SUZUKI

GS250FWS

SERVICE MANUAL

99500-32040-01E
(E)

FOREWORD

The SUZUKI GS250FWS has been developed as a new generation motorcycle to the GS-models. It is packed with highly advanced design concepts including a liquid cooling system, a new highly efficient in line four engine, a fully transistorized ignition system, an anti-dive device and full-floater suspension system. Combined with precise control and easy handling the GS250FWS provides excellent performance and outstanding riding comfort.

This service manual has been produced primarily for experienced mechanics whose job is to inspect, adjust, repair and service SUZUKI motorcycles. Apprentice mechanics and do-it-yourself mechanics, will also find this manual an extremely useful guide.

Model GS250FWS manufactured to standard specifications is the main subject matter of this manual. However, the GS250 FWS machines distributed in your country might differ in minor respects from the standard-specification and, if they do, it is because some minor modifications (which are of no consequence in most cases as far as servicing is concerned) had to be made to comply with the statutory requirements of your country.

This manual contains up-to-date information at the time of its issue. Latermade modifications and changes will be explained to each SUZUKI distributor in respective markets, to whom you are kindly requested to make query about updated information, if any.

SUZUKI MOTOR CORPORATION
Motorcycle Technical Service Department

VIEW OF SUZUKI GS250FWS

GROUP INDEX

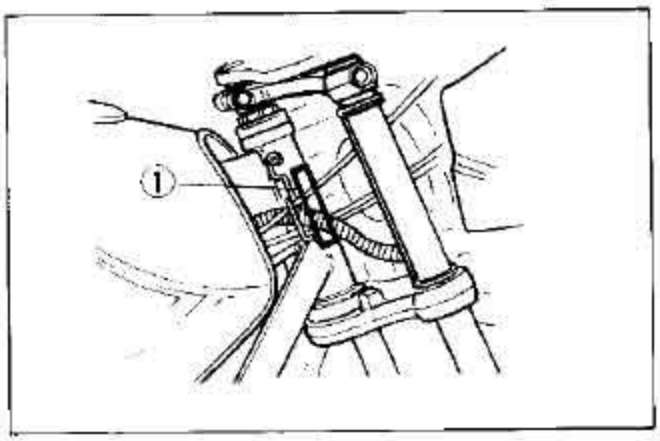
GENERAL INFORMATION

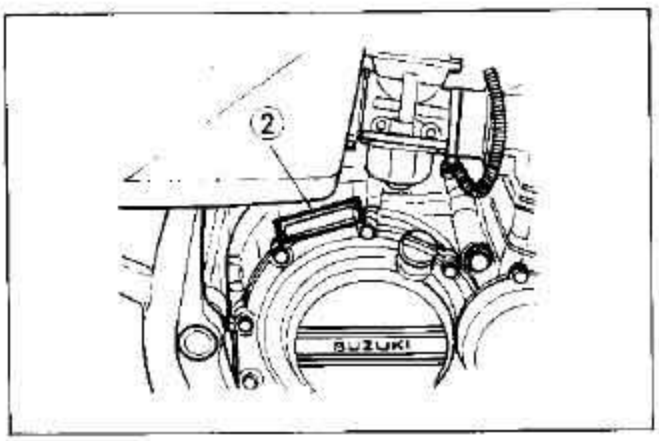
1

CONTENTS

SERIAL NUMBER LOCATIONS

The frame serial number or V.I.N. (Vehicle Identification Number) ① is stamped on the steering head pipe. The engine serial number ② is located on the right side of the crankcase. These numbers are required especially for registering the machine and ordering spare parts.





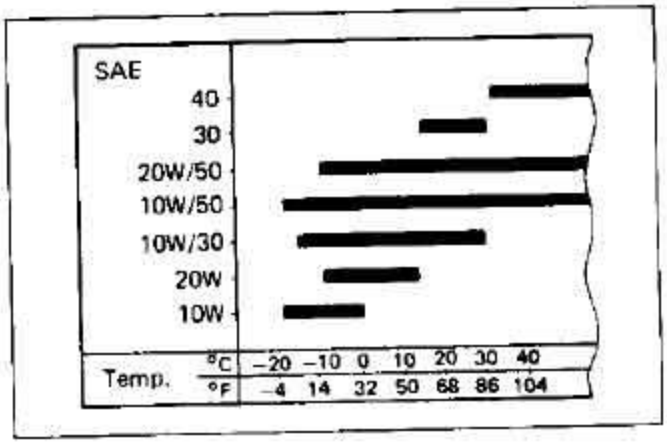
FUEL, OIL AND COOLING SOLUTION RECOMMENDATION

FUEL

Gasoline used should be graded 85 – 95 octane or higher. An unleaded or low-lead gasoline type is recommended.

ENGINE OIL

Be sure that the engine oil you use comes under API classification of SE or SF and that its viscosity rating is SAE 10W/40. If SAE 10W/40 motor oil is not available, select the oil viscosity according to the following chart:



BRAKE FLUID

Specification and classification:	SAE J1703, DOT3 or DOT4

99000-23021	SUZUKI Brake fluid

WARNING:

- **Since the brake system of this motorcycle is filled with a glycol-based brake fluid by the manufacturer, do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will result.**
- **Do not use any brake fluid taken from old or used or unsealed containers.**
- **Never re-use brake fluid left over from the previous servicing and stored for a long period.**

FRONT FORK OIL

Mixture of SAE 10W/30 motor oil and A.T.F. motor oil, the ratio being 50-to-50 percent.
Or fork oil # 15.

COOLING SOLUTION

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

WATER FOR MIXING

Use distilled water only. Water other than distilled water can corrode and clog the aluminum radiator.

ANTI-FREEZE & SUMMER COOLANT

The coolant performs as corrosion and rust inhibitor as well as anti-freeze. Therefore, the coolant should be used at all times even though the atmospheric temperature in your area does not go down to freezing point.

SUZUKI recommends the use of SUZUKI GOLDEN CRUISER 1 200 anti-freeze & summer coolant. If this is not available, use an equivalent which is compatible with aluminum radiator.

REQUIRED AMOUNT OF WATER/COOLANT

Solution capacity (total): 1 400 ml

30%	Water	980 ml
	Coolant	420 ml
40%	Water	840 ml
	Coolant	560 ml
50%	Water	700 ml
	Coolant	700 ml

CAUTION:
Mixing of anti-freeze & summer coolant should be limited to 60%. Mixing beyond it would reduce its efficiency. If the anti-freeze & summer coolant mixing ratio is below 30%, rust inhibiting performance is greatly reduced. Be sure to mix it above 30% even though the atmospheric temperature does not go down to freezing point.
Every new unit is filled with anti-leakage material, Bar's leak.

BREAKING-IN PROCEDURE

During manufacture only the best possible materials are used and all machined parts are finished to a very high standard but it is still necessary to allow the moving parts to "BREAK-IN" before subjecting the engine to maximum stresses. The future performance and reliability of the engine depends on the care and restraint exercised during its early life. The general rules are as follows:

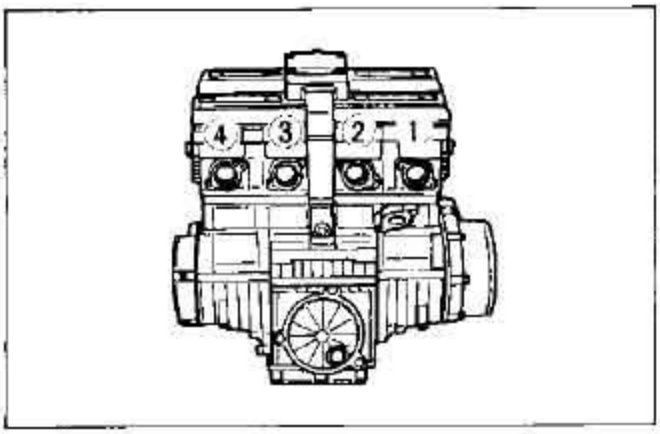
- Keep to these breaking-in engine speed limits:

Initial 800 km	Below 4 000 r/min
Up to 1 600 km	Below 5 000 r/min
Over 1 600 km	Below 11 500 r/min

- Upon reaching an odometer reading of 1 600 km you can subject the motorcycle to full throttle operation.
  However, do not exceed 11 500 r/min at any time.
- Do not maintain constant engine speed for an extended time period during any portion of the break-in. Try to vary the throttle position.

CYLINDER IDENTIFICATION

The four cylinders of this engine are identified as No. 1, No. 2, No. 3 and No. 4 cylinder, as counted from left to right (as viewed by the rider on the seat).



PRECAUTIONS AND GENERAL INSTRUCTIONS

Observe the following items without fail when servicing, disassembling and reassembling motorcycles.

- Do not run engine indoors with little or no ventilation.
- Be sure to replace packings, gaskets, circlips, O rings and cotter pins with new ones.

CAUTION:
Never reuse a circlip after a circlip has been removed from a shaft, it should be discarded and a new circlip must be installed.
When installing a new circlip, care must be taken not to expand the end gap larger than required to slip the circlip over the shaft.
After installing a circlip, always insure that it is completely seated in its groove and securely fitted.

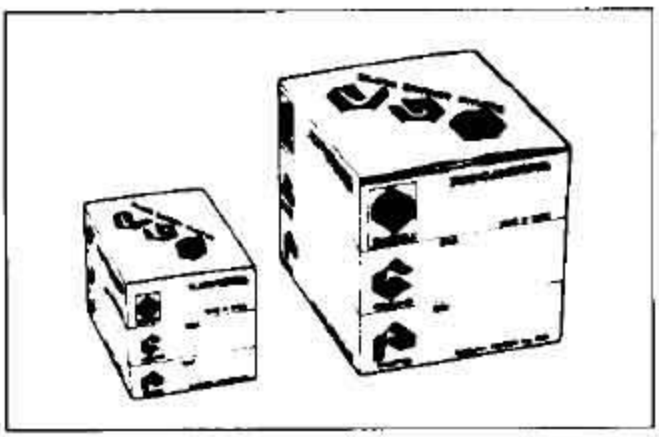
- Tighten cylinder head and case bolts and nuts beginning with larger diameter and ending with smaller diameter, and from inside to outside diagonally, to the specified tightening torque.
- Use special tools where specified.
- Use genuine parts and recommended oils.
- When 2 or more persons work together, pay attention to the safety of each other.
- After the reassembly, check parts for tightness and operation.
- Treat gasoline, which is extremely flammable and highly explosive, with greatest care. Never use gasoline as cleaning solvent.

Warning, Caution and Note are included in this manual occasionally, describing the following contents.

WARNING ..... When personal safety of the rider is involved, disregard of the information could result in injury.
CAUTION ..... For the protection of the motorcycle, the instruction or rule must be strictly adhered to.
NOTE ..... Advice calculated to facilitate the use of the motorcycle is given under this heading.

USE OF GENUINE SUZUKI PARTS

To replace any part of the machine, use a genuine SUZUKI replacement part. Imitation parts or parts supplied from any other source than SUZUKI, if used to replace SUZUKI parts can reduce the machine's performance and, even worse, could induce costly mechanical troubles.



SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 045 mm
Overall width	735 mm
Overall height	1 185 mm
Wheelbase	1 400 mm
Ground clearance	160 mm
Dry mass	157 kg

ENGINE

Type	Four-stroke, water-cooled, DOHC
Number of cylinders	4
Bore	44.0 mm
Stroke	41.0 mm
Piston displacement	249 cm^3
Compression ratio	10.9 : 1
Carburetor	MIKUNI BSW24SS, two
Air cleaner	Polyurethane foam element
Starter system	Electric
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate type
Transmission	6-speed constant mesh
Gearshift pattern	1-down, 5-up
Primary reduction	2.166 (78/36)
Final reduction	3.615 (47/13)
Gear ratios, Low	3.454 (38/11)
2nd	2.266 (34/15)
3rd	1.750 (28/16)
4th	1.450 (29/20)
5th	1.250 (30/24)
Top	1.150 (23/20)
Drive chain	DAIDO DID520VCR, or TAKASAGO RK520BO 108 links

CHASSIS

Front suspension	Telescopic, coil spring, oil dampened with ANTI-DIVE
Rear suspension	Full-floating, oil dampened, spring adjustable
Steering angle	30° (right & left)
Caster	63° 00'
Trail	100 mm
Turning radius	3.2 m
Front brake	Disc brake
Rear brake	Internal expanding
Front tire size	100/90-16 54S
Rear tire size	100/90-18 56S
Front fork stroke	130 mm
Rear wheel travel	120 mm

ELECTRICAL

Ignition type	Transistorized
Ignition timing	20° B.T.D.C. below 1 650 r/min and 35° B.T.D.C. above 3 500 r/min
Spark plug	NGK D9EA or NIPPON DENSO X27ES-U
Battery	12V 43.2 kC (12 Ah)/10 HR
Generator	Three-phase A.C. generator
Fuse	20A

CAPACITIES

Fuel tank including reserve	15 L
Reserve	2.2 L
Engine oil	2 200 ml
Front fork oil (each leg)	285 ml .... For right 315 ml .... For left
Cooling solution including reserve	1900 ml

* These specifications are subject to change without notice.

DESCRIPTION

CONTENTS

CYLINDER HEAD COVER

- Aluminum alloy make;
  - * Light weight
  - * Good heat radiation effect
- Cam chain guide No. 3 built inside cylinder head cover.

CYLINDER HEAD

- Aluminum alloy make;
  - * Light weight
  - * With water jackets
- Valve seat is made of specially sintered alloy and press-fitted.
- Combustion chamber configuration;
  - * 2 spherical
- Combustion chamber capacity;
  - * 9.4 ± 0.2 ml
    (Time of intake/Exhaust valve and NGK-D8EA installation)

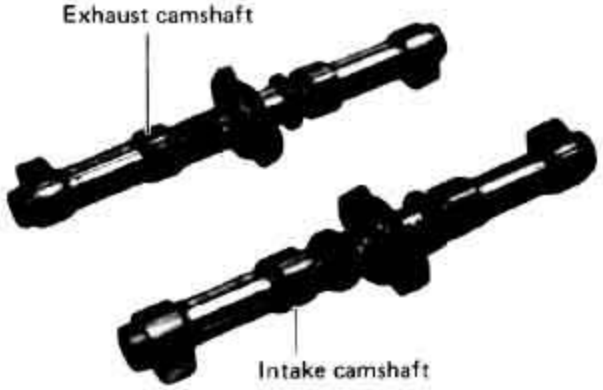
CYLINDER

- Aluminum alloy make;
  - * Light weight
  - * With water jacket
- A thermo-switch for electric fan is installed in front of the cylinder and a cam chain tensioner adjuster is located on the rear.

Bore	Stroke	Displacement
44.0 mm	41.0 mm	249 ml

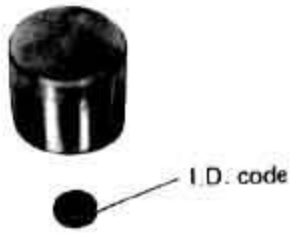
CAMSHAFT

- Made of special forging
- The intake and exhaust camshafts are each of 3-bearing type and are supported by the cylinder head and the camshaft holders.
- A cam sprocket installation flange is located at the center of the camshaft.



TAPPET AND SHIM

- One tappet is attached to each intake or exhaust valve for a total of eight tappets. There is a shim reception base inside each tappet.
- Shims
  - * With plate thickness classification code (Codes made by electrolytic etching)
  - * Types: 2.15 to 3.10 mm
    Classified at 0.05 mm to make up 20 types classification code

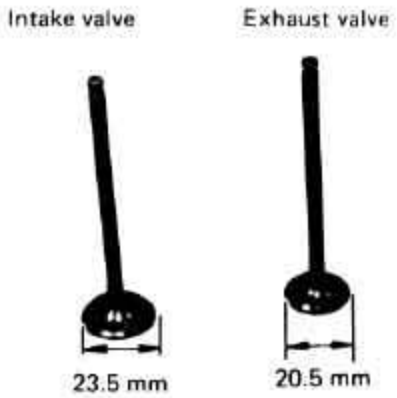


INTAKE AND EXHAUST VALVES

- Each cylinder has two valves: an intake valve and an exhaust valve.

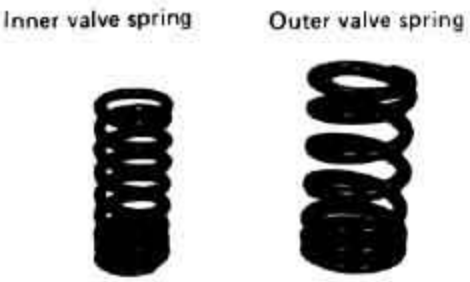
	INTAKE VALVE	EXHAUST VALVE
Valve	Special heat-resistant	Special heat-resistant
Valve diameter	23.5 mm	20.5 mm
Seat surface	–	Stellite treatment
Tappets	Special bearing steel	Special bearing steel

Stellite treatment – treatment by heat-resistant, anti-corrosion alloy.

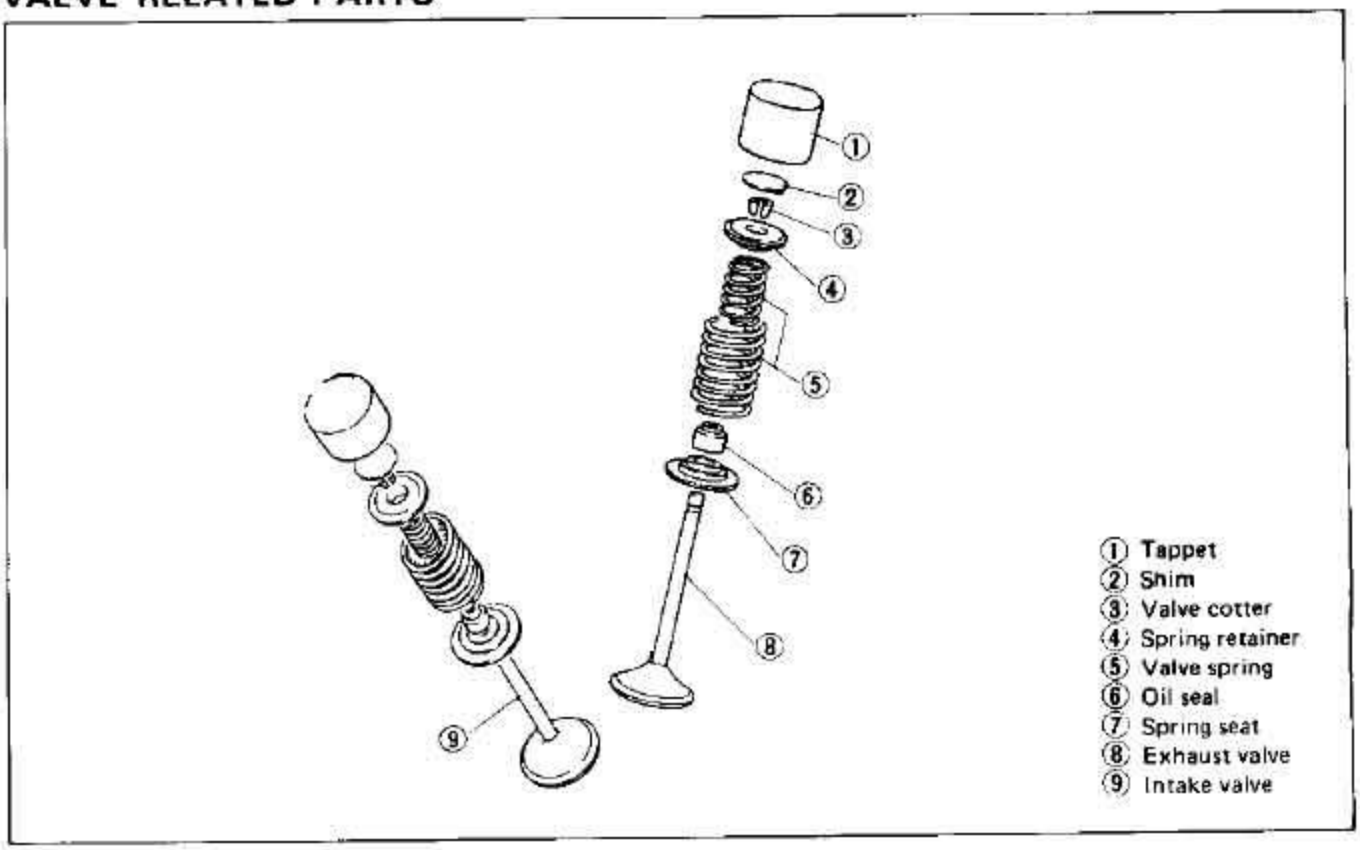


VALVE SPRINGS

- Each valve spring has undergone shot peening so as to function stably at high speeds.
- Springs are of a duplex form with inner and outer coils running in opposite direction so as to prevent coil intermeshing during spring extension or compression.
- Springs of uneven pitch are used to prevent surging while running at high speeds.

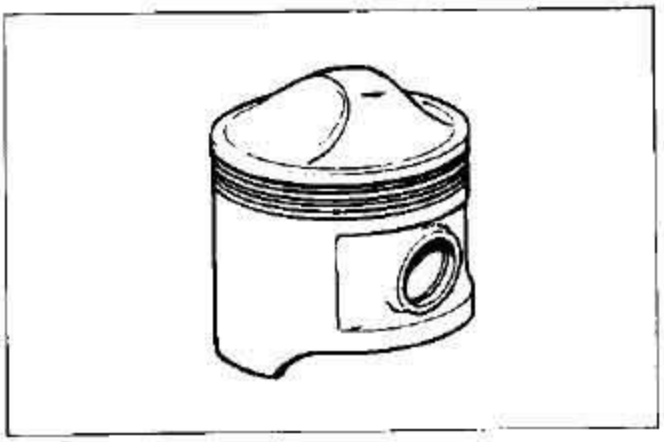


VALVE RELATED PARTS



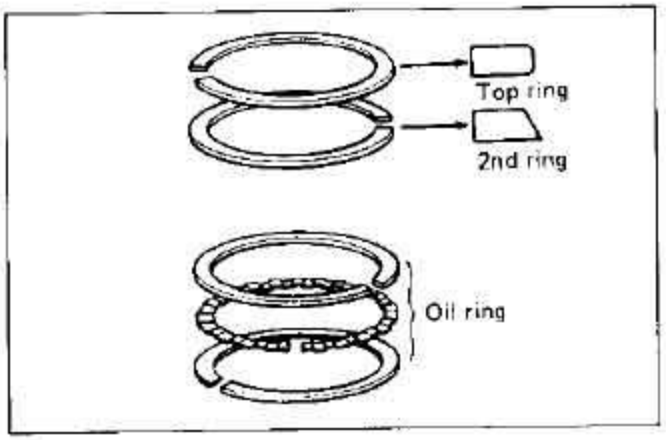
PISTON

- Made of aluminum alloy with high silicon.
- Assemble directions and size (0.5 and 1.0 mm over-size only) are shown at piston head.
  Arrow: indicates direction of exhaust.
  Numbers: indicate oversize dimensions only: no numerical indicators on standard pistons.

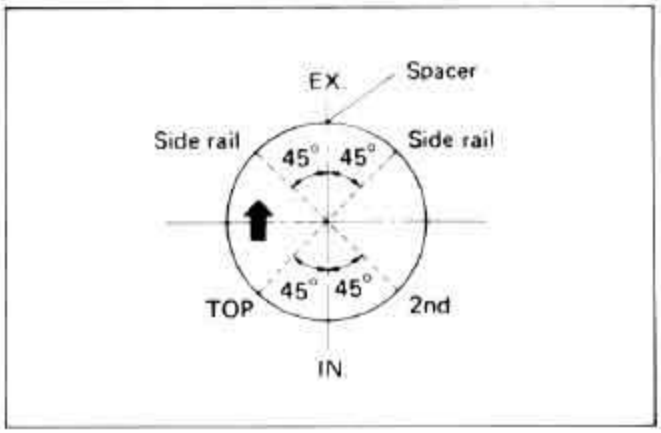


PISTON RINGS

- Top ring
  Shape: barrel shape with good fit.
  External area: Chrome coated for improved durability.
  Mark: R = "Riken" mark; T = "Teikoku piston ring" mark

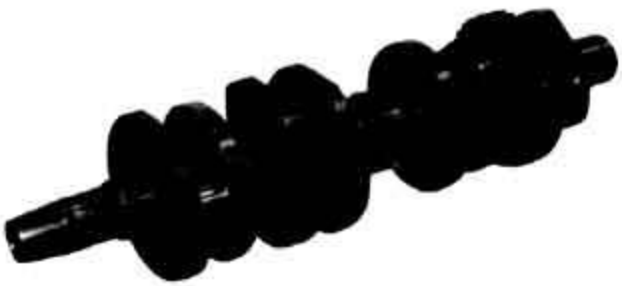


- Second ring
  Shape: Taper shape for outstanding oil control action.
  Surface: Undergoes parkerizing treatment to prevent rust.
- Oil ring
  Assembly type oil ring
  External area: Chrome coated to improve durability.
  Surface: Undergoes parkerizing treatment to prevent rust.



CRANKSHAFT

- One piece forging make
- Main bearing
  * 6-bearing mode
- Bearing is made of copper-lead alloy.

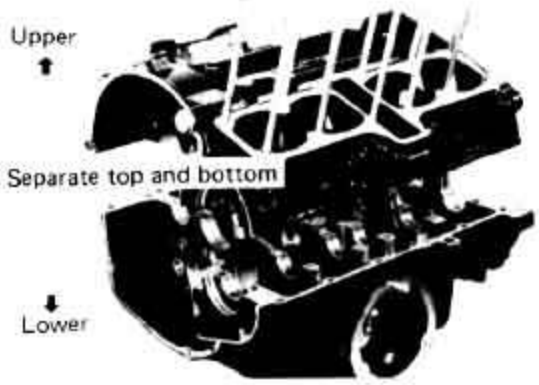


CONROD

- Made of carbon steel forging
- Big end: Assembled with a special reamer bolt that can be divided between upper and lower halves.
- Bearing is made of copper-lead alloy.

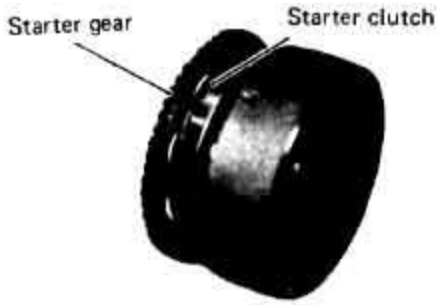
CRANKCASE

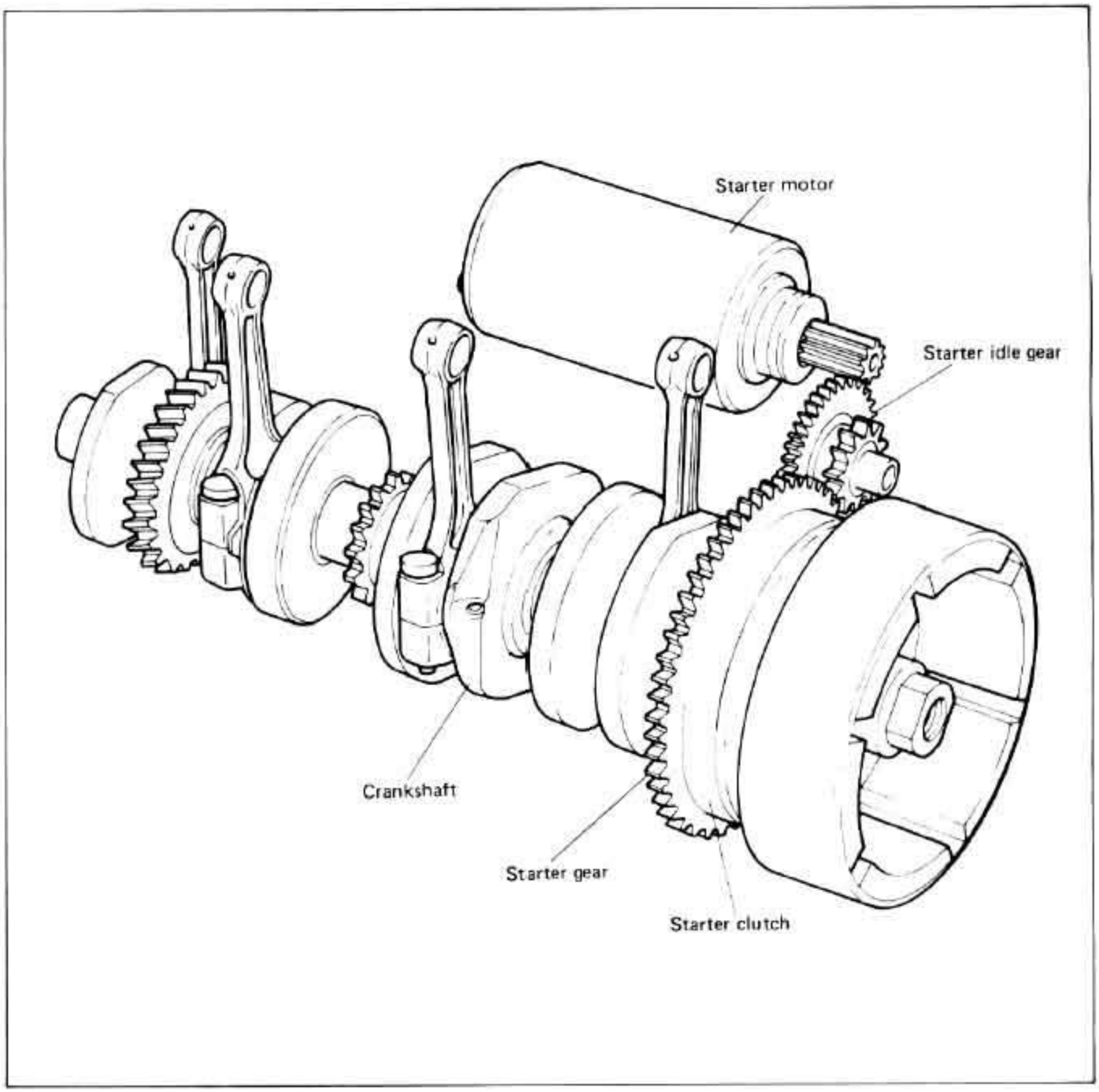
- Standard assembly case
  * Upper crankcase
- Crankcase can be divided between upper and lower halves.
- Oil jet has been built into the oil gallery (oil holes) of the upper crankcase.



STARTER CLUTCH

- Three-pole type one-way clutch
- Install position:
  * Crankshaft left side
  * Attach to flywheel
- Power from the starter motor is sent via idle gear to the starter gear, and the crankshaft is made to rotate by the one-way clutch.
- Three rollers
  Three springs
  Three pieces



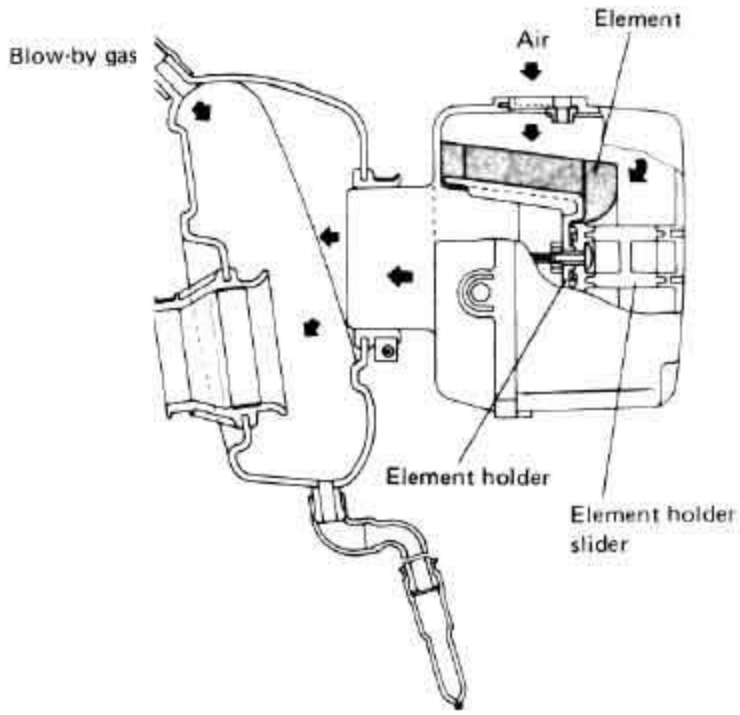


CARBURETOR

- Type
  * BSW24SS
- Main bore
  * 24 mm
- Starter
  * Remote operation by the lever located under the left handle switch box.
- Installation method
  * Clamp to the inlet hose and the air cleaner.
- Two pistons linked at one diaphragm.

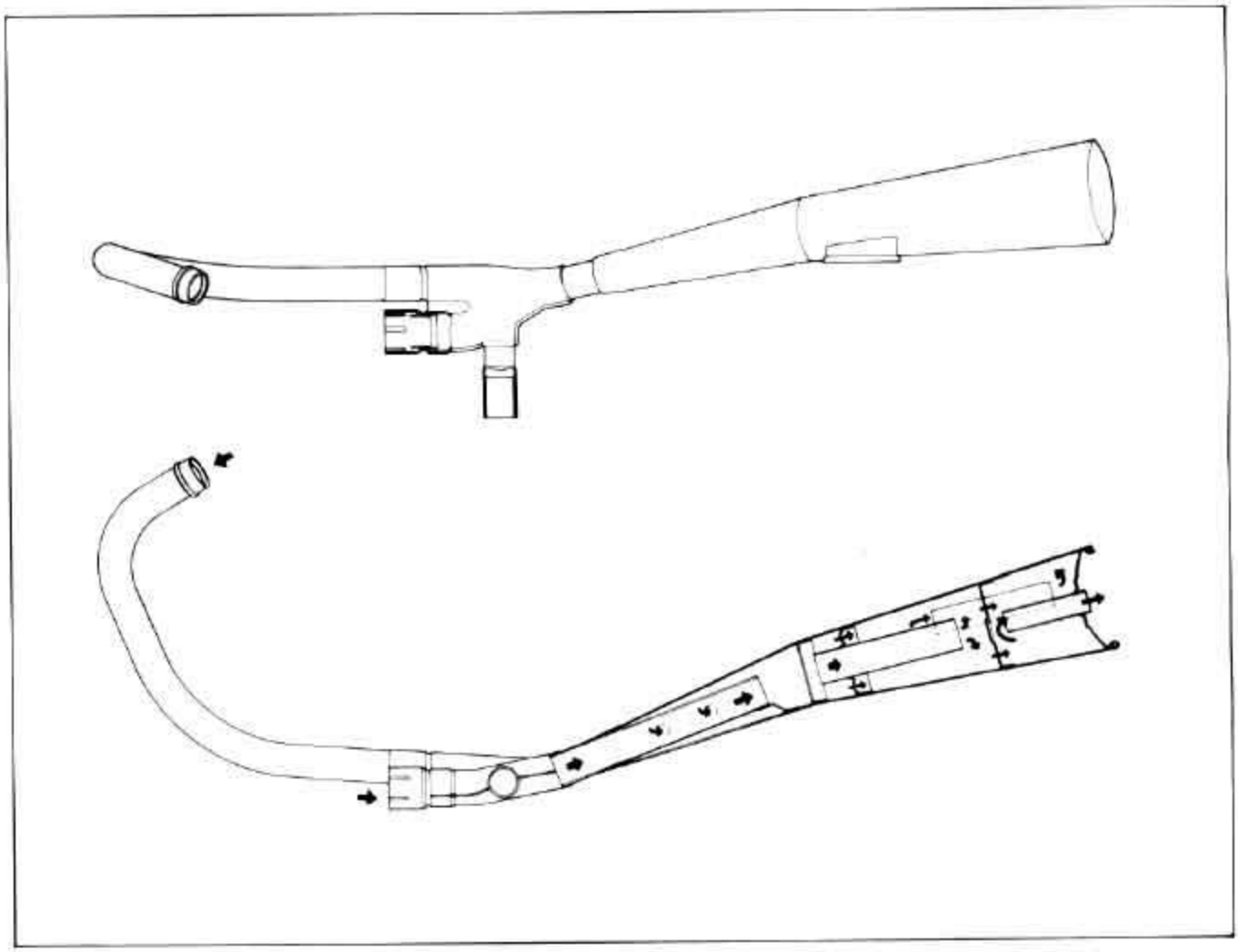
AIR CLEANER

- Installation position
  * Under the seat
- Two-box type
- One polyurethane foam element.



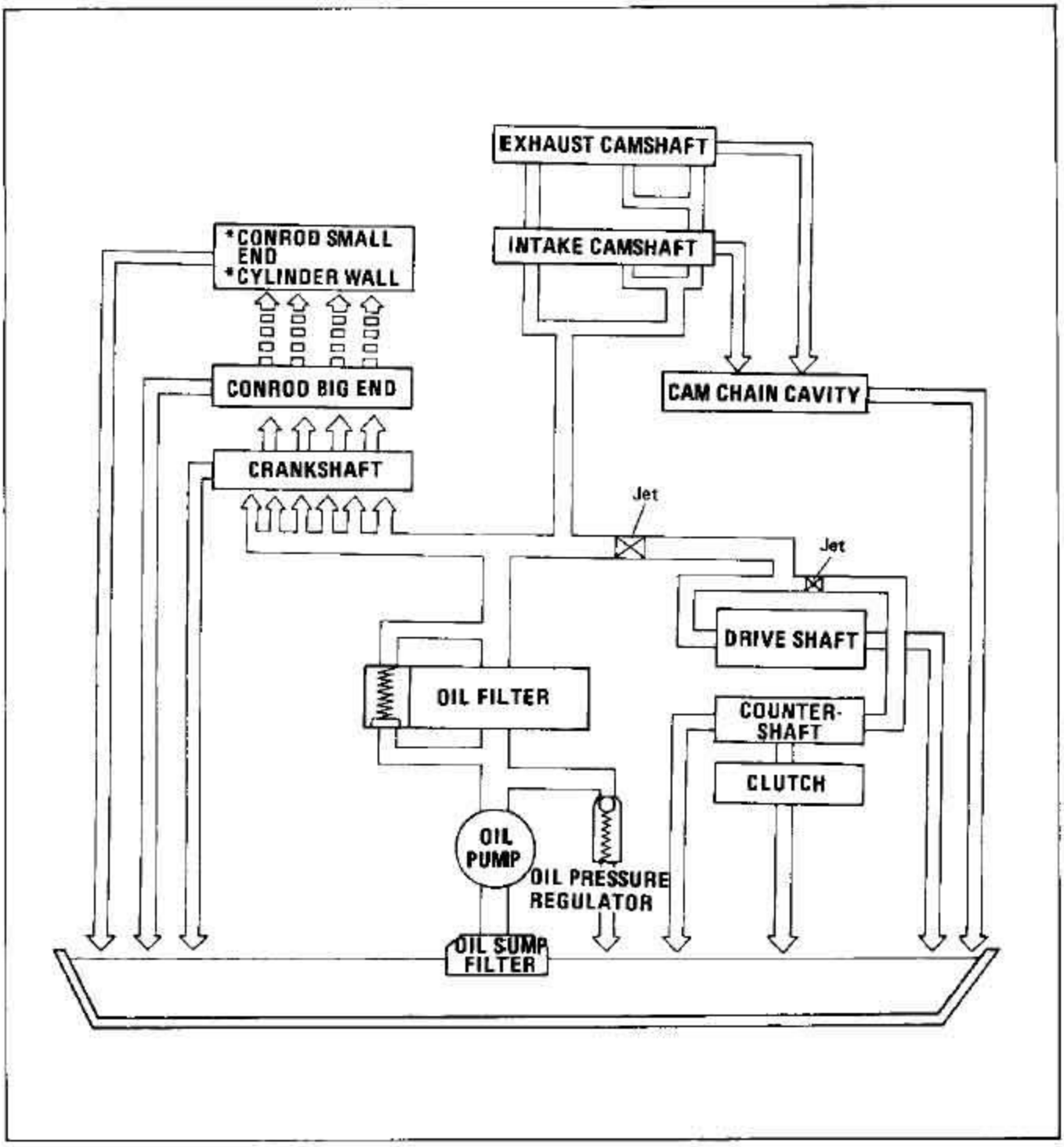
EXHAUST PIPE AND MUFFLER

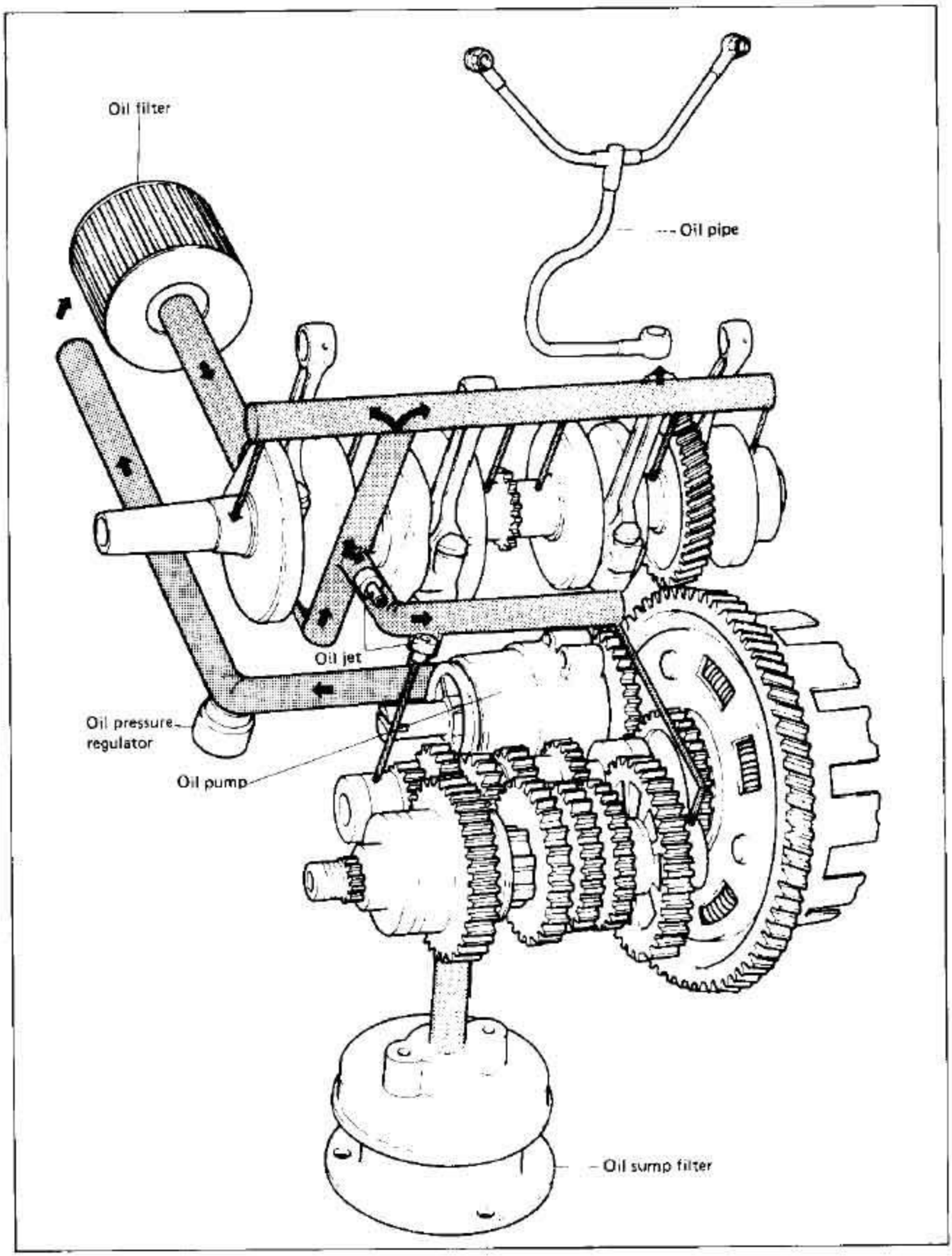
- Four exhaust pipes are connected in a 4 into 2 mode.
- Exhaust pipe
  - * Right and left exhaust pipes combined with mufflers as single bodies.
  - * Two central pipes are clamped to muffler.



LUBRICATION SYSTEM

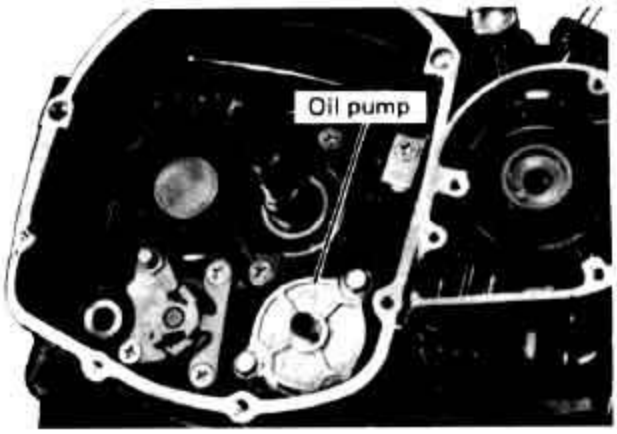
- Lubrication is a wet sump mode in which oil is stored in the oil pan and is sucked up and sent under pressure to each component by an oil pump.
- Lubrication passage has a relief valve.
- The oil filter is a full-flow type.
- Engine oil capacity
  - * Time of engine overhaul and filter change: 2,600 ml
  - * Time of oil change only: 2,200 ml




Oil filter
Oil pipe
Oil jet
Oil pressure regulator
Oil pump
Oil sump filter

OIL PUMP

- Trochoid type
- Installation position.
  * Rear of clutch
- Crankshaft rpm ratio mode
- Drive mode
  * Driven by oil pump drive gear with crankshaft rotation which passes through the primary drive and driven gears.

