SUZUKI

RM

250

OWNER'S SERVICE MANUAL

This manual should be considered a permanent part of the motorcycle and should remain with the motorcycle when resold or otherwise transferred to a new owner or operator.
The manual contains important safety information and instructions which should be read carefully before operating the motorcycle.

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, illustrations, 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, without notice and without incurring any obligation to make the same or similar changes to vehicles previous 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 fluids, 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.

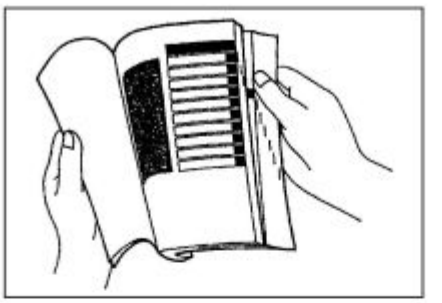
SUZUKI MOTOR CORPORATION

GROUP INDEX

HOW TO USE THIS MANUAL

TO LOCATE WHAT YOU ARE LOOKING FOR:

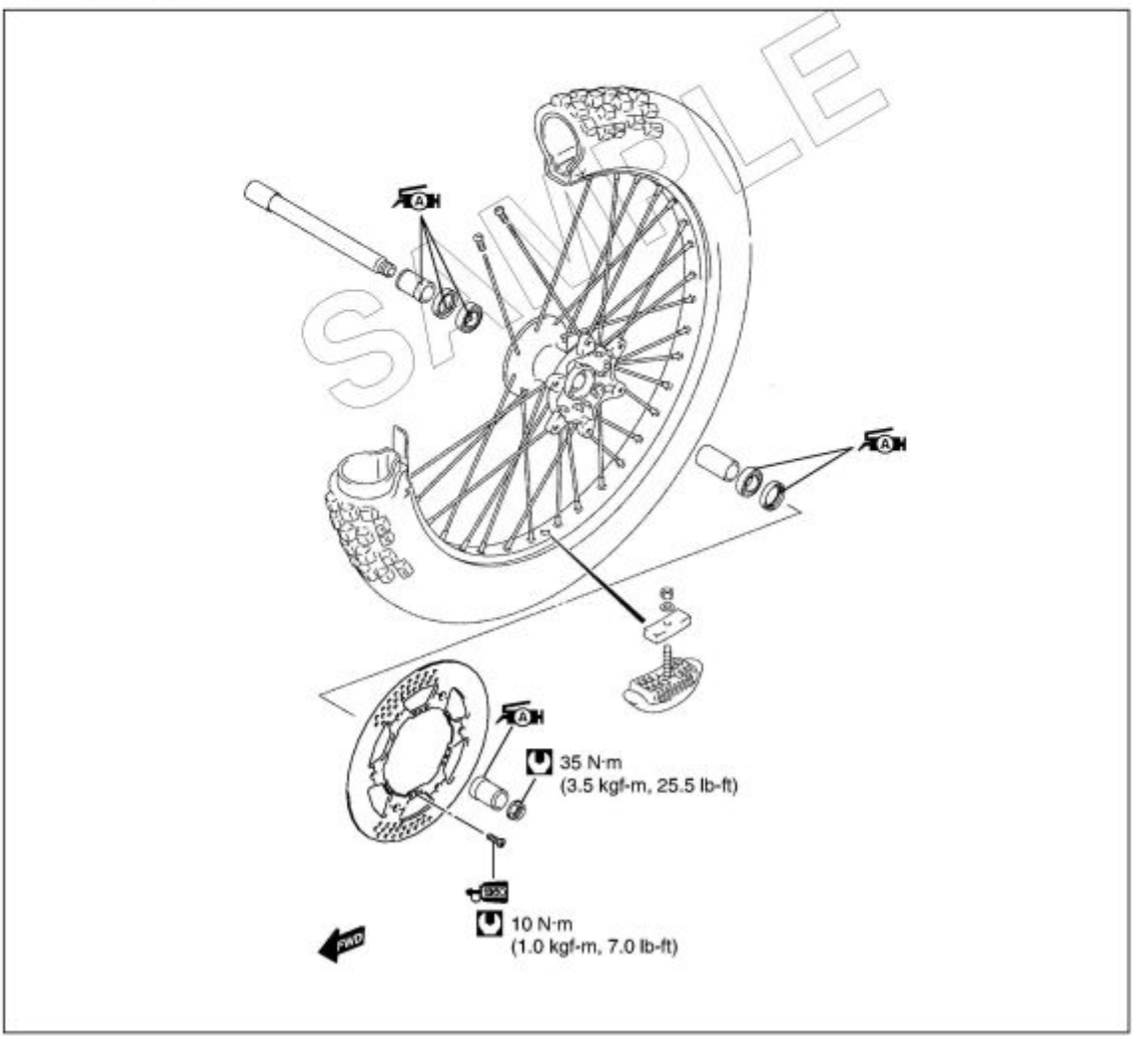
1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help find the item and page you need.



COMPONENT PARTS AND WORK TO BE DONE

Under the name of each system or unit, is its exploded view. Work instructions and other service information such as the tightening torque, lubricating points and locking agent points, are provided.

Example: Front wheel



SYMBOL

Listed in the table below are the symbols indicating instructions and other information. The meaning of each symbol is also included in the table.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.		Apply THREAD LOCK SUPER "1303". 99000-32030
	Apply oil. Use engine oil or transmission oil unless otherwise specified.		Use SUZUKI FORK OIL SS-05 or equivalent fork oil. 99000-99001-SS5
	Apply SUZUKI SUPER GREASE "A". 99000-25030 (USA) 99000-25010 (Others)		Use SUZUKI REAR SUSPENSION OIL SS-25 or equivalent rear suspension oil. 99000-99001-S25
	Apply SUZUKI SILICONE GREASE. 99000-25100		Use engine coolant.
	Apply SUZUKI BOND "1207B". 99000-31140		Apply or use brake fluid. (DOT-4)
	Apply THREAD LOCK SUPER "1322". 99000-32110		Use special tool.
	Apply THREAD LOCK SUPER "1360". 99000-32130		Indication of service data.
	Apply THREAD LOCK SUPER "1342". 99000-32050		Replace a part with a new one when reassembling.

GENERAL INFORMATION

1

CONTENTS

WARNING/CAUTION/NOTE

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WARNING/CAUTIONS 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

Hot engine and muffler can burn you.

Wait until the engine and muffler cools before servicing.

⚠ 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

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

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 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.

⚠ WARNING

* Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the motorcycle.
* When 2 or more persons work together, pay attention to the safety of each other.
* When handling toxic or flammable materials, make sure that the area you work in is well-ventilated and that you follow all of the material manufacturer's instructions.
* Never use gasoline as a cleaning solvent.
* After servicing the fuel, oil, exhaust or brake systems, check all lines and fittings related to the system for leaks

CAUTION

* If parts replacement is necessary, replace the parts with Suzuki Genuine Parts or their equivalent.
* When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order and orientation.
* Be sure to use the special tools when instructed.
* Make sure that all parts used in reassembly are clean. Lubricate them when specified.
* Use the specified lubricant, bond, or sealant.
* Whenever you remove oil seals, gaskets, packing, O-rings, locking washers, self-locking nuts, circlips and certain other parts as specified, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.
* Never reuse a circlip. When installing a new circlip, take care not to expand the end gap larger than required to slip the circlip over the shaft. After installing a circlip, always ensure that it is completely seated in its groove and securely fitted.
* Use a torque wrench to tighten bolts/nuts to the specified torque. Wipe off grease and oil if a thread is smeared with them.
* After reassembling, check parts for tightness and proper operation.
* Use special tools where specified.

* To protect the environment, do not unlawfully dispose of used motor oil and other fluids.
* To protect Earth's natural resources, properly dispose of used motorcycle and parts.

GENERAL CONSIDERATIONS

- **Wear a helmet and goggles**
  A helmet is the most important piece of gear to wear. Helmets do not reduce essential vision or hearing. Generally, helmets do not cause or intensify injury if you crash. Helmets simply help your skull protect your intelligence, your memory, your personality, and your life.

  Your eyesight is equally valuable. Wearing suitable eye protection can help keep your vision unblurred by the wind and help shield your eyes from branches and airborne matter like bugs, dirt, or pebbles kicked up by tires. Wear a helmet and eye protection every time you ride.

- **Wear protective gear**
  Wear proper clothing when you ride. Avoid loose clothes or scarves, which could get caught in moving parts. Abrasion injuries can be minimized by wearing protective clothing including gloves, strong boots that fit over the ankle, long pants, and a long sleeve shirt or jackets. Experienced riders often wear a kidney belt and chest or back protector for additional comfort and protection.

- **Inspect your machine before riding**
  Before each use, perform an inspection per "PERIODIC MAINTENANCE" section starting on page 2-2.

- **No Passengers**
  Suzuki RMs are designed for the rider only.

- **Practice on level ground**
  Before you begin riding, you should find a good place to practice the skills you need to ride safely. Find a flat, open area with enough space to maneuver. Check with your Suzuki dealer or call police department if you do not know where you can ride.

  Review the controls on your motorcycle before riding.

- **Know your limits**
  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.

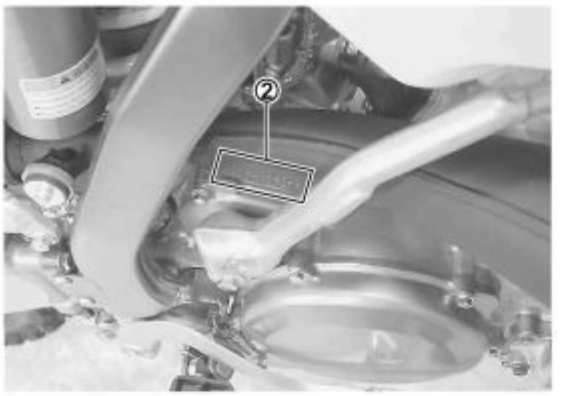
  Safely competing on a motorcycle requires that your mental and physical skills are fully part of the experience. You should not attempt to operate a motor vehicle, especially one with two wheels, if you are tired or under the influence of alcohol or other drugs. Alcohol, illegal drugs, and even some prescription and over-the-counter drugs and 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.

- **Conclusion**
  The actions of other riders are unpredictable. Your motorcycle's condition can change. These factors can best be dealt with by giving every ride your full attention.

  Circumstances beyond your control could lead to an accident. You need to prepare for the unexpected by wearing a helmet and other protective gear, and practicing safe riding techniques to minimize the damage to you and your machine.

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

SERIAL NUMBER LOCATION

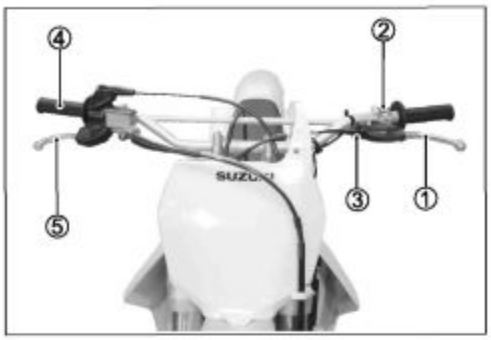


The frame number ① is stamped on the steering head as shown in the photograph. The engine serial number ② is stamped on the right side of the crankcase assembly.
Write down the serial numbers here for your future reference.

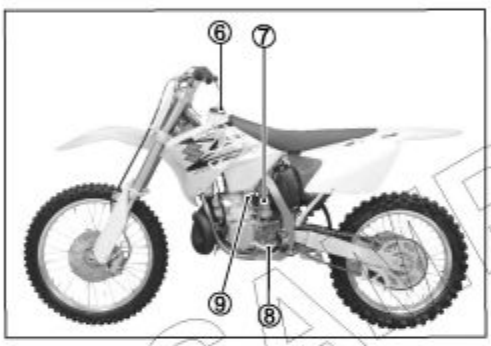
Frame No.	

Engine No.	

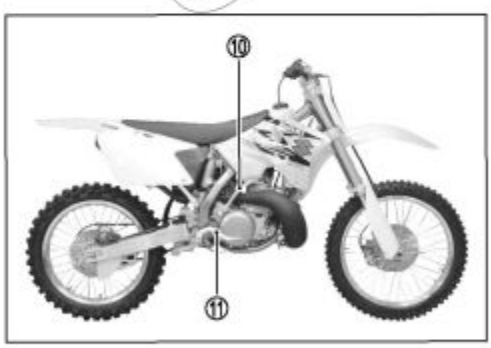
LOCATION OF PARTS



① Clutch lever
② Engine stop switch
③ Clutch cable adjuster
④ Throttle grip
⑤ Front brake lever

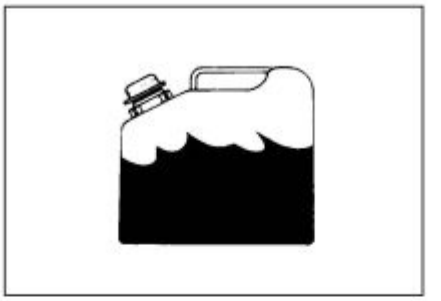


⑥ Fuel tank cap
⑦ Starter knob
⑧ Gearshift lever
⑨ Fuel valve



⑩ Kick starter lever
⑪ Rear brake pedal

FUEL AND OIL RECOMMENDATION



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

Gasoline: Use only unleaded gasoline of at least 90 pump octane (R/2 + M/2). .... For Canada
Use only unleaded gasoline of at least 95 octane (Research Method). .... For other countries

Engine oil: MOTUL 800 2T FACTORY LINE OFF ROAD or an equivalent Two Cycle Racing Lubricant.

Mixing ratio: 30 : 1

Fuel tank capacity: 8.0 L (2.1/1.8 US/Imp gal)

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 30:1.

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.*

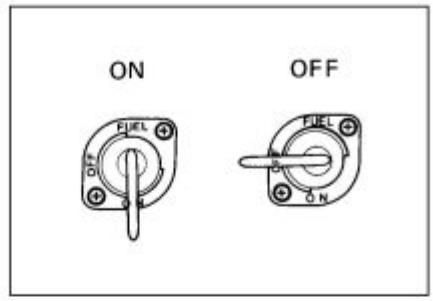
Gasoline (L)	Oil (ml)
5.0	167
10.0	333
15.0	500
20.0	667

Gasoline (US gal.)	Oil (US oz)
1	4.3
2	8.6
3	12.8
4	17.1

Gasoline (Imp gal.)	Oil (Imp oz)
1	5.4
2	10.7
3	16.0
4	21.4

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 fuel valve lever to the "ON" position.
2) Shift the transmission into neutral.
3) Pull the bypass (starter) knob ①.
4) Close the throttle grip completely and depress the kick starter lever forcefully.
5) Return the bypass (starter) knob when the engine revs at steady speed.

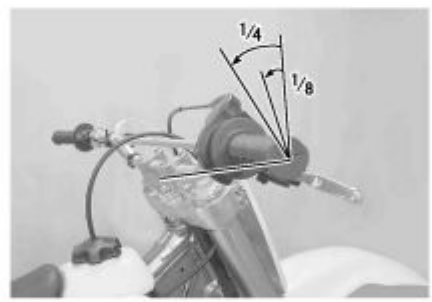
CAUTION

Racing the engine in neutral will exceed the engine speed limit. Exceeding the engine speed limit can damage the engine moving parts.

Do not race the engine at high speed to avoid the engine damage.

When the engine is warm:

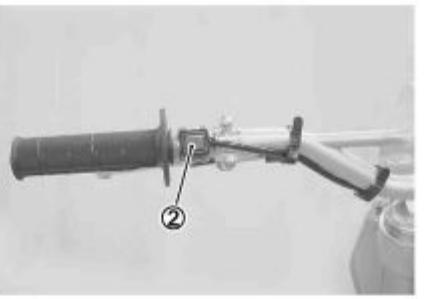
1) Turn the fuel valve lever to the "ON" position.
2) Shift the transmission into neutral.
3) Open the throttle 1/8 – 1/4 turn Ⓐ and depress the kick starter lever forcefully.



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



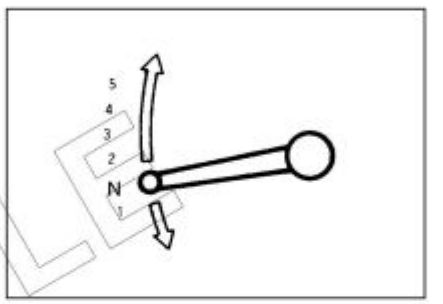
1) Shift the transmission into neutral.
2) Turn the fuel valve lever to the "OFF" position.
3) Push the engine stop switch ② to stop the engine.

⚠ WARNING

Leaving the fuel valve 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 fuel valve in the "OFF" position when the engine is not running.

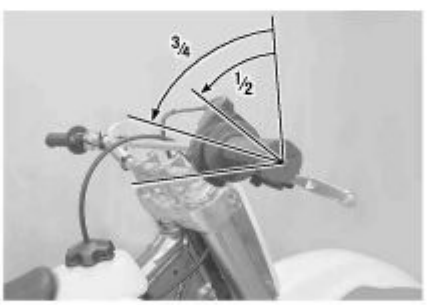
TRANSMISSION



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 the position halfway between low and 2nd gear.

BREAK-IN (RUNNING-IN)

WHEN THE MOTORCYCLE IS NEW



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

NOTE:

** The break-in (running-in) period is the period of greatest wear.*

** The bolts and nuts of the new machine can loosen quickly. Be sure to retighten the bolts and nuts during the break-in (running-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

COUNTRY AND AREA CODES

The following codes stand for the applicable country(-ies) and area(-s).

CODE	COUNTRY or AREA
000	Japan
E-03	U. S. A.
E-28	Canada

PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE

CONTENTS

PERIODIC MAINTENANCE

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
	hours	Every 2 hours	Every 6 hours	Every 10 hours	
Spark plug		I	R	—	
Air cleaner		C	—	—	Replace air cleaner element as necessary.
Transmission oil		—	R	—	Change after 1st initial break-in.
Cooling-system		I	—	—	Replace radiator hose and engine coolant every year. Flushing for overhaul or storage.
Clutch		I	—	—	Replace clutch plates as necessary.
Throttle and clutch cable		I & L	—	—	
Carburetor		I	—	—	
Fuel hose		I	—	—	Replace every 4 years.
Piston		—	—	R	
Piston ring		—	R	—	
Cylinder head, cylinder		—	C	—	
Exhaust valve		—	C	—	
Crankshaft and transmission bearing		Inspect as required			
Exhaust silencer		I	—	—	
Drive chain		I & L	R	—	Adjust slack every 30 minutes.
Engine sprocket		I	—	—	
Rear sprocket		I	—	—	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		I & L	—	—	
Brake		I	—	—	Replace brake hose and fluid every year.
Front fork oil		—	R	—	Change after 1st initial break-in.
Front fork		I	—	—	Check front fork inner tube frequently for abnormality. Check the air pressure.
Rear suspension system pivoting portion		I	—	—	Check rear suspension system frequently and apply the grease to the pivoting portion as necessary.

Interval / Service Item					Remarks
	races	Every race	Every 3 races	Every 5 races	
	hours	Every 2 hours	Every 6 hours	Every 10 hours	
Tire		I	—	—	
Spoke nipple		I	—	—	Inspect every 20 min. up to initial 2 hours then check before each ride.
Steering		I	—	—	
Bolts and nuts		T	—	—	Retighten every 1 hour.

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

INSPECTION BEFORE PRACTICE

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

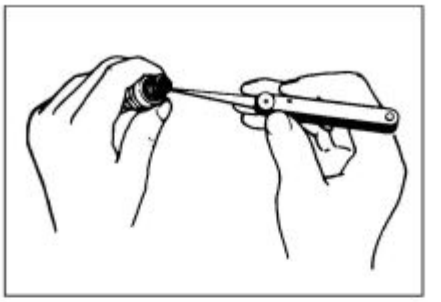
INSPECTION BEFORE RACE

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

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

CAUTION

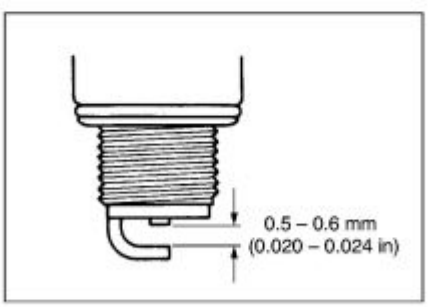
Changing the spark plug heat range improperly can damage the engine.

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

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

DATA **Standard Spark plug: NGK BR8EG**
Spark plug gap: 0.5 – 0.6 mm (0.020 – 0.024 in)

TOOL **09900-20803: Thickness gauge**

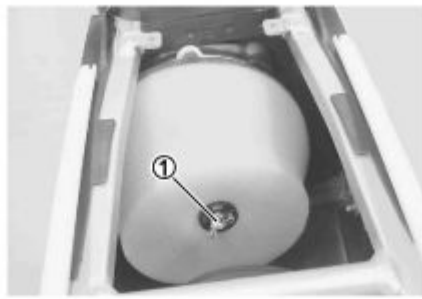


Tighten the spark plug to the specified torque after tightening the spark plug temporarily by hand

Spark plug: 20 N·m (2.0 kgf-m, 14.5 lb-ft)

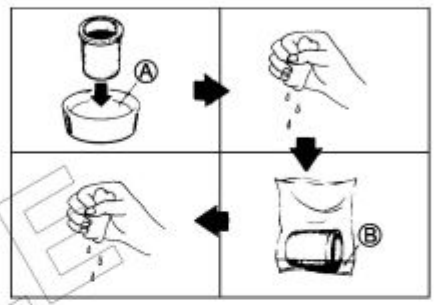
AIR CLEANER

AIR CLEANER ELEMENT REMOVAL



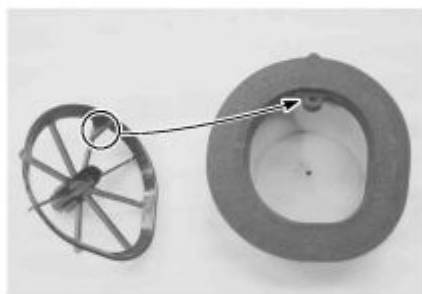
- Remove the seat. (☞3-2)
- Remove screw ①.
- Remove the element from the element holder.

WASHING



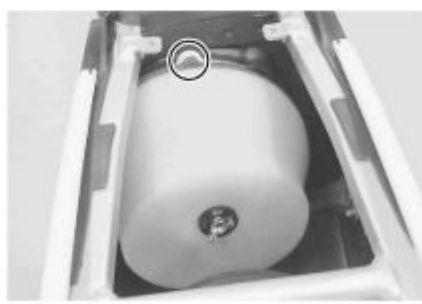
- Fill a washing pan that is large enough to hold the element with non-flammable cleaning solvent Ⓐ. Immerse the element in the solvent and wash it.
- Squeeze the element by grasping it to remove excess solvent. Do not twist or wring the element, or it will develop cracks.
- Dry the element in a plastic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

INSTALLATION



- Apply grease to the element base where contacts the air cleaner box.
- Fit the element onto the element holder.

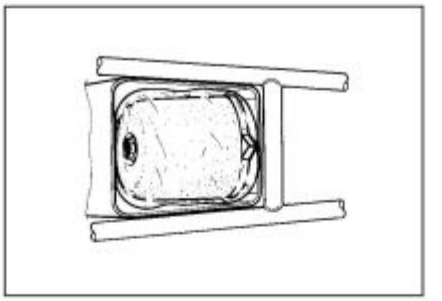
NOTE:
Fit the projection of the element holder in the hole of the element base.

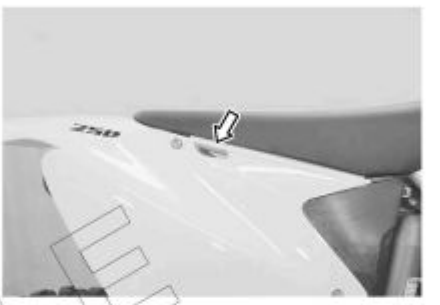


- Install the reassembled element to the air cleaner box so that the projection of the element aligned with the projection of the box.

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.

NOTE:
Follow the instructions below to keep the air cleaner element dry when cleaning the motorcycle.
* *Cover the element with a plastic bag.*
* *Install the seat.*
* *Cover the inlet holes on the frame covers to prevent water from coming into the air cleaner box.*
* *Do not spray high pressure water to the air cleaner box.*





TRANSMISSION OIL

TRANSMISSION OIL LEVEL INSPECTION AND REPLENISHMENT

⚠ WARNING

Transmission oil and exhaust pipe can be hot enough to burn you.

Wait until the oil drain plug and exhaust pipe become cool enough to touch with bare hands before draining oil.

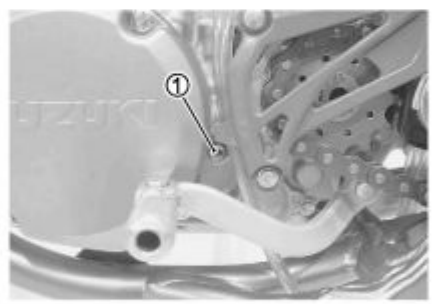
⚠ WARNING

New and used oil and solvent can be hazardous. Children and pets may be harmed by swallowing new or used oil or solvent. Continuous contact with used engine oil has been found to cause skin cancer in laboratory animals. Brief contact with used oil or solvent may irritate skin.

- **Keep new and used oil and solvent away from children and pets.**
- **Wear a long-sleeve shirt and waterproof gloves.**
- **Wash with soap if oil or solvent contacts your skin.**

NOTE:
Recycle or properly dispose of used oil and solvent.

- Place the motorcycle on level ground and hold the motorcycle vertically.
- Run the engine for a few minutes and stop it. Wait for 5 minutes.
- Remove the oil check bolt ①. Check that oil comes out of the hole.



- If oil does not come out of the hole, open oil filler cap ② and add the specified oil. Tighten the filler cap and oil check bolt and inspect again as above procedure.

DATA Transmission oil type: SAE 10W-40/API SE

- Tighten the filler cap firmly and tighten the oil level check bolt to the specified torque.

Oil level check bolt: 5.5 N·m (0.55 kgf-m, 4.0 lb-ft)

TRANSMISSION OIL CHANGE

- Warm up the engine.
- Place the motorcycle on the level ground and hold the motorcycle vertically.
- Remove filler cap and drain plug ③. Drain oil thoroughly.
- Tighten the drain plug firmly.

Oil drain plug: 21 N·m (2.1 kgf-m, 15.0 lb-ft)

- Pour specified amount of oil.

DATA **Oil change.....750 ml (0.8/0.7 US/Imp qt)**
Overhaul.....850 ml (0.9/0.7 US/Imp qt)

- Tighten the filler cap.
- Run the engine for a few minutes and stop it. Wait for 5 minutes.
- Inspect the oil level. (☞2-9)

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. If not, replenish the radiator with specified engine coolant.
- Tighten the radiator cap securely.

CAUTION

Improperly tightening the radiator cap will prevent the cooling system from reaching the specified operating pressure and will cause 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.*
* *If the motorcycle is to be exposed to temperatures below –31 °C (–24 °F), the percentage of antifreeze should be increased to 55 % or 60 %, according to figure 1.*

Antifreeze density	Freezing point
50 %	–31 °C (–24 °F)
55 %	–40 °C (–40 °F)
60 %	–55 °C (–67 °F)

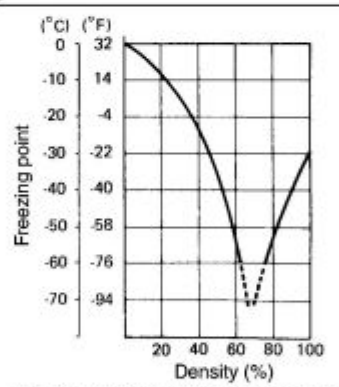


Fig. 1 Engine coolant density-freezing point curve

ENGINE COOLANT REPLENISHMENT

⚠ WARNING

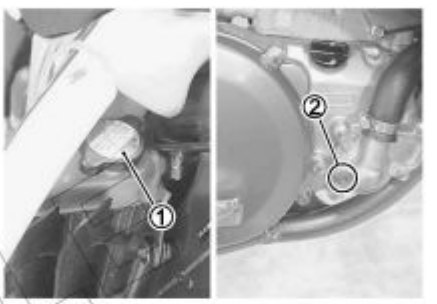
Engine coolant is harmful if swallowed or if it comes in contact with your skin or eyes.

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.

- Remove the radiator cap ①.
- Remove the drain plug ② and drain engine coolant.
- Tighten the drain plug ② and pour specified engine coolant.

Radiator drain plug: 5.5 N·m (0.55 kgf-m, 4.0 lb-ft)

LLC Engine coolant capacity: 1 100 ml (1.2/1.0 US/Imp qt)



Use an anti-freeze and Summer coolant which is compatible with aluminum radiator, mixed with distilled water at the ratio of 50 : 50.

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

- Bleed air from the cooling circuit.

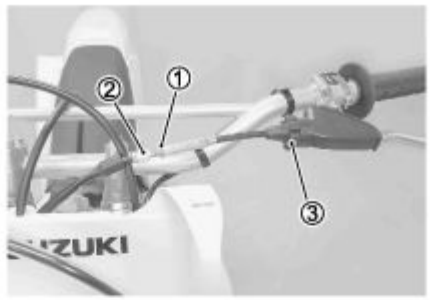
ENGINE COOLING SYSTEM INSPECTION

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:



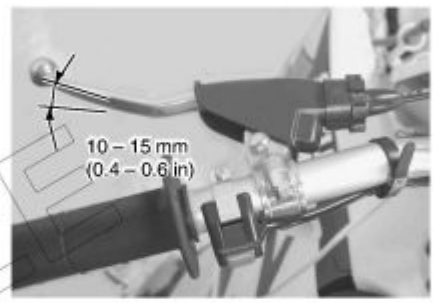
MAJOR ADJUSTMENT

- Loosen the locknut ①.
- Turn the adjuster ② so that the clutch lever obtains 10 – 15 mm (0.4 – 0.6 in) play at the clutch lever end.
- Tighten the locknut ①.

MINOR ADJUSTMENT

- Turn the quick adjuster ③ so that the clutch lever obtains 10 – 15 mm (0.4 – 0.6 in) play at the clutch lever end before pressure is felt.

DATA **Clutch lever play: 10 – 15 mm (0.4 – 0.6 in)**



THROTTLE CABLE

▲ WARNING

Inadequate throttle cable play can cause engine speed to rise suddenly when you turn the handlebars. This can lead to loss of rider control.

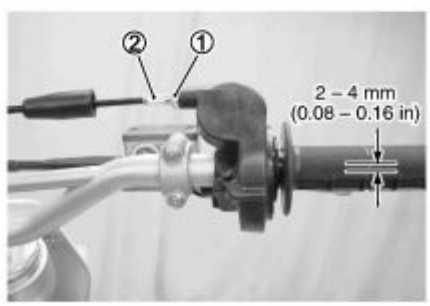
Adjust the throttle cable play so that engine speed does not rise due to handlebar movement.

Adjust the throttle cable play as follows:

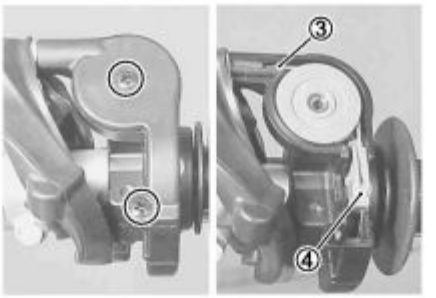
- Loosen the locknut ①.
- Turn the adjuster ② so that the throttle grip obtains 2 – 4 mm (0.08 – 0.16 in) play.

DATA **Throttle cable play: 2 – 4 mm (0.08 – 0.16 in)**

- Tighten the locknut ①.

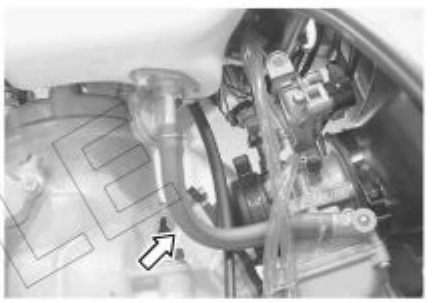


- Remove the throttle housing cover.
- Apply oil to the throttle cable ③. (☞2-23)
- Apply oil to the throttle cable spool ④. (☞2-23)



FUEL HOSE

Inspect the fuel hose for damage and fuel leakage. If any defects are found, the fuel hose must be replaced. Replace fuel hose every four years.



FUEL VALVE

- Drain fuel from the fuel tank.
- Remove the fuel valve.

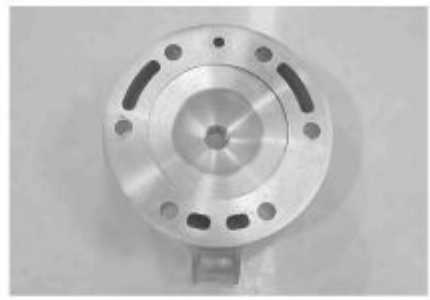
- If the fuel filter is dirty with sediment or rust, clean it with compressed air.

⚠ WARNING

*** Gasoline is very explosive. Extreme care must be taken.**
*** The O-ring ① must be replaced with a new one to prevent fuel leakage.**

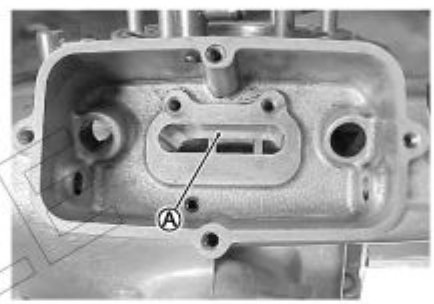
CYLINDER HEAD, CYLINDER AND PISTON

CYLINDER HEAD



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

CYLINDER

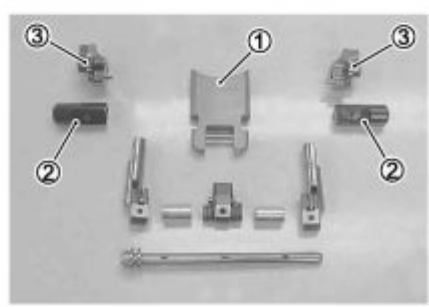


- Remove the cylinder. (☞4-3)
- Remove carbon deposits from the exhaust port and the exhaust valve chamber Ⓐ.
- Check for scratches and wear on the cylinder sleeve.

PISTON

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

EXHAUST VALVE



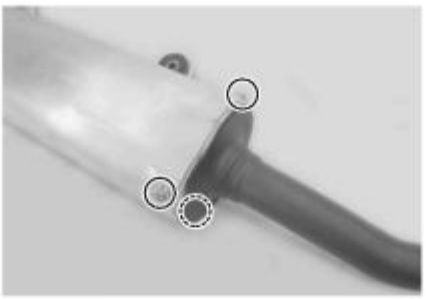
- Remove the exhaust valve. (☞11-3)
- Remove carbon deposits from the exhaust valve ①, exhaust side valves ② and exhaust valve cams ③.
- Check for wear and damage.

NOTE:

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

EXHAUST SILENCER

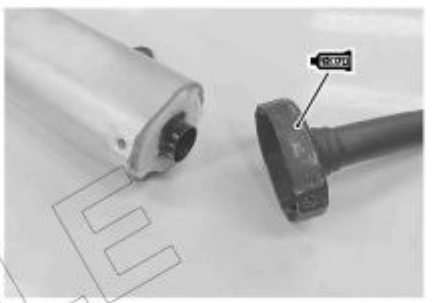
- Remove the seat and the right frame cover.
- Remove the silencer.
- Remove bolts and extract the black frontal part from the aluminum case.



- Check if the glasswool silencer is clogged with carbon deposit or tar.
- Replace the glasswool silencer with new one if necessary.

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

1207B **99000-31140: SUZUKI BOND "1207B"**

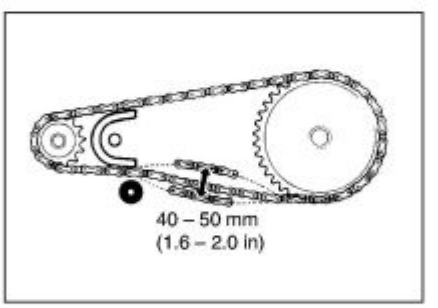


DRIVE CHAIN AND SPROCKETS

DRIVE CHAIN SLACK

- Place the motorcycle on the side stand.
- Inspect the drive chain slack at the middle point between the drive chain guide buffer and rear sprocket.

DATA **Drive chain slack: 40 – 50 mm (1.6 – 2.0 in)**

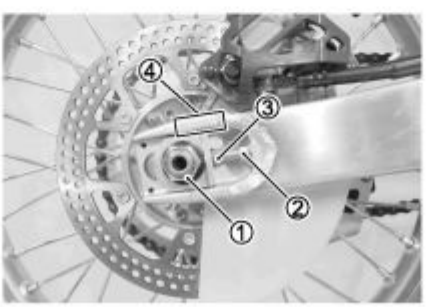


DRIVE CHAIN ADJUSTMENT

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

Axle nut: 110 N·m (11.0 kgf-m, 79.5 lb-ft)

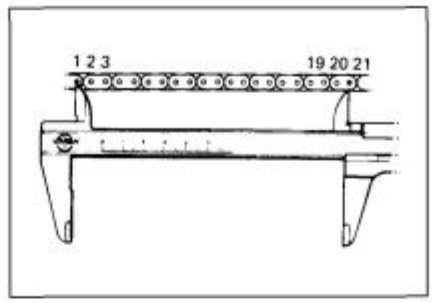
NOTE:
Pull the upper drive chain tight and lock it by placing a bar between the drive chain and rear sprocket while tightening the axle nut. This will help prevent the chain adjusters from loosening.



20TH PITCH LENGTH

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

DATA Drive chain 20th pitch length
Service limit: 323.8 mm (12.75 in)

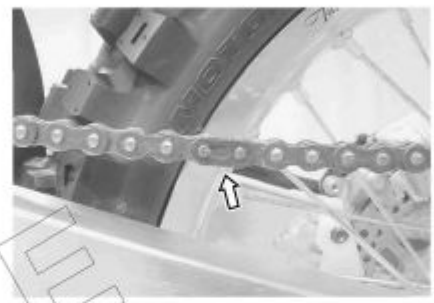


DRIVE CHAIN LUBRICATION

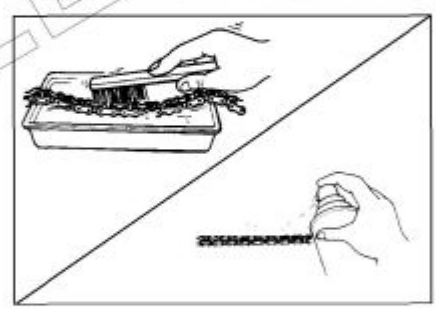
- Remove the chain clip and master link from the drive chain and remove the drive chain.

NOTE:
Be careful not to bend the chain clip.

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



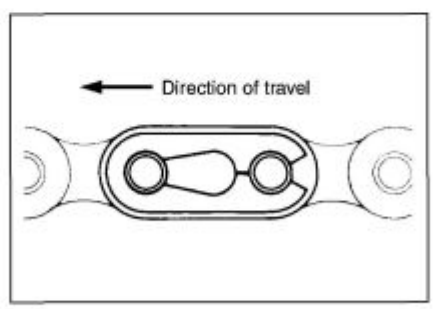
- Clean the drive chain with non-flammable cleaning solvent.
- Do not use gasoline to clean the drive chain.
- Dry the drive chain.
- Apply Suzuki Chain Lube or an equivalent to the link plates and rollers.



- Reassemble the drive chain.

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

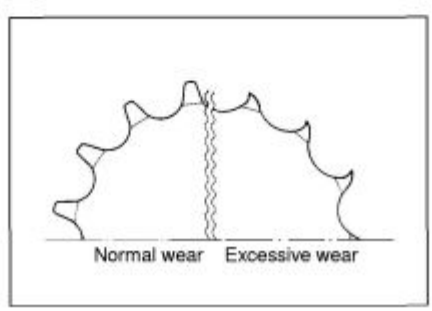
- Adjust the drive chain slack. (☞2-16)



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, CONTROL ROLLER

DRIVE CHAIN GUIDE

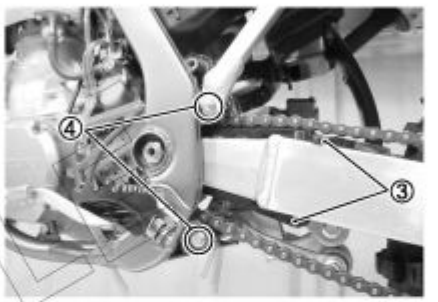
Inspect the drive chain guide ① for bends and damage.

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 swingarm directly if the chain guide buffer is worn out. This will cause drive chain and swingarm damage.

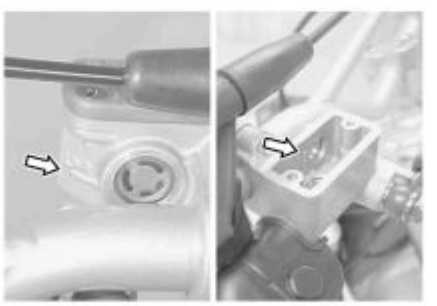
DRIVE CHAIN CONTROL ROLLER

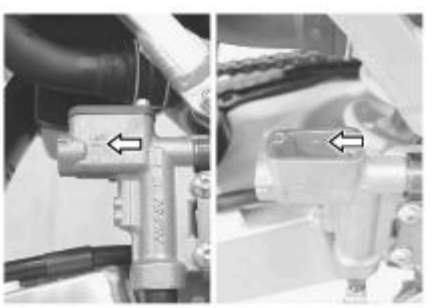
- Inspect the drive chain control rollers ④ for wear.
- Inspect the drive chain control roller bolts for tightness.

Drive chain control roller bolt:
31 N·m (3.1 kgf-m, 22.5 lb-ft)

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: DOT 4

⚠ 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 DOT 4 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 surfaces and plastic parts.

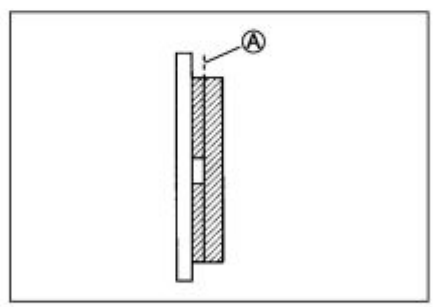
Be careful not to spill any fluid when filling the brake fluid reservoir. Wipe spilled fluid up immediately.

BRAKE PAD

Inspect the brake pads for wear by observing the groove limit line Ⓐ. If the brake pads are worn, replace them with new ones. (☞14-5)

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 position as follows:

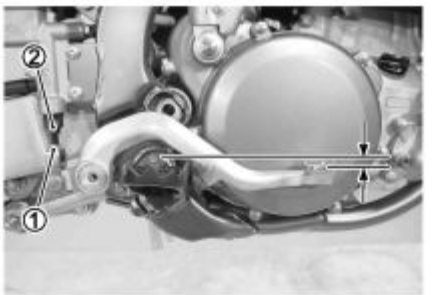
- Loosen locknut ①.
- Turn in or out adjuster ② to obtain the proper brake lever position.
- The standard adjuster length Ⓐ is 11 – 15 mm (0.43 – 0.59 in).
- Tighten the locknut ①.

BRAKE PEDAL HEIGHT ADJUSTMENT

Adjust the rear brake pedal height as follows:

- Loosen the locknut ①.
- Adjust the brake pedal height by turning the adjuster ② to locate the pedal 0 – 10 mm (0 – 0.39 in) below from the top face of the footrest.

DATA **Brake pedal height: 0 – 10 mm (0 – 0.39 in) below**



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.

AIR PRESSURE ADJUSTMENT

- Place a stand under the chassis tube to lift the front wheel off the ground.
- Remove the air bleed bolt ① and equalize the air pressure in the front forks to atmospheric pressure.
- Refit the air bleed bolt.

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. (☞15-26)

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.
- Inspect that the rear suspension has play or binds by moving the swingarm up and down, and right and left.

WHEELS AND TIRES

TIRE PRESSURE

- Inspect front and rear tire pressure.

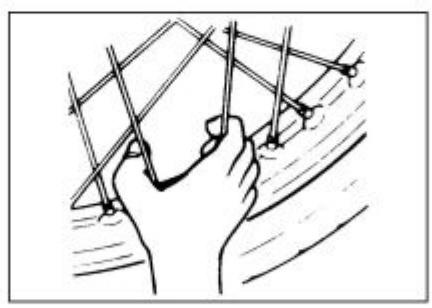
DATA **Tire pressure (cold):**
70 – 110 kPa (0.7 – 1.1 kgf/cm², 10 – 16 psi)

WHEEL RIM

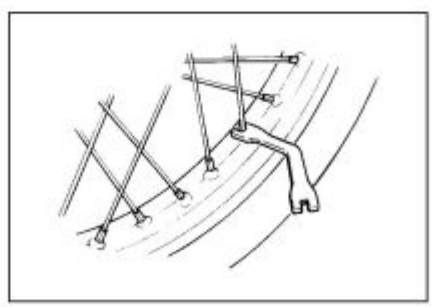
- Inspect the wheel and tires for damage.
- Inspect the wheel bearings for rattles. Replace the bearings if necessary. (☞13-5)
- Inspect the wheel rim runout. (☞13-4)

SPOKE NIPPLE

- Inspect the spokes for tension by grasping the spoke nipples. Retighten the spoke nipples with a spoke nipple wrench so as all spokes have same tension.



CAUTION
Improperly tightening of the spoke nipples can damage the wheel. **Tighten the spoke nipples less than 1/2 turn at a time. Inspect the spoke tension and then retighten the spoke nipple.**



Rim Lock

- Inspect the rim lock ① for tightness.

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 until it exits 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	Swingarm	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 1 race/More often according to conditions	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 shaft	A	Pre-race	Lightly oil the plunger shaft.
⑧	Drive chain	B	Pre-race and between every practice	Keep chain thoroughly lubed at all times. Always check wear and alignment.

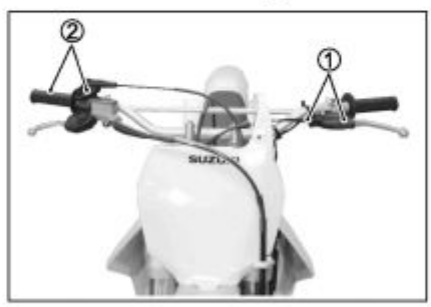
The following materials are necessary:

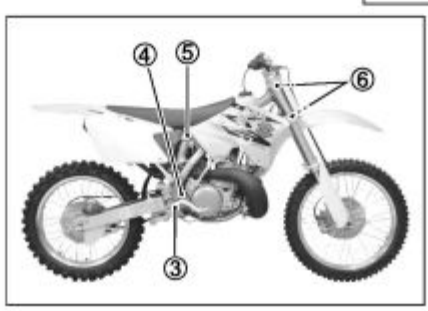
A. Lightweight oil such as WD-40 or penetrating oil.

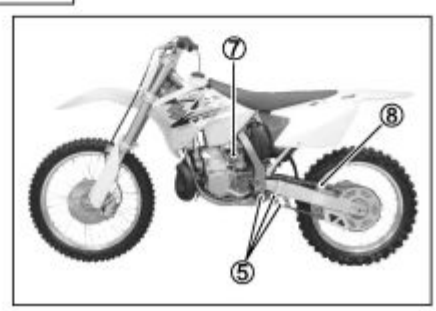
B. Aerosol type Chain Lube.

C. SUZUKI SUPER GREASE "A" or 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.







ENGINE DISMOUNTING AND MOUNTING

CONTENTS

ENGINE DISMOUNTING

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

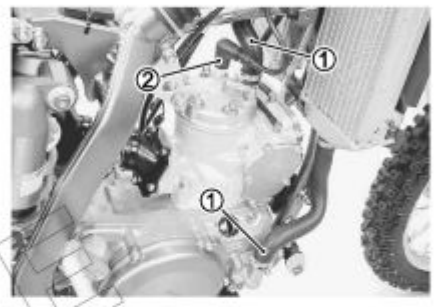
- Remove the exhaust pipe fitting springs with the special tool.

