



RM-Z250

OWNER'S SERVICE MANUAL

Part No. 99011-10H50-01A
September, 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 RM-Z250 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 motorcycle, especially one with two wheels, if you are tired or under the influence of alcohol or other drugs. Alcohol, illegal drugs, and even some prescription and over-the-counter drugs and cause drowsiness, loss of coordination, loss of balance, and loss of good judgement. If you are tired or under the influence of alcohol or other drugs, PLEASE DO NOT RIDE your motorcycle.

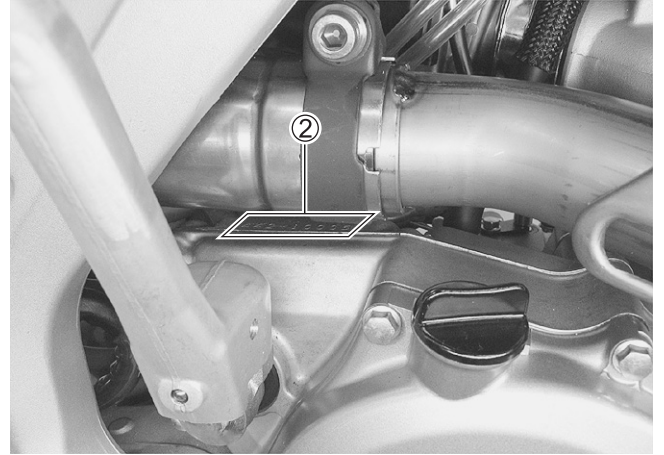
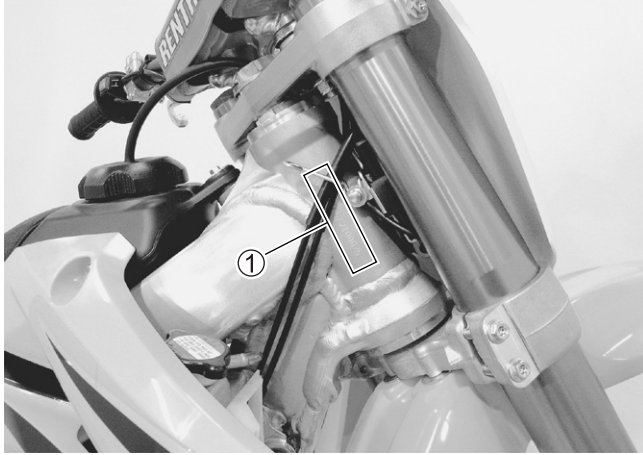
- **Conclusion**

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

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

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

SERIAL NUMBER LOCATION



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

Frame No.	
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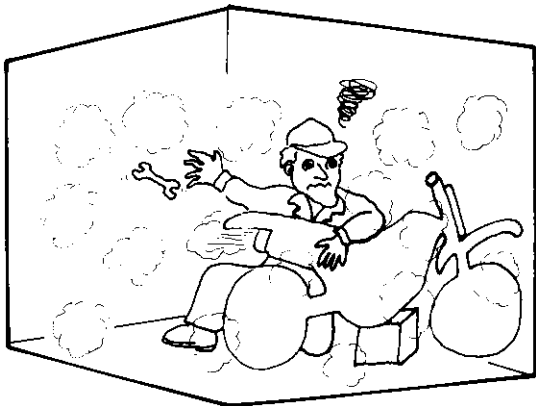
Engine No.	
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WARNINGS FOR SERVICING

▲ 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.

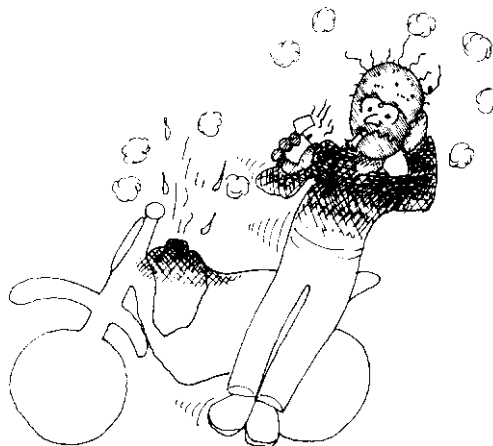
Only run the engine outdoors where there is fresh air.



▲ 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.



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.

▲ 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.



REPLACEMENT PARTS












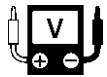









Use only genuine SUZUKI replacement parts or their equivalent. Genuine SUZUKI parts are high quality parts which are designed and built specially for SUZUKI vehicles.

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.		Apply THREAD LOCK SUPER "1360". 99000-32130
	Apply oil. Use engine oil or transmission oil unless otherwise specified.		Use SUZUKI FORK OIL SS-05 or equivalent fork oil. 99000-99001-SS5
	Apply molybdenum oil solution. (Mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1:1)		Use SUZUKI REAR SUSPENSION OIL SS-25 or equivalent rear suspension oil. 99000-99001-S25
	Apply SUZUKI SUPER GREASE "A" or equivalent grease. 99000-25010		Use engine coolant.
	Apply SUZUKI SILICONE GREASE. 99000-25100		Apply or use brake fluid. (DOT 4)
	Apply SUZUKI MOLY PASTE. 99000-25140		Measure in voltage range.
	Apply SUZUKI BOND "1215" or equivalent bond. 99000-31110		Measure in resistance range.
	Apply SUZUKI BOND "1207B". 99000-31140		Use special tool.
	Apply THREAD LOCK SUPER "1303". 99000-32030		Indication of service data.
	Apply THREAD LOCK SUPER "1322" or equivalent thread lock. 99000-32110		Replace a part with a new one when reassembling.
	Apply THREAD LOCK "1342". 99000-32050		

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GENERAL INFORMATION

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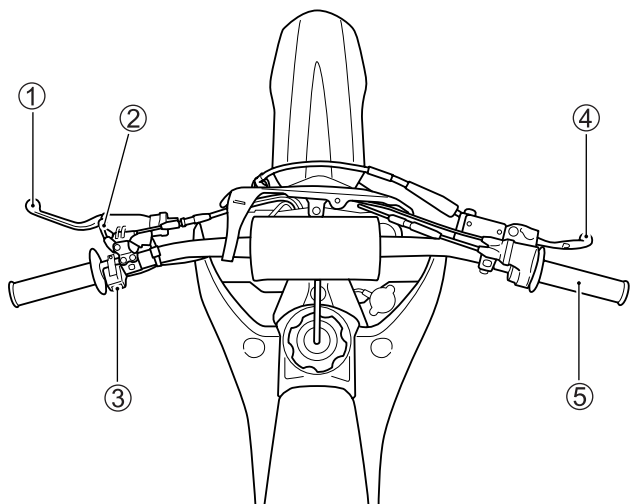
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COUNTRY AND AREA CODES

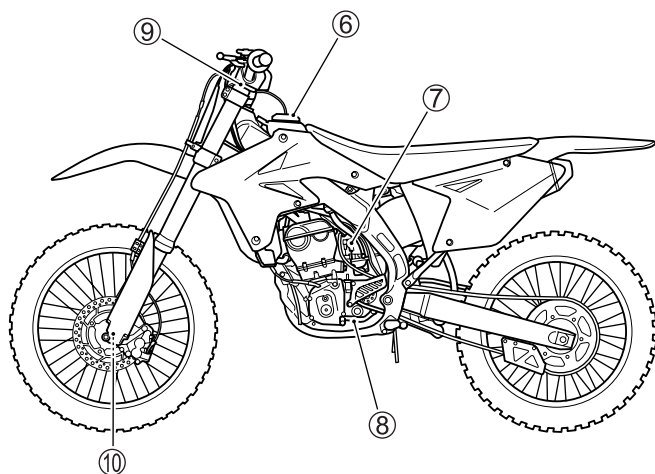
The following codes stand for the applicable country(-ies) and area(-s).

CODE	COUNTRY or AREA	EFFECTIVE FRAME NO.
000	Japan	JS1RJ41A000 500001 –
E-03	U.S.A.	JS1RJ41C 72 100001 –
E-19	E.U.	JS1RJ41A000 500001 –
E-28	Canada	JS1RJ41C 72 100001 –

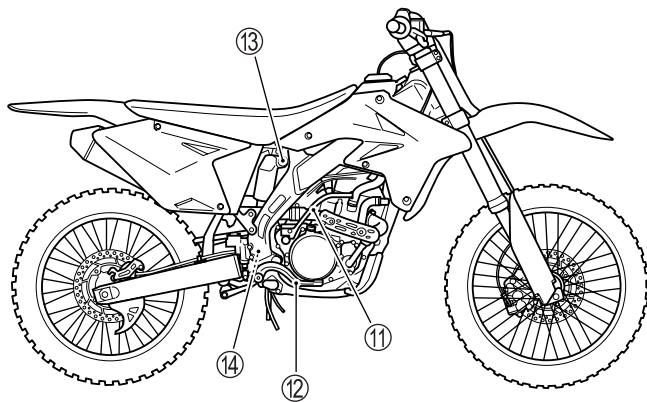
LOCATION OF PARTS



- ① Clutch lever
- ② Hot starter lever
- ③ Engine stop switch
- ④ Front brake lever
- ⑤ Throttle grip



- ⑥ Fuel tank cap
- ⑦ Carburetor starter knob
- ⑧ Gearshift lever
- ⑨ Front suspension compression damping adjuster
- ⑩ Front suspension rebound damping adjuster



- ⑪ Kick starter lever
- ⑫ Rear brake pedal
- ⑬ Rear suspension compression damping adjuster
- ⑭ Rear suspension rebound damping adjuster

ACCESSORY

SIDE STAND

This motorcycle is not equipped with a side stand. To support the motorcycle for a short period of time, use the accessory side stand that comes supplied with the motorcycle. When servicing the motorcycle, use a service stand and support the underneath of the engine securely. When operating the motorcycle, make sure to remove the accessory side stand.



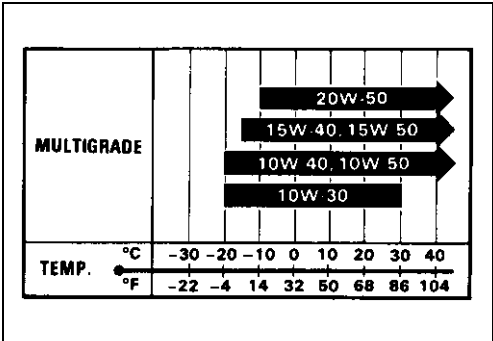
FUEL AND OIL RECOMMENDATION

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 recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or equivalent engine oil. Use of SF/SG or SH/SJ in API with JASO MA. The recommended viscosity is SAE 10W-40. If an SAE 10W-40 oil is not available, select an alternative according to the right chart.

..... For E-03 MOTUL 300V 10W-40 (recommendation oil) or use a premium quality 4-stroke motor oil to ensure longer service life of your motorcycle. Use of SF/SG or SH/SJ in API with JASO MA. The recommended viscosity is SAE 10W-40. If an SAE 10W-40 motor oil is not available, select an alternative according to the right chart.

..... For others
Fuel tank capacity: 7.0 L (1.8/1.5 US/Imp gal)



▲ WARNING
Gasoline is a flammable material that can cause fire hazard or burns. When handling gasoline, make sure to stop the engine and keep away from fire or spark.

OPERATING INSTRUCTIONS

CAUTION

Leaving the engine at idling speed after riding will cause engine overheat as this competition motorcycle does not have the radiator cooling fan and coolant reservoir. Riding the motorcycle under severe conditions such as muddy or sandy terrain with high ambient temperature can shorten time to be overheated.

Do not leave the engine at idling after riding the motorcycle. Inspect the radiator for proper coolant level before riding for practice and race.

STARTING THE ENGINE

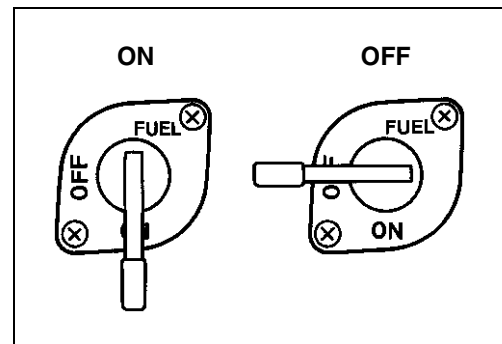
Inspect the engine oil level, coolant level and air cleaner condition before starting the engine.

When the engine is cold:

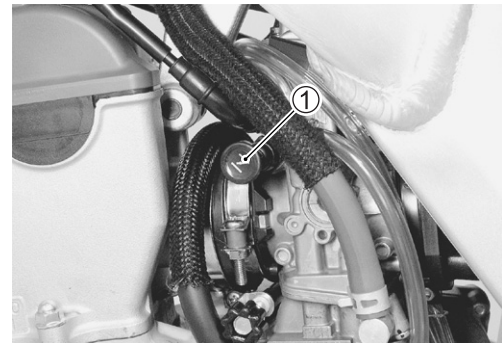
- 1) Turn the fuel valve lever to the "ON" position.
- 2) Shift the transmission into neutral.

NOTE:

Do not repeatedly operate the throttle with the engine starting, stopping and idling. The accelerator pump may foul the spark plugs with excess fuel.



- 3) Pull the starter knob ①.
- 4) Find the kick starter lever position around the top so that the resistance to depress the kick starter lever is fully felt by pushing down the kick starter lever slowly.
- 5) Kick the engine over, leaving the throttle closed.



CAUTION

When kick-starting the engine, make sure to remove the side stand.

- 6) Return the starter knob when the engine revs at steady speed.

NOTE:

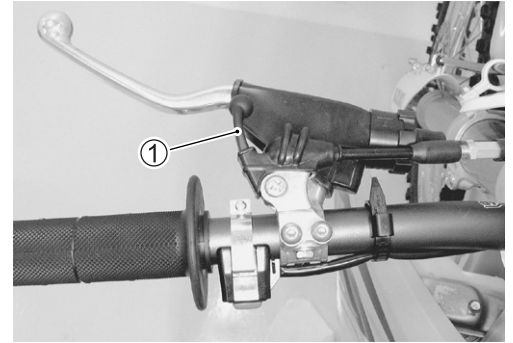
When the clutch lever is pulled, the motorcycle can be started with the transmission in any gear.

When the engine is already warm or restarts:

- 1) Pull the hot starter lever ①.
- 2) Kick the engine over, leaving the throttle closed without using the starter knob.
- 3) Return the hot starter lever back immediately after the engine starts.

NOTE:

If the engine fails starting, open the throttle fully and depress the kick starter lever slowly about 4 – 5 times to clear too rich fuel mixtures in the engine. Then, kick the engine over, leaving the throttle closed with the hot starter lever pulled in.



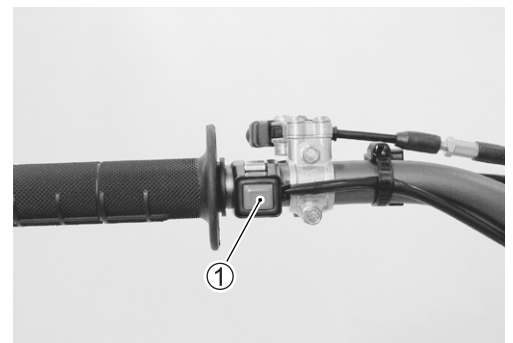
CAUTION		
Racing the engine in neutral will exceed the engine speed limit. Exceeding the engine speed limit can damage the engine moving parts.		
Do not race the engine at high speed to avoid the engine damage.		

Conditions when the hot starter lever or starter knob is used		
Engine Condition	Hot Starter Lever	Starter Knob
Already Warm	Pull in (ON)	Push back (OFF)
Restarting after falling	Pull in (ON)	Push back (OFF)
Cold	No use (OFF)	Use (ON)

STOPPING THE ENGINE

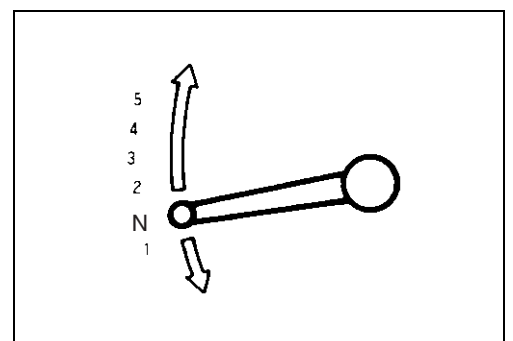
- 1) Shift the transmission into neutral.
- 2) Turn the fuel valve lever to the “OFF” position.
- 3) Push the engine stop switch ① to stop the engine.

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

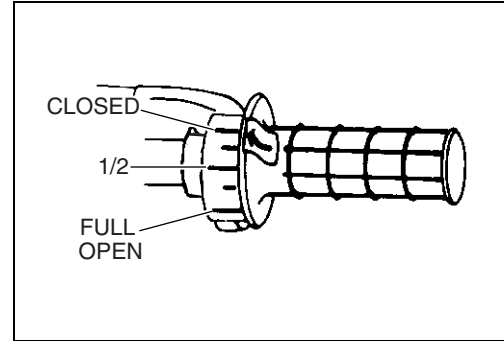


BREAK-IN (RUNNING-IN) WHEN THE MOTORCYCLE IS NEW

- 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.*

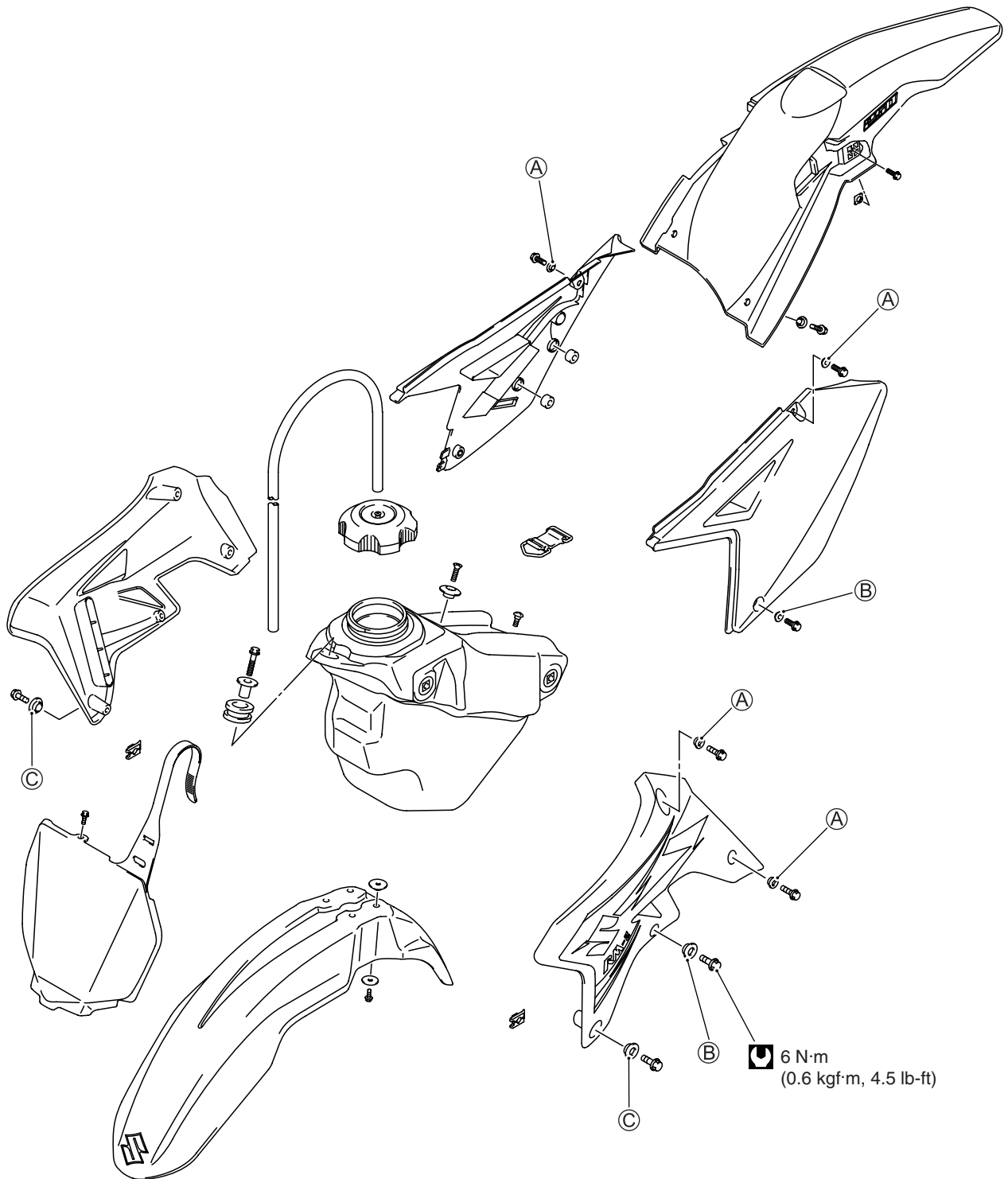


WHEN ENGINE PARTS ARE REPLACED

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

- Piston
- Piston ring
- Cylinder
- Crankshaft
- Crankshaft bearing

EXTERIOR PARTS



A	B	C
<p>4.4 mm (0.17 in)</p> <p>$\phi 15$ mm (0.59 in) $\phi 9$ mm (0.35 in)</p>	<p>4.4 mm (0.17 in)</p> <p>$\phi 16$ mm (0.63 in) $\phi 11$ mm (0.43 in)</p>	<p>6 mm (0.24 in)</p> <p>$\phi 16$ mm (0.63 in) $\phi 10$ mm (0.39 in)</p>

– MEMO –

PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE INSPECTION BEFORE PRACTICE

WHAT TO CHECK	CHECK FOR
Spark plug	Heat range, fouled electrode, tightness
Air cleaner element	<ul style="list-style-type: none"> • Dust • Lubrication
Engine oil	Oil level
Coolant	Coolant level
Cooling system	<ul style="list-style-type: none"> • Radiator hose damage • Engine coolant leak
Clutch	<ul style="list-style-type: none"> • Play • Smooth operation
Throttle	<ul style="list-style-type: none"> • Play • Smooth operation
Crankcase breather hose	Breather hose clogging and bend
Engine idle speed	Revolution speed
Brake fluid	Fluid level
Brakes	<ul style="list-style-type: none"> • Brake lever position • Brake pedal height • Operation
Drive chain	Slack, lubrication
Drive chain guide/buffer	Wear, damage
Suspension	<ul style="list-style-type: none"> • Smooth operation • Front fork air pressure
Wheels	<ul style="list-style-type: none"> • Spoke tension • Rim lock tightness or damage
Tires	Tire pressure
Steering	Smoothness, play
Exhaust pipe and muffler	<ul style="list-style-type: none"> • Exhaust gas leakage • Tightening torque
Bolts and nuts	Tightening torque

INSPECTION BEFORE RACE**(All items of inspection before practice on previous page plus)**

WHAT TO CHECK	CHECK FOR
Clutch	Clutch disc plates wear and distortion
Brake pads	Wear
Sprockets	Wear Cleanliness
Fuel tank	Leakage
Fuel hose	<ul style="list-style-type: none">• Damage• Hoses are connected
Fuel filter	Fuel filter clogging and damage
Exhaust pipe and muffler	Damage
Cylinder head	Combustion chamber carbon deposit
Piston and Cylinder	<ul style="list-style-type: none">• Combustion chamber carbon deposit• Piston head carbon deposit• Piston and cylinder wear
Air cleaner	<ul style="list-style-type: none">• Damage• Loose outlet tube

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.

Service Item	Interval	Every race	Every 3 races	Every 6 races	Remarks
	hours	Every 2 hours	Every 6 hours	Every 12 hours	
Spark plug		I	—	—	
Air cleaner		C	—	—	Replace air cleaner element as necessary.
Engine oil		—	R	—	Change after 1st initial break-in.
Engine oil filter		—	—	R	
Oil strainers		—	—	I	
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	—	—	
Hot starter		I	—	—	
Carburetor		I	—	—	Replace intake pipe every 5 races (10 hours).
Crankcase breather hose		I	—	—	
Fuel hose		I	—	—	Replace every 4 years.
Valve clearance		—	—	I	
Piston		—	—	R	
Piston ring		—	—	R	
Cylinder head, cylinder		—	—	I	
Muffler		I	—	—	
Silencer		I	—	R	
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 and guide		—	R	—	
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		I	—	—	Check rear suspension system frequently and apply the grease to the pivoting portion as necessary.

2-6 PERIODIC MAINTENANCE

Service Item	Interval	Every race	Every 3 races	Every 6 races	Remarks
	hours	Every 2 hours	Every 6 hours	Every 12 hours	
Tire		I	—	—	
Spoke nipple		I	—	—	Inspect every 20 min. up to initial 2 hours then check before each ride.
Steering		I	—	—	
Kick starter lever		I & L	—	—	
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

- Remove the seat. (☞ 5-2)
- Remove the radiator covers and fuel tank. (☞ 5-2)
- Disconnect the lead wire coupler from the ignition coil/plug cap.

CAUTION

Disconnect the lead wire coupler before removing the ignition coil/plug cap to avoid lead wire coupler damage.

- Remove the ignition coil/plug cap.

CAUTION

Do not pry up the ignition coil/plug cap with a screw driver or a bar to avoid its damage.

Be careful not to drop the ignition coil/plug cap to prevent short/open circuit.

- Remove the spark plug with a spark plug wrench.

NOTE:

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

TOOL 09930-10121: Spark plug wrench set

- Inspect the spark plug condition, electrode color, carbon deposits, spark plug gap and insulator damage.
- If it is extremely worn or burnt, replace the spark plug.
Also, replace the spark plug if it has a broken insulator, damaged thread, etc.
- Inspect the porcelain tip color.

Porcelain tip color	Cause
White (overheated)	<ul style="list-style-type: none"> • Hot type spark plug • Advanced ignition timing • Lean air/fuel mixture • Deteriorated fuel
Black (fouled)	<ul style="list-style-type: none"> • Cold type spark plug • Retarded ignition timing • Rich air/fuel mixture



- Check the spark plug gap (A) with a thickness gauge.

TOOL 09900-20803: Thickness gauge

DATA Spark plug gap: 0.9 – 1.0 mm (0.035 – 0.039 in)

DATA Standard Spark plug

NGK	CR8EIA-10
-----	-----------

CAUTION

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

Select the spark plug heat range only after adjusting the carburetor setting.

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

TOOL 09930-10121: Spark plug wrench set

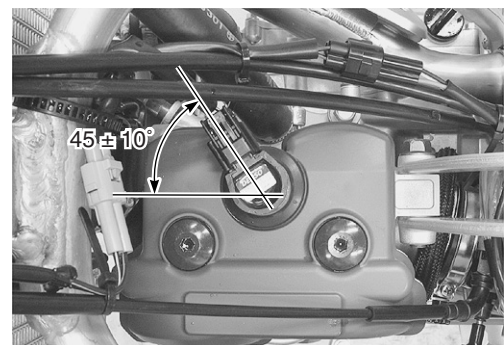
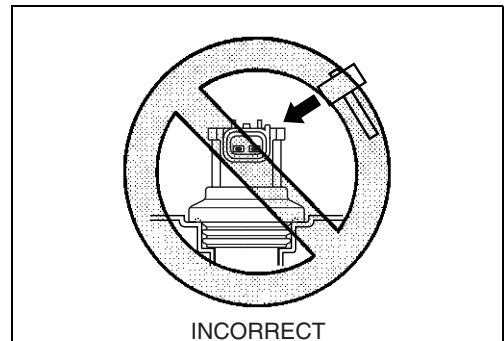
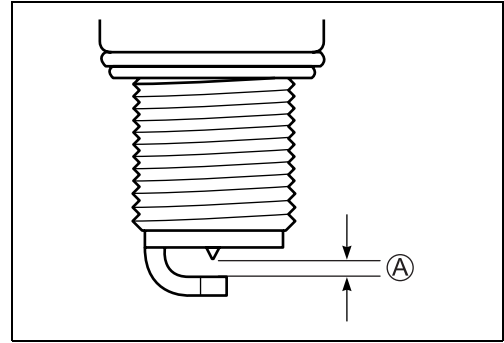
U Spark plug: 11 N·m (1.1 kgf·m, 8.0 lb·ft)

- Install the ignition coil/spark plug cap securely.

CAUTION

Do not hit the ignition coil/plug cap with a plastic hammer when installing it.

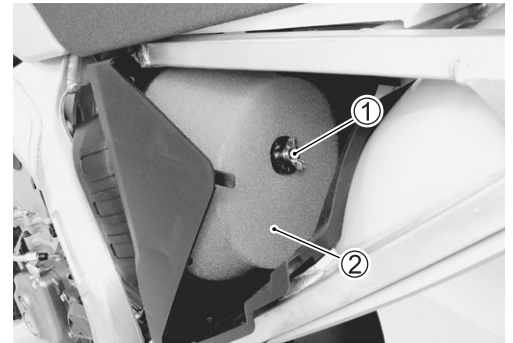
- Connect the lead wire coupler.



AIR CLEANER

AIR CLEANER ELEMENT REMOVAL

- Remove the left frame cover.
- Remove the wing nut ①.
- Remove the element ② from the element holder.



WASHING

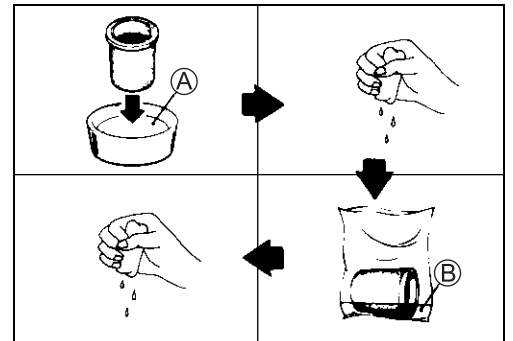
- Fill a washing pan large enough to hold the element with a non-flammable cleaning solvent (A). Immerse the element in the solvent and wash it.

Ⓐ: 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 (B) and work the oil into the element.

Ⓑ: MOTUL AIR FILTER OIL or equivalent filter oil

- Squeeze the element to remove excess oil.

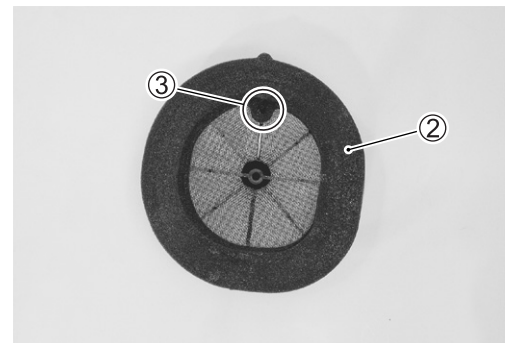


INSTALLATION

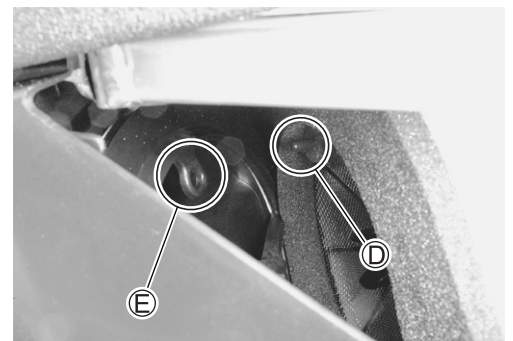
- Apply grease to the element base where it contacts the air cleaner box.
- Fit the element onto the element holder.

NOTE:

Fit the projection of the element holder ③ to the hole of the element base ②.



- Install them in the air cleaner box by engaging the projection (D) of the element holder with the hole (E) of the cleaner body.



CAUTION

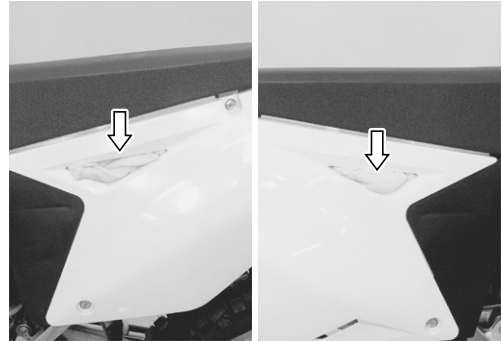
Improper element installation allows dust and dirt to enter the combustion chamber. It can result in piston and cylinder wear.

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

NOTE:

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

- Cover the element with vinyl bag.
- Install the left frame cover.
- 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.



ENGINE OIL AND OIL FILTER

⚠ WARNING

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

Wait until the oil drain plug and exhaust pipe 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. Continuous contact with used engine oil has been found to cause skin cancer in laboratory animals. Brief contact with used oil or solvent may irritate skin.

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

NOTE:

Recycle or properly dispose of used oil and solvent.

INSPECTION BEFORE ENGINE OIL LEVEL CHECK

- Before starting the engine, check that there is sufficient oil for operating the engine.

CAUTION

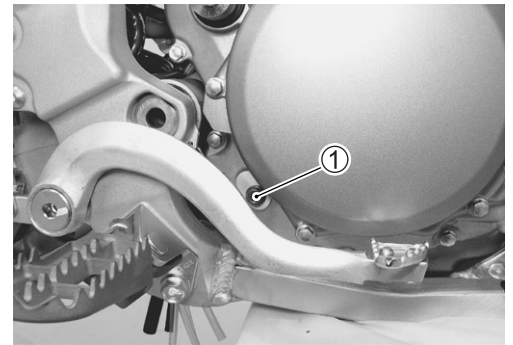
If the engine is started with insufficient or no oil, the engine components will possibly be damaged.

NOTE:

The oil level measurement may become inaccurate unless the motorcycle is held upright as the motorcycle inclination affects the oil level.

- During inspection, hold the motorcycle in an upright position on a level surface.
- Remove the oil check bolt ①. If, at this time, oil comes out from this bolt hole, proceed to “ENGINE OIL LEVEL INSPECTION” below.

 **Oil check bolt: 6 N·m (0.6 kgf-m, 4.5 lb-ft)**



ENGINE OIL LEVEL INSPECTION

- During inspection, hold the motorcycle in an upright position on a level surface.

NOTE:

The oil level measurement may become inaccurate unless the motorcycle is held upright as the motorcycle inclination affects the oil level.

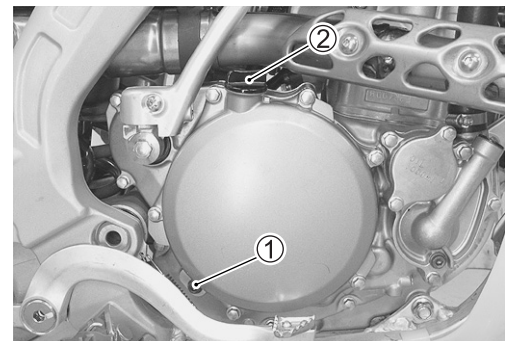
- Start and run the engine at idle for three minutes.

NOTE:

Do not run the engine at a speed higher than idling, otherwise the oil level to be inspected may be affected.

- Stop and leave the engine standstill for two minutes. Thereafter if oil flows out when the oil check bolt ① is removed, the oil level is appropriate.
- If oil is excessive, let oil flows out of the oil level hole.
- If oil still does not come out, tighten the oil check bolt, remove the filler cap ② and pour an adequate amount of recommended oil.
- Repeat the above-mentioned procedure.
- Tighten the oil check bolt.

 **Oil check bolt: 6 N·m (0.6 kgf-m, 4.5 lb-ft)**



ENGINE OIL CHANGE

- During inspection, hold the motorcycle in an upright position on a level surface.
- Warm up the engine.
- Remove the filler cap, TDC plug ①, drain plug ② and drain No.2 plug ③. Drain oil thoroughly.
- Replace the gasket washers with new ones and tighten their drain plugs.

🔧 Oil drain plug: 21 N·m (2.1 kgf-m, 15.0 lb-ft)
 Oil drain No.2 plug: 6 N·m (0.6 kgf-m, 4.5 lb-ft)

- Pour specified amount of motor oil.

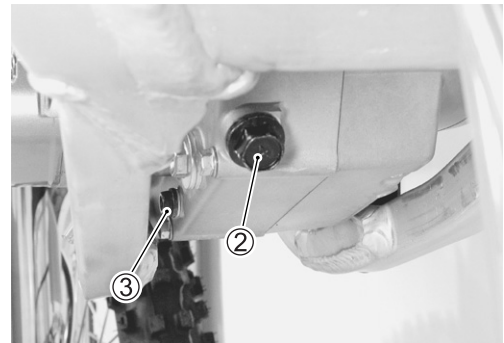
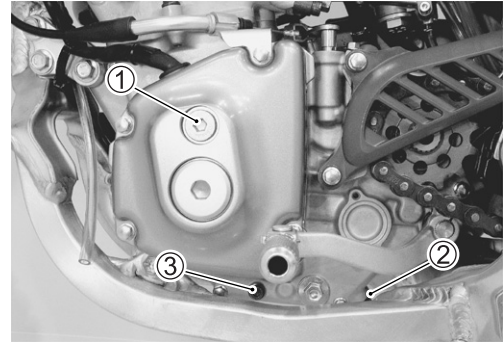
📄 SAE 10W-40, API SF/SG or SH/SJ with JASO MA
For E-03
 MOTUL 300V 10W-40 (Recommendation oil) or
 SAE 10W-40, API SF/SG or SH/SJ with JASO MA
The others

📊 Oil change 900 ml (1.0/0.8 US/Imp qt)
 Filter change 950 ml (1.0/0.8 US/Imp qt)
 Overhaul..... 1 000 ml (1.1/0.9 US/Imp qt)

- Replace the O-ring with a new one and tighten the TDC plug ①.

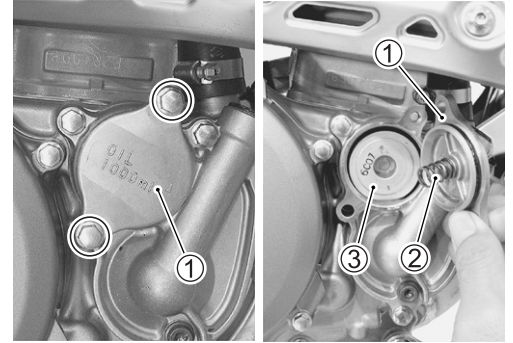
🔧 TDC plug: 14 N·m (1.4 kgf-m, 10.0 lb-ft)

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



ENGINE OIL FILTER CHANGE

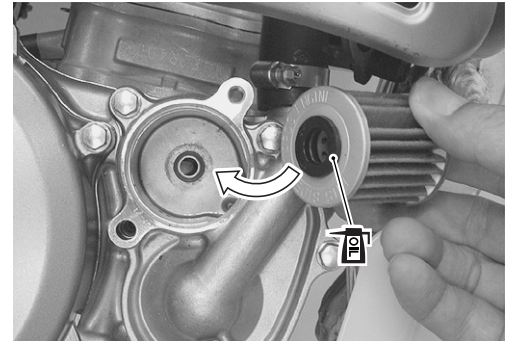
- Drain the engine oil as described in the engine oil replacement procedure.
- Remove the oil filter cap ① and spring ② with oil filter ③.



- Apply engine oil lightly to the gasket of the new oil filter before installation.
- Install the new oil filter.

CAUTION

Make sure that the oil filter is installed properly. If the filter is installed improperly, serious engine damage may result.



- Apply engine oil lightly to the new O-ring.

CAUTION

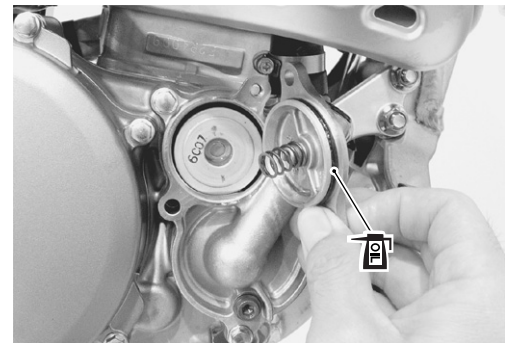
Use a new O-ring to prevent oil leakage.

- Install the oil filter cap and tighten the bolts.

 **Oil filter cap bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)**

- Add new engine oil and check the oil level as described in the engine oil level inspection procedure.

DATA Oil change 900 ml (1.0/0.8 US/Imp qt)
 Filter change 950 ml (1.0/0.8 US/Imp qt)
 Overhaul 1 000 ml (1.1/0.9 US/Imp qt)



OIL STRAINERS

OIL STRAINER (Feed pump side) REMOVAL

- Drain engine oil. (☞ 2-12)
- Remove the engine oil strainer cap.

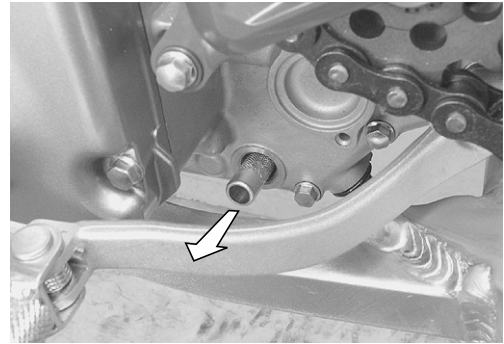
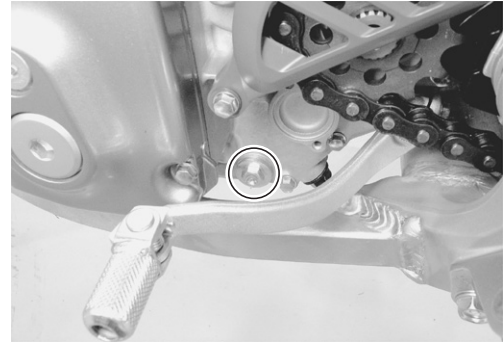
CAUTION

Do not lie the motorcycle to prevent dirty engine oil into the oil circuit when removing the oil strainer (Feed pump side).

- Pull out the oil strainer.

NOTE:

We recommend that inspect feed pump side oil strainer every race.



OIL STRAINER (Scavenge pump side) REMOVAL

(☞ 10-4)

INSPECTION

- Check the oil strainers for any damage or clogging.
- If the oil strainers are clogged, clean the oil strainers with a compressed air.



OIL STRAINER (Scavenge pump side) INSTALLATION

(☞ 10-15)

OIL STRAINER (Feed pump side) INSTALLATION

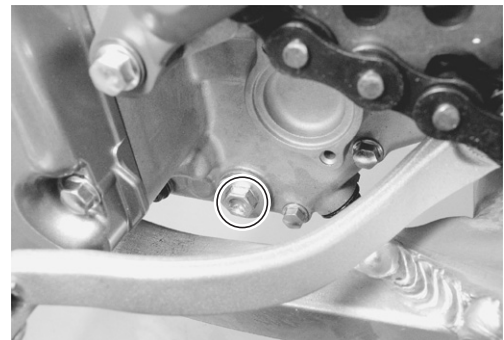
- Install the oil strainer and then tighten the oil strainer cap to the specified torque.

CAUTION

Replace the gasket washer with a new one.

🔧 Engine oil strainer cap: 21 N·m (2.1 kgf·m, 15.0 lb·ft)

- Add new engine oil and check the oil level. (☞ 2-11)



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 $-31\text{ }^{\circ}\text{C}$ ($-24\text{ }^{\circ}\text{F}$), the percentage of antifreeze should be increased to 55% or 60%, according to figure 1.

Antifreeze density	Freezing point
50%	$-31\text{ }^{\circ}\text{C}$ ($-24\text{ }^{\circ}\text{F}$)
55%	$-40\text{ }^{\circ}\text{C}$ ($-40\text{ }^{\circ}\text{F}$)
60%	$-55\text{ }^{\circ}\text{C}$ ($-67\text{ }^{\circ}\text{F}$)

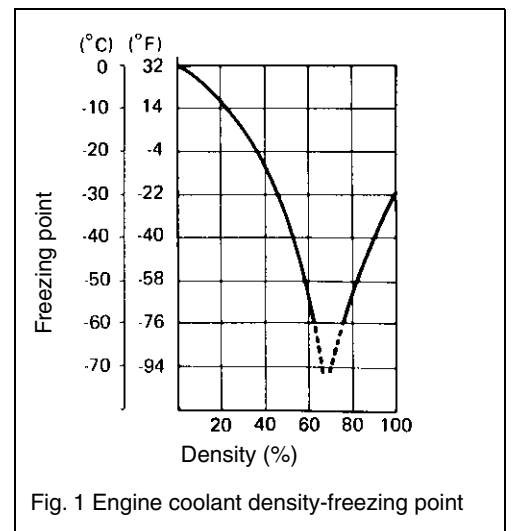
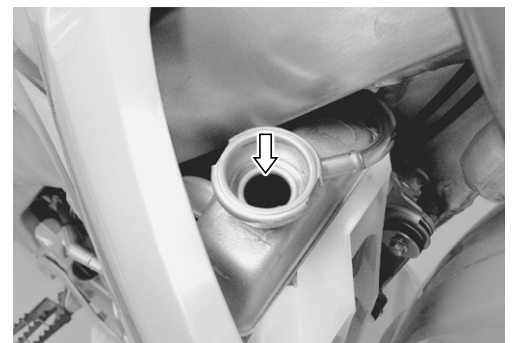
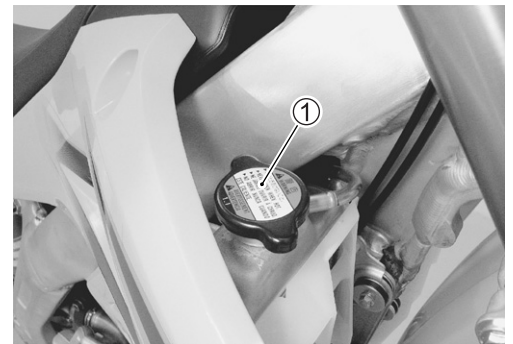


Fig. 1 Engine coolant density-freezing point

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

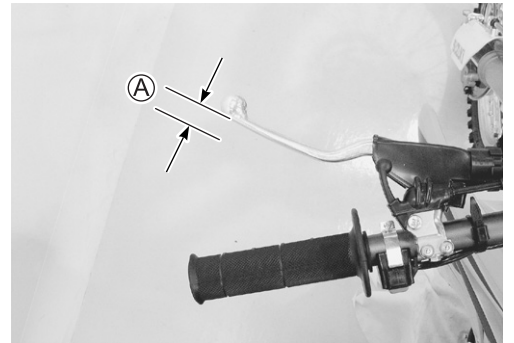
Inspect the following items before practice and races.

- Engine coolant leakage
- Radiator hose cracks and deterioration
- Radiator mounting condition
- Radiator over flow pipe condition
- Radiator fin condition



CLUTCH CABLE

Adjust the clutch cable play as follows:

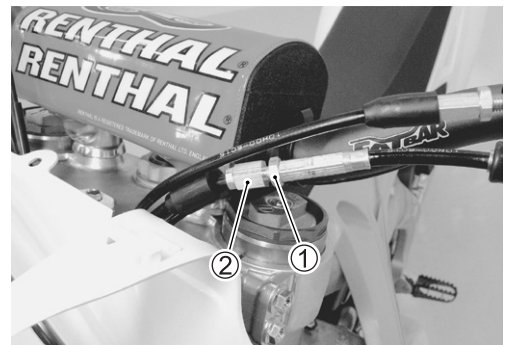


MAJOR ADJUSTMENT

- Loosen the 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 the lock-nut ① to the specified torque.

DATA Clutch lever play ①: 10 – 15 mm (0.4 – 0.6 in)

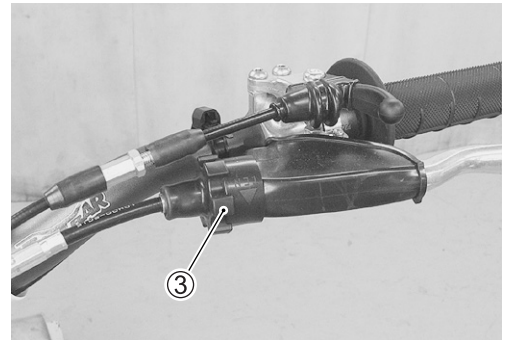
🔧 Cable adjuster lock-nut: 2.2 N·m (0.22 kgf-m, 1.60 lb-ft)



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 ①: 10 – 15 mm (0.4 – 0.6 in)



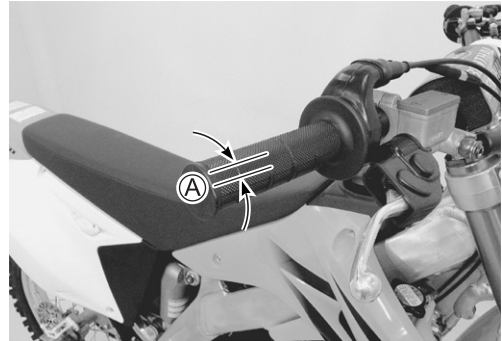
THROTTLE CABLE

⚠ 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 (A) as follows:

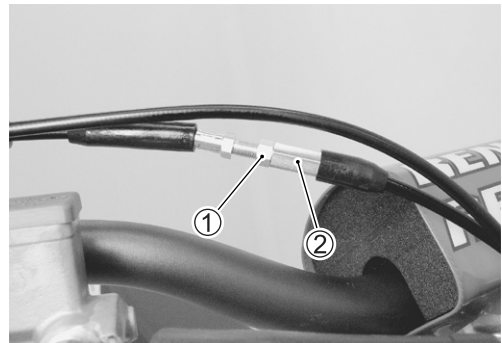


THROTTLE CABLE ADJUSTMENT

- Loosen the lock-nut ①.
- Turn adjuster ② so the throttle grip has 2 – 4 mm (0.08 – 0.16 in) play in circumference.
- Tighten the lock-nut ① to the specified torque.

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

🔧 Cable adjuster lock-nut: 2.2 N·m (0.22 kgf·m, 1.60 lb-ft)

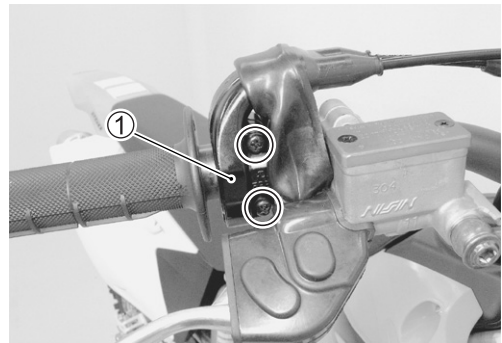


⚠ WARNING

After the adjustment is completed, check that handlebars movement does not raise the engine idle speed and that the throttle grip returns smoothly and automatically.

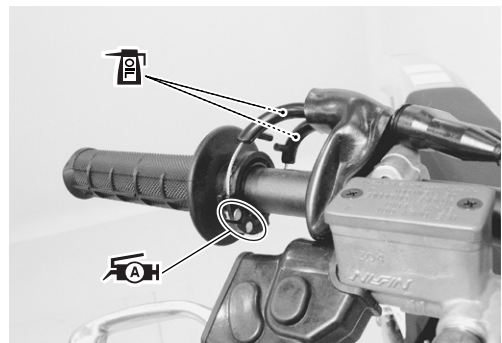
THROTTLE CABLE LUBRICATION

- Remove the throttle case ①.



- Apply oil to the throttle cable.
- Apply SUZUKI SUPER GREASE to the throttle cable spool.

🔧 99000-25010: SUZUKI SUPER GREASE “A”
(or equivalent grease)



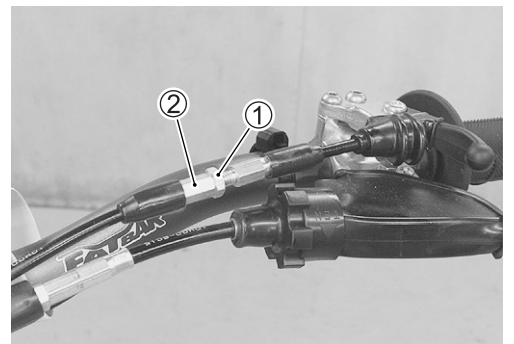
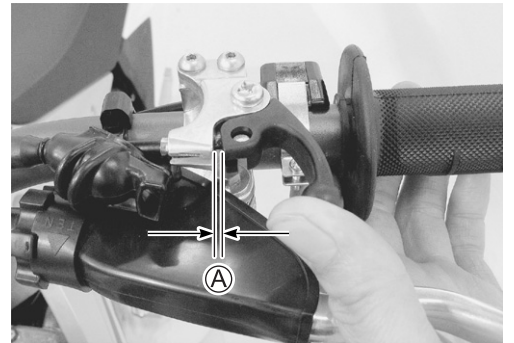
HOT STARTER

Adjust the hot starter cable play $\text{\textcircled{A}}$ as follows:

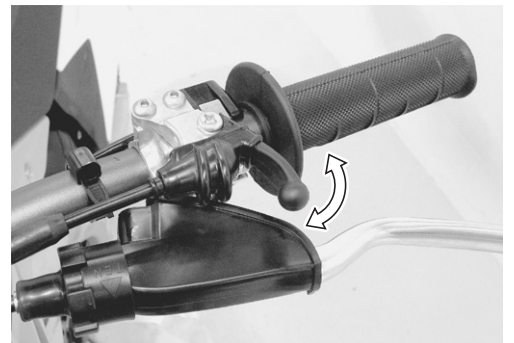
- Loosen the lock-nut $\text{\textcircled{1}}$.
- Turn adjuster $\text{\textcircled{2}}$ so the hot starter lever clearance $\text{\textcircled{A}}$ measured at the lever holder obtains approx. 3 mm (0.12 in) when squeezing the lever until pressure is felt.
- Tighten the lock-nut $\text{\textcircled{1}}$ to the specified torque.

DATA Hot starter cable play $\text{\textcircled{A}}$: Approx. 3 mm (0.12 in)

🔧 Cable adjuster lock-nut: 2.2 N·m (0.22 kgf·m, 1.60 lb·ft)



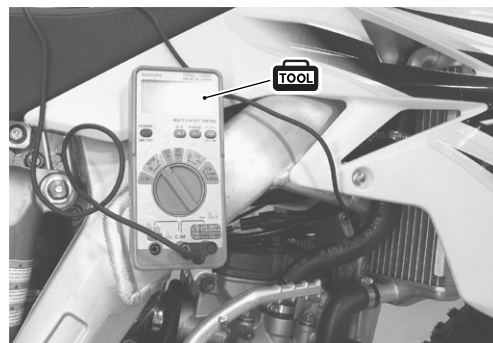
- Check that the hot starter lever moves smoothly from full open to full close.
- If it does not move smoothly, lubricate the hot start cable.



ENGINE IDLE SPEED

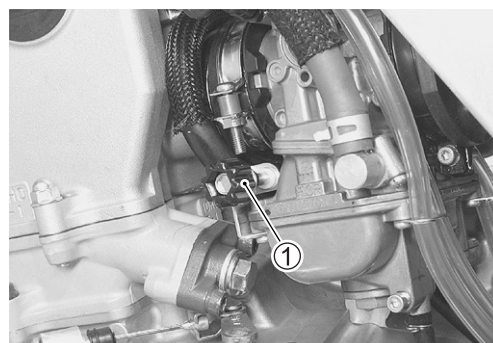
- Adjust the throttle cable play. (☞ 2-18)
- Warm up the engine.
- Connect the multi-circuit tester to the primary lead wire (W/B).

TOOL 09900-25008: Multi-circuit tester set



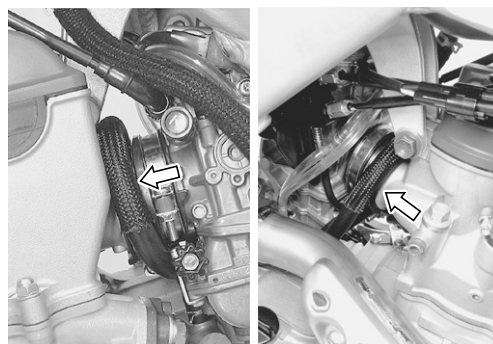
- Start the engine, turn the throttle stop screw ① and set the engine idle speed as follows.

DATA Engine idle speed: 2 100 ± 50 r/min



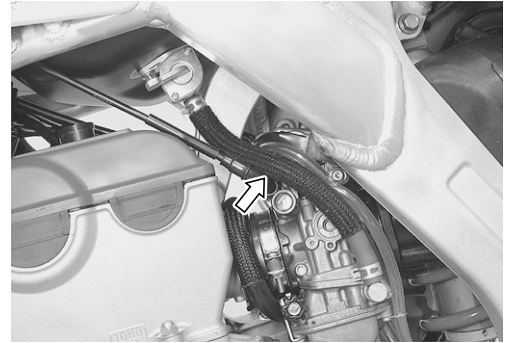
CRANKCASE BREATHER HOSE

- Inspect the crankcase breather hose for damage, clogging and bend. If any defects are found, the breather hose must be replaced.



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.

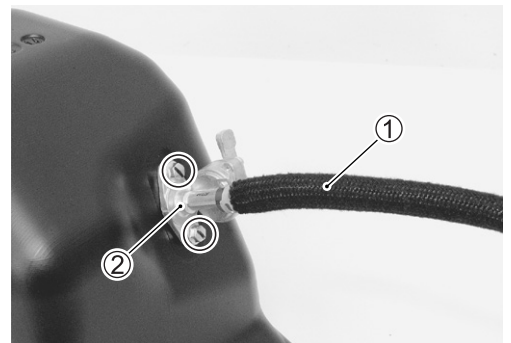
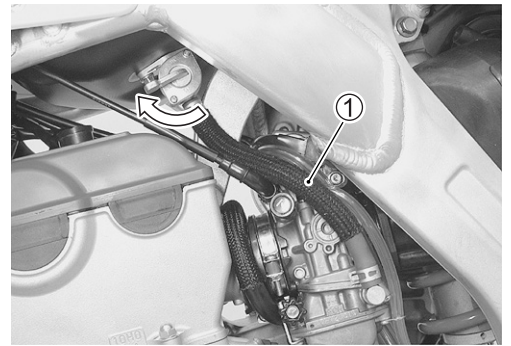


FUEL FILTER

▲ WARNING

**Gasoline is highly flammable and explosive.
Keep heat, sparks and flames away from gasoline.**

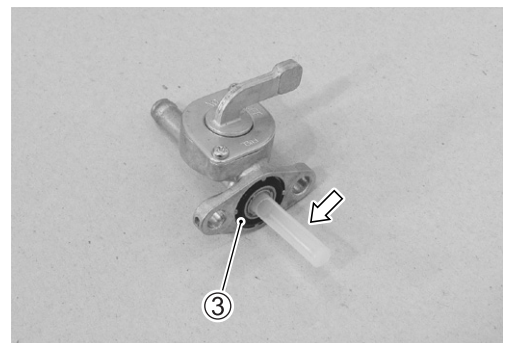
- Drain fuel from the fuel tank.
- Remove the seat and radiator covers. (☞ 5-2)
- Turn the fuel valve to the OFF position.
- Disconnect the fuel hose ① and remove the fuel tank. (☞ 5-2)
- Remove the fuel hose ① and fuel valve ②.



- 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.



VALVE CLEARANCE

- Remove the seat. (☞ 5-2)
- Remove the radiator covers and fuel tank. (☞ 5-2)
- Disconnect the ignition coil/plug cap. (☞ 2-7)
- Remove the spark plug. (☞ 2-7)
- Remove the cylinder head cover and its cylinder head cover gasket.

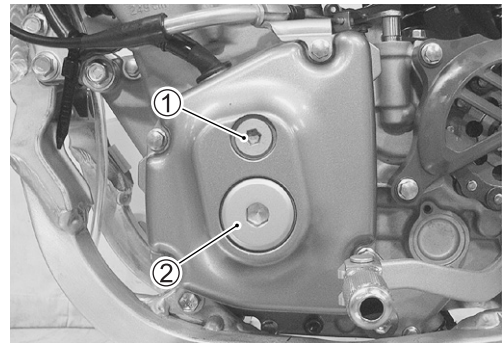


The valve clearance specification is different for both intake and exhaust valves.

Valve clearance adjustment must be checked and adjusted: 1) at the time of periodic maintenance, 2) when the valve mechanism is serviced, and 3) when the camshafts are removed for servicing.

NOTE:

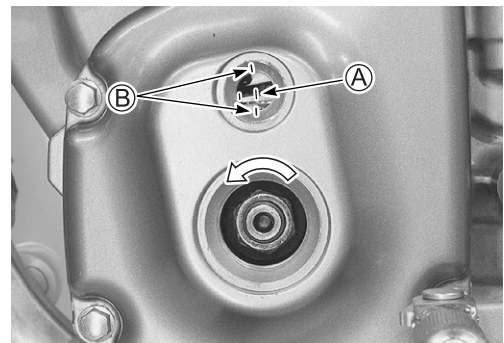
- * The piston must be at top dead center (TDC) on the compression stroke in order to check or adjust the valve clearance.
- * The valve clearance should only be checked when the engine is cold.
- Remove the TDC plug ① and crankshaft hole plug ②.



- Place a wrench over the crankshaft and turn it counterclockwise to align the TDC mark ① with the center of the grooves ② of the timing inspection hole.

NOTE:

The piston must be at TDC on the compression stroke. (☞ 6-3)

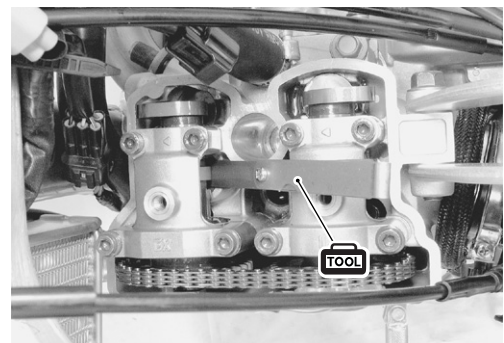


- Insert a thickness gauge between the tappet and the cam. If the clearance is out of specification, adjust it to specification as follows.
- Place a wrench over the crankshaft and turn it counter-clockwise to align the TDC mark ① with the center of the grooves ② of the timing inspection hole.

DATA Valve clearance (when cold):

Standard: IN. : 0.09 – 0.16 mm (0.004 – 0.006 in)
EX. : 0.17 – 0.24 mm (0.006 – 0.009 in)

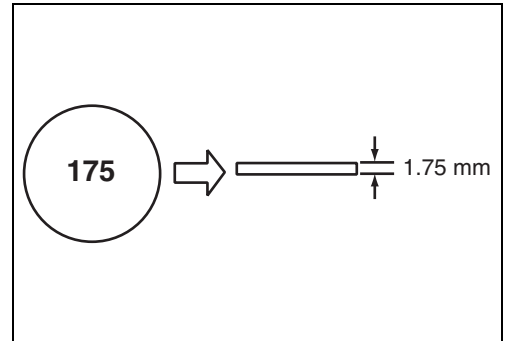
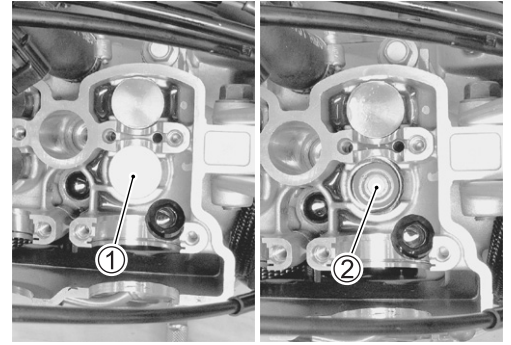
TOOL 09900-20803: Thickness gauge



VALVE CLEARANCE ADJUSTMENT

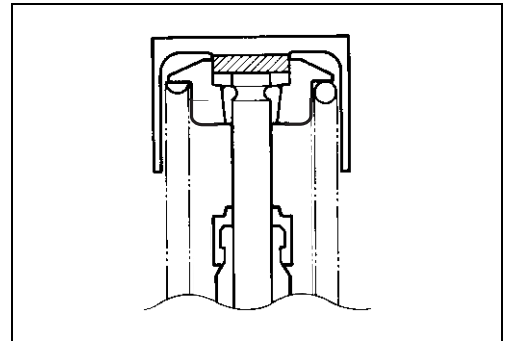
The clearance is adjusted by replacing the existing tappet shim by a thicker or thinner shim.

- Remove the intake or exhaust camshafts. (☞ 6-4)
- Remove the tappet ① and shim ② by fingers or magnetic hand.
- Check the figures printed on the shim. These figures indicate the thickness of the shim, as illustrated.
- Select a replacement shim that will provide a clearance within the specified range. For the purpose of this adjustment, tappet shim are available ranging from 1.200 to 2.200 mm in steps of 0.025 mm. Fit the selected shim to the valve stem end, with numbers toward tappet. Be sure to check shim size with micrometer to ensure its size. Refer to the tappet shim selection table (☞ 2-24, -25) for details.



NOTE:

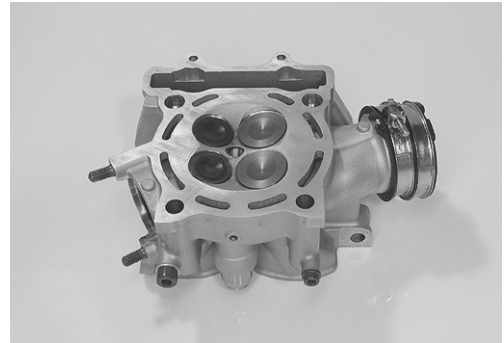
- * Be sure to apply engine oil to tappet shim top and bottom faces.
- * When seating the tappet shim, be sure the figure printed surface faces the tappet.
- Reinstall the camshafts in the specified manner. (☞ 6-30)
- After replacing the tappet shim and camshafts, rotate the engine so that the tappet is depressed fully. This will squeeze out oil trapped between the shim and the tappet that could cause an incorrect measurement. Then check the clearance again to confirm that it is within the specified range.
- After finishing the valve clearance adjustment, reinstall the following items.
 - Cylinder head cover (☞ 6-33)
 - Spark plug and ignition coil/plug cap (☞ 2-8)
 - Radiator covers, fuel tank and seat
 - TDC plug and crankshaft hole plug (☞ 6-32)



CYLINDER HEAD, CYLINDER AND PISTON

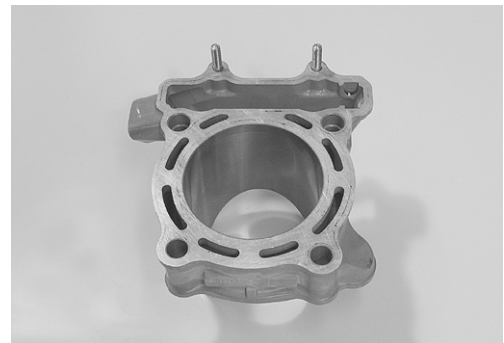
CYLINDER HEAD INSPECTION

- Remove the cylinder head. (🔧 6-4)
- Decarbonize the combustion chambers.
- Inspect for pinholes, cracks and other damage.
- If any defects are found, replace the cylinder head with a new one.



CYLINDER INSPECTION

- Remove the cylinder. (🔧 6-5)
- Inspect the cylinder wall for any scratches, nicks or other damage.
- If any defects are found, replace the cylinder with a new one.



PISTON INSPECTION

- Remove the piston. (🔧 6-6)
- Decarbonize the top surface of the piston.
- Remove carbon deposits from the piston ring groove.
- Check for scratches and cracks.
- Check piston ring wear.
- If any defects are found, replace the piston with a new one.



EXHAUST SILENCER

SILENCER INSPECTION AND REPLACEMENT

- Remove the muffler. (☞ 5-3)
- Remove the bands ① and rivets using the 5.0 mm (0.20 in) drill.

NOTE:

Be careful not to damage the rear muffler body, tail pipe and inner plate.

- Remove the rear muffler body ② and inner pipe assembly ③ from the muffler body.

- Inspect the glass wool ④ for clogging with carbon deposit or tar.
- Replace the glass wool ④ with a new one if necessary.

- Apply the SUZUKI BOND to the circumference of the rear muffler body ②.

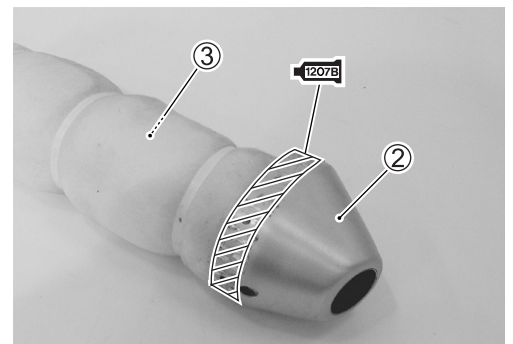
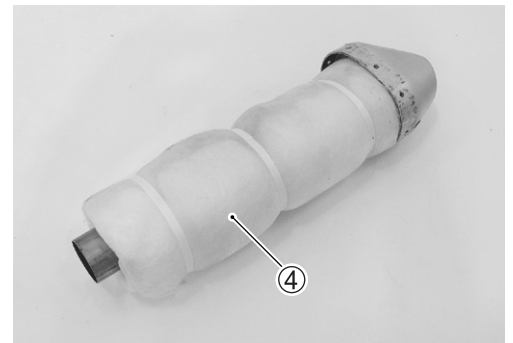
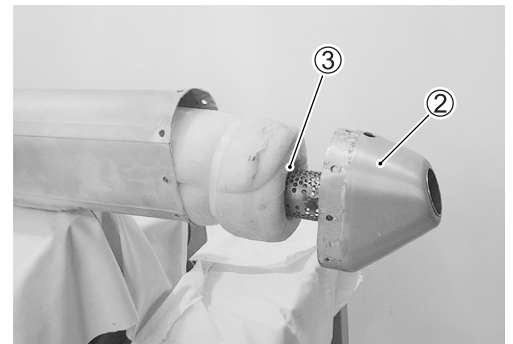
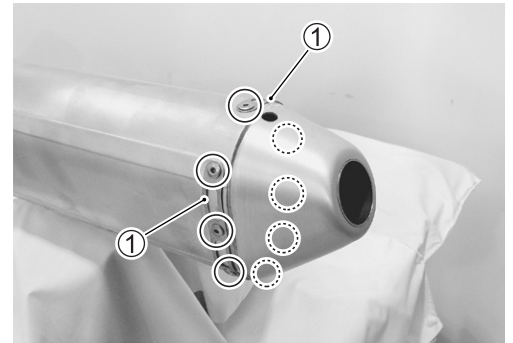
1207B 99000-31140: SUZUKI BOND “1207B”

- Insert the and rear muffler body ② and inner pipe assembly ③ to the muffler body.

- Install the bands and rivets.
- Install the muffler. (☞ 5-8)

NOTE:

After installation, inspect the exhaust system leaks.

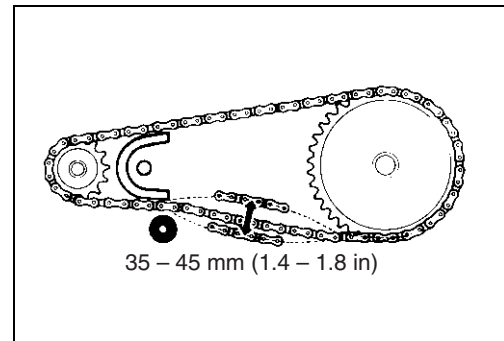


DRIVE CHAIN AND SPROCKETS

DRIVE CHAIN SLACK

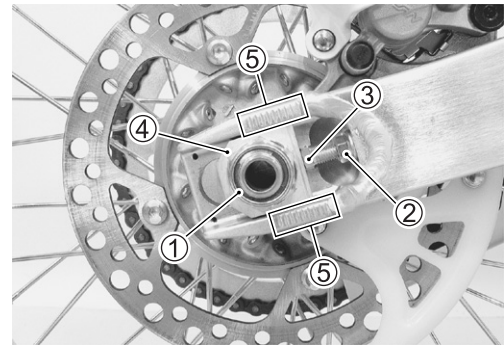
- Place the motorcycle on a block to lift the rear wheel off the ground.
- Inspect the drive chain slack at the middle point between the drive chain buffer and rear sprocket.

DATA Drive chain slack: 35 – 45 mm (1.4 – 1.8 in)



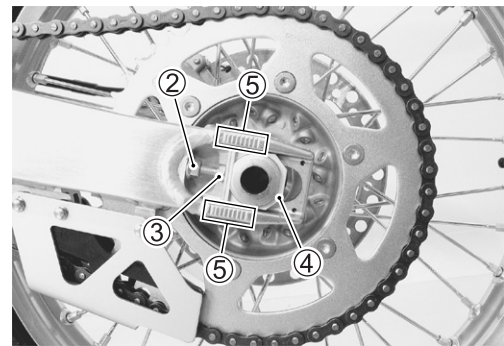
DRIVE CHAIN ADJUSTMENT

- 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: 90 N·m (9.0 kgf-m, 65.0 lb-ft)

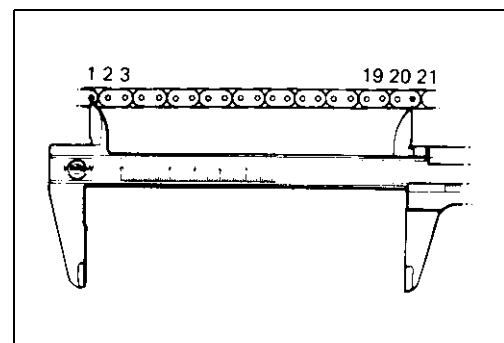
- Tighten the lock-nut ②.



20TH PITCH LENGTH

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

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



DRIVE CHAIN LUBRICATION

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

NOTE:

Be careful not to bend the chain clip.

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

- Clean the drive chain with non-flammable cleaning solvent.

CAUTION

Do not use gasoline to clean the drive chain.

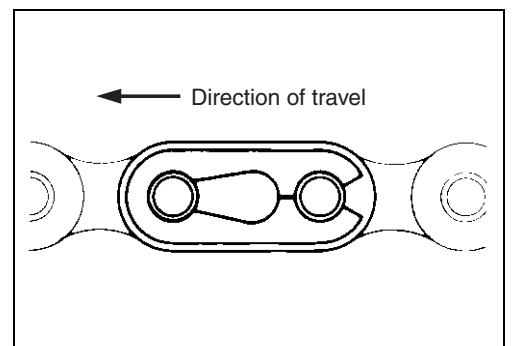
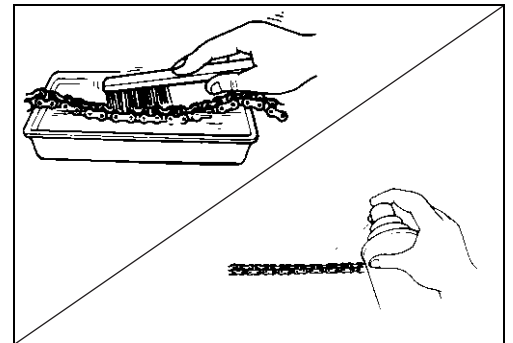
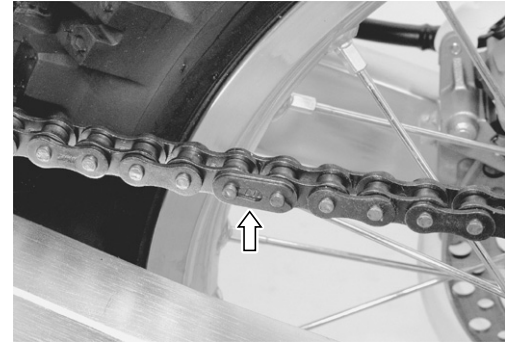
- Dry the drive chain.
- Apply Suzuki Chain Lube or equivalent to the link plates and rollers.

- 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. (👉 2-28)

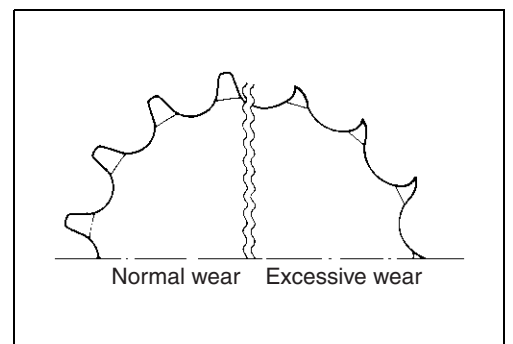


SPROCKET INSPECTION

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 AND CHAIN ROLLER

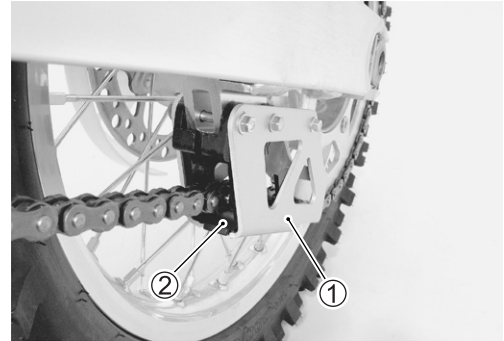
DRIVE CHAIN GUIDE INSPECTION

- 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.
- Replace the defective parts with a new one if necessary.

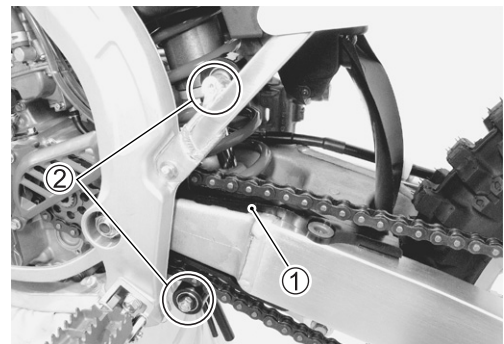


DRIVE CHAIN BUFFER AND ROLLER INSPECTION

- Inspect the drive chain buffer ① for wear and cracks.
- Inspect the chain rollers ② for wear.
- Replace the defective parts with a new one if necessary.

NOTE:

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



- Inspect the chain roller bolt and nut for tightness.

🔧 Chain roller bolt/nut: 22 N·m (2.2 kgf·m, 16.0 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 (A), replenish the reservoir with the specified brake fluid to the UPPER line. (☞ 16-3)

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

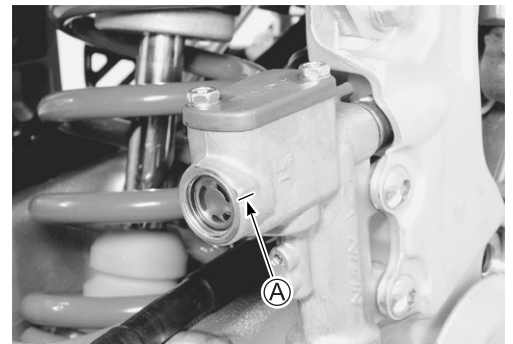
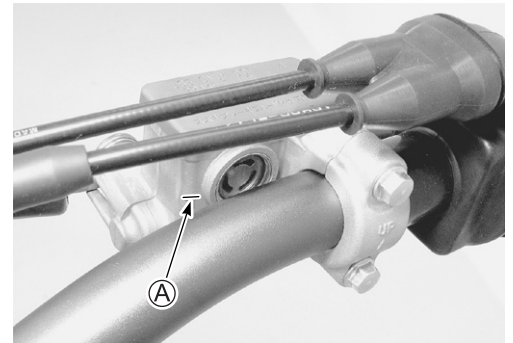
The use of any fluid except DOT 4 brake fluid from a sealed container can damage the brake system and lead to an accident.

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

CAUTION

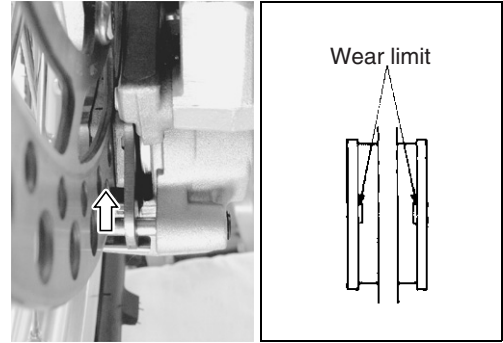
Spilled brake fluid can damage painted surfaces and plastic parts.

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



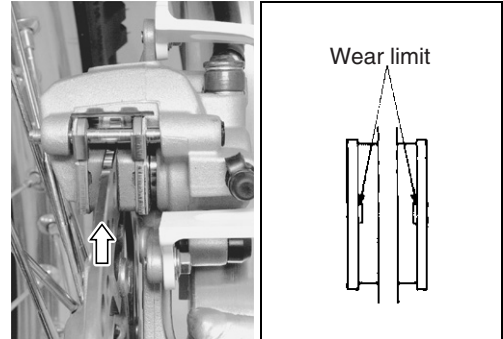
BRAKE PAD

- Inspect the brake pads for wear. If the brake pads are worn, replace them with new ones. (👉 16-5)



NOTE:

- * Pump the brake lever and 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.

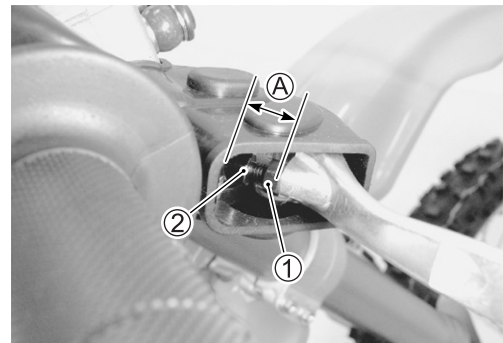


FRONT BRAKE LEVER ADJUSTMENT

Adjust the brake lever position as follows:

- Loosen the lock-nut ①.
- Turn in or out adjuster ② to obtain the proper brake lever position.
- The standard adjuster length ③ is from 11 – 15 mm (0.4 – 0.6 in).
- Tighten the lock-nut ①.

DATA Brake lever adjuster length ③:
11 – 15 mm (0.4 – 0.6 in)



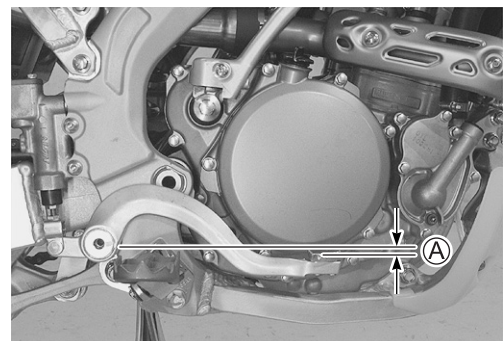
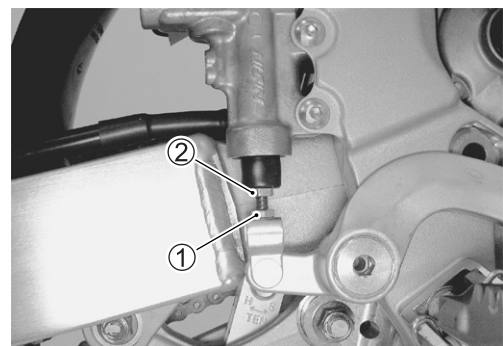
BRAKE PEDAL HEIGHT ADJUSTMENT

Adjust the rear brake pedal height as follows:

- Loosen the lock-nut ①.
- Adjust the brake pedal height ③ by turning the adjuster ② to locate the pedal 0 – 10 mm (0 – 0.39 in) below the top face of the footrest.
- Tighten the lock-nut ①.

DATA Brake pedal height ③: 0 – 10 mm (0 – 0.39 in)

🔧 Master cylinder rod lock-nut: 6 N·m (0.6 kgf·m, 4.5 lb-ft)

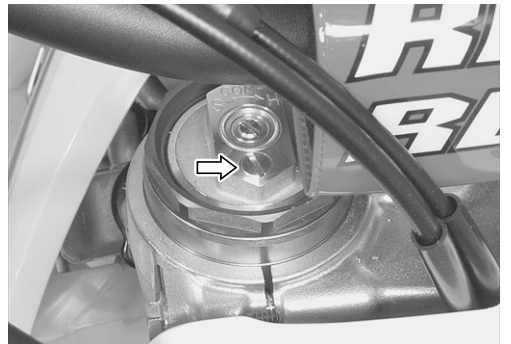


FRONT FORK

- 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.
- If any defects are found, replace the front fork with a new one.

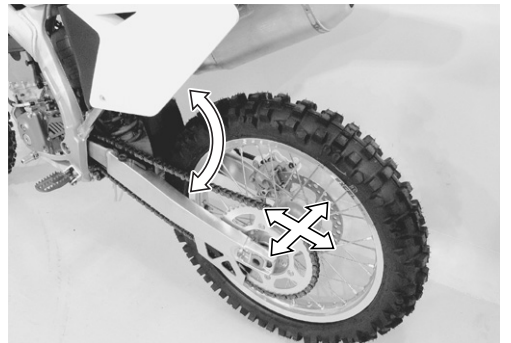


- Place a stand under the chassis tube to lift the front wheel off the ground.
- Remove the air bleed screw and equalize the air pressure in the front forks to atmospheric pressure.
- Refit the air bleed screw.



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.
- Inspect that the rear suspension has play or binds by moving the swingarm up and down, and right and left.
- Replace the defective parts with a new one if necessary.



WHEELS AND TIRES

WHEEL RIM AND TIRES INSPECTION

- Inspect the wheel and tires for damage.
- Inspect the wheel bearing for rattles. (👉 15-4)
- Inspect the wheel rim runout. (👉 15-4)
- Replace the defective parts with a new one if necessary.



SPOKE NIPPLE AND RIM LOCK INSPECTION

- 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.

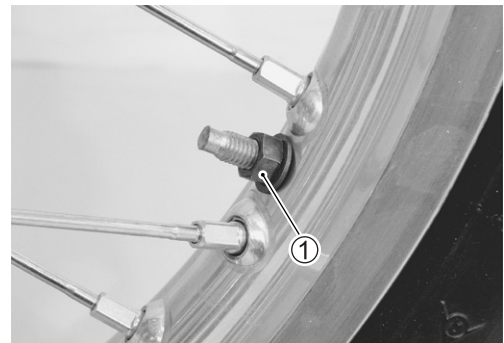
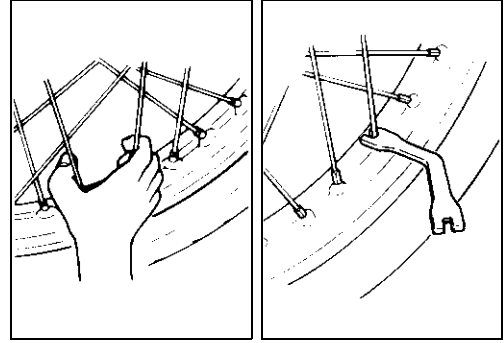
 **Spoke nipple: 6 N·m (0.6 kgf-m, 4.5 lb-ft)**

CAUTION

Improperly tightening 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.

- Inspect the rim lock ① for tightness.



TIRE PRESSURE

- Inspect front and rear tire pressure.

DATA 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 back and forward. If the steering has play or binds, inspect steering stem head nut tightness and steering bearings. (👉 17-20)



LUBRICATION

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

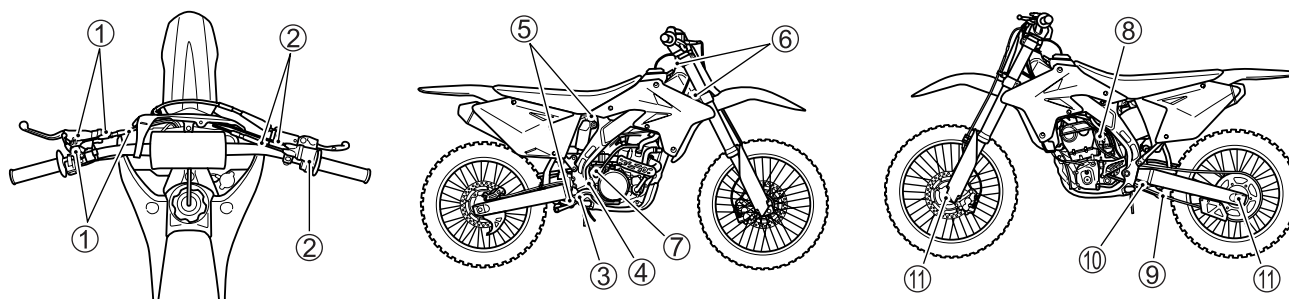
No.	ITEM	LUBRICANT	FREQUENCY	COMMENTS
①	Clutch inner cable, lever Hot starter inner cable, lever	A	Pre-race and between every race	Run oil through cables until it exits the lower end. Lube the cable ends where they pivot.
②	Throttle grip, throttle housing, cable	A	Pre-race	Lightly grease the inside of 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	Kick starter lever	C	Pre-race	Grease the kick starter lever pivot.
⑧	Starter shaft	A	Pre-race	Lightly oil the plunger shaft.
⑨	Drive chain	B	Pre-race and between every race	Keep chain thoroughly lubed at all times. Always check wear and alignment.
⑩	Cushion lever dust seals	A	Pre-race	Grease the seals.
⑪	Front and rear wheels	A	Pre-race	Grease the bearing and seals.

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 equivalent grease) 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.

COMPRESSION PRESSURE CHECK

The compression pressure reading of a cylinder is a good indicator of its internal condition. The decision to replace the cylinder is often based on the results of a compression test.

COMPRESSION PRESSURE SPECIFICATION (Automatic decomp. actuated)

Standard
400 – 800 kPa (4.0 – 8.0 kgf/cm ² , 57 – 114 psi)

Low compression pressure can indicate any of the following conditions:

- * Excessively worn cylinder walls
- * Worn piston or piston rings
- * Piston rings stuck in grooves
- * Poor valve seating
- * Valve clearance out of adjustment
- * Ruptured or otherwise defective cylinder head gasket
- * Decomp. trouble

COMPRESSION TEST PROCEDURE

NOTE:

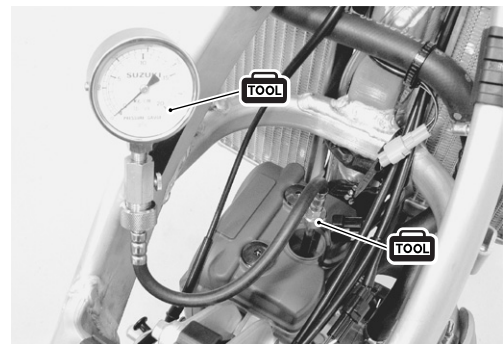
- * Before testing the engine for compression pressure, make sure that the cylinder head nuts are tightened to the specified torque values and the valves are properly adjusted.
- * Warm up the engine before testing.

Remove the related parts and test the compression pressure in the following manner:

- Remove the seat. (☞ 5-2)
- Remove the fuel tank. (☞ 5-2)
- Remove the spark plug. (☞ 2-7)
- Install the compression gauge and adaptor in the spark plug hole. Make sure that the connection is tight.
- Keep the throttle grip in the fully opened position.
- Kick energetically the kick starter lever about 5 times to turn the engine.
- Record the maximum gauge reading as the cylinder compression.

 **09913-10750: Compression gauge adaptor**
09915-64512: Compression gauge

- Reinstall the removed parts.



OIL PRESSURE CHECK

Check the oil pressure periodically. This will give a good indication of the condition of the moving parts.

DATA Oil pressure:

20 kPa (0.2 kgf/cm², 2.8 psi) at 6 000 r/min, oil temp. at 50 °C (122 °F)

Low or high oil pressure can indicate any of the following conditions:

LOW OIL PRESSURE

- * Clogged oil filter
- * Oil leakage from the oil passage
- * Damaged oil seal
- * Defective oil pump
- * Combination of the above items

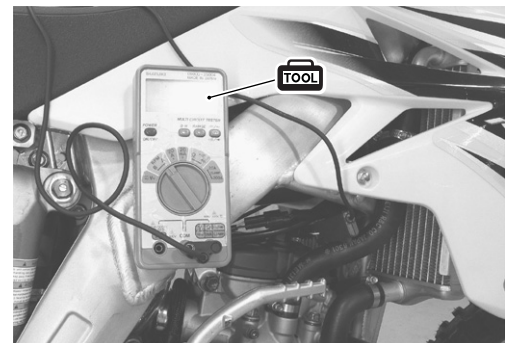
HIGH OIL PRESSURE

- * Engine oil viscosity is too high
- * Clogged oil passage
- * Combination of the above items

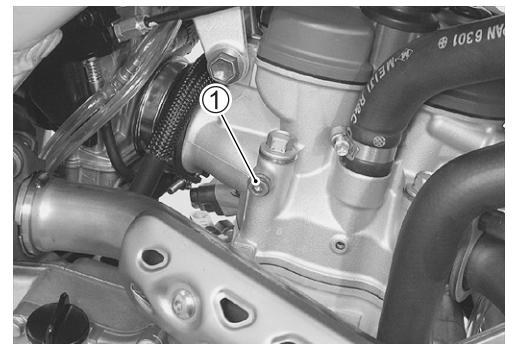
OIL PRESSURE CHECK PROCEDURE

- Connect the multi-circuit tester to the primary lead wire (W/B1).

TOOL 09900-25008: Multi-circuit tester set



- Remove the main oil gallery plug ①.
- Install the oil pressure gauge and adaptor into the main oil gallery.
- Warm up the engine.
- After warming up the engine, increase the engine speed to 6 000 r/min (observe the tachometer), and read the oil pressure gauge.



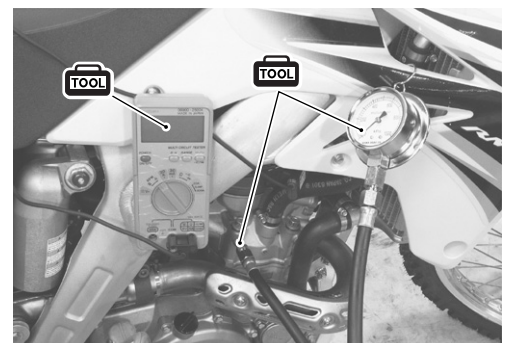
▲ WARNING

Do not remove the oil pressure gauge adapter when the engine is hot. Wait until engine cools.

- Install the oil gallery plug ①.

