SUZUKI

OWNER'S MAINTENANCE MANUAL

RM500

IMPORTANT

Please read this manual and follow its instructions carefully.
To emphasize special information the words WARNING, CAUTION and NOTE carry special meanings and should be carefully reviewed.

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

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

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

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 on the race tracks.

SUZUKI now presents the new RM500, 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 RM500 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.

WARNING

THIS VEHICLE IS DESIGNED AND MANUFACTURED FOR COMPETITION USE ONLY AND IS NOT SUBJECT TO FEDERAL MOTOR VEHICLE SAFETY STANDARDS AS IT IS NOT EQUIPPED OR APPROVED FOR OPERATION ON PUBLIC STREETS, ROADS, OR HIGHWAYS. SOME STATE LAWS FURTHER PROHIBIT OPERATION OF THIS VEHICLE EXCEPT IN AN ORGANIZED COMPETITIVE EVENT UPON A CLOSED COURSE CONDUCTED UNDER THE AUSPICES OF A RECOGNIZED SANCTIONING BODY OR BY PERMIT OF THE LOCAL GOVERNMENTAL AUTHORITY MAYING JURISDICTION.
BEFORE OPERATION, FIRST DETERMINE THAT OPERATION IS LEGAL IN YOUR STATE.

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GENERAL INSTRUCTION

FUEL

Use the highest octane leaded fuel available of at least 90 pump octane ($\frac{R+M}{2}$ method).

NOTE: $\frac{R+M}{2}$ octane ratings are normally listed on all commercial gas pumps.

ENGINE OIL

Suzuki strongly recommends the use of SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT. If this oil is not available use an equivalent high quality Two Cycle Racing Lubricant, at a 20 to one ratio only.

CAUTION:
Do not allow two different brands to get mix 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 fuel/oil mixture should be maintained.

FUEL AND OIL MIXTURE RATIO OF 20 : 1

GASOLINE	OIL	GASOLINE	OIL
L	ml	(qt)	(oz)
0.5	25	0.5	0.8
1.0	50	1.0	1.6
1.5	75	1.5	2.4
2.0	100	2.0	3.2
2.5	125	2.5	4.0
3.0	150	3.0	4.8
3.5	175	3.5	5.6
4.0	200	4.0	6.4
4.5	225	4.5	7.2
5.0	250	5.0	8.0
5.5	275	5.5	8.8
6.0	300	6.0	9.6
6.5	325	6.5	10.4
7.0	350	7.0	11.2
7.5	375	7.5	12.0
8.0	400	8.0	12.8
8.5	425	8.5	13.6
9.0	450	9.0	14.4
9.5	475	9.5	15.2
10.0	500	10.0	16.6

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

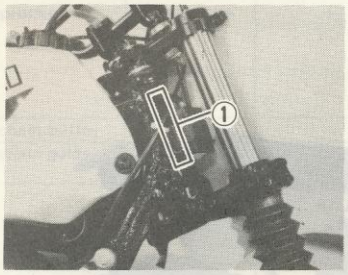
MIXING PROCEDURE

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.

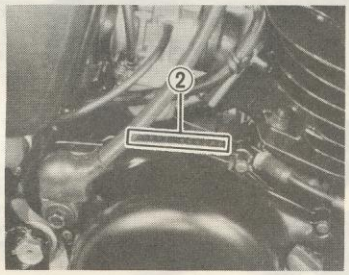
TRANSMISSION OIL
Use a good quality SAE 20W/40 multi-grade motor oil.

FRONT FORK OIL
Use fork oil of # 10.

SERIAL NUMBER LOCATION



Frame number



Engine number

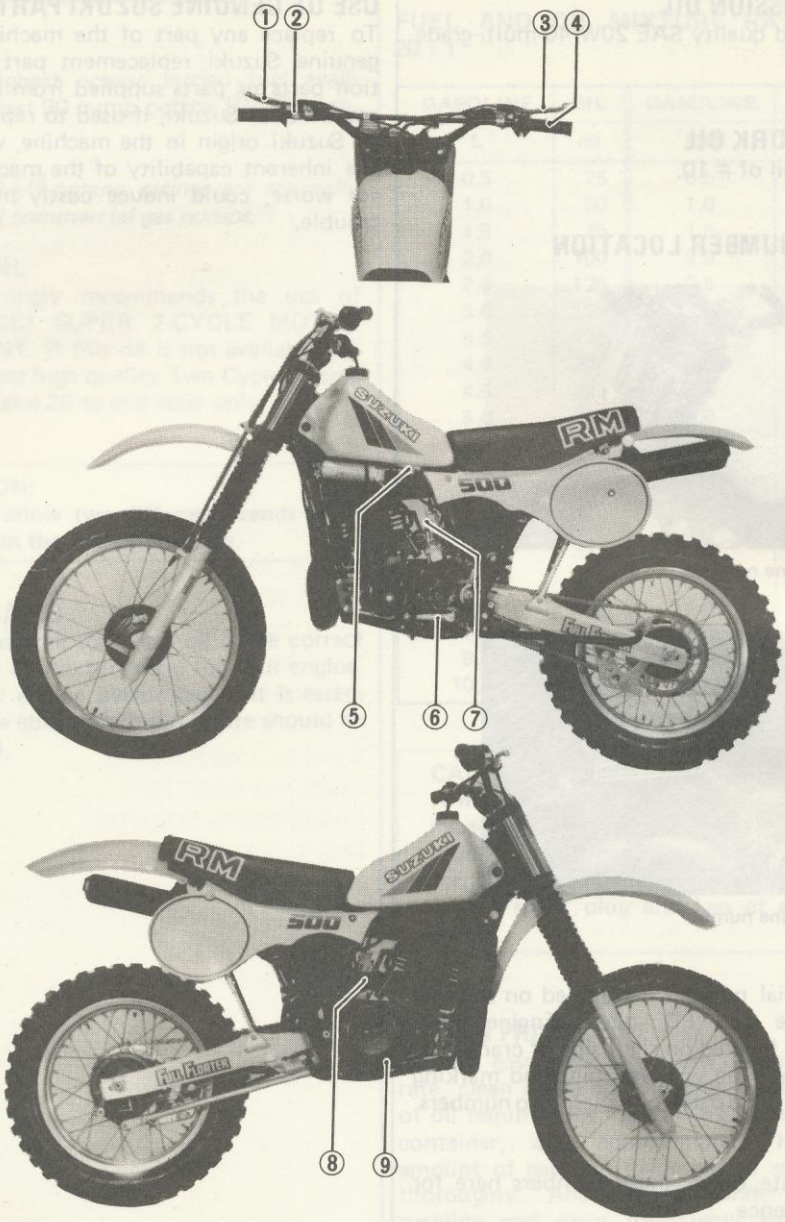
Frame serial number is stamped on steering head tube and I.D. plate. Engine serial number is located on right side of crankcase. When registering your machine and marking orders for spare parts, cite these two numbers.

Please write down these numbers here for your reference.

Frame No.:
Engine No.:

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.

LOCATION OF PARTS



(1) Clutch lever
(2) Engine stop switch
(3) Front brake lever
(4) Throttle grip
(5) Fuelcock
(6) Carburetor choke knob
(7) Gearshift lever
(8) Kick starter lever
(9) Rear brake pedal

PERIODICAL INSPECTION SCHEDULE

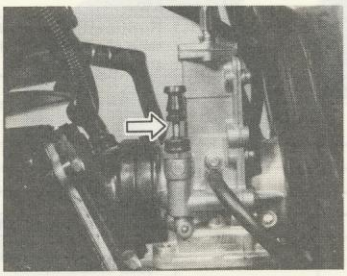
Interval / Service Item	Each race Every 100 km (60 miles)	Every 2 races Every 200 km (120 miles)	Every 3 races Every 300 km (180 miles)	Every 5 races Every 500 km (300 miles)	Remarks
Piston ring	–	Replace	–	–	
Transmission oil	–	–	Change	–	Change at initial 100 km.
Engine sprocket	–	–	–	Replace	
Drive chain	Lubricate	–	Replace	–	Adjust slack every 40 km.
Rear sprocket	Retighten	–	Replace	–	Check and retighten sprocket bolts at initial and subsequent 10 minutes of riding; and each race thereafter.
Drive chain buffer	–	–	Replace	–	
Drive chain guide roller	–	–	Replace	–	
Spoke nipple	–	–	–	–	Retighten every 10 km up to 50 km of mileage, and thereafter every 50 km.
Air cleaner	Clean	–	–	–	Ruptured, fissured and severely dirty element should be replaced.
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.
Front fork air pressure	Check	–	–	–	Check abnormality of front fork inner tube after removing rubber boots every race.
Full-Floating suspension system pivoting portion	Check	–	–	–	Check and apply grease all pivoting position frequently

BREAK-IN

This motorcycle is manufactured using the latest technology relating to the two-stroke engine and thus requires a relatively short break-in operation is necessary: the only thing is that the machine should not 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.

OPERATION

STARTING THE ENGINE



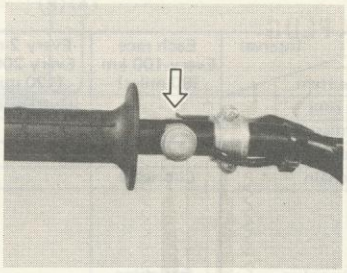
When the engine is cold:

Pull the choke knob. 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.

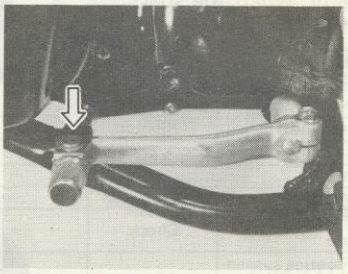
STOPPING THE ENGINE



Engine stop switch

1. Close the fuelcock.
2. Rev the engine 3 or 4 times.
3. Slow down the engine.
4. Operate the engine stop switch to stop the engine.

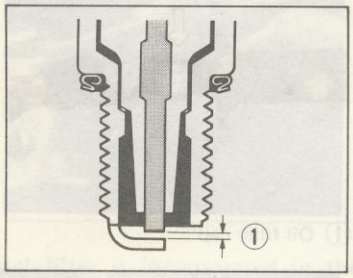
GEARSHIFT LEVER



The transmission has 5-speeds. Depress the gearshift lever to shift into 1st gear. Raise the gearshift lever into 2nd, 3rd, 4th and 5th. Neutral is located between 1st and 2nd.

INSPECTION AND MAINTENANCE

SPARK PLUG

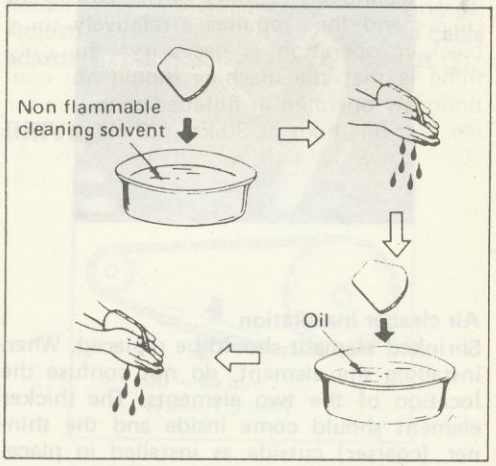


When carbon accumulates on the spark plug, a hot, strong spark will not be produced. Remove carbon deposits with a wire or pin and adjust the spark plug gap ① to **0.5 – 0.6 mm (0.020 – 0.024 in)** by measuring with a thickness gauge.
Generally, when the spark plug heat range is correct, the plug electrode shows a light brown or tan color. Spark plug of a different heat may be chosen according the following table.

	STANDARD TYPE	COLD TYPE
NGK	B8EGV	B9EGV

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, turn in with your fingers to prevent stripping the threads from stripping, then tighten with a torque wrench to 25 – 30 N·m (2.5 – 3.0 kg-m, 18.0 – 22.0 lb-ft).**

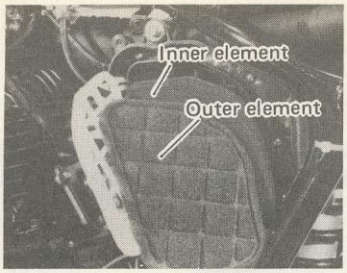
AIR CLEANER



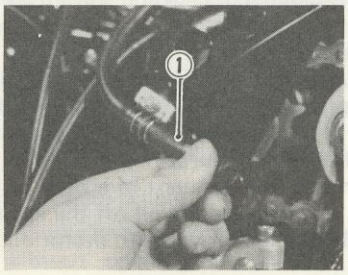
How to clean the element.
1. Fill a washing pan of a proper size with non flammable cleaning solvent. Immerse the element in the solvent and wash it clean.
2. Squeeze solvent off the washed element by pressing it between the palms of hands: do not twist and wring the element, or it will develop fissures.
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.

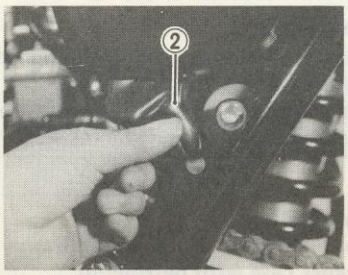
CAUTION:
Before and during the cleaning operation, examine the element to see if it has a rupture or fissure. A ruptured or fissured element must be replaced.

CAUTION:
Do not clean the element frame and cleaner case with petroleum.



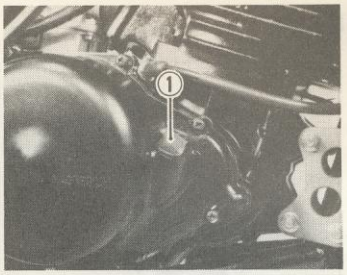
Air cleaner installation
Shrinked element should be replaced. When installing the element, do not confuse the location of the two elements. The thicker element should come inside and the thinner (coarser) cutside as installed in place. Make sure that there is no clearance all around the element.



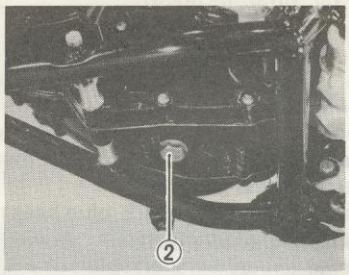


Before each race, drain out the brown back gasoline and water, if any, by lightly pressing the oil drain ① and water drain ② by finger, respectively.

TRANSMISSION OIL



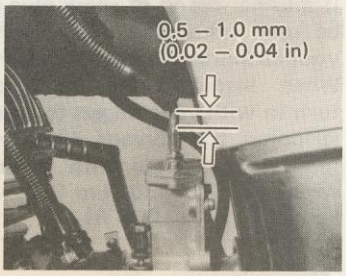
① Oil filler cap



② Drain plug

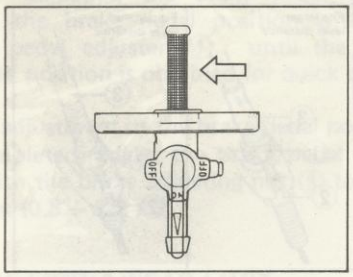
To change the transmission oil, remove the filler and drain plug and drain the oil. Install the drain plug and measure **1 000 ml (1.1 US qt)** of a good quality **SAE 20W/40** multigrade motor oil, then pour it into the transmission slowly. Tighten the drain plug **15 – 20 N·m (1.5 – 2.0 kg-m, 11.0 – 14.5 lb-ft)**.

CARBURETOR



For correct, safe throttle operation the throttle cable should be adjusted to have **0.5 – 1.0 mm (0.02 – 0.04 in)** play at the carburetor.
This adjustment can be made at the cable adjuster on the carburetor cap.

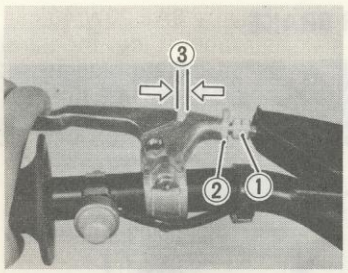
FUEL FILTER

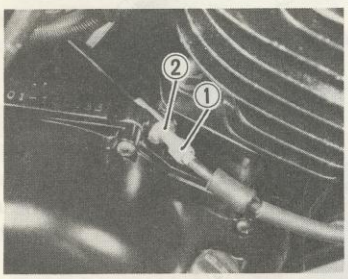


The fuel filter is incorporated in the fuel cock which is mounted on the bottom of the fuel tank at the left side. Accumulation of dirt in the filter will restrict the flow of the fuel and cause the carburetor to malfunction, therefore, the fuel filter should be serviced periodically.

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

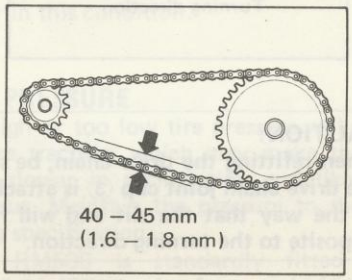
CLUTCH

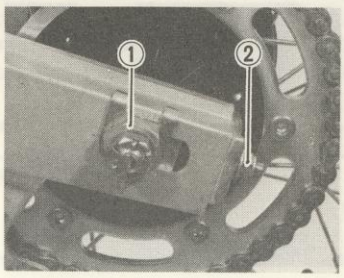




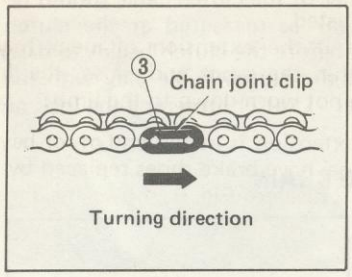
The play of the clutch cable should be 4 mm (0.16 in) as measured at the clutch lever holder before the clutch begins to desengage. Adjust the clutch cable play with the cable adjuster ① after loosening the lock nut ②.

DRIVE CHAIN

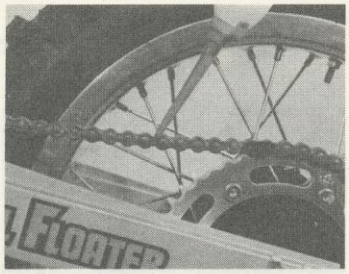




Adjusting the drive chain:
Adjust the drive chain at the rear axle by loosening right and left sleeve nuts ①. Then adjust the chain tension by turning nut ② in or out. Be sure the marks stamped on the adjuster plate aligns with the same mark on the swingarm on both sides of the motorcycle.
Proper chain tension is obtained when there is **40 – 45 mm (1.6 – 1.8 in)** up and down slack is on the chain at a point between the rear sprocket and chain guide roller with the motorcycle held standing erect by blocking up and lifting and rear wheel off the floor.

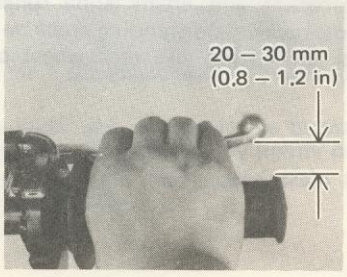


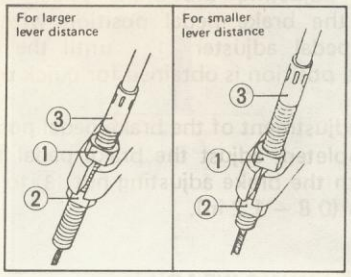
CAUTION:
When refitting the drive chain, be sure the drive chain joint clip ③ is attached in the way that the slit end will face opposite to the turning direction.



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.

FRONT BRAKE



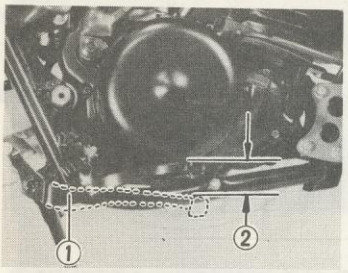


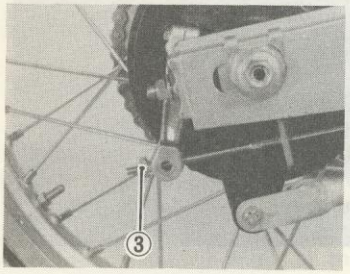
(1) Measure the amount of the front brake level distance between the brake lever end and throttle grip when the brake is operated. The distance should be 20 – 30 mm (0.8 – 1.2 in).

(2) If adjustment is necessary, loosen both the lock nuts (1) and (2) and by turning the two lock nuts in or out, relocate the position of the cable end (3) higher or lower as shown until the proper lever distance is obtained.

(3) Secure the two lock nuts.

REAR BRAKE





Before adjusting the brake pedal travel, adjust the brake pedal position with the brake pedal adjuster ① until the most suitable position is obtained for quick operation.
After adjustment of the brake pedal position is completed, adjust the brake pedal travel ② with the brake adjusting nut ③ to **20 – 30 mm (0.8 – 1.2 in).**

BRAKE LINING WEAR LIMIT

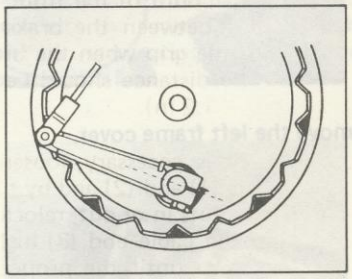


Fig. A
The extension line of the index mark is within the range.

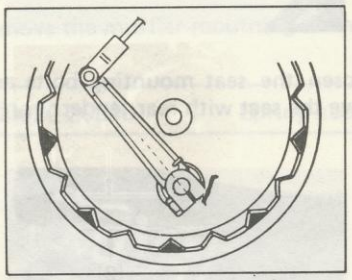


Fig. B
The extension line of the index mark is out of the range.

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.

TIRE PRESSURE

Too high or too low tire pressure will affect the tire traction, which may make the machine slower in acceleration and likely to slide out. Maintain the pressure to the following specification.
Your RM500 is standardly fitted with 100/80-21 4PR tire for front and 140/80-18 4PR tire for rear. Use genuine SUZUKI replacement tires for better roadability. Use of non-standard tires could lead to trouble.

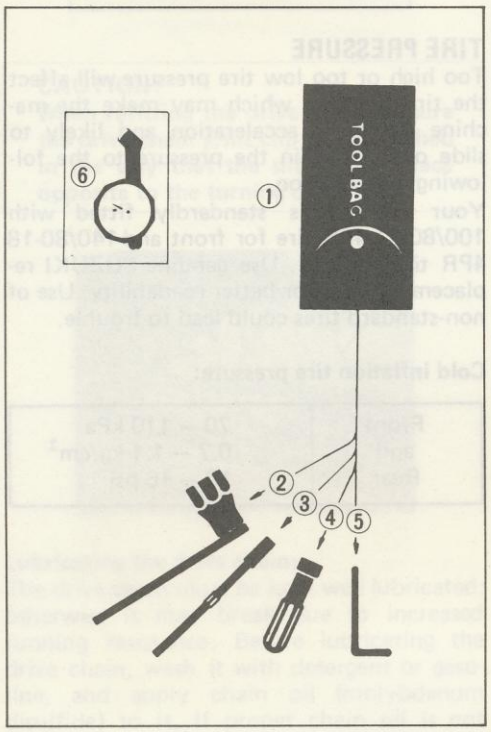
Cold inflation tire pressure:

Front and Rear	70 – 110 kPa 0.7 – 1.1 kg/cm^2 10 – 16 psi

TOOL KIT

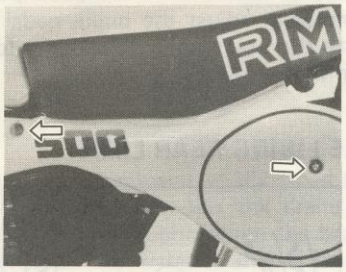
The tool kit consists of the following items.

