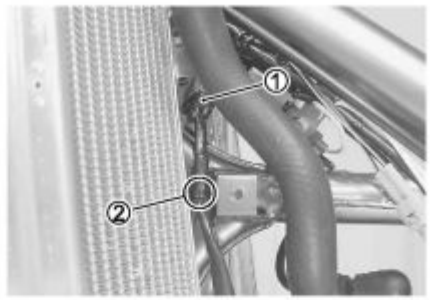


- Bend the lock washer ⑥ to secure the nut.



REMOVAL

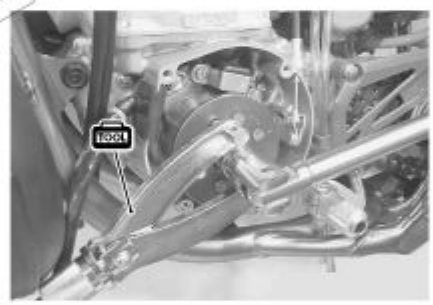
- Remove the seat. (☞3-2)
- Remove the fuel tank. (☞3-2)
- Disconnect the magneto lead wire coupler ① and clamp ②.



- Remove the magneto cover.

- Remove the magneto rotor nut with the special tool.

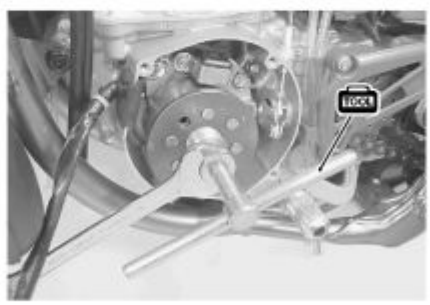
TOOL 09930-40113: Rotor holder



- Remove the magneto rotor with the special tool.

TOOL 09930-30113: Flywheel rotor remover

NOTE:
Fold the gearshift lever head for turning the special tool's handle.

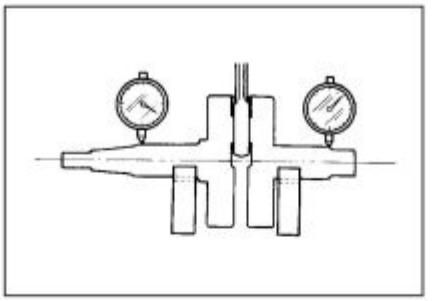


CRANKSHAFT

- Measure the crankshaft runout with the V-blocks and dial gauge.

DATA Crankshaft runout
Service limit: 0.05 mm (0.002 in)

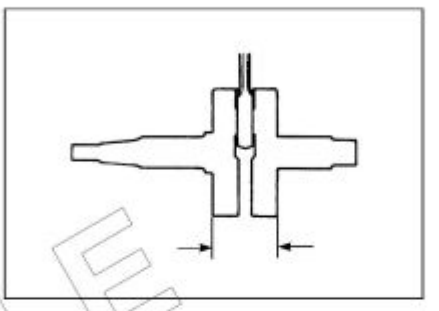
TOOL 09900-20602: Dial gauge
09900-20701: Magnetic stand
09900-21304: V-block



- Measure the crankshaft web to web width with the vernier calipers.

DATA Crankshaft web to web width
Standard: 59.9 – 60.1 mm (2.358 – 2.366 in)

TOOL 09900-20101: Vernier calipers

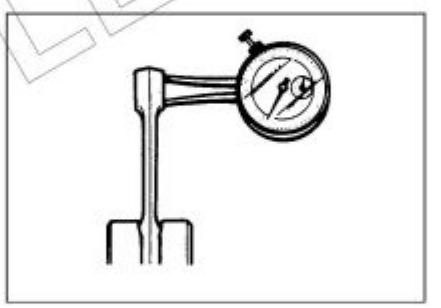


CONROD

- Measure the conrod small end inside diameter with the small bore gauge.

DATA Conrod small end I.D.
Service Limit: 23.040 mm (0.907 in)

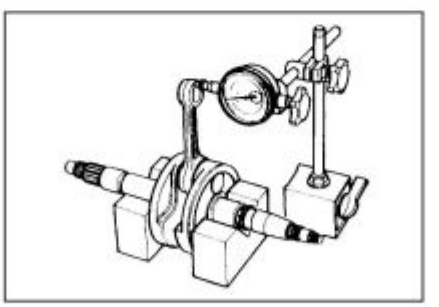
TOOL 09900-20605: Dial calipers (10 – 34 mm)
09900-22401: Small bore gauge (10 – 18 mm)



- Measure the conrod deflection with the special tools.