TOOL Oil gallery plug: 4,5 N·m (0.45 kgf-m, 3,25 lb-ft)

TOOL 09915-74511: Oil pressure gauge
09940-40211: Adaptor



– MEMO –

TROUBLESHOOTING

CONTENTS

ENGINE	3- 2
CARBURETOR	3- 6
RADIATOR (COOLING SYSTEM)	3- 6
CHASSIS	3- 7
BRAKES	3- 8
ELECTRICAL	3- 9

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	<p>Compression too low</p> <ul style="list-style-type: none"> • Valve clearance out of adjustment • Worn valve guides or poor seating of valves • Mistiming valves • Excessively worn piston ring • Worn-down cylinder bore • Poor seating of spark plug • Broken, cracked, or damaged piston • Defective automatic decomp. <p>Plug not sparking</p> <ul style="list-style-type: none"> • Fouled spark plug • Wet spark plug • Incorrect spark plug gap • Defective ignition coil/plug cap • Defective CDI unit • Open-circuited wiring connections • Defective magneto <p>No fuel reaching the carburetor</p> <ul style="list-style-type: none"> • Clogged fuel tank vent hose • Clogged or defective fuel valve • Clogged fuel hose • Defective carburetor float valve 	<p>Adjust</p> <p>Repair or replace</p> <p>Adjust</p> <p>Replace</p> <p>Replace</p> <p>Retighten</p> <p>Replace</p> <p>Clean or replace</p> <p>Replace</p> <p>Clean and dry</p> <p>Adjust</p> <p>Replace</p> <p>Replace</p> <p>Repair or replace</p> <p>Replace</p> <p>Clean or replace</p> <p>Clean or replace</p> <p>Clean or replace</p> <p>Clean or replace</p>
Engine idles poorly.	<ul style="list-style-type: none"> • Valve clearance out of adjustment • Valve timing out of adjustment • Poor seating of valves • Worn valve guide • Worn down camshafts • Incorrect spark plug gap • Defective ignition coil/plug cap • Defective CDI unit • Defective magneto • Defective throttle position sensor • Sucking air from intake pipe • Insufficient throttle cable play 	<p>Adjust</p> <p>Adjust</p> <p>Repair or replace</p> <p>Replace</p> <p>Replace</p> <p>Adjust</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Adjust or replace</p> <p>Retighten or replace</p> <p>Adjust</p>
Engine stalls often.	<ul style="list-style-type: none"> • Dirty spark plug • Defective ignition system • Clogged fuel hose • Valve clearance out of adjustment 	<p>Replace</p> <p>Replace</p> <p>Clean</p> <p>Adjust</p>

Complaint	Symptom and possible causes	Remedy
Noisy engine	<p>Excessive valve chatter</p> <ul style="list-style-type: none"> • Too large valve clearance • Weakened or broken valve springs • Worn tappet or cam surface • Worn and burnt camshaft journal <p>Noise seems to come from piston</p> <ul style="list-style-type: none"> • Worn down piston or cylinder • Combustion chambers fouled with carbon • Worn piston pin or piston pin bore • Worn piston ring or ring groove <p>Noise seems to come from timing chain</p> <ul style="list-style-type: none"> • Stretched cam chain • Worn sprockets <p>Noise seems to come from clutch</p> <ul style="list-style-type: none"> • Worn splines of countershaft or clutch sleeve hub • Worn teeth of clutch plates • Distorted clutch plates, driven and drive • Worn clutch release bearing <p>Noise seems to come from crankshaft</p> <ul style="list-style-type: none"> • Rattling bearings due to wear • Worn and burnt big-end bearing • Worn and burnt journal bearings <p>Noise seems to come from transmission</p> <ul style="list-style-type: none"> • Worn or rubbing gears • Worn splines • Worn bearings <p>Noise seems to come from water pump</p> <ul style="list-style-type: none"> • Worn or damaged impeller shaft • Worn or damaged oil seal • Contact between pump case and impeller 	<p>Adjust</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Clean</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Replace</p>
Engine runs poorly in high speed range.	<p>Defective engine internal/electrical parts</p> <ul style="list-style-type: none"> • Weakened valve springs • Worn down camshafts • Valve timing out of adjustment • Incorrect spark plug gap • Ignition not advanced sufficiently due to poorly working timing advance system (Pick-up coil, throttle position sensor and CDI unit) • Defective ignition coil/plug cap • Defective magneto • Clogged air cleaner element • Clogged fuel hose, resulting in inadequate fuel supply to carburetor • Clogged fuel tank vent hose 	<p>Replace</p> <p>Replace</p> <p>Adjust</p> <p>Adjust</p> <p>Replace</p> <p>Replace</p> <p>Replace</p> <p>Clean</p> <p>Clean and replace</p> <p>Clean and replace</p>

Complaint	Symptom and possible causes	Remedy
Engine lacks power.	<p>Defective engine internal parts</p> <ul style="list-style-type: none"> • Loss of valve clearance • Weakened valve springs • Valve timing out of adjustment • Worn piston ring or cylinder • Poor seating of valves • Fouled spark plug • Incorrect spark plug • Too much engine oil <p>Other factors</p> <ul style="list-style-type: none"> • Defective carburetor • Sucking air from intake pipe • Clogged air cleaner element • Clogged muffler 	<p>Adjust Replace Adjust Replace Repair Replace Replace Drain out excess oil</p> <p>See carburetor section Retighten or replace Clean or replace Clean or replace</p>
Engine overheats	<p>Defective engine internal parts</p> <ul style="list-style-type: none"> • Heavy carbon deposit on piston crowns • Not enough oil in the engine • Defective oil pump or clogged oil circuit • Sucking air from intake pipe • Use incorrect engine oil <p>Other factors</p> <ul style="list-style-type: none"> • Mixture too lean • Ignition timing is too advanced due to defective timing advance system (Pick-up coil, throttle position sensor and CDI unit) • Defective cooling system • Drive chain is too tight 	<p>Clean Add oil Replace or clean Retighten or replace Change</p> <p>Carburetor tuning Replace</p> <p>See radiator section Adjust</p>
Dirty or heavy exhaust smoke	<ul style="list-style-type: none"> • Too much engine oil in the engine • Worn piston ring or cylinder • Worn valve guides • Scored or scuffed cylinder wall • Worn valves stems • Defective stem seals • Worn oil ring side rails 	<p>Drain out excess oil Replace Replace Replace Replace Replace Replace</p>

Complaint	Symptom and possible causes	Remedy
Slipping clutch	<ul style="list-style-type: none"> • Weakened clutch springs • Worn or distorted pressure plate • Worn or distorted clutch plates • Insufficient clutch cable play 	Replace Replace Replace Adjust
Dragging clutch	<ul style="list-style-type: none"> • Some clutch spring weakened while others are not • Distorted pressure plate or clutch plates 	Replace Replace
Transmission will not shift.	<ul style="list-style-type: none"> • Broken gearshift cam • Distorted gearshift forks • Worn gearshift pawl 	Replace Replace Replace
Transmission will not shift back.	<ul style="list-style-type: none"> • Broken return spring on shift shaft • Rubbing or stickily shift shaft • Distorted or worn gearshift forks 	Replace Repair or replace Replace
Transmission jumps out of gear.	<ul style="list-style-type: none"> • Worn shifting gears on driveshaft or countershaft • Distorted or worn gearshift forks • Weakened stopper spring on gearshift stopper • Worn gearshift cam plate 	Replace Replace Replace Replace

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Starting difficulty.	<ul style="list-style-type: none"> • Improperly working starter knob • Improperly working hot starter lever • Clogged starter jet passage • Maladjusted pilot screw • Maladjusted throttle stop screw • Clogged slow jet or air passage • Sucking air from intake pipe 	<p>—</p> <p>—</p> <p>Clean</p> <p>Adjust</p> <p>Adjust</p> <p>Clean or replace</p> <p>Retighten or replace</p>
Idling or low-speed trouble	<ul style="list-style-type: none"> • Maladjusted pilot screw • Clogged slow jet or air passage • Clogged main nozzle or air passage • Sucking air from intake pipe 	<p>Adjust</p> <p>Clean or replace</p> <p>Clean or replace</p> <p>Retighten or replace</p>
Medium or high-speed trouble	<ul style="list-style-type: none"> • Clogged main jet • Worn down jet float or main nozzle • Clogged main nozzle or air passage • Improperly working throttle valve 	<p>Clean or replace</p> <p>Clean or replace</p> <p>Clean or replace</p> <p>Adjust</p>
Overflow and fuel level fluctuations	<ul style="list-style-type: none"> • Worn or damaged float valve • Foreign matter on the float valve • Broken float valve spring • Improperly working float • Incorrect float chamber fuel level 	<p>Replace</p> <p>Clean or replace</p> <p>Replace</p> <p>Adjust or replace</p> <p>Adjust float height</p>

RADIATOR (COOLING SYSTEM)

Complaint	Symptom and possible causes	Remedy
Engine overheats	<ul style="list-style-type: none"> • Not enough engine coolant • Radiator core clogged with dirt or scale • Clogged water passage • Air trapped in the cooling circuit • Defective water pump • Use incorrect coolant 	<p>Add coolant</p> <p>Clean</p> <p>Clean</p> <p>Bleed air</p> <p>Replace</p> <p>Replace</p>

CHASSIS

Complaint	Symptom and possible causes	Remedy
Heavy steering	<ul style="list-style-type: none"> • Overtightened steering stem nut • Broken bearing in steering stem • Distorted steering stem • Not enough pressure in tires 	Adjust Replace Replace Adjust
Wobbly handlebars	<ul style="list-style-type: none"> • Loss of balance between right and left front forks • Distorted front fork • Distorted front axle or crooked tire • Loose steering stem nut • Worn or incorrect tire or wrong tire pressure • Worn bearing/race in steering stem 	Adjust Repair or replace Replace Adjust Adjust or replace Replace
Wobbly front wheel	<ul style="list-style-type: none"> • Distorted wheel rim • Worn front wheel bearings • Defective or incorrect tire • Loose axle or axle pinch bolt • Incorrect front fork oil level • Loose spork nipple 	Replace Replace Replace Retighten Adjust Retighten
Front suspension too soft	<ul style="list-style-type: none"> • Weakened springs • Not enough fork oil • Wrong weight fork oil • Improperly set front fork damping force adjuster 	Replace Replenish Replace Adjust
Front suspension too stiff	<ul style="list-style-type: none"> • Too viscous fork oil • Too much fork oil • Bent front fork • Improperly set front fork damping force adjuster 	Replace Drain excess oil Replace Adjust
Noisy front suspension	<ul style="list-style-type: none"> • Not enough fork oil • Loose bolts on suspension • Broken spring 	Replenish Retighten Replace
Wobbly rear wheel	<ul style="list-style-type: none"> • Distorted wheel rim • Worn rear wheel bearings or swingarm bearings • Defective or incorrect tire • Worn swingarm and rear suspension bearings • Loose nuts or bolts on rear suspensions 	Replace Replace Replace Replace Retighten
Rear suspension too soft	<ul style="list-style-type: none"> • Weakened spring of shock absorber • Improperly set shock absorber spring force adjuster • Leakage of oil or gas shock absorber • Improperly set shock absorber damping force adjuster 	Replace Adjust Repair or replace Adjust
Rear suspension too stiff	<ul style="list-style-type: none"> • Bent shock absorber shaft • Improperly set shock absorber spring force adjuster • Bent swingarm pivot shaft • Worn swingarm and rear suspension bearings • Improperly set shock absorber damping force adjuster 	Replace Adjust Replace Replace Adjust
Noisy rear suspension	<ul style="list-style-type: none"> • Loose nuts or bolts on rear suspension • Worn swingarm and suspension bearings 	Retighten Replace

BRAKES

Complaint	Symptom and possible causes	Remedy
Insufficient brake power	<ul style="list-style-type: none"> • Leakage of brake fluid from hydraulic system • Worn pads • Oil adhesion of engaging surface of pads • Worn disc • Air in hydraulic system • Not enough brake fluid in the reservoir 	Repair or replace Replace Clean disc and pads Replace Bleed air Replenish
Brake squeaking	<ul style="list-style-type: none"> • Carbon adhesion on pad surface • Tilted pads • Worn pads • Damaged wheel bearings • Loosen front wheel axle or rear wheel axle • Foreign material in brake fluid • Clogged return port of master cylinder 	Repair surface with sandpaper Correct pad fitting or replace Replace Replace Tighten to specified torque Replace brake fluid Disassemble and clean master cylinder
Excessive brake lever stroke	<ul style="list-style-type: none"> • Air in hydraulic system • Insufficient brake fluid • Improper quality of brake fluid 	Bleed air Replenish fluid to specified level; bleed air Replace with correct fluid
Leakage of brake fluid	<ul style="list-style-type: none"> • Insufficient tightening of connection joints • Cracked brake hose • Worn piston or seal • Worn cylinder or cup 	Tighten to specified torque Replace Replace piston or seal Replace cylinder or cup
Brake drags	<ul style="list-style-type: none"> • Rusty part • Insufficient brake lever or brake pedal pivot lubrication 	Clean and lubricate Lubricate

ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking	<ul style="list-style-type: none"> • Defective ignition coil/plug cap • Defective spark plug • Defective CDI unit • Defective magneto • Open-circuited wiring connections 	Replace Replace Replace Replace Check and repair
Spark plug soon become fouled with carbon.	<ul style="list-style-type: none"> • Mixture too rich • Idling speed set too high • Incorrect gasoline • Dirty air cleaner element • Too cold spark plug 	Carburetor tuning Adjust throttle stop screw Change Replace Replace with hot type plug
Spark plug become fouled too soon.	<ul style="list-style-type: none"> • Worn piston ring • Worn piston or cylinder • Excessive clearance of valve stems in valve guides • Worn stem seals 	Replace Replace Replace Replace
Spark plug electrodes overheat or burn	<ul style="list-style-type: none"> • Too hot spark plug • Overheated the engine • Loose spark plug • Too lean mixture 	Replace with cold type plug Tune up Retighten Carburetor tuning
Magneto does not charge.	<ul style="list-style-type: none"> • Open- or short-circuited lead wires, or loose lead connections • Short-circuited, grounded or open stator coil 	Repair or replace Replace

– MEMO –

MACHINE TUNING

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CARBURETOR TUNING

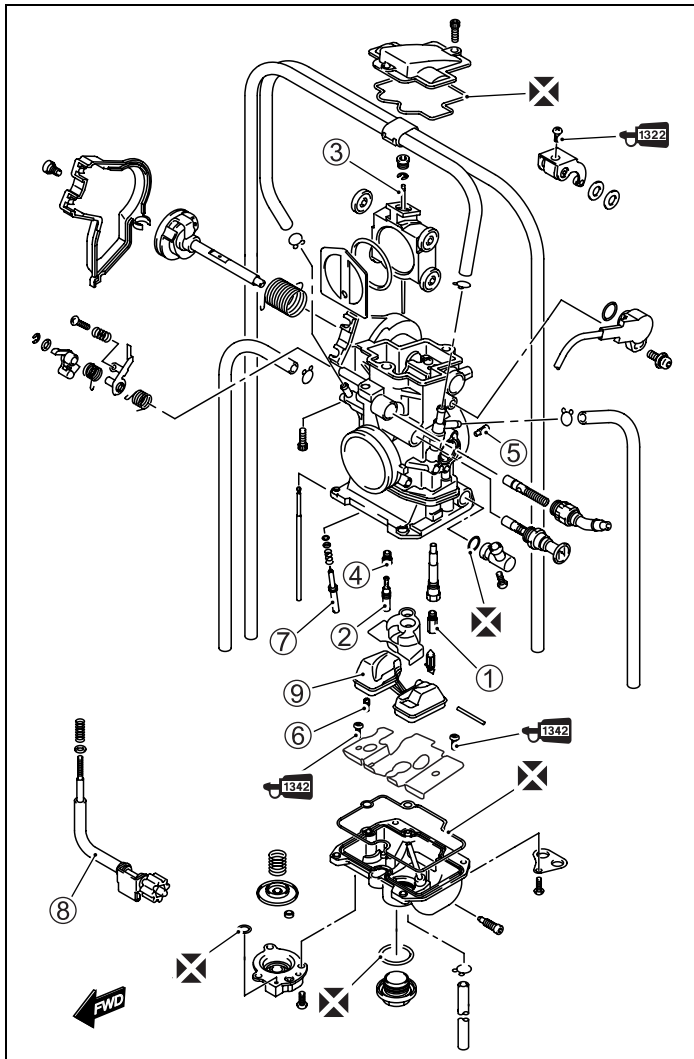
The carburetion of your motorcycle is carefully selected after extensive testing. You will find that the carburetion will function smoothly under many varied operating conditions. For best results we recommend that the adjustments and carburetion jetting be left "as is" from the factory.

Some riders may operate their motorcycle under extreme operating conditions such as; very high altitudes or extreme cold and hot temperatures. In these circumstances the jetting of the carburetor or other adjustments may need to be altered slightly. Riders who are not familiar with the operation and jetting procedures of the KEIHIN carburetor should have their local authorized Suzuki dealer perform these alterations. Mechanically experienced riders can alter the carburetor settings based on the following information and specifications.

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; 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.

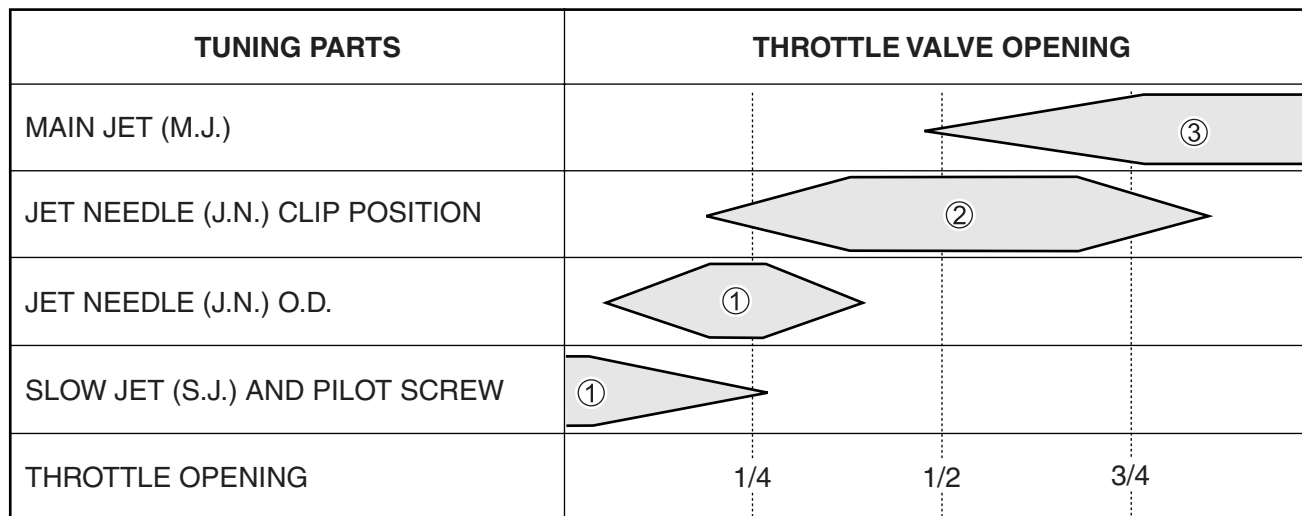


CARBURETOR SPECIFICATIONS

①	* Main jet (M.J.)	#170
②	* Slow jet (S.J.)	#45
③	* Jet needle (J.N.)	NLCT-4th
④	Starter jet	#75
⑤	Slow air jet (S.A.J.)	#100
⑥	Leak jet	#40
⑦	* Pilot screw	1 and 1/2 turns back
⑧	Throttle stop screw	Adjust to the specified idle speed.
⑨	Float height	8 mm (0.31 in)

Setting parts		Parts No.
Main jet	#165	09491-33009
Main jet	#175	09491-35009
Jet needle	NLDT	13383-10H50

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



① SLOW SYSTEM ② INTERMEDIATE SYSTEM ③ MAIN SYSTEM

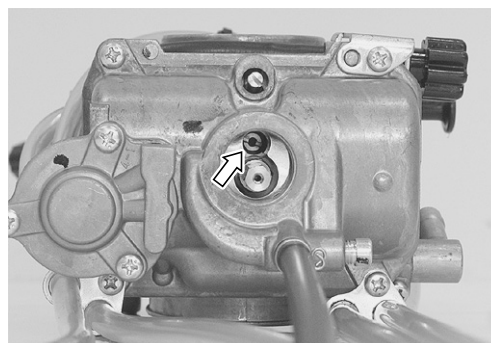
When performing carburetor tuning, first find out in what throttle opening range an improper air/fuel mixture is supplied, by checking the color of exhaust smoke, spark plug, throttle response, power, etc. Second, replace or adjust the part(s) related to the throttle opening range by referring to the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

SLOW SYSTEM

SLOW JET (S.J.)

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

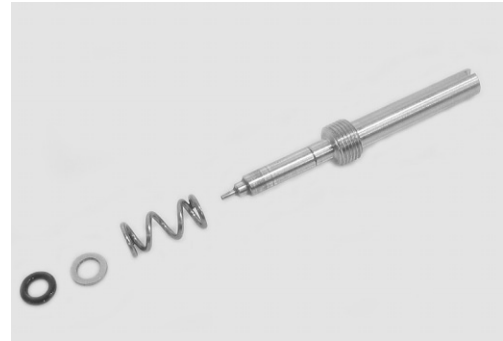
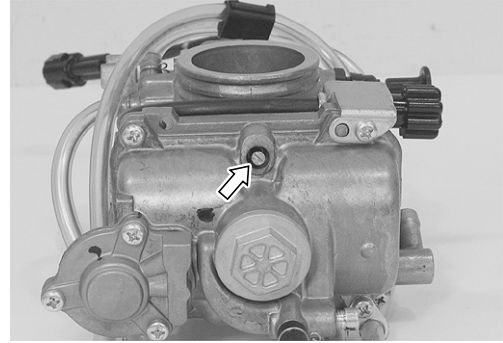
Air/fuel mixture	SIZE	P/NO.
	#35	09492-35019
	#40	09492-40022
	#42	09492-42019
	#45	09492-45032
	#48	09492-48013
	#50	09492-50023
	#52	09492-52011
	#55	09492-55017
	#58	09492-58001
	#60	09492-60016



PILOT SCREW (P.S.)

The pilot screw controls the volume of the air/fuel mixture in slow range. Pilot screw specifications indicate the number of turns back from the lightly seated position.

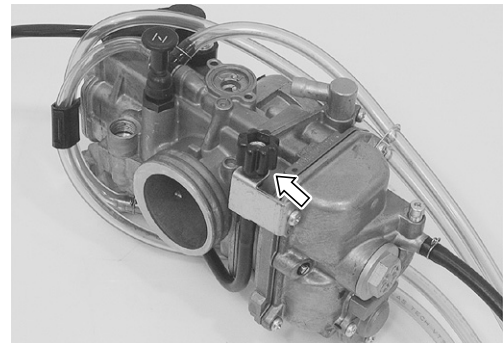
Air/fuel mixture	Pilot screw turn back
<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">Lean</div> <div style="font-size: 2em; margin-right: 10px;">↑</div> <div style="font-size: 2em; margin-right: 10px;">↓</div> <div style="margin-left: 10px;">Rich</div> </div>	3/4 turn back
	1 turn back
	1 and 1/4 turns back
	1 and 1/2 turns back
	1 and 3/4 turns back
	2 turns back
Rich	2 and 1/4 turns back



THROTTLE STOP SCREW

The throttle stop screw determines the full closed position of the throttle valve.

- Turn it clockwise to raise the throttle valve.
- Turn it counterclockwise to lower 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.

ENGINE IDLE SPEED..... **2-20**

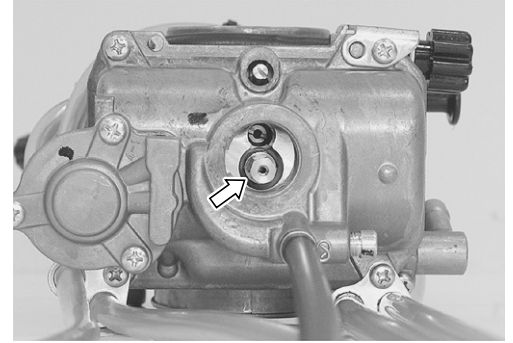
MAIN SYSTEM

MAIN JET (M.J.)

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

Air/fuel mixture	SIZE	P/NO.
Lean  Rich	#150	09491-30018
	#152	09491-30019
	#155	09491-31012
	#158	09491-31013
	#160	09491-32010
	#162	09491-32011
	* #165	09491-33009
	#168	09491-33010
	#170	09491-34010
	#172	09491-34011
	* #175	09491-35009
	#178	09491-35010
	#180	09491-36008
	#185	09491-37008
	#190	09491-38011

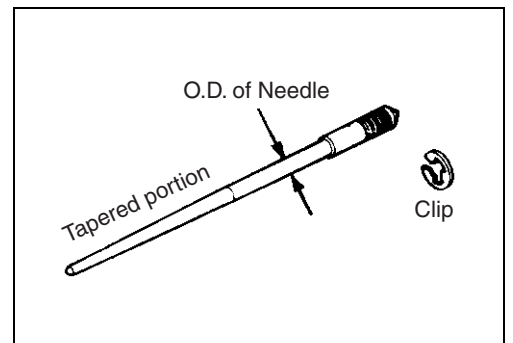
* Included alternated parts



INTERMEDIATE SYSTEM

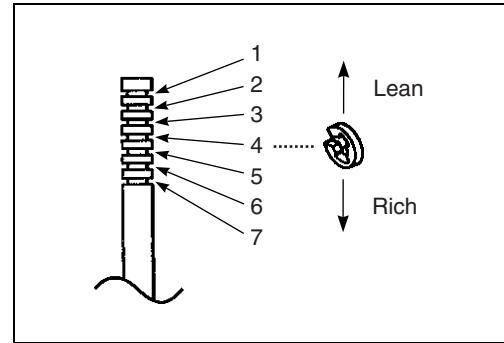
JET NEEDLE (J.N.)

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



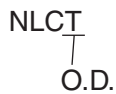
Jet needle clip position

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 main nozzle becomes, resulting in a richer air/fuel mixture ratio.



Air/fuel mixture	Needle type and clip position
<div style="display: flex; align-items: center; justify-content: center;"> ↑ ↓ </div>	NLDT-1st
	NLCT-1st
	NLDT-2nd
	NLCT-2nd
	NLDT-3rd
	NLCT-3rd
	NLDT-4th
	NLCT-4th
	NLDT-5th
	NLCT-5th
	NLDT-6th
	NLCT-6th
	NLDT-7th
	NLCT-7th

Needle number



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

Air/fuel mixture	Needle Number	Part No.	O.D.	
<div style="display: flex; align-items: center; justify-content: center;"> ↑ ↓ </div>	NLDV	13383-10H90	2.795	
	NLCV	13383-10H80		
	NLDU	13383-10H70	2.785	
	NLCU	13383-10H60		
	* NLDT	13383-10H50	2.775	
	NLCT	13383-10H40		
	NLDS	13383-10H30	2.765	
	NLCS	13383-10H20		
	Rich	NLDR	13383-10H10	2.755
		NLCR	13383-10H00	

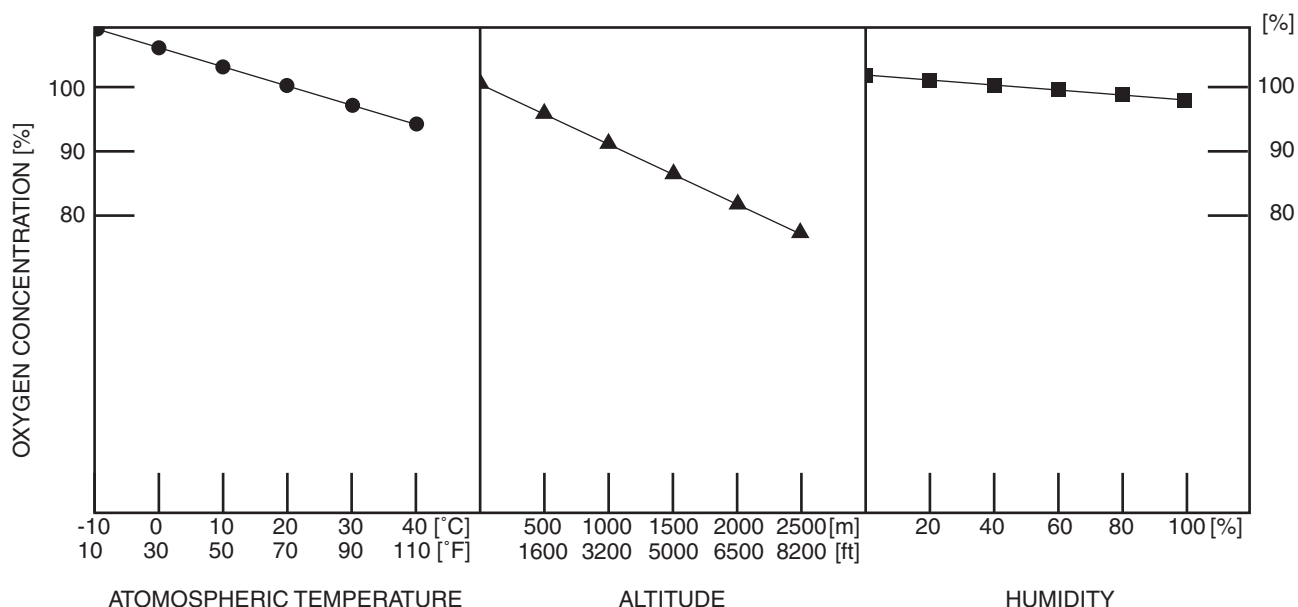
* Included alternated parts

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 hardly changes in volume even when such environmental conditions change. Therefore, increase in oxygen concentration will make the air/fuel mixture richer and decrease will make it lean.

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

JUDGING AIR/FUEL MIXTURE

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

When air/fuel mixture is too rich

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

When air/fuel mixture is too lean

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

Tuning Procedure


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

Carburetor standard setting


- Main jet: #170
- Jet needle: NLCT-4th
- Slow jet: #45
- Pilot screw: 1 and 1/2 turns back

INCLUDED PARTS AND OPTIONAL PARTS

Main jet

Air/fuel mixture	SIZE	P/NO.
	#150	09491-30018
	#152	09491-30019
	#155	09491-31012
	#158	09491-31013
	#160	09491-32010
	#162	09491-32011
	* #165	09491-33009
	#168	09491-33010
	#170	09491-34010
	#172	09491-34011
	* #175	09491-35009
	#178	09491-35010
	#180	09491-36008
	#185	09491-37008
#190	09491-38011	

Slow jet

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

Jet needle

Air/fuel mixture	SIZE	P/NO.
Lean ↑ ↓ Rich	NLDV	13383-10H90
	NLCV	13383-10H80
	NLDU	13383-10H70
	NLCU	13383-10H60
	* NLDT	13383-10H50
	NLCT	13383-10H40
	NLDS	13383-10H30
	NLCS	13383-10H20
	NLDR	13383-10H10
	NLCR	13383-10H00

SHADED: STANDARD

* : INCLUDED ALTERNATE PARTS

NONE : OPTIONAL PARTS

① Adjustment of slow system

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

Ex. Slow jet #45

If air/fuel mixture is rich, replace it with #42 slow jet. If air/fuel mixture is lean, replace it with #48 slow jet.

② Adjustment of main system

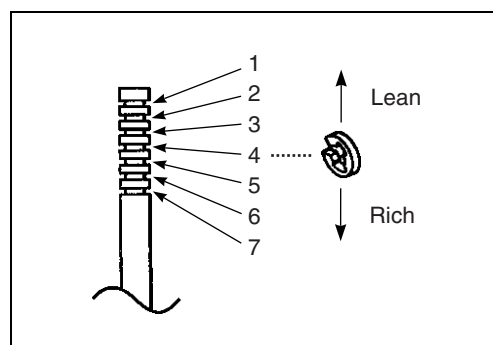
With the throttle opened 3/4 to full, make main system adjustment monitoring the air/fuel mixture condition after completion of slow system settings.

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

Ex. Main jet #170

If air/fuel mixture is rich, replace it with #168 main jet. If air/fuel mixture is lean, replace it with #172 main jet.

③ Adjustment of intermediate system



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

④ Final adjustment of slow system

After a proper standard setting has been obtained by the procedure ① through ③, fine tune the carburetor according to the actual race conditions.

- 1) Adjust the air/fuel mixture by turning the pilot screw within 3/4 – 2 and 1/4 turns back.

Air/fuel mixture	Pilot screw turn back
Lean ↑ ↓ Rich	3/4 turn back
	1 turn back
	1 and 1/4 turns back
	1 and 1/2 turns back
	1 and 3/4 turns back
	2 turns back
	2 and 1/4 turns back

- 2) If the mixture can not be adjusted by the pilot screw within 3/4 – 2 and 1/4 turns back range, readjust the slow system ①.

⑤ Final adjustment of intermediate system

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

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. (🔧 2-33)
 - * Front fork damage and oil leakage. (🔧 2-33)
 - * Tire pressure. (🔧 2-34)
 - * Tire and wheel damage. (🔧 2-33)
 - * Spoke nipple tension and rim lock tightness. (🔧 2-34)
 - * Steering movement. (🔧 2-34)

COMPRESSION DAMPING FORCE ADJUSTMENT

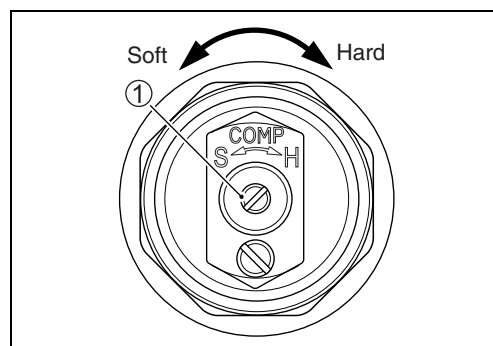
- Turn the adjust screw clockwise until it stops (full hard position).

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 adjust screw ① counterclockwise and the 7 click is the standard position.

DATA Compression damping force adjuster
Standard setting: 7 clicks turn back



REBOUND DAMPING FORCE ADJUSTMENT

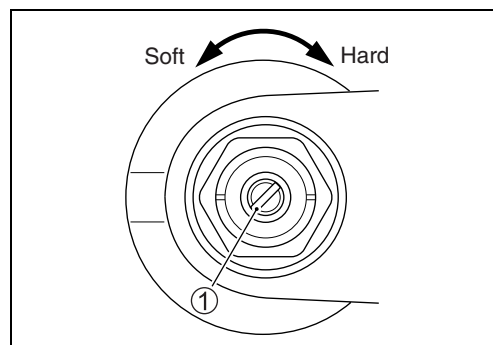
- Turn the adjuster screw clockwise until it stops (full hard position).

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 adjust screw ① counterclockwise and the 14 click is the standard position.

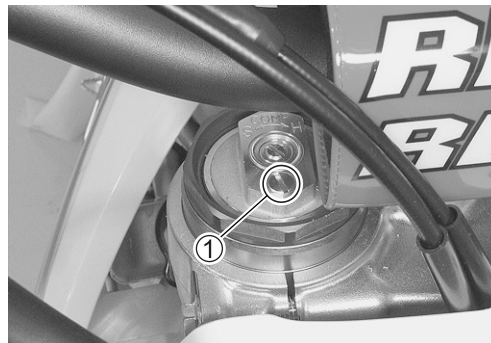
DATA Rebound damping force adjuster
Standard setting: 14 clicks turn back



OIL QUANTITY MINOR ADJUSTMENT

ADDING THE FORK OIL

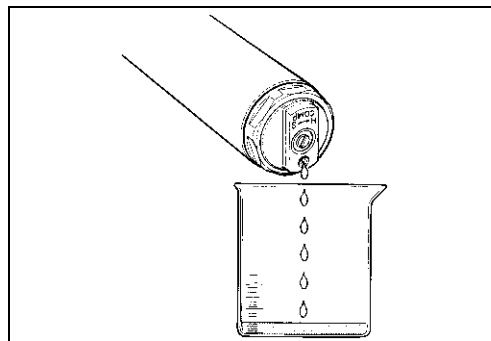
- Remove the air bleed screw ①.
- Add the fork oil with a injector from the air bleed hole.



REDUCING THE FORK OIL

- Remove the front forks. (↖ 17-4)
- Remove the air bleed screw.
- Leaning the front fork, reduce the fork oil from the air bleed hole.

Front fork tuning procedure (↖ 4-16)



NOTE:

If 1 ml (0.034/0.035 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.

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. (☞ 17-4)
- Thoroughly clean the fork before disassembly.

CAUTION

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

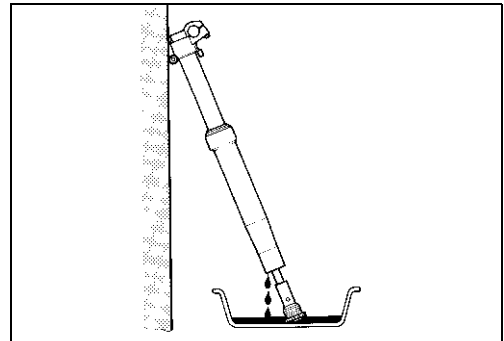
Scratches or other damage on the inner tube or on the oil seal lip will cause oil leak.

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. (☞ 17-5)
- Loosen and remove the fork cap bolt (sub-tank) from the outer tube and slowly slide down the outer tube. (☞ 17-5)

09941-53630: Front fork top cap wrench

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

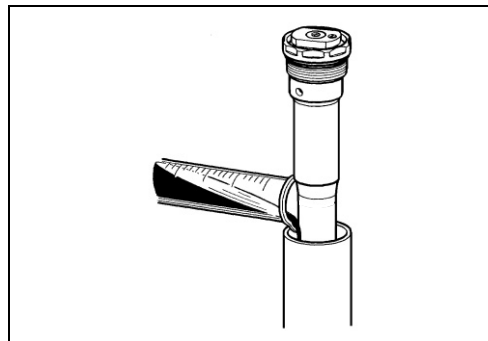


- Force out the remaining oil using compressed air completely.



- 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	51171-37FD0	4.2 N/mm (0.42 kgf/mm)	I	365 ml (12.34/12.85 US/lmp oz)	330 – 424 ml (11.15/11.62 – 14.33/14.93 US/lmp oz)
STD	51171-37FC0	4.4 N/mm (0.44 kgf/mm)	III	360 ml (12.17/12.68 US/lmp oz)	325 – 419 ml (10.99/11.44 – 14.16/14.75 US/lmp oz)
Hard	51171-37FE0	4.6 N/mm (0.46 kgf/mm)	II	355 ml (12.00/12.50 US/lmp oz)	320 – 414 ml (10.82/11.27 – 13.99/14.58 US/lmp 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). (👉 17-16)

TOOL 09941-53630: Front fork top cap wrench

- Install the front forks. (👉 17-17)

SPRING CHANGE

- Remove the front forks. (☞ 17-4)
- Thoroughly clean the fork before disassembly.


CAUTION

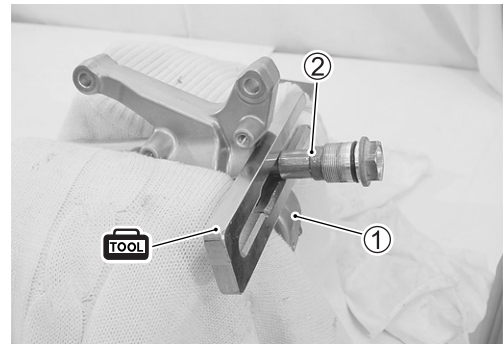
The fork oil quantity must be adjusted equally on both fork legs to provide equal performance.

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

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. (☞ 17-5)
- Loosen the center bolt completely. (☞ 17-6)
- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder bottom ① and lock-nut ②. (☞ 17-6)

 **09910-20115: Conrod holder**

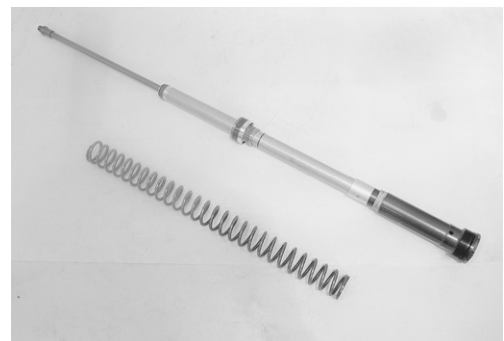


- Hold the lock-nut with a wrench and remove the center bolt. (☞ 17-6)
- Remove the push rod. (☞ 17-6)
- Remove the damper rod assembly and fork spring. (☞ 17-7)
- Hold the front fork inverted position for more than 20 minutes the allow the fork oil to fully drain. (☞ 4-12)
- Force out the remaining oil using compressed air completely. (☞ 4-12)

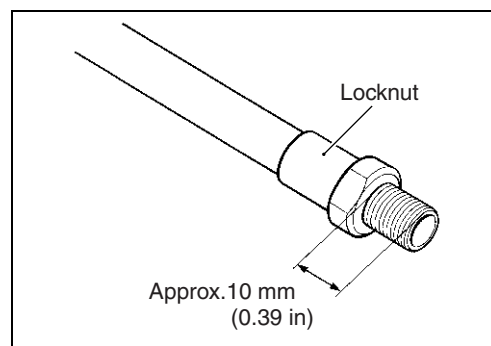



- Replace the spring.

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



- Make sure approx. 10 mm (0.39 in) of inner rod thread is exposed on the end. (👉 17-14)



- Install the damper rod assembly. (👉 17-14)
- Insert the push rod into the inner rod.
- Insert the  shaped projection of center bolt into the push rod. (👉 17-15)

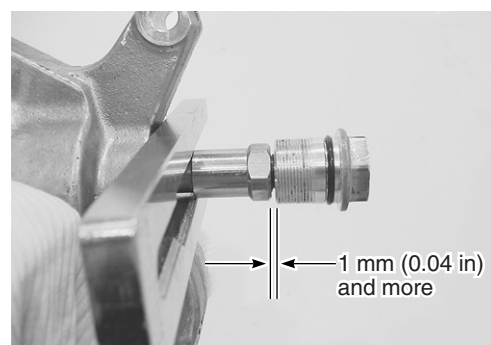


- Check or adjust the clearance between the lock-nut and center bolt to provide more than 1 mm (0.04 in) and more. (👉 17-15)
- Tighten the lock-nut/center bolt to the specified torque.

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

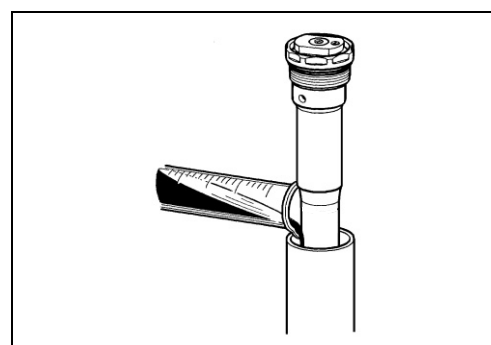
- Tighten the center bolt to the specified torque.

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



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

	SPRING	STD OIL QUANTITY	OIL QUANTITY ADJ. RANGE
Soft	51171-37FD0	365 ml (12.34/12.85 US/Imp oz)	330 – 424 ml (11.15/11.62 – 14.33/14.93 US/Imp oz)
STD	51171-37FC0	360 ml (12.17/12.68 US/Imp oz)	325 – 419 ml (10.99/11.44 – 14.16/14.75 US/Imp oz)
Hard	51171-37FE0	355 ml (12.00/12.50 US/Imp oz)	320 – 414 ml (10.82/11.27 – 13.99/14.58 US/Imp oz)



 **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 and rebound damping force following the instructions below.

SYMPTOM	SECTION	ADJUSTMENT PROCEDURE
Feels too hard overall	<ul style="list-style-type: none"> • Jump • Large bumps • Series of medium bumps 	<ol style="list-style-type: none"> 1. Adjust both compression and rebound damping force to a softer setting. 2. Decrease fork oil capacity. 3. Replace the spring with an optional softer one.
Feels too soft overall and bottoms	<ul style="list-style-type: none"> • Jump • Large bump • When braking 	<ol style="list-style-type: none"> 1. Adjust the compression damping force 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	<ul style="list-style-type: none"> • Jump 	<ol style="list-style-type: none"> 1. Decrease fork oil capacity.
Feels too soft near end of travel and bottoms harshly	<ul style="list-style-type: none"> • Jump • Large bump 	<ol style="list-style-type: none"> 1. Adjust the compression damping force to a stiffer setting. 2. Increase fork oil capacity.
Feels too hard in the beginning of stroke	<ul style="list-style-type: none"> • Jump • Large bump • Series of medium bumps • Series of small bumps 	<ol style="list-style-type: none"> 1. Adjust the compression damping force to a softer setting.
Feels too soft and unstable	<ul style="list-style-type: none"> • Series of medium bumps • Series of small bumps 	<ol style="list-style-type: none"> 1. Adjust the rebound damping force to a stiffer setting.
Bounces	<ul style="list-style-type: none"> • Jump • Large bump 	<ol style="list-style-type: none"> 1. Adjust the rebound damping force to a stiffer setting.
Bounces	<ul style="list-style-type: none"> • Series of small bumps 	<ol style="list-style-type: none"> 1. Adjust the rebound damping force 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 force, 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. (🔧 1-6)
- * Inspect the following items before attempting adjustment.
 - * Rear shock absorber damage and oil leakage. (🔧 2-33)
 - * Swingarm and links tightness. (🔧 2-33)
 - * Tire pressure. (🔧 2-34)
 - * Tire and wheel damage. (🔧 2-33)
 - * Spoke nipple tension and rim lock tightness. (🔧 2-34)

COMPRESSION DAMPING FORCE ADJUSTMENT

NOTE:

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

Low-side

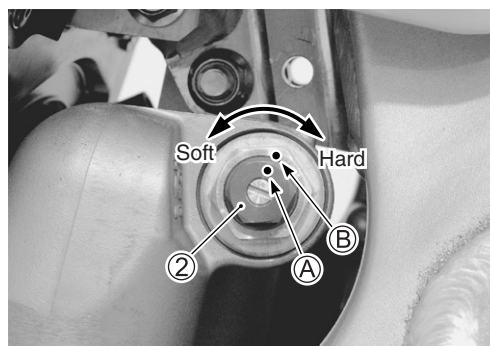
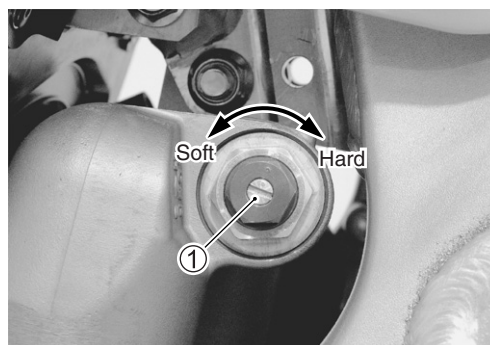
- Turn the adjust screw ① clockwise until it stops (full hard position).
- Turn the adjust screw ① counterclockwise about 8 clicks.

DATA Standard setting: (Lo-side) 8 clicks turn back

High-side

- Turn the adjust bolt ② clockwise until it stops (full hard position).
- Turn the adjust bolt ② counterclockwise about 1 turn until the two punch marks (A, B) align.

DATA Standard setting: (Hi-side) 1 turn back



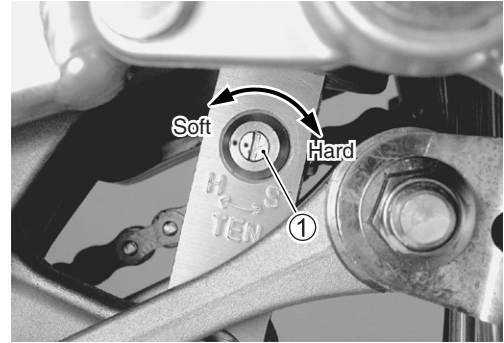
REBOUND DAMPING FORCE ADJUSTMENT

NOTE:

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

- Turn the adjust screw ① clockwise until it stops (full hard position).
- Turn the adjust screw ① counterclockwise about 7 clicks until the two punch marks align.

DATA Standard setting: 7 clicks turn back



SPRING PRE-LOAD ADJUSTMENT

- Place a block under the chassis tube.
- Remove the muffler and seat rail assembly. (➔ 18-3)
- 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: 5.6 mm (0.22 in) compressed from spring free length

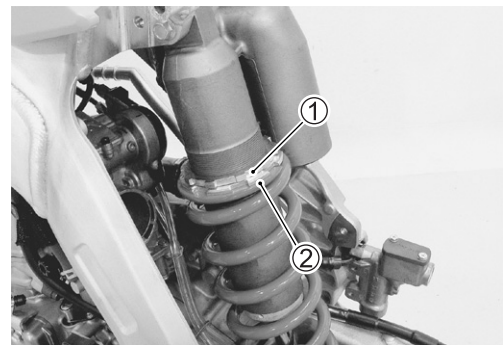
Spring set length adjustable range:

247 – 263 mm (9.72 – 10.35 in)

[at spring free length 265 mm (10.43 in)]

NOTE:

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

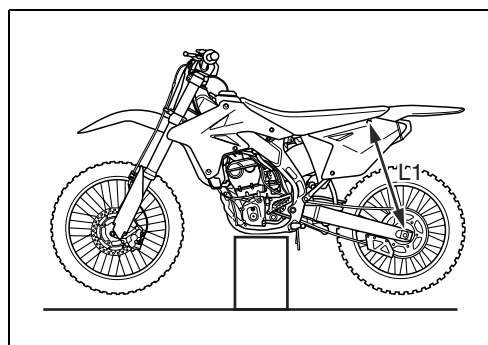


REAR SUSPENSION TUNING PROCEDURE

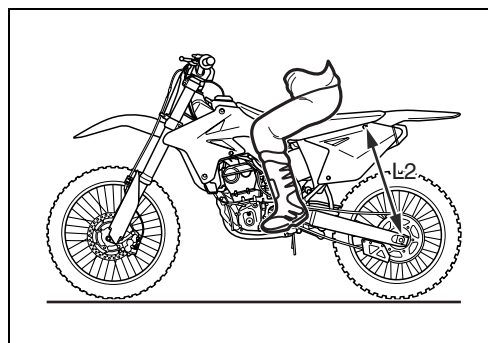
- Adjust the rear suspension according to the rider's weight and preference by referring to the table below.

Spring	Part No.	Spring rate	Marking paint	Set-length adjustable range
Soft	62211-10H20	50 N/mm (5.0 kgf/mm)	White	247 – 263 mm (9.72 – 10.35 in) [at spring free length 265 mm (10.43 in)]
	62211-10H10	52 N/mm (5.2 kgf/mm)	Yellow	
Standard	62211-10H00	54 N/mm (5.4 kgf/mm)	Green	
Hard	62211-37FM0	56 N/mm (5.6 kgf/mm)	Pink	
	62211-35G30	57 N/mm (5.7 kgf/mm)	Pink × 2	

- 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 (3.94 in).



When the sag measured is:	Adjustment procedure
Less than 100 mm (3.94 in)	Reduce spring pre-set length by turning the spring adjuster nut.
More than 100 mm (3.94 in)	Increase spring pre-set length by turning the spring adjuster nut.

After the sag measurement has been set 100 mm (3.94 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	<ul style="list-style-type: none"> • Jump • Series of bumps 	<ol style="list-style-type: none"> 1. Adjust the low speed compression damping force to a softer setting. (See note below.) 2. Adjust the rebound damping force to a softer setting. (See note below.) 3. Replace the spring with an optional softer one. (☞ 4-19) 4. Adjust the high speed compression damping force to a softer setting. (See note below.)
Kicks up	<ul style="list-style-type: none"> • Medium to large bumps 	<ol style="list-style-type: none"> 1. Adjust the low speed compression damping force and rebound damping force to a harder setting. (See note below.) 2. Adjust the high speed compression damping force to a harder setting. (See note below.)
Bottom feeling or feels too soft and unstable	<ul style="list-style-type: none"> • Jump • Large bump • Series of bumps 	<ol style="list-style-type: none"> 1. Adjust the low speed compression damping force to a harder setting. (See note below.) 2. Adjust the rebound damping force to a harder setting. (See note below.) 3. Replace the spring with an optional stiffer one. (☞ 4-19)
Feels harsh and hits bumps too harshly	<ul style="list-style-type: none"> • Jump • Large bump • Series of bumps 	<ol style="list-style-type: none"> 1. Adjust the low speed compression damping force to a harder setting. (See note below.) 2. Adjust the rebound damping force to a harder setting. (See note below.) 3. If bottom feeling become after adjusting above mentions, adjust the high speed compression damping force to a harder setting. (See note below.)
Provides poor traction	<ul style="list-style-type: none"> • Accelerating • Series of small bumps 	<ol style="list-style-type: none"> 1. Adjust the rebound damping force to a harder setting. (See note below.) 2. If traction feeling does not improve after adjusting above mention, adjust the low speed compression damping force to a softer setting. (See note below.) 3. If bottom feeling become after adjusting above mentions, adjust the high speed compression damping force to a harder setting. (See note below.)
Tends to sink front than rear	<ul style="list-style-type: none"> • Decelerating or braking 	<ol style="list-style-type: none"> 1. Adjust the high speed compression damping force to a softer setting. (See note below.) 2. Adjust the rebound damping force to a harder setting. (See note below.)

NOTE:

When adjusting the damping force 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 foot rest closest to you. Sharply push down. The front and rear suspensions should both collapse equally.

BALANCING TIPS

- Check for air pressure build-up in front forks. Heat and altitude will increase air pressure in the front forks.
- Always stay within sag measurement limits, 100 mm (3.94 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.

– MEMO –

ENGINE REMOVAL AND INSTALLATION

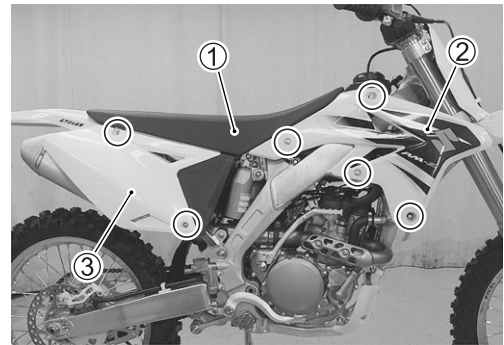
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ENGINE REMOVAL AND INSTALLATION

REMOVAL

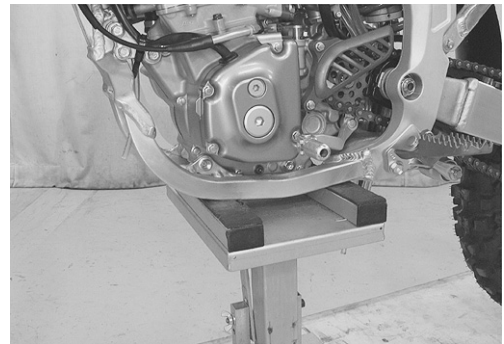
- Drain engine oil. (➡ 2-12)
- Drain engine coolant. (➡ 13-3)
- Remove the seat ①.
- Remove the radiator covers ②, left and right.
- Remove the right frame cover ③.



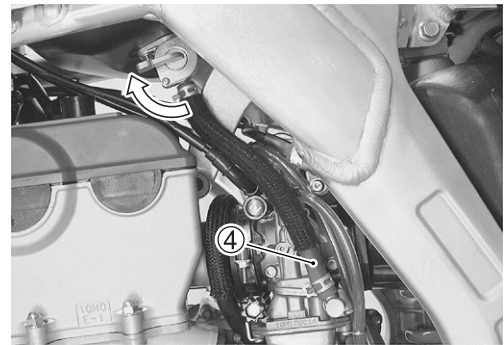
- Place the jack under the frame to support the motorcycle.

⚠ WARNING

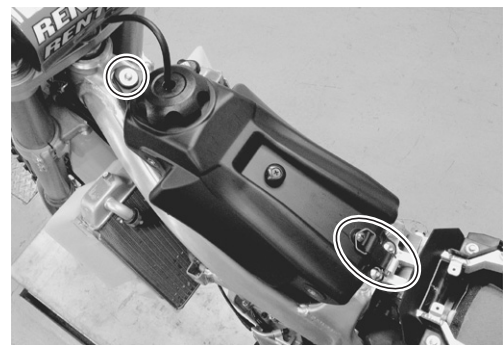
To prevent the motorcycle from falling, make sure to support the frame with a jack.



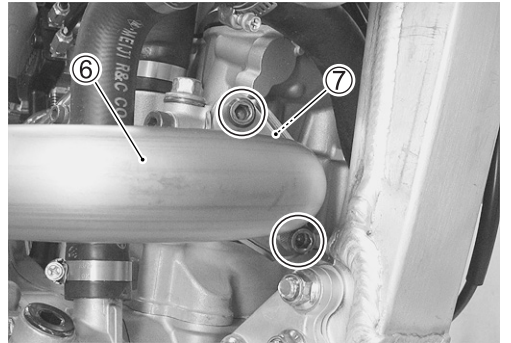
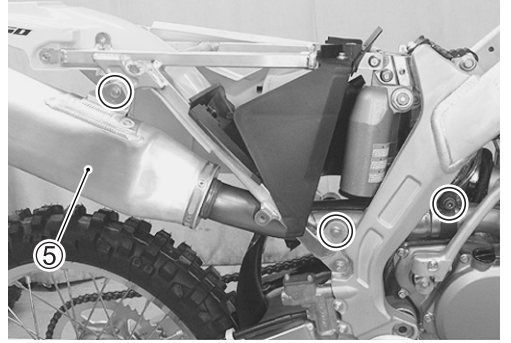
- Turn the fuel valve lever to the “OFF” position and disconnect the fuel hose ④.



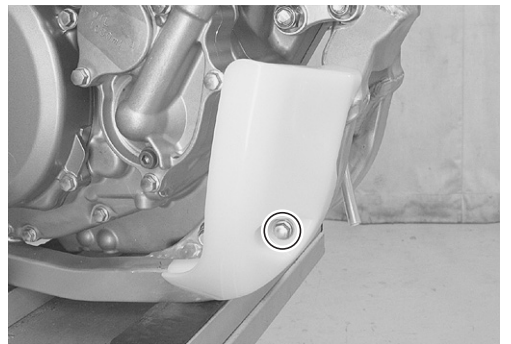
- Remove the fuel tank with the fuel valve.



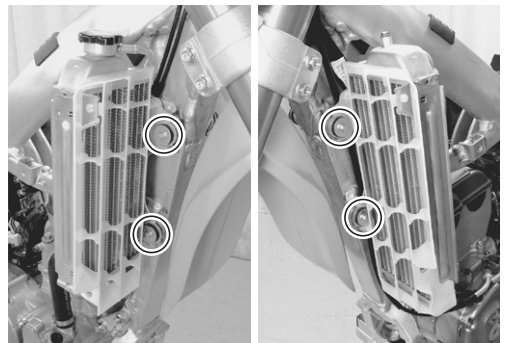
- Remove the muffler ⑤.
- Remove the exhaust pipe ⑥ and exhaust pipe gasket ⑦.



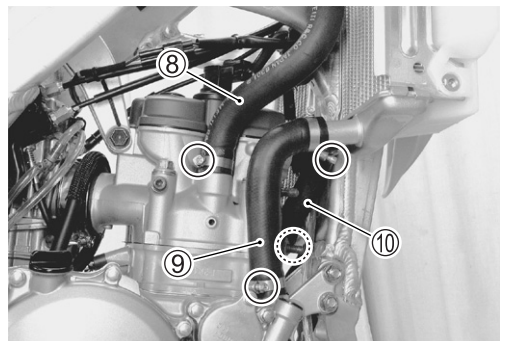
- Remove the front protector.



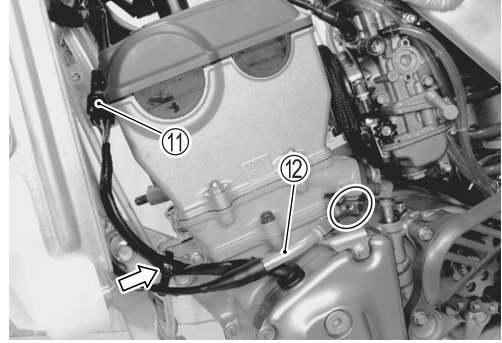
- Remove the radiator mounting bolts, left and right.



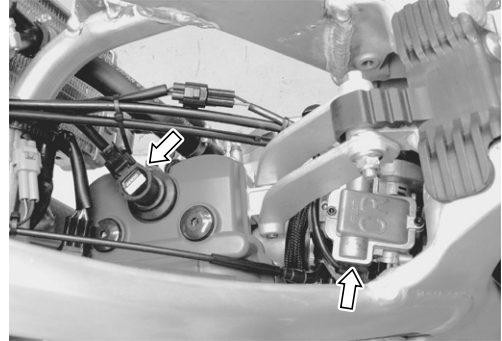
- Disconnect the radiator hose ⑧, ⑨.
- Remove the radiator hose ⑩.



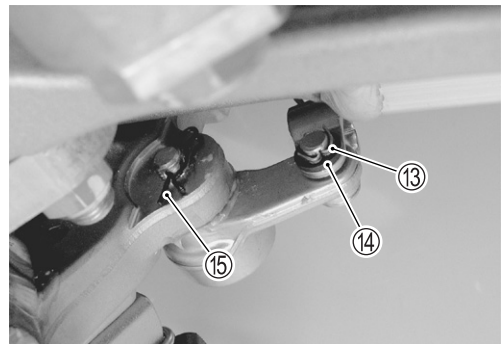
- Disconnect the magneto lead wire coupler ⑪ and clamp.
- Disconnect the clutch cable ⑫.



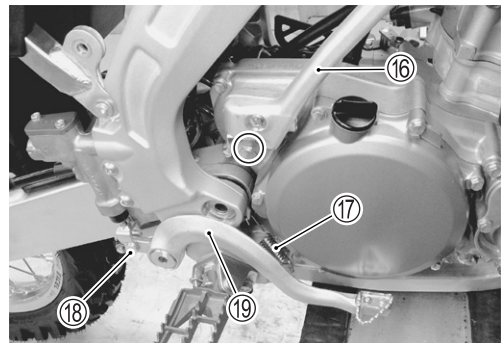
- Remove the carburetor. (☞ 12-5)
- Remove the ignition coil/plug cap. (☞ 2-7)



- Remove the cotter pin ⑬, washer ⑭ and clip ⑮.



- Remove the kick starter lever ⑯.
- Remove the brake pedal spring ⑰, master cylinder rod pin ⑱ and brake pedal ⑲.

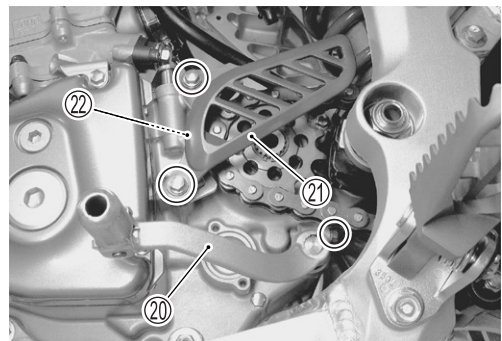


- Remove the gearshift lever ⑳.

NOTE:

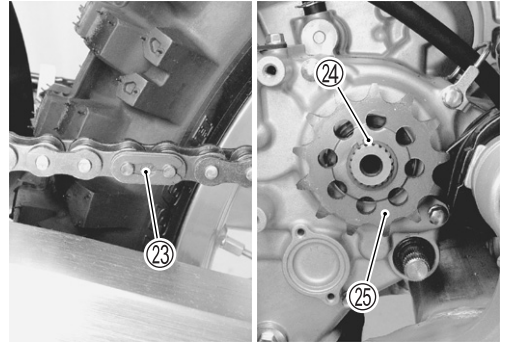
Mark the gearshift shaft head at which the gearshift lever slit set for correct reinstallation.

- Remove the engine sprocket cover ㉑ and chain guide plate ㉒.

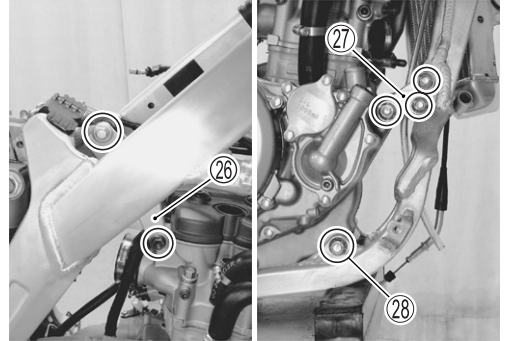


- Remove the drive chain clip ⑳ and release the drive chain.
- Remove the snap ring ㉔ and engine sprocket ㉕.

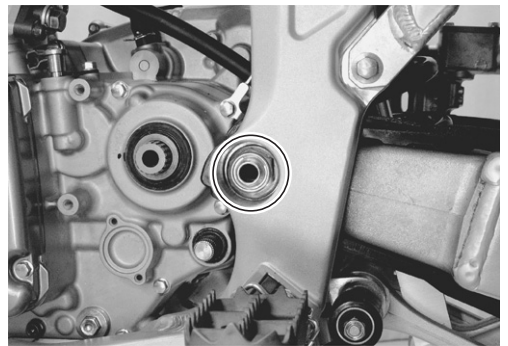
TOOL 09900-06107: Snap ring pliers



- Remove the engine mounting upper brackets ㉖, left and right.
- Remove the engine mounting front brackets ㉗, left and right.
- Remove the engine mounting bolt and nut ㉘.



- Remove the swingarm pivot shaft nut and washer.

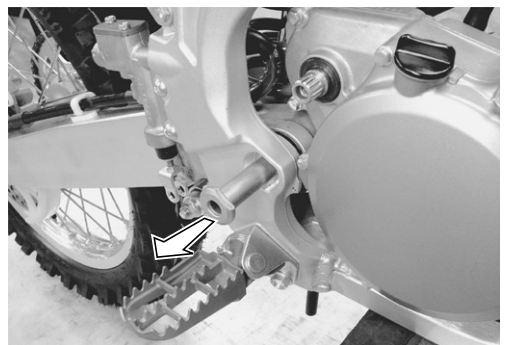


- Extract three quarters of the swingarm pivot shaft so as to keep the swingarm in position.

NOTE:

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

- Remove the engine from the frame.



INSTALLATION

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

- Fit the swingarm in its position and hold it with the swingarm pivot shaft.
- Mount the engine on the frame.
- Tighten the engine mounting bolts, nuts and swingarm pivot shaft nut.

	Bolt Length
①	55 mm (2.17 in)
②	50 mm (1.97 in)
③	95 mm (3.74 in)
④	96 mm (3.78 in)
⑤	120 mm (4.72 in)

Tightening torque

	N·m	kgf-m	lb-ft
①, ③ (Bolt, Nut)	40	4.0	29.0
② (Bolt, Nut)	45	4.5	32.5
④ (Bolt, Nut)	60	6.0	43.5
⑤ (Bolt, Nut)	55	5.5	40.0
⑥ (Shaft, Washer, Nut)	70	7.0	50.5

CAUTION

The engine mounting nut is the self-lock type and cannot be used repeatedly. If the self-lock effect is lose, replace it with a new one.

- Install the engine sprocket ⑦ and snap ring ⑧.

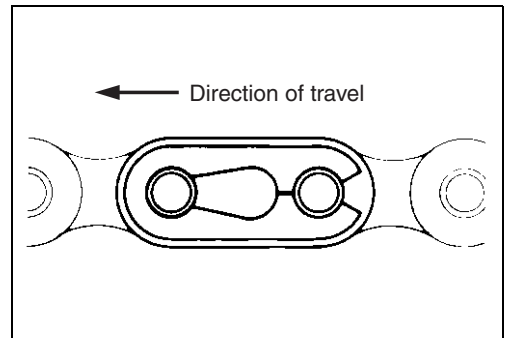
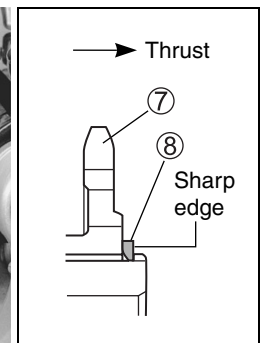
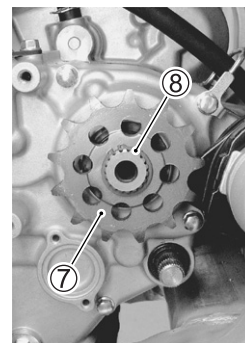
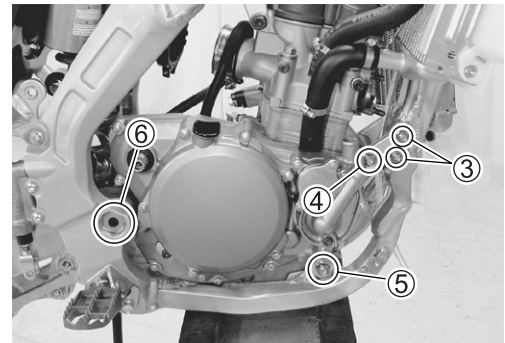
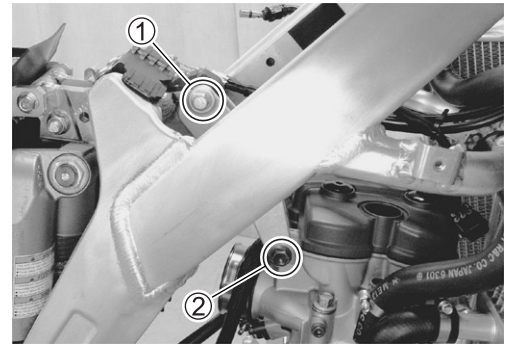
CAUTION

Replace the snap ring with a new one.

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

09900-06107: Snap ring pliers

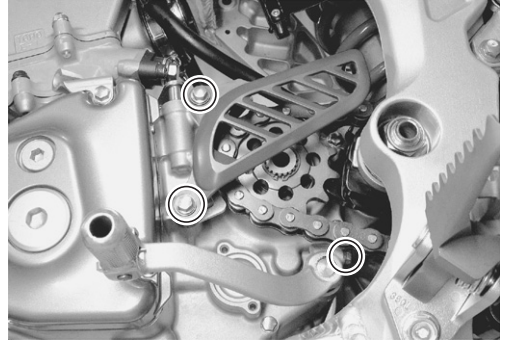
- Reassemble the drive chain clip so the slit end faces opposite the direction of rotation.




- Tighten the engine sprocket cover bolts to the specified torque.


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

- Install the gearshift lever in the correct position.



- Apply grease to the brake pedal pivot bolt.

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

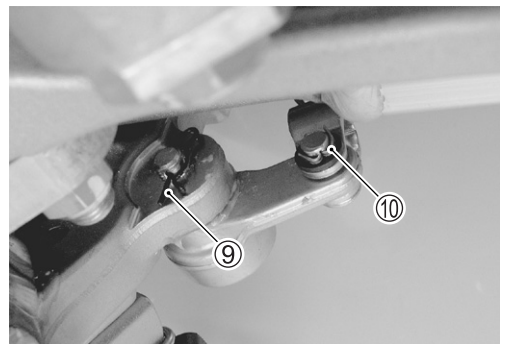
- Install the brake pedal and brake pedal spring. ( 19-28)





- Install the clip ⑨, washer and cotter pin ⑩.

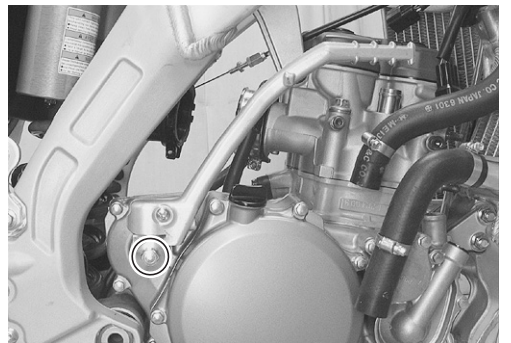
CAUTION


Replace the cotter pin ⑩ with a new one.

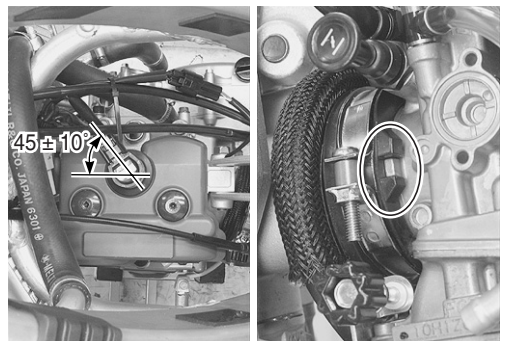


- Install the kick starter lever in the correct position. ( 8-7)

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



- Install the ignition coil/spark plug cap securely. ( 2-7)
- Fit the projection of the carburetor to the depression of intake pipe.

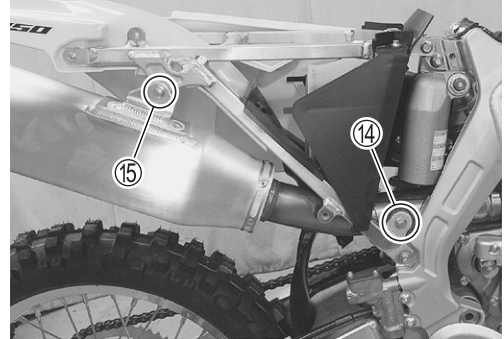
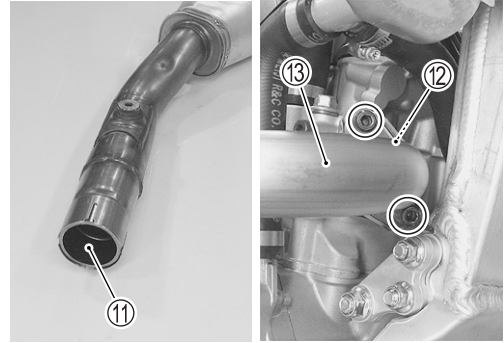


- Install the muffler joint connector ⑪ and exhaust pipe gasket ⑫.

CAUTION

Replace the connector ⑪ and gasket ⑫ with new ones to prevent exhaust gas leakage.

- Temporarily tighten the exhaust pipe nuts ⑬.
- Insert the muffler to the exhaust pipe.
- Temporarily tighten the muffler mounting front bolt ⑭ and rear bolt ⑮.

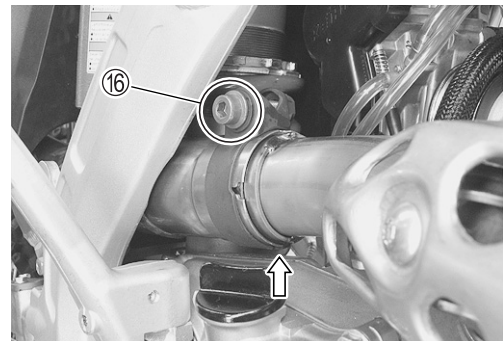


- Temporarily tighten the connector clamp bolt ⑯.

NOTE:

When install the connector clamp, fit the convex part of the connector clamp onto the concave part of muffler.

- Check the clearance between exhaust pipe and radiator hose.
- Be sure to tighten the bolts and nuts in the following order.
 - 1) Exhaust pipe nuts ⑬
 - 2) Muffler mounting front bolt ⑭
 - 3) Muffler mounting rear bolt ⑮
 - 4) Connector clamp bolt ⑯



- 🔧 **Exhaust pipe nut: 23 N·m (2.3 kgf-m, 16.5 lb-ft)**
Muffler mounting bolt (Front & Rear): 23 N·m (2.3 kgf-m, 16.5 lb-ft)
Connector clamp bolt: 21 N·m (2.1 kgf-m, 15.0 lb-ft)

INSPECTION AFTER INSTALLATION

- Engine oil level (👉 2-11)
- Engine coolant level and leakage (👉 2-15, -16)
- Fuel leakage (👉 2-21)
- Exhaust gas leakage
- Throttle cable play (👉 2-18)
- Clutch cable play (👉 2-17)
- Drive chain slack (👉 2-28)
- Brake pedal height (👉 2-32)
- Wiring harness, cable and hose routing (👉 19-18 to -23)

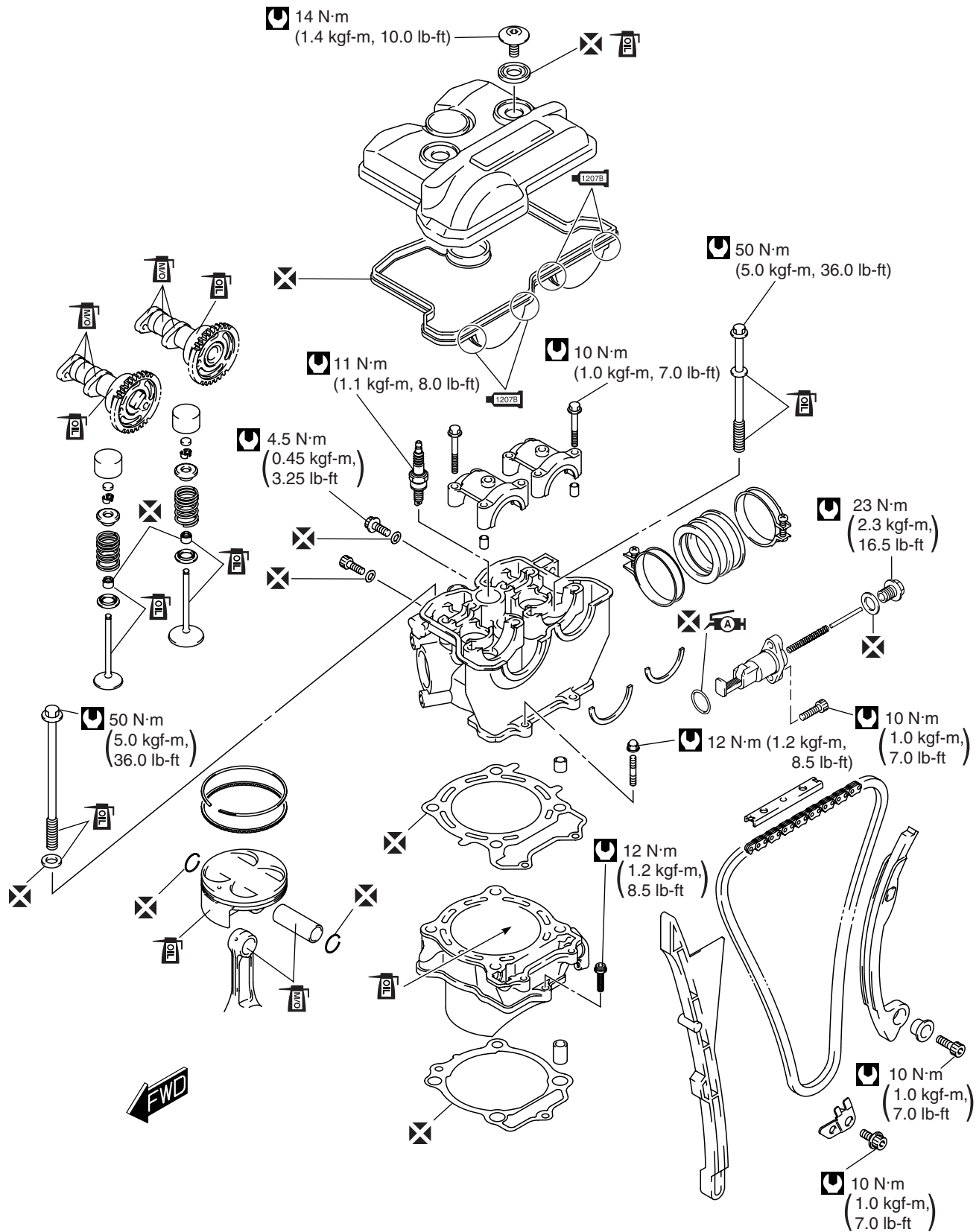
CYLINDER HEAD, CYLINDER AND PISTON

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CONSTRUCTION

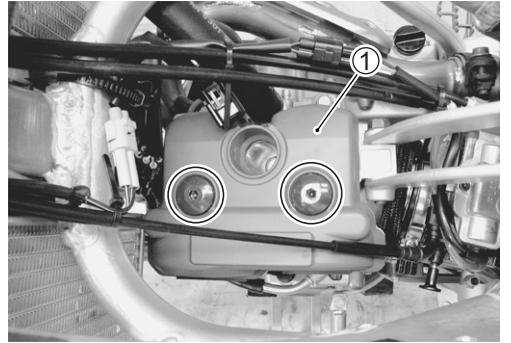
CYLINDER HEAD, CYLINDER AND PISTON



ENGINE TOP SIDE

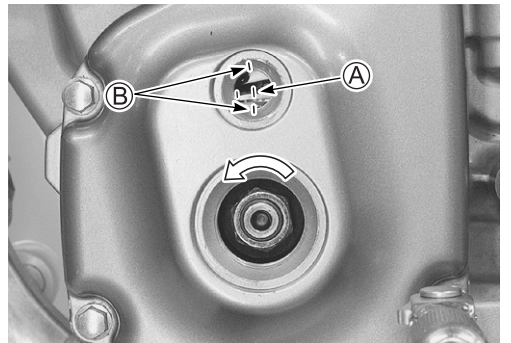
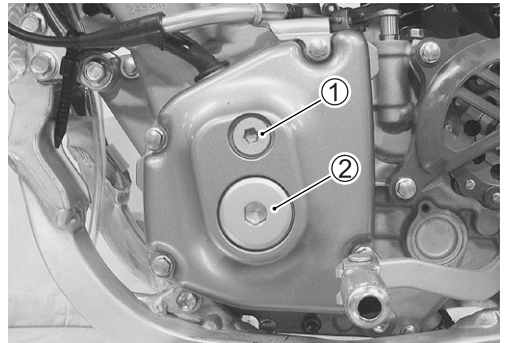
CYLINDER HEAD COVER REMOVAL

- Remove the seat. (☞ 5-2)
- Remove the radiator covers and fuel tank. (☞ 5-2)
- Disconnect the ignition coil/plug cap and remove the spark plug. (☞ 2-7)
- Remove the cylinder head cover ① and cylinder head cover gasket.



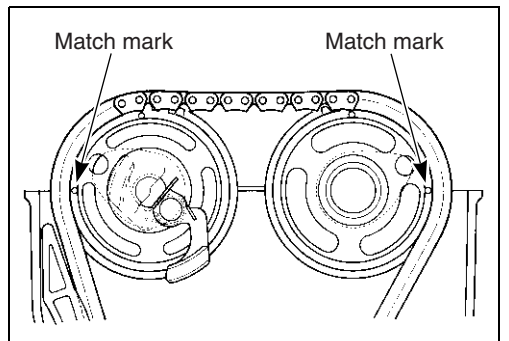
CAMSHAFTS (AUTOMATIC DECOMP.) AND CAM CHAIN TENSION ADJUSTER REMOVAL

- Remove the cylinder head cover. (☞ above)
- Remove the TDC plug ① and crankshaft hole plug ②.
- Place a wrench over the crankshaft and turn it counterclockwise to align the TDC mark (A) with the center of the grooves (B) of the timing inspection hole.

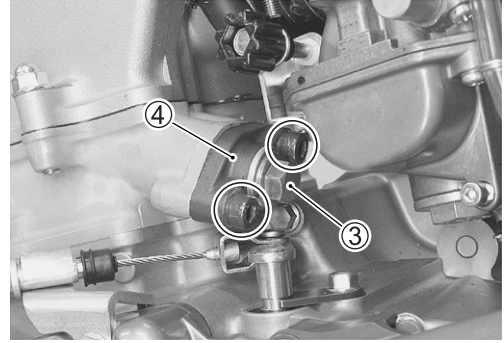


NOTE:

The piston must be at TDC on the compression stroke.



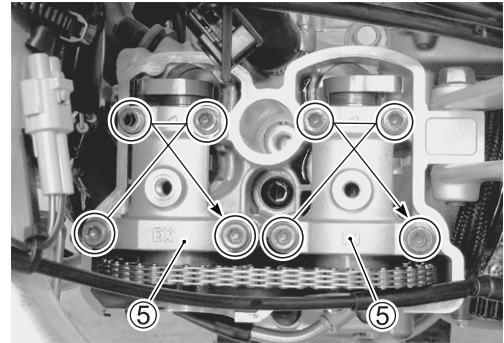
- Remove the cam chain tension adjuster cap bolt ③, bar and spring.
- Remove the cam chain tension adjuster ④ and its gasket.



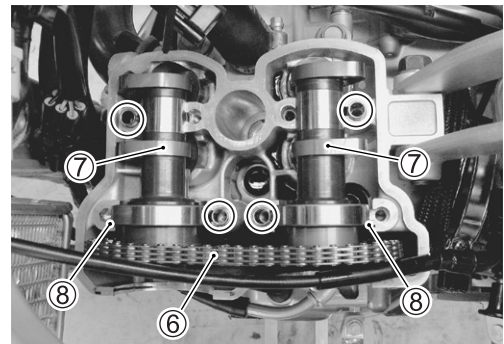
- Remove the camshaft journal holders ⑤.

NOTE:

Loosen the camshaft journal holder bolts diagonally.



- Disengage the camshafts ⑦ from cam chain ⑥.
- Remove the dowel pins and C-rings ⑧.

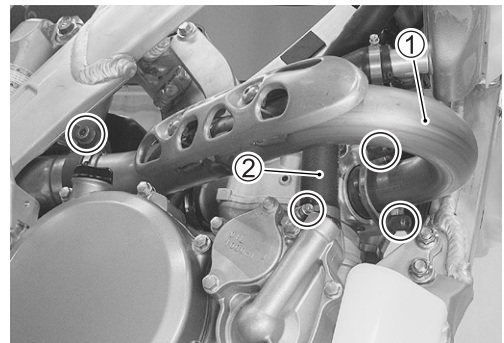


CAUTION

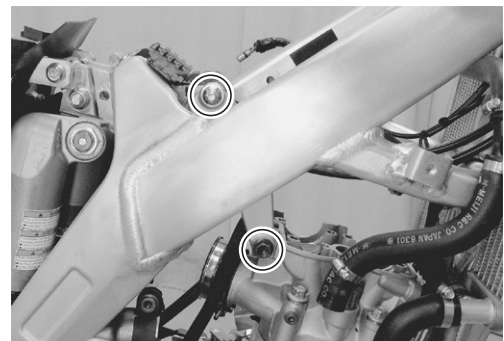
Do not drop the cam chain ⑥, dowel pins and C-rings ⑧ into the crankcase.

CYLINDER HEAD REMOVAL

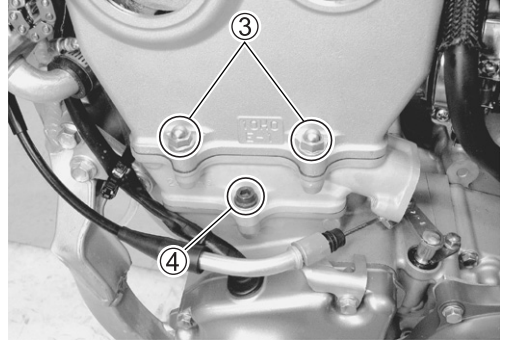
- Remove the camshafts. (➡ above)
- Remove the spark plug. (➡ 2-7)
- Remove the carburetor. (➡ 12-5)
- Drain engine coolant. (➡ 13-3)
- Remove the exhaust pipe ① and gaskets.
- Loosen the clamp and disconnect the radiator hose ②.



- Remove the engine mounting upper brackets.



- Remove the cylinder head base nuts ③.
- Loosen the cylinder base bolt ④.



- Remove the cylinder head bolts and washers.

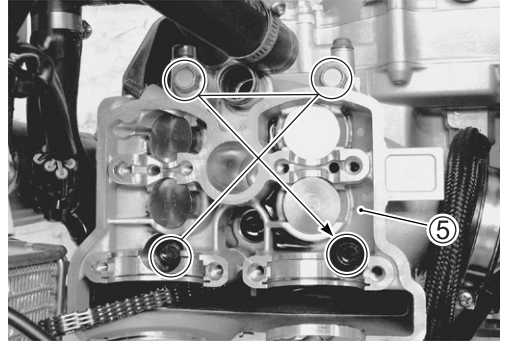
NOTE:

When loosening the cylinder head bolts, loosen each bolt little by little diagonally.

- Remove the cylinder head ⑤.

NOTE:

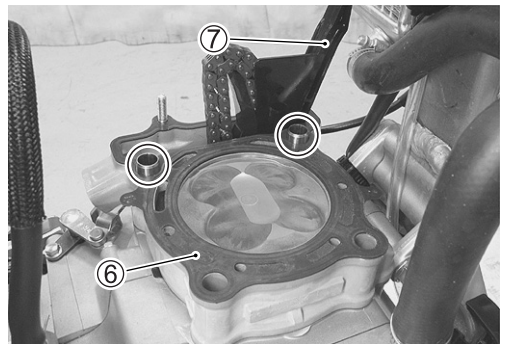
If the cylinder head does not come off easily, lightly tap it using a plastic hammer.



- Remove the cylinder head gasket ⑥, dowel pins and cam chain No.1 guide ⑦.

CAUTION

Do not drop the cam chain and dowel pins into the crankcase.



CYLINDER REMOVAL

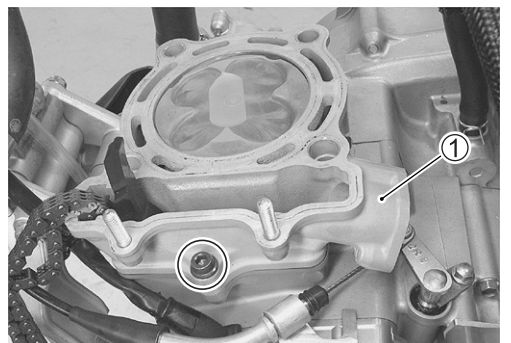
- Remove the cylinder head. (☞ above)
- Remove the cylinder ① by removing the cylinder base bolt.

CAUTION

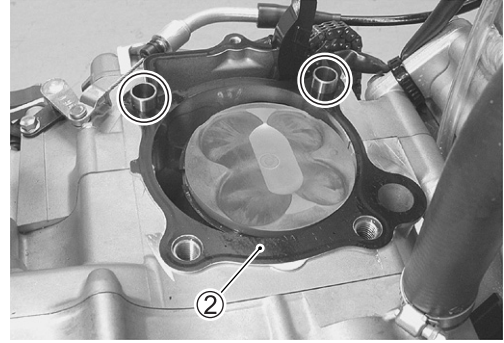
Do not drop the cam chain into the crankcase.

NOTE:

If the cylinder does not come off easily, lightly tap it using a plastic hammer.

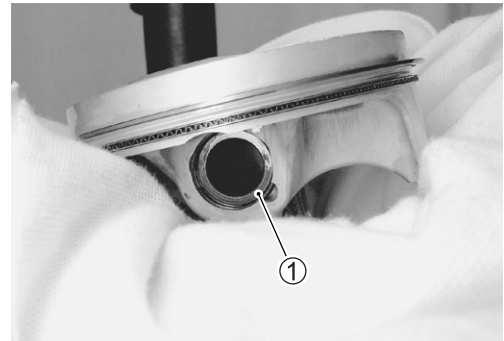


- Remove the cylinder gasket ② and dowel pins.

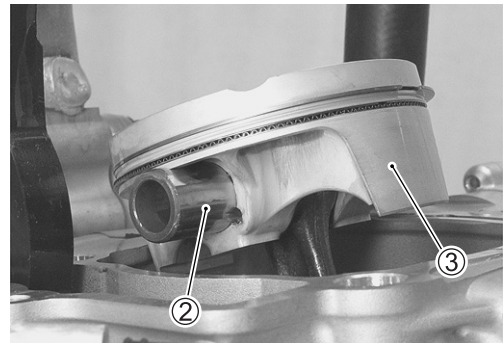


PISTON AND PISTON RING REMOVAL

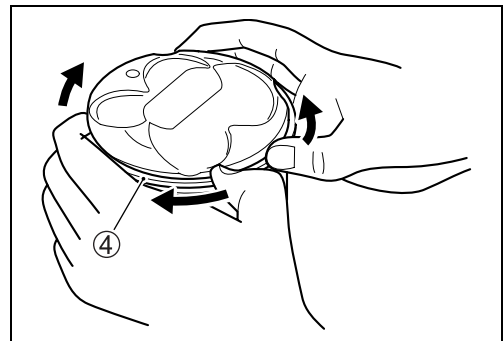
- Remove the cylinder. (☞ 6-5)
- Place a clean rag over the cylinder base to prevent the piston pin circlip ① from dropping into the crankcase.
- Remove the piston pin circlip ①.



- Remove the piston pin ② and piston ③.

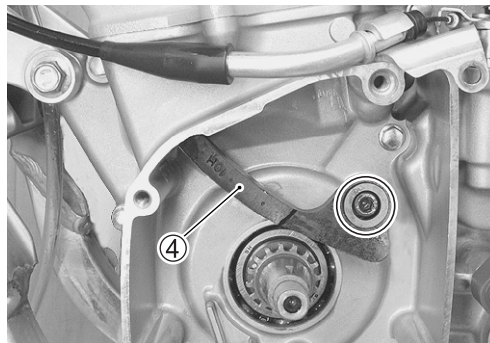
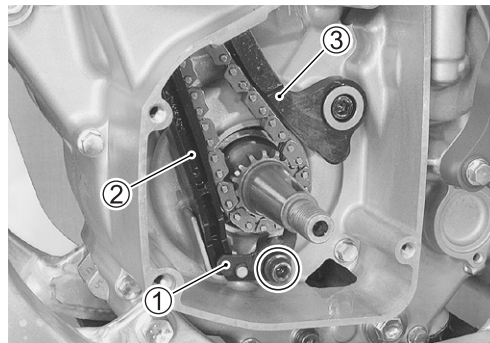


- Carefully spread the ring opening with your thumbs and then push up the opposite side of the ring ④ to remove it.
- Remove the oil ring in the same procedure.



CAM CHAIN, CAM CHAIN TENSIONER AND CAM CHAIN GUIDE REMOVAL

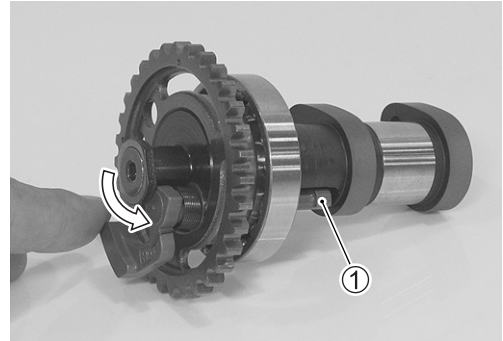
- Remove the cylinder head. (☞ 6-4)
- Remove the magneto cover and magnet rotor. (☞ 14-12)
- Remove the cam chain guide retainer ① and cam chain No.1 guide ②.
- Remove the cam chain ③.
- Remove the cam chain tensioner ④.



ENGINE TOP COMPONENTS INSPECTION AND SERVICE

AUTOMATIC DECOMP. INSPECTION

- Check the decomp. cam moves smoothly and shaft ① rotates together.
- If any abnormal condition are found, replace the camshaft assembly.



CAMSHAFT INSPECTION

CAUTION
The camshaft assembly can not be disassembled.



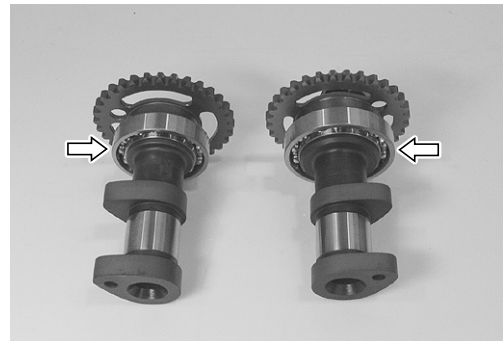
CAM SPROCKET

- Inspect the sprocket teeth for wear.
- If they are worn, replace the camshafts, crankshaft and cam chain as a set.



CAMSHAFT BEARING

- Inspect the bearings for play, discoloration, wear and seizure.
- Move the outer race by finger and inspect for smooth movement.
- If there is anything unusual, replace the camshaft assembly.



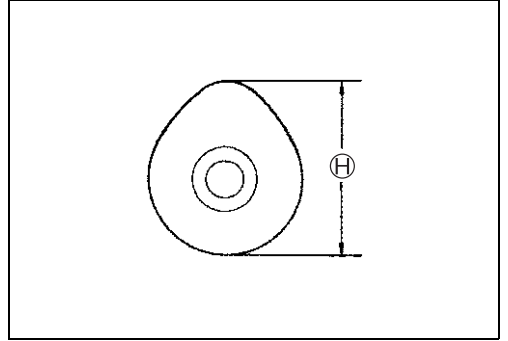
CAM WEAR

- Measure the cam height \ominus using the micrometer.
- Replace a camshaft if the cams are worn to the service limit.

DATA Cam height \ominus :

Service Limit IN.: 34.56 mm (1.361 in)

EX.: 34.08 mm (1.342 in)

TOOL 09900-20202: Micrometer (25 – 50 mm)**CAMSHAFT JOURNAL WEAR**

- Determine whether or not each journal is worn down to the limit by measuring the oil clearance with the camshaft installed in place.
- Use the plastigauge to read the clearance at the widest portion, which is specified as follows:

TOOL 09900-22301: Plastigauge
09900-22302: Plastigauge

- Tighten the camshaft journal holder bolts evenly and diagonally to the specified torque.

NOTE:*Install the camshaft journal holders to their original positions.***TOOL** Camshaft journal holder bolt:

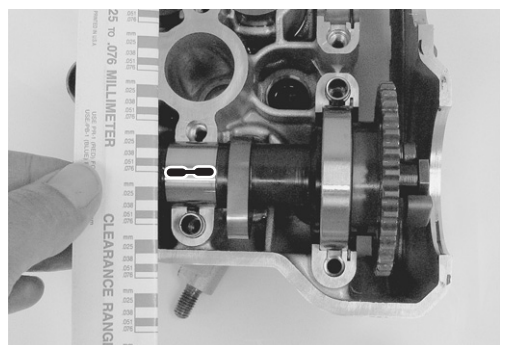
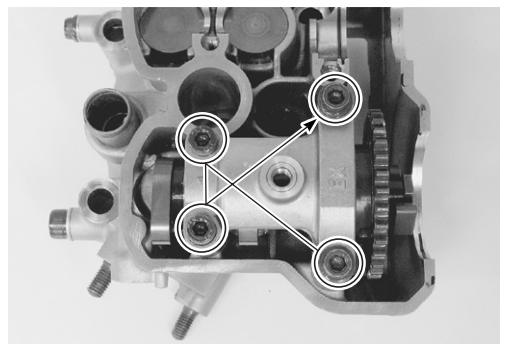
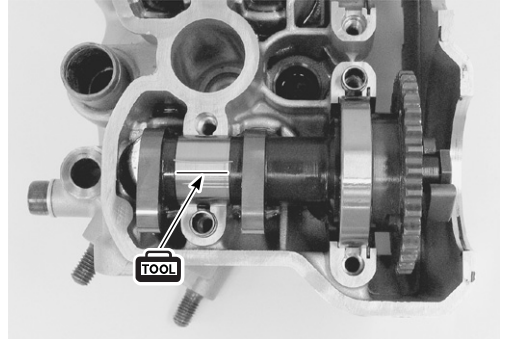
10 N·m (1.0 kgf·m, 7.0 lb·ft)

NOTE:*Do not rotate the camshaft with the plastigauge in place.*

- Remove the camshaft journal holders, and read the width of the compressed plastigauge with envelope scale. This measurement should be taken at the widest part.

DATA Camshaft journal oil clearance:

Service Limit (IN. & EX.): 0.150 mm (0.0059 in)



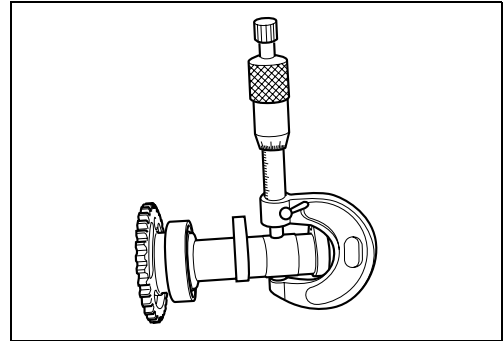
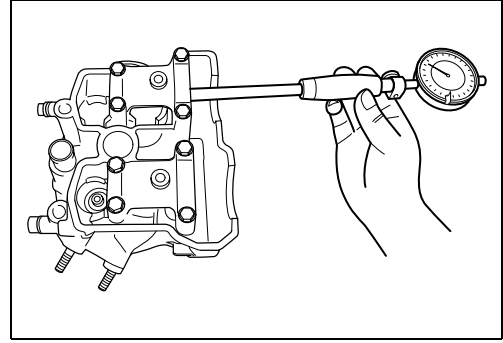
- If the camshaft journal oil clearance measured exceeds the limit, measure the inside diameter of the camshaft journal holder and outside diameter of the camshaft journal.
- Replace the camshaft or the cylinder head depending upon which one exceeds the specification.

DATA Camshaft journal holder I.D.:
 Standard: (IN. & EX.): 22.003 – 22.025 mm
 (0.8663 – 0.8671 in)

TOOL 09900-20602: Dial gauge (1/1 000, 1 mm)
 09900-22403: Small bore gauge (18 – 35 mm)

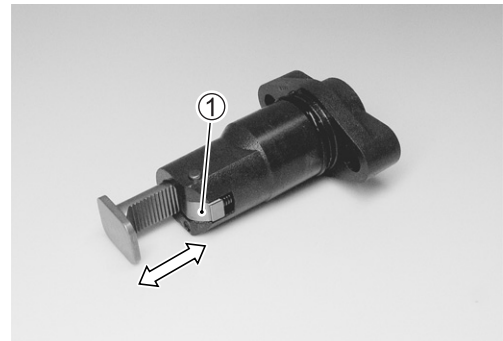
DATA Camshaft journal O.D.:
 Standard (IN. & EX.): 21.959 – 21.980 mm
 (0.8645 – 0.8654 in)

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



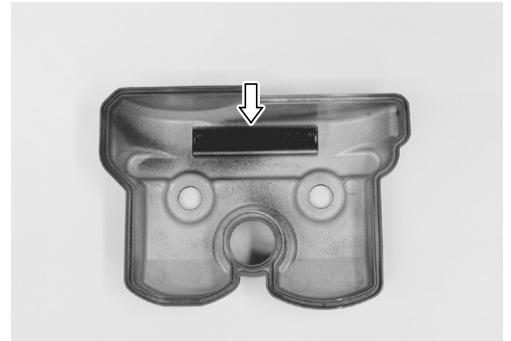
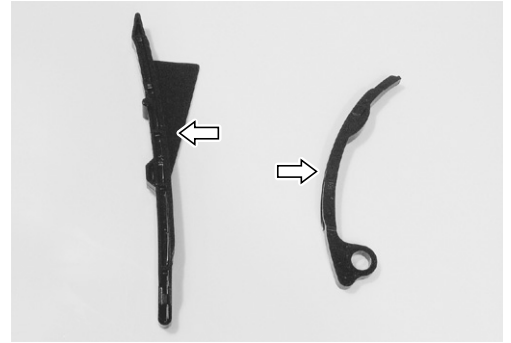
CAM CHAIN TENSION ADJUSTER INSPECTION

- Remove the cam chain tension adjuster cap bolt, bar and spring. (🔧 6-4)
- Check that the push rod slides smoothly when releasing stopper ①.
- If it does not slide smoothly, replace the cam chain tension adjuster with a new one.