09920-20310: Spring hook

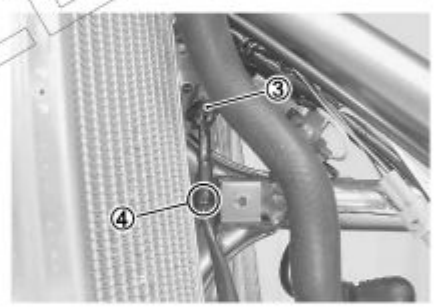
- Remove the exhaust pipe.

- Remove the exhaust pipe gasket.

- Disconnect the radiator hoses ①.
- Disconnect the spark plug cap ②.



- Disconnect the magneto lead wire coupler ③ and clamp ④.



- Remove the clip and open the chain.

- Remove the cotter pins and brake pedal.

- Remove the magneto cover. (☞7-3)
- Disconnect the clutch cable.

NOTE:
Loosen the clutch cable adjuster when disconnecting.
(☞2-13)

- Remove the engine mounting bolts and brackets.

- Remove the swingarm pivot shaft nut ⑤ and washer.

- Extract three quarters of the swingarm pivot shaft so as to keep the swingarm in position.

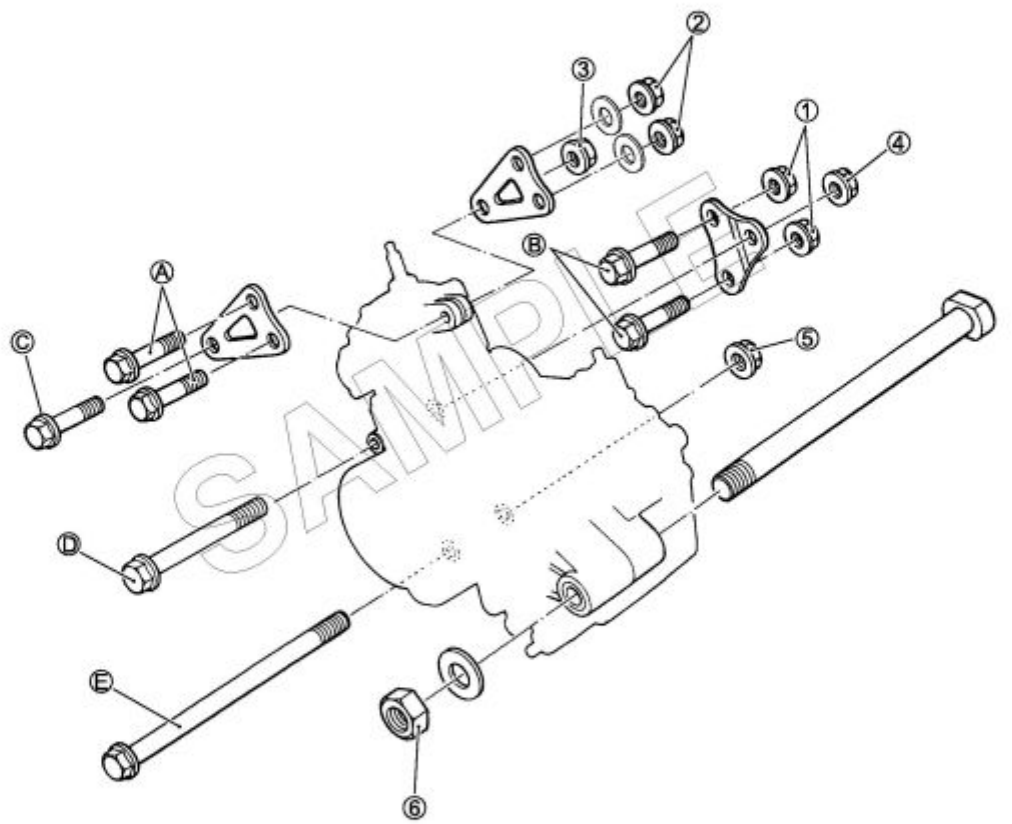
NOTE:
The swingarm will come off when the swingarm pivot shaft is completely removed.

- Dismount the engine to the right side.

ENGINE MOUNTING

- Mount the engine from the right side.
- Tighten the engine mounting bolts/nuts to the specified torque.

	N·m	kgf-m	lb-ft
① ②	43	4.3	31.0
③ ④ ⑤	45	4.5	32.5
⑥	70	7.0	50.5



	Bolt Diameter	Bolt Length
Ⓐ	8 mm (0.3 in)	45 mm (1.8 in)
Ⓑ	8 mm (0.3 in)	55 mm (2.2 in)
Ⓒ	10 mm (0.4 in)	48 mm (1.9 in)
Ⓓ	10 mm (0.4 in)	105 mm (4.1 in)
Ⓔ	10 mm (0.4 in)	118 mm (4.6 in)

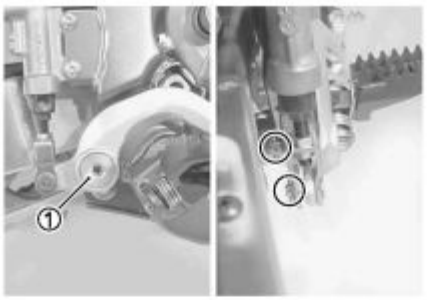
NOTE:
Replace the self-locking nuts with new ones.

Install the parts in the reverse order of removal. Pay attention to the following points:

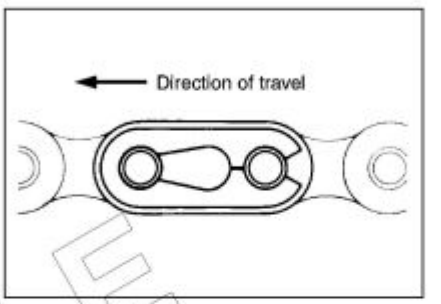
- Tighten the brake pedal pivot bolt ①.

Brake pedal pivot bolt: 29 N·m (2.9 kgf-m, 21.0 lb-ft)

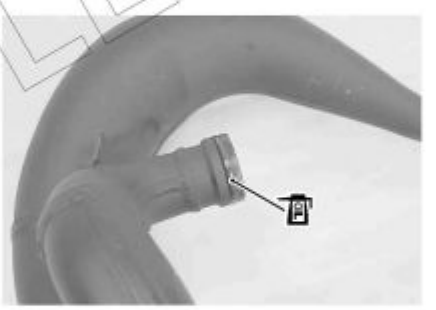
CAUTION
Replace the cotter pins with new ones.



- Reassemble the drive chain clip so that the slit end faces opposit to the direction of rotation.



- Install a new exhaust pipe gasket.
- Apply a small quantity of transmission oil to the O-ring before installing the exhaust pipe.



- Fit the projection of the carburetor to the depression of the intake pipe.

INSPECTION AFTER ENGINE MOUNTING

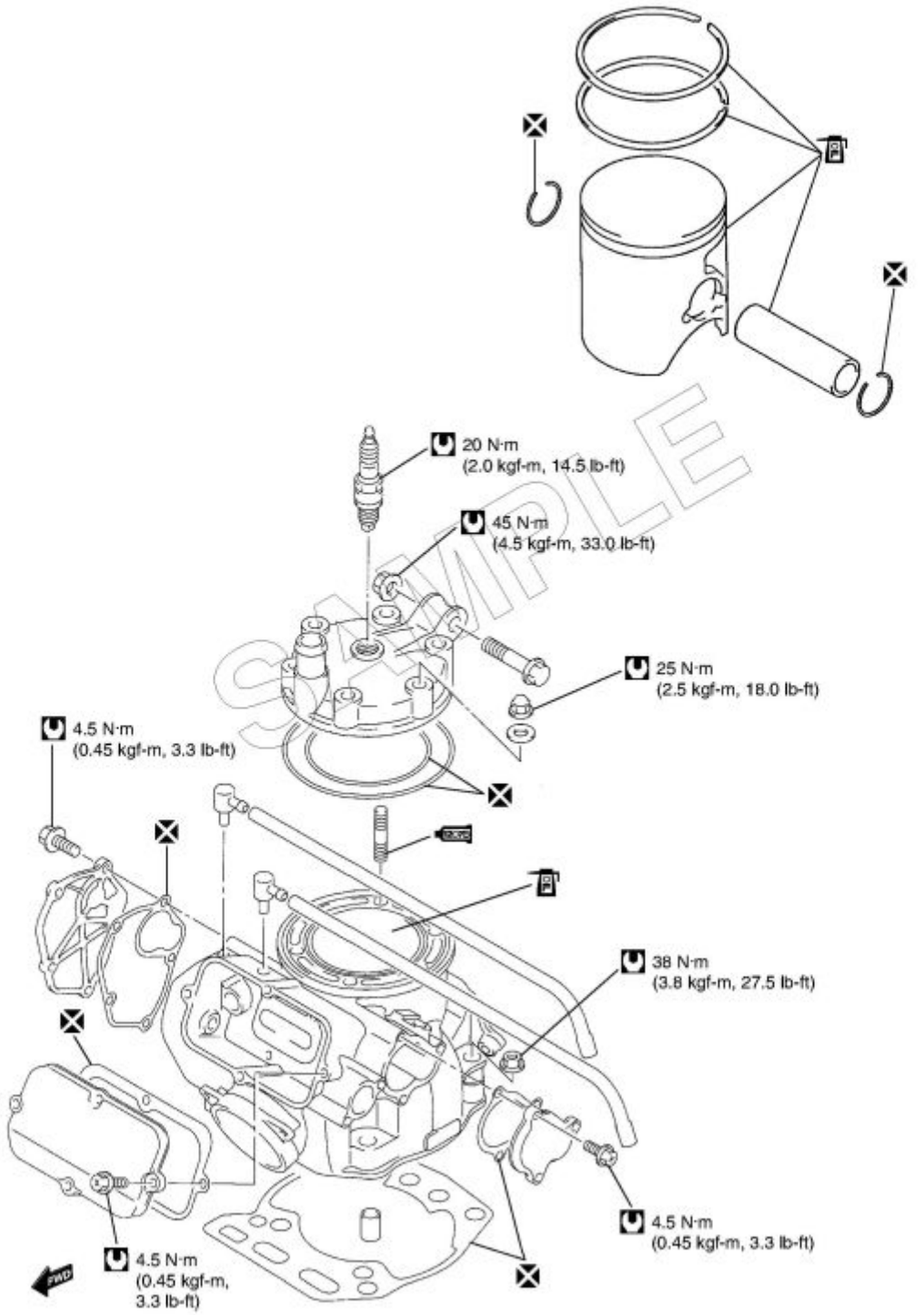
After mounting the engine, inspect the followings.

- Transmission oil level (☞2-9)
- Engine coolant level (☞2-11)
- Clutch cable play (☞2-13)
- Throttle cable play (☞2-13)
- Drive chain slack (☞2-16)
- Brake pedal height (☞2-20)
- Wire, cable and hose routing (☞19-12 to 15)

CYLINDER, CYLINDER HEAD AND PISTON

CONTENTS

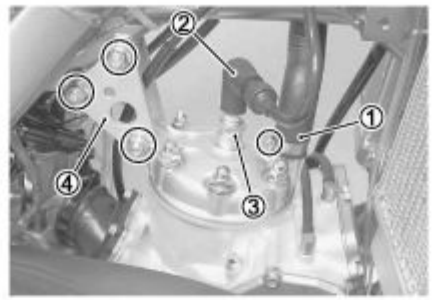
CONSTRUCTION



REMOVAL

CYLINDER HEAD

- Drain engine coolant. (☞2-12)
- Remove the seat and fuel tank. (☞3-2)
- Disconnect the radiator hose ①.
- Disconnect the spark plug cap ② and remove the spark plug ③.
- Remove the engine mounting brackets ④.

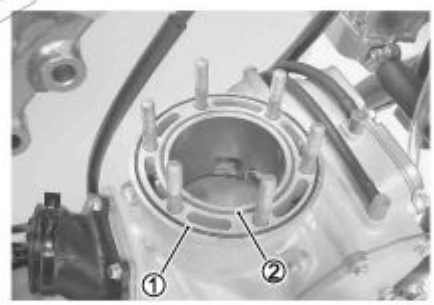


- Remove the cylinder head.

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

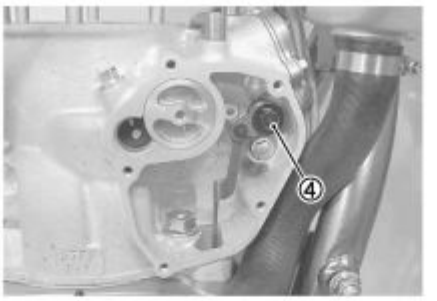
CYLINDER

- Remove the carburetor. (☞9-10)
- Remove the exhaust pipe. (☞3-2)
- Remove the cylinder head O-rings ① and ②.



- Remove the exhaust side valve cover ③.

• Remove the exhaust valve rod bolt ④.

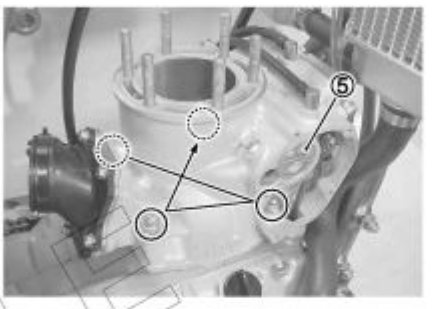


• Remove the cylinder nuts.

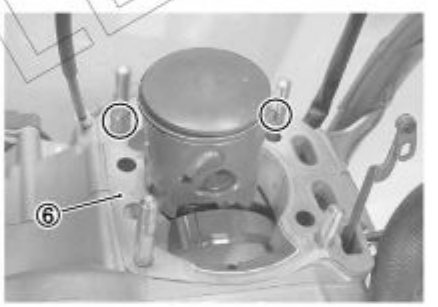
NOTE:
Loosen the cylinder nuts diagonally.

• Remove the radiator lower mounting bolts (left & right) and move the radiator forward.
• Remove the cylinder.

NOTE:
Take care not to drop the exhaust side valve spacer ⑤.



• Remove the gasket ⑥ and dowel pins.



PISTON AND PISTON RING

• Remove the piston pin circlip ①.

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

• Remove the piston pin ②.
• Remove the piston.

• Remove the conrod small end bearing ③.

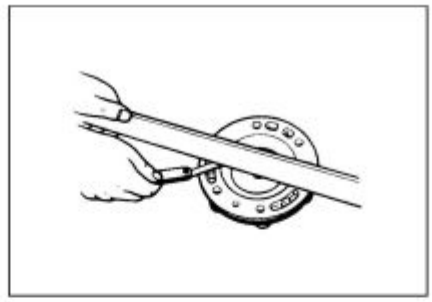
INSPECTION

CYLINDER HEAD

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

DATA Cylinder head distortion
Service limit: 0.05 mm (0.002 in)

TOOL 09900-20803: Thickness gauge



CYLINDER

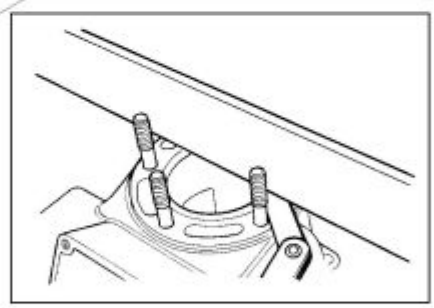
- Remove the exhaust valve assembly. (☞11-3)
- Remove carbon deposits from the exhaust port.
- Inspect the cylinder for cracks and replace the cylinder if necessary.
- Inspect the cylinder bore for wear and scratches.

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

- Inspect for cylinder distortion with the thickness gauge.

DATA Cylinder distortion: Service limit: 0.05 mm (0.002 in)

TOOL 09900-20803: Thickness gauge

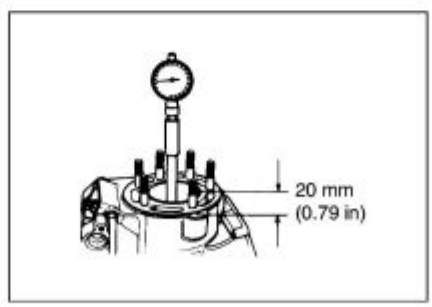


- Measure the cylinder bore for wear with the cylinder gauge at 20 mm (0.79 in) from the top surface.

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

DATA Cylinder bore
Standard: 66.400 – 66.415 mm (2.6142 – 2.6148 in)

TOOL 09900-20508: Cylinder gauge set (40 – 80 mm)



PISTON TO CYLINDER CLEARANCE

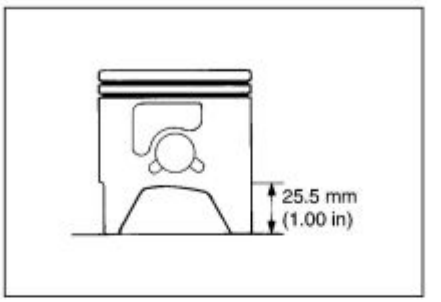
DATA Piston to cylinder clearance:
Standard: 0.045 – 0.055 mm (0.0018 – 0.0022 in)
Service limit: 0.120 mm (0.0047 in)

CONROD

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

PISTON AND PISTON RING

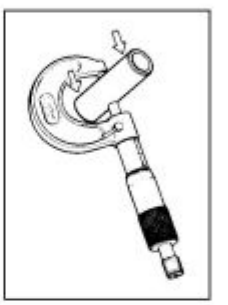
- Remove carbon deposits from the piston.
- Inspect the piston for wear, scratches and damage.
- Measure the piston outer diameter at 25.5 mm (1.00 in) from the skirt end.



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

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

- Measure the piston pin bore and piston pin diameter.

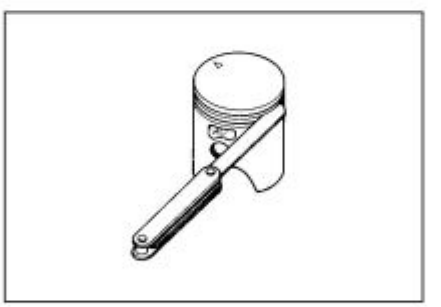


DATA **Piston pin bore**
Service limit: 18.030 mm (0.7098 in)

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

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

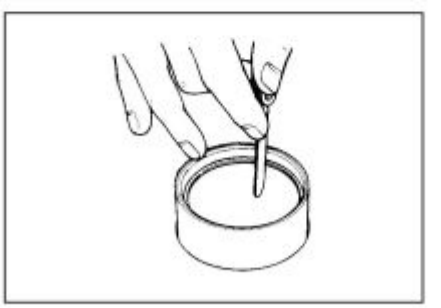
- Remove carbon deposits from piston ring and piston ring groove.
- Measure the clearances with the thickness gauge.



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

TOOL **09900-20803: Thickness gauge**

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



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

TOOL **09900-20803: Thickness gauge**

- Measure the piston ring free end gap.

DATA Piston ring free end gap
Service limit: 6.7 mm (0.26 in)

TOOL 09900-20101: Vernier calipers

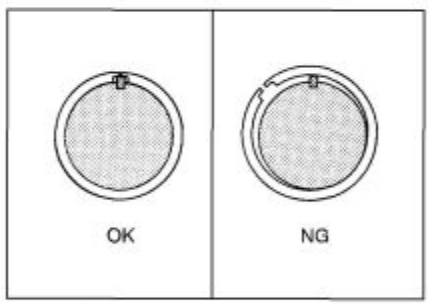
INSTALLATION

PISTON AND PISTON RING

Install the piston and piston ring in the reverse order of removal.
Pay attention to the following points:

- Apply engine oil to the piston rings and piston ring grooves.
- Fit the piston rings into the piston ring grooves so that the each piston ring end comes to the piston ring locating pin.

CAUTION
If the piston ring 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.**



- Apply engine oil to the piston pin and bearing.
- Fit the bearing to the conrod small end.

- Face the embossed mark on the piston top to the exhaust port side.
- Install the piston pin and new piston pin circlips.

NOTE:

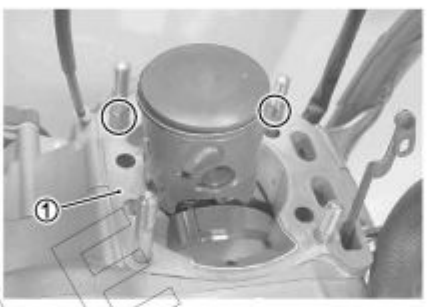
** Place cloth under the piston to prevent the piston pin circlip from dropping into the crankcase chamber.*

** Piston pin circlip ends should face upside.*

CYLINDER

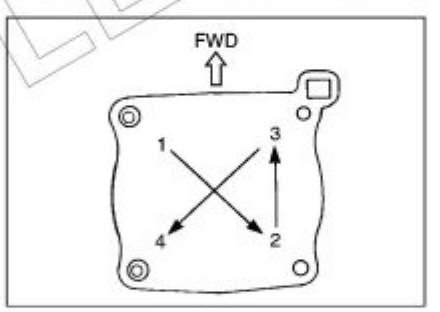
Install the cylinder in the reverse order of removal. Pay attention to the following points:

- Fit a new gasket ① and dowel pins.
- Apply engine oil to the cylinder bore.



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

Cylinder nut: 38 N·m (3.8 kgf-m, 27.5 lb-ft)



- Tighten the exhaust valve rod bolt using the pin ② as a stopper.

NOTE:

The pin ② is one of the included parts.

Exhaust valve rod bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

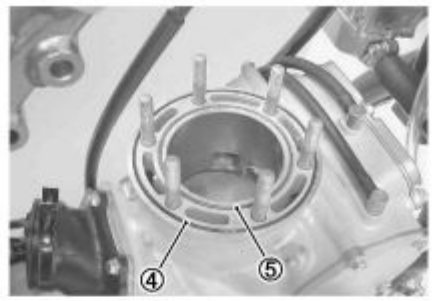
- Fit a new gasket and install the exhaust side valve cover ③.
- Tighten the bolts.

Exhaust side valve cover bolt:
4.5 N·m (0.45 kgf-m, 3.3 lb-ft)

- Install new O-rings ④ and ⑤.
- Install the cylinder head.

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

1207B 99000-31140: SUZUKI BOND "1207B"

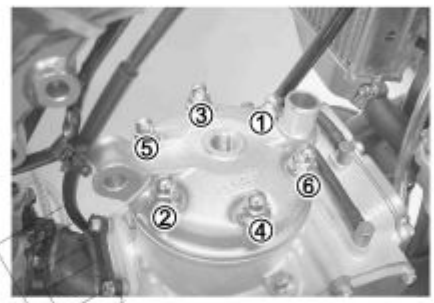


CYLINDER HEAD

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

Cylinder head nut:
Initial:15 N·m (1.5 kgf-m, 11.0 lb-ft)
Final: 25 N·m (2.5 kgf-m, 18.0 lb-ft)

- Tighten the engine mounting bracket bolt. (☞3-5)
- Tighten the spark plug. (☞2-6)



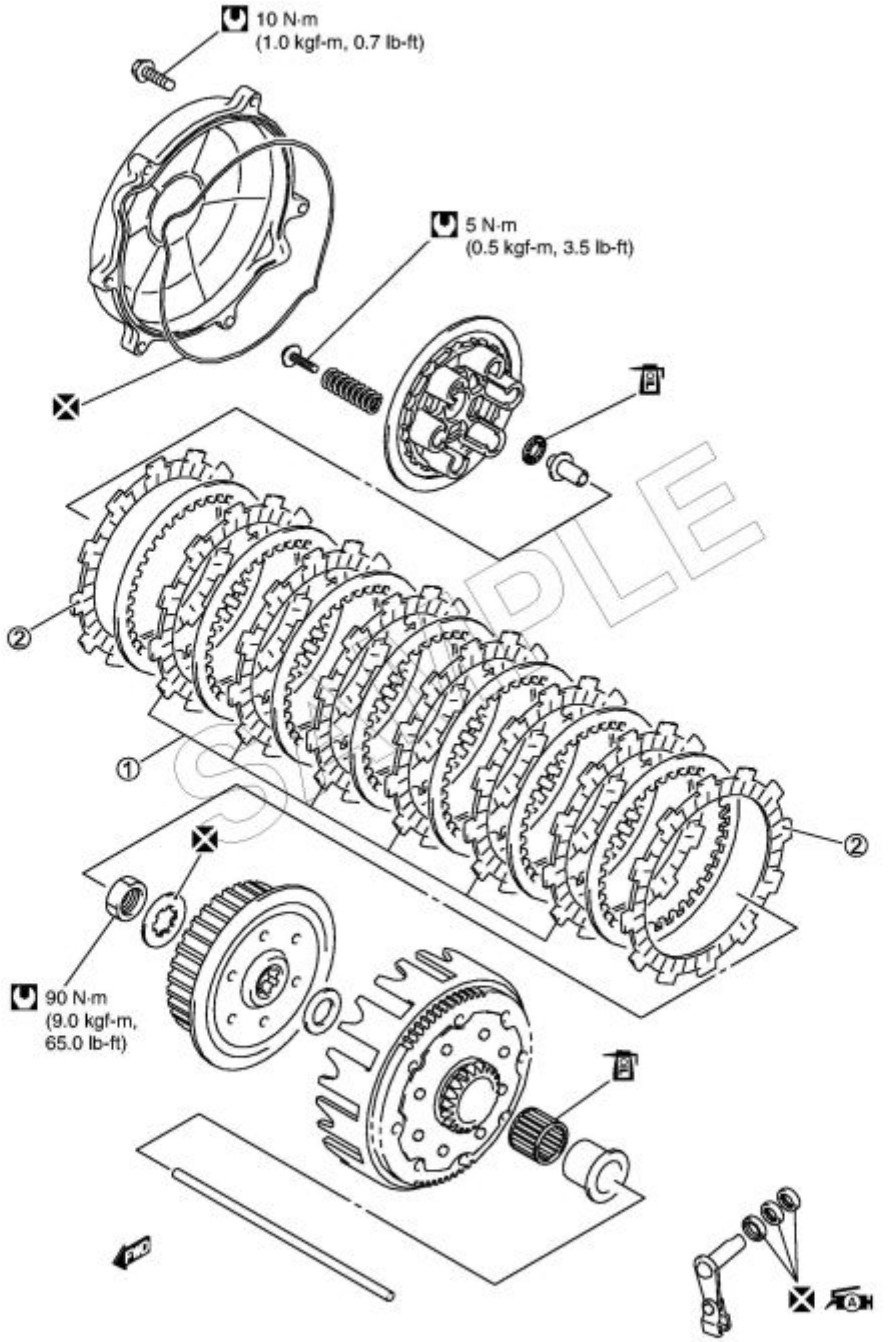
INSPECTION AFTER INSTALLATION

- Route the cables and hoses properly. (☞19-12 to 14)
- Pour engine coolant. (☞2-11)
- Check the throttle cable play. (☞2-13)

CLUTCH

CONTENTS

CONSTRUCTION

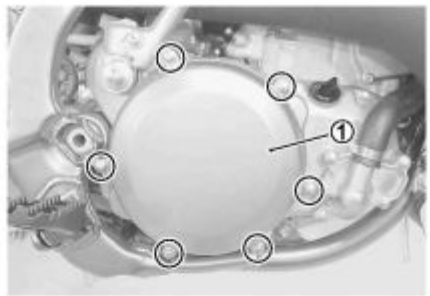


① No. 1 drive plate
② No. 2 drive plate

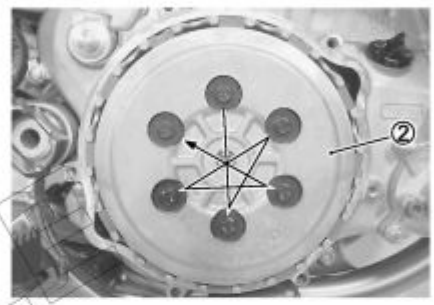
REMOVAL

CLUTCH PLATE

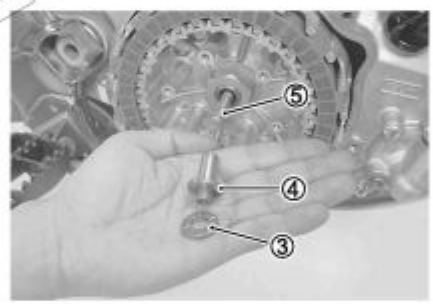
- Drain transmission oil. (☞2-9)
- Remove the rear brake pedal. (☞3-3)
- Remove the clutch cover ①.



- Loosen and remove the bolts diagonally.
- Remove the clutch springs.
- Remove the pressure plate ②.



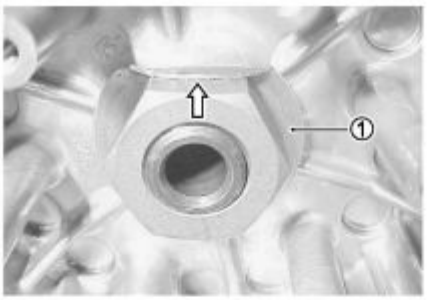
- Remove the bearing ③, push piece ④ and push rod ⑤.



- Remove the drive plates and driven plates.

PRIMARY DRIVEN GEAR

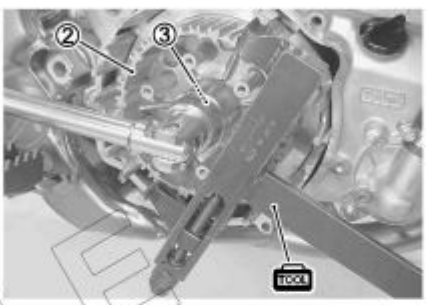
- Remove the clutch cover. (☞5-3)
- Remove the clutch plates. (☞5-3)
- Flatten the lock washer ①.



- Hold the clutch sleeve hub ② with the special tool and remove the nut ③.

09920-53740: Clutch sleeve hub holder

- Remove the clutch sleeve hub.

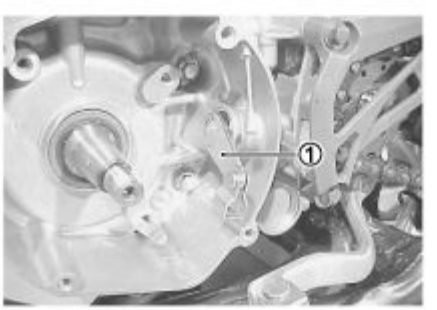


- Remove the washer ④ and primary driven gear assembly ⑤.

- Remove the bearing ⑥ and spacer ⑦.

CLUTCH RELEASE CAMSHAFT

- Remove the magneto rotor and stator. (☞7-3)
- Loosen the clutch cable adjuster and unhook the cable.
- Remove the clutch release camshaft ①.



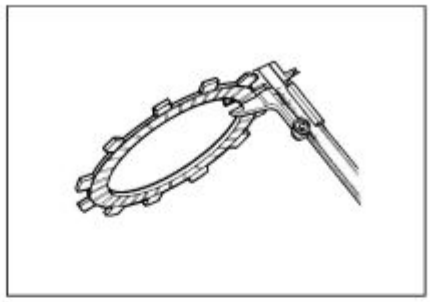
INSPECTION

DRIVE PLATE

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

DATA Drive plate thickness
Service limit: 2.77 mm (0.109 in)

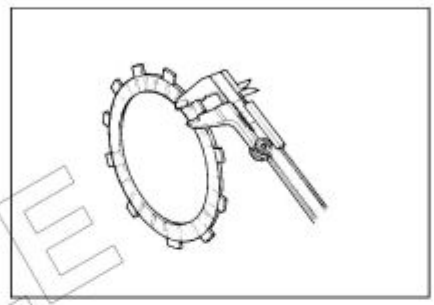
TOOL 09900-20101: Vernier calipers



- Measure the drive plate claw width.

DATA Drive plate claw width
Service limit: 13.05 mm (0.514 in)

TOOL 09900-20101: Vernier calipers

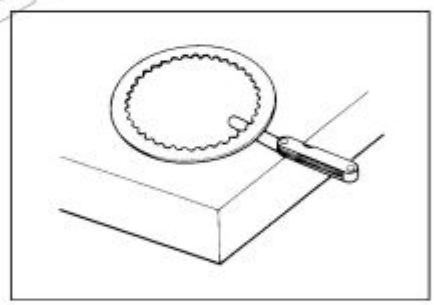


DRIVEN PLATE

- Inspect the driven plates for wear and discoloration.
- Measure the driven plate distortion.

DATA Driven plate distortion
Service limit: 0.15 mm (0.006 in)

TOOL 09900-20803: Thickness gauge



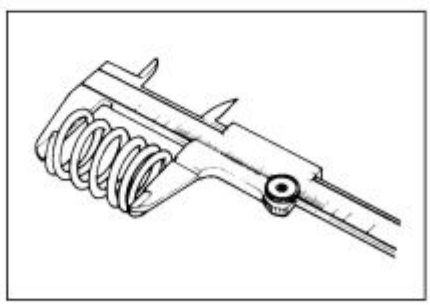
CLUTCH SPRING

- Measure the clutch spring free length.

DATA Clutch spring free length
Service limit: 37.8 mm (1.49 in)

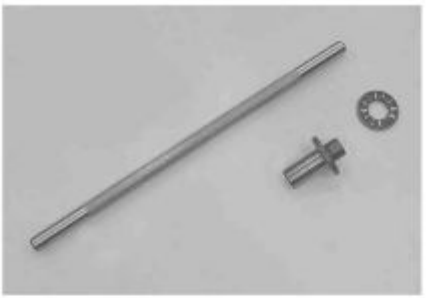
TOOL 09900-20101: Vernier calipers

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



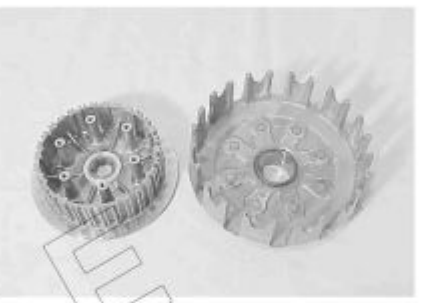
CLUTCH PUSH ROD

- Inspect the clutch push piece, bearing and push rod for wear and damage.



PRIMARY DRIVEN GEAR AND CLUTCH SLEEVE HUB

- Inspect the clutch sleeve hub and primary driven gear assembly for wear and cracks.



BEARING AND SPACER

- Inspect the needle bearing and spacer for abnormal noise and damage.

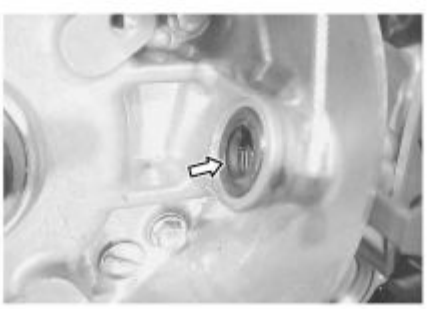
CLUTCH RELEASE CAMSHAFT

- Inspect the clutch release camshaft for damage.

OIL SEAL AND BEARING

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

BEARING REMOVAL (☞8-9, 10)

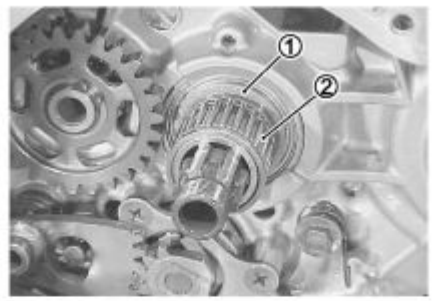


INSTALLATION

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

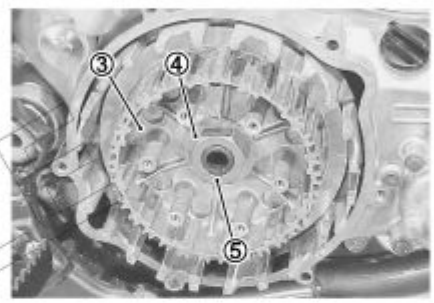
PRIMARY DRIVEN GEAR

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



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

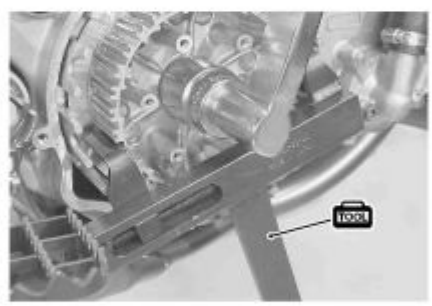
NOTE:
The flat side of the nut must face outside.



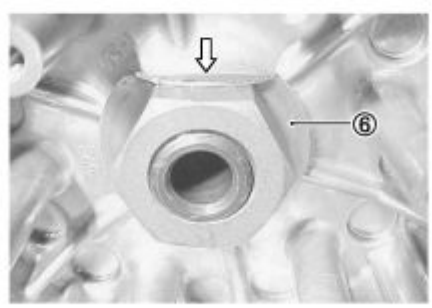
- Tighten the clutch sleeve hub nut with the special tool to the specified torque.

TOOL 09920-53740: Clutch sleeve hub holder

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

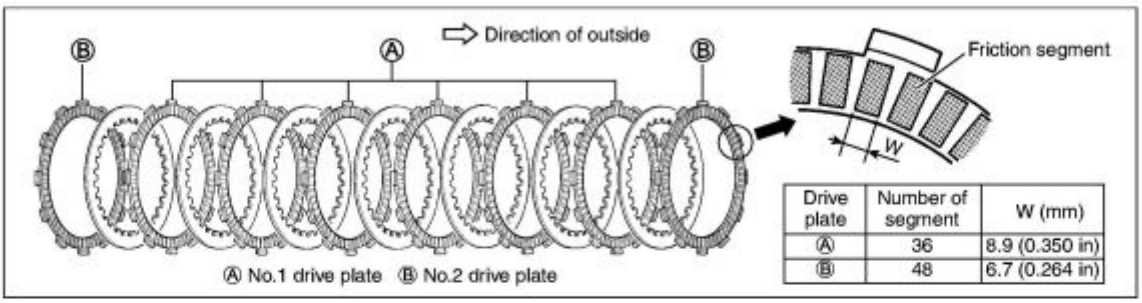


- Bend the lock washer ⑥ to secure the nut.



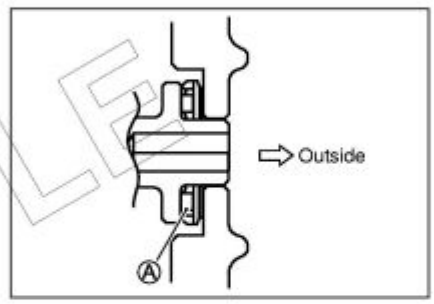
CLUTCH PLATE

- Apply transmission oil to the drive plates and driven plates.
- Install the clutch drive plates and driven plates one by one into the clutch sleeve hub in the prescribed order as show in illustration.



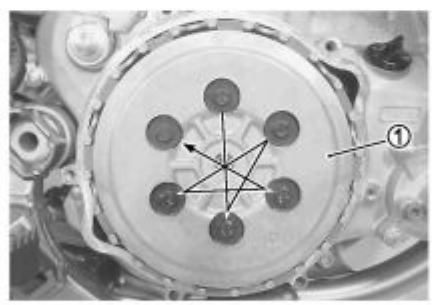
Drive plate	Number of segment	W (mm)
Ⓐ	36	8.9 (0.350 in)
Ⓑ	48	6.7 (0.264 in)

- Insert the clutch push rod.
- Insert the clutch push piece and bearing. The roller side Ⓐ of the bearing should face to the clutch push piece.



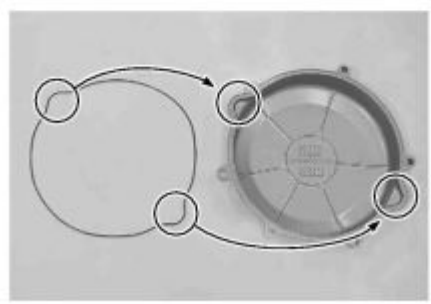
- Fit the pressure plate ①.
- Insert the springs and tighten the bolts diagonally to the specified torque.

Clutch spring bolt: 5 N·m (0.5 kgf-m, 3.5 lb-ft)



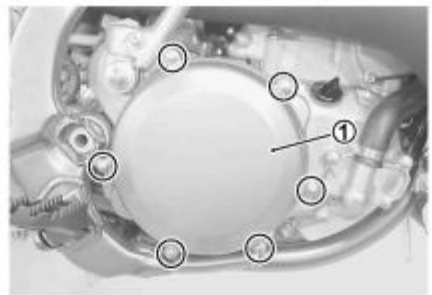
CLUTCH COVER

- Replace the O-ring with a new one.



- Fit the clutch cover ①.
- Tighten the bolts to the specified torque.

Clutch cover bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)



MAGNETO COVER

- Install the clutch release camshaft.
- Install the magneto rotor and stator. (☞7-4)
- Install a new gasket.
- Tighten the bolts to the specified torque.

Magneto cover bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

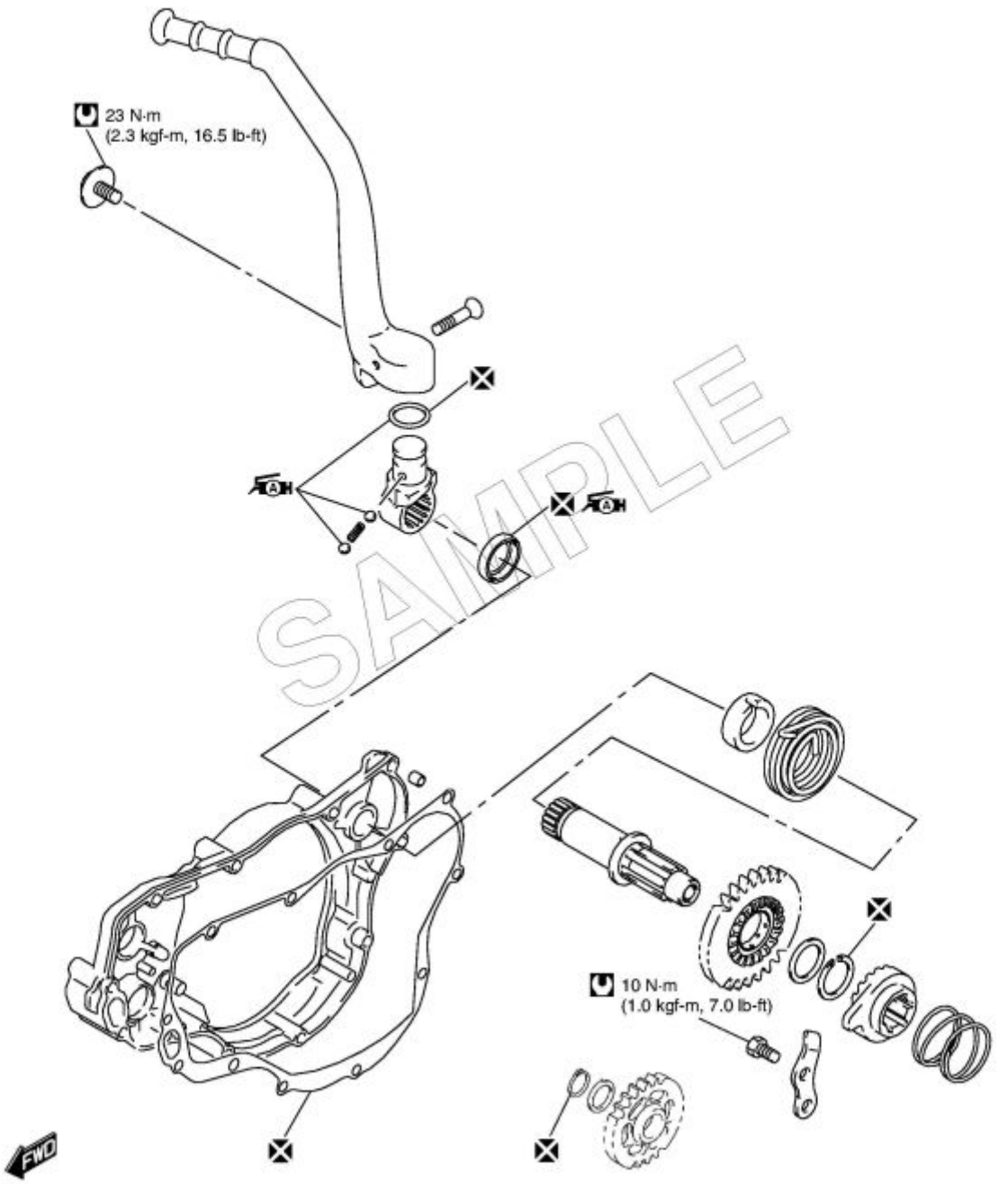
INSPECTION AFTER INSTALLATION

- Pour transmission oil. (☞2-9)
- Adjust the clutch cable play. (☞2-13)
- Adjust the rear brake pedal height. (☞2-20)

KICK STARTER

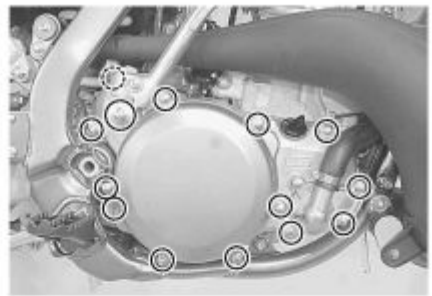
CONTENTS

CONSTRUCTION



REMOVAL

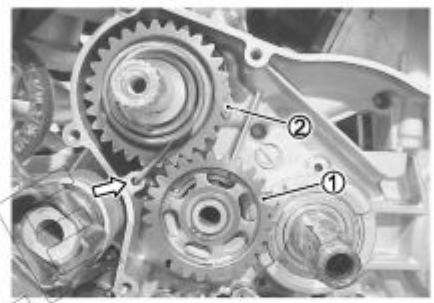
- Drain transmission oil. (☞2-9)
- Drain the engine coolant. (☞2-12)
- Remove the rear brake pedal. (☞3-3)
- Remove the kick starter lever.
- Remove the crankcase cover.
- Remove the clutch. (☞5-3, 4)



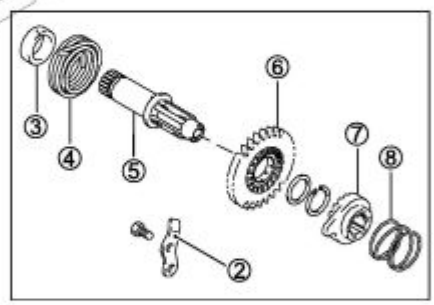
- Remove the kick starter idle gear ① and washer.

TOOL 09900-06107: Snap ring pliers

- Unhook the kick return spring and remove the kick starter assembly.
- Remove the kick starter guide ②.



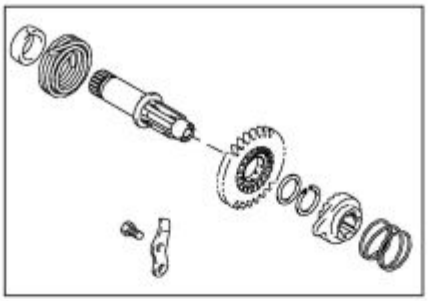
- Disassemble the following parts from the kick starter shaft.
  Spring guide ③
  Return spring ④
  Kick starter shaft ⑤
  Kick starter drive gear ⑥
  Kick starter ⑦
  Spring ⑧
  Kick starter guide ②



INSPECTION

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

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



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

REASSEMBLY

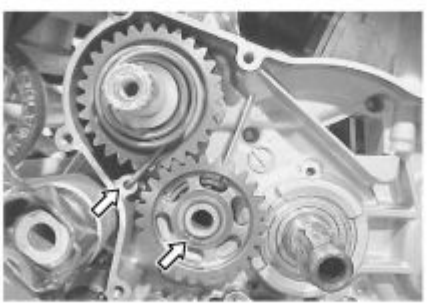
Reassemble the kick starter assembly in the reverse order of disassembly. Pay attention to the following points:

- Fit the kick starter to the kick starter shaft.

NOTE:
Be sure to align the punched marks on the kick starter and kick starter shaft.

