SUZUKI

RM125

OWNER'S SERVICE MANUAL

Part No. 99011-36F56-01A
April, 2006 (TK) EN

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 RM125 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 fluid, and tires.

SUZUKI MOTOR CORPORATION

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.

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 Inspection” section starting on page 2-3.

- **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.

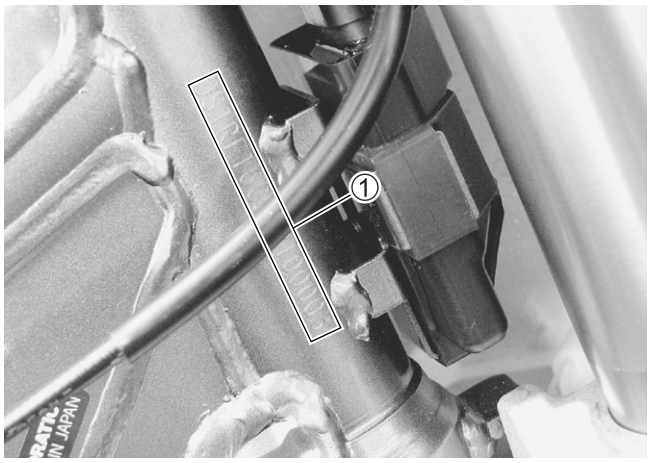
  Safely competing on a motorcycle requires that your mental and physical skills are fully part of the experience. You should not attempt to operate a motor vehicle, especially one with two wheels, if you are tired or under the influence of alcohol or other drugs. Alcohol, illegal drugs, and even some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

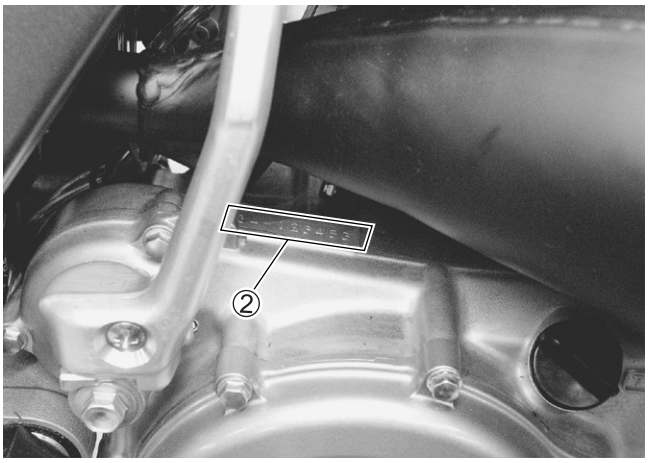
- **Conclusion**
  The actions of other riders are unpredictable. Your motorcyclee’s condition can change. These factors can best be dealt with by giving every ride your full attention.

  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.	

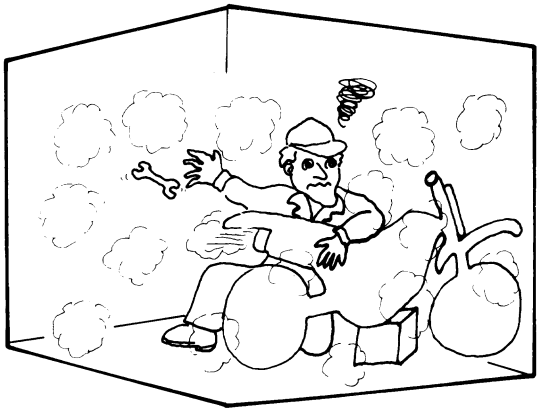
Engine No.	

WARNINGS FOR SERVICING

⚠ WARNING

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

Only run the engine outdoors where there is fresh air.



⚠ WARNING

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

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

⚠ WARNING

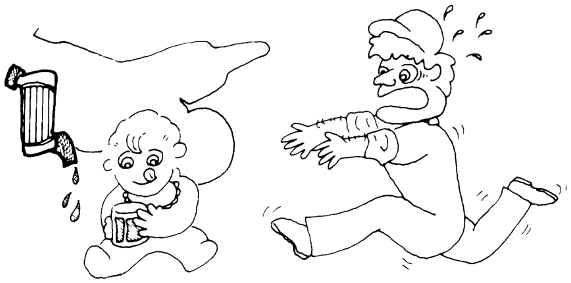
Hot engine and muffler can burn you.

Wait until the engine and muffler cools before servicing.

⚠ WARNING

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

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



⚠ WARNING

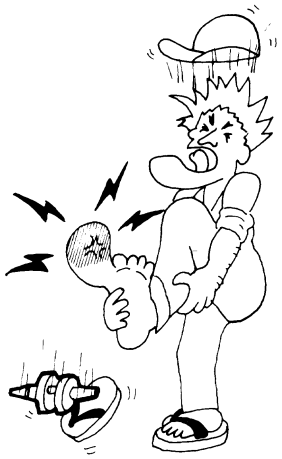
Servicing the machine with engine running can be hazardous. You can be caught in the moving parts such as the drive chain, sprockets etc.

Be sure to stop the engine when servicing the machine.

⚠ WARNING

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

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



PRECAUTIONS FOR SERVICING

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

REPLACEMENT PARTS

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

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

SYMBOL MARKS AND MATERIALS

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.	FORK	Use SUZUKI FORK OIL SS-05 or equivalent fork oil. 99000-99001-SS5
OIL	Apply oil. Use engine oil or transmission oil unless otherwise specified.	RS	Use SUZUKI REAR SUSPENSION OIL SS-25 or equivalent rear suspension oil. 99000-99001-S25
A	Apply SUZUKI SUPER GREASE “A” or equivalent grease. 99000-25010	LLC	Use engine coolant.
S	Apply SUZUKI SILICONE GREASE. 99000-25100	BF	Apply or use brake fluid. (DOT 4)
1207B	Apply SUZUKI BOND “1207B”. 99000-31140	V	Measure in voltage range.
1216B	Apply SUZUKI BOND “1216B”. 99000-31230	Ω	Measure in resistance range.
1303	Apply THREAD LOCK SUPER “1303”. 99000-32030	TOOL	Use special tool.
1322	Apply THREAD LOCK SUPER “1322” or equivalent thread lock. 99000-32110	DATA	Indication of service data.
1342	Apply THREAD LOCK “1342”. 99000-32050		Replace a part with a new one when reassembling.
1360	Apply THREAD LOCK SUPER “1360”. 99000-32130		

GROUP INDEX

GENERAL INFORMATION

1

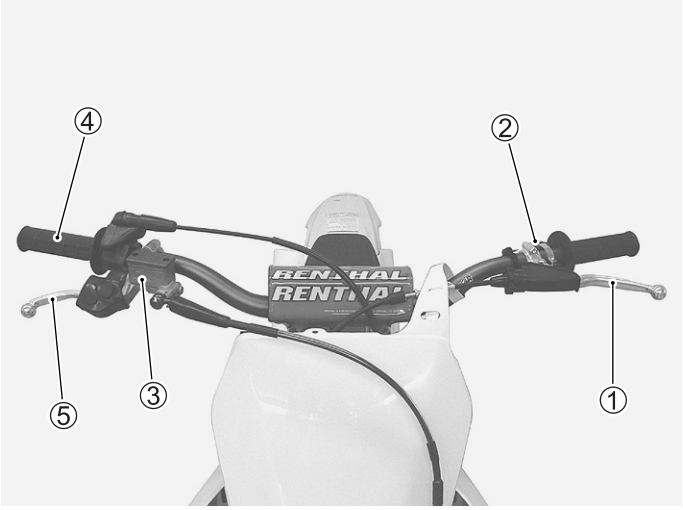
CONTENTS

COUNTRY AND AREA CODES

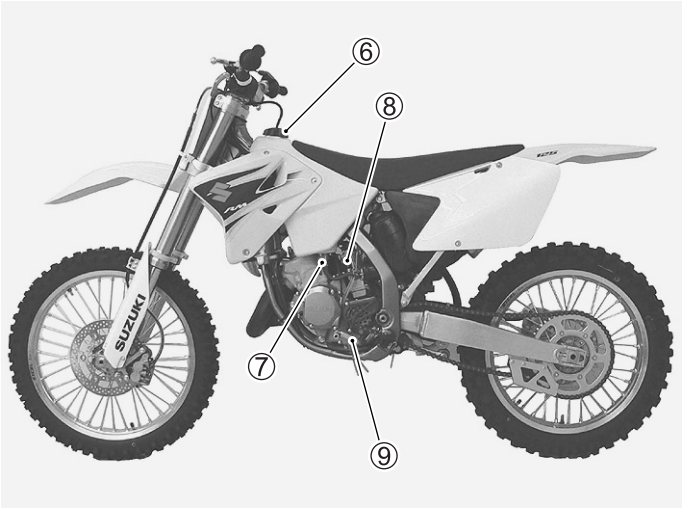
The following codes stand for the applicable country(-ies) and area(-s).

CODE	COUNTRY or AREA	EFFECTIVE FRAME NO.
000	Japan	JS1RF16A000 500001 –
E-03	U. S. A.	JS1RF16C 72 100001 –
E-19	E. U.	JS1RF16A000 500001 –
E-28	Canada	JS1RF16C 72 100001 –

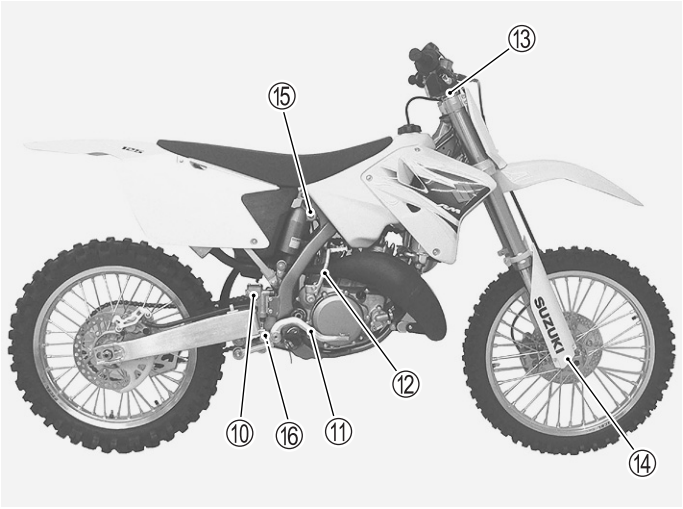
LOCATION OF PARTS



① Clutch lever
② Engine stop switch
③ Front brake fluid reservoir
④ Throttle grip
⑤ Front brake lever

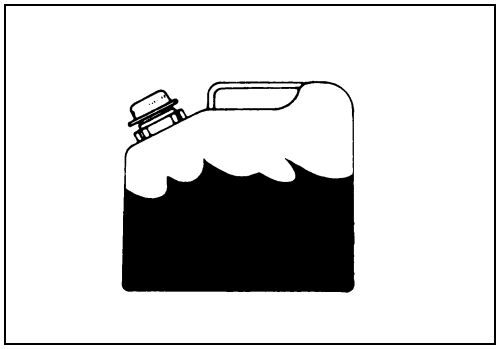


⑥ Fuel tank cap
⑦ Fuel valve
⑧ Carburetor starter knob
⑨ Gearshift lever



⑩ Rear brake fluid reservoir
⑪ Rear brake pedal
⑫ Kick starter lever
⑬ Front suspension compression damping adjuster
⑭ Front suspension rebound damping adjuster
⑮ Rear suspension compression damping adjuster
⑯ Rear suspension rebound damping adjuster

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 method). .....For USA and Canada
Use only unleaded gasoline of at least 95 octane (Research method). .....For other countries.

Engine oil: SUZUKI CCI SUPER 2-CYCLE MOTOR LUBRICANT or equivalent Two Cycle Racing Lubricant
.....For USA
MOTUL 800 2T FACTORY LINE OFF ROAD or equivalent Two Cycle Racing Lubricant
.....For other countries

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.*
* *Insert the end of the breather hose into the steering stem head after refueling.*

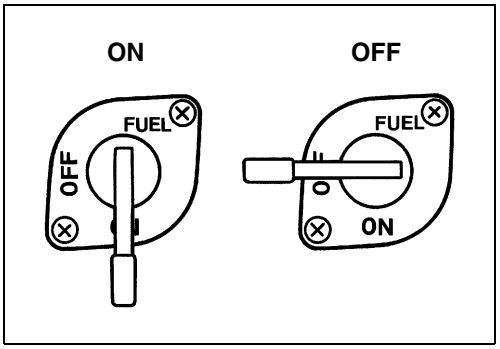
Gasoline (L)	Oil (ml)
5.0	167
10.0	333
15.0	500
20.0	667

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

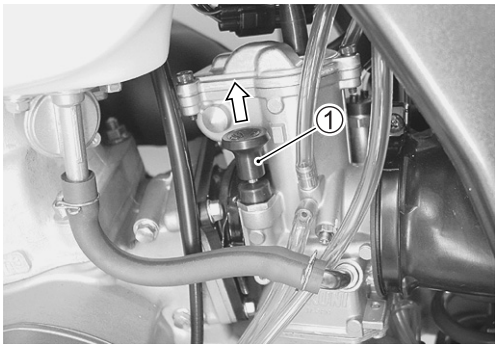
STARTING THE ENGINE



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 starter knob ①.
4) Close the throttle grip completely and depress the kick starter lever forcefully.
5) Return the starter knob when the engine revs at steady speed.

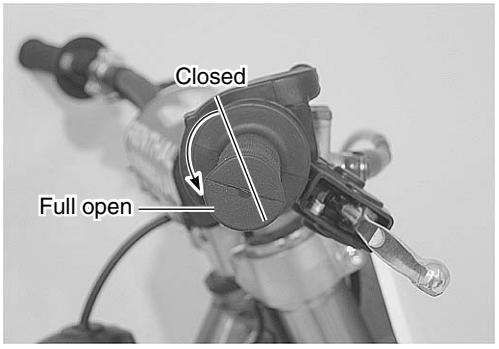


When the engine is warm:

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.



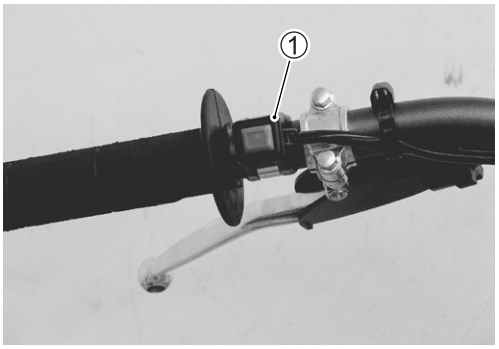
CAUTION

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.

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 ① to stop the engine.



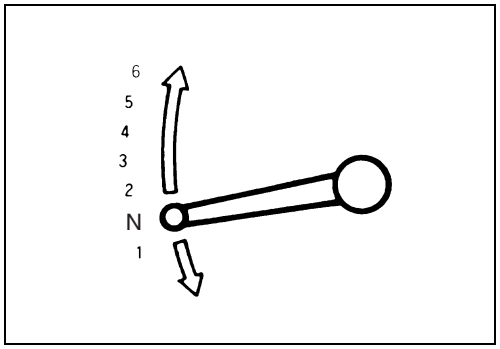
⚠ WARNING

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



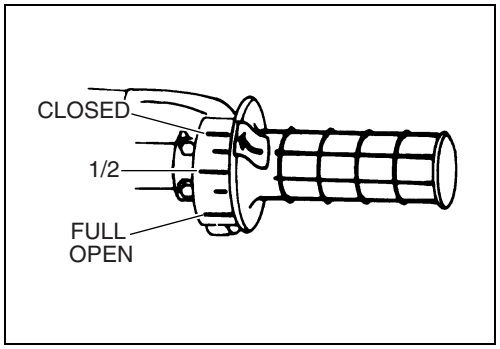
BREAK-IN (RUNNING-IN)

WHEN THE MOTORCYCLE IS NEW

1) Warm up the engine before starting off.
2) Ride for 60 minutes using less than 1/2 throttle opening.
3) Ride for 60 minutes using less than 3/4 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

– MEMO –

PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE
INSPECTION BEFORE PRACTICE

WHAT TO CHECK	CHECK FOR
Spark plug	• Heat range, fouled electrode, tightness • Loose high-tension cord
Air cleaner element	Lubrication
Transmission oil	Oil level
Coolant	Coolant level
Cooling system	• Radiator hose damage • 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 or damage
Tires	Tire pressure
Steering	Smoothness, play
Exhaust pipe	Firm fixation
Bolts and nuts	Tightening torque

INSPECTION BEFORE RACE
(All items of inspection before practice above plus)

WHAT TO CHECK	CHECK FOR
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
Suspension	• Smooth operation • Front fork air pressure

PERIODIC MAINTENANCE CHART

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

Interval / Service Item					Remarks
	races	Every race	Every 3 races	Every 5 races	
	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 cable 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			
Muffler		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

SPARK PLUG

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

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

- Inspect the porcelain tip color.

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

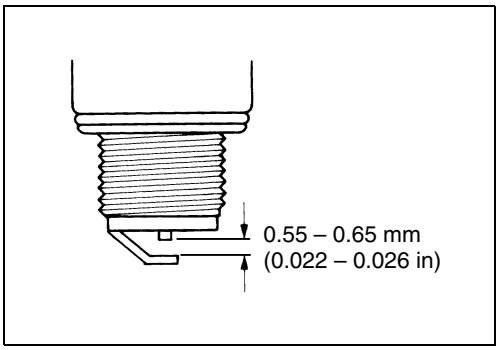
- Clean the spark plug and check the spark plug gap with a thickness gauge.

TOOL 09900-20803: Thickness gauge

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

DATA Standard Spark plug

NGK	R6918B-8



CAUTION

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

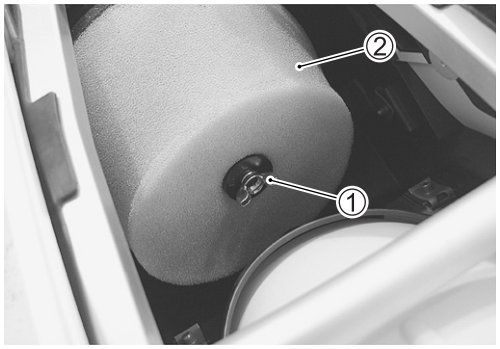
Select the spark plug heat range only after adjusting the ignition timing, carburetor setting and oil/gasoline mixture.

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

Spark plug: 17.5 N·m (1.75 kgf-m, 12.5 lb-ft)

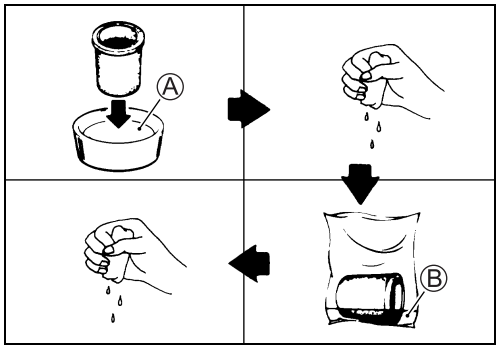
AIR CLEANER

AIR CLEANER ELEMENT REMOVAL



- Remove the seat. (☞5-3)
- Remove the air cleaner box lid. (☞2-8)
- Remove the wing nut ①.
- Remove the element ② from the element holder.

WASHING



- Fill a washing pan large enough to hold the element with a non-flammable cleaning solvent Ⓐ. Immerse the element in the solvent and wash it.

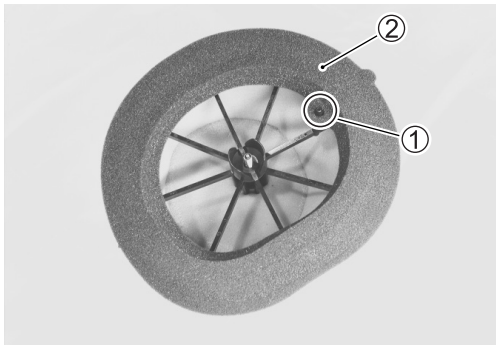
Ⓐ: MOTUL AIR FILTER CLEAN or equivalent cleaning solvent

- 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.

Ⓑ: MOTUL AIR FILTER OIL or equivalent filter oil

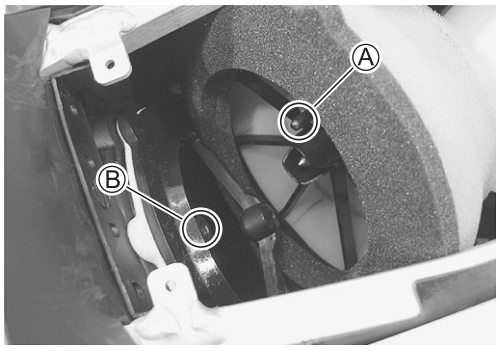
- Squeeze the element to remove excess oil.

INSTALLATION



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

NOTE:
Fit the projection ① of the element holder in the hole of the element base ②.

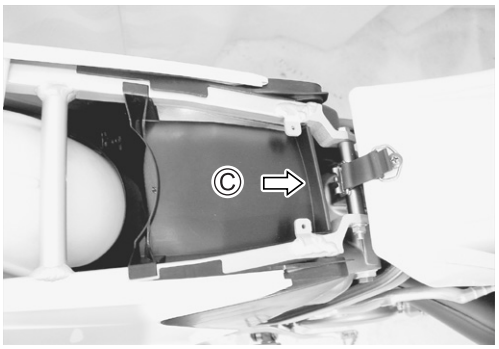


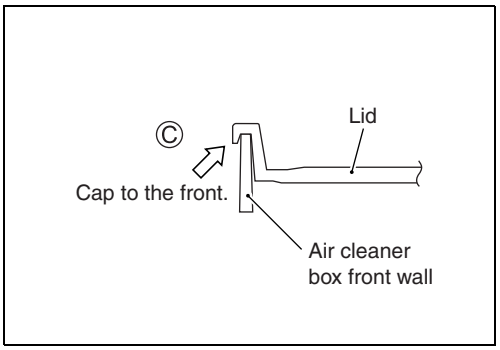
- Install them in the air cleaner box by engaging the projection Ⓐ of the element holder with the hole Ⓑ of the cleaner body.

CAUTION
Improper element installation allows dust and dirt to enter the combustion chamber. It can result in piston and cylinder wear. **Be sure to check the element seals properly after installing the elements.**

• Install the air cleaner box lid properly as shown.

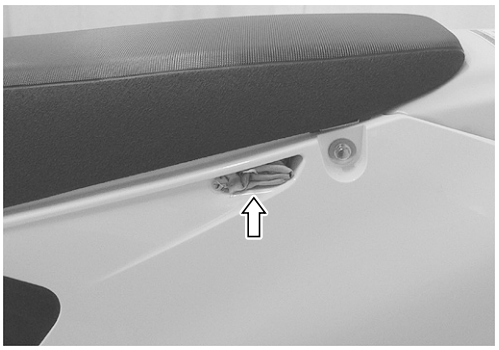
NOTE:
Running the engine without the air cleaner box lid can vary the carburetion. Do not run the engine without the air cleaner box lid.





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

- Cover the element with plastic bag.
- Install the seat.
- Cover the inlet hole on the frame cover in order to prevent water from coming into the air cleaner box.
- Do not spray high pressure water to the air cleaner box.



TRANSMISSION OIL

⚠ WARNING

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

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

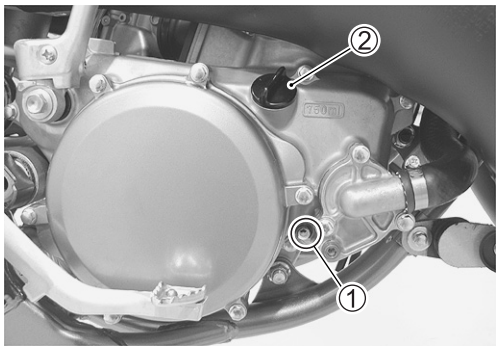
⚠ WARNING

New and used oil and solvent can be hazardous. Children and pets may be harmed by swallowing new or used oil or solvent. Repeated, prolonged contact with used engine oil may cause skin cancer. 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.

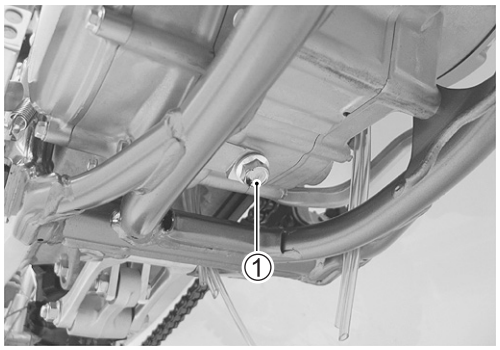
TRANSMISSION OIL LEVEL INSPECTION AND REPLENISHMENT



- Place the motorcycle on level ground and hold the motorcycle vertically.
- Run the engine for a few minutes and stop it. Wait 3 minutes.
- Remove the oil level 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 level bolt firmly and inspect again as above procedure.
- Tighten the filler cap and oil level bolt firmly.

Oil level 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 ①. Drain oil thoroughly.
- Tighten the drain plug firmly.

Oil drain plug: 21 N·m (2.1 kgf-m, 14.5 lb-ft)

- Pour specified amount of motor oil.

DATA Oil change .....750 ml (0.8/0.7 US/Imp qt)
Overhaul .....800 ml (0.8/0.7 US/Imp qt)
Transmission oil type: SAE 10W-40, API SF/SG or SH/SJ with JASO MA

- Tighten the filler cap.
- Run the engine for a few minutes and stop it. Wait a few minutes.
- Inspect the oil level.

ENGINE COOLANT

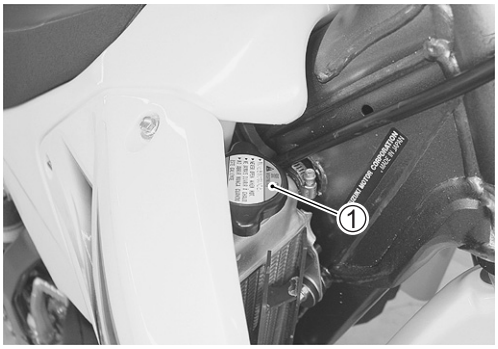
ENGINE COOLANT LEVEL CHECK

⚠ 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 ①.
- 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)

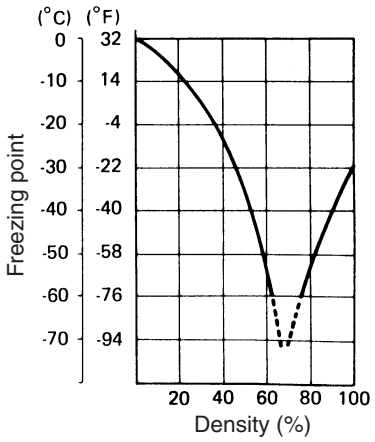


Fig. 1 Engine coolant density-freezing point curve

ENGINE COOLANT REPLENISHMENT

- Use an anti-freeze and Summer engine 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 engine coolant may corrode aluminum alloy and may clog the coolant passageways.

⚠ WARNING

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

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

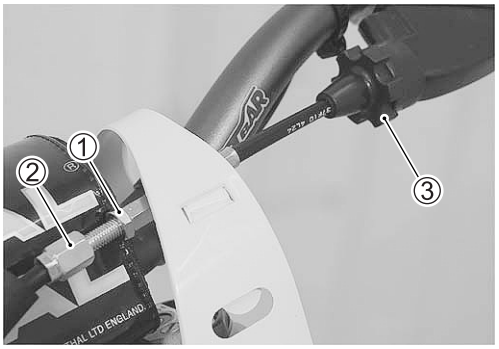
COOLING SYSTEM INSPECTION

Inspect the following items before practice and races.

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

CLUTCH CABLE

Adjust the clutch cable play as follows:



MAJOR ADJUSTMENT

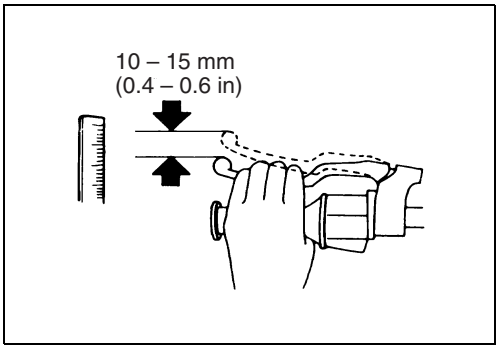
- Loosen lock-nut ①.
- Turn adjuster ② so the clutch lever has 10 – 15 mm (0.4 – 0.6 in) play at the clutch lever end before pressure is felt.
- Tighten lock-nut ①.

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

MINOR ADJUSTMENT

- Turn adjuster ③ so the clutch lever has 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)**

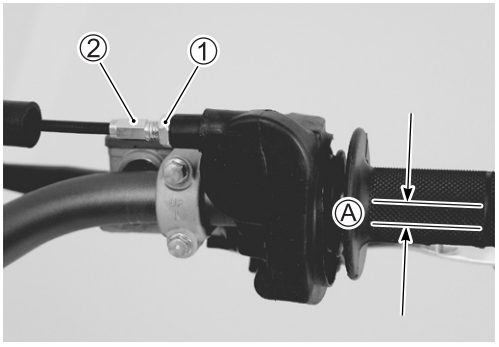


THROTTLE CABLE

⚠ 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.

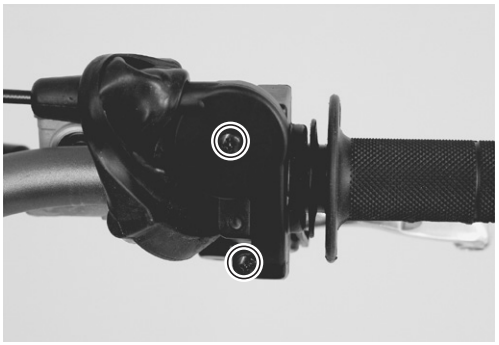


Adjust the throttle cable play as follows:

- Loosen lock-nut ①.
- Turn adjuster ② so the throttle grip has 2.0 – 4.0 mm (0.08 – 0.16 in) play in circumference.
- Tighten lock-nut ①.

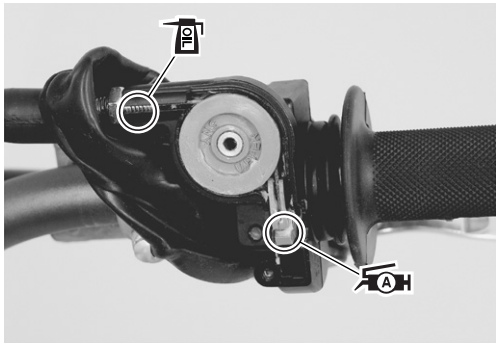
DATA **Throttle cable play Ⓐ: 2.0 – 4.0 mm (0.08 – 0.16 in)**

- Remove the throttle housing cover.



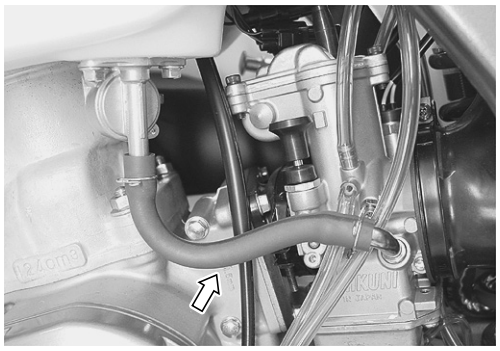
- Apply oil to the throttle cable.
- Apply grease to the throttle cable spool.

99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)



FUEL HOSE

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



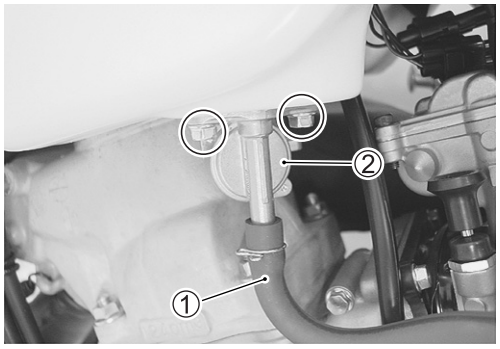
FUEL VALVE

- Drain the fuel.
- Disconnect the fuel hose ① and remove the fuel valve ②.

⚠ WARNING

Gasoline is highly flammable and explosive.

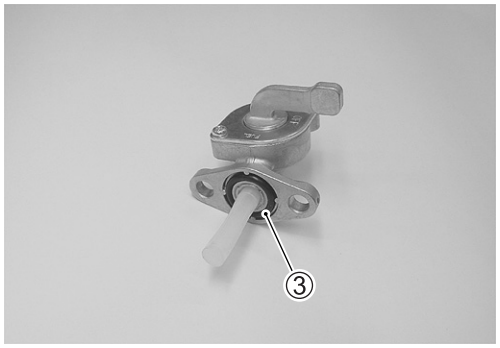
Keep heat, sparks and flames away from gasoline.



- If the fuel filter is dirty with sediment, fuel will not flow smoothly.
- Clean the fuel filter with compressed air.

CAUTION

The O-ring ③ must be replaced with a new one to prevent fuel leakage.



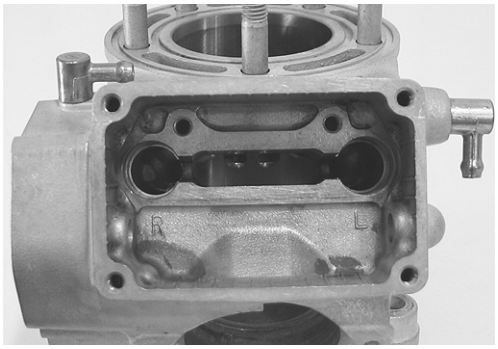
CYLINDER HEAD, CYLINDER AND PISTON

CYLINDER HEAD

- Remove the cylinder head. (☞6-3)
- Remove carbon deposits from the combustion chamber surface.
- Inspect for pinholes, cracks and other damage.

CYLINDER

- Remove the cylinder. (☞6-4)
- Remove carbon deposits from the exhaust port.
- Check for scratches and wear on the cylinder sleeve.



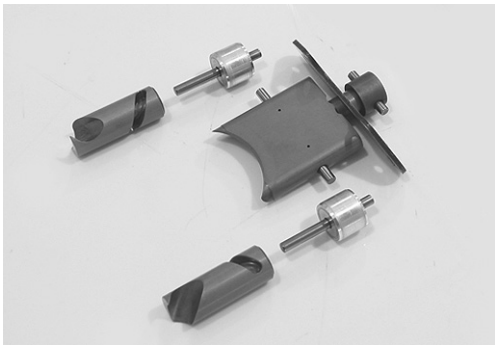
PISTON

- Remove the piston. (☞6-4)
- 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 groove.

EXHAUST VALVE

- Remove the exhaust valve assembly. (☞6-5)
- Remove carbon deposits from the main exhaust valve, side valve, spacer and exhaust valve guide.
- Check for wear and damage.

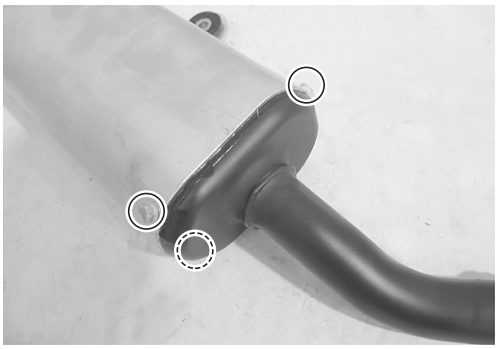
NOTE:
If tar drops from the exhaust valve breather hose when the motorcycle is parked, change engine oil brand because some engine oil can accumulate tar in the exhause valve chamber.



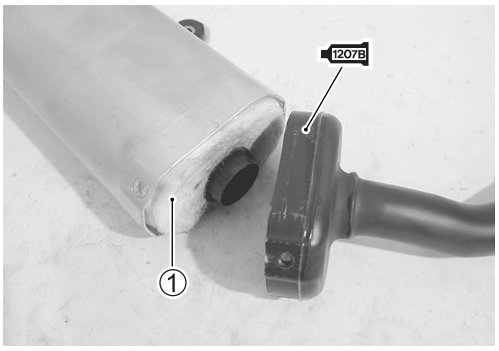
EXHAUST SILENCER

SILENCER INSPECTION AND REPLACEMENT

- Remove the seat and the right frame cover.
- Loosen the silencer mounting bolt and remove the silencer.
- Remove three bolts and extract the black frontal pipe from the aluminum case.



- Inspect the glass wool ① for clogging with carbon deposit or tar.
- Replace the glass wool ① with a new one if necessary.



SILENCER REASSEMBLY

- Fit the glass wool ① and the black frontal pipe to the aluminum case.
- Tighten three bolts.

NOTE:
To seal between the black frontal pipe flange and the aluminum case, apply SUZUKI BOND to the contact area of the flange.

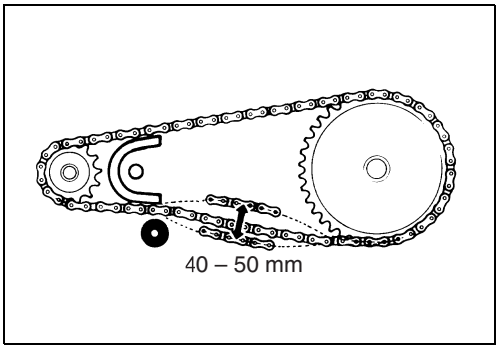
1207B **99000-31140: SUZUKI BOND "1207B"**

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 buffer and rear sprocket.

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

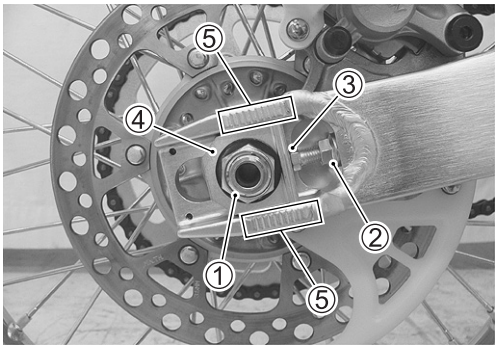


DRIVE CHAIN ADJUSTMENT

- Loosen the axle nut ①.
- Loosen the lock-nuts ② and adjust the drive chain slack to the specification by turning the adjusters ③. Make sure that the right and left adjuster plates ④ are at the same position on scales ⑤.
- With the adjusters ③ held in position, tighten the lock-nuts ②.
- Push the adjuster plates ④ to the adjusters ③ and tighten the axle nut ①.

Axle nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

- Tighten the lock-nuts ②.

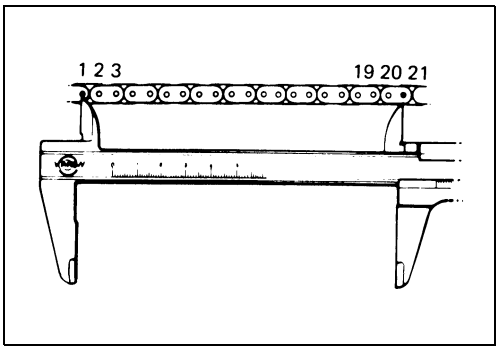


NOTE:
Pull the upper drive chain tight and lock it by placing a bar between the drive chain and rear sprocket while tightening the axle nut. This will help prevent the chain adjusters from loosening.

20TH PITCH LENGTH

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

DATA Service Limit: 323.8 mm (12.7 in)

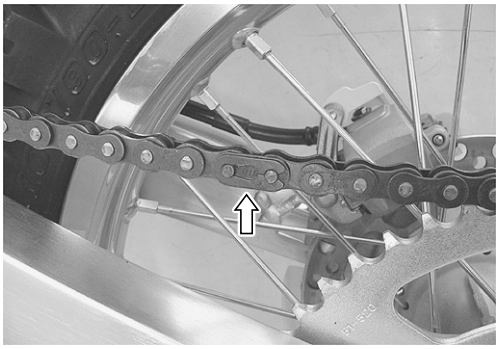


DRIVE CHAIN LUBRICATION

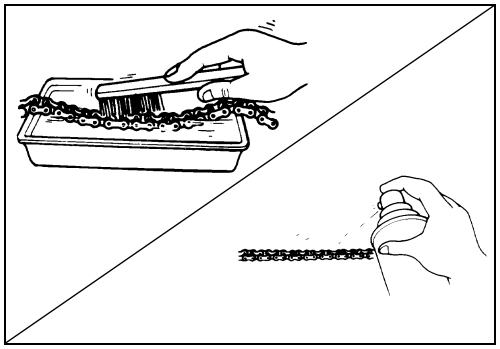
- Remove the chain clip and master link from the drive chain and remove the drive chain.

NOTE:
Be careful not to bend the chain clip.

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



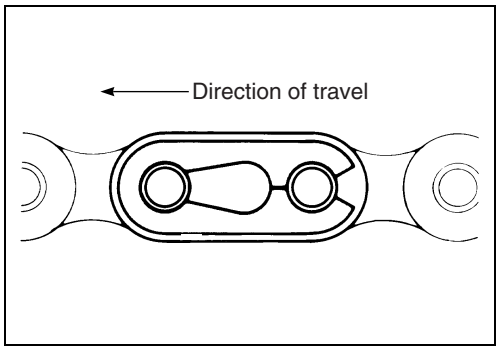
- Clean the drive chain with non-flammable cleaning solvent.
- Do not use gasoline to clean the drive chain.
- Dry the drive chain.
- Apply Suzuki Chain Lube or equivalent to the link plates and rollers.



- Reassemble the drive chain.

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

- Adjust the drive chain slack.



SPROCKET INSPECTION

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

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

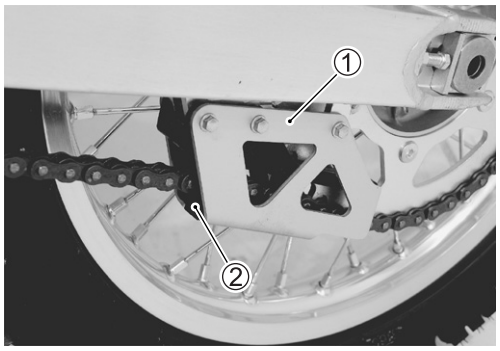
DRIVE CHAIN GUIDE, BUFFER, TENSIONER ROLLER

DRIVE CHAIN GUIDE

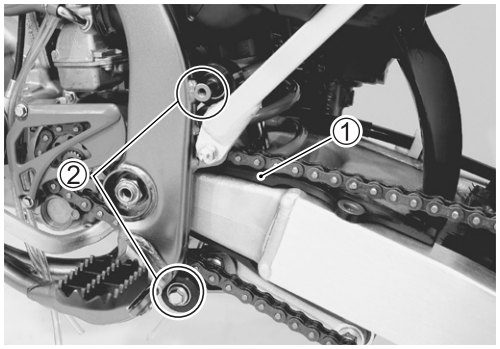
- Inspect the drive chain guide ① for bends and damage.

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

- Inspect the chain guide defense ② for wear.



DRIVE CHAIN GUIDE BUFFER



- Inspect the drive chain guide buffer ① 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.

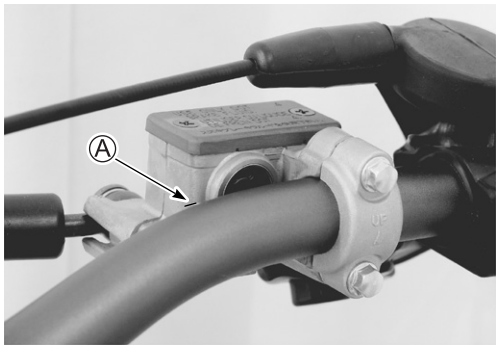
DRIVE CHAIN TENSIONER ROLLER

- Inspect the drive chain tensioner rollers ② for wear.
- Inspect the tensioner roller bolts for tightness.

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

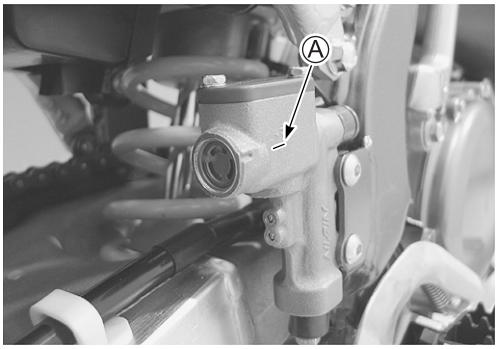
BRAKES

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 DOT 4 brake fluid from a sealed container. Never use or mix different types of brake fluid.

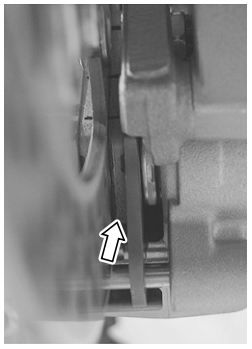
CAUTION

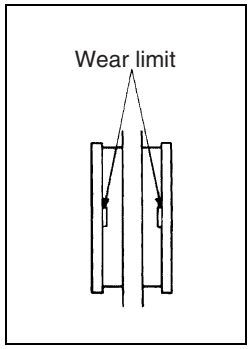
Spilled brake fluid can damage painted surfaces and plastic parts.

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. If the brake pads are worn, replace them with new ones. (☞15-5)

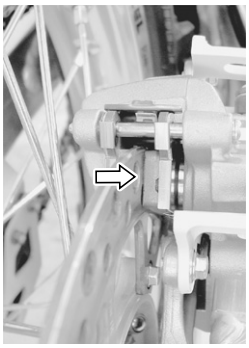


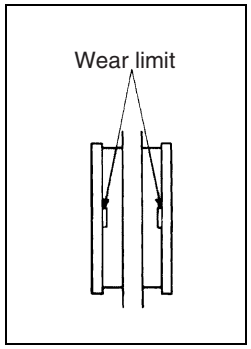


NOTE:

** 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.*



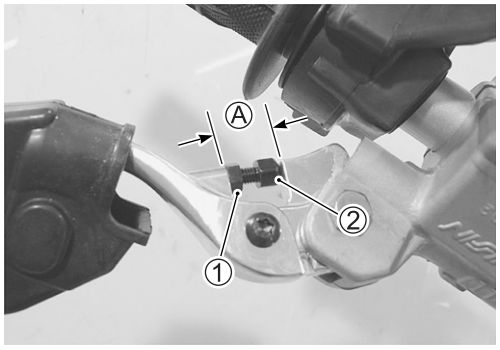


FRONT BRAKE LEVER ADJUSTMENT

Adjust the brake lever position as follows:

- Loosen lock-nut ①.
- Turn in or out adjuster ② to obtain the proper brake lever position.
- The standard adjuster length Ⓐ is from 11 mm to 15 mm.
- Tighten the lock-nut ①.

DATA **Adjuster length Ⓐ: 11 – 15 mm (0.4 – 0.6 in)**

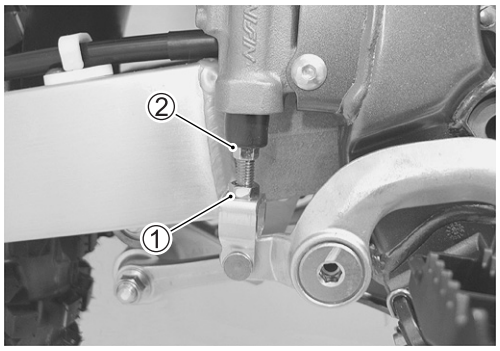


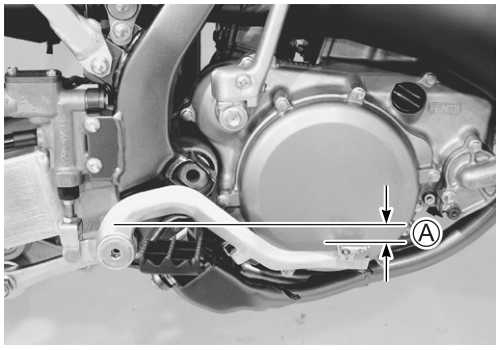
BRAKE PEDAL HEIGHT ADJUSTMENT

Adjust the rear brake pedal height as follows:

- Loosen lock-nut ①.
- Adjust the brake pedal height Ⓐ by turning the adjuster ② to locate the pedal 0 – 10 mm (0 – 0.3 in) below the top face of the footrest.
- Tighten lock-nut ①.

DATA **Brake pedal height Ⓐ: 0 – 10 mm (0 – 0.3 in)**

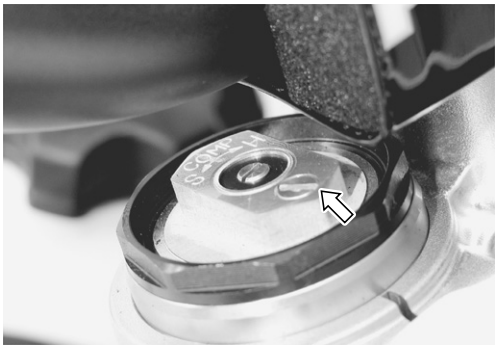




FRONT FORK

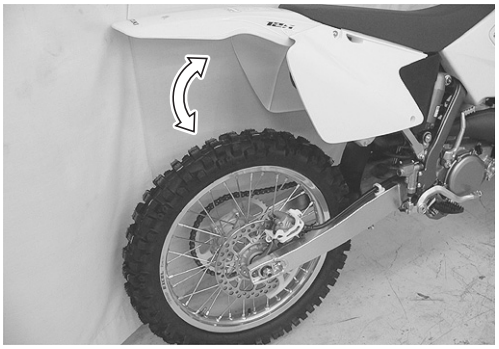
- Move the front fork up and down several times and inspect for smooth movement.
- Inspect for damage and oil leaks.
- Inspect the bolts and nuts for tightness.

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



REAR SUSPENSION

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

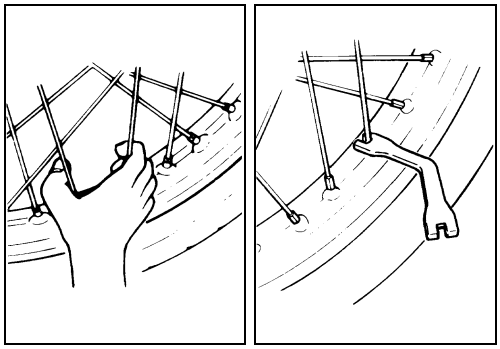


WHEELS AND TIRES

WHEEL RIM

- Inspect the wheel bearing for rattles. Replace the bearings if necessary. (☞14-4, -7)
- Inspect the wheel rim runout. (☞14-4)

SPOKE NIPPLE AND RIM LOCK

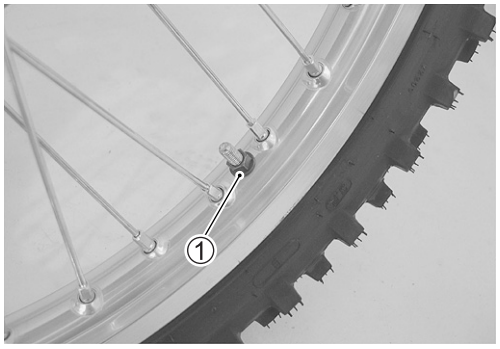


- Inspect the spokes for tension by squeezing the spoke nipples.
- Retighten the spoke nipples with a spoke nipple wrench so as all spokes have same tension.

Spoke nipple: 4 N·m (0.4 kgf-m, 3.0 lb-ft)

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.
Tighten additionally the nipples after breaking-in runnning, until when initial looseness will eliminated.
For additional tightening, take care so that all nipples are tightened uniformly without concentrating force on one point.

- Inspect the rim lock ① for tightness, damage and bend.



TIRE PRESSURE

- Inspect front and rear tire pressure.

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

STEERING

- Inspect the steering by moving the front fork up and down, and right and left. If the steering has play or binds, inspect steering stem head nut tightness and steering bearings. (☞16-20)

LUBRICATION

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

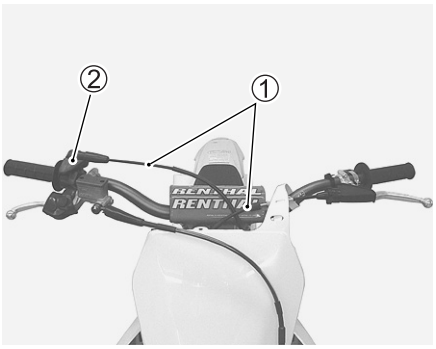
No.	ITEM	LUBRICANT	FREQUENCY	COMMENTS
①	Inner cable ends, lever	A	Pre-race and between every race	Run oil through cables until it exits the lower end. Lube the cable ends where they pivot.
②	Throttle grip, throttle housing, cable	A	Pre-race	Lightly grease the inside of throttle spool. Keep free from 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. Grease the seals.
⑤	Rear suspension linkage pivot points	C	Every 1 race/More often according to conditions	Clean and pack the bearings. Keep seals fresh. Grease the seals.
⑥	Steering stem bearings	C	Every 5 races/More often according to conditions	Clean and pack the bearings. Keep seals fresh.
⑦	Starter shaft	A	Pre-race	Lightly oil the plunger shaft.
⑧	Drive chain	B	Pre-race and between every race	Keep chain thoroughly lubed at all times. Always check wear and alignment.

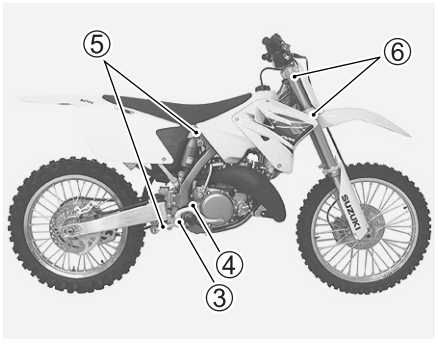
The following materials are necessary:

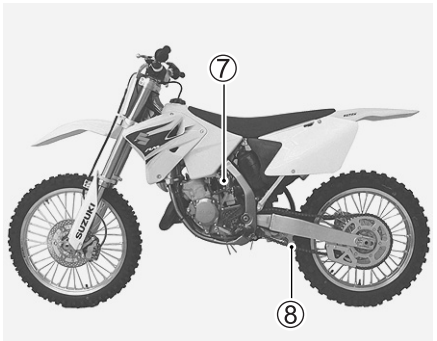
A. Lightweight oil such as WD-40 or penetrating oil.

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.

– MEMO –

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
	Too rich air/fuel mixture in combustion chamber	Scavange
	Incorrect ignition timing	Adjust
	No spark at spark plug	☞13-6
	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
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
	Ignition coil damage	Replace
	Magneto malfunction	Replace
	Magneto short circuit	Replace
Engine runs poorly in high speed range	Narrow spark plug gap	Adjust or replace
	Incorrect carburetor fuel level	Adjust
	Retarded ignition timing	Adjust
	CDI unit malfunction	Replace
	Ignition coil damage	Replace
	Air cleaner element clogged	Clean or replace
	Magneto short circuit	Replace
	Exhaust pipe cracked	Replace
	Exhaust valve malfunction	Clean, adjust or replace
	Piston ring stuck	Replace
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 stop switch malfunction	Repair or replace
Carbon deposits on spark plug porcelain	Too rich air/fuel mixture	Adjust
	Too rich oil/gasoline mixture	Adjust
	Improper spark plug heat range	Replace
Spark plug electrode damage	Improper spark plug heat range	Replace
	Overheating	☞3-4
	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 plates 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
	Stardard spring too soft	* Use optional spring
Hard front suspension	High fork oil level	Adjust
	High fork oil viscosity	Replace
	Damping force maladjustment	Adjust
	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

* Optional stiffer and softer springs are available.

– MEMO –

MACHINE TUNING

CONTENTS

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 MIKUNI carburetor should have their local authorized Suzuki dealer perform these alterations. Mechanically experienced riders can alter the carburetor settings based on the following information and specifications.

Carburetor Specifications

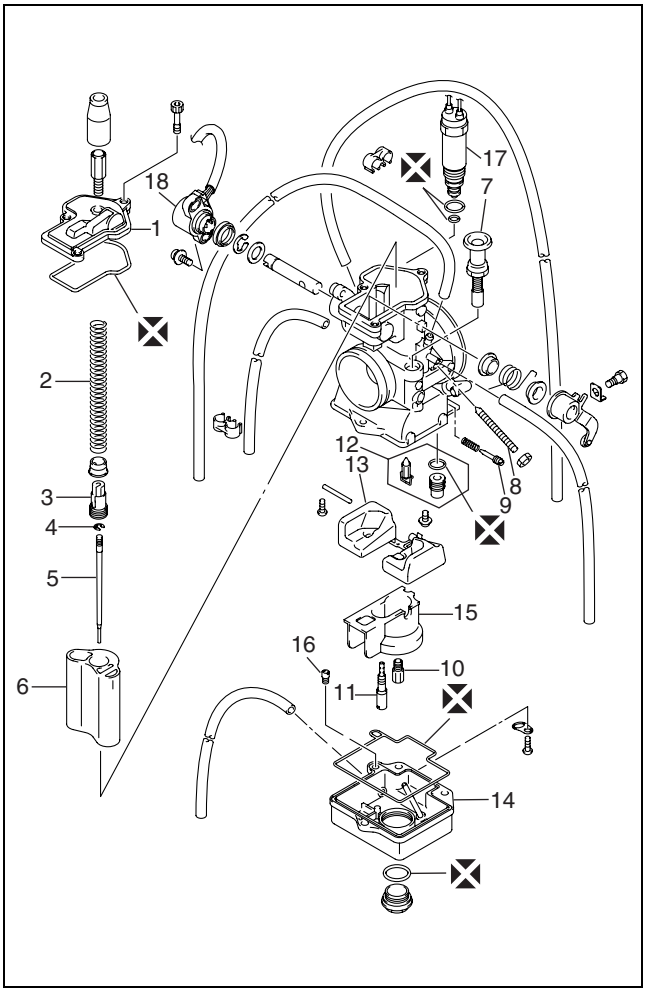
Bore	38 mm (1.5 in)
Main jet	#370
Jet needle	6CHY17-65-3rd
Pilot jet	#42.5
Air screw	2 turns out
Float height	8.7 ± 1.0 mm (0.34 ± 0.04 in)

Setting parts	Parts No.
Main jet #360	09491-72011
Main jet #380	09491-76003
Main jet #390	09491-78005

PRINCIPLES OF CARBURETOR TUNING

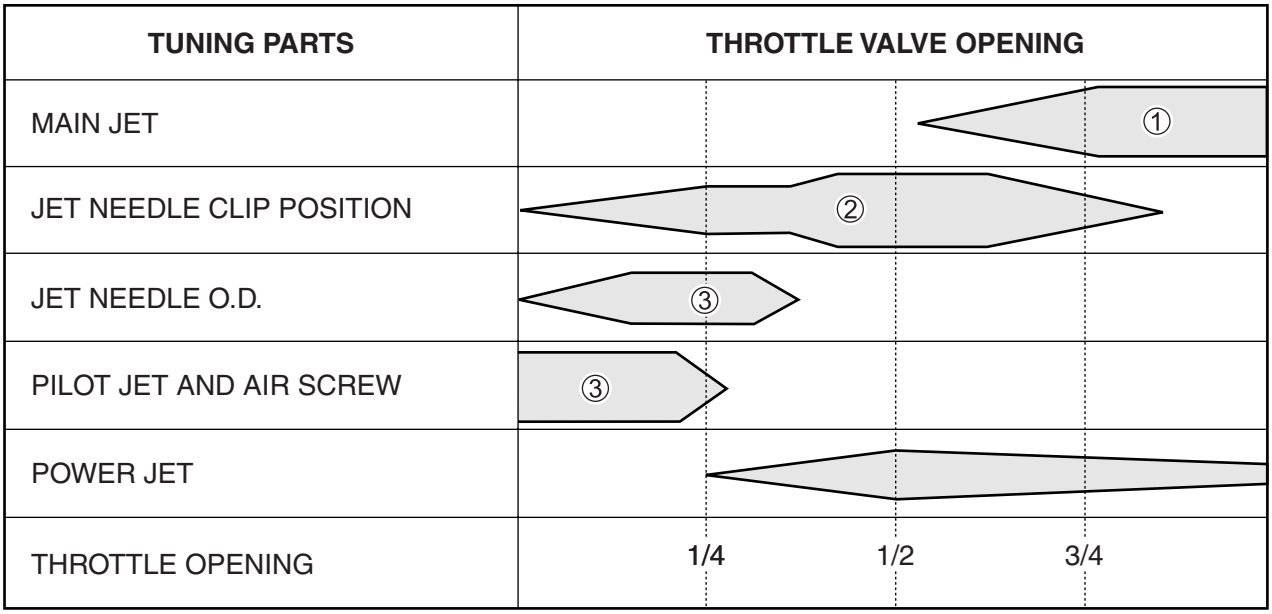
CARBURETOR COMPONENTS AND FUNCTIONS

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. Cable holder
4. * Clip
5. * Jet needle
6. Throttle valve
7. Starter knob
8. Throttle stop screw
9. * Air screw
10. * Main jet
11. * Pilot jet
12. Needle valve ass’y
13. Float
14. Float chamber
15. Holder
16. Power jet
17. Solenoid
18. Throttle position sensor

As shown below, each tuning part 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.



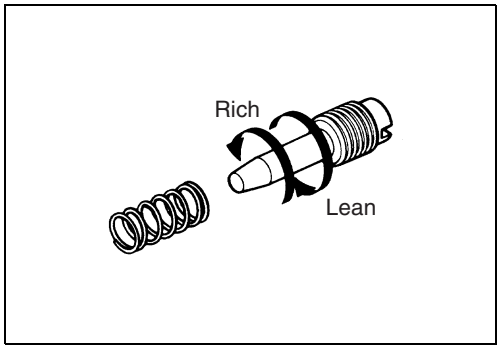
① MAIN SYSTEM ② INTERMEDIATE SYSTEM ③ PILOT SYSTEM

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.

PILOT JET

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

AIR SCREW

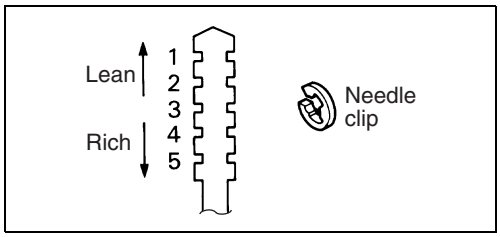


The air screw is located in the inlet air passage and meters the air for the slow system. As it has a right-hand thread, tightening it makes the passage narrower, allowing less amount of intake air to flow and resulting in richer air/fuel mixture. Air flow adjustment is effective within a range of 1/2 – 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 9 000 to 11 000 r/min, the passage is opened by solenoid valve. The solenoid valve opens the passage when the current not 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 4th groove. The lower groove the clip is moved to, the higher the jet needle rises and the larger the clearance with the needle jet becomes, resulting in a richer air/fuel mixture ratio.

The needle clip position can be changed by half to fine-tune the setting as following manner.

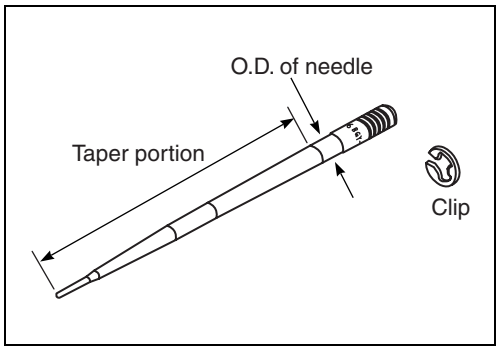
- Replace the cable holder with the included holder and included red washer.
  The two holders are different in color. The standard holder is gray. The included holder is yellow. The included holder and red washer must be installed as a set.
- Change the red washer location from over the needle clip to under the needle clip. This change will move the needle position by half to the richer side. The original position of red washer is over the needle clip.

By replacing the jet needle with the optional one, it is possible to perform the same setting as describing above. Change the jet needle from 6CHY17 type to 6CHY16 type. This change will move the needle position by half to the richer side. 6CHY16 type jet needles are available as optional parts.

For example, “6CHY17-65-3rd” with the red washer installed under the needle clip is the same setting as “6CHY16-65-3rd”.

	Needle type and clip position
Lean	6CHY17-65-2nd
↕	6CHY16-65-2nd
	6CHY17-65-3rd
	6CHY16-65-3rd
	6CHY17-65-4th
Rich	6CHY16-65-4th

JET NEEDLE



NEEDLE NUMBER

6CHY17-65-3rd

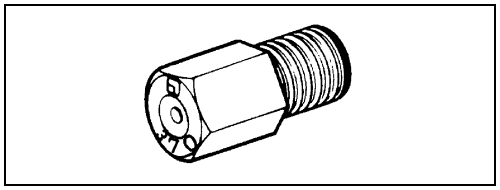
O.D. 2.65 mm

Changing the needle itself controls air/fuel mixture ratio particulary on lower mid-throttle opening. (Size 65 indicates that O.D. is 2.65 mm) The smaller the O.D., the richer the air/fuel mixture becomes.

EX.

Needle Number	O.D.
6CHY17-66	2.66 mm
6CHY16-66	
6CHY17-65	2.65 mm
6CHY16-65	
6CHY17-64	2.64 mm
6CHY16-64	
6CHY17-63	2.63 mm
6CHY16-63	
6CHY17-62	2.62 mm
6CHY16-62	
6CHY17-61	2.61 mm
6CHY16-61	
6CHY17-60	2.60 mm
6CHY16-60	

MAIN JET

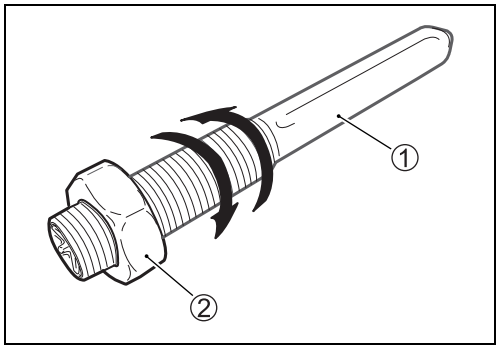


The main jet, like the pilot jet, meters fuel flow. Each jet size is indicated by a number. Larger number means a larger bore diameter and fitting a larger number main jet enriches the air/fuel mixture.

THROTTLE STOP SCREW

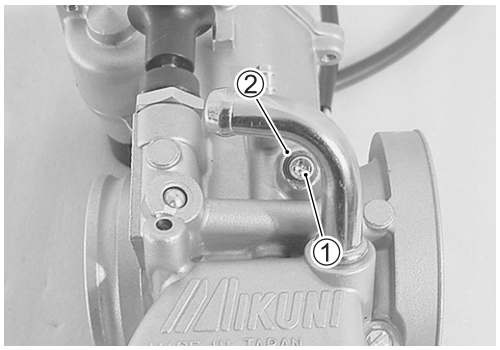
The throttle stop screw determines the full close position of the throttle valve and should be adjusted in the following procedures.

- Loosen the throttle stop screw lock-nut.
- Adjust the throttle stop screw as follows:
  * Turn in (to raise the throttle valve).
  * Turn out (to lower the throttle valve).
- With the throttle stop screw held immovable, tighten the lock-nut to lock the screw.



① Throttle stop screw
② Lock-nut

NOTE:
Opening the throttle valve slightly by adjusting the throttle stop screw may often improve hesitation problem due to lack of mixture on returning the throttle.
If engine idling is desired, turn in the throttle stop screw to raise the throttle valve in the above procedures.



DATA Throttle valve opening position

Standard	After touching the throttle stop screw to the throttle valve, turn in the stop screw 1/4 – 3/4 turn to raise the throttle valve.

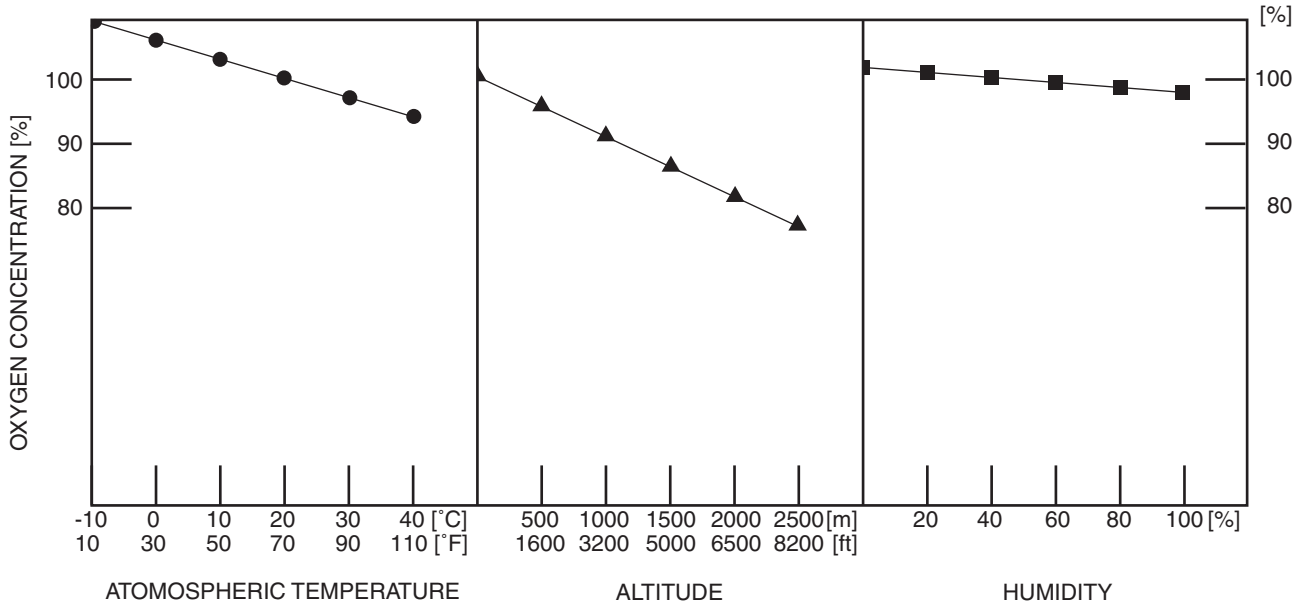
CAUTION
Too high an engine idle may cause driveability failure such as lack of engine braking and poor deceleration during brake application.