CAM CHAIN No.1 GUIDE, CAM CHAIN No.2 GUIDE AND CAM CHAIN TENSIONER INSPECTION

- Inspect the contacting surface of the cam chain guides and cam chain tensioner.
- If it is worn or damaged, replace it with a new one.

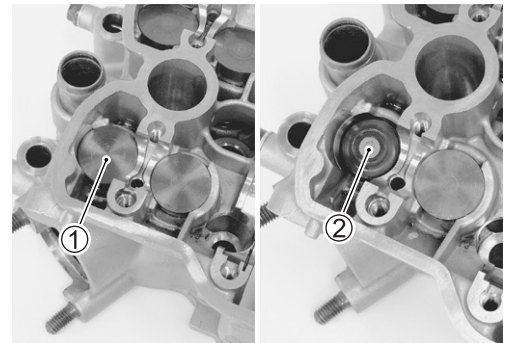


CYLINDER HEAD AND VALVE INSPECTION VALVE DISASSEMBLY

- Remove the tappet ① and shim ② by fingers or magnetic hand.

CAUTION

Identify the position of each removed part.



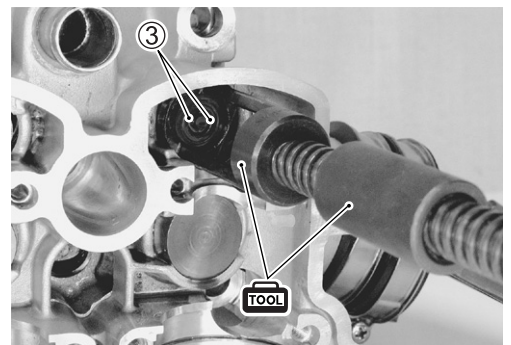
(Intake side)

- Using the special tools, compress the valve spring and remove the two cotter halves ③ from the valve stem.

TOOL 09916-14510: Valve lifter
09916-14521: Attachment
09916-84511: Tweezers

CAUTION

Be careful not to damage the tappet sliding surface with the special tool.



(Exhaust side)

- Install the sleeve protector ① between the valve spring and cylinder head.
- Using the special tools, compress the valve spring and remove the two cotter halves ③ from the valve stem.

CAUTION

To prevent damage of the tappet sliding surface with the special tool, use the sleeve protector ①.

- TOOL** 09916-14510: Valve lifter
 09916-14530: Attachment
 09916-84511: Tweezers
 09919-28610: Sleeve protector

- Remove the valve spring retainer ④ and valve spring ⑤.

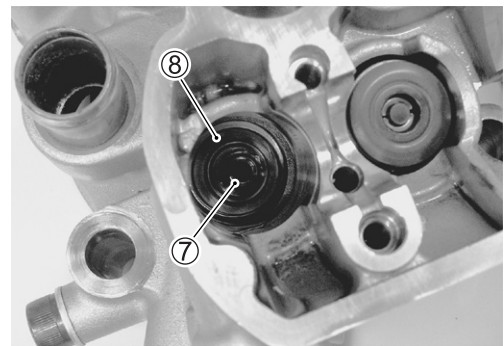
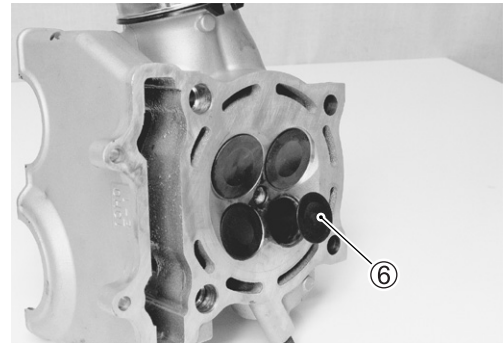
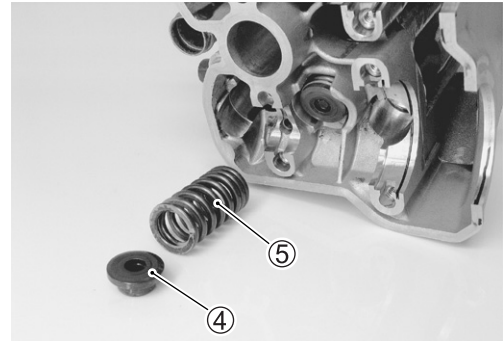
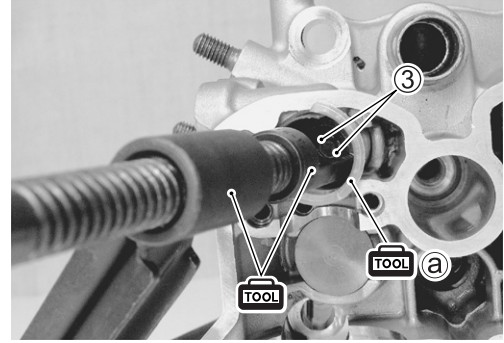
- Remove the valve ⑥ from the combustion chamber side.

- Remove the valve stem seal ⑦ and spring seat ⑧.

CAUTION

Do not reuse the removed valve stem seal.

- Remove the other valves in the same manner as described previously.

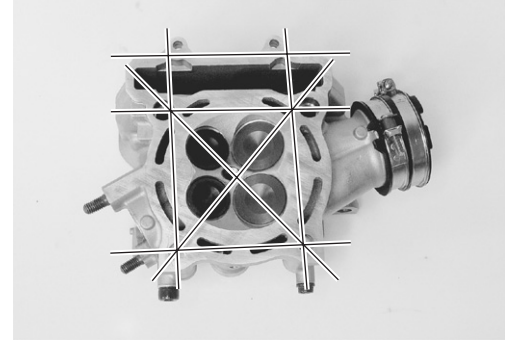


CYLINDER HEAD DISTORTION

- Decarbonize the combustion chamber.
- Check the gasket surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places indicated.
- If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder head.

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

TOOL 09900-20803: Thickness gauge

**VALVE STEM RUNOUT**

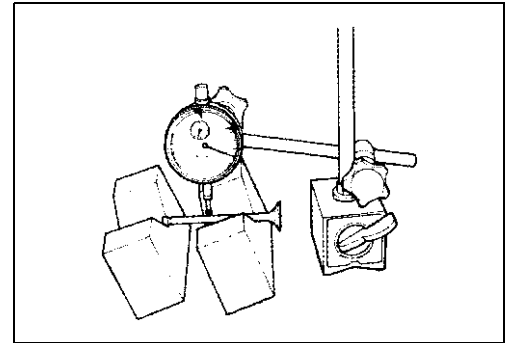
- Support the valve using V-blocks and check its runout using the dial gauge as shown.
- If the runout exceeds the service limit, replace the valve.

CAUTION

Be careful not to damage the valve head and valve stem when handling it.

DATA Valve stem runout (IN. & EX.):
Service Limit: 0.05 mm (0.002 in)

TOOL 09900-20607: Dial gauge (1/100, 10 mm)
09900-20701: Magnetic stand
09900-21304: V-block (100 mm)

**VALVE HEAD RADIAL RUNOUT**

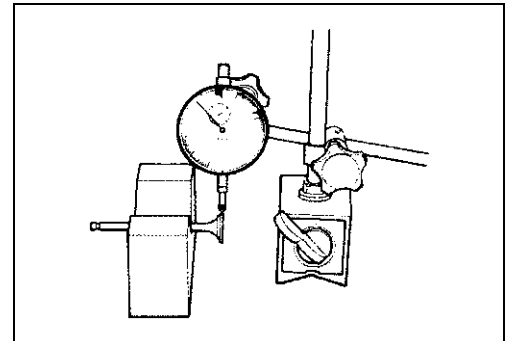
- Place the dial gauge at a right angle to the valve head face and measure the valve head radial runout.
- If it measures more than the service limit, replace the valve.

CAUTION

Be careful not to damage the valve head and valve stem when handling it.

DATA Valve head radial runout (IN. & EX.):
Service Limit: 0.03 mm (0.001 in)

TOOL 09900-20607: Dial gauge (1/100, 10 mm)
09900-20701: Magnetic stand
09900-21304: V-block (100 mm)

**VALVE STEM AND VALVE FACE WEAR CONDITION**

- Visually inspect each valve stem and valve face for wear and pitting.
- If it is worn or damaged, replace the valve with a new one.



VALVE STEM DEFLECTION

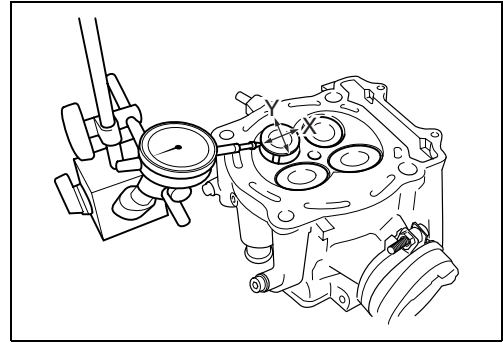
- Lift the valve about 10 mm (0.39 in) from the valve seat.
- Measure the valve stem deflection in two directions, perpendicular to each other, by positioning the dial gauge as shown.
- If the deflection measured exceeds the limit, then determine whether the valve or the guide should be replaced with a new one.

DATA Valve stem deflection (IN. & EX.):

Service Limit: 0.25 mm (0.010 in)

TOOL 09900-20607: Dial gauge (1/100, 10 mm)

09900-20701: Magnetic stand

**VALVE STEM WEAR**

- If the valve stem is worn down to the limit, as measured with a micrometer, replace the valve.
- If the stem is within the limit, then replace the guide.
- After replacing valve or guide, be sure to recheck the deflection.

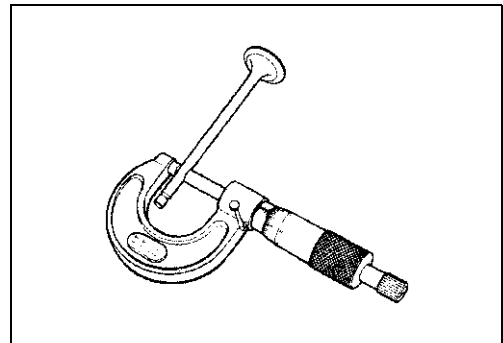
NOTE:

If valve guides have to be removed for replacement after inspecting related parts, carry out the steps shown in valve guide servicing.

DATA Valve stem O.D.:

Standard (IN.): 4.475 – 4.490 mm (0.1762 – 0.1768 in)

(EX.): 4.455 – 4.470 mm (0.1754 – 0.1760 in)

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

- Using the valve guide remover, drive the valve guide out toward the intake or exhaust camshaft side.

NOTE:

* Discard the removed valve guide subassemblies.

* Only oversized valve guides are available as replacement parts. (Part No. 11115-10H70)

TOOL 09916-43211: Valve guide remover/installer

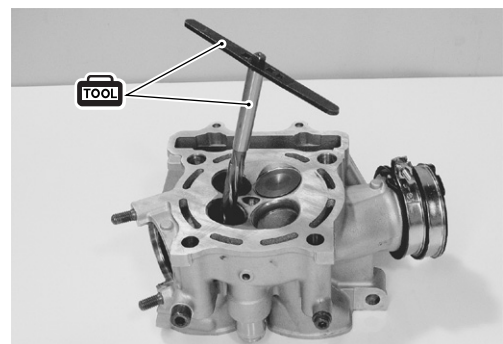
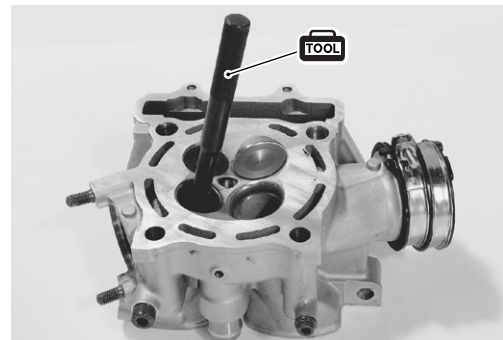
- Re-finish the valve guide holes in cylinder head with the reamer and handle.

CAUTION

When refinishing or removing the reamer from the valve guide hole, always turn it clockwise.

TOOL 09916-33320: Valve guide reamer (9.8 mm)

09916-34542: Reamer handle



- Cool down the new valve guides in a freezer for about one hour and heat the cylinder head to 100 – 150 °C (212 – 302 °F) with a hot plate.

CAUTION

Do not use a burner to heat the valve guide hole to prevent cylinder head distortion.

- Apply engine oil to the valve guide hole.


CAUTION

Failure to oil the valve guide hole before driving the new guide into place may result in a damaged guide or head.

- Drive the valve guide into the hole using the valve guide installer ① and attachment ②.

NOTE:


Install the valve guide until the attachment contacts with the cylinder head ③.

-  **09916-43211: Valve guide remover/installer ①**
09916-44920: Valve guide installer attachment ②

- After installing the valve guides, re-finish their guiding bores using the reamer.
- Clean and engine oil the guides after reaming.


NOTE:

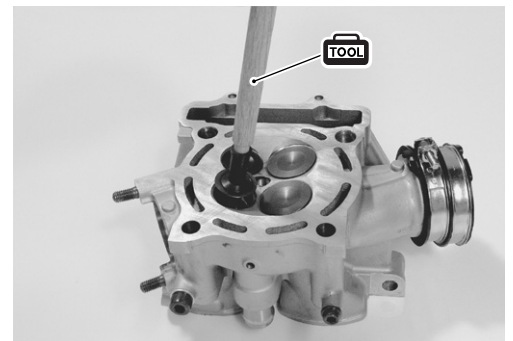
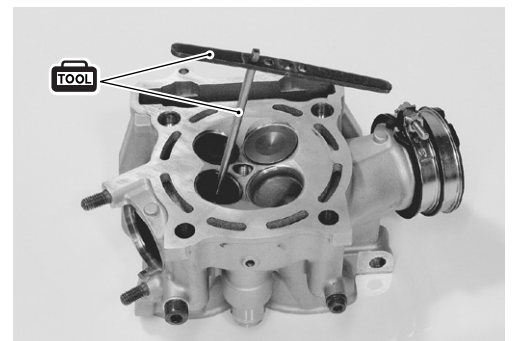
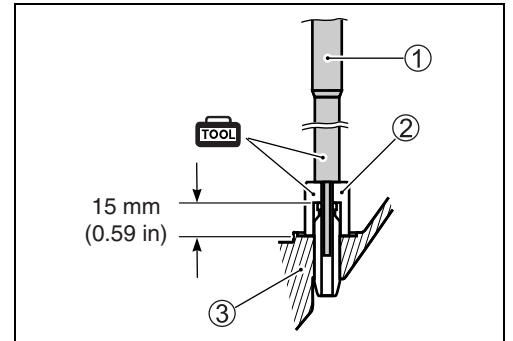
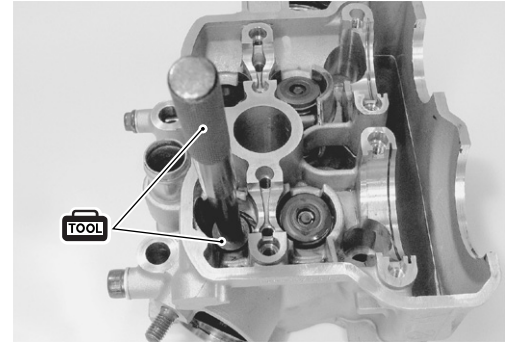
- * *Be sure to cool down the cylinder head to ambient air temperature.*
- * *Insert the reamer from the combustion chamber and always turn the reamer handle clockwise.*

-  **09916-33210: Valve guide reamer**
09916-34542: Reamer handle

VALVE SEAT WIDTH INSPECTION

- Visually check for valve seat width on each valve face.
- If the valve face has worn abnormally, replace the valve.
- Coat the valve seat with Prussian Blue and set the valve in place. Rotate the valve with light pressure.
- Check that the transferred blue on the valve face is uniform all around and in center of the valve face.

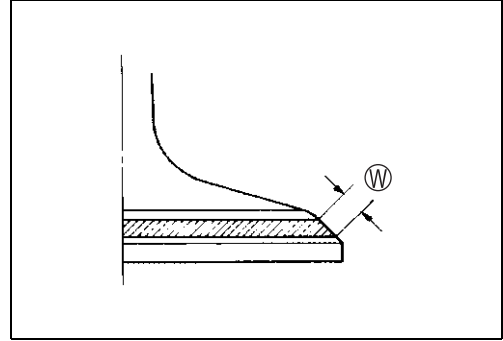
-  **09916-10911: Valve lapper set**



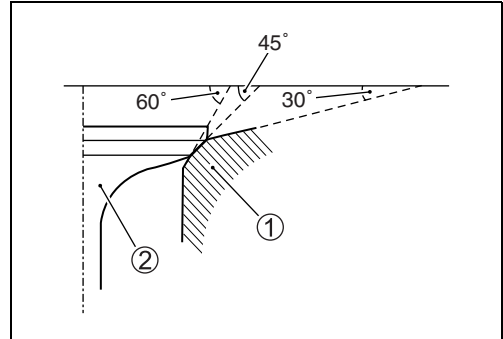
- If the seat width W measured exceeds the standard value or seat width is not uniform, refuse the seat using the seat cutter.

DATA Valve seat width W :

Standard: 0.9 – 1.1 mm (0.035 – 0.043 in)

**VALVE SEAT SERVICING**

The valve seats ① for both the intake and exhaust valves ② are machined to three different angles. The seat contact surface is cut at 45°.



	INTAKE	EXHAUST
Seat angle	15°, 45°, 60°	←
Seat width	0.9 – 1.1 mm (0.035 – 0.043 in)	←
Valve diameter	31 mm (1.22 in)	25 mm (0.98 in)
Valve guide I.D.	4.500 – 4.512 mm (0.1772 – 0.1776 in)	←

CAUTION

The valve seat contact area must be inspected after each cut.

Do not use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish but not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.

CAUTION

The titanium valves are coated with an oxidized membrane treatment to resist wear but the membrane tend to be removed if lapped after valve seat servicing.

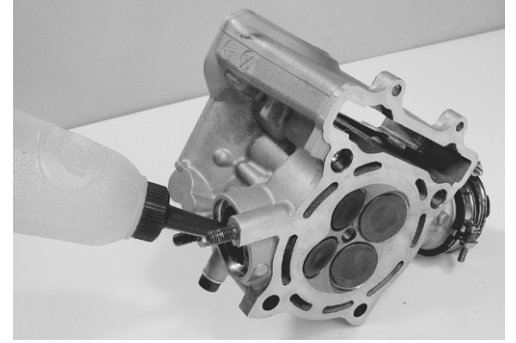
NOTE:

After servicing the valve seats, be sure to check the valve clearance after the cylinder head has been reinstalled. (☞ 2-22)

- Clean and assemble the head and valve components. Fill the intake and exhaust ports with gasoline to check for leaks.
- If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.

▲ WARNING

Always use extreme caution when handling gasoline.



VALVE SPRING

- Check the valve spring for proper strength by measuring its free length and also by the force required to compress it.
- If the spring length is less than the service limit, or if the force required to compress the spring does not fall within the range specified, replace the spring.

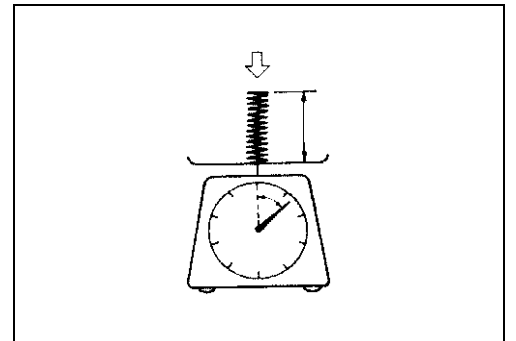
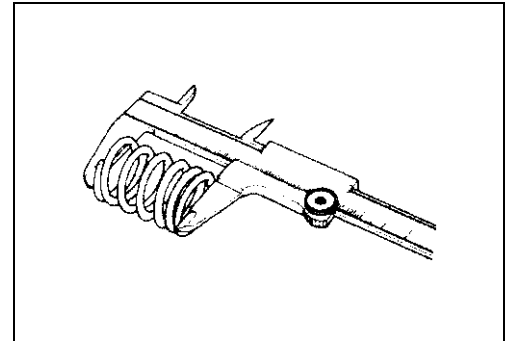
DATA Valve spring free length:

Service limit: (IN.): 37.1 mm (1.46 in)
: (EX.): 37.5 mm (1.48 in)

TOOL 09900-20101: Vernier calipers (150 mm)

DATA Valve spring tension:

Standard: (IN. & EX.): 147 N (15 kgf)/33.55 mm
(33.1 lbs/1.321 in)



VALVE REASSEMBLY

- Install the valve spring seat.
- Apply MOLYBDENUM OIL SOLUTION to the stem seal ①, and press-fit it into position.

CAUTION

Do not reuse the removed stem seal.

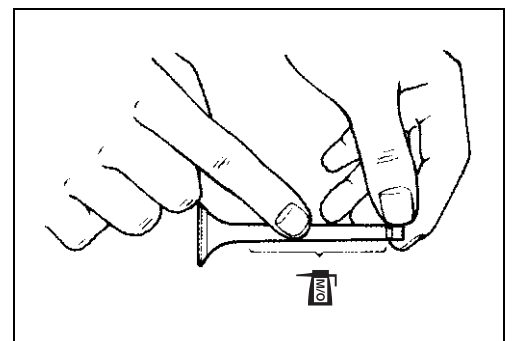
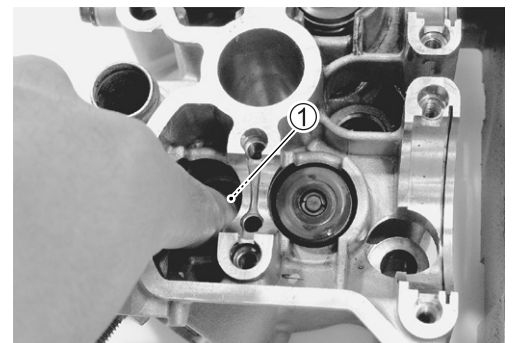
MOLYBDENUM OIL SOLUTION

- Insert the valve, with its stem coated with MOLYBDENUM OIL SOLUTION all around and along the full stem length without any break.

CAUTION

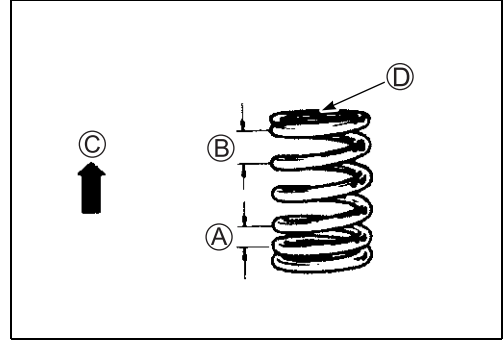
When inserting the valve, take care not to damage the lip of the stem seal.

MOLYBDENUM OIL SOLUTION



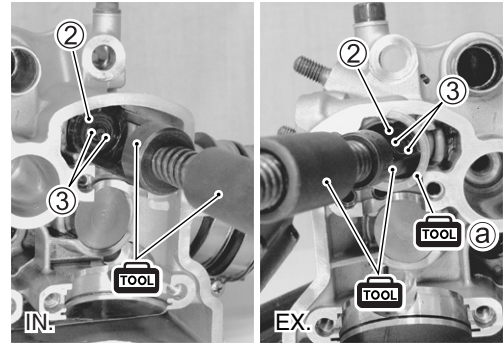
- Install the valve spring with the small-pitch portion (A) facing cylinder head.

- (A) Small-pitch portion
- (B) Large-pitch portion
- (C) UPWARD
- (D) Paint



- Put on the valve spring retainer (2), and using the valve lifter and sleeve protector (a) (only for exhaust side), press down the spring, fit the valve cotter halves to the stem end, and release the lifter to allow the valve cotter (3) to wedge in between retainer and stem.

- TOOL** 09916-14510: Valve lifter
- 09916-14521: Attachment (For IN. side)
- 09916-14530: Attachment (For EX. side)
- 09916-28610: Sleeve protector
- 09916-84511: Tweezers



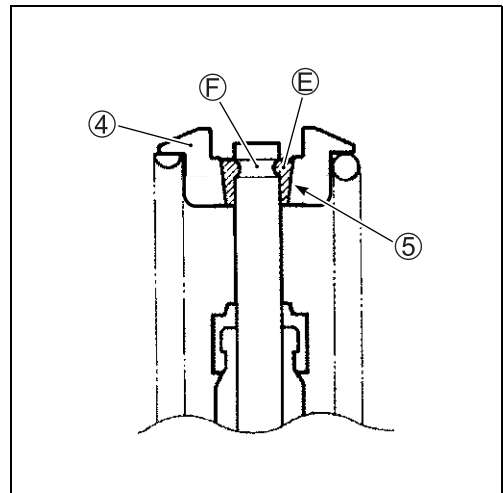
- Be sure that the rounded lip (E) of the cotter fits snugly into the groove (F) in the stem end.
- Install the other valves and springs in the same manner as described previously.

CAUTION

Be sure to restore each spring and valve to their original positions.

Be careful not to damage the valve and valve stem when handling it.

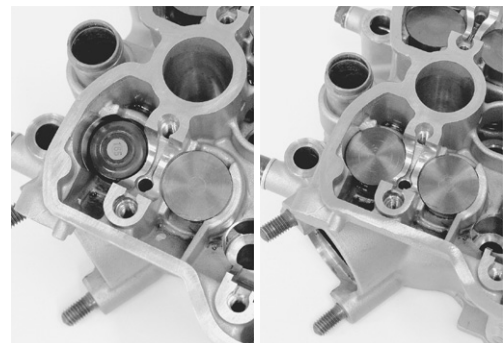
- (4) Valve spring retainer
- (5) Valve cotter



- Install the tappet shims and the tappets to their original positions.

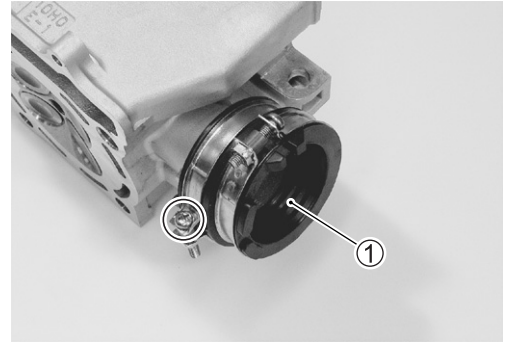
NOTE:

- * Apply engine oil to the stem end, shim and tappet before fitting them.
- * When seating the tappet shim, be sure the figure printed surface faces the tappet.



INTAKE PIPE REMOVAL

- Remove the intake pipe ①.

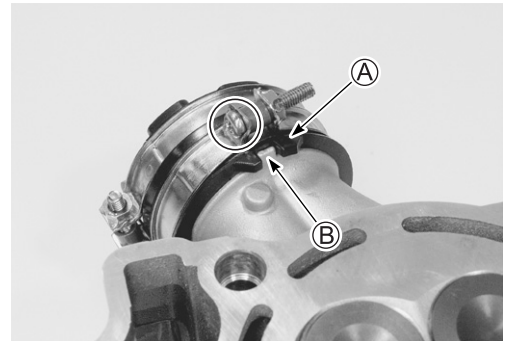


INTAKE PIPE INSTALLATION

- Install the intake pipe.

NOTE:

Fit the recess ① of the intake pipe into the projection ② of the cylinder head.



CYLINDER INSPECTION

CYLINDER DISTORTION

- Check the gasketed surface of the cylinder for distortion with a straightedge and thickness gauge, taking a clearance reading at several places indicated.
- If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder.

DATA Cylinder distortion:

Service Limit: 0.05 mm (0.002 in)

TOOL 09900-20803: Thickness gauge

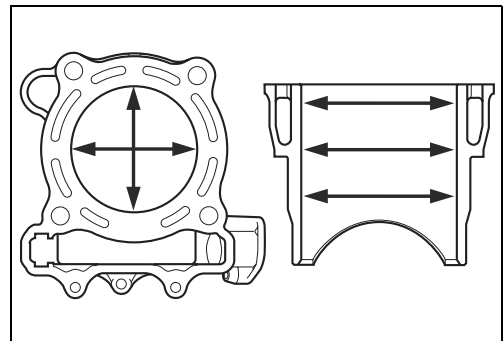
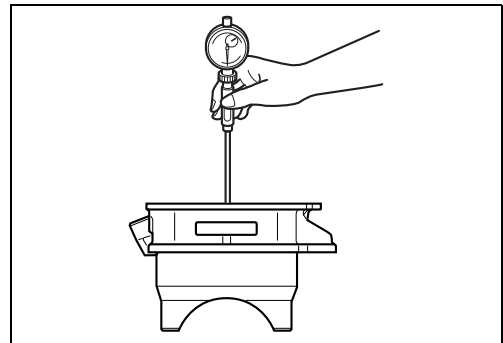
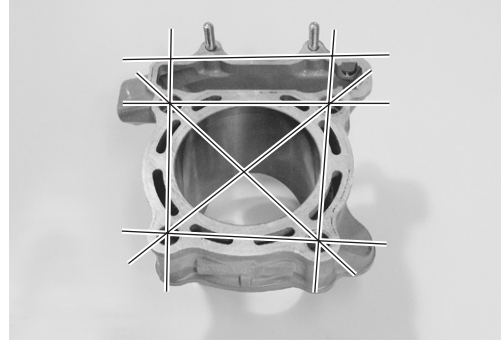
CYLINDER BORE

- Inspect the cylinder wall for any scratches, nicks or other damage.
- Measure the cylinder bore diameter at six places.

DATA Cylinder bore:

Standard: 77.000 – 77.015 mm (3.0315 – 3.0321 in)

TOOL 09900-20530: Cylinder gauge set



PISTON AND PISTON RING INSPECTION

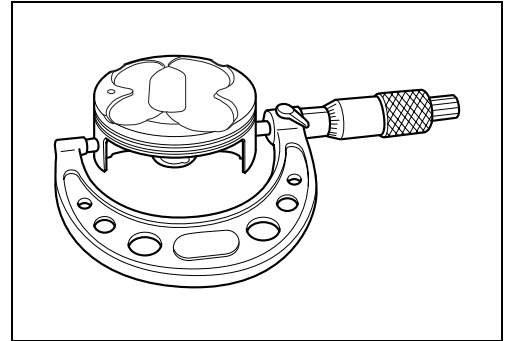
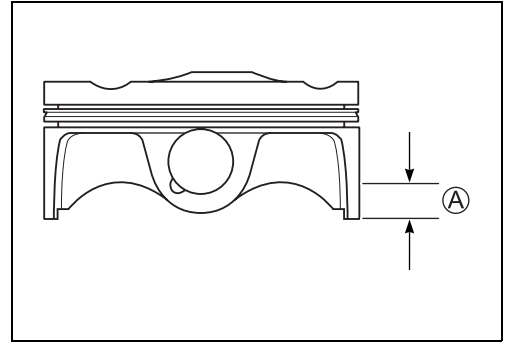
PISTON DIAMETER

- Using a micrometer, measure the piston outside diameter at 8.5 mm (0.33 in) $\text{\textcircled{A}}$ from the piston skirt end.
- If the measurement is less than the limit, replace the piston.

DATA Piston diameter:

Service Limit: 76.880 mm (3.0268 in)
at 8.5 mm (0.33 in) from the skirt end

TOOL 09900-20204: Micrometer (75 – 100 mm)



PISTON-TO-CYLINDER CLEARANCE

- Subtract the piston diameter from the cylinder bore diameter.
 (↩ above)
- If the piston-to-cylinder clearance exceeds the service limit, replace the cylinder or the piston, or both.

DATA Piston-to-cylinder clearance:

Service Limit: 0.120 mm (0.0047 in)

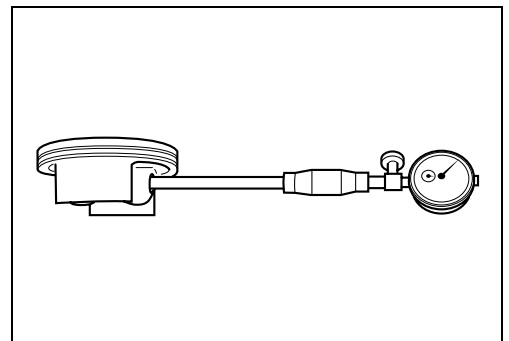
PISTON PIN AND PIN BORE

- Measure the piston pin bore inside diameter using the small bore gauge.
- If the measurement is out of specifications replace the piston.

DATA Piston pin bore:

Service Limit: 16.030 mm (0.6311 in)

TOOL 09900-20602: Dial gauge (1/1 000, 1 mm)
 09900-22401: Small bore gauge (10 – 18 mm)

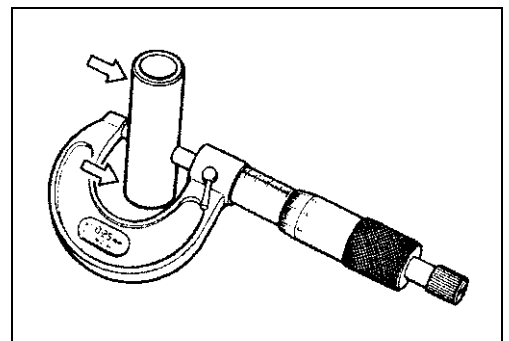


- Measure the piston pin outside diameter at three positions using the micrometer.
- If any of the measurements are out of specification, replace the piston pin.

DATA Piston pin O.D.:

Service Limit: 15.980 mm (0.6291 in)

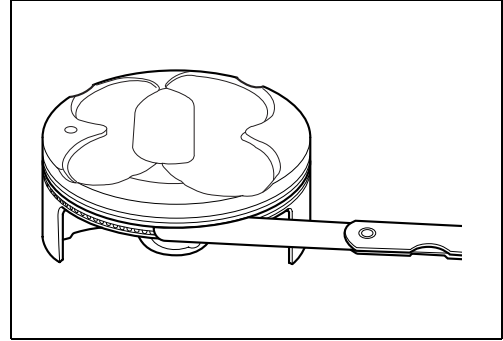
TOOL 09900-20205: Micrometer (0 – 25 mm)



PISTON RING-TO-GROOVE CLEARANCE

- Decarbonize the piston ring and piston ring groove.
- Measure the side clearances of the 1st piston ring using the thickness gauge.
- If any of the clearances exceed the limit, replace both the piston and piston ring.

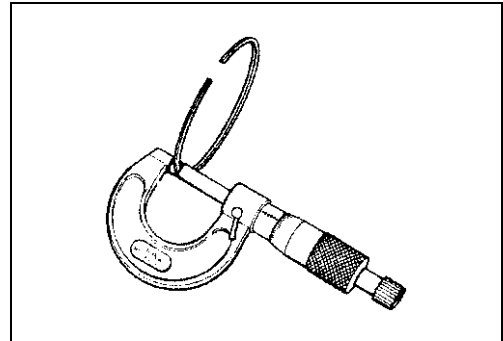
TOOL 09900-20803: Thickness gauge
09900-20205: Micrometer (0 – 25 mm)



DATA Piston ring-to-groove clearance:
Service Limit (1st): 0.180 mm (0.007 in)

DATA Piston ring groove width:
Standard (1st): 1.01 – 1.03 mm (0.0398 – 0.0406 in)
(Oil): 1.51 – 1.53 mm (0.0594 – 0.0602 in)

DATA Piston ring thickness:
Standard (1st): 0.97 – 0.99 mm (0.0382 – 0.0390 in)

**PISTON RING FREE END GAP AND PISTON RING END GAP**

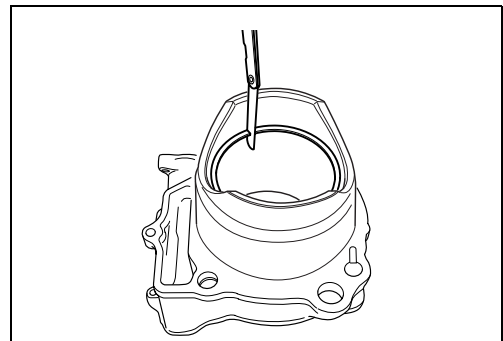
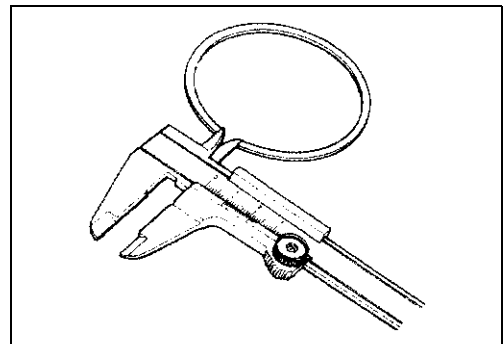
- Measure the piston ring free end gap using the vernier calipers.
- Next, fit the piston ring squarely into the cylinder and measure the piston ring end gap using the thickness gauge.
- If any of the measurements exceed the service limit, replace the piston ring with a new one.

DATA Piston ring free end gap:
Service Limit (1st): 5.6 mm (0.22 in)

TOOL 09900-20101: Vernier calipers (150 mm)

DATA Piston ring end gap:
Service Limit (1st): 0.50 mm (0.020 in)

TOOL 09900-20803: Thickness gauge



CRANKSHAFT AND CONROD INSPECTION

For inspection other than the following, refer to page 10-7,-8.

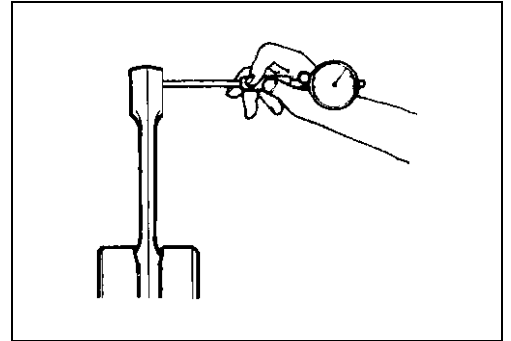
CONROD SMALL END I.D.

- Using a small bore gauge, measure the inside diameter of the conrod small end.
- If the inside diameter of the conrod small end exceeds the limit, replace the conrod.

DATA Conrod small end I.D.:

Service Limit: 16.040 mm (0.6315 in)

TOOL 09900-20602: Dial gauge (1/1 000 mm, 1 mm)
09900-22401: Small bore gauge (10 – 18 mm)



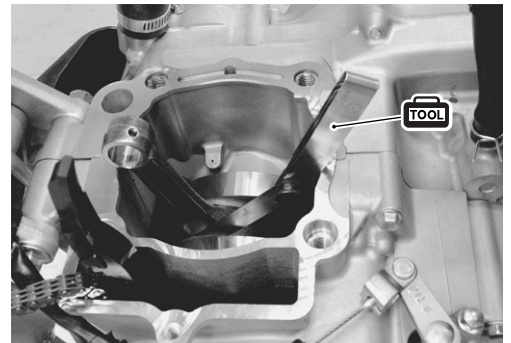
CONROD BIG END SIDE CLEARANCE

- Inspect the conrod side clearance by using a thickness gauge.
- If the clearance exceeds the service limit, replace crankshaft assembly or bring the deflection and side clearance into specification by replacing the worn parts. (e.g., conrod, big end bearing and crank pin)

DATA Conrod big end side clearance:

Service Limit: 1.0 mm (0.04 in)

TOOL 09900-20803: Thickness gauge

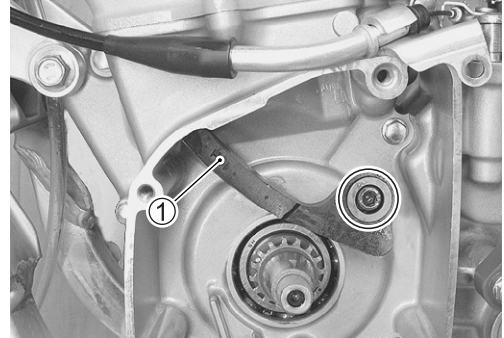


CAM CHAIN, CAM CHAIN TENSIONER AND CAM CHAIN GUIDE INSTALLATION

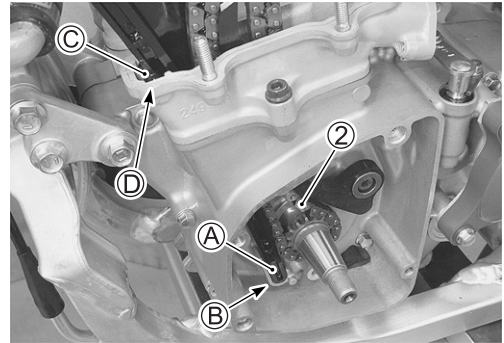
Install the cam chain and cam chain tensioner in the reverse order of removal. Pay attention to the following points:

- Install the cam chain tensioner ①.

 **Cam chain tensioner bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)**



- Install the cam chain ② to the crankshaft sprocket.
- Insert the cam chain No.1 guide end (A) into the recess (B) of the crankcase securely.
- Fit the projection (C) of the cam chain guide in the groove (D) of the cylinder.

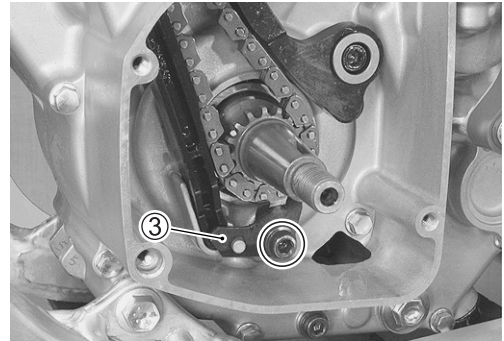


CAUTION

Make sure that cam chain engages properly to the cam chain drive gear.

- Install the cam chain guide retainer ③ and tighten the retainer mounting bolt to the specified torque.

 **Cam chain guide retainer mounting bolt:
10 N·m (1.0 kgf-m, 7.0 lb-ft)**



- Install the magneto rotor and magneto cover. (☞ 14-13)
- Install the cylinder head and cylinder head cover. (☞ 6-27 to -33)

PISTON AND PISTON RING INSTALLATION

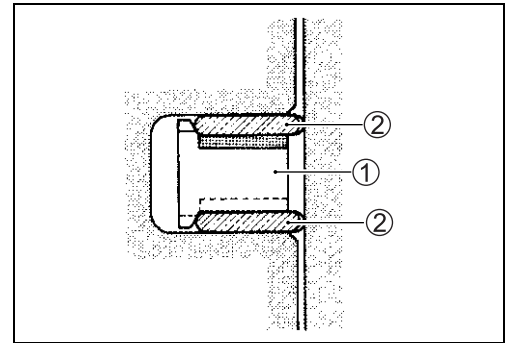
Install the piston and piston ring in the reverse order of removal. Pay attention to the following points:

PISTON RING

- Install the piston rings in the order of oil ring and 1st ring.
- The first member to go into the oil ring groove is a spacer ①. After placing the spacer, fit the two side rails ②.

NOTE:

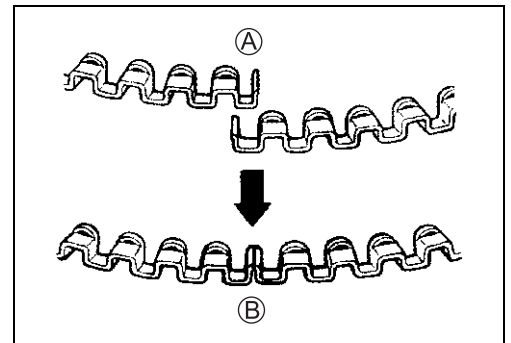
Side designations, top and bottom, are not applied to the spacer and side rails: you can position each either way.



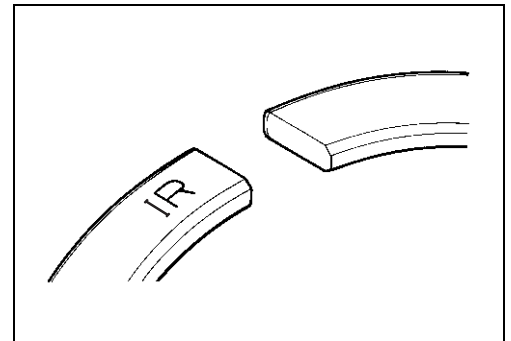
CAUTION

When installing the spacer ①, be careful not to allow its two ends to overlap in the groove.

- Ⓐ INCORRECT
- Ⓑ CORRECT

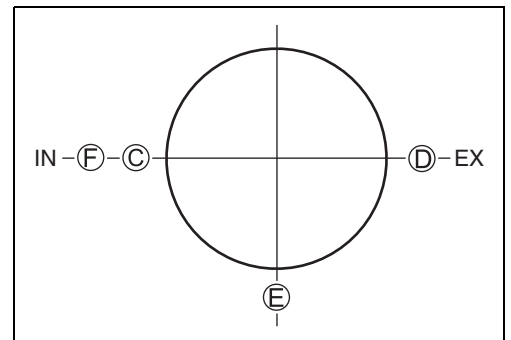


- Install the 1st ring so that the “IR” mark faces up.



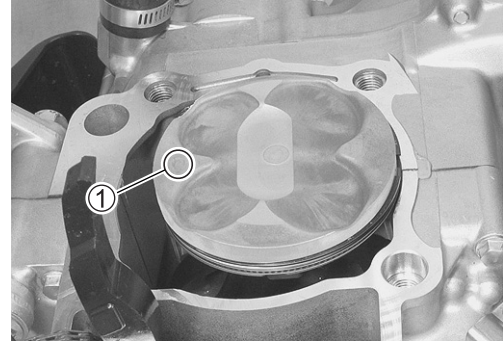
- Position the gaps of the two ring as shown. Before inserting a piston into the cylinder, check that the gaps are so located.

- Ⓒ 1st ring
- Ⓓ Upper side rail
- Ⓔ Spacer
- Ⓕ Lower side rail



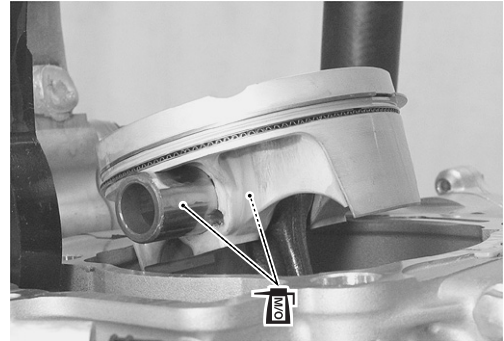
PISTON

- Install the piston with the punch mark ① facing towards the exhaust side.



- Before installing the piston pin, apply MOLYBDENUM OIL SOLUTION onto its surface.

MOLYBDENUM OIL SOLUTION



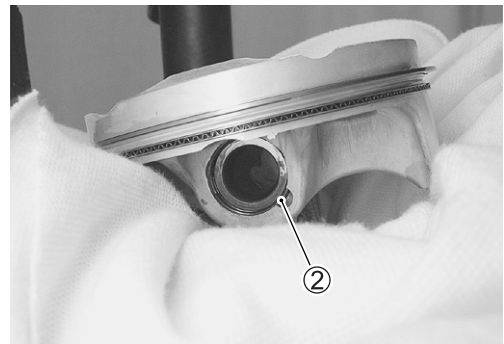
- Place a clean rag over the cylinder base to prevent the piston pin circlip from dropping into crankcase. Install the piston pin circlip ②.

CAUTION

Use a new piston pin circlip ② to prevent circlip failure.

NOTE:

End gap of the circlip should not be aligned with the cutaway in the piston pin bore.



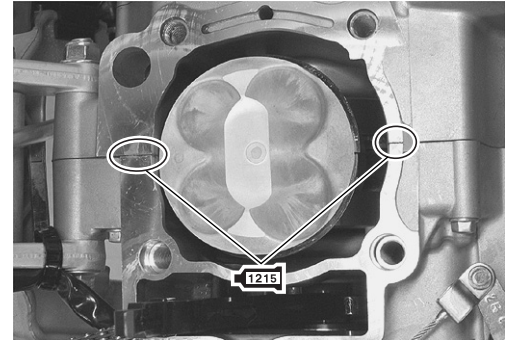
CYLINDER AND CYLINDER HEAD INSTALLATION

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

CYLINDER

- Thoroughly wipe off oil from the fitting surface of the crankcase.
- Apply SUZUKI BOND to the crankcase as shown.

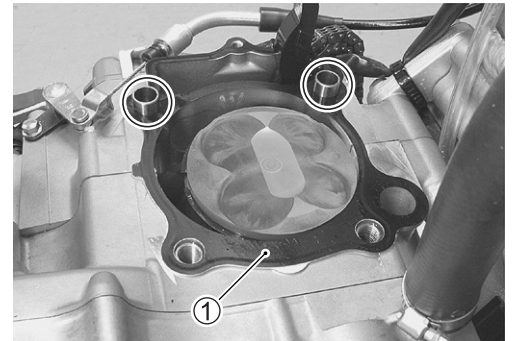
 99000-31110: SUZUKI BOND "1215"
(or equivalent bond)



- Install the dowel pins into the crankcase and then install the cylinder gasket ①.

CAUTION

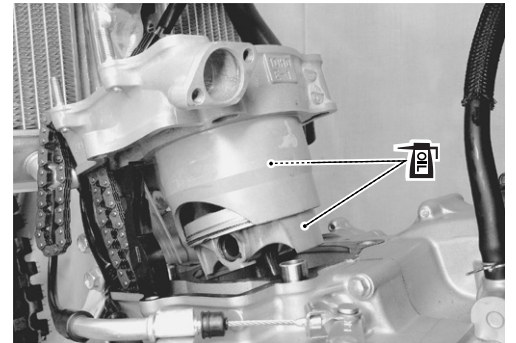
Use a new gasket to prevent oil leakage.



- Apply engine oil to the sliding surface of the piston and cylinder bore.
- Hold each piston ring with the piston ring sections positioned correctly and put it into the cylinder.
- Make sure that the piston rings are caught by the cylinder skirt.
- Place the cylinder on the crankcase.

CAUTION

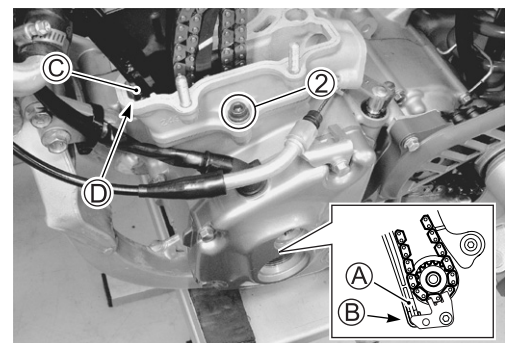
Do not drop the cam chain into the crankcase.



- Temporarily tighten the cylinder base bolt ②.
- Insert the cam chain guide end ① into the recess ② of the crankcase securely.
- Fit the projection ③ of the cam chain guide ③ in the groove ④ of the cylinder.

CAUTION

Make sure that cam chain engages properly to the cam chain drive gear.

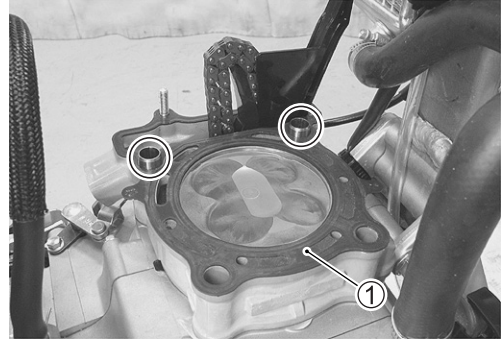


CYLINDER HEAD

- Install the dowel pins into the cylinder and then install the cylinder head gasket ① onto the cylinder.

CAUTION

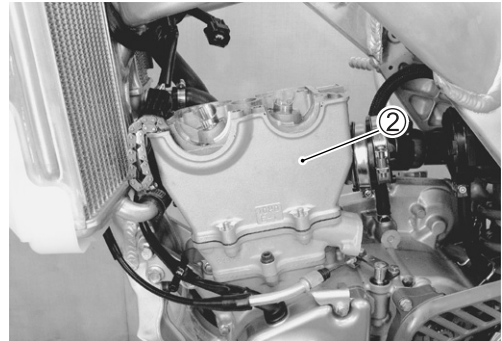
Use a new gasket to prevent gas leakage.



- Place the cylinder head ② on the cylinder.

CAUTION

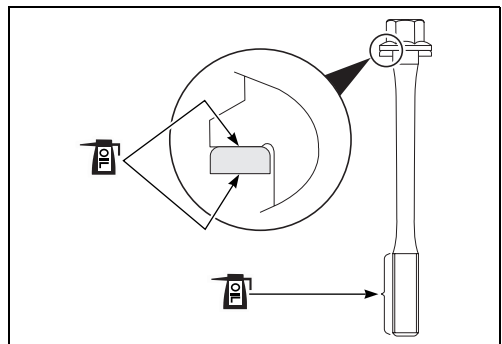
Do not drop the cam chain into the crankcase.



- Install the gasket washers to the cylinder head bolts as shown.

CAUTION

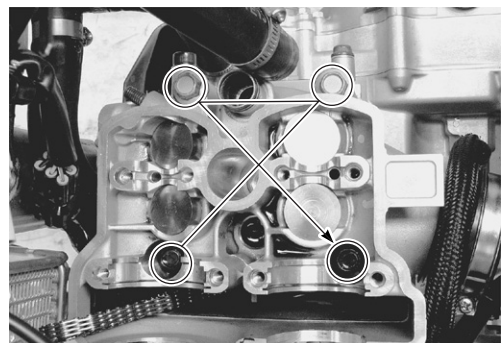
The gasket washers should be replaced with new ones to prevent oil leakage.



- Apply engine oil to the washers and thread portion of the bolts before installing the cylinder head bolts.

- With the head snugly seated on the cylinder, secure it by tightening the bolts in diagonal stages.
- Tighten the cylinder head bolts to the specified torque.

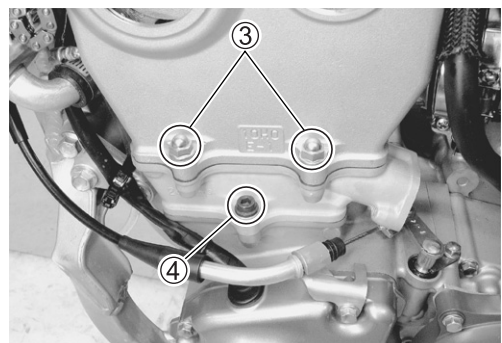
**🔩 Cylinder head bolt: Initial 25 N·m (2.5 kgf-m, 18.0 lb-ft)
Final 50 N·m (5.0 kgf-m, 36.0 lb-ft)**



- After tightening the cylinder head bolts to specification, tighten the cylinder head base nuts ③ and cylinder base bolt ④ to the specified torque.

**🔩 Cylinder head base nut: 10 N·m (1.0 kgf-m, 7.0 lb-ft)
Cylinder base bolt: 12 N·m (1.2 kgf-m, 8.5 lb-ft)**

- Install the engine mounting upper brackets. (🔧 5-6)
- Install the exhaust pipe. (🔧 5-8)
- Install the spark plug. (🔧 2-7)
- Install the carburetor. (🔧 12-16)



CAMSHAFT (AUTOMATIC DECOMP.) AND CAM CHAIN TENSION ADJUSTER INSTALLATION

Install the camshaft and cam chain tension in the reverse order of removal. Pay attention to the following points:

CAMSHAFT (AUTOMATIC DECOMP.)

- Place a wrench over the crankshaft and turn it counterclockwise to align the TDC mark (A) with the center of the grooves (B) of the timing inspection hole.

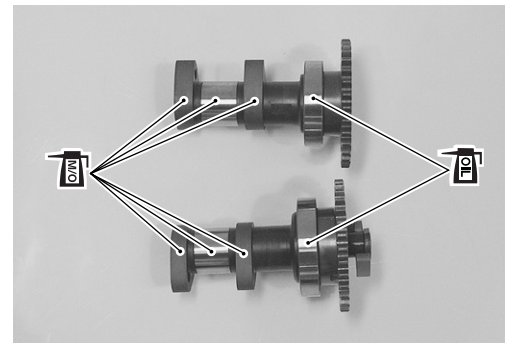
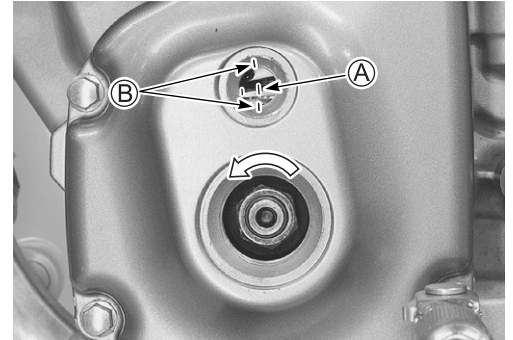
CAUTION

Pull the cam chain upward, or the chain will be caught between crankcase and cam drive sprocket.

To adjust the camshaft timing correctly, be sure to align the TDC mark (A) with the index mark (B) and hold this position when installing the camshafts.

- Just before installing the camshaft into the cylinder head, apply MOLYBDENUM OIL SOLUTION to the camshaft journals, camshaft journal holders and cam faces. Also, apply engine oil to the camshaft bearings.

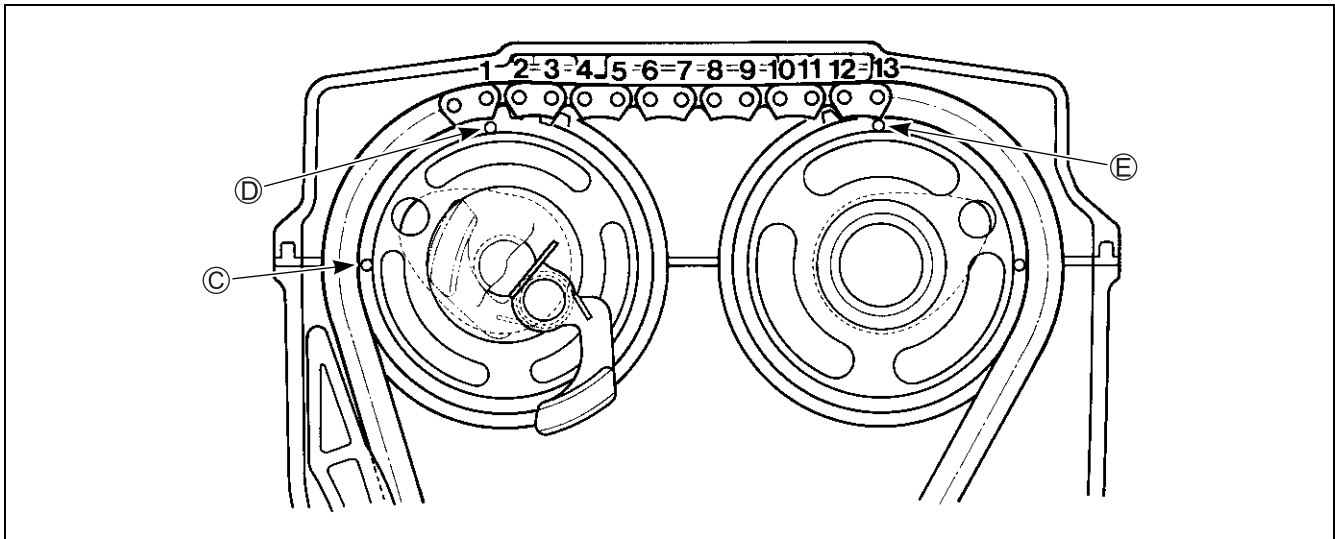
 **MOLYBDENUM OIL SOLUTION**



- Pull the exhaust side of the cam chain taut to install the camshaft sprocket (exhaust side).
- Turn the exhaust camshaft so that the timing mark © is aligned with the gasket surface of the cylinder head.
- Engage the cam chain with the exhaust camshaft sprocket.
- The other timing marked Ⓓ should now be pointing straight up. Starting from the roller pin that is directly above the timing marked Ⓓ, count out 13 roller pins (from the exhaust camshaft side going towards the intake camshaft side).
- Engage the 13 roller pin on the cam chain with the timing marked Ⓔ on the camshaft sprocket (intake side). Refer to the following illustrations.

NOTE:

The cam chain should now be on all three sprockets. Be careful not to move the crankshaft until the camshaft journal holders and cam chain tension adjuster are secured.



- Install the dowel pins and C-ring ①.
- Install the camshaft journal holders, intake and exhaust.

NOTE:

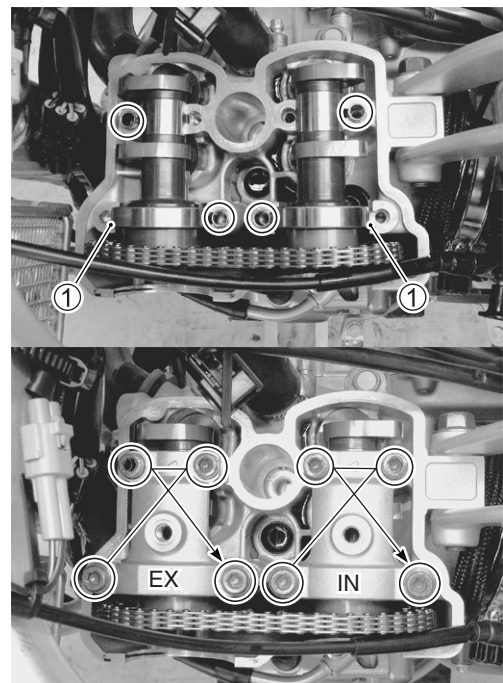
- * Camshaft journal holders marked "EX" are for the exhaust side and those marked "IN" are for the intake side.
- * When tightening the camshaft journal holder bolts, the piston position must be at TDC on the compression stroke.

- Tighten the camshaft journal holder bolts to the specified torque.

NOTE:

Tighten the camshaft journal bolts diagonally.

- 🔩 **Camshaft journal holder bolt: 10 N·m
(1.0 kgf-m, 7.0 lb-ft)**



CAM CHAIN TENSION ADJUSTER

- Retract the push rod by pushing the stopper ①.
- Apply SUZUKI SUPER GREASE to the O-ring ②.

CAUTION

Use a new O-ring ② prevent oil leakage.

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

- Install the cam chain tension adjuster ③ as shown.
- Tighten the cam chain tension adjuster mounting bolts to the specified torque.

 **Cam chain tension adjuster mounting bolt:**
10 N·m (1.0 kgf·m, 7.0 lb-ft)

- Install the spring ④ and bar ⑤.

- Install the gasket ⑥ and cam chain tension adjuster cap bolt ⑦.

NOTE:

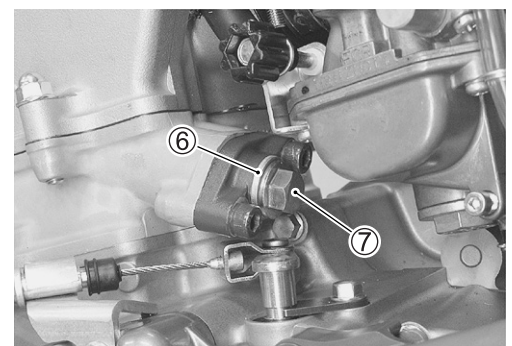
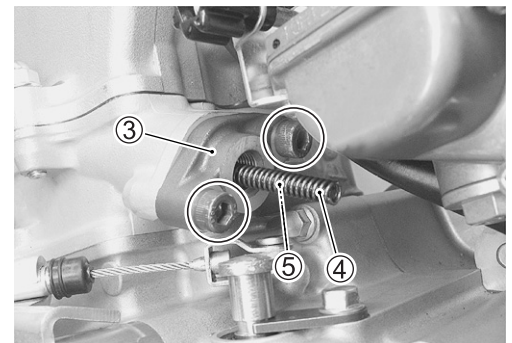
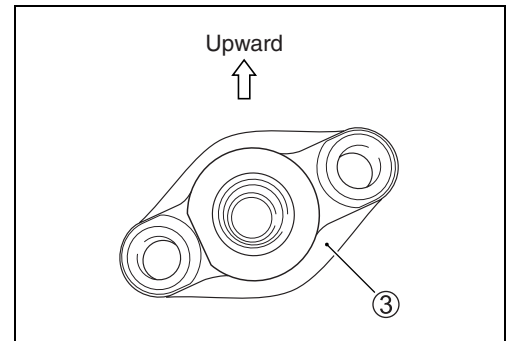
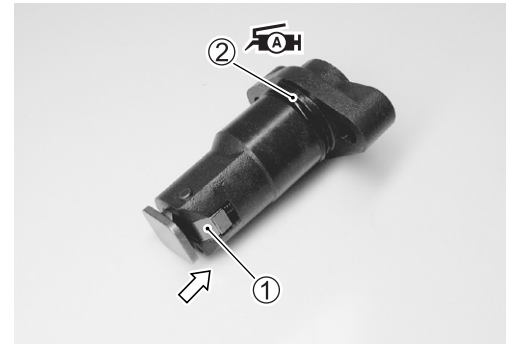
Click sound is heard when the cam chain tension adjuster cap bolt is installed.

- Tighten the cam chain tension adjuster cap bolt to the specified torque.

 **Cam chain tension adjuster cap bolt:**
23 N·m (2.3 kgf·m, 16.5 lb-ft)

CAUTION

After installing the cam chain tension adjuster, check to be sure that the adjuster works properly by checking the slack of cam chain.



- After installing the cam chain tension adjuster, rotate the crankshaft (two turns), and recheck the positions of the camshafts. (👉 6-30)

CAUTION

After this procedure, if any resistance is felt while turning over the crankshaft, stop immediately, and check the camshaft chain timing.


- Inspect the valve clearance. (👉 2-22)
- Apply SUZUKI SUPER GREASE to the O-rings.

CAUTION

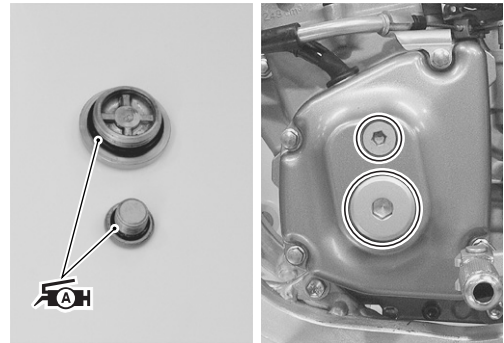
Use the new O-rings to prevent oil leakage.

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

- Tighten each plug to the specified torque.

 TDC plug: 14 N·m (1.4 kgf-m, 10.0 lb-ft)

Crankshaft hole plug: 11 N·m (1.1 kgf-m, 8.0 lb-ft)



CYLINDER HEAD COVER INSTALLATION

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

- Install the gasket to the cylinder head cover.

CAUTION

Use a new gasket to prevent oil leakage.

- Apply SUZUKI BOND to the end caps of the cylinder head cover gasket as shown.

 **99000-31140: SUZUKI BOND “1207B”**

- Place the cylinder head cover on the cylinder head.
- Apply engine oil to both sides of gaskets.

CAUTION






Use the new gaskets to prevent oil leakage.
--

- Tighten the cylinder head cover bolts to the specified torque.

 **Cylinder head cover bolt: 14 N·m (1.4 kgf·m, 10.0 lb-ft)**

- Install the spark plug and ignition coil/plug cap.
- Install the radiator covers and fuel tank.
- Install the seat.

INSPECTION AFTER INSTALLATION

- Engine oil leakage
- Engine coolant level and coolant leakage ( 2-15, -16)
- Fuel leakage ( 2-21)
- Exhaust gas leakage
- Throttle cable play ( 2-18)
- Clutch lever play ( 2-17)
- Wiring harness, cable and hose routing ( 19-18 to -23)



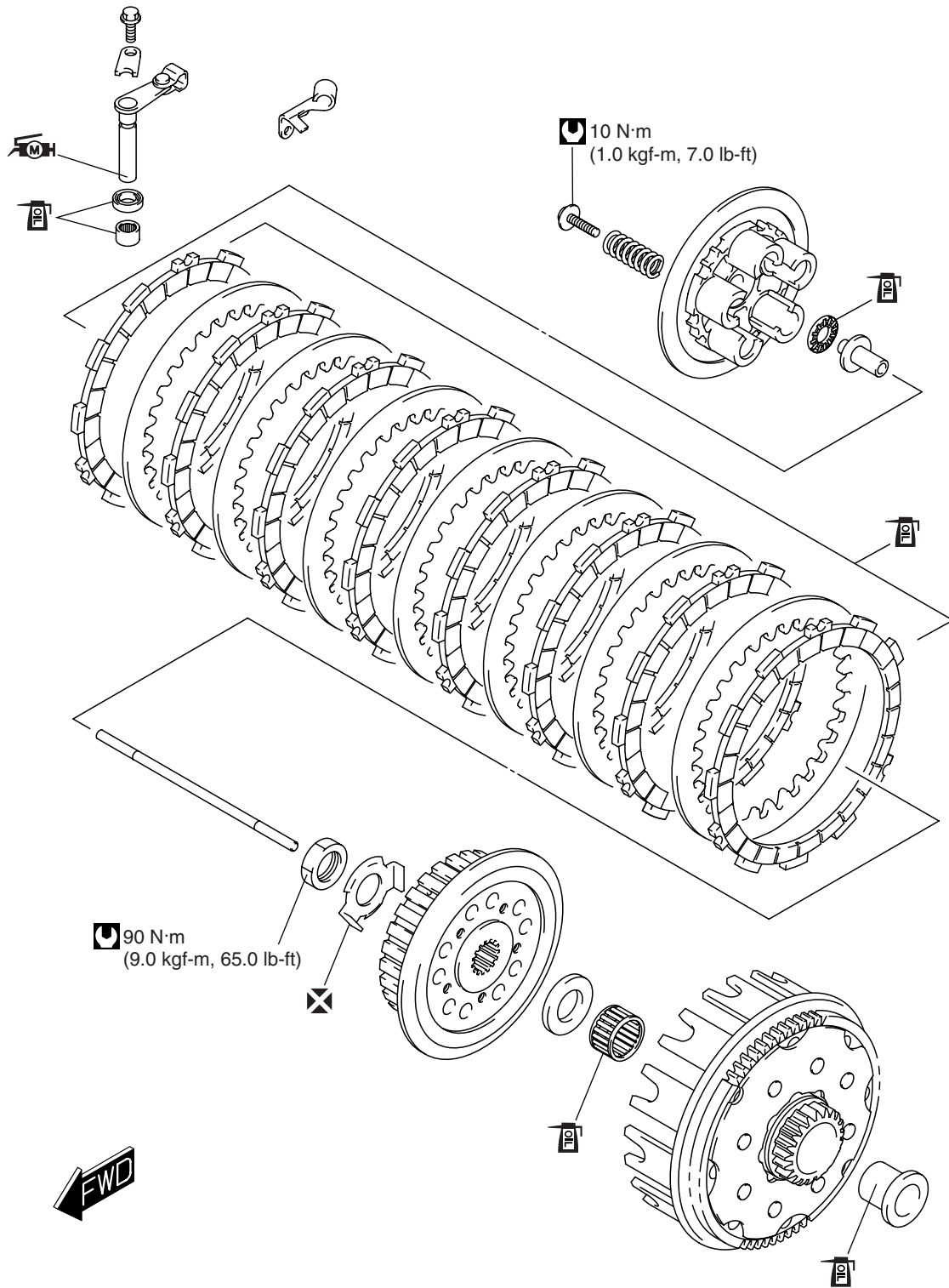
– MEMO –

CLUTCH

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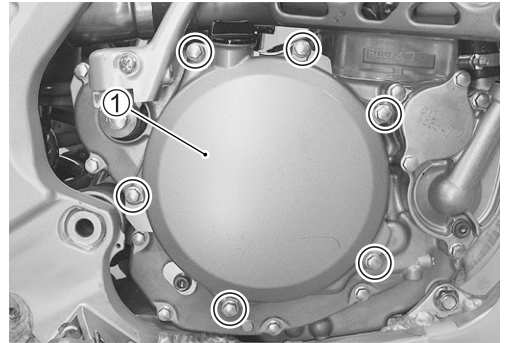
CONSTRUCTION CLUTCH



CLUTCH PLATE

REMOVAL

- Drain engine oil. (☞ 2-12)
- Remove the brake pedal. (☞ 16-18)
- Remove the clutch cover ① and its gasket.



- Hold the clutch housing with the special tool.

CAUTION

Be careful not to damage the clutch housing or clutch plates.

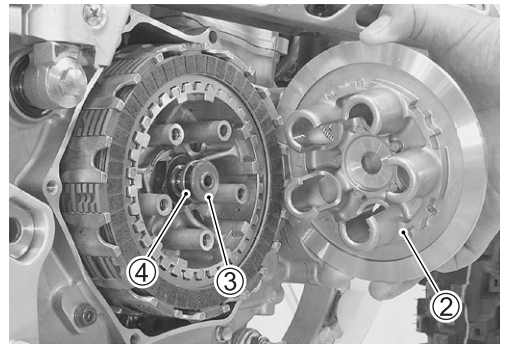
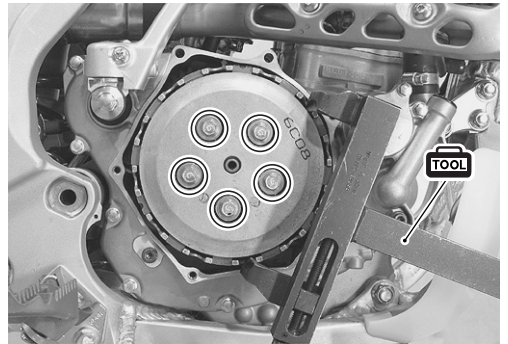
TOOL 09920-53740: Clutch sleeve hub holder

- Remove the clutch spring set bolts and clutch springs.

NOTE:

Loosen the clutch spring set bolts little by little and diagonally.

- Remove the pressure plate ②, bearing ③ and push piece ④.



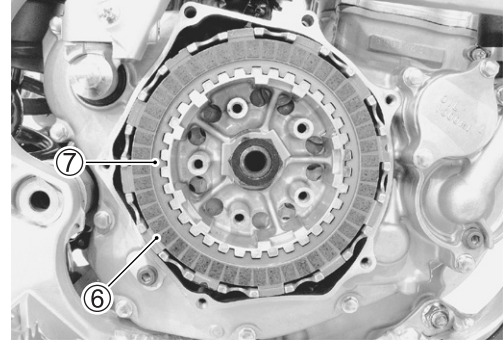
- Remove the push rod ⑤.

NOTE:

If it is difficult to pull out the push rod ⑤, use a magnetic hand or a wire.



- Remove the clutch drive plates ⑥ and driven plates ⑦.



INSPECTION

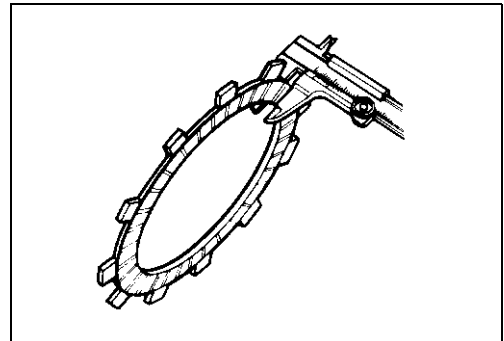
DRIVE PLATE

- Measure the drive plate thickness.

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

TOOL 09900-20101: Vernier calipers (150 mm)

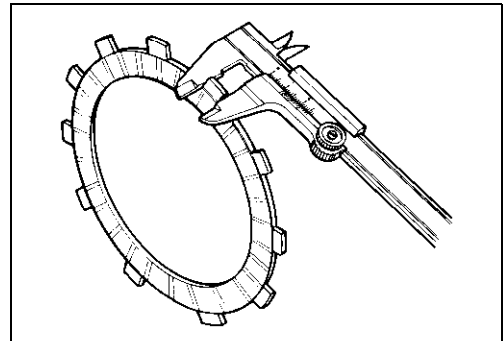
- Inspect the drive plates for wear, distortion and discoloration.
- If the drive plate thickness is found to have reached the limit, replace it with a new one.



- Measure the drive plate claw width.
- Replace the drive plates found to have worn down to the limit.

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

TOOL 09900-20101: Vernier calipers (150 mm)



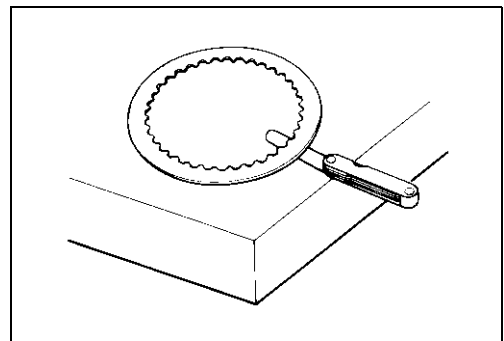
DRIVEN PLATE

- 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.
- Replace driven plates which exceed the limit.



CLUTCH SPRING

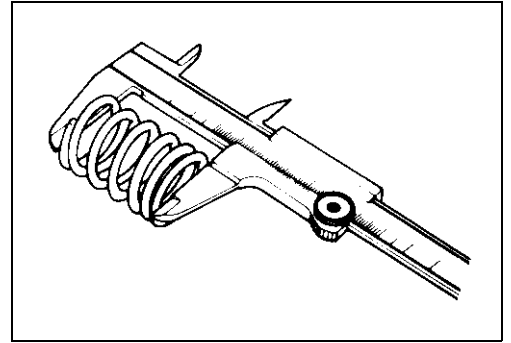
- Measure the clutch spring free length.
- Replace all the springs if any spring is not within the limit.

NOTE:

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

DATA Clutch spring free length
Service Limit: 43.0 mm (1.69 in)

TOOL 09900-20101: Vernier calipers (150 mm)



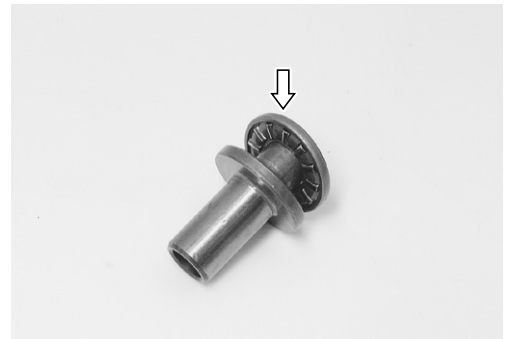
PUSH ROD

- Inspect the push rod for wear and damage.
- If any defects are found, replace the push rod with a new one.



RELEASE BEARING

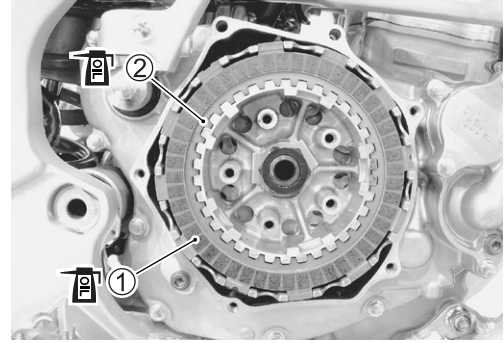
- Inspect the clutch release bearing for any abnormality, particularly cracks, to decide whether it can be reused or should be replaced.
- Smooth engagement and disengagement of the clutch depends on the condition of this bearing.



INSTALLATION

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

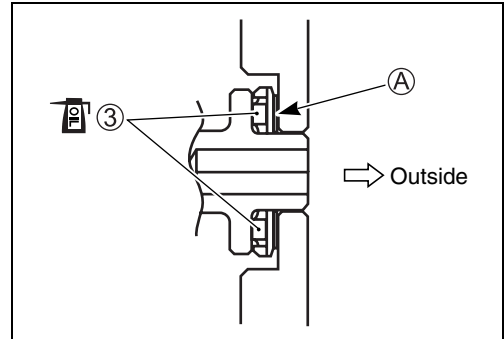
- Apply engine oil to the drive plates ① and driven plates ②.



- Install the push rod and push piece.
- Apply engine oil to the release bearing ③.

NOTE:

The covered side (A) of the bearing should face outside.



- Fit the pressure plate.
- Install the clutch springs and clutch spring set bolts.
- Hold the clutch housing with the special tool.

CAUTION

Be careful not to damage the clutch housing or clutch plates.

TOOL 09920-53740: Clutch sleeve hub holder

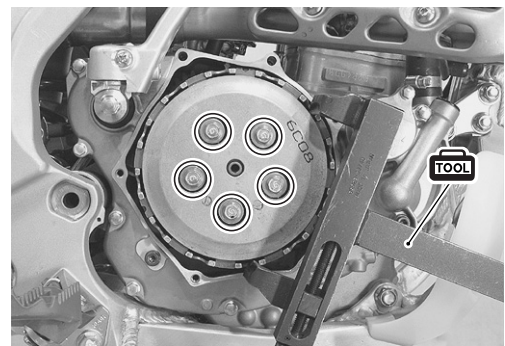
- Tighten the clutch spring set bolts to the specified torque.

NOTE:

Tighten the clutch spring set bolts diagonally.

U Clutch spring set bolt: 10 N·m (1.0 kgf·m, 7.0 lb-ft)

- Install the gasket ④ and clutch cover ⑤.



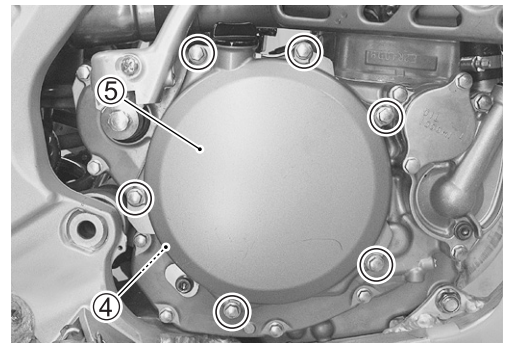
CAUTION

Replace the gasket ④ with a new one.

- Tighten the clutch cover bolts diagonally.

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

- Install the brake pedal. (☞ 16-18)



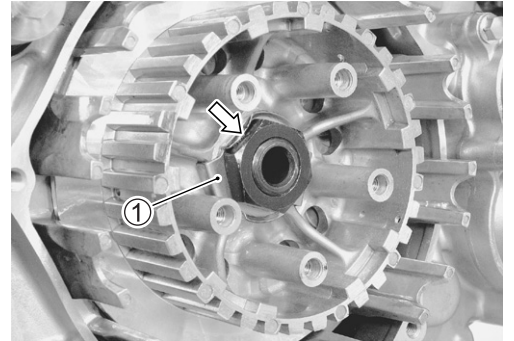
INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (☞ 2-11)
- Clutch cable play (☞ 2-17)
- Smooth operation of clutch assembly

PRIMARY DRIVEN GEAR AND CLUTCH SLEEVE HUB

REMOVAL

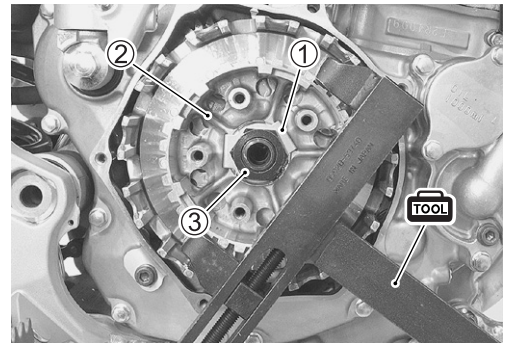
- Remove the clutch cover. (☞ 7-3)
- Remove the pressure plate and clutch plates. (☞ 7-3, -4)
- Flatten the lock washer ①.



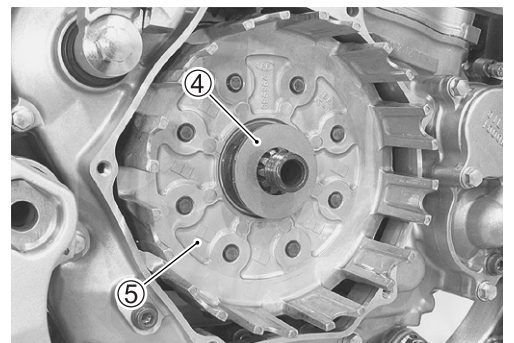
- Hold the clutch sleeve hub ② with the special tool and loosen the nut ③.

TOOL 09920-53740: Clutch sleeve hub holder

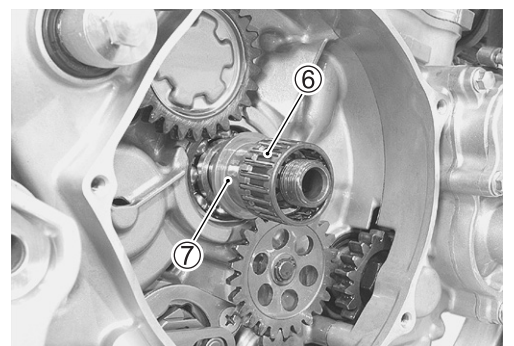
- Remove the nut ③, lock washer ① and clutch sleeve hub ②.



- Remove the washer ④ and primary driven gear ⑤.

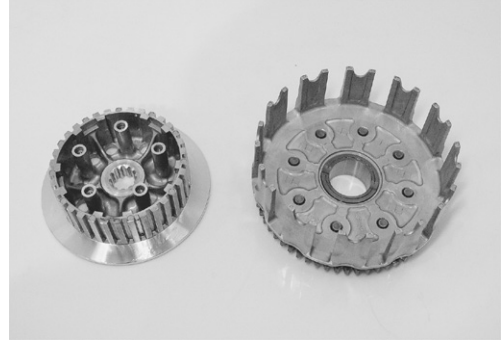


- Remove the needle bearing ⑥ and spacer ⑦.

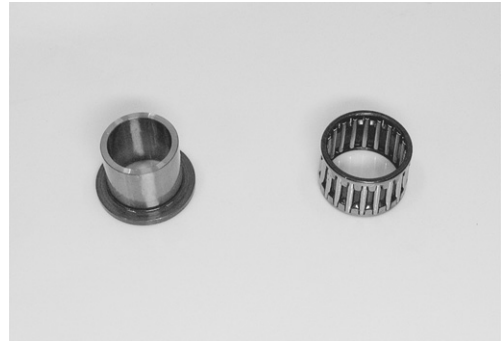


INSPECTION

- Inspect the clutch sleeve hub and primary driven gear for wear and cracks.
- If necessary, replace the sleeve hub or driven gear.



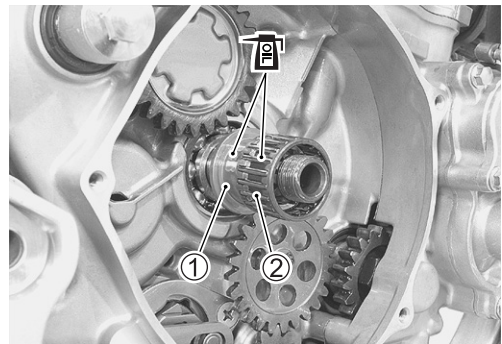
- Inspect the needle bearing and spacer for damage and wear.
- If any defects are found, replace the bearing or spacer.



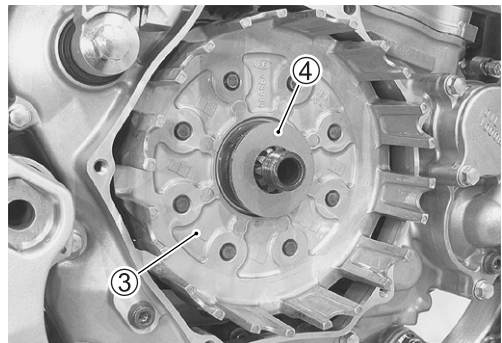
INSTALLATION

Install the primary driven gear and clutch sleeve hub in the reverse order of removal. Pay attention to the following points:

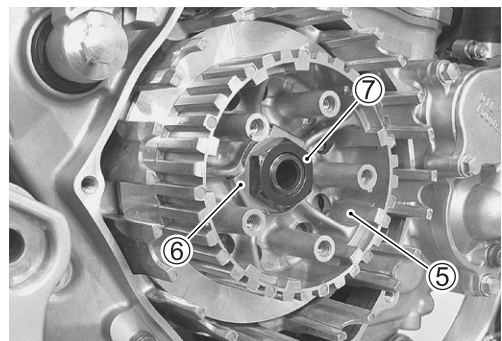
- Apply engine oil to the spacer ① and needle bearing ②.
- Install the spacer ① and needle bearing ②.



- Install the primary driven gear ③.
- Install the washer ④.



- Fit the clutch sleeve hub ⑤, lock washer ⑥ and clutch sleeve hub nut ⑦.




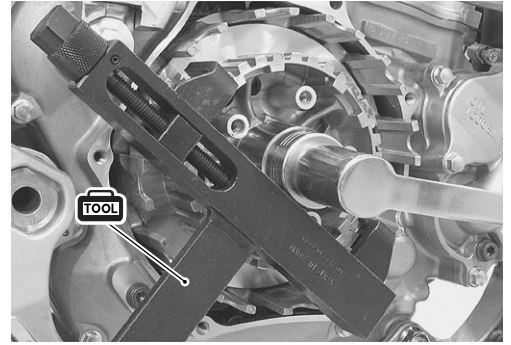
CAUTION

Replace the lock washer ⑥ with a new one.

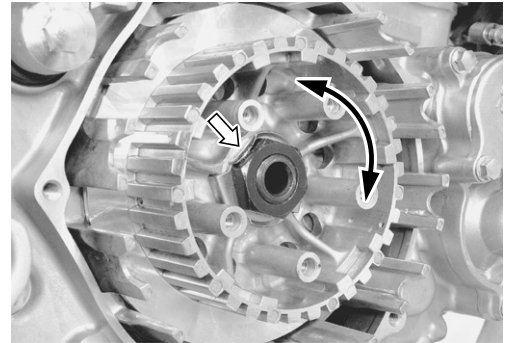
- Tighten the clutch sleeve hub nut with the special tool to the specified torque.

 **09920-53740: Clutch sleeve hub holder**

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



- Make sure the clutch sleeve hub for smooth movement.
- Bend the lock washer to secure the nut.



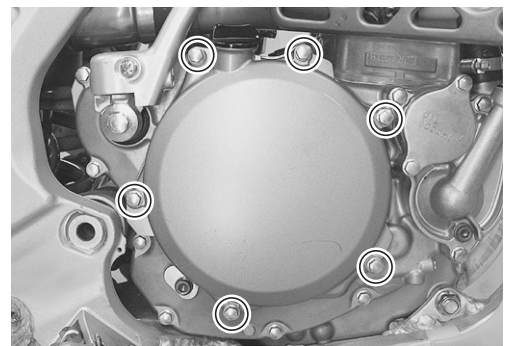
- Reassemble the clutch plates and pressure plate. (☞ 7-6)
- Install the gasket and clutch cover.

CAUTION
Replace the gasket with a new one.

- Tighten the clutch cover bolts diagonally.

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

- Install the brake pedal. (☞ 16-18)



INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (☞ 2-11)
- Clutch cable play (☞ 2-17)
- Smooth operation of clutch assembly

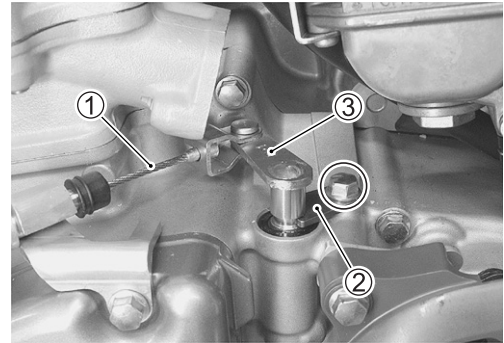
CLUTCH RELEASE CAMSHAFT

REMOVAL

- Remove the cam chain tension adjuster. (☞ 6-4)

CAUTION
<p>Do not turn the crankshaft after removing the cam chain tension adjuster.</p>

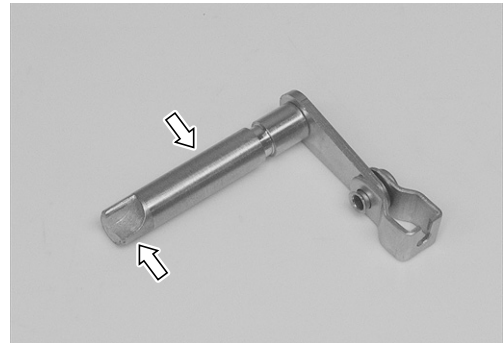
- Disconnect the clutch cable ① and remove the retainer ②.
- Pull the clutch release camshaft ③ out of crankcase.



INSPECTION

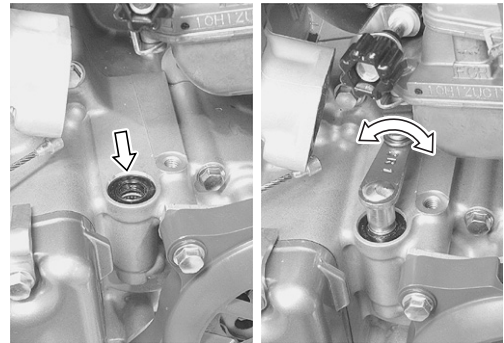
CLUTCH RELEASE CAMSHAFT

- Inspect the clutch release camshaft for abnormal deflection and damage.
- If any defects are found, replace the release camshaft with a new one.



OIL SEAL AND BEARING

- Inspect the oil seal for oil leakage and oil seal lip damage.
- Inspect the bearings for play and smooth movement.
- Replace the defective parts with a new one if necessary. (☞ 10-9 to -12)

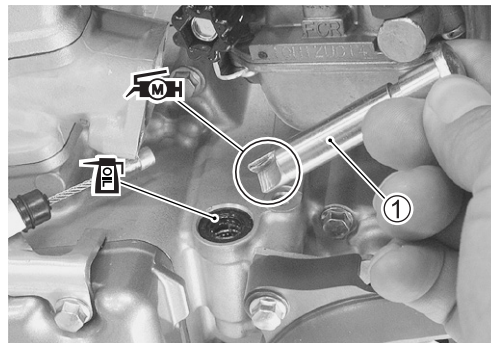



INSTALLATION

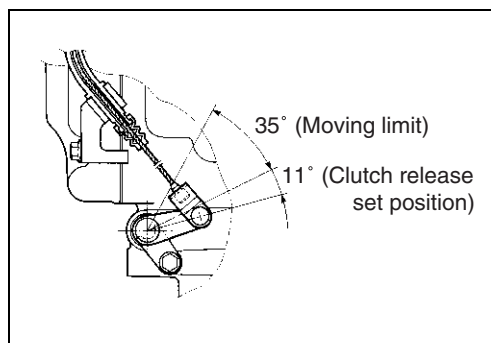
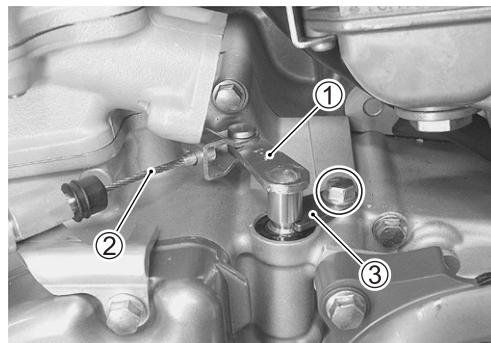
- Apply SUZUKI MOLY PASTE to the clutch release camshaft.

 99000-25140: SUZUKI MOLY PASTE



- Apply engine oil to the oil seal lip.
- Install the clutch release camshaft ①.