DATA Conrod deflection
Service Limit: 3.0 mm (0.12 in)

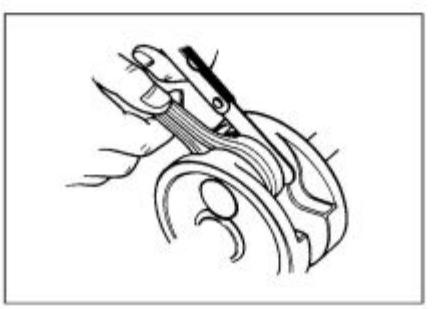
TOOL 09900-20701: Magnetic stand
09900-20606: Dial gauge (1/100 mm)
09900-21304: V-block



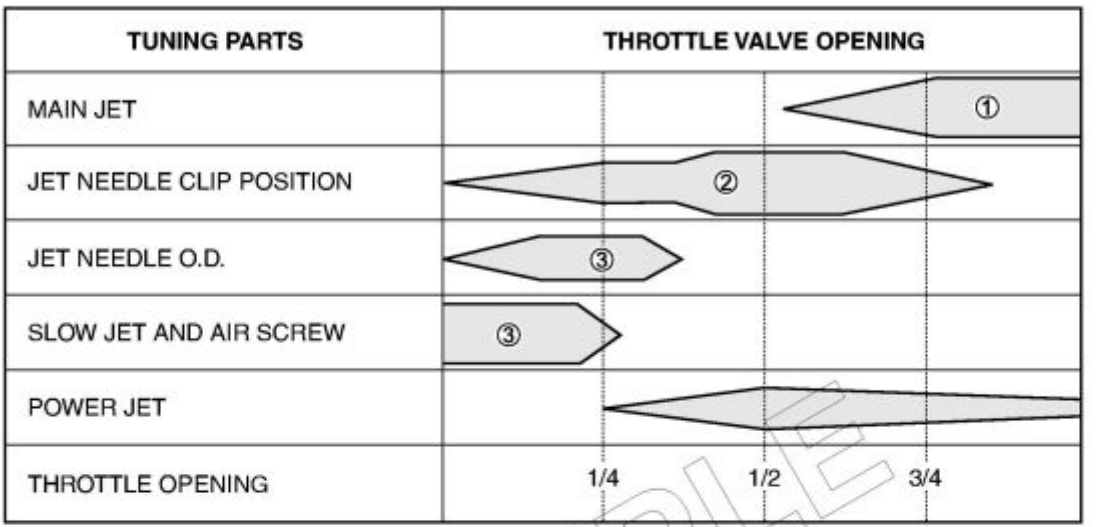
- Measure the conrod big end side clearance with the thickness gauge.

DATA Conrod big end side clearance
Service Limit: 1.0 mm (0.04 in)

TOOL 09900-20803: Thickness gauge



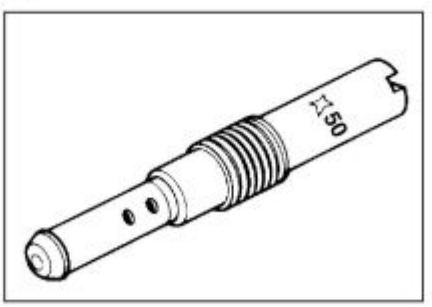
As shown below, each of the asterisk (*) marked parts is located between the air/fuel passage and has its own air/fuel mixture adjustable range in terms of the throttle valve opening. The chart indicates that the carburetor can supply correct air/fuel mixture to the engine in any range because of the overlapping adjustable range of the each part.



① MAIN SYSTEM ② INTERMEDIATE SYSTEM ③ SLOW SYSTEM

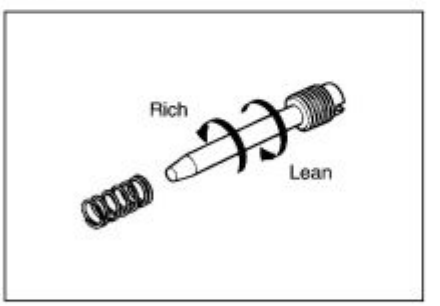
When performing carburetor tuning first find out in what throttle opening range an improper air/fuel mixture is supplied, by checking the color of exhaust smoke, spark plug, throttle response, power, etc. Second, replace or adjust the part(s) related to the throttle opening range by referring to the following instructions. The sizes referred to in the illustrations are those of standard setting.

Slow Jet



The slow jet meters the fuel supplied to the slow system. Each jet size is indicated by a number. Larger number means a larger bore diameter and fitting a larger numbered slow jet enriches the air/fuel mixture.

Air Screw



The air screw is located in the inlet air passage and meters the air for the slow system. As it has a right-hand thread, tightening it makes the passage narrower, allowing less amount of intake air to flow and resulting in richer air/fuel mixture. Air flow adjustment is effective within a range of 1/2 – 2 turns out.