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 (32 °F) to 40 °C (104 °F) temperature difference, the one in the center shows about 20 % change in the 0 to 2 000 m (6 562 ft) 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 bypass 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 bypass 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: #370
Jet needle: 6CHY17-65-3rd
Pilot jet: #42.5
Air screw: 2 turns out

INCLUDED PARTS AND OPTIONAL PARTS

Main jet

Air/fuel mixture	SIZE	P/NO
Lean	#300	09491-60007
	#310	09491-62005
	#320	09491-64002
	#330	09491-66002
	#340	09491-68002
	#350	09491-70011
	* #360	09491-72011
	#370	09491-74003
	* #380	09491-76003
	* #390	09491-78005
	#400	09491-80010
	#410	09491-82007
	#420	09491-84008
	#430	09491-86002
	#440	09491-88001
	#450	09491-90005
	#460	09491-92002
	#470	09491-94004
	#480	09491-96001
	#490	09491-98001
Rich	#500	09491-10001

Pilot jet

Air/fuel mixture	SIZE	P/NO
Lean	#25	09492-25011
	#27.5	09492-27011
	#30	09492-30014
	#32.5	09492-32010
	#35	09492-35021
	#37.5	09492-37003
	#40	09492-40028
	#42.5	09492-42023
	#45	09492-45034
	#47.5	09492-47022
Rich	#50	09492-50024

Cable holder and washer

ITEM	P/NO	Color
Cable holder	* 13518-36F20	Yellow
Washer	* 13394-36F20	Red

The cable holder and washer must be used as a set.

Jet needle

Air/fuel mixture	SIZE	P/NO
Lean	6CHY17-66	13381-36F60
	6CHY16-66	13381-36F50
	6CHY17-65	13381-36F40
	6CHY16-65	13381-36F30
	6CHY17-64	13383-36FM0
	6CHY16-64	13383-36FL0
	6CHY17-63	13383-36FP0
	6CHY16-63	13383-36FN0
	6CHY17-62	13383-36FR0
	6CHY16-62	13383-36FQ0
	6CHY17-61	13381-36F00
	6CHY16-61	13383-36FS0
	6CHY17-60	13381-36F20
Rich	6CHY16-60	13381-36F10

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

① Adjustment of pilot system

1) Set the air screw as specified.
2) See if the selected pilot 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. Pilot jet #42.5
If air/fuel mixture is rich, replace it with #40 pilot jet. If air/fuel mixture is lean, replace it with #45 slow jet.

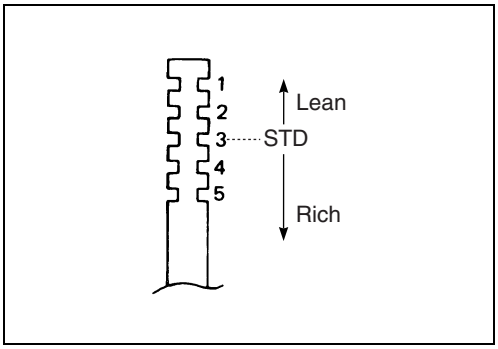
② Adjustment of main system

With the throttle opened 3/4 to full, make main system adjustment monitoring the air/fuel mixture condition after completion of pilot system settings.

* Make sure to adjust the main system before adjusting the intermediate system.

Ex. Main jet #370
If air/fuel mixture is rich, replace it with #360 main jet. If air/fuel mixture is lean, replace it with #380 main jet.

③ Adjustment of intermediate system

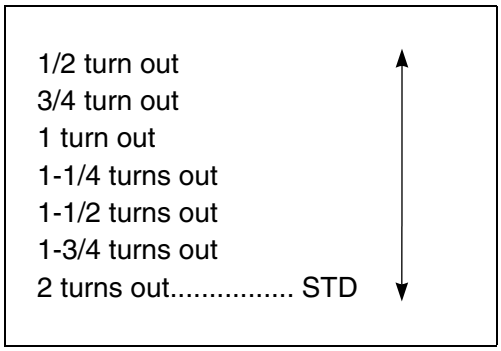


Monitor the air/fuel mixture condition and adjust the intermediate system by changing the needle clip position or cable holder. (☞4-4)

④ Fine adjustment of slow system

After a proper setting has been obtained by the procedure ① through ③, 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 pilot system ①.

⑤ Fine adjustment of intermediate system

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

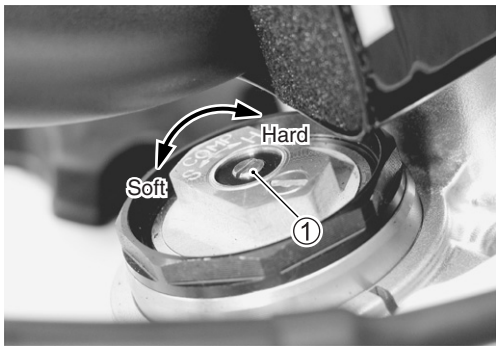
FRONT FORK TUNING

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. (☞2-20)*
  ** Spoke nipple tension and rim lock tightness. (☞2-21)*
  ** Steering movement. (☞2-22)*

COMPRESSION DAMPING FORCE ADJUSTMENT



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

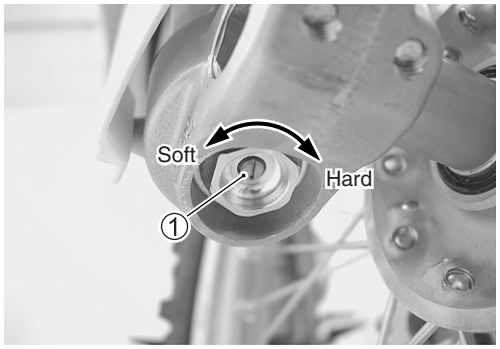
NOTE:

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 11th clicks is the standard position.

DATA Compression damping force adjuster
Standard setting: 11 clicks turn back

REBOUND DAMPING FORCE ADJUSTMENT



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

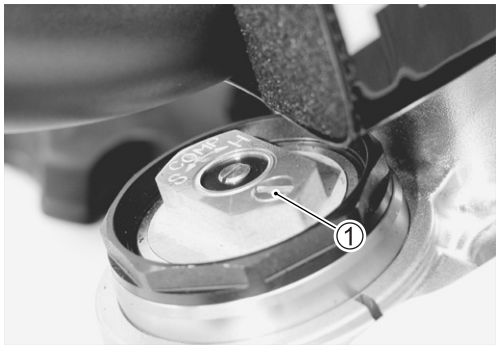
NOTE:

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 10th clicks is the standard position.

DATA Rebound damping force adjuster
Standard setting: 10 clicks turn back

OIL QUANTITY MINOR ADJUSTMENT

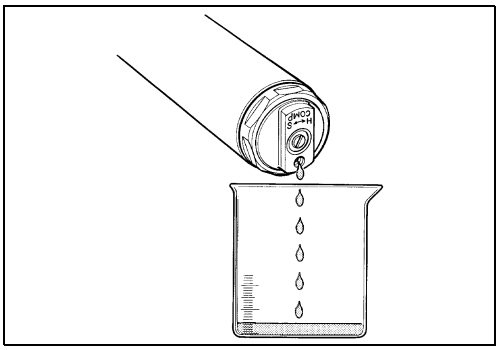


ADDING THE FORK OIL

- 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. (☞16-4)
- Remove the air bleed screw.
- Leaning the front fork, reduce the fork oil from the air bleed hole.



NOTE:
If 1 ml (0.34/0.35 US/Imp oz) of fork oil is added/reduced, the oil level raises/falls approx. 1.8 mm (0.07 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: 357 ml (12.07 / 12.57 US/Imp oz)
Oil quantity adjustable range:
314 – 408 ml (10.61/11.06 – 13.79/14.37 US/Imp oz)

FORK **99000-99001-SS5: SUZUKI FORK OIL SS-05**
(or equivalent fork oil)

OIL CHANGE
(Only for outer tube oil chamber)

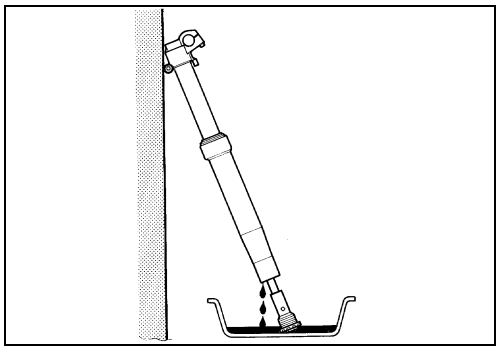
- Remove the front forks. (☞16-4)
- Thoroughly clean the fork before disassembly.

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.**

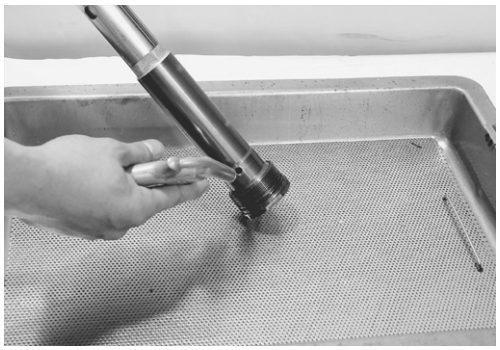
- Clamp the outer tube with a vise. Protect the outer tube with a rag when using a vise. (☞16-5)
- Loosen and remove the fork cap bolt (sub-tank) from the outer tube and slowly slide down the outer tube. (☞16-5)

TOOL **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.

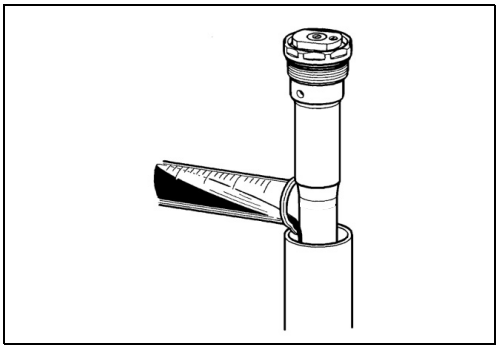


- Force out the remaining oil using compressed air completely.



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

FORK 99000-99001-SS5: SUZUKI FORK OIL SS-05 (or equivalent fork oil)



	Parts No.	Spring rate	Identification (Slit mark on the spring end)	STD Oil quantity	Oil quantity adjustable range
Soft	51171-36F60	4.0 N/mm (0.40 kgf/mm)	None	354 ml (11.97/12.46 US/Imp oz)	311 – 405 ml (10.51/10.95 – 13.69/14.26 US/Imp oz)
STD	51171-37FD0	4.2 N/mm (0.42 kgf/mm)	**I**	357 ml (12.07/12.57 US/Imp oz)	314 – 408 ml (10.61/11.06 – 13.79/14.37 US/Imp oz)
Hard	51171-37FC0	4.4 N/mm (0.44 kgf/mm)	**III**	352 ml (11.90/12.39 US/Imp oz)	309 – 403 ml (10.44/10.88 – 13.62/14.19 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). (☞16-16)

TOOL 09941-53630: Front fork top cap wrench

- Install the front forks. (☞16-17)
- Install the handlebars. (☞16-22)

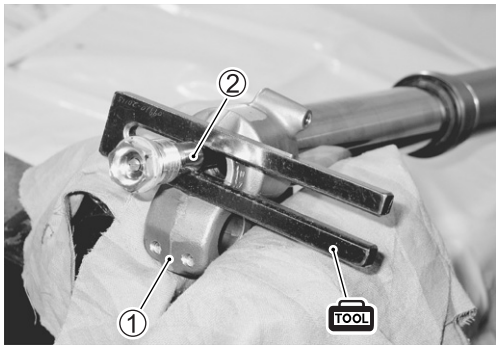
SPRING CHANGE

- Remove the front forks. (☞16-4)
- Thoroughly clean the fork before disassembly.

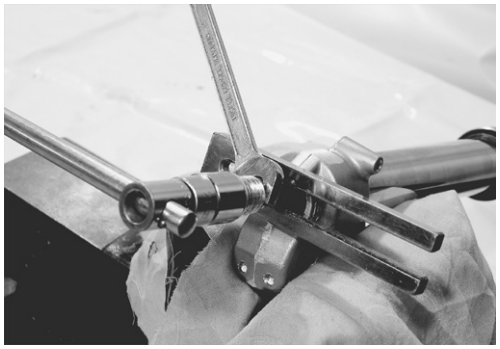
CAUTION
The fork oil quantity must be adjusted equally on both fork legs to provide equal performance. **Scratches or other damage the on inner tube or on the oil seal lip will cause oil leak.** **Avoid scratching or damaging the inner tube or the oil seal. Use a mild detergent or car wash soap and sponge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

- Remove the fork cap bolt and drain fork oil. (☞16-5)
- Loosen the center bolt completely. (☞16-6)
- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder bottom ① and lock-nut ②. (☞16-6)

TOOL **09910-20115: Conrod holder**



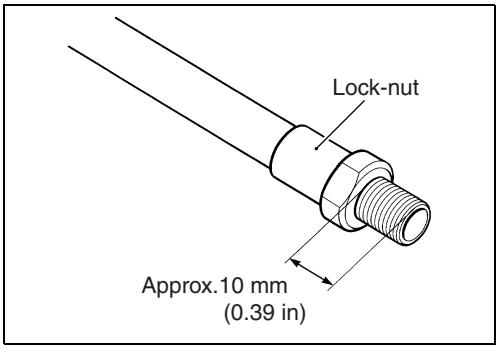
- Hold the lock-nut with a wrench and remove the center bolt. (☞16-6)
- Remove the push rod. (☞16-6)
- Remove the damper rod assembly and fork spring. (☞16-7)
- Hold the front fork inverted position for more than 20 minutes the allow the fork oil to fully drain. (☞4-11)
- Force out the remaining oil using compressed air completely. (☞4-11)



- Replace the spring.

	SPRING/No.	SPRING RATE	Identification (Slit mark on the spring end)
Soft	51171-36F60	4.0 N/mm (0.40 kgf/mm)	None
STD	51171-37FD0	4.2 N/mm (0.42 kgf/mm)	**I**
Hard	51171-37FC0	4.4 N/mm (0.44 kgf/mm)	**III**

- Make sure approx. 10 mm (0.39 in) of inner rod thread is exposed on the end. (☞16-14)



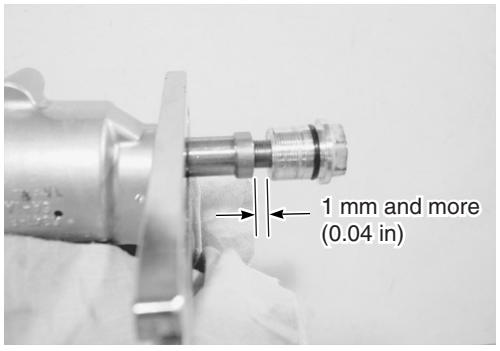
- Install the damper rod assembly. (☞16-14)
- Insert the push rod into the inner rod.
- Insert the ▨ shaped projection of center bolt into the push rod. (☞16-15)

- Check or adjust the clearance between the lock-nut and center bolt to provide 1 mm (0.04 in) and more. (☞16-15)
- Tighten the lock-nut/center bolt to the specified torque.

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

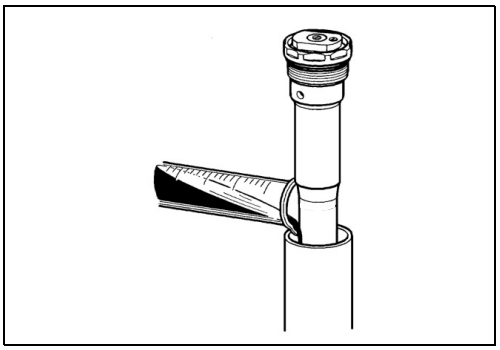
- Tighten the center bolt to the specified torque.

Center bolt: 70 N·m (7.0 kgf-m, 50.5 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
Soft	51171-36F60	354 ml (11.97/12.46 US/Imp oz)	311 – 405 ml (10.51/10.95 – 13.69/14.26 US/Imp oz)
STD	51171-37FD0	357 ml (12.07/12.57 US/Imp oz)	314 – 408 ml (10.61/11.06 – 13.79/14.37 US/Imp oz)
Hard	51171-37FC0	352 ml (11.90/12.39 US/Imp oz)	309 – 403 ml (10.44/10.88 – 13.62/14.19 US/Imp oz)



FORK 99000-99001-SS5: SUZUKI FORK OIL SS-05 (or equivalent fork oil)

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 settting. 2. Increase fork oil capacity.
Feels too hard in the beginning of stroke	• Jump • Large bump • Series of medium bumps • Series of small bumps	1. Adjust the compression damping to a softer setting.
Feels too soft and unstable	• Series of medium bumps • Series of small bumps	1. Adjust the rebound damping to a stiffer setting.
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 1 ml (0.034/0.035 US/Imp oz) [Approx. 1.8 mm (0.07 in)] at a time.
When adjusting the damping setting, attempt turning the adjuster 1 to 2 click stops at a time for each adjustment.

REAR SUSPENSION 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. (☞1-5)*

** Inspect the following items before attempting adjustment.*

** Rear shock absorber damage and oil leakage. (☞2-20)*

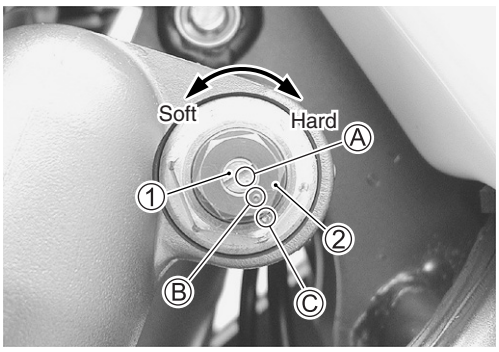
** Swingarm and links tightness. (☞2-20)*

** Tire pressure. (☞2-21)*

** Tire and wheel damage. (☞2-20)*

** Spoke nipple tension and rim lock tightness. (☞2-21)*

COMPRESSION DAMPING FORCE ADJUSTMENT



NOTE:

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

Low-side

- Turn the adjuster screw ① clockwise until it stops (full hard position).
- Turn the adjuster screw ① counterclockwise about 10th clicks where the punch mark Ⓐ aligns with Ⓒ.

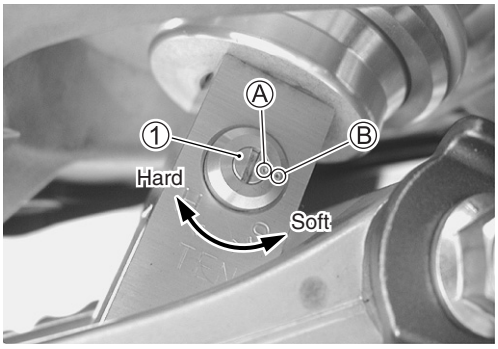
DATA Standard setting: (Lo-side) 10 clicks turn back

High-side

- Turn the adjuster bolt ② clockwise until it stops (full hard position).
- Turn the adjuster bolt ② counterclockwise about 2 turns where the punch mark Ⓑ aligns with Ⓒ.

DATA Standard setting: (Hi-side) 2 turns out

REBOUND DAMPING FORCE ADJUSTMENT



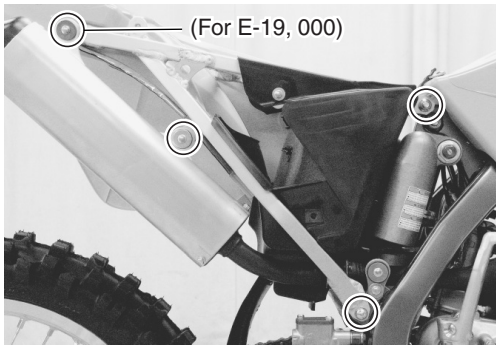
NOTE:

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.

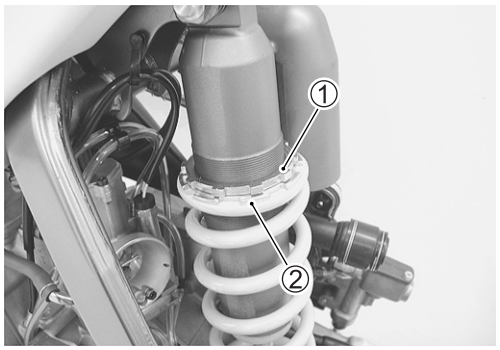
- Turn the adjuster screw ① clockwise until it stops (full hard position).
- Turn the adjuster screw ① counterclockwise about 12th clicks where the punch mark Ⓐ aligns with Ⓑ.

DATA Standard setting: 12 clicks turn back

SPRING PRE-LOAD ADJUSTMENT



- Place a block under the chassis tube.
- Remove the silencer and rear frame assembly. (☞17-3)



- 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: 3.7 mm (0.146 in)**
(Standard spring set length: 3.7 mm compressed from spring free length)
Spring set length adjustable range:
245 – 263 mm (9.646 – 10.354 in)
[at spring free length 265 mm (10.433 in)]

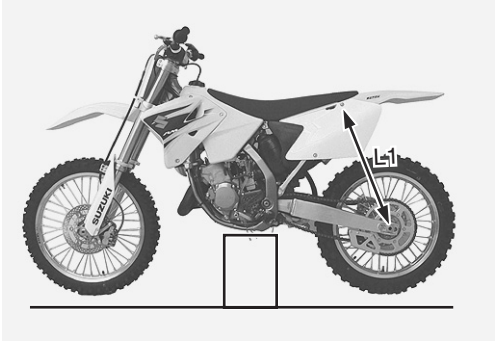
NOTE:
Turning the adjuster ② without loosening the lock-nut ① can damage the rear cushion unit.

REAR SUSPENSION TUNING PROCEDURE

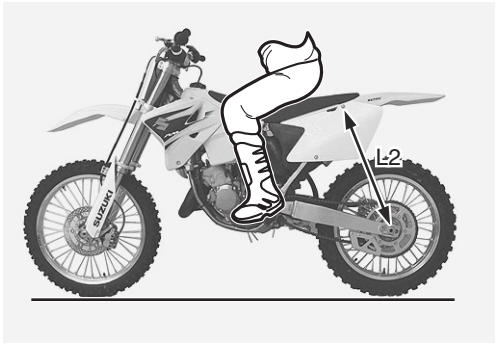
• Adjust the rear suspension according to the rider's weight and preference by referring to the table below.

Spring	Part No.	Spring rate	Marking paint	Set-length adjustable range
Soft	62211-36F60	46 N/mm (4.6 kgf/mm)	Green	245 – 263 mm (9.646 – 10.354 in) [at spring free length 265 mm (10.433 in)]
	62211-37FH0	48 N/mm (4.8 kgf/mm)	Black	
Standard	62211-37FJ0	51 N/mm (5.1 kgf/mm)	Silver	
Hard	62211-37FK0	53 N/mm (5.3 kgf/mm)	Orange	
	62211-37FL0	55 N/mm (5.5 kgf/mm)	Red	

• 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 100 mm (3.937 in).



When the sag measured is:	Adjustment procedure
Less than 100 mm (3.937 in)	Reduce spring pre-set length by turning the spring adjuster nut.
More than 100 mm (3.937 in)	Increase spring pre-set length by turning the spring adjuster nut.

After the sag measurement has been set between 95 mm (3.74 in) to 105 mm (4.13 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. (☞4-18) 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. (☞4-18)
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 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.

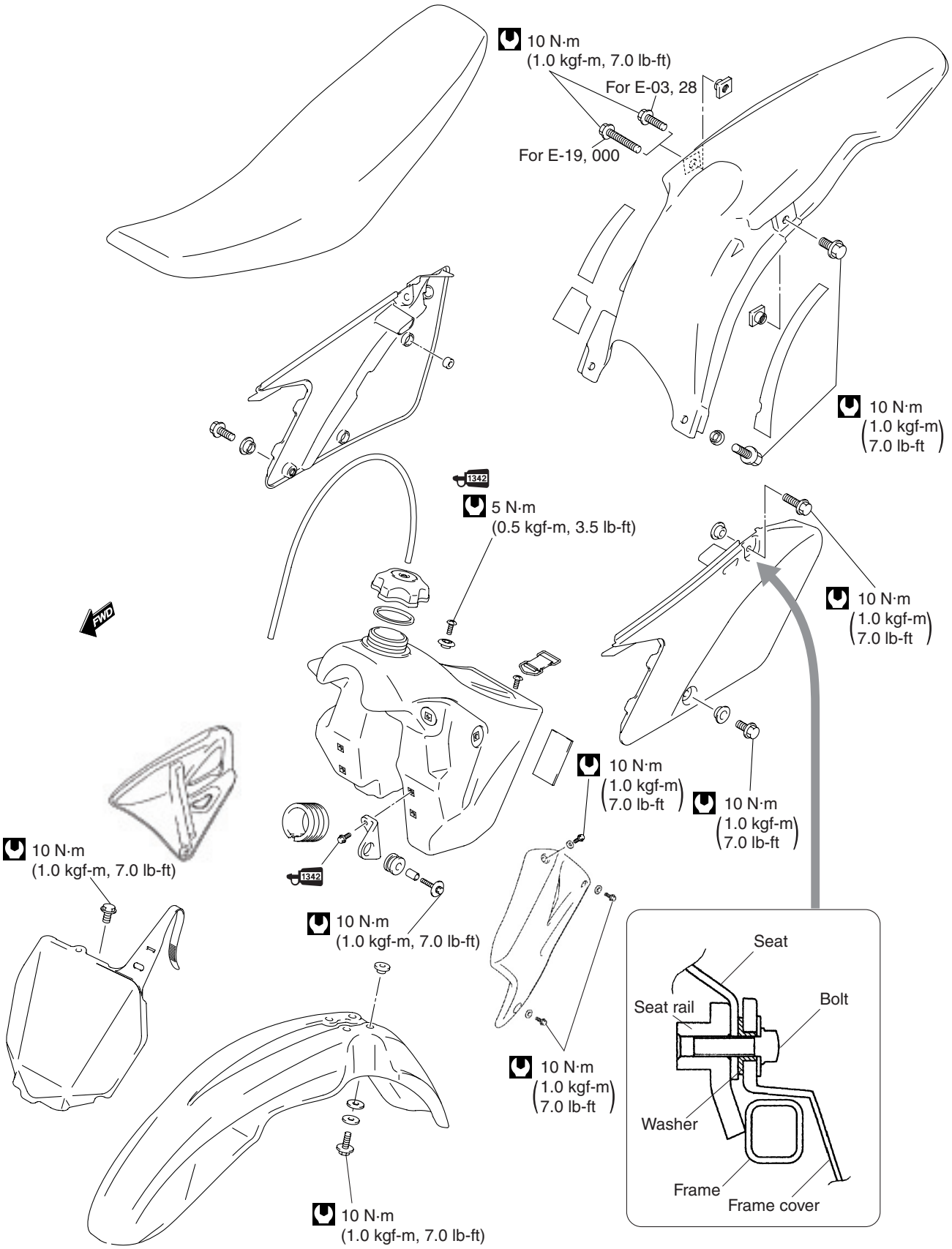
BALANCING TIPS

- 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 (3.74 – 4.13 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.

ENGINE REMOVAL AND INSTALLATION

CONTENTS

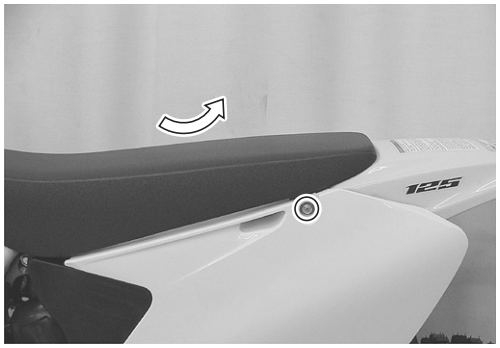
EXTERIOR PARTS



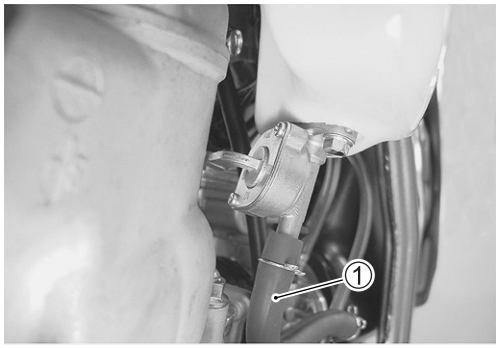
ENGINE REMOVAL AND INSTALLATION

REMOVAL

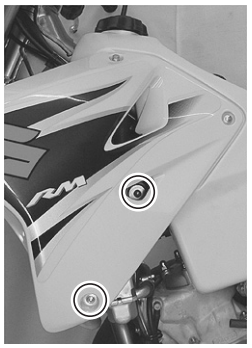
- Drain transmission oil. (☞2-9)
- Drain engine coolant. (☞12-3)
- Remove the seat.



- Turn the fuel valve lever to the “OFF” position.
- Disconnect the fuel hose ①.



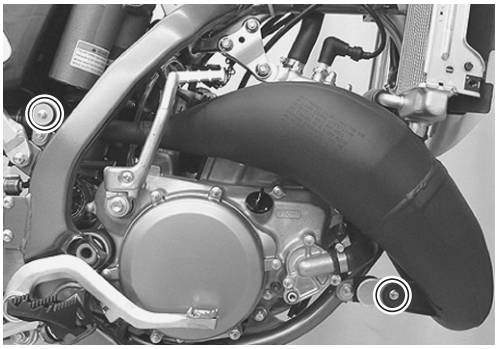
- Remove the fuel tank mounting bolts (LH and RH).
- Remove the fuel tank by unhooking the band ②.



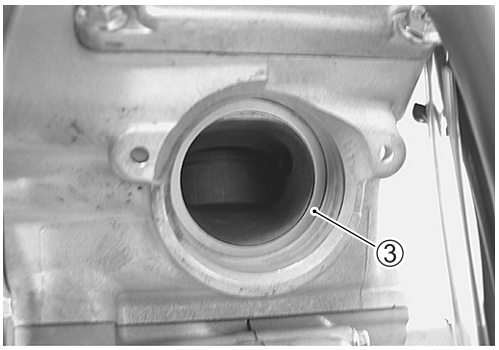
- Remove the exhaust pipe fitting springs using the special tool.

TOOL **09920-20310: Spring hook**

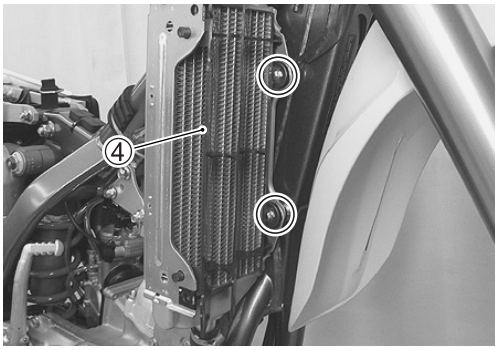
- Remove the exhaust pipe.



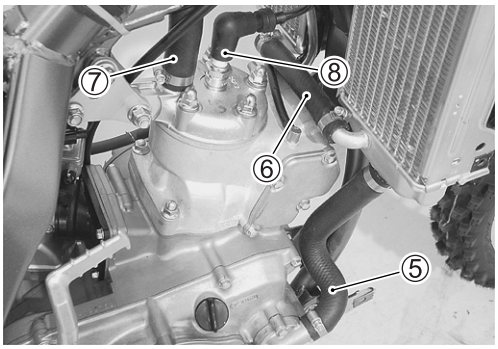
- Remove the exhaust pipe gasket ③.



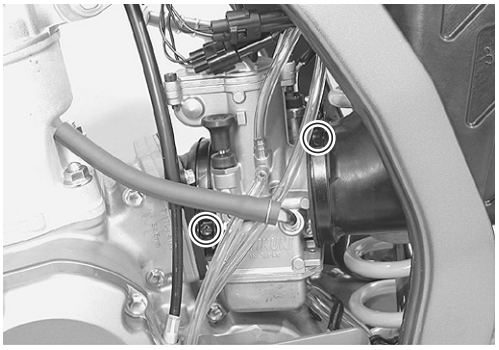
- Remove the radiator covers ④ and mounting bolts (LH and RH).



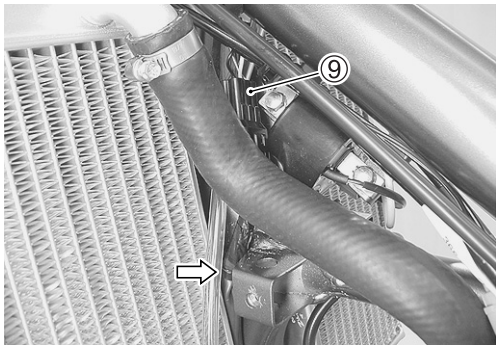
- Disconnect the radiator hoses ⑤ ⑥ ⑦.
- Disconnect the spark plug cap ⑧.



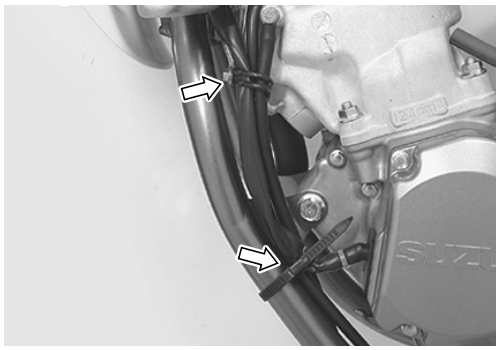
- Loosen the carburetor clamp screws and remove the carburetor.



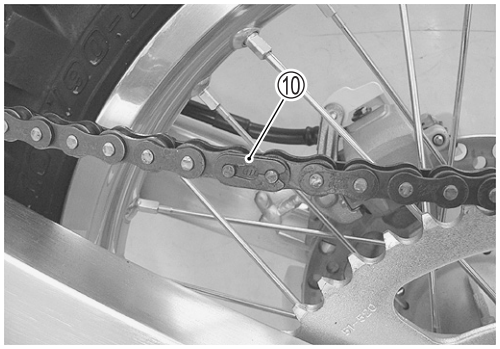
- Disconnect the magneto lead wire coupler ⑨ and clamp.



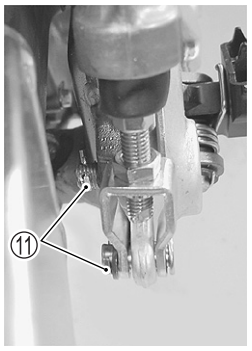
- Unclamp the magneto lead wire and breathers hoses from the frame.



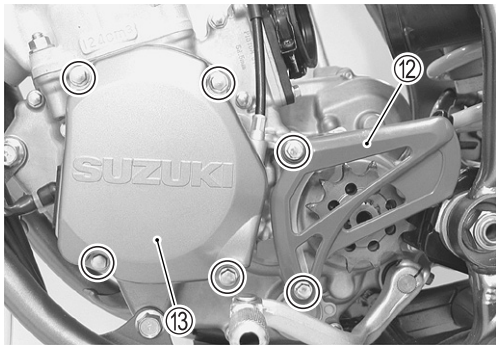
- Remove the drive chain by removing the clip ⑩.



- Remove the cotter pins ⑪.
- Remove the brake pedal.

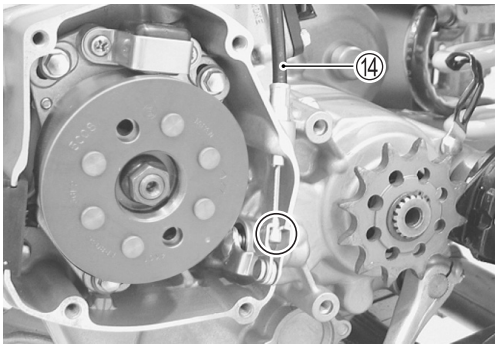


- Remove the sprocket cover ⑫.
- Remove the magneto cover ⑬.

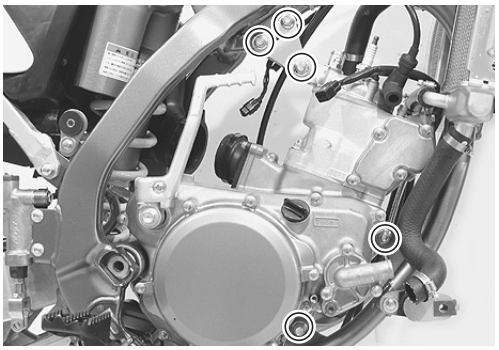


• Unhook and extract the clutch cable ⑭.

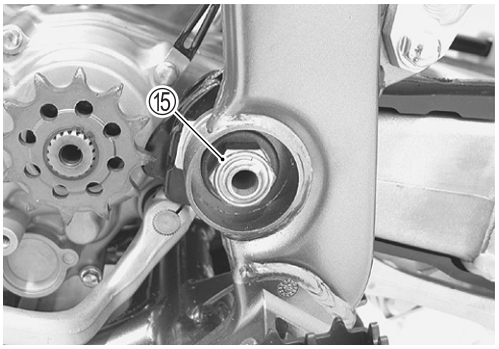
NOTE:
Loosen the clutch cable adjuster when disconnecting.
(☞2-12)



• Remove the engine mounting bolts and plates.



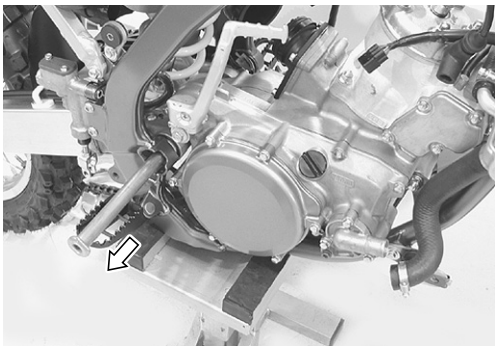
• Remove the swingarm pivot nut ⑮ and washer.



• 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.

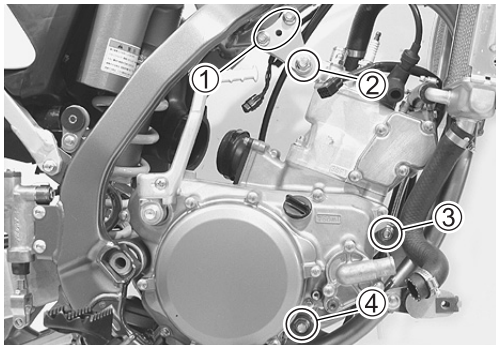
• Dismount the engine from the frame.



INSTALLATION

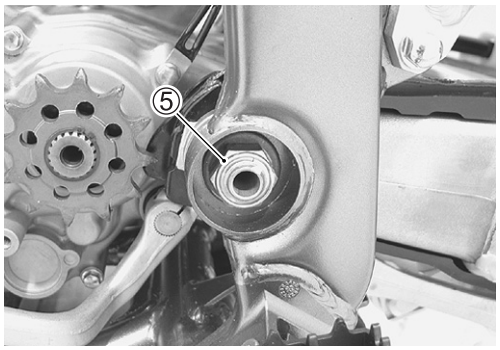
Reassemble the removed parts in the reverse order of removal.

- Fit the swingarm in its position and hold it with the swingarm pivot shaft.
- Mount the engine on the frame.



- Tighten the engine mounting nuts.

	Bolt Length		Bolt Length
①	45 mm (1.8 in)	③	90 mm (3.5 in)
②	47.5 mm (1.9 in)	④	130 mm (5.1 in)



Tightening torque

	N·m	kgf-m	lb-ft
① (Bolt, Washer, Nut)	43	4.3	31.0
②, ③, ④ (Bolt, Nut)	45	4.5	32.5
⑤ (Shaft, Washer, Nut)	70	7.0	50.5

NOTE:

** Replace the self-locking nuts with new ones.*

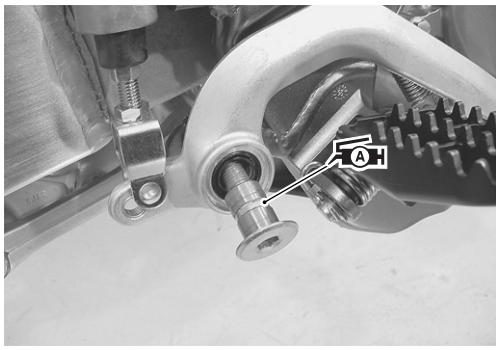
** Apply THREAD LOCK SUPER to the engine mounting bolt ③.*

1322 99000-32110: THREAD LOCK SUPER "1322"
(or equivalent thread lock)

- Apply grease to the brake pedal pivot bolt.

A 99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)

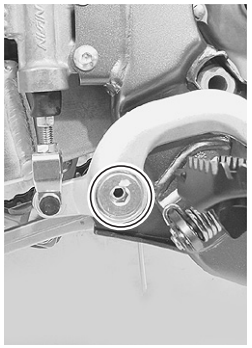
- Install the spring. (☞18-15)

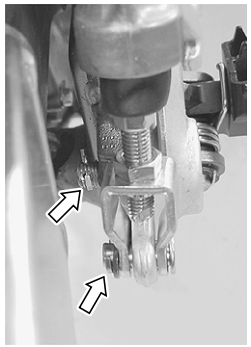


- Install the brake pedal.

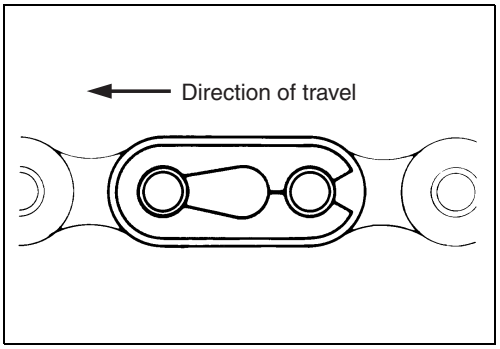
Brake pedal pivot bolt: 29 N·m (2.9 kgf-m, 21.0 lb-ft)

- Replace the cotter pins with new ones.



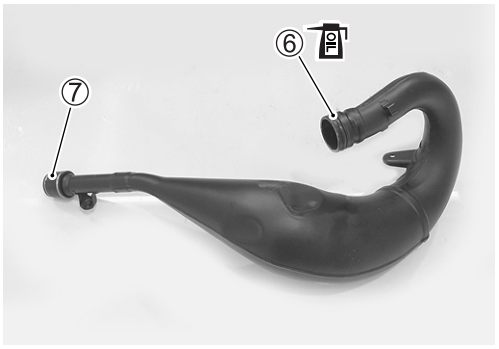


- Reassemble the drive chain clip so the slit end faces opposit the direction of rotation.

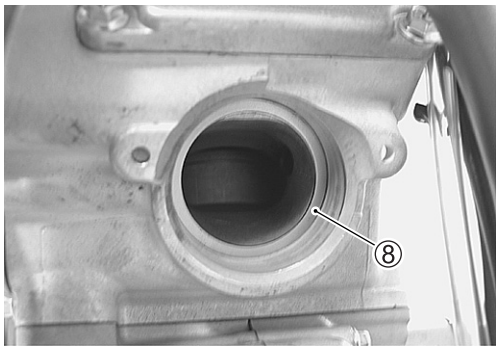


- Fit the projection of carburetor to the depression of intake pipe.

- Install a new O-ring ⑥ and connector rubber ⑦ to the exhaust pipe.
- Apply a small quantity of transmission oil to the O-ring before install the exhaust pipe.



- Replace the exhaust pipe gasket ⑧ with a new one.



INSPECTION AFTER INSTALLATION

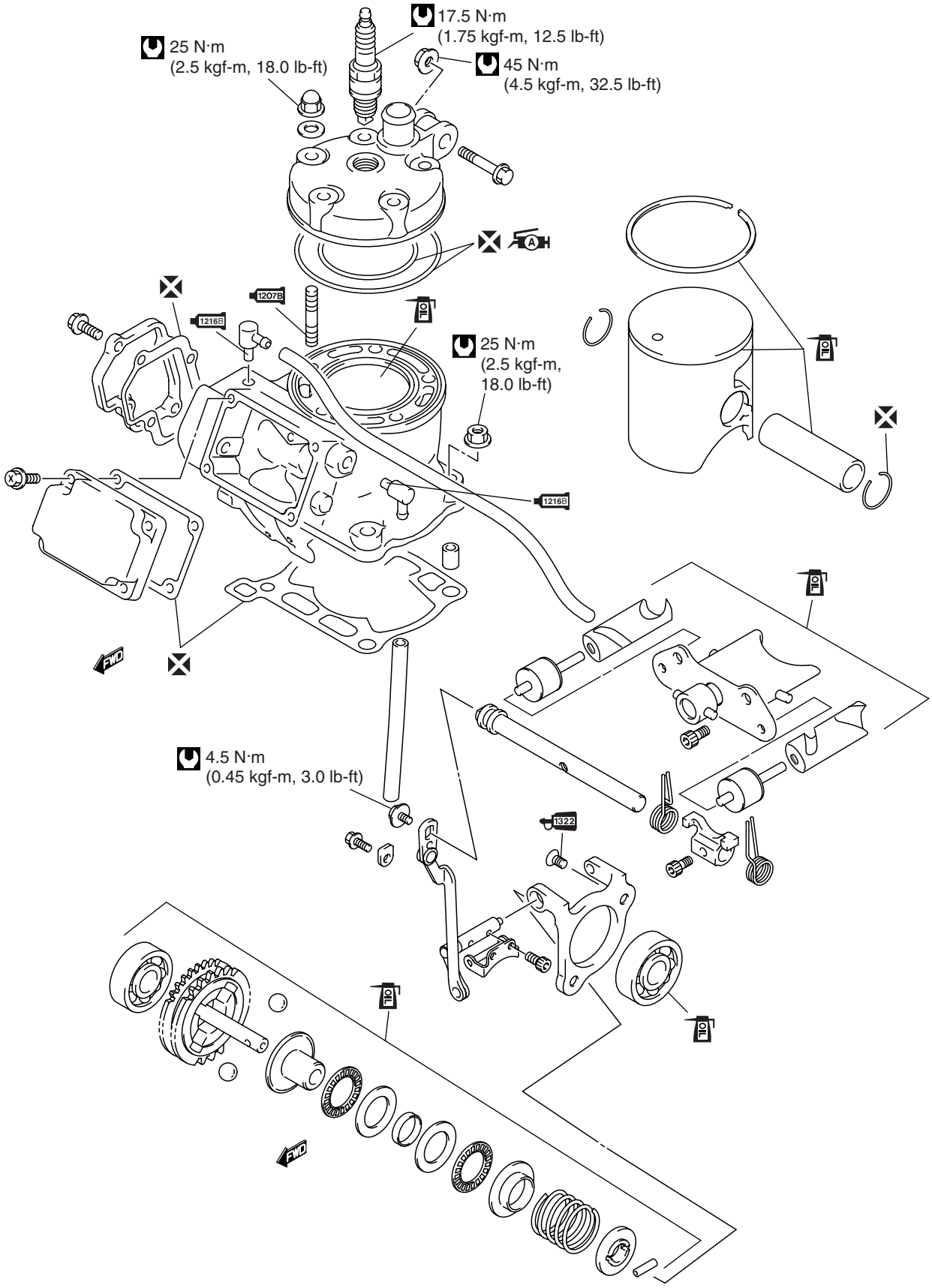
After mounting the engine, inspect the following items.

- Transmission oil level (☞2-9)
- Engine coolant level (☞2-10)
- Throttle cable play (☞2-12)
- Clutch lever play (☞2-12)
- Drive chain slack (☞2-16)
- Brake pedal height (☞2-19)
- Wire, cable and hose routing (☞18-12 to -14)

CYLINDER, PISTON AND EXHAUST VALVE

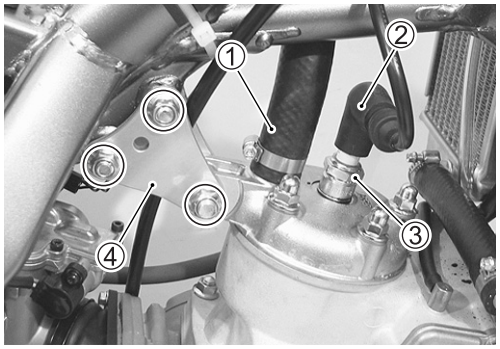
CONTENTS

CONSTRUCTION



ENGINE TOP END

CYLINDER HEAD REMOVAL

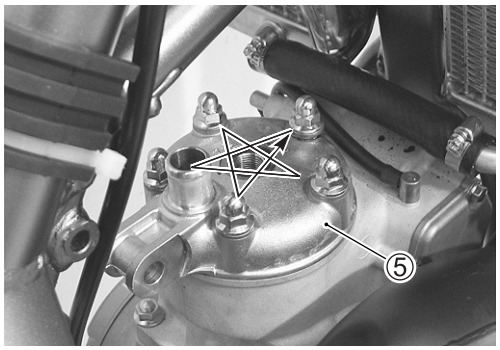


- Remove the seat. (☞5-3)
- Remove the fuel tank. (☞5-3)
- Drain engine coolant. (☞12-3)
- Disconnect the radiator hose ①.
- Disconnect the spark plug cap ② and remove the spark plug ③.

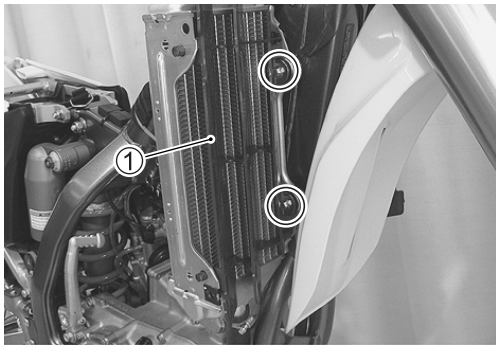
TOOL 09930-10121: Spark plug wrench set

- Remove the engine mounting plates ④.
- Remove the cylinder head ⑤.

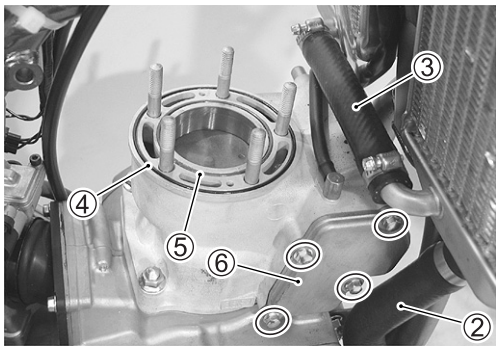
NOTE:
Loosen the cylinder head nuts diagonally to prevent cylinder head distortion.



CYLINDER REMOVAL



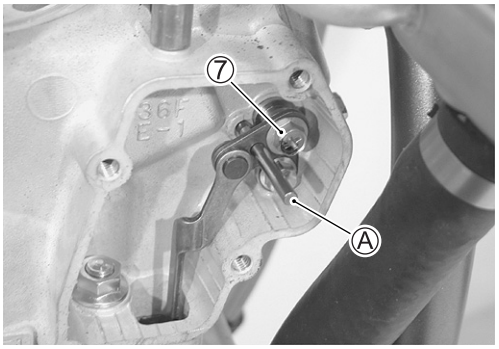
- Remove the cylinder head. (☞above)
- Remove the exhaust pipe. (☞5-3, -4)
- Remove the radiator covers ① and mounting bolts (LH and RH).



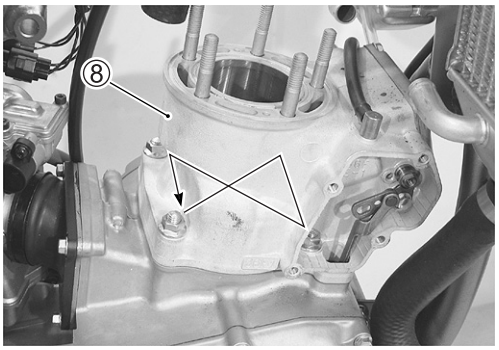
- Remove the radiator hoses ② and ③.
- Remove the cylinder head O-rings ④ and ⑤.
- Remove the exhaust valve rod cover ⑥ and gasket.

• Remove the exhaust valve rod bolt ⑦ using the pin Ⓐ as a stopper.

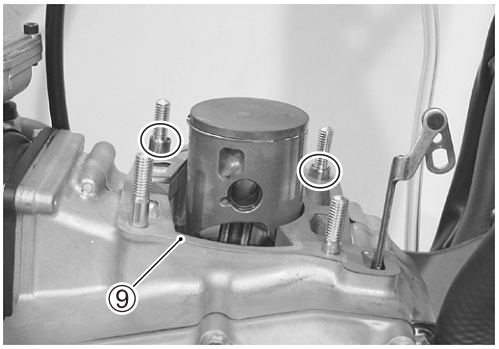
NOTE:
The pin Ⓐ is one of the included parts.



• Remove the cylinder nuts diagonally.
• Remove the cylinder ⑧.



• Remove the gasket ⑨ and dowel pins.

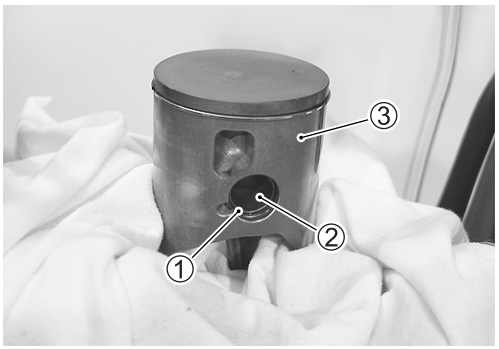


PISTON REMOVAL

• Remove the cylinder head and cylinder. (☞6-3, above)
• Remove the piston pin circlip ①.

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

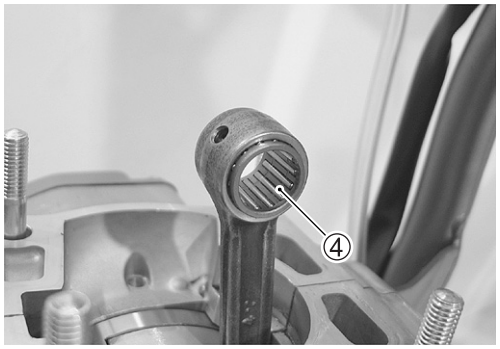
• Remove the piston pin ②.
• Remove the piston ③.



• Use the special tool if necessary.

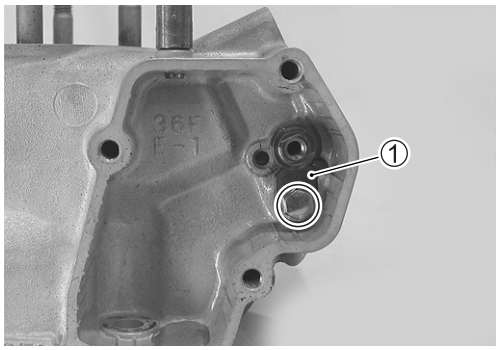
TOOL 09910-34510: Piston pin puller

• Remove the conrod small end bearing ④.

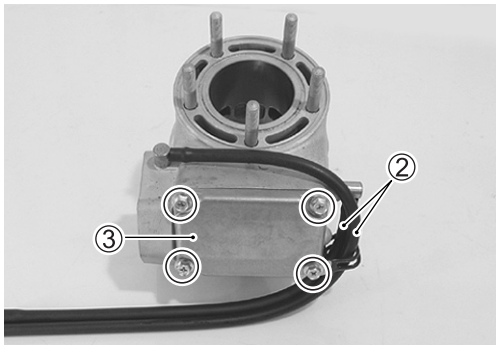


EXHAUST VALVE REMOVAL

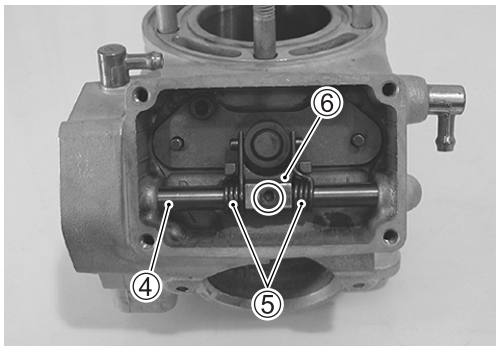
• Remove the cylinder head and cylinder. (☞6-3, -4)
• Remove the exhaust valve shaft stop retainer ①.



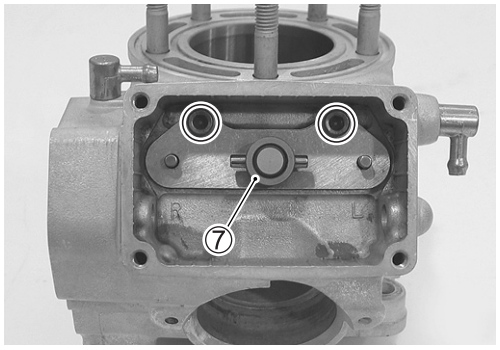
• Remove the breather hoses ②.
• Remove the exhaust valve cover ③.



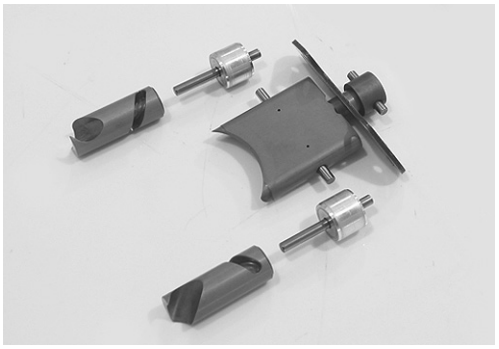
• Remove the exhaust valve shaft ④, springs ⑤ and valve shaft arm ⑥.



• Remove the exhaust valve assembly ⑦.



• Remove the side valves and spacers.

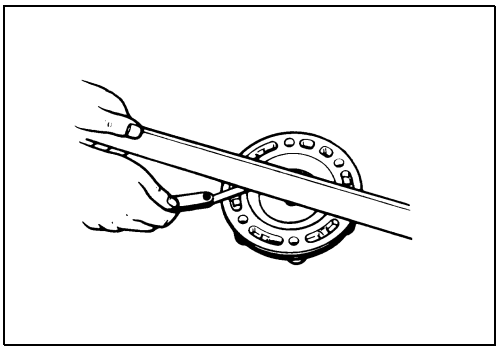


CYLINDER HEAD INSPECTION

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

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

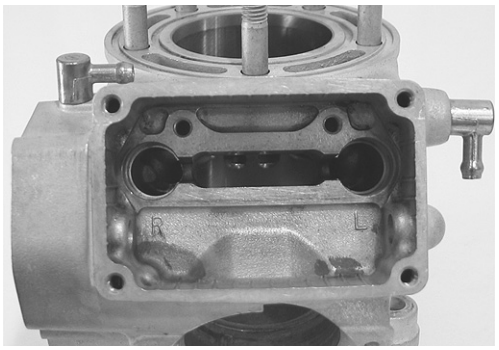
TOOL 09900-20803: Thickness gauge



CYLINDER INSPECTION

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

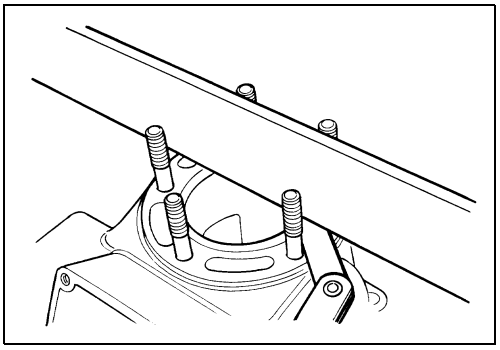
NOTE:
Chrome-plated cylinder bore can not be modified such as boring and honing.



• Inspect for cylinder distortion.

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

TOOL 09900-20803: Thickness gauge

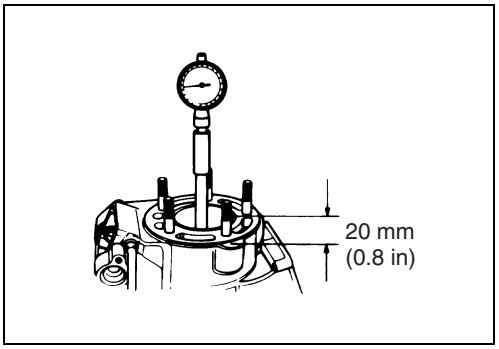


- Measure the cylinder bore for wear with a cylinder gauge 20 mm (0.8 in) from the top surface.

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

DATA Cylinder bore
Standard: 54.000 – 54.015 mm (2.1260 – 2.1266 in)

TOOL 09900-20508: Cylinder gauge set

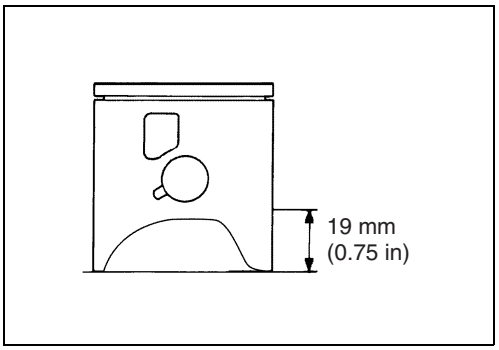


PISTON AND PISTON RING INSPECTION

- Remove the piston ring from the piston ring groove.
- Remove carbon deposits from the piston.
- Inspect the piston for wear, scratches and damage.
- Measure the piston outer diameter 19 mm (0.75 in) from the skirt end.

DATA Piston outer diameter
Service Limit: 53.880 mm (2.1213 in)

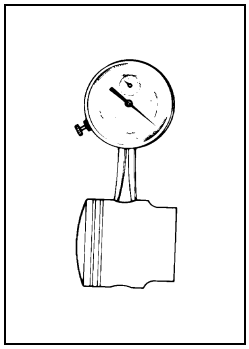
TOOL 09900-20203: Micrometer (50 – 75 mm)

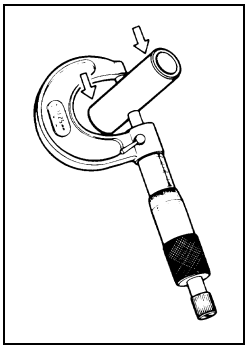


- Measure the piston pin bore and piston pin diameter.

	Service Limit
Piston pin bore	15.030 mm (0.5917 in)
Piston pin O.D.	14.980 mm (0.5898 in)

TOOL 09900-20205: Micrometer (0 – 25 mm)
09900-20605: Dial gauge

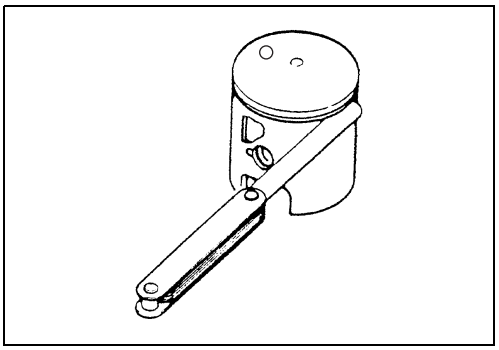




- Remove carbon deposits from piston ring and piston ring groove.
- Fit the piston ring into the ring groove and measure the clearance with a thickness gauge.

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

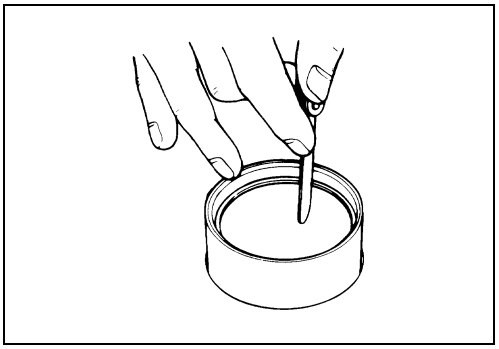
TOOL 09900-20803: Thickness gauge



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

DATA Piston ring end gap
Service Limit: 0.80 mm (0.031 in)

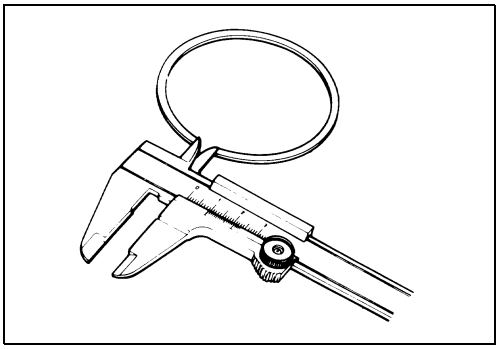
TOOL 09900-20803: Thickness gauge



• Measure the piston ring free end gap.

DATA Piston ring free end gap
Service Limit: 3.4 mm (0.13 in)

TOOL 09900-20101: Vernier calipers



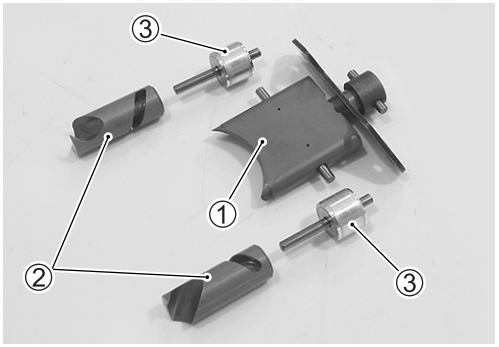
PISTON-TO-CYLINDER CLEARANCE

As a result of the previous measurement, if the piston to cylinder clearance exceeds the following limit, replace both cylinder and piston.

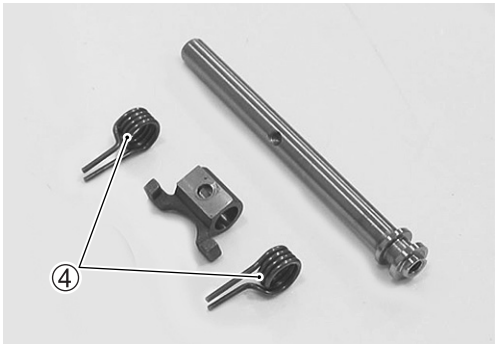
DATA Piston to cylinder clearance
Service Limit: 0.120 mm (0.0047 in)

EXHAUST VALVE INSPECTION

• Remove carbon deposits from the exhaust main valve ①, side valves ② and spacers ③.
• Inspect the exhaust main valve, side valve and spacer for wear and scratches.
• Inspect the cam groove of the side valve for wear.



• Inspect the return spring ④ for spring tension.

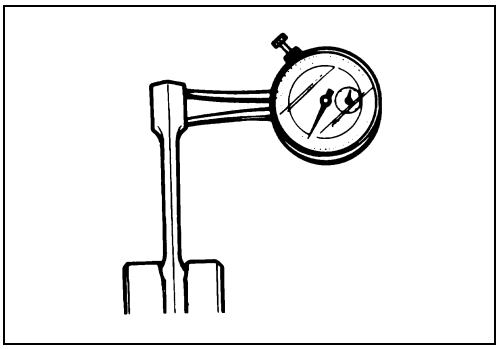


CONROD INSPECTION

• Measure the conrod small end bore.

DATA Conrod small end bore
Service Limit: 19.040 mm (0.750 in)

TOOL 09900-20605: Dial gauge



- Fit the piston pin and bearing into the conrod small end and inspect the play.
- Inspect the bearing for smooth movement.

PISTON RING AND PISTON REASSEMBLY

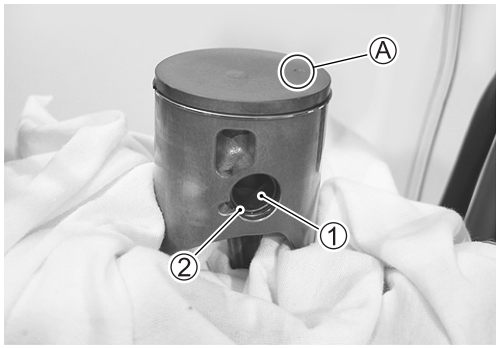
- Apply engine oil to the piston ring and piston ring groove.
- Fit the piston ring into the piston ring groove so the ring end comes to the piston ring locating pin. (☞6-10)
- Apply engine oil to the piston pin and bearing.
- Fit the bearing to the conrod small end.

- Face the “O” mark Ⓐ on the piston top to the exhaust port.
- Insert the piston pin ① and install the piston pin circlip ②. Piston pin circlip end should face upside.