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

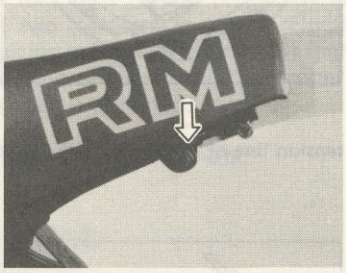


ENGINE REMOVAL

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

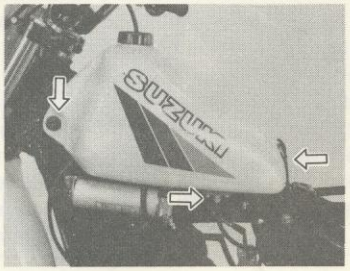


1. Remove the left frame cover.

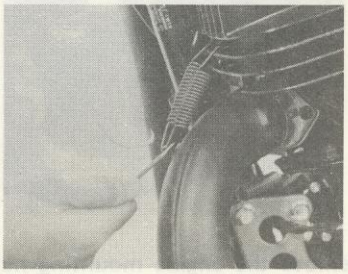


2. Loosen the seat mounting bolts and remove the seat with rear fender.

3. Remove the spring and loosen the bolt. Remove the second muffler.

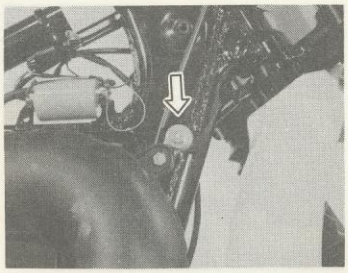


4. Turn the fuelcock to "OFF" position and disconnect the fuel line. Take off the fuel tank by unhooking rubber band and loosening bolts.

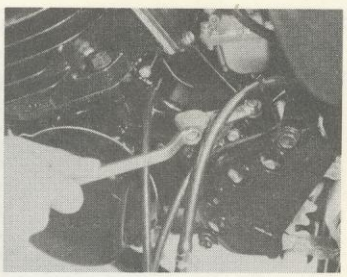


5. Remove the muffler moutning springs.

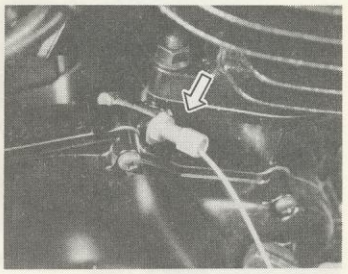
09920-20310	Spring hook



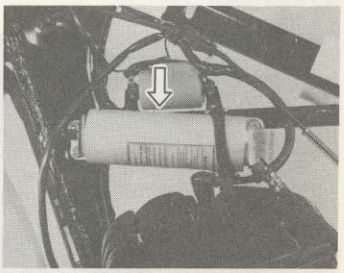
6. Loosen the muffler mounting bolt and remove the muffler.



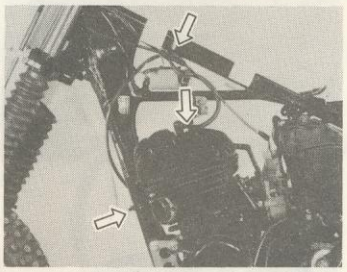
7. Loosen the bolt and remove the clutch lever.



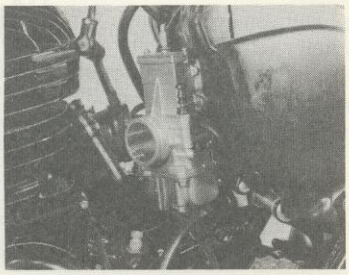
8. Remove the clutch cable adjuster.



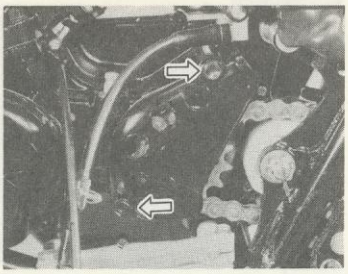
9. Remove the reservoir.



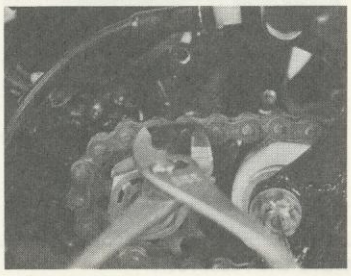
10. Disconnect lead wires and spark plug cord.



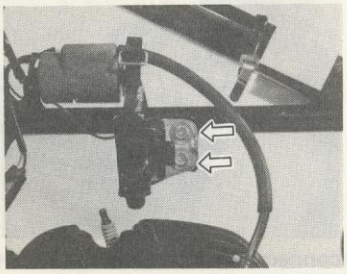
11. Loosen two clamp screws and remove the carburetor.



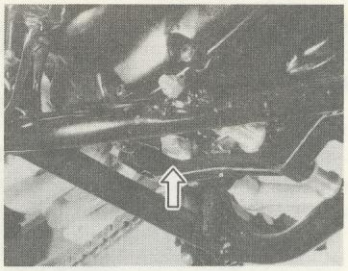
12. Loosen the bolts and remove the chain guard.



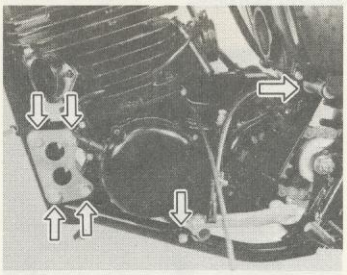
13. Remove the drive chain.



14. Remove the rear shock absorber reservoir holder.

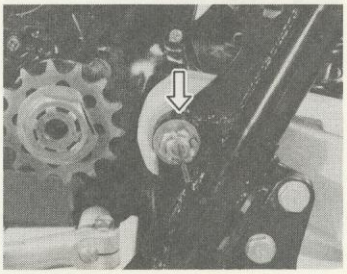


15. Drain the transmission oil by loosening the drain plug.



16. Remove the engine mounting nuts and bolts.

CAUTION:
Self-lock nuts are used for the engine mounting. Do not reuse these nuts.



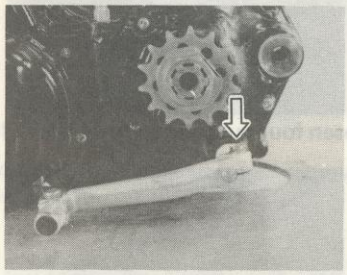
17. Remove the swinging arm pivot nut after pulling off the cotter pin and draw out the swinging arm pivot shaft.

CAUTION:
Be careful not to draw out the swinging arm pivot shaft completely from the right side swinging arm pivoting hole. Insert the shaft or rod into the left side pivoting hole from the left side of the frame to keep the alignment of the frame holes and swinging arm pivoting holes.

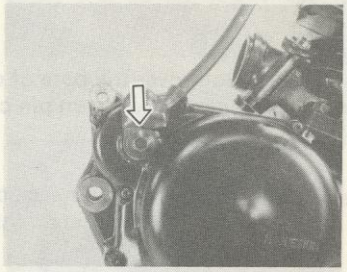
18. Take off the engine.

ENGINE DISASSEMBLY

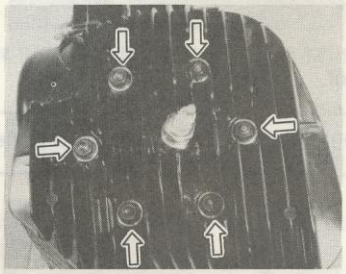
The procedure of engine disassembly is sequentially explained in following steps. Engine reassembly is effected by reversing the disassembly procedures.



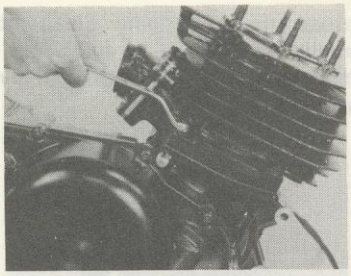
1. Remove the gearshift lever.



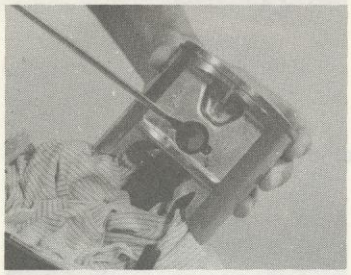
2. Remove the kick starter lever.



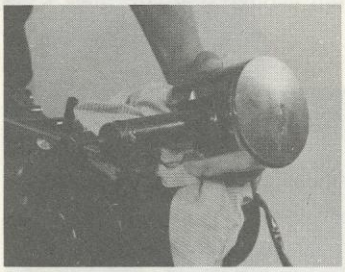
3. Loosen six nuts and remove the cylinder head.



4. Loosen four nuts and remove the cylinder.

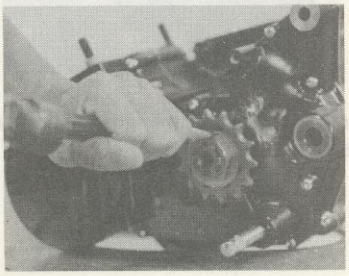


4. Put a clean cloth over the bore of crankcase. Then remove the piston pin circlip.

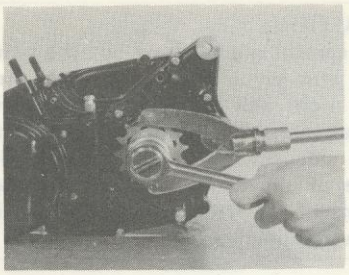


5. Remove the piston pin by using special tool.

09910-34510	Piston pin puller



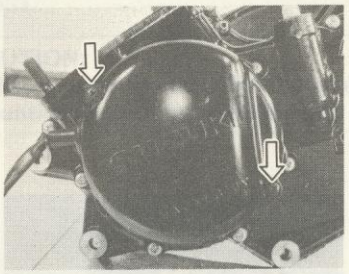
6. Flatten the engine sprocket lock washer.



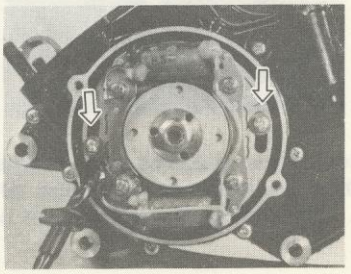
7. Loosen the engine sprocket nut by using special tool.

09930-40113	Rotor holder

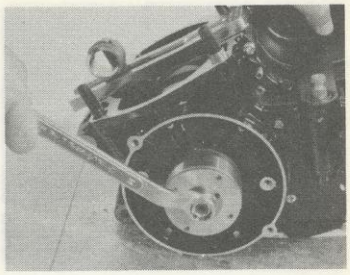
8. Remove the spacer and "O" ring.



9. Remove two screws and the magneto cover.

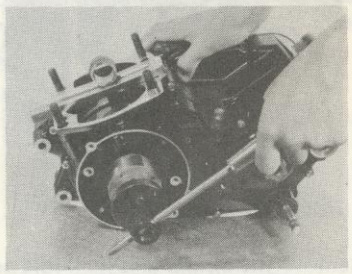


10. Remove the two screws and the stator.



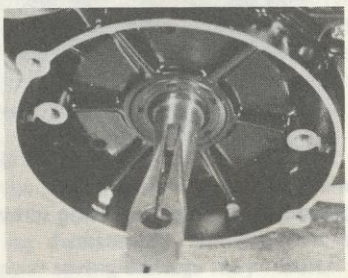
11. Remove the magneto rotor nut by holding the con-rod with special tool.

09910-20115	Con-rod holder

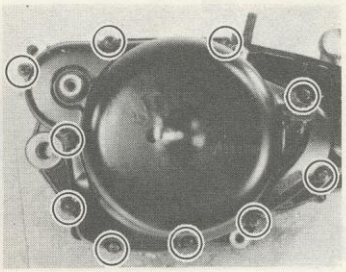


12. Draw out the rotor by using special tool.

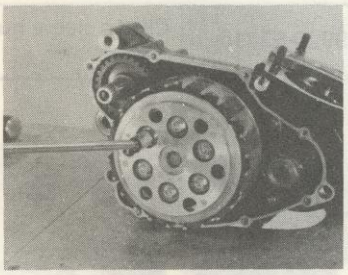
09910-20115	Con-rod holder
09930-30211	Attachment G
09930-30141	Attachment A (10 mm screw)



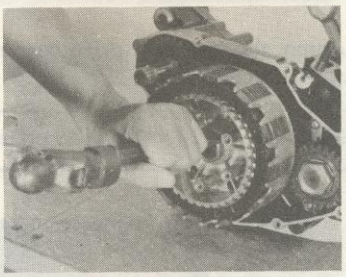
13. Remove the key.



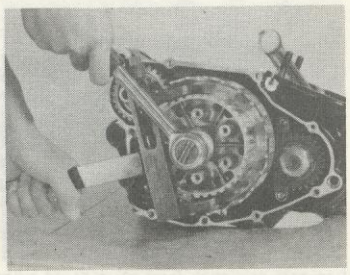
14. Loosen the screws and remove the clutch cover.



15. Loosen the bolts and remove the pressure plate.

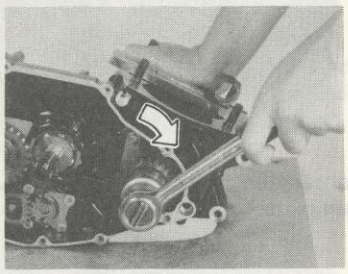


16. Flatten the clutch sleeve hub nut lock washer.



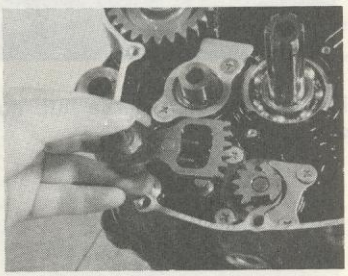
17. Loosen the clutch sleeve hub nut by using special tool. Then draw out the clutch sleeve hub.

09920-53710	Clutch sleeve hub holder

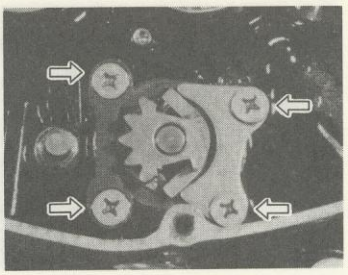


18. Loosen the primary drive gear nut by turning it clockwise.

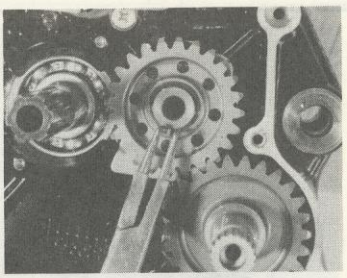
09910-20115	Con-rod holder



19. Draw out the gearshifting shaft.

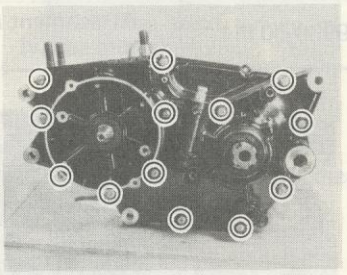


20. Loosen the screws and remove the pawl lifter and cam guide.

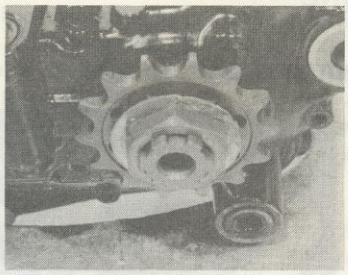


21. Remove the circlip and kick idle gear.

09900-06104	Snap ring pliers

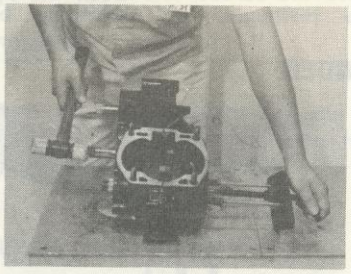


22. Loosen the crankcase fitting screws.



23. Fit the engine sprocket, inside out, on the drive shaft without the spacer and tighten the nut by finger with the washer in place as shown.

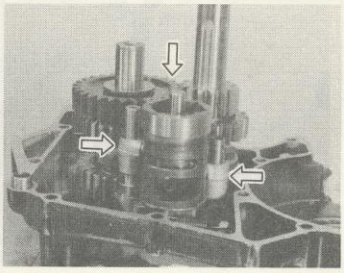
NOTE: This procedure is necessary to prevent the drive shaft from being drawn out during disassembly.



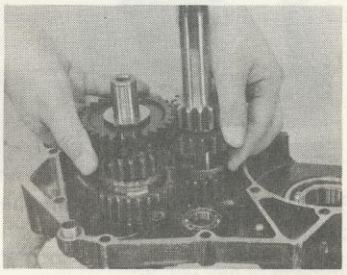
24. Fit the crankcase separating tool to the leftside crankshaft and turn its handle to separate the crankcase. This time, both the countershaft and drive shaft right ends should be hit alternately by a plastic hammer to facilitate even separation on the case halves and to avoid their distortion.

CAUTION:
If the transmission gears and shafts remain on the right side crankcase during disassembly, the gearshift cam stopper spring damage may result.

09920-13111	Crankcase separating tool

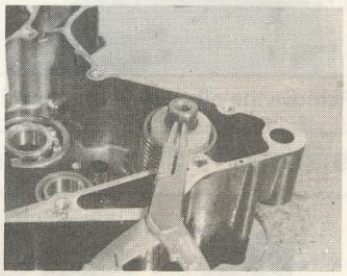


25. Remove the gearshift cam, forks and shafts.



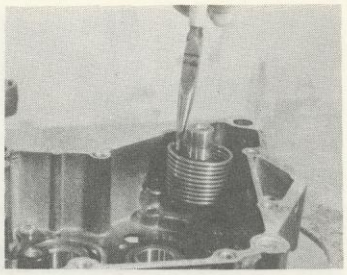
26. Draw out counter and drive shafts with gears.

NOTE: Draw out the gears altogether.

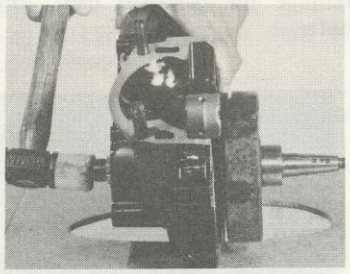


27. Remove the circip by using special tool.

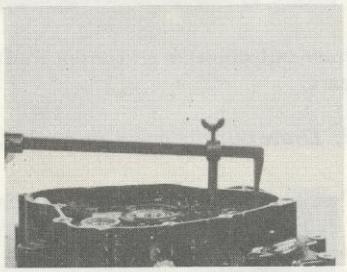
09900-06104	Snap ring pliers



28. Remove the kick return spring.

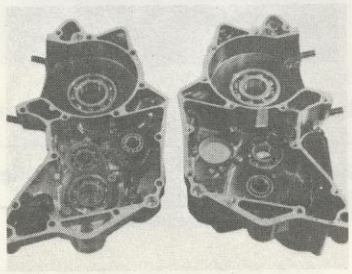


29. Remove the crankshaft from the crankcase.



30. Remove the oil seal by using special tool.

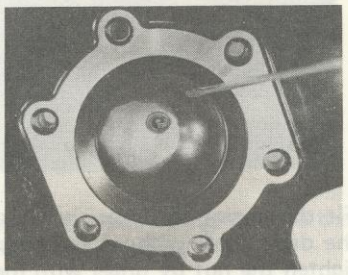
09913-50121	Oil seal remover



31. Remove the retainer and bearing.

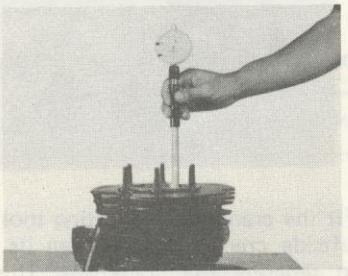
INSPECTION AND SERVICING ENGINE

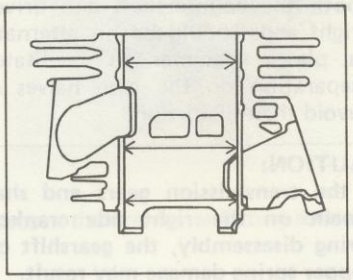
CYLINDER HEAD



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.

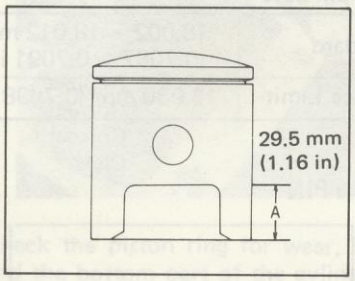
Of the six readings, compute the difference between the largest and the smallest reading. If this difference exceeds the limit, stated below, rebore the cylinder to the next oversize or replace it by new one:

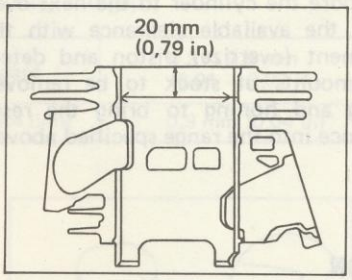
Uneven wear limit:	0.1 mm (0.004 in)

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

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

CYLINDER AND PISTON





Piston-to-cylinder clearance is the difference between two diameter readings, one taken on the piston at the ehight "A" in the direction traverse to the axis of piston pin hole and the other taken on cylinder bore at "B" from the cylinder surface.

Cylinder bore

Standard	88.500 – 88.515 mm (3.4843 – 3.4848 in) Measure at the 20 mm (0.79 in) from top surface
Limit	88.550 mm (3.4686 in)

Piston diameter

Standard	88.415 – 88.430 mm (3.4809 – 3.4815 in) Measure at the 29.5 mm (1.16 in) from skirt end
Limit	88.380 mm (3.4795 in)

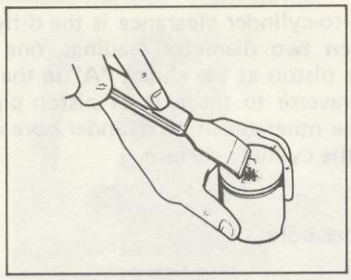
The clearance of piston-to-cylinder is prescribed to be within the following range.