- Connect the clutch cable ② and install the retainer ③.
- Install the cam chain tension adjuster. ( 6-31)



INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage ( 2-11)
- Clutch cable play ( 2-17)
- Smooth operation of clutch assembly

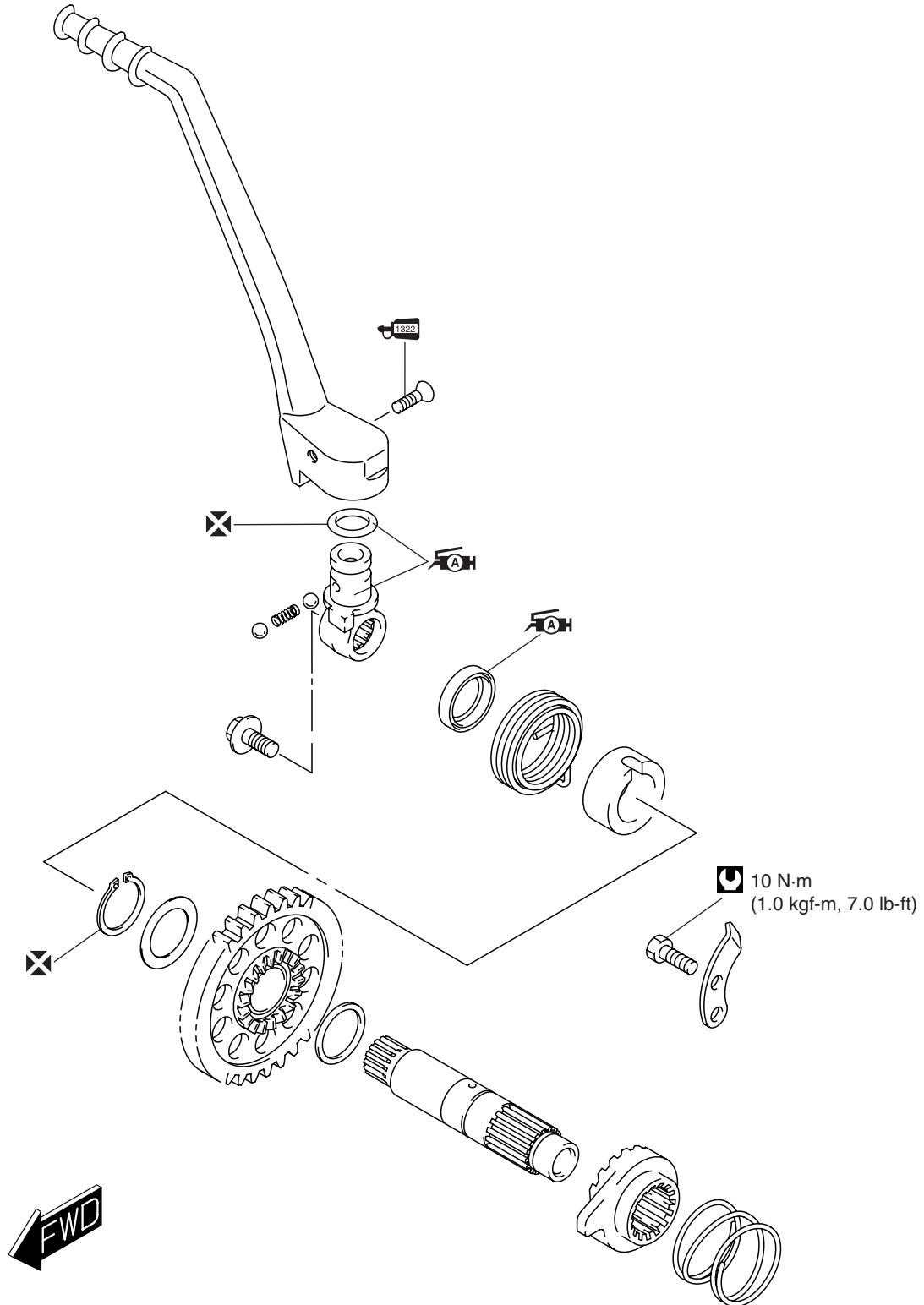
– MEMO –

KICK STARTER

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INSPECTION	8- 4
INSTALLATION	8- 5

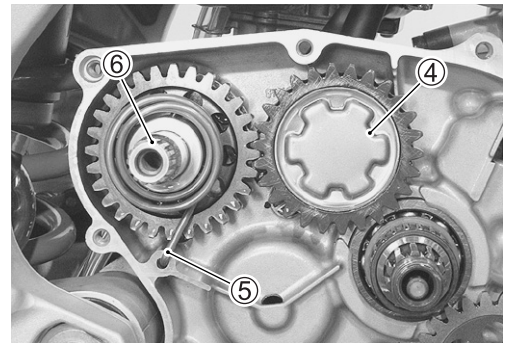
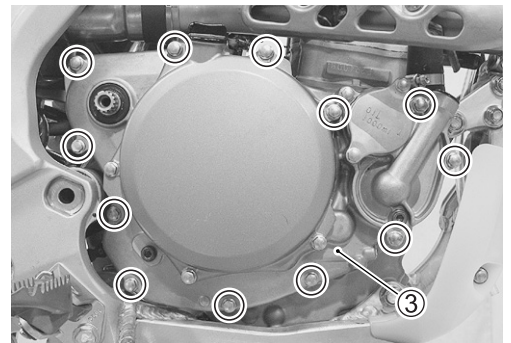
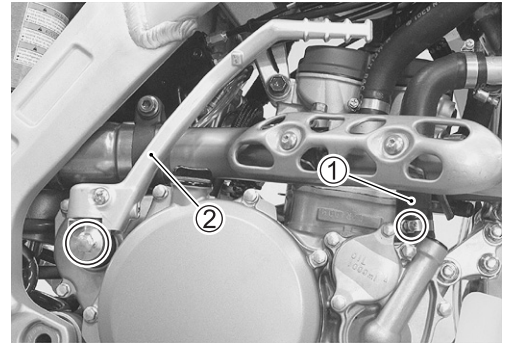
CONSTRUCTION KICK STARTER



KICK STARTER

REMOVAL

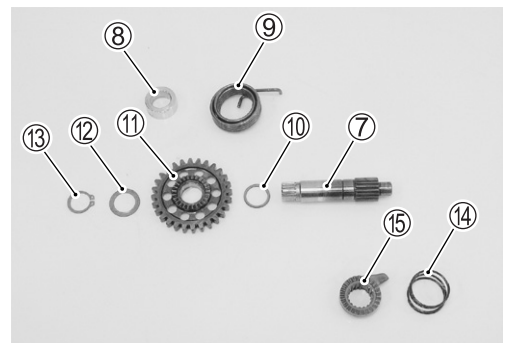
- Drain engine oil. (☞ 2-12)
 - Drain engine coolant. (☞ 13-3)
 - Remove the brake pedal. (☞ 16-18)
 - Disconnect the radiator hose ①.
 - Remove the kick starter lever ②.
-
- Remove the right crankcase cover ③, dowel pins and gasket.
 - Remove the clutch assembly. (☞ 7-7)
-
- Remove the kick starter idle gear ④.
 - Remove the end of return spring ⑤.
 - Remove the kick starter shaft assembly ⑥.



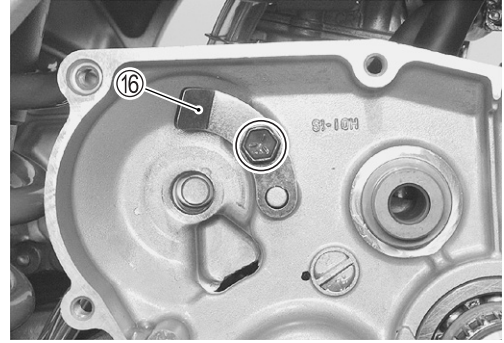
- Remove the following parts from the kick starter shaft ⑦.

Guide ⑧	Washer ⑫
Return spring ⑨	Snap ring ⑬
Washer ⑩	Spring ⑭
Kick starter drive gear ⑪	Kick starter ⑮

TOOL 09900-06107: Snap ring pliers

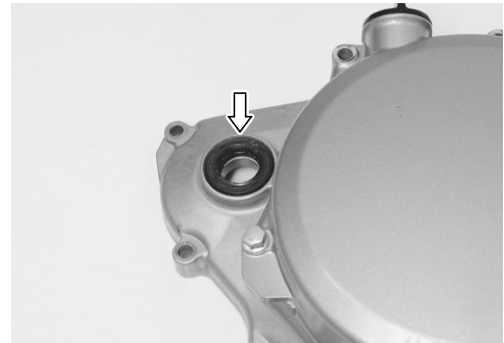


- Remove the kick starter guide ⑯.

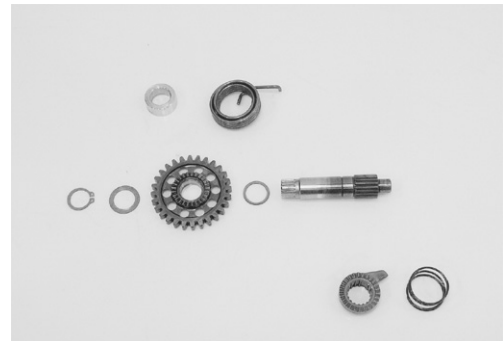


INSPECTION

- Inspect the oil seal lip for wear and damage.
- If any defects are found, replace the oil seal with a new one.



- Inspect the kick starter drive gear teeth for damage.
- Inspect the kick starter drive gear ratchet part for wear and damage.
- Inspect the kick starter shaft and drive gear for contact surface wear.
- Inspect the return spring for damage.
- Replace the defective parts with a new one if necessary.



- Inspect the kick starter idle gear teeth for wear and damage.
- Inspect the kick starter idle gear and its shaft contact surface for wear and damage.
- If any defects are found, replace the gear with a new one.



INSTALLATION

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


- Install the kick starter guide ①.

 **Kick starter guide bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)**

- Install the kick starter drive gear ②, washers and snap ring ③ to the kick starter shaft.

CAUTION

Replace the snap ring ③ with a new one.

 **09900-06107: Snap ring pliers**

- Install the return spring ④ into the kick starter shaft hole.

- Install the guide ⑤ to the kick starter shaft.

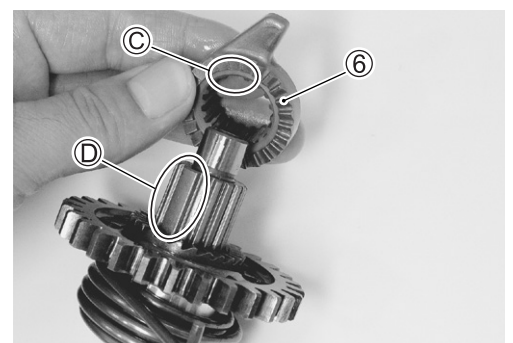
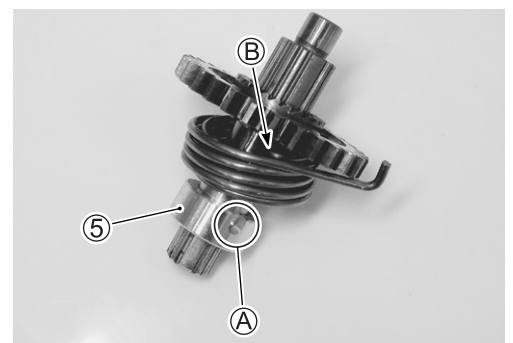
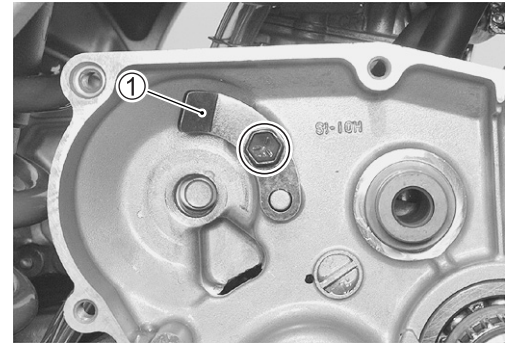
NOTE:

Align the concave ① of guide with kick starter shaft hole ②.

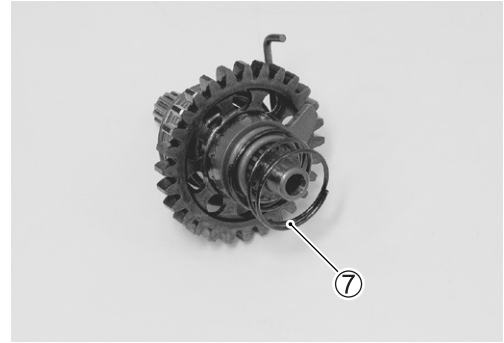
- Install the kick starter ⑥ onto the kick starter shaft.

NOTE:

When installing the kick starter ⑥, align the wide spline teeth ③ and ④.



- Install the spring ⑦ to the kick starter shaft.

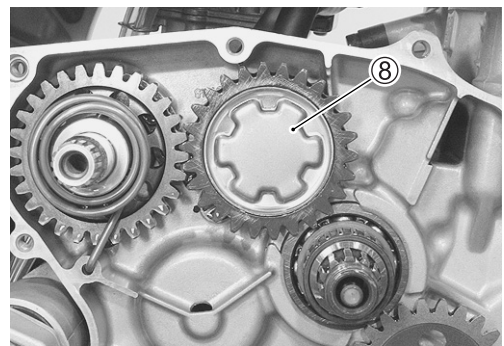
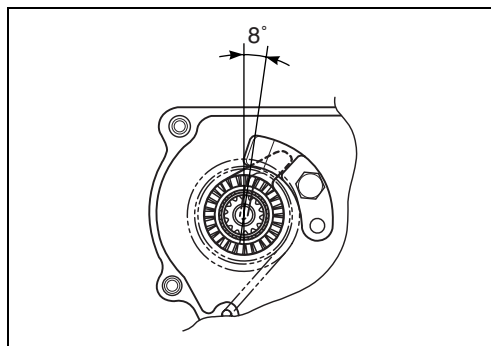
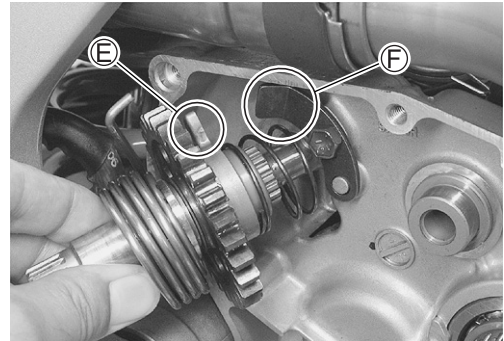


- Install the kick starter shaft assembly to the crankcase.

NOTE:

Securely engage the stopper portion ⑤ of the kick starter with the stopper guide ⑥.

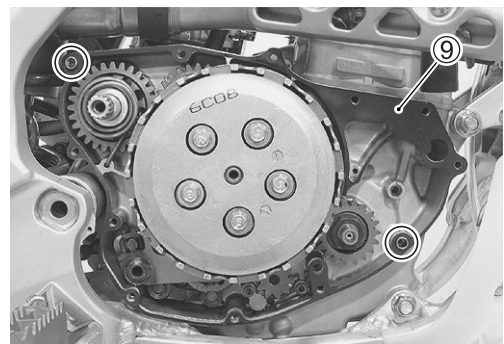
- Install the end of return spring to the crankcase.
- Install the kick starter idle gear ⑧.



- Reassemble the clutch assembly. (☞ 7-8, -9)
- Install the dowel pins and gasket ⑨.

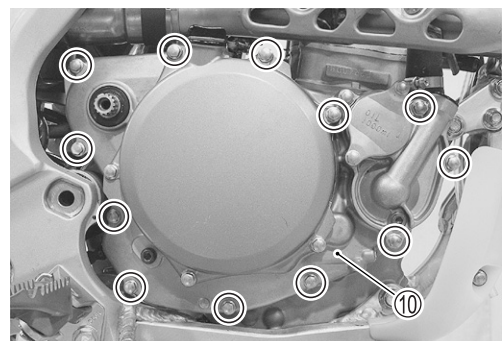
CAUTION

Use a new gasket ⑨ to prevent oil leakage.



- Install the right crankcase cover ⑩.

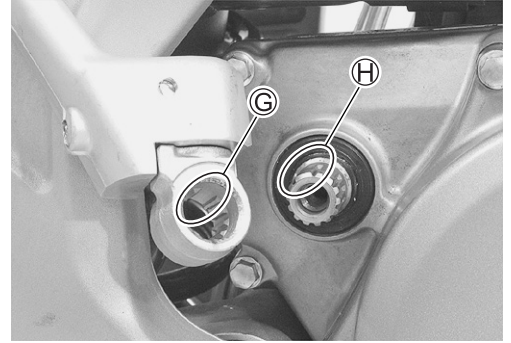
🔧 Right crankcase cover bolt: 11 N·m (1.1kgf-m, 8.0 lb-ft)




- Install the kick starter lever onto the kick starter shaft.



NOTE:

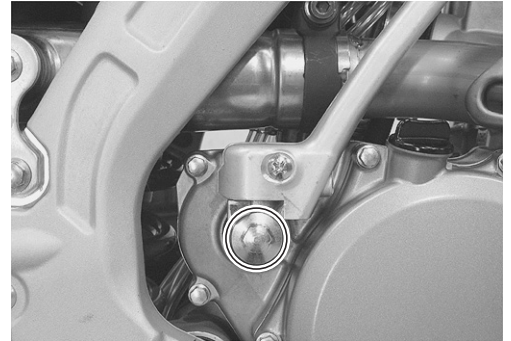
When installing the kick starter lever, align the wide spline teeth © and ④.





- Tighten the kick starter lever bolt to the specified torque.

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

- Install the brake pedal. ( 16-18)
- Connect the radiator hose. ( 19-23)



INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage ( 2-11)
- Engine coolant level and coolant leakage ( 2-15, -16)
- Smooth movement of kick starter

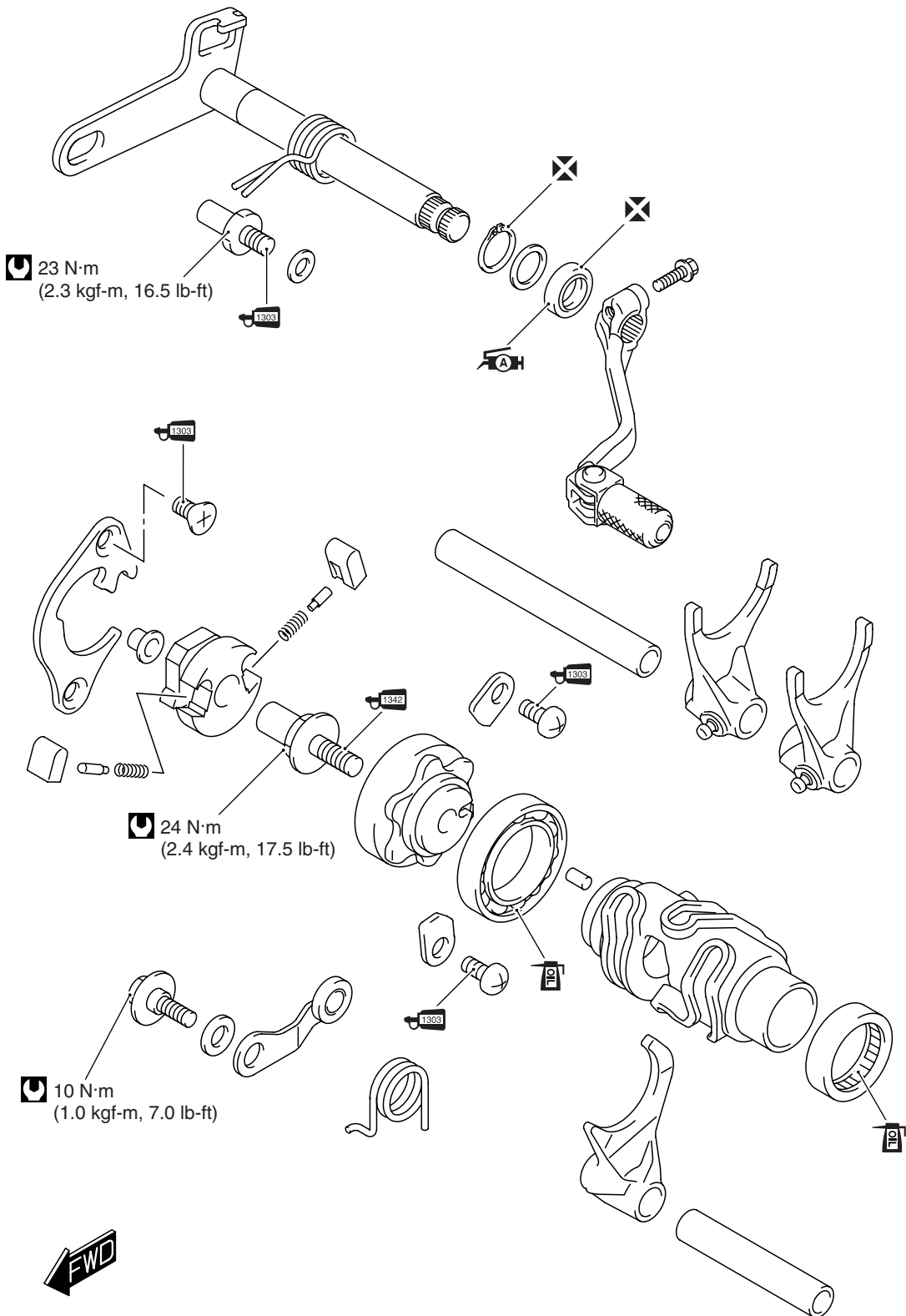
– MEMO –

GEARSHIFTING

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CONSTRUCTION GEARSHIFT LINKAGE



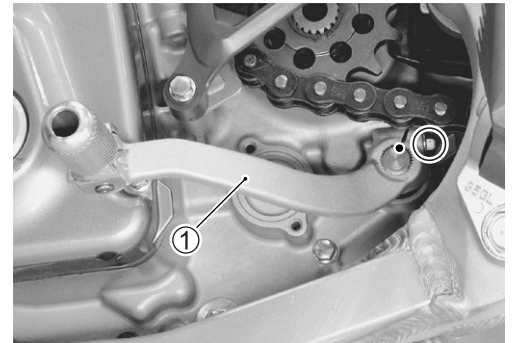
GEARSHIFT LINKAGE

REMOVAL

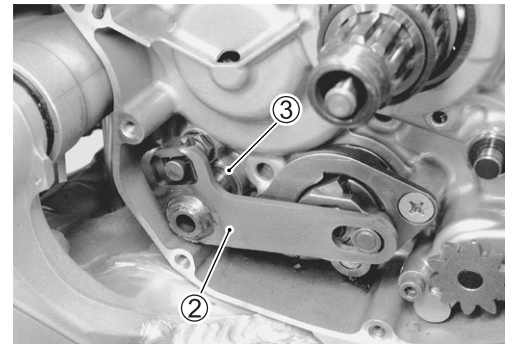
- Drain engine oil. (☞ 2-12)
- Drain engine coolant. (☞ 13-3)
- Remove the gearshift lever ①.

NOTE:

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

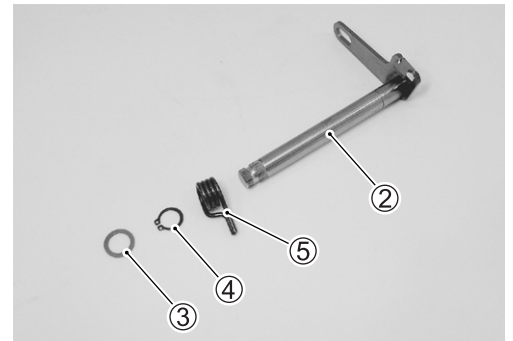


- Remove the right crankcase cover and clutch assembly. (☞ 7-7, 8-3)
- Remove the magneto cover. (☞ 14-12)
- Remove the primary driven gear and oil pump idle gear. (☞ 11-4)
- Remove the gearshift shaft ② and washer ③.



- Remove the washer ③, snap ring ④ and return spring ⑤ from the gearshift shaft ②.

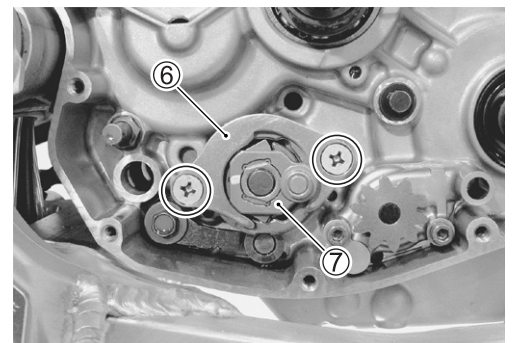
TOOL 09900-06107: Snap ring pliers



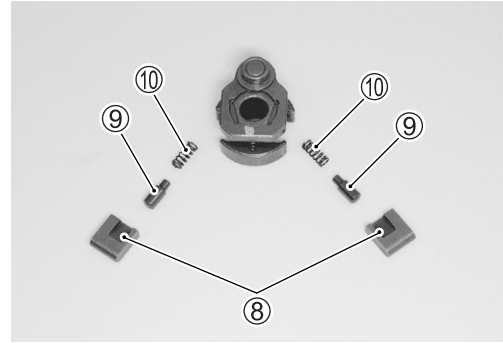
- Remove the gearshift pawl lifter ⑥.
- Remove the gearshift cam driven gear ⑦.

NOTE:

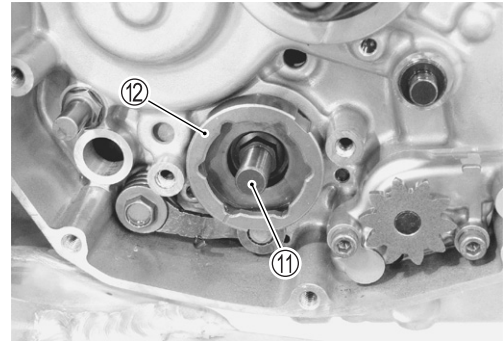
Be careful not to drop the pins and springs when removing the gearshift cam driven gear.



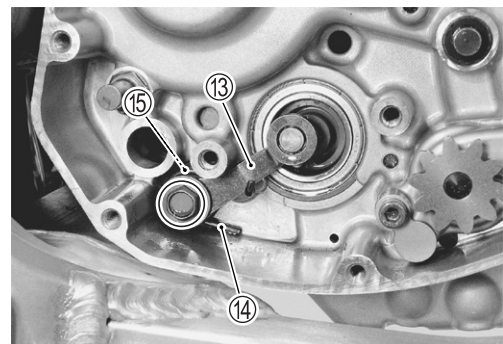
- Remove the gearshift pawls ⑧, pins ⑨ and springs ⑩.



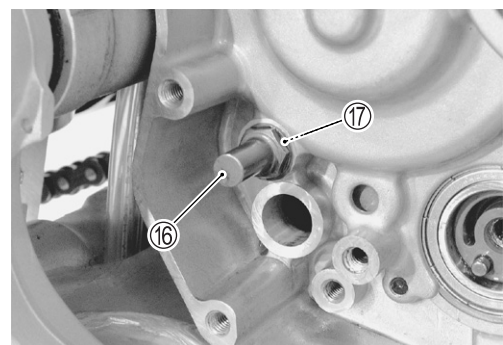
- Remove the gearshift cam driven gear pin ⑪ and gearshift cam stopper plate ⑫.



- Remove the gearshift cam stopper ⑬, spring ⑭ and washer ⑮.

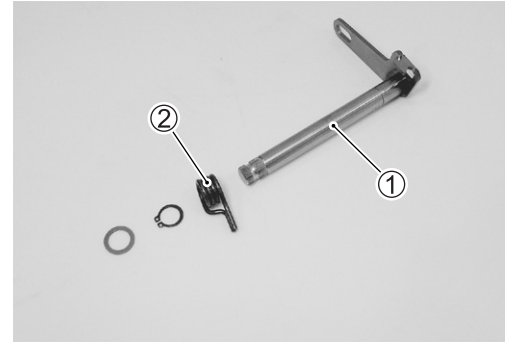


- Remove the gearshift arm stopper ⑯ and washer ⑰.

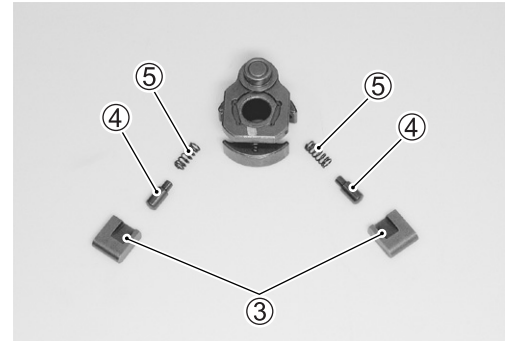


INSPECTION

- Inspect the gearshift shaft ① for bends and damage.
- Inspect the return spring ② for damage.
- Replace the defective parts with a new one if necessary.



- Inspect the pawls ③, pins ④ and springs ⑤ for damage.
- Replace the defective parts with a new one if necessary.



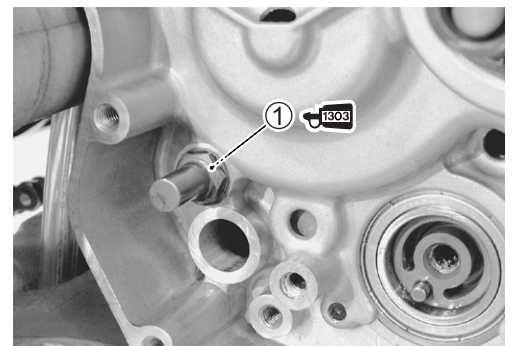
INSTALLATION

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

- Apply a small quantity of THREAD LOCK SUPER to the gearshift arm stopper bolt ① and tighten it to the specified torque.

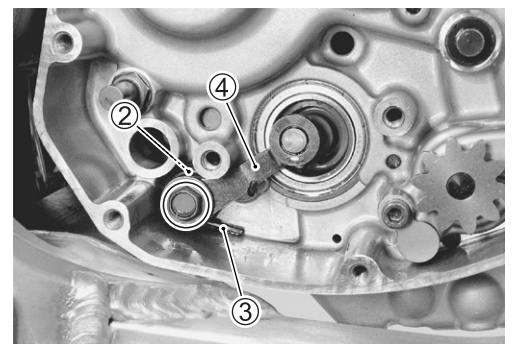
 99000-32030: THREAD LOCK SUPER "1303"

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

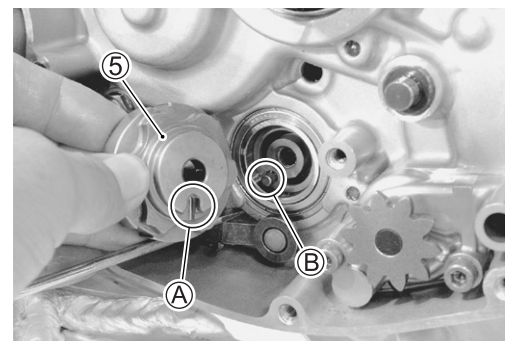


- Install the washer ②, spring ③ and gearshift cam stopper ④.

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




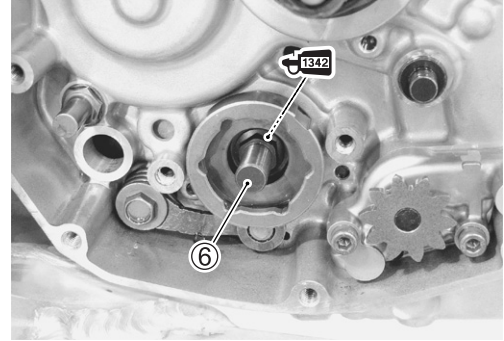
- Align the pin groove A with the pin B when installing the stopper plate ⑤.



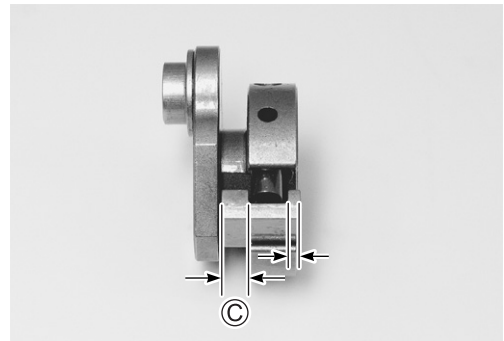
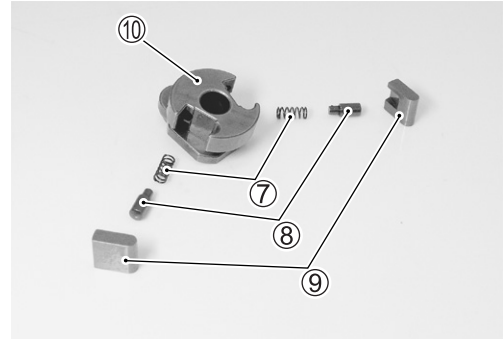
- Apply a small quantity of THREAD LOCK to the gearshift cam driven pin ⑥ and tighten it to the specified torque.

 99000-32050: THREAD LOCK “1342”

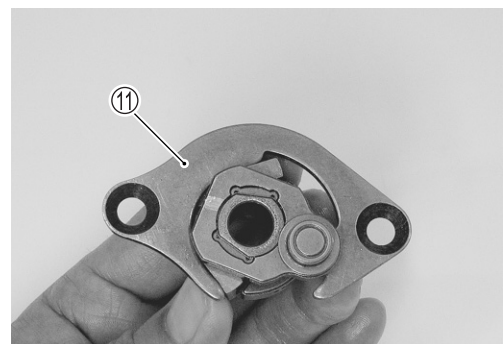
 Gearshift cam driven pin: 24 N·m (2.4 kgf·m, 17.5 lb·ft)



- Fit the springs ⑦, pins ⑧ and pawls ⑨ to the gearshift cam driven gear ⑩. Wider side © of pawl should be positioned outside.

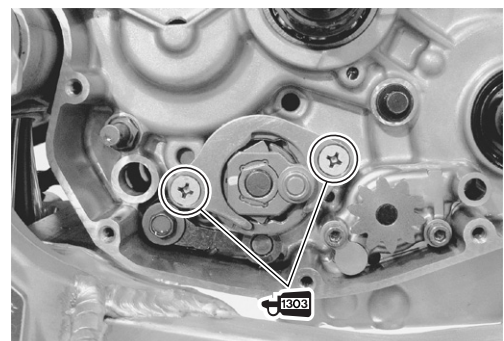


- With the pawls held in pushed position, install the pawl lifter ⑪.



- Apply THREAD LOCK SUPER to the pawl lifter screws and tighten them.

 99000-32030: THREAD LOCK SUPER “1303”




- Install the gearshift return spring ⑬, snap ring ⑭ and washer ⑮ to the gearshift shaft ⑫ properly.

CAUTION

Replace the snap ring ⑭ with a new one.

NOTE:




When installing the return spring, position the stopper ① of gearshift arm between the return spring ends ②.

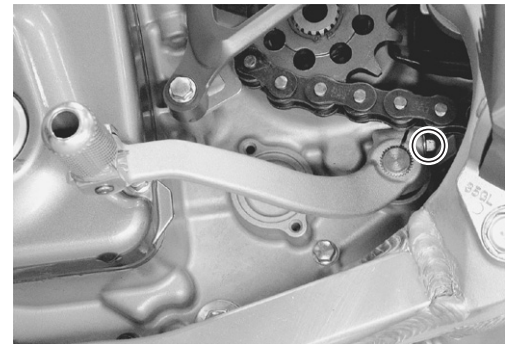
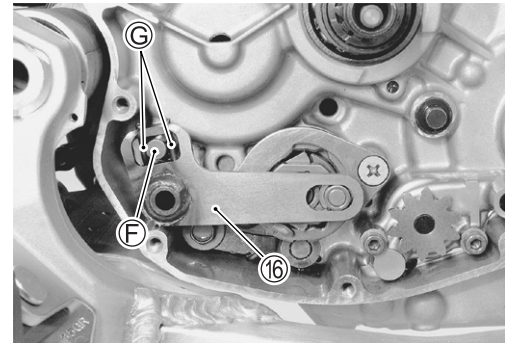
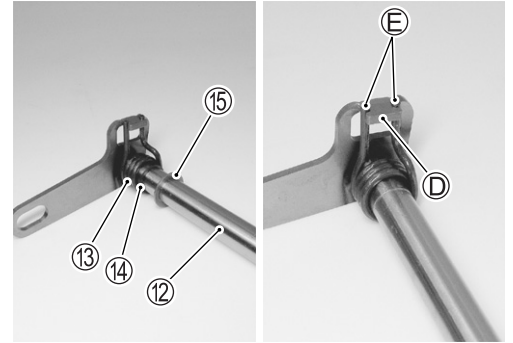
 **09900-06107: Snap ring pliers**

- Install the gearshift shaft assembly ⑯.



NOTE:

Pinch the gearshift arm stopper ③ with return spring ends ④.

- Install the oil pump idle gear and primary drive gear.
( 11-7)
- Install the magneto cover. ( 14-14)
- Install the clutch assembly and right crankcase cover.
( 7-8, 8-6)
- Align the mark on the gearshift shaft head with the gearshift lever matching surface.
- Tighten the gearshift lever bolt.



INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage ( 2-11)
- Engine coolant level and coolant leakage ( 2-15, -16)
- Smooth operation of gearshift

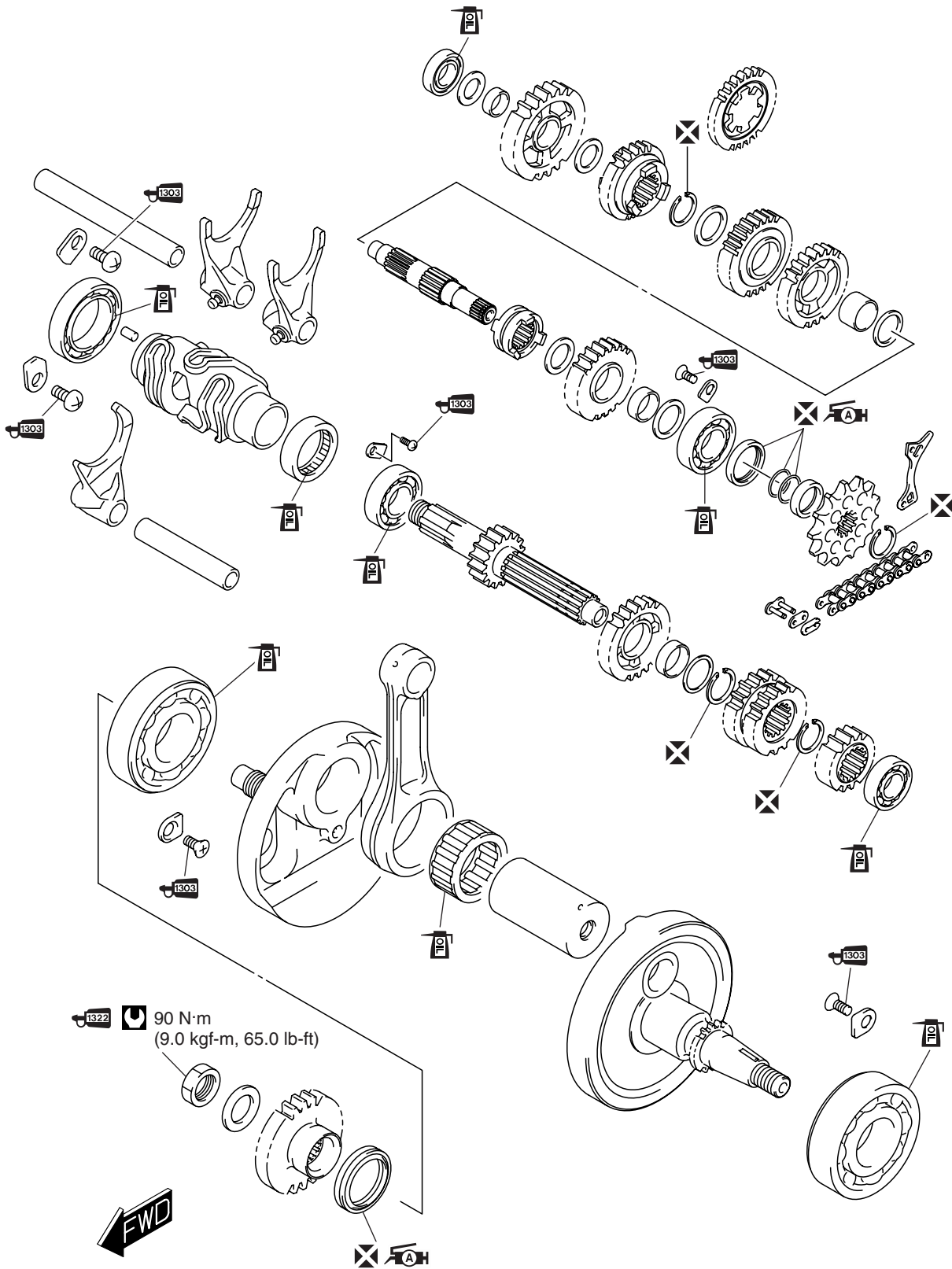
– MEMO –

TRANSMISSION AND CRANKSHAFT

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CONSTRUCTION TRANSMISSION AND CRANKSHAFT



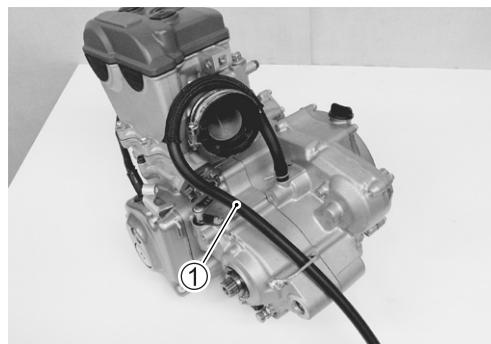
ENGINE BOTTOM SIDE

- Remove the engine. (☞ 5-2 to -5)

NOTE:

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

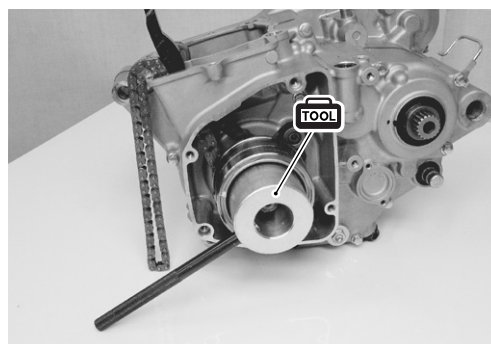
- Disconnect the crankcase breather hose ①.
- Remove the cylinder head, cylinder and piston. (☞ 6-3 to -6)
- Remove the magneto cover. (☞ 14-12)
- Remove the right crankcase cover and clutch assembly. (☞ 7-7, 8-3)
- Remove the kick starter idle gear and kick starter shaft. (☞ 8-3)



PRIMARY DRIVE GEAR REMOVAL

- Hold the crankshaft immovable with the special tool.

TOOL 09930-44560: Rotor holder

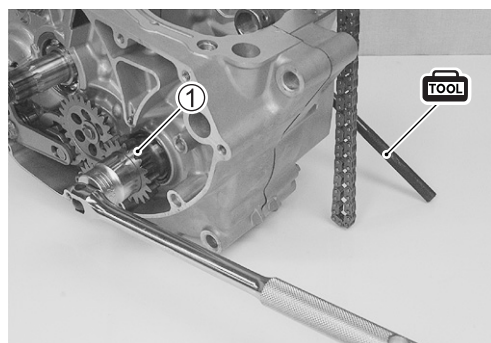


- Remove the primary drive gear nut, washer and primary drive gear ①.

CAUTION

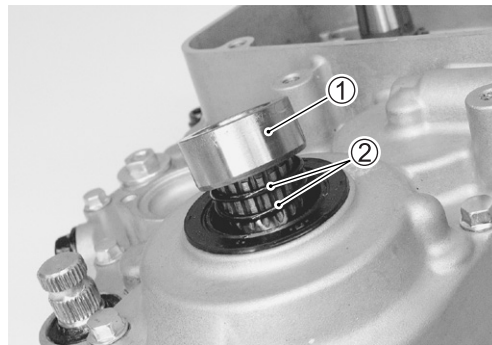
The primary drive gear nut has left-hand threads.

- Remove the oil pump idle gear and oil pump. (☞ 11-4)
- Remove the gearshift linkage. (☞ 9-3, -4)
- Remove the magneto rotor and key. (☞ 14-13)
- Remove the cam chain guide retainer, cam chain and cam chain tensioner. (☞ 6-7)

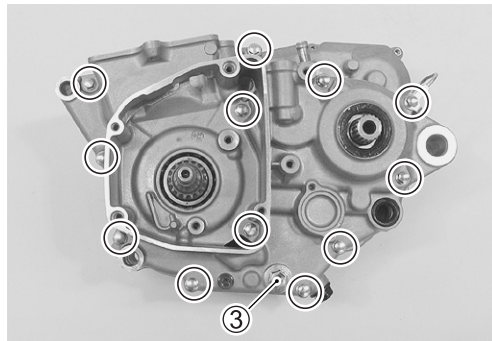


CRANKCASE SEPARATION

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



- Remove the oil strainer cap ③ and oil strainer (Feed pump side). (☞ 2-14)

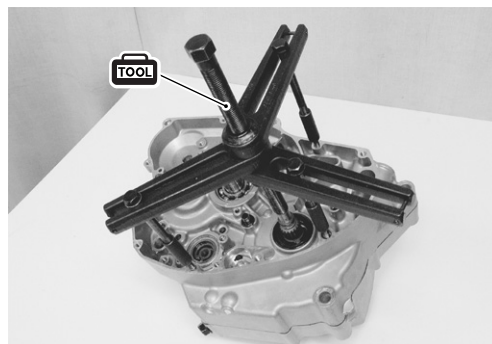


- Separate the crankcase with the special tool.

TOOL 09920-13120: Crankcase separating tool

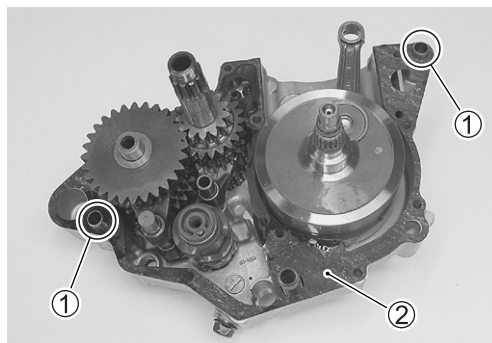
NOTE:

- * 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.

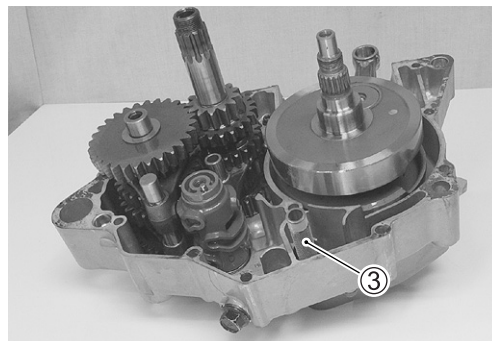


TRANSMISSION REMOVAL

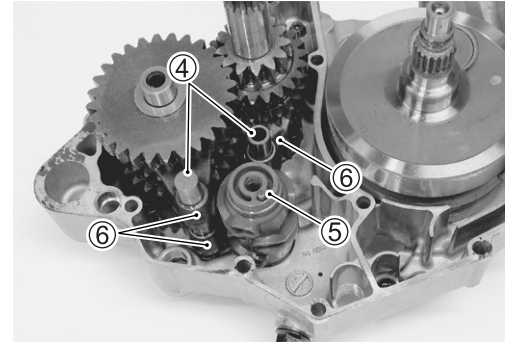
- Remove the dowel pins ① and gasket ②.



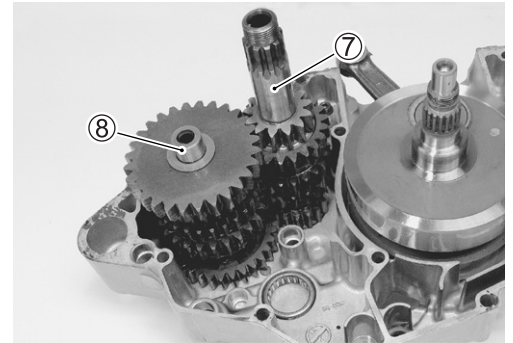
- Remove the oil strainer (Scavenge pump side) ③.



- Remove the gearshift fork shafts ④.
- Remove the gearshift cam ⑤.
- Remove the gearshift forks ⑥.



- Remove the countershaft assembly ⑦ and driveshaft assembly ⑧.



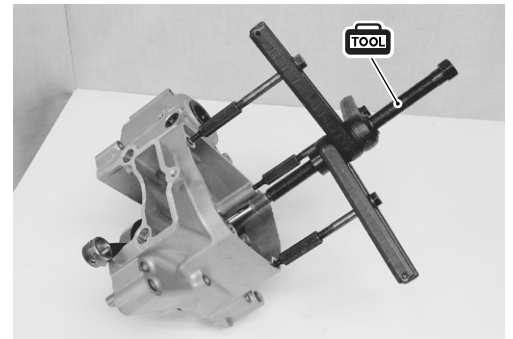
CRANKSHAFT REMOVAL

- Remove the crankshaft with the special tool.

CAUTION

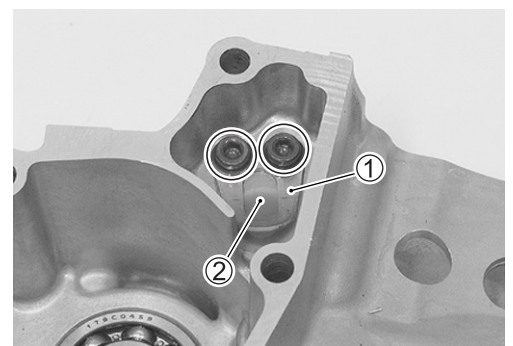
Be careful not to damage the thread part of the crankshaft.

 09920-13120: Crankcase separating tool



REED VALVE REMOVAL

- Remove the reed valve guide ① and reed valve ②.



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.
- If necessary, replace defective parts with a new one.



- Inspect the gearshift cam groove for abnormal wear and damage.
- If any defects are found, replace the gearshift cam with a new one.



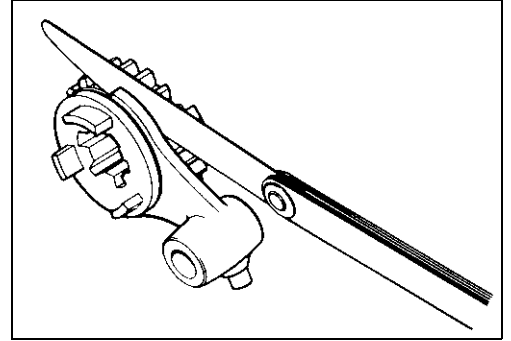
- Inspect the gearshift forks and shafts for wear and damage.
- If any defects are found, replace the gearshift fork or shaft.



- Measure the gearshift fork to groove clearance with a thickness gauge.
- If the clearance checked is noted to exceed the limit, replace the fork or dog.

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

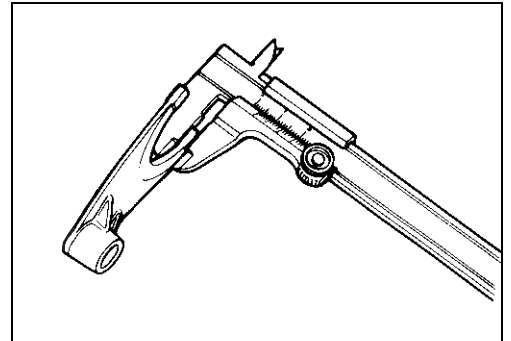
TOOL 09900-20803: Thickness gauge



- Measure the gearshift fork thickness with a vernier calipers.

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

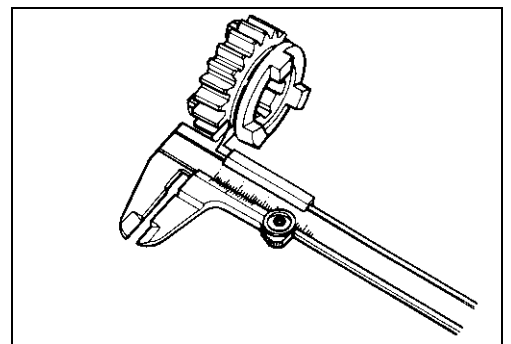
TOOL 09900-20101: Vernier calipers (150 mm)



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

DATA Gearshift fork groove width
Standard: 5.00 – 5.10 mm (0.197 – 0.201 in)

TOOL 09900-20101: Vernier calipers (150 mm)

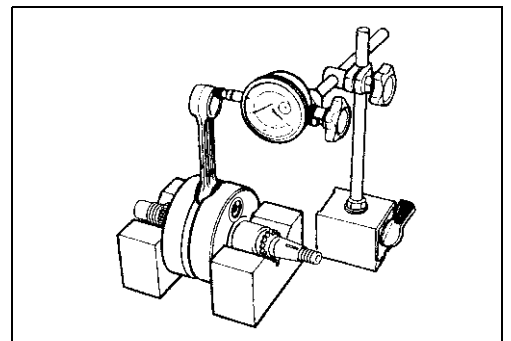


CONROD INSPECTION

- For conrod inspection other than the following, refer to page 6-23.
- 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, 10 mm)
09900-20701: Magnetic stand
09900-21304: V-block (100 mm)



CRANKSHAFT INSPECTION

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

NOTE:

Place the crankshaft onto the V-blocks so that it becomes horizontally.

DATA Crankshaft runout

Service Limit: 0.08 mm (0.003 in)

TOOL 09900-20607: Dial gauge (1/100, 10 mm)

09900-20701: Magnetic stand

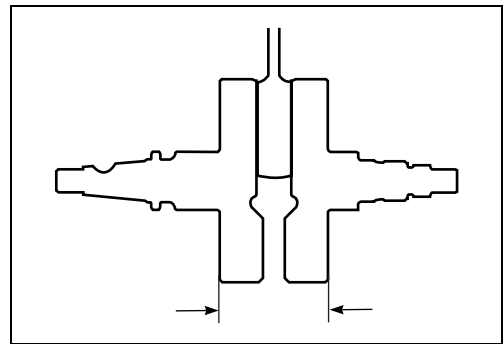
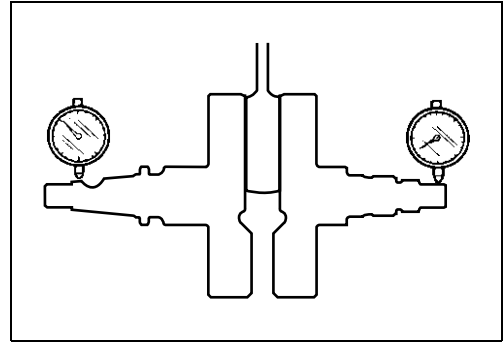
09900-21304: V-block (100 mm)

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

DATA Crank web to web width

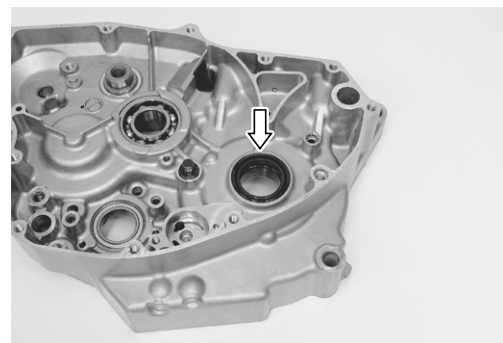
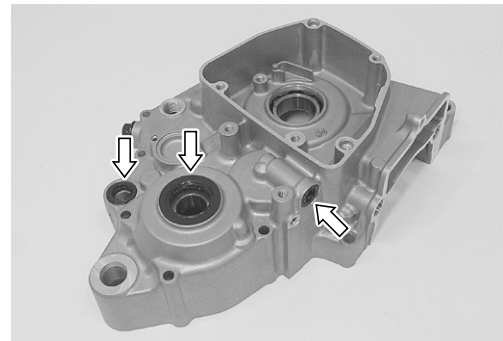
Standard: 55.9 – 56.1 mm (2.20 – 2.21 in)

TOOL 09900-20101: Vernier calipers (150 mm)



OIL SEAL INSPECTION

- Inspect each oil seal lip for wear and damage.
- If any defects are found, replace the oil seal with a new one.




OIL SEAL REMOVAL AND INSTALLATION

- Remove the oil seals (①, ②, ③, ④) with the special tool.

CAUTION

The removed oil seal should be discard.

 **09913-50121: Oil seal remover**

- Install each new oil seal with the special tool.

 **09913-70210: Bearing installer set**

Oil seal ①, ④: ϕ 40 Attachment

Oil seal ②: ϕ 22 Attachment

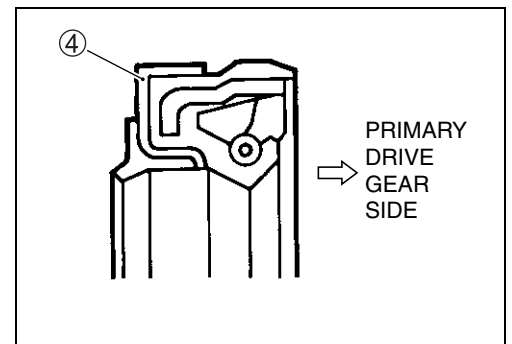
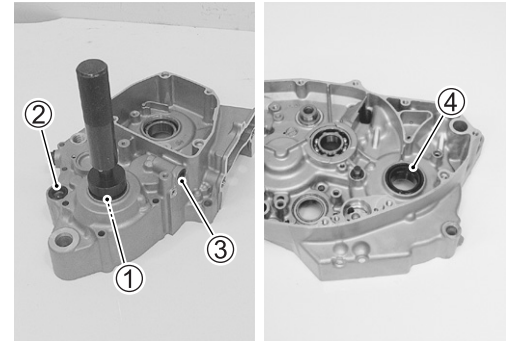
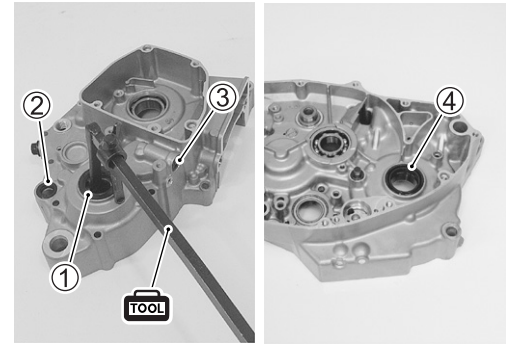
Oil seal ③: ϕ 17 Attachment

- Apply grease to each oil seal lip.

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

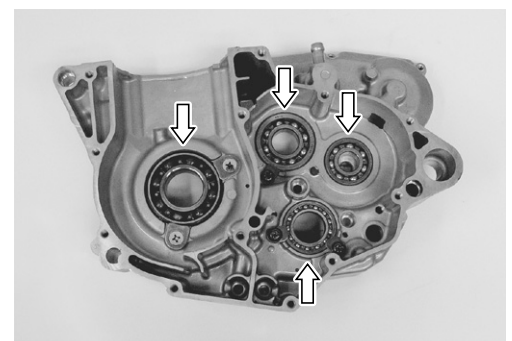
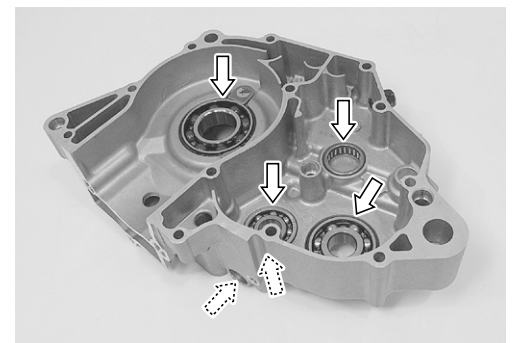
NOTE:

Be sure to check the direction of the crankshaft bearing oil seal ④ before installing them.



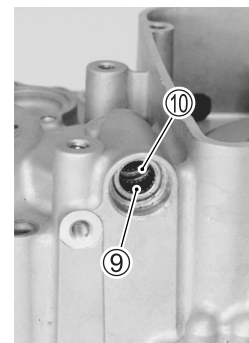
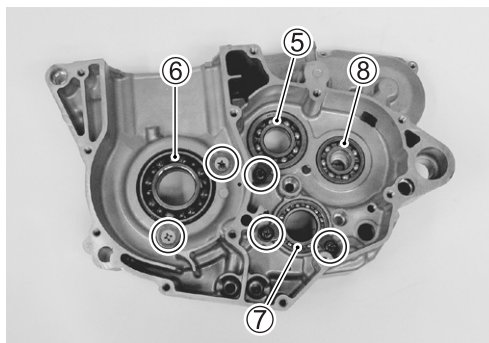
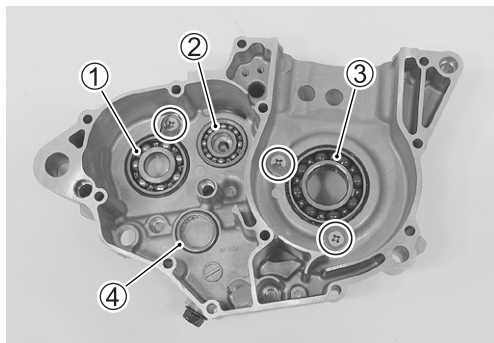
BEARING INSPECTION

- Inspect the bearings for play, discoloration, wear and seizure.
- Move the inner race by finger and inspect for smooth movement.
- If it does not move smoothly, replace the bearing with a new one.



BEARING REMOVAL AND INSTALLATION

- Remove the oil seals. (☞ 10-9)
- Remove the bearing retainers.



REMOVAL

CAUTION

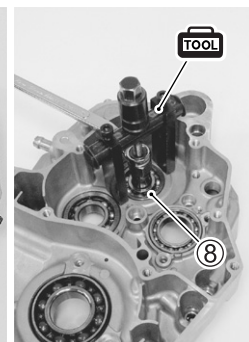
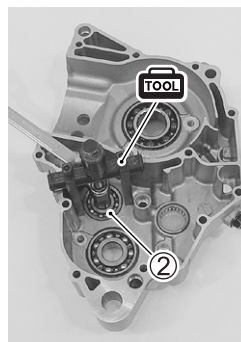
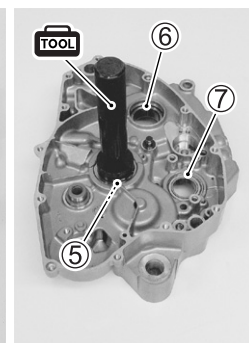
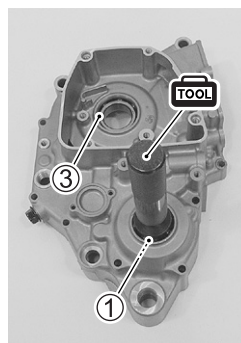
The removed bearing should be discard.

- Remove the bearings (①, ③, ⑤, ⑥, ⑦) with the special tool.

TOOL 09913-70210: Bearing installer set
 Bearing ①, ⑦: ϕ 35 Attachment
 Bearing ③, ⑤, ⑥: ϕ 40 Attachment

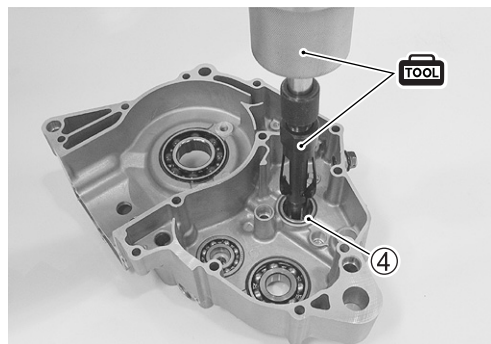
- Remove the bearings (②, ⑧) with the special tool.

TOOL 09921-20240: Bearing remover set
 Bearing ②, ⑧: Remover 17 mm



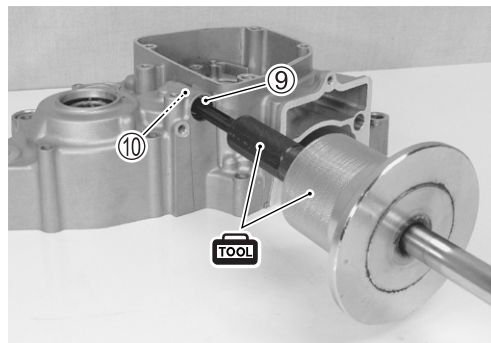
- Remove the bearing ④ with the special tools.

TOOL 09923-74511: Bearing puller
09930-30104: Sliding shaft



- Remove the bearings (⑨, ⑩) with the special tools.

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



INSTALLATION

- Press the new bearings with the special tool.

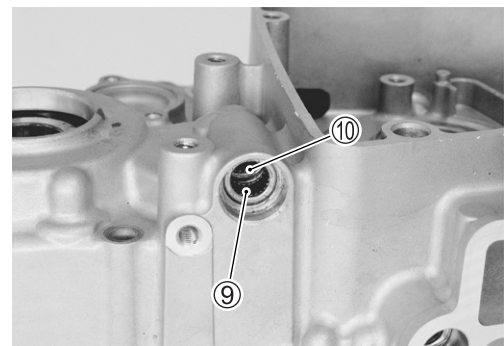
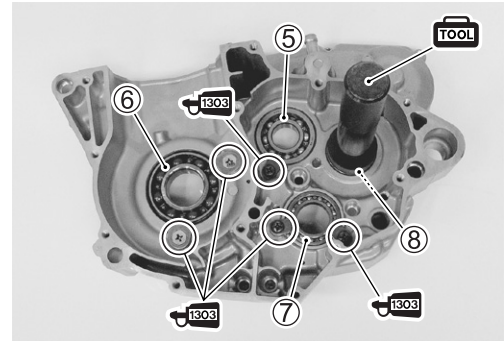
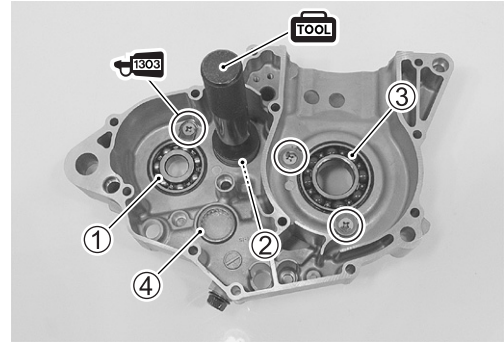
TOOL 09913-70210: Bearing installer set

- Bearing ①: ϕ 52 Attachment**
- Bearing ②, ⑧: ϕ 40 Attachment**
- Bearing ③, ⑥: ϕ 62 Attachment**
- Bearing ④: ϕ 32 Attachment**
- Bearing ⑤: ϕ 47 Attachment**
- Bearing ⑦: ϕ 42 Attachment**
- Bearing ⑨: ϕ 15 Attachment**

- Press the bearing ⑩ with the appropriate steel rod.

NOTE:

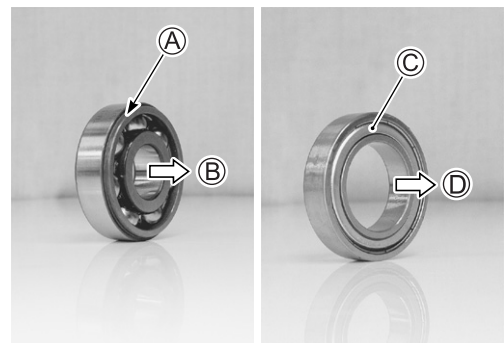
- * Press the bearings (②, ④, ⑤, ⑧) into the crankcase, so that the stamped mark side faces inside of the crankcase.
- * Press the bearings (⑨, ⑩) into the crankcase, so that the stamped mark side faces outside of the crankcase.



NOTE:

- * Press the bearings (①, ③ and ⑥) into the crankcase, so that the stepped side (A) faces inside of the crankcase.
- * Press the bearing ⑦ into the crankcase, so that the sealed side (C) faces outside of the crankcase.

- Ⓑ Inside of the crankcase
- Ⓓ Outside of the crankcase




- Apply THREAD LOCK SUPER to the bearing retainer screws.

TOOL 99000-32030: THREAD LOCK SUPER "1303"

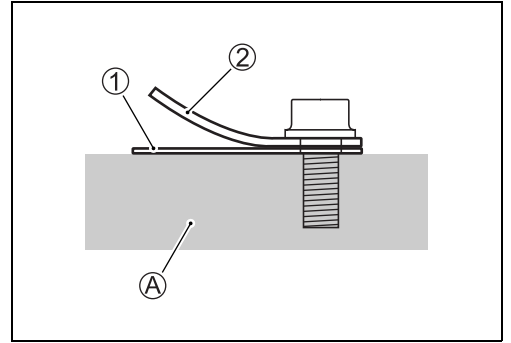
- Install the bearing retainers and tighten their screws.

REED VALVE INSTALLATION

- Install the reed valve ① and reed valve guide ② direction as shown.

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

- ① Reed valve
- ② Reed valve guide
- Ⓐ Crankcase



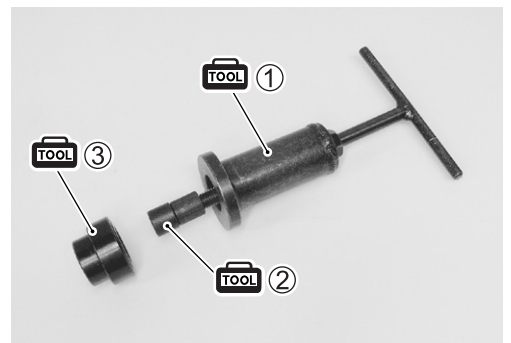
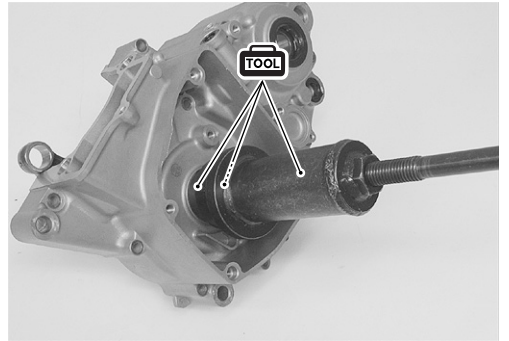
CRANKSHAFT INSTALLATION

- Fit the crankshaft into the left crankcase with the special tools.

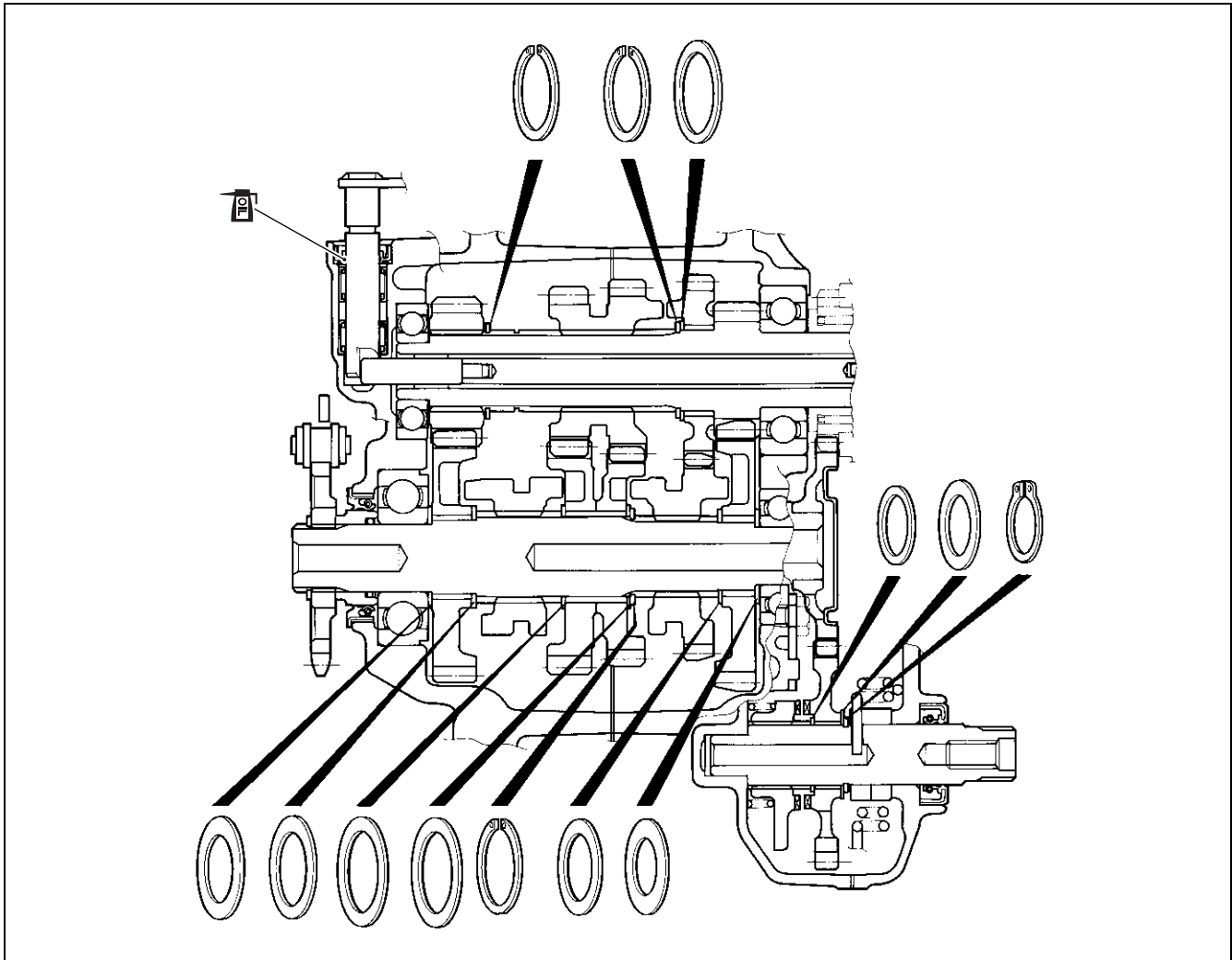
NOTE:

Use the attachment (inner driver attachment ③) for crankshaft bearing inside diameter.

-  09910-32812: Crankshaft installer ①
- 09911-11310: Crankshaft installer attachment ②
- 09913-70210: Bearing installer set
(Inner driver attachment 30 mm ③)



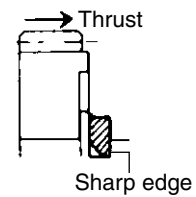
TRANSMISSION INSTALLATION



CAUTION

The removed snap ring should be replaced with a new one.

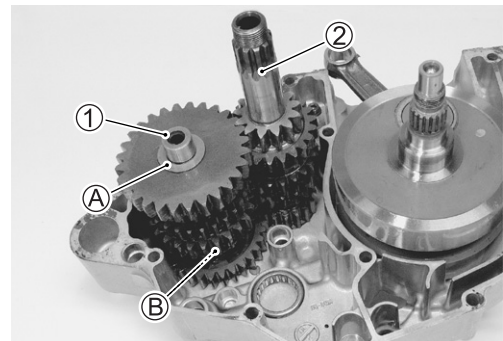
Install the snap ring in the groove and locate its end as shown in the illustration.



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

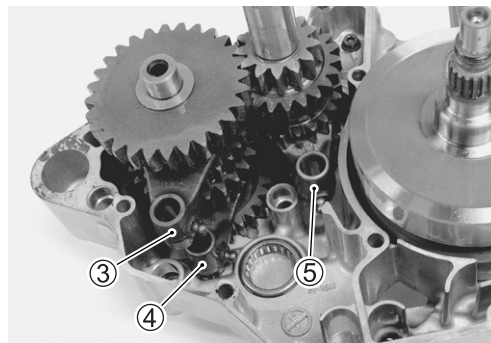
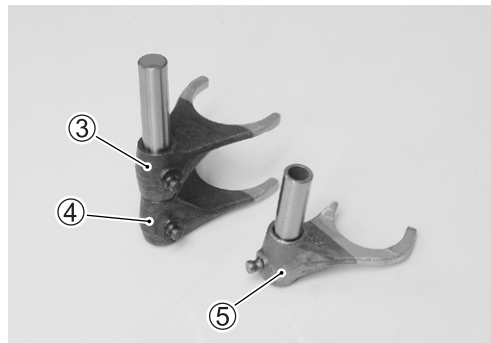
NOTE:

Install the washers (A), (B) located in both ends of the driveshaft positively.



- Install the gearshift forks ③, ④ and ⑤.

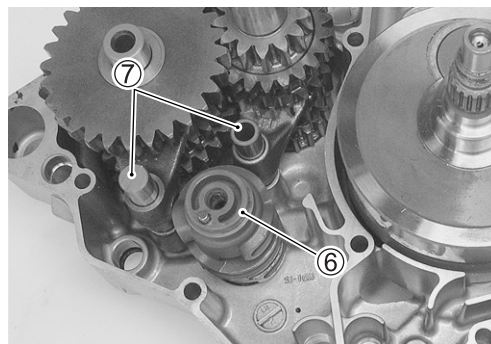
- ③ For 5th driven gear
- ④ For sliding dog
- ⑤ For 3rd/4th drive gear



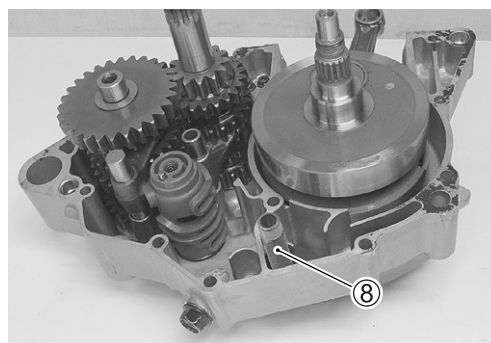
- Install the gearshift cam ⑥ and gearshift shafts ⑦.

NOTE:

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



- Install the oil strainer (Scavenge pump side) ⑧.

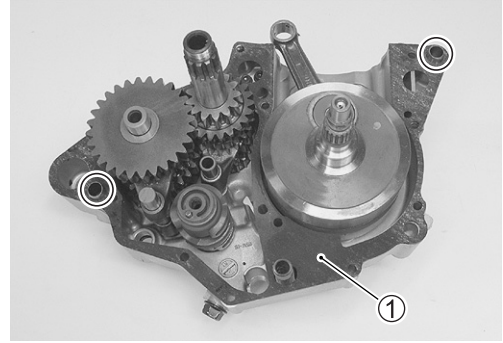


CRANKCASE INSTALLATION

- Fit the dowel pins and gasket ①.

CAUTION

Replace the gasket ① with a new one.



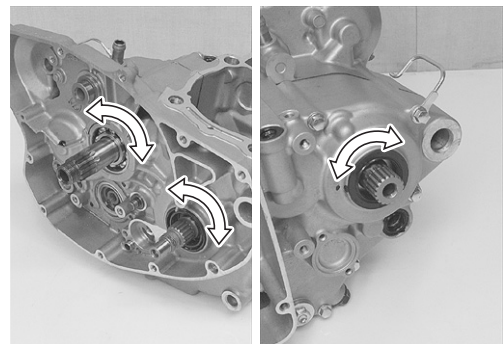
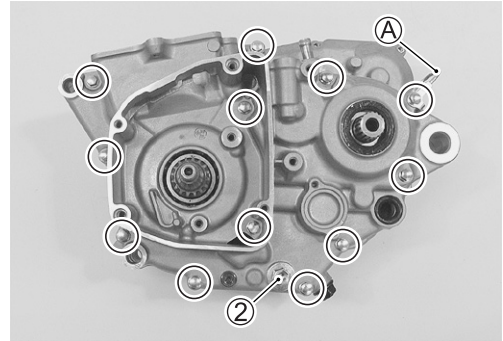
- Fit the right crankcase on the left crankcase.
- Install the bracket A to the bolt. (☞ 19-24)
- Tighten the crankcase bolts to the specified torque.

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

NOTE:

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

- Install the oil strainer (Feed pump side) and oil strainer cap ②. (☞ 2-14)
- Inspect the crankshaft, countershaft and driveshaft for smooth movement.



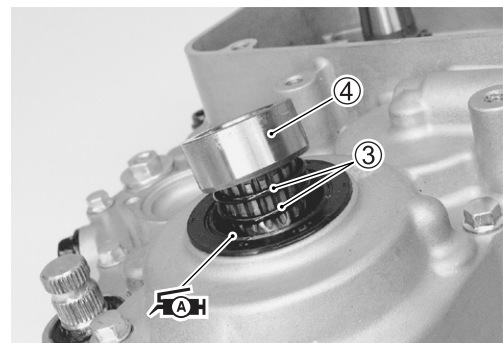
- Apply grease to oil seal lip and O-rings ③.

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

CAUTION

Replace the O-rings ③ with new ones.

- Fit the O-rings ③ and spacer ④ to the driveshaft.



PRIMARY DRIVE GEAR INSTALLATION

- Install the cam chain, cam chain tensioner and cam chain guide retainer. (☞ 6-24)
- Install the magneto rotor and key. (☞ 14-13)
- Install the gearshift linkage. (☞ 9-5 to -7)
- Install the oil pump and oil pump idle gear. (☞ 11-6, -7)
- Apply grease to the oil seal lip.

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

- Install the primary drive gear ① and washer ②.

NOTE:


The washer is directional. Assemble the washer ② as shown in the illustration.

- Apply THREAD LOCK SUPER to the primary drive gear nut ③.

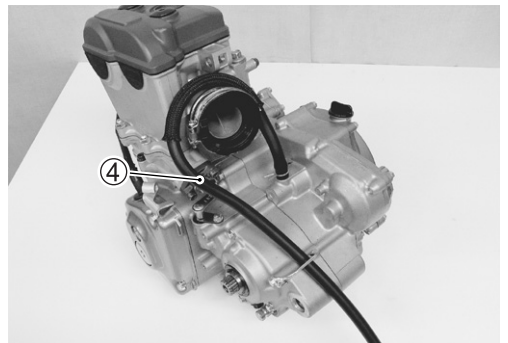
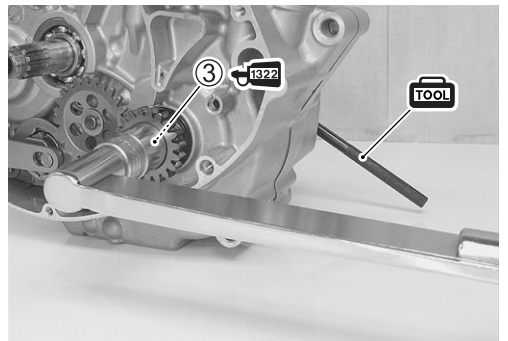
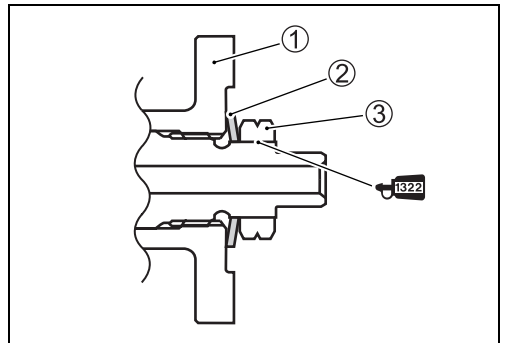
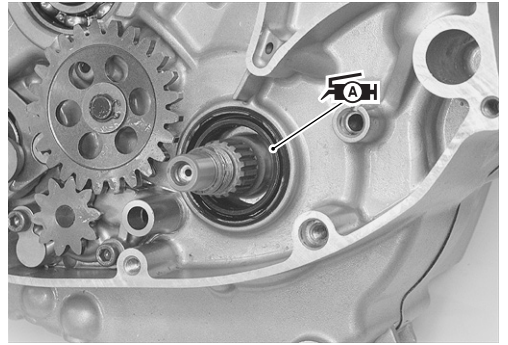
 **99000-32110: THREAD LOCK SUPER "1322"**
(or equivalent thread lock)

- Hold the magneto rotor with the special tool and tighten the primary drive gear nut ③ to the specified torque.

 **09930-44560: Rotor holder**

 **Primary drive gear nut: 90 N·m (9.0 kgf·m, 65.0 lb·ft)**

- Install the kick idle gear and kick starter shaft. (☞ 8-5, -6)
- Install the clutch assembly and right crankcase cover. (☞ 7-8, 8-6)
- Install the magneto cover. (☞ 14-14)
- Install the piston, cylinder and cylinder head. (☞ 6-25 to -33)
- Connect the crankcase breather hose ④.
- Mount the engine. (☞ 5-6 to -8)



– MEMO –

LUBRICATION SYSTEM

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ENGINE OIL FILTER CHANGE	11- 3
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OIL STRAINERS INSTALLATION	11- 3
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OIL PUMP REMOVAL	11- 4
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ENGINE OIL LEVEL INSPECTION

(☞ 2-11)

ENGINE OIL CHANGE

(☞ 2-12)

ENGINE OIL FILTER CHANGE

(☞ 2-13)

OIL PRESSURE CHECK

(☞ 2-37)

OIL STRAINERS REMOVAL

(☞ 2-14, 10-4)

OIL STRAINERS INSPECTION

(☞ 2-14)

OIL STRAINERS INSTALLATION

(☞ 2-14, 10-15)

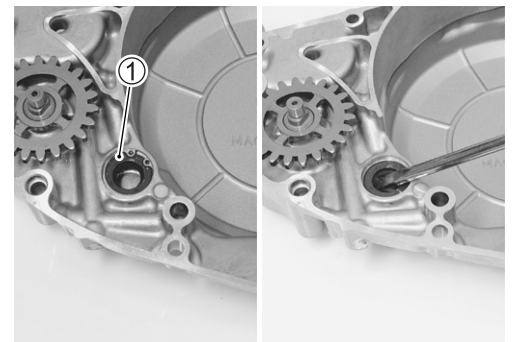


OIL SEAL REMOVAL

- Remove the right crankcase cover. (☞ 8-3)
- Remove the snap ring ①.

TOOL 09900-06108: Snap ring pliers

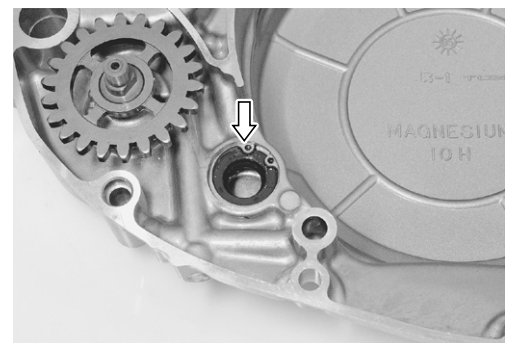
- Remove the oil seal.



OIL SEAL INSPECTION

For oil seal inspection other than the following, refer to page 10-8.

- Inspect the oil seal lip for wear and damage.
- If any defects are found, replace the oil seal with a new one.



OIL SEAL INSTALLATION

- Install the oil seal and snap ring ①.

CAUTION

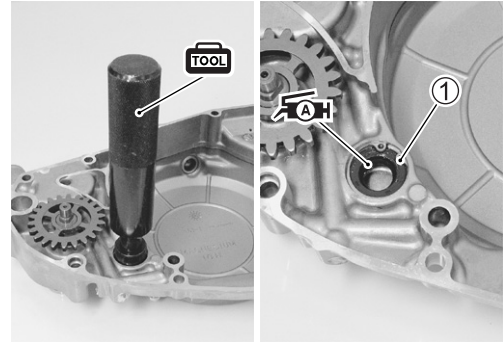
Replace the oil seal and snap ring ① with new ones.

TOOL 09913-70210: Bearing installer set
Oil seal: ϕ 22 Attachment

09900-06108: Snap ring pliers

- Apply SUZUKI SUPER GREASE to the oil seal lip.

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



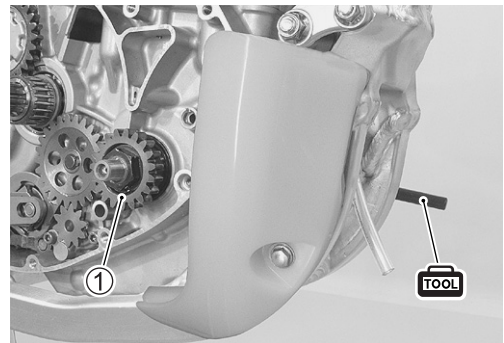
OIL PUMP REMOVAL

- Drain engine oil. (☞ 2-12)
- Drain engine coolant. (☞ 13-3)
- Remove the brake pedal. (☞ 16-18)
- Remove the kick starter lever and right crankcase cover. (☞ 8-3)
- Remove the clutch assembly. (☞ 7-7)
- Remove the magneto cover. (☞ 14-12)

- Hold the crankshaft immovable with the special tool. (☞ 10-3)

TOOL 09930-44560: Rotor holder

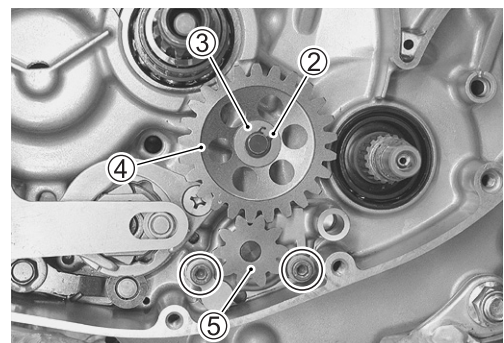
- Remove the primary drive gear nut, washer and primary drive gear ①. (☞ 10-3)



- Remove the snap ring ②, washer ③ and oil pump idle gear ④.

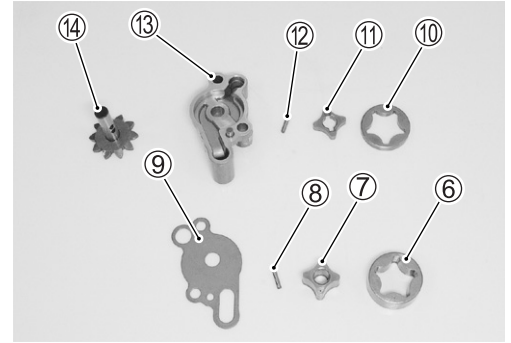
TOOL 09900-06107: Snap ring pliers

- Remove the oil pump ⑤.

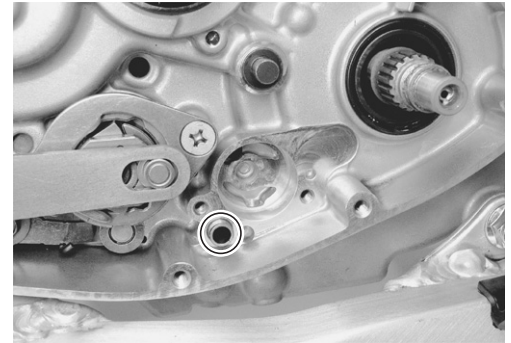


- Remove the following parts from the oil pump.

- | | |
|-----------------------------|------------------------------|
| ⑥ Oil pump No.2 outer rotor | ⑪ Oil pump No.1 inner rotor |
| ⑦ Oil pump No.2 inner rotor | ⑫ Pin |
| ⑧ Pin | ⑬ Oil pump cover |
| ⑨ Oil pump plate | ⑭ Oil pump driven gear shaft |
| ⑩ Oil pump No.1 outer rotor | |



- Remove the dowel pin.



OIL PUMP INSPECTION

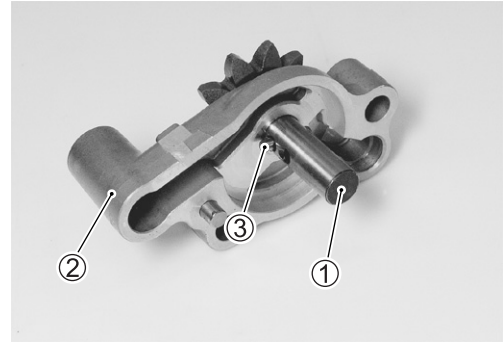
- Check the oil pump with each part for any defects or wear.
- Replace the defective parts with a new one.



OIL PUMP INSTALLATION

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

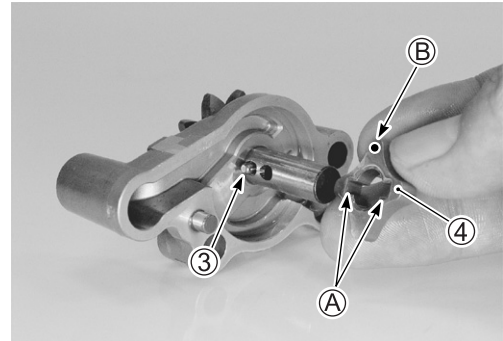
- Install the oil pump cover ② and pin ③ to the oil pump driven gear shaft ①.



- Fit the slot (A) of the oil pump No.1 inner rotor (4) to the pin (3).

CAUTION

Face the punch mark (B) on inner rotor (4) to the oil pump cover.

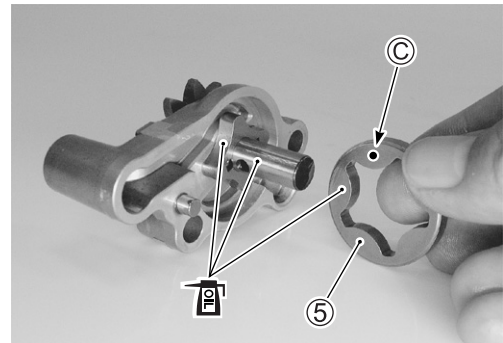


- Install the oil pump No.1 outer rotor (5).

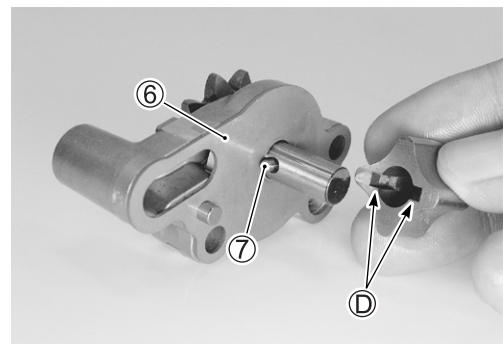
CAUTION

Face the punch mark (C) on outer rotor (5) to the oil pump cover.

- Apply engine oil to the oil pump drive gear shaft, outer rotor and inner rotor.



- Install the oil pump plate (6) and pin (7).
- Fit the slot (D) of the oil pump No.2 inner rotor to the pin (7).



- Install the oil pump No.2 outer rotor ⑧.

CAUTION

Face the punch mark ⑤ on outer rotor ⑧ to the crankcase.

- Apply engine oil to the outer rotor and inner rotor.

- Install the oil pump and tighten the oil pump mounting bolts to the specified torque.

🔧 Oil pump mounting bolt: 6 N·m (0.6 kgf-m, 4.5 lb-ft)

- Install the oil pump idle gear ⑨, washer and snap ring.

CAUTION

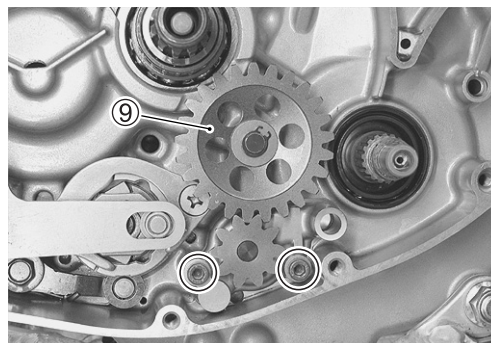
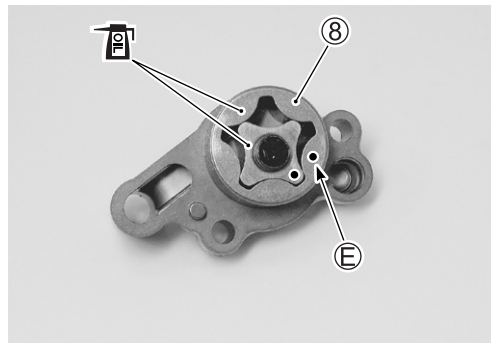
Replace the snap ring with a new one.

🔧 09900-06107: Snap ring pliers

- Install the primary drive gear. (🔧 10-17)
- Install the magneto cover. (🔧 14-14)
- Install the clutch assembly. (🔧 7-8, -9)
- Install the right crankcase cover and kick starter lever. (🔧 8-5 to -8)
- Install the brake pedal. (🔧 16-18)

INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (🔧 2-11)
- Engine coolant level and coolant leakage (🔧 2-15, -16)
- Oil pressure (🔧 2-37)



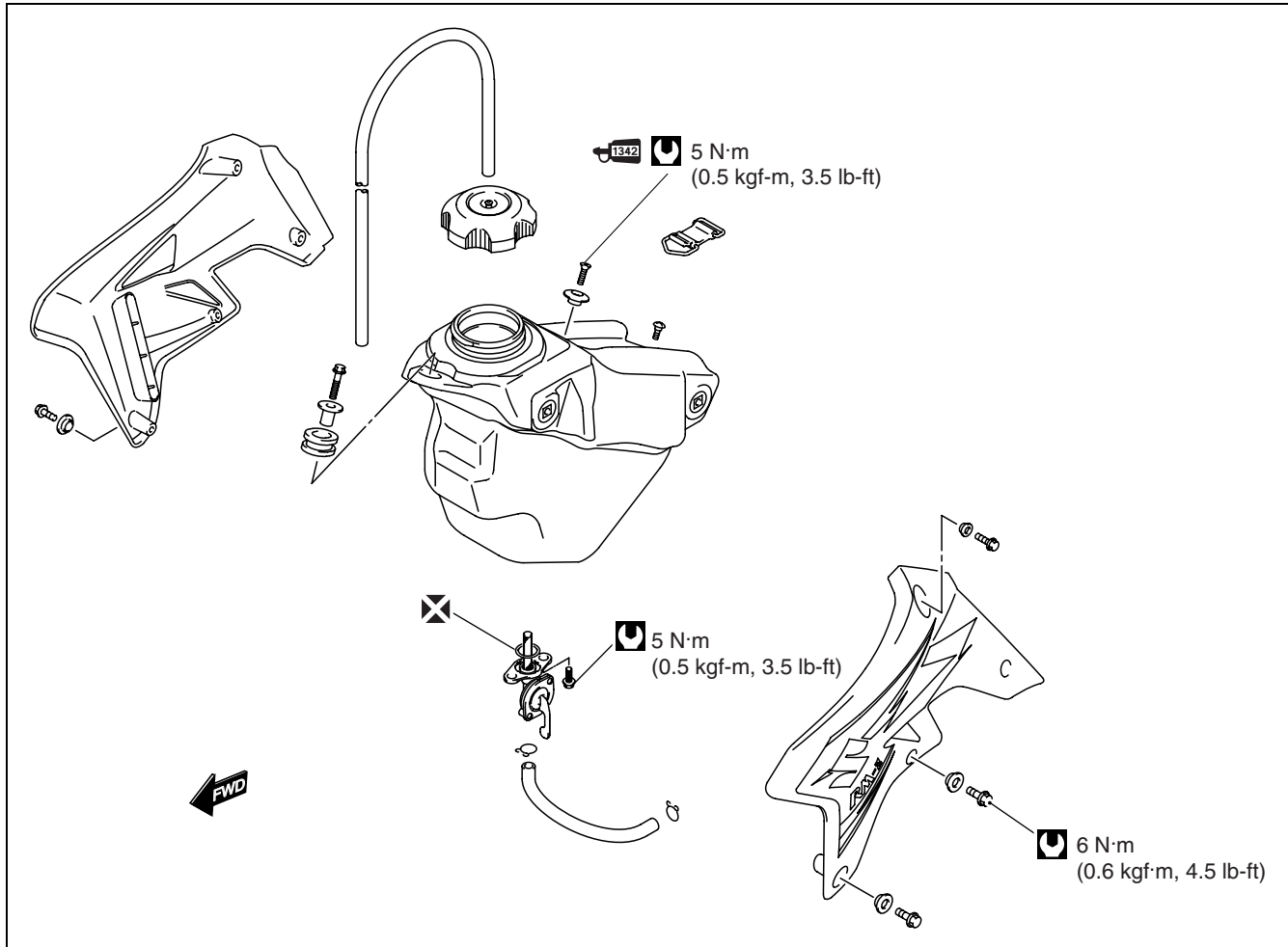
– MEMO –

FUEL SYSTEM

CONTENTS

FUEL TANK AND FUEL VALVE	12- 2
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CONSTRUCTION	12- 4
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DISASSEMBLY	12- 6
CLEANING	12-10
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THROTTLE POSITION SENSOR	12-17
INSPECTION	12-17
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INSTALLATION	12-18

FUEL TANK AND FUEL VALVE CONSTRUCTION



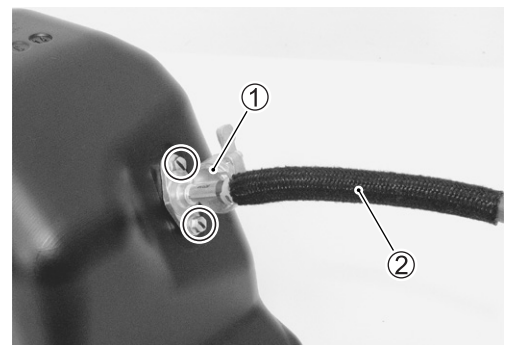
REMOVAL

⚠ WARNING

Gasoline is highly flammable and explosive.