NOTE:

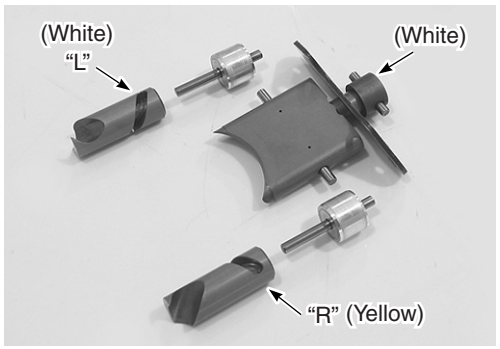
** Replace the piston pin circlip with a new one.*

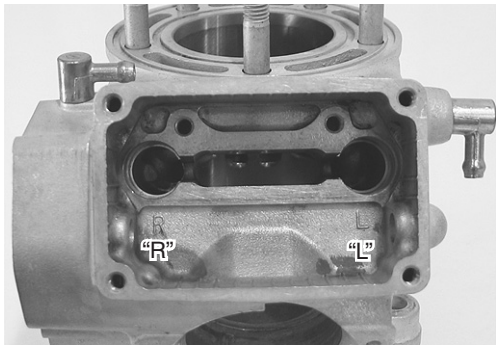
** Place cloth on the crankcase to prevent piston pin circlip from dropping into the crankcase.*



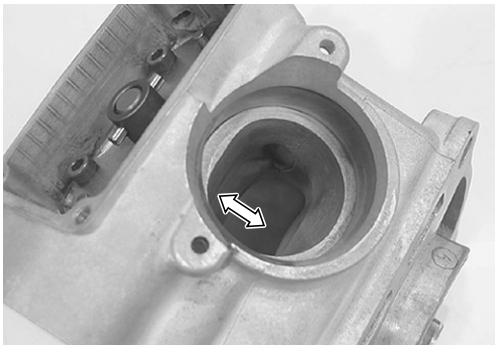
EXHAUST VALVE REASSEMBLY

- Apply engine oil to the exhaust valves (main and side) and spacers.
- The taper side of main valve should face downward and the stamped marks “L”, “R” on the side valves should match with the stamped marks “L”, “R” on the cylinder.

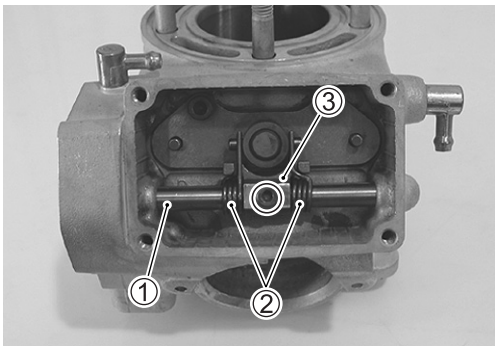




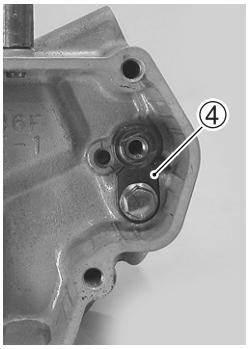
- Install the exhaust valve assembly to the cylinder.
- Inspect the main and side valves for smooth movement.
- Inspect if the side valves are closed when the main valve is lowered and, at the same time, see if the side valvs are open when the main valve is lifted.

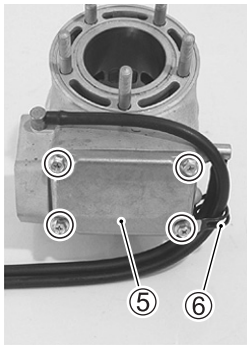


- Install the exhaust valve shaft ①, springs ② and valve shaft arm ③.
- Tighten the exhaust valve shaft bolt.



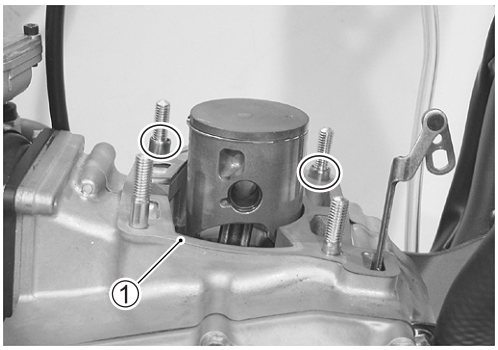
- Install the exhaust valve shaft stop retainer ④.
- Install a new gasket and the exhaust valve cover ⑤ with hose clamp ⑥.
- Install the breather hoses.





CYLINDER REASSEMBLY

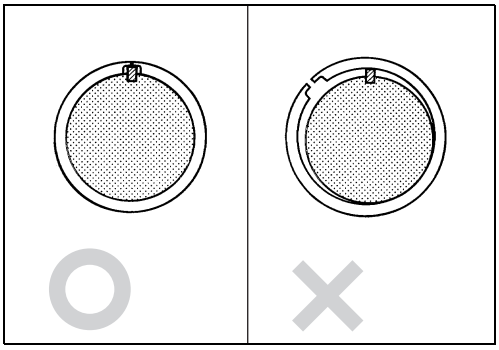
- Install the dowel pins and new gasket ①.
- Apply engine oil to the cylinder bore.
- With Holding the piston and piston ring, insert the piston into the cylinder.



CAUTION

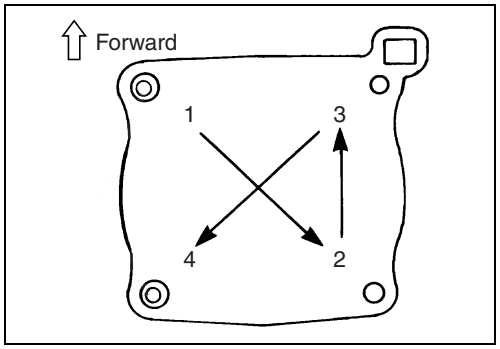
If the piston ring end is not at the proper position, you can not insert the piston into the cylinder properly and the piston ring will be damaged.

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



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

Cylinder nut: 25 N·m (2.5 kgf-m, 18.0 lb-ft)

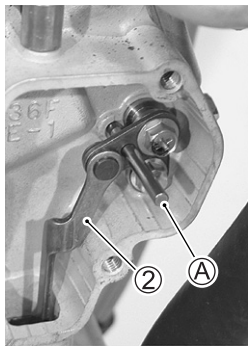


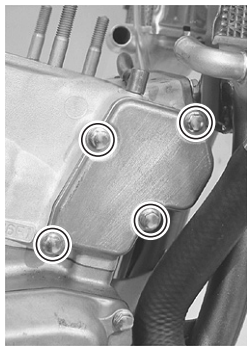
- Install the exhaust valve rod ② to the exhaust valve shaft.
- Tighten the exhaust valve rod bolt using the pin Ⓐ as a stopper.

Exhaust valve rod bolt: 4.5 N·m (0.45 kgf-m, 3.0 lb-ft)

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

- Install a new gasket and tighten the exhaust valve rod cover bolts.





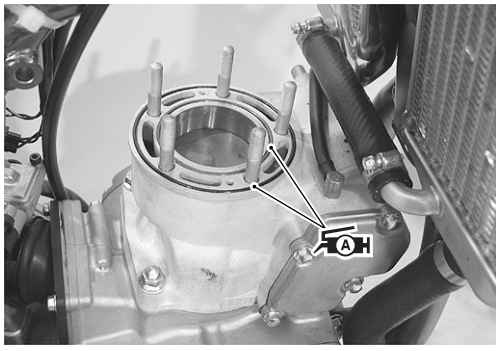
- Apply grease to new O-rings and install them to the cylinder.

99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)

- Install the cylinder head.

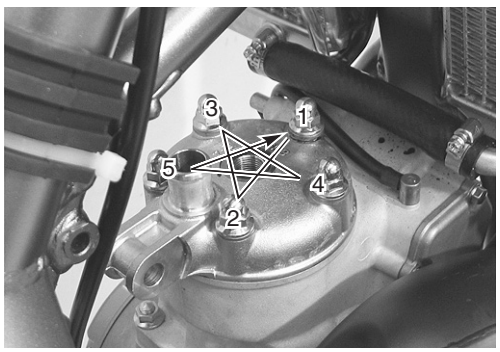
NOTE:
Apply Bond to the stud bolt threads when assembling the removed stud bolts into the cylinder.

99000-31140: SUZUKI BOND "1207B"



- Tighten the cylinder head nuts to the specified torque in two steps 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)

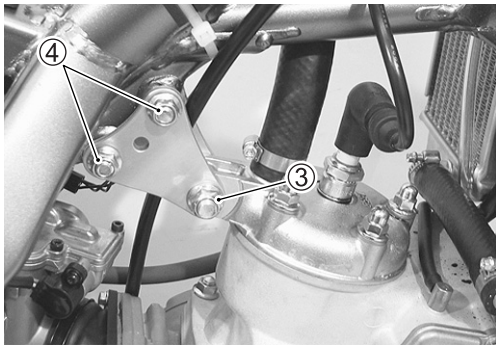


- Reassemble the engine mounting brackets.

Engine mounting nut ③: 45 N·m (4.5 kgf-m, 32.5 lb-ft)
Engine plate nut ④: 43 N·m (4.3 kgf-m, 31.0 lb-ft)

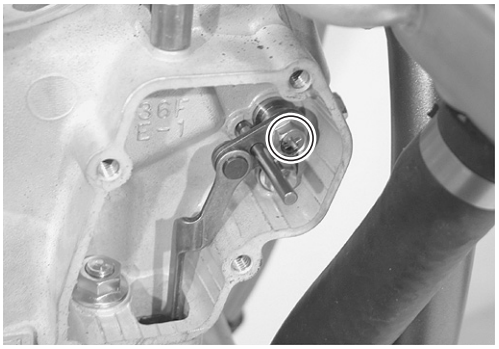
- Reassemble the exhaust pipe. (☞5-8)

- Engine coolant level (☞2-10)

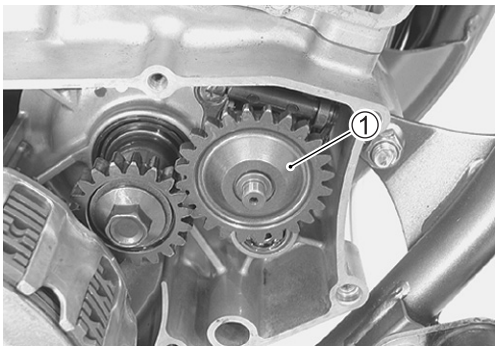


EXHAUST VALVE GOVERNOR REMOVAL AND DISASSEMBLY

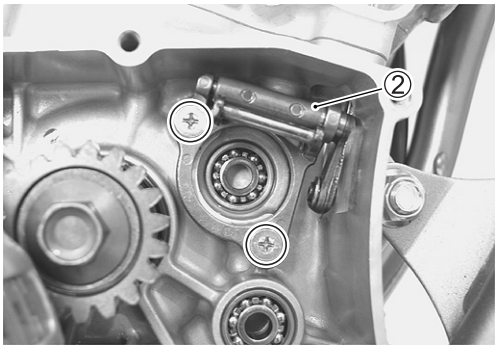
- Drain transmission oil. (☞2-9)
- Drain engine coolant. (☞12-3)
- Remove the exhaust pipe. (☞5-3, -4)
- Remove the exhaust valve rod bolt. (☞6-4)



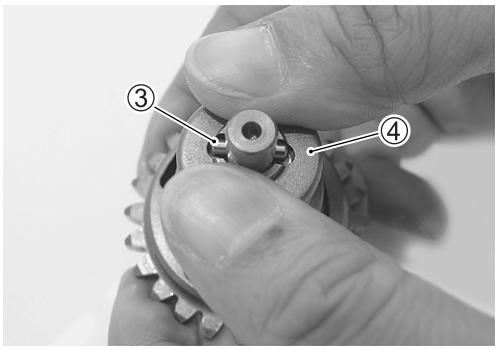
- Remove the right crankcase cover. (☞8-3)
- Remove the exhaust valve governor ①.



- Remove the exhaust valve rod assembly ②.

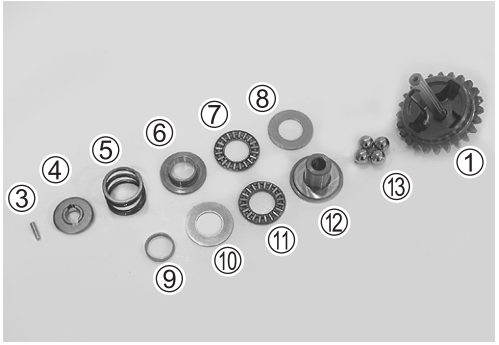


- Remove the pin ③ by pushing down the retainer ④.



- Disassemble the following parts from governer.

① Governer	⑧ Washer
③ Pin	⑨ Spacer
④ Retainer	⑩ Washer
⑤ Spring	⑪ Bearing
⑥ Retainer	⑫ Stater
⑦ Bearing	⑬ Balls

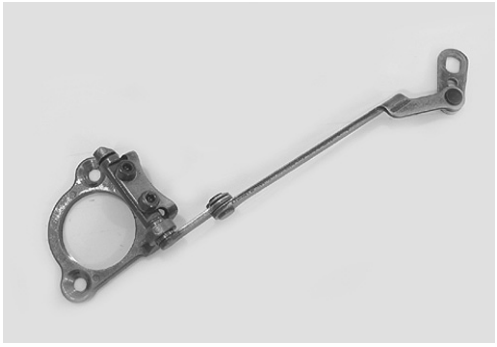


EXHAUST VALVE GOVERNOR INSPECTION

- Inspect hte bearings for abnormal noise, wear and damage.
- Replace the bearing if there is anything unusual.

- Inspect the governer for wear and damage.
- Replace the governer if there is anything unusual.

- Inspect the exhaust valve rod for abnormal bend and damage.
- Replace the exhaust valve rod if there is anything unusual.

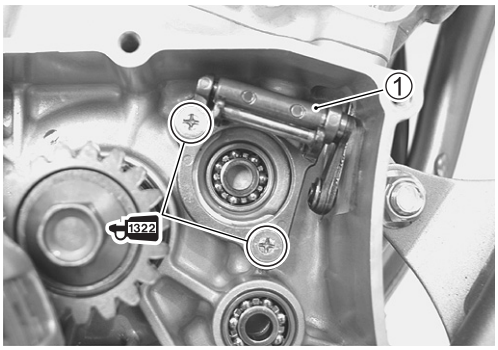


EXHAUST VALVE GOVERNOR REASSEMBLY AND INSTALLATION

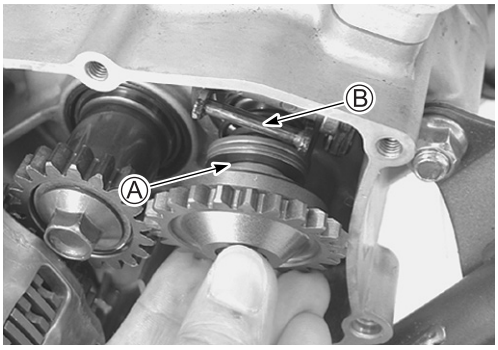
Installation is in the reverse order of removal and disassembly. Pay attention to the following points:

- Install the exhaust valve rod ①.
- Apply THREAD LOCK to the screws.

1322 99000-32110: THREAD LOCK SUPER "1322"
(or equivalent thread lock)



- Apply transmission oil to the exhaust valve gevernor.
- Install the exhaust valve governor with the groove Ⓐ engaged with the actuator arm Ⓑ.

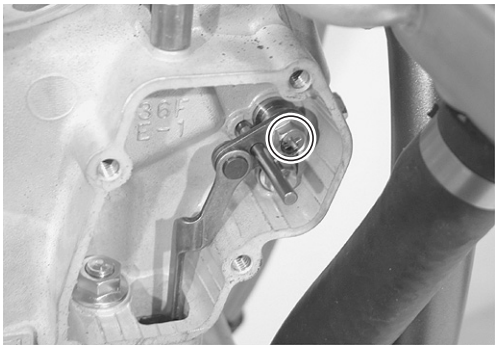


- Tighten the exhaust valve rod bolt. (☞6-11)

Exhaust valve rod bolt: 4.5 N·m (0.45 kgf-m, 3.0 lb-ft)

- Reassemble the exhaust pipe. (☞5-8)

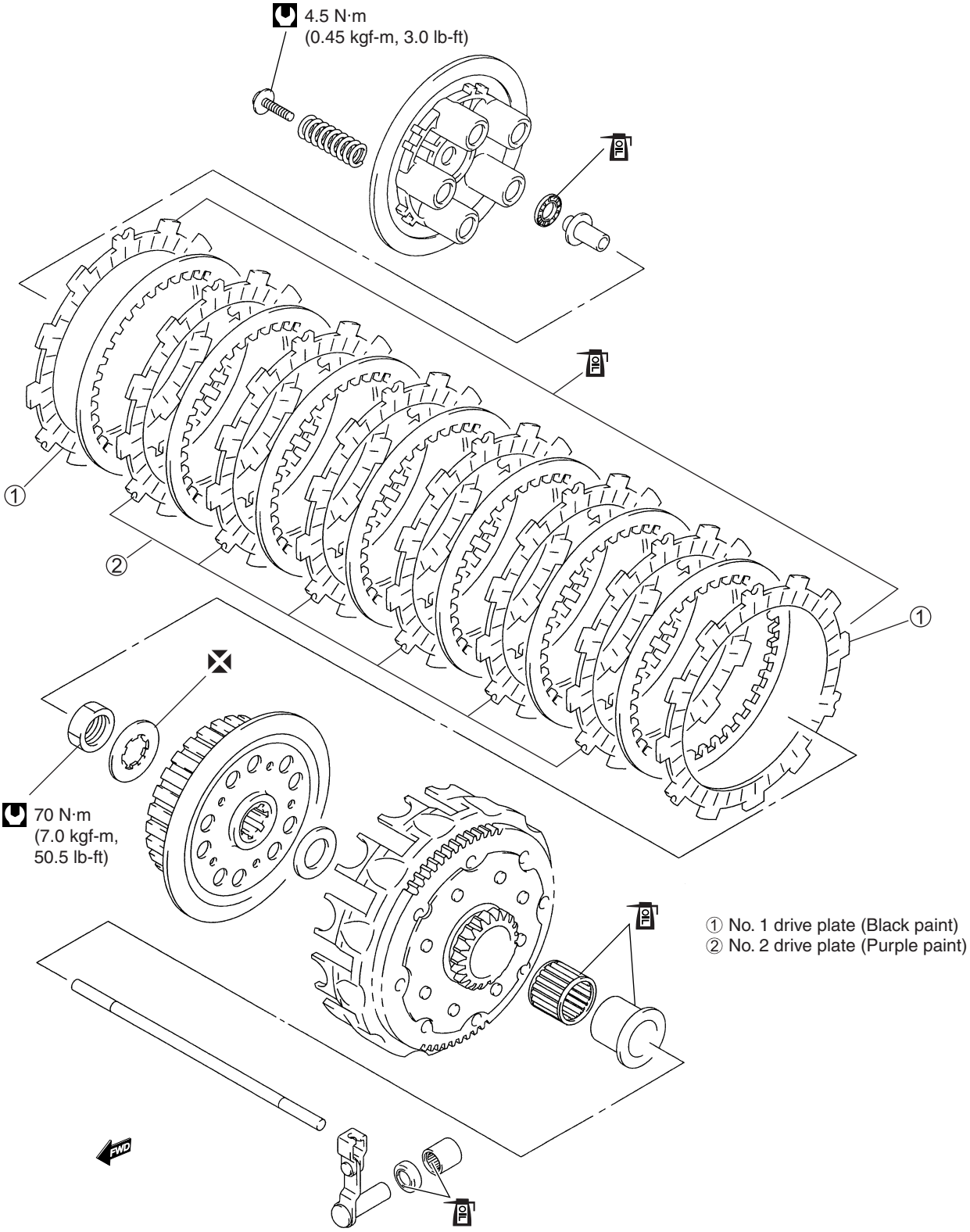
- Transmission oil level (☞2-9)
- Engine coolant level (☞2-10)
- Brake pedal heignt. (☞2-19)



CLUTCH

CONTENTS

CONSTRUCTION

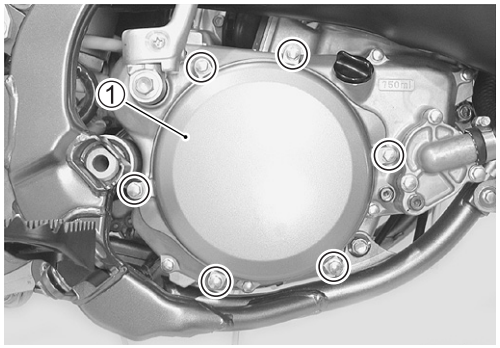


① No. 1 drive plate (Black paint)
② No. 2 drive plate (Purple paint)

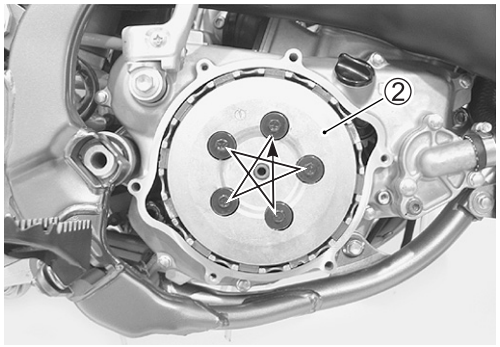
CLUTCH PLATE

REMOVAL

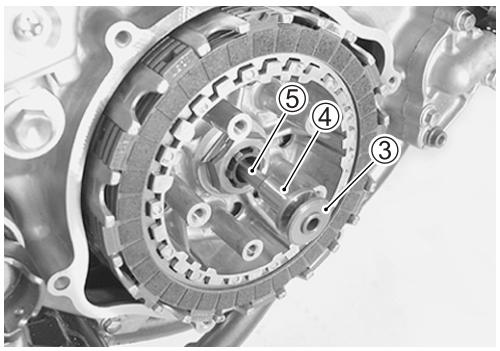
- Drain transmission oil. (☞2-9)
- Remove the rear brake pedal. (☞5-5)
- Remove the clutch cover ①.



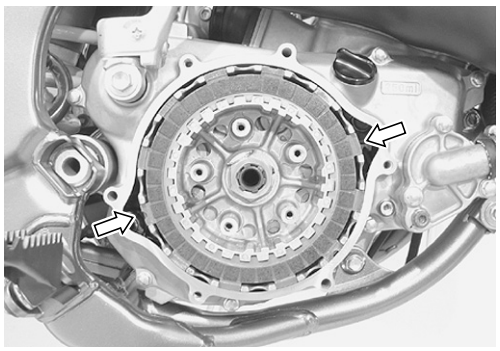
- Loosen the bolts diagonally and remove them.
- Remove the clutch springs.
- Remove the pressure plate ②.



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



- Remove the drive plates and driven plates.



INSPECTION

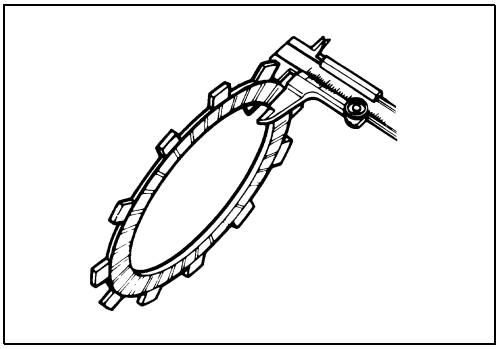
DRIVE PLATE

- Measure the drive plate thickness.

DATA Drive plate thickness
Service Limit: 2.42 mm (0.095 in)

TOOL 09900-20101: Vernier calipers

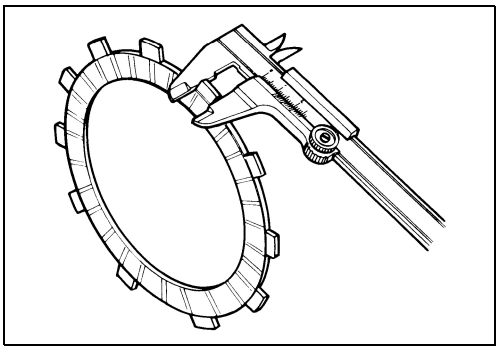
- Inspect the drive plates for wear, distortion and discoloration.



- Measure the drive plate claw width.

DATA Driven plate claw width
Service Limit: 13.35 mm (0.526 in)

TOOL 09900-20101: Vernier calipers



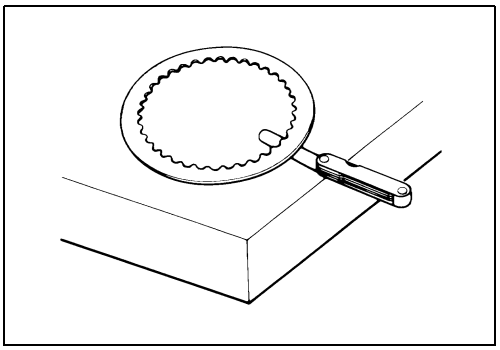
DRIVEN PLATE

- Measure the driven plate distortion.

DATA Driven plate distortion
Service Limit: 0.10 mm (0.004 in)

TOOL 09900-20803: Thickness gauge

- Inspect the driven plates for wear and discoloration.



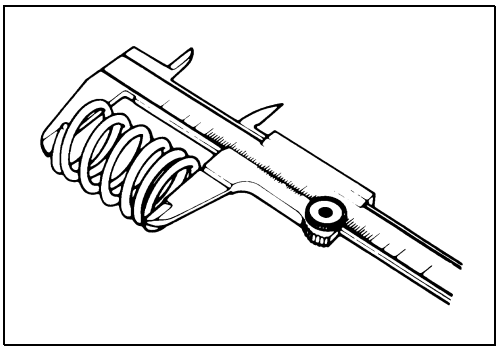
CLUTCH SPRING

- Measure the clutch spring free length.

DATA Clutch spring free length
Service Limit: 37.8 mm (1.50 in)

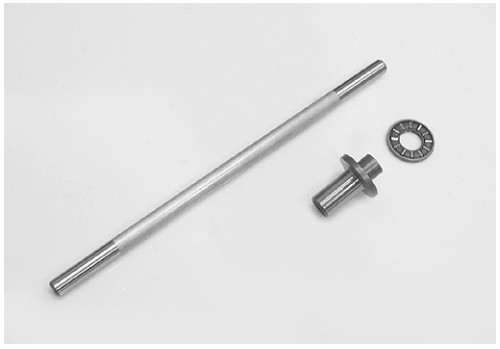
TOOL 09900-20101: Vernier calipers

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



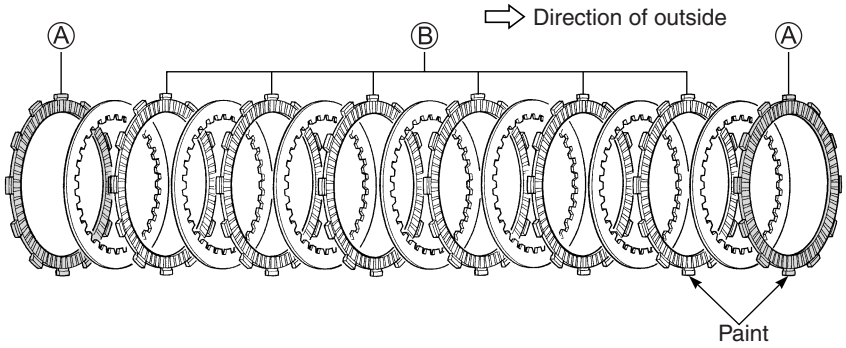
PUSH ROD

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



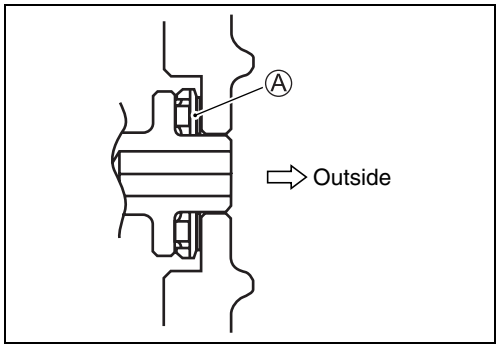
REASSEMBLY

- Apply transmission oil to each 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.



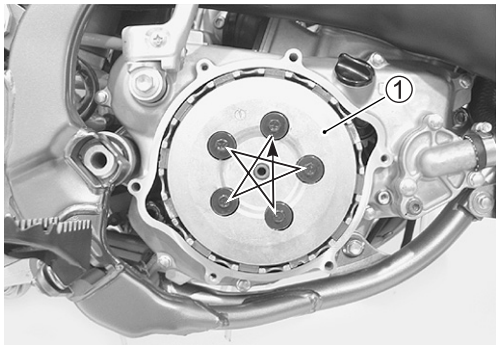
	Paint
No. 1 Drive plate Ⓐ	Black
No. 2 Drive plate Ⓑ	Purple

- Apply transmission oil to the bearing.
- Insert the clutch push rod.
- Install the clutch push piece and bearing. The covered side Ⓐ of the bearing should face outside.



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

Clutch spring bolt: 4.5 N·m (0.45 kgf-m, 3.0 lb-ft)

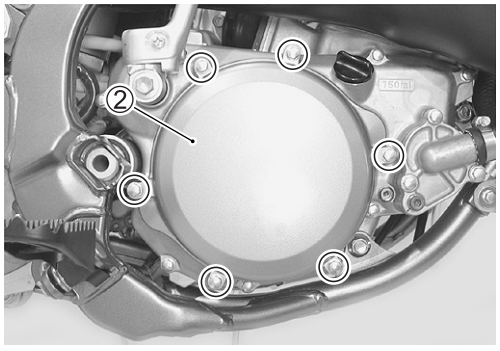


- Replace the O-ring with a new one.
- Apply grease to the O-ring.

99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)

- Fit the clutch outer cover ② and tighten the bolts diagonally.

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

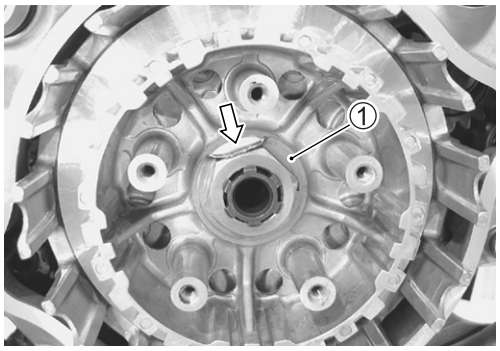


- Pour transmission oil. (☞2-9)
- Adjust the clutch cable play. (☞2-12)
- Adjust the brake pedal height. (☞2-19)

PRIMARY DRIVEN GEAR AND CLUTCH SLEEVE HUB

REMOVAL

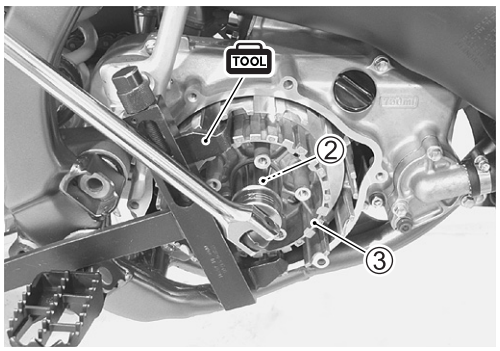
- Remove the clutch outer cover.
- Remove the pressure plate and clutch plates. (☞7-3)
- Flatten the lock washer ①.



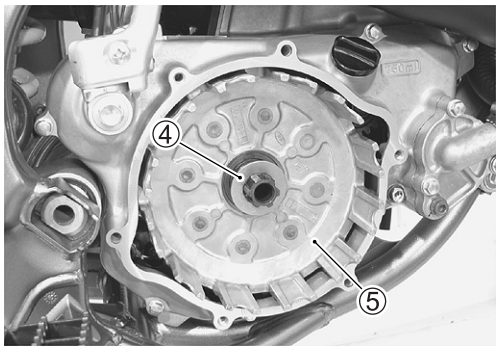
- Hold the clutch sleeve hub with the special tool and loosen the nut ②.

TOOL 09920-53740: Clutch sleeve hub holder

- Remove the clutch sleeve hub ③.



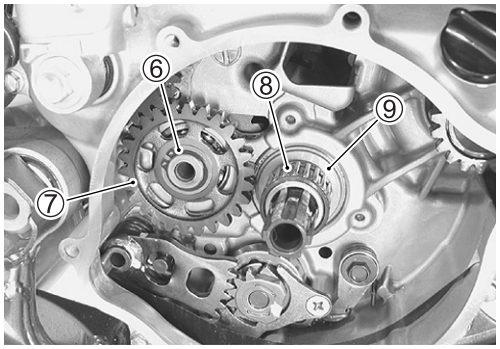
- Remove the washer ④ and primary driven gear assembly ⑤.



- Remove the snap ring ⑥, washer and kick starter idle gear ⑦.

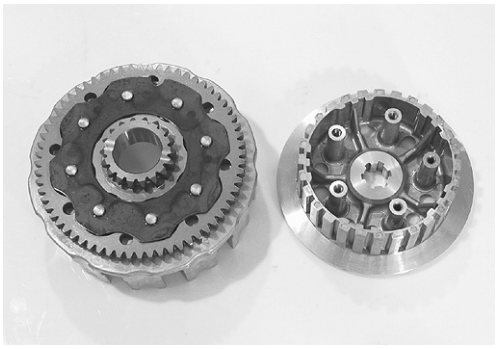
TOOL 09900-06107: Snap ring pliers

- Remove the needle bearing ⑧.
- Remove the spacer ⑨.



INSPECTION

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

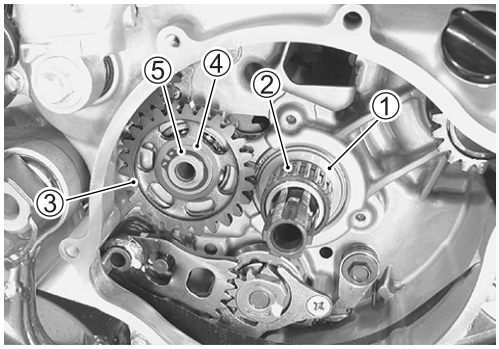


- Inspect the kick starer idle gear, needle bearing and spacer for damage and wear.

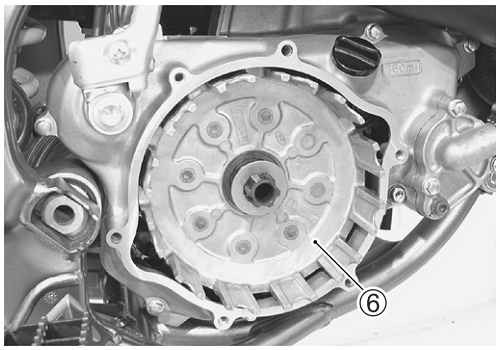
REASSEMBLY

- Apply transmission oil to the spacer ① and needle bearing ②.
- Install the kick starter idle gear ③, washer ④ and snap ring ⑤.

TOOL 09900-06107: Snap ring pliers

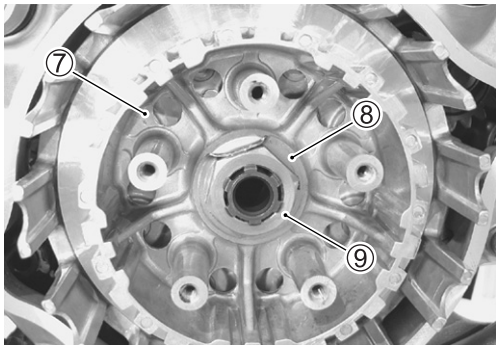


- Install the primary driven gear assembly ⑥.
- Install the washer.



- Fit the clutch sleeve hub ⑦, new lock washer ⑧ and clutch sleeve hub nut ⑨.

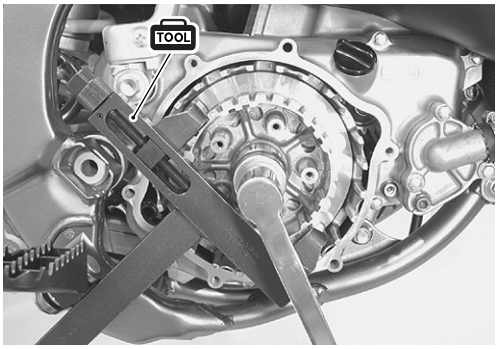
NOTE:
The flat side of the nut ⑨ must face inside.



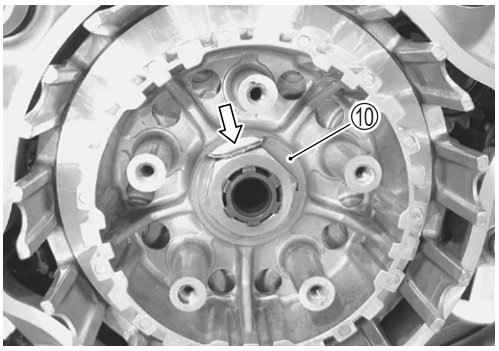
- Tighten the clutch sleeve hub nut with the special tool to the specified torque.

09920-53740: Clutch sleeve hub holder

Clutch sleeve hub nut: 70 N·m (7.0 kgf-m, 50.5 lb-ft)



- Bend the lock washer to secure the nut ⑩.

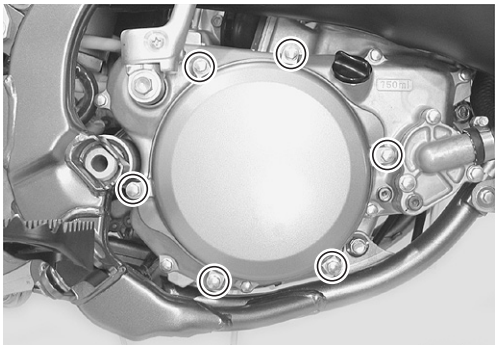


- Reassemble the clutch plates and pressure plate. (☞7-5)
- Replace the O-ring with a new one.
- Apply grease to the O-ring.

99000-25010: SUSZUKI SUPER GREASE "A" (or equivalent grease)

- Fit the clutch outer cover and tighten the bolts diagonally.

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

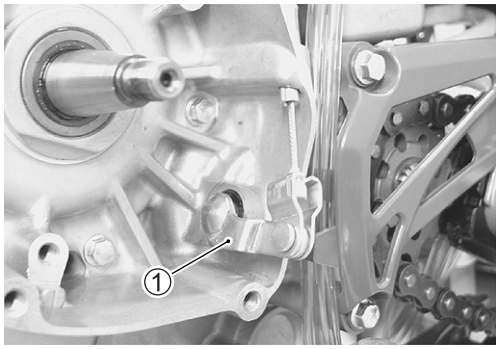


- Pour transmission oil. (☞2-9)
- Adjust the clutch cable play. (☞2-12)
- Adjust the brake pedal height. (☞2-19)

CLUTCH RELEASE CAMSHAFT

REMOVAL

- Remove the magneto rotor and stator. (☞13-8)
- Loosen the clutch cable adjuster and unhook the clutch cable. (☞5-6)
- Remove the clutch release camshaft ①.



INSPECTION

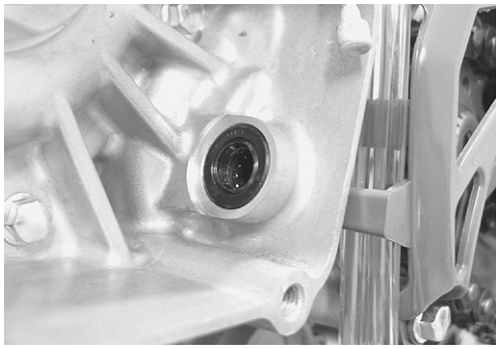
CLUTCH RELEASE CAMSHAFT

- Inspect the clutch release camshaft for abnormal deflection and damage.

OIL SEAL AND BEARING

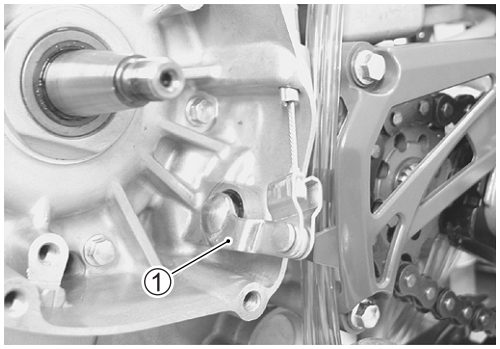
- Inspect the oil seal for damage and oil leakage.
- Inspect the bearings for abnormal noise, wear and damage.

OIL SEAL REMOVAL AND INSTALLATION (☞10-7)
BEARING REMOVAL AND INSTALLATION (☞10-9)



INSTALLATION

- Install the clutch release camshaft ① and hook the clutch cable.
- Reassemble the magneto rotor and stator. (☞13-9)
- Fit a new gasket and install the magneto cover.
- Inspect the clutch cable play. (☞2-12)

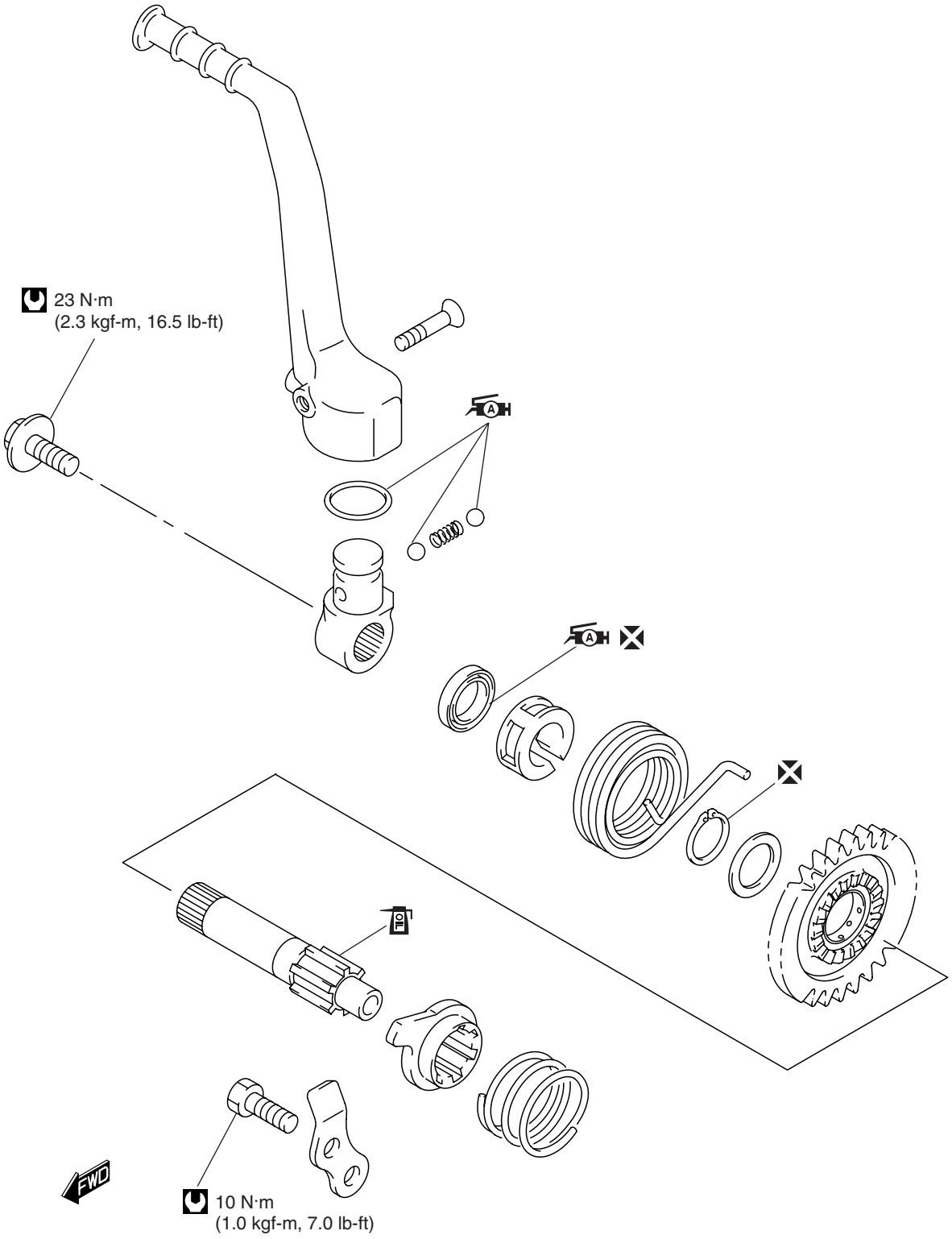


– MEMO –

KICK STARTER

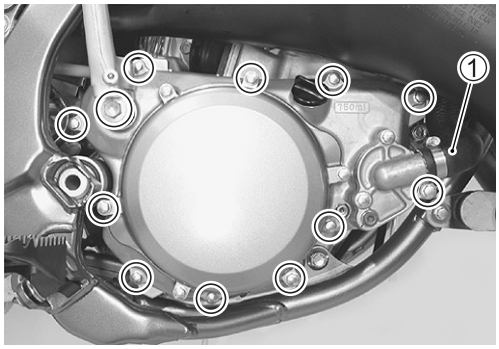
CONTENTS

CONSTRUCTION



REMOVAL

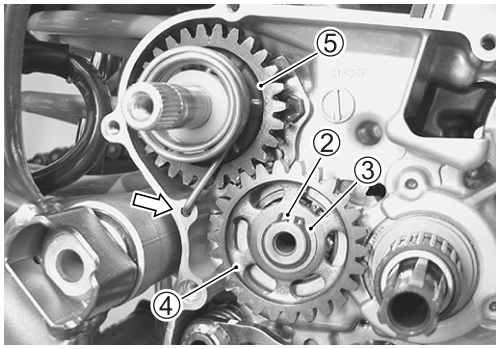
- Drain transmission oil. (☞2-9)
- Drain engine coolant. (☞12-3)
- Remove the brake pedal. (☞5-5)
- Remove the kick starter lever.
- Disconnect the radiator hose ①.
- Remove the crankcase cover.
- Remove the clutch and primary driven gear assembly. (☞7-3, -6)



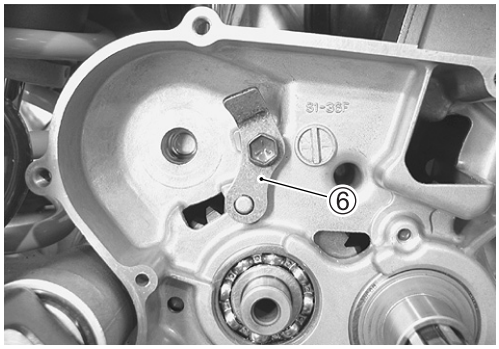
- Remove the snap ring ②, washer ③ and kick starter idle gear ④.

TOOL 09900-06107: Snap ring pliers

- Unhook the kick return spring and remove the kick starter assembly ⑤.

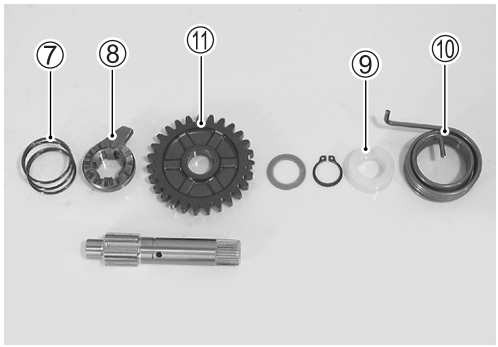


- Remove the kick starter guide ⑥.



- Disassemble the following parts from the kick starter shaft.
  Spring ⑦
  Kick starter ⑧
  Spring guide ⑨
  Kick return spring ⑩
  Kick starter drive gear ⑪

TOOL 09900-06107: Snap ring pliers



INSPECTION

OIL SEAL

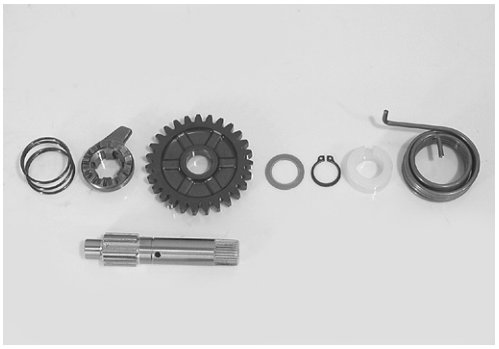
- Inspect the oil seal for oil leakage and damage.
- Remove the oil seal using the special tool.

09913-50121: Oil seal remover

- Install the oil seal using the special tool.

09913-70210: Bearing installer set

KICK STARTER



- 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.

KICK STARTER IDLE GEAR

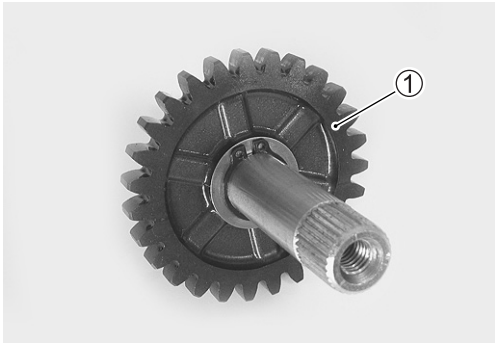
- Inspect the kick starter idle gear teeth for wear and damage.
- Inspect the kick starter idle gear and driveshaft contact surface for wear and damage.

REASSEMBLY

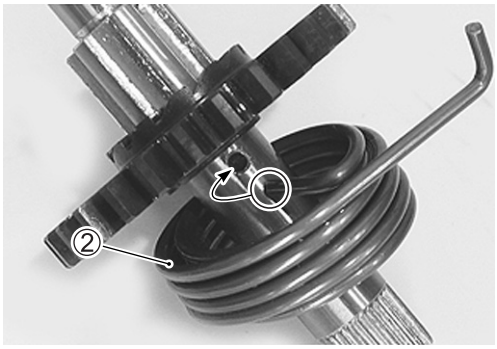
Reassemble the kick starter assembly in the reverse order of disassembly. Pay attention to the following points:

- Apply transmission oil to the kick starter shaft.
- Install the kick starter drive gear ① and washer to the kick starter shaft.
- Install new snap ring.

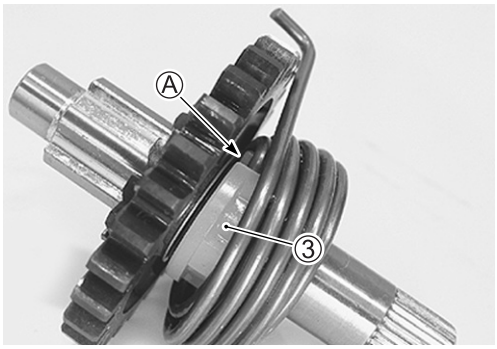
TOOL 09900-06107: Snap ring pliers



- Insert the return spring end ② into the hole on the kick shaft.

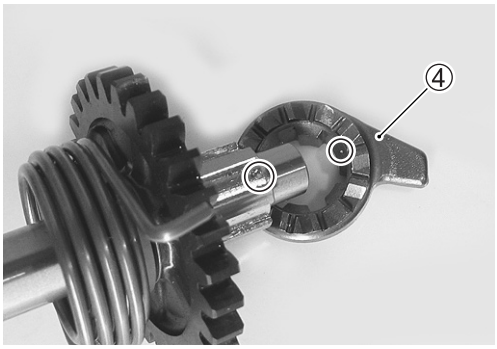


- Install the spring guide ③ as its groove Ⓐ engages with the return spring hooked part.

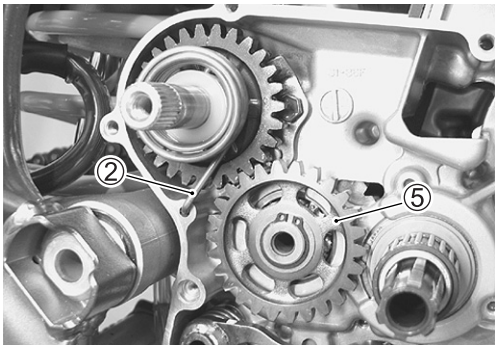


- Install the kick starter ④ to the kick starter shaft.

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

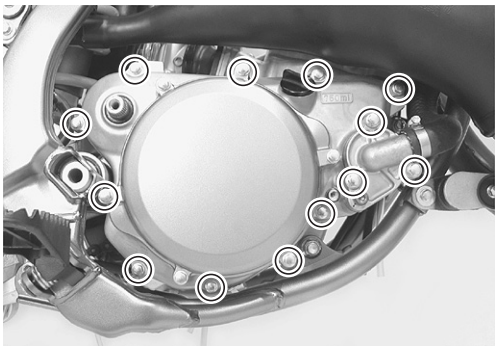


- Install the kick starter assembly to the crankcase. Hook the return spring ②.
- Reassemble the kick idle gear ⑤.
- Reassemble the primary driven gear assembly and clutch. (☞7-5, -7)



- Install the crankcase cover.

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



- Install the kick starter lever so the punch mark on the lever aligns with the punch mark on the kick shaft.

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

INSPECTION AFTER REASSEMBLY

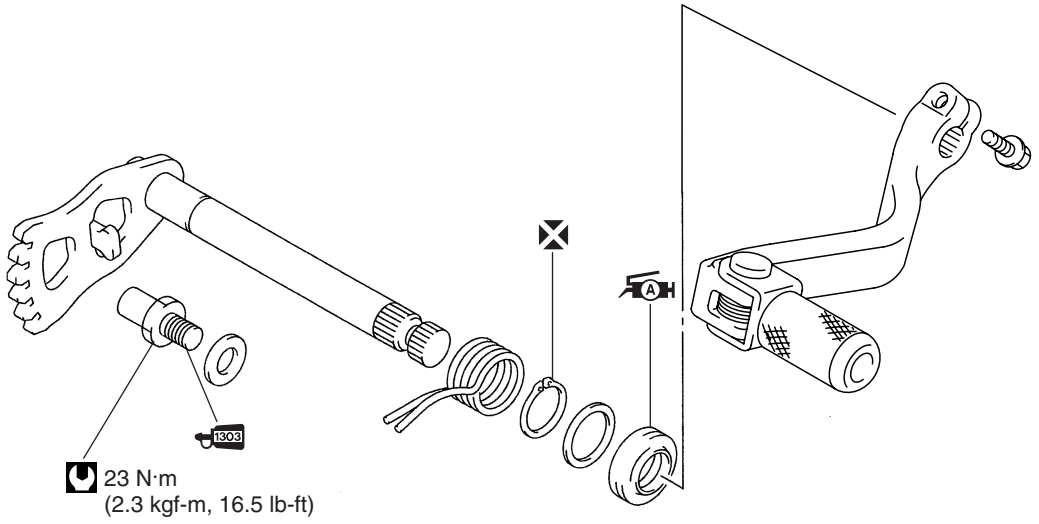
After reinstalling the kick starter assembly, inspect the followings.

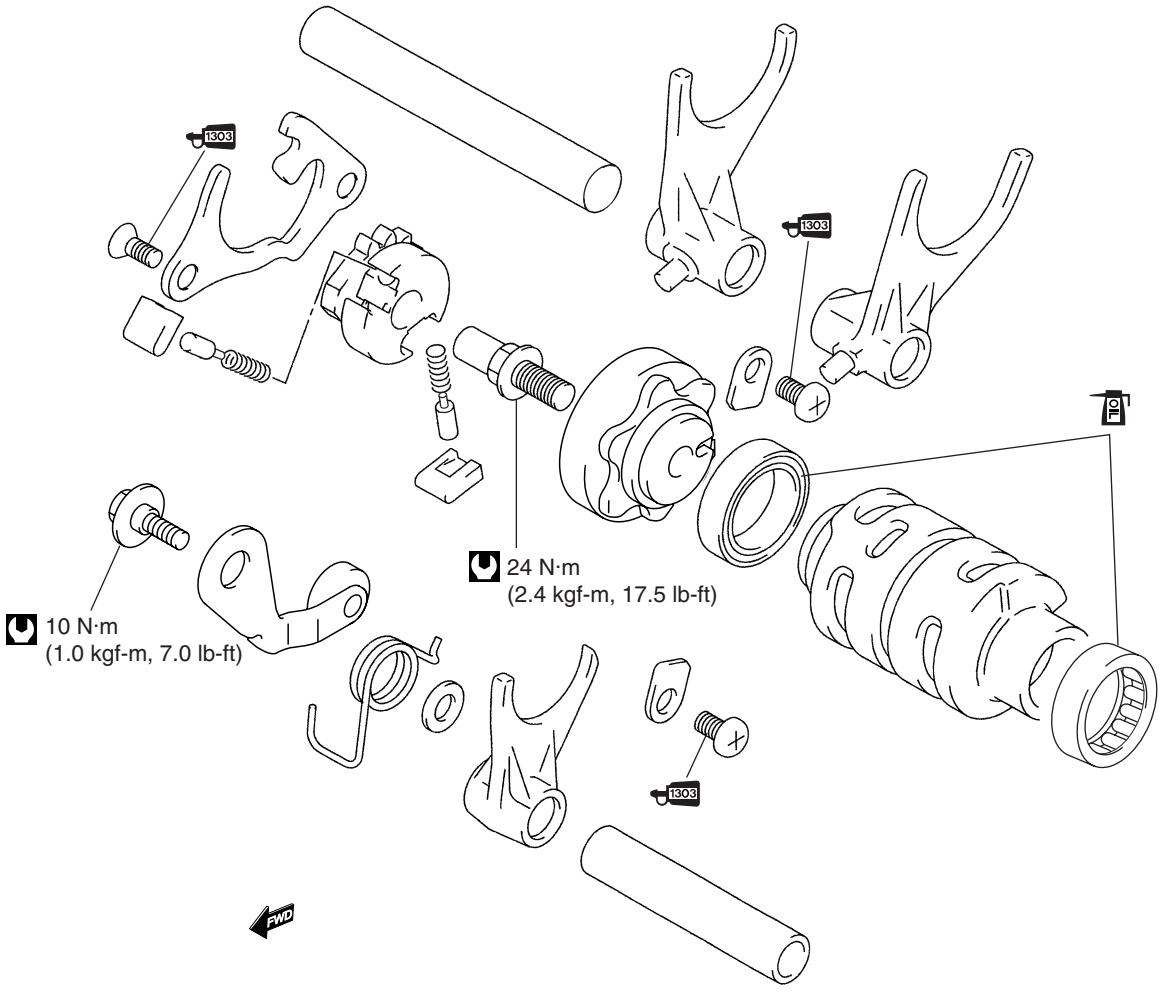
- Transmission oil level (☞2-9)
- Engine coolant level (☞2-10)
- Brake pedal height (☞2-19)
- Clutch lever play (☞2-12)

GEARSHIFTING

CONTENTS

CONSTRUCTION

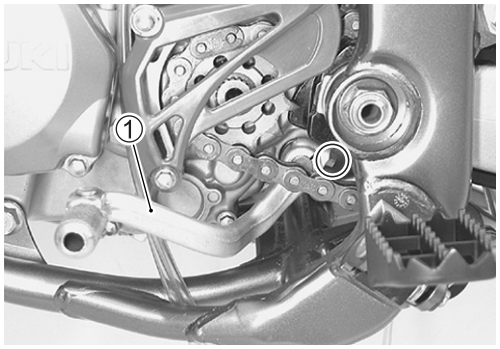




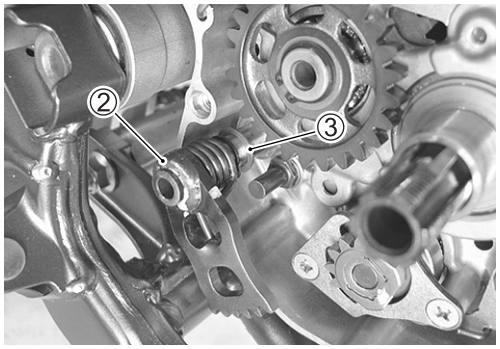
REMOVAL

- Drain transmission oil. (☞2-9)
- Drain engine coolant. (☞12-3)
- Remove the gearshift lever ①.

NOTE:
Mark the gearshift shaft head at which the gearshift lever slit set for correct reinstallation.

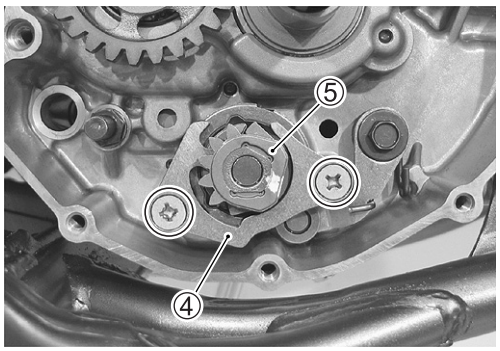


- Remove the right crankcase cover. (☞8-3)
- Remove the clutch assembly. (☞7-3, -6)
- Remove the gearshift shaft ② and washer ③.

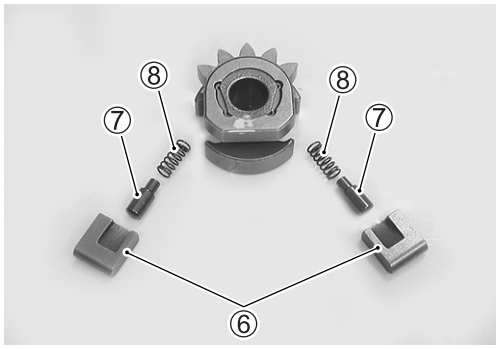


- Remove the pawl lifter ④.
- Remove the gearshift cam driven gear ⑤.

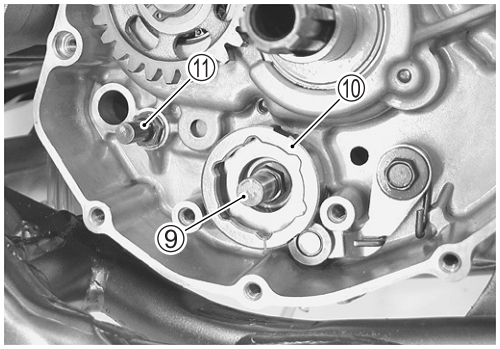
NOTE:
Be careful not to drop the pins and springs when removing the gearshift cam driven gear.



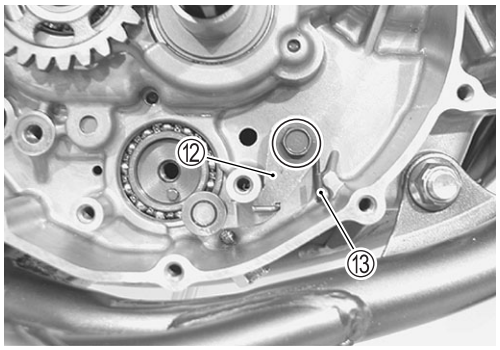
- Remove the gearshift pawls ⑥, pins ⑦ and springs ⑧.



- Remove the gearshift cam bolt ⑨ and stopper plate ⑩.
- Remove the gearshift arm stopper bolt ⑪ and washer.

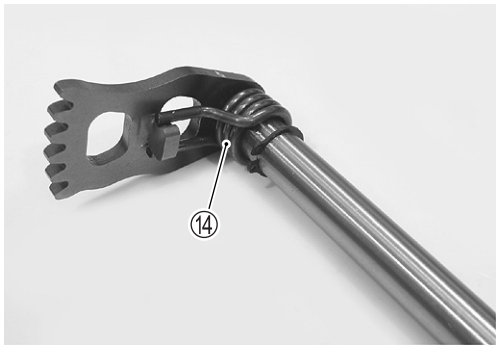


- Remove the gearshift cam stopper ⑫ and spring ⑬.



- Remove the gearshift return spring ⑭ by removing the snap ring.

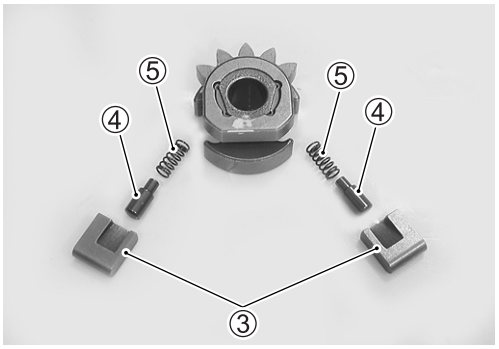
TOOL 09900-06107: Snap ring pliers



INSPECTION

- Inspect the gearshift shaft ① for bends and damage.
- Inspect the return spring ② for damage.

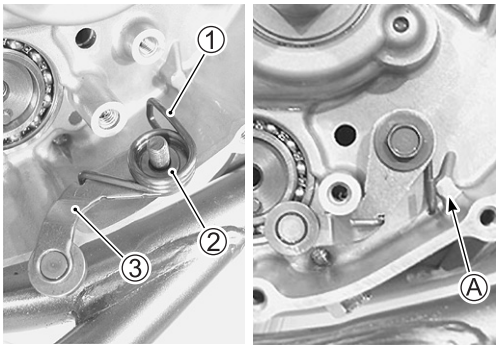
- Inspect the pawls ③, pins ④ and springs ⑤ for damage.



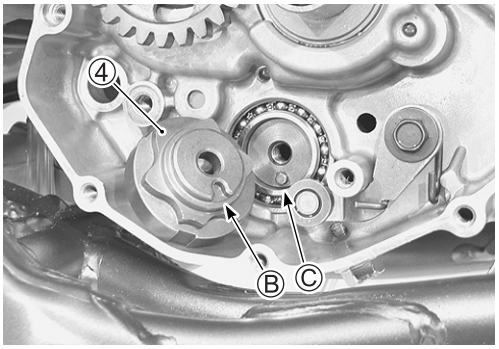
REASSEMBLY

- Temporarily install the spring ①, washer ② and gearshift cam stopper ③.
- Hook the spring ① to the projection Ⓐ.
- Tighten the gearshift cam stopper bolt.

Gearshift cam stopper bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)



- Align the pin groove Ⓑ with the pin Ⓒ when installing the stopper plate ④.



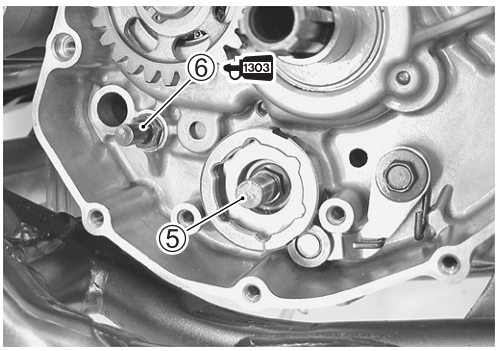
- Tighten the gearshift cam bolt ⑤.

Gearshift cam bolt: 24 N·m (2.4 kgf-m, 17.5 lb-ft)

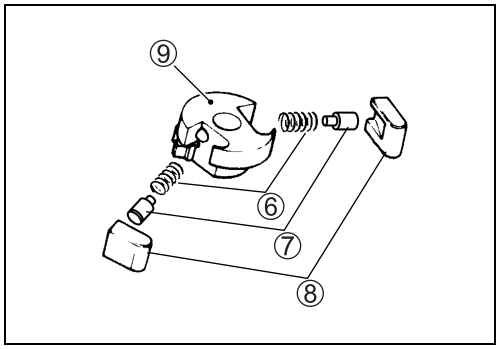
- Apply THREAD LOCK SUPER and tighten the gearshift arm stopper bolt ⑥ to the specified torque.

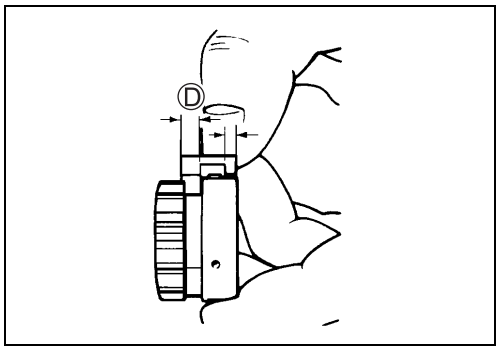
Gearshift arm stopper bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

1303 99000-32030: THREAD LOCK SUPER "1303"

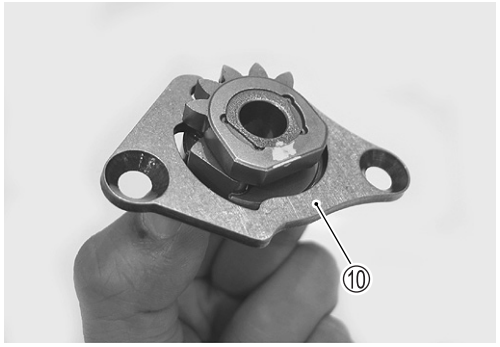


• Fit the springs ⑥, pins ⑦ and pawls ⑧ to the gearshift cam driven gear ⑨. Wider side Ⓓ of pawls should be positioned outside.





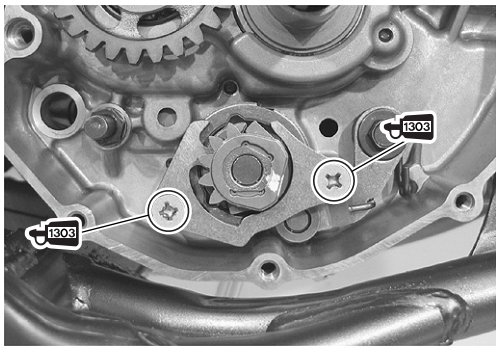
• With the pawls held in pushed position, install the pawl lifter ⑩.



• Reassemble the gearshift cam driven gear and pawl lifter.
• Apply THREAD LOCK SUPER to the screws.

