SUZUKI

OWNER'S SERVICE MANUAL

RM250

FOREWORD

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

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

All information, illustration, photographs and specifications contained in the manual are based on the latest product information available at the time of publication. Due to improvements or other changes, there may be some discrepancies in this manual. Suzuki reserves the right to make production changes at any time, witihout notice and without incurring any obligation to make the same or similar changes to vehicles previously built or sold.

Suzuki Motor Corporation believes in conservation and protection of Earth's natural resources. To that end, we encourage every vehicle owner to recycle, trade in, or properly dispose of, as appropriate, used motor oil, engine coolant, and other fluid, and tires.

WARNING/CAUTION/NOTE

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

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

⚠ CAUTION Indicates a potential hazard that could result in motorcycle damage.

NOTE: Indicates special information to make maintenance easier or instructions clearer.

COMPETITION MOTORCYCLES

The Suzuki RM250 is a high-performance, competition-only motorcycle. It is not designed or approved for general off-highway riding, as it does not meet U.S. Environmental Protection Agency off-highway motorcycle noise standars and does not have a U.S. Forest Service approved spark arrester. It is also not designed or approved for riding on public roads, as it does not meet Federal Motor Vehicle Safety Standards for on-highway motorcycles.

General considerations:

- Before each use, perform an inspection per "Periodic Inspection" section starting on page 2−1.
- Suzuki RMs are designed for the rider only −NO PASSENGERS.
- Always ride within the boundaries of your own skills. Knowing these limits and staying within them will help you avoid accidents. Ride only in events appropriate for your experience.
- Safely competing on a motorcycle requires that your mental and physical skills are fully part of the experience. You should not attempt to operate a motor vehicle, especially one with two wheels, if you are tired or under the influence of alcohol or other drugs. Alcohol, illegal drugs, and even some prescription and over-the-counter drugs can cause drowsiness, loss of coordination, loss of balance, and loss of good judgement. If you are tired or under the influence of alcohol or other drugs, PLEASE DO NOT RIDE your motorcycle.

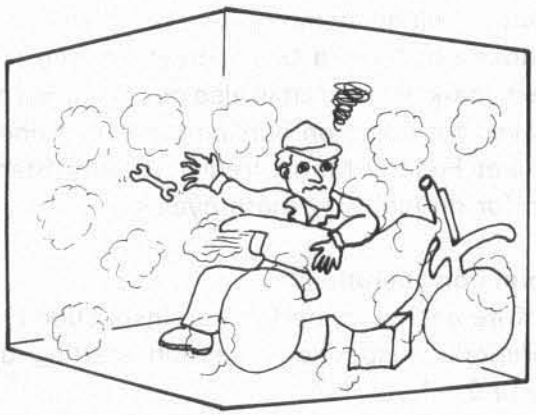
May all of your rides on your new Suzuki be winning rides!

WARNINGS FOR SERVICING

⚠ WARNING

Never run the engine indoors or in a garage. Exhaust gas contains carbon monoxide, a gas that is colorless and odorless and can cause death or severe injury.

Only run the engine outdoors where there is fresh air.



⚠ WARNING

Fuel can catch on fire if you do not handle it properly. Gasoline vapors can catch fire easily.

Do not smoke when servicing the machine. Do not service the machine in an area where there are open flames or sparks.

⚠ WARNING

Hot engine and muffler can burn you.

Wait until the engine and muffler cools before servicing.

⚠ WARNING

Brake fluids and engine coolant can be hazardous to humans and pets. Brake fluid and engine coolant are harmful or fatal if swallowed, and harmful if it comes in contact with your skin or eyes.

Keep brake fluid and engine coolant away from children. Call your doctor immediately if swallowed, and induce vomiting. Flush eyes or skin with water if either brake fluid or engine coolant gets in eyes or comes in contact with skin.

⚠ WARNING

Servicing the machine with engine running can be hazardous. You can be caught in the moving parts such as the drive chain, sprockets etc.

Be sure to stop the engine when servicing the machine.

⚠ WARNING

Servicing the machine without proper clothes and protective gear can be hazardous. You can be injured if you do not wear proper clothes and protective gear.

Be sure to wear proper clothes and shoes for servicing and wear protective glasses, mask or gloves as necessary.

PRECAUTIONS FOR SERVICING

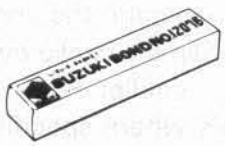
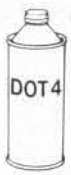
- Replace gaskets, circlips, O-rings and cotter pins with new ones.
- Take care not to expand the end gap larger than required to slip the circlip over the shaft when installing a circlip.
- Use special tools where specified.
- Use genuine SUZUKI parts and recommended oil.
- When two or more persons work together, pay attention to the safety of each other.
- After reassembly, inspect parts for tightness and operation.

REPLACEMENT PARTS

Use only genuine SUZUKI replacement parts or their equivalent. Genuine SUZUKI parts are high quality parts which are designed and built specially for SUZUKI vehicles.

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

SYMBOL MARKS AND MATERIALS

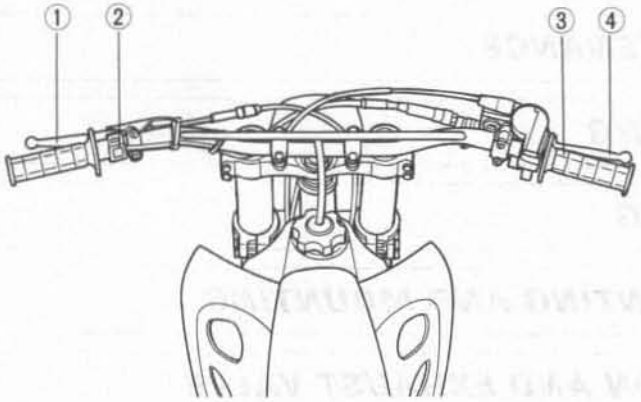
SYMBOL MARK	MATERIALS
	 SUZUKI SUPER GREASE "A" 99000-25030
	 SUZUKI SILICONE GREASE 99000-25100
	 THREAD LOCK SUPER "1303" 99000-32030
	 SUZUKI BOND 1207B 99104-31140
	 Use or apply DOT4 brake fluid.
	 SUZUKI FORK OIL SS-05 99000-99001-SS5

SYMBOL MARK	MATERIALS
	 SUZUKI REAR SUSPENSION OIL SS-25 99000-99001-S25
	Use engine coolant.
	Apply engine oil or transmission oil.
	Tighten a nut or bolt to the specified torque.
	Replace a part with a new one when ressembling.

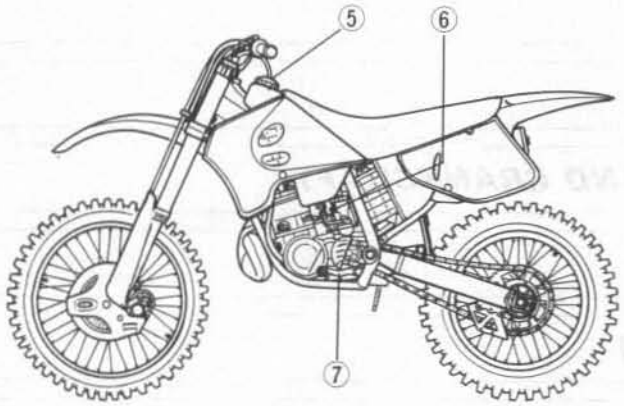
—MEMO—

TABLE OF CONTENTS

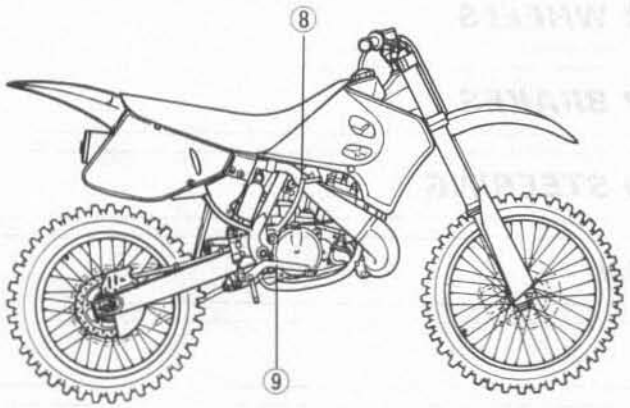
LOCATION OF PARTS



① Clutch lever
② Engine kill switch
③ Throttle grip
④ Front brake lever



⑤ Fuel tank cap
⑥ Choke/idle adjust knob
⑦ Gearshift lever



⑧ Kick starter lever
⑨ Rear brake pedal

FUEL

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

Gasoline: Unleaded gasoline minimum 90 pump ((R+M)/2) octane.

Engine oil: SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT or equivalent Two Cycle Racing Lubricant.

Mixing ratio: 32 : 1

Fuel tank capacity: 7.5 L (2.0 US gal)

Gasoline (L)	Oil (ml)
5.0	156
10.0	312
15.0	468
20.0	624

Gasoline (gal.)	Oil (qt)
1.0	1/8
2.0	1/4
3.0	3/8
4.0	1/2
5.0	5/8

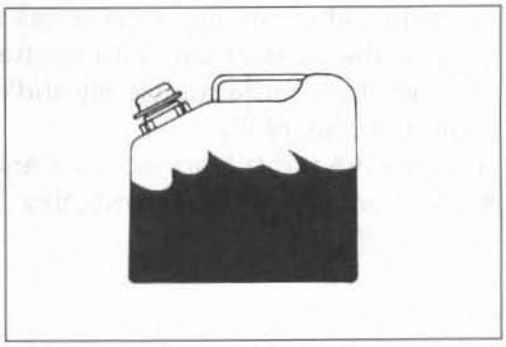
⚠ CAUTION

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

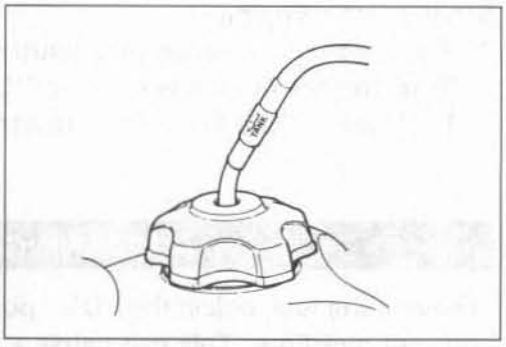
Mix fuel and the engine oil at the ratio of 32:1.

NOTE:

- *Mix gasoline and the engine oil thoroughly when the temperature is below 0°C (32°F). Vegetable-based oils can separate easier than mineral oils.*
- *Use premixture oil as soon as possible after mixing, or lubrication performance of the engine oil can decrease.*
- *Do not mix vegetable-based oil and mineral oil.*
- *Insert the end of the breather hose into the steering stem head after refueling.*



NOTE: Fuel tank cap has directional breather hose. Fit the breather hose correctly as shown in the illustration.



OPERATING INSTRUCTIONS

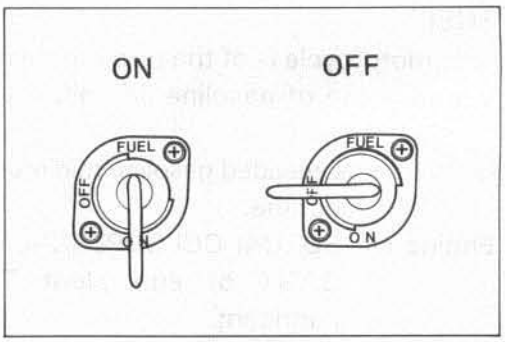
Starting the Engine

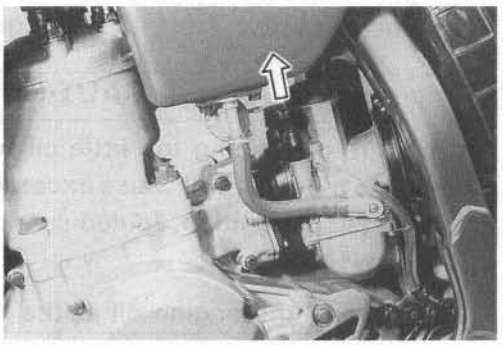
Inspect the transmission oil level, coolant level and air cleaner condition before starting the engine.

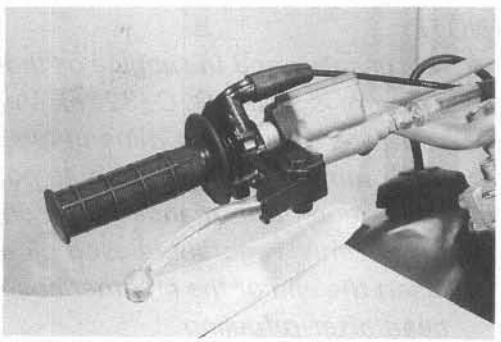
When the engine is cold:
1) Turn the fuelcock lever to the "ON" position.
2) Shift the transmission into neutral.
3) Pull the choke/idle adjust knob.
4) Close the throttle grip completely and depress the kick starter lever forcefully.
5) Return the choke/idle adjust knob when the engine revs at steady speed.

When the engine is warm:
1) Turn the fuelcock lever to the "ON" positon.
2) Shift the transmission into neutral.
3) Open the throttle 1/8—1/4 turn and depress the kick starter lever forcefully.

To restart after the motorcycle has fallen:
1) Shift the transmission into neutral.
2) Open the throttle completely and depress the kick starter lever forcefully.
3) Close the throttle gradually as engine speed increases.
4) Wait until engine revs smoothly.

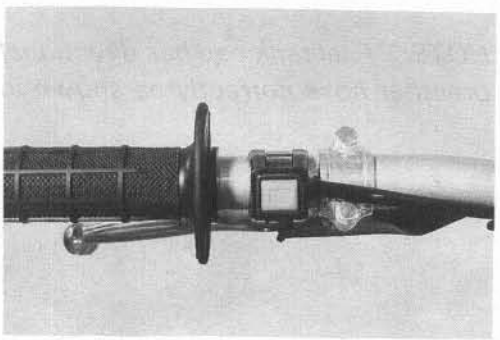






Stopping the Engine

1) Shift the transmission into neutral.
2) Turn the fuelcock lever to the "OFF" position.
3) Push the engine kill switch to stop the engine.



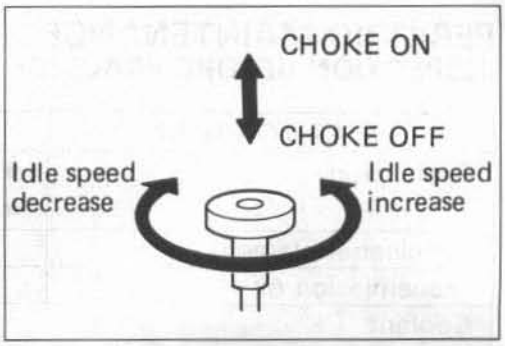
⚠ WARNING

Leaving the fuelcock in the "ON" position may cause carburetor overflow. This can cause a fire or severe engine damage when you start the engine.

Always leave the fuelcock in the "OFF" position when the engine is not running.

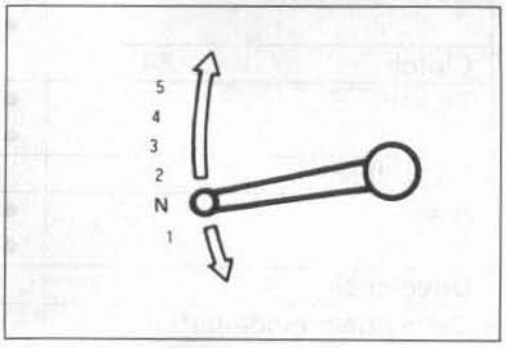
CHOKE/IDLE ADJUST KNOB

The choke/idle adjust knob is used to work the choke system and to adjust the engine idle speed. The choke system works by pulling up the knob. The engine idle speed is adjusted by turning the knob. Turn the knob clockwise to decrease engine idle speed and turn the knob counterclockwise to increase engine idle speed.



TRANSMISSION

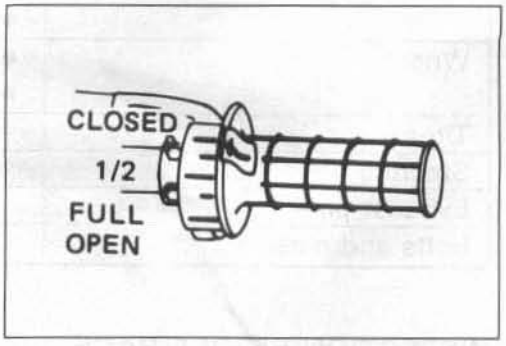
This motorcycle has a 5-speed transmission. Neutral is located between low and 2nd. Engage first gear by pressing the lever down from the neutral position. You can shift into higher gears by lifting on the shift lever once for each gear. When neutral is desired, press or lift the lever to a position halfway between low and 2nd gear.



BREAK-IN

When the Motorcycle Is New

1) Warm up the engine before starting off.
2) Ride for 10 minutes using less than 1/2 throttle opening with various throttle opening.
3) Ride for 20 minutes using less than 3/4 throttle opening with various throttle opening.



NOTE:

- *The break-in period is the period of greatest wear.*
- *The bolts and nuts of the new machine can be loosened earlier. Be sure to retighten the bolts and nuts during the break-in period.*

When Engine Parts Are Replaced

Follow the same procedure when any of the following parts are replaced:

Piston
Piston ring
Cylinder
Crankshaft
Crankshaft bearing

PERIODIC MAINTENANCE

INSPECTION BEFORE PRACTICE

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

INSPECTION BEFORE RACE

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

PERIODIC MAINTENANCE CHART

It is very important to inspect and maintain the machine regularly. Follow the guideline in the chart. The life of parts varies depending on the riding conditions. Perform more often than shown in the chart if you use the motorcycle under severe conditions.

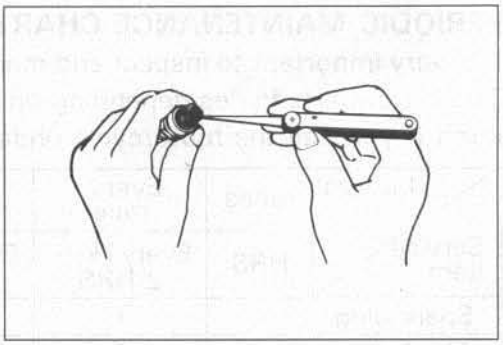
Interval / Service Item		Every race	Every 3 races	Every 5 races	Remarks
	races				
	HRS	Every 1½ — 2 HRS	Every 4¼ — 6 HRS	Every 7½ — 10 HRS	
Spark plug		I	I	R	
Air cleaner		C	C	C	Replace air cleaner element as necessary.
Transmission oil		—	R	—	Change after 1st initial break-in.
Cooling-system		I & C	I & C	I & C	
		Replace radiator hose and coolant every year. Flushing for overhaul or storage.			
Clutch		I	I	I	Replace clutch plates as necessary.
Throttle and clutch cable		I	I	R	
Carburetor		I	I	I	
Fuel line		I	I	I	
		Replace every 4 years.			
Piston		—	—	R	
Piston ring		—	R	—	
Cylinder head, cylinder, exhaust valve and muffler		—	C	—	
Drive chain		—	R	—	Adjust slack every 30 minutes.
		Clean and lubricate after every race.			
Engine sprocket		—	—	R	
Rear sprocket		—	R	—	Check and retighten sprocket bolts at initial and subsequent 10 minutes of riding and each race thereafter.
Drive chain buffer		—	R	—	
Drive chain guide		—	R	—	
Kick starter lever		Apply grease after every race.			
Brake		I	I	I	Replace brake hose and fluid every year.
Front fork oil		—	R	—	Change after 1st initial break-in.
Front fork		I	I	I	Check abnormality for front fork inner tube frequently and equalize the fork air pressure to the atmospheric pressure.
Rear suspension system pivoting portion		I	I	I	Check rear suspension system frequently and apply grease to the pivoting portion as necessary.
Tire		I	I	I	
Spoke nipple		Inspect every 20 min. up to initial 2 hours then check before each ride.			First loosen then tighten.
Steering		I	I	I	
Bolts and nuts		T	T	T	Retighten every 1 hour.

NOTE: R = Replace, C = Clean, T = Tighten, I = Inspect and clean, adjust lubricate or replace if necessary.

SPARK PLUG

Inspect the spark plug condition, electrode color, carbon deposits, spark plug gap, and washer damage, after removing the spark plug.

NOTE: Remove the dirt around the spark plug before removing the spark plug to prevent dirt from entering the combustion chamber.

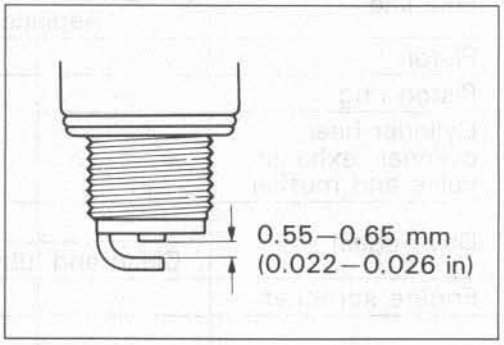


Inspect the porcelain tip color.

Porcelain tip color	Cause
White (overheated)	• Hot type spark plug • Advanced ignition timing • Lean air/fuel mixture • Deteriorated fuel
Black (fouled)	• Cold type spark plug • Retarded ignition timing • Rich air/fuel mixture • Rich oil/gasoline mixture

Clean the spark plug with a brush or wire and check the spark plug gap with a thickness gauge.

Spark plug gap: 0.55—0.65 mm (0.022—0.026 in)



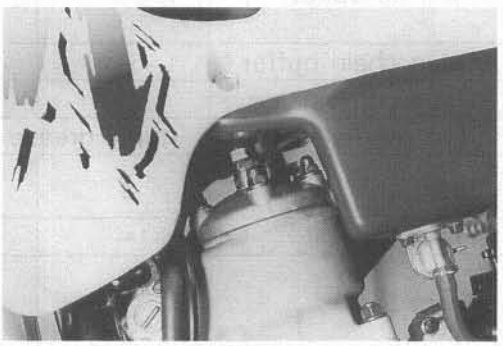
Standard Spark plug

NGK	R4118S-8

⚠ CAUTION

Changing the spark plug heat range improperly can damage the engine.

Select the spark plug heat range only after adjusting the ignition timing, carburetor setting and oil/gasoline mixture.



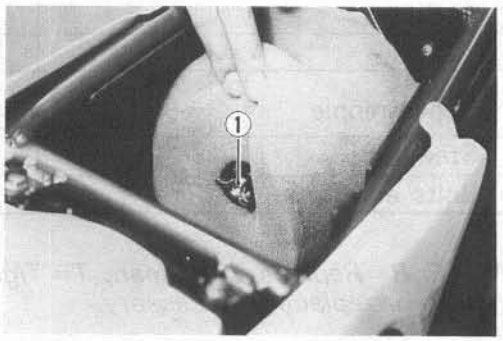
Tighten the spark plug with specified tighteing torque after tightening the spark plug temporarily with fingers.

Tightening torque: 28 N.m (2.8 kg-m, 20.0 lb-ft)

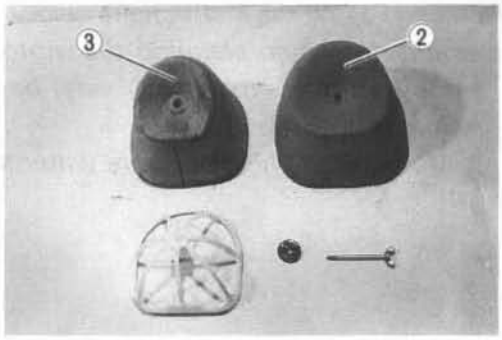
AIR CLEANER

Air Cleaner Element Removal

- Remove the seat.
- Remove the air cleaner cap.
- Remove screw ①.

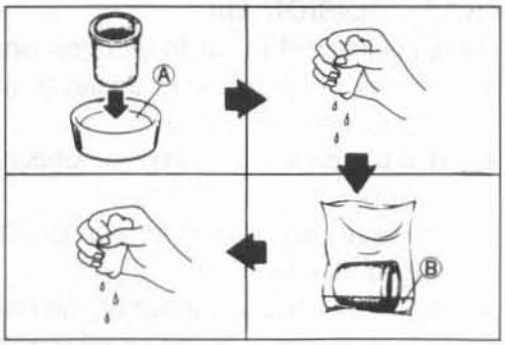


- Remove outer element ② and inner element ③ from the element holder.



Washing

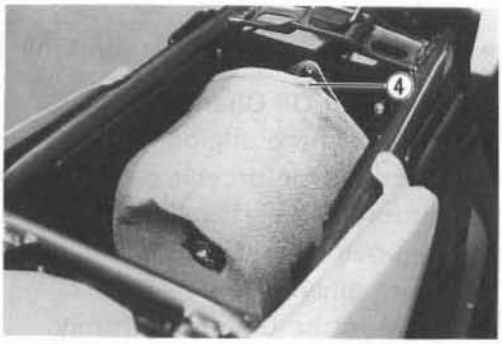
- Fill a washing pan large enough to hold the element with a non-flammable cleaning solvent Ⓐ. Immerse the element in the solvent and wash it.
- Squeeze the element by grasping it to remove excess solvent. Do not twist or wring the element or it will develop cracks.
- Dry the element in a plastic bag, pour in some foam filter oil Ⓑ and work the oil into the element.
- Squeeeze the element to remove excess oil.



NOTE: Both inner and outer elements should be cleaned in the same manner.

Installation

- Apply grease to the element holder where it contacts the element.
- Install the inner and outer elements onto the element holder as triangle mark ④ faces the screw.



⚠ CAUTION

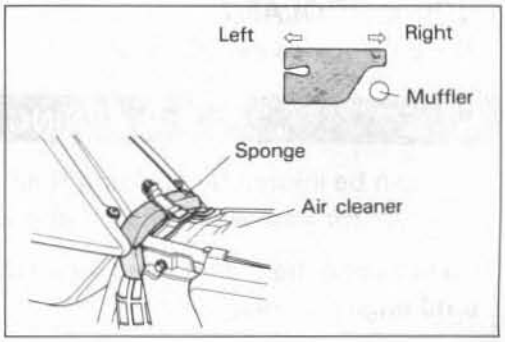
Improper element installation allows dust and dirt to enter the combustion chamber. It can result in piston and cylinder wear.

Be sure to check the element seals properly after installing the elements.

- Install the air cleaner cap properly as shown.

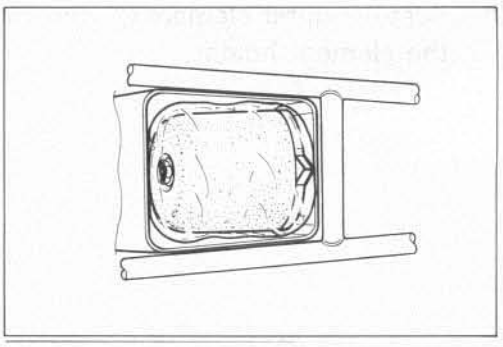
NOTE: Running the engine without the air cleaner cap can vary carburetion. Do not remove the air cleaner cap.

NOTE: Fit the attached sponge as shown in the illustration to avoid water running into the air cleaner box when going across a deep puddle.



NOTE: Follow the instructions below to keep the air cleaner element dry when cleaning the motorcycle.

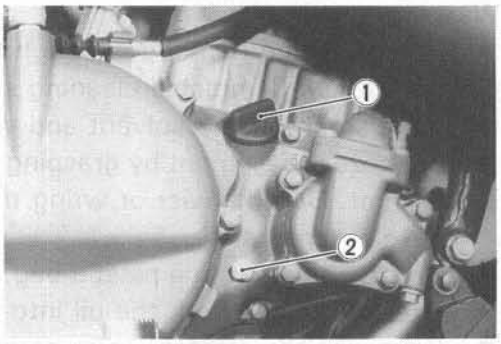
- *Cover the element with vinyl bag.*
- *Install the seat.*
- *Do not spray high pressure water to the air cleaner box.*



TRANSMISSION OIL

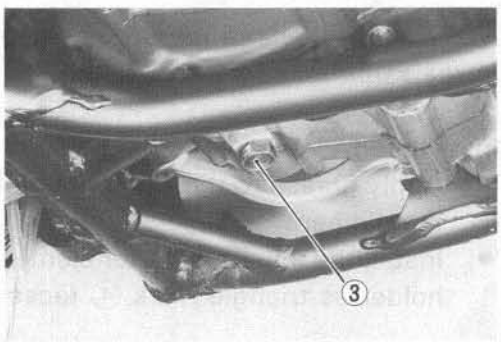
Transmission Oil Level Inspection and Replenishment

- Place the motorcycle on level ground and hold the motorcycle vertically.
- Run the engine for a few minutes and stop it. Wait 2—3 minutes.
- Remove the oil level screw ② . Check that oil comes out of the hole.
- If oil does not come out of the hole, open oil filler cap ① and add the specified oil until oil comes out of the oil level hole.
- Tighten the filler cap and oil level screw firmly.



Transmission Oil Change

- Warm up the engine.
- Place the motorcycle on the level ground and hold the motorcycle vertically.
- Remove filler cap ① and drain plug ③. Drain oil thoroughly.
- Tighten the drain plug firmly.
- Pour specified amount of oil.
  Oil change. . . 750 ml (0.8 US qt)
  Overhaul . . . . 850 ml (0.9 US qt)
- Tighten the filler cap.
- Run the engine for a few minutes and stop it. Wait 2—3 minutes.
- Inspect the oil level.



Suzuki recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or an oil which has 10W—40 viscosity rating.

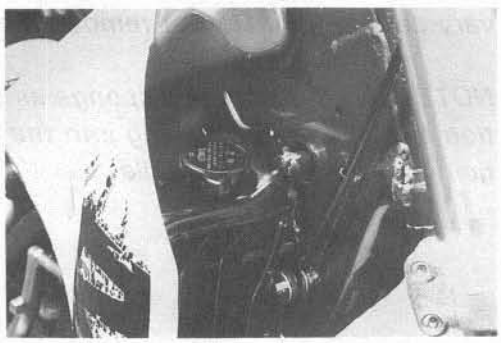
ENGINE COOLANT

Engine Coolant Level Check

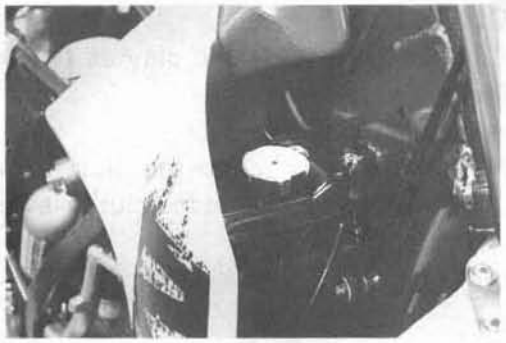
⚠ WARNING

You can be injured by scalding fluid or steam if you open the radiator cap when the engine is hot.

Do not open the radiator cap when the engine is hot. Wait until engine cools.



- Remove the radiator cap.
- Check that the engine coolant level is at the bottom of the inlet hole, replenish the radiator with specified engine coolant.
- Tighten the radiator cap securely.



⚠ CAUTION

Improperly tightening the radiator cap cannot obtain the specified pressure in the cooling system and it will cause engine coolant overflow.

Tighten the radiator cap until it locks firmly.

NOTE:

- *This motorcycle does not have an overflow tank at the end of breather hose. Therefore, engine coolant level may decrease while riding. Check the engine coolant level every time before riding.*
- *When replenishing engine coolant, be sure to use engine coolant mixed with distilled water at the ratio of 50 : 50. Adding only water will dilute engine coolant and it may decrease cooling performance.*

Engine Coolant

Use SUZUKI GOLDEN CRUISER 1200NA or equivalent antifreeze and Summer coolant which is compatible with aluminum radiator, mixed with distilled water at the ratio of 50 : 50.

SUZUKI GOLDEN CRUISER
1200NA
(Non - Amine type)(2.0L)
99000–24120

NOTE: The radiator, cylinder and cylinder head are made of aluminum alloy. Using non-recommended engine coolant may corrode aluminum alloy and may clog the coolant passageways.

⚠ WARNING

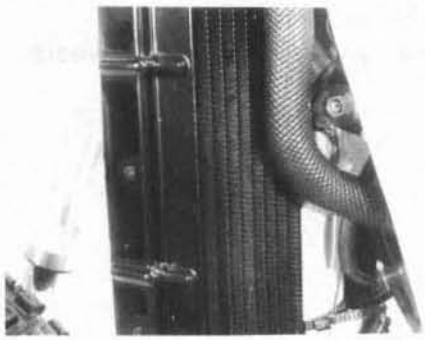
Engine coolant is harmful if swallowed or if it comes in contact with your skin or eyes.

Keep engine coolant away from children and pets. Call your doctor immediately if engine coolant is swallowed and induce vomiting. Flush eyes or skin with water if engine coolant gets in eyes or comes in contact with skin.

Cooling System Inspection

Inspect the following items before practice and races.

- Engine coolant leakage
- Radiator hose cracks and deterioration
- Radiator mounting condition
- Radiator breather hose condition
- Radiator fin condition

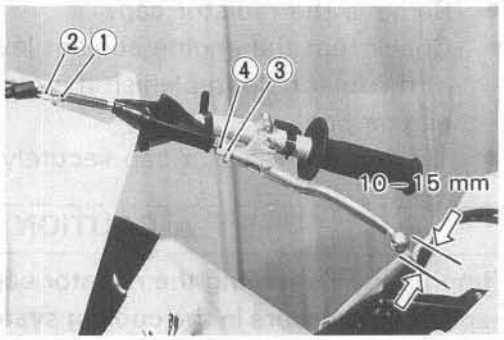


CLUTCH

Adjust the clutch cable play as follows:

Major Adjustment

- Loosen lock nut ①.
- Turn adjuster ② so the clutch lever has 10—15 mm (0.4—0.6 in) play at the clutch lever end before pressure is felt.
- Tighten lock nut ① .



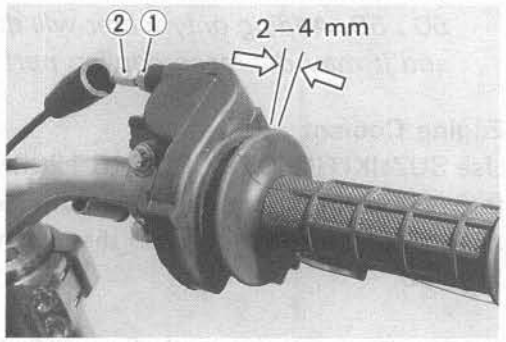
Minor Adjustment

- Loosen lock nut ③.
- Turn adjuster ④ so the clutch lever has 10—15 mm (0.4—0.6 in) play at the clutch lever end before pressure is felt.
- Tighten lock nut ③.

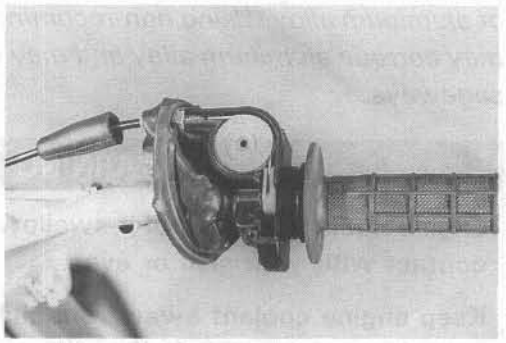
THROTTLE CABLE

Adjust the throttle cable play as follows:

- Loosen lock nut ①.
- Turn adjuster ② so the throttle grip has 2—4 mm (0.08—0.16 in) play.
- Tighten lock nut ①.

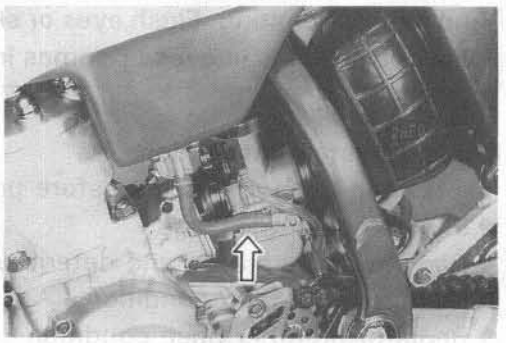


- Remove the throttle housing cover.
- Apply oil to the throttle cable.
- Apply grease to the throttle cable spool.



FUEL HOSE

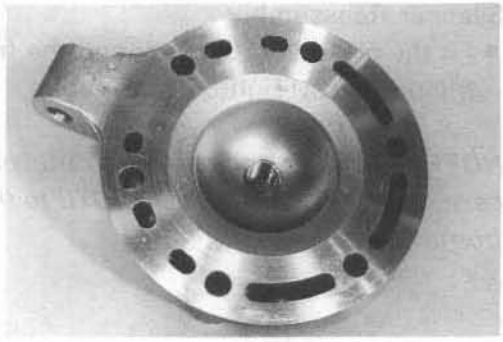
Repalce fuel hose every four years.



CYLINDER HEAD, CYLINDER AND PISTON

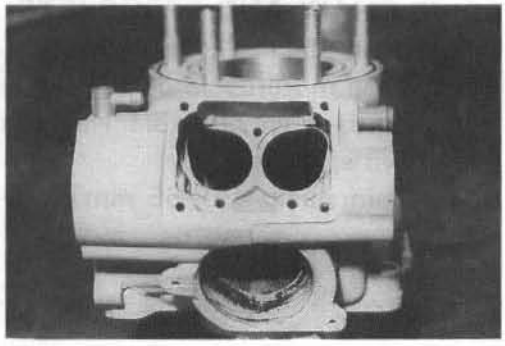
Cylinder Head

- Remove the cylinder head. (☞ 6-2)
- Remove carbon deposits from combustion chamber surface.
- Inspect for pinholes, cracks and other damage.



Cylinder

- Remove the cylinder. (☞ 6-2)
- Remove carbon deposits from the exhaust port and the exhaust valve chamber.
- Check for scratches and wear on the cylinder sleeve.

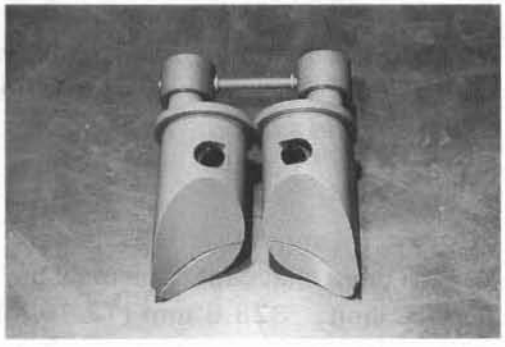


Piston

- Remove the piston. (☞ 6-2)
- Remove carbon deposits from the top surface of the piston.
- Check for scratches, cracks, and wear around the piston bosses.
- Remove minor scuffs with # 1000— # 1200 sand paper.
- Check piston ring wear. Remove carbon deposits from the piston ring groove.

EXHAUST VALVE

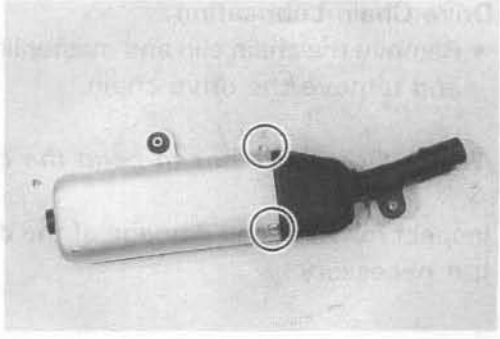
- Remove the exhaust valve. (☞ 6-3)
- Remove carbon deposits from the exhaust valve and exhaust valve guide.
- Check for wear and damage.



EXHAUST SILENCER

Silencer Inspection and Replacement

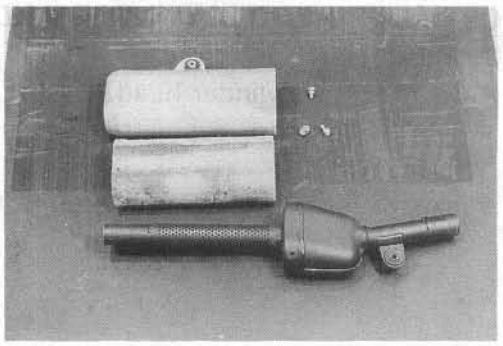
- Remove the seat and the right frame cover.
- Remove three bolts and extract the black frontal part from the aluminum case.
- Check if the glasswool silencer is clogged with carbon deposit or tar.
- Replace the glasswool silencer with new one if necessary.



Silencer Reassembly

- Fit the glasswool silencer and the frontal part to the aluminum case. Tighten three bolts.

NOTE: To seal between the frontal part and the aluminum case, apply SUZUKI BOND 1207B to the cantact area of the frontal part.

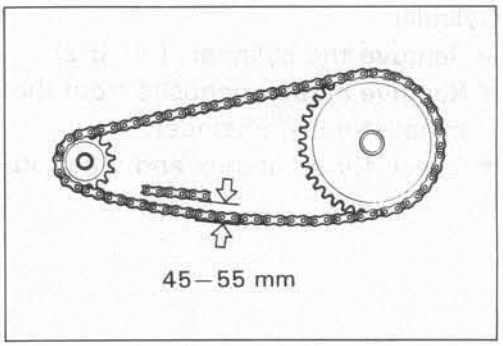


DRIVE CHAIN AND SPROCKETS

Drive Chain Slack

- Place the motorcycle on the side stand.
- Inspect the drive chain slack at the middle point between the two sprockets.

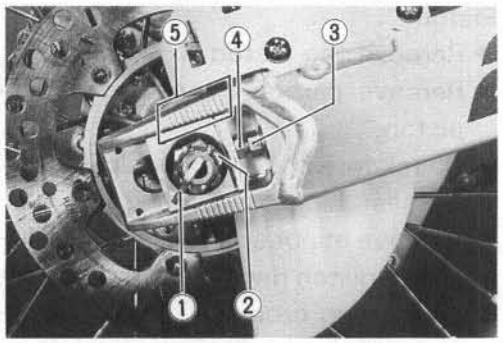
Drive chain slack: 45—55 mm (1.8—2.2 in)



Drive Chain Adjustment

- Remove cotter pin ① and loosen axle nut ②.
- Loosen lock nut ③ and adjust the drive chain slack to the specification by turning adjuster ④.
- Check that both right and left alignment mark ⑤ are at the same position.
- Tighten the axle nut. Replace the cotter pin with a new one.

Tightening torque: 100 N.m (10.0 kg-m, 72.5 lb-ft)



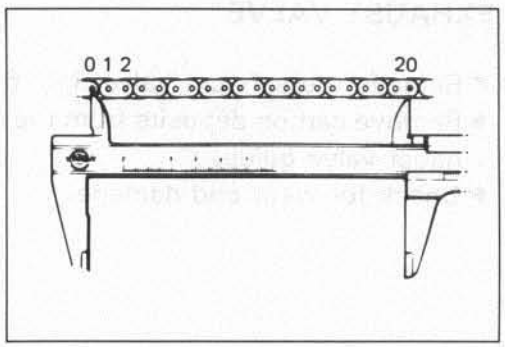
- Tighten the lock nut ③ securely.

NOTE: Pull the upper drive chain tight and lock it by placing a bar between the drive chain and rear sprocket while tightening the axle nut. This will help prevent the chain adjusters from loosening.

20th Pitch Length

Pull the drive chain tight and measure the 20th pitch length.

Service limit: 323.8 mm (12.75 in)

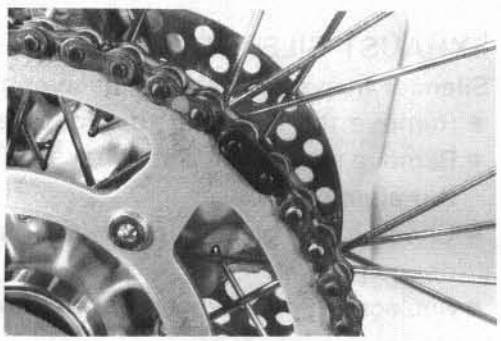


Drive Chain Lubrication

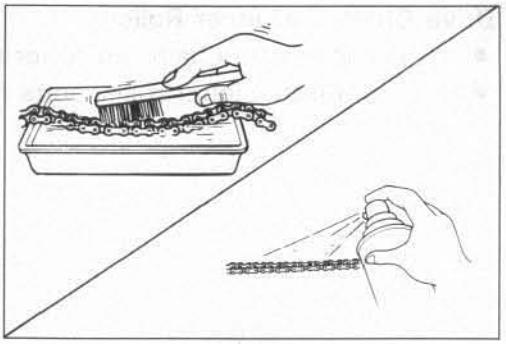
- Remove the chain clip and master link from the drive chain and remove the drive chain.

NOTE: Be careful not to bend the chain clip.

Inspect for wear and damage of the drive chain and replace it if necessary.

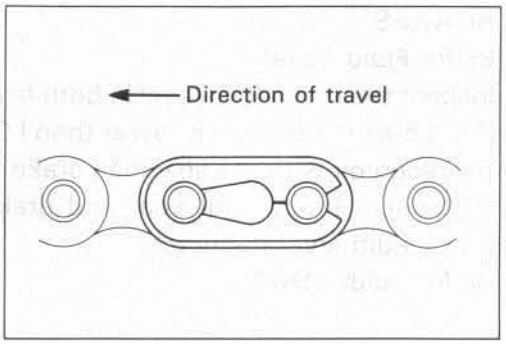


- Clean the drive chain with non-flammable cleaning solvent.
- Do not use gasoline to clean the drive chain.
- Dry the drive chain.
- Apply Suzuki Chain Lube or an equivalent to the link plates and rollers.
- Reassemble the drive chain.



NOTE: Reassemble the drive chain clip so the slit end faces opposite the direction of rotation.

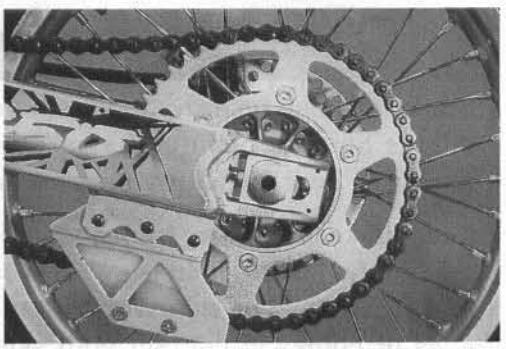
- Adjust the drive chain slack.



Sprocket Inspection

Inspect the engine sprocket and rear sprocket for wear and cracks. Replace the sprockets as necessary.

NOTE: When replacing a worn sprocket, it is likely that the drive chain will need to be replaced as well.



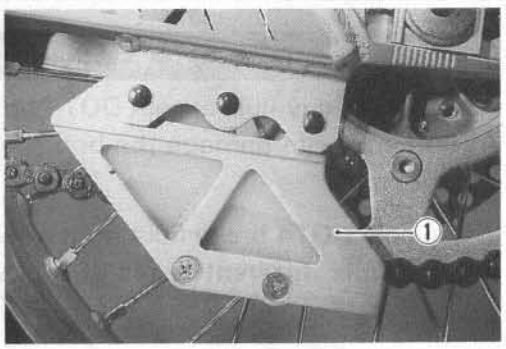
DRIVE CHAIN GUIDE, BUFFER, TENSIONER ROLLER

Drive Chain Guide

Inspect the drive chain guide ① for bends and damage.

NOTE: The drive chain can hit a bent guide causing noise and drive chain wear.

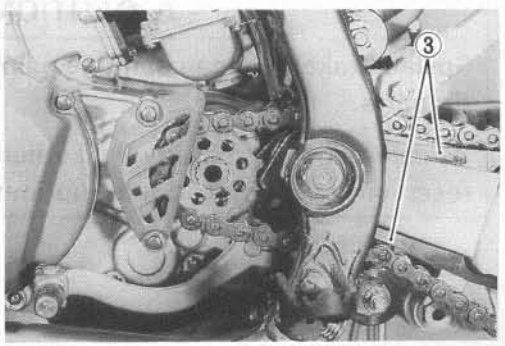
Inspect the chain guide defense ② for wear.



Drive Chain Guide Buffer

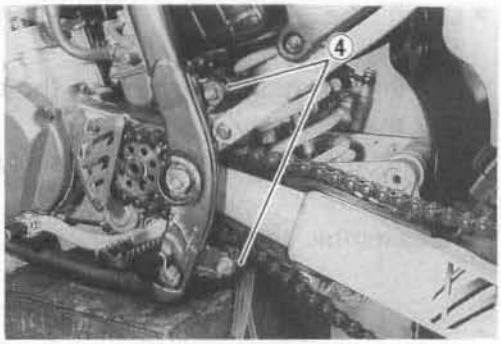
Inspect the drive chain guide buffer ③ for wear and cracks.

NOTE: The drive chain can touch the swing arm directly if the chain guide buffer is worn out. This will cause drive chain and swing arm damage.



Drive Chain Tensioner Roller

- Inspect the drive chain tensioner rollers ④ for wear.
- Inspect the tensioner roller bolts for tightness.

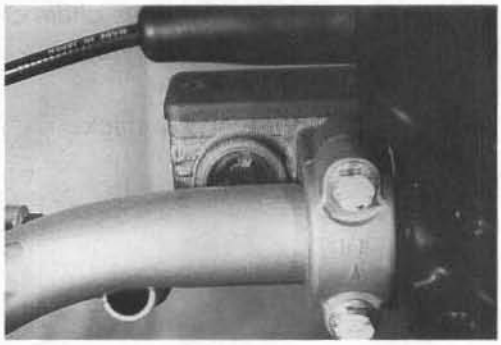


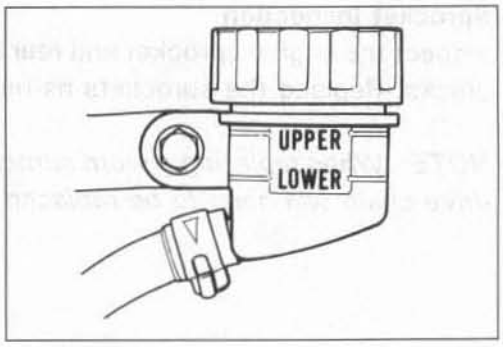
BRAKES

Brake Fluid Level

Inspect the brake fluid level in both front and rear reservoirs. If the brake fluid level is lower than LOWER mark, replenish the reservoir with the specified brake fluid to the UPPER level. Inspect brake pad wear and brake fluid leakage if the brake fluid level decreases.

