SUZUKI

OWNER'S MAINTENANCE MANUAL

RM250

FOREWORD

Welcome to the world of Suzuki motorcycles.

The confidence you have shown by the purchase of our products is very much appreciated. Each Suzuki motorcycle backs this confidence by a long record of manufacturing and engineering excellence. The same excellence that has produced a long history of world-championship racing successes at the famous Isle of Man as well as the motocross tracks of Europe.

Suzuki now presents the new RM250, a competition proved racing machine, capable of competing on any race course in the world.

This handbook is presented as a means whereby you can maintain your RM250 in top working condition at all times. Your riding skill and the maintenance steps outlined in this manual will assure you of top performance from your machine under any type of competition conditions.

We sincerely wish you and your Suzuki motorcycle a successful partnership for many years of happy riding.

SUZUKI MOTOR CO., LTD.

* *All information, illustrations, photographs and specifications contained in this manual are based on the latest product information available at the time of publication.*
The right is reserved to make changes at any time without notice.

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GENERAL INSTRUCTION

FUEL

The RM250 is of the two-stroke design, which requires a premixture of gasoline and oil.

ENGINE OIL

For the oil to be mixed with gasoline, any of the following brands or its equivalent will do:

* SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT
* SHELL SUPER M
* CASTROL R30
* GOLDEN SPECTRO SYNTHETIC BLEND
* B.P. RACING
* BEL-RAY MC-1 TWO-CYCLE RACING LUBRICANT

CAUTION:
Do not allow two different brands to get mixed in the fuel-oil mixture.

MIXING RATIO

20 parts gasoline to 1 part oil is the correct gasoline to oil mixture ratio for your engine. For proper engine performance, it is essential that the above gas/oil mixture should be maintained.

FUEL OIL MIXTURE RATIO OF 20 : 1

GASOLINE (qt)	OIL (oz)	GASOLINE (qt)	OIL (oz)	GASOLINE ℓ	OIL (mℓ)	GASOLINE ℓ	OIL (mℓ)
0.5	0.8	5.5	8.8	0.5	25	5.5	275
1.0	1.6	6.0	9.6	1.0	50	6.0	300
1.5	2.4	6.5	10.4	1.5	75	6.5	325
2.0	3.2	7.0	11.2	2.0	100	7.0	350
2.5	4.0	7.5	12.0	2.5	125	7.5	375
3.0	4.8	8.0	12.8	3.0	150	8.0	400
3.5	5.6	8.5	13.6	3.5	175	8.5	425
4.0	6.4	9.0	14.4	4.0	200	9.0	450
4.5	7.2	9.5	15.2	4.5	225	9.5	475
5.0	8.0	10.0	16.0	5.0	250	10.0	500

CAUTION:
A mixture containing too little oil with cause overheating of the engine. Too much oil will cause excessive carbon formation resulting in preignition, fouled spark plug and loss of engine power.

MIXING PROCEDURE

To mix gasoline and oil, always use a separate, clean container. Pour the full amount of oil required for the total mixture into the container, add approximately half the amount of gasoline to be mixed and shake thoroughly. Add the remainder of the gasoline and again thoroughly agitate the container.

TRANSMISSION OIL

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

FRONT FORK OIL

For the oil in the two legs, use a motor oil of SAE 20W/20.

USE OF GENUINE SUZUKI PARTS

To replace any part of the machine, use a genuine Suzuki replacement part. Immitation parts or parts supplied from any other source than Suzuki, if used to replace parts of Suzuki origin in the machine, will lower the inherent capability of the machine and, for worse, could induce costly mechanical trouble.

OPERATING INSTRUCTION

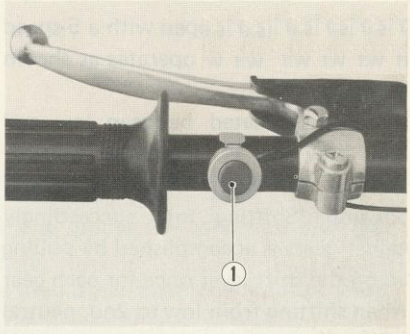
Take the time to familarize yourself with the operating principles of the following motorcycle components.

BREAKING-IN

The RM250 is manufactured using the latest technology relating to the two-stroke engine and thus requires a relatively short break-in. No programed breaking-in operation is necessary: the only thing is that the machine should not be continuously operated in full-load condition for the first one hour or 30 km (20 miles). This practice will help all moving parts to break in and will assist in acquainting you with machine. Once the machine is fully broken in, you can be assured of high performance in competition.

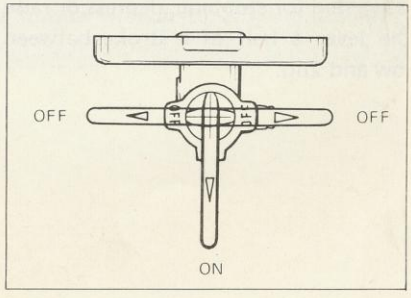
ENGINE STOP SWITCH

No ignition switch is provided. To start the engine, just depress the kick starter lever. To stop the engine, push the engine stop switch ① as shown in photo.



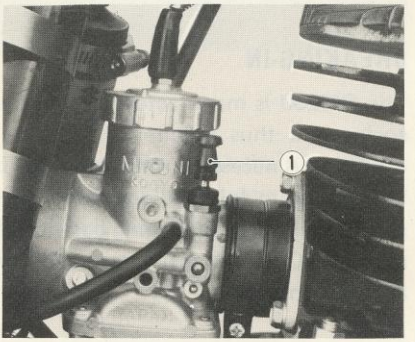
FUEL COCK LEVER

The fuel cock lever has two positions, ON and OFF.



CARBURETOR CHOKE KNOB

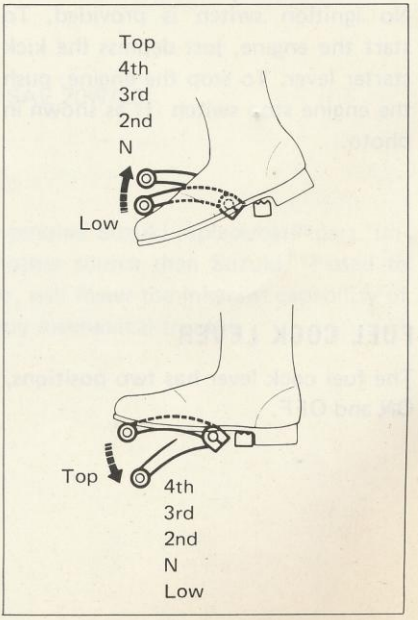
When the engine is cold:
Pull up the choke knob ①. Depress the kick starter lever without opening the throttle.
Even opening the throttle slightly may make the engine hard to start. Always return the choke knob to the original position when the engine warms up.



When the engine is warm:
Using the choke knob is not necessary. To start a warm engine, open the throttle 1/8 to 1/4 and kick-start the engine.

GEARSHIFT LEVER

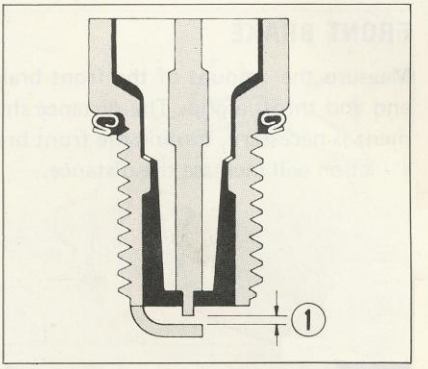
The RM250 is equipped with a 5-speed transmission which operates as shown in figure.
Neutral is located between low and 2nd. Low gear is located by fully depressing the lever from the neutral position. Shifting into succeedingly higher gears is accomplished by pulling up on the shift lever once for each gear. When shifting from low to 2nd, neutral is automatically missed. When neutral is wanted for stopping, depress or raise the lever a half of a stroke between low and 2nd.



SPARK PLUG

When carbon accumulates on the spark plug, a hot, strong spark will not be produced. Remove carbon deposits with a wire or pin and adjust the spark plug gap ① to **0.5 ~ 0.6 mm (0.020 ~ 0.024 in)** by measuring with a feeler gauge.

Generally, when the spark plug heat range is correct, the plug electrode shows a light brown or tan color. Spark plug of a different heat may be choosen according the following table.



HOT TYPE	STANDARD TYPE	COLD TYPE
NGK B-8EV	**NGK B-9EV**	NGK B-10EV

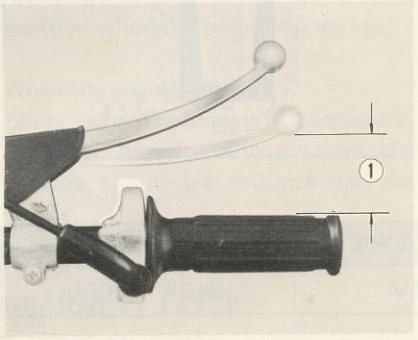
CAUTION:

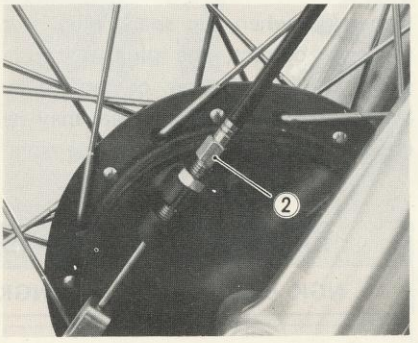
1. **The heat range selection may be made only under the condition that the carburetion is set properly.**
2. **If another brand of spark plug is to be used other than NGK consult your authorized SUZUKI dealer.**
3. **When installing the spark plug, screw in with your fingers to prevent stripping the threads, then tighten with a torque wrench to 2.5 ~ 3.0 kg-m (18.0 ~ 22.0 lb-ft).**

INSPECTION AND MAINTENANCE

FRONT BRAKE

Measure the amount of the front brake lever distance ① between the brake lever end and throttle grip. The distance should be **20 ~ 30 mm (0.8 ~ 1.2 in)**. If adjustment is necessary, turning the front brake adjusting nut ② in the counterclockwise direction will increase the distance.

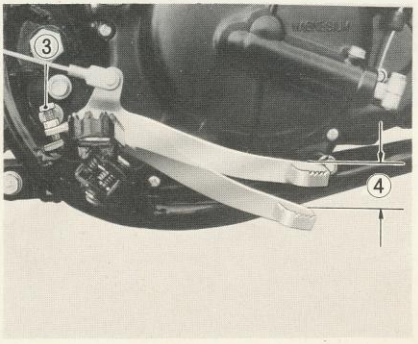


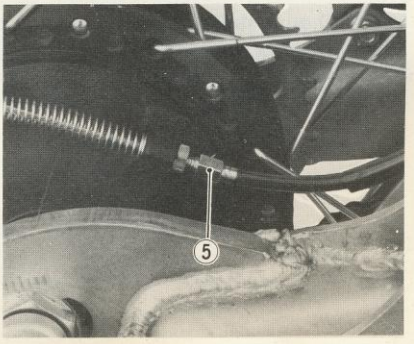


REAR BRAKE

Before adjusting the brake pedal travel, adjust the brake pedal position with the brake pedal adjuster ③ until the most suitable position is obtained for quick operation.

After adjustment of the brake pedal position completed, adjust the brake pedal travel ④ with the brake cable adjuster ⑤ to **20 ~ 30 mm (0.8 ~ 1.2 in)**.





BRAKE LINING WEAR LIMIT INDICATOR

See Fig. A. You can easily check to see if brake linings are worn down to the limit or not on both front and rear brakes. Here's the procedure:

1) Be sure that brake control is properly adjusted.
2) See if the extension of index mark is within the range and, if so, the linings are not worn down to the limit.

If the extension is at the end of, or beyond, the range, have brake shoes replaced by your SUZUKI dealer. Fig. B shows the limit indicator in this condition.

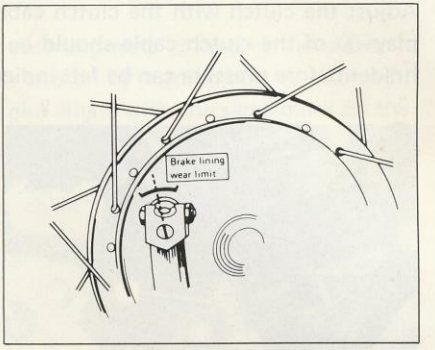


Fig. A *The extension line of the index mark is within the range.*

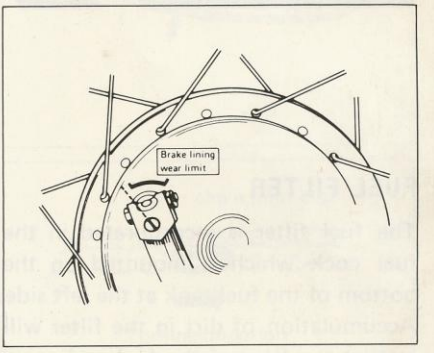


Fig. B *The extension line of the index mark is out of the range.*

TIRE PRESSURE

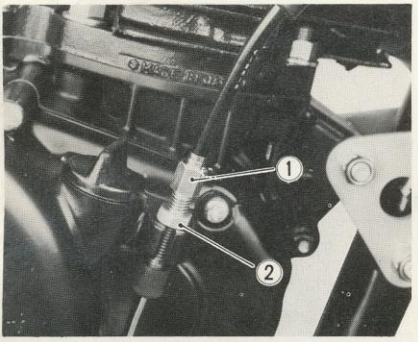
Inflate the tires properly, depending on the weight of the rider. Too high an inflating pressure makes the machine bounce up and down; too low a pressure makes steering hard. In either case, tire life will be shortened.

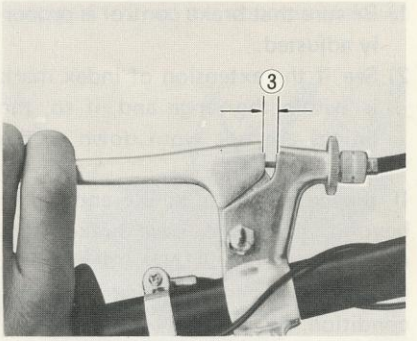
Your RM250 is standardly fitted with 3.00-21-4PR tire for front and 4.50-18-4PR tire for rear. Use genuine SUZUKI replacement tires for better roadability. Use of non-standard tires could lead to trouble.

Cold inflation tire pressure	
Front:	0.7 kg/cm^2 (10 psi)
Rear:	0.7 kg/cm^2 (10 psi)

CLUTCH

Adjust the clutch with the clutch cable adjuster ① by loosening lock nut ②. The play ③ of the clutch cable should be **4 mm (0.16 in)** measured at the clutch lever holder before pressure can be felt indicating disengagement of the clutch.

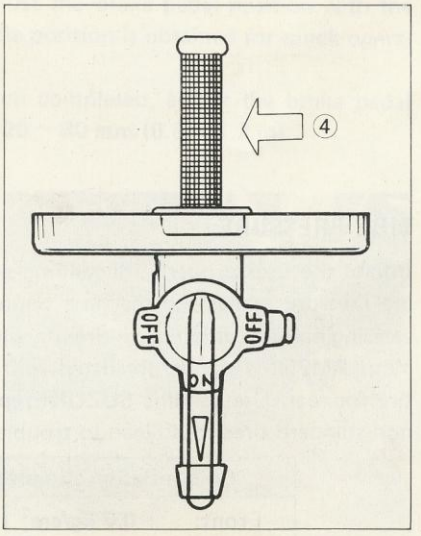




FUEL FILTER

The fuel filter is incorporated in the fuel cock which is mounted on the bottom of the fuel tank at the left side. Accumulation of dirt in the filter will restrict the flow of the fuel and cause the carburetor to malfunction, therefore, the fuel filter should be serviced periodically.

1. Drain the fuel from the fuel tank.
2. Remove the fuel cock by unscrewing the fitting screws.
3. Wash the screen filter ④ in cleaning solvent.

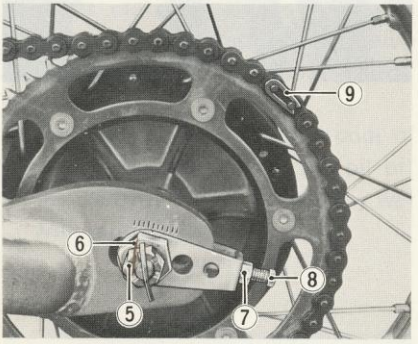


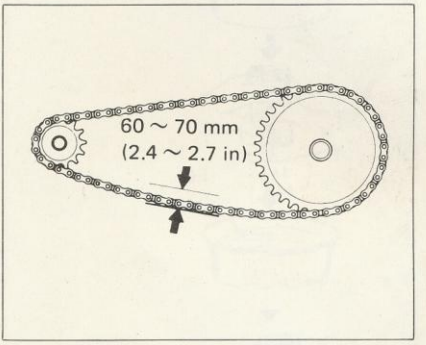
DRIVE CHAIN

Adjusting the drive chain:

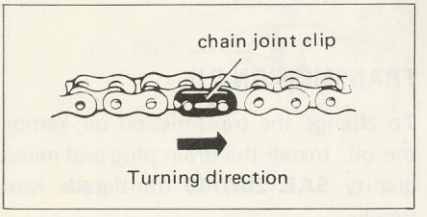
Adjust the drive chain at the rear axle by loosening nuts ⑤ and ⑥ (as shown). Then loosen lock nut ⑦ and adjust the chain tension by turning bolt ⑧ in or out. Be sure the marks stamped on the adjuster yoke aligns with the same mark on the swing arm on both sides of the motorcycle.

Proper chain tension is obtained when there is **60 ~ 70 mm (2.4 ~ 2.7 in)** up and down slack in the chain with taking off the chain tensioner, at a point midway between the sprockets.



