

RM-Z450

OWNER'S SERVICE MANUAL

Part No. 99011-35G52-01A July, 2006 (K) 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-Z450 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 motor cycle previous built or sold.

Suzuki Motor Corporation believes in conservation and protection of Earth's natural resources. To that end, we encourage every motor cycle 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 **A** and the words WARNING, CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words:

A 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.

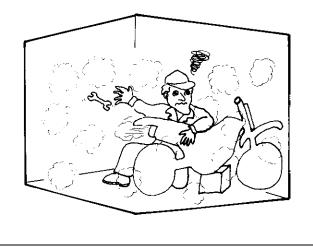
Frame No.	
Engine No.	

WARNINGS FOR SERVICING

A 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.

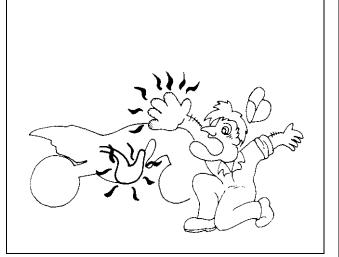
Only run the engine outdoors where there is fresh air.



A WARNING

Hot engine and muffler can burn you.

Wait until the engine and muffler cools before servicing.



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.



A WARNING

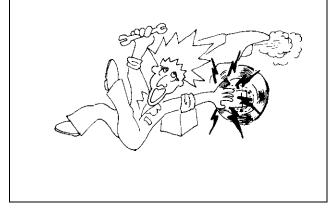
Brake fluids and engine coolant can be hazardous to humans and pets. Brake fluid and engine coolant are harmful or fatal if swallowed, and harmful if it comes in contact with your skin or eyes.

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.



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.

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.	1360	Apply THREAD LOCK SUPER "1360" or equivalent. 99000-32130
	Apply oil. Use engine oil or transmission oil unless otherwise specified.	FORK	Use SUZUKI FORK OIL SS-05 or equivalent. 99000-99001-SS5
MO	Apply molybdenum oil solution. (Mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1:1)	RS	Use SUZUKI REAR SUSPENSION OIL SS-25 or equivalent. 99000-99001-S25
	Apply SUZUKI SUPER GREASE "A" or equivalent. 99000-25010	LLC	Use engine coolant or equivalent.
×SH	Apply SUZUKI SILICONE GREASE or equivalent. 99000-25100	BF	Apply or use brake fluid. (DOT 4)
FMH	Apply SUZUKI MOLY PASTE or equivalent. 99000-25140		Measure in voltage range.
1215	Apply SUZUKI BOND "1215" or equivalent. 99000-31110		Measure in resistance range.
1207B	Apply SUZUKI BOND "1207B" or equivalent. 99000-31140	TOOL	Use special tool.
1303	Apply THREAD LOCK SUPER "1303" or equivalent. 99000-32030	DATA	Indication of service data.
1322	Apply THREAD LOCK SUPER "1322" or equivalent. 99000-32110	X	Replace a part with a new one when reassembling.
1342	Apply THREAD LOCK "1342" or equivalent. 99000-32050	<u>,</u>	·

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GENERAL INFORMATION

1

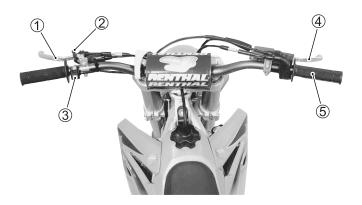
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COUNTRY AND AREA CODES

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

CODE	COUNTRY or AREA	EFFECTIVE FRAME NO.
000	Japan	JS1RL 41A000 500156 –
E-03	U. S. A.	JS1RL 41C 72 100001 –
E-19	E.U.	JS1RL 41A000 500151 –
E-28	Canada	JS1RL 41C 72 100001 –

LOCATION OF PARTS



- $\textcircled{1} \quad \text{Clutch lever}$
- 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
- In Front suspension rebound damping adjuster



- 1 Kick starter lever
- 12 Rear brake pedal
- ③ Rear suspension compression damping adjuster
- 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

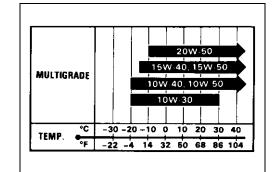
- Gasoline: Use only unleaded gasoline of at least 90 pump octane. (R/2 + M/2 method) For USA and Canada Use only unleaded gasoline of at least 95 octane. (Research method) For other countries
- Engine oil: SUZUKI recommends the use of SUZUKI PERFOR-MANCE 4 MOTOR OIL or equivalent engine oil. Use of SF/SG or SH/SJ in API with MA in JASO. 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 USA MOTUL 300V 10W-40 (recommendation) 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. 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.

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

A 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

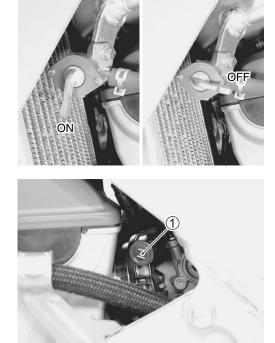
Inspect the engine oil level, coolant level and air cleaner condition before starting the engine.

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.

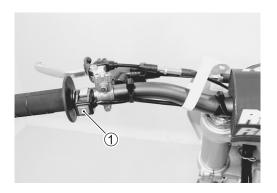
WARNING

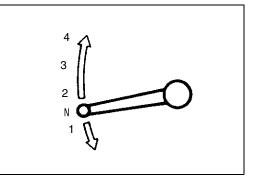
Leaving the fuel valve in the "ON" position may cause carburetor overflow. This can cause a fire or severe engine damage when you start the engine.

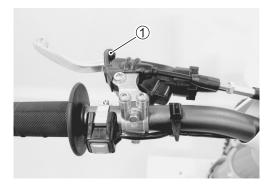
Always leave the fuel valve in the "OFF" position when the engine is not running.

TRANSMISSION

This motorcycle has a 4-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.





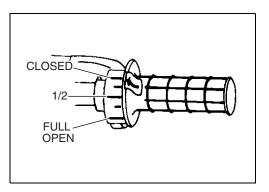


BREAK-IN (RUNNING-IN) WHEN THE MOTORCYCLE IS NEW

- 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

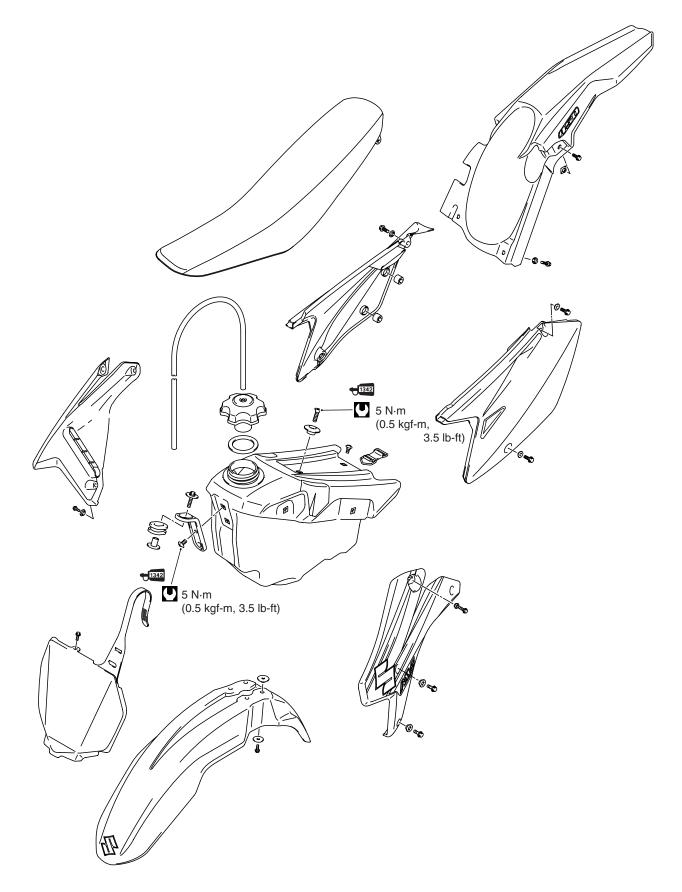
Piston ring

Cylinder

Crankshaft

Crankshaft bearing

EXTERIOR PARTS



– MEMO –

PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE

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PERIODIC MAINTENANCE INSPECTION BEFORE PRACTICE

WHAT TO CHECK	CHECK FOR
Spark plug	Heat range, fouled electrode, tightness
	Loose high-tension cord
Air cleaner element	• Dust
	Lubrication
Engine oil	Oil level
Coolant	Coolant level
Cooling system	Radiator hose damage
	Engine coolant leak
Clutch	• Play
	Smooth operation
Throttle	Play
	Smooth operation
Crankcase breather hose	Breather hose clogging and bend
Engine idle speed	Revolution speed
Brake fluid	Fluid level
Brakes	Brake lever position
	Brake pedal height
	Operation
Drive chain	Slack, lubrication
Drive chain guide/buffer	Wear, damage
Suspension	Smooth operation
	Front fork air pressure
Wheels	Spoke tension
	 Rim lock tightness or damage
Tires	Tire pressure
Steering	Smoothness, play
Exhaust pipe and muffler	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	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	Combustion chamber carbon deposit
	Piston head carbon deposit
	Piston and cylinder wear
Air cleaner	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.

Interval	***	Every	Every	Every	
	races	race	3 races	6 races	Remarks
Service	hours	Every	Every	Every	nemains
Item	nouis	2 hours	6 hours	12 hours	
Spark plug		I		—	
Air cleaner		С		—	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			_	_	Replace clutch plates as necessary.
Throttle cable and cable	l clutch	1 & L	_		
Hot starter				_	
Carburetor				—	Replace intake pipe every 5 races (10 hours).
Crankcase breath hose	er	I			
Fuel hose				—	Replace every 4 years.
Valve clearance		_	_	I	
Piston				R	
Piston ring				R	
Cylinder head, cy	linder		_	I	
Muffler			_	_	
Silencer		I	_	R	
Drive chain		1&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 guide	and		R		
Brake		l	_	—	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.

Interval		Every	Every	Every	
	races	race	3 races	6 races	Remarks
Service	houro	Every	Every	Every	nemaiks
Item	hours	2 hours	6 hours	12 hours	
Tire		I		—	
Spoke nipple		I	_	_	Inspect every 20 min. up to initial 2 hours then check before each ride.
Steering					
Kick starter lever		1&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. (13-5-2)
- Remove the radiator covers and fuel tank. (2-5-2)
- Disconnect the spark plug cap.
- Remove the spark plug.

09816-00141: Spark plug wrench

NOTE:

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

- 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)	 Hot type spark plug Advanced ignition timing Lean air/fuel mixture Deteriorated fuel
Black (fouled)	Cold type spark plugRetarded ignition timingRich air/fuel mixture

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

🚾 09900-20803: Thickness gauge

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

Standard Spark plug

NGK

DIMR8A10

CAUTION

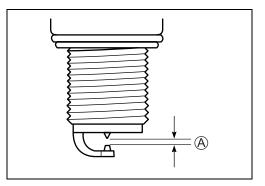
Changing the spark plug heat range improperly can damage the engine.

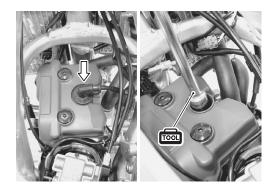
Select the spark plug heat range only after adjusting the carburetor setting.

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

I Spark plug: 11 N⋅m (1.1 kgf-m, 8.0 lb-ft)

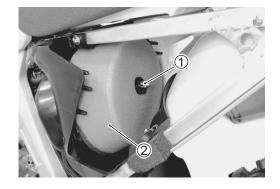
09816-00141: Spark plug wrench





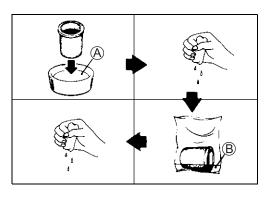
AIR CLEANER AIR CLEANER ELEMENT REMOVAL

- 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.
- (A): 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.
- B: 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:

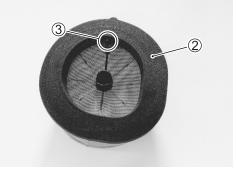
Fit the projection of the element holder ③ to the hole of the element base ②.

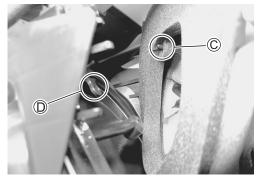
Install them in the air cleaner box by engaging the projection
 C of the element holder with the hole D of the cleaner body.

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.

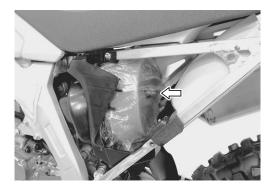




NOTE:

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" next page.

Oil drain plug: 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.

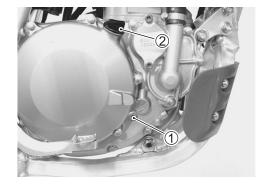
• Start and run the engine at idle for three minutes.

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 filler cap, TDC plug ① and drain plugs No.1 ② and No.2 ③. Drain oil thoroughly.
- Replace the gasket washer with a new one and tighten the drain plugs No.1 (2) and No.2 (3).

Ū Oil drain plug: 12 N⋅m (1.2 kgf-m, 8.5 lb-ft)

• Pour specified amount of motor oil.

MOTUL 300V 10W-40 (Recommended)

.....Except for E-03

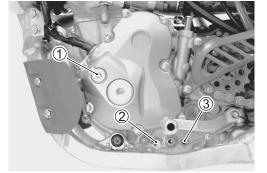
SAE 10W-40, API SF/SG or SH/SJ with JASO MA

..... Others

- Oil change1 200 ml (1.3/1.1 US/Imp qt) Filter change1 250 ml (1.3/1.1 US/Imp qt) Overhaul1 300 ml (1.4/1.1 US/Imp qt)
- Tighten the filler cap and TDC plug 1.

TDC plug: 16 N⋅m (1.6 kgf-m, 11.5 lb-ft)

- 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 installed properly. If the filter is installed improperly, serious engine damage may result.

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

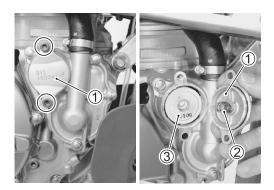
CAUTION

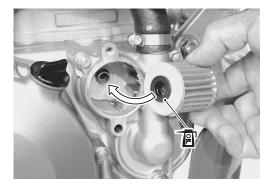
Use a new O-ring to prevent oil leakage.

• 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.
- Oil change......1 200 ml (1.3/1.1 US/Imp qt) Filter change......1 250 ml (1.3/1.1 US/Imp qt) Overhaul.......1 300 ml (1.4/1.1 US/Imp qt)







OIL STRAINERS OIL STRAINER (No.1) REMOVAL

- Drain engine oil. (2-11)
- 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 (No.1).

• Pull out the oil strainer.

NOTE:

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





OIL STRAINER (No.2) REMOVAL

([] 10-4)

INSPECTION

- Check the oil strainer for any damage or clogging.
- If the oil strainer is clogging, clean the oil strainer with a compressed air.



OIL STRAINER (No.2) INSTALLATION

([]]10-14)

OIL STRAINER (No.1) 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:

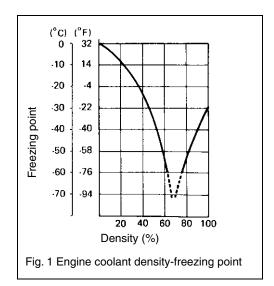
- * This motorcycle does not have an overflow tank at the end of breather hose. Therefore, engine coolant level may decrease while riding. Check the engine coolant level every time before riding.
- * When replenishing engine coolant, be sure to use engine coolant mixed with distilled water at the ratio 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 °C (–24 °F), the percentage of antifreeze should be increased to 55% or 60%, according to figure 1.

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









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

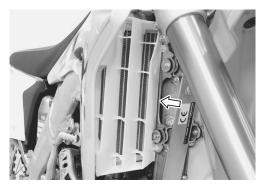
Engine coolant is harmful if swallowed or if it comes in contact with your skin or eyes.

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

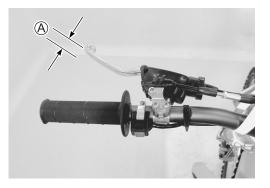
Inspect the following items before practice and races.

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



CLUTCH CABLE

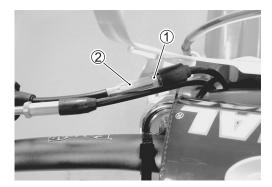
Adjust the clutch cable play as follows:



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.

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



MINOR ADJUSTMENT

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

Clutch lever play (A): 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:

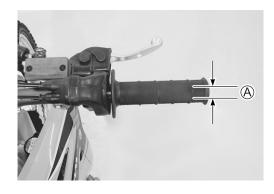
THROTTLE CABLE ADJUSTMENT

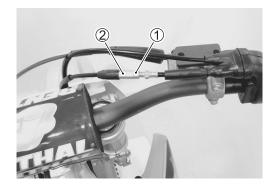
- \bullet Loosen the lock-nut (1).
- Turn adjuster ② so the throttle grip has 2 4 mm (0.08 0.16 in) play in circumference.
- Tighten the lock-nut 1.

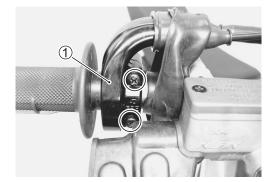
Throttle cable play A: 2 – 4 mm (0.08 – 0.16 in)

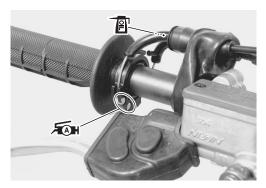
A WARNING

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.









• Remove the throttle case ①.

THROTTLE CABLE OIL SUPPLY

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

FOR 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

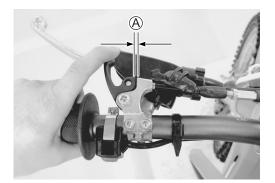
HOT STARTER

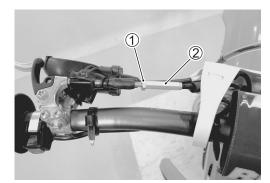
Adjust the hot starter cable play as follows:

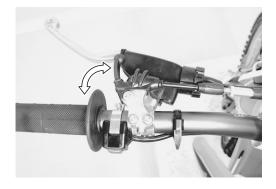
- Loosen the lock-nut ①.
- Turn adjuster (2) so the hot starter lever clearance (A) measured at the lever holder obtains 2 3 mm (0.08 0.12 in) when squeezing the lever until pressure is felt.
- Tighten the lock-nut 1.

DATA Hot start cable play (A): 2 – 3 mm (0.08 – 0.12 in)

- 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. (
- Warm up the engine.

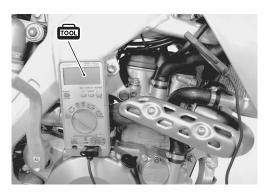
NOTE:

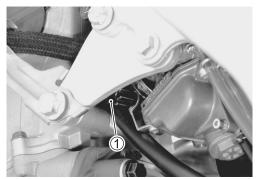
Make this adjustment when the engine is hot.

- Connect the multi-circuit tester to the high-tension cord.
- Start the engine, turn the throttle stop screw ① and set the engine idle speed as follows.

Engine idle speed: 1 950 ± 100 r/min

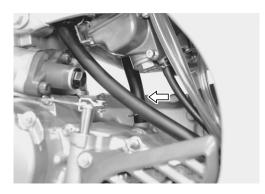
09900-25008: Multi-circuit tester set





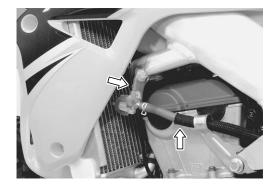
CRANKCASE BREATHER HOSE

• 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

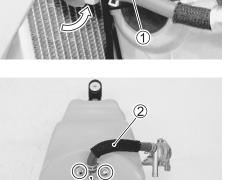
- Drain the fuel.
- Turn the fuel valve to the OFF position.
- Disconnect the fuel hose ① and remove the fuel valve mounting bolt.

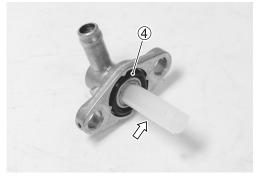
A WARNING

Gasoline is highly flammable and explosive.

Keep heat, sparks and flames away from gasoline.

- Remove the fuel tank mounting bolt. (1375-2)
- Remove the fuel tank with fuel valve. (235-2)
- Disconnect the fuel hose 2 and remove the fuel filter 3.





(3)

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

CAUTION

The O-ring ④ must be replaced with a new one to prevent fuel leakage.

VALVE CLEARANCE

- Remove the seat. (5-5-2)
- Remove the radiator covers and fuel tank. (2-5-2)
- Disconnect the spark plug cap. (2-7)
- Remove the spark plug. (272-7)
- 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.

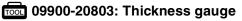
NOTE:

- * 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 counter-clockwise to align the TDC mark (A) with the center of the groove (B) of the timing inspection hole.

NOTE:

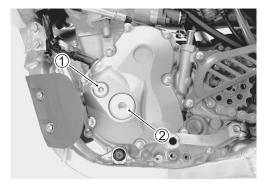
The piston must be at TDC on the compression stroke. (5-6-3)

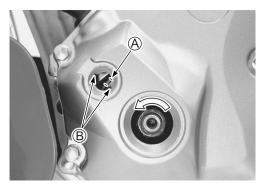
• Insert a thickness gauge between the tappet and the cam. If the clearance is out of specification, adjust it to specification as follows.

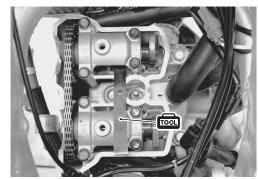


Valve clearance (when cold):

Standard: IN. : 0.09 – 0.16 mm (0.004 – 0.006 in) EX. : 0.17 – 0.24 mm (0.007 – 0.009 in)



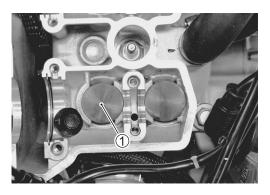




VALVE CLEARANCE ADJUSTMENT

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

- Remove the intake or exhaust camshafts. (2-6-4)
- 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 1.500 to 3.000 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 (2-2-23, -24) for details.





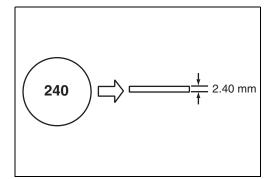
NOTE:

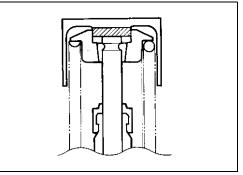
- * Be sure to apply engine oil to tappet shim top and bottom faces.
- * When seating the tappet shim, be sure the figure printed surface faces the tappet.

NOTE:

Reinstall the camshafts in the specified manner. (276-30)

- 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 (2 6-32)
- Spark plug and spark plug cap (
- Radiator covers and fuel tank
- TDC plug and crankshaft hole plug (2 6-32)
- Seat





PRESENT MASURED SHM SIZE (mm) PRESENT SHM SIZE (mm) MAXUE SHM SIZE (mm) VALVE SHM SIZE (mm) VALVE 0.0010 0.000 0.014 0.0005 0.009 0.015 0.009 0.0065 0.009 0.0065 0.009 0.161 0.165 0.0065 0.009 0.161 0.165 0.0005 0.009 0.161 0.165 0.166 0.110 0.161 0.236 0.236 0.266 0.311 0.236 0.336 0.366 0.336 0.336 0.336 0.336 0.336 0.366 0.411 0.435 0.446 0.561 0.561 0.566 0.561 0.566 0.561 0.566	1:500 1:525 1:55 1:500 1:525 1:55 1:50 1:52 1:55 1:50 1:52 1:55 1:50 1:52 1:50 1:52 1:500 1:52 1:50 1:52 1:500 1:57 1:600 1:62 1:57 1:500 1:57 1:600 1:62 1:57 1:500 1:57 1:600 1:62 1:57 1:500 1:25 1:56 1:17 1:75 1:500 1:77 1:50 1:77 1:75 1:500 1:25 1:56 1:17 1:77 1:500 1:25 1:56 1:17 1:77 1:500 1:25 1:56 1:17 1:26 1:275 1:500 1:25 1:56 1:57 1:500 1:25 1:56 1:57 1:500 1:25 1:56 1:57 1:500 1:25 1:56 1:57 1:500 1:25 1:56 1:57 1:500 1:25 1:55 1:56 1:57 1:500 1:25 1:55 1:56 1:57 1:500 1:25 1:55 1:56 1:57 1:500 1:25 1:55 1:56 1:57 1:500 1:25 1:55 1:55 1:55 1:55 1:55 1:55 1:55	TAPPET SHIM NO. (12892-35G00-XX) 205 208 210 215 220 225 228 235 1 96 205 208 210 215 200 225 228 235 1 96 1.975 2002 025 2062 075 2100 215 2215 2215 2215 2215 222 225 228 233 <th>TAPPET SHIM SET (12800-3560) TAPPET SHIM SET (12800-3560) Tara Part Shim Set (12800-3560) Tara Part Shim No Trag Trag Trag Trag Trag Trag Trag Trag</th> <th>2950 2975 3000 2950 2975 3000 2.850 2975 200 2.850 2975 200 3.000 3.000 3.000 3.000 3.000 10 Mith</th>	TAPPET SHIM SET (12800-3560) TAPPET SHIM SET (12800-3560) Tara Part Shim Set (12800-3560) Tara Part Shim No Trag Trag Trag Trag Trag Trag Trag Trag	2950 2975 3000 2950 2975 3000 2.850 2975 200 2.850 2975 200 3.000 3.000 3.000 3.000 3.000 10 Mith
0.661 - 0.685 0.686 - 0.710 0.711 - 0.735	2.050 2.075 2.100 2.075 2.100 2.125 2.100 2.125 2.150		EXAMPLE EXAMPLE Valve clearance is 0.220 Present shim size 2.400 Shim size to be used 2.500	

TAPPET SHIM SELECTION TABLE [INTAKE]

(INTAKE SIDE)

		TAPPET SHIM SET (12800-35820)
	TAPI	TAPPET SHIM NO. (12892-35G00-XXX) TAPPET SHIM NO. (12892-41C00-XXX)
ZE (mm)	1.500 1.525 1.550	2.0502.0752.1002.1252.1502.1752.2002.225222502.2752.3002.3252.3502.3752.4002.4252.4502.4752.5002.5252.5502.5752.6002.6252.6502.6752.2002.7252.2002.7752.8002.8252.8502.6752.0002.8252.8502.9753.000
MEASURED SUFFIX VALVE CLEARANCE (mm)	150 152 155	205 208 210 212 215 218 220 222 228 220 232 238 240 242 245 248 250 252 258 260 252 255 258 260 262 265 268 270 272 275 278 280 282 285 7 256 298 300
0.000 – 0.024		1.8751.0001.9251.9501.9752.0002.0252.0502.0752.1002.1252.1502.1752.2002.22522.2502.2752.3002.32522.3502.3752.4002.4252.4502.4752.5002.5252.5502.5752.6002.6252.6502.6757
0.025 - 0.049		1:001:9251:9501:9752:0002.0252.0502.0752:1002:1252:1502:1752:2002.2252:2502:2752:3002:3252:3502:3752:4002:4252:4502:4752:5002:5252:5502:5752:6002:6252:6502:6752:7007
0.050 – 0.075		1:321:351:3601:3752:0002:0252:0502:0752:1002:1252:1502:1752:2002:2252:2502:2752:3002:3252:3502:3752:4002:4252:4502:4752:5002:5252:5502:5752:6502:6752:7002:725
0.076 – 0.100		1:5601:3752:0002:0252:0502:0752:1002:1252:1502:1752:2002:2252:2502:2752:3002:3252:3502:3752:4002:4252:4502:4752:5002:5252:5502:5752:6502:6752:7502:7252:7507
0.101 – 0.125		1:3752.0002.0252.0602.0252.0602.0752.1002.1252.1502.1752.2002.22522.2502.2352.2502.3252.4002.42522.4002.42522.4502.4752.5002.5252.5502.5752.6002.6252.6602.6252.6502.6752.7002.7252.7502.775
0.126 – 0.150	1.500	2.000/2.055/2.050/2.075/2.100/2.125/2.150/2.175/2.200/2.225/2.350/2.375/2.350/2.375/2.450/2.455/2.450/2.475/2.500/2.525/2.550/2.575/2.600/2.655/2.650/2.675/2.700/2.725/2.750/2.775/2.800/(2.900/2.925/2.950/2.952/2.950/2.950/2.950/2.952/2.950
0.151 – 0.169	1.500 1.525	2.052/2.050/2.075/2.100/2.152/2.150/2.175/2.200/2.225/2.250/2.275/2.300/2.325/2.350/2.375/2.400/2.425/2.450/2.475/2.500/2.525/2.550/2.575/2.600/2.655/2.650/2.675/2.700/2.725/2.800/2.825/
0.170 – 0.240		SPECIFIED CLEARANCE/NO ADJUSTMENT REQUIRED
0.241 – 0.265	1.550 1.575 1.600	21002.1252.1502.1752.2002.2252.2502.2752.3002.3252.3502.3752.4002.4252.4502.4752.5002.5252.5502.5752.6002.6252.6502.6752.7002.7252.7502.7752.8002.8252.8502.8752.900
0.266 – 0.290	1.575 1.600 1.625	2.125(2.150)2.175(2.200)2.225(2.250)2.275(2.300)2.325(2.400)2.425(2.450)2.475(2.500)2.555(2.550)2.575(2.650)2.655(2.756)2.775(2.775(2.775)2.850)2.855(2.850)2.875(2.900)2.925
0.291 – 0.315	1.600 1.625 1.650	2:1502:1752:2002:2252:2502:2752:3002:3252:3502:375:2:4002:4252:5502:5752:5502:5752:5502:5752:6502:6752:6502:6752:7702:7752:8002:8252:8502:8752:9002:3252:950
0.316 – 0.340	1.625 1.650 1.675 /	21752 2002 2252 2502 2752 3002 3252 3502 375 2 400 2 425 2 450 2 475 2 500 2 525 2 550 2 575 2 600 2 625 2 650 2 675 2 700 2 725 2 750 2 775 2 800 2 825 2 850 2 875 2 900 2 825 2 850 2 975
0.341 - 0.365	1.650 1.675 1.700	2200/2225/226/2275/2300/2325/2350/2375/2400/2425/2450/2475/2500/2525/2550/2575/2.600/2625/2.650/2.675/2.700/2725/2750/2775/2800/2825/2850/2975/2.900/2925/2350/2.975/3.000
0.366 – 0.390	1.675 1.700 1.725	2 225 2.256 2.275 2.300 2.325 2.350 2.375 2.400 2.425 2.450 2.475 2.500 2.525 2.550 2.575 2.600 2.625 2.650 2.675 2.700 2.725 2.750 2.775 2.800 2.825 2.850 2.875 2.950 2.925 2.950 2.975 3.000 3.000
0.391 – 0.415	1.700 1.725 1.750	2.250/2.275/2.300/2.325/2.350/2.375/2.400/2.425/2.450/2.475/2.500/2.525/2.550/2.575/2.650/2.675/2.650/2.675/2.700/2.725/2.750/2.775/2.800/2.825/2.850/2.875/2.900/2.925/2.950/2.975/3.000/3.000/
0.416 – 0.440	1.725 1.750 1.775	2.275 2.300 2.325 2.350 2.375 2.400 2.425 2.450 2.475 2.500 2.525 2.550 2.575 2.650 2.625 2.650 2.675 2.700 2.725 2.750 2.775 2.800 2.825 2.850 2.875 2.900 2.925 2.950 2.975 3.000 3.000
0.441 - 0.465	1.750 1.775 1.800	2.300/2.325/2.350/2.375/2.400/2.425/2.450/2.475/2.550/2.575/2.550/2.675/2.650/2.675/2.700/2.725/2.750/2.775/2.800/2.825/2.850/2.875/2.900/2.925/2.950/2.975/3.000/3.000/
0.466 – 0.490	1.775 1.800 1.825	2:355(2:356)2:375(2:400)2:455(2:450)2:475(2:500)2:525(2:550)2:575(2:600)2:625(2:700)2:725(2:700)2:775(2:800)2:855(2:850)2:875(2:900)2:925(2:950)2:975(3:000)3:000
0.491 – 0.515	1.800 1.825 1.850	2.350/2.375/2.400/2.425/2.450/2.475/2.500/2.525/2.550/2.675/2.600/2.625/2.650/2.675/2.750/2.775/2.350/2.425/2.850/2.825/2.950/2.925/2.950/2.925/2.950/2.975/3.000
0.516 - 0.540	1.825 1.850 1.875	2:375 2:400 2:425 2:450 2:475 2:500 2:525 2:550 2:575 2:650 2:675 2:700 2:725 2:750 2:775 2:800 2:825 2:850 2:875 2:950 2:925 2:950 2:925 2:950 2:025 2:000 3:000
0.541 - 0.565	1.850 1.875 1.900	2.400/2.425/2.450/2.475/2.500/2.525/2.550/2.575/2.660/2.625/2.650/2.675/2.700/2.725/2.750/2.775/2.800/2.825/2.850/2.875/2.900/2.925/2.950/2.975/3.000/3.000
0.566 - 0.590	1.875 1.900 1.925	2.425 2.450 2.475 2.500 2.525 2.550 2.575 2.600 2.625 2.650 2.675 2.700 2.725 2.750 2.775 2.800 2.825 2.850 2.875 2.900 2.925 2.950 2.975 3.000 3.000
0.591 – 0.615	1.900 1.925 1.950 /	2.450/2.475/2.550/2.525/2.550/2.575/2.600/2.625/2.650/2.675/2.770/2.725/2.800/2.825/2.850/2.875/2.950/2.925/2.950/2.925/2.950/2.975/3.000/3.000
0.616 - 0.640	1.925 1.950 1.975	2.475 2.500 2.525 2.560 2.575 2.600 2.625 2.560 2.675 2.700 2.775 2.800 2.825 2.850 2.875 2.900 2.925 2.950 2.975 3.000 3.000
0.641 - 0.665	1.950 1.975 2.000	25002.5552.5502.5752.6002.65522.6502.67522.7002.7252.2002.82522.8502.8752.9002.9252.9502.9753.0003.000 II. Measure present shim size.
0.666 - 0.690	1.9752.0002.025	
0.691 - 0.715	2.000 2.025 2.050	2.550/2.575/2.600/2.625/2.650/2.675/2.700/2.725/2.750/2.875/2.800/2.825/2.850/2.875/2.900/2.925/2.950/2.975/3.000/3.000
0.716 - 0.740	2.025 2.050 2.075	2575[26002.625]2.660[2.625]2.660[2.625]2.700[2.725]2.775[2.800]2.825[2.850]2.875[2.900]2.925[2.950[2.975]3.000]3.000
0.741 - 0.765	2.0502.0752.100	
0.766 - 0.790	2.0752.1002.125	ed

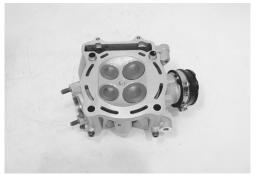
TAPPET SHIM SELECTION TABLE [EXHAUST]

(EXHAUST SIDE)

CYLINDER HEAD, CYLINDER AND PISTON

CYLINDER HEAD INSPECTION

- Remove the cylinder head. (3-6-4)
- Decarbonize the combustion chambers.
- Inspect for pinholes, cracks and other damage.
- If any defects are found, replace the cylinder head with a new one.





damage.

• Remove the cylinder. (CF6-5)

• If any defects are found, replace the cylinder with a new one.

• Inspect the cylinder wall for any scratches, nicks or other

PISTON INSPECTION

- Remove the piston. (36-6)
- Decarbonize the top surface of the piston.
- Check for scratches and cracks.
- Check piston ring wear. Remove carbon deposits from the piston ring groove.
- If any defects are found, replace the piston with a new one.

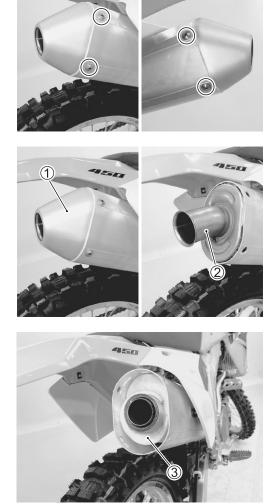


EXHAUST SILENCER SILENCER INSPECTION AND REPLACEMENT

• Remove the baffle mounting bolts.

• Remove the baffle 1 and inner plate 2.

- \bullet Inspect the glass wool 3 for clogging with carbon deposit or tar.
- Replace the glass wool 3 with a new one if necessary.



SILENCER REASSEMBLY

- Install the baffle and diffuser.
- Tighten four bolts.

NOTE:

Apply SUZUKI BOND to the circumference of the silencer pipe and diffuser.

■1207B 99000-31140: SUZUKI BOND "1207B" or equivalent

• The baffle mounting bolt is of flanged type which tightens the body ③, baffle ① and inner plate ② together. When tightening, make sure to properly align the screw holes of these three parts to prevent the bolt from cross-threading or interfering with the screw holes.

NOTE:

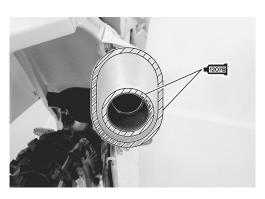
To position the baffle ① and the inner plate ② in alignment with the body, use a rod which fits into the inner plate bore and move it as necessary.

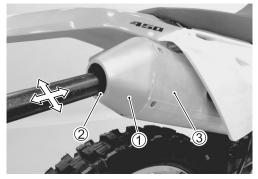
DRIVE CHAIN AND SPROCKETS

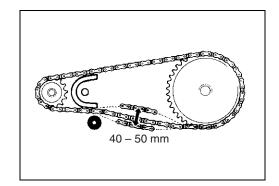
DRIVE CHAIN SLACK

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

Drive chain slack: 40 – 50 mm (1.57 – 1.97 in)





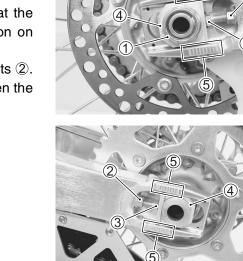


DRIVE CHAIN ADJUSTMENT

- 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.



DRIVE CHAIN PLATE WEAR

- Measure the heights of the inner (A) and outer (B) plates using the vernier calipers.
- If any of the measurements exceeds the service limit, replace the drive chain with a new one.

Chain plate height:

Service Limit: (Inner (A)) : 12.75 mm (0.502 in) (Outer (B)): 11.20 mm (0.441 in)

09900-20101: Vernier calipers

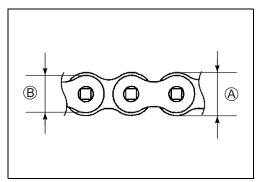
DRIVE CHAIN PLATE WEAR

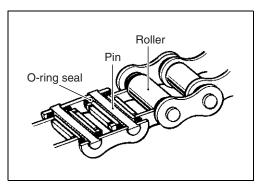
- Visually check the drive chain for the possible defects listed below.
- * Loose pins
- * Excessive wear
- * Damaged rollers
- * Missing O-ring seals
- * Dry or rusted links * Kinked or binding links

If any defect is found, the drive chain must be replaced.

NOTE:

When replacing the drive chain, replace the drive chain and sprockets as a set.





DRIVE CHAIN LUBRICATION

- Remove the chain clip and joint from the drive chain and remove the drive chain.
- Clean the drive chain with kerosine.

CAUTION

Do not use trichloroethylene, gasoline or any similar solvent. These fluids will damage the O-ring seals. Use only kerosine to clean the drive chain.

 After washing and drying the chain, oil it with a heavyweight motor oil.

CAUTION

Do not use any oil sold commercially as "drive chain oil". Such oil can damage the O-ring seals.

NOTE:

The standard drive chain is DID520MXV.

• Reassemble the drive chain.

NOTE:

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

CAUTION

Replace the joint, clip and O-ring seals with new ones.

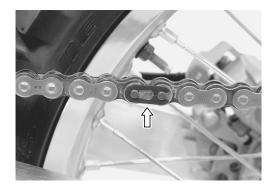
• Adjust the drive chain slack.

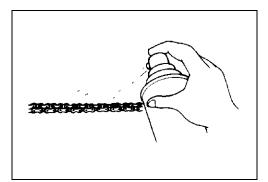
SPROCKET INSPECTION

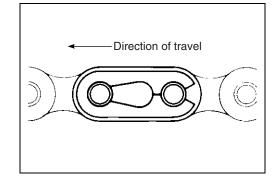
• Inspect the engine sprocket and rear sprocket for wear and cracks. If any defects are found, replace the sprockets with a new one.