Brake fluid: DOT4





⚠ WARNING

Brake fluid can be hazardous to humans and pets. Brake fluid is harmful or fatal if swallowed, and harmful if it comes in contact with your skin or eyes.

Keep brake fluid away from children. Call your doctor immediately if brake fluid is swallowed, and induce vomiting. Flush eyes or skin with water if brake fluid gets in eyes or comes in contact with skin.

⚠ WARNING

The use of any fluid except DOT4 brake fluid from a sealed containter can damage the brake system and lead to an accident.

Use only DOT4 brake fluid from a sealed container. Never use or mix different types of brake fluid.

⚠ CAUTION

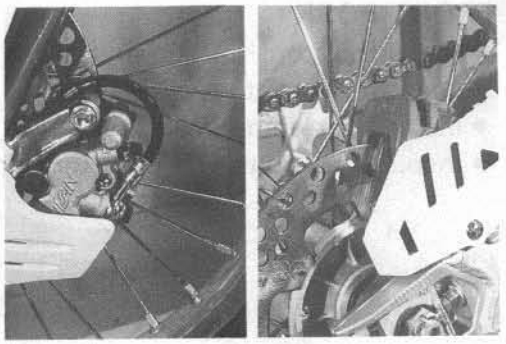
Spilled brake fluid can damage painted surface and plastic parts.

Be careful not to spill any fluid when filling the brake fluid reservoir. Wipe spilled fluid up immediately.

Brake Pad

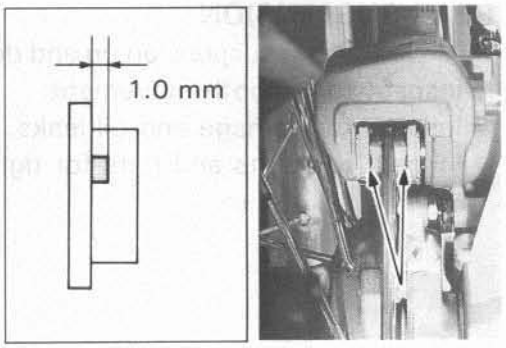
Inspect the brake pads for wear. If the brake pads are worn, replace them with new ones. (☞ 14-3)

Brake pad wear limit: 1.0 mm (0.04 in)



NOTE:

- *Pump the brake lever/pedal several times to restore the brake pads after replacing the brake pads.*
- *Replace both right and left pads together when replacing the brake pads.*



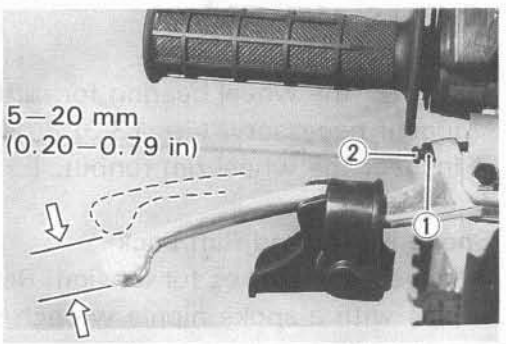
Front Brake Lever Adjustment

Adjust the brake lever play as follows:

- Loosen lock nut ①.
- Turn in or out adjuster ② to obtain the specified play.

Brake lever play: 5—20 mm (0.20—0.79 in)

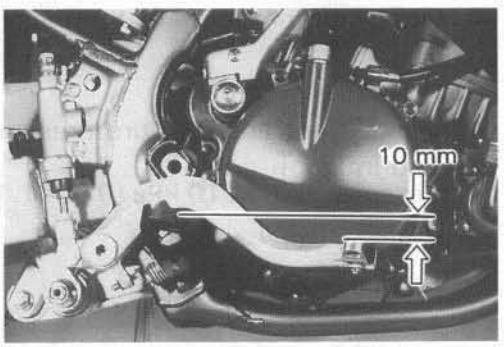
- Tighten the lock nut ①.



⚠ CAUTION

Brake lever play less than 5 mm (0.20 in) can cause brake dragging.

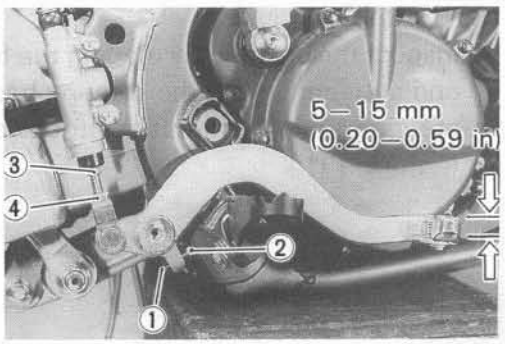
Do not adjust the brake lever play less than 5 mm (0.20 in).



Brake Pedal Height Adjustment

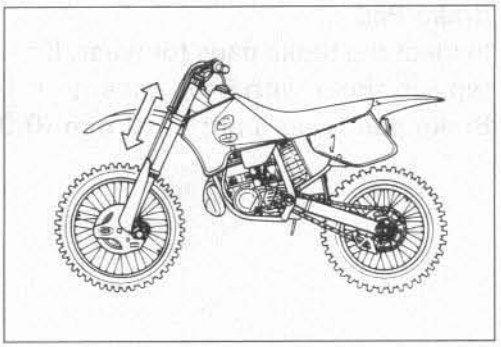
Adjust the rear brake pedal height as follows:

- Loosen lock nut ①.
- Adjust the brake pedal height by turning the adjuster ② to locate the pedal 10 mm (0.4 in) below the top face of the foot rest.
- Tighten lock nut ①.
- Loosen lock nut ④.
- Turn adjuster ③ to obtain the brake pedal play of 5—15 mm (0.20—0.59 in) at the pedal end.
- Tighten lock nut ④.



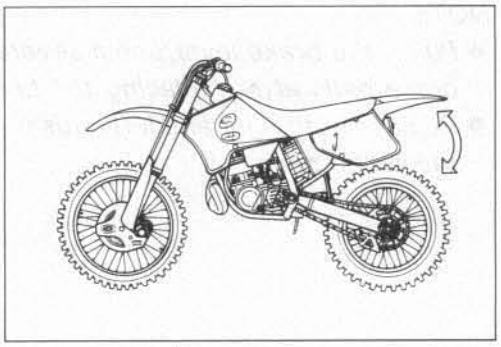
FRONT FORK

- Move the front fork up and down several times and inspect for smooth movement.
- Inspect for damage and oil leaks.
- Inspect the bolts and nuts for tightness.



REAR SUSPENSION

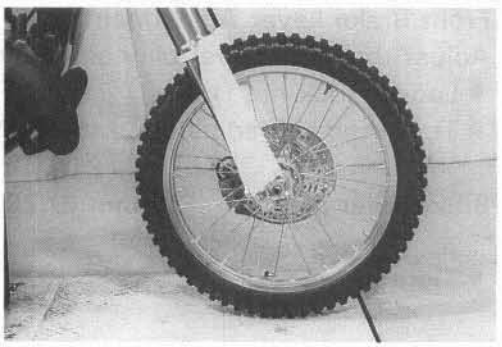
- Move the rear suspension up and down several times and inspect for smooth movement.
- Inspect for damage and oil leaks.
- Inspect the bolts and nuts for tightness.



WHEELS AND TIRES

Wheel Rim

- Inspect the wheel bearing for rattles. Replace the bearings if necessary. (☞ 13-3)
- Inspect the wheel rim runout. (☞ 13-3)



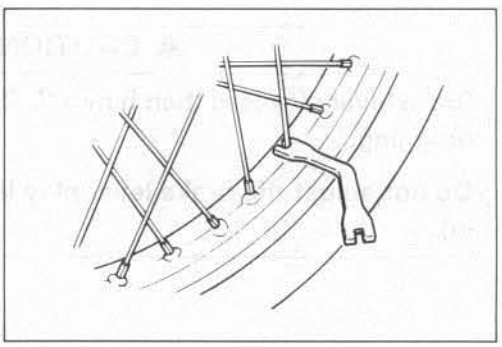
Spoke Nipple and Rim Lock

- Inspect the spokes for tension. Retighten the spoke nipples with a spoke nipple wrench so as all spokes have same tension.
- Inspect the rim lock for tightness.

Tire Pressure

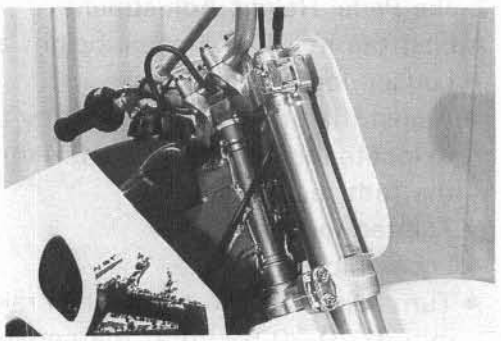
- Inspect front and rear tire pressure.

  Cold inflation tire pressure: 70—110 kPa (0.7—1.1 kg/cm², 10—16 psi)



STEERING

- Inspect the steering by moving the front fork up and down, and right and left. If the steering has play or binds, inspect steering stem head nut tightness and steering bearings. (☞ 15-11)



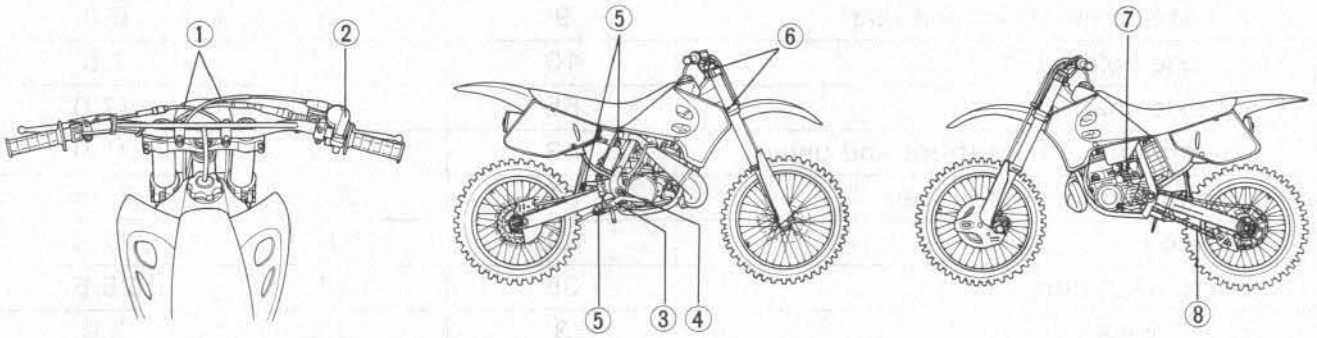
LUBRICATION

Apply grease or oil to the moving parts to increase durability and prevent wear.

No.	ITEM	LUBRICANT	FREQUENCY	COMMENTS
1.	Inner cable ends, lever	A	Pre-race and between every race	Run oil through cables. Unit it exists the lower end. Lube the cable ends where they pivot.
2.	Throttle grip, throttle housing, cable	A	Pre-race	Lightly oil the inside of throttle spool, Keep free from dirt.
3.	Rear brake pedal	C	Pre-race	Grease the brake pedal pivot.
4.	Swing arm	C	Every 3 races/ More often according to conditions	Clean and pack the bearings. Keep seals fresh.
5.	Rear suspension linkage pivot points	C	Every 3 races/More often according to conditons	Clean and pack the bearings. Keep seals fresh.
6.	Steering stem bearings	C	Every 5 races/More often according to conditions	Clean and pack the bearings. Keep seals fresh.
7.	Choke/idle adjust knob	A	Pre-race	Lightly oil the choke/idle adjust knob shaft.
8.	Drive chain	B	Pre-race and between every moto	Keep chain thoroughly lubed at all times. Always check wear and alignment.

The following materials are necessary:

A. Lightweight oil such as WD-40 or penetrating oil.
B. Aerosol type Suzuki Chain Lube or equivalent lube.
C. Water-proof wheel bearing grease.



Follow the schedule closely. The disassembly necessary to lubricate many components is in itself valuable preventative maintenance. It allows you to inspect for wear, fatigue, adjustment and fastener tightness and it allows you to clean out the grit which otherwise cannot be gotten out.

TIGHTENING TORQUE

PART	N.m	kg-m	lb-ft
Cylinder head nuts	25	2.5	18.0
Magneto rotor nut	35	3.5	25.5
Cylinder nuts	38	3.8	27.5
Clutch sleeve hub nut	90	9.0	65.5
Primary drive gear bolt	70	7.0	51.0
Exhaust valve arm bolt	5	0.5	4.0
Spark plug	28	2.8	20.0
Handlebar clamp bolts	25	2.5	18.0
Front fork upper clamp bolts (right and left)	30	3.0	20.0
Front fork lower clamp bolts (right and left)	25	2.5	18.0
Steering stem head nut	90	9.0	65.5
Front fork cap bolts	35	3.5	25.5
Front fork center bolt	65	6.5	47.0
Frok cylinder inner rod lock not	20	2.0	14.5
Front fork cap-Fork cylinder	80	8.0	58.0
Master cylinder set bolt (front)	10	1.0	7.5
Master cylinder set bolt (rear)	10	1.0	7.5
Master cylinder rod lock nut (R)	18	1.8	13.0
Brake hose union bolt (front master cylinder)	18	1.8	13.0
Brake hose union bolts (front and rear)	23	2.3	16.5
Brake pad mounting bolts (front and rear)	20	2.0	14.5
Brake caliper mounting bolts (front)	23	2.3	16.5
Brake bleeder plugs (front and rear)	8	0.8	5.5
Disk plate screw (front and rear)	9	0.9	6.0
Front axle holder nuts	10	1.0	7.5
Front axle shaft	65	6.5	47.0
Engine mounting nuts (front and upper)	43	4.3	31.0
Engine mounting nuts (lower)	35	3.5	25.5
Rear axle nut	100	10.0	72.5
Rear sprocket nuts	35	3.5	25.5
Spoke nipples	3	0.3	2.0
Rear swingarm pivot nut (engine mounting)	70	7.0	51.0
Rear shock absorber fitting nuts (upper and lower)	60	6.0	43.0
Rear cushion lever center nut	100	10.0	72.5
Rear cushion lever front nut	80	8.0	58.0
Rear cushion rod nut	100	10.0	72.5

For other bolts and nuts not listed in the table, 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	2.0	0.2	1.5	2.0	0.2	1.5
5	3.0	0.3	2.0	5.0	0.5	3.5
6	6.0	0.6	4.5	10.0	1.0	7.0
8	13.0	1.3	9.5	15.0	1.5	11.0
10	29.0	2.9	21.0	50.0	5.0	36.0
12	45.0	4.5	32.5	85.0	8.5	61.5
14	65.0	6.5	47.0	135.0	13.5	97.5
16	105.0	10.5	76.0	210.0	21.0	152.0
18	160.0	16.0	115.5	240.0	24.0	173.5

TROUBLESHOOTING
ENGINE

Complaint	Possible Cause	Remedy
Engine does not start or hard to start	Fuel deterioration	Replace
	No fuel flow to the carburetor	
	• Fuelcock clogged	Clean
	• Fuel hose clogged	Clean or replace
	• Fuel tank cap breather hose clogged	Clean
	• Carburetor float valve malfunction	Replace
	Carburetor overflow pipe clogging	Clean
	Carburetor air vent pipe clogging	Clean
	Too rich air/fuel mixture in combustion chamber	Scavange
	Incorrect ignition timing	Adjust
	No spark at spark plug	☞ 12-2
	Low compression	
	• Piston ring worn or stuck	Replace
	• Cylinder worn	Replace
	• Air leak from cylinder gasket	Replace
	• Air leak from crankshaft oil seal	Replace
Engine stalls	Fuel deterioration	Replace
	Fouled spark plug	Clean or replace
	Fuel hose clogged	Clean or replace
	Air cleaner clogged	Clean or replace
	Carburetor jets clogged	Clean
	Low compression	
	• Piston ring worn or stuck	Replace
	• Cylinder worn	Replace
	• Air leak from cylinder gasket	Replace
	• Air leak from crankshaft oil seal	Replace
	Incorrect ignition timing	Adjust
	Carburetor fuel level maladjustment	Adjust
Insufficient power	Fuel deterioration	Replace
	Brake dragging	Adjust
	Exhaust pipe cracked or clogged with carbon	Replace or clean
	Exhaust valve maladjustment	Adjust
	Exhaust valve carbon deposits	Clean
	Air cleaner element clogged	Clean or replace
	Carburetor jets clogged	Clean or replace
	Incorrect fuel level in carburetor	Adjust
	Incorrect spark plug gap	Adjust or replace
	Cylinder or piston ring worn	Replace
	Reed valve malfunction	Replace
	Incorrect ignition timing	Adjust

Complaint	Possible Cause	Remedy
Engine runs poorly in low speed range	Wide spark plug gap	Adjust or replace
	Carburetor air screw maladjustment	Adjust
	Incorrect carburetor fuel level	Adjust
	Improper jet needle size	Adjust
	Incorrect ignition timing	Adjust
	CDI unit malfunction	Replace
	Ignition coil damage	Replace
	Magneto malfunction	Replace
	Magneto short circuit	Replace
Engine runs poorly in high speed range	Narrow spark plug gap	Adjust or replace
	Incorrect carburetor fuel level	Adjust
	Retarded ignition timing	Adjust
	CDI unit malfunction	Replace
	Ignition coil damage	Replace
	Air cleaner element clogged	Clean or replace
	Magneto short circuit	Replace
	Exhaust pipe cracked	Replace
	Exhaust valve malfunction	Clean, adjust or replace
	Piston ring stuck	Replace
Engine speed does not return smoothly	Too high engine idle speed	Adjust
Exhaust valve does not work	Carbon deposits on exhaust valve	Clean
	Exhaust valve damage	Replace
	Governer damage	Replace
	Exhaust valve shaft damage	Replace
	Valve spring damage	Replace
Spark plug does not ignite	Ignition coil malfunction	Replace
	Spark plug malfunction	Replace
	Magneto malfunction	Replace
	CDI unit malfunction	Replace
	Wide spark plug gap	Adjust
	Engine kill switch malfunction	Repair or replace
Carbon deposits on spark plug porcelain	Too rich air/fuel mixture	Adjust
	Too rich oil/gasoline mixture	Adjust
	Improper spark plug heat range	Replace
Spark plug electrode damage	Improper spark plug heat range	Replace
	Overheating	☞ 3-3
	Incorrect ignition timing	Adjust
	Loose spark plug	Tighten
	Too lean air/fuel mixture	Adjust

Complaint	Possible Cause	Remedy
Overheating	Low engine coolant level	Replenish
	Engine coolant leak	Repair
	Too lean air/fuel mixture	Adjust
	Incorrect ignition timing	Adjust
	Water pump malfunction	Adjust or replace
	Cylinder head carbon deposits	Clean
	Exhaust pipe carbon deposits	Clean or replace
	Improper spark plug heat range	Replace
	Fuel deterioration	Replace
	Clutch slipping	Adjust or replace
	Radiator cap loose	Tighten
	Radiator fins damaged	Repair or replace
Excessive coolant level decrease	Radiator hose cracked or damaged	Replace
	Loose radiator hose connection	Repair
	Radiator cracked or damaged	Repair or replace
	Water pump cover mating surface damage	Replace
	Water pump cover crack	Replace
	Water pump cover gasket damage	Replace
	Water seal wear or damage	Replace
	Radiator cap seal damage	Replace
	Incorrect radiator cap valve pressure	Replace
	Cylinder or cylinder head cracked	Replace
	Cylinder or cylinder head O-rings damage	Replace
Clutch does not disengage	Clutch lever play maladjustment	Adjust
	Clutch spring damage	Replace
	Clutch plates distortion	Replace
Clutch slipping	Clutch cable play maladjustment	Adjust
	Weakened clutch spring	Replace
	Clutch pressure plate wear	Replace
	Clutch plate distortion	Replace
	Clutch plates worn	Replace
	Insufficient clutch capacity	*Use optional parts
Transmission does not shift	Gearshift cam damage	Replace
	Gearshift fork distortion	Replace
	Gearshift pawl wear	Replace
Transmission gears jump out	Gearshift fork groove wear or damage	Replace
	Gearshift fork distortion or wear	Replace
	Gearshift cam stopper damage	Replace
Gearshift lever does not return	Weakened gearshift return spring	Replace
	Gearshfit lever sticking	Repair or replace

*Air larger capacity optional clutch set is availadle at your SUZUKI dealer.

CHASSIS

Complaint	Possible Cause	Remedy
Heavy handling	Steering stem nut overtightened Steering head bearings damaged or rusted Steering stem distortion	Adjust Replace Replace
Front wheel wobbling	Loose spoke nipples Wheel distortion Front wheel bearing damage Incorrect tightening axle torque	Adjust Replace Replace Retighten
Rear wheel wobbling	Loose spoke nipples Wheel distortion Rear wheel bearing damage Swing arm pivot bearing damage Incorrect tightening axle torque Incorrect tightening swing arm torque	Adjust Replace Replace Replace Retighten Retighten
Soft front suspension	Weakened spring Low oil level Low fork oil viscosity Damping force maladjustment Damping valve malfunction Standard spring too soft	Replace Replenish Replace Adjust Replace *Use optional spring
Hard front suspension	High fork oil level High fork oil viscosity Damping force maladjustment Inner tube distortion	Adjust Replace Adjust Replace
Soft rear suspension	Weakened spring Damping force maladjustment Low gas pressure Standard spring too soft	Replace Adjust Adjust *Use optional spring
Hard rear suspension	Damping force maladjustment Damper rod distortion Rear suspension pivoting portion out of grease Standard spring too hard	Adjust Replace Lubricate *Use optional spring
Poor braking	Brake pads worn Improper air bleeding Dirty pads and disc Brake fluid leak	Replace Bleed air Clean Repair
Brake noise	Brake pads worn Brake disc worn Dirty brake pads and disc	Replace Replace Clean

*An optional spring is available at your SUZUKI dealer.

MACHINE TUNING

CARBURETOR

The carburetion of your motorcycle is carefully selected after extensive testing. You will find that the 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 or extreme cold and hot temperatures. 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 KEIHIN 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.

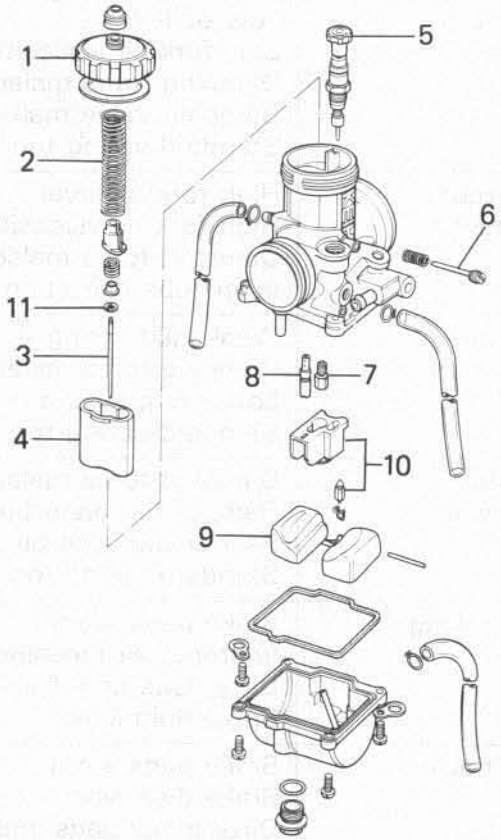
Carburetor Specifications

Bore	38 mm
Main jet	#180
Jet needle	R1470NS-3rd
Cut-away	#5
Slow jet	#52
Air screw	1-½turns out
Float height	16.0 mm (0.55 in)
Setting parts main jet:	**#175, #178, #185 and #190**

PRINCIPLES OF CARBURETOR TUNING

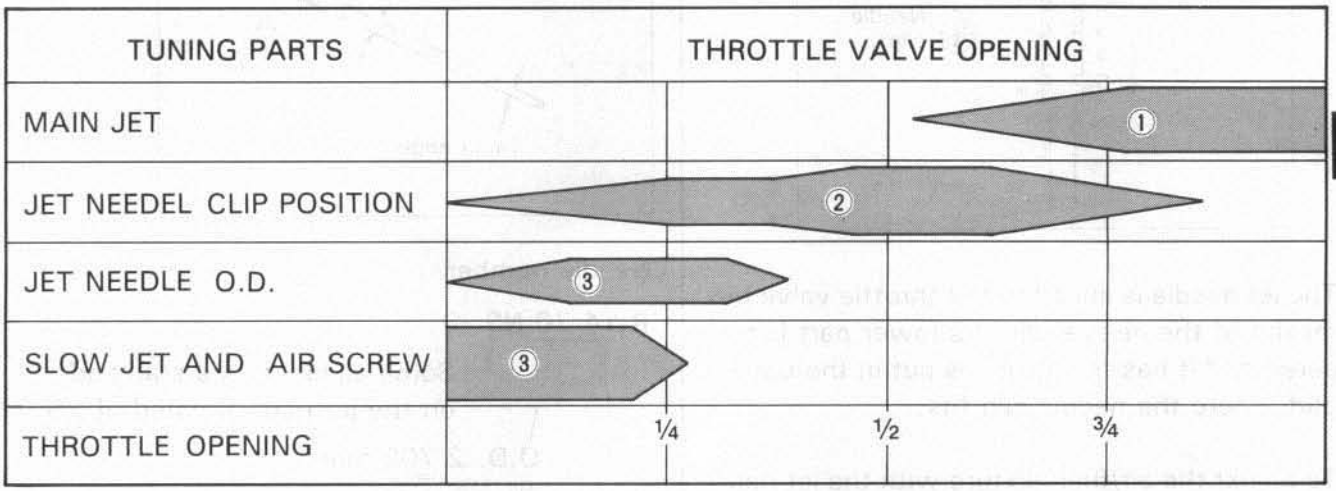
Carburetor Components and Functions

The carburetor consists of a number of parts as shown below. The asterisk (*) marked parts are precisely machined, which meter the intake air (oxygen) and fuel so that the air/fuel mixture ratio is controlled accurately. They can be divided by three operation-related groups; pilot (slow) system, intermediate system and main system, and they achieve their functions in each corresponding throttle opening range. It is necessary to have a full understanding of them for proper carburetor tuning.



1. Top cap
2. Spring
3. *Jet needle
4. Throttle valve
5. Choke/idle adjust knob
6. *Air screw
7. *Main jet
8. *Slow jet
9. Float
10. Needle valve ass'y
11. Clip

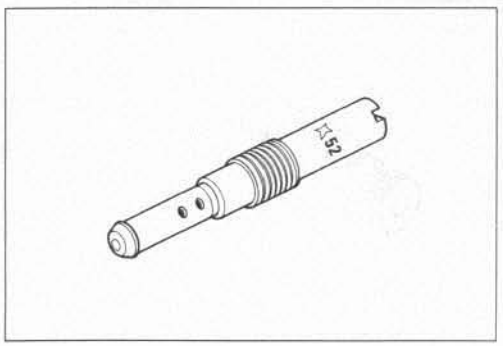
As shown below, each of the asterisk (*) marked parts is located between the air/fuel passage and has its own air/fuel mixture adjustable range in terms of the throttle valve opening. The chart indicates that the carburetor can supply correct air/fuel mixture to the engine in any range because of the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



① MAIN SYSTEM ② INTERMEDIATE SYSTEM ③ SLOW SYSTEM

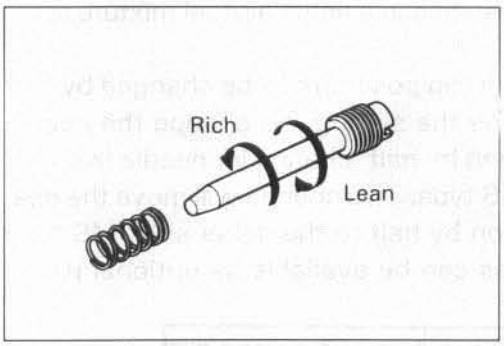
When performing carburetor tuning first find out in what throttle opening range an improper air/fuel mixture is supplied, by checking the color of exhaust smoke, spark plug, throttle response, power, etc. Second, replace or adjust the part(s) related to the throttle opening range by referring to the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

Slow Jet



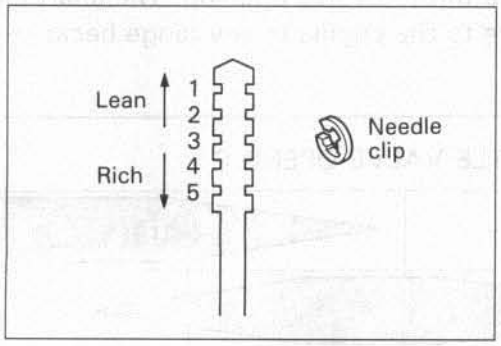
The slow jet meters the fuel supplied to the slow system. Each jet size is indicated by a number. Larger number means a larger bore diameter and fitting a larger numbered slow jet enriches the air/fuel mixture.

Air Screw



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

Needle Clip Position



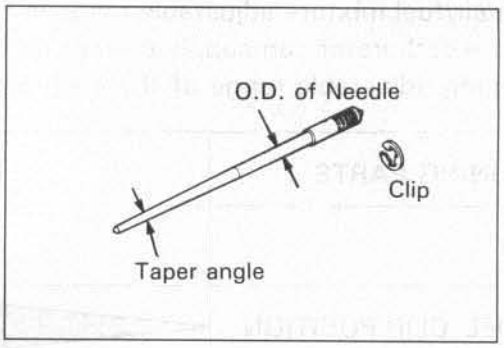
The jet needle is linked to the throttle valve by means of the needle clip. Its lower part is tapered and it has five grooves cut in the upper part where the needle clip fits.

To adjust the air/fuel mixture with the jet needle, change position of the needle clip which is set in the 3rd groove. The lower groove the clip is moved to, the higher the jet needle rises and the larger the clearance with the needle jet becomes, resulting in a richer air/fuel mixture ratio.

The needle clip position can be changed by half to fine-tune the setting. To change the needle clip position by half, change jet needle from NS type to MS type. This change will move the needle position by half to the richer side. MS type jet needles can be available as optional parts.

Air/fuel mixture	Needle type and clip position
Lean	R1470NS-1st
	R1470MS-1st
	R1470NS-2nd
	R1470MS-2nd
	R1470NS-3rd
	R1470MS-3rd
	R1470NS-4th
	R1470MS-4th
	R1470NS-5th
Rich	R1470MS-5th

Jet Needle



Needle number

R 14 70 NS

Some alplabets are stamped on the jet needle insted of "S".

O.D. 2.705 mm

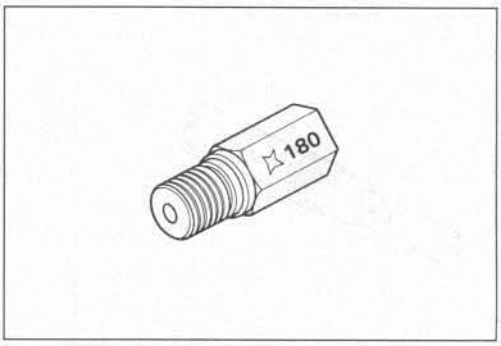
Taper angle 1° 45'

Changing the needle itself controls air/fuel mixture ratio particulary on lower mid-throttle opening. The smaller the O.D., the richer the air/fuel mixture becomes.

EX.

Needle Number	Taper Angle	O.D.
R1469 NS	1° 45'	2.695 mm
R1470 NS	1° 45'	2.705 mm
R1471 NS	1° 45'	2.715 mm

Main Jet



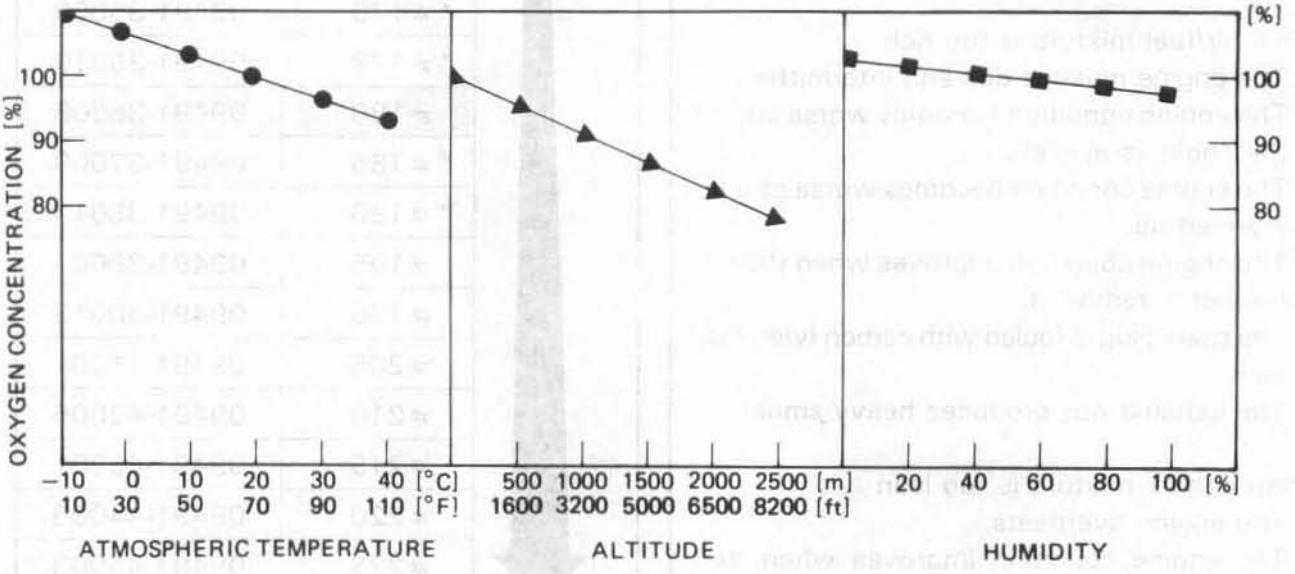
The main jet, like the slow jet, meters fuel flow. Each jet size is indicated by a number. Larger number means a larger bore diameter and fitting a larger numberd main jet enriches the air/fuel mixture.

CARBURETOR TUNING IN PRACTICE

In the previous section, basic principles of carburetor tuning have been discussed. Described in this section are the bases for carburetor tuning required when copying with variation in air (oxygen) concentration.

Variation in Air (Oxygen) Concentration and Carburetor Conditions

As the air, affected by the temperature, altitude and humidity, gets expanded or compressed, air (oxygen) concentration varies accordingly. Each of these three factors affects the air in different ways, and the following graphs show their effects respectively in terms of the oxygen concentration.



In the above graphs, oxygen concentration is graduated on the vertical axis while the temperature, altitude and humidity are on the horizontal axis respectively. Oxygen concentration is set 100% under the conditions of 20°C (68°F), 0 m (0 ft) and 50% humidity. The standard carburetor setting is chosen to obtain the best engine performance under these conditions.

The graph at the left shows that the oxygen concentration changes about 10% in the 0° to 40°C temperature difference, the one in the center shows about 20% change in the 0 to 2 000m altitude difference and the one at the right shows about 5% change in the 0 to 100% humidity difference. As for humidity, its normal range is from 20 to 95%. Therefore the possible effect of humidity on the oxygen concentration is so little that it can be disregarded. Consequently, we can say that the oxygen concentration varies by as much as 20% depending on the temperature and altitude under normal riding conditions. On the other hand, different from the air, the fuel (gasoline) hardly changes in volume even when such environmental conditions change. Therefore, increase in oxygen concentration will make the air/fuel mixture richer and decrease will make it lean.

As the carburetor mixes gasoline and air, which are metered by each jet in varying proportions to suit throttle opening, the air/fuel mixture is affected if the air concentration itself varies as described above. Then proper engine power output can not be attained and, should the mixture become too lean, a piston seizure may result. To compensate for such change in the air concentration, it is required to carry out carburetor tuning beforehand. This requirement applies to all models of motorcycles and ATVs if they are used in areas where temperature and altitude range widely. The next section describes the procedure of the above tuning in detail.

Judging Air/Fuel Mixture

For proper carburetor tuning, it is necessary to know how to judge the air/fuel mixture made in the carburetor; whether too rich, too lean or properly mixed. Given below are the symptoms observed when the engine is not supplied with the proper air/fuel mixture ratio from the carburetor. Check each item as reference for judging the air/fuel mixture condition.

When air/fuel mixture is too rich

1) The engine noise is dull and intermittent.
2) The engine condition becomes worse when the choke is applied.
3) The engine condition becomes worse as it is warmed up.
4) The engine condition improves when the air cleaner is removed.
5) The spark plug is fouled with carbon (wet and oily).
6) The exhaust gas produces heavy smoke.

When air/fuel mixture is too lean

1) The engine overheats.
2) The engine condition improves when the choke is applied.
3) Acceleration is poor.
4) The spark plug is burned white.
5) The speed of the engine fluctuates and lack of power is noticed.
6) Detonation and pinging are experienced.

Tuning Procedure

The following indicates the correct tuning procedure for this motorcycle. Understand the procedure by first riding the motorcycle where it will be used and adjust the engine to the best condition after judging the air/fuel mixture.

Carburetor standard setting

Main jet	: #180
Jet needle	: R1470NS-3rd
Slow jet	: #52
Air screw	: 1-½ turns is out
Cut-away	: #5

Setting Parts and Optional Parts

Main jet

Air/fuel mixture	SIZE	P/NO
Lean	#170	09491-34010
	#172	09491-34011
	*#175	09491-35009
	*#178	09491-35010
	#180	09491-36008
	*#185	09491-37008
	*#190	09491-38011
	#195	09491-39001
	#200	09491-40013
	#205	09491-41001
	#210	09491-42006
	#215	09491-43001
	#220	09491-44006
	#225	09491-45003
Rich	#230	09491-46004

Slow jet

Air/fuel mixture	SIZE	P/NO
Lean	#35	09492-35019
	#40	09492-40022
	#45	09492-45032
	#50	09492-50023
	#52	09492-52011
	#55	09492-55017
Rich	#60	09492-60016

Jet needle

Air/fuel mixture	SIZE	P/NO
Lean	R1473 NS	13383-28E90
	R1473 MS	13383-28E80
	R1472 NS	13383-28E70
	R1472 MS	13383-28E60
	R1471 NS	13383-28E50
	R1471 MS	13383-28E40
	R1470 NS	13383-28E30
	R1470 MS	13383-28E20
	R1469 NS	13383-28E10
Rich	R1469 MS	13383-28E00

NOTE:
SHADED: STANDARD
* : ATTACHED SETTING PARTS
NONE : OPTIONAL PARTS

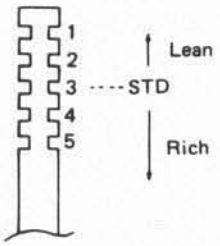
① Adjustment of slow system
1) Set the air screw as specified.
2) See if the selected slow jet is correct or not by judging the air/fuel mixture. If air/fuel mixture is rich, replace it with smaller one. If air/fuel mixture is lean, replace it with larger one.

Ex. Slow jet #52
If air/fuel mixture is rich, replace it with #50 slow jet. If air/fuel mixture is lean, replace it with #55 slow jet.

② Adjustment of main system
With the throttle opened 3/4 to full, make main system adjustment monitoring the air/fuel mixture condition after completion of slow system settings.
* Make sure to adjust the main system before adjusting the intermdiate system.

Ex. Main jet #180
If air/fuel mixture is rich, replace it with #178 main jet. If air/fuel mixture is lean, replace it with #185 main jet.

③ Adjustment of intermediate system



Monitor the air/fuel mixture condition and adjust the intermediate system by changing the needle clip position.

④ Final adjustment of slow system
After a proper standard setting has been obtained by the procedure ① through ⑤, fine tune the carburetor according to the actual race conditions.

1) Adjust the air/fuel mixture by turning the air screw within 1/2—2 turns out.
1/2 turn out
1-½ turns out
2 turns out
2) If the mixture can not be adjusted by the air screw within 1/2—2 turns out range, readjust the slow system ③.

⑤ Final adjustment of intermediate system

Fine tune the intermediate system by changing the needle type and clip position.

—MEMO—

FRONT FORK

The front fork compression and rebound damping force, oil level is adjustable for rider's preference, riders weight and course condition.

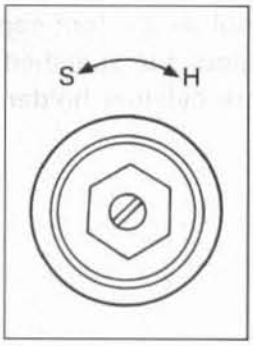
NOTE:

- *Break-in new front forks before attempting adjustment. (☞1-4)*
- *Be sure to adjust both right and left front forks equally.*

Rebound Damping Force Adjustment

- Turn the adjuster screw clockwise until it stops that is full hard.

NOTE: To set the adjuster, you must gently turn the adjuster surew clockwise until it stops, then back it out the recommended number of turns. Do not force the adjuster screw past the stopped position or you may damage the adjuster.



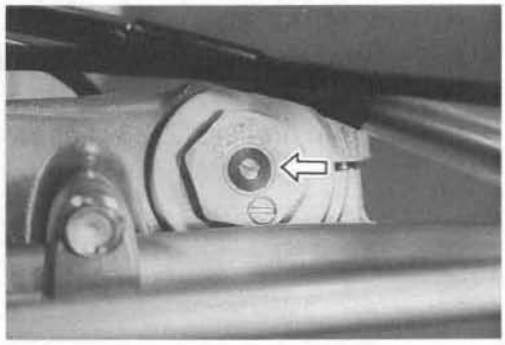
- Turn the adjuster screw counterclockwise and the 15th position is the standard position.

Standard setting: 15th click

Compression Damping Force Adjustment

- Turn the adjuster screw clockwise until it stops that is full hard.

NOTE: To set the adjuster, you must gently turn the adjuster screw clockwise until it stops, then back it out the recommended number of turns. Do not force the adjuster screw post the stopped position or you may damage the adjuster.

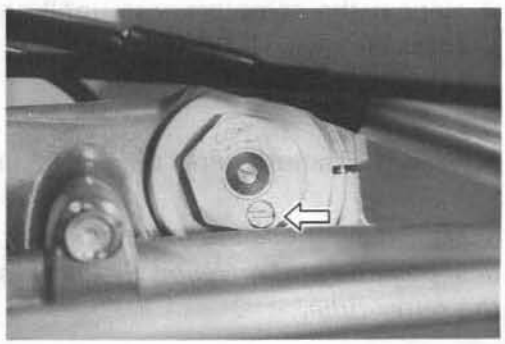


- Turn the adjuster screw counterclockwise and the 10th position is the standard position.

Standard setting: 10th click

Air Pressure Adjustment

- Place a block under the chassis tube to lift the front wheel off the ground.
- Remove the air bleed screw and equalize the air pressure in the front forks to atmospheric pressure.
- Re-fit the air bleed screw.

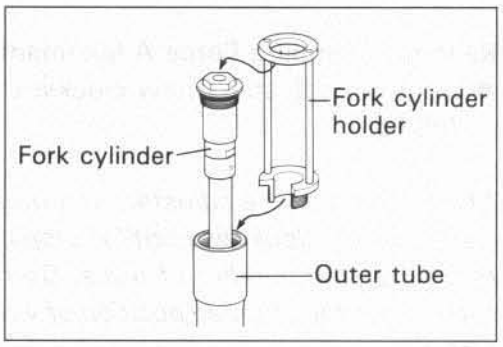


Front Fork Oil Level Adjustment

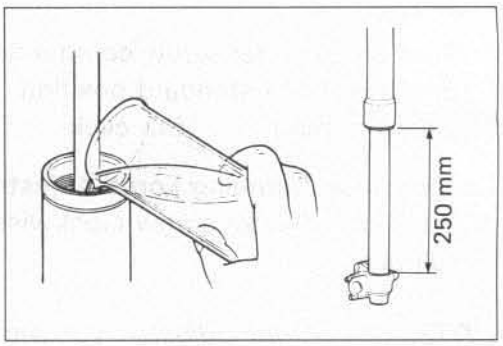
- Remove the front forks. (☞15-2)
- Remove the front fork caps. (☞15-2)

- Fit the special tool on the fork cap and tighten it to the outer tube and pour the specified fork oil.

09940-42810 Fork cylinder holder

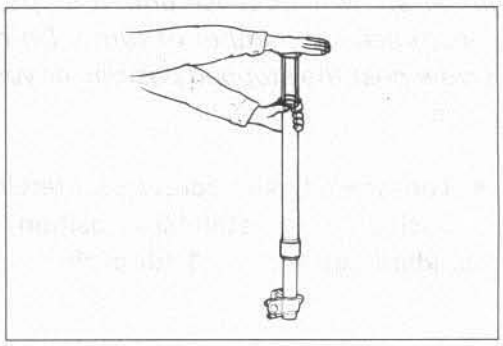


NOTE: Tilt the fork slightly to make it easier to pour oil. Do not pull the outer tube any more than 250 mm (9.84 in) from the axle holder of the inner tube.



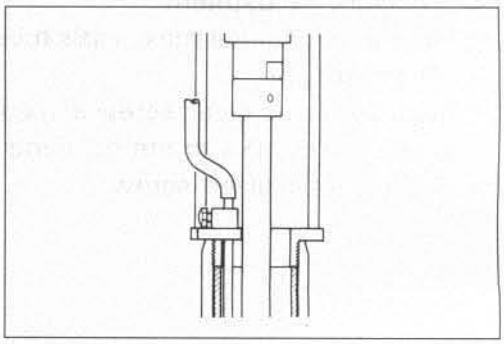
Front Fork Oil Air Bleeding

- Lift up the special tool and outer tube press down on the special tool slowly.
- Repeat this process 2—3 times.



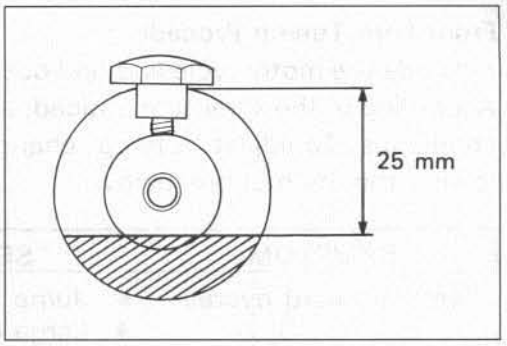
- Repeat the same process untill no more bubbles come from oil.
- Wait 10 minutes and then measure the oil level.

NOTE: Compress the front fork fully. Set the fork in a vertical position and measure the oil level from the top end of the outer tube.

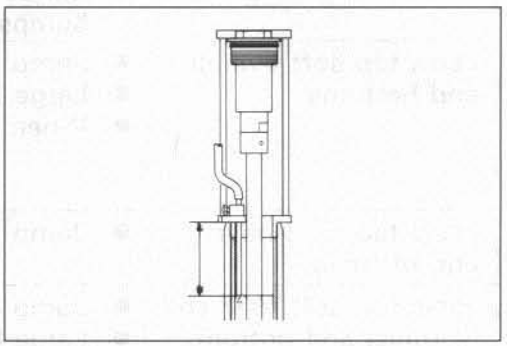


NOTE: Cut the hatched area of the special tool to set it on the front fork.

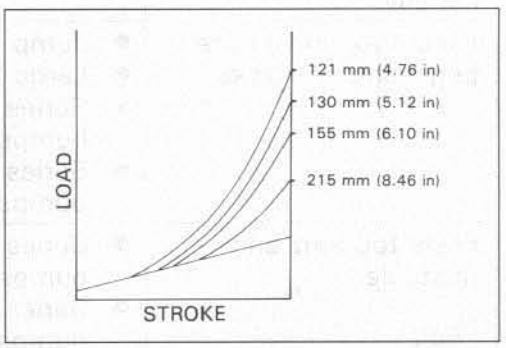
09943-74111 Front Fork Oil Level Gauge



Oil type: SUZUKI FORK OIL SS05 or equivalent fork oil
Standard oil capacity: 440 ml (14.9/15.5 US/Imp oz)
Oil level range: 121—215 mm (4.76—8.46 in)
Standard oil level: 170 mm (6.69 in)
09943-74111 Front Fork Oil Level Gauge
09940-54851 Front Fork Spacer
09940-42810 Fork cylinder holder



Oil level	Oil quantity
215 mm (8.46 in)	405 ml (13.7/14.3 US/Imp oz)
155 mm (6.10 in)	465 ml (15.6/16.4 US/Imp oz)
130 mm (5.12 in)	488 ml (16.5/17.2 US/Imp oz)
121 mm (4.76 in)	495 ml (16.7/17.4 US/Imp oz)



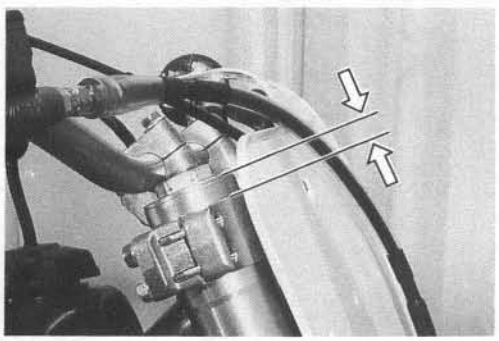
NOTE: An oil level lower or higher than the above range will affect the front fork performance. Be sure to adjust the front fork oil level within the above range.

NOTE: Front fork body should contain the same type oil as fork cylinder contains.

NOTE: See page 15-5 for fork cylinder oil replacement procedure.

Front Fork Mounting Height Adjustment

- Reassemble the front forks. (☞15-7)
- Adjust the front fork mounting height from outer tube top surface to upper bracket top surface, to 5.0 mm (0.20 in).
- Mount the front forks. (☞15-11)



Front Fork Tuning Procedure

Test ride the motorcycle and find out how the front suspension reacts on various types of surface. According to the symptom noticed, adjust the front fork to the best setting for rider and race track conditions. To adjust, attempt changing fork oil capacity and compression/rebound damping following the instructions below.