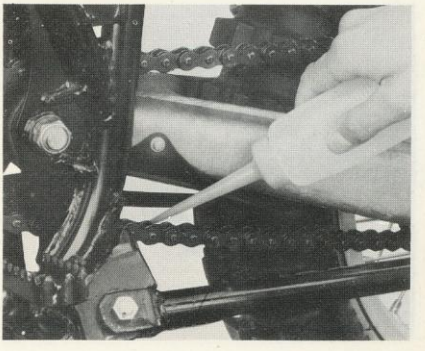


CAUTION:
When refitting the drive chain, be sure the drive chain joint clip ⑨ is attached in the way that the slit end will face opposite to the turning direction.



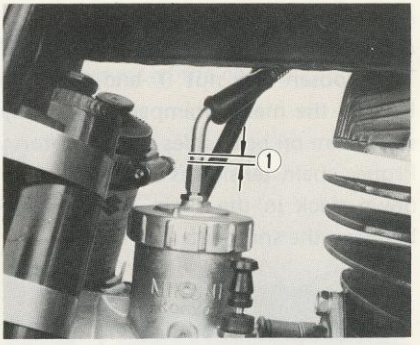
Lubricating the drive chain:

The drive chain must be kept well lubricated; otherwise it may break due to increased running resistance. Before lubricating the drive chain, wash it with detergent or gasoline, and apply chain oil (molybdenum disulfide) to it. If proper chain oil is not available, dip it in gear oil for about three hours and allow to drain before installation.



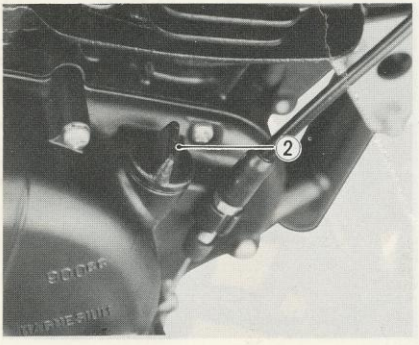
CARBURETOR

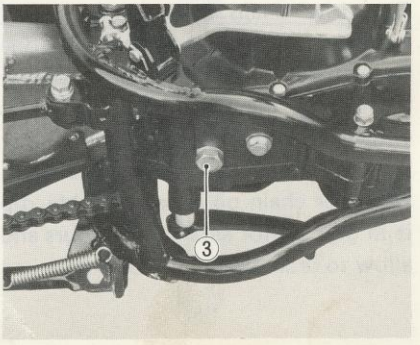
For correct safe throttle operation the throttle cable should be adjusted to have **0.5 mm (0.02 in)** play ① at the carburetor. This adjustment can be made at the cable adjuster on the carburetor cap.



TRANSMISSION OIL

To change the transmission oil, remove the filler ② and drain ③ plugs and drain the oil. Install the drain plug and measure **900 m ℓ (1.90/1.59 US/Imp pt)** of a good quality **SAE 20W/40** multigrade motor oil, then pour it into the transmission slowly.





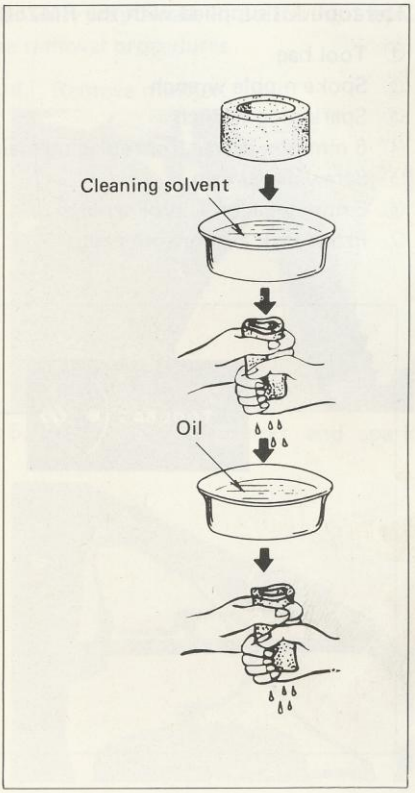
AIR CLEANER

How to clean the element.

1. Fill a washing pan of a proper size with non flammable cleaning solvent. Immerse the element in the solvent and wash it clean.

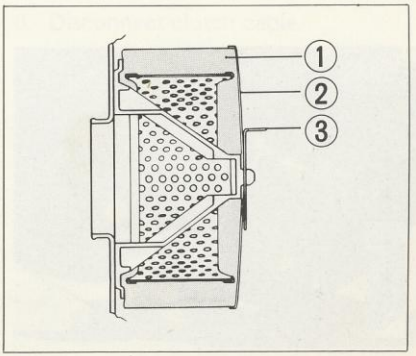
2. Squeeze solvent off the washed element by pressing it between the palms of hands: do not twist and wring the element, or it will develop fissures.

3. Immerse the element in a pool of motor oil, and squeeze the oil off the element to make it slightly wet with motor oil.



CAUTION:
Before and during the cleaning operation, examine the element to see if it has a rupture of fissure. A ruptured or fissured element must be replaced.

How to install the washed element.
Refer to the figure shown right.
After putting on the cover, secure it by inserting clip.

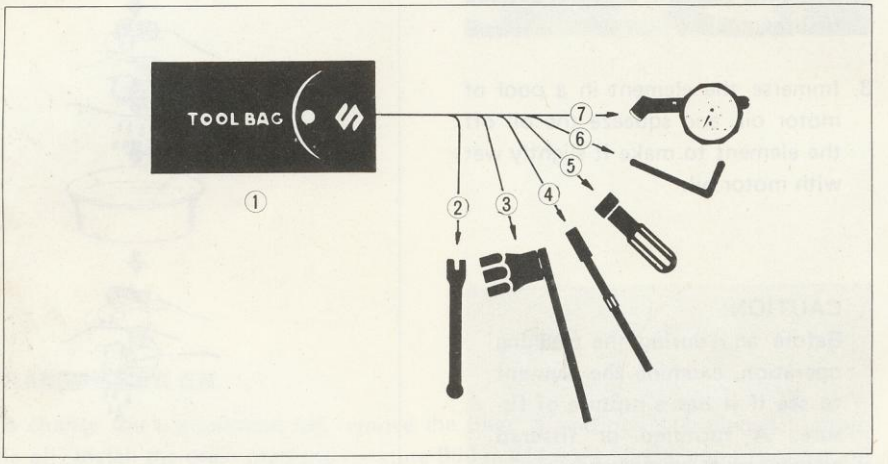


1. Cleaner element
2. Cleaner cover
3. Clip

TOOL KIT

The tool kit supplied with the RM250 contains the following tools.

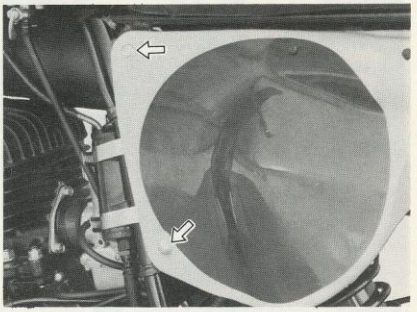
① Tool bag
② Spoke nipple wrench
③ Spark plug wrench
④ 6 mm box driver (for replacing main jet)
⑤ Screw driver grip
⑥ 5 mm hexagon L type wrench
⑦ Front fork air pressure gauge



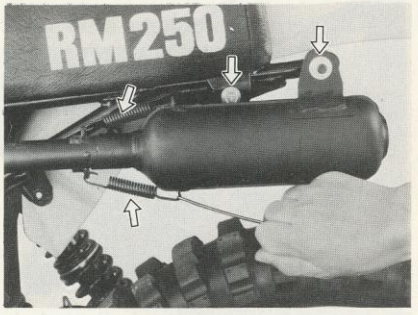
ENGINE REMOVAL

The procedure of engine removal is sequentially explained in following steps. Engine installation is effected by reversing the removal procedures.

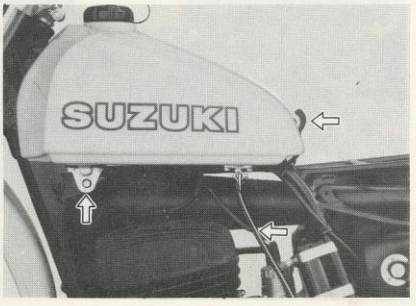
1. Take down left frame cover.



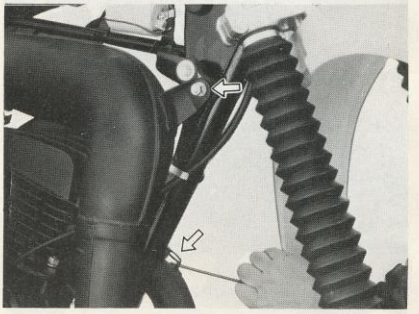
2. Remove second muffler and take off seat.



3. Disconnect fuel pipe, and take down fuel tank by unhooking rubber band and loosening the bolt.

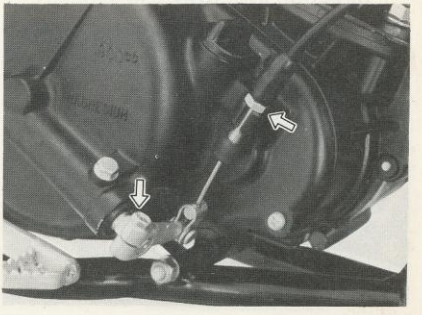


4. Remove muffler.

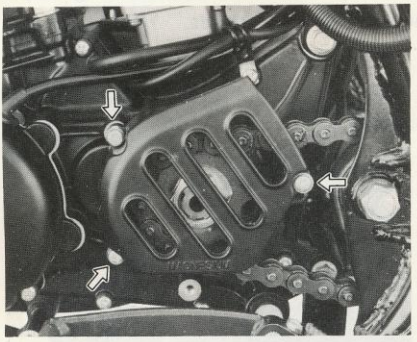


5. Disconnect lead wires and spark plug cord.

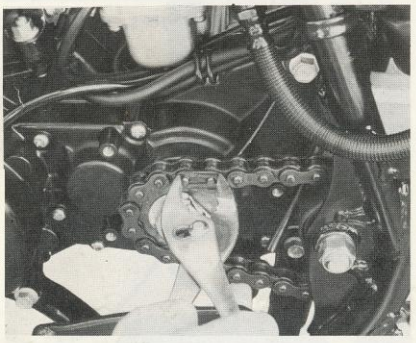
6. Disconnect clutch cable.



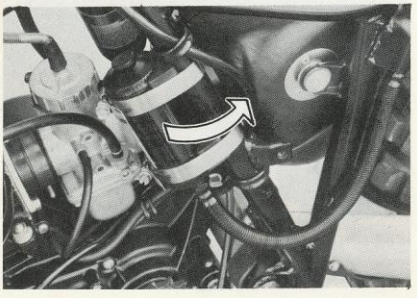
7. Remove engine sprocket cover.



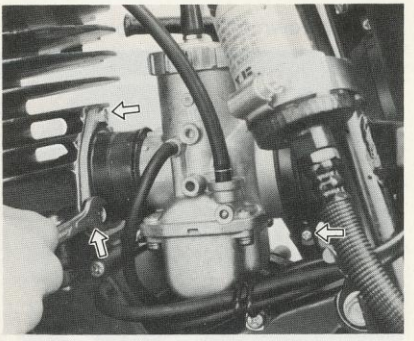
8. Remove drive chain.



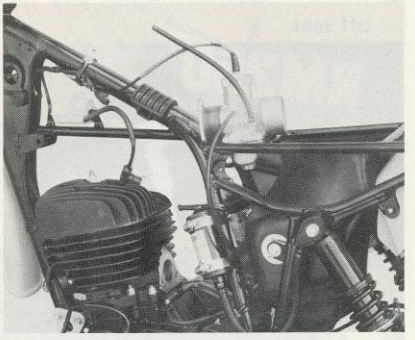
9. Loosen securing screws of gas tank for left side rear shock absorber unit and turn the gas tank to the direction as shown.



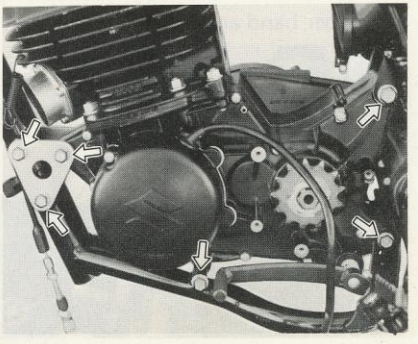
10. Loosen intake pipe securing bolts and inlet hose clamp screw.



11. Take off carburetor.



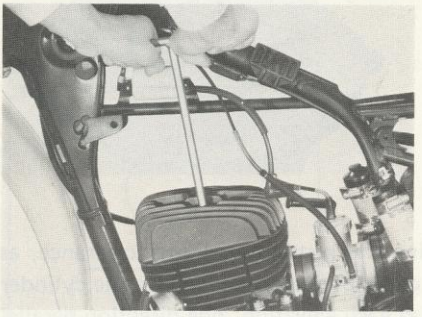
12. Remove the bolts indicated by arrows, and take down the engine.



CYLINDER HEAD, CYLINDER AND PISTON

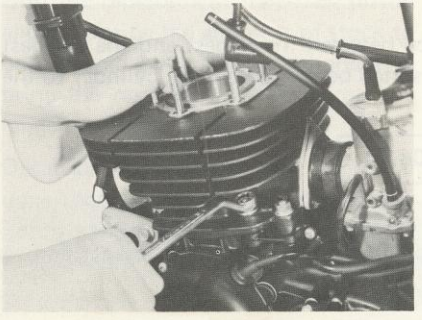
DISASSEMBLY

1. Remove muffler (see page 15).
2. Remove spark plug and cylinder head.



3. Remove inlet hose securing bolts.

4. Remove cylinder.



5. Remove piston pin circlip. Use piece of cloth as shown, in order to avoid dropping the circlip into the crankcase.

6. Draw out piston pin and take off piston.

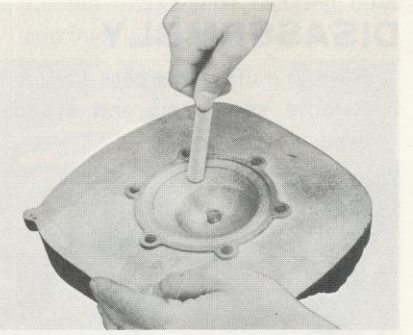
7. Remove piston rings.

INSPECTION AND SERVICING

CYLINDER HEAD

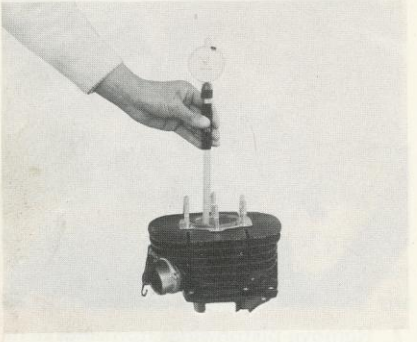
Observe the combustion chamber surface, on which more or less carbon will be found, and evaluate the amount and the shade of color of the carbon as a basis for diagnosing the fuel combustion.

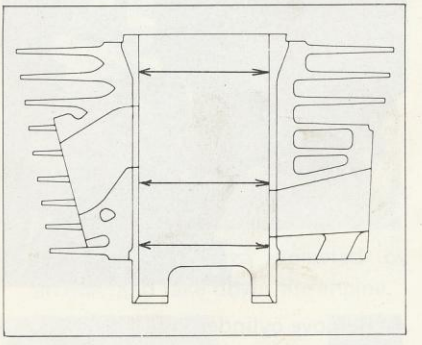
Remove the carbon and clean the cylinder head.



CYLINDER

Check the cylinder for wear, and determine the piston-to-cylinder clearance, as follows: Using a cylinder gauge, take a total of six diameter readings on the cylinder, at three elevations, shown, in two directions at each elevation: one direction parallel and the other direction transverse to the axis of piston pin.



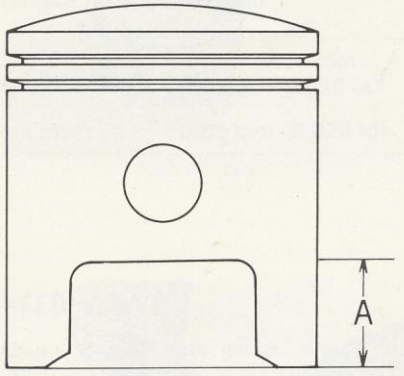


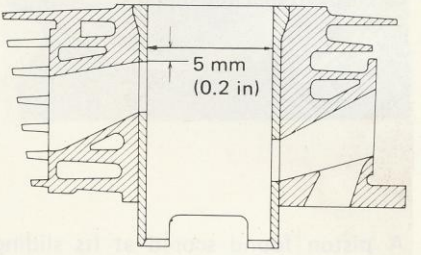
Of the six readings, compute the difference between the largest and the smallest reading. If this difference exceeds the limit, stated below, rebore the cylinder to the next oversize or replace it by new one:

Uneven wear limit:	**0.1 mm (0.004 in)**

CAUTION:
After reboring, be sure to lightly chamfer the port edges with a scraper and smoothen the chamfers with sandpaper.

Piston-to-cylinder clearance is the difference between two diameter readings, one taken on the piston at the height "A" in the direction transverse to the axis of piston pin hole and the other taken on cylinder bore at about **5 mm (0.2 in)** above the exhaust port in the fore-aft direction.