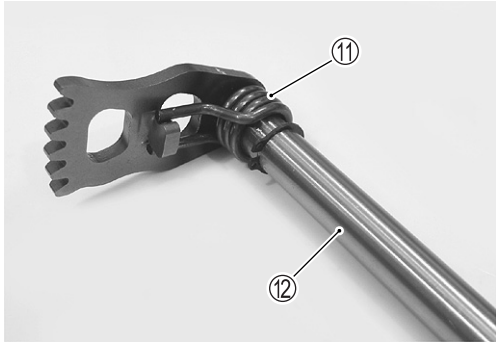
Retainer screw: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

1303 99000-32030: THREAD LOCK SUPER "1303"

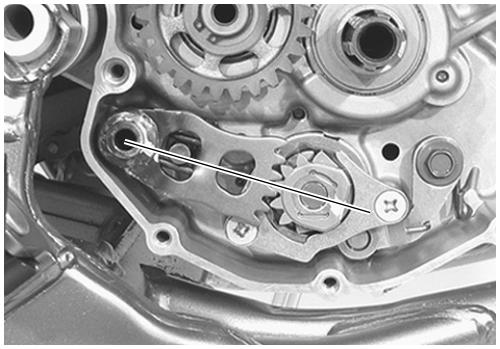


• Reassemble the gearshift return spring ⑪ to the gearshift shaft ⑫ properly.

TOOL 09900-06107: Snap ring pliers



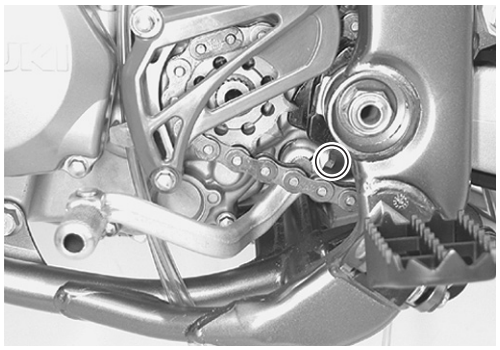
- Align the center teeth on the gearshift shaft with the center teeth on the gearshift cam shifter.
- Reassemble the clutch and crankcase cover. (☞7-5, -7, 8-6)



- Install the gearshift lever.

Gearshift lever bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

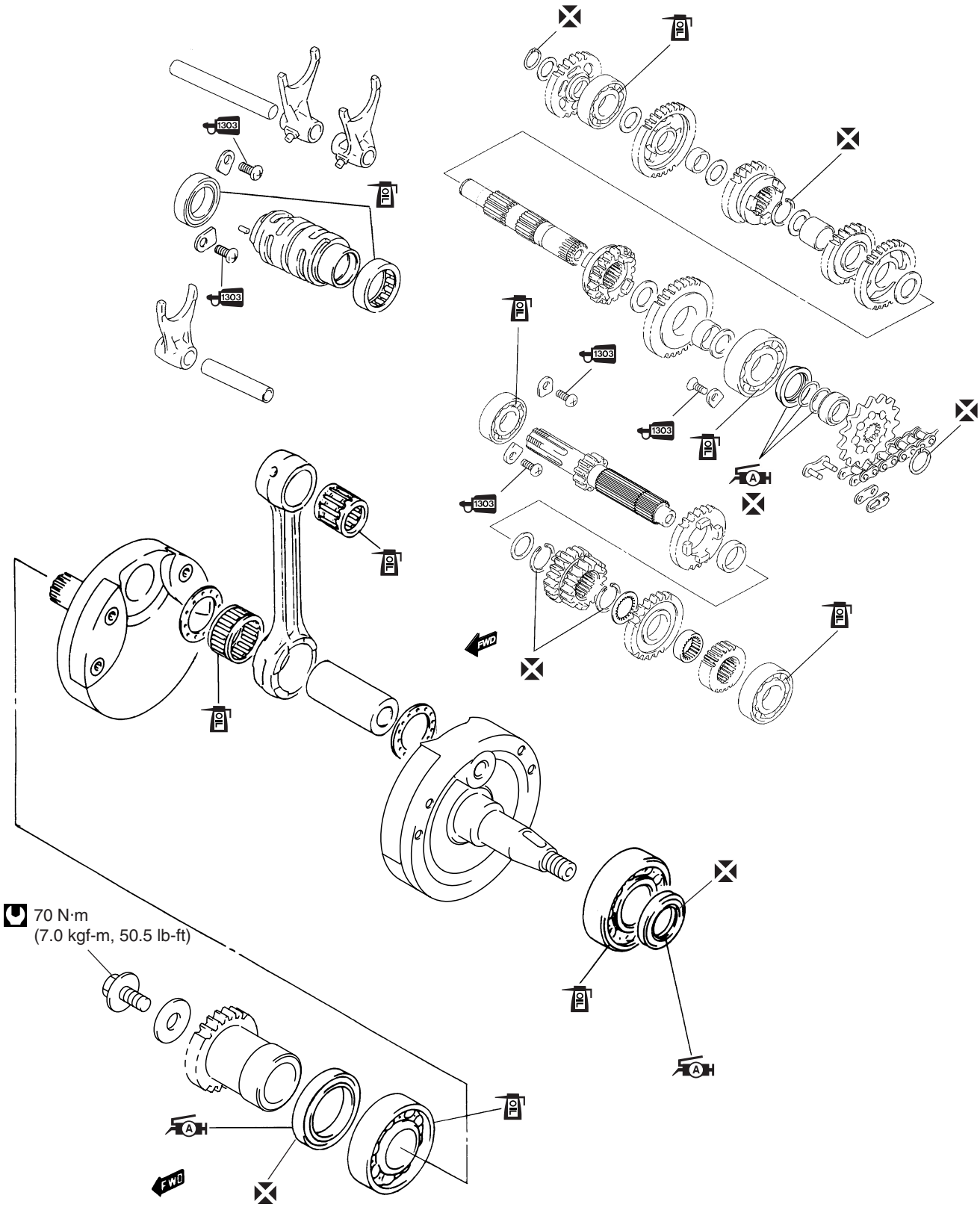
- Refill transmission oil. (☞2-9)
- Refill engine coolant. (☞2-10)
- Inspect the gearshift lever for smooth movement.



TRANSMISSION AND CRANKSHAFT

CONTENTS

CONSTRUCTION



ENGINE BOTTOM END

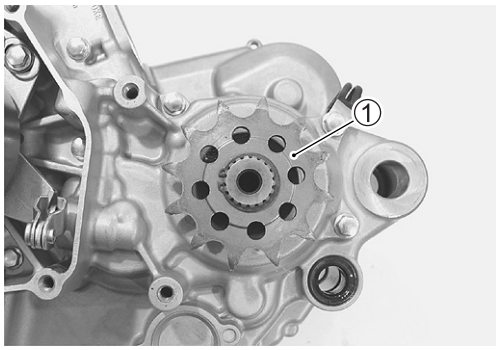
- Dismount the engine. (☞5-3)

NOTE:
The following parts must be removed before disassembling the engine bottom side (crankcase).

- Remove the gearshift lever. (☞9-3)
- Remove the kick starter lever. (☞8-3)
- Remove the cylinder head, cylinder and piston. (☞6-3, -4)
- Remove the intake pipe and reed valve. (☞11-12)
- Remove the right crankcase cover and clutch assembly. (☞8-3)
- Remove the kick starter idle gear and kick starter shaft. (☞8-3)
- Remove the gearshift linkage. (☞9-3)
- Remove the exhaust valve governor. (☞6-12)

- Remove the engine sprocket ①.

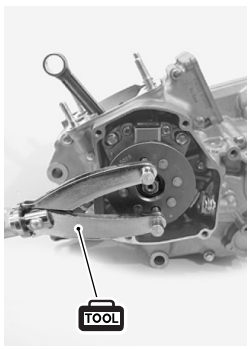
TOOL **09900-06107: Snap ring pliers**

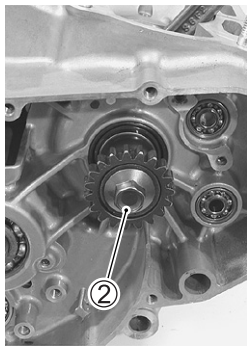


PRIMARY DRIVE GEAR REMOVAL

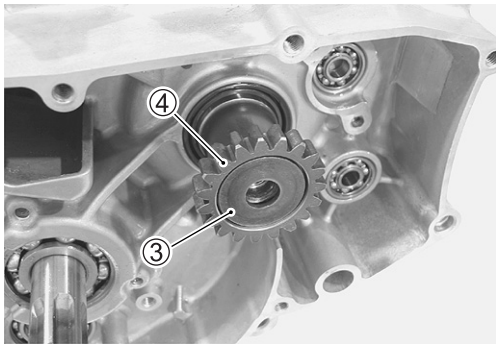
- Holding the magneto rotor immovable with the special tool, remove the primary drive gear bolt ②.

TOOL **09930-40113: Rotor holder**



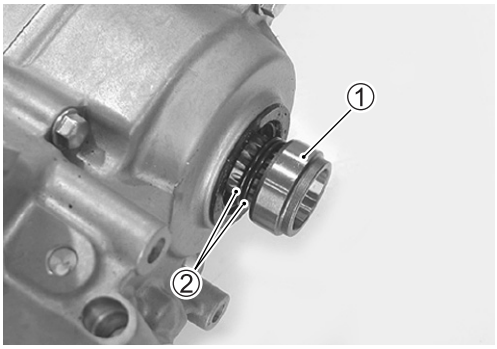


- Remove the washer ③ and primary drive gear ④.
- Remove the magneto rotor, stator and key. (☞13-8)
- Remove the clutch release camshaft. (☞7-9)

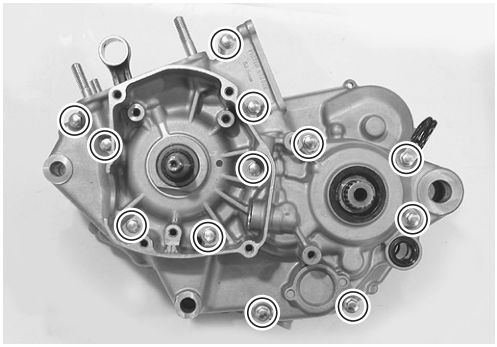


CRANKCASE SEPARATION

- Remove the engine sprocket spacer ① and two O-rings ②.



- Remove the crankcase bolts.

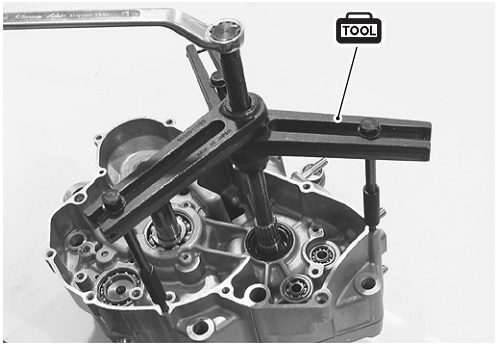


- Separate the crankcase with the special tool.

TOOL 09920-13120: Crankcase separating tool

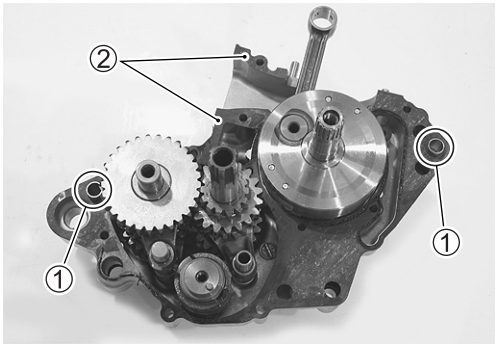
NOTE:

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

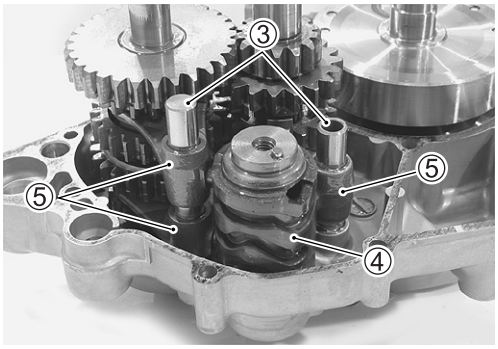


TRANSMISSION REMOVAL

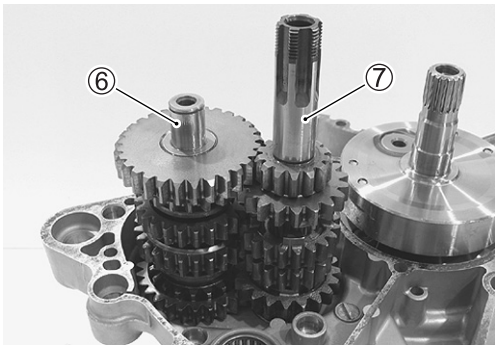
- Remove the dowel pins ① and gasket ②.



- Remove the gearshift fork shafts ③.
- Remove the gearshift cam ④.
- Remove the gearshift forks ⑤.



• Remove the driveshaft assembly ⑥ and countershaft assembly ⑦.

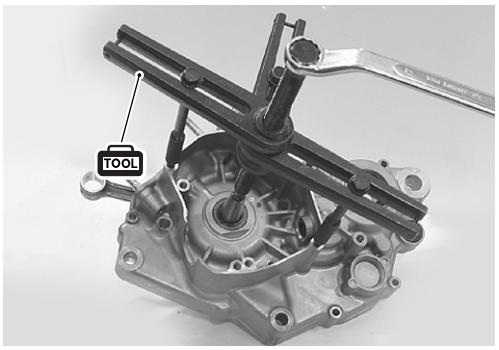


CRANKSHAFT REMOVAL

• Remove the crankshaft with the special tool.

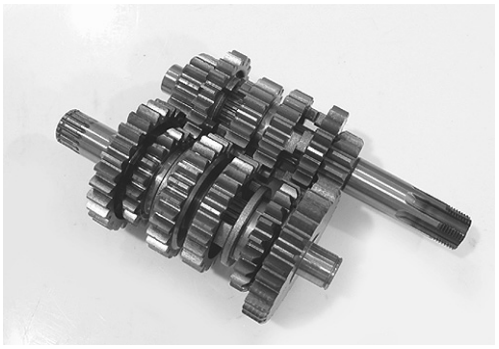
TOOL 09920-13120: Crankcase separating tool

CAUTION
Be careful not to damage the thread part of the crankshaft.



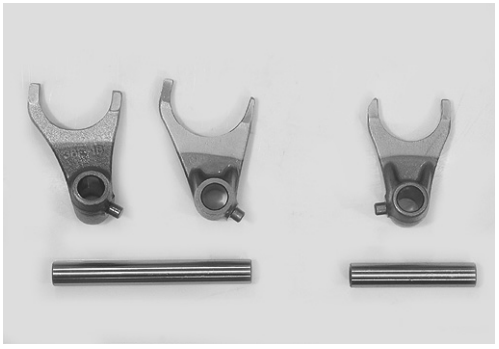
TRANSMISSION INSPECTION

• Inspect the gear teeth, dogs, 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.

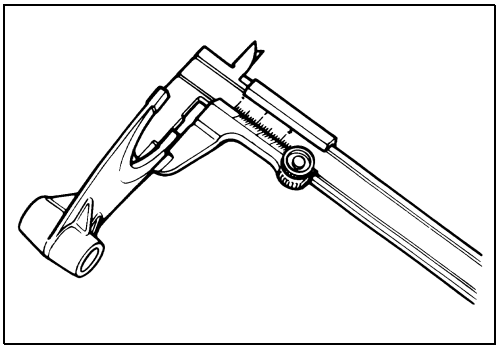
• Inspect the gearshift forks and shafts for wear and damage.



• Measure the gearshift fork thickness with a vernier calipers.

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

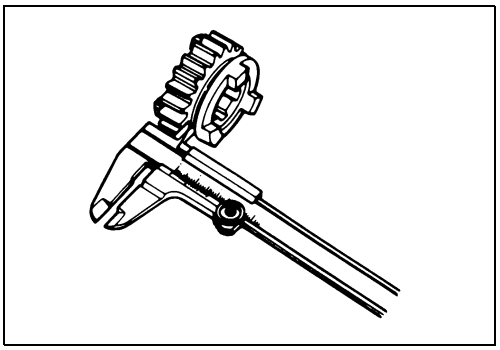
TOOL **09900-20101: Vernier calipers**



• Measure the gearshift fork groove width with a vernier calipers.

DATA **Gearshift fork groove width**
Standard: 4.95 – 5.05 mm (0.195 – 0.199 in)

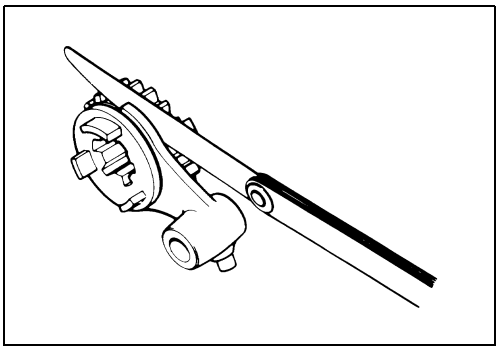
TOOL **09900-20101: Vernier calipers**



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

DATA **Gearshift fork to groove clearance**
Service Limit: 0.45 mm (0.018 in)

TOOL **09900-20803: Thickness gauge**



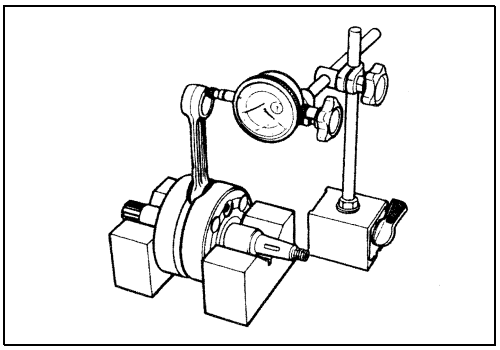
CRANKSHAFT INSPECTION

• Measure the conrod deflection with the special tools.

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

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

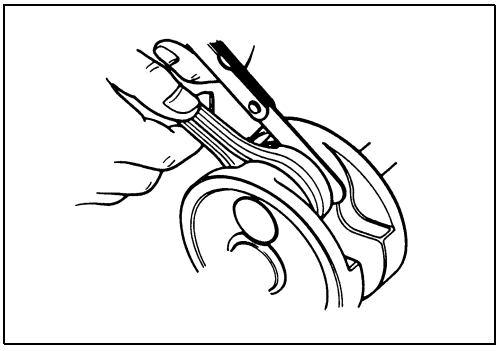
CONROD SMALL END I.D. (☞6-8)



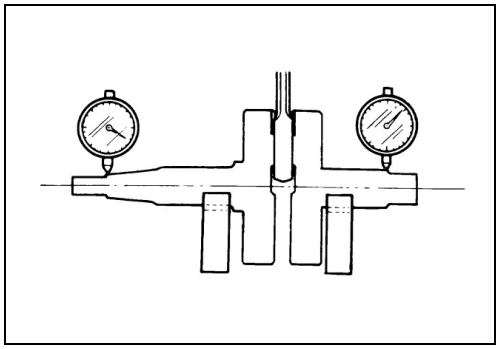
• Measure the conrod big end side clearance with the thickness gauge.

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

TOOL **09900-20803: Thickness gauge**



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

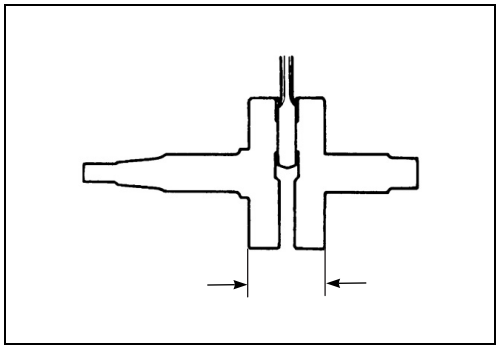


DATA **Crankshaft runout**
Service Limit: 0.05 mm (0.002 in)

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

NOTE:
** Place the crankshaft on to the V-blocks so that it becomes horizontally.*
** Measure the runout from the tips of the crankshaft.*

• Measure the crankshaft web to web width with a vernier calipers.

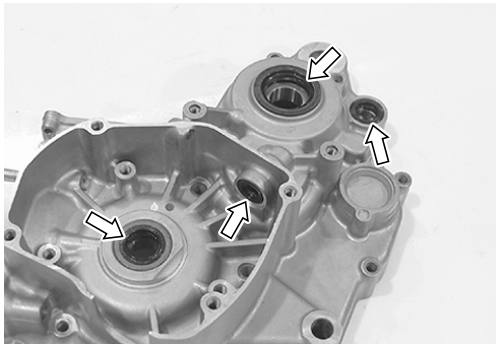


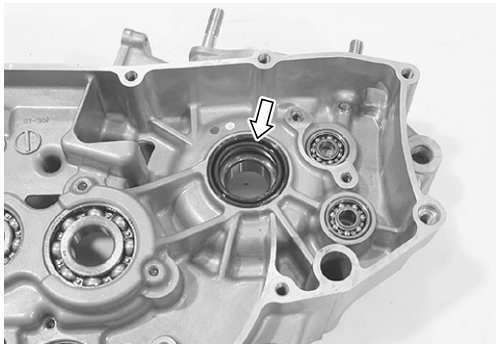
DATA **Width between webs**
Standard: 53.9 – 54.1 mm (2.122 – 2.130 in)

TOOL **09900-20101: Vernier calipers**

OIL SEAL INSPECTION, REMOVAL AND INSTALLATION

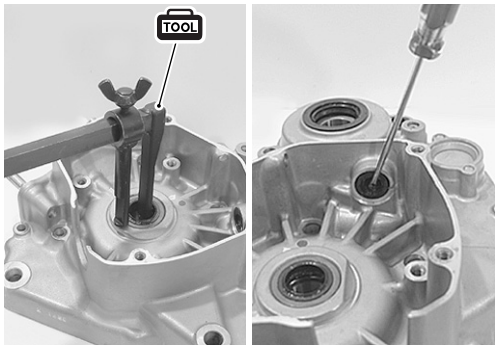
• Inspect oil seals for wear and damage.





- Remove the oil seal.

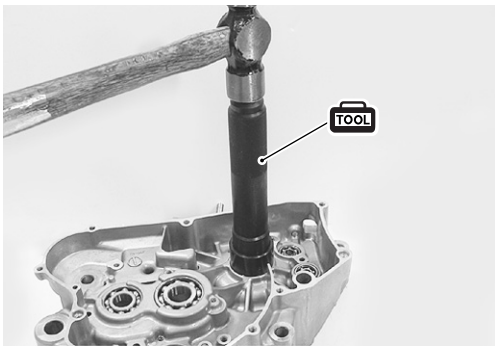
09913-50121: Oil seal remover



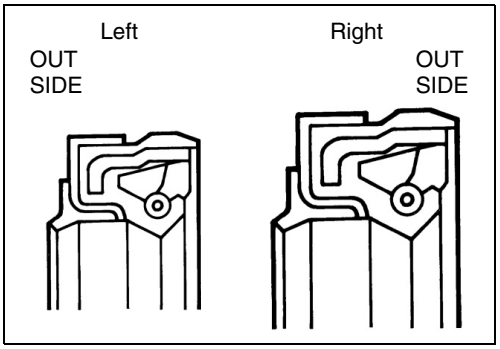
- Install new oil seal using the special tool.
- Apply grease to each oil seal lip.

09913-70210: Bearing installer set

99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)

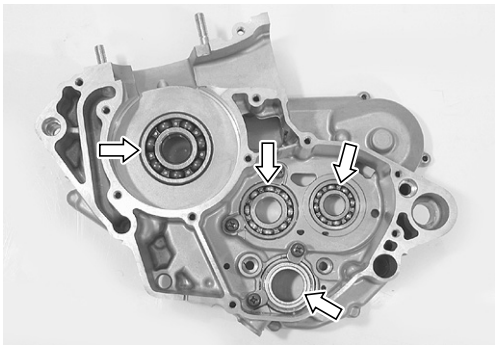


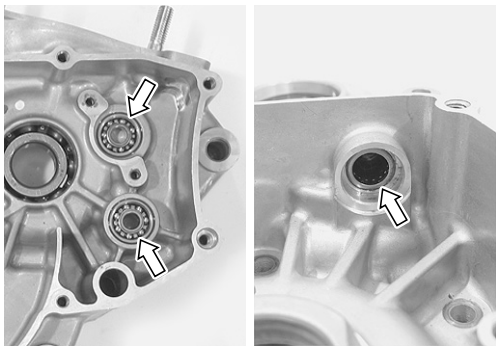
NOTE:
Be sure to check the direction of the crankshaft bearing oil seals before fitting them.

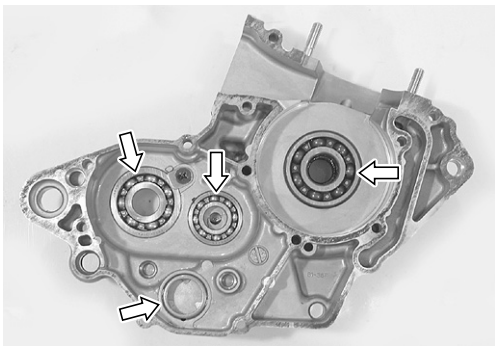


BEARING INSPECTION, REMOVAL AND INSTALLATION

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

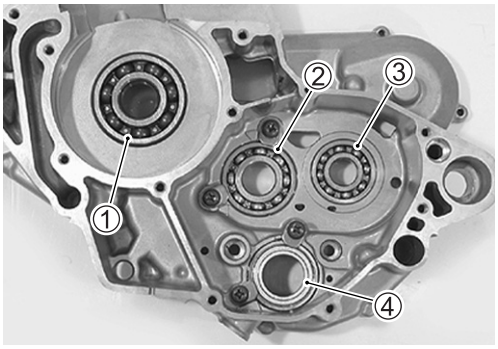






- Remove the bearing retainers.
- Remove the bearings ① to ④ by hitting out from the other side using the special tool.

TOOL 09913-70210: Bearing installer set

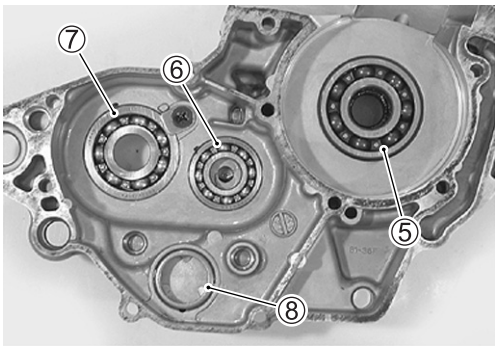


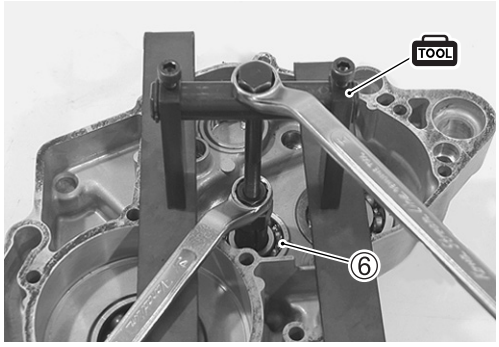
- Remove the bearings ⑤ and ⑦ by hitting out from the other side using the special tool.

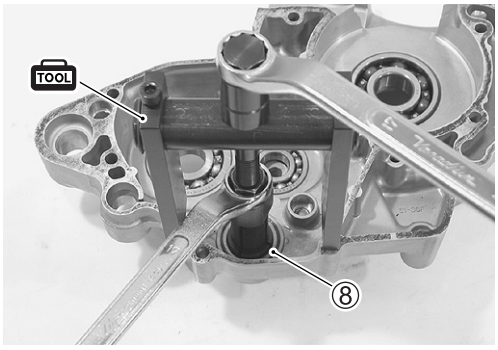
TOOL 09913-70210: Bearing installer set

- Remove the bearing ⑥ using the special tool and suitable bars.
- Remove the bearing ⑧ using the special tool.

TOOL 09921-20240: Bearing remover set

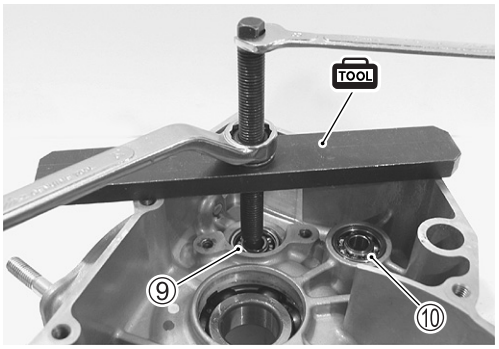






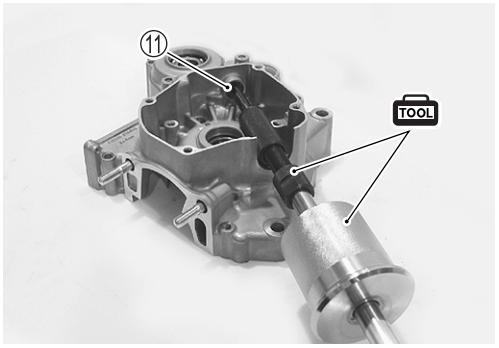
• Remove the bearings ⑨ and ⑩ using the special tool.

TOOL **09917-50410: Bearing remover**



• Remove the bearing ⑪ using the special tools.

TOOL **09921-20200: Bearing remover**
09930-30104: Sliding shaft

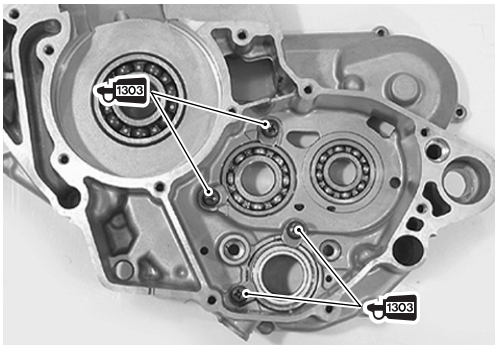


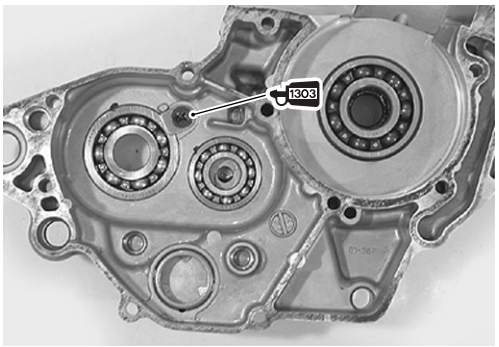
• Install the bearings with the special tool.

TOOL **09913-70210: Bearing installer set**

• Apply THREAD LOCK SUPER to the shift cam bearing retainer screws.

1303 **99000-32030: THREAD LOCK SUPER "1303"**

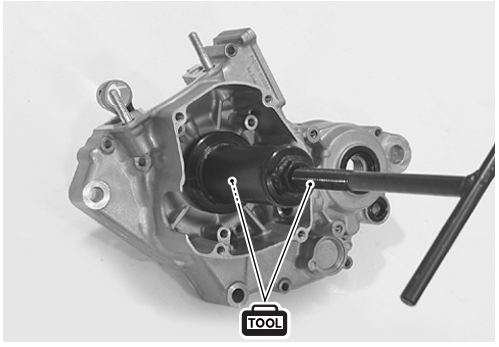




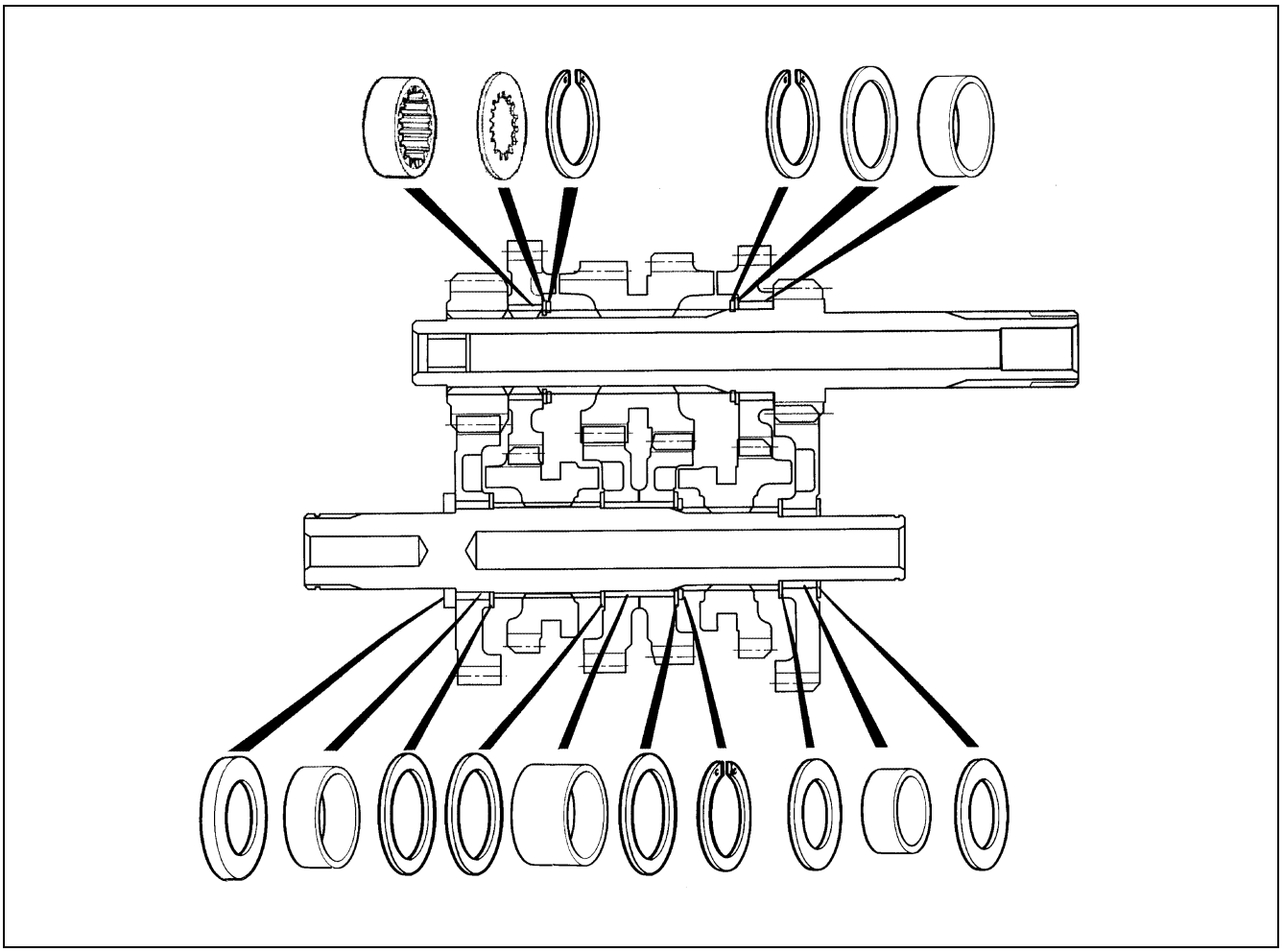
CRANKSHAFT INSTALLATION

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

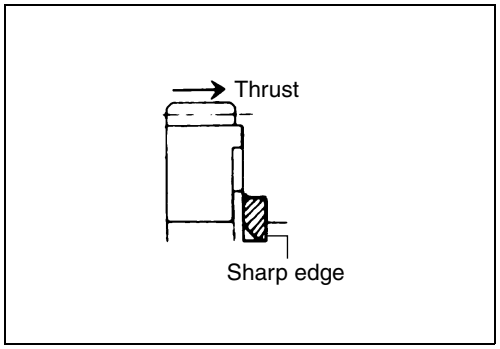
TOOL **09910-32812: Crankshaft installer**
09910-32820: Crankshaft installer attachment



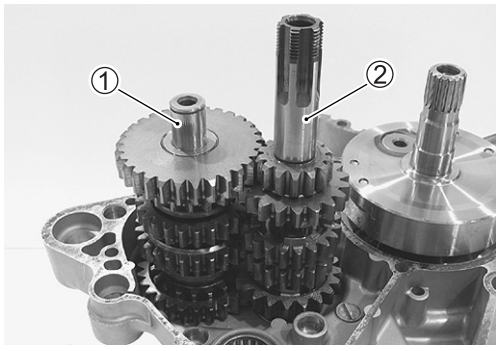
TRANSMISSION REASSEMBLY



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

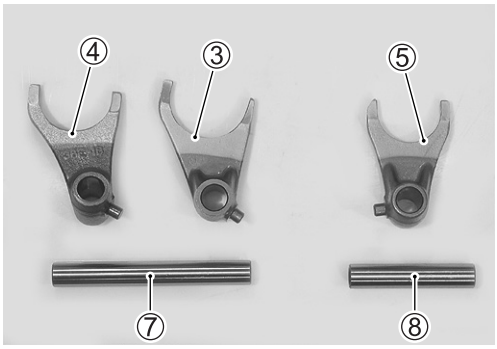


- Apply transmission oil to the following parts:
  driveshaft, countershaft, transmission gears, bearings.
- Reassemble the driveshaft ① and countershaft ② with gears installed.



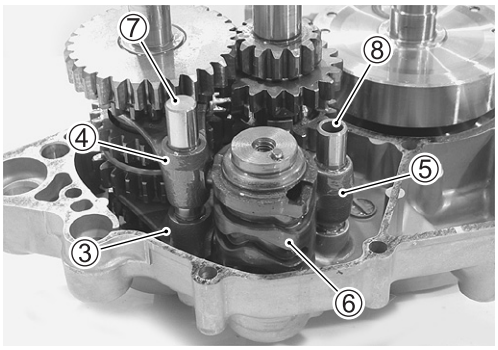
- Apply transmission oil to the following parts: gearshift forks, gearshift shafts, gearshift cam.
- Install the gearshift forks ③, ④, ⑤.

NOTE:
Each fork differs in shape.



- Install the gearshift cam ⑥ and gearshift shafts ⑦, ⑧.

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

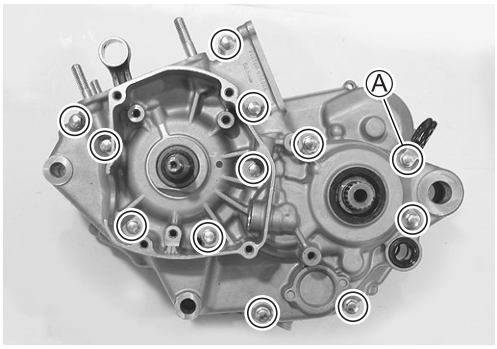


CRANKCASE REASSEMBLY

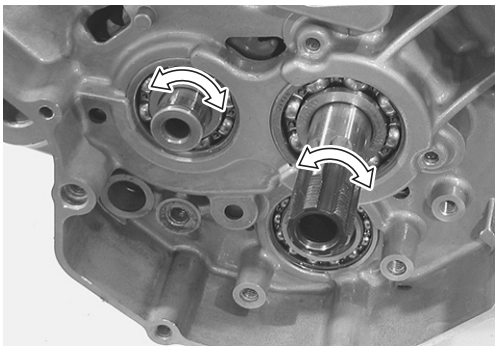
- Fit the dowel pins and new gasket.
- Fit the right crankcase half on the left crankcase half.
- Install the clamp to the bolt Ⓐ and tighten the crankcase bolts.

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

NOTE:
If it is hard to tighten the bolts, separate the crankcase and confirm that the transmission parts are assembled correctly.

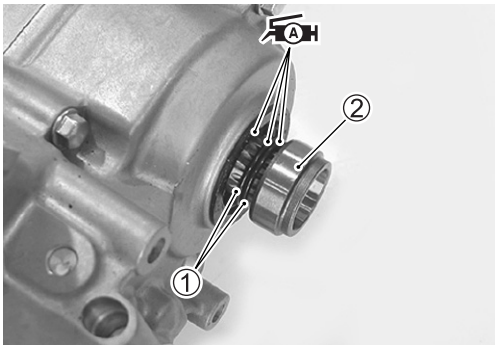


- Inspect the crankshaft, countershaft and driveshaft for smooth movement.



- Apply grease to the oil seal lip and new O-rings.
- Fit the O-rings ① and spacer ② to the driveshaft.

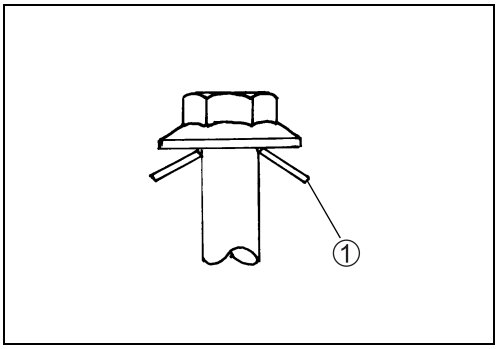
99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)



PRIMARY DRIVE GEAR INSTALLATION

- Reassemble the clutch release camshaft. (☞7-9)
- Reassemble the stator and magneto rotor. (☞13-9)
- Install the washer and primary drive gear.

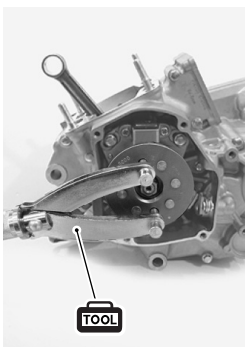
NOTE:
The washer is directional. Assemble the washer ① as shown in the illustration.



- Hold the magneto rotor with the special tool and tighten the primary drive gear bolt to the specified torque.

TOOL 09930-40113: Rotor holder

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



- Reassemble the gearshift linkage. (☞9-6)
- Reassemble the kick idle gear and kick starter shaft. (☞8-6)
- Reassemble the exhaust valve governor. (☞6-13)
- Reassemble the clutch and right crankcase cover. (☞7-5, -7, 8-6)
- Reassemble the piston, cylinder and cylinder head. (☞6-10)
- Reassemble the intake pipe and reed valve. (☞11-12)
- Reassemble the engine sprocket.
- Remount the engine. (☞5-7)

After mounting the engine, inspect the followings.

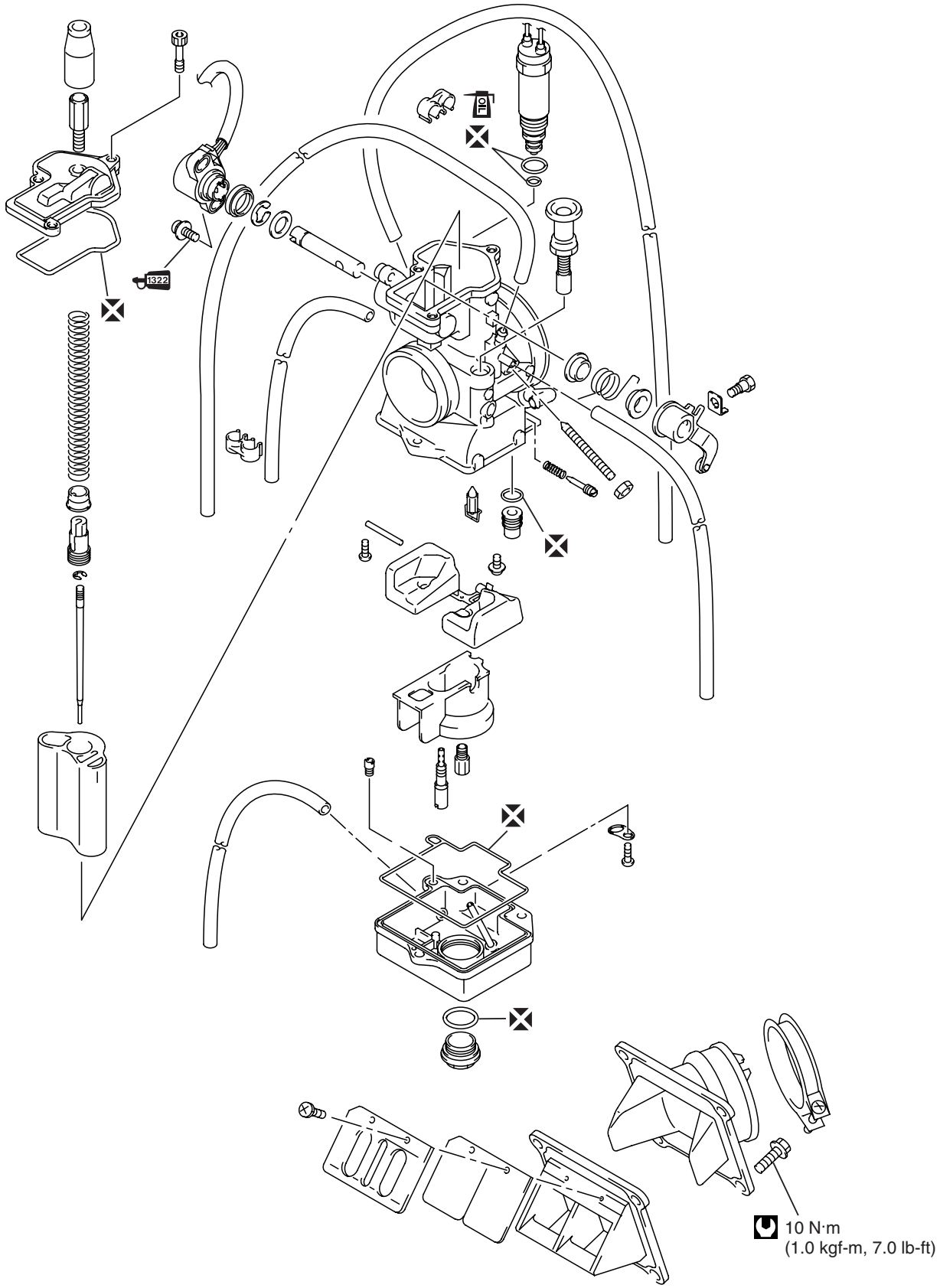
- Wire harness, cable and hose routing (☞18-12 to -14)
- Transmission oil level (☞2-9)
- Engine coolant level (☞2-10)
- Clutch cable play (☞2-12)
- Throttle cable play (☞2-12)
- Drive chain slack (☞2-16)
- Brake pedal height (☞2-19)

– MEMO –

FUEL SYSTEM

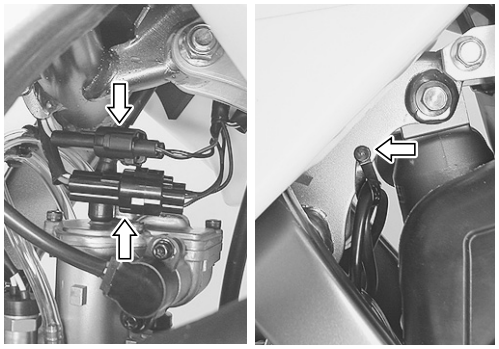
CONTENTS

CARBURETOR
CONSTRUCTION

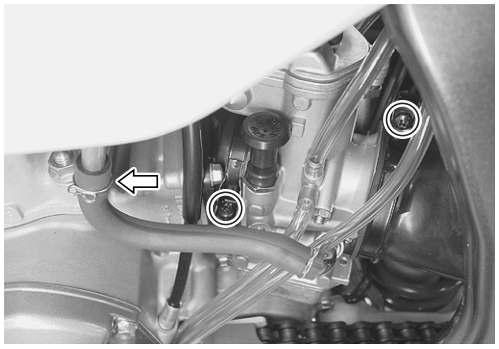


REMOVAL AND DISASSEMBLY

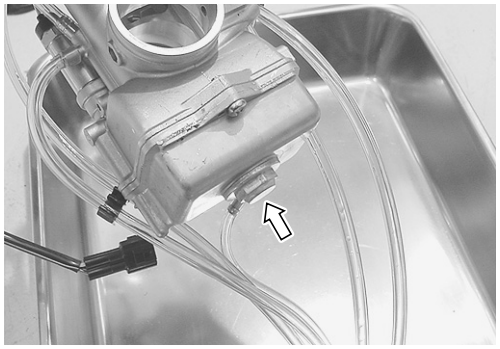
- Disconnect the throttle position sensor coupler and solenoid coupler.
- Open the clamp.



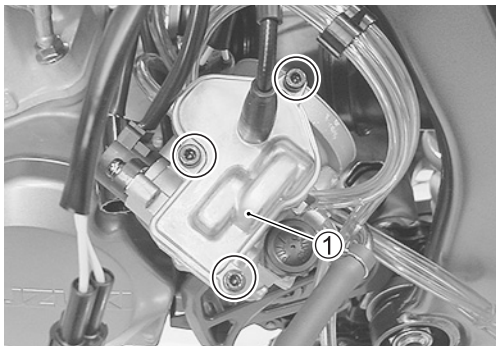
- Disconnect the fuel hose. (☞5-3)
- Loosen the carburetor clamp screws and remove the carburetor.



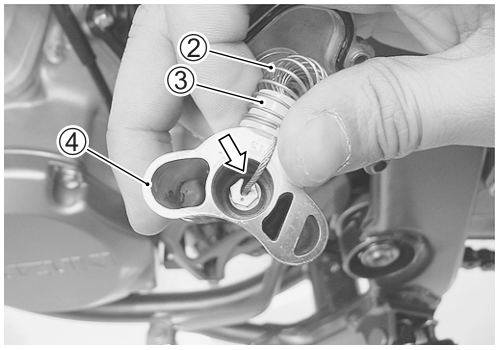
- Drain fuel by removing the drain plug.



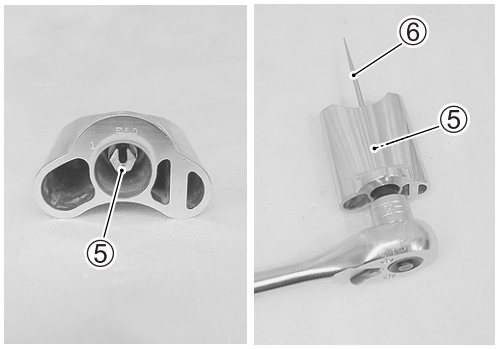
- Remove the carburetor top cap ①.



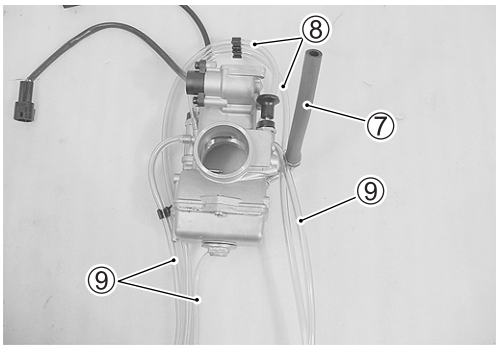
- Compressing the spring ② with the coller ③, disconnect the throttle cable from the throttle valve ④.



- Remove the cable holder ⑤ and jet needle ⑥.

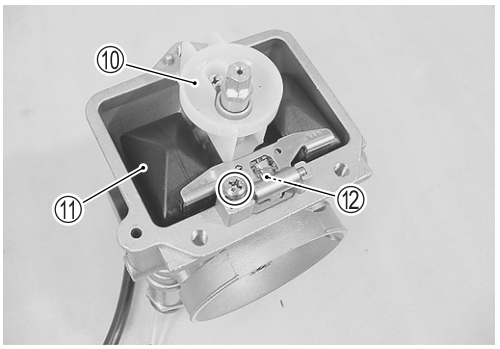


- Remove the fuel hose ⑦, air vent hoses ⑧ and overflow hoses ⑨.

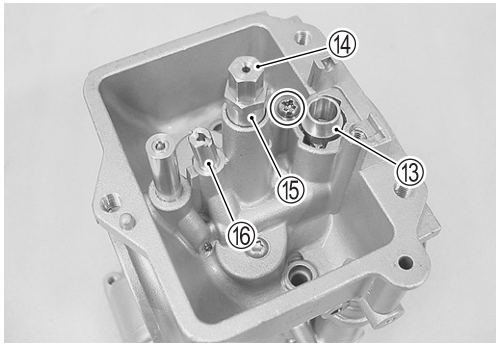


- Remove the float chamber.

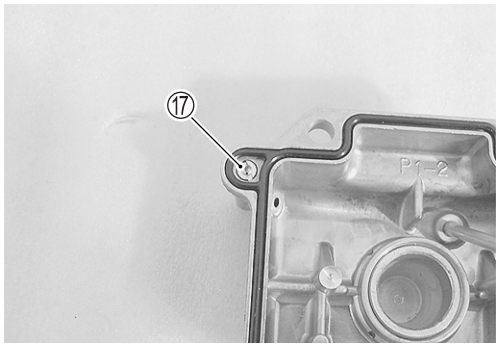
- Remove the holder ⑩.
- Remove the floats ⑪ and needle valve ⑫.



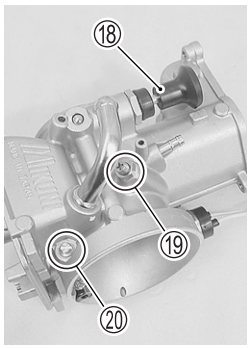
- Remove the needle valve seat ⑬.
- Remove the main jet ⑭ and needle jet holder ⑮.
- Remove the pilot jet ⑯.

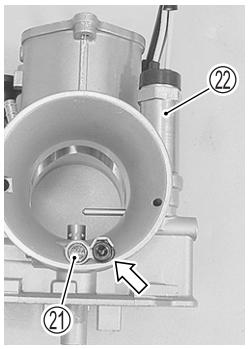


- Remove the power jet ⑰.

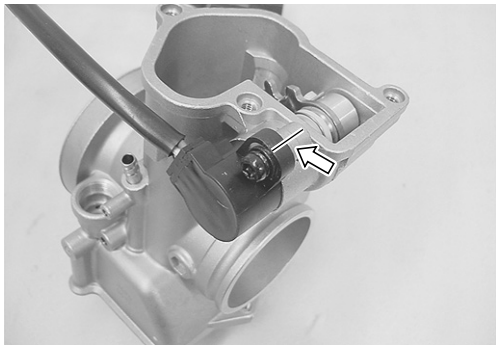


- Remove the starter knob ⑱.
- Remove the lock-nut and throttle stop screw ⑲.
- Remove the air screw ⑳ and spring.
- Remove the filter ㉑.
- Remove the solenoid ㉒.



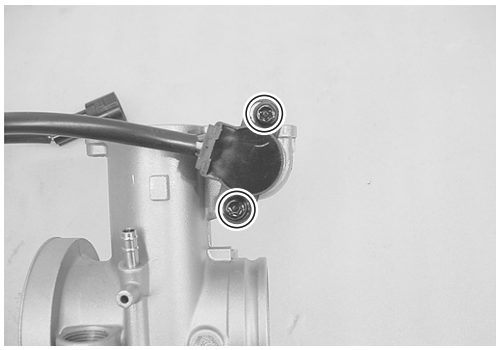


NOTE:
Prior to disassembly, mark the sensor's original position with a paint or scribe for accurate reinstallation.

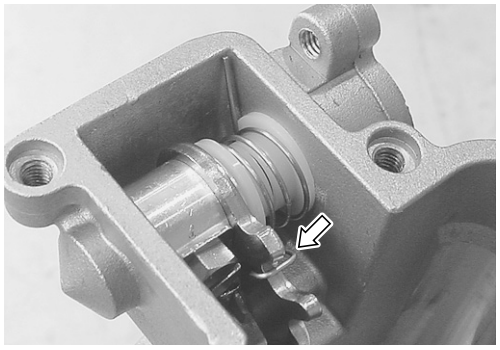


- Remove the throttle position sensor.

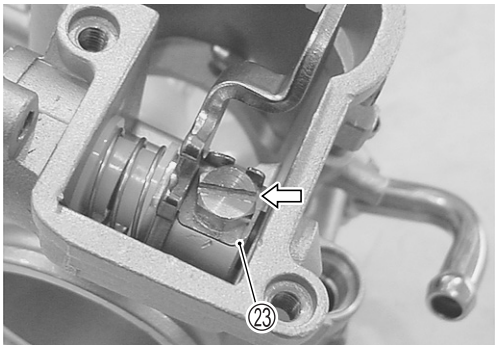
TOOL **09930-11960: Torx wrench, T20**



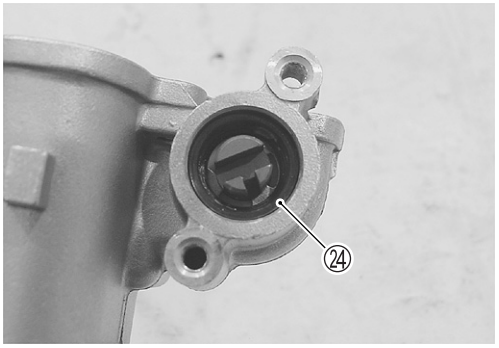
- Unhook the return spring.



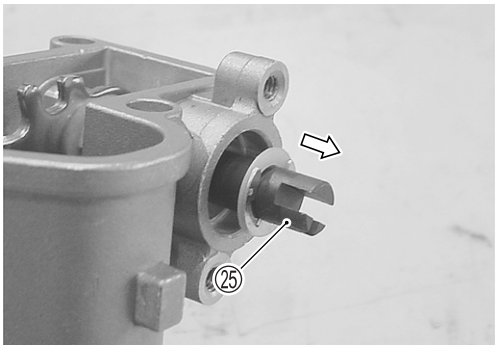
- Flatten the plate ㉓.
- Remove the throttle lever shaft bolt.



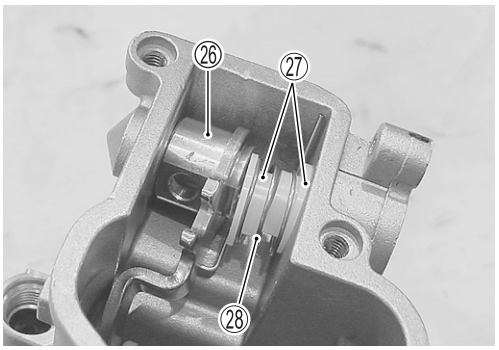
- Remove the dust seal ㉔.



- Remove the throttle lever shaft ㉕.



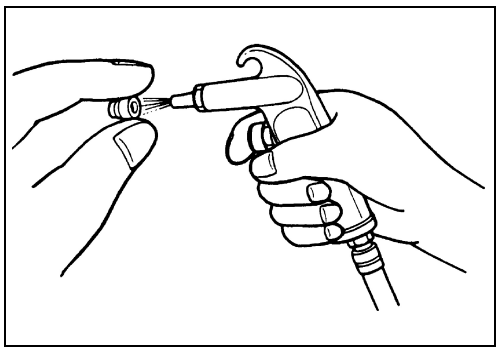
- Remove the throttle lever ㉖, spacer ㉗ and return spring ㉘.



CLEANING

⚠ WARNING

Some carburetor cleaning chemicals, especially dip-type soaking solutions, are very corrosive and must be handled carefully. Always follow the chemical manufacturer's instructions on proper use, handling and storage.



- Clean all jets with a spray-type carburetor cleaner and dry them using compressed air.
- Clean all circuits of the carburetor thoroughly, not just the perceived problem area. Clean the circuits in the carburetor body with a spray-type cleaner and allow each circuit to soak if necessary to loosen dirt and varnish. Blow the body dry using compressed air.

CAUTION

Do not use a wire to clean the jets or passageways. A wire can damage the jets and passageways. If the components cannot be cleaned with a spray cleaner, it may be necessary to use a dip-type cleaning solution and allow them to soak. Always follow the chemical manufacturer's instructions for proper use and cleaning on the carburetor components.

- After cleaning, reassemble the carburetor.

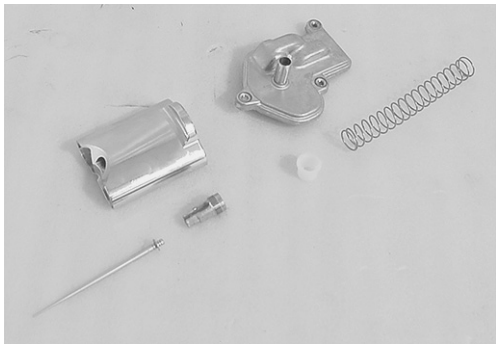
CAUTION

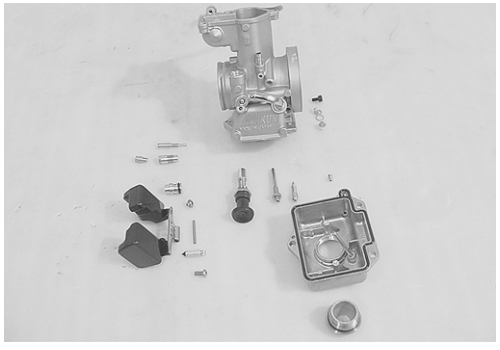
Replace the removed O-rings with new ones.

INSPECTION

Check the following parts for damage or clogging. If any damage is found, replace the parts with a new one.

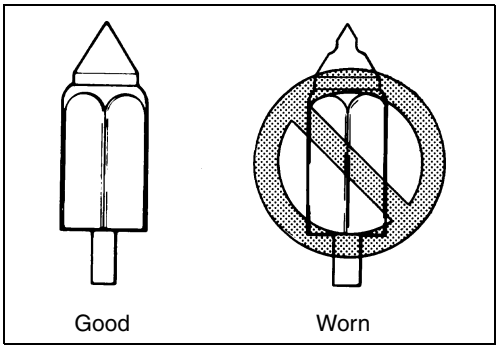
- Throttle valve
- Jet needle
- Hoses
- Floats
- Main jet
- Needle jet holder
- Pilot jet
- Power jet
- Starter knob





NEEDLE VALVE INSPECTION

If foreign matter is caught between the valve seat and the needle valve, the fuel will continue flowing and overflow. If the valve seat and needle valve are worn beyond the permissible limits, similar trouble will occur. Conversely, if the needle valve sticks, the fuel will not flow into the float chamber. Clean the float chamber and float parts with gasoline. If the needle valve is worn, as shown in the illustration, replace it along with a new valve seat. Clean the fuel passage of the mixing chamber using compressed air.

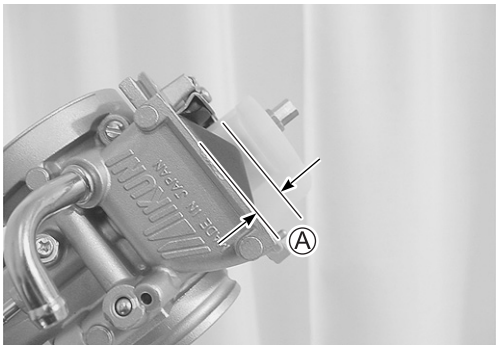


FLOAT HIGHT ADJUSTMENT

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

DATA Standard float height Ⓐ: 8.7 ± 1.0 mm (0.34 ± 0.04 in)

TOOL 09900-20101: Vernier calipers



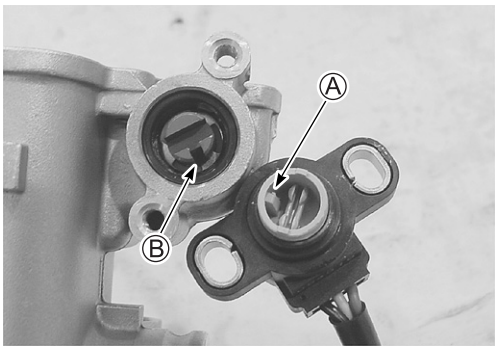
REASSEMBLY AND REMOUNTING

Reassembly and remounting is in the reverse order of removal and disassembly. Pay attention to the following points:

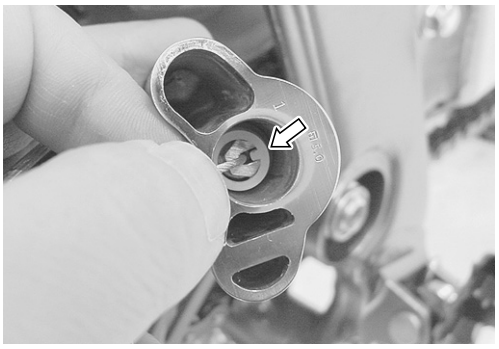
- Align the boss Ⓐ on the throttle position sensor with the recess Ⓑ throttle lever shaft.
- Apply THREAD LOCK SUPER to the throttle position sensor mounting screws.

1322 99000-32110: THREAD LOCK SUPER "1322"
(or equivalent thread lock)

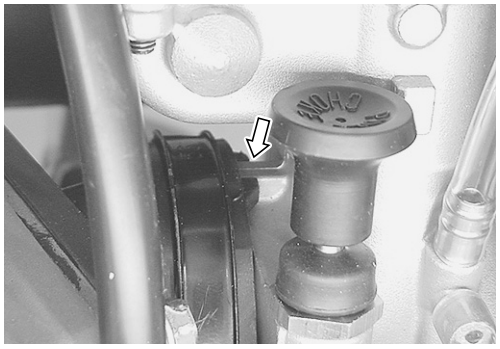
- Temporary tighten the throttle position sensor mounting screws.



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



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



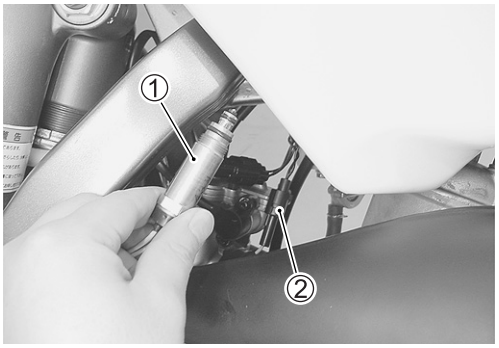
After reinstalling the carburetor body assembly, inspect the followings.

- Throttle position sensor adjustment (☞11-11)
- Idle adjustment (☞4-5)
- Throttle cable play (☞2-12)
- Wire, cable and hose routing (☞18-12, -14)

CARBURETOR SOLENOID

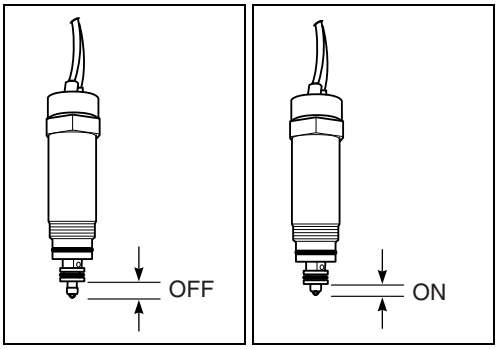
REMOVAL AND INSPECTION

- Remove the carburetor solenoid ①. Make sure the coupler ② is connected.
- Connect the tachometer sensor.



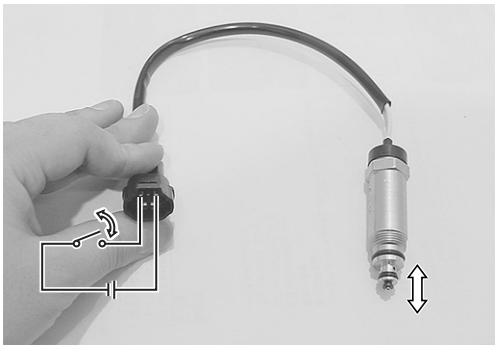
- Shift the transmission into neutral.
- Start the engine.
- Inspect if the solenoid valve switches according to the following engine RPM.

OFF position: 9 000 – 11 000 r/min
ON position: Throttle grip opening 5 – 30%



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

- Remove the carburetor sorenoid.
- Connect 12 V battery as shown.
- Inspect if the valve moves each time the circuit is opened and closed.



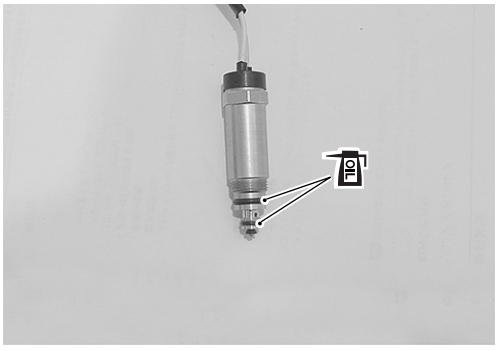
If the movement is not correct, replace the solenoid valve with a new one.
If the movement is correct, inspect or replace following parts.
CDI unit
Stator coil (☞13-7)
Wiring harness for open circuit
Coupler connection

REASSEMBLY

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.

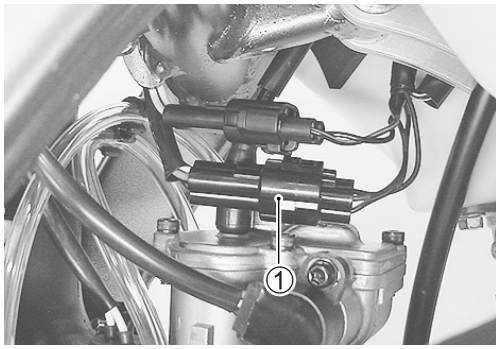


THROTTLE POSITION SENSOR

INSPECTION

THROTTLE POSITION SENSOR INPUT VOLTAGE

- Disconnect the throttle position sensor coupler ①.

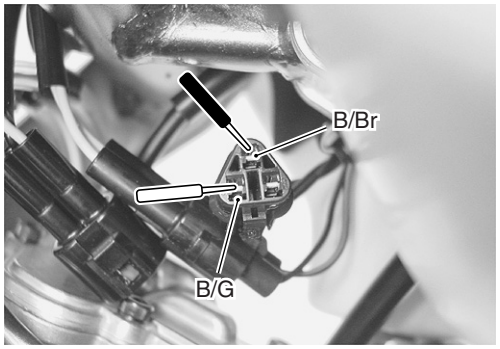


- Shift the transmission into neutral.
- Start the engine.
- Measure the throttle position sensor input voltage with the multi circuit tester.

DATA B/G (⊕ probe) – B/Br (⊖ probe):
4 – 6 V (Over 3 000 r/min)

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Voltage (⎓)



- If the voltage is not within the specified value, replace the CDI unit.