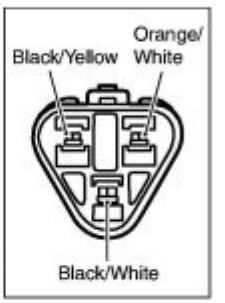
Power Jet

The power jet supplies the necessary amount of fuel to the carburetor bore for correcting fuel/air mixture ratio. When engine speed is 2 000 to 3 000 rpm and 9 300 to 10 500 rpm, the passage is closed by solenoid valve. The solenoid valve closes the passage when the current flows from CDI unit.

THROTTLE POSITION SENSOR

INSPECTION

- Disconnect the throttle position sensor coupler.



- Start the engine.
- Measure the throttle position sensor input voltage with the Multi circuit tester.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Voltage (⎓)

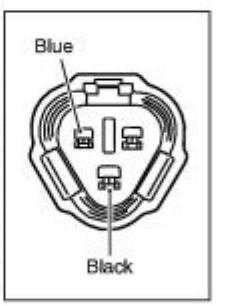
DATA Orange/White (⊕ probe) – Black/White (⊖ probe): 4 – 6 V (Over 3 000 rpm)

- If the voltage is not within the specified value, replace the CDI unit.
- Measure the throttle position sensor coil resistance with the Multi circuit tester.

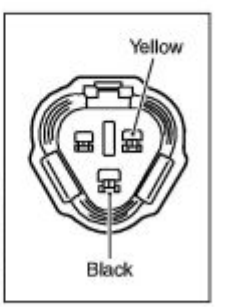
TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