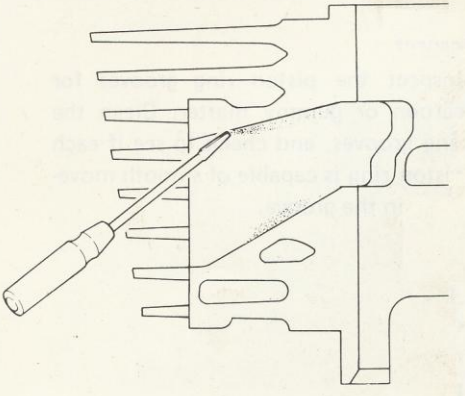
Height "A":	22 mm (0.87 in)

The clearance is prescribed to be within the following range:

Piston-to-cylinder clearance:	0.060 ~ 0.070 mm (0.0024 ~ 0.0028 in)

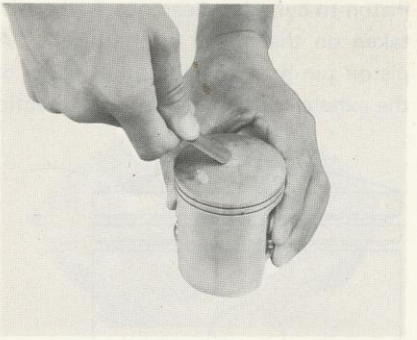
To rebore the cylinder to the next oversize, check the available clearance with the replacement (oversize) piston and determine the amounts of stock to be removed by boring and honing to bring the resultant clearance into the range specified above.

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

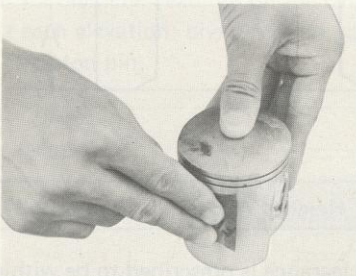


PISTON

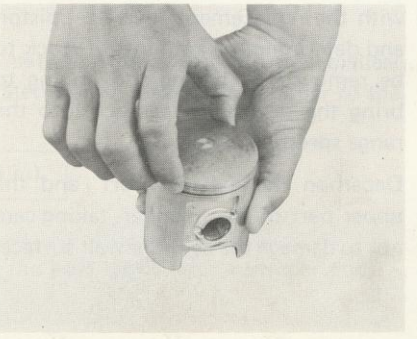
Observe the carboned condition of the piston crown. This observation, together with the observed condition of the cylinder head, is an important guide for adjusting the carburetor. Decarbon the piston crown, taking care not to mar the metal.



A piston found scored at its sliding surface could lower engine performance or roughen the cylinder wall. Such scores, if any, must be eliminated by grinding; for this purpose of smoothening a scored surface, #400 sandpaper may be used.



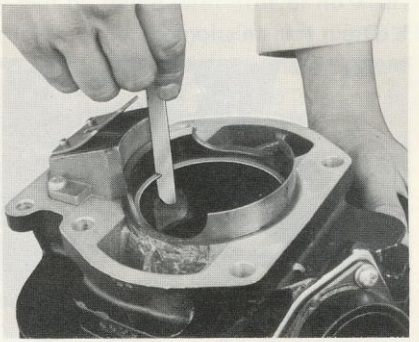
Inspect the piston ring grooves for carbon or gummy matter. Clean the ring grooves, and check to see if each piston ring is capable of smooth movement in the groove.



PISTON RINGS

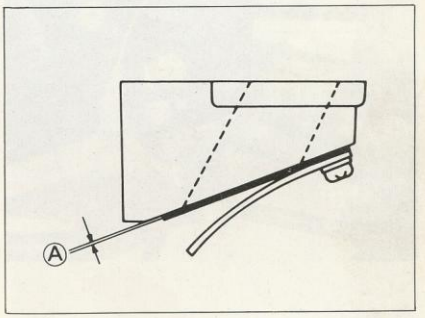
To check the piston rings for wear, fit each ring around the skirt part of the cylinder and measure the end gap in this condition of the rings, as shown. If the reading taken exceeds the limit, replace it by a new one.

Standard:	**0.20 ~ 0.40 mm (0.008 ~ 0.016 in)**
Limit:	**0.85 mm (0.033 in)**



REED VALVE

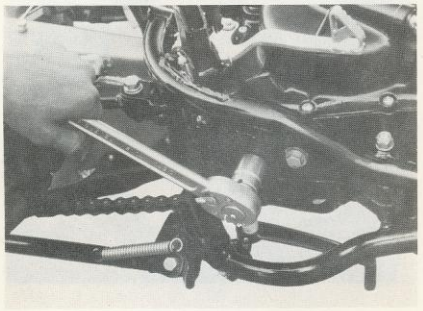
Using a thickness gauge, check the clearance between the reed valve and its seat: the clearance is indicated as Ⓐ . If the clearance read is in excess of **0.2 mm (0.008 in)**, replace the reed valve assembly.



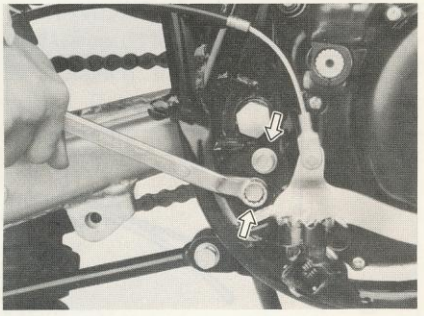
CLUTCH

DISASSEMBLY

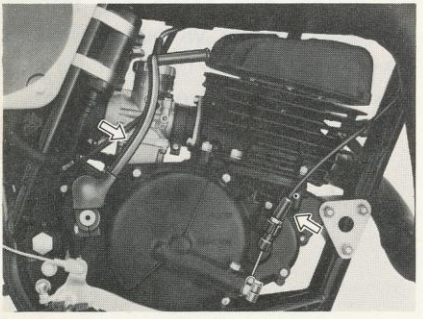
1. Drain transmission oil.



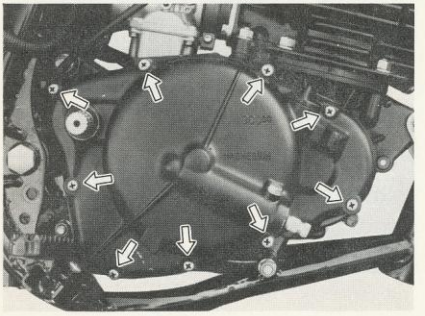
2. Remove rear brake pedal.



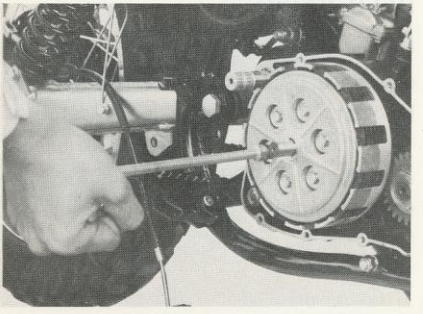
3. Disconnect clutch cable and kick starter lever.



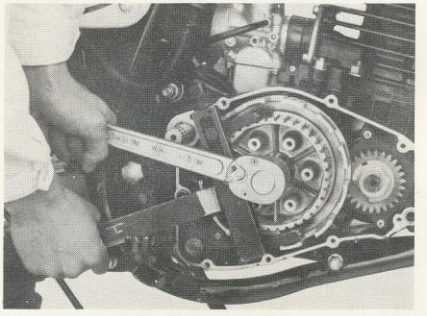
4. Remove clutch cover.



5. Loosening pressure plate securing bolts. Lift out clutch pressure plate and draw out clutch plates.



6. Remove clutch sleeve hub and primary driven gear. Use clutch sleeve hub holder (09920-53710).



INSPECTION

Because the clutch plates remain wet with oil in the normal operating condition of the clutch, the plates removed in disassembly will be found with little or no wear. After long use, however, the plates might exhibit more or less wear to give rise to a slipping tendency in the clutch. For this reason, it is essential that the plates should be checked for THICKNESS, using calipers, as shown, and be replaced if found to have worn down beyond the service limit.

Drive plates

Standard:	**3.4 ~ 3.6 mm (0.134 ~ 0.142 in)**
Service limit:	**3.1 mm (0.122 in)**

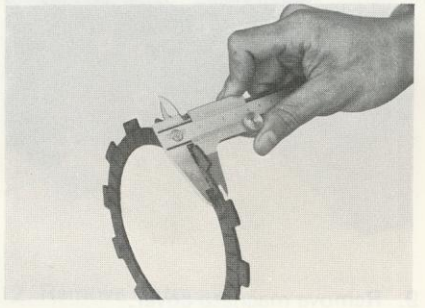
Driven plates

Check driven plates for flatness and thickness.

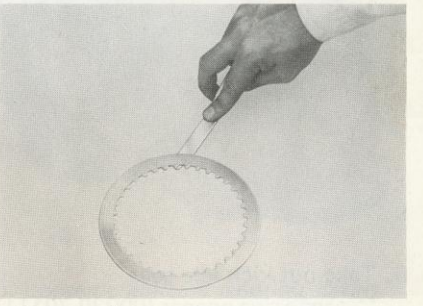
Flatness readings are taken with a thickness gauge on the plate placed on the surface plate.

Driven plate flatness and thickness specification

	Standard	Service limit
THICKNESS	2.00 mm (0.079 in)	1.85 mm (0.073 in)
FLATNESS		0.1 mm (0.004 in)



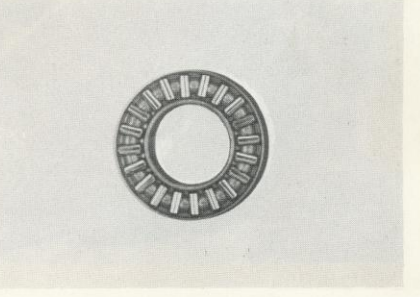
Drive plate



Driven plate

Clutch release rack bearing

Smooth engaging and disengaging actions presume that the release bearing is in good condition. With this in mind, inspect the bearing for damage and, as necessary, replace it by a new one.

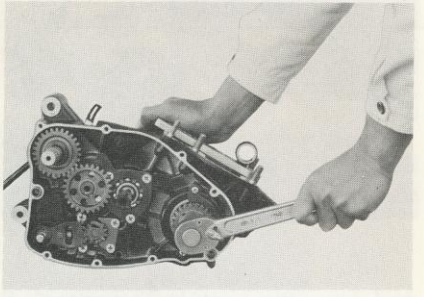


TRANSMISSION, KICK STARTER AND CRANKSHAFT

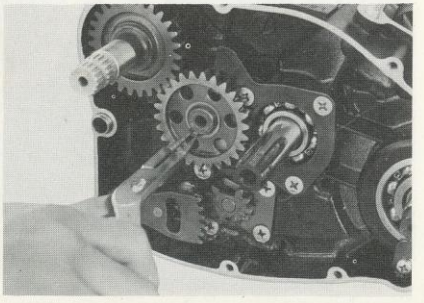
DISASSEMBLY

1. Remove the engine as shown page 15.
2. Remove gearshift lever.
3. Remove cylinder head, cylinder and piston as shown page 17.
4. Disassemble the clutch as shown page 22.
5. Remove primary drive gear.
   Use special tool (con-rod stopper 09910-20114).

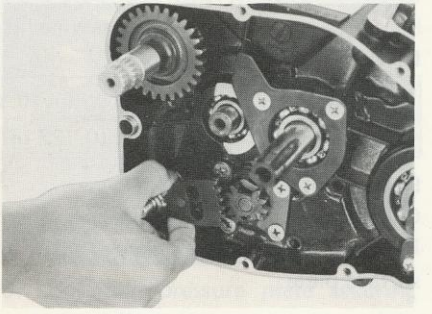
CAUTION:
The nut securing the gear is threaded for lefthand screw. Turn it clockwise to loosen it.



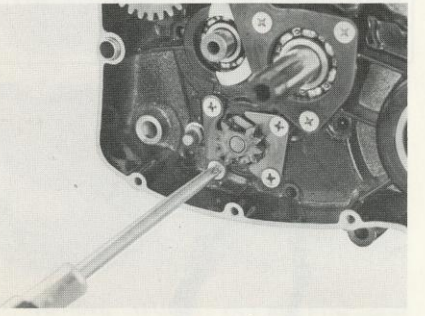
6. Take out kick idle gear.
   Use snap ring opener (09920-70111).



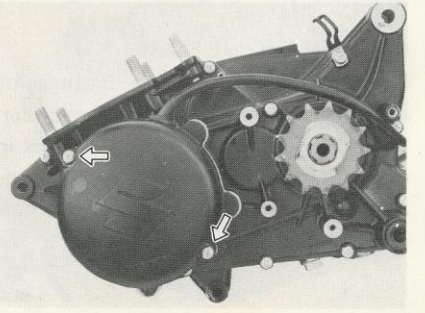
7. Draw out gearshift shaft.



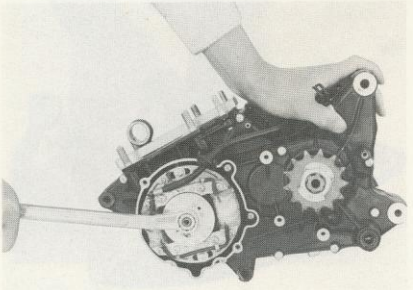
8. Remove gearshifting cam guide.



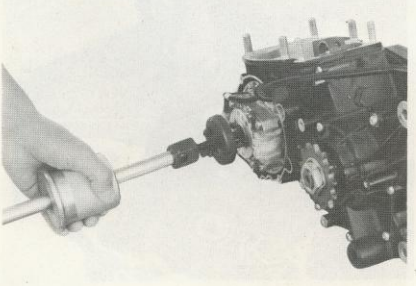
9. Remove magneto cover.



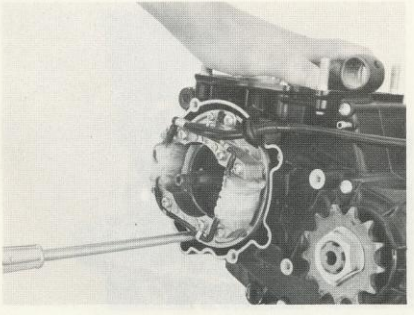
10. Remove rotor nut.
    Use special tool (con-rod stopper 09910-20114).



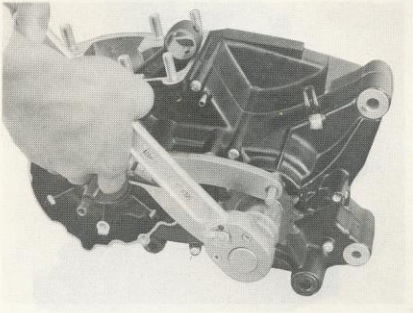
11. Take out rotor.
    Use special tools (rotor remover shaft 09930-30101 and rotor remover attachment 09930-30210).



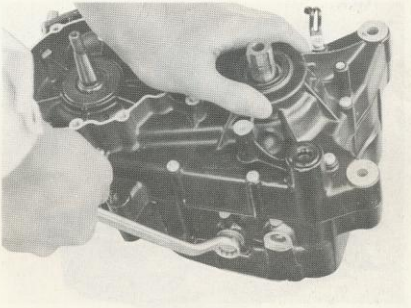
12. Remove stator.



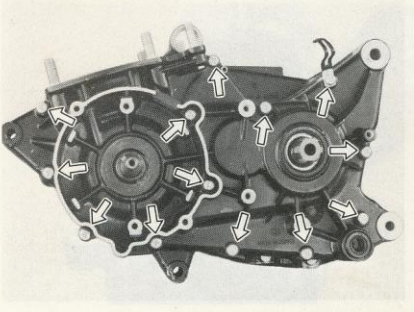
13. Remove engine sprocket.
    Use special tool (engine sprocket and flywheel holder 09930-40113).



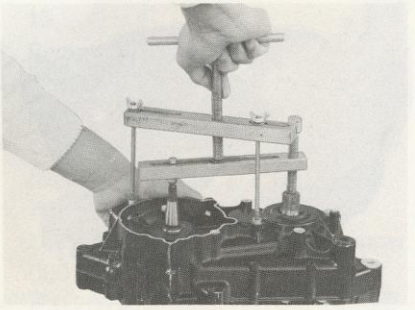
14. Remove gearshift cam stopper.



15. Loosen crankcase securing screws.

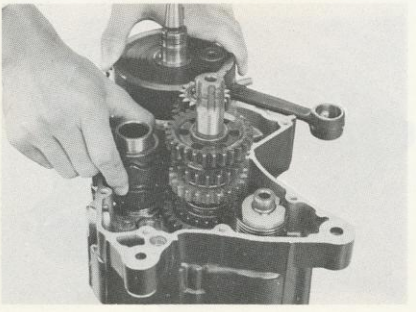


16. Split crankcase.
Use special tool (crankcase separating tool 09910-80113).



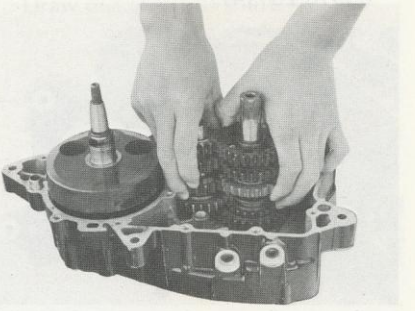
17. Remove gearshift fork shaft and fork.

18. Draw out gearshift cam.

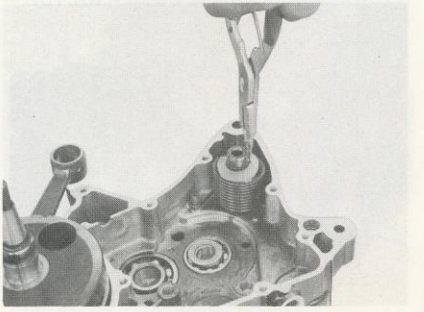


19. Remove gears.

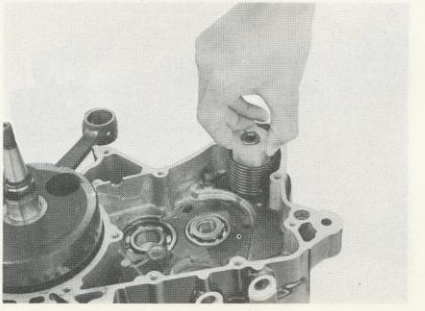
NOTE: Take out the gears altogether.