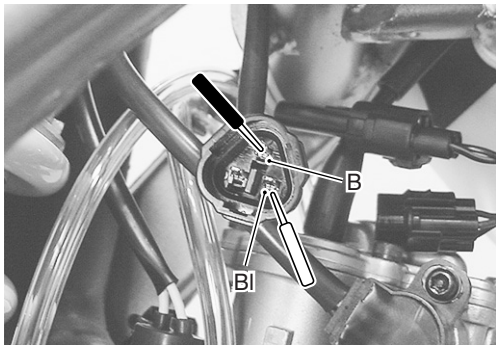
THROTTLE POSITION SENSOR COIL RESISTANCE

- Measure the throttle position sensor coil resistance with the multi circuit tester.

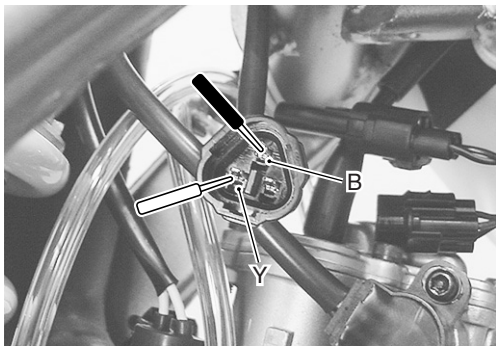
DATA Bl (⊕ probe) – B (⊖ probe): 4 – 6 kΩ (Reference data)

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)



DATA Y (⊕ probe) – B (⊖ probe):
When the throttle is full closed:
0.4 – 0.6 kΩ (Reference data)
When the throttle is full opened:
2.7 – 4.04 kΩ (Reference data)

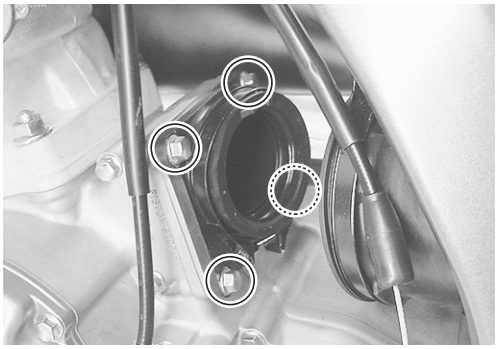


- If the resistance is correct, it is not necessary to replace the throttle position sensor.
- If the resistance is not within the specified value, replace the throttle position sensor assembly.

REED VALVE

REMOVAL

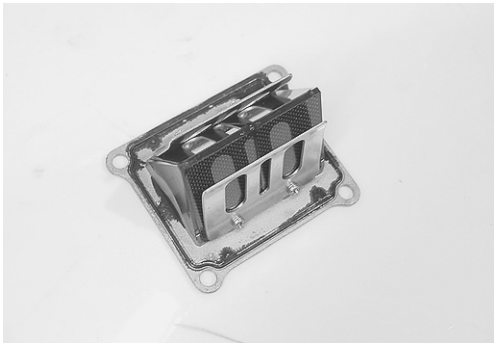
- Remove the carburetor. (☞11-3)
- Remove the intake pipe and reed valve.



INSPECTION

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

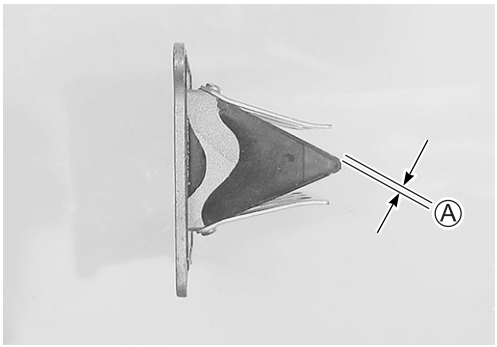
NOTE:
Be careful not to damage the removed reed valve assembly.



- Inspect the reed valve clearance.

DATA **Reed valve clearance**
Service limit: 0.2 mm (0.008 in)

TOOL **09900-20803: Thickness gauge**

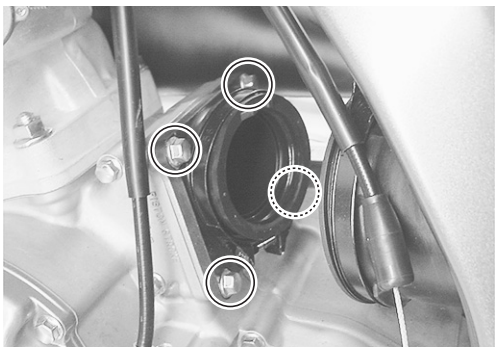


REASSEMBLY

Reverse the sequence of removal.

- Tighten the intake pipe bolt to the specified torque.

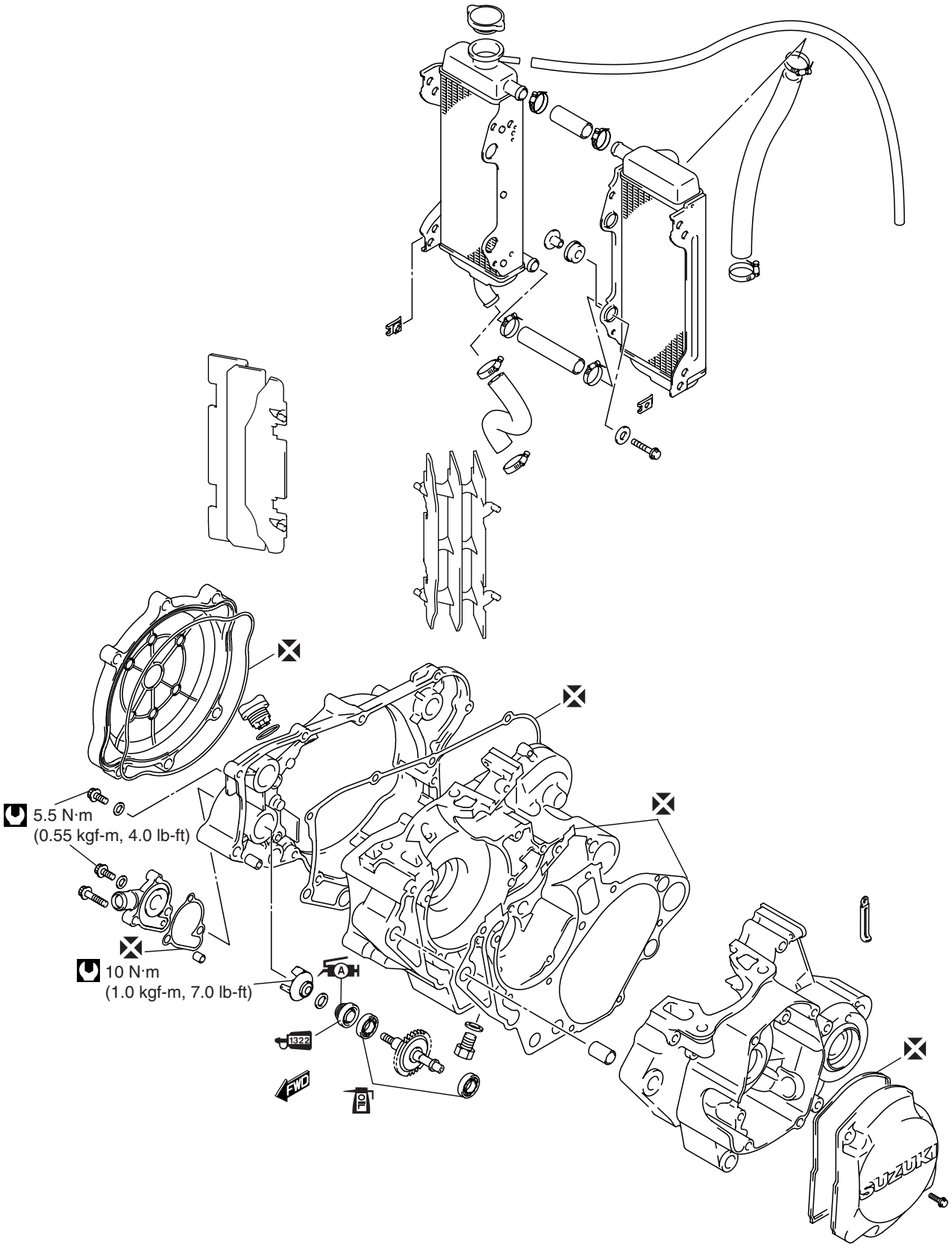
Intake pipe bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)



COOLING SYSTEM

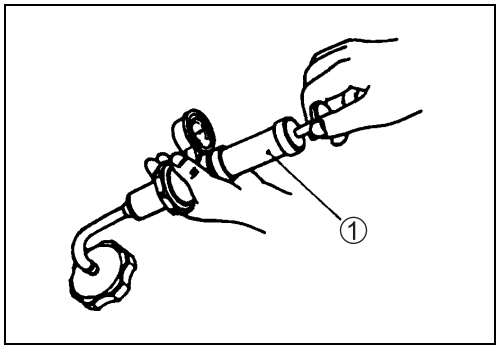
CONTENTS

CONSTRUCTION



COOLING CIRCUIT

INSPECTION



- 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 120 kPa (1.2 kgf/cm², 17.1 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.

ENGINE COOLANT

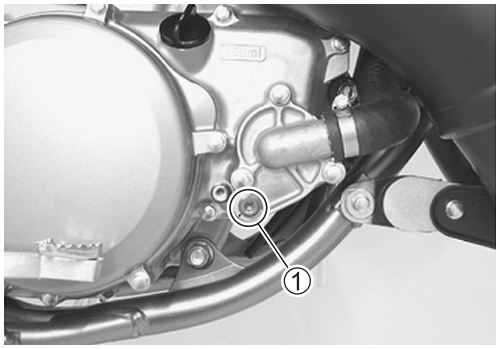
REPLACEMENT

⚠ WARNING

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

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

- Place the motorcycle on a block.
- Remove the radiator cap.



- Remove the drain plug ① and drain engine coolant.
- Tighten the drain plug ①.
- Pour specified coolant through the radiator inlet hole up to the bottom of filler hole. (☞2-10)

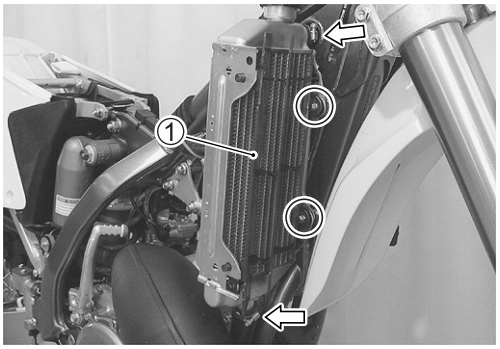
LLC Engine coolant capacity: 1 100 ml (1.2/1.0 US/Imp qt)

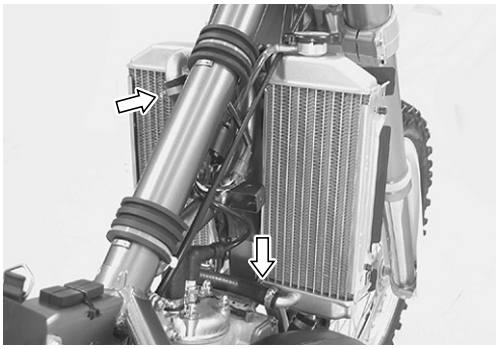
- Tighten the radiator cap firmly.
- Run the engine a few minutes and inspect the coolant level.

RADIATOR

REMOVAL

- Remove the seat and fuel tank. (☞5-3)
- Drain engine coolant. (☞12-3)
- Remove the radiator covers ①. (LH & RH)
- Remove the hoses.
- Remove the radiators.

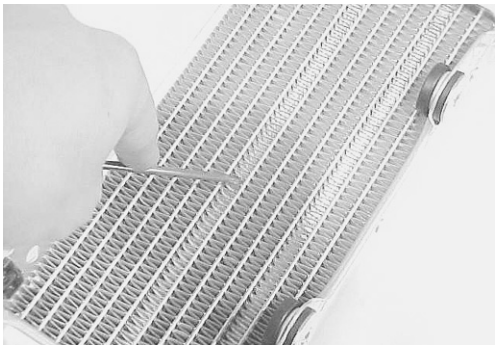




INSPECTION

RADIATOR

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

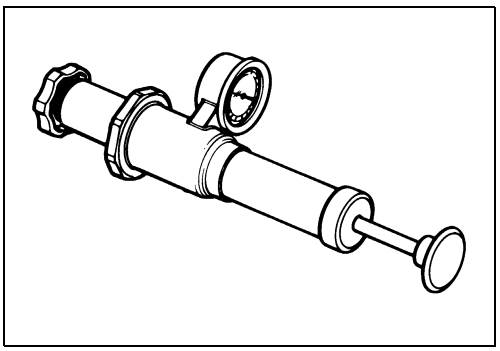


RADIATOR CAP

- 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, 13.5 – 17.8 psi)

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



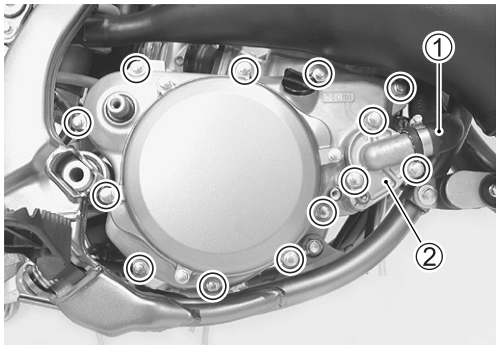
INSTALLATION

Reverse the sequence of removal.

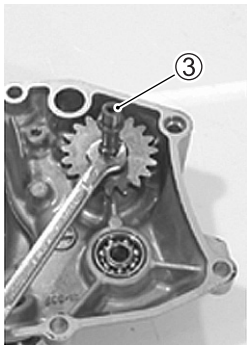
- Rout the radiator hoses correctly. (☞18-14)

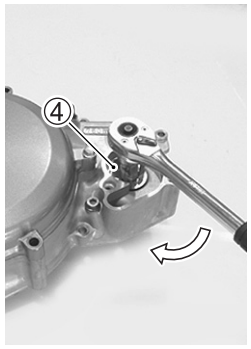
WATER PUMP

REMOVAL



- Drain the engine coolant. (☞12-3)
- Drain the transmission oil. (☞2-9)
- Remove the kick starter lever. (☞8-3)
- Remove the brake pedal. (☞5-5)
- Disconnect the radiator hose ①.
- Remove the water pump cover ②.
- Remove the right crankcase cover and clutch cover.



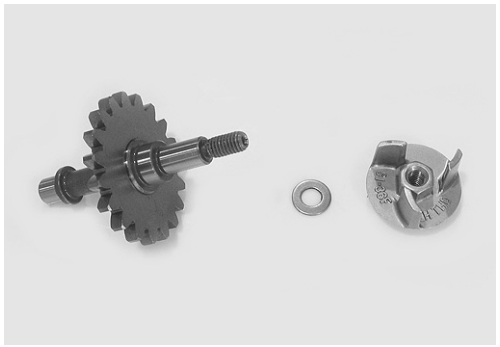


- With the water pump shaft ③ held immovable, remove the water pump impeller ④.

CAUTION
The impeller ④ has left-hand threads.

INSPECTION

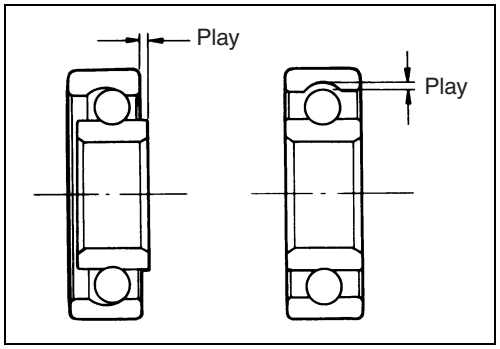
IMPELLER AND GEAR SHAFT



- Inspect the impeller and gear shaft for damage.

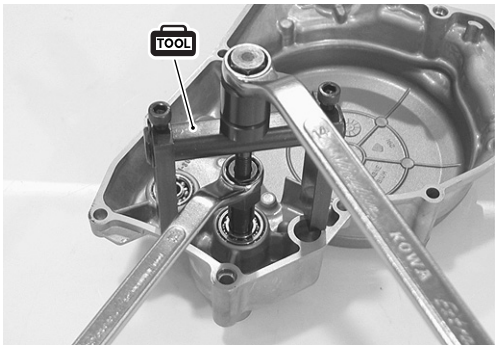
WATER PUMP BEARING

Inspect the inner race play of the water pump bearing while it is in the water pump housing. Rotate the inner race by finger 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.



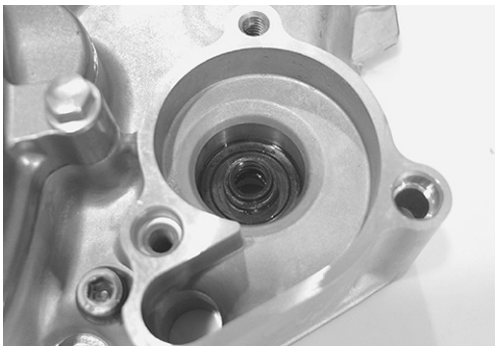
• Remove the bearing with the special tool.

09921-20240: Bearing remover set

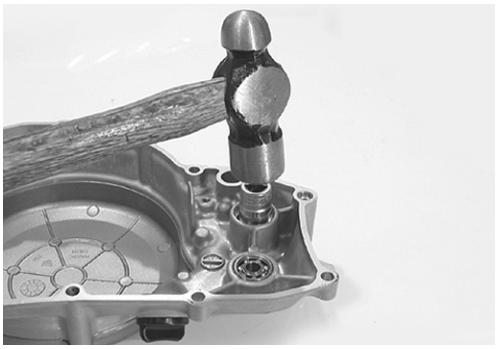


OIL SEAL

• Inspect the oil seal for damage.



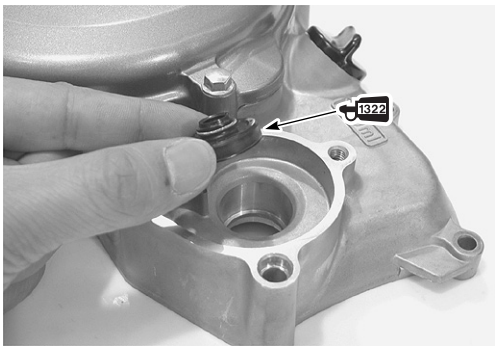
• Remove the oil seal with the suitable size socket wrench.



REASSEMBLY

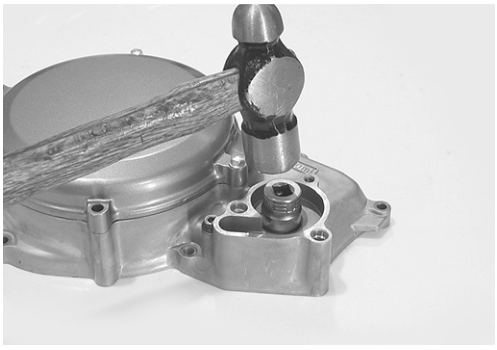
• Apply THREAD LOCK SUPER to the outer surface of the oil seal.

99000-32110: THREAD LOCK SUPER "1322"
(or equivalent thread lock)



• Press the oil seal with the suitable size socket wrench.
• Apply grease to the oil seal lip.

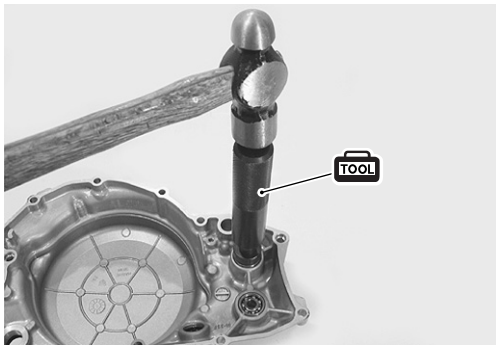
99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)



- Press the bearing with the special tool.

TOOL 09913-70210: Bearing installer set

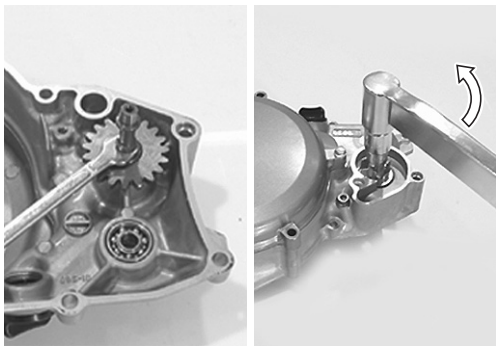
NOTE:
When installing the bearing the stamped mark on the bearing must face outside.



- Hold the water pump shaft with a wrench and 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.

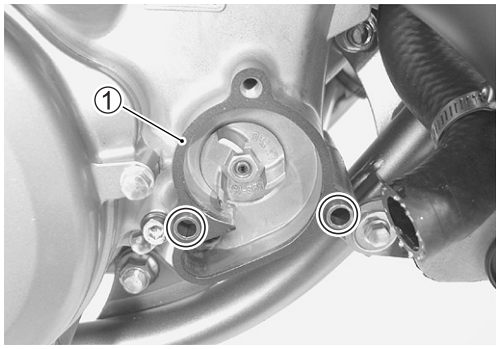


- Install the dowel pins and a new gasket ①.

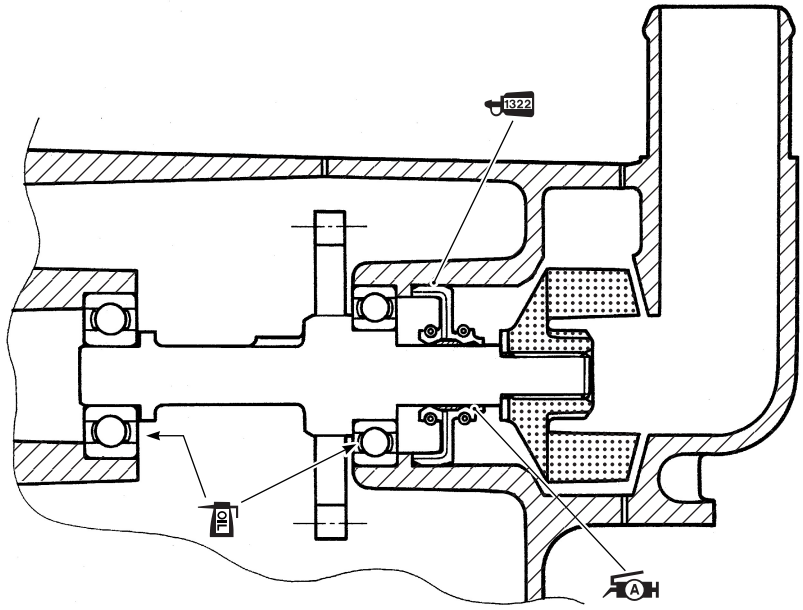
CAUTION
Use a new gasket to prevent engine coolant leakage.

- Tighten the crankcase cover bolts to the specified torque.

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



• Reassemble the clutch cover and water pump cover.



After reinstalling the water pump, check the followings.
• Kick starter lever (☞8-6)
• Brake pedal (☞2-19, 5-7)
• Transmission oil level (☞2-9)
• Engine coolant level (☞2-10)

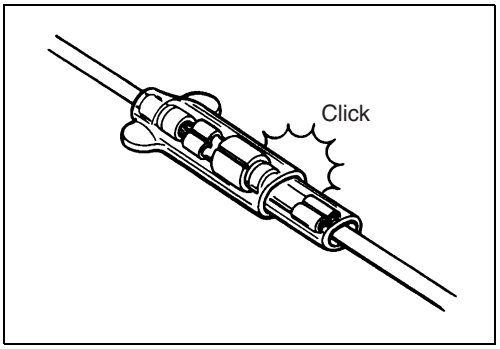
ELECTRICAL SYSTEM

CONTENTS

CAUTIONS IN SERVICING

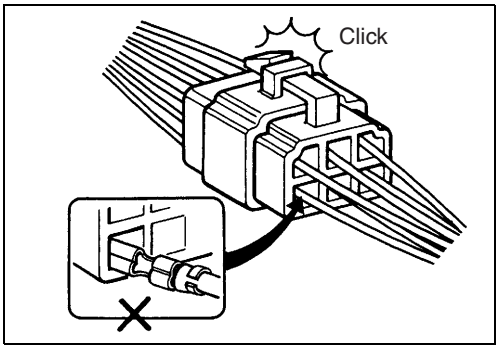
CONNECTOR

- When connecting a connector, be sure to push it in until a click is felt.
- Inspect the connector for corrosion, contamination and breakage in its cover.



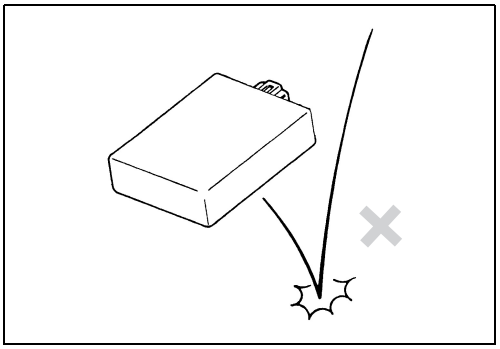
COUPLER

- With a lock type coupler, be sure to release the lock when disconnecting, and push in fully to engage the lock when connecting.
- When disconnecting the coupler, be sure to hold the coupler itself and do not pull the lead wires.
- Inspect each terminal on the coupler for being loose or bent.
- Inspect each terminal for corrosion and contamination.



SEMI-CONDUCTOR EQUIPPED PART

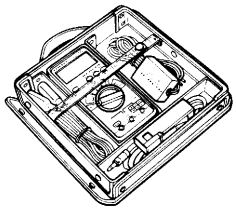
- Be careful not to drop the part with a semi-conductor built in such as a CDI.
- When inspecting this part, follow inspection instruction strictly. Neglecting proper procedure may cause damage to this part.



USING THE MULTI-CIRCUIT TESTER

- Properly use the multi-circuit tester ⊕ and ⊖ probes. Improper use can cause damage to the motorcycle and tester.
- If the voltage and current values are not known, begin measuring in the highest range.
- When measuring the resistance, make sure that no voltage is applied. If voltage is applied, the tester will be damaged.
- After using the tester, be sure to turn the switch to the OFF position.

Multi-circuit tester set



TOOL 09900-25008: Multi-circuit tester set

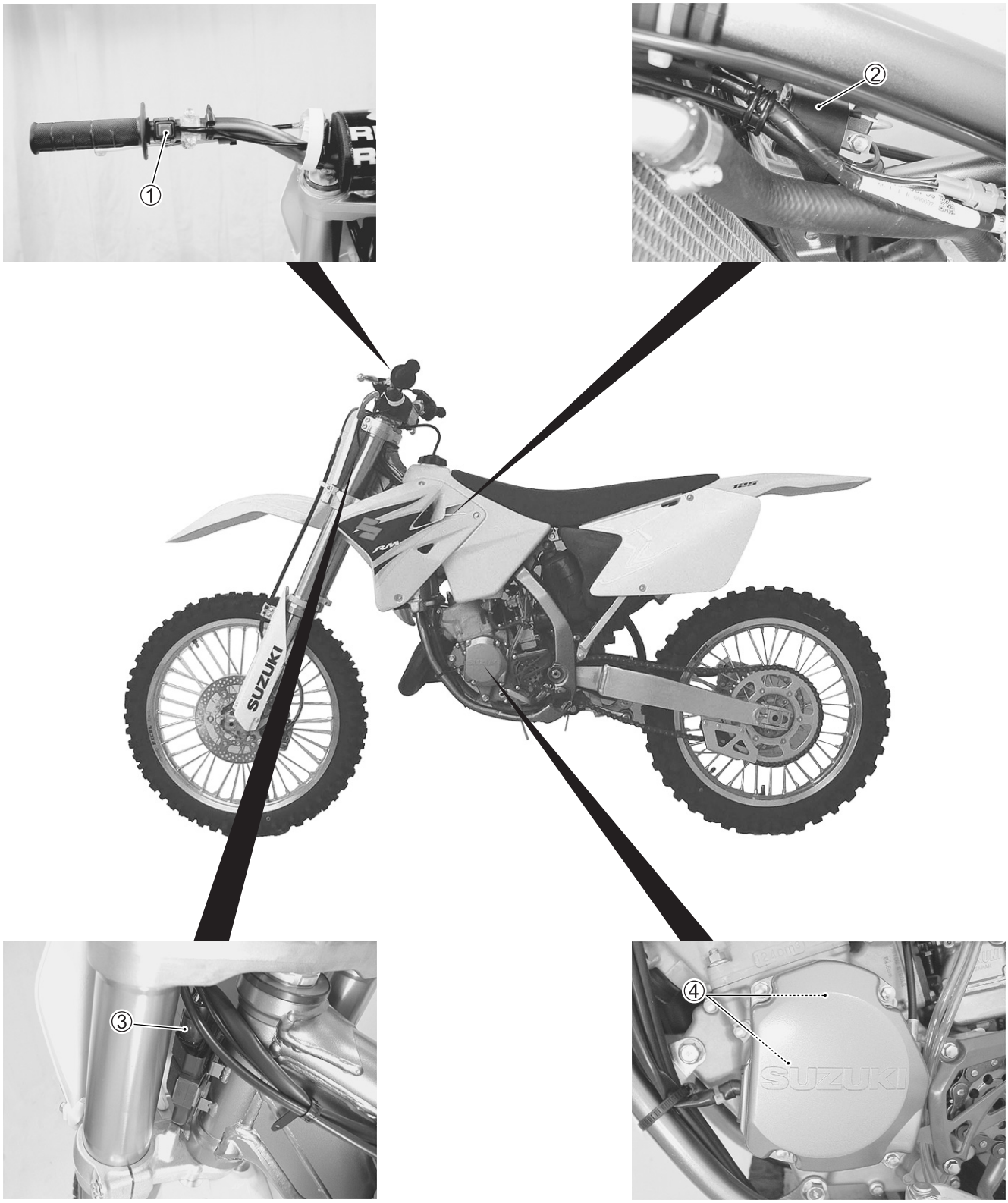
CAUTION

Before using the multi-circuit tester, read its instruction manual.

SWITCH

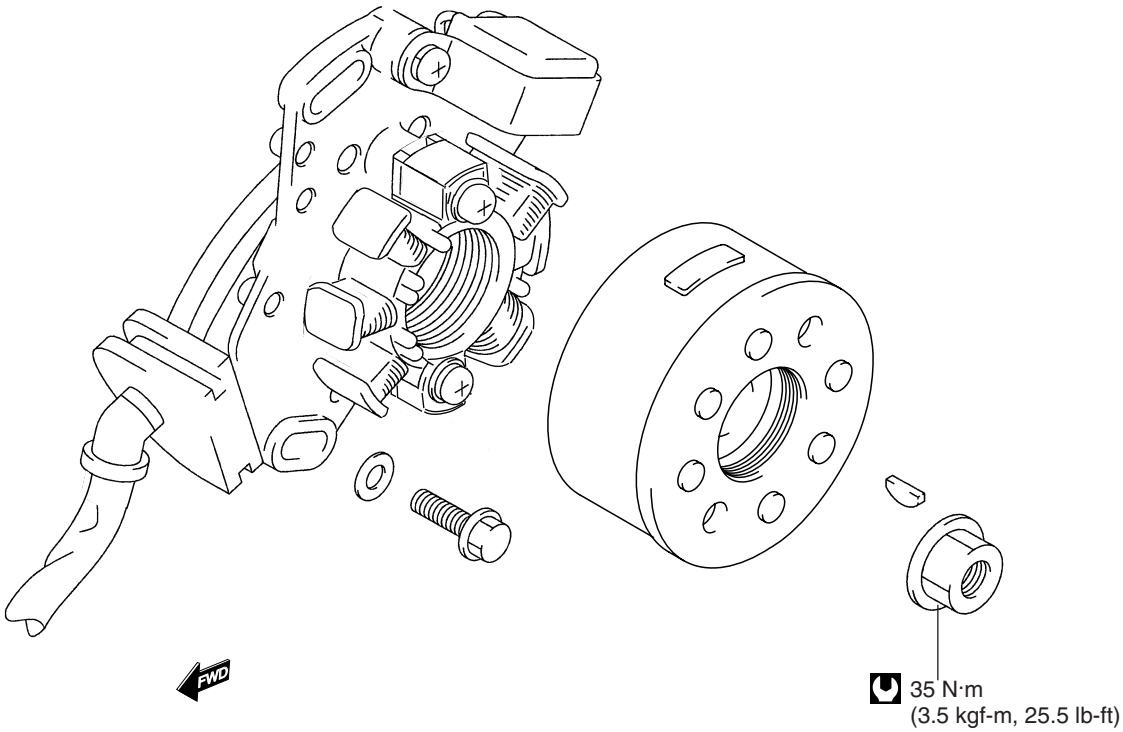
- Never apply grease material to switch contact points to prevent damage.

LOCATION OF ELECTRICAL COMPONENTS

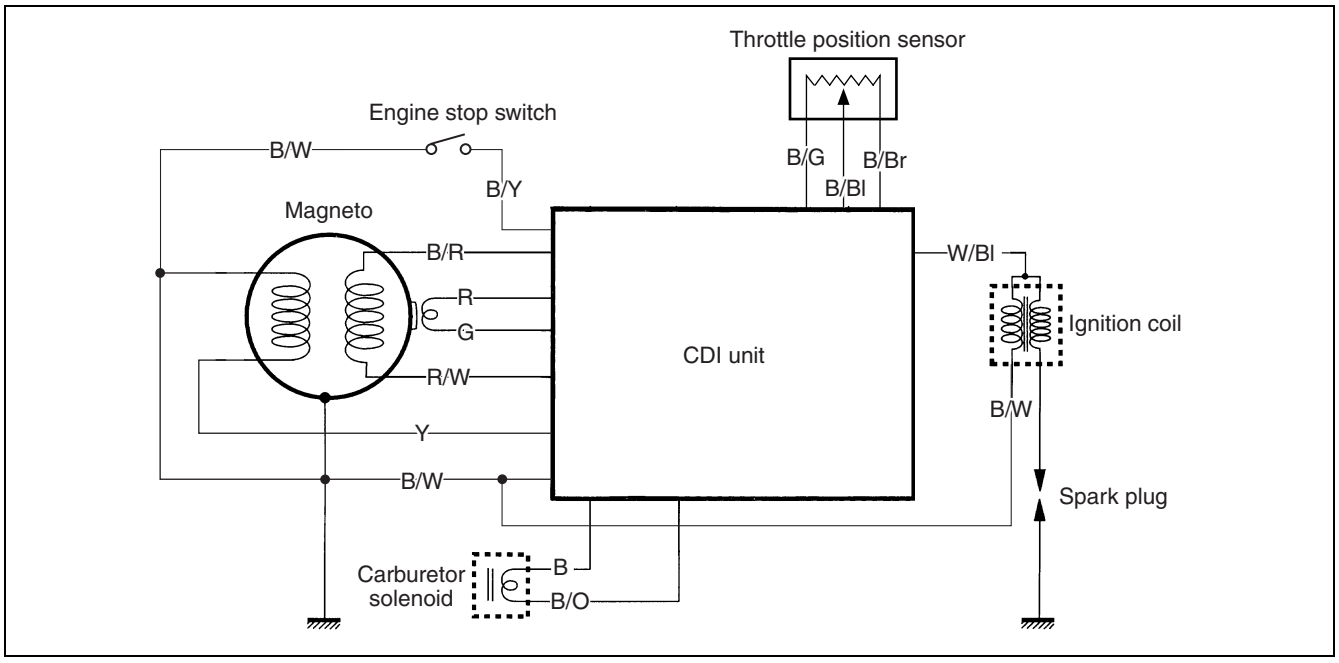


① Engine stop switch
② Ignition coil
③ CDI unit
④ Magneto, pick-up coil

CONSTRUCTION



ELECTRICAL CIRCUIT



Wire color:

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

TROUBLESHOOTING (No spark or poor spark)

Step 1

1) Check the ignition system couplers for poor connections.
   Is there connection in the ignition system couplers?

YES	Go to Step 2.
NO	Poor connection of couplers

Step 2

1) Measure the peak voltage of ignition coil. (☞13-6)
   Is the peak voltage OK?

YES	Go to Step 3.
NO	Go to Step 4.

Step 3

1) Inspect the spark plug. (☞2-6)
   Is the spark plug OK?

YES	• Poor connection of the spark plug • Go to Step 4.
NO	Faulty spark plug

Step 4

1) Measure the ignition coil resistanace. (☞13-7)
   Is the ignition coil resistanace OK?

YES	Go to Step 5.
NO	Faulty ignition coil

Step 5

1) Measure the pick-up coil peak voltage. (☞13-6)
   Is the peak voltage OK?

YES	Go to Step 7.
NO	Go to Step 6.

Step 6

1) Measure the pick-up coil resistance. (☞13-7)
   Is the resistance OK?

YES	Go to Step 7.
NO	• Faulty pick-up coil • Metal particles or foreign material being stuck on the pick-up coil and rotor tip

Step 7

1) Measure the exciter coil and charge coil peak voltages. (☞13-6)
   Are the peak voltages OK?

YES	• Faulty CDI • Faulty wire harness • Faulty engine stop switch
NO	Go to Step 8.

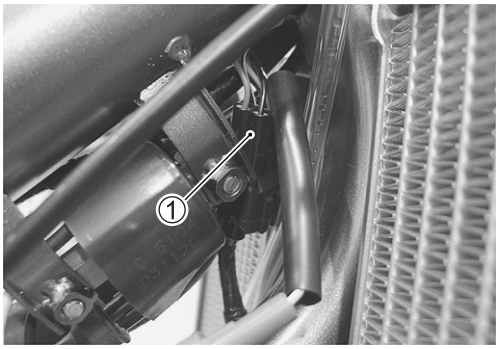
Step 8

1) Measure the exciter coil and charge coil resistance. (☞13-7)
   Is the exciter coil and charge coil OK?

YES	Faulty CDI
NO	Faulty magneto

IGNITION SYSTEM

IGNITION SYSTEM PEAK VOLTAGE INSPECTION



- Remove the seat and fuel tank. (☞5-3)
- Remove the spark plug.
- Disconnect the magneto lead wire coupler ①.

Measure the ignition system peak voltage in the following procedure:

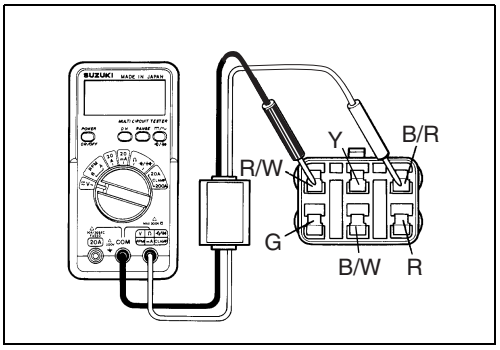
- Connect the multi circuit tester with peak volt adaptor as follows. (See table below.)
- Measure the highest peak voltage by depressing the kick starter lever several times forcefully.

DATA

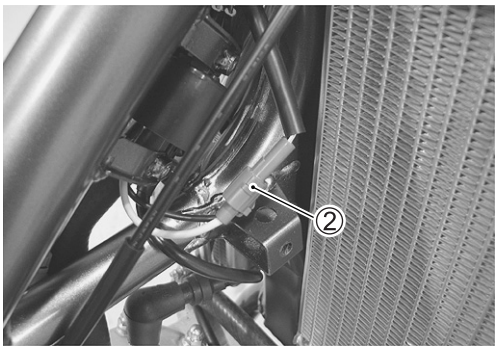
Exciter	**⊕ Black/Red – ⊖ Red/White**	**25 V and more**
Pick-up	**⊕ Red – ⊖ Green**	**2 V and more**
Charge	**⊕ Yellow – ⊖ Black/White**	**8 V and more**

09900-25008: Multi circuit tester set

Tester knob indication: Voltage (⎓)



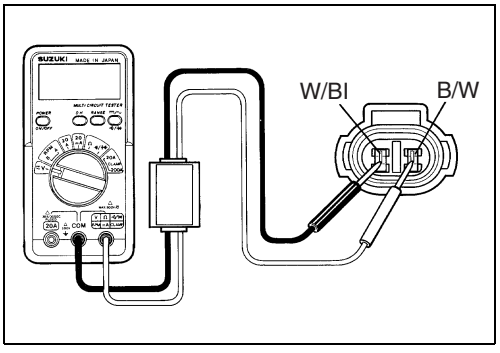
- Connect the magneto lead wire coupler and disconnect the ignition coil lead wire coupler ②.
- Connect the multi circuit tester with peak volt adaptor between Black/White lead wire and White/Blue lead wire.
- Measure the highest peak voltage by depressing the kick starter lever several times forcefully.



DATA

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

NOTE:
Be sure the Red probe pin to connected to the Black/White lead wire and Black probe pin to the White/Blue lead wire.



IGNITION COIL INSPECTION

- Remove the seat and fuel tank. (☞5-3)
- Disconnect the ignition coil lead wire coupler ①.

Measure the ignition coil electrical resistance.

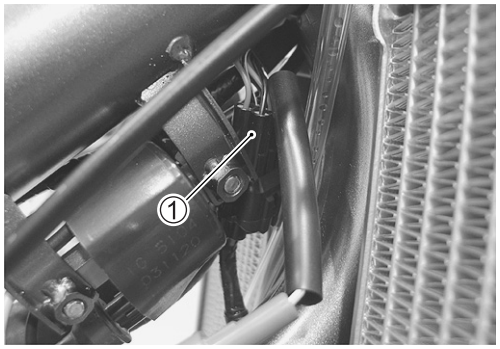
DATA

Primary	**White/Blue – Black/White**	**0.17 – 0.70 Ω**
Secondary	**Plug cap – White/Blue**	**13 – 20 kΩ**

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

STATOR COIL INSPECTION



- Remove the seat and fuel tank. (☞5-3)
- Disconnect the magneto lead wire coupler ①.

Measure the stator coils electrical resistance.

DATA Reference data [20 °C, (68 ° F)]

Exciter	**Black/Red – Red/White**	**24 – 40 Ω**
Pick-up	**Red – Green**	**72 – 127 Ω**
Charge	**Yellow – Black/White**	**1.6 – 2.6 Ω**

TOOL 09900-25008: Multi circuit tester set

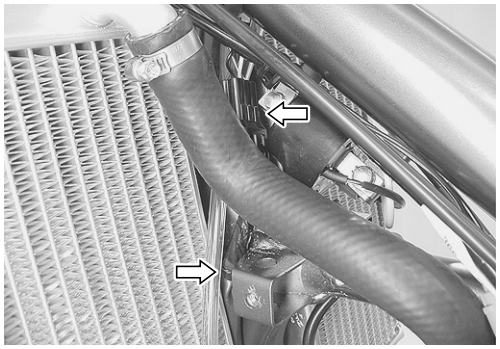
Tester knob indication: Resistance (Ω)

NOTE:

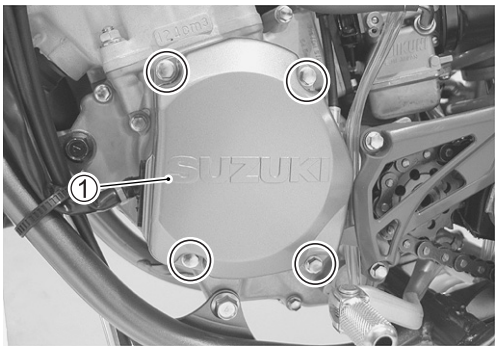
The resistance of stator varies depending on the temperature. (Stator and atmosphere)

MAGNETO ROTOR AND STATOR REMOVAL

- Remove the seat and fuel tank. (☞5-3)
- Disconnect the magneto lead wire coupler and clamp.



- Remove the bolts and magneto cover ①.



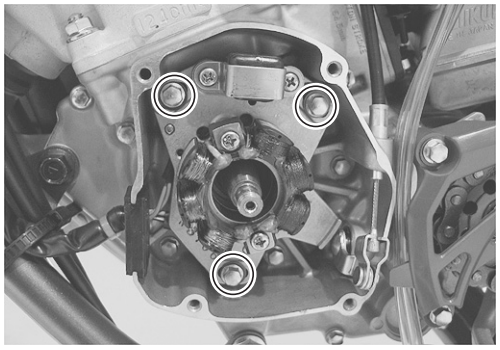
- Remove the nut with a special tool.

TOOL **09930-40113: Rotor holder**

- Remove the magneto rotor with the special tool.

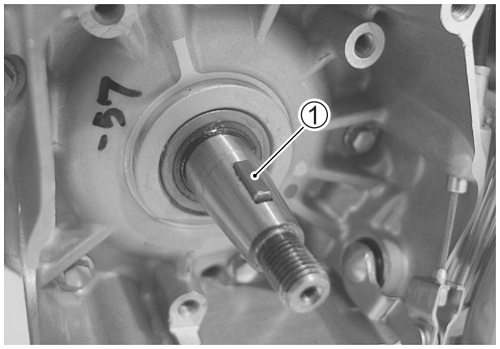
TOOL **09930-30113: Flywheel rotor remover**

- Remove the bolts and remove the stator.

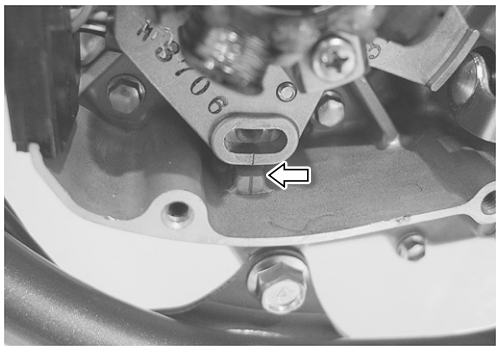


MAGNETO ROTOR AND STATOR REASSEMBLY

- Fit the key ① into the crankshaft.



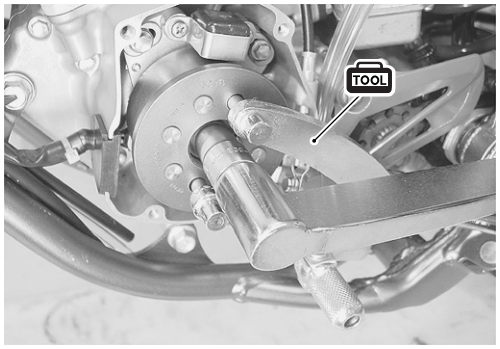
- Align the line on the stator with the line on the crankcase to set the ignition timing correctly.



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

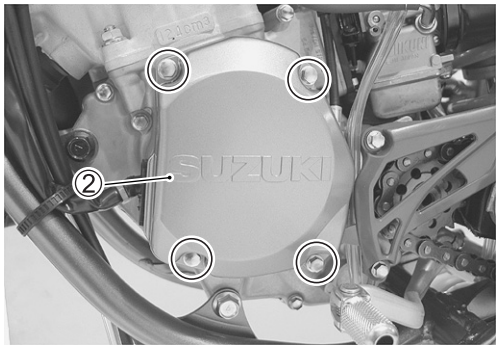
Magneto rotor nut: 35 N·m (3.5 kgf-m, 25.5 lb-ft)

09930-40113: Rotor holder



- Replace the gasket with a new one.
- Reassemble the magneto cover ②.

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

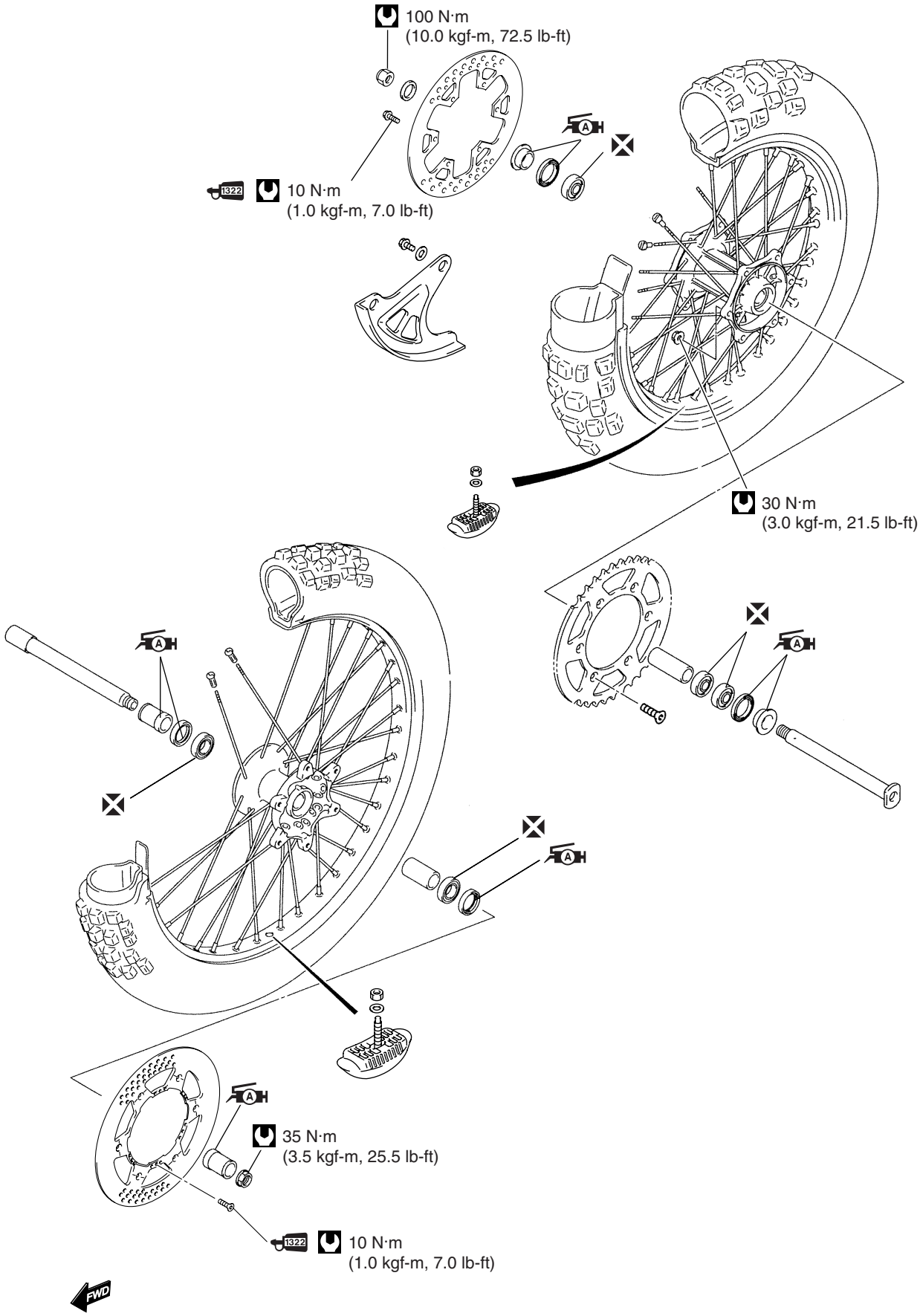


– MEMO –

FRONT AND REAR WHEELS

CONTENTS

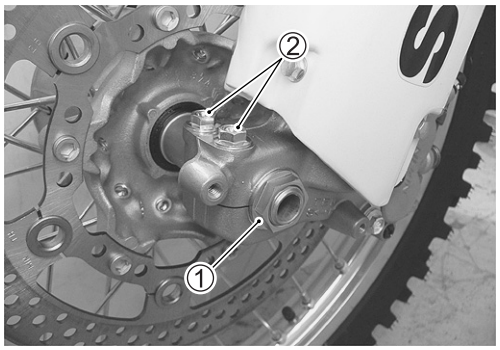
CONSTRUCTION



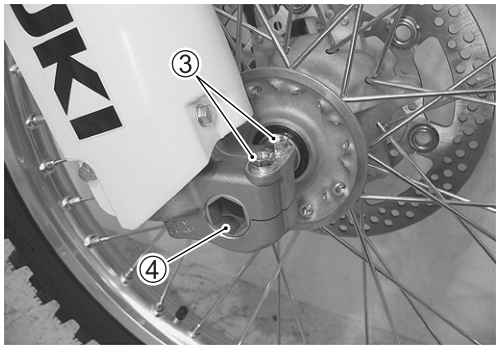
FRONT WHEEL

REMOVAL

- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the front axle nut ①.
- Loosen the left axle holder bolts ②.



- Loosen the right axle holder bolts ③.
- Remove the front axle shaft ④.
- Remove the front wheel.



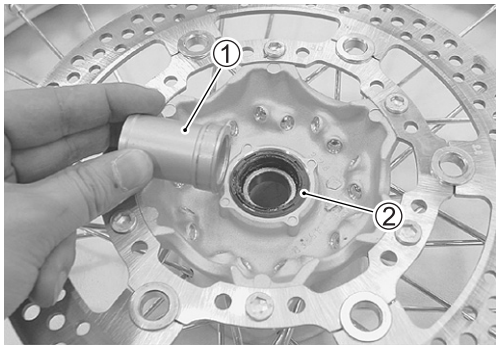
INSPECTION

SPACER AND DUST SEAL

- Inspect the right and left wheel spacers ① and dust seals ② for wear and cracks.
- If any damage is found, replace the spacer together with the dust seal.

NOTE:

Apply grease to the spacer and dust seal before reassembling.

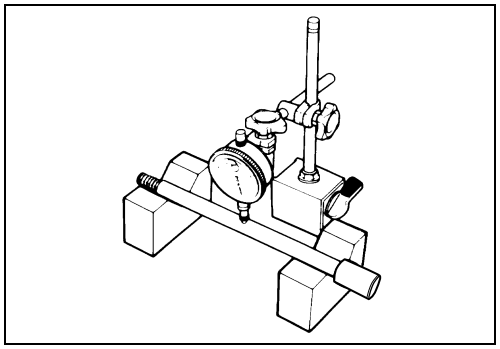


AXLE SHAFT

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

DATA Axleshaft 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

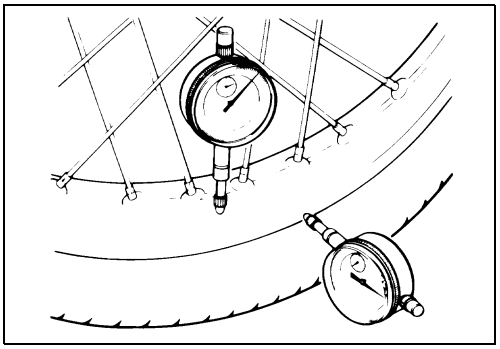


WHEEL RIM

- Measure the wheel rim runout with the dial gauge.

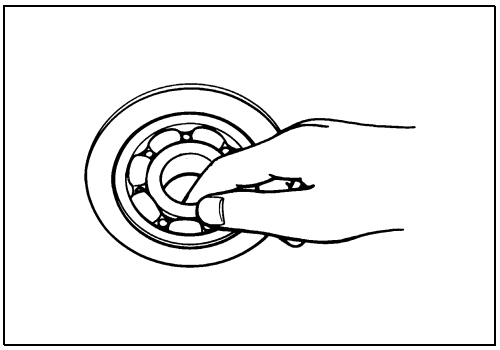
DATA Service Limit: 2.0 mm (0.08 in) ... axial and radial

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



WHEEL BEARING

- Turn the inner race by finger and inspect it for smooth movement.
- Inspect for bearing damage.



BEARING REPLACEMENT

- Remove the dust seals with the special tool.

TOOL 09913-50121: Oil seal remover

- Remove the bearings with the special tools.

TOOL 09921-20240: Bearing remover set

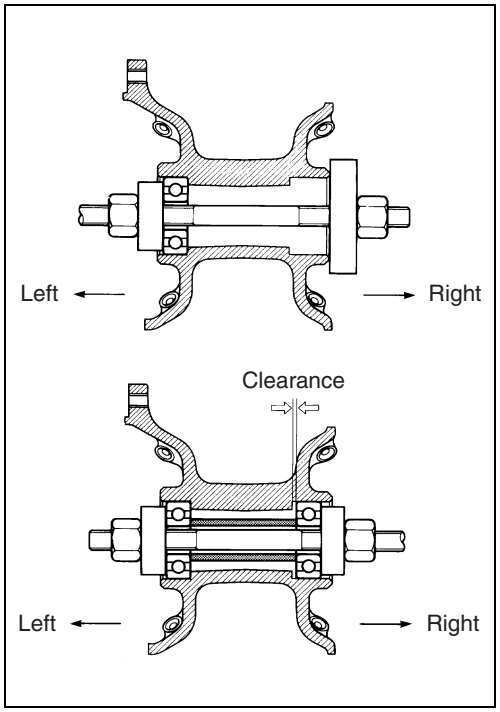
- Remove the spacer.

- Reassemble the bearings with the special tools.
- Fit the dust seals and apply grease to their lips.

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

99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)

NOTE:
** Install the left side (disc side) bearing first and then the right side bearing.*
** After installing the bearings, inspect the bearings for smooth movement.*
** When installing the dust seal, place the manufacturer's code indicated side of the dust seal outside.*



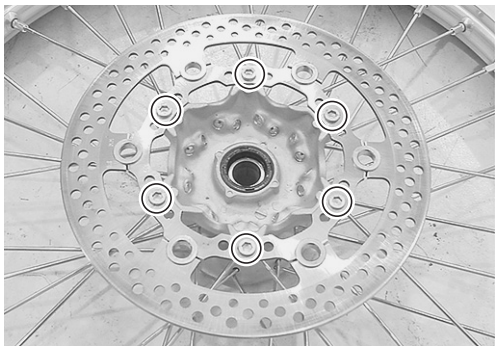
DISC PLATE REPLACEMENT

- Remove the disc plate.
- Apply THREAD LOCK SUPER to the bolts.

99000-32110: THREAD LOCK SUPER "1322"
(or equivalent thread lock)

- Tighten the bolts to the specified torque.

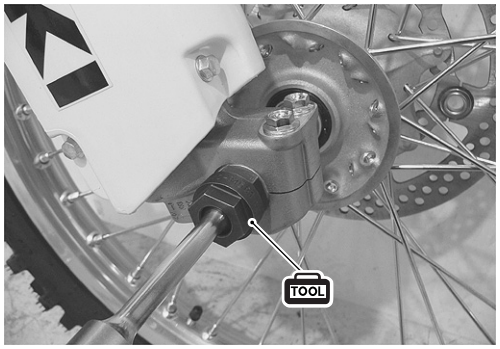
Disc plate bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)



INSTALLATION

- Hold the front axle shaft with the special tool and tighten the front axle nut temporarily.

09940-34581: Attachment (F)

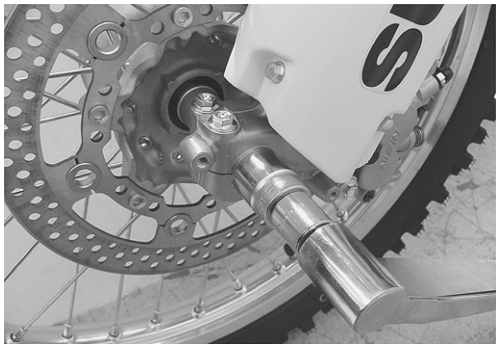


- Remove the block from under the chassis tube and move the front forks up and down several times.
- Tighten the front axle nut to the specified torque.

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

- Tighten the left and right axle holder bolts to the specified torque.

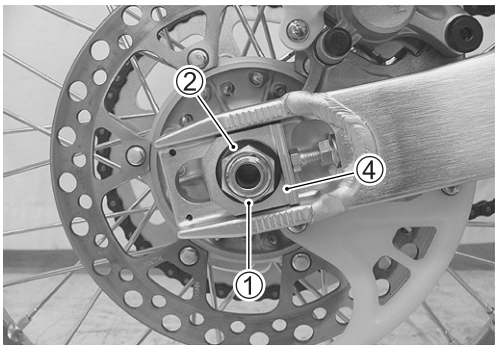
Axle holder bolt: 18 N·m (1.8 kgf-m, 13.0 lb-ft)



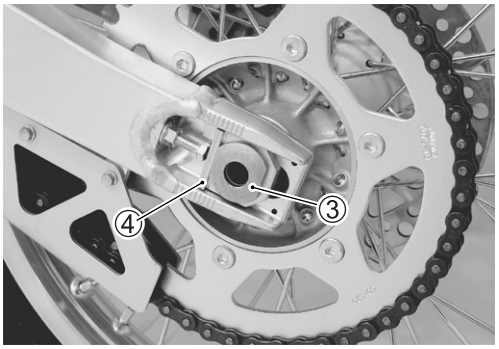
REAR WHEEL

REMOVAL

- Place the motorcycle on a block to lift the rear wheel off the ground.
- Remove rear axle nut ① and washer ②.



- Remove the rear axle shaft ③ and chain adjuster washers ④.
- Disengage the drive chain.
- Remove the rear wheel.

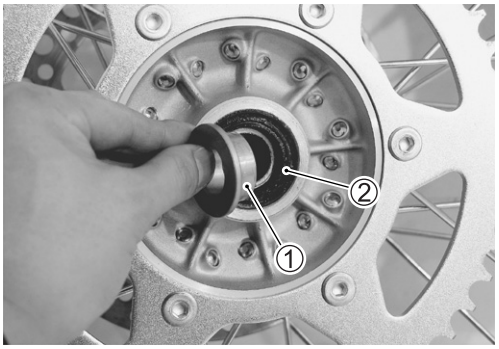


INSPECTION

WHEEL SPACER

- Inspect the rear wheel spacers ① and dust seals ② for wear and cracks.
- If any damage is found, replace the spacer together with the dust seal.

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



AXLE SHAFT (☞14-3)

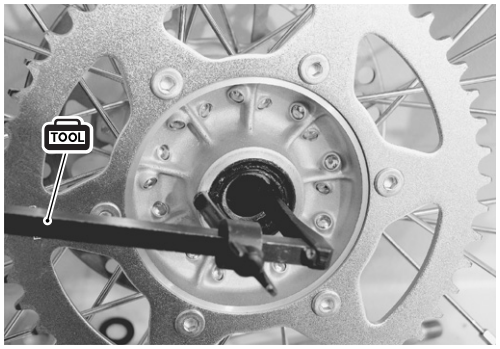
WHEEL RIM (☞14-4)

WHEEL BEARING (☞14-4)

BEARING REPLACEMENT

- Remove the dust seals with the special tool.

TOOL 09913-50121: Oil seal remover



- Remove the bearings with the special tools.

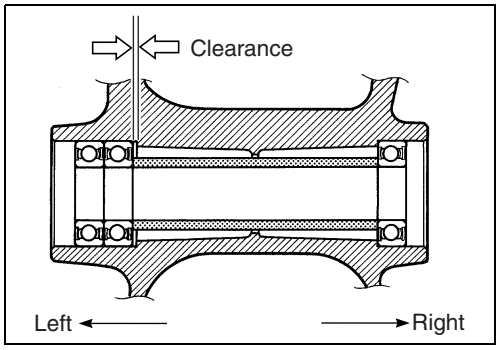
TOOL 09921-20240: Bearing remover set

- Remove the spacer.

- Reassemble the bearings with the special tools.
- Fit the dust seals and apply grease to their lips.

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

A 99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)



NOTE:

** Install the right side (disc side) bearing first and then the left side bearing.*

** After installing the bearings, inspect the bearings for smooth movement.*

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

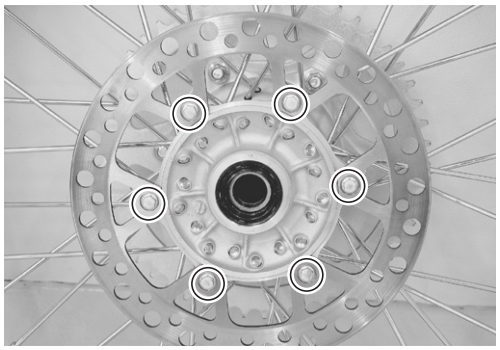
DISC PLATE REPLACEMENT

- Remove the disc plate.
- Apply THREAD LOCK SUPER to the bolts.

1322 99000-32110: THREAD LOCK SUPER "1322"
(or equivalent thread lock)

- Tighten the bolts to the specified torque.

Disc plate bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)



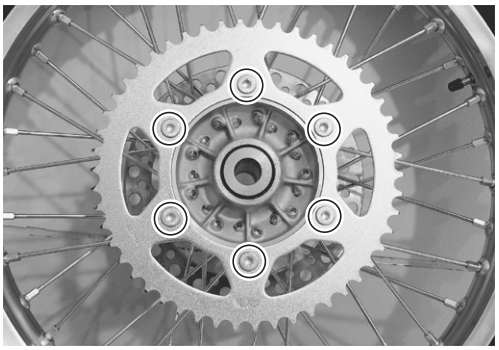
REAR SPROCKET REPLACEMENT

- Remove the rear sprocket.

NOTE:
Install the rear sprocket as the letter on the sprocket surface faces outside.

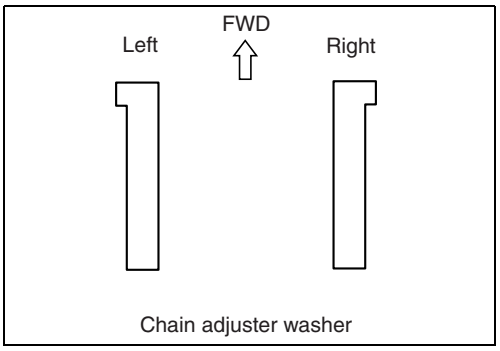
- Tighten the bolts/nuts to the specified torque.

Rear sprocket bolt/nut: 30 N·m (3.0 kgf-m, 21.5 lb-ft)



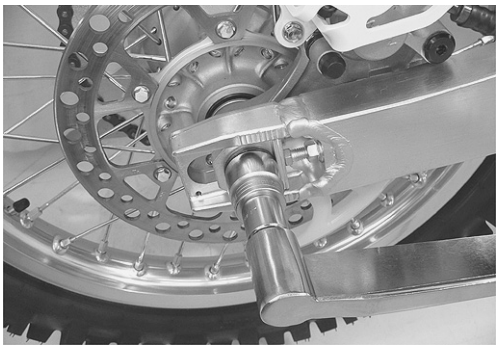
INSTALLATION

- Install the rear wheel, chain adjuster washers and axle shaft.
- Adjust the drive chain slack. (☞2-16)



- Tighten the rear axle nut to the specified torque.

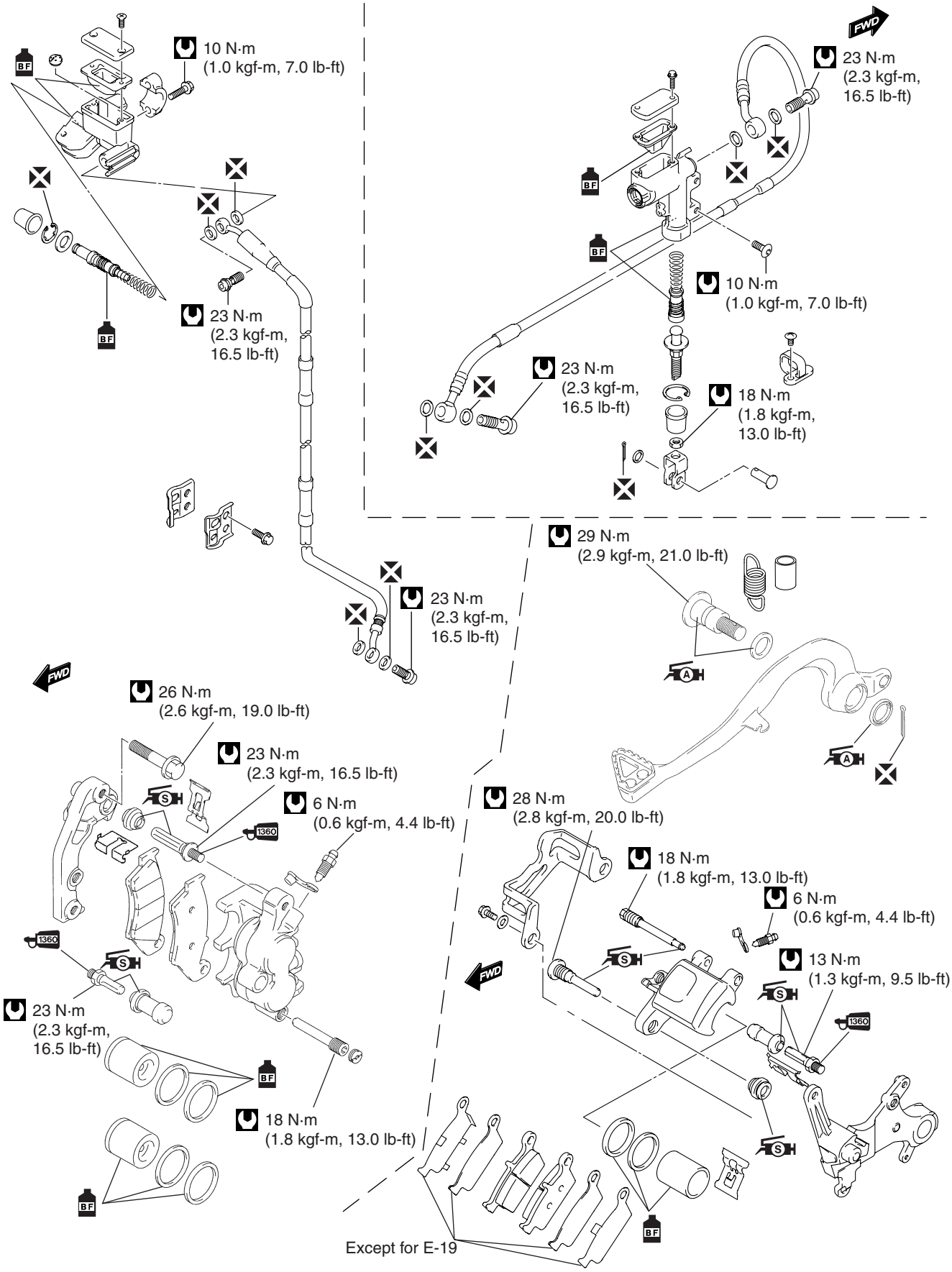
Rear axle nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)



FRONT AND REAR BRAKES

CONTENTS

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 DOT 4 brake fluid from a sealed container can damage the brake system and lead to an accident.