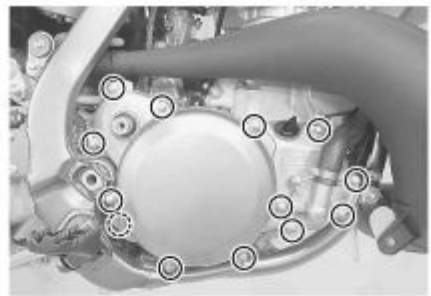
- Install the kick starter assembly to the crankcase and hook the return spring.
- Install the kick starter idle gear.

TOOL 09900-06107: Snap ring pliers



- Install the clutch. (☞5-7)
- Fit a new gasket and install the crankcase cover.

Crankcase cover bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)



- Install the kick starter lever with the punched mark on the lever aligned with the punched mark on the kick starter shaft.

Kick starter lever bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Install the rear brake pedal. (☞3-6)

INSPECTION AFTER REASSEMBLY

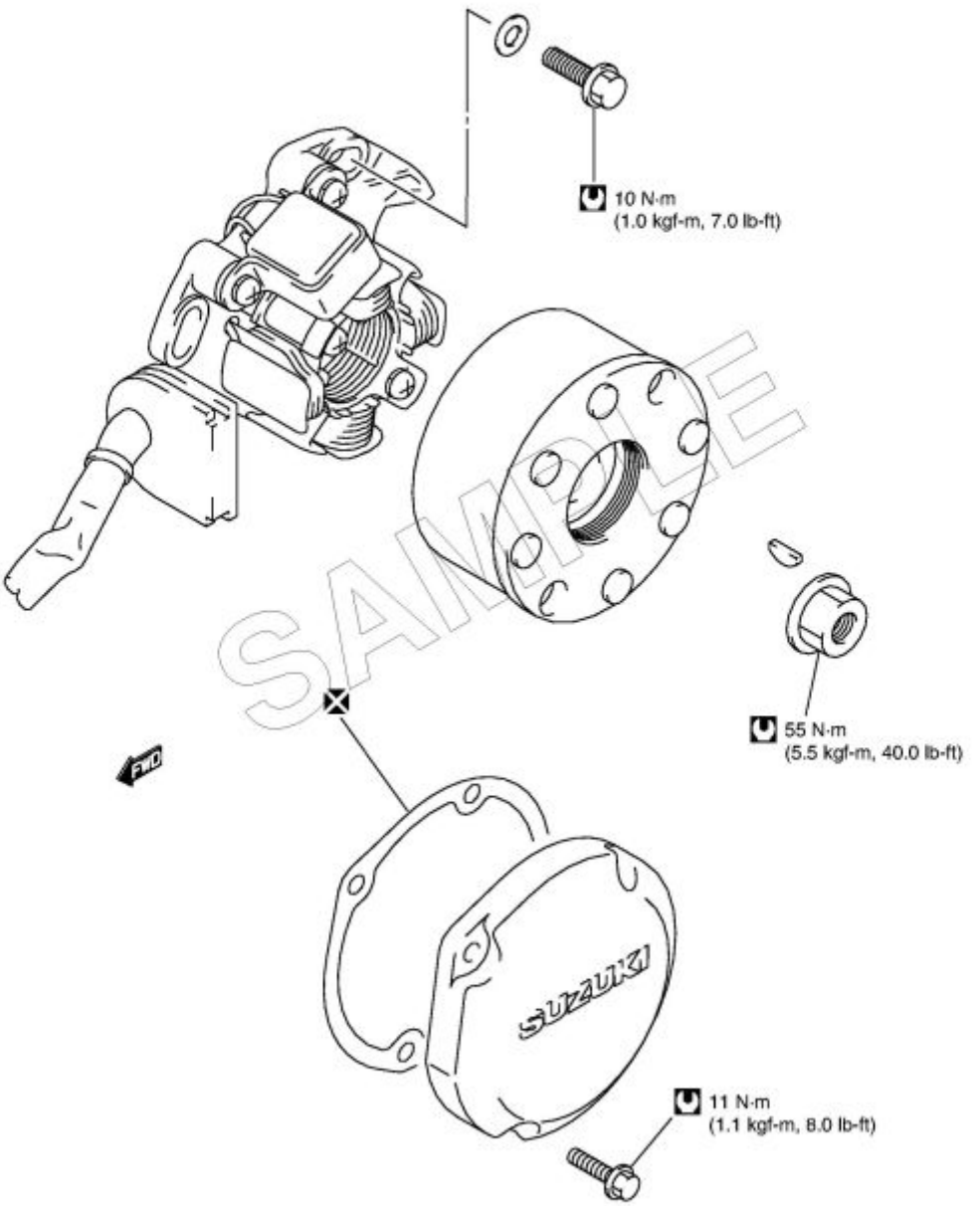
After reinstalling the kick starter assembly, inspect the followings.

- Transmission oil level (☞2-9)
- Engine coolant level (☞2-11)

MAGNETO ROTOR AND STATOR

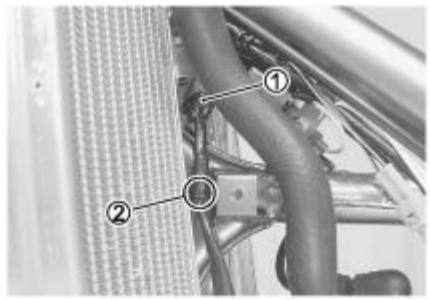
CONTENTS

CONSTRUCTION



REMOVAL

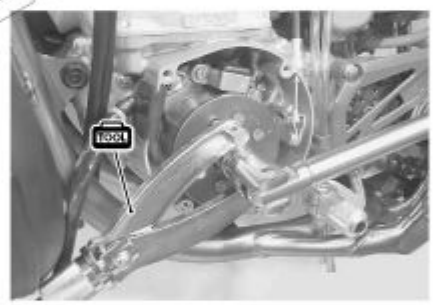
- Remove the seat. (☞3-2)
- Remove the fuel tank. (☞3-2)
- Disconnect the magneto lead wire coupler ① and clamp ②.



- Remove the magneto cover.

- Remove the magneto rotor nut with the special tool.

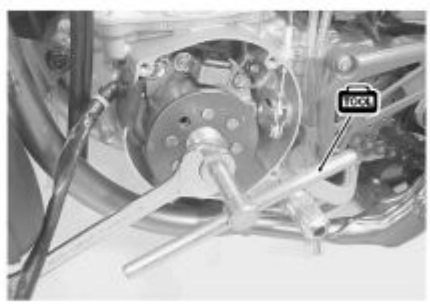
TOOL 09930-40113: Rotor holder



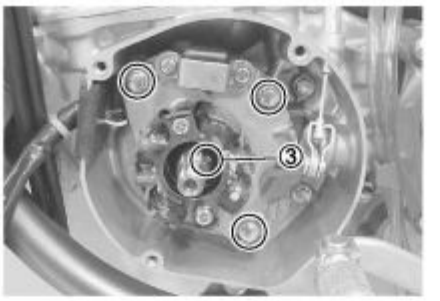
- Remove the magneto rotor with the special tool.

TOOL 09930-30113: Flywheel rotor remover

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



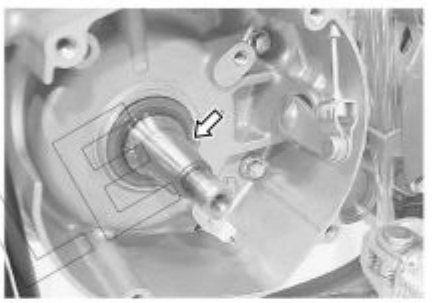
- Remove the stator.
- Remove the key ③.



INSTALLATION

Install the stator and magneto rotor in the reverse order of removal. Pay attention to the following points:

- Degrease the tapered portion of the crankshaft and magneto rotor.



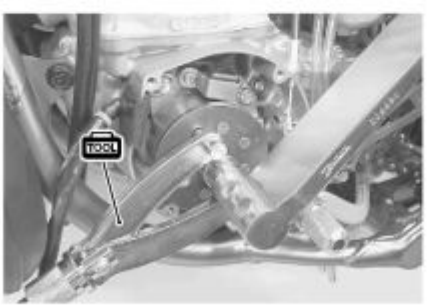
- Align the line on the stator and line on the crankcase to set the ignition timing correctly.
- Tighten the stator mounting bolts to the specified torque.

Stator mounting bolts: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

- Tighten the generator rotor nut to the specified torque with the special tool.

Magneto rotor nut: 55 N·m (5.5 kgf-m, 40.0 lb-ft)

09930-40113: Rotor holder



- Fit a new gasket.
- Tighten the magneto cover bolts to the specified torque.

Magneto cover bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

INSPECTION AFTER INSTALLATION

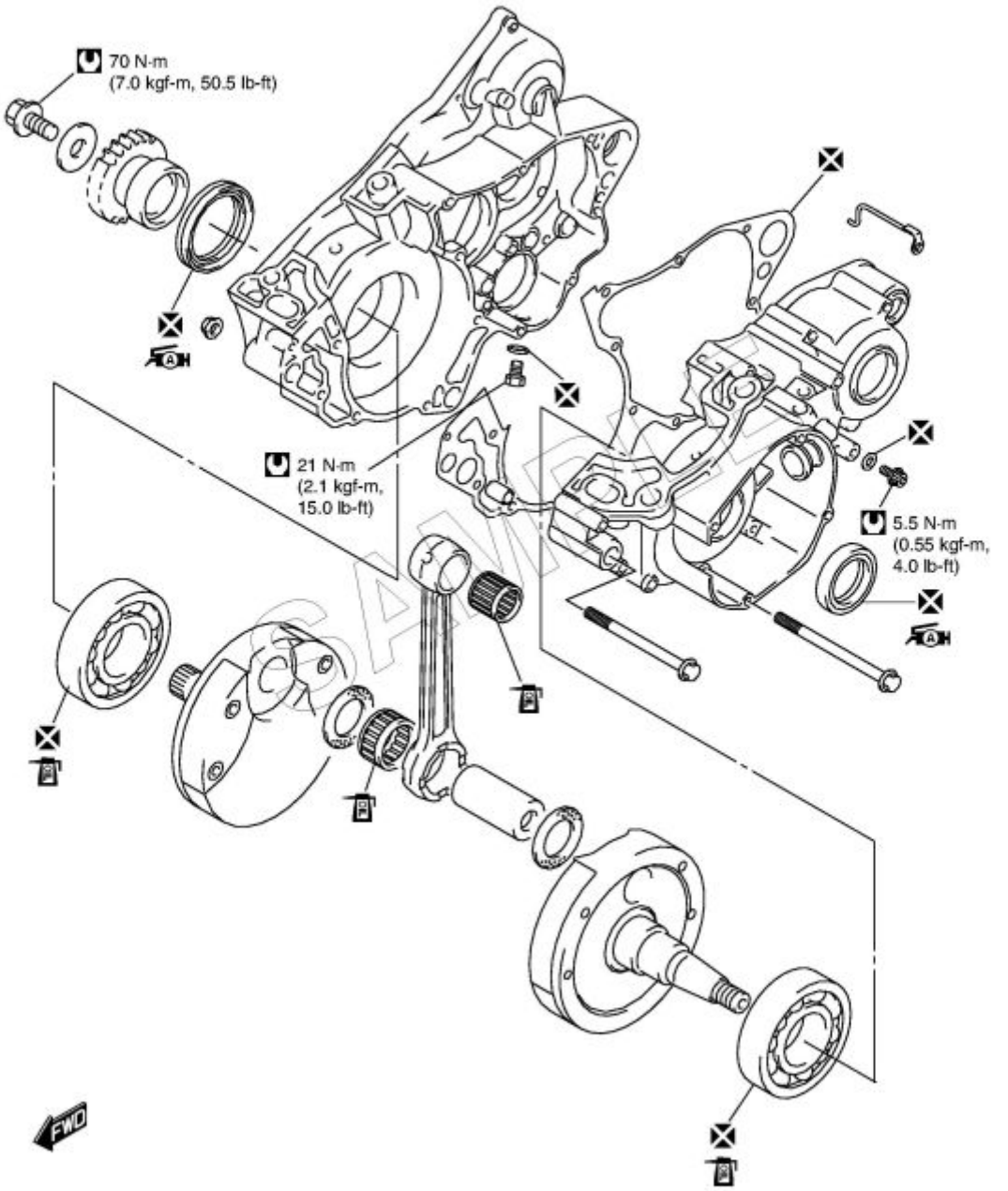
After installing the stator and magneto rotor, inspect the following.

- Wire harness routing (☞19-12)

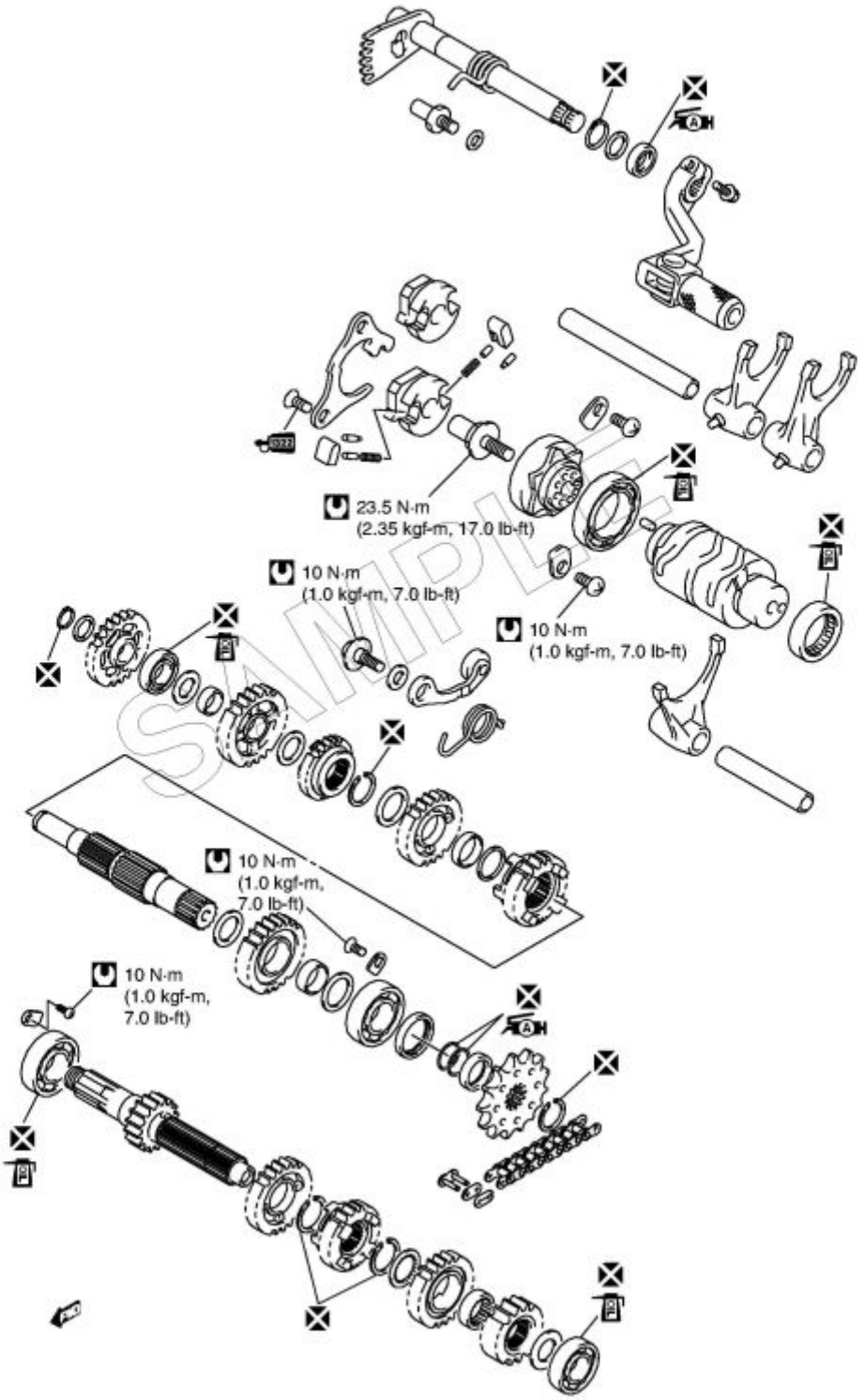
TRANSMISSION AND CRANKSHAFT

CONTENTS

CONSTRUCTION
CRANKSHAFT AND CRANKCASE



TRANSMISSION



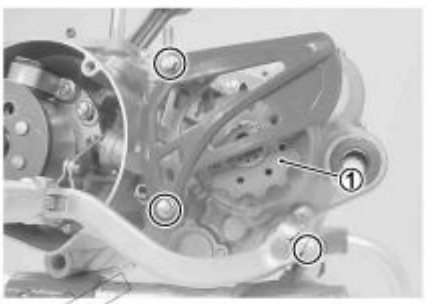
REMOVAL

- Dismount the engine. (☞3-2)
- Remove the cylinder and piston. (☞4-3, 4)
- Remove the crankcase cover and clutch. (☞5-3)
- Remove the kick starter system. (☞6-3)
- Remove the exhaust valve governor assembly. (☞11-8)
- Remove the magneto cover. (☞7-3)

GEARSHIFT LINKAGE

- Remove the gearshift pedal, sprocket cover and sprocket ①.

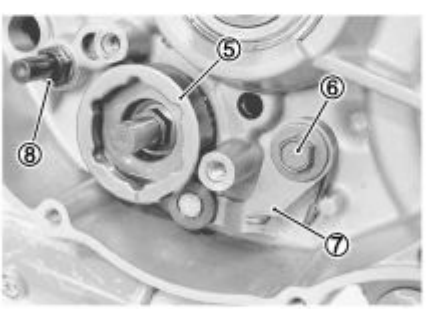
TOOL 09900-06107: Snap ring pliers



- Remove the gearshift shaft ② and washer.
- Remove the retainer ③ and gearshift cam driven gear ④.

NOTE:
Be careful not to drop the pins and springs when removing the gearshift cam driven gear.

- Remove the bolt and gearshift cam plate ⑤.
- Remove the gearshift cam stopper bolt ⑥, stopper ⑦, spring and washer.
- Remove the gearshift arm stopper bolt ⑧.

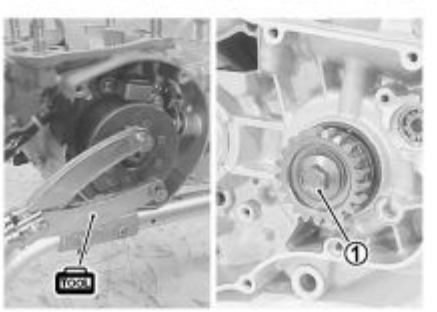


PRIMARY DRIVE GEAR

- While holding the magneto rotor with the special tool, remove the primary drive gear bolt ①.

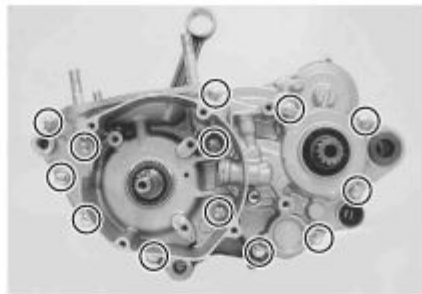
TOOL 09930-40113: Rotor holder

- Remove the magneto rotor and stator. (☞7-3)
- Remove the clutch release camshaft. (☞5-4)



CRANKCASE

- Remove the crankcase bolts.

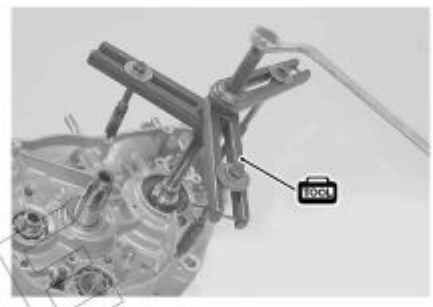


- Separate the crankcase with the special tool.

09920-13120: Crankcase separating tool

NOTE:

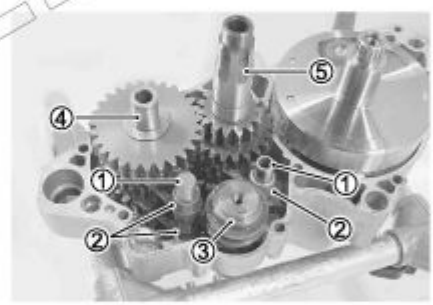
* *Set the crankcase separating tool to the clutch side of the crankcase.*
* *Keep all the tool arms parallel to the crankcase surface.*
* *Separate the crankcase gradually while tapping the crankcase boss and countershaft softly with a plastic hammer.*



- Remove the dowel pins and gasket.

TRANSMISSION

- Remove the gearshift fork shafts ① and forks ②.
- Remove the gearshift cam ③.
- Remove the drive shaft assembly ④ and countershaft assembly ⑤.



- Remove the engine sprocket spacer and two O-rings.

CRANKSHAFT

- Remove the crankshaft with the special tool.

09920-13120: Crankcase separating tool

NOTE:

** Keep all the tool arms parallel to the crankcase surface.*

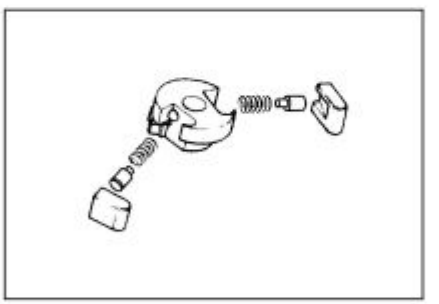
INSPECTION

GEARSHIFT SHAFT

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

GEARSHIFT CAM DRIVEN GEAR

- Inspect the pawls, springs and pins for damage.

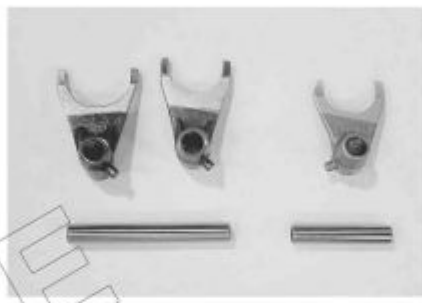


TRANSMISSION

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

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

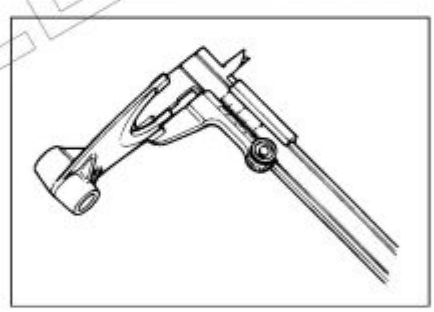
- Inspect the gearshift forks and shafts for wear and damage.



- Measure the gearshift fork thickness with the vernier calipers.

DATA **Gearshift fork thickness**
Standard: 4.60 – 4.70 mm (0.181 – 0.185 in)

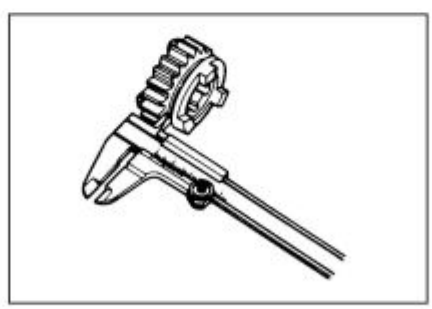
TOOL **09900-20101: Vernier calipers**



- Measure the gearshift fork groove width with the vernier calipers.

DATA **Gearshift fork groove width**
Standard: 4.80 – 4.90 mm (0.189 – 0.193 in)

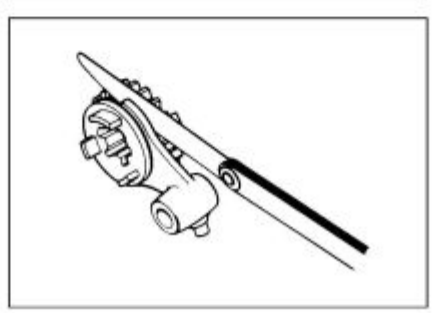
TOOL **09900-20101: Vernier calipers**



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

DATA **Gearshift fork to groove clearance**
Service limit: 0.50 mm (0.020 in)

TOOL **09900-20803: Thickness gauge**

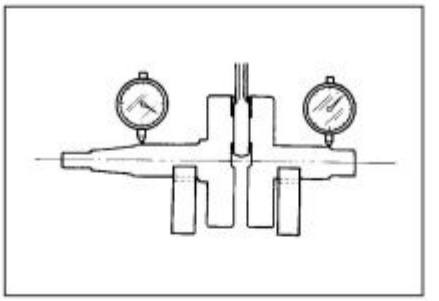


CRANKSHAFT

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

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

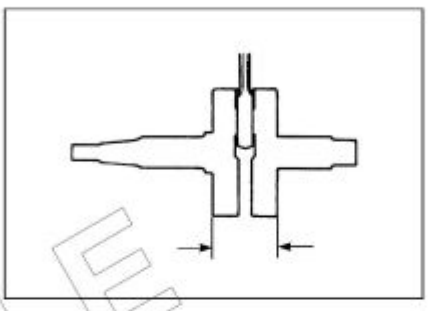
TOOL 09900-20602: Dial gauge
09900-20701: Magnetic stand
09900-21304: V-block



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

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

TOOL 09900-20101: Vernier calipers

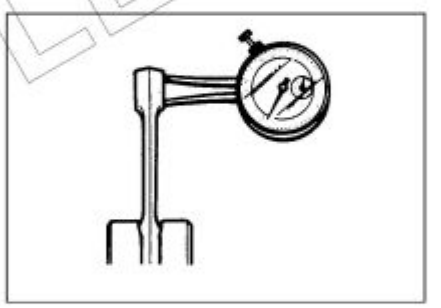


CONROD

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

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

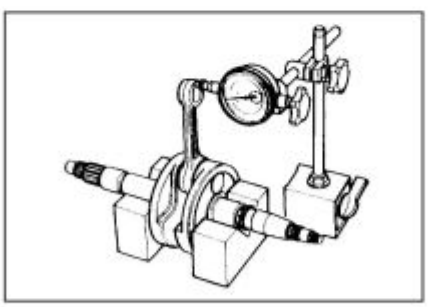
TOOL 09900-20605: Dial calipers (10 – 34 mm)
09900-22401: Small bore gauge (10 – 18 mm)



- Measure the conrod deflection with the special tools.

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

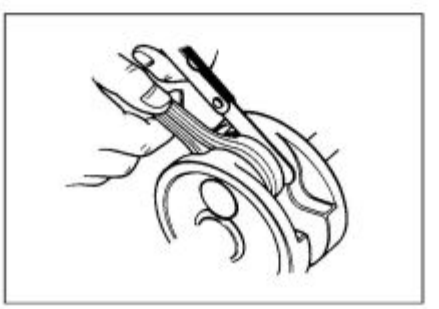
TOOL 09900-20701: Magnetic stand
09900-20606: Dial gauge (1/100 mm)
09900-21304: V-block



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

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

TOOL 09900-20803: Thickness gauge



CRANK CASE

OIL SEAL INSPECTION AND REMOVAL

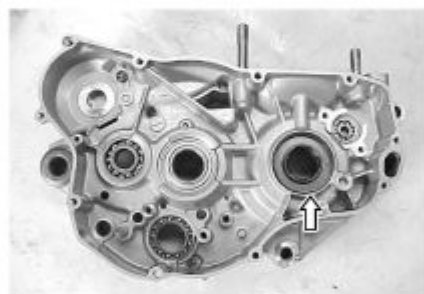
- Inspect the oil seal lips for wear and damage.
- Remove the oil seal with the special tool.

09913-50121: Oil seal remover

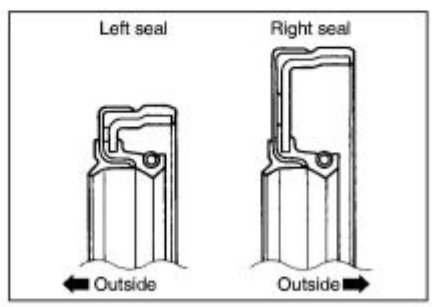
OIL SEAL INSTALLATION

- Fit a new oil seal with the special tool.
- Apply grease to the oil seal lip.

09913-70210: Bearing installer set



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



BEARING INSPECTION, REMOVAL AND INSTALLATION

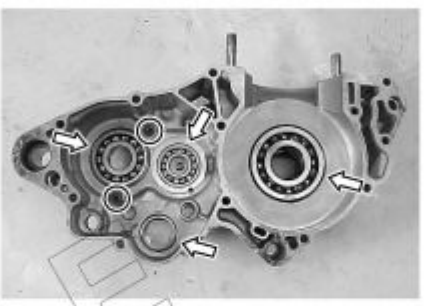
- Inspect the bearings for play, discoloration, wear and seizure.
- Move the inner race by finger and inspect for smooth movement.
- Remove the bearing retainers.
- Remove and install the bearings with the special tool.

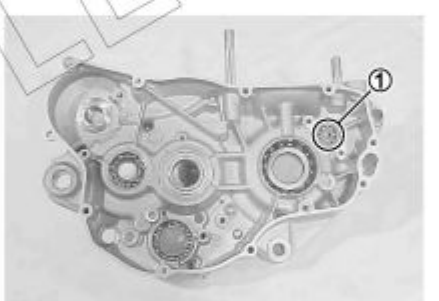
Bearing remover/installer

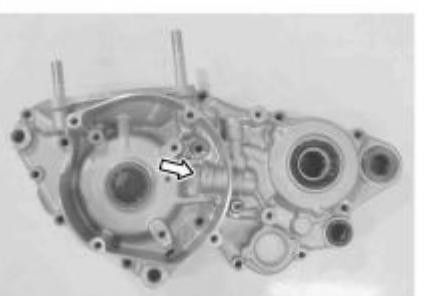
		TOOL NO.
①	Remover	09917-50410
	Installer	09913-70210
Others	Remover	09921-20240
	Installer	09913-70210

- Tighten the bearing retainer screws to the specified torque.

Bearing retainer screw: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

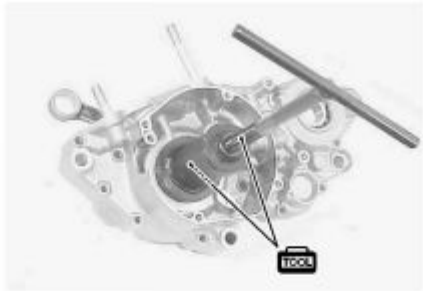






INSTALLATION

Install the crankshaft and transmission in the reverse order of removal. Pay attention to the following points:



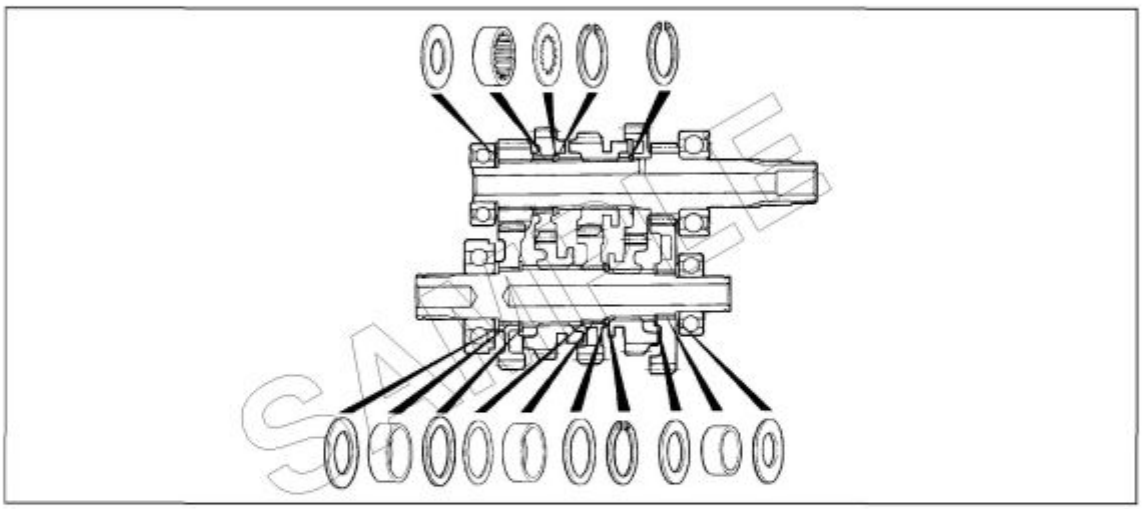
CRANKSHAFT

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

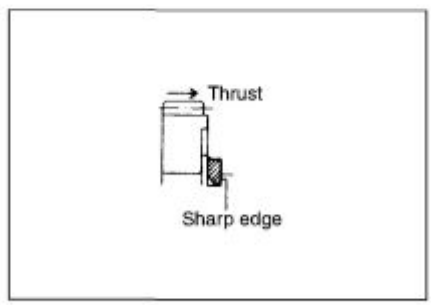
TOOL 09910-32812: Crankshaft installer
09911-11310: Attachment

NOTE:
Do not hit the crankshaft with a hammer for installation.

TRANSMISSION



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



- Insert the driveshaft and countershaft with gears installed.
- Apply transmission oil to the following parts:

Driveshaft	Countershaft
Transmission gears	Bearings
Gearshift forks	Gearshift shafts
Gearshift cam	

- Install the gearshift cam and gearshift forks.

NOTE:
The shape of the gearshift fork for countershaft is different from the others. (☞8-7)

- Install the gearshift shafts ①.

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

- Fit a new gasket ② and dowel pins ③.

CRANKCASE

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

Crankcase bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

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.

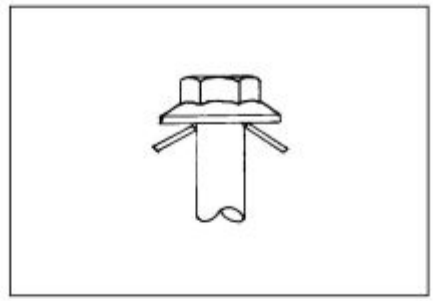
- Inspect the crankshaft, countershaft and drive shaft for smooth movement.

- Apply grease to new O-rings. Fit the two O-rings and spacer to the driveshaft.
- Remount the engine sprocket.

SUZUKI SUPER GREASE "A"

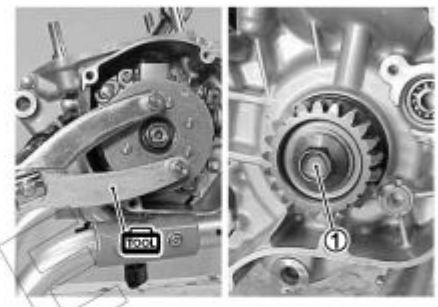
• Reassemble the primary drive gear and washer.

NOTE:
The washer is directional. Assemble the washer as shown in the illustration.



• Install the magneto rotor and stator. (☞7-4)
• While holding the magneto rotor with the special tool, tighten the primary drive gear bolt ① to the specified torque.

Primary drive gear bolt: 70 N·m (7.0 kgf-m, 50.5 lb-ft)



GEARSHIFT LINKAGE

• Fit the gearshift cam plate.

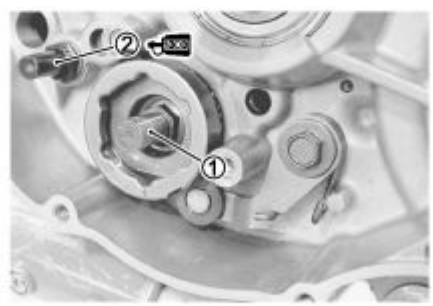
NOTE:
Align the gearshift cam plate hole with the pin.

• Tighten the gearshift cam bolt ①.

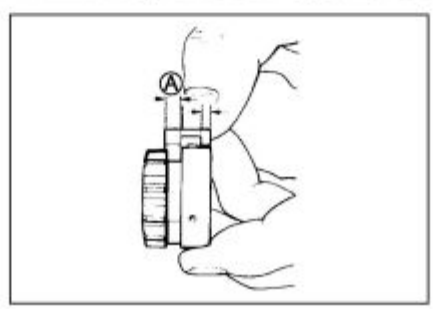
Gearshift cam bolt: 23.5 N·m (2.35 kgf-m, 17.0 lb-ft)

• Apply THREAD LOCK SUPER and tighten the gearshift arm stopper bolt ② to the specified torque.

99000-32030: THREAD LOCK SUPER "1303"



• Fit the spring pin and pawl to the gearshift cam driven gear. Wider side Ⓐ of pawl should be positioned outside.

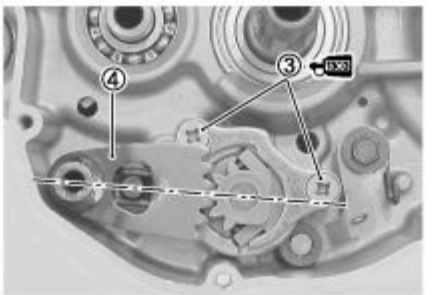


- Install the gearshift cam driven gear.
- Apply THREAD LOCK SUPER and tighten the retainer screws ③ to the specified torque.

1303 99000-32030: THREAD LOCK SUPER "1303"

Retainer screw: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

- Install the gearshift shaft ④. Match the center teeth of the gear on the gearshift shaft with the center teeth on the cam driven gear as shown.



INSPECTION AFTER INSTALLATION

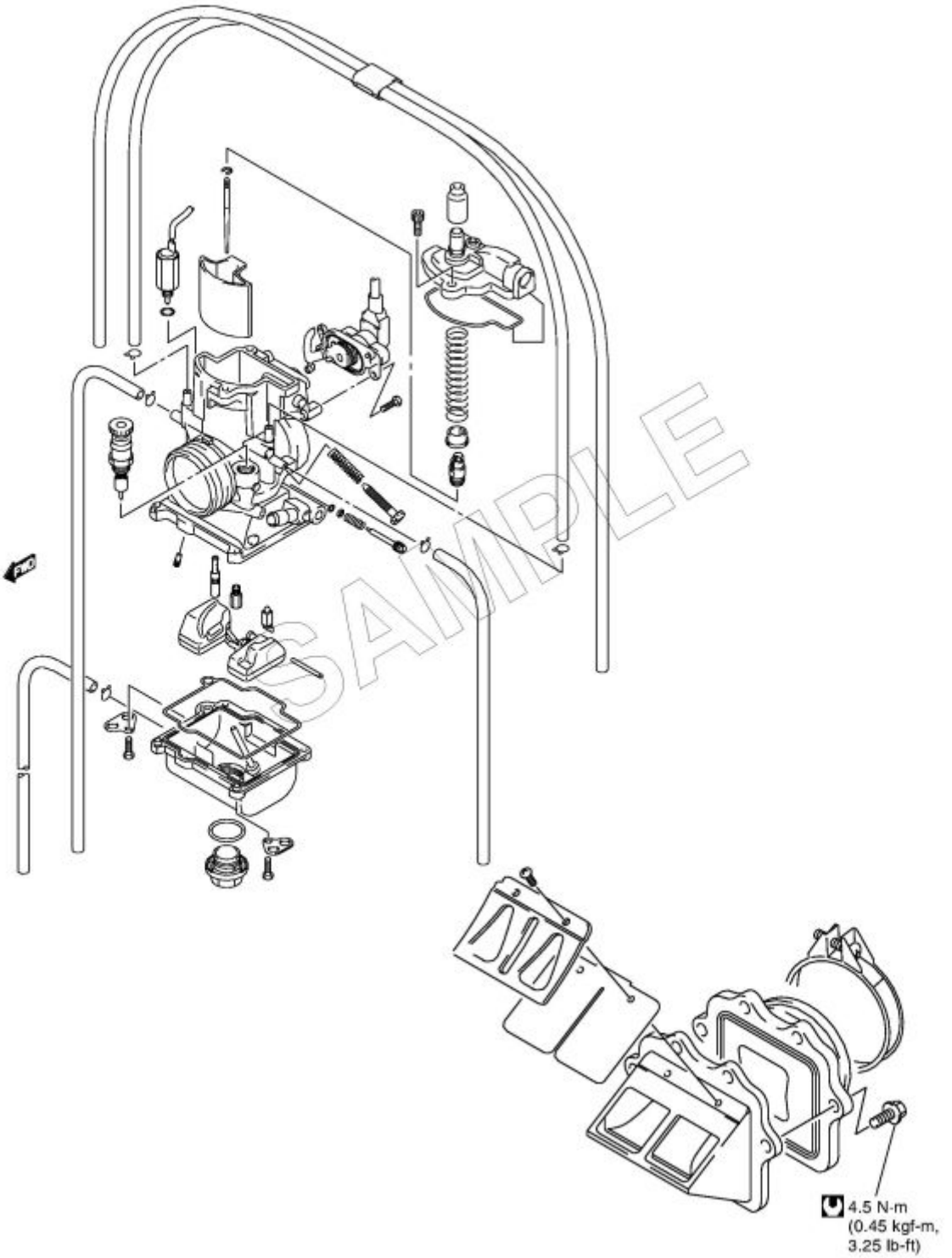
After mounting the engine, inspect the followings.

- Transmission oil level (☞2-9)
- Engine coolant level (☞2-11)
- Clutch cable play (☞2-13)
- Throttle cable play (☞2-13)
- Drive chain slack (☞2-16)
- Brake pedal height (☞2-20)
- Wire, cable and hose routing (☞19-12 to 15)

FUEL SYSTEM

CONTENTS

CONSTRUCTION



CARBURETOR TUNING

The carburetion of your motorcycle was 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

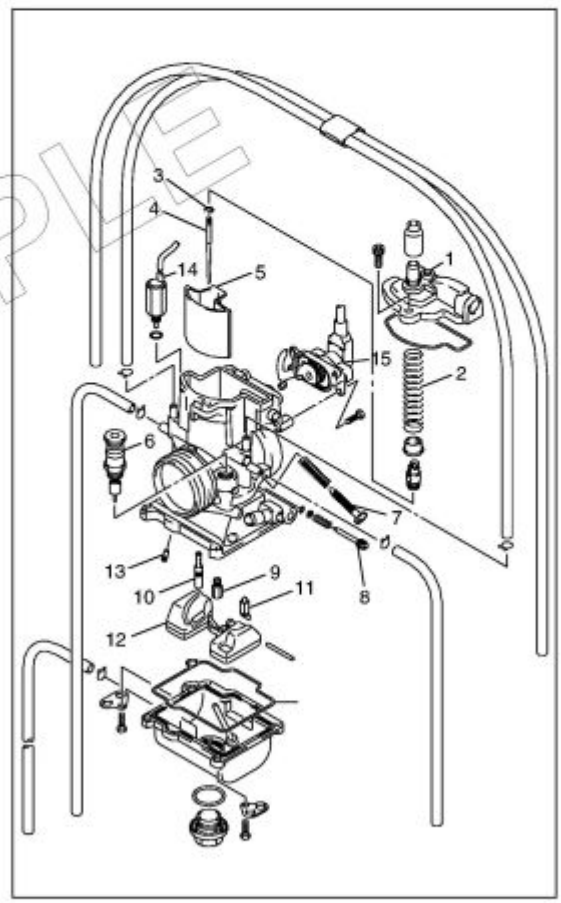
Bore	39 mm
Main jet	#172
Jet needle	NEDH-4th
Cut-away	#7
Slow jet	#50
Air screw	1 and 1/2 turns out
Power jet	#55
Float height	6.5 mm (0.26 in)

Setting parts	Parts No.
Main jet #168	09491-33010
Main jet #175	09491-35009
Jet needle NECH	13383-37FC0

PRINCIPLES OF CARBURETOR TUNING

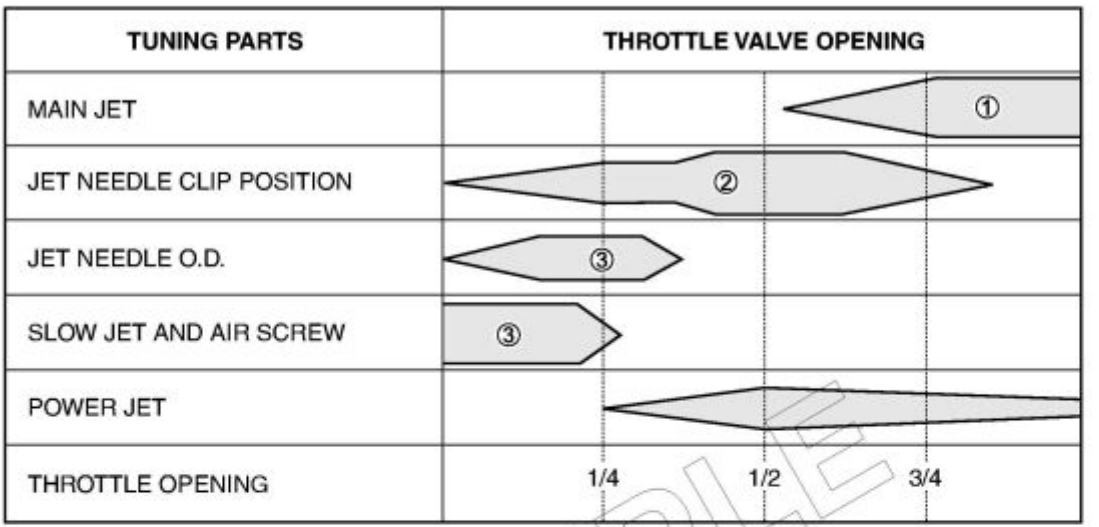
CARBURETOR COMPONENTS AND FUNCTIONS

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. * Clip
4. * Jet needle
5. Throttle valve
6. Starter knob
7. Throttle stop screw
8. * Air screw
9. * Main jet
10. * Slow jet
11. Needle valve ass'y
12. Float
13. Power jet
14. Solenoid
15. Throttle position sensor

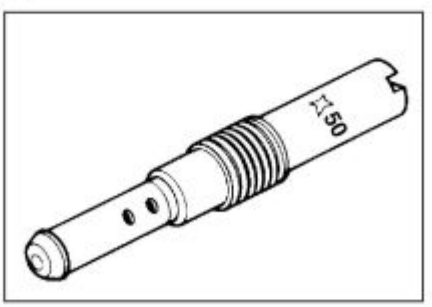
As shown below, each of the asterisk (*) marked parts is located between the air/fuel passage and has its own air/fuel mixture adjustable range in terms of the throttle valve opening. The chart indicates that the carburetor can supply correct air/fuel mixture to the engine in any range because of the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



① MAIN SYSTEM ② INTERMEDIATE SYSTEM ③ SLOW SYSTEM

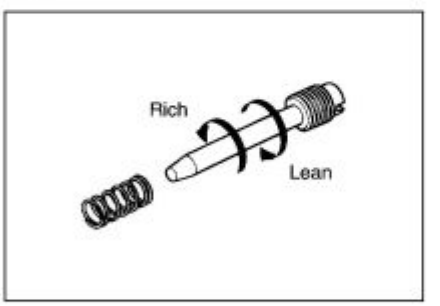
When performing carburetor tuning first find out in what throttle opening range an improper air/fuel mixture is supplied, by checking the color of exhaust smoke, spark plug, throttle response, power, etc. Second, replace or adjust the part(s) related to the throttle opening range by referring to the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

Slow Jet



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

Air Screw

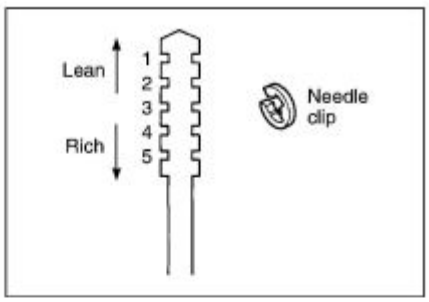


The air screw is located in the inlet air passage and meters the air for the slow system. As it has a right-hand thread, tightening it makes the passage narrower, allowing less amount of intake air to flow and resulting in richer air/fuel mixture. Air flow adjustment is effective within a range of 1/2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

Power Jet

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

Needle Clip Position

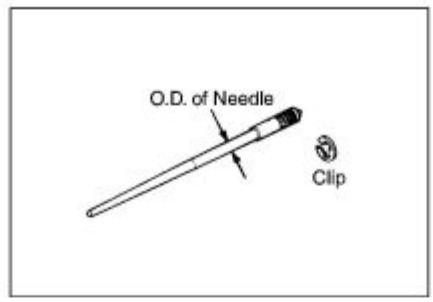


The jet needle is linked to the throttle valve by means of the needle clip. Its lower part is tapered and it has five grooves cut in the upper part where the needle clip fits.