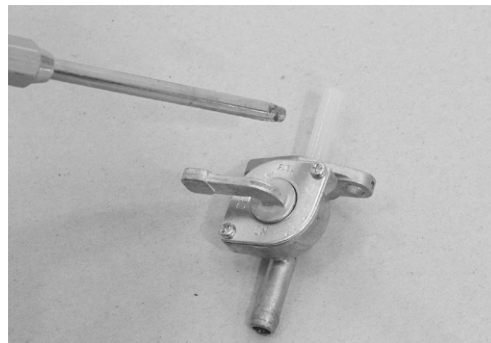
Keep heat, spark and flame away.

- Remove the seat and radiator covers. (☞ 5-2)
- Remove the fuel tank. (☞ 5-2)
- Drain fuel.
- Remove the fuel valve ① and fuel hose ②.



CLEANING AND INSPECTION

If the fuel strainer is dirty with sediment, fuel will not flow smoothly and loss in engine power may result. Clean the fuel strainer with compressed air.

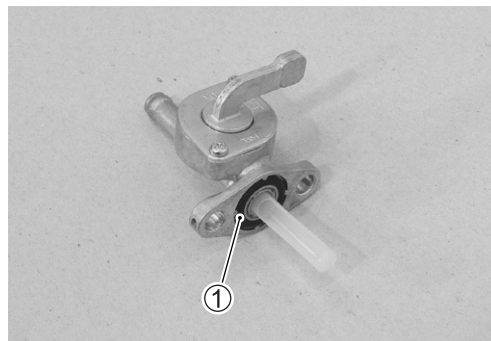


INSTALLATION

Install the fuel tank and fuel valve in the reverse order of removal. Pay attention to the following points:

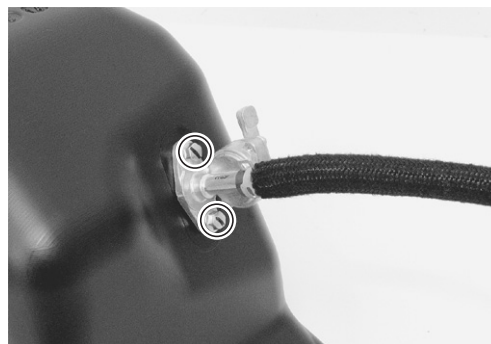
CAUTION

Replace the O-ring ① with a new one to prevent fuel leakage.





- Install the fuel valve and fuel hose.

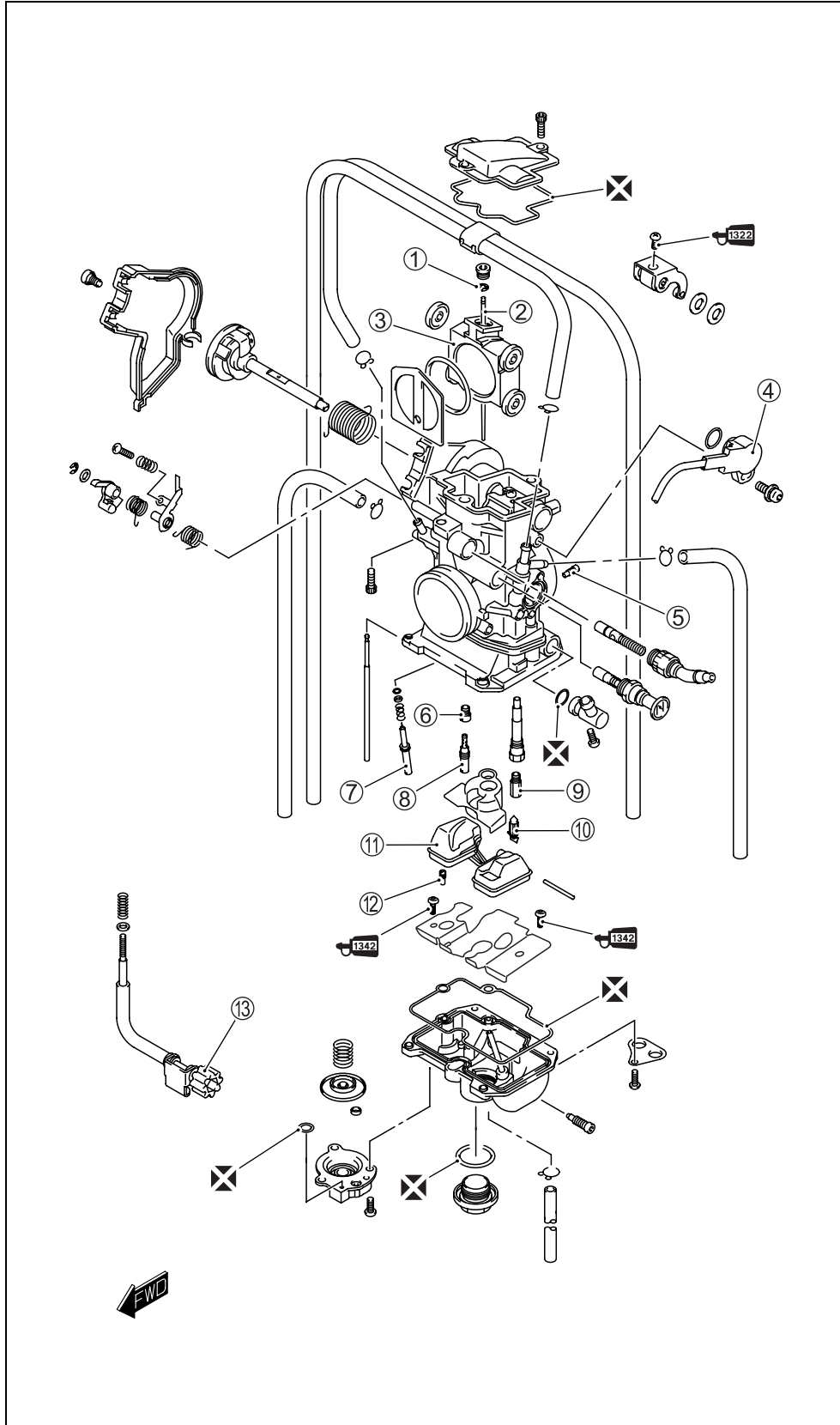
 Fuel valve mounting bolt: 5 N·m (0.5 kgf-m, 3.5 lb-ft)



INSPECTION AFTER INSTALLATION

- Fuel hose routing ( 19-21)
- Fuel leakage ( 2-21)

CARBURETOR CONSTRUCTION



①	Clip
②	Jet needle (J.N.)
③	Throttle valve
④	Throttle position sensor
⑤	Slow air jet (S.A.J)
⑥	Starter jet
⑦	Pilot screw
⑧	Slow jet (S.J.)
⑨	Main jet (M.J.)
⑩	Float valve
⑪	Float
⑫	Leak jet
⑬	Throttle stop screw

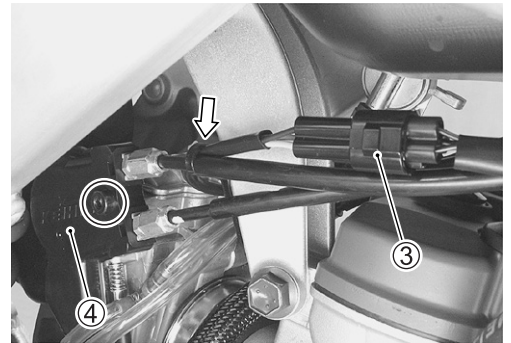
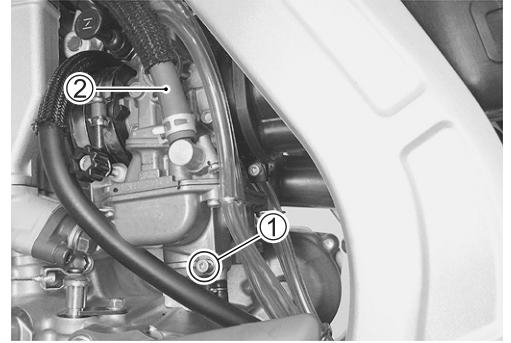
REMOVAL

⚠ WARNING

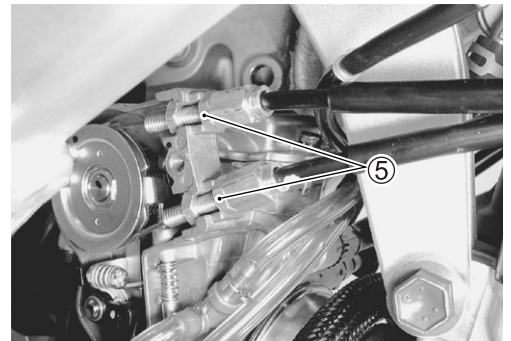
Gasoline is highly flammable and explosive.

Keep heat, spark and flame away.

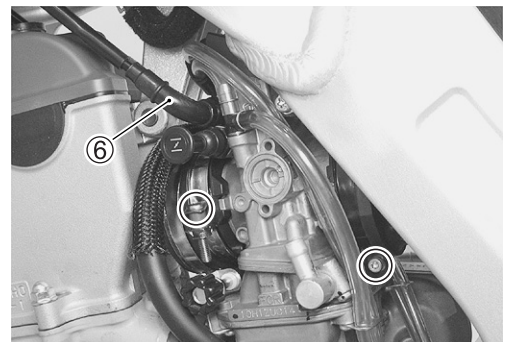
- Turn the fuel valve to the OFF position.
- Place a container beneath the drain hose, drain fuel from the float chamber by loosening the drain screw ①.
- Disconnect the fuel hose ②.
- Disconnect the throttle position sensor coupler ③.
- Remove the wire clamp and throttle pulley cover ④.



- Loosen the lock-nuts ⑤.
- Remove the throttle cables from the pulley.



- Remove the hot starter cable ⑥.
- Loosen the carburetor clamp screws and take out the carburetor from between the intake pipe and air cleaner duct.

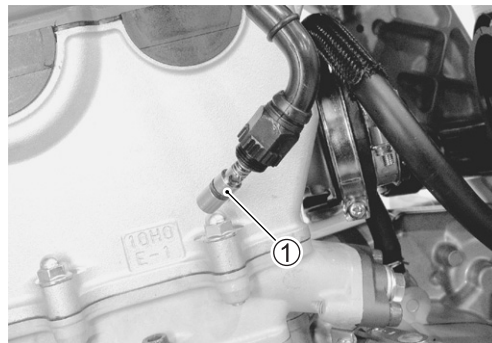


CAUTION

After removing the carburetor, cover the intake pipe with clean cloth to prevent dust from entering to the engine.

DISASSEMBLY

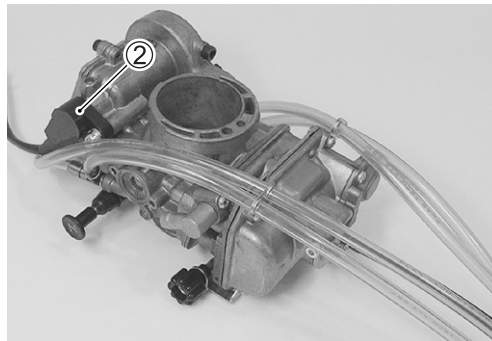
- Remove the hot starter valve ① and spring from the hot starter cable.



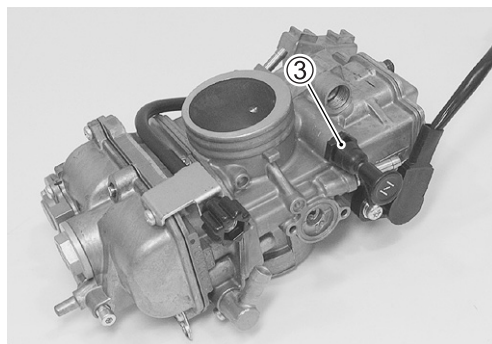
- Remove the drain hose and air vent hoses.

NOTE:

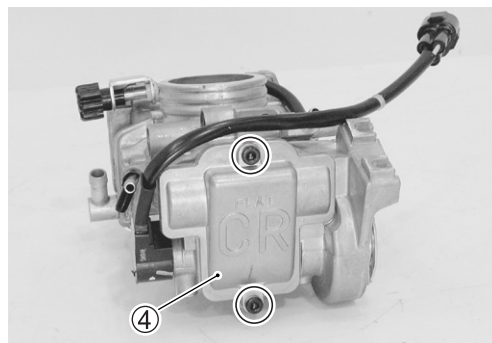
Do not remove the throttle position sensor ② unless it is necessary to replace it.



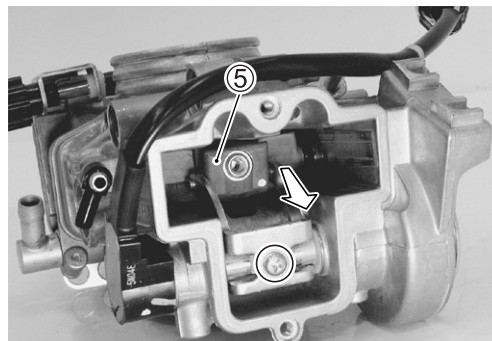
- Remove the starter valve ③.



- Remove the top cap ④ and gasket.

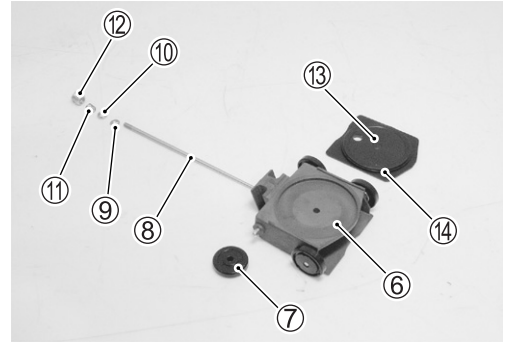


- Remove the throttle valve assembly ⑤.



- Disassemble the throttle valve assembly.

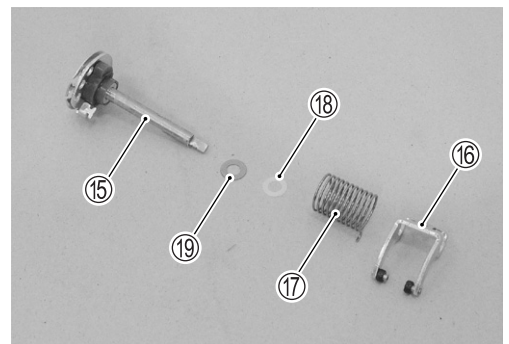
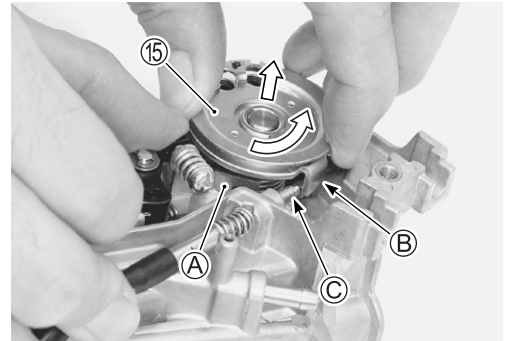
⑥ Throttle valve	⑪ Spring
⑦ Bearing	⑫ Needle set screw
⑧ Jet needle	⑬ Floating valve
⑨ Clip	⑭ Seal
⑩ Collar	



- Remove the throttle shaft ⑮ with the link arm ⑯, spring ⑰, plastic washer ⑱ and steel washer ⑲.

NOTE:

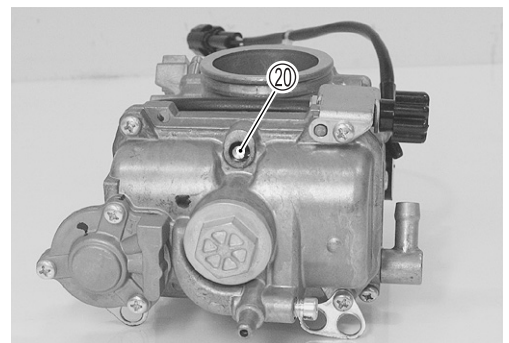
Turn the throttle shaft ⑮ counterclockwise while holding down the acceleration pump lever A and clear the stopper B of the pulley from the throttle stop screw C.



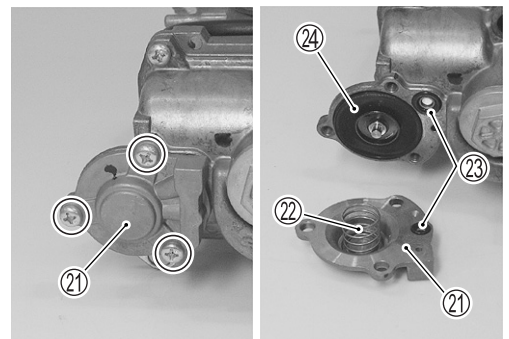
- Remove the pilot screw ⑳.

NOTE:

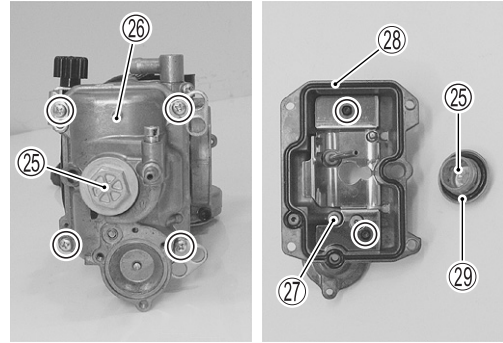
Before removing the pilot screw ⑳, turn it clockwise until it lightly seats and record the number of turns.



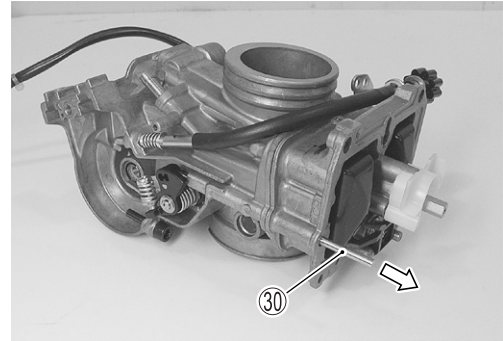
- Remove the acceleration pump cover ㉑.
- Remove the spring ㉒, O-rings ㉓ and diaphragm ㉔.



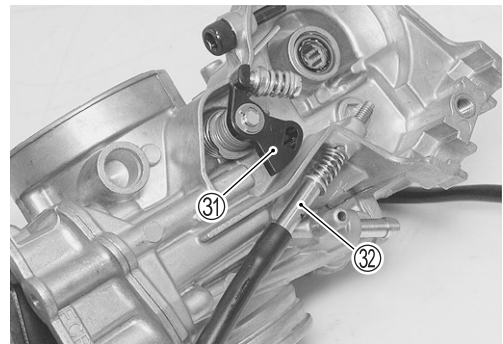
- Remove the drain plug ②⑤ and float chamber ②⑥ from the carburetor body.
- Remove the and leak jet ②⑦.
- Remove the gasket ②⑧ and O-ring ②⑨.
- Remove the plate from the float chamber.



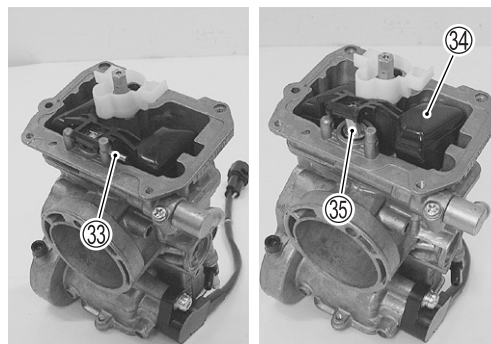
- Pull out the push rod ③① of acceleration pump.



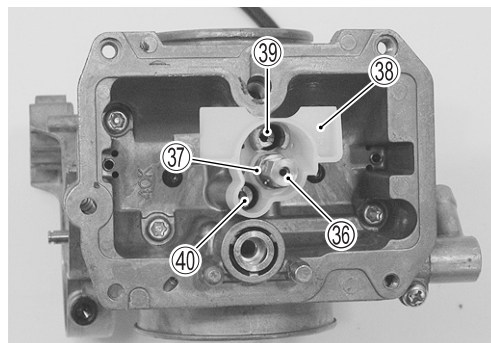
- Remove the E-clip, washer and acceleration pump lever ③①.
- Remove the throttle stop screw ③②.



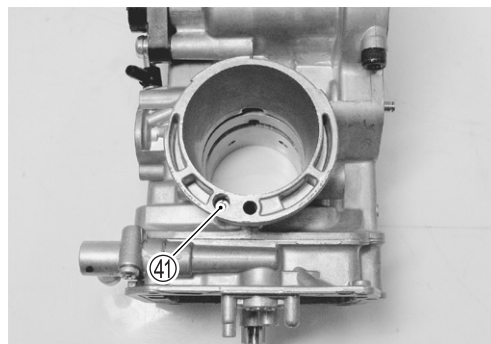
- Remove the float pin ③③.
- Remove the float ③④ with the float valve ③⑤.



- Remove the following parts.
 - ③⑥ Main jet
 - ③⑦ Main nozzle
 - ③⑧ Buffer plate
 - ③⑨ Starter jet
 - ④① Slow jet



- Remove the slow air jet ④①.



CLEANING

⚠ WARNING

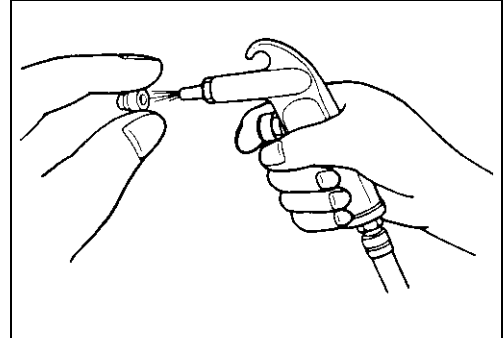
Some carburetor cleaning chemicals, especially dip-type soaking solutions, are very corrosive and must be handled carefully. Always follow the chemical manufacturer's instructions on proper use, handling and storage.

- Clean all jets with a spray-type carburetor cleaner and dry them using compressed air.
- Clean all passageways of the carburetor thoroughly – not just the perceived problem area. Clean the passageways in the carburetor body with a spray-type cleaner. If necessary, soak carburetor body in a dip-type cleaning solution to loosen dirt and varnish.
- Dry the carburetor body using compressed air.

CAUTION

Do not use a wire to clean the jets or passageways. If wire is used, the jets and passageways may become damaged.

Replace the removed O-rings with new ones.



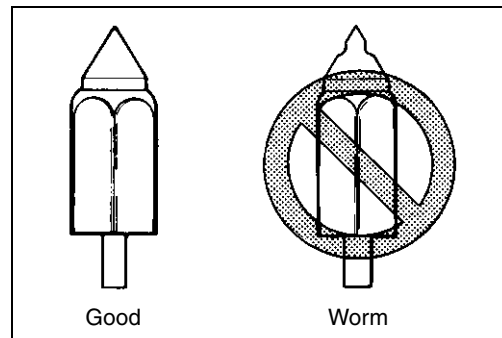
INSPECTION

- Inspect the following items for any damage or clogging.
- If any defects are found, replace the defective parts with a new one.

Jet needle	Diaphragm
Throttle valve	Pilot screw
Float	Springs
Main jet	Main nozzle
Slow jet	Starter jet
Slow air jet	Leak jet
Hoses	

FLOAT VALVE

- Inspect the float valve tip for wear.
- Inspect the float valve rod for smooth movement.



FUEL LEVEL

- Remove the drain hose and then install a proper cap ① to the carburetor drain.
- Remove the drain screw and then connect the special tool.

TOOL 09913-14541: Fuel level gauge set

- Hold the carburetor in the proper angle with a stand.

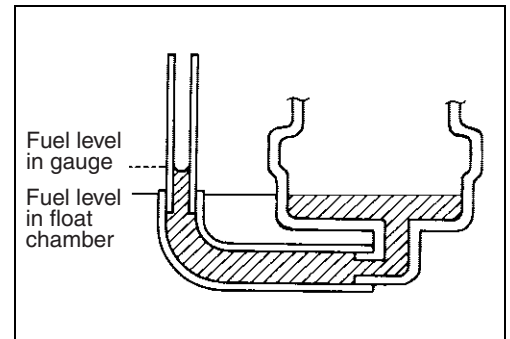
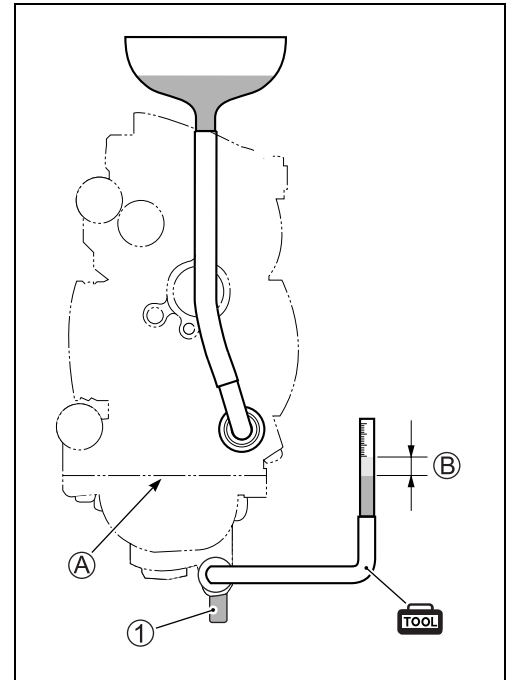
Carburetor set position	Lateral direction: Horizontal
	Longitudinal direction: Vertical

- Fill the float chamber with fuel.
- Remove air completely from the fuel level gauge.
- With the level gauge held vertical, lower the gauge slowly and align the datum point ① (float chamber mating surface) with the gauge graduation.
- Wait until the fuel level stabilizes.
- Determine the zero point on the gauge graduation and after waiting again for level stabilization, measure the height ② from the datum point ①.

DATA Fuel level ②: 6.5 mm (0.256 in) above the datum point

NOTE:

The apparent fuel level measured in the level gauge is higher than the actual level in the float chamber because of meniscus effect. [Meniscus is approximately 1 mm (0.039 in).]



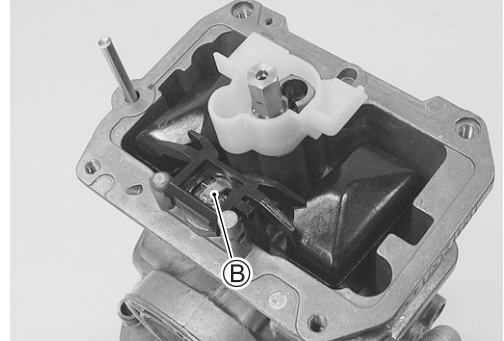
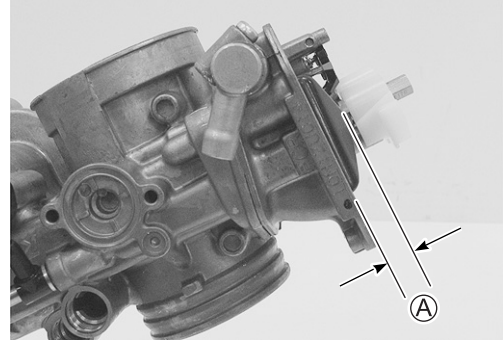
FLOAT HEIGHT

- Tilt the carburetor until the float arm **(B)** just touches the float valve rod.
- Measure the float height **(A)**.

DATA Standard float height: 8 mm (0.31 in)

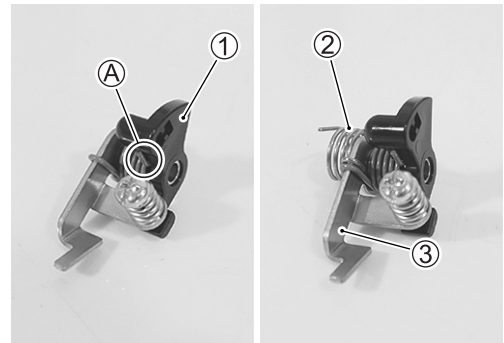
TOOL 09900-20101: Vernier calipers (150 mm)

- If necessary, slightly bend the float arm **(B)** to change the float height.
- Recheck the fuel level. (👉 12-11)

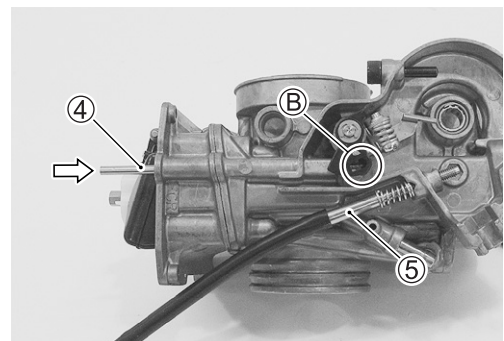
**REASSEMBLY**

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

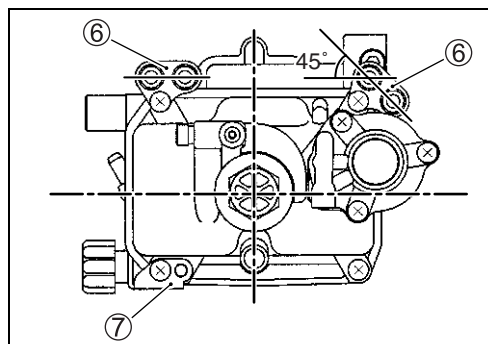
- Make sure that the spring end **(A)** is fitted on the pump lever holder **(1)**.
 - Hook the return spring **(2)** to the acceleration pump lever **(3)**.
- Fit the end of the return spring into the recess on the carburetor body.



- Install the push rod **(4)** into the pump lever holder **(B)**.
- Install the throttle stop screw **(5)**.



- Fit the float chamber.
- Tighten the screws with the hose plates ⑥ and cable holder ⑦.

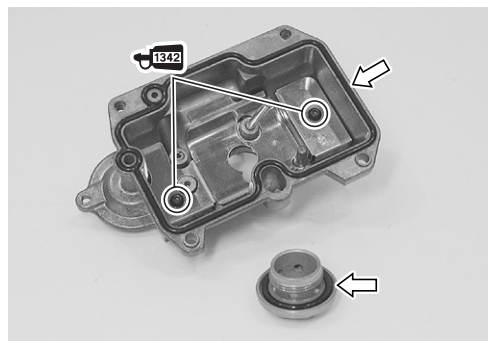


- Apply THREAD LOCK to the plate mounting screws and tighten them.

1342 99000-32050: THREAD LOCK “1342”

CAUTION

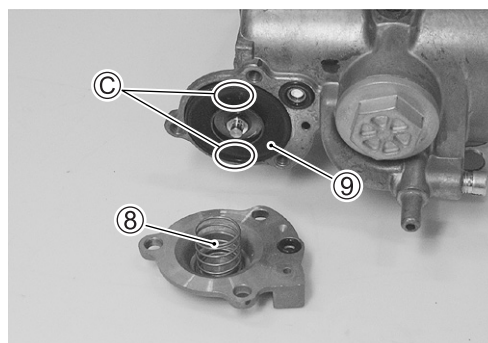
Replace the O-ring and gasket with new ones to prevent fuel leakage.



- Fit the spring ⑧.
- Install the diaphragm ⑨ so that the marks © face outside.

CAUTION

Replace the O-rings with new ones.

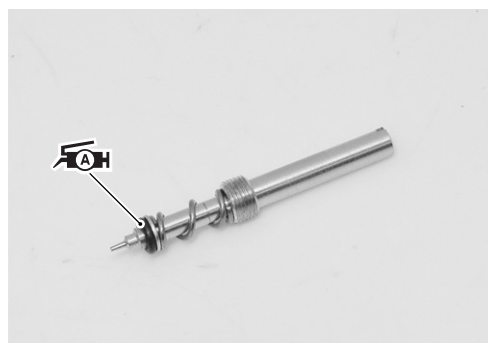


- Apply thin coat of the grease to the O-ring.

CAUTION

Replace the O-ring with a new one.

AH 99000-25010: SUZUKI SUPER GREASE “A”
(or equivalent grease)

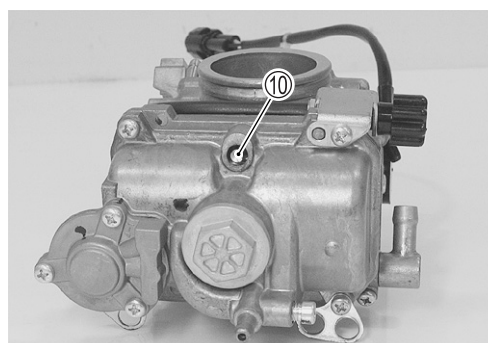


- Install the pilot screw ⑩.

NOTE:

Turn in the pilot screw ⑩ until it lightly seats, then back it out the counted number of turns.

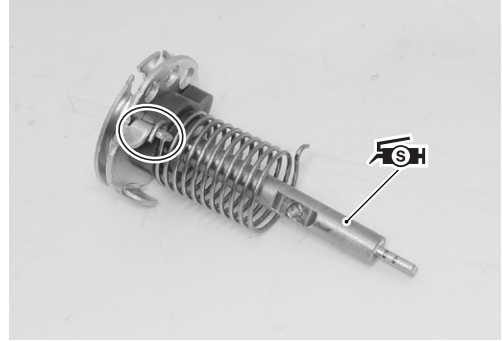
DATA Pilot screw: 1 and 1/2 turns back (Reference data)



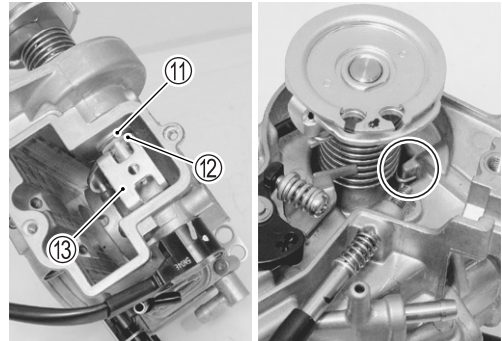
- Apply SUZUKI SILICONE GREASE to the throttle shaft.

 **99000-25100: SUZUKI SILICONE GREASE**

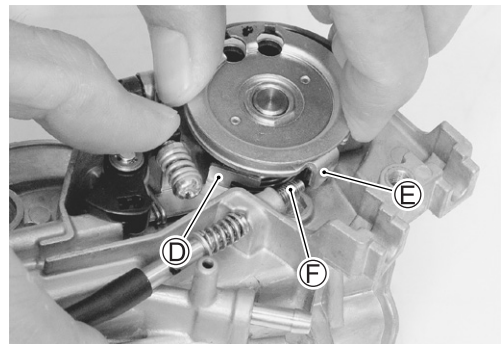
- Hook the return spring onto the stopper of the throttle pulley.



- Insert the throttle shaft and install the steel washer ⑪, plastic washer ⑫ and link arm ⑬.
- Fit the end of the return spring into the recess of the carburetor body.



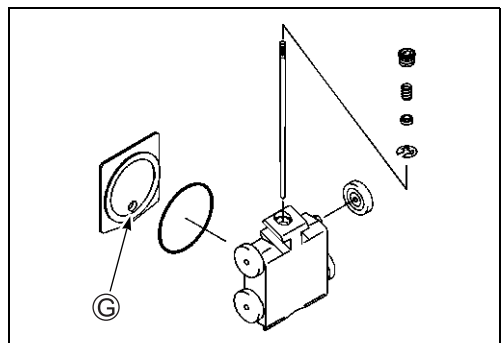
- Turn the throttle shaft counterclockwise while holding down the acceleration pump lever ④ and clear the stopper ⑤ of the pulley from the throttle stop screw ⑥.



- Reassemble the throttle valve assembly as shown.

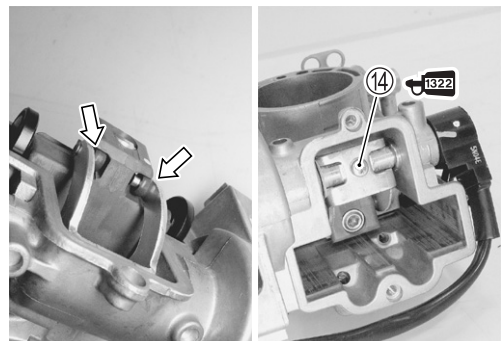
NOTE:

Assemble the floating valve so the hole ⑦ faces downward.



- Set the link rollers of the throttle link into the slits of the throttle valve.
- Insert the throttle valve assembly.
- Apply THREAD LOCK SUPER to the screw ⑭.

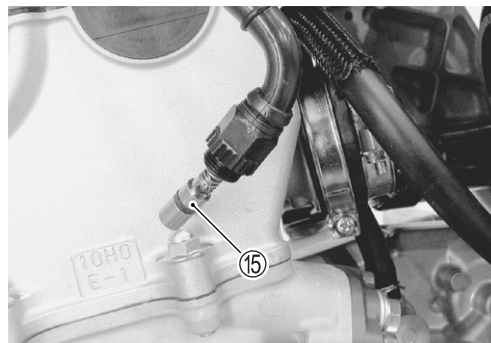
 **99000-32110: THREAD LOCK SUPER "1322"**
(or equivalent thread lock)



CAUTION

Replace the gasket with a new one.

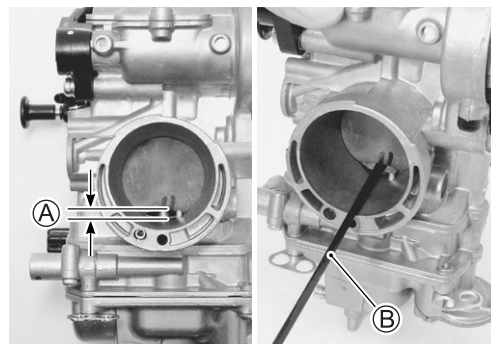
- Reassemble the hot start valve ⑮ to the hot start cable end.

**ACCELERATION PUMP TIMING**

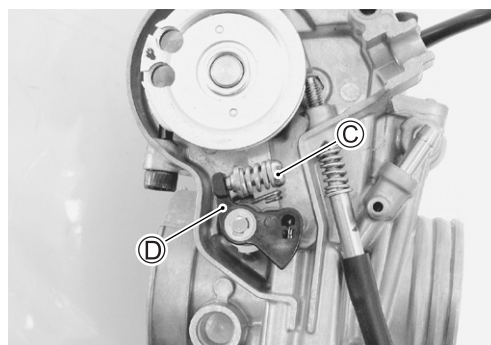
If turn the stop screw of the acceleration pump, adjust the acceleration pump timing after assemble the carburetor.

- Select a pin ② of the same diameter as the throttle valve height ① and insert it under the throttle valve.

DATA Throttle valve height: 4.4 mm (0.173 in)



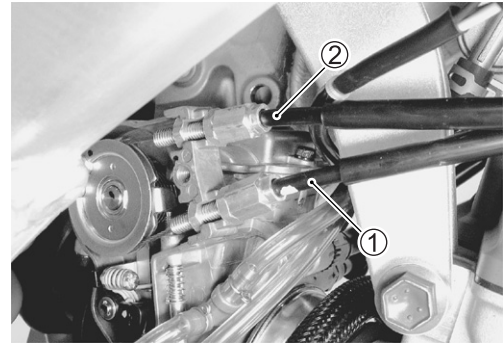
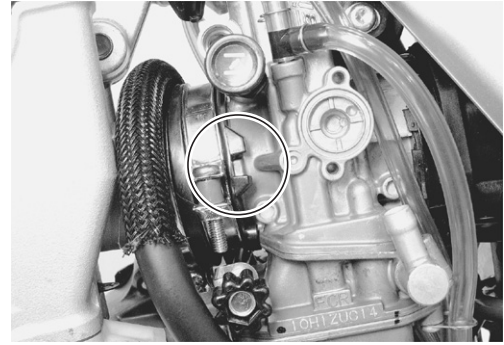
- Turn in the stop screw ③ fully.
- Check play of the link lever ④.
- Turn the stop screw ③ counterclockwise gradually until no free play is available on the link lever ④.



INSTALLATION


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

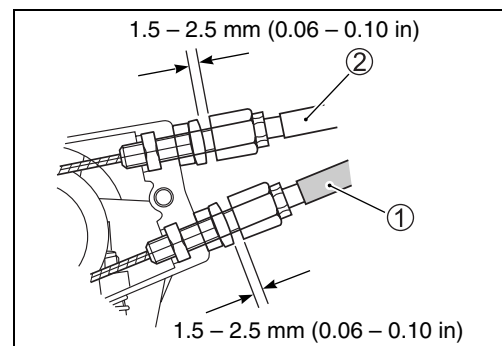
- Fit the projection on the carburetor body in the depression of the intake pipe.
- Connect the throttle pulling cable ① and throttle returning cable ② to the pulley.







- Turn in each throttle cable adjuster fully and locate each outer cable so that the clearance is 1.5 – 2.5 mm (0.06 – 0.10 in).
- Tighten each lock-nut to the specified torque.

Cable adjuster lock-nut: 2.2 N·m (0.22 kgf-m, 1.60 lb-ft)

- Adjust the throttle cable play. ( 2-18)



INSPECTION AFTER INSTALLATION

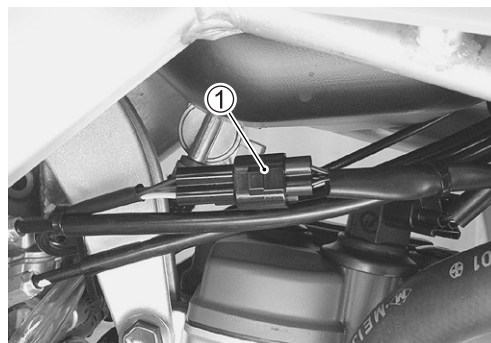
- Wiring harness, cable and hose routing ( 19-18 to -23)
- Fuel leakage ( 2-21)
- Throttle cable play ( 2-18)
- Engine idle speed ( 2-20)

THROTTLE POSITION SENSOR

INSPECTION

THROTTLE POSITION SENSOR INPUT VOLTAGE

- Remove the right radiator cover. (☞ 5-2)
- Disconnect the throttle position sensor coupler ①.



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

DATA Throttle position sensor input voltage:

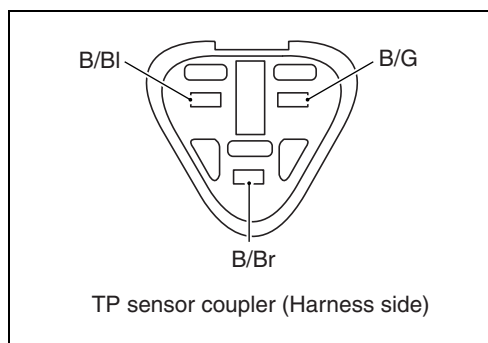
B/G (+ probe) – B/Br (– probe):

4.5 – 5.5 V (2 100 r/min)

TOOL 09900-25008: Multi-circuit tester set

TESTER Tester knob indication: Voltage (V)

- 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 using the multi circuit tester.

DATA Throttle position sensor total of resistance:

4 – 6 kΩ (BI – B)

DATA Throttle position sensor resistance:

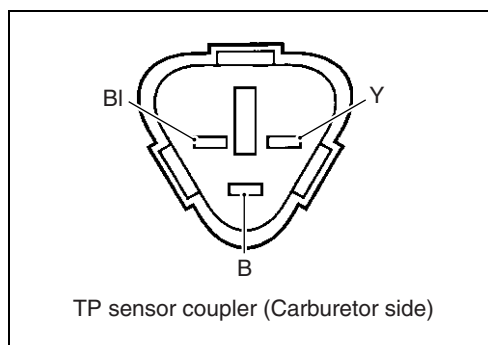
When the throttle fully closed: 0.6 – 1.0 kΩ (Y – B)

When the throttle fully opened: 3.2 – 5.0 kΩ (Y – B)

TOOL 09900-25008: Multi-circuit tester set


TESTER Tester knob indication: Resistance (Ω)

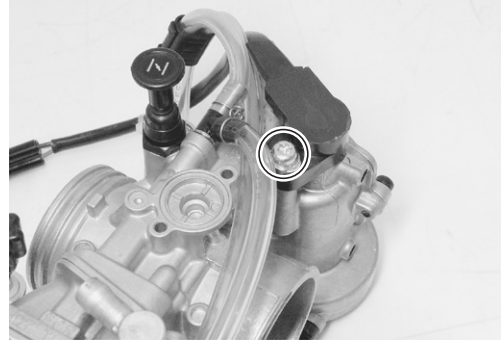
- If the resistance is not within the specified value, replace the throttle position sensor assembly.



REMOVAL

- Remove the carburetor. (👉 12-5)
- Remove the throttle position sensor using the special tool.

 **09930-11950: Torx wrench (T25)**

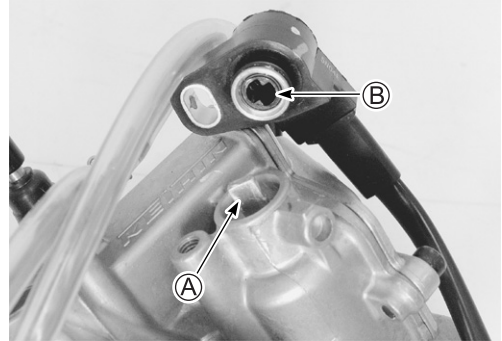


INSTALLATION

- With the throttle valve fully closed, install the throttle position sensor.

NOTE:

Align the throttle shaft end (A) with the groove (B) of throttle position sensor.




- Adjust the throttle position sensor until resistance comes to specification and tighten the mounting screw.

NOTE:

Make sure the throttle valve open or close smoothly.

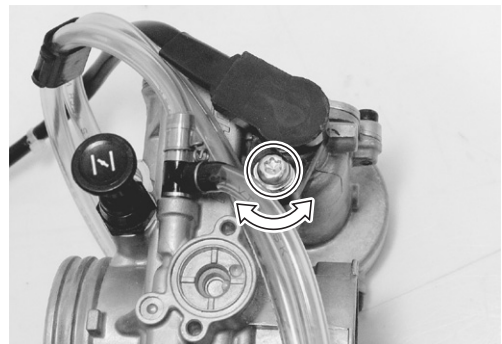
 **Throttle position sensor total of resistance:**
4 – 6 k Ω (BI – B)

 **Throttle position sensor resistance:**
When the throttle fully closed: 0.6 – 1.0 k Ω (Y – B)
When the throttle fully opened: 3.2 – 5.0 k Ω (Y – B)

 **09900-25008: Multi-circuit tester set**
09930-11950: Torx wrench (T25)

 **Tester knob indication: Resistance (Ω)**

- Install the carburetor. (👉 12-16)

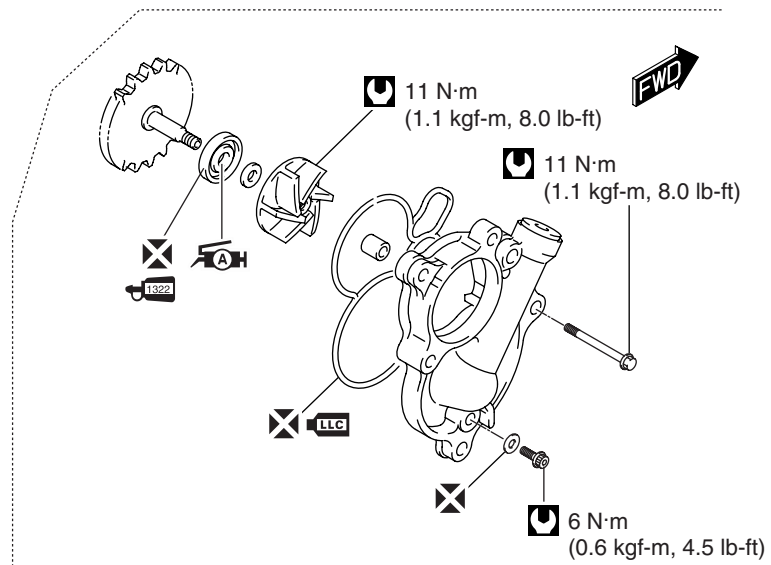
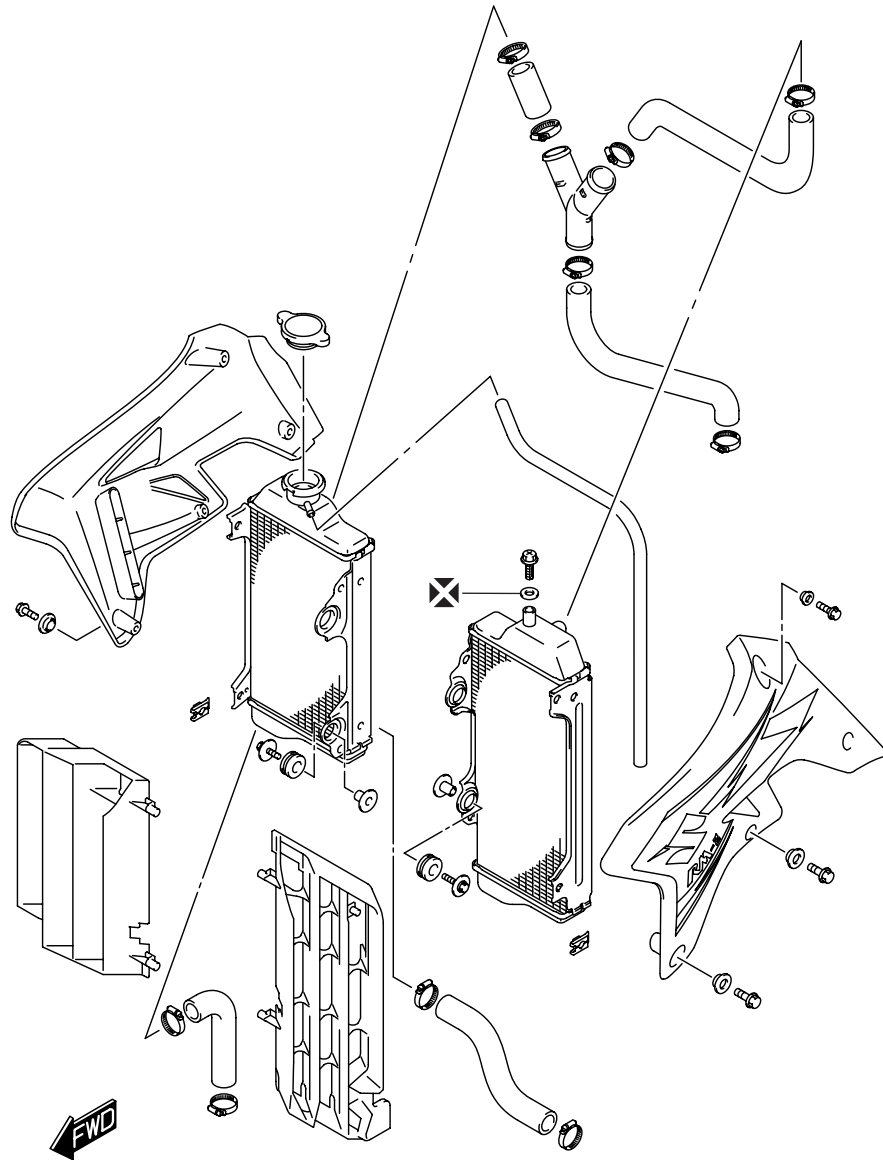


COOLING SYSTEM

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CONSTRUCTION



ENGINE COOLANT REPLACEMENT

⚠ WARNING

Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.


Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.

- Open the radiator cap.
- Remove the drain bolt ① and drain engine coolant.
- Tighten the drain bolt ①.

CAUTION

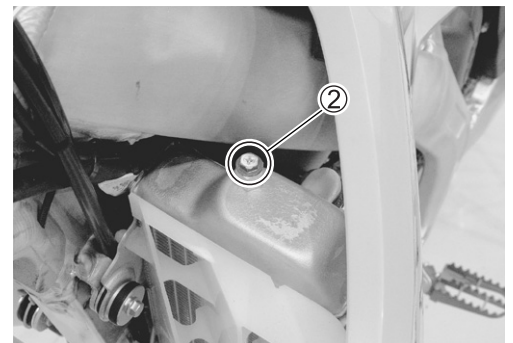
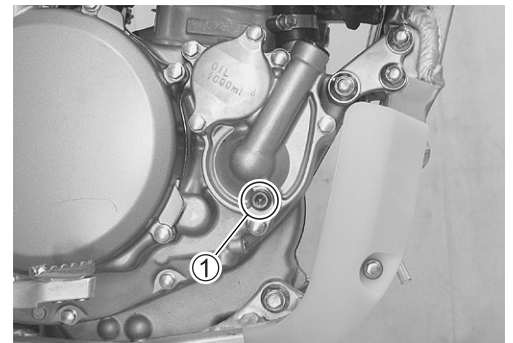
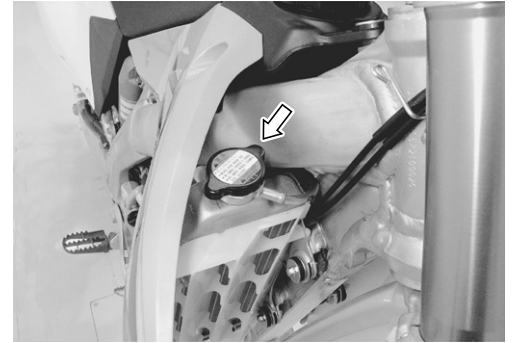
Use a new gasket washer to prevent engine coolant leakage.

 Engine coolant drain bolt: 6 N·m (0.6 kgf-m, 4.5 lb-ft)

- Pour specified engine coolant up to the bottom of filler hole.
( 2-15)

 Engine coolant capacity: 950 ml (1.0/0.8 US/Imp qt)

- Bleed air from the air bleeder bolt ②.
- Tighten the air bleeder bolt ②.
- Add engine coolant up to the radiator inlet.
- Tighten the radiator cap securely.
- After warming up and cooling down the engine, add engine coolant.



COOLING CIRCUIT

INSPECTION

- Remove the radiator cap.

⚠ WARNING

Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.

Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.

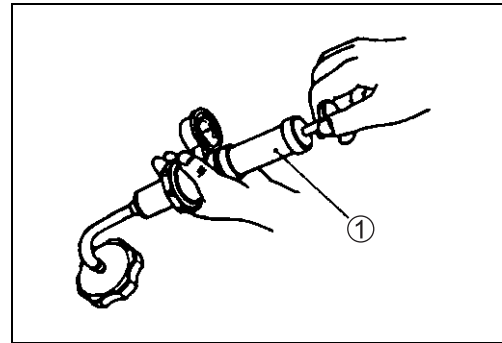
- Connect the tester ① to the filler.
- Give a pressure of about 120 kPa (1.2 kgf/cm², 17.0 psi) and see if the system holds this pressure for 10 seconds.
- If the pressure would fall during this 10-second interval, it means that there is a leaking point in the system. In such a case, inspect the entire system and replace the leaking component or part.

⚠ WARNING

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

CAUTION

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



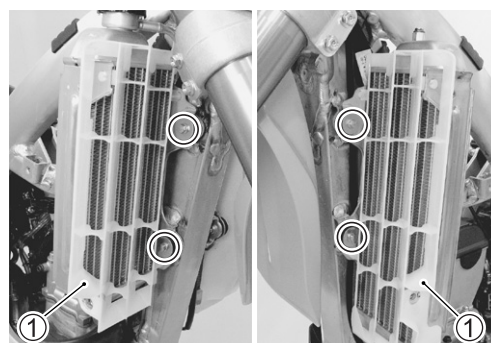
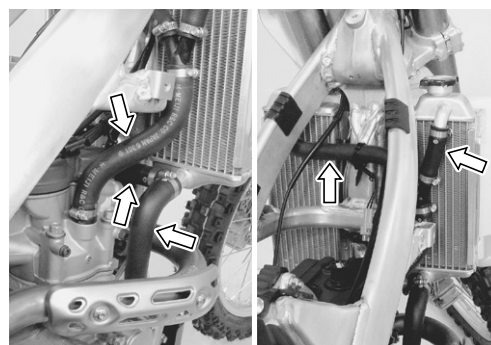
RADIATOR REMOVAL

⚠ WARNING

Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.

The engine must be cool before servicing the cooling system.

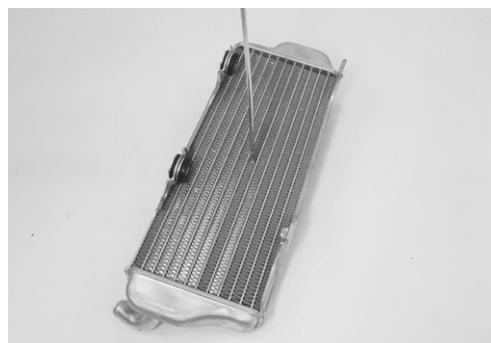
- Remove the seat, radiator covers and fuel tank. (☞ 5-2)
- Drain engine coolant. (☞ 13-3)
- Remove the radiator hoses.
- Remove the radiator louvers ①, left and right.
- Remove the radiators, left and right.



INSPECTION

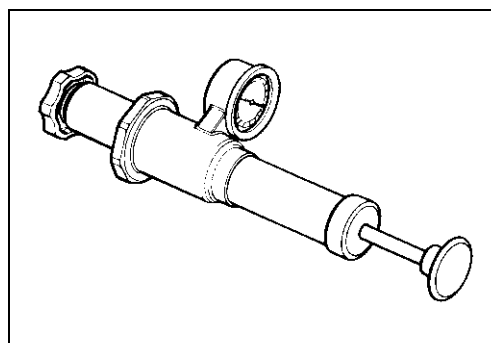
RADIATOR

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



RADIATOR CAP

- Fit the cap to the radiator cap tester.
- Build up pressure slowly by operating the tester. Make sure that the pressure build-up stops at 95 – 125 kPa (0.95 – 1.25 kgf/cm², 14 – 18 psi) and that, with the tester held standstill, the cap is capable of holding that pressure for at least 10 seconds.
- Replace the cap if it is found not to satisfy either of these two requirements.



DATA Radiator cap valve release pressure

Standard: 95 – 125 kPa

(0.95 – 1.25 kgf/cm², 14 – 18 psi)

INSTALLATION

Install the radiators in the reverse order of removal.

- Rout the radiator hose correctly. (☞ 19-23)
- Inspect the engine coolant level and leakage. (☞ 2-15, -16)

WATER PUMP REMOVAL

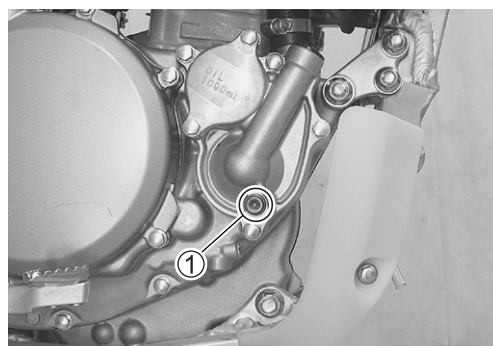
⚠ WARNING

Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.

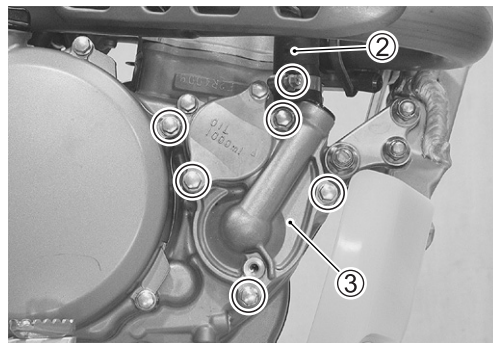
The engine must be cool before servicing the cooling system.

WATER PUMP CASE

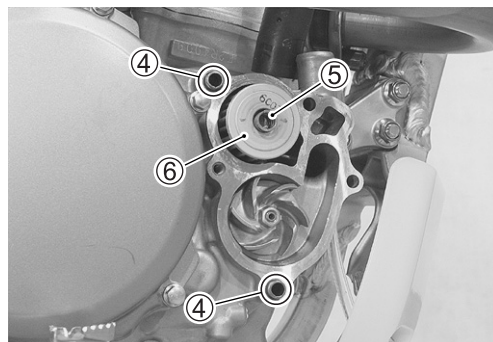
- Drain engine oil. (☞ 2-12)
- Drain engine coolant by removing the drain bolt ①.



- Disconnect the radiator hose ②.
- Remove the water pump case ③.

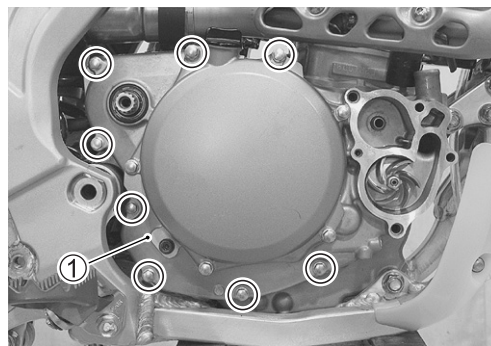


- Remove the dowel pins ④, spring ⑤ and oil filter ⑥.

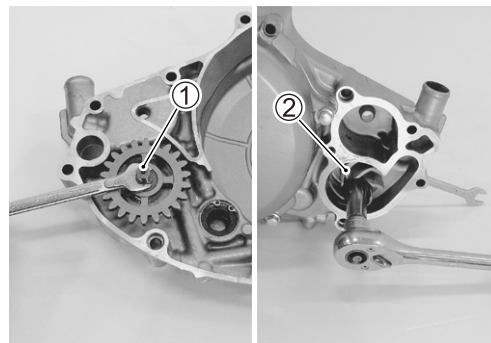


CRANKCASE COVER

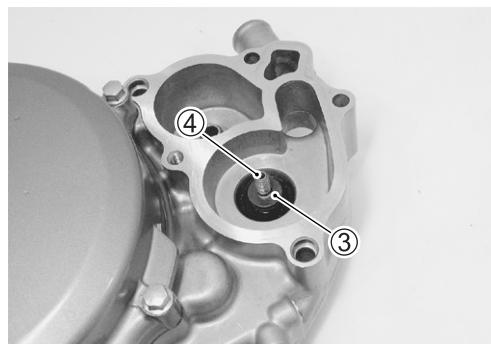
- Remove the brake pedal. (☞ 16-18)
- Remove the kick starter lever. (☞ 8-3)
- Remove the right crankcase cover ①.

**IMPELLER AND GEAR SHAFT**

- Hold the water pump shaft ① with a wrench and remove the impeller ②.



- Remove the washer ③ and water pump shaft ④.



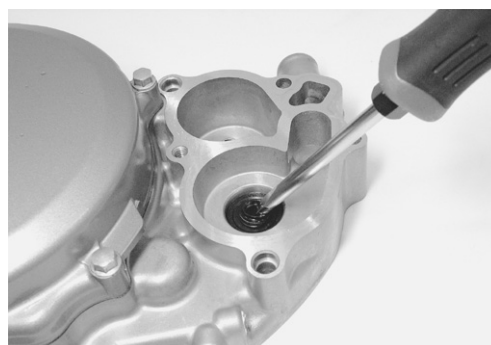
- Remove the oil seal.

CAUTION

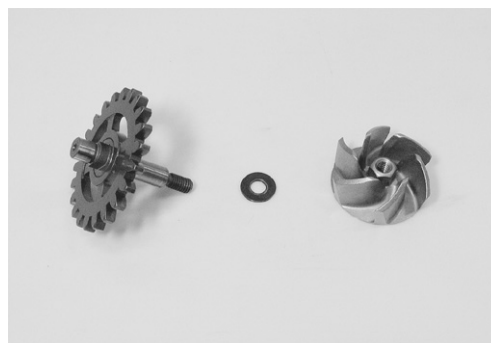
Replace the removed oil seal with a new one.

NOTE:

If there is no abnormal condition, the oil seal removal is not necessary.

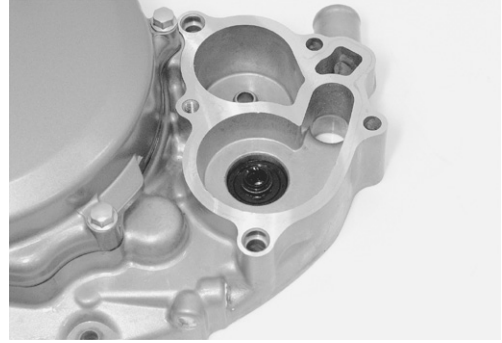
**INSPECTION****IMPELLER AND WATER PUMP SHAFT**

- Inspect the impeller and water pump shaft for damage.
- Replace the defective parts with a new one if necessary.



OIL SEAL

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

**INSTALLATION**

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

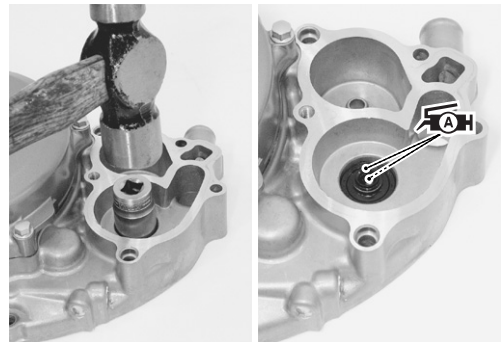
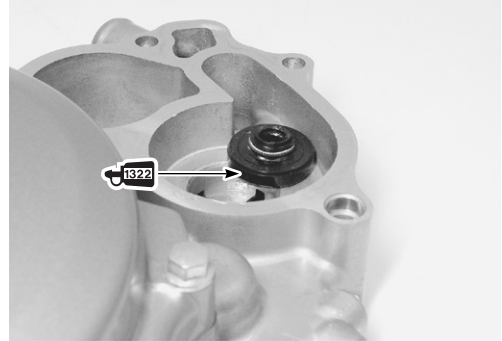
OIL SEAL

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


 **99000-32110: THREAD LOCK SUPER “1322”**
(or equivalent thread lock)

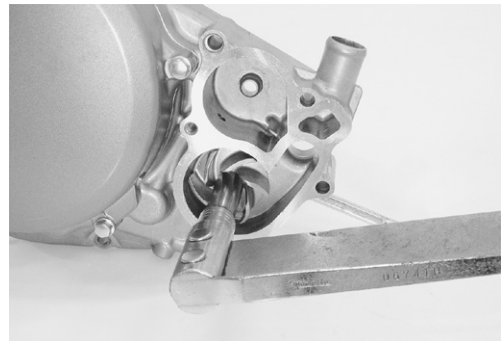
- Press the oil seal with the suitable size socket wrench.
- Apply a small quantity of the SUZUKI SUPER GREASE to the oil seal lips.

 **99000-25010: SUZUKI SUPER GREASE “A”**
(or equivalent grease)

**IMPELLER AND WATER PUMP SHAFT**

- Hold the water pump shaft with a wrench and tighten the impeller to the specified torque.

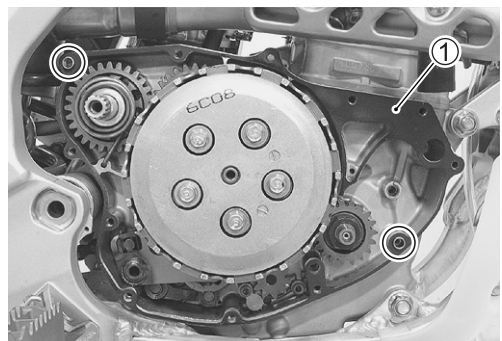
 **Impeller: 11 N·m (1.1 kgf-m, 8.0 lb-ft)**

**CRANKCASE COVER**

- Install the dowel pins and gasket ①.

CAUTION

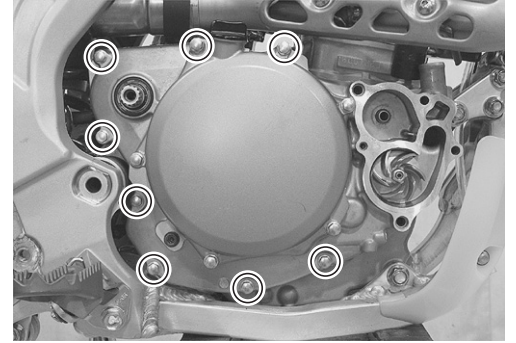
Use a new gasket to prevent engine oil leakage.



- Fit the right crankcase cover.
- Tighten the right crankcase cover bolts to the specified torque.

Right crankcase cover bolt: 11 N·m (1.1 kgf·m, 8.0 lb·ft)

- Install the brake pedal. (☞ 16-18)
- Install the kick starter lever. (☞ 8-7)

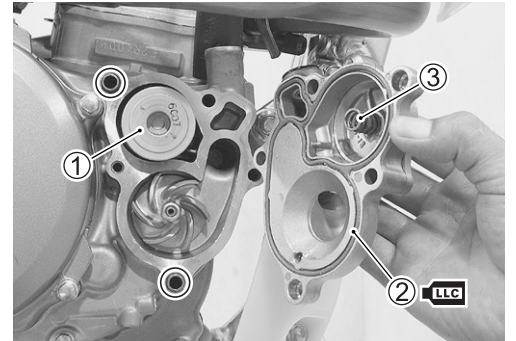


WATER PUMP CASE

- Install the dowel pins and oil filter ①.
- Apply engine coolant to the gasket ②.
- Install the gasket ② and spring ③.

CAUTION

Use a new gasket to prevent engine oil/coolant leakage.



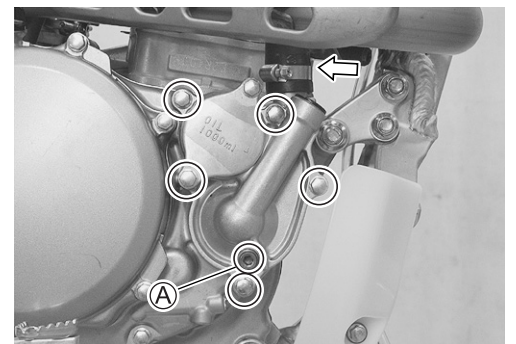
- Fit the water pump case.
- Tighten the water pump case bolts and drain bolt to the specified torque.

CAUTION

Use new gasket washer (A) to prevent engine coolant leakage.

Water pump case bolt: 11 N·m (1.1 kgf·m, 8.0 lb·ft)
Engine coolant drain bolt: 6 N·m (0.6 kgf·m, 4.5 lb·ft)

- Connect the radiator hose and pour engine coolant. (☞ 19-23)



INSPECTION AFTER INSTALLATION

- Engine oil level and leakage (☞ 2-11)
- Engine coolant level and leakage (☞ 2-15, -16)

– MEMO –

ELECTRICAL SYSTEM

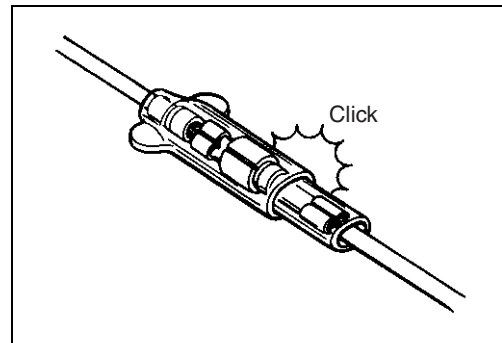
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CAUTIONS IN SERVICING

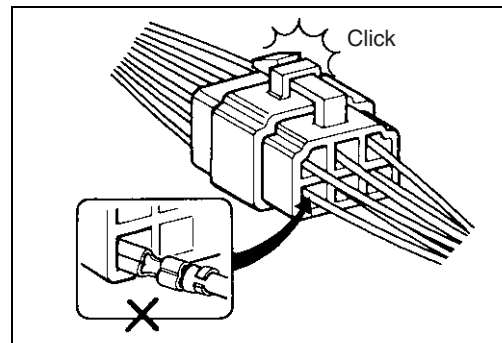
CONNECTOR

- 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.



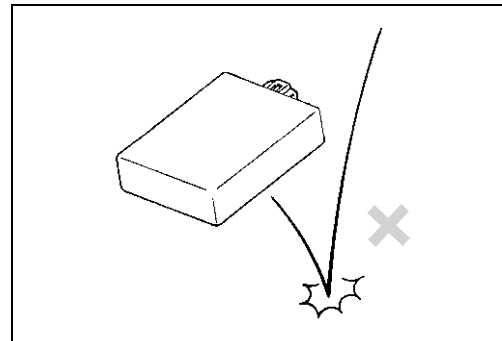
COUPLER

- 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.



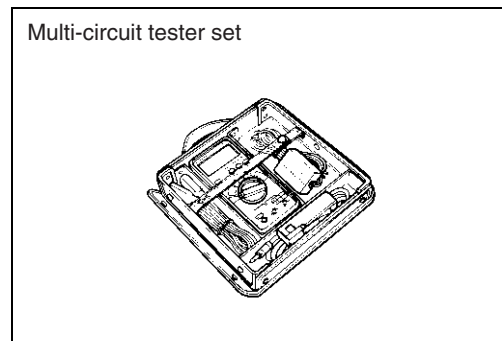
SEMI-CONDUCTOR EQUIPPED PART

- 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 \oplus and \ominus 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.



TOOL 09900-25008: Multi-circuit tester set

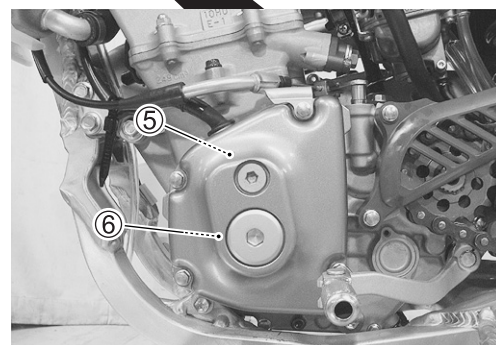
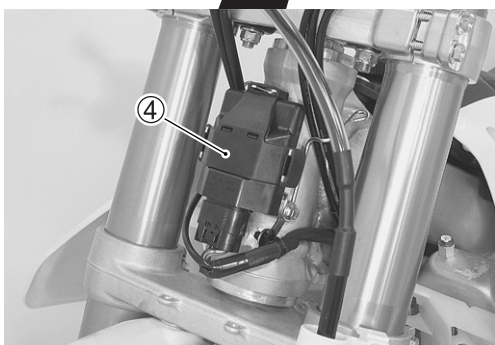
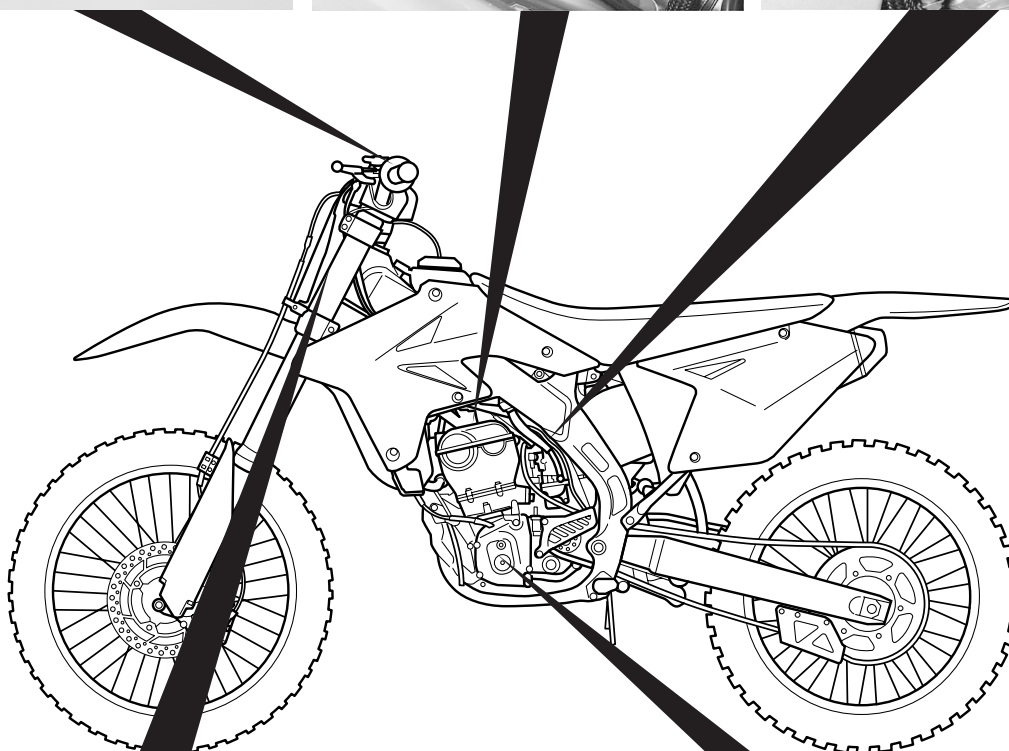
CAUTION

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

SWITCH

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

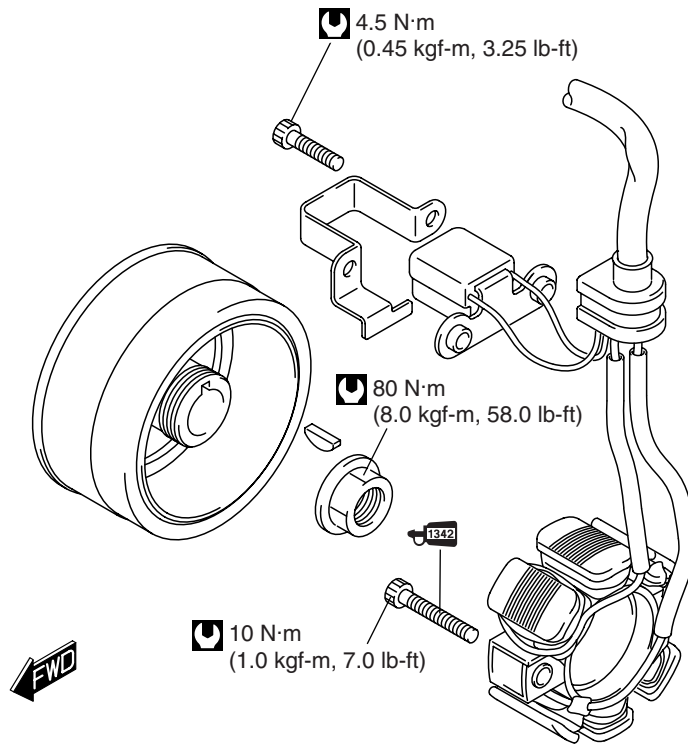
LOCATION OF ELECTRICAL COMPONENTS



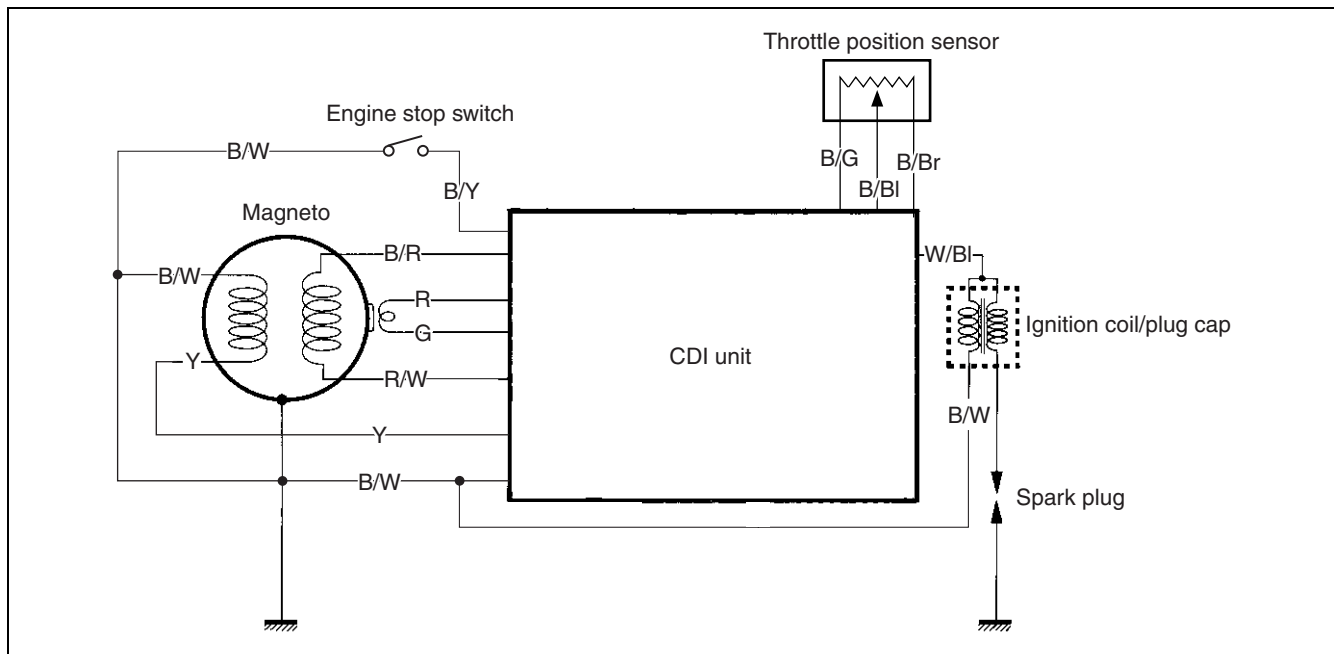
- ① Engine stop switch
- ② Ignition coil/plug cap
- ③ Throttle position sensor

- ④ CDI unit
- ⑤ Pick-up coil
- ⑥ Magneto

CONSTRUCTION ELECTRICAL SYSTEM



ELECTRICAL CIRCUIT



WIRE COLOR:

G: Green
R: Red
Y: Yellow

B/Bl: Black with Blue tracer
B/Br: Black with Brown tracer
B/G: Black with Green 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

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 ignition coil primary peak voltage. (☞ 14-9)

Is the peak voltage OK?

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

Step 3

1) Inspect the spark plug. (☞ 2-7, -8)

Is the spark plug OK?

YES	<ul style="list-style-type: none"> • Poor connection of the spark plug • Go to Step 4.
NO	Faulty spark plug

Step 4

1) Measure the ignition coil/plug cap resistance. (☞ 14-10)

Is the ignition coil/plug cap resistance OK?

YES	Go to Step 5.
NO	Faulty ignition coil/plug cap

Step 5

1) Measure the pick-up coil peak voltage. (☞ 14-7)

Is the peak voltage OK?

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

Step 6

1) Measure the pick-up coil resistance. (☞ 14-8)

Is the resistance OK?

YES	Go to Step 7.
NO	<ul style="list-style-type: none"> • 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. (🔧 14-7)

Are the peak voltages OK?

YES	Go to Step 9.
NO	Go to Step 8.

Step 8

1) Check the stator.

Is the stator OK?

YES	Go to Step 9.
NO	Faulty stator

Step 9

1) Measure the engine stop switch resistance. (🔧 14-11)

Is the resistance OK?

YES	<ul style="list-style-type: none">• Faulty CDI unit• Open or short circuit in wire harness
NO	Faulty engine stop switch

IGNITION SYSTEM

IGNITION SYSTEM PEAK VOLTAGE INSPECTION

- Disconnect the magneto lead wire coupler ①.



- Connect the multi-circuit tester with peak volt adaptor as shown.
- Measure the highest peak voltage by depressing the kick starter lever several times forcefully.

DATA Stator coil peak voltage

Exciter	⊕ Black/Red – ⊖ Red/White	25 V and more
Charge	⊕ Yellow – ⊖ Black/White	8 V and more

DATA Pick-up coil peak voltage

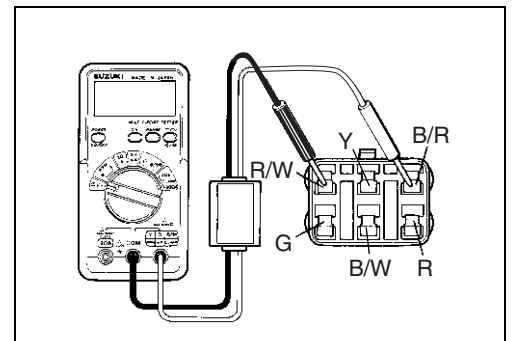
Pick-up	⊕ Red – ⊖ Green	2 V and more
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TOOL 09900-25008: Multi-circuit tester set

Tester knob indication: Voltage (---)

If the peak voltage is below the specification, the cause may lie in the stator coil or pick up coil. (➡ 14-8)

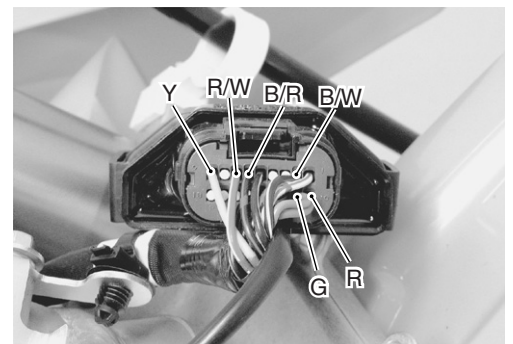
If the peak voltage is above the specification, check the continuity between the magneto lead wire coupler and CDI unit coupler. (➡ 19-17)



CAUTION

Normally, use the needle pointed probe to the back-side of the lead wire coupler to prevent the terminal bend and terminal alignment.

TOOL 09900-25009: Needle pointed probe set



IGNITION SYSTEM COIL INSPECTION

- Disconnect the magneto lead wire coupler ①.
- Measure the exciter, charge and pick-up coils resistance.

DATA Stator coil resistance

Exciter	Black/Red – Red/White	24 – 42 Ω
Charge	Yellow – Black/White	1.6 – 3.2 Ω

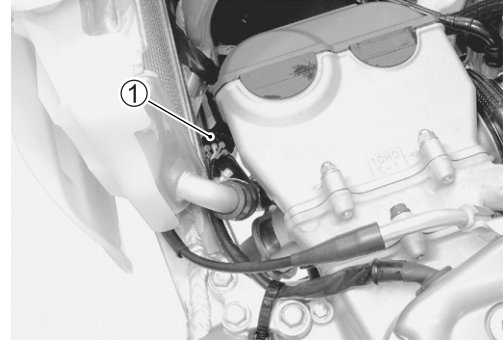
DATA Pick-up coil resistance

Pick-up	Red – Green	72 – 127 Ω
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TOOL 09900-25008: Multi-circuit tester set

TOOL Tester knob indication: Resistance (Ω)

If the resistance is not within the standard range, replace the stator assembly with a new one.



IGNITION COIL PRIMARY PEAK VOLTAGE INSPECTION

- Remove the seat, radiator covers and fuel tank. (☞ 5-2)
- Disconnect the ignition coil/plug cap lead wire coupler before removing the ignition coil/plug cap.
- Remove the ignition coil/plug cap ①.

CAUTION

Do not remove the ignition coil/plug cap before disconnecting the lead wire coupler, or the lead wire will be damaged.

Do not pry up the ignition coil/plug cap with a screwdriver or a bar to avoid damage.

Be careful not to drop the ignition coil/plug cap as it may open or short in a circuit.

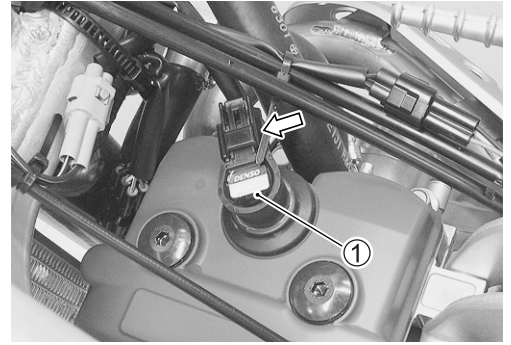
- Connect a new spark plug to the ignition coil/plug cap.
- Connect the ignition coil/plug cap lead wire coupler to the ignition coil/plug cap, and ground it to the cylinder head.

CAUTION

Avoid grounding the spark plug and supplying the electrical shock to the cylinder head cover (magnesium parts) to prevent the magnesium material from damage.

NOTE:

Be sure that all couplers and spark plug are connected properly.



- Insert the needle pointed probe (A) to the lead wire coupler.

NOTE:

Use the special tool (needle pointed probe), to prevent the rubber of the water proof coupler from damage.

- Measure the ignition coil primary peak voltage by depressing the kick starter lever several times forcefully.

⚠ WARNING

Do not touch the tester probes and spark plugs to prevent an electric shock while testing.

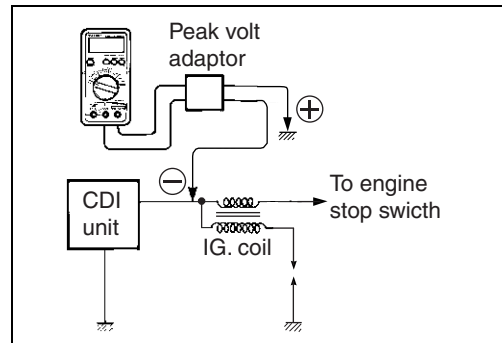
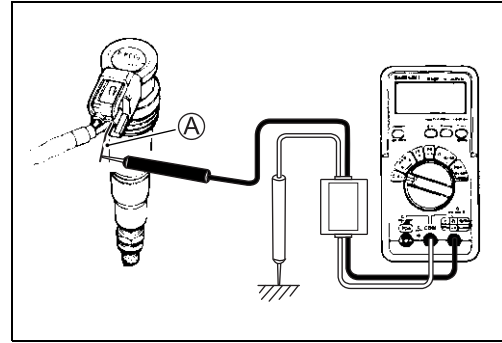
DATA Ignition coil primary peak voltage

⊕ Ground – ⊖ White/Blue	140 V and more
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- TOOL** 09900-25008: Multi-circuit tester set
- 09900-25009: Needle pointed probe set

Tester knob indication: Voltage (V)

If the peak voltage is lower than the standard range, check the ignition coil/plug cap as follow.



IGNITION COIL/PLUG CAP INSPECTION

- Remove the seat, radiator covers and fuel tank. (5-2)
- Disconnect the ignition coil/plug cap lead wire coupler, and then remove the ignition coil/plug cap. (14-9)
- Measure the ignition coil/plug cap resistance.

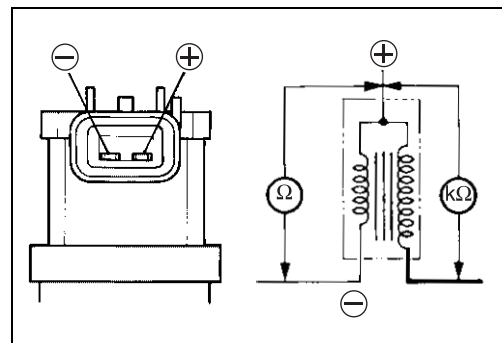
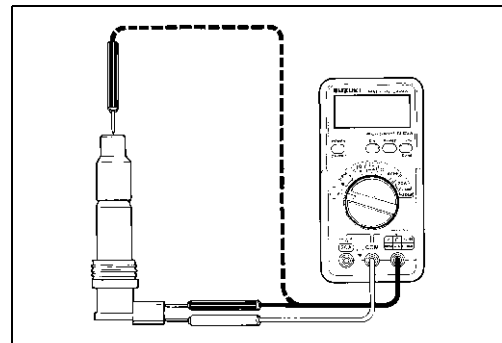
DATA Ignition coil/plug cap resistance

Primary	⊕ terminal – ⊖ terminal	0.07 – 0.6 Ω
Secondary	Plug cap – ⊕ terminal	4.8 – 7.1 kΩ

- TOOL** 09900-25008: Multi-circuit tester set

Tester knob indication: Resistance (Ω)

If the resistance is not within the standard range, replace the ignition coil/plug cap with a new one.



ENGINE STOP SWITCH INSPECTION

- Remove the seat, radiator covers and fuel tank. (☞ 5-2)
- Disconnect the engine stop switch lead wire coupler ①.



- Measure the engine stop switch resistance between Black/Yellow lead wire and Black/White lead wire.

DATA Engine stop switch resistance

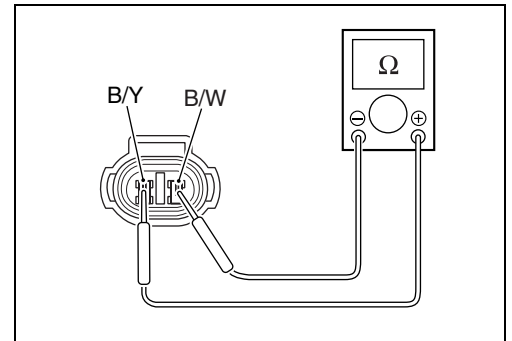
ON	Black/Yellow – Black/White	Under 1 Ω
OFF	Black/Yellow – Black/White	$\infty \Omega$ (Infinity)

TOOL 09900-25008: Multi-circuit tester set

Tester knob indication: Resistance (Ω)

If the measurement is out of the specification, the cause may lie in the engine stop switch.

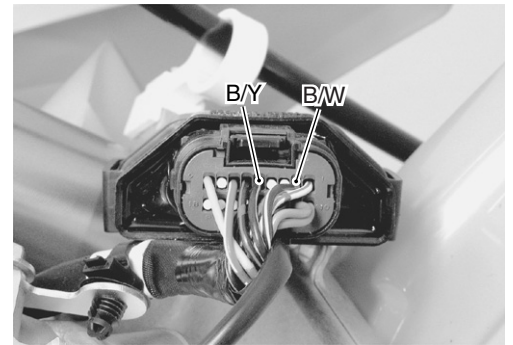
If the measurement is within the specification, check the continuity between the engine stop switch coupler and CDI unit coupler. (☞ 19-20)



CAUTION

Normally, use the needle pointed probe to the back-side of the lead wire coupler to prevent the terminal bend and terminal alignment.

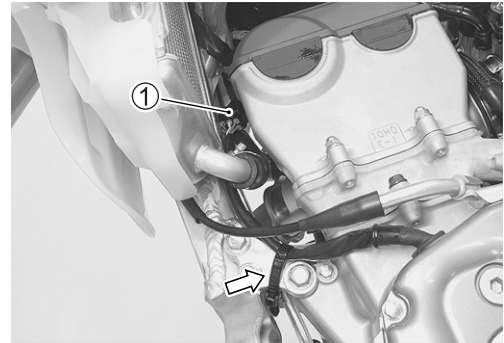
TOOL 09900-25009: Needle pointed probe set



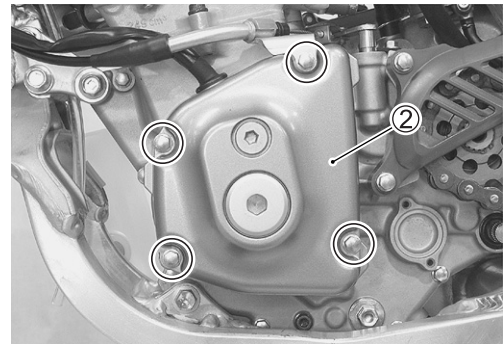
MAGNETO ROTOR

REMOVAL

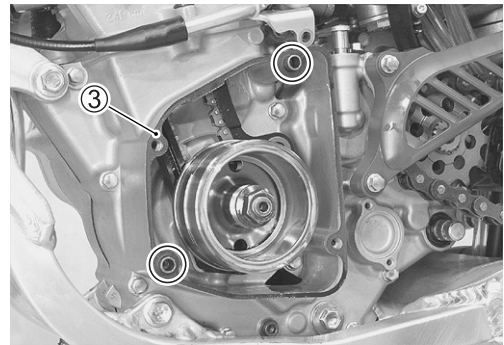
- Drain engine oil. (☞ 2-12)
- Disconnect the magneto lead wire coupler ① and clamp.



- Remove the gearshift lever. (☞ 9-3)
- Remove the magneto cover ②.

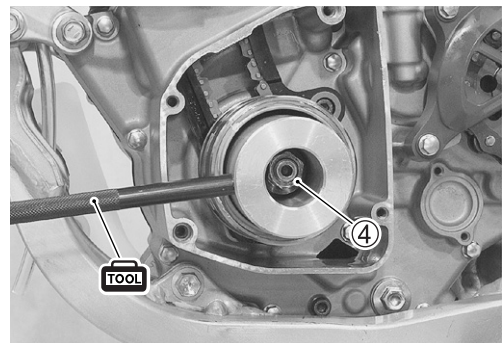


- Remove the gasket ③ and dowel pins.




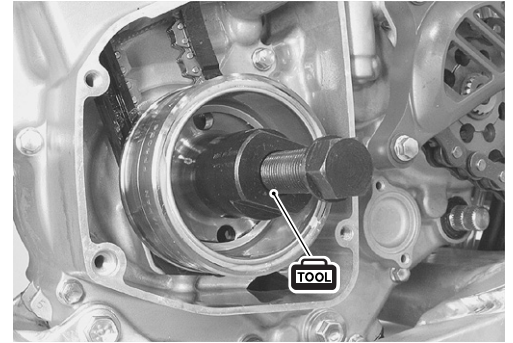
- Remove the magneto rotor nut ④ with the special tool.

 09930-44560: Rotor holder

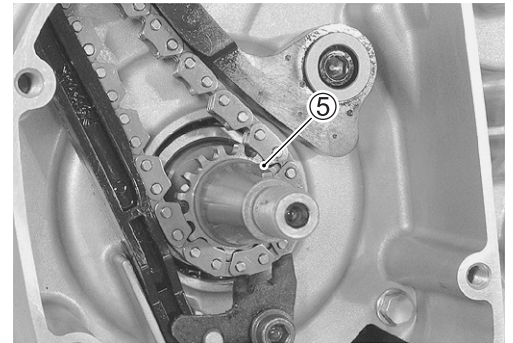


- Remove the magneto rotor with the special tool.

 **09930-35020: Rotor remover**

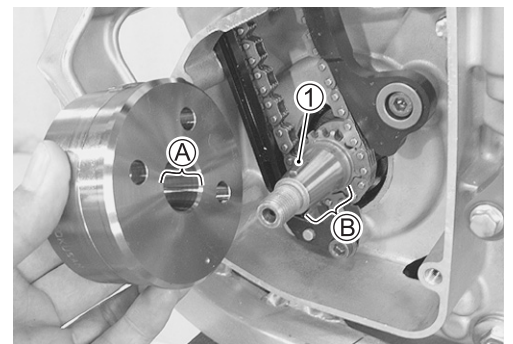


- Remove the magneto rotor key ⑤.