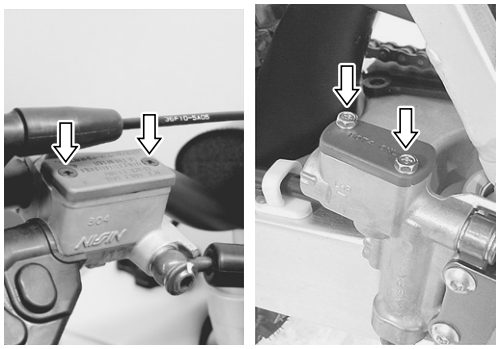
Use only DOT 4 brake fluid from sealed container. Never use or mix different types of brake fluid.

CAUTION

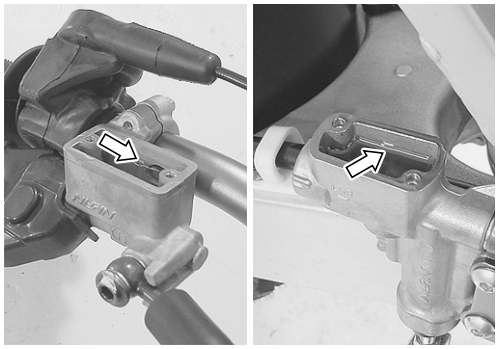
Spilled brake fluid can damage painted surfaces and plastic parts.

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.

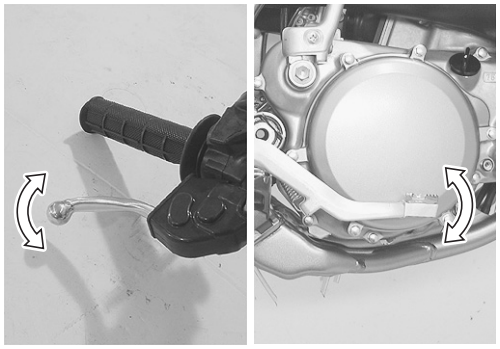


NOTE:
Do not release the brake lever/pedal while the bleeder valve is opened.

- Replenish brake fluid to the UPPER line when the brake fluid level drops below LOWER line.
- Tighten the air bleeder valve.

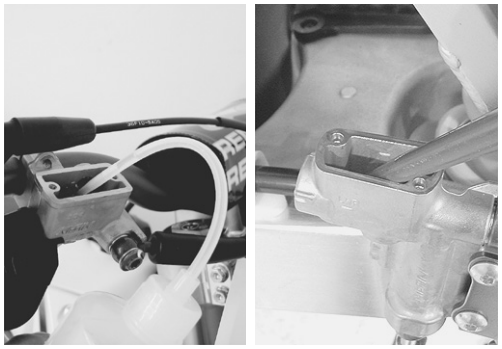
Air bleeder valve: 6 N·m (0.6 kgf-m, 4.4 lb-ft)

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



BRAKE FLUID REPLACEMENT

- Remove the reservoir cap. (☞15-3)
- Suck up the brake fluid as much as possible.
- Pour fresh brake fluid into the reservoir.

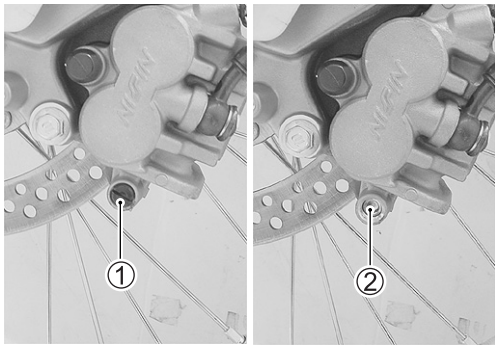


- Connect a transparent tube to the bleeder valve and set the other end into a receptacle. (☞above)
- Loosen the bleeder valve and pump the brake lever/pedal until old brake fluid is completely out of the brake system.
- Bleed air from the brake system. (☞15-3)

BRAKE PADS REPLACEMENT

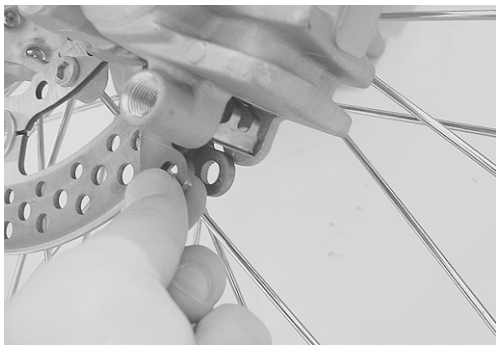
FRONT BRAKE PADS

- Remove the cap ① and pad mounting pin ②.



- Remove the brake pads.

NOTE:
Replace the two brake pads as a set.



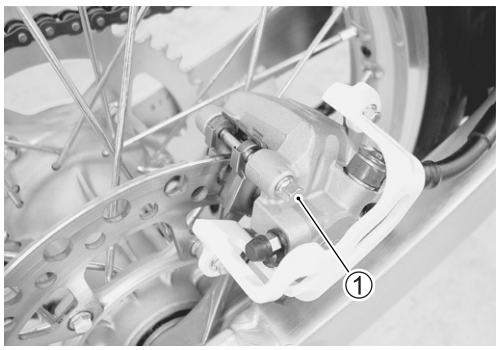
- Fit the new brake pads into the caliper.
- Tighten the pad mounting pin to the specified torque.

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.

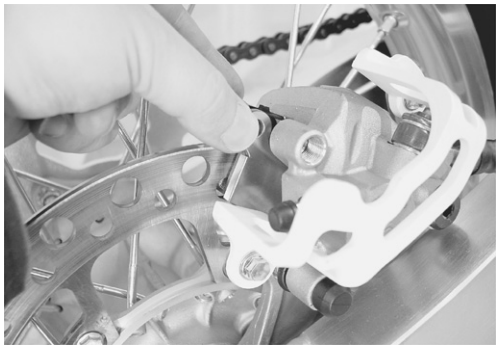
REAR BRAKE PADS

- Remove the pad mounting pin ①.



- Remove the brake pads.

NOTE:
Replace the two pads as a set.



- Apply SUZUKI SILICONE GREASE to the O-ring.

99000-25100: SUZUKI SILICONE GREASE

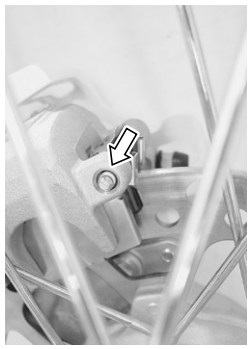
- Fit the new brake pads into the caliper.
- Tighten the brake pad mounting pin to the specified torque.

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

NOTE:

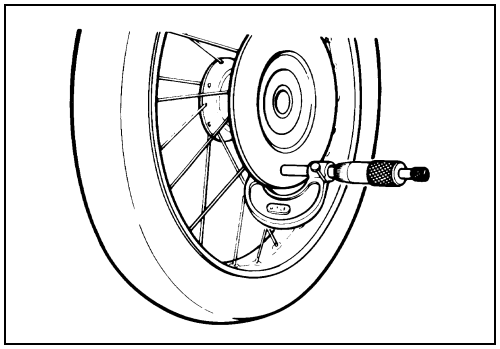
** Inspect not to pinch the O-ring of brake pad mounting pin.*

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



BRAKE DISC INSPECTION

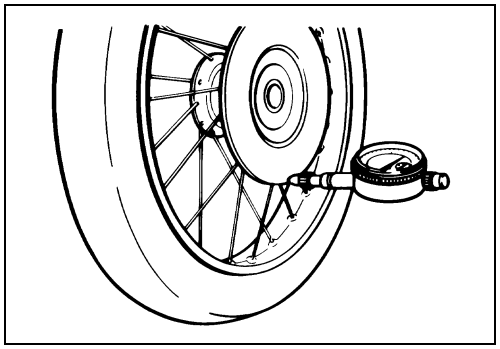
- Inspect the brake disc for damage.
- Measure the front and rear brake disc thickness.



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

TOOL **09900-20205: Micrometer (0 – 25 mm)**

- Measure the front and rear brake disc runout.



DATA **Brake disc runout**
Service limit: 0.3 mm (0.012 in)

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

BRAKE DISC REPLACEMENT (☞14-5, -7)

CALIPER

⚠ WARNING

The use of any brake fluid except DOT 4 brake fluid from a sealed container can damage the brake system and lead to an accident.

Use only DOT 4 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.

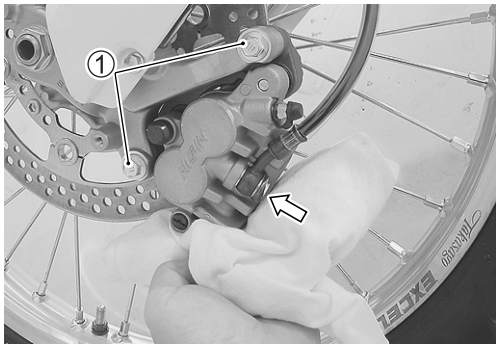
CAUTION

Spilled brake fluid can damage painted surfaces and plastic parts.

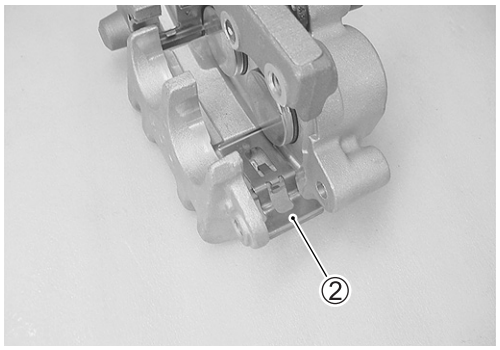
Be careful not to spill any fluid when servicing the caliper. Wipe spilled fluid up immediately.

FRONT CALIPER REMOVAL AND DISASSEMBLY

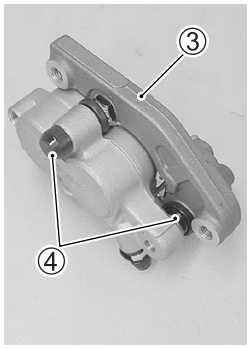
- Drain brake fluid. (☞15-4)
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the caliper mounting bolts ①.
- Remone the caliper.

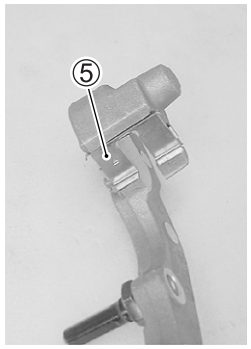


- Remove the brake pads (☞15-5)
- Remove the spring ②.

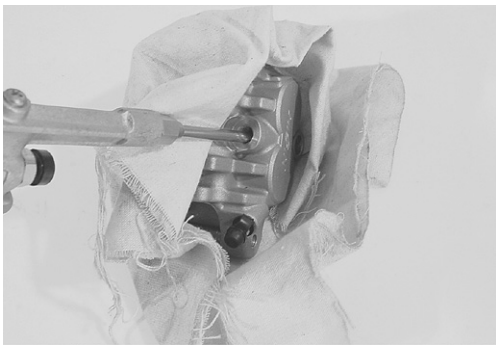


- Remove the caliper bracket ③ from the caliper.
- Remove the boots ④.
- Remove the spring ⑤.





- 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.

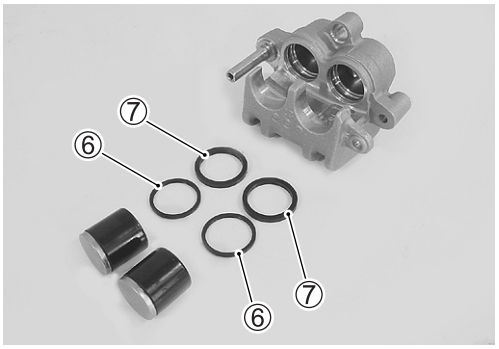


⚠ WARNING

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

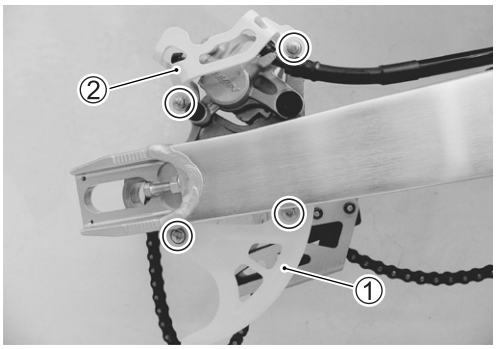
Do not place your fingers on the piston when removing the piston.

- Remove the dust seals ⑥ and piston seals ⑦.

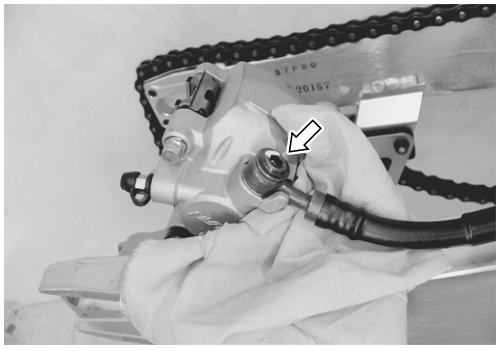


REAR CALIPER REMOVAL AND DISASSEMBLY

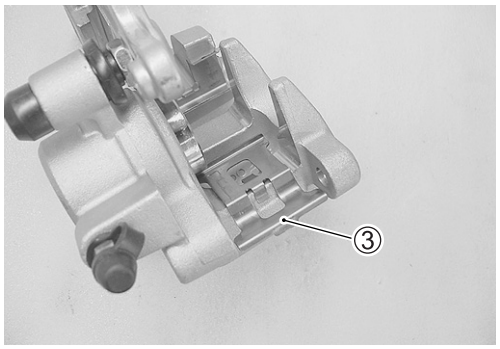
- Remove the rear wheel. (☞14-6)
- Remove the disc cover ① and caliper protector ②.



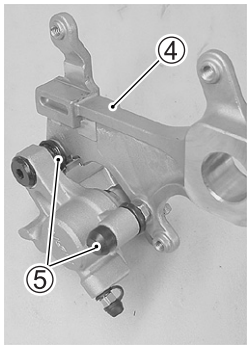
- Drain brake fluid. (☞15-4)
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the caliper.

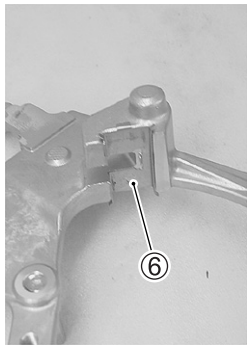


- Remove the brake pad. (☞15-5)
- Remove the spring ③.



- Remove the caliper brakect ④ from the caliper.
- Remove the boots ⑤.
- Remove the spring ⑥.





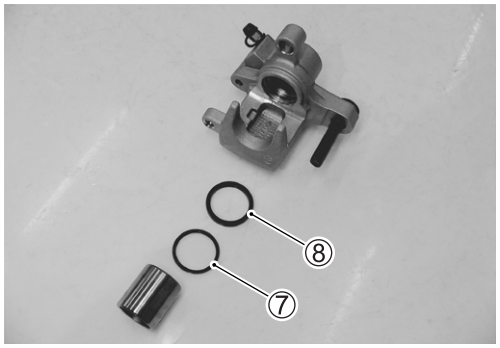
- Wrap the caliper with a rag to prevent brake fluid scatter and piston pop-out.
- Apply low-pressure air into the caliper through the hole to remove the piston.

⚠ 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 dust seal ⑦ and piston seal ⑧.



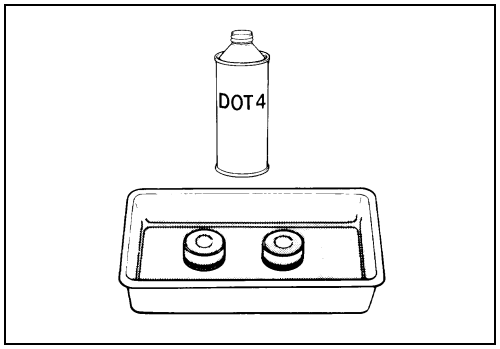
CALIPER INSPECTION

- Inspect the caliper cylinder for scuffing, wear and damage.
- Inspect the piston for scuffing, wear and damage.

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.

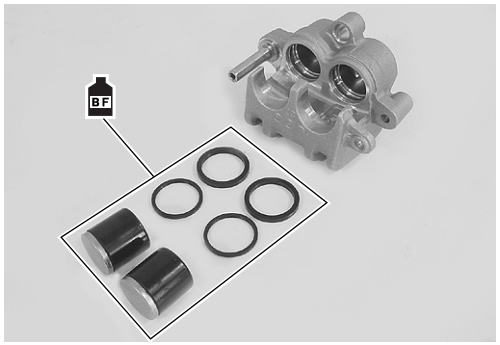


FRONT CALIPER REASSEMBLY

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

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

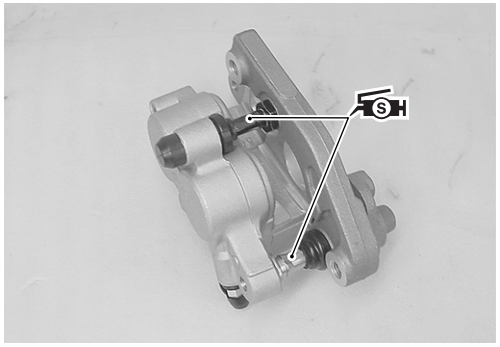
BF Specification and classification: DOT 4



- Install the springs and boots.
- Apply SUZUKI SILICONE GREASE to the caliper axles.

99000-25100: SUZUKI SILICONE GREASE

- Install the caliper bracket.
- Install the brake pads and tighten the brake pad mounting pin temporarily.



- Tighten the caliper mounting bolts ① to the specified torque.

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

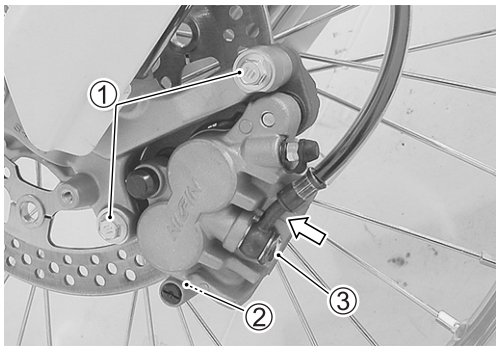
- Tighten the brake pad mounting pin ② to the specified torque.

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

- Set the brake hose end between the hose stopper, then tighten the brake hose union bolt ③ 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. (☞15-3)

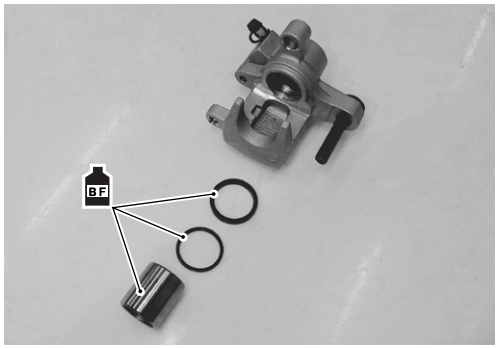


REAR CALIPER REASSEMBLY

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

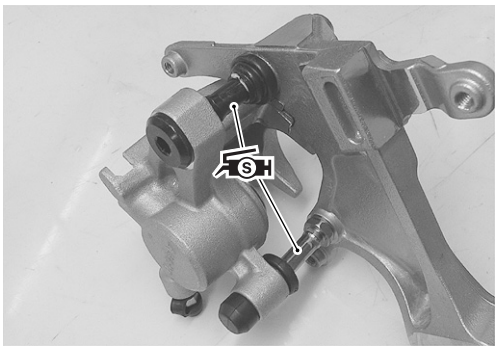
- Apply brake fluid to the new piston seal, new dust seal and piston fit the piston seal, dust seal and piston.

Specification and classification: DOT 4



- Install the springs and boots.
- Apply SUZUKI SILICONE GREASE to the caliper axles.

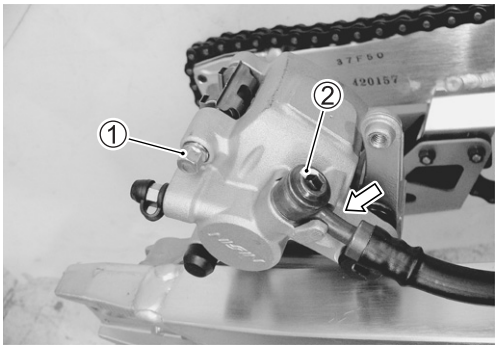
99000-25100: SUZUKI SILICONE GREASE



- Install the caliper bracket.
- Install the brake pads and tighten the brake pad mounting pin temporarily. (☞15-6)

- 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)



NOTE:

** Inspect not to pinch the O-ring of brake pad mounting pin.*

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

- Set the brake hose end between the hose stopper, then 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)

- Install the disc cover and caliper protector.
- Install the rear wheel. (☞14-8)
- Refill brake fluid and bleed air from the brake system. (☞15-3)

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 DOT 4 brake fluid from a sealed container can damage the brake system and lead to an accident.

Use only DOT 4 brake fluid from a sealed container. Never use or mix different types of brake fluid.

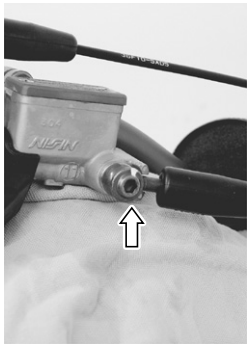
CAUTION

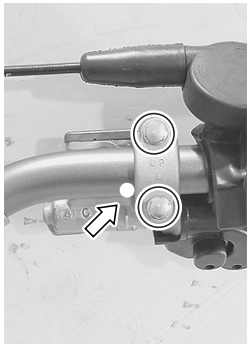
Spilled brake fluid can damage painted surfaces and plastic parts.

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

FRONT MASTER CYLINDER REMOVAL AND DISASSEMBLY

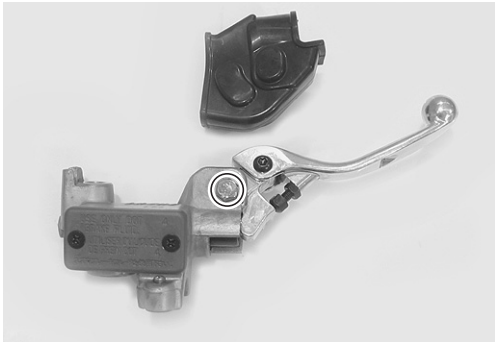
- Drain brake fluid. (☞15-4)
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the master cylinder holder bolts.
- Remove the master cylinder.





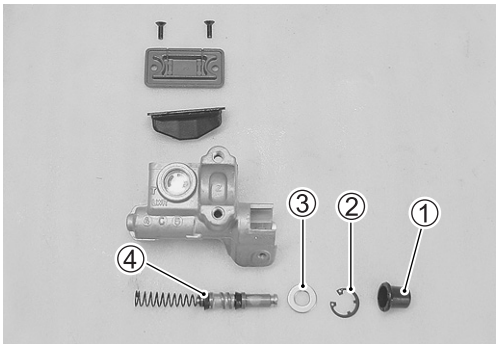
NOTE:
Mark the paint mark to the matching surface of master cylinder holder and handlebars.

- Remove the bolt and brake lever.



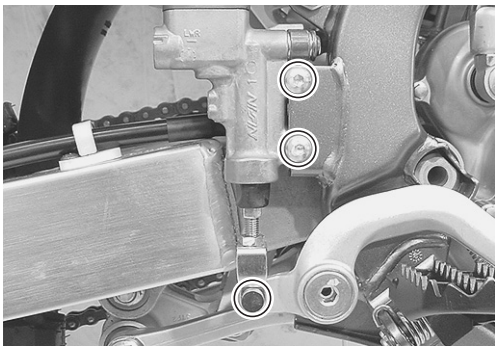
- Remove the master cylinder cap.
- Remove the diaphragm.
- Remove the dust boot ①.
- Remove the snap ring ② with snap ring pliers.
- Remove the washer ③ and piston/cup set ④.

TOOL 09900-06108: Snap ring pliers



REAR MASTER CYLINDER REMOVAL AND DISASSEMBLY

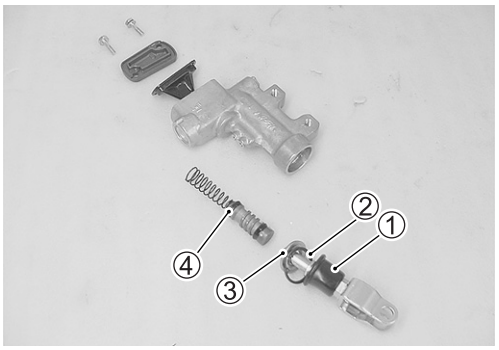
- Drain brake fluid. (☞15-4)
- Remove the cotter pin and then master cylinder rod pin.
- Remove the master cylinder mounting bolts.



- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the master cylinder.

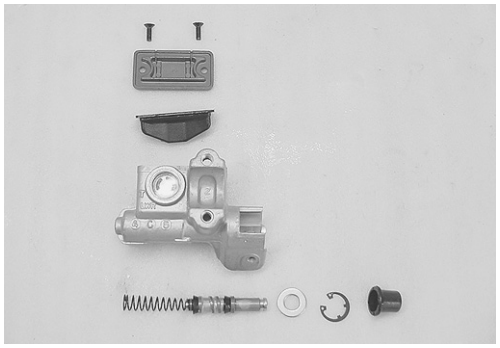
- Remove the master cylinder cap.
- Remove the diaphragm.
- Remove the dust boot ①.
- Remove the snap ring ② with snap ring pliers.
- Remove the push rod ③.
- Remove the piston/cup set ④.

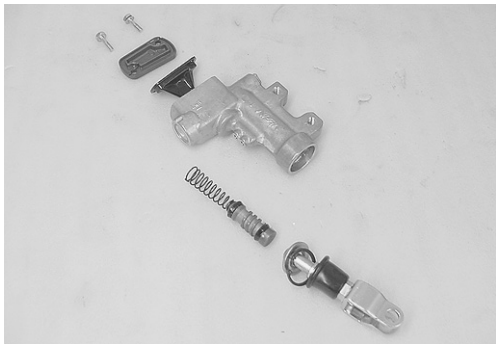
TOOL 09900-06108: Snap ring pliers



MASTER CYLINDER INSPECTION

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

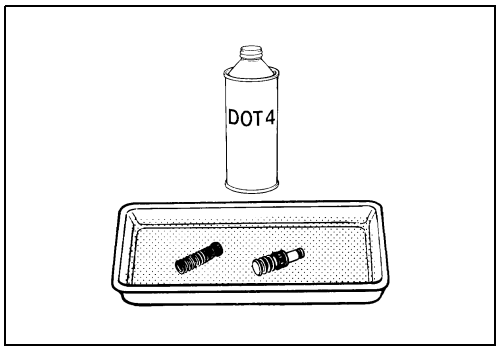




MASTER CYLINDER CLEANING

- 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.

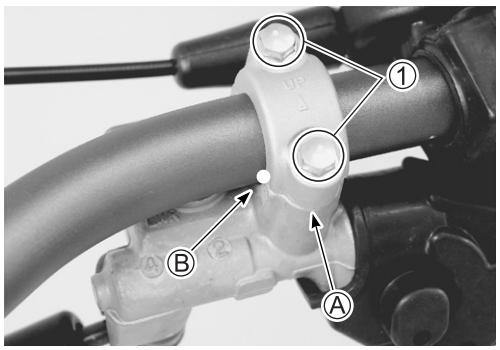


FRONT MASTER CYLINDER REASSEMBLY

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

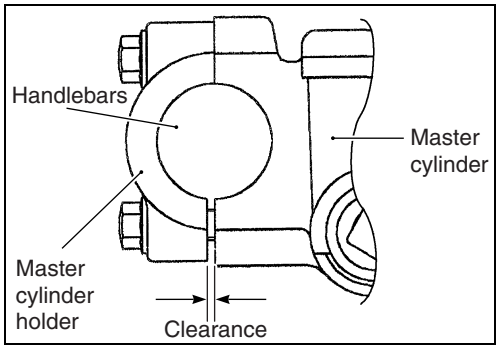
- Install the brake lever. (☞15-17)

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



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

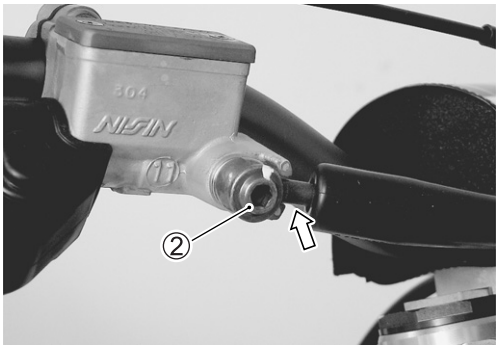
Master cylinder mounting bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)



- Set the brake hose end between the hose stopper, then 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)

- Refill brake fluid and bleed air from the brake system. (☞15-3)

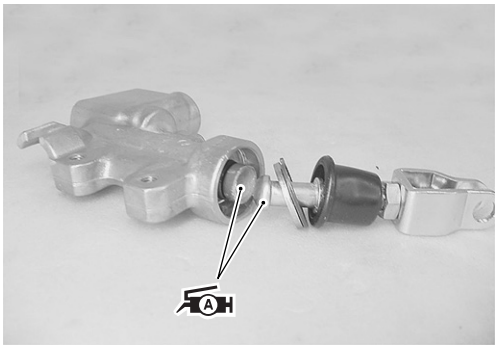


REAR MASTER CYLINDER REASSEMBLY

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

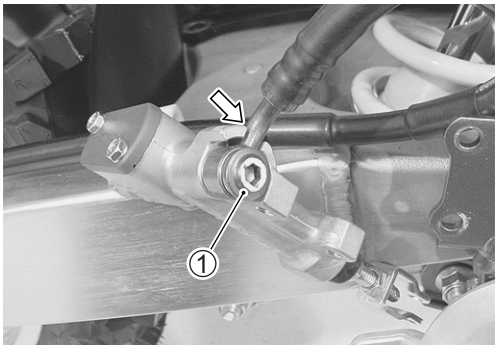
- Apply grease to the contact point between piston and push rod.

99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)



- Set the brake hose end between the hose stopper, then tighten the brake hose union bolt ① to the specified torque.

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



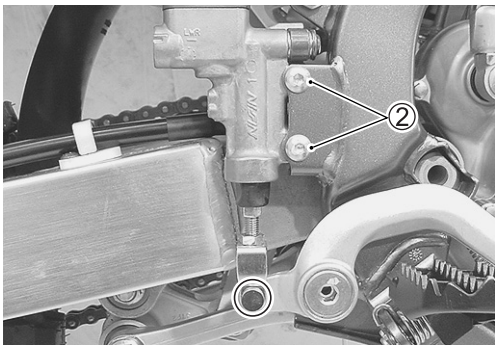
- Tighten the master cylinder mounting bolts ② to the specified torque.

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

- Install the master cylinder rod pin.

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.**

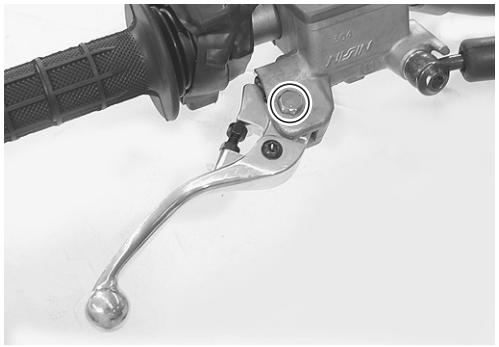
- Refill brake fluid and bleed air from the brake system. (☞15-3)



BRAKE LEVER

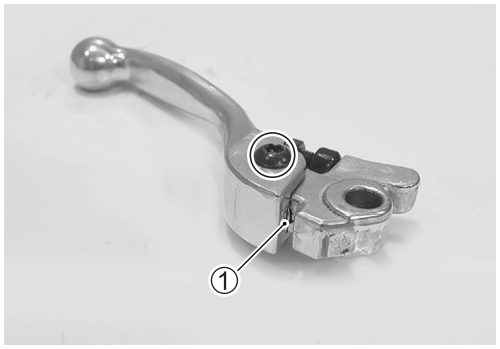
REMOVAL

- Remove the brake lever.



- Remove the brake lever adjuster return spring ①.

09930-11960: Torx wrench, T20



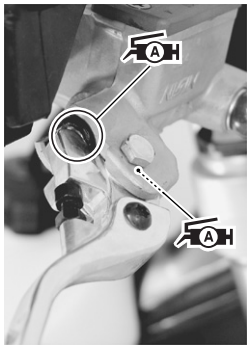
INSTALLATION

- Apply grease to the brake lever adjuster return spring, pivot bolt and contact point between piston and brake lever.

99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)

- Tighten the pivot bolt and pivot nut to the specified torque.

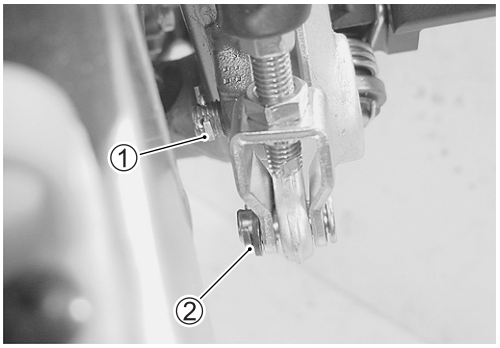
Pivot bolt: 6 N·m (0.6 kgf-m, 4.4 lb-ft)
Pivot nut: 6 N·m (0.6 kgf-m, 4.4 lb-ft)



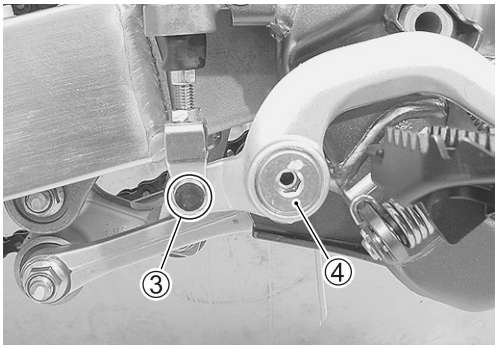
BRAKE PEDAL

REMOVAL

- Remove the cotter pin ①.
- Remove the cotter pin ②.



- Remove the washer and master cylinder rod pin ③.
- Remove the brake pedal pivot bolt ④.



REASSEMBLY

- Apply SUZUKI SUPER GREASE to the oil seal and brake pedal pivot bolt.

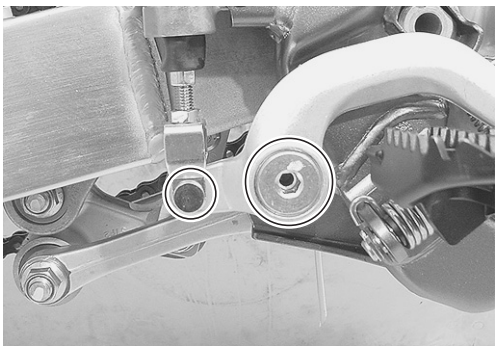
99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)

- Install the return spring properly. (☞18-15)

- 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. (☞2-19)

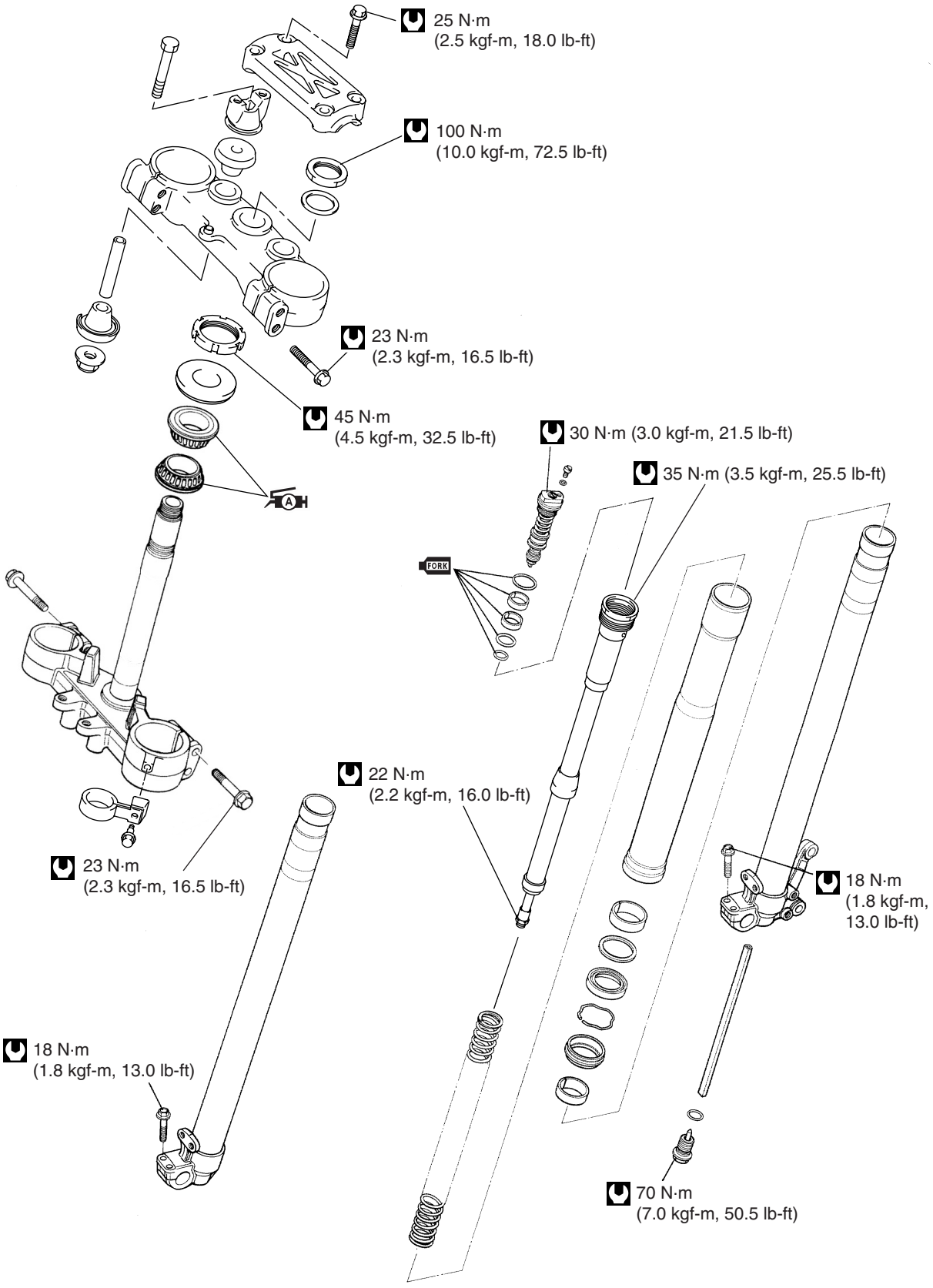


FRONT FORK AND STEERING

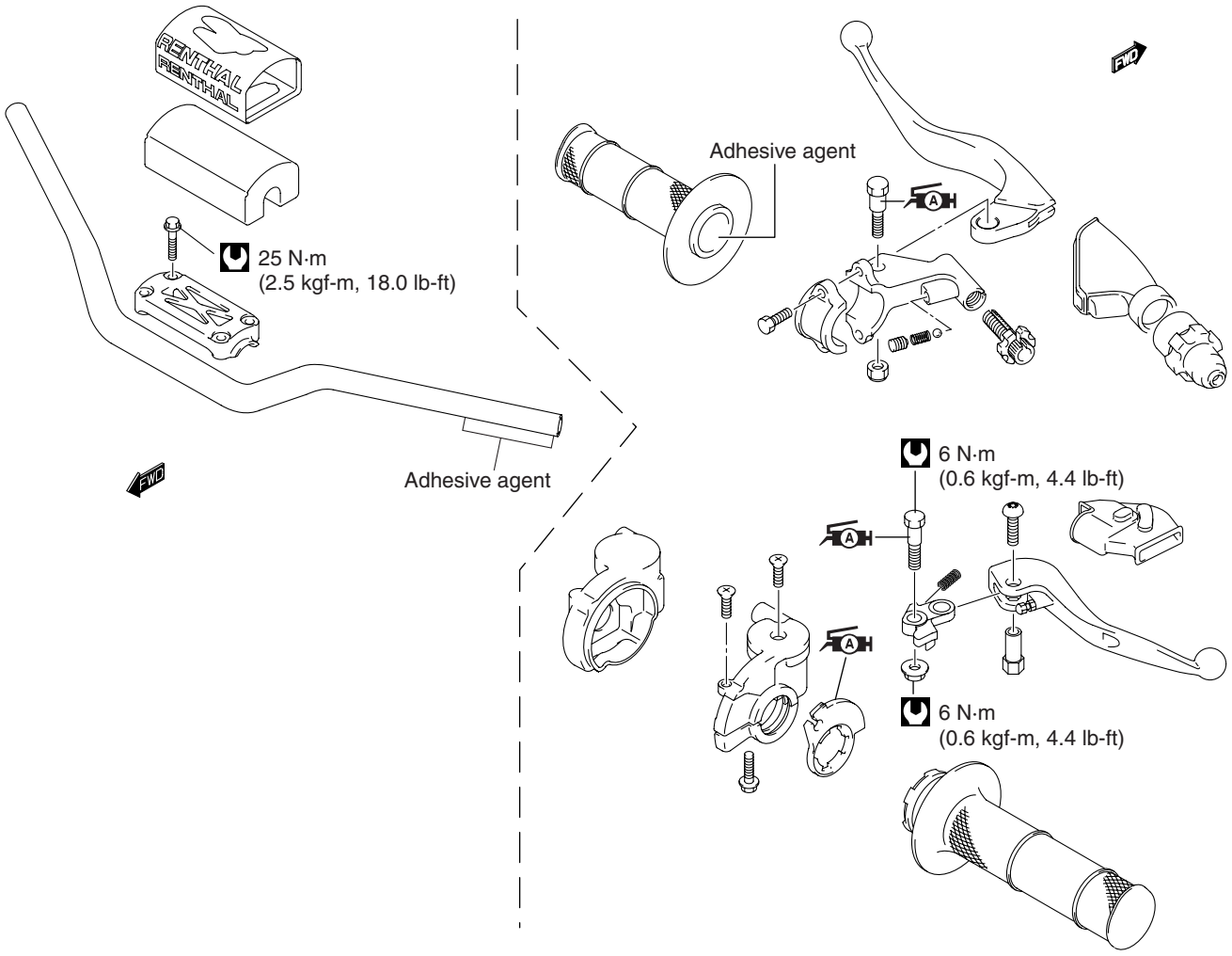
CONTENTS

CONSTRUCTION

FRONT FORK, STEERING

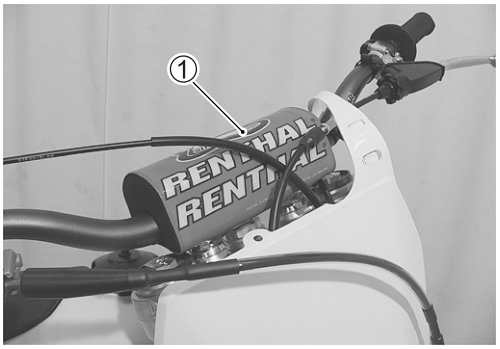


HANDLEBAR CONTROLS

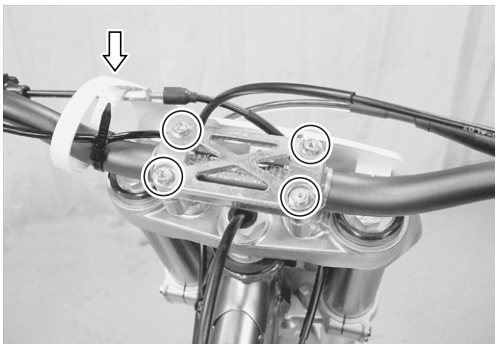


REMOVAL

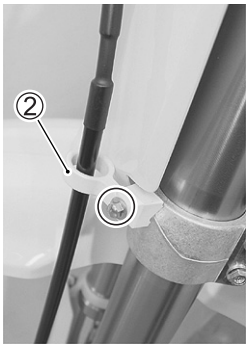
- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the front wheel. (☞14-3)
- Remove the protector ①.

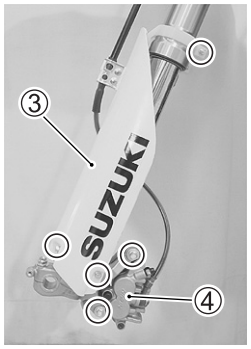


- Remove the front number plate band.
- Remove the handlebars. (☞16-18)



- Remove the brake hose guide ② and fork protectors ③.
- Remove the front brake caliper ④.

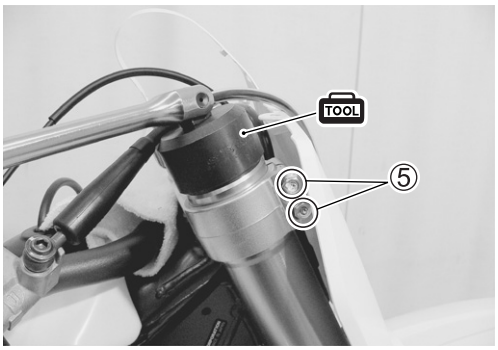




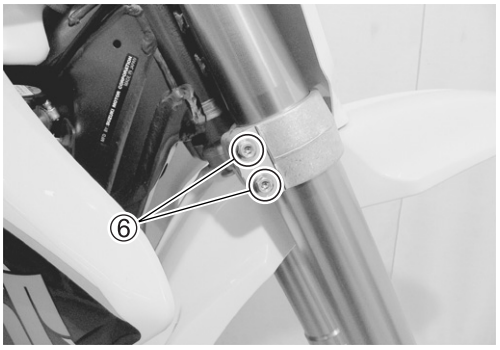
- Loosen the front fork cap bolt 1 – 2 turns to facilitate later disassembly.

TOOL 09941-53630: Front fork top cap wrench

- Loosen the front fork upper clamp bolts ⑤.



- Hold the fork body and loosen the fork lower clamp bolts ⑥.
- 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.

TOOL 09941-53630: Front fork top cap wrench

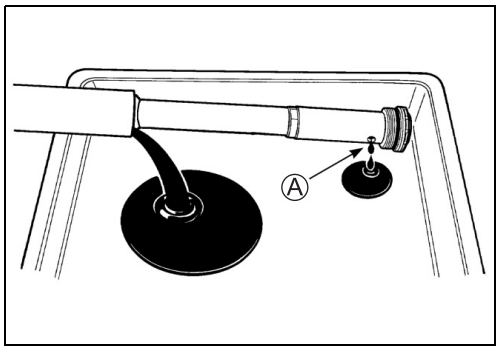
⚠ WARNING

Clamping the outer tube too tight can damage it which will affect riding stability.

Do not clamp the outer tube too tight.

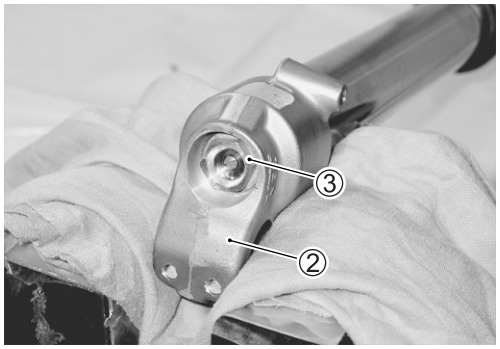
- Place a drain pan under the front fork and drain fork oil.

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.



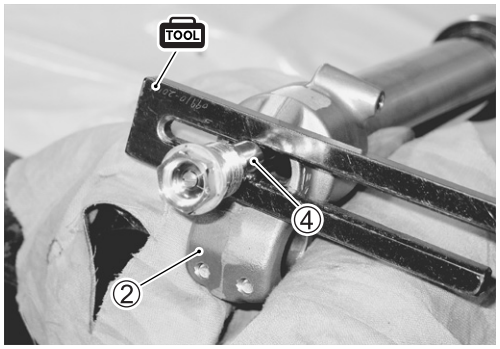
⚠ WARNING

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

Do not clamp the axle holder too tight.

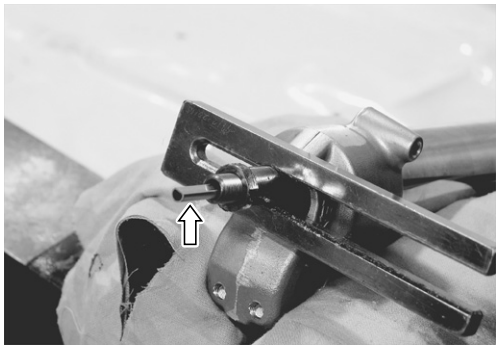
- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder bottom ② and lock-nut ④.

TOOL 09910-20115: Conrod holder

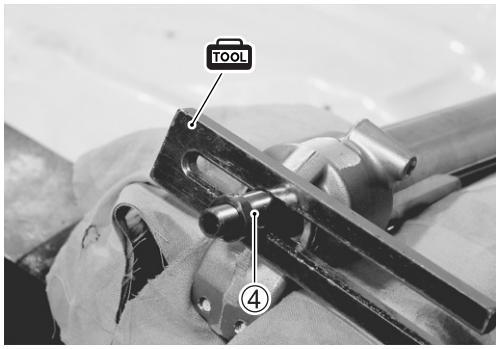


- Hold the lock-nut with a wrench and remove the center bolt.

- Remove the push rod.



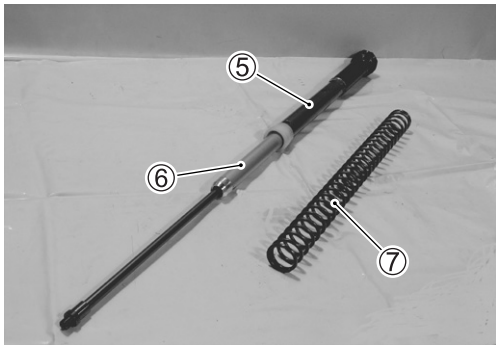
- With the outer tube compressed by hands, remove the special tool.



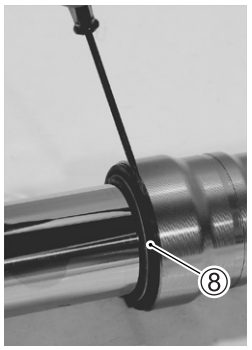
CAUTION
Removing the lock-nut ④ and pushing the inner rod thread into the damper rod will damage the inner rod oil seal. **Do not remove the lock-nut ④ from the inner rod.**

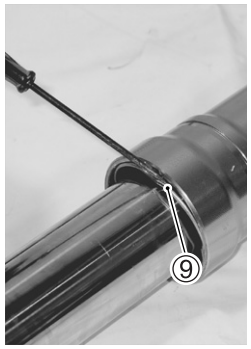
- Loosen the fork cap bolt ① (sub-tank) and remove the sub-tank ⑤ along with the damper rod assembly ⑥.
- Remove the fork spring ⑦.

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 ⑧ and the stopper ring ⑨.

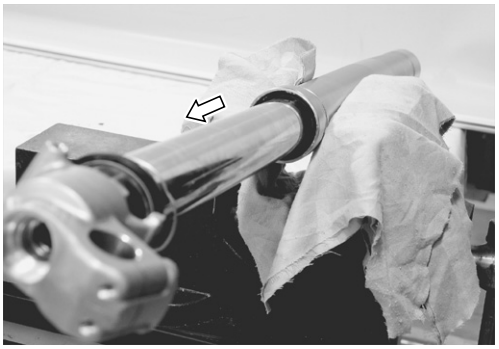




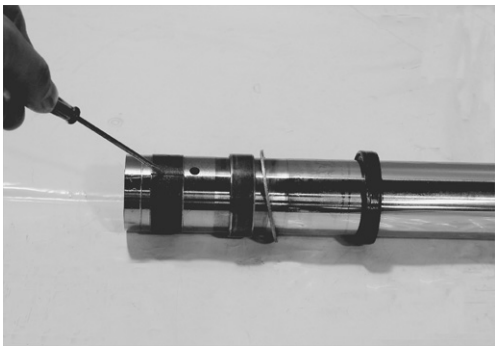
CAUTION
Scratches on the inner tube could cause oil leaks. **Avoid scratching when removing.**

INNER TUBE

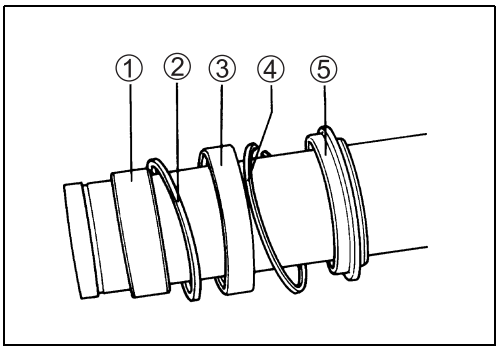
- Separate the inner tube out of the outer tube.



- Remove the slide bushing from the inner tube.

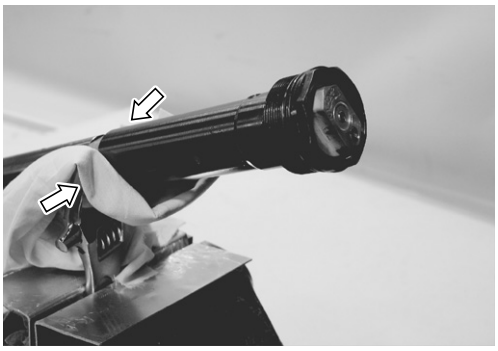


- Remove the following parts from the inner tube.
  Guide bushing ①
  Seal retainer ②
  Oil seal ③
  Stopper ring ④
  Dust seal ⑤



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

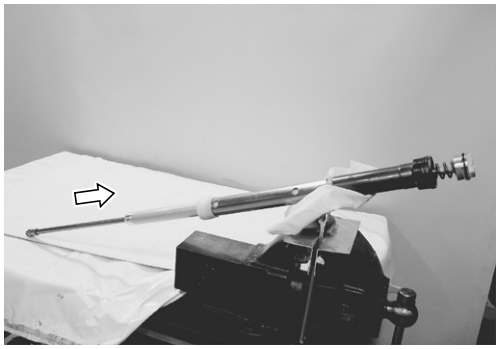
CAUTION
Do not clamp the sub-tank too tight.



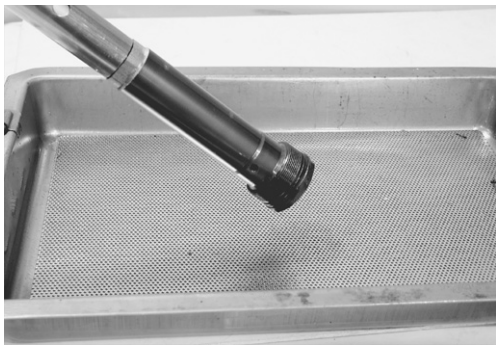
- Loosen the compression damper unit.

- 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.



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



INSPECTION

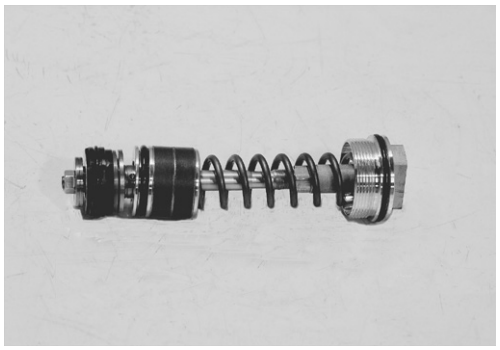
CENTER BOLT

- 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

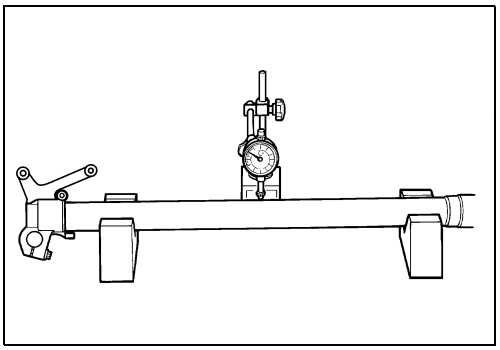
- Inspect the compression damper unit for damage. If it is damaged, replace it with a new one.
- Replace the O-ring with a new one.

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



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.

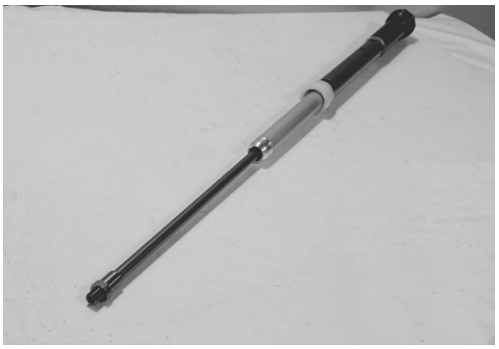


- Measure the inner tube runout using the V-blocks and dial gauge.

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

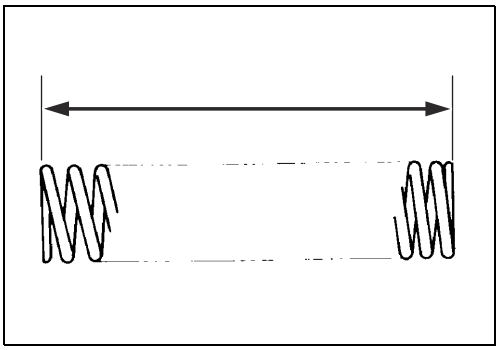
TOOL **09900-20607: Dial gauge (1/100 mm)**
09900-20701: Magnetic stand
09900-21304: V-block

DAMPER ROD



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

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:

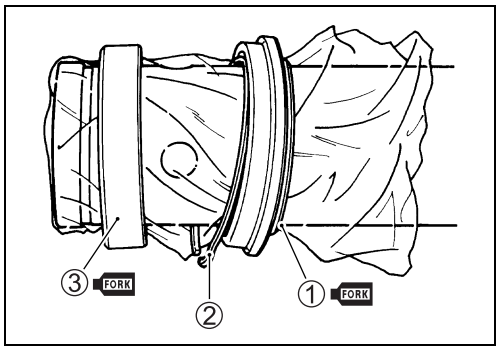
** Clean all fork parts before reassembling.*

** 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 seals, place a plastic film over the bushing attachment groove and edges of the inner tube to avoid damaging the seals’ lip.

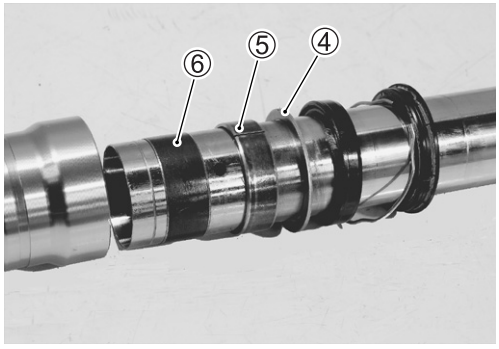
NOTE:

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 new ones.

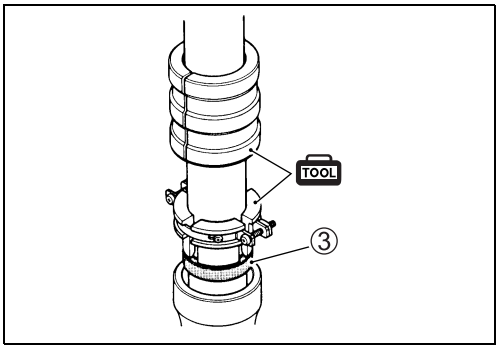


- Insert the inner tube into the outer tube.

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

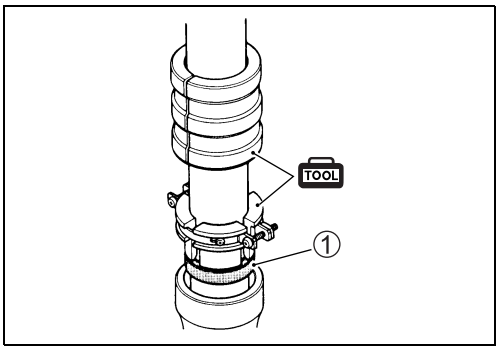
TOOL 09940-52861: Front fork oil seal installer set

- 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.

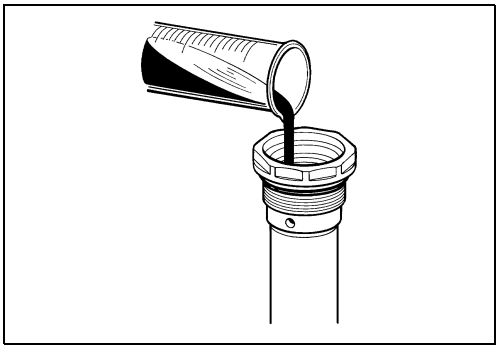
DAMPER ROD

- 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):
193 ml (6.52/6.80 US/Imp oz)

FORK 99000-99001-SS5: SUZUKI FORK OIL SS-05
(or equivalent fork oil)



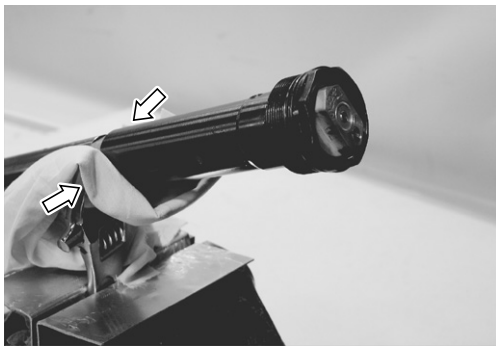
- Apply fork oil to the O-rings and bushing on the compression damper unit.
- With the damper rod held immovable in fully extended position, gently install the compression damper unit to the sub-tank.

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

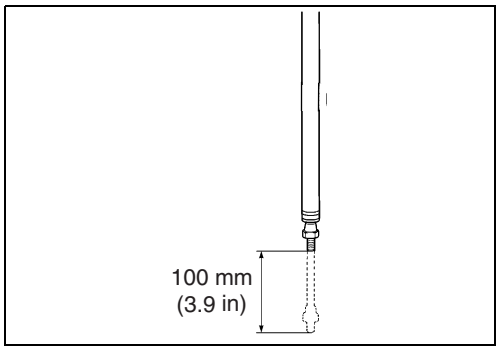
CAUTION
Do not clamp the sub-tank too tight.

- Tighten the compression damper unit to the specified torque.

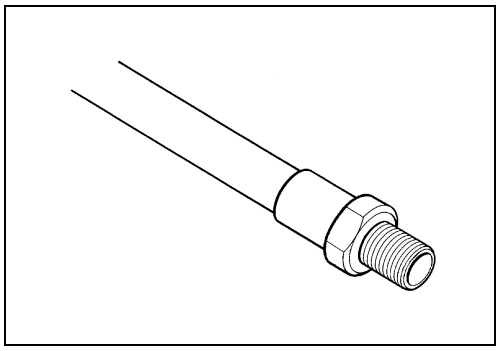
Compression damper unit: 30 N·m (3.0 kgf-m, 21.5 lb-ft)



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



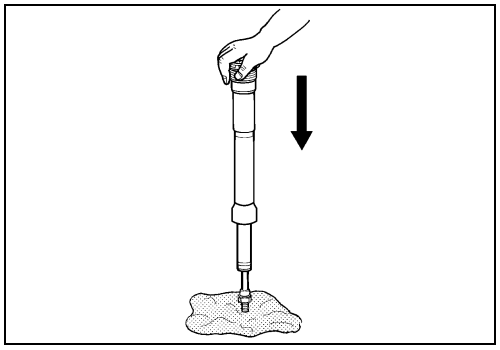
- Tighten the lock-nut by hand completely.



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

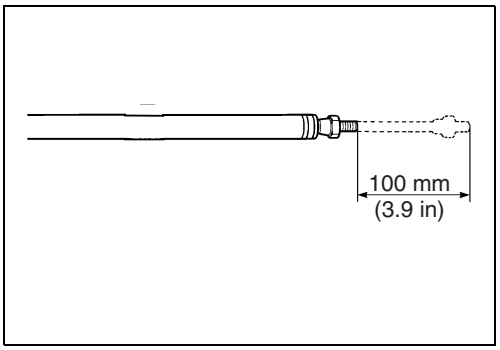
CAUTION
Protect the inner rod end with a rag when compressing the damper rod.

NOTE:
Set the compression damper setting to the softest.

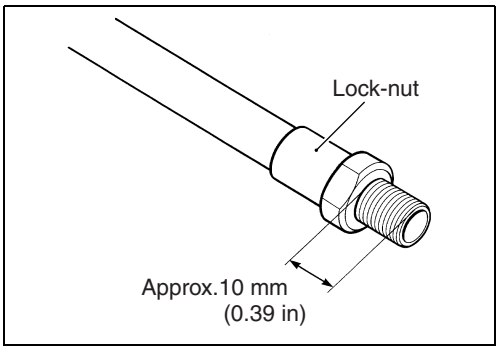


- Force out the remaining oil (discharged oil) using compressed air completely.

- 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). (☞16-12)



- 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).

TOOL 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

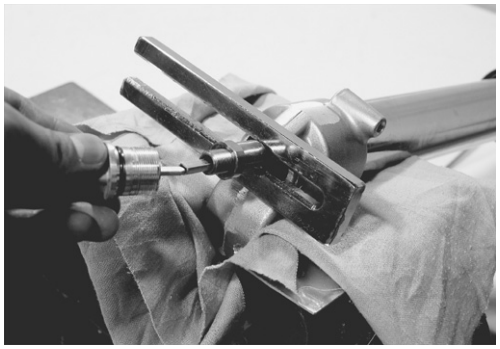
Clamping the axle holder too tight can damage it which will affect riding stability.

Do not clamp the axle holder too tight.

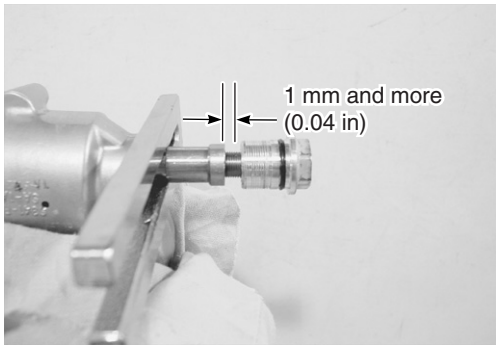
- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder bottom and lock-nut.

TOOL 09910-20115: Conrod holder

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



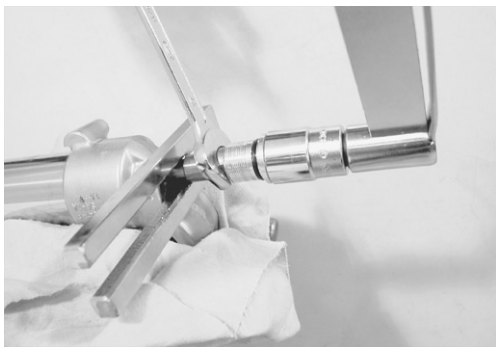
- Slowly turn the center bolt clockwise until resistance is felt and check the clearance between the lock-nut and center bolt to provide 1 mm (0.04 in) and more.



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

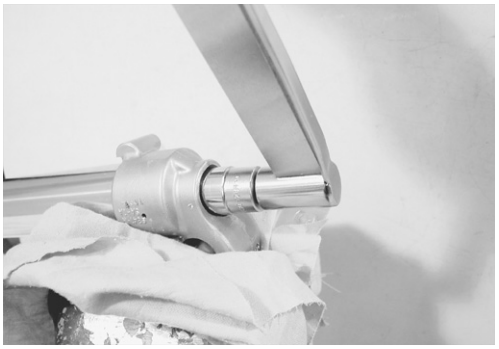
Lock-nut/center bolt: 22 N·m (2.2 kgf-m, 16.0 lb-ft)

- 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, 50.5 lb-ft)



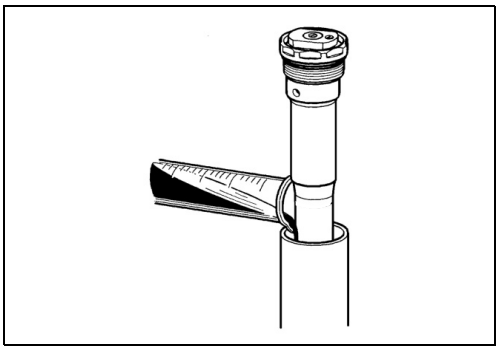
- Loosen and remove the fork cap bolt (sub-tank) from the outer tube and slowly slide down the outer tube.