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.

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

Jet Needle



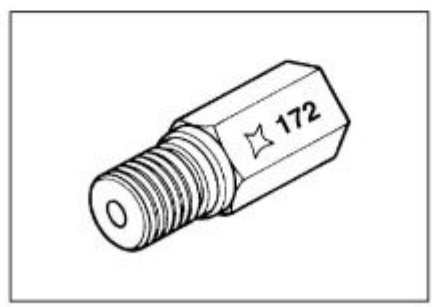
Needle number

NEDH
O.D.

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.

Air/fuel mixture	Needle Number	O.D.
Lean	NECL/NEDL	2.765 mm
	NECK/NEDK	2.755 mm
	NECJ/NEDJ	2.745 mm
	NECW/NEDW	2.735 mm
	NECH	2.725 mm
	NEDH	2.725 mm
	NECG/NEDG	2.715 mm
Rich	NECF/NEDF	2.705 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.

Throttle stop screw

When the throttle stop screw is turned clockwise, the throttle valve is forced upward allowing the engine to continue idling.

Throttle valve opening

Standard	After touching the throttle stop screw to the throttle valve, turn in the stop screw five to six turns to raise the throttle valve.

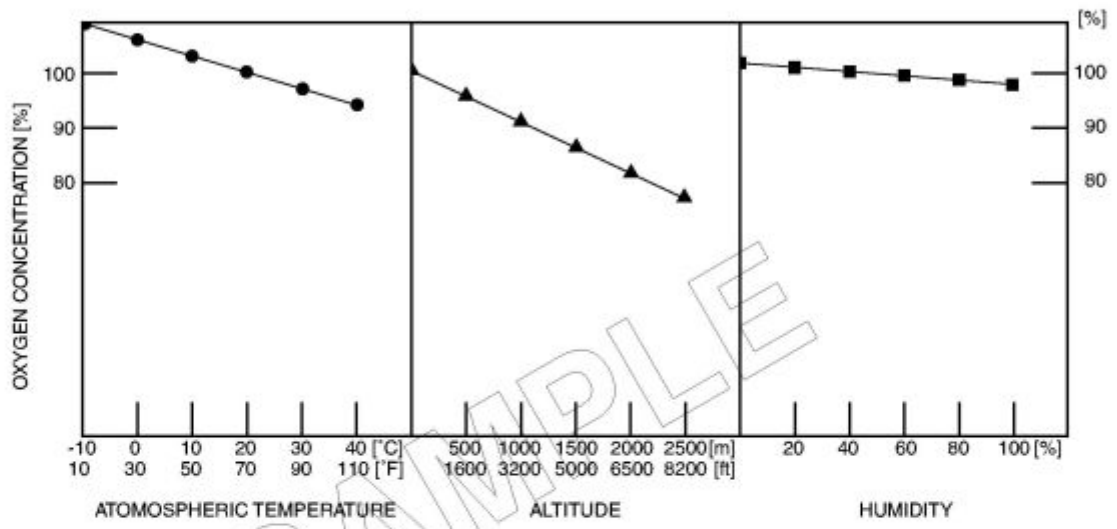
CAUTION
Too high an engine idle may cause driveability failure such as lack of engine braking and poor deceleration during brake application.

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 coping with variations 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 °C to 40 °C temperature difference, the one in the center shows about 20 % change in the 0 to 2 000 m 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: #172
Jet needle: NEDH-4th
Slow jet: #50
Air screw: 1 and 1/2 turns out
Cut-away: #7
Power jet: #55

Included Parts and Optional Parts

Main jet

Air/fuel mixture	SIZE	P/NO.
Lean	#150	09491-30018
	#152	09491-30019
	#155	09491-31012
	#158	09491-31013
	#160	09491-32010
	#162	09491-32011
	#165	09491-33009
	* #168	09491-33010
	#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
Rich	#210	09491-42006

Slow jet

Air/fuel mixture	SIZE	P/NO.
Lean	#35	09492-35019
	#40	09492-40022
	#42	09492-42019
	#45	09492-45032
	#48	09492-48013
	#50	09492-50023
	#52	09492-52011
	#55	09492-55017
	#58	09492-58001
Rich	#60	09492-60016

Jet needle

Air/fuel mixture	SIZE	P/NO.
Lean	NECL	13383-37FG0
	NEDL	13383-37FP0
	NECK	13383-37FF0
	NEDK	13383-37FN0
	NECJ	13383-37FE0
	NEDJ	13383-37FM0
	NECW	13383-37FD0
	NEDW	13383-37FL0
	* NECH	13383-37FC0
	NEDH	13383-37FK0
	NECG	13383-37FB0
	NEDG	13383-37FJ0
	NECF	13383-37FA0
Rich	NEDF	13383-37FH0

NOTE:
SHADED: STANDARD
*: INCLUDED ALTERNATE PARTS
NONE: OPTIONAL PARTS

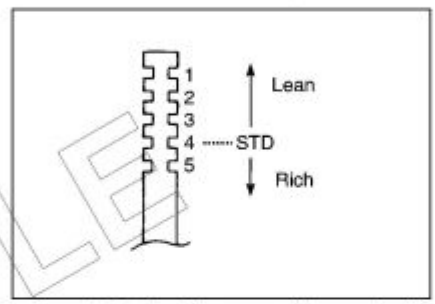
① Adjustment of slow system
1) Set the air screw as specified.
2) See if the selected slow jet is correct or not by judging the air/fuel mixture. If air/fuel mixture is rich, replace it with smaller one. If air/fuel mixture is lean, replace it with larger one.

Ex. Slow jet #50
If air/fuel mixture is rich, replace it with #48 slow jet. If air/fuel mixture is lean, replace it with #52 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 intermediate system.

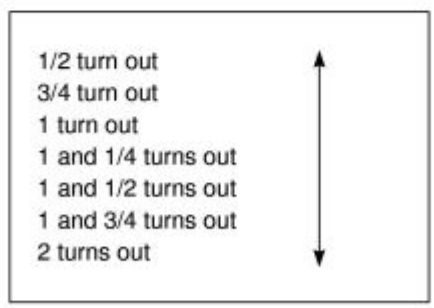
Ex. Main jet #172
If air/fuel mixture is rich, replace it with #170 main jet. If air/fuel mixture is lean, replace it with #175 main jet.

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.



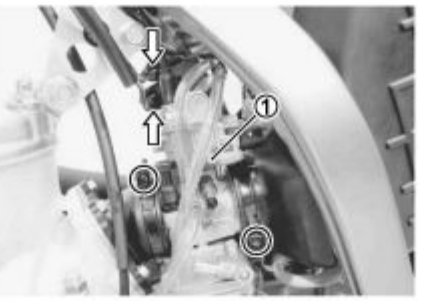
2) If the mixture can not be adjusted by the air screw within 1/2 – 2 turns out range, readjust the slow system ①.

⑤ Final adjustment of intermediate system
Fine tune the intermediate system by changing the needle type and clip position.

CARBURETOR

REMOVAL AND DISASSEMBLY

- Remove the seat and fuel tank. (☞3-2)
- Disconnect the throttle position sensor and solenoid couplers.
- Loosen the carburetor clamp screws and remove the carburetor ①.



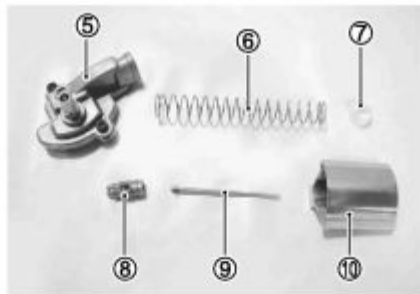
CAUTION
Do not bend the throttle cable and do not damage the throttle position sensor.

- Remove the carburetor top cap ② and throttle valve.

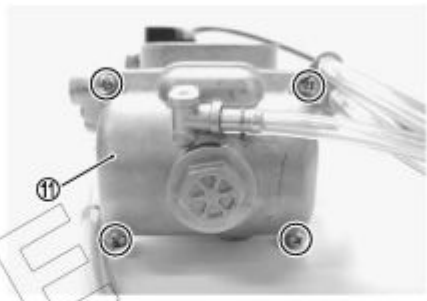
- Holding the spring ③, remove the throttle cable ④ from the throttle valve.

- Remove the cable holder and jet needle.

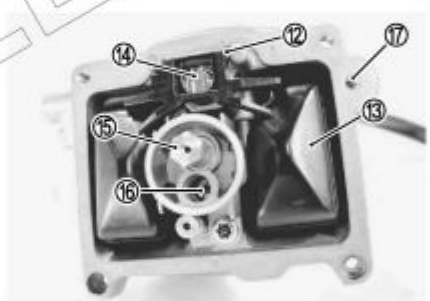
- Carburetor top cap ⑤
- Throttle valve spring ⑥
- Throttle valve collar ⑦
- Cable holder ⑧
- Jet needle ⑨
- Throttle valve ⑩



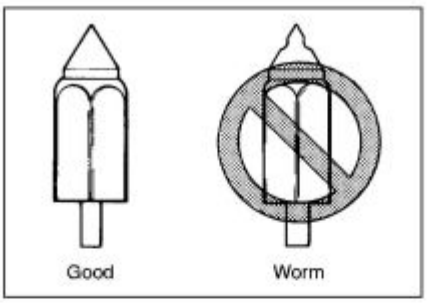
- Remove the screws and carburetor float chamber ⑪.



- Remove the float pin ⑫ and floats ⑬.
- Remove the needle valve ass'y ⑭.
- Remove the main jet ⑮ and slow jet ⑯.
- Remove the power jet ⑰.
- Remove the throttle stop screw ⑱.
- Remove the starter knob ⑲.
- Remove the air screw ⑳.
- Remove the solenoid ㉑.



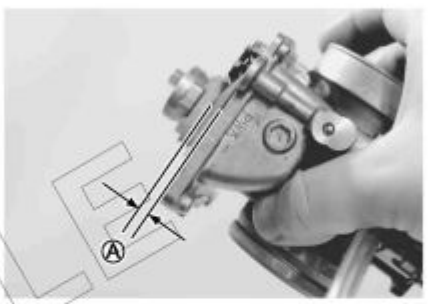
INSPECTION



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

DATA **Standard float height: 6.5 ± 1.0 mm (0.26 ± 0.04 in)**



REASSEMBLY AND REMOUNTING

Reassemble the carburetor in the reverse order of removal. Pay attention to the following pints:

NOTE:
Fit the projection of throttle valve collar in the groove of cable holder.

NOTE:
Set the throttle position sensor guide roller as shown when installing the throttle valve into the carburetor body.

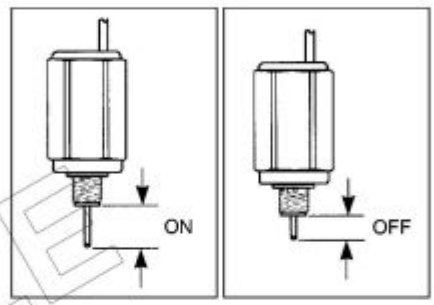
CARBURETOR SOLENOID

REMOVAL AND INSPECTION

- Remove the solenoid.
- Connect the coupler ①.
- Connect tachometer sensor plug ② to the Multi circuit tester.

09900-25008: Multi circuit tester set
Tester knob indication: RPM A

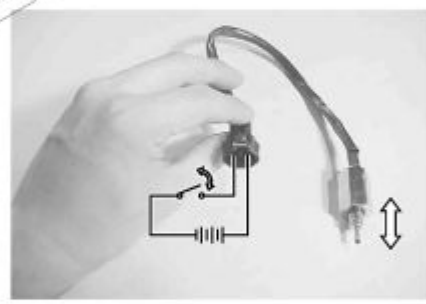
- Pinch the high tension cord with the tachometer sensor ③.



- Reassemble the fuel tank and seat.
- Shift the transmission in neutral.
- Start the engine.
- Inspect the valve operation by following engine RPM.

ON position: 2 000 – 3 000, 9 300 – 10 500 rpm
OFF position: Others

If the valve operation is not correct, inspect the solenoid valve by following procedure.



- Connect 12 V battery and solenoid as shown.
- Check the valve movement when the circuit is opened and closed.

- If the solenoid valve movement is not correct, replace the solenoid valve with new one.
- If the solenoid valve move correctly, inspect following parts:
  CDI unit (☞17-4)
  Stator coil (☞17-5)
  Open circuit in wiring harness
  Coupler connection

REASSEMBLY

Reassemble the solenoid valve in the reverse order of removal. Pay attention to the following point:

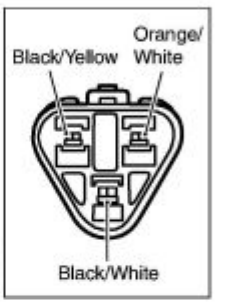
- Apply engine oil to the cross thread of the solenoid and the new O-ring.

CAUTION
Replace the O-ring with a new one.

THROTTLE POSITION SENSOR

INSPECTION

- Disconnect the throttle position sensor coupler.



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

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Voltage (⎓)

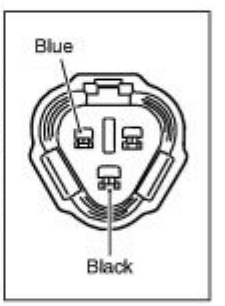
DATA Orange/White (⊕ probe) – Black/White (⊖ probe): 4 – 6 V (Over 3 000 rpm)

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

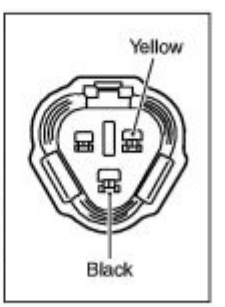
TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

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

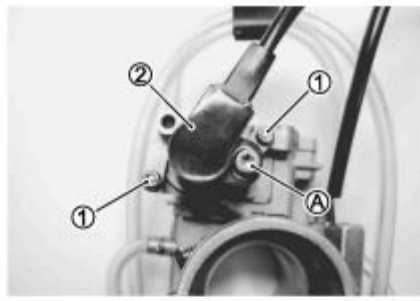


DATA Yellow (⊕ probe) – Black (⊖ probe):
When the throttle is full closed: 0.3 – 0.75 kΩ
When the throttle is full opened: 2.5 – 5 kΩ



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

REMOVAL AND REMOUNTING



- Remove the carburetor. (☞9-10)
- Remove the bolts ① and remove the throttle position sensor ② with the special tool.

TOOL 09930-11960: Torx wrench, T20

- Remount the throttle position sensor assembly.

CAUTION
Do not loosen the bolt Ⓐ.

REED VALVE

REMOVAL

- Remove the carburetor. (☞9-10)
- Remove the intake pipe and 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.

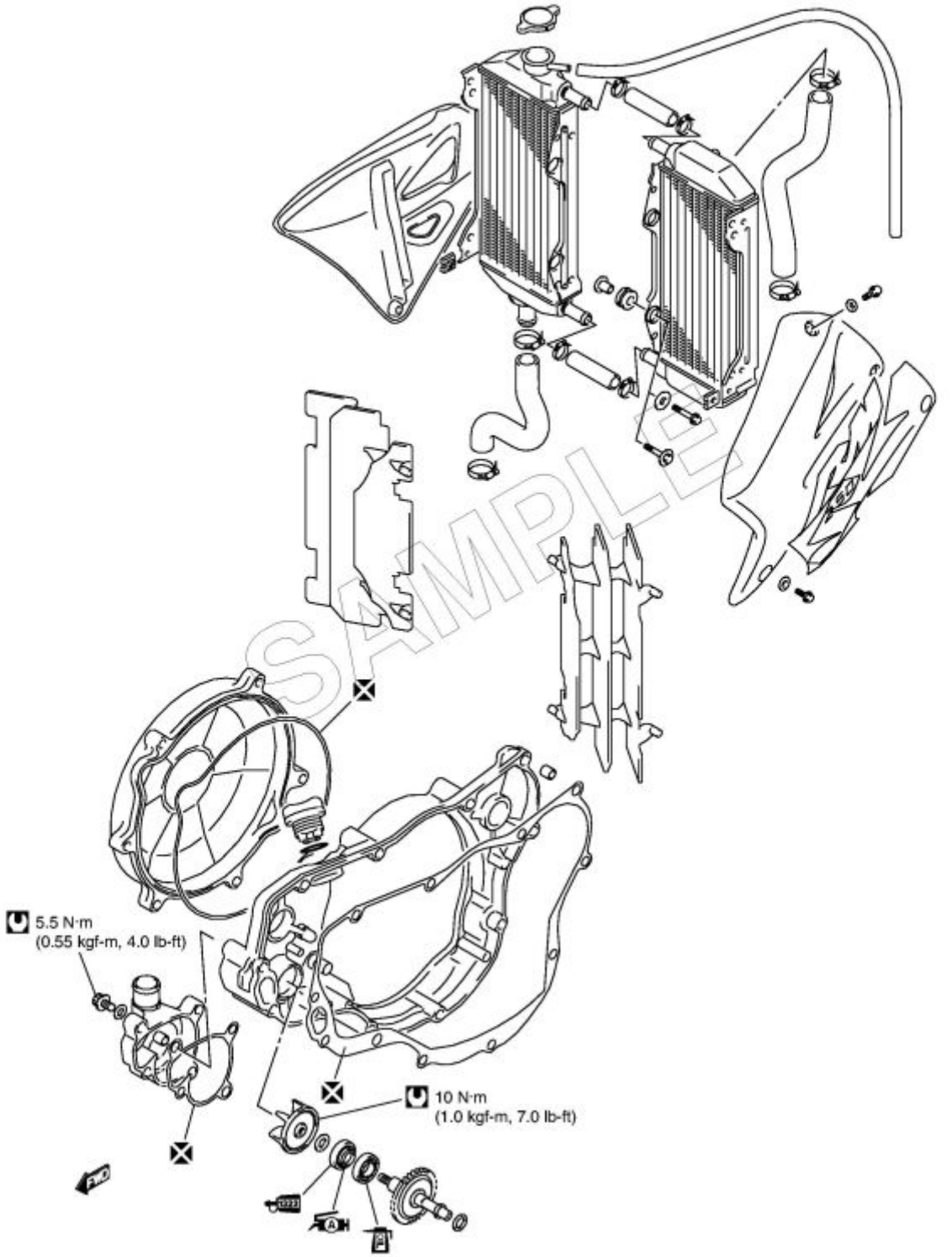
REASSEMBLY

Reverse the sequence of removal.

COOLING SYSTEM

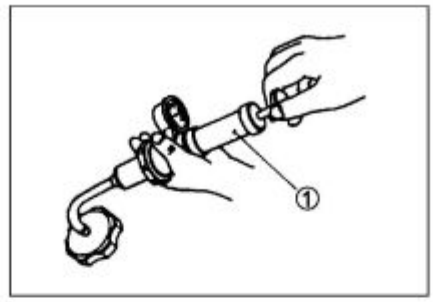
CONTENTS

CONSTRUCTION



COOLING CIRCUIT INSPECTION

COOLING CIRCUIT



Before removing the radiator and draining engine coolant, inspect the cooling circuit for tightness.

- Remove the radiator cap.
- Connect the tester ① to the filler.

▲ WARNING

Do not remove the radiator cap when the engine is hot.

- Give a pressure of about 110 kPa (1.1 kgf/cm², 15.6 psi) and see if the system holds this pressure for 10 seconds.
- If the pressure should fall during this 10-second interval, it means that there is a leaking point in the system. In such a case, inspect the entire system and replace the leaking component or part.

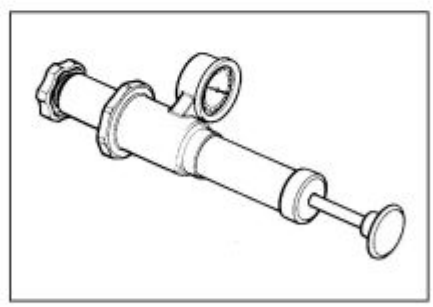
▲ WARNING

When removing the radiator cap tester, put a rag on the filler to prevent spouting of engine coolant.

CAUTION

Do not allow the pressure to exceed the radiator cap release pressure, or the radiator can be damaged.

RADIATOR CAP



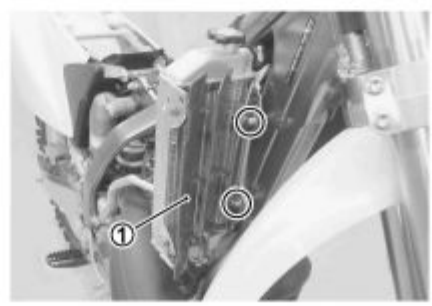
- Inspect the radiator cap for function with a radiator cap pressure gauge.

DATA **Radiator cap valve release pressure:**
95 – 125 kPa (0.95 – 1.25 kgf/cm², 14 – 18 psi)

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

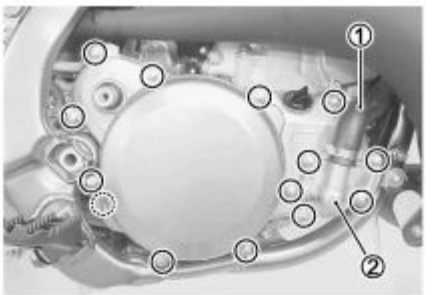
REMOVAL

RADIATOR



- Remove the seat and fuel tank. (☞3-2)
- Drain engine coolant. (☞2-9)
- Disconnect the radiator hoses.
- Remove the radiator guards ① and mounting bolts.

WATER PUMP



- Drain the engine coolant. (☞ 2-12)
- Drain the transmission oil. (☞ 2-9)
- Remove the kick starter lever. (☞ 6-3)
- Remove the brake pedal. (☞ 3-3)
- Disconnect the radiator hose ①.
- Remove the water pump cover ②.
- Remove the right crankcase cover.

⚠ WARNING

*** Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
*** The engine must be cool before servicing the cooling system.**
*** Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.**

- Remove the impeller from the right crankcase cover.

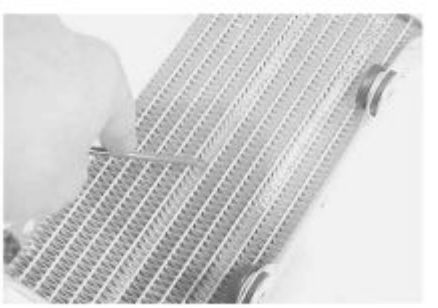
CAUTION

The impeller has left-hand threads.

INSPECTION

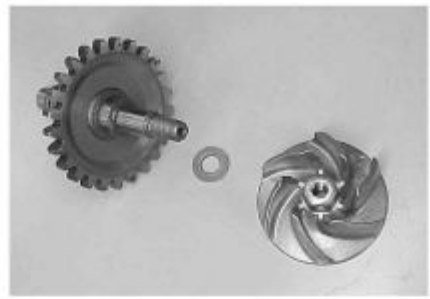
RADIATOR

- Inspect the radiator.
- Fins bent down or dented can be repaired by straightening them with the blade of a small screwdriver.



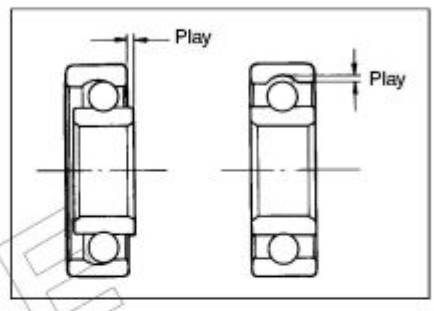
IMPELLER AND GEAR SHAFT

• Inspect the impeller and gear shaft for damage.



WATER PUMP BEARING

Inspect the inner race play of the water pump bearing while it is in the water pump housing. Rotate the inner race by hand to inspect for abnormal noise and smooth rotation. If abnormal noise occurs or if rough movement is noted, replace the water pump bearing with a new one.



BEARING REPLACEMENT

• Remove the water pump bearing with the special tool.

TOOL 09921-20220: Bearing remover set

CAUTION
Replace the removed bearing with a new one.

• Install a new bearing with the special tool.

TOOL 09913-70210: Bearing installer set

OIL SEAL

Visually inspect the oil seal for damage. If any damages are found, replace the oil seal with a new one.

• Remove the oil seal.

CAUTION
Replace the removed oil seal with a new one.

• Apply THREAD LOCK to the outer surface of the oil seal.

1342 99000-32050: THREAD LOCK "1342"

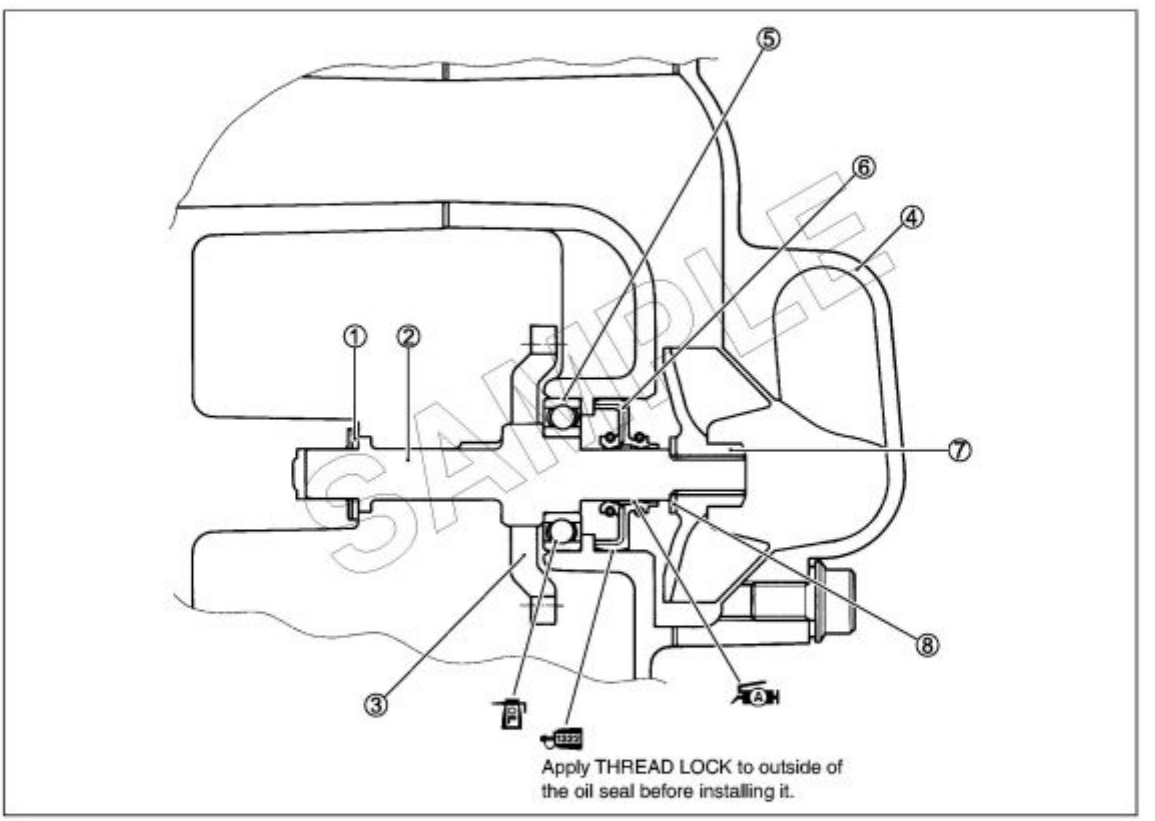
REASSEMBLY

Reassemble and remount the water pump in the reverse order of removal and disassembly. Pay attention to the following points:

- Tighten the impeller to the specified torque.

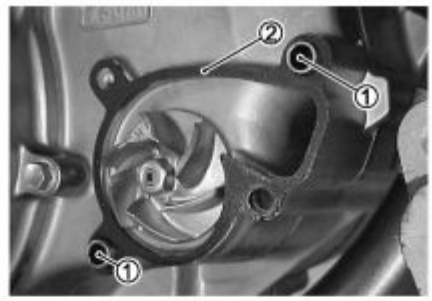
Impeller: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

CAUTION
The impeller has left-hand threads.



① Washer
② Water pump shaft
③ Water pump driven gear
④ Water pump case
⑤ Bearing
⑥ Oil seal
⑦ Impeller
⑧ Washer

• Install the dowel pins ① and new gasket ②.



CAUTION
Use a new gasket to prevent engine coolant leakage.

• Tighten the crankcase cover bolts to the specified torque.

Crankcase cover bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

INSPECTION AFTER REASSEMBLY

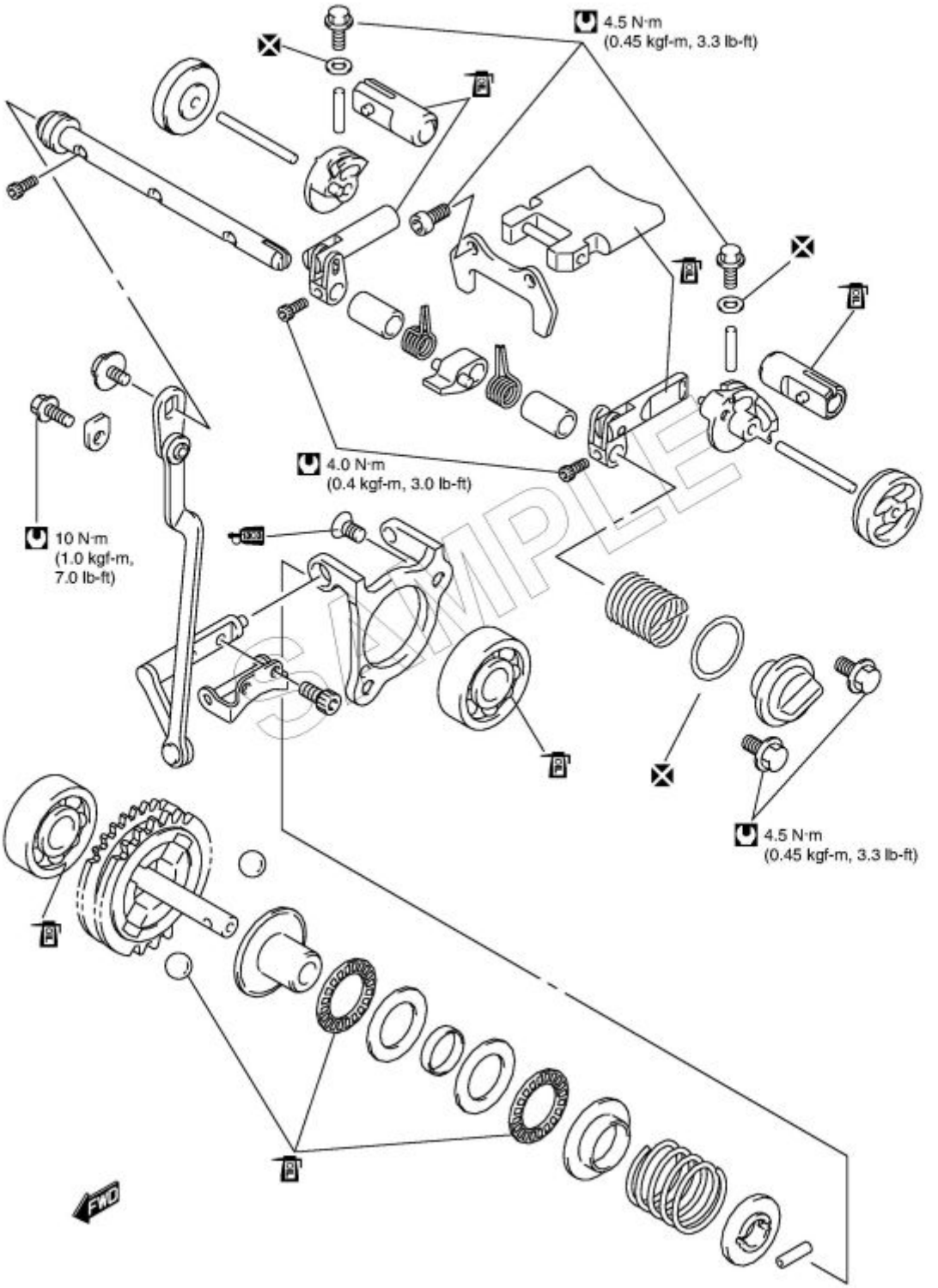
After reinstalling the water pump, inspect the followings.

• Transmission oil level (☞2-9)
• Engine coolant level (☞2-11)

EXHAUST VALVE

CONTENTS

CONSTRUCTION



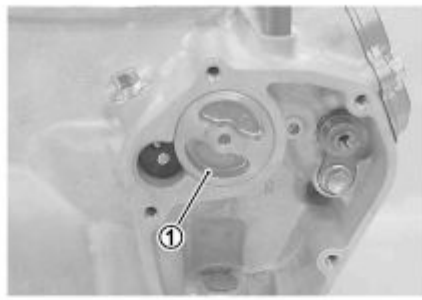
EXHAUST VALVE

DISASSEMBLY

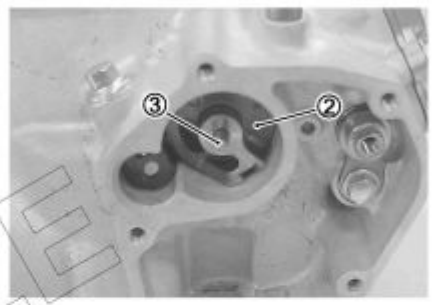
- Remove the cylinder. (4-3)

EXHAUST SIDE VALVE (RH)

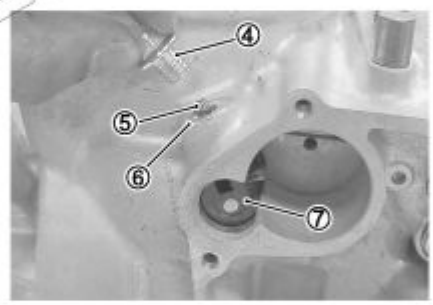
- Remove the exhaust side valve spacer ①.



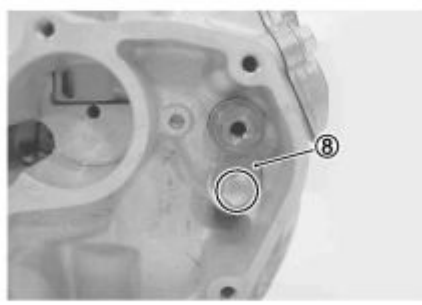
- Remove the exhaust side valve cam ② and shaft ③.



- Remove the exhaust side valve bolt ④, stopper pin ⑤ and gasket ⑥.
- Remove the exhaust side valve ⑦.

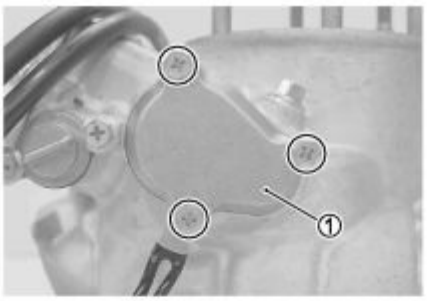


- Remove the exhaust valve shaft retainer ⑧.

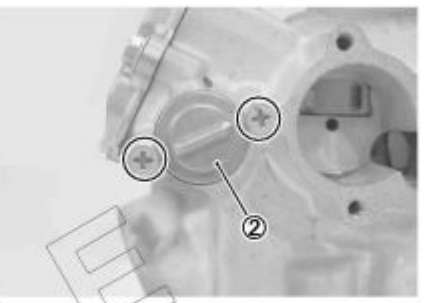


EXHAUST SIDE VALVE (LH)

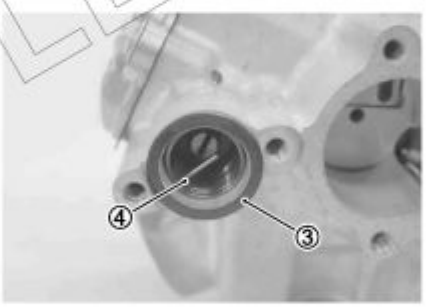
- Remove the side valve cap ①.
- Remove the exhaust side valve in the same manner as the right side.



- Remove the spring cap ②.



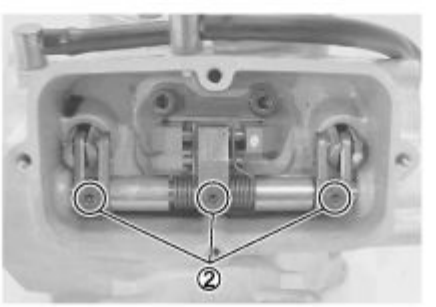
- Remove the gasket ③ and spring ④.



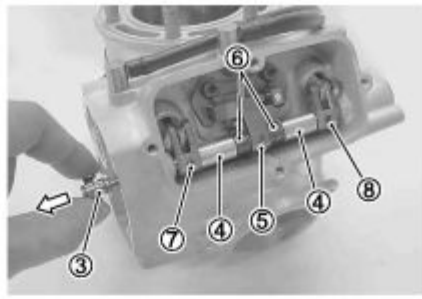
EXHAUST MAIN VALVE

- Remove the exhaust valve cover ① and gasket.

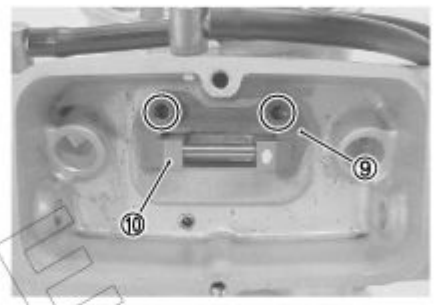
- Remove the exhaust valve shaft arm bolts ②.



- Remove the exhaust valve shaft ③.
- Remove the following parts.
  ④ Spacer
  ⑤ Exhaust valve arm
  ⑥ Spring
  ⑦ Right exhaust side valve rod
  ⑧ Left exhaust side valve rod

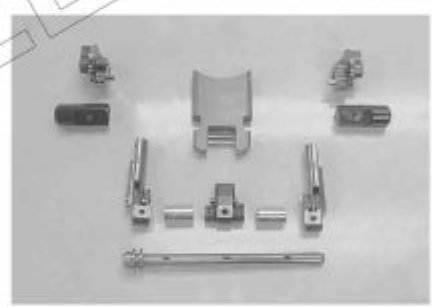


- Remove the retainer ⑨ and the exhaust main valve ⑩.



INSPECTION

- Remove carbon deposits from the exhaust valves and component parts.
- Inspect the exhaust valves for wear and scratches.



- Inspect the return spring for spring tension and damage.

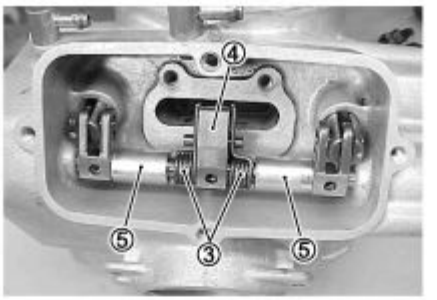
REASSEMBLY

Reassemble the exhaust valve in the reverse order of disassembly. Pay attention to the following points:

- Apply transmission oil to the exhaust side valve rods.
- Install the exhaust side valve rods into the cylinder.

NOTE:
Make sure that the yellow painted valve rod ① is installed on the right and the white painted valve rod ② is installed on the left.

- Apply transmission oil to the exhaust valve shaft.
- Install the springs ③ to the valve arm ④.
- Insert the exhaust valve shaft through the spacers ⑤ and valve arm with springs.

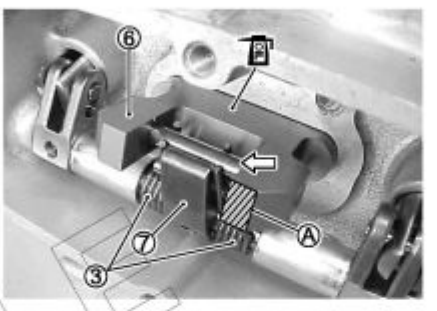


- Apply transmission oil to the exhaust main valve.
- Install the exhaust main valve ⑥ with the arm ⑦ and springs ③ engaged it.

NOTE:

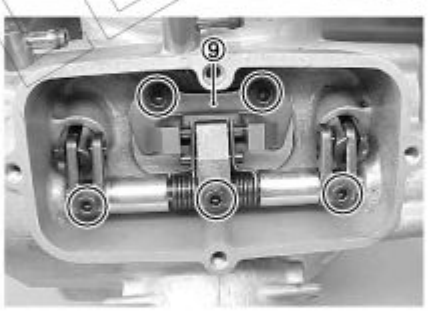
** The white mark Ⓐ on the exhaust valve must face to the left side valve.*

** Make sure to pinch the pin of the main valve with the spring ends.*



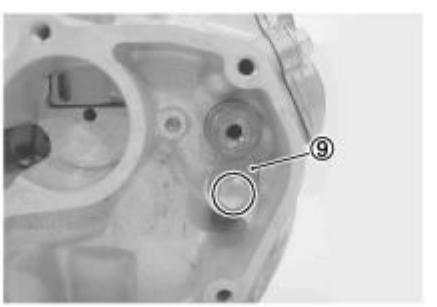
- Install the retainer ⑧.
- Tighten the bolts to the specified torque of each.

Exhaust valve bolt (M5): 4.5 N·m (0.45 kgf-m, 3.3 lb-ft)
Exhaust valve arm bolt (M3):
4 N·m (0.40 kgf-m, 3.0 lb-ft)

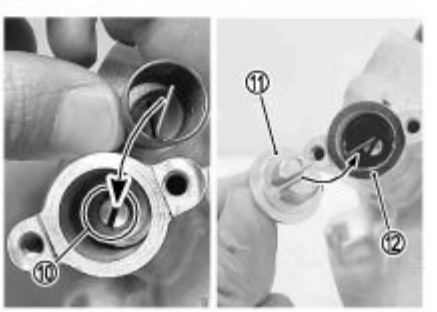


- Install the retainer ⑨.

Exhaust valve shaft retainer bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

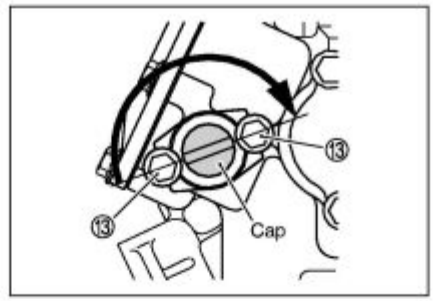


- Install the spring with its end engaged the groove of the exhaust valve shaft ⑩ and the other side the cap ⑪.
- Install a new gasket ⑫.



- Temporarily tighten the bolts ⑬.
- Turn the cap 180° clockwise and tighten the bolts to the specified torque.

Exhaust valve return spring cap bolt:
4.5 N·m (0.45 kgf-m, 3.3 lb-ft)



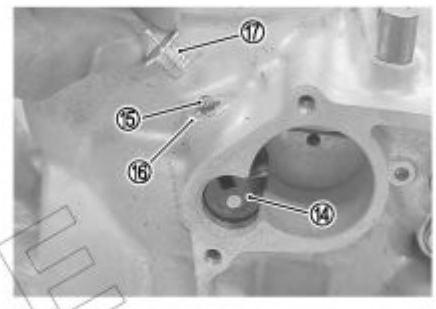
- Install the exhaust side valve ⑭, stopper pin ⑮ and new gasket ⑯.
- Tighten the bolt ⑰ to the specified torque.

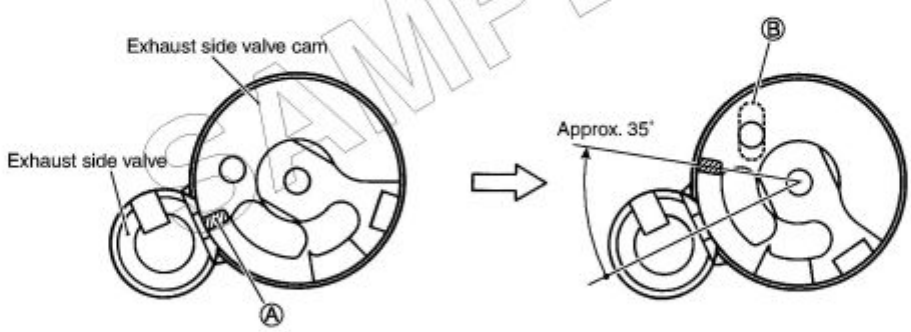
Exhaust side valve bolt: 4.5 N·m (0.45 kgf-m, 3.3 lb-ft)

NOTE:

* *The yellow painted side valve must be installed on right side. The white painted side valve must be installed on left side.*

* *Install the exhaust side valve cam.*





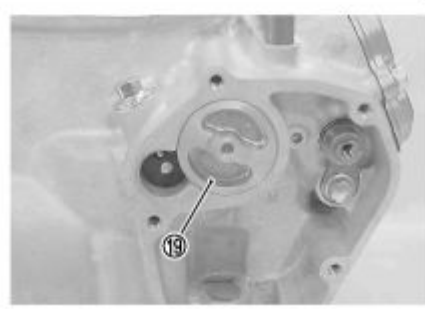
Install the exhaust side valve cam with aligning the emboss Ⓐ with the pin of the exhaust side valve.
Turn the exhaust side valve cam approx. 35°.

In above position, the pin behind the exhaust side valve cam engages the groove Ⓑ on the exhaust valve cam rod.

- Install the pin.
- Install the spacer ⑲ with the hollow faced outside.
- Install the left exhaust side valve in the same manner as the right exhaust side valve.

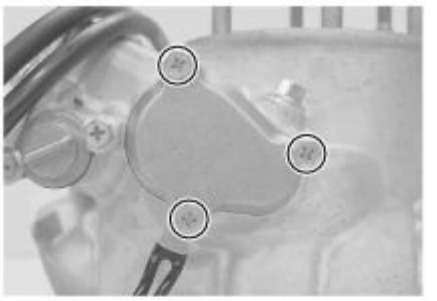
NOTE:

Make sure that the spacer is the same level with the cylinder. If not so, the exhaust side valve cam isn't installed correctly.



- Install a new gasket and the cap.
- Tighten the bolts to the specified torque.

Exhaust side valve cover bolt:
4.5 N·m (0.45 kgf-m, 3.3 lb-ft)



- After assembling the exhaust valve, inspect it for smoothness by rotating the exhaust valve shaft.

NOTE:
* *Temporarily install the bolt to the exhaust valve shaft for above inspection.*
* *Hold the exhaust side valve in fear of dropping off.*

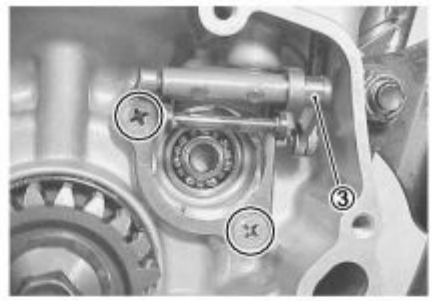
EXHAUST VALVE GOVERNER AND ACTUATOR

DISASSEMBLY

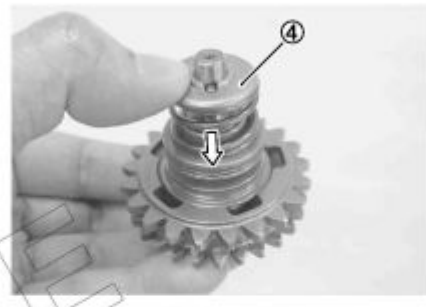
- Drain the transmission oil. (☞2-9)
- Drain the engine coolant. (☞2-12)
- Remove the right crankcase cover. (☞6-3)
- Disconnect the exhaust valve governer rod ①.

- Remove the governer assembly ②.

- Remove the exhaust valve rod assembly ③.



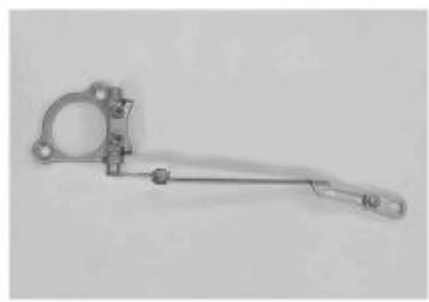
- Disassemble the governer assembly by pushing down the retainer ④.