INSTALLATION

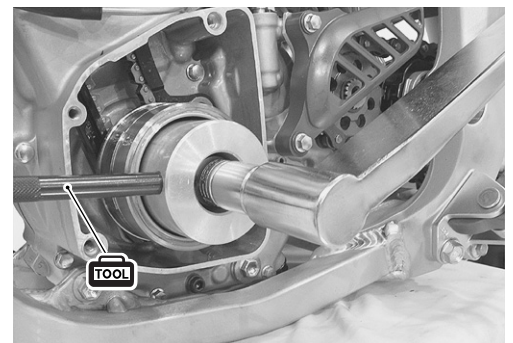
- Remove any grease from the tapered portion ① of the magneto rotor and crankshaft ②.
- Fit the magneto rotor key ① into the crankshaft.



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

 **09930-44560: Rotor holder**

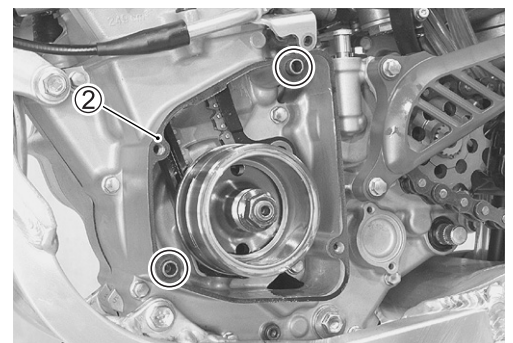
 **Magneto rotor nut: 80 N·m (8.0 kgf·m, 58.0 lb-ft)**



- Install the dowel pins and gasket ②.

CAUTION

Replace the gasket ② with a new one.

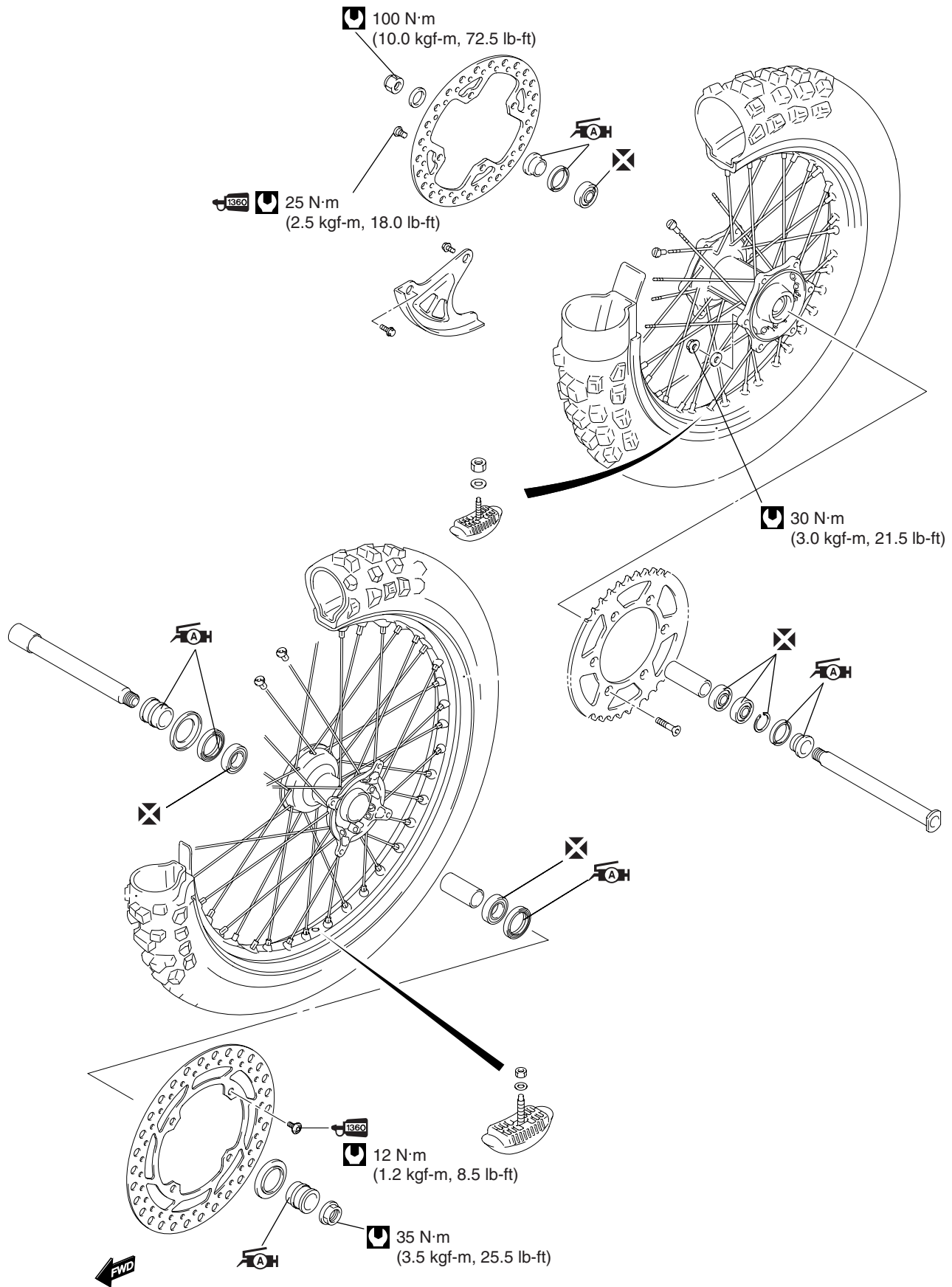


FRONT AND REAR WHEELS

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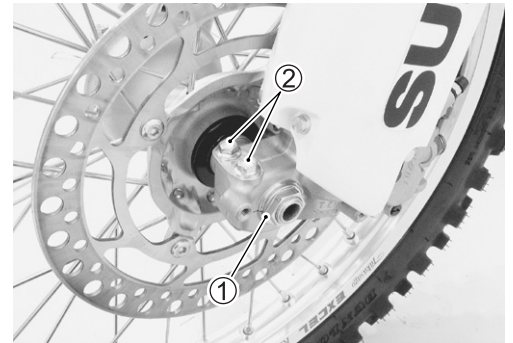
CONSTRUCTION



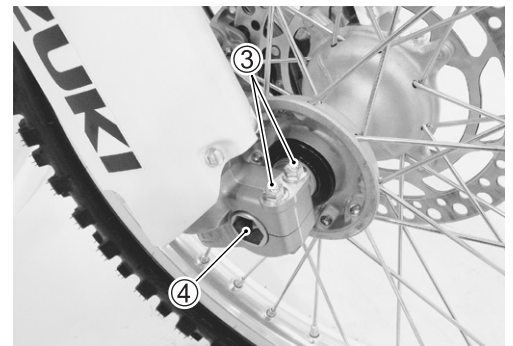
FRONT WHEEL

REMOVAL

- Remove the front axle nut ①.
- Loosen the left axle holder bolts ②.



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



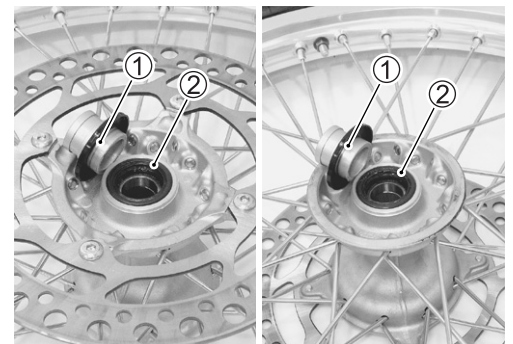
INSPECTION

SPACER AND DUST SEAL

- Remove the wheel spacers from the front wheel.
- Inspect the right and left wheel spacers ① and dust seals ② for wear and cracks.
- If any defects are found, replace the spacer together with the dust seal.

NOTE:

Apply grease to the spacer and dust seal before reassembling.



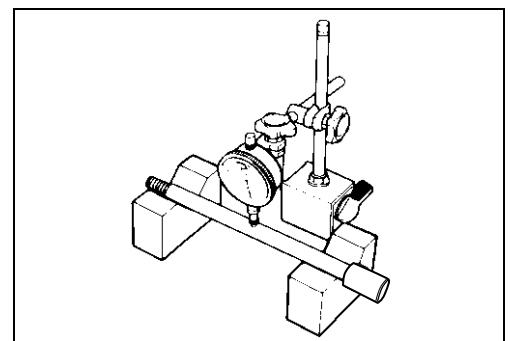
FRONT AXLE

- Support the axle shaft with the V-blocks and measure the axle shaft runout.
- If the runout exceeds the limit, replace the axle shaft with a new one.

DATA Front axle runout

Service Limit: 0.25 mm (0.010 in)

- TOOL** 09900-20607: Dial gauge (1/100, 10 mm)
- 09900-20701: Magnetic stand
- 09900-21304: V-block set (100 mm)

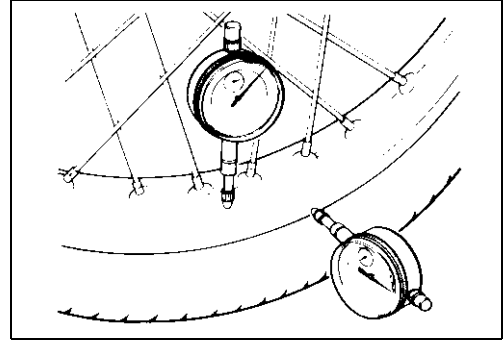


WHEEL RIM

- Measure the wheel rim runout with the dial gauge.
- If the runout exceeds the limit, replace the bearings or wheel.

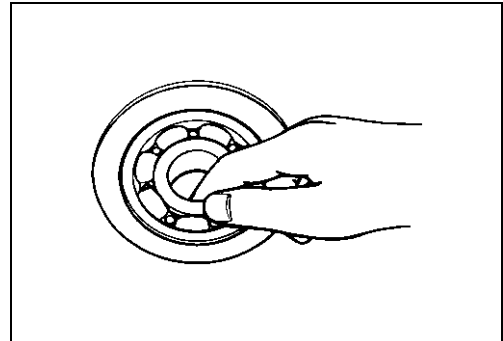
DATA Service Limit: 2.0 mm (0.08 in) ... axial and radial

TOOL 09900-20607: Dial gauge (1/100, 10 mm)
09900-20701: Magnetic stand



WHEEL BEARING

- Turn the inner race by finger and inspect it for smooth movement.
- Inspect for bearing damage.
- If any defects are found, replace the bearing with a new one.



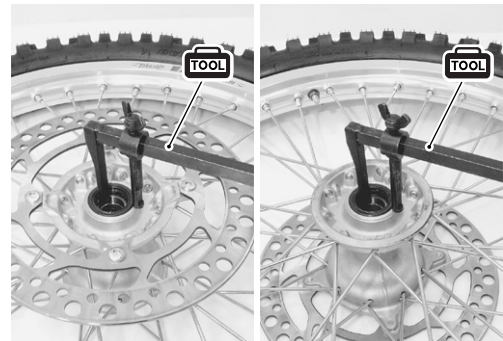
DUST SEAL AND BEARING REPLACEMENT

- Remove the dust seals with the special tool.

TOOL 09913-50121: Oil seal remover

CAUTION

The removed dust seals must be replaced with new ones.

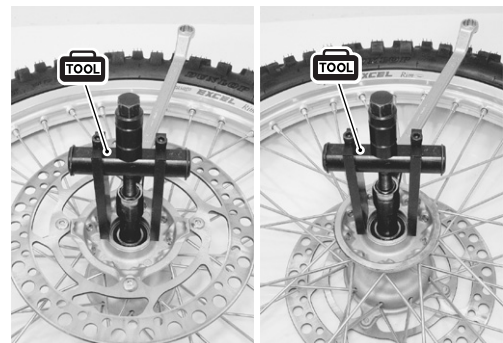


- Remove the bearings with the special tool.

TOOL 09921-20240: Bearing remover set (Remover 20 mm)

CAUTION

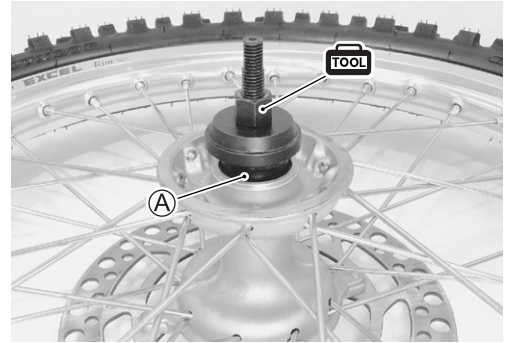
The removed bearings must be replaced with new ones.



- Remove the spacer.

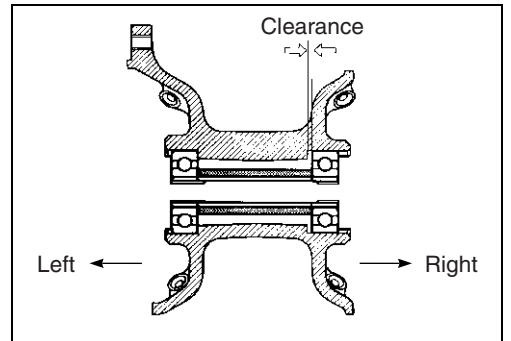
- Install the bearings with the special tool, using the suitable spacer **A** match for the outside dimension of bearings.

TOOL 09924-84510: Bearing installer set



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.



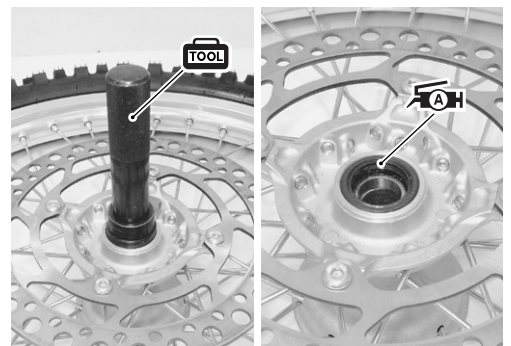
- Install the dust seals and apply grease to their lips.

NOTE:

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

TOOL 09913-70210: Bearing installer set
 Bearing: ϕ 40 Attachment

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



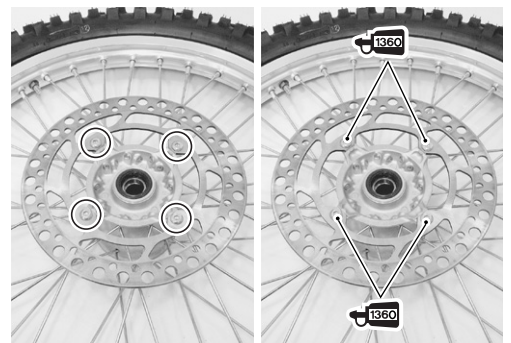
DISC PLATE REPLACEMENT

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

1360 99000-32130: THREAD LOCK SUPER "1360"


- Tighten the bolts to the specified torque.

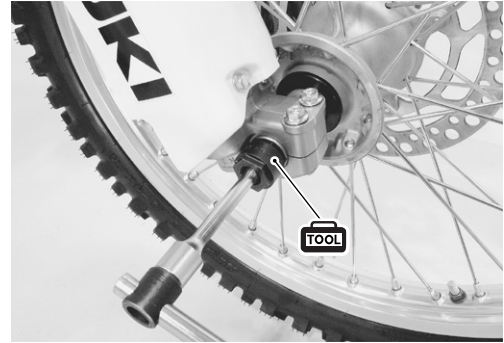
U Disc plate bolt: 12 N·m (1.2 kgf·m, 8.5 lb·ft)



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.

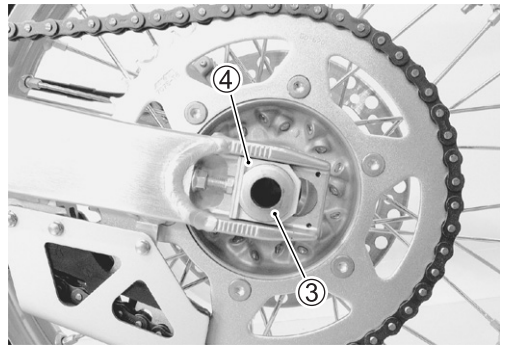
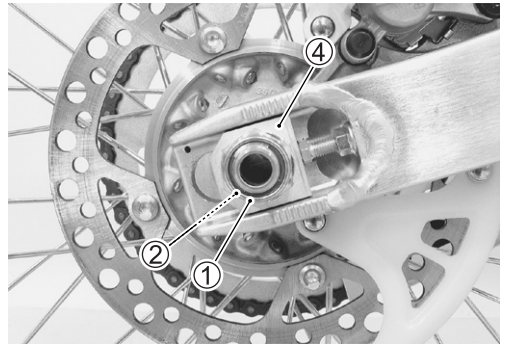
 **Axle holder bolt: 18 N·m (1.8 kgf-m, 13.0 lb-ft)**



REAR WHEEL

REMOVAL

- Loosen the rear axle nut ①.
- 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 ⑤.
- Remove the rear wheel ⑥.



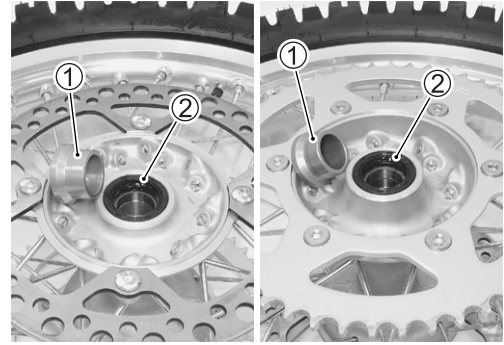
INSPECTION

WHEEL SPACER

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

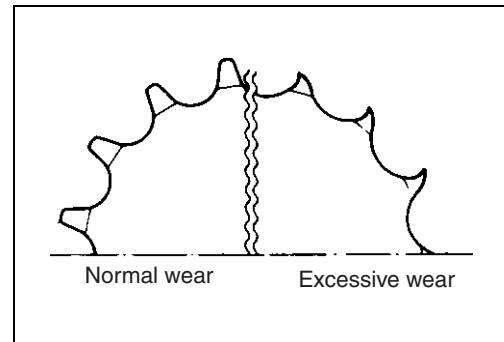
NOTE:

Apply grease on the spacer and dust seal before reassembling.



SPROCKET

- Inspect the sprocket teeth for wear.
- If they are worn as shown, replace the two sprockets and drive chain as a set.



AXLE SHAFT (👉 15-3)

WHEEL RIM (👉 15-4)


WHEEL BEARING (👉 15-4)

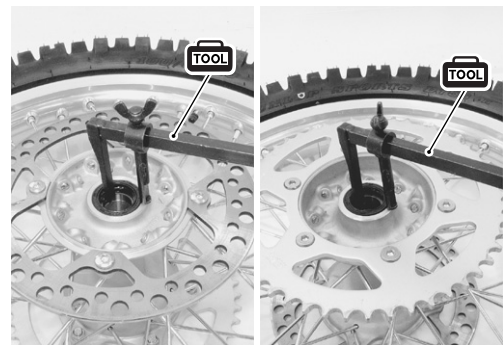
DUST SEAL AND BEARING REPLACEMENT

- Remove the dust seals with the special tool.

CAUTION

The removed dust seals must be replaced with new ones.


 09913-50121: Oil seal remover

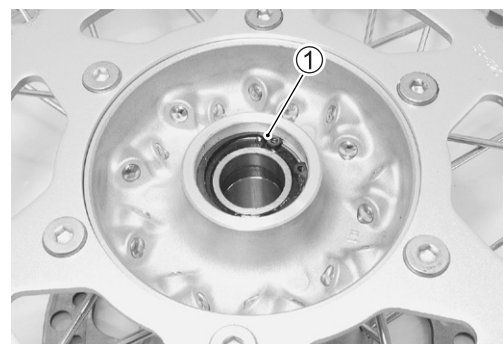


- Remove the snap ring ①.

CAUTION

The removed snap ring must be replaced with a new one.

 09900-06108: Snap ring pliers



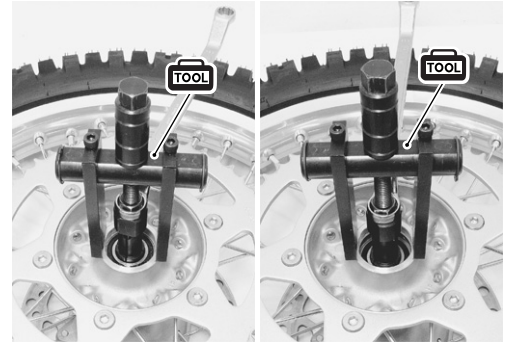
- Remove the bearings with the special tool.

 **09921-20240: Bearing remover set (Remover 25 mm)**

CAUTION

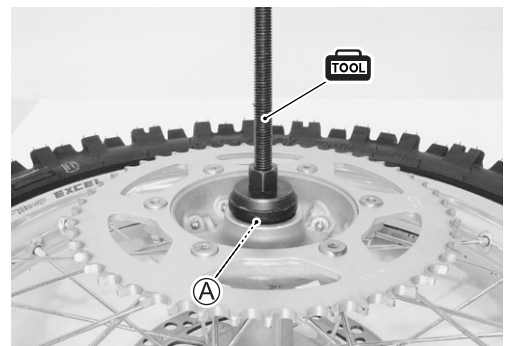
The removed bearings must be replaced with new ones.

- Remove the spacer.



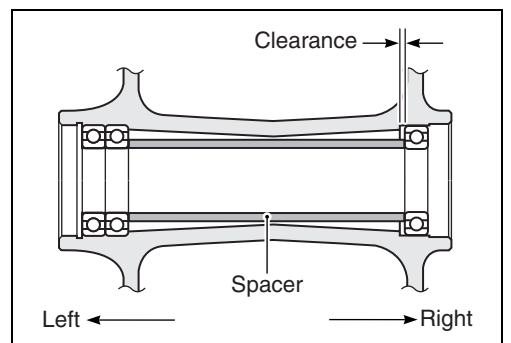
- Install the bearings with the special tool, using the suitable spacer (A) match for the outside dimension of bearings.

 **09941-34513: Steering race installer**




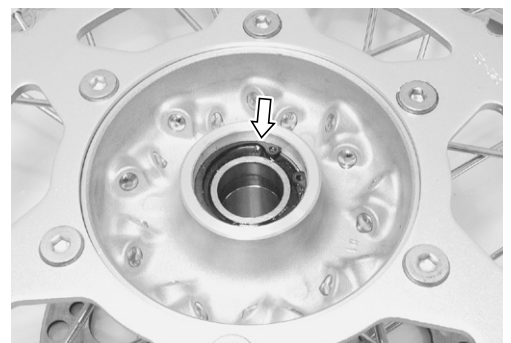
NOTE:

- * Install the left side (sprocket side) bearing first and then the right side bearing.
- * After installing the bearings, inspect the bearings for smooth movement.



- Install the snap ring.

 **09900-06108: Snap ring pliers**



- Install the dust seals and apply grease to their lips.

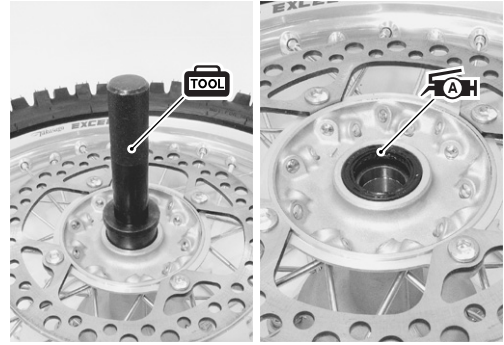
NOTE:

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

 **09913-70210: Bearing installer set**

Oil seal: ϕ 42 Attachment

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



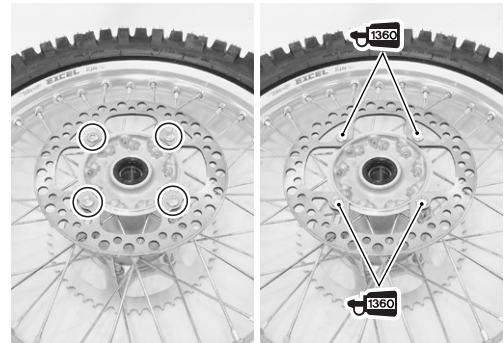
DISC PLATE REPLACEMENT

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

 **99000-32130: THREAD LOCK SUPER "1360"**

- Tighten the bolts to the specified torque.

 **Disc plate bolt: 25 N·m (2.5 kgf-m, 18.0 lb-ft)**



REAR SPROCKET REPLACEMENT

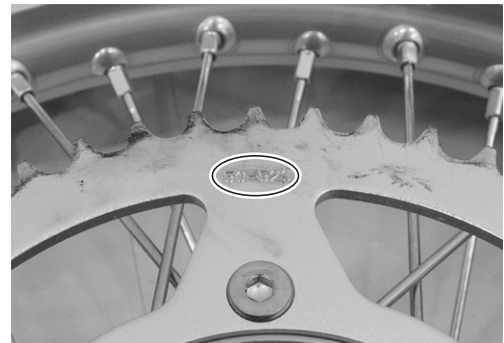
- Remove the rear sprocket.

NOTE:

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

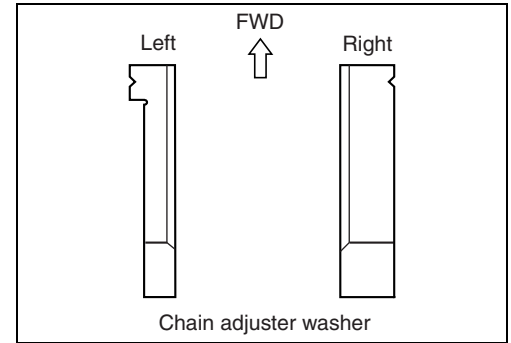
- Tighten the nuts to the specified torque.

 **Rear sprocket 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. (👉 2-28)



- Tighten the rear axle nut to the specified torque.

 **Rear axle nut: 90 N·m (9.0 kgf-m, 65.0 lb-ft)**



REAR WHEEL SPOKES REPLACEMENT

(👉 19-30)

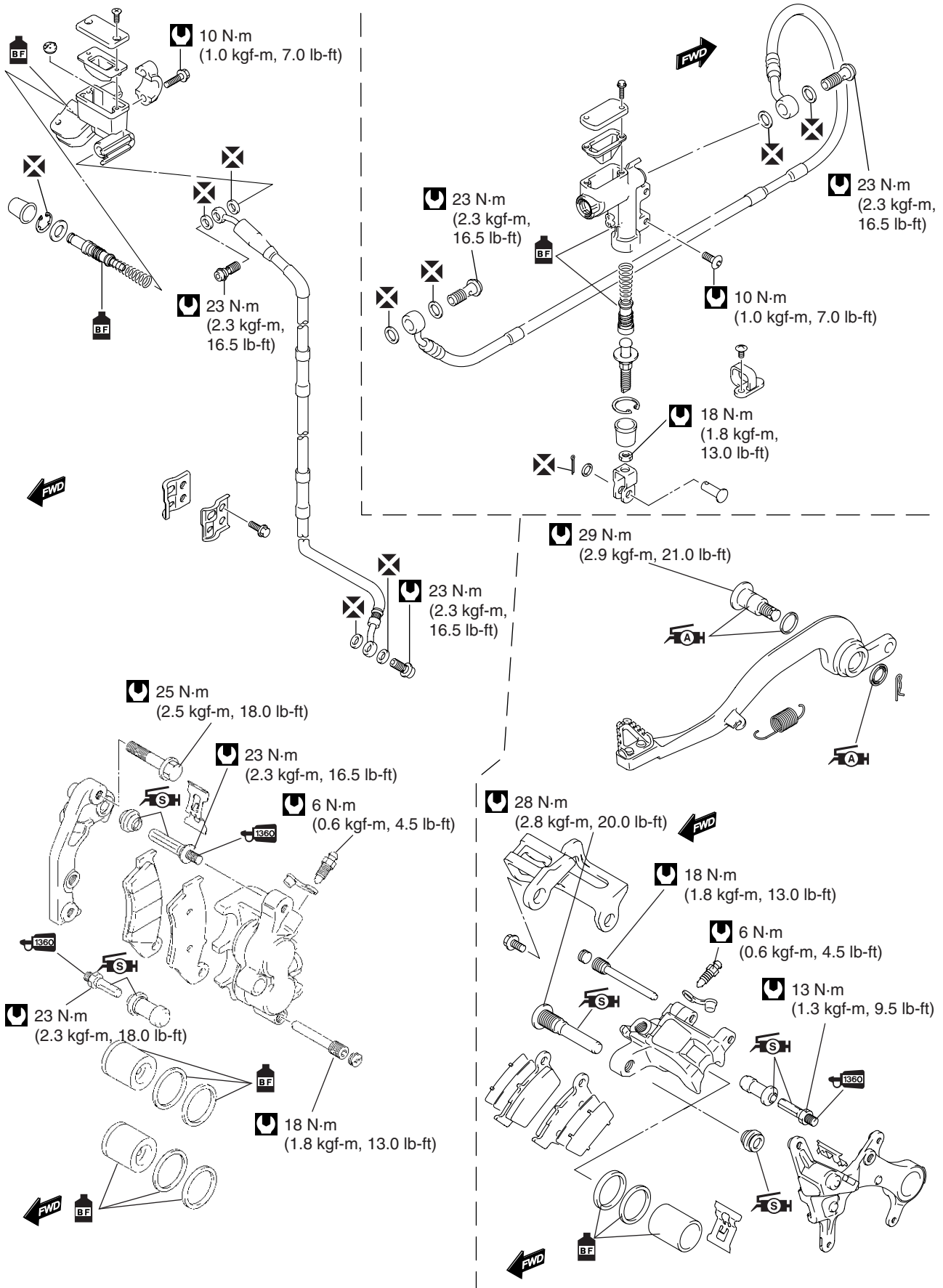
– MEMO –

FRONT AND REAR BRAKES

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CONSTRUCTION



BRAKE FLUID AIR BLEEDING

⚠ WARNING

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

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

⚠ WARNING

The use of any fluid except 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

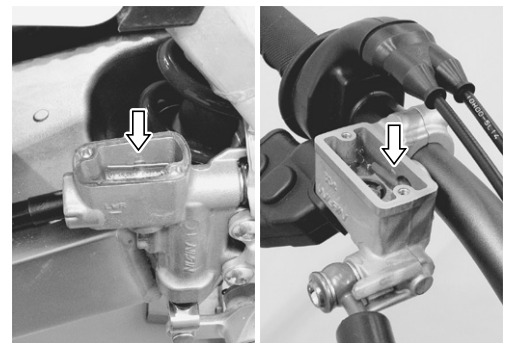
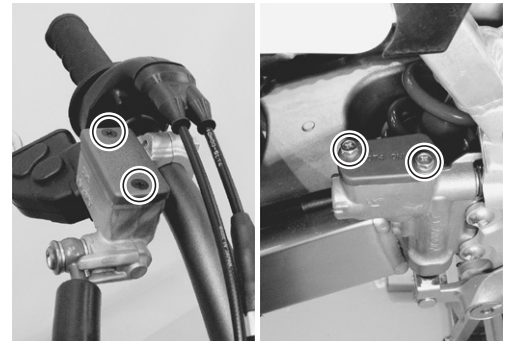
Spilled brake fluid can damage painted surfaces and plastic parts.

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.

 **Specification and classification: DOT 4**



- 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:

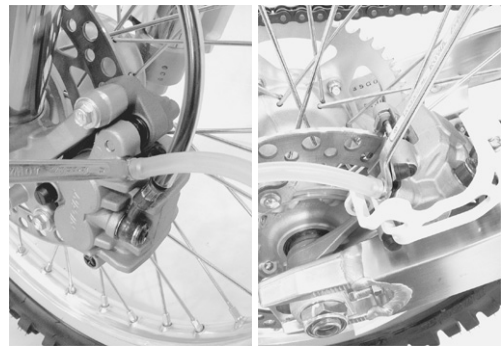
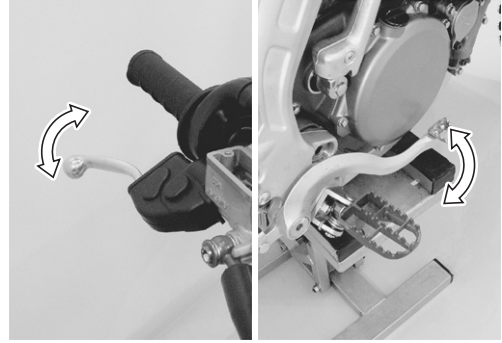
* Do not release the brake lever/pedal while the bleeder valve is opened.

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

- Tighten the air bleeder valve.

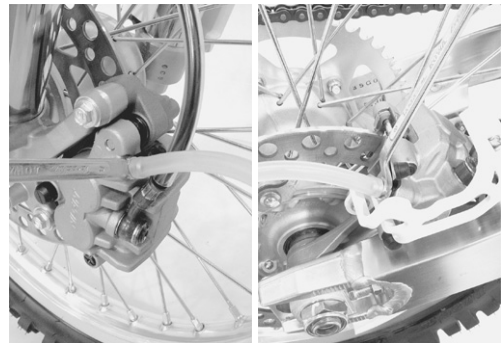
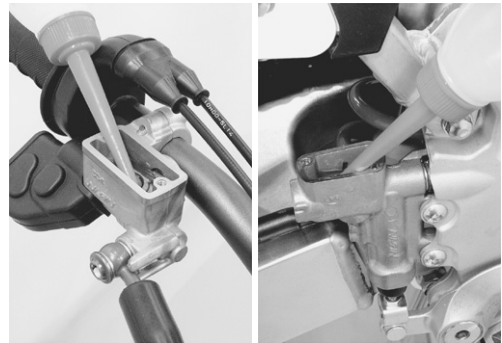
🔧 Air bleeder valve: 6 N·m (0.6 kgf·m, 4.5 lb·ft)

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



BRAKE FLUID REPLACEMENT

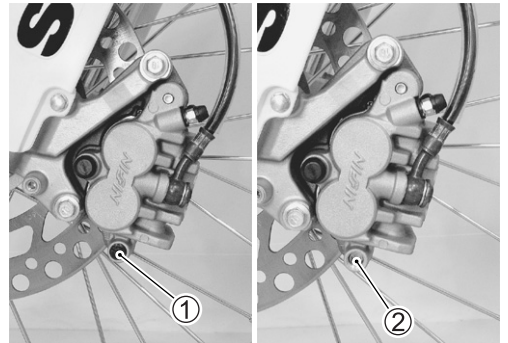
- Remove the reservoir cap. (👉 16-3)
 - Suck up the brake fluid as much as possible.
 - Drain the old brake fluid as much as possible.
 - Fill the reservoir with new brake fluid.
-
- Connect a transparent tube to the bleeder valve and set the other end into a receptacle.
 - Loosen the bleeder valve and pump the brake lever/pedal until old brake fluid is completely out of the brake system.
 - Bleed air from the brake system. (👉 16-3)



BRAKE PADS REPLACEMENT

FRONT BRAKE PADS

- Remove the cap ① and pad mounting pin ②.



- Remove the brake pads ③.

NOTE:

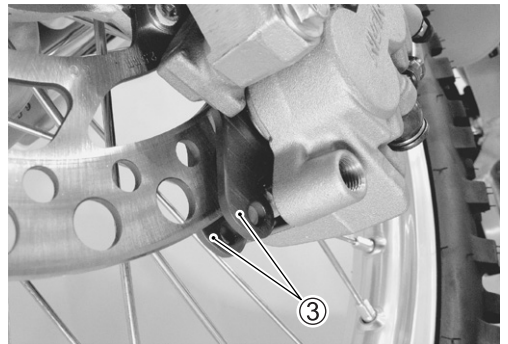
Replace the two brake pads as a set.

- 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)**

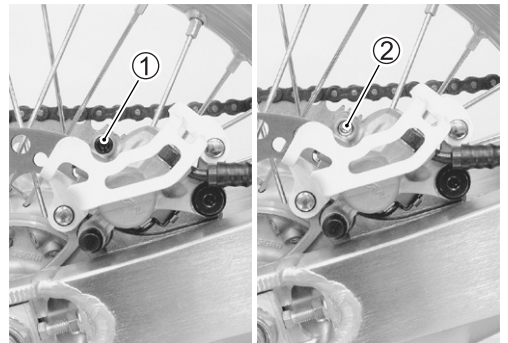
NOTE:

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



REAR BRAKE PADS

- Remove the cap ① and pad mounting pin ②.




- Remove the brake pads ③.

NOTE:

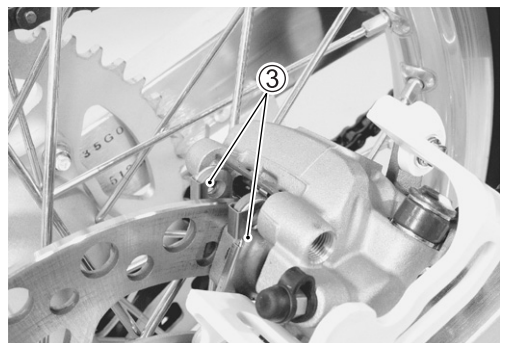
Replace the two pads as a set.

- 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:

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

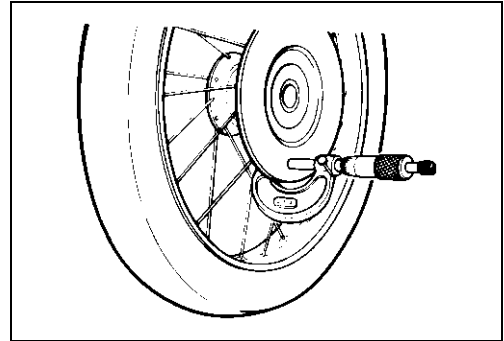


BRAKE DISC INSPECTION

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

DATA Brake disc thickness

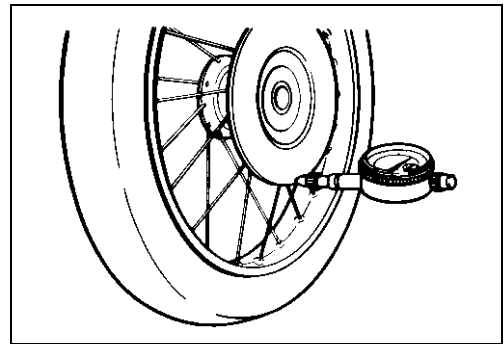
Service limit (Front): 2.5 mm (0.10 in)
(Rear): 3.5 mm (0.14 in)



- Measure the front and rear brake disc runout.

DATA Brake disc runout

Service limit: 0.30 mm (0.012 in)



BRAKE DISC REPLACEMENT (👉 15-5, -10)

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.

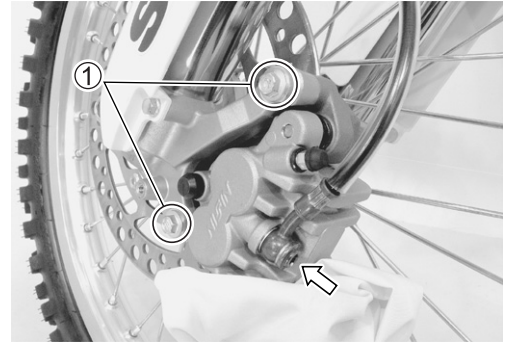
CAUTION

Spilled brake fluid can damage painted surfaces and plastic parts.

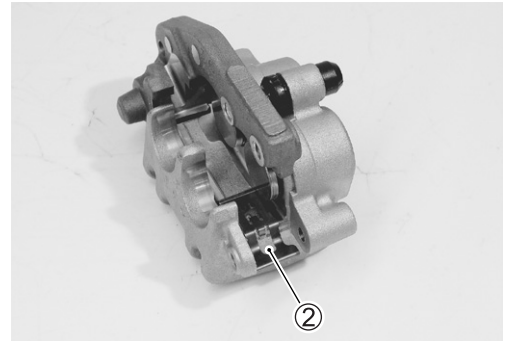
Be careful not to spill any fluid when servicing the caliper. Wipe spilled fluid up immediately.

FRONT CALIPER REMOVAL AND DISASSEMBLY

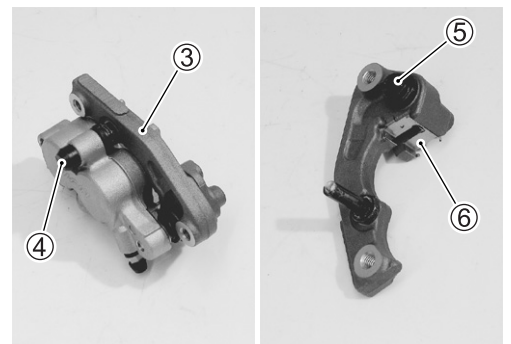
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the caliper mounting bolts ①.
- Remove the caliper.



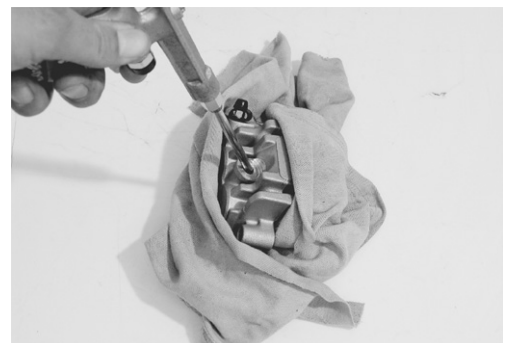
- Remove the brake pads. (🔧 16-5)
- Remove the spring ②.



- Remove the caliper bracket ③ from the caliper.
- Remove the boots ④ and 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 pistons.

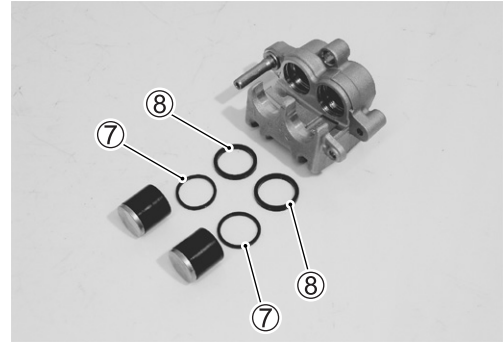


⚠ WARNING

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

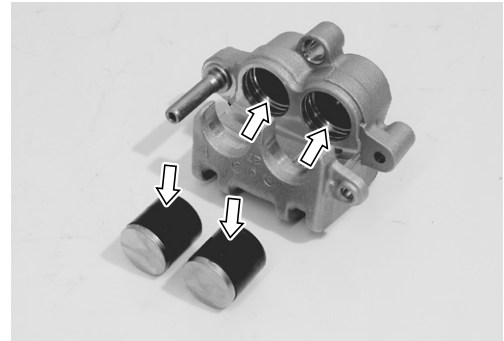
Do not place your fingers on the piston when removing the piston.

- Remove the dust seals ⑦ and piston seals ⑧.



CALIPER INSPECTION

- Inspect the caliper cylinder for scuffing, wear and damage.
- Inspect the piston for scuffing, wear and damage.
- Replace the defective parts with a new one.



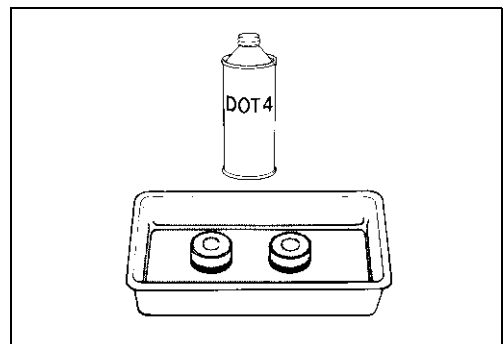
CALIPER CLEANING

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

 **Specification and classification: DOT 4**

NOTE:

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

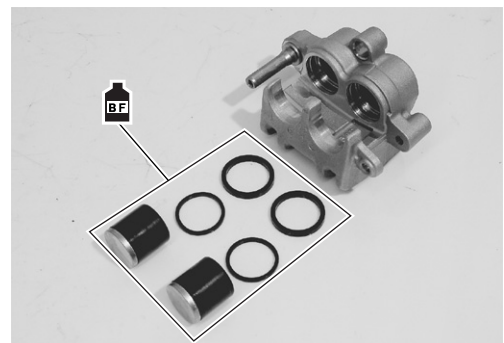


FRONT CALIPER REASSEMBLY AND INSTALLATION

Reassemble and install the brake caliper in the reverse order of removal and disassembly. 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.

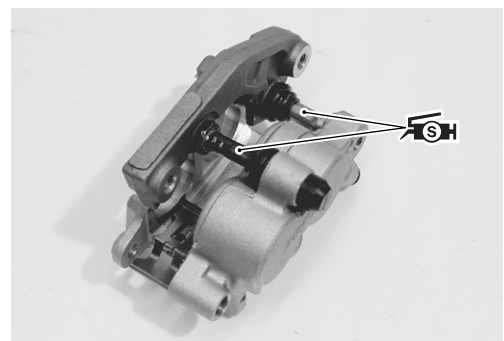
 **Specification and classification: DOT 4**



- 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.
- Temporarily tighten the brake pad mounting pin.



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

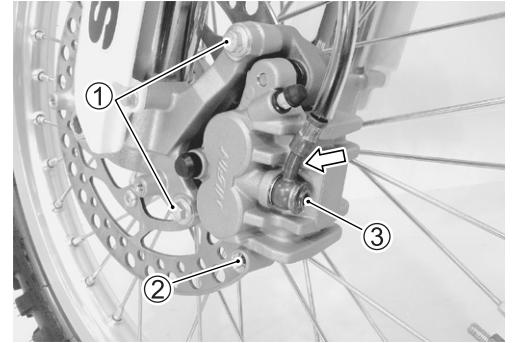
🔧 Brake caliper mounting bolt:

25 N·m (2.5 kgf·m, 18.0 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.



CAUTION

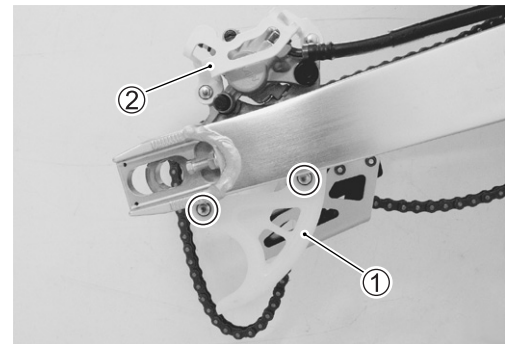
The seal washers should be replaced with the new ones to prevent fluid leakage.

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

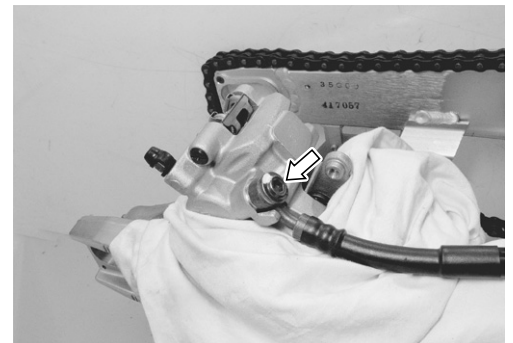
- Install the pad mounting pin cap.
- Refill brake fluid and bleed air from the brake system. (👉 16-3)

REAR CALIPER REMOVAL AND DISASSEMBLY

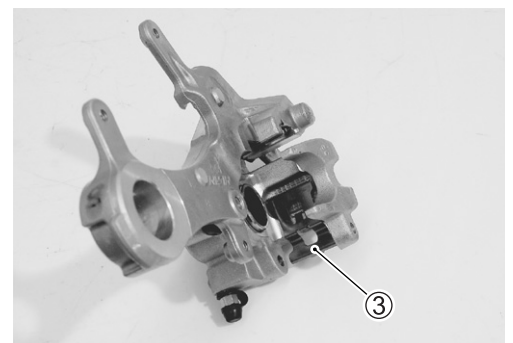
- Remove the rear wheel. (👉 15-7)
- Remove the disc cover ① and caliper protector ②.



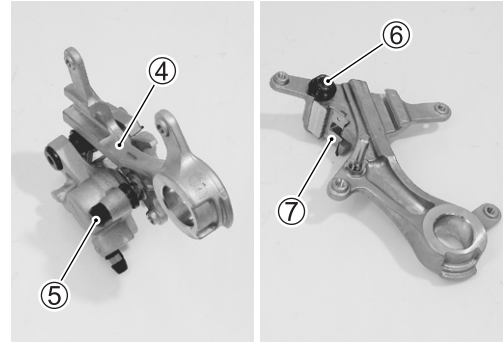
- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Disconnect the brake hose.
- Remove the caliper.



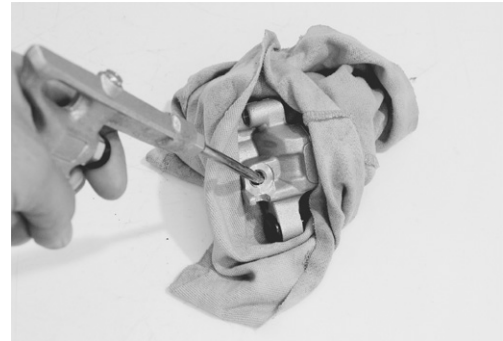
- Remove the brake pad. (👉 16-5)
- Remove the spring ③.



- Remove the caliper bracket ④ from the caliper.
- Remove the boots ⑤ and ⑥.
- Remove the spring ⑦.



- 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.



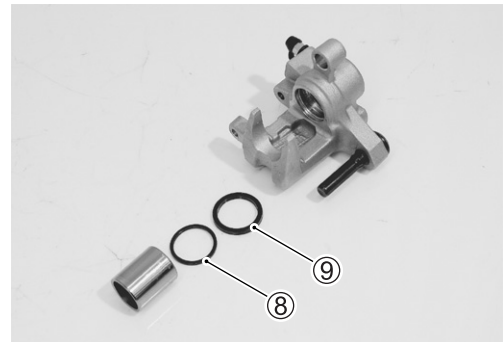
⚠ WARNING

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 ⑧ and piston seal ⑨.

Brake caliper inspection and cleaning (👉 16-8)

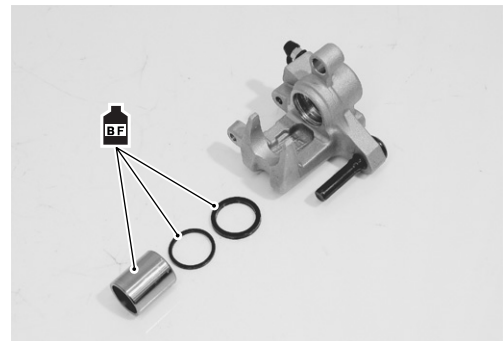


REAR CALIPER REASSEMBLY AND INSTALLATION

Reassemble and install the brake caliper in the reverse order of removal and disassembly. 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.

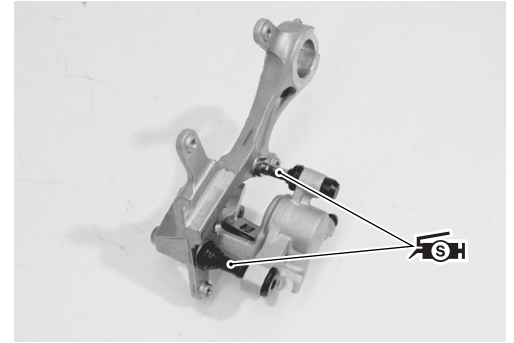
🛢 Specification and classification: DOT 4




- 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.
- Temporarily tighten the brake pad mounting pin.




- 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)**

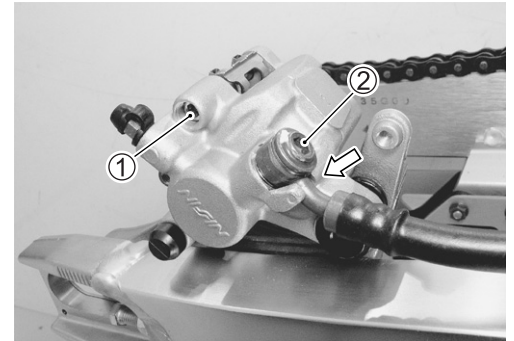
- Set the brake hose end between the hose stopper, then tighten the brake hose union bolt ② to the specified torque.

CAUTION

The seal washers should be replaced with new ones to prevent fluid leakage.

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

- Install the rear wheel. ( 15-11)
- Refill brake fluid and bleed air from the brake system. ( 16-3)



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.

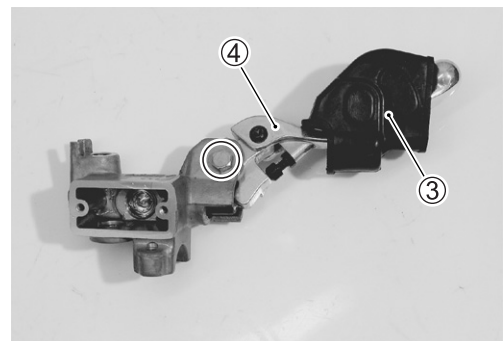
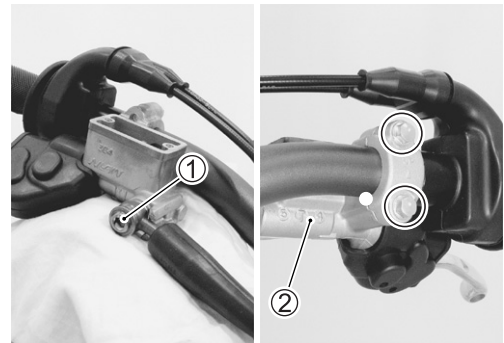
FRONT MASTER CYLINDER REMOVAL AND DISASSEMBLY

- Drain brake fluid. (☞ 16-4)
- Place a rag under the brake hose union bolt ① to catch spilled brake fluid.
- Remove the union bolt ①.
- Disconnect the brake hose.
- Remove the master cylinder ② by removing the master cylinder holder bolts.


NOTE:

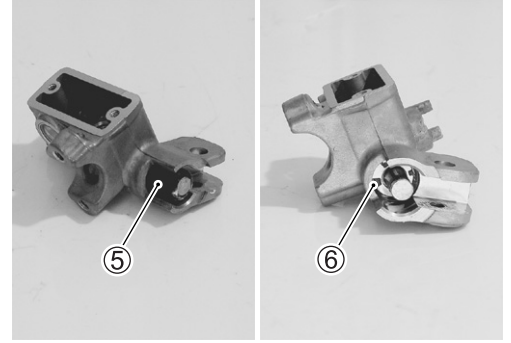
Mark the paint mark to the matching surface of master cylinder holder and handlebars.

- Remove the boot ③.
- Remove the brake lever ④.

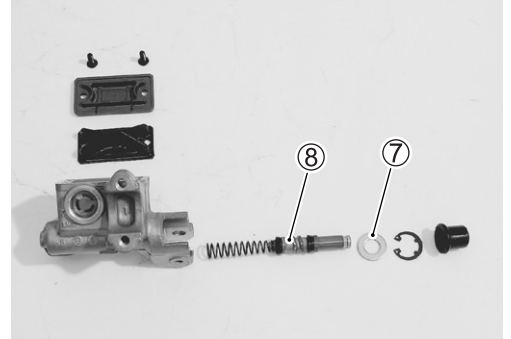


- Remove the dust boot ⑤ and snap ring ⑥.

 **09900-06108: Snap ring pliers**

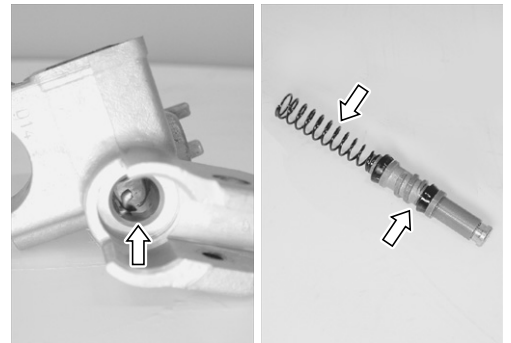


- Remove the washer ⑦ and piston/cup set ⑧.



MASTER CYLINDER INSPECTION

- Inspect the cylinder bore and piston for scuffing, wear and damage.
- Inspect the piston rod and spring for damage.
- Replace the defective parts with a new one.



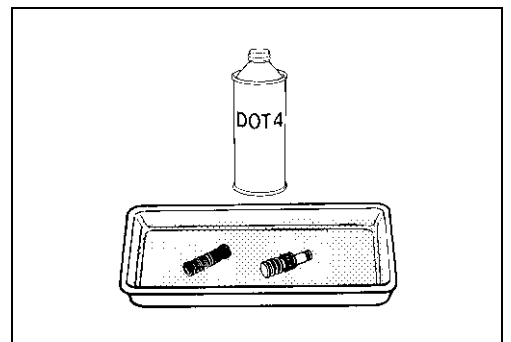
MASTER CYLINDER CLEANING

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

 **Specification and classification: DOT 4**

NOTE:

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



FRONT MASTER CYLINDER REASSEMBLY AND INSTALLATION

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

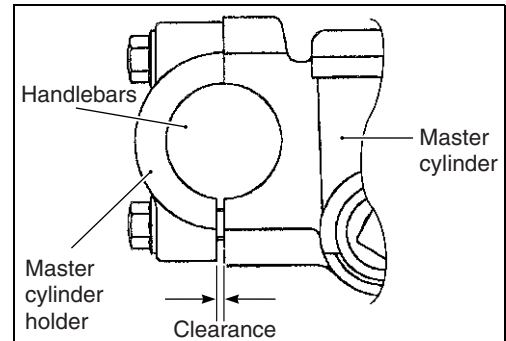
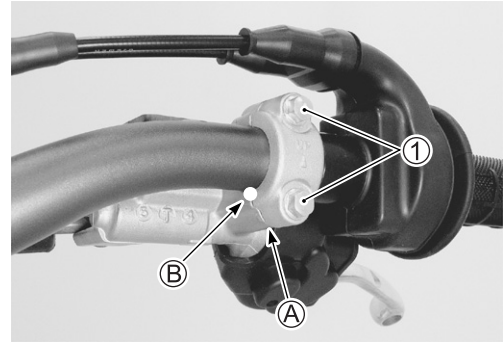
- Install the brake lever. (👉 16-17)

NOTE:

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

- Tighten the master cylinder holder bolts **1** to the specified torque.

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



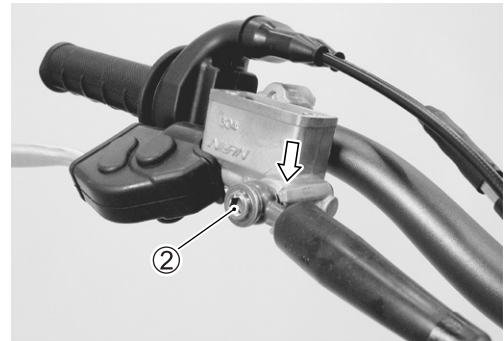
- Set the brake hose end between the hose stopper, then tighten the brake hose union bolt **2** to the specified torque.

CAUTION

The seal washers should be replaced with new ones to prevent fluid leakage.

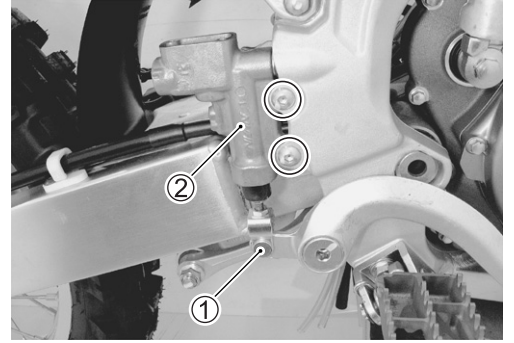
🔩 Brake hose union bolt: 23 N·m (2.3 kgf·m, 16.5 lb-ft)

- Refill brake fluid and bleed air from the brake system. (👉 16-3)

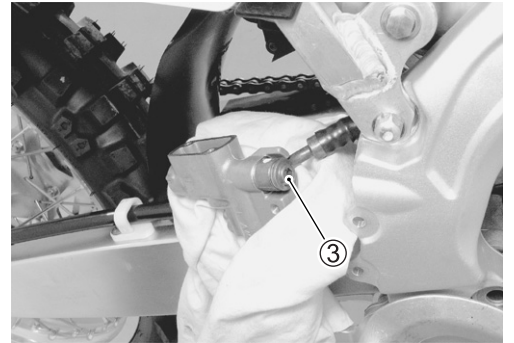


REAR MASTER CYLINDER REMOVAL AND DISASSEMBLY


- Drain brake fluid. (☞ 16-4)
- Remove the cotter pin and then master cylinder rod pin ① and washer.
- Remove the master cylinder ② by removing the bolts.

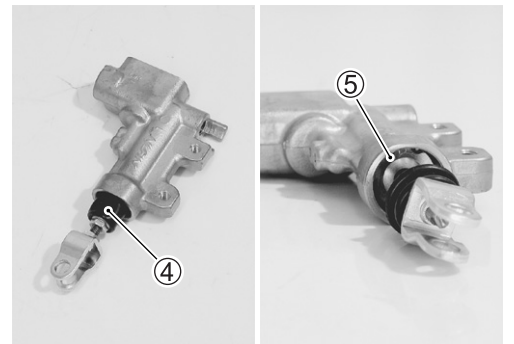


- Place a rag under the brake hose union bolt ③ to catch spilled brake fluid.
- Remove the union bolt ③.
- Disconnect the brake hose.
- Remove the master cylinder.

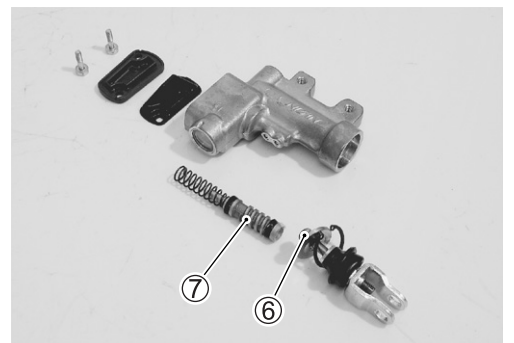


- Remove the dust boot ④ and snap ring ⑤.

 **09900-06108: Snap ring pliers**



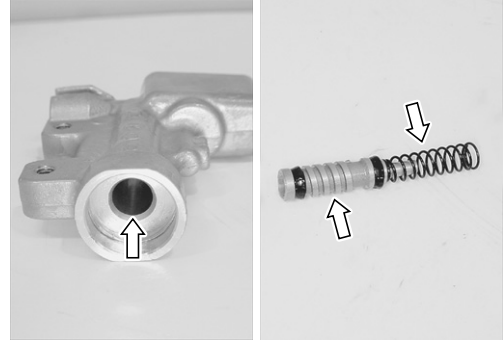
- Remove the push rod ⑥.
- Remove the piston/cup set ⑦.



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 (👉 16-13)

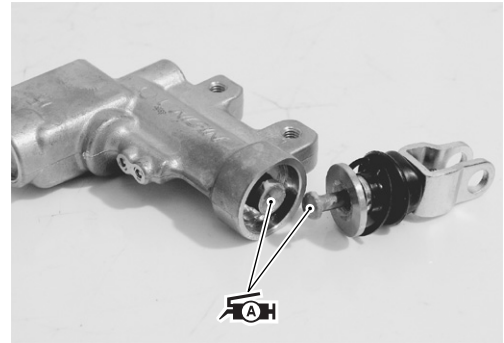


REAR MASTER CYLINDER REASSEMBLY AND INSTALLATION

Reassemble and install 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.

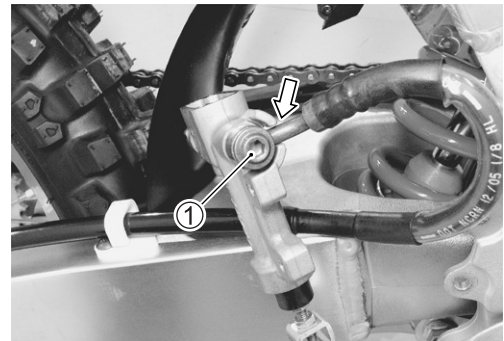
 99000-25010: SUZUKI SUPER GREASE “A”
(or equivalent grease)



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

CAUTION
The seal washers should be replaced with new ones to prevent fluid leakage.

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

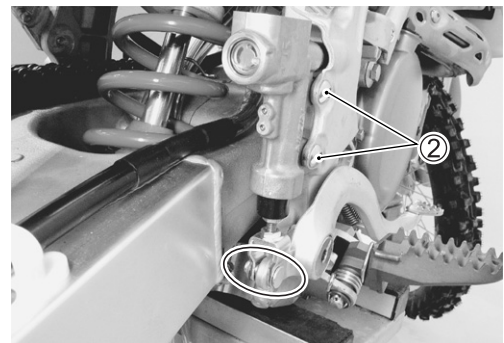


- Tighten the master cylinder mounting bolts ② to the specified torque.

CAUTION
Improper brake hose routing can damage the brake hose.
Ensure the brake hose has enough clearance to the rear suspension spring.

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

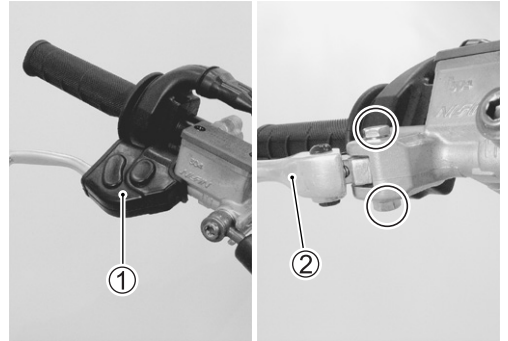
- Install the master cylinder rod pin, washer and new cotter pin.
- Refill brake fluid and bleed air from the brake system. (👉 16-3)




BRAKE LEVER

REMOVAL

- Remove the boot ① and brake lever ②.



- Remove the brake lever adjuster return spring ③.


 **09930-11950: Torx wrench (T25)**




INSTALLATION

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

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

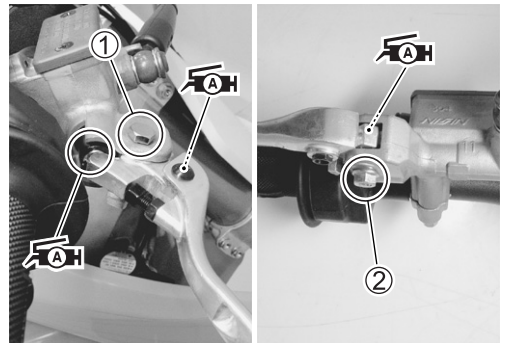
 **99000-25010: SUZUKI SUPER GREASE "A"**
(or equivalent grease)

- Tighten the brake lever pivot bolt and lock-nut to the specified torque.

 **Brake lever pivot bolt ①: 6 N·m (0.6 kgf-m, 4.5 lb-ft)**

Brake lever pivot bolt lock-nut ②:

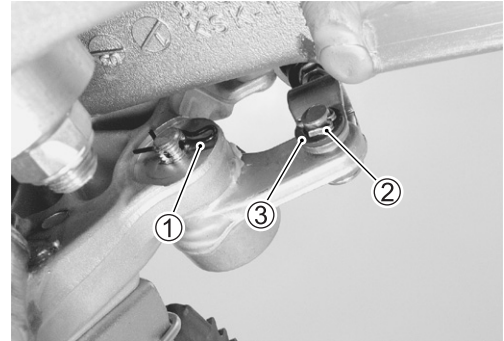
6 N·m (0.6 kgf-m, 4.5 lb-ft)



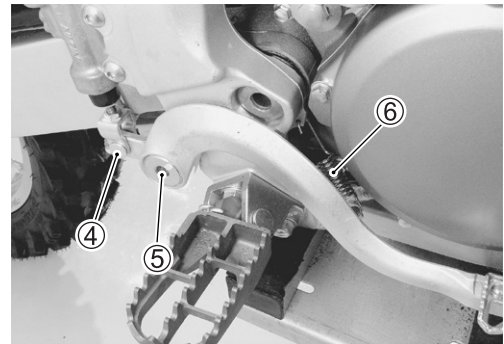
BRAKE PEDAL

REMOVAL

- Remove the clip ①.
- Remove the cotter pin ② and washer ③.



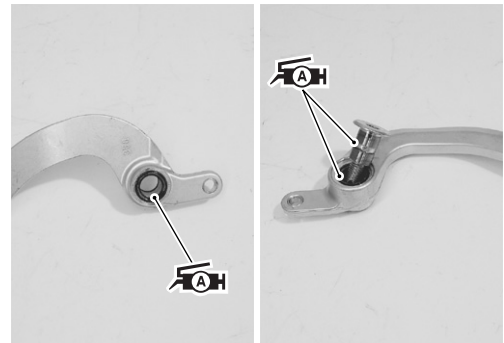
- Remove the master cylinder rod pin ④.
- Remove the brake pedal pivot bolt ⑤ and return spring ⑥.




INSTALLATION

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

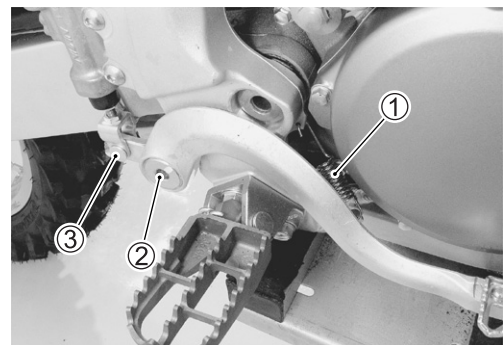
 99000-25010: SUZUKI SUPER GREASE "A"
(or equivalent grease)



- Install the return spring ① properly. (☞ 19-28)
- Tighten the brake pedal pivot bolt ② to the specified torque.

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

- Install the clip.
- Install the master cylinder rod pin ③, washer and new cotter pin.
- Adjust the brake pedal height. (☞ 2-32)



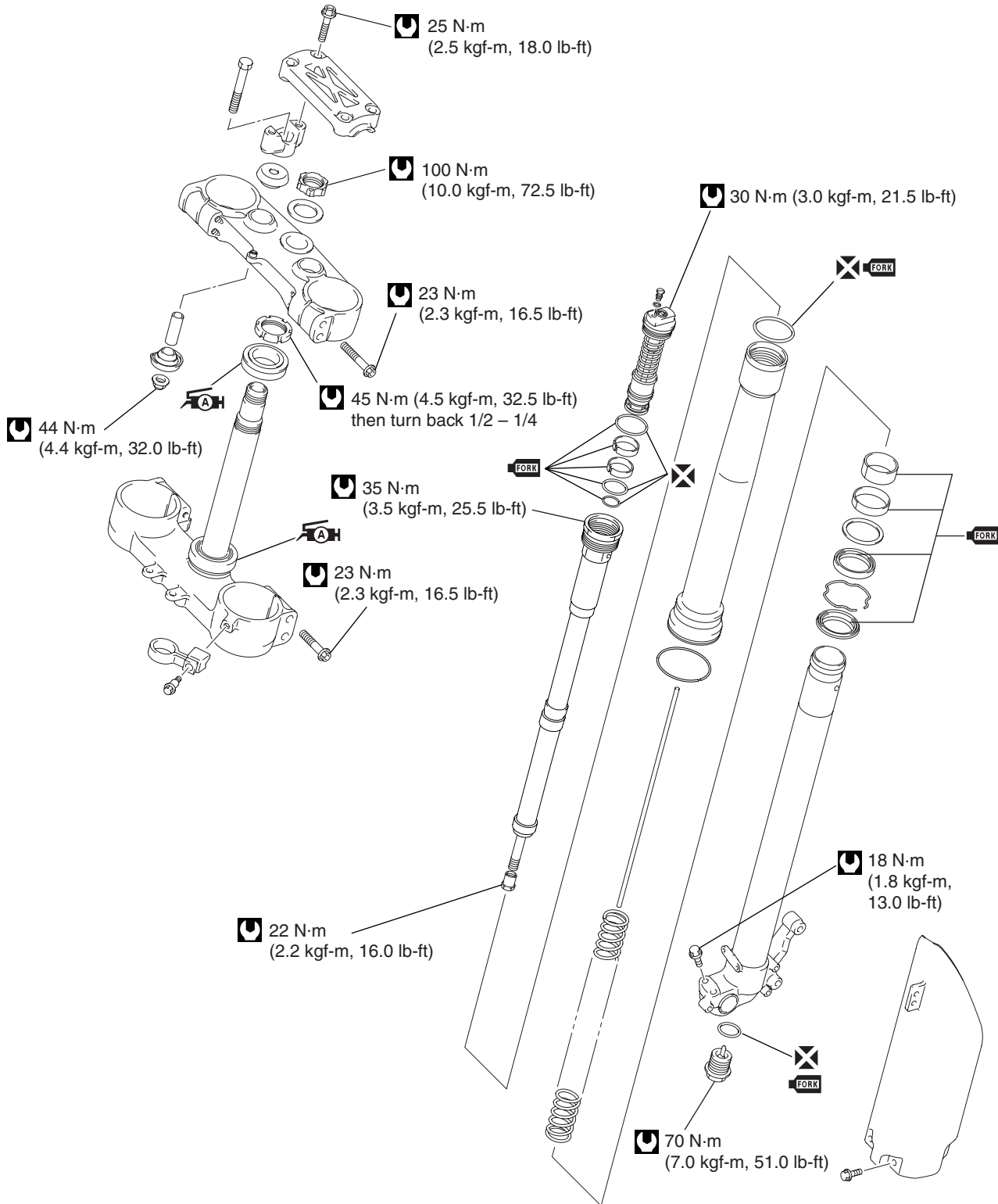
FRONT FORK AND STEERING

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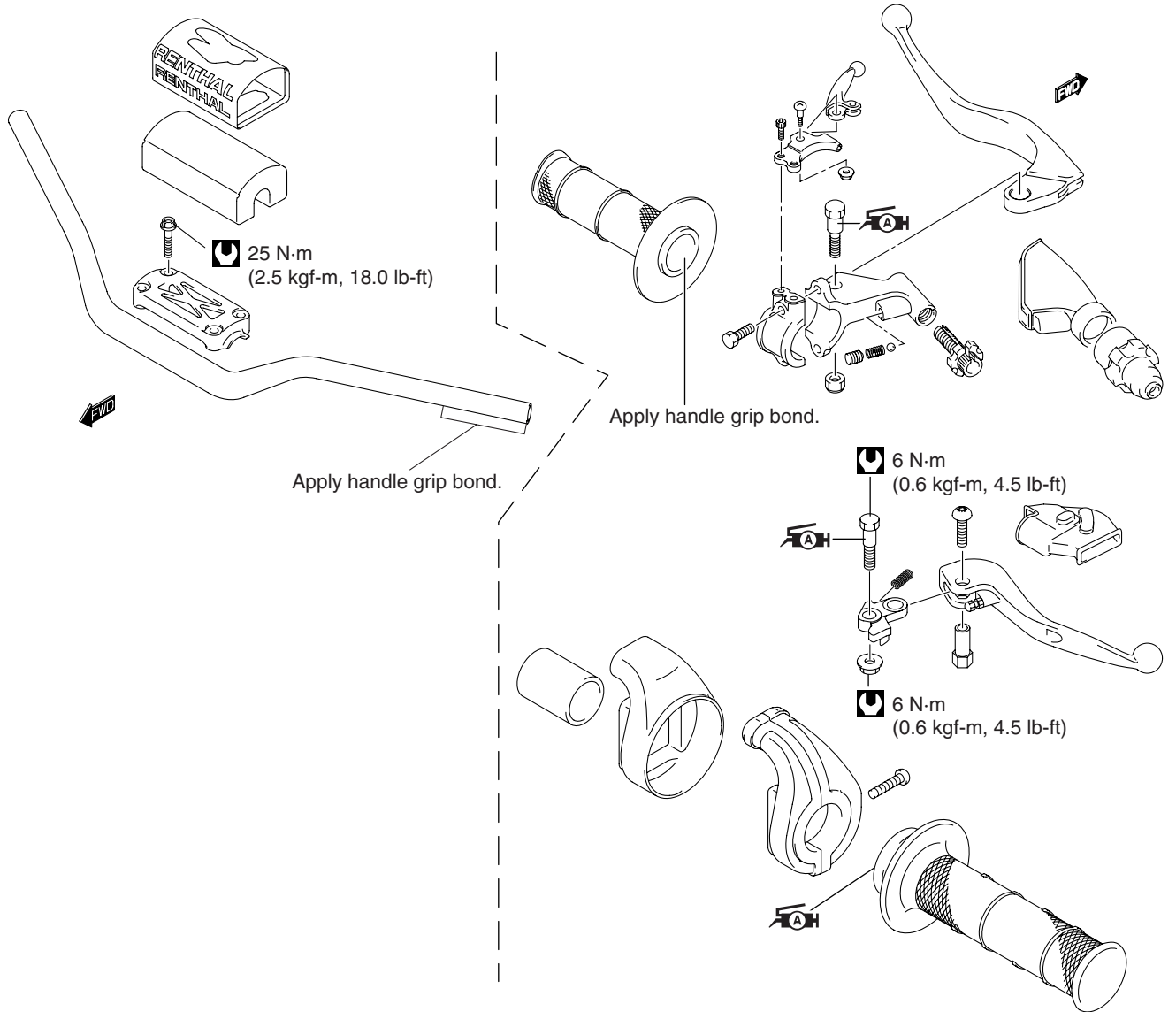
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CONSTRUCTION

FRONT FORK, STEERING

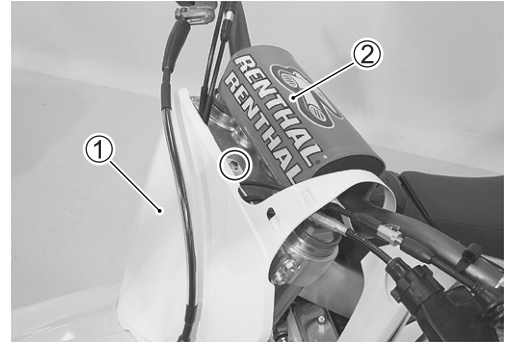


HANDLEBAR CONTROLS



REMOVAL

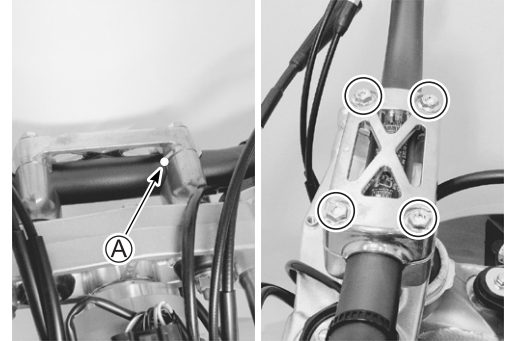
- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the front wheel. (👉 15-3)
- Remove the front number plate ①.
- Remove the protector ②.



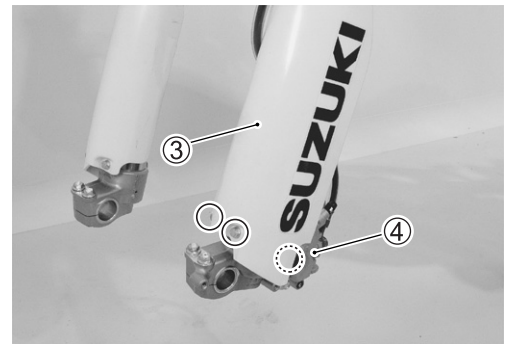
- Remove the handlebars.

NOTE:

Mark the paint mark (A) to the matching surface of handlebar holder and handlebars before removing.

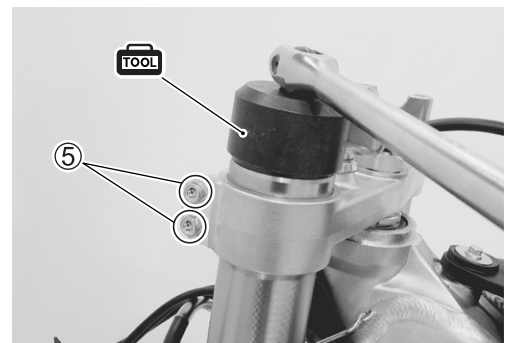


- Remove the fork protector ③ by removing the mounting bolts.
- Remove the brake caliper ④. (👉 16-7)

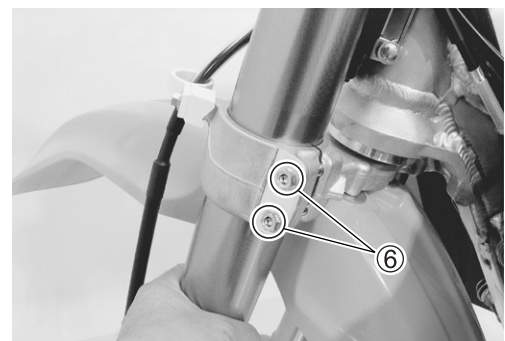


- Loosen the front fork upper clamp bolts ⑤.
- Loosen the front fork cap bolts 1 – 2 turns to facilitate later disassembly.

 **09941-53630: Front fork top cap wrench**



- 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 leakage.

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

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

 **09941-53630: Front fork top cap wrench**


⚠ WARNING

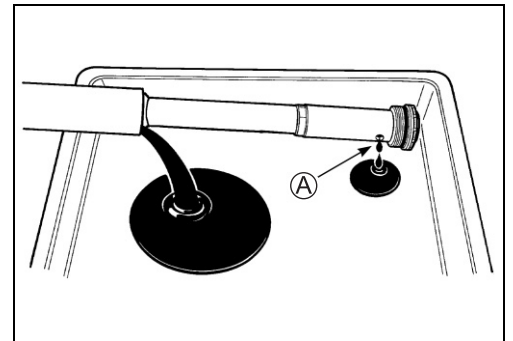
Clamping the outer tube too tight can damage it which will affect riding stability.


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  (sub-tank) to the outer tube.

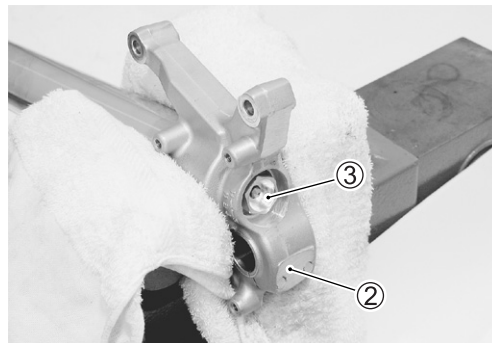


- Clamp the axle holder ② with a vise. Protect the axle holder with a rag when using a vise.
- Loosen the center bolt ③ completely with a 21 mm socket wrench.

⚠ WARNING

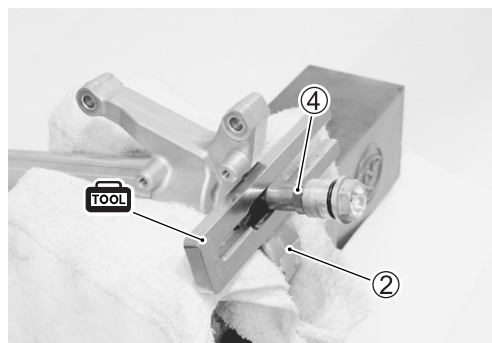
Clamping the axle holder too tight can damage it which will affect riding stability.

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.

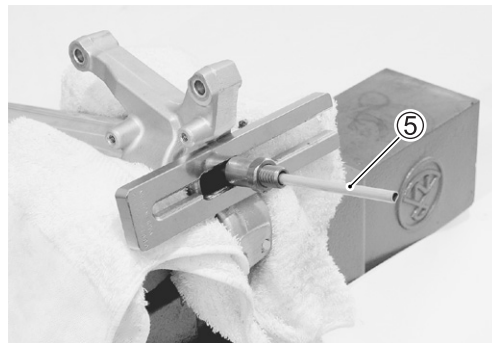
TOOL 09910-20115: Conrod holder



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



- Remove the push rod ⑤.

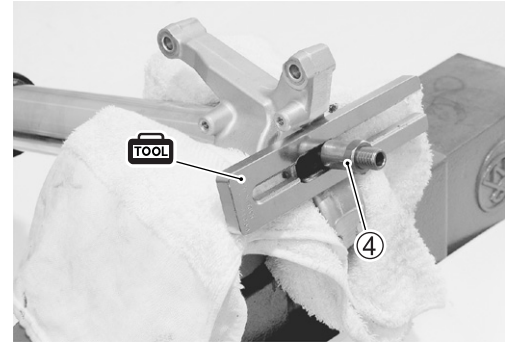


- With the outer tube compressed by hands, remove the special tool.

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.

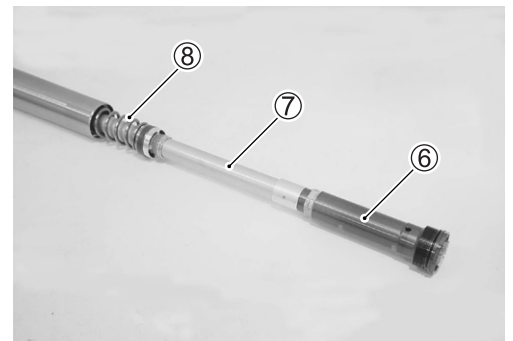
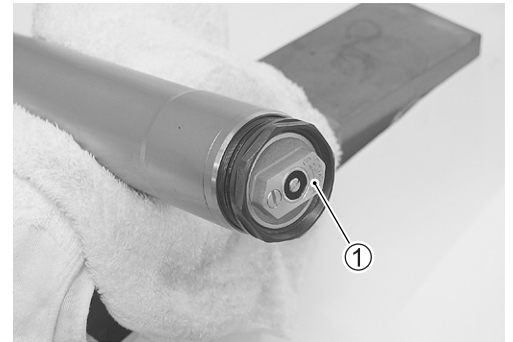


- Loosen the fork cap bolt ① (sub-tank) and remove the sub-tank ⑥ along with the damper rod assembly ⑦.
- Remove the fork spring ⑧.

CAUTION

Do not attempt to disassemble the damper rod assembly.

The damper rod assembly is available only as an assembly.

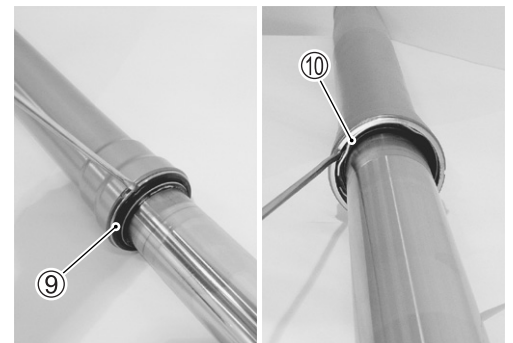


- Remove the dust seal ⑨.
- Remove the stopper ring ⑩.

CAUTION

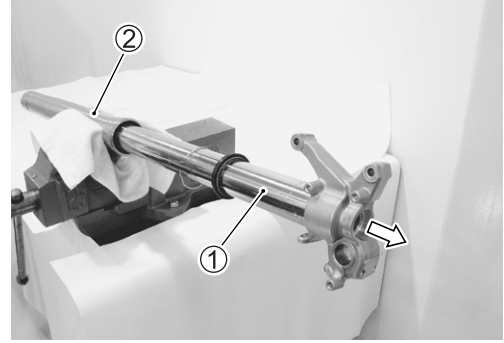
Scratches on the inner tube could cause oil leaks.

Avoid scratching when removing.

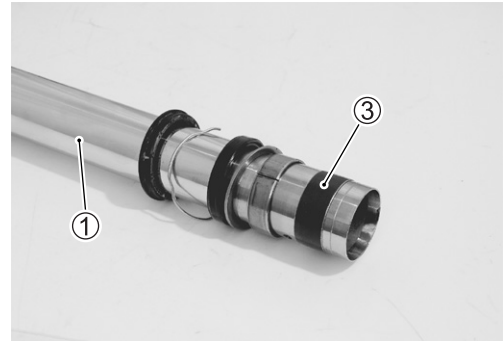


INNER TUBE

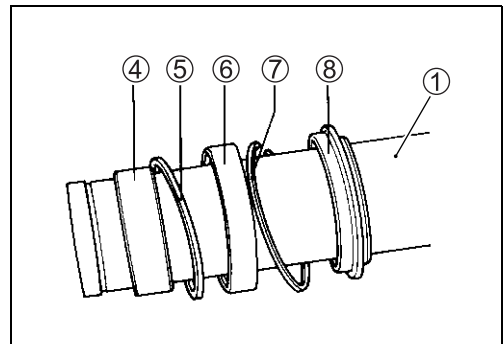
- Separate the inner tube ① out of the outer tube ②.



- Remove the slide bushing ③ from the inner tube ①.

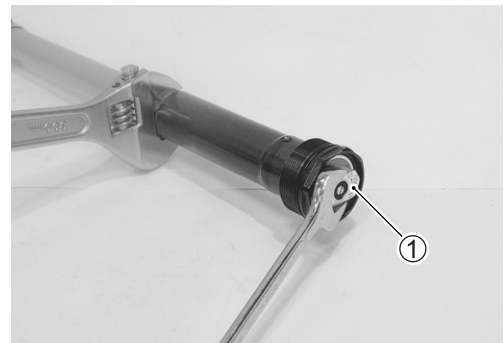


- Remove the following parts from the inner tube ①.
 Guide bushing ④
 Seal retainer ⑤
 Oil seal ⑥
 Stopper ring ⑦
 Dust seal ⑧



DANPER ROD AND COMPRESSION DAMPER UNIT

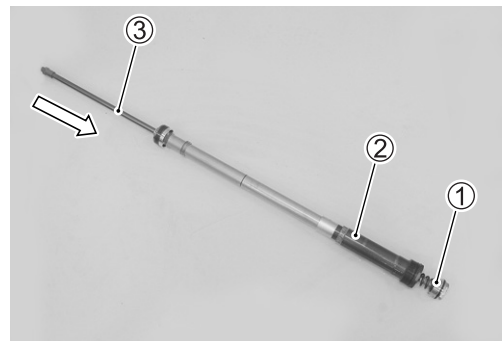
- Hold the bottom (flat part) of the sub-tank loose the compression damper unit ①.



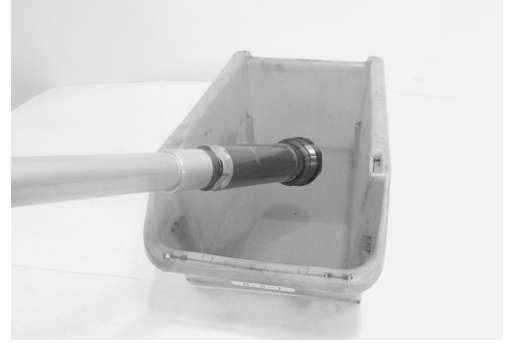
- Remove the compression damper unit ① from the sub-tank ②.

NOTE:

Slowly compress the inner rod ③ 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.



COMPRESSION DAMPER UNIT

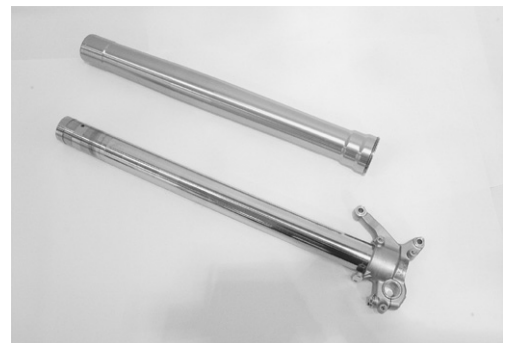
- Inspect the compression damper unit for damage. If it is damaged, replace it with a new one.

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



INNER TUBE AND OUTER TUBE

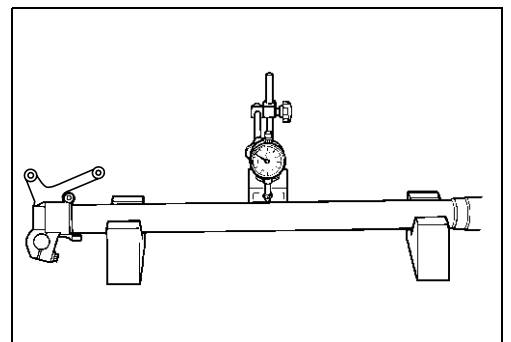
- Inspect the inner tube for scratches. If it has scratches, replace it with a new one.
- Inspect the outer tube for dent. If it is dented all the way to the inner side, replace it with a new one.



- 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, 10 mm)
09900-20701: Magnetic stand
09900-21304: V-block (100 mm)



DAMPER ROD ASSEMBLY

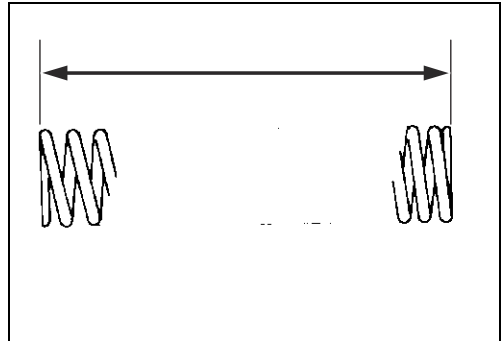
- Inspect the damper rod assembly for scratches or bending. If it has scratches or is bent, replace it with a new one.



FORK SPRING

- Measure the free length of front fork spring.
- If it is shorter than service limit, replace it with a new one.

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 teflon coating metals surface. If they are not clean, clean them with a nylon brush and fork oil.



REASSEMBLY

CAUTION

Clean all fork parts before reassembling.

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

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

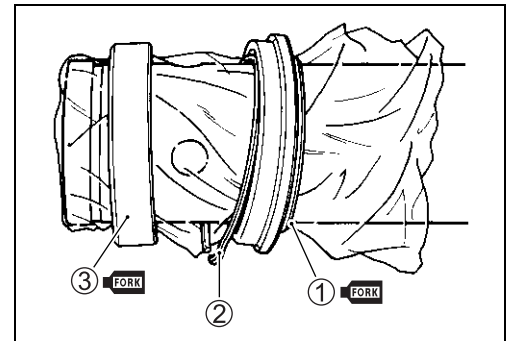
INNER TUBE

- Apply 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.

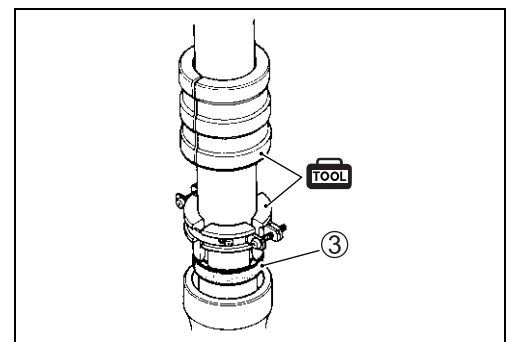
NOTE:

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 ④.

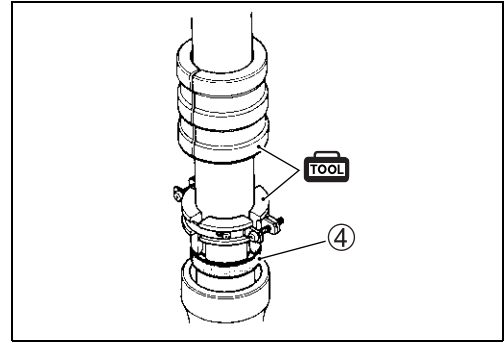
NOTE:

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

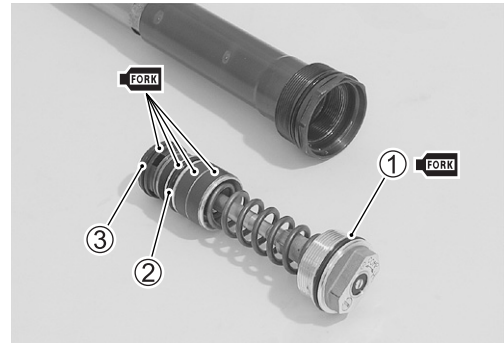
Use of grease as a substitute fork oil when installing the oil seal can result in an oil leak. Applying grease to the dust seal and oil seal can cause dirt to accumulate and damage the dust seal lip and oil seal lip.

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



DAMPER ROD AND COMPRESSION DAMPER UNIT

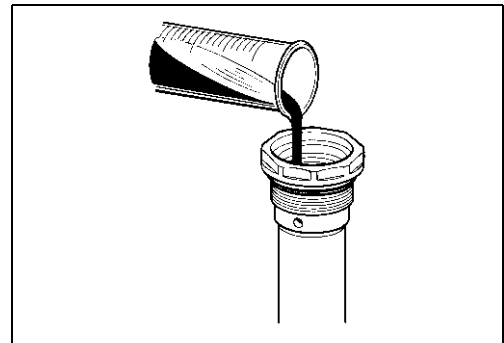
- Clean each threaded part before installing.
- Replace the O-rings (①, ②, ③) with new ones.
- Apply fork oil to the O-rings and bushings on the compression damper unit.



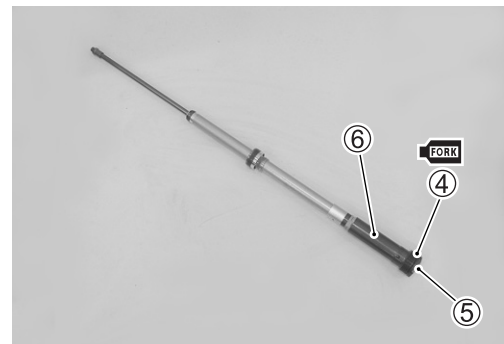
- With the damper rod in fully extended position, pour the specified amount of fork oil.

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)



- Replace the O-ring ④ with a new one.
- Apply fork oil to the O-ring.
- With the damper rod held immovable in fully extended position, gently install the compression damper unit ⑤ to the sub-tank ⑥.

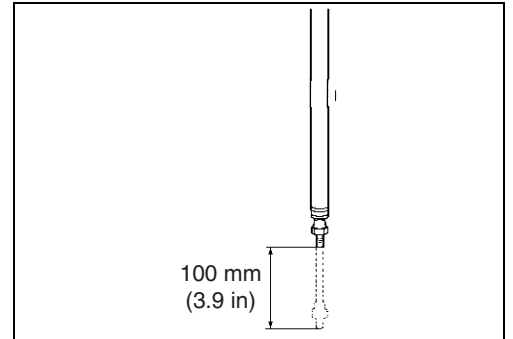


- Hold the bottom (flat part) of the sub-tank.
- Tighten the compression damper unit ⑤ to the specified torque.