09941-53630: Front fork top cap wrench

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

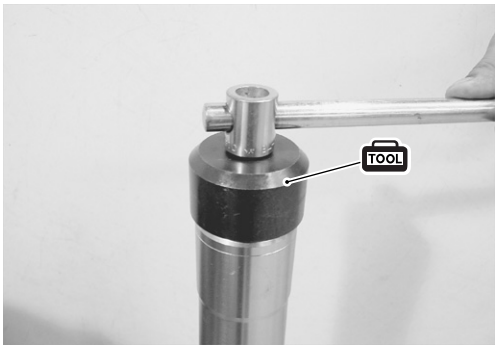
Oil quantity (When standard fork spring is used):
357 ml (12.07/12.57 US/Imp oz)

99000-99001-SS5: SUZUKI FORK OIL SS-05
(or equivaient fork oil)



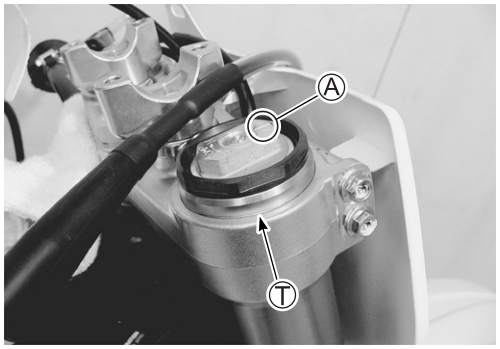
- Raise the outer tube and temporarily tighten the fork cap bolt (sub-tank).

09941-53630: Front fork top cap wrench



INSTALLATION

- Install the front fork with the line Ⓣ aligned with the upper surface of the upper bracket.
- Check that the air valve Ⓐ is positioned at the front.



- 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)

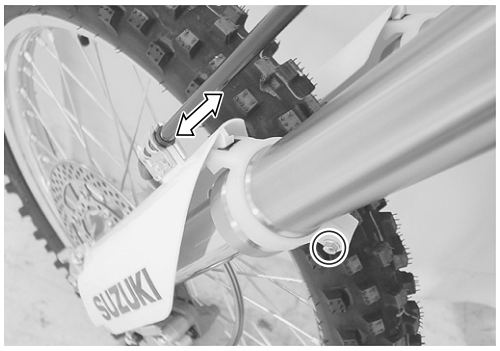
- Tighten the fork cap bolt (sub-tank) to the specified torque.

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

09941-53630 : Front fork top cap wrench

- Install the handlebars. (☞16-22)
- Install the front wheel. (☞14-5)
- Install the brake caliper. (☞15-11)

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



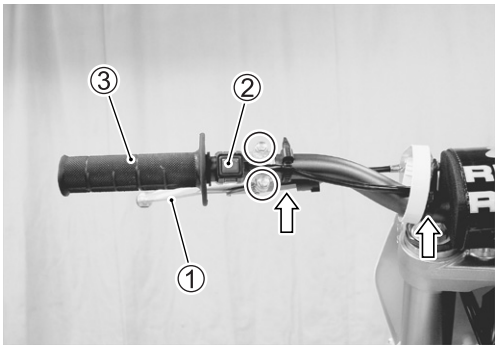
INSPECTION AFTER INSTALLATION

- Front fork (☞2-20)
- Steering (☞2-22)
- Wire, cable and hose routing (☞18-12, -13, -17)

STEERING

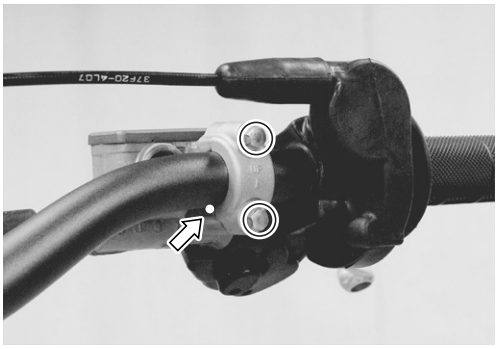
REMOVAL

HANDLEBARS



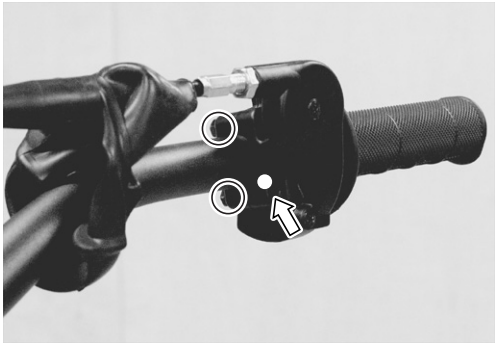
- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the front number plate and protector. (☞5-2, 16-4)
- Remove the clamps.
- Remove the clutch lever ①.
- Remove the engine stop switch ②.
- Remove the left handle grip ③.

NOTE:
Mark the paint mark to the matching surface of clutch lever holder and handlebars, left handle grip and handlebars before removing.



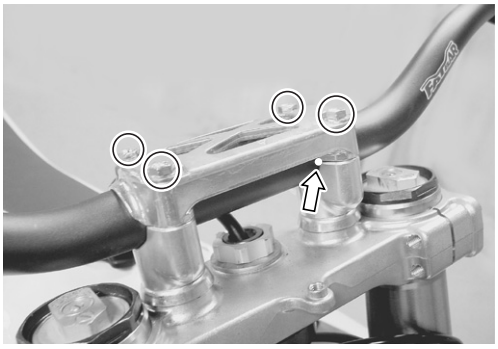
- Remove the front brake master cylinder.

NOTE:
Mark the paint mark to the matching surface of master cylinder holder and handlebars before removing.



- Loosen the throttle assembly mounting bolts.

NOTE:
Mark the paint mark to the matching surface of throttle holder and handlebars before removing.



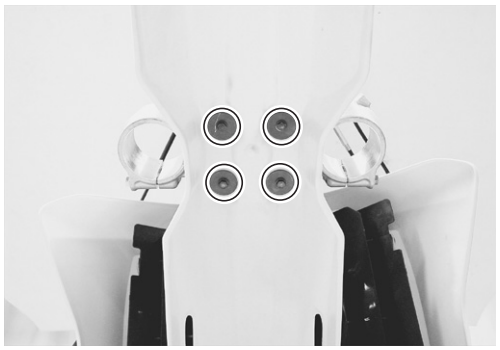
- Remove the handlebar holder bolts and remove the handlebars.

NOTE:
Mark the paint mark to the matching surface of handlebar holder and handlebars before removing.

STEERING STEM

- Remove the front wheel. (☞14-3)
- Remove the front forks. (☞16-4)

- Remove the front fender.

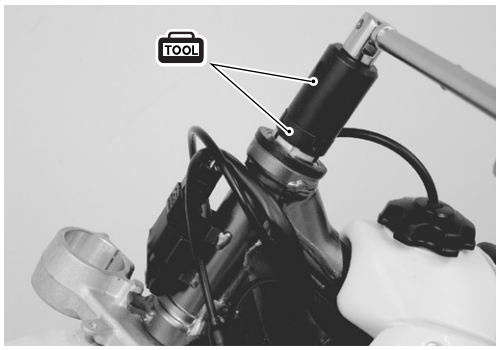


- Remove the steering stem head nut.
- Remove the steering stem upper bracket.

- Remove the steering stem nut with the special tools.

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

- Remove the steering stem lower bracket.



- Remove the dust seal ①.
- Remove the upper bearing ②.

INSPECTION

STEERING STEM

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

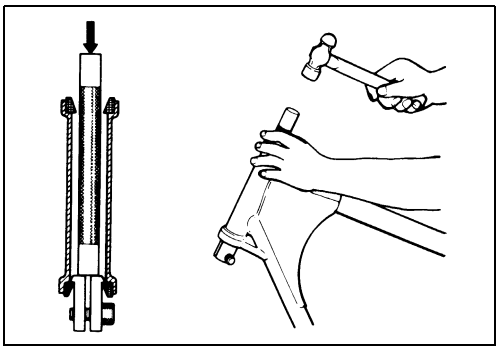
- Inspect the bearing outer races for wear.

BEARING REPLACEMENT

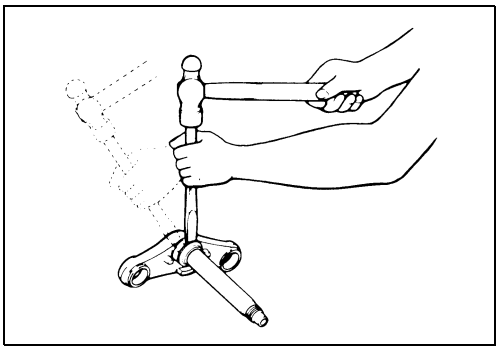
NOTE:
Replace the outer race and bearing as a set.

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

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

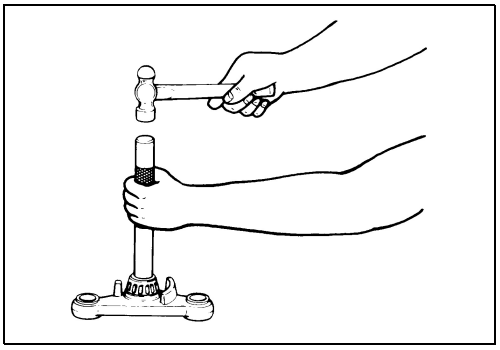


- Remove the lower bearing.



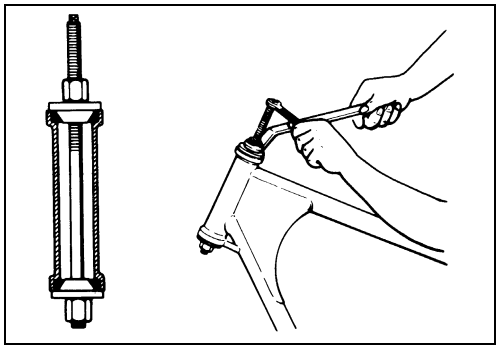
- Fit the lower bearing with the special tool.

09925-18011: Steering bearing installer



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

TOOL 09941-34513: Steering race installer
09924-84510: Bearing installer set

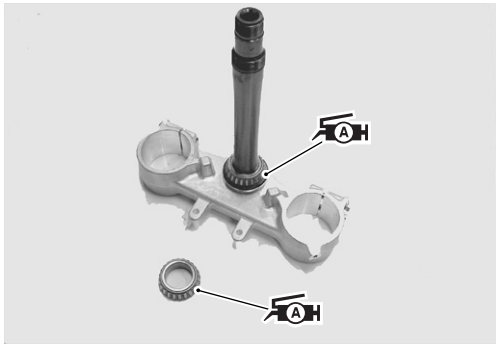


INSTALLATION

STEERING STEM

• Apply grease to the bearings.

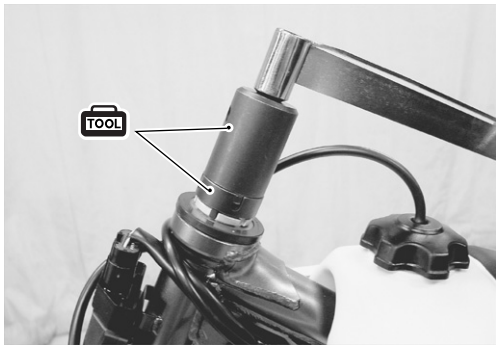
A 99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)



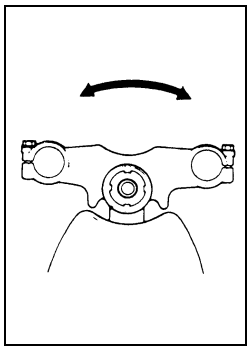
• Fit the steering stem lower bracket, upper bearing and steering stem nut.
• Tighten the steering stem nut with the special tools.

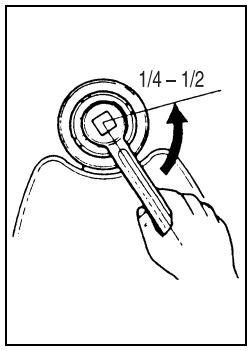
Steering stem nut: 45 N·m (4.5 kgf-m, 32.5 lb-ft)

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



• 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. (☞16-17)





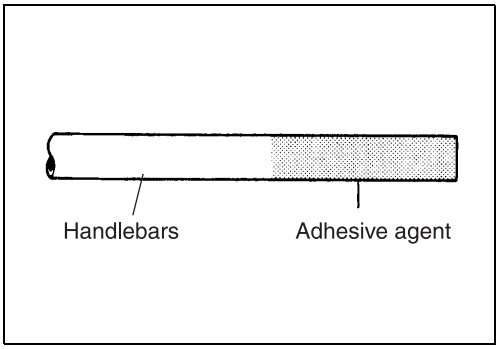
• Tighten the steering stem head nut to the specified torque.

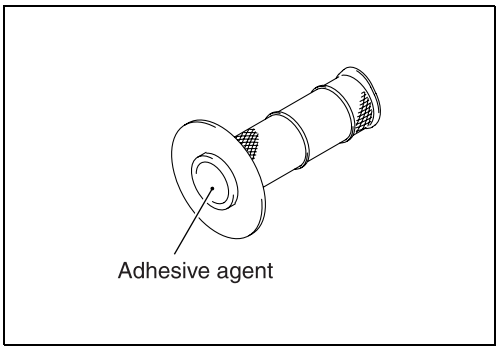
Steering stem head nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

HANDLEBARS

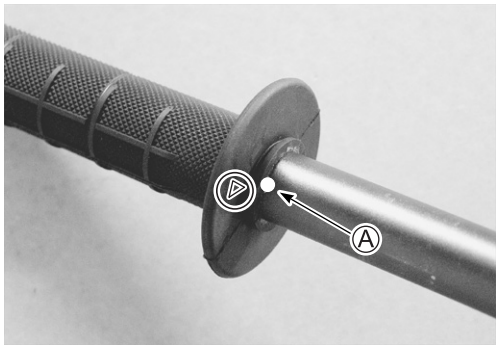
- Apply adhesive agent to the left handlebar end and inside of the left grip.

HANDLE GRIP BOND (commercial available)





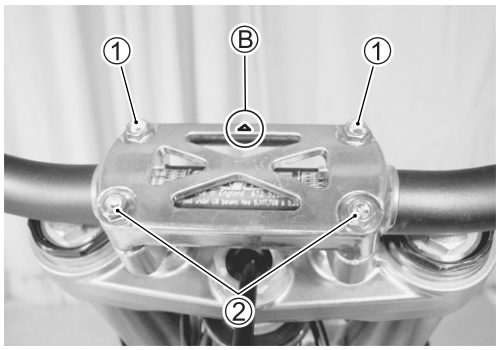
- Align the "△" mark on the left grip with the paint mark Ⓐ on the left handlebar end.

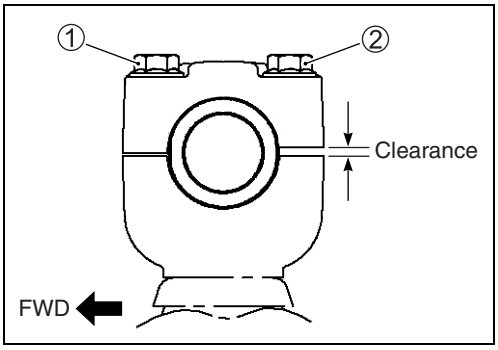


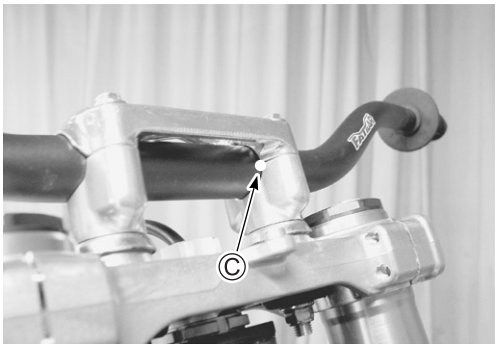
- Set the "△" mark Ⓑ on the handlebar holder forward.
- Align the paint mark Ⓒ on the handlebars with the matching surface of the handlebar holder.
- Tighten the handlebar holder bolts to the specified torque.

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

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

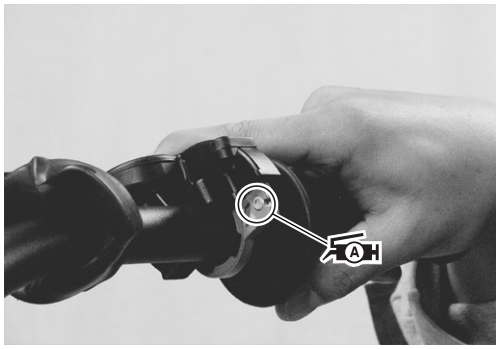




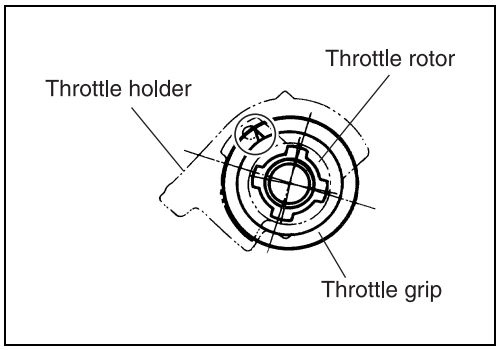


- Apply grease to the throttle cable and their hole.

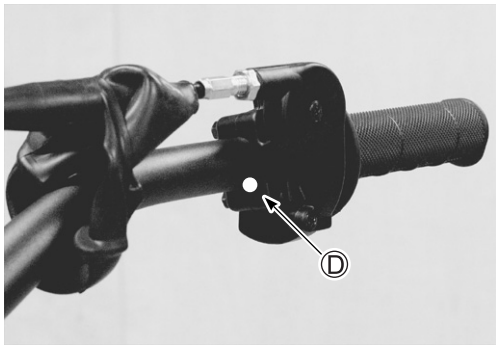
99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)



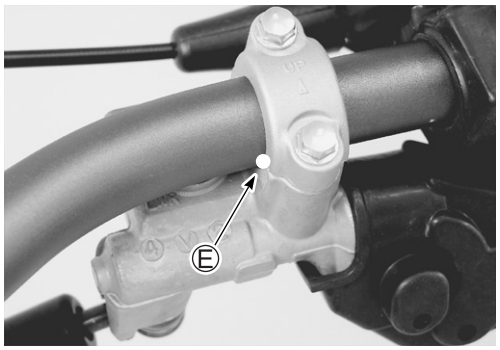
- Align the "△" mark on the throttle grip with the hole on the throttle rotor.



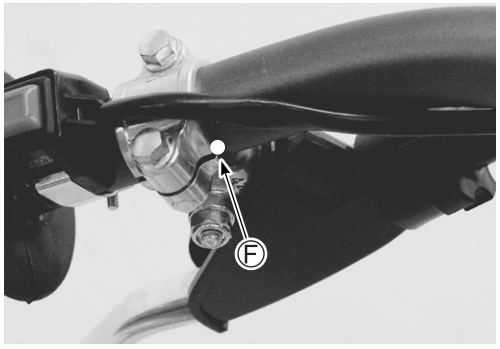
- Align the paint mark Ⓓ on the handlebars with the throttle holder matching surface.



- Align the paint mark Ⓔ on the handlebars with the front brake master cylinder holder matching surface. (☞15-15)



- Align the paint mark Ⓕ on the handlebars with the clutch lever holder matching surface. (☞18-16)
- Install the engine stop switch.

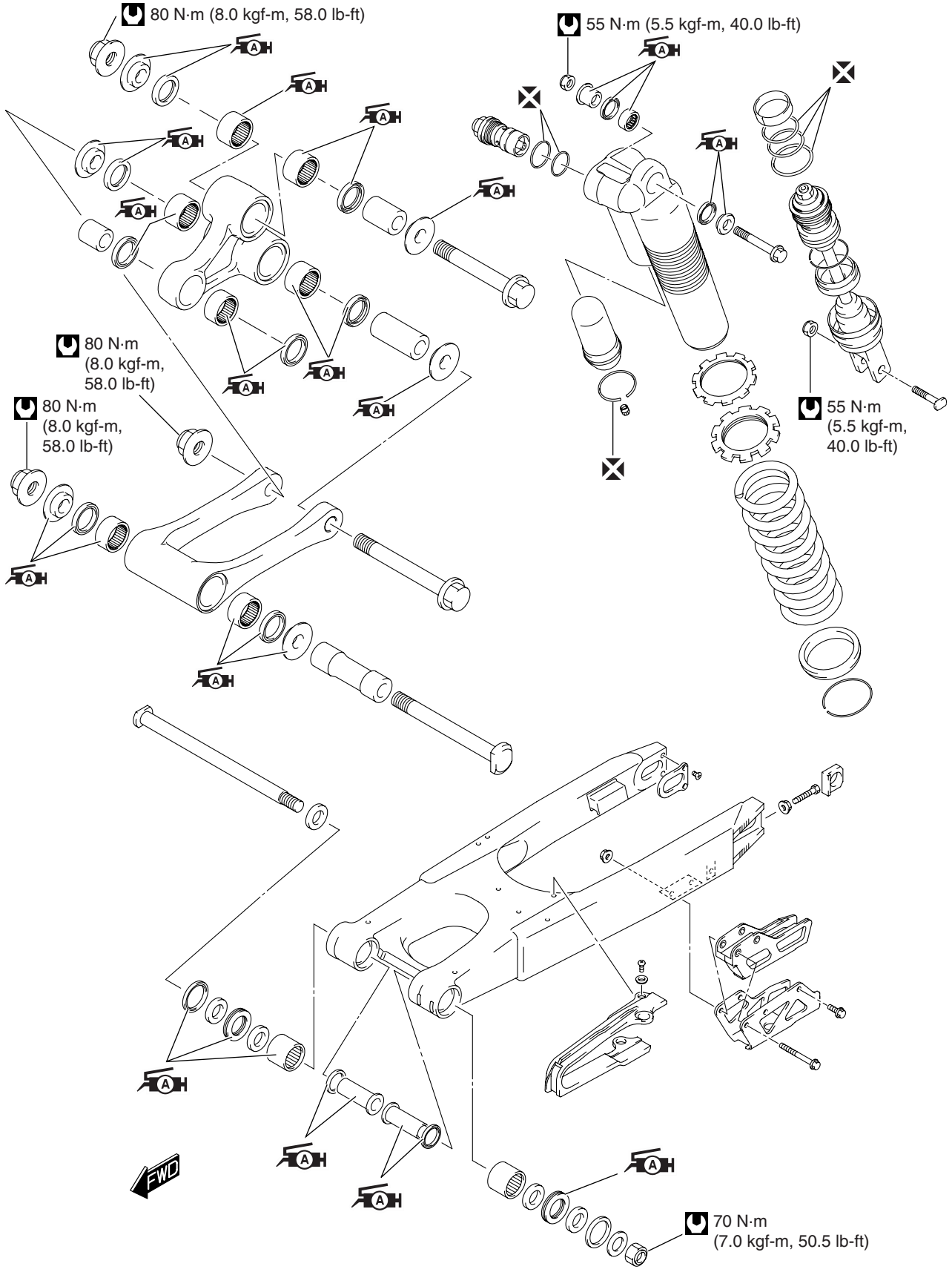


Inspect the following items.
- Front fork (☞2-20)
- Steering (☞2-22)
- Wire, cable and hose routing (☞18-12, -13, -17)

REAR SUSPENSION

CONTENTS

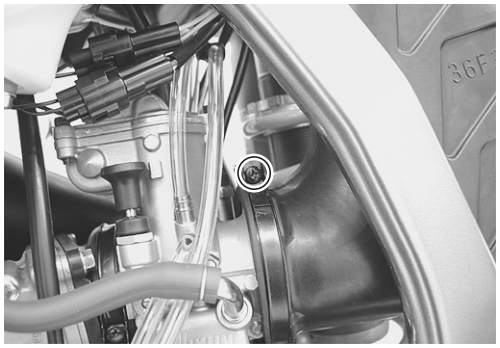
CONSTRUCTION
REAR SUSPENSION



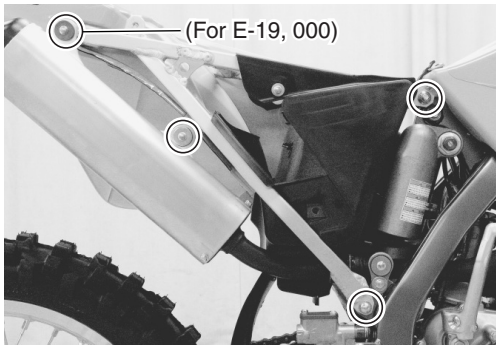
REAR SHOCK ABSORBER

REMOVAL

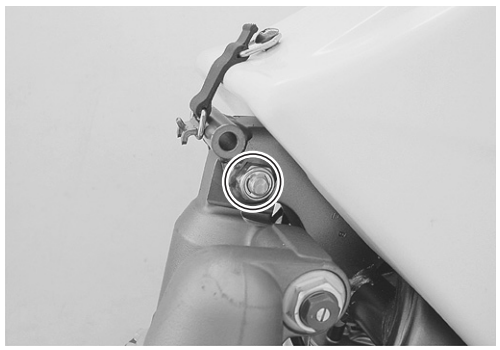
- Place a block under chassis tube.
- Remove the seat. (☞5-3)
- Loosen the air cleaner clamp screw.



- Remove the right frame cover. (☞5-2)
- Remove the silencer and rear frame assembly.

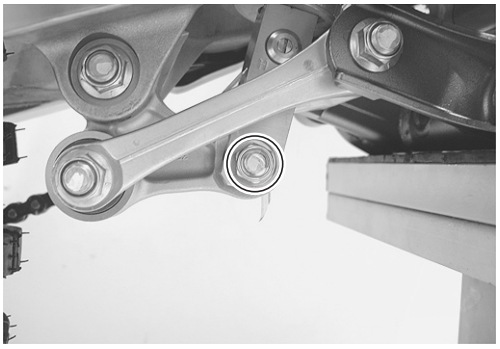


- Remove the rear shock absorber upper mounting bolt and nut.



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

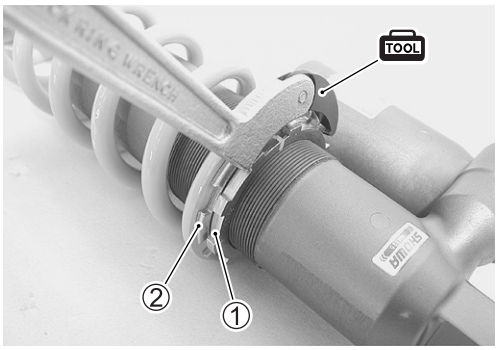
NOTE:
If necessary, move the swingarm up or down to facilitate this mounting bolt/nut removal.



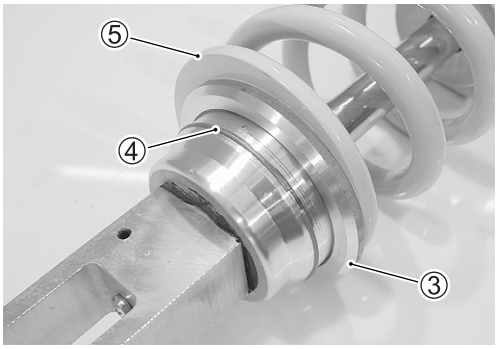
SPRING REPLACEMENT

- Loosen the lock-nut ① with the special tool and turn it fully to the end of the thread.
- Turn the adjuster ② as well as the lock-nut ①.

TOOL 09910-60611: Universal clamp wrench

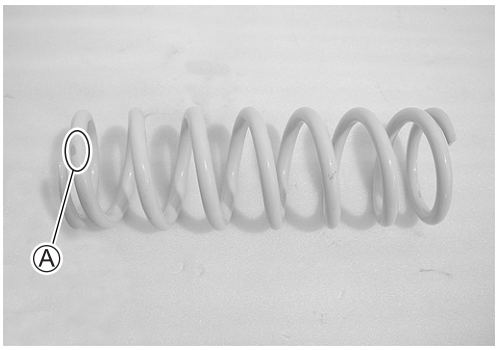


- Depress the spring seat ③ and remove the stopper ring ④.
- Remove the spring seat ③ and the spring ⑤ from the rear shock absorber.



- Install the lock-nut, adjuster, spring, spring seat and stopper ring.

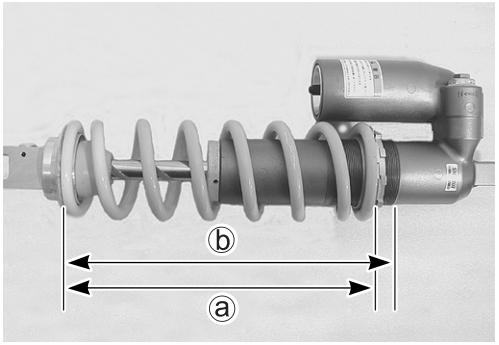
NOTE:
Install the spring as its painted side Ⓐ or small diameter side faces bottom.



- Adjust the spring set length and tighten the lock-nut.

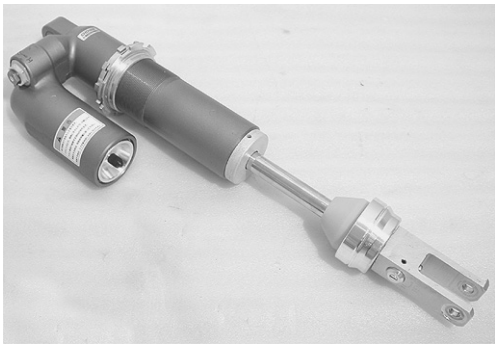
DATA Standard spring set length:
3.7 mm (0.146 in) compressed from the free length
Spring set length adjustable range:
245 – 263 mm (9.646 – 10.354 in)
[at spring free length 265 mm (10.433 in)]
ⓐ: Hardest spring setting
ⓑ: Softest spring setting

Spring adjuster lock-nut: 45 N·m (4.5 kgf-m, 32.5 lb-ft)

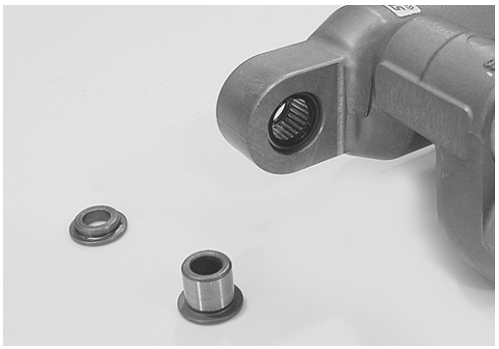


INSPECTION

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

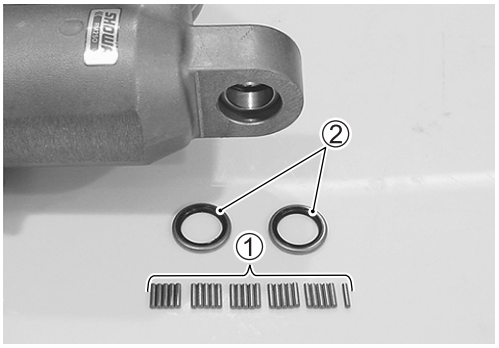


- Inspect the spacers and dust seals for damage.
- Inspect the bearing for excessive play and smooth movement.



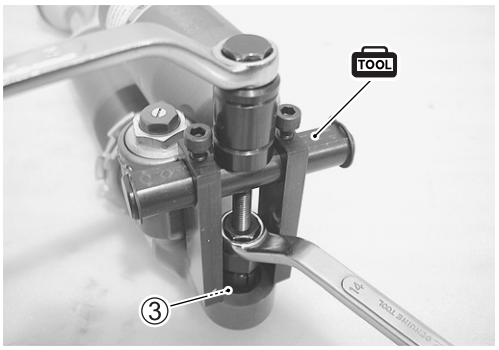
BEARING REPLACEMENT

- Remove the spacers.
- Remove the needle roller bearings ①.
- Remove the dust seals ②.



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

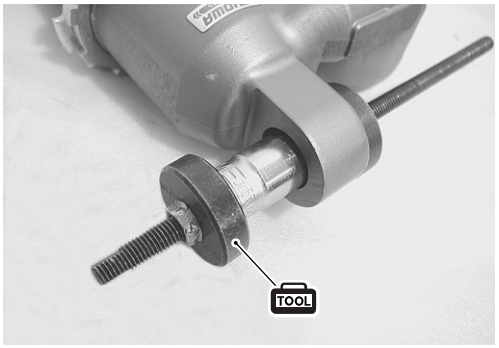
TOOL 09921-20240: Bearing remover set



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

NOTE:
When installing the needle roller bearing cage, the stamped mark on the bearing must face left side.
Position the needle roller bearing cage by refering to the illustration of page 17-20.

TOOL 09924-84521: Bearing installer set

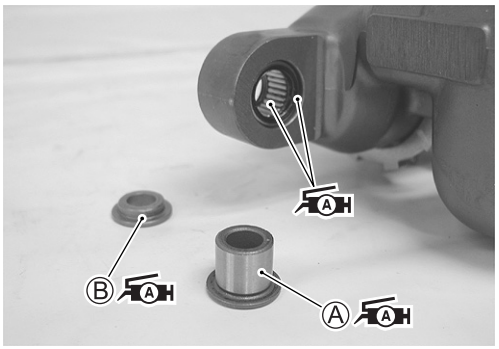


• Install the dust seals.

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

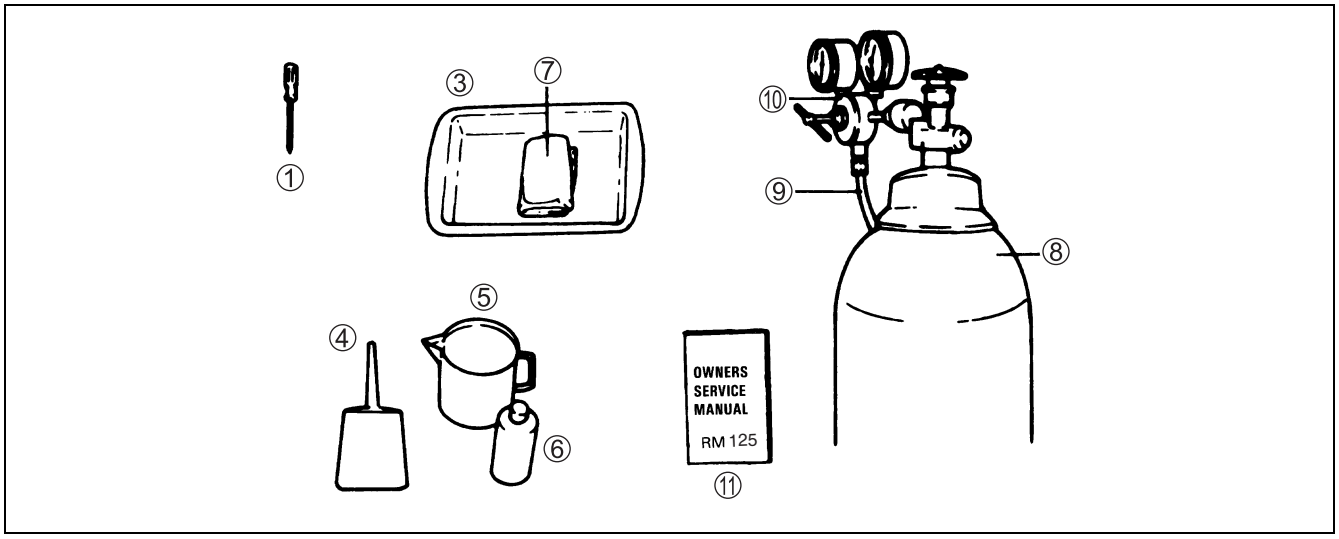
99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)



OIL REPLACEMENT

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

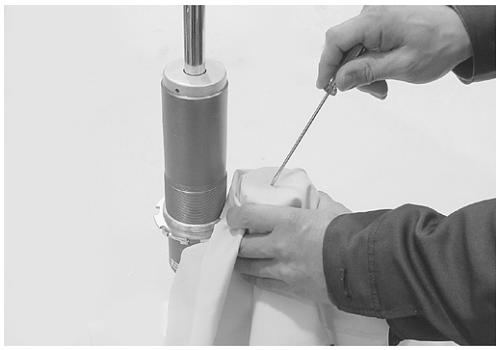
* Not Shown in the illustration

OIL REPLACEMENT PROCEDURE

- Remove the rear shock absorber unit from the frame (☞17-4), clean and dry it.
- Remove the spring from the rear shock absorber unit. (☞17-4)

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.

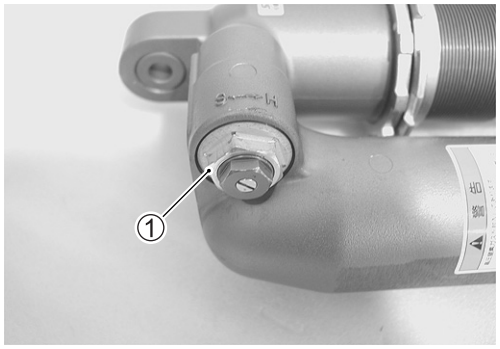


⚠ WARNING

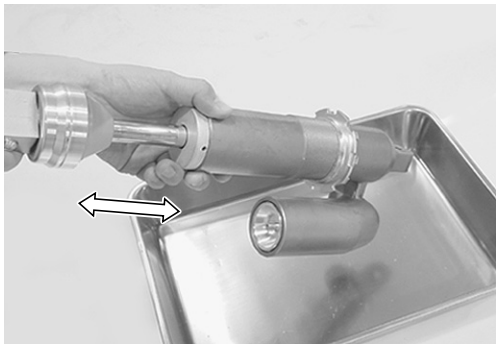
Releasing high pressure gas from the rear shock absorber unit can be hazardous.

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.

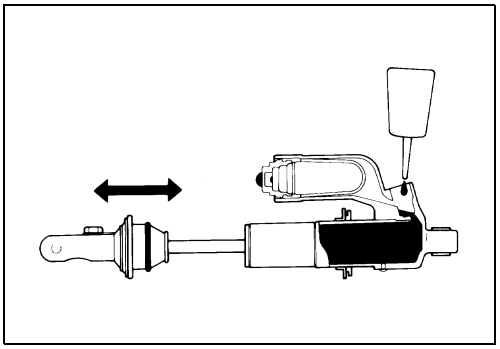


- Place a drain pan under the rear shock absorber unit.
- Move the rod and drain the oil completely.
- Push the valve core again to equalize the bladder to atmospheric pressure.



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

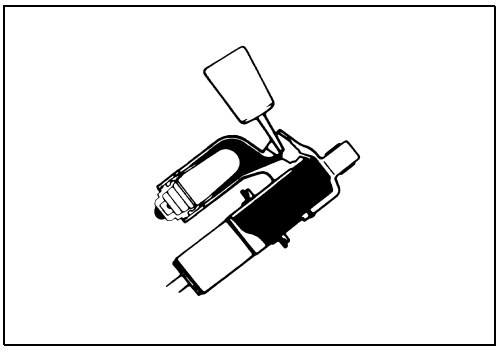
NOTE:
Be sure to extend the rod after filling the oil.



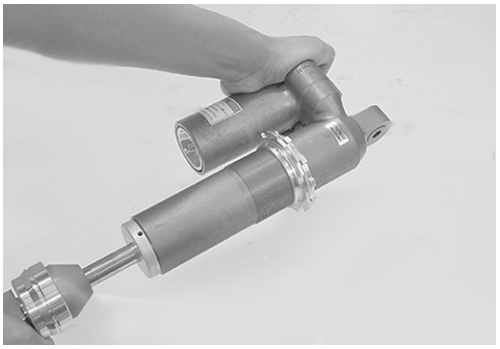
- Tilt the shock absorber unit as shown and pour the fresh rear suspension oil fully into the reservoir tank.

99000-99001-S25: SUZUKI REAR SUSPENSION OIL SS-25 (or equivalent rear suspension oil)

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



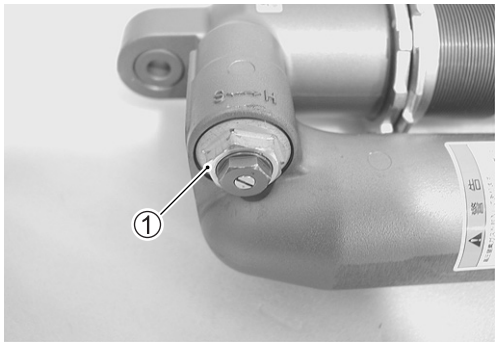
- Cover the compression adjuster hole with the root of your thumb.
- Tilt and shake the rear shock absorber unit to fill the reservoir tank with the oil.
- Add the oil and repeat the above procedure until the reservoir tank is filled with the oil completely.



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

- Reinstall the compression adjuster assembly ①.

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. (☞17-4)

⚠ WARNING

Use of flammable gas for pressuring the rear shock absorber unit can be hazardous. Flammable gas such as gas welding oxygen can cause a fire hazard.

Use nitrogen gas. If 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.

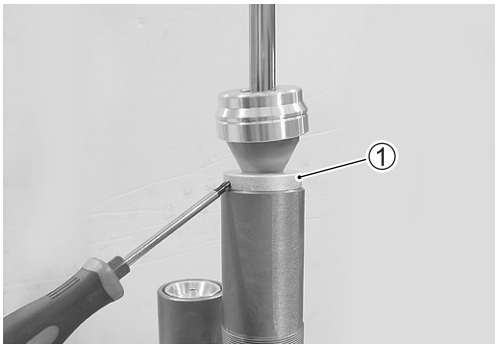
Be sure to fill the rear shock absorber unit to the specified pressure.

DISASSEMBLY AND INSPECTION

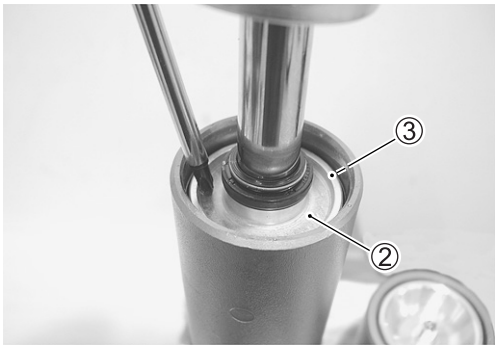
- Clean and dry the rear shock absorber.
- Remove the spring from the rear shock absorber. (☞17-4)
- Turn the rebound damping force adjuster to the softest position.
- Press the valve with a screwdriver to bleed out nitrogen gas. (☞17-7)
- Remove the compression adjuster assembly and drain the oil. (☞17-7)

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

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

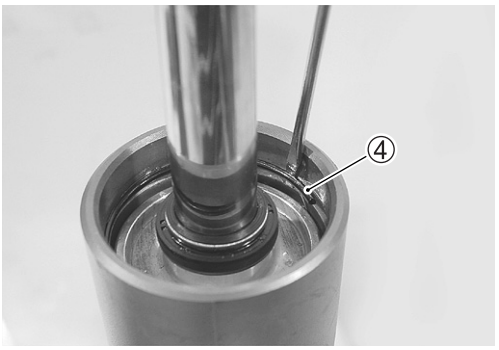


- Depress the seal case ② with a screwdriver until the circlip ③ is fully exposed.



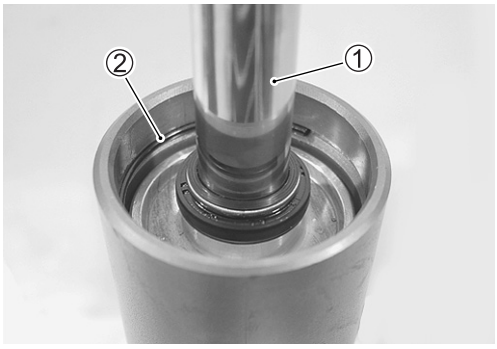
- Remove the circlip ④.

NOTE:
Do not scratch 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 putting a new one onto the piston if necessary.

REASSEMBLY



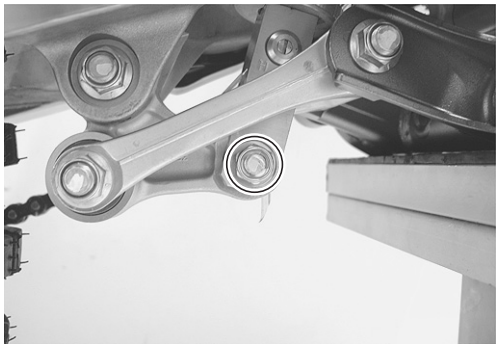
- Apply the rear suspension oil to the O-rings and the “teflon coating metal”.
- Insert the damper rod assembly ① and fit a new circlip ②.
- Pull up the damper rod assembly ① until it is stopped by the circlip ②.
- Fit the stopper to the shock absorber body.
- Fill the specified rear suspension oil in the rear shock absorber. (☞17-8)

RS 99000-99001-S25: SUZUKI REAR SUSPENSION OIL SS-25 (or equivalent rear suspension oil)

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

- Reinstall the compression adjuster assembly. (☞17-9)
- Pressure the rear shock absorber unit with nitrogen gas to 981 kPa (9.8 kgf/cm^2, 139.5 psi). (☞17-9)
- Reassemble the spring and adjust the spring set length. (☞17-4)
- Tighten the valve cap.

INSTALLATION

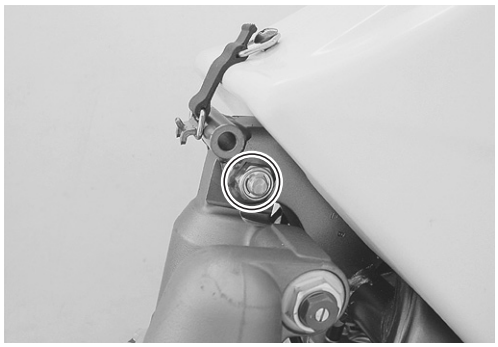


Install the rear shock absorber in the reverse order of removal. Pay attention to the following points:

- Tighten the rear shock absorber lower mounting bolt and nut to the specified torque.

NOTE:
If necessary, move the swingarm up or down to facilitate this mounting bolt/nut tightening.

Rear shock absorber lower mounting nut: 55 N·m (5.5 kgf-m, 40.0 lb-ft)



- Tighten the upper mounting bolt and nut to the specified torque.

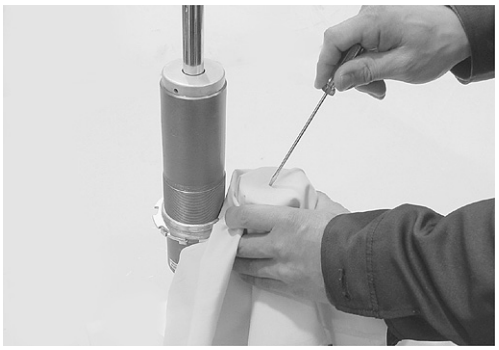
Rear shock absorber upper mounting nut: 55 N·m (5.5 kgf-m, 40.0 lb-ft)

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

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

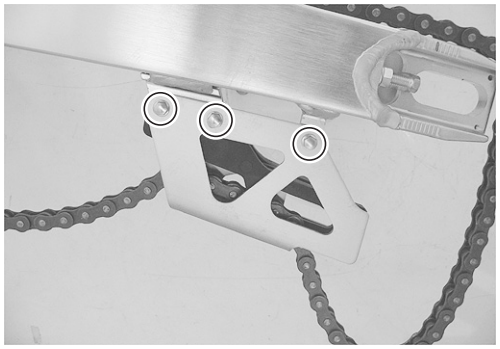
Releasing high pressure gas from the rear shock absorber unit can be hazardous.

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.

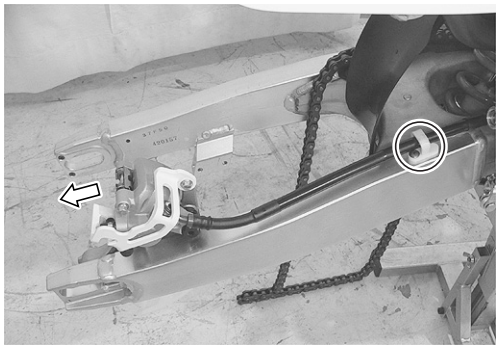
SWINGARM

REMOVAL

- Place the motorcycle on a block to lift rear wheel off the ground.
- Remove the rear wheel. (☞14-6)
- Remove the chain guide.

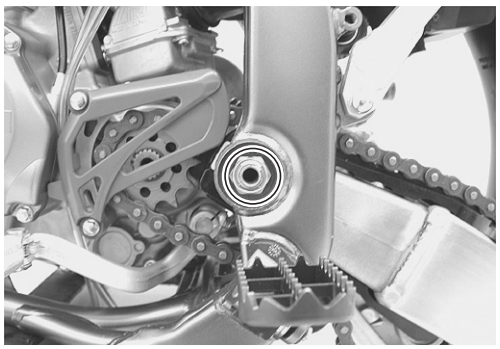


- Remove the rear brake hose guide.
- Remove the rear brake caliper from the swingarm.

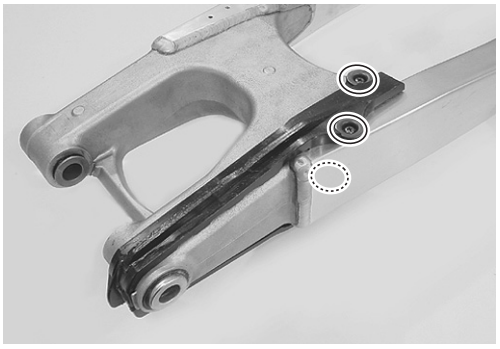


- Remove the rear cushion rod bolt and nut.
- Remove the rear cushion lever bolt and nut.

- Remove the swingarm pivot nut and shaft.
- Remove the swingarm.

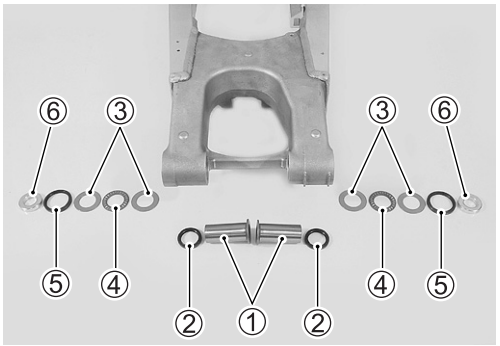


• Remove the chain buffer.



• Remove the plates.

• Remove the following parts from the swingarm.
Spacer ①
Oil seal ②
Washer ③
Thrust bearing ④
Dust seal ⑤
Spacer ⑥

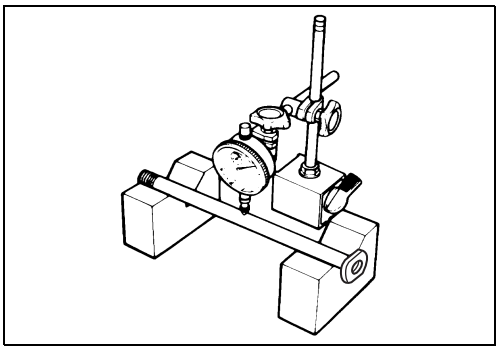


INSPECTION

PIVOT SHAFT

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

DATA Swingarm pivot shaft runout
Service Limit: 0.3 mm (0.01 in)
TOOL 09900-20607: Dial gauge (1/100 mm)
09900-20701: Magnetic stand
09900-21304: V-block



CHAIN BUFFER AND CHAIN GUIDE

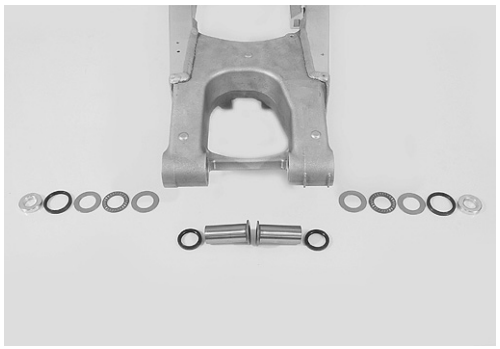
• Inspect the chain buffer and chain guide for damage and excessive wear.

SWINGARM

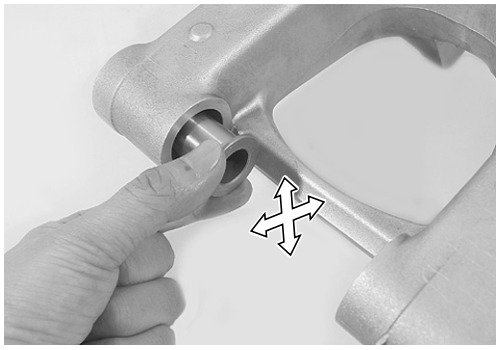
- Inspect the swingarm for cracks and damage.

BEARING, SPACER, DUST SEAL, OIL SEAL

- Inspect the bearings, spacers, dust seals and oil seals for damage.



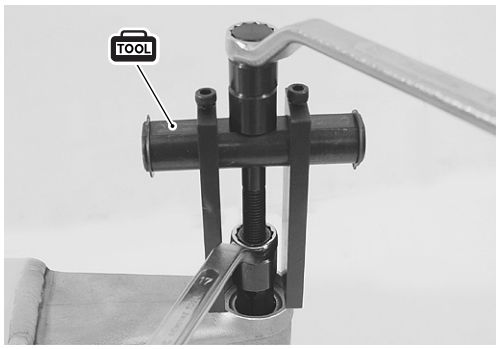
- Insert the spacer into the bearings and inspect them for play and smooth movement.



BEARING REPLACEMENT

- Remove the bearings with the special tool.

TOOL 09921-20240: Bearing remover set

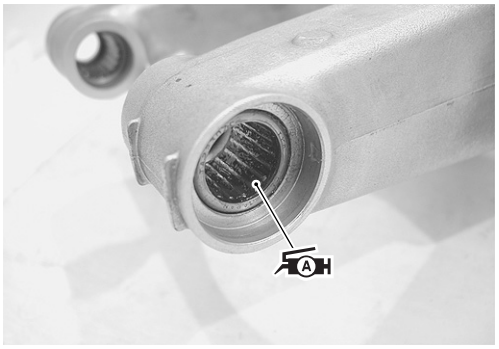


- Press fit the bearings with the special tool.

TOOL 09913-70210: Bearing installer set

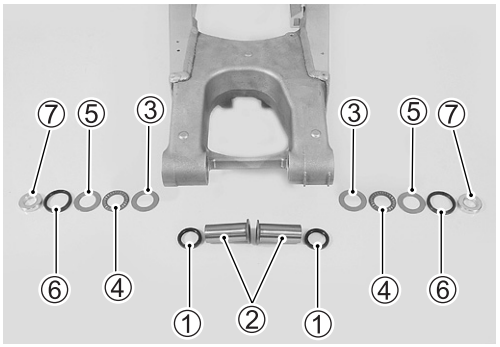
- Apply grease to the bearings.

99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)



INSTALLATION

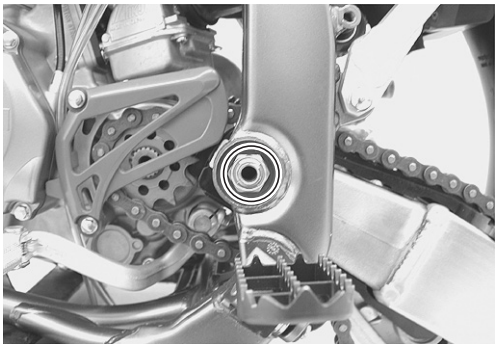
- Reassemble the following parts into the swingarm.
  - ① Oil seal
  - ② Spacer
  - ③ Washer
  - ④ Thrust bearing
  - ⑤ Washer
  - ⑥ Dust seal
  - ⑦ Spacer
- Apply grease to the dust seals, bearings, spacers and oil seals.



99000-25010: SUZUKI SUPER GREASE "A" (or equivalent grease)

- Reassemble the plates and chain buffer.
- Tighten the swingarm pivot 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 and rear cushion rod nut to the specified torque.

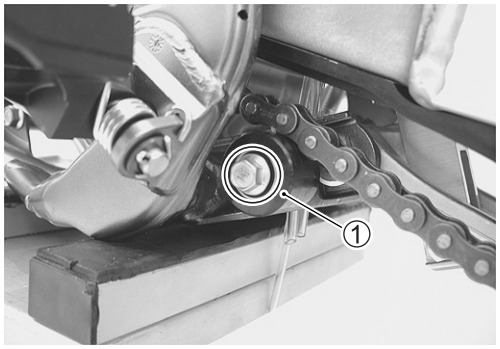
Rear cushion lever nut: 80 N·m (8.0 kgf-m, 58.0 lb-ft)
Rear cushion rod nut: 80 N·m (8.0 kgf-m, 58.0 lb-ft)

- Install the rear brake caliper.
- Reassemble the chain guide.
- Install the rear wheel. (☞14-8)
- Adjust the drive chain slack. (☞2-16)

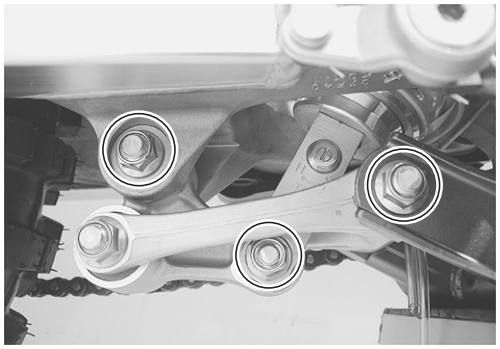
REAR SUSPENSION LINKAGE

REMOVAL

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

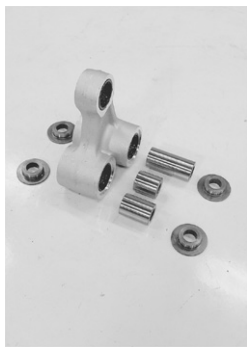


- Remove the rear cushion rod bolt and nut.
- Remove the cushion lever bolt and nut.
- Remove the shock absorber lower bolt and nut.



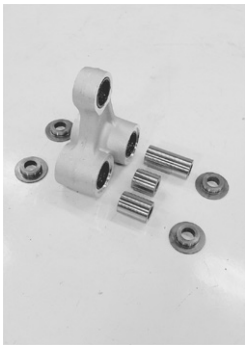
- Remove the cushion rod from the cushion lever.

- Remove the collars and spacers.

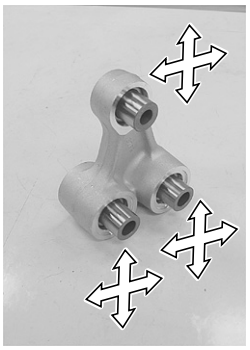


INSPECTION

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

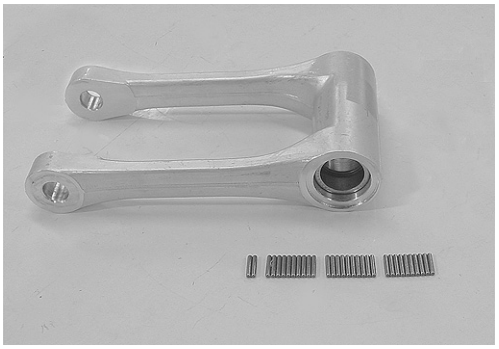
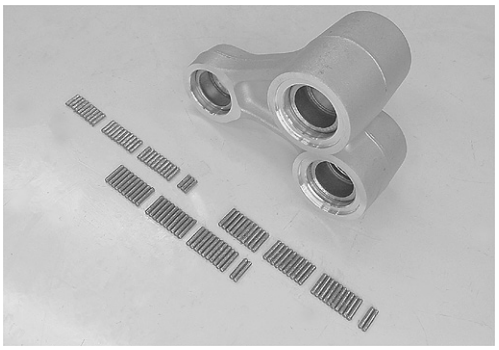



- Insert the spacers into the bearings and inspect them for excessive play and smooth movement.

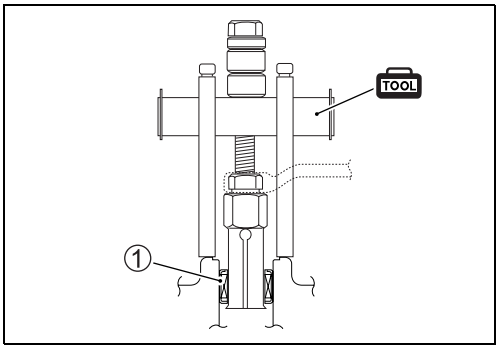
BEARING REPLACEMENT

- Remove the spacers and dust seals.
- Remove the needle roller bearings.

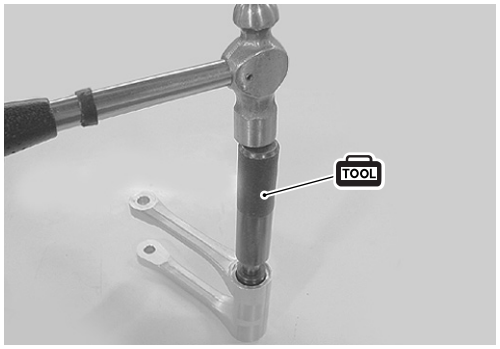
- Remove the needle roller bearing cages ① with the special tool.

TOOL 09921-20240: Bearing remover set



• Press fit the needle roller bearing cages with the special tool.

09913-70210: Bearing installer set



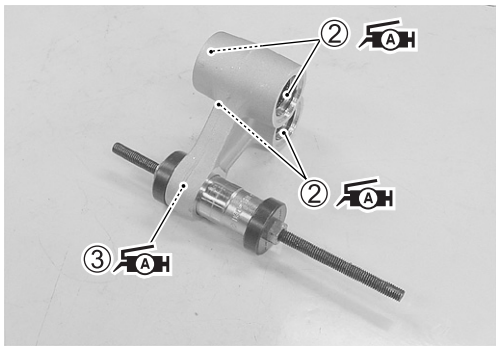
NOTE:
When installing the needle roller bearing cages, the stamped mark on the bearing must face outside.

• Apply grease to the needle roller bearings and install them.

99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)

• Press fit the needle roller bearing cages with the special tool and a suitable size socket wrench.

09924-84521: Bearing installer set



NOTE:
** When installing the needle roller bearing cages ②, the stamped mark on the bearing must face outside. (③: right side)*
** Position the needle roller bearing cages by refering to the illustration of page 17-20.*

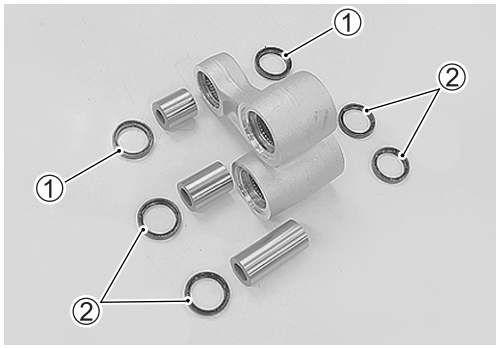
• Apply grease to the needle roller bearings and install them.

99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)

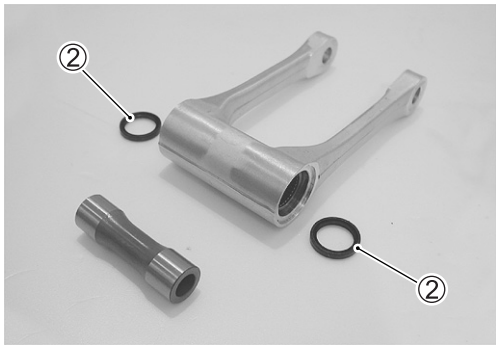
REASSEMBLY

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

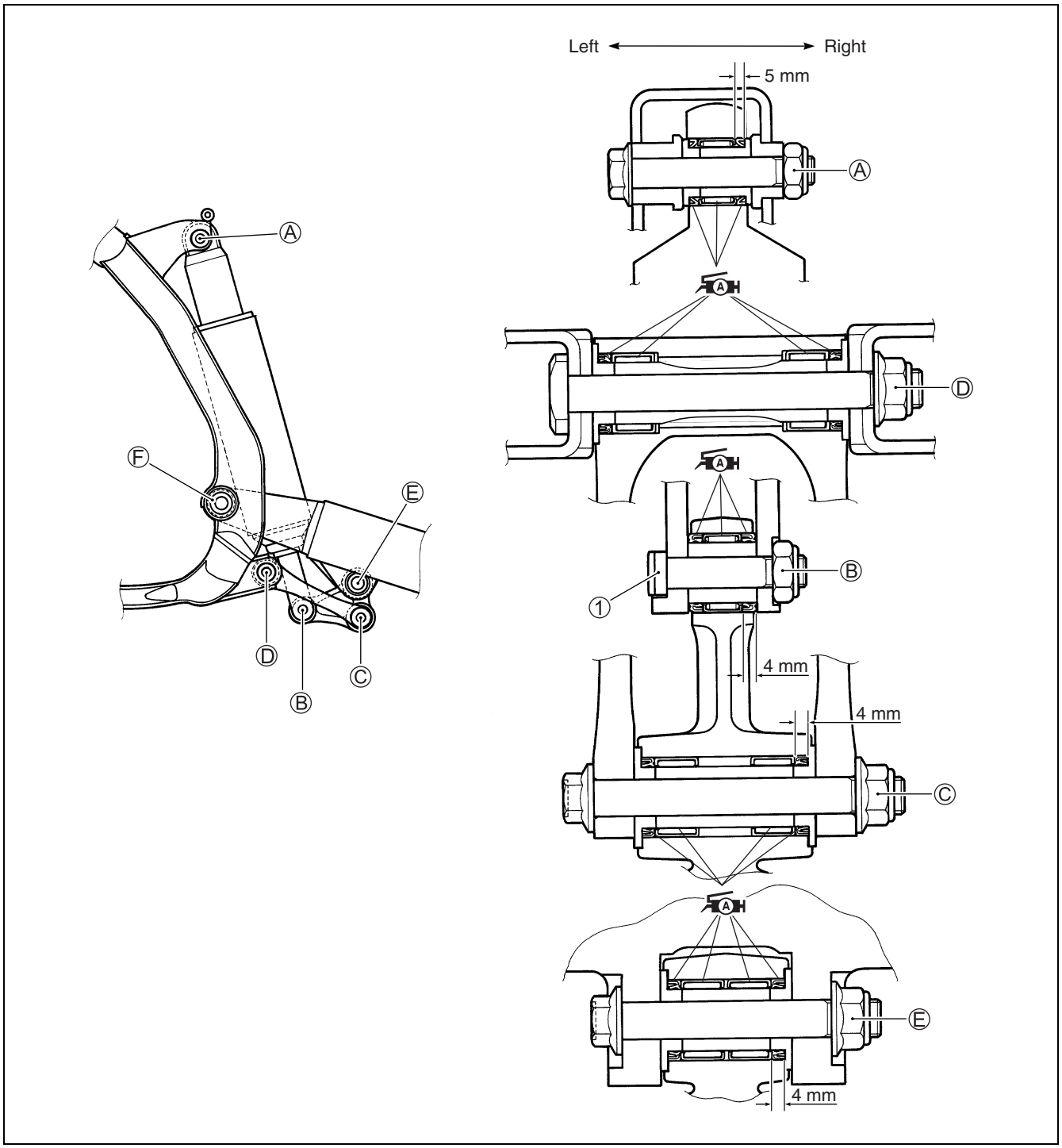
• Position the dust seals ① so that the manufacturer's code indicated side of the seals face outside. (②: inside)
• Apply grease to the spacers and dust seals.