INSPECTION

- Inspect the disassembled parts for wear and damage.

- Inspect the exhaust valve rod for smooth movement.

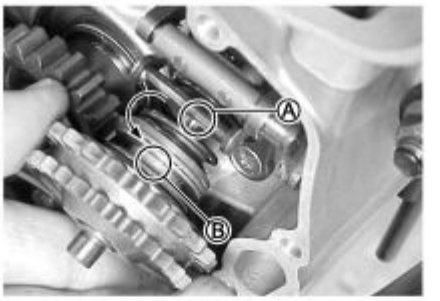


REASSEMBLY

Reassemble the exhaust valve governer and actuator in the reverse order of disassembly. Pay attention to the following points:

- Apply transmission oil to the bearings.
- Assemble the exhaust valve governer.

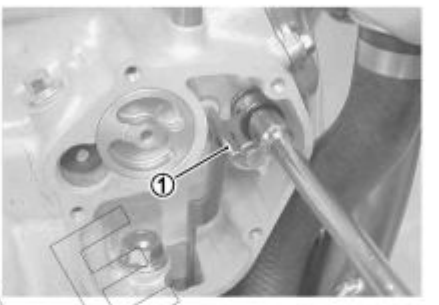
- Install the exhaust valve governer with the exhaust valve rod Ⓐ engaged with the groove Ⓑ of the governer.



- Connect the exhaust valve rod to the exhaust valve shaft using the pin ① as a stopper.

NOTE:
The pin ① is one of the included parts.

Exhaust valve rod bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)



INSPECTION AFTER INSTALLATION

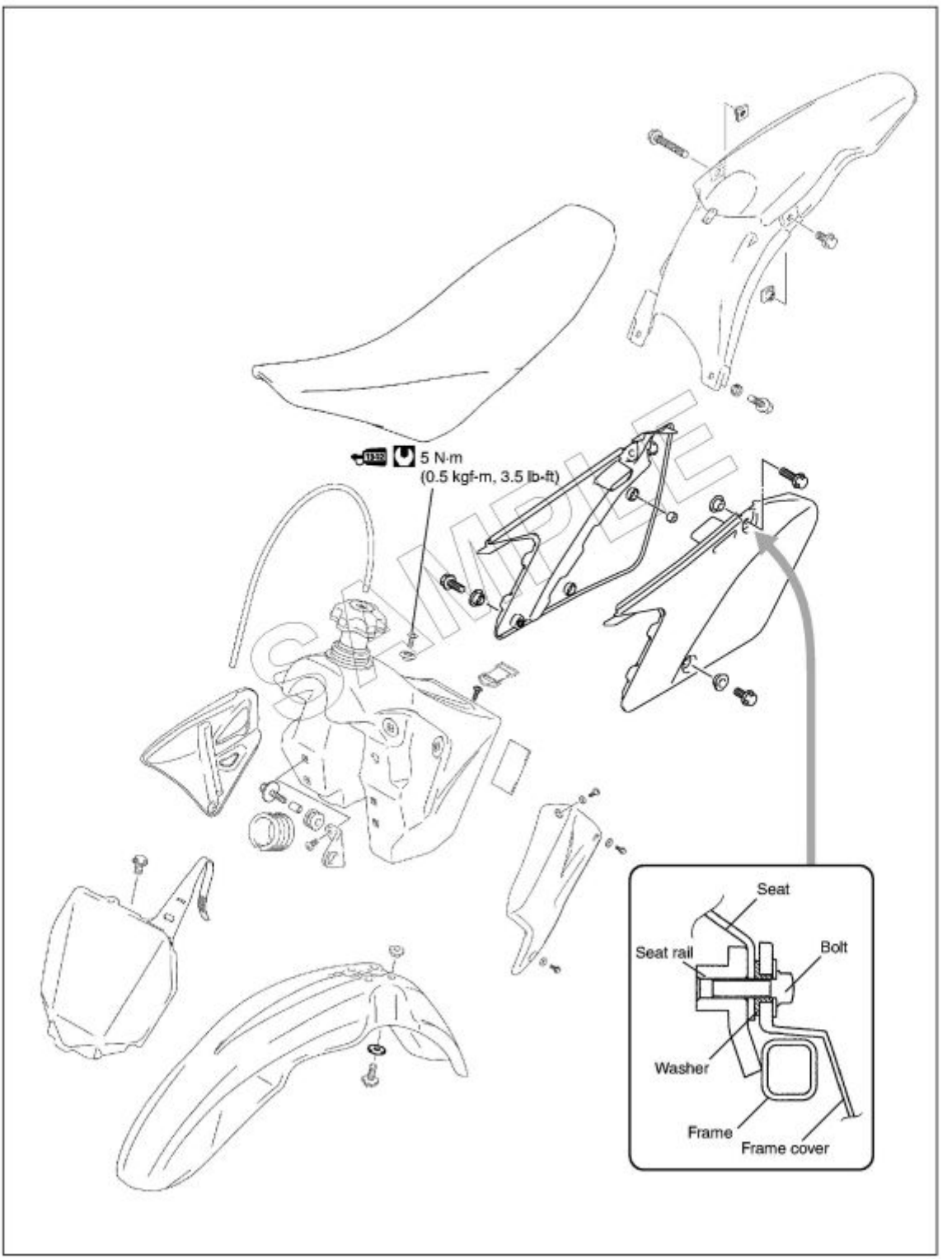
After the installation, inspect the followings.

- Transmission oil level (☞2-9)
- Engine coolant level (☞2-11)

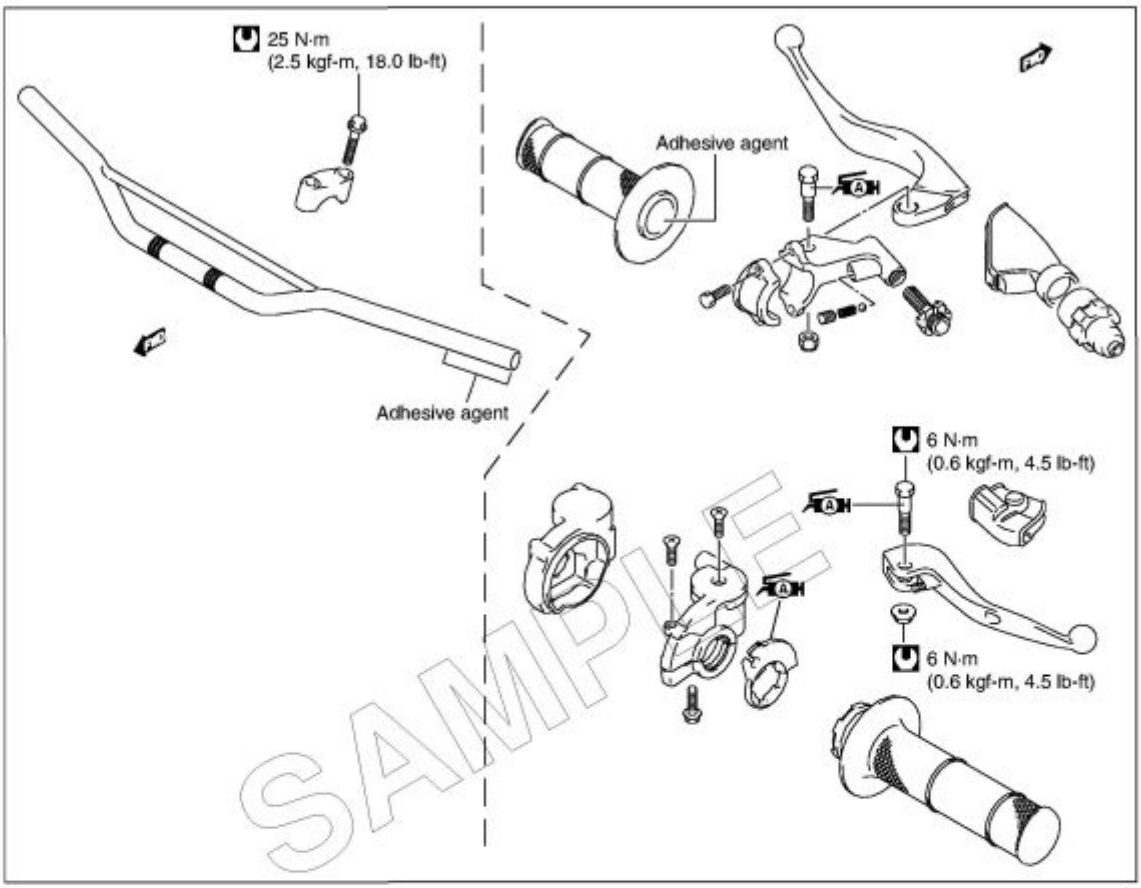
CONSTRUCTIONS

CONTENTS

EXTERIOR PARTS

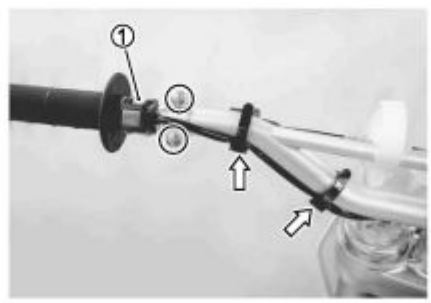


HANDLEBAR CONTROLS

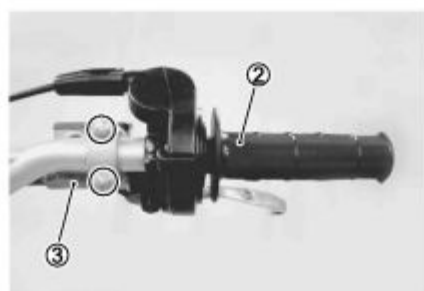


REMOVAL

- Remove the clutch lever.
- Remove the engine stop switch ①.
- Remove the clamps.



- Remove the throttle assembly ②.
- Remove the front brake master cylinder ③.

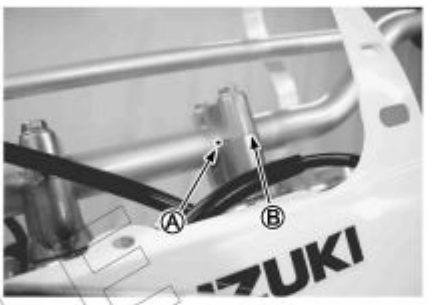


• Remove the handlebars.

REMOUNTING

Remount the handlebars in the reverse order of removal and pay attention to the following points:

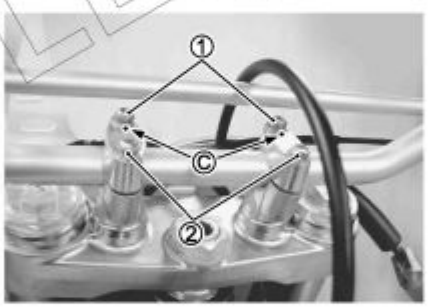
• Install the handlebars with the punched mark Ⓐ aligned with the matching surface Ⓑ of the handlebar holder.



• Set the punched mark Ⓒ on the handlebar clamp forward.
• Tighten the handlebar clamp bolts to the specified torque.

Handlebar clamp bolt: 25 N·m (2.5 kgf-m, 18.0 lb-ft)

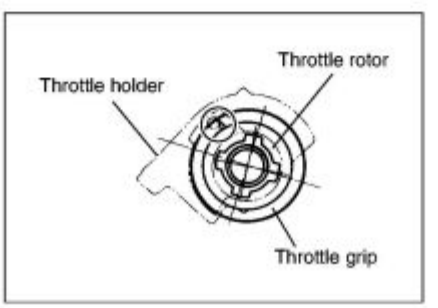
NOTE:
When tightening the handlebar clamp bolts, first tighten the bolts ① and then tighten the bolts ②.



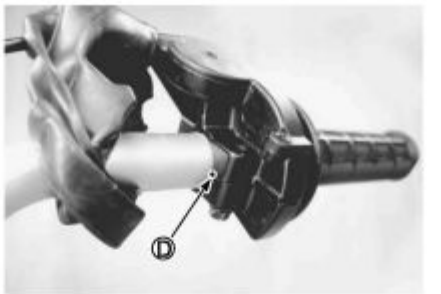
• Apply SUZUKI SUPER GREASE to the throttle cable and their hole.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

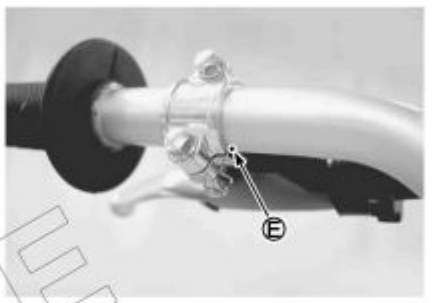
• Align the "△" mark on the throttle grip with the hole on the throttle rotor.



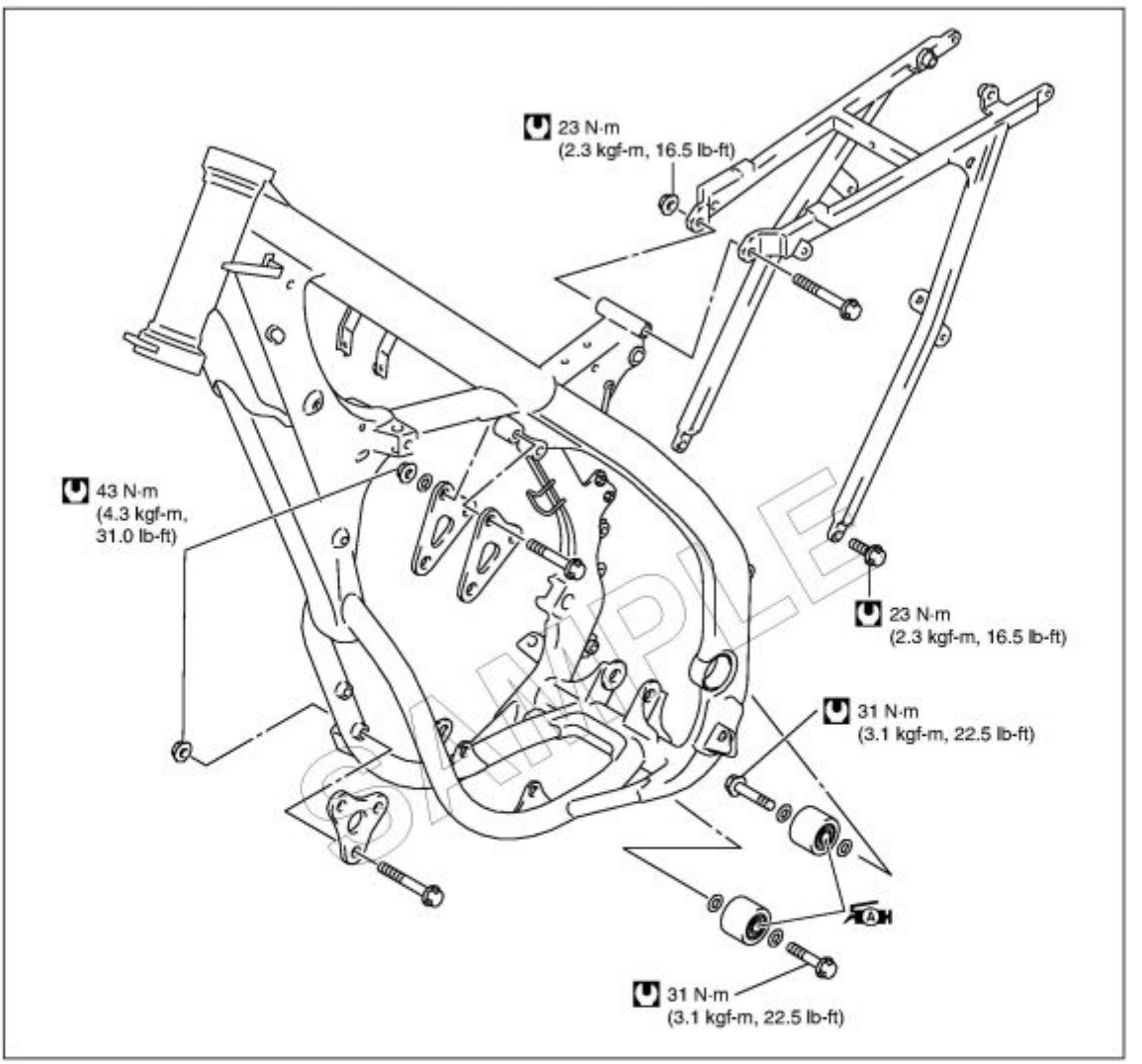
- Align the punched mark Ⓓ on the handlebars with the throttle holder matching surface.
- Install the front brake master cylinder. (☞14-13)
- Inspect the throttle cable play. (☞2-13)



- Align the punched mark Ⓔ on the handlebars with the clutch lever holder matching surface.



SEAT RAIL, DRIVE CHAIN CONTROL ROLLER



FRONT AND REAR WHEELS

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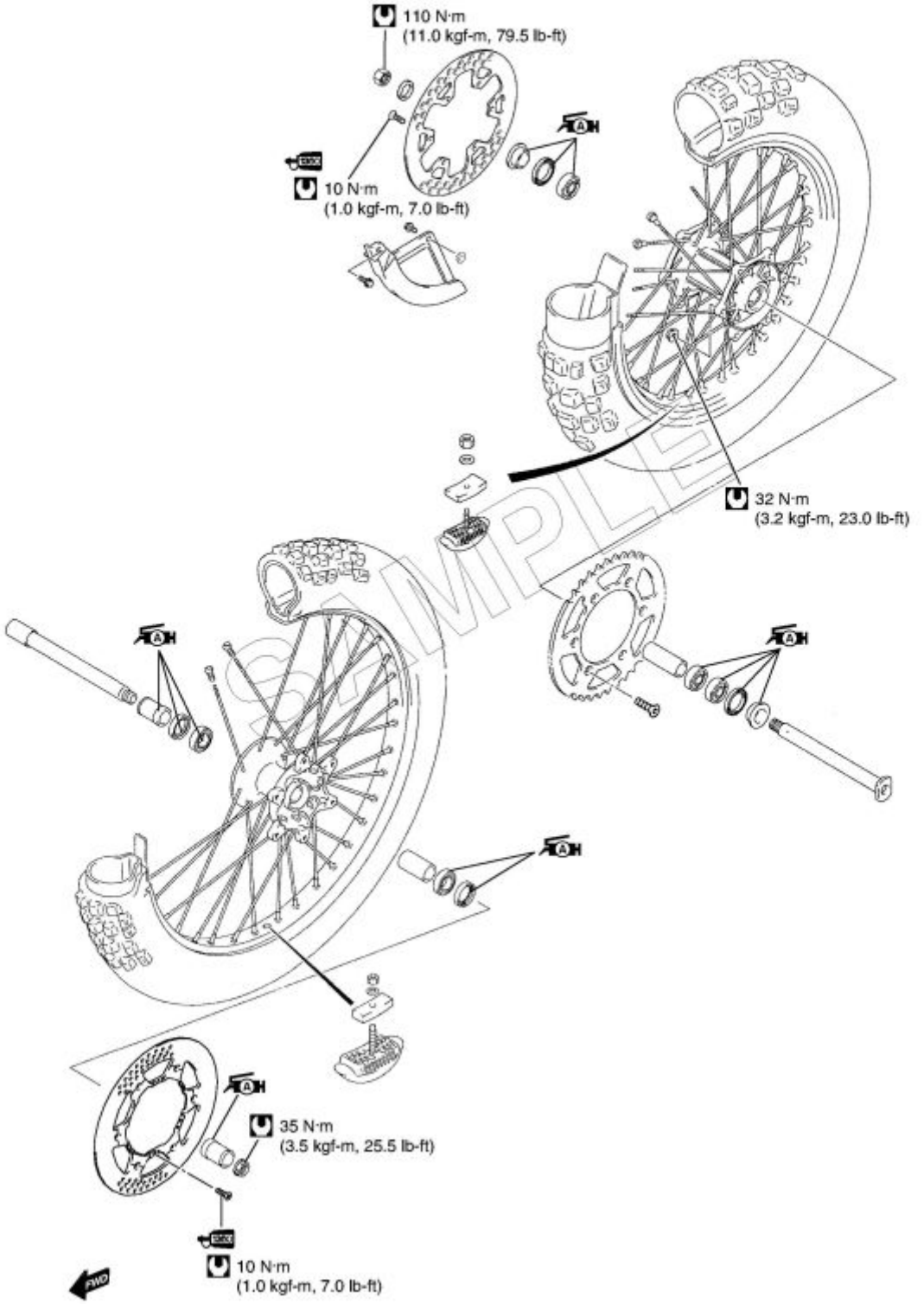
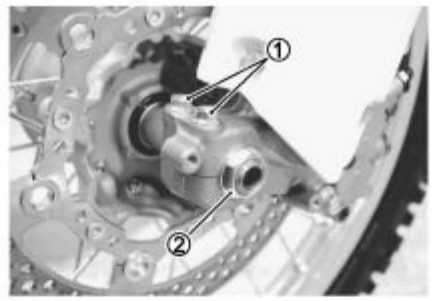
CONSTRUCTION



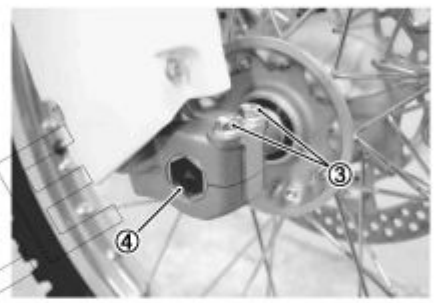
FRONT WHEEL REMOVAL AND REASSEMBLY

FRONT WHEEL REMOVAL

- Loosen the axle shaft holder bolts ①.
- Remove the axle nut ②.



- Loosen the axle shaft holder bolts ③.
- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the axle ④.
- Remove the front wheel.



FRONT WHEEL REASSEMBLY

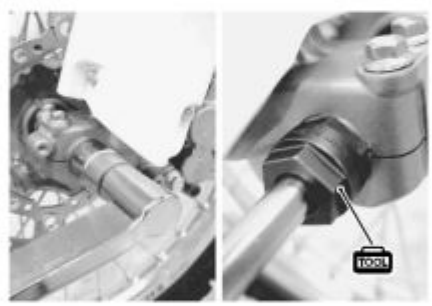
- Reassemble the spacer, front wheel and axle shaft.
- Tighten the axle nut to the specified torque with the special tool.

09940-34581: Attachment F

Axle nut: 35 N·m (3.5 kgf-m, 25.5 lb-ft)

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

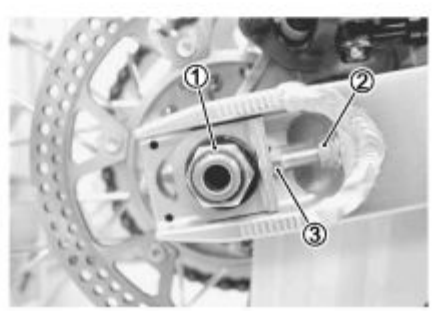
Axle holder bolt: 18 N·m (1.8 kgf-m, 13.0 lb-ft)



REAR WHEEL REMOVAL AND REASSEMBLY

REAR WHEEL REMOVAL

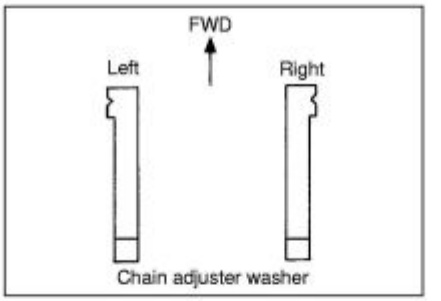
- Remove the axle nut ①.
- Loosen the chain adjuster lock nuts ② and chain adjusters ③.
- Place the motorcycle on a block to lift the rear wheel off the ground.
- Remove the axle.
- Remove the rear wheel.



REAR WHEEL REASSEMBLY

- Reassemble the rear wheel and axle shaft.
- Adjust the drive chain slack. (☞2-16)
- Tighten the axle nut to the specified torque.

Rear axle nut: 110 N·m (11.0 kgf-m, 79.5 lb-ft)

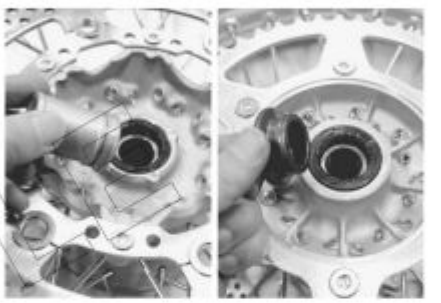


FRONT AND REAR WHEEL INSPECTION

SPACER AND DUST SEAL INSPECTION

- Inspect the right and left 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.

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

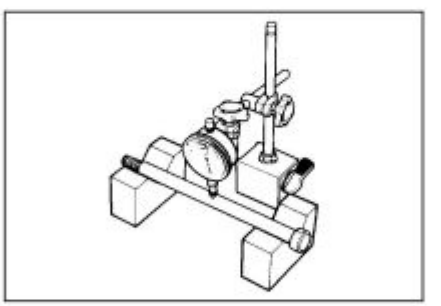


AXLE SHAFT INSPECTION

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

DATA **Wheel axle runout**
Service limit: 0.25 mm (0.010 in)

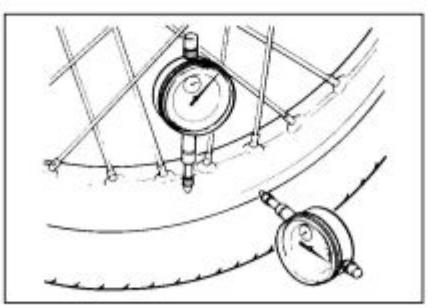
TOOL **09900-20607: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block set (100 mm)



WHEEL RIM INSPECTION

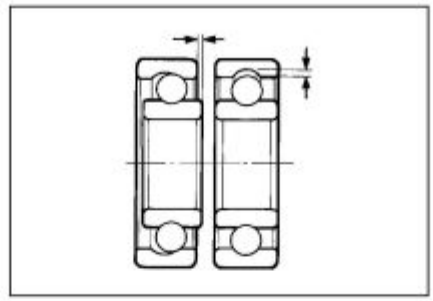
Measure the wheel rim runout with a dial gauge.

DATA **Wheel rim runout**
Service limit: 2.0 mm (0.08 in) ... axial and radial



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

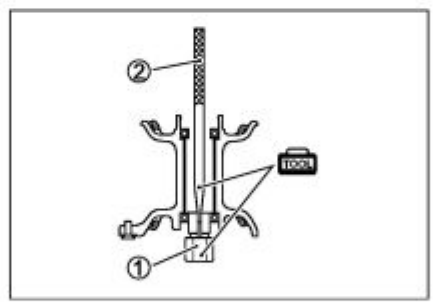
FRONT WHEEL BEARING REMOVAL

- Remove the dust seal.

TOOL **09913-50121: Oil seal remover**

- Insert the adaptor ① into the wheel bearing.
- After inserting the wedge bar from the opposite side, lock the wedge bar ② in the slit of the adaptor.
- Drive out both wheel bearings by striking the wedge bar.

TOOL **09941-50111: Bearing remover**



CAUTION
The removed bearings must be replaced with new ones.

REAR WHEEL BEARING REMOVAL

- Remove the dust seal.

TOOL **09913-50121: Oil seal remover**

- Remove the rear wheel bearing with the special tool.

TOOL **09921-20240: Bearing remover set**

FRONT WHEEL BEARING REASSEMBLY

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

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

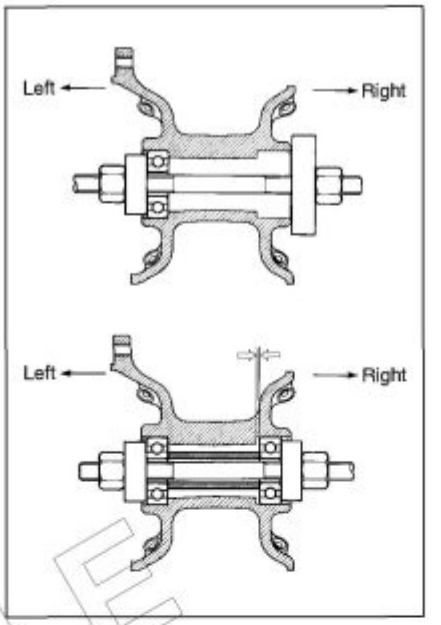
NOTE:

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

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

NOTE:

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



REAR WHEEL BEARING REASSEMBLY

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

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

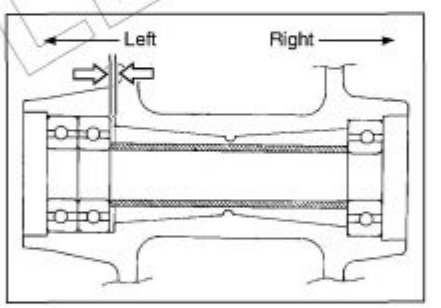
NOTE:

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

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

NOTE:

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

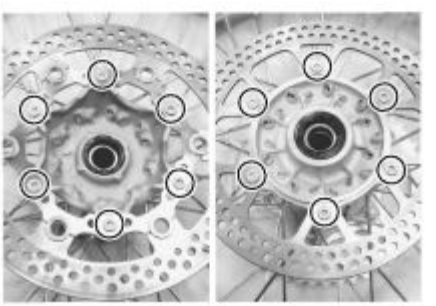


DISC PLATE REPLACEMENT

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

99000-32130: THREAD LOCK SUPER "1360"

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



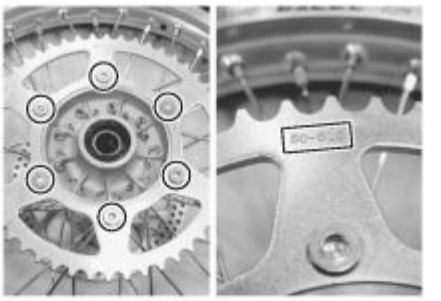
REAR SPROCKET REPLACEMENT

- Tighten the nuts to the specified torque.

Rear sprocket nut: 32 N·m (3.2 kgf-m, 23.0 lb-ft)

NOTE:

Reassemble the rear sprocket as the letter on the sprocket surface faces outside.



FRONT AND REAR BRAKES

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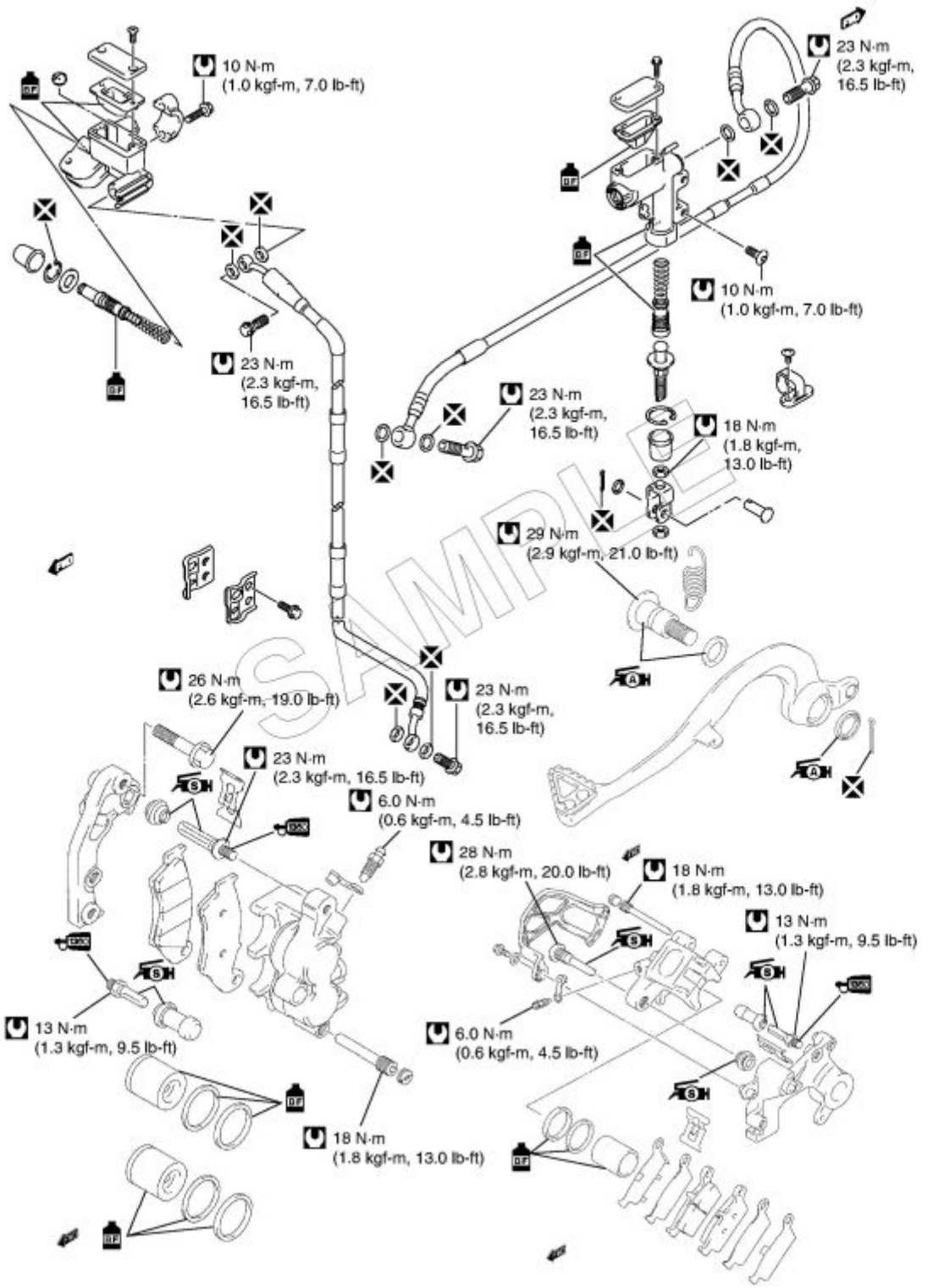
CONSTRUCTION



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 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 container can damage the brake system and lead to an accident.

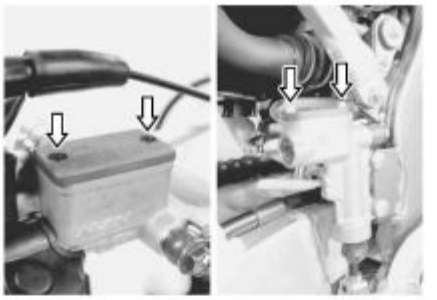
Use only DOT4 brake fluid from sealed container. Never use or mix different types of brake fluid.

CAUTION

Spilled brake fluid can damage painted surfaces and plastic parts.

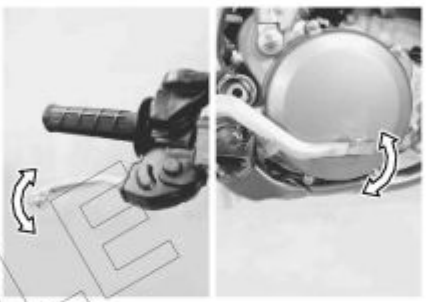
Be careful not to spill any brake fluid when servicing brake fluid. Wipe spilled fluid up immediately.

- 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 bubbles stop coming out from the reservoir.
- Hold 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.

Air bleeder valve: 7.5 N·m (0.75 kgf-m, 5.5 lb-ft)

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

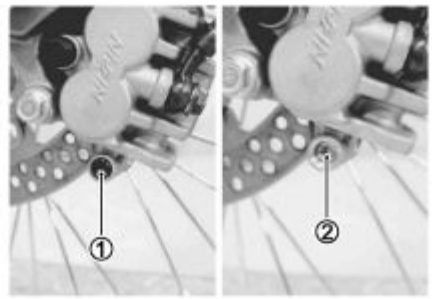
BRAKE FLUID REPLACEMENT

- Remove the reservoir cap. (☞above)
- Connect a transparent tube to the bleeder valve and set the other end into a receptacle. (☞above)
- 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. (☞above)
- Reassemble the reservoir cap.

BRAKE PADS REPLACEMENT

FRONT BRAKE PADS

- Remove the cap ① and pad mounting pin ②.



- Remove the brake pads.

NOTE:
Replace the two brake pads as a set.

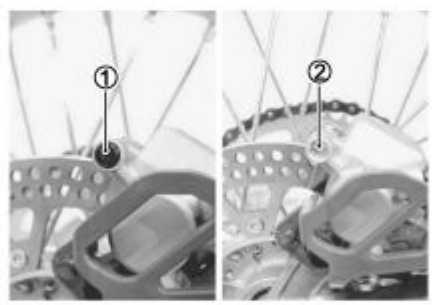
- Fit the new brake pads into the caliper and tighten the pad mounting pin to the specified torque.

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

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

REAR BRAKE PADS

- Remove the cap ① and pad mounting pin ②.



- Remove the brake pads.

NOTE:
Replace the two pads as a set.

- Fit the brake pads into the caliper.
- Tighten the brake pad mounting pin to the specified torque.

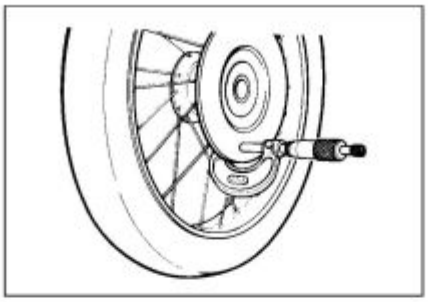
Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

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

BRAKE DISC INSPECTION

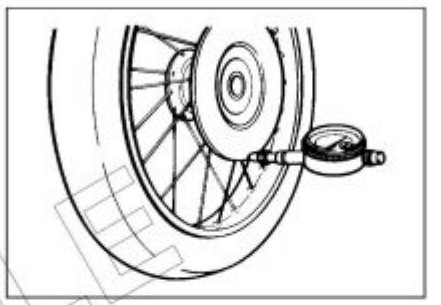
- Measure the front and rear brake disc thickness.

DATA **Brake disc thickness**
Service limit (Front): 2.5 mm (0.10 in)
(Rear): 3.5 mm (0.14 in)



- Measure the front and rear brake disc runout.

DATA **Brake disc runout**
Service limit: 0.30 mm (0.012 in)



CALIPER

⚠ WARNING

The use of any brake 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.

⚠ 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.

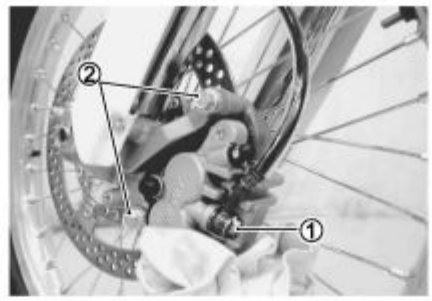
Keep brake fluid away from children. Call your doctor immediately if brake fluid is swallowed, and induce vomiting. Flush eyes or skin with water if brake fluid gets in eyes or comes in contact with skin.

CAUTION

Spilled brake fluid can damage painted surfaces and plastic parts.

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

FRONT CALIPER REMOVAL AND DISASSEMBLY



- Drain brake fluid. (☞14-4)
- Place a rag under the brake hose union bolt ① to catch spilled brake fluid.
- Remove the caliper mounting bolts ②.

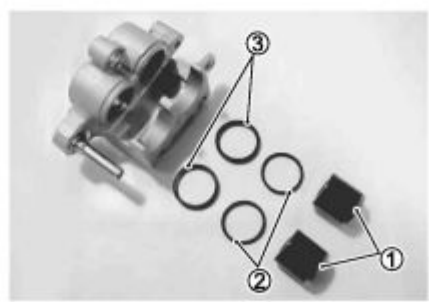
- Remove the brake pads (☞14-5) and spring from the caliper.
- Remove the caliper bracket from the caliper.
- Remove the boots from the caliper bracket.

- 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.

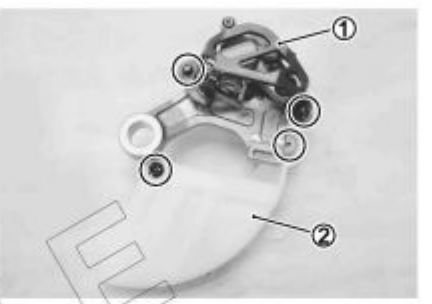


- Remove the pistons ① and the dust seals ② and piston seals ③.

REAR CALIPER REMOVAL AND DISASSEMBLY

- Place a block under the chassis tubes.
- Remove the rear wheel. (☞13-3)
- Drain brake fluid. (☞14-4)
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the caliper.

- Remove the caliper protector ① and disc cover ②.



- Remove the cap and brake pad mounting pin.
- Remove the brake pad. (☞14-5)
- Remove the caliper axle bolt.
- Remove the boots.
- Remove the pad spring.

- 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.

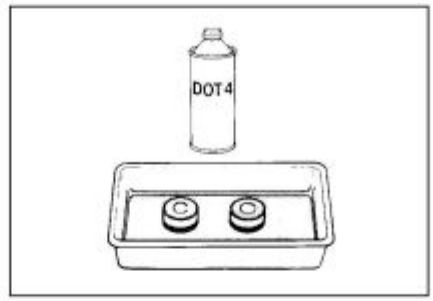
CALIPER INSPECTION

- Inspect the caliper cylinder for scuffing.
- 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.

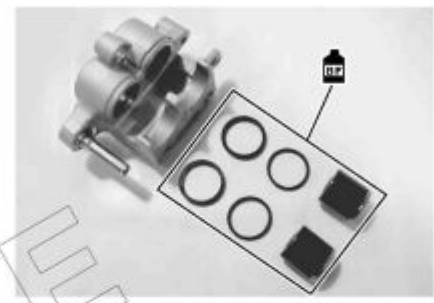
NOTE:
Do not use gasoline or other cleaning solvents to wash the caliper parts.



FRONT CALIPER REASSEMBLY

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

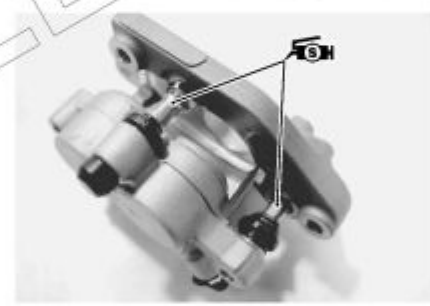
- Apply brake fluid to the piston seals, dust seals and pistons and fit the piston seals, dust seals and pistons.



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

99000-25100: SUZUKI SILICONE GREASE

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



- Tighten the caliper mounting bolts to the specified torque.

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

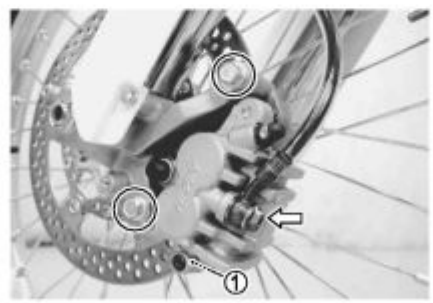
- Tighten the brake pad mounting pin ① to the specified torque.

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

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

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

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



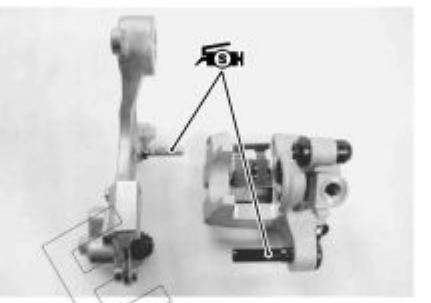
REAR CALIPER REASSEMBLY

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

- Apply brake fluid to the piston seal and fit the piston seal and dust seal.

- Apply SUZUKI SILICONE GREASE to the caliper axles.

99000-25100: SUZUKI SILICONE GREASE



- Tighten the caliper axle bolt ① to the specified torque.

Caliper axle bolt: 28 N·m (2.8 kgf-m, 20.0 lb-ft)

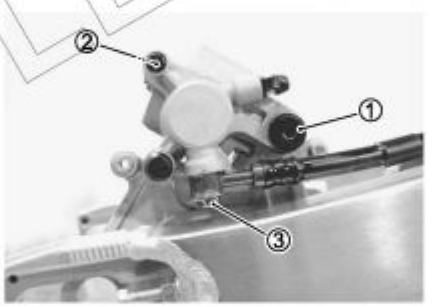
- Tighten the brake pad mounting bolt ② to the specified torque.

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

- Tighten the brake hose union bolt ③.

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

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



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 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 a sealed container. Never use or mix different types of brake fluid.

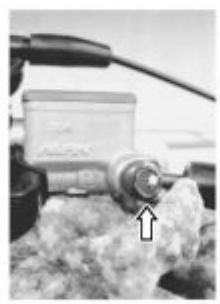
CAUTION

Spilled brake fluid can damage painted surfaces 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

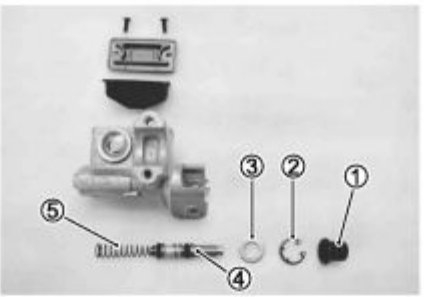
- Drain brake fluid. (☞14-4)
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the master cylinder holder bolts.



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

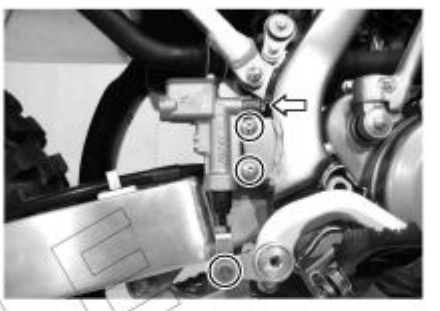
- Remove the diaphragm.
- Remove the dust seal boot ①.
- Remove the snap ring ② with snap ring pliers.
- Remove the washer ③, piston ④ and spring ⑤.

09900-06105: Snap ring pliers



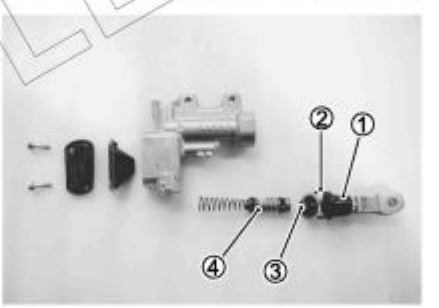
REAR MASTER CYLINDER REMOVAL AND DISASSEMBLY

- Drain brake fluid. (☞14-4)
- Place a rag under the hose to catch spilled brake fluid.
- Remove the brake hose union bolt.
- Remove the master cylinder mounting bolts.



- Remove the master cylinder cap.
- Remove the diaphragm.
- Remove the dust seal boot ①.
- Remove the snap ring ② with snap ring pliers.
- Remove the push rod ③.
- Remove the piston/cup set ④.

09900-06105: Snap ring pliers



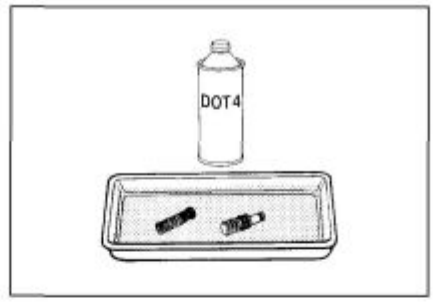
MASTER CYLINDER INSPECTION

- 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.

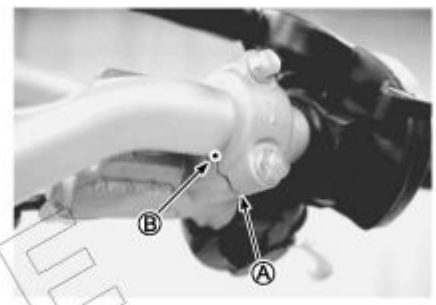


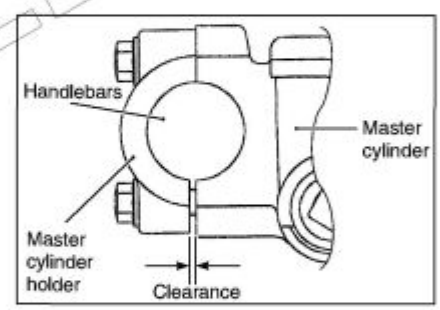
FRONT MASTER CYLINDER REASSEMBLY

Reassemble and remount the master cylinder in the reverse order of removal and disassembly. Pay attention to the following points:

- Temporary tighten the master cylinder mounting bolts.