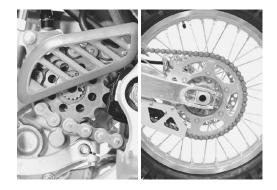
NOTE:

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









DRIVE CHAIN GUIDE, BUFFER AND TENSIONER 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

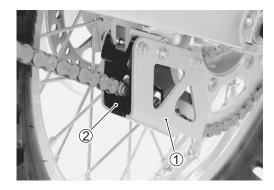
- Inspect the drive chain buffer ① for wear and cracks.
- Inspect the drive chain rollers 2 3 for wear.
- Replace the defective parts with a new one if necessary.

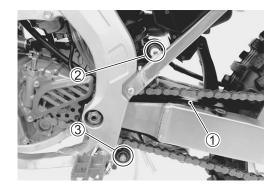
NOTE:

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

• Inspect the tensioner roller bolt (2) and nut (3) for tightness.

Drive chain roller bolt: 22 N·m (2.2 kgf-m, 16.0 lb-ft) Drive chain roller 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. (<u>197</u>16-14)

Inspect brake pad wear and brake fluid leakage if the brake fluid level decreases.

Brake fluid: DOT 4

A 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.



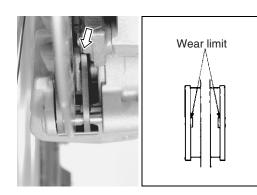


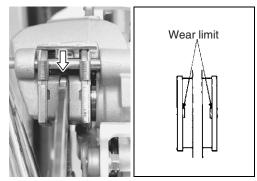
BRAKE PAD

Inspect the brake pads for wear. If the brake pads are worn, replace them with new ones. (13716-5)

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.
- Tighten the lock-nut ①.

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

BRAKE PEDAL HEIGHT ADJUSTMENT

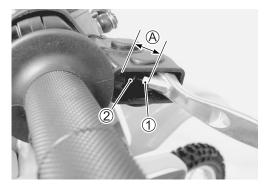
Adjust the rear brake pedal height as follows:

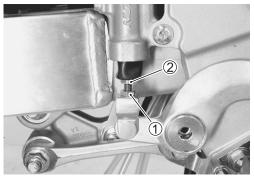
- Loosen the lock-nut 1.
- Adjust the brake pedal height (A) by turning the adjuster (2) to locate the pedal 0 10 mm (0 0.39 in) below the top face of the footrest.
- Tighten the lock-nut ①.

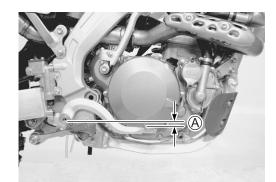
PATA Brake pedal height A: 0 - 10 mm (0 - 0.40 in)

Rear brake 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.
- Install 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. (
- 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.

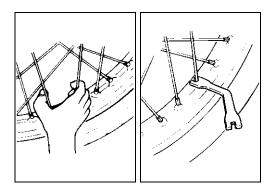
Spoke nipple: 6 N⋅m (0.6 kgf-m, 4.5 lb-ft)

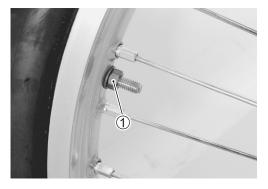
CAUTION

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.

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. (23)



LUBRICATION

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

No.	ITEM	LUBRICANT	FREQUENCY	COMMENTS
	Clutch inner		Pre-race and between	Run oil through cables until it exits the
1	cable, lever	А	every race	lower end. Lube the cable ends where
U	Hot starter inner	A		they pivot.
	cable, lever			
	Throttle grip,		Pre-race	Lightly grease the inside of throttle
2	throttle housing,	А		spool. Keep free from dirt.
	cable			
(3)	Rear brake	С	Pre-race	Grease the brake pedal pivot.
3	pedal	C		
	Swingarm		Every 3 races/More often	Clean and pack the bearings.
4		С	according to conditions	Keep seals fresh.
				Grease the seals.
	Rear suspension		Every 1 race/More often	Clean and pack the bearings.
(5)	linkage pivot	С	according to conditions	Keep seals fresh.
	points			Grease the seals.
(6)	Steering stem	С	Every 5 races/More often	Clean and pack the bearings.
0	bearings	0	according to conditions	Keep seals fresh.
$\overline{\mathcal{O}}$	Kick starter lever	С	Pre-race	Grease the kick starter lever pivot.
8	Starter shaft	A	Pre-race	Lightly oil the plunger shaft.
	Drive chain		Pre-race and between	Keep chain thoroughly lobed at all
9		В	every race	times. Always check wear and align-
				ment.
(10)	Cushion lever	А	Pre-race	Grease the seals.
	dust seals	A		
(11)	Front and rear	٨	Pre-race	Grease the bearing and seals.
U	wheels	A		

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			
430 – 720 kPa			

(4.3 – 7.2 kgf/cm², 61 – 102 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
- * Ruptured or otherwise defective cylinder head gasket
- * Decomp. trouble
- * Valve clearance out of adjustment.

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. (275-2)
- Remove the fuel tank. (13-5-2)
- 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.

09915-64512: Compression gauge set 09913-10750: Adaptor

• Install the spark plug, fuel tank and seat.





OIL PRESSURE CHECK

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

DATA Oil pressure:

50 kPa (0.5 kgf/cm², 7.1 psi) at 1 950 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 TEST PROCEDURE

• Connect the multi-circuit tester to the high-tension cord.

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 1 950 r/min (observe the tachometer), and read the oil pressure gauge.

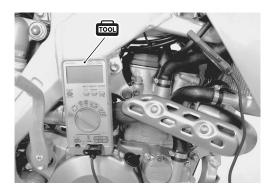
A WARNING

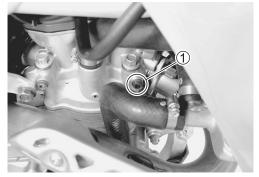
Do not remove the oil pressure gauge adapter when the engine is hot. Wait until engine cools.

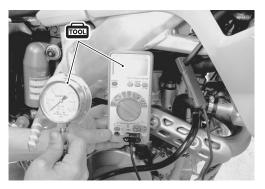
• Install the oil gallery plug ①.

Oil gallery plug: 10 N⋅m (1.0 kgf-m, 7.0 lb-ft)

09915-74510: 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	Compression too low	
or is hard to start.	Valve clearance out of adjustment	Adjust
	 Worn valve guides or poor seating of valves 	Repair or Replace
	Mistiming valves	Adjust
	 Excessively worn piston ring 	Replace
	Worn-down cylinder bore	Replace
	 Poor seating of spark plug 	Retighten
	 Broken, cracked, or damaged piston 	Replace
	 Defective automatic decomp. 	Clean or replace
	Plug not sparking	
	 Fouled spark plug 	Clean
	Wet spark plug	Clean and dry
	 Incorrect spark plug gap 	Adjust
	 Defective spark plug cap 	Replace
	 Defective ignition coil 	Replace
	Defective CDI unit	Replace
	 Open-circuited wiring connections 	Repair or replace
	Defective magneto	Replace
	No fuel reaching the carburetor	
	 Clogged fuel tank vent hose 	Clean or replace
	 Clogged or defective fuel valve 	Clean or replace
	 Clogged fuel hose 	Clean or replace
	 Defective carburetor float valve 	Replace
Engine idles poorly.	 Valve clearance out of adjustment 	Adjust
	 Valve timing out of adjustment 	Adjust
	 Poor seating of valves 	Repair
	Worn valve guide	Replace
	Worn down camshafts	Replace
	 Incorrect spark plug gap 	Adjust
	Defective ignition coil	Replace
	Defective CDI unit	Replace
	Defective magneto	Replace
	 Defective throttle position sensor 	Adjust or replace
	 Sucking air from intake pipe 	Retighten or replace
	Insufficient throttle cable play	Adjust
Engine stalls often.	 Dirty spark plug 	Replace
	 Defective ignition system 	Replace
	 Clogged fuel hose 	Clean
	 Valve clearance out of adjustment 	Adjust

Complaint	Symptom and possible causes	Remedy
Noisy engine	Excessive valve chatter	
	Too large valve clearance	Adjust
	 Weakened or broken valve springs 	Replace
	Worn tappet or cam surface	Replace
	 Worn and burnt camshaft journal 	Replace
	Noise seems to come from piston	
	Worn down piston or cylinder	Replace
	Combustion chambers fouled with carbon	Clean
	 Worn piston pin or piston pin bore 	Replace
	Worn piston ring or ring groove	Replace
	Noise seems to come from timing chain	
	Stretched cam chain	Replace
	Worn sprockets	Replace
	Noise seems to come from clutch	
	• Worn splines of countershaft or clutch sleeve hub	Replace
	Worn teeth of clutch plates	Replace
	Distorted clutch plates, driven and drive	Replace
	Worn clutch release bearing	Replace
	Noise seems to come from crankshaft	
	Rattling bearings due to wear	Replace
	Worn and burnt big-end bearing	Replace
	Worn and burnt journal bearings	Replace
	Noise seems to come from transmission	
	Worn or rubbing gears	Replace
	Worn splines	Replace
	Worn bearings	Replace
	Noise seems to come from water pump	
	 Too much play on pump shaft bearing 	Replace
	Worn or damaged impeller shaft	Replace
	Worn or damaged oil seal	Replace
	Contact between pump case and impeller	Replace
Engine runs poorly	Defective engine internal/electrical parts	
in high speed range.	Weakened valve springs	Replace
	Worn down camshafts	Replace
	 Valve timing out of adjustment 	Adjust
	Incorrect spark plug gap	Adjust
	Ignition not advanced sufficiently due to poorly	Replace
	working timing advance system (Pick-up coil, Throt-	
	tle position sensor and CDI unit)	
	Defective ignition coil	Replace
	Defective magneto	Replace
	Clogged air cleaner element	Clean
	Clogged fuel hose, resulting in inadequate fuel sup-	Clean and replace
	ply to carburetor	
	Clogged fuel tank vent hose	Clean and replace

Complaint	Symptom and possible causes	Remedy
Engine lacks power.	Defective engine internal parts	
	 Loss of tappet clearance 	Adjust
	 Weakened valve springs 	Replace
	 Valve timing out of adjustment 	Adjust
	 Worn piston ring or cylinder 	Replace
	 Poor seating of valves 	Repair
	 Fouled spark plug 	Clean or replace
	 Incorrect spark plug 	Adjust or replace
	Too much engine oil	Drain out excess oil
	Other factors	
	Defective carburetor	See carburetor section
	 Sucking air from intake pipe 	Retighten or replace
	 Clogged air cleaner element 	Clean or replace
	Clogged muffler	Clean or replace
Engine overheats	Defective engine internal parts	
	 Heavy carbon deposit on piston crowns 	Clean
	 Not enough oil in the engine 	Add oil
	 Defective oil pump or clogged oil circuit 	Replace or clean
	 Sucking air from intake pipes 	Retighten or replace
	Use incorrect engine oil	Change
	Other factors	
	Mixture too rean	Carburetor tuning
	• Ignition timing is too advanced due to defective tim-	Replace
	ing advance system (Pick-up coil, Throttle position	
	sensor and CDI unit)	
	 Defective cooling system 	See radiator section
	 Drive chain is too tight 	Adjust
Dirty or heavy	Too much engine oil in the engine	Drain out excess oil
exhaust smoke	 Worn piston ring or cylinder 	Replace
	Worn valve guides	Replace
	 Scored or scuffed cylinder wall 	Replace
	Worn valves stems	Replace
	Defective stem seal	Replace
	Worn oil ring side rails	Replace

Complaint	Symptom and possible causes	Remedy
Slipping clutch	 Weakened clutch springs 	Replace
	 Worn or distorted pressure plate 	Replace
	 Worn or distorted clutch plates 	Replace
	 Insufficient throttle cable play 	Adjust
Dragging clutch	• Some clutch spring weakened while others are not	Replace
	 Distorted pressure plates or clutch plates 	Replace
Transmission will	Broken gearshift cam	Replace
not shift.	 Distorted gearshift forks 	Replace
	Worn gearshift pawl	Replace
Transmission will	 Broken return spring on shift shaft 	Replace
not shift back.	 Rubbing or stickily shift shaft 	Repair or replace
	 Distorted or worn gearshift forks 	Replace
Transmission jumps	Worn shifting gears on driveshaft or countershaft	Replace
out of gear.	 Distorted or worn gearshift forks 	Replace
	Weakened stopper spring on gearshift stopper	Replace
	Worn gearshift cam plate	Replace

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Starting difficulty.	 Improperly working starter knob 	—
	 Improperly working hot starter lever 	—
	 Clogged starter jet passage 	Clean
	 Maladjusted pilot screw 	Adjust
	 Maladjusted throttle stop screw 	Adjust
	 Clogged slow jet or air passage 	Clean or replace
	 Sucking air from intake pipe 	Retighten or replace
Idling or low-speed	Maladjusted pilot screw	Adjust
trouble	 Clogged slow jet or air passage 	Clean or replace
	Clogged main nozzle or air passage	Clean or replace
	Sucking air from intake pipe	Retighten or replace
Medium or	Clogged main jet	Clean or replace
high-speed trouble	 Worn down jet float or main nozzle 	Clean or replace
	Clogged main nozzle or air passage	Clean or replace
	 Improperly working throttle valve 	Adjust
Overflow and fuel	Worn or damaged float valve	Replace
level fluctuations	 Foreign matter on the float valve 	Clean or replace
	 Broken float valve spring 	Replace
	 Improperly working float 	Adjust or replace
	 Incorrect float chamber fuel level 	Adjust float height

RADIATOR (COOLING SYSTEM)

Complaint	Symptom and possible causes	Remedy
Engine overheats	Not enough engine coolant	Add coolant
	Radiator core clogged with dirt or scale	Clean
	Clogged water passage	Clean
	Air trapped in the cooling circuit	Bleed air
	Defective water pump	Replace
	Use incorrect coolant	Replace

CHASSIS

Complaint	Symptom and possible causes	Remedy
Heavy steering	Overtightened steering stem nut	Adjust
	 Broken bearing in steering stem 	Replace
	 Distorted steering stem 	Replace
	 Not enough pressure in tires 	Adjust
Wobbly handlebars	 Loss of balance between right and left front forks 	Adjust
	Distorted front fork	Repair or replace
	 Distorted front axle or crooked tire 	Replace
	 Loose steering stem nut 	Adjust
	 Worn or incorrect tire or wrong tire pressure 	Adjust or replace
	Worn bearing/race in steering stem	Replace
Wobbly front wheel	Distorted wheel rim	Replace
	 Worn front wheel bearings 	Replace
	 Defective or incorrect tire 	Replace
	 Loose axle or axle pinch bolt 	Retighten
	Incorrect front fork oil level	Adjust
	 Incorrect front wheel weight balance 	Adjust
	Loose spork nipple	Retighten
Front suspension	Weakened springs	Replace
too soft	Not enough fork oil	Replenish
	Wrong weight fork oil	Replace
	Improperly set front fork damping force adjuster	Adjust
Front suspension	Too viscous fork oil	Replace
too stiff	Too much fork oil	Drain excess oil
	Bent front fork	Replace
	Improperly set front fork damping force adjuster	Adjust
Noisy front suspen-	Not enough fork oil	Replenish
sion	Loose bolts on suspension	Retighten
	Broken spring	Replace
Wobbly rear wheel	Distorted wheel rim	Replace
	Worn rear wheel bearing or swingarm bearings	Replace
	Defective or incorrect tire	Replace
	Worn swingarm and rear suspension bearings	Replace
	Loose nuts or bolts on rear suspensions	Retighten
Rear suspension	Weakened spring of shock absorber	Replace
too soft	 Improperly set shock absorber spring force adjuster 	Adjust
	Leakage of oil or gas shock absorber	Repair or replace
. .	Improperly set shock absorber damping force adjuster	Adjust
Rear suspension	Bent shock absorber shaft	Replace
too stiff	Improperly set shock absorber spring force adjuster	Adjust
	Bent swingarm pivot shaft	Replace
	Worn swingarm and rear suspension bearings	Replace
N	Improperly set shock absorber damping force adjuster	Adjust
Noisy rear suspen-	Loose nuts or bolts on rear suspension	Retighten
sion	 Worn swingarm and suspension bearings 	Replace

BRAKES

Complaint	Symptom and possible causes	Remedy
Insufficient brake	Leakage of brake fluid from hydraulic system	Repair or replace
power	Worn pads	Replace
	 Oil adhesion of engaging surface of pads 	Clean disc and pads
	Worn disc	Replace
	Air in hydraulic system	Bleed air
	 Not enough brake fluid in the reservoir 	Replenish
Brake squeaking	Carbon adhesion on pad surface	Repair surface with
		sandpaper
	Tilted pads	Correct pad fitting or
		replace
	Worn pads	Replace
	 Damaged wheel bearing 	Replace
	 Loosen front wheel axle or rear wheel axle 	Tighten to specified torque
	 Foreign material in brake fluid 	Replace brake fluid
	 Clogged return port of master cylinder 	Disassemble and clean
		master cylinder
Excessive brake	Air in hydraulic system	Bleed air
lever stroke	Insufficient brake fluid	Replenish fluid to specified
		level; bleed air
	 Improper quality of brake fluid 	Replace with correct fluid
Leakage of brake	Insufficient tightening of connection joints	Tighten to specified torque
fluid	Cracked hose	Replace
	Worn piston or seal	Replace piston or seal
	Worn cylinder or cup	Replace cylinder or cup
Brake drags	Rusty part	Clean and lubricate
-	Insufficient brake lever or brake pedal pivot lubrica-	Lubricate
	tion	

ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor	Defective ignition coil	Replace
sparking	 Defective spark plug 	Replace
	Defective CDI unit	Replace
	Defective magneto	Replace
	 Open-circuited wiring connections 	Check and repair
Spark plug soon	Mixture too rich	Carburetor tuning
become fouled with	 Idling speed set too high 	Adjust throttle stop screw
carbon.	Incorrect gasoline	Change
	 Dirty air cleaner element 	Replace
	 Too cold spark plug 	Replace with hot type plug
Spark plug become	Worn piston ring	Replace
fouled too soon.	 Worn piston or cylinder 	Replace
	 Excessive clearance of valve stems in valve guides 	Replace
	Worn stem seal	Replace
Spark plug elec-	 Too hot spark plug 	Replace with cold type plug
trodes overheat or	 Overheated the engine 	Tune up
burn	 Loose spark plug 	Retighten
	Too lean mixture	Carburetor tuning
Magneto does not	Open- or short-circuited lead wires, or loose lead	Repair or replace
charge.	connections	
	 Short-circuited, grounded or open stator coil 	Replace

– MEMO –

MACHINE TUNING

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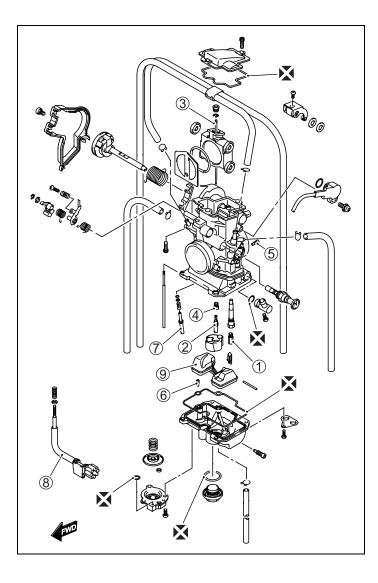
CARBURETOR TUNING

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.)	#175
2	* Slow jet (S.J.)	#42
3	* Jet needle (J.N.)	NKYT-5th
4	Starter jet	#75
(5)	Slow air jet (S.A.J.)	#100
6	Leak jet	#35
\overline{O}	* Pilot screw	1 and 3/4 turns out
(8)	Throttle stop	Adjust to the speci-
0	screw	fied idle speed.
9	Float height	8 mm (0.31 in)

Setting parts	Parts No.	
Main jet #170	09491-34010	
Main jet #180	09491-36008	
Jet needle NKZT	13383-35GF0	
* Holder, Jet needle	13220-35G00	

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.

TUNING PARTS	THROTTLE VALVE OPENING	
MAIN JET (M.J.)	3	
JET NEEDLE (J.N.) CLIP POSITION		
JET NEEDLE (J.N.) O.D.		
SLOW JET (S.J.) AND PILOT SCREW		
THROTTLE OPENING	1/4 1/2 3/4	

(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.	
Lean	#35	09492-35019
	#40	09492-40022
	#42	09492-42019
	#45	09492-45032
	#48	09492-48013
	#50	09492-50023
	#52	09492-52011
	#55	09492-55017
	#58	09492-58001
Rich	#60	09492-60016





PILOT SCREW (P.S.)

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

Air/fuel mixture	Pilot screw turn out
Lean	1 turn out
1	1 and 1/4 turns out
	1 and 1/2 turns out
	1 and 3/4 turns out
	2 turns out
•	2 and 1/4 turns out
Rich	2 and 1/2 turns out

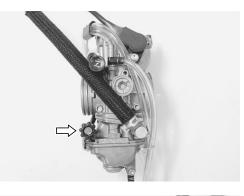




THROTTLE STOP SCREW

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.



DATA Throttle valve opening position

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

CAUTION

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



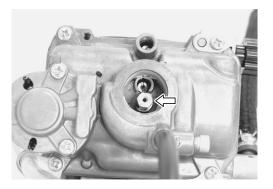
ENGINE IDLE SPEED..... 172-19

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	#150	09491-30018
	#152	09491-30019
T	#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
Rich	#190	09491-38011



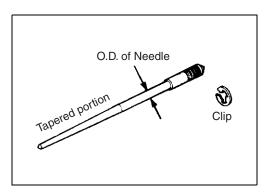


* Included alternated parts

INTERMEDIATE SYSTEM

JET NEEDLE (J.N.)

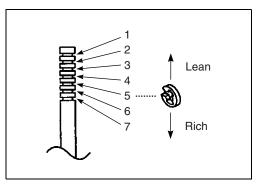
The jet needle is linked to the throttle valve by means of the needle clip. Its lower part is tapered and it has seven grooves cut in the upper part where the needle clip fits.



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 5th 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
Lean	NKZT-1st
	NKYT-1st
	NKZT-2nd
	NKYT-2nd
	NKZT-3rd
	NKYT-3rd
	NKZT-4th
	NKYT-4th
	NKZT-5th
	NKYT-5th
	NKZT-6th
	NKYT-6th
	NKZT-7th
Rich	NKYT-7th



Needle number

NKYT T O.D.

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.	
Lean	NKZV	13383-35GK0	2.795	
♠	NKYV	13383-35GJ0	2.795	
	NKZU	13383-35GH0	2.785	
	NKYU	13383-35GG0	2.765	
	* NKZT	13383-35GF0	2.775	
	NKYT	13383-35GE0	2.775	
	NKZS	13383-35GD0	2.765	
	NKYS	13383-35GC0	2.705	
	NKZR	13383-35GB0	2.755	
Rich	NKYR	13383-35GA0	2.755	

* Included alternated parts

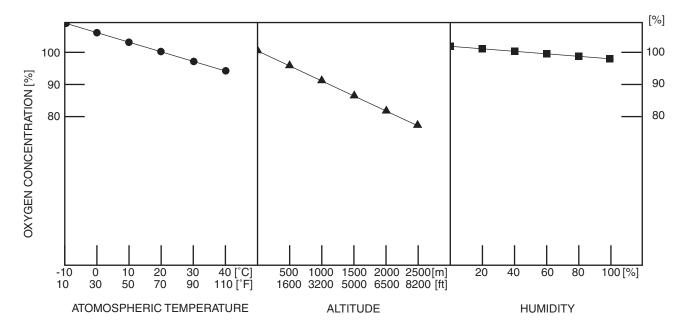
MACHINE TUNING 4-7

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:#175Jet needle:NKYT-5thSlow jet:#42Pilot screw:1 and 3/4 turns out

INCLUDED PARTS AND OPTIONAL PARTS Main jet

1		
Air/fuel mixture	SIZE	P/NO.
Lean	#150	09491-30018
	#152	09491-30019
T	#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
Rich	#190	09491-38011

Slow jet

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

Jet needle

Air/fuel mixture	SIZE	P/NO.
Lean	NKZV	13383-35GK0
♠	NKYV	13383-35GJ0
	NKZU	13383-35GH0
	NKYU	13383-35GG0
	* NKZT	13383-35GF0
	NKYT	13383-35GE0
	NKZS	13383-35GD0
	NKYS	13383-35GC0
	NKZR	13383-35GB0
Rich	NKYR	13383-35GA0

SHADED: STANDARD

* : INCLUDED ALTERNATE PARTS NONE : OPTIONAL PARTS

- ① Adjustment of slow system
- 1) Set the pilot screw as specified.
- 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 #42

If air/fuel mixture is rich, replace it with #40 slow jet. If air/fuel mixture is lean, replace it with #45 slow jet.

2 Adjustment of main system

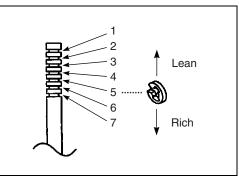
With the throttle opened 3/4 to full, make main system adjustment monitoring the air/fuel mixture condition after completion of slow system settings.

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

Ex. Main jet #175

If air/fuel mixture is rich, replace it with #172 main jet. If air/fuel mixture is lean, replace it with #178 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.

 Adjust the air/fuel mixture by turning the pilot screw within 1 – 2 and 1/2 turns out.

Air/fuel mixture	Pilot screw turn out
Lean	1 turn out
1	1 and 1/4 turns out
	1 and 1/2 turns out
	1 and 3/4 turns out
	2 turns out
● ●	2 and 1/4 turns out
Rich	2 and 1/2 turns out

 If the mixture can not be adjusted by the pilot screw within 1 − 2 and 1/2 turns out range, readjust the slow system ①.

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

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. (C3 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 11 click is the standard position.
- Compression damping force adjuster Standard setting: 11 clicks turn back

REBOUND DAMPING FORCE ADJUSTMENT

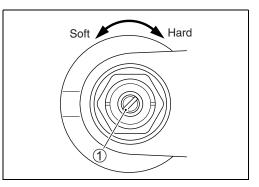
• Turn the adjuster screw clockwise until it stops (full hard position).

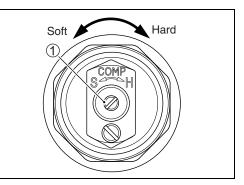
NOTE:

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

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

Rebound damping force adjuster Standard setting: 14 clicks turn back





OIL QUANTITY MINOR ADJUSTMENT

ADDING THE FORK OIL

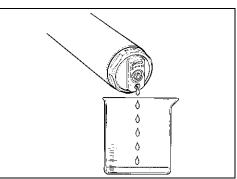
- Remove the air bleed screw 1.
- Add the fork oil with a injector from the air bleed hole.



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 (174-16)



NOTE:

If 1 ml (0.34/0.35 US/Imp oz) of fork oil is added/reduced, the oil level raises/falls approx. 1.8 mm (0.07 in). Measure the fork oil quantity added/reduced and record it to know the oil quantity after adjustment.

CAUTION

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

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

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

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

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.

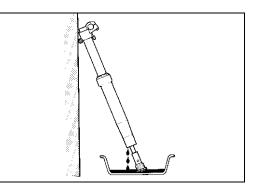
Scratches or other damage on the inner tube or on the oil seal lip will cause oil leak.

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. (2717-5)
- 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.

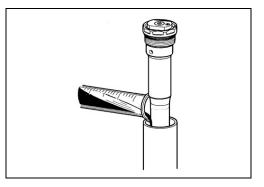


• Force out the remaining oil using compressed air completely.



- 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



	Parts No.	Spring rate	Identification (Slit mark on the spring end)	STD Oil quantity	Oil quantity adjustable range
Soft	51171-37FC0	4.4 N/mm (0.44 kgf/mm)	Ш	390 ml (13.18/13.73 US/Imp oz)	325 – 419 ml (10.99/11.44 – 14.16/14.75 US/Imp oz)
STD	51171-35G30	4.6 N/mm (0.46 kgf/mm)	II	385 ml (13.01/13.56 US/Imp oz)	320 – 414 ml (10.82/11.27 – 13.99/14.58 US/Imp oz)
Hard	51171-35G40	4.8 N/mm (0.48 kgf/mm)	1111	380 ml (12.84/13.38 US/Imp oz)	315 – 408 ml (10.65/11.09 – 13.79/14.37 US/Imp oz)

NOTE:

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

 Raise the outer tube and temporarily tighten the fork cap bolt (sub-tank). (17-16)

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

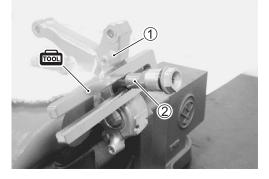
The fork oil quantity must be adjusted equally on both fork legs to provide equal performance.

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.

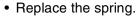
- Remove the fork cap bolt and drain fork oil. (17-17-5)
- Loosen the center bolt completely. (17-6)
- Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder ① and lock-nut
 ②. (17717-6)

09910-20115: Conrod holder



- Hold the lock-nut with a wrench and remove the center bolt. (137-17-6)
- Remove the push rod. (17-6)
- Remove the damper rod assembly and fork spring. (CF17-7)
- Hold the front fork inverted position for more than 20 minutes the allow the fork oil to fully drain. (2-3-4-12)
- Force out the remaining oil using compressed air completely. (



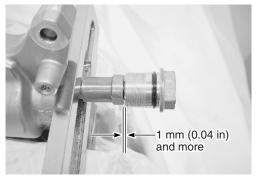


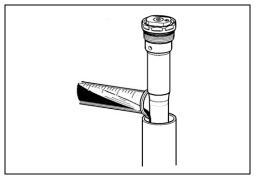
	SPRING/No.	SPRING RATE	Identification (Slit mark on the spring end)
Soft	51171-37FC0	4.4 N/mm (0.44 kgf/mm)	Ш
STD	51171-35G30	4.6 N/mm (0.46 kgf/mm)	II
Hard	51171-35G40	4.8 N/mm (0.48 kgf/mm)	1111



Approx.10 mm (0.39 in)







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

- 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. (17-17-15)
- Check or adjust the clearance between the lock-nut and center bolt to provide more than 1 mm (0.04 in) and more.
 (CF17-15)
- Tighten the lock-nut/center bolt to the specified torque.

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

• Tighten the center bolt to the specified torque.

Center bolt: 70 N·m (7.0 kgf-m, 50.5 lb-ft)

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

	SPRING	STD OIL QUANTITY	OIL QUANTITY ADJ. RANGE
Soft	51171-37FC0	390 ml (13.18/13.73 US/Imp oz)	325 – 419 ml (10.99/11.44 – 14.16/14.75 US/Imp oz)
STD	51171-35G30	385 ml (13.01/13.56 US/Imp oz)	320 – 414 ml (10.82/11.27 – 13.99/14.58 US/Imp oz)
Hard	51171-35G40	380 ml (12.84/13.38 US/Imp oz)	315 – 408 ml (10.65/11.09 – 13.79/14.37 US/Imp oz)

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

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	• Jump	1. Adjust both compression and rebound damping	
	 Large bumps 	force to a softer setting.	
	 Series of medium 	2. Decrease fork oil capacity.	
	bumps	3. Change the spring with an optional softer one.	
Feels too soft overall and	• Jump	1. Adjust the compression damping force to a	
bottoms	Large bump	stiffer setting.	
	 When braking 	2. Increase fork oil capacity.	
		3. Change the spring with an optional stiffer one.	
Feels too hard near end of	• Jump	1. Decrease fork oil capacity.	
travel			
Feels too soft near end of	• Jump	1. Adjust the compression damping force to a	
travel and bottoms	Large bump	stiffer setting.	
harshly		2. Increase fork oil capacity.	
Feels too hard in the	• Jump	1. Adjust the compression damping force to a	
beginning of stroke	Large bump	softer setting.	
	 Series of medium 		
	bumps		
	 Series of small bumps 		
Feels too soft and unsta-	 Series of medium 	1. Adjust the rebound damping force to a stiffer	
ble	bumps	setting.	
	Series of small bumps		
Bounces	• Jump	1. Adjust the rebound damping force to a stiffer	
	Large bump	setting.	
Bounces	Series of small bumps	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. (1-3-7-1-6)
- * Inspect the following items before attempting adjustment.
 - * Rear shock absorber damage and oil leakage. (232-33)
 - * Swingarm and links tighteness. (1372-33)
 - * Tire pressure. (1372-34)
 - * 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

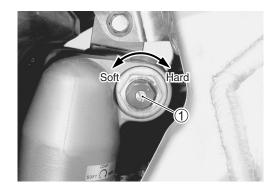
- Turn the adjust screw ① clockwise until it stops (full hard position).
- Turn the adjust screw ① counterclockwise about 8 clicks.

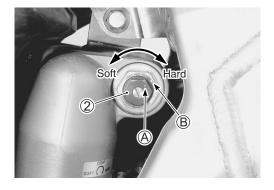
Standard setting: (Lo-side) 8 clicks turn back

High-side

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

Standard setting: (Hi-side) 2 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 rear frame assembly. (13718-3)
- Loosen the lock-nut ① with the special tool.

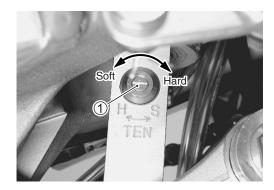
09910-60611: Universal clamp wrench

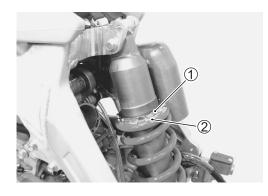
- Turn the adjuster ② clockwise or counterclockwise to change the spring pre-load.
- Tighten the lock-nut 1.
- Standard spring set length: 7.3 mm (0.29 in) compressed from spring free length Spring set length adjustable range: 247 – 263 mm (9.72 – 10.35 in)

[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.

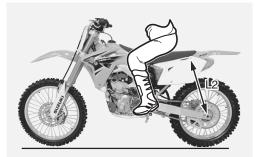
Spring	Part No.	Spring rate	Marking paint	Set-length adjustable range
Soft	62211-37FJ0	51 N/mm (5.1 kgf/mm)	Silver	
5011	62211-37FK0	53 N/mm (5.3 kgf/mm)	Orange	247 – 263 mm (9.72 – 10.35 in)
Standard	62211-35FM0	56 N/mm (5.6 kgf/mm)	Pink	[at spring free length 265 mm (10.43 in)]
Hard	62211-35G40	59 N/mm (5.9 kgf/mm)	Blue	

• 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 104 mm (4.09 in).

When the sag mea- sured is:	Adjustment procedure	
Less than 104 mm	Reduce spring pre-set length by turning	
(4.09 in)	the spring adjuster nut.	
More than 104 mm	Increase spring pre-set length by turning	
(4.09 in)	the spring adjuster nut.	



After the sag measurement has been set 104 mm (4.09 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	JumpSeries of bumps	 Adjust the low speed compression damping force to a softer setting. (See note below.) Adjust the rebound damping force to a softer setting. (See note below.) Change the spring with an optional softer one. ([4-19) Adjust the high speed compression damping force to a softer setting. (See note below.)
Kicks up	Medium to large bumps	 Adjust the low speed compression damping force and rebound damping force to a harder setting. (See note below.) Adjust the high speed compression damping force to a harder setting. (See note below.)
Bottom feeling or feels too soft and unstable	 Jump Large bump Series of bumps 	 Adjust the low speed compression damping force to a harder setting. (See note below.) Adjust the rebound damping force to a harder setting. (See note below.) Change the spring with an optional stiffer one. ((4-19)
Feels harsh and hits bumps too harshly	 Jump Large bump Series of bumps 	 Adjust the low speed compression damping force to a harder setting. (See note below.) Adjust the rebound damping force to a harder setting. (See note below.) 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	 Accelerating Series of small bumps 	 Adjust the rebound damping force to a harder setting. (See note below.) If traction feeling does not improve after adjust- ing above mention, adjust the low speed com- pression damping force to a softer setting. (See note below.) 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	Decelerating or braking	 Adjust the high speed compression damping force to a softer setting. (See note below.) 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, 104 mm (4.09 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

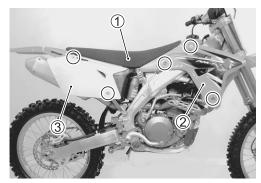
- Drain engine oil. (2-11)
- Drain engine coolant. (
- \bullet Remove the seat 1.
- \bullet Remove the radiator covers 2, left and right.
- Remove the right frame cover ③.
- Place the jack under the frame to support the motorcycle.

A WARNING

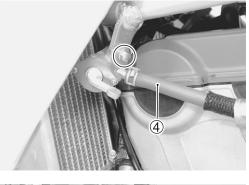
To prevent the motorcycle from falling, make sure to support the frame with a jack.

- Turn the fuel valve lever to the "OFF" position and disconnect the fuel hose ④.
- Remove the fuel valve mounting bolt.

• Remove the fuel tank with the fuel valve.







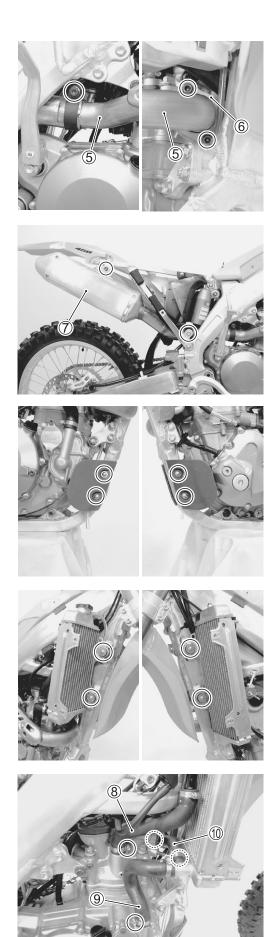


- Remove the exhaust pipe 5 and exhaust pipe gasket 6.
- Remove the muffler $\overline{\mathcal{O}}$.

• Remove the front protectors, left and right.

• Remove the radiator mounting bolts, left and right.

- Disconnect the radiator hose (8), (9).
- Remove the radiator hose 1.



- Disconnect the magneto lead wire coupler (f) and clamp.
- Disconnect the clutch cable 12.

- Remove the carburetor. (12-5)
- Disconnect the spark plug cap.

• Remove the cotter pin (3), washer (4) and clip (5).

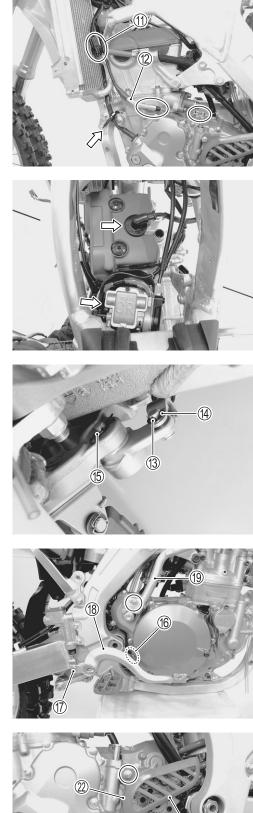
- Remove the brake pedal spring (6), master cylinder rod pin (7) and brake pedal (8).
- Remove the kick starter lever (19.

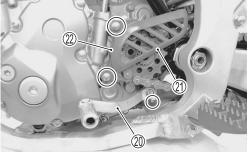
• Remove the gearshift lever 20.

NOTE:

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

- Remove the engine sprocket cover \mathfrak{D} .
- Remove the front chain guide plate 2 .





- Remove the drive chain clip ${\mathfrak A}$ and release the drive chain.
- Remove the circlip ${\mathfrak A}$ and engine sprocket ${\mathfrak B}.$

09900-06107: Snap ring pliers

- Remove the front engine brackets (26), left and right.
- Remove the upper engine brackets (2), left and right.
- Remove the engine mounting bolt and nut B.

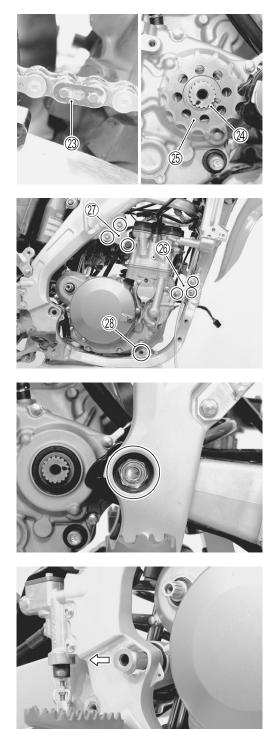
• Remove the swingarm pivot shaft nut and washer.