SYMPTOM	SECTION	ADJUSTMENT PROCEDURE
Feels too hard overall	• Jump • Large bumps • Series of medium bumps	1. Adjust both the compression and rebound damping to a softer setting. 2. Decrease fork oil capacity.
Feels too soft overall and bottoms	• Jump • Large bump • When braking	1. Adjust the compression damping to a stiffer setting. 2. Increase fork oil capacity. 3. Replace the spring with an optional stiffer one.
Feels too hard near end of travel	• Jump	1. Decrease fork oil capacity.
Feels too soft near end of travel and bottoms harshly	• Jump • Large bump	1. Adjust the compression damping to a stiffer settting. 2. Increase fork oil capacity.
Feels too hard in the beginning of stroke	• Jump • Large bump • Series of medium bumps • Series of small bumps	1. Adjust the compression damping to a softer setting.
Feels too soft and unstable	• Series of medium bumps • Series of small bumps	1. Adjust the rebound damping to a stiffer setting. 2. Replace the spring with an optional stiffer one.
Bounces	• Jump • Large bump	1. Adjust the rebound damping to a stiffer setting.
Bounces	• Series of small bumps	1. Adjust the rebound damping to a softer setting.

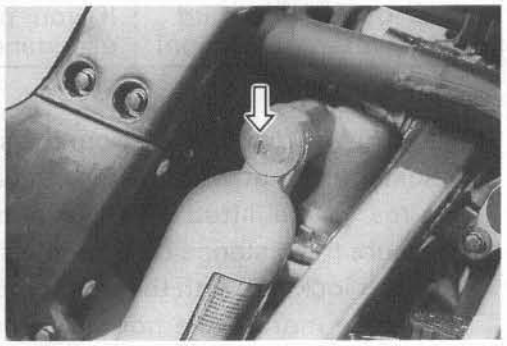
NOTE: When adjusting the front fork oil capacity, make sure that the oil level is within the specified range. Also, the capacity should be increased or decreased by 5 mm (Approx. 5ml) at a time. When adjusting the damping setting, attempt turning the adjuster 1 to 2 click stops at a time for each adjustment.

REAR SUSPENSION

The rear suspension compression and rebound damping force, and spring pre-load is adjustable for rider's preference, rider's weight and course condition.

NOTE: Break-in the rear suspension when riding with a new rear cushion unit. (☞ 1-4)

Compression Damping Force Adjustment



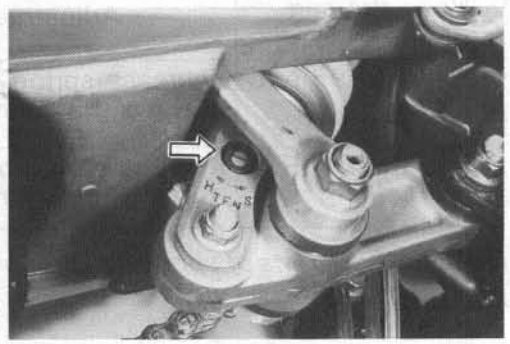
- Turn the adjuster screw clockwise until it stops that is full hard.

NOTE: To set the adjuster, you must gently turn the adjuster screw clockwise until it stops, then back it out the recommeded number of turns. Do not force the adjuster screw past the stopped position or you may damage the adjuster.

- Turn the adjuster screw counterclockwise and the 10th position is the standard position.

Standard setting: 10th click

Rebound Damping Force Adjustment



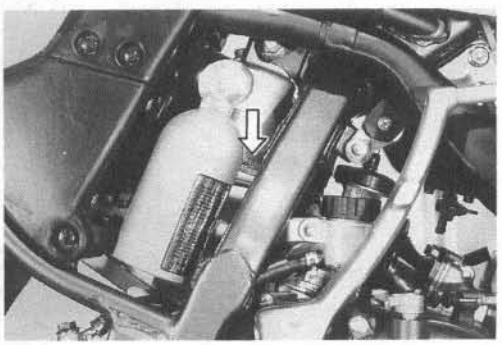
- Turn the adjuster screw clockwise until it stops that is full hard.

NOTE: To set the adjuster, you must gently turn the adjuster screw clockwise until it stops, then back it out the recommened number of turns. Do not force the adjuster screw past the stopped position or you may damage the adjuster.

- Turn the adjuster screw counterclockwise and the 13th position is the standard position.

Standard setting: 13th click

Spring Pre-load Adjustment



- Loosen the lock nut. Turning the adjuster without loosening the lock nut can damage the rear cushion unit.
- Turn the adjuster clockwise or counterclockwise to change the spring pre-load.
- Tighten the lock nut.

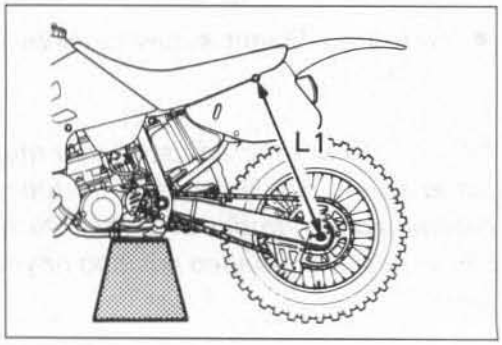
Spring set length Adjustable range: 248.5—270 mm (9.8—10.6 in)

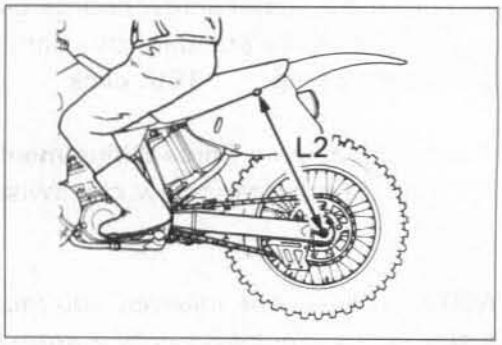
Standard spring set length: 255.0 mm (10.0 in)

Rear Suspension Tuning Procedure

- Select the rear suspension acording to the rider's weight and preference by referring to the table below.

Rider's weight	Spring	Remarks
Below 52kg (115 lbs)	Soft (Option)	If you prefer hard setting, use standard spring.
52—68 kg (115—150 lbs)	Standard	If you prefer hard setting, use hard spring. If you prefer soft setting, use soft spring.
Over 68 kg (150 lbs)	Hard (Option)	If you prefer soft setting, use standard spring.





- Measure the distance L1 from the seat bolt to the chain adjuster lock nut with the motorcycle on the stand and the rear wheel lifted off the ground.
- Measure the distance L2 from the seat bolt to the chain adjuster lock nut with the motorcycle off the stand and riding the motorcycle normally in full riding gear.
- Find the sag by subtracting L2 from L1. Standard sag range is 95—105 mm (3.7—4.1 in).

When the sag measured is:	Adjustment procedure
Less than 95 mm (3.7 in)	Increase spring pre-set length by turning the spring adjuster nut.
More than 105 mm (4.1 in)	Reduce spring pre-set length by turning the spring adjuster nut.

NOTE: Two turns of spring adjuster ring varies sag by 8.5 mm (0.3 in).

Rear Suspension

After the sag measurement has been set between 95 mm (3.7 in) to 105 mm (4.1 in), test ride the motorcycle and adjust the suspension for the rider and track conditions referring to the guide below.

SYMPTON	SECTION	ADJUSTMENT PROCEDURE
Bottoms	• Jump • Large bump	1. Adjust the compression damping to a harder (H) setting. (See note below.) 2. Adjust the sag to a smaller measurement (closer to 95 mm). 3. Replace the spring with an optional stiffer one.
Kicks up	• Medium to large bumps • Small to medium bumps • Decelerating or braking	1. Adjust the rebound damping to a harder (H) setting. (See note below.) 2. Adjust the sag to a larger measurement (closer to 105 mm). 3. Replace the spring with an optional softer one.
Hits bumps too harshly	• Jump • Large bump • Series of medium bumps	1. Adjust the compression damping to a softer (S) setting. (See note below.) 2. Adjust the sag to a larger measurement (closer to 105 mm). 3. Replace the spring with an optional softer one.
Feels harsh and tends to sink	• Series of medium bumps • Series of small bumps	1. Adjust the rebound damping to a softer (S) setting. (See note below.)
Feels too soft and unstable	• Series of medium bumps • Series of small bumps	1. Adjust the rebound damping to a harder (H) setting.
Provides poor traction	• Accelerating • Series of small bumps	1. Adjust the compression and rebound damping to a softer setting, each at a time alternatively until the optimum settings are obtained. 2. Replace the spring with an optional softer one.

NOTE: When adjusting the damping setting, attempt turning the adjuster 1 to 2 click stops at a time for each adjustment.

SUSPENSION BALANCE

Balancing the front to rear suspension properly is the most critical adjustment for suspension performance. If the front forks are adjusted harder than suspension, such as changing to heavier front frok oil, stiffer compression and rebound setting, air pressure build up in the forks and so on, the front forks will collapse less on bumps. This transfers more of the motorcyce and rider weight to possibly bottom, where as it felt fine before the front fork adjustment was made.

Balance Test

Stand next to the motorcycle on level ground. Place one foot on the foot rest closest to you. Sharply push down. The front and rear suspensions should both collapse equally.

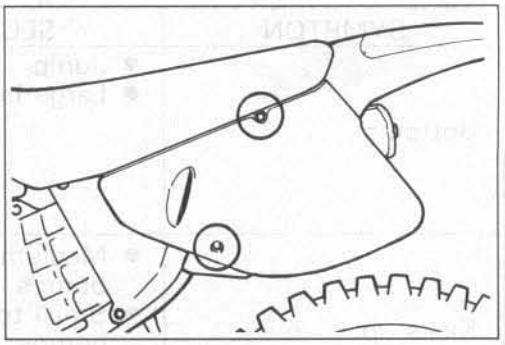
Balancing Tips

- Check for air pressure build-up in front forks. Heat and altitude will increase air pressure in the front forks.
- Always stay within sag measurement limits, 95—105 mm (3.7—4.1 in), when using spring preset to stiffen or soften rear suspension. If this is not possible, the next stiffer or softer accessory spring is needed.
- The rear shock compression damping can be used to fine tune suspension balance and is easy to access.

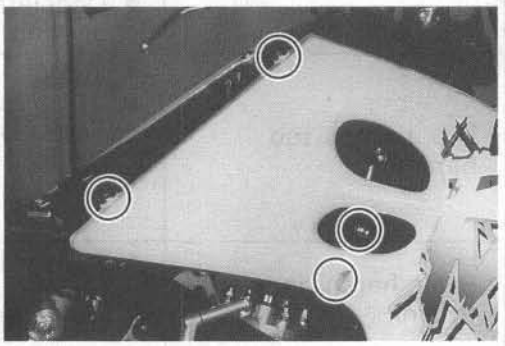
ENGINE DISMOUNTING AND MOUNTING

DISMOUNTING

- Remove the seat and frame covers.

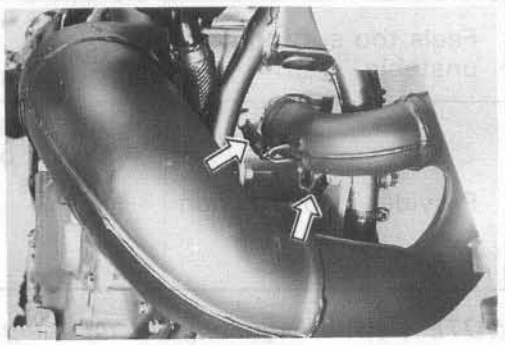


- Remove the radiator cover.
- Turn the fuelcock lever to the "OFF" position and disconnect the fuel hose.
- Remove the two bolts and band from the fuel tank.
- Remove the fuel tank.
- Drain transmission oil. (☞ 2-5)
- Drain coolant. (☞ 11-2)

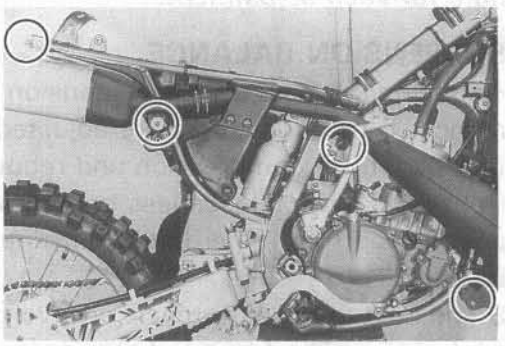


- Remove the exhaust pipe fitting springs with the special tool.

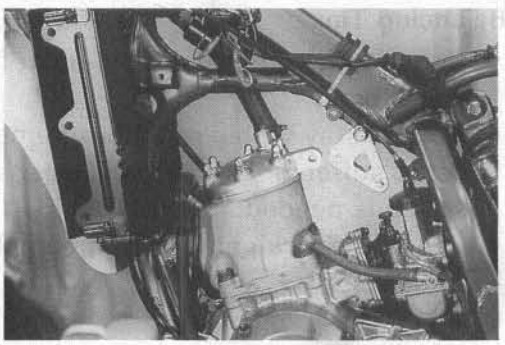
09920-20310 Spring hook



- Remove the muffler fitting bolts.
- Remove the exhaust pipe and muffler.



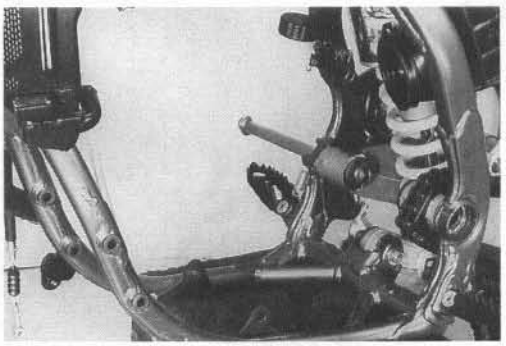
- Disconnect the radiator hoses.
- Disconnect the lead wires.
- Remove the spark plug.
- Remove the carburetor.
- Remove the engine sprocket cover.
- Remove the drive chain.
- Remove the chain buffer fitting upper bolts.
- Shift the chain buffer down and remove the engine sprocket.



- Remove the clutch release arm.
- Remove the engine mounting bolts and plates.
- Remove the swing arm pivot shaft.

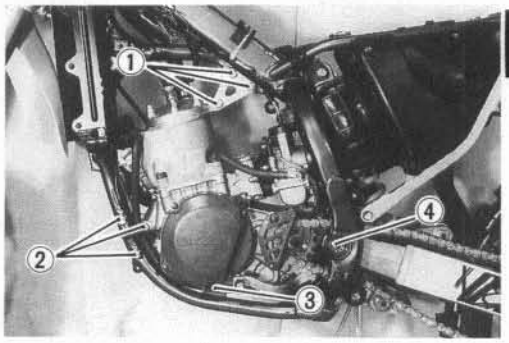
NOTE: The swing arm will come off when the swing arm pivot shaft is completely removed.

- Remove the engine from the frame.



ENGINE MOUNTING

- Mount the engine on the frame.
- Tighten the engine mounting nuts.



Tightening torque

	N.m	kg-m	lb-ft
① ②	43	4.3	31.0
③	35	3.5	25.5
④	65	6.5	47.0

NOTE: Replace the self-locking nuts with new ones.

Reassemble the parts in the reverse order of removal.

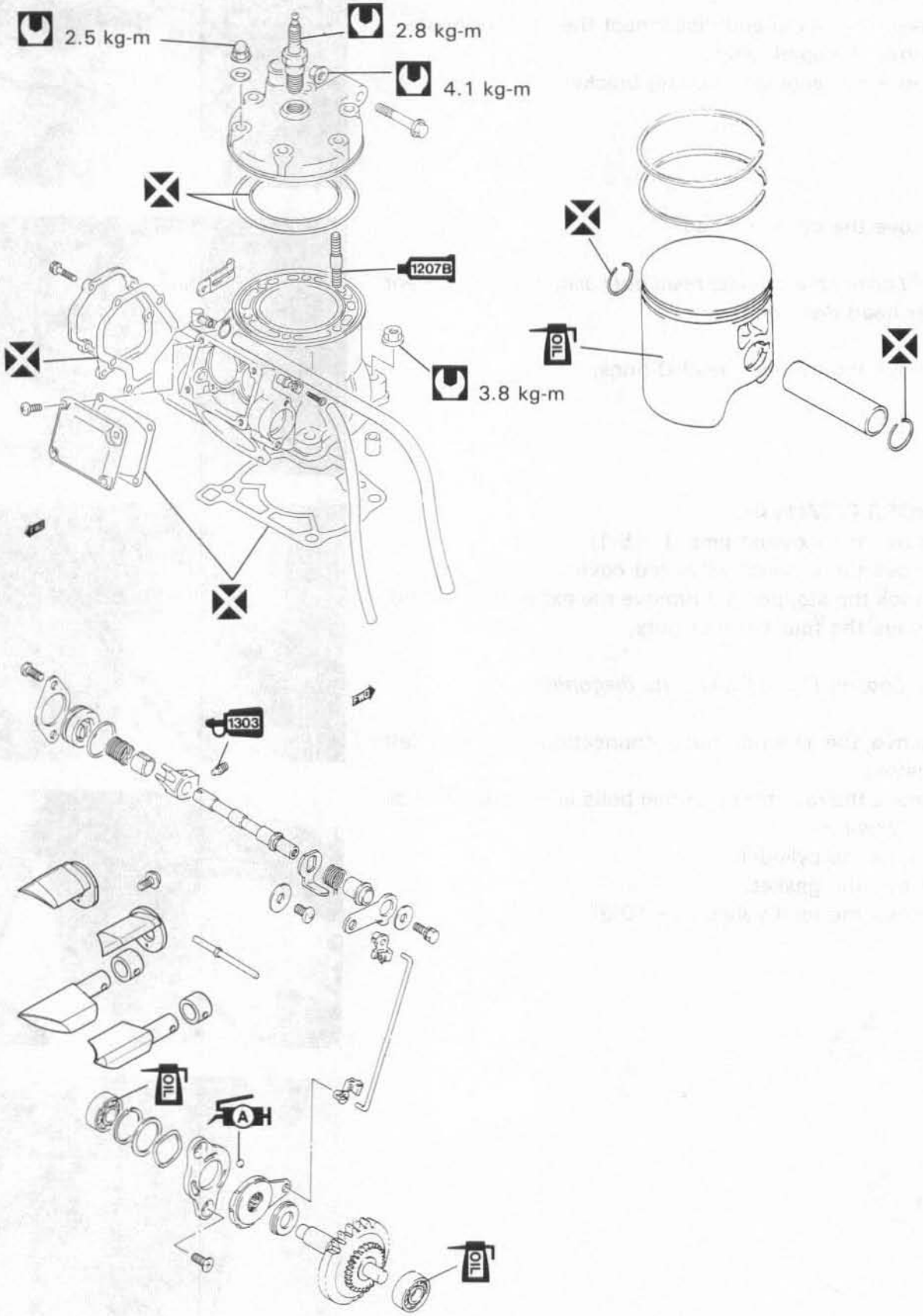
NOTE: Route the cables and lead wires correctly. (☞ 19-1)

After mounting the engine, inspect the following items.

- Transmission oil level (☞ 2-5)
- Coolant level (☞ 2-5)
- Throttle cable play (☞ 2-7)
- Clutch lever play (☞ 2-7)
- Drive chain slack (☞ 2-8)

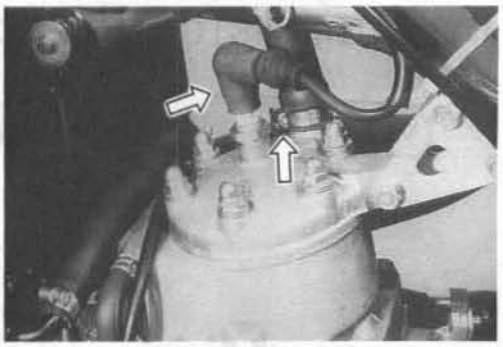
—MEMO—

CYLINDER, PISTON AND EXHAUST VALVE



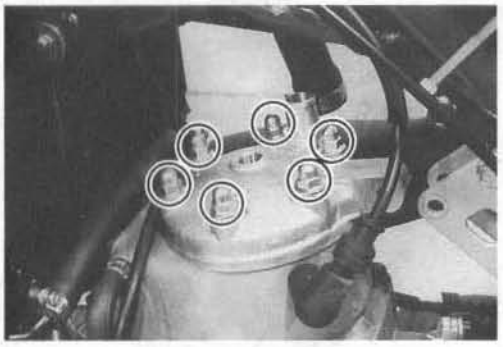
CYLINDER HEAD REMOVAL

- Remove the fuel tank.
- Drain coolant. (☞ 11-2)
- Loosen the clamp and disconnect the radiator hose.
- Remove the spark plug.
- Remove the engine mounting bracket.



- Remove the cylinder head.

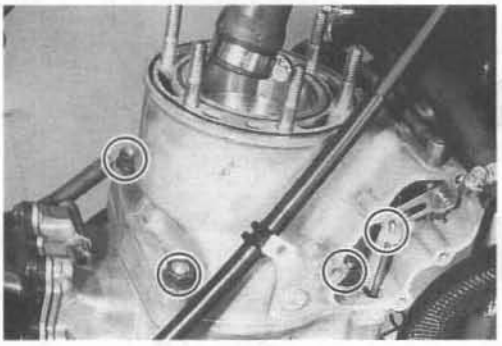
NOTE: Loosen the cylinder head nuts diagonally to prevent cylinder head distortion.



- Remove the cylinder head O-rings.

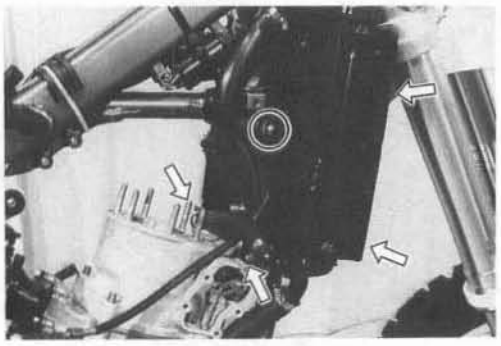
CYLINDER REMOVAL

- Remove the exhaust pipe. (☞ 5-1)
- Remove the exhaust valve rod cover.
- Unhook the stopper and remove the exhaust valve rod.
- Remove the four cylinder nuts.



NOTE: Loosen the cylinder nuts diagonally.

- Remove the radiator hose connecting right and left radiators.
- Remove the radiator mounting bolts and move the radiator forward.
- Remove the cylinder.
- Remove the gasket.
- Remove the reed valve. (☞ 10-3)



PISTON REMOVAL

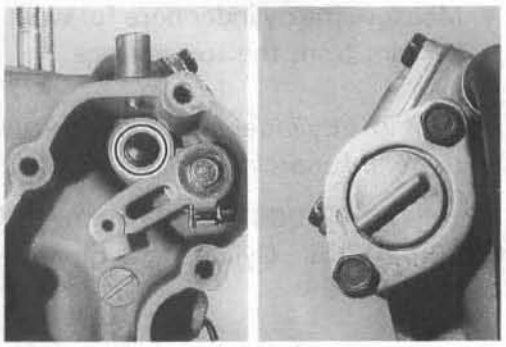
- Remove the piston pin circlip.

NOTE: Place cloth on the crankcase to prevent the piston pin circlip from dropping into the crankcase chamber.

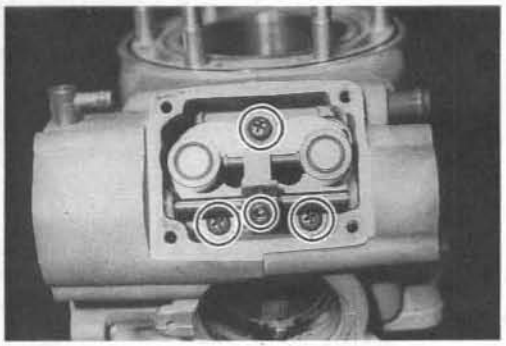
- Remove the piston pin.
- Remove the piston.
- Remove the con-rod small end bearing.

EXHAUST VALVE REMOVAL

- Remove two screws and retainer.
- Remove the exhaust valve cap, spring and spacer.
- Remove the exhaust valve shaft stopper bolt.



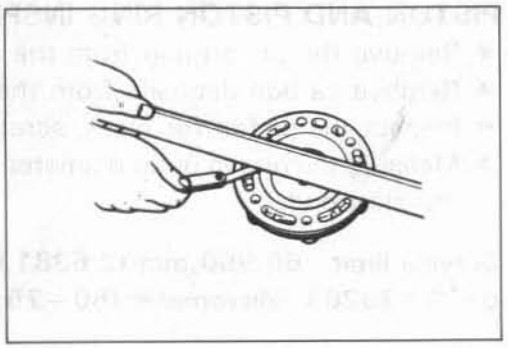
- Remove the exhaust valve cover.
- Remove the arm stopper screw. Remove the exhaust valve shaft.
- Remove the exhaust valve guide stopper screws.
- Remove the exhaust valves.



CYLINDER HEAD INSPECTION

- Remove carbon deposits from the cylinder head.
- Inspect the cylinder head for cracks around the spark plug hole.
- Inspect for cylinder head distortion.

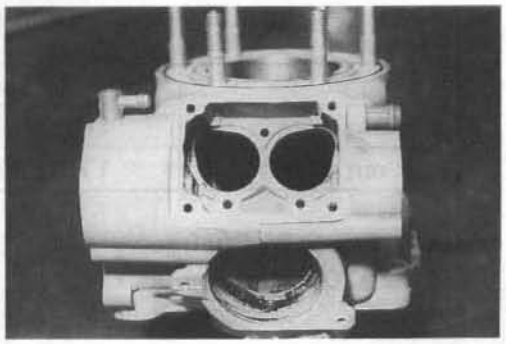
Service limit : 0.05 mm (0.002 in)



CYLINDER INSPECTION

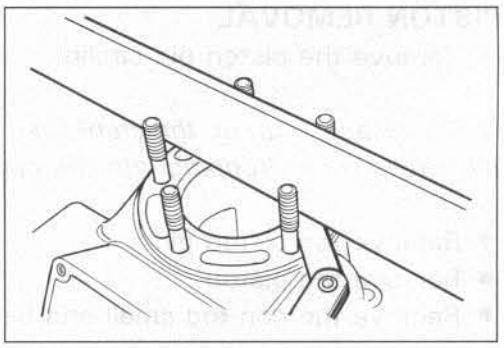
- Remove carbon deposits from the exhaust port.
- Inspect the cylinder for cracks and replace the cylinder if necessary.
- Inspect the cylinder bore for wear and scratches.

NOTE: Chrome-plated cylinder bore can not be modified such as boring and honing.



- Inspect for cylinder distortion.

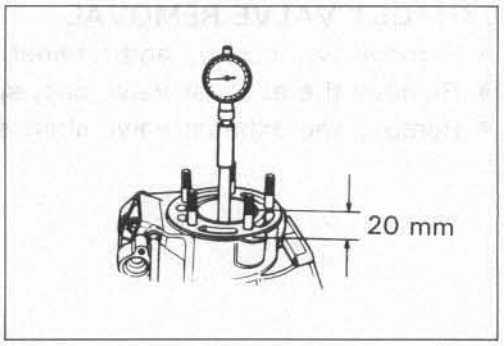
Service limit : 0.05 mm (0.002 in)



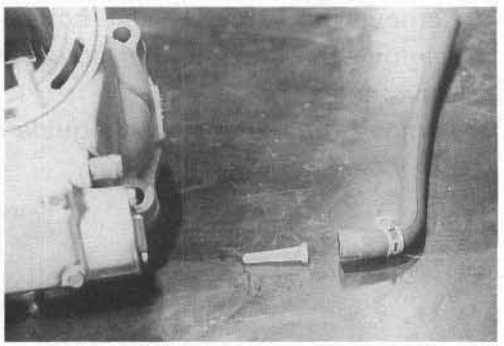
- Measure the cylinder bore for wear with a cylinder gauge 20 mm from the top surface.

NOTE: The cylinder bore must be measured perpendicular to the crankshaft axis direction.

Standard : 67.000—67.015 mm (2.6378—2.6384 in)
09900-20508 Cylinder gauge set (40—80 mm)



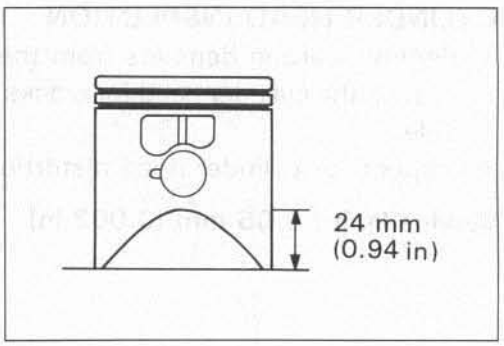
- Disconnect the exhaust valve breather hose and filter.
- Remove carbon deposits from the filter and clean it.



PISTON AND PISTON RING INSPECTION

- Remove the piston ring from the piston ring groove.
- Remove carbon deposits from the piston.
- Inspect the piston for wear, scratches and damage.
- Measure the piston outer diameter 24 mm (0.94 in) from the skirt end.

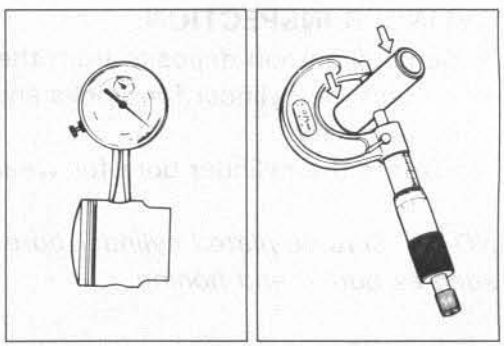
Service limit : 66.950 mm (2.6381 in)
09900-20203 Micrometer (50—75 mm)



- Measure the piston pin bore and piston pin diameter.

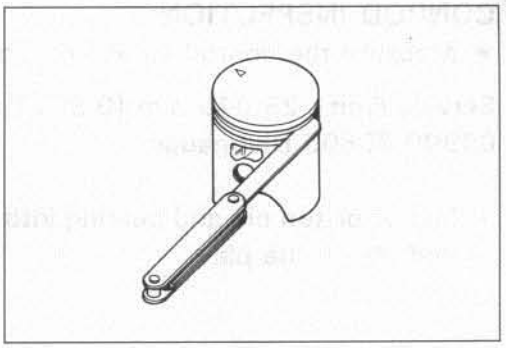
	Service Limit
Piston pin bore	18.030 mm (0.7098 in)
Piston pin O.D.	17.980 mm (0.6724 in)

09900-20605 Dial gauge
09900-20205 Micrometer



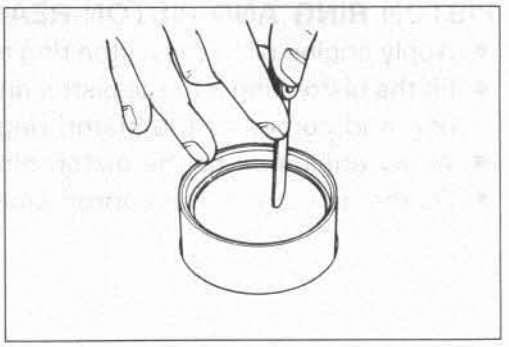
- Remove carbon deposits from piston ring and piston ring groove.
- Fit the piston ring into the ring groove and measure the clearance with a thickness gauge.

Standard : 0.020—0.060 mm (0.0008—0.0024 in)
09900-20803 Thickness gauge



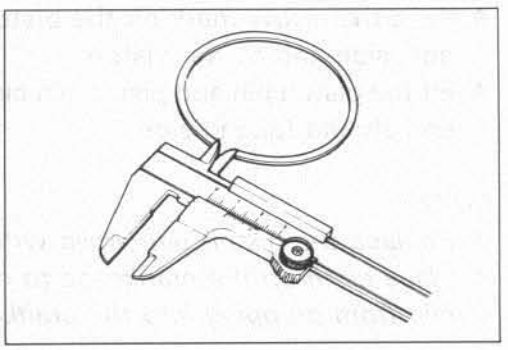
- Fit the piston ring into the cylinder and measure the piston ring end gap with a thickness gauge.

Service limit : 0.85 mm (0.033 in)
09900-20803 Thickness gauge



- Measure the piston ring free end gap.

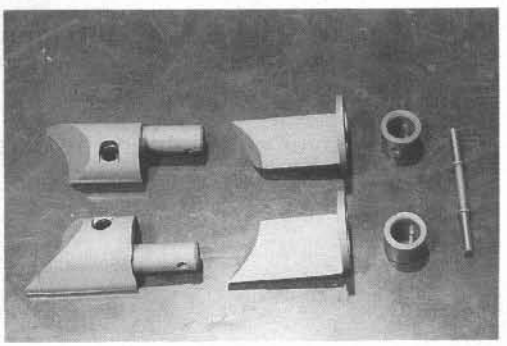
Service limit : 5.1 mm (0.20 in)



EXHAUST VALVE INSPECTION

- Remove carbon deposits from the exhaust valve and valve guide.
- Inspect the exhaust valve and valve guide for wear and scratches.
- Inspect the return spring for spring tension.

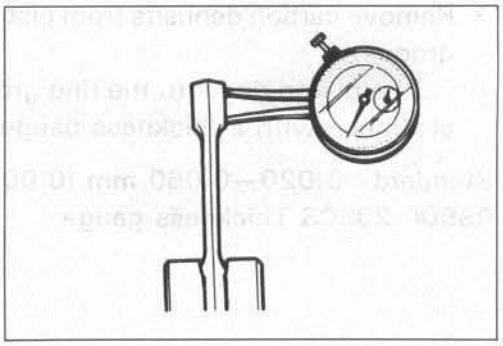
- Inspect the spacer for cracks and wear.



CONROD INSPECTION

- Measure the conrod small end bore.

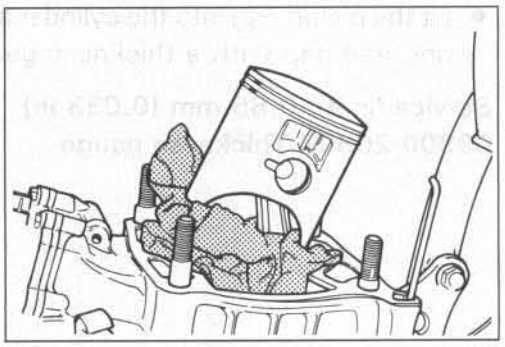
Service limit : 23.040 mm (0.9071 in)
09900-20605 Dial gauge



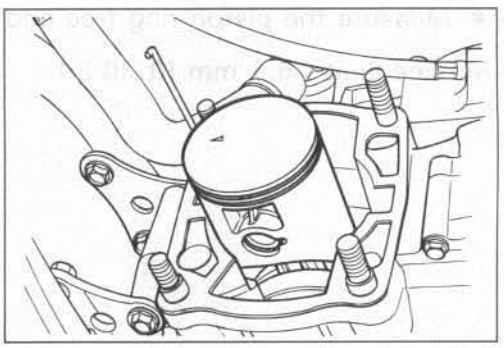
- Fit the piston pin and bearing into the conrod small end and check the play.

PISTON RING AND PISTON REASSEMBLING

- Apply engine oil to the piston ring and piston ring groove.
- Fit the piston ring into the piston ring groove so the piston ring end comes to the piston ring locating pin.
- Apply engine oil to the piston pin and bearing.
- Fit the bearing to the conrod small end.



- Face the arrow mark on the piston top to the exhaust port side and fit the piston.
- Fit the piston pin and piston pin circlip. Piston pin circlip end should face upside.

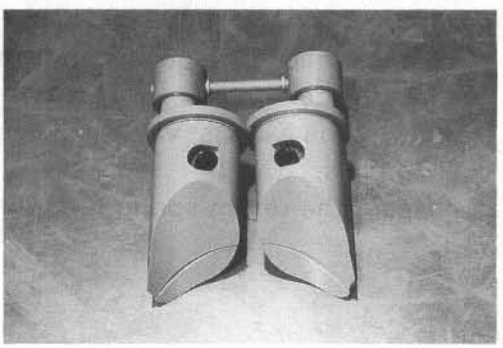


NOTE:

- *Replace the piston pin circlip with a new one.*
- *Place cloth on the crankcase to prevent piston pin circlip from dropping into the crankcase chamber.*

EXHAUST VALVE REASSEMBLING

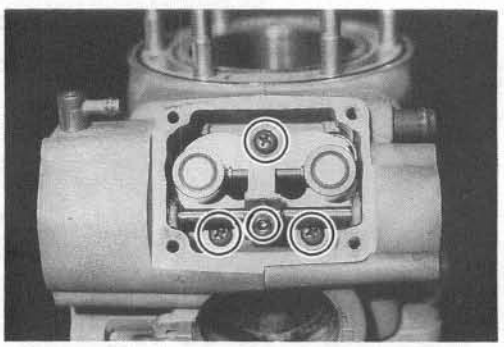
- Apply engine oil to the exhaust valve and valve guide.
- Fit the shaft to the exhaust valves.



NOTE: Fit the shaft of long side to the right exhaust valve.

- Fit the exhaust valves into the cylinder.
- Tighten the exhaust valve guide stopper screws.
- Reassemble the exhaust valve shaft and arm stopper.
- Apply thread lock "1303" and tighten the bolt.

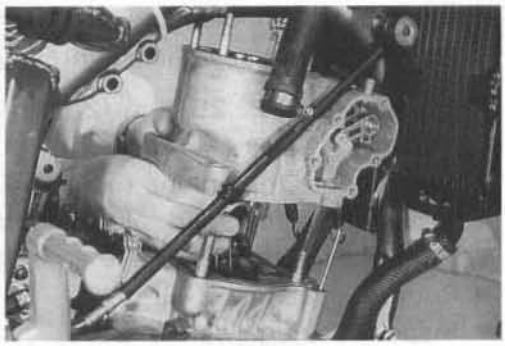
Tightening torque : 5 N·m (0.5 kg-m, 3.8 lb-ft)



- Fit the cover and tighten the screws.

CYLINDER REASSEMBLING

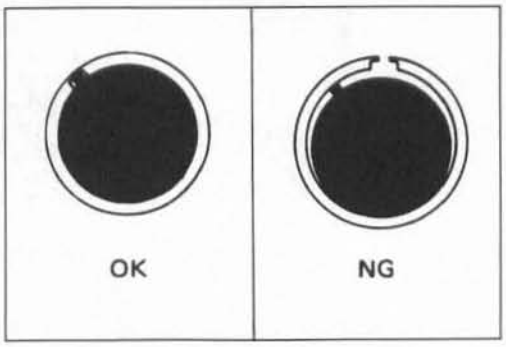
- Fit the new gasket. Fit the dowel pins.
- Fit the exhaust valve breather hose to the cylinder.
- Move the piston to the top dead center.
- Apply engine oil to the cylinder bore.
- Hold the piston and piston ring, and insert the piston into the cylinder.



⚠ CAUTION

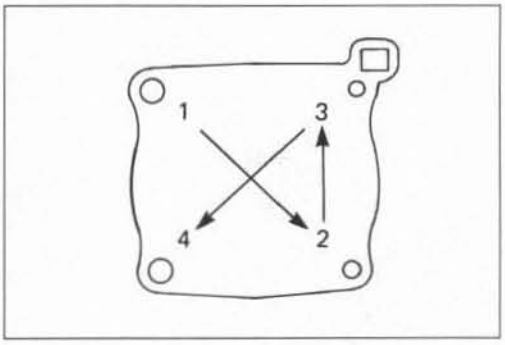
If the piston pin end is not at the proper position, you can not insert the piston into the cylinder properly and the piston ring will be damaged.

Locate the piston ring end to the locating pin and insert the piston into the cylinder.

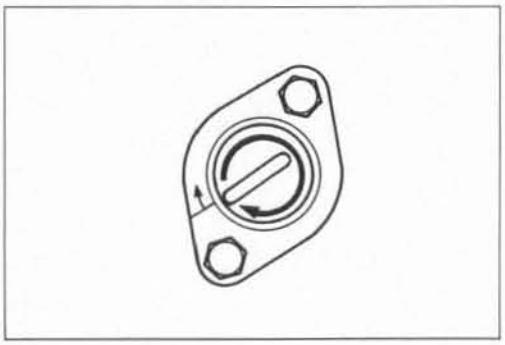


- Tighten the cylinder nuts to the specified torque according to the specified tightening order as shown.

Tightening torque : 38 N·m (3.8 kg-m, 27.5 lb-ft)

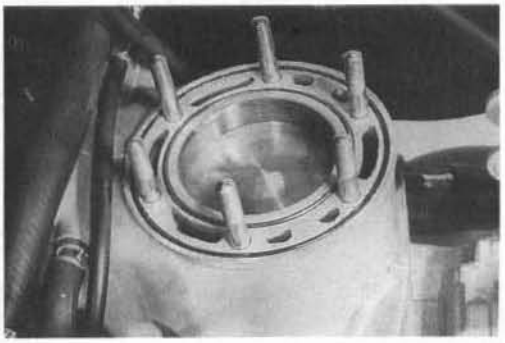


- Fit the exhaust valve rod.
- Install the spacer, spring, exhaust valve cap and retainer.
- Tighten the screws temporarily.
- Turn the exhaust valve cap clockwise one turn.
- Tighten the screws.
- Inspect the exhaust valves for smooth movement.



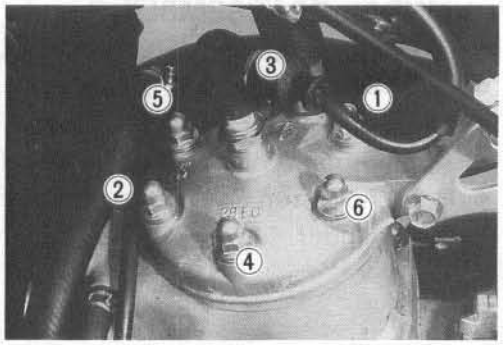
- Install the new O-rings.
- Install the cylinder head.

NOTE: Apply Bond "1207B" to the stud bolt threads when assembling the removed stud bolts into the cylinder.



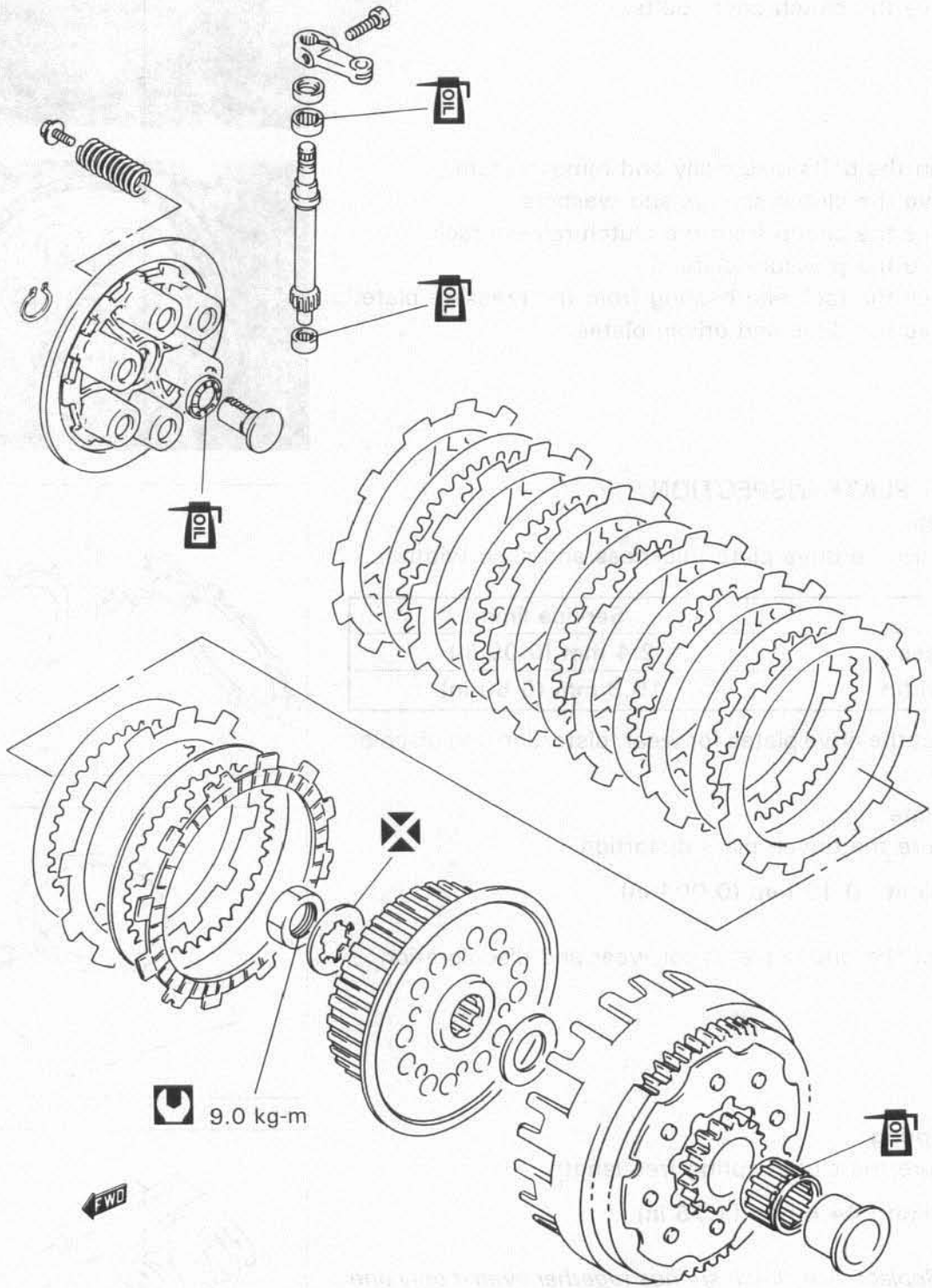
- Tighten the cylinder head nuts to the speicfied torque according to the specified tightening order as shown.

Tightening torque : 25 N·m (2.5 kg-m, 18.0 lb-ft)



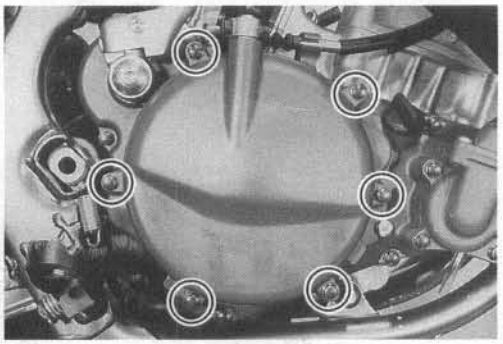
- Reassemble the engine mounting bracket. (☞ 5-2)
- Reassemble the spark plug and spark plug cap.
- Connect the radiator hose and tighten the clamps.
- Pour coolant.(☞ 2-5)
- Inspect coolant leak.

CLUTCH

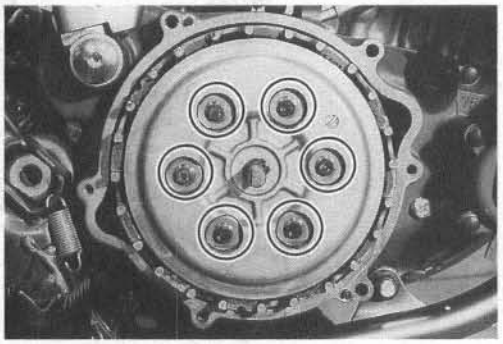


CLUTCH PLATE REMOVAL

- Drain transmission oil. (☞ 2-5)
- Remove the cotter pin and rear brake pedal. (☞14-11)
- Remove the clutch release arm.
- Remove the clutch cover bolts.



- Loosen the bolts diagonally and remove them.
- Remove the clutch springs and washers.
- Remove the circrip from the clutch release rack.
- Remove the pressure plate.
- Remove the rack and bearing from the pressure plate.
- Remove the drive and driven plates.

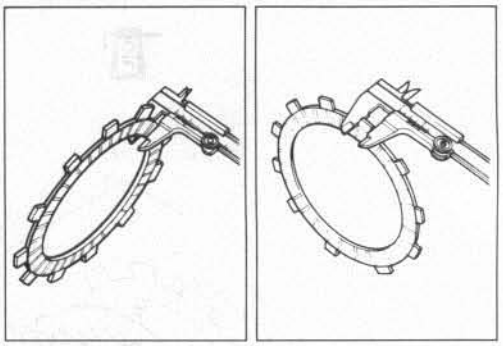


CLUTCH PLATE INSPECTION

Drive Plate

- Measure the drive plate thickness and claw width.

	Service limit
Thickness	2.4 mm (0.09 in)
Claw width	15.3 mm (0.60 in)

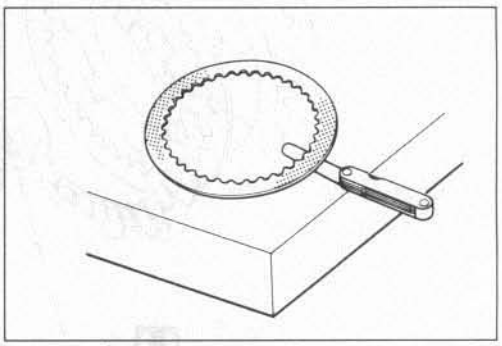


- Inspect the drive plates for wear, distortion and discoloration.

Driven Plate

- Measure the driven plate distortion.

Service limit : 0.10 mm (0.004 in)



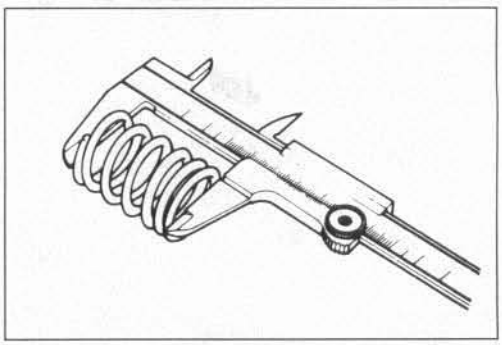
- Inspect the driven plates for wear and discoloration.

Clutch Spring

- Measure the clutch spring free length.

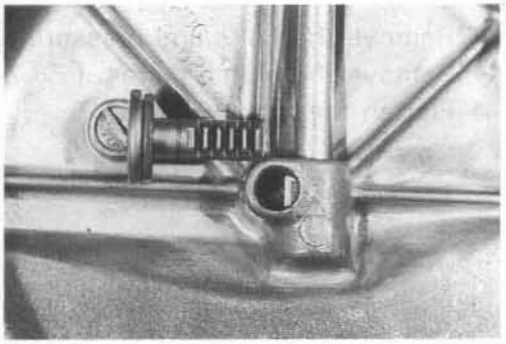
Service limit : 44.4 mm (1.75 in)

NOTE: Replace five clutch springs together even if only one spring is beyond the service limit.