Piston-to-cylinder clearance

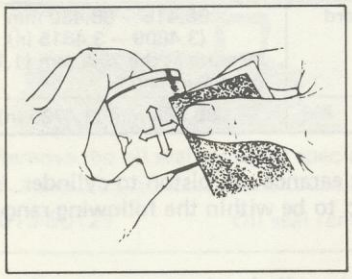
Standard	0.080 – 0.090 mm (0.0031 – 0.0035 in)
Limit	0.120 mm (0.0047 in)

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.

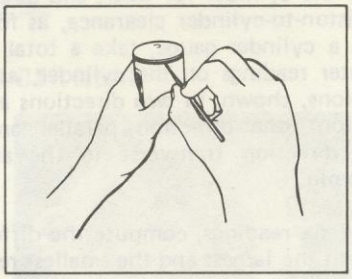
PISTON



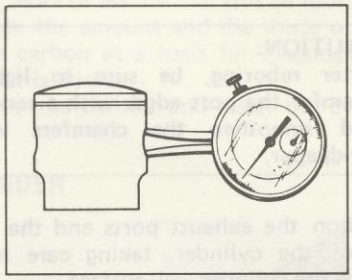
Observe the carboned condition of the piston crown. This observation, together with the observed condition of the cylinder head, is an important guide for adjusting the carburetor. Decarbon the piston crown, taking care not to mar the metal.



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

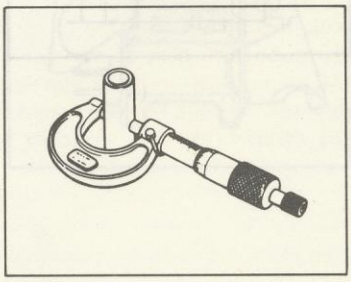


Check the piston pin bore inner diameter.

Piston pin bore

Standard	18.002 – 18.012 mm (0.7087 – 0.7091 in)
Service Limit	18.030 mm (0.7098 in)

PISTON PIN

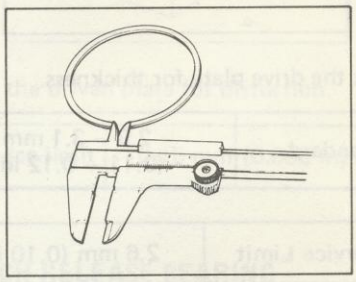


Check the piston pin diameter.

Piston pin O.D.

Standard	17.995 – 18.000 mm (0.7085 – 0.7087 in)
Service Limit	17.980 mm (0.7079 in)

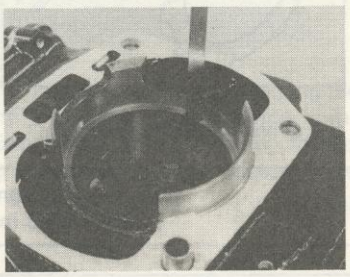
PISTON RING



Check the piston ring for free end gap.

Piston ring free end gap

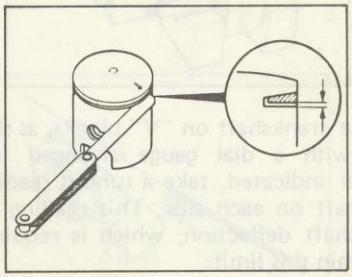
Standard	R	Approx. 8.2 mm (0.32 in)
Service Limit	R	6.6 mm (0.26 in)



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

Piston ring end gap

Standard	0.3 – 0.5 mm (0.01 – 0.02 in)
Service limit	0.9 mm (0.04 in)

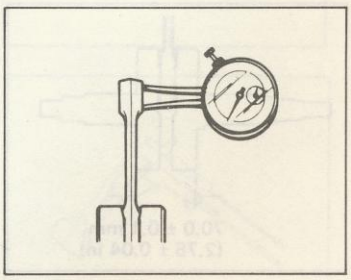


Check the piston ring to groove clearance.

Piston ring to groove clearance

Standard	0.020 – 0.060 mm (0.0008 – 0.0024 in)

CONNECTING ROD

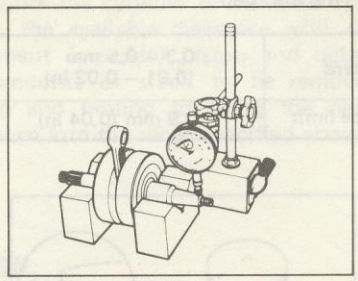


Check the connecting rod small end inner diameter.

Connecting rod small end I.D.

Standard	23.003 – 23.011 mm (0.9056 – 0.9059 in)
Service limit	23.040 mm (0.9071 in)

CRANKSHAFT

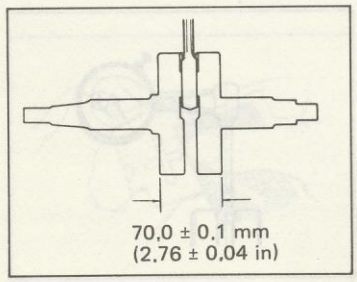


Set the crankshaft on "V" blocks, as shown, and, with a dial gauge arranged in the manner indicated, take a runout reading on the shaft on each side. This reading is the crankshaft deflection, which is required to be within this limit:

Crankshaft runout

Service limit	0.05 mm (0.002 in)

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

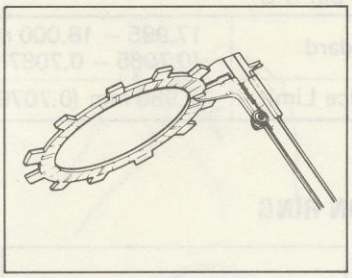


When rebuilding the crankshaft, measure the flywheel width with caliper.

Crank web to web width

Standard	70. 0 ± 0.1 mm (2.76 ± 0.004 in)

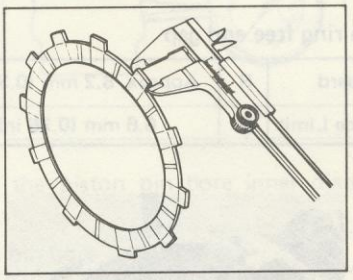
CLUTCH



Check the drive plate for thickness.

Standard	2.9 – 3.1 mm (0.11 – 0.12 in)

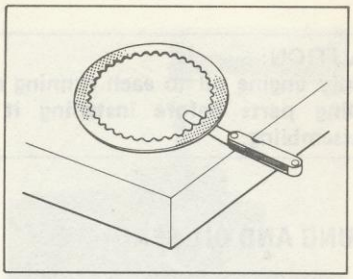
Service Limit	2.6 mm (0.10 in)



Check the drive plate claw width.

Standard	15.8 – 16.0 mm (0.62 – 0.63 in)

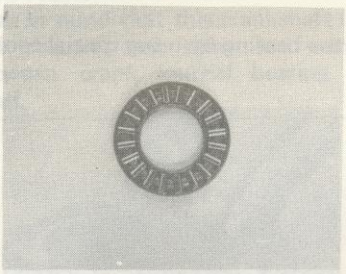
Service limit	15.0 mm (0.59 in)



Check the driven plate for distortion.

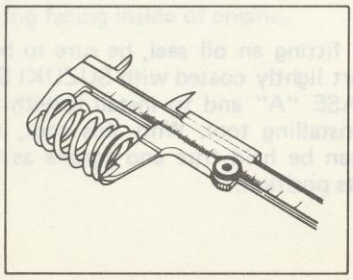
Service limit	0.15 mm (0.006 in)

CLUTCH RELEASE BEARING



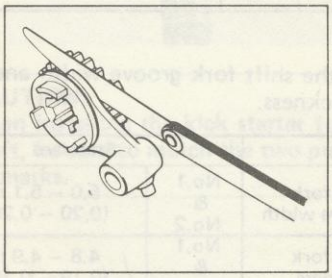
Smooth engaging and disengaging actions presume that the release bearing is in good condition. With this in mind, inspect the bearing for damage and, as necessary, replace it with a new one.

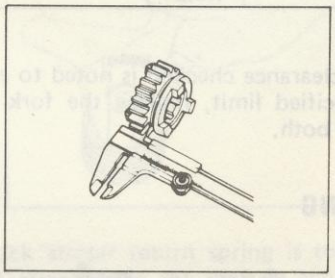
CLUTCH SPRING

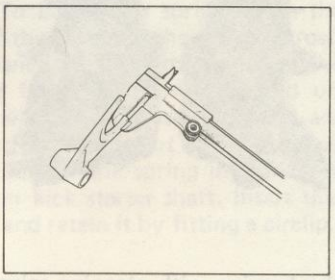


Measure the clutch spring free length. If any one of them is shorter than service limit, replace all the springs at a time.

Service Limit	38.5 mm (1.52 in)







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

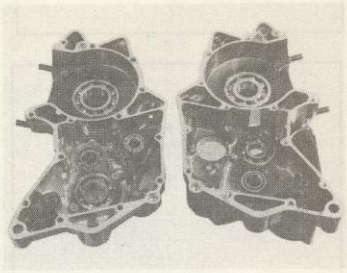
Standard	No.1 & No.2	0.2 – 0.3 mm (0.008 – 0.012 in)
Service Limit	No.1 & No.2	0.5 mm (0.020 in)

Check the shift fork groove width and shift fork thickness.

		Standard
Shift fork groove width	No.1 & No.2	5.0 – 5.1 mm (0.20 – 0.20 in)
Shift fork thickness	No.1 & No.2	4.8 – 4.9 mm (0.19 – 0.19 in)

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

BEARING



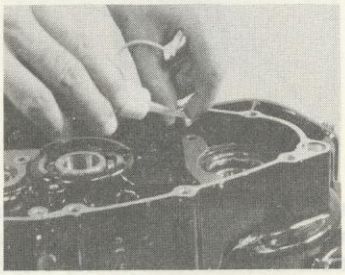
Wash the bearing with cleaning solvent and lubricate with motor oil before inspecting. Turn the inner race and check to see that it turns smoothly. If noise is heard, replace it.

REASSEMBLING ENGINE PARTS

CAUTION:
Apply engine oil to each running and sliding parts before installing it in reassembling.

BEARING AND OIL SEAL

Install the bearing by using special tool.

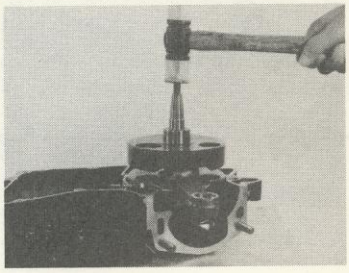


When reassembling the bearing retainer, apply the Thread Lock "1363C".

99104-32050	Thread Lock "1363C"

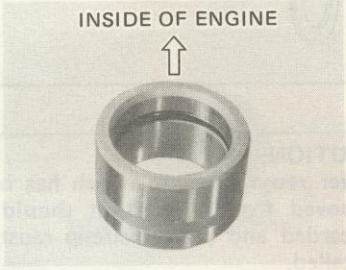
When fitting an oil seal, be sure to have its lip part lightly coated with SUZUKI SUPER GREASE "A" and to install it with the oil seal installing tool. With this tool, the oil seal can be held true and square as it goes into its position.

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 righthand half of crankcase, as shown.

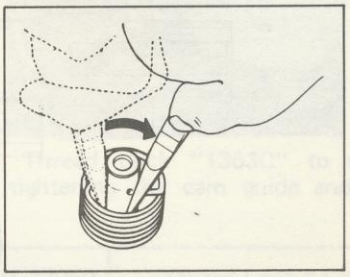
CAUTION:
Bear in mind that this crankshaft does not require any shim (or washer) between crank journal bearing and itself.



After installing the crankshaft into the right crankcase, be sure to install the spacer on the right side of crankshaft with the spacer's "O" ring facing inside of engine.

KICK STARTER

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



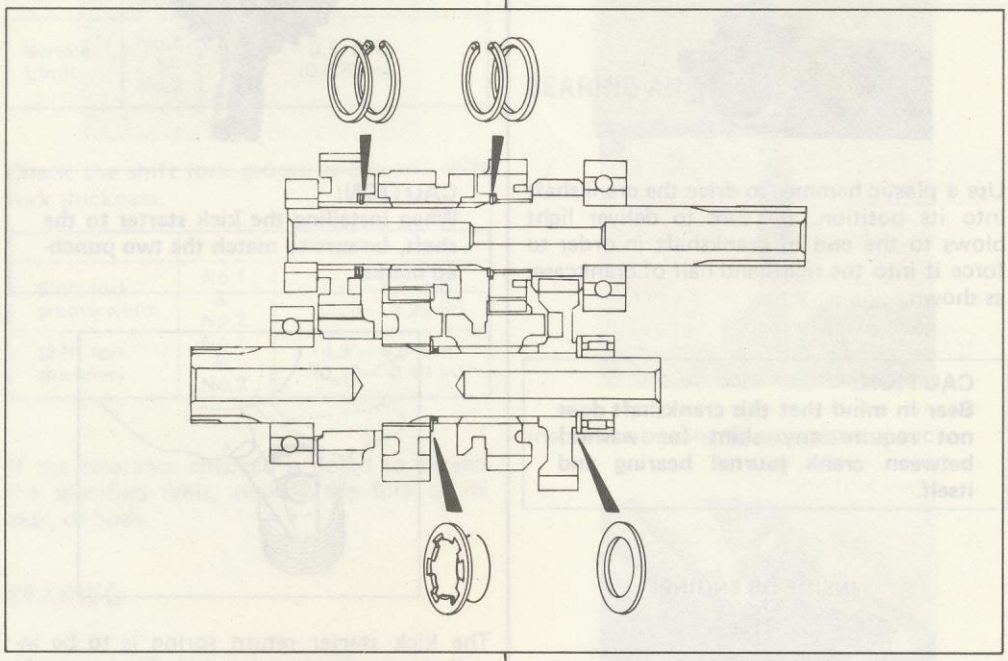
The kick starter return spring is to be installed after setting the shaft in the crankcase. To install this spring, hitch the inner end of the spring to the stopper provided on the crankcase, turn the shaft clockwise as viewed from kick lever side end until the shaft will not turn any further, and then 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.

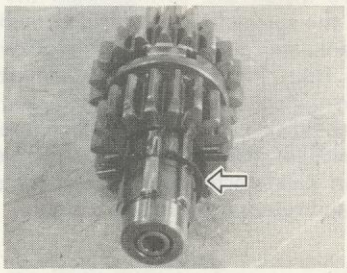
TRANSMISSION

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.





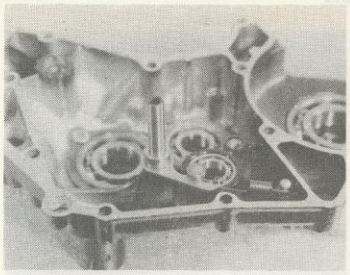
CAUTION:

Never reuse a circlip which has been removed from a shaft, it should be discarded and a new circlip must be installed.

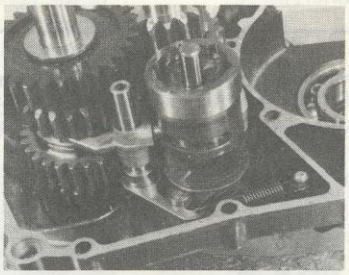
When installing a new circlip, care must be taken not to expand the end gap larger than necessary to slip the circlip over the shaft.

After installing a circlip, always insure that it is completely seated in its groove and securely fitted.

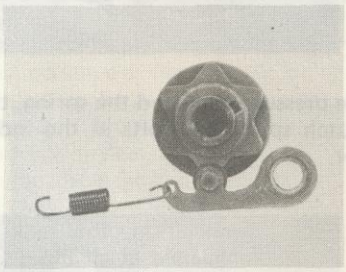
GEARSHIFTING MECHANISM



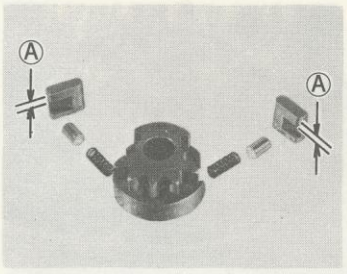
Install the gearshift cam stopper.



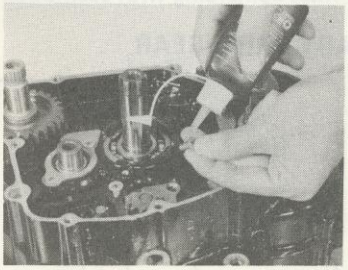
Install the gearshift cam, forks and shafts.



Bring the gearshift cam to the neutral position.

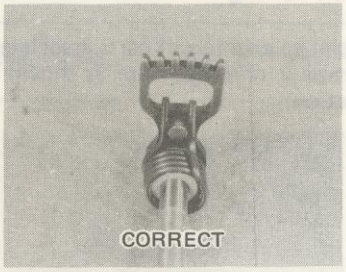


Install the two cam drive gear pawls properly. Ⓐ should face outside.

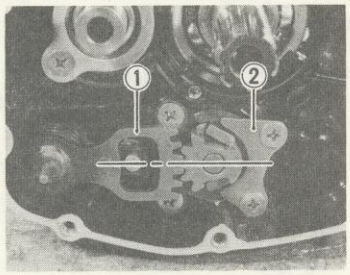


Apply Thread Lock "1363C" to screws when tightening the cam guide and pawl lifter.

99104-32050	Thread Lock "1363C"

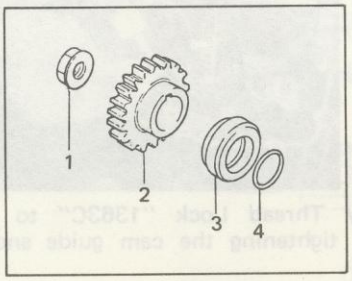


Install the shifting shaft return spring properly to the shifting shaft.



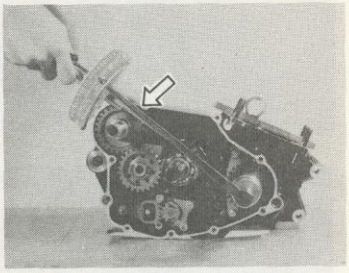
Be sure to mesh gears ① and ② with their center lines coinciding with each other.

PRIMARY DRIVE GEAR



(1) Nut
(2) Primary drive gear
(3) Spacer
(4) "O" ring

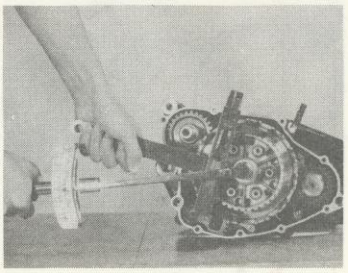
The relative position of parts associated with the primary drive gear are as shown in this illustration.



Tighten the primary drive gear nut and bend the washer.

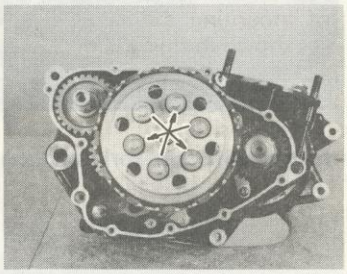
Tightening torque	80 – 100 N·m 8.0 – 10.0 kg-m 58.0 – 72.5 lb-ft

CLUTCH

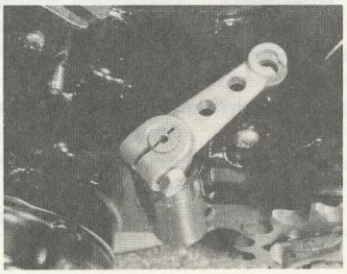


Tighten the clutch sleeve hub nut and bend the washer.

Tightening torque	40 – 60 N·m 4.0 – 6.0 kg-m 29.0 – 43.5 lb-ft

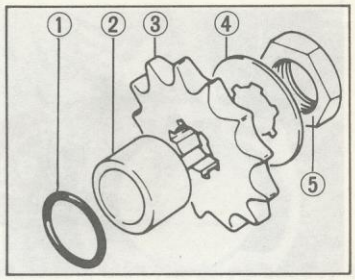


Fix the pressure plate and the spring, tighten the clutch spring set bolts in the indicated manner.



Fix the clutch release arm so that the slit of release arm matches the marking on the clutch release camshaft.

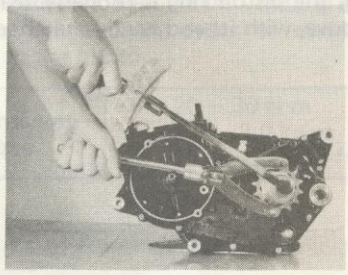
ENGINE SPROCKET



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

Be sure to install "O" ring between bearing and spacer. 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.

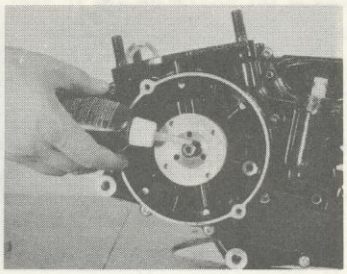
CAUTION:
Note the position of "O" ring in this cross section.
The spacer has its one end chamfered: the chamfered end comes on transmission side.

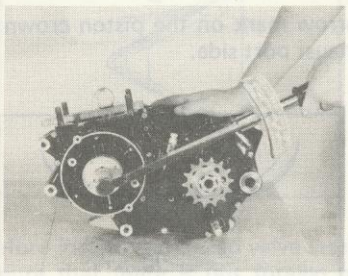


Tighten the engine sprocket and bend the washer.

Tightening torque	80 – 100 N·m 8.0 – 10.0 kg-m 58.0 – 72.5 lb-ft

MAGNETO

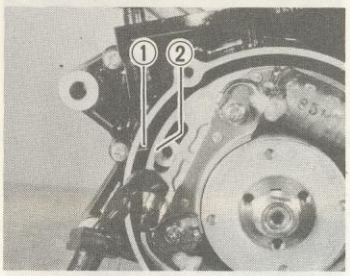




Apply Thread Lock Super "1332B" to the magento rotor nut and tighten the nut.

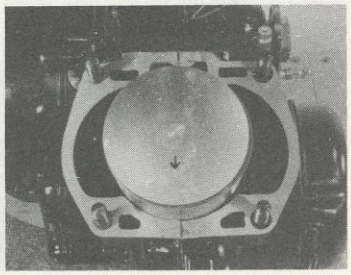
Tightening torque	30 – 40 N·m 3.0 – 4.0 kg-m 21.5 – 29.0 lb-ft

99014-32090	Thread Lock Super "1332B"

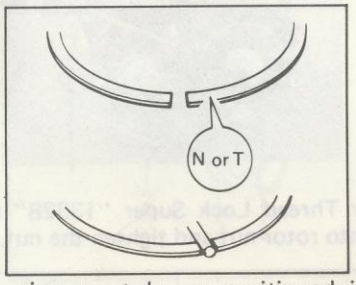


Align the engraved line ① on the stator to the aligning mark ② at the crankcase and secure the stator in that position.