NOTE:
When remounting the master cylinder onto the handlebar, align the master cylinder holder's mating surface Ⓐ with the punch mark Ⓑ on the handlebar and tighten the upper bolt first.





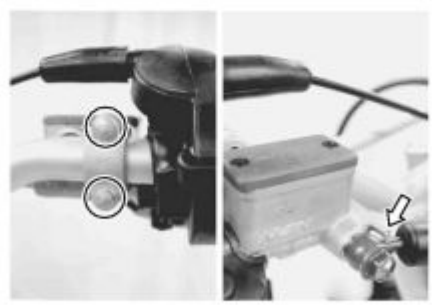
- Tighten the master cylinder mounting bolts to the specified torque.

Master cylinder mounting bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

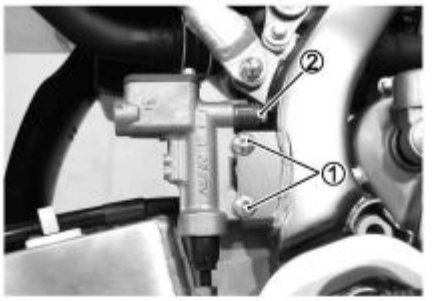
- Tighten the brake hose union bolt to the specified torque.

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

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



REAR MASTER CYLINDER REASSEMBLY



Reassemble and remount the master cylinder in the reverse order of removal and disassembly. Pay attention to the following points:

- Tighten the master cylinder mounting bolts ① to the specified torque.

Master cylinder mounting bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

- Tighten the brake hose union bolt ② to the specified torque.

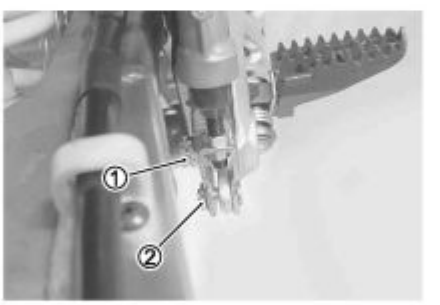
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

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.**

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

BRAKE PEDAL

REMOVAL



- Remove the cotter pin ① and brake pedal pivot bolt.
- Remove the return spring.
- Remove the cotter pin ②, washer and pin.

REASSEMBLY

- Fit the return spring properly.
- Apply SUZUKI SUPER GREASE to the brake pedal pivot bolt.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Tighten the brake pedal pivot bolt to the specified torque.

Brake pedal pivot bolt: 29 N·m (2.9 kgf-m, 21.0 lb-ft)

- Install new cotter pins.
- Adjust the brake pedal height. (☞2-20)

FRONT FORK AND STEERING

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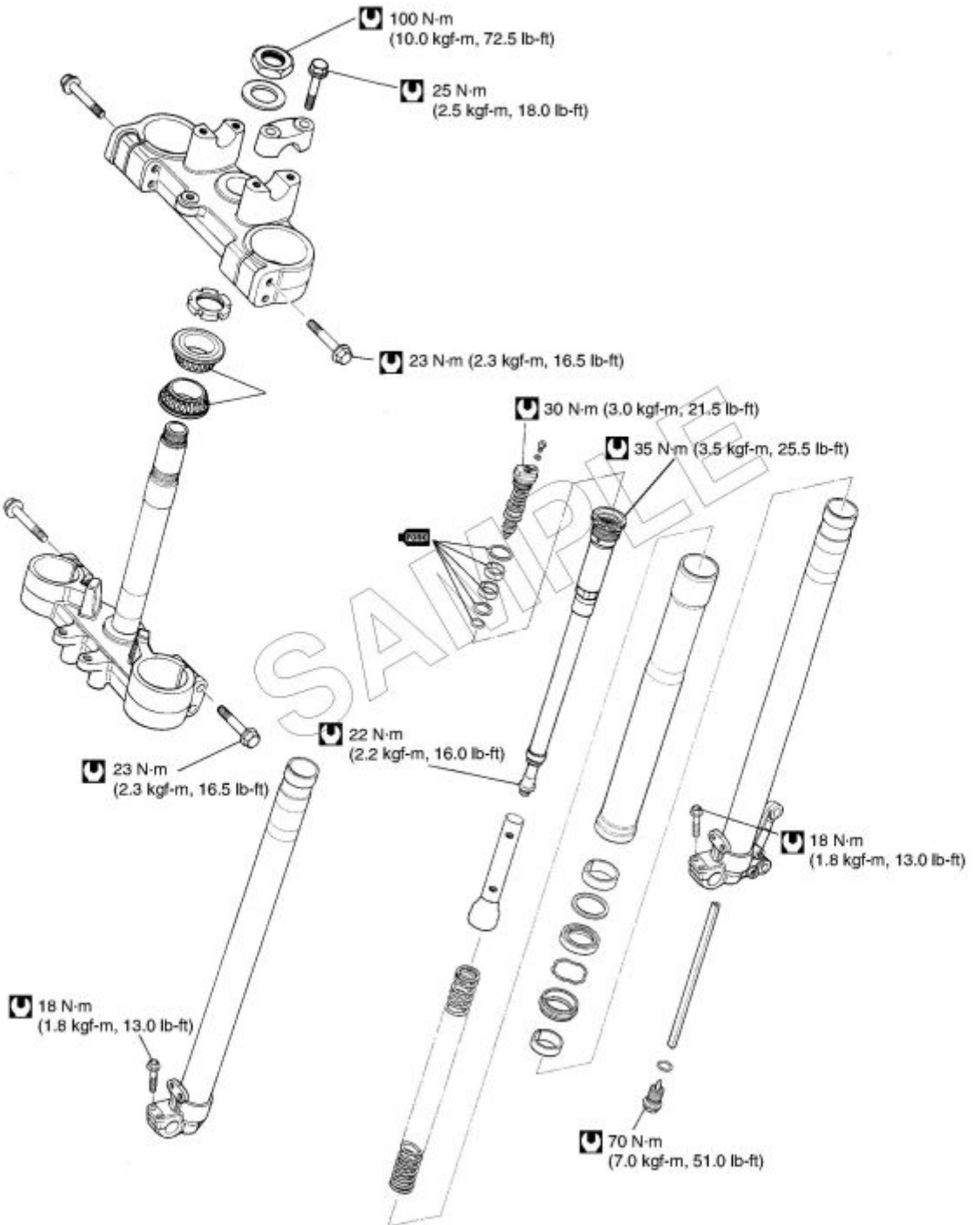
CONSTRUCTION



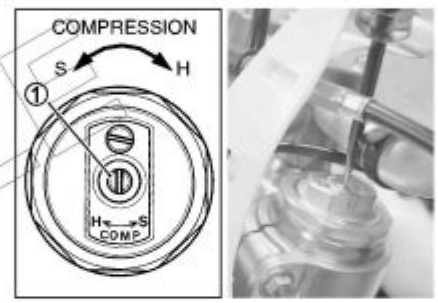
FRONT FORK TUNING

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

NOTE:

** Break-in new front forks before attempting adjustment.*
** Be sure to adjust both right and left front forks equally.*
** Inspect the following items before attempting adjustment.*
  ** Front fork air pressure adjustment. (☞2-20)*
  ** Front fork damage and oil leakage. (☞2-20)*
  ** Tire pressure. (☞2-21)*
  ** Tire and wheel damage. (☞2-21)*
  ** Spoke nipple tension and rim lock tightness. (☞2-21)*
  ** Steering movement. (☞2-20)*

COMPRESSION DAMPING FORCE ADJUSTMENT



- Turn the adjuster screw ① clockwise until it stops (full hard position).

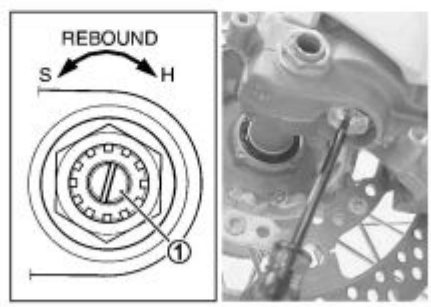
NOTE:

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 past the stopped position or you may damage the adjuster.

- Turn the adjuster screw counterclockwise and the 6th position is the standard position.

DATA Compression damping force adjuster
Standard setting: 6 clicks turns back

REBOUND DAMPING FORCE ADJUSTMENT



- Turn the adjuster screw clockwise until it stops (full hard position).

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 past the stopped position or you may damage the adjuster.

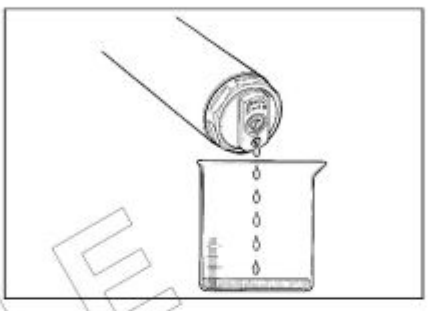
- Turn the adjuster screw ① counterclockwise and the 13th position is the standard position.

DATA Rebound damping force adjuster
Standard setting: 13 clicks turns back

OIL QUANTITY MINOR ADJUSTMENT

ADDING THE FORK OIL

- Remove the air bleed screw ①.
- Add the fork oil with a injector from the air bleed hole.



REDUCING THE FORK OIL

- Remove the front forks. (☞15-11)
- Remove the air bleed screw.
- Leaning the front fork, reduce the fork oil from the air bleed hole.

NOTE:

If 5 ml (0.17/0.18 US/Imp oz) of fork oil is added/reduced, the oil level raises/falls approx. 5 mm (0.2 in). Measure the fork oil quantity added/reduced and record it to know the oil quantity after adjustment.

CAUTION

The fork oil quantity must be adjusted equally on both fork legs to provide equal performance.

Operating the motorcycle with the fork oil quantity unevenly adjusted can cause handling instability.

Never mix different types of fork oil. Different oils may cause chemical reaction and deteriorate.

DATA **Front fork oil quantity (With standard fork spring used)**

Standard: 362 ml (12.24/12.75 US/Imp oz)

Oil quantity adjustable range:

321 – 415 ml (10.85/11.30 – 14.03/14.61 US/Imp oz)

FORK **99000-99001-SS5: SUZUKI FORK OIL SS-05**

OIL CHANGE (Only for outer tube oil chamber)

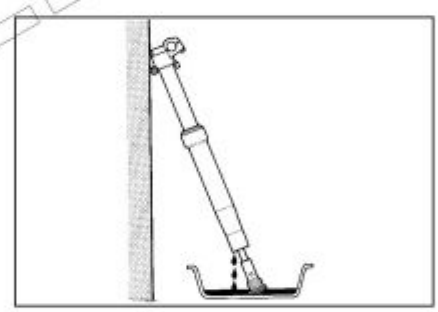
- Remove the front forks. (☞15-11)
- Thoroughly clean the fork before disassembly.

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

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

09941-53630: Front fork top cap wrench

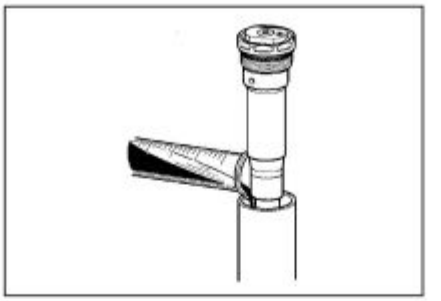
- Hold the front fork inverted position for move than 20 minutes to allow the fork oil to fully drain.



- Force out the remaining oil using compressed air completely.

- Slide down the outer tube.
- Pour the specified amount of fork oil into the outer tube.

99000-99001-SS5: SUZUKI FORK OIL SS-05



	Parts No.	Spring rate	Identification (Slit mark on the spring end)	STD Oil quantity	Oil quantity adjustable range
Soft	51171-37FD0	4.2 N/mm (0.42 kgf/mm)	I	367 ml (12.40/12.92 US/Imp oz)	326 – 420 ml (11.02/11.48 – 14.20/14.79 US/Imp oz)
STD	51171-37FC0	4.4 N/mm (0.44 kgf/mm)	III	362 ml (12.24/12.75 US/Imp oz)	321 – 415 ml (10.85/11.30 – 14.03/14.61 US/Imp oz)
Hard	51171-37FE0	4.6 N/mm (0.46 kgf/mm)	II	357 ml (12.07/12.57 US/Imp oz)	316 – 410 ml (10.68/11.13 – 13.86/14.44 US/Imp oz)

NOTE:
Be sure to adjust the fork oil quantity within the above-mentioned range.

- Raise the outer tube and temporarily tighten the fork cap bolt (sub-tank). (☞15-23)

09941-53630: Front fork cap wrench

- Iinstall the front fork. (☞15-23)
- Iinstall the handlebars. (☞12-4)

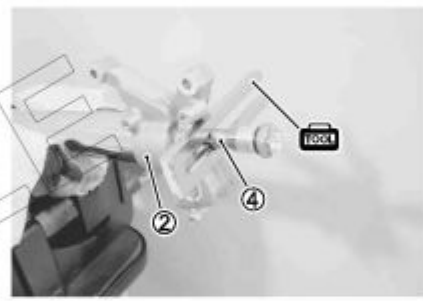
SPRING CHANGE

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

CAUTION
The fork oil quantity must be adjusted equally on both fork legs to provide equal performance. **Scratches or other damage the on 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.**

- Remove the fork cap bolt and drain fork oil. (☞15-12)
- Loosen the center bolt completely. (☞15-13)
- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder bottom ② and locknut. (☞15-13)

TOOL 09910-20115: Conrod holder



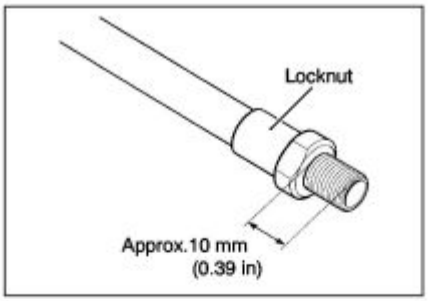
- Hold the locknut with a wrench and remove the center bolt. (☞15-13)
- Remove the push rod. (☞15-13)
- Remove the damper rod assembly and fork spring and spring coller. (☞15-14)
- Hold the front fork inverted position for more than 20 minutes the allow the fork oil to fully drain. (☞15-5)
- Force out the remaining oil using compressed air completely. (☞15-5)

- Replace the spring.

SPRING/No.	SPRING RATE	Identification (Slit mark on the spring end)
STD 51171-37FC0	4.4 N/mm (0.44 kgf/mm)	III
SOFT 51171-37FD0	4.2 N/mm (0.42 kgf/mm)	I
HARD 51171-37FE0	4.6 N/mm (0.46 kgf/mm)	II

- Install the damper rod assembly. (☞16-21)

- Make sure approx. 10 mm (0.39 in) of inner rod thread is exposed on the end. (☞15-21)



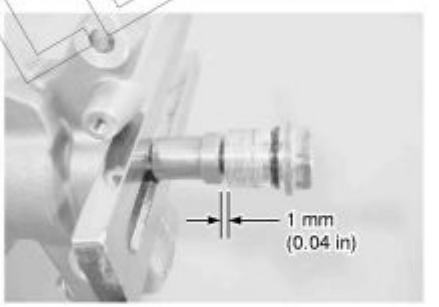
- Insert the push rod into the inner rod.
- Insert the ◠ shaped projection of center bolt into the push rod. (☞15-22)

- Check or adjust the clearance between the locknut and center bolt to provide more than 1 mm (0.04 in). (☞15-22)
- Tighten the locknut/center bolt to the specified torque.

Locknut/center bolt: 22 N·m (2.2 kgf-m, 16.0 lb-ft)

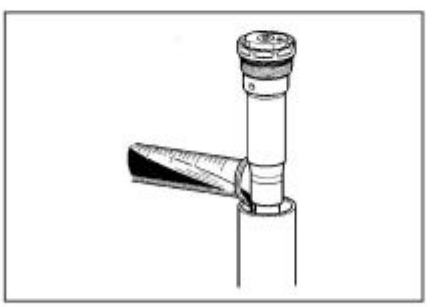
- Tighten the center bolt to the specified torque.

Center bolt: 70 N·m (7.0 kgf-m, 51.0 lb-ft)



- Pour the specified amount fork oil into the outer tube in accordance with the following table.

SPRING	STD OIL QUANTITY	OIL QUANTITY ADJ. RANGE
STANDARD	362 ml (12.24/12.75 US/Imp oz)	321 – 415 ml (10.85/11.30 – 14.03/ 14.61 US/Imp oz)
SOFT	367 ml (12.40/12.92 US/Imp oz)	326 – 420 ml (11.02/11.48 – 14.20/ 14.79 US/Imp oz)
HARD	357 ml (12.07/12.57 US/Imp oz)	316 – 410 ml (10.68/11.13 – 13.86/ 14.44 US/Imp oz)



99000-99001-SS5: SUZUKI FORK OIL SS-05

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. 3. Replace the spring with an optional softer one.
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 setting. 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.
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 (0.2 in) [Approx. 5 ml (0.17/0.18 US/Imp oz)] at a time. 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 the rear suspension, such as changing to heavier front fork 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 motorcycle and rider weight rearward, possibly causing the rear suspension to 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 footrest 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 pre-set 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.

FRONT FORK

REMOVAL

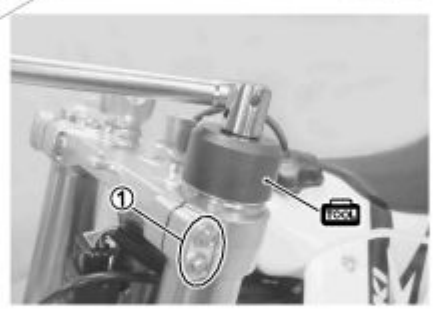
- Place a block under the chassis tubes.
- Remove the front wheel. (☞13-3)
- Remove the handlebars. (☞12-3)

- Remove the fork protectors, brake hose guide and brake hose clamp.
- Remove the front brake caliper. (☞14-7)

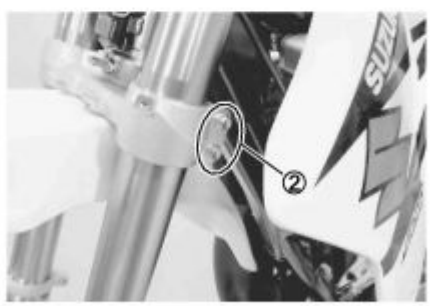
- Loosen the front fork cap bolt 1 – 2 turns to facilitate later disassembly.

09941-53630: Front fork top cap wrench

- Loosen the front fork upper clamp bolts ①.



- Hold the fork body and loosen the fork lower clamp bolts ②.
- Remove the front fork.



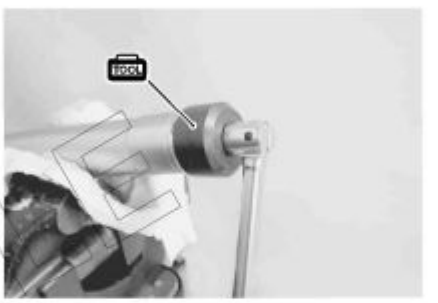
DISASSEMBLY

- Set rebound and compression damper settings to the minimum settings (softest) before disassembling. Record the setting before turning the adjuster.
- 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.**

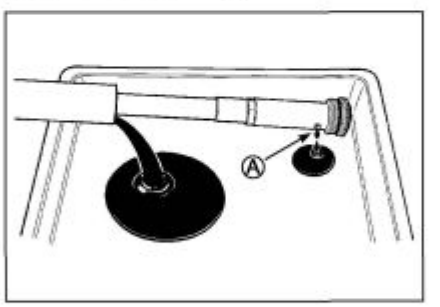
- Clamp the outer tube with a vise. Protect the outer tube with a rag when using a vise.
- Loosen and remove the fork cap bolt (sub-tank) from the outer tube and slowly slide down the outer tube.

09941-53630: Front fork top cap wrench



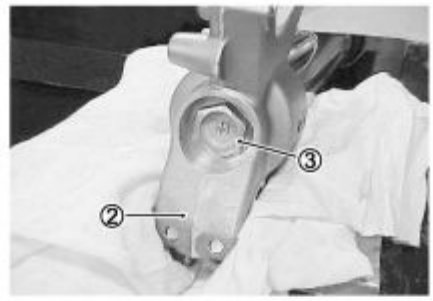
- Place a drain pan under the front fork and drain fork oil.

NOTE:
Face the oil hole Ⓐ on the sub-tank downward.



- Raise the outer tube and temporarily install the fork cap bolt ① (sub-tank) to the outer tube.

- Clamp the axle holder ② with a vise. Protect the axle holder with a rag when using a vise.
- Loosen the center bolt ③ completely with a 21 mm socket wrench.



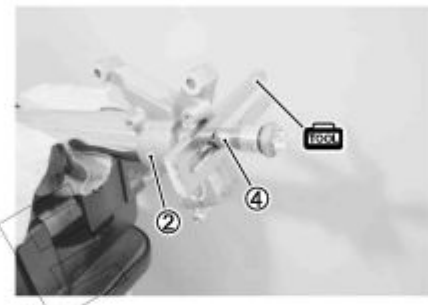
⚠ WARNING

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

Do not clamp the axle holder too tight.

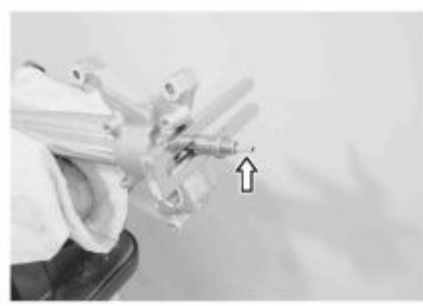
- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder bottom ② and locknut ④.

TOOL 09910-20115: Conrod holder

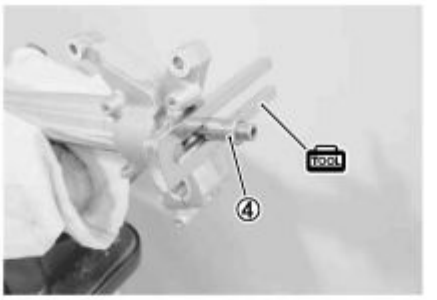


- Hold the locknut with a wrench and remove the center bolt.

- Remove the push rod.



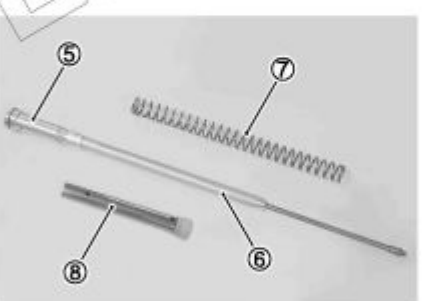
- With the outer tube compressed by hands, remove the special tool.



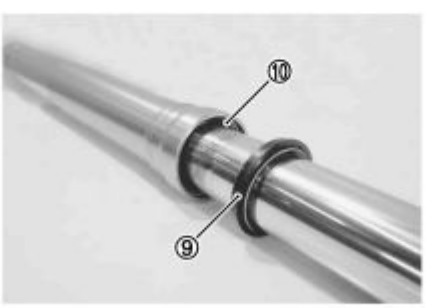
CAUTION
Removing the locknut ④ and pushing the inner rod thread into the damper rod will damage the inner rod oil seal. **Do not remove the locknut ④ from the inner rod.**

- Loosen the fork cap bolt ① (sub-tank) and remove the sub-tank ⑤ along with the damper rod assembly ⑥.
- Remove the fork spring ⑦ and spring coller ⑧.

CAUTION
Disassembling the damper rod assembly can lead to trouble. **Do not disassemble the damper rod assembly.** **Do not separate the sub-tank and damper rod assembly.**



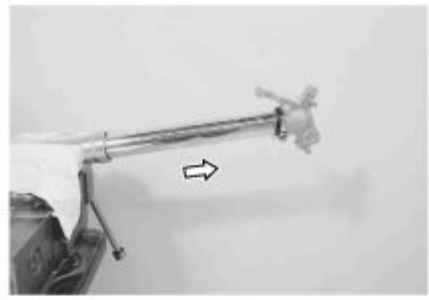
- Remove the dust seal ⑨ and the stopper ring ⑩.



CAUTION
Scratches on the inner tube could cause oil leaks. **Avoid scratching when removing.**

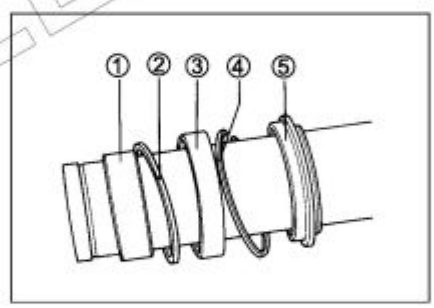
INNER TUBE

- Separate the inner tube out of the outer tube.



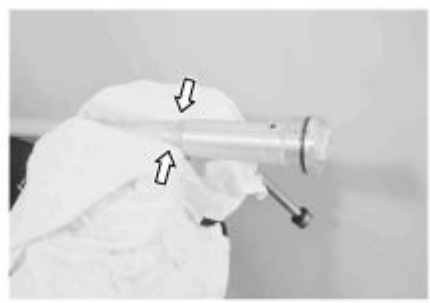
- Remove the slide bushing from the inner tube.

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



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

CAUTION
Do not clamp the sub-tank too tight.



- Loosen the compression damper unit.

- Remove the compression damper unit from the sub-tank.

NOTE:
Slowly compress the inner rod until it stops so that the compression damper unit can be removed easily.

CAUTION
Disassembling the compression damper unit can lead to trouble. **Do not disassemble the compression damper unit.**

- Drain the fork oil from the damper rod assembly by moving the inner rod several strokes.

INSPECTION

CENTER BOLT

- Inspect the adjuster rod of the center bolt for damage. If it is damaged, replace it with a new one.
- Replace the O-ring with a new one.

COMPRESSION DAMPER UNIT

- Inspect the compression damper unit for damage. If it is damaged, replace it with a new one.
- Replace the O-ring with a new one.

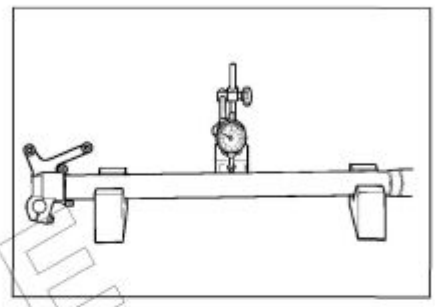
INNER TUBE AND OUTER TUBE

- Inspect the inner tube for scratches. If it has scratches, replace it with a new one.
- Inspect the outer tube for dent. If it is dented all the way to the inner side, replace it with a new one.

- Measure the inner tube runout using the V-blocks and dial gauge.

DATA **Inner tube runout**
Service Limit: 0.4 mm (0.02 in)

TOOL **09900-20607: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block



DAMPER ROD

- Inspect the damper rod assembly for scratches or bending. If it has scratches or is bent, replace it with a new one.

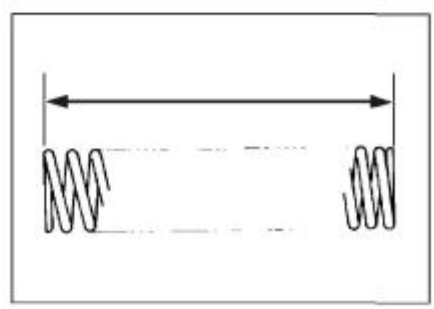
SPRING COLLER

- Inspect the spring coller. If any damage is found, replace it with a new one.

FORK SPRING

- Measure the free length of front fork spring.

DATA **Service Limit: 487 mm (19.17 in)**



SLIDE BUSHING AND GUIDE BUSHING

Inspect the "teflon coating metals" (slide bushing and guide bushing) for wear or damage. If they are worn or damaged, replace them with new ones.

Inspect the metal particles on the "teflon coating metals". If they are not clean, clean them with a nylon brush and fork oil.

REASSEMBLY

NOTE:

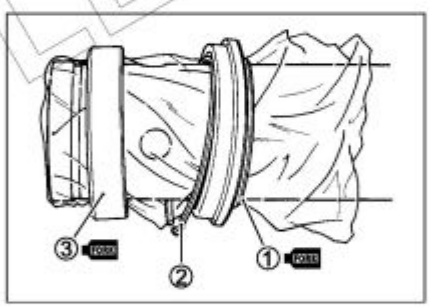
** Clean all fork parts before reassembling.*

** Replace the O-rings, oil seal and dust seal with the new ones.*

** Apply specified front fork oil when installing the O-rings, slide bushing, guide bushing, damper unit and other sliding parts.*

INNER TUBE

- Apply front fork oil to the oil seal lip and the dust seal.
- Cover the inner tube with a plastic film.
- Install the following parts to the inner tube:
  New dust seal ①
  Stopper ring ②
  New oil seal ③



CAUTION
Scratches on the oil seal lip can cause oil leaks.
When installing the seal, place a plastic film over the bushing attachment groove and edges of the inner tube to avoid damage to the seal lip.

NOTE:

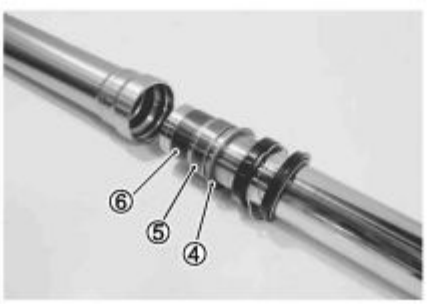
The side of the oil seal that has a mark should face the dust seal.

- Remove the plastic film and then install the seal retainer ④, guide bushing ⑤ and slide bushing ⑥.
- Clean the parts and keep them free from dust.

NOTE:

Inspect the bushings for burrs. If there is a burr, remove it with a knife, taking care not to peel off the teflon coating. If the bushings have a large crack or excessive play after installing them, replace them with the new ones.

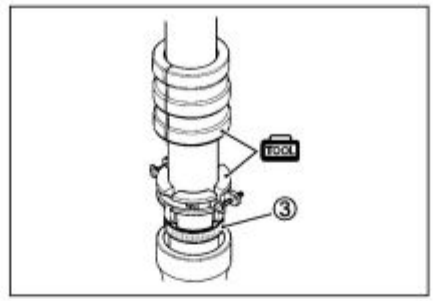
- Insert the inner tube into the outer tube.



- Install the new oil seal ③ with the special tool until the stopper ring groove of the outer tube can be seen.

09940-52861: Front fork oil seal installer set

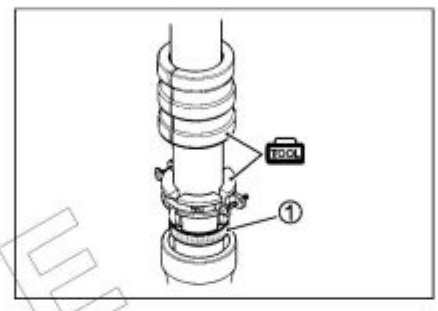
- Attach the stopper ring securely to the stopper ring groove of the outer tube.



- Attach the dust seal ①.

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 the like to enter and cause an oil leak.

CAUTION
Use of grease as a substitute fork oil when installing the oil seal can result in an oil leak. Applying grease to the dust seal and oil seal can cause dirt to accumulate and damage the dust seal lip and oil seal lip.
Use only a thin coat of fork oil on the oil seal.



COMPRESSION DAMPER UNIT

NOTE:
Clean each threaded part before installing.

- With the damper rod in fully extended position, pour the specified amount of fork oil.

DATA Fork oil quantity (Inside the damper rod):
180 ml (6.08/6.34 US/Imp oz)

FORK 99000-99001-SS5: SUZUKI FORK OIL SS-05

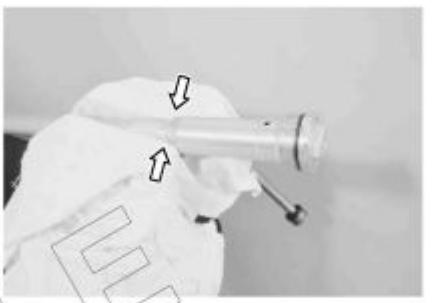
- Apply fork oil to the O-rings and bushing on the compression damper unit.
- With the damper rod held immovable in fully extended position, gently install the compression damper unit to the sub-tank.

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

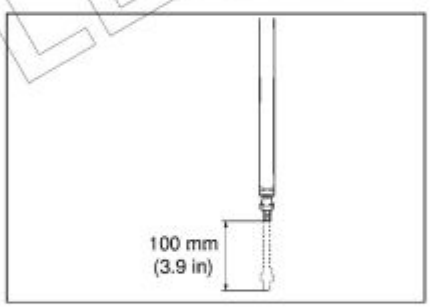
CAUTION
Do not clamp the sub-tank too tight.

- Tighten the compression damper unit to the specified torque.

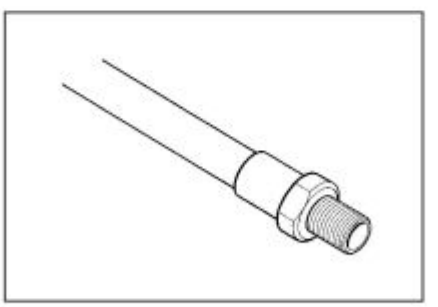
Compression damper unit: 30 N·m (3.0 kgf-m, 21.5 lb-ft)



- With the damper rod held in vertical position, slowly move the inner rod several strokes.



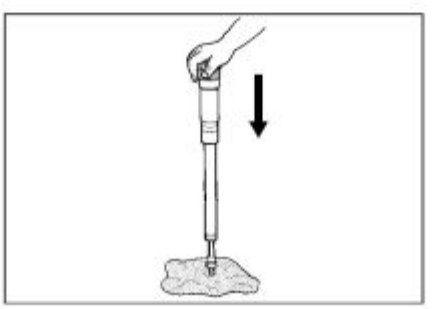
- Tighten the locknut by hand completely.



- With the damper rod held in vertical position, compress the damper rod fully to discharge an excess of oil.

CAUTION
Protect the inner rod end with a rag when compressing the damper rod.

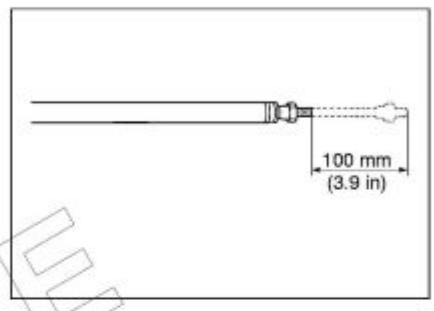
NOTE:
Set the compression damper setting to the softest.



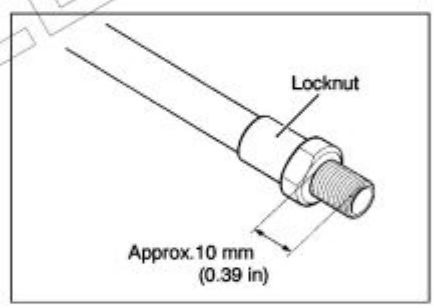
- Force out the remaining oil (discharged oil) using compressed air completely.

- With the damper rod in horizontal position, move the inner rod by hand to inspect it if operating smoothly.

If the inner rod is not extend, repeat the "COMPRESSION DAMPER UNIT" procedures (Pour the specified amount fork oil and discharge an excess of oil). (☞15-19)



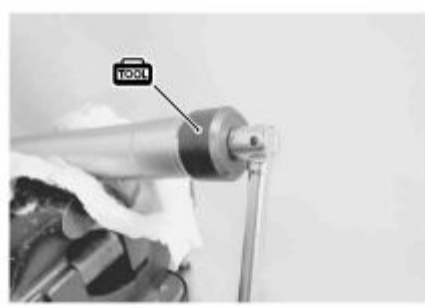
- Make sure approx. 10 mm (0.39 in) of inner rod thread is exposed on the end.



- Completely wipe off the fork oil from the spring and damper rod assembly.
- Insert the spring and damper rod assembly into the fork.

- Temporarily tighten the fork cap bolt (sub-tank).

09941-53630: Front fork top cap wrench



- Clamp the axle holder with a vise. Protect the axle holder with a rag when using a vise.

⚠ WARNING

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

Do not clamp the axle holder too tight.

- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder bottom and locknut.

TOOL 09910-20116: Conrod holder

- Insert the push rod into the inner rod.
- Insert the ◠ shaped projection of center bolt into the push rod.

- Slowly turn the center bolt clockwise until resistance is felt and check the clearance between the locknut and center bolt to provide more than 1 mm (0.04 in).

- Turn the locknut counterclockwise until it contacts with the center bolt.
- With the locknut held immovable using a wrench, tighten the locknut/center bolt to the specified torque.

Locknut/center bolt: 22 N·m (2.2 kgf-m, 16.0 lb-ft)

- With the outer tube compressed by hands, remove the special tool.

- Tighten the center bolt to the specified torque.

Center bolt: 70 N·m (7.0 kgf-m, 51.0 lb-ft)

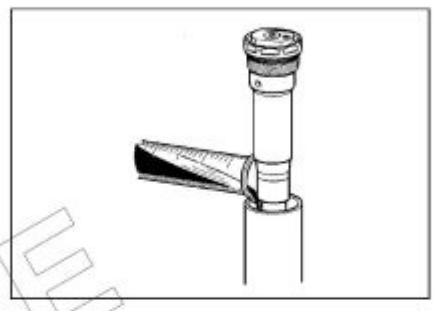
- Loosen and remove the fork cap bolt (sub-tank) from the outer tube and slowly slide down the outer tube.

09941-53630: Front fork top cap wrench

- Pour the specified amount of fork oil into the outer tube.

Oil quantity (When standard fork spring is used): 362 ml (12.24/12.75 US/Imp oz)

99000-99001-SS5: SUZUKI FORK OIL SS-05



- Raise the outer tube and temporarily tighten the fork cap bolt (sub-tank).

09941-53630: Front fork top cap wrench

INSTALLATION

- Reinstall the front forks.
- Set the aligning line Ⓣ on the outer tube to the upper surface of the upper bracket.
- Check that the air valve Ⓐ is positioned at the front.
- Install the front fork with the line Ⓣ aligned with the upper surface of the upper bracket.

- Tighten the fork lower clamp bolts to the specified torque.

Fork lower clamp bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Tighten the fork upper clamp bolts to the specified torque.

Fork upper clamp bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

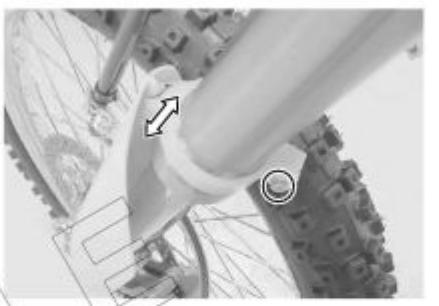
- Tighten the fork cap bolt (sub-tank) to the specified torque.

09941-53630 : Front fork top cap wrench

Fork cap bolt: 35 N·m (3.5 kgf-m, 25.5 lb-ft)

- Install the handlebars. (☞12-4)
- Install the front wheel. (☞12-3)
- Install the brake caliper. (☞14-9)

- Check that the front fork protector moves smoothly. If not, loosen and adjust the protector guide.

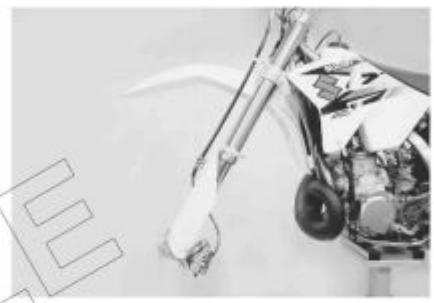


STEERING

REMOVAL

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

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



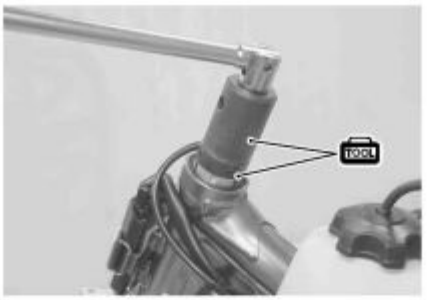
- Remove the front fender.

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

- Remove the steering nut with the special tools.

09940-14911: Steering nut socket wrench
09940-14960: Attachment

- Remove the lower bracket.



INSPECTION

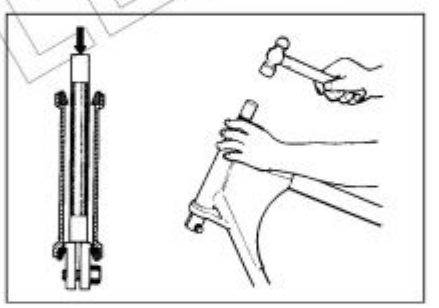
- Inspect the bearing races for wear.
- Inspect the needle bearings for wear.
- Inspect the steering stem for distortion.

BEARING REPLACEMENT

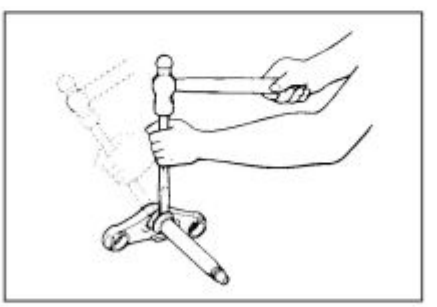
NOTE:
Replace the outer race and bearing as a set.

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

09941-54911: Steering race remover
09941-74911: Steering bearing installer

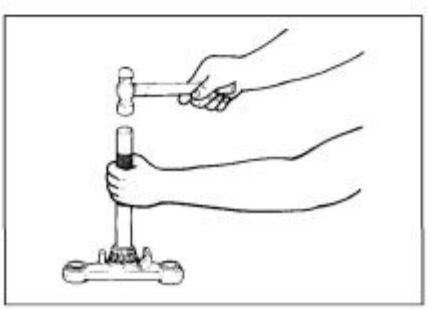


- Remove the lower bearing.



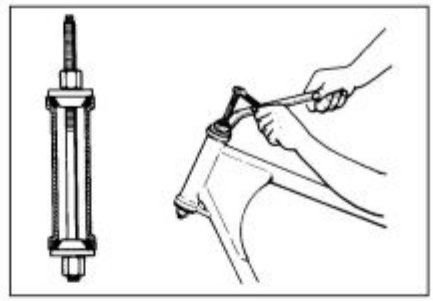
- Fit the lower bearing with the special tools.

09925-18011: Steering bearing installer



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

09941-34513: Steering outer race and swingarm bearing installer
09924-84510: Bearing installer

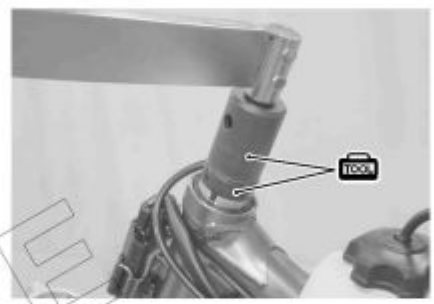


INSTALLATION

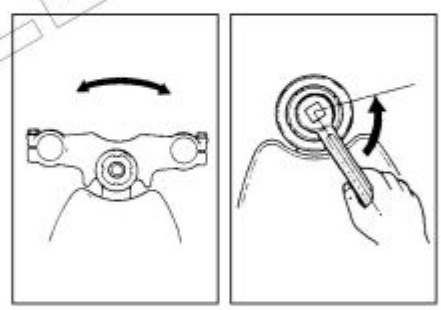
- Apply grease to the bearings.
- Fit the steering stem, upper bearing and steering stem nut.
- Tighten the steering stem nut with the special tool.

09940-14911: Steering nut socket wrench
09940-14960: Attachment

Steering stem nut: 45 N·m (4.5 kgf-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 1/4 to 1/2 turn.
- Fit the steering stem head nut and tighten it temporarily.
- Remount the front forks. (☞15-23)



- Tighten the steering stem head nut to the specified torque.

Steering stem head nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

- Remount the handlebars. (☞12-4)

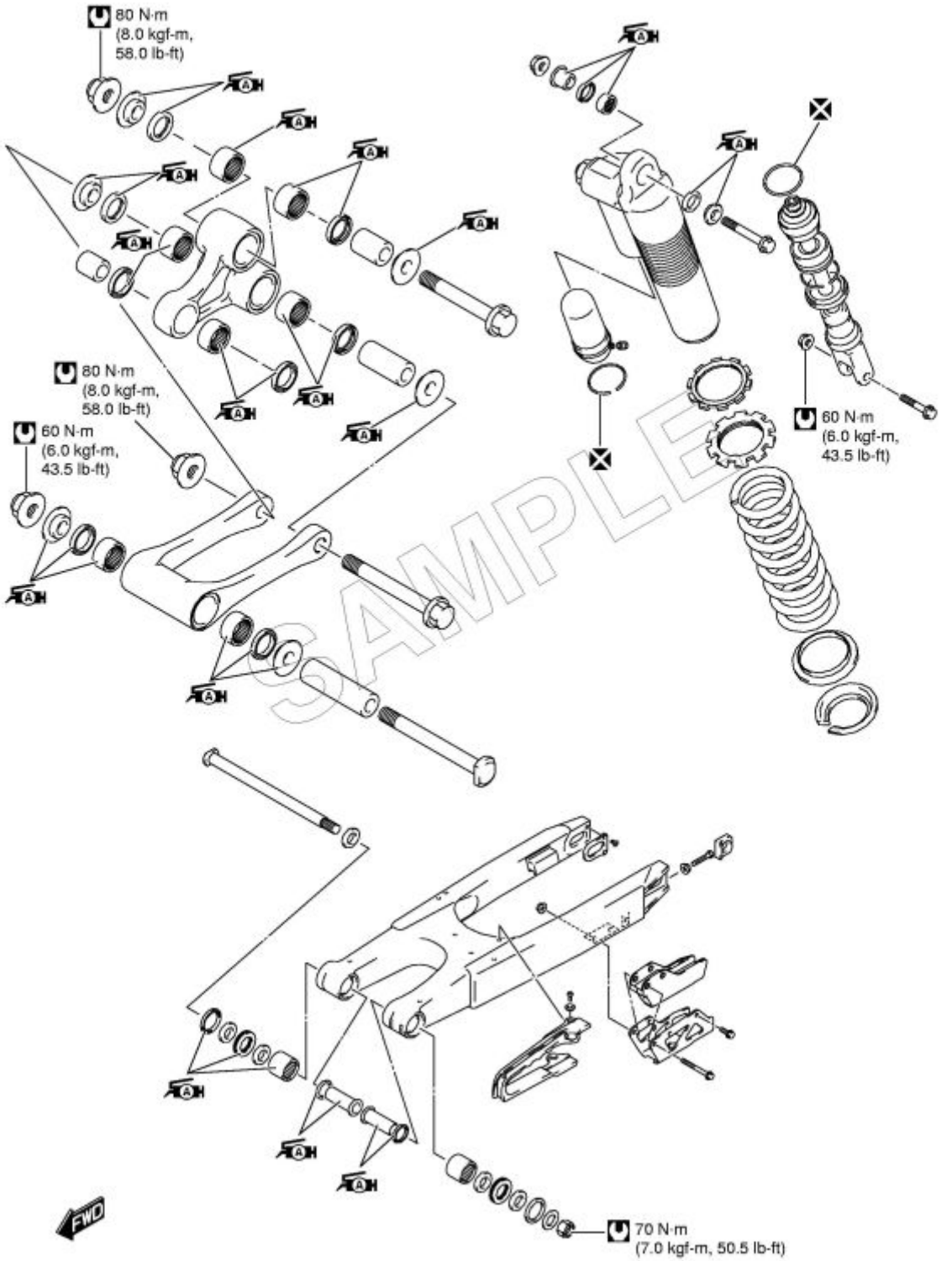
INSPECTION AFTER INSTALLATION

- Front fork (☞2-20)
- Steering (☞2-20)
- Wire, cable and hose routing (☞19-12, 13, 16)

REAR SUSPENSION

CONTENTS

CONSTRUCTION



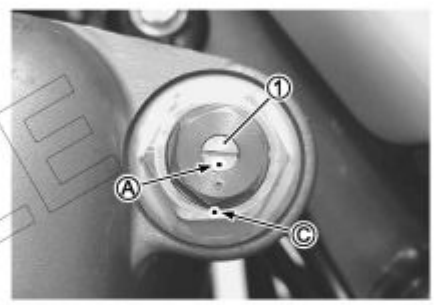
REAR SUSPENSION TUNING

The rear suspension compression and rebound damping force, and spring pre-load are 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. (☞1-10)*
* *Inspect the following items before attempting adjustment.*
  * *Rear shock absorber damage and oil leakage. (☞2-21)*
  * *Swingarm and links tightness. (☞2-21)*
  * *Tire pressure. (☞2-21)*
  * *Tire and wheel damage. (☞2-21)*
  * *Spoke nipple tension and rim lock tightness. (☞2-21, 22)*

LOW SPEED COMPRESSION DAMPING FORCE ADJUSTMENT



- Turn the adjuster screw ① clockwise until it stops (full hard position).