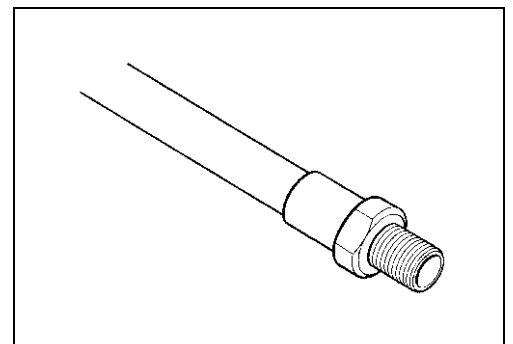
 **Compression damper unit: 30 N·m (3.0 kgf·m, 21.5 lb-ft)**



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



- Tighten the lock-nut by hand completely.



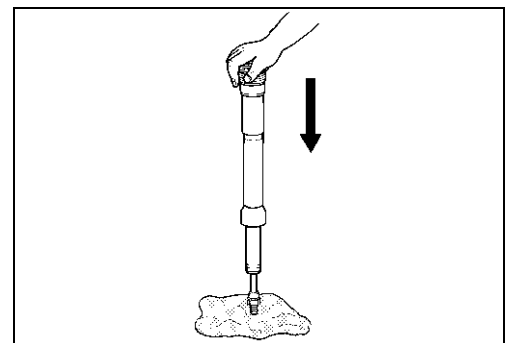
- With the damper rod held in vertical position, compress the damper rod fully to discharge an excess of oil.

CAUTION

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

NOTE:

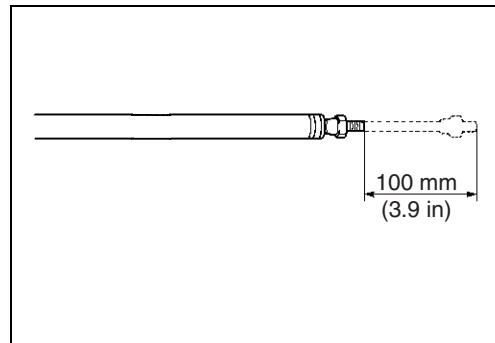
Set the compression damper setting to the softest.



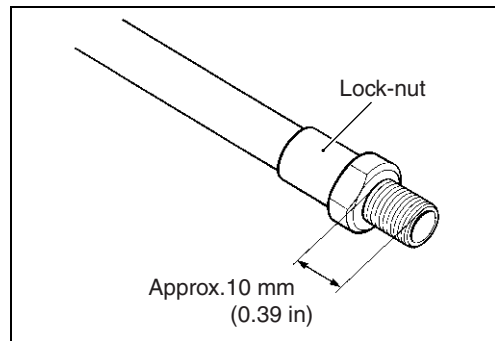
- Force out the remaining oil (discharged oil) using compressed air completely.



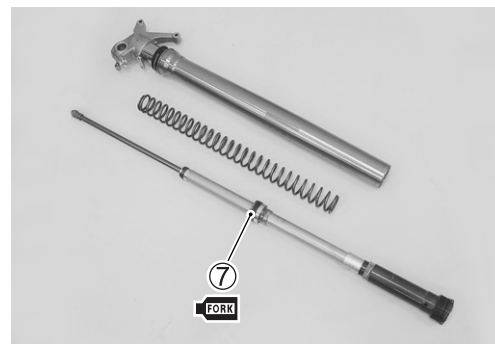
- With the damper rod in horizontal position, move the inner rod by hand to inspect it if operating smoothly.
- If the inner rod is not extend, repeat the “COMPRESSION DAMPER UNIT” procedures (Pour the specified amount fork oil and discharge an excess of oil). (☞ 17-12)



- 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.
- Apply fork oil to the bushing ⑦.
- Insert the spring and damper rod assembly into the fork.



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



- 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.

🔧 09910-20115: Conrod holder

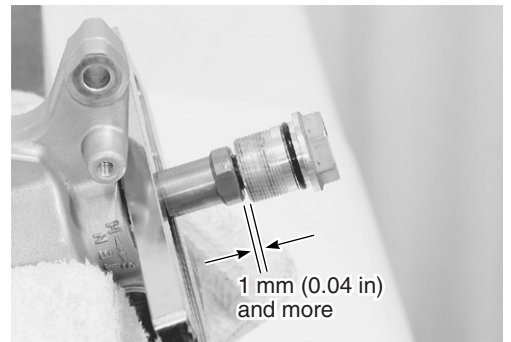
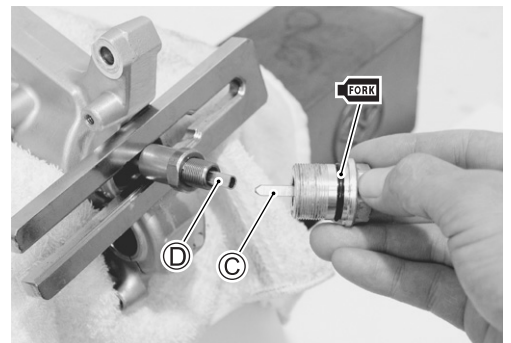
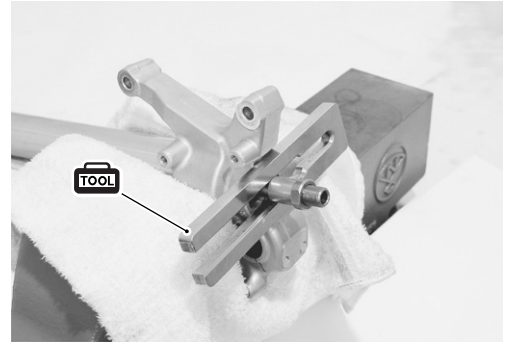
- Insert the push rod into the inner rod.
- Replace the O-ring with a new one.
- Apply fork oil to the O-ring.
- Insert the  shaped projection © of center bolt into the push rod ④.

- Slowly tighten the center bolt 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)**



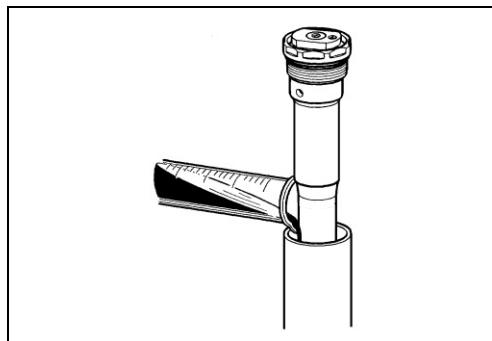
- Loosen and remove the fork cap bolt (sub-tank) from the outer tube and slowly slide down the outer tube.

 **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):**
360 ml (12.17/12.68 US/Imp oz)

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



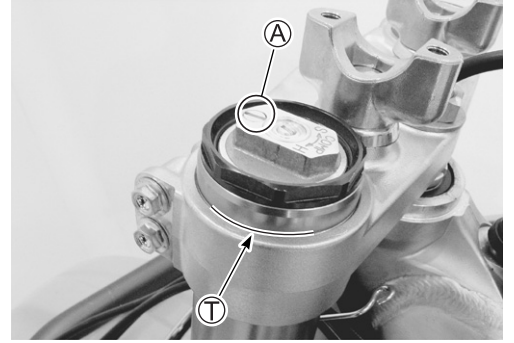
- Raise the outer tube and temporarily tighten the fork cap bolt (sub-tank).

 **09941-53630: Front fork top cap wrench**




INSTALLATION

- Install the front fork with the line ① aligned with the upper surface of the upper bracket.
- Check that the air valve ② 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 cap bolt (sub-tank) to the specified torque.

 **09941-53630 : Front fork top cap wrench**




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

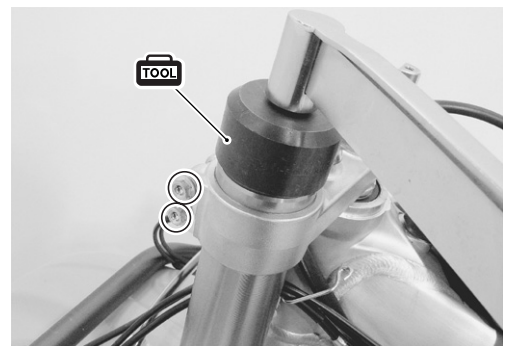
- Tighten the fork upper clamp bolts to the specified torque.

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




NOTE:

Check that the air valve is positioned at the front.

- Install the handlebars. ( 17-23)
- Install the front wheel. ( 15-6)
- Install the brake caliper. ( 16-9)
- Install the fork protector.



INSPECTION AFTER INSTALLATION

- Front fork ( 2-33)
- Steering ( 2-34)
- Wiring harness, cable and hose routing ( 19-18 to -23)

STEERING REMOVAL

HANDLEBARS

- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the front number plate and protector. (👉 17-4)
- Remove the clamps.
- Remove the engine stop switch ①.

- Remove the clutch lever holder.

NOTE:

Mark the paint marks to the matching surfaces of clutch lever holder and handlebars, left handle grip and handlebars.

- Remove the left handle grip ②.

- Remove the front brake master cylinder.

NOTE:

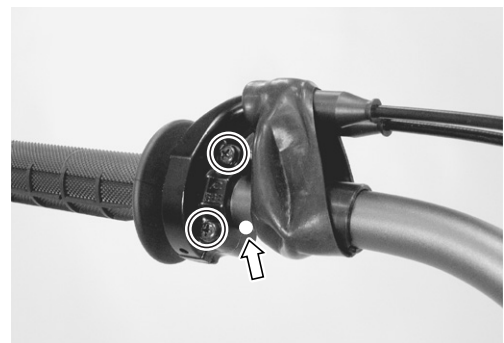
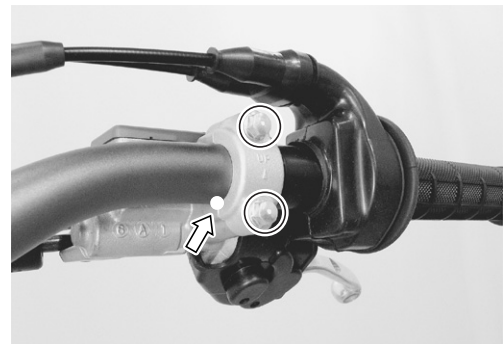
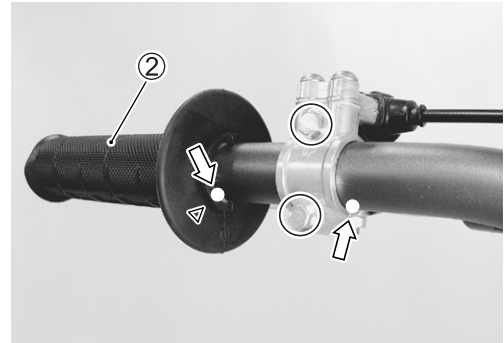
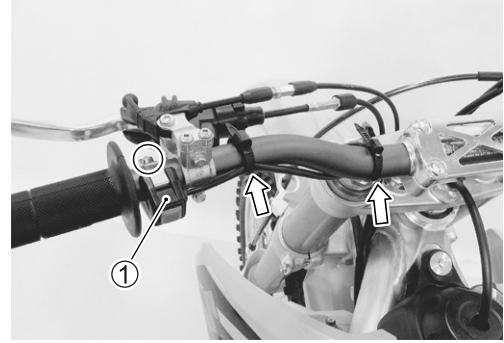
Mark the paint mark to the matching surface of master cylinder holder and handlebars before removing.

- Remove the throttle case screws.

NOTE:

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

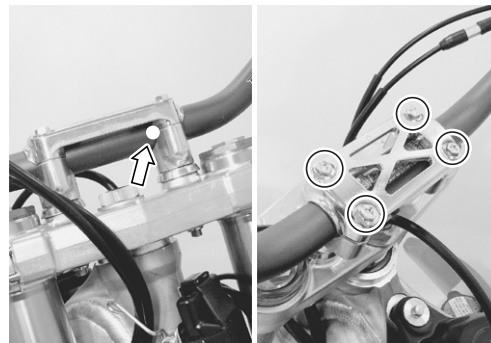
- Slightly loosen the handlebar holder set nuts.



- Remove the handlebar holder bolts and remove the handlebars.

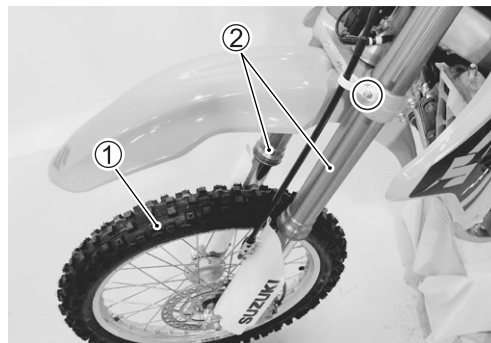
NOTE:

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

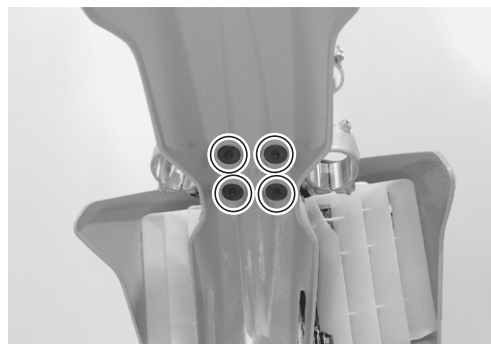


STEERING STEM

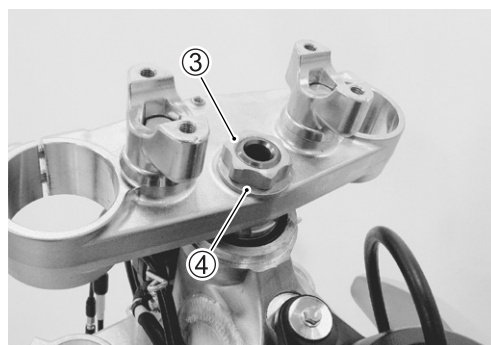
- Remove the front wheel ①. (☞ 15-3)
- Remove the brake hose guide.
- Remove the front forks ②. (☞ 17-4)



- Remove the front fender.



- Remove the steering stem head nut ③ and washer ④.
- Remove the steering stem upper bracket.



- Remove the handlebar holder set bolts and nuts.



- Remove the handlebar holders, damper bushings and spacers.



- Remove the steering stem nut with the special tools.

NOTE:

Hold the steering stem lower bracket to prevent it from falling.

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

- Remove the steering stem lower bracket and lower bearing.

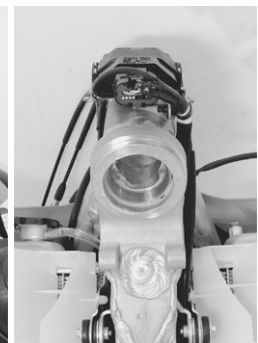
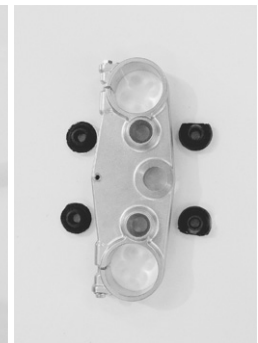
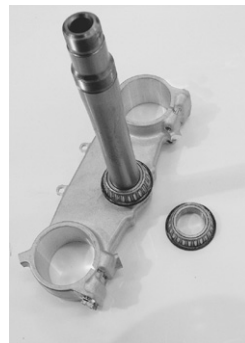


- Remove the upper bearing.



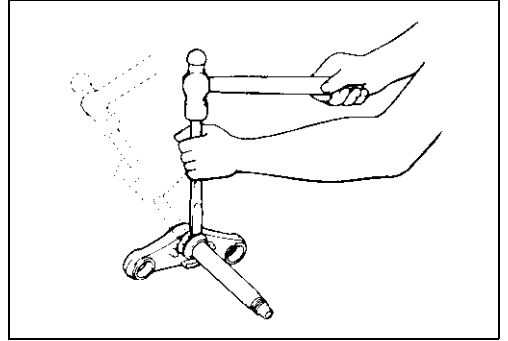
INSPECTION

- Inspect the removed parts for the following abnormalities.
 - Distortion of the steering stem
 - Bearing wear or damage
 - Abnormal bearing noise
 - Race wear or damage
 - Damper bushing wear or damage
- If any abnormal points are found, replace defective parts with new ones.



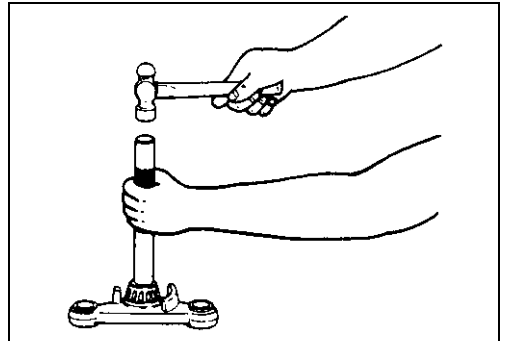
BEARING REPLACEMENT

- Remove the lower bearing.



- Fit the lower bearing with the special tool.

TOOL 09925-18011: Steering bearing installer



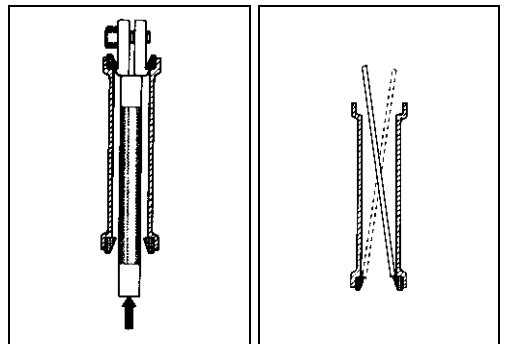
NOTE:

Replace the outer race and bearing as a set.

- Remove the upper outer race with the special tools.

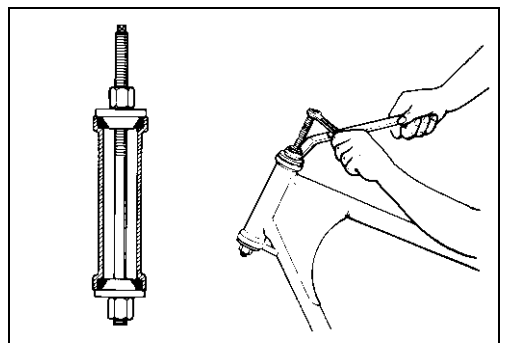
TOOL 09941-54911: Bearing outer race remover
09941-74911: Steering bearing installer

- Drive out the lower outer race using the steel rod.



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

TOOL 09941-34513: Steering race installer
09924-84510: Bearing installer set (ϕ 51.5 Attachment)



INSTALLATION

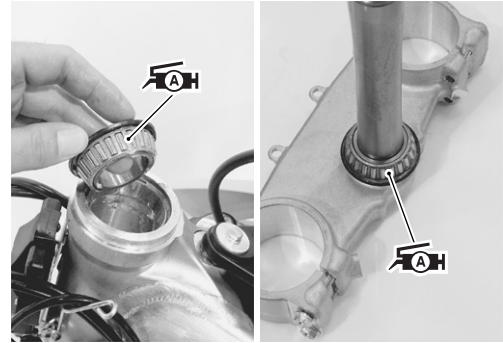
Install the steering in the reverse order of steering removal.

Pay attention to the following points:

STEERING STEM

- Apply grease to the bearings.

 **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.

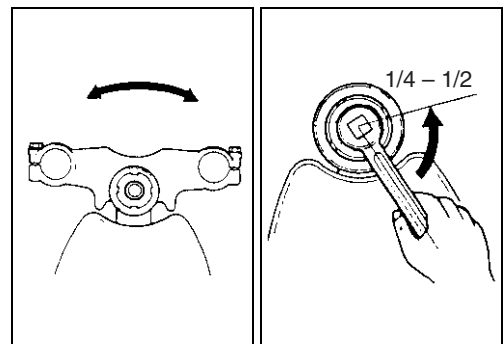
 **09940-14911: Steering nut socket wrench**

09940-14960: Steering nut wrench socket

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




- Move the steering stem right and left several times to seat the bearings.
- Turn back the steering stem nut by 1/4 – 1/2 turn.

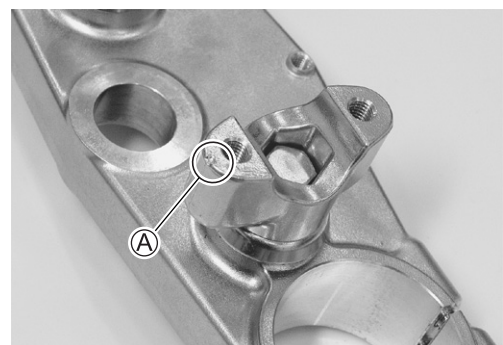


- Install the damper bushings, spacers and handlebar holders.

NOTE:

Make sure that the notch make  on the handlebar holder faces backward.

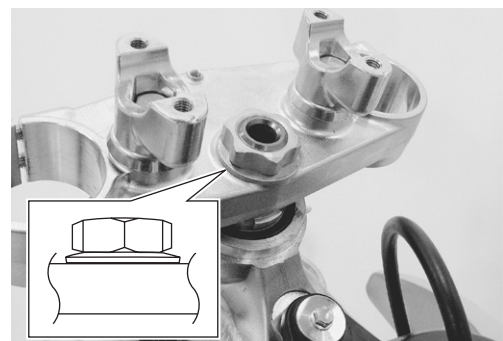
- Temporarily tighten the handlebar holder set nuts.



- Install the steering stem upper bracket and washer.
- Temporarily install the steering stem head nut.

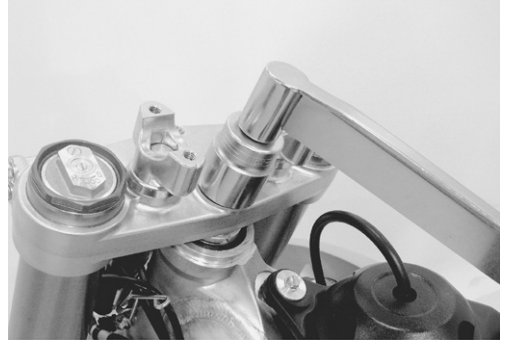
NOTE:



Pay attention to the direction of the washer.

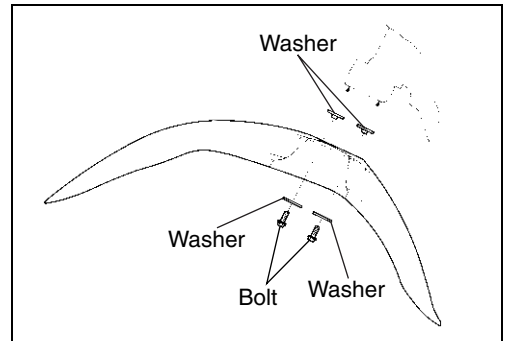


- Temporarily install the front forks to the steering stem and tighten the lower clamp bolts.
- Tighten the steering stem head nut to the specified torque.

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



- Install the front fender as shown.
- Remount the front forks. ( 17-17)
- Install the front wheel. ( 15-6)




- Insert the throttle assembly and spacer to the handlebars.

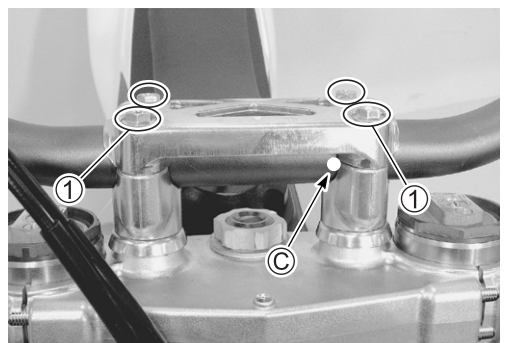
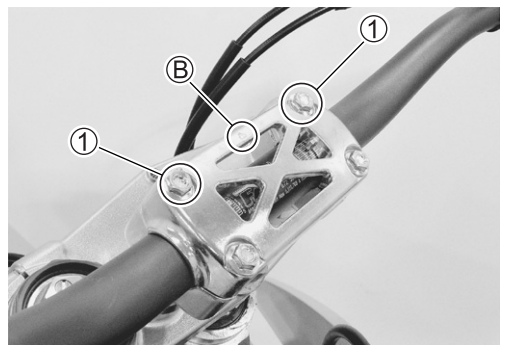


- Set the mark **Ⓑ** on the handlebar holder forward.
- Align the matching mark **Ⓒ** on the handlebars with the matching surface of the handlebar holder.
- Tighten the handlebar clamp bolts to the specified torque.


NOTE:

When tightening the handlebar clamp bolts, first tighten the bolts **①**.

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




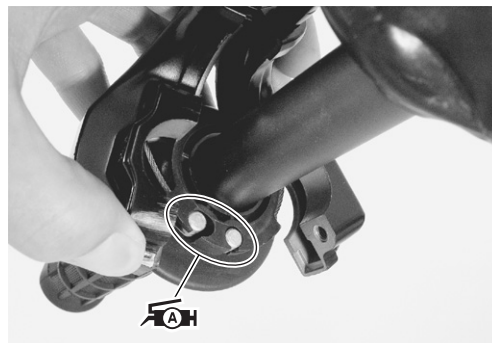
- Tighten the handlebar holder set nuts to the specified torque.


 **Handlebar holder set nut: 44 N·m (4.4 kgf-m, 32.0 lb-ft)**

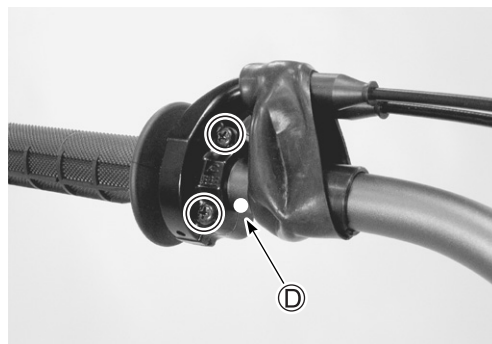



- Apply grease to the throttle cable and their hole.

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

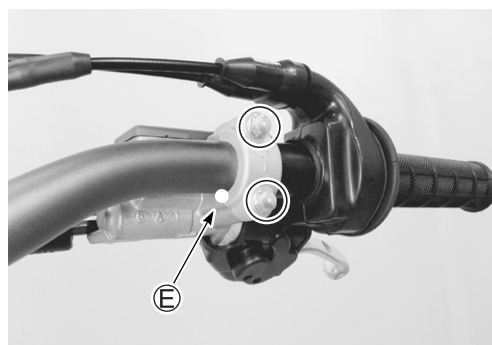


- Align the matching mark  on the handlebars with the throttle holder matching surface.
- Tighten the screws securely.



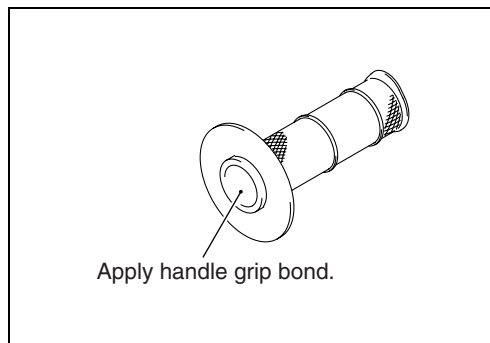
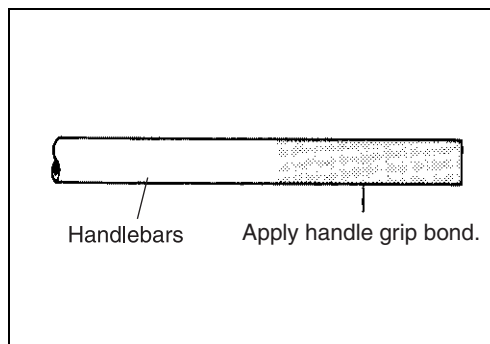
- Align the matching mark  on the handlebars with the master cylinder matching surface.
- Tighten the upper bolt first temporarily to provide clearance on the lower side and then tighten both the bolts to the specified torque.

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

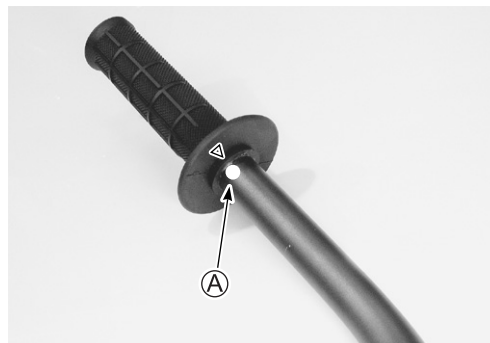


HANDLEBARS

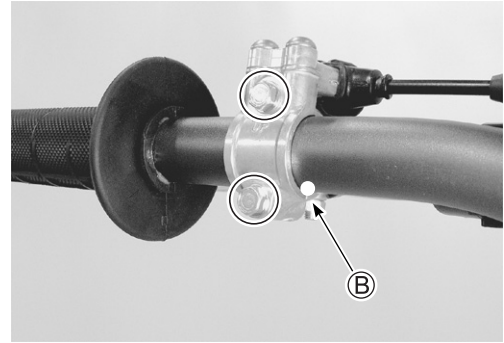
- Apply handle grip bond to the left handlebar end and inside of the left grip.



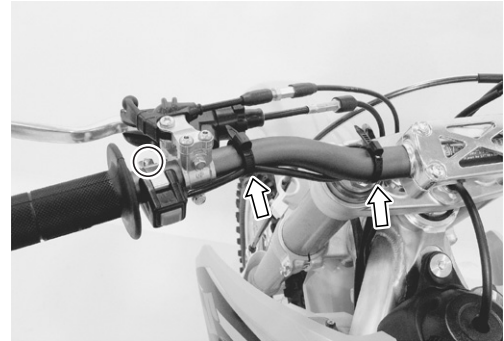
- Align the "△" mark on the left grip with the matching mark (A) on the left handlebar end.



- Align the matching mark ② on the handlebars with the clutch lever holder matching surface.
- Tighten the upper bolt first temporarily to provide clearance on the lower side and then tighten both the bolts.



- Install the engine stop switch and clamps.
- Install the front number plate and protector.



INSPECTION AFTER INSTALLATION

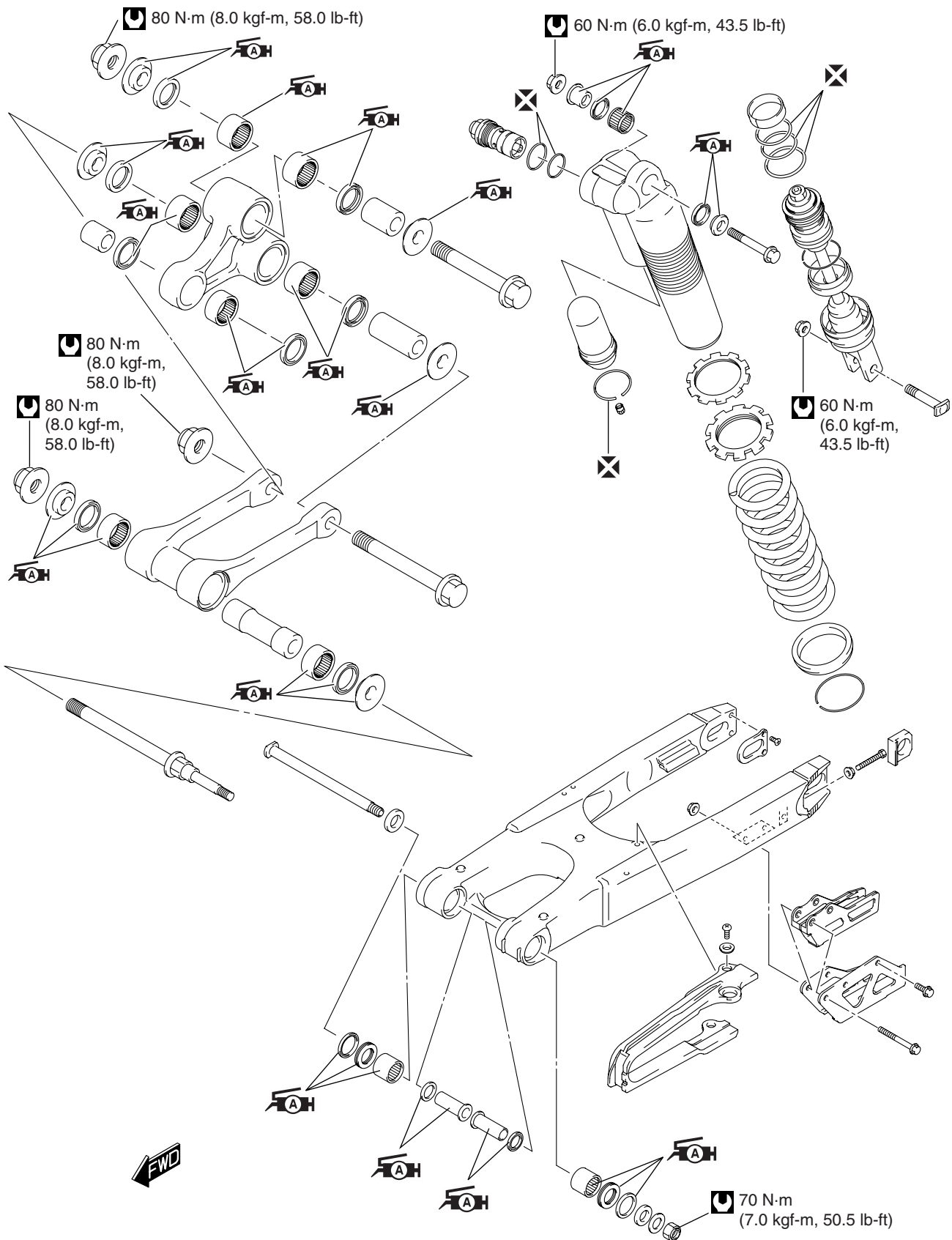
- Front fork (👉 2-33)
- Steering (👉 2-34)
- Wiring harness, cable and hose routing (👉 19-18 to -23)

REAR SUSPENSION

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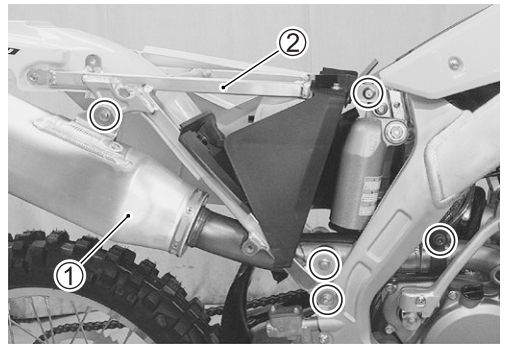
CONSTRUCTION REAR SUSPENSION



REAR SHOCK ABSORBER

REMOVAL

- Place a block under chassis tube.
 - Remove the seat. (☞ 5-2)
 - Loosen the air cleaner clamp screw.
-
- Remove the right frame cover and muffler ①. (☞ 5-2, -3)
 - Remove the seat rail assembly ②.
-
- Remove the rear shock absorber upper mounting bolt and nut.

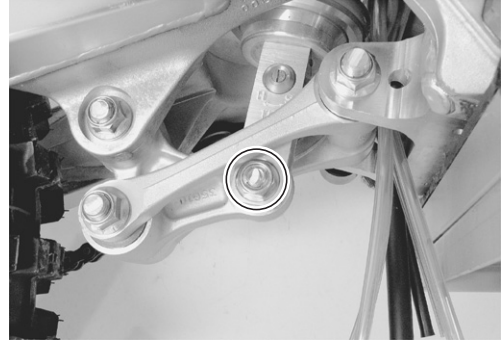


- Remove the rear shock absorber lower mounting bolt and nut.

NOTE:

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

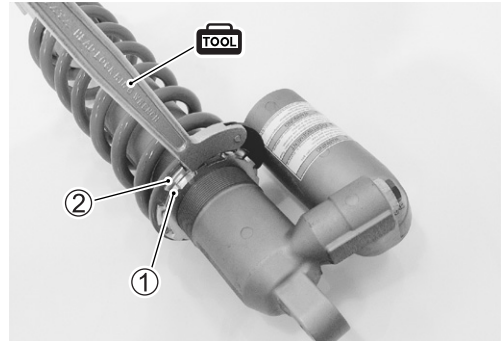
- Remove the rear shock absorber.



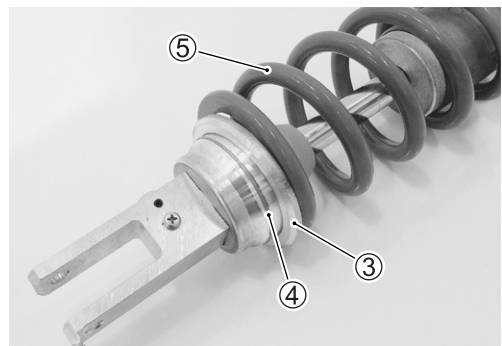
SPRING REPLACEMENT

- 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



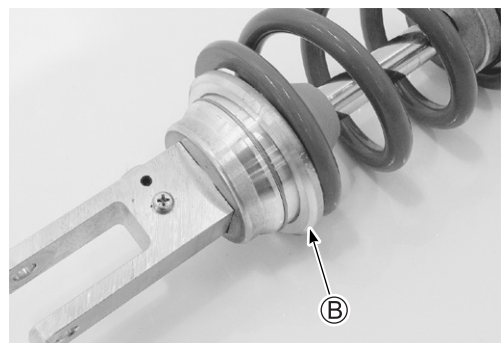
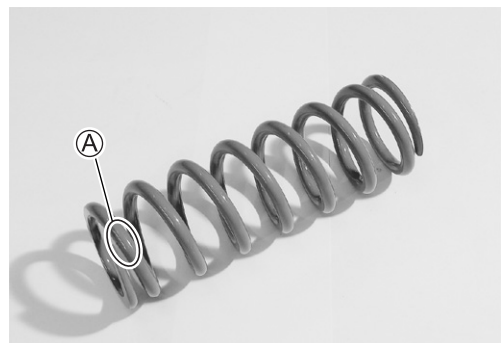
- Depress the spring seat ③ and remove the stopper ring ④.
- Remove the spring seat ③ and the spring ⑤ from the rear shock absorber.



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

NOTE:

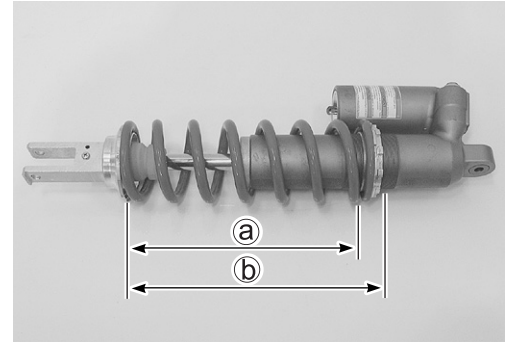
- * Install the spring as its painted side **A** or small diameter side faces bottom.
- * When installing the spring seat, insert the tapered end **B** of the spring seat to the bottom.



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

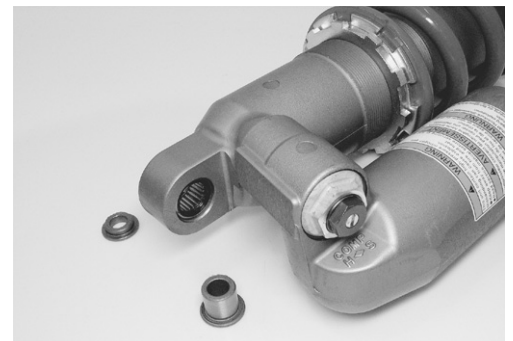
DATA **Standard spring set length:**
 5.6 mm (0.22 in) compressed from the free length
Spring set length adjustable range:
 247 – 263 mm (9.72 – 10.35 in)
 [at spring free length 265 mm (10.43 in)]
 Ⓐ: Hardest spring setting
 Ⓑ: Softest spring setting

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



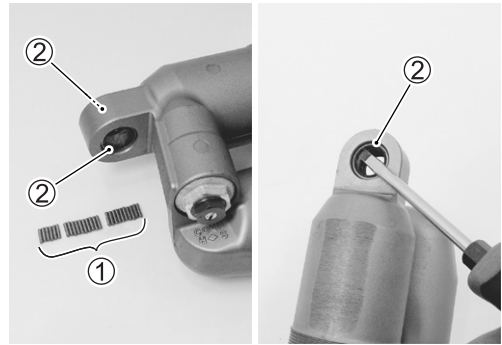
INSPECTION

- 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.
 - Replace the defective parts with a new one if necessary.
-
- Inspect the spacers and dust seals for damage.
 - Inspect the bearing for excessive play and smooth movement.
 - Replace the defective parts with a new one if necessary.



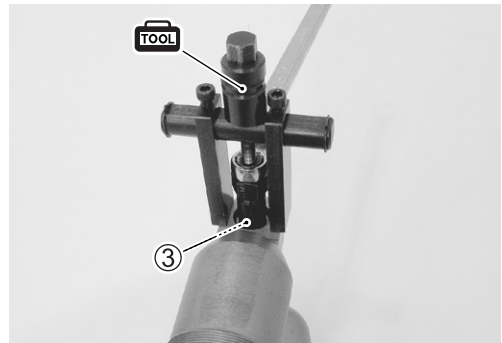
BEARING REPLACEMENT

- Remove the spacers.
- Remove the needle roller bearings ①. (26 pieces of needle roller bearing)
- Remove the dust seals ②.



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

 **09921-20240: Bearing remover set (Remover 17 mm)**




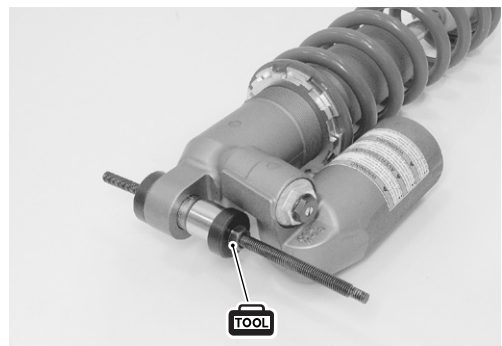
- Press the new needle roller bearing cage with the special tool and a suitable size socket wrench.

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 referring to the illustration of page 18-22.


 **09924-84521: Bearing installer**

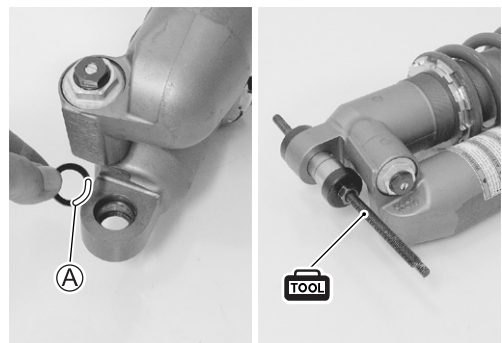


- Press the new dust seals with the special tool and a suitable size socket wrench.


NOTE:

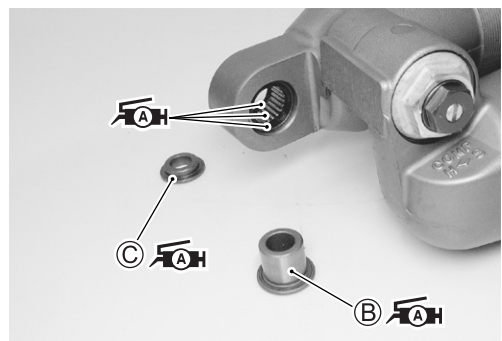
When installing the dust seal, the stamped mark (A) on the dust seal must face inside.

 **09924-84521: Bearing installer**



- Apply grease to the needle roller bearings and install them.
- Apply grease to the dust seals and spacers.
- Install the spacers (B) and (C).
 - (B) For right side
 - (C) For left side

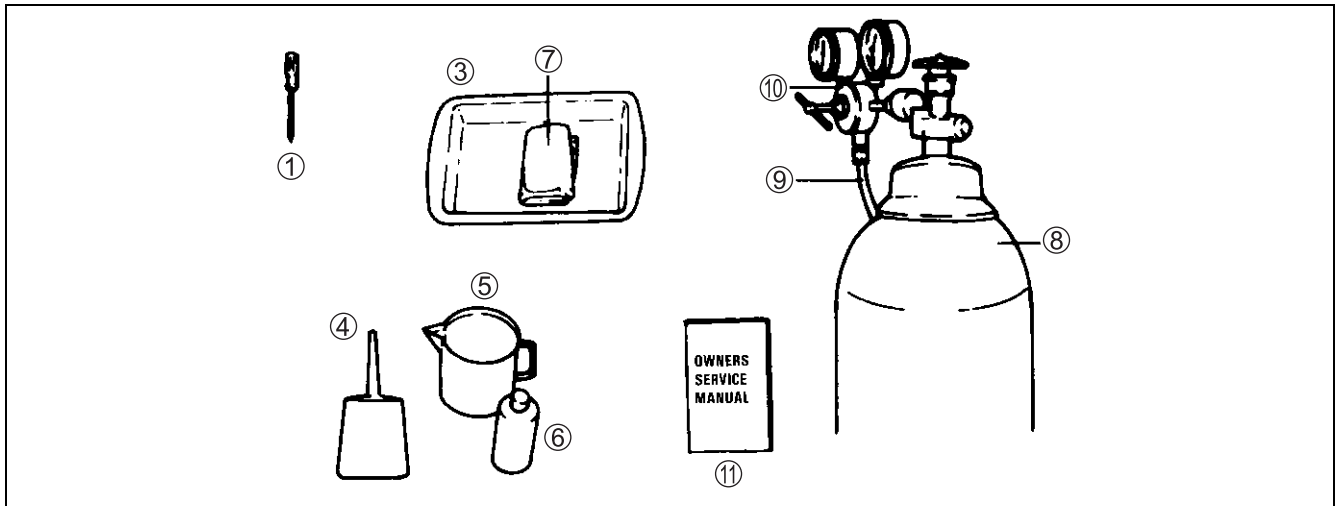
 **99000-25010: SUZUKI SUPER GREASE "A"**
(or equivalent grease)



OIL REPLACEMENT

TOOLS AND EQUIPMENT

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



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

* Not shown in the illustration

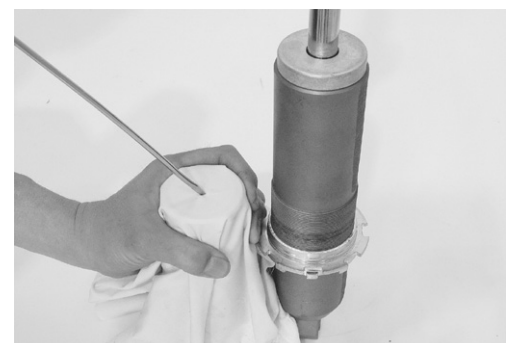
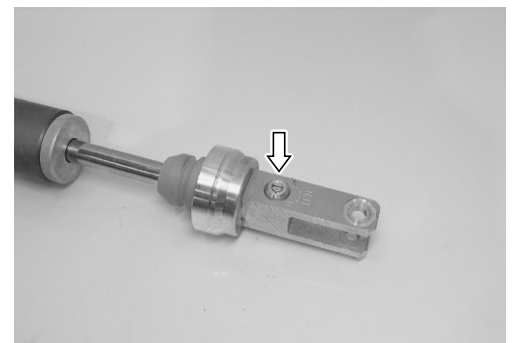
OIL REPLACEMENT PROCEDURE

- Remove the rear shock absorber unit from the frame (☞ 18-3), clean and dry it.
- Remove the spring from the rear shock absorber unit. (☞ 18-4)

NOTE:

Inspect the rear shock absorber unit for oil leakage. 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.

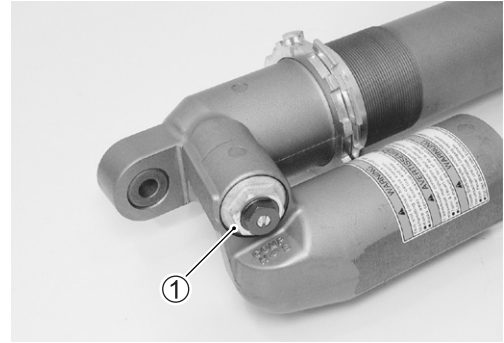


▲ WARNING

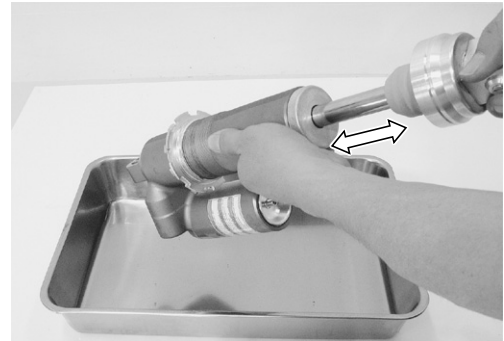
Releasing high pressure gas from the rear shock absorber unit can be hazardous.

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.



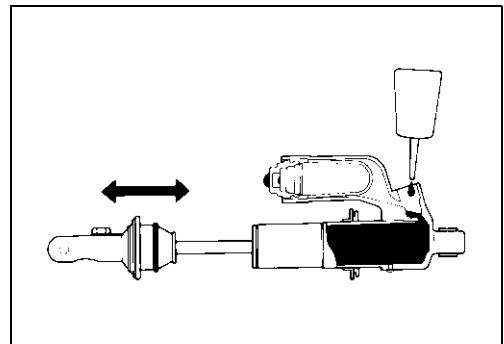
- Place a drain pan under the rear shock absorber unit.
- Move the rod and drain the oil completely.
- Push the valve core again to equalize the bladder to atmospheric pressure.



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

NOTE:

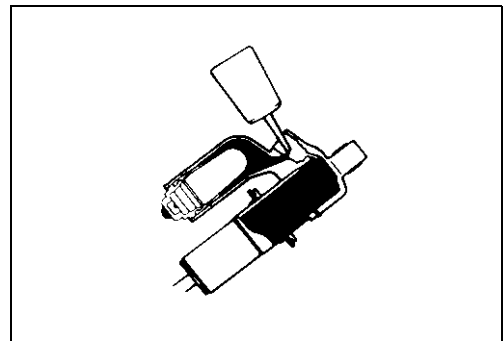
Be sure to extend the rod after filling the oil.



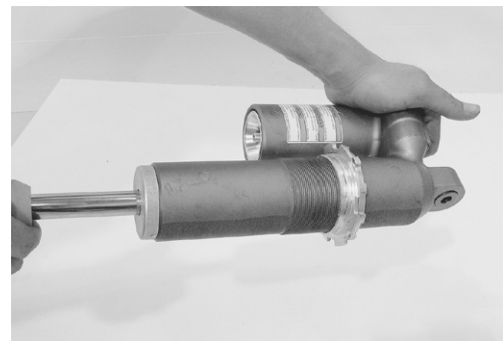
- Tilt the shock absorber unit as shown and pour the fresh rear suspension oil fully into the reservoir.

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

DATA Oil capacity: 395 ml (13.35/13.91 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 with the oil.
- Add the oil and repeat the above procedure until the reservoir is filled with the oil completely.




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

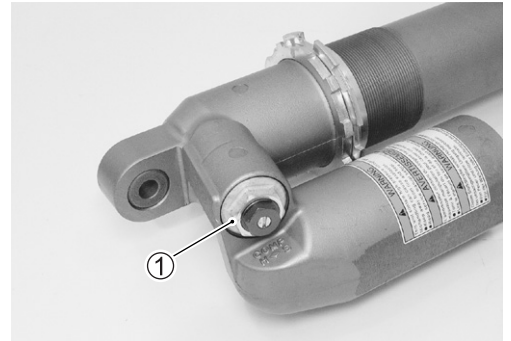


- Reinstall the compression adjuster assembly ①.

Compression adjuster assembly:

30 N·m (3.0 kgf-m, 21.5 lb-ft)

- Fill the rear shock absorber unit with nitrogen gas to 784 kPa (8.0 kgf/cm², 113.8 psi).
- Tighten the gas valve cap.
- Reinstall the spring. ( 18-4)



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.

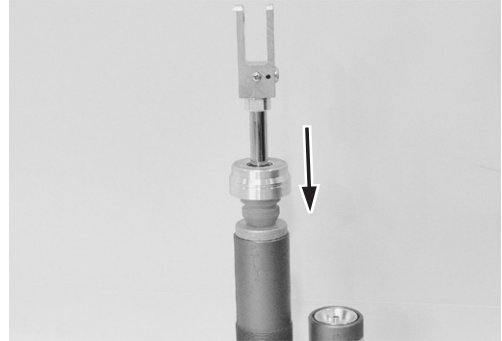
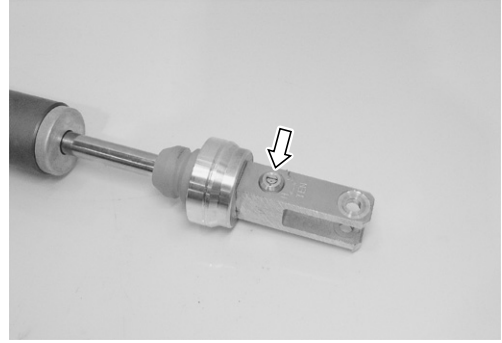
CAUTION

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.

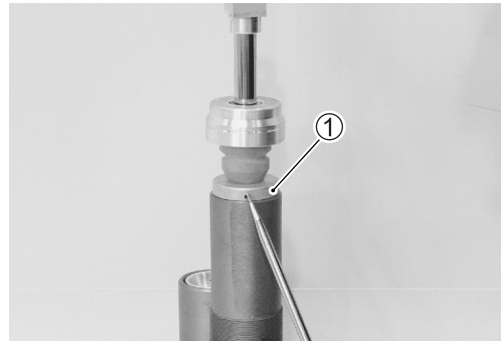
Be sure to fill the rear shock absorber unit to the specified pressure.

DISASSEMBLY AND INSPECTION

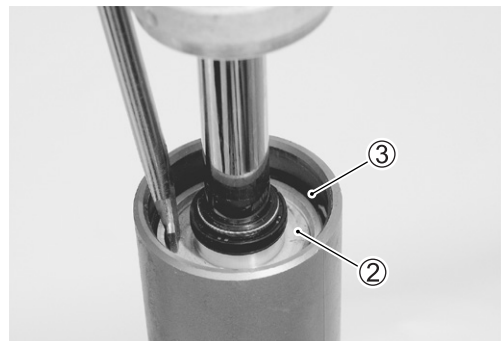
- Clean and dry the rear shock absorber.
 - Remove the spring from the rear shock absorber. (☞ 18-4)
 - Turn the rebound damping force adjuster to the softest position.
 - Press the valve with a screwdriver to bleed out nitrogen gas. (☞ 18-7)
 - Remove the compression adjuster assembly and drain the oil. (☞ 18-8)
- 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.



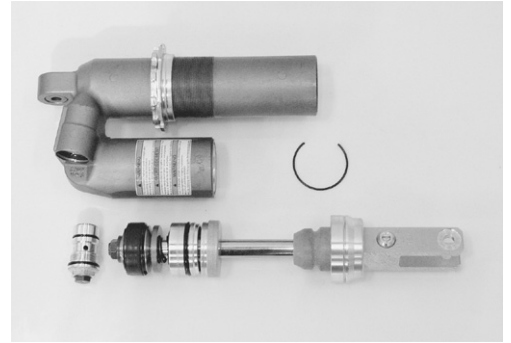
- Remove the circlip ④.

NOTE:

Do not scratch the inner surface of the shock absorber body to avoid oil leaks.

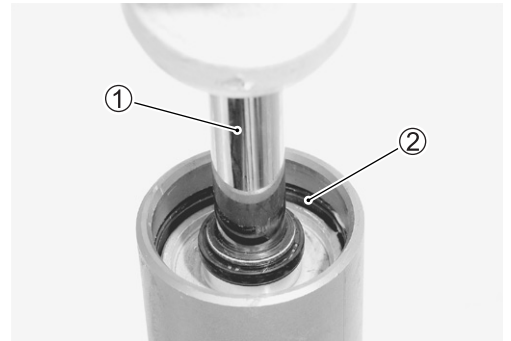



- Extract the damper rod assembly from the shock absorber body.
- Inspect the oil seal and O-rings.
- Inspect the damper rod for bends and scratches.
- Inspect the inner surface of the body.
- Inspect the “teflon coating metal” on the piston.
- Replace the O-rings with new ones.
- Replace the “teflon 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. (🔧 18-8)



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

DATA Oil capacity: 395 ml (13.35/13.91 US/Imp oz)

- Reinstall the compression adjuster assembly. (🔧 18-9)
- Pressure the rear shock absorber unit with nitrogen gas to 784 kPa (8.0 kgf/cm², 113.8 psi). (🔧 18-9)
- Reassemble the spring and adjust the spring set length. (🔧 18-4)
- 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.

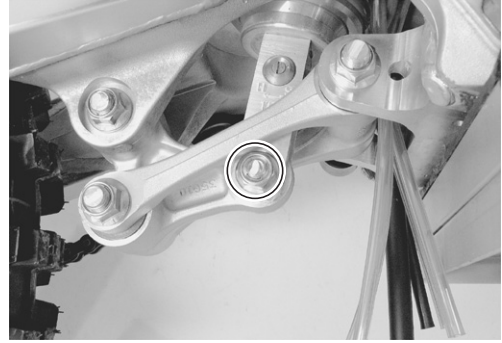
NOTE:

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

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

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

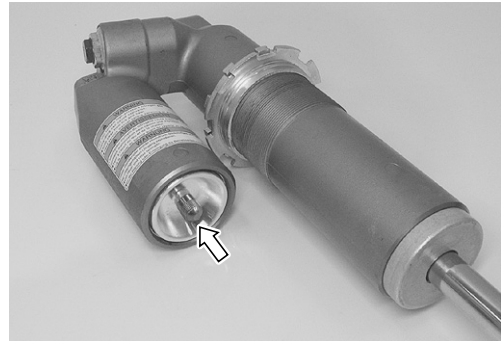
- Rear shock absorber upper mounting nut:**
 60 N·m (6.0 kgf·m, 43.5 lb-ft)



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.

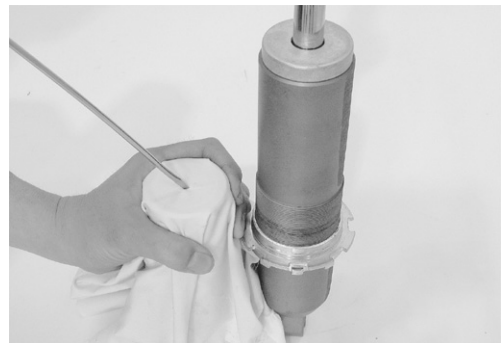


- Press the valve with a screwdriver.

⚠ WARNING

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

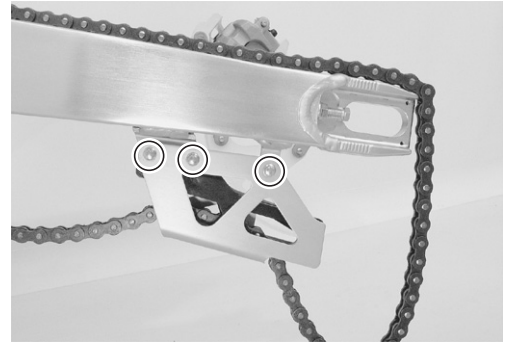
Place a rag over the valve and push the valve with a screwdriver to release nitrogen gas. Do not use your finger to push the valve, and direct the valve away from your face and body.



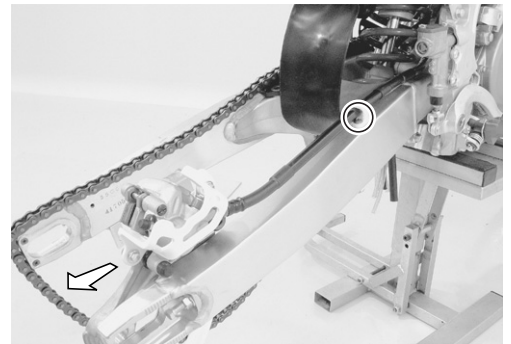
SWINGARM

REMOVAL

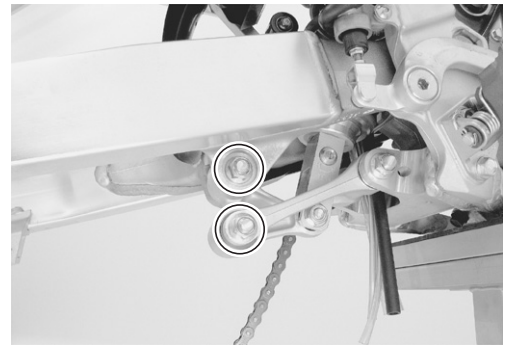
- Place the motorcycle on a block to lift rear wheel off the ground.
- Remove the rear wheel. (☞ 15-7)
- Remove the chain guide.



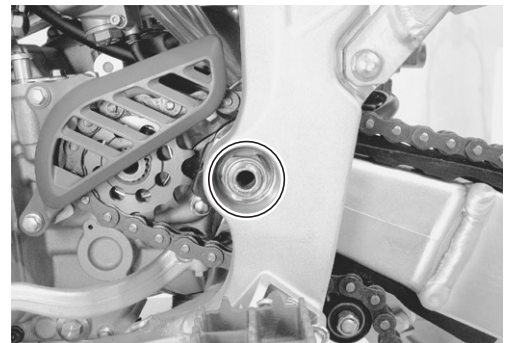
- Remove the rear brake hose guide.
- Remove the rear brake caliper from the swingarm.



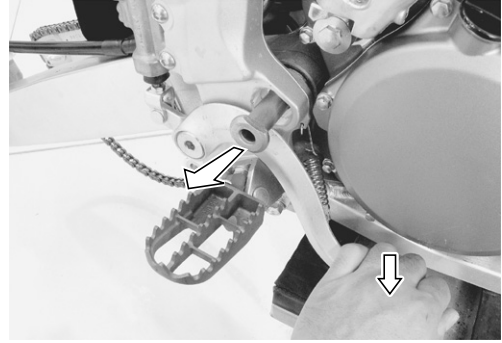
- Remove the cushion rod bolt and nut.
- Remove the cushion lever bolt and nut.



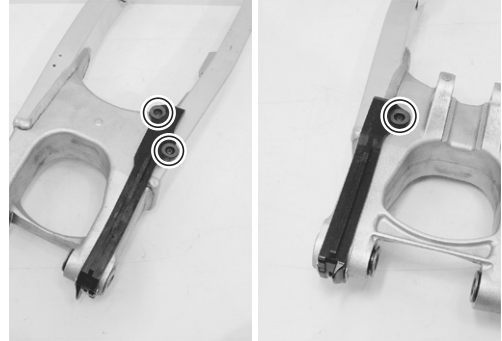
- Remove the swingarm pivot nut and washer.



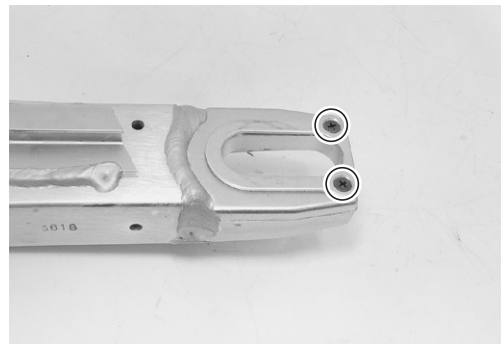
- Down the rear brake pedal, remove the pivot shaft.
- Remove the swingarm.



- Remove the chain buffer.

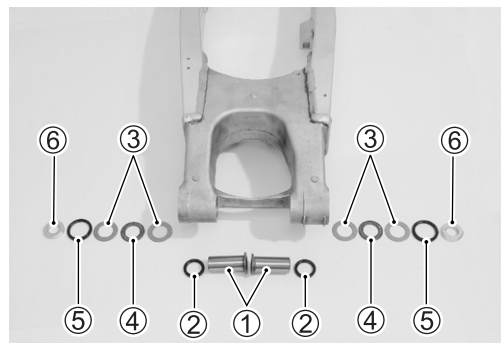


- Remove the plates.



- 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.
- If any the runout exceeds the limit, replace the pivot shaft with a new one.

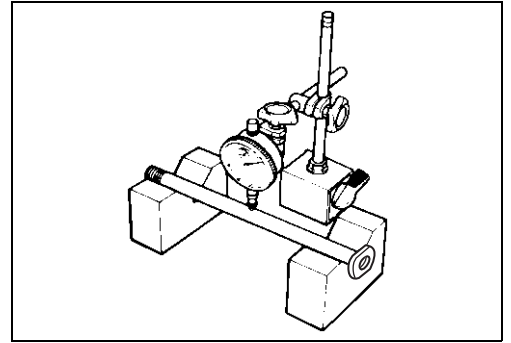
DATA Swingarm pivot shaft runout

Service Limit: 0.3 mm (0.01 in)

TOOL 09900-20607: Dial gauge (1/100, 10 mm)

09900-20701: Magnetic stand

09900-21304: V-block set (100 mm)



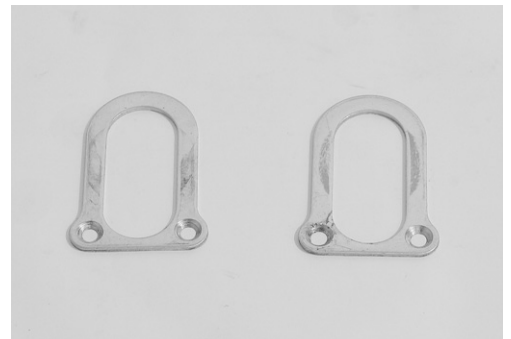
CHAIN BUFFER AND CHAIN GUIDE

- Inspect the chain buffer and chain guide for damage and excessive wear.
- If any defects are found, replace the chain buffer or guide.



PLATE

- Inspect the plate for damage and excessive bend.
- If any defects are found, replace the plate with a new one.



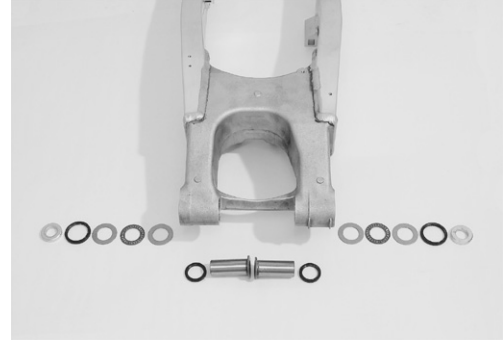
SWINGARM

- Inspect the swingarm for cracks and damage.
- If any defects are found, replace the swingarm with a new one.

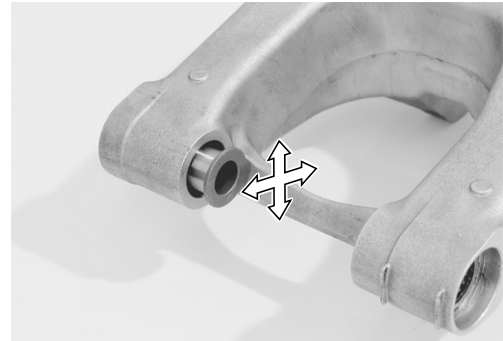


BEARING, SPACER, DUST SEAL, OIL SEAL

- Inspect the bearings, spacers, dust seals and oil seals for damage.
- Replace the defective parts with a new one.



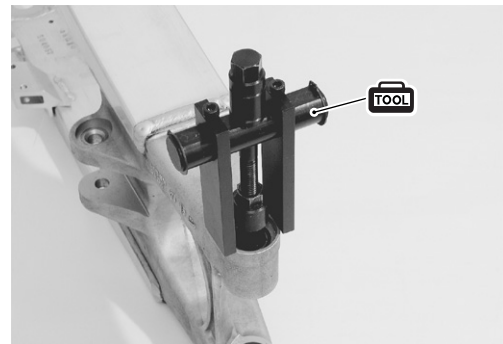
- Insert the spacer into the bearings and inspect them for play and smooth movement.
- If excessive play is noted, replace the bearing with a new one.




BEARING REPLACEMENT

- Remove the bearings with the special tool.

 09921-20240: Bearing remover set




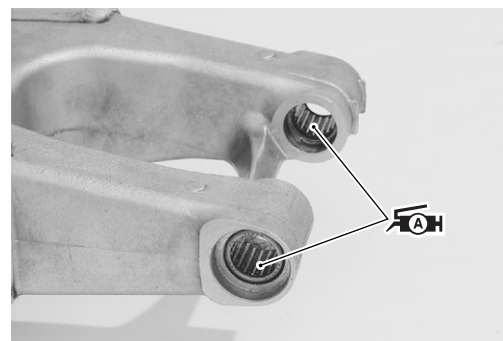
- Press the new bearings with the special tool.

 09924-84521: Bearing installer



- Apply grease to the bearings.

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




INSTALLATION

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

- Install the following parts into the swingarm.

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


 **99000-25010: SUZUKI SUPER GREASE “A”**
(or equivalent grease)

- Apply THREAD LOCK SUPER to the plate mounting screws.


 **99000-32110: THREAD LOCK SUPER “1322”**
(or equivalent thread lock)



- Tighten the plate mounting screws securely.
- Install the chain buffer.

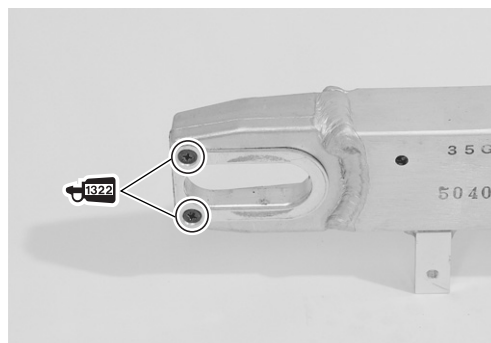
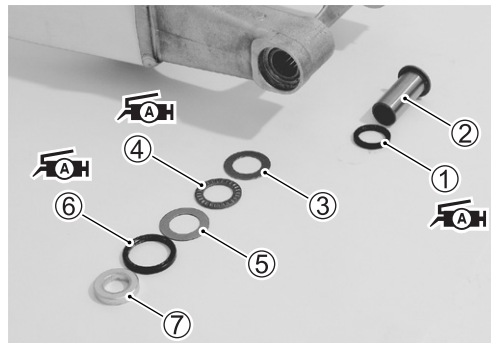
- Install the swingarm.
- Tighten the swingarm pivot nut to the specified torque.

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

- Install the cushion lever and cushion rod.
- Tighten the cushion lever nut and cushion rod nut to the specified torque.

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

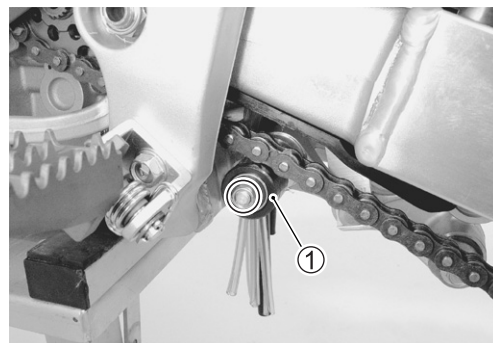
- Install the rear wheel. ( 15-11)
- Adjust the drive chain slack. ( 2-28)



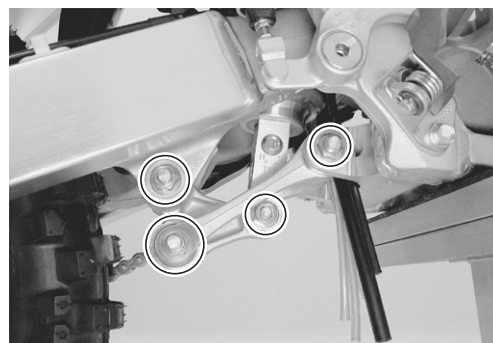
REAR SUSPENSION LINKAGE

REMOVAL

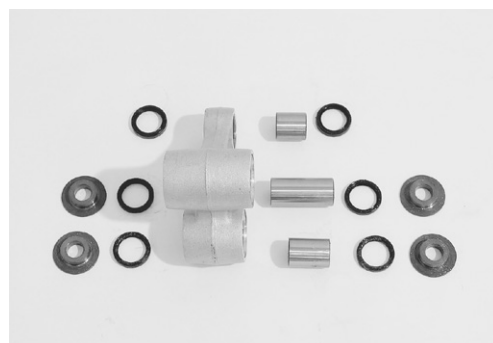
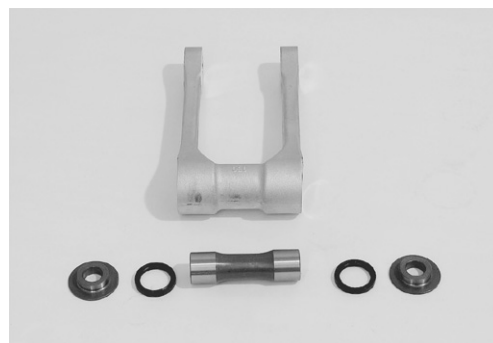
- Place a block under the chassis tubes.
- Remove the lower drive chain control roller ①.



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

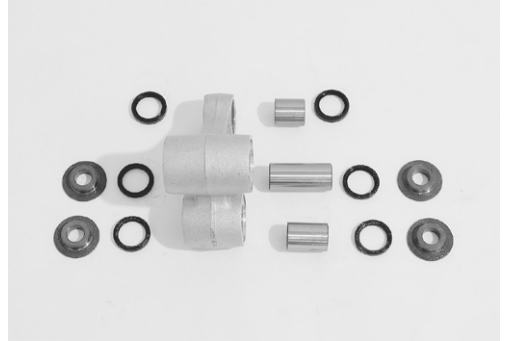
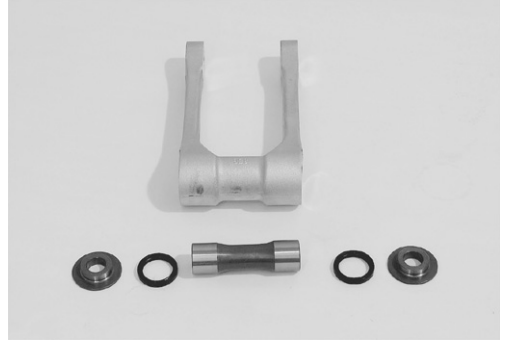


- Remove the collars, oil seals and spacers.

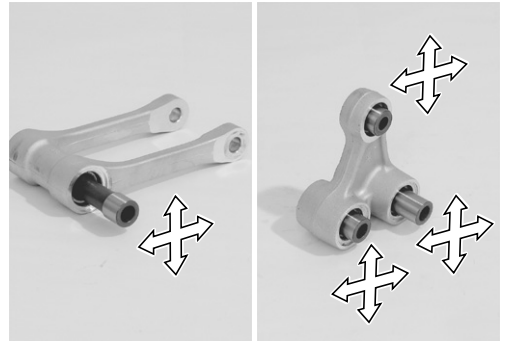


INSPECTION

- Inspect the cushion rod and cushion lever for damage.
- Inspect the dust seals, oil seals and spacers for damage.
- Replace the defective parts with a new one.



- Insert the spacers into the bearings and inspect them for excessive play and smooth movement.
- If excessive play is noted, replace the bearing with a new one.



BEARING REPLACEMENT

- Remove the collars, spacers and dust seals. (☞ 18-18)
- Remove the needle roller bearings.

Cushion rod bearing

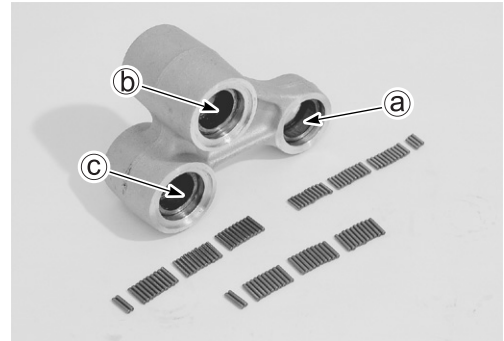
(One side 32 pieces of needle roller bearing)

Cushion lever bearing

Ⓐ (33 pieces of needle roller bearing)

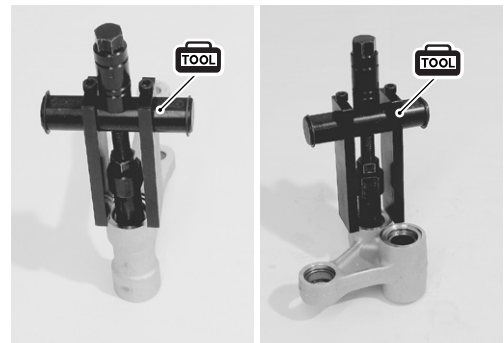
Ⓑ (One side 32 pieces of needle roller bearing)

Ⓒ (One side 32 pieces of needle roller bearing)




- Remove the needle roller bearing cages with the special tool.

 **09921-20240: Bearing remover set (Remover 20 mm)**

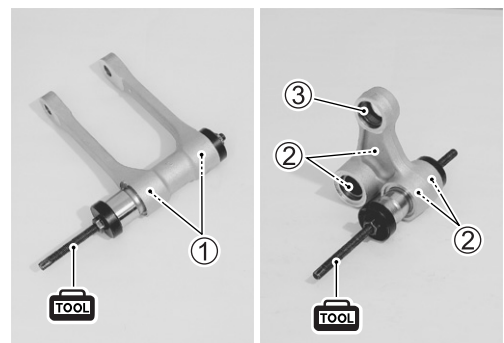


- Press fit the new needle roller bearing cages with the special tool and a suitable size socket wrench.


 **09924-84521: Bearing installer**

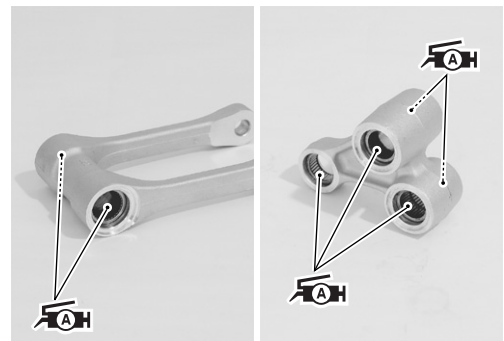
NOTE:

- * When installing the needle roller bearing cages ① and ②, the stamped mark on the bearing must face outside. (③: right side)
- * Position the needle roller bearing cages by referring to the illustration of page 18-22.



- Apply grease to the needle roller bearings and install them.


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

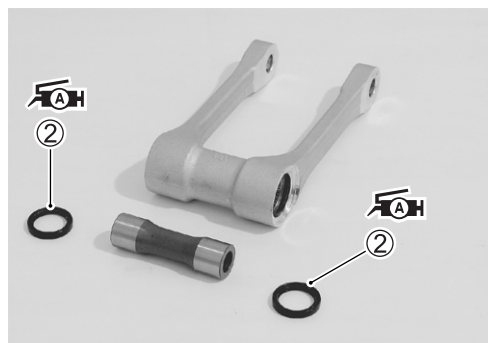
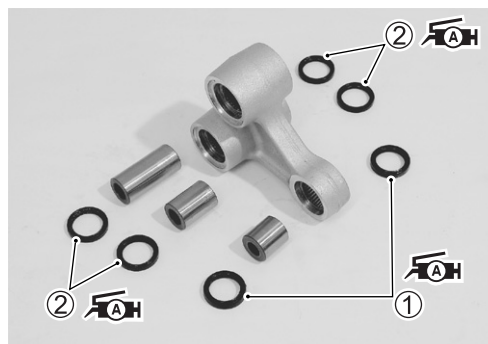


INSTALLATION

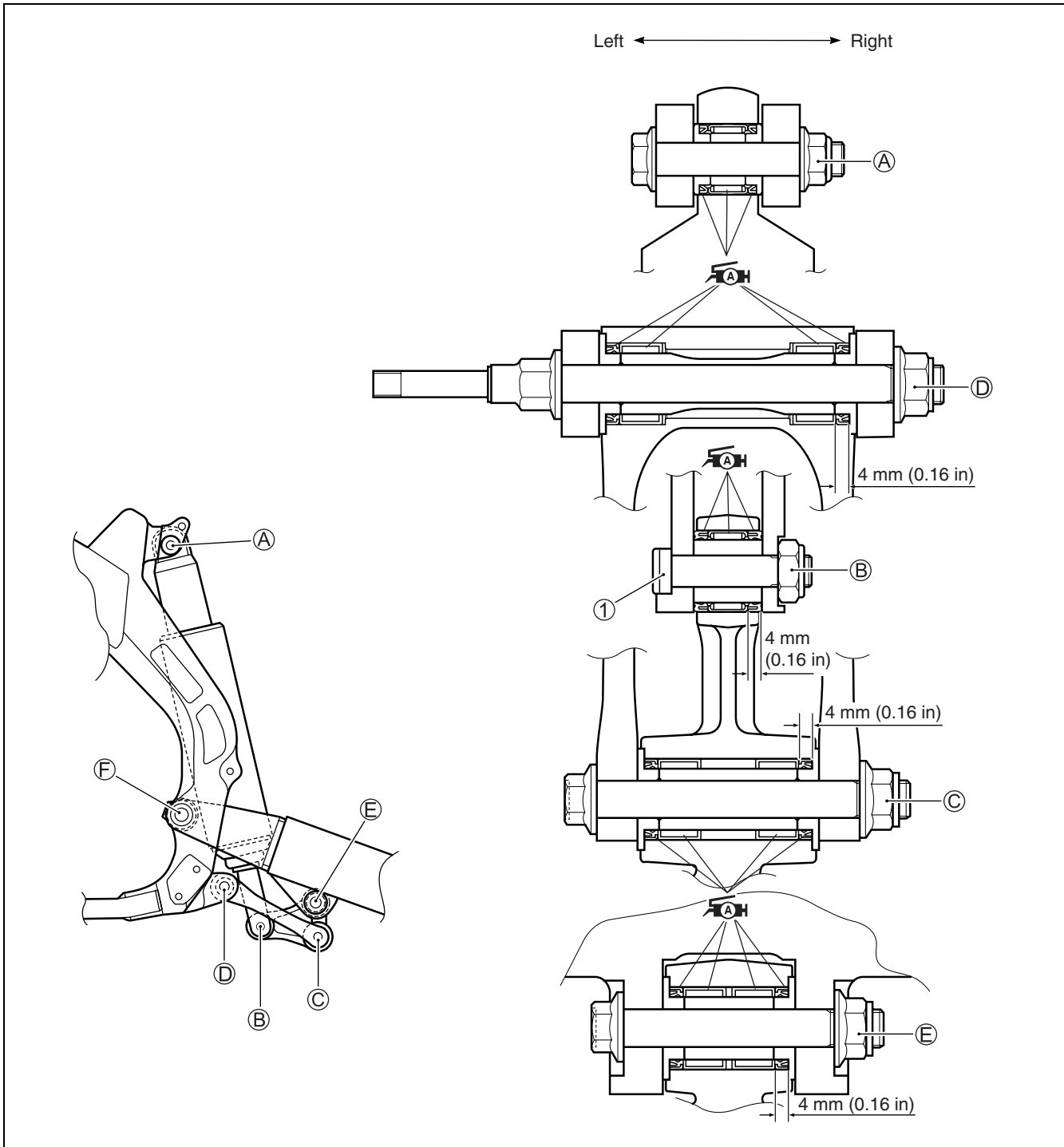
Install the rear suspension linkage in the reverse order of removal. Pay attention to the following points:

- Position the dust seals ① so that the manufacturer's code indicated side of the seals face outside. (②: inside)
- Apply grease to the dust seals.

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

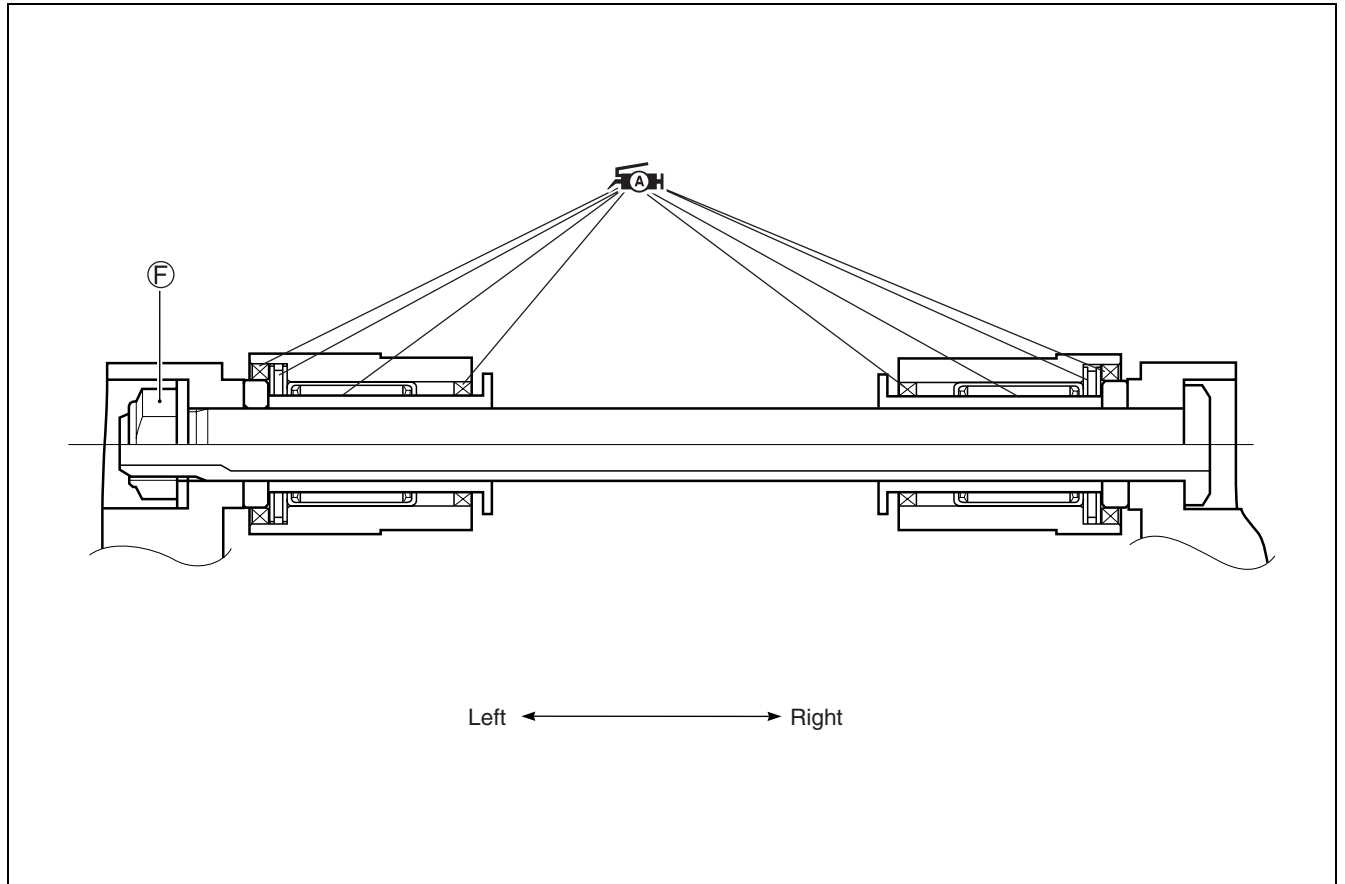


- Tighten the cushion lever, cushion rod and swingarm nuts to the specified torque.



Tightening torque:

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



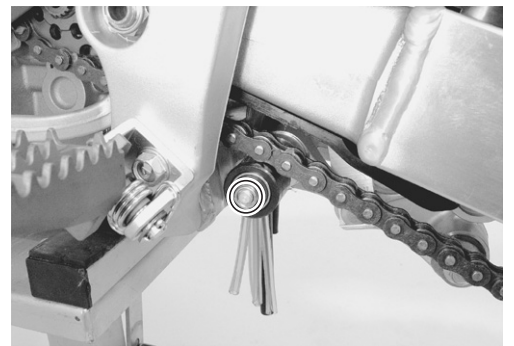
CAUTION

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

- * Make sure that the rear shock absorber rebound damping adjuster on the bottom bracket of the rear shock absorber is located to the right side.
- * Insert the rear suspension linkage bolt ① from the left side. Make sure that the nut ② is in the recess of the rear shock absorber bottom bracket.

- Tighten the lower drive chain control roller nut to the specified torque.