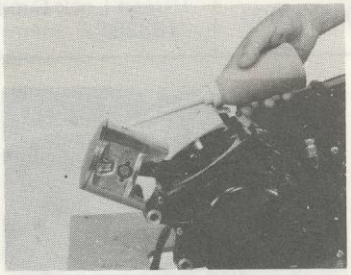
PISTON

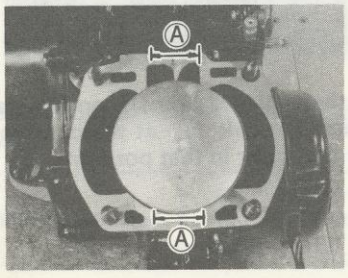


The arrow mark on the piston crown points to exhaust port side.

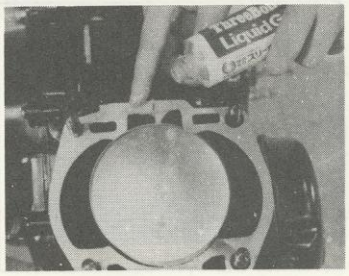


Piston ring must be so positioned in the groove as to bring its marked side (near joint) to top side and to locate the joint at the locating pin.



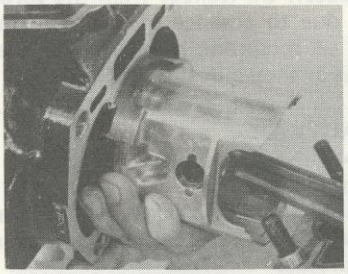


Apply Bond "1215" to the crankcase of (A).

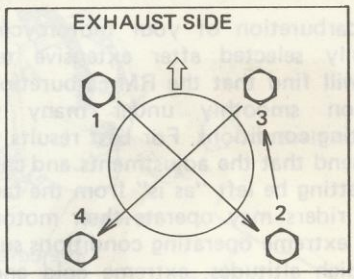


Apply the engine oil to the piston surface and insert the piston in the cylinder.

CYLINDER

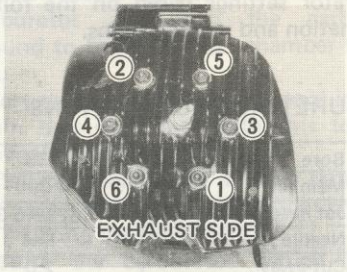


Install the cylinder onto the piston. Before putting the piston ring is properly seated in the groove, with its end neatly matched.



After installing the cylinder, gradually tighten the nuts in order of number as shown in illustration.

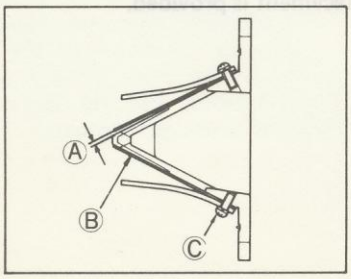
Tightening torque	3.6 – 4.0 kg-m 36 – 40 N·m 26.0 – 29.0 lb-ft



After installing the cylinder head, gradually tighten the nuts in order of number as shown in the photo.

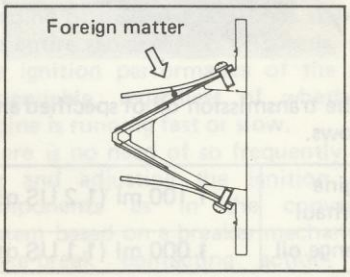
Tightening torque	26 – 30 N·m 2.6 – 3.0 kg-m 19.0 – 21.5 lb-ft

REED VALVE



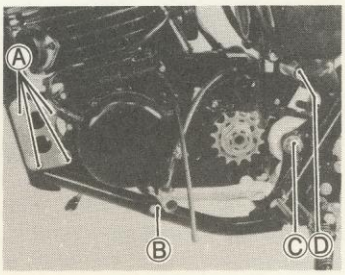
Check the clearance Ⓐ between reed valve and its seat. If the clearance Ⓐ is noted to exceed 0.2 mm (0.008 in), replace the reed valve Ⓑ.

Reed valve fitting screw tightening torque Ⓒ	0.8 – 1.2 N·m 0.08 – 0.12 kg-m 0.5 – 1.0 lb-ft



Just before installing the reed valve assembly, make sure that there is not foreign matter stuck between the reed valve and its stopper.

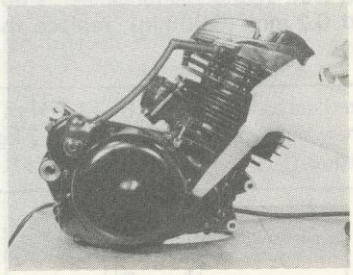
ENGINE MOUNTING



Tighten the engine mounting bolts and nuts to the specification as shown below.

		N·m	kg-m	lb-ft
Tightening torque	Ⓐ	37 – 45	3.7 – 4.5	26.5 – 32.5
	Ⓑ	30 – 38	3.0 – 3.8	21.5 – 27.5
	Ⓒ	50 – 80	5.0 – 8.0	36.0 – 58.0
	Ⓓ	80 – 90	8.0 – 9.0	58.0 – 65.0

TRANSMISSION OIL



Pour the transmission oil of specified amount as follows.

Engine overhaul	1 100 ml (1.2 US qt)
Change oil	1 000 ml (1.1 US qt)

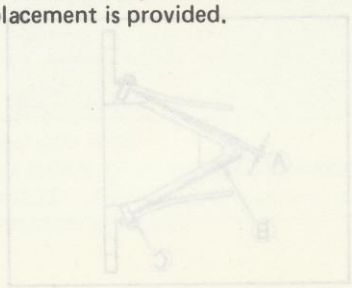
CARBURETOR

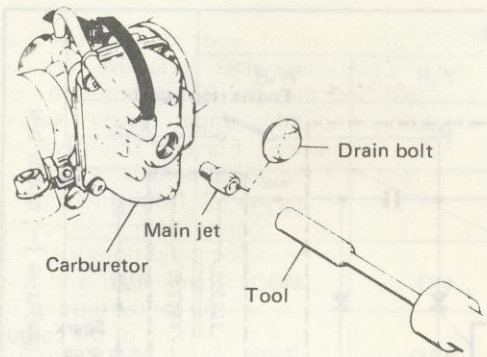
The carburetion of your motorcycle was carefully selected after extensive testing. You will find that the RM carburetion will function smoothly under many varied operating conditions. For best results we recommend that the adjustments and carburetion jetting be left "as is" from the factory. Some riders may operate their motorcycle under extreme operating conditions such as: very high altitudes, extreme cold and hot temperatures or driven on sandy terrain. In these circumstances the jetting of the carburetor or other adjustments may need to be altered slightly. Riders who are not familiar with the operation and jetting procedures of the Mikuni carburetor should have their local authorized Suzuki dealer perform these alterations.
Mechanically experienced riders can alter the carburetor settings based on the following information and specifications.

CARBURETOR SPECIFICATIONS

Bore	38
Main jet	# 300
Jet needle	6FM46-3
Needle jet	R-4
Cut-away	2.0
Pilot jet	# 50
Pilot air adjusting screw	1½
Float height	11.4 ± 0.5
Optional main jets # 280, # 290 and # 310	

The main jet is usually the component which is most often changed. A convenient method of replacement is provided.





MAIN JET REPLACING

1. Move fuelcock 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 into the drain bolt hole and, with this tool, remove the main jet.
5. Install the main jet of another number in the carburetor. Plug up the float chamber by refitting the drain bolt.
6. Restore the carburetor (which is now in tilted condition) to the original position by turning it around, and tighten the clamp screws on both sides to secure the carburetor in place.

The spare main jets listed below are furnished with each motorcycle.

Spare main jet	#280, #290, #310

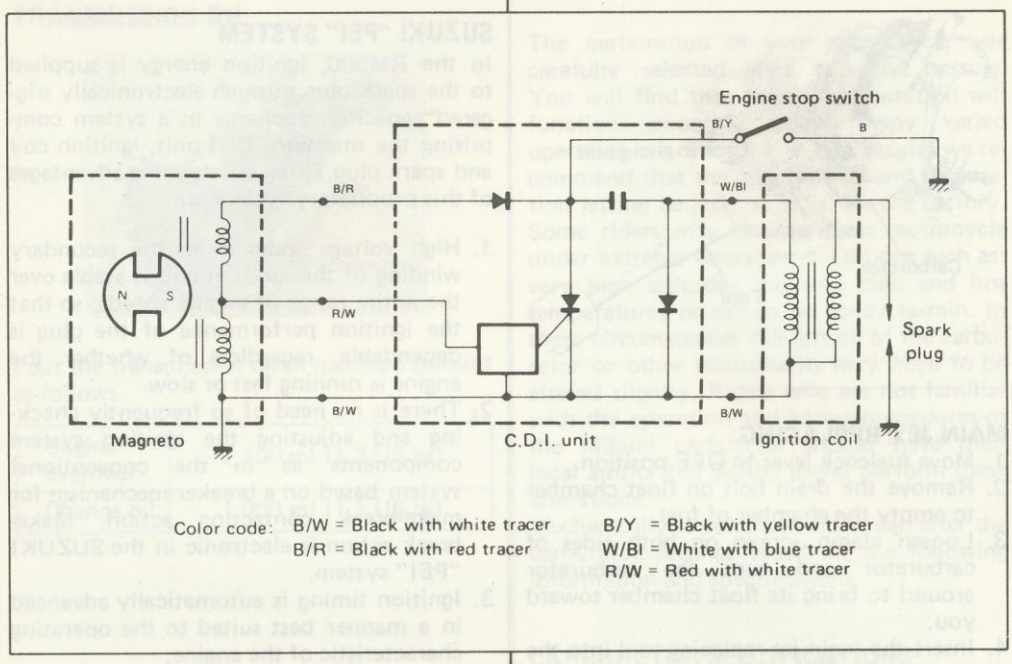
ELECTRICAL SYSTEM

SUZUKI "PEI" SYSTEM

In the RM500, 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



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 2 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.

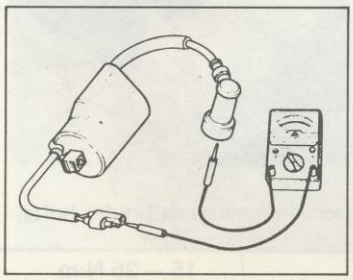
NOTE:

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.*

MΩ range

Negative (–) probe pin		Positive (+) probe pin				
		B/W	B/Y	B/R	R/W	W/Bl
	B/W		ON	ON About 2MΩ	ON	CON
	B/Y	CON		ON About 2MΩ	CON	CON
	B/R	CON	ON		CON	CON
	R/W	OFF	OFF	OFF		OFF
	W/Bl	CON	CON	ON About 2MΩ	CON	

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 – WHITE/BLUE : 0 – 1 Ω
Secondary winding	Plug cap – BLACK/WHITE : 10 – 11 Ω

CHECKING MAGNETO

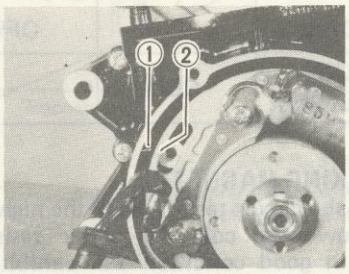
Using the circuit tester, check the high-speed and low-speed coils for ohmic resistance. Coils in good condition will exhibit these values:

RED/WHITE – BLACK/WHITE	90 – 140 Ω
RED/WHITE – BLACK/RED	100 – 160 Ω

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.

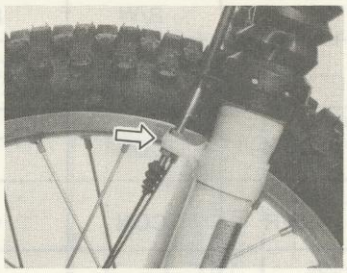
The following adjusting procedure is a procedure to be followed in remounting the magneto stator to re-establish the specified ignition timing:



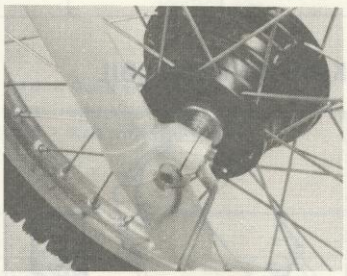
Align the engraved line ① on the stator to the aligning mark ② at the crankcase and secure the stator in that position.

FRONT WHEEL

REMOVAL

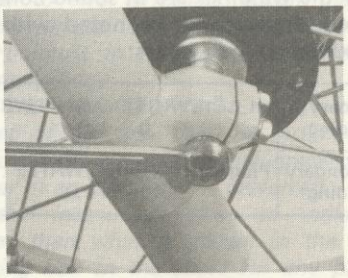


1. Disconnect the front brake cable.



2. Loosen the axle shaft holder bolts.

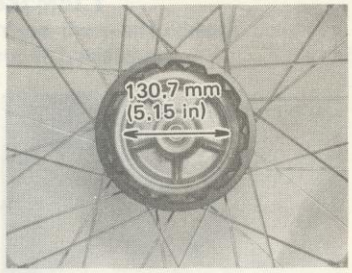
Tightening torque	15 – 25 N·m 1.5 – 2.0 kg-m 11.0 – 18.0 lb-ft



3. Loosen and pull out the front axle.

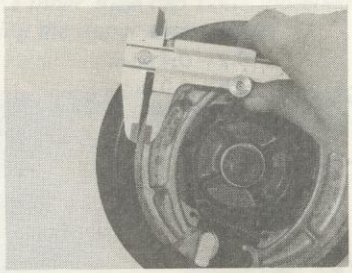
Tightening torque	50 – 80 N·m 5.0 – 8.0 kg-m 36.0 – 58.0 lb-ft

INSPECTION AND SERVICING



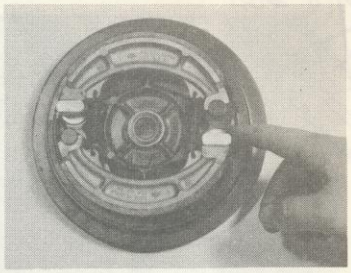
1. Check the bearing noise and measure the inner diameter of brake drum.

Service Limit	130.7 mm (5.15 in)



2. Measure the thickness of brake shoe.

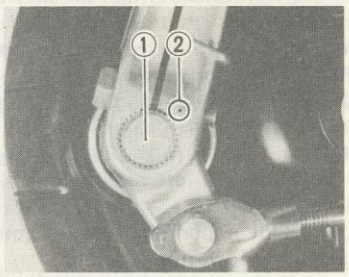
Service Limit	1.5 mm (0.06 in)



3. Apply grease on cam.

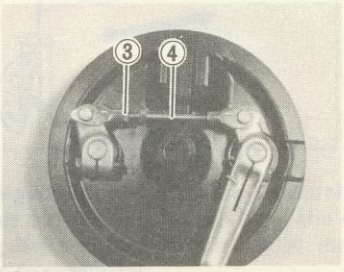
99000-25030	SUZUKI SUPER GREASE "A"

FRONT BRAKE ADJUSTMENT

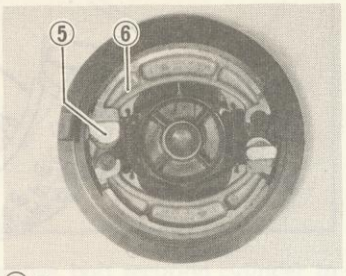


① Punch mark
② Index mark

1. Install the brake cam lever, matching the punch mark on the brake cam lever with the index mark on the brake cam shaft.
2. Check that both the right and left side brake cam levers are seated properly.



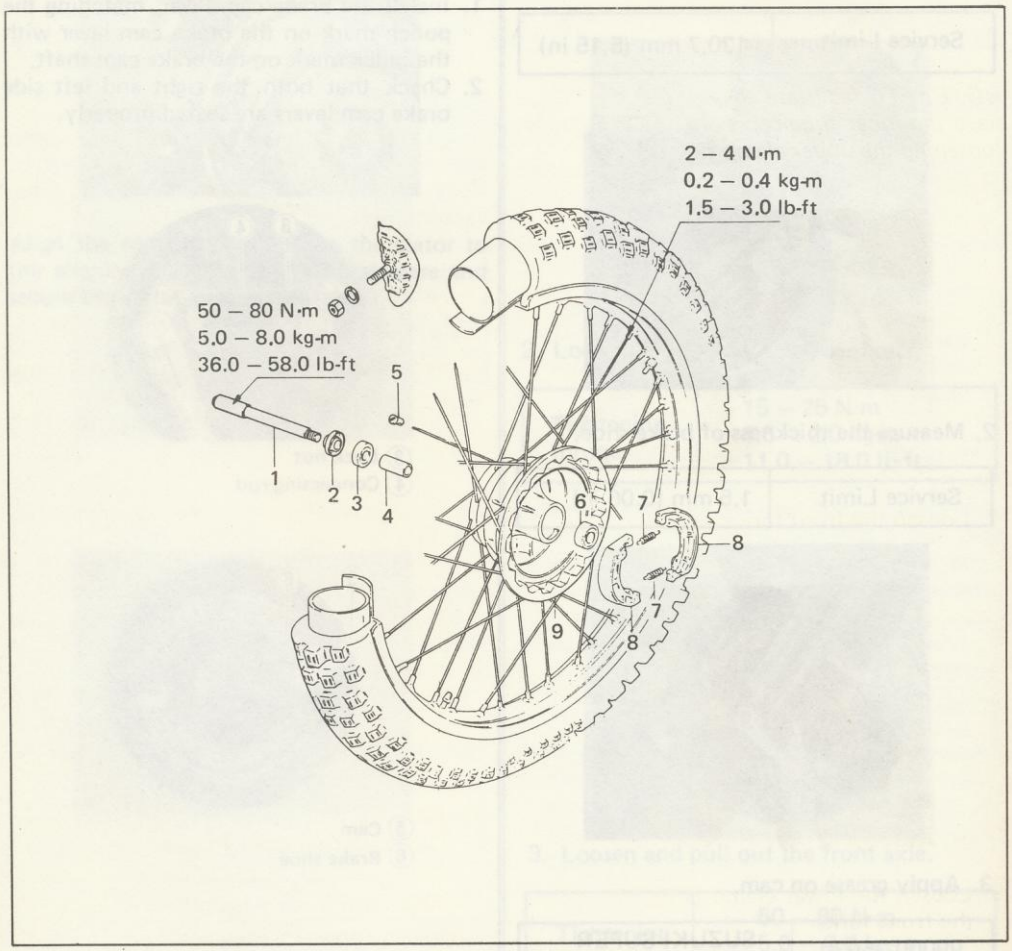
③ Lock nut
④ Connecting rod



⑤ Cam
⑥ Brake shoe

3. Loosen the lock nut.
4. Turning the connecting rod to the right or left, adjust the brake shoe and cam so that the contact surfaces of the shoe and cam, right and left, meet evenly.
5. Tighten the lock nut slightly.
6. Moving the brake cam lever by hand, check to make sure the angle of rotation of the right and left brake cams is equal, and also that the right and left brake shoes begin expanding at the same time.
7. Tighten the lock nut securely.

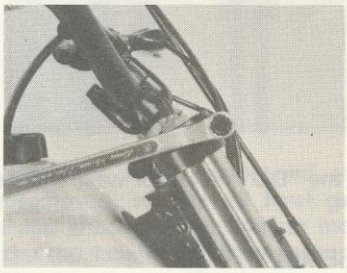
CONSTRUCTION



FRONT FORK

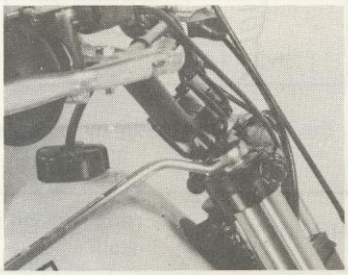
DISASSEMBLY

1. Remove the front wheel.
2. Remove handlebar.

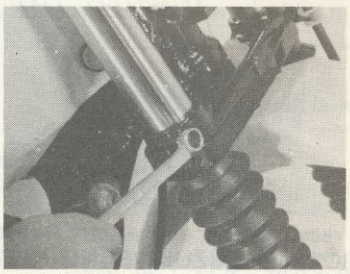


3. Loosen the upper clamp bolt.

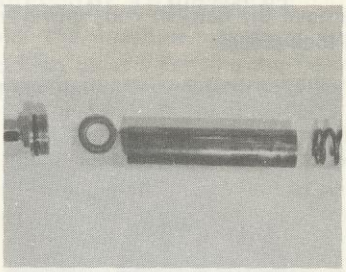
NOTE: To facilitate the subsequent steps, have the inner tube cap bolts loosened after loosening the upper clamp bolts.



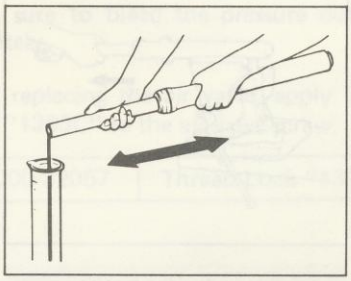
4. Loosen the front fork cap bolt.



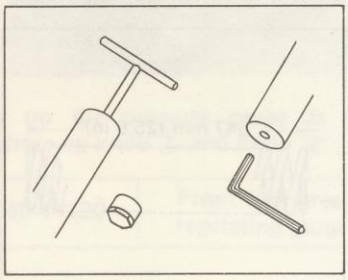
5. Loosen the lower clamp bolts. Pull down the front fork.



6. Remove the front fork cap bolt.
7. Draw out spacer, spring stopper and fork spring.
8. Remove boot.



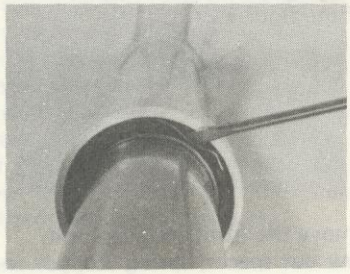
9. Invert the fork, and stroke it several times to let out the oil inside. Under the condition (inverted condition), hold the fork for a few minutes.



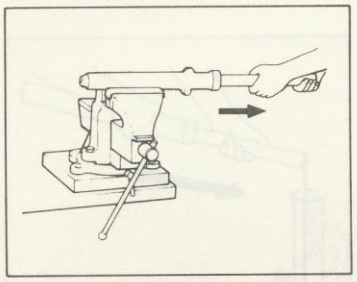
10. Remove bolt securing cylinder to outer tube by using special tools.