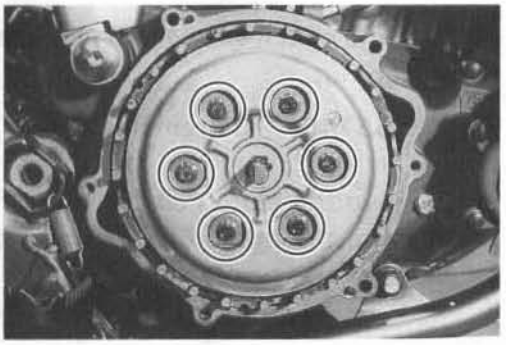
RACK AND PINION INSPECTION

- Inspect the clutch release rack and pinion for wear and damage.
- Inspect the clutch release arm for smooth movement and oil leakage around the oil seal.

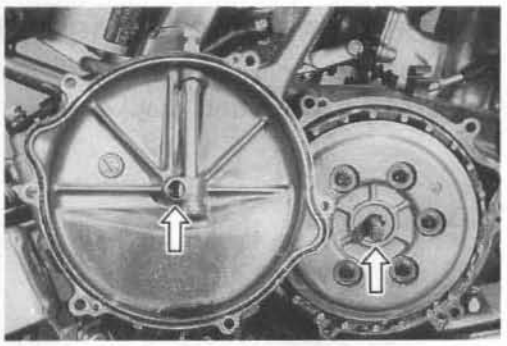


CLUTCH PLATE REASSEMBLING

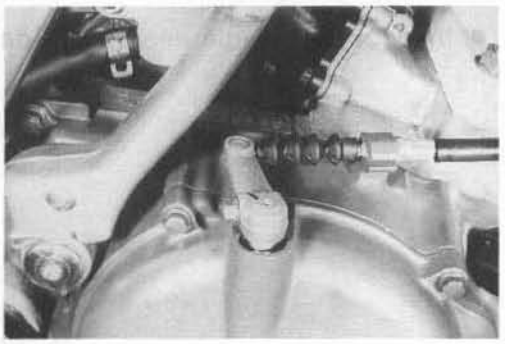
- Apply transmission oil to the drive and driven plates and fit them.
- Fit the bearing, rack and pressure plate.
- Fit the clutch springs, washers and bolts.
- Tighten the bolts diagonally.



- Align the clutch release rack teeth with the pinion gear.
- Replace the o-ring with a new one.
- Fit the cover.
- Tighten the bolts diagonally.
- Reassemble the rear brake pedal. (☞ 14-11)

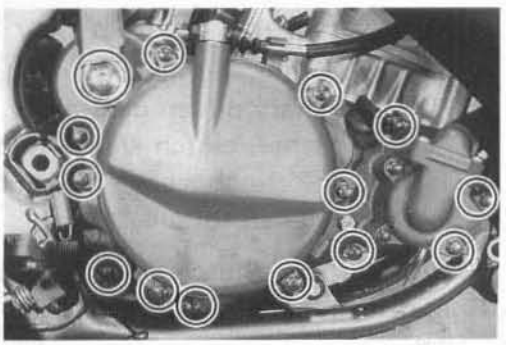


- Fit the clutch release arm. Inspect the clutch cable play. (☞ 2-7)
- Fill the transmission with specified transmission oil to the correct level. (☞ 2-5)

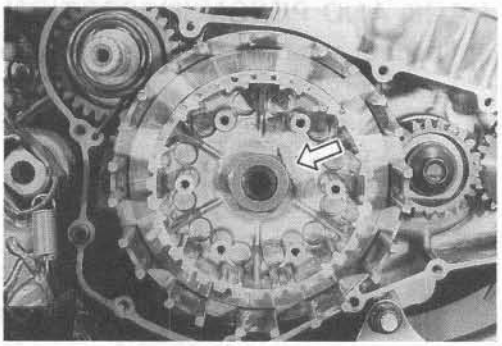


PRIMARY DRIVEN GEAR ASS'Y REMOVAL

- Drain transmission oil. (☞ 2-5)
- Drain coolant. Disconnect the radiator hose. (☞ 11-2)
- Remove the cotter pin and rear brake pivot bolt. (☞ 14-11)
- Remove the clutch release arm.
- Remove the kick starter lever.
- Remove the clutch cover bolts. Remove the clutch cover.

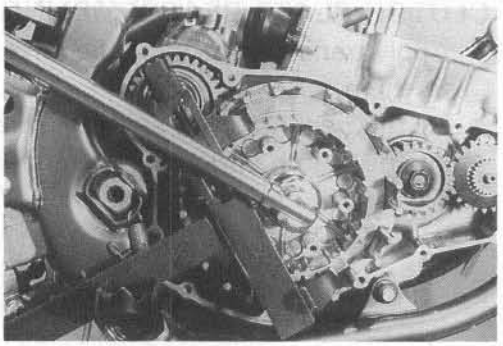


- Remove the bolts and pressure plate. (☞ 7-2)
- Remove the clutch plates. (☞ 7-2)
- Flatten the lock washer.



- Hold the clutch sleeve hub with the special tool and loosen the nut.

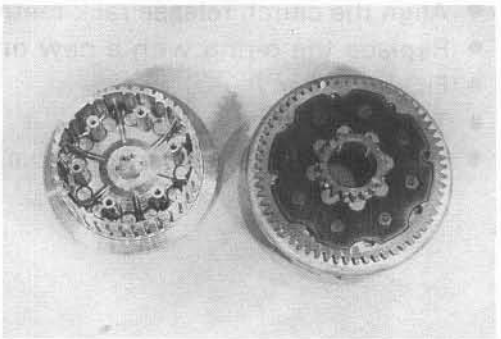
09920-53740 Clutch sleeve hub holder



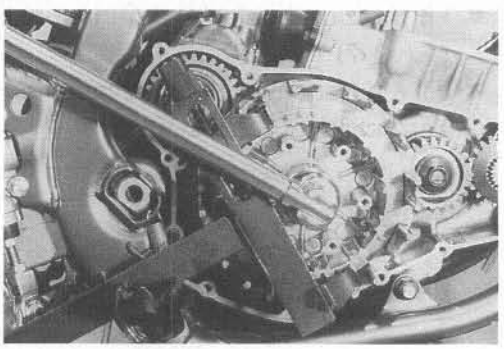
- Remove the clutch sleeve hub.
- Remove the primary driven gear ass'y.
- Remove the bearing.

PRIMARY DRIVEN GEAR ASS'Y INSPECTION

- Inspect the clutch sleeve hub and primary driven gear ass'y for wear and cracks.



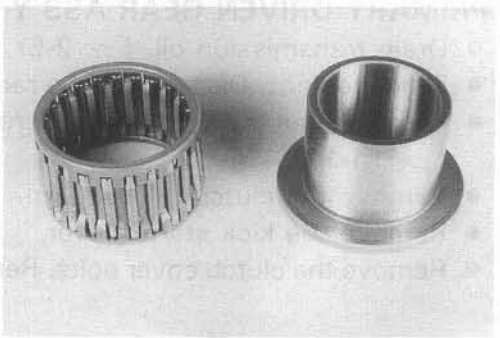
- Inspect the needle bearing for damage.



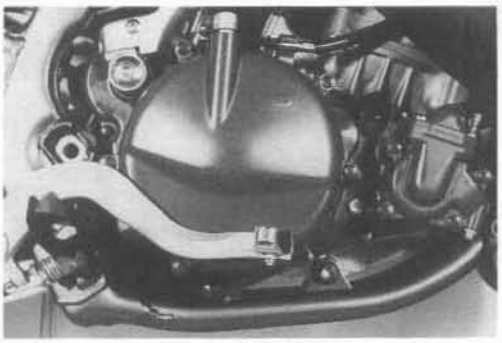
PRIMARY DRIVEN GEAR ASS'Y REASSEMBLY

- Fit the washer and needle bearing.
- Fit the primary driven gear ass'y.
- Fit the washer, clutch sleeve hub and lock washer.
- Tighten the clutch sleeve hub nut with the special tool to the specified torque.

09920-53740 Clutch sleeve hub holder
Tightening torque : 90 N·m (9.0 kg-m, 65.5 lb-ft)

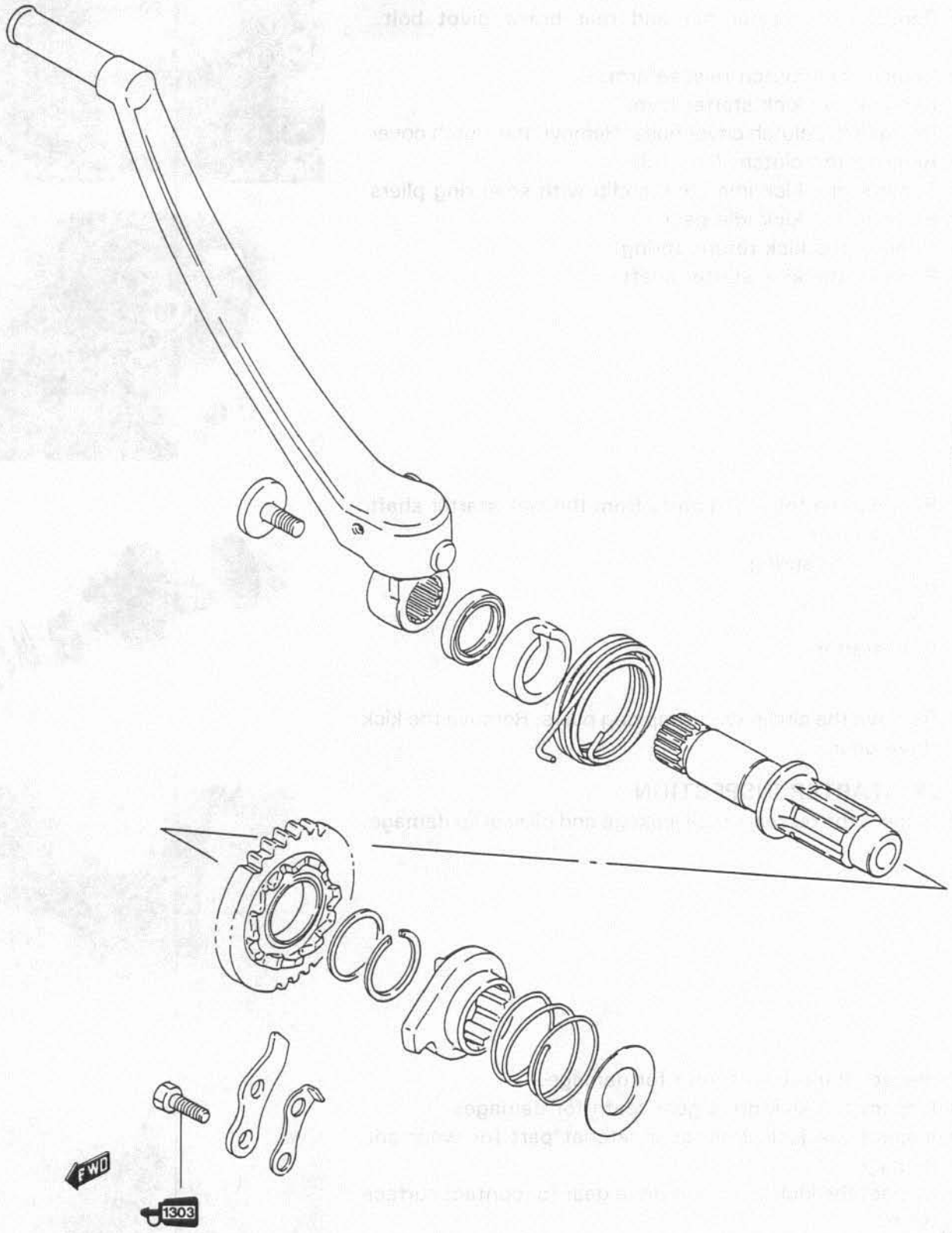


- Bend the lock washer to secure the nut.
- Reassemble the clutch plates and pressure plate. (☞7-3)
- Fit the dowel pins. Replace the O-ring with a new one.
- Fit the clutch cover and bolts. Tighten the clutch cover bolts diagonally.
- Reassemble the kick starter lever.
- Reassemble the clutch release arm.
- Reassemble the rear brake pedal. (☞ 14-11)
- Reassemble the radiator hose and refill coolant. (☞ 11-2)
- Refill transmission oil. (☞ 2-5)



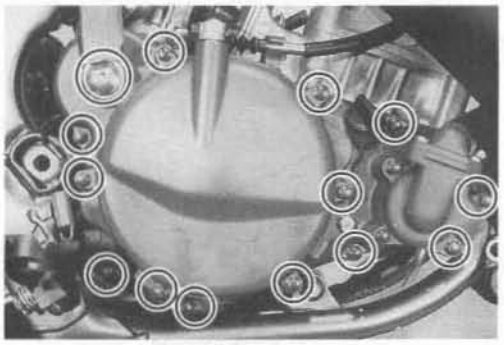
—MEMO—

KICK STARTER

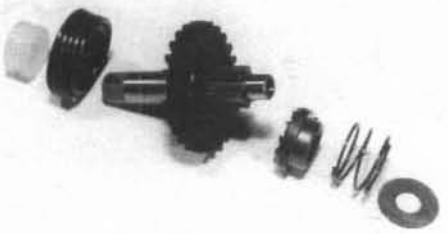


KICK STARTER REMOVAL

- Drain transmission oil. (☞ 2-5)
- Drain coolant. Disconnect the radiator hose. (☞ 11-2)
- Remove the cotter pin and rear brake pivot bolt. (☞ 14-11)
- Remove the clutch release arm.
- Remove the kick starter lever.
- Remove the clutch cover bolts. Remove the clutch cover.
- Remove the clutch. (☞ 7-3)
- Remove the kick idle gear circlip with snap ring pliers.
- Remove the kick idle gear.
- Unhook the kick return spring.
- Remove the kick starter shaft.



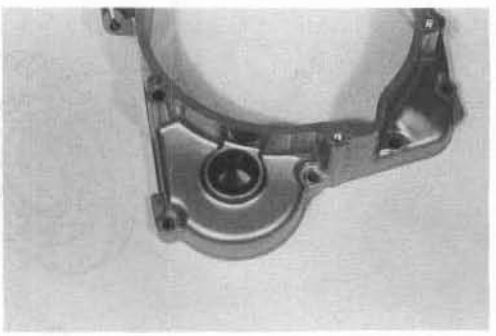
- Remove the following parts from the kick starter shaft.
  Spring guide
  Kick return spring
  Washer
  Spring
  Kick starter



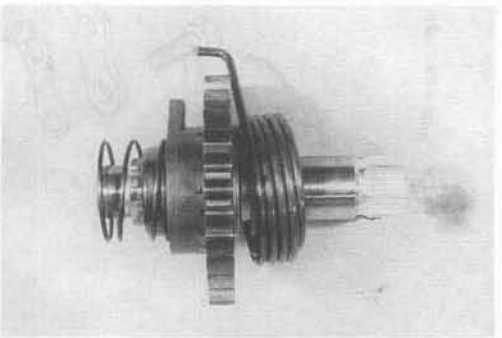
- Remove the circlip with snap ring pliers. Remove the kick drive gear.

KICK STARTER INSPECTION

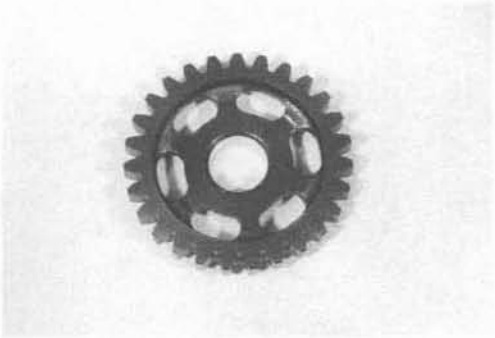
- Inspect the oil seal for oil leakage and oil seal lip damage.



- Inspect the return spring for damage.
- Inspect the kick drive gear teeth for damage.
- Inspect the kick drive gear ratchet part for wear and damage.
- Inspect the kick shaft and drive gear for contact surface wear.

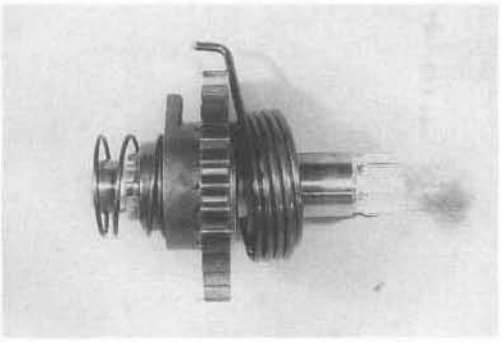


- Inspect the kick idle gear teeth for damage.
- Inspect the kick idle gear and driveshaft contact surface for wear.



KICK STARTER REASSEMBLY

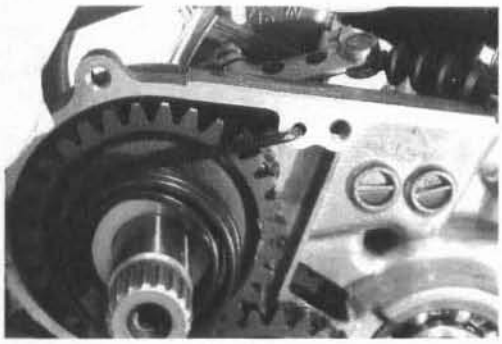
- Fit the kick drive gear and washer to the kick shaft. Fit the circlip firmly with snap ring pliers.
- Fit the return spring into the kick shaft hole.
- Fit the spacer.



- Fit the kick starter to the kick starter shaft.

NOTE: Be sure to align the punch marks on the kick starter and kick starter shaft when fitting the kick starter.

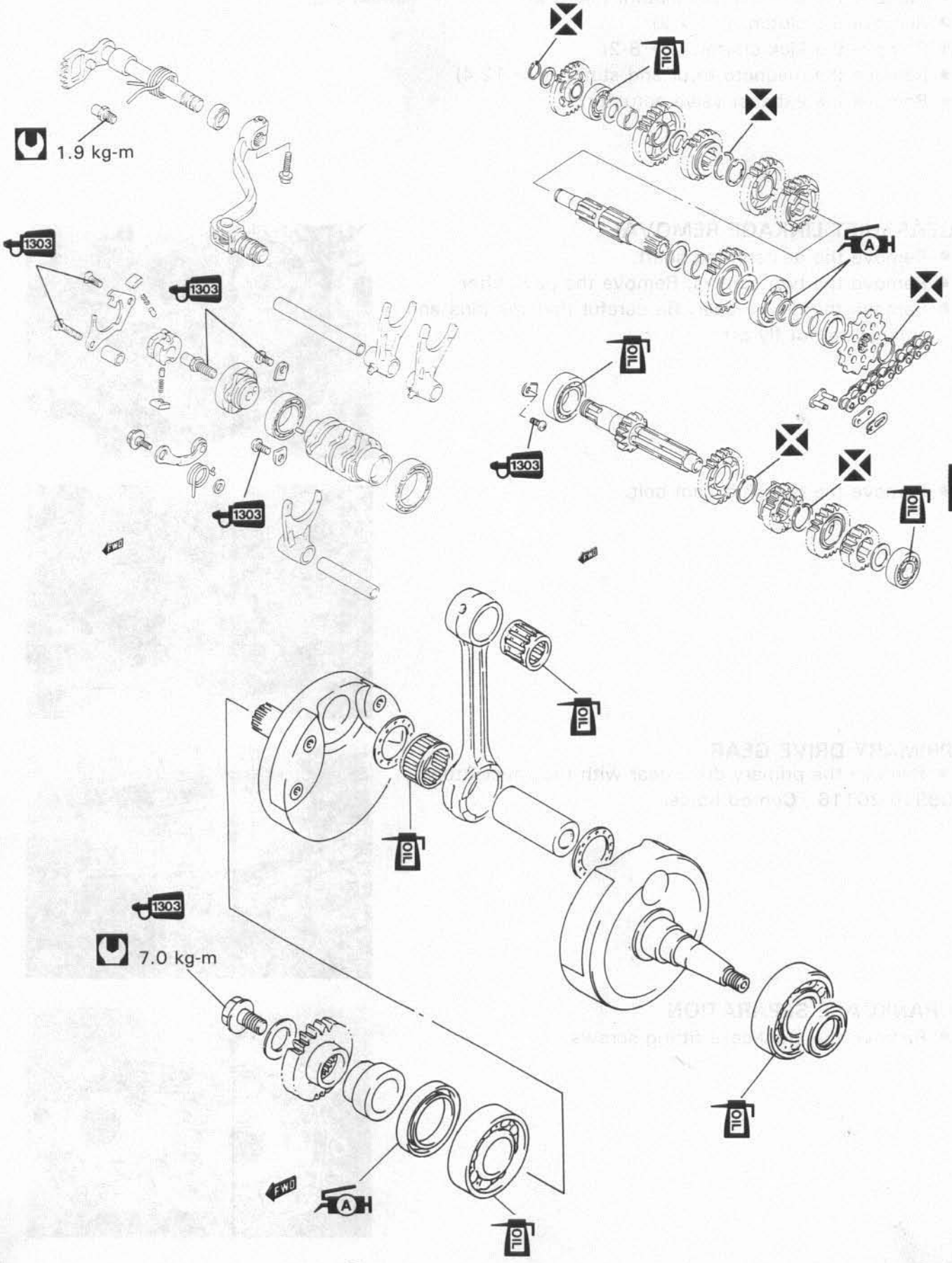
- Fit the kick starter ass'y to the crankcase. Hook the return spring.
- Reassemble the kick idle gear.
- Reassemble the clutch. (☞ 7-5)
- Reassemble the clutch cover. (☞ 7-5)
- Reassemble the kick starter lever.
- Reassemble the clutch release arm.
- Reassemble the rear brake pedal. (☞ 14-11)
- Connect the radiator hose. Refill coolant. (☞ 11-2)
- Refill transmission oil. (☞ 2-5)



- Inspect the clutch lever play.
- Inspect for coolant and transmission oil leaks.
- Inspect the kick starter for smooth movement.

—MEMO—

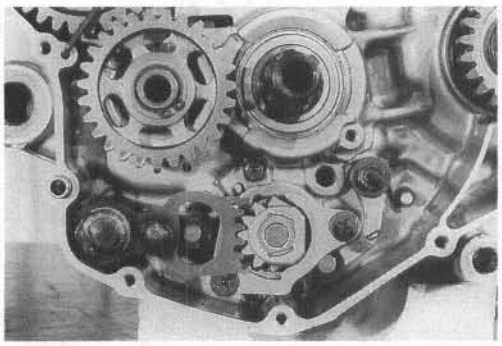
TRANSMISSION AND CRANKSHAFT



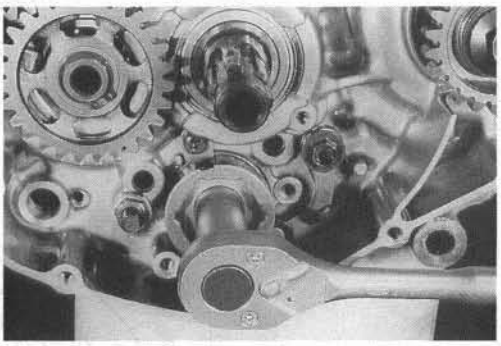
- Dismount the engine. (☞ 5-1)
- Remove the cylinder and piston. (☞ 6-2)
- Remove the clutch. (☞ 7-2)
- Remove the kick starter. (☞ 8-2)
- Remove the magneto rotor and stator. (☞ 12-4)
- Remove the exhaust valve actuator.

GEARSHIFT LINKAGE REMOVAL

- Remove the gearshifting shaft.
- Remove the two screws. Remove the pawl lifter.
- Remove the driven gear. Be careful that the pins and springs do not fly off.



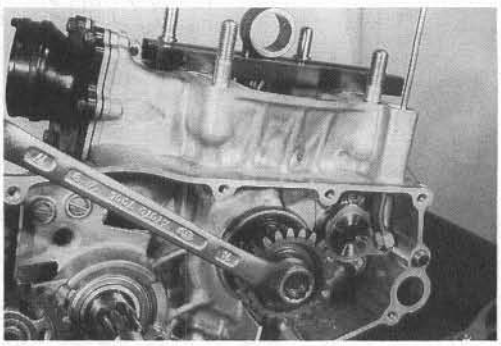
- Remove the gearshift cam bolt.



PRIMARY DRIVE GEAR

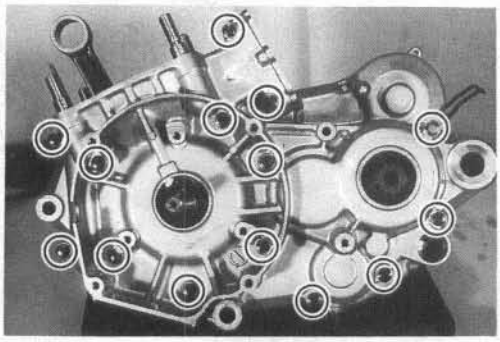
- Remove the primary drive gear with the special tool.

09910-20116 Conrod holder



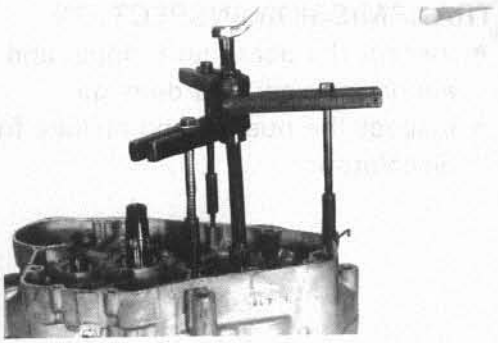
CRANKCASE SEPARATION

- Remove the crankcase fitting screws.



- Separate the crankcase with the special tool.

09920-13120 Crankcase separating tool

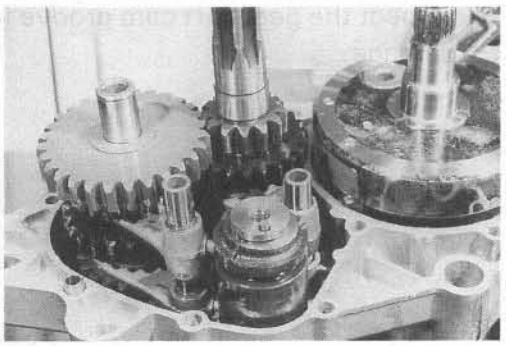


NOTE:

- *Set the crankcase separating tool to the clutch side of the crankcase.*
- *Separate the crankcase gradually while hitting the crankcase boss and countershaft softly with a plastic hammer.*

TRANSMISSION REMOVAL

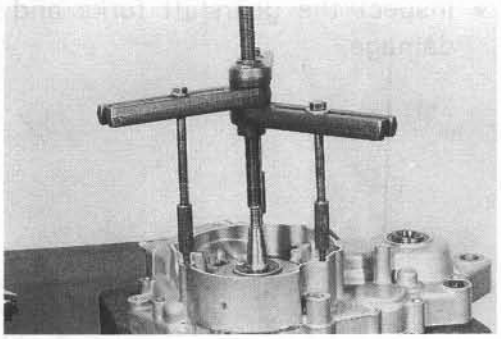
- Remove the gearshift fork shafts and forks.
- Remove the gearshift cam.
- Remove the drive shaft ass'y and countershaft ass'y.



CRANKSHAFT REMOVAL

- Remove the crankshaft with the special tool.

09920-13120 Crankcase separating tool



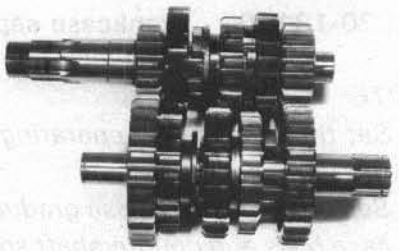
GEARSHIFT LINKAGE INSPECTION

- Inspect the gearshift shaft for bends and damage.
- Inspect the return spring for damage.

- Inspect the pawls, springs and pins for damage.

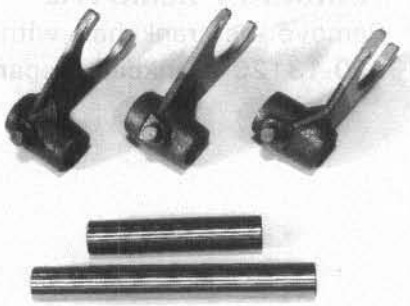
TRANSMISSION INSPECTION

- Inspect the gear teeth, dogs, and gearshift grooves for abnormal wear and damage.
- Inspect the bushes and splines for abnormal wear and discoloration.



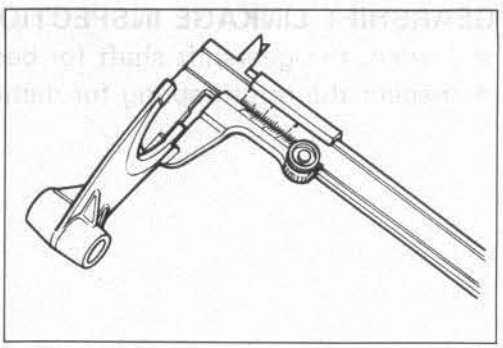
- Inspect the gearshift cam groove for abnormal wear and damage.

- Inspect the gearshift forks and shafts for wear and damage.



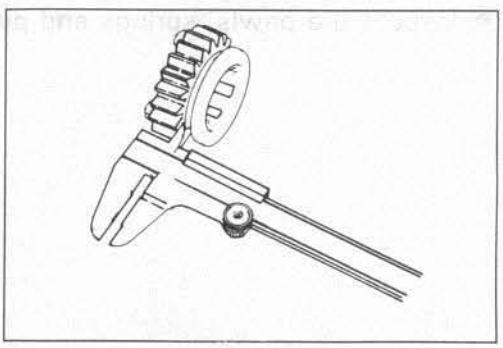
- Measure the gearshift fork thickness with a vernier caliper.

Standard: 4.60—4.70 mm (0.181—0.185 in)



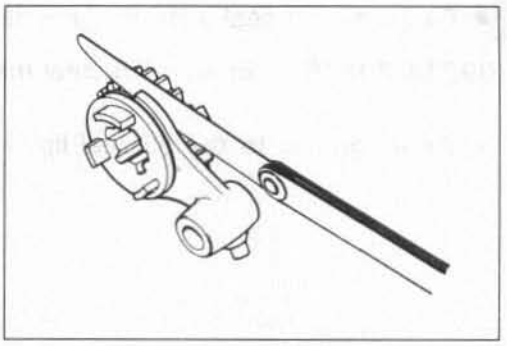
- Measure the gearshift fork groove width with a vernier caliper.

Standard: 4.80—4.90 mm (0.189—0.193 in)



- Measure the gearshift fork to groove clearance with a thickness gauge.

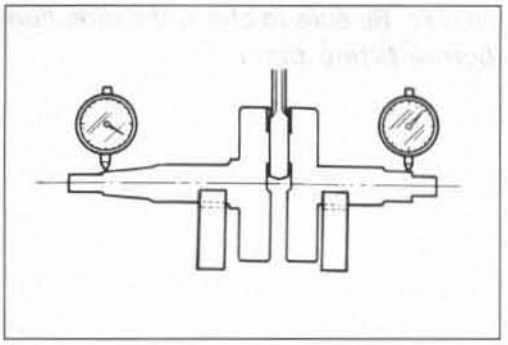
Service limit: 0.50 mm (0.020 in)



CRANKSHAFT INSPECTION

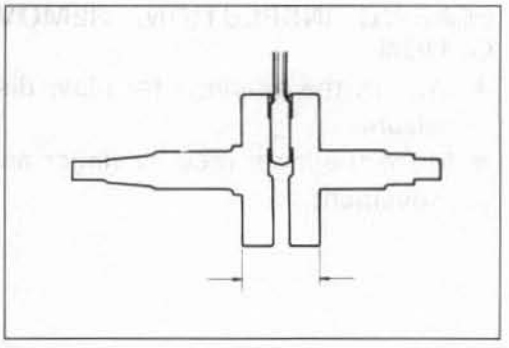
- Measure the crankshaft runout with V-blocks and dial gauge.

Service limit : 0.05 mm (0.002 in)
09900-20605 Dial gauge



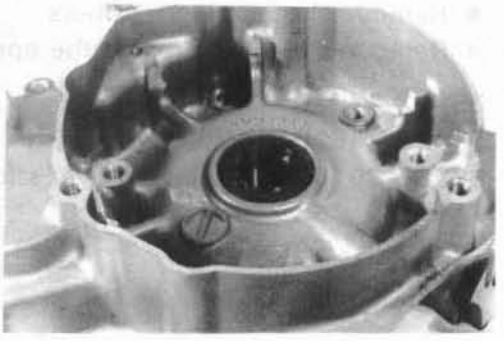
- Measure the crankshaft web to web width with a vernier caliper.

Standard : 57.9—58.1 mm (2.28—2.29 in)



OIL SEAL INSPECTION, REMOVAL AND INSTALLATION

- Inspect the oil seal lips for wear and damage.

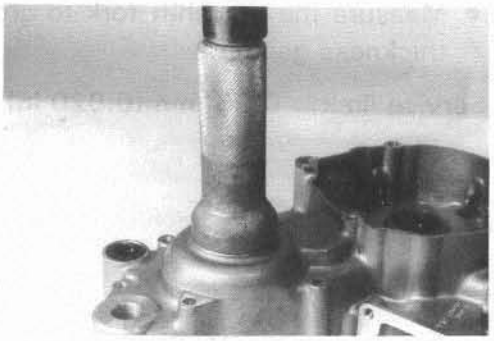


- Remove the oil seal with the special tool.

09913-50121 Oil seal remover

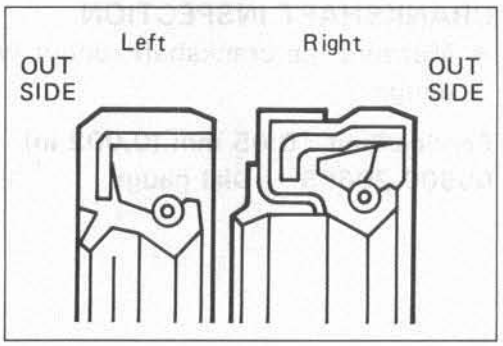
- Fit a new oil seal with the special tool.

09914-79610 Bearing/Oil seal installer



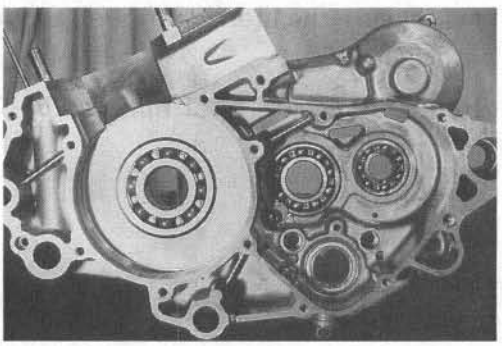
- Apply grease to the oil seal lip.

NOTE: Be sure to check the direction of the bearing oil seals before fitting them.



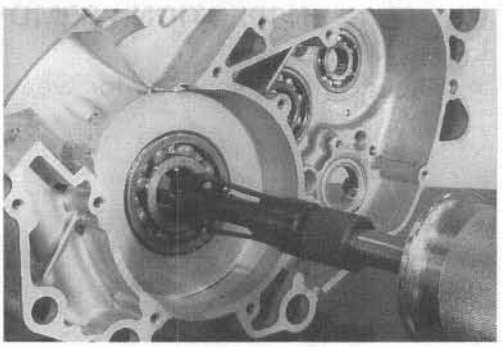
BEARING INSPECTION, REMOVAL AND INSTALLATION

- Inspect the bearings for play, discoloration, wear and seizure.
- Move the inner race by finger and inspect for smooth movement.



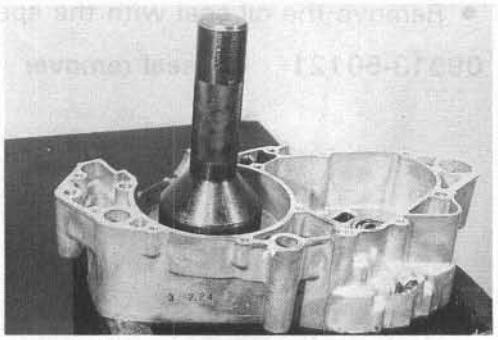
- Remove the bearing retainers.
- Remove the bearing with the special tools.

09923-73210 Bearing puller
09923-74510 Bearing puller
09930-30102 Rotor remover slide shaft

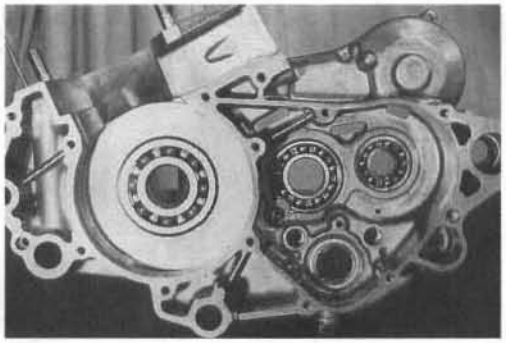


- Fit the bearing with the special tool.

09914-79610 Bearing/Oil seal installer



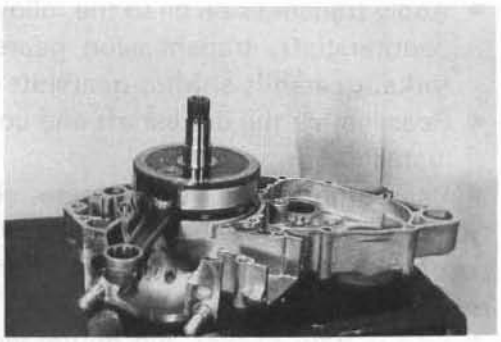
- Apply thread lock "1303" to the bearing retainer screw.



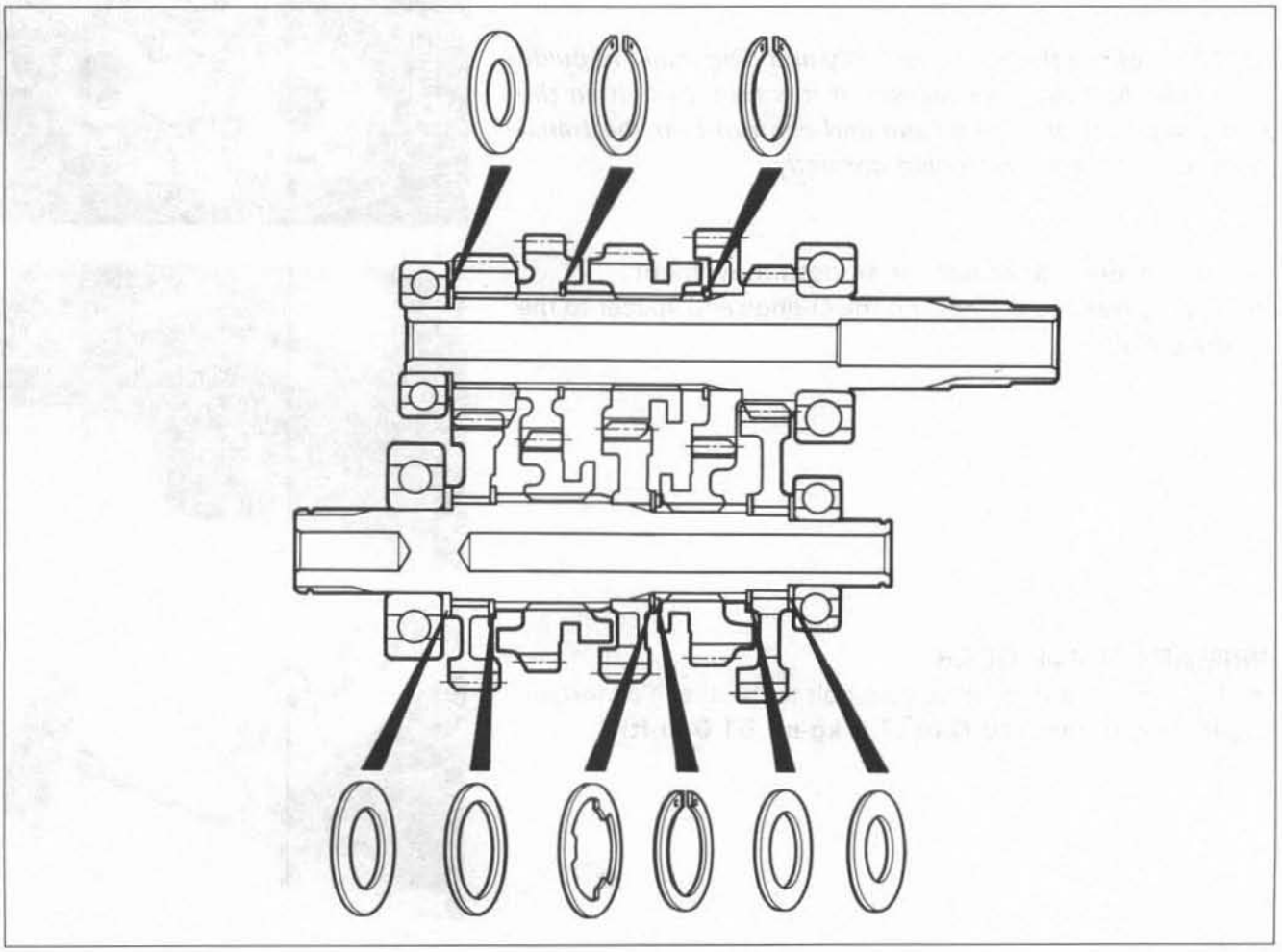
CRANKSHAFT INSTALLATION

- Fit the crankshaft into the left crankcase half with the special tool.

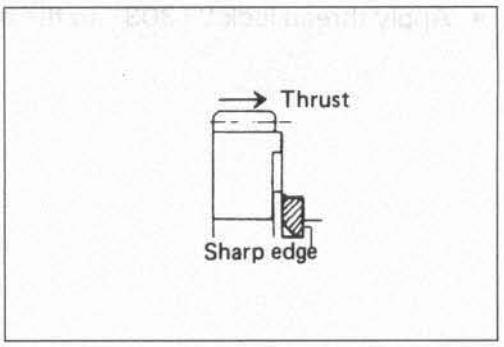
09910-32812 Crankshaft installer



TRANSMISSION REASSEMBLY



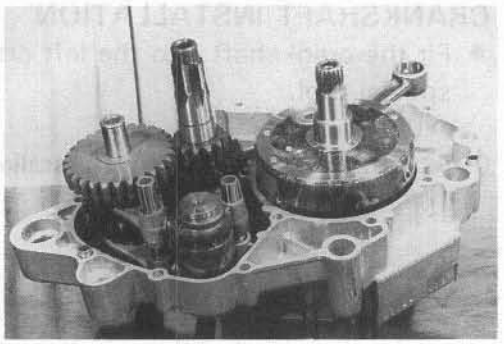
NOTE: Seat the circlip in the groove and locate its end as shown in the illustration.



- Apply transmission oil to the following parts: driveshaft, countershaft, transmission gears, bearings, gearshift forks, gearshift shafts, gearshift cam.
- Reassemble the driveshaft and countershaft with gears installed.
- Reassemble the gearshift cam, shift forks and shafts.

NOTE: Turn the gearshift cam to the neutral position and confirm that the driveshaft and countershaft turn without resistance.

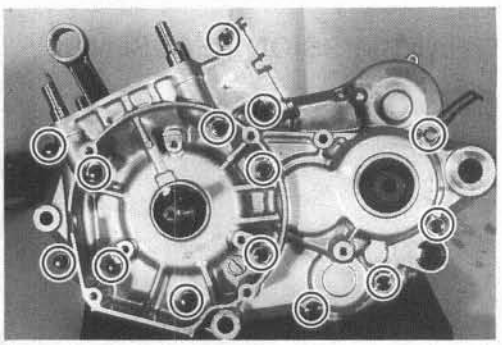
- Fit the new gasket and dowel pins.



CRANKCASE REASSEMBLY

- Fit the left crankcase half on the right crankcase half.
- Tighten the crankcase bolts.

NOTE: Tighten the bolts gradually and diagonally to guide the crankshaft into the bearing. If it is hard to tighten the bolts, separate the crankcase and confirm that the transmission parts are assembled correctly.

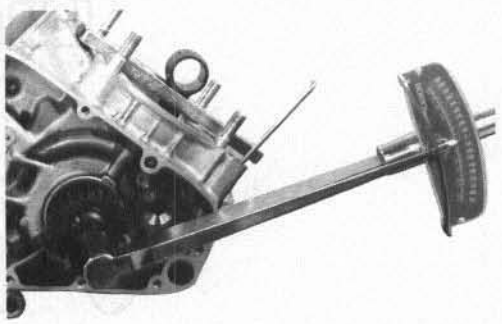


- Inspect the crankshaft for smooth movement.
- Apply grease to O-rings. Fit the O-rings and spacer to the driveshaft.

PRIMARY DRIVE GEAR

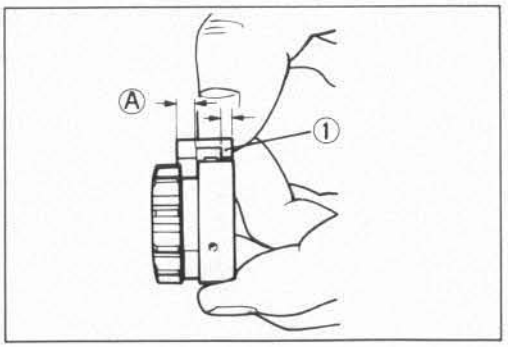
- Tighten the primary drive gear bolt to the specified torque.

Tightening torque: 70 N.m (7.0 kg-m, 51.0 lb-ft)

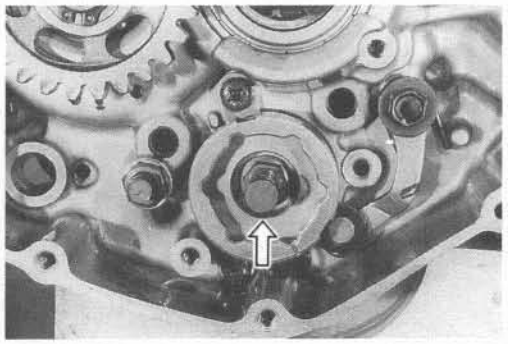


GEARSHIFT LINKAGE REASSEMBLY

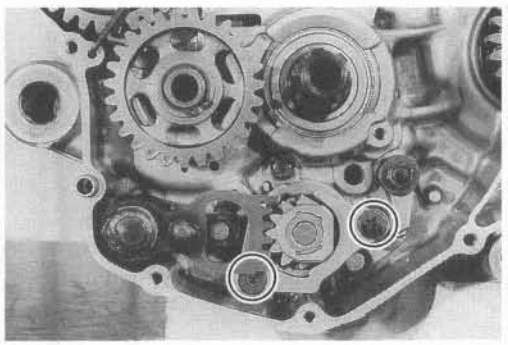
- Fit the spring pin and pawl to the driven gear. Wider side Ⓐ of pawl ① should be positioned outside.



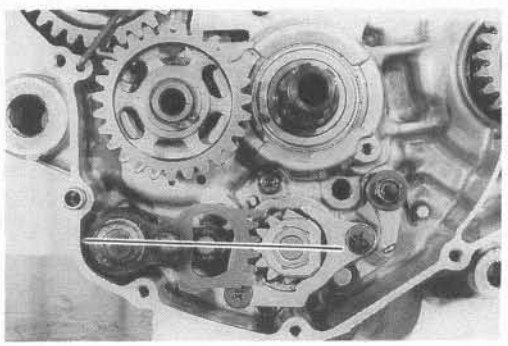
- Apply thread lock "1303" to the gearshift cam bolt and tighten it.



- Reassemble the driven gear and pawl lifter.
- Apply thread lock "1303" to the screws and tighten them.
- Fit the gearshift return spring to the gearshift shaft properly.