DATA Blue (⊕ probe) – Black (⊖ probe): 4 – 6 kΩ

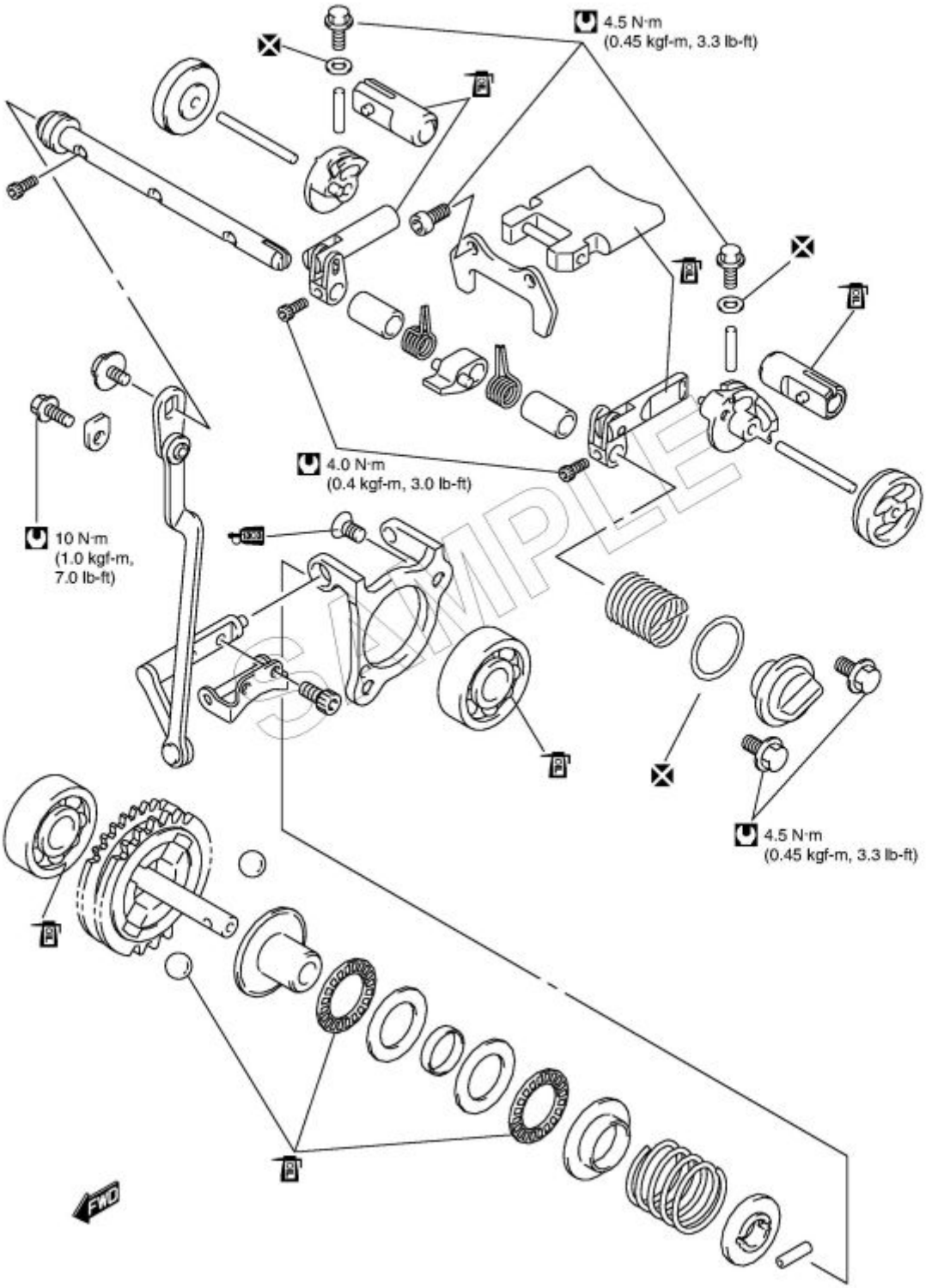


DATA Yellow (⊕ probe) – Black (⊖ probe):
When the throttle is full closed: 0.3 – 0.75 kΩ
When the throttle is full opened: 2.5 – 5 kΩ

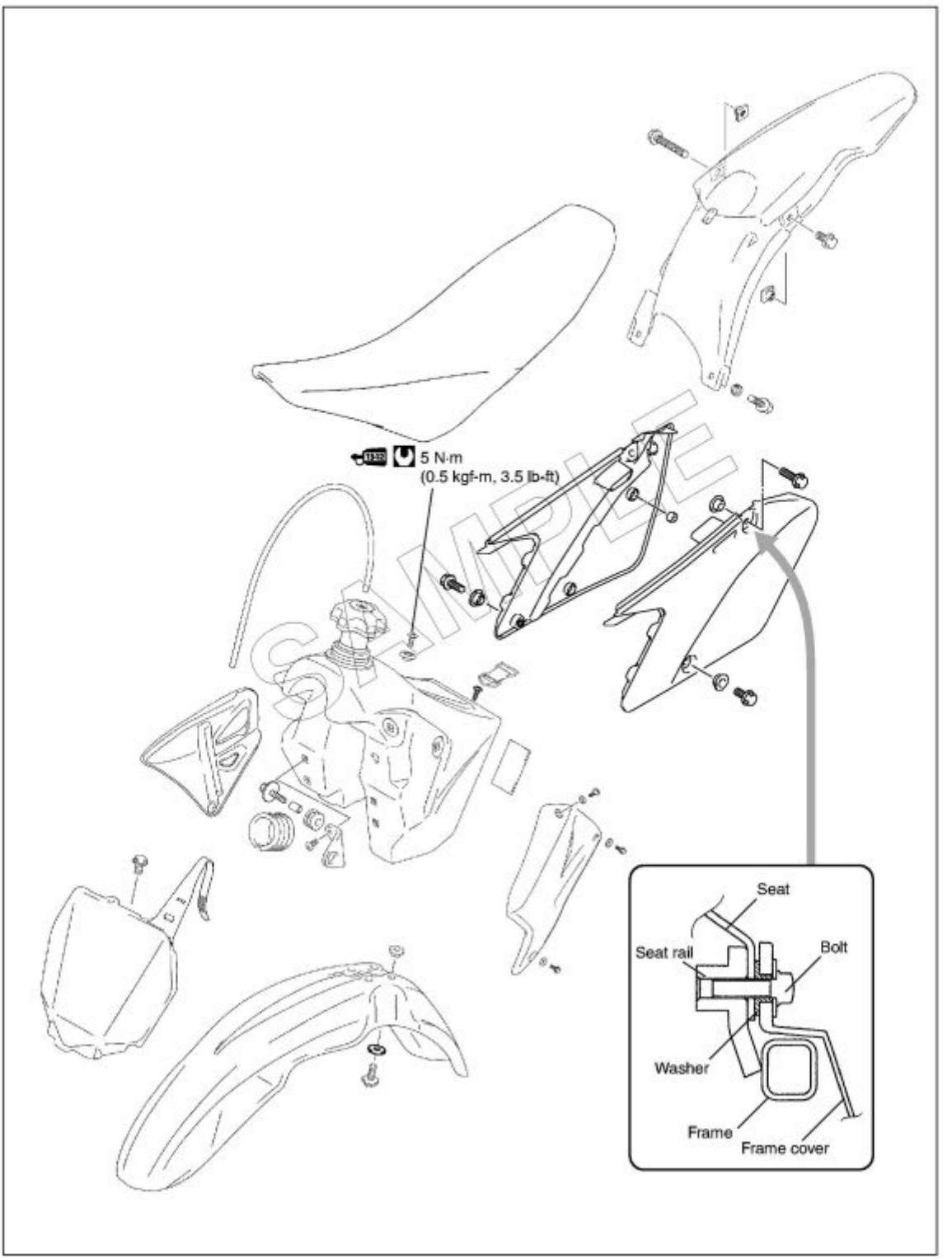


- If the resistance is correct, it is not necessary to remove the throttle position sensor.
- If the resistance is not within the specified value, replace the throttle position sensor assembly.