• 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	21 mm (0.83 in)
2	16 mm (0.63 in)
3	43 mm (1.69 in)
4	28 mm (1.10 in)
5	135 mm (5.31 in)
6	131 mm (5.16 in)
7	125 mm (4.92 in)

Tightening torque

	N∙m	kgf-m	lb-ft
①, ②, ⑥ (Bolt, Nut)	40	4.0	29.0
3, 7 (Bolt, Nut)	45	4.5	32.5
④, ⑤ (Bolt, Nut)	55	5.5	40.0
(Shaft, Washer, Nut)	70	7.0	50.5

NOTE:

The chamfer side A of washer faces outside.

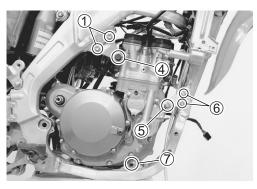
CAUTION

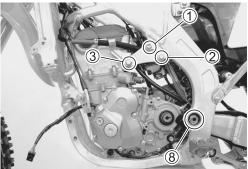
The engine mounting nut is the self-lock type and cannot be used repeatedly. If the self-lock effect is lose, replace it with a new one.

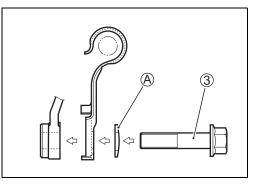
• Install the engine sprocket (9) and snap ring (10).

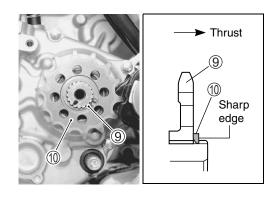
CAUTION

- * Replace the snap ring with a new one.
- * Seat the snap ring in the groove and locate its end as shown in the illustration.









- Connect both ends of the drive chain with the joint pin (1) inserted from the wheel side (A) as installed on the motorcycle.
 (2) O-ring seal ... 4 pcs.
 - I Joint plate

CAUTION

Replace the joint, clip and O-ring seals with new ones.

NOTE:

When installing the joint plate (3), its stamp mark must face the outside.

• 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.

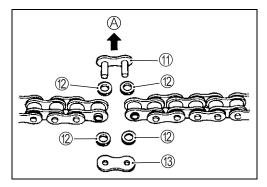
Gearshift lever bolt: 10 N⋅m (1.0 kgf-m, 7.0 lb-ft)

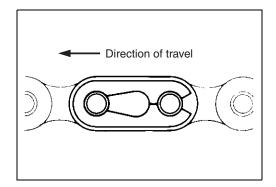
• Apply grease to the brake pedal pivot bolt.

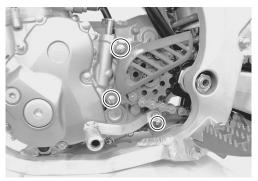
A 99000-25010: SUZUKI SUPER GREASE "A" or equivalent

• Install the brake pedal and brake pedal spring. (19-23)

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



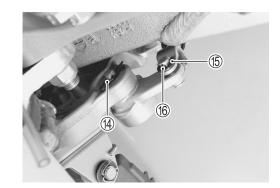






• Install the clip (4), washer (5) and cotter pin (6).

CAUTION
Replace the cotter pin l with a new one.

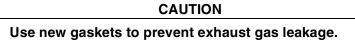


Install the kick starter lever in the correct position. (8-7)
 Kick starter lever bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

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

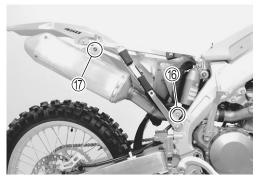
• Temporarily tighten the muffler mounting front bolt (6) and rear bolt (7) temporarily.

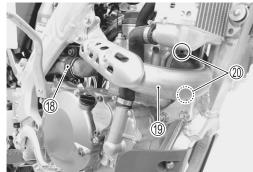
• Install the muffler gasket (18) and exhaust pipe gasket (19).



- Insert the exhaust pipe to muffler and cylinder head.
- Temporarily tighten the exhaust pipe nuts D .





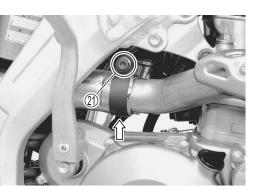


• Tighten the connector clamp bolt (2) temporarily.

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 20
- 2)Muffler mounting front bolt 16
- 3)Muffler mounting rear bolt ①
- 4)Connector clamp bolt 20



Exhaust pipe nut: 23 N·m (2.3 kgf-m, 16.5 lb-ft) Muffler mounting bolt (Front): 43 N·m (4.3 kgf-m, 31.0 lb-ft) Muffler mounting bolt (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)

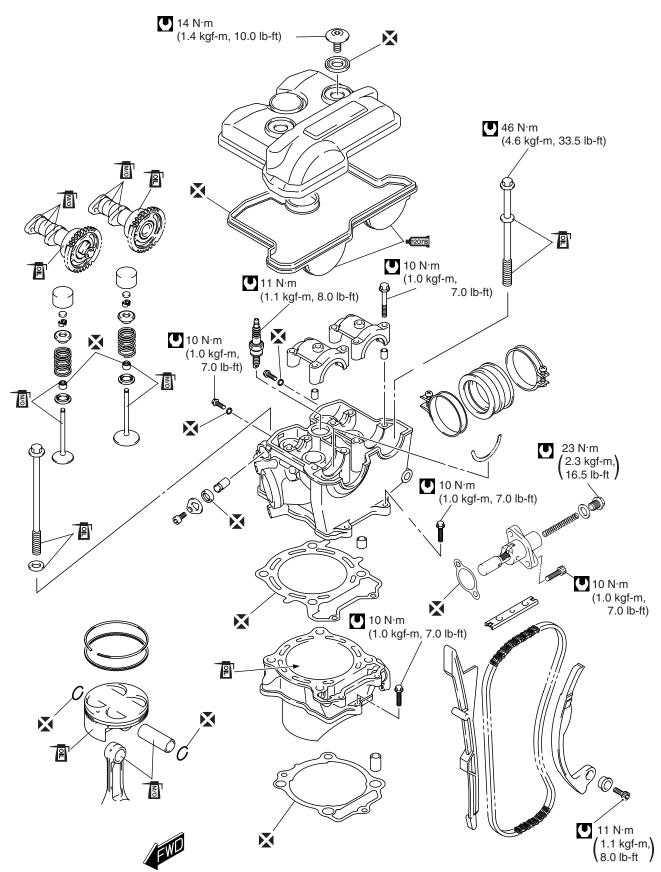
INSPECTION AFTER INSTALLATION

- Engine oil level (2-11)
- Engine coolant level and leakage (2-14, -15)
- Fuel leakage (2-20)
- Exhaust gas leakage
- Throttle cable play (2-17)
- Clutch cable play (2-16)
- Drive chain slack (272-27)
- Brake pedal height (2-32)
- Wire, cable and hose routing (2719-18 to -22)

– MEMO –

CYLINDER HEAD, CYLINDER AND PISTON

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CONSTRUCTION CYLINDER HEAD, CYLINDER AND PISTON

ENGINE TOP SIDE

CYLINDER HEAD COVER REMOVAL

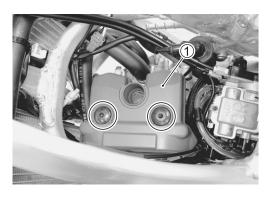
- Remove the seat. (2-5-2)
- Remove the radiator covers and fuel tank. (2-5-2)
- Disconnect the spark plug cap and remove the spark plug. $(27)^{-2-7}$
- Remove the cylinder head cover 1 and cylinder head cover gasket.

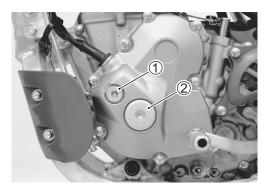


- Remove the cylinder head cover. (
- Remove the TDC plug 1 and crankshaft hole plug 2.
- Place a wrench over the crankshaft and turn it counter clockwise to align the TDC mark (A) with the center of the groove (B) of the timing inspection hole.

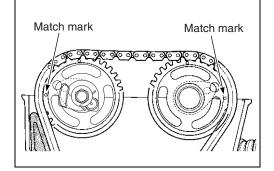
NOTE:

The piston must be at TDC on the compression stroke.









- Remove the cam chain tension adjuster cap bolt ③ 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 \bigcirc from cam chain \bigcirc .
- Remove the dowel pins and C-rings (8).

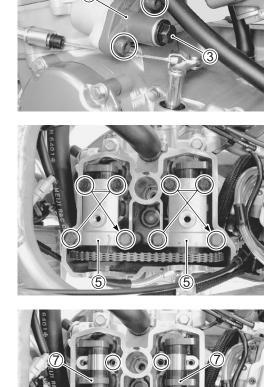
CAUTION

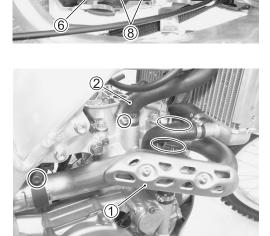
Do not drop the cam chain 6, dowel pins and C-rings 8 into the crankcase.

CYLINDER HEAD REMOVAL

- Remove the camshafts. (
- Remove the spark plug. (2-7)
- Remove the carburetor. (12-5)
- Drain engine coolant. (13713-3)
- Remove the exhaust pipe 1 and gaskets.
- \bullet Loosen the clamp and disconnect the radiator hose 2.

• Remove the upper engine mounting brackets, left and right.







- Remove the cylinder head base bolts 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.



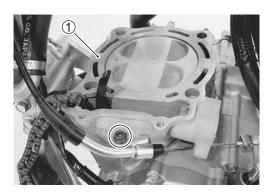
- Remove the cylinder head. (
- Remove the cylinder 1 by removing the cylinder base bolt.

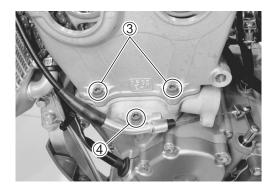
CAUTION

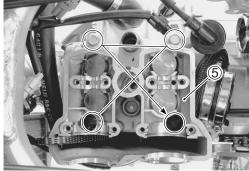
Do not drop the cam chain into the crankcase.

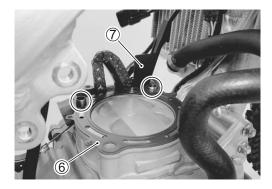
NOTE:

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









- Remove the cylinder gasket 2 and dowel pins.

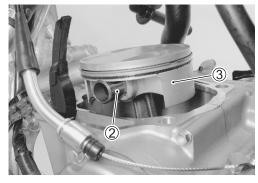
PISTON AND PISTON RING REMOVAL

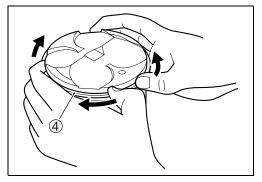
- Remove the cylinder. (2-6-5)
- Place a clean rag over the cylinder base to prevent the piston pin circlip ① from dropping into the crankcase.
- Remove the piston pin circlip ①.
- Remove the piston pin (2) and piston (3).

- 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.



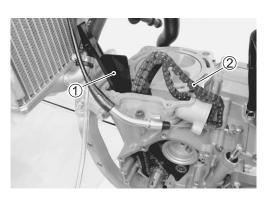


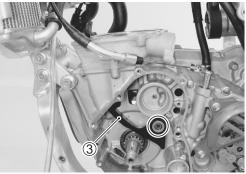




CAM CHAIN, CAM CHAIN TENSIONER AND CAM CHAIN GUIDE REMOVAL

- Remove the cylinder head. (
- Remove the magneto cover and magnet rotor. (
- Remove the cam chain No.1 guide 1.
- Remove the cam chain 2.
- Remove the cam chain tensioner ③.

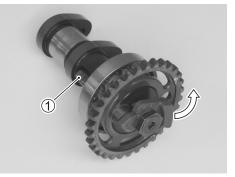




ENGINE TOP COMPONENTS INSPECTION AND SERVICE

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 $\ensuremath{\boldsymbol{ \oplus}}$ using the micrometer.
- Replace a camshaft if the cams are worn to the service limit.

DATA Cam height (H)

Service Limit IN.: 33.27 mm (1.310 in) EX.: 33.39 mm (1.315 in)

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:

09900-22301: Plastigauge 09900-22302: Plastigauge

NOTE:

Install the camshaft journal holders to their original positions.

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

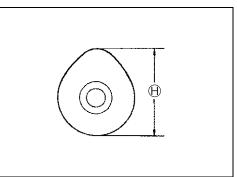
Camshaft journal holder bolt: 10 N⋅m (1.0 kgf-m, 7.0 lb-ft)

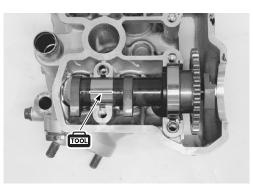
NOTE:

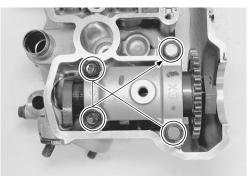
Do not rotate the camshaft with the plastigauge in place.

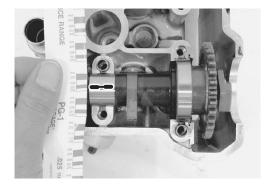
• Remove the camshaft journal holders, and read the width of the compressed plastigauge with envelope scale. This measurement should be taken at the widest part.

Camshaft journal oil clearance: Service Limit (IN. & EX.): 0.150 mm (0.0059 in)









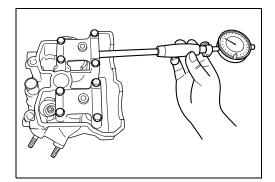
- If the camshaft journal oil clearance measured exceeds the limit, measure the inside diameter of the camshaft journal holder and outside diameter of the camshaft journal.
- Replace the camshaft or the cylinder head depending upon which one exceeds the specification.

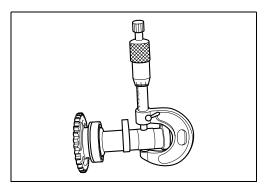
Camshaft journal holder I.D.: Standard (IN & EX): 22.012 – 22.025 mm (0.8667 – 0.8671 in)

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

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

09900-20205: Micrometer (0 – 25 mm)





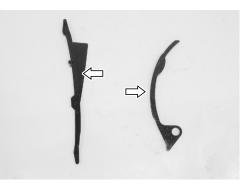
CAM CHAIN TENSION ADJUSTER INSPECTION

- Remove the cam chain tension adjuster cap bolt and spring.
- 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

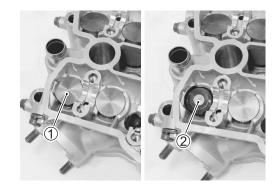
Identify the position of each removed part. Organize the parts in their respective groups (i.e., intake or exhaust) so that they can be installed in their original locations.

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

09916-14510: Valve lifter 09916-14521: Valve lifter attachment 09916-84511: Tweezers

CAUTION

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





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

• Remove the valve (6) from the combustion chamber side.

• Remove the valve stem seal $\overline{0}$ and spring seat $\underline{8}$.

CAUTION Do not reuse the removed valve stem seal.

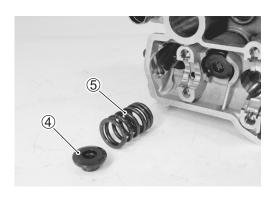
• Remove the other valves in the same manner as described previously.

CYLINDER HEAD DISTORTION

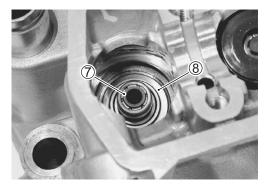
- Decarbonize the combustion chamber.
- Check the gasket surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places indicated.
- If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder head.

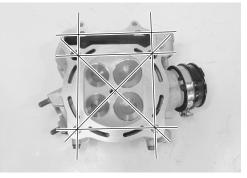
Cylinder head distortion: Service Limit: 0.05 mm (0.002 in)

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.

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

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

CAUTION

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

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.
- Valve head radial runout (IN & EX): Service Limit: 0.03 mm (0.001 in)
- © 09900-20607: Dial gauge (1/100 mm) 09900-20701: Magnetic stand 09900-21304: V-block set (100 mm)

CAUTION

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

VALVE STEM AND VALVE FACE WEAR CONDITION

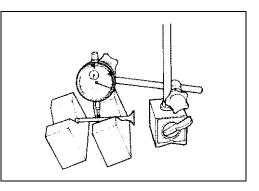
- Visually inspect each valve stem and valve face for wear and pitting.
- If it is worn or damaged, replace the valve with a new one.

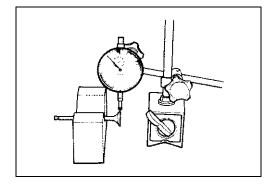
VALVE STEM DEFLECTION

- 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.

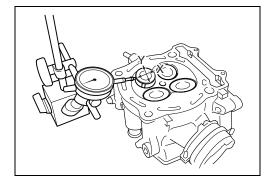
Valve stem deflection (IN & EX): Service Limit: 0.25 mm (0.010 in)

09900-20607: Dial gauge (1/100 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.

Valve stem O.D.:

Standard (IN) : 5.475 – 5.490 mm (0.2156 – 0.2161 in) (EX): 5.455 – 5.470 mm (0.2148 – 0.2154 in)

09900-20205: Micrometer (0 – 25 mm)

NOTE:

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

VALVE GUIDE SERVICING

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

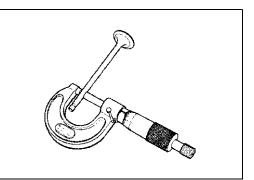
09916-44910: Valve guide remover/installer

NOTE:

- * Discard the removed valve guide subassemblies.
- * Only oversized valve guides are available as replacement parts. (Part No. 11115-45G70)
- Re-finish the valve guide holes in cylinder head with the reamer and handle.
- 09916-34580: Valve guide reamer (10.8 mm) 09916-34542: Reamer handle

CAUTION

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







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

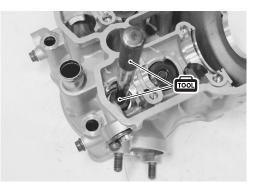
09916-44310: Valve guide remover/installer (1) 09916-53360: Attachment (2)

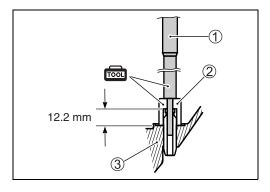
NOTE:

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

CAUTION

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





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

09916-34550: Valve guide reamer 09916-34542: Reamer handle

NOTE:

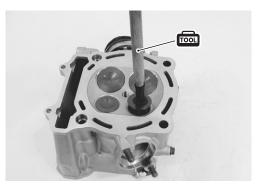
- * Be sure to cool down the cylinder head to ambient air temperature.
- * Insert the reamer from the combustion chamber and always turn the reamer handle clockwise.

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.

1001 09916-10911: Valve lapper set



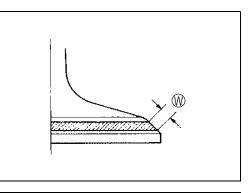


 If the seat width

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

PATA Valve seat width \mathbb{W} :

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



VALVE SEAT SERVICING

The valve seats (1) for both the intake valve (2) and exhaust valve (3) are machined to three different angles. The seat contact surface is cut at 45° .

	INTAKE	EXHAUST
Seat angle	30°, 45°, 60°	15°, 45°, 60°
Seat width	0.9 – 1.1 mm (0.035 – 0.043 in)	\leftarrow
Valve diameter	36 mm (1.42 in)	29 mm (1.14 in)
Valve guide I.D.	5.500 – 5.512 mm (0.2165 – 0.2170 in)	\leftarrow

CAUTION

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

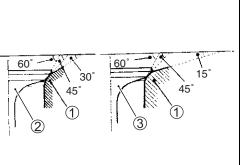
Do not use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish but not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.

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. (\bigcirc 2-20)



- 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.

A 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) : 34.0 mm (1.34 in) (EX): 33.3 mm (1.31 in)

09900-20102: Vernier calipers

Valve spring tension:

Standard (IN) : 119 – 137 N (12.1 – 14.0 kgf)/30.9 mm (26.7 – 30.9 lbs/12.2 in) (EX): 73 – 84 N (7.4 – 8.6 kgf)/30.9 mm (16.3 – 19.0 lbs/12.2 in)

VALVE REASSEMBLY

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

CAUTION

Do not reuse the removed stem seal.

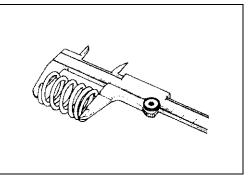
• Insert the valve, with its stem coated with MOLYBDENUM OIL SOLUTION all around and along the full stem length without any break.

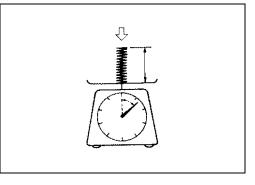
CAUTION

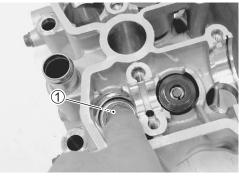
When inserting the valve, take care not to damage the lip of the stem seal.

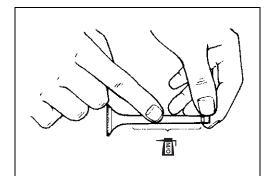
^T MOLYBDENUM OIL SOLUTION











- 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, 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.
- 69916-14510: Valve lifter 09916-14521: Valve lifter attachment 09916-84511: Tweezers
- Be sure that the rounded lip € of the cotter fits snugly into the groove € 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.

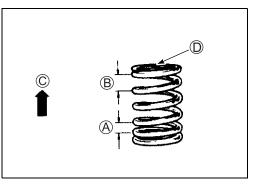
Be careful not to damage the valve and valve stem when handling it.

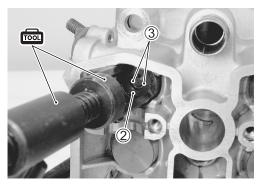
④ Valve spring retainer⑤ Valve cotter

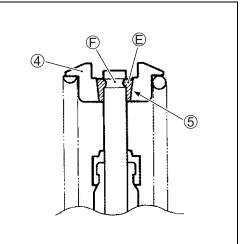
Install the tappet shims and the tappets to their original positions.

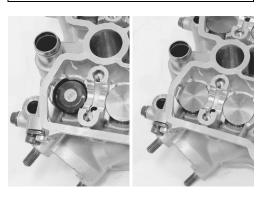
NOTE:

- * 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.









OIL SEAL INSPECTION

- Remove the retainer ① and plug ②.
- Inspect the oil seal lip for wear and damage.

OIL SEAL REMOVAL

- Remove the retainer 1 and plug 2.
- Remove the oil seal ③.

OIL SEAL INSTALLATION

• Apply SUZUKI SUPER GREASE "A" to the oil seal clip.

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

• Fit a new oil seal with special tools.

101 09913-70210: Bearing installer set Oil seal: ϕ 17 Attachment

INTAKE PIPE REMOVAL

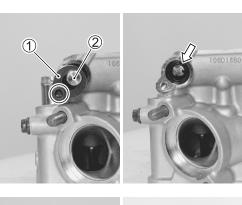
• Remove the intake pipe ①.

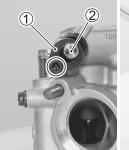
INTAKE PIPE INSTALLATION

• Install the intake pipe.

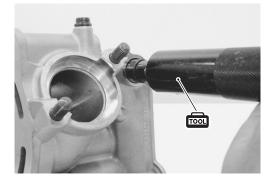
NOTE:

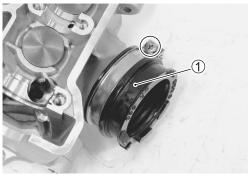
- * The intake pipe with the marked (CARB SIDE) (A) side facing toward the carburetor side.
- * Fit the recess [®] of the intake pipe into the projection [©] of the cylinder head.

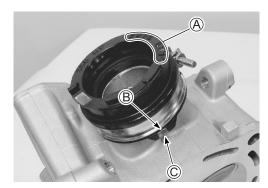












CYLINDER INSPECTION

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)

09900-20803: Thickness gauge

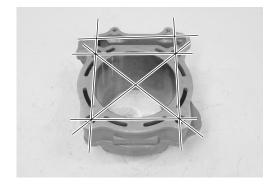
CYLINDER BORE

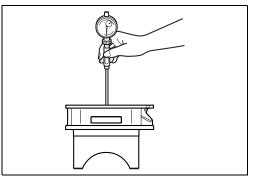
- Inspect the cylinder wall for any scratches, nicks or other damage.
- Measure the cylinder bore diameter at six places.

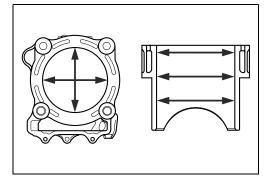
Cylinder bore

Standard: 95.500 - 95.515 mm (3.7598 - 3.7604 in)

09900-20530: Cylinder gauge set 09900-20513: Rod (94 mm)







PISTON AND PISTON RING INSPECTION

PISTON DIAMETER

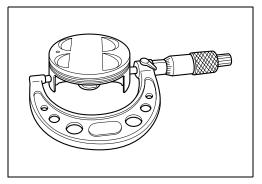
- Using a micrometer, measure the piston outside diameter at 15 mm (0.59 in) (A) from the piston skirt end.
- If the measurement is less than the limit, replace the piston.

Piston diameter:

Service Limit: 95.380 mm (3.7551 in) at 15 mm (0.59 in) from the skirt end

09900-20204: Micrometer (75 – 100 mm)





PISTON-TO-CYLINDER CLEARANCE

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

PATA 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.

PATA Piston pin bore:

Service Limit: 19.030 mm (0.7492 in)

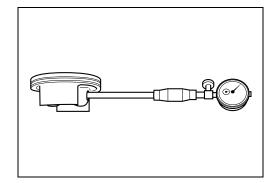
09900-20602: Dial gauge (1/1 000 mm) 09900-22403: Small bore gauge (18 – 35 mm)

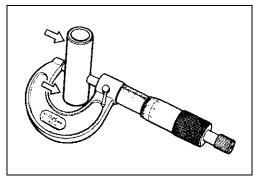
- Measure the piston pin outside diameter at three positions using the micrometer.
- If any of the measurements are out of specification, replace the piston pin.

PATA Piston pin O.D.:

Service Limit: 18.980 mm (0.7472 in)

69900-20205: 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.
- 09900-20803: Thickness gauge 09900-20205: Micrometer (0 – 25 mm)
- Piston ring-to-groove clearance: Service Limit (1st): 0.180 mm (0.007 in)
- **PATA** Piston ring groove width:

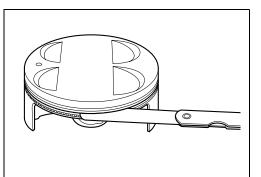
Standard (1st) : 0.78 – 0.80 mm (0.0307 – 0.0315 in) : 1.30 – 1.32 mm (0.0512 – 0.0520 in) (Oil) : 2.01 – 2.03 mm (0.0791 – 0.0799 in)

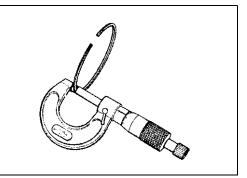
PATA Piston ring thickness:

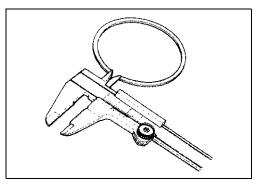
Standard (1st) : 0.71 – 0.76 mm (0.0279 – 0.0299 in) : 1.08 – 1.10 mm (0.0425 – 0.0433 in)

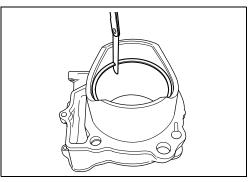
PISTON RING FREE END GAP AND PISTON RING END GAP

- 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.
- Piston ring free end gap: Service Limit (1st): 6.0 mm (0.23 in)
- 09900-20102: Vernier calipers
- Piston ring end gap: Service Limit (1st): 0.50 mm (0.020 in)
- 09900-20803: Thickness gauge









CRANKSHAFT AND CONROD INSPECTION

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

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.

Conrod small end I.D.: Service Limit: 19.040 mm (0.7496 in)

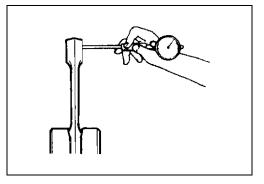
09900-20602: Dial gauge (1/1 000 mm, 1 mm) 09900-22403: Small bore gauge (18 – 35 mm)

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)

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

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: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

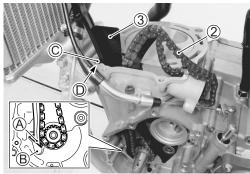
- Install the cam chain (2) to the crankshaft sprocket.
- Insert the cam chain No.1 guide end (A) into the recess (B) of the crankcase securely.

CAUTION

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

- Install the magneto cover and magneto rotor.
 (14-10 to -11)
- Install the cylinder head and cylinder head cover.
 (32)





PISTON AND PISTON RING INSTALLATION

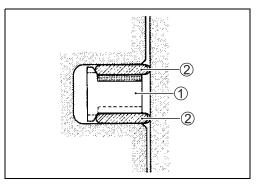
Install the piston and piston ring in the reverse order of removal. Pay attention to the following points:

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.

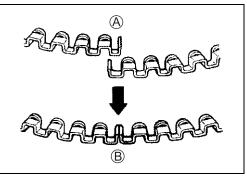
NOTE:

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.

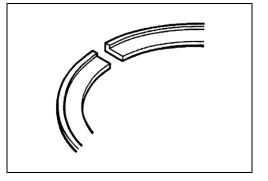


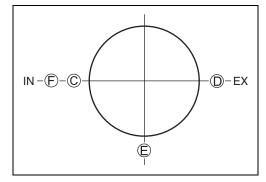
• Be sure to bring the concave side of 1st ring to the top when fitting it to the piston.

- Position the gaps of the two ring as shown. Before inserting a piston into the cylinder, check that the gaps are so located.
 - © 1st ringD Upper side railE Spacer

A INCORRECTB CORRECT

E 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.



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

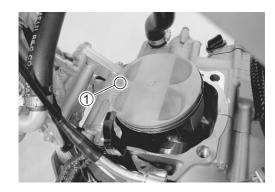
CAUTION

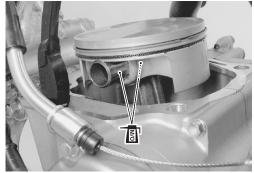
Use a new piston pin circlip 2 to prevent circlip failure.

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 "1215" to the crankcase as shown.

■1215 99000-31110: SUZUKI BOND "1215" or equivalent

• 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.

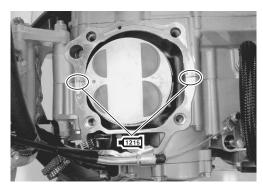
NOTE:

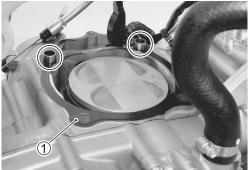
Fit the bracket to the cylinder base bolt 2.

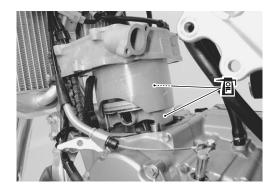
- Insert the cam chain guide end (A) into the recess (B) of the crankcase securely.

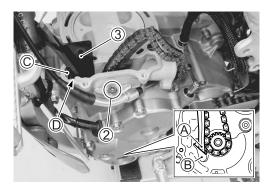
CAUTION

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.

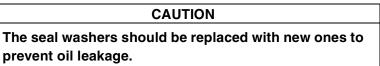
• Place the cylinder head 2 on the cylinder.

CAUTION Do not drop the cam chain into the crankcase.

er.



• Install the seal washers to the cylinder head bolts as shown.



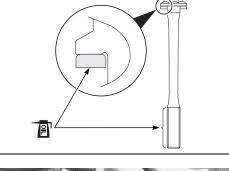
- Apply engine oil to the washers and thread portion of the bolts before installing the cylinder head bolts.
- With the head snugly seated on the cylinder, secure it by tightening the bolts in diagonal stages.
- Tighten the cylinder head bolts to the specified torque.

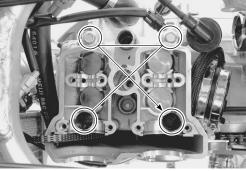
Cylinder head bolt: Initial 25 N·m (2.5 kgf-m, 18.0 lb-ft) Final 46 N·m (4.6 kgf-m, 33.5 lb-ft)

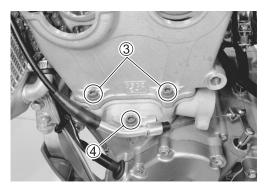
• After tightening the cylinder head bolts to specification, tighten the cylinder head base bolts ③ and cylinder base bolt ④ to the specified torque.

Cylinder head base bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft) Cylinder base bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

- Install the engine mounting upper brackets. (25-5-6)
- Install the exhaust pipe. (1375-8)
- Install the spark plug. (2-7)
- Install the carburetor. (







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 counter-clockwise to align the TDC mark (A) with the center of the groove (B) of the timing inspection hole.

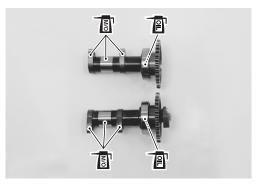
CAUTION

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 jurnal holders and cam faces. Also, apply engine oil to the camshaft bearings.



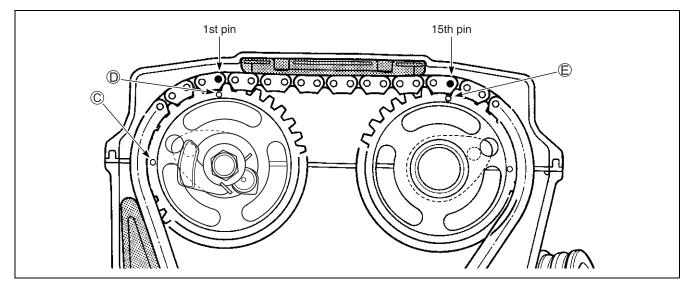


T MOLYBDENUM OIL SOLUTION

- 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 D should now be pointing straight up. Starting from the roller pin that is directly above the timing marked D, count out 15 roller pins (from the exhaust camshaft side going towards the intake camshaft side).
- Engage the 15 roller pin on the cam chain with the timing marked (E) 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.
- Tighten the camshaft journal holder bolts to the specified torque in diagonal stages.

NOTE:

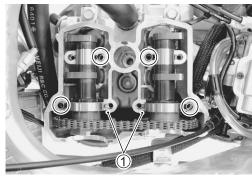
- * Camshaft journal holders marked "EX" are for the exhaust side and those marked "IN" are for the intake side.
- * When tightening the camshaft journal holder bolts, the piston position must be at TDC on the compression stroke.
- Tighten the camshaft journal holder bolts to the specified torque.

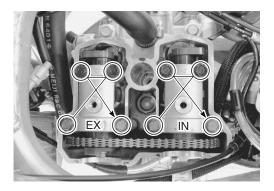
NOTE:

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.

• Install a new gasket 2.

CAUTION

Use a new gasket to prevent oil leakage.

- Install the cam chain tension adjuster ③ with "UP" mark faced upward.
- 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.
- Install the gasket (5) and cam chain tension adjuster cap bolt (6).

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.

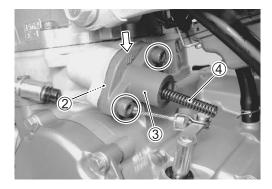
After installing the cam chain tension adjuster, rotate the crankshaft (two turns), and recheck the positions of the cam-shafts. (C_3-6-30)

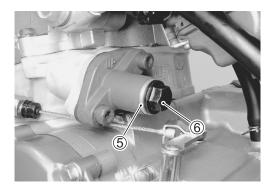
CAUTION

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. (2-2-20)









• Apply SUZUKI SUPER GREASE "A" to the O-rings.

🗛 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

CAUTION

Use the new O-rings to prevent oil leakage.

• 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 new gasket to the cylinder head cover.

CAUTION

Use the new gaskets to prevent oil leakage.

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

1207E 99000-31140: SUZUKI BOND "1207B" or equivalent

- Place the cylinder head cover on the cylinder head.
- Fit a new gasket to each cylinder head cover bolt.

CAUTION

Use the new gaskets to prevent oil leakage.

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

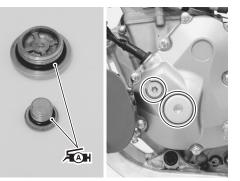
Cylinder head cover bolt:

Initial 10 N·m (1.0 kgf-m, 7.0 lb-ft) Final 14 N·m (1.4 kgf-m, 10.0 lb-ft)

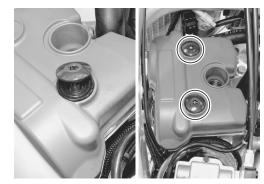
- Install the spark plug cap and spark plug.
- Install the radiator covers and fuel tank.
- Install the seat.

INSPECTION AFTER INSTALLATION

- Engine oil leakage
- Engine coolant level and coolant leakage (2-13, -14)
- Fuel leakage (2-19)
- Exhaust gas leakage
- Throttle cable play (2-16)
- Clutch lever play (2-15)
- Wire, cable and hose routing (19-18 to -22)





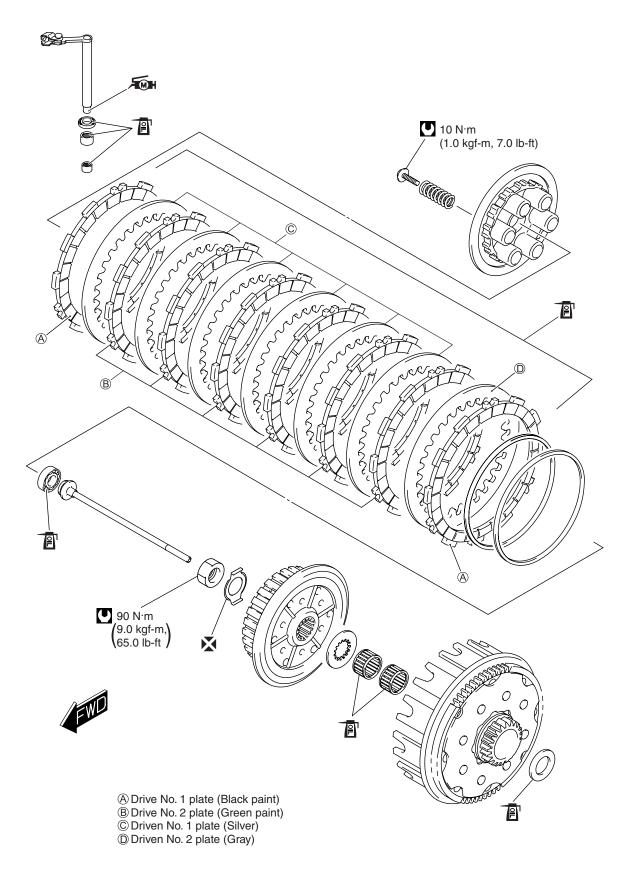


CLUTCH

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CONSTRUCTION CLUTCH



CLUTCH PLATE

REMOVAL

- Drain engine oil. (2-11)
- Remove the brake pedal. (
- Remove the clutch cover 1 and its gasket.

• Hold the clutch housing with the special tool.



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

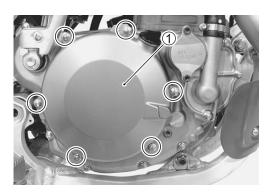
09920-53740: Clutch sleeve hub holder

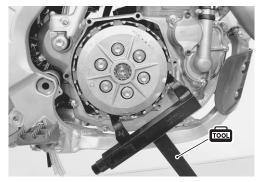
• Remove the clutch spring set bolts and clutch springs.

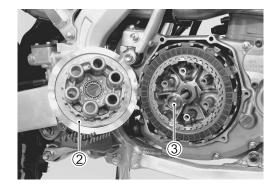
NOTE:

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

• Remove the clutch pressure plate (2) and push rod (3).



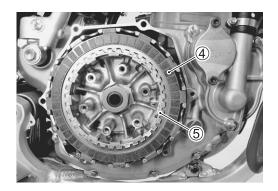


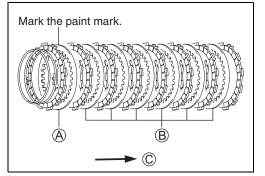


- Remove the clutch drive plates 4 and driven plates 5.

NOTE:

Mark the paint mark (A) to the clutch driven No. 2 plate.





- A Clutch driven No. 2 plate
 B Clutch driven No. 1 plate
 C Direction of outside
- Remove the spring washer 6 and spring washer seat 7.

INSPECTION

DRIVE PLATE

• Measure the drive plate thickness.