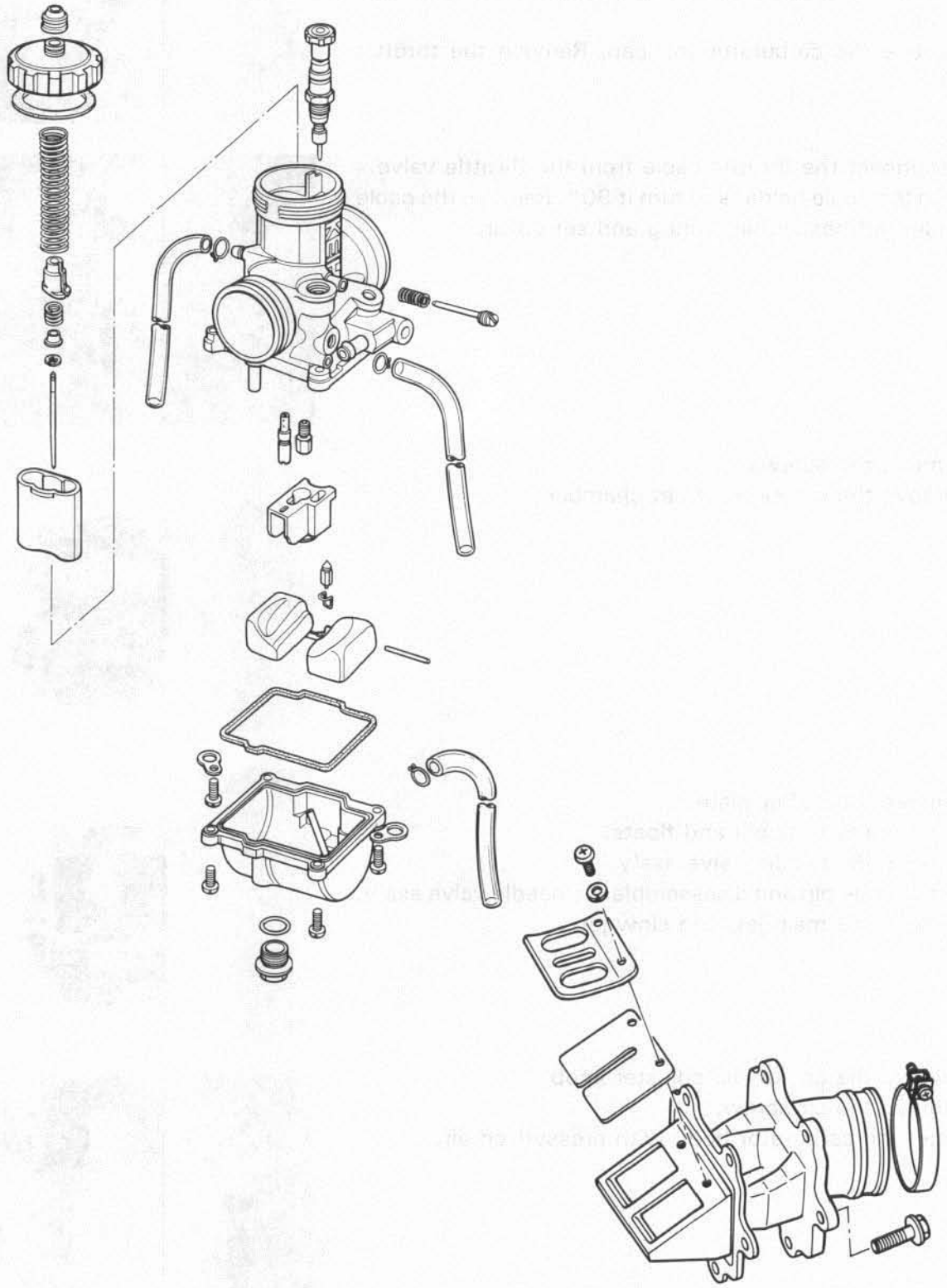


- Align the center lines of drive and driven gears.
- Reassemble the exhaust valve actuator.
- Reassemble the stator and magneto rotor. (☞ 12-4)
- Reassemble the kick starter. (☞ 8-3)
- Reassemble the clutch. (☞ 7-3)
- Reassemble the piston and cylinder. (☞ 6-5)
- Remount the engine. (☞ 5-2)



—MEMO—

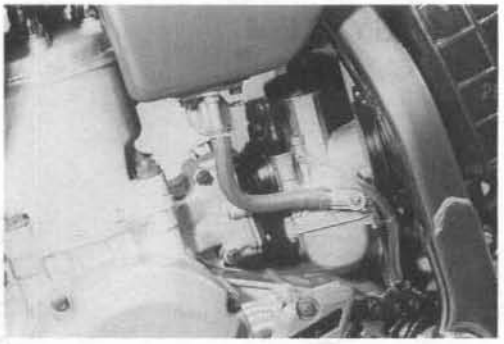
FUEL SYSTEM



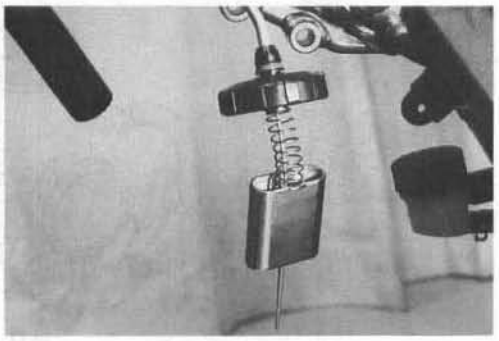
CARBURETOR

Carburetor Removal

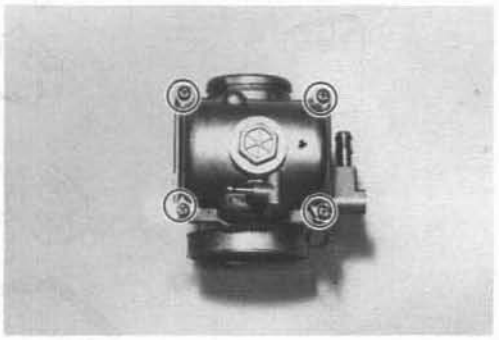
- Turn the fuelcock to the "OFF" position and disconnect the fuel hose.
- Loosen the carburetor clamp screws and remove the carburetor.
- Remove the carburetor top cap. Remove the throttle valve.



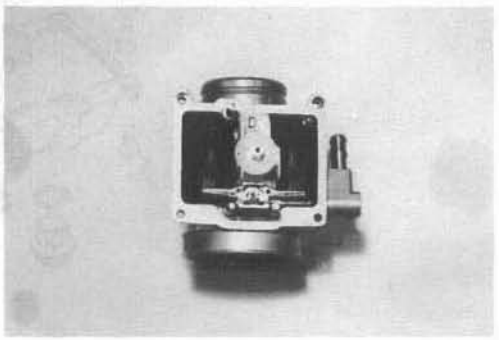
- Disconnect the throttle cable from the throttle valve.
- Push the cable holder and turn it 90°. Remove the cable holder, jet needle, set spring and set collar.



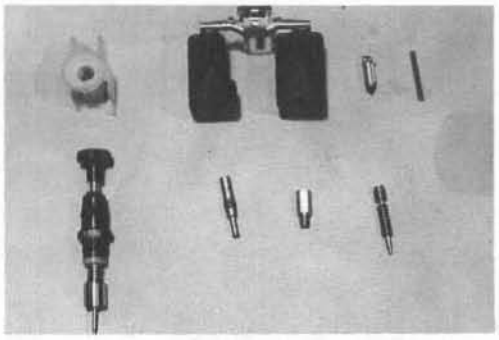
- Remove the screws.
- Remove the carburetor float chamber.



- Remove the buffer plate.
- Remove the float pin and floats.
- Remove the needle valve ass'y.
- Remove the pin and disassemble the needle valve ass'y.
- Remove the main jet, and slow jet.

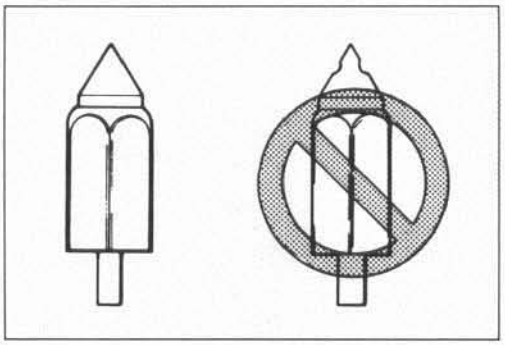


- Remove the choke/idle adjuster knob.
- Remove the air screw.
- Clean the carburetor body with pressurized air.

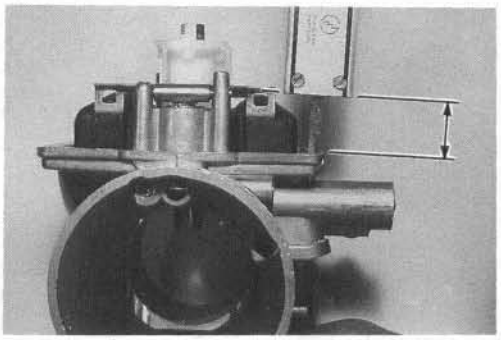


Carburetor Inspection

- Inspect the following parts for damage:
  Jet needle
  Throttle valve
  Float
- Inspect the following jets for clogging:
  Main jet
  Pilot jet
  Starter jet
- Inspect the needle valve for wear.



- Measure the float height with a vernier caliper. To measure the float height, tilt the carburetor until the float tip just contacts the float valve.



Standard float height: 16.0 mm (0.63 in)

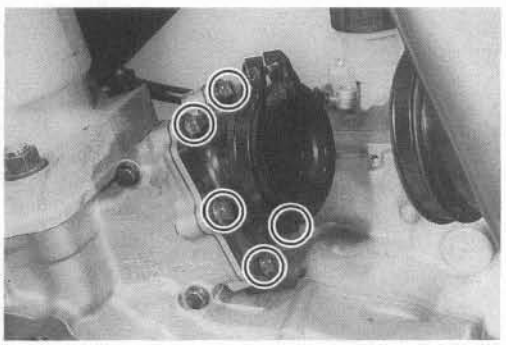
Carburetor Reassembly

Reverse the sequence of removal.

REED VALVE

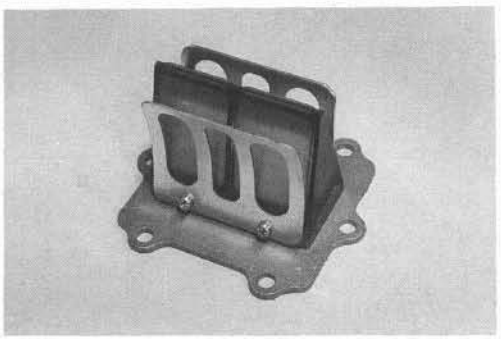
Reed valve Removal

- Remove the carburetor. (☞ 10-2)
- Remove the six bolts.
- Remove the intake pipe and reed valve.



Reed Valve Inspection

- Inspect the reeds for damage.
- Inspect the reed valve stoppers for damage.
- Inspect the valve seat rubber for damage.



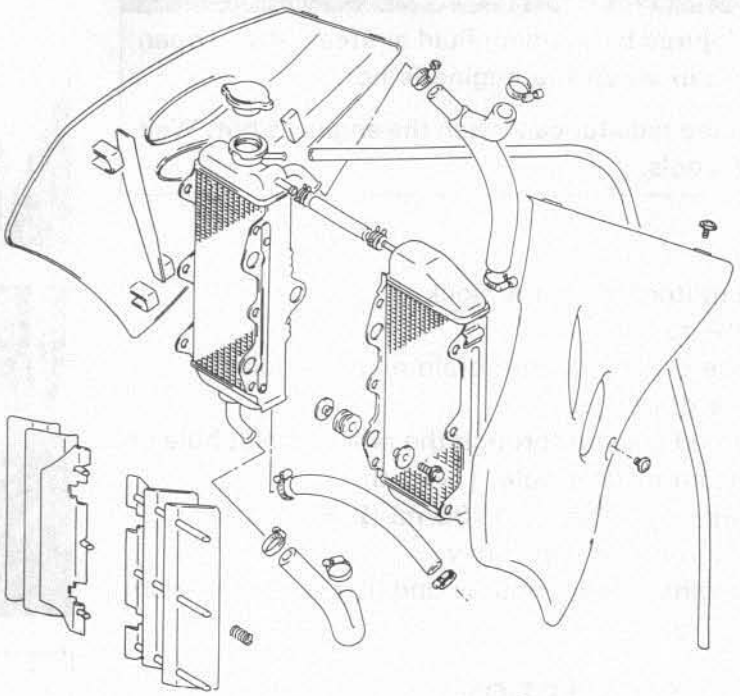
NOTE: Be careful not to damage the removed reed valve ass'y.

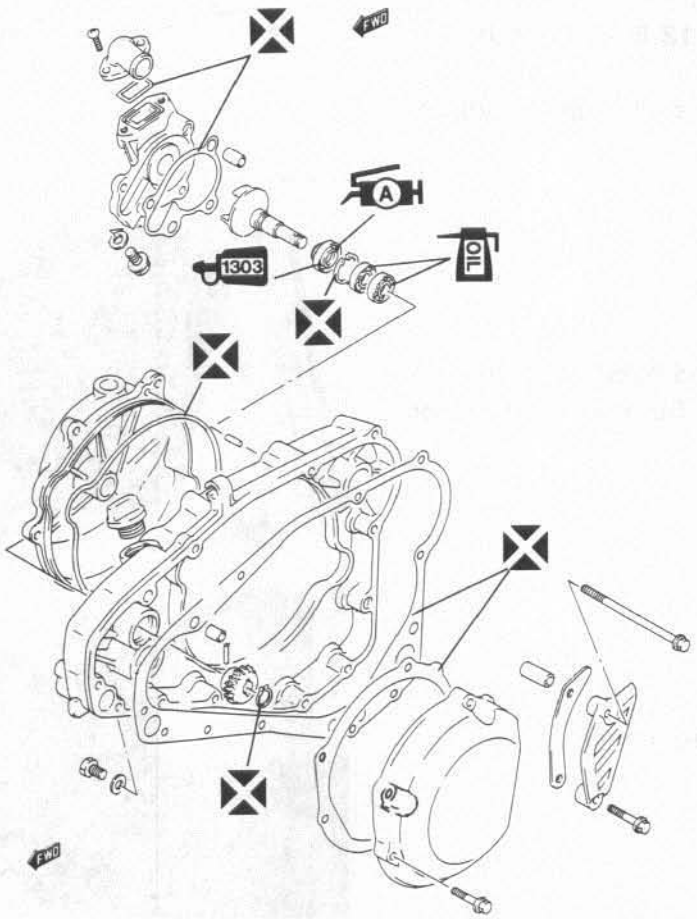
Reed Valve Reassembly

Reverse the sequence of removal.

—MEMO—

COOLING SYSTEM





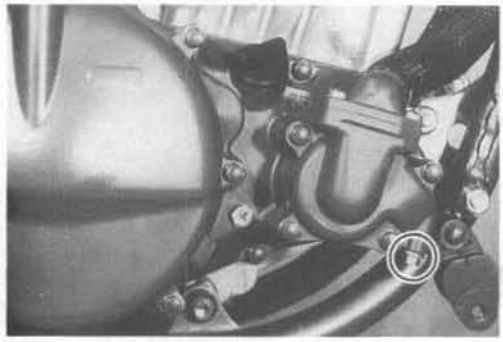
ENGINE COOLANT REPLACEMENT

⚠ WARNING

You can be injured by scalding fluid or steam if you open the radiator cap when the engine is hot.

Do not open the radiator cap when the engine is hot. Wait until engine cools.

- Place the motorcycle on a block.
- Remove the radiator cap.
- Remove the drain plug and drain engine coolant.
- Tighten the drain plug.
- Pour specified coolant through the radiator inlet hole up to the bottom of filler hole. (☞ 2-6)

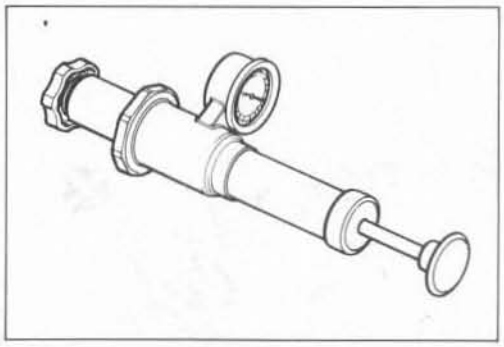


Engine coolant capacity: 1100 ml (2.3 US pt)

- Tighten the radiator cap firmly.
- Run the engine a few minutes and inspect the coolant level. (☞ 2-5)

RADIATOR CAP INSPECTION

- Inspect the radiator cap for function with a radiator cap pressure gauge.



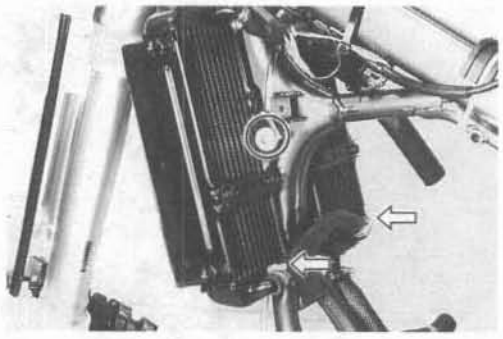
Radiator cap valve release pressure:
95—125 kPa (0.95—1.25 kg/cm², 13.5—17.8 psi)

NOTE: Apply water to radiator cap seal before fitting the radiator cap to the pressure gauge.

RADIATOR

Removal

- Remove the seat and fuel tank.
- Drain coolant.
- Disconnect the radiator hoses and overflow tube.
- Remove the radiator fitting bolts. Remove the radiator.



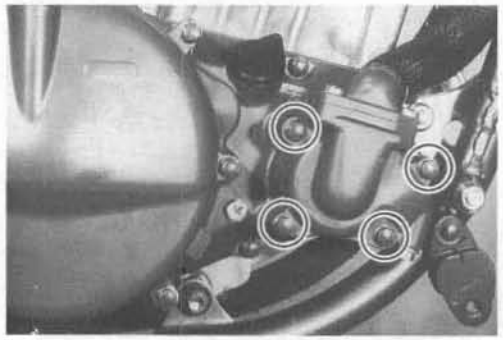
Reassembly

Reverse the sequence of removal.

WATER PUMP

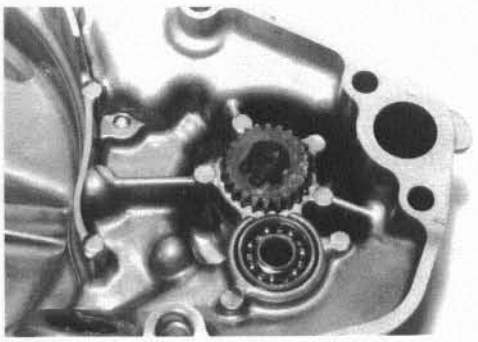
Removal

- Drain coolant. (☞ 11-2)
- Remove the bolts and water pump cover.



- Remove the gasket and dowel pins.
- Inspect the impeller for damage.

- Remove the clutch cover. (☞ 7-2)
- Remove the circlip with snap ring pliers.
- Remove the water pump driven gear and water pump shaft.
- Inspect the water pump driven gear and shaft for damage.



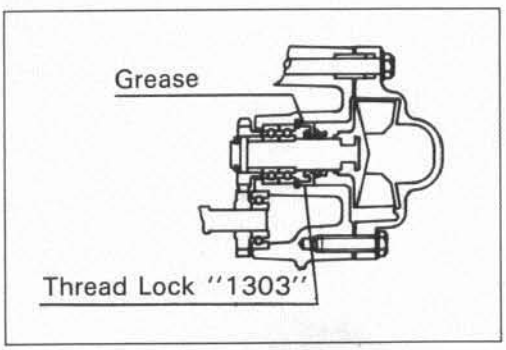
- Inspect the bearing for smooth inner race movement.
- Inspect the oil seal for damage.
- Remove the oil seal with the special tool.

09913-50121 Oil seal remover

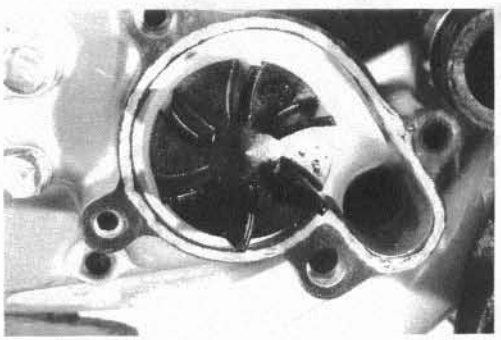
- Remove the bearing.

Reassembly

- Fit the bearing and circlip. Apply transmission oil to the bearing.
- Apply thread lock "1303" to the outer surface of the oil seal. Fit the oil seal.
- Apply grease to the oil seal lip.
- Insert the water pump shaft. Fit the water pump driven gear and circlip.

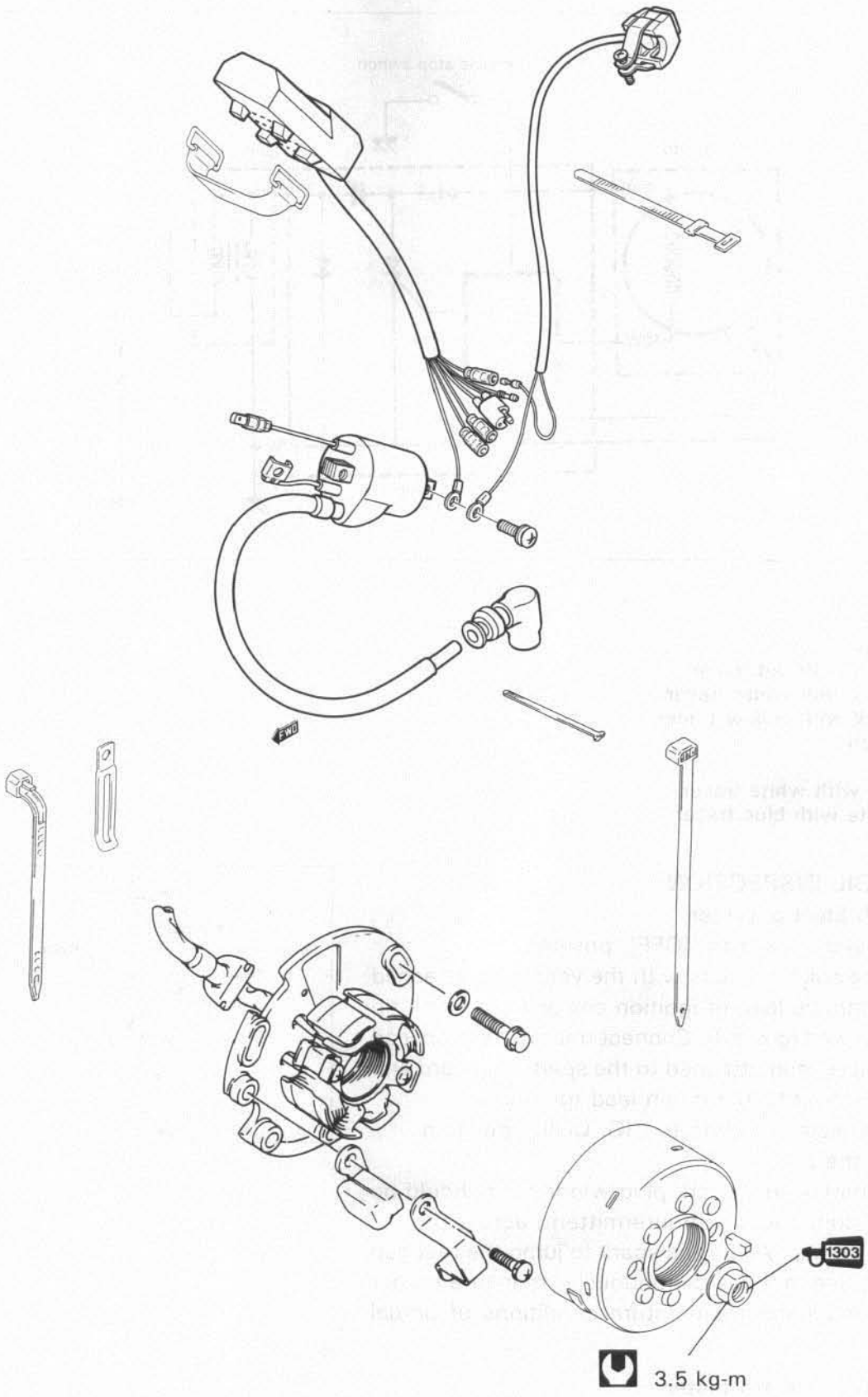


- Reassemble the clutch cover. (☞ 7-5)
- Reassemble the water pump impeller.
- Fit the dowel pins and a new gasket.
- Fill the radiator with coolant. (☞ 11-2)

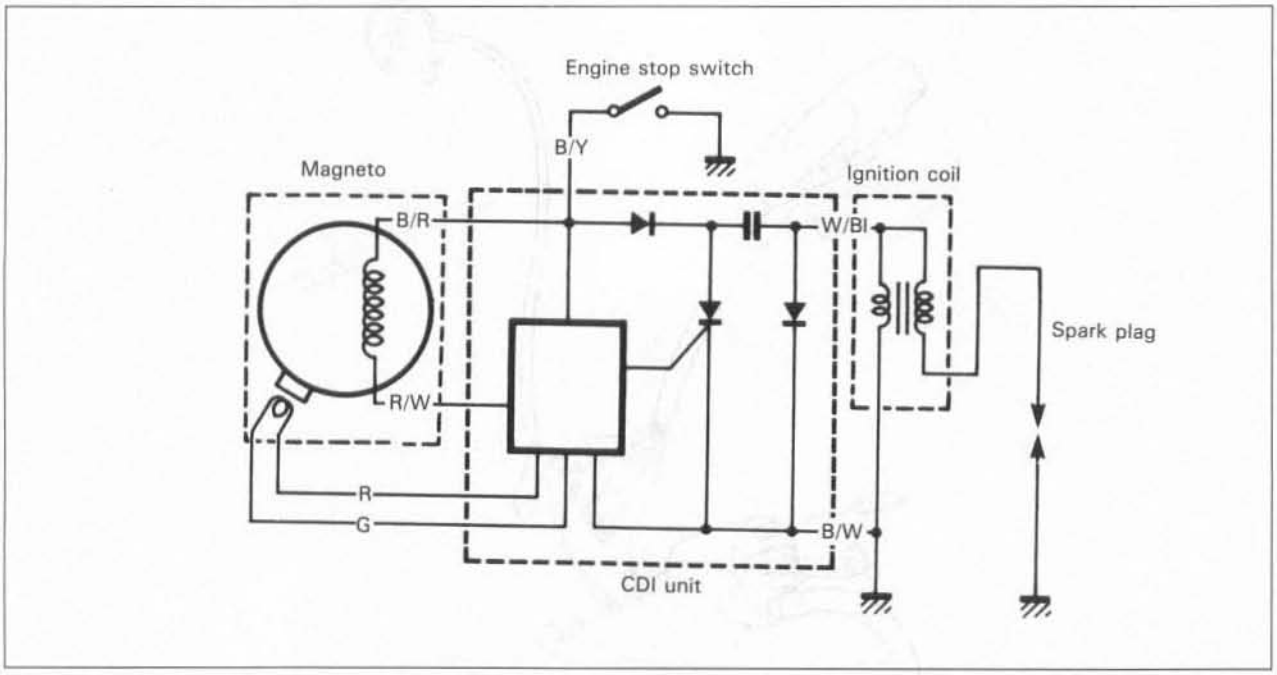


—MEMO—

ELECTRICAL SYSTEM



ELECTRICAL CIRCUIT

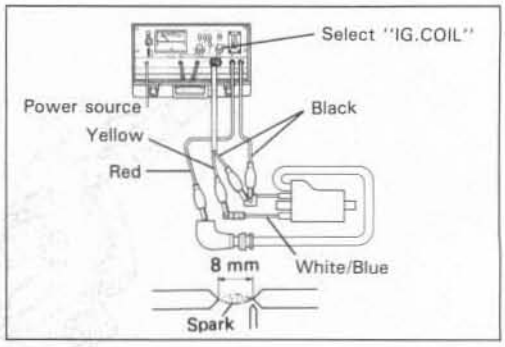


Color code:
B : Black
B/R : Black with red tracer
B/W : Black with white tracer
B/Y : Black with yellow tracer
G : Green
R : Red
R/W : Red with white tracer
W/Bl : White with blue tracer

IGNITION COIL INSPECTION

Checking with Electro Tester

- Set the power switch to "OFF" position.
- Connect the coil test leads with the yellow tip attached to the white/blue lead of ignition coil and the black tip to the green lead (ground). Connect the high tension lead with the red ⊕ lead attached to the spark plug cord and the black ⊖ lead to the green lead (ground).
- Set the test selector knob to "IG. COIL" position.
- Switch on the power.
- Note the spark in the spark plug window. It should be strong and continuous, not intermittent, across pre-set 8 mm (0.3 in) gap. Allow the spark to jump the test gap for at least five minutes continuously, to insure proper operation under the temperature conditions of actual riding.



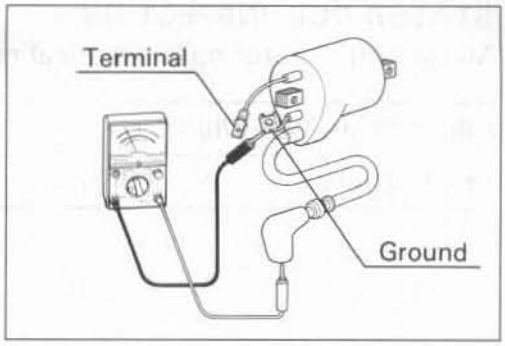
09900-28106 Electro tester

Checking with Pocket Tester

Measure the ignition coil electrical resistance with the pocket tester.

09900-25002 Pocket tester

Primary	Terminal—Ground	Approx. 0—1 Ω
Secondary	Plug cap—Ground	Approx. 20—30 KΩ

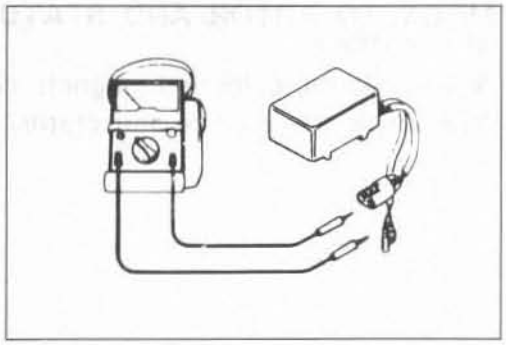


CDI UNIT INSPECTION

Checking with Pocket Tester

Measure resistance between the lead wires with the pocket tester (× 1kΩ range).

09900-25002 Pocket tester



⚠ CAUTION

Using a insulation-resistance meter (so-called megger) for this purpose can damage circuit elements in the CDI unit.

Use a circuit tester of the type used by radio repairmen. A High-grade circuit tester or an ohmmeter is preferred.

Unit: Approx. kΩ

		Positive ⊕ probe pin						
		B/R	R/W	R	G	B/Y	W/BI	B/W
Negative ⊖ probe pin	B/R		100—200	50—200	50—200	0	OFF	50—200
	R/W	8—18		7—17	5—9	8—18	OFF	5—9
	R	5—9	5—10		2—5	5—9	OFF	2—5
	G	1—4	2—4	2—5		1—4	OFF	0
	B/Y	0	100—200	50—200	50—200		OFF	50—200
	W/BI	5—13	5—15	5—10	2—4	5—13		2—4
	B/W	1—4	2—4	2—5	0	1—4	OFF	

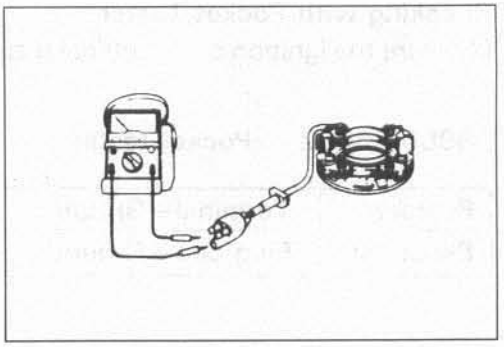
Wire color

G : Green
R : Red
B/R : Black with Red tracer
B/W : Black with White tracer
B/Y : Black with Yellow tracer
R/W : Red with White tracer
W/BI : White with Blue tracer

STATOR COIL INSPECTION

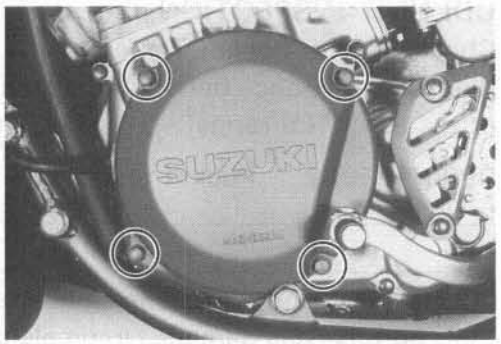
Measure the stator coils electrical resistance.

Black/Red—Red/White	20—30 Ω
Red—Green	50—200 Ω



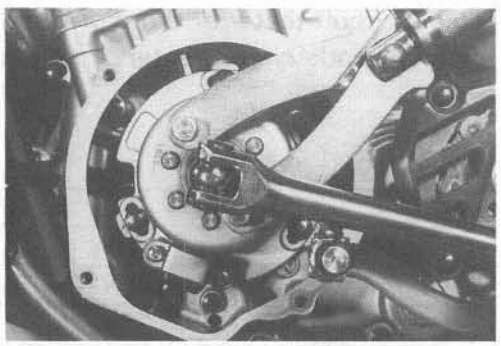
MAGNETO ROTOR AND STATOR REMOVAL AND RESSEMBLY

- Remove the bolts and magneto cover.
- Remove the screws and stator. Disconnect the lead wires.



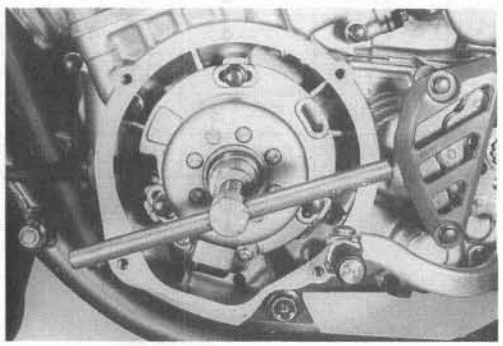
- Loosen the nut with a special tool.

09930-40113 Rotor holder

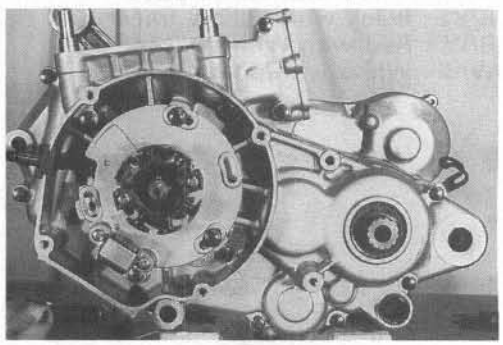


- Remove the magneto rotor with the special tool. Remove the key.

09930-30113 Flywheel rotor remover

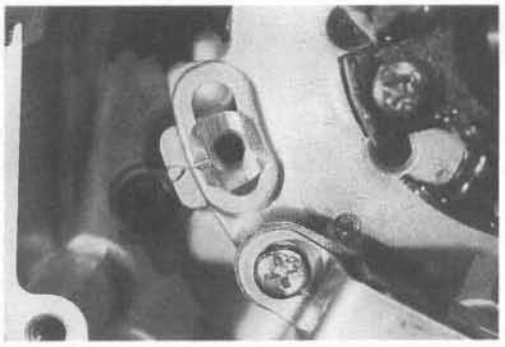


- Loosen the screws and remove the stator.

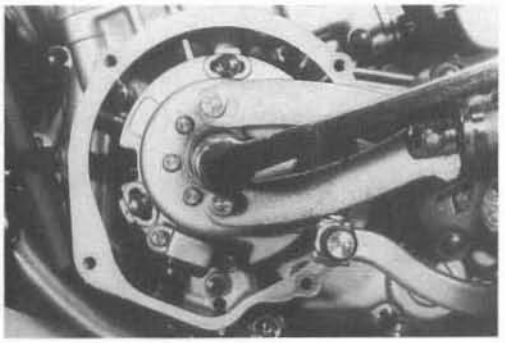


Magneto Rotor and Stator Reassembly

- Align the line on the stator and triangle mark on the crankcase to set the ignition timing correctly.



- Fit the key into the crankshaft.
- Fit the magneto rotor.
- Apply Thread Lock Super "1303" to the nut and tighten the nut to the specified torque with the special tool.

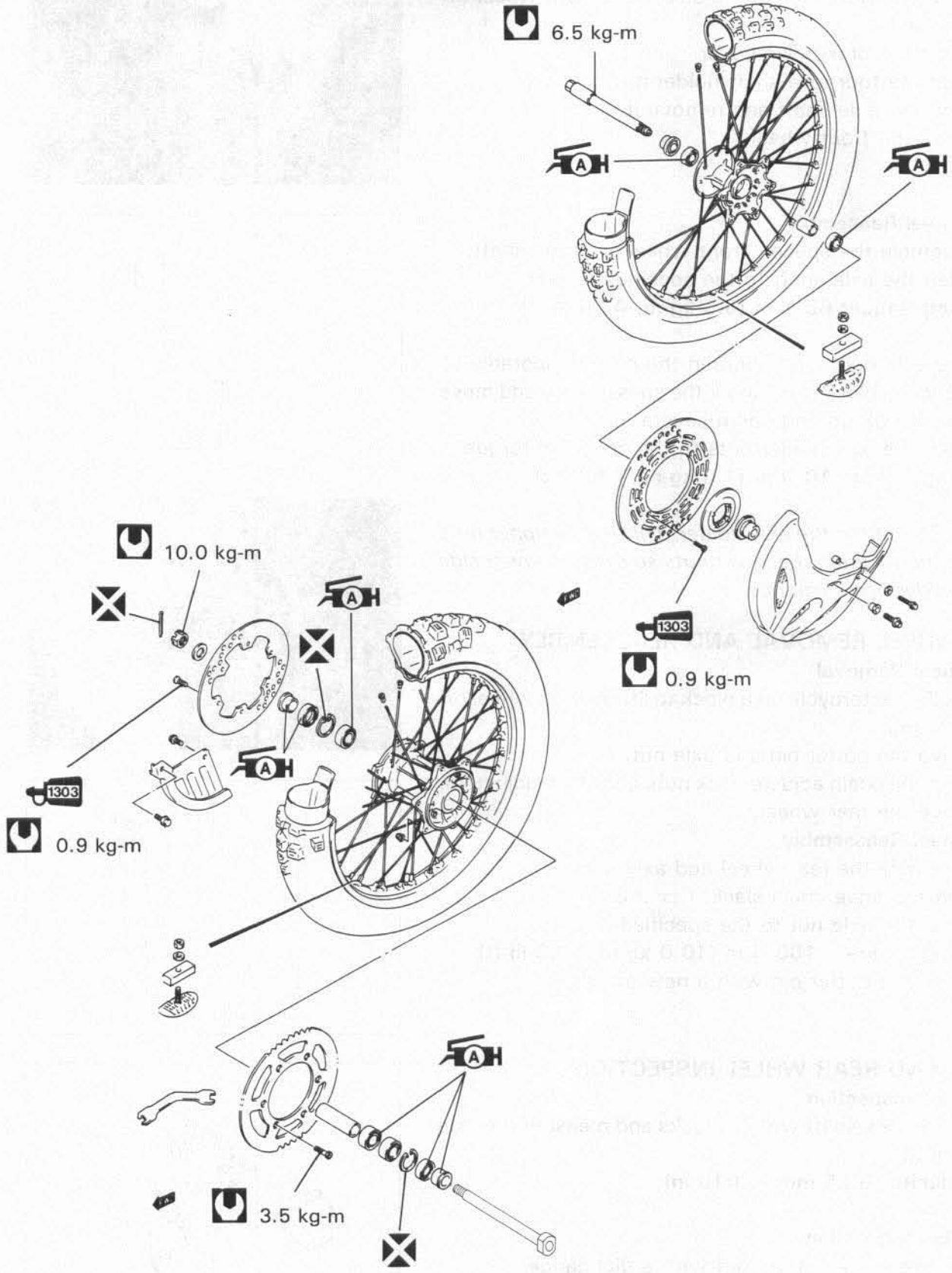


99000-32030 THREAD LOCK SUPER "1303"
09930-40113 Rotor holder
Tightning torque: 35 N·m (3.5 kg-m, 25.5 lb-ft)

- Reassemble the magneto cover.

—MEMO—

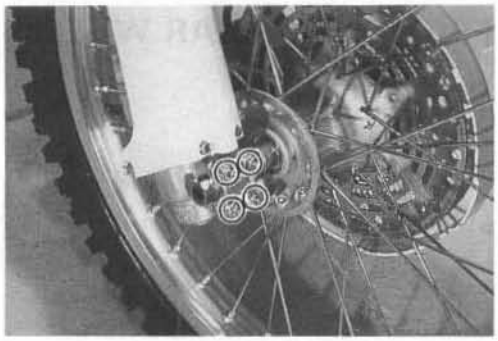
FRONT AND REAR WHEELS



FRONT WHEEL DISASSEMBLY AND REASSEMBLY

Front Wheel Removal

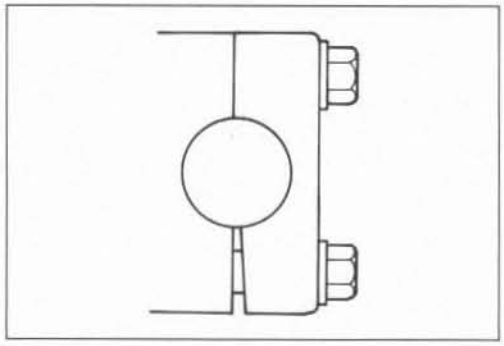
- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the brake disc cover.
- Loosen the four axle shaft holder nuts.
- Loosen the axle shaft and remove it.
- Remove the front wheel.



Front Wheel Reasembly

- Reassemble the spacer, front wheel and axle shaft.
- Tighten the axle shaft to the specified torque.

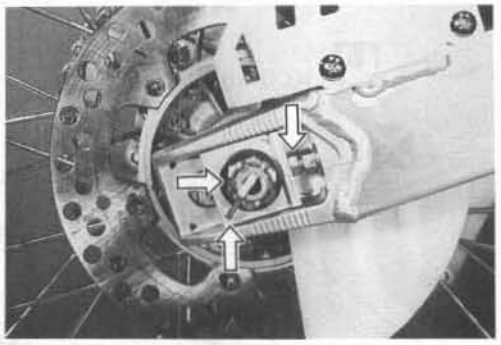
Tightening torque: 65 N.m (6.5 kg-m, 47.0 lb-ft)



- Fit the axle holder and tighten the nuts temporarily.
- Remove the block from under the chassis tube and move the front frok up and down several times.
- Tighten the axle holder nuts to the specified torque.

Tightening torque: 10 N.m (1.0 kg-m, 7.5 lb-ft)

NOTE: To tighten the axle holder, tighten the upper nuts first and then tighten the lower nuts so that the lower side of the holder has clearance.



REAR WHEEL REMOVAL AND REASSEMBLY

Rear Wheel Removal

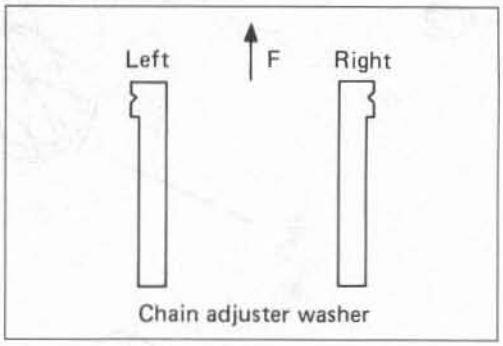
- Place the motorcycle on a block to lift the rear wheel off the ground.
- Remove the cotter pin and axle nut.
- Loosen the chain adjuster lock nuts and chain adjusters.
- Remove the rear wheel.

Rear Wheel Reassembly

- Reassemble the rear wheel and axle shaft.
- Adjust the drive chain slack. (☞ 2-8)
- Tighten the axle nut to the specified torque.

Tightening torque: 100 N.m (10.0 kg-m, 72.5 lb-ft)

- Replace the cotter pin with a new one.

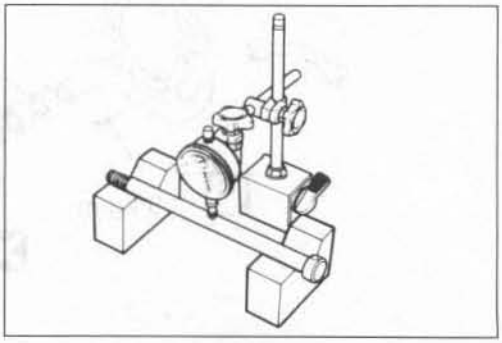


FRONT AND REAR WHEEL INSPECTION

Axle Shaft Inspection

Support the axle shaft with V-blocks and measure the axle shaft runout.

Service limit: 0.25 mm (0.010 in)



Wheel Rim Inspection

Measure the wheel rim runout with a dial gauge.

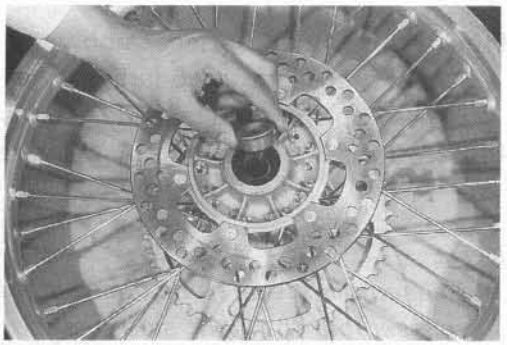
Service limit: 2.0 mm (0.08 in) ... axial and radial

Rear Wheel Spacer Inspection

- Inspect the right and left rear wheel spacers and the dust seals for wear and cracks.
- Replace the spacer together with the dust seal, if you find excessive wear on the spacer.

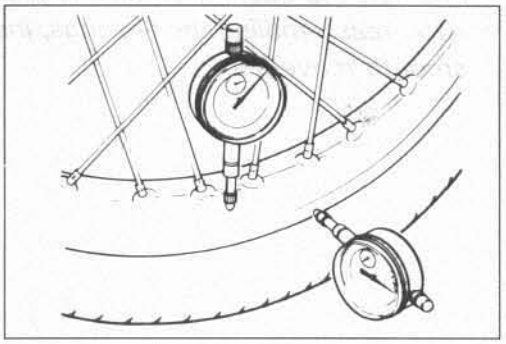
Service limit: 1 mm (0.04 in) depth of worn groove

NOTE: Apply grease on the spacer and dust seal before reassembling.



Wheel Bearing Inspection

- Turn the inner race by finger and inspect it for smooth movement.
- Inspect the clearance between the outer race and wheel hub.
- Inspect for bearing damage.



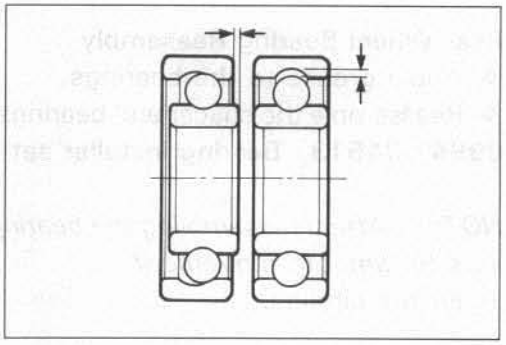
WHEEL BEARING REMOVAL AND REASSEMBLY

Front Wheel Bearing Removal

- Fit the bearing remover into the wheel bearing.

09941-50110 Bearing remover

- Insert the wedge bar into the slit of the bearing remover from the opposite side.
- Hit the wedge bar with a hammer and remove the bearing and spacer.

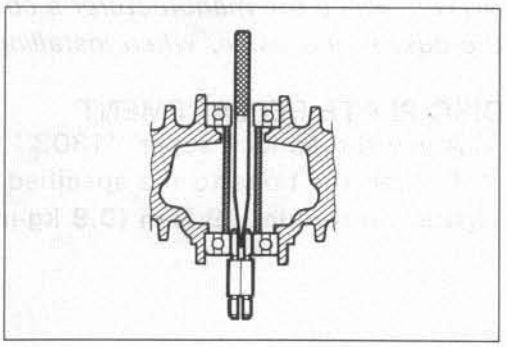


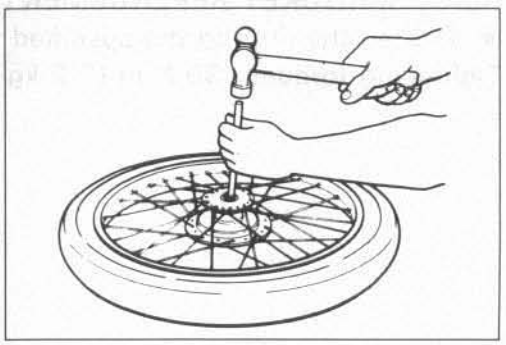
Rear Wheel Bearing Removal

- Remove the dust seal.
- Remove the circlip with snap ring pliers.
- Fit the bearing remover into the wheel bearing.

09941-50110 Bearing remover

- Insert the wedge bar into the slit of the bearing remover from the opposite side.
- Hit the wedge bar with a hammer and remove the bearing.

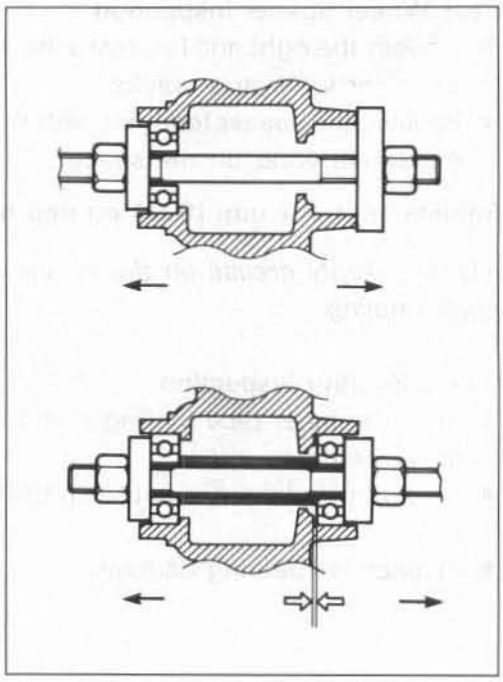




Front Wheel Bearing Reassembly
- Apply grease to the bearings.
- Reassemble the spacer and bearings with the special tool.

09941-34513 Bearing installer set

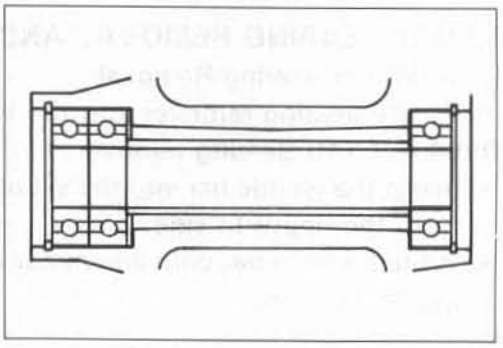
NOTE:
- *Reasemble the left side (disc side) bearing first and then reassemble the right side bearing.*
- *Position the bearing so sealed side faces out.*
- *After reassembling the bearings, inspect the bearings for smooth movement.*



Rear Wheel Bearing Reasembly
- Apply grease to the bearings.
- Reassemble the spacer and bearings with the special tool.

09941-34513 Bearing installer set

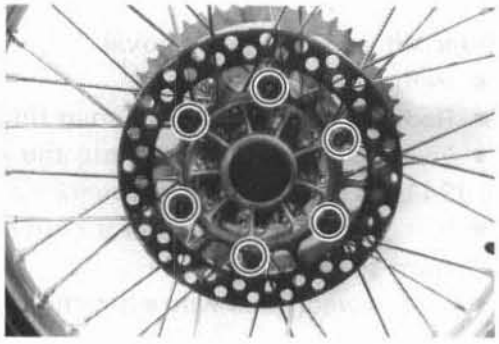
NOTE: After reassembling the bearings, inspect the bearings for smooth movement.
- Fit the circlips.



NOTE: Place the manufacturer's code indicated side of the dust seal outside, when installing the dust seal.