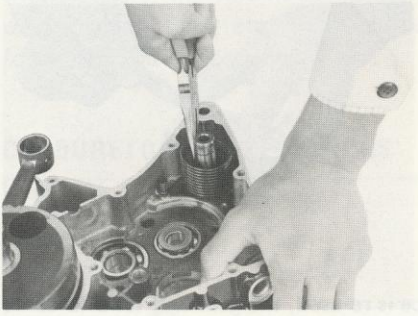
20. Remove circlip on kick starter shaft.
Use special tool (snap ring opener 09920-70111).



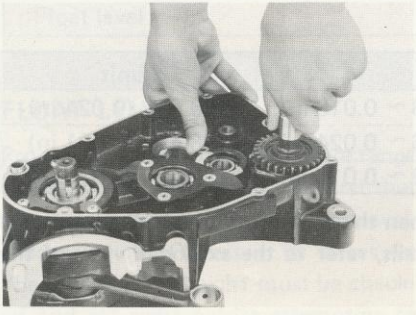
21. Remove kick shaft spring guide.



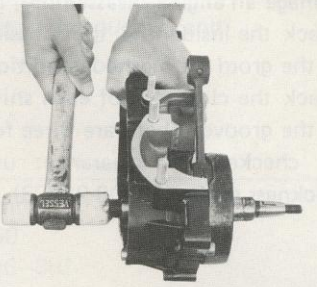
22. Remove kick return spring.



23. Draw out kick shaft.

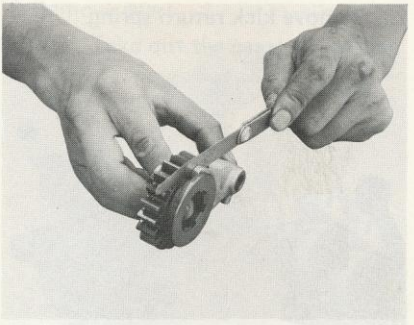


24. Draw out crankshaft.



INSPECTION

Just before disassembling the transmission in engine disassembly, inspect the gears inside the transmission for damage and for meshed condition, and check the clearance of each shift fork in the groove. There are three forks to be checked for clearance: use the thickness gauge (09900-20803).



If a shift fork exhibiting an excessive clearance is re-used, the gear will tend to come off the engagement in the subsequent service, and therefore must be replaced. If the clearance with the replacement shift fork is noted to be still too large to come within the standard range, then the gear too must be replaced.

Shifting fork clearance, specification

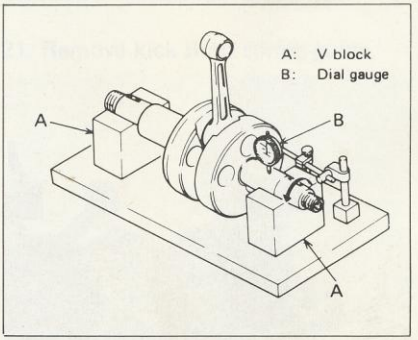
Fork and gear	Standard	Limit
3rd	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)	0.6 mm (0.024 in)
4th	0.4 ~ 0.6 mm (0.016 ~ 0.024 in)	0.8 mm (0.031 in)
5th	0.2 ~ 0.4 mm (0.008 ~ 0.016 in)	0.6 mm (0.024 in)

NOTE: Clearance readings are valid only when the shift forks are checked as fitted into their respective gears. For details, refer to the exploded view of the transmission given in page 38.

CRANKSHAFT

Set the crankshaft on "V" blocks, as shown, and, with a dial gauge arranged in the manner indicated, take a runout reading on the shaft on each side. This reading is the crankshaft deflection, which is required to be within this limit:

A deflection reading is a measure of straightness of the crankshaft. If the crankshaft is bowed to exceed the limit, it must be replaced by a new one. Using such a crankshaft will result in poor engine performance or, for worse, in an engine failure.



Crankshaft deflection limit:
0.05 mm (0.002 in)

CARBURETOR

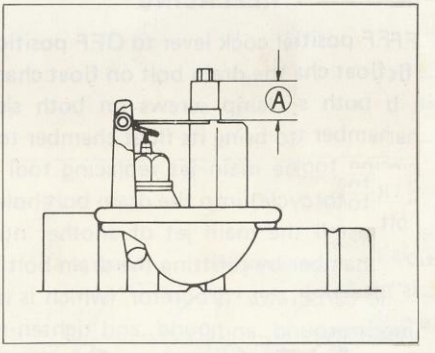
If carburetion is not perfect, the performance of the engine will be adversely affected. Therefore, the carburetor should be set correctly to meet such conditions as weather, race field, etc.. First, check the carburetor thoroughly, and adjust the following parts as necessary:

CARBURETOR SPECIFICATIONS

Bore	36 mm
Main jet	#300
Jet needle	6FJ6–3rd
Needle jet	R–2
Cut-away	1.5
Pilot jet	50
Pilot air adjusting screw	1 turn back open
Float level	13.9 mm

FLOAT LEVEL

Proper carburetion for the entire range of the engine speeds assumes first that the float is set for the prescribed level. This level is expressed in terms of "height A", the height must be checked and set right before attempting to alter the jetting. Hold the removed carburetor upside down, taking care not to allow float arm pin and arm to slip off. Raise the float arm with a fingertip and lower it gradually until it touches the needle valve. Measure the distance A with calipers. If the caliper reading is off the specification (stated below), bend the tongue.



Float height A:	**13.9 mm (0.55 in)**

MAIN JET

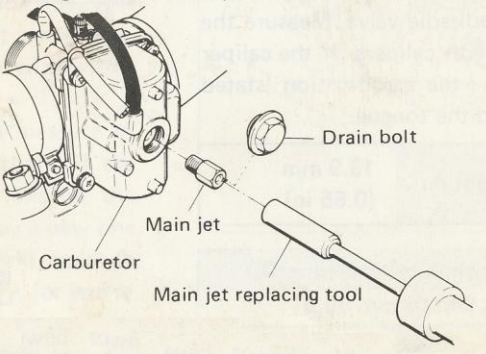
During operation, this jet controls the supply of fuel for a range from **3/4** throttle to full throttle. To test the main jet, drive the machine on a racing course for a distance of about **10 km (6 miles)**, with the throttle kept open in that range; after this test run, open the engine to observe the carboned color of the spark plug, cylinder head and piston. If the color is black or if the surface is wet, it means that the mixture is too rich: in this case, the main jet must be replaced by the one with a smaller number.

If a grey-brownish or whitish color is noted, it means that the mixture is too lean: in this case, a main jet with a larger number is needed.

Standard main jet	**#300**
Optional main jets	**#280, #290, #310, #320 and #330**

MAIN JET REPLACING

1. Move fuel cock lever to OFF position.
2. Remove the drain bolt on float chamber to empty the chamber of fuel.
3. Loosen clamp screws on both sides of carburetor, and turn the carburetor around to bring its float chamber toward you.
4. Insert the main jet replacing tool (included in the tool kit supplied with new motorcycle) into the drain bolt hole and, with this tool, remove the main jet.
5. Install the main jet of another number it in the carburetor. Plug up the float chamber by refitting the drain bolt.
6. Restore the carburetor (which is now tilted condition) to the original position by turning it around, and tighten the clamp screws on both sides to secure the carburetor in place.

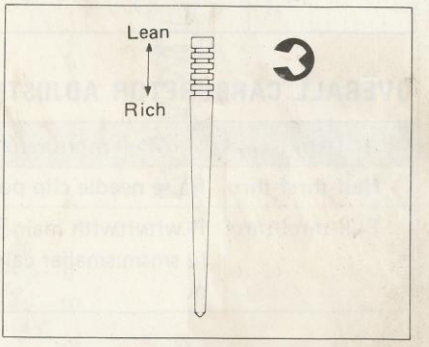


JET NEEDLE

The needle controls the supply of fuel for a throttle range of one quarter (1/4) to three quarters (3/4). Whether the existing jet needle is proper or not is to be checked by testing as in the case of main jet testing. A test run of about 10 km (6 miles) is sufficient. Depending on the observed color, reposition the jet needle in place.

The needle has five notches. It is retained standardly at 3rd notch in RM250 with a clip fitted to the notch. To make the mixture leaner, set the clip at an upper notch of the needle, and vice versa.

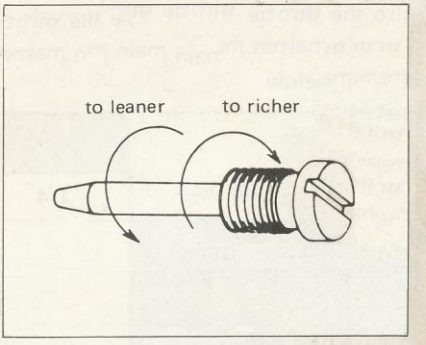
Jet needle setting influences carburetion for the throttle range from quarter (1/4) down. To compensate this range for the effect of the change made in jet needle setting, the pilot air screw must be repositioned in place. In other words, if the jet needle has been repositioned to enrich the mixture (for 1/4-to-3/4 throttle range), then the screw must be loosened, slightly to make the mixture leaner (for up-to-1/4 range).



Standard jet needle setting	3rd notch

NOTE:

The pilot air screw should be left in the standard position, that is, in a position at which the screw will not support the engine in self-idling condition. This is because, when the throttle is opened quickly, engine speed will pick up but with some delay due to a momentarily richer mixture, if the screw in set to sustain engine idling.



Standard pilot air screw setting:	Backed away 1 rotation from fully run-in position.

HOW TO JUDGE CARBURETION

Item	Proper	Mixture is rich	Mixture is lean
Spark plug	Porcelain is light brown. Porcelain is tan color.	Porcelain is sooty. Porcelain is oily.	Porcelain is whitish. Porcelain is burned away.
Engine revolution	Engine runs smoothly.	Engine does not run smoothly.	Engine rpm fluctuates even if the throttle grip is held steady.

OVERALL CARBURETOR ADJUSTMENT

Item	When mixture is rich	When mixture is lean
Half-throttle	Raise needle clip position.	Lower needle clip position.
Full-throttle	Replace with main jet having a smaller calibration number.	Replace with main jet having a larger calibration number.

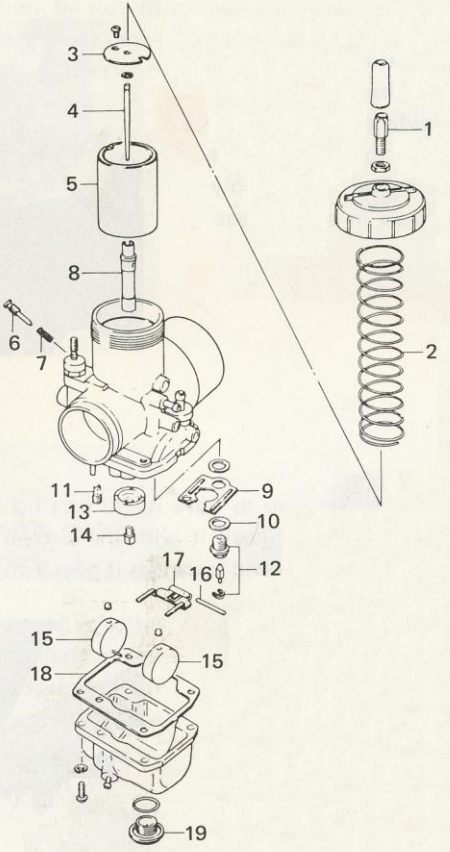
MATCHING THE JETTING TO THE RACE

Drive the machine on the racing course, making several laps and noting the pattern of throttle variation required to cover the lap for best clocking. Then, open the engine to observe the spark plug, cylinder head and piston crown. On the basis of this observation and also the throttle range in which the machine had to be driven in the test run, set the main jet, jet needle and pilot air screw, by referring to the diagram below.

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

NOTE: The length of each shaded pattern represents the effective range, and the width represents the intensity of carburetion.

CARBURETOR CONSTRUCTION

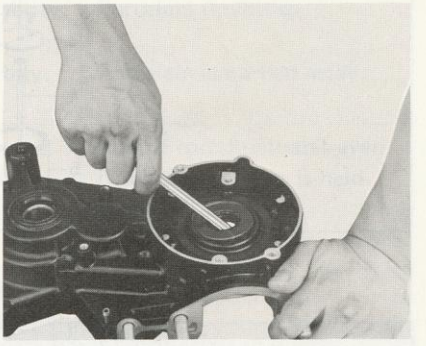


1. Cable adjuster
2. Throttle valve return spring
3. Throttle spring seat
4. Jet needle
5. Throttle valve
6. Pilot air screw
7. Spring
8. Needle jet
9. Float chamber plate
10. Valve seal gasket
11. Pilot jet
12. Needle valve ass'y
13. Ring
14. Main jet
15. Float
16. Float pin
17. Float chamber arm
18. Float chamber gasket
19. Drain plug

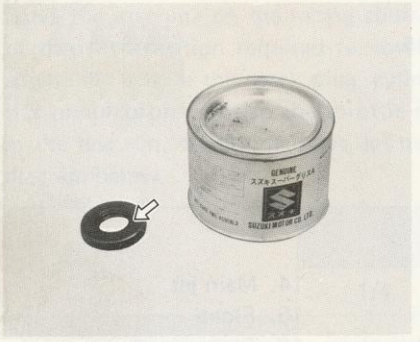
REASSEMBLING ENGINE PARTS

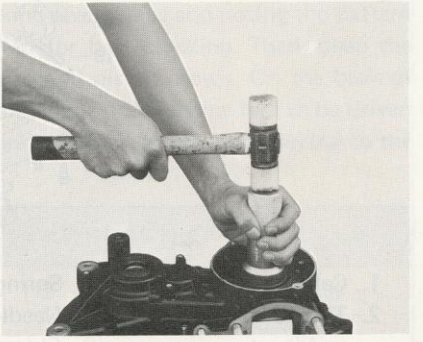
OIL SEALS

Do not re-use damaged oil seals. Make sure that each oil seal is in good condition, with its lip absolutely free of any damage or of evidence of distortion. It is a good practice to discard all oil seals removed in engine disassembly and use new oil seals in engine reassembly.



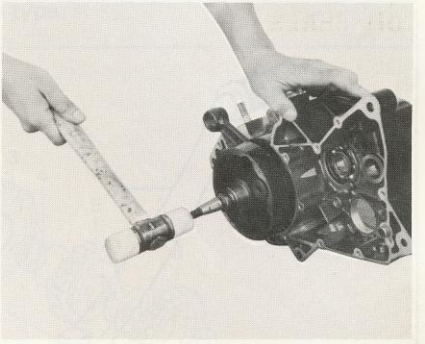
When fitting an oil seal, be sure to have its lip part lightly coated with SUZUKI SUPER GREASE "A" and to install it with the oil seal installing tool. With this tool, the oil seal can be held true and square as it goes into its position.





CRANKSHAFT

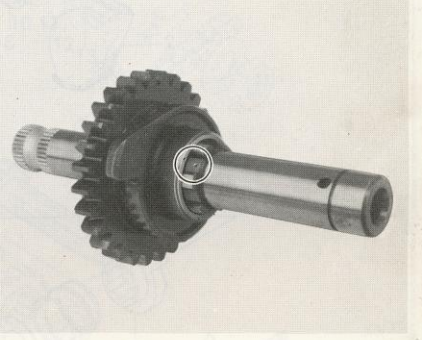
Use a plastic hammer to drive the crankshaft into its position. Be sure to deliver light blows to the end of crankshaft in order to force it into the right-hand half of crankcase, as shown.



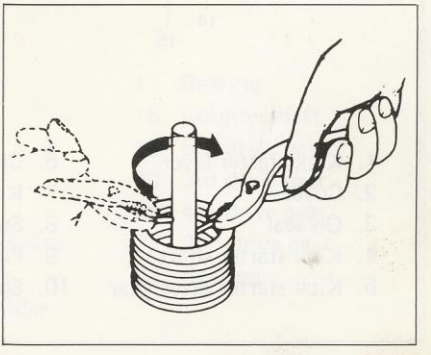
CAUTION:
Bear in mind that this crankshaft does not require any shim (or washer) between crank journal bearing and itself.

KICK STARTER

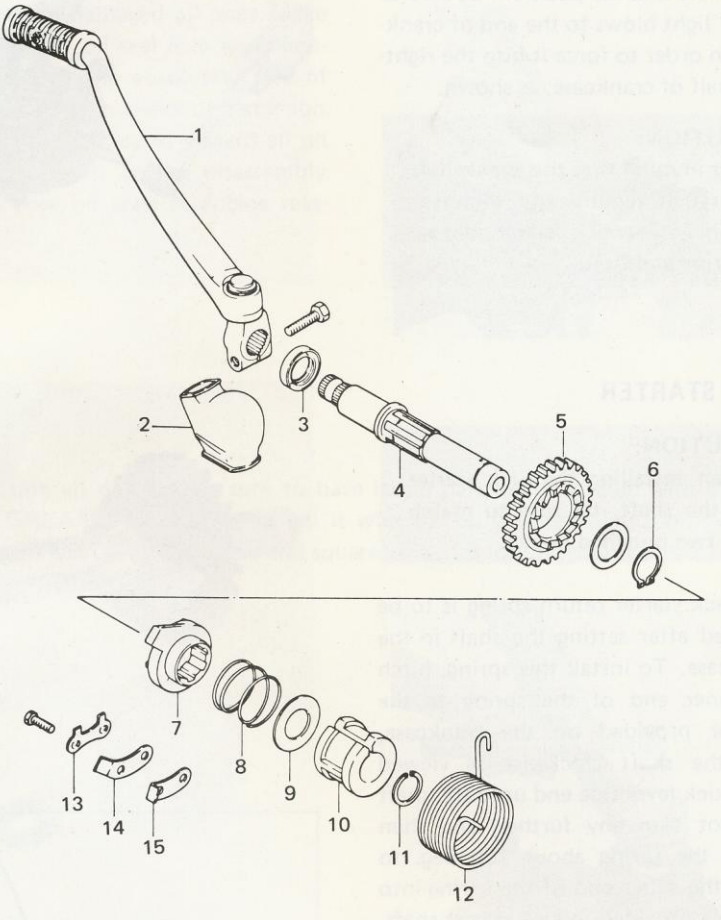
CAUTION:
When installing the kick starter to the shaft, be sure to match the two punched marks.