Drive plate thickness Service Limit: 2.77 mm (0.109 in)

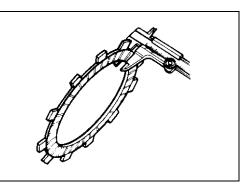
09900-20101: Vernier calipers

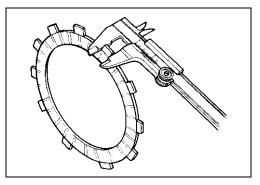
- Inspect the drive plates for wear, distortion and discoloration.
- If the drive plate thickness is found to have reached the limit, replace it with a new one.
- Measure the drive plate claw width.
- Replace the drive plates found to have worn down to the limit.

Drive plate claw width

Service Limit: 13.05 mm (0.514 in)

09900-20101: Vernier calipers





DRIVEN PLATE

• Measure the driven plate distortion.

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

09900-20803: Thickness gauge

- Inspect the driven plates for wear and discoloration.
- Replace driven plates which exceed the limit.

CLUTCH SPRING

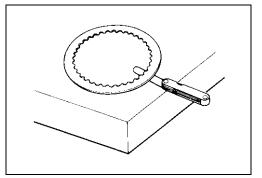
- Measure the clutch spring free length.
- Replace all the springs if any spring is not within the limit.

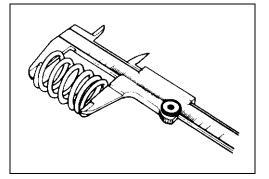
Clutch spring free length Service Limit: 48.3 mm (1.90 in)

09900-20101: Vernier calipers

NOTE:

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





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



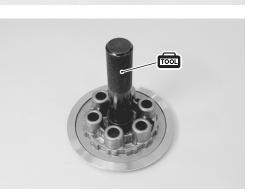
• Press the bearings with the special tools.

09913-70210: Bearing remover/installer set Bearing: ϕ 32 attachment

RELEASE BEARING REPLACEMENT • Remove the release bearing with the special tools.

09913-70210: Bearing remover/installer set

Bearing: ϕ 25 attachment



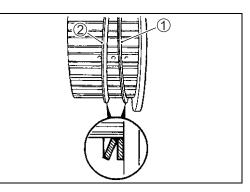


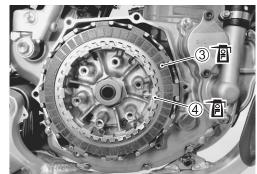


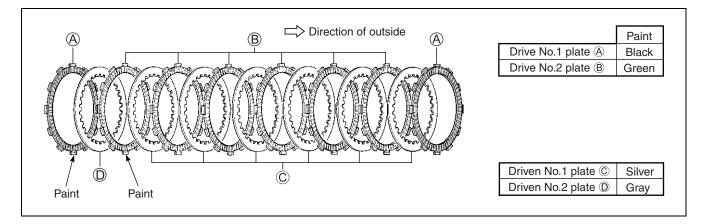
INSTALLATION

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

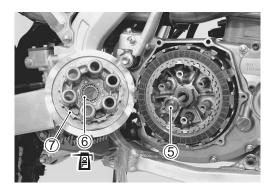
- Install the spring washer seat ① and spring washer ② onto the clutch sleeve hub correctly.
- Apply engine oil to the drive plates (3) and driven plates (4).
- Install the clutch drive plates and driven plates one by one into the clutch sleeve hub in the prescribed order as show in illustration.







- Install the push rod (5).
- Apply engine oil to the release bearing 6.
- Install the clutch pressure plate $\widehat{\mathcal{O}}$.



- 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.

09920-53740: Clutch sleeve hub holder

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

NOTE:

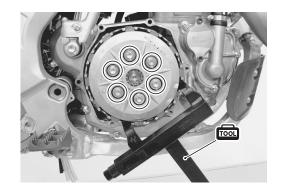
Tighten the clutch spring set bolts diagonally.

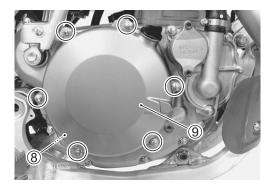
Clutch spring set bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

- Replace the gasket 8 with a new one.
- Fit the clutch cover (9) and bolts. Tighten the clutch cover bolts diagonally.

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

• Install the brake pedal. (137-16-18)





INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (2-11)
- Clutch cable play (2-15)
- Smooth operation of clutch assembly

PRIMARY DRIVEN GEAR AND CLUTCH SLEEVE HUB

REMOVAL

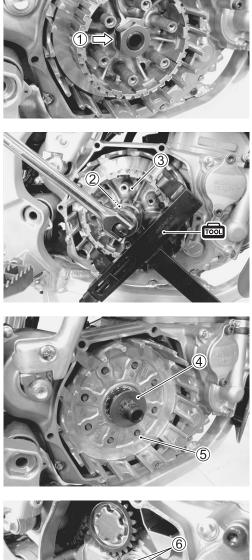
- Remove the clutch cover. (27-3)
- Remove the pressure plate and clutch plates. (27-3, -4)
- Flatten the lock washer 1.

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

09920-53740: Clutch sleeve hub holder

- Remove the nut (2), lock washer and clutch sleeve hub (3).
- Remove the washer ④ and primary driven gear ⑤.

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





INSTALLATION

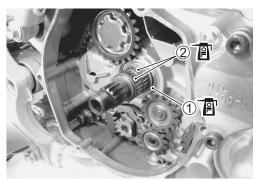
Install the primary driven gear and clutch sleeve hub in the reverse order of removal. Pay attention to the following points:

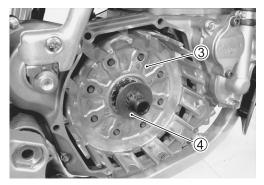
- Apply engine oil to the spacer and needle bearings .
- Install the spacer 1 and needle bearings 2.
- Install the primary driven gear ③.
- Install the washer ④.

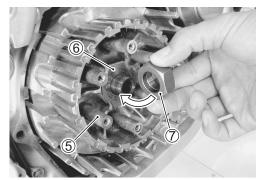
• Fit the clutch sleeve hub (5), new lock washer (6) and clutch sleeve hub nut (7).

NOTE:

The concave side of clutch sleeve hub nut faces inside.







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

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.

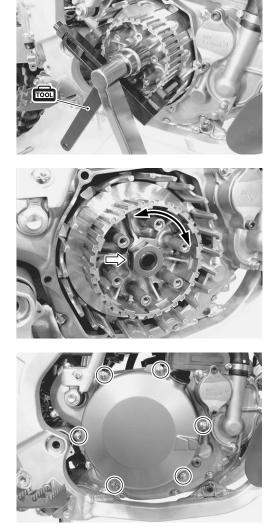
- Reassemble the clutch plates and pressure plate. (
- Replace the gasket with a new one.
- Fit the clutch cover and bolts. Tighten the clutch cover bolts diagonally.

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

• Install the brake pedal. (1716-18)

INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (2-11)
- Clutch cable play (2-16)
- Smooth operation of clutch assembly



CLUTCH RELEASE CAMSHAFT REMOVAL

• Disconnect the clutch cable ①.

NOTE:

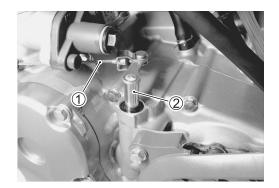
Loosen the clutch cable adjuster when disconnecting.

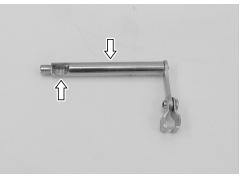
- Remove the clutch cover and its gasket. (27-3)
- Remove the pressure plate and push rod. (27-7-3)
- Pull the clutch release camshaft 2 out of crankcase.

INSPECTION

CLUTCH RELEASE CAMSHAFT

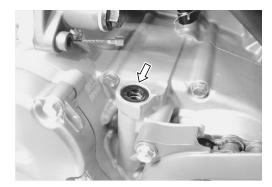
- Inspect the clutch release camshaft for abnormal deflection and damage.
- If any defects are found, replace the release camshaft with a new one.





OIL SEAL AND BEARING

- Inspect the oil seal for oil leakage and oil seal lip damage.
- Inspect the bearing for play and smooth movement.
- Replace the defective parts with a new one if necessary. (137 10-8 to -11)



INSTALLATION

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

• Apply SUZUKI MOLY PASTE to the clutch release camshaft.

FOR 99000-25140: SUZUKI MOLY PASTE or equivalent

• Apply SUZUKI SUPER GREASE "A" to the oil seal lips.

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

- \bullet Install the clutch release camshaft (1).
- Install the push rod and pressure plate. (277-7)
- Install the clutch cover. (27-8)
- Connect the clutch cable 2.





INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (2-11)
- Clutch cable play (2-16)
- Smooth operation of clutch assembly

– MEMO –

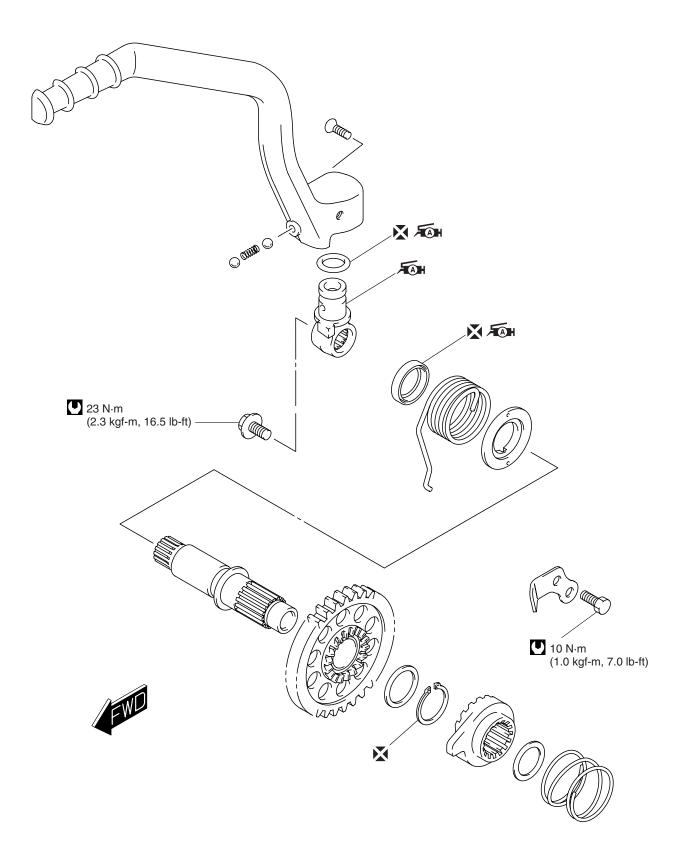
KICK STARTER

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KICK STARTER	. 8-	3	3
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8

CONSTRUCTION KICK STARTER



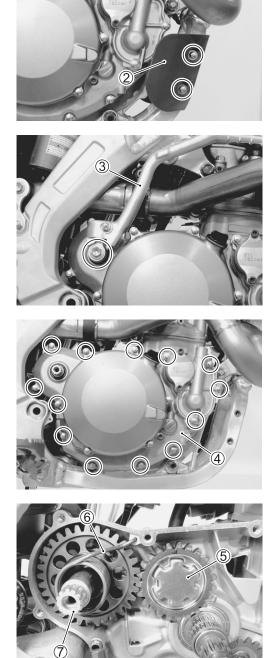
KICK STARTER

REMOVAL

- Drain engine oil. (2-11)
- Drain engine coolant. (
- Remove the brake pedal. (17-16-18)
- Disconnect the radiator hose 1.
- Remove the right front protector 2.
- Remove the kick starter lever ③.

- Remove the right crankcase cover 4 , dowel pins and gasket.
- Remove the clutch assembly. (27-9)

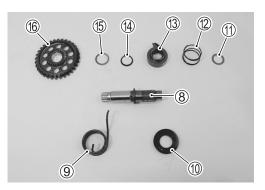
- Remove the kick starter idle gear (5).
- \bullet Remove the kick return spring (6).
- Remove the kick starter shaft $\ensuremath{\overline{\mathcal{D}}}.$



 Remove the following parts from the kick starter shaft (8): Return spring (9)
 Kick starter (3)
 Spring guide (10)
 Snap ring (4)
 Shim (1)
 Shim (5)
 Spring (12)
 Kick starter drive gear (16)

1001 09900-06107: Snap ring pliers

• Remove the kick starter guide 1.





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.



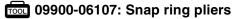




INSTALLATION

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 and shim 3 to the kick starter shaft.
- Install the new snap ring 4.



- Install the spring guide 5 to the kick starter shaft.

NOTE: Align the concave of spring guide A with kick starter shaft hole B.

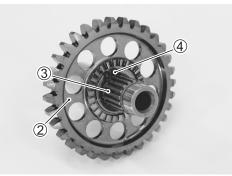
• Install the return spring (6) into the kick starter shaft hole.

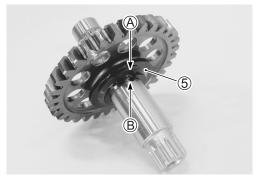
- Install the kick starter $\ensuremath{\overline{\mathcal{T}}}$ to the kick starter shaft.

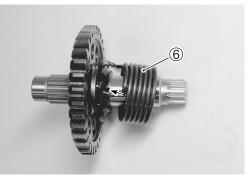
NOTE:

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











• Install the shim (8) and spring (9) to the kick starter shaft.

• Install the kick starter shaft assembly to the crankcase.

NOTE:

Securely engage the stopper portion \mathbb{C} of the kick starter with the stopper guide \mathbb{D} .

- Install the end of return spring to the crankcase.
- Install the kick starter idle gear 1 .
- Reassemble the clutch assembly. (27-10)

- Install the dowel pins and gasket 1 .

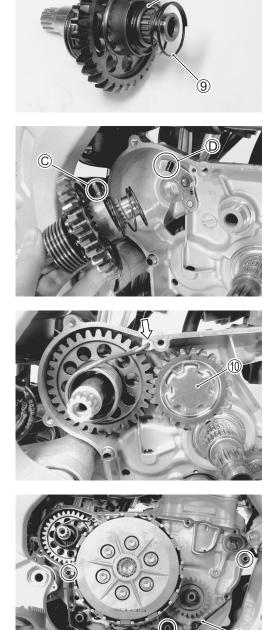


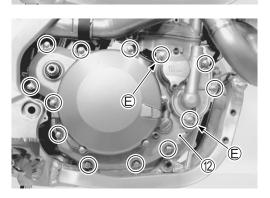
- Install the right crankcase cover $\textcircled{1}{2}.$



Use the new gasket washers $\ensuremath{\mathbb{E}}$ to prevent oil leakage.

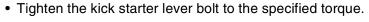
■ Right crankcase cover bolt: 11 N·m (1.1kgf-m, 8.0 lb-ft)





11

• Install the kick starter lever so that its punch mark (F) aligns with the truncated spline (G).



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

- Install the brake pedal. (1716-18)
- Install the radiator hose. (2719-22)





INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (2-11)
- Engine coolant level and coolant leakage (2-2-14, -15)
- Smooth movement of kick starter

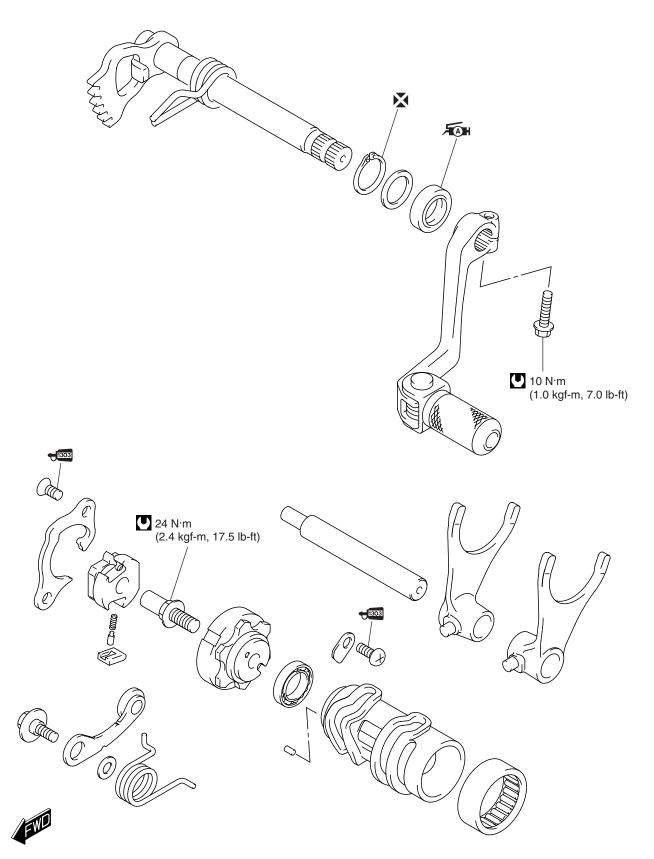
– MEMO –

GEARSHIFTING

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CONSTRUCTION GEARSHIFT LINKAGE



GEARSHIFT LINKAGE

REMOVAL

- Drain engine oil. (2-11)
- Drain engine coolant. (
- \bullet Remove the gearshift lever (1).

NOTE:

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

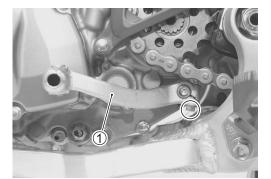
- Remove the right crankcase cover and clutch assembly. (7-9, 8-3)
- Remove the oil pump No.1 assembly. (1-7-11-4)
- Remove the gearshift shaft 2 and shim 3.
- Remove the shim (3), snap ring (4) and return spring (5) from the gearshift shaft (2).

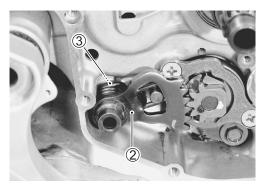
09900-06107: Snap ring pliers

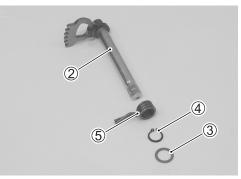
- Remove the gearshift pawl lifter (6).
- Remove the gearshift cam driven gear $\ensuremath{\overline{\mathcal{O}}}$.

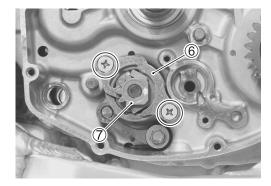
NOTE:

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









INSPECTION

- Remove the gearshift pawls $\circledast,$ pins \circledast and springs $\circledast.$

• Remove the gearshift cam driven gear pin 1 and gearshift cam stopper plate 2.

• Remove the gearshift cam stopper (3), spring (4) and washer (5).

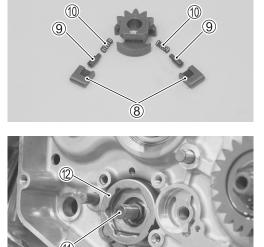
• Inspect the pawls ③, pins ④ and springs ⑤ for damage.

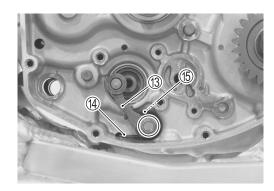
• Inspect the gearshift shaft ① for bends and damage.

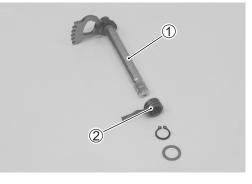
• Replace the defective parts with a new one if necessary.

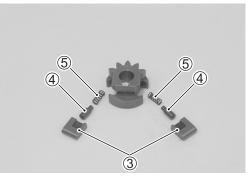
• Inspect the return spring 2 for damage.

• 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:

• Install the washer ①, spring ② and gearshift cam stopper ③. *NOTE:*

Install the spring 2 to the hole A.

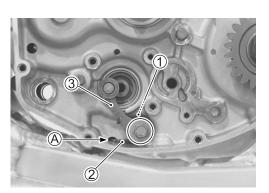
Shift cam stopper bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

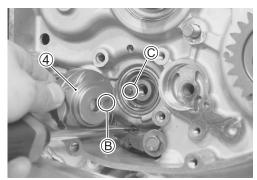
• Align the pin groove (B) with the pin (C) when installing the stopper plate (4).

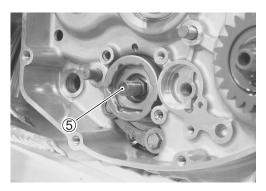
• Tighten the gearshift cam driven pin (5) to the specified torque.

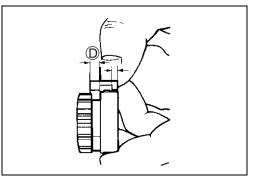
Gearshift cam driven pin: 24 N·m (2.4 kgf-m, 17.5 lb-ft)

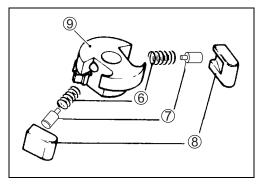
• Fit the springs 6, pins 7 and pawls 8 to the gearshift cam driven gear 9. Wider side D of pawl should be positioned outside.



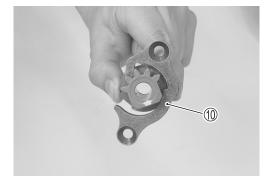








• With the pawls held in pushed position, install the pawl lifter 10.



- Install the gearshift cam driven gear and pawl lifter.
- Apply THREAD LOCK SUPER to the screws.
- Tighten the screws.

ປີໝີ 99000-32030: THREAD LOCK SUPER "1303" or equivalent

• Install the gearshift return spring (2), snap ring (3) and shim (4) to the gearshift shaft (1) properly.

CAUTION	

Replace the snap ring with a new one.

NOTE:

When installing the return spring, position the stopper \bigcirc of gearshift arm between the return spring ends \bigcirc .

09900-06107: Snap ring pliers

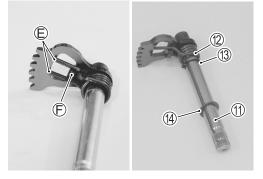
• Align the center teeth on the gearshift shaft with the center teeth on the gearshift cam driven gear.

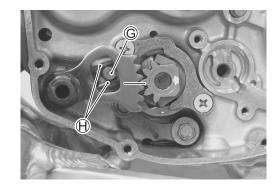
NOTE:

Pinch the gearshift arm stopper \mathbb{G} with return spring ends \mathbb{H} .

- Install the oil pump No.1 assembly. (1-1-6)
- Install the clutch assembly and right crankcase cover.
 (7-10, 8-6)







- Align the mark on the gearshift shaft head with the gearshift lever matching surface.
- Tighten the gearshift lever bolt to specified torque.
- Gearshift lever bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)



INSPECTION AFTER INSTALLATION

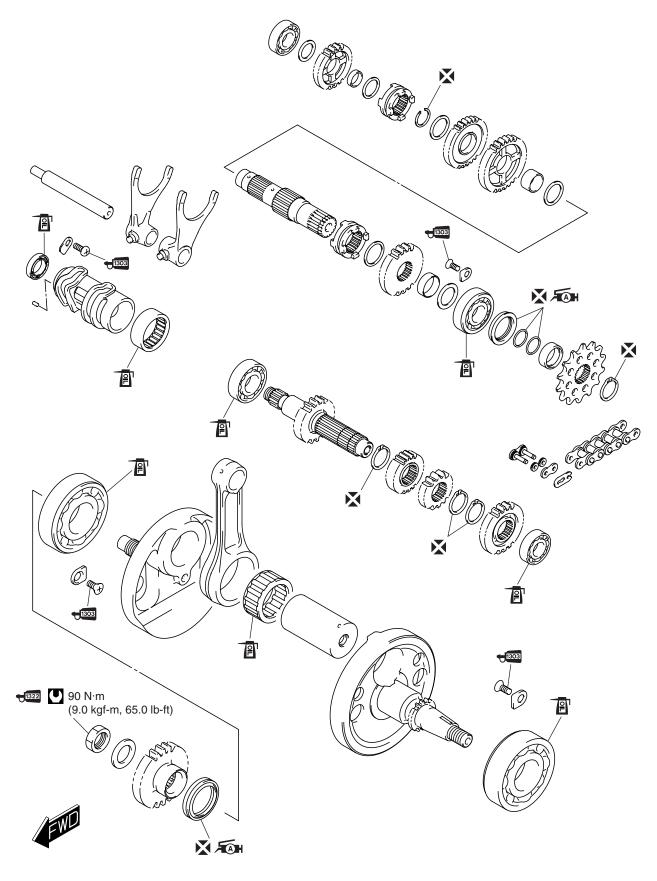
- Engine oil level and oil leakage (2-11)
- Engine coolant level and coolant leakage (2-13, -14)
- Smooth operation of gearshift

– MEMO –

TRANSMISSION AND CRANKSHAFT

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CONSTRUCTION TRANSMISSION AND CRANKSHAFT



ENGINE BOTTOM SIDE

• Remove the engine. (23-5-2 to -5)

NOTE:

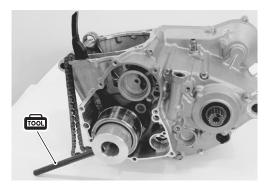
The following parts must be removed before disassembling the engine bottom side (crankcase).

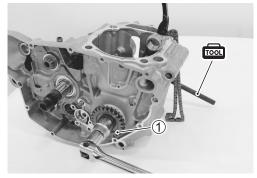
- Remove the cylinder head, cylinder and piston. (2-76-4 to -6)
- Remove the magneto cover. (1714-10)
- Remove the right crankcase cover and clutch assembly. (2.3 8-3 and 7-9)
- Remove the kick starter idle gear and kick starter shaft. (
- Remove the gearshift linkage. (239-3)
- Remove the oil pump No.1, No.2 and oil pump idle gear. (
- Disconnect the crankcase breather hose ①.

PRIMARY DRIVE GEAR REMOVAL

• Hold the crankshaft immovable with the special tool.

09930-44560: Rotor holder





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

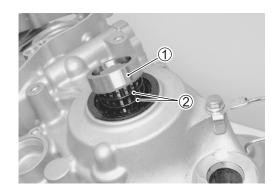
CAUTION The primary drive gear nut has left-hand threads.

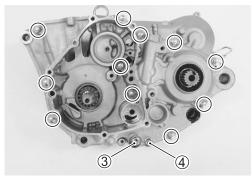
- Remove the magneto rotor and key. (2714-11)
- Remove the cam chain and cam chain tensioner. (176-7)

CRANKCASE SEPARATION

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

- Remove the oil strainer cap ③ and oil strainer (No.1). (2-13)
- Remove the crankcase bolts and engine oil drain plug ④.





• Separate the crankcase with the special tool.

09920-13120: Crankcase separating tool

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

TRANSMISSION REMOVAL

- Remove the dowel pins and gasket .



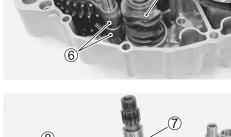


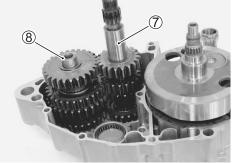


• Remove the oil strainer (No.2) ③.

- Remove the gearshift fork shaft ④.
- Remove the gearshift cam (5).
- Remove the gearshift forks (6).

• Remove the countershaft assembly $\widehat{\mathcal{T}}$ and driveshaft assembly $\widehat{\mathbb{S}}$.





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



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 shaft 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.
- Gearshift fork to groove clearance Service Limit: 0.45 mm (0.018 in)
- 09900-20803: Thickness gauge

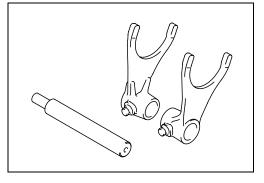
 $\ensuremath{\,\bullet\,}$ Measure the gearshift fork thickness with a vernier calipers.

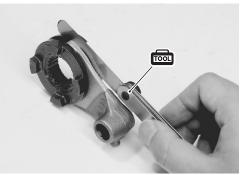
Gearshift fork thickness Standard: 4.80 – 4.90 mm (0.188 – 0.193 in)

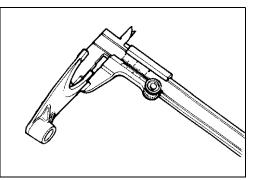
09900-20101: Vernier calipers





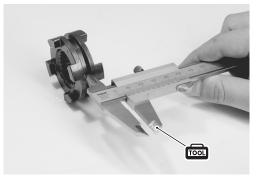






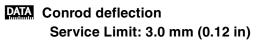
- Measure the gearshift fork groove width with a vernier calipers.
- Gearshift fork groove width Standard: 4.95 – 5.05 mm (0.195 – 0.199 in)

09900-20101: Vernier calipers



CONROD INSPECTION

- For conrod inspection other than the following, refer to page 6-??.
- Measure the conrod deflection with the special tools.



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

CRANKSHAFT INSPCECTION

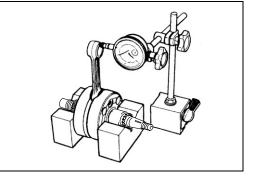
• Measure the crankshaft runout with V-blocks and dial gauge.

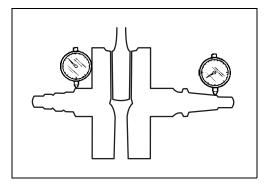
NOTE:

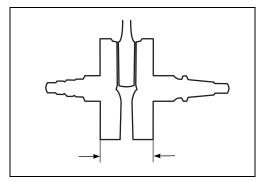
Place the crankshaft onto the V-blocks so that it becomes horizontally.

Crankshaft runout Service Limit: 0.08 mm (0.0031 in)

- 09900-20607: Dial gauge (1/100 mm) 09900-20701: Magnetic stand 09900-21304: V-block
- Measure the crankshaft web to web width with a vernier calipers.
- Crank web to web width Standard: 61.9 – 62.1 mm (2.437 – 2.445 in)
- 09900-20101: Vernier calipers

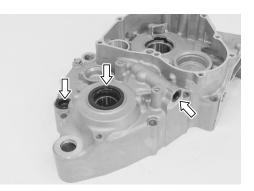






OIL SEAL INSPECTION

- 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

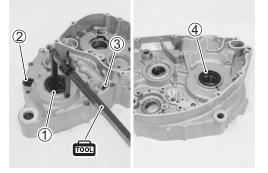
- Fit each new oil seal with the special tools.
- \bigcirc 09913-70210: Bearing installer setOil seal (1), (4): ϕ 47 AttachmentOil seal (2): ϕ 22 AttachmentOil seal (3): ϕ 17 Attachment
- Apply grease to each oil seal lip.

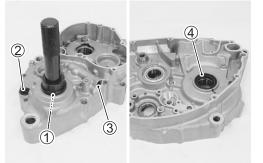
₩ 99000-25010: SUZUKI SUPER GREASE "A"

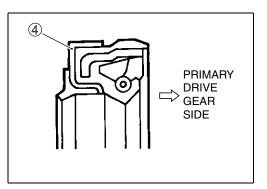
or equivalent

NOTE:

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

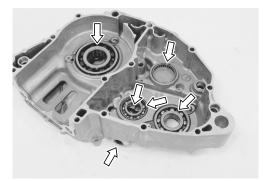


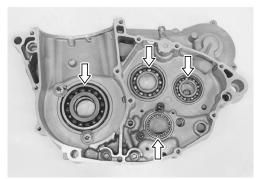




BEARING INSPECTION

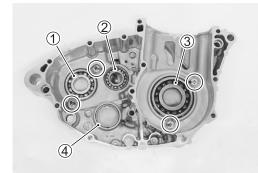
- Inspect the bearings for play, discoloration, wear and seizure.
- Move the inner race by finger and inspect for smooth movement.
- If it does not move smoothly, replace the bearing with a new one.





BEARING REMOVAL AND INSTALLATION

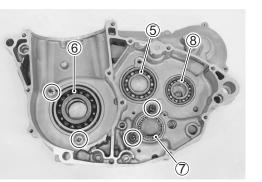
- Remove the oil seals. (1-7 10-8)
- Remove the bearing retainers.

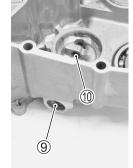


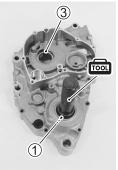
REMOVAL

 Remove the bearings with the special tools. Bearing ①, ③, ⑤, ⑥: *ϕ* 40 Attachment Bearing ⑦: *ϕ* 32 Attachment

09913-70210: Bearing installer set



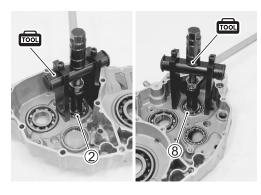


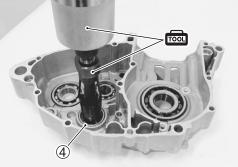




- Remove the bearings (2), (8).
- Bearing ②, ⑧: Remover 20 mm

- Remove the bearing 4.
- 09941-64511: Bearing/Oil seal remover 09930-30104: Sliding shaft





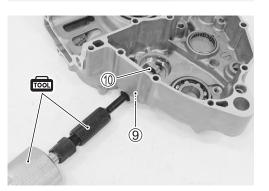
• Remove the bearing (9).

(100) 09921-20200: Bearing remover 09930-30104: Sliding shaft

• Remove the bearing 10.

CAUTION

The removed bearing should be discard.

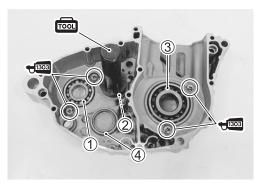


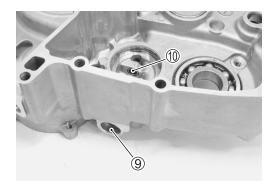
INSTALLATION

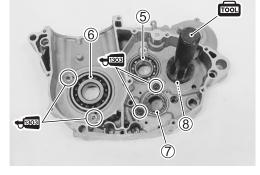
Press the new bearings with the special tools. Bearing ①: Ø 55 Attachment Bearing ②, ⑧: Ø 42 Attachment Bearing ③, ⑥: Ø 72 Attachment Bearing ④: Ø 40 Attachment Bearing ⑤: Ø 52 Attachment Bearing ⑦: Ø 37 Attachment Bearing ⑨: Ø 15 Attachment

09913-70210: Bearing installer set

• Press the bearing 1 with the appropriate steel rod.

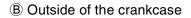






NOTE:

Press the bearings (2 and 8) into the crankcase, so that the sealed side A faces outside of the crankcase.



NOTE:

Press the bearings (1), (3) and (6) into the crankcase, so that the stepped side \mathbb{C} faces inside of the crankcase.

D Inside of the crankcase

• Apply THREAD LOCK SUPER to the bearing retainer screws.

41303 99000-32030: THREAD LOCK SUPER "1303"

or equivalent

• Tighten the its screws.

CRANKSHAFT INSTALLATION

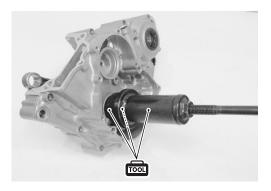
• Fit the crankshaft into the left crankcase with the special tools.

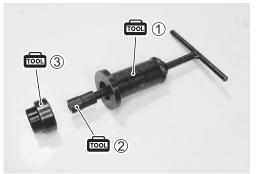
NOTE:

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

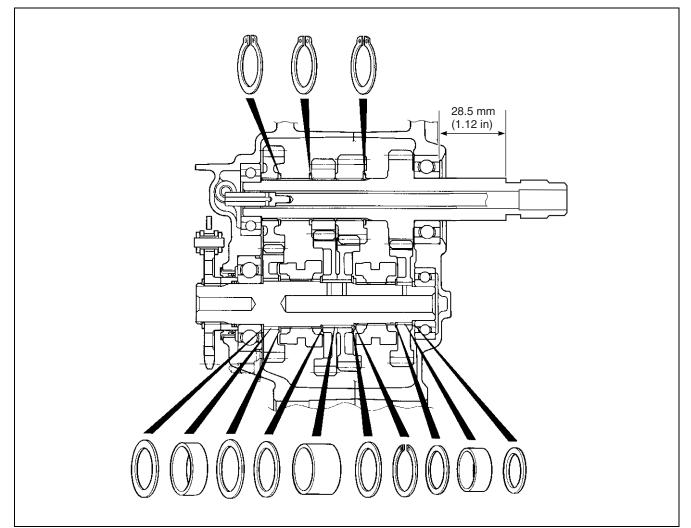
09910-32812: Crankshaft installer ①

09911-11310: Crankshaft installer attachment ② 09913-70210: Bearing installer set (Inner driver attachment 35 mm ③)



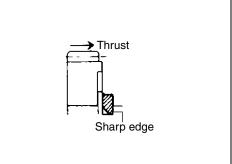


TRANSMISSION INSTALLATION



NOTE:

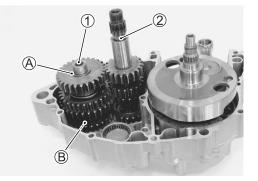
Install the snap ring in the groove and locate its end as shown in the illustration.



- 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.



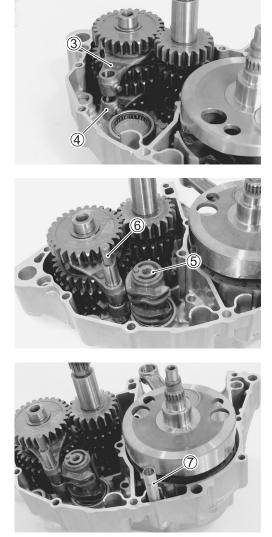
• Install the gearshift forks (3), (4).

- Install the gearshift cam $(\bar{5})$ and gearshift shaft $(\bar{6}).$

NOTE:

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

• Install the oil strainer (No.2) \bigcirc .



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 (to the bolt. (19-24)
- Tighten the crankcase bolts and engine oil drain plug 2.

CAUTION

Replace the drain plug gasket washer $\ensuremath{\mathfrak{3}}$ with a new one.

Crankcase bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft) Engine oil drain plug: 12 N·m (1.2 kgf-m, 8.5 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 (No.1) and oil strainer cap ④. (CF2-13)
- Check for length (B) of the countershaft.
- Adjust the length if it is out of the specification.

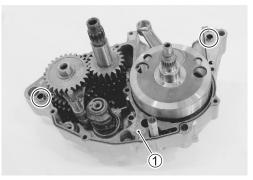
Countershaft protrusion length B Specification: 28.5 mm (1.12 in)

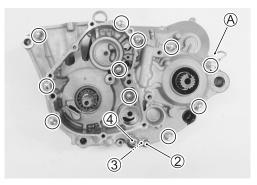
09900-20101: Vernier calipers

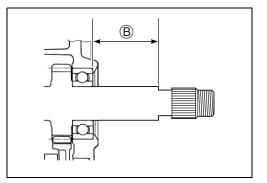
NOTE:

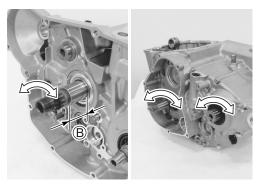
After the clutch sleeve hub has been installed, check that the countershaft can turn freely by hand.

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









• Apply grease to Oil seal lip and O-rings (5).

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

CAUTION

Replace the O-rings with new ones.

• Fit the O-rings (5) and spacer (6) to the driveshaft.

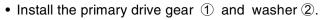
PRIMARY DRIVE GEAR INSTALLATION

- Install the cam chain and cam chain tensioner.
 (5.3) 6-24)
- Install the magneto rotor and key. (13-14-12)
- Apply grease to oil seal lip.

₩ 99000-25010: SUZUKI SUPER GREASE "A"

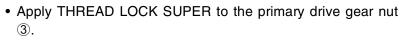
or equivalent





NOTE:

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



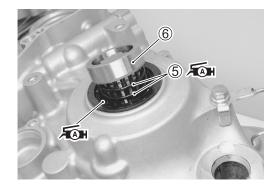
1322 99000-32110: THREAD LOCK SUPER "1322"

or equivalent

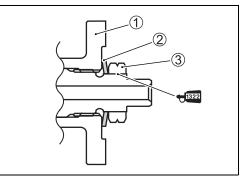
• Hold the magneto rotor with the special tool and tighten the primary drive gear nut ③ to the specified torque.