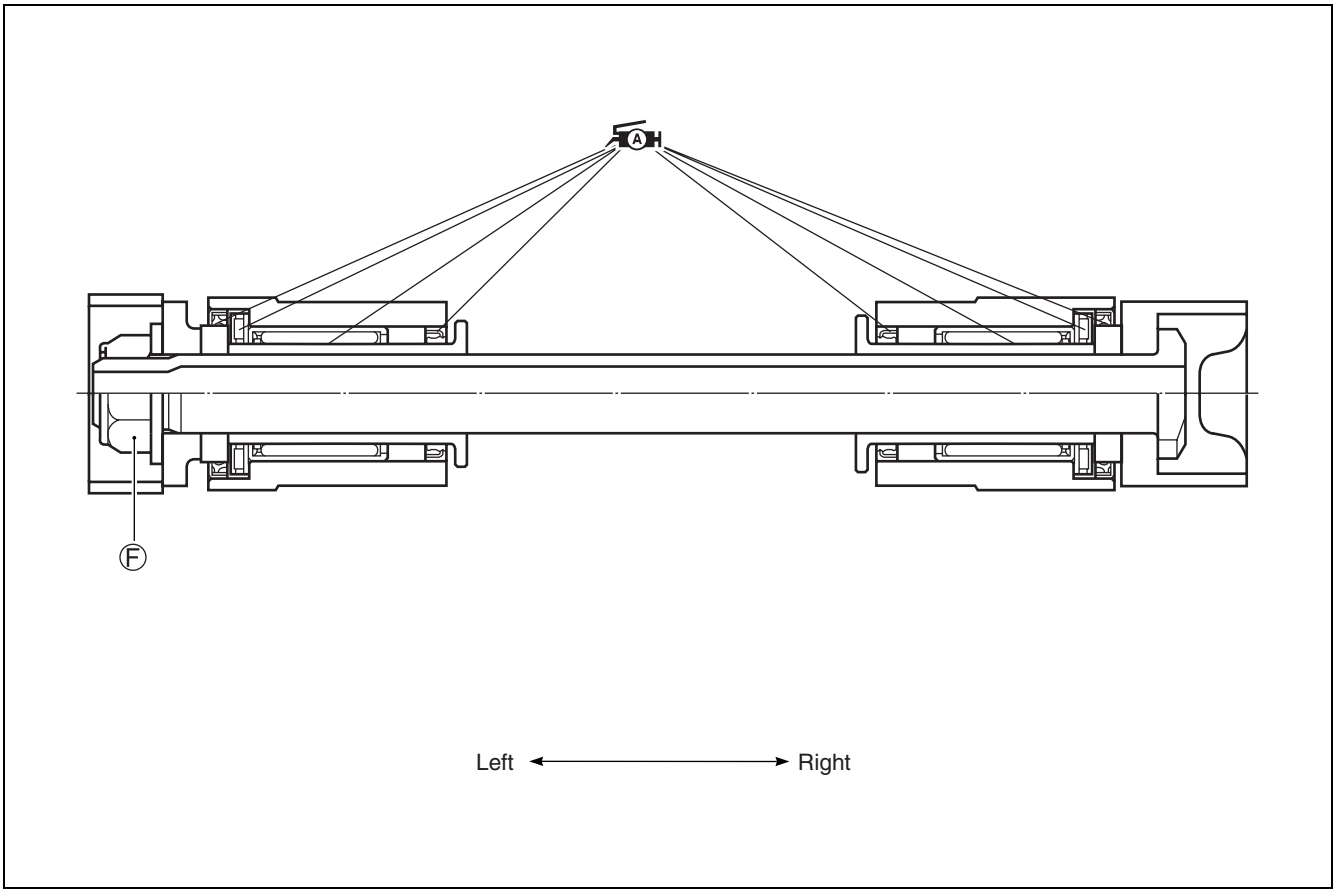
99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)



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



Tightening torque:
Ⓐ: 55 N·m (5.5 kgf-m, 40.0 lb-ft)
Ⓑ: 55 N·m (5.5 kgf-m, 40.0 lb-ft)
Ⓒ: 80 N·m (8.0 kgf-m, 58.0 lb-ft)
Ⓓ: 80 N·m (8.0 kgf-m, 58.0 lb-ft)
Ⓔ: 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.**

- Tighten the lower drive chain control roller bolt to the specified torque.

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

– MEMO –

SERVICING INFORMATION

CONTENTS

SERVICE DATA

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD	LIMIT
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)	0.120 (0.0047)
Cylinder bore	54.000 – 54.015 (2.1260 – 2.1266) Measure 20 (0.79) from the top surface.	Nicks or Scratches
Piston diam.	53.965 – 53.980 (2.1246 – 2.1252) Measure 19 (0.75) from the skirt end.	53.880 (2.1213)
Cylinder distortion	—	0.05 (0.002)
Cylinder head distortion	—	0.05 (0.002)
Piston ring free end gap	Approx. 4.3 (0.17)	3.4 (0.13)
Piston ring end gap	0.45 – 0.60 (0.018 – 0.024)	0.80 (0.031)
Piston ring to groove clearance	0.020 – 0.060 (0.0008 – 0.0024)	—
Piston pin bore	15.002 – 15.008 (0.5905 – 0.5907)	15.030 (0.5917)
Piston pin O.D.	14.995 – 15.000 (0.5904 – 0.5906)	14.980 (0.5898)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	19.003 – 19.011 (0.7481 – 0.7485)	19.040 (0.7496)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	—	1.0 (0.04)
Crank web to web width	53.9 – 54.1 (2.12 – 2.13)	—
Crankshaft runout	—	0.05 (0.002)

CLUTCH

Unit: mm (in)

ITEM		STANDARD	LIMIT
Clutch lever play		10 – 15 (0.40 – 0.60)	—
Drive plate thickness	No. 1, 2	2.72 – 2.88 (0.107 – 0.113)	2.42 (0.094)
Drive plate claw width	No. 1, 2	13.85 – 13.96 (0.545 – 0.550)	13.35 (0.526)
Driven plate distortion		—	0.10 (0.004)
Clutch spring free length		39.78 (1.57)	37.8 (1.50)

RADIATOR

ITEM	STANDARD	LIMIT
Radiator cap valve release pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi)	—

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		3.368 (64/19)		—
Final reduction ratio		4.250 (51/12)		—
Gear ratios	Low	2.071 (29/14)		—
	2nd	1.687 (27/16)		—
	3rd	1.444 (26/18)		—
	4th	1.200 (24/20)		—
	5th	1.052 (20/19)		—
	Top	0.950 (19/20)		—
Shift fork to groove clearance		No. 1, 2 & 3	0.05 – 0.25 (0.002 – 0.010)	0.45 (0.018)
Shift fork groove width		No. 1, 2 & 3	4.95 – 5.05 (0.195 – 0.200)	—
Shift fork thickness		No. 1, 2 & 3	4.80 – 4.90 (0.190 – 0.193)	—

DRIVE CHAIN

Unit: mm (in)

ITEM	STANDARD		LIMIT
Drive chain	Type	D.I.D 520DMA2	—
	Links	114	—
	20-pitch length	—	323.8 (12.7)
Drive chain slack	40 – 50 (1.6 – 2.0)		—

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		TMX38SS
Bore size		38 mm (1.5 in)
I.D. No.		36F8
Float height		8.7 ± 1.0 mm (0.34 ± 0.04 in)
Main jet	(M.J.)	#370
Jet needle	(J.N.)	6CHY17-65-3rd
Pilot jet	(P.J.)	#42.5
Cut-away	(C.A.)	#5.0
Air screw	(A.S.)	2 turns out
Throttle cable play		2.0 – 4.0 mm (0.08 – 0.16 in) at the throttle grip

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	5° B.T.D.C. at 1 000 r/min.		
Spark plug	Type	NGK: R6918B-8	
	Gap	0.55 – 0.65 (0.022 – 0.026)	
Spark performance	Over 8 (0.3) at 1 atm.		
Pick-up coil resistance (Reference data)	72 – 127 Ω at 20 °C (68 °F)		R – G
Exciter coil resistance (Reference data)	24 – 40 Ω at 20 °C (68 °F)		B/R – R/W
Charge coil resistance (Reference data)	1.6 – 2.6 Ω at 20 °C (68 °F)		Y – B/W
Pick-up peak voltage	2 V and more		⊕ R – ⊖ G
Exciter peak voltage	25 V and more		⊕ B/R – ⊖ R/W
Charge peak voltage	8 V and more		⊕ Y – ⊖ B/W
Ignition coil resistance	Primary	0.17 – 0.70 Ω	W/Bl – B/W
	Secondary	13 – 20 kΩ	Plug cap – W/Bl
Ignition coil primary peak voltage	200 V and more		⊕ B/W – ⊖ W/Bl

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Brake lever adjuster length	11 – 15 (0.4 – 0.6)		—
Rear brake pedal height	0 – 10 (0 – 0.4)		—
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.10)
	Rear	4.0 ± 0.2 (0.157 ± 0.008)	3.5 (0.14)
Brake disc runout	Front & Rear	—	0.3 (0.012)
Master cylinder bore	Front	11.000 – 11.043 (0.4331 – 0.4348)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	10.957 – 10.984 (0.4314 – 0.4324)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	—
	Rear	27.000 – 27.050 (1.0630 – 1.0650)	—
Brake caliper piston diam.	Front	26.900 – 26.950 (1.0591 – 1.0610)	—
	Rear	26.900 – 26.950 (1.0598 – 1.0617)	—
Brake fluid type	DOT4		
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)

ITEM	STANDARD		LIMIT
Wheel rim size	Front	1.60 × 21	
	Rear	1.85 × 19	
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)

SUSPENSION

Unit: mm (in)

ITEM		STANDARD	LIMIT	NOTE
Front fork stroke		310 (12.2)	—	
Front fork inner tube O.D.		47 mm (1.85 in)	—	
Front fork spring free length		494 ± 2.5 (19.45 ± 0.10)	487 (19.17)	
Front fork damping force adjuster	Rebound	MAX-10 clicks turn back	—	
	Compression	MAX-11 clicks turn back	—	
Front fork air pressure		0 kPa (0 kgf/cm^2, 0 psi)	—	
Front fork spring rate		4.2 N/mm (0.42 kgf/mm)	—	
Rear shock absorber gas pressure		981 kPa (9.8 kgf/cm^2, 139.5 psi)	—	
Rear shock absorber spring set length		3.7 (0.146)	—	3.7 mm compressed from spring free length
Rear shock absorber spring rate		51 N/mm (5.1 kgf/mm)	—	
Rear shock absorber damping force adjuster	Rebound	MAX-12 clicks turn back	—	
	Compression (High speed)	MAX-2 turns back	—	
	Compression (Low speed)	MAX-10 clicks turn back	—	
Rear wheel travel		310 (12.2)	—	
Swingarm pivot shaft runout		—	0.3 (0.01)	

TIRE

ITEM	STD/SPEC.		LIMIT
Cold inflation tire pressure	Front&Rear	70 – 110 kPa (0.7 – 1.1 kgf/cm^2, 10 – 16 psi)	—
Tire size	Front	80/100-21 51M	—
	Rear	100/90-19 57M	—
Tire type	Front (E-03)	DUNLOP: SPORTS D742F	—
	Front (The others)	DUNLOP: SPORTS D756F	—
	Rear	DUNLOP: SPORTS D756	—
Tire tread depth (Recommend depth)	Front&Rear	—	4.0 mm (0.16 in)

FUEL + OIL + COOLANT

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 90 pump octane (R/2 + M/2 method).		E-03, 28
	Use only unleaded gasoline of at least 95 octane. (Research method)		The others
Fuel tank capacity	8.0 L (2.1/1.8 US/Imp gal)		
Engine oil type	SUZUKI CCI SUPER 2-CYCLE MOTOR LUBURICANT or equivalent Two Cycle Racing Lubricant		E-03
	MOTUL 800 2T FACTORY LINE OFF ROAD or equivalent Two Cycle Racing Lubricant		The others
Air cleaner element oil type	MOTUL AIR FILTER OIL or equivalent filter oil		
Fuel and engine oil mixture ratio	30 : 1		
Transmission oil type	SAE 10W-40, API SF/SG or SH/SJ with JASO MA		
Transmission oil capacity	Change	750 ml (0.8/0.7 US/Imp qt)	
	Overhaul	800 ml (0.8/0.7 US/Imp qt)	
Front fork oil type	SUZUKI fork oil SS-05 or equivalent fork oil		
Front fork oil capacity (each leg)	357 ml (12.07/12.57 US/Imp oz)		Outer tube oil quantity
	193 ml (6.52/6.80 US/Imp oz)		Damper rod oil quantity
Engine coolant type	Use an anti-freeze&summer engine coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.		
Engine coolant capacity	1 100 ml (1.2/1.0 US/Imp qt)		
Rear shock absorber oil type	SUZUKI rear suspension oil SS-25 or equivalent suspension oil		
Rear shock absorber oil capacity	380 ml (12.84/13.38 US/Imp oz)		

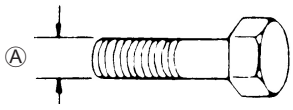
TIGHTENING TORQUE

PART	N·m	kgf-m	lb-ft
Cylinder head nut	25	2.5	18.0
Magneto rotor nut	35	3.5	25.5
Cylinder nut	25	2.5	18.0
Crankcase bolt	10	1.0	7.0
Clutch sleeve hub nut	70	7.0	50.5
Primary drive gear bolt	70	7.0	50.5
Spark plug	17.5	1.75	12.5
Transmission oil drain plug	21	2.1	14.5
Transmission oil level bolt	5.5	0.55	4.0
Water pump drain plug	5.5	0.55	4.0
Handlebar holder bolt	25	2.5	18.0
Front fork upper clamp bolt (right and left)	23	2.3	16.5
Front fork lower clamp bolt (right and left)	23	2.3	16.5
Steering stem head nut	100	10.0	72.5
Front fork center bolt	70	7.0	50.5
Fork cylinder inner rod lock-nut	22	2.2	16.0
Front fork cap bolt	35	3.5	25.5
Fork cylinder compression damper unit	30	3.0	21.5
Master cylinder mounting bolt (front)	10	1.0	7.0
Master cylinder mounting bolt (rear)	10	1.0	7.0
Brake hose union bolt (front and rear)	23	2.3	16.5
Brake caliper mounting bolt (front)	26	2.6	19.0
Brake pad mounting bolt (front and rear)	18	1.8	13.0
Brake caliper axle bolt (For bracket: rear)	13	1.3	9.5
Brake caliper axle bolt (For bracket and caliper: front)	23	2.3	16.5
Brake air bleeder valve (front and rear)	6	0.6	4.4
Brake pedal boss bolt	29	2.9	21.0
Disc plate bolt	10	1.0	7.0
Front axle holder bolt	18	1.8	13.0
Front axle nut	35	3.5	25.5
Engine plate nut	43	4.3	31.0
Engine mounting nut (upper)	45	4.5	32.5
Engine mounting nut (front)	45	4.5	32.5
Engine mounting nut (lower)	45	4.5	32.5
Rear axle nut	100	10.0	72.5
Rear sprocket nut	30	3.0	21.5
Drive chain tensioner roller bolt	31	3.1	22.5
Spoke nipple	4	0.4	3.0
Rear swingarm pivot nut (engine mounting)	70	7.0	50.5
Rear shock absorber mounting nut (upper)	55	5.5	40.0
Rear shock absorber mounting nut (lower)	55	5.5	40.0
Rear cushion lever nut	80	8.0	58.0
Rear cushion rod nut	80	8.0	58.0

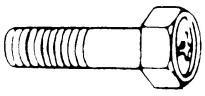
PART	N·m	kgf-m	lb-ft
Handlebar holder set nut	15	1.5	11.0
Seat rail nut (upper)	23	2.3	16.5
Seat rail bolt (lower)	23	2.3	16.5
Brake lever pivot bolt	6	0.6	4.4
Brake lever pivot nut	6	0.6	4.4

For other bolts and nuts not listed in the table, refer to this chart.

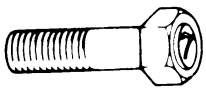
Bolt Diameter Ⓐ (mm)	Conventional or “4” marked bolt			“7” marked or crown headed bolt		
	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	4.5	0.45	3.0
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



Conventional bolt

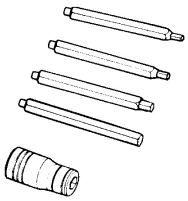
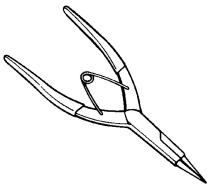
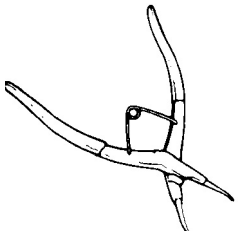
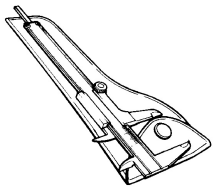
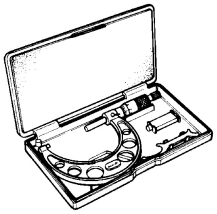
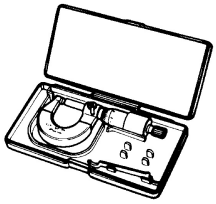
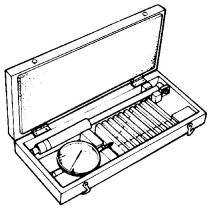
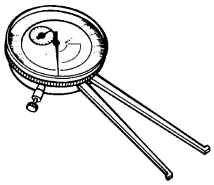
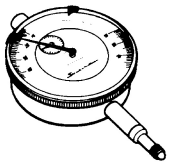
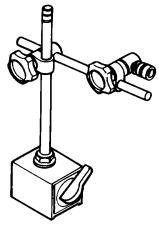
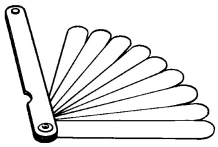
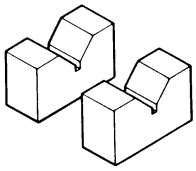
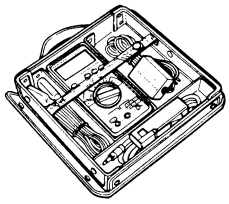
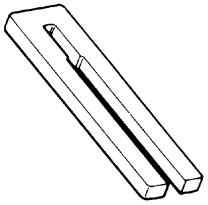
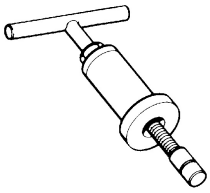
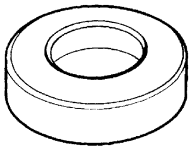
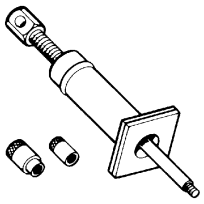
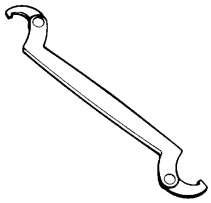
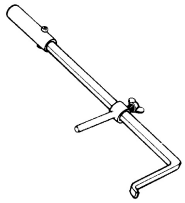
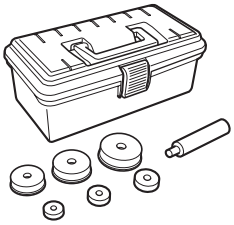
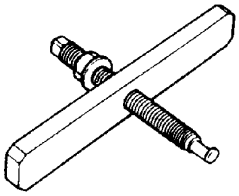
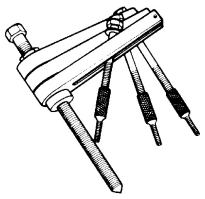
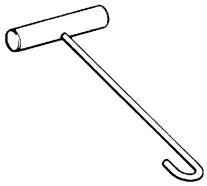
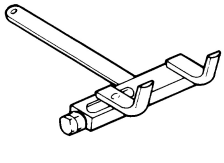


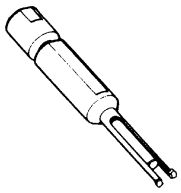
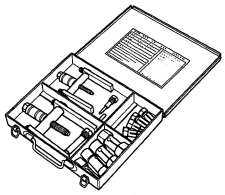
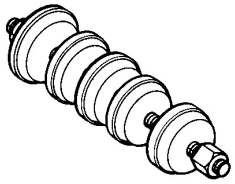
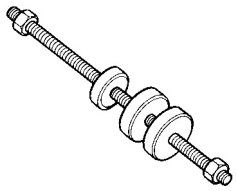
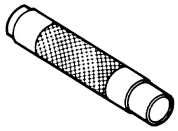
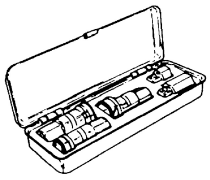
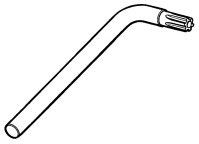
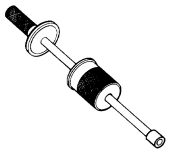
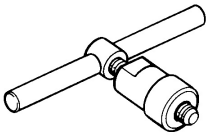
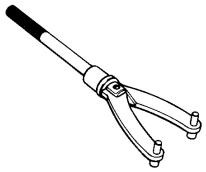
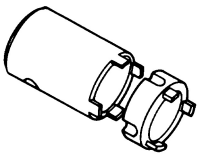
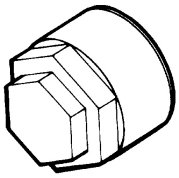
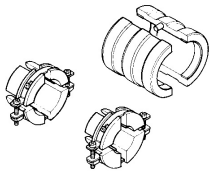
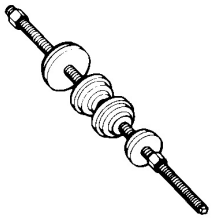
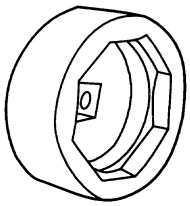
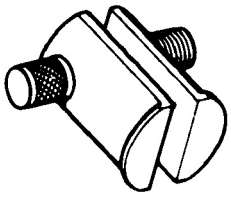
“4” marked bolt



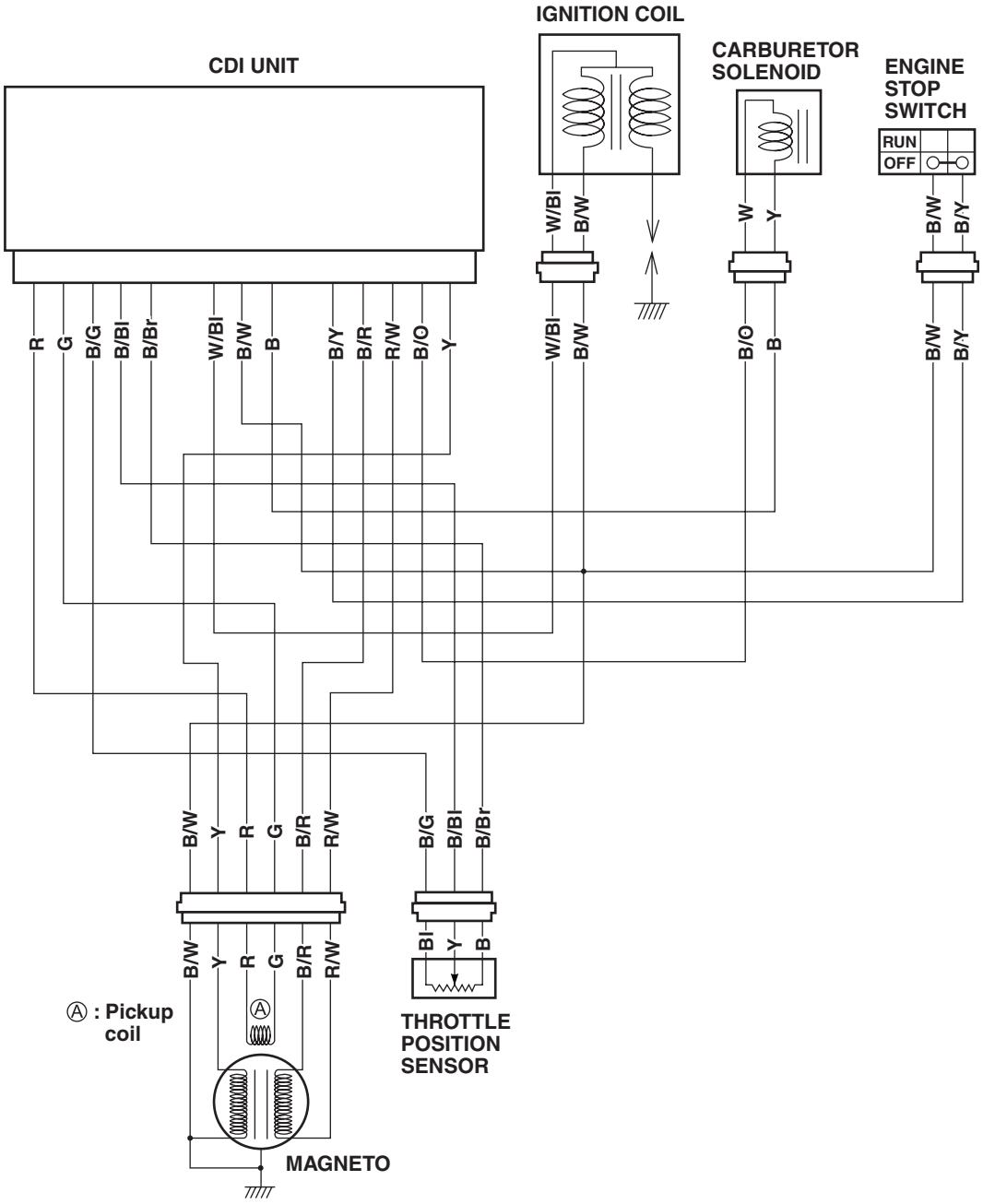
“7” marked bolt

SPECIAL TOOLS

				
09900-00410 **Hexagon wrench set**	**09900-06107** **Snap ring pliers**	**09900-06108** **Snap ring pliers**	**09900-09003** **Impact driver set**	**09900-20101** **Vernier calipers (150 mm)**
				
09900-20203 **Micrometer (50 – 75 mm)**	**09900-20205** **Micrometer (0 – 25 mm)**	**09900-20508** **Cylinder gauge set**	**09900-20605** **Dial gauge (1/100, 10 – 34 mm)**	**09900-20607** **Dial gauge (1/100, 10 mm)**
				
09900-20701 **Magnetic stand**	**09900-20803** **Thickness gauge**	**09900-21304** **V-block (100 mm)**	**09900-25008** **Multi circuit tester**	**09910-20115** **Conrod holder**
				
09910-32812 **Crankshaft installer**	**09910-32820** **Attachment**	**09910-34510** **Piston pin puller**	**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**

 **09921-20200** **Bearing remover**	 **09921-20240** **Bearing remover set**	 **09924-84510** **Bearing installer set**	 **09924-84521** **Bearing installer set**	 **09925-18011** **Steering bearing installer**
 **09930-10121** **Spark pulg wrench set**	 **09930-11960** **Torx wernch (T20)**	 **09930-30104** **Rotor remover slide shaft**	 **09930-30113** **Flywheel rotor remover**	 **09930-40113** **Rotor holder**
 **09940-14911** **09940-14960** **Steering nut socket wrench**	 **09940-34581** **Attachment F**	 **09940-52861** **Front fork oil seal installer set**	 **09941-34513** **Steering race installer**	 **09941-53630** **Front fork top cap wrench**
 **09941-54911** **Bearing outer race remover**	 **09941-74911** **Steering bearing installer**			

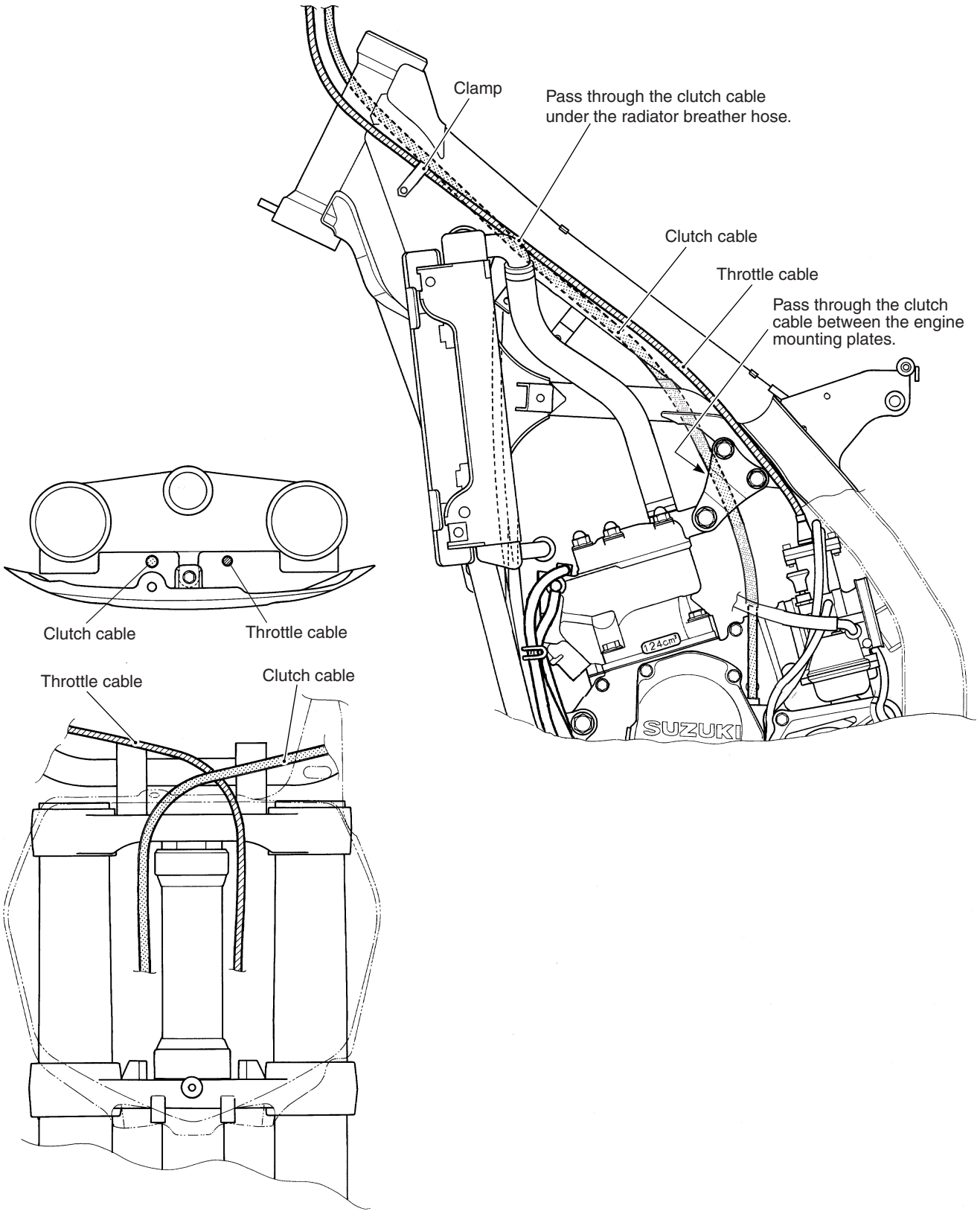
WIRING DIAGRAM

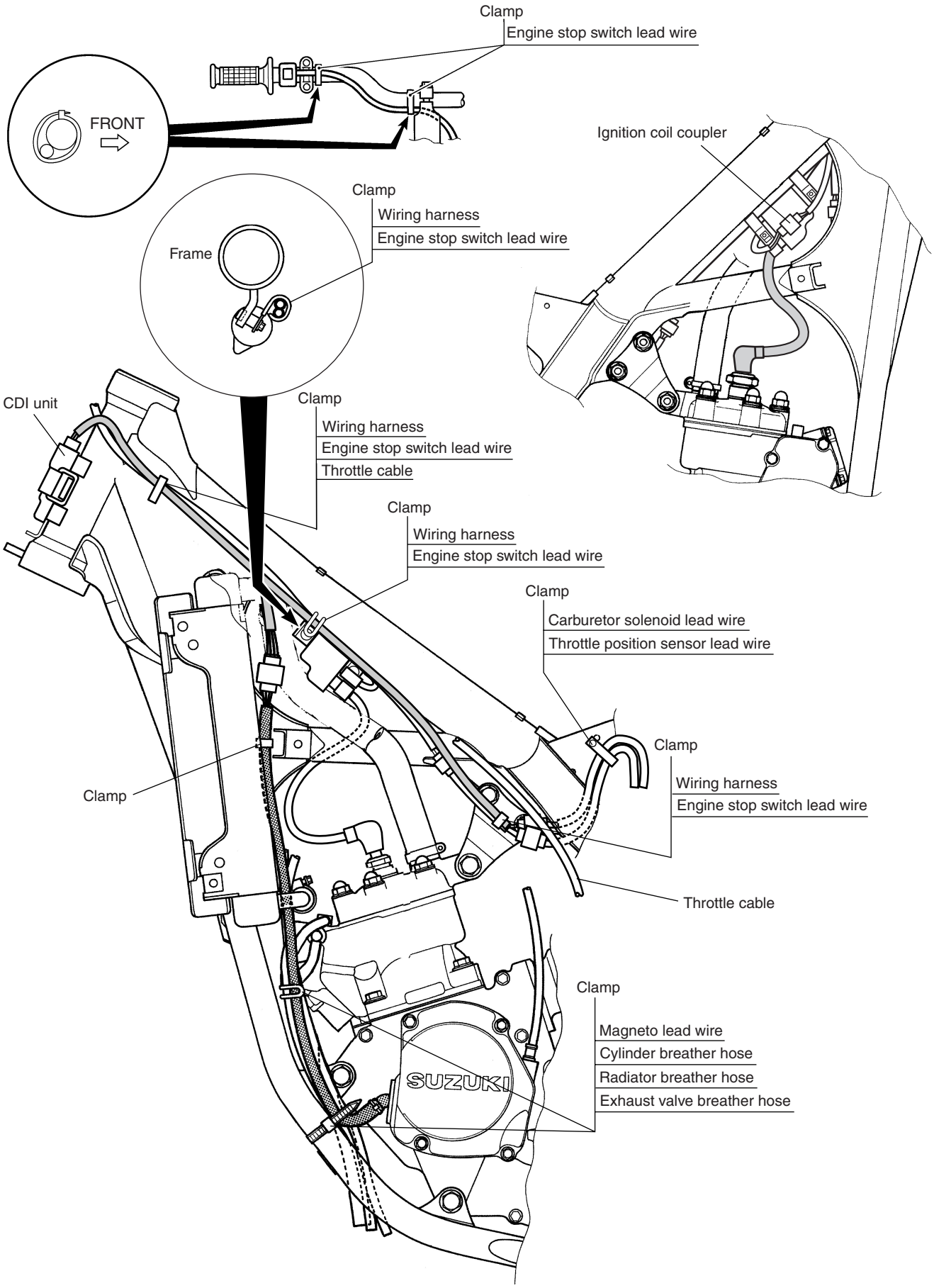


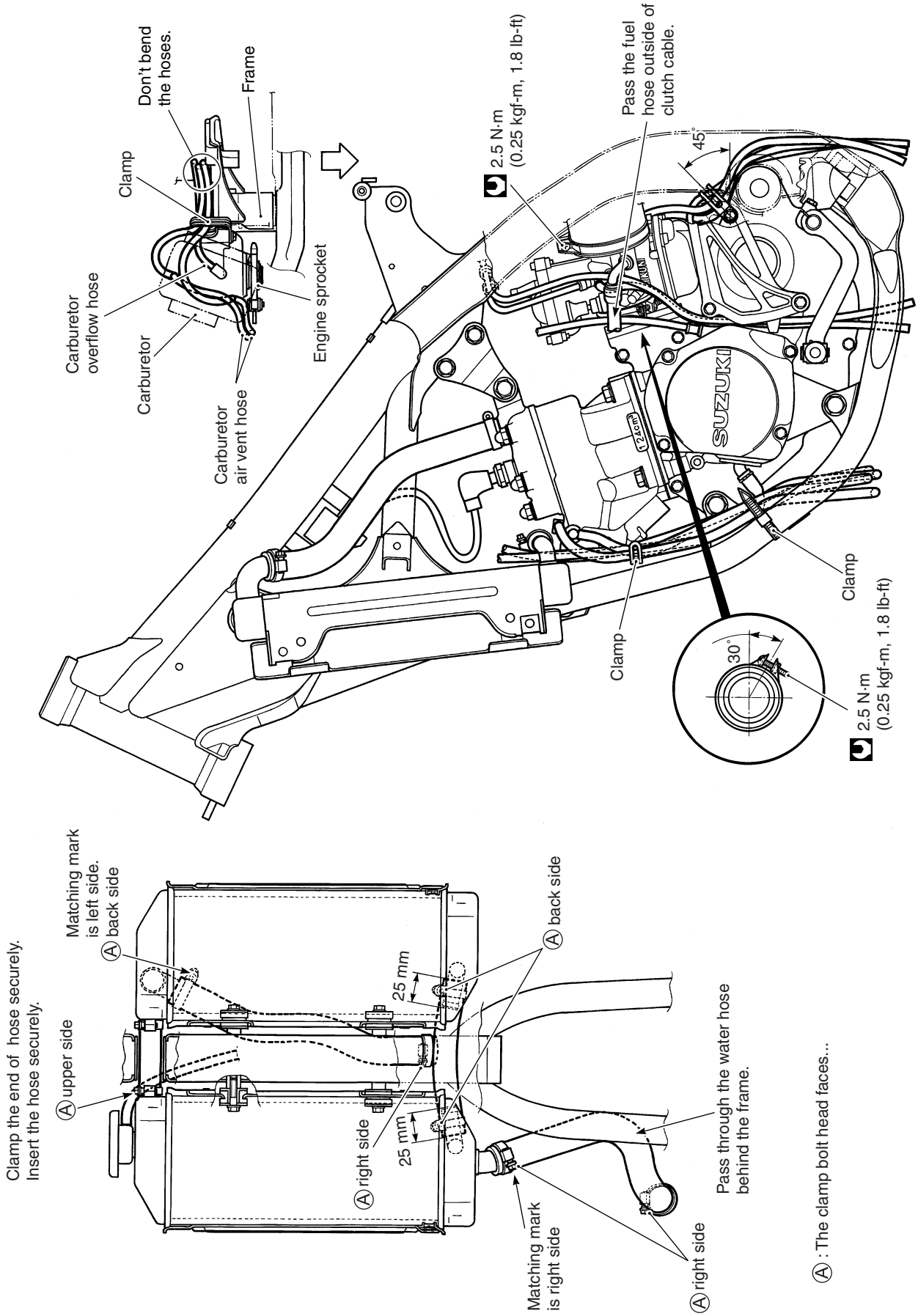
WIRE COLOR

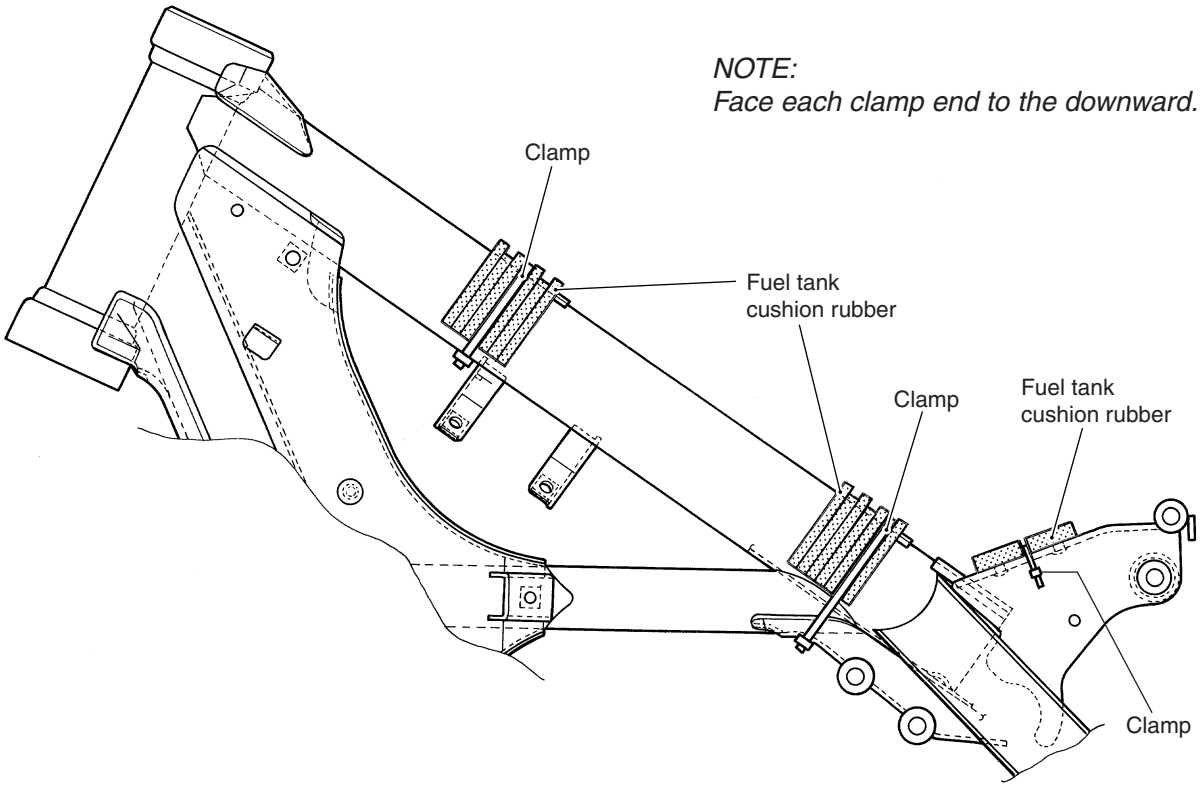
B:	Black
Bl:	Blue
G:	Green
R:	Red
W:	White
Y:	Yellow
B/Bl:	Black with Blue tracer
B/Br:	Black with Brown tracer
B/G:	Black with Green tracer
B/O:	Black with Orange tracer
B/R:	Black with Red tracer
B/W:	Black with White tracer
B/Y:	Black with Yellow tracer
R/W:	Red with White tracer
W/Bl:	White with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

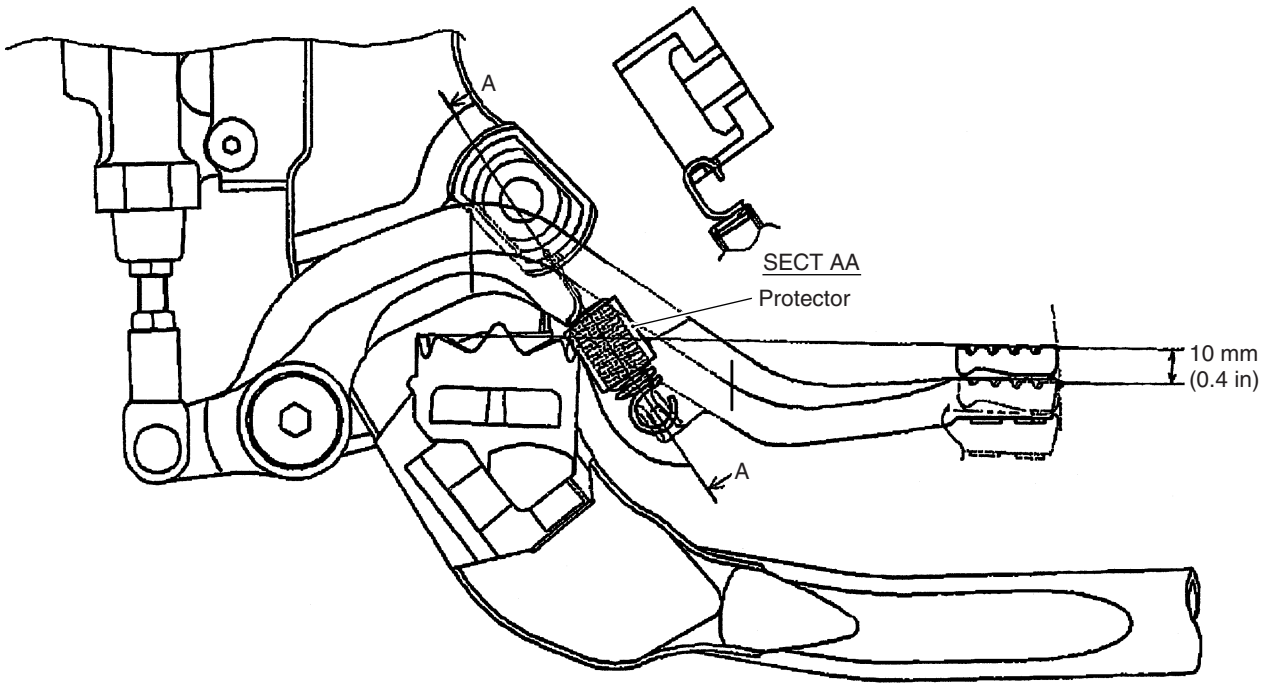
WIRE, CABLE AND HOSE ROUTING

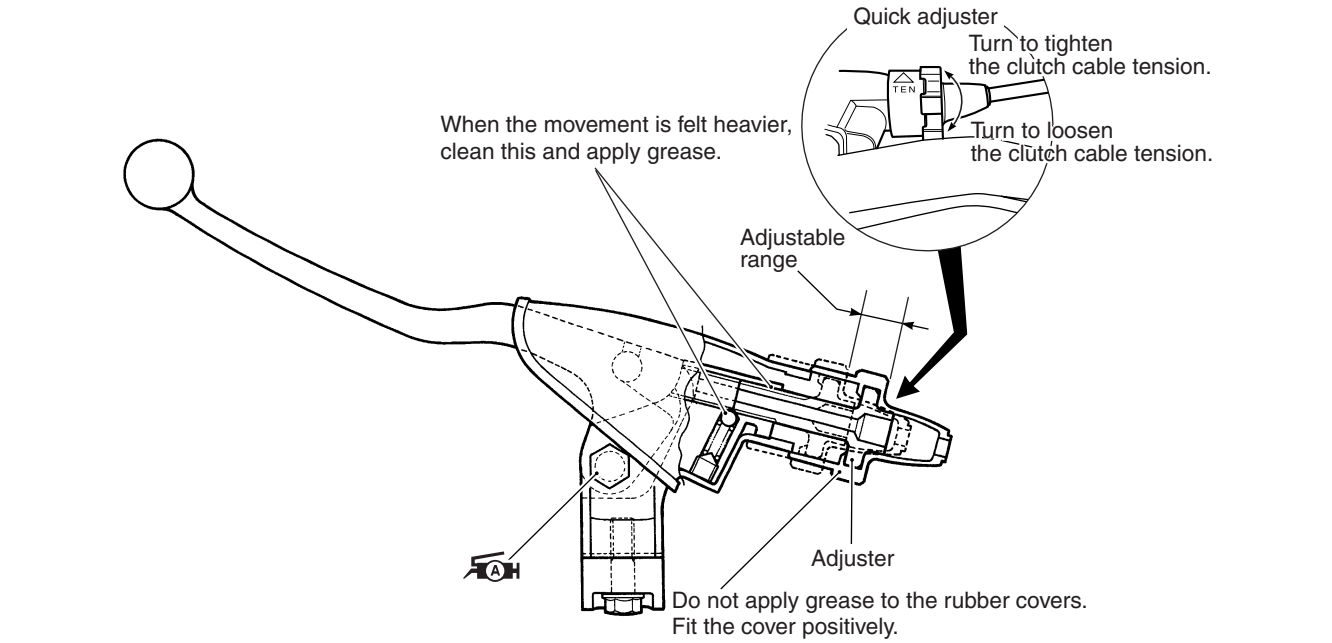


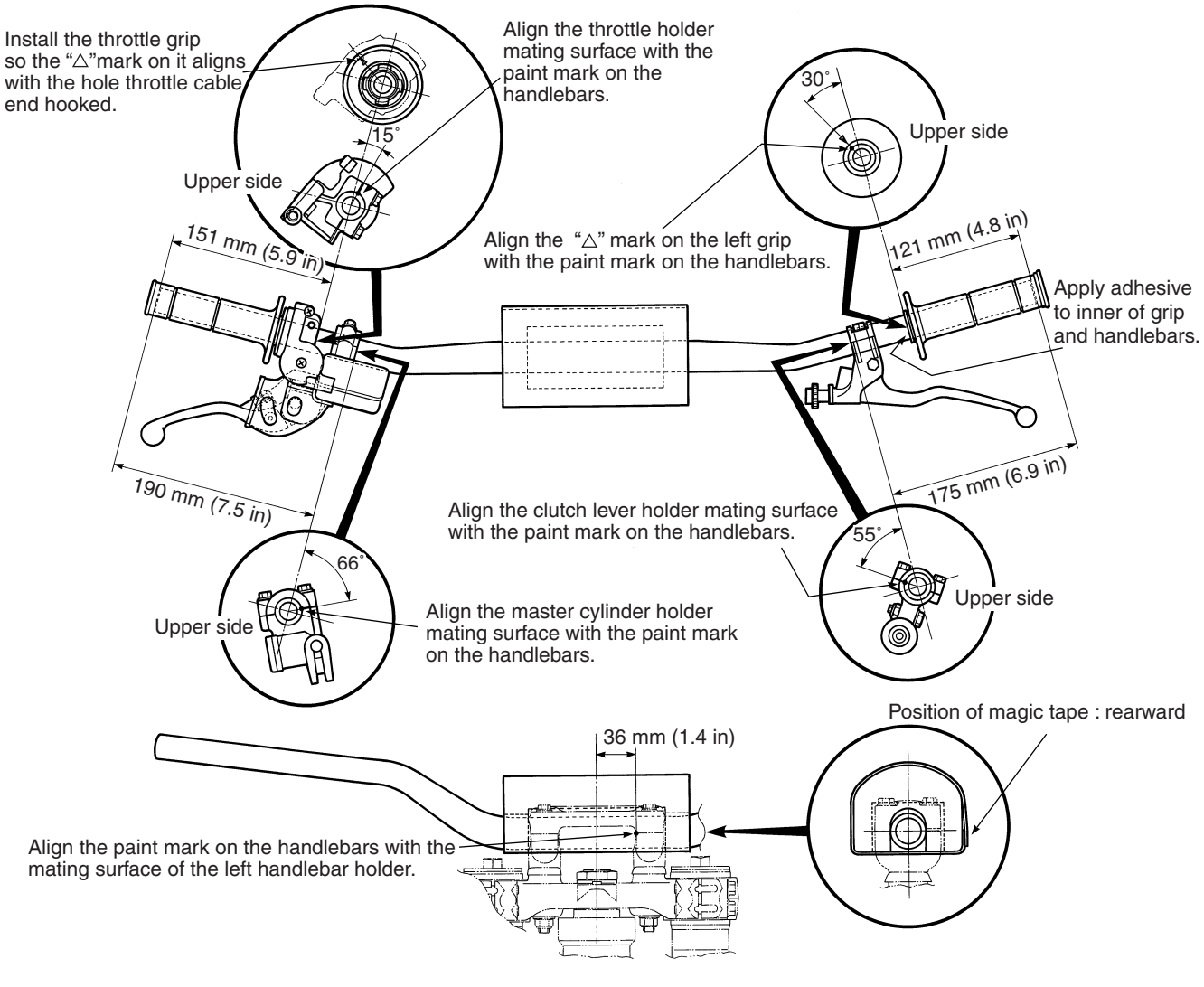

Clamp
Engine stop switch lead wire
FRONT
Ignition coil coupler
Clamp
Wiring harness
Engine stop switch lead wire
Frame
CDI unit
Clamp
Wiring harness
Engine stop switch lead wire
Throttle cable
Clamp
Wiring harness
Engine stop switch lead wire
Clamp
Carburetor solenoid lead wire
Throttle position sensor lead wire
Clamp
Wiring harness
Engine stop switch lead wire
Clamp
Throttle cable
Clamp
Magneto lead wire
Cylinder breather hose
Radiator breather hose
Exhaust valve breather hose
SUZUKI

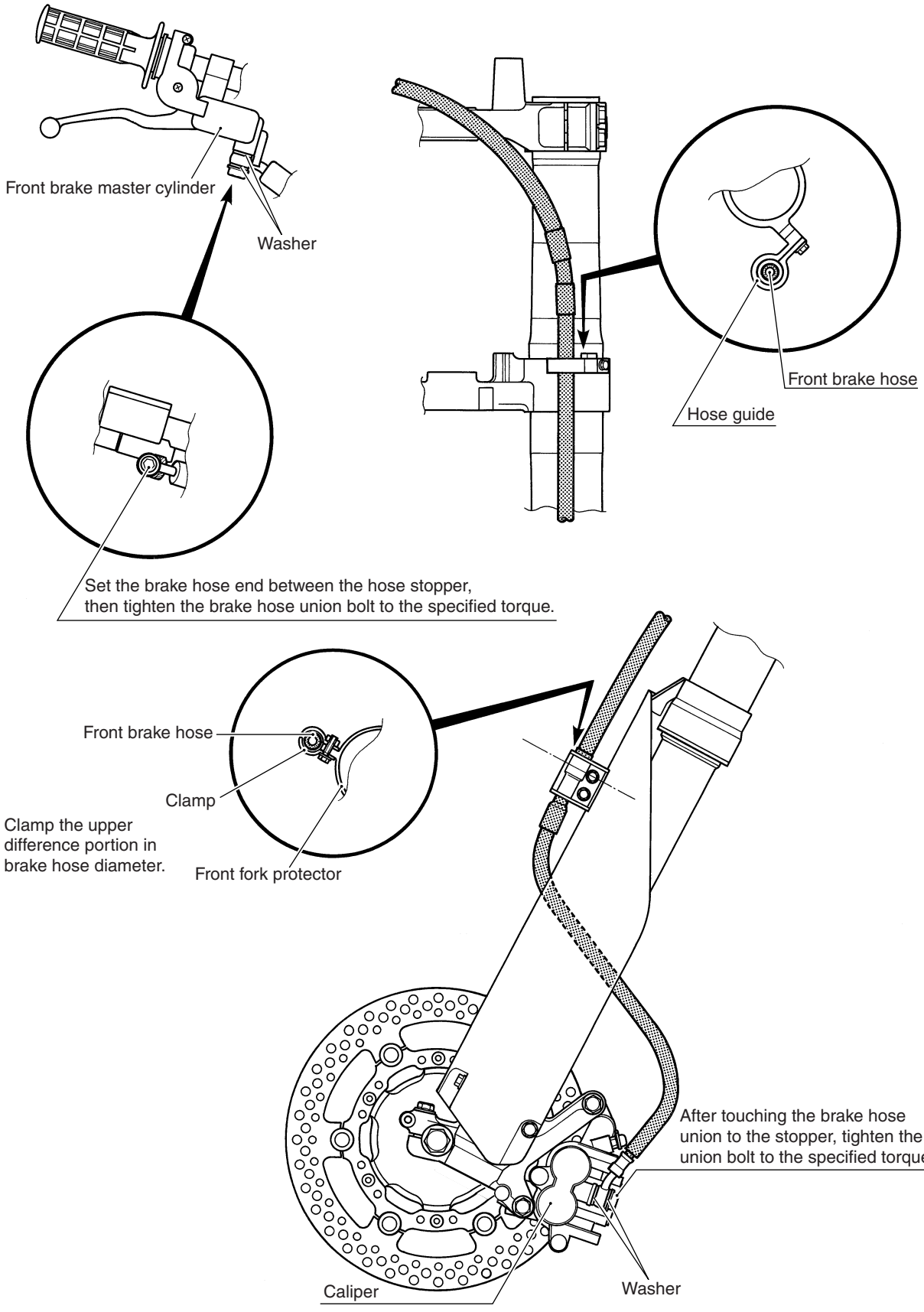

Clamp the end of hose securely.
Insert the hose securely.
Ⓐ upper side
Matching mark is left side.
Ⓐ back side
Ⓐ right side
25 mm
25 mm
Ⓐ back side
Matching mark is right side
Ⓐ right side
Pass through the water hose behind the frame.
Ⓐ : The clamp bolt head faces...
Carburetor overflow hose
Carburetor
Carburetor air vent hose
Clamp
Don't bend the hoses.
Frame
Engine sprocket
2.5 N·m (0.25 kgf-m, 1.8 lb-ft)
Pass the fuel hose outside of clutch cable.
45°
Clamp
Clamp
30°
2.5 N·m (0.25 kgf-m, 1.8 lb-ft)
SUZUKI

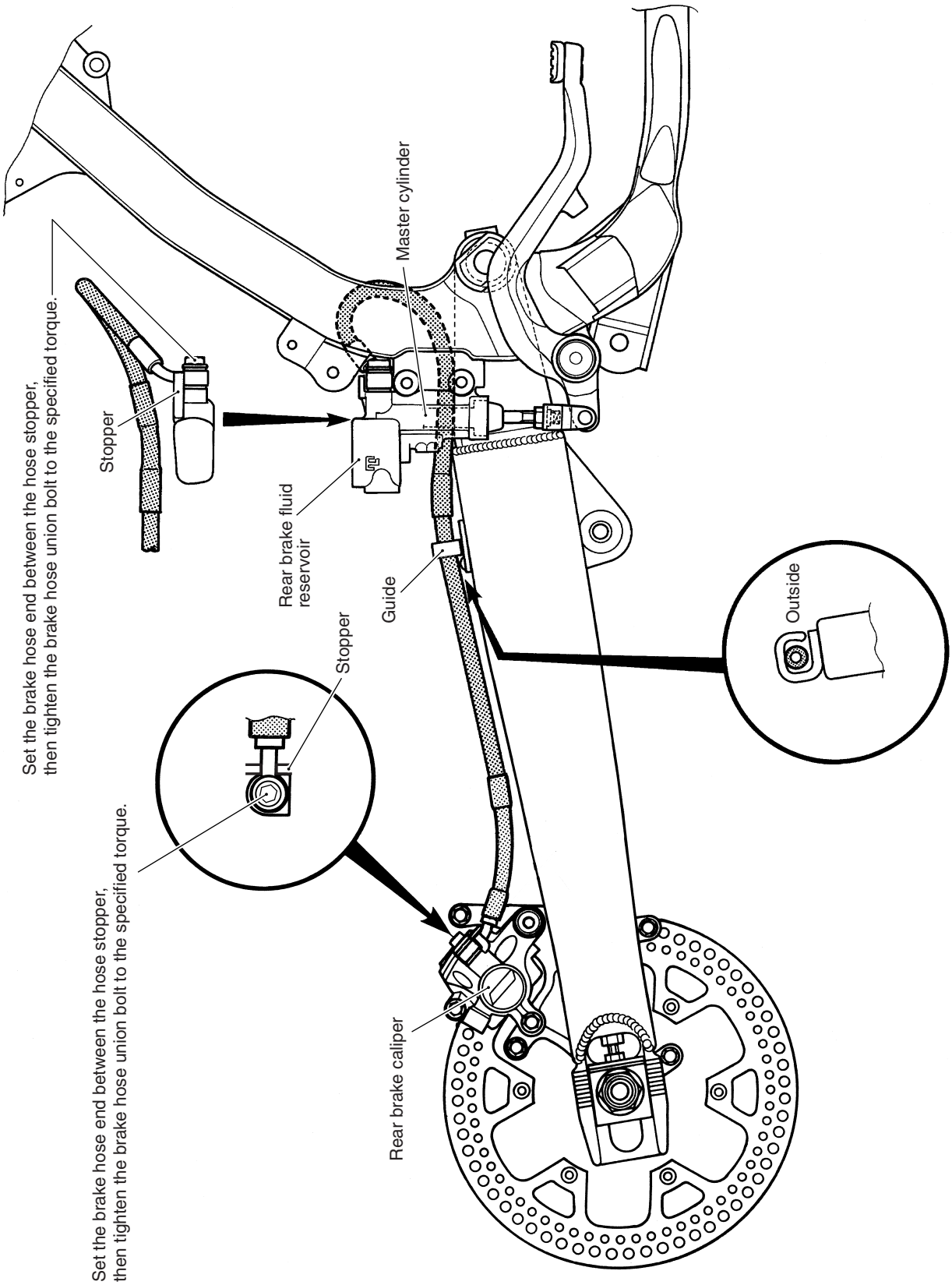

NOTE:
Face each clamp end to the downward.
Clamp
Fuel tank cushion rubber
Clamp
Fuel tank cushion rubber
Clamp

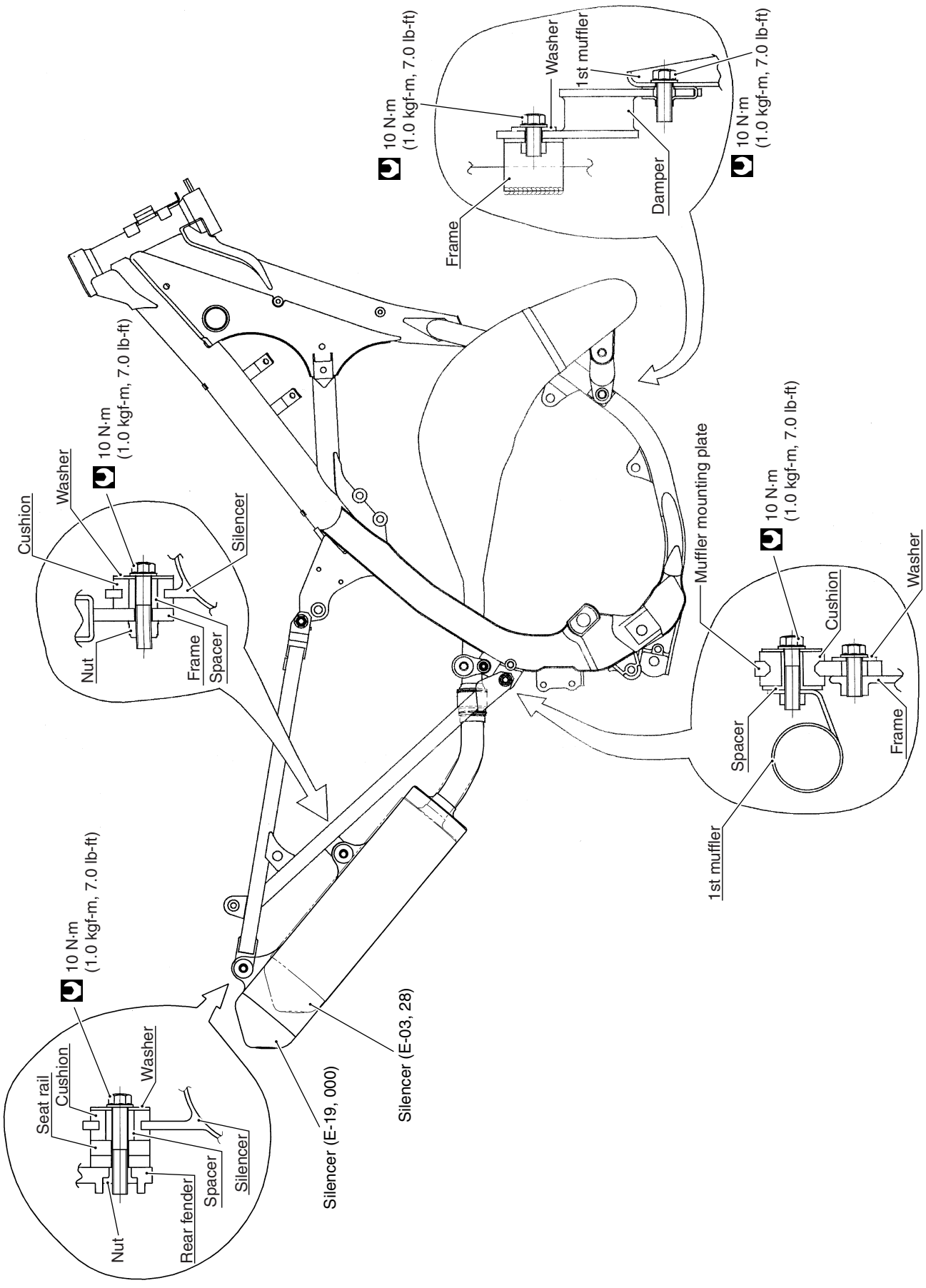

A
SECT AA
Protector
10 mm (0.4 in)
A


Quick adjuster
Turn to tighten
the clutch cable tension.
Turn to loosen
the clutch cable tension.
When the movement is felt heavier,
clean this and apply grease.
Adjustable
range
Adjuster
Do not apply grease to the rubber covers.
Fit the cover positively.


Install the throttle grip
so the "△"mark on it aligns
with the hole throttle cable
end hooked.
Align the throttle holder
mating surface with the
paint mark on the
handlebars.
15°
Upper side
151 mm (5.9 in)
30°
Upper side
Align the "△" mark on the left grip
with the paint mark on the handlebars.
121 mm (4.8 in)
Apply adhesive
to inner of grip
and handlebars.
190 mm (7.5 in)
175 mm (6.9 in)
Align the clutch lever holder mating surface
with the paint mark on the handlebars.
55°
66°
Upper side
Upper side
Align the master cylinder holder
mating surface with the paint mark
on the handlebars.
Position of magic tape : rearward
36 mm (1.4 in)
Align the paint mark on the handlebars with the
mating surface of the left handlebar holder.


Front brake master cylinder
Washer
Front brake hose
Hose guide
Set the brake hose end between the hose stopper, then tighten the brake hose union bolt to the specified torque.
Front brake hose
Clamp
Clamp the upper difference portion in brake hose diameter.
Front fork protector
After touching the brake hose union to the stopper, tighten the union bolt to the specified torque.
Caliper
Washer


Set the brake hose end between the hose stopper, then tighten the brake hose union bolt to the specified torque.
Stopper
Master cylinder
Rear brake fluid reservoir
Guide
Outside
Stopper
Set the brake hose end between the hose stopper, then tighten the brake hose union bolt to the specified torque.
Rear brake caliper


10 N·m (1.0 kgf-m, 7.0 lb-ft)
Washer
1st muffler
Damper
Frame
Cushion
Silencer
Nut
Spacer
Muffler mounting plate
Seat rail
Rear fender
Silencer (E-19, 000)
Silencer (E-03, 28)

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 145 mm (84.4 in)
Overall width	830 mm (32.7 in)
Overall height	1 275 mm (50.2 in)
Wheelbase	1 450 mm (57.1 in)
Ground clearance	350 mm (13.8 in)
Seat height	950 mm (37.4 in)
Dry mass	87 kg (192 lbs)

ENGINE

Type	Two-stroke, liquid-cooled
Intake system	Crankcase reed valve
Number of cylinders	1
Bore	54.0 mm (2.126 in)
Stroke	54.5 mm (2.146 in)
Piston displacement	124 cm^3 (7.6 cu. in)
Corrected compression ratio	8.3/9.9 : 1 (Ex valve open/Ex valve close)
Carburetor	MIKUNI TMX38SS 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	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Primary reduction ratio	3.368 (64/19)
Final reduction	4.250 (51/12)
Gear ratios, Low	2.071 (29/14)
2nd	1.687 (27/16)
3rd	1.444 (26/18)
4th	1.200 (24/20)
5th	1.052 (20/19)
Top	0.950 (19/20)
Drive chain	D.I.D 520DMA2, 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, hydraulically operated
Rear brake	Disc brake, hydraulically operated
Front tire size	80/100-21 51M
Rear tire size	100/90-19 57M
Front fork stroke	310 mm (12.2 in)
Rear wheel travel	310 mm (12.2 in)

ELECTRICAL

Ignition type	Electronic Ignition (CDI)
Ignition timing	5° B.T.D.C. at 1 000 r/min
Spark plug	NGK R6918B-8

CAPACITIES

Fuel tank	8.0 L (2.1/1.8 US/Imp gal)
Transmission oil (change)	750 ml (0.8/0.7 US/Imp qt)
(overhaul)	800 ml (0.8/0.7 US/Imp qt)
Coolant	1 100 ml (1.2/1.0 US/Imp qt)

SPARE PARTS LIST

ITEM	PART NAME	PART NUMBER	Q'TY
1	PARTS SET, SPARE	19900-36F70	1
①	O-RING, CYLINDER HEAD No. 1	11147-27C11	2
②	O-RING, CYLINDER HEAD No. 2	11148-27C11	2
③	GASKET, CYL COVER, No. 1	11233-27C34	2
④	GASKET, CYL COVER, No. 2	11238-36E01	1
⑤	GASKET, CYLINDER	11241-36F00	2
⑥	GASKET, CRANKCASE	11481-36F20	1
⑦	GASKET, CLUTCH COVER	11482-36F00	1
⑧	GASKET, MAGNETO COVER	11483-36E11	1
⑨	O-RING, CLUTCH COVER OUTER	11484-36E10	1
⑩	PISTON COMP	12110-36F10-0F0	1
⑩-A	PISTON	12111-36F10	1
⑩-B	PIN, KNOCK	09207-01014	1
⑪	RING, PISTON	12141-36F00	2
⑫	PIN, PISTON	12151-01B41	1
⑬	O-RING, EXHAUST PIPE	14171-36E00	2
⑭	LEVER, BRAKE	57310-37F00	1
⑮	LEVER, CLUTCH	57621-28C40	1
⑯	BEARING, PISTON PIN	09263-15040	1
⑰	O-RING, SPROCKET SPACER	09280-20006	2
⑱	CIRCLIP, PISTON PIN	09381-15001	2

OPTIONAL PARTS

	PARTS No.	NUMBER OF TEETH	COMMENTS
REAR SPROCKET	64511-14D60	48	112 L
	64511-28E00	49	112 L or 114 L
	64511-36E00	50	114 L
	64511-40266	52	116 L
FRONT WHEEL RIM	55311-37F00	—	20 × 1.85
FRONT WHEEL SPOKE SET	55320-37F20	—	20 inch
FRONT BRAKE DISC COVER	59231-36E20	—	—
RIM LOCK	65270-43D00	—	1.85

Carburetor: ☞4-2
Front fork spring: ☞4-13
Rear suspension spring: ☞4-18

SETTING DATA

EVENT	DATE/ LOCATION	DATE	/ /	/ /	/ /
		RACE/COURSE	/	/	/
		TEMP./HUMIDITY	/	/	/
		WHETHER			
		COURSE COUDITION			
ENGINE	CARBURETOR	MAIN JET			
		JET NEEDLE	/	/	/
		PILOT JET			
		AIR SCREW			
		FLOAT LEVEL			
	SPARK PLUG				
CHASSIS	FRONT FORK	OIL LEVEL	mm	mm	mm
		COMP. ADJ. POSITION			
		RE-BOUND ADJ. POSITION			
		SPRING			
	REAR SUSPENTION	SPRING			
		SPRING SET LENGTH	mm	mm	mm
		SUG	mm	mm	mm
		COMP. ADJ. POSITION LOW			
		COMP. ADJ. POSITION HIGH			
		RE-BOUND ADJ. POSITION			
	FINAL REDUCTION RATIO		/	/	/
	FRONT TIRE	MAKER/SIZE			
		PRESSURE	kPa	kPa	kPa
	REAR TIRE	MAKER/SIZE			
		PRESSURE	kPa	kPa	kPa
COMMENT:					

*MAKE COPIES.

– MEMO –

⚠ 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.**

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