The kick starter return spring is to be installed after setting the shaft in the crankcase. To install this spring, hitch the inner end of the spring to the stopper provided on the crankcase, turn the shaft clockwise as viewed from kick lever side end until the shaft will not turn any further, and then rotate the spring about 180 deg. to insert the other end of the spring into the hole provided in kick starter shaft. Insert the spring guide, and retain it by fitting a circlip.



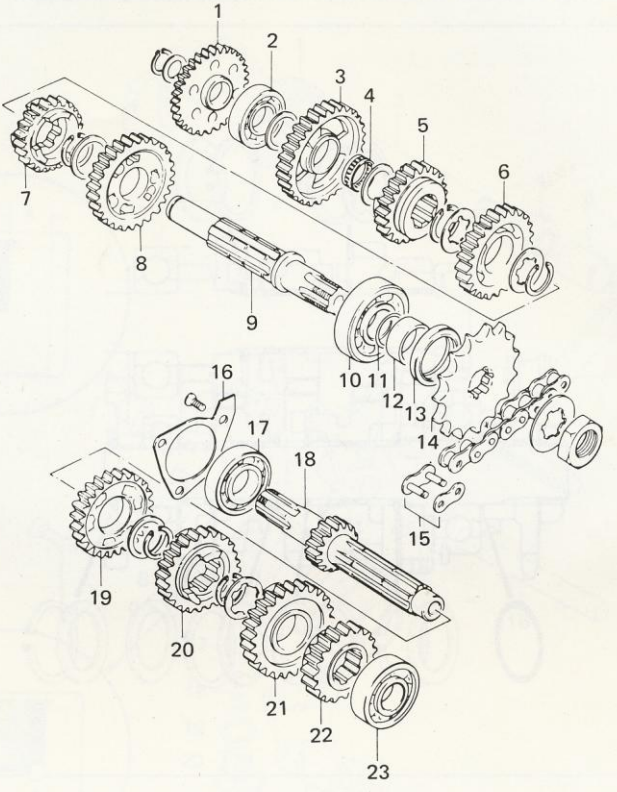
KICK STARTER



1. Kick starter lever
2. Cover
3. Oil seal
4. Kick starter shaft
5. Kick starter drive gear
6. Circlip
7. Kick starter
8. Spring
9. Plate
10. Spring guide
11. Circlip
12. Spring
13. Washer
14. Kick starter guide
15. Kick starter stopper

TRANSMISSION

The transmission is of 5-speed constant-mesh type.



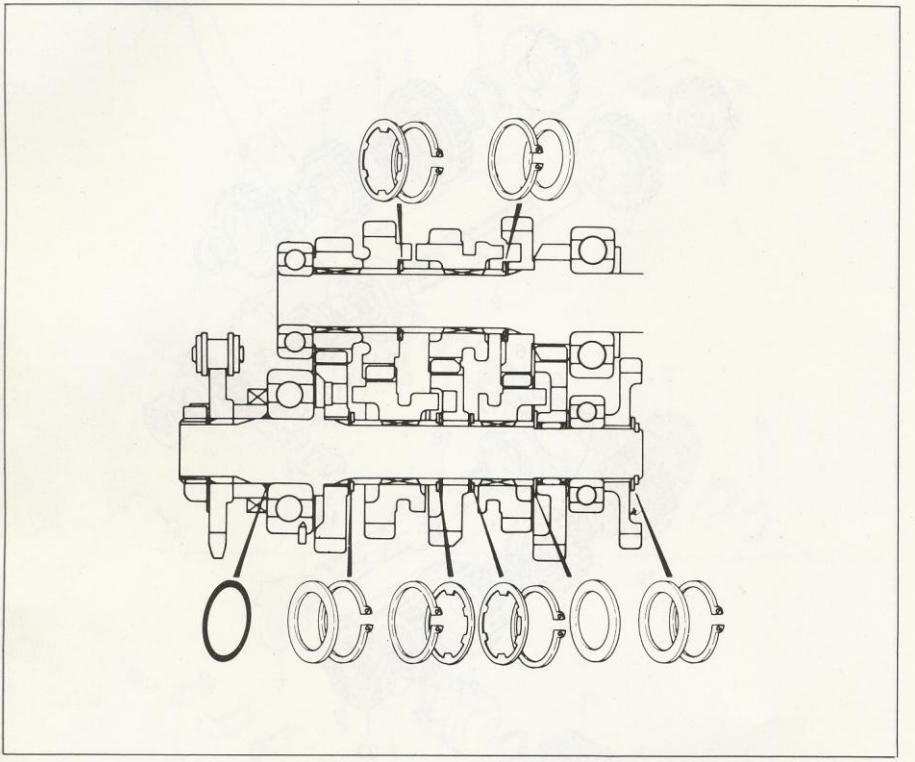
1. Kick starter idle gear
2. Bearing
3. 1st driven gear
4. Bearing
5. 5th driven gear
6. 3rd driven gear
7. 4th driven gear
8. 2nd driven gear
9. Drive shaft
10. Bearing
11. O ring
12. Spacer
13. Oil seal
14. Engine sprocket
15. Chain joint
16. Bearing holder
17. Bearing
18. Countershaft
19. 5th drive gear
20. 3rd drive gear
21. 4th drive gear
22. 2nd drive gear
23. Bearing

TRANSMISSION

Mounting the transmission gears

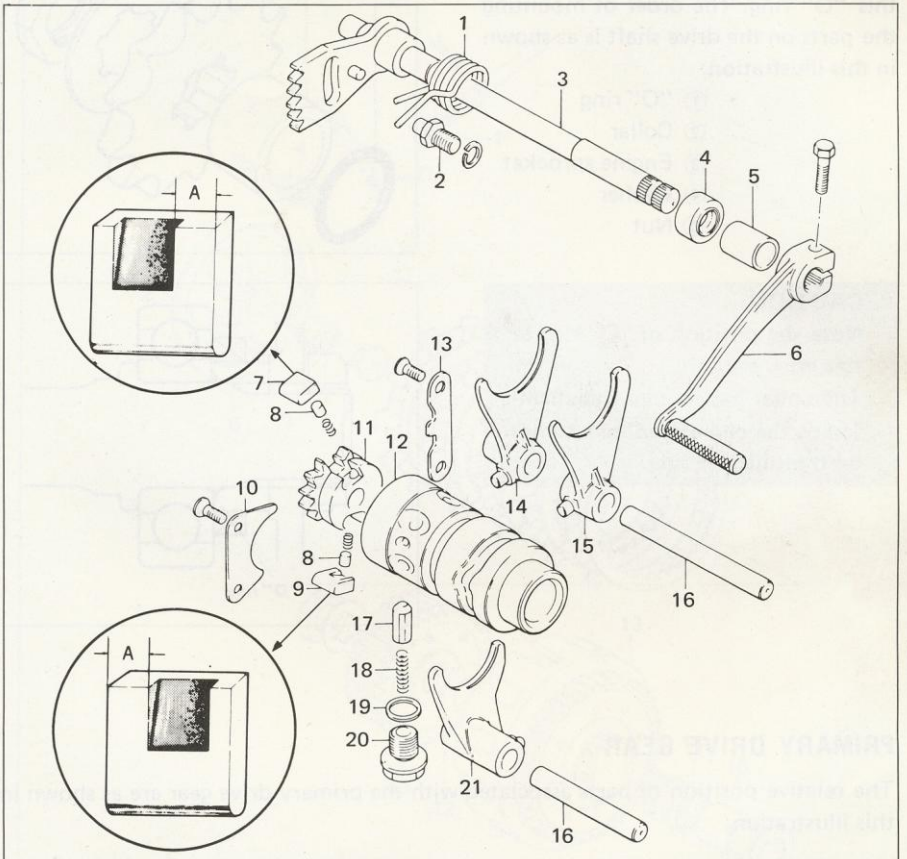
Be sure to mount the gears in the correct order.

Refer to the cross sectional view while and after mounting the gears:



GEARSHIFTING MECHANISM

Refer to the following exploded view when reassembling the gearshifting mechanism. Note in particular that the two pawls are not identical: the wider side, indicated as "A", comes on the outer side.

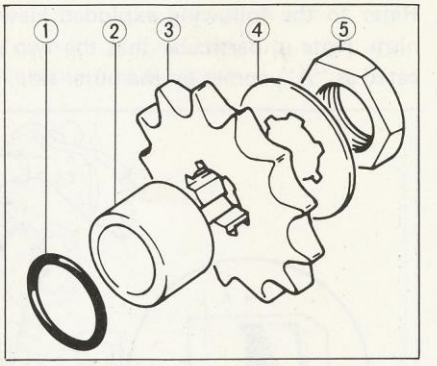


1. Spring
2. Arm stopper
3. Gearshift shaft
4. Oil seal
5. Cushion
6. Gearshift lever
7. Gearshift No. 2 pawl
8. Pin
9. Gearshift No. 1 pawl
10. Gearshift pawl lifter
11. Gearshift cam driven gear
12. Gearshift cam
13. Gearshift cam guide
14. 5th driven gearshift fork
15. 4th driven gearshift fork
16. Gearshift shaft
17. Gearshift cam stopper
18. Spring
19. Gasket
20. Cam stopper housing
21. 3rd drive gearshift fork

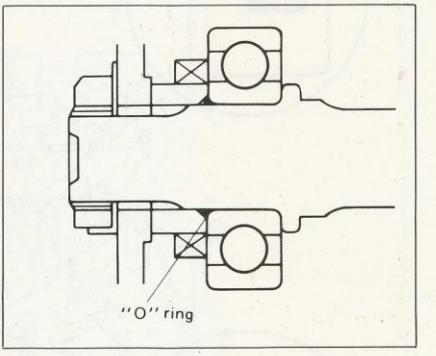
ENGINE SPROCKET

Be sure to install "O" ring between bearing and collar. Oil leakage from the sprocket is often due to absence of this "O" ring. The order of mounting the parts on the drive shaft is as shown in this illustration:

① "O" ring
② Collar
③ Engine sprocket
④ Washer
⑤ Nut

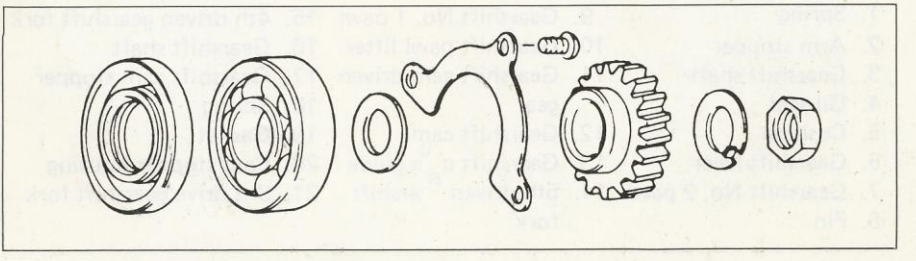


CAUTION:
Note the position of "O" ring in this cross section.
The collar has its one end chamfered: the chamfered end comes on transmission side.



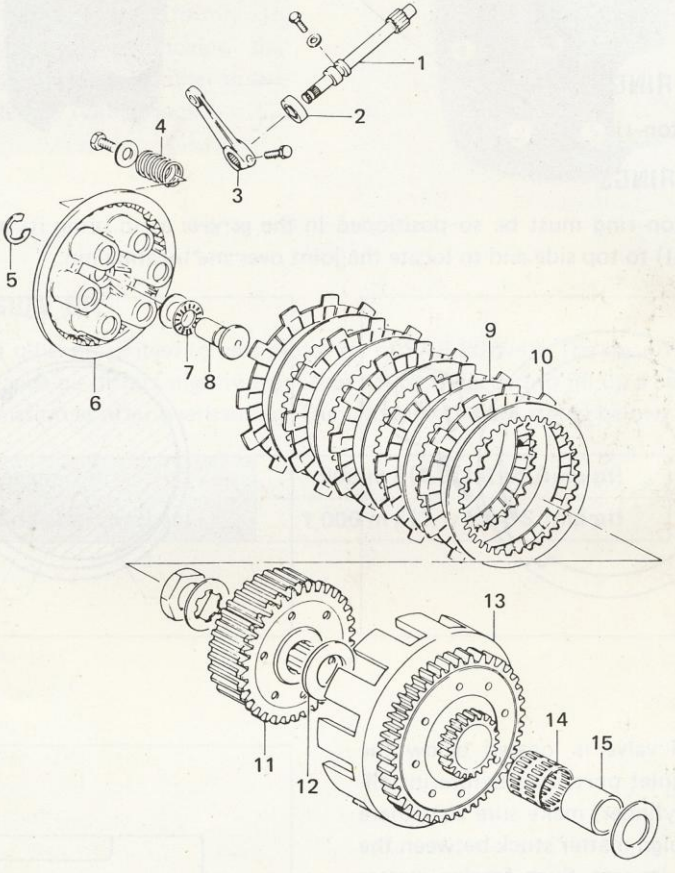
PRIMARY DRIVE GEAR

The relative position of parts associated with the primary drive gear are as shown in this illustration:



CLUTCH

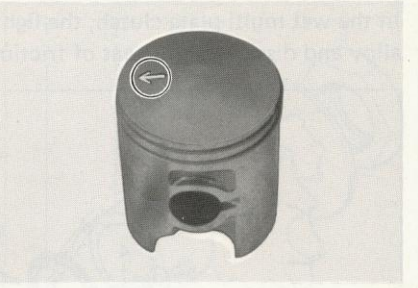
In the wet multi-plate clutch, the light-in-weight driven plate is made of an alminum alloy and dissipates the heat of friction more readily.



1. Release pinion
2. Oil seal
3. Release arm
4. Spring
5. E ring
6. Pressure plate
7. Bearing
8. Release rack
9. Driven plate
10. Drive plate
11. Sleeve hub
12. Washer
13. Primary driven gear
14. Bearing
15. Spacer

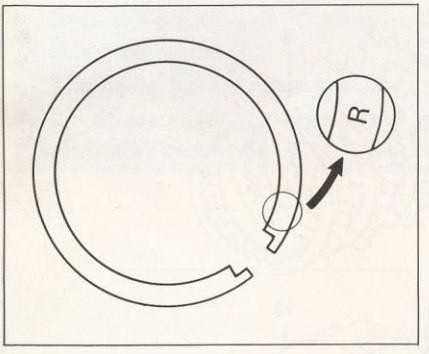
PISTON

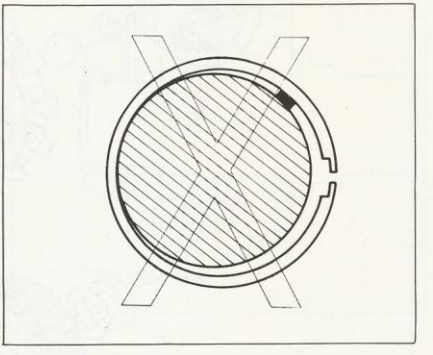
The arrow mark on the piston crown is meant to point to exhaust port side, that is, in the forward direction. Be sure to position the piston as guided by this mark.



PISTON RINGS

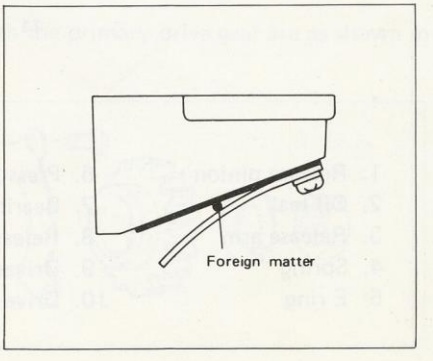
Each piston ring must be so positioned in the groove as to bring its marked side (near joint) to top side and to locate the joint over the locating pin.





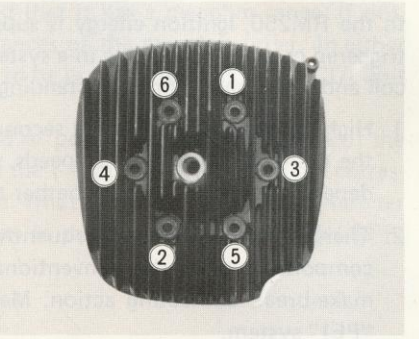
CYLINDER

The reed valve is located below the cylinder inlet port. Just before installing the cylinder, make sure that there is no foreign matter stuck between the reed and its seat. Such foreign matter could reduce engine output performance.



CYLINDER HEAD

After setting the cylinder head in place, run in the cylinder head nuts with fingers, making each nut finger-tight. Using the wrench, tighten the nuts sequentially and uniformly to equalize the pressure, moving the wrench from one nut to another in the order indicated by numbering.



TRANSMISSION OIL

Transmission oil is prescribed to be a motor oil of SAE 20W/40. The quantity of oil needed to change oil differs slightly from that which is needed to fill up a completely dry transmission as after overhauling. The two quanties are stated below.