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

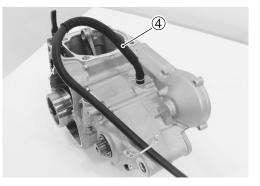








- Connect the crankcase breather hose ④.
- Install the oil pump No.1, No.2 and oil pump idle gear. (
- Install the gearshift linkage. (239-5)
- Install the kick idle gear and kick starter shaft. (1378-5)
- Install the clutch assembly and right crankcase cover.
 (7-10 and 8-6)
- Install the magneto cover. (2714-12)
- Install the piston, cylinder and cylinder head.
 (5.7) 6-25 to -32)
- Mount the engine. (2-5-6 to -9)



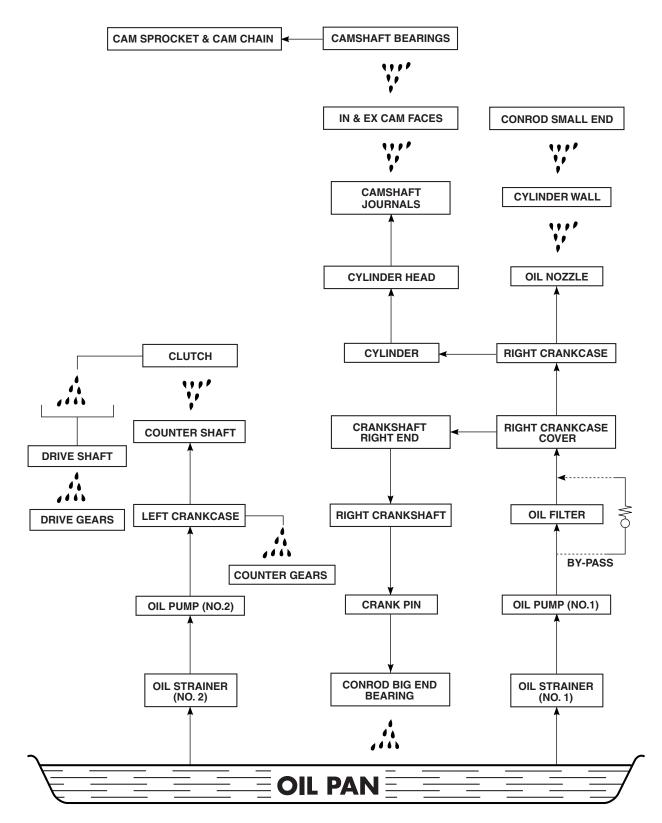
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LUBRICATION SYSTEM

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ENGINE LUBRICATION SYSTEM ENGINE LUBRICATION SYSTEM CHART



ENGINE OIL LEVEL INSPECTION (CF2-11)

ENGINE OIL CHANGE

ENGINE OIL FILTER CHANGE

OIL PRESSURE CHECK (CJ=2-37)

OIL STRAINER REMOVAL (CJ=2-13)

OIL STRAINER INSPECTION (2-13)

OIL STRAINER INSTALLATION

([_____2-13)

OIL SEAL REMOVAL

• Remove the snap ring 1.

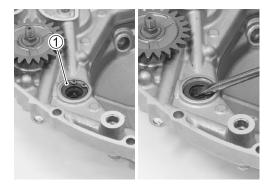
09900-06108: Snap ring pliers

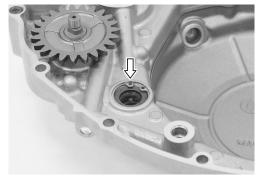
• Remove the oil seal.

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

• Fit the new oil seal with the special tools.

100 09913-70210: Bearing installer set Oil seal: ϕ 22 Attachment

• Apply SUZUKI SUPER GREASE to the oil seal lip.

₩ 99000-25010: SUZUKI SUPER GREASE "A"

• Install the snap ring ①.

09900-06108: Snap ring pliers

OIL PUMP No.1 AND No.2 REMOVAL

OIL PUMP No.1

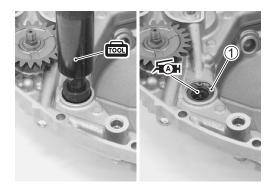
- Drain engine oil. (2-11)
- Drain engine coolant. (
- Remove the right front protector. (
- Remove the brake pedal. (197-16-18)
- Remove the kick starter lever and right crankcase cover. (23-8-3)

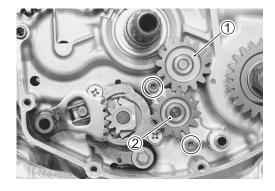
or equivalent

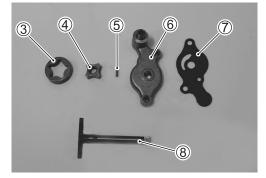
- Remove the clutch assembly. (17-7-9)
- Remove the oil pump idle gear 1 and oil pump No.1 2.
- Remove the following parts from the oil pump No.1. Outer rotor ③ Inner rotor ④ Pin ⑤ Oil pump No.1 cover ⑥ Oil pump No.1 plate ⑦ Oil pump driven gear shaft ⑧

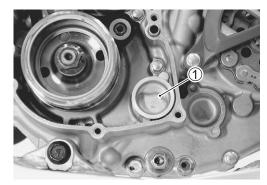
OIL PUMP No.2

- Drain engine oil. (2-11)
- Remove the gearshift lever. (79-3)
- Remove the left front protector. (5-3)
- Remove the magneto cover. (13714-10)
- Remove the oil pump No.2 cover ①.

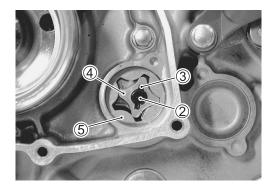








• Remove the oil pump No.2 shaft ②, pin ③, inner rotor ④ and outer rotor ⑤.



OIL PUMP No.1 AND No.2 INSPECTION

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



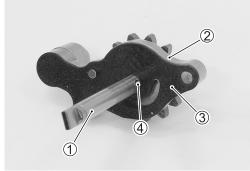


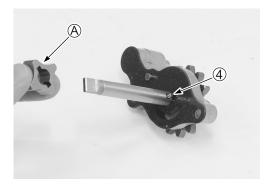
OIL PUMP No.1 AND No.2 INSTALLATION

OIL PUMP No.1

Install the oil pump No.1 in the reverse order of removal. Pay attention to the following points:

- Install the oil pump No.1 cover ②, oil pump No.1 plate ③ and pin ④ to oil pump driven gear shaft ①.
- Fit the slot (A) of the inner rotor to the pin (4).





• Install the outer rotor (5).

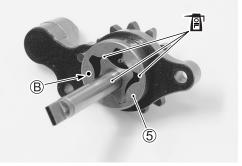
CAUTION

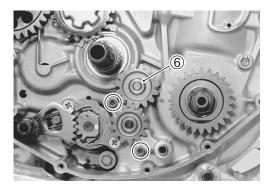
Face the punch mark $\ensuremath{\mathbb{B}}$ on outer rotor $\ensuremath{\mathbb{5}}$ to the crankcase.

- Apply engine oil to the oil pump driven gear shaft, Outer rotor and Inner rotor.
- Install the oil pump No.1 to crankcase.
- Tighten the oil pump mounting bolts.

Oil pump mounting bolt: 4.5 N·m (0.45 kgf-m, 3.25 lb-ft)

- Install the oil pump idle gear 6.
- Install the clutch assembly. (27-10)
- Install the kick starter lever and right crankcase cover.
 (38-6, -7)
- Install the brake pedal. (





OIL PUMP No.2

Install the oil pump No.2 in the reverse order of removal. Pay attention to the following points:

- Install the pin 2 to oil pump No.2 shaft 1.
- Install the inner rotor (3) to oil pump No.2 shaft (1).

NOTE:

Fit the slot A of the inner rotor to the pin O.

- Apply engine oil to the oil pump shaft, outer rotor and Inner rotor.
- Install the oil pump No.2 shaft (2) and inner rotor (3) to crankcase.
- Install the outer rotor ④ to crankcase.

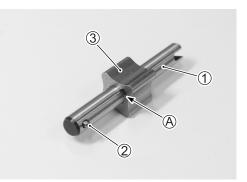
CAUTION

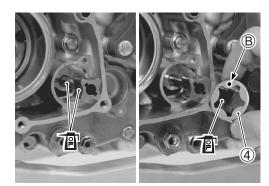
Face the punch mark $\ensuremath{\mathbb{B}}$ on outer rotor $\ensuremath{\mathbb{4}}$ to the crankcase.

- Install the oil pump No.2 cover (5).
- Install the magneto cover. (11-12)
- Install the gearshift lever. (3-9-7)

INSPECTION AFTER INSTALLATION

- Engine oil level and oil leakage (2-11)
- Engine coolant level and coolant leakage (2-14, -15)
- Oil pressure (2-37)







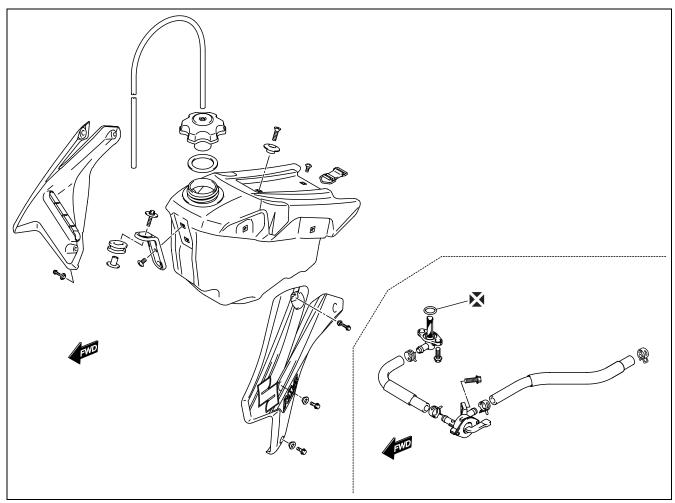
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FUEL SYSTEM

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12

FUEL TANK AND FUEL VALVE CONSTRUCTION

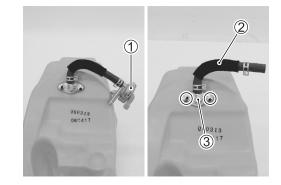


REMOVAL

WARNING

Gasoline is highly flammable and explosive. Keep heat, spark and flame away.

- Remove the seat. (5-2)
- Remove the fuel tank. (15-5-2)
- Drain fuel.
- Remove the fuel valve ①.
- Remove the fuel hose 2 and fuel filter 3.



CLEANING AND INSPECTION

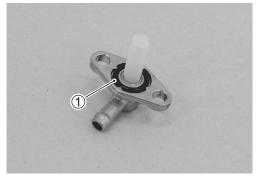
If the fuel strainer is dirty with sediment, fuel will not flow smoothly and loss in engine power may result. Clean the fuel strainer with compressed air.



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

CAUTION
Replace the O-ring $\textcircled{1}$ with a new one to prevent fuel leakage.





• Install the fuel filter.

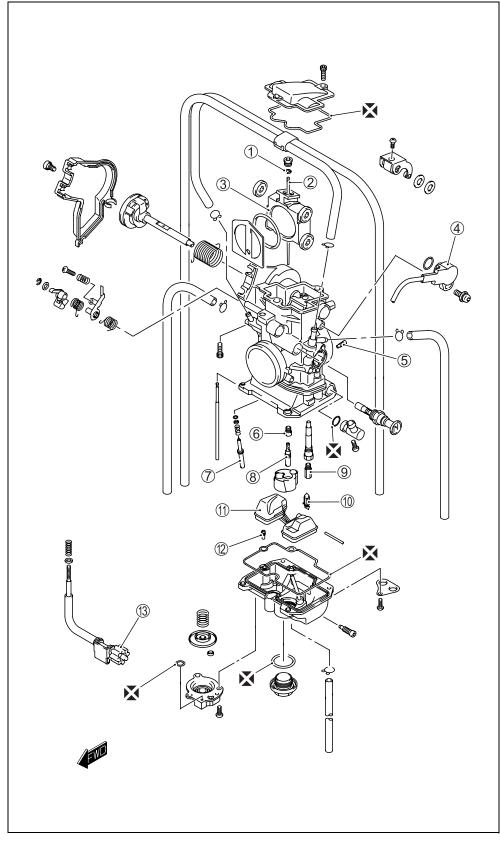
Fuel valve mounting bolt: 5 N⋅m (0.5 kgf-m, 3.5 lb-ft)



INSPECTION AFTER INSTALLATION

- Fuel leakage (2-20)
- Fuel hose routing (19-21)

CARBURETOR CONSTRUCTION



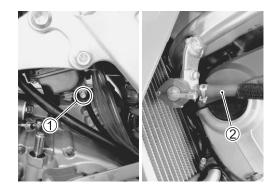
	1	Clip	
	② Jet needle		
	3	Throttle valve	
	(4)	Throttle position	
	4	sensor	
	5	Slow air jet	
	6	Starter jet	
	\bigcirc	Pilot screw	
	8	Slow jet	
	9	Main jet	
	10	Float valve	
ĺ	(1)	Float	
	12	Leak jet	
ĺ	(13)	Throttle stop screw	

REMOVAL

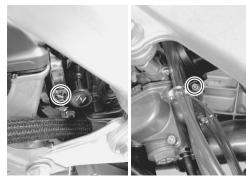
WARNING

Gasoline is highly flammable and explosive. Keep heat, spark and flame away.

- Remove the seat and radiator covers. (5-3-5-2)
- 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.
- Remove the radiator covers, left and right.
- Disconnect the fuel hose ② and remove the fuel tank. (1375-2)
- Disconnect the throttle position sensor coupler ③ and remove the wire clamp ④.









• Loosen the carburetor clamp screws and take out the carburetor from between the carburetor holder and air cleaner duct.

CAUTION

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

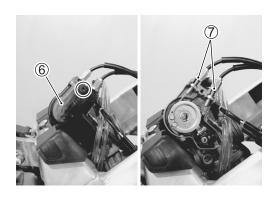
• Remove the hot starter cable ⑤.

- Remove the throttle pulley cover 6.
- Loosen the lock-nuts ⑦.

DISASSEMBLY

starter cable.

• Remove the throttle cables from the pulley.





• Remove the drain hose, fuel hose and air vent hoses.

NOTE:

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

 \bullet Remove the hot starter value (1) and spring from the hot

• Remove the starter valve ③.

• Remove the top cap ④ and gasket.







• Remove the throttle valve assembly (5).

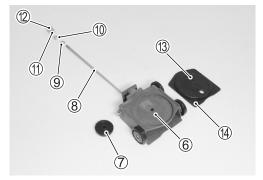
- Disassemble the throttle valve assembly.
 - 6 Throttle valve
 - ⑦ Bearing
 - ⑧ Jet needle
 - 9 Clip 1 Collar
- 12 Needle set screw (13) Floating valve

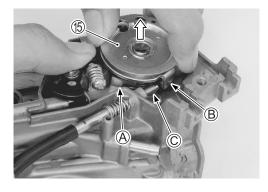
(1) Spring

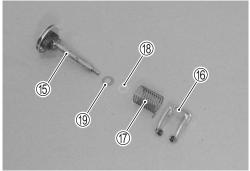
- (1) Seal
- Remove the throttle shaft 5 with the link arm 6, spring 7, plastic washer 18 and steel washer 19.

NOTE:

Turn the throttle shaft (5) counterclockwise while holding down the acceleration pump lever B and clear the stopper B of the pulley from the throttle stop screw C.







NOTE:

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

• Remove the pilot screw 20.



- Remove the acceleration pump cover 2.
- Remove the spring 2, O-rings 2 and diaphragm 2.

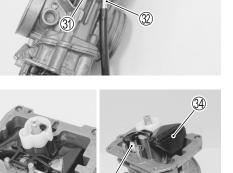
- Remove the float chamber (25) from the carburetor body.
- Remove the drain plug 26 and leak jet 27.
- Remove the O-ring (2) and gasket (2).

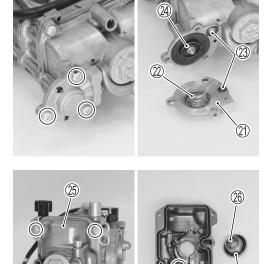
• Pull out the push rod 30 of acceleration pump.

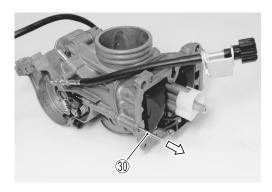
- Remove the E-clip, washer and acceleration pump lever 3.
- Remove the throttle stop screw 32.

• Remove the float pin 33.

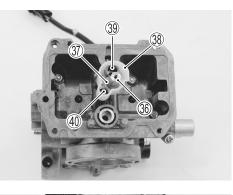
• Remove the float 3 with the float valve 3.







- Remove the following parts.
 - 36 Main jet
 - 3) Main nozzle
 - 38 Buffer plate
 - 39 Starter jet
 - (40) Slow jet
- Remove the slow air jet 4.





CLEANING

A 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.

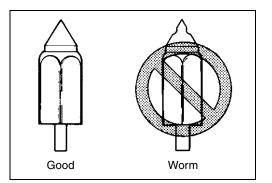
INSPECTION

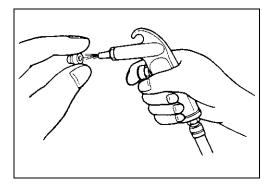
- Inspect the following items for any damage or clogging.
- If any defects are found, replace the defective parts with a new one.

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

NEEDLE VALVE

- Inspect the needle valve tip for wear.
- Inspect the needle 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 than connect the special tool.

09913-14541: Fuel level gauge

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

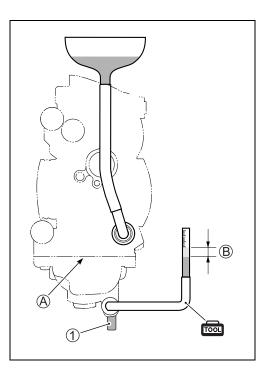
Carburetor	Lateral direction: Horizontal
set position	Longitudinal direction: Vertical

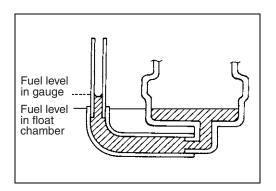
- Fill the float chamber with fuel.
- Remove air completely from the fuel level gauge.
- With the level gauge held vertical, lower the gauge slowly and align the datum point (A) (float chamber mating surface) with the gauge graduation.
- Wait until the fuel level stabilizes.
- Determine the zero point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

Fuel level (B): 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).]





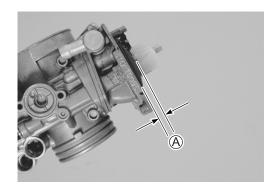
FLOAT HEIGHT

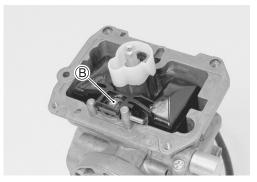
- Tilt the carburetor until the float arm (B) just touches the float valve rod.
- Measure the float height (A).



09900-20101: Vernier calipers

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



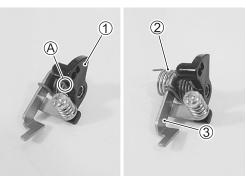


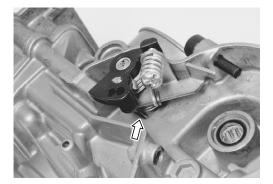
REASSEMBLY

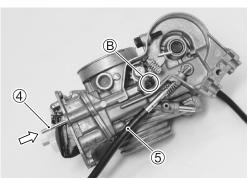
Reassemble the carburetor in the reverse order of disassembly. Pay attention to the following points:

- 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.

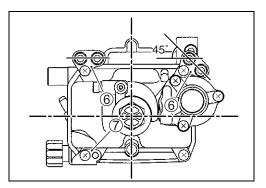
- Install the push rod (4) into the pump lever holder (B).
- Install the throttle stop screw (5).







- Fit the float chamber.
- Tighten the screws with the hose plates (6) and cable holder $\widehat{\mathcal{T}}$.



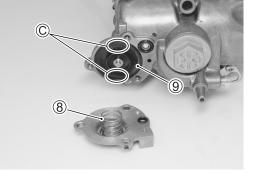
CAUTION

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



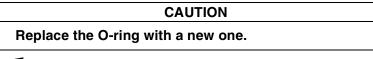
• Install the diaphragm (9) so that the marks (C) face outside.

CAUTION



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

Replace the O-rings with new ones.



₩ 09900-25010: SUZUKI SUPER GREASE "A"

or equivalent

Æ A

• Install the pilot screw 10.

NOTE:

Turn in the pilot screw (1) until it lightly seats, then back it out the counted number of turns.

Pilot screw: 1 and 3/4 turns back (Reference data)



• Apply SUZUKI SILICONE GREASE to the throttle shaft.

₩ 99000-25100: SUZUKI SILICONE GREASE

or equivalent

- Hook the return spring onto the stopper of the throttle pulley.
- Insert the throttle shaft and install the steel washer 1, plastic washer 2 and link arm 3.
- 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 D and clear the stopper E of the pulley from the throttle stop screw E.

Reassemble the throttle valve assembly as shown.

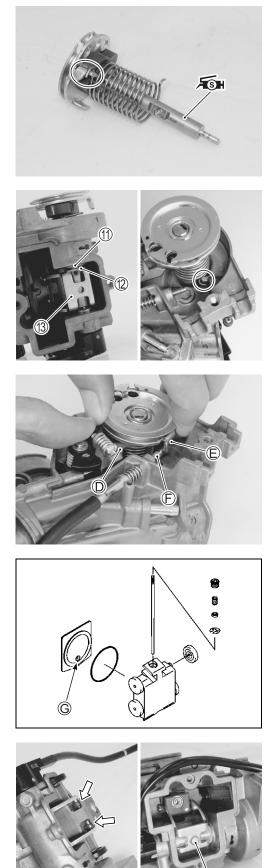
NOTE:

Assemble the floating value so the hole $\ensuremath{\mathbb{G}}$ 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 4 .

€ 1322 99000-32110: THREAD LOCK SUPER "1322"

or equivalent



(14) 🚽 1322

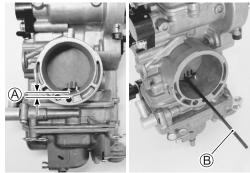
CAUTION

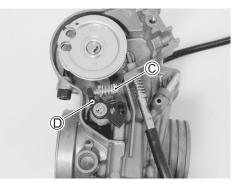
Replace the gasket with a new one.

• Reassemble the hot start valve (5) 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 (B) of the same diameter as the throttle valve height (A) and insert it under the throttle valve.

Throttle valve height: 4.4 mm (0.173 in)

- Turn in the stop screw ${\rm I\!C}$ fully.
- Check play of the link lever D.
- Turn the stop screw © counterclockwise gradually until no free play is available on the link lever D.

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.



INSPECTION AFTER INSTALLATION

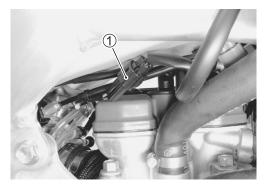
- Wire, cable and hose routing (19-18 to -22)
- Fuel leakage (2-20)
- Throttle cable play (2-17)
- Engine idle speed (2-19)

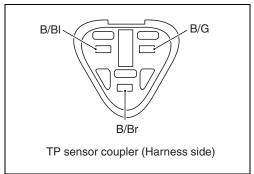
THROTTLE POSITION SENSOR

INSPECTION

THROTTLE POSITION SENSOR INPUT VOLTAGE

- Disconnect the throttle position sensor coupler .





- Shift the transmission into neutral.
- Start the engine.
- Measure the throttle position sensor input voltage using the multi circuit tester.
- ► Throttle position sensor input voltage: B/G (⊕ probe) – B/Br (⊖ probe):

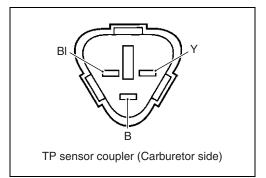
, 4.5 – 5.5 V (1 950 r/min)

09900-25008: Multi-circuit tester set

- 🔛 Tester knob indication: Voltage (---)
- If the voltage is not within the specified value, replace the CDI unit.

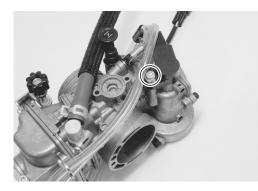
THROTTLE POSITION SENSOR COIL RESISTANCE

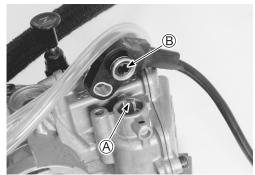
- Measure the throttle position sensor coil resistance using the multi circuit tester.
- Throttle position sensor total of resistance: Bl (\oplus probe) – B (\bigcirc probe): 4 – 6 k Ω
- Throttle position sensor resistance:
 Y (⊕ probe) B (⊝ probe):
 When the throttle fully closed: 0.6 1.0 kΩ
 When the throttle fully opened: 3.2 5.0 kΩ
- 09900-25008: Multi-circuit tester set
- **Tester knob indication: Resistance (** Ω **)**
- If the resistance is not within the specified value, replace the throttle position sensor assembly.



REMOVAL

- Remove the carburetor. (
- Remove the throttle position sensor using the special tool.
- 09930-11950: Torx wrench, T25







INSTALLATION

• Install the throttle valve with the throttle position sensor.

NOTE:

Align the throttle shaft end B 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: Bl (\oplus probe) – B (\bigcirc probe): 4 – 6 k Ω
- Throttle position sensor resistance: Y (⊕ probe) – B (⊝ probe):

When the throttle fully closed: 0.6 – 1.0 k Ω When the throttle fully opened: 3.2 – 5.0 k Ω

- 09900-25008: Multi-circuit tester set
- **Tester knob indication: Resistance (** Ω **)**
- Install the carburetor. (12-16)

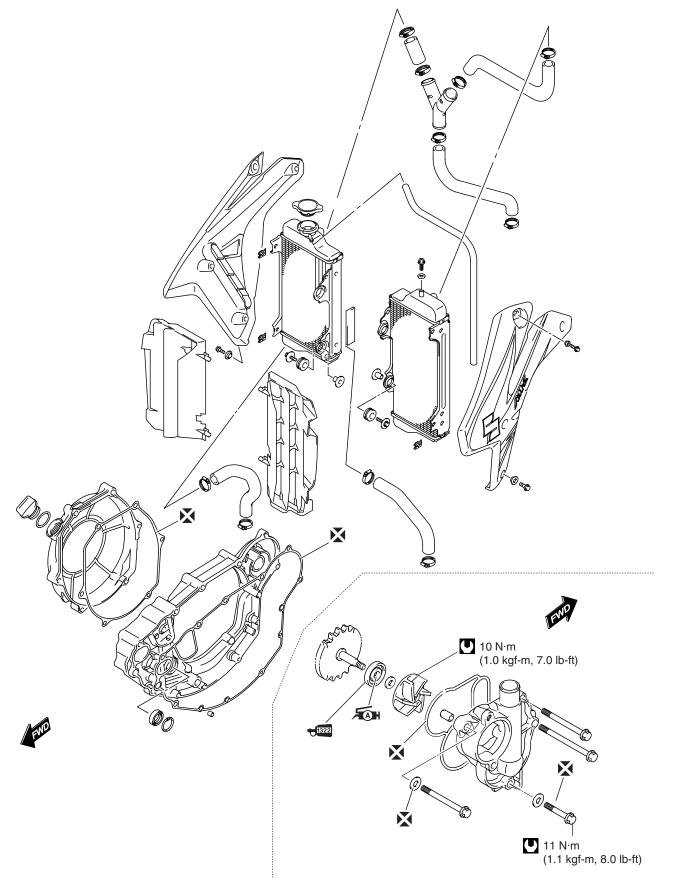
COOLING SYSTEM

CO	NTE	NTS -
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CONSTRUCTION



ENGINE COOLANT REPLACEMENT

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.
- Replace the gasket washer with a new one and tighten the drain bolt ①.

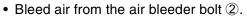
Engine coolant drain bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

CAUTION

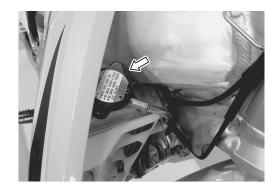
Use a new gasket washer to prevent engine coolant leakage.

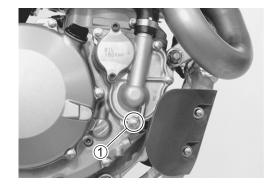
• Pour specified engine coolant up to the bottom of filler hole. (2-14)

Engine coolant capacity: 950 ml (1.0/0.8 US/Imp qt)

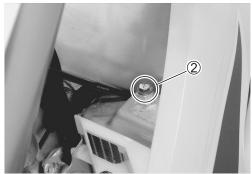


- Tighten the air bleeder bolt 2.
- Add engine coolant up to the radiator inlet.
- Tighten the radiator cap securely.
- After warming up and cooling down the engine, add the specified engine coolant.









COOLING CIRCUIT

• Remove the radiator cap.

A WARNING

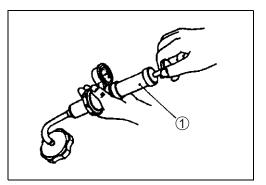
- * Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.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

A 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 INSPECTION RADIATOR

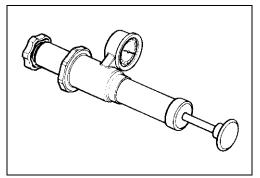
- Visually inspect the radiators and hose for damage.
- Fins bent down or dented can be repaired by straightening them with the blade of a small screwdriver.

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.

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

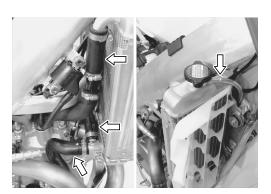




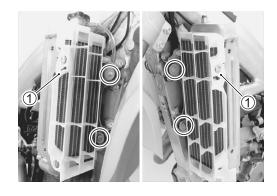
REMOVAL

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 and fuel tank. (23-5-2)
- Drain engine coolant. (2713-3)
- Remove the hoses.
- Remove the radiator covers ①, left and right.
- Remove the radiators, left and right.







INSTALLATION

Install the radiator in the reverse order of removal.

- Rout the radiator hose correctly. (13719-22)
- Inspect the engine coolant level and leakage. (2-14, -15)

WATER PUMP REMOVAL

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.



- Drain engine oil. (2-11)
- Remove the right front protector ①.
- Drain engine coolant by removing the drain bolt 2.
- Disconnect the radiator hose 3.
- Remove the water pump case 4.

NOTE:

Use the pry points A to remove the case.

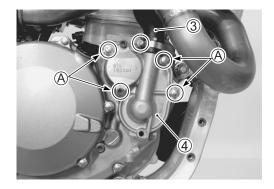


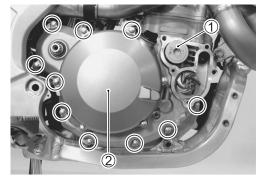
- Remove the brake pedal. (
- Remove the kick starter lever. (238-3)
- Remove the oil filter ①.
- Remove the right crankcase cover 2.

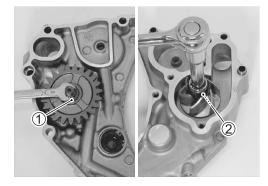
IMPELLER AND GEAR SHAFT

• Hold the water pump shaft 1 with a wrench and remove the impeller 2.

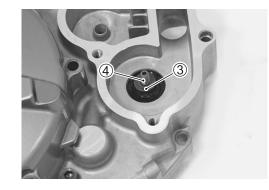








• Remove the shim (3) and water pump shaft (4).



· 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.



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



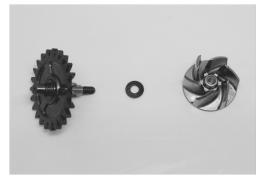
Install the water pump in the reverse order of removal. Pay attention to the following points:

OIL SEAL

- Apply THREAD LOCK SUPER to the outer surface of the oil seal.
- **H**¹³²² 99000-32110: THREAD LOCK SUPER "1322"

or equivalent









- Press the oil seal with the suitable size socket wrench.
- Apply SUZUKI SUPER GREASE to the oil seal lip.

A 99000-25010: SUZUKI SUPER GREASE "A" or equivalent

IMPELLER AND WATER PUMP SHAFT

• Hold the water pump shaft with a wrench and tighten the impeller to the specified torque.

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

CRANKCASE COVER

- Install the dowel pins and a new gasket

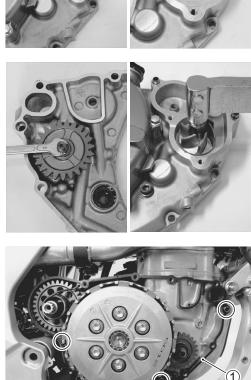
CAUTION

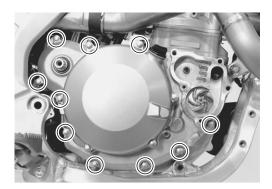
Use a new gasket to prevent engine oil leakage.

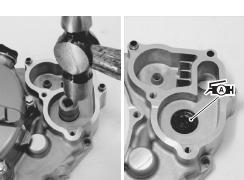
- Fit the right crankcase cover.
- Tighten the crankcase cover bolts to the specified torque.

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

- Install the brake pedal. (
- Install the kick starter lever. (







WATER PUMP CASE

- Install the dowel pins and oil filter 1.
- Install the spring 2 and a new gasket 3.
- Apply engine coolant to the gasket ③.

CAUTION

Use a new gasket to prevent engine oil/coolant leakage.

• Fit the water pump case.

CAUTION

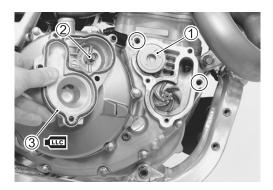
Use new gasket washers A to prevent engine oil/coolant leakage.

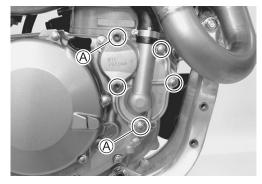
• Tighten the water pump case bolts to the specified torque.

Water pump case bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

INSPECTION AFTER INSTALLATION

- Engine oil level and leakage (2-11)
- Engine coolant level and leakage (2-14, -15)





ELECTRICAL SYSTEM

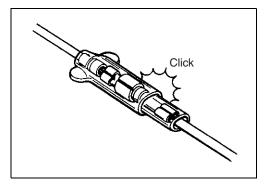
CONTENTS			
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14

CAUTIONS IN SERVICING

CONNECTOR

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



COUPLER

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

SEMI-CONDUCTOR EQUIPPED PART

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

USING THE MULTI-CIRCUIT TESTER

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

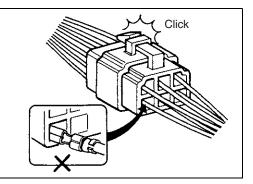
🚾 09900-25008: Multi-circuit tester set

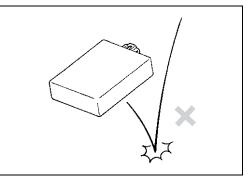
CAUTION

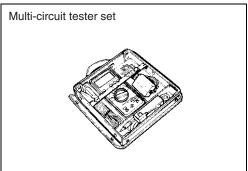
Before using the multi-circuit tester, read its instruction manual.

SWITCH

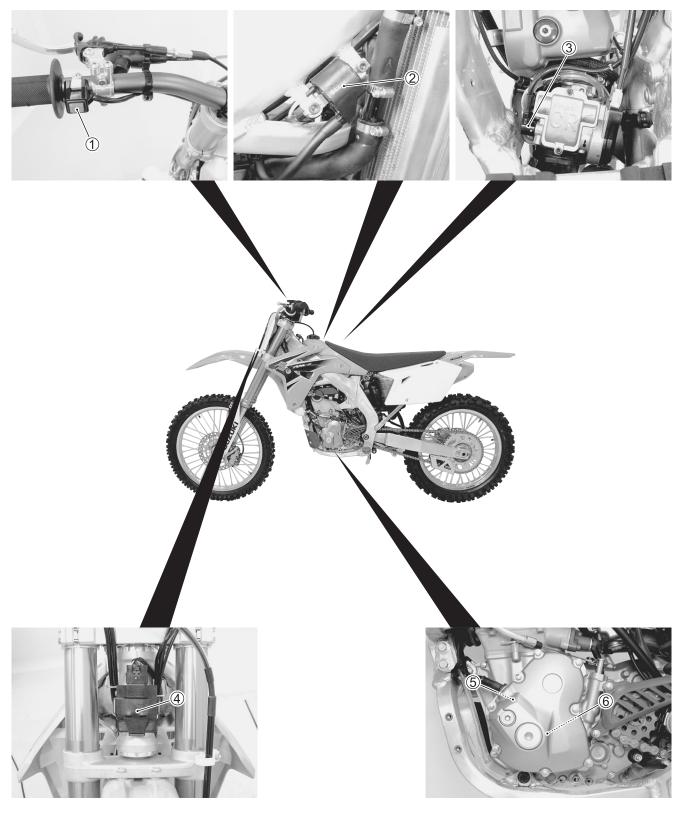
• Never apply grease material to switch contact points to prevent damage.







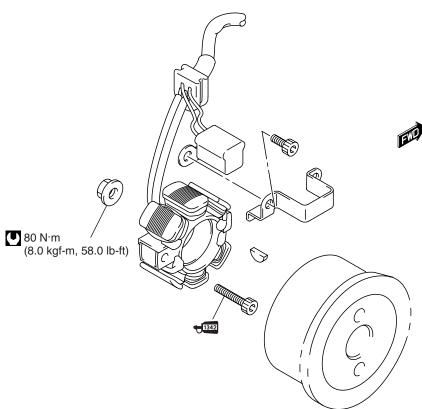
LOCATION OF ELECTRICAL COMPONENTS



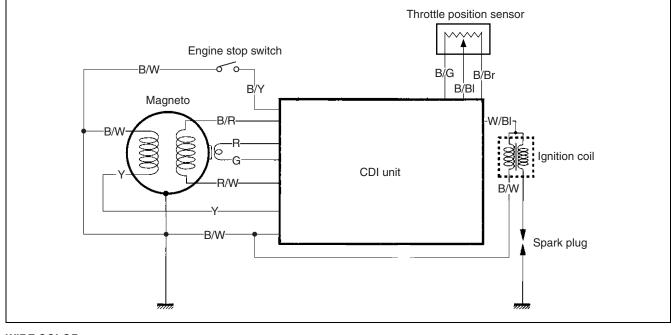
Engine stop switch
 Ignition coil
 Throttle position sensor

④ CDI unit⑤ Pick-up coil⑥ Magneto

CONSTRUCTION ELECTRICAL SYSTEM



ELECTRICAL CIRCUIT



WIRE COLOR:

- G: Green
- R: Red
- Y: Yellow

B/BI: Black with Blue tracerB/Br: Black with Brown tracerB/G: Black with Green tracerB/R: Black with Red tracer

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

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

 Measure the ignition coil primary peak voltage. (11-8) Is the peak voltage OK?

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

Step 3

1) Inspect the spark plug. (27)

Is the spark plug OK?

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

Step 4

1) Measure the ignition coil resistance. (1-14-9)

Is the ignition coil resistance OK?

YES	Go to Step 5.
NO	Faulty ignition coil

Step 5

1) Measure the pick-up coil resistance. (13714-8) Is the resistance OK?

YES	Go to Step 6.
NO	Faulty pick-up coil
NO	 Metal particles or foreign material being stuck on the pick-up coil and rotor tip

Step 6

1) Measure the exciter coil and charge coil peak voltages. (C3714-7)

Are the peak voltages OK?

YES	Go to Step 8.
NO	Go to Step 7.

Step 7

1) Check the stator.

Is the stator OK?

YES	Go to Step 8.
NO	Faulty stator

Step 8

1) Measure the engine stop switch resistance. (13714-9)

Is the resistance OK?

YES	Faulty CDI unitOpen 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 pedal several times forcefully.

DATA Stator coil peak voltage

Exciter	\oplus Black/Red – \bigcirc Red/White	25 V and more
Charge	Yellow –	8 V and more

Pick-up coil peak voltage

Pick-up	🕂 Red – 🖯 Green	2 V and more
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09900-25008: Multi-circuit tester set

09900-25009: Needle pointed probe set

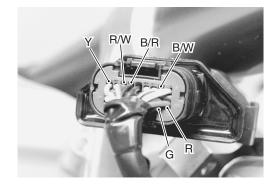
(Ţ) Tester knob indication: Voltage (----)

If the peak voltage is below the specification, the cause may lie in the stator coil or pick up coil. (14-8)

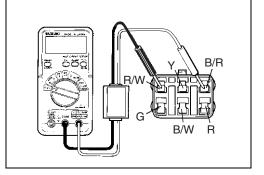
If the peak voltage is above the specification, check the continuity between the magneto lead wire coupler and CDI unit coupler.

CAUTION

Normally, use the needle pointed probe to the backside of the lead wire coupler to prevent the terminal bend and terminal alignment.







IGNITION SYSTEM COIL INSPECTION

- Disconnect the magneto lead wire coupler ①.
- Measure the exciter, charge and pick-up coils resistance.

Stator coil resistance

Exciter	Black/Red – Red/White	24 – 40 Ω
Charge	Yellow – Black/White	1.6 – 3.2 Ω

Pick-up coil resistance

Pick-upRed – Green72 – 127 Ω

09900-25008: Multi-circuit tester set

E Tester knob indication: Resistance (Ω)

If the resistance is not within the standard range, replace it with a new one.