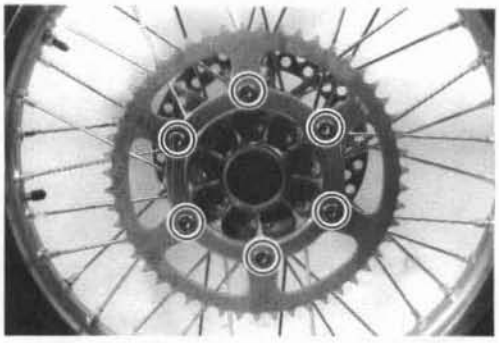
DISC PLATE REPLACEMENT
- Apply thread lock super "1303" to the bolts.
- Tighten the bolts to the specified torque.

Tightening torque: 9 N.m (0.9 kg-m, 6.5 lb-ft)

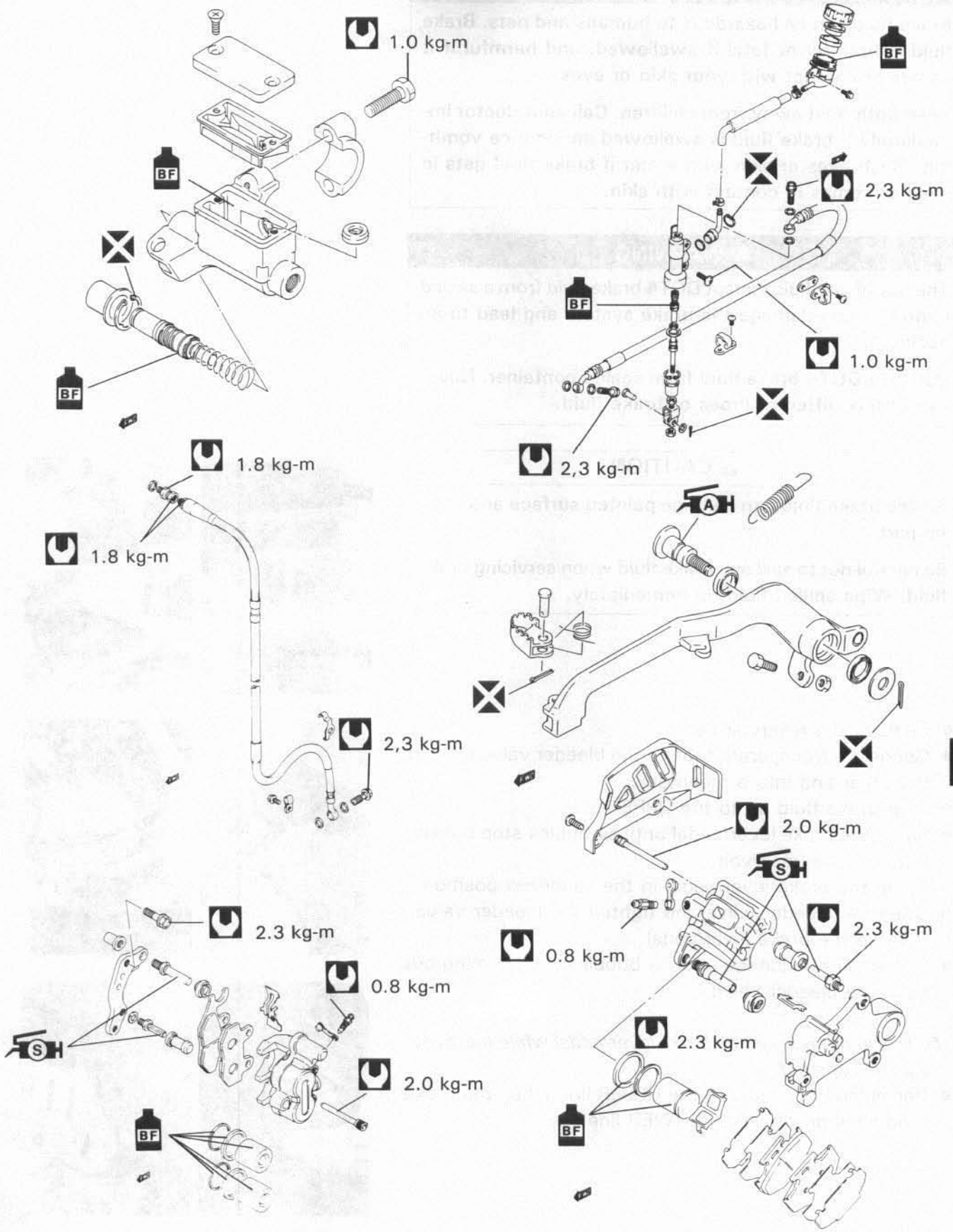


REAR SPROCKET REPLACEMENT
- Tighten the nuts to the specified torque.

Tightening torque: 35 N.m (3.5 kg-m, 25.5 lb-ft)



FRONT AND REAR BRAKES



BRAKE FLUID AIR BLEEDING

⚠ WARNING

Brake fluid can be hazardous to humans and pets. Brake fluid is harmful or fatal if swallowed, and harmful if it comes in contact with your skin or eyes.

Keep both fluid away from children. Call your doctor immediately if brake fluid is swallowed and induce vomiting. Flush eyes or skin with water if brake fluid gets in eyes or comes in contact with skin.

⚠ WARNING

The use of any fluid except DOT4 brake fluid from a sealed container can damage the brake system and lead to an accident.

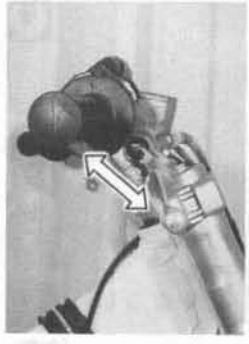
Use only DOT4 brake fluid from sealed container. Never use or mix different types of brake fluid.

⚠ CAUTION

Spilled brake fluid can damage painted surface and plastic parts.

Be careful not to spill any brake fluid when servicing brake fluid. Wipe spilled fluid up immediately.

- Remove the reservoir cap.
- Connect a transparent tube to the bleeder valve and set the other end into a receptacle.
- Pour brake fluid up to the UPPER line.
- Pump the brake lever/pedal until air bubles stop coming out from the reservoir.
- Pump the brake lever/pedal in the squeezed position.
- Open the bleeder valve and tighten the bleeder valve.
- Release the brake lever/pedal.
- Repeat this sequence until air bubbles stop coming out from the bleeder valve.



NOTE: Do not release the brake lever/pedal while the bleeder valve is opened.

- Replenish brake fluid to the UPPER line when the brake fluid level drops below LOWER line.

- Tighten the air bleeder valve.

Tightening torque: 8 N.m (0.8 kg-m, 5.5 lb-ft)

- Pour brake fluid up to the UPPER line.
- Reassemble the reservoir cap.

BRAKE FLUID REPLACEMENT

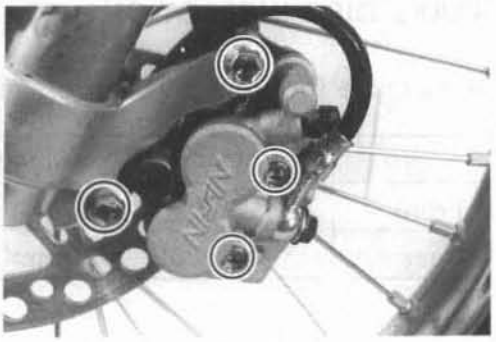
- Remove the reservoir cap.
- Connect a transparent tube to the bleeder valve and set the other end into a receptacle.
- Loosen the bleeder valve and pump the brake lever/pedal until brake fluid stops coming out from the bleeder valve.
- Pour brake fluid into the reservoir.
- Bleed air from the brake system. (☞ 14-2)
- Reassemble the reservoir cap.

BRAKE PADS REPLACEMENT

Front Brake Pads

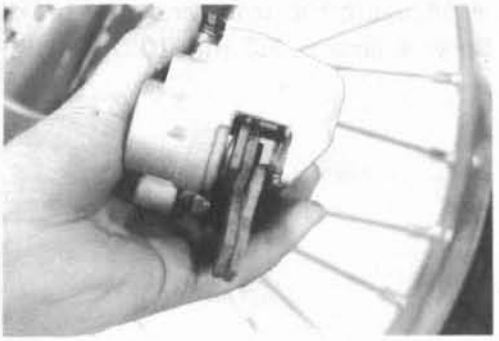
- Remove the pad mounting bolts.
- Remove the caliper mounting bolts and caliper.
- Remove the brake pads.

NOTE: Replace the two brake pads as a set.



- Fit the new brake pads into the caliper and tighten the pad mounting bolts temporarily.
- Tighten the caliper mounting bolts.

Tightening torque: 23 N.m (2.3 kg-m, 16.5 lb-ft)



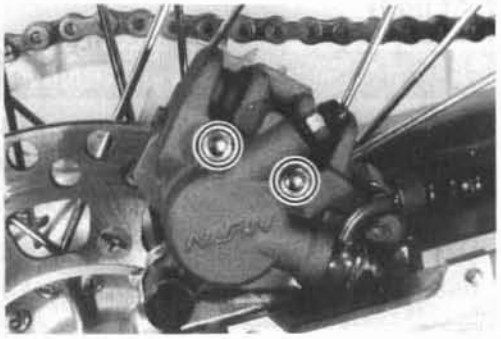
- Tighten the brake pad mounting bolts.

Tightening torque: 20 N.m (2.0 kg-m, 14.5 lb-ft)

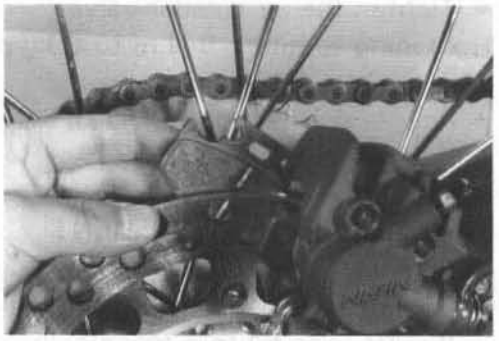
NOTE: Pump the brake lever several times to seat the brake pads after reassembling.

Rear Brake Pads

- Remove the two bolts and the caliper cover.
- Remove the pad mounting bolts.



- Remove the brake pads.



NOTE: Replace the two pads as a set.

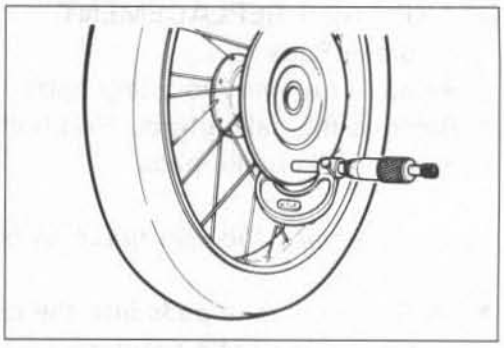
- Fit the brake pads into the caliper.
- Tighten the brake pad mounting bolts.

Tightening torque: 18 N.m (1.8 kg-m, 13.0 lb-ft)

- Reassemble the caliper cover.

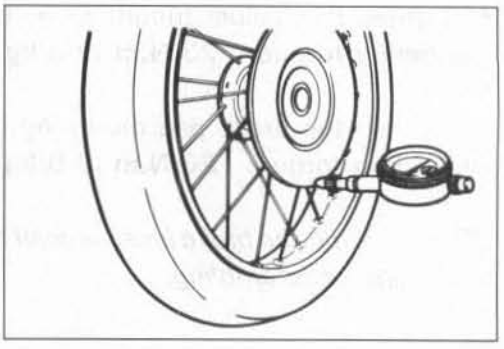
NOTE: Pump the brake pedal several times to seat the brake pads after reassembling.

BRAKE DISC INSPECTION



- Measure the front and rear brake disc thickness.

	Service limit
Front	2.5 mm (0.10 in)
Rear	4.0 mm (0.15 in)



- Measure the front and rear brake disc runout.

Service limit: 0.3 mm (0.01 in)

CALIPER

⚠ WARNING

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⚠ WARNING

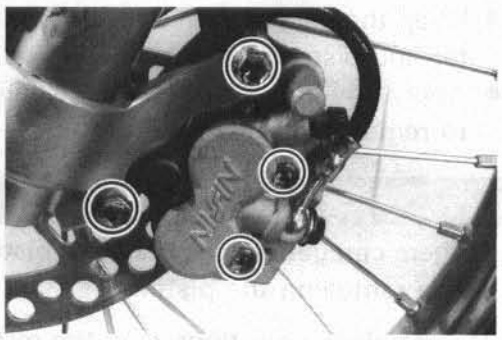
Brake fluid can be hazardous to humans and pets. Brake fluid is harmful or fatal if swallowed, and harmful if it comes in contact with your skin or eyes.

Keep brake fluid away from children. Call your doctor immediately if brake fluid is swallowed, and induce vomiting. Flush eyes or skin with water if brake fluid gets in eyes or comes in contact with skin.

⚠ CAUTION

Spilled brake fluid can damage painted surface and plastic parts.

Be careful not to spill any fluid when servicing the caliper. Wipe spilled fluid up immediately.



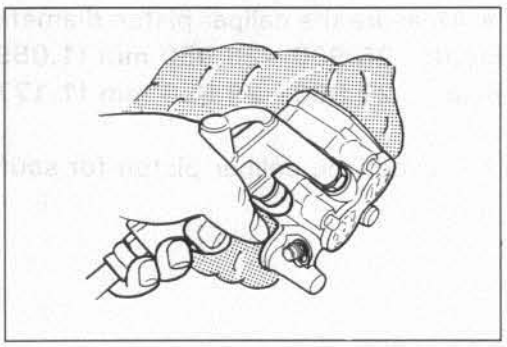
Front Caliper Removal and Disassembly

- Place a drain pan under the caliper and remove the union bolt.
- Remove the pad mounting bolts.
- Remove the caliper mounting bolts.
- Remove the brake pads and spring from the caliper.
- Remove the caliper braket from the caliper.
- Remove the boots from the caliper bracket.
- Wrap the caliper with a rag to prevent brake fluid scatter and piston pop-out.
- Apply low-pressure air into the caliper through the hole to remove the pistons.

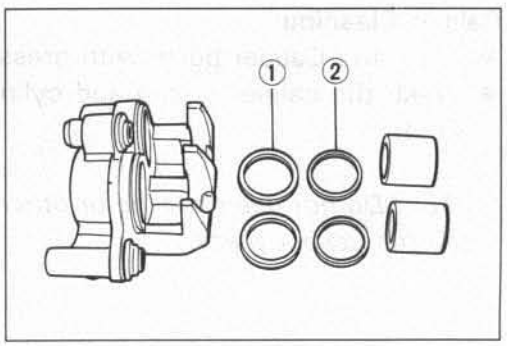
⚠ WARNING

Fingers can get caught between piston and caliper body when removing the piston.

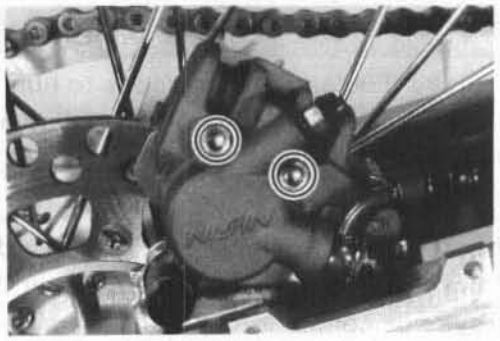
Do not place your fingers on the piston when removing the piston.



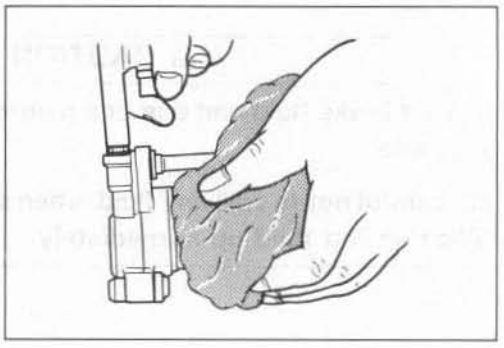
- Remove the piston seals ① and dust seals ②.



Rear Caliper Removal and Disassembly



- Place a block under the chassis tubes.
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the brake pad mounting bolts.
- Remove the cotter pin and axle nut.
- Draw out the axle shaft.
- Slide off the caliper bracket with the caliper.
- Remove the brake pads and spring from the caliper.
- Wrap the caliper with a rag to prevent brake fluid scatter and piston pop-out.
- Apply low-pressure air into the caliper through the hole to remove the piston.



⚠ WARNING

Fingers can get caught between piston and caliper body when removing the piston.

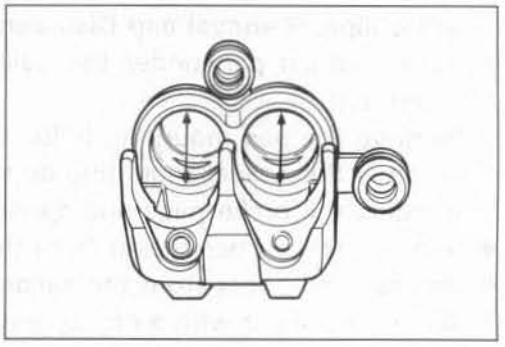
Do not place your fingers on the piston when removing the piston.

- Remove the piston seal and dust seal.

Caliper Inspection

- Measure the caliper cylinder bore with a small bore gauge.

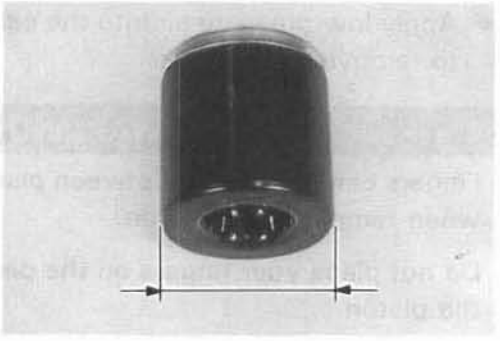
Front: 27.000–27.050 mm (1.0630–1.0650 in)
Rear: 30.000–30.050 mm (1.1811–1.1831 in)



- Inspect the caliper cylinder for scuffing.

- Measure the caliper piston diameter with a micrometer.

Front: 26.900–26.950 mm (1.0591–1.0610 in)
Rear: 29.900–29.950 mm (1.1772–1.1791 in)

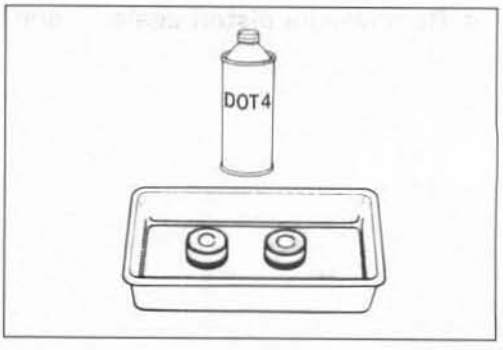


- Inspect the caliper piston for scuffing.

Caliper Cleaning

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

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



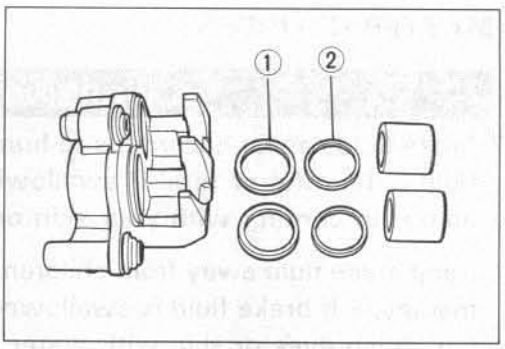
Front Caliper Reassembly

- Apply brake fluid to the piston seals and fit the piston seals ① and dust seals ②.
- Fit the pistons into the caliper.
- Apply silicone grease to the caliper axles.

99000-25100 Suzuki silicone grease

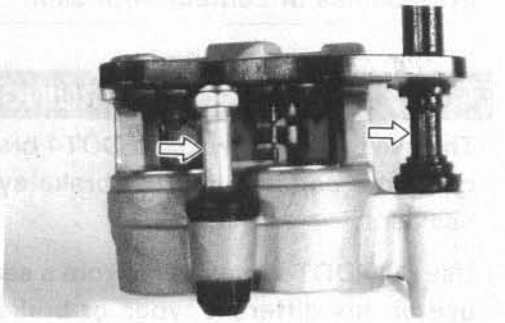
- Fit the boots and caliper brackets.
- Fit the spring and brake pads. Tighten the brake pad mounting bolts temporarily.
- Tighten the caliper mounting bolts to the specified torque.

Tightening torque: 23 N.m (2.3 kg-m, 16.5 lb-ft)



- Tighten the brake pad mounting bolts to the specified torque.

Tightening torque: 20 N.m (2.0 kg-m, 14.5 lb-ft)



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

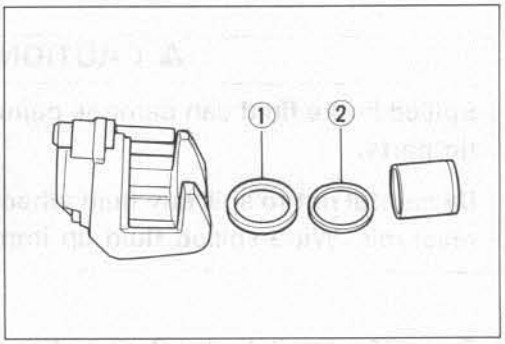
Tightening torque: 23 N.m (2.3 kg-m, 16.5 lb-ft)

- Refill brake fluid and bleed air from the brake system. (☞ 14-2)

Rear Caliper Reassembly

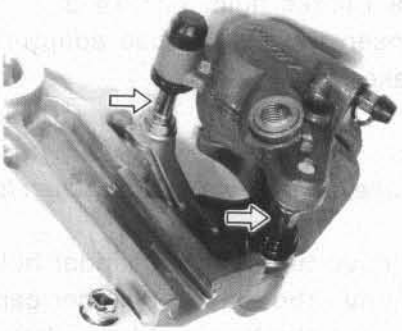
- Apply brake fluid to the piston seal and fit the piston seal ① and dust seal ②.
- Fit the piston into the caliper.
- Fit the spring and pads. Tighten the brake pad mounting bolts temporarily.
- Apply silicone grease to the caliper axles.

99000-25100 Suzuki silicone grease



- Fit the caliper to the bracket.
- Slide the bracket into the swing arm.
- Reassemble the axle shaft. (☞ 13-2)
- Tighten the brake hose union bolt.

Tightening torque: 23 N.m (2.3 kg-m, 16.5 lb-ft)



- Refill brake fluid and bleed air from the brake system. (☞ 14-2)

MASTER CYLINDER

⚠ WARNING

Brake fluid can be hazardous to humans and pets. Brake fluid is harmful or fatal if swallowed, and harmful if it comes in contact with your skin or eyes.

Keep brake fluid away from children. Call your doctor immediately if brake fluid is swallowed, and induce vomiting. Flush eyes or skin with water if brake fluid gets in eyes comes in contact with skin.

⚠ WARNING

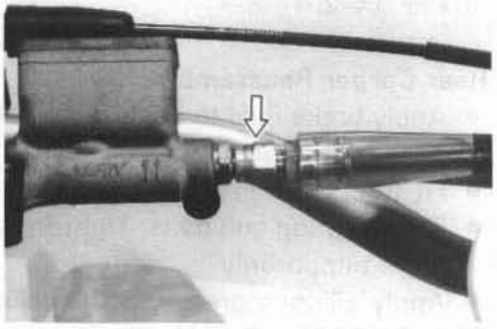
The use of any fluid except DOT4 brake fluid from a sealed container can damage the brake system and lead to an accident.

Use only DOT4 brake fluid from a sealed container. Never use or mix different types of brake fluid.

⚠ CAUTION

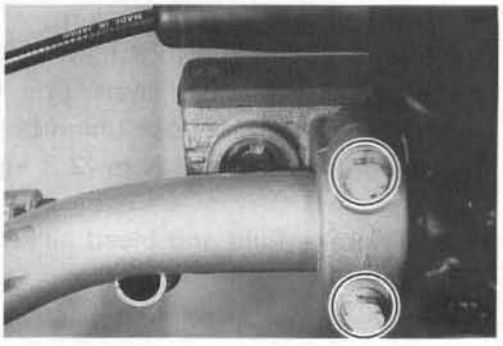
Spilled brake fluid can damage painted surface and plastic parts.

Be careful not to spill any fluid when filling the brake fluid reservoir. Wipe spilled fluid up immediately.



Front Master Cylinder Removal and Disassembly

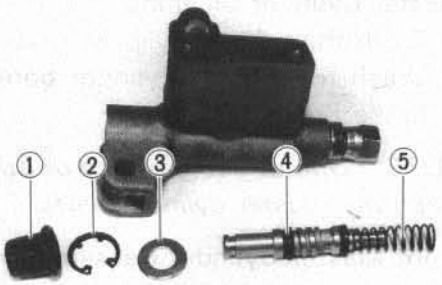
- Drain brake fluid. (☞ 14-3)
- Loosen the brake hose adaptor and disconnect the brake hose.



NOTE: Hold the brake hose with a wrench to prevent the brake hose from twisting when loosening the adaptor.

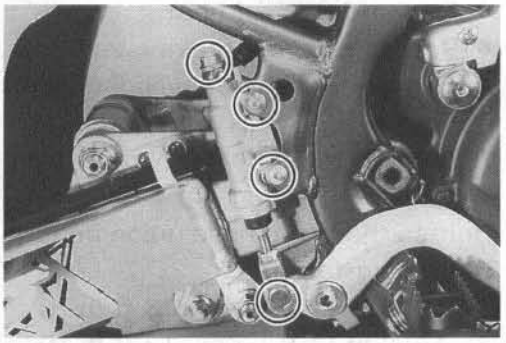
- Remove the master cylinder holder bolts.
- Remove the master cylinder cap.
- Remove the bolt and brake lever.
- Remove the brake lever return spring.

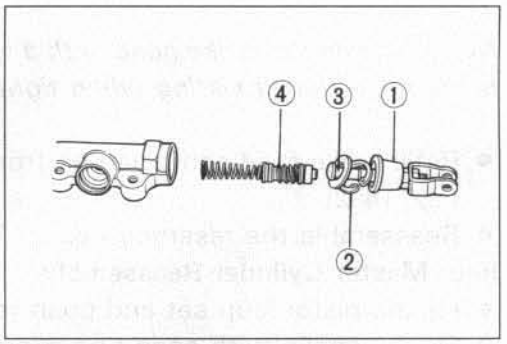
- Remove the dust seal boot ①.
- Remove the circlip ② with snap ring pliers.
- Remove the washer ③, piston ④ and spring ⑤.



Rear Master Cylinder Removal and Disassembly

- Drain brake fluid.(☞ 14-3)
- Remove the rear brake pedal. (☞ 14-11)
- Place a rag under the hose to catch spilled brake fluid.
- Remove the clamp and disconnect the hose (reservoir).
- Remove the union bolt.
- Remove the master cylinder clamp bolts.
- Remove the dust seal boot ①.
- Remove the circlip ② with snap ring pliers.
- Remove the push rod ③.
- Remove the piston/cup set ④.

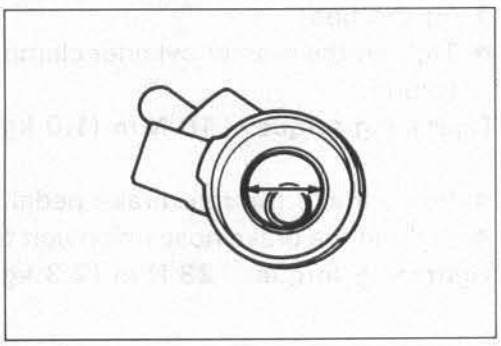




Master Cylinder Inspection

- Measure the cylinder bore with a small bore gauge.

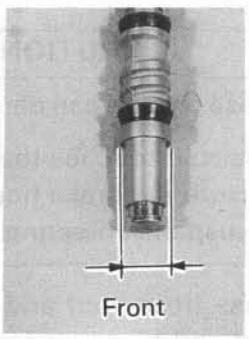
Front: 11.000—11.043 mm (0.4331—0.4348 in)
Rear: 14.000—14.043 mm (0.5512—0.5529 in)

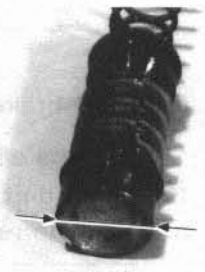


- Measure the cylinder piston diameter with a micrometer.

Front: 10.957—10.984 mm (0.4314—0.4324 in)
Rear: 13.957—13.984 mm (0.5495—0.5506 in)

- Inspect the cylinder bore and piston for scuffing.
- Inspect the piston rod and spring for damage.

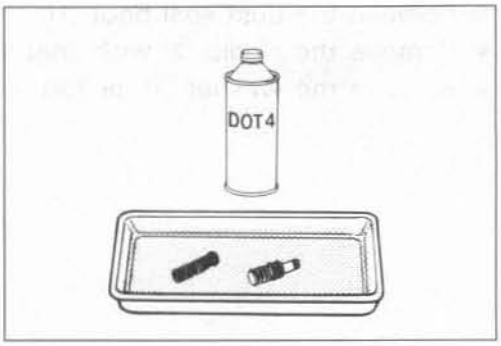




Master Cylinder Cleaning

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

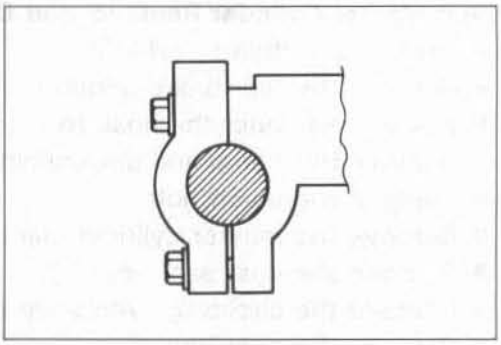
NOTE: Do not use gasoline or other cleaning solvents to wash the master cylinder parts.



Front Master Cylinder Reassembly

- Fit the spring, piston and washer.
- Fit the circlip with snap ring pliers.
- Fit the dust seal boot.
- Reassemble the brake lever.
- Tighten the master cylinder clamp bolts to the specified torque.

Tightening torque: 10 N.m (1.0 kg-m, 7.5 lb-ft)



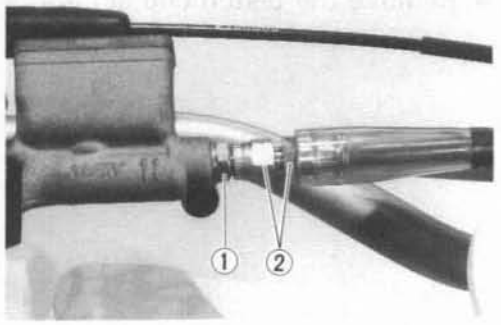
Tighten the brake hose union bolts to the specified torque.

Tightening torque:

① 18 N.m (1.8 kg-m, 13.0 lb-ft)

② 18 N.m (1.8 kg-m, 13.0 lb-ft)

NOTE: Hold the brake hose with a wrench to prevent the brake hose from twisting when tightening the adaptor.



- Refill brake fluid and bleed air from the brake system. (☞ 14-2)
- Reassemble the reservoir cap.

Rear Master Cylinder Reassembly

- Fit the piston/cup set and push rod.
- Fit the circlip with snap ring pliers.
- Fit the boot.
- Tighten the master cylinder clamp bolts to the specified torque.

Tightening torque: 10 N.m (1.0 kg-m, 7.5 lb-ft)

- Reassemble the rear brake pedal.(☞ 14-11)
- Tighten the brake hose union bolt to the specified torque.

Tightening torque: 23 N.m (2.3 kg-m, 16.5 lb-ft)

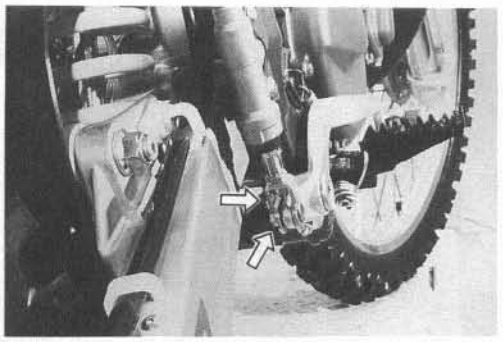
⚠ CAUTION

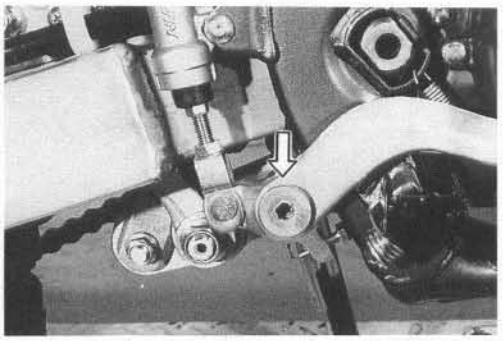
Improper brake hose routing can damage the brake hose.

Set the brake hose so it touches the stopper and tighten the union bolt. Ensure the brake hose has enough clearance to the rear suspension spring.

- Connect the hose (reservoir) and clamp it.
- Refill brake fluid and bleed air from the brake system. (☞ 14-2)

BRAKE PEDAL REMOVAL AND REASSEMBLY





Removal

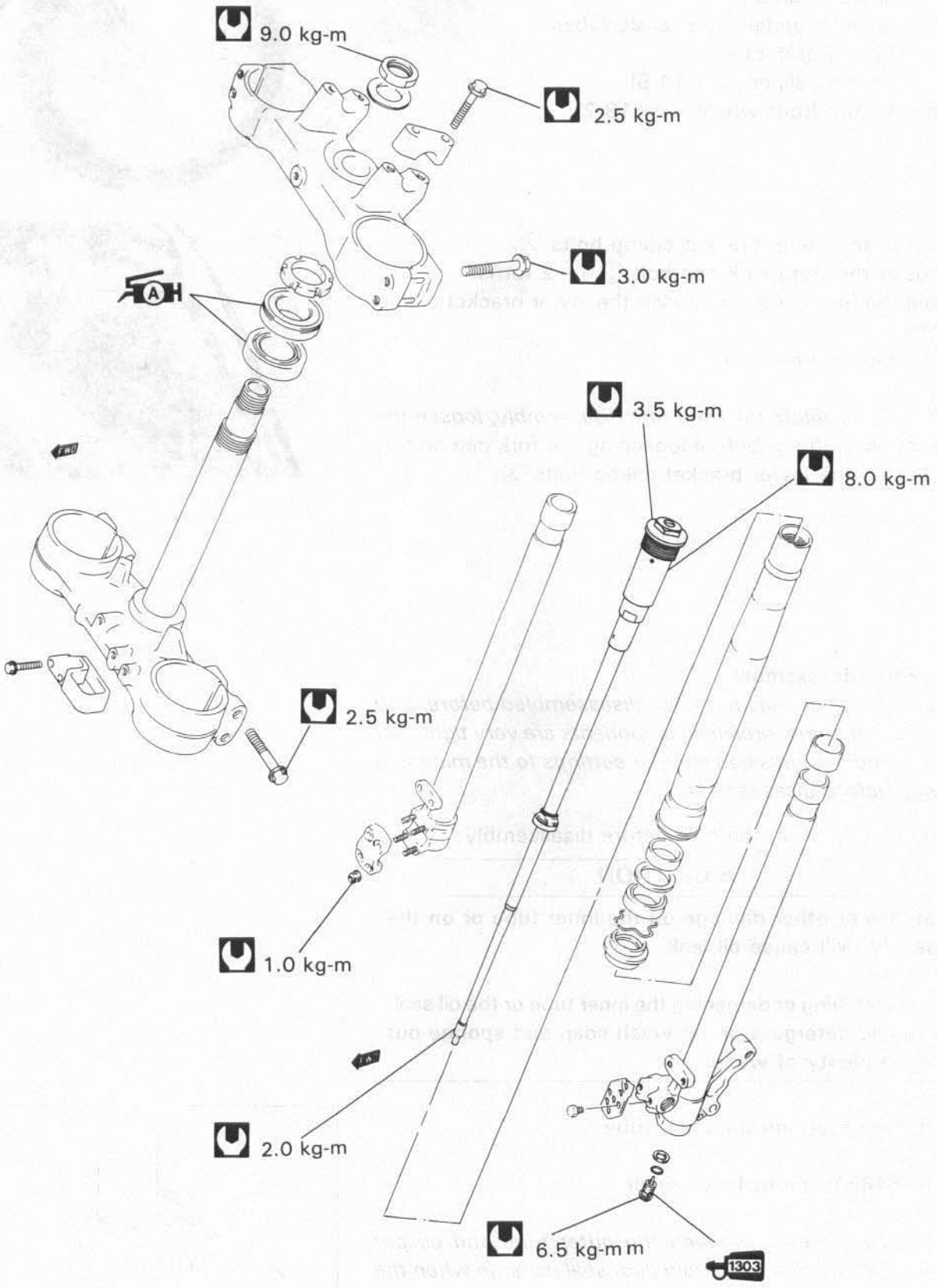
- Remove the cotter pins behind the frame.
- Loosen and remove the brake pedal pivot bolt.
- Remove the return spring.
- Remove the cotter pins and pin.

Reassembly

- Reassemble the pin, washer and cotter pins.
- Fit the return spring.
- Apply grease to the brake pedal pivot bolt. Tighten the bolt.
- Fit the washer and cotter pins.
- Adjust the brake pedal height. (☞ 2-12)

—MEMO—

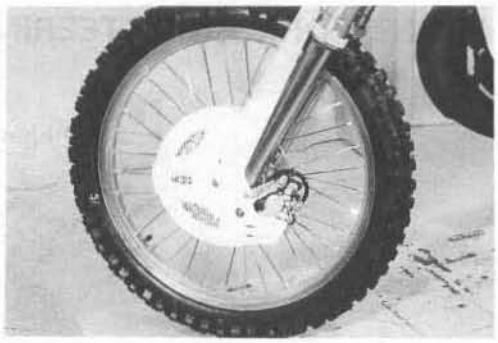
FRONT FORK AND STEERING



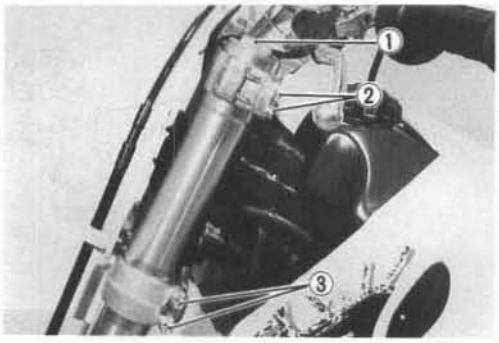
FRONT FORK

Front Fork Dismounting

- Place a block under the chassis tubes.
- Remove the protecter.
- Remove the caliper. (☞ 14-5)
- Remove the front wheel. (☞ 13-2)



- Loosen the upper bracket clamp bolts ②.
- Loosen the front fork cap bolt ① 1—2 turns.
- Hold the fork body and loosen the lower bracket clamp bolts ③.
- Remove the front fork.



NOTE: To facilitate the front fork disassembly, loosen the upper clamp bolts ② before loosening the fork cap bolt ① then loosen the lower bracket calmp bolts ③.

Front Fork Disassembly

NOTE: If the fork has not been disassembled before, you may find that some threaded components are very tight. Set rebound and compression damper settings to the minimum settings before disassembling.

- Thoroughly clean the fork before disassembly.

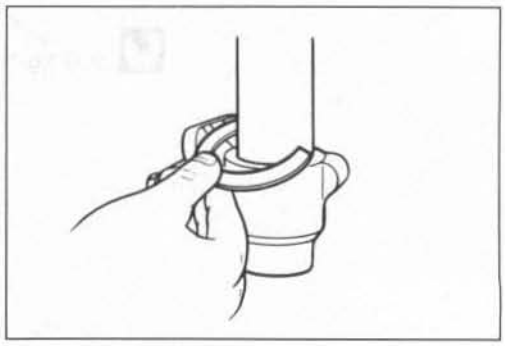
⚠ CAUTION

Scratches or other damage on the inner tube or on the oil seal lip will cause oil leak.

Avoid scratching or damaging the inner tube or the oil seal. Use a mild detergent or car wash soap and sponge out dirt with plenty of water.

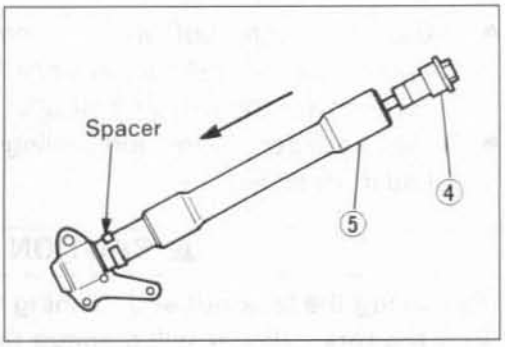
- Set the spacer on the inner tube.

09940-54851 Front fork spacer

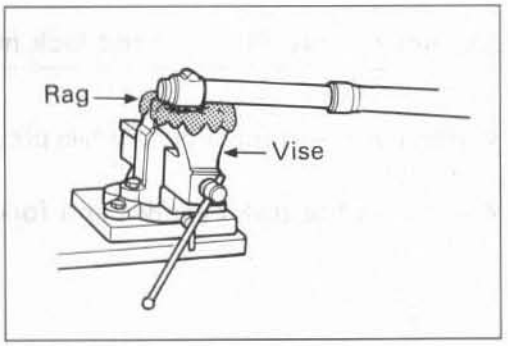


NOTE: The spacer between the outer tube and caliper bracket (axle holder) can avoid dust seal damage when the inner tube is fully compressed.

- Separate the fork cap bolt ④ from the outer tube ⑤ and slowly slida down the outer tube.
- Place a drain pan under the front fork and drain the fork oil.



- Clamp the axle holder for right fork or caliper bracket for left fork in a vise. Protect the axle holder or caliper bracket with a rag when using a vise.
- Move the inner tube and inspect it for smooth movement.

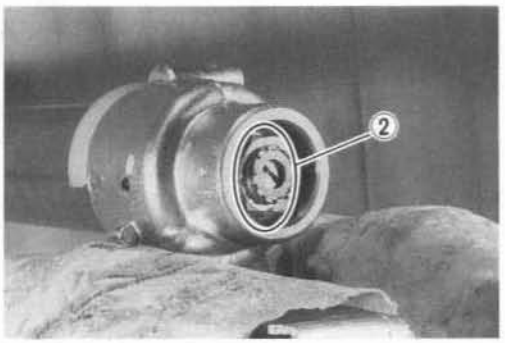


⚠ CAUTION

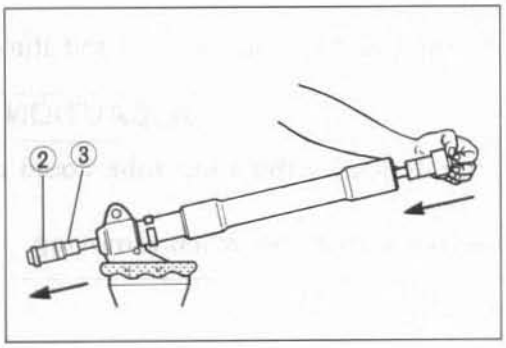
Clamping the axle holder too tight can damage it which will affect riding stability.

Do not clamp the axle holder too tight.

- Loosen the center bolt ② completely from the bottom of fork with a 21 mm socket wrench.

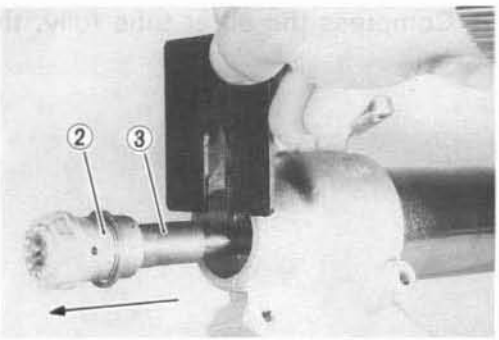


- Press the fork cap inward until the center bolt ② and lock nut ③ are exposed on the opposite end.

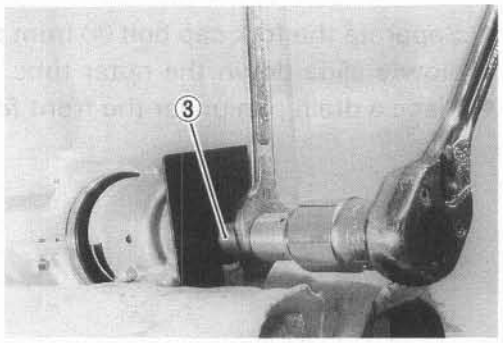


- Place the stopper plate around the inner rod stem while pressing on the fork cap.

09940-94920 Stopper plate



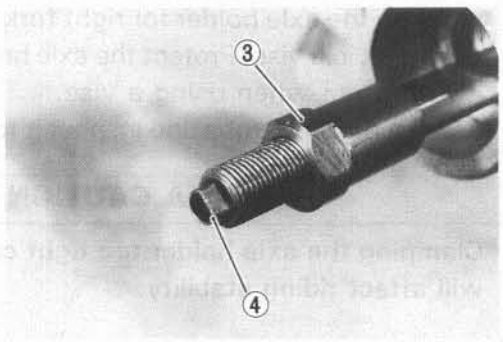
- Loosen the center bolt with an open end wrench on the flat portion of fork cylinder inner rod lock nut ③ and socket wrench on the center bolt ②.
- Remove the center bolt and sealing washer from the fork cylinder inner rod.



⚠ CAUTION

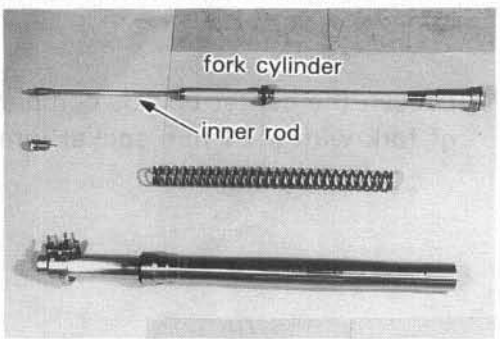
Removing the lock nut and pushing the inner rod thread into the fork cylinder will damage the inner rod oil seal.

Do not remove the inner rod lock nut ③.

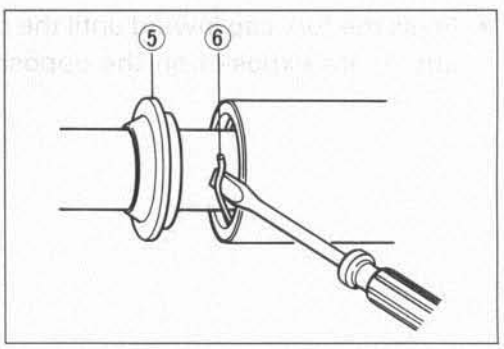


- Remove the stopper plate while pressing the fork cap bolt inward.
- Remove the fork cylinder and fork spring.

NOTE: The push rod ④ can come out of the inner rod when the center bolt is removed.



- Remove the dust seal ⑤ and the stopper ring ⑥.

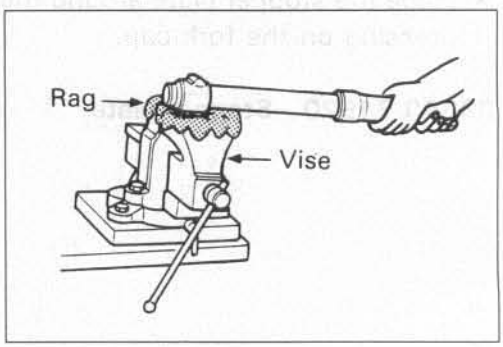


⚠ CAUTION

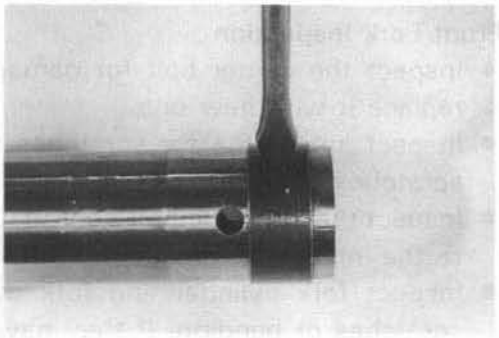
Scratches on the inner tube could cause oil leaks.

Avoid scratching when removing.

- Compress the outer tube fully, then pull it off.



- Open the slide bushing with a flat-blade screwdriver and remove the slide bushing.

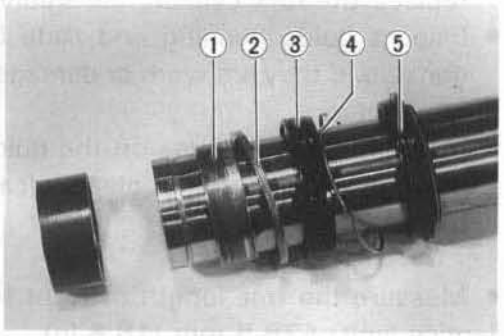


⚠ CAUTION

Scratching the teflon coated surface of the slide bushing or warping the slide bushing can decrease front fork performacne.

Be careul not to scratch the teflon coat. Do not open the slide bushing any more than necessary.

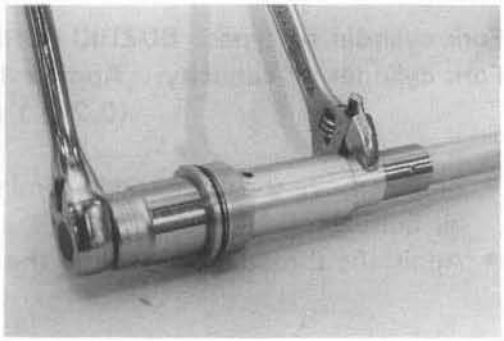
- Remove the following parts from the inner tube.



Guide bushing ①
Washer ②
Oil seal ③
Stopper ring ④
Dust seal ⑤

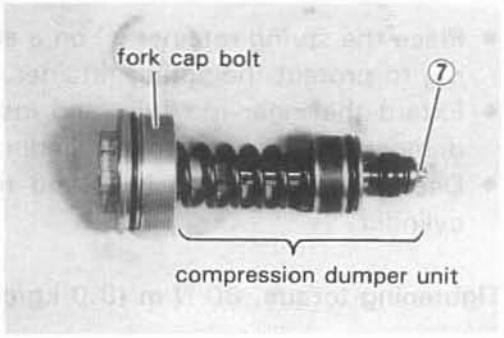
Fork Cylinder Disassembly.

- Loosen the fork cap bolt with a 32 mm socket wrench on the fork cap bolt and 30 mm open end wrench on the flat portion of fork cylinder body.
- Place a drain pan under the fork cylinder. Pull off the fork cap bolt while pressing in the inner rod.
- Push and pull the inner rod to drain the oil.