09940-34520	T handle
09940-34590	Attachment G
———	L type 10 mm hexagon wrench

11. Remove the damper rod, spring and the oil lock piece.

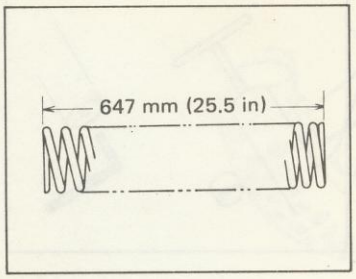


12. Remove the snap ring.



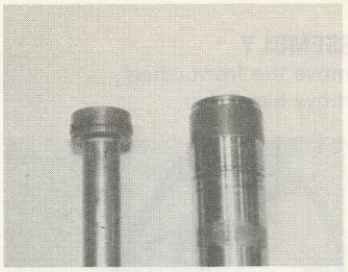
13. Remove the oil seal holder and oil seal by slowly pulling out the inner tube. Be careful not to damage the inside of the tube.

INSPECTION AND MAINTENANCE



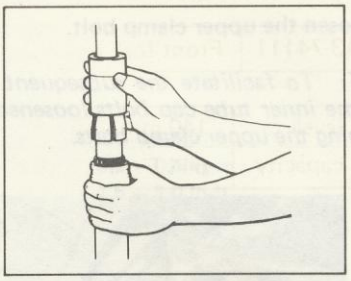
Measure the free length of the fork spring.

Service Limit	647 mm (25.5 in)



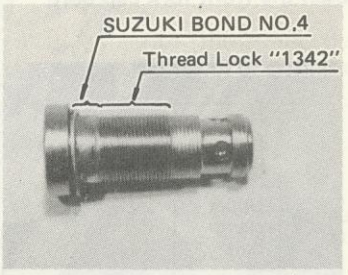
Check the "DU" metal for wear and damage.

REASSEMBLY



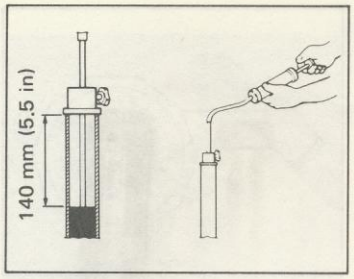
Install the oil seal slowly by using special tool.

09940-50112	Front fork oil seal installer



When reassembling, apply both Thread Lock "1363C" and SUZUKI BOND "1215" to the damper rod bolt as shown.

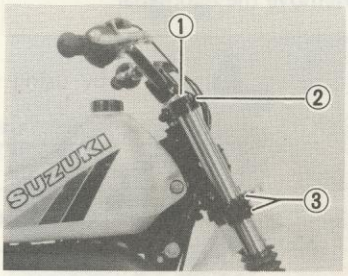
99104-32050	Thread Lock "1363C"
99104-31110	SUZUKI BOND "1215"



With the fork fully compressed and the spring removed, set the oil level gauge as shown and check the oil level as measured from the top face of the inner tube. Adjust the oil level to the specification.

09943-74111	Front fork oil level gauge

Oil level	140 mm (5.5 in)
Oil capacity	641.5 ml (21.68 US oz)

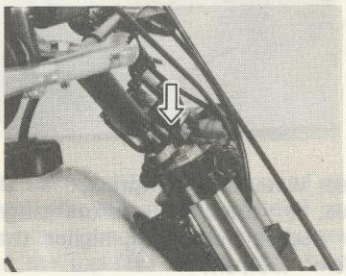


Tighten the front fork cap bolts, upper clamp bolts and lower clamp bolts.

Tightening torque	Front fork cap bolt ①	15 – 30 N·m 1.5 – 3.0 kg-m 11.0 – 21.5 lb-ft
	Upper clamp bolt ②	20 – 30 N·m 2.0 – 3.0 kg-m 14.5 – 21.5 lb-ft
	Lower clamp bolt ③	15 – 25 N·m 1.5 – 2.5 kg-m 11.0 – 18.0 lb-ft

AIR PRESSURE ADJUSTMENT

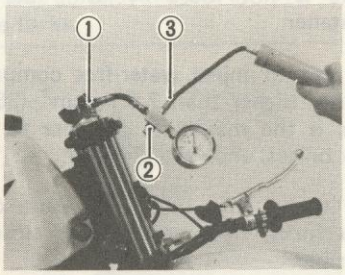
1. Hold the machine standing erect by blocking up and keeping the front wheel off the floor.



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

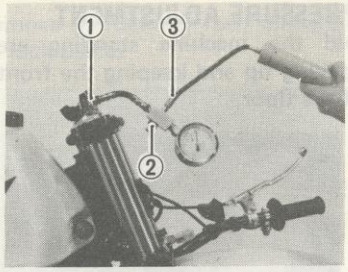
When replacing the air valve, apply Thread Lock "1363C" to the air valve screw.

99000-32057	Thread Lock "1363C"



3. Set up the pressure gauge as shown. Tighten up knob ① and knob ② .

09940-44120	Front fork pressure regulating gauge



4. Inject water-free compressed air through valve ③ until the pressure gauge reads the desired level not higher than 2.5 kg/cm^2 (35 psi).
5. Back away (loosen) knob ② to bleed out the excess pressure, 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.

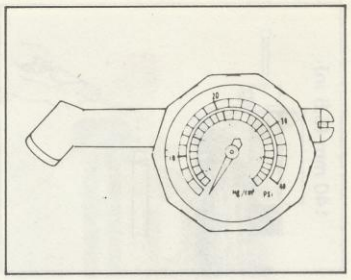
* Just before charging air in, see that the valve is not loose by using the valve tightener.

* Be sure to inject water-free compressed air not higher than 2.5 kg/cm^2 (35 psi). This is the maximum pressure to avoid fork oil seal and valve damage.

* 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.

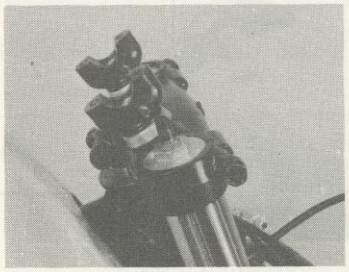
Standard air pressure	**0 kg/cm^2 (0 psi)**



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 RM500 machine may be used. The furnished gauge (included in the kit) must be used in this manner: 1) fit to the valve squarely, and 2) upon reading the pressure, let it off the valve snappily.

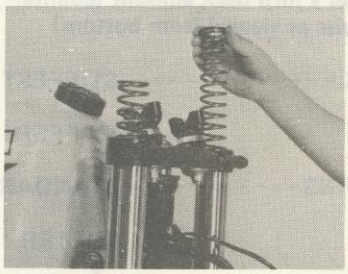
OIL LEVEL ADJUSTMENT

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

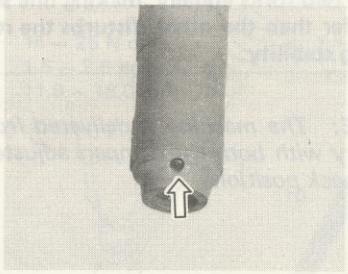


2. Remove the cap bolt, spacer, spring seat and spring.

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. Loosen the drain screw and drain the oil.



5. When reassembling, apply SUZUKI BOND "1215" to the oil drain screw.

99104-31110	SUZUKI BOND "1215"

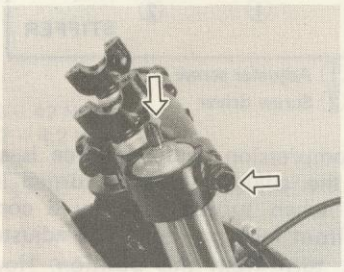
6. Pour the fork oil.

7. With the fork fully compressed and the spring removed, set the oil level gauge as shown and check the oil level as measured from the top face of the inner tube. Adjust the oil level to the specification.

09943-74111	Front fork oil level gauge

Oil level	140 mm (5.5 in)
Oil capacity	641.5 ml (21.68 US oz)

CAUTION:
Be sure to equalize the oil level of the two forks.



8. Stretch the fork gently, and install the spring, spring seat, spacer and cap bolt.

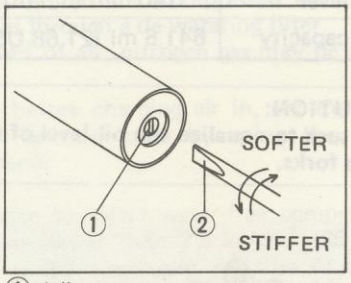
Front fork cap bolt

Tightening torque	15 – 30 N·m 1.5 – 3.0 kg-m 11.0 – 21.5 lb-ft

9. Adjust the air pressure.

DAMPING FORCE ADJUSTMENT

The front fork damper provides both the extension and compression damping force – the compression damping being adjustable for diversity of requirements by rider weight, the race track condition etc.
To increase or decrease the damping force, turn the adjuster screw as shown below.



① Adjuster screw
② Screw driver

The compression damping force is stiffest when the adjuster is fully turned in and softest when turned back by 8 complete turns from lock position. The adjuster can further turn from this position. However, the damping force remains as that in 8 turn position.

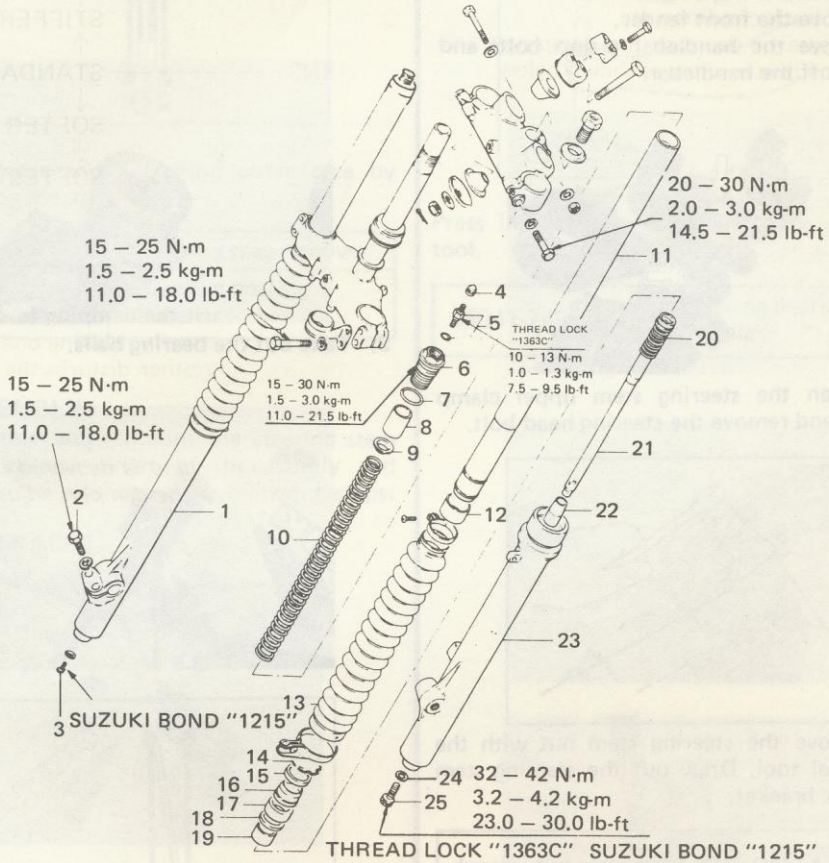
Adjuster's turn back amount (counter-clockwise as viewed from bottom)

LOCK	STIFFEST
1	↑
2	STIFFER
3	↑
4 TURNS	STANDARD
5	↓
6	SOFTER
7	↓
8 TURNS	SOFTEST

WARNING:
Be sure to adjust the damping force of the two forks equally. Making one side stiffer than the other disturbs the running stability.

NOTE: The machine is delivered from the factory with both the dampers adjusted to 4 turn back position.

CONSTRUCTION

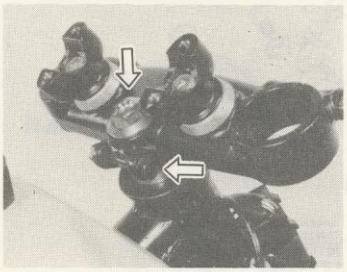


1. Outer tube
2. Bolt
3. Screw
4. Cap
5. Air valve
6. Cap
7. O ring
8. Spacer
9. Spring guide
10. Spring
11. Inner tube
12. Metal
13. Boot
14. Snap ring
15. Dust seal case
16. Dust seal
17. Oil seal
18. Washer
19. Slide metal
20. Rebound spring
21. Damper rod
22. Oil lock piece
23. Outer tube
24. Washer
25. Bolt

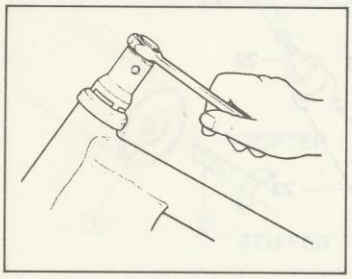
STEERING

DISASSEMBLY

1. Remove the front wheel.
2. Take off the number plate.
3. Remove the front fork.
4. Remove the front fender.
5. Remove the handlebar clamp bolts and take off the handlebar.

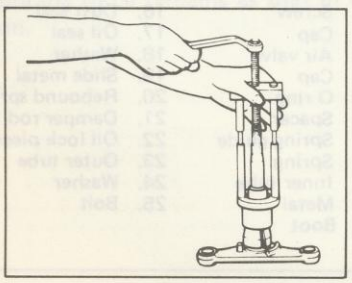


6. Loosen the steering stem upper clamp bolt and remove the steering head bolt.



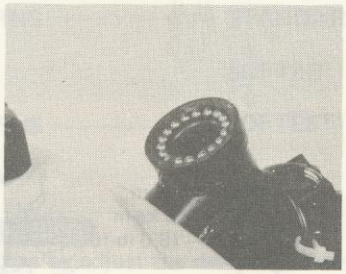
7. Remove the steering stem nut with the special tool. Draw out the steering stem lower bracket.

09940-11410	Steering stem nut wrench

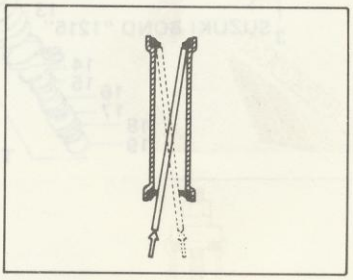


8. Draw out bearing by using special tool.

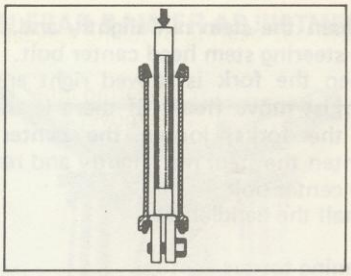
09941-84510	Bearing inner race remover



9. Take out the bearing balls.



10. Remove upper bearing outer race.



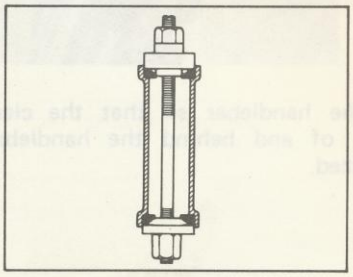
11. Remove lower bearing outer race by using special tool.

09941-54911	Steering race remover
09941-74910	Steering bearing installer

REASSEMBLY

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

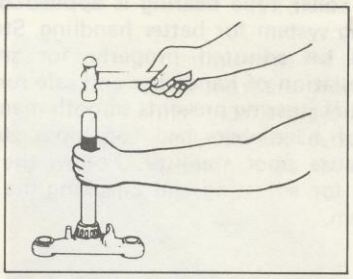
OUTER RACES



Press in the upper and lower outer races using special tool.

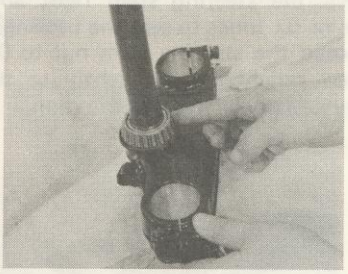
09941-34511	Steering outer race installer

BEARINGS



Press in the lower bearing by using special tool.

09941-74910	Steering bearing installer

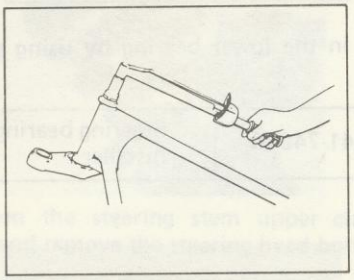


Apply grease on upper and lower bearing before remounting the steering stem.

99000-25030	Suzuki super grease "A"

STEERING STEM

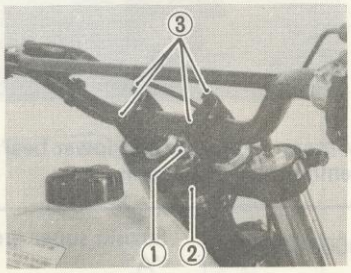
Taper roller type bearing is applied on the steering system for better handling. Steering should be adjusted properly for smooth manipulation of handlebar and safe running. Too stiff steering prevents smooth manipulation of handlebars and too loose steering will cause poor stability. Follow the steps below for adjusting and checking the steering stem.



- Temporarily tighten the steering stem nut to 4.0 – 5.0 kg-m (40 – 50 N·m, 29.0 – 36.0 lb-ft) by using special tool.

09940-11410	Steering nut socket wrench

- Move the steering stem right and left five or six times to seat the bearing.
- Loosen the steering stem nut to 0 kg-m. Then retighten very lightly so that no play can be detected in the stem.



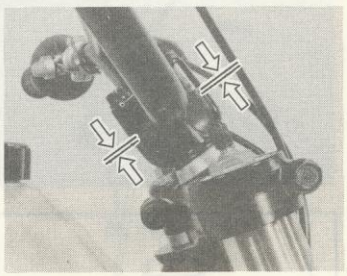
- Install the steering stem upper bracket and temporarily tighten the steering stem head center bolt.
- Tighten the steering stem upper clamp bolt.
- Loosen the stem nut slightly and tighten the steering stem head center bolt.
  When the fork is moved right and left, it must move freely. If there is any play in the forks, loosen the center bolt, tighten the stem nut slightly and retorque the center bolt.
- Install the handlebars.

Tightening torque

	N·m	kg-m	lb-ft
Steering stem head center bolt ①	35-50	3.5-5.0	25.5-36.0
Steering stem upper clamp bolt ②	15-25	1.5-2.5	11.0-18.0
Handlebars clamp bolt ③	12-20	1.2-2.0	8.5-14.5

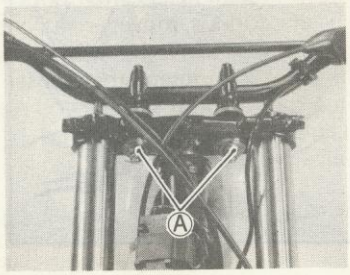
Inspect and check the removed parts for the following abnormalities.

- Handlebar distortion
- Handlebar clamp wear
- Race wear and brinelling
- Worn or damaged steel rollers
- Distortion of steering stem



Set the handlebar so that the clearance ahead of and behind the handlebar are equalized.

HANDLEBAR DAMPER ADJUSTMENT



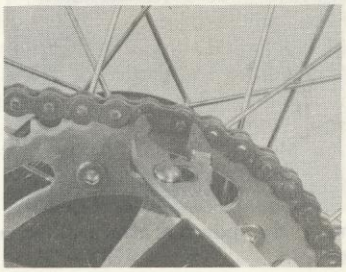
The damping effect can be varied as desired by tightening the nuts Ⓐ more or less hard.

Tightening torque range	8.0 – 12.0 N·m 0.8 – 1.2 kg-m 6.0 – 8.5 lb-ft

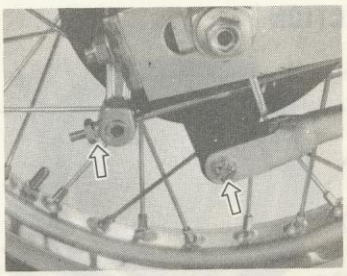
This adjustment should be made to suit the damping action to the racing course conditions or to the rider's preference.

REAR WHEEL

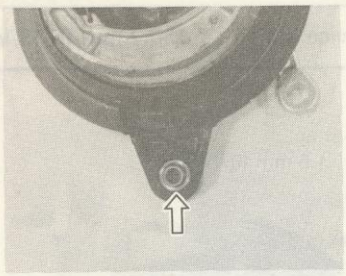
DISASSEMBLY



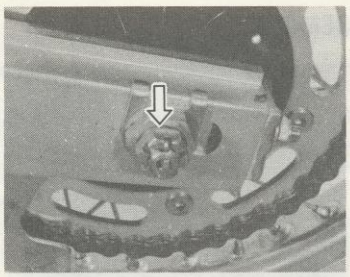
1. Remove the engine sprocket cover and chain guide plate. Remove the drive chain by removing the chain joint clip.



2. Remove the rear brake cable. Loosen the rear torque link bolt after pulling out the cotter pin.



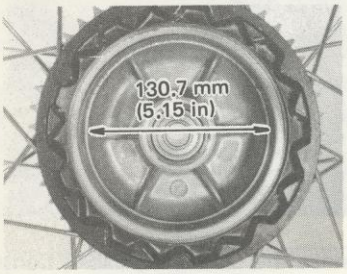
3. Spherical ball bearings and oil seals are used for this joint portion. Apply grease when installing these bearings.



4. Remove the axle nut after pulling out the cotter pin.

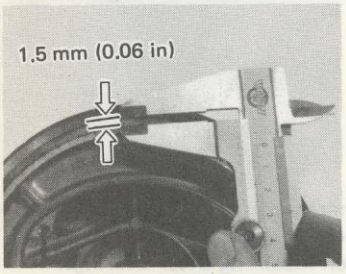
5. Draw out the axle shaft. Pull the wheel assembly reward and remove it from the swinging arm.

INSPECTION



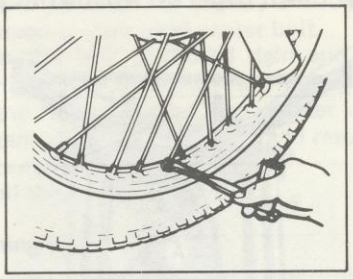
Measure the inner diameter of the brake drum.

Service limit	130.7 mm (5.15 in)



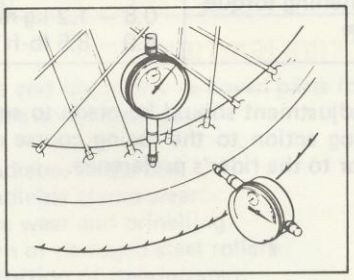
Measure the thickness of the brake shoe.

Service Limit	1.5 mm (0.06 in)



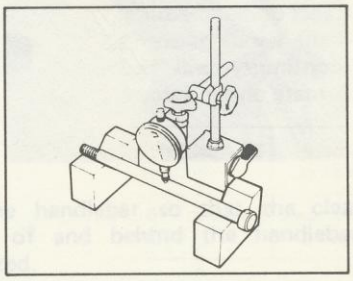
Check and retighten the spoke nipples to prevent damage of nipples and rim.