NOTE:

Do not force the adjuster screw past the stopped position, or you may damage the adjuster.

- Turn the adjuster screw ① counterclockwise the specified clicks so that the punched mark Ⓐ will be aligned with the punched mark Ⓒ.

DATA Low speed compression damping force adjuster
Standard setting: 7 clicks turns out

HIGH SPEED COMPRESSION DAMPING FORCE ADJUSTMENT

- Turn the adjuster ② clockwise until it stops (full hard position).

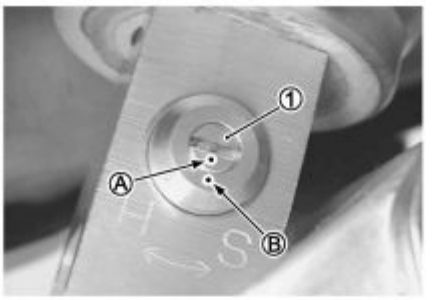
NOTE:

Do not force the adjuster past the stopped position, or you may damage the adjuster.

- Turn the adjuster ② counterclockwise the specified turns so that the punched mark Ⓑ will be aligned with the punched mark Ⓒ.

DATA High speed compression damping force adjuster
Standard setting: 1 and 7/8 turns out

REBOUND DAMPING FORCE ADJUSTMENT



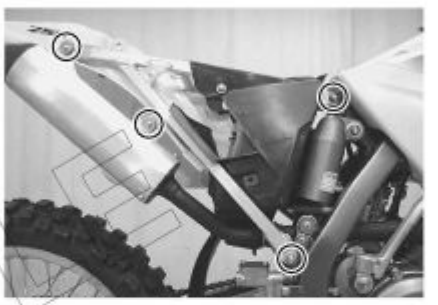
- Turn the adjuster ① clockwise until it stops (full hard position).

NOTE:
Do not force the adjuster past the stopped position, or you may damage the adjuster.

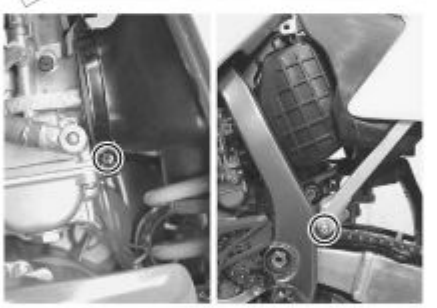
- Turn the adjuster ① counterclockwise the specified clicks so that the punched mark Ⓐ will be aligned with the punched mark Ⓑ.

DATA Rebound damping force adjuster
Standard setting: 11 clicks turns out

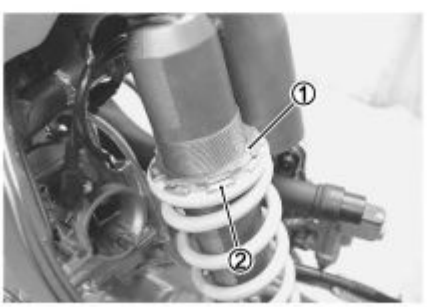
SPRING PRE-LOAD ADJUSTMENT



- Place a block under the chassis tube.
- Remove the seat and right frame cover. (☞3-2, 12-2)
- Remove the silencer.



- Loosen the air cleaner clamp screw.
- Remove the bolts and nut (right and left) and remove the rear frame assembly.



- Loosen the lock nut ① with the special tool.

TOOL 09910-60611: Universal clamp wrench

- Turn the adjuster ② clockwise or counterclockwise to change the spring pre-load.
- Tighten the lock nut ①.

DATA Standard spring set length: 6.3 mm (0.24 in)
(Standard spring set length: 6.3 mm compressed from spring free length)
Spring set length adjustable range: 2 – 12 mm (0.08 – 0.47 in)

NOTE:
Turning the adjuster ② without loosening the lock nut ① can damage the rear cushion unit.

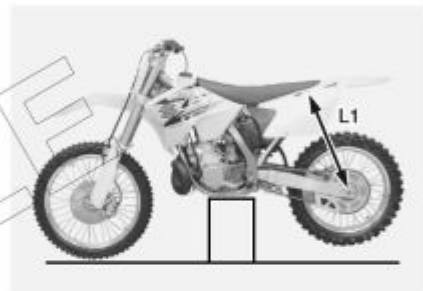
- To remount the rear frame assembly reverse the sequence as described.

REAR SUSPENSION TUNING PROCEDURE

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

Spring	Part No.	Spring rate	Marking paint	Set-length adjustable range
Soft	62211-37FA0	48 N/mm (4.8 kgf/mm)	Black	2 – 12 mm (0.08 – 0.47 in)
	62211-37FB0	50 N/mm (5.0 kgf/mm)	Blue	
Standard	62211-37F90	52 N/mm (5.2 kgf/mm)	White	
Hard	62211-37FC0	54 N/mm (5.4 kgf/mm)	Red	
	62211-37FD0	56 N/mm (5.6 kgf/mm)	Pink	

- 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 101 mm (3.97 in).



When the sag measured is:	Adjustment procedure
Less than 101 mm (3.97 in)	Reduce spring pre-set length by turning the spring adjuster nut.
More than 101 mm (3.97 in)	Increase spring pre-set length by turning the spring adjuster nut.

REAR SUSPENSION

After the sag measurement has been set between 101 mm (3.97 in), test ride the motorcycle and adjust the suspension for the rider and track conditions referring to the guide below.

SYMPTOM	SECTION	ADJUSTMENT PROCEDURE
Feels too hard overall	• Jump • Series of bumps	1. Adjust the low speed compression damping to a softer setting. (See note below) 2. Adjust the rebound damping to a softer setting. (See note below) 3. Replace the spring with an optional softer one. (☞16-5) 4. Adjust the high speed compression damping to a softer setting. (See note below)
Kicks up	• Medium to large bumps	1. Adjust the low speed compression damping and rebound damping to a harder setting. (See note below) 2. Adjust the high speed compression damping to a harder setting. (See note below)
Bottom feeling or feels too soft and unstable	• Jump • Large bump • Series of bumps	1. Adjust the low speed compression damping to a harder setting. (See note below) 2. Adjust the rebound damping to a harder setting. (See note below) 3. Replace the spring with an optional stiffer one. (☞16-5)
Feels harsh and hits bumps too harshly	• Jump • Large bump • Series of bumps	1. Adjust the low speed compression damping to a harder setting. (See note below) 2. Adjust the rebound damping to a harder setting. (See note below) 3. If bottom feeling become after adjusting above mentions, adjust the high speed compression damping to a harder setting. (See note below)
Provides poor traction	• Accelerating • Series of small bumps	1. Adjust the rebound damping to a harder setting. (See note below) 2. If traction feeling does not improve after adjusting above mention, adjust the low speed compression damping to a softer setting. (See note below) 3. If bottom feeling become after adjusting above mentions, adjust the high speed compression damping to a harder setting. (See note below)
Tends to sink front than rear	• Decelerating or braking	1. Adjust the high speed compression damping to a softer setting. (See note below) 2. Adjust the rebound damping to a harder setting. (See note below)

NOTE:

* *When adjusting the low speed compression damping and rebound damping setting, attempt turning the adjuster 1 to 2 click stops at a time for each adjustment.*
* *When adjusting the high speed compression damping setting, attempt turning the adjuster 1/4 turn 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 the rear suspension, such as changing to heavier front fork 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 motorcycle and rider weight rearward, possibly causing the rear suspension to 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 footrest closest to you. Sharply push down. The front and rear suspensions should both collapse equally.

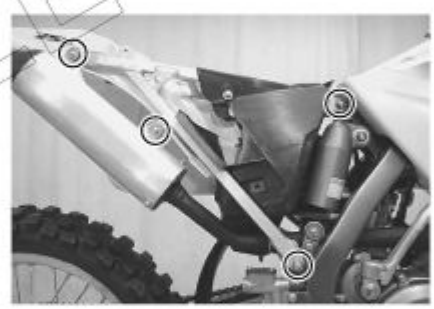
BALANCING TIPS

- 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, 101 mm (3.97 in), when using spring pre-set 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.

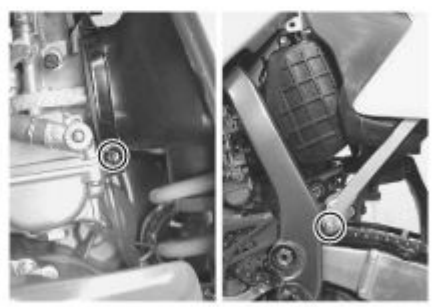
REAR SHOCK ABSORBER

REAR SHOCK ABSORBER REMOVAL

- Place a block under chassis tubes.
- Remove the seat and the right frame cover. (☞3-2, 12-2)
- Remove the silencer.



- Loosen the air cleaner clamp screw.
- Remove the rear frame mounting bolts and nut (right and left).
- Remove the rear frame assembly.



- Remove the rear cushion rod bolt and nut.

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

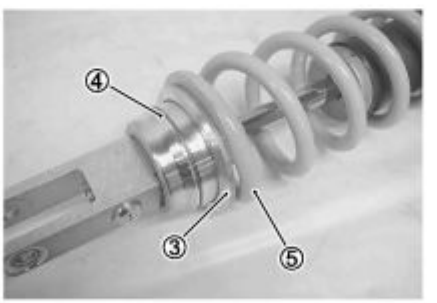
- Remove the rear shock absorber upper mounting bolt and nut.
- Remove the rear shock absorber.

SPRING REMOVAL

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

09910-60611: Universal clamp wrench

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



REAR SHOCK ABSORBER INSPECTION

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

- Inspect the spacers and dust seals for damage.
- Inspect the bearing for excessive play and smooth movement.

BEARING REPLACEMENT

- Remove the rear shock absorber unit from the frame. (☞16-7)
- Remove the spacers.
- Remove the needle roller bearings ①.
- Remove the dust seals ②.

- Remove the needle roller bearing cage ③ with the special tool.

09921-20240: Bearing remover set

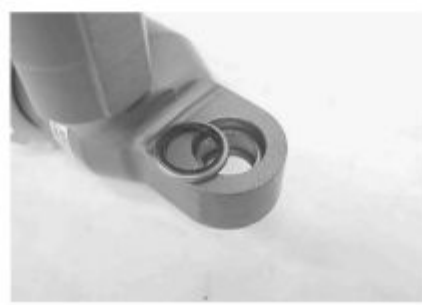
- Press the bearing cage with the special tool and suitable size socket wrench.

NOTE:
Position the bearing by refering to the illustration of page 16-22.

09924-84521: Bearing installer set

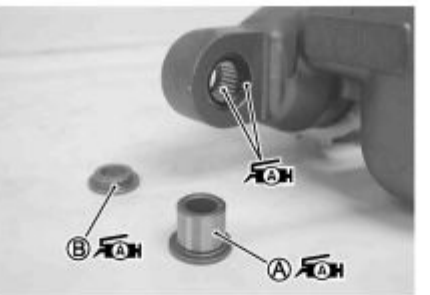
- Install the dust seals.

NOTE:
When installing the dust seal, the stamped mark on the dust seal must face inside.



- Apply grease to the needle roller bearings and install them.
- Apply grease to the dust seals and spacers.
- Install the spacers Ⓐ and Ⓑ.
  Ⓐ for Right side
  Ⓑ for Left side

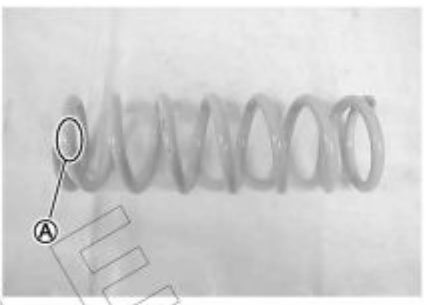
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



SPRING INSTALLATION

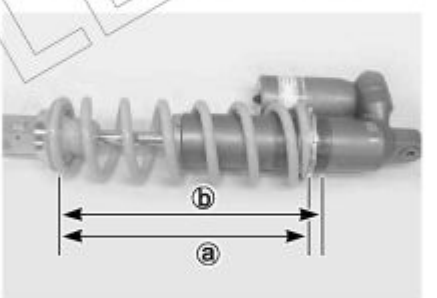
- Fit the locknut, adjuster, spring, spring seat and stopper ring.

NOTE:
Install the spring as painted side Ⓐ or small diameter side is bottom.



- Adjust the spring set length and tighten the locknut.

Standard spring set length:
6.3 mm (0.24 in) compressed from the free length
Spring set length adjustable range:
2 – 12 mm (0.08 – 0.47 in)
ⓐ: Standard spring set length
ⓑ: Spring free length



REAR SHOCK ABSORBER INSTALLATION

- Remount the rear shock absorber to the frame and the cushion lever.
- Tighten the upper and lower mounting bolts and nuts to the specified torque.

Rear shock absorber mounting nut:
60 N·m (6.0 kgf-m, 43.5 lb-ft)

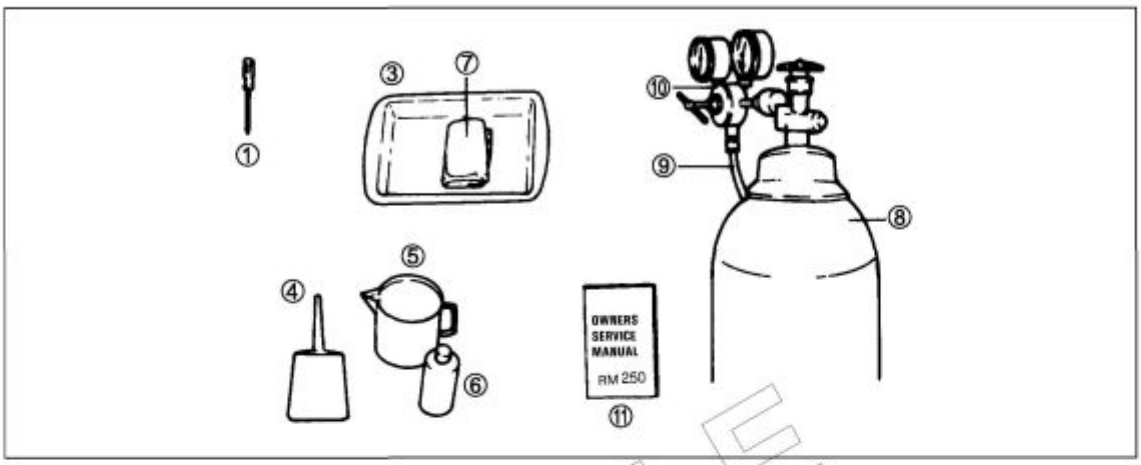
- Tighten the chshion rod bolt and nut to the specified torque.

Cushion rod nut: 80 N·m (8.0 kgf-m, 43.5 lb-ft)

OIL REPLACEMENT PROCEDURE

TOOLS AND EQUIPMENT

- 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 shock absorber unit from the frame. Clean and dry it. (☞16-7)
- Remove the spring from the rear shock absorber unit. (☞16-8)

NOTE:
Inspect the rear shock absorber unit for oil leak.
Turn the rebound damping force adjuster screw counterclockwise until it stops, so that the rear suspension oil can be poured easily.

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

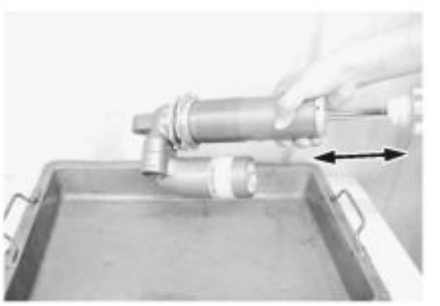
⚠ WARNING

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

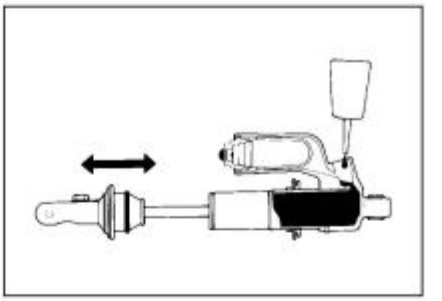
Never perform any servicing until the nitrogen gas pressure has been released from the rear shock absorber unit. When releasing the gas pressure, place a rag over the gas valve and use the tip of a screwdriver etc. to press the valve. Do not use your finger to depress the gas valve, and direct the valve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

- Remove the compression adjuster assembly ① from the rear shock absorber.

- Place a drain pan under the rear shock absorber unit.
- Move the rod and drain the oil completely.
- Push the valve core again to equalize the bladder to atmospheric pressure.



- Pour the fresh specified rear suspension oil as shown while moving the rod.

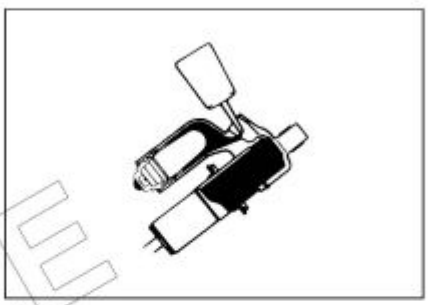


NOTE:
Be sure to extend the rod after filling the oil.

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

99000-99001-S25: SUZUKI REAR SUSPENSION OIL SS-25

Oil capacity: Approx. 380 ml (12.84/13.38 US/Imp oz)



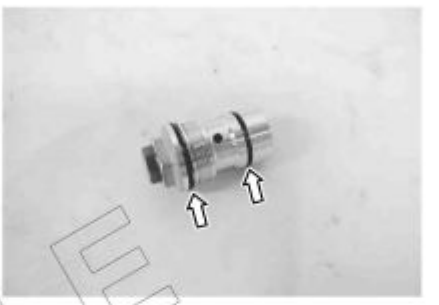
- Cover the compression adjuster hole by the root of your thumb.
- Tilt and shake the rear shock absorber unit to fill the reservoir tank with the oil.
- Add the oil and repeat the above procedure until the reservoir tank is filled with the oil completely.

- Reinstall the compression adjuster assembly ①.

NOTE:
Replace the O-rings on the compression adjuster assembly with new ones.

Compression adjuster assembly:
30 N·m (3.0 kgf-m, 21.5 lb-ft)

- Fill the rear shock absorber unit with nitrogen gas to 981 kPa (9.8 kgf/cm², 139.5 psi).
- Tighten the gas valve cap.
- Reinstall the spring and mount the shock absorber. (☞16-10)



⚠ WARNING

Use of flammable gas for pressuring the rear shock absorber unit can be hazardous. Flammable 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 shock absorber unit may rupture the rear shock absorber unit.

Be sure to fill the rear shock absorber unit to the specified pressure.

CAUTION

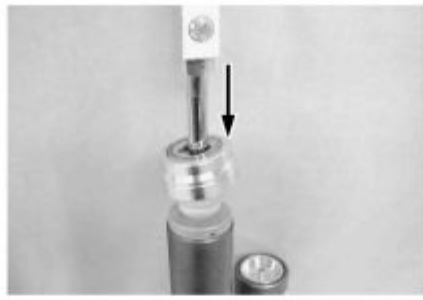
Riding the motorcycle with abnormal gas pressure can damage the rear shock absorber unit. Low gas pressure can result in oil leakage. Abnormal gas pressure cannot provide normal rear shock absorber unit performance.

Be sure to fill the rear shock absorber unit to the specified pressure.

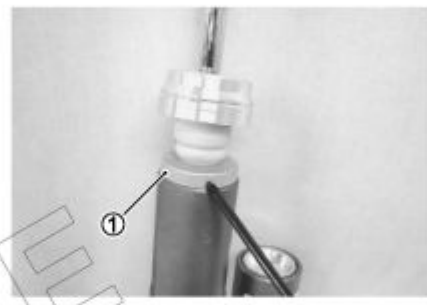
REAR SHOCK ABSORBER DISASSEMBLY AND INSPECTION

- Remove the rear shock absorber unit from the frame. Clean and dry it. (☞16-7)
- Remove the spring from the rear shock absorber. (☞16-8)
- Turn the rebound damping force adjuster to the softest position.
- Press the valve with a screwdriver to bleed out nitrogen gas. (☞16-12)
- Remove the compression adjuster assembly. Drain the oil. (☞16-12)

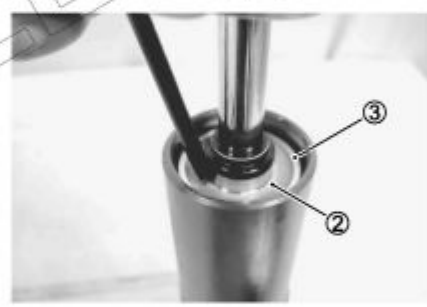
- Vise the rear shock absorber unit in inverted position.
- Depress the bump rubber fully to protect the damper rod from the tool.



- Evenly hammer the stopper ① with the screwdriver or equivalent and remove it from the rear shock absorber body.



- Depress the seal case ② with the screwdriver until the circlip ③ is fully exposed.



- Remove the circlip ③.

NOTE:
Avoid scratching the inner surface of the shock absorber body to avoid oil leaks.

- Extract the damper rod assembly from the shock absorber body.
- Inspect the oil seal and O-rings.
- Inspect the damper rod for bends and scratches.
- Inspect the inner surface of the body.
- Inspect the "teflon coating metal" on the piston.
- Replace O-rings with new ones.
- Replace the "teflon coating metal" by cutting off the old one and sliding the new one onto the piston if necessary.

REAR SHOCK ABSORBER REASSEMBLY

- Apply the rear suspension oil to the O-rings and the "teflon coating metal".
- Insert the damper rod assembly ① and fit the new circlip ②.
- Pull up the damper rod assembly ① until it is stopped by the circlip ②.
- Fit the stopper to the shock absorber body.
- Fill the specified rear suspension oil in the rear shock absorber. (☞16-13)

FB 99000-99001-S25: SUZUKI REAR SUSPENSION OIL SS-25

DATA Oil capacity: Approx. 380 ml (12.84/13.38 US/Imp oz)

- Reinstall the compression adjuster assembly. (☞16-14)
- Pressure the rear shock absorber unit with nitrogen gas to 981 kPa (9.8 kgf/cm², 139.5 psi). (☞16-14)
- Reassemble the spring and adjust the spring set length. (☞16-10)
- Tighten the valve cap.
- Remount the rear shock absorber to the frame. (☞16-10)

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

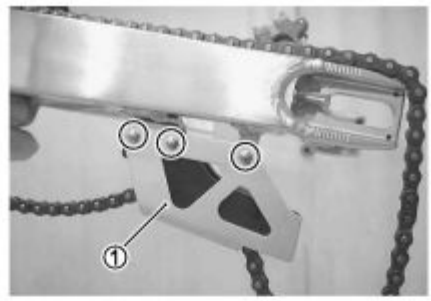
Releasing high pressure gas from the rear shock absorber unit can be hazardous.

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.

SWINGARM

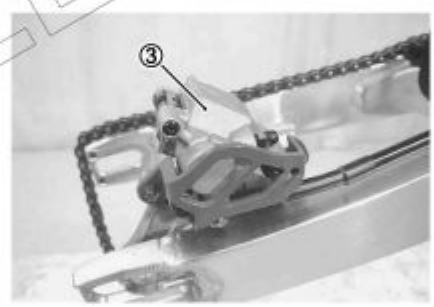
DISASSEMBLY

- Place a block under chassis tubes.
- Remove the rear wheel. (☞13-3)
- Remove the chain guide ①.



- Remove the brake hose guide ②.

- Remove the rear caliper assembly ③ from the swingarm.



- Remove the rear cushion lever bolt and nut ④.

- Remove the brake pedal. (☞14-14)
- Remove the swingarm pivot nut ⑤ and shaft.
- Remove the swingarm.

- Remove the chain buffer.

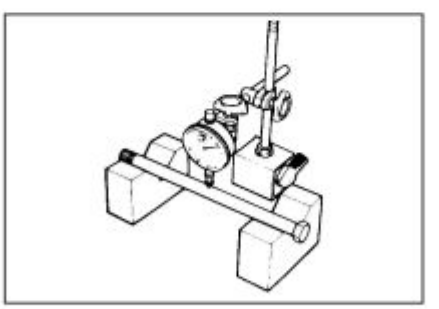
- Remove the spacers.
  Dust seal
  Washer
  Thrust bearing

INSPECTION

- Inspect the chain buffer for damage and excessive wear.

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

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



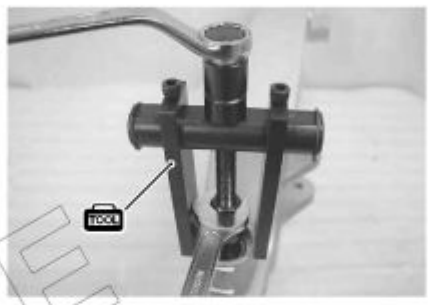
- Inspect the swingarm for cracks and damage.

- Inspect the bearings, spacers and dust seals for damage.
- Insert the spacers into the bearings and inspect them for excessive play and smooth movement.

BEARING REPLACEMENT

- Remove the bearings with the special tool.

09921-20240: Bearing remover set

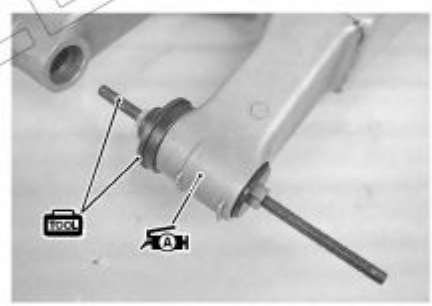


- Apply SUZUKI SUPER GREASE to the bearings.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Press the new bearings with the special tools.

09924-84521: Bearing installer set
09941-34513: Steering race installer set



REASSEMBLY

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

- Apply grease to the spacers, dust seals and bearings.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Tighten the swingarm pivot shaft nut to the specified torque.

Swingarm pivot nut: 70 N·m (7.0 kgf-m, 50.5 lb-ft)

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

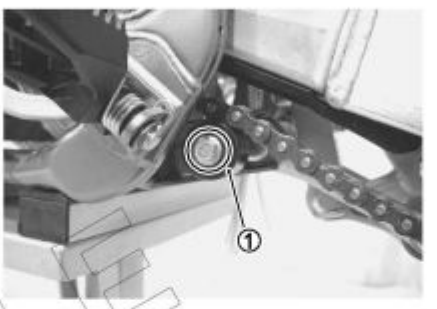
Rear cushion lever nut: 80 N·m (8.0 kgf-m, 58.0 lb-ft)

- Reassemble the brake pedal. (☞14-14)
- Reassemble the rear caliper assembly.
- Install the rear brake hose guides.
- Reassemble the chain guide.
- Reassemble the rear wheel. (☞13-4)

REAR SUSPENSION LINKAGE

DISASSEMBLY

- Place a block under chassis tubes.
- Remove the lower drive chain control roller ①.



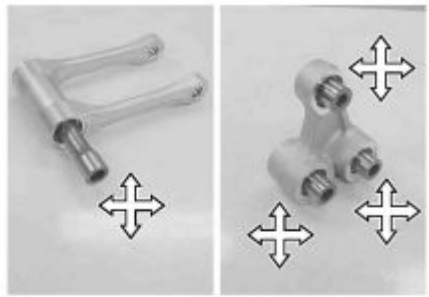
- Remove the rear cushion rod bolt and nut.
- Remove the cushion lever bolt and nut.
- Remove the shock absorber lower bolt and nut.

- Remove the cushion rod from the cushion lever.
- Remove the spacers and dust seals.

INSPECTION

- Inspect the cushion lever and cushion rod.
- Inspect the dust seals and spacers for damage.
- Inspect the bearings for damage.

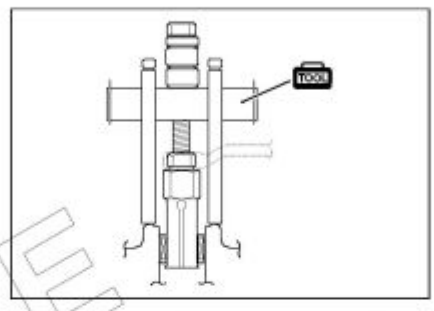
• Insert the spacers into the bearings and inspect them for excessive play and smooth movement.



BEARING REMOVAL

• Remove the bearings with the special tool.

09921-20240: Bearing remover set



BEARING INSTALLATION

• Apply grease to the bearings.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

• Press the bearings with the special tool and suitable size socket wrench.

09924-84521: Bearing installer set

NOTE:
Position the bearings by refering to the illustration of page 16-22.

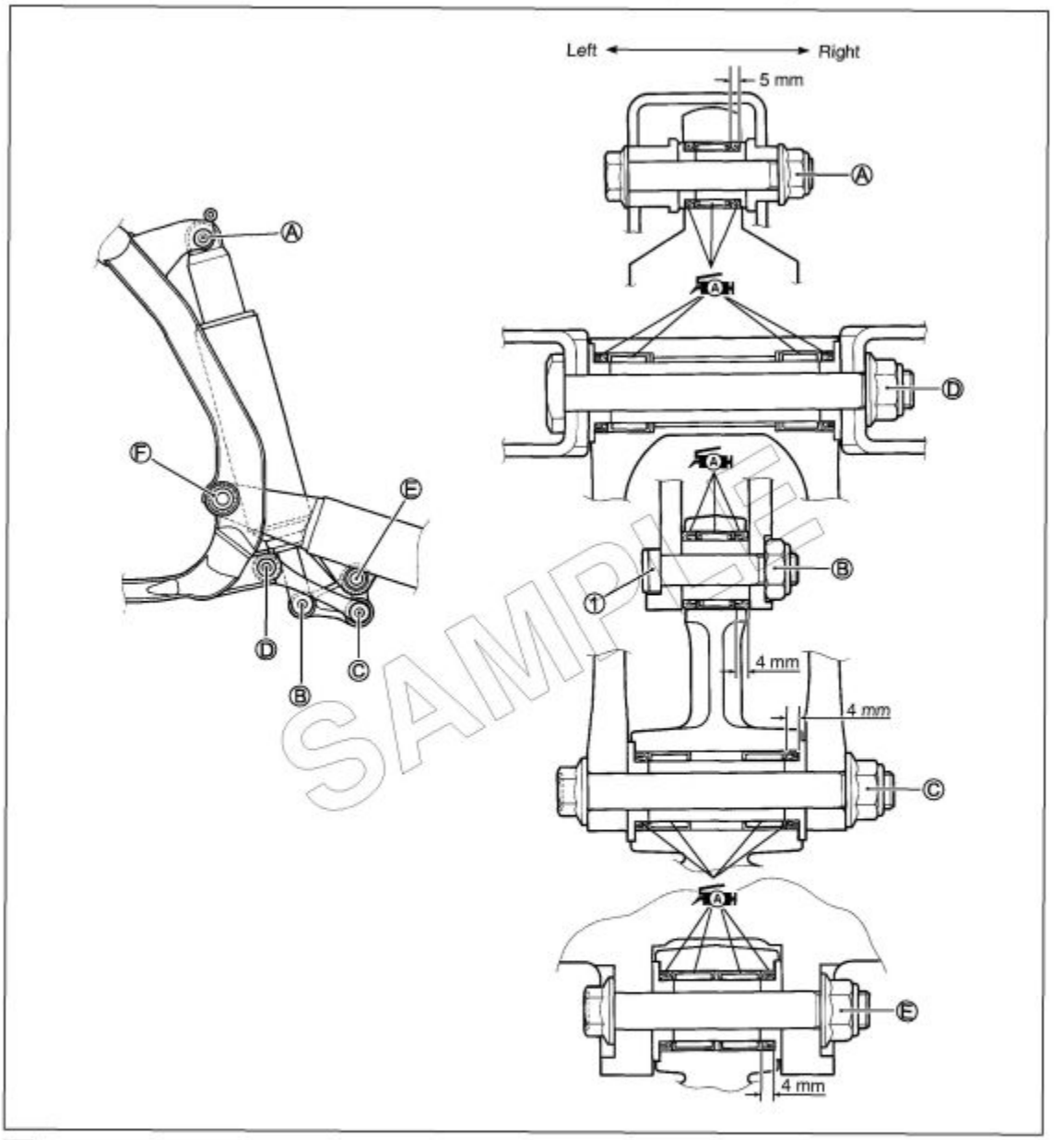
REASSEMBLY

Reassemble and remount the rear suspension linkage in the reverse order of removal and disassembly. Pay attention to the following points:

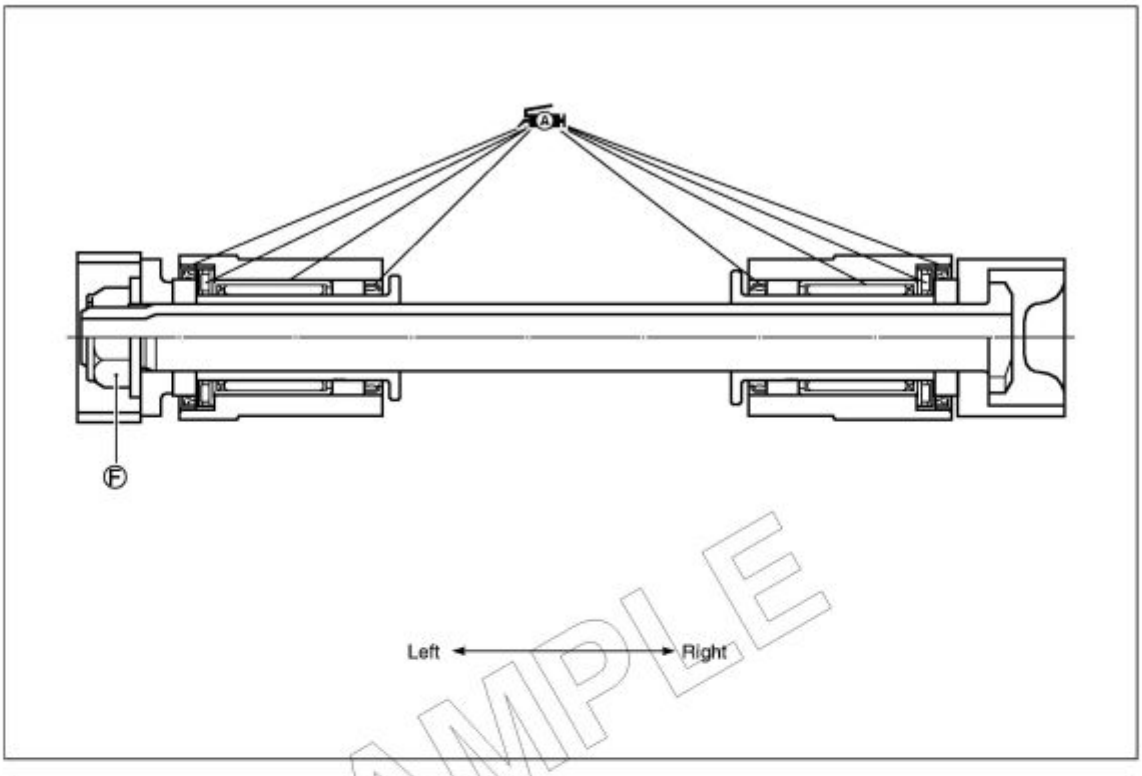
• Apply grease to the spacers, dust seals and bearings.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

• Tighten the cushion lever, cushion rod and swingarm nuts to the specified torque.



Tightening torque:
Ⓐ: 60 N·m (6.0 kgf-m, 43.5 lb-ft)
Ⓑ: 60 N·m (6.0 kgf-m, 43.5 lb-ft)
Ⓒ: 80 N·m (8.0 kgf-m, 58.0 lb-ft)
Ⓓ: 80 N·m (8.0 kgf-m, 58.0 lb-ft)
Ⓔ: 80 N·m (8.0 kgf-m, 58.0 lb-ft)
Ⓕ: 70 N·m (7.0 kgf-m, 50.5 lb-ft)



CAUTION

Improperly reassembled rear suspension linkage bolts can interfere with suspension movement and damage the rear suspension linkage.

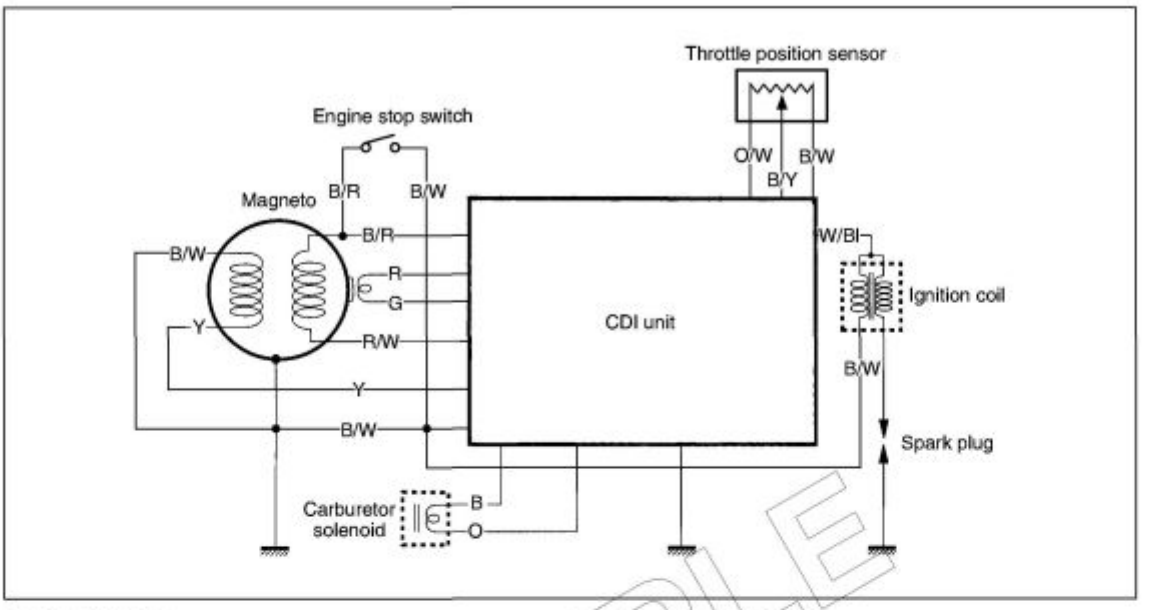
- *** Make sure that the rear shock absorber rebound damping adjuster on the bottom bracket of the rear shock absorber is located to the right side.**
- *** Insert the rear suspension linkage bolt ① from the left side. Make sure that the nut Ⓑ is in the recess of the rear shock absorber bottom bracket.**

• Install the lower drive chain roller. (☞12-6)

ELECTRICAL SYSTEM

CONTENTS

ELECTRICAL CIRCUIT



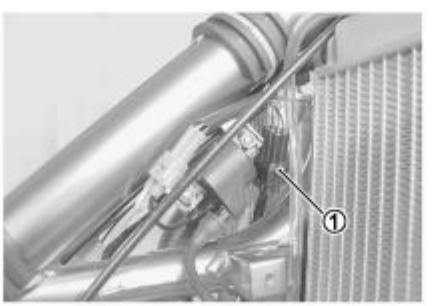
COLOR CODE

R:	Red	O/W:	Orange with White tracer
B:	Black	B/R:	Black with Red tracer
G:	Green	B/W:	Black with White tracer
O:	Orange	W/Bl:	White with Blue tracer
Y:	Yellow	R/W:	Red with White tracer

INSPECTION

IGNITION SYSTEM PEAK VOLTAGE

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



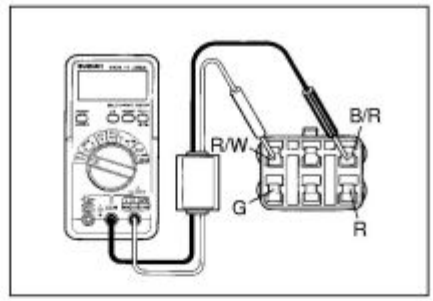
Measure the ignition system peak voltage in the following procedure:

- Connect the multi circuit tester with the peak volt adaptor as follows. (See table below.)
- Measure the highest peak voltage by depressing the kick starter lever more than 3 times forcefully.

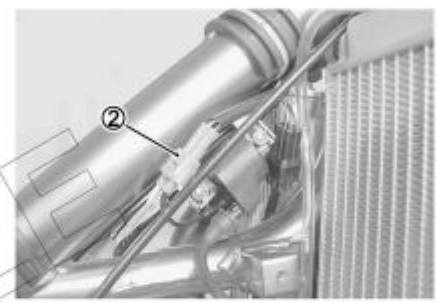
Red/White – Black/Red	**25 V and more**
Green – Red	**2 V and more**

Tester knob indication: Voltage (⎓)

09900-25008: Multi circuit tester



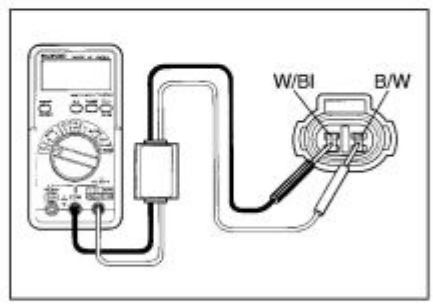
- Connect the magneto lead wire coupler and disconnect the ignition coil lead wire coupler ②.



- Connect the multi circuit tester with the peak volt adaptor between Black/White lead wire and White/Blue lead wire.
- Measure the highest peak voltage by depressing the kick starter lever more than 3 times forcefully.

Black/White – White/Blue	**200 V and more**

NOTE:
Be sure to connect the Red probe to the Black/White lead wire and the Black probe to the White/Blue lead wire.



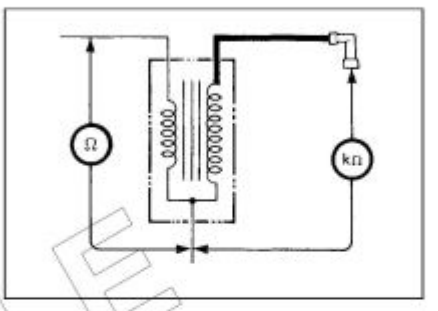
IGNITION COIL

- Remove the seat and fuel tank. (☞3-2)
- Remove the ignition coil ①.

Measure the ignition coil electrical resistance.

Primary	**White/Blue – Black/White**	**Approx. 0.17 – 0.46 Ω**
Secondary	**Plug cap – Black/White**	**Approx. 13 – 20 KΩ**

09900-25008: Multi circuit tester



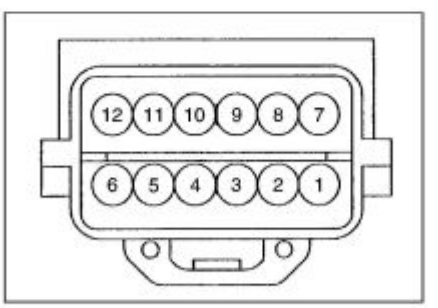
CDI UNIT

- Remove the CDI unit from the steering head pipe.

Measure voltage between the lead wires with the multi circuit tester.

Tester knob indication: Diode (⊣◀)

09900-25008: Multi circuit tester



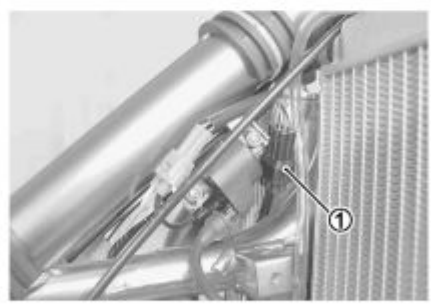
Unit: Approx. V

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

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

STATOR COIL

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

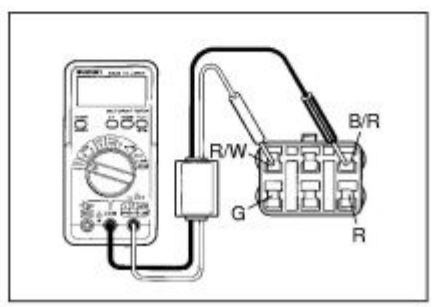


Measure the stator coils electrical resistance with the multi circuit tester.

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

Tester knob indication: Resistance (Ω)

09900-25008: Multi circuit tester



TROUBLESHOOTING

CONTENTS

TROUBLESHOOTING
ENGINE

Complaint	Possible Cause	Remedy
Engine does not start or hard to start	Fuel deterioration	Replace
	No fuel flow to the carburetor	
	• Fuel valve 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	Replace
	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	Exhaust valve maladjustment	Adjust
	Wide spark plug gap	Adjust or replace
	Carburetor air screw maladjustment	Adjust
	Incorrect carburetor fuel level	Adjust
	Improper jet needle size	Replace
	Incorrect ignition timing	Adjust
	CDI unit malfunction	Replace
	Throttle position sensor malfunction	Replace
	Ignition coil damage	Replace
	Magneto malfunction	Replace
	Magneto short circuit	Replace
	Exhaust valve breather hose clogged	Clean
Engine runs poorly in high speed range	Narrow spark plug gap	Adjust or replace
	Incorrect carburetor fuel level	Adjust
	Incorrect main jet setting	Adjust
	Power jet solenoid malfunction	Replace
	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
	Exhaust valve breather hose clogged	Clean
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	☞2-4
	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
	Tip of clutch release camshaft worn	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
	Tip of clutch release camshaft worn	Replace
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
	Transmission gear claw damage	Replace
Gearshift lever does not return	Weakened gearshift return spring	Replace
	Gearshift lever sticking	Repair or replace

CHASSIS

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

* An optional spring is available at your SUZUKI dealer.