NOTE: The compression damping adjuster will pop loose suddenly when removed from fork cyinder. Be careful not to spray fork oil when removing the adjuster.

NOTE: The fork cylinder and compression damper unit can not be disassembled any further.



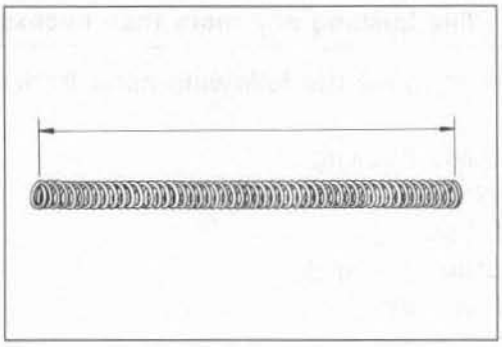
⚠ CAUTION

Losening the lock nut ⑦ or removing any parts from the compression damper unit will damage it.

Do not attempt to disassemble or to remove the damper unit from the fork cap bolt.

Front Fork Inspection

- Inspect the center bolt for damage. If it is damaged, replace it with new one.
- Inspect inner tube for scratches or bending. If it has scratches or bend, replace it with a new one.
- Inspect the outer tube for dent. If it is dented all the way to the inner side, replcae it with a new one.
- Inspect fork cylinder and fork cylinder inner rod for scratches or bending. If they have scratches or bend, replace the fork cylinder assembly.
- Inspect guide bushing and slide bushing for wear or damage. If they are worn or damaged, replace them with new ones.
- Inspect metal particles on the guide bushing and slide bushing. If they are not clean, clean them with a nylon brush and fork oil.



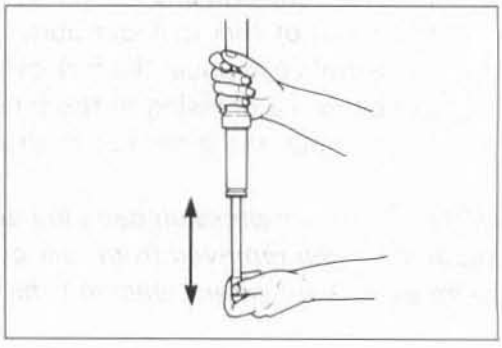
- Measure the free length of front fork spring.

Service limit: 478.5 mm (18.8 in)

Fork Cylinder Reassembly

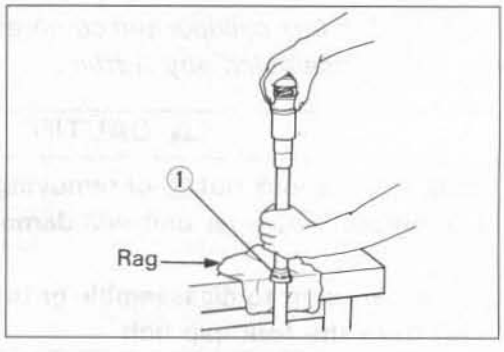
- Clean the fork cylinder thread.
- Apply front fork oil to the O-rings and slide-bush.
- Extend the inner rod fully and pour the specified amount of fresh front fork oil into the fork clinder.

Fork cylinder oil type: SUZUKI FORK OIL SS-05
Fork cylinder oil capacity: Approx 145 ml (0.2/0.1 US/Imp qt)



- Slowly move the inner rod several strokes to let out the air bubbles.
- Apply the thread lock 1303 to the fork cylinder thread.

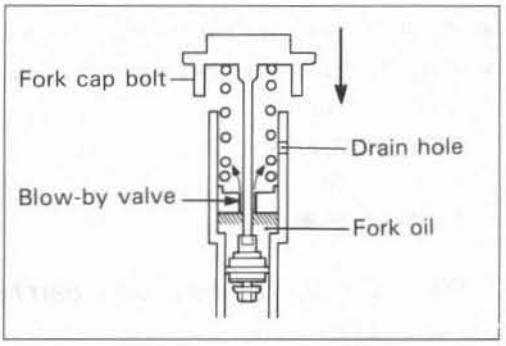
- Place the spring retainer ① on a edge of a desk. Use a rag to protect the spring retainer.
- Exterd the inner rod fully and insert the compression damper unit into the fork cylinder.
- Depress the fork cap hard and tighten it to the fork cylinder.



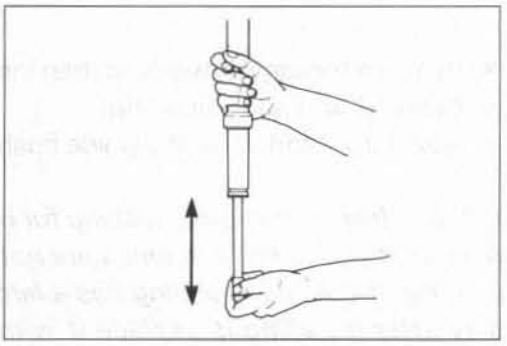
Tightening torque, 80 N·m (8.0 kg/cm, 58.0 lb-ft)

NOTE: Air bubbles and excess oil will be discharged through the blow-by valve when depressing the fork cap.

Too much fork oil may be discharged if the inner rod is compressed when assembling the fork cap.



- Hold the fork cylinder vertically and move the inner rod up and down several strokes to ensure that air bubbles are discharged.
- Drain excess oil that has come through the blow-by valve through the drain hole.



- Compress the inner rod folly, place the fork cylinder horizontally, release the inner rod and wait until the inner rod comes out and stops. The inner rod must come out to fully exterded position by itself. Pull the inner rod to examine whether it has come out fully.

Front Fork Reassembly

NOTE: The fork outer body and fork cylinder must contain the same type of oil. Replace both fork outer body oil and fork cylinder together.

- Remove the old oil from the fork parts.

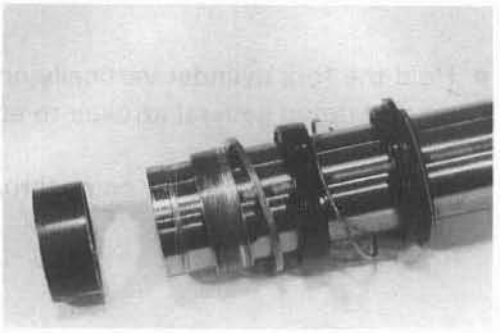
⚠ CAUTION

Scratches on the oil seal lip can cause oil leaks.

When installing the seal, place a vinyl cover over the bushing attachment groove and edges of the inner tube to avoid damage to the seal lip.

- Apply front fork oil to the oil seal lip.
- Attach the following parts to the inner tube:
  Vinyl cover
  New dust seal
  Stopper ring
  New oil seal

NOTE: The side of the oil seal that has a mark should face the dust seal.



- Remove the vinyl cover and then install the washer, guide bushing and slide bushing.
- Apply front fork oil to the guide bushing and slide bushing.

NOTE: Inspect the slide bushing for burrs. If there is a burr, remove it with a knife, taking care not to peel off the teflon coating. If the slide bushing has a large crack or excessive play after installing it, replace it with a new one.

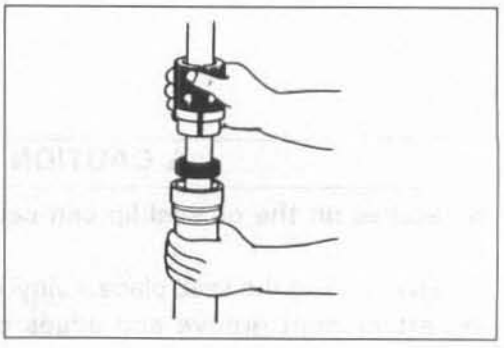
⚠ CAUTION

Teflon coating damage on the slide bushing can decrease front fork performance.

When installing the slide bushing, be careful not to damage the teflon coating.

- Apply fork oil on the outer sureface of the oil seal to make it easy to fit.
- Insert the inner tube in the outer tube.

- Install the oil seal with the special tool until the stopper ring groove of the outer tube can be seen.



09940-32720 Front fork oil seal installer

- Attach the stopper ring securely to the stopper ring groove of the outer tube.
- Attach the dust seal.

NOTE: After attaching the dust seal, make sure that there are no cracks around the circumference of the seal. Cracks could allow water, mud and a like to enter and cause an oil leak.

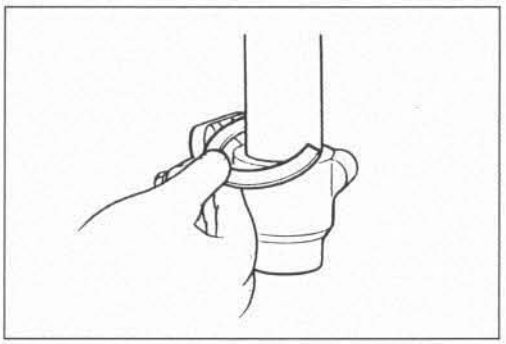
⚠ CAUTION

Use of grease as a substitute for fork oil when Installing the oil seal can result in oil leak. Applying grease to the dust seal and oil seal can cause dirt to accumulate and damaging dust seal lip and oil seal lip.

Use only a thin coat of fork oil on the oil seal.

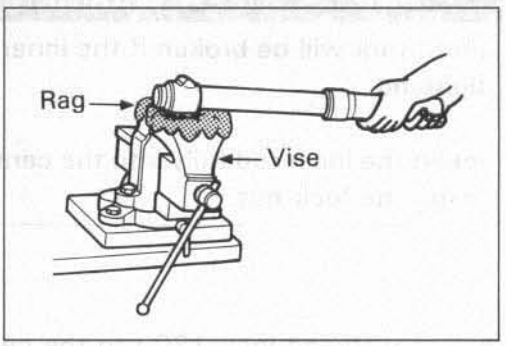
- Attach the spacer on the inner tube.

NOTE: The spacer between the outer tube and caliper brakcte (axle holder) can avoid dust seal damage when the inner tube is fully compressed.



- Place the outer tube on the spacer.

- Clamp the axle holder (for right front fork) or caliper bracket (for left front fork) in a vise. Be sure to protect the axle holder or caliper bracket with a rag when clamping with the vise.

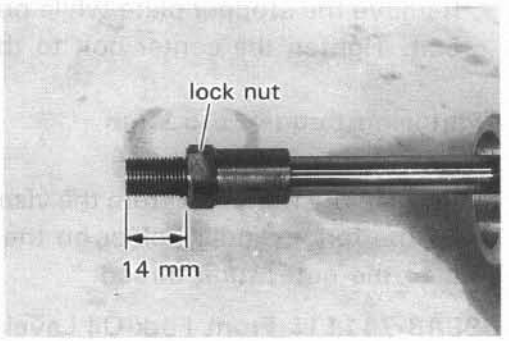


⚠ CAUTION

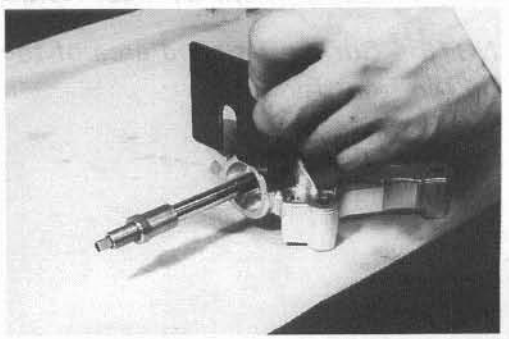
Clamping the axle holder too tight can damage it and it will affect riding stability.

Do not clamp the axle holder too tight.

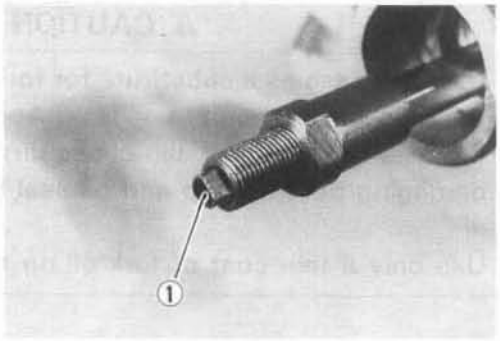
- Insert the fork spring.
- Make sure more than 14 mm (0.55 in) of inner rod thread is exposed on the end.
- Insert the fork cylinder slowly in the inner tube and confirm that it is securely inserted in the hole on the bottom of the axle holder.



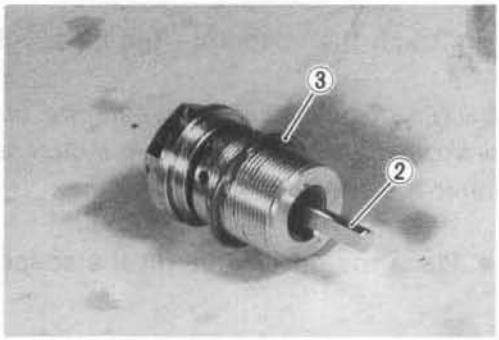
- Press in the fork inward cap until the lock nut is exposed. On the other side place the stopper plate around the inner rod stem while pressing on the fork cap.



- Apply the thread lock 1303 to the inner rod thread.
- Make sure the push rod ① is in the inner rod.
- Attach the sealing washer ③ to the center bolt and insert the ▨ shaped projection ② of center bolt into the push rod ①.
- Turn the center bolt clockwise until the end of inner rod is fully inserted into the center bolt. Tighten the lock nut to the center bolt.



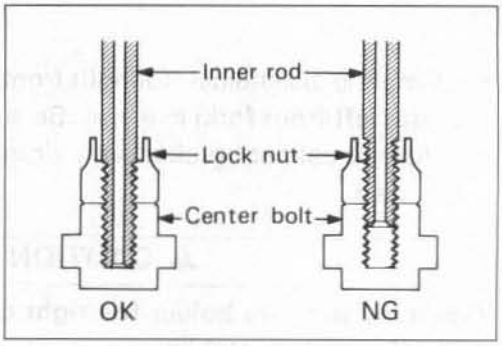
Tightning torque 2.0 kg-m



⚠ WARNING

Front fork will be broken if the inner rod is not correctly tightend.

Insert the inner rod fully into the center bolt before tightening the lock nut.



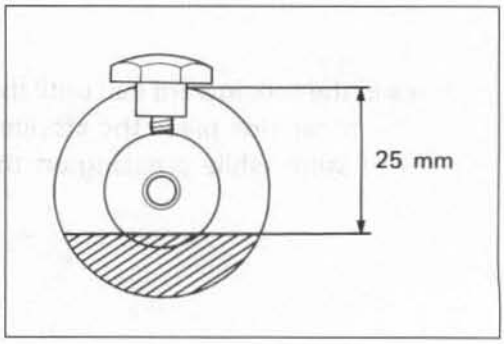
- Apply thread lock 1303 to the center bolt thread
- Remove the stopper plate while pressing in the fork cap bolt. Tighten the center bolt to the inner tube.

Tightening torque 6.5 kg-m

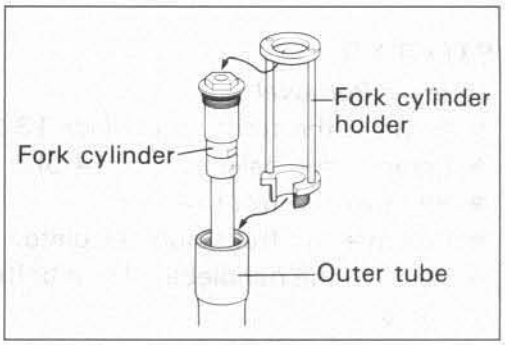
- Release the front fork from the vise and hold it vertically.
- Fit the fork cylinder holder on the fork cap and tighten it to the outer tube thread.

09943-74111 Front Fork Oil Level Gauge
09940-42810 Fork Cylinder Holder

NOTE: Cut the hatched area of the special tool to set it on the front fork.

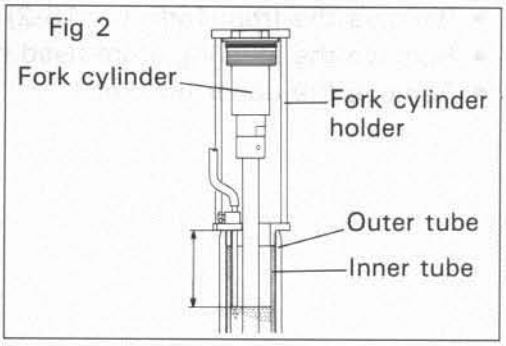


- Depress the fork cylinder holder to compress the front fork fully. Pour the specified fork oil to the top of the outer tube Move the outer tube up and down to let out the air babbles.
- Hold the fork in the fully compressed position by depressing the fork cylinder holder. Place the oil level gauge on the top end of the outer tube, and measure the oil level.



Standard oil level 170 mm (6.69 in)

- Remove the fork cylinder holder and tighten the fork cap bolt to the outer tube.

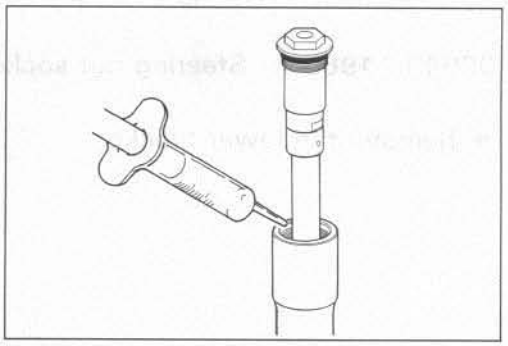


NOTE: When assembling the front fork without the fork cylinder holder, remove the old oil thrroughly by using the pressured air and pour correctly measuhed fork oil. Use an injector to measure the oil.

Standard oil amount 440 ml (14.9/15.5 US/Imp oz)

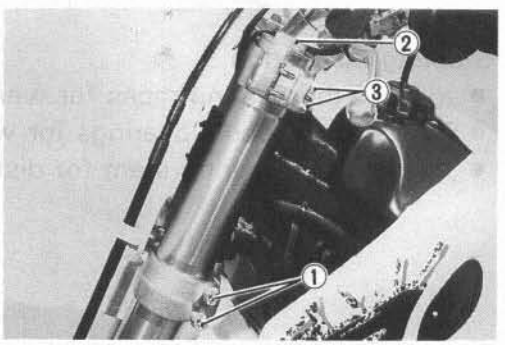
NOTE: Damage to the O-ring on the fork cap can cuase oil leaks. Replace with a new one in case of damage. Apply fork oil to the O-ring of the fork cap and attach the fork cap to the outer tube.

- Raise the outer tube and tighten it to the fork cap bolt.



Front Fork Mounting

- Tighten the lower bracket bolts ① to the specified torque.
- Tighten the friont fork cap bolts ② to the spcified torque.
- Tighten the upper bracket bolts ③ to the specified torque.



NOTE: Tighten the fork cap bolt ② before tightening the upperbracket bolts ③ to obtain the correct torque.

Tightening torque

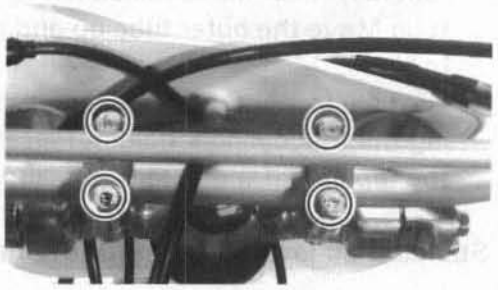
	N·m	kg-m	lb-ft
①	25	2.5	18.0
②	35	3.5	25.5
③	30	3.0	20.0

- Remount the front wheel. (☞ 13-2)
- Remount the caliper (☞ 14-7)
- Remount the proctecter.

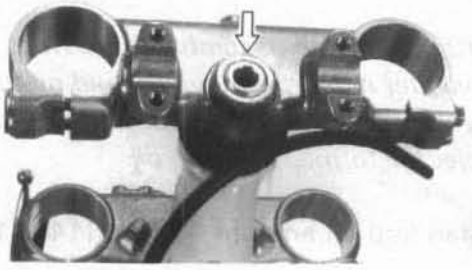
STEERING

Steering Removal

- Remove the front wheel.(☞ 13-2)
- Remove the caliper. (☞ 14-5)
- Remove the front fender.
- Remove the front number plate.
- Remove the handlebar clamp bolts and remove the handlebar.



- Remove the front fork. (☞15-2)
- Remove the steering stem head nut.
- Remove the upper bracket.



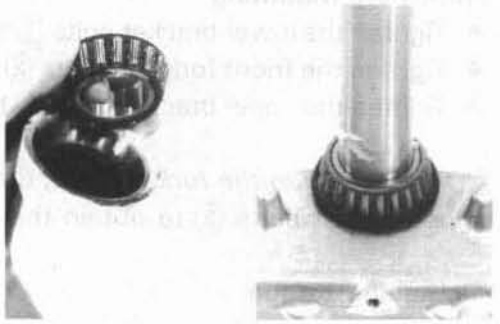
- Remove the steering nut with the special tool.

09940-14960 Steering nut socket wrench

- Remove the lower bracket.

Steering Inspection

- Inspect the bearing races for wear.
- Inspect the needle bearings for wear.
- Inspect the steering stem for distortion.

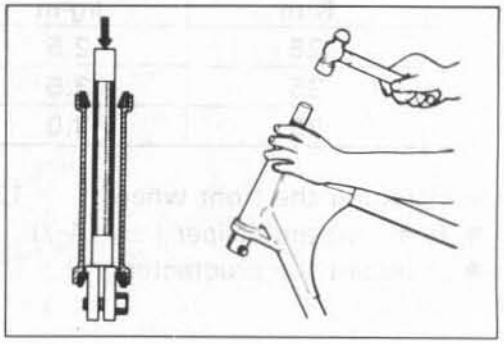


Steering Bearing Replacement

NOTE: Replace the outer race and bearing as set.

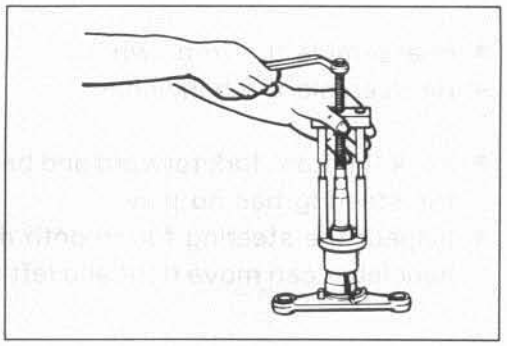
- Remove the upper and lower outer races with the special tools.

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



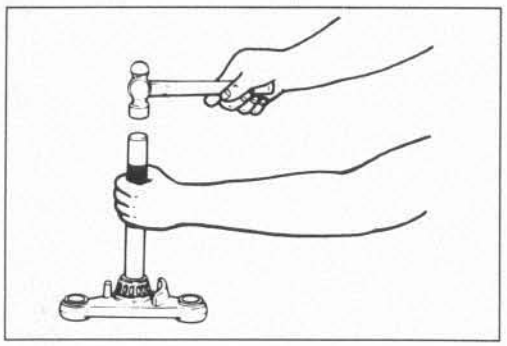
- Remove the lower bearing with the special tool.

09941-84510 Bearing inner race remover



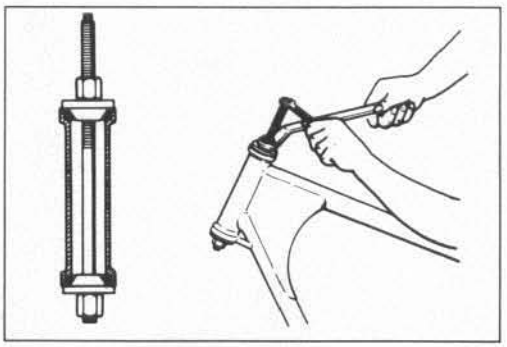
- Fit the lower bearing with the special tool.

09925-18010 Steering bearing installer



- Fit the upper and lower outer races with the spacial tool.

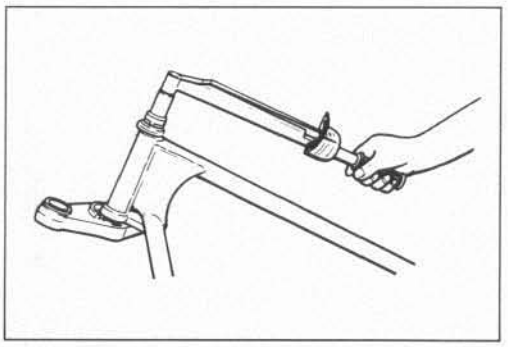
09941-34513 Steering outer race and swing arm bearing installer



Steering Reassembly

- Apply grease to the bearings.
- Fit the steering stem, upper bearing, dust seal and steering stem nut.
- Tighten the steering stem nut with the special tool.

09940-14960 Steering nut socket wrench
Tightening torque : 45 N·m (4.5 kg-m, 32.5 lb-ft)



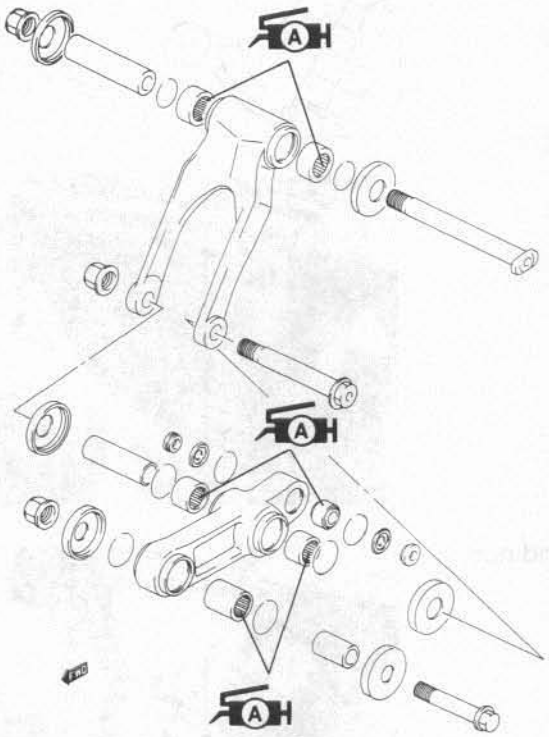
- Move the steering stem right and left several times to seat the bearings.
- Turn back the steering stem nut by ¼ to ½ turn.
- Fit the steering stem head nut and tighten it temporarily.
- Remount the front fork. (☞ 15-8)
- Tighten the steering stem head nut to the specified torque.

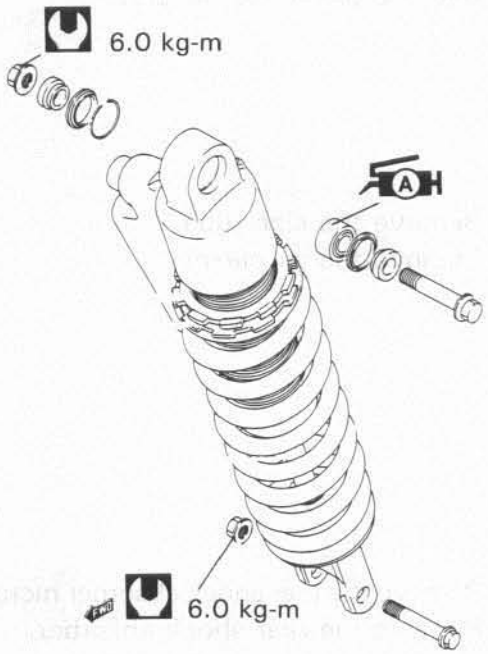
Tightening torque : 90 N·m (9.0 kg-m, 65.5 lb-ft)

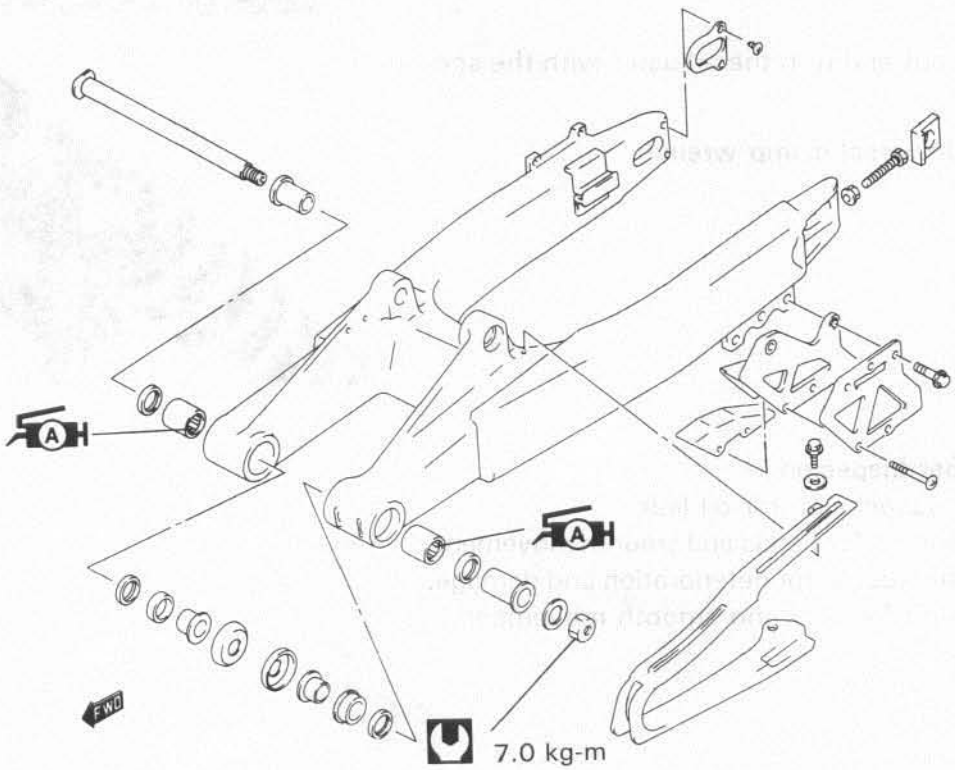
- Reassemble the front wheel. (☞ 13-2)
- Reassemble the handlebar.

- Rock the front fork forward and backward to ensure that the steering has no play.
- Inspect the steering for smooth movement so that the handlebar can move right and left under its own weight.

REAR SUSPENSION

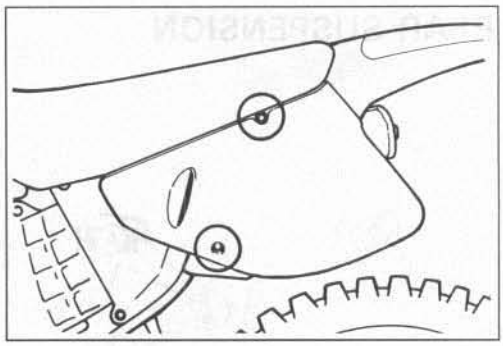




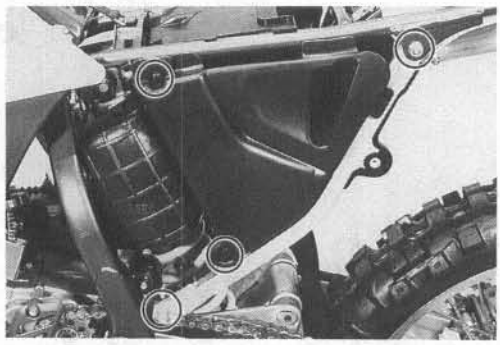


REAR SHOCK ABSOBER

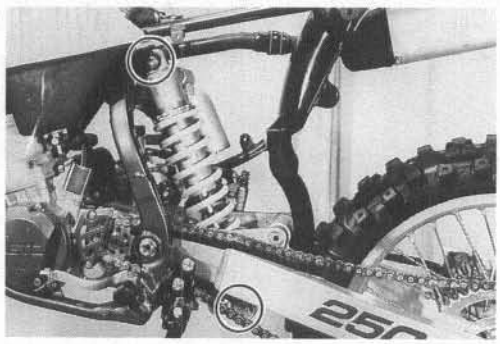
Rear Schock Absorber and Air Cleaner Removal



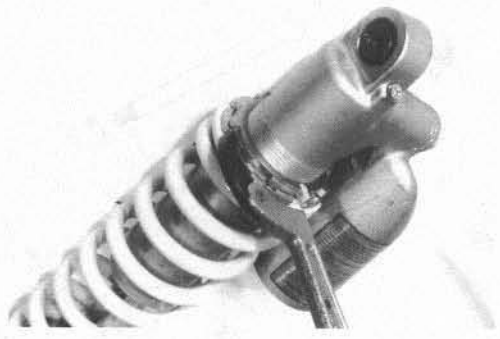
- Place a block under chassis tubes.
- Remove the seat.
- Remove the frame covers.



- Remove the side tube.
- Remove the air cleaner



- Remove the rear shock absorber mounting bolts and nuts.
- Remove the rear shock absorber.



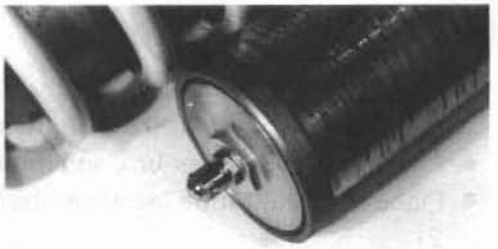
- Loosen the lock nut and turn the adjuster with the special tool.

09910-60611 Universal clamp wrench

Rear Shock Absorber Inspecion

- Inspect the rear suspension for oil leak.
- Inspect the damper rod for bends and smooth movement.
- Inspect the stopper rubber for deterioration and damage.
- Inspect the bearing for play and smooth movement.

Rear Shock Absorber Disposal



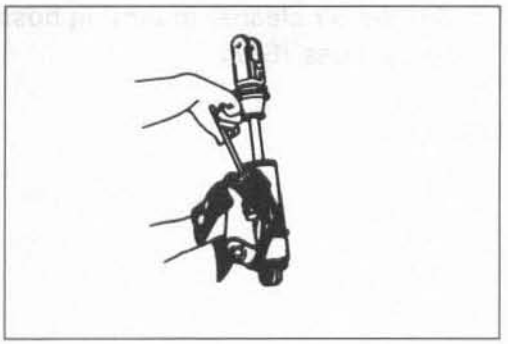
High pressure nitrogen gas is sealed in the rear shock absorber unit. Be sure to release gas before disposing the rear shock absorber unit.

- Remove the valve cap.
- Press the valve with a screwdriver.

⚠ WARNING

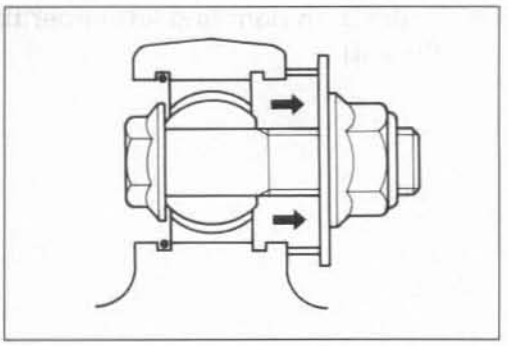
Releasing high pressure gas from the rear shock absorber unit can be hazardous.

Place a rag over the valve and push the valve with a screwdriver to release nitrogen gas. Do not use your finger to push the valve, and direct the valve away from your face and body.

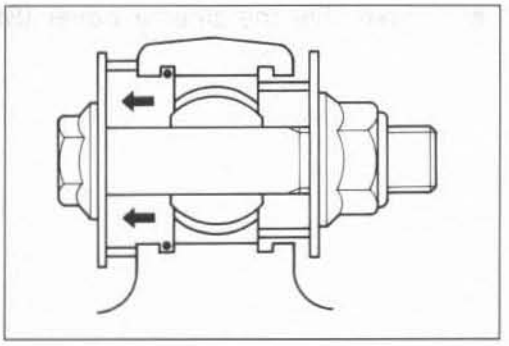


Bearing Replacement

- Remove the dust seals.
- Remove the circlip.
- Set a pipe, washer, bolt (M10) and nut (M10) as shown.
- Tighten the nut and remove the bearing.



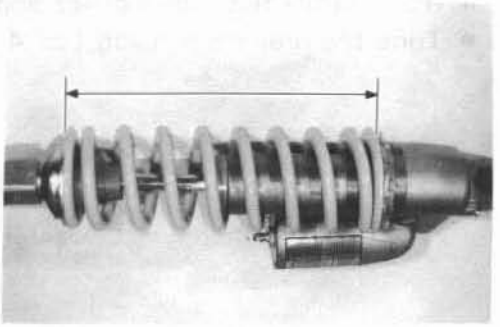
- Apply grease to the bearing.
- Set pipes, washers, bolt (M10) and nut (M10) as shown.
- Tighten the nut and fit the bearing.
- Fit the circlip.
- Apply grease to the dust seal and fit it as grooved side faces outside.



Rear Shock Absorber Reassembly

- Fit the spring, adjuster and lock nut.
- Adjust the spring set length.

Standard : 255.0 mm (10.0 in)
Range : 248.5—270.0 mm (9.8—10.6 in)



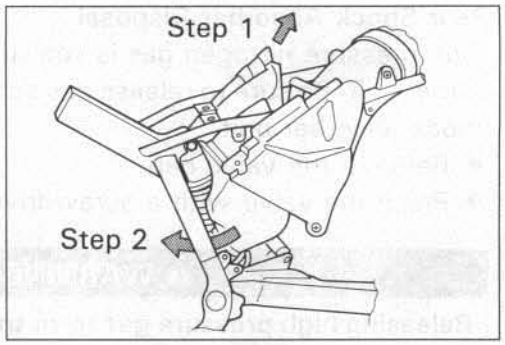
- Tighten the upper and lower mounting bolts and nuts to the specified torque.

Tightening torque : 60 N·m (6.0 kg-m, 43.5 lb-ft)

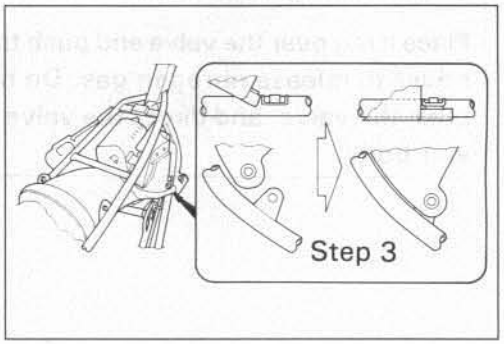
- Reassemble the frame side tube.

Air Cleaner Reassembly

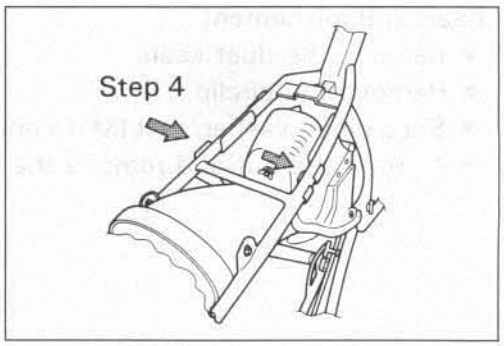
- Place the air cleaner box in the frame so that the right plate comes between the right and left seat rails.
- Pull up the air cleaner box and move it backward (Step 1).
- Place the outlet tube between the flame body tubes (Step 2).



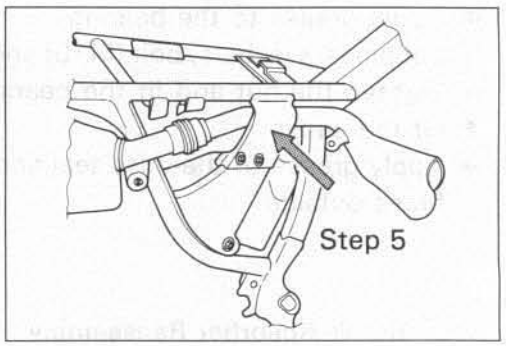
- Set the air cleaner mounting boss at the outside of the frame boss (Step 3).



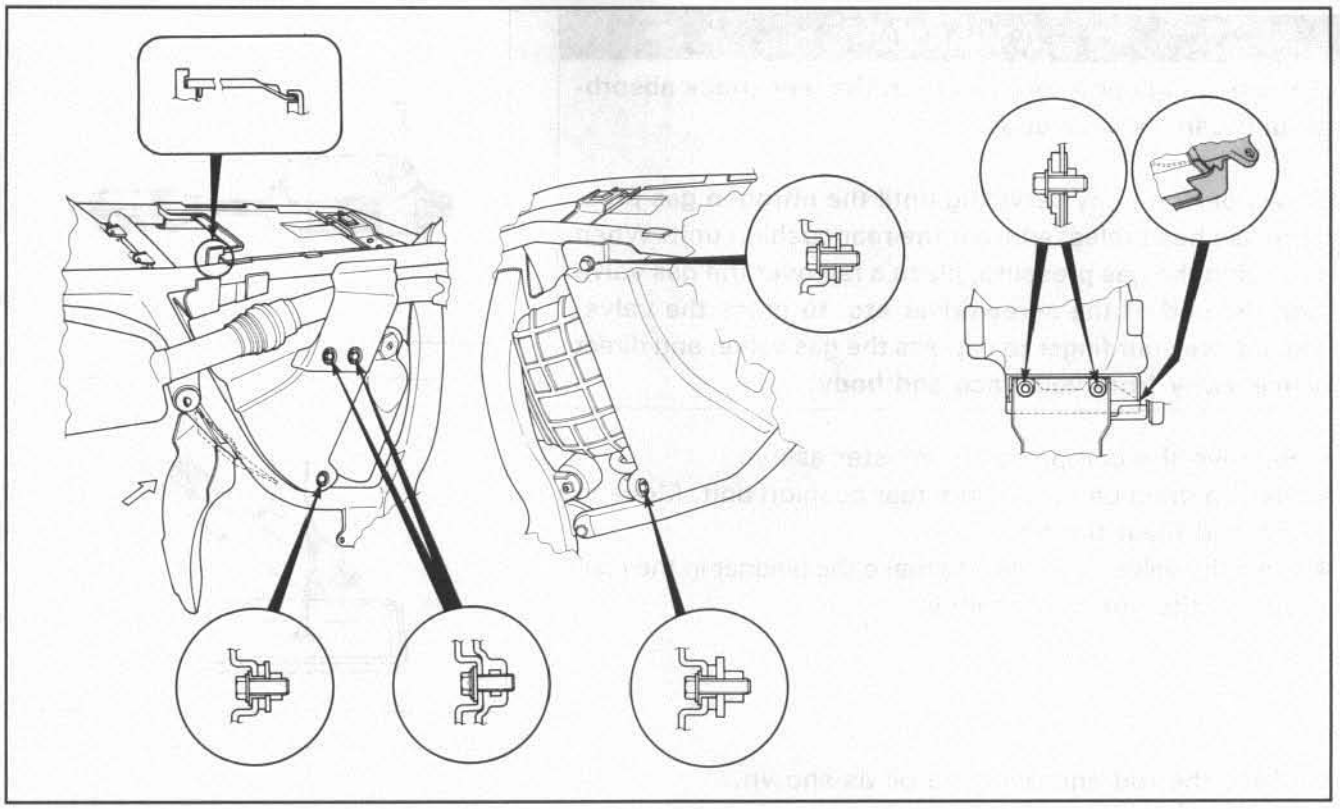
- Fit the both right and left upper flanges to the seat rails (Step 4).



- Reassemble the cleaner cover (Step 5).



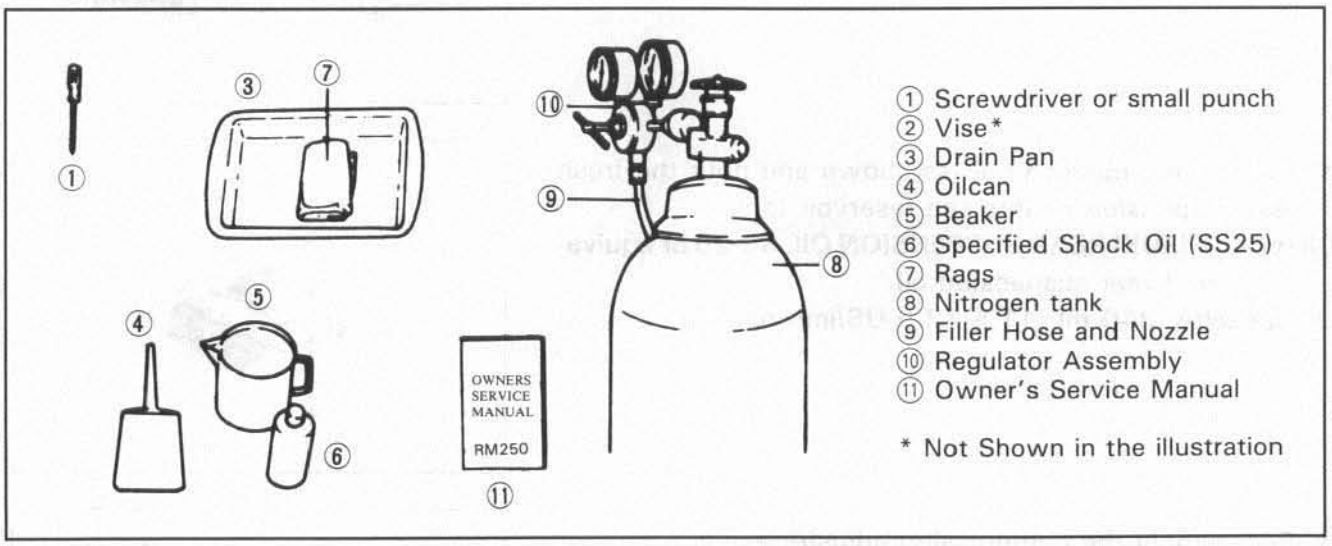
- Reassemble the frame cover and seat.
- Tune the rear suspension (☞ 4—13)



OIL REPLACEMENT PROCEDURE

Tools and Equipement

- Following tools and equipment are required to perform oil replacement.



① Screwdriver or small punch
② Vise*
③ Drain Pan
④ Oilcan
⑤ Beaker
⑥ Specified Shock Oil (SS25)
⑦ Rags
⑧ Nitrogen tank
⑨ Filler Hose and Nozzle
⑩ Regulator Assembly
⑪ Owner's Service Manual

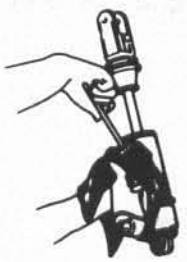
* Not Shown in the illustration

Oil Replacement Procedure

- Remove the rear cushion unit from the frame. Clean and dry the rear cushion unit.
- Remove the spring from the rear cushion unit.

NOTE: Inspect the rear cushion unit for oil leak.

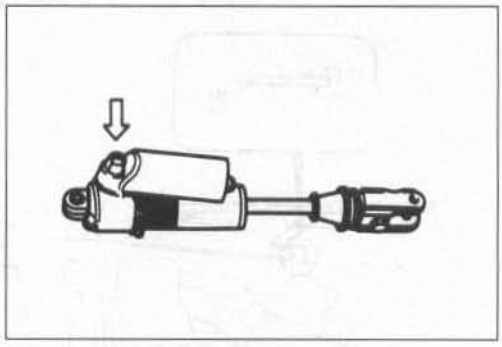
- Remove the valve cap. Push the gas valve core with a screwdriver to bleed out nitrogen gas.



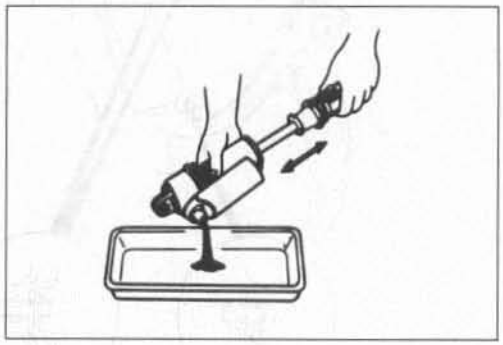
⚠ WARNING

Releasing high pressure gas from the rear shock absorber unit can be hazardous.

Never perform any servicing until the nitrogen gas pressure has been released from the rear cushion unit. When releasing the gas pressure, place a rag over the gas valve and the end of the screwdriver etc. to press the valve. Do not use your finger to depress the gas valve, and direct valve away from your face and body.

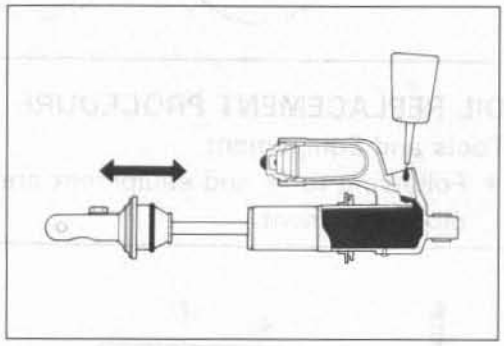


- Remove the compression adjuster ass'y.
- Place a drain pan under the rear cushion unit. Move the rod and drain the oil.
- Push the valve core again to make the bladder in the reservoir at the normal condition.



- Move the rod and pour the oil as shown.

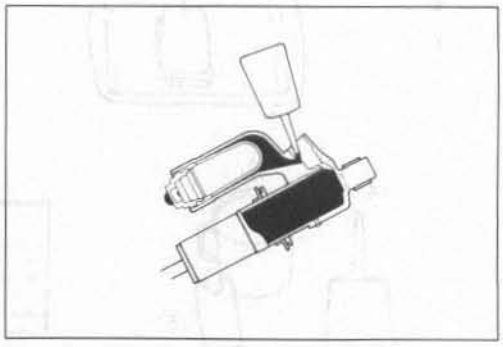
NOTE: Be sure to extend the rod after filling the oil.



- Tilt the rear cushion unit as shown and pour the fresh rear suspension oil into the reservoir tank.

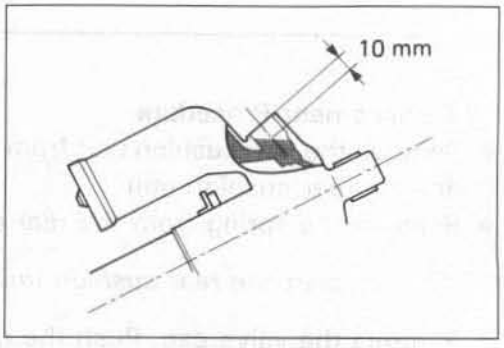
Oil type: SUZUKI REAR SUSPENSION OIL SS-25 or equivalent rear suspension oil.