09186-00086	Spoke nipple wrench



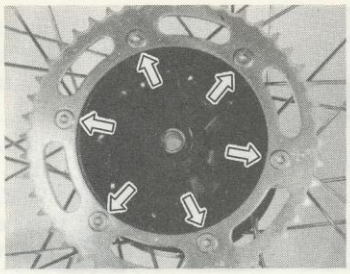
Adjust the rim runout by tightening or loosening the spoke nipples.

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



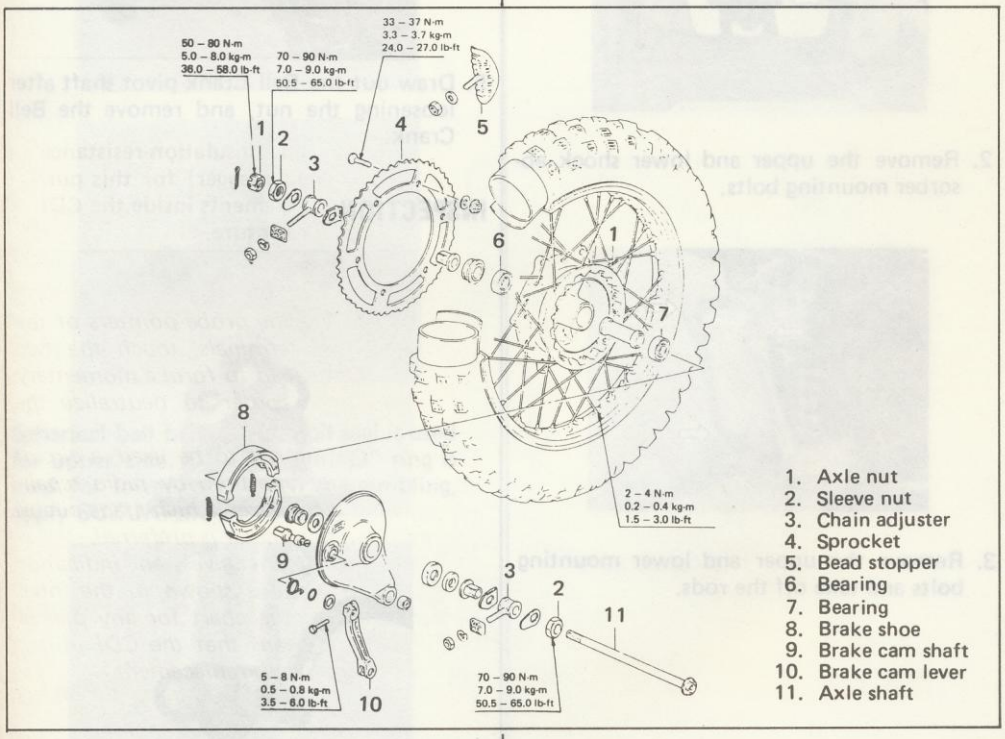
Check the axle shaft for deflection by using a dial gauge.

Service Limit	0.25 mm (0.010 in)



After each race, retighten the rear sprocket securing bolts.

Tightening torque	33 – 37 N·m 3.3 – 3.7 kg-m 24.0 – 27.0 lb-ft

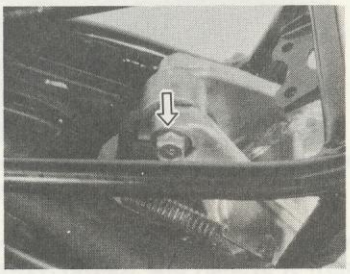


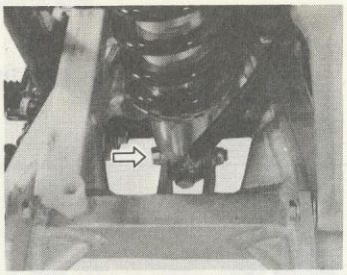
1. Axle nut
2. Sleeve nut
3. Chain adjuster
4. Sprocket
5. Bead stopper
6. Bearing
7. Bearing
8. Brake shoe
9. Brake cam shaft
10. Brake cam lever
11. Axle shaft

FULL FLOATING SUSPENSION SYSTEM

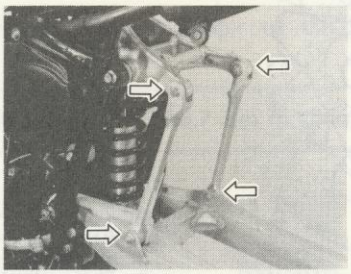
DISASSEMBLY AND REASSEMBLY

1. Remove the right and left frame covers, seat and mud guard.

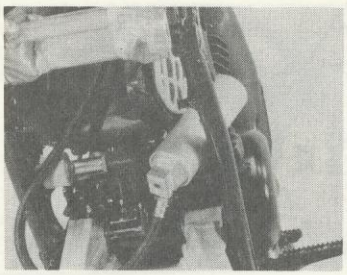




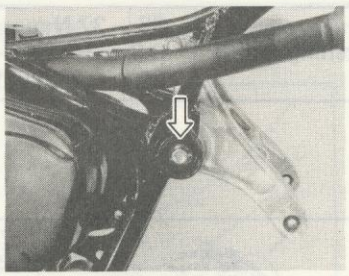
2. Remove the upper and lower shock absorber mounting bolts.



3. Remove the upper and lower mounting bolts and take off the rods.

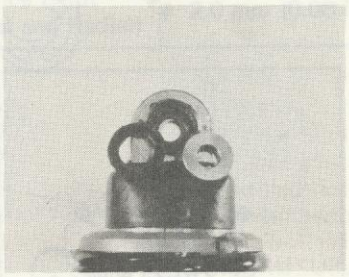


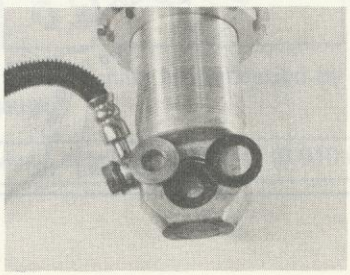
4. Loosen the air cleaner mounting bolts and remove the reservoir.



5. Draw out the Bell Crank pivot shaft after loosening the nut, and remove the Bell Crank.

INSPECTION

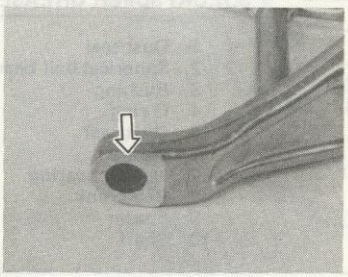


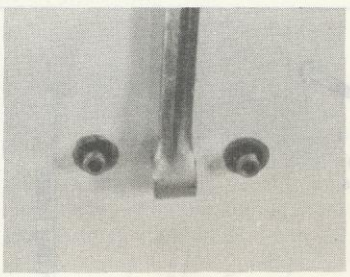


Spherical ball bearing is used for upper and lower shock absorber pivoting portion.

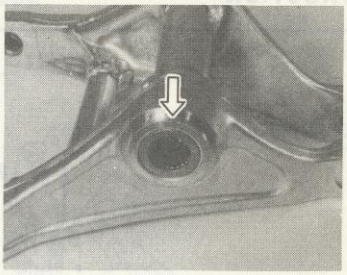
CAUTION:
Be sure to apply SUZUKI MOLY PASTE to the upper and lower side of the rear shock absorber mounting portion.

99000-25140	SUZUKI MOLY PASTE



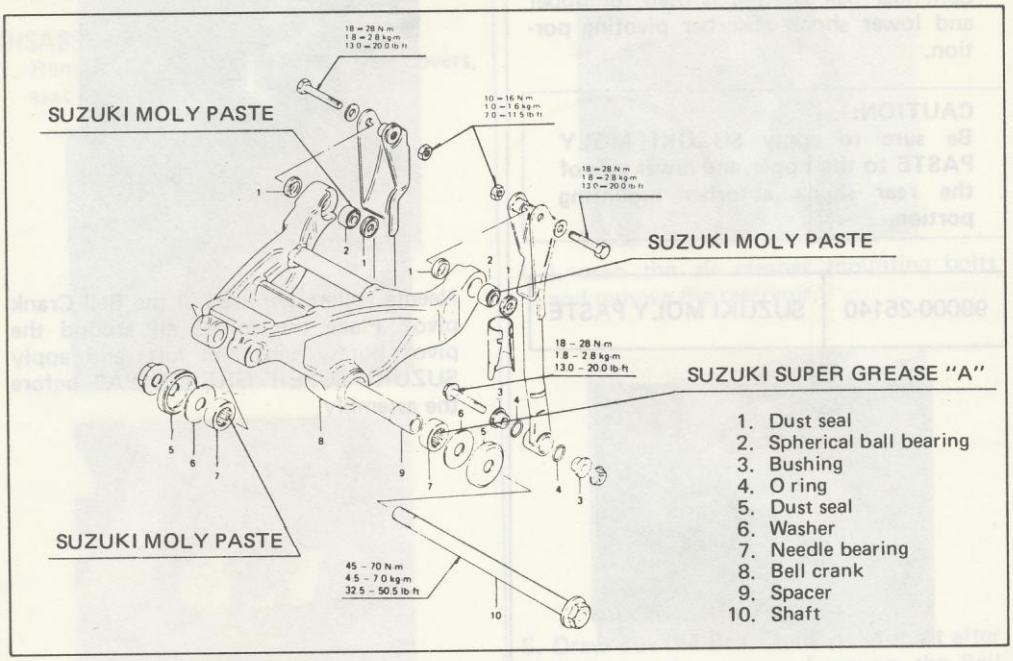


Spherical ball bearing with oil seal is used for upper side. Bushing with "O" ring is used for lower side. When reassembling, apply SUZUKI MOLY PASTE.

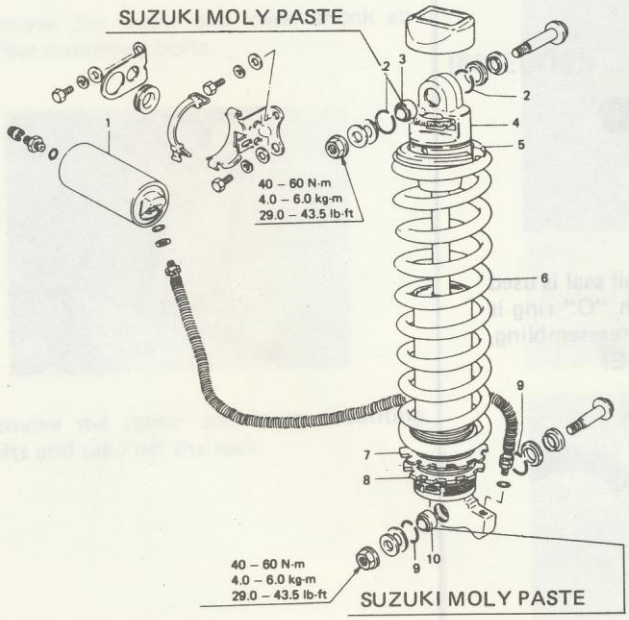


Needle rollers are used in the Bell Crank pivot. Place the rollers all around the pivot bores, right and left, and apply SUZUKI SUPER GREASE "A" before the assembly.

CONSTRUCTION

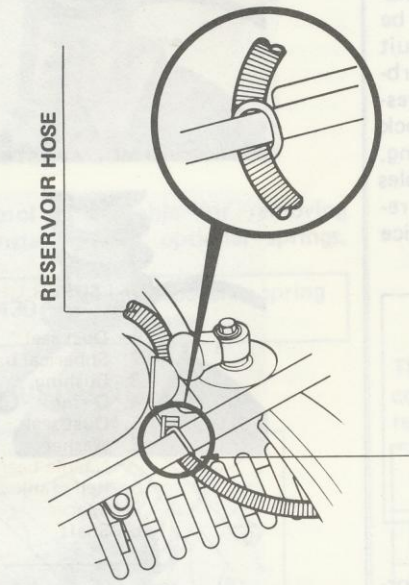


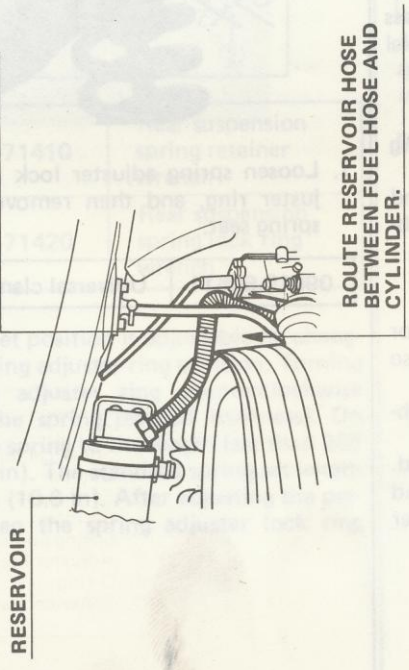
1. Dust seal
2. Spherical ball bearing
3. Bushing
4. O ring
5. Dust seal
6. Washer
7. Needle bearing
8. Bell crank
9. Spacer
10. Shaft

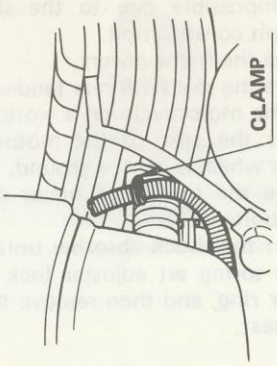


1. Reservoir
2. O ring
3. Spherical ball bearing
4. Damper
5. Spring seat
6. Spring
7. Spring adjuster ring
8. Adjuster lock
9. O ring
10. Spherical ball bearing

ROUTING OF REAR SUSPENSION RESERVOIR HOSE







SHOCK ABSORBER

RM500 shock absorber provides superior performance due to its innovative design and special adjustment features. The spring preload can be adjusted and the damping for both extension and compression can be adjusted to four different positions to suit each riders specific needs. The shock absorber is also equipped with a nitrogen gas pressurized remote reservoir to further aid shock performance and consistency of damping. The remote reservoir special design enenables both oil replacement and nitrogen gas recharging significantly extending the service life of the shock absorber.

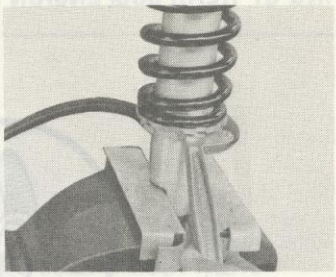
WARNING:
Carefully review the service procedures regarding the shock absorber before attempting to perform any adjustment or servicing. IT IS ESSENTIAL FOR YOUR OWN SAFETY THAT YOU FOLLOW ALL INSTRUCTIONS AND TAKE ALL SAFE-GUARDS.

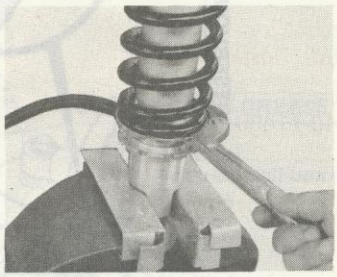
Suzuki recommends that your local authorized Suzuki dealer perform the servicing and adjusting of your RM shock absorber unless you have all of the proper tools, special equipment, and mechanical experience.

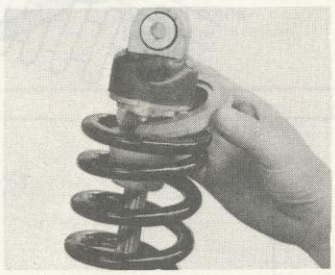
SHOCK ABSORBER REMOVAL

Servicing is limited to changing the spring preload, damping rate and shock oil.
Replacement of internal components and seals is impossible due to the shock absorber's unit construction.

1. Remove the frame covers.
2. Remove the seat with rear fender.
3. Place the motorcycle on a work stand or support the rear of the motorcycle so the rear wheel is off the ground.
4. Remove the lower and upper shock absorber bolts.
5. Pull out the shock absorber unit upward.
6. Loosen spring set adjuster lock ring and adjuster ring, and then remove the upper spring seat.

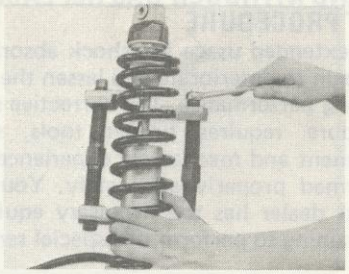






7. Loosen spring adjuster lock ring and adjuster ring, and then remove the upper spring seat.

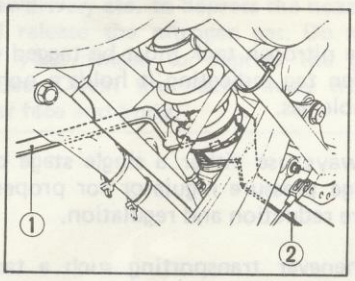
09910-60611	Universal clamp wrench



8. Special tool is available for removing and/or installing the optional springs.

09940-71430	Rear suspension spring compressor

SPRING ADJUSTMENT

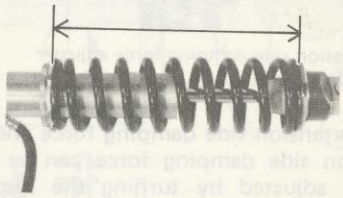


09940-71410	Rear suspension spring retainer wrench
09940-71420	Rear suspension spring lock ring wrench

Spring preset position is adjustable by changing the spring adjuster ring position. Turning the spring adjuster ring counterclockwise increases the spring preload (stiffness). Do not set the spring to the length less than 258 mm (10.2 in). The standard spring set length is 269 mm (10.6 in). After adjusting the preload, tighten the spring adjuster lock ring securely.

Optional springs

Two optional springs, softer and harder, are available. The installation procedure for each of the optional springs is the same as that for the standard spring.

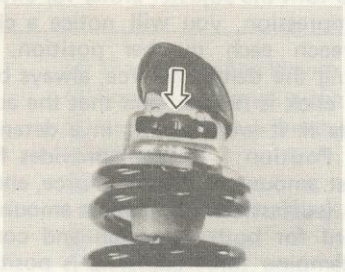


The following table shows the spring's initial compression dimension as installed in place, relative to the free length.

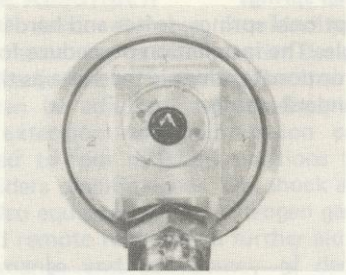
	SOFTER SPRING	HARDER SPRING
STANDARD PRE-LOAD	10 mm (0.39 in)	10 mm (0.39 in)
MAXIMUM ALLOWABLE PRE-LOAD	26 mm (1.02 in)	25 mm (0.98 in)

NOTE: For installation of the optional spring, a special tool is available as expalined in the previous page.

DAMPING FORCE ADJUSTMENT



Extension side damping force adjuster



Compression side damping force adjuster

The extension side damping force and compression side damping force can be individually adjusted by turning the respective adjusters. The extension damping force adjuster is located at the top end of the rear suspension unit. And the compression damping force adjuster is located at the reservoir tank of the rear suspension.

To increase or decrease the extension damping force, roll up the rubber cap away from the adjuster and turn the adjuster clockwise or counterclockwise. Damping adjustments are indicated by the numbers 1 through 4 engraved on the adjuster.

To increase or decrease the compression damping force, turn the adjuster clockwise or counterclockwise by using a plane head screwdriver. Damping force adjustments are indicated by an arrow pointing the numbers, 1 through 4 engraved on the reservoir tank.

As you turn the adjuster either for extension or compression, you will notice a click as you reach each number position. When changing the damping force, always be sure that a click is noticed and that the adjuster feels as if it were setting in a detent or a notch. Position 1 (softest) provides for the smallest amount of damping force, and position 4 (stiffest) for the largest amount. The standard for both extension and compression damping force adjusters is position 2.

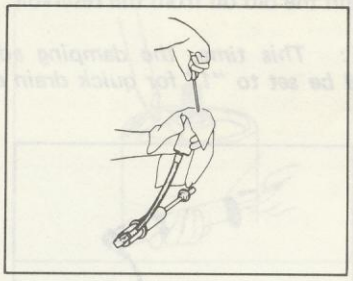
CAUTION:
Do not operate rear damper units in any positions other than the click or detented positions. If position II½, III½, etc. is used, the damping force will automatically have the same damping force as number IIII (stiffest) position.

OIL AND NITROGEN GAS REPLACEMENT PROCEDURE

After extended usage the shock absorber oil will begin to deteriorate and lessen the shock damping performance. The corrective service procedure requires proper tools, special equipment and mechanical experience to be performed properly and safely. Your local Suzuki dealer has the necessary equipment and training to perform this special servicing.

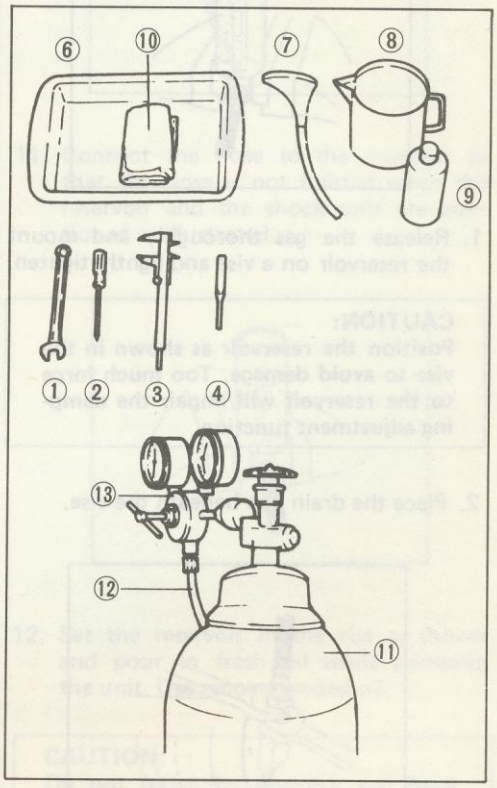
WARNING:
If you elect to perform the servicing yourself, several important precautions must be adhered to. These precautions primarily concern the use, handling, and transportation of a high pressure nitrogen gas.

1. The nitrogen tank must be tagged with a green tag indicating it holds a non-flammable gas.
2. Always use either a single stage or two stage pressure regulator for proper pressure reduction and regulation.
3. Whenever transporting such a tank the regulator assembly should be removed and the approved tank safety cap re-installed. A tank should not be stored unless the regulator assembly is removed and the protective cap is re-installed.
4. During transportation, the tank should be securely fastened at all times so as to prevent damage to the tank in the event of an accident, etc.
5. Certain cities and states prohibit the transportation of high pressure tanks over specific marked roadways, bridges, tunnels, etc.