 Chain roller nut: 22 N·m (2.2 kgf·m, 16.0 lb·ft)



– MEMO –

SERVICING INFORMATION

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SERVICE DATA**VALVE + GUIDE**

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	31 (1.22)	—
	EX.	25 (0.98)	—
Valve clearance (when cold)	IN.	0.09 – 0.16 (0.004 – 0.006)	—
	EX.	0.17 – 0.24 (0.006 – 0.009)	—
Valve guide to valve stem clearance	IN.	0.010 – 0.037 (0.0004 – 0.0015)	—
	EX.	0.030 – 0.057 (0.0012 – 0.0022)	—
Valve stem deflection	IN. & EX.	—	0.25 (0.010)
Valve guide I.D.	IN. & EX.	4.500 – 4.512 (0.1772 – 0.1776)	—
Valve stem O.D.	IN.	4.475 – 4.490 (0.1762 – 0.1768)	—
	EX.	4.455 – 4.470 (0.1754 – 0.1760)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve seat width	IN. & EX.	0.9 – 1.1 (0.035 – 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length	IN.	—	37.1 (1.46)
	EX.	—	37.5 (1.48)
Valve spring tension	IN. & EX.	147 N (15 kgf, 33.1 lbs) at length 33.55 mm (1.321 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	34.86 – 34.91 (1.372 – 1.374)	34.56 (1.361)
	EX.	34.38 – 34.43 (1.354 – 1.356)	34.08 (1.342)
Camshaft journal oil clearance	IN. & EX.	0.023 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.003 – 22.025 (0.8663 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.959 – 21.980 (0.8645 – 0.8654)	—
Camshaft runout	—		0.10 (0.004)
Cam chain pin	13th pin		—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD		LIMIT
Compression pressure (Automatic decomp. actuated)	400 – 800 kPa (4.0 – 8.0 kgf/cm ² , 57 – 114 psi)		—
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)		0.120 (0.0047)
Cylinder bore	77.000 – 77.015 (3.0315 – 3.0321)		Nicks or scratches
Piston diam.	76.980 – 76.965 (3.0307 – 3.0301) Measure at 8.5 mm (0.33 in) from the skirt end.		76.880 (3.0268)
Cylinder distortion	—		0.05 (0.002)
Piston ring free end gap	1st	IR Approx. 7.0 (0.28)	5.6 (0.22)
Piston ring end gap	1st	0.15 – 0.25 (0.006 – 0.010)	0.50 (0.020)
Piston ring to groove clearance	1st	—	0.180 (0.007)
Piston ring groove width	1st	1.01 – 1.03 (0.0398 – 0.0406)	—
	Oil	1.51 – 1.53 (0.0594 – 0.0602)	—
Piston ring thickness	1st	0.97 – 0.99 (0.0382 – 0.0390)	—
Piston pin bore	16.002 – 16.008 (0.6300 – 0.6302)		16.030 (0.6311)
Piston pin O.D.	15.995 – 16.000 (0.6297 – 0.6299)		15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	16.010 – 16.018 (0.6303 – 0.6306)	16.040 (0.6315)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.20 – 0.65 (0.008 – 0.026)	1.0 (0.04)
Conrod big end width	17.75 – 17.80 (0.699 – 0.701)	—
Crank web to web width	55.9 – 56.1 (2.20 – 2.21)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 50 °C, 122 °F)	20 kPa (0.2 kgf/cm ² , 2.8 psi) at 6 000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch lever play	10 – 15 (0.4 – 0.6)	—
Drive plate thickness	2.72 – 2.88 (0.107 – 0.113)	2.42 (0.095)
Drive plate claw width	13.85 – 13.96 (0.545 – 0.550)	13.05 (0.514)
Driven plate distortion	—	0.10 (0.004)
Clutch spring free length	45.22 (1.780)	43.0 (1.69)

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	LIMIT
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm ² , 14 – 18 psi)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.	—
Engine coolant capacity	950 ml (1.0/0.8 US/Imp qt)	—

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD		LIMIT
Primary reduction ratio		3.210 (61/19)		—
Final reduction ratio		4.000 (48/12)		—
Gear ratios	Low	2.153 (28/13)		—
	2nd	1.764 (30/17)		—
	3rd	1.470 (25/17)		—
	4th	1.238 (26/21)		—
	Top	1.090 (24/22)		—
Shift fork to groove clearance		No.1, 2 & 3	0.10 – 0.30 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width		No.1, 2 & 3	5.00 – 5.10 (0.197 – 0.201)	—
Shift fork thickness		No.1, 2 & 3	4.80 – 4.90 (0.189 – 0.193)	—
Drive chain	Type	DID 520 DMA2		—
	Links	112 links		—
	20-pitch length	—		323.8 (12.75)
Drive chain slack		35 – 45 (1.4 – 1.8)		—
Gearshift lever height		5 – 10 (0.2 – 0.4) (Above the top face of the foot rest)		—

CARBURETOR

ITEM	SPECIFICATION	
	E-03, 000	E-19, 28
Carburetor type	FCR37MX	←
Bore size	37 mm (1.46 in)	←
I.D. No	10H0	10H1
Idle r/min	2 100 ± 50 r/min	←
Float height	8 mm (0.31 in)	←
Fuel level	6.5 mm (0.26 in) (Above the datum point)	←
Main jet (M.J.)	#162	#170
Jet needle (J.N.)	NLCT-3rd	NLCT-4th
Slow jet (S.J.)	#45	←
Slow air jet (S.A.J.)	#100	←
Starter jet	#75	←
Pilot screw	1 and 1/2 turns back	←
Leak jet	#40	←
Throttle stop screw	Adjust to the specified idle speed.	←
Throttle cable play (pulling cable)	2 – 4 mm (0.08 – 0.16 in)	←
Hot starter cable play	Approx. 3 mm (0.12 in)	←

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	18° B.T.D.C. at 2 100 r/min.		
Spark plug	Type	NGK: CR8EIA-10	
	Gap	0.9 – 1.0 (0.035 – 0.039)	
Spark performance	Over 8 (0.3) at 1 atm.		
Pick-up coil resistance	72 – 127 Ω		R – G
Exciter coil resistance	24 – 42 Ω		B/R – R/W
Charge coil resistance	1.6 – 3.2 Ω		Y – B/W
Pick-up coil peak voltage	2 V and more		⊕ R – ⊖ G
Exciter coil peak voltage	25 V and more		⊕ B/R – ⊖ R/W
Charge coil peak voltage	8 V and more		⊕ Y – ⊖ B/W
Ignition coil resistance	Primary	0.07 – 0.6 Ω	Terminal – Terminal
	Secondary	4.8 – 7.1 k Ω	Plug cap – ⊕ terminal
Ignition coil primary peak voltage	140 V and more		⊕ Ground – ⊖ W/BI
Engine stop switch resistance	Under 1 Ω		B/Y – B/W
Throttle position sensor input voltage	4.5 – 5.5 V at 2 100 r/min		⊕ B/G – ⊖ B/Br
Throttle position sensor resistance	4 – 6 k Ω		BI – B
	Closed	0.6 – 1.0 k Ω	Y – B
	Opened	3.2 – 5.0 k Ω	

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) (Below the top face of the foot rest)		—
Brake disc thickness	Front	3.0 ± 0.2 (0.118 ± 0.008)	2.5 (0.10)
	Rear	4.0 ± 0.15 (0.157 ± 0.006)	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	11.000 – 11.043 (0.4331 – 0.4348)	—
Master cylinder piston diam.	Front	10.957 – 10.984 (0.4314 – 0.4324)	—
	Rear	10.957 – 10.984 (0.4314 – 0.4324)	—

ITEM	STANDARD		LIMIT
Brake caliper cylinder bore	Front	27.000 – 27.050 (1.0630 – 1.0650)	—
	Rear	25.400 – 25.450 (1.0000 – 1.0020)	—
Brake caliper piston diam.	Front	26.900 – 26.950 (1.0591 – 1.0610)	—
	Rear	25.335 – 25.368 (0.9974 – 0.9987)	—
Brake fluid type	DOT 4		—
Wheel rim runout	Axial	—	2.0 (0.08)
	Radial	—	2.0 (0.08)
Wheel rim size	Front	1.60 × 21	—
	Rear	1.85 × 19	—
Wheel axle runout	Front	—	0.25 (0.010)
	Rear	—	0.25 (0.010)

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 57M	—
	Rear	100/90-19 57M	—
Tire type	Front	D742FA	—
	Rear	D756	—
Tire tread depth (Recommended depth)	Front & Rear	—	4.0 mm (0.16 in)

SUSPENSION

Unit: mm (in)

ITEM		STANDARD	LIMIT	NOTE
Front fork stroke		310 (12.2)	—	
Front fork inner tube O.D.		47 (18.5)	—	
Front fork spring free length		494 ± 2.5 (19.45 ± 0.10)	487 (19.17)	
Front fork damping force adjuster	Rebound	MAX – 14 clicks turn back	—	
	Compres- sion	MAX – 7 clicks turn back	—	
Front fork air pressure		0 kPa (0 kgf/cm ² , 0 psi)	—	
Front fork spring rate		4.4 N/mm (0.44 kgf/mm)	—	
Rear shock absorber gas pressure		784 kPa (8.0 kgf/cm ² , 133.8 psi)	—	
Rear shock absorber spring set length		5.6 (0.22)	—	5.6 mm (0.22 in) com- pressed from spring free length
Rear shock absorber spring rate		54 N/mm (5.4 kgf/mm)	—	
Rear shock absorber damping force adjuster	Rebound	MAX – 7 clicks turn back	—	
	Compres- sion (High speed)	MAX – 1 turn back	—	
	Compres- sion (Low speed)	MAX – 8 clicks turn back	—	
Rear wheel travel		310 (12.2)	—	
Swingarm pivot shaft runout		—	0.3 (0.01)	

FUEL + OIL

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	7.0 L (1.8/1.5 US/Imp gal)		
Engine oil type	SAE 10W-40, API SF/SG or SH/SJ with JASO MA		E-03
	MOTUL 300V 10W-40 (Recommendation oil) or SAE 10W-40, API SF/SG or SH/SJ with JASO MA		The others
Engine oil capacity	Change	900 ml (1.0/0.8 US/Imp qt)	
	Filter change	950 ml (1.0/0.8 US/Imp qt)	
	Overhaul	1 000 ml (1.1/0.9 US/Imp qt)	
Air cleaner element oil type	MOTUL AIR FILTER OIL or equivalent filter oil		
Front fork oil type	SUZUKI FORK OIL SS-05 or an equivalent fork oil		
Front fork oil capacity (each leg)	360 ml (12.17/12.68 US/Imp oz)		Outer tube oil quantity
	193 ml (6.52/6.80 US/Imp oz)		Damper rod oil quantity
Rear shock absorber oil type	SUZUKI REAR SUSPENSION OIL SS-25 or an equivalent suspension oil		
Rear shock absorber oil capacity	395 ml (13.35 /13.91 US/Imp oz)		

TIGHTENING TORQUE

ENGINE

PART		N·m	kgf·m	lb·ft
Cylinder head cover bolt		14	1.4	10.0
Spark plug		11	1.1	8.0
Cylinder head bolt	(Initial)	25	2.5	18.0
	(Final)	50	5.0	36.0
Cylinder head base nut		10	1.0	7.0
Cylinder base bolt		12	1.2	8.5
Camshaft journal holder bolt		10	1.0	7.0
Primary drive gear nut		90	9.0	65.0
Magneto rotor nut		80	8.0	58.0
Clutch sleeve hub nut		90	9.0	65.0
Clutch spring set bolt		10	1.0	7.0
Gearshift arm stopper bolt		23	2.3	16.5
Gearshift cam driven pin		24	2.4	17.5
Shift cam stopper bolt		10	1.0	7.0
Kick starter stopper bolt		10	1.0	7.0
Cam chain tension adjuster mounting bolt		10	1.0	7.0
Cam chain tension adjuster cap bolt		23	2.3	16.5
Cam chain tensioner bolt		10	1.0	7.0
Cam chain guide retainer mounting bolt		10	1.0	7.0
Right crankcase cover bolt		11	1.1	8.0
Engine oil drain plug		21	2.1	15.0
Engine oil drain No.2 plug		6	0.6	4.5
Engine oil check bolt		6	0.6	4.5
Engine oil strainer cap		21	2.1	15.0
Oil filter cap bolt		11	1.1	8.0
Oil gallery plug		4.5	0.45	3.25
Oil pump mounting bolt		6	0.6	4.5
Crankcase bolt		11	1.1	8.0
Clutch cover bolt		11	1.1	8.0
Engine coolant drain bolt		6	0.6	4.5
Water pump case bolt		11	1.1	8.0
Impeller		11	1.1	8.0
TDC plug		14	1.4	10.0
Magneto cover bolt		11	1.1	8.0
Pick-up coil mounting bolt		4.5	0.45	3.25
Stator coil mounting bolt		10	1.0	7.0
Crankshaft hole plug		11	1.1	8.0

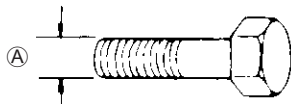
PART	N·m	kgf-m	lb-ft
Engine mounting nut (upper)	45	4.5	32.5
Engine mounting nut (lower)	55	5.5	40.0
Engine mounting nut (front)	60	6.0	43.5
Engine mounting bracket nut (upper)	40	4.0	29.0
Engine mounting bracket nut (front)	40	4.0	29.0
Engine sprocket cover bolt	11	1.1	8.0
Kick starter lever bolt	23	2.3	16.5
Fuel valve mounting bolt	5	0.5	3.5
Exhaust pipe nut	23	2.3	16.5
Connector clamp bolt	21	2.1	15.0
Muffler mounting bolt (front & rear)	23	2.3	16.5
Exhaust pipe cover bolt	11	1.1	8.0

CHASSIS

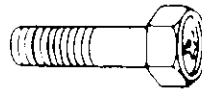
PART	N·m	kgf·m	lb·ft
Handlebar clamp bolt	25	2.5	18.0
Handlebar holder set nut	44	4.4	32.0
Front fork upper clamp bolt (right and left)	23	2.3	16.5
Front fork lower clamp bolt (right and left)	23	2.3	16.5
Steering stem head nut	100	10.0	72.5
Front fork cap bolt	35	3.5	25.5
Lock-nut/center bolt	22	2.2	16.0
Front fork center bolt	70	7.0	50.5
Fork cylinder compression damper unit	30	3.0	21.5
Master cylinder holder bolt	10	1.0	7.0
Master cylinder mounting bolt	10	1.0	7.0
Master cylinder rod lock-nut	6	0.6	4.5
Brake lever pivot bolt	6	0.6	4.5
Brake lever pivot bolt lock-nut	6	0.6	4.5
Brake hose union bolt (front and rear)	23	2.3	16.5
Brake caliper mounting bolt (front)	25	2.5	18.0
Brake pad mounting pin (front and rear)	18	1.8	13.0
Brake caliper axle bolt (For bracket: rear)	28	2.8	20.0
Brake caliper axle bolt (For bracket and caliper: front)	23	2.3	16.5
Brake air bleeder valve (front and rear)	6	0.6	4.5
Disc plate bolt (front)	12	1.2	8.5
Disc plate bolt (rear)	25	2.5	18.0
Front axle nut	35	3.5	25.5
Front axle holder bolt	18	1.8	13.0
Rear axle nut	100	10.0	72.5
Rear sprocket nut	30	3.0	21.5
Chain roller bolt/nut	22	2.2	16.0
Spoke nipple	6	0.6	4.5
Rear swingarm pivot nut (engine mounting)	70	7.0	50.5
Rear shock absorber mounting nut (upper)	60	6.0	43.5
Rear shock absorber mounting nut (lower)	60	6.0	43.5
Rear cushion lever nut (upper and lower)	80	8.0	58.0
Rear cushion rod nut	80	8.0	58.0
Spring adjuster lock-nut	45	4.5	32.5
Seat rail bolt (upper and lower)	24	2.4	17.5
Footrest bolt	35	3.5	25.5
Cable adjuster lock-nut (throttle, clutch and hot starter)	2.2	0.22	1.60

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

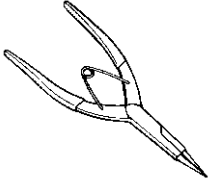
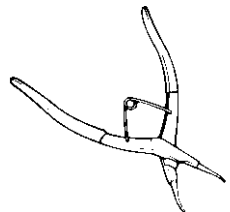
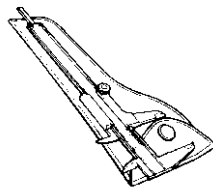
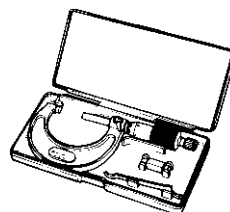
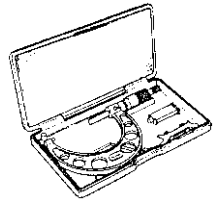
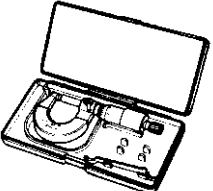
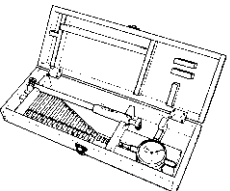

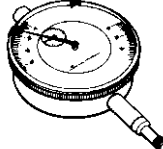
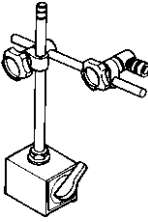
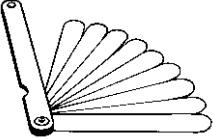
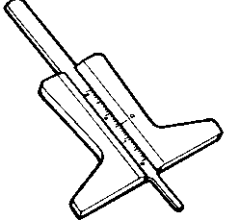
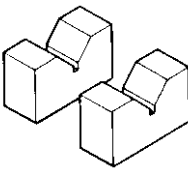


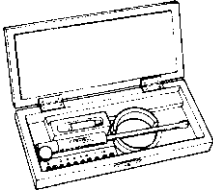
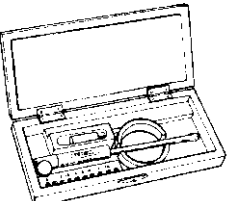
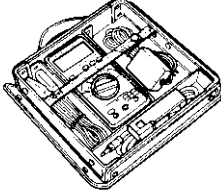
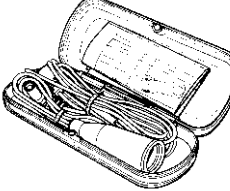
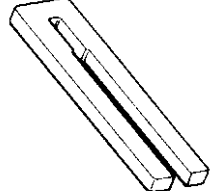
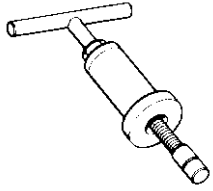
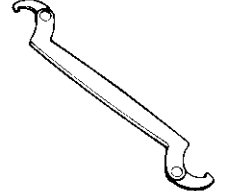
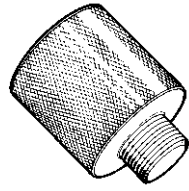

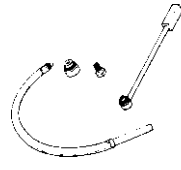


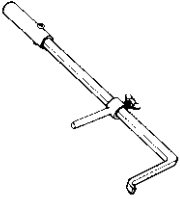
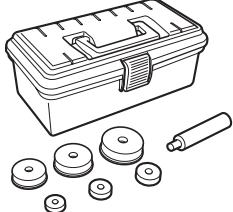



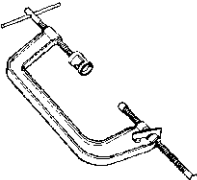
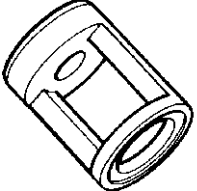
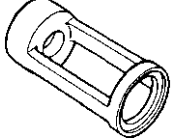
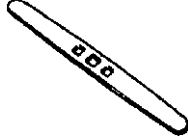


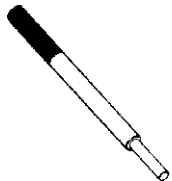
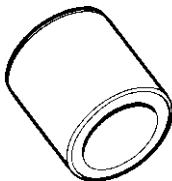
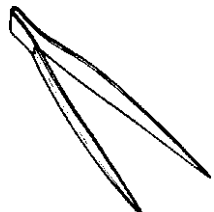
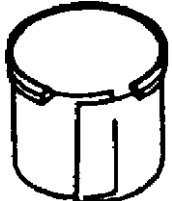
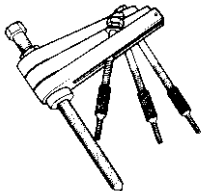
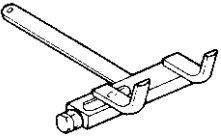
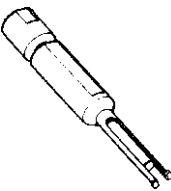
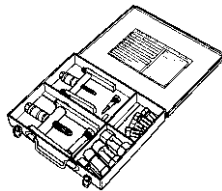
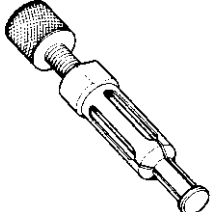
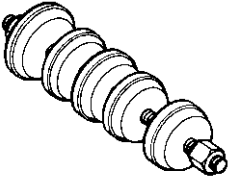
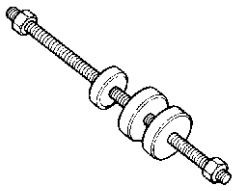
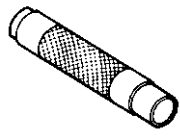
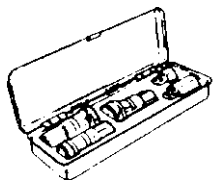
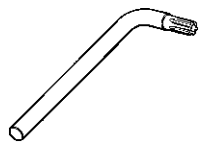
"4" marked bolt

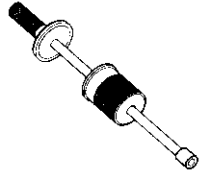
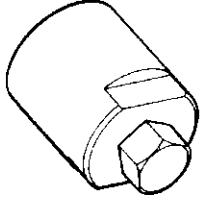
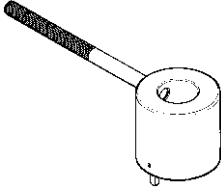
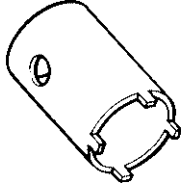
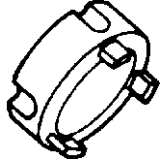
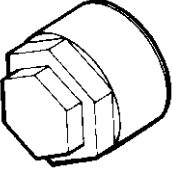
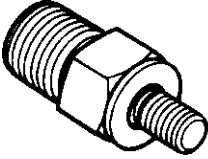
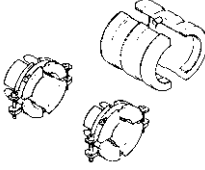
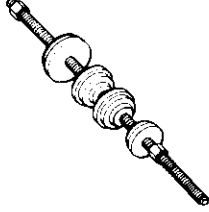
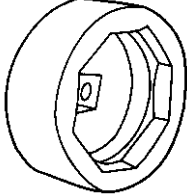
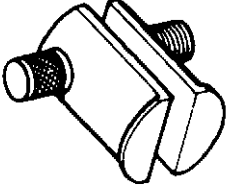
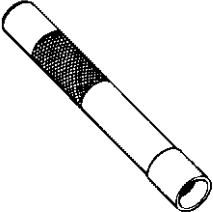


"7" marked bolt

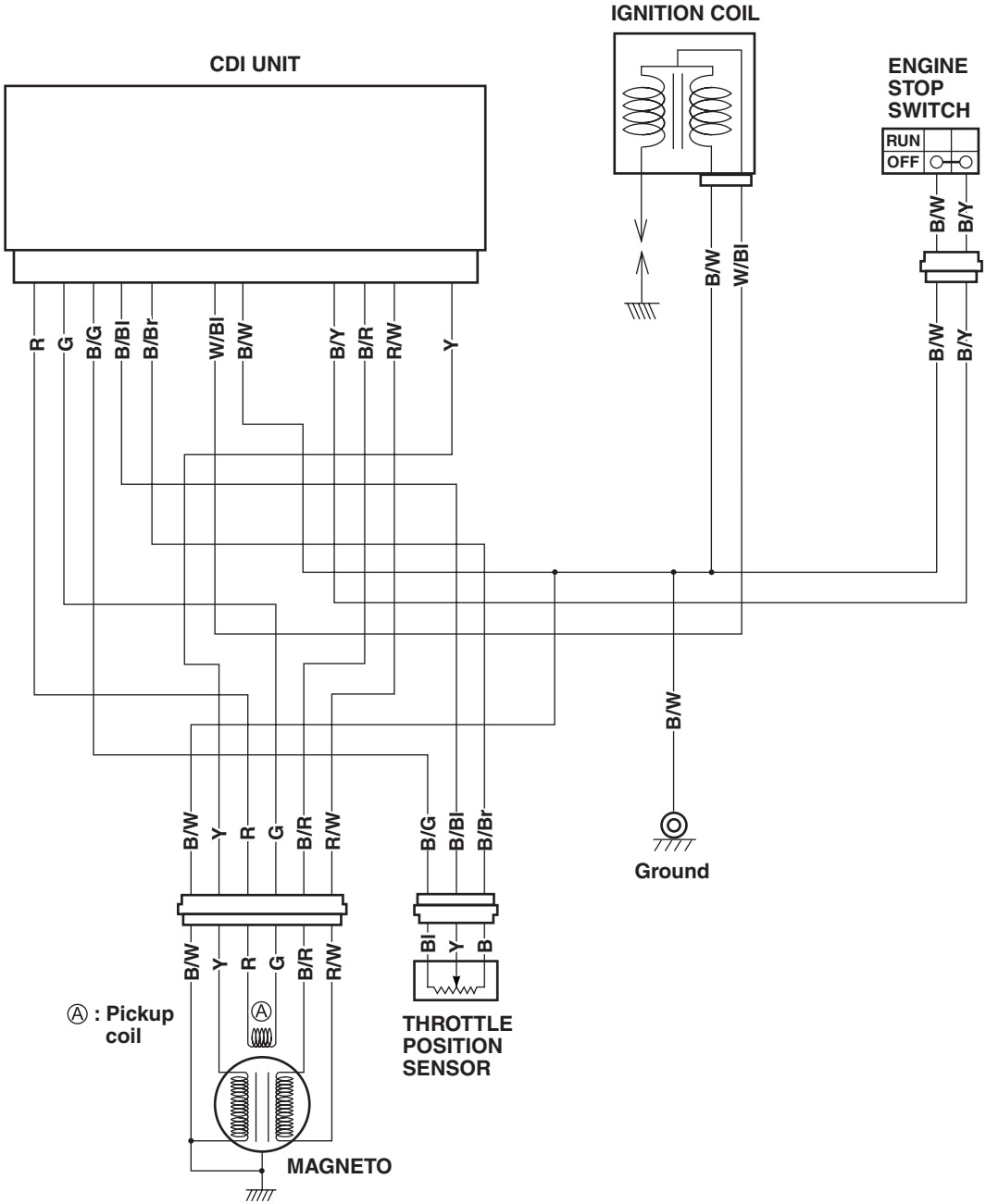
SPECIAL TOOLS

				
09900-06107 Snap ring pliers	09900-06108 Snap ring pliers	09900-20101 Vernier calipers (150 mm)	09900-20202 Micrometer (25 – 50 mm)	09900-20204 Micrometer (75 – 100 mm)
				
09900-20205 Micrometer (0 – 25 mm)	09900-20530 Cylinder gauge set	09900-20602 Dial gauge (1/1 000, 1 mm)	09900-20607 Dial gauge (1/100, 10 mm)	09900-20701 Magnetic stand
				
09900-20803 Thickness gauge	09900-20805 Tire depth gauge	09900-21304 V-block (100 mm)	09900-22301 Plastigauge	09900-22302 Plastigauge
				
09900-22401 Small bore gauge (10 – 18 mm)	09900-22403 Small bore gauge (18 – 35 mm)	09900-25008 Multi-circuit tester set	09900-25009 Needle pointed probe set	09910-20115 Conrod holder
				
09910-32812 Crankshaft installer	09910-60611 Universal clamp wrench	09911-11310 Crankshaft installer attachment	09913-10750 Compression gauge adaptor	09913-14541 Fuel level gauge set

 <p>09913-50121 Oil seal remover</p>	 <p>09913-70210 Bearing installer set</p>	 <p>09915-64512 Compression gauge</p>	 <p>09915-74511 Oil pressure gauge</p>	 <p>09916-10911 Valve lapper set</p>
 <p>09916-14510 Valve lifter</p>	 <p>09916-14521 Attachment</p>	 <p>09916-14530 Attachment</p>	 <p>09916-34542 Reamer handle</p>	 <p>09916-33210 Valve guide reamer (4.5 mm)</p>
 <p>09916-33320 Valve guide reamer (9.8 mm)</p>	 <p>09916-43211 Valve guide installer/remover</p>	 <p>09916-44920 Valve guide installer attachment</p>	 <p>09916-84511 Tweezers</p>	 <p>09919-28610 Sleeve protector</p>
 <p>09920-13120 Crankcase separating tool</p>	 <p>09920-53740 Clutch sleeve hub holder</p>	 <p>09921-20200 Bearing remover</p>	 <p>09921-20240 Bearing remover set</p>	 <p>09923-74511 Bearing puller</p>
 <p>09924-84510 Bearing installer set</p>	 <p>09924-84521 Bearing installer</p>	 <p>09925-18011 Steering bearing installer</p>	 <p>09930-10121 Spark plug wrench set</p>	 <p>09930-11950 Torx wrench (T25)</p>

 <p>09930-30104 Slide shaft</p>	 <p>09930-35020 Rotor remover</p>	 <p>09930-44560 Rotor holder</p>	 <p>09940-14911 Steering nut socket wrench</p>	 <p>09940-14960 Steering nut wrench socket</p>
 <p>09940-34581 Attachment (F)</p>	 <p>09940-40211 Adapter</p>	 <p>09940-52861 Front fork oil seal installer set</p>	 <p>09941-34513 Steering race installer</p>	 <p>09941-53630 Front fork top cap wrench</p>
 <p>09941-54911 Bearing outer race remover</p>	 <p>09941-74911 Bearing installer</p>			

WIRING DIAGRAM



Ⓐ : Pickup coil

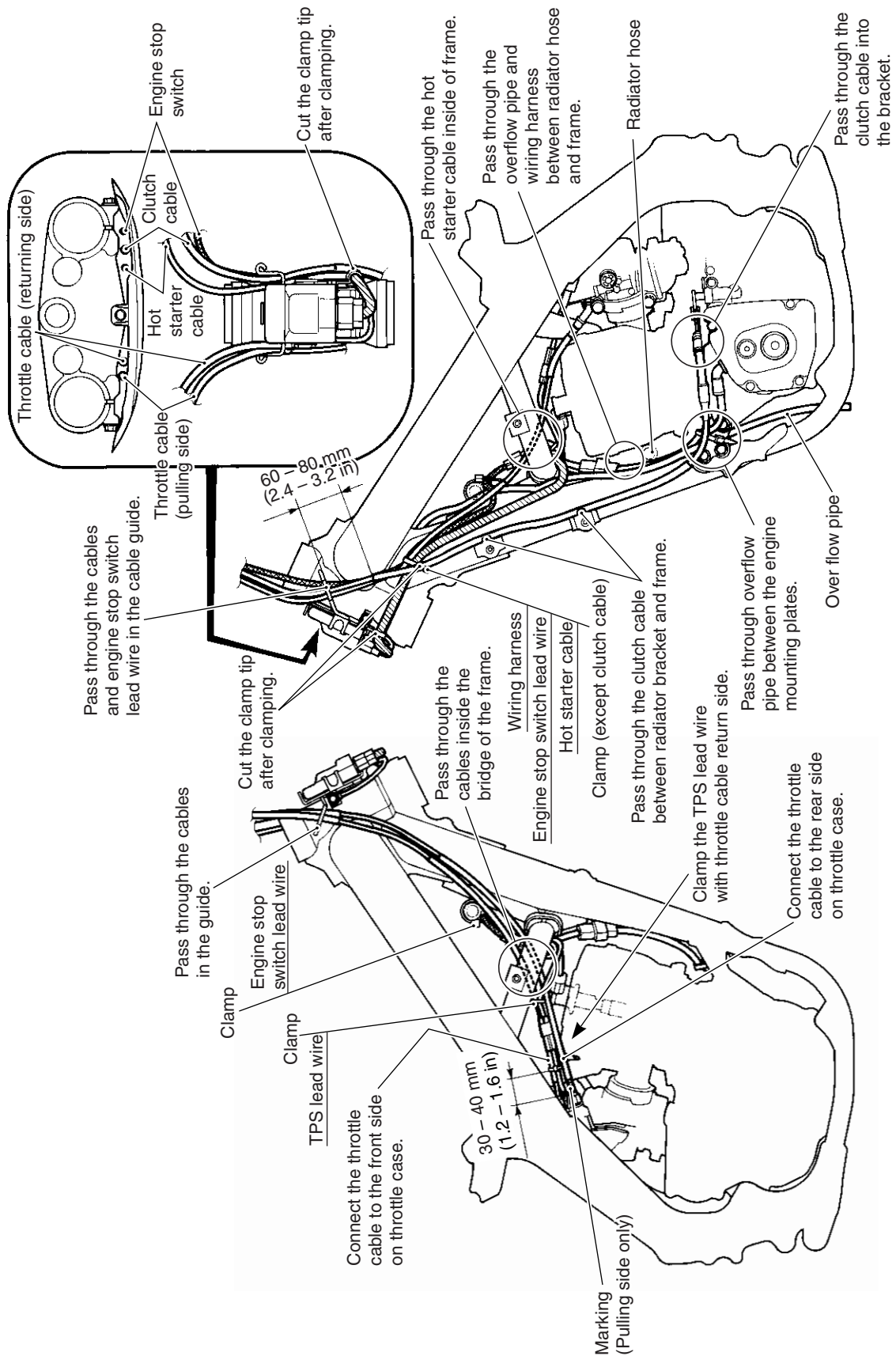
THROTTLE POSITION SENSOR

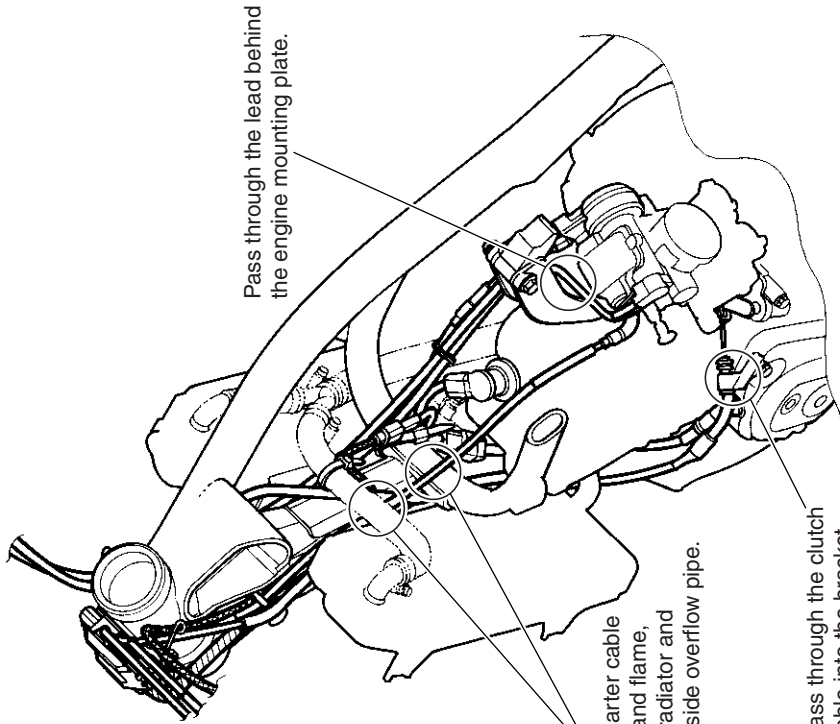
MAGNETO

WIRE COLOR

- B:** Black
- Bl:** Blue
- G:** Green
- R:** Red
- Y:** Yellow
- B/Bl:** Black with Blue tracer
- B/Br:** Black with Brown tracer
- B/G:** Black with Green 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

CABLE ROUTING





Pass through the throttle cable between frame bridge and frame, then through between radiator and frame, and through under overflow pipe.

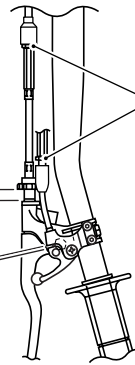
Pass through the hot starter cable between frame bridge and flame, then through between radiator and frame, and through outside overflow pipe.

Pass through the lead behind the engine mounting plate.

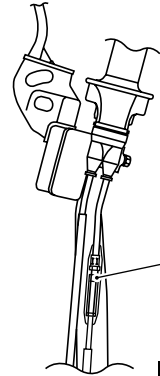
Pass through the clutch cable into the bracket.

10 – 12 mm
(0.39 – 0.47 in)

Approx. 3 mm
(0.12 in)

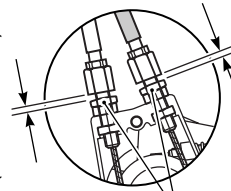


2.2 N·m
(0.22 kgf·m, 1.60 lb-ft)



2.2 N·m
(0.22 kgf·m, 1.60 lb-ft)

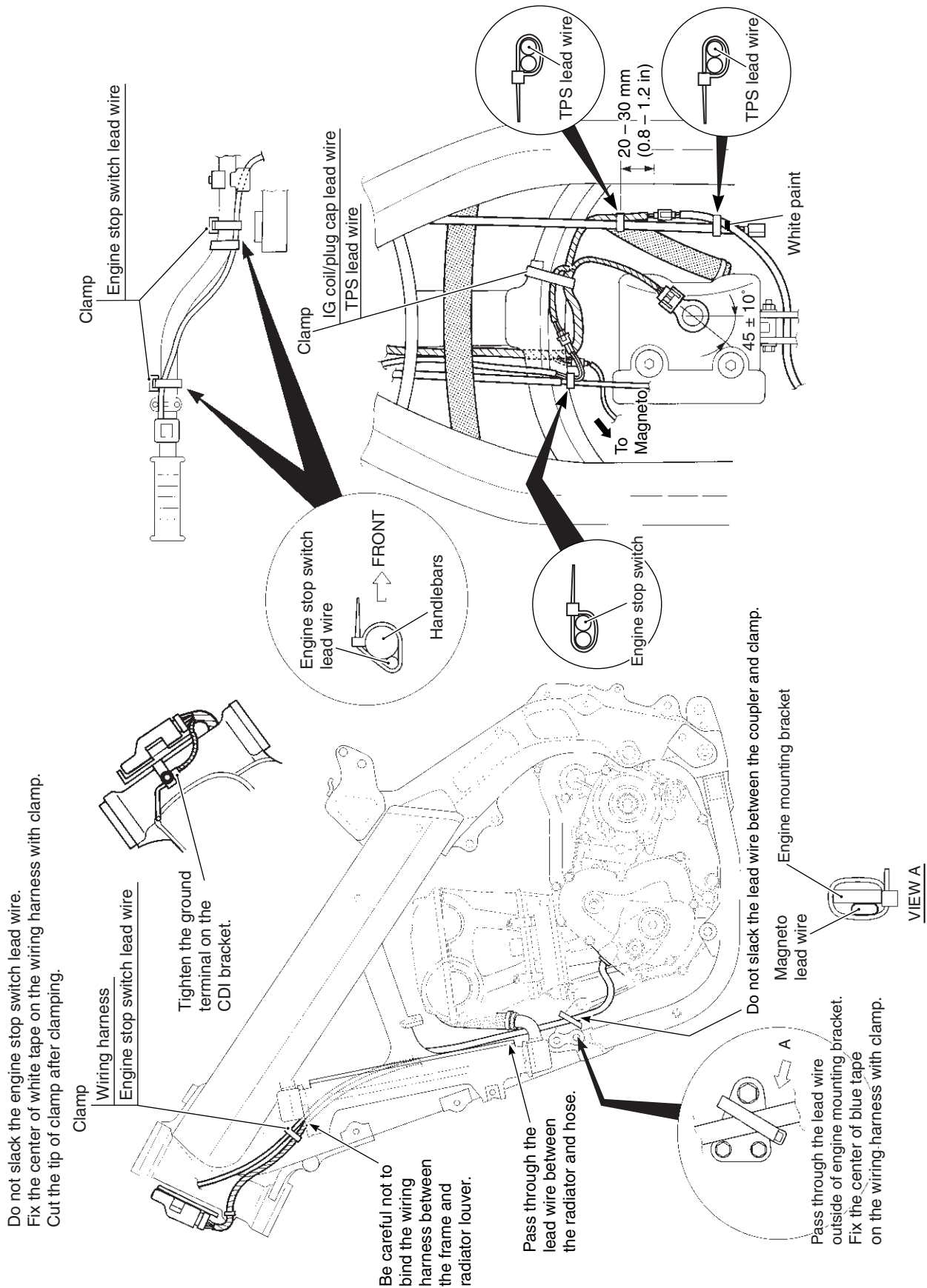
1.5 – 2.5 mm
(0.06 – 0.10 in)



1.5 – 2.5 mm
(0.06 – 0.10 in)

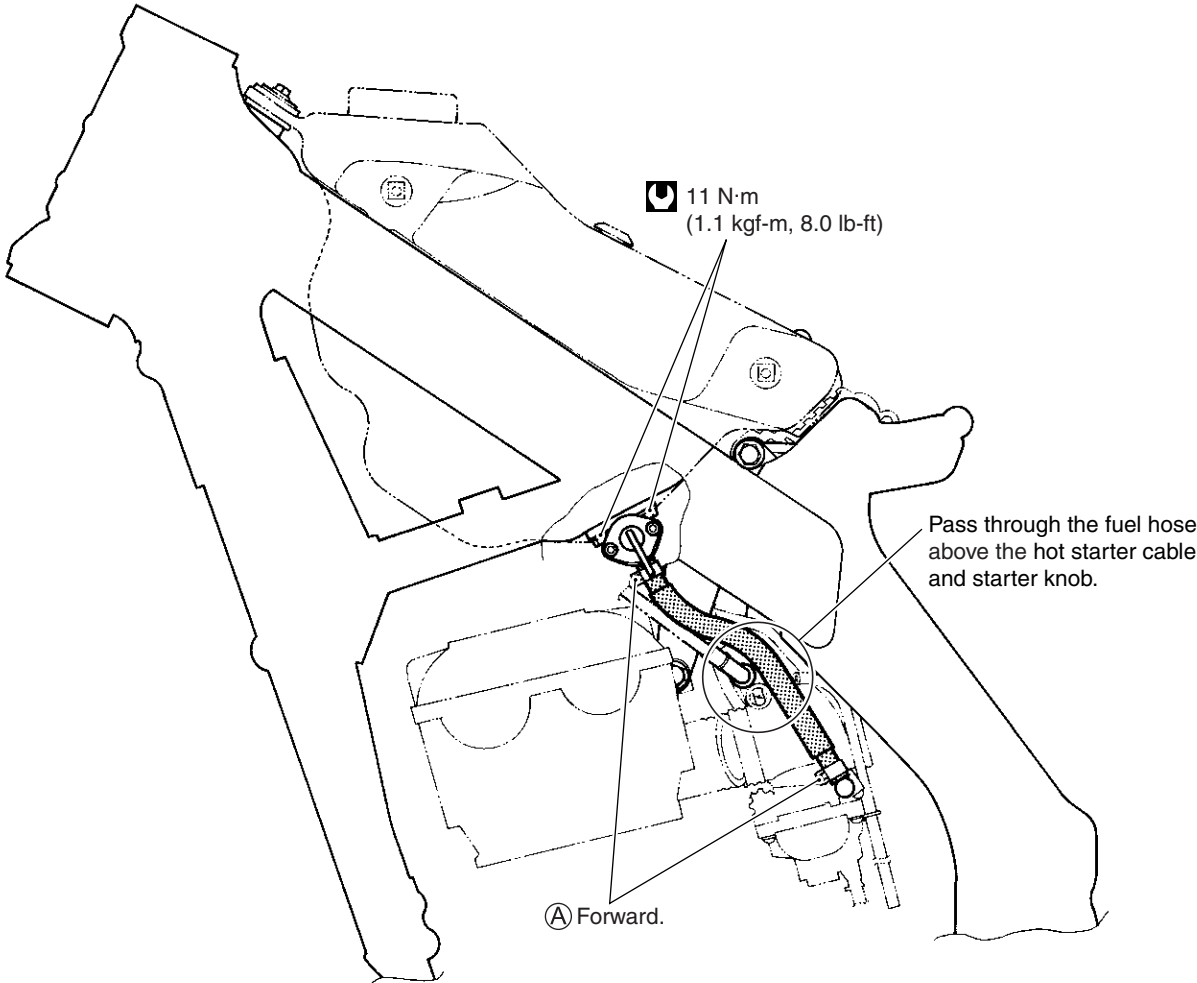
2.2 N·m
(0.22 kgf·m, 1.60 lb-ft)

WIRING HARNESS ROUTING

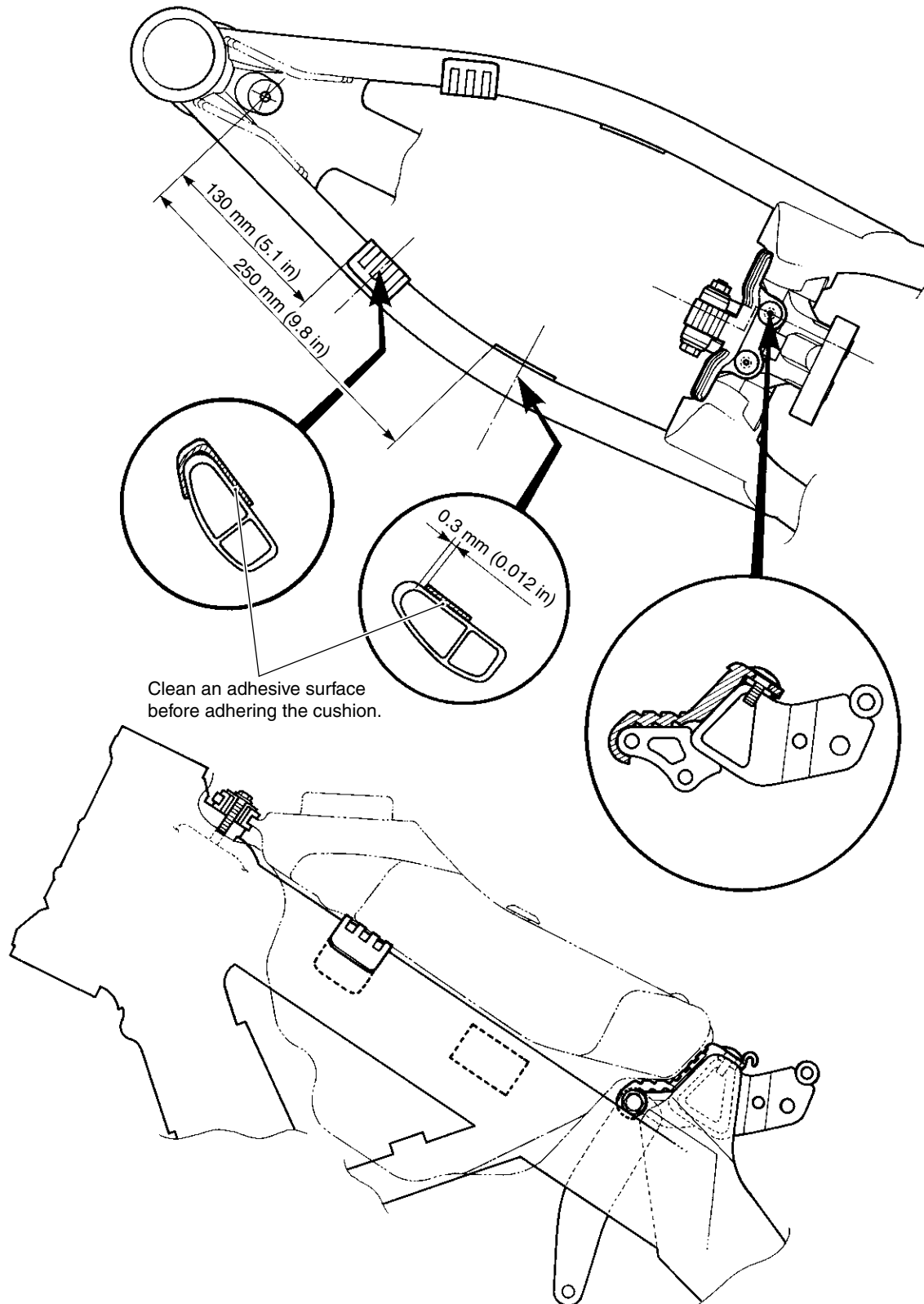


FUEL HOSE ROUTING

Ⓐ : The ends of the clamp should face.....



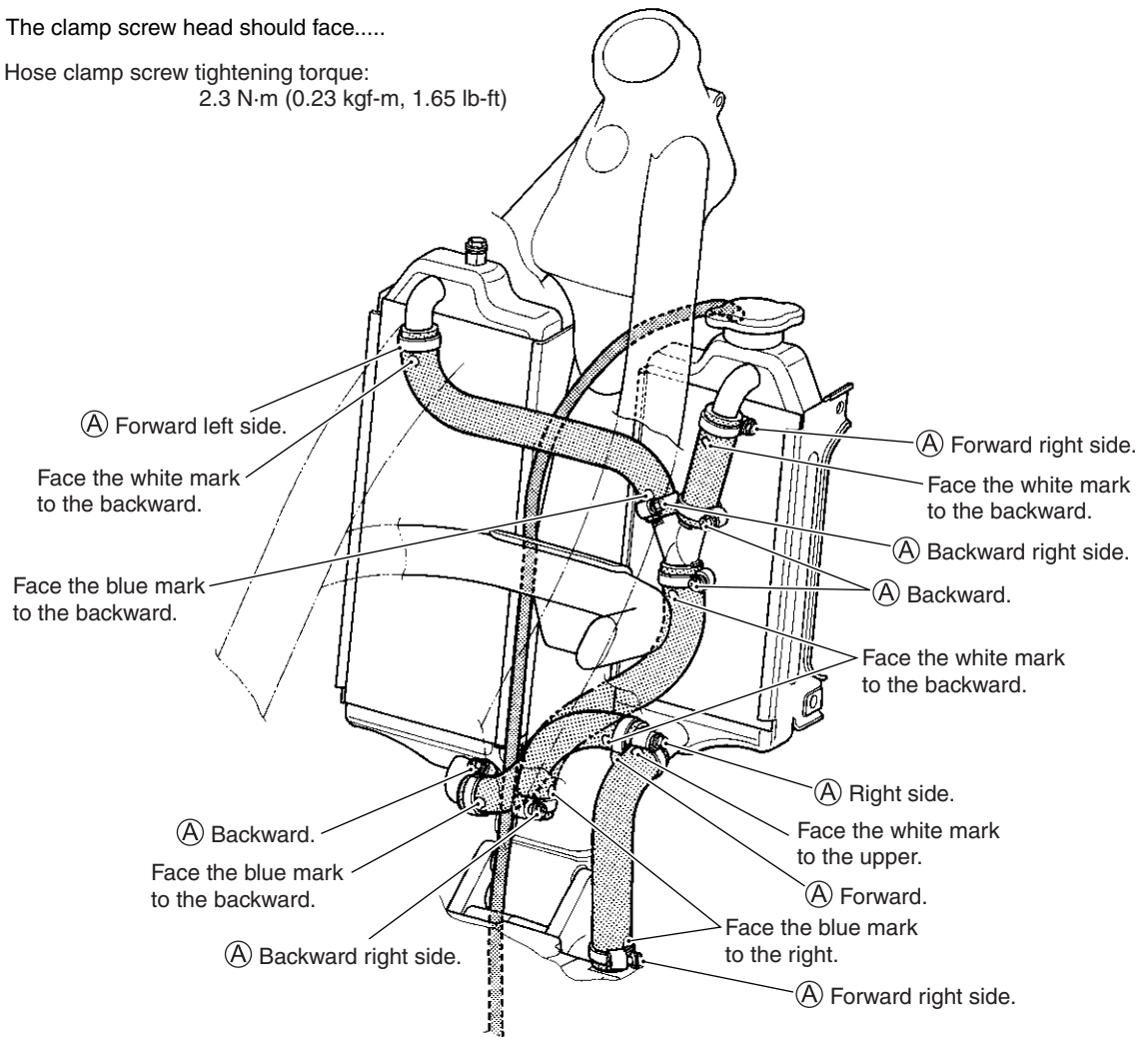
FUEL TANK CUSHION INSTALLATION



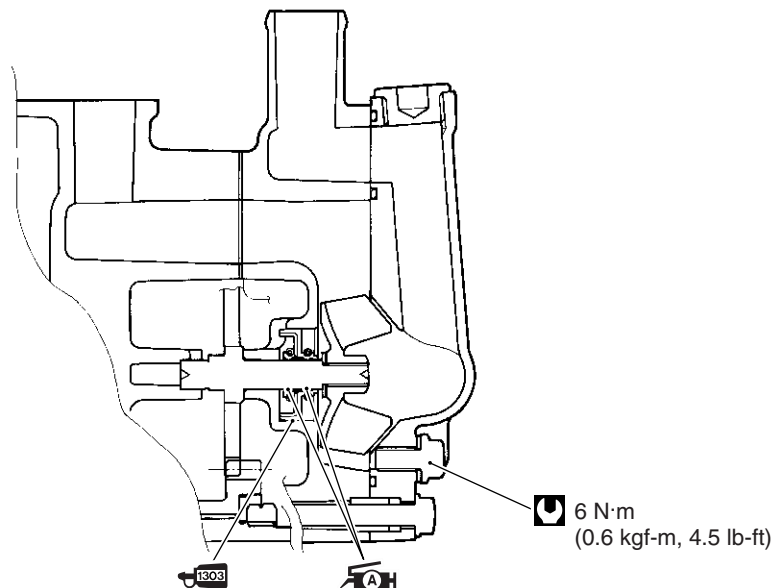
RADIATOR HOSE ROUTING

Ⓐ : The clamp screw head should face.....

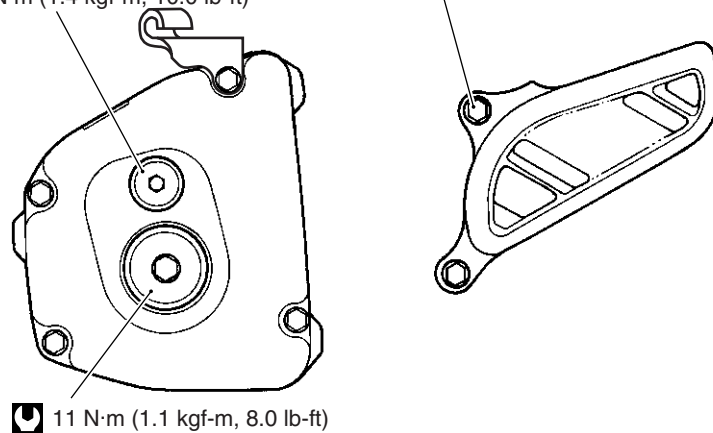
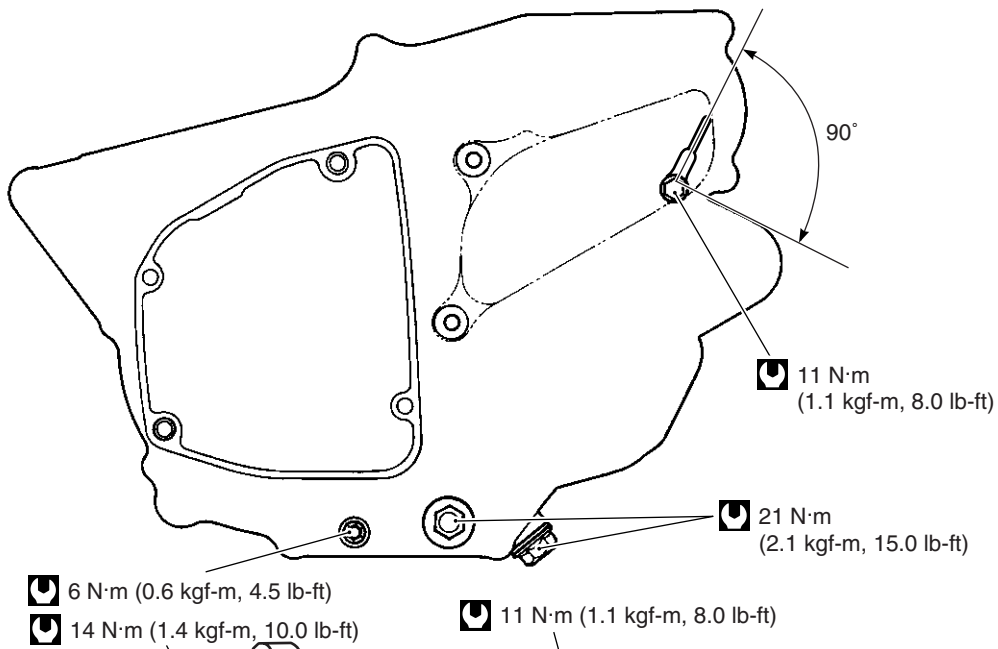
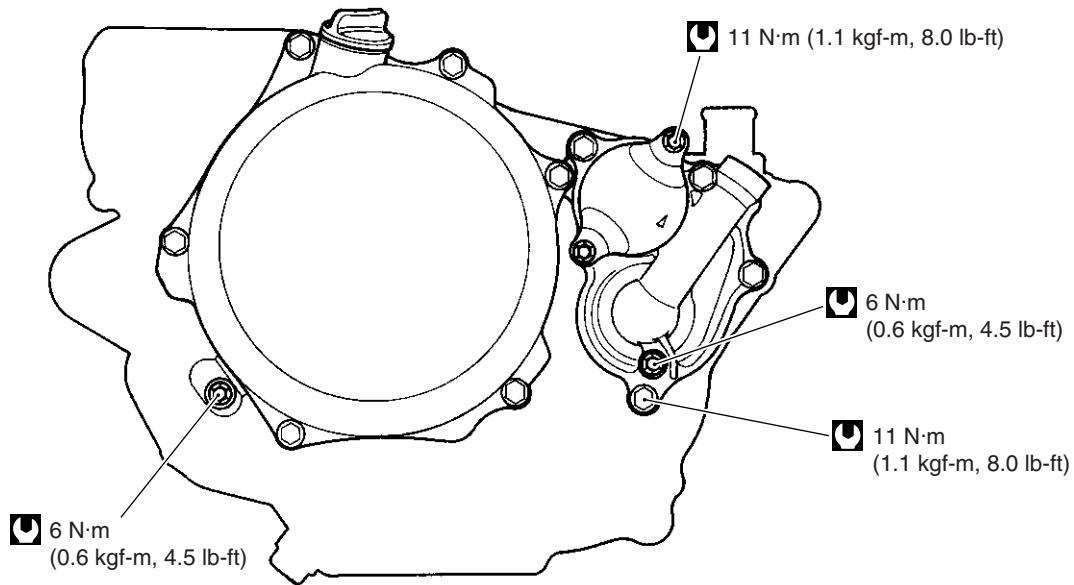
🔩 Hose clamp screw tightening torque:
2.3 N·m (0.23 kgf·m, 1.65 lb-ft)



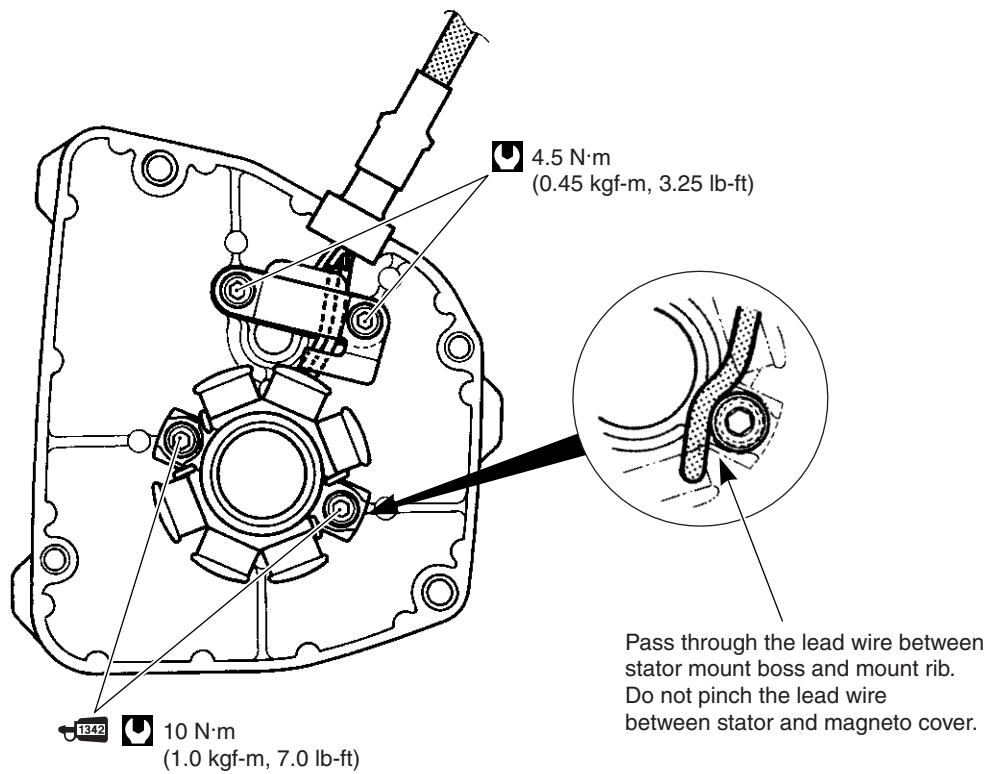
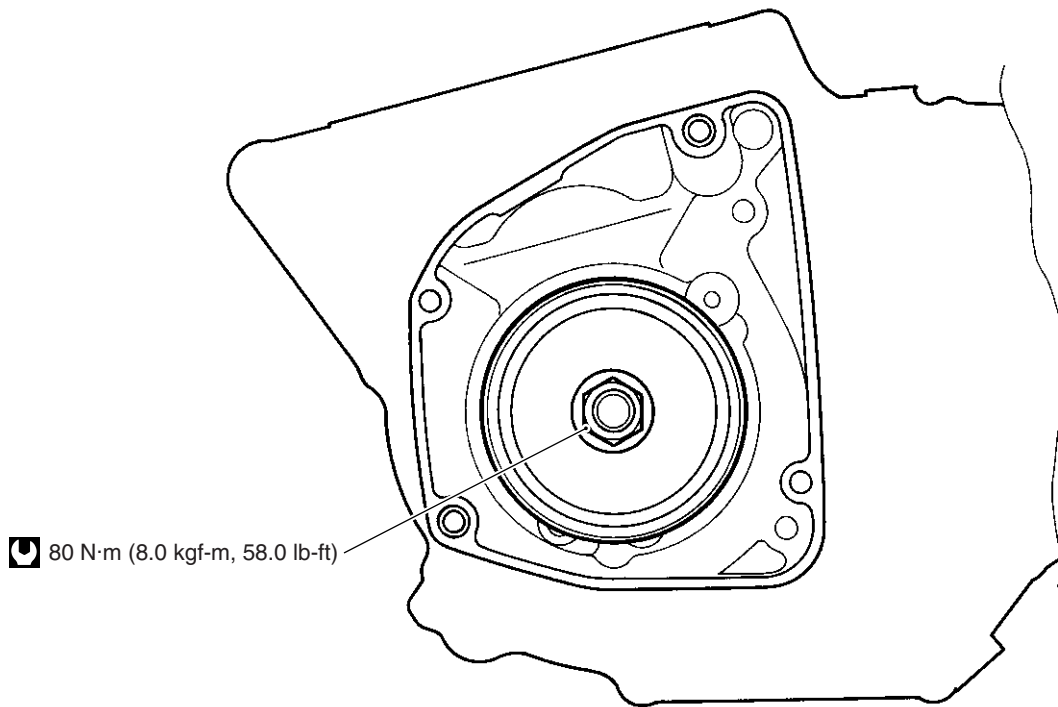
WATER PUMP INSTALLATION



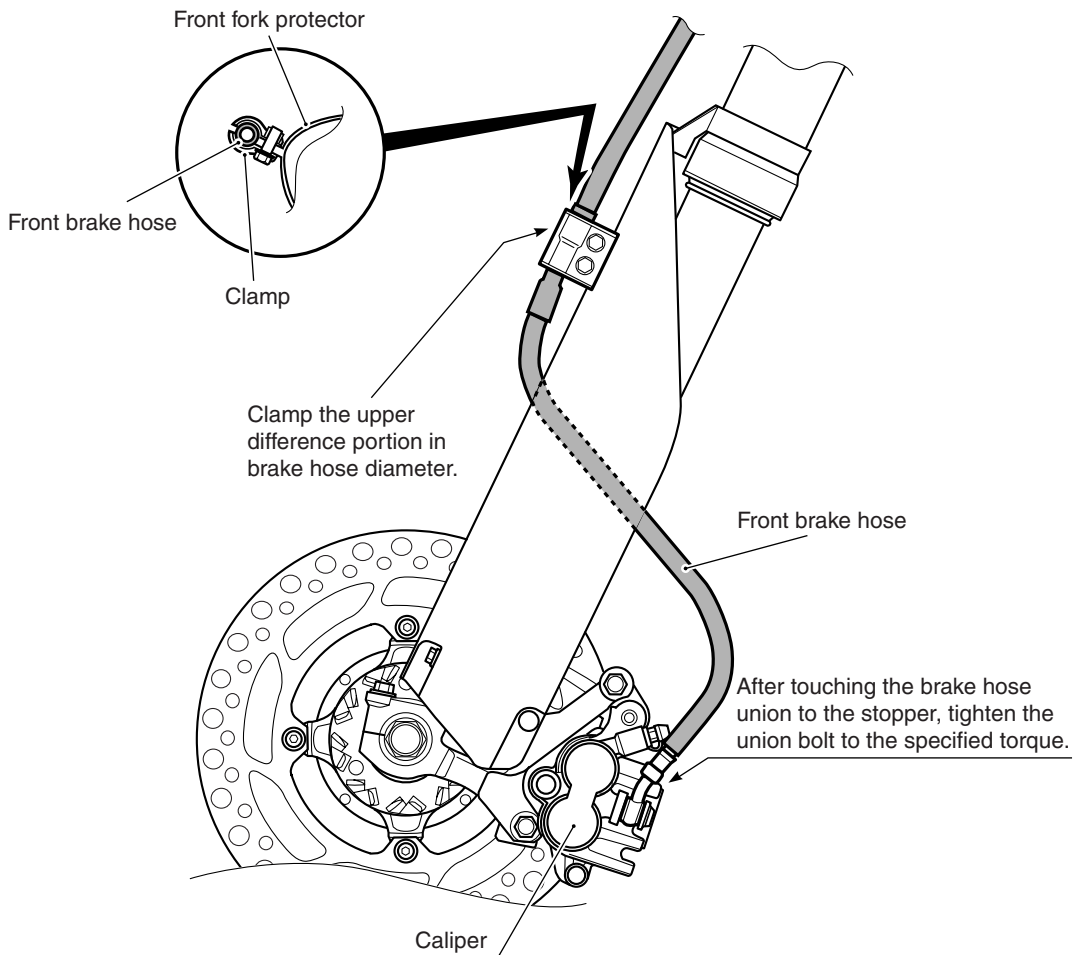
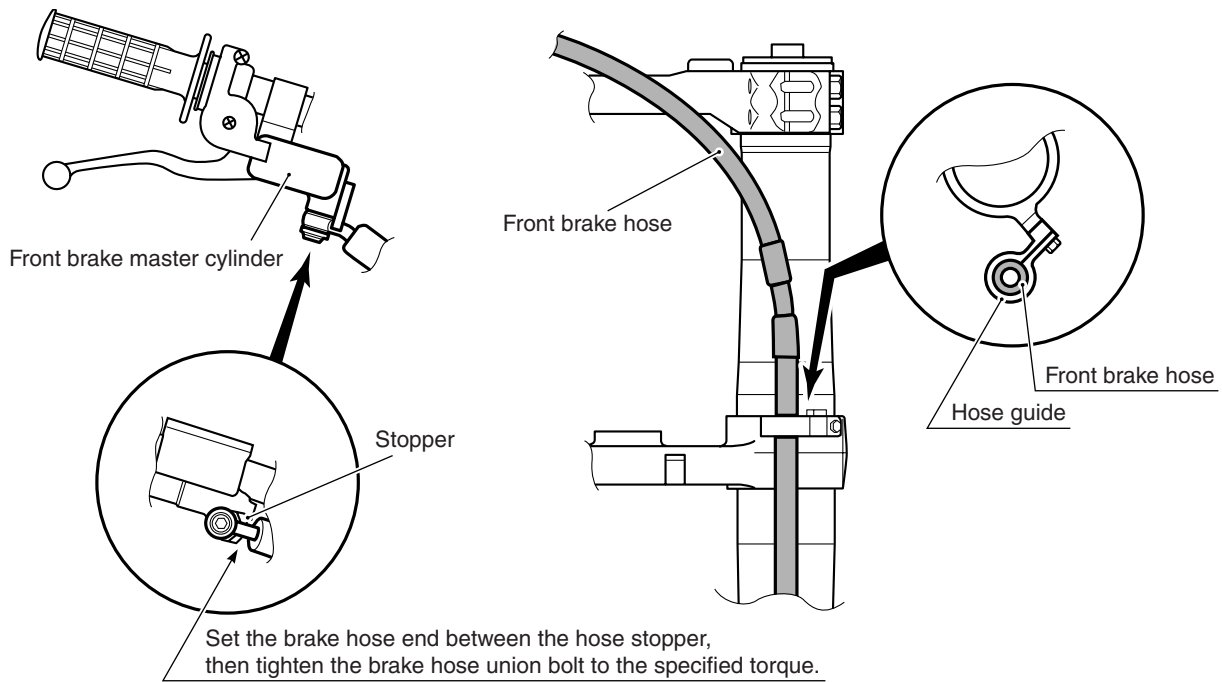
CRANKCASE AND COVER INSTALLATION



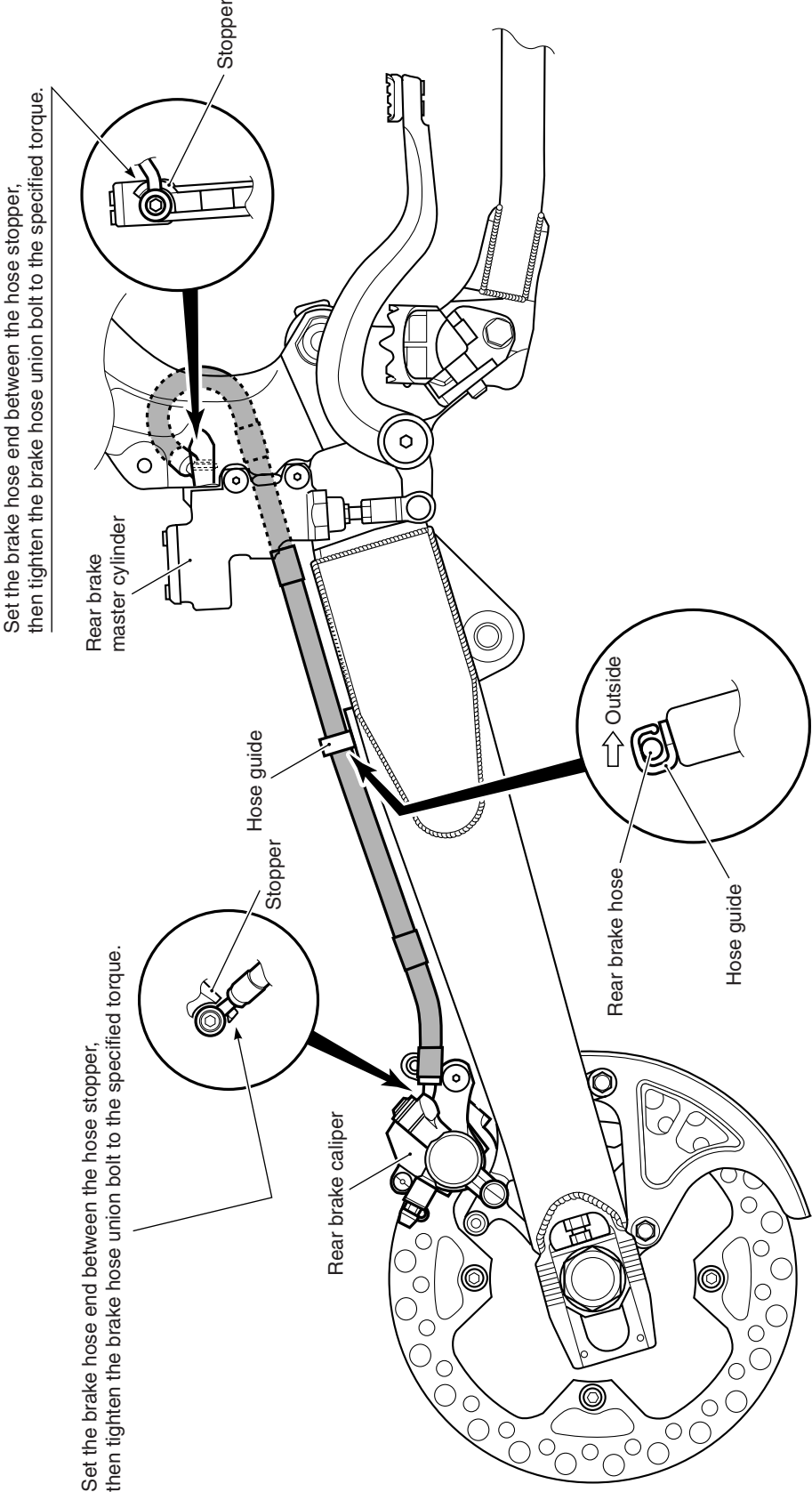
MAGNETO INSTALLATION



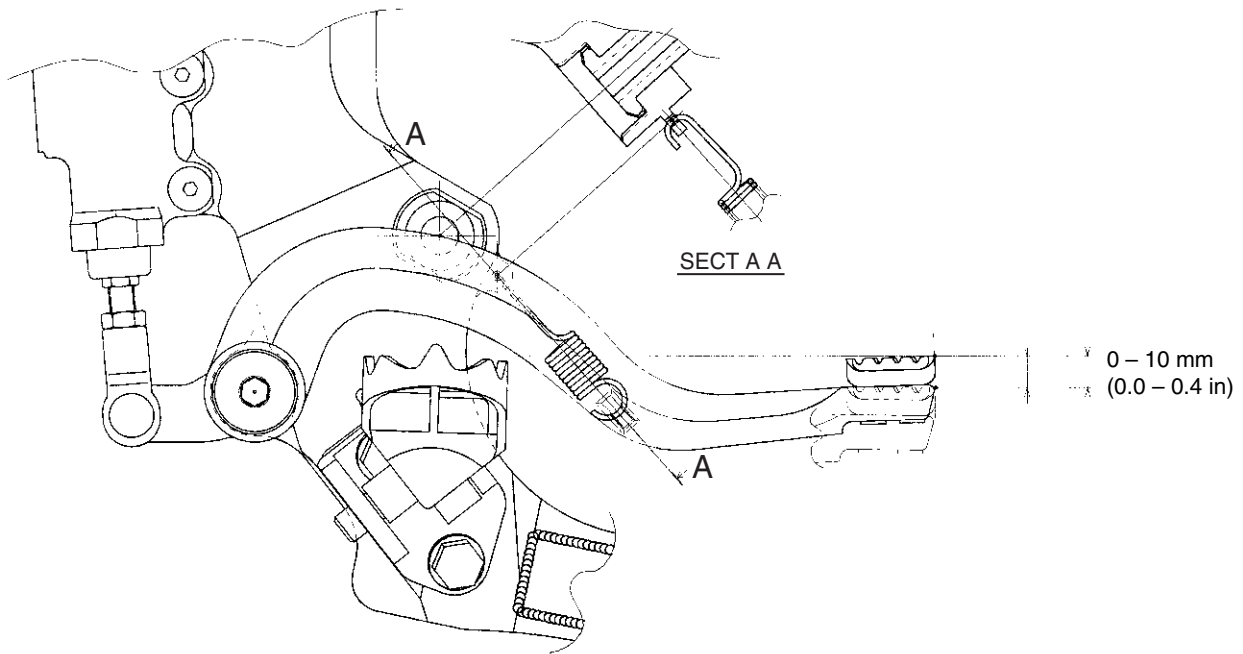
FRONT BRAKE HOSE ROUTING



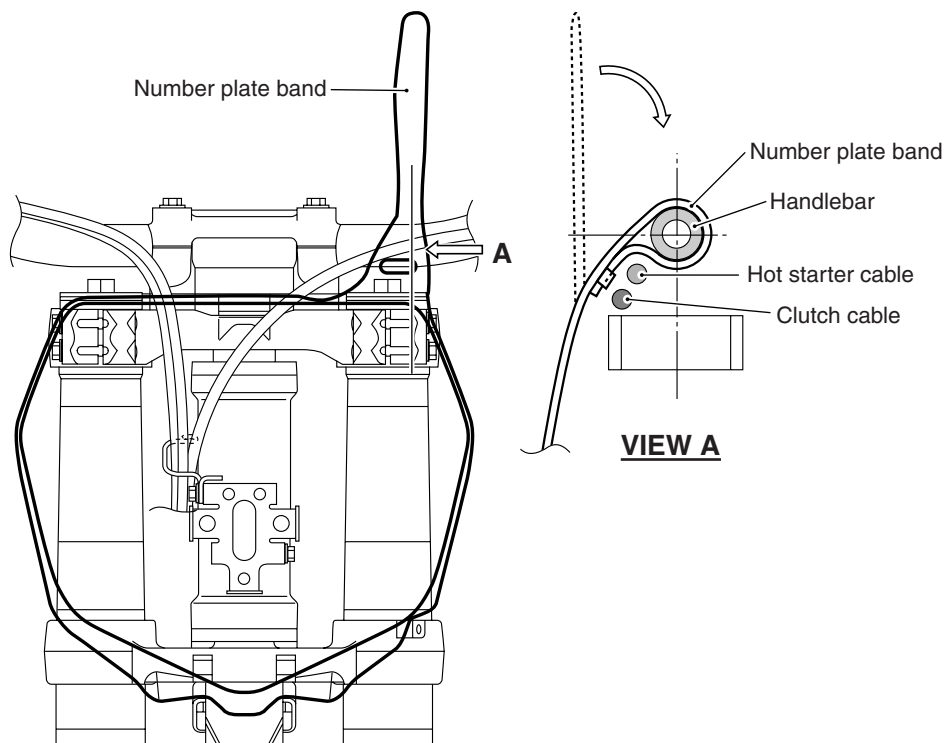
REAR BRAKE HOSE ROUTING



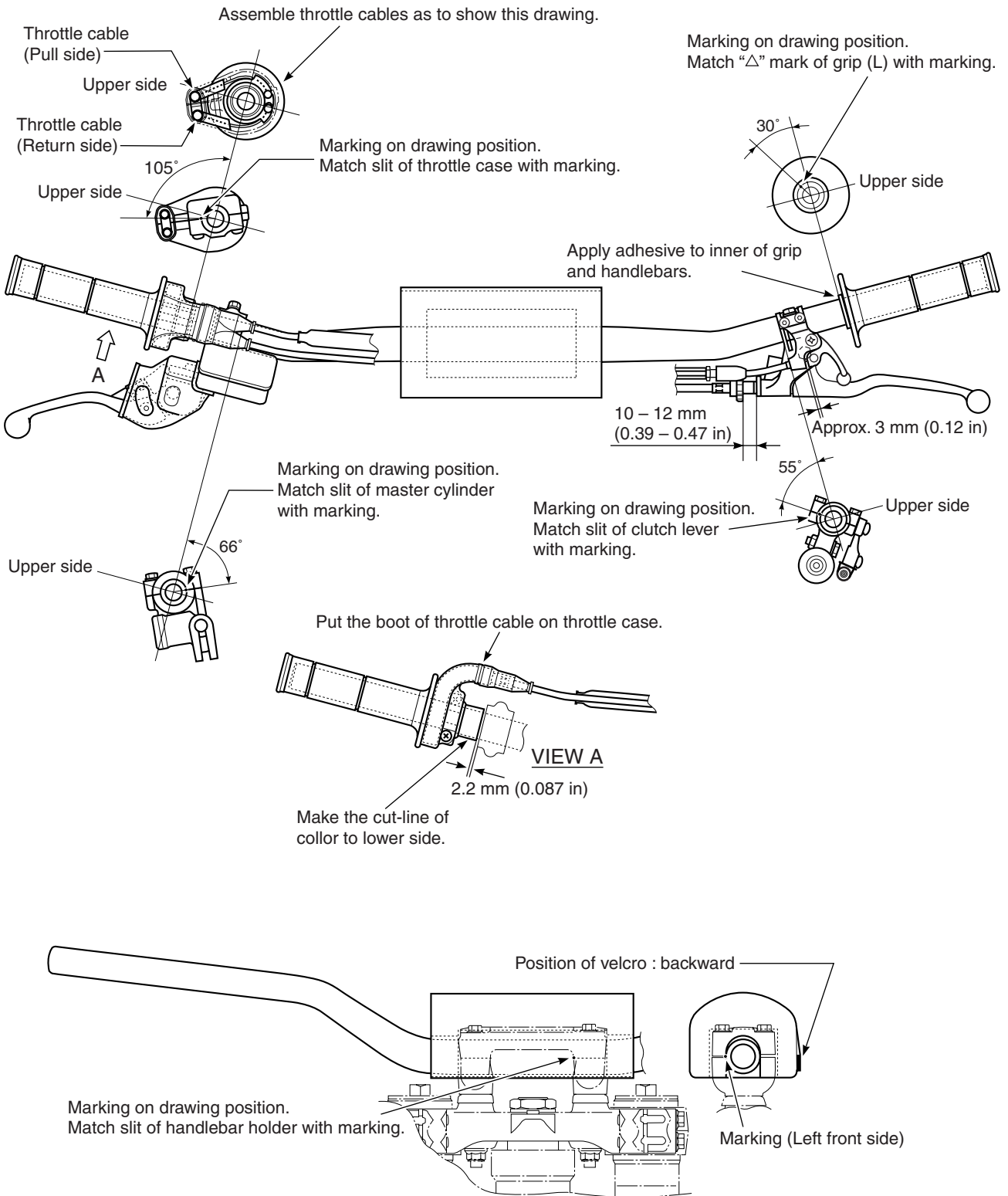
REAR BRAKE PEDAL SET-UP



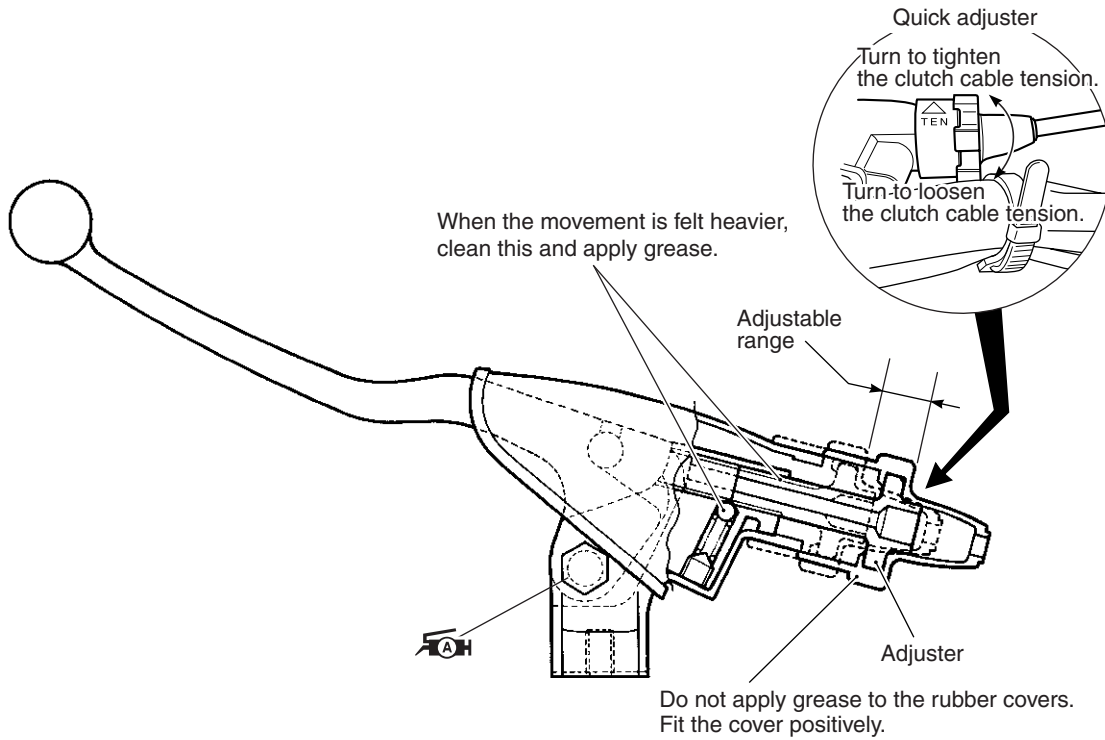
FRONT NUMBER PLATE INSTALLATION



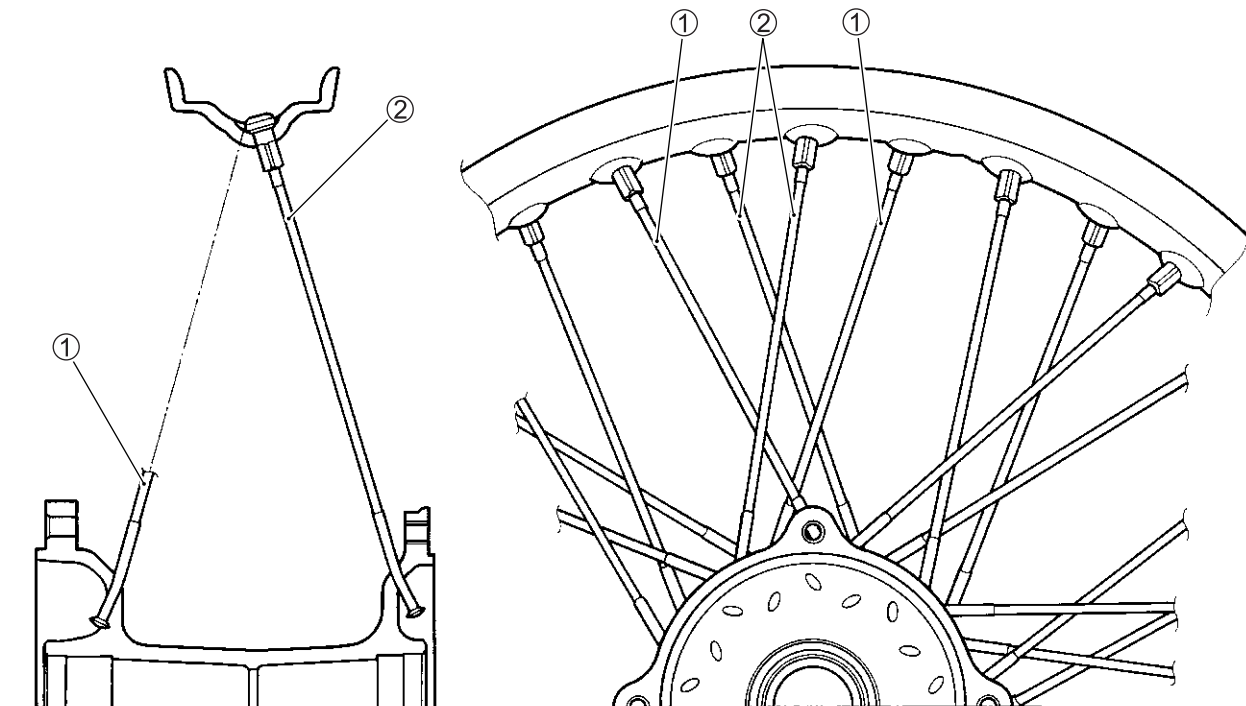
HANDLEBAR SET-UP



CLUTCH CABLE ADJUSTER

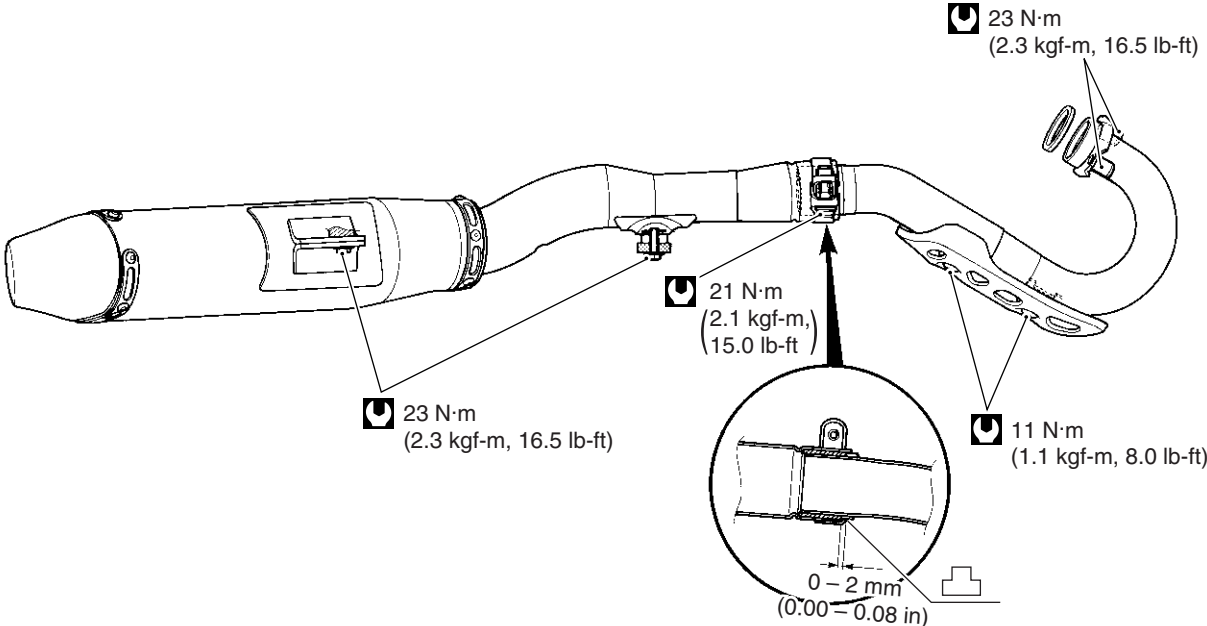


REAR WHEEL SPOKES INSTALLATION

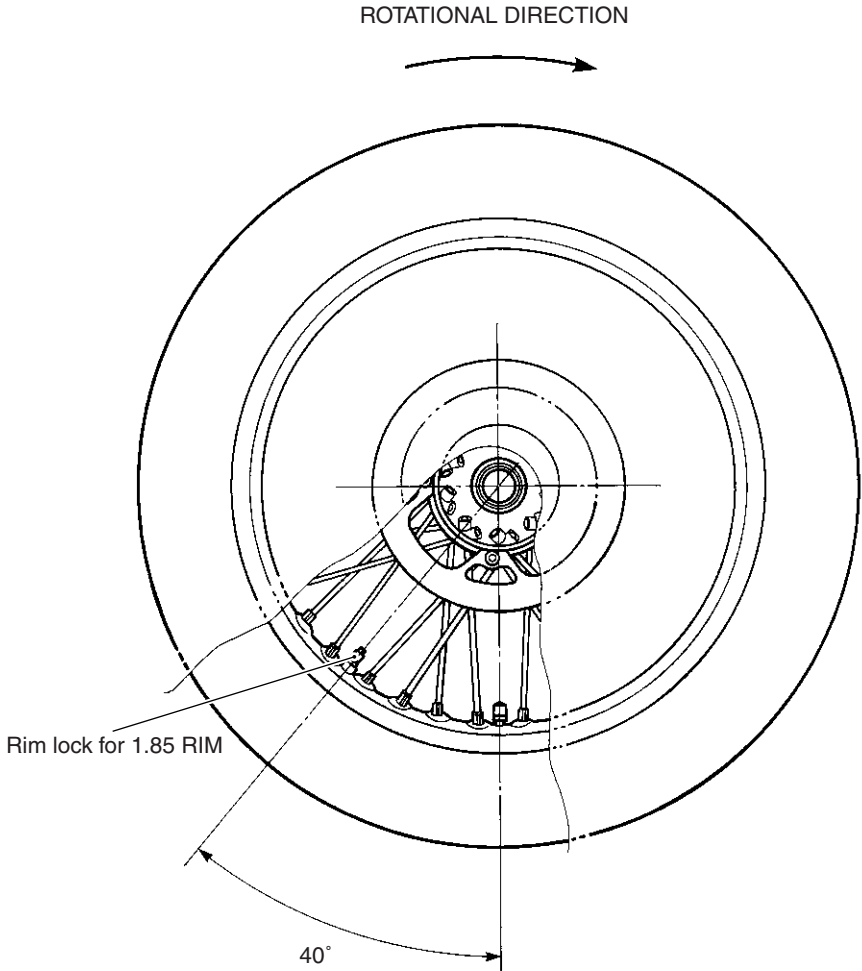


- ① Spoke (inner) L: 206.5 mm (8.13 in)
- ② Spoke (outer) L: 204.5 mm (8.05 in)

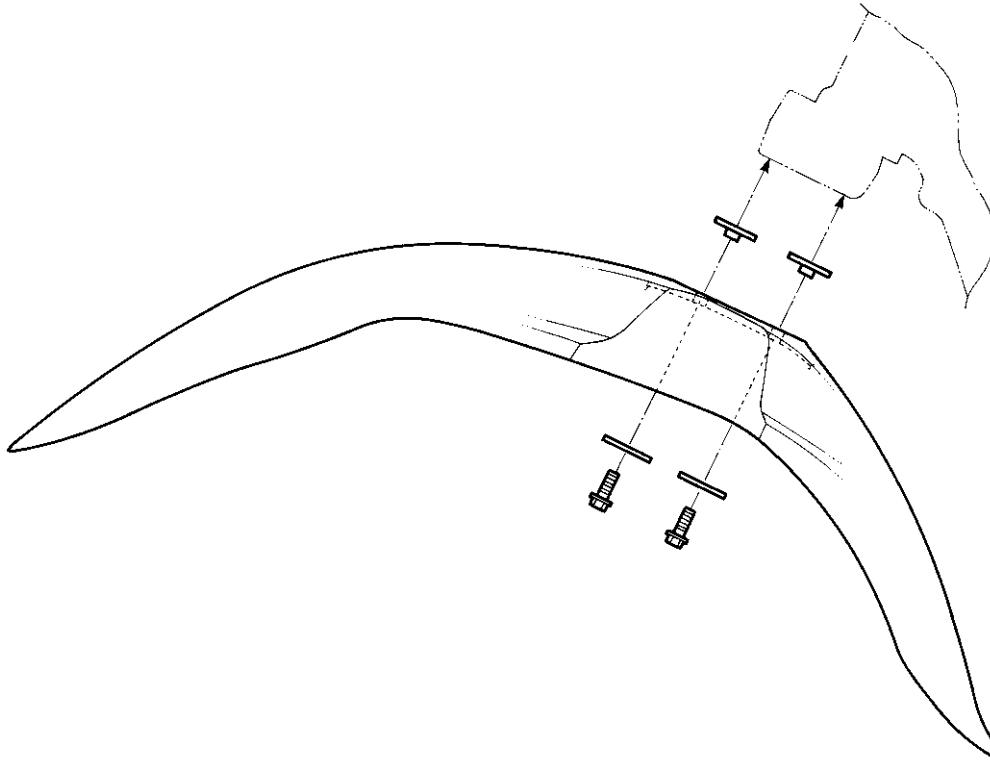
EXHAUST PIPE AND MUFFLER INSTALLATION



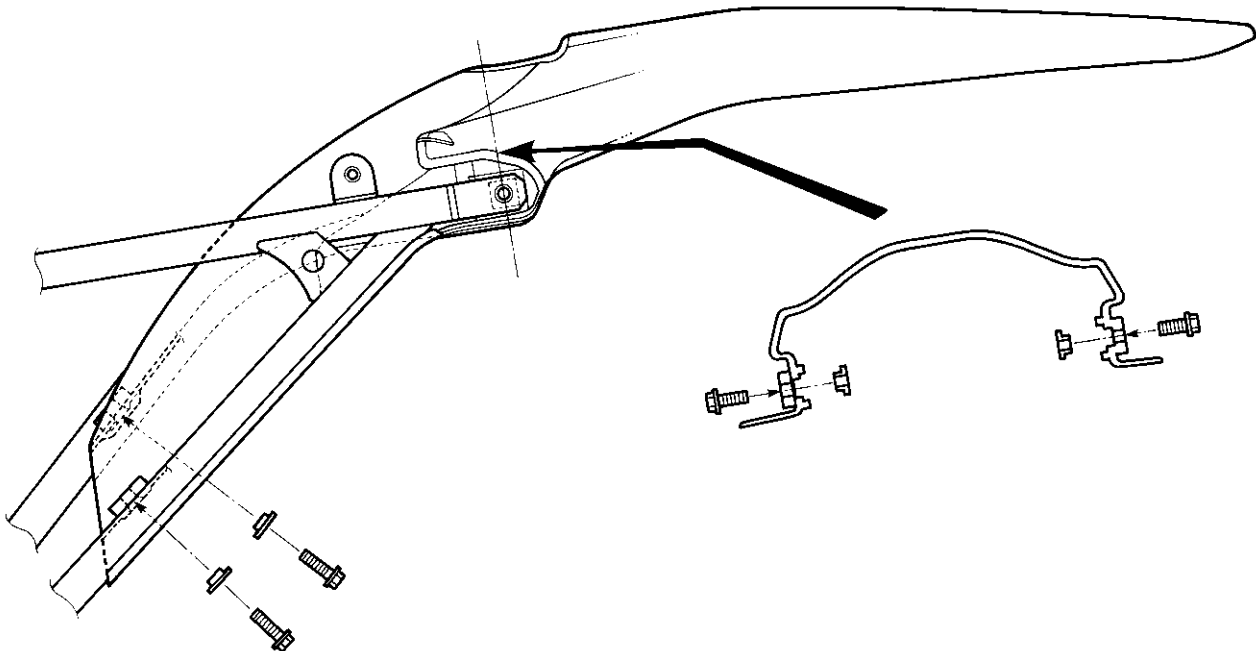
RIM LOCK INSTALLATION



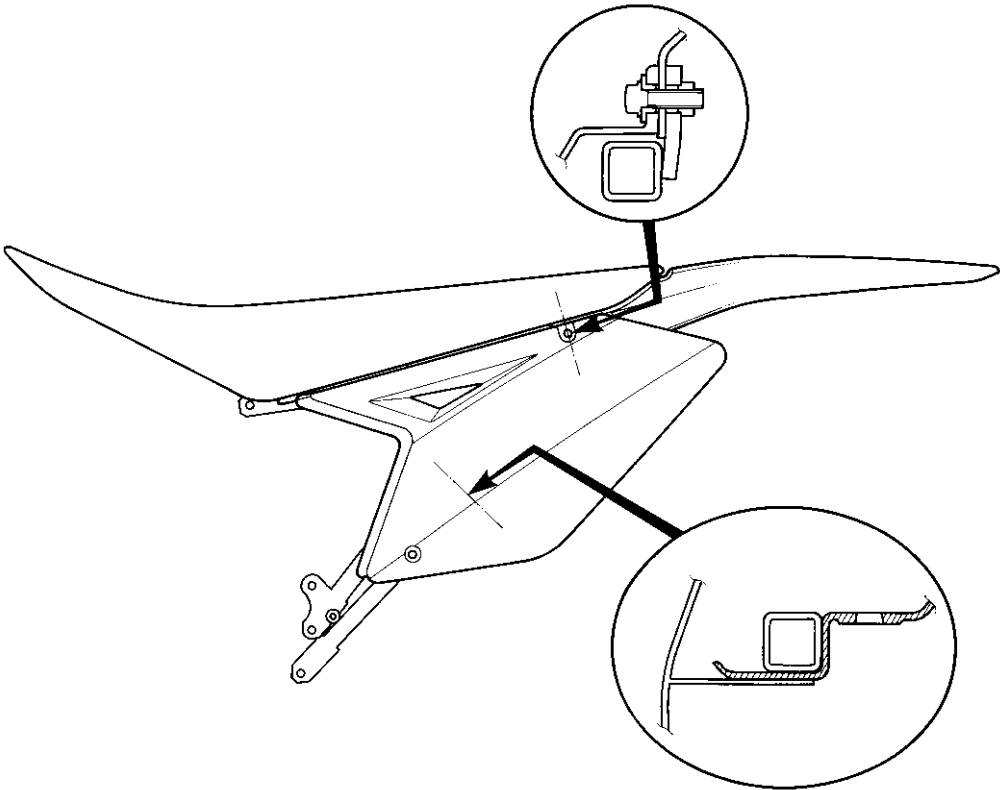
FRONT FENDER INSTALLATION



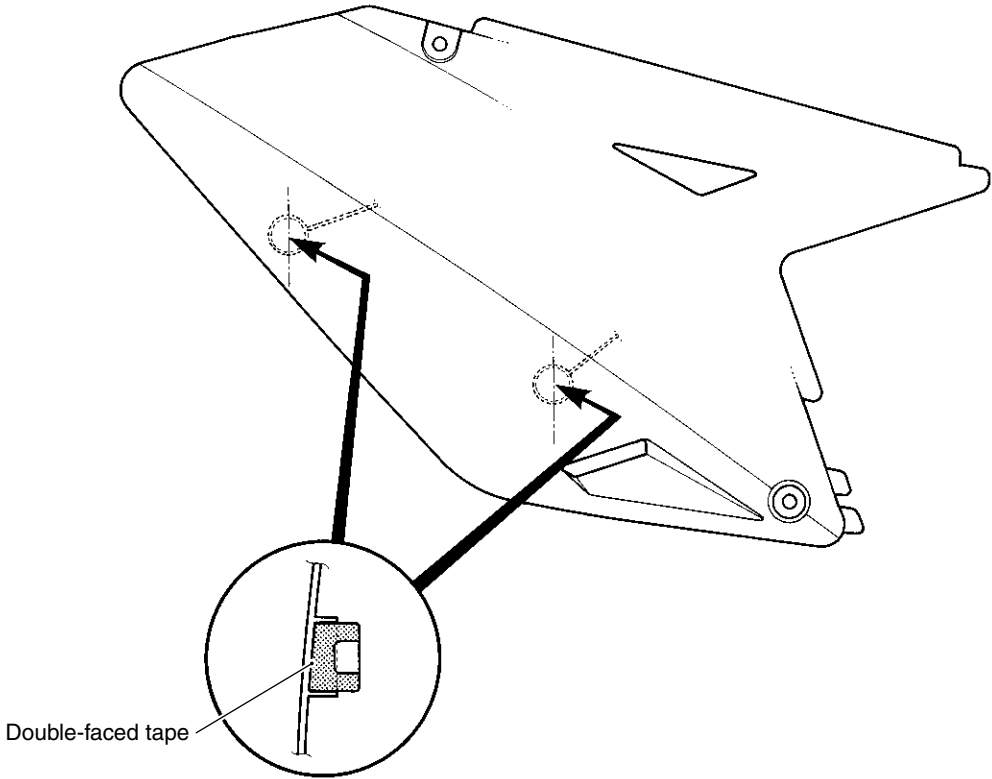
REAR FENDER INSTALLATION



FRAME COVER INSTALLATION



FRAME COVER CUSHION INSTALLATION



SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length.....	2 165 mm (85.2 in)
Overall width	830 mm (32.7 in)
Overall height	1 260 mm (49.6 in)
Wheelbase.....	1 465 mm (57.7 in)
Ground clearance	350 mm (13.8 in)
Seat height.....	955 mm (37.6 in)
Dry mass.....	92 kg (202 lbs)

ENGINE

Type	Four-stroke, liquid-cooled, DOHC
Number of cylinders	1
Bore	77.0 mm (3.03 in)
Stroke.....	53.6 mm (2.11 in)
Displacement	249 cm ³ (15.2 cu. in)
Compression ratio.....	13.4 : 1
Carburetor.....	KEIHIN FCR37MX
Air cleaner.....	Polyurethane foam element
Starter system.....	Primary kick
Lubrication system.....	Semi-dry sump
Idle speed	2 100 ± 50 r/min

TRANSMISSION

Clutch.....	Wet multi disc
Transmission	5-speed constant mesh
Gearshift pattern	1-down, 4-up
Primary reduction ratio.....	3.210 (61/19)
Gear ratios, Low	2.153 (28/13)
2nd.....	1.764 (30/17)
3rd	1.470 (25/17)
4th.....	1.238 (26/21)
Top.....	1.090 (24/22)
Final reduction ratio	4.000 (48/12)
Drive chain	D.I.D 520DMA2 112 links

CHASSIS

Front suspension	Upside-down telescopic fork
Rear suspension	Swingarm type
Front suspension stroke	310 mm (12.2 in)
Rear wheel travel	310 mm (12.2 in)
Caster.....	27.17°
Trail.....	115 mm (4.5 in)
Steering angle	45° (right & left)
Front brake	Disc brake
Rear brake.....	Disc brake
Front tire size.....	80/100-21 51M, tube type
Rear tire size	100/90-19 57M, tube type

ELECTRICAL

Ignition type.....	Electronic Ignition (CDI)
Ignition timing	18° B.T.D.C. at 2 100 r/min
Spark plug	NGK CR8EIA-10

CAPACITIES



Fuel tank, including reserve	7.0 L (1.8 / 1.5 US/Imp gal)
Gear ratios, oil change	900 ml (1.0 / 0.8 US/Imp qt)
with filter change.....	950 ml (1.0 / 0.8 US/Imp qt)
overhaul	1 000 ml (1.1 / 0.9 US/Imp qt)
Coolant.....	950 ml (1.0 / 0.8 US/Imp qt)

SPARE PARTS LIST

ITEM	PART NAME	PART NUMBER	Q'TY
1	PARTS SET, SPARE	19900-10H00	1
①	GASKET, MAGNETO COVER	11483-10H00	1
②	GASKET, CLUTCH COVER OUTER	11484-10H00	1
③	GASKET, EXHAUST, PIPE	14181-10H00	1
④	CONNECTOR, MUF JT	14771-10H00	1
⑤	FILTER COMP, ENGINE OIL	16510-35G00	1
⑥	O-RING, WATER POMP CASE	17431-10H00	1
⑦	LEVER, BRAKE	57310-37F00	1
⑧	LEVER, CLUTCH	57621-35G10	1
⑨	O-RING, SPROCKET SPACER	09280-20006	2
⑩	O-RING, OIL FILTER CAP	09280-39001	1

OPTIONAL PARTS

	PARTS No.	NUMBER OF TEETH	COMMENTS
MUFFLER SILENCER	14351-10H00	—	—
ENGINE SPROCKET	27511-14121	13	114 L (13T – 48T)
REAR SPROCKET	64511-29F00	47	112 L (12T – 47T)
			112 L (13T – 47T)
	64511-28E00	49	114 L (12T – 49T)
			114 L (13T – 49T)
	64511-36E00	50	114 L (12T – 50T)
			114 L (13T – 50T)
	64511-40261	51	114 L (12T – 51T)
			114 L (13T – 51T)
FRONT BRAKE DISC COVER	59231-36E30	—	—
BEAD STOPPER	65270-43D00	—	1.85

Carburetor:  4-2Front fork spring:  4-14Rear suspension spring:  4-19

SETTING DATA

EVENT	DATE/ LOCATION	DATE	/ /	/ /	/ /
		RACE/COURSE	/	/	/
		TEMP./HUMIDITY	/	/	/
		WEATHER			
		COURSE COUDITION			
ENGINE	CARBURETOR	MAIN JET			
		JET NEEDLE	/	/	/
		SLOW JET			
		AIR SCREW			
		FLOAT LEVEL			
	SPARK PLUG				
CHASSIS	FRONT FORK	OIL LEVEL	mm	mm	mm
		COMP. ADJ. POSITION			
		RE-BOUND ADJ. POSITION			
		SPRING			
	REAR SUSPENSION	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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