Oil capacity: 340 ml (11.5/12.0 US/Imp oz)



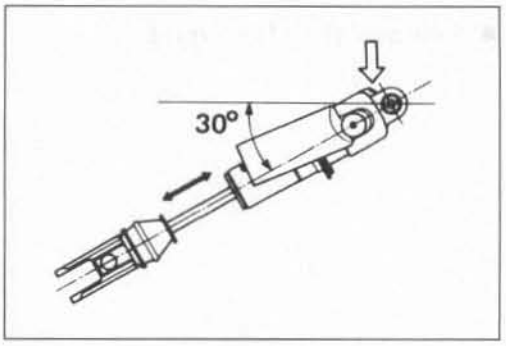
- Reassembly the compression adjuster ass'y.

Tightening torque: 18 N·m (1.8 kg-m, 14.5 lb-ft)



- Vise the rear cushion unit as shown and loosen the air bleed bolt.
- Temporarily charge the reservoir with 50 kPa (0.5 kg/cm², 7 psi) of air slowly to inflate the bladder inside.
- Bleed out air in the oil.
- Tightening the air bleed bolt.

Tightening torque: 8 N·m (0.8 kg-m, 6.0 lb-ft)



- Pressure the rear cushion unit with nitrogen gas to **1000—1200 kPa (10—12 kg/cm², 142—171 psi).**

⚠ WARNING

Use of inflammable gas for pressuring the rear cushion unit can be hazardous. Inflammable gas such as gas welding oxygen can create a fire hazard.

Use nitrogen gas. If is nitrogen gas is not available, compressed air free from water can be substituted.

⚠ WARNING

Applying too much pressure to the rear cushion unit may rupture the rear cushion unit.

Be sure to pressure the rear cushion unit to the specified.

⚠ CAUTION

Riding the motorcycle with the abnormal gas pressure can damage the rear cushion unit. Low gas pressure can result in oil leakage. Abnormal gas pressure cannot obtain normal rear cushion unit perfomance.

Be sure to pressure the rear cushion unit to the specified pressure.

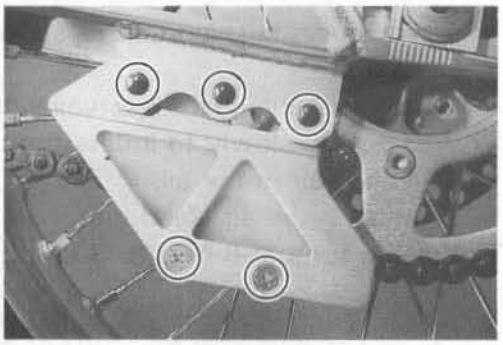
- Tighten the gas valve cap.
- Reinstall the spring and mount the shock absorber.

SWING ARM

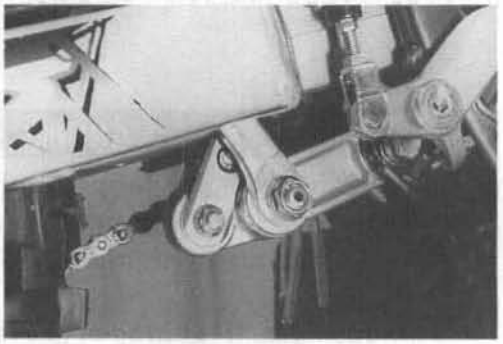
Swing Arm Removal

- Remove the rear wheel. (☞ 13-2)
- Remove the brake pedal. (☞ 14-11)
- Remove the rear brake hose from the guides.
- Remove the rear caliper. (☞ 14-6)
- Remove the drive chain.

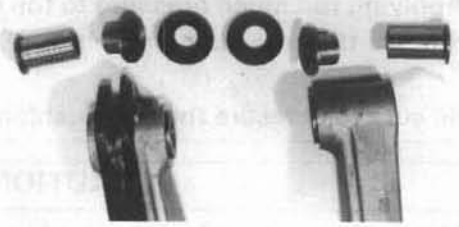
- Remove the chain guide.



- Remove the rear cushion rod bolt.
- Remove the swing arm pivot bolt.
- Remove the swing arm.



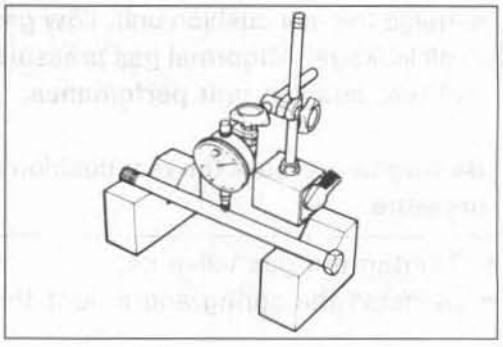
- Remove the covers and bushings.



Swing Arm Inspection

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

Service limit : 0.3 mm (0.01 in)

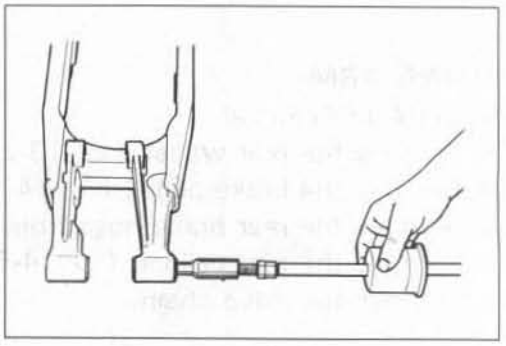


- Inspect the swing arm for cracks and damage.
- Inspect the bearings, bushings and oil seals for damage.
- Insert the bushings into the bearings and inspect them for play and smooth movement.

Bearing Replacement

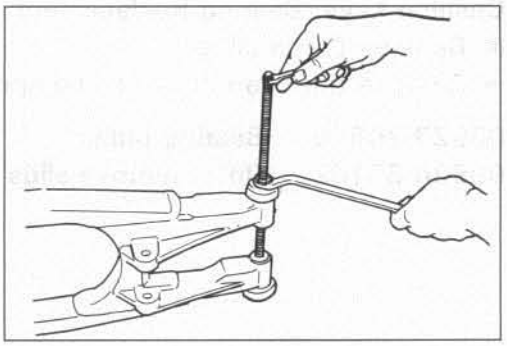
- Remove the bearings and oil seals with the special tools.

09923-74510 Bearing puller
09930-30102 Rotor remover slide shaft



- Apply grease to the bearings.
- Fit the bearings with the special tool and a pipe, 24 mm (0.9 in) in diameter and 7.5 mm (0.3 in) in length.

09941-34513 Bearing installer set



- Fit the oil seals with the special tool and the spacer.

Swing Arm Reassembly

- Reassemble the bushings and covers.
- Fit the swing arm to the frame.
- Tighten the swing arm pivot shaft nut to the specified torque.

Tightening torque : 70 N·m (7.0 kg-m, 51.0 lb-ft)

- Tighten the rear cushion rod nut to the specified torque.

Tightening torque : 100 N·m (10.0 kg-m, 72.5 lb-ft)

- Reassemble the chain guide.
- Reassemble the rear caliper. (☞ 14-7)
- Fit the rear brake hose guides.
- Reassemble the brake pedal. (☞ 14-11)
- Reassemble the rear wheel. (☞ 13-2)

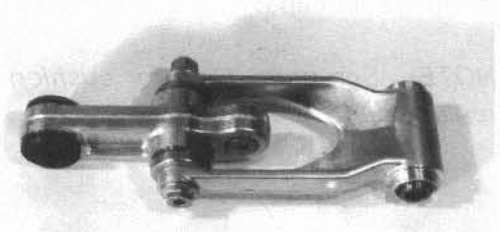
REAR SUSPENSION LINKAGE

Rear Suspension Linkage Removal

- Remove the swing arm. (☞ 16-6)
- Remove the swing arm linkage bolts.

Rear Suspension Linkage Inspection

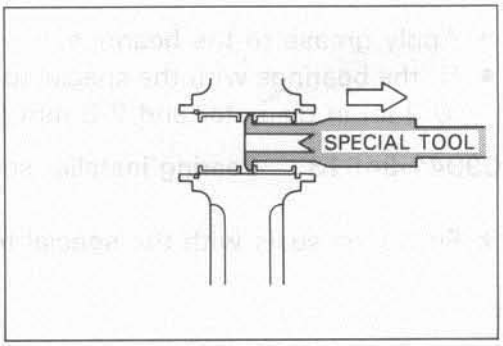
- Inspect the cushion lever rod and cushion.
- Inspect the spacers for damage.
- Inspect the bearings for damage.
- Insert the spacers into the bearings and inspect them for smooth movement.



Cushion Lever Bearing Replacement

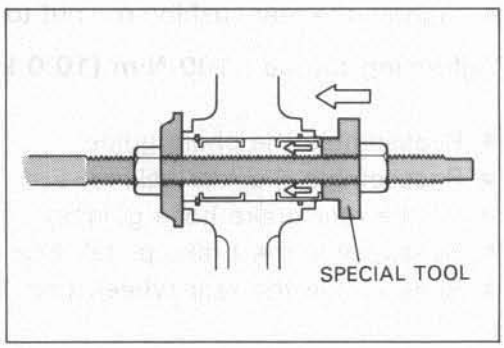
- Remove the circlips.
- Remove the bearings with the special tools.

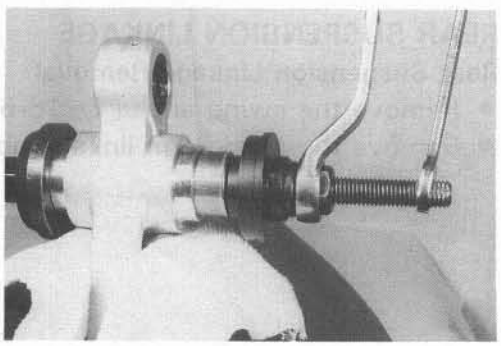
09923-74510 Bearing puller
09930-30102 Roter remove siids shaft.



- Apply grease to the bearings.
- Fit the bearings with the special tool.

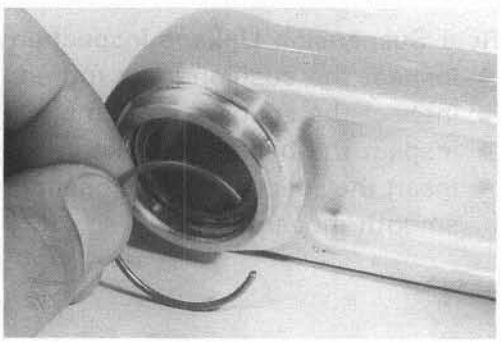
09941-34513 Bearing installer set

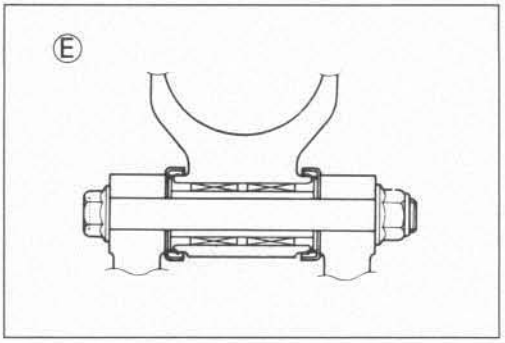




- Fit the circlips.

NOTE: See page 16-3 for cushion unit lower bearing Ⓑ replacement.



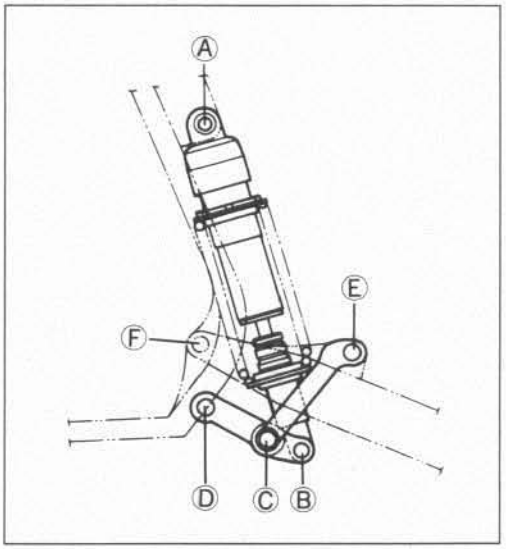


Rear Suspension Linkage Reassembling

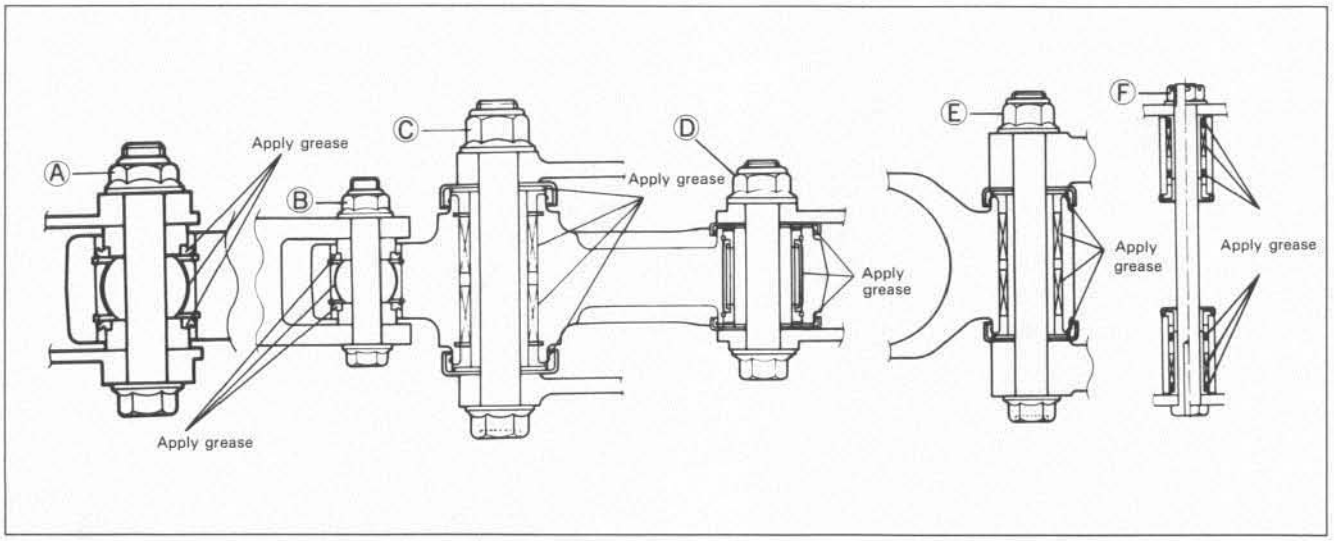
- Reassemble the rear suspension linkage.
- Tighten the nuts to the specified torque.

Tightening torque:

A: 60 N·m (6.0 kg-m, 43.5 lb-ft)
B: 60 N·m (6.0 kg-m, 43.5 lb-ft)
C: 100 N·m (10.0 kg-m, 72.5 lb-ft)
D: 80 N·m (8.0 kg-m, 58.0 lb-ft)
E: 100 N·m (10.0 kg-m, 72.5 lb-ft)
F: 70 N·m (7.0 kg-m, 51.0 lb-ft)



- Reassemble the swing arm. (☞ 16-8)



—MEMO—

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM		STANDARD		LIMIT
Piston to cylinder clearance		0.045—0.055 (0.0017—0.0022)		0.120 (0.0047)
Cylinder bore		67.000—67.015 (2.6381—2.6384) Measure 20 (0.8) from the top surface		—
Piston diam.		66.950—66.965 (2.6381—2.6384) Measure 24 (0.9) from the skirt end		66.950 (2.6381)
Cylinder distortion		—		0.05 (0.002)
Cylinder head distortion		—		0.05 (0.002)
Piston ring free end gap	1st & 2nd	R	Approx. 6.4 (0.25)	5.1 (0.20)
Piston ring end gap	1st & 2nd	0.20—0.40 (0.008—0.016)		0.85 (0.033)
Piston ring to groove clearance	1st & 2nd	0.020—0.060 (0.0008—0.0024)		—
Piston pin bore		18.000—18.006 (0.7087—0.7089)		18.030 (0.7098)
Piston pin O.D.		17.995—18.000 (0.7085—0.7087)		17.980 (0.6724)

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	58.0±0.1 (2.283±0.004)	—
Crankshaft runout	—	0.05 (0.002)

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch cable play	2—3 (0.08—0.12)	—
Drive plate thickness	2.45—2.75 (0.096—0.108)	2.15 (0.085)
Drive plate claw width	15.9—16.0 (0.626—0.630)	15.3 (0.602)
Driven plate distortion	—	0.10 (0.004)
Clutch spring free length	—	45.4 (1.79)

RADIATOR

ITEM	STANDARD	LIMIT
Radiator cap valve release pressure	110 kPa(1.1 kg/cm², 16 psi)	—

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.652 (61/23)	—
Final reduction ratio		3.769 (49/13)	—
Gear ratios	Low	2.153 (28/13)	—
	2nd	1.705 (29/17)	—
	3rd	1.411 (24/17)	—
	4th	1.157 (22/19)	—
	Top	1.000 (23/23)	—
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width		4.80—4.90 (0.189—0.193)	—
Shift fork thickness		4.60—4.70 (0.181—0.185)	—

DRIVE CHAIN

ITEM	STANDARD		LIMIT
Drive chain	Type	DAIDO: D.I.D 520DS5	—
	Links	112	—
	20-pitch length	—	323.8 (12.75)
Drive chain slack	45—55 (1.8—2.2)		—

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		KEIHIN PJ38
Bore size		38 mm
I.D. No.		28E10
Float height		16.0 mm (0.63 in)
Main jet	(M.J.)	#180
Jet needle	(J.N.)	R1470NS-3rd
Cut-away	(C.A.)	# 5
Slow jet	(S.J.)	#52
By-pass	(B.P.)	0.8 mm (0.031 in)
Pilot outlet	(P.O.)	0.7 mm (0.028 in)
Air screw	(A.S.)	1-½ turns out
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	7° ± 2° B.T.D.C. at 9 000 r/min.		
Spark plug	Type	NGK: R4118S-8	
	Gap	0.55–0.65 (0.022–0.026)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	0–1 Ω	Terminal–Ground
	Secondary	10–17 kΩ	Plug cap–Ground
Magneto coil resistance	50–200 Ω		R–G
	20–30 Ω		R/W–B/R

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Brake lever play	0.1–0.3 (0.004–0.01)		—
Rear brake pedal height	10 (0.4)		—
Brake disc thickness	Front	3.0±0.2 (0.118±0.008)	2.5 (0.10)
	Rear	4.5±0.2 (0.177±0.008)	4.0 (0.15)
Brake disc runout	Front&Rear	—	0.30 (0.01)
Master cylinder bore	Front	11.000–11.043 (0.4331–0.4348)	—
	Rear	14.000–14.043 (0.5512–0.5529)	—
Master cylinder piston diam.	Front	10.957–10.984 (0.4314–0.4324)	—
	Rear	13.957–13.984 (0.5495–0.5506)	—
Brake caliper cylinder bore	Front	27.000–27.050 (1.0630–1.0650)	—
	Rear	30.000–30.050 (1.1811–1.1831 in)	—
Brake caliper piston diam.	Front	26.900–26.950 (1.0591–1.0610)	—
	Rear	29.900–29.950 (1.1772–1.1791 in)	—
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	80/100–21 51M	—
	Rear	110/90–19 62M	—

SUSPENSION

Unit: mm (in)

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	310 (12.2)	———	
Front fork spring free length	486.0 ± 2.5 (19.1 ± 0.098)	478.5 (18.8)	
Front fork oil level	170 (6.7)	———	See page 4-9 and 4-10
Front fork air pressure	Atmospheric pressure	———	
Rear shock absorber gas pressure	1000 kPa (10 kg/cm², 142 psi)	1000 – 1200 kPa 10 – 12 kg/cm² 142 – 170 psi	
Rear shock absorber spring pre-set length	255.0 (10.0)	———	
Rear wheel travel	324 (12.8)	———	
Swingarm pivot shaft runout	———	0.3 (0.01)	

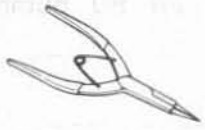
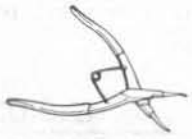
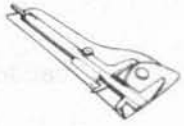
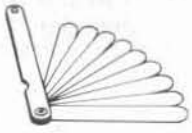
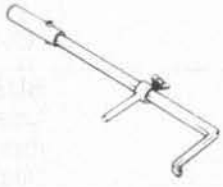
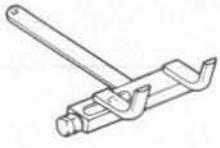
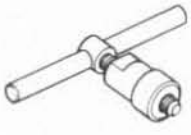
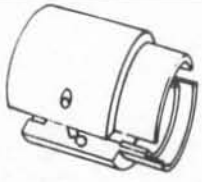
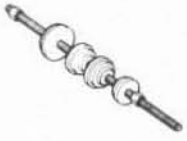
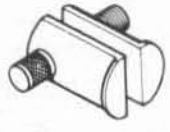
TIRE PRESSURE

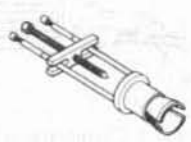
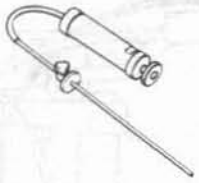
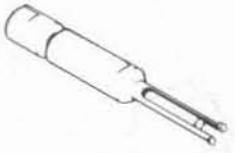
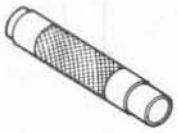
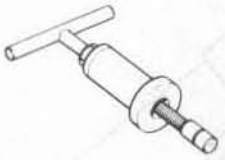
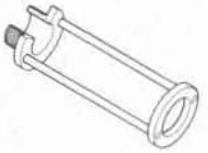
Front & Rear	70 – 110 kPa 0.7 – 1.1 kg/cm² 10 – 16 psi

FUEL + OIL + COOLANT

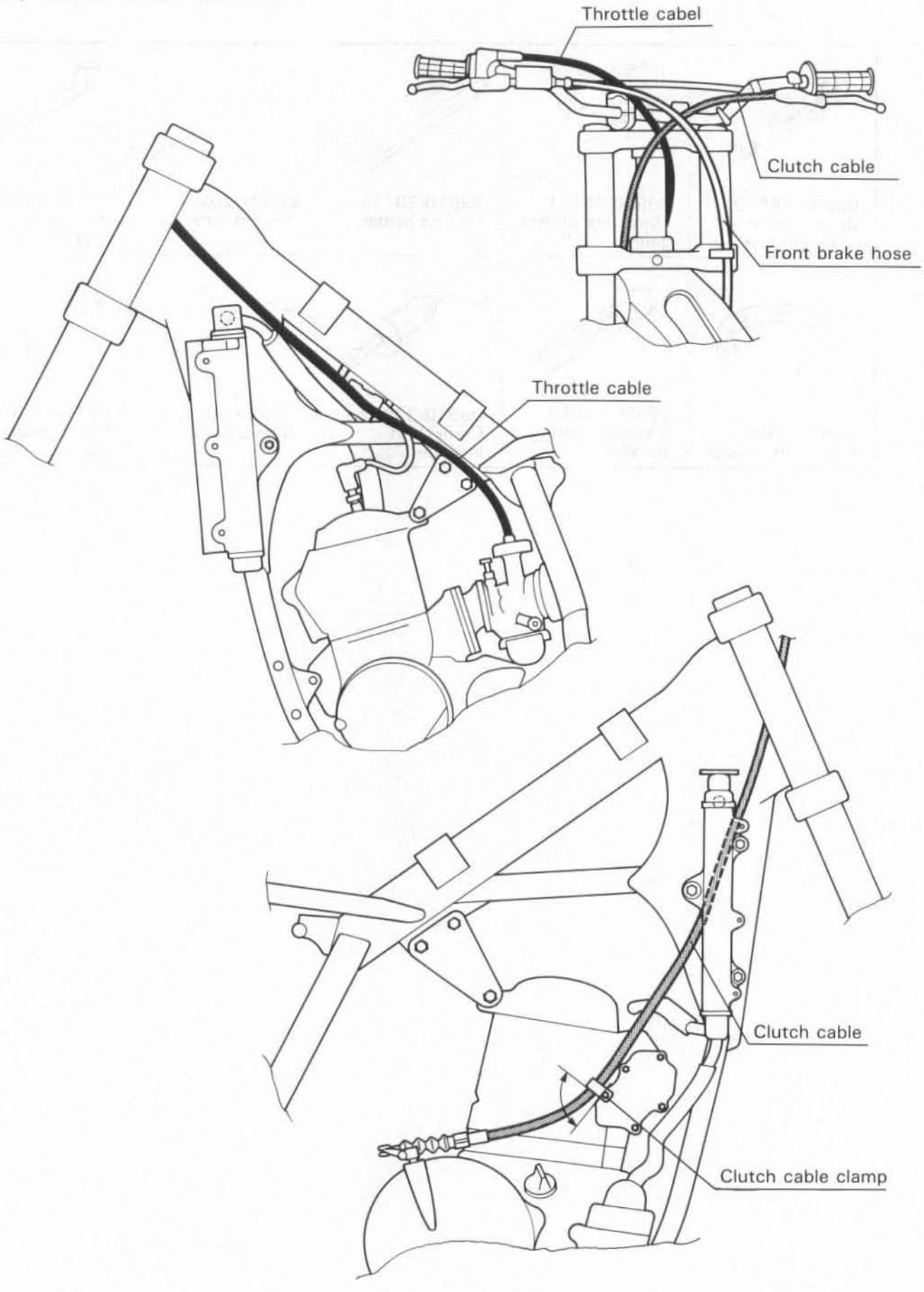
ITEM	SPECIFICATION		NOTE
Fuel type	Unleaded gasoline minumum 90 pump octane (R+M)/2		
Fuel tank capacity	7.5 L (2.0 US gal)		
Engine oil type	SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT or equivalent Two Cycle Racing Lubricant		
Transmission oil type	SAE 10W/40		
Transmission oil capacity	Change	750 ml (0.7 US qt)	
	Overhaul	850 ml (0.8 US qt)	
Front fork oil type	SUZUKI fork oil SS-05 or an equivalent fork oil		
Front fork oil capacity (each leg)	Outside Fork Cylinder	440 ml (14.9/15.5 US/Imp oz)	See page 4-10
	Inside Fork Cylinder	145 ml (4.9/5.1 US/Imp)	See page 15-6 Filled in the fork cylinder.
Coolant type	SUZUKI GOLDEN CRUISER 1200NA. Use an anti-freeze&summer coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.		
Coolant capacity	900 ml (1.9 US pt)		
Rear shock absorber oil capacity	340 ml (11.5 US oz)		
Brake fluid type	DOT4		

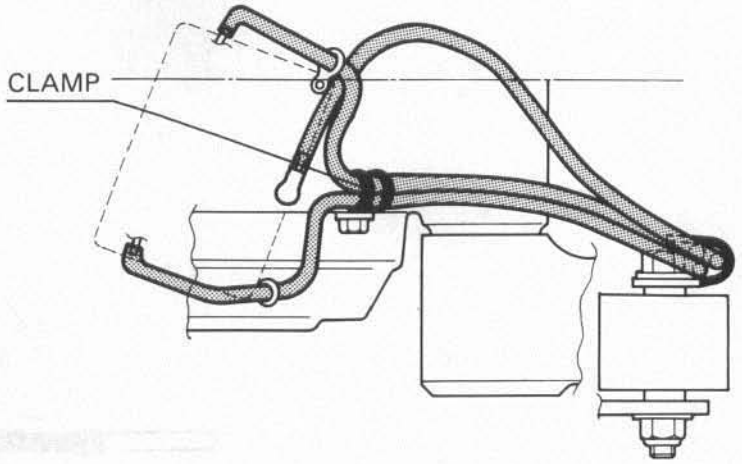
SPECIAL TOOLS

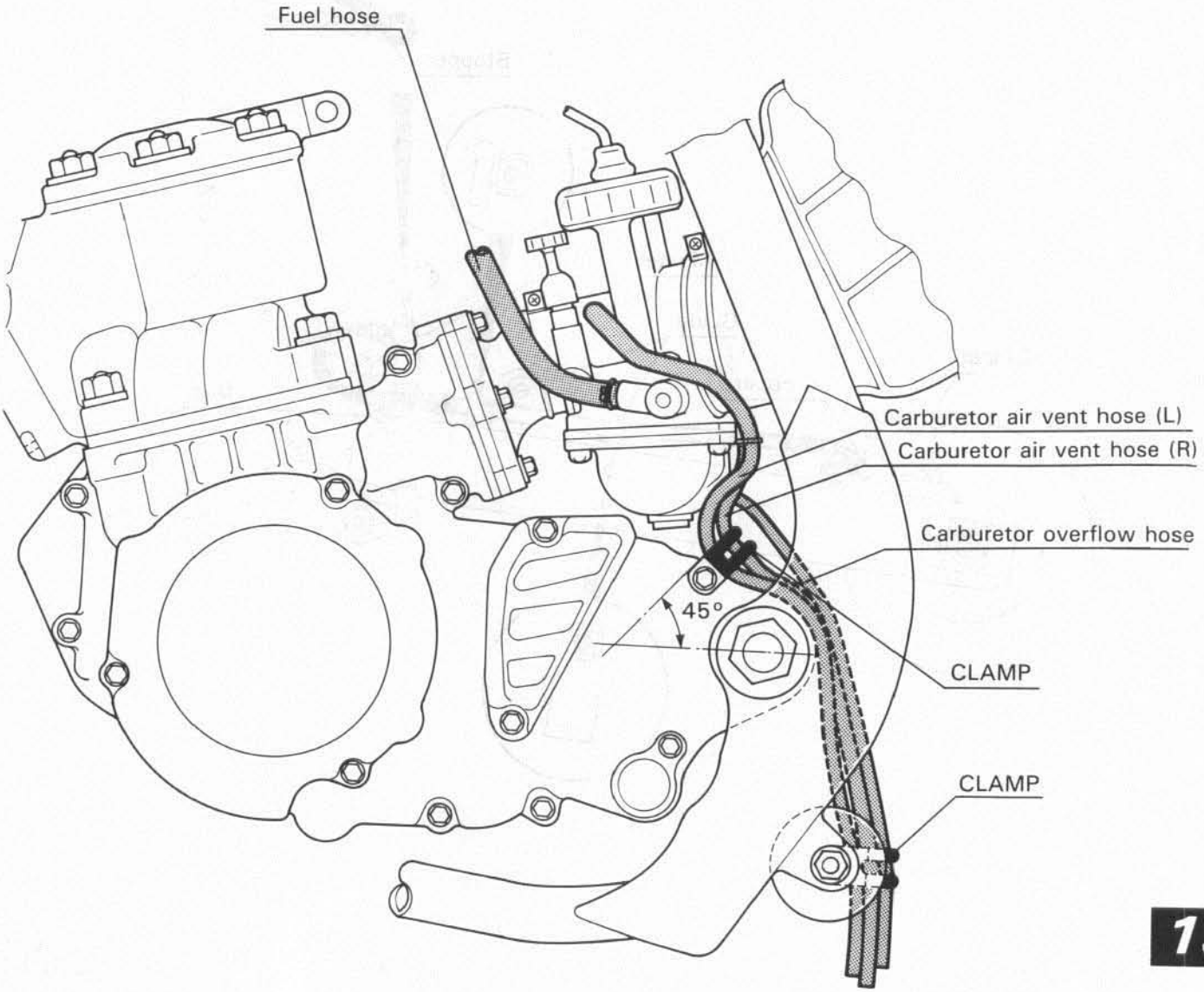
 09900-00401 Hexagon wrench set	 09900-06107 Snap ring pliers	 09900-06108 Snap ring pliers	 09900-09003 Impact dirver set	 09900-20101 Vernier calipers (150 mm)
 09900-20203 Micrometer (50—75 mm)	 09900-20205 Micrometer (0—25 mm)	 09900-20508 Cylinder gauge set	 09900-20602 Dial gauge	 09900-20605 Dial gauge
 09900-20803 Thickness gauge	 09900-25002 Pocket tester	 09930-70210 CDI unit test lead	 09913-50121 Oil seal remover	 09914-79610 Bearing/Oil seal installer
 09920-13120 Crankcase separating tool	 09920-53740 Clutch sleeve hub holder	 09923-73210 Bearing puller	 09923-74510 Bearing puller	 09930-30102 Rotor remover slide shaft
 09930-30113 Flywheel rotor remover	 09930-40113 Rotor holder		 09940-14911 09940-14960 Steering nut socket wrench	 09940-94920 Stopper plate
 09940-32720 Front fork oil seal installer	 09941-34513 Bearing installer set	 09941-50110 Wheel bearing remover	 09941-54911 Bearing outer race remover	 09941-74910 Bearing installer

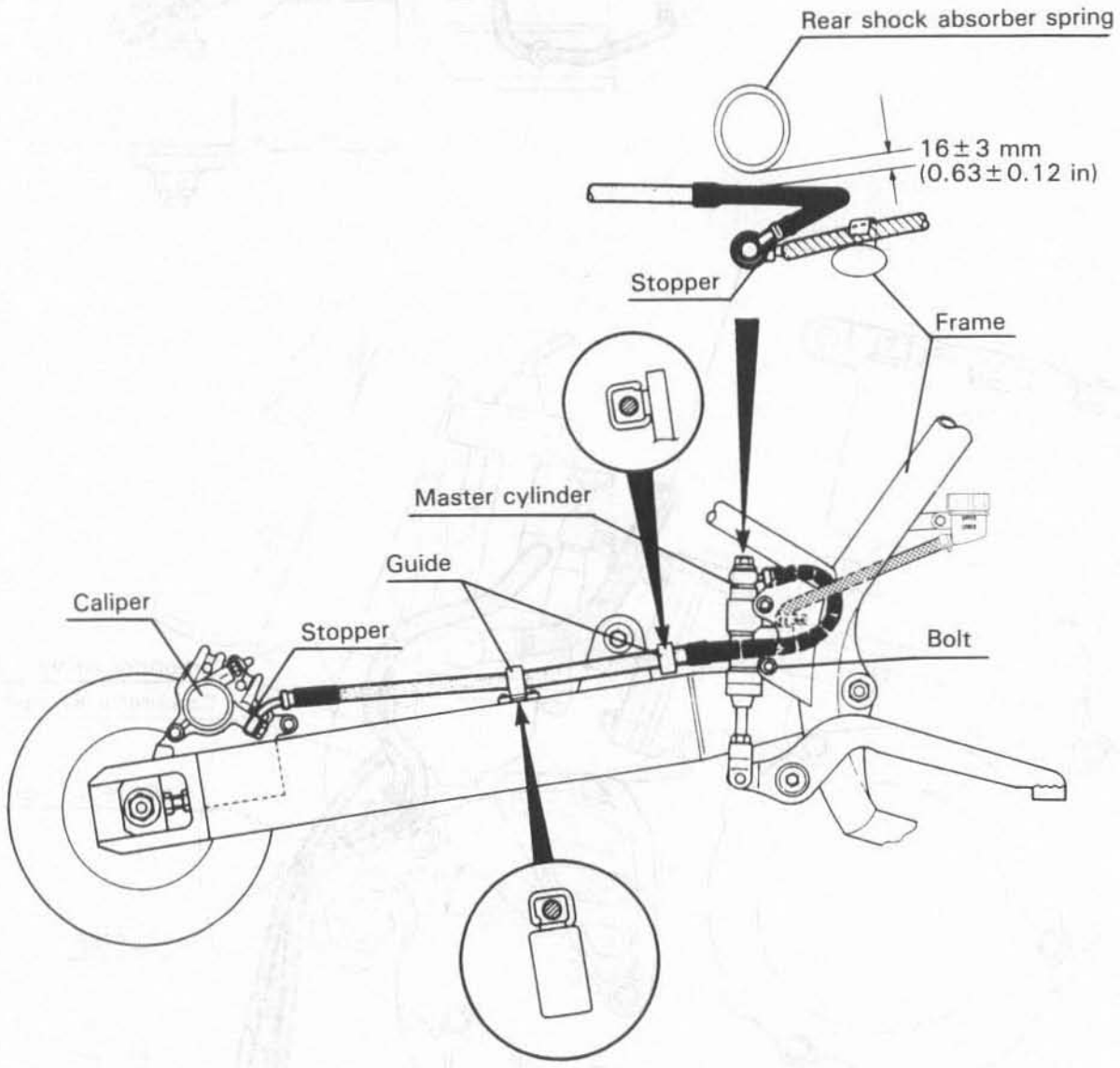
 09941-84510 Bearing inner race remover	 09943-74111 Front fork oil level gauge	 09910-20116 Conrod holder	 09921-20200 Bearing remover	 09910-60611 Universal clamp wrench
 09940-54851 Front fork spaser	 09925-18010 Steering bearing installer	 09910-32812 Crankshaft installer	 09920-20310 Spring hook	 09940-42810 Fork cylinder holder

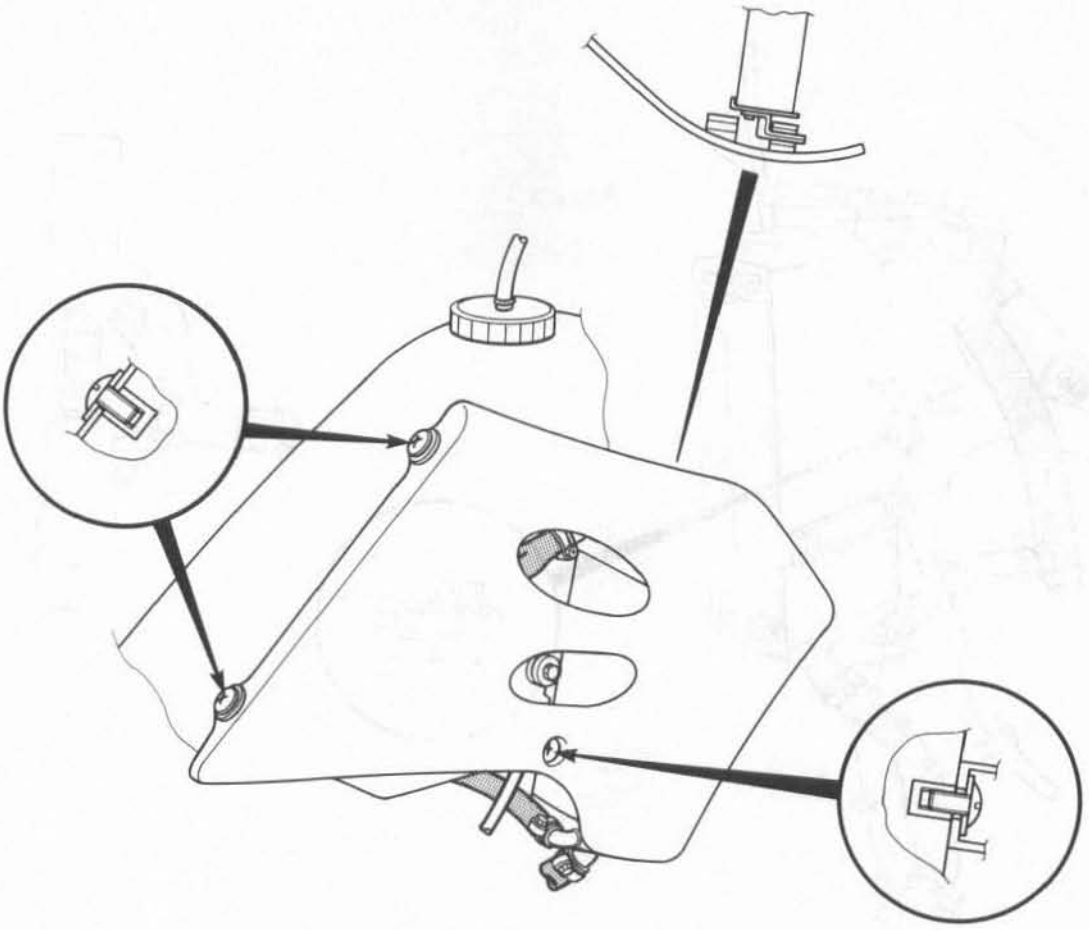
WIRE, CABLE AND HOSE ROUTING

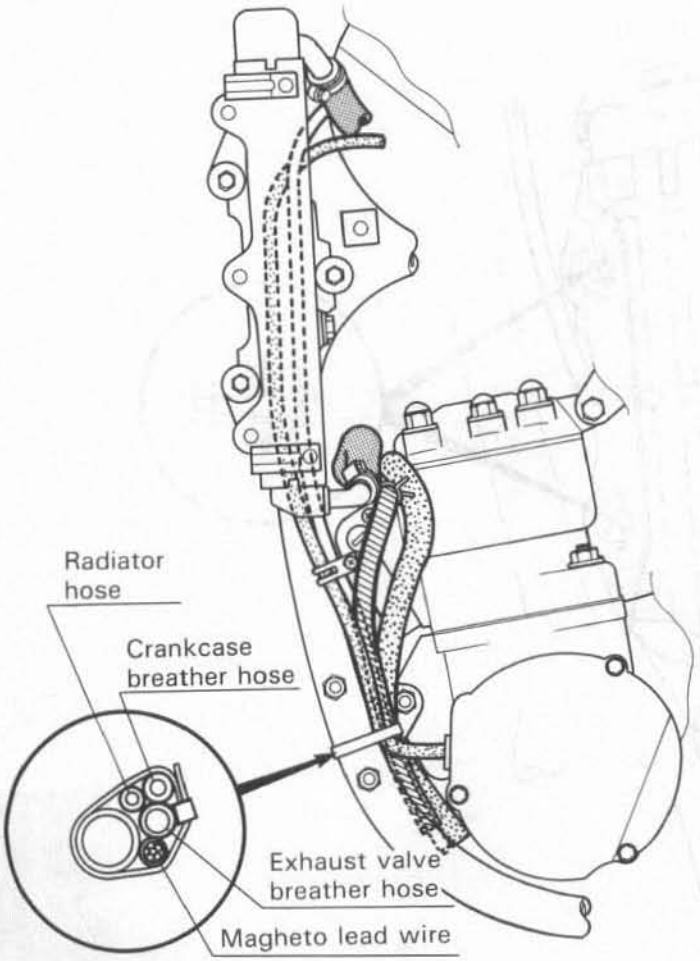


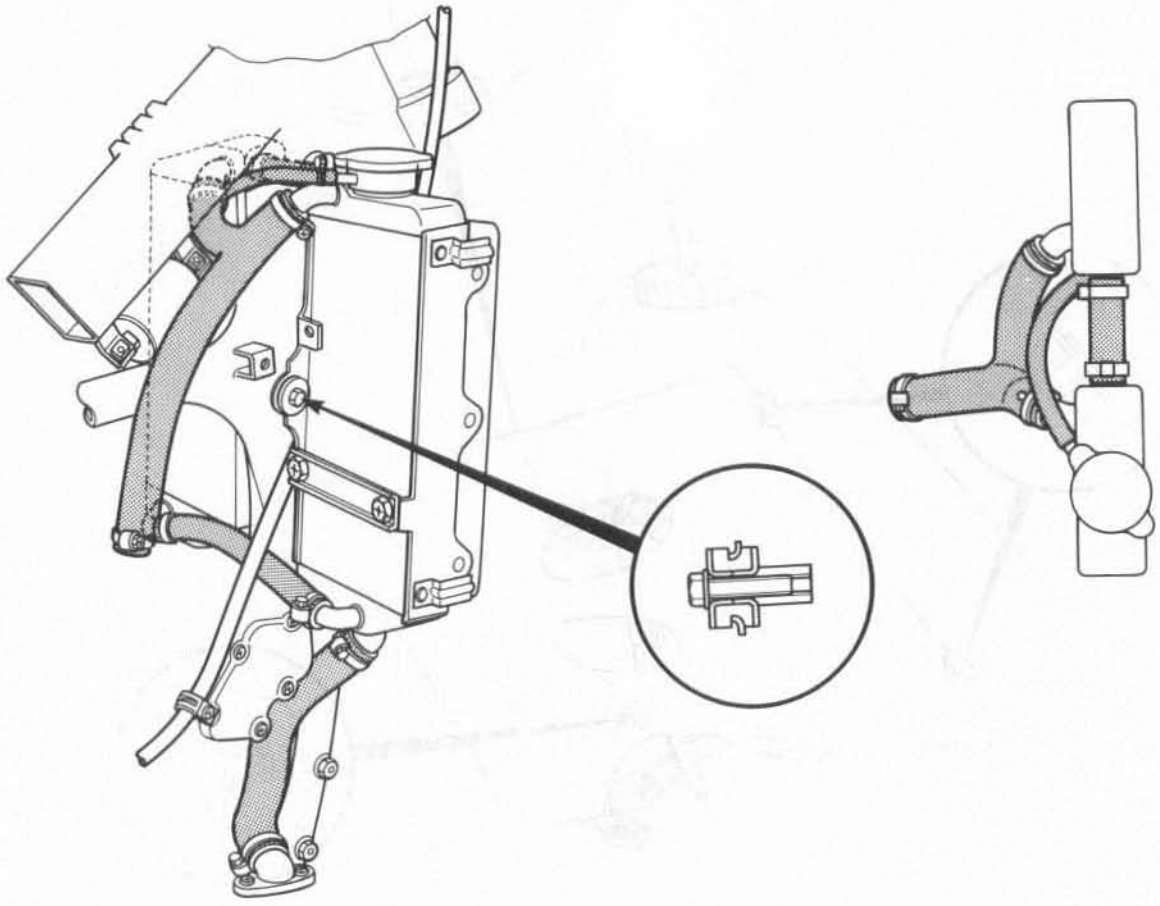

CLAMP

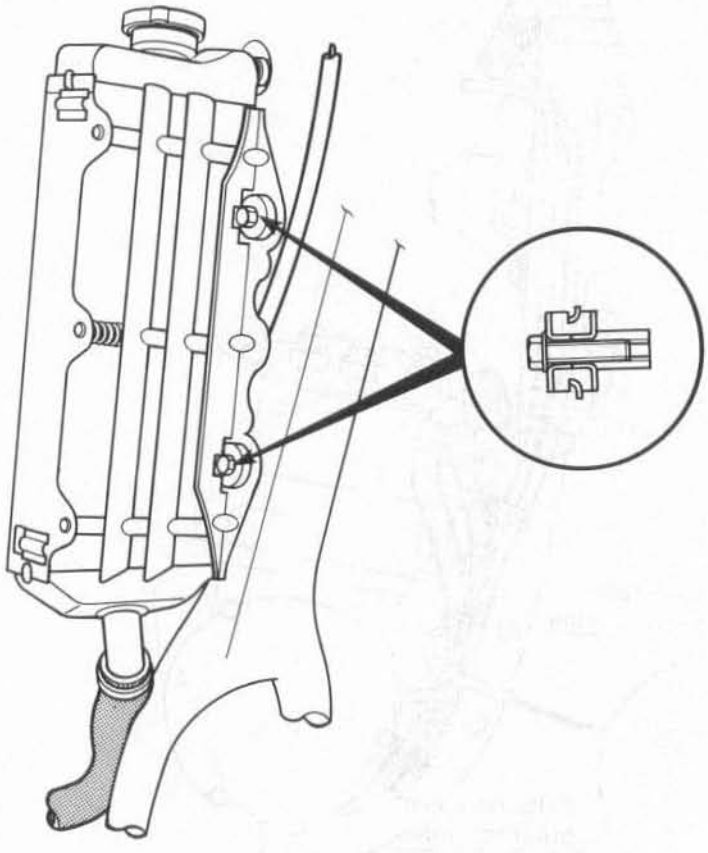

Fuel hose
Carburetor air vent hose (L)
Carburetor air vent hose (R)
Carburetor overflow hose
45°
CLAMP
CLAMP


Rear shock absorber spring
16 ± 3 mm
(0.63 ± 0.12 in)
Stopper
Frame
Master cylinder
Guide
Caliper
Stopper
Bolt




Radiator hose
Crankcase breather hose
Exhaust valve breather hose
Magheto lead wire





SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 165 mm (85.2 in)
Overall width	835 mm (32.9 in)
Overall height	1 250 mm (49.2 in)
Wheelbase	1 465 mm (57.7 in)
Ground clearance	360 mm (14.2 in)
Seat height	960 mm (37.8 in)
Dry mass	98 kg (216 lbs)

ENGINE

Type	Two-stroke water-cooled
Intake system	Crankcase reed valve
Number of cylinder	1
Bore	67.0 mm (2.638 in)
Stroke	70.8 mm (2.787 in)
Piston displacement	249 cm^3 (15.2 cu. in)
Corrected compression ratio	8.7 : 1 (EX VALVE OPEN) and 10.4 : 1
Carburetor	KEIHIN PJ38, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Fuel/oil premixture of 32 : 1

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	2.652 (61/23)
Final reduction	3.769 (49/13)
Gear ratios, Low	2.153 (28/13)
2nd	1.705 (29/17)
3rd	1.411 (24/17)
4th	1.157 (22/19)
Top	1.000 (23/23)
Drive chain	DAIDO: D.I.D. 520DS5 112 links

CHASSIS

Front suspension	Telescopic, pneumatic/coil spring, oil damped compression damping force 18-way adjustable rebound damping force 18-way adjustable.
Rear suspension	Linkage suspension system, spring pre-load fully adjustable, compression damping force 21-way adjustable, rebound damping force 21-way adjustable.
Steering angle	45° (right & left)
Caster	62° 45'
Trail	108 mm (4.3 in)
Turning radius	2.3 m (7.5 ft)
Front brake	Disc brake, hydraulically operated
Rear brake	Disc brake, hydraulically operated
Front tire size	80/100-21 51M
Rear tire size	110/90-19 62M
Front fork stroke	310 mm (12.2 in)
Rear wheel travel	324 mm (12.8 in)

ELECTRICAL

Ignition type	Electronic Ignition (CDI)
Ignition timing	7° B.T.D.C. at 9 000 rpm
Spark plug	NGK R4118S-8 ... The others NGK BR8EV ... For Canada and France

CAPACITIES

Fuel tank	7.5 L (2.0/1.6 US/Imp gal)
Front fork oil	440 ml (14.9/15.5 US/Imp oz) ..... outside Fork Cylinder 145 ml (4.9/5.1 US/Imp oz) ..... inside Fork Cylinder
Transmission oil, oil change	750 ml (1.4/1.1 US/Imp pt)
overhaul	850 ml (1.6/1.3 US/Imp pt)
Coolant	900 ml (1.9/1.6 US/Imp pt)

INDEX