CONSTRUCTION



EXTERIOR PARTS



FRONT WHEEL BEARING REASSEMBLY

- Apply grease to the bearings.
- Reassemble the spacer and bearings with the special tools.

09924-84510: Bearing installer set
09913-70210: Bearing installer set

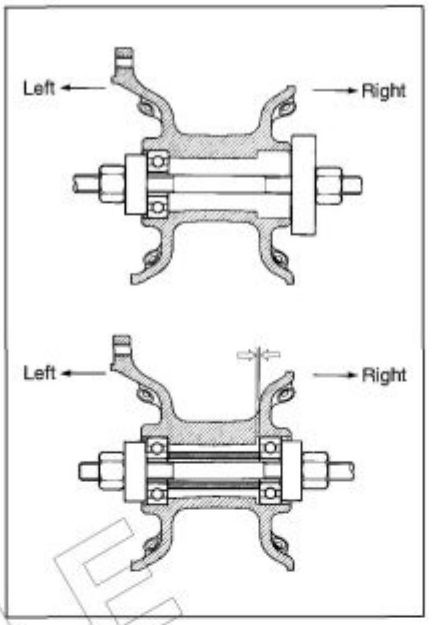
NOTE:

* *Reassemble the left side (disc side) bearing first and then reassemble the right side bearing.*
* *After reassembling the bearings, inspect the bearings for smooth movement.*

- Fit the dust seals and apply grease to its lips.

NOTE:

* *When installing the dust seal, place the manufacturer's code indicated side of the dust seal outside.*



REAR WHEEL BEARING REASSEMBLY

- Apply grease to the bearings.
- Reassemble the spacer and bearings with the special tools.

09941-34513: Steering race installer
09913-70210: Bearing installer set

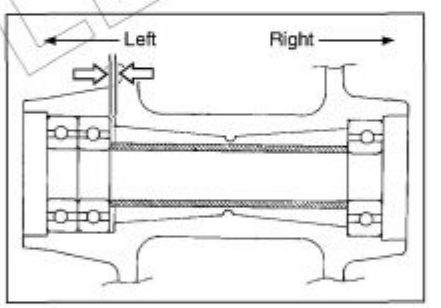
NOTE:

After reassembling the bearings, inspect the bearings for smooth movement.

- Fit the dust seals and apply grease to its lips.

NOTE:

When installing the dust seal, place the manufacturer's code indicated side of the dust seal outside. Install the dust seal until it steps.

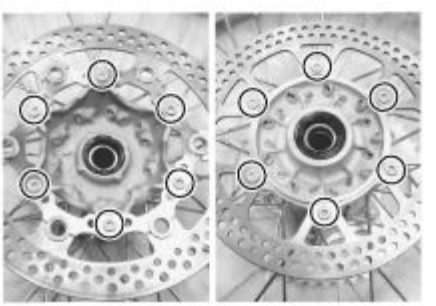


DISC PLATE REPLACEMENT

- Apply THREAD LOCK SUPER to the bolts.
- Tighten the bolts to the specified torque.

99000-32130: THREAD LOCK SUPER "1360"

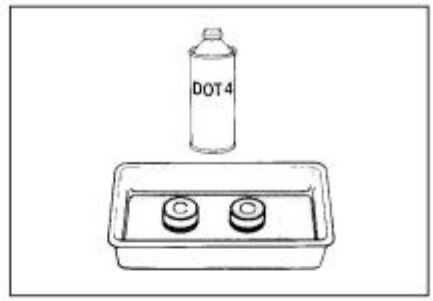
Brake disc bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)



CALIPER CLEANING

- Flush the caliper ports with pressurized air.
- Wash the caliper piston and cylinder with fresh brake fluid.

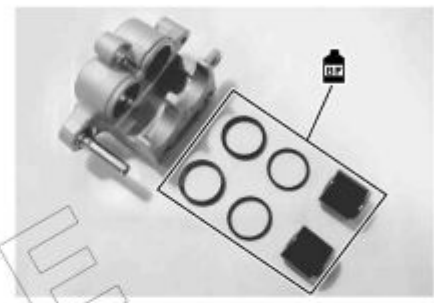
NOTE:
Do not use gasoline or other cleaning solvents to wash the caliper parts.



FRONT CALIPER REASSEMBLY

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

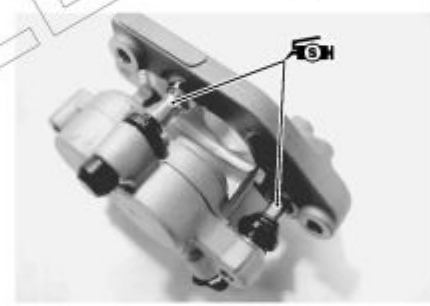
- Apply brake fluid to the piston seals, dust seals and pistons and fit the piston seals, dust seals and pistons.



- Fit the caliper brackets and pad springs.
- Apply SUZUKI SILICONE GREASE to the caliper axles.