For changing oil	900 m ℓ (1.9/1.6 US/Imp pt)
For filling after overhaul	1,000 m ℓ (2.1/1.8 US/Imp pt)

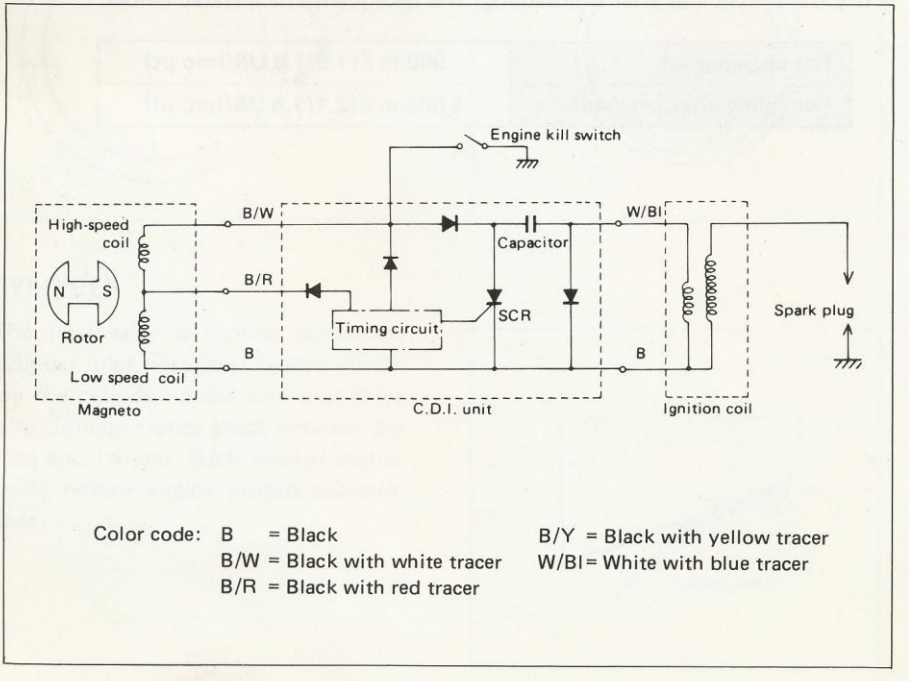
ELECTRICAL

SUZUKI "PEI" SYSTEM

In the RM250, ignition energy is supplied to the spark plug through electronically triggered capacitor discharge in a system comprising the magneto, CDI unit, ignition coil and spark plug. Three outstanding advantages of this proprietary system are:

1. High voltage induced in the secondary winding of the ignition coil is stable over the entire range of engine speeds, so that the ignition performance of the plug is dependable, regardless of whether the engine is running fast or slow.
2. There is no need of so frequently checking and adjusting the ignition system components as in the conventional system based on a breaker mechanism for make-break contacting action. Make-break action is electronic in the SUZUKI "PEI" system.
3. Ignition timing is automatically advanced in a manner best suited to the operating characteristic of the engine.

SUZUKI "PEI" CIRCUIT DIAGRAM



Color code: B = Black
B/W = Black with white tracer
B/R = Black with red tracer
B/Y = Black with yellow tracer
W/Bl = White with blue tracer

CHECKING CDI UNIT

Use a circuit tester as an ohmmeter, provided that it has a megohm range; if not, use an ohmmeter capable of measuring resistances of the megohm order. In either case, the two testing prods, (+) and (−), are to be put to terminals of the CDI unit in reference to the chart below.

The CDI unit has five terminals. The (+) prod or pointer is to be put to one of the terminals listed in the top horizontal row, and the (−) prod or pointer to the corresponding terminals listed in the vertical column. What the circuit tester or ohmmeter should indicate for the two terminals is given in the intersecting box (ON, OFF, CON or ABOUT 5 MEGOHMS).

The meanings of these terms are as follows:

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.

CAUTION:
Never use an insulation-resistance meter (so-called megger) for this purpose or circuit elements inside the CDI unit will suffer rupture.

NOTE:
1. **Before putting the probe pointers of the tester to two terminals, touch the two with a jumper lead to form a momentary short-circuit in order to neutralize the charges, if any.**
2. **For the instrument to be used, a circuit tester of the type used by radio repairmen will do. However, a high-grade circuit tester or an ohmmeter is preferred.**
3. **If the instrument gives an indication other than what is shown in the intersecting box in the chart for any pair of terminals, it means that the CDI unit is defective and needs replacement.**

Negative (—) probe pin	Postive (+) probe pin			
	Black/White Black/Yellow	Black/Red	Black (two)	White/Blue
Black/White Black/Yellow		OFF	OFF	CON
Black/Red	OFF		OFF	About 5MΩ
Black (two)	ON	ON		CON
White/Blue	ON	ON	ON	

CHECKING IGNITION COIL

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:

Primary winding (BLACK - WHITE/BLUE) . . . . . Several ohms
Secondary winding (plug cord - BLACK) . . . . . Ten and some kilohms

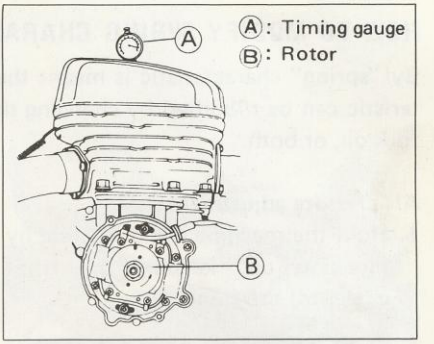
MAGNETO

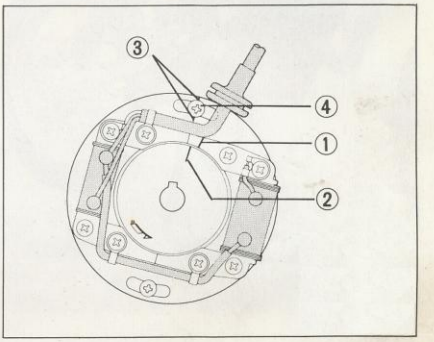
Using the circuit tester, check the high-speed and low-speed coils for ohmic resistance. Coils in good condition will exhibit these values:

Low-speed coil (BLACK - BLACK/RED) . . . . . Several hundred ohms
High-speed coil (BLACK/RED - BLACK/WHITE) . . . . Several ten ohms

IGNITION TIMING ADJUSTMENT

Unlike conventional contact-breaker ignition systems, the PEI system maintains its original ignition timing until the system becomes disturbed as in engine overhauling: ignition timing does not change at all as long as the system remains undisturbed.
The following adjusting procedure is actually a procedure to be followed in remounting the magneto stator to re-establish the specified ignition timing:





1. Install the timing gauge (Special Tool No. 09931-00112) in the spark plug hole, as shown.
2. Turn the rotor while observing the gauge indication to bring the piston to Top Dead Center position.
   Set the gauge indicating hand to "0" mark on its scale.
3. Turn the rotor clockwise to bring the piston to a position **3.62 mm** below T.D.C. position on upward stroke.
4. Displace the stator angularly by rotating it one way or the other to align the engraved line "①" (on stator) to line "②" (on rotor), and secure the stator in that position by tightening its securing screws.

NOTE: If the timing gauge is not available, the foregoing procedure may be substitued for by a simplified method, which differs essentially in that the engraved line "③" (on stator) be aligned to the center of screw "④" and the stator be secured in that position.

CHASSIS

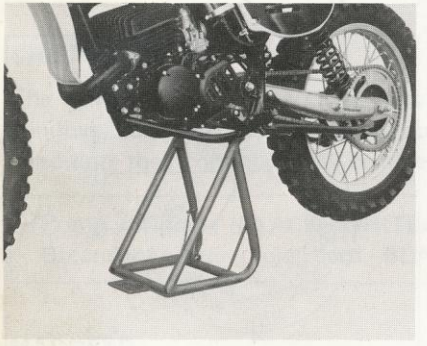
FRONT SUSPENSION

HOW TO MODIFY SPRING CHARACTERISTIC

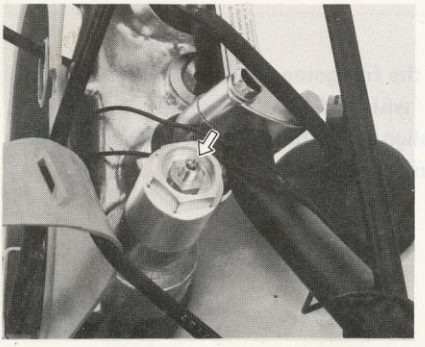
By "spring" characteristic is meant the entire fork viewed as a spring. The characteristic can be modified by changing the pressure of contained air or the amount of fork oil, or both.

Air pressure adjustment

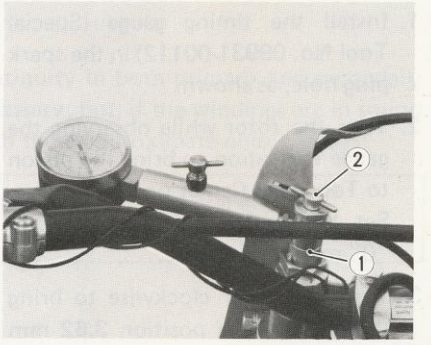
1. Hold the machine standing erect by blocking up, keeping the front wheel off the floor.



2. Push in the valve to let out the pressure. Be sure to bleed the pressure out completely.

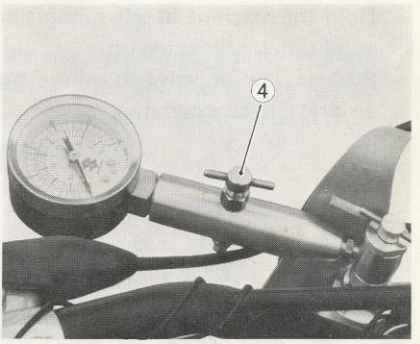


3. Set up the pressure gauge (09940-44110) as shown.
   Tighten up knob ①. Have knob ② tightened.



4. Inject water-free compressed air through valve ③ until the pressure gauge reads the desired level (see page 51) not higher than 2.5 kg/cm^2 (35 psi).

5. Back away (loosen) knob ④ to bleed out the excess press, if any, to secure the desired air pressure inside the fork.

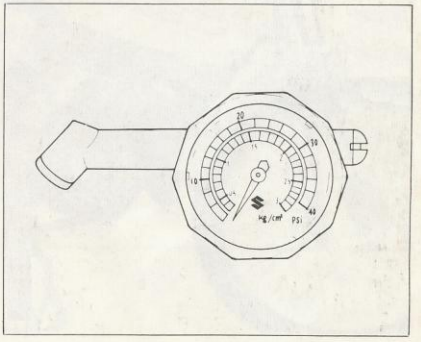


REQUIREMENTS ON AIR

* Be sure that the compressed air supply comes through a de-watering filter. Instead of air, nitrogen gas may be used.
* Just before charging air in, see if the valve is loose by using the valve tightener.
* Be sure to inject water-free compressed air not higher than 2.5 kg/cm^2 (35 psi). The fork is designed not for higher pressures than this limit.
* Try to equalize the air pressure of the two forks, right and left, as closely as possible. The maximum permissible difference is 0.1 kg/cm^2 (1.4 psi).
* Before riding out, be sure to check that the air pressure is at the prescribed level.

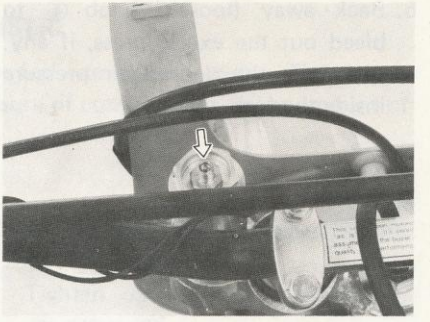
NOTE:

The above method is based on the use of the special-tool pressure gauge available from SUZUKI but, instead of this gauge, the one furnished with each RM250 machine may be used. The furnished gauge (included in the kit) must be used in this manner: 1) fit it to the valve squarely, and 2) upon reading the pressure, let it off the valve snappily.

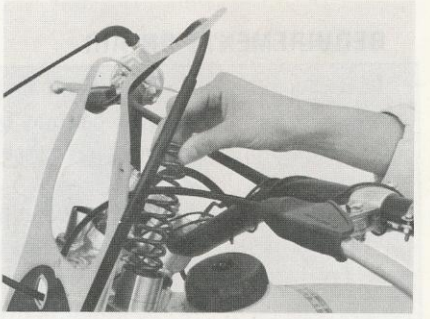


OIL LEVEL ADJUSTMENT

1. Hold the machine in self-supporting condition by blocking up.
   Push in the air valve to relieve the air pressure completely.

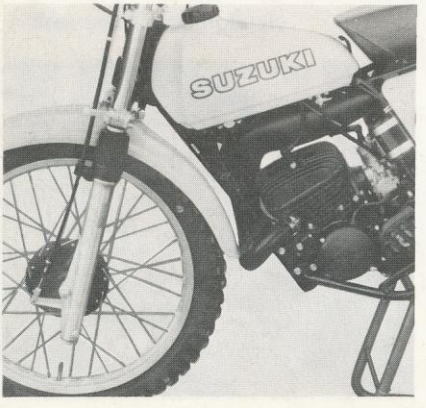


2. Remove the cap bolt, spacer, spring seat and spring.



WARNING:
Push down the cap bolt while turning it loose. Remember, the fork spring force acting on the bolt is so great that the bolt might fly off if no push were exerted to it.

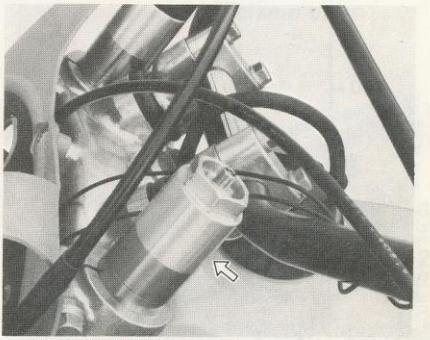
3. Compress the fork gently by pushing in the inner tube fully, and hold the fork in vertical position.



4. Set the oil level gauge, as shown, and refer the top end face of the inner tube (in the fully compressed state of the fork) to the prescribed specification (see page 51) as measured from that end face.

CAUTION:
It is important to keep the oil level within the specified range. An oil level off the range is liable to reduce the performance of the fork and to give rise to the causes of oil leakage or even fork rupture. Be sure to equalize the oil level of the two forks, deeping the difference within 5 mm.

5. Stretch the fork gently, and install the spring, spring seat, spacer and cap bolt. When installing the spring, small coil diameter of the spring should be come on lower (inner) side.



Cap bolt tightening torque:
350 ~ 500 kg-cm (25.5 ~ 36.0 lb-ft)

6. Adjust the air pressure.

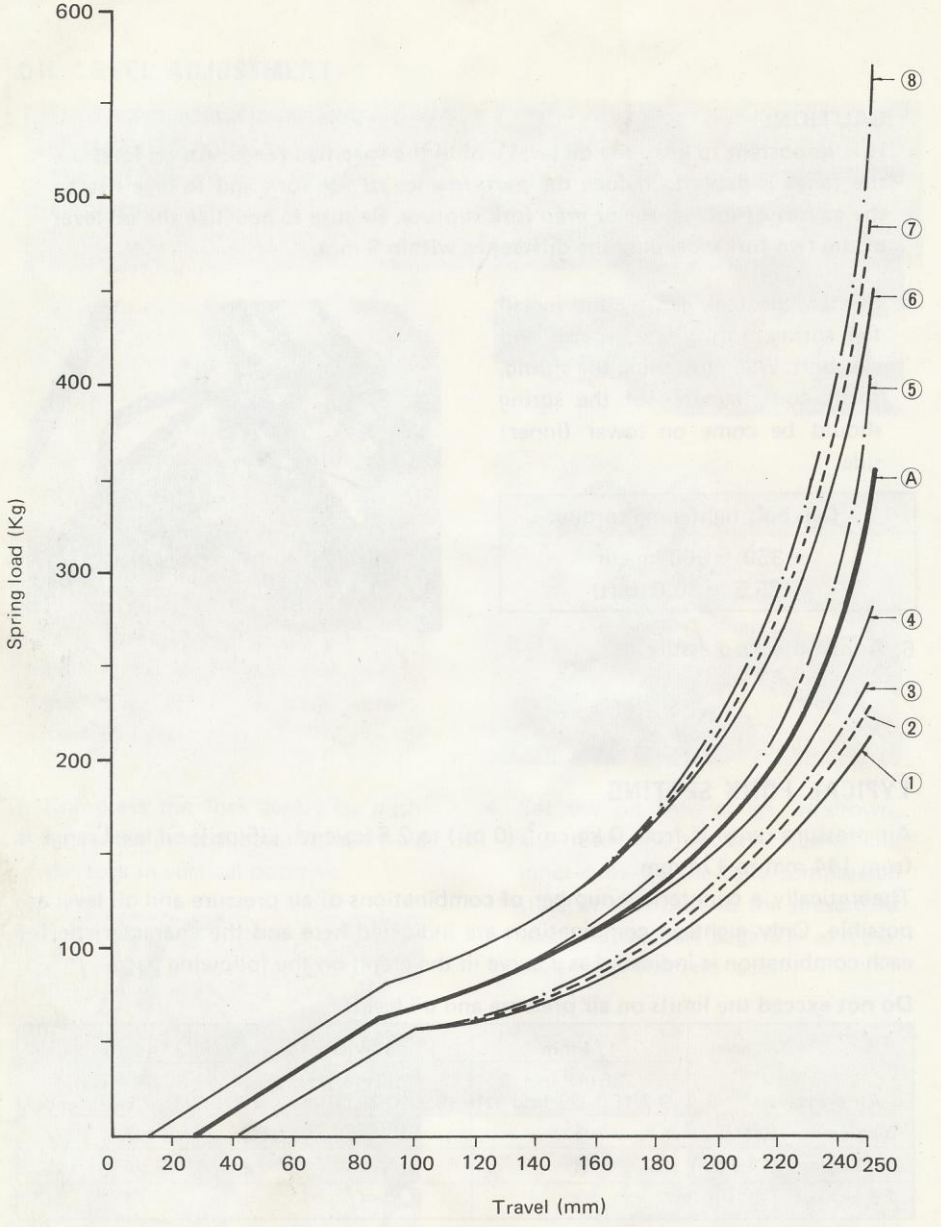
TYPICAL FORK SETTING

Air pressure range is from 0 kg/cm^2 (0 psi) to 2.5 kg/cm^2 (35 psi); oil level range is from 144 mm to 174 mm.
Theoretically a counterless number of combinations of air pressure and oil level are possible. Only eighteen combinations are indicated here and the characteristic for each combination is indicated as a curve in the graph on the following page.