SERVICE DATA

CONTENTS

SERVICE DATA

CYLINDER + PISTON + PISTON RING

ITEM		STD/SPEC.		LIMIT
Piston to cylinder clearance		0.045 – 0.055 mm (0.0018 – 0.0022 in)		0.120 mm (0.0047 in)
Cylinder bore		66.400 – 66.415 mm (2.6142 – 2.6148 in) Measure 20 mm (0.79 in) from the top surface		Nicks or scratches
Piston diam.		66.350 – 66.365 mm (2.6122 – 2.6128 in) Measure 25.5 mm (1.00 in) from the skirt end		66.280 mm (2.6100 in)
Cylinder distortion		—		0.05 mm (0.002 in)
Cylinder head distortion		—		0.05 mm (0.002 in)
Piston ring free end gap	1st & 2nd	R	Approx. 8.4 mm (0.33 in)	6.7 mm (0.26 in)
Piston ring end gap	1st & 2nd	0.30 – 0.45 mm (0.012 – 0.018 in)		0.50 mm (0.02 in)
Piston ring to groove clearance	1st & 2nd	0.020 – 0.060 mm (0.0008 – 0.0024 in)		—
Piston pin bore		18.002 – 18.008 mm (0.7087 – 0.7090 in)		18.030 mm (0.7098 in)
Piston pin O.D.		17.995 – 18.000 mm (0.7085 – 0.7087 in)		17.980 mm (0.7079 in)

CONROD + CRANKSHAFT

ITEM	STD/SPEC.	LIMIT
Conrod small end I.D.	23.003 – 23.011 mm (0.9056 – 0.9059 in)	23.040 mm (0.9071 in)
Conrod deflection	—	3.0 mm (0.12 in)
Conrod big end side clearance	—	1.0 mm (0.04 in)
Crank web to web width	59.9 – 60.1 mm (2.358 – 2.366 in)	—
Crankshaft runout	—	0.05 mm (0.002 in)

CLUTCH

ITEM	STD/SPEC.	LIMIT
Clutch lever play	10 – 15 mm (0.40 – 0.60 in)	—
Drive plate thickness	3.07 – 3.23 mm (0.121 – 0.127 in)	2.77 mm (0.109 in)
Drive plate claw width	13.85 – 13.95 mm (0.545 – 0.549 in)	13.05 mm (0.514 in)
Driven plate distortion	—	0.15 mm (0.006 in)
Clutch spring free length	39.78 mm (1.57 in)	37.8 mm (1.49 in)

RADIATOR + COOLANT

ITEM	STD/SPEC.	LIMIT
Radiator cap valve release pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm², 14 – 18 psi)	—
Engine coolant type	Use a anti-freeze & Summer coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50: 50.	—
Engine coolant capacity	1100 ml (1.2/1.0 US/Imp qt)	—

TRANSMISSION + DRIVE CHAIN

ITEM		STD/SPEC.	LIMIT
Primary reduction ratio		3.000 (63/21)	—
Final reduction ratio		3.846 (50/13)	—
Gear ratios	Low	1.800 (27/15)	—
	2nd	1.470 (25/17)	—
	3rd	1.210 (23/19)	—
	4th	1.000 (21/21)	—
	Top	0.869 (20/23)	—
Shift fork to groove clearance		0.10 – 0.30 mm (0.004 – 0.012 in)	0.50 mm (0.020 in)
Shift fork groove width		4.80 – 4.90 mm (0.189 – 0.193 in)	—
Shift fork thickness		4.60 – 4.70 mm (0.181 – 0.185 in)	—
Drive chain	Type	DAIDO: D.I.D 520DMA2	—
	Links	114 links	—
	20-pitch length	—	323.8 mm (12.75 in)
Drive chain slack		40 – 50 mm (1.6 – 2.0 in)	—
Gearshift lever height		0 – 5 mm below (0 – 0.2 in)	—

CARBURETOR

ITEM		STD/SPEC.
Carburetor type		KEIHIN PWK38S
Bore size		39 mm (1.54 in)
I.D. No.		37F7
Float height		6.5 ± 1.0 mm (0.26 ± 0.04 in)
Main jet	(M.J.)	#172
Jet needle	(J.N.)	NEDH-4th
Cut-away	(C.A.)	#7
Slow jet	(S.J.)	#50
Air screw	(A.S.)	1 and 1/2 turns out
Power jet	(PW.J.)	#55
Throttle cable play		2 – 4 mm (0.08 – 0.16 in) at the throttle grip

ELECTRICAL

ITEM	STD/SPEC.		NOTE
Spark plug	Type	NGK: BR8EG	
	Gap	0.5 – 0.6 mm (0.020 – 0.024 in)	
Ignition coil resistance	Primary	0.17 – 0.46 Ω	W/Bl – B/W
	Secondary	13 – 20 kΩ	W/Bl – Plug cap
Magneto coil resistance	78 – 122 Ω		G – R
	28 – 46 Ω		R/W – B/R

BRAKE + WHEEL

ITEM	STD/SPEC.		LIMIT
Rear brake pedal height	0 – 10 mm below (0 – 0.39 in)		—
Brake disc thickness	Front	2.8 – 3.2 mm (0.11 – 0.13 in)	2.5 mm (0.10 in)
	Rear	3.8 – 4.2 mm (0.15 – 0.17 in)	3.5 mm (0.14 in)
Brake disc runout	Front & Rear	—	0.30 mm (0.012 in)
Master cylinder bore	Front	11.000 – 11.043 mm (0.4331 – 0.4348 in)	—
	Rear	12.700 – 12.743 mm (0.5000 – 0.5017 in)	
Master cylinder piston diam.	Front	10.957 – 10.984 mm (0.4314 – 0.4324 in)	—
	Rear	12.657 – 12.684 mm (0.4983 – 0.4994 in)	—
Brake caliper cylinder bore	Front	27.000 – 27.050 mm (1.0630 – 1.0650 in)	—
	Rear	27.000 – 27.050 mm (1.0630 – 1.0650 in)	—
Brake caliper piston diam.	Front	26.930 – 26.950 mm (1.0602 – 1.0610 in)	—
	Rear	26.918 – 26.968 mm (1.0598 – 1.0617 in)	—
Brake fluid type	DOT 4		
Wheel rim runout	Axial	—	2.0 mm (0.08 in)
	Radial	—	2.0 mm (0.08 in)
Wheel rim size	Front	21 × 1.60	—
	Rear	19 × 2.15	—
Wheel axle runout	Front	—	0.25 mm (0.010 in)
	Rear	—	0.25 mm (0.010 in)

TIRE

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

SUSPENSION

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

FUEL + OIL

ITEM	STD/SPEC.		NOTE
Fuel type	Use only unleaded gasoline of at least 90 pump octane (R/2 + M/2 method).		For Canada
	Use only unleaded gasoline of at least 95 octane. (Research method)		For other countries
Fuel tank capacity	8.0 L (2.1/1.8 US/Imp gal)		
Engine oil type	MOTUL 800 2T FACTORY LINE OFF ROAD or equivalent Two Cycle Racing Lubricant		
Fuel and engine oil mixture ratio	30:1		
Transmission oil type	SAE 10W-40		
Transmission oil capacity	Change	750 ml (0.8/0.7 US/Imp qt)	
	Overhaul	850 ml (0.9/0.7 US/Imp qt)	

TIGHTENING TORQUE

ENGINE

PART	N·m	kgf-m	lb-ft
Cylinder head nuts	25	2.5	18.0
Magneto rotor nut	55	5.5	40.0
Cylinder nuts	38	3.8	27.5
Clutch sleeve hub nut	90	9.0	65.0
Crankcase bolt	11	1.1	8.0
Primary drive gear bolt	70	7.0	50.5
Gearshift cam bolt	23.5	2.35	18.0
Gearshift pawl lifter screw	10	1.0	7.0
Exhaust valve shaft arm bolt	4	0.4	3.0
Kick starter lever bolt	23	2.3	16.5
Spark plug	20	2.0	14.5
Oil level chek bolt	5.5	0.55	4.0
Oil drain plug	21	2.1	15.0
Water pump drain bolt	5.5	0.55	4.0
Engine mounting bracket nuts (front and upper)	43	4.3	31.0
Engine mounting nuts (front, upper and lower)	45	4.5	32.5

CHASSIS

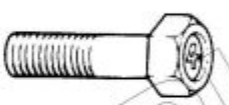
PART	N·m	kgf-m	lb-ft
Handlebar clamp bolts	25	2.5	18.0
Front fork clamp bolts (upper and lower)	23	2.3	16.5
Steering stem head nut	100	10.0	72.5
Front fork cap bolts	35	3.5	25.5
Front fork center bolt	70	7.0	50.5
Compression damper unit	30	3.0	21.5
Master cylinder set bolt (front & rear)	10	1.0	7.0
Master cylinder rod lock nut (rear)	18	1.8	13.0
Brake hose union bolts (front and rear)	23	2.3	16.5
Brake pad mounting pin (front and rear)	18	1.8	13.0
Brake caliper mounting bolts (front)	26	2.6	19.0
Brake caliper axle bolt (rear)	28	2.8	20.0
Brake bleeder bolt (front and rear)	6.0	0.6	4.5
Disc plate bolt (front and rear)	10	1.0	7.0
Brake pedal pivot bolt (rear)	29	2.9	21.0
Front axle holder bolts	18	1.8	13.0
Front axle nut	35	3.5	25.5
Rear axle nut	100	10.0	72.5
Rear sprocket nuts	30	3.0	21.5
Drive chain control roller bolt	31	3.1	22.5
Rear swingarm pivot nut (engine mounting)	70	7.0	50.5
Rear shock absorber mounting nuts (upper and lower)	60	6.0	43.5
Rear cushion lever nut (upper and lower)	80	8.0	57.9
Rear cushion rod nut	80	8.0	57.9

TIGHTENING TORQUE CHART

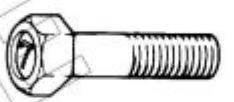
For other bolts and nuts not listed in the table, refer to this chart.

Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked or crown headed bolt		
	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3.0	0.3	2.0	4.5	0.45	3.5
6	5.5	0.55	4.0	10.0	1.0	7.0
8	13.0	1.3	9.5	23.0	2.3	16.5
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

Conventional bolt

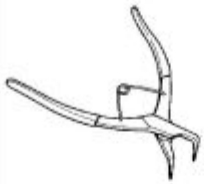
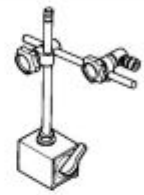
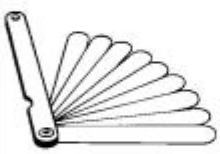
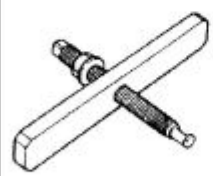


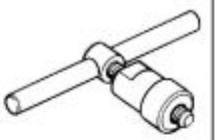
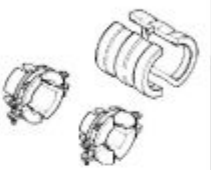
"4" marked bolt



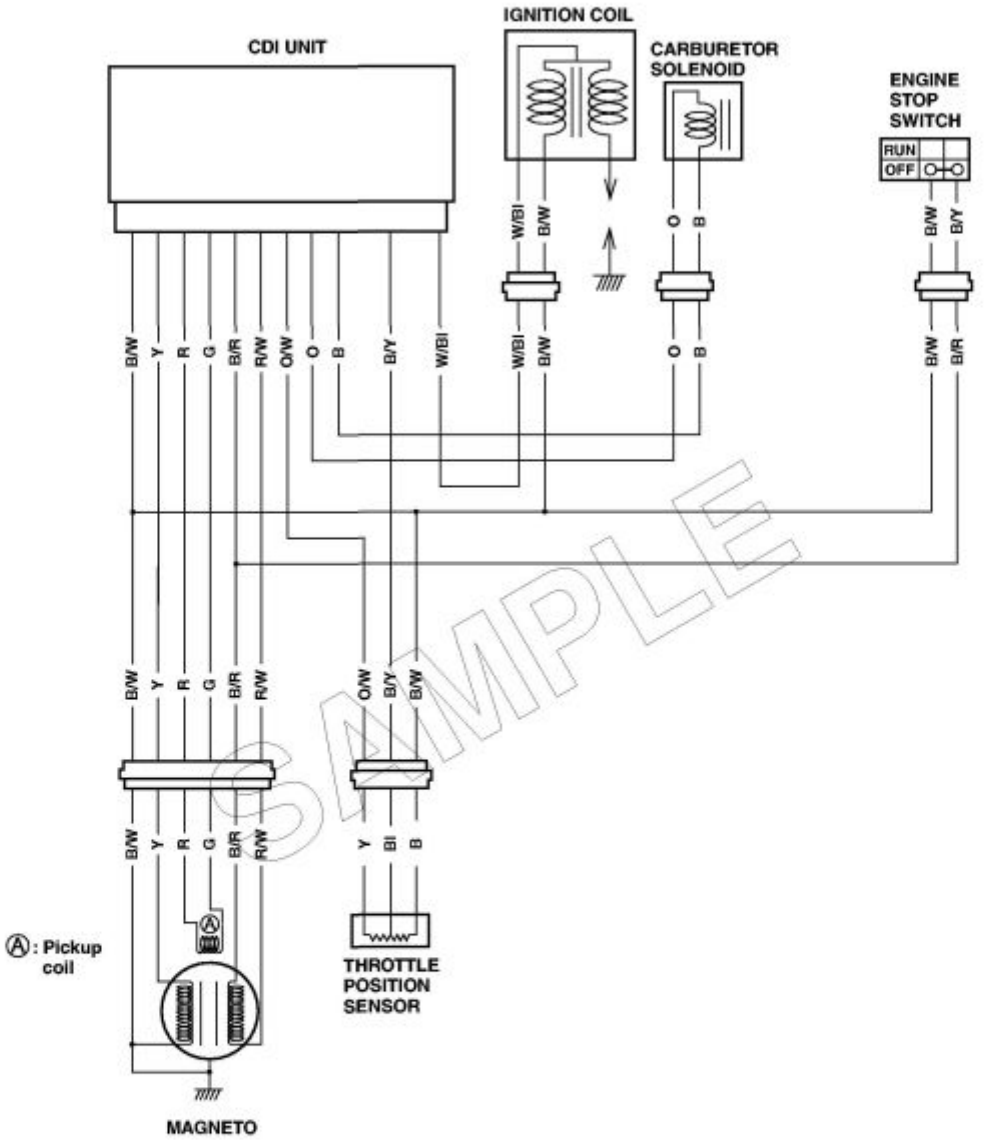
"7" marked bolt

SPECIAL TOOLS

 09900-06105 Snap ring plier	 09900-06107 Snap ring plier	 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 (1/1 000 mm)	 09900-20605 Dial caliper (1/100 mm, 10 – 34 mm)	 09900-20607 Dial gauge (1/100 mm)	 09900-20701 Magnetic stand
 09900-20803 Thickness gauge	 09900-21304 V-block set (100 mm)	 09900-25008 Multi circuit tester set	 09910-20115 Conrod holder	 09910-32812 Crankshaft installer 09911-11310 Attachment
 09910-60611 Universal clamp wrench	 09913-50121 Oil seal remover	 09913-70210 Bearing installer set	 09917-50410 Bearing remover	 09920-13120 Crankcase separating tool
 09920-20310 Spring hook	 09920-53740 Clutch sleeve hub holder	 09921-20240 Bearing remover set	 09924-84510 Bearing installer set	 09924-84521 Bearing installer set

 09925-18011 Steering bearing installer	 09930-11960 Torx wrench, T20	 09930-30113 Flywheel rotor remover	 09930-40113 Rotor holder	 09940-14911 Steering nut wrench
 09940-14960 Steering nut socket wrench	 09940-34581 Attachment F	 09940-52861 Front fork oil seal installer set	 09941-34513 Steering race installer	 09941-50111 Bearing remover
 09941-53630 Front fork top cap wrench	 09941-54911 Bearing outer race remover	 09941-74911 Bearing installer	 09943-74111 Front fork oil level gauge	

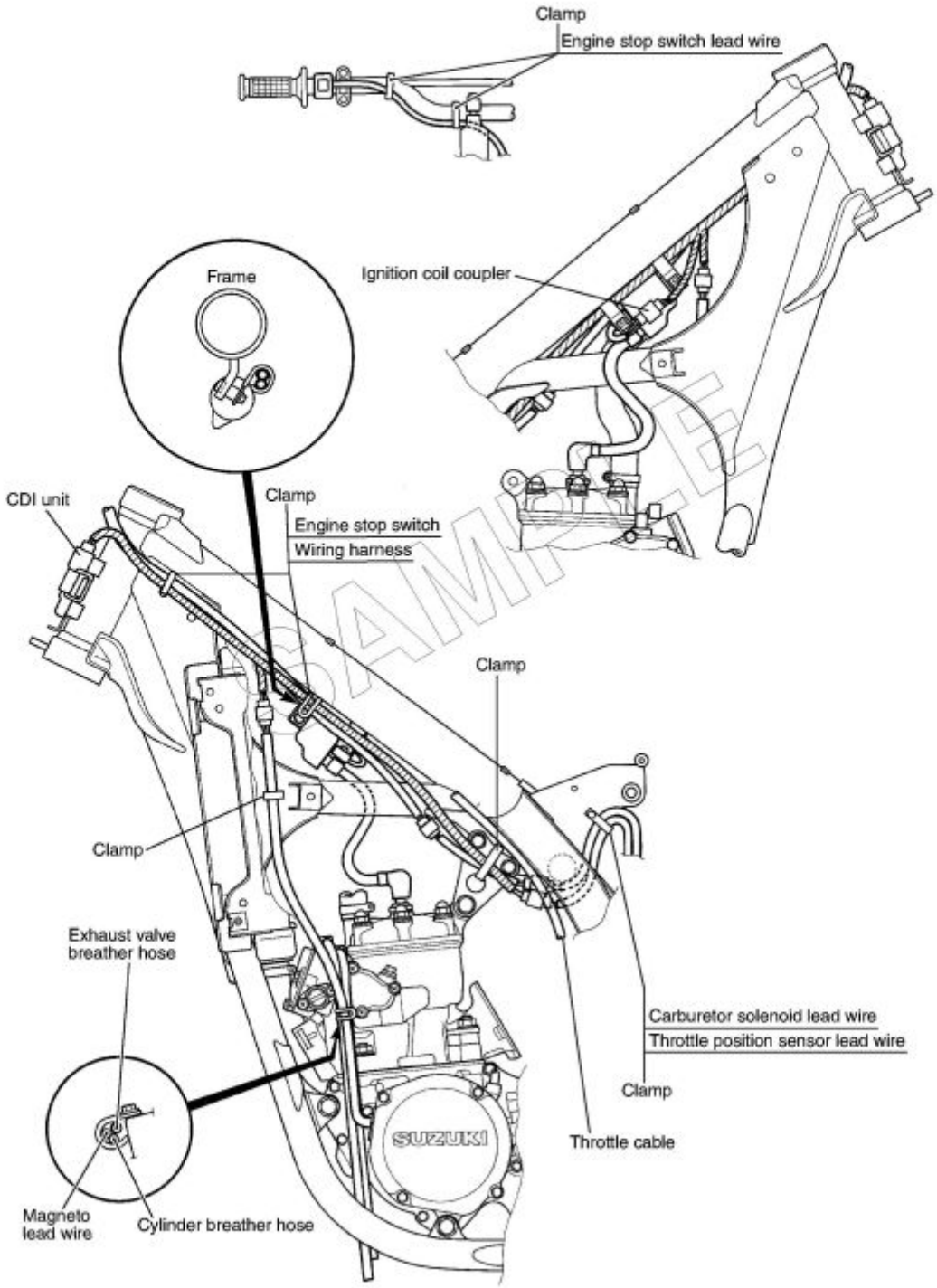
WIRING DIAGRAM



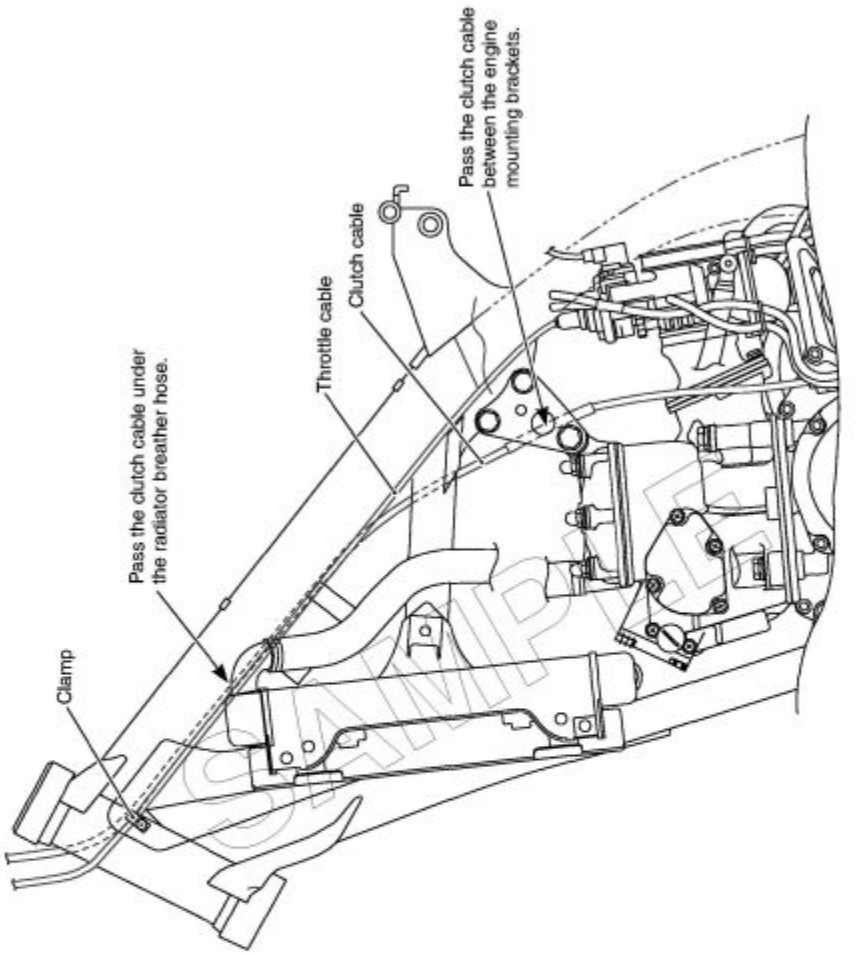
WIRE COLOR

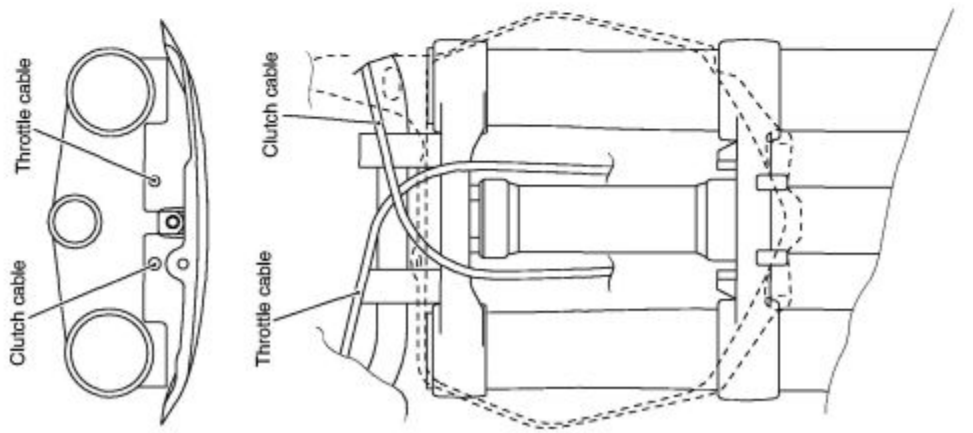
B:	Black
G:	Green
Bl:	Blue
O:	Orange
R:	Red
W:	White
Y:	Yellow
B/R:	Black with Red tracer
B/W:	Black with White tracer
B/Y:	Black with Yellow tracer
O/W:	Orange with White tracer
R/W:	Red with White tracer
W/Bl:	White with Blue tracer

WIRE, CABLE AND HOSE ROUTING
WIRE HARNES ROUTING

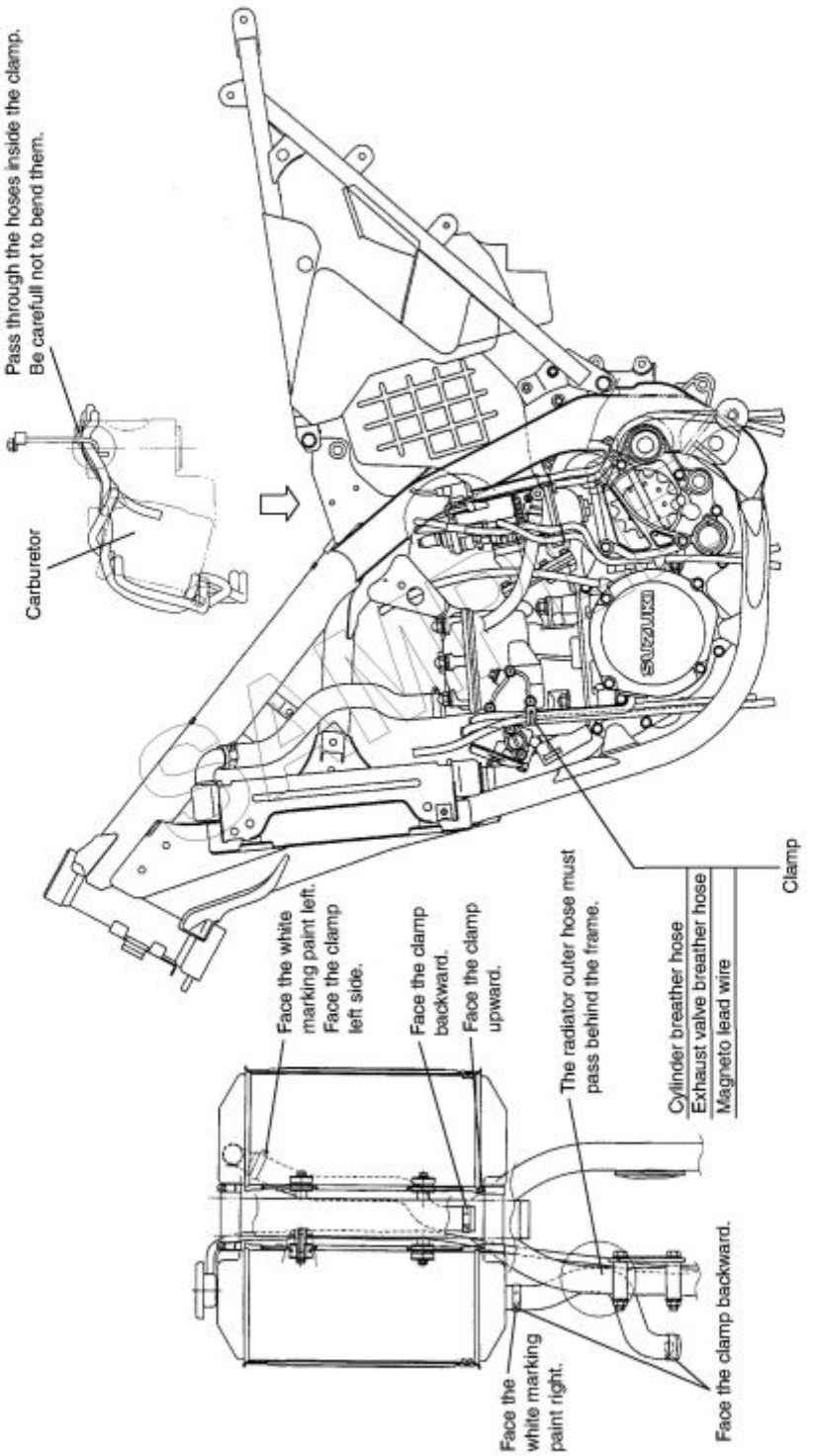


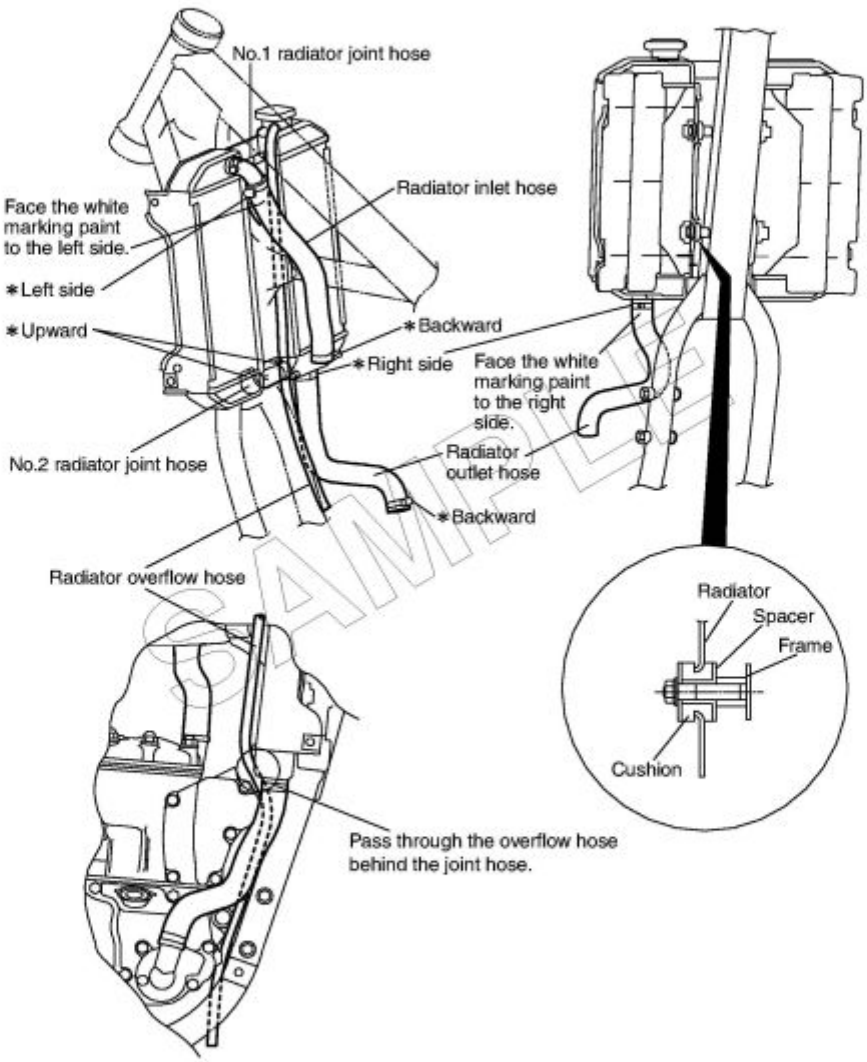
CABLE ROUTING





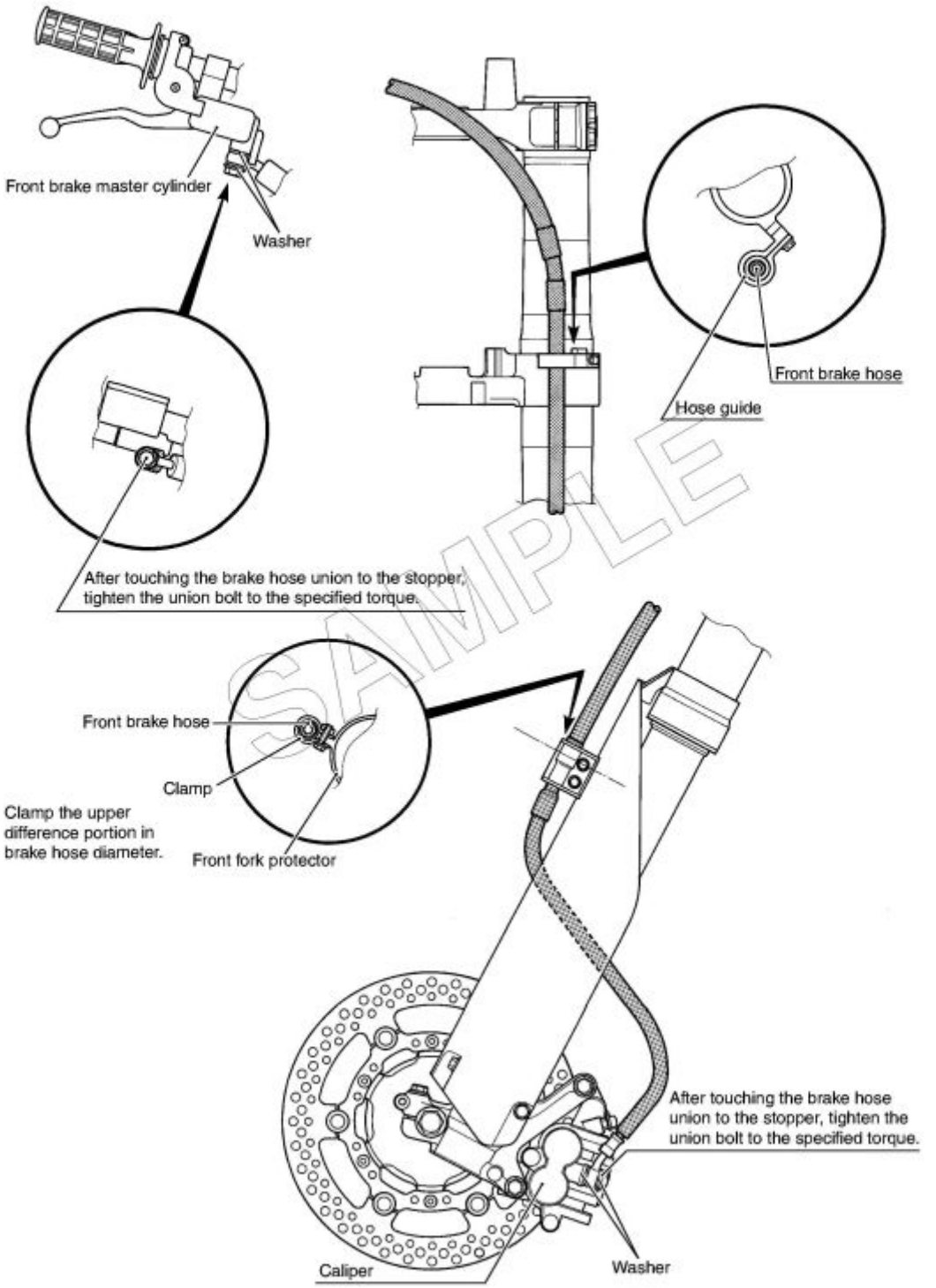
CARBURETOR HOSE AND WATER HOSE ROUTING



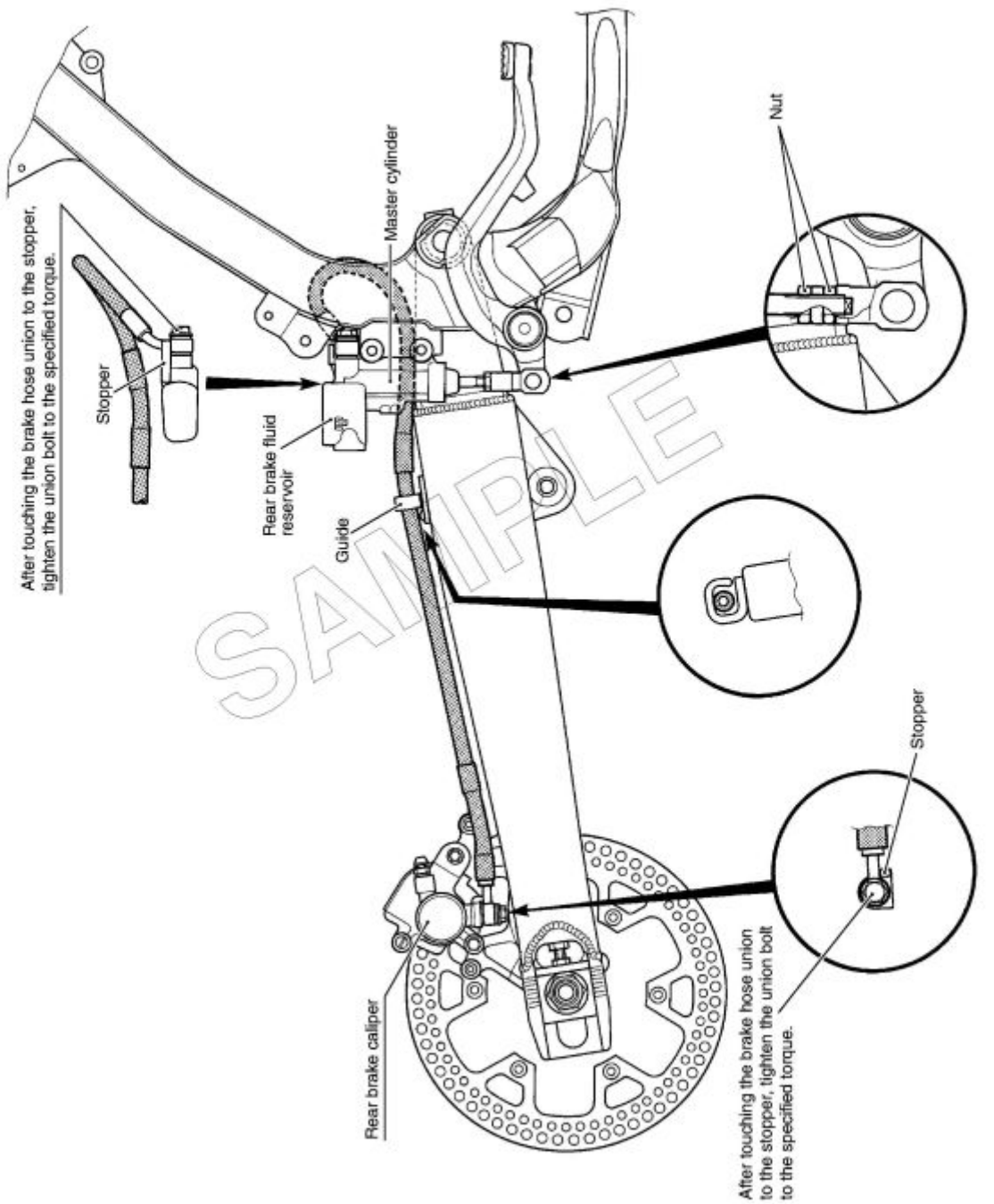


*: Face the clamp....

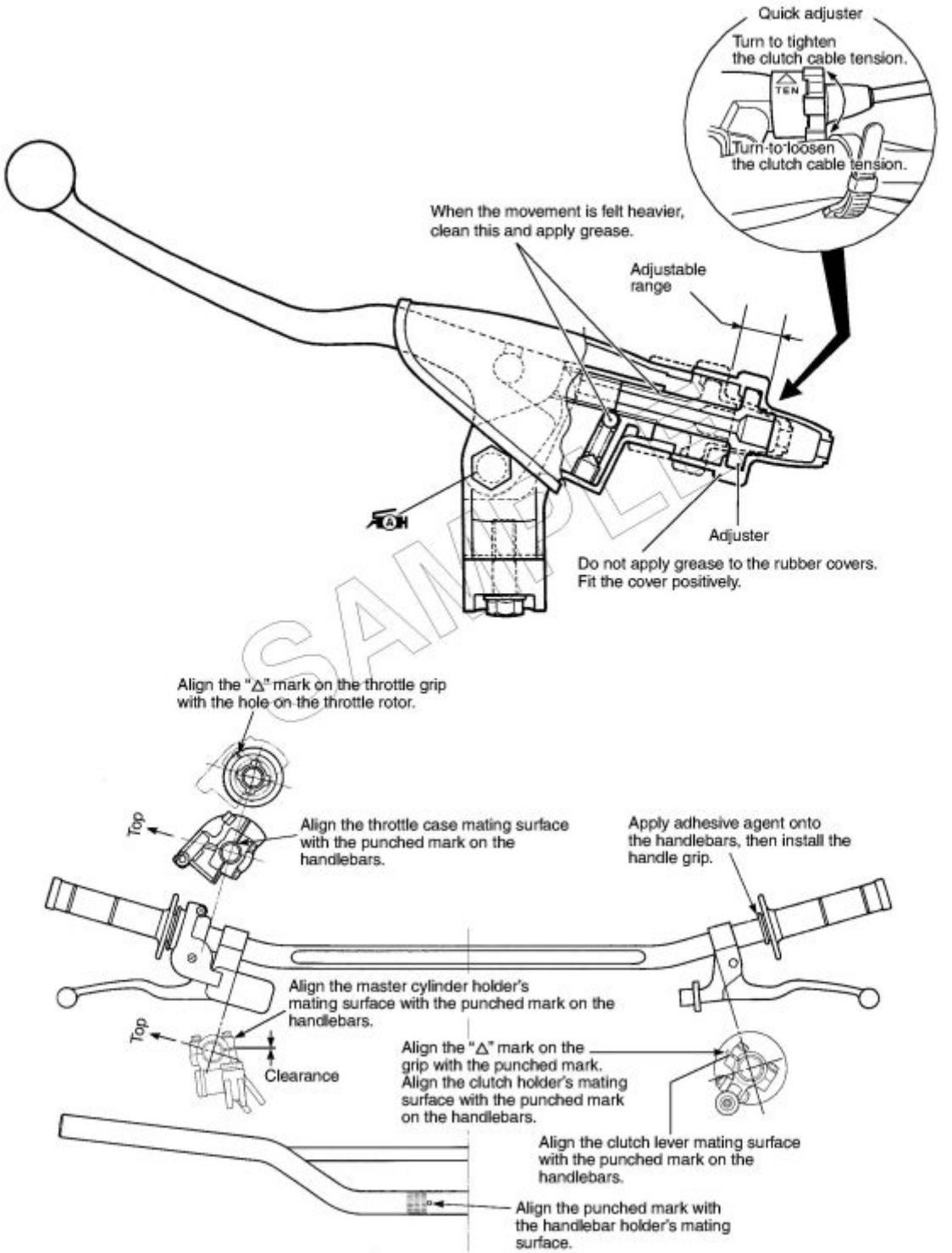
FRONT BRAKE HOSE ROUTING



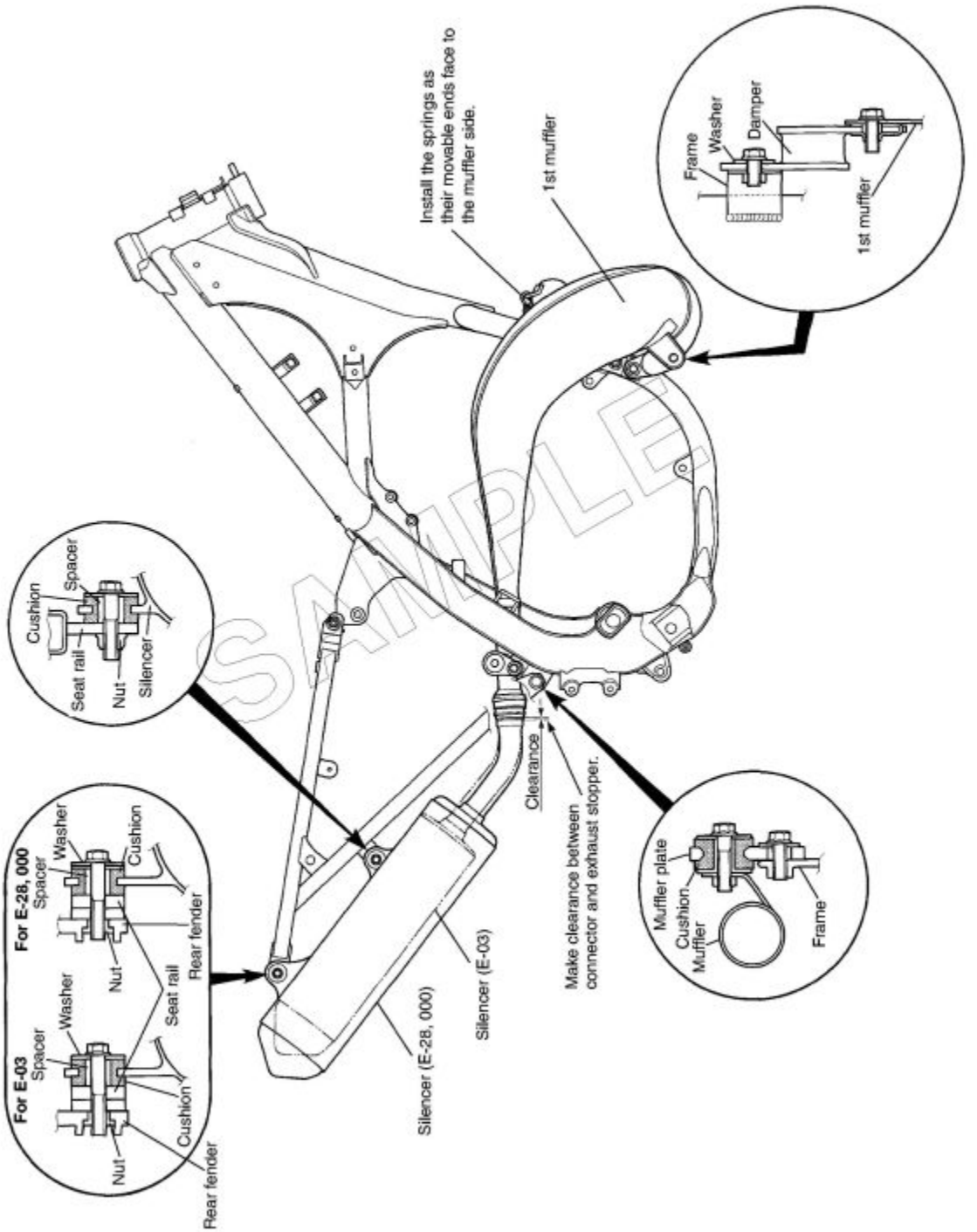
REAR BRAKE HOSE ROUTING



HANDLEBAR SET-UP



MUFFLER SET-UP



SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 175 mm (86.5 in)
Overall width	840 mm (33.1 in)
Overall height	1 280 mm (50.4 in)
Wheelbase	1 470 mm (57.9 in)
Ground clearance	350 mm (13.8 in)
Seat height	950 mm (37.4 in)
Dry mass	96 kg (212 lbs)

ENGINE

Type	Two-stroke, liquid-cooled
Intake system	Piston reed valve
Number of cylinders	1
Bore	66.4 mm (2.614 in)
Stroke	72.0 mm (2.834 in)
Piston displacement	249 cm^3 (15.2 cu. in)
Corrected compression ratio	8.8 : 1 (EX VALVE OPEN) and 10.6 : 1 (EX VALVE CLOSE)
Carburetor	KEIHIN PWK38PWJ/TPS, single
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Fuel/oil premixture of 30 : 1

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction	3.000 (63/21)
Final reduction	3.846 (50/13)
Gear ratios, Low	1.800 (27/15)
2nd	1.470 (25/17)
3rd	1.210 (23/19)
4th	1.000 (21/21)
or 5th	0.869 (20/23)
Drive chain	D.I.D. 520DM, 114 links

CHASSIS

Front suspension	Telescopic, pneumatic/coil spring, oil damped,
Rear suspension	Link type,
Steering angle	45° (right & left)
Caster	27° 30'
Trail	115 mm (4.53 in)
Turning radius	2.3 m (7.5 ft)
Front brake	Disc brake
Rear brake	Disc brake
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	310 mm (12.2 in)

ELECTRICAL

Ignition type	Electronic Ignition (CDI)
Ignition timing	4.5° B.T.D.C. at 1 000 rpm
Spark plug	NGK BR8EG

CAPACITIES

Fuel tank	8.0 L (2.1/1.8 US/Imp gal)
Transmission oil, oil change	750 ml (0.8/0.7 US/Imp qt)
overhaul	850 ml (0.9/0.7 US/Imp qt)
Coolant	1 100 ml (1.2/1.0 US/Imp qt)

SPARE PARTS

ITEM	PART NAME	PART NUMBER	Q'TY
1	O-RING, CYLINDER HEAD NO. 1	11147-37F00	2
2	O-RING, CYLINDER HEAD NO. 2	11148-37F00	2
3	GASKET, CYL COVER, NO. 1	11233-37F20	2
4	GASKET, CYL COVER, NO. 2	11234-37F20	1
5	GASKET, CYL COVER, NO. 3	11238-37F20	1
6	GASKET, CYLINDER	11241-37F20	2
7	GASKET, CRANKCASE	11481-37F20	1
8	GASKET, CLUTCH COVER	11482-37F01	1
9	GASKET, MAGNETO COVER	11483-37E02	1
10	O-RING, CLUTCH COVER OUTER	11484-37E00	1
11	PISTON COMP	12110-37F20-0F0	1
12	RING, PISTON	12141-37F00	4
13	PIN, PISTON	12151-28C00	1
14	O-RING, EXHAUST PIPE	14171-28C30	2
15	LEVER, BRAKE	57310-37F00	1
16	LEVER, CLUTCH	57621-28C00	1
17	BEARING, PISTON PIN	09263-18031	1
18	O-RING, SPROCKET SPACER	09280-20006	2
19	CIRCLIP, PISTON PIN	09381-18002	2

OPTIONAL PARTS

REAR SPROKET

	PARTS No.	NUMBER OF TEETH	COMMENTS
REAR SPROCKET	64511-37E00	48	Replace the drive chain from 114 links to 112 links.
	64511-28E00	49	
	64511-36E00	50	Standard
	64511-40261	51	—

Carburetor: ☞9-3
Front fork spring: ☞15-7
Rear suspension spring: ☞16-5

⚠ WARNING

Failure to follow these safety precautions may increase your risk of injury:

- **Wear a helmet, eye protection, and bright protective clothing.**
- **Don't ride after consuming alcohol or other drugs.**
- **This owner's service manual contains important safety information. Please read it carefully.**

Part No. 99011-37F53-01A
May, 2003 (TK) EN
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