99000-25100: SUZUKI SILICONE GREASE

- Fit the brake pads. Tighten the brake pad mounting bolt temporarily.



- Tighten the caliper mounting bolts to the specified torque.

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

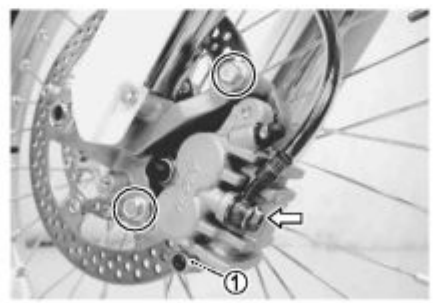
- Tighten the brake pad mounting pin ① to the specified torque.

Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

- Tighten the brake hose union bolt to the specified torque.

Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Refill brake fluid and bleed air from the brake system. (☞14-4)



OIL CHANGE (Only for outer tube oil chamber)

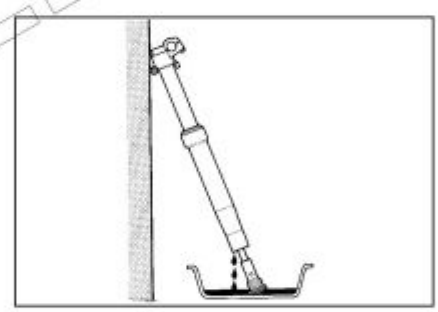
- Remove the front forks. (☞15-11)
- Thoroughly clean the fork before disassembly.

CAUTION
The fork oil quantity must be adjusted equally on both fork legs to provide equal performance.
Scratches or other damage on the inner tube or on the oil seal lip will cause oil leak.
Avoid scratching or damaging the inner tube or the oil seal. Use a mild detergent or car wash soap and sponge out dirt with plenty of water.

- Clamp the outer tube with a vise. Protect the outer tube with a rag when using a vise. (☞15-12)
- Loosen and remove the fork cap bolt (sub-tank) from the outer tube and slowly slide down the outer tube. (☞15-12)

09941-53630: Front fork top cap wrench

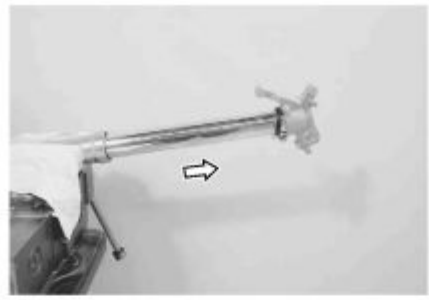
- Hold the front fork inverted position for move than 20 minutes to allow the fork oil to fully drain.



- Force out the remaining oil using compressed air completely.

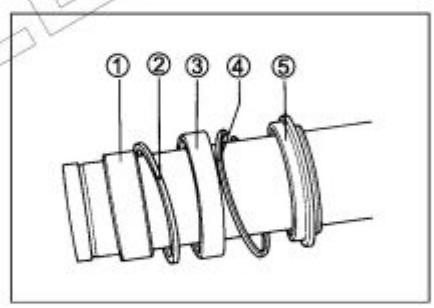
INNER TUBE

- Separate the inner tube out of the outer tube.



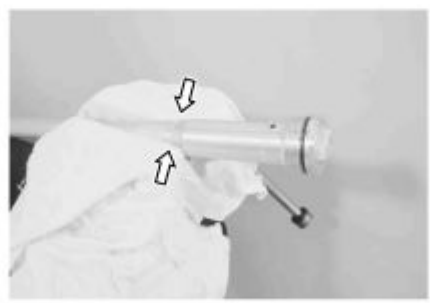
- Remove the slide bushing from the inner tube.

- Remove the following parts from the inner tube.
  Guide bushing ①
  Seal retainer ②
  Oil seal ③
  Stopper ring ④
  Dust seal ⑤



- Clamp the bottom (flat part) of the sub-tank with a vise.

CAUTION
Do not clamp the sub-tank too tight.



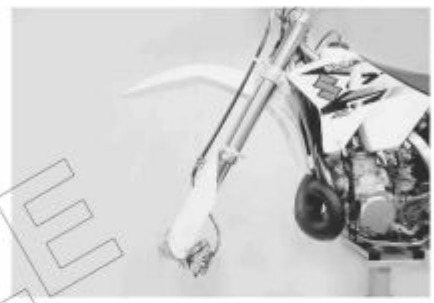
- Loosen the compression damper unit.

STEERING

REMOVAL

- Remove the front wheel. (☞13-3)
- Remove the front number plate.
- Remove the handlebar holder bolts and remove the handlebars.

- Remove the brake caliper.
- Remove the brake hose guide.
- Remove the front forks.



- Remove the front fender.

- Remove the steering stem head nut.
- Remove the upper bracket.