Do not exceed the limits on air pressure and oil level!

Oil level / Air pressure	174 mm 286 mℓ (cc) (9.7/10.1 US/Imp oz)	164 mm 292 mℓ (cc) (9.9/10.3 US/Imp oz)	144 mm 304 mℓ (cc) (10.3/10.7 US/Imp oz)
0 kg/cm^2 (0 psi)	①	②	③
1.25 kg/cm^2 (17.7 psi)	④	Ⓐ	⑤
2.5 kg/cm^2 (35 psi)	⑥	⑦	⑧

* Ⓐ **Standard setting** **Pressure: 1.25 kg/cm^2 (17.7 psi)**
Oil level: 164 mm
292 mℓ (9.9/10.3 US/Imp oz)



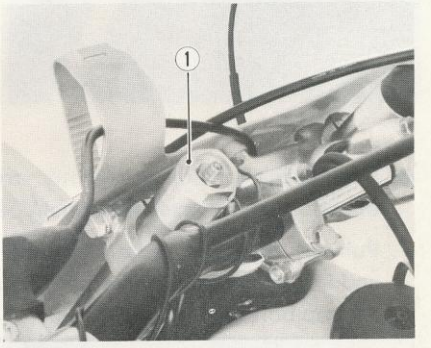
In the graph, vertical axis is for compressive force and horizontal axis is for fork stroke. Increasing the air pressure raises the first half of a curve. Raising the oil level makes the last half of a curve steeper.

HOW TO CHANGE FRONT FORK OIL

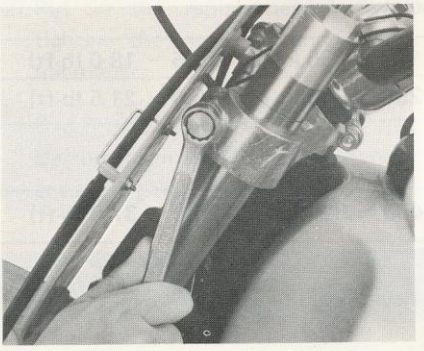
For the fork oil, be sure to use a motor oil whose viscosity rating meets the specifications of SAE 20W/20. How to change the front fork oil is as follows:

1. Push in the air valve to let out the pressure completely.
2. Loosening front axle nut, remove front wheel.

NOTE:
To facilitate the subsequent steps, have inner tube cap bolts ① loosened after loosening upper clamp bolts.



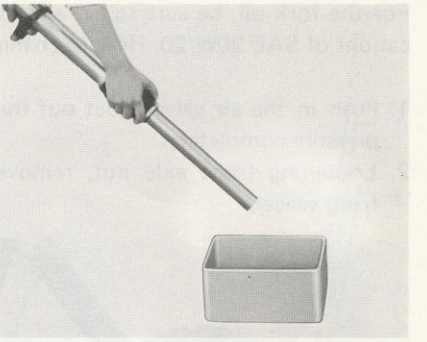
3. Loosen upper and lower clamp bolts, and remove fork tubes.



4. Loosening inner tube cap bolt, take out spacer, spring seat and spring.

WARNING:
Push down the bolt while turning it loose. Remember, the fork spring force acting on the bolt is so great that the bolt might fly off if no push were exerted to it.

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



6. Pour in the fork oil and gently stroke the fork several times. As to quantity of oil, consult **"Oil level adjustment"** and **"Typical fork setting"**.
7. Pull out inner tube as far as it comes out; insert the spring, spring seat and spacer; and install cap bolt. Remember, small coil diameter comes on lower side. Tighten the cap bolt to this torque value.

Cap bolt tightening torque:	**350 ~ 500 kg-cm (25.5 ~ 36.0 lb-ft)**

8. Re-install the fork on the machine. The upper and lower clamp bolts should be tightened to the torque value indicated below.

Upper clamp bolts tightening torque:	**150 ~ 250 kg-cm (10.5 ~ 18.0 lb-ft)**
Lower clamp bolts tightening torque:	**250 ~ 300 kg-cm (18.0 ~ 21.5 lb-ft)**

9. Install the front wheel to the fork.

Front axle nut tightening torque:	**400 ~ 520 kg-cm (29.0 ~ 37.0 lb-ft)**

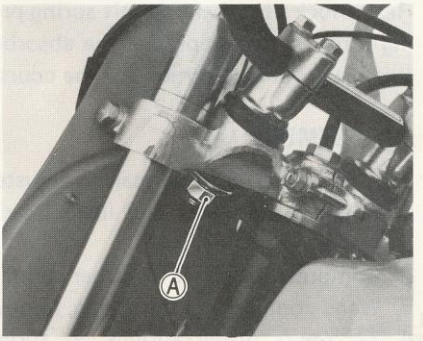
CAUTION:
Never forget to replace the split pin by a new one.

10. Inject water-free compressed air to the fork (see **"air pressure adjustment"**.)

HANDLEBAR DAMPER ADJUSTMENT

The damping effect can be varied as desired by tightening the nuts Ⓐ more or less hard.

Tightening torque range:
80 ~ 120 kg-cm (6.0 ~ 8.5 lb-ft)



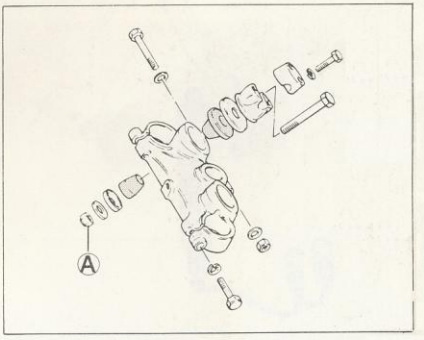
This adjustment should be made to suit the damping action to the racing course conditions or to the rider's preference.

HOW TO REPLACE DAMPER RUBBER

Replace the handlebar damper rubbers as follows:

1) Remove handlebar, loosen nuts Ⓐ under upper bracket, and remove dampers by pulling them upward.
2) Put in the replacement rubbers, tighten the nuts Ⓐ and restore handlebar.

CAUTION:
Be sure to make the two rubbers equally tight.



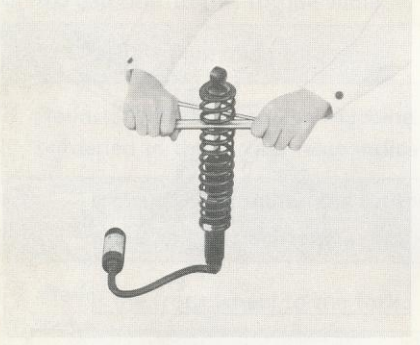
REAR SUSPENSION

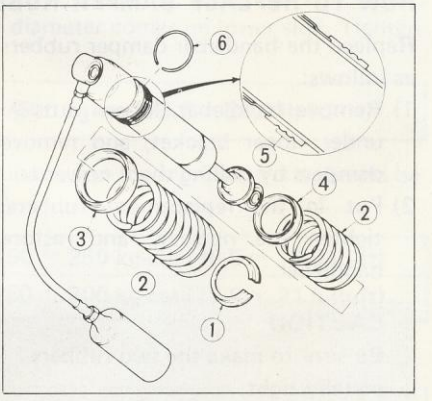
Rear shock absorbers permit spring preload to be adjusted in three steps and damping force in two steps. Set the absorbers to obtain the desired cushioning effect to suit the ground conditions of the course or to the rider's preference.

ADJUSTMENT

Two rear shock absorberscan be adjusted to give three different spring settings.

1. Remove the upper and lower rear shock absorber bolts and dismount the absorber.
2. Compress the shock absorber spring as shown below.
3. While compressing the spring, remove the lower spring seat ①.
4. Take out the two springs ②, spring joint ③ and upper spring seat ④ from the unit.
5. Each unit has three grooves for the clip position ⑤. The spring tension can be varied by changing the position of the clip ⑥. The higher the clip position, the less the spring tension.





CAUTION:
In the new shock absorber unit the clip ⑥ has been set at the highest position for optimum shock absorption for an average rider's weight. However, after the machine has covered the running-in mileage of about 500 km (300 miles), the component parts could be adjusted and the optimum clip position will be changed to the groove one step down — the middle groove.

NOTE: Two stiffer spring than the standard are available as optional parts.

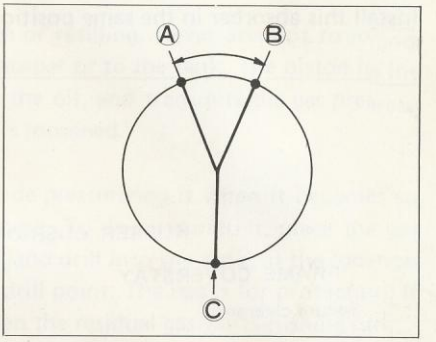
DAMPING FORCE ADJUSTMENT

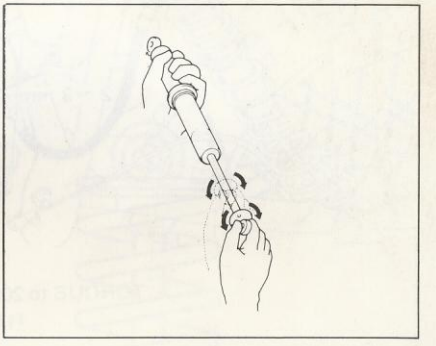
Each RM250 reaches the user with its rear shock absorbers factory-set rather on the hard side. This mean that the push rod in the absorber is in position Ⓐ . To change the setting to bring the absorbers on the soft side, relocate the push rod to position Ⓒ as follows:

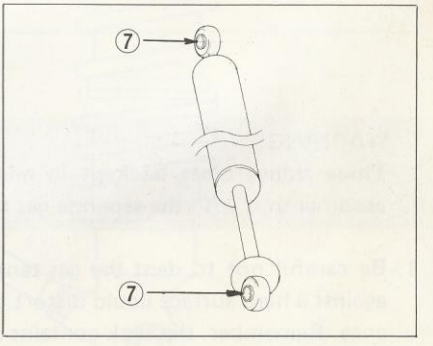
1) Take down rear shock absorbers. From each absorber, remove coil springs. Find out the three arresting positions Ⓐ , Ⓑ and Ⓒ of push rod by turning the rod in place either way. The rod will snap into each position with an audible click.
2) Now, locate the push rod in position Ⓒ by turning it; reassemble the absorber; and refit it to the frame.

NOTE: If the absorber mounting bolt holes ⑦ , top and bottom, are found angularly offset more or less, correct this situation by proceeding as follows:

3) Before putting in the coil springs, push down the rod in place and, while holding it down, twist it more or less by an amount necessary to line up the two bolt holes ⑦ . Be sure to release the push rod gently after twisting it.
4) Be sure that the two absorbers are adjusted equally.

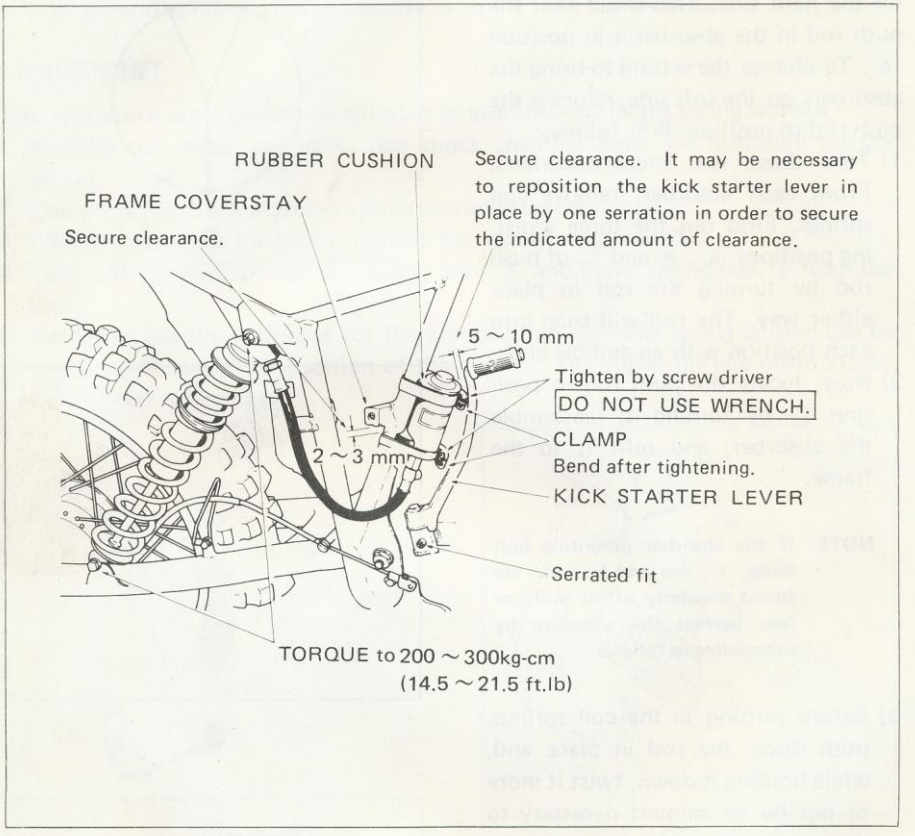






INSTALLATION

Install this absorber in the same position, and attach its gas tank, as figure:

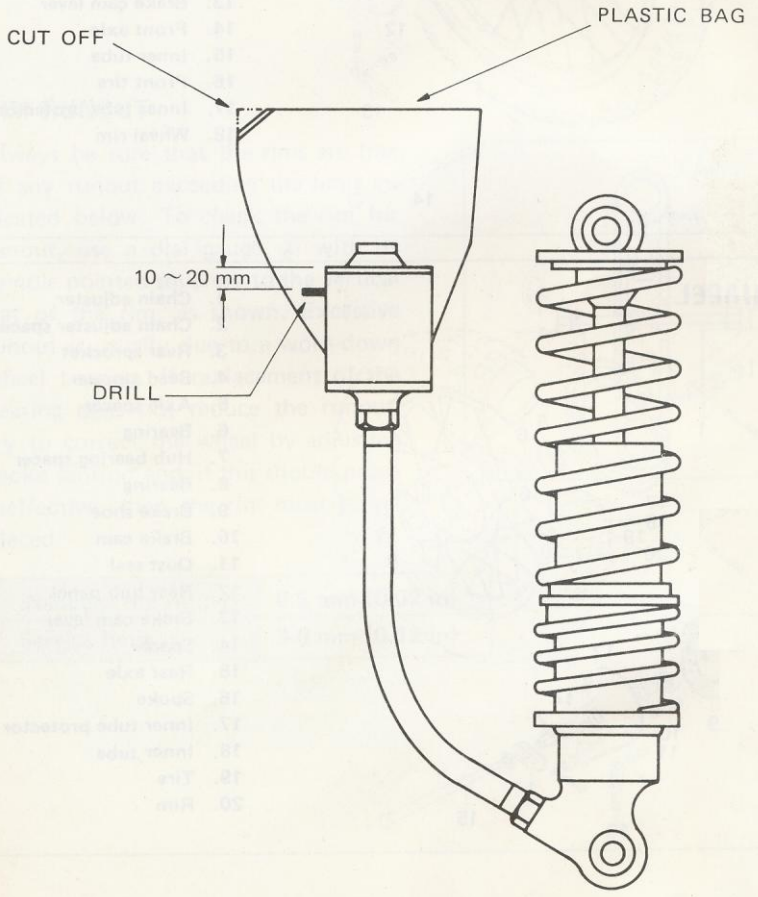


WARNING:
Three things must be kept in mind for correctly handling the rear shock absorber unit with the separate gas tank for its absorber:

1. Be careful not to dent the gas tank. Dropping it onto hard floor or banging it against a hard surface could distort the tank to result in a poor absorber performance. Remember, the tank contains a precision machined piston.

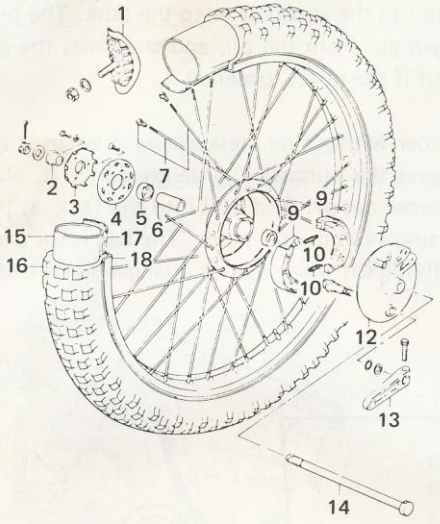
2. This absorber does not permit oil change or refilling. Never attempt to loosen either nut securing the hose end to the absorber or to the tank. The piston inside separates high-pressure nitrogen gas from the oil, and transmits the gas pressure to the oil: the oil will spurt out if the nut is loosened.

3. Never throw away this absorber without de-pressurizing it when it becomes so used-up that it no longer serves the purpose. To de-pressurize it, place the gas tank in a plastic bag with a corner cut off, and drill into the tank, at the location indicated, through the bag, using a 3 mm drill point. The bag is for protection; it prevents the drill chips from flying off when the residual gas starts rushing out.