IGNITION COIL PRIMARY PEAK VOLTAGE INSPECTION

- Remove the seat and fuel tank. (5-2)
- Disconnect the spark plug cap ①.
- Connect the new spark plug.
- Insert the needle pointed probes to the ignition coil lead wire coupler ②.
- Connect the multi-circuit tester with peak volt adaptor.
- Measure the highest peak voltage by depressing the kick starter pedal several times forcefully.

NOTE:

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

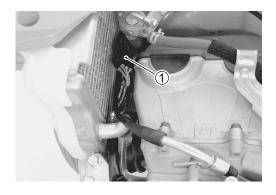
Ignition coil primary peak voltage

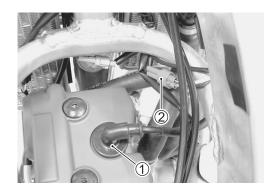
|--|

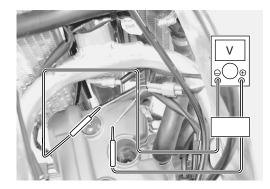
09900-25008: Multi-circuit tester set 09900-25009: Needle pointed probe set

Tester knob indication: Voltage (----)

If the peak voltage is lower than the standard range, check the ignition coil as follow.







IGNITION COIL INSPECTION

- Remove the seat and fuel tank. (13-5-2)
- Disconnect the ignition coil lead wire coupler ① and spark plug cap ②.
- Measure the ignition coil resistance.

Ignition coil resistance

Primary	White/Blue – Black/White	0.17 – 0.70 Ω
Secondary	Plug cap – Black/White	9 – 14 k Ω

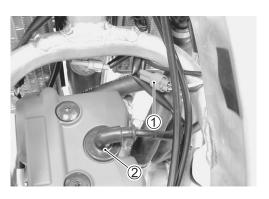
09900-25008: Multi-circuit tester set

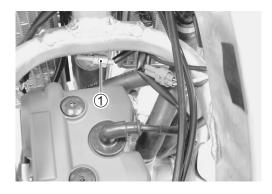
\square Tester knob indication: Resistance (Ω)

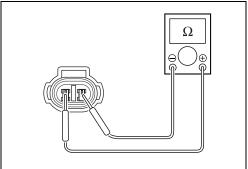
If the resistance is not within the standard range, replace the ignition coil with a new one.

ENGINE STOP SWITCH INSPECTION

- Remove the seat and fuel tank. (13-5-2)
- Disconnect the engine stop switch lead wire coupler .







• 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)

09900-25008: Multi-circuit tester set
 09900-25009: Needle pointed probe set

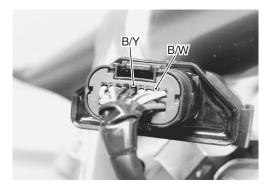
 \square Tester knob indication: Resistance (Ω)

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.

CAUTION

Normally, use the needle pointed probe to the backside of the lead wire coupler to prevent the terminal bend and terminal alignment.



MAGNETO ROTOR

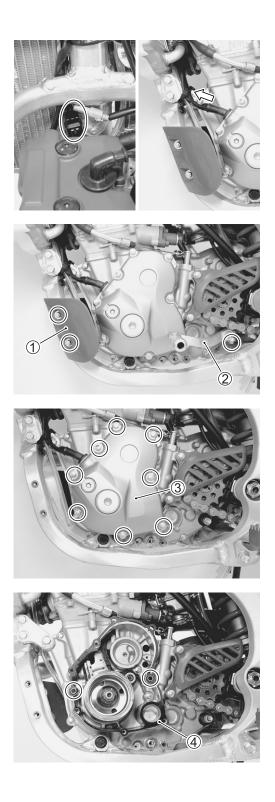
REMOVAL

- Drain engine oil. (2-11)
- Remove the seat and fuel tank. (
- Disconnect the magneto lead wire coupler and clamp.

- Remove the left front protector ①.
- Remove the gearshift lever 2. (2-9-3)

• Remove the magneto cover 3.

• Remove the gasket 4 and dowel pins.



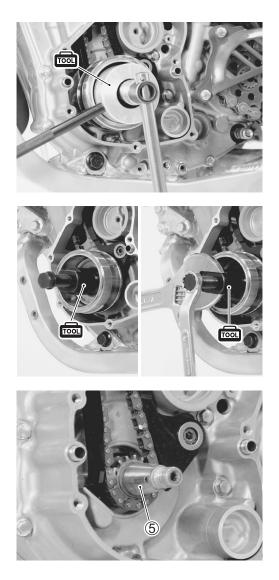
• Remove the magneto rotor nut with a special tool.

1001 09930-44560: Rotor holder

• Remove the magneto rotor with a special tool.

09930-35020: Rotor remover

• Remove the magneto rotor key (5).



INSTALLATION

- Remove any grease from the tapered portion (A) of the magneto rotor and crankshaft (B).
- Fit the magneto rotor key 1 into the crankshaft.

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

Magneto rotor nut: 80 N⋅m (8.0 kgf-m, 58.0 lb-ft)

1001 09930-44560: Rotor holder

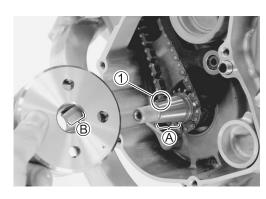
- Install the dowel pins.
- Replace the gasket ② with a new one.

• Install the magneto cover 3.

CAUTION Install the new gasket washers to the bolt A.

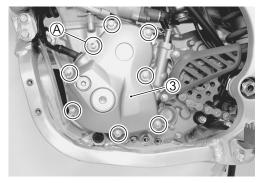
Magneto cover bolt: 11 N·m (1.1 kgf-m, 8.0 lb-ft)

- Install the gearshift lever. (239-7)
- Install the left front protector.
- Pour the engine oil. (2-11)





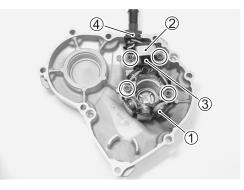




STATOR

REMOVAL

- Remove the magneto cover. (11-10)
- Remove the stator 1.
- Remove the clamp 2 and pick-up coil 3.
- Remove the grommet ④.



INSTALLATION

• Apply THREAD LOCK to the stator set bolts and tighten them.

1342 99000-32050: THREAD LOCK "1342" or equivalent

- Install the stator, pick-up coil, clamp and grommet. (
- Install the magneto cover. (14-12)



– MEMO –

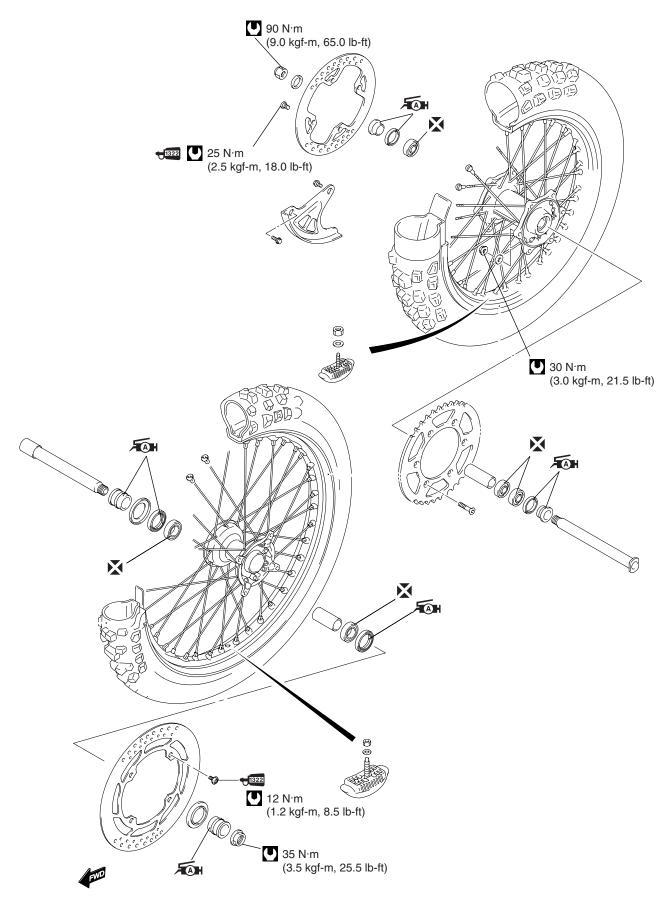
FRONT AND REAR WHEELS

CO	NTE	INTS	_
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CONSTRUCTION
FRONT WHEEL 15- 3
REMOVAL
INSPECTION
DUST SEAL AND BEARING REPLACEMENT
DISC PLATE REPLACEMENT 15- 7
INSTALLATION
REAR WHEEL
REMOVAL
INSPECTION
DUST SEAL AND BEARING REPLACEMENT
DISC PLATE REPLACEMENT 15-11
REAR SPROCKET REPLACEMENT 15-12
INSTALLATION 15-12
REAR WHEEL SPOKES REPLACEMENT 15-12



CONSTRUCTION

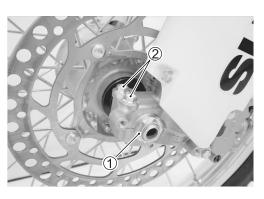


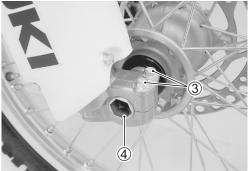
FRONT WHEEL

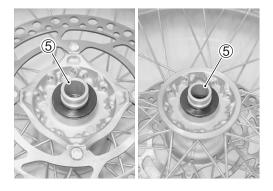
REMOVAL

- 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.
- Remove the wheel spacers and dust seals (5), left and right.







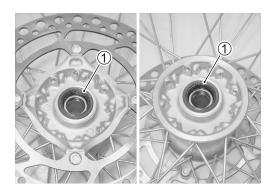
INSPECTION

SPACER AND DUST SEAL

- Inspect the right and left dust seals 1 and wheel spacers 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

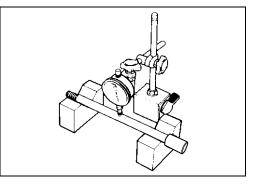
- Support the axle shaft with the V-blocks and measure the axle shaft runout.
- If the runout exceeds the limit, replace the axle shaft with a new one.
- Front axle runout
 - Service Limit: 0.25 mm (0.010 in)
- 09900-20607: Dial gauge (1/100 mm)
 09900-20701: Magnetic stand
 09900-21304: V-block set (100 mm)

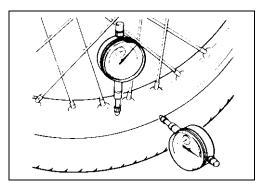
WHEEL RIM

- Measure the wheel rim runout with the dial gauge.
- If the runout exceeds the limit, replace the bearings or wheel.

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

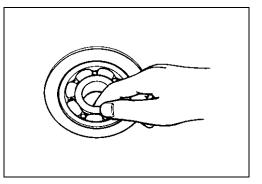
09900-20607: Dial gauge (1/100 mm) 09900-20701: Magnetic stand





WHEEL BEARING

- Turn the inner race by finger and inspect it for smooth movement.
- Inspect for bearing damage.
- If any defects are found, replace the bearing with a new one.



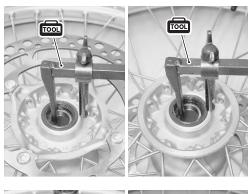
DUST SEAL AND BEARING REPLACEMENT

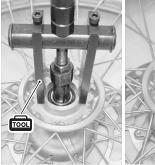
• Remove the dust seals with the special tool.

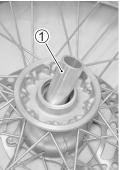
09913-50121: Oil seal remover

- Remove the bearing with the special tool.
- Remove the spacer 1 and bearing with the special tool.

09921-20240: Bearing remover set (Remover 20 mm)









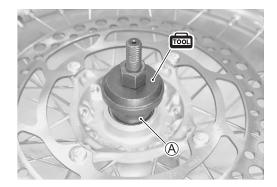
• Reassemble the bearings with the special tools, using the suitable spacer (A) match for the outside dimension of bearings.

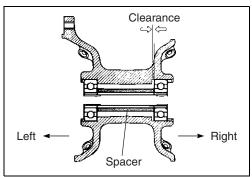
* Install the left side (disc side) bearing first and then install the

* After installing the bearings, inspect the bearings for smooth

09924-84521: Bearing installer set

spacer and right side bearing.





• Fit the dust seals and apply grease to their lips.

NOTE:

NOTE:

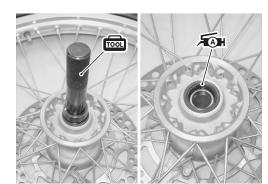
movement.

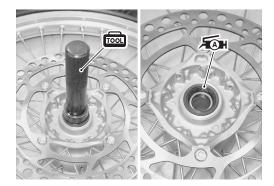
When installing the dust seal, place the manufacturer's code indicated side of the dust seal outside.

101 09913-70210: Bearing installer set Bearing: ϕ 40 Attachment

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent





DISC PLATE REPLACEMENT

- Remove the disc plate.
- Apply THREAD LOCK SUPER to the bolts.
- 1322 99000-32110: THREAD LOCK SUPER "1322"

or equivalent

• Tighten the bolts to the specified torque.

Disc plate bolt: 12 N·m (1.2 kgf-m, 8.5 lb-ft)

INSTALLATION

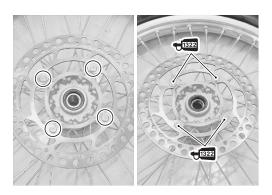
• Hold the front axle shaft with the special tool and tighten the front axle nut temporarily.

09940-34581: Attachment (F)

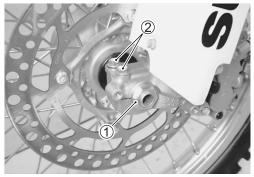
- Remove the block from under the chassis tube and move the front forks up and down several times.
- Tighten the front axle nut ① to the specified torque.

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

- Tighten the left and right axle holder bolts ② to the specified torque.
- Axle holder bolt: 18 N·m (1.8 kgf-m, 13.0 lb-ft)







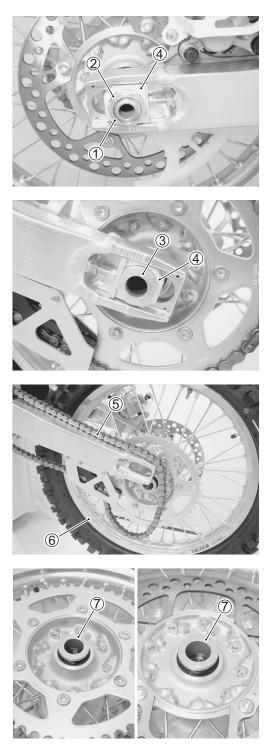
REAR WHEEL

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.

• Remove the spacer \overline{O} , left and right.



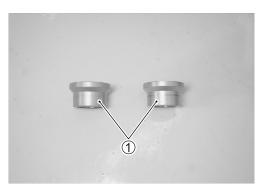
INSPECTION

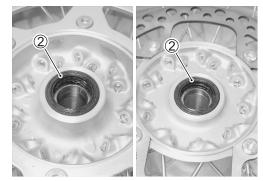
WHEEL SPACER AND DUST SEAL

- 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:

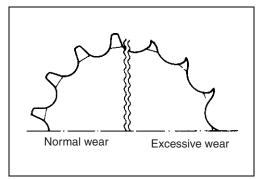
Apply grease on the spacer and dust seal before reassembling.





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 (2715-3)

WHEEL RIM (C 15-4)

WHEEL BEARING (715-4)

DUST SEAL AND BEARING REPLACEMENT

• Remove the snap ring ①.

1001 09900-06108: Snap ring pliers



• Remove the dust seals with the special tool.

1001 09913-50121: Oil seal remover

- Remove the bearings with the special tools.
- Remove the spacer 2 and bearing with the special tool.

09921-20240: Bearing remover set (Remover 25 mm)

• Apply grease to the wheel bearings.

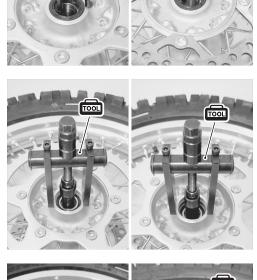
₩ 99000-25010: SUZUKI SUPER GREASE "A" or equivalent

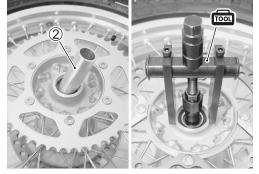
· Assemble the bearings with the special tools, using the suitable spacer (A) match for the outside dimension of bearings.

1001 09941-34513: Steering race installer









NOTE:

- * Install the left side (sprocket side) bearing first and then install the spacer and right side bearing.
- * After installing the bearings, inspect the bearings for smooth movement.
- Install the snap ring ①.

1001 09900-06108: Snap ring pliers

• Fit 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

FAH 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

DISC PLATE REPLACEMENT

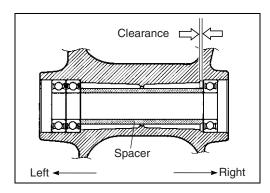
- Remove the disc plate.
- Apply THREAD LOCK SUPER to the bolts.

H1322 99000-32110: THREAD LOCK SUPER "1322"

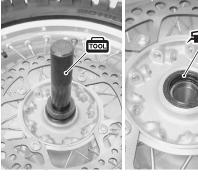
or equivalent

• Tighten the bolts to the specified torque.

Disc plate bolt: 25 N·m (2.5 kgf-m, 18.0 lb-ft)



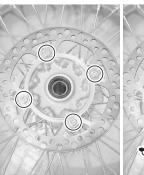


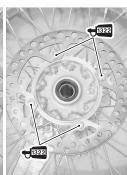












REAR SPROCKET REPLACEMENT

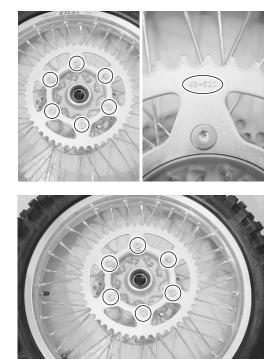
• Remove the rear sprocket.

NOTE:

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

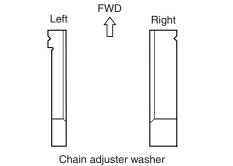
• Tighten the nuts to the specified torque.

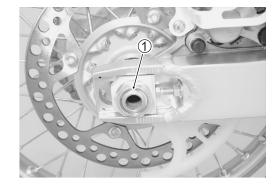
Rear sprocket nut: 30 N·m (3.0 kgf-m, 21.5 lb-ft)



INSTALLATION

- Install the rear wheel, chain adjuster washers and axle shaft.
- Install the washer and nut.
- Adjust the drive chain slack. (2-2-27)





• Tighten the rear axle nut 1 to the specified torque.

Rear axle nut: 90 N·m (9.0 kgf-m, 65.0 lb-ft)

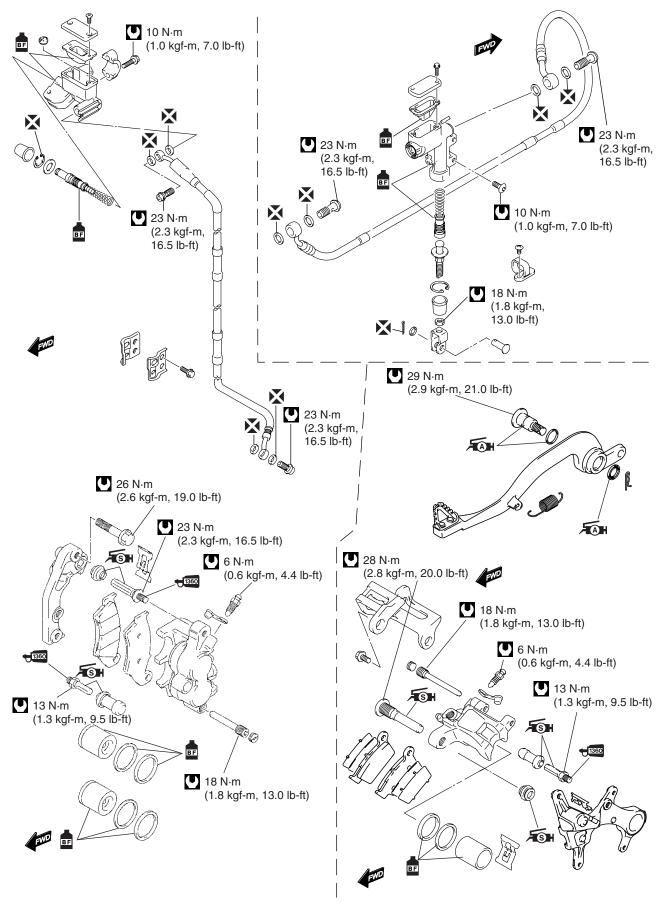
REAR WHEEL SPOKES REPLACEMENT (19-29)

FRONT AND REAR BRAKES

CON	TEN	TS -
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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.

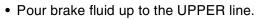
Use only DOT 4 brake fluid from sealed container. Never use or mix different types of brake fluid.

CAUTION

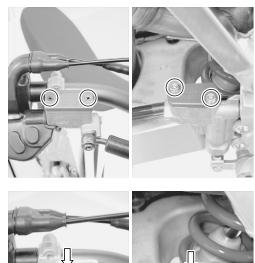
Spilled brake fluid can damage painted surfaces and plastic parts.

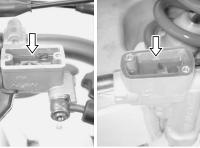
Be careful not to spill any brake fluid when servicing brake fluid. Wipe spilled fluid up immediately.

• Remove the reservoir cap.



B Specification and classification: DOT 4





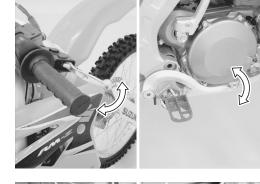
- Connect a transparent tube to the bleeder valve and set the other end into a receptacle.
- Loosen the bleeder valve and pump the brake lever/pedal until air bubbles stop coming out from the reservoir.
- Hold the brake lever/pedal in the squeezed position.
- Open the bleeder valve and tighten the bleeder valve.
- Release the brake lever/pedal.
- Repeat this sequence until air bubbles stop coming out from the bleeder valve.

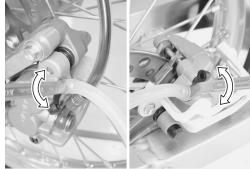
NOTE:

- * Do not release the brake lever/pedal while the bleeder valve is opened.
- * Replenish brake fluid to the UPPER line when the brake fluid level drops below LOWER line.
- Tighten the air bleeder valve.

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

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

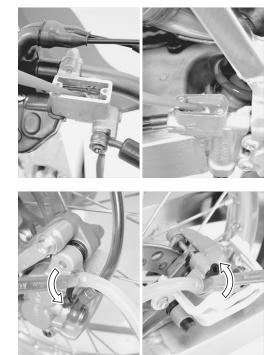




BRAKE FLUID REPLACEMENT

- Remove the reservoir cap. (
- 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. (1716-3)



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.

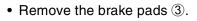
Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

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.



NOTE:

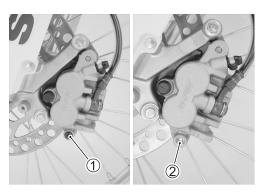
Replace the two pads as a set.

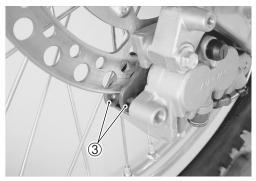
- Fit the new brake pads into the caliper.
- Tighten the brake pad mounting pin to the specified torque.

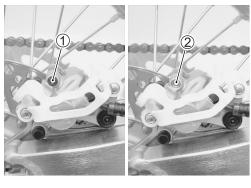
Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

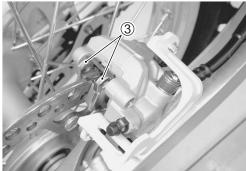
NOTE:

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







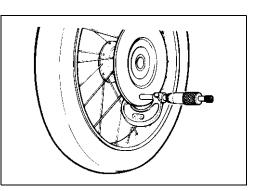


BRAKE DISC INSPECTION

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

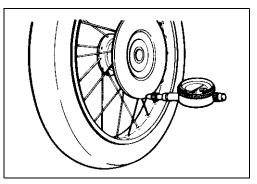
DATA Brake disc thickness

Service limit (Front): 2.5 mm (0.10 in) (Rear): 3.5 mm (0.14 in)



- Measure the front and rear brake disc runout.
- Brake disc runout Service limit: 0.30 mm (0.012 in)

BRAKE DISC REPLACEMENT (CF15-5, -9)



CALIPER

A 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.
- Remove the union bolt ①.
- Disconnect the brake hose.
- Remove the caliper mounting bolts 2.
- Remove the caliper.
- Remove the brake pads. (137-16-5)
- Remove the spring \Im .

• Remove the boots (5) and (6).

• Remove the spring ⑦.



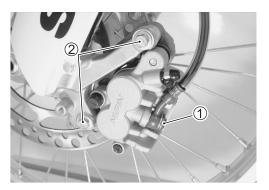
• Remove the caliper bracket ④ from the caliper.

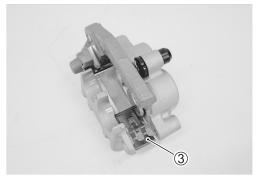
- Wrap the caliper with a rag to prevent brake fluid scatter and piston pop-out.
- Apply low-pressure air into the caliper through the hole to remove the pistons.

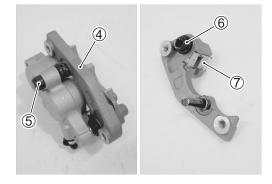
WARNING

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.

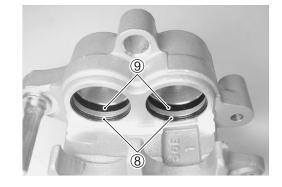








• Remove the dust seals (8) and piston seals (9).





CALIPER INSPECTION

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

• 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.

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.

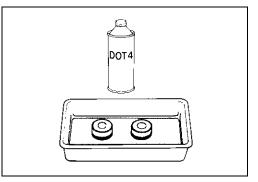
Specification and classification: DOT 4

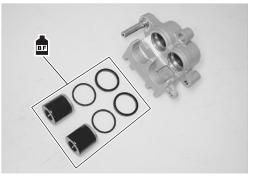
- Install the springs and boots.
- Apply SUZUKI SILICONE GREASE to the caliper axles.

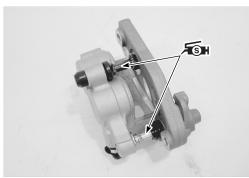
₩ 99000-25100: SUZUKI SILICONE GREASE

or equivalent

- 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.

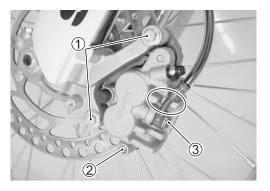
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

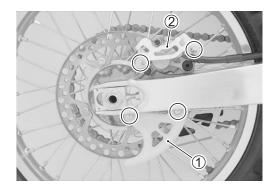
- Install the pad mounting pin cap.
- Refill brake fluid and bleed air from the brake system. (13716-3)

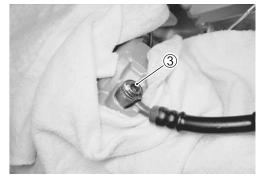
REAR CALIPER REMOVAL AND DISASSEMBLY

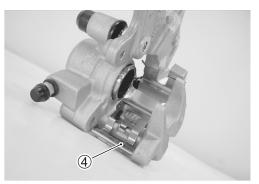
• Remove the disc cover ① and caliper protector ②.

- Place a rag under the brake hose union bolt to catch spilled brake fluid.
- Remove the union bolt ③.
- Disconnect the brake hose.
- Remove the rear wheel. (
- Remove the caliper.
- Remove the brake pad. (13716-5)
- Remove the spring ④.









- Remove the caliper bracket (5) from the caliper.
- Remove the boots 6 and 7.
- Remove the spring (8).

- 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 9 and piston seal 10.

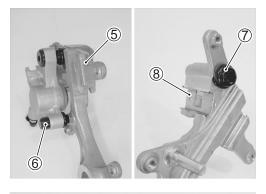
Brake caliper inspection and cleaning. (1716-8)

REAR CALIPER REASSEMBLY AND

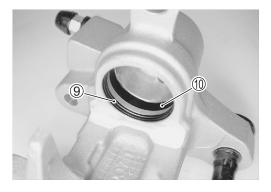
Reassemble and install the brake caliper in the reverse order of removal and disassembly. Pay attention to the following points:

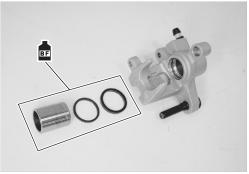
• Apply brake fluid to the new piston seal, new dust seal and piston fit the piston seal, dust seal and piston.

Specification and classification: DOT 4









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

₩ 99000-25100: SUZUKI SILICONE GREASE

or equivalent

- Install the caliper bracket.
- Install the brake pads.
- Tighten the brake pad mounting pin temporarily.
- Install the rear wheel. (
- 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)

• Set the brake hose end between the hose stopper, then tighten the brake hose union bolt 2 to the specified torque.

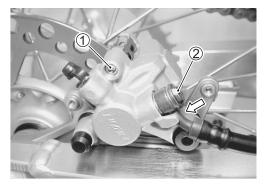
CAUTION

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. (137 - 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.

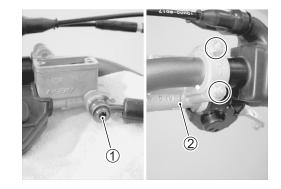
FRONT MASTER CYLINDER REMOVAL AND DISASSEMBLY

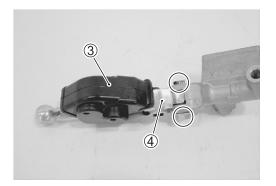
- Drain brake fluid. (17-16-4)
- Place a rag under the brake hose union bolt ① to catch spilled brake fluid.
- Remove the union bolt ①.
- Disconnect the brake hose.
- Remove the master cylinder holder bolts.
- Remove the master cylinder 2.

NOTE:

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

- Remove the boot ③.
- Remove the bolt/nut and brake lever ④.

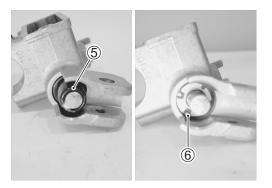


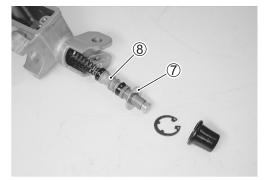


- Remove the dust boot ⑤.
- Remove the snap ring 6 with snap ring pliers.

09900-06108: Snap ring pliers

• Remove the washer $\overline{\mathcal{T}}$ and piston/cup set $\underline{\$}$.





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.

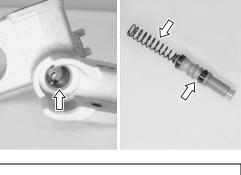
MASTER CYLINDER CLEANING

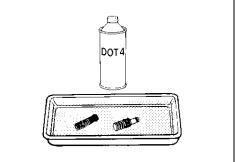
- Flush the master cylinder ports with pressurized air.
- Wash the master cylinder bore and piston with fresh brake fluid.

BF 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:

• Apply grease to the brake lever pivot bolt and contact point between piston and brake lever.

Fight 99000-25010: SUZUKI SUPER GREASE "A" or equivalent

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

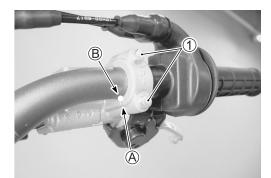
■ Brake lever pivot nut: 6 N·m (0.6 kgf-m, 4.4 lb-ft) Brake lever pivot bolt: 6 N·m (0.6 kgf-m, 4.4 lb-ft)

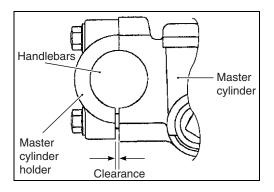
NOTE:

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 mounting bolts ① to the specified torque.
- Master cylinder mounting bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)







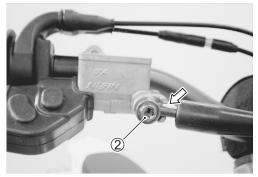
• Set the brake hose end between the hose stopper, then tighten the brake hose union bolt (2) to the specified torque.

CAUTION

The seal washers should be replaced with new ones to prevent fluid leakage.

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

• Refill brake fluid and bleed air from the brake system. (13716-3)

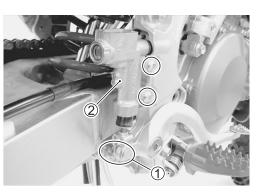


REAR MASTER CYLINDER REMOVAL AND DISASSEMBLY

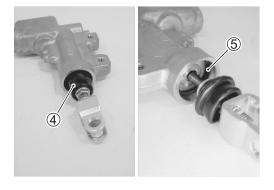
- Drain brake fluid. (13716-4)
- Remove the cotter pin, washer and then master cylinder rod pin 1.
- Remove the master cylinder mounting bolts and master cylinder 2.
- Place a rag under the brake hose union bolt ③ to catch spilled brake fluid.
- Remove the union bolt ③.
- Disconnect the brake hose.
- Remove the master cylinder.
- Remove the dust boot ④.
- Remove the snap ring 5 with snap ring pliers.

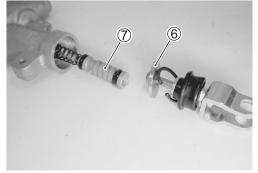
09900-06108: Snap ring pliers

- Remove the push rod 6.
- Remove the piston/cup set \overline{O} .









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. (17-16-13)

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.

or equivalent

• 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.

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

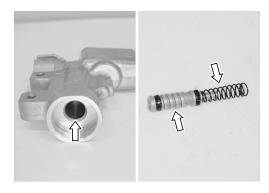
• Install the master cylinder rod pin.

CAUTION

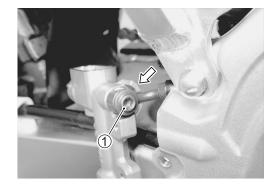
Improper brake hose routing can damage the brake hose.

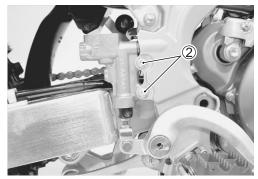
Set the brake hose so it touches the stopper and tighten the union bolt. Ensure the brake hose has enough clearance to the rear suspension spring.

• Refill brake fluid and bleed air from the brake system. (137-16-3)







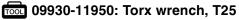


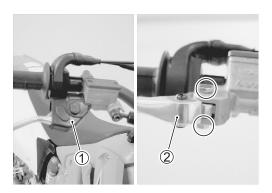
BRAKE LEVER

REMOVAL

- Remove the boot 1.
- Remove the bolt/nut and brake lever 2.

• Remove the brake lever adjuster return spring \Im .







INSTALLATION

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

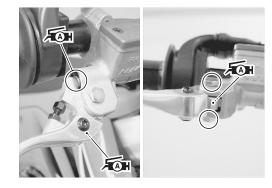
• Apply grease to the brake lever adjuster return spring, pivot bolt and contact point between piston and brake lever.

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

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

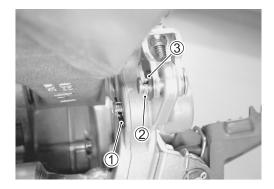
■ Brake lever pivot nut: 6 N·m (0.6 kgf-m, 4.4 lb-ft) Brake lever pivot bolt: 6 N·m (0.6 kgf-m, 4.4 lb-ft)



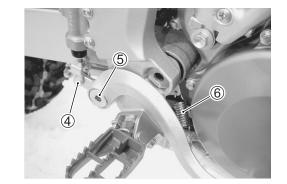
BRAKE PEDAL

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).

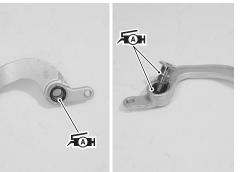


INSTALLATION

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

₩ 99000-25010: SUZUKI SUPER GREASE "A"

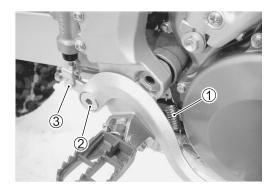
or equivalent



- Install the return spring ① properly. (13719-23)
- 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 master cylinder rod pin ③, washer and new cotter pin ④.
- \bullet Install the clip (5).
- Adjust the brake pedal height. (2-32)



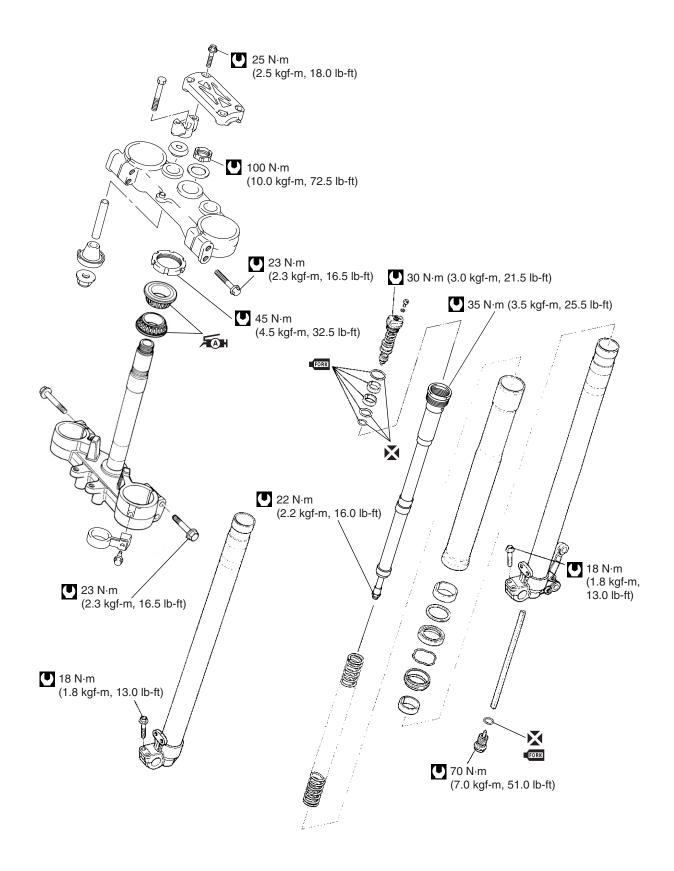


FRONT FORK AND STEERING

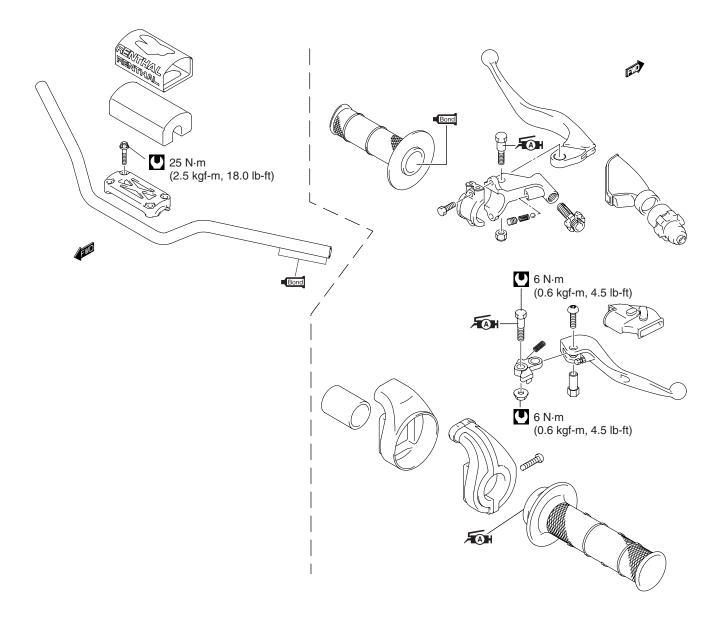
CON	TEN	TS -
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FRONT FORK, STEERING 17- 2 HANDLEBAR CONTROLS 17- 3 REMOVAL 17- 4 DISASSEMBLY 17- 5 INSPECTION 17- 9 REASSEMBLY 17-11 INSTALLATION 17-18 REMOVAL 17-18 INSPECTION 17-21 BEARING REPLACEMENT 17-22 INSTALLATION 17-23	CONSTRUCTION	17- 2
REMOVAL 17- 4 DISASSEMBLY 17- 5 INSPECTION 17- 9 REASSEMBLY 17-11 INSTALLATION 17-17 STEERING 17-18 REMOVAL 17-18 INSPECTION 17-21 BEARING REPLACEMENT 17-22	FRONT FORK, STEERING	17- 2
DISASSEMBLY 17-5 INSPECTION 17-9 REASSEMBLY 17-11 INSTALLATION 17-17 STEERING 17-18 REMOVAL 17-18 INSPECTION 17-21 BEARING REPLACEMENT 17-22	HANDLEBAR CONTROLS	17- 3
INSPECTION 17-9 REASSEMBLY 17-11 INSTALLATION 17-17 STEERING 17-18 REMOVAL 17-18 INSPECTION 17-21 BEARING REPLACEMENT 17-22	REMOVAL	17- 4
REASSEMBLY 17-11 INSTALLATION 17-17 STEERING 17-18 REMOVAL 17-18 INSPECTION 17-21 BEARING REPLACEMENT 17-22	DISASSEMBLY	17- 5
INSTALLATION 17-17 STEERING 17-18 REMOVAL 17-18 INSPECTION 17-21 BEARING REPLACEMENT 17-22	INSPECTION	17- 9
STEERING 17-18 REMOVAL 17-18 INSPECTION 17-21 BEARING REPLACEMENT 17-22	REASSEMBLY	17-11
REMOVAL	INSTALLATION	17-17
INSPECTION	STEERING	17-18
BEARING REPLACEMENT 17-22	REMOVAL	17-18
	INSPECTION	17-21
INSTALLATION 17-23	BEARING REPLACEMENT	17-22
	INSTALLATION	17-23

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 handlebar.