- Remove the rear shock absorber lower mounting bolt and nut.

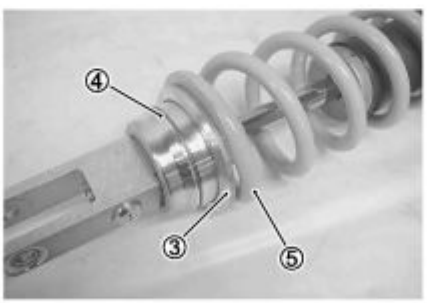
- Remove the rear shock absorber upper mounting bolt and nut.
- Remove the rear shock absorber.

SPRING REMOVAL

- Remove the rear shock absorber unit from the frame. (☞16-7)
- Loosen the locknut ① and turn the adjuster ② with the special tool.
- Turn the locknut ① and adjuster ② fully to the end of the thread.

09910-60611: Universal clamp wrench

- Depress the spring seat ③ and remove the stopper ring ④.
- Remove the spring seat ③ and the spring ⑤ from the rear shock absorber.



REAR SHOCK ABSORBER INSPECTION

- Inspect the rear suspension for oil leak.
- Inspect the damper rod for bends and smooth movement.
- Inspect the bump rubber for deterioration and damage.
- Inspect the damper rod hidden by moving the bump rubber.

- Remove the chain buffer.

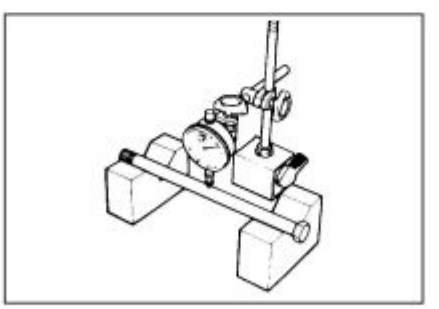
- Remove the spacers.
  Dust seal
  Washer
  Thrust bearing

INSPECTION

- Inspect the chain buffer for damage and excessive wear.

- Measure the pivot shaft runout with a dial gauge and V-blocks.

DATA **Swingarm pivot shaft rounout**
Service limit: 0.3 mm (0.01 in)



- Inspect the swingarm for cracks and damage.

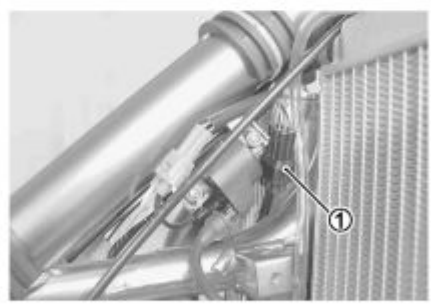
Unit: Approx. V

Positive ⊕ probe pin (Diode terminal)													
Negative ⊖ probe pin (COM terminal)	DI / COM	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫
	①		❍ (1.130 – 1.523)	❍ (0.936 – 1.523)	—	❍ (0.294 – 0.894)	❍ (0.627 – 1.227)	❍ (0.618 – 1.218)	❍ (1.174 – 1.523)	❍ (0.624 – 1.224)	❍ (0.411 – 1.011)	❍ (0.0 – 0.3)	❍ (0.179 – 0.779)
	②	—		—	—	—	—	—	—	—	—	—	—
	③	❍ (0.845 – 1.445)	❍ (0.965 – 1.523)		—	❍ (0.935 – 1.523)	❍ (1.046 – 1.523)	❍ (1.089 – 1.523)	❍ (1.181 – 1.523)	❍ (1.043 – 1.523)	❍ (0.963 – 1.523)	❍ (0.846 – 1.446)	❍ (0.917 – 1.517)
	④	❍ (0.382 – 0.982)	❍ (1.191 – 1.523)	❍ (1.041 – 1.523)		❍ (0.644 – 1.244	❍ (0.931 – 1.523)	❍ (1.065 – 1.523)	❍ (1.190 – 1.523)	❍ (0.942 – 1.523)	❍ (0.757 – 1.357)	❍ (0.382 – 0.982)	❍ (0.576 – 1.176)
	⑤	❍ (0.173 – 0.773)	❍ (1.137 – 1.523)	❍ (0.967 – 1.523)	—		❍ (0.578 – 1.178)	❍ (0.832 – 1.432)	❍ (1.174 – 1.523)	❍ (0.778 – 1.378)	❍ (0.616 – 1.216)	❍ (0.173 – 0.773)	❍ (0.072 – 0.672)
	⑥	❍ (0.443 – 1.043)	❍ (1.181 – 1.523)	❍ (1.032 – 1.523)	—	❍ (0.691 – 1.291)		❍ (1.036 – 1.523)	❍ (1.186 – 1.523)	❍ (0.929 – 1.523)	❍ (0.760 – 1.360)	❍ (0.443 – 1.043)	❍ (0.638 – 1.238)
	⑦	—	—	—	—	—	—		—	—	—	—	—
	⑧	❍ (0.140 – 0.740)	❍ (1.174 – 1.523)	❍ (1.009 – 1.523)	—	❍ (0.503 – 1.103)	❍ (0.825 – 1.425)	❍ (0.952 – 1.523)		❍ (0.757 – 1.357)	❍ (0.645 – 1.245)	❍ (0.140 – 0.740)	❍ (0.394 – 0.994)
	⑨	❍ (0.181 – 0.781)	❍ (1.179 – 1.523)	❍ (1.016 – 1.523)	—	❍ (0.578 – 1.178)	❍ (0.873 – 1.473)	❍ (0.98 – 1.523)	❍ (1.185 – 1.523)		❍ (0.667 – 1.267)	❍ (0.181 – 0.781)	❍ (0.501 – 1.101)
	⑩	❍ (0.448 – 1.048)	❍ (1.140 – 1.523)	❍ (0.98 – 1.523)	—	❍ (0.632 – 1.232)	❍ (0.831 – 1.431)	❍ (0.893 – 1.493)	❍ (1.174 – 1.523)	❍ (0.832 – 1.432)		❍ (0.447 – 1.047)	❍ (0.586 – 1.186)
	⑪	❍ (0.0 – 0.3)	❍ (1.129 – 1.523)	❍ (0.935 – 1.523)	—	❍ (0.293 – 0.893)	❍ (0.624 – 1.224)	❍ (0.619 – 1.219)	❍ (1.172 – 1.523)	❍ (0.622 – 1.222)	❍ (0.409 – 1.009)		❍ (0.177 – 0.777)
	⑫	❍ (0.122 – 0.722)	❍ (1.134 – 1.523)	❍ (0.958 – 1.523)	—	❍ (0.069 – 0.669)	❍ (0.152 – 1.052)	❍ (0.79 – 1.390)	❍ (1.172 – 1.523)	❍ (0.743 – 1.343)	❍ (0.574 – 1.174)	❍ (0.122 – 0.722)	