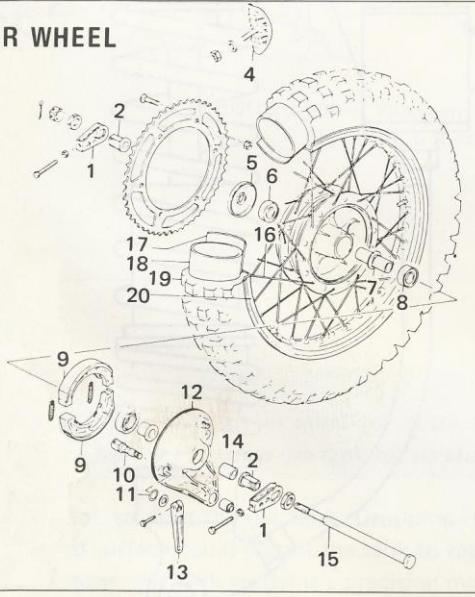
WHEELS

FRONT WHEEL



1. Bead stopper
2. Spacer
3. Hub bearing holder
4. Front hub flange
5. Bearing
6. Spacer
7. Spoke
8. Bearing
9. Brake shoe
10. Spring
11. Brake cam
12. Front hub panel
13. Brake cam lever
14. Front axle
15. Inner tube
16. Front tire
17. Inner tube protector
18. Wheel rim

REAR WHEEL

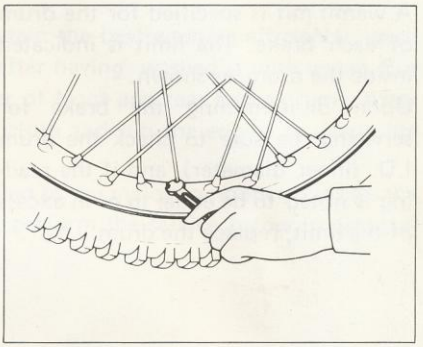


1. Chain adjuster
2. Chain adjuster spacer
3. Rear sprocket
4. Bead stopper
5. Axle spacer
6. Bearing
7. Hub bearing spacer
8. Bearing
9. Brake shoe
10. Brake cam
11. Dust seal
12. Rear hub panel
13. Brake cam lever
14. Spacer
15. Rear axle
16. Spoke
17. Inner tube protector
18. Inner tube
19. Tire
20. Rim

RETIGHTENING SPOKE NIPPLES

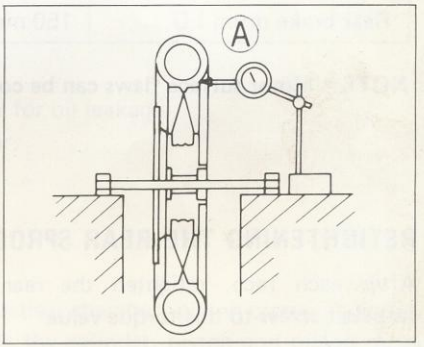
After each race, check the nipples for tightness and, as necessary, retighten them to the torque value indicated below. Driving the machine with these nipples loose will damage not only the spokes but also the rim.

Spoke nipple tightening torque:
40 ~ 50 kg-cm (3.0 ~ 3.5 lb-ft)



RIM RUNOUT

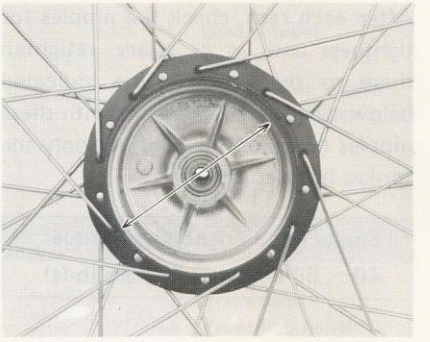
Always be sure that the rims are free of any runout exceeding the limit indicated below. To check the rim for runout, use a dial gauge Ⓐ with its spindle pointed squarely to the vertical flat of the rim, as shown. Excessive runout is usually due to a worn-down wheel bearing. If replacement of the bearing does not reduce the runout, try to correct the wheel by adjusting spoke tension and, if this should prove ineffective, then the rim must be replaced.



Standard rim runout:	0.5 mm (0.02 in)
Service limit:	3.0 mm (0.12 in)

BRAKE DRUMS

A wear limit is specified for the drum of each brake. The limit is indicated inside the drum, as shown.
Upon disassembling the brake for servicing, be sure to check the drum I.D. (inner diameter), and if the reading is noted to be equal to or in excess of the limit, replace the drum.



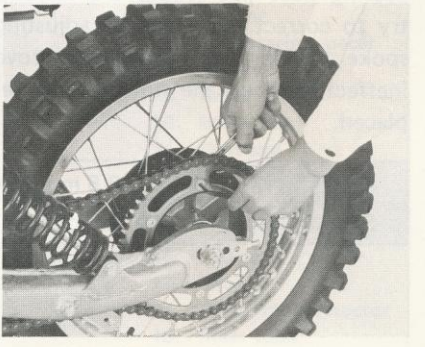
	Standard	Wear limit
Front brake drum I.D.	130 mm (5.12 in)	130.7 mm (5.15 in)
Rear brake drum I.D.	150 mm (5.91 in)	150.7 mm (5.93 in)

NOTE: Minor surface flaws can be corrected by grinding with sandpaper.

RETIGHTENING THE REAR SPROCKET SCREW

After each race, retighten the rear sprocket screw to this torque value:

Tightening torque for rear sprocket screw:
200 ~ 300 kg-cm (14.5 ~ 21.5 lb-ft)



SERVICE AND MAINTENANCE AFTER COMPETITION

Wash the motorcycle after each race. To obtain the best washing efficiency, wash the machine with hot water and detergent after having washed it with water. But never squirt water directly on the air cleaner of front and rear brake drums. After washing the motorcycle, wipe it with a dry cloth and run the engine to evaporate water on the engine components.
Running the engine also allows oil to be applied to the major components inside the engine, thus preventing rust. After washing, perform the service below in preparation for the next race.

AFTER EACH RACE

Apply oil and grease to the rotating and sliding parts.
Check each tightening bolt, nut and spoke nipple for tightness.
Clean the air cleaner element and fuel cock strainer.

AFTER FIVE RACES

Check the front fork and rear shock absorber for oil leakage.
Check the front and rear brake shoes for wear.
Replace the transmission oil with fresh oil.

AFTER TEN RACES

Remove the carbon deposited on the combustion chamber, piston crown, cylinder exhaust port-and expansion chamber. Check the cylinder, piston and piston rings for wear.

IN PREPARATION FOR RACING NEXT SEASON

It is recommended that your RM250 be overhauled by an authorized Suzuki Service Shop to maintain its performance.

TROUBLESHOOTING

There can be various causes for problems which might occur on the motorcycle. The following procedures may be used to troubleshoot possible trouble spots.

ENGINE WILL NOT START

Fuel system

1. Check that there is sufficient gasoline in the fuel tank.
2. Make sure the fuel petcock and fuel tank breather hose are not clogged.

Spark plug

1. Check that the spark plug gap has not been bridged and short circuited by carbon.
2. Check that the plug is not fouled with wet gasoline or oil.
3. Clean the spark plug gap and lay the connected spark plug against the cylinder head. Kick over the engine and see if a spark is produced. If not, replace the spark plug or check your ignition system.
4. To check the ignition system, remove the spark plug cap from the high tension wire and hold it about 7 mm (0.28 in) from the cylinder head (ground). Kick the engine over and see if a spark jumps this gap. If so, the system is functioning and the problem is probably in the spark plug cap. If this does not produce a spark, have your Suzuki dealer check your ignition system.

CLUTCH SLIPPAGE

1. If there is no clutch lever play, adjust the cable adjuster for 4 mm (0.16 in) play.
2. The clutch will also slip if the plates are worn or the springs have weakened. If so, these items must be replaced.

EXCESSIVE ENGINE VIBRATION

1. Loose engine mounting bolt.
2. Crack in the frame.

ENGINE OVERHEATS

1. Carburetion is lean caused by the carburetor setting (main jet selection) not being suitable for running conditions and weather.
2. Carbon has collected on the combusion chamber, piston crown, cylinder exhaust port and expansion chamber.
3. The spark plug has too hot a heat range.

BAD RUNNING STABILITY

1. Improper front or rear tire pressure.
2. Improper front or rear wheel alignment.
3. Improperly tightened front axle nut or steering stem lock nut.

ENGINE WILL NOT REV UP OR WILL NOT RUN SMOOTHLY

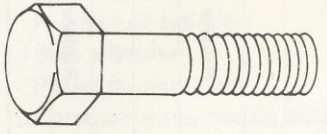
1. The carburetor choke knob is not fully returned.
2. Too rich carburetion.
3. Clogged air cleaner element.

TIGHTENING TORQUE

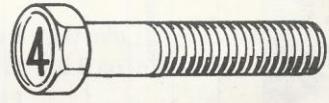
PART	kg-cm	lb-ft
Handlebar clamp bolts	160 ~ 200	11.5 ~ 14.0
Front fork upper clamp bolts (right and left)	150 ~ 250	10.5 ~ 18.0
Front fork lower clamp bolts (right and left)	250 ~ 300	18.0 ~ 25.0
Steering stem upper clamp bolt	150 ~ 230	11.0 ~ 16.5
Steering stem lower clamp bolt	200 ~ 300	14.5 ~ 21.5
Steering stem head bolt	350 ~ 500	25.5 ~ 36.0
Front fork cap bolt	350 ~ 500	25.5 ~ 36.0
Front brake cam lever bolt	50 ~ 80	4.0 ~ 5.5
Front axle nut	400 ~ 520	29.0 ~ 37.0
Rear swinging arm pivot nut	500 ~ 800	36.5 ~ 58.5
Rear shock absorber fitting nuts	250 ~ 300	18.0 ~ 25.0
Rear torque link nuts	120 ~ 150	8.5 ~ 10.5
Rear brake cam lever bolt	50 ~ 80	4.0 ~ 5.5
Rear axle nut	500 ~ 800	36.5 ~ 58.5
Cylinder head nuts	230 ~ 270	16.5 ~ 19.5
Magneto rotor nut	300 ~ 400	21.5 ~ 29.0
Engine sprocket nut	400 ~ 600	29.0 ~ 43.0
Clutch sleeve hub nut	400 ~ 600	29.0 ~ 43.0
Primary drive gear nut	500 ~ 700	36.5 ~ 51.0
Rear sprocket screw	200 ~ 300	14.5 ~ 21.5
Spoke nipple	40 ~ 50	3.0 ~ 3.5

For other bolts and nuts not listed left, refer to this chart:

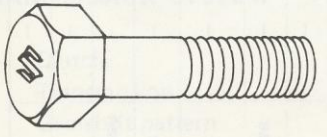
Bolt Diameter (mm)	Normal or "4" marked bolt		"S" or "7" marked bolt	
	kg-cm	lb-ft	kg-cm	lb-ft
5	20 ~ 40	1.5 ~ 3.0	30 ~ 60	2.0 ~ 4.0
6	40 ~ 70	3.0 ~ 5.0	70 ~ 100	5.5 ~ 7.0
8	90 ~ 140	6.5 ~ 10.0	200 ~ 250	14.5 ~ 18.0
10	180 ~ 280	13.0 ~ 20.0	350 ~ 400	25.5 ~ 29.0



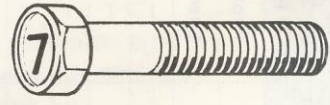
Normal bolt



"4" marked bolt



"S" marked bolt



"7" marked bolt

PERIODIC MAINTENANCE SCHEDULE

Interval / Service Item	Each race Every 100 km (60 miles)	Every 2 races Every 200 km (120 miles)	Every 3 races Every 300 km (180 miles)	Every 5 races Every 500 km (300 miles)	Remarks
Piston ring	—	Replace	—	—	
Transmission oil	—	Change	—	—	Change at initial 100 km
Engine sprocket	—	—	—	Replace	
Drive chain	Lubricate	—	Replace	—	Adjust slack every 40 km
Rear sprocket	—	—	Replace	—	
Drive chain buffer	Replace	—	—	—	
Drive chain guide roller	—	—	Replace	—	
Spoke nipple	Retighten	—	—	—	Within 0 - 50 km retighten every 10 km. After 50 km retighten every 50 km.
Air cleaner	Clean	—	—	—	
Kick starter lever	Apply grease	—	—	—	
Throttle, brake & clutch cable	—	—	—	Replace	
Bolts and nuts	Retighten	—	—	—	Retighten initial 20 km
Spark plug	Check & clean	—	—	—	
Piston	—	—	—	Replace	
Front fork oil	—	—	Change	—	Change at initial 100 km

SPECIFICATIONS

DIMENSIONS & WEIGHT

Overall length	2155 mm (84.8 in)
Overall width	880 mm (34.6 in)
Overall height	1220 mm (48.0 in)
Wheelbase	1450 mm (57.1 in)
Ground clearance	310 mm (12.2 in)
Dry weight	105 kg (231 lbs)

ENGINE

Type	Two-stroke cycle, air cooled
Intake system	Piston and reed valve
Number of cylinders	1
Bore x Stroke	67.0 x 70.0 mm (2.64 x 2.76 in)
Piston displacement	246 cc (15.0 cu.in)
Corrected compression ratio	7.6 : 1
Carburetor	MIKUNI VM36SS single
Air cleaner	Polyurethan foam element
Starter system	Primary kick
Lubrication system	Fuel and oil premixture of 20 : 1

TRANSMISSION SYSTEM

Clutch	Wet multi-plate type
Transmission	5-speed, constant mesh
Gearshift pattern	1-down 4-up
Primary reduction	2.727 (60/22)
Final reduction	3.846 (50/13)
Gear ratios low	2.076 (27/13)
2nd	1.750 (28/16)
3rd	1.352 (23/17)
4th	1.105 (21/19)
top	0.913 (21/23)
Drive chain	DAIDO #520TR, 108 links

CHASSIS

Front suspension	Telescopic, pneumatic/coil spring, oil dampened
Rear suspension	Swinging arm, gas/oil dampened, damper 2-way/spring 3-way adjustable
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	3.00-21-4PR
Rear tire size	4.50-18-4PR
Steering angle	45° (right and left)
Castor	60°
Trail	126 mm (5.0 in)
Turning radius	2.3 m (7.5 ft)

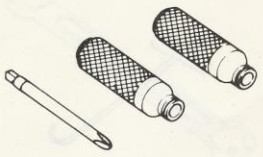
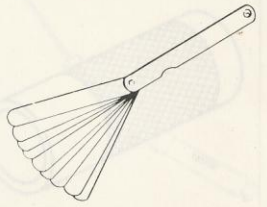
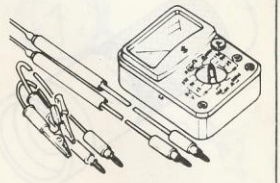
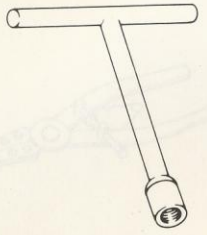
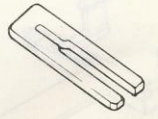
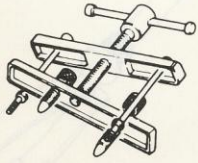
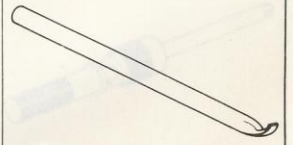
ELECTRICAL SYSTEM

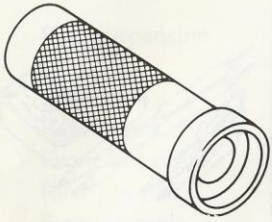
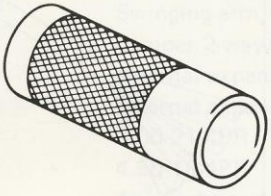
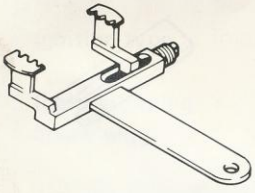
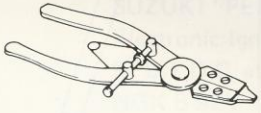
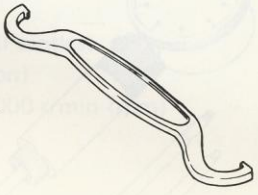
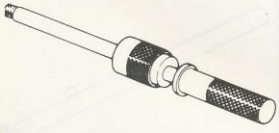
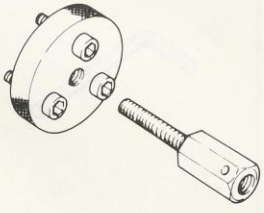
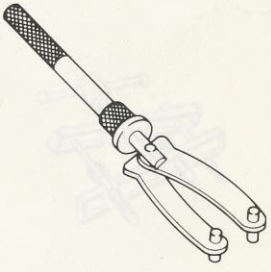
Ignition type	SUZUKI "PEI" (Pointless Electronic Ignition)
Ignition timing	9° B.T.D.C. at 8000 r/min (rpm)
Spark plug	NGK B-9EV

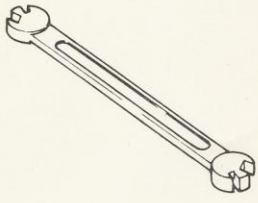
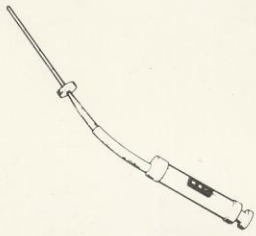
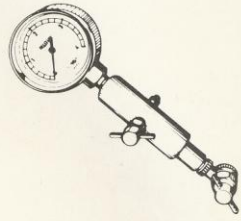
CAPACITIES

Fuel tank	8 ℓ (2.1/1.8 US/Imp gal)
Transmission oil	900m ℓ (1.90/1.58 US/Imp pt)

SPECIAL TOOLS

		
Shock driver set 09900-09002	Thickness gauge 09900-20803	Pocket tester 09900-25001
		
Timing gauge 09931-00112	8 mm stud installing tool 09910-10710	Con-rod stopper 09910-20114
		
Crankcase separating tool 09910-80113	8 mm hexagon "L" type wrench 09911-71510	Oil seal remover 09913-50110

		
Bearing and oil seal installing tool 09913-70122	Bearing and oil seal installing tool 09913-80111	Spring hook 09920-20310
		
Clutch sleeve hub holder 09920-53710	Snap ring opener 09920-70111	Steering stem lock nut wrench 09940-10122
		
Rotor remover shaft 09930-30101	Rotor remover attachment 09930-30210	Engine sprocket and flywheel holder 09930-40113

		
Spoke nipple wrench 09940-60112	Front fork oil level gauge 09943-74110	Pressure gauge 09940-44110

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