NOTE:

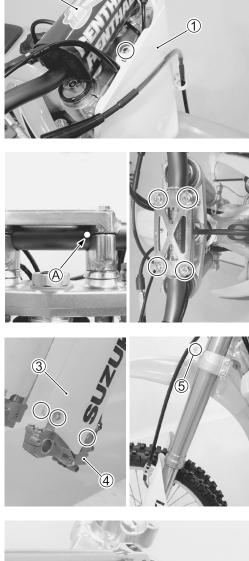
Mark the paint mark (A) to the matching surface of handlebar holder and handlebars before removing.

- Remove the fork protectors 3 and front brake caliper 4.
- Remove the brake hose guide (5).

- Loosen the front fork upper clamp bolts 6.
- Loosen the front fork cap bolts 1 2 turns to facilitate later disassembly.

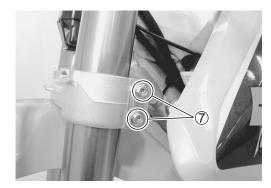
09941-53630: Front fork top cap wrench

- Hold the fork body and loosen the fork lower clamp bolts $\ensuremath{\overline{\mathcal{O}}}$.
- Remove the front forks.



(2)





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

A WARNING

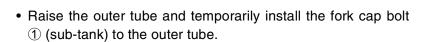
Clamping the outer tube too tight can damage it which will affect riding stability.

Do not clamp the outer tube too tight.

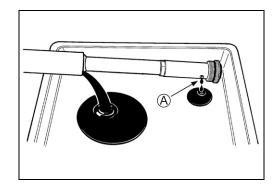
• Place a drain pan under the front fork and drain fork oil.

NOTE:

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









- 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.

A WARNING

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

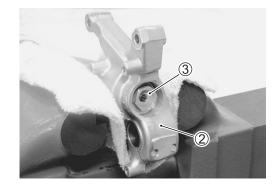
Do not clamp the axle holder too tight.

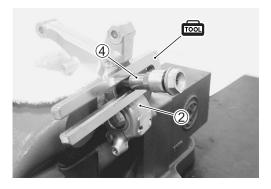
Compress the outer tube by hands and install the conrod holder (special tool) between the axle holder (2) and lock-nut (4).

09910-20115: Conrod holder

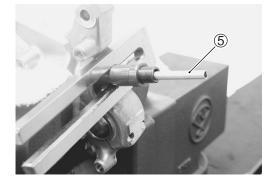
• Hold the lock-nut with a wrench and remove the center bolt.

• 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.

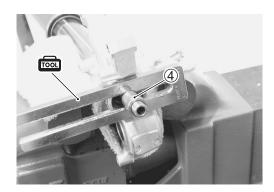
Do not remove the lock-nut ④ from the inner rod.

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

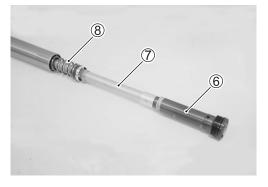
CAUTION

Do not attempt to disassemble the damper rod assembly.

The damper rod assembly is available only as an assembly.





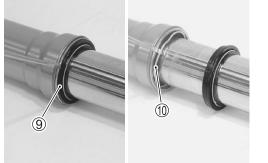


- Remove the dust seal 9.
- Remove the stopper ring 10.

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

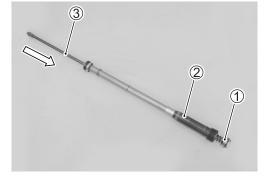
• Hold the bottom (flat part) of the sub-tank loose the compression damper unit ①.

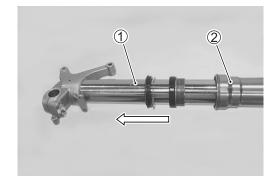
- Remove the compression damper unit 1 from the sub-tank 2.

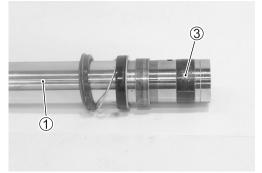
NOTE:

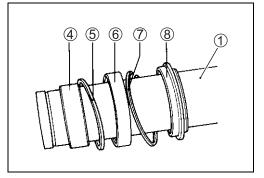
Slowly compress the inner rod ③ until it stops so that the compression damper unit can be removed easily.



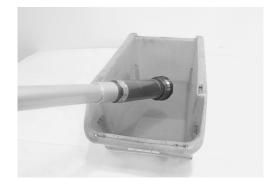








• Drain the fork oil from the damper rod assembly by moving the inner rod several strokes.





COMPRESSION DAMPER UNIT

damaged, replace it with a new one.

INSPECTION CENTER BOLT

• Inspect the compression damper unit for damage. If it is damaged, replace it with a new one.

· Inspect the adjuster rod of the center bolt for damage. If it is

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.

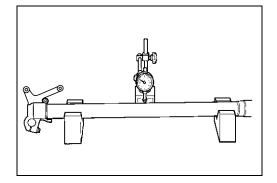
DATA Inner tube runout

Service Limit: 0.4 mm (0.02 in)

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







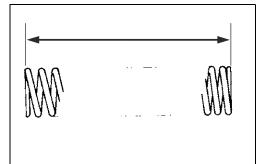
DAMPER ROD ASSEMBLY

• 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.
- 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

NOTE:

- * 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 other 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.

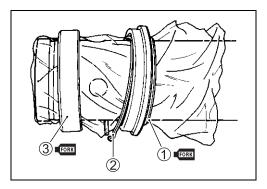
NOTE:

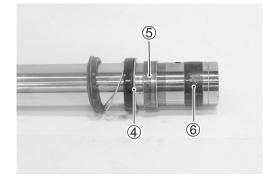
Inspect the bushings for burrs. If there is a burr, remove it with a knife, taking care not to peel off the teflon coating. If the bushings have a large crack or excessive play after installing them, replace them with new ones.

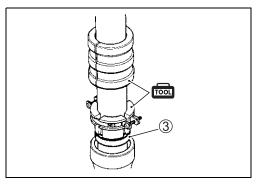
- Insert the inner tube into the outer tube.
- Install the new oil seal ③ with the special tool until the stopper ring groove of the outer tube can be seen.

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.

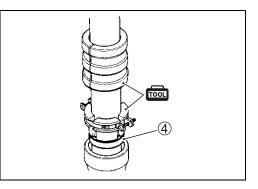
CAUTION

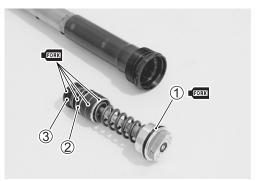
Use of grease as a substitute fork oil when installing the oil seal can result in an oil leak. Applying grease to the dust seal and oil seal can cause dirt to accumulate and damage the dust seal lip and oil seal lip.

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-ring 1, 2, 3 with a new one.
- Apply fork oil to the O-rings and bushing on the compression damper unit.



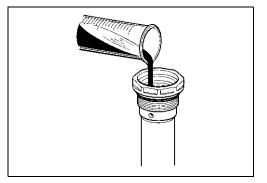


• With the damper rod in fully extended position, pour the specified amount of fork oil.

Fork oil quantity (Inside the damper rod): 193 ml (6.52/6.80 US/Imp oz)

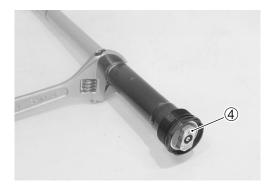
FORK 99000-99001-SS5: SUZUKI FORK OIL SS-05 or equivalent

• With the damper rod held immovable in fully extended position, gently install the compression damper unit ④ to the subtank ⑤.

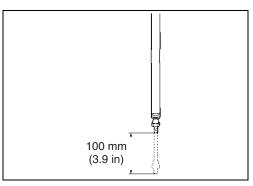




- Hold the bottom (flat part) of the sub-tank.
- Tighten the compression damper unit ④ to the specified torque.
- Compression damper unit: 30 N·m (3.0 kgf-m, 21.5 lb-ft)



• 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.

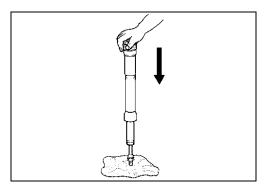
CAUTION

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

NOTE:

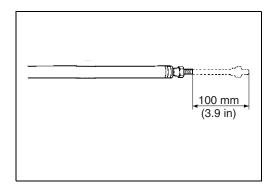
Set the compression damper setting to the softest.

• 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). (2717-12)



Lock-nut

• 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 6.
- Insert the spring and damper rod assembly into the fork.
- CORNELITION CONTRACTOR OF CONT

Approx.10 mm

(0.39 in)



• 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.

A 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 C of center bolt into the push rod D.
- 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.

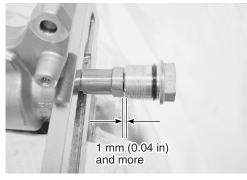
- Turn the lock-nut counterclockwise until it contacts with the center bolt.
- With the lock-nut held immovable using a wrench, tighten the lock-nut/center bolt to the specified torque.

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, 51.0 lb-ft)

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

09941-53630: Front fork top cap wrench

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

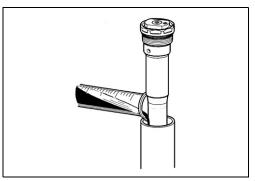
Oil quantity (When standard fork spring is used): 385 ml (13.01/13.56 US/Imp oz) FORK 99000-99001-SS5: SUZUKI FORK OIL SS-05

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

or equivalent

09941-53630: Front fork top cap wrench







INSTALLATION

- Install the front fork with the line T aligned with the upper surface of the upper bracket.
- Check that the air valve (A) 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.
- Fork cap bolt: 35 N⋅m (3.5 kgf-m, 25.5 lb-ft)

09941-53630: Front fork top cap wrench

• 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)

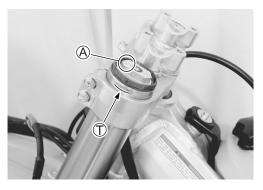
NOTE:

Check that the air valve is positioned at the front.

- Install the handlebars. (17-24)
- Install the front wheel. (15-6)
- Install the brake caliper. (13716-9)
- Install the fork protectors, brake hose guide and protector guides.

INSPECTION AFTER INSTALLATION

- Front fork (2-33)
- Steering (2-34)
- Wire, cable and hose routing (19-19, -20, -26, -28)







STEERING

REMOVAL

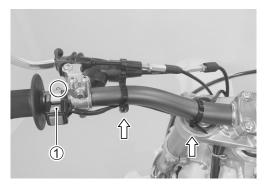
HANDLEBARS

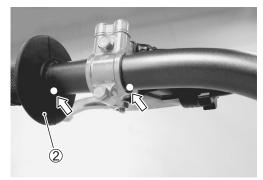
- Place the motorcycle on a block to lift front wheel off the ground.
- Remove the front number plate and protector. (
- Remove the clamps.
- Remove the engine stop switch 1.
- Remove the clutch lever.

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 housing cover screws.

NOTE:

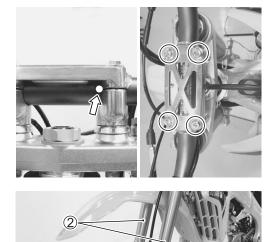
Mark the paint mark to the matching surface of throttle holder and handlebars before removing.



• Remove the handlebar holder bolts and remove the handlebars.

NOTE:

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



STEERING STEM

- Remove the front wheel (1). (13715-3)
- 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 steering stem nut with the special tools.

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

• Remove the steering stem lower bracket.

NOTE:

Hold the steering stem lower bradcet by hand to prevent it from falling.

• Remove the upper bearing.





INSPECTION

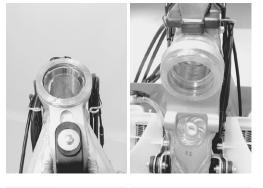
STEERING STEM

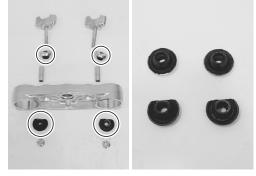
- Inspect the needle bearings for wear.
- Inspect the steering stem for distortion.
- Replace the defective parts with a new one.
- Inspect the bearing outer races for wear.
- If any defects are found, replace the bearing with a new one.

• Inspect the damper bushing wear or damage.







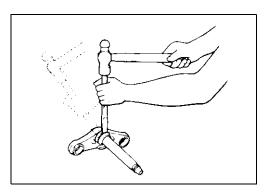


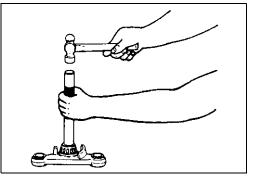
BEARING REPLACEMENT

• Remove the lower bearing.

• Fit the lower bearing with the special tool.

09925-18011: Steering bearing installer



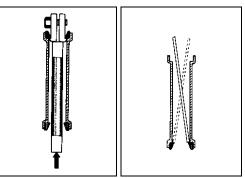


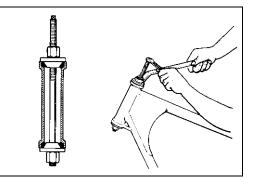
NOTE:

Replace the outer race and bearing as a set.

- Remove the upper outer race with the special tools.
- 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.

101 09941-34513: Steering race installer 09924-84510: Bearing installer set (ϕ 51.5 Attachment)





INSTALLATION

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

STEERING STEM

- Apply grease to the bearings.
- ₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

- 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: Attachment

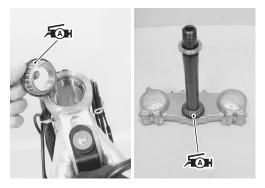
Steering stem nut: 45 N·m (4.5 kgf-m, 32.5 lb-ft)

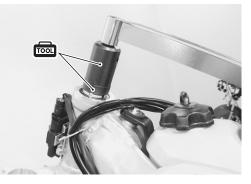
- Move the steering stem right and left several times to seat the bearings.
- Turn back the steering stem nut by 1/4 1/2 turn.

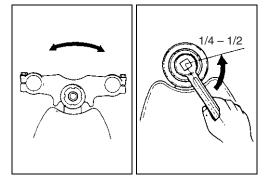
- Set the notch A on the handlebar holder backward.
- Install the steering stem upper bracket and washer.
- Install the steering stem head nut temporarily.

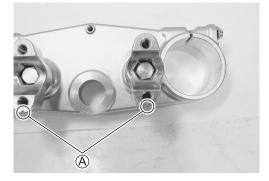
NOTE:

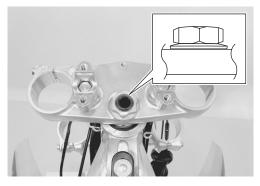
Pay attention to the direction of the washer.











- Install the front forks to the steering stem and tighten the lower clamp bolts temporarily.
- 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 ① as shown.
- Remount the front forks. (2717-17)
- Install the front wheel. (13-15-6)

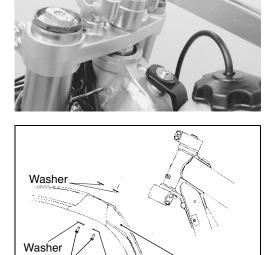
• Insert the throttle assembly and spacer to the handlebars.

• Set the mark (B) 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.

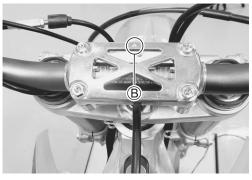
Handlebar clamp bolt: 25 N·m (2.5 kgf-m, 18.0 lb-ft) *NOTE:*

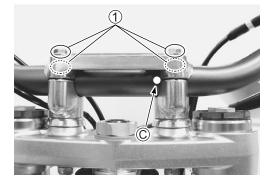
When tightening the handlebar clamp bolts, first tighten the bolts ①.



Bolt Washer







• Apply grease to the throttle cable and their hole.

🖌 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

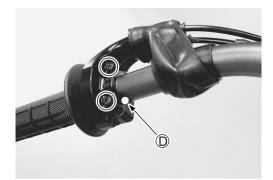
- Align the matching mark (1) on the handlebars with the throttle holder matching surface.
- Tighten the screws securely.

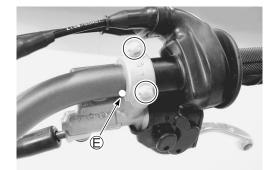
- Align the matching mark (E) on the handlebars with the front brake master cylinder matching surface.
- Tighten the bolts securely.

Master cylinder mounting bolt:

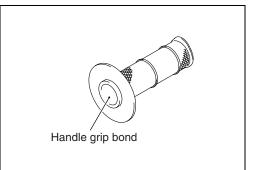
10 N·m (1.0 kgf-m, 7.0 lb-ft)







Handlebars Handle grip bond

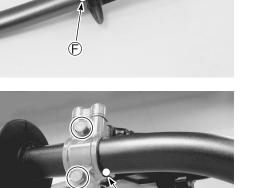


HANDLEBARS

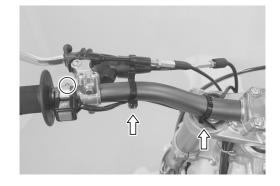
• Apply handle grip bond to the left handlebar end and inside of the left grip.

• Align the "△" mark on the left grip with the matching mark (F) on the left handlebar end.

- Align the matching mark G on the handlebars with the clutch lever holder matching surface.
- Tighten the bolts securely.



- Install the engine stop switch and clamps.
- Install the front number plate and protector.



INSPECTION AFTER INSTALLATION

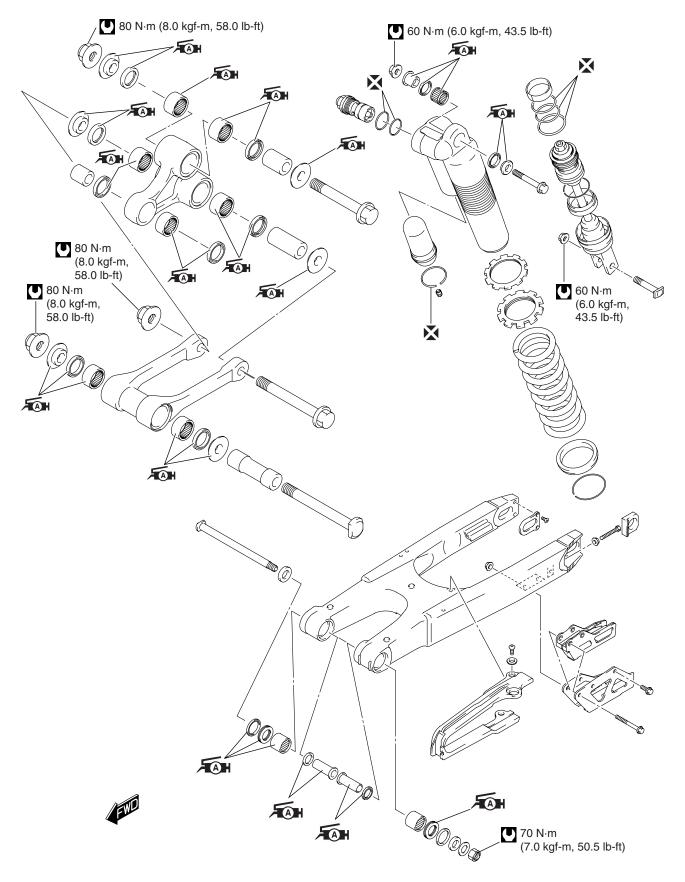
- Front fork (2-33)
- Steering (2-34)
- Wire, cable and hose routing (27 19-19, -20, -26, -28)

REAR SUSPENSION

CON	TENTS -
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CONSTRUCTION
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BEARING REPLACEMENT 18-20
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CONSTRUCTION REAR SUSPENSION



REAR SHOCK ABSORBER

REMOVAL

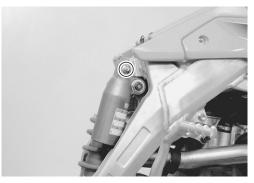
- Place a block under chassis tube.
- Remove the seat. (5-2)
- Loosen the air cleaner clamp screw.

- Remove the right frame cover. (
- Remove the muffler and rear frame assembly.







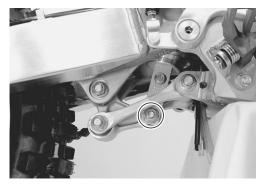


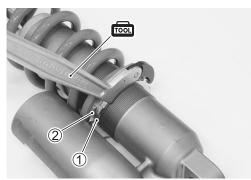
• Remove the rear shock absorber upper mounting bolt and nut.

· 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.

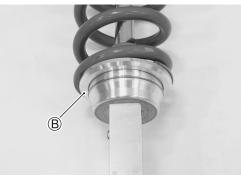












SPRING REPLACEMENT

- 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.

1001 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.

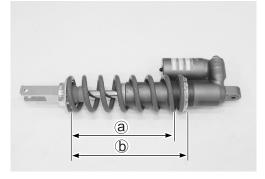
- Adjust the spring set length and tighten the locknut.
- **DATA** Standard spring set length:

7.3 mm (0.29 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 (10.42 in)]
(a): Hardest spring setting
(b): 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 with the special tool.

09921-20240: Bearing remover set (Remover 17 mm)

• 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:

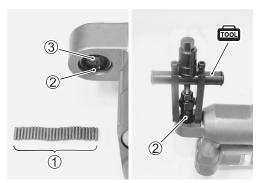
When installing the dust seal, the stamped mark A on the dust seal must face inside.

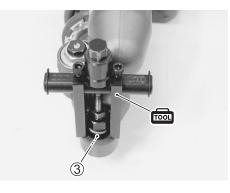
09924-84521: Bearing installer

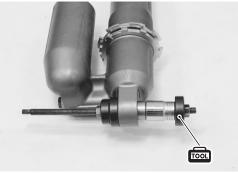
- Apply grease to the needle roller bearings and install them.
- Apply grease to the dust seals and spacers.
- Install the spacers $\ensuremath{\mathbb{A}}$ and $\ensuremath{\mathbb{B}}.$
 - A for Right side
 - $\ensuremath{\textcircled{B}}$ for Left side

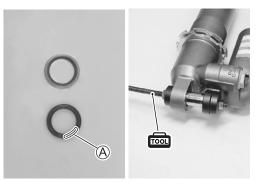
₩ 99000-25010: SUZUKI SUPER GREASE "A"

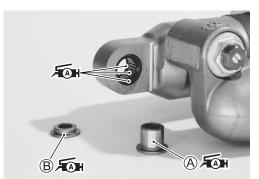
or equivalent





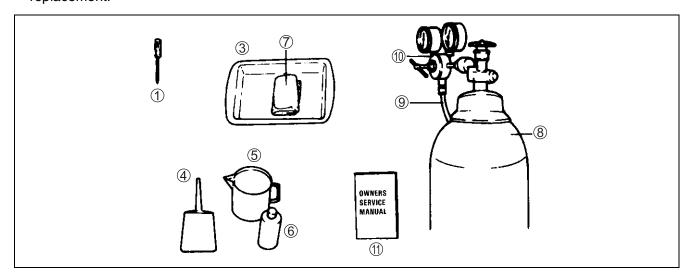






OIL REPLACEMENT TOOLS AND EQUIPMENT

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



- ① Screwdriver or small punch
- 2 Vise*
- ③ Drain Pan
- ④ Oilcan
- ⑤ Beaker
- 6 Specified Shock Oil (SS25)
- * Not Shown in the illustration

OIL REPLACEMENT PROCEDURE

- Remove the rear shock absorber unit from the frame (13718-3), clean and dry it.
- Remove the spring from the rear shock absorber unit. (137-18-4)

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.

A 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.





- 8 Nitrogen tank9 Filler Hose and Nozzle

⑦ Rags

- 1 Regulator Assembly
- 1 Owner's Service Manual

• 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:

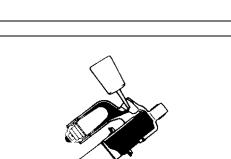
Be sure to extend the rod after filling the oil.

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

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

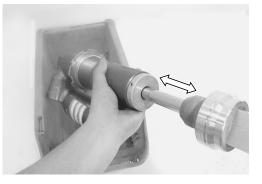
Oil capacity: 395 ml (13.35/13.91 US/Imp oz)

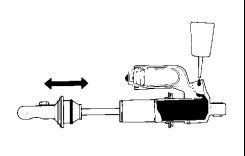
- Cover the compression adjuster hole with the root of your thumb.
- Tilt and shake the rear shock absorber unit to fill the reservoir with the oil.
- Add the oil and repeat the above procedure until the reservoir is filled with the oil completely.











• 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. (13-18-4)

A 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

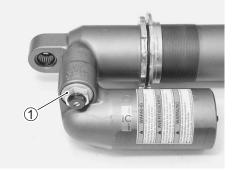
Applying too much pressure to the rear shock absorber unit may rupture the rear shock absorber unit.

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. (13718-4)
- Turn the rebound damping force adjuster to the softest position.
- Press the valve with a screwdriver to bleed out nitrogen gas.
 (1) 3-18-7)
- Remove the compression adjuster assembly and drain the oil. (1) 3-18-8)
- 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.

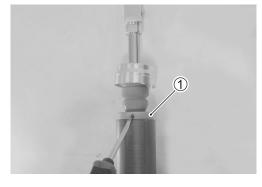
• Remove the circlip ④.

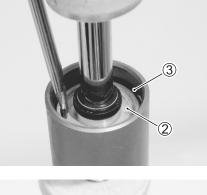
NOTE:

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 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. (13718-8)

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

DATA Oil capacity: 395 ml (13.35/13.91 US/Imp oz)

- Reinstall the compression adjuster assembly. (13-18-9)
- Pressure the rear shock absorber unit with nitrogen gas to 784 kPa (8.0 kgf/cm², 113.8 psi). (784 kPa (8.0 kgf/cm², 113.8 psi).
- Reassemble the spring and adjust the spring set length. (137-18-4)
- 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.

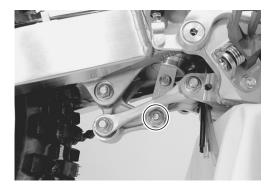
NOTE:

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

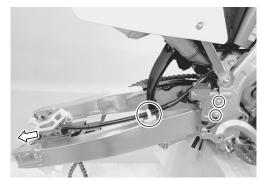
REMOVAL

- Place the motorcycle on a block to lift rear wheel off the ground.
- Remove the rear wheel. (13-15-8)
- Remove the chain guide.
- Remove the rear brake hose guide.
- Remove the rear master cylinder mounting bolts.
- 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)



6

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5 4

(6)

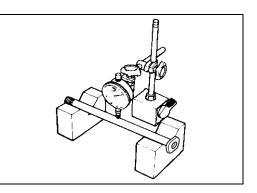
INSPECTION

PIVOT SHAFT

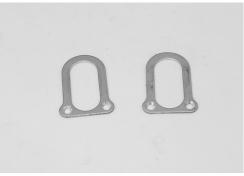
- Measure the pivot shaft runout with the dial gauge and V-blocks.
- If any the runout exceeds the limit, replace the pivot shaft with a new one.
- Swingarm pivot shaft runout Service Limit: 0.3 mm (0.01 in)
- © 09900-20607: Dial gauge (1/100 mm) 09900-20701: Magnetic stand 09900-21304: V-block set (100 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 with a new one.









SWINGARM

PLATE

• Inspect the swingarm for cracks and damage.

• Inspect the plate for damage and excessive bend.

• If any defects are found, replace the plate with a new one.

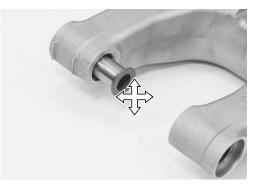
• If any defects are found, replace the swingarm with a new one.

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

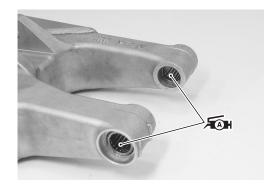
• Press the new bearings with the special tool.

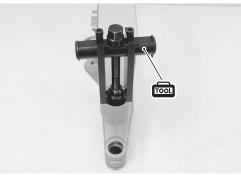
09924-84521: Bearing installer

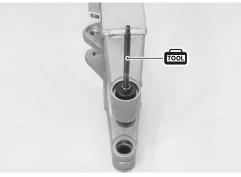
Apply grease to the bearings.

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent







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
 3 Washer
- ⑥ Dust seal⑦ Spacer
- ④ Thrust bearing

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

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent

• Apply THREAD LOCK SUPER to the plate mounting screws.

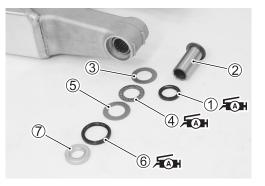
1322 99000-32110: THREAD LOCK SUPER "1322"

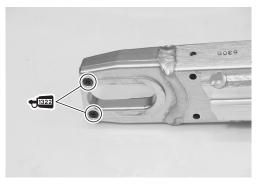
or equivalent

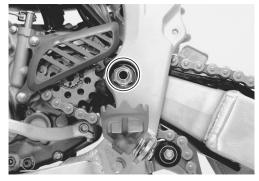
- Tighten the plate mounting screws securely.
- Install the chain buffer.
- Install the swingarm.
- Tighten the swingarm pivot nut to the specified torque.

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. (2715-12)
- Adjust the drive chain slack. (2-2-27)







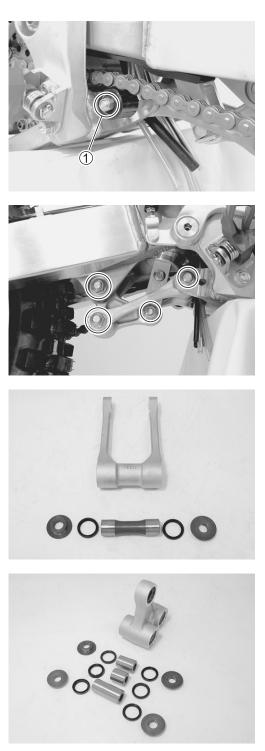


REAR SUSPENSION LINKAGE REMOVAL

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

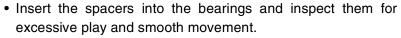
- Remove the rear cushion rod bolt and nut.
- Remove the cushion lever bolt and nut.
- Remove the shock absorber lower bolt and nut.

• Remove the collars, oil seals and spacers.



INSPECTION

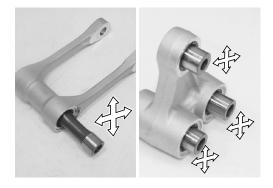
- Inspect the cushion rod and cushion lever for damage.
- Inspect the dust seals, oil seals and spacers for damage.
- Replace the defective parts with a new one.



• If excessive play is noted, replace the bearing with a new one.







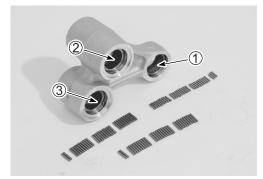
BEARING REPLACEMENT

- Remove the collars, spacers and dust seals. (13718-18)
- Remove the needle roller bearings. Cushion rod bearing

(One side 32 pieces of needle roller bearing) Cushion lever bearing

- ① (33 pieces of needle roller bearing)
- 2 (One side 32 pieces of needle roller bearing)
- ③ (One side 32 pieces of needle roller bearing)





• Remove the needle roller bearing cages with the special tool.

• Press fit the new needle roller bearing cages with the special tool and a suitable size socket wrench.

09924-84521: Bearing installer

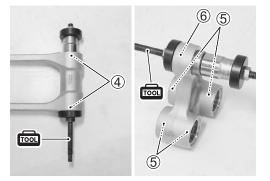
NOTE:

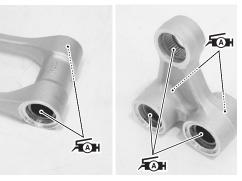
- * When installing the needle roller bearing cages ④ and ⑤, the stamped mark on the bearing must face outside. (⑥: right side)
- * Position the needle roller bearing cages by referring to the illustration of page 18-22.
- Apply grease to the needle roller bearings and install them.

₩ 99000-25010: SUZUKI SUPER GREASE "A"

or equivalent







INSTALLATION

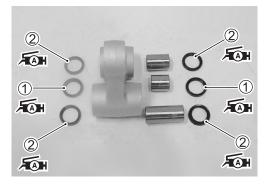
Install the rear suspension linkage in the reverse order of removal. Pay attention to the following points:

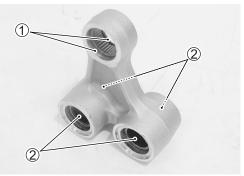
- Position the dust seals ① so that the manufacturer's code indicated side of the seals face outside. (②: inside)
- Apply grease to the dust seals.

FAH 99000-25010: SUZUKI SUPER GREASE "A"

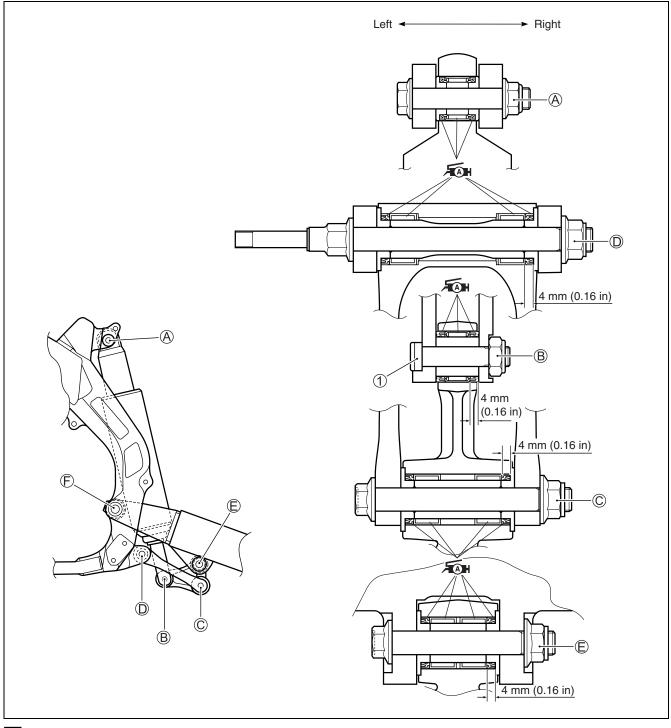
or equivalent





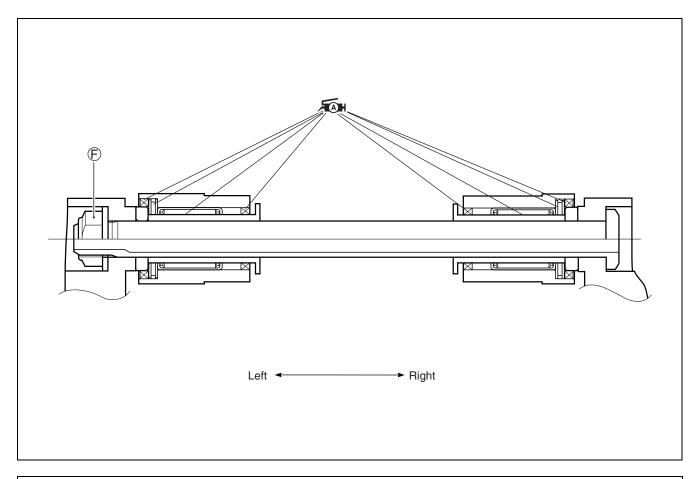


• Tighten the cushion lever, cushion rod and swingarm nuts to the specified torque.