NOTE:
— is open circuit voltage (1.523 V).

STATOR COIL

- Remove the seat and fuel tank. (☞3-2)
- Disconnect the magnet lead wire coupler ①.

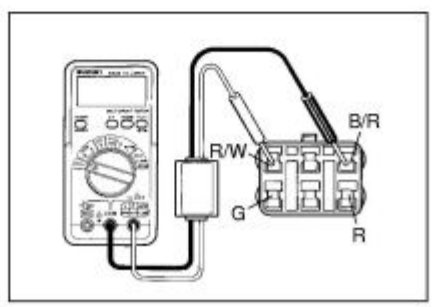


Measure the stator coils electrical resistance with the multi circuit tester.

Red/White – Black/Red	**28 – 46 Ω**
Red – Green	**78 – 122 Ω**

Tester knob indication: Resistance (Ω)

09900-25008: Multi circuit tester



TIRE

ITEM	STD/SPEC.		LIMIT
Tire air pressure	Front	70 – 110 kPa (0.7 – 1.1 kgf/cm², 10 – 16 psi)	—
	Rear	70 – 110 kPa (0.7 – 1.1 kgf/cm², 10 – 16 psi)	—
Tire size	Front	80/100-21 51M	—
	Rear	110/90-19 62M	—
Tire tread depth	—		4.0 mm (0.16 in)
(Recomend depth)	—		4.0 mm (0.16 in)

SUSPENSION

ITEM	STD/SPEC.		LIMIT
Front fork stroke	310 mm (12.2 in)		—
Front fork spring free length	494 mm (19.45 in)		487 mm (19.17 in)
Front fork spring rate	4.4 N/mm (0.44 kgf/mm)		—
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		—
Front fork oil capacity (each leg)	OUTER: 362 ml (12.24/12.75 US/Imp oz)		—
	INNER: 180 ml (6.08/6.34 US/Imp oz)		
Front fork damping force adjuster	Compression	6 clicks turns back	—
	Rebound	13 clicks tuns back	—
Front fork air pressure	0 kPa (0 kgf/cm², 0 psi)		—
Rear shock absorber gas pressure	981 kPa (9.8 kgf/cm², 139.5 psi)		—
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent rear suspension oil		—
Rear shock absorber oil capacity	380 ml (12.84/13.38 US/Imp oz)		—
Rear shock absorber spring set length	258 mm (10.16 in)		—
Rear shock absorber spring rate	52 N/mm (5.2 kgf/mm)		—
Rear shock absorber damping force adjuster	Rebound	11 clicks turns back	—
	Compression (High speed)	1 and 7/8 turns back	—
	Compression (Low speed)	7 clicks turns back	—
Rear wheel travel	310 mm (12.2 in)		—
Swingarm pivot shaft runout	—		0.3 mm (0.01 in)