WARNING:
Never perform any reservoir servicing until the nitrogen pressure is released from the shock absorber reservoir as directed below. When releasing the gas pressure, place a rag over the gas discharge nozzle and use the end of a screwdriver, etc. to depress the nozzle, and release the nitrogen gas. Do not use your finger to depress the gas nozzle. Direct the nozzle away from your face and body.

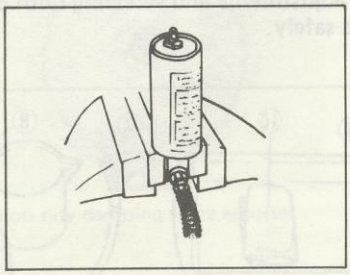
Required tools and special equipment
Shown below are the necessary tools and special equipment that are required to perform adjustments and servicing both correctly and safely.



① 17 mm Open End Wrench
② Screwdrive or small punch
③ Vernier calipers or Depth Gauge
④ Blunt rod
⑤ Vise*
* Not Shown in the illustration
⑥ Drain Pan
⑦ Funnel and Filler Hose
⑧ Breaker
⑨ Specified Shock Oil
⑩ Rags
⑪ Nitrogen tank
⑫ Filler Hose and Nozzle
⑬ Regulator Assembly

Service procedure

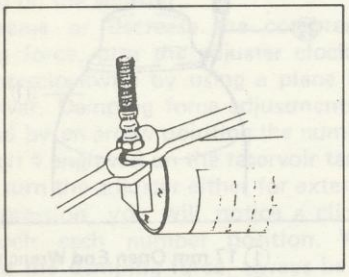
Follow the procedure below to replace the oil and nitrogen.



1. Release the gas thoroughly and mount the reservoir on a vise and lightly tighten.

CAUTION:
Position the reservoir as shown in the vise to avoid damage. Too much force to the reservoir will impair the damping adjustment function.

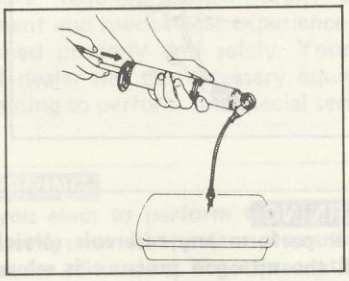
2. Place the drain pan beneath the vise.



3. Loosen and remove the reservoir hose at the reservoir fitting using a 17 mm wrench. Inspect the hose O ring for cuts or other damage. The O ring may be reused if still in good condition.

4. Drain the old oil from the reservoir.

NOTE: This time, the damping adjuster should be set to "1" for quick drain of oil.

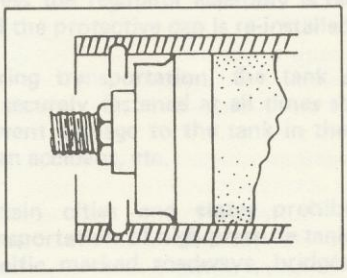


5. Tilt the shock body as illustrated and slowly pump all the old oil from the unit.

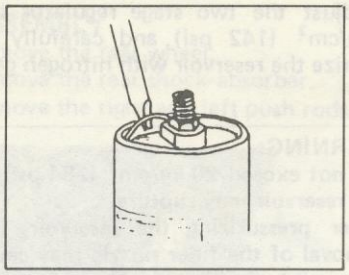
NOTE: The unit may be drained overnight if time permits for more thorough purging of the oil.

6. Flush the unit twice with fresh specified shock oil and again pump it all out. This will clean the unit thoroughly and remove the last remains of the old oil.

CAUTION:
The seals will be damaged if solvent or gasoline is used to flush the shock body or reservoir.

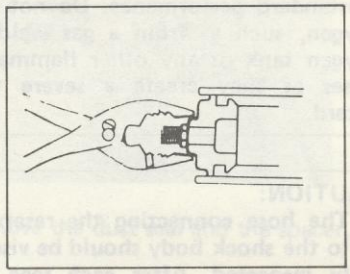


7. Press in the air valve base approximately 8 mm from the reservoir end face.



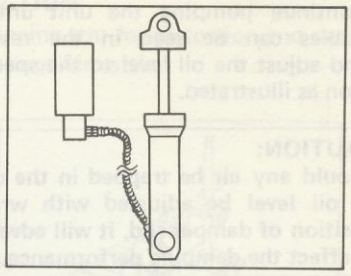
8. Remove the circlip by a screw driver taking care not to make any burrs or scratches on the bore of reservoir.

CAUTION:
Burrs or scratches on the reservoir will damage the rubber tank surface during disassembly possibly resulting in oil leak during the operation.

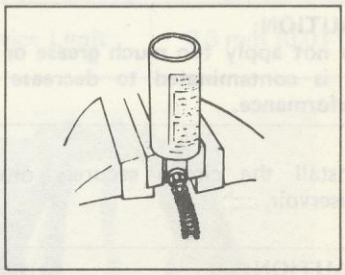


9. Hold the air valve base by pliers and carefully pull out the valve base, and the rubber tank will come out together.
10. Check all around the lip and all surface of the rubber tank for any damage. Damaged tank should be replaced with new one.

NOTE: If the tank has still residual pressure, equalize the pressure with atmosphere by pressing the air valve. Should any oil in the tank be found, completely drain it.

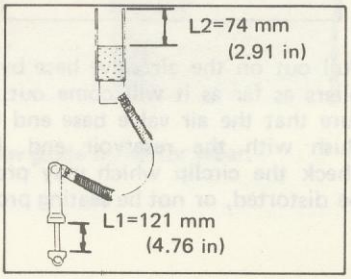


11. Connect the hose to the reservoir so that the hose is not twisted when the reservoir and the shock unit are positioned as illustrated.



12. Set the reservoir in the vise as shown and pour in fresh oil while pumping the unit. Use recommended oil.

CAUTION:
Do not force the reservoir too hard when holding it in the vise or it will impair the damping adjustment function.



13. Continue pumping the unit until no bubles can be seen in the reservoir and adjust the oil level to the specification as illustrated.

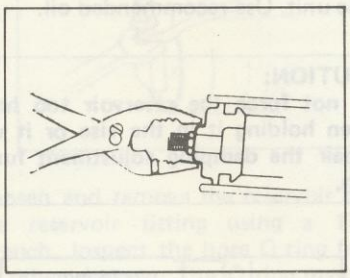
CAUTION:
Should any air be trapped in the unit or oil level be adjusted with wrong position of damper rod, it will adversely affect the damping performance.

14. Smear the rubber tank lip with grease and insert it into the reservoir with the air valve base attached. The piston rod position at this time should be set to L1 as explained above.

CAUTION:
Do not apply too much grease or the oil is contaminated to decrease the performance.

15. Install the circlip securely onto the reservoir.

CAUTION:
Replace the circlip with new one if any deformation, nick, etc are noted.



16. Pull out on the air valve base by using pliers as far as it will come out. Make sure that the air valve base end face is flush with the reservoir end. If not check the circlip which may probably be distorted, or not be seating properly.

17. Adjust the two stage regulator to 10 kg/cm^2 (142 psi) and carefully pressurize the reservoir with nitrogen gas.

WARNING:
Do not exceed 20 kg/cm^2 (284 psi) or the reservoir may rupture.
After pressurizing the reservoir, the removal of the filler nozzle may cause some oil to be sprayed. Do not expose your face or body to the spray.

18. Re-install the spring and mount the shock absorber.

WARNING:
Nitrogen gas has been found to deliver optimum performance and reliability. Do not use air or other gases which will lead to premature wear, rust, and substandard performance. Do not use oxygen, such as from a gas welding oxygen tank or any other flammable gasses as they create a severe fire hazard.

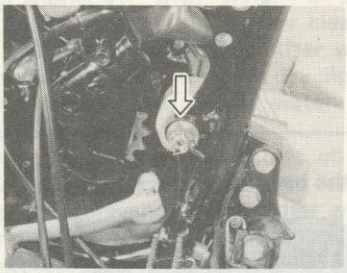
CAUTION:
1. **The hose connecting the reservoir to the shock body should be visually inspected. After each race for signs of wear or damage such as cuts, rubbed portions or dented areas.**
2. **It is recommended that only Genuine Suzuki Shock Oil be used if available or an equivalent shock oil.**

WARNING:
When discarding the shock unit release the high pressure nitrogen gas. Keep the shock absorber assembly away from heat and fire. Do not loosen any fitting or perform any servicing on the shock assembly until the nitrogen gas has been released.

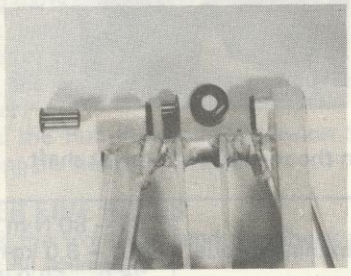
REAR SWINGING ARM

DISASSEMBLY

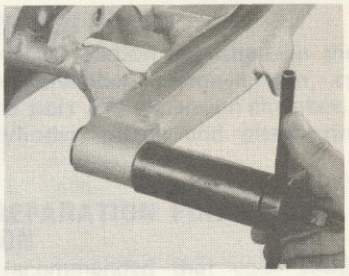
1. Remove the rear wheel.
2. Remove the rear shock absorber.
3. Remove the right and left push rods.



4. Remove the cotter pin and axle nut.



5. Remove the dust seal and the spacer.

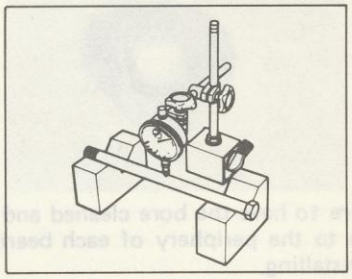


6. Remove the bearing and oil seal by using the special tool.

09941-44510	Swinging arm bearing remover

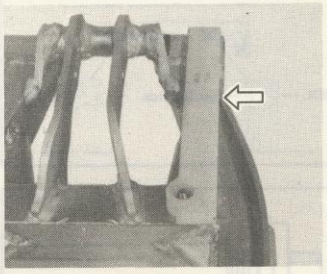
INSPECTION

- Swinging arm for distortion and damage.
- Bearings for rattle.

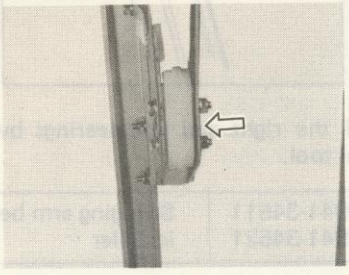


- Pivot shaft distortion.

Service Limit	0.3 mm (0.01 in)

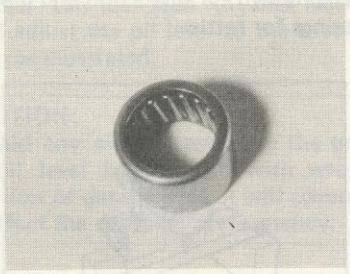


- Chain guide for damage.

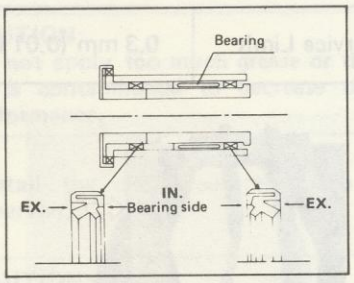


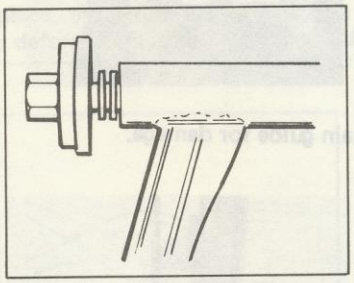
- Chain guide roller for wear.

REASSEMBLY



Be sure to have the bore cleaned and apply grease to the periphery of each bearing before installing.
Stamped-marked side of bearing comes on outer side when the bearing is in place.

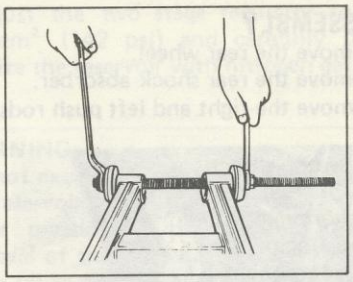




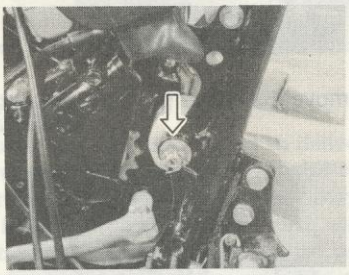
Install the right and left bearings by using special tool.

09941-34511 09941-34521	Swinging arm bearing installer

Make sure to install the bearing at 7 mm (0.28 in) depth from the swinging arm pivot shaft hole surface by using special tool.



Install the bearing.



Tighten the swinging arm pivot shaft.

Tightening torque	50 – 80 N·m 5.0 – 8.0 kg-m 36.0 – 58.0 lb-ft

Apply grease to lubricate the bearings.

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 or 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 fuelcock strainer.
Check the Full-Floating Suspension System pivoting portion.

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 RM500 be overhauled by an authorized Suzuki Service Shop to maintain its performance.

TROUBLESHOOTING

ENGINE DOES NOT START OR HARDLY STARTS

1. Low compression	
(1) Leakage from mating surface of crankcase halves	Repair
(2) Worn or sticky piston ring	Replace
(3) Worn or damaged cylinder	Replace
2. No spark at plug	
(1). Fouled plug	Clean or replace
(2) Wet plug	Clean or replace
(3) Imperfect connecting of connector	Repair
(4) Malfunctioning CDI unit	Replace
(5) Incorrect ignition timing	Correct
(6) Malfunctioning ignition coil	Replace
(7) Open or short ignition coil	Replace
(8) Defective engine stop switch	Replace
3. No fuel fed to carburetor	
(1) Clogged fuel tank cap breather hose	Clean
(2) Clogged fuelcock	Clean
(3) Defective carburetor float valve	Replace
(4) Clogged or air-locked fuel hose	Clean or replace
(5) Run out gasoline	Replenish
4. Deteriorated oil mixture	Replace

ENGINE STALL

1. Fouled plug	Clean or replace
2. Incorrect ignition timing	Correct
3. Clogged fuel hose	Clean
4. Clogged carburetor	Clean
5. Incorrect carburetor adjustment	Adjust
6. Run out gasoline	Replenish

LOW POWER

1. Worn or sticky cylinder or piston ring	Replace
2. Incorrect ignition timing	Correct
3. Incorrect plug gap	Correct or replace
4. Clogged carburetor jets	Clean
5. Low fuel level	Correct
6. Crack or clogging (with carbon) of exhaust chamber	Clean or replace
7. Incorrect carburetor adjustment	Adjust

ENGINE OVERHEAT

1. Compression pressure leak due to damaged cylinder head and gasket	Replace
2. Carbon collected in cylinder head	Clean
3. Lean fuel-air mixture	Adjust
4. Clogged radiator core	Clean
5. Carbon collected in exhaust chamber	Clean

SLIPPERY CLUTCH

1.	No play of clutch lever	Adjust
2.	Fatigued clutch springs	Replace
3.	Worn or distored pressure plate	Replace
4.	Worn or distored clutch plates	Replace
5.	Burnt clutch plates	Clean

STICKY CLUTCH (NOT CLEARLY DISENGAGED)

1.	Too much play of clutch lever	Adjust
2.	Ununiform tension of clutch springs	Replace
3.	Distored clutch plates	Replace
4.	Dirty of adhearent clutch plates	Clean

UPSHIFT IMPOSSIBLE OR GEAR JUMP

1.	Defective gearshift cam stopper	Replace
2.	Damaged gearshift cam	Replace
3.	Fatigued gearshift cam stopper spring	Replace

DOWNSHIFT IMPOSSIBLE

1.	Fatigued shift return spring	Repalce

GEAR COMES OFF

1.	Worn gear dog	Repalce
2.	Worn or bent gear shift fork	Replace

HEAVY CLUTCH LEVER

1.	Lack of cable oil	Oil
2.	Bent or broken cable	Replace

PISTON SEIZING

1.	Wrong-sized piston	Repalce
2.	Incorrect cylinder port chamfering	Correct or replace
3.	Leakage from mating surface of cylinder or cylinder head	Replace gasket
4.	Incorrect cylinder size	Rebore or replace
5.	Incorrect carburetor setting	Correct
6.	Incorrect fuel level in carburetor	Adjust
7.	Dirt or other foreign substance entrapped in fuel	Clean or replace
8.	Leakage from the crankcase halves	Replace gasket
9.	Incorrect ignition timing	Adjust
10.	Incorrect heat range of spark plug	Replace
11.	Incorrect type of gasoline or oil	Replace

UNSMOOTH REVVING AT LOW RPM

1.	Incorrect ignition timing	Adjust
2.	Too large plug gap	Correct or replace
3.	Weak ignition spark (defective ignition coil or CDI unit)	Replace
4.	Incorrect fuel level	Adjust
5.	Incorrect carburetor setting	Adjust

UNSMOOTH REVVING AT HIGH RPM

1.	Too small plug gap	Correct or replace
2.	Incorrect ignition timing	Adjust
3.	Malfunctioning CDI unit	Replace
4.	Defective ignition coil	Replace
5.	Incorrect carburetor fuel level	Adjust
6.	Crank chamber primary compression leak	Correct
7.	Improper carburetor setting	Adjust

IGNITION FAILURE

1.	Defective (open or short circuit) igniton coil	Replace
2.	Defective spark plug	Replace
3.	Malfunctioning CDI unit	Repalce

CARBON COLLECTED ON SPARK PLUG ELECTRODE

1.	Too rich fuel-air mixture	Adjust
2.	Incorrect fuel and oil mixture	Adjust
3.	Incorrect heat range of spark plug	Replace

BURNING OFF OF SPARK PLUG ELECTRODE

1.	Incorrect heat range of spark plug	Replace
2.	Overheating	
3.	Incorrect ignition timing	Adjust
4.	Loose spark plug	Tighten
5.	Feul-air mixture too lean	Adjust

HEAVY HANDLEBAR

1.	Damaged or too tight steering stem bearings	Repair or adjust
2.	Bent steering stem	Replace
3.	Cracking of frame around steering head	Repair or replace

SWAY OF FRONT WHEEL

1.	Deformed wheel	Replace
2.	Runout of front wheel bearings	Replace
3.	Incorrect wheel balance	Adjust
4.	Loose clamping of axle parts	Tighten

TOO SOFT FRONT FORK

1.	Fatigued spring	Replace
2.	Insufficient fork oil	Replenish
3.	Defective damper rod	Replace
4.	Low air pressure	Adjust

TOO HARD FRONT FORK

1.	High fork oil viscosity	Replace
2.	Excessive amount of fork oil	Adjust
3.	High air pressure	Adjust

SWAY OF REAR WHEEL

1.	Deformed wheel	Replace
2.	Runout of rear wheel bearings	Replace
3.	Runout of swinging arm pivot bearing	Replace
4.	Loose clamping of axle parts	Tighten

TOO SOFT REAR SHOCK ABSORBER

1.	Fatigued spring	Replace
2.	Incorrect adjustment of adjuster	Adjust
3.	Low sealed gas pressure	Replace

TOO HARD REAR SHOCK ABSORBER

1.	Incorrect adjustment of adjuster	Adjust
2.	Bent damper rod	Replace
3.	Unsmooth operation due to oil runout of link section	Lubricate

TIGHTENING TORQUE

ENGINE

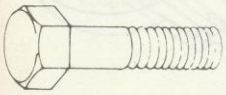
PART	N·m	kg-m	lb-ft
Cylinder head nut	26 – 30	2.6 – 3.0	19.0 – 21.5
Impeller bolt	7 – 9	0.7 – 0.9	5.0 – 6.5
Magneto rotor nut	30 – 40	3.0 – 4.0	21.5 – 29.0
Clutch sleeve nut	40 – 60	4.0 – 6.0	29.0 – 43.5
Engine sprocket nut	80 – 100	8.0 – 10.0	58.0 – 72.5
Primary drive gear nut	80 – 100	8.0 – 10.0	58.0 – 72.5
Kick starter bolt	18 – 28	1.8 – 2.8	13.0 – 20.5
Gearshift lever bolt	12 – 23	1.2 – 2.3	9.5 – 16.5
Drain plug	15 – 20	1.5 – 2.0	11.0 – 14.5

CHASSIS

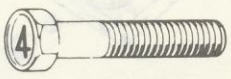
Handlebar clamp bolt	12 – 20	1.2 – 2.0	9.0 – 14.5
Steering stem upper clamp bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Steering stem head bolt	35 – 50	3.5 – 5.0	25.5 – 36.0
Steering stem nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Front fork upper clamp bolt (right and left)	20 – 30	2.0 – 3.0	14.5 – 21.5
Front fork lower clamp bolt (right and left)	15 – 25	1.5 – 2.5	11.0 – 18.0
Front fork cap bolt	15 – 30	1.5 – 3.0	11.0 – 21.5
Front axle holder bolt	15 – 25	1.5 – 2.5	11.0 – 18.0
Front axle shaft	50 – 80	5.0 – 8.0	36.0 – 58.0
Front brake cam lever bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Engine mounting bolt (Front)	37 – 45	3.7 – 4.5	26.5 – 32.5
Engine mounting bolt (Middle)	30 – 38	3.0 – 3.8	21.5 – 27.5
Swinging arm pivot shaft (Engine mounting)	50 – 80	5.0 – 8.0	36.0 – 58.0
Rear shock absorber fitting bolt (Upper and lower)	40 – 60	4.0 – 6.0	29.0 – 43.5
Bell crank pivot shaft	45 – 70	4.5 – 7.0	32.5 – 50.5
Push rod upper joint bolt	18 – 28	1.8 – 2.8	13.0 – 20.5
Push rod upper joint nut	10 – 16	1.0 – 1.6	7.0 – 11.5
Push rod lower joint bolt	18 – 28	1.8 – 2.8	13.0 – 20.5
Rear axle nut	50 – 80	5.0 – 8.0	36.0 – 58.0
Rear axle sleeve hub nut	70 – 90	7.0 – 9.0	50.5 – 65.0
Rear torque link nut (Front)	10 – 15	1.0 – 1.5	7.0 – 11.0
Rear torque link nut (Rear)	10 – 15	1.0 – 1.5	7.0 – 11.0
Brake cam lever bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
Rear sprocket bolt	33 – 37	3.3 – 3.7	24.0 – 27.0
Spoke nipple	2 – 4	0.2 – 0.4	1.5 – 3.0

For other bolts and nuts not listed above, refer to this chart.