Tightening torque:

- (A): 60 N·m (6.0 kgf-m, 43.5 lb-ft)
- B: 60 N⋅m (6.0 kgf-m, 43.5 lb-ft)
- ©: 80 N⋅m (8.0 kgf-m, 58.0 lb-ft)
- D: 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 B 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 –

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SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM		LIMIT	
Valve diam.	IN.	36 (1.42)	—
	EX.	29 (1.14)	_
Tappet clearance (when cold)	IN.	0.09 - 0.16 (0.004 - 0.006)	—
	EX.	0.17 - 0.24 (0.007 - 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.	—	0.35 (0.013)
Valve guide I.D.	IN. & EX.	5.500 – 5.512 (0.2165 – 0.2170)	—
Valve stem O.D.	IN.	5.475 – 5.490 (0.2156 – 0.2161)	—
	EX.	5.455 – 5.470 (0.2148 – 0.2154)	_
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.	_	34.0 (1.34)
	EX.		33.3 (1.31)
Valve spring tension	IN.	119 – 137 N (12.1 – 14.0 kgf, 26.7 – 30.9 lbs) at length 30.9 mm (12.2 in)	_
	EX.	73 – 84 N (7.4 – 8.6 kgf, 16.3 – 19.0 lbs) at length 30.9 mm (12.2 in)	—

CAMSHAFT + CYLINDER HEAD

CAMSHAFT + CYLINDER	Unit: mm (in)		
ITEM		STANDARD	
Cam height	IN.	33.57 – 33.62 (1.322 – 1.324)	33.27 (1.310)
	EX.	33.69 – 33.74 (1.326 – 1.328)	33.39 (1.315)
Camshaft journal oil clearance	IN. & EX.	0.032 - 0.066 (0.001 - 0.002)	0.150 (0.0059)
Camshaft journal holder I.D.	IN. & EX.	22.012 – 22.025 (0.8667 – 0.8671)	—
Camshaft journal O.D.	IN. & EX.	21.959 – 21.980 (0.8645 – 0.8654)	—
Camshaft runout		_	
Cam chain pin		15th pin	
Cylinder head distortion		—	
Cylinder head cover distortion		_	

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM		STANDARD	LIMIT
Compression pressure (Automatic decomp. actuated)	(4	430 – 720 kPa (4.3 – 7.2 kgf/cm², 61 – 102 psi)	
Piston to cylinder clearance		0.030 - 0.040 (0.0012 - 0.0016)	0.120 (0.0047)
Cylinder bore		95.500 - 95.515 (3.7598 - 3.7604)	Nicks or scratches
Piston diam.	Measure	95.465 – 95.480 (3.7584 – 3.7590) e at 15 mm (0.6 in) from the skirt end.	95.380 (3.7551)
Cylinder distortion		_	0.05 (0.002)
Piston ring free end gap	1st	Approx. 7.6 (0.29)	6.0 (0.23)
Piston ring end gap	1st	0.08 - 0.20 (0.003 - 0.008)	0.50 (0.020)
Piston ring to groove clearance	1st —		0.180 (0.007)
Piston ring groove width	1st	0.78 - 0.80 (0.0307 - 0.0315)	—
	150	1.30 – 1.32 (0.0512 – 0.0520)	_
	Oil	2.01 – 2.03 (0.0791 – 0.0799)	—
Piston ring thickness	1.01	0.71 – 0.76 (0.0279 – 0.0299)	—
	1st	1.08 – 1.10 (0.0425 – 0.0433)	—
Piston pin bore	19.002 – 19.008 (0.7425 – 0.7433)		19.030 (0.7492)
Piston pin O.D.	18.995 – 19.000 (0.7478 – 0.7480)		18.980 (0.7472)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	19.010 – 19.018 (0.7484 – 0.7487)	19.040 (0.7496)
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	19.75 – 19.80 (0.778 – 0.780)	—
Crank web to web width	62 ± 0.1 (2.44 ± 0.004)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.238 (62/24 × 13/15)	—
Oil pressure (at 50 °C, 122 °F)	50 kPa (0.5 kgf/cm², 7.1 psi) at 1 950 r/min	—

CLUTCH

CLUTCH		Unit: mm (in)
ITEM	STANDARD	LIMIT
Clutch cable play	10 – 15 (0.4 – 0.6)	—
Drive plate thickness (No.1 & No.2)	3.07 – 3.23 (0.121 – 0.127)	2.77 (0.109)
Drive plate claw width (No.1 & No.2)	13.85 – 13.95 (0.545 – 0.549)	13.05 (0.514)
Driven plate distortion	—	0.10 (0.004)
Clutch spring free length	50.83 (2.00)	48.3 (1.90)

RADIATOR + ENGINE COOLANT

ITEM	STANDARD/SPECIFICATION	LIMIT
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm², 14 – 18 psi)	—
Engine coolant type	Use an anti-freeze/coolant compatible with alumi- num 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)	2.583 (62/24)		—
Final reduction ratio			3.500 (49/14)	—
Gear ratios	Low		2.000 (30/15)	—
	2nd		1.611 (29/18)	—
	3rd		1.363 (30/22)	—
	Тор		1.166 (28/24)	—
Shift fork to groove clea	arance	No.1, No.2	0.05 – 0.25 (0.002 – 0.010)	0.45 (0.018)
Shift fork groove width		No.1, No.2	4.95 – 5.05 (0.195 – 0.199)	—
Shift fork thickness		No.1, No.2	4.80 – 4.90 (0.188 – 0.193)	—
Drive chain		Туре	D.I.D 520 MXV	—
		Links	114	—
Drive chain plate height		Inner	15.0 (0.59)	12.75 (0.502)
		Outer	12.8 (0.50)	11.20 (0.441)
Drive chain slack			40 – 50 (1.57 – 1.97)	—

CARBURETOR

	SPECIFICATION		
ITEM	E-03, 000	E-19, 28	
Carburetor type	FCR40MX	\leftarrow	
Bore size	40 mm (15.7 in)	\leftarrow	
I.D. No	35G4	35G5	
Idle r/min	1 950 ± 100 r/min	\leftarrow	
Float height	8 mm (0.31 in)	\leftarrow	
Fuel level	6.5 mm (0.26 in) (Above the datum point)	\leftarrow	
Main jet (M.J.)	#170	#175	
Jet needle (J.N.)	NKYT-5th	\leftarrow	
Slow jet (S.J.)	#42	\leftarrow	
Slow air jet (S.A.J)	#100	\leftarrow	
Starter jet	#75	\leftarrow	
Pilot screw	1 and 3/4 turns back	\leftarrow	
Leak jet	#35	\leftarrow	
Idle adjust screw	Adjust to the specified idle speed.	\leftarrow	
Throttle cable play (pulling cable)	2 – 4 mm (0.08 – 0.16 in)	\leftarrow	

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		
Ignition timing		15° B.T.D.C. at 1 950 r/min.		
Spark plug	Туре	NGK: DIMR8A10		
	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 – 40 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 0.17 – 0.70 Ω		W/BI – B/W	
	Secondary 9 – 14 kΩ		Plug cap – B/W	
Ignition coil primary peak voltage	200 V and more		+ B/W – - W/BI	
Engine stop switch resistance		B/Y – B/W		

BRAKE + WHEEL

ITEM LIMIT STANDARD 11 – 15 (0.4 – 0.6) Brake lever adjuster length 0 - 10 Rear brake pedal height (0 - 0.4) Brake disc thickness 3.0 ± 0.2 2.5 Front (0.118 ± 0.008) (0.10) 4.0 ± 0.15 3.5 Rear (0.157 ± 0.006) (0.14)Brake disc runout Front & 0.3 (0.012)Rear 11.000 - 11.043 (0.4331 - 0.4348) Master cylinder bore Front 11.000 - 11.043 Rear ____ (0.4331 - 0.4348)10.957 - 10.984 Master cylinder piston diam. Front (0.4314 - 0.4324)10.957 - 10.984Rear (0.4314 - 0.4324)Brake caliper cylinder bore 27.000 - 27.050 Front (1.0630 - 1.0650)25.400 - 25.450 Rear ____ (1.0000 - 1.0020)26.900 - 26.950 Brake caliper piston diam. Front ___ (1.0591 - 1.0610)25.335 - 25.368 (0.9974 - 0.9987) Rear DOT 4 Brake fluid type ____

Unit: mm (in)

ITEM		STANDARD		
Wheel rim runout	Axial	—	2.0 (0.08)	
	Radial	—	2.0 (0.08)	
Wheel rim size	Front	1.60 × 21	—	
	Rear	2.15 × 19	—	
Wheel axle runout	Front	—	0.25 (0.010)	
	Rear	—	0.25 (0.010)	

TIRE

ITEM		STD/SPEC.		
Cold inflation tire pressure	Front & Rear	70 – 110 kPa (0.7 – 1.1 kgf/cm², 10 – 16 psi)	—	
Tire size	Front	90/100-21 57M	_	
	Rear	120/80-19 63M	—	
Tire type	Front	M401A (E-03), M201 (Others)	_	
	Rear	M402A (E-03), M202 (Others)	—	
Tire tread depth (Recommend depth)	Front & Rear	—	4.0 mm (0.16 in)	

SUSPENSION

Unit: mm (in)

ITEM	ITEM		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 – 11 clicks turn back	—	
Front fork air pressure		0 kPa (0 kgf/cm², 0 psi)	—	
Front fork spring rate		4.6 N/mm (0.46 kgf/mm)	_	
Rear shock absorber ga	as pressure	784 kPa (8.0 kgf/cm², 113.8psi)	—	
Rear shock absorber spring set length		7.3 (0.29)	_	7.3 mm (0.29 in) com- pressed from spring free length
Rear shock absorber spring rate		56 N/mm (5.6 kgf/mm)	_	
Rear shock absorber damping force adjuster	Rebound	MAX – 7 clicks turn back	_	
	Compres- sion (High speed)	MAX – 2 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 ur	leaded gasoline of at least 90 pump	E-03, 28
	octane (R/2 + M/2 method).		L-03, 20
	Use only ur	leaded gasoline of at least 95 octane.	The others
	(Research r	method)	The others
Fuel tank capacity		7.0 L (1.8/1.5 US/Imp gal)	
Engine oil type	SAE 10W-4	40, API SF/SG or SH/SJ with JASO MA	E-03
	MOTUL 3	00V 10W-40 (Recommendation oil) or	The others
	SAE 10W-4	40, API SF/SG or SH/SJ with JASO MA	The others
Engine oil capacity	Change	1 200 ml (1.3/1.1 US/Imp qt)	
	Filter change	1 250 ml (1.3/1.1 US/Imp qt)	
	Overhaul	1 300 ml (1.4/1.1 US/Imp qt)	
Air cleaner element oil type	MOTUL	AIR FILTER OIL or equivalent filter oil	
Front fork oil type	SUZUKI FO	ORK OIL SS-05 or an equivalent fork oil	
Front fork oil capacity (each leg)	385 ml (13.01/13.55 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	SUZUł o		
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	(Initial)	10	1.0	7.0
	(Final)	14	1.4	10.0
Spark plug	•	11	1.1	8.0
Cylinder head bolt	(Initial)	25	2.5	18.0
	(Final)	46	4.6	33.5
Cylinder head base bolt	•	10	1.0	7.0
Cylinder base bolt		10	1.0	7.0
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
Shift cam stopper bolt		10	1.0	7.0
Gearshift cam driven pin		24	2.4	17.5
Gearshift lever bolt		10	1.0	7.0
Kick starter guide 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 tension adjuster lock-nut		10	1.0	7.0
Stopper bolt		10	1.0	7.0
Right crankcase cover bolt		11	1.1	8.0
Engine oil drain plug (No.1 and No.2)		12	1.2	8.5
Engine oil check bolt		11	1.1	8.0
Oil filter cap bolt		11	1.1	8.0
Oil gallery plug		10	1.0	7.0
Oil pump mounting bolt		4.5	0.45	3.25
Crankcase bolt		11	1.1	8.0
Clutch cover bolt		11	1.1	8.0
Engine coolant drain bolt		11	1.1	8.0
Water pump case bolt		11	1.1	8.0
Impeller		10	1.0	7.0
TDC plug		14	1.4	10.0
Magneto cover bolt		11	1.1	8.0
Crankshaft hole plug		11	1.1	8.0
Engine oil strainer cap		21	2.1	15.0
Exhaust pipe cover screw		11	1.1	8.0
Magneto stater bolt		10	1.0	7.0
CKP sencer bolt		4.5	0.45	3.25
Ignition coil mounting bolt		10	1.0	7.0

PART		N⋅m	kgf-m	lb-ft
Engine mounting nut (upper)	RH	55	5.5	40.0
	LH	45	4.5	32.5
Engine mounting nut (lower)	M10	45	4.5	32.5
Engine mounting nut (front)	M10	55	5.5	40.0
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 filter mounting bolt		4.4	0.44	3.2
Exhaust pipe nut		23	2.3	16.5
Connector clamp bolt		21	2.1	15.0
Muffler mounting bolt (Front)		43	4.3	31.0
Muffler mounting bolt (Rear)		23	2.3	16.5

CHASSIS

PART	N⋅m	kgf-m	lb-ft
Handlebar clamp bolt	25	2.5	18.0
Front fork upper clamp bolt (right and left)	23	2.3	16.5
Front fork lower clamp bolt (right and left)	23	2.3	16.5
Steering stem head nut	100	10.0	72.5
Front fork 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 mounting bolt (front and rear)	10	1.0	7.0
Rear brake master cylinder rod lock-nut	6	0.6	4.5
Brake pedal pivot bolt	29	2.9	21.0
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 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	90	9.0	65.0
Rear sprocket nut	30	3.0	21.5
Chain roller bolt and 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

Bolt Diameter	Conventional or "4" marked bolt		"7" marked or crown headed bolt		aded bolt	
(mm) (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

For other bolts and nuts not listed in the table, refer to this chart.

7

Conventional bolt

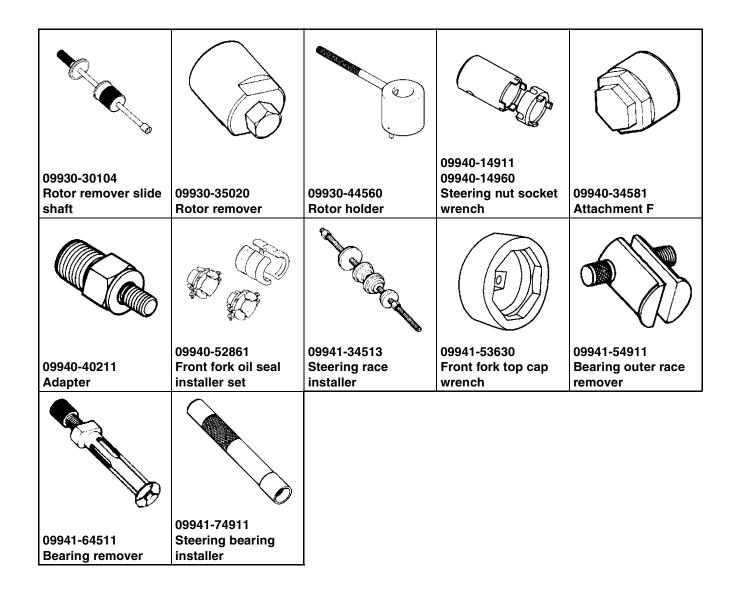
"4" marked bolt

"7" marked bolt

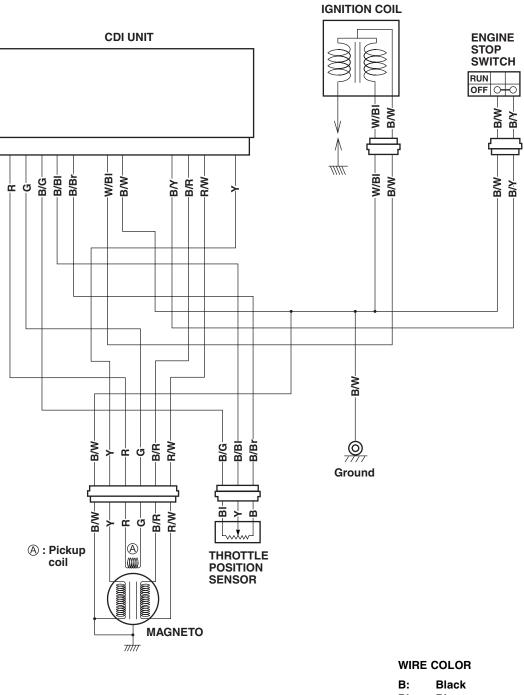
SPECIAL TOOLS

		et de la companya de		A A A A A A A A A A A A A A A A A A A
09900-00410 Hexagon wrench set	09900-06107 Snap ring pliers	09900-06108 Snap ring pliers	09900-09003 Impact driver set	09900-20101 Vernier calipers (150 mm)
A ROS				
09900-20102 Vernier calipers	09900-20202 Micrometer (25 – 50 mm)	09900-20204 Micrometer (75 – 100 mm)	09900-20205 Micrometer (0 – 25 mm)	09900-20530 Cylinder gauge set
09900-20513 Cylinder gauge rod	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
		Constant 27,000	Constant 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	
09900-20805 Tire depth gauge	09900-21304 V-block (100 mm)	09900-22301 Plastigauge	09900-22302 Plastigauge	09900-22403 Small bore gauge (18 – 35 mm)
			The second secon	
09900-25008 Multi-circuit tester	09900-25009 Needle pointed probe set	09910-20115 Conrod holder	09910-32812 Crankshaft installer	09910-60611 Universal clamp wrench



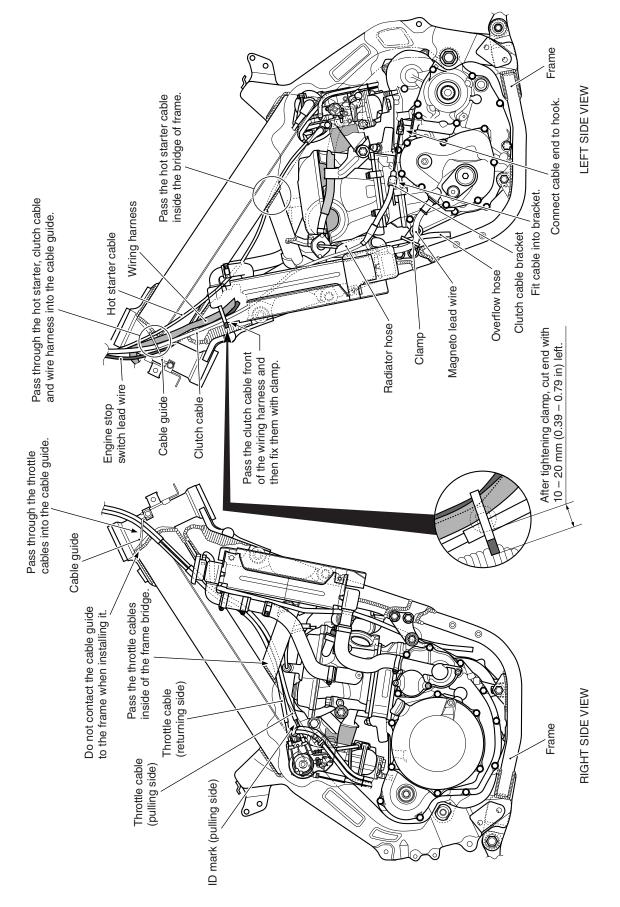


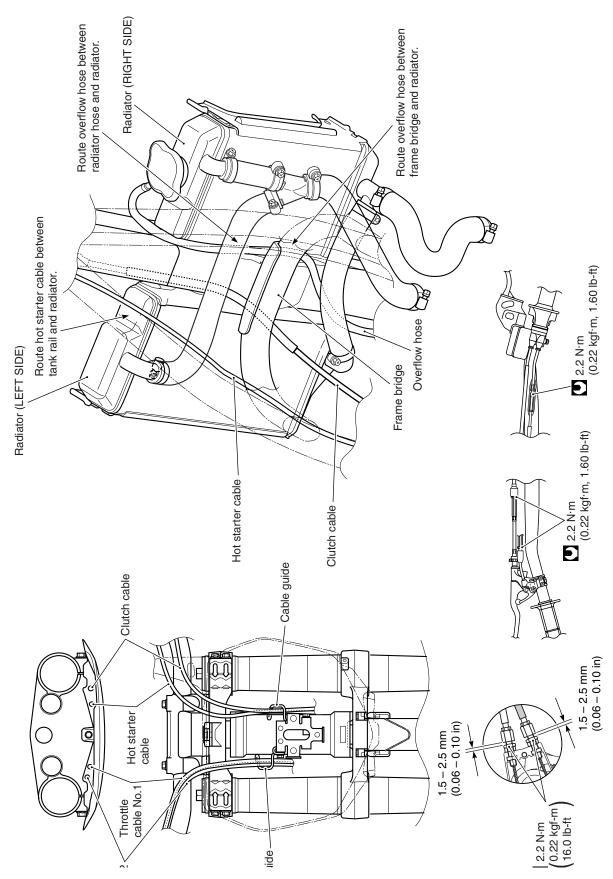
WIRING DIAGRAM



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

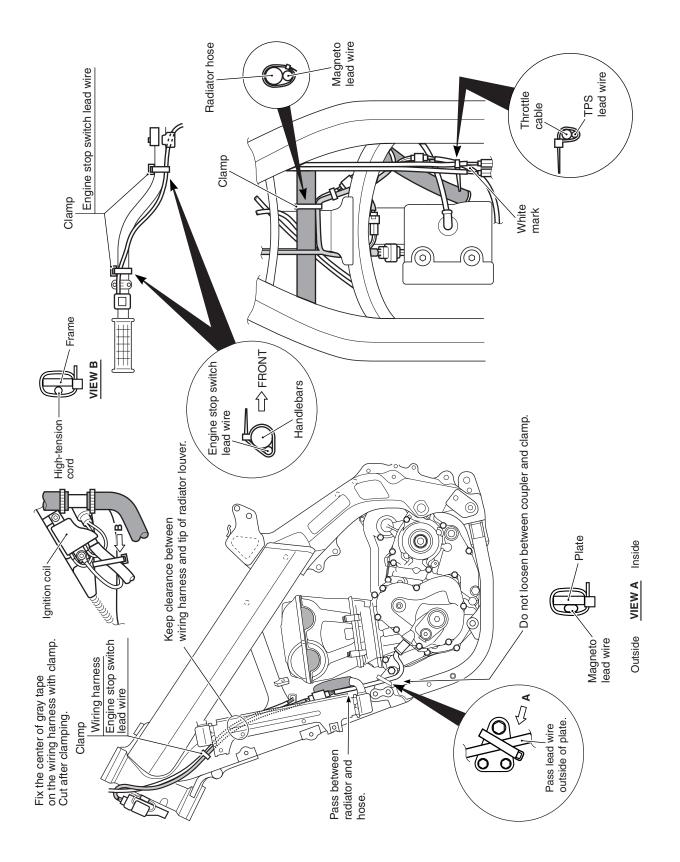
CABLE ROUTING



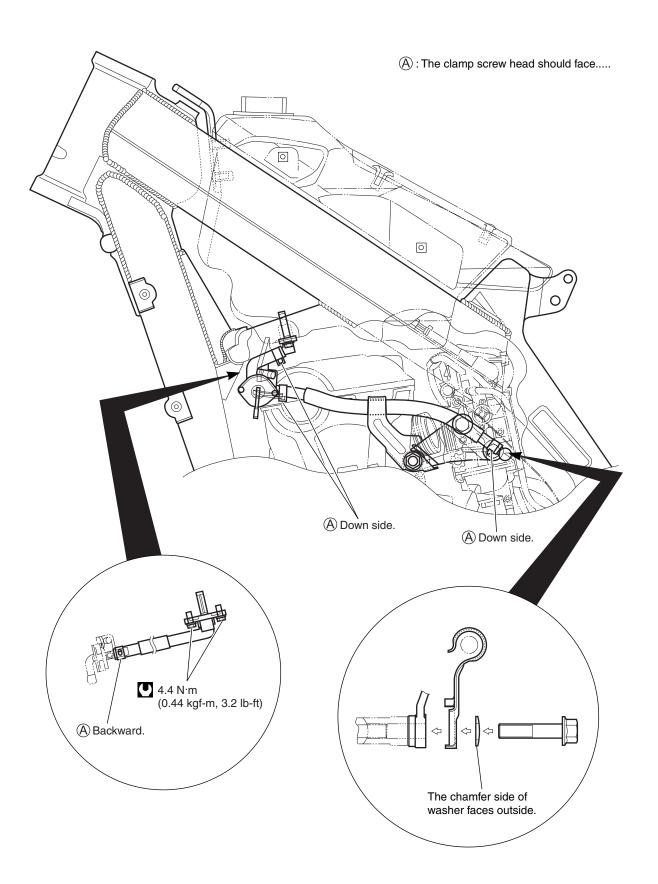


TOP AND FRONT VIEWS

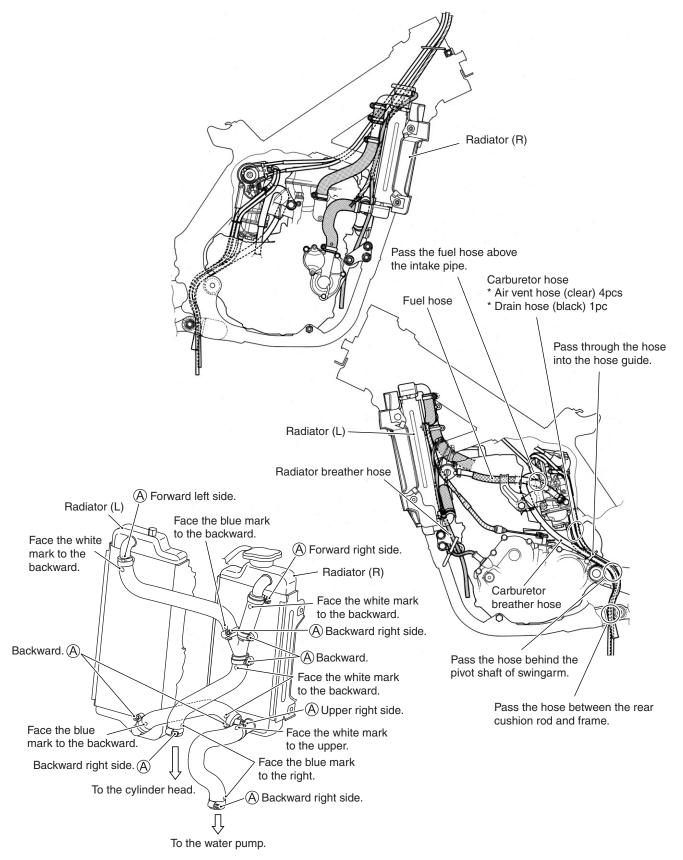
WIRE HARNESS ROUTING



FUEL HOSE ROUTING

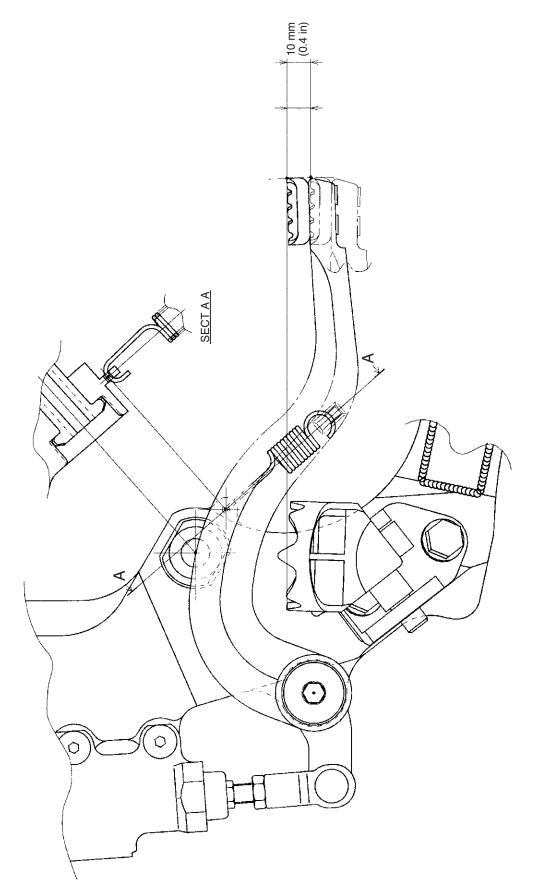


RADIATOR HOSE AND CARBURETOR HOSE ROUTING

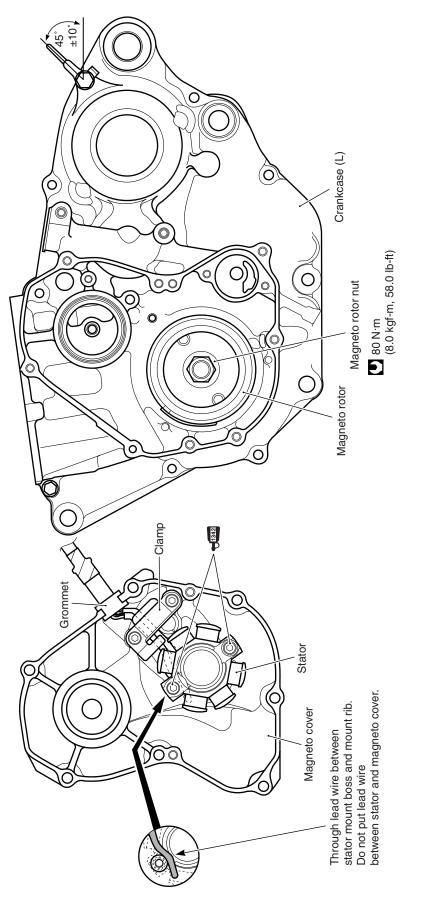


(A): The clamp screw head should face.....

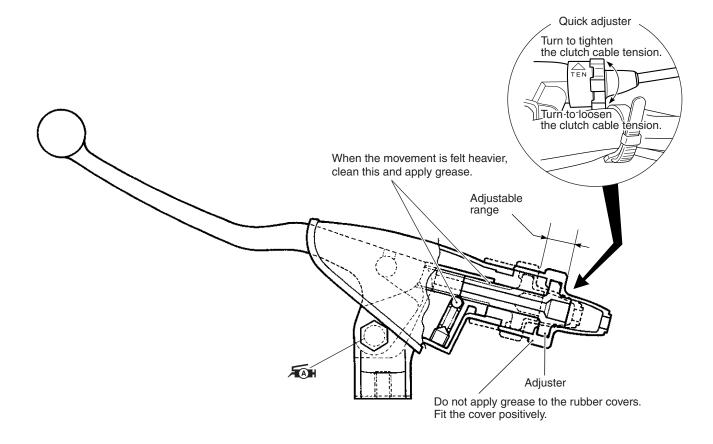
REAR BRAKE PEDAL SET-UP



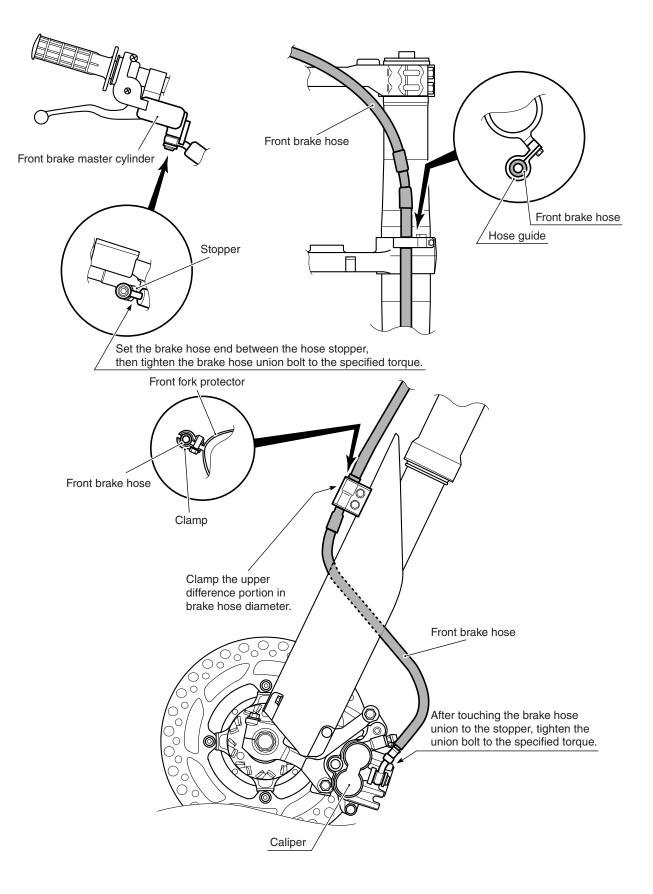
MAGNETO INSTALLATION



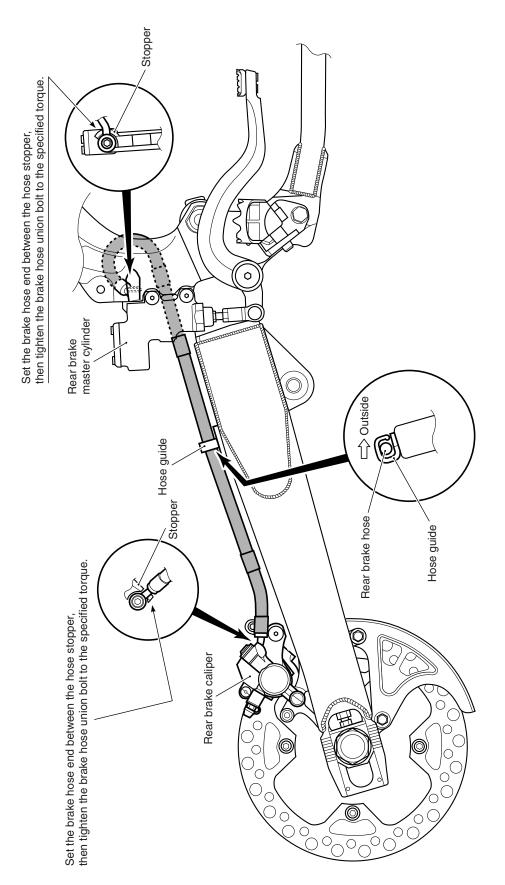
CLUTCH CABLE ADJUSTER



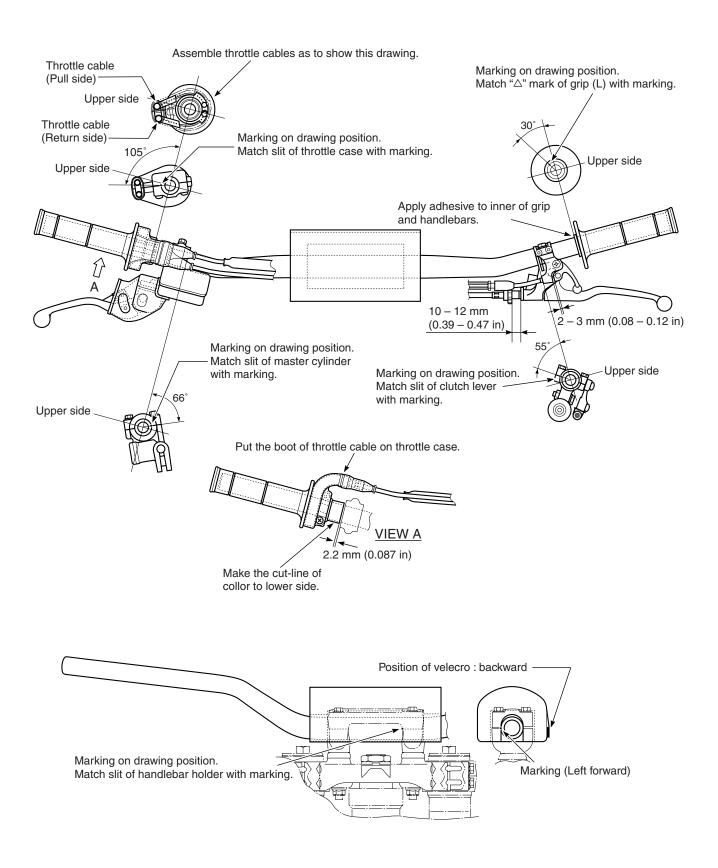
FRONT BRAKE HOSE ROUTING



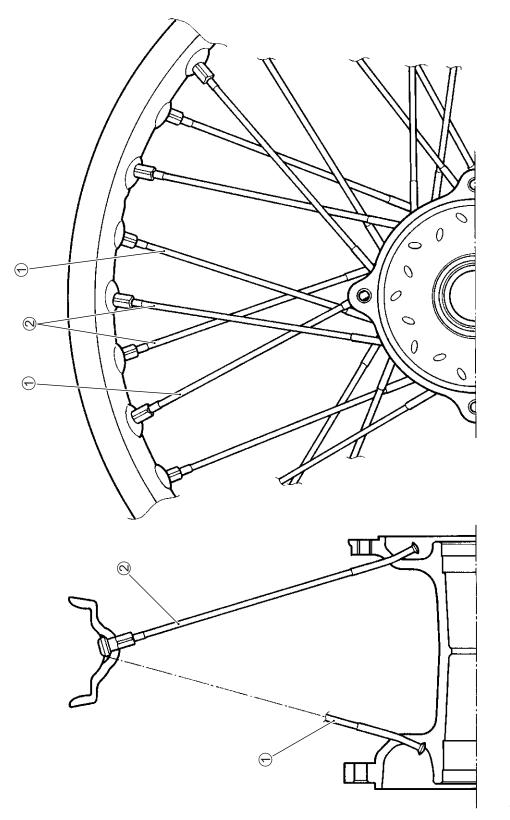
REAR BRAKE HOSE ROUTING



HANDLEBAR SET-UP

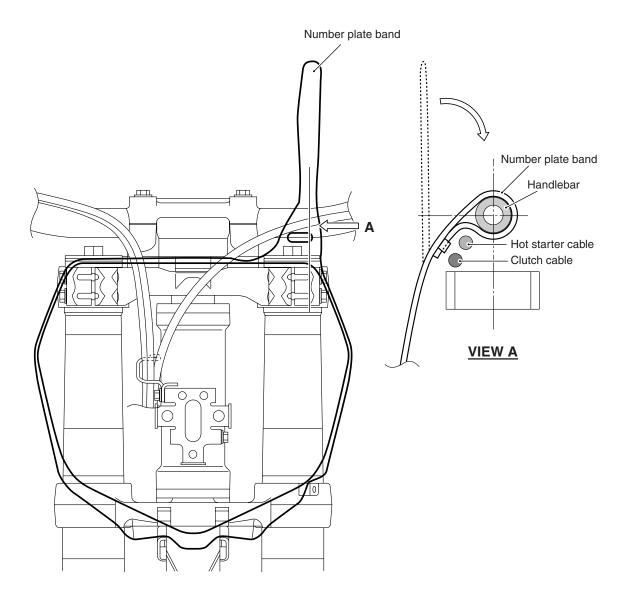


REAR WHEEL SPOKES INSTALLATION

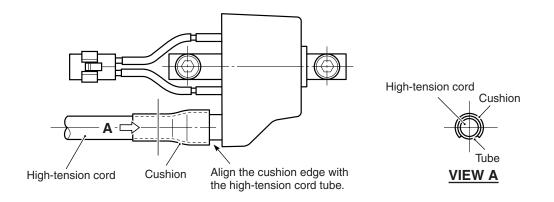


Spoke (inner) L: 206.5 mm
 Spoke (outer) L: 204.5 mm

FRONT NUMBER PLATE INSTALLATION



IGNITION COIL INSTALLATION



SPECIFICATIONS DIMENSIONS AND DRY MASS

Overall length	2 185 mm (86.0 in)
Overall width	830 mm (32.7 in)
Overall height	1 260 mm (49.6 in)
Wheelbase	1 480 mm (58.3 in)
Ground clearance	350 mm (13.8 in)
Seat height	955 mm (37.6 in)
Dry mass	100 kg (220 lbs)

ENGINE

Туре	Four-stroke, liquid-cooled, DOHC
Number of cylinders	1
Bore	95.5 mm (3.760 in)
Stroke	62.8 mm (2.472 in)
Piston displacement	449 cm³ (27.4 cu. in)
Corrected compression ratio	11.9 : 1
Carburetor	KEIHIN FCR40MX
Air cleaner	Polyurethane foam element
Starter system	Primary kick
Lubrication system	Semi Dry sump
Idle speed	1 950 ± 100 r/min

TRANSMISSION

Clutch	Wet multi-plate type	
Transmission	4-speed constant mesh	
Gearshift pattern	1-down, 3-up	
Primary reduction ratio	2.583 (62/24)	
Gear ratios, Low	2.000 (30/15)	
2nd	1.611 (29/18)	
3rd	1.363 (30/22)	
Тор	1.166 (28/24)	
Final reduction ratio	3.500 (49/14)	
Drive chain	D.I.D 520MXV, 114 links	

CHASSIS

Front suspension	Telescopic, coil spring, oil damped
Rear suspension	Link type, coil spring, oil damped
Front suspension stroke	310 mm (12.2 in)
Rear wheel travel	310 mm (12.2 in)
Caster	25° 30'
Trail	108 mm (4.25 in)
Steering angle	45° (right & left)
Turning radius	1.95 m (6.4 ft)
Front brake	Disc brake
Rear brake	Disc brake
Front tire size	90/100-21
Rear tire size	120/80-19

ELECTRICAL

Ignition type	Electronic Ignition (CDI)
Ignition timing	15° B.T.D.C. at 1 950 r/min
Spark plug	NGK DIMR8A10

CAPACITIES

Fuel tank		7.0 L (1.8 / 1.5 US/Imp gal)
Engine oil	(change)	1 200 ml (1.3 / 1.1 US/Imp qt)
	(with filter change)	1 250 ml (1.3 / 1.1 US/Imp qt)
	(overhaul)	1 300 ml (1.4 / 1.1 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	19900-35G30	1
1	GASKET, MAGNETO COVER	11483-35G10	1
2	GASKET, CLUTCH COVER OUTER	11484-35G10	1
3	GASKET, EXHAUST, PIPE	14181-35G00	1
4	CONNECTOR, MUF JT	14771-29F00	1
5	FILTER COMP, ENGINE OIL	16510-35G00	1
6	O-RING, WATER POMP CASE	17431-35G10	1
\overline{O}	LEVER, BRAKE	57310-37F00	1
8	LEVER, CLUTCH	57621-35G10	1
9	O-RING, SPROCKET SPACER	09280-21010	2
10	O-RING, OIL FILTER CAP	09280-39001	1
2	JOINT SET, DRIVE CHAIN	27620-35G00	1

OPTIONAL PARTS

	PARTS No.	NUMBER OF TEETH	COMMENTS
ENGINE SPROCKET	27511-35G10	13	114 L
	64511-37E00	48	114 L
REAR SPROCKET	64511-36E00	50	114 L
	64511-40261	51	116 L
FRONT BRAKE DISC COVER	59231-36E30	—	—
BEAD STOPPER	65270-43D00	_	1.85

Carburetor: 7^{-3} 4-2 Front fork spring: 7^{-3} 4-14 Rear suspension spring: 7^{-3} 4-19

SETTING DATA

	DATE/ LOCATION	DATE	/ /	/ /	/ /
F		RACE/COURSE	/	/	/
EVENT		TEMP./HUMIDITY	/	/	/
Ш		WEATHER			
		COURSE COUDITION			
ENGINE	CARBURETOR	MAIN JET			
		JET NEEDLE	/	/	/
	INU	SLOW JET			
	ARB	AIR SCREW			
	Q	FLOAT LEVEL			
		SPARK PLUG			
	RK	OIL LEVEL	mm	mm	mm
	OH .	COMP. ADJ. POSITION			
	FRONT FORK	RE-BOUND ADJ. POSITION			
		SPRING			
	N	SPRING			
	NTIO	SPRING SET LENGTH	mm	mm	mm
SIS	REAR SUSPENTION	SUG	mm	mm	mm
CHASSIS	sns	COMP. ADJ. POSITION LOW			
C	AR 9	COMP. ADJ. POSITION HIGH			
	ЦЦ	RE-BOUND ADJ. POSITION			
	FINAL REDUCTION RATIO		/	/	/
	NT 3E	MAKER/SIZE			
	FRONT TIRE	PRESSURE	kPa	kPa	kPa
	AR RE	MAKER/SIZE			
	REAR TIRE	PRESSURE	kPa	kPa	kPa
COMMENT:					

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.