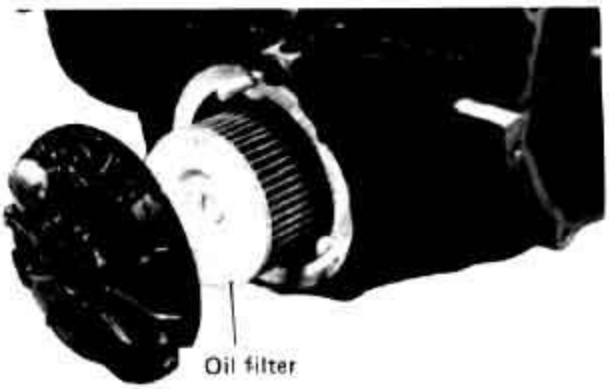


OIL JET AND PRESSURE REGULATOR

- Oil jet installation position.
  * Passage running through transmission.
  * Passage running through countershaft.
- Relief valve (Oil pressure regulator)
  * When pressure inside the oil gallery surpassing the set pressure, the valve opens and oil escapes to the oil pan.
  * Valve opening pressure: 4.5 to 5.5 kg/cm²

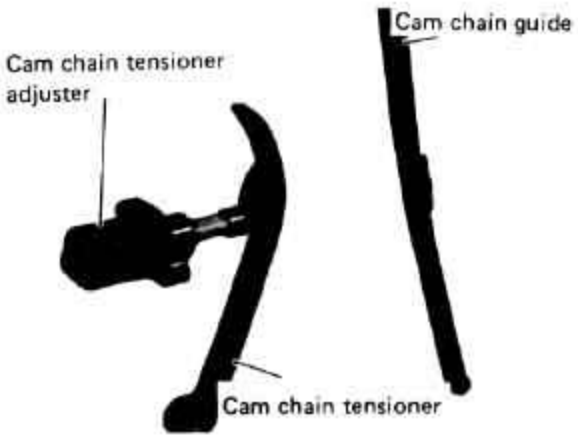
OIL FILTER

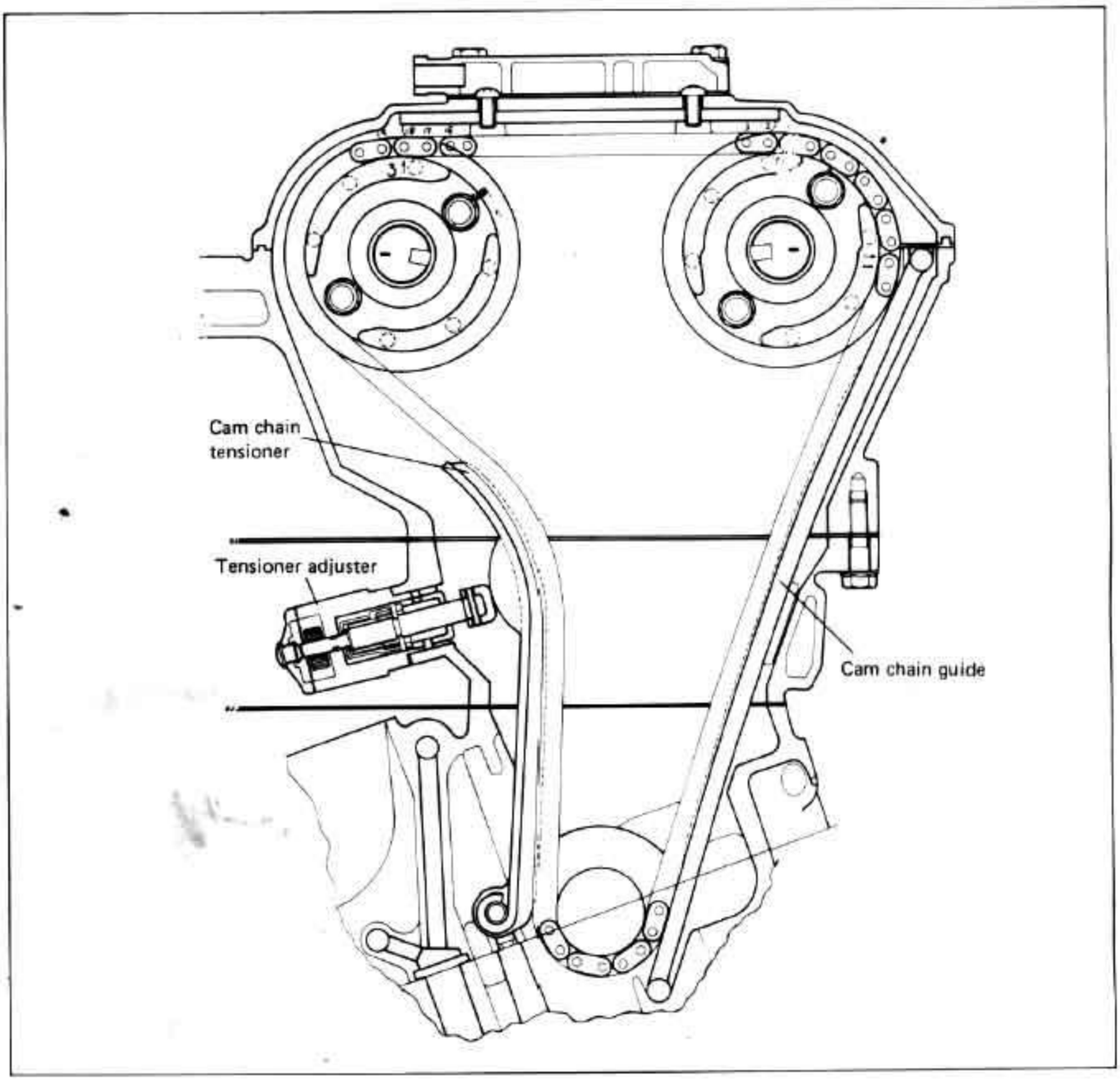
- Filter mode
  * Filter; paper type.
  * Filter area: 945 cm²
- Oil relief valve is at center of filter.
- Valve opens when the oil filter internal/external pressure differential exceeds the set value.
  * Relief valve control pressure: 1.5 ± 0.2 kg/cm²



CAM CHAIN TENSIONER AND TENSIONER ADJUSTOR

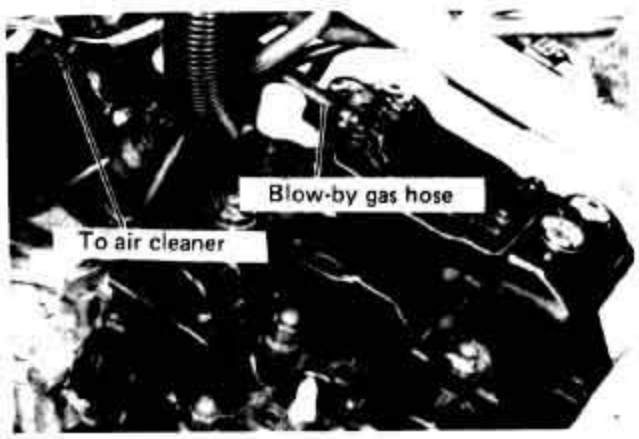
- Cam chain tensioner
  * Hard rubber: Durability
    Mechanical noise reduction
  * There are both a cam chain guide and a cam chain tensioner, and the tensioner adjuster pushes the cam chain tensioner.
- Tensioner adjuster
  * All-automatic control mode: Maintenance free
  * When the chain is extended, the pushrod of the tensioner adjuster automatically pushes the cam chain tensioner to maintain proper tension.

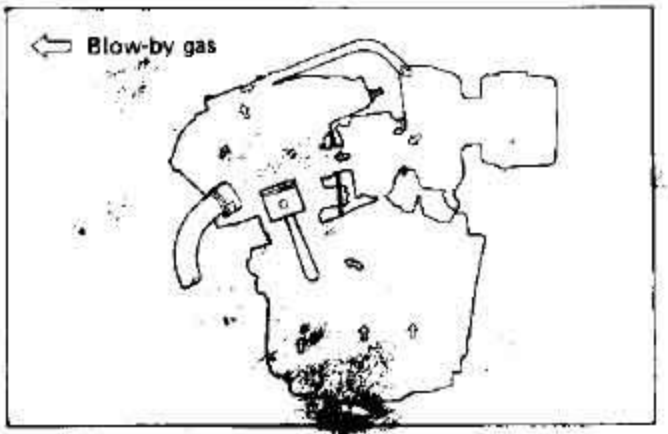




BLOW-BY GAS RECYCLING SYSTEM

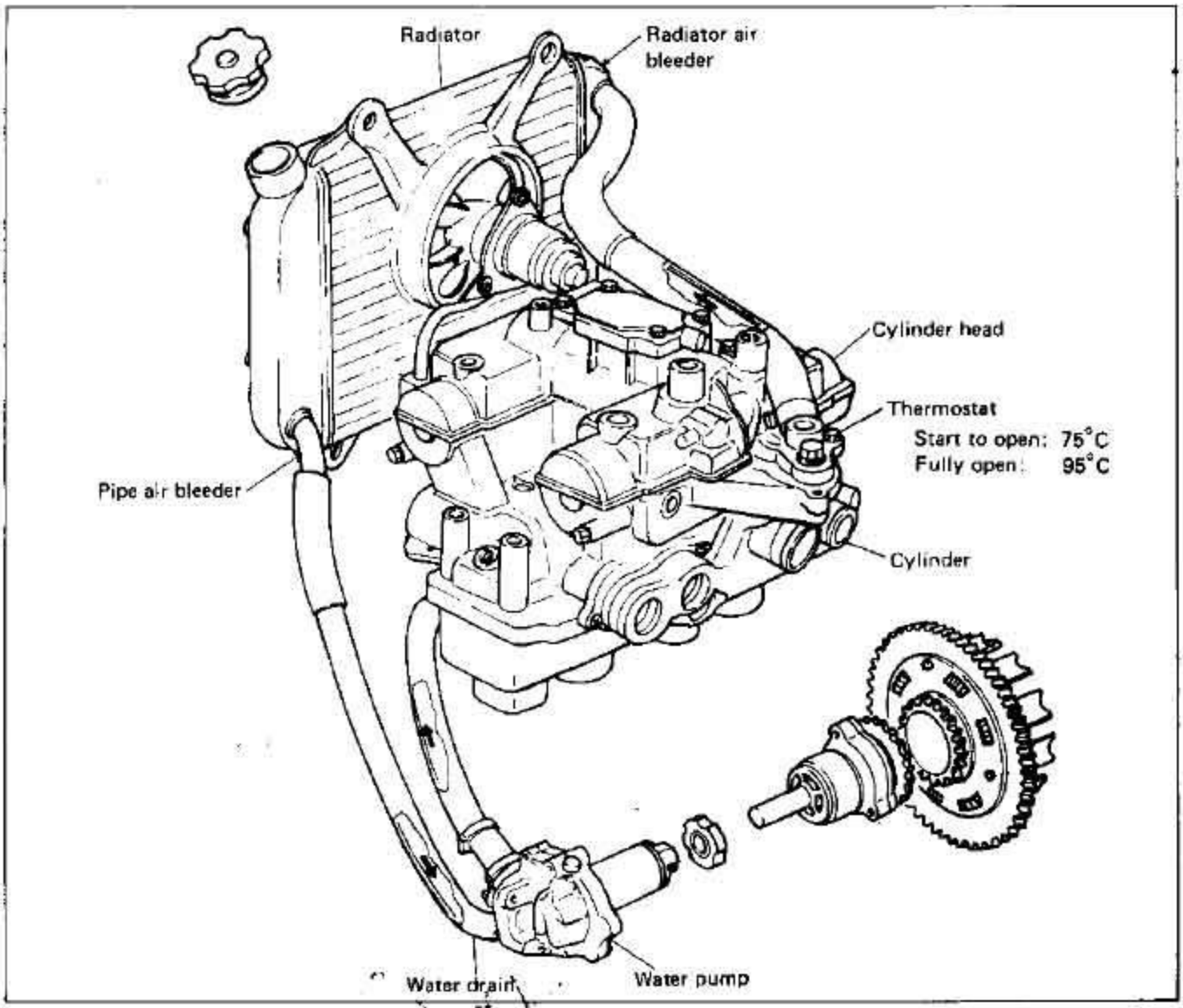
- Shield type
  - * Prevents discharge into atmosphere
- The cylinder head cover is connected to the air cleaner by hose, and blow-by gas of the crankcase is drawn into the cylinder. This blow-by gas is made to pass through the cam chain cavity of the cylinder and elsewhere, and then is separated into oil and air portions by the oil separator at the center of the cylinder head cover. The air portion is then directed to the air cleaner and udergoes combustion.





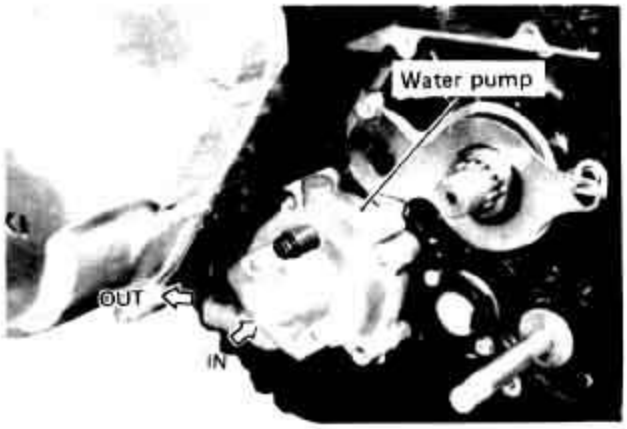
COOLING SYSTEM

- Forced circulation by water pump impeller, coolant circulates through the impeller, cylinder, cylinder head, thermostat valve and radiator.
- A sealed cooling system with reservoir tank attached.



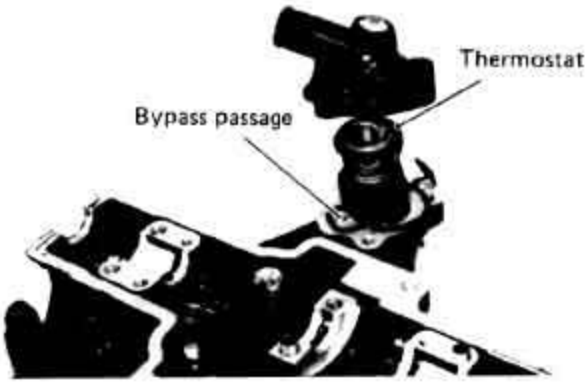
WATER PUMP

- Installation position.
  * Front side of engine sprocket.
- Crankshaft rpm ratio mode.
- Drive mode.
  * Driven by oil pump shaft.



WATER THERMOSTAT

- Installation position.
  * Rear side of cylinder head.
- Wax pellet type.
  * Wax expands with rises in temperature.
- Valve start to open temperature.
  * 75°C
- Valve fully opened temperature.
  * 90°C (Open 3 to 4 mm)
- Designed to prevent over-cooling but quickly cool warm engine with a valve that controls the flow of coolant.



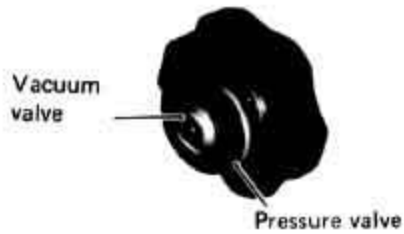
COOLANT

- Volume: About 1,650 ml.
  * Reservoir tank up to full line: 250 ml
  * Engine and radiator: 1,400 ml.
- Suzuki coolant mixture ratio (50% coolant).
- Suzuki coolant.
  * Antifreeze action
  * Rust preventive action
  * Corrosion preventive action.
  * Bubble-proof action.
- Coolant can be used in all seasons, both summer and winter.
- Coolant is good for up to two years.

SUZUKI COOLANT

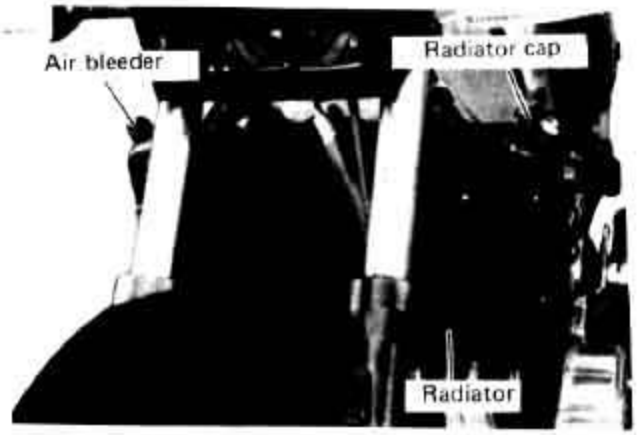
RADIATOR CAP

- Sealed pressurized type.
- Pressure valve.
  * Opens when deviation from atmospheric pressure reaches 0.75 to 1.05 kg/cm² or above.
- Installation position.
  * Upper part of the radiator



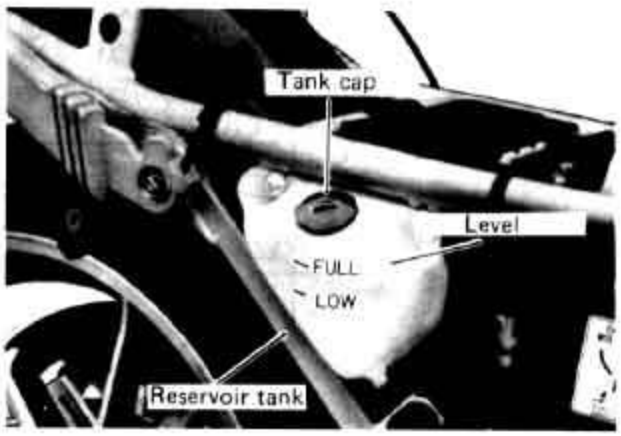
RADIATOR

- Fin shape.
  - * Corrugate type
- Aluminum alloy make.
  - * Light weight
  - * Outstanding resistance to vibration and pressure.
  - * Durable at high temperatures.
- Coolant inlet.
  - * Left side of radiator (at radiator cap)



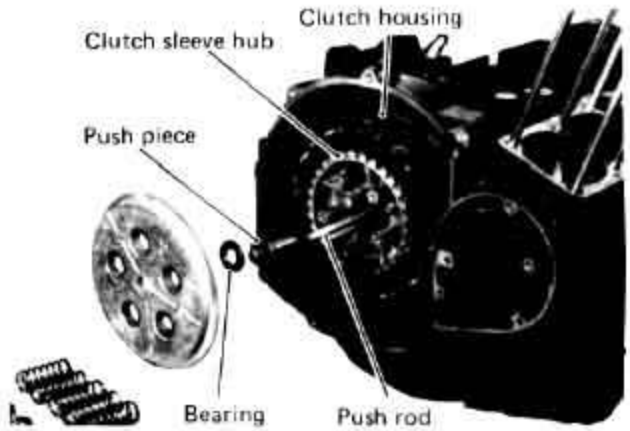
RESERVOIR TANK

- Installation position.
  - * Right side of the frame
- Pressure inside the radiator and pressure and negative pressure are absorbed after passing through the radiator cap and the water level inside the radiator is kept constant.
- Coolant inlet.
  - * Cap.
- Coolant volume check.
  - * Full-Low level on the reservoir



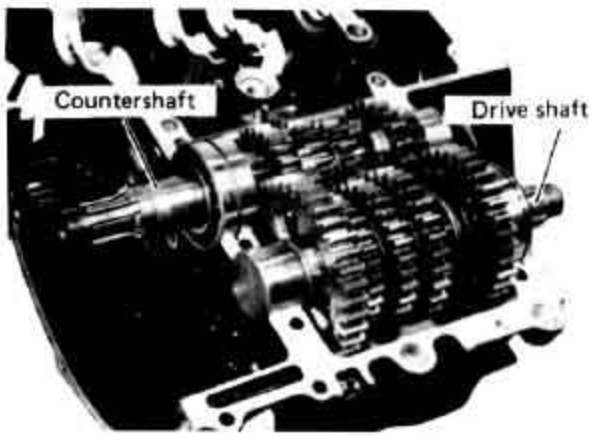
CLUTCH

- Wet, multi-plate type.
- Operation mechanism.
  - * Pushrod
- Installation position.
  - * Right side of countershaft
- Construction
  - * Drive plates: 6 plates
  - * Driven plate: 5 plates
  - * Springs: 5 springs
- Drive method.
  - * Power from the crankshaft passes through the drive plates and the driven plates and is transmitted to the countershaft.

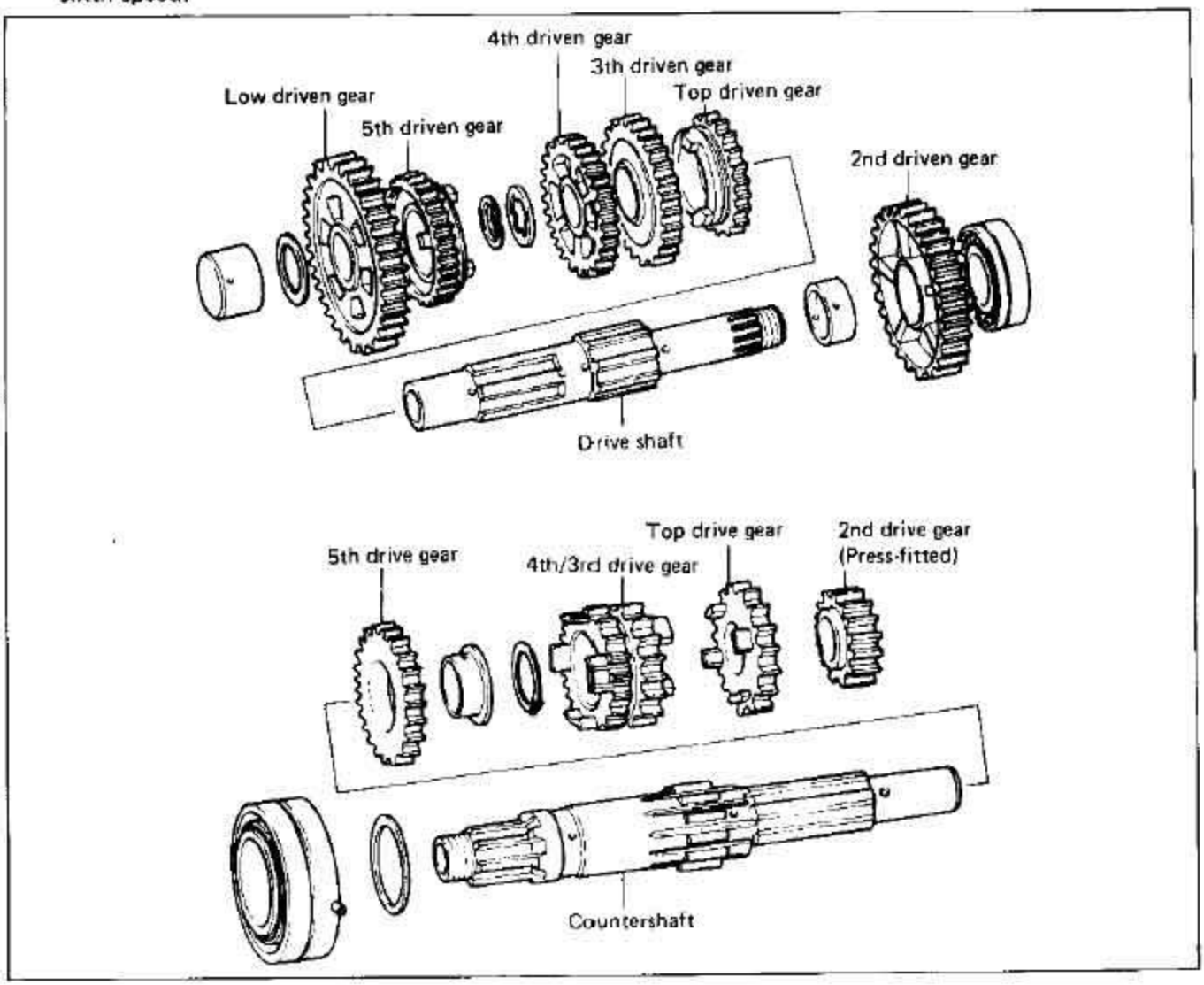


TRANSMISSION

- Operation system.
  - * Left foot operated, return mode. (1-down 5-up)
- Gearshift lever.
  - * Link type
- Constant mesh, 6-speed transmission.
- Second drive gear is press-fitted on the countershaft.

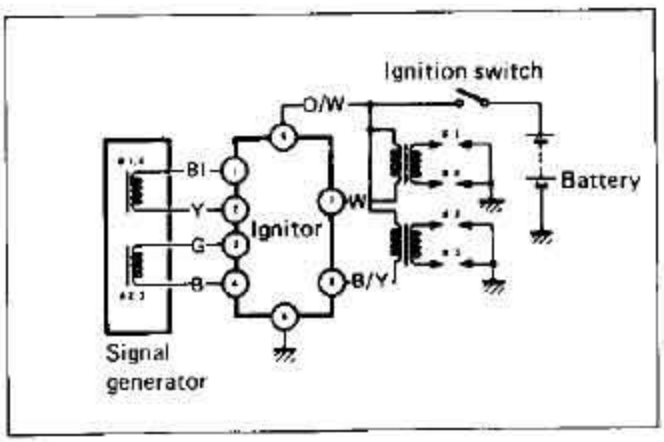


- Drive shaft.
  * Assembly of driven gear from low speed to top speed.
- Countershaft.
  * Assembly of drive gear from second speed to sixth speed.



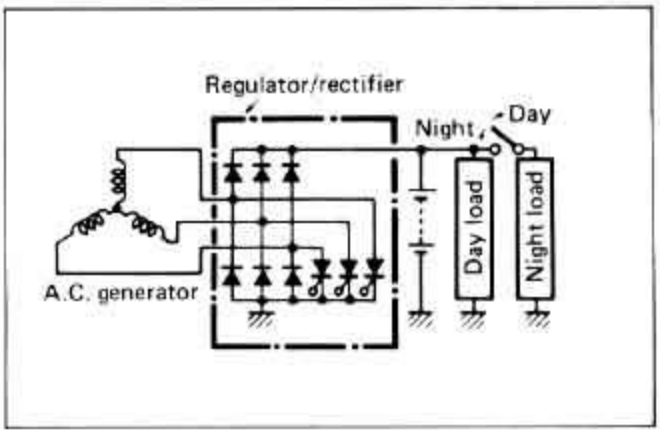
IGNITION SYSTEM

- Full-transistorized ignition system.
- Ignition timing:
  20° B.T.D.C. below 1 650 r/min. and
  40° B.T.D.C. above 3 500 r/min.
- Spark plug:
  NGK: D9EA or NIPPON DENSO: X27ES-U
- Component parts:
  Signal generator, Ignitor, Ignition coil and Spark plug



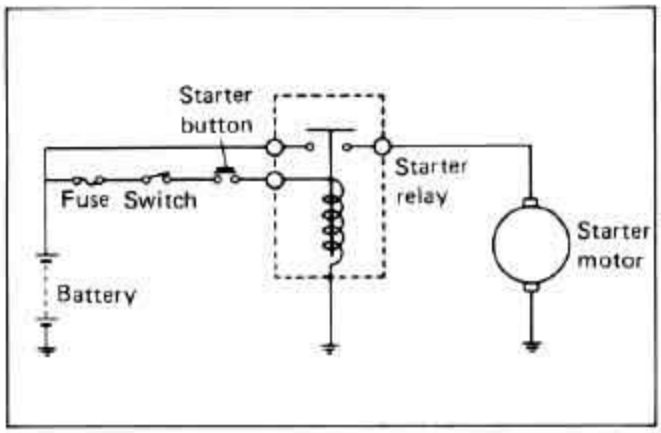
CHARGING SYSTEM

- Generator: 3-phase A.C.
- Regulator/rectifier: 3-phase controlled.



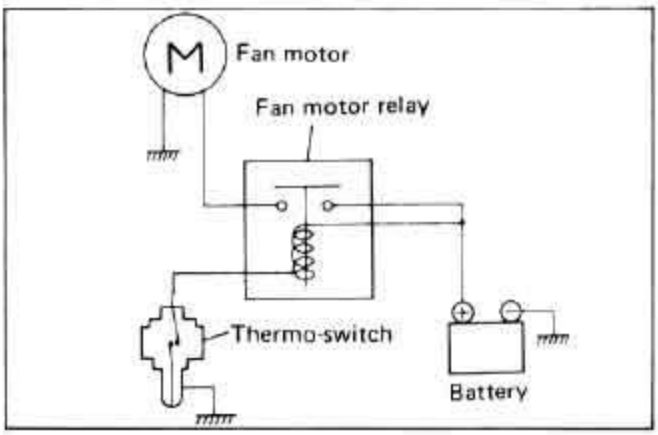
STARTER SYSTEM

- Electric starter.
- Component parts:
  * Starter switch, battery, starter relay and starter motor.



ELECTRIC FAN

- Operating temp.:
  ON: 102 – 108°C
  OFF: 98°C



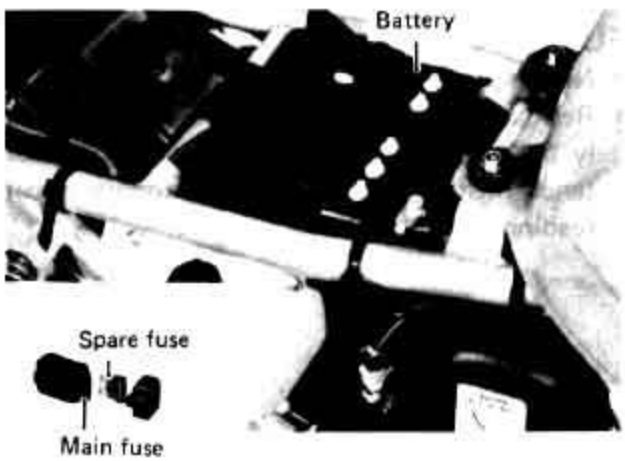
BATTERY AND FUSE

BATTERY

- 12V: 12Ah
- Type: YB10L-A2

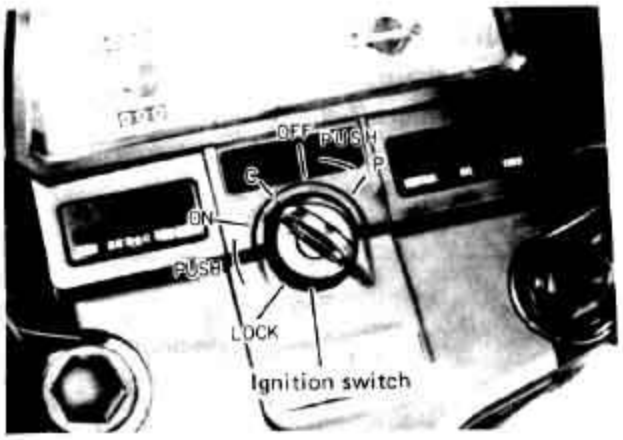
FUSE

- Installation position: Left side of the battery.
- Capacity: 12V 20A.
- Q'ty: 1 main fuse and 1 spare fuse.



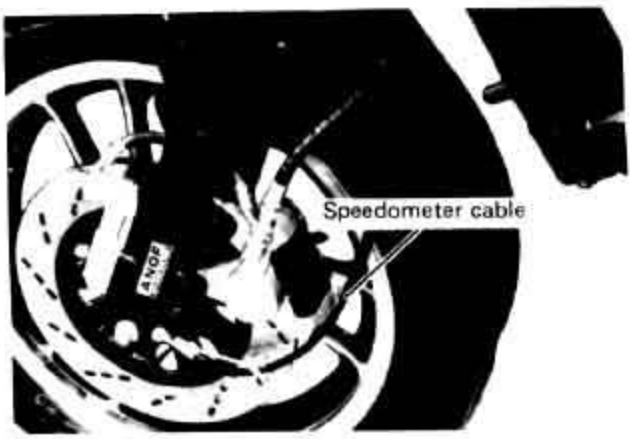
IGNITION SWITCH

- Installation position: Center of handlebars.
- 4-position: OFF
  C : Check
  ON
  P : Parking
- Use of key: Seat lock, fuel tank cap and helmet holder.

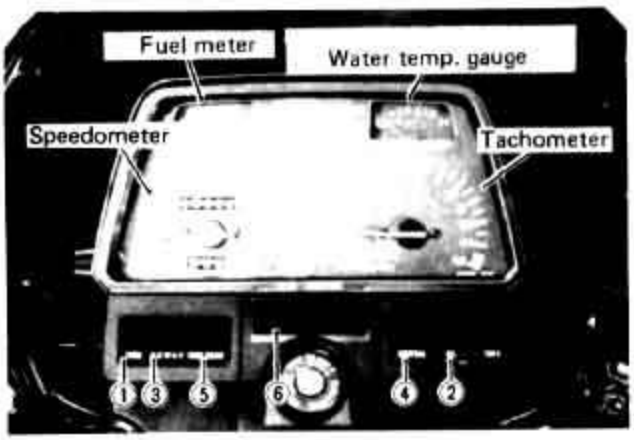


COMBINATION METER

- Speedometer: With odometer and trip meter.
- Tachometer: Electric tachometer.

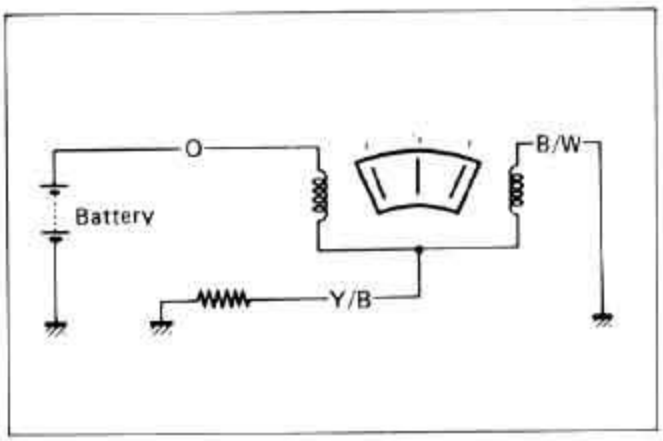


- Indicator lamps
  ① Turn signal indicator lamp
  ② Oil level indicator lamp
  ③ NIL
  ④ Neutral indicator lamp
  ⑤ High beam indicator lamp
  ⑥ Gear position indicator



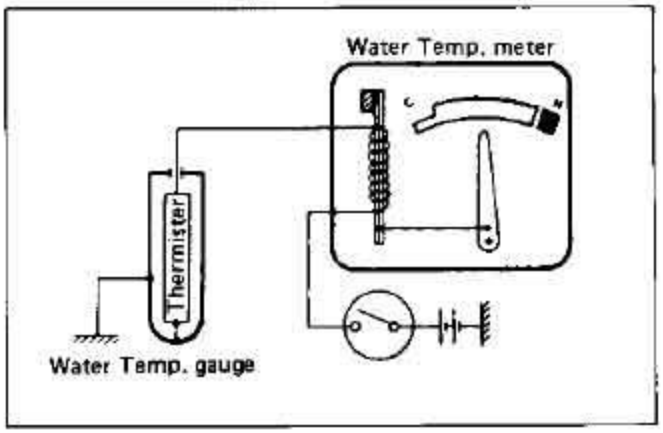
FUEL METER

- Needle point mode.
- Residual gasoline volume is converted electrically by a floating fuel level gauge (variable-resistance) installed at the fuel tank to give a meter reading.



WATER TEMPERATURE METER

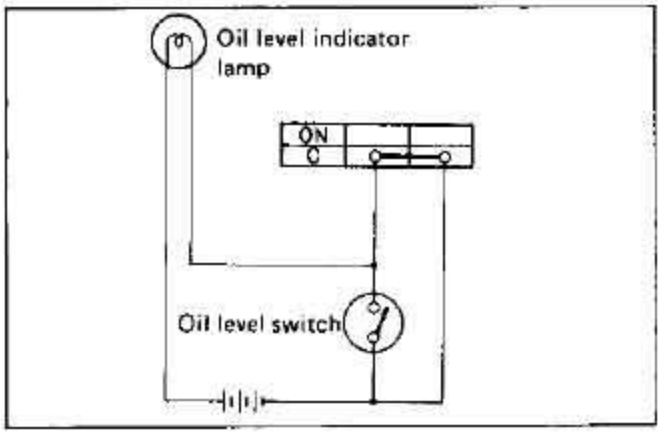
- Water temperature gauge.
  * Installation position:
    Behind cylinder head
  * Operation:
    Resistance inside gauge is lowered by a rise in coolant temperature, allowing for large current flow.
- Water temperature meter.
  * Installation position:
    Inside combination meter
  * Operation:
    Needles moves according to changes in current flowing through bimetal strip.



OIL LEVEL INDICATOR LAMP

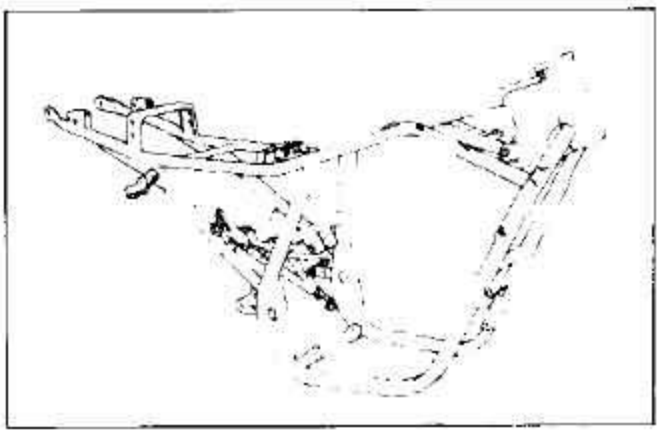
- Display.
  * Pilot lamp inside meter.
- Position exists for lamp inspection on the ignition switch "C" position.
- Operation
  * When engine oil volume reduces, the float lowers and the switch goes on so that the lamp gives warning.
- Float install position.
  * Underneath oil pan.
- Oil volume when lamp lights up.
  * About 2,000ml

NOTE:
If the pilot lamp goes on when the engine is first started up or while it is running, immediately check the oil and replenish it.



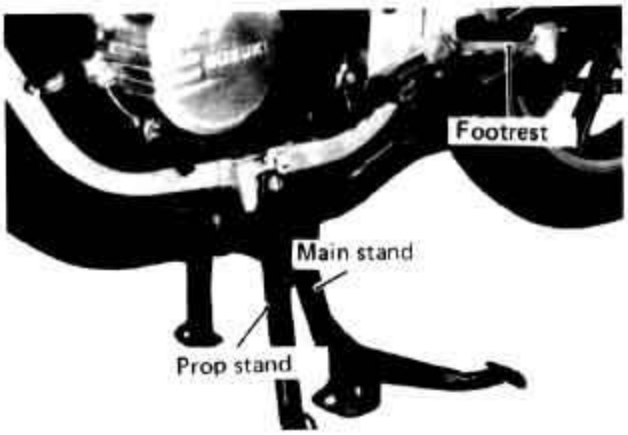
FRAME

- Configuration.
  * Double cradle.
- Combination of rectangular and circular pipe for frame.
- At the front is space for the fuel tank and the engine and at the center, space for installing the rear shock absorber.



STAND AND FOOTREST

- Equipped with center stand and prop stand.
- The footrest is made of aluminum forging, has a footrest rubber attached, and is installed to the bracket.

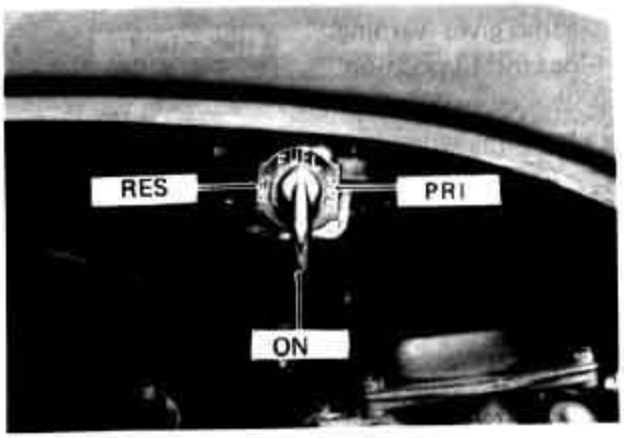


FUEL TANK

- Capacity
  - * 15 L
  - * Reserve capacity: About 2.2 L
- Fuel tank cap
  - * Key lock type
- Install fuel level gauge to interior right side of tank.

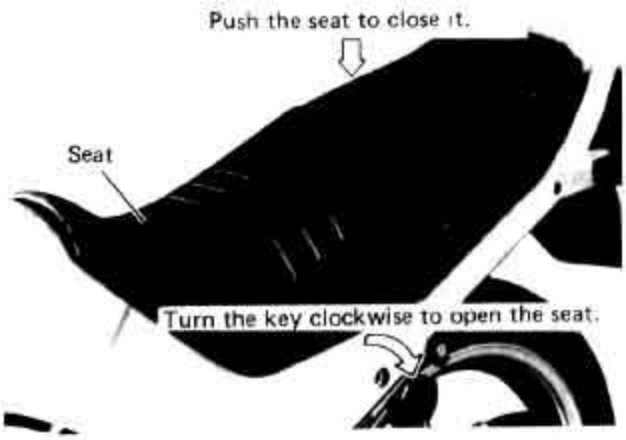
FUEL COCK

- Diaphragm type
- 3-position: ON
  RES (Reserve)
  PRI (Priming)



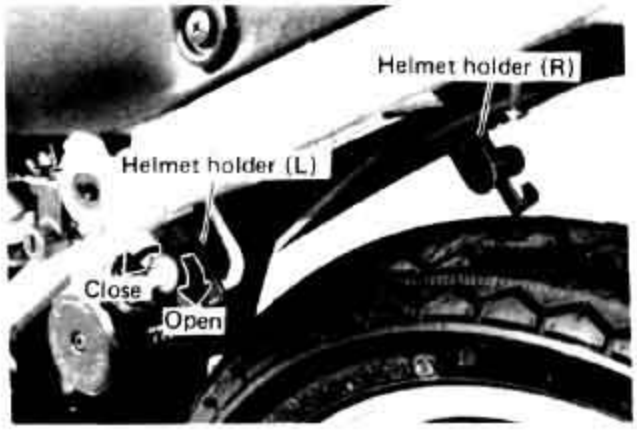
SEAT

- Installation method.
  - * Insert front portion into the frame and fasten rear portion to seat lock.
- Seat height: About 780 mm
- Seat lock: Key lock



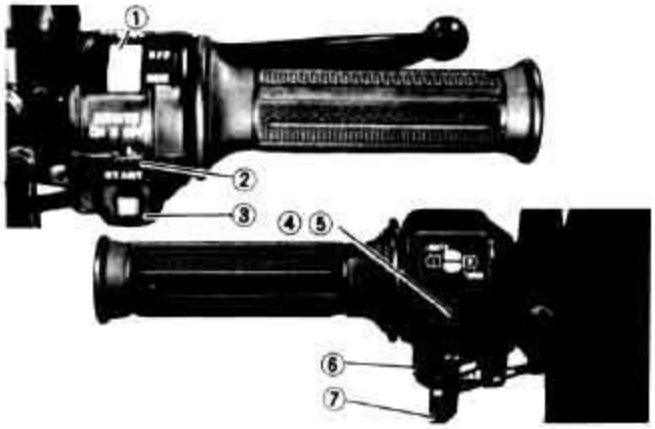
HELMET HOLDERS

- One holder located at right and another at left side of vehicle body.
- Location.
  * Underside of seat center
- Key lock type with ignition key.



HANDLE SWITCHES

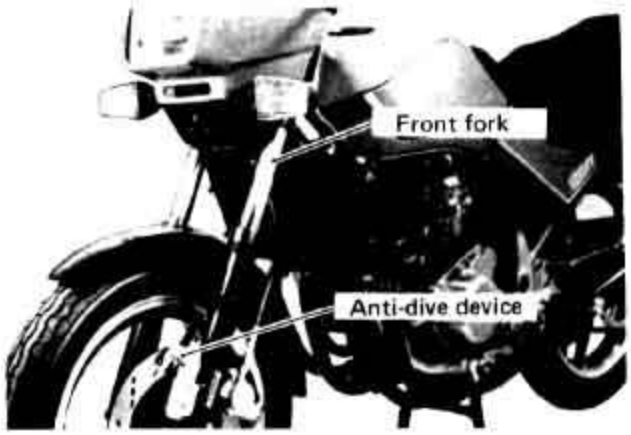
① Engine kill switch
② Lighting switch
③ Starter button
④ Dimmer switch
⑤ Turn signal switch
⑥ Passing and horn button
⑦ Starter lever



FRONT FORK

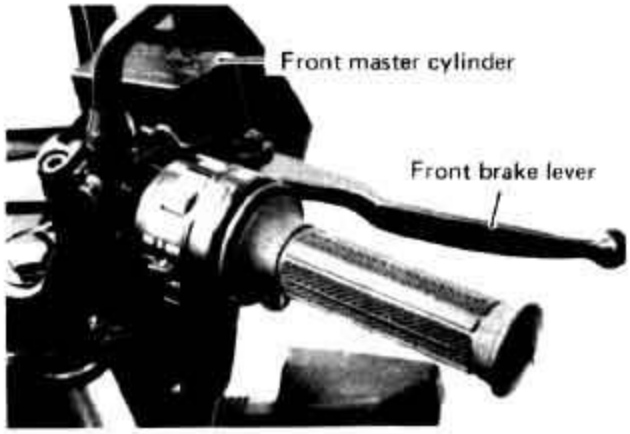
- Telescopic oil damped type.
- Equipped with anti-dive device
  * Location: underneath left outer tube.
  * Reduces dive mortion of the motorcycle during braking.
- Disc brake caliper attached.

Front fork stroke	130 mm



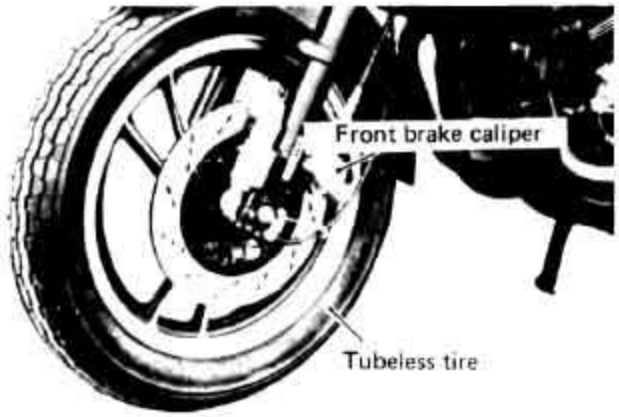
FRONT BRAKE

- Hydraulic single disc brake.
- Reservoir tank.
  * Joined as single unit with master cylinder body.
- Fluid level check.
  * Inspection window is located.
- Disc effective diameter: 242 mm
- Disc pad: Presence of wear limit line.



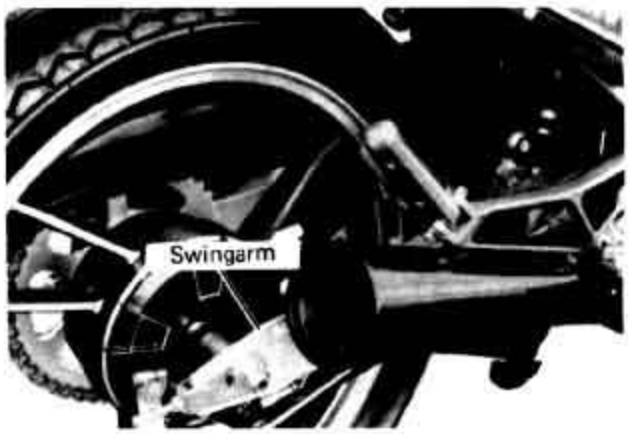
FRONT WHEEL AND TIRE

- Rim
  - * 2.15 x 16
  - * Cast wheel made of light alloy
- Tire
  - * 100/90 – 16 54S (rib type)
  - * Tubeless
  - * Presence of wear indicator:



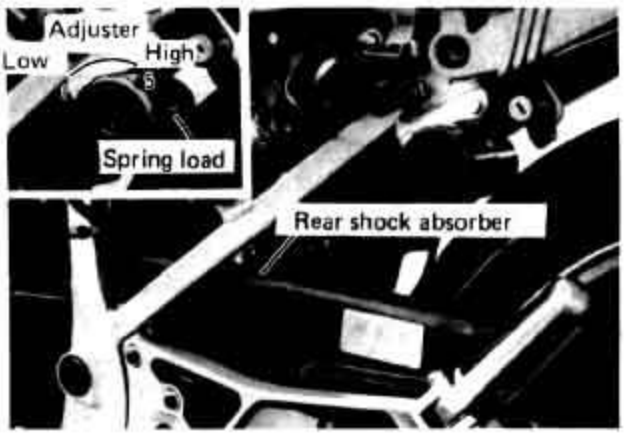
SWINGARM

- Rectangular pipe.
- Pivot swing type.
- Needle roller bearing used at pivot component.
- Presence of engraved line at rear for chain adjuster.



REAR SHOCK ABSORBER

- Location
  - * Center of vehicle body
- Full-floater suspension.
- Format
  - * Cylindrical, double-action mode
- Spring initial load adjustment type.
  - * Operation: remote controled by adjuster
- Rear wheel travel: 120 mm



INSPECTION AND ADJUSTMENT

CONTENTS

PERIODIC INSPECTION CHART

ENGINE

Item \ Interval	Initial 1 000 km (600 miles)	Every 5 000 km (3 000 miles)	Every 10 000 km (6 000 miles)
Battery	Inspect	Inspect	–
Engine bolts and nuts	Inspect	Inspect	–
Air cleaner	Clean every 3 000 km (2 000 miles)		
Valve clearance	Inspect	Inspect	–
Compression	Inspect	Inspect	–
Spark plug	Inspect	Inspect	Replace
Carburetor	Inspect	Inspect	–
Fuel lines	Inspect	Inspect	–
	Replace every 4 years		
Engine oil	Change	Change	–
Engine oil filter	Replace	Replace	–
Oil pressure	–	Inspect	–
Oil sump filter	–	–	Clean
Clutch	Inspect	Inspect	–
Cooling solution	Change every 2 years		
Radiator hose	Replace every 4 years		

CHASSIS

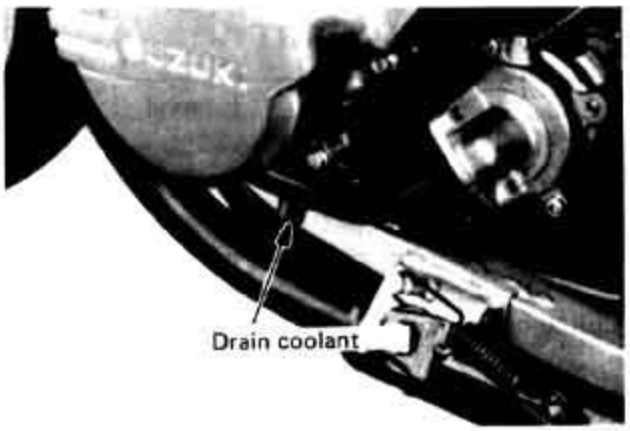
Item \ Interval	Initial 1 000 km (600 miles)	Every 5 000 km (3 000 miles)	Every 10 000 km (6 000 miles)
Drive chain	Inspect and clean every 1 000 km (600 miles)		
Brakes	Inspect	Inspect	–
Brake hose	Inspect	Inspect	–
	Replace every 4 years		
Brake fluid	Change every 2 years		
Tyres	Inspect	Inspect	–
Steering	Inspect	Inspect	–
Front fork oil	Change	–	Change
Bolt and nut	Inspect	Inspect	–

LUBRICATION CHART

Item \ Interval	Initial and every 5 000 km (3 000 miles)	Every 10 000 km (6 000 miles)
Throttle cable	Motor oil	–
Throttle grip	–	Grease
Choke cable	Motor oil	–
Clutch cable	Motor oil	–
Speedometer cable	–	Grease
Tachometer cable	–	Grease
Brake pedal	Grease or oil	–
Steering stem bearings	Grease every 2 years or 20 000 km (12 000 miles)	
Swingarm bearings		

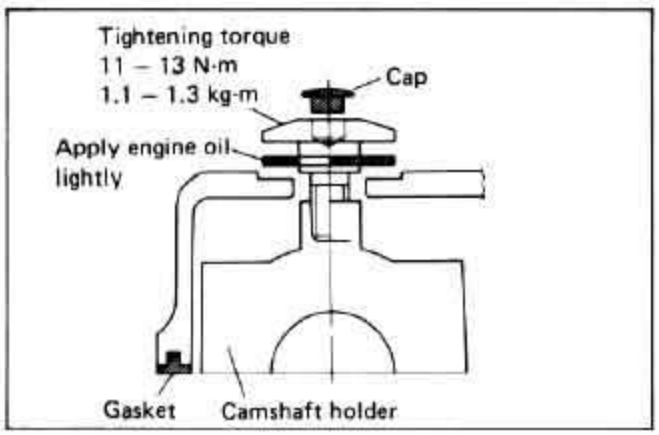
TAPPET SHIM ADJUSTMENT

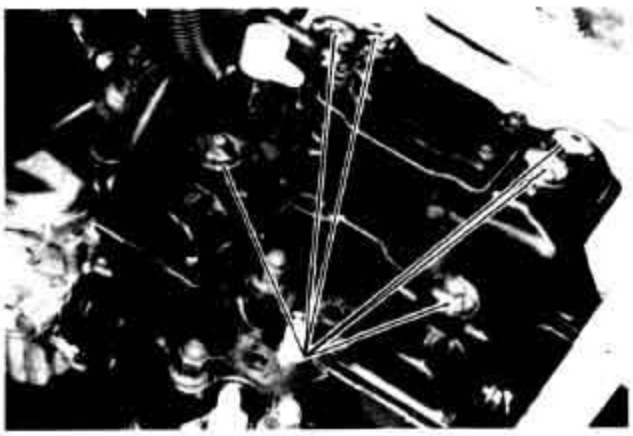
- Drain coolant.
- Remove radiator inlet hose.



- Hold the radiator damper with spanner so it will not be twisted, then loosen nut.
- Remove radiator.

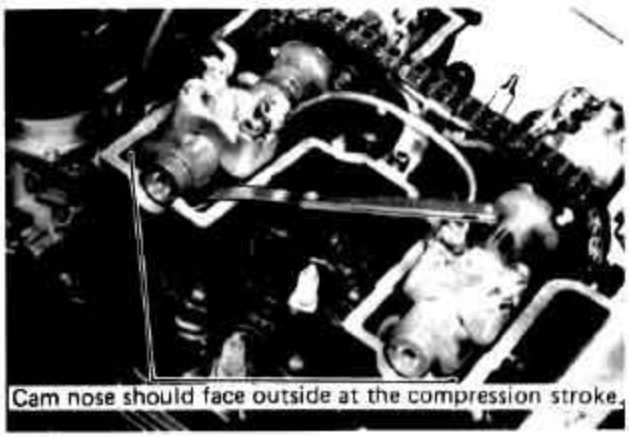
- Loosen the cylinder head cover bolts.





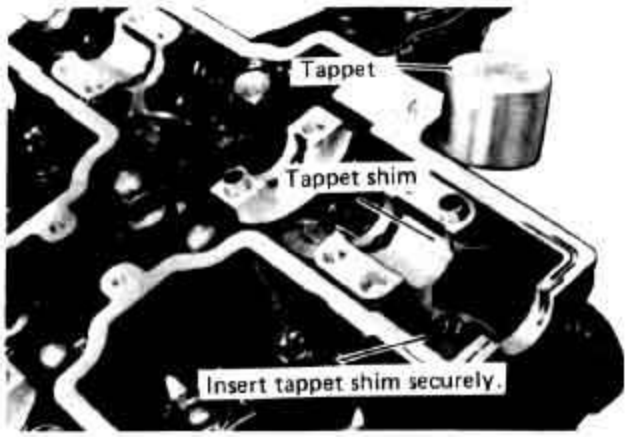
- Measure the tappet clearance of each cylinder and record only the clearance values of those cylinders which are not within the standard range.

Tappet clearance (when cold)	0.10 – 0.20 mm


Cam nose should face outside at the compression stroke.

- Remove intake and exhaust camshafts and take out tappet shims inside tappet.

NOTE:
Refer to engine Assembly-Disassembly chart for camshaft installation and removal.



- For those portions deviating from standard value, exchange the tappet shims to restore to standard value.

TAPPET SHIM SIZE CHART (mm)			
Thickness	Part No.	Thickness	Part No.
2.15	12892-38400	2.65	12892-38410
2.20	12892-38401	2.70	12892-38411
2.25	12892-38402	2.75	12892-38412
2.30	12892-38403	2.80	12892-38413
2.35	12892-38404	2.85	12892-38414
2.40	12892-38405	2.90	12892-38415
2.45	12892-38406	2.95	12892-38416
2.50	12892-38407	3.00	12892-38417
2.55	12892-38408	3.05	12892-38418
2.60	12892-38409	3.10	12892-38419

COMPRESSION PRESSURE INSPECTION

- Run engine so that oil flows throughout all its components.
- Remove all spark plugs and attach a compression gauge to the cylinder head.
- Open the throttle fully, turn the starter motor, and read the gauge.

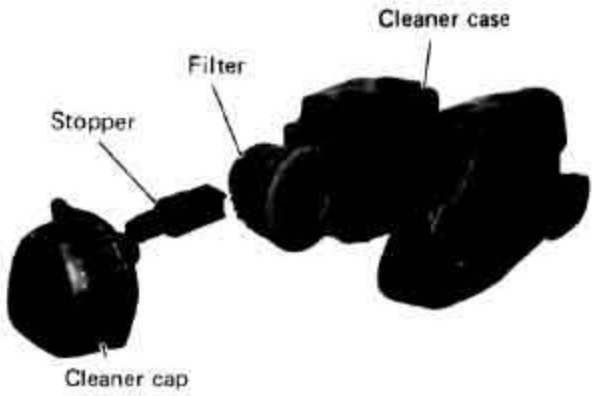
NOTE:
Make sure that the tappet clearance is normal.

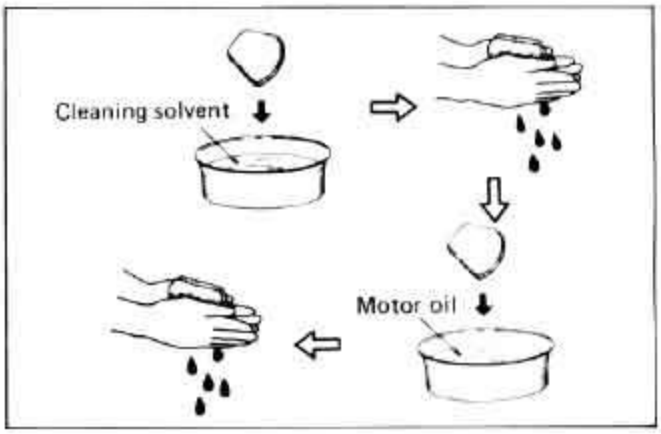
Standard	11 – 15 kg/cm^2
Limit	9 kg/cm^2
Difference	2 kg/cm^2

09915-64510	Compression gauge

AIR CLEANER

- Remove air cleaner and clean with cleaning solvent, then apply SAE 10W/40 motor oil. (About 14 ml)

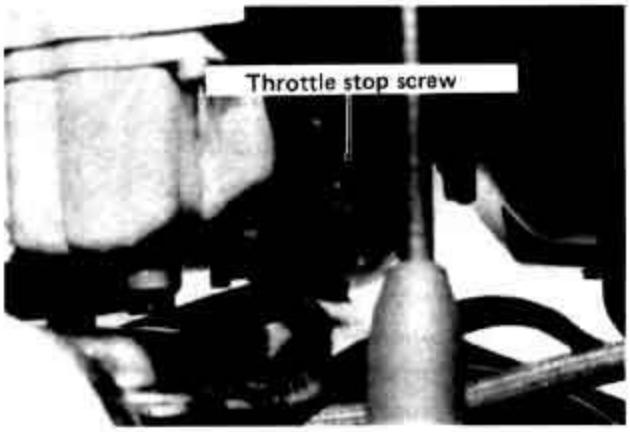




IDLE R/MIN. ADJUSTMENT

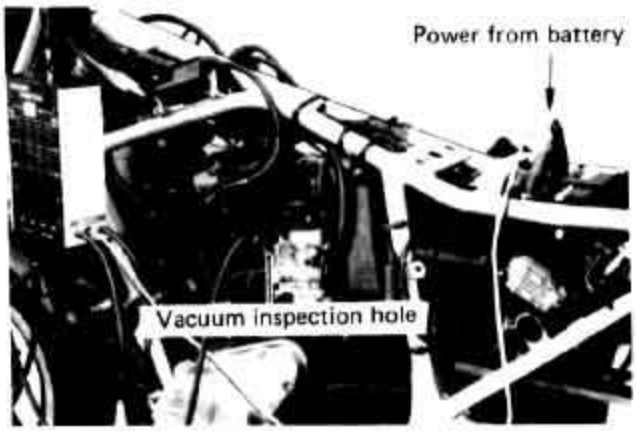
- Adjust by turning throttle stop screw.
- Tighten to increase rpms.
- Loosen to reduce rpms.

Idle r/min.	1 250 ± 50 r/min.



BALANCING CARBURETORS

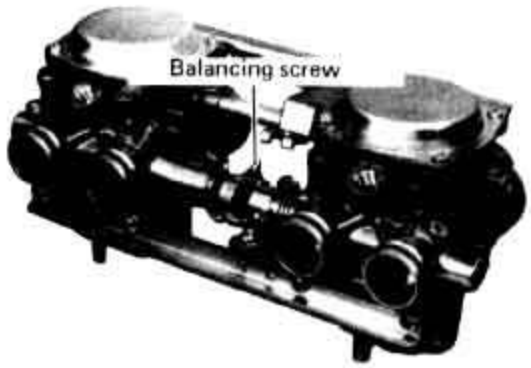
- Synchronize throttle valve opening while measuring with a vacuum tester the negative pressure produced by No. 1 and No. 4. cylinders.
- Remove the vacuum inspection plugs from the carburetor, and install an attachment.
- Connect vacuum tester hose to attachment and start engine.
- Turn the balancing screw and adjust so that the negative pressure values of cylinder 1 and 4 are the same.



CAUTION:
If adjustment takes a long time, use the engine cooling fan to distribute cooling air. Use a 12V battery as the power source for the vacuum tester. Be sure to tighten the lock nut securely after adjustment.

09913-14420	Vacuum tester
09915-94511	Vacuum hose attachment
09913-13121	Carburetor balancer

09913-14911	Throttle valve adjust wrench



ENGINE OIL

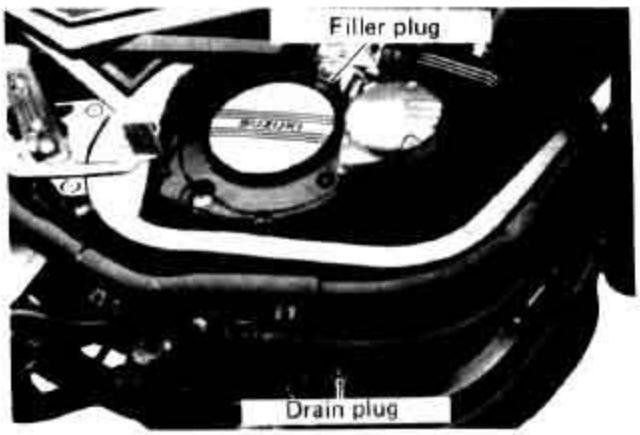
- After warming up the engine, allow engine to idle for about 10 to 20 seconds, then stop it.
- After about one minute, check the oil level with the level inspection window.
- If the level is lower than the "L" level, add the specified oil to the "F" level.

NOTE:
Check the oil level with the vehicle standing upright on a level ground.

ENGINE OIL CHANGE

- Warm up engine: easier to drain oil.
- Drain plug.
  * Location: Underneath center of crankcase.

Tightening torque	20 – 25 N·m (2.0 – 2.5 kg-m)



Amount of engine oil

Oil change	2 200 ml
Filter change	2 400 ml
Engine overhaul	2 600 ml

OIL PRESSURE

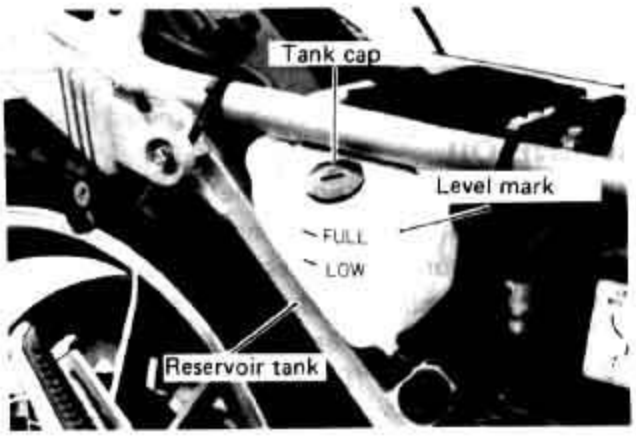
- After warming up the engine, turn off engine.
  * Warming up:
    Run for about 15 minutes, maintaining 2,000 rpm (Oil temperature – about 60° C).
- Measurement location.
  * Top surface of oil filter cap.
- Meter.
  * Oil pressure gauge.

Oil pressure (at 60° C)	Above 2.5 kg/cm² Below 5.5 kg/cm² at 3 000 r/min.

COOLANT

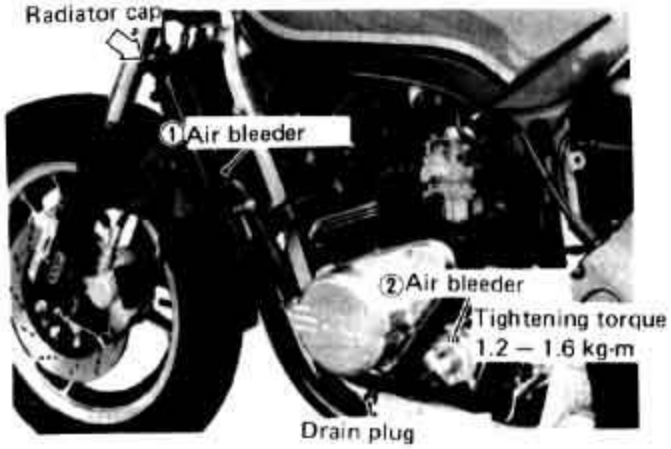
- Inspect the coolant level with the level mark on the reservoir tank.
- If the coolant level on the reservoir tank is between FULL and LOWER, it is good condition.

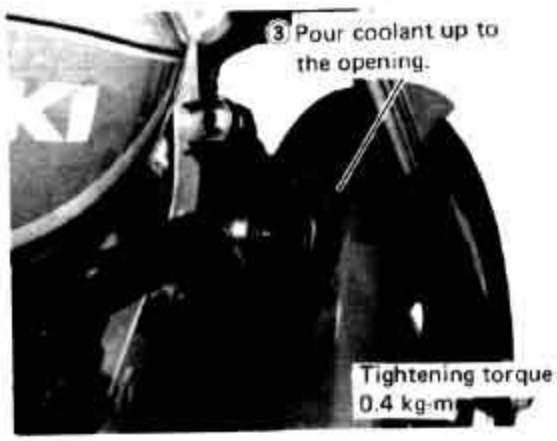
NOTE:
- **Inspect with the vehicle standing upright.**
- **Refer to the section on coolant change and let out air from the bleeder because there are cases in which air gets into the coolant passage.**



CHANGE OF COOLANT

- Set up the main stand.
- Remove plug ③.
- Loosen plug ① and pour coolant through the radiator cap opening, when coolant leaks out from plug ①, tighten it and pour in more coolant until radiator is full.
- Loosen plug ② and bleed air from water pump.
- Set bike at side stand and fill from plug ③ until full.
- Start engine and pour in coolant through radiator cap opening while revving up the engine to 4 000 r/min.
- Pour coolant in reservoir tank up to level F.
  * Volume poured to engine: 1.4 L
  * Volume poured to reservoir tank line F: 0.25 L





CAUTION:
- **Always change coolant while engine is cool.**
- **Use coolant which comprises a mixture of distilled water and anti-freeze at a ratio of 1 : 1.**
- **Before discarding coolant dilute it by at least 200 times.**
- **Clean off coolant whenever it gets on motorcycle body.**

CHARGING VOLTAGE

- Connect test probes of the tester (DCV) to both positive and negative terminals of battery.
- Turn on headlight to high beam and run engine at 5 000 r/min.
  - Tester used is a DC voltmeter or a DC.V range pocket tester.
- If the tester shows less than 14V or more than 15V, replace the regulator/rectifier.

CAUTION:
Be careful not to mistake the direction of positive and negative of the tester.

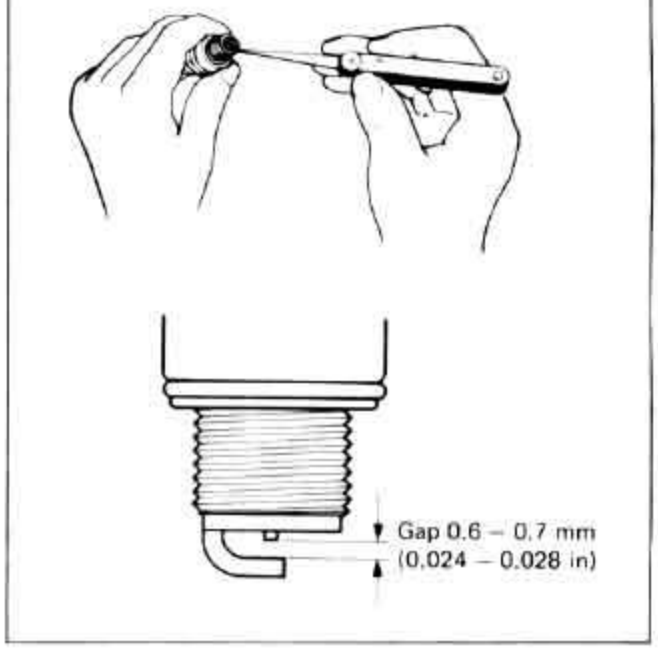
Regulated voltage	14 – 15V at 5 000 r/min.

SPARK PLUG

- Inspect spark plug with eye for damages, deformation, or dirt at electrode, insulator, etc. If dirty, clean plug with plug cleaner or wire brush. Replace plug if it is extremely dirty or damaged.
- Measure the gap between center electrode and ground electrode with a thickness gauge, then adjust to the specified gap.

Spark plug gap	0.6 – 0.7 mm

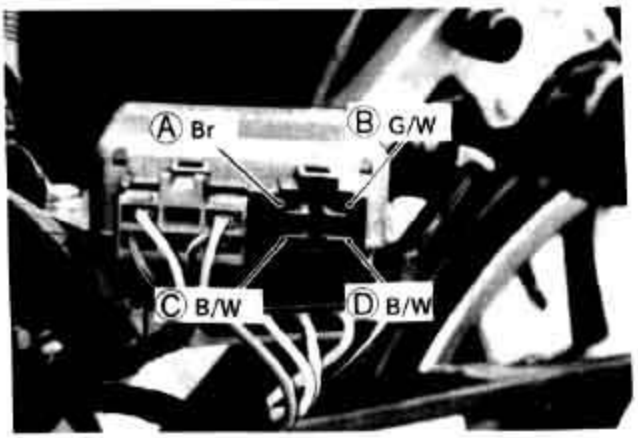
NGK	NIPPON DENSO	
D8EA	X24ES-U	If standard plug is apt to get wet, replace with this plug.
D9EA	X27ES-U	Standard



IGNITOR

- Remove all spark plugs from the cylinder head, attach the spark plugs to the plug caps, then place on top of the cylinder head so as to ground.

- Remove the signal generator coupler from the ignitor unit.
- Set the ignition switch to ON and the engine kill switch to RUN.
- Set the pocket tester at the X 1Ω range, then connect it and release it alternately from the probes of the ignitor unit in order to confirm that sparks are occurred at the spark plug gap.

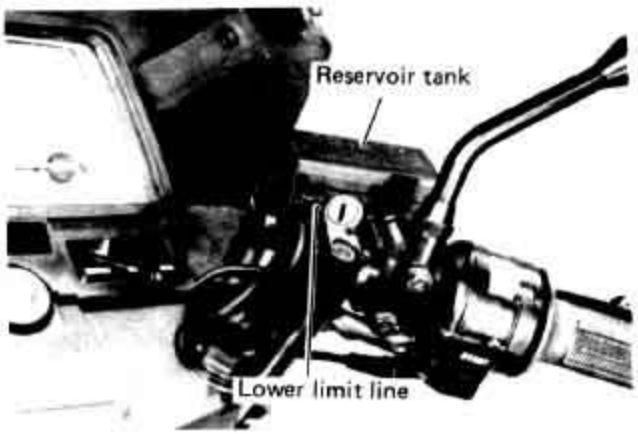


NOTE:
A spark is occurred only once at the moment of connection. In making this checks, proceed alternately between numbers 1.4 and 2.3.

CONNECTION	CYLINDER
C – A ⊖ – ⊕	2 and 3
C – B ⊖ – ⊕	1 and 4

FRONT BRAKE

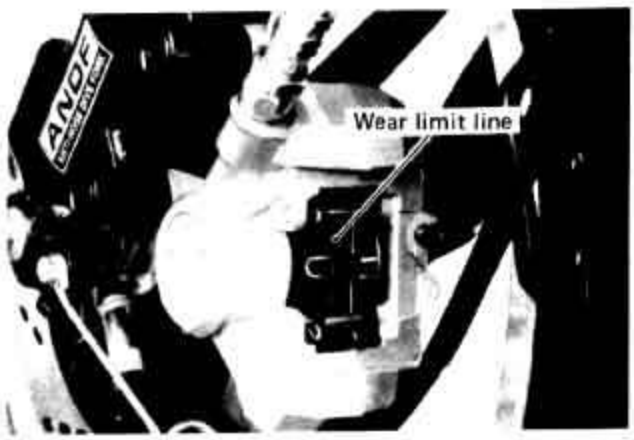
- Check brake lever play at tip of lever.
- Check to see if brake fluid level inside the reservoir tank is above the "LOWER" limit line.
- Check to be sure that brake fluid is not leaking from hose or other connection points.
- Check for cracks or damages to brake lever and holder.



Brake lever play	5 – 10 mm

Specification and classification	SAE J1703, DOT3 or DOT4.

99000-23021	SUZUKI Brake fluid



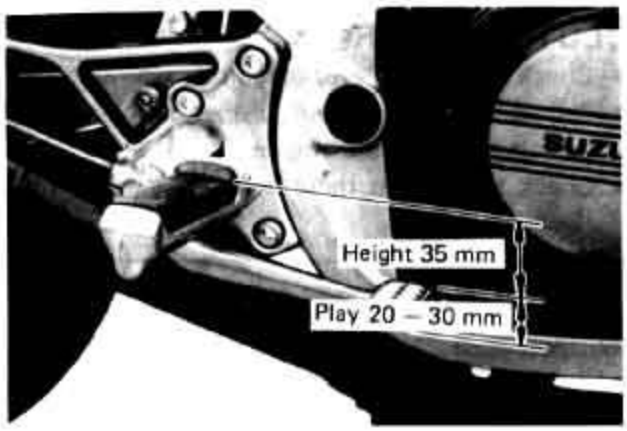
BRAKE PAD

- Check to be sure pad is not worn down to wear limit line.

REAR BRAKE

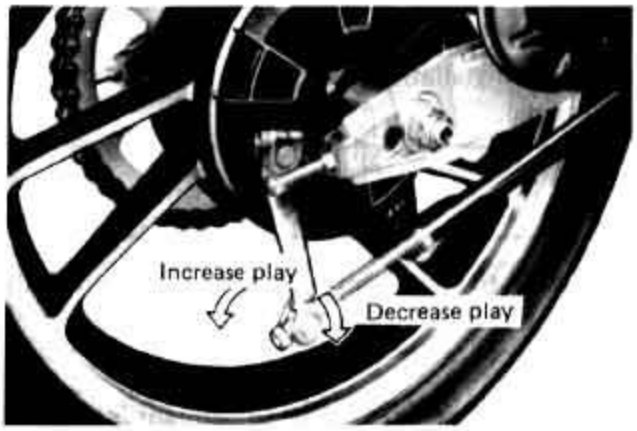
- Check play and pedal height at tip of pedal.
- Adjust to correct play by turning pedal stopper bolt.

Brake pedal height	35 mm



- Adjust to correct play by turning brake cable adjuster.

Brake pedal free travel	20 – 30 mm

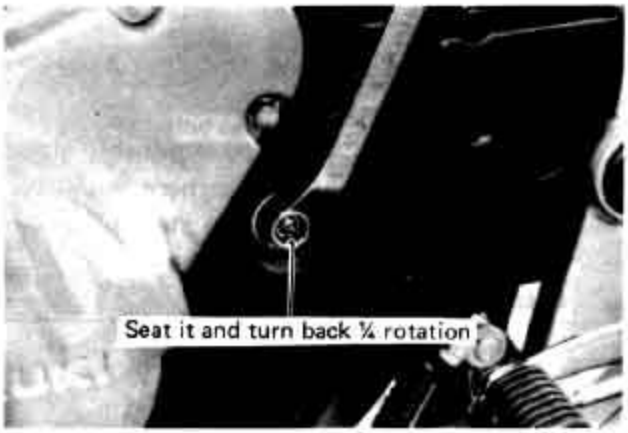


BRAKE SHOE

- Check degree of wear with the indicator at the rear brake hub panel.
- Check to see if engraved line of brake cam is within the indicator when the brake pedal is fully applied.

CLUTCH PUSHROD

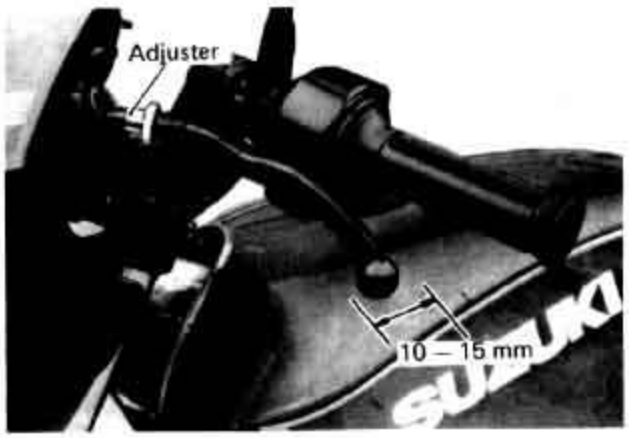
- Increase play of lever by losening the clutch cable adjuster.
- Loosen the lock nut of release screw and gently tighten release screw.
- Return release screw by 1/4 rotation from that point.
- Secure release screw with lock nut, firmly so the release screw does not turn.



CLUTCH LEVER

- Check the clutch lever play at its tip.
- Adjust play to within proper range with the cable adjuster at the engine side.
- Check to see that there is no damage or rust on the cable.

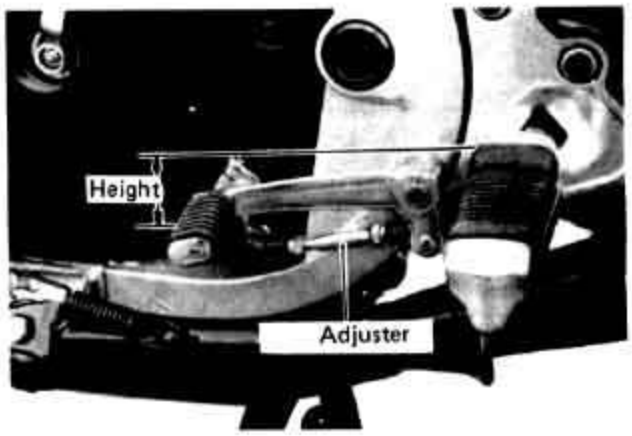
Clutch lever end play	10 – 15 mm
Clutch cable play	4 mm



GEARSHIFT LEVER

- Check installation height at topmost position of pedal.

Gearshift lever height	21 mm



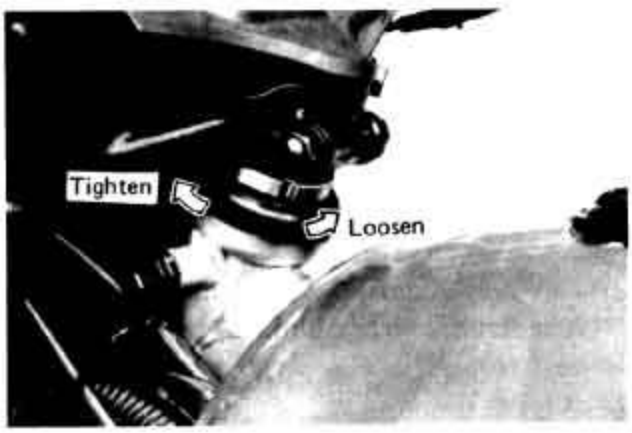
- Adjust the gearshift lever height with the adjuster.

NOTE:
Secure the lock nuts after adjustment is made.

STEERING STEM

- Check for rattle and for overtightening.
  - * Hold the front fork tip and shake back and forth to see if there is any rattle.
  - * Keep the front wheel off the ground and turn handle right and left to see if it moves smoothly.
- When there is any rattling or the handle is hard to move, make adjustment with the steering stem nut.
  - * Loosen clamp bolt of steering stem head.
- After adjustment is made, tighten each bolt securely.

NOTE:
- *** If the handle will not move smoothly after adjusting with the nut, there may be damage to the races or the steel balls, or there may not be enough grease.**
- *** Disassemble and check.**

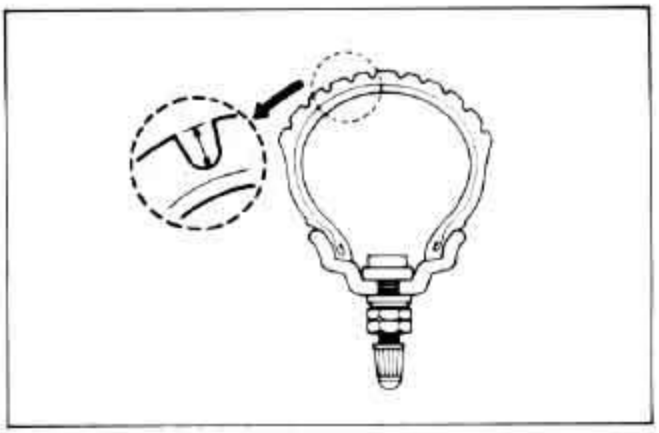


TIRE

- Check for cracks, damages or partial abnormal wear and examine depth of remaining threads.
- For the sake of safety, replace tires when they have worn beyond the service limit.
- Check air pressure of tire.

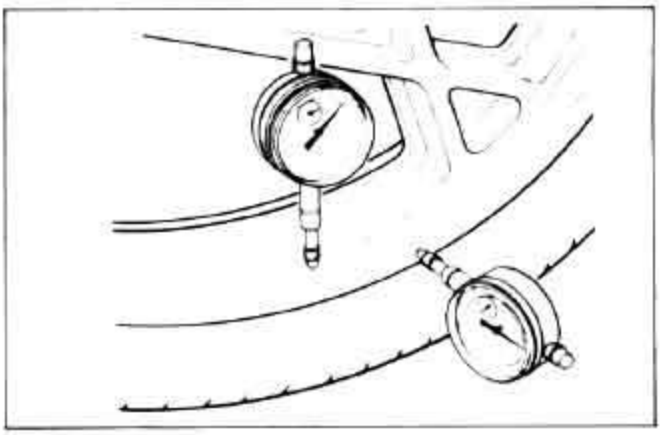
Service limit

Tire thread depth	Front	1.6 mm
	Rear	2.0 mm



TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	SOLO RIDING		DUAL RIDING	
	kPa	kg/cm²	kPa	kg/cm²
FRONT	200	2.00	200	2.00
REAR	225	2.25	250	2.50

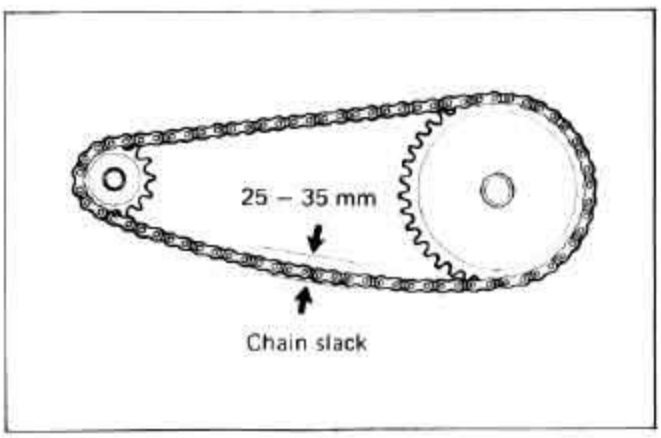


WHEEL

- Turn wheel slowly and measure the rim runout.
- In addition to wheel rim runout, check for rattling in the wheel bearings.

Wheel rim runout

Service Limit (Axial and radial)	2.0 mm

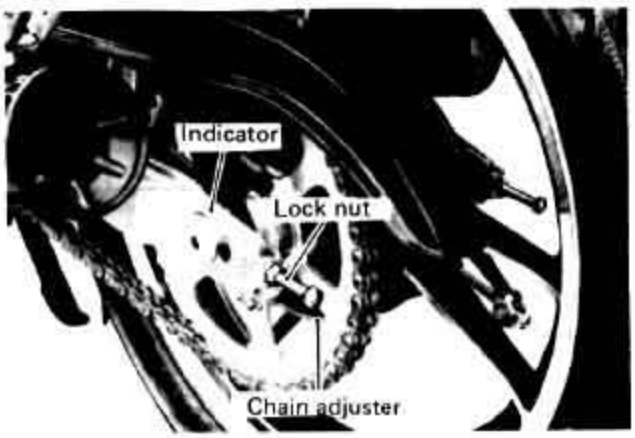


DRIVE CHAIN

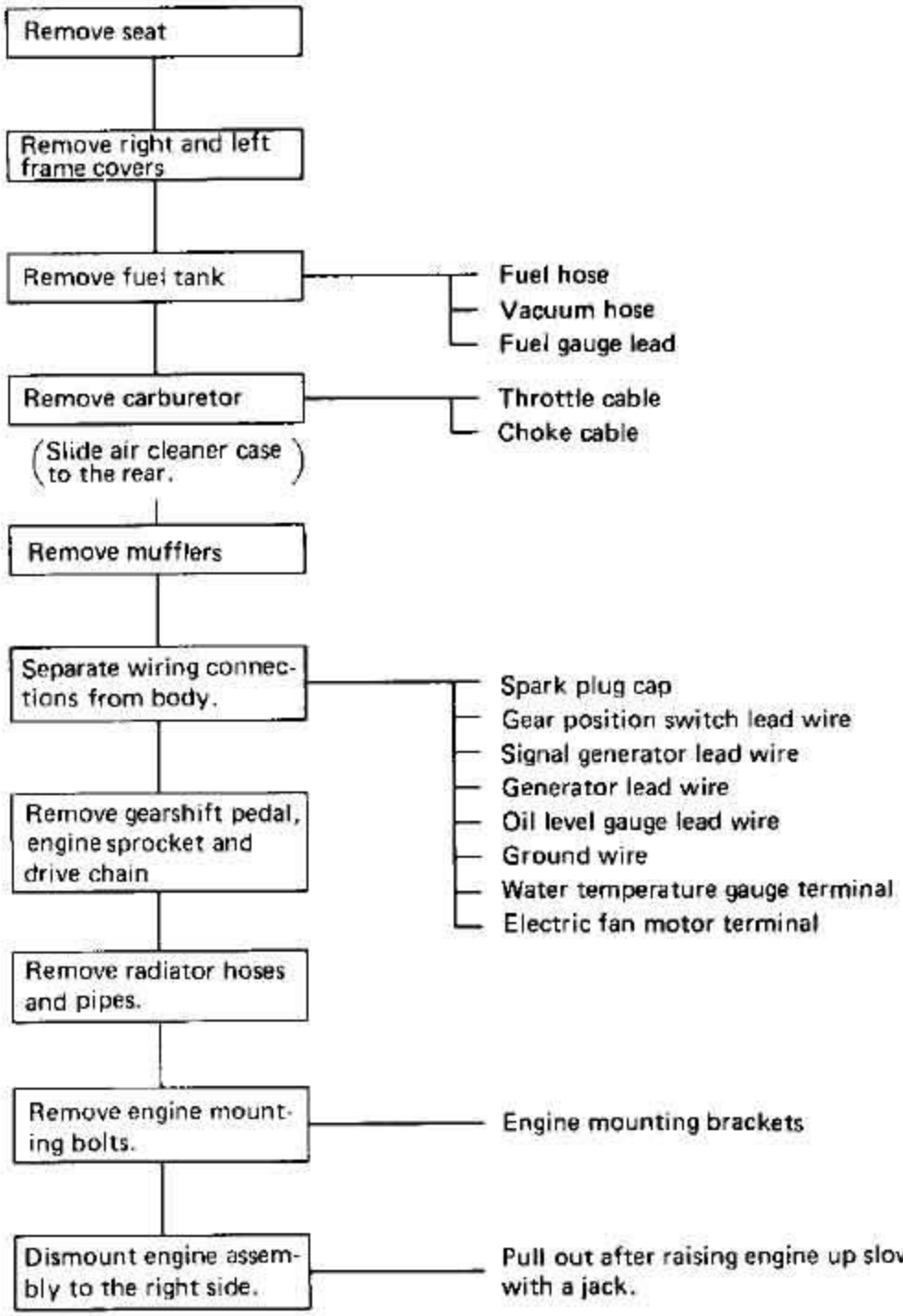
- Inspect drive chain slack by swinging chain up and down at the midpoint between the engine sprocket and the rear sprocket.
- Adjust to proper slack by loosening the clamp component of the rear axle nut and by turning the chain adjusters.

NOTE:

- *** Set the right and left chain adjuster indicators to the same position.**
- *** Remove all dust or mud that sticks to the drive chain.**
- *** While inspecting the drive chain, also make sure that it has been adequately coated with grease or heavy motor oil.**

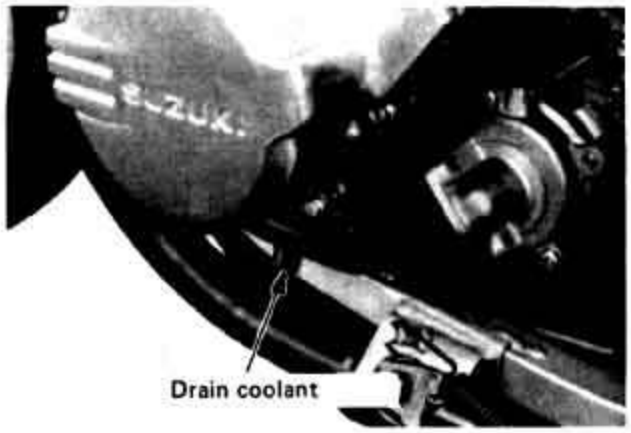


ENGINE REMOVAL

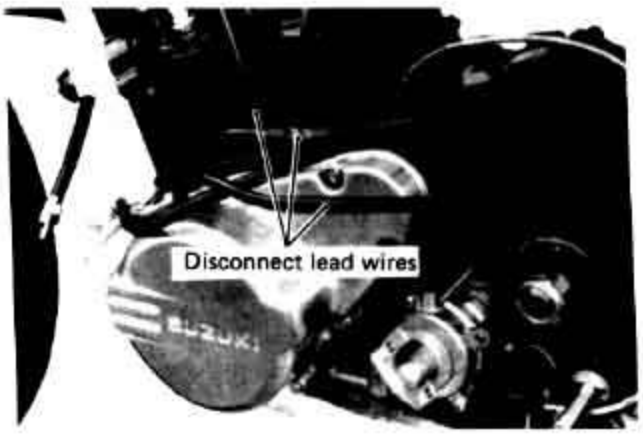


NOTE:
* Drain coolant.
* Drain engine oil.
* Make sure that the fuel cock has not become PRI position when disconnecting the fuel hose.
* When mounting or dismounting the radiator, be careful not to damage the fin or the radiator unit.
* Make sure that the radiator damper does not turn.

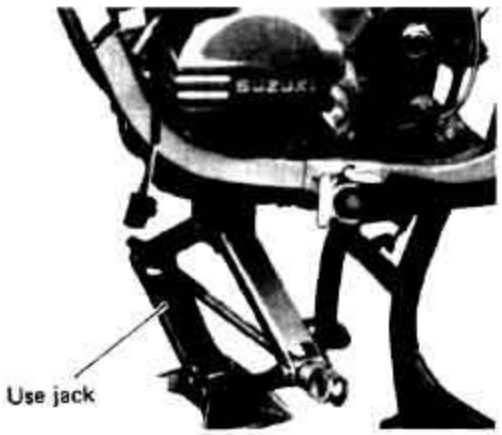
- Drain coolant from the drain plug at the underside of the water pump outlet pipe.
- Remove radiator inlet hose.



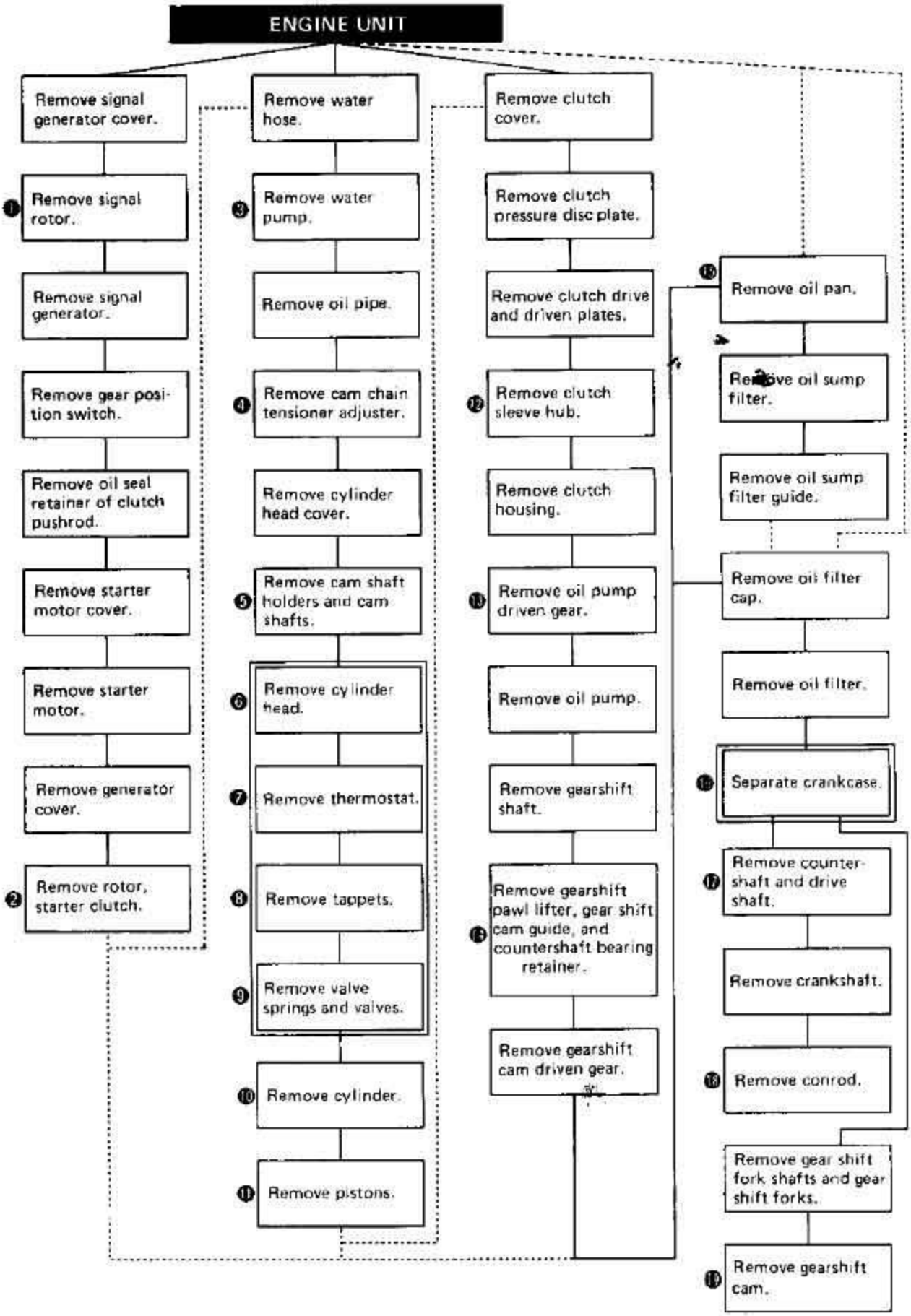
- Check that lead wires of electrical components attached to engine are disconnected.



- Remove all wiring.
- Jack up engine slowly and dismount it slowly so as not to damage the frame, etc.

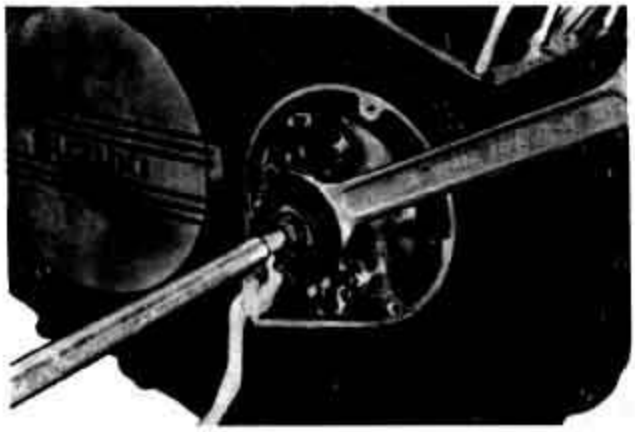


ENGINE DISASSEMBLY



❶ SIGNAL GENERATOR ROTOR

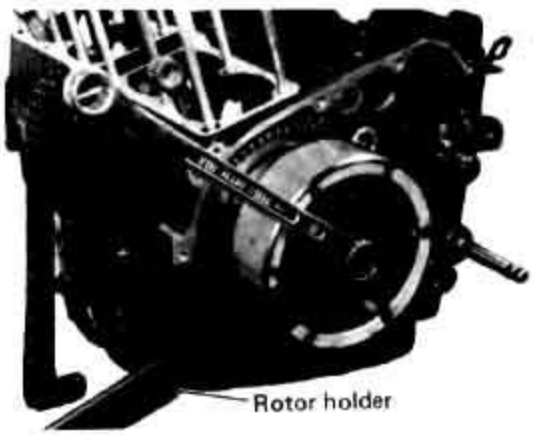
- Hold position of signal generator rotor with open end wrench and loosen signal generator rotor bolt.



❷ ROTOR

- Hold the rotor with rotor holder and remove the rotor bolt.

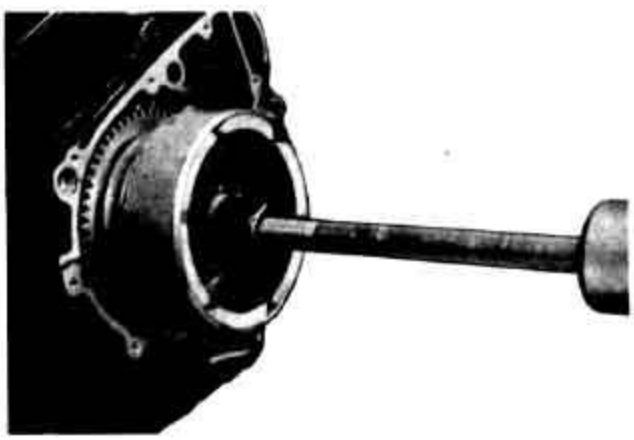
09930-44511	Rotor holder



- Remove the rotor with rotor remover.

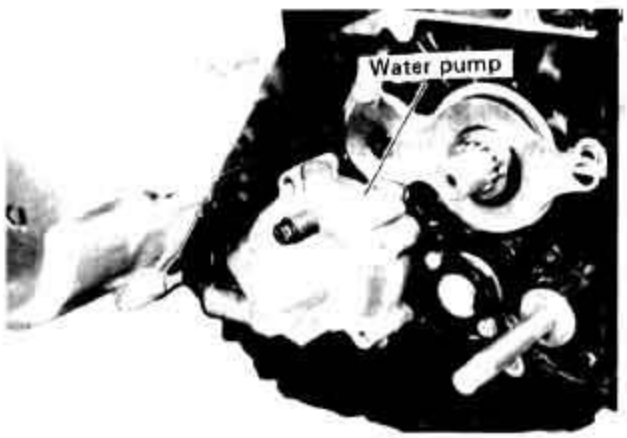
09930-30102	Rotor remover shaft
09930-33710	Attachment

NOTE:
When removing the rotor, starter clutch parts may be disassembled.



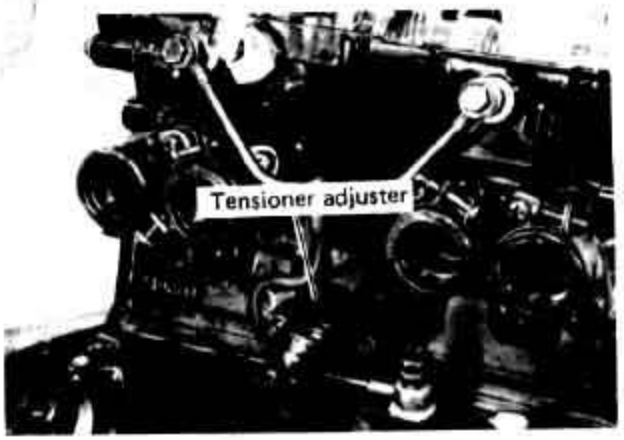
❸ WATER PUMP

- Remove the three bolts for the water pump attached to the crankcase.
- Pull out water pump from crankcase.



❹ CAM CHAIN TENSIONER ADJUSTER

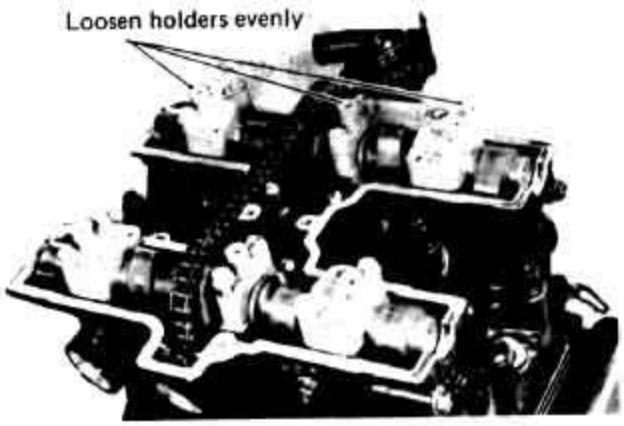
- Remove two bolts for the cam chain tensioner adjuster attached to the cylinder.



❺ CAMSHAFT

- Remove cam shaft holders and camshafts.

NOTE:
Loosen holder bolts evenly since the camshafts are pressed upwards by the valve springs.

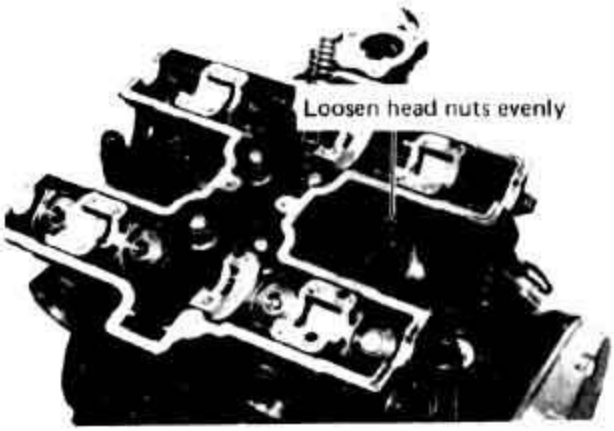


❻ CYLINDER HEAD

- Remove engine oil pipe.
- Loosen cylinder nuts from outwards to inwards in a diagonal sequence. (Opposite sequence of numbers marked on cylinders)
- Use a cylinder disassembling tool if the cylinder head cannot be easily removed.

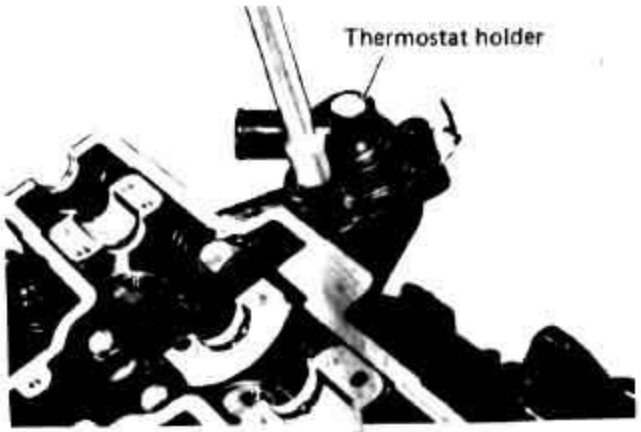
NOTE:
Loosen bolts evenly.

09912-34510	Cylinder disassembling tool



❼ THERMOSTAT

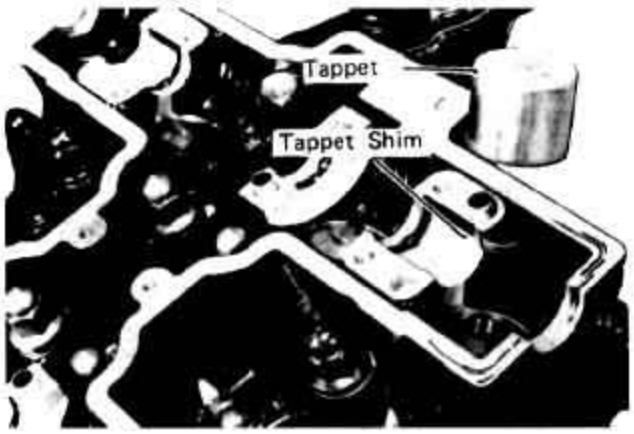
- Loosen three bolts of thermostat holder.
- Remove thermostat.
- Remove water temperature gauge.



⑧ TAPPET AND SHIMS

- Remove tappet first, then tappet shims because the latter are inserted between the tappet and the valve spring retainer.

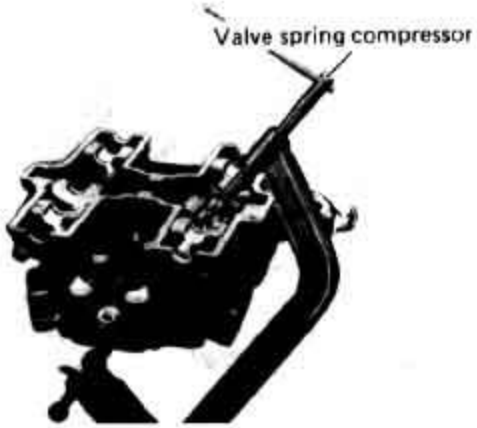
NOTE:
Be sure to remember the position where the tappet and tappet shim were installed.



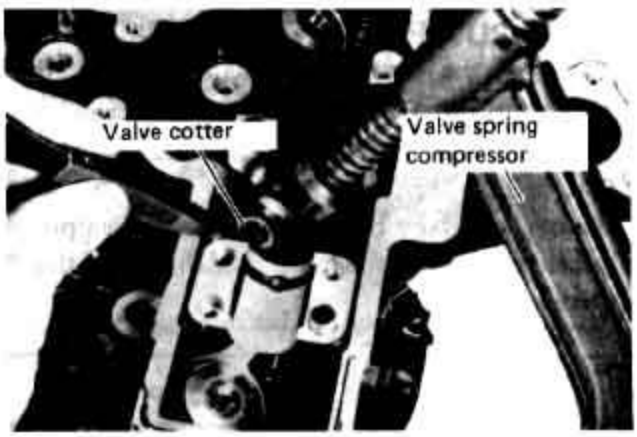
⑨ INTAKE AND EXHAUST VALVES

- Compress valve springs with valve spring compressor.

NOTE:
Make sure that the attachment of the spring compressor seats the spring retainer firmly. Also make sure that the rod of the spring compressor touches the valve center.



09916-14510	Valve spring compressor
09916-14910	Attachment (24 mm)



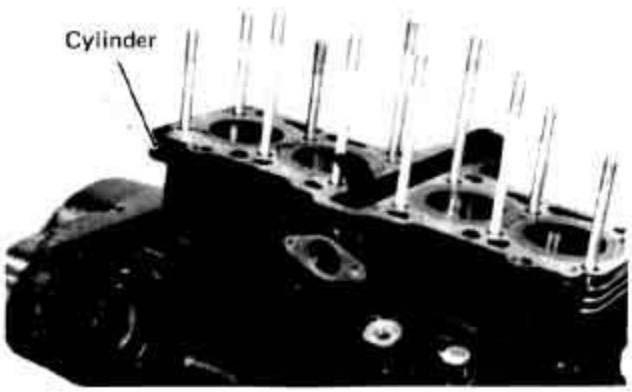
- Remove cotters with tweezers, then take out valve and valve springs.

CAUTION:
Be sure to identify each removed parts as to its location, and lay the parts out in groups designated as No. 1 cylinder, No. 2 cylinder, so that they will be restored to the original location during assembly.

⑩ CYLINDER

- Remove the cylinder from crankcase.
- Use a cylinder disassembling tool if cylinder cannot be easily removed.

09912-34510	Cylinder disassembling tool

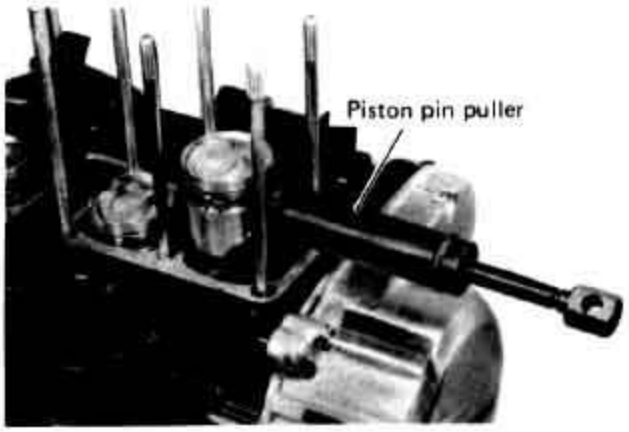


⓫ PISTON

- Remove piston pin circlip.
- Use a piston pin puller to remove piston pin.

CAUTION:
Mark the cylinder number on the piston top.

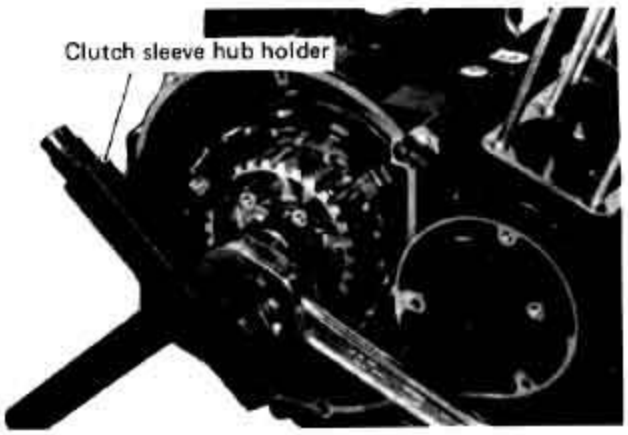
09910-34510	Piston pin puller



⓬ CLUTCH SLEEVE HUB

- Remove bolts of clutch pressure plate.
- Remove drive and driven plates.
- Remove hub nut while holding clutch sleeve hub with clutch sleeve hub holder so that hub will not turn.
- Remove clutch sleeve hub and clutch housing.

09920-53710	Clutch sleeve hub holder

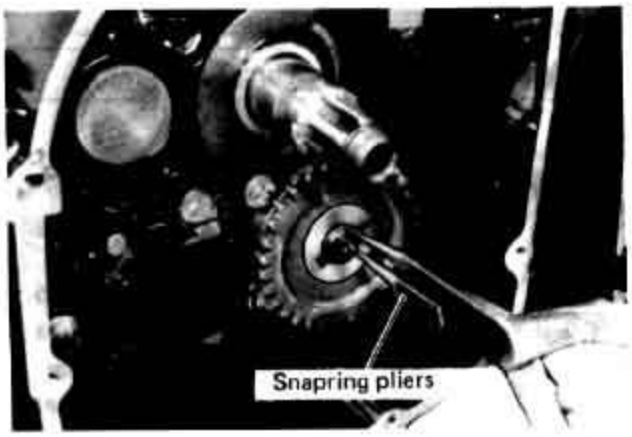


⓭ OIL PUMP DRIVEN GEAR

- Take off the circlip with snapring pliers, then remove the oil pump driven gear.

CAUTION:
Handle with care because there is a drive pin inserted between the oil pump shaft and the driven gear.

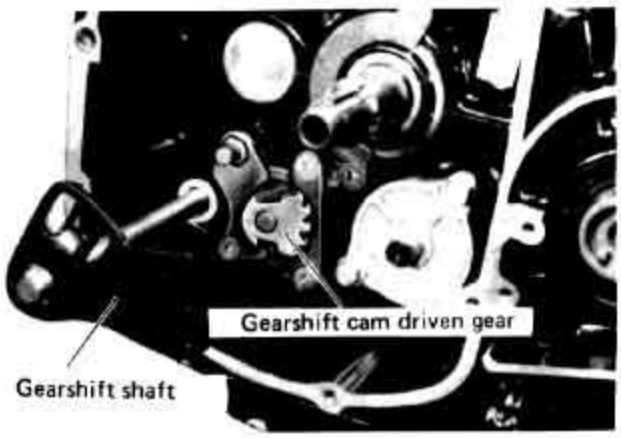
09900-06107	Snapring pliers



⓮ GEARSHIFT CAM DRIVEN GEAR

- Take out gearshift shaft.
- Remove gearshift cam guide and pawl lifter, then take out gearshift cam driven gear.

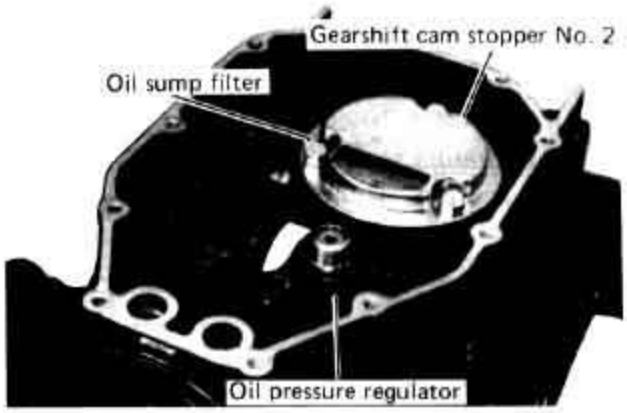
CAUTION:
Make sure that pawl, roller, and spring inside the gear shift cam driven gear do not fly out.



⓯ OIL PAN

- Loosen oil pan bolts.
- Remove oil level switch attached to oil pan.

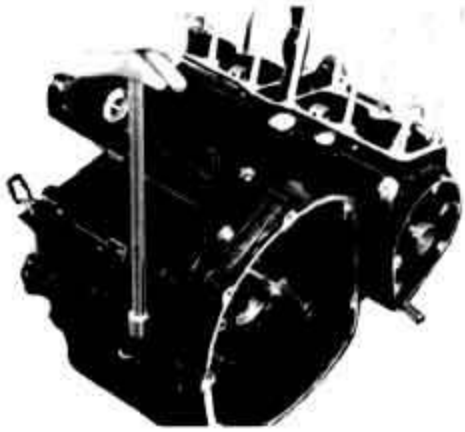
- Remove the oil pressure regulator.
- Remove oil sump filter and oil guide.
- Remove gearshift cam stopper No. 2.



⓰ CRANKCASE

- Remove upper crankcase bolts.

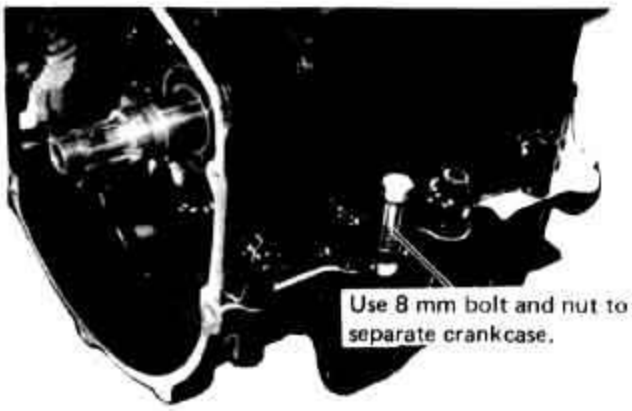
CAUTION:
Loosen smaller bolts first and loosen bolts of the same size in diagonal sequence from the outside.



- Remove lower crankcase bolts.

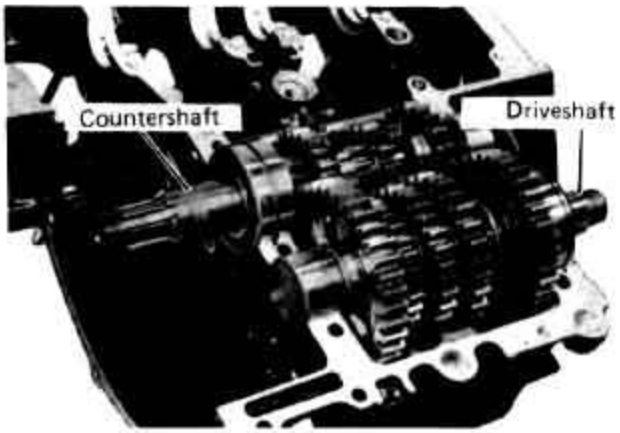
- Separate the crankcase after inserting 8 mm bolts and nuts into the holes in the front and rear part of crankcase.

CAUTION:
Separate the crankcase evenly between front and back.



⑰ COUNTERSHAFT AND DRIVE SHAFT

- Be careful not to lose the C-rings and knock pins.
- Use a hydraulic to remove the second drive gear because it is press-fit into the countershaft.



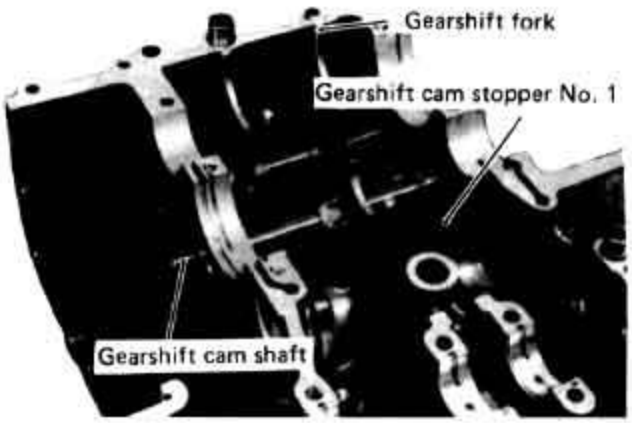
⑱ CONROD

- Loosen the cap nuts.
- Disassemble while lightly tapping bolts with plastic hammer.

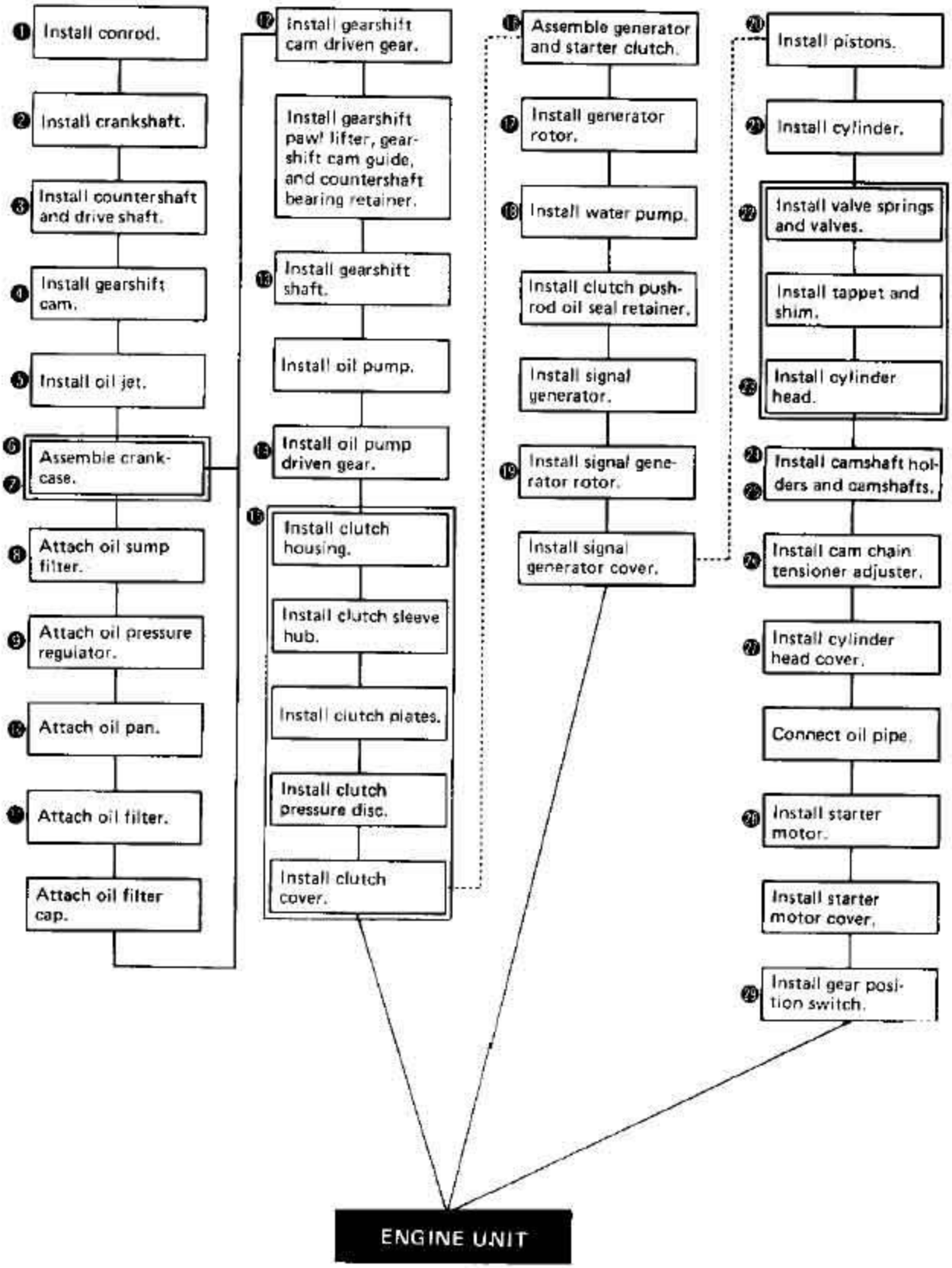
CAUTION:
Do not hit or pry the conrod itself.

⑲ GEARSHIFT CAM

- Remove spring of gearshift cam stopper No. 1 and take out gear shift fork shaft.



ENGINE REASSEMBLY

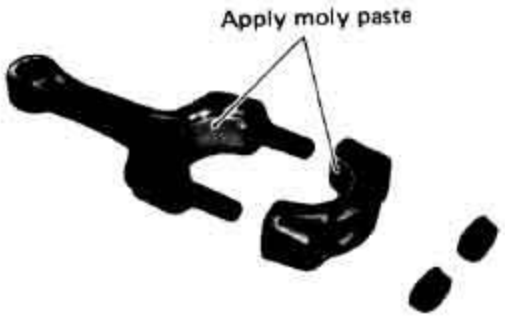


❶ CONROD

- First align the stopper with groove, then fit bearing to conrod and cap.
- Use bearing of the same color for one conrod/ cap pair.

CAUTION:
When replacing the bearings, always select the proper size of bearing according to the assemble code on the conrod and crankshaft.
(Refer to page (4-31)

- Assemble the conrod and cap in the exact same manner as disassembly and have assembly code facing the intake side.
- Coat the inner surface of the bearings and the outer surface of the crank pin with Suzuki Moly Paste.



99000-25140	SUZUKI Moly paste

CAUTION:
Make sure that dust and impurities do not adhere.

- After assembly, pour oil onto the surfaces of the big end at both sides.
- In tightening the conrod cap, first tighten provisonally, then tighten fully to the specified torque.

CAUTION:
Confirm that the conrod turns smoothly.

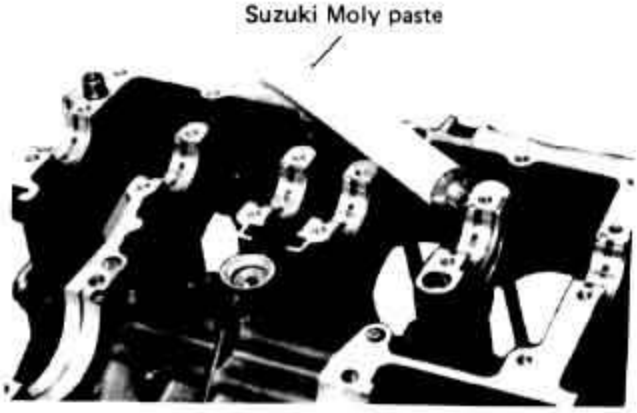
Tightening torque

Initial	9 – 12 N·m (0.9 – 1.2 kg-m)
Final	23 – 27 N·m (2.3 – 2.7 kg-m)

❷ CRANKSHAFT

- First align the stopper with the groove, then fit bearing to crankcase.
- Use bearing of the same color at top and bottom.

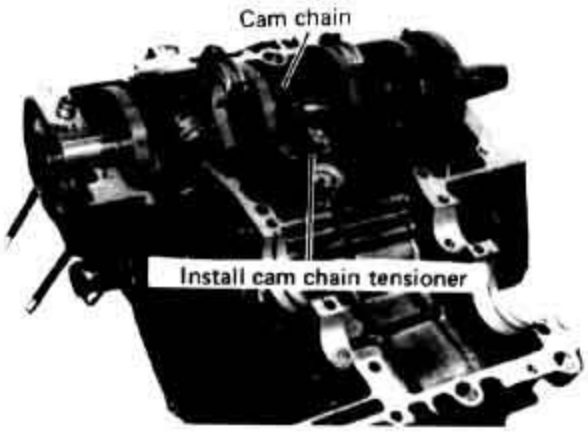
CAUTION:
When replacing bearing, select the proper size of bearing according to assembly code of the crankcase and the crankshaft (Refer to page 4-32).



- Coat bearing surface and crankshaft journal with Suzuki Moly Paste.

- Run cam chain through crankshaft and assemble the crankshaft to the upper crankcase.

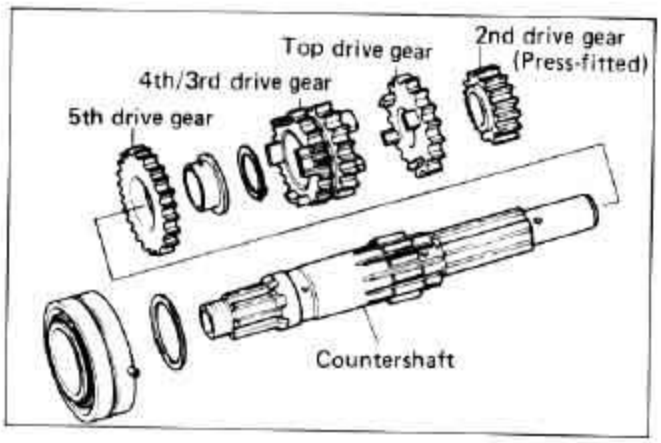
CAUTION:
Install cam chain tensioner before installing crankshaft. Make sure that dust and impurities do not adhere.

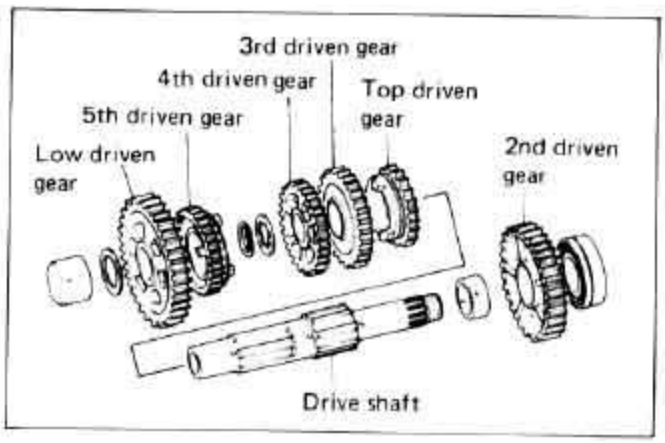


- Insert crankshaft thrust metal between crank case and crankshaft.

CAUTION:
When replacing crankshaft thrust metal, select the proper size of metal according to the selection table (Refer to page 4-32).

❸ COUNTERSHAFT AND DRIVE SHAFT



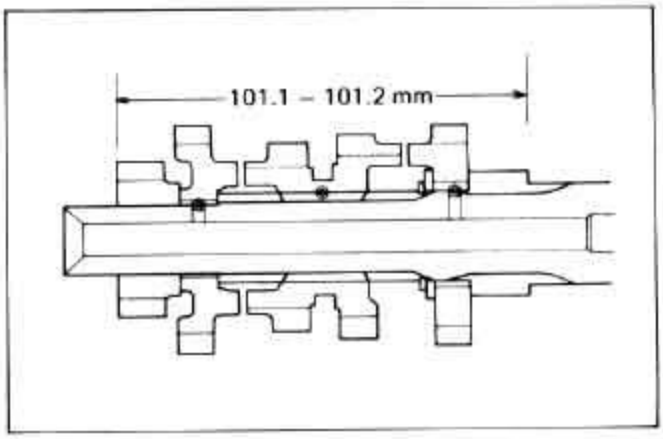


- Press-fit second drive gear to countershaft.

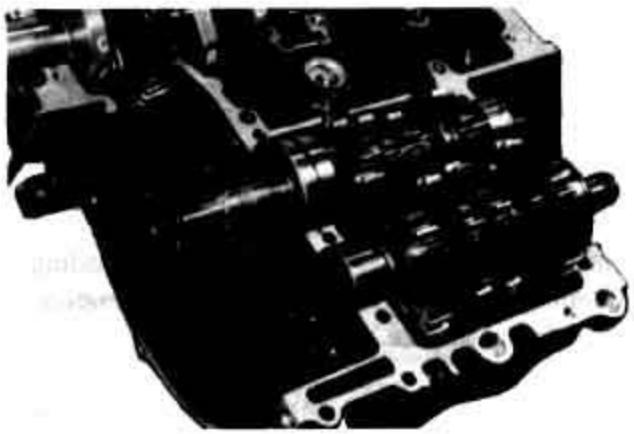
Countershaft length (Low to 2nd gear)	101.1 – 101.2 mm

99000-32030	SUZUKI Thread lock super "1303"

CAUTION:
At time of press-fit, Apply Thread Lock Super 1303 to the gear. But be sure that Thread Lock Super does not get on 6TH drive gear.



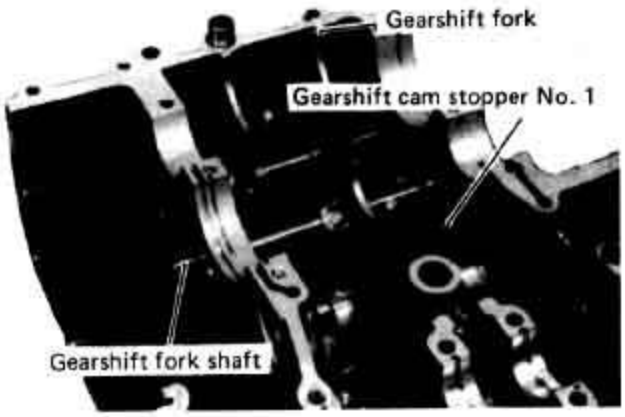
- Assemble each positioning pin and knock pin of the countershaft and drive shaft bearings in the proper position of the crankcase.
- Assemble the drive shaft and the countershaft to the upper crankcase.
- Insert C-rings after assembly.



CAUTION:
Apply a small amount of engine oil to each gear and bearing after assembly.

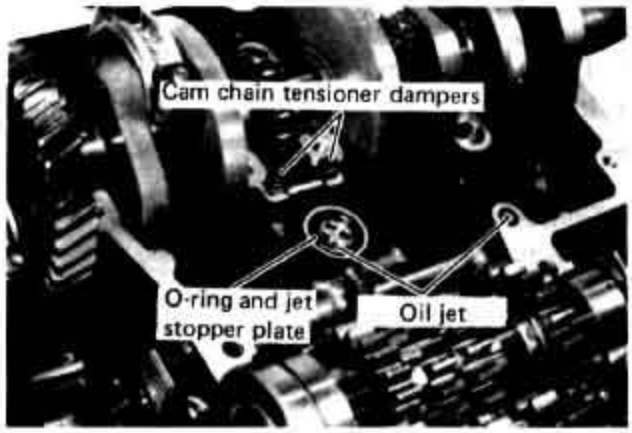
❹ GEARSHIFT CAM

- Please note that there are two types of gearshift forks: No. 1 and No. 2.
- Install stopper No. 1 spring of gear shift cam.



❺ CAM CHAIN TENSIONER DAMPER AND OIL JET

- Install cam chain tensioner dampers so that the metal surface of the damper is at the tensioner pin side.
- Install oil jets to the oil gallery of the upper case.
- Install oil jet stopper plate.
- Install positioning pins and O-ring to the upper crankcase.



❻ CRANKCASE

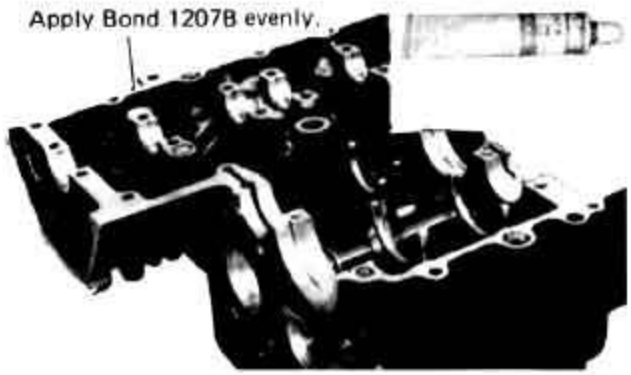
- Apply Suzuki Bond No. 1207B to the mating surface of the upper crankcase.

CAUTION:
Check to confirm that left oil seal of crankshaft is not tilting.

99000-31140	SUSUKI Bond No. 1207B

- Apply Suzuki Bond No. 1207B to the mating surface of the lower crankcase with uniform thickness.

CAUTION:
Please note that if Suzuki seal is applied more thickly than necessary, it might close up the bearing and the oil passage. Apply seal agent evenly.

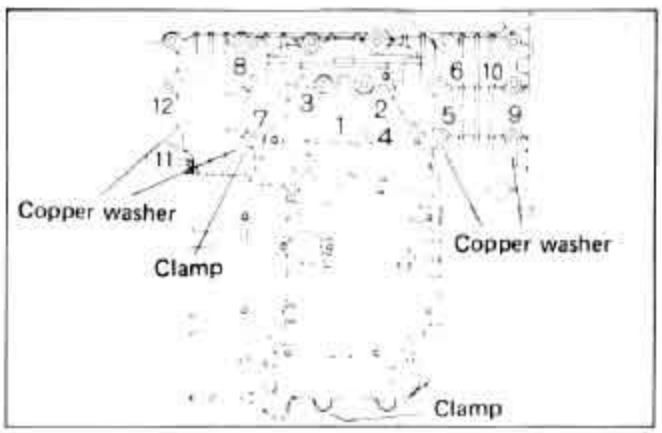


Lower crankcase bolts

- Tighten crankcase in the prescribed numerical sequence. At points where there are no numbers, tighten uniformly from the inside in a criss-cross manner.
- Install copper washers at four points indicated.

Tightening torque

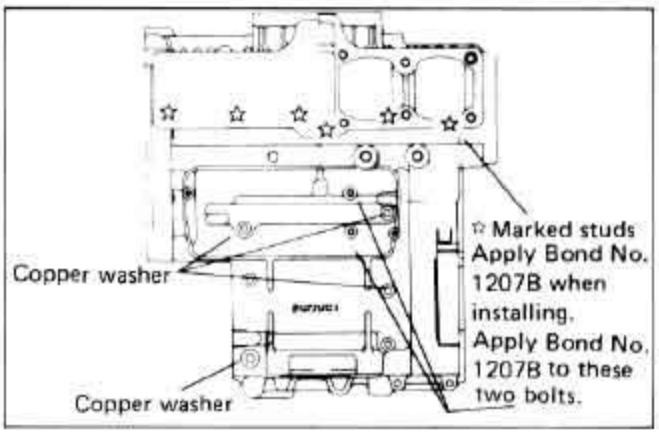
	INITIAL	FINAL
6 mm bolt	6 N·m (0.6 kg-m)	8 – 12 N·m (0.8 – 1.2 kg-m)
8 mm bolt	13 N·m (1.3 kg-m)	20 – 24 N·m (2.0 – 2.4 kg-m)



Upper crankcase bolts

- Tighten evenly in a criss-cross manner.
- Insert copper washers at three points indicated.

NOTE:
Tightening torque is same as that of lower case.



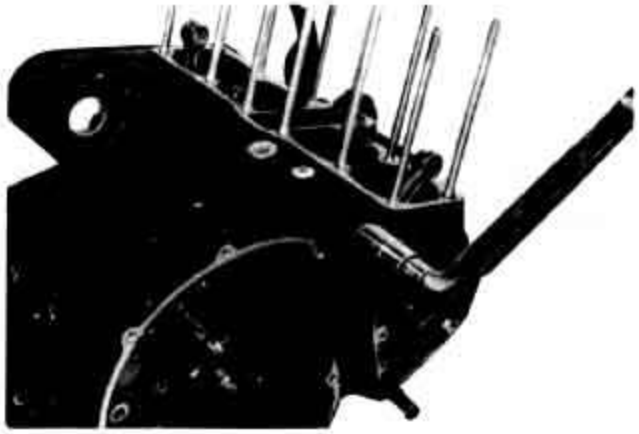
❼ OIL GALLERY PLUG

- Tighten oil gallery plug to the specified torque.
- Tighten plate screws of oil gallery inside clutch chamber.
- Apply thread lock "1342" to these screws.

99000-32050	Thread lock "1342"

Oil gallery plug tightening torque	30 – 40 N·m (3.0 – 4.0 kg-m)

Oil gallery plate screw tightening torque	6 – 10 N·m (0.6 – 1.0 kg-m)



❽ OIL SUMP FILTER

- Tighten the oil sump filter such that the direction indicated by the arrow faces the front of the engine.

❾ OIL PRESSURE REGULATOR

- Tighten engine oil pressure regulator to the specified torque.

Tightening torque	25 – 30 N·m (2.5 – 3.0 kg-m)

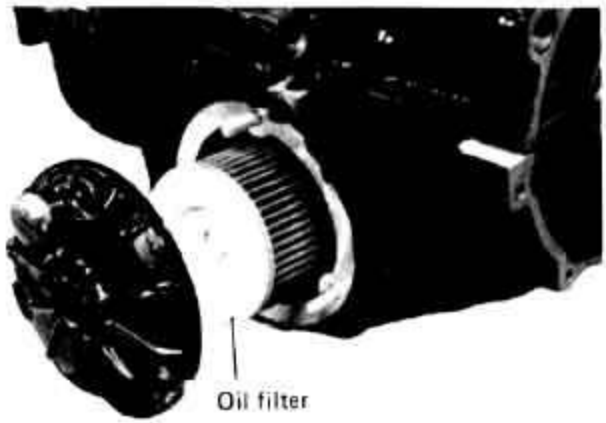
⑩ OIL PAN

- Attach oil level switch to oil pan.
- Tighten oil pan clamp bolts evenly and in the criss-cross manner.
- Tighten oil drain plug.

Oil drain plug tightening torque	20 – 25 N·m (2.0 – 2.5 kg-m)

⑪ OIL FILTER

- Install filter, spring, O-ring and filter cap to the crankcase.

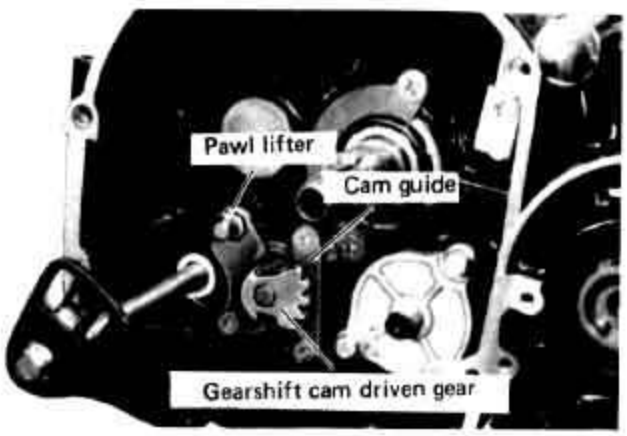


⑫ GEARSHIFT CAM DRIVEN GEAR

- With respect to the groove for pin insertion, the width of the gear shifting pawl varies between right and left. Thus assemble so that the narrower side fits in most deeply.

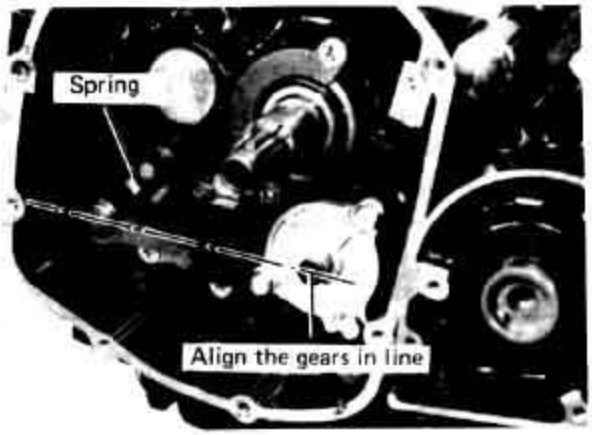
- Apply Thread lock "1342" to the pawl lifter and cam guide screws.
- Apply Thread lock "1342" to the countershaft bearing retainer screws.

99000-32050	Thread lock "1342"



⓭ GEARSHIFT SHAFT

- Attach spring to gearshift shaft.
- Install gearshift shaft so that the centers of the shaft gear and the cam driven gear are aligned.

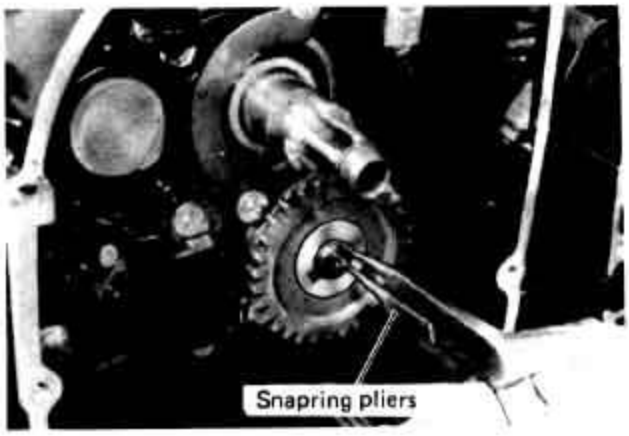


⓮ OIL PUMP AND DRIVEN GEAR

- Confirm that the O-ring of the oil pump is in the groove securely and tighten to the specified torque.

Tightening torque	8 – 12 N·m (0.8 – 1.2 kg-m)

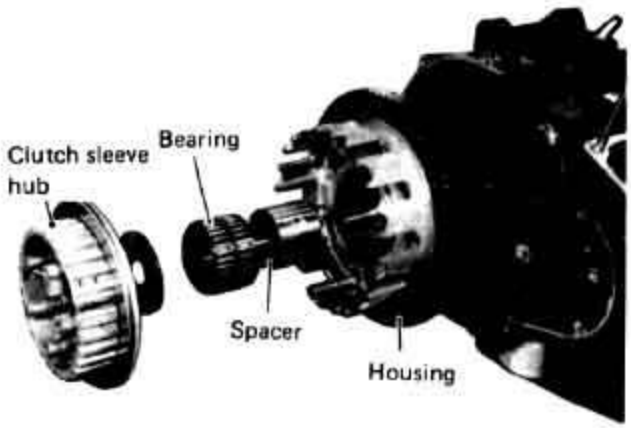
- Use a snapring pliers to install the circlip.

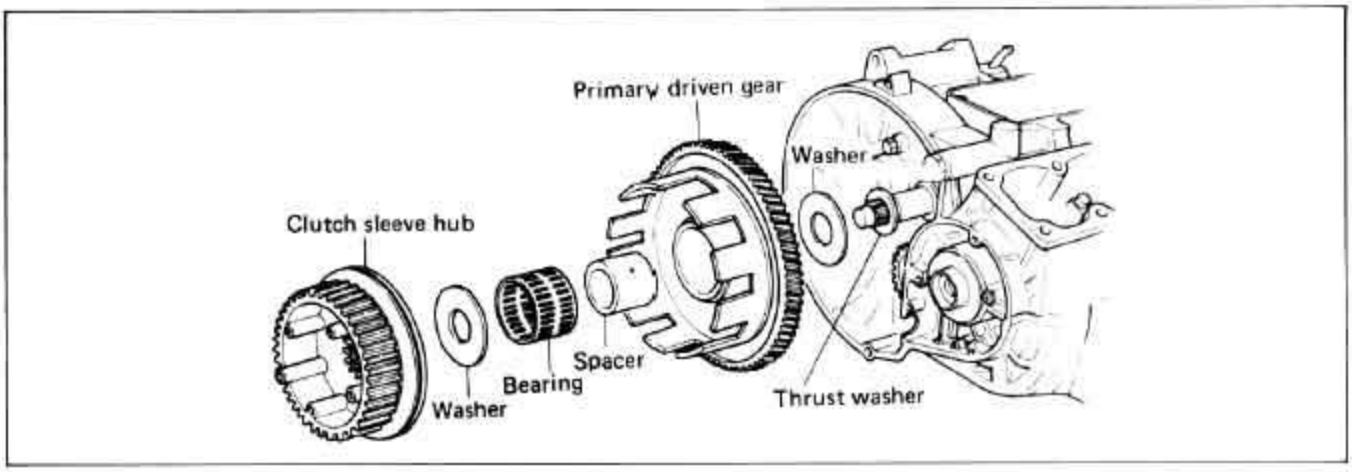


⓯ CLUTCH

- Install the primary driven gear to the countershaft.
- Insert housing spacer and bearing.

CAUTION:
Confirm that washers on the inside and outside of the primary driven gear are fit properly.



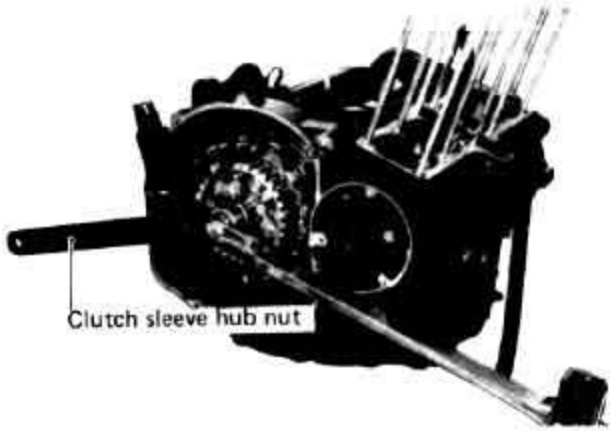


- Hold the clutch sleeve hub in place with a clutch sleeve hub holder and tighten the nut to the specified torque.

09920-53710	Clutch sleeve hub holder

CAUTION:
Apply engine oil to the clutch plates.

Tightening torque	50 – 70 N·m (5.0 – 7.0 kg-m)



- Apply Bond No. 1207B to around the mating surface of the crankcase. Install a new gasket and positioning pins.
- Tighten clutch cover bolts.

Tightening torque	6 – 10 N·m (0.6 – 1.0 kg-m)

⑯ STARTER CLUTCH

- Attach main body of starter clutch to generator rotor.
- Install 3 sets of rollers, push pieces and springs.
- Assemble the starter gear.

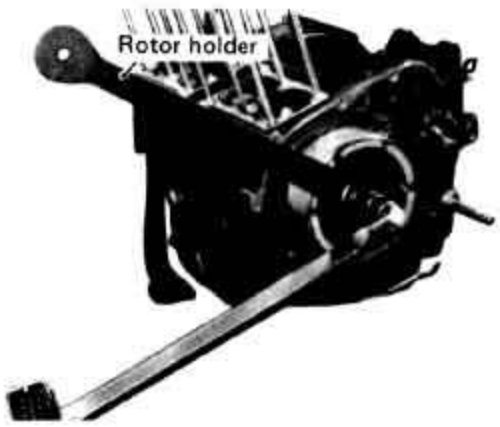
CAUTION:
Apply engine oil to the rollers lightly.

⑰ GENERATOR ROTOR

- Thoroughly clean oily or greasy matter from crankshaft taper and screw portion with cleaning solvent.
- Apply Thread Lock Super "1305" to the generator bolt.
- Tighten generator rotor bolt to the specified torque by using rotor holder.

09930-44511	Rotor holder

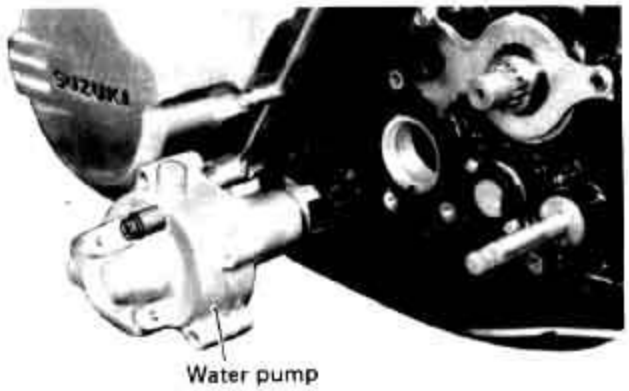
Tightening torque	110 – 130 N·m (11.0 – 13.0 kg-m)

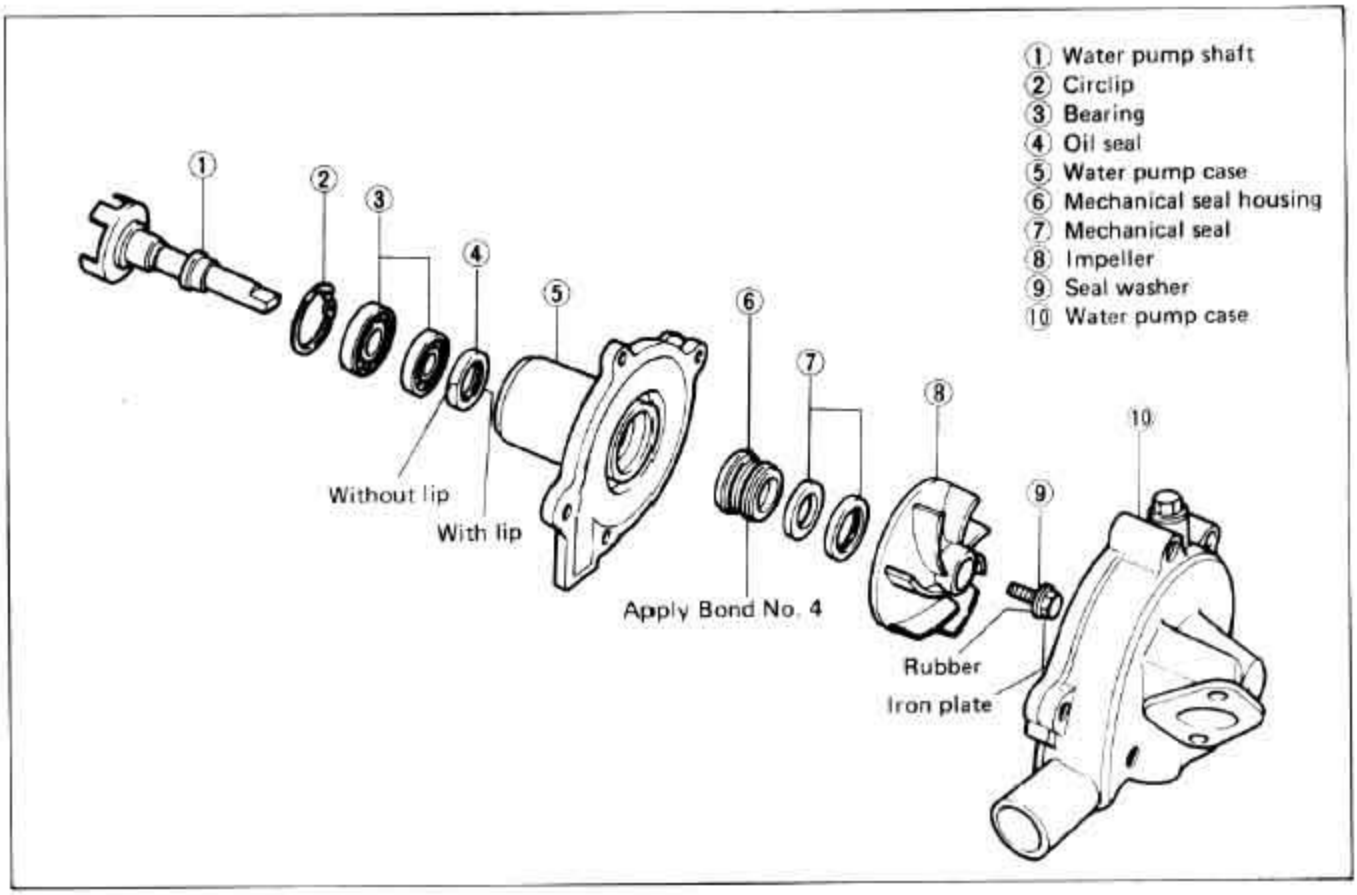


⑱ WATER PUMP

- Insert water pump into crankcase.
- Install water pump after attaching drive piece to oil pump shaft.

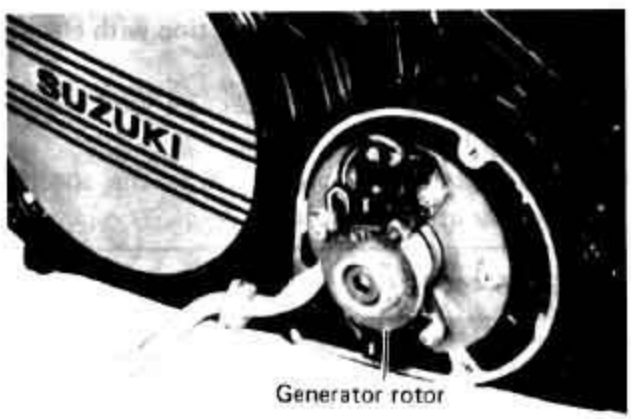
CAUTION:
- **Be careful not to damage O-ring.**
- **Be careful not to drop oil pump shaft drive piece.**





⑲ SIGNAL GENERATOR ROTOR

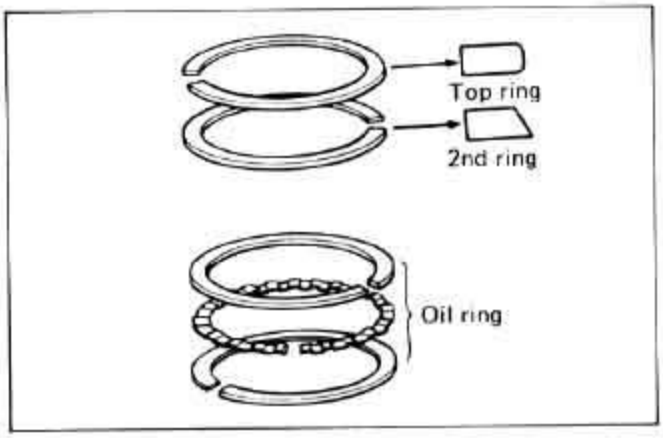
- Align crankshaft pin with notch portion of signal generator rotor.
- Hold rotor in position with open end wrench and tighten signal generator rotor bolt.



⑳ PISTON AND RINGS

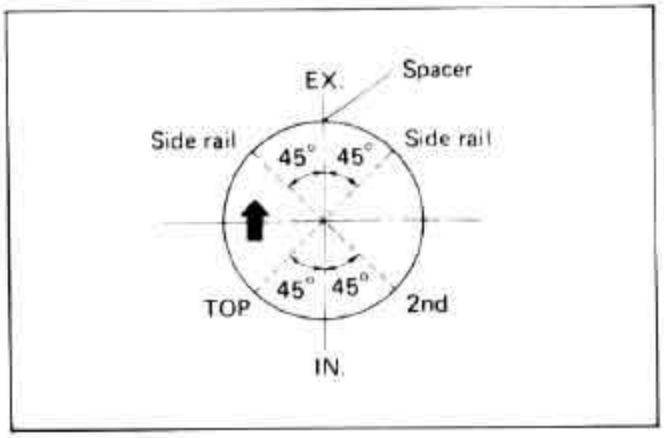
- Install piston rings so that size or manufacturer's stamps face upwards.

CAUTION:
Be careful not to mistake the first ring (barrel shape) with the second ring (tapered).



- The oil ring consists of three components: side rails at the top and bottom and a spacer, which is set in between.

CAUTION:
Make sure that the both ends of the spacer opening do not overlap.



- Install so that ring openings are not aligned at one location.
- The piston head arrow should face the exhaust side during installation.

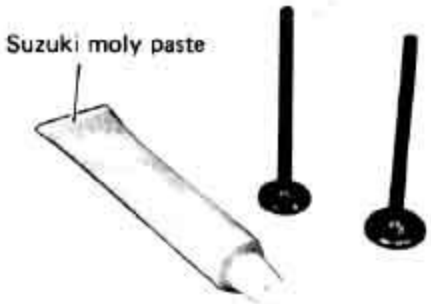
㉑ CYLINDER

- When installing the intake-side stud bolts, apply Bond No. 1207B to the thread portion.

- Be careful not to snap the piston ring when assembling the cylinder.
- Coat the cylinder and the piston with a small amount of oil.
- Apply 1207B to the screw portion of the thermoswitch and install it to the cylinder.

㉒ VALVES

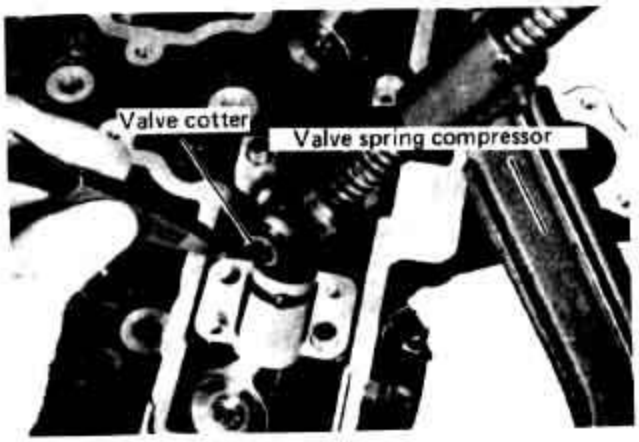
- When installing the valve to the cylinder head, coat the valve stem with Suzuki Moly paste.



- Install the valve springs with small-pitch end facing downwards.

CAUTION:
Be careful about direction during installation because the valve spring seat and the retainer are different in shape.

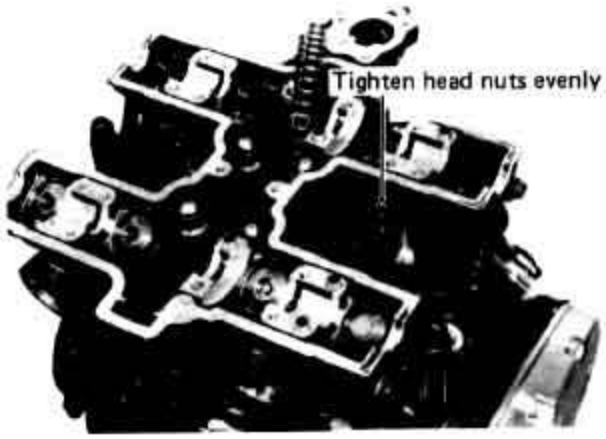
- Compress the spring with a valve spring compressor, insert the cotters with a tweezers, and set the valve.



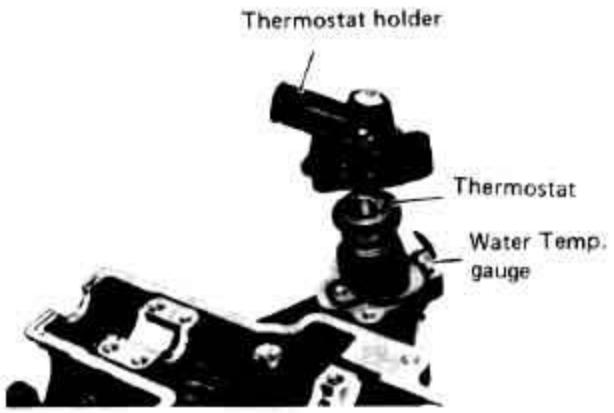
㉓ CYLINDER HEAD

- Tighten nuts evenly in the sequence of numbers indicated at the cylinder head and finally, tighten them to the specified torque.

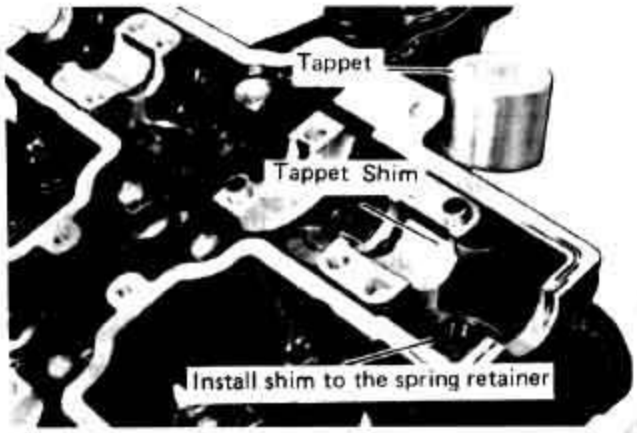
Tightening torque	20 – 25 N·m (2.0 – 2.5 kg-m)



- Install thermostat.
- Apply Bond No. 1207B to the screw portion of water temperature gauge and install the gauge to cylinder head.



- Set tappet shim firmly into concave portion of spring retainer.
- Insert tappets.



㉔ CAMSHAFT

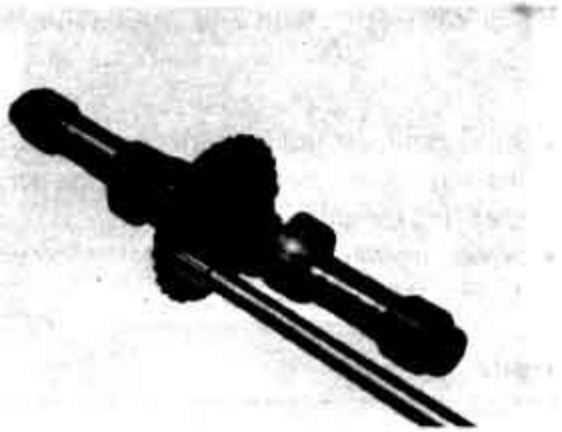
- Attach sprockets to the intake and exhaust camshafts.

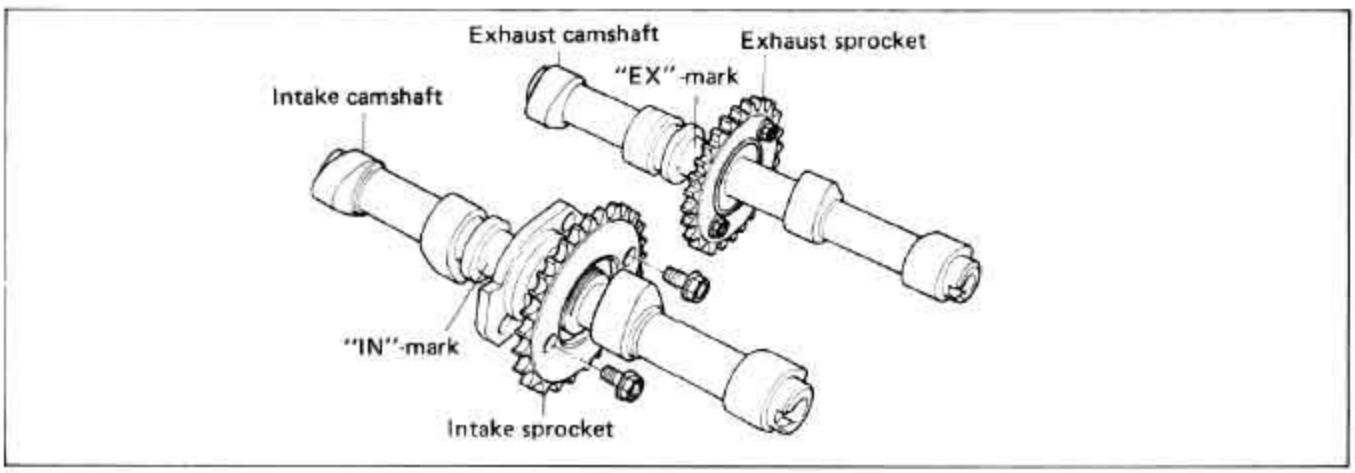
CAUTION:
The letters "IN" and "EX" appear on each camshaft.

- Apply thread lock "1303" to the sprocket bolt.

99000-32030	Thread lock super "1303"

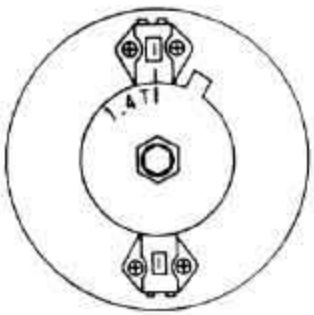
Tightening torque	24 – 26 N·m (2.4 – 2.6 kg-m)



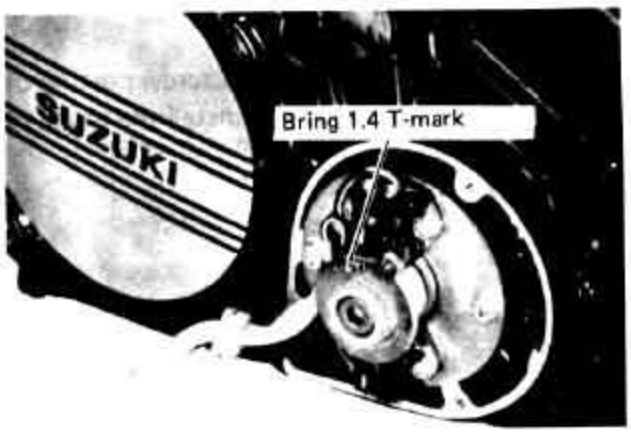


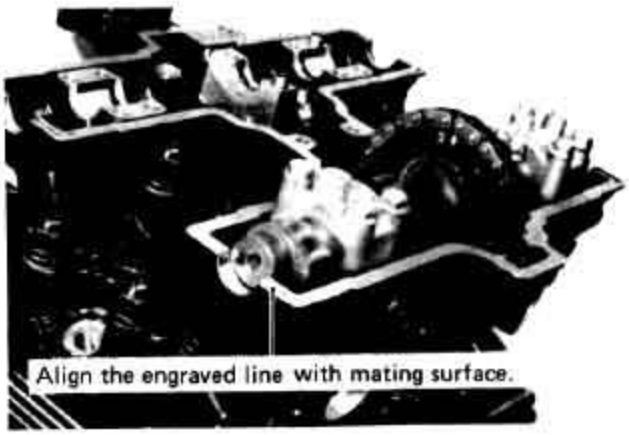
㉕ VALVE TIMING

- Turn crankshaft so that pistons 1 and 4 are at top dead center.

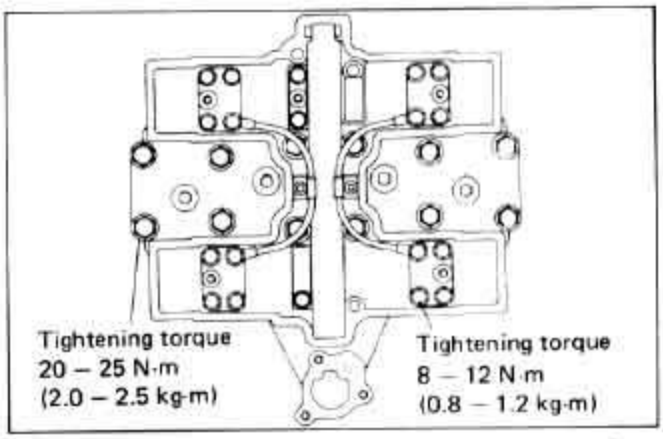


T.D.C. of Nos. 1 & 4 cylinders





- Apply Suzuki Moly Paste to the journal portion of the exhaust camshaft, the bearing portion of the cylinder head, and the bearing portion of the camshaft holder.
- Align the engraved line of the camshaft end surface even with the mating surface of the cylinder head.
- Pull cam chain all the way towards the exhaust side and mesh it with exhaust cam sprocket.

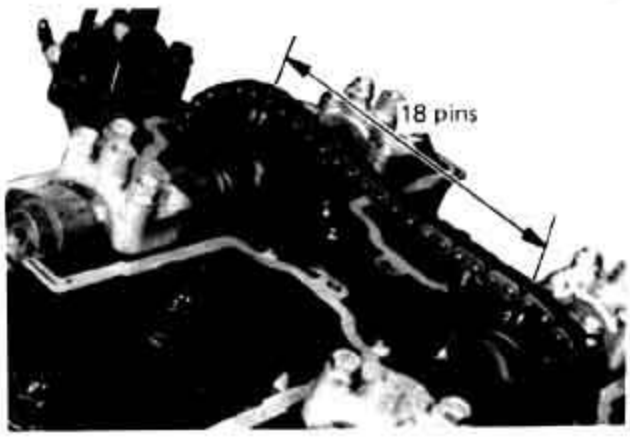


- Align camshaft holder with cylinder head marking and tighten exhaust camshaft holders to the specified torque.
- When installing the camshaft holders, also tighten the oil pipe.

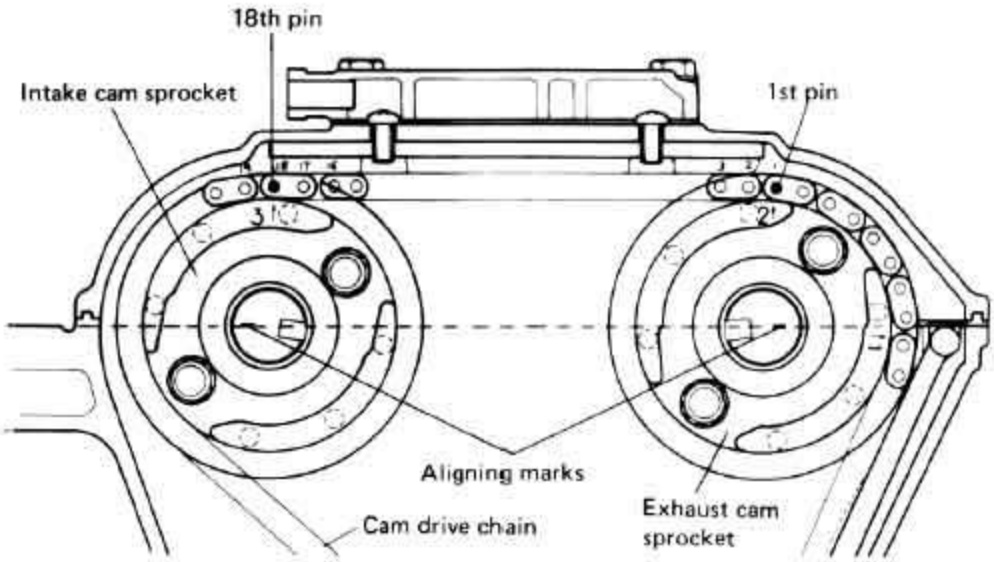
Tightening torque

Cylinder head nuts	20 – 25 N·m (2.0 – 2.5 kg·m)

Camshaft journal holder bolt	8 – 12 N·m (0.8 – 1.2 kg·m)



- Starting from position 2 marked by the arrow of the exhaust camshaft sprocket, count for 18 pins on the chain and align the 18th pin with the arrow "3" of the intake camshaft sprocket.
- Tighten the intake camshaft in the same way as the exhaust camshaft.

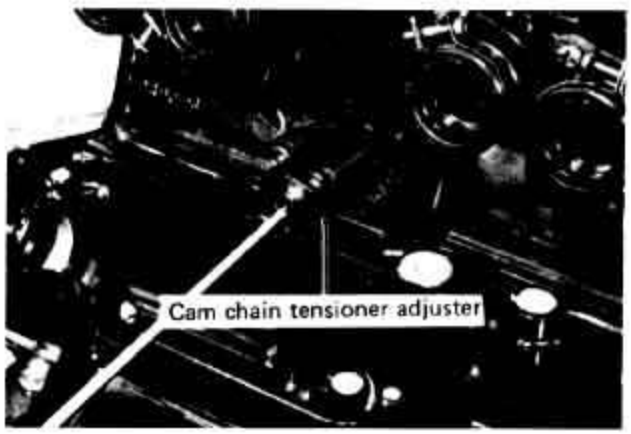


After adjusting valve timing and assembling cam chain tensioner adjuster, rotate the crank twice and confirm once again that the engraved line of the camshaft is even with the mating surface of the cylinder head.

㉖ CAM CHAIN TENSIONER ADJUSTER

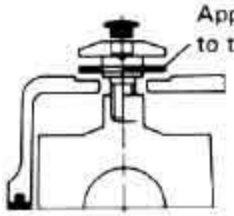
- Remove cap of cam chain tensioner adjuster, turn adjuster spring clockwise with a small screwdriver and extruct the pushrod all the way.
- Install adjuster to cylinder.

Tightening torque	6 – 8 N·m (0.6 – 0.8 kg-m)

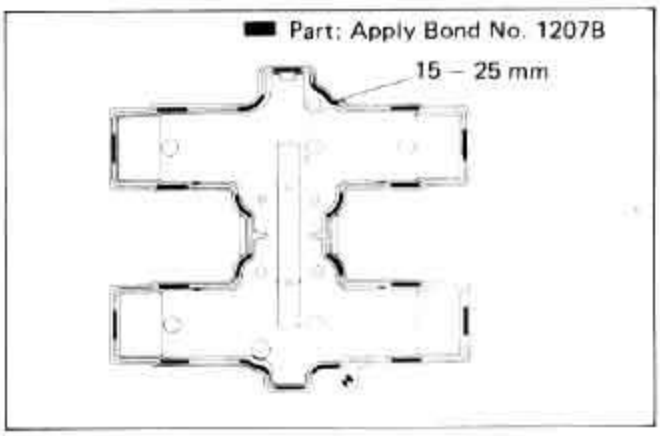


㉗ CYLINDER HEAD COVER

- Tighten head cover bolts evenly in the criss-cross manner.



Tightening torque	Initial	10 N·m (1.0 kg-m)
	Final	11 – 13 N·m (1.1 – 1.3 kg-m)



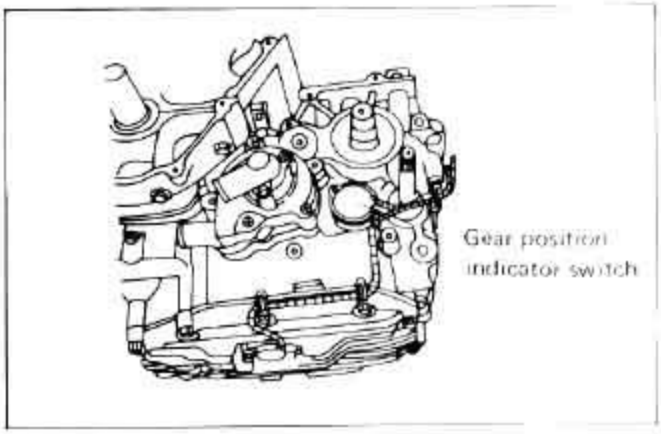
㉘ STARTER MOTOR

- Install by having starter motor gear mesh with idle gear.
- Apply Bond No. 1207B to starter motor bolt (front side).

99000-31140	SUZUKI Bond No. 1207B

㉙ GEAR POSITION INDICATOR SWITCH

- Apply Bond No. 1207B to the gear position switch screws.

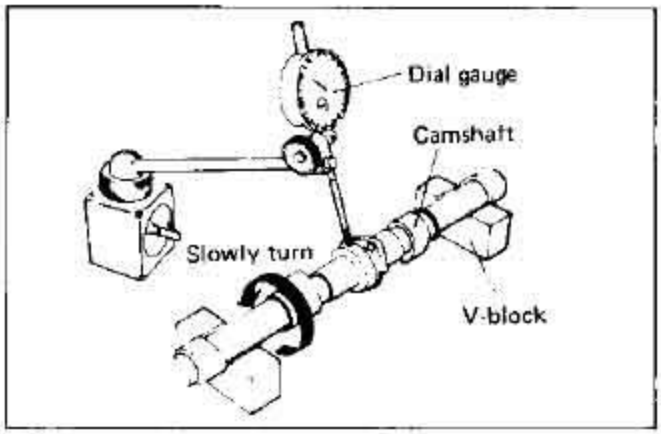


INSPECTION

CAMSHAFT RUNOUT

- Inspect journal or cam surfaces for wear or scratches.
- Use V blocks to check camshaft runout.

Service Limit	0.10 mm

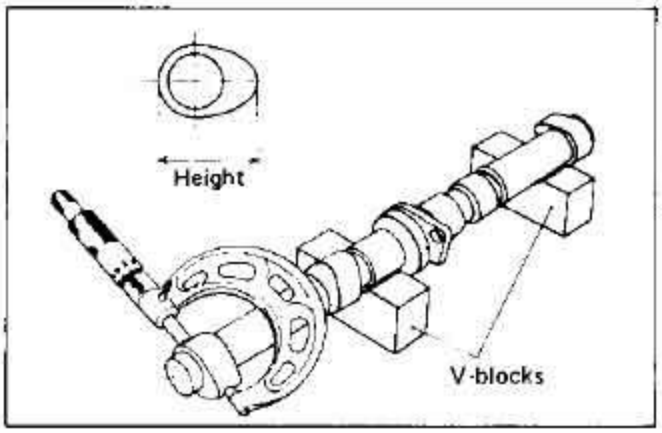


CAM HEIGHT

- Inspect sliding surfaces for abnormal damage or wear.
- Measure the cam height.

Cam height

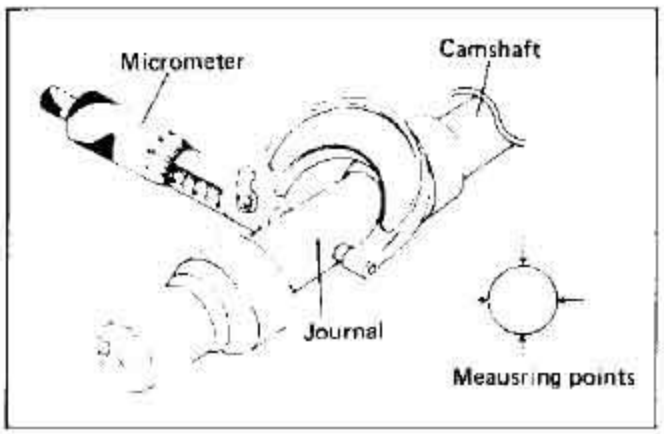
Service Limit	IN.	33.480 mm
	EX.	32.470 mm



CAMSHAFT JOURNAL O.D.

- Inspect sliding surfaces for abnormal damage or wear.
- Measure each journal O.D. in two directions perpendicular to each other.

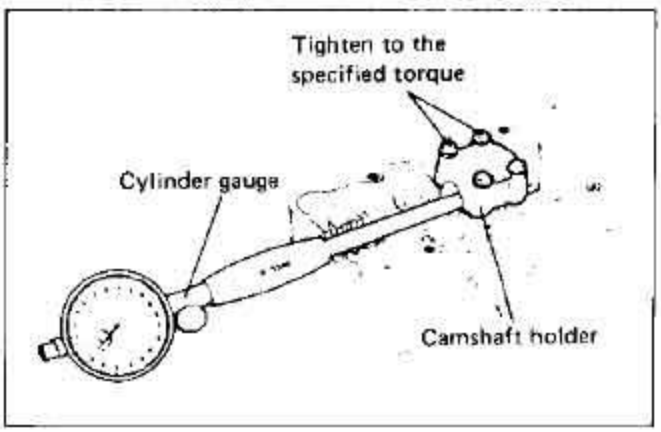
Standard	19.959 – 19.980 mm



CAMSHAFT HOLDER I.D.

- Inspect camshaft holder for abnormal damage or wear.
- Tighten camshaft holder to the specified torque.
- Measure I.D. of camshaft holder.

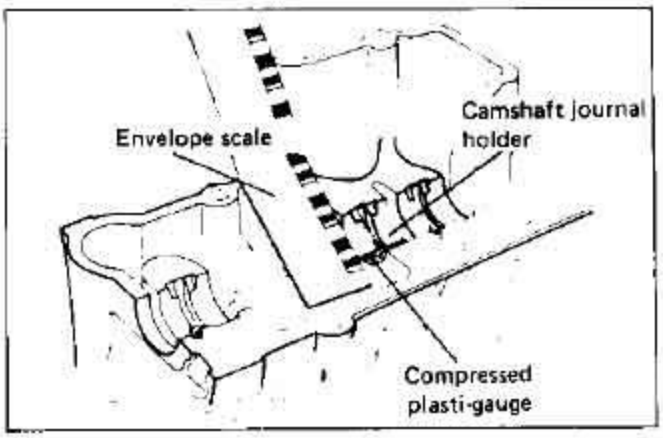
Standard	20.012 – 20.025 mm



CAMSHAFT JOURNAL OIL CLEARANCE

- Set plastic gauge between camshaft and camshaft holder and tighten camshaft holder to the specified torque.
- Measure clearance by the width of the crushed plasti-gauge.

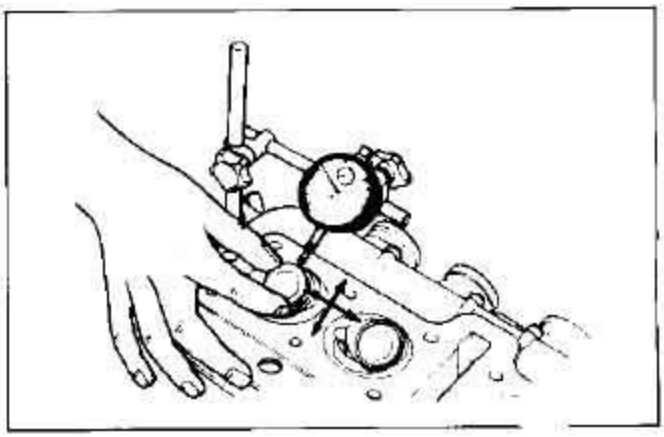
Service Limit	0.150 mm



VALVE AND VALVE GUIDE RATTLE

- Insert valve into valve guide of cylinder head and measure as close to the base as possible.

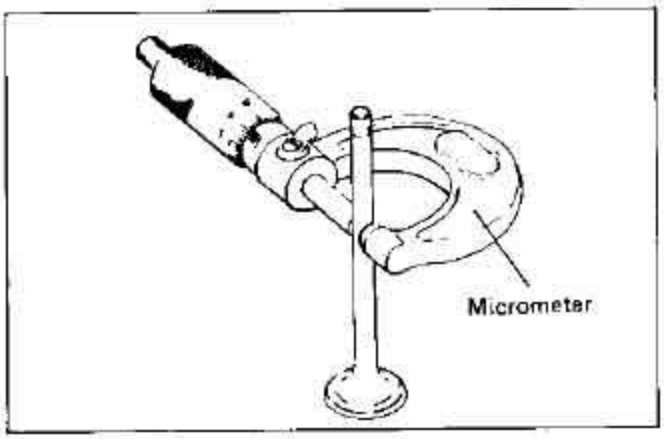
Service Limit (IN. & EX.)	0.35 mm



VALVE STEM O.D.

- Measure the valve stem sliding surface at top, center and bottom in two directions perpendicular to each other for a total of six measurements.

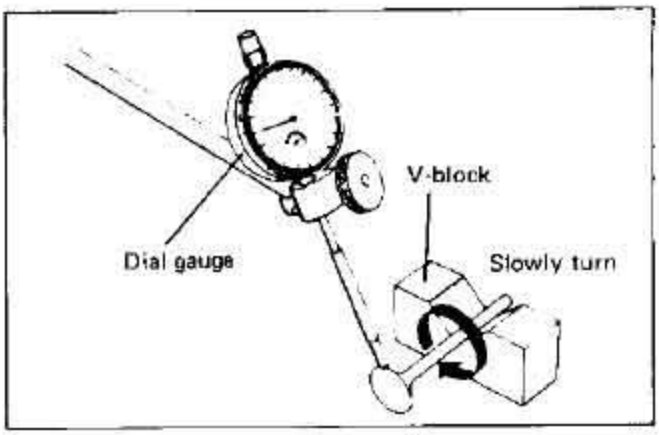
Standard	IN.	4.960 – 4.975 mm
	EX.	4.945 – 4.960 mm



VALVE STEM RUNOUT

- Slowly turn valve on a V block and measure for runout.

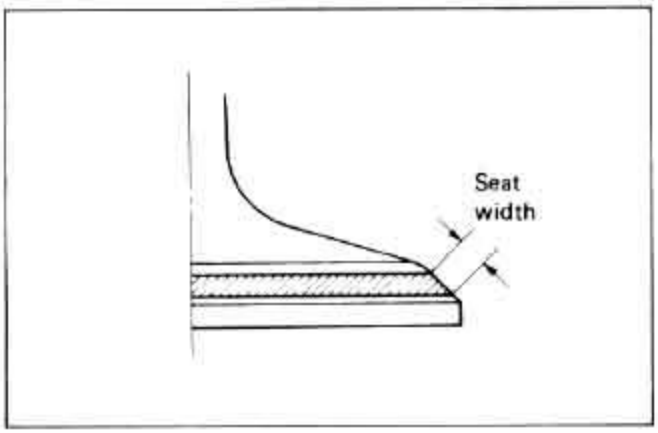
Service Limit	0.05 mm



VALVE SEAT WIDTH

- Coat valve/seat contact surface with red lead paste and make sure that the contact surface is evenly distributed and at the center.
- Measure width of seat contact surface and require to cut the valve seat if width is not within the standard.

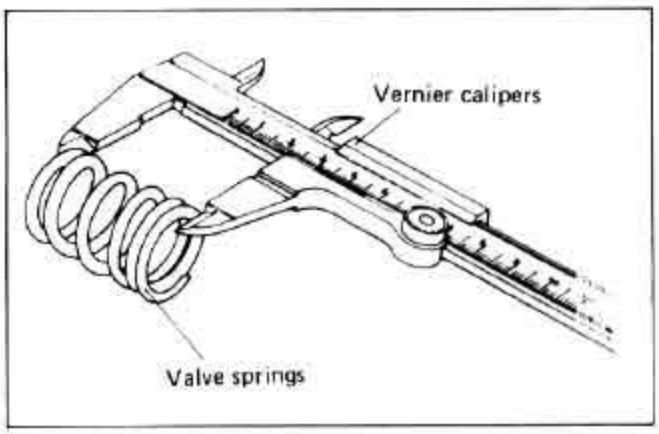
Seat width standard	0.9 – 1.1 mm



VALVE SPRING FREE LENGTH

- Measure the free length of both the inner and outer springs.

Service Limit	Inner	36.2 mm
	Outer	40.4 mm



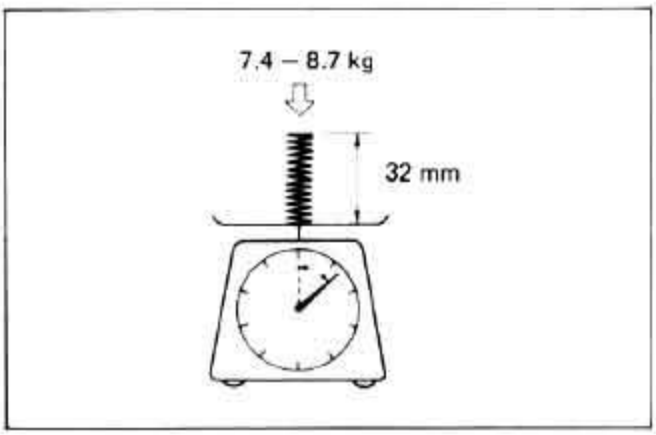
VALVE SPRING TENSION

- Check the springs for strength by measuring the force required to compress them.

CAUTION:
Replace both the valve springs, inner and outer, at a time, if any one of these is found to be beyond the limit.

Spring tension

INNER	7.4 – 8.7 kg at length 32 mm
OUTER	13.1 – 15.3 kg at length 37 mm



PISTON RING FREE END GAP

- Confirm that piston rings move smoothly over piston ring grooves.
- Measure piston ring end gaps without applying any excessive force to them.
- Measure end gaps two or three times.

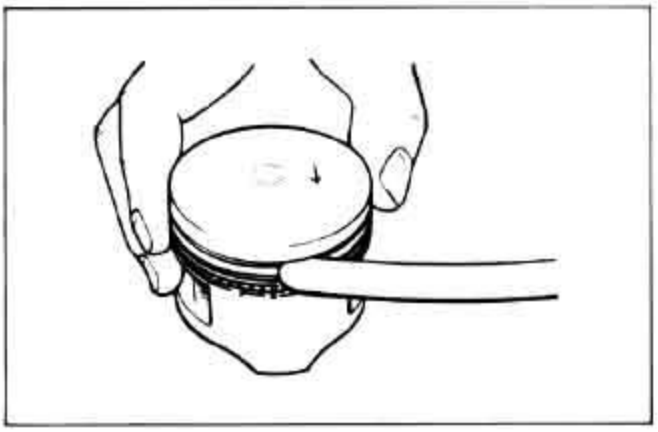
Service Limit

1st	"R" mark	3.3 mm
	"T"-mark	3.2 mm
2nd	"R"-mark	4.6 mm
	"T"-mark	4.8 mm

PISTON RING-GROOVE CLEARANCE

- Remove carbon from piston ring and from piston ring groove.
- Attach piston ring and measure at ring underside with ring pressed against piston.

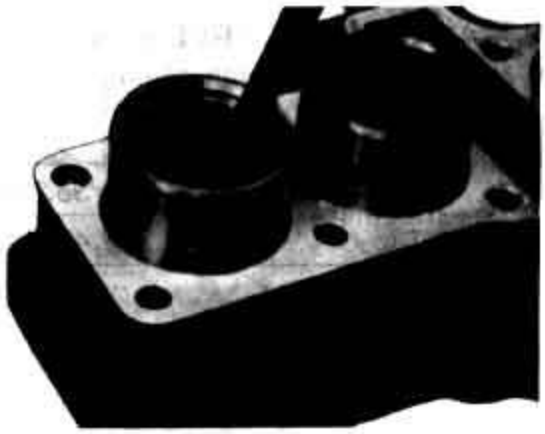
Service Limit	1st	0.18 mm
	2nd	0.15 mm



PISTON RING END GAP

- Fit piston ring at the bottom of the cylinder and measure each ring end gap.
- Push in piston rings with piston head and made them level.

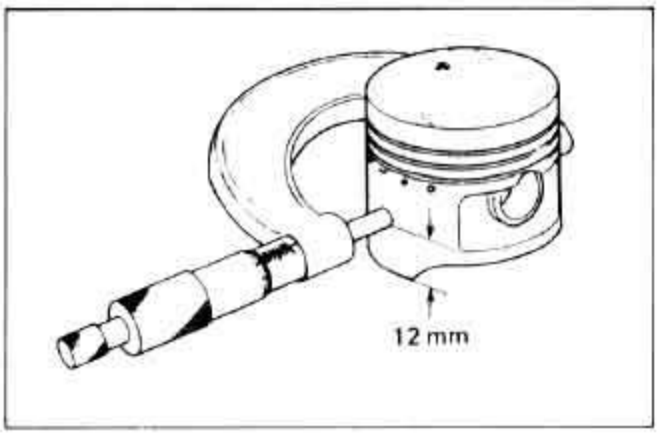
Service Limit	0.70 mm



PISTON

- Check piston surface for abnormal scratches, burrs, cracks, etc.
- At a distance of 12 mm from the piston skirt end, measure piston diameter.

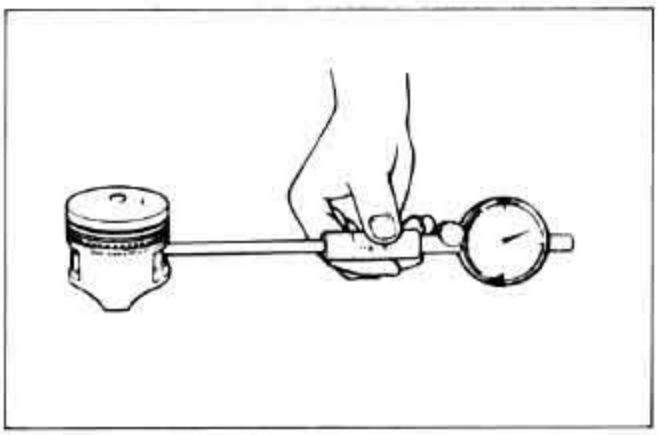
Service Limit	43.880 mm (Measure at 12 mm from the skirt end)



PISTON PIN BORE

- Clean internal surfaces of piston pin hole.
- Measure piston pin bore diameter laterally and vertically.

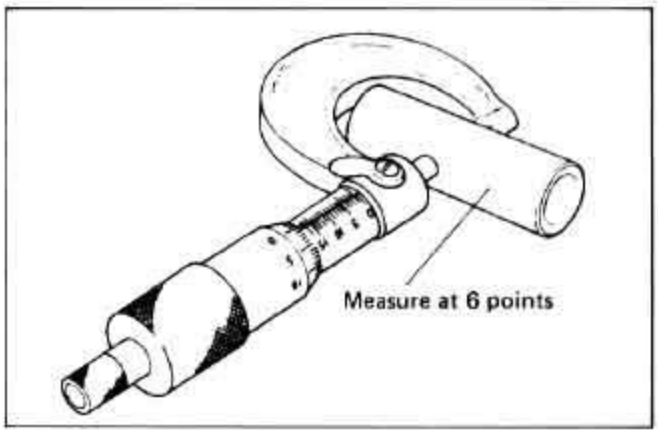
Service Limit	12.030 mm



PISTON PIN O.D.

- Check sliding surfaces for abnormal scratches or wear.
- Measure the piston pin O.D. at both ends and at the middle in two perpendicular directions for a total of six measurements.

Service Limit	11.980 mm



CONROD SMALL END I.D.

- Check sliding surfaces for abnormal scratches or wear.
- Measure inside diameter of conrod small end both laterally and vertically.

Service Limit	12.040 mm

CYLINDER

- Check cylinder wall for abnormal scratches or wear.
- Measure cylinder bore at three points (top, center, bottom) perpendicular to the crank axle.

Service Limit	44.090 mm

CYLINDER DISTORTION

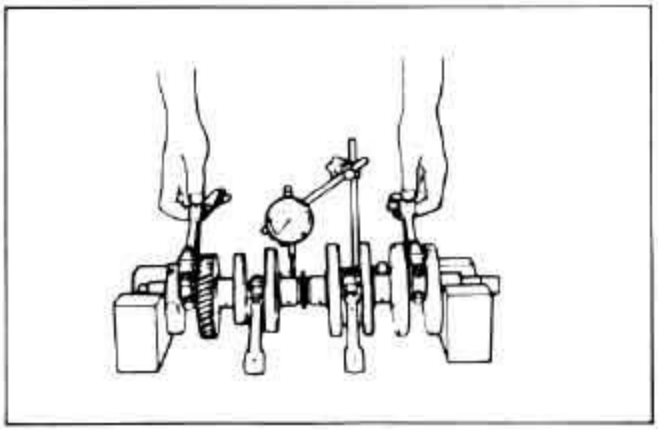
- Check the gasketed surface of the cylinder for distortion with a straightedge and thickness gauge.
- If the largest reading at any position of the straight edge exceeds the limit, replace cylinder.

Service Limit	0.20 mm

CRANKSHAFT RUNOUT

- Check journals and pins for abnormal scratches or wear.
- Measure crankshaft runout by slowly turning it on V blocks.

Service Limit	0.05 mm



CONROD BIG END OIL CLEARANCE

- Remove conrod cap and insert plastigauge between conrod and crankpin, then tighten conrod to the specified torque.
- Remove conrod cap once again and measure oil clearance by the width of the crushed plastigauge.

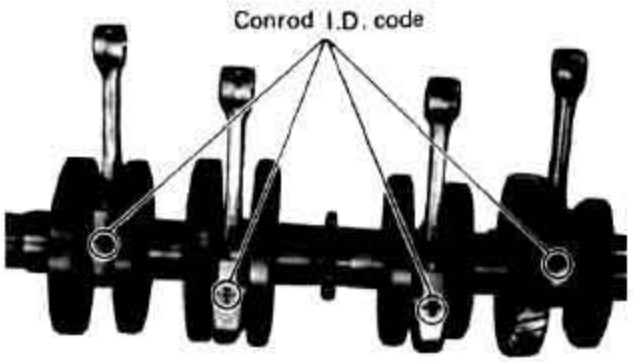
CAUTION:
Be sure not to turn the conrod when the plastigauge is in place.

09900-22301	Plastigauge

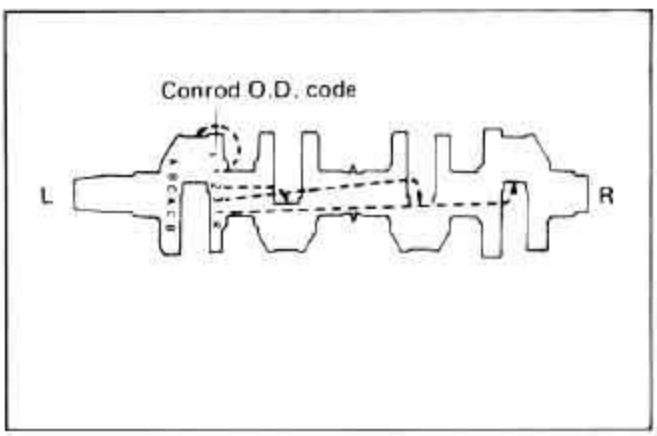
Standard	0.032 – 0.056 mm

Service Limit	0.080 mm

- When measurement values exceed the service limit, select the proper size of bearing according to the following selection table based on the codes printed at the conrod big end and at the right crankweb of No. 1 cylinder.



CAUTION:
Use the same color bearings for upper and lower and replace the bearings as a set.



Bearing selection table

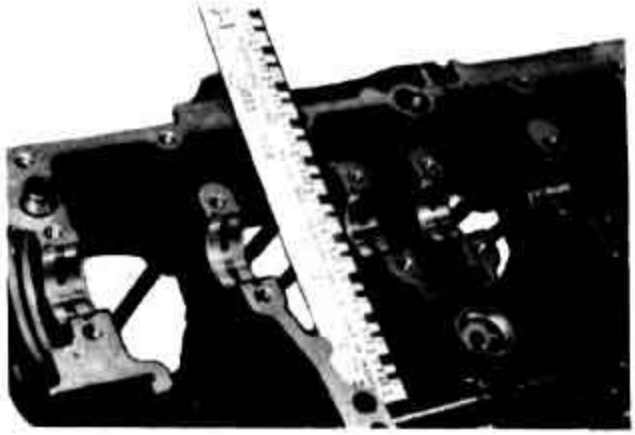
		Crank pin O.D.		
		1	2	3
Conrod I.D.	1	Green	Black	Brown
	2	Black	Brown	Yellow

CRANKSHAFT JOURNAL OIL CLEARANCE

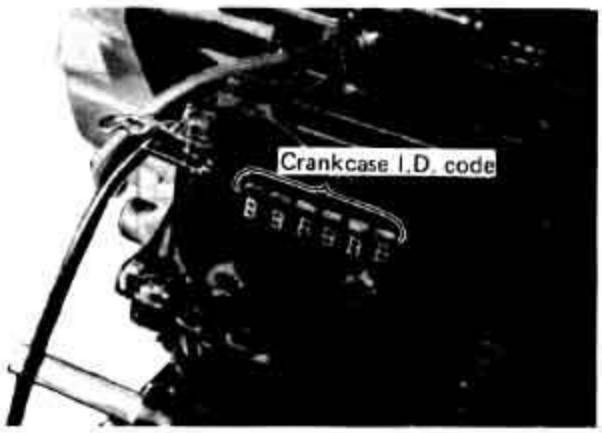
- Separate crankcases and insert plastigauge into crankshaft journal holder, then tighten crankcase to the specified torque.
- Separate crankcases once again and measure oil clearance by the width of the crushed plastigauge.

Standard	0.020 – 0.044 mm
Service Limit	0.080 mm

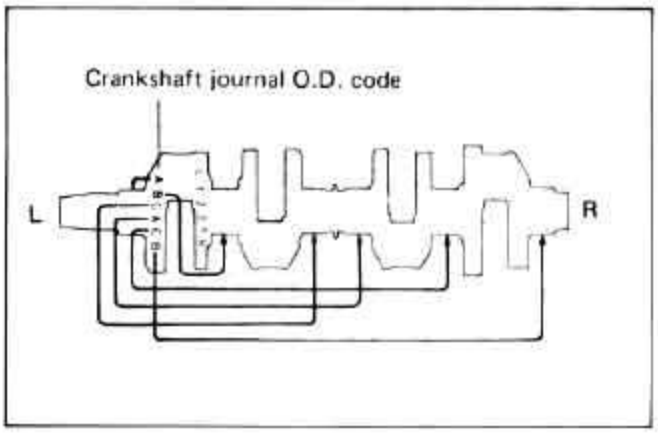
CAUTION:
Be sure not to turn the crankshaft while the plastigauge is in position.



- If the width at the widest part exceeds the limit, replace the set of bearings with new ones by referring to the selection table based on the code printed at No. 1 left-hand crankweb and at the back of the upper crankcase.



CAUTION:
Always use the same color bearings for upper and lower and replace the bearings as a set.

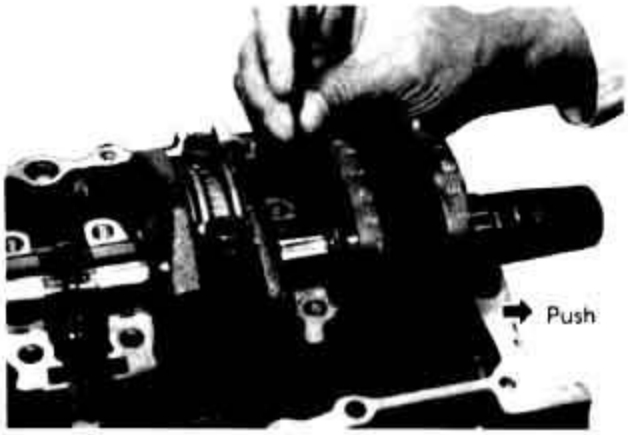


Bearing selection table

		Crankshaft O.D. code		
		A	B	C
Crankcase I.D. code	A	Green	Black	Brown
	B	Black	Brown	Yellow

CRANKSHAFT THRUST CLEARANCE

- Fit crankshaft into upper crankcase, set right and left thrust metals, and push crankshaft to the generator side by hand. Make sure there is no clearance at the right thrust metal side and measure clearance at the left thrust metal side with a thickness gauge.



If the thrust clearance is not within the standard range, first measure the right thrust bearing and replace with a new one if the right bearing is not within the standard range. Then adjust the thrust clearance by selecting the proper size left bearing in the following table.

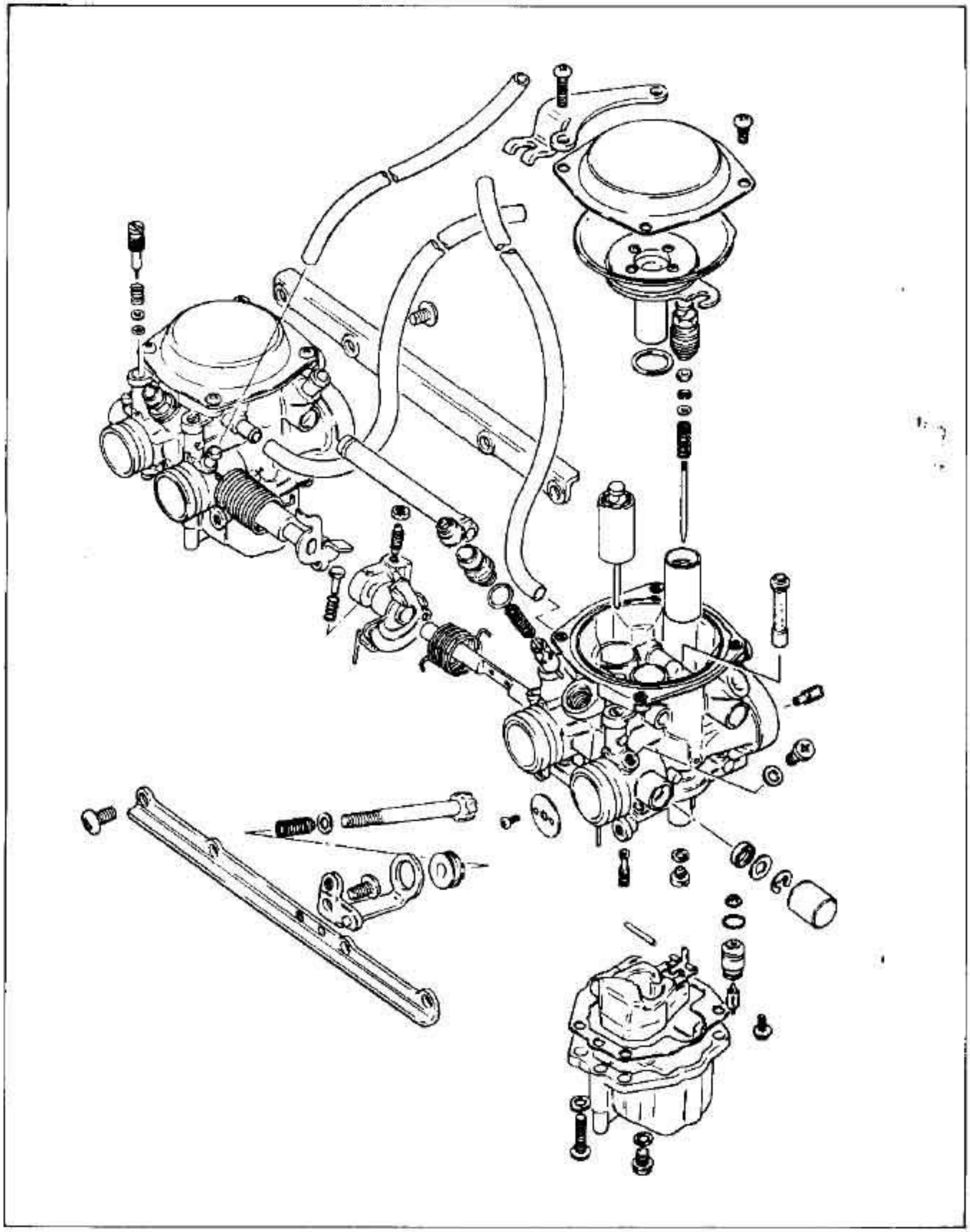
Right thrust bearing thickness (Green) standard	2.425 – 2.450 mm

Thrust bearing selection table

Clearance before inserting of left-side thrust bearing	Color code (Part No.)	Bearing thickness	Standard thrust clearance
2.420 – 2.445 mm	Red (12228-38411)	2.350 – 2.375 mm	0.045 – 0.095 mm
2.445 – 2.470 mm	Black (12228-38412)	2.375 – 2.400 mm	
2.470 – 2.495 mm	Blue (12228-38413)	2.400 – 2.425 mm	
2.495 – 2.520 mm	Green (12228-38414)	2.425 – 2.450 mm	
2.520 – 2.545 mm	Yellow (12228-38415)	2.450 – 2.475 mm	
2.545 – 2.575 mm	White (12228-38416)	2.475 – 2.500 mm	0.045 – 0.100 mm

CAUTION:
If, after following the above procedure, the thrust clearance still does not fall within standard range, replace the right thrust metal with a new one and carry out adjustments once again.

CARBURETOR



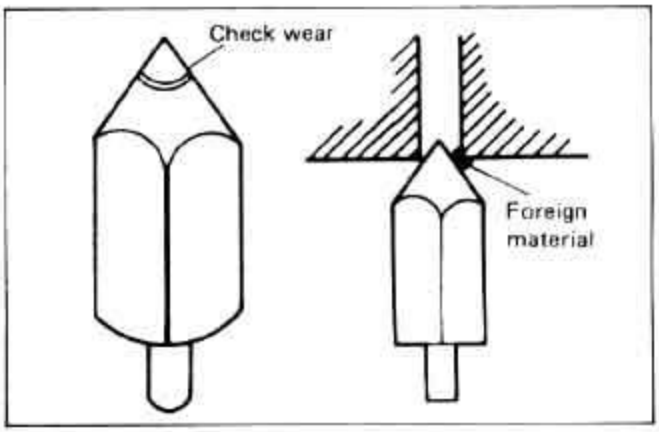
FLOAT HEIGHT

- Turn the carburetor upside down and lift up the float.
- Lower float slowly.
- Stop float at point where float tangue touches needle valve.
- Measure distance between float and carburetor body.

Float height	20.5 ± 1.0 mm

NEEDLE VALVE

- Check needle valve for wear and damage.
- Check for dirt or other foreign material.
  - * When dirt or foreign material has adhered to, clean with an air gun.



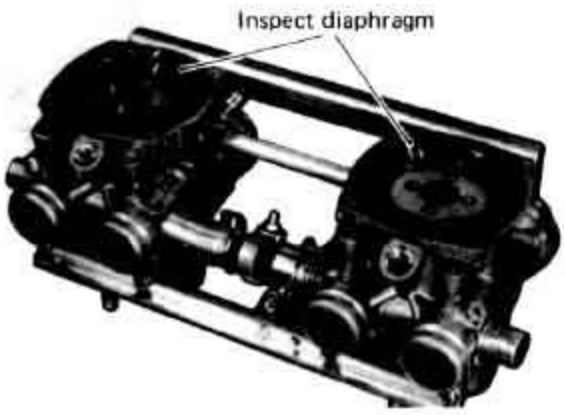
JETS AND AIR/FUEL PASSAGE

- Carburetor jets and passages are made to a very fine precision and therefore must be cleaned by compressed air through them.

CAUTION:
Always clean with air only since needles or other cleaning implements can scratch or damage passages, or distort hole diameters.

DIAGRAM

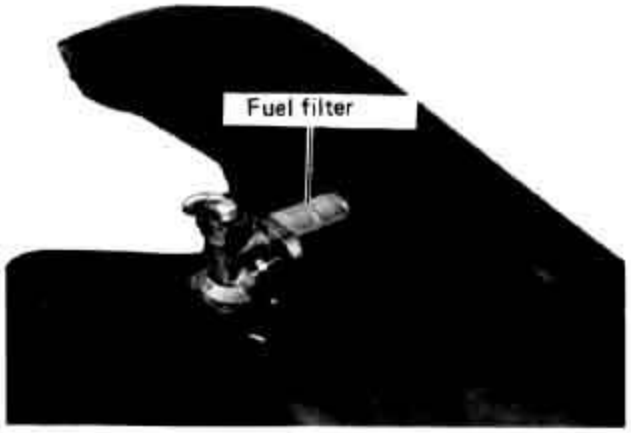
- Inspect diaphragm carefully with naked eye to see if rubber has cracked.
- Check throttle valve operation.



FUEL FILTER

- Drain gasoline from the fuel tank.
- Remove fuel cock attached to the bottom of the fuel tank.
- Inspect fuel filter for dust or other foreign matter.

WARNING:
Be especially careful about fire since gasoline is very explosive.

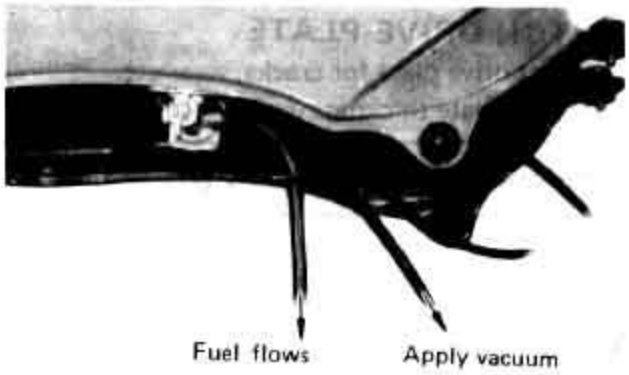


FUEL COCK

- Take out fuel outlet hose and vacuum hose and apply vacuum to vacuum hose.
  - * During suction, gasoline flows.
  - * After suction, gasoline stops.
- In the PRI position, gasoline flows regardless of the negative pressure.

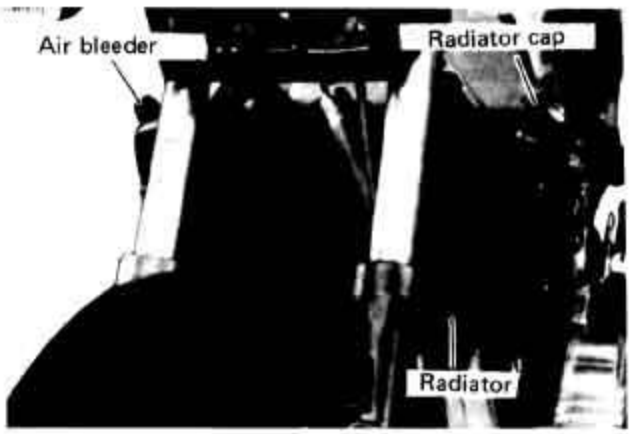
WARNING:
Be especially careful about fire since gasoline is very explosive.

CAUTION:
- * **Have available an appropriate gasoline receptacle where gasoline flows out.**
- * **Attach clips securely in fuel hose.**



RADIATOR

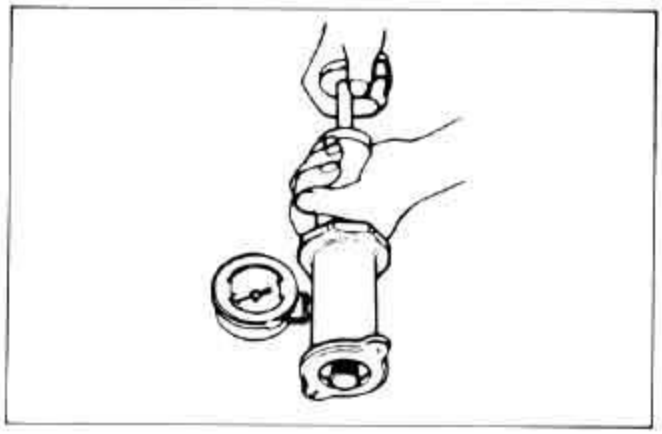
- Inspect fins for deformation and clogging by mud, insects, etc.
- Check for leaks of the coolant.
- Check coolant passages for accumulations of rust, scale, etc.



RADIATOR CAP

- Inspect rubber component for cracks or other damage.
- Check open-valve pressure with radiator cap tester.
  - * Attach cap to tester properly.
  - * Raise pressure to the specification.
  - * Maintain the above condition for about 10 seconds and confirm that pressure has not dropped during that time.

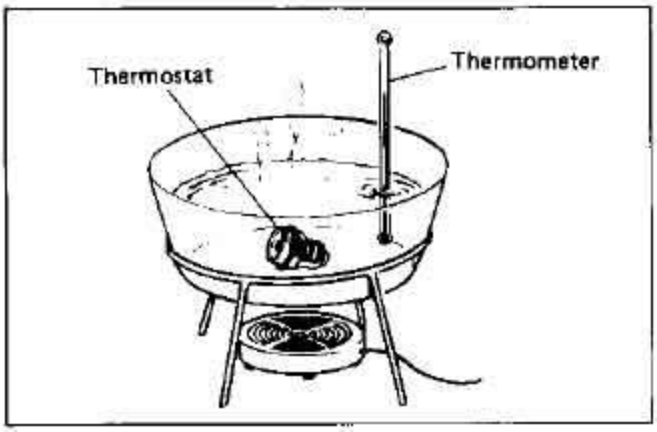
Radiator cap valve release pressure	0.9 ± 0.15 kg/cm²



THERMOSTAT

- Check for open valve under normal temperature.
- Put thermostat in water and while slowly raising water temperature, check open-valve temperature with a thermometer.

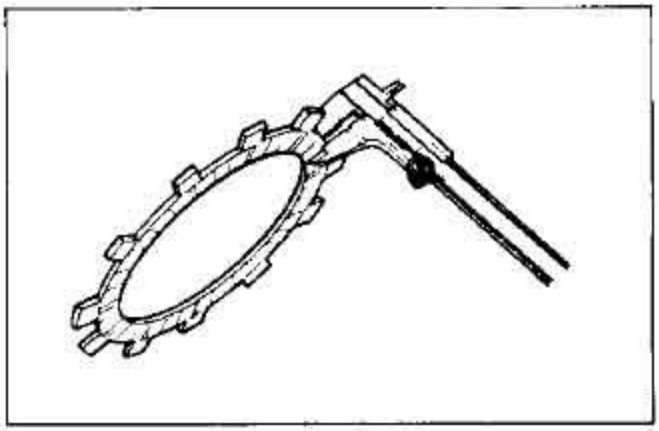
Thermostat valve opening temperature	75.0 ± 1.5°C
Thermostat valve lift	Approx. 3 mm at 90°C



CLUTCH DRIVE PLATE

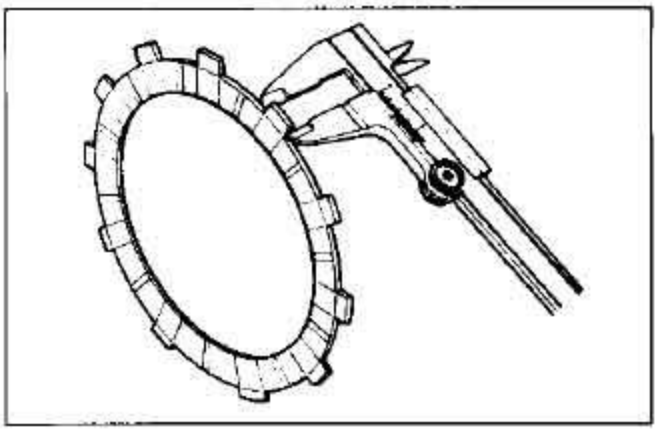
- Inspect drive plate for cracks, wear etc.
- Measure plate thickness with a vernier calipers.

Service Limit	2.60 mm



- Inspect the clutch drive plate claw width.
- If the claw width is less than the service limit, replace the clutch drive plates.

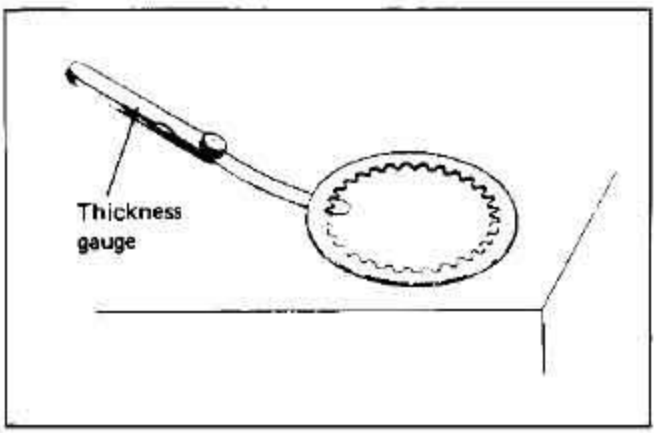
Service Limit	11.20 mm



CLUTCH DRIVEN PLATE

- Inspect driven plate with naked eye for unusual burns or scratches to rubbing surfaces.
- Set driven plate on a surface plate and measure the distortion by using a thickness gauge.

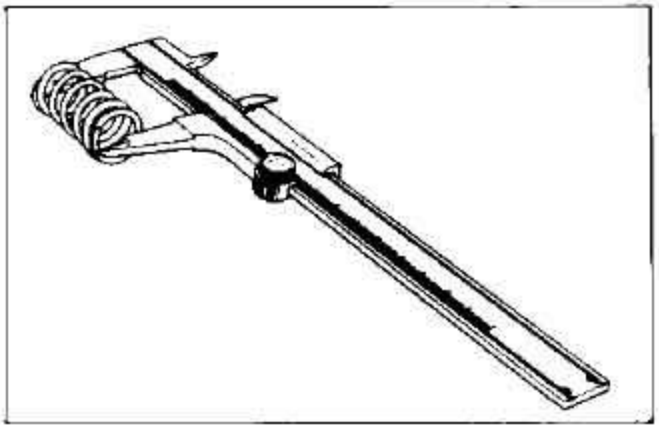
Service Limit	0.10 mm



CLUTCH SPRING FREE LENGTH

- Remove clutch springs and measure its free length with vernier calipers without applying any load to it.

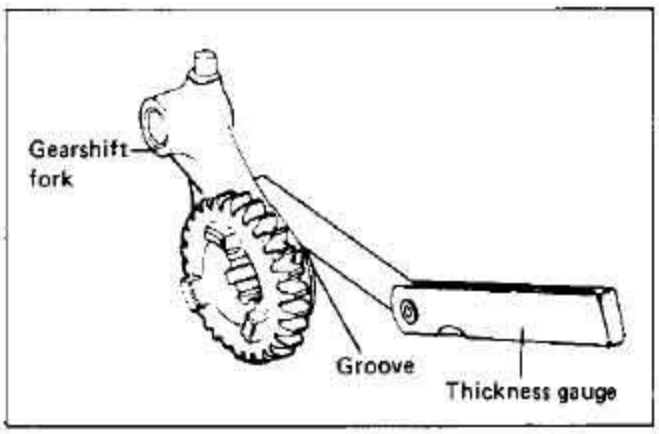
NOTE:
When replacing one of clutch springs, replace all the springs at a time.



GEARSHIFT FORK-FORK GROOVE CLEARANCE

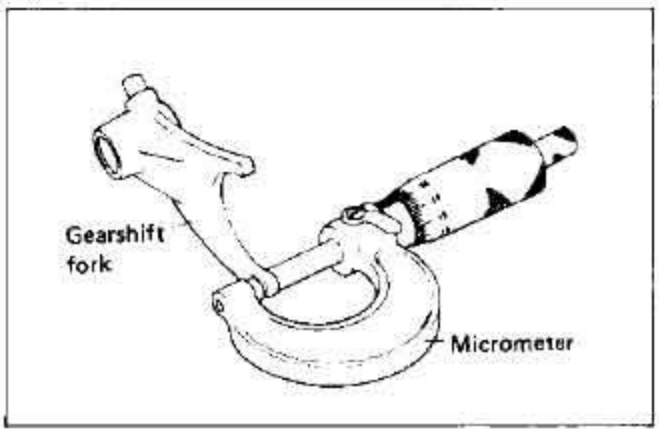
- Insert gearshift fork into groove of transmission gear groove and use a thickness gauge to measure the gap between the groove and the gearshift fork.

Standard	4.80 – 4.90 mm



GEARSHIFT FORK THICKNESS

- Check gearshift fork for unusual rubbing scratches.
- Measure thickness of gearshift fork thickness with a micrometer.

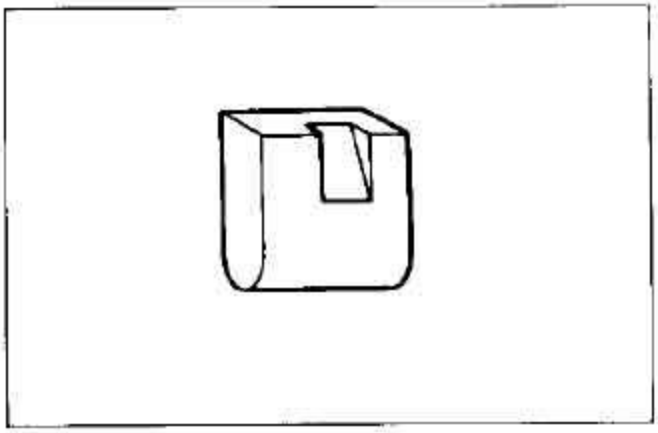


GEARSHIFT FORK SHAFT

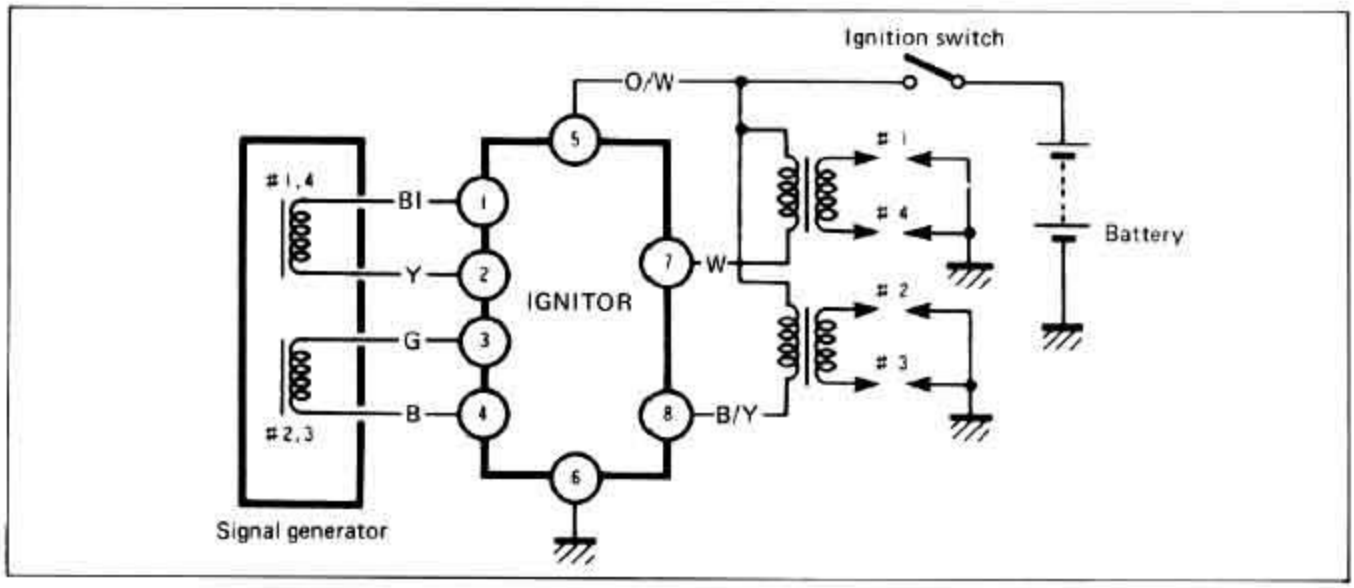
- Inspect rubbing surface of gear shift fork shaft for wear or scratches.

GEAR SHIFT PAWL

- Inspect notch of pawl which contact with cam drive pin for wear and rubbing scratches.
- Inspect gearshift pawl spring for deterioration, damage, etc.



IGNITION SYSTEM



IGNITION COIL

- High-tension cord:
  Check for damage & deterioration.
- Coil body:
  Check coil body for cracks & damages.
- Spark plug cap: Check for cracks and damages.
- Measure resistance of primary and secondary coils with a pocket tester.

Ignition coil resistance

Primary	3 – 5 Ω (⊕ tap – ⊖ tap)
Secondary	30 – 60 kΩ (Plug cap – plug cap)

09900-25002	Pocket tester

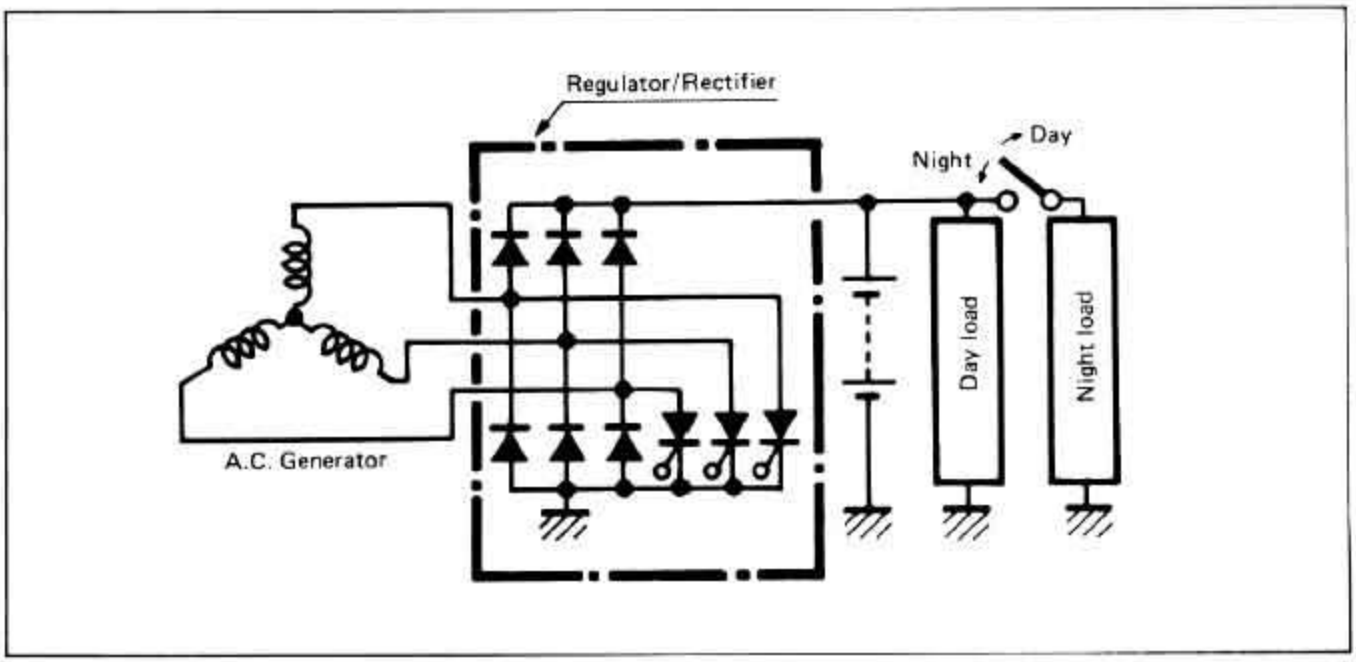
SIGNAL GENERATOR

- Measure resistance between each lead wire with a pocket tester.

Signal generator coil resistance

Standard	250 – 500 Ω (Br – B/W, G/W – B/W)

CHARGING SYSTEM

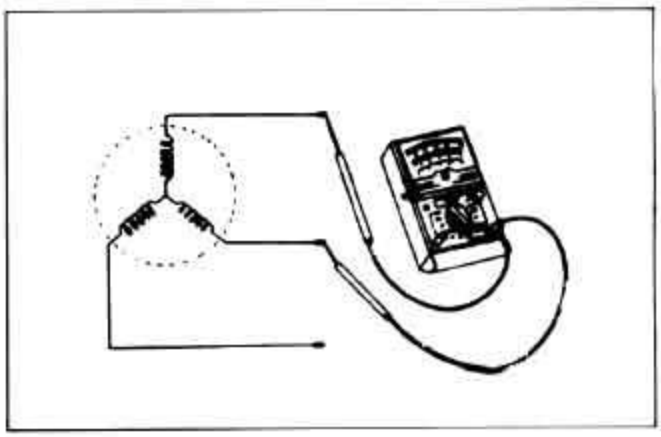


GENERATOR

- Use a pocket tester to check for continuity between each lead wire.

Continuity check

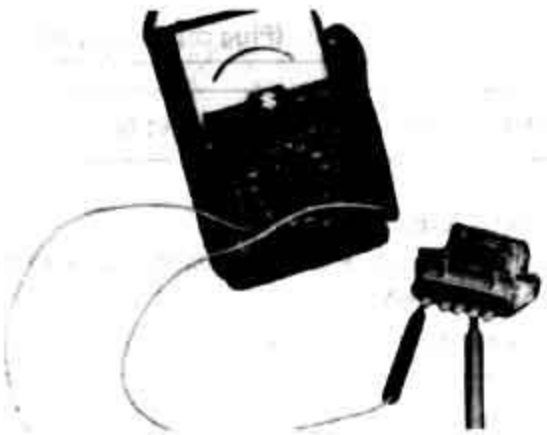
Y – Ground	No continuity
Y – Y	Continuity



REGULATOR/RECTIFIER

- Use a Suzuki pocket tester to measure the continuity (resistance) between each lead wire terminal.

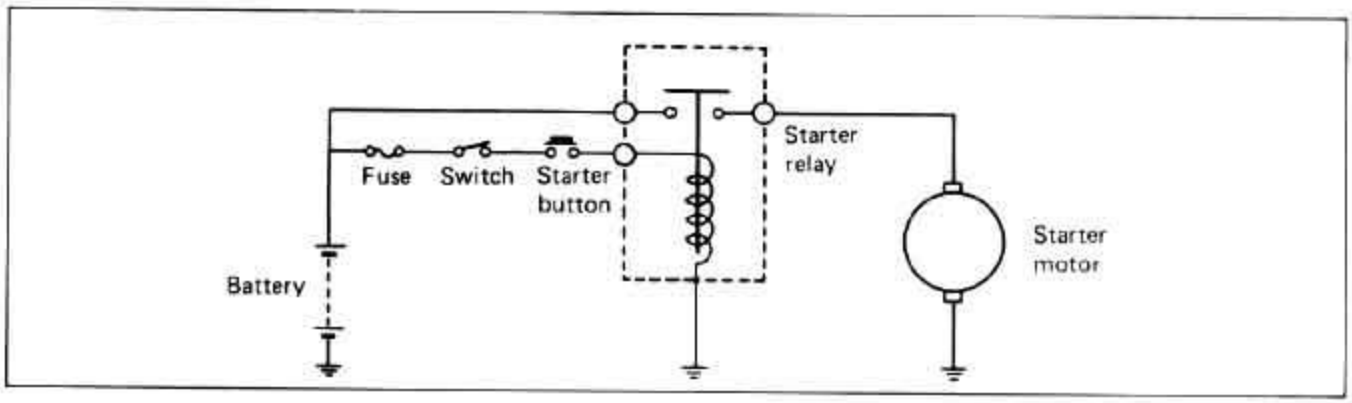
CAUTION:
Please note that values may vary if use the other tester than SUZUKI.



Unit: Approx. Ω

⊖ Probe of tester to:	⊕ Probe of tester to: B/W	Y	Y	Y	R
B/W		7 Ω	7 Ω	7 Ω	50 Ω
Y	OFF		OFF	OFF	7 Ω
Y	OFF	OFF		OFF	7 Ω
Y	OFF	OFF	OFF		7 Ω
R	OFF	OFF	OFF	OFF	

STARTER SYSTEM

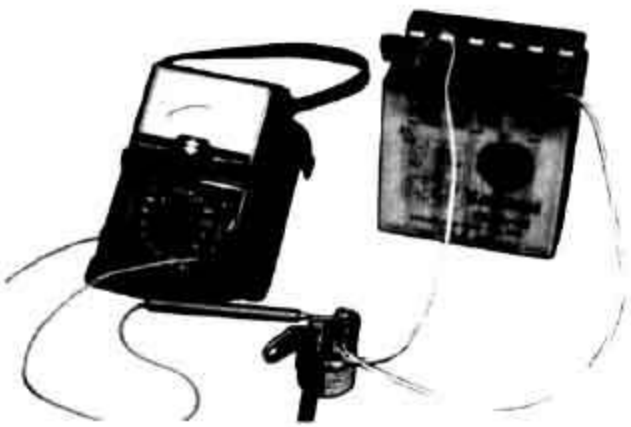


STARTER RELAY

- Measure coil resistance with a pocket tester.

Starter relay	3 – 5 Ω

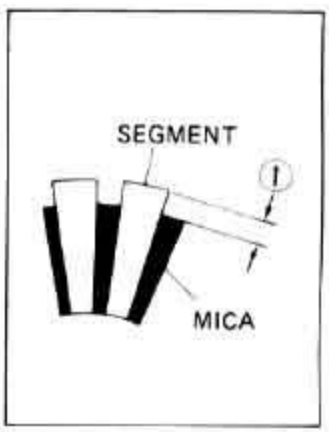
- After being used for a long time, the point of the starter relay may become damaged from burns and continuity may be lost.
- Apply 12V (DC) to coil, ground the body (clicking sound heard at this time), and confirm continuity with a pocket tester.



STARTER MOTOR COMMUTATOR

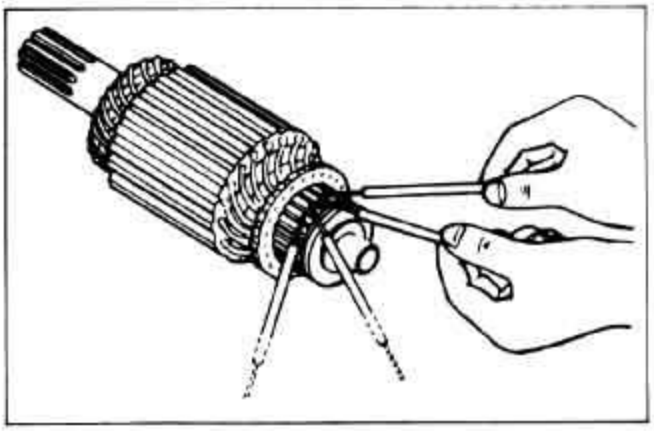
- If the commutator surface is dirty, starting performance decreases. Polish the commutator with # 400 or similar fine emery paper when it is dirty. After polishing it, wipe the commutator with a clean dry cloth.
  Measure the commutator under-cut ①.

Service Limit	0.2 mm



ARMATURE

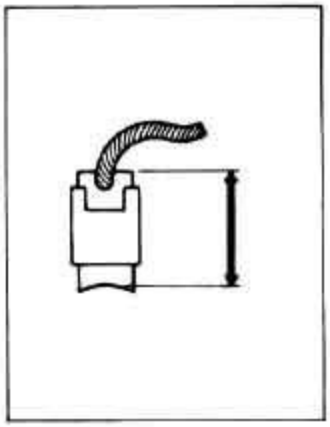
- Check for presence of continuity between each segment with a pocket tester.



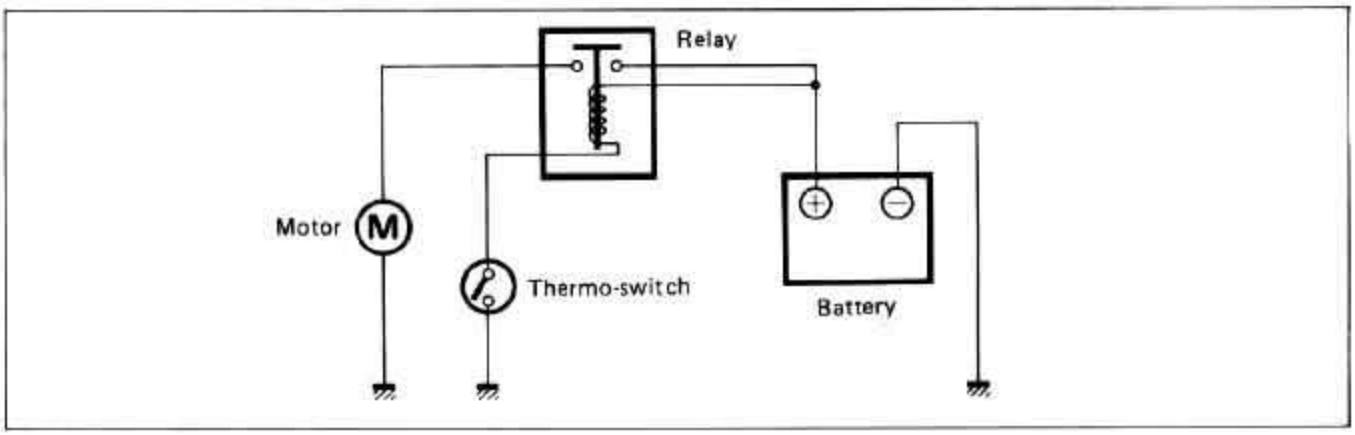
CARBON BRUSHES

- Inspect carbon brushes for wear and coarseness of contact surface.
- Measure length of each carbon brush.

Service Limit	9 mm



RADIATOR FAN



ELECTRIC FAN RELAY

- Measure coil resistance with a pocket tester.

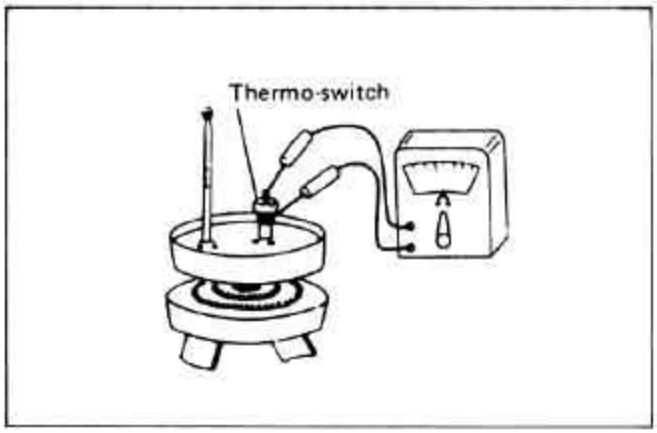
Fan relay resistance	70 – 80 Ω

- Apply 12V (DC) to the coil, ground the body (Clicking sound heard at this time), and confirm continuity with pocket tester.

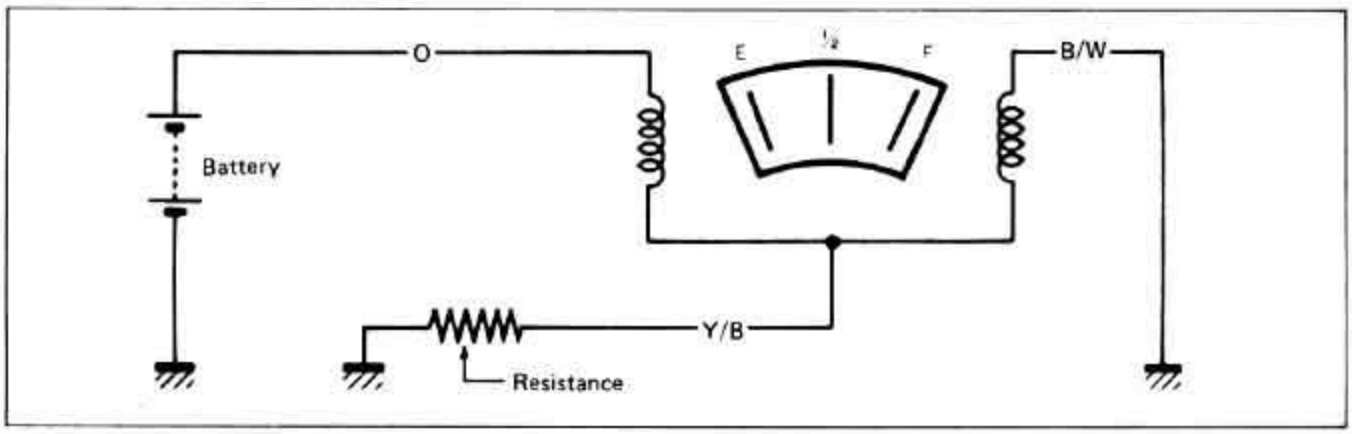
THEMO-SWITCH

- Warm thermo-switch in hot oil, then confirm continuity after specified temperature has been reached.

OFF → ON	Approx. 105°C
ON → OFF	Approx. 98°C



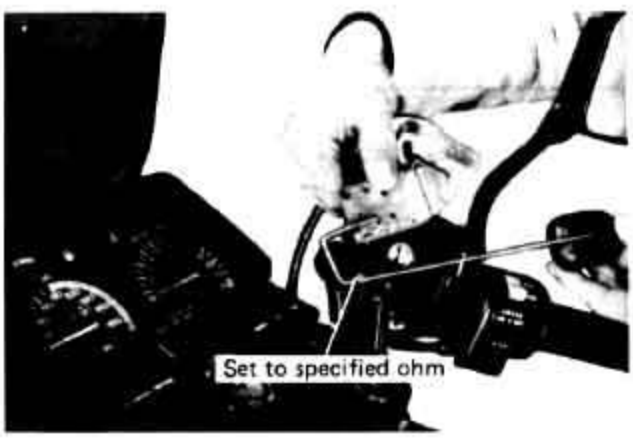
FUEL METER



- Check the resistance of the fuel meter along the yellow/black lead as shown in the above diagram, or connect the fuel level gauge and check the position of the fuel meter needle.

Resistance	7 Ω	32.5 Ω	95 Ω
Meter	F	1/2	E

- When using a fuel level gauge, search for the specified resistance with a pocket tester, fix the float arm in position, and connect it to the fuel meter.



FUEL LEVEL GAUGE

- Measure the resistance of the fuel level gauge at each position with a pocket tester.
- Measure at the point where the float arm contacts to stopper (2 points, top and bottom).

"F" position	Approx. 7 Ω
"E" position	Approx. 105 Ω

WATER TEMPERATURE METER

As shown in Fig. 1, four coils are located in the water Temp. gauge (N_1, N_2, N_3 and N_4). As the resistance from the sending unit varies along with the coolant temperature, the current at points L_1 and L_2 will also vary. This in turn will cause the strength of the magnetic field generated in the four coils to increase or decrease (causing a related increase or decrease in the force vector H in Fig. 2) which will force the needle to move to the proper position (Fig. 3).

When the ignition switch is turned off, the pointer returns to the original position.

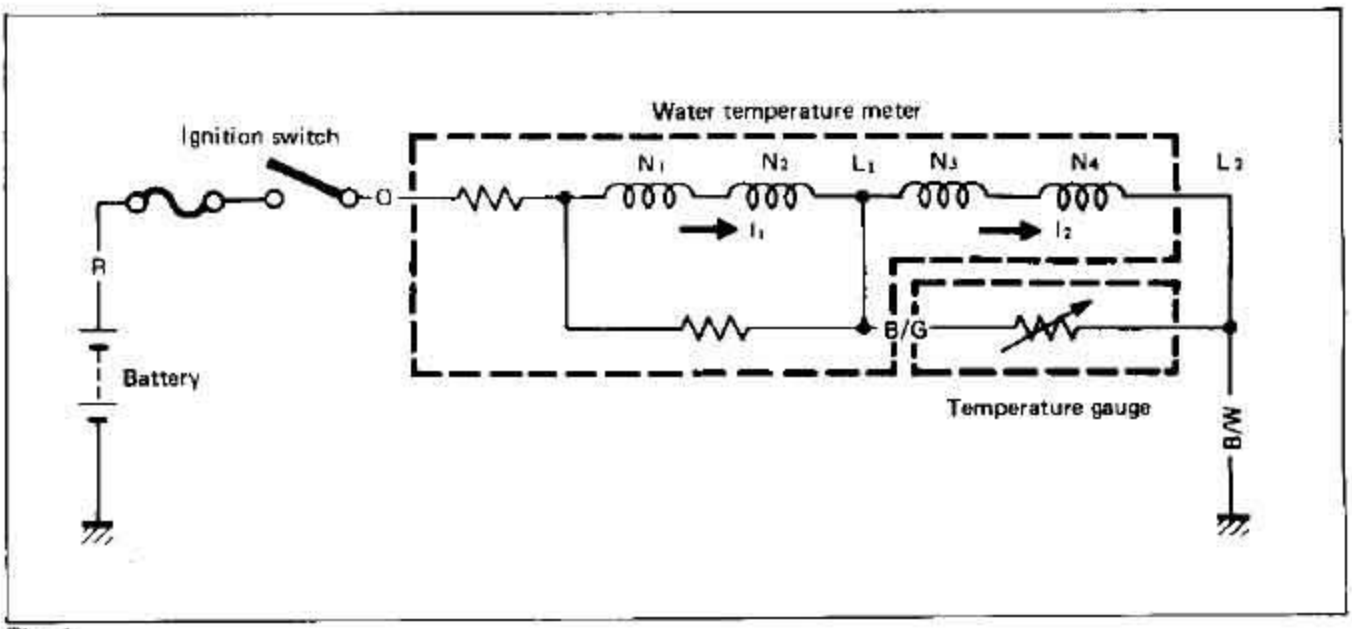


Fig. 1

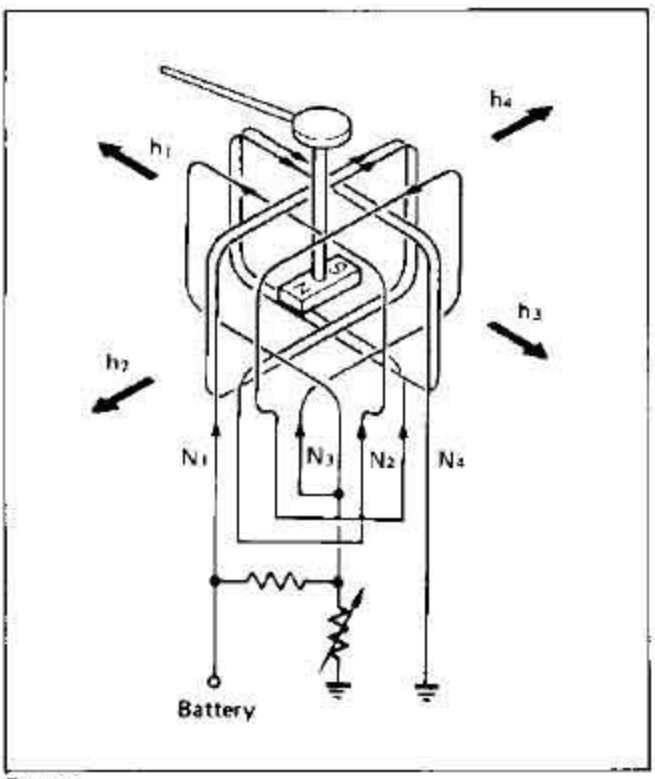


Fig. 3

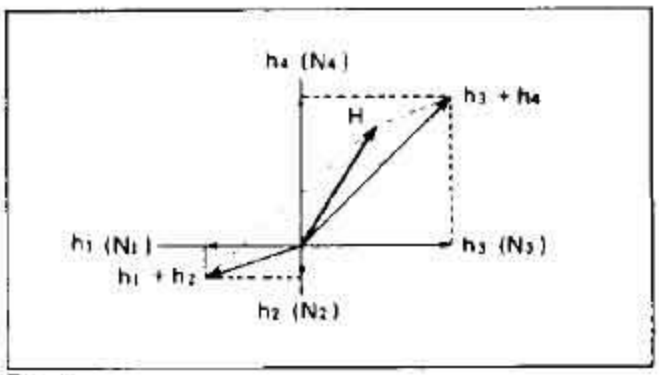
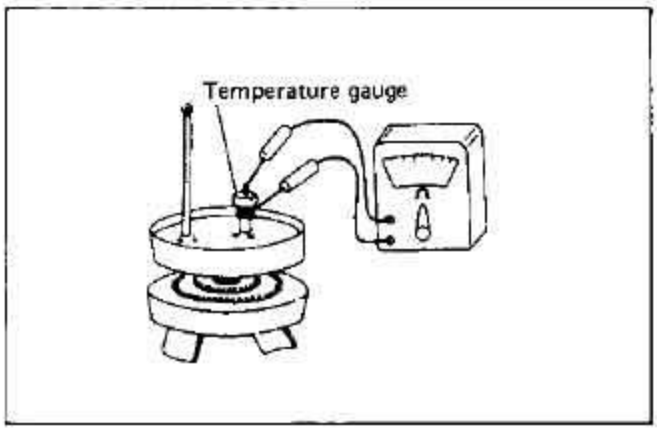


Fig. 2

WATER TEMPERATURE GAUGE

- Warm water temperature gauge in hot water, then measure resistance with a pocket tester when the gauge reaches the specified temperature.

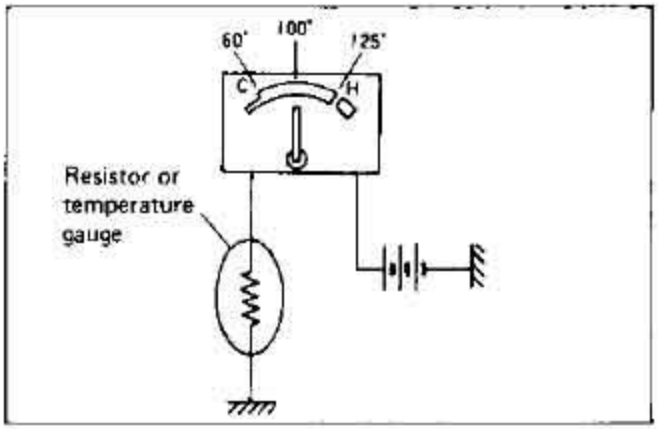


Temp. gauge resistance

Temp. (°C)	40	60	80	100
Resistance (Ω)	240	104	52.1	27.4

WATER TEMPERATURE METER

- Connect the specified resistor or good water temperature gauge to check the needle position inside the meter.

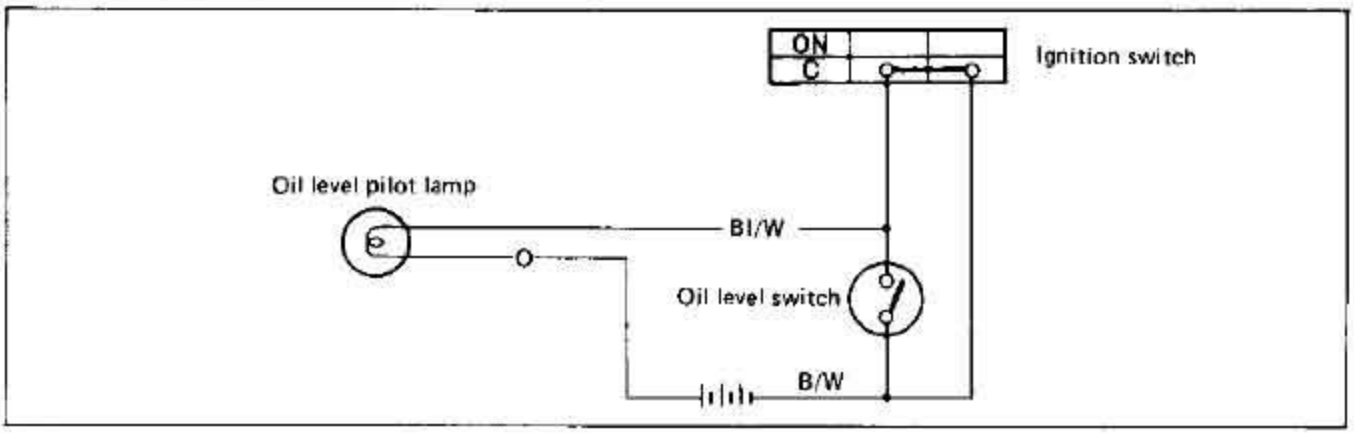


Temperature gauge resistance

Temp. (°C) on meter	60	100	125
Resistance (Ω)	10.6	14.7	28.3

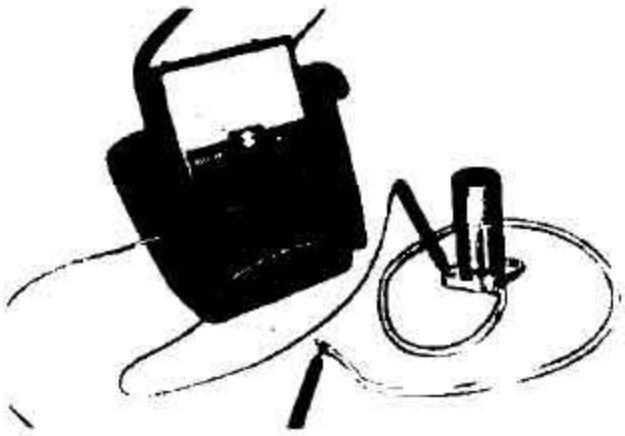
- Needle returns to point "C" when power is turned off.

OIL LEVEL SWITCH



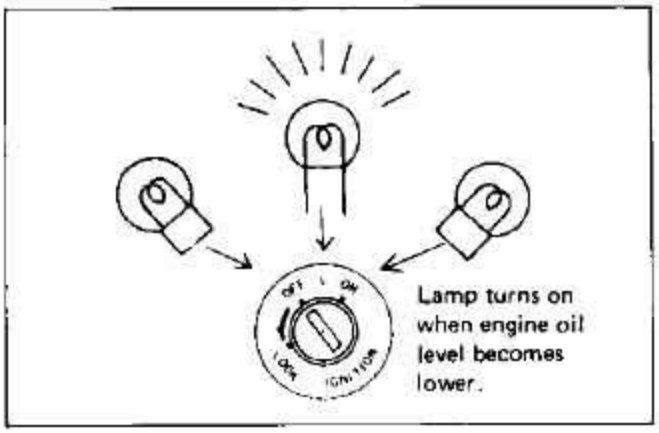
- Check for continuity between terminals when the float of the oil level switch is down.

Float is in bottom	ON
Float is not in in bottom	OFF



OIL LEVEL LAMP

- Check to see that oil level lamp lights up when the ignition switch has been set at C and that it turns off when the switch is at ON or OFF.



SWITCHES

- Measure continuity between leads for each switch.
- Use a pocket tester for inspection.
- Operation is normal when there is continuity between terminals as indicated by ○—○ in each inspection chart and no continuity between all other terminals.
- Check with naked eye for scratches or damages to the exterior component or the lead wires.
- Unless otherwise specified, use a tester with a range of X 1Ω.

IGNITION SWITCH

	R	O	Gr	Br	B/Bl	B/W	Bl/W	G/W
OFF								
C	○	○				○	○	○
ON	○	○	○	○	○	○		
P	○			○				

TURN SIGNAL SWITCH

	B	Lbl	Lg
R		○	○
•			
L	○	○	

DIMMER SWITCH

	W	Y	Y/W
HI		○	○
LO	○		○

PASSING AND HORN SWITCHES

	G	B/W	Y	Bl/W
HORN	○	○		
OFF				
PASSING			○	○

LIGHTING SWITCH

	O	Gr	Y/W	Bl/W	W
ON	○	○	○	○	○
OFF	○			○	

ENGINE KILL SWITCH

	O	O/W
RUN	○	○
OFF		

BRAKE SWITCH

	O	W
ON	○	○
OFF		

STARTER SWITCH

	O/W	Y/G
PUSH	○	○
OFF		

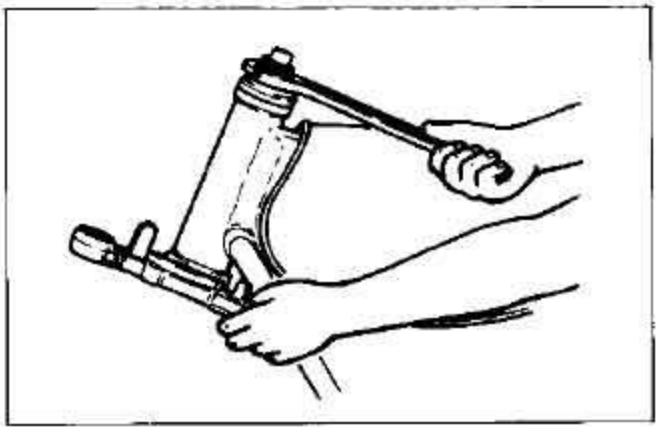
FRONT FORK REMOVAL AND DISASSEMBLY

Set a wooden block under the engine.	• Stabilize motorcycle body.
Remove fairing.	• Loosen fairing stay bolts.
Remove front fender.	
Remove brake caliper and top part of modulator unit.	
Remove front wheel.	• Disconnect speedometer cable. • Remove front axle.
Take off right/left front fork assemblies.	• Loosen steering upper bracket bolts. • Loosen steering bracket bolts.
Take out inner spring and drain oil.	• Remove fork top cap.
Remove inner tube.	• Insert special tool from the upper end of the inner tube and fix the position of the damper rod. • Loosen hexagon bolts from the lower end of the outer tube.
Remove oil seal.	• Use a special tool to remove.
Remove modulator.	• Remove two modulator securing bolts.

STEERING STEM

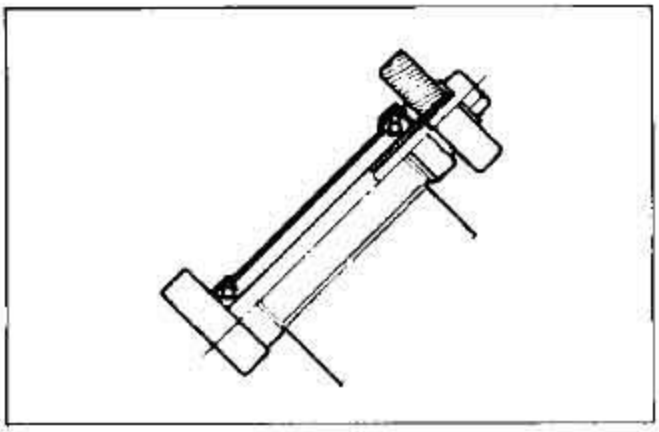
- Remove steering stem nut with universal clamp wrench.

09910-60611	Universal clamp wrench



STEERING BEARING

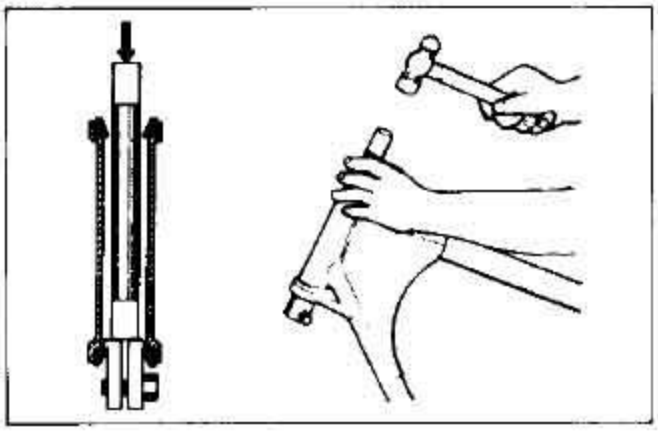
- Inspect steel balls for rust and scratches.
- Inspect races for dents and rubbing scratches.
- Check to be sure that ample grease has been applied.



STEERING RACES

- Use a bearing outer race remover to remove steering races.

09941-54911	Bearing outer race remover

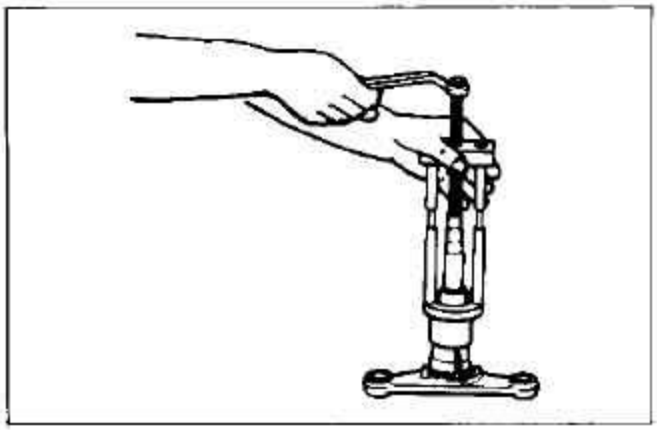


STEERING STEM BEARING

- Remove bearing with a bearing inner race remover.

CAUTION:
Always use the special tool because removal by a cold chisel or other tool will produce scratches on the stem and steering shaft.

09941-84510	Bearing inner race remover

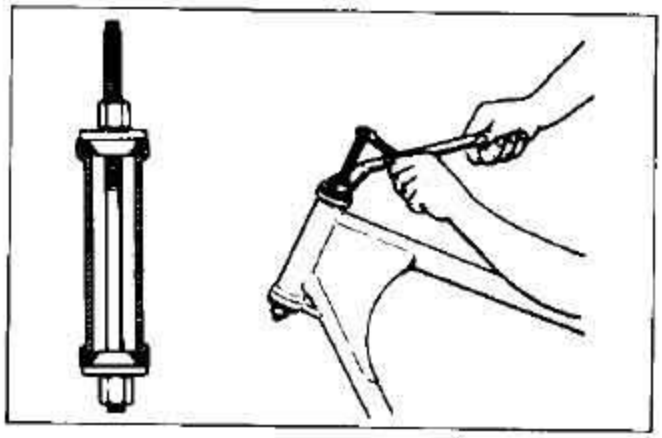


STEERING RACES

- Mount steering races properly with a steering race installer.

CAUTION:
Always use special tools to mount steering races, etc., because the steering component is such a important part in handle operation.

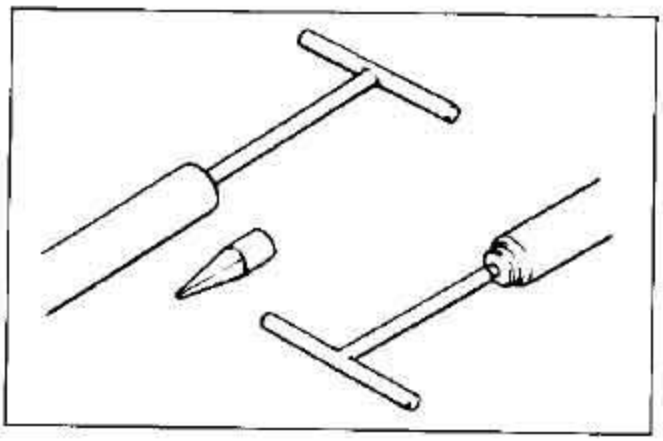
09941-30513	Steering race installer



FRONT FORK INNER TUBE

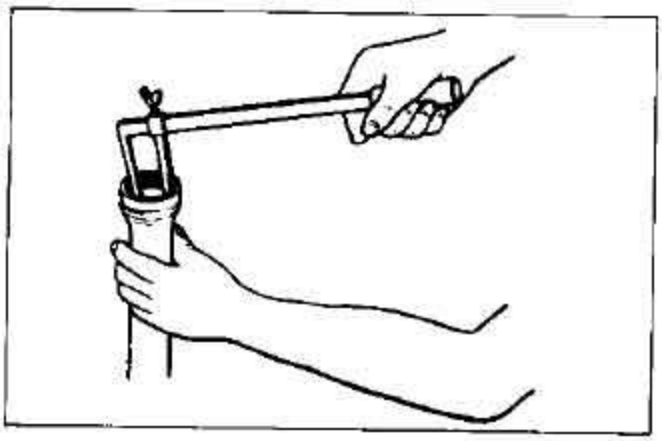
- From the top end of the inner tube, insert a front fork assembling tool with attachment "D", hold the damper rod in place, and loosen the bolt under the outer tube with a hexagon wrench.

09940-34520	T-handle
09940-34561	Attachment "D"



FRONT FORK OIL SEAL

- Remove oil seal stop ring, then remove oil seal with a oil seal remover.

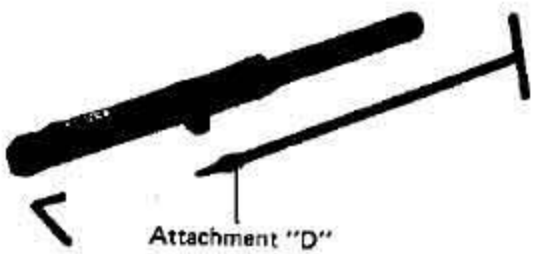


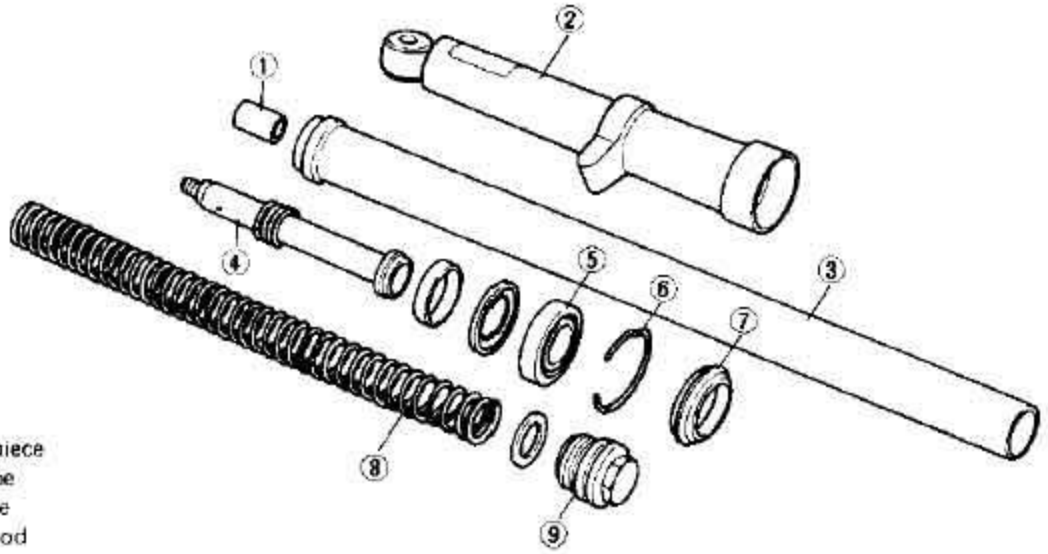
FRONT FORK

- Insert rebound spring and damper rod into inner tube, install oil lock piece to the inner tube, then insert inner tube into outer tube.
- Use a special tool exactly as during disassembly and tighten damper rod bolt.

CAUTION:
Always coat bolts with thread lock "1342".

99000-32050	Thread lock "1342"



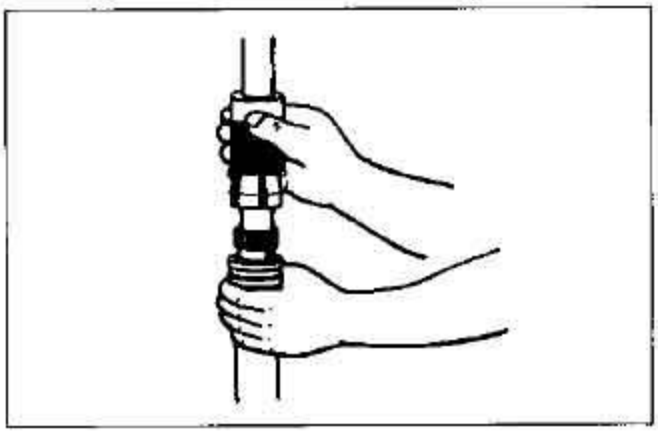


① Oil lock piece
② Outer tube
③ Inner tube
④ Damper rod
⑤ Oil seal
⑥ Stopper ring
⑦ Dust seal
⑧ Springs
⑨ Front fork cap

OIL SEAL

- Pass oil seal from the top of the inner tube, tap it with an oil seal installer, and install an oil seal stopper ring.

09940-50112	Front fork oil seal installer

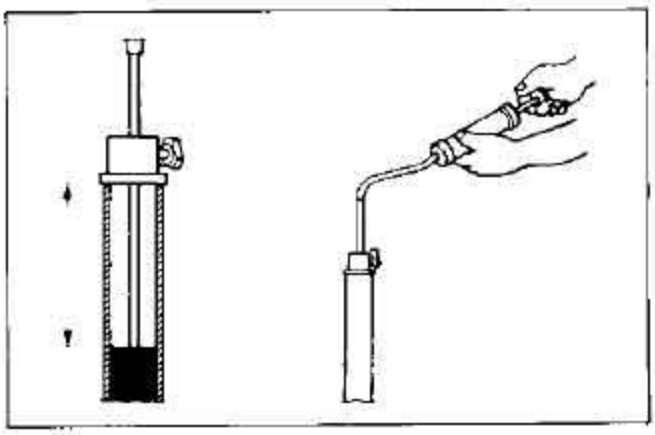


FRONT FORK OIL

- Install the specified front fork oil and adjust the oil level with front fork oil level gauge.

NOTE:
When adjusting oil level, remove the springs and compress the inner tube fully.

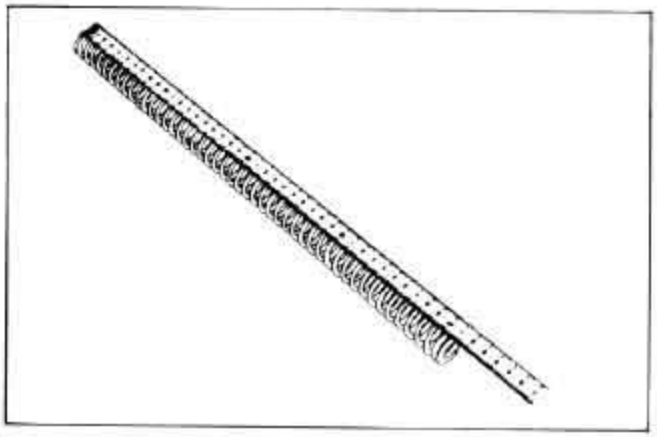
Fork oil level		140 mm
Fork oil		Use fork oil # 15
Oil capacity	R	285 ml
	L	315 ml



FRONT FORK SPRING FREE LENGTH

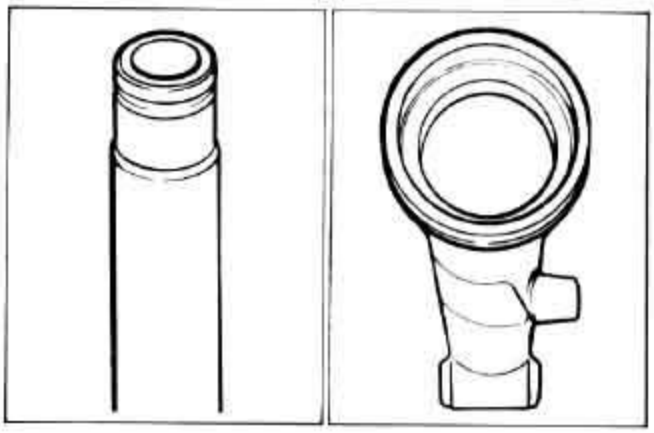
- Take out the front fork spring, place it on a level surface and measure its free length.

Service Limit	509.4 mm



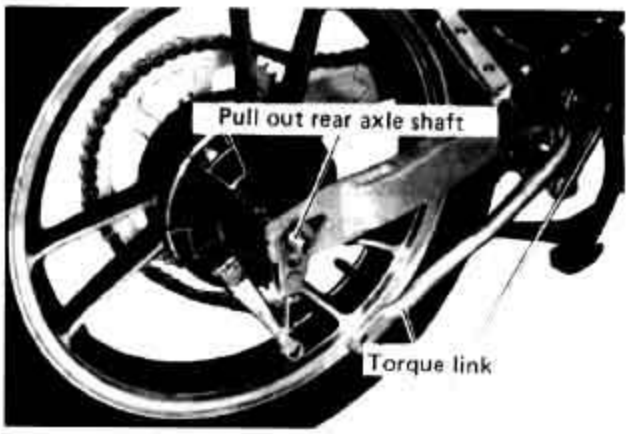
INNER TUBE AND OUTER TUBE

- Inspect inner tube sliding surface for any scuffing and check for the bend. Inspect outer tube sliding surface for any scuffing.

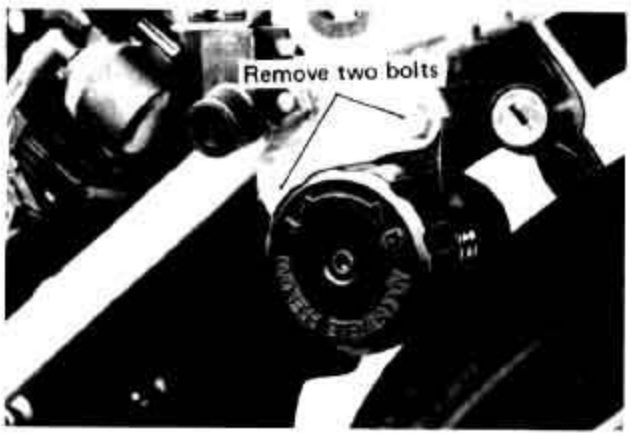


REAR SUSPENSION

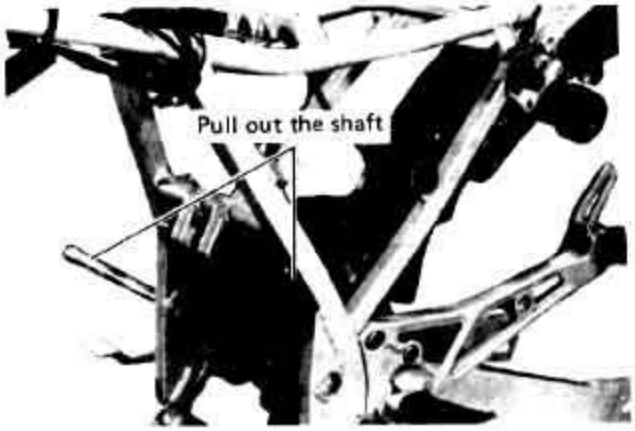
- Remove rear torque link, brake rod and drive chain.
- Pull out rear axle shaft and remove rear wheel.



- Remove spring adjuster.



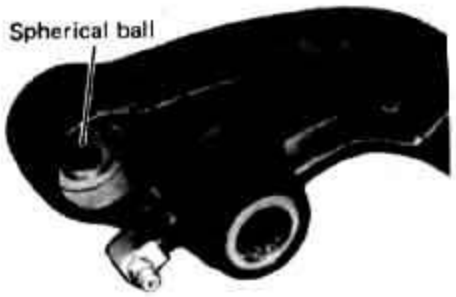
- Remove rear cushion lever plate shaft and swingarm pivot shaft.
- Remove swingarm together with rear suspension components.



SPHERICAL BALL

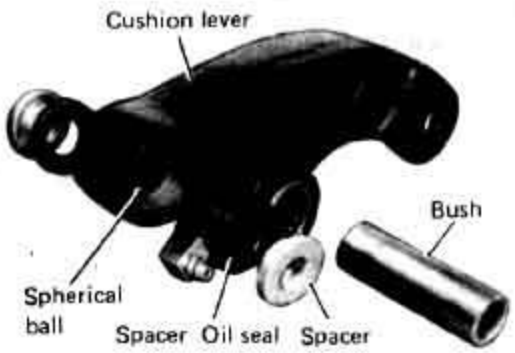
- Check sliding surfaces of the spherical ball for damage and unusual wear and confirm that ball rotates smoothly.
- After inspection, coat ball with a molybdenum grease (Suzuki Moly Paste).

99000-25140	SUZUKI Moly paste



CUSHION ROD AND CUSHION LEVER

- Inspect cushion lever and rod for deformations, cracks, etc.
- Inspect each spacer, bearing and dust seal of the cushion lever and rod for wear, scratches, scuff, etc.



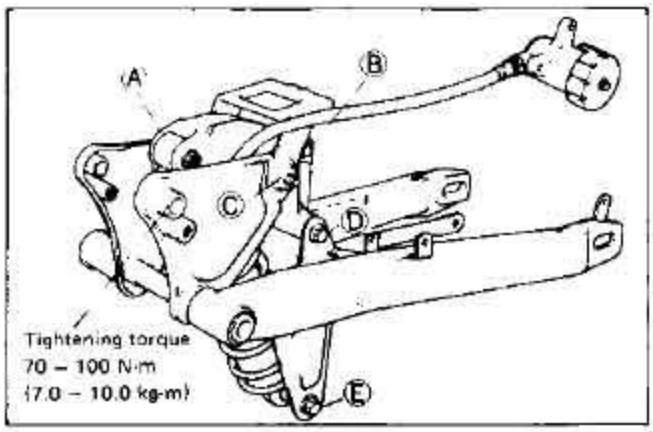
REAR SWINGARM

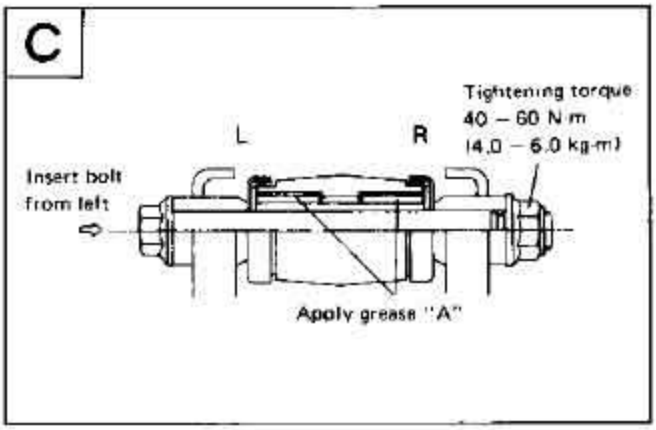
- Check rear swingarm pivot bearing for wear, and inspect spacers and oil seals for wear, damage, etc.

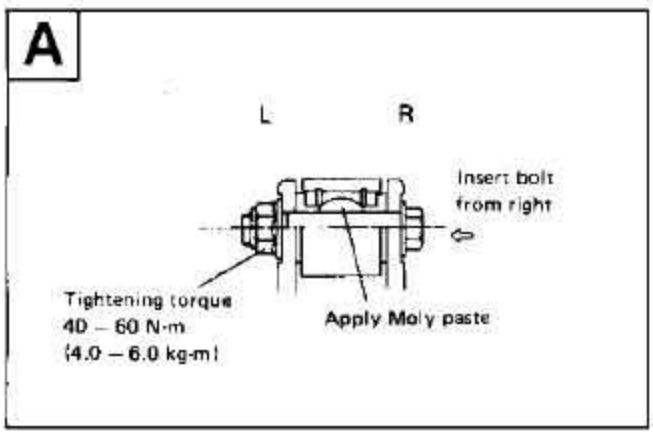
ASSEMBLY OF REAR SUSPENSION COMPONENTS

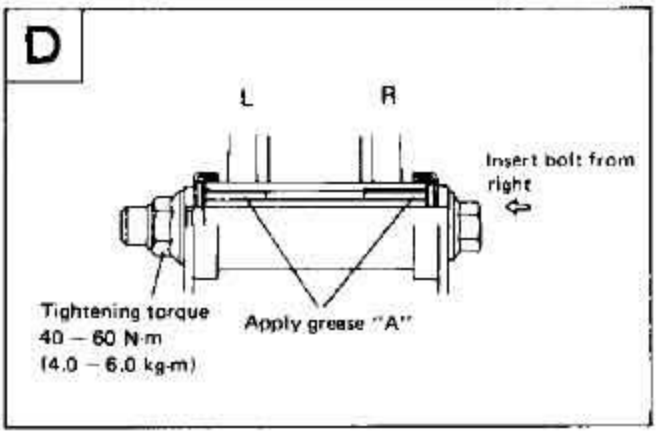
- Before reassembly apply specified grease to the respective parts.

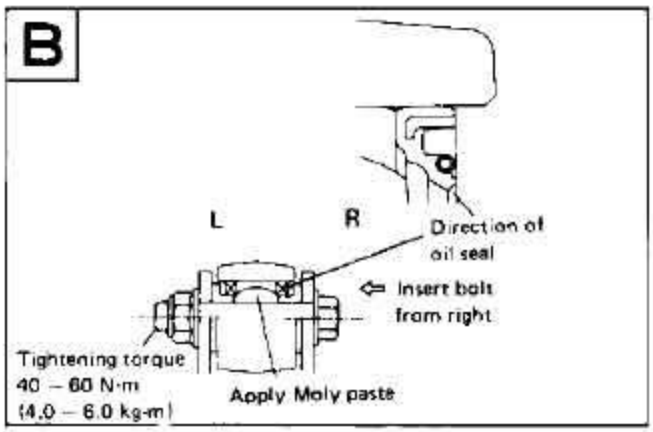
99000-25010	SUZUKI Super grease "A"
99000-25140	SUZUKI Moly paste

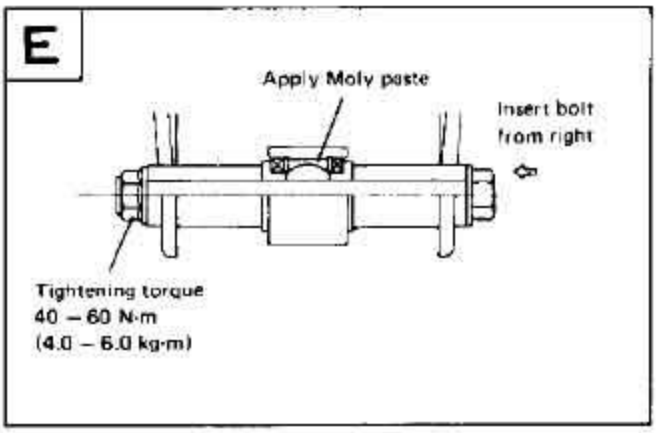








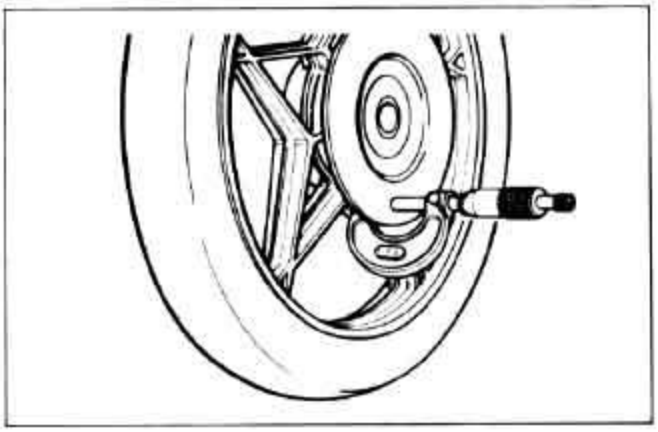




DISC PLATE

- Inspect the disc plate for cracks and unusual scratches.
- With a micrometer, measure the thickness of disc plate.

Service Limit	4.5 mm



BRAKE DISC RUNOUT

- Clean away all dirt such as mud.
- Set the disc plate on a surface plate with its installation side facing downwards, turn the plate slowly and measure the runout with a dial gauge.

Service Limit	0.30 mm

WHEEL BALANCE

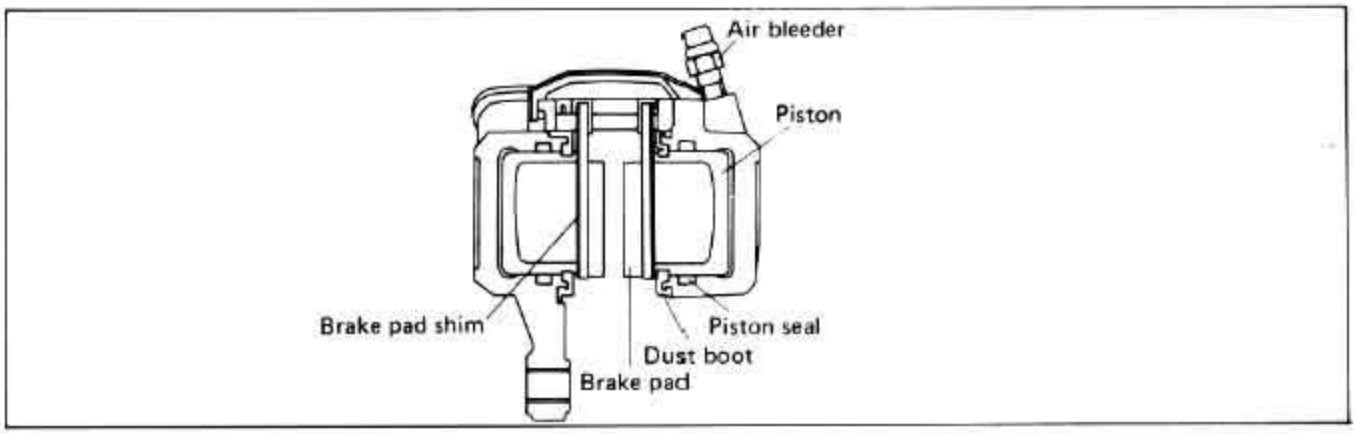
- Set wheel on wheel balancer as shown in the figure and check wheel for weight imbalance while turning it slowly. Adjust balance until wheel stops naturally at an unspecified point.

MASTER CYLINDER

- With the naked eye, inspect all sliding surface of master cylinder and piston for scratches, etc.

Cylinder I.D.

Standard	12.700 – 12.743 mm



FRONT BRAKE AIR BLEEDING

- Pour brake fluid into the reservoir tank of the master cylinder and reinstall the cap.

CAUTION:
- **Always use specified brake fluid.**
- **When adding brake fluid, always have the reservoir tank at a level position.**
- **If brake fluid gets on painted surfaces or resin products, it may cause cracks and damage to surfaces, so please be careful.**

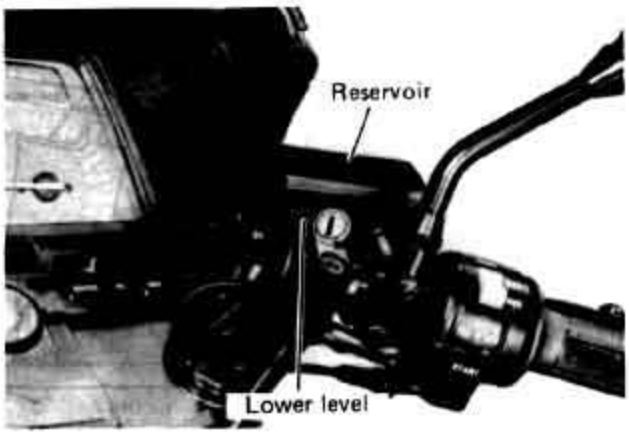
Brake fluid	SAE J1703, DOT3 or DOT4

- Attach transparent vinyl hose to the bleeder at the caliper side and insert the free end of the hose into a receptacle.
- Squeeze and release the brake lever, and while squeezing it firmly, loosen the bleeder and then tighten the bleeder.
- Repeat the above procedure until air bubbles do not come from the attached vinyl hose.

CAUTION:
Be sure to replenish the reservoir tank with brake fluid before it becomes empty.

- After air bleeding, fill reservoir tank with brake fluid up to the top end of the inspection window.

CAUTION:
- **Do not reuse brake fluid after it has been used once.**
- **Check all parts to make sure that brake fluid has not gotten on them.**



REAR BRAKE DRUM

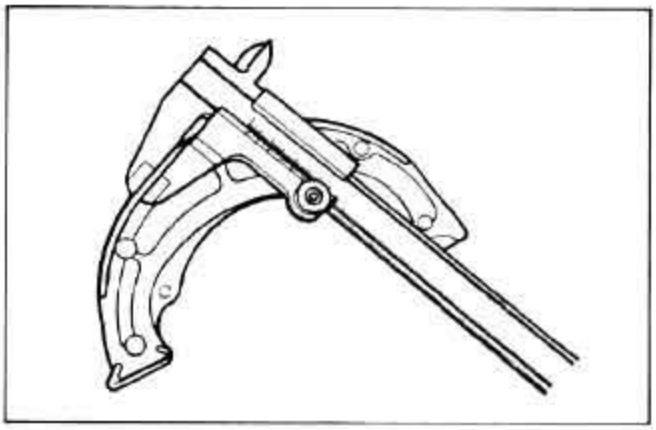
- Measure inside diameter of brake drum with calipers.
- Check for unusual scratches on drum surfaces.

Service Limit	160.7 mm

BRAKE SHOE

- Check the brake shoe and decide whether it should be replaced or not from the thickness of the brake shoe lining.

Service Limit	1.5 mm (0.06 in.)



BRAKE CAM

- Inspect brake cam for rust and unusual wear.
- Insert cam into brake panel and confirm that it turns smoothly.
- Make sure that brake cam has been coated with grease.

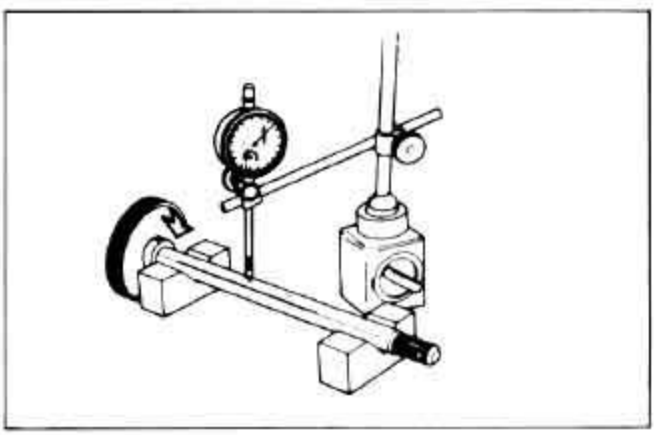
CAUTION:
Do not apply too much grease on the brake cam, or brake shoe gets grease and brake slippage will result.

AXLE SHAFT

- Check axle shaft runout, using V blocks and a dial gauge.

Wheel axle runout

Service Limit	0.25 mm



SERVICING INFORMATION

CONTENTS

TIGHTENING TORQUE

ENGINE

ITEM		N·m	kg-m
Conrod nut		23 – 27	2.3 – 2.7
Crankcase bolt	6 mm	9 – 13	0.9 – 1.3
	8 mm	20 – 24	2.0 – 2.4
Oil pump bolt		8 – 12	0.8 – 1.2
Clutch sleeve hub nut		50 – 70	5.0 – 7.0
Starter clutch bolt		15 – 20	1.5 – 2.0
Generator rotor bolt		110 – 130	11.0 – 13.0
Oil pipe bolt	8 mm	8 – 12	0.8 – 1.2
	10 mm	18 – 22	1.8 – 2.2
Cylinder head nut	8 mm	20 – 25	2.0 – 2.5
Cylinder head bolt	6 mm	8 – 12	0.8 – 1.2
Cam sprocket bolt		24 – 26	2.4 – 2.6
Cam shaft holder bolt		8 – 12	0.8 – 1.2
Cylinder head cover bolt		11 – 13	1.1 – 1.3

CHASSIS

ITEM		N·m	kg-m
Front axle nut		36 – 52	3.6 – 5.2
Rear axle nut		50 – 80	5.0 – 8.0
Rear swingarm pivot shaft nut		50 – 80	5.0 – 8.0
Front fork upper clamp bolt		20 – 30	2.0 – 3.0
Steering stem clamp bolt		12 – 20	1.2 – 2.0
Front fork lower clamp bolt		20 – 30	2.0 – 3.0
Handlebar clamp bolt		50 – 60	5.0 – 6.0
	8 mm for FW	15 – 25	1.5 – 2.5
Handlebar holder nut		20 – 30	2.0 – 3.0
Front axle holder nut		15 – 25	1.5 – 2.5
Rear torque link bolt		20 – 30	2.0 – 3.0
Rear shock absorber nut (upper)		40 – 60	4.0 – 6.0
Rear shock absorber nut (lower)		40 – 60	4.0 – 6.0
Rear brake pedal bolt		10 – 15	1.0 – 1.5
Front caliper air bleeder		6 – 9	0.6 – 0.9
Front brake hose union bolt		20 – 25	2.0 – 2.5
Rear brake cam lever bolt		5 – 8	0.5 – 0.8
Front caliper bolt		25 – 40	2.5 – 4.0
Engine mounting bolt		60 – 72	6.0 – 7.2

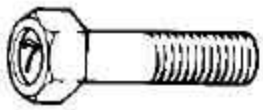
TIGHTENING TORQUE CHART

For other bolts and nuts not listed, refer to this chart:

Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kg-m	lb-ft	N·m	kg-m	lb-ft
4	1.0 – 2.0	0.1 – 0.2	0.7 – 1.5	1.5 – 3.0	0.15 – 0.3	1.0 – 2.0
5	2.0 – 4.0	0.2 – 0.4	1.5 – 3.0	3.0 – 6.0	0.3 – 0.6	2.0 – 4.5
6	4.0 – 7.0	0.4 – 0.7	3.0 – 5.0	8.0 – 12.0	0.8 – 1.2	6.0 – 8.5
8	10.0 – 16.0	1.0 – 1.6	7.0 – 11.5	18.0 – 28.0	1.8 – 2.8	13.0 – 20.0
10	22.0 – 35.0	2.2 – 3.5	16.0 – 25.5	40.0 – 60.0	4.0 – 6.0	29.0 – 43.5
12	35.0 – 55.0	3.5 – 5.5	25.5 – 40.8	70.0 – 100.0	7.0 – 10.0	50.5 – 72.5
14	50.0 – 80.0	5.0 – 8.0	36.0 – 58.0	110.0 – 160.0	11.0 – 16.0	79.5 – 115.5
16	80.0 – 130.0	8.0 – 13.0	58.0 – 94.0	170.0 – 250.0	17.0 – 25.0	123.0 – 181.0
18	130.0 – 190.0	13.0 – 19.0	94.0 – 137.5	200.0 – 280.0	20.0 – 28.0	144.5 – 202.5

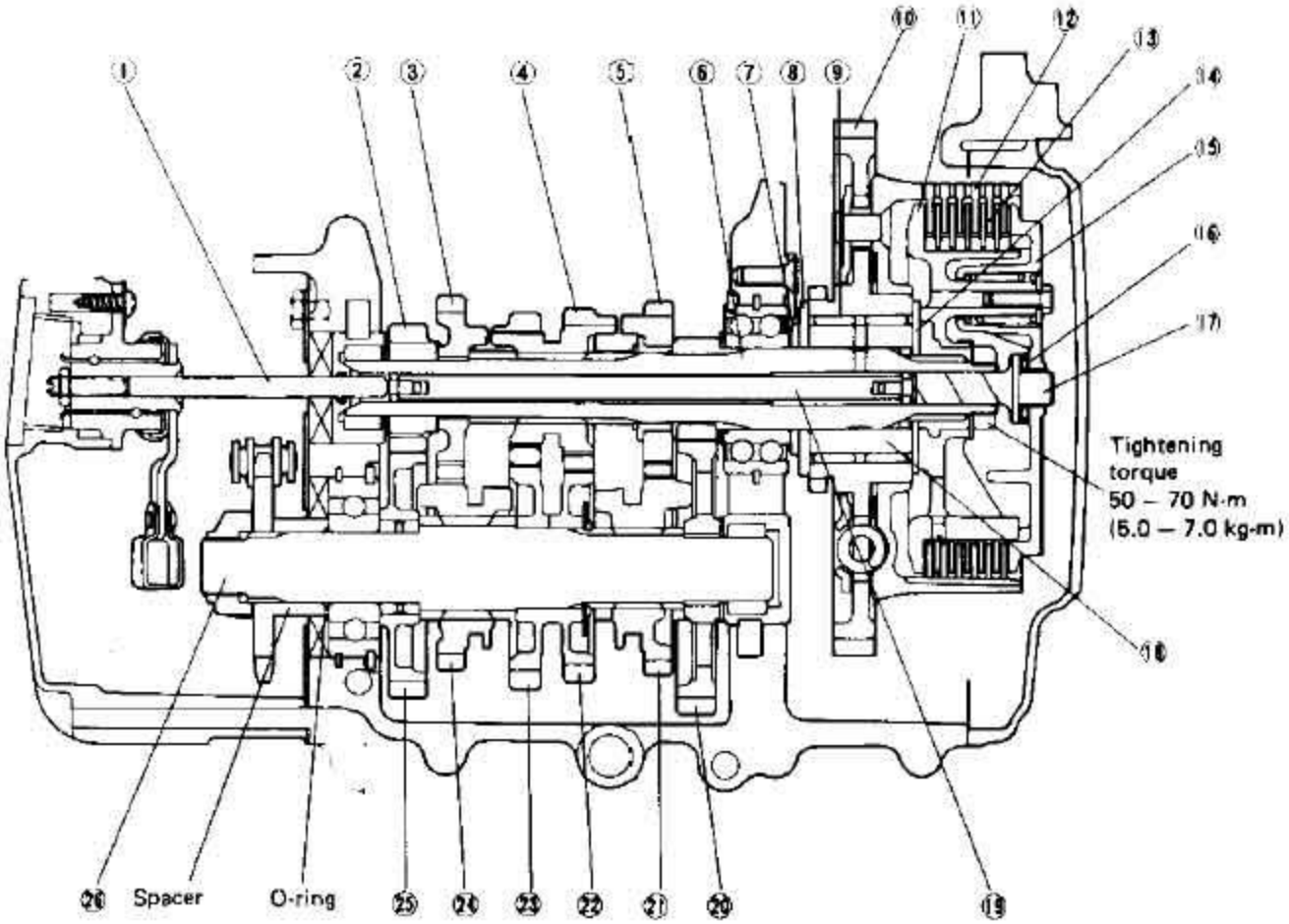
Conventional bolt

"4" marked bolt



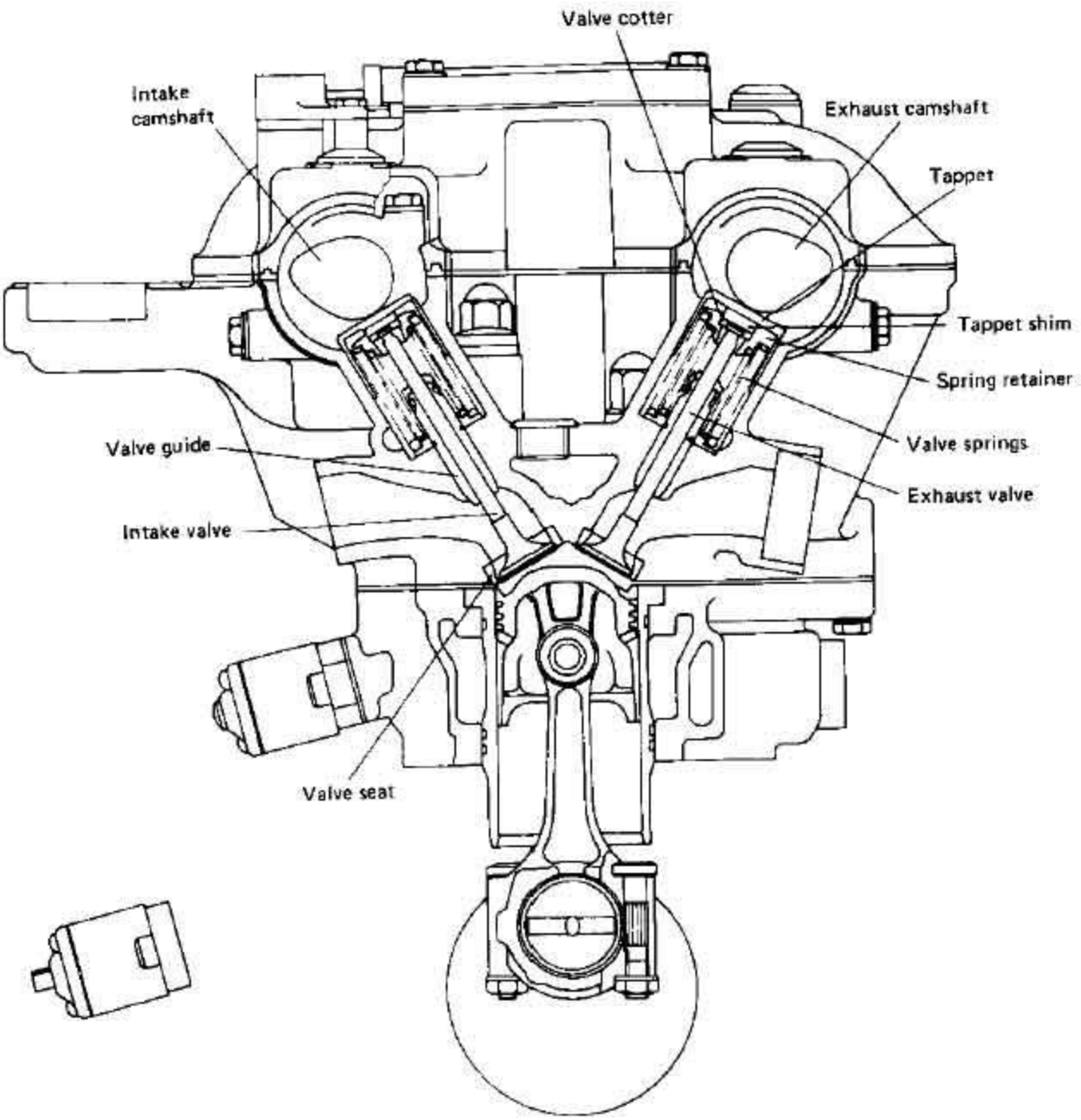
"7" marked bolt

TRANSMISSION

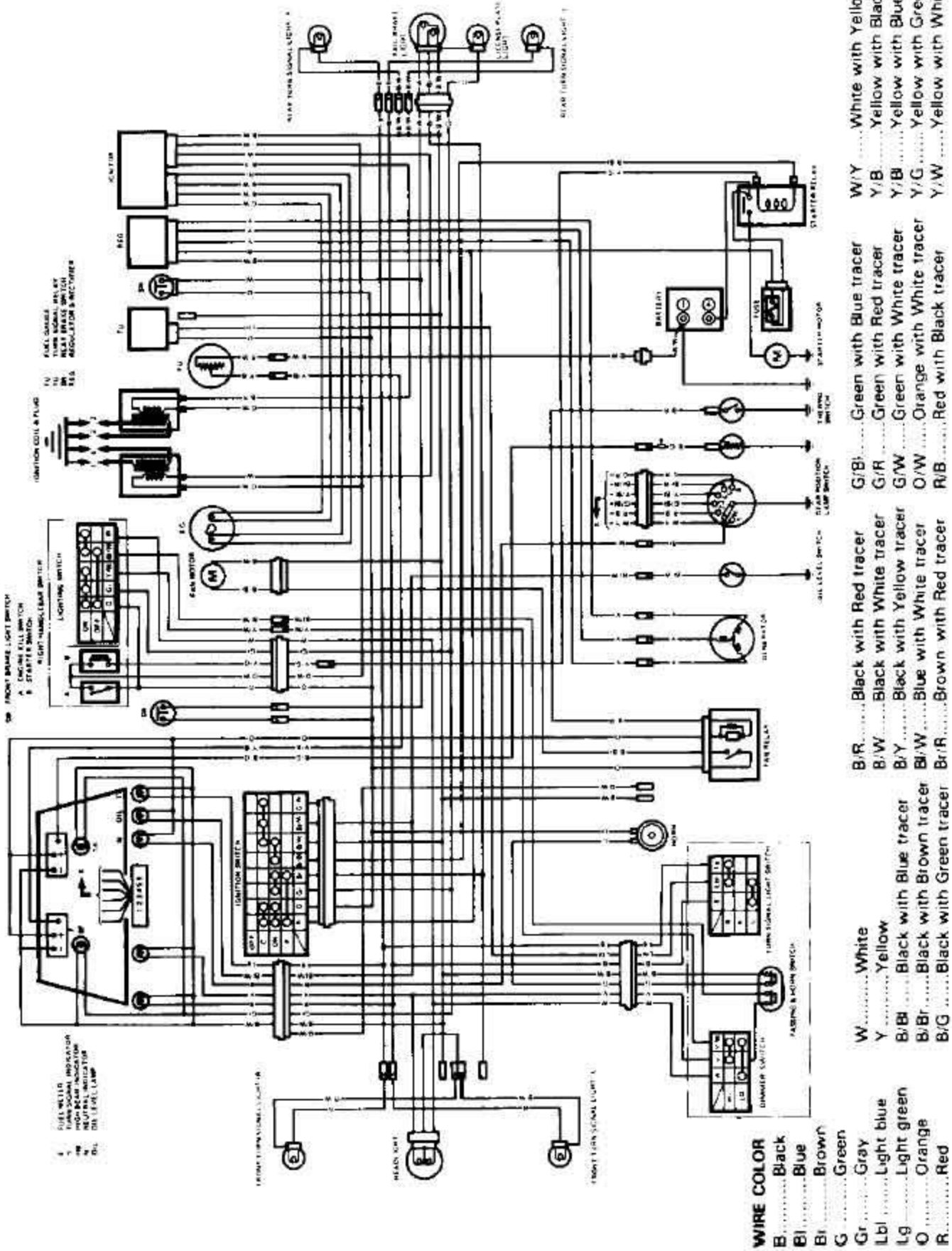


1. Pushrod
2. 2nd drive gear
3. Top drive gear
4. 3rd/4th drive gear
5. 5th drive gear
6. Countershaft
7. Thrust washer
8. Spacer No. 2
9. Needle bearing
10. Primary driven gear
11. Clutch sleeve hub
12. Drive plate
13. Driven plate
14. Thrust washer
15. Clutch pressure plate
16. Push piece bearing
17. Push piece
18. Spacer
19. Push rod
20. Low driven gear
21. 5th driven gear
22. 4th driven gear
23. 3rd driven gear
24. Top driven gear
25. 2nd driven gear
26. Drive shaft

VALVE RELATED PARTS



WIRING DIAGRAM

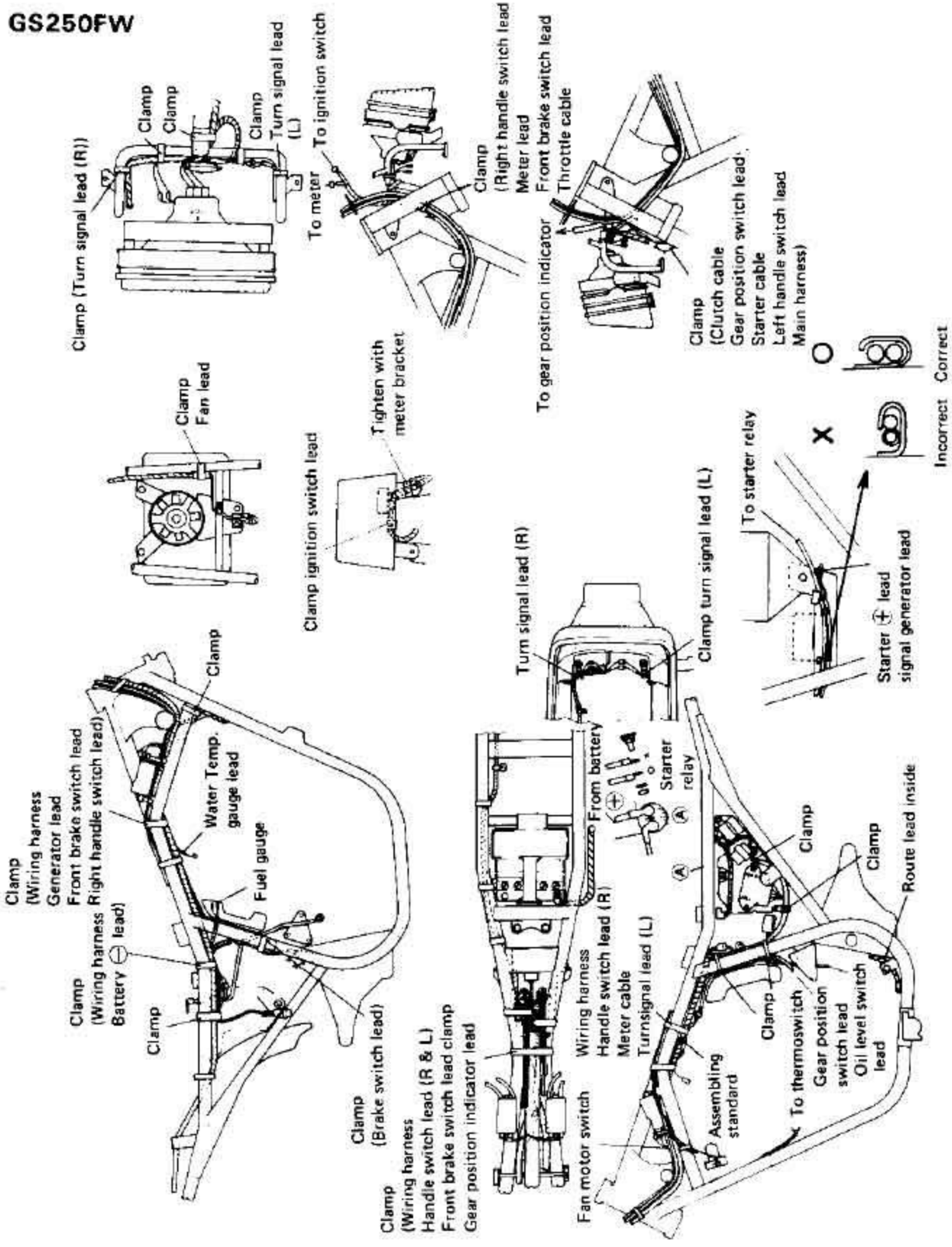


WIRE COLOR

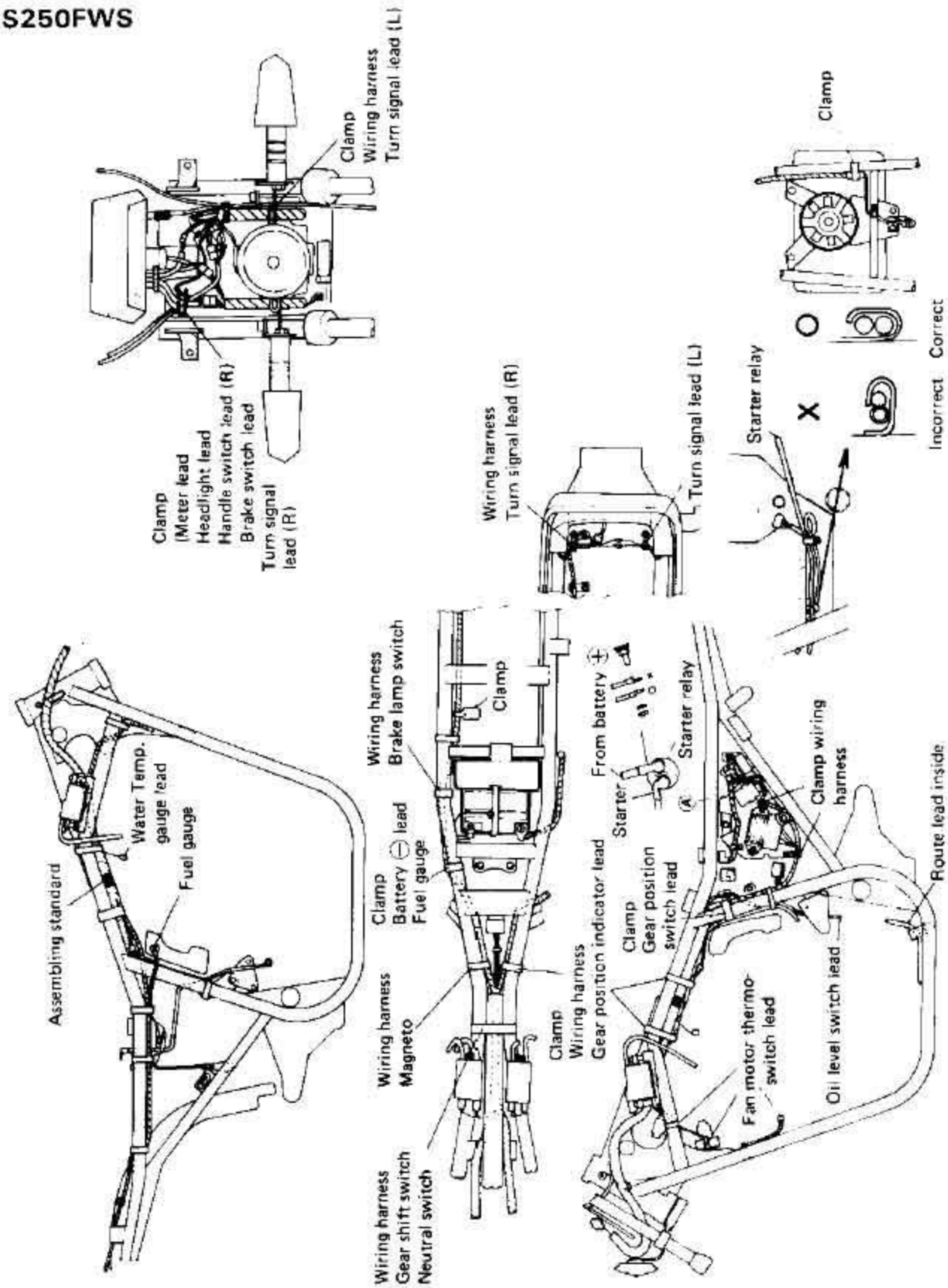
B	Black	W	White	B/R	Black with Red tracer	G/Bl	Green with Blue tracer	W/Y	White with Yellow tracer
Bl	Blue	Y	Yellow	B/W	Black with White tracer	G/R	Green with Red tracer	Y/B	Yellow with Black tracer
Br	Brown			B/Y	Black with Yellow tracer	G/W	Green with White tracer	Y/Bl	Yellow with Blue tracer
G	Green			Bl/W	Blue with White tracer	O/W	Orange with White tracer	Y/G	Yellow with Green tracer
Gr	Gray			Br/R	Brown with Red tracer	R/B	Red with Black tracer	Y/W	Yellow with White tracer
Lbl	Light blue								
Lg	Light green			B/Bl	Black with Blue tracer				
O	Orange			B/Br	Black with Brown tracer				
R	Red			B/G	Black with Green tracer				

WIRE AND CABLE ROUTING

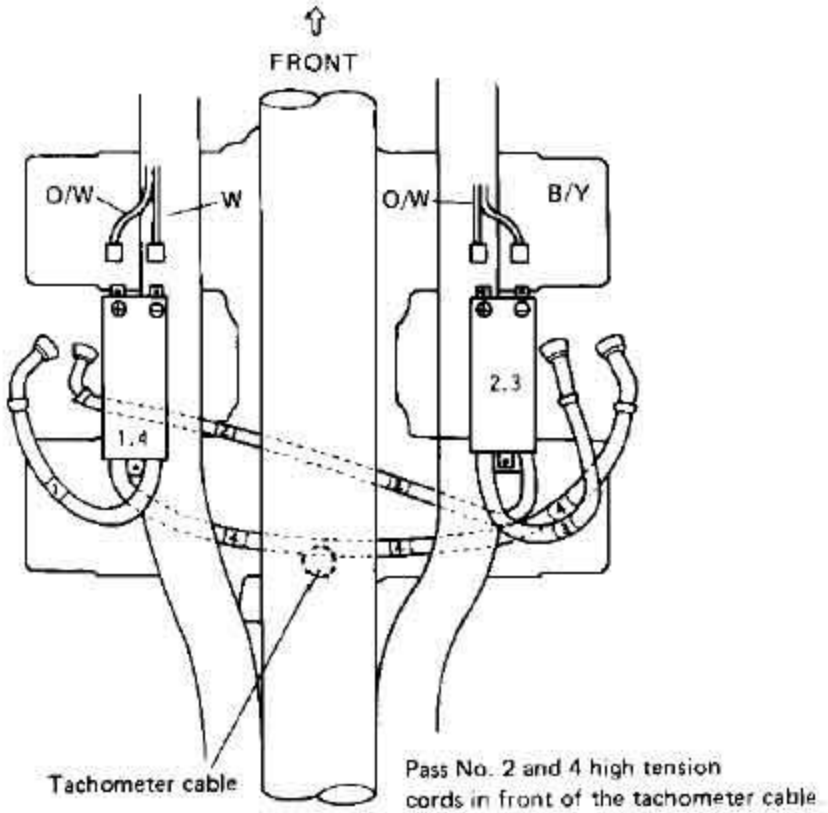
GS250FW



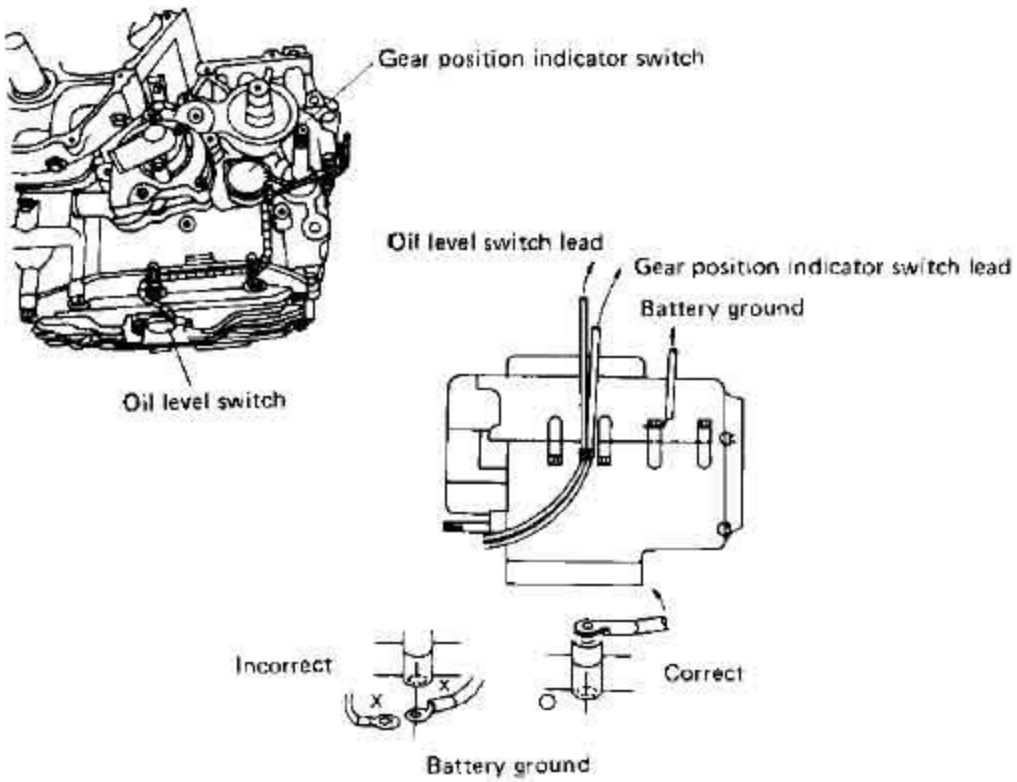
GS250FWS


Clamp
Wiring harness
Turn signal lead (L)
Clamp
(Meter lead
Headlight lead
Handle switch lead
Brake switch lead
Turn signal
lead (R)
Wiring harness
Turn signal lead (R)
Turn signal lead (L)
Starter relay
Clamp
Incorrect
Correct
Assembling standard
Water Temp.
gauge lead
Fuel gauge
Wiring harness
Brake lamp switch
Clamp
Clamp
Battery ⊖ lead
Fuel gauge
Wiring harness
Magneto
Clamp
Wiring harness
Gear position indicator lead
From battery ⊕
Starter
Starter relay
Clamp
Gear position
switch lead
Clamp wiring
harness
Route lead inside
Wiring harness
Gear shift switch
Neutral switch
Fan motor thermo-
switch lead
Oil level switch lead

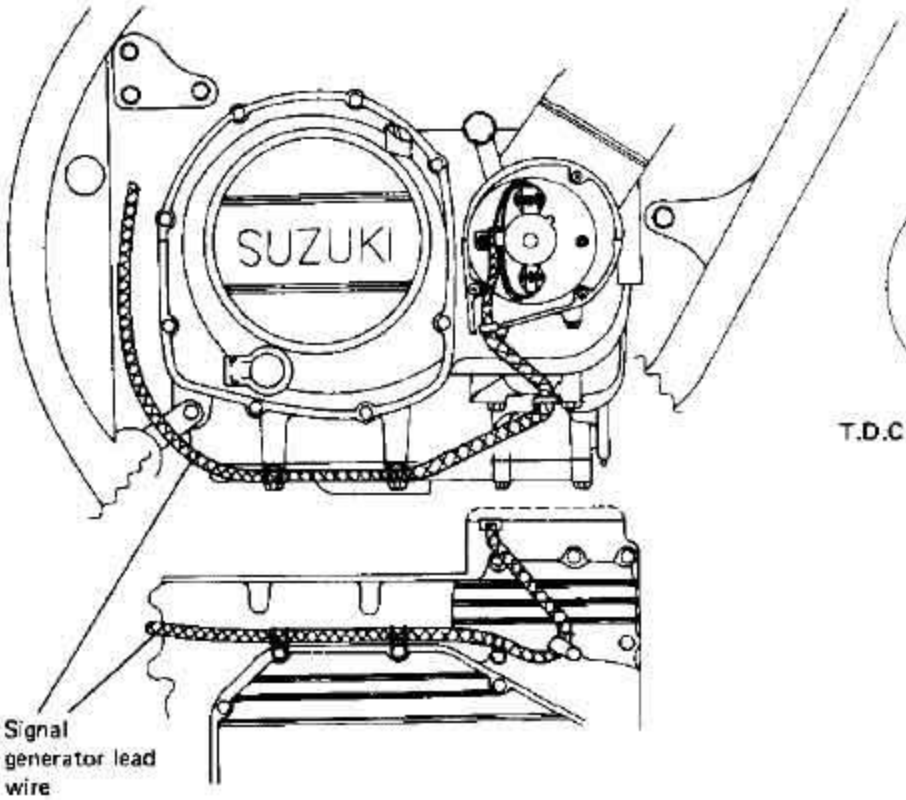
IGNITION COIL

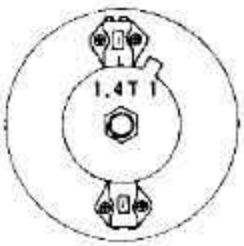


GEAR POSITION INDICATOR SWITCH LEAD



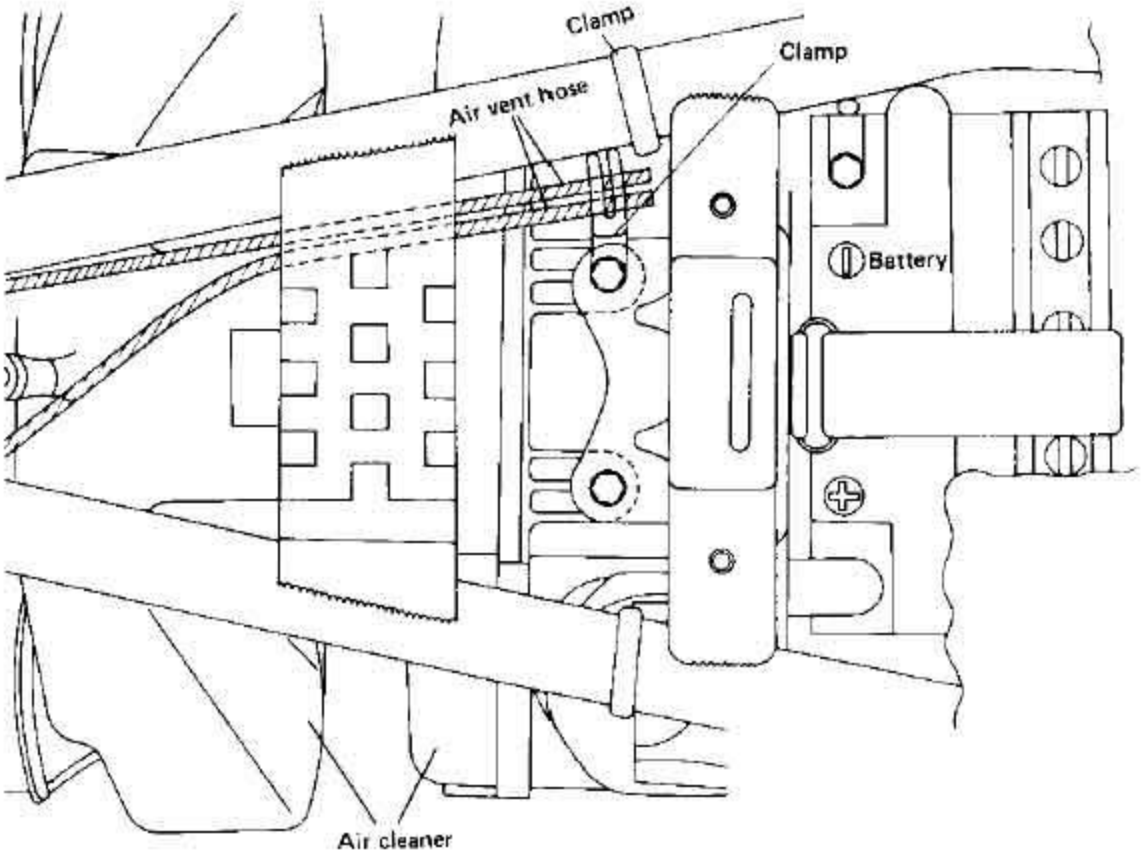
SIGNAL GENERATOR



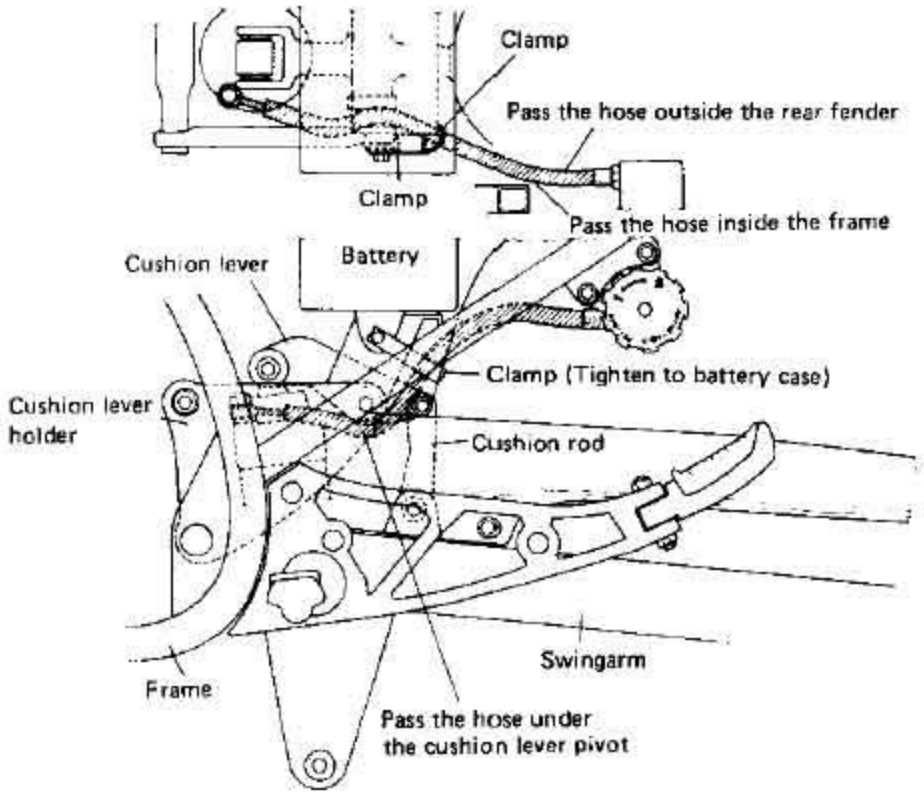


T.D.C of Nos. 1 and 4 cylinders

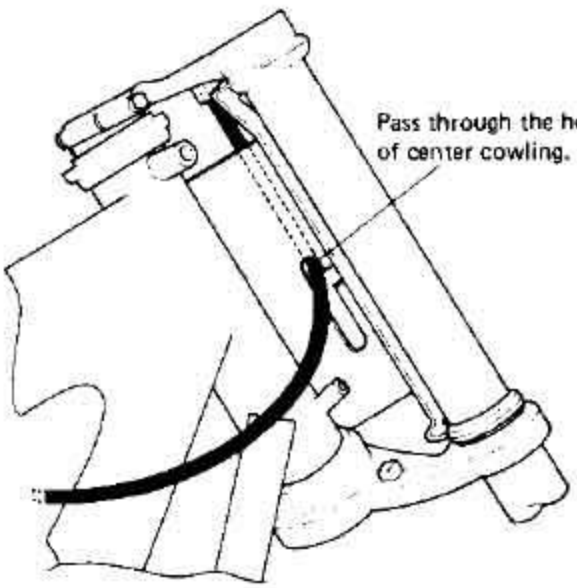
CARBURETOR AIR VENT HOSE



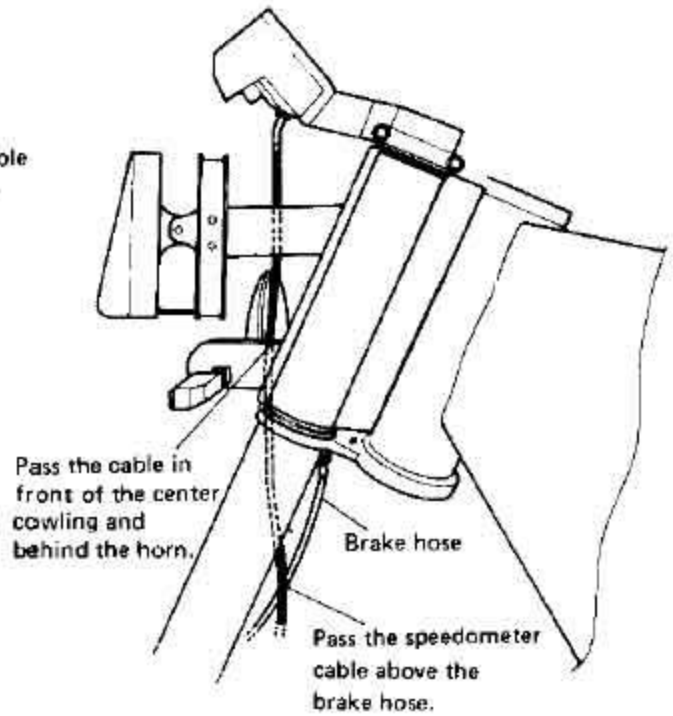
SPRING ADJUSTER HOSE ROUTING



SPEEDOMETER CABLE ROUTING