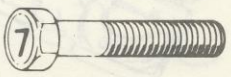
Bolt Diameter (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kg-m	lb-ft	N·m	kg-m	lb-ft
4	1.0 – 2.0	0.1 – 0.2	0.7 – 1.5	1.5 – 3.0	0.15 – 0.3	1.0 – 2.0
5	2.0 – 4.0	0.2 – 0.4	1.5 – 3.0	3.0 – 6.0	0.3 – 0.6	2.0 – 4.5
6	4.0 – 7.0	0.4 – 0.7	3.0 – 5.0	8.0 – 12.0	0.8 – 1.2	6.0 – 8.5
8	10.0 – 16.0	1.0 – 1.6	7.0 – 11.5	18.0 – 28.0	1.8 – 1.2	13.0 – 20.0
10	22.0 – 35.0	2.2 – 3.5	16.0 – 25.5	40.0 – 60.0	4.0 – 6.0	29.0 – 43.5
12	35.0 – 55.0	3.5 – 5.5	25.5 – 40.0	70.0 – 100.0	7.0 – 10.0	50.5 – 72.5
14	50.0 – 80.0	5.0 – 8.0	36.0 – 58.0	110.0 – 160.0	11.0 – 16.0	79.5 – 115.5
16	80.0–130.0	8.0 – 13.0	58.0 – 94.0	170.0 – 250.0	17.0 – 25.0	123.0 – 181.0
18	130.0 – 190.0	13.0 – 19.0	94.0–137.5	200.0 – 280.0	20.0 – 28.0	144.5 – 202.5



Conventional bolt

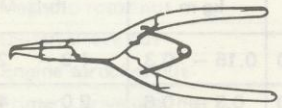
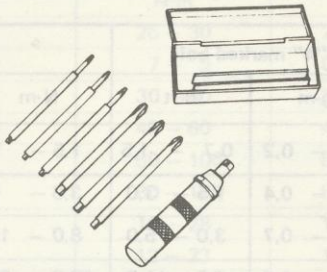
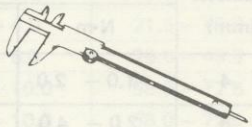
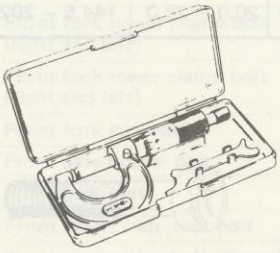
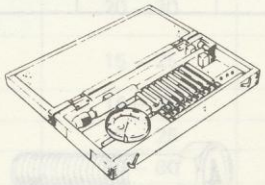
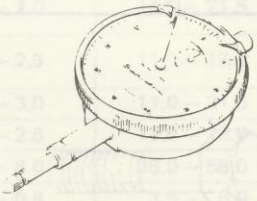
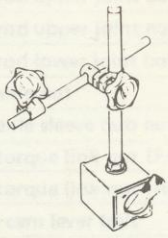
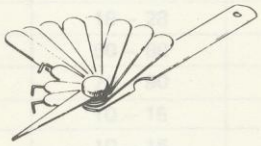


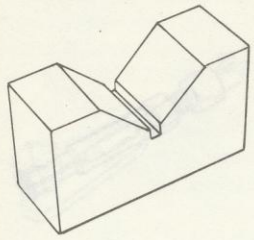
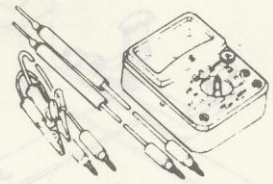
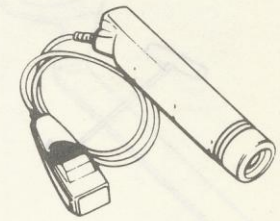
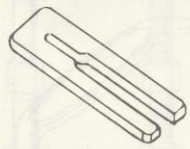
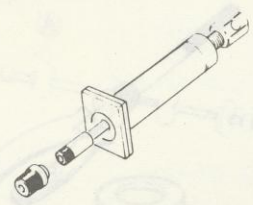
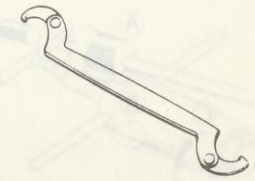
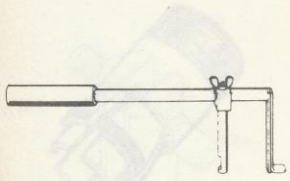
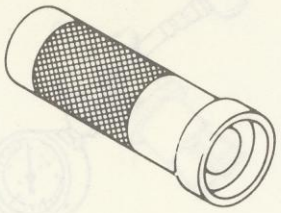
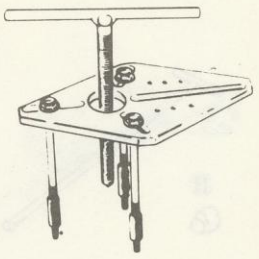
"4" marked bolt

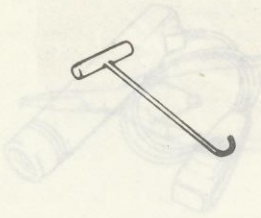
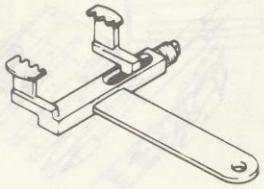
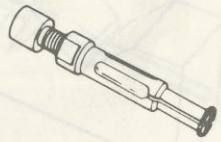
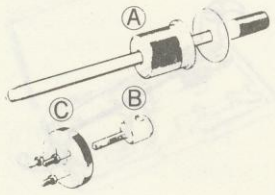
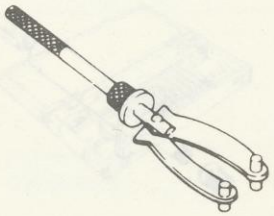
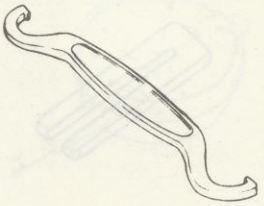


"7" marked bolt

SPECIAL TOOLS

		
Snap ring pliers (Opening type) 09900-06104	Impact driver set 09900-09003	Vernier calipers 09900-20101
		
Micrometer 09900-20203 99900-20205	Cylinder gauge set 09900-20508	Dial gauge 09900-20602
		
Magnetic stand 09900-20701	Thickness gauge 09900-20804	Torque wrench 09900-21101 09900-21103

		
Steel "V" block set 09900-21303 09900-21304	Pocket tester 09900-25002	Timing light (Dry cell type) 09900-27311
		
Con-rod holder 09910-20115	Piston pin puller 09910-34510	Universal clamp wrench 09910-60611
		
Oil seal remover 09913-50121	Bearing installer 09913-70122	Crankcase separating tool 09920-13111

		
Clutch spring hook 09920-20310	Clutch sleeve hub holder 09920-53710	Bearing puller 09923-73210
		
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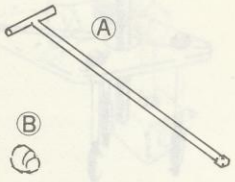	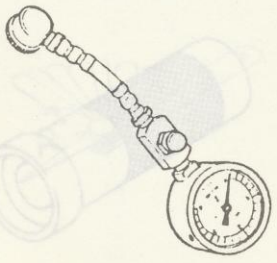	
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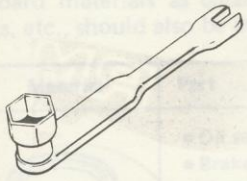
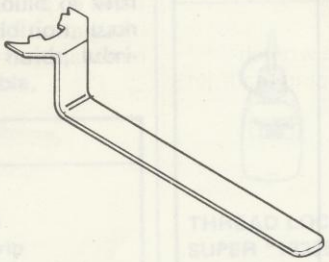
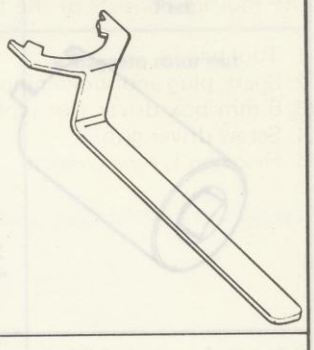


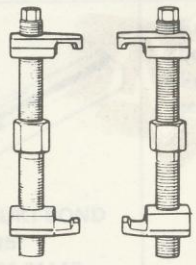
Spark plug wrench
09186-00086



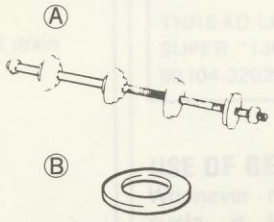
Rear suspension spring retainer wrench
09940-71410



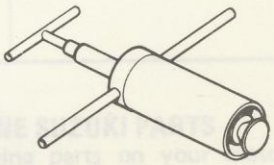
Rear suspension spring lock ring wrench
09940-71420



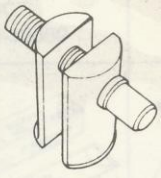
Rear suspension spring compressor
09940-71430



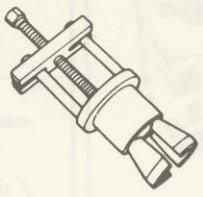
Steering race and swinging arm bearing installer
A : 09941-34513
B : 09941-34521



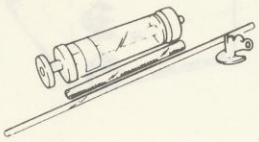
Swing arm bearing remover
09941-44510



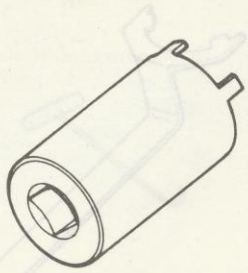
Bearing outer race remover
09941-54911



Bearing inner race remover
09941-84510

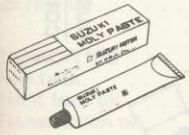


Front fork oil level gauge
09943-74111

		
Steering stem nut socket wrench 09940-11410		

MATERIALS

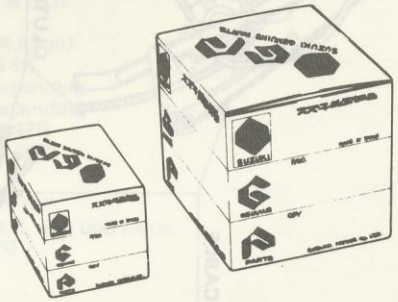
The materials listed below are required for maintenance operations, and should be kept on hand for ready use. In addition, such standard materials as cleaning fluids, lubricants, etc., should also be available.

Material	Part
 SUZUKI SUPER GREASE "A" 99000-25030	• Oil seals • Brake cam • Throttle grip • Gearshift lever shaft • Steering stem bearings • Swinging arm bearing and dust seal • Bell Crank pivot
 SUZUKI BOND "1215" 99104-31110	• Front fork damper rod bolt • Front fork oil drain screw
 THREAD LOCK "1363C" 99104-32050	• Gearshift cam guide screw • Gearshift pawl screw • Bearing retainer screw • Front fork air valve • Front fork damper rod bolt
 SUZUKI MOLY PASTE 99000-25140	• Full Floating suspension pivoting part (* Upper and lower push rod joint * Upper and lower suspension joint)

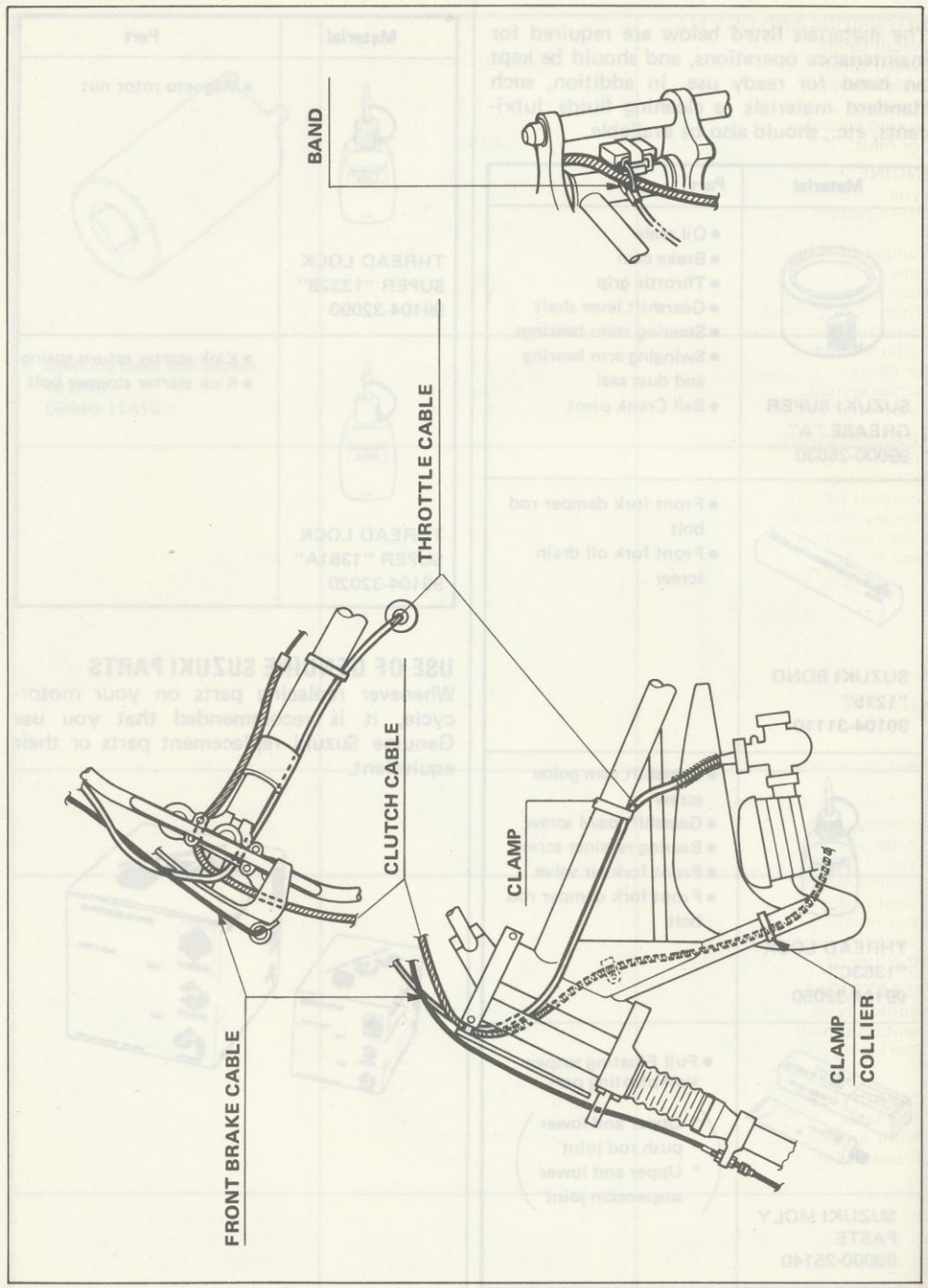
Material	Part
 THREAD LOCK SUPER "1332B" 99104-32090	• Magneto rotor nut
 THREAD LOCK SUPER "1361A" 99104-32020	• Kick starter return spring • Kick starter stopper bolt

USE OF GENUINE SUZUKI PARTS

Whenever replacing parts on your motorcycle, it is recommended that you use Genuine Suzuki replacement parts or their equivalent.



CABLE ROUTING



SPECIFICATIONS

DIMENSIONS AND DRY MASS	
Overall length	2 175 mm (85.6 in)
Overall width	845 mm (33.3 in)
Overall height	1 265 mm (49.8 in)
Wheelbase	1 475 mm (58.1 in)
Ground clearance	370 mm (14.6 in)
Dry mass	103 kg (227 lbs)
ENGINE	
Type	Two-stroke water-cooled
Intake system	Full reed valve US PAT. 4062331 and others, licenced by Eyvind Boysen
Number of cylinder	1
Bore	88.5 mm (3.484 in)
Stroke	80.0 mm (3.150 in)
Piston displacement	492 cm^3 (30.0 cu. in)
Corrected compression ratio	6.2 : 1
Carburetor	MIKUNI VM38SS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Fuel/Oil premixture of 20 : 1
TRANSMISSION	
Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 3-up
Primary reduction	2.384 (62/26)
Final reduction	3.285 (46/14)
Gear ratios	
Low	2.000 (28/14)
2nd	1.555 (28/18)
3rd	1.210 (23/19)
Top	0.954 (21/22)
Drive chain	DAIDO D.I.D.520KD, 112 links
CHASSIS	
Front suspension	Telescopic pneumatic/coil spring with adjustable compression damping
Rear suspension	Full-floating suspension, adjustable damping force in 4 ways both for extension and compression, infinitely variable spring preload setting
Steering angle	45° (right & left)
Caster	60° 20'
Trail	123 mm (4.84 in)
Turning radius	2.3 m (7.5 ft)
Front brake	Internal expanding
Rear brake	Internal expanding
Front tire size	100/80-21 4PR
Rear tire size	140/80-18 4PR
ELECTRICAL	
Ignition type	SUZUKI "PEI"
Ignition timing	15° B.T.D.C. at 6 000 r/min
Spark plug	NKG B8EGV
CAPACITIES	
Fuel tank	9.0 L (2.4/2.0 US/Imp gal)
Front fork oil	641.5 ml (21.68/22.59 US/Imp oz)
Transmission oil	1 000 ml (2.11/1.76 US/Imp pt)

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD	LIMIT
Piston – Cylinder clearance	0.080 – 0.090 (0.0031 – 0.0035)	0.120 (0.0047)
Cylinder bore	88.500 – 88.515 (3.4843 – 3.4848) Measure at the 20 (0.79) from top surface	88.550 (3.4686)
Piston dia.	88.415 – 88.430 (3.4809 – 3.4815) Measure at the 29.5 (1.16) from skirt end	88.380 (3.4795)
Cylinder distortion	–	0.05 (0.002)
Cylinder head distortion	–	0.05 (0.002)
Piston ring free end gap	R: 8.2 (0.32)	6.6 (0.26)
Piston ring end gap	0.3 – 0.5 (0.01 – 0.03)	0.9 (0.04)
Piston ring to groove clearance	0.020 – 0.060 (0.0008 – 0.0024)	–
Piston pin bore	18.002 – 18.012 (0.7087 – 0.7091)	18.030 (0.7098)
Piston pin O.D.	17.995 – 18.000 (0.7085 – 0.7087)	17.980 (0.7079)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.003 – 23.011 (0.9056 – 0.9059)	23.040 (0.9071)
Crank web to web width	70.0 ± 0.1 (2.76 ± 0.004)	–
Crankshaft runout	–	0.05 (0.002)

CLUTCH + PRIMARY GEAR

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	4 (0.16)	–
Drive plate thickness	2.9 – 3.1 (0.11 – 0.12)	2.6 (0.10)
Drive plate claw width	15.8 – 16.0 (0.62 – 0.63)	15.0 (0.59)
Driven plate thickness	1.6 ± 0.06 (0.06 ± 0.0002)	–
Driven plate distortion	–	0.15 (0.006)
Clutch spring free length	–	38.5 (1.52)

TRANSMISSION

Unit: mm (in)

ITEM	STANDARD		LIMIT
Shift fork to groove clearance	No.1	0.2 – 0.3 (0.008 – 0.012)	0.5 (0.020)
	No.2	0.2 – 0.3 (0.008 – 0.012)	0.5 (0.020)
Shift fork groove width	No.1	5.0 – 5.1 (0.197 – 0.200)	–
	No.2	5.0 – 5.1 (0.197 – 0.200)	–
Shift fork thickness	No.1	4.8 – 4.9 (0.189 – 0.193)	–
	No.2	4.8 – 4.9 (0.189 – 0.193)	–

DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	DAIDO : D.I.D. 520KD TAKASAGO : RK520SM	–
	Links	112	–
	20 pitch length	–	324 (12.8)
Drive chain slack	40 – 45 (1.6 – 1.8)		–

CARBURETOR

Unit : mm (in)

ITEM		SPACIFICATION
Carburetor type		MIKUNI VM38SS
Bore size		38
I.D. No.		14230
Float height		11.4 ± 0.5 (0.45 ± 0.002)
Main jet	(M. J.)	#300
Air jet	(A. J.)	2.5
Jet needle	(J. N.)	6FM46-3
Needle jet	(N. J.)	R-4
Cut-away	(C.A.)	2.0
Pilot jet	(P. J.)	#50
By pass	(B. P.)	1.4
Pilot outlet	(P. O.)	0.6
Air screw	(A. S.)	1 ½
Valve seat	(V. S.)	3.3
Starter jet	(G. S.)	100
Throttle cable play		0.5 – 1.0 (0.02 – 0.04)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION	
Ignition timing	15 ± 2° B.T.D.C. at 6 000 r/min	
Spark plug	Type	NGK B8EGV
	Gap	0.5 – 0.6 (0.020 – 0.024)
Spark performance	Over 8 (0.3) at 1 atm	
Ignition coil resistance	Primary	B/W – W/Bl 0 – 1 Ω
	Secondary	Plug cap – B/W 10 – 11 Ω
Magneto coil resistance	R/W – B/W 90 – 140 Ω	
	R/W – B/R 100 – 160 Ω	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Front brake lever distance	20 – 30 mm (0.8 – 1.2)		–
Rear brake pedal free travel	20 – 30 mm (0.8 – 1.2)		–
Brake drum I.D.	Front	–	130.7 (5.15)
	Rear	–	130.7 (5.15)
Brake lining thickness	–		1.5 (0.06)
Wheel rim runout	Axial	–	2.0 (0.08)
	Radial	–	2.0 (0.08)
Wheel axle runout	Front	–	0.25 (0.010)
	Rear	–	0.25 (0.010)

Tire size	Front	100/80-21 4PR	–
	Rear	140/80-18 4PR	–
Tire tread depth	Front	–	4.0 (0.16)
	Rear	–	4.0 (0.16)

COLD INFLATION TIRE PRESSURE

Front & Rear	70 – 110 kPa 0.7 – 1.1 kg/cm^2 10 – 16 psi

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT
Front fork stroke	285 (11.2)	–
Front fork spring free length	–	647 (25.5)
Front fork oil level	140 (5.5)	–
Front fork air pressure	0 kPa, 0 kg/cm^2, 0 psi	–
Rear shock absorber spring pre-set length	269 (10.6)	–
Rear shock absorber air pressure	1 000 kPa, 10 kg/cm^2, 142 psi	–
Rear wheel travel	322 (12.7)	–
Swing arm pivot shaft runout	–	0.3 (0.01)

FUEL + OIL

ITEM	SPECIFICATION	
Fuel type	Premium gasoline should be used.	
Fuel tank capacity	9.0 L (2.4/2.0 US/Imp gal)	
Engine oil type	SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT	
Transmission oil type	SAE 20W/40	
Transmission oil capacity	Change	800 ml (0.85 US qt)
	Overhaul	850 ml (0.90 US qt)
Front fork oil typ	Fork oil of # 10	
Front fork oil capacity (each leg)	641.5 ml (21.68/22.59 US oz)	

Prepared by

SUZUKI MOTOR CO.,LTD.

Administration Department
Overseas Service Division

October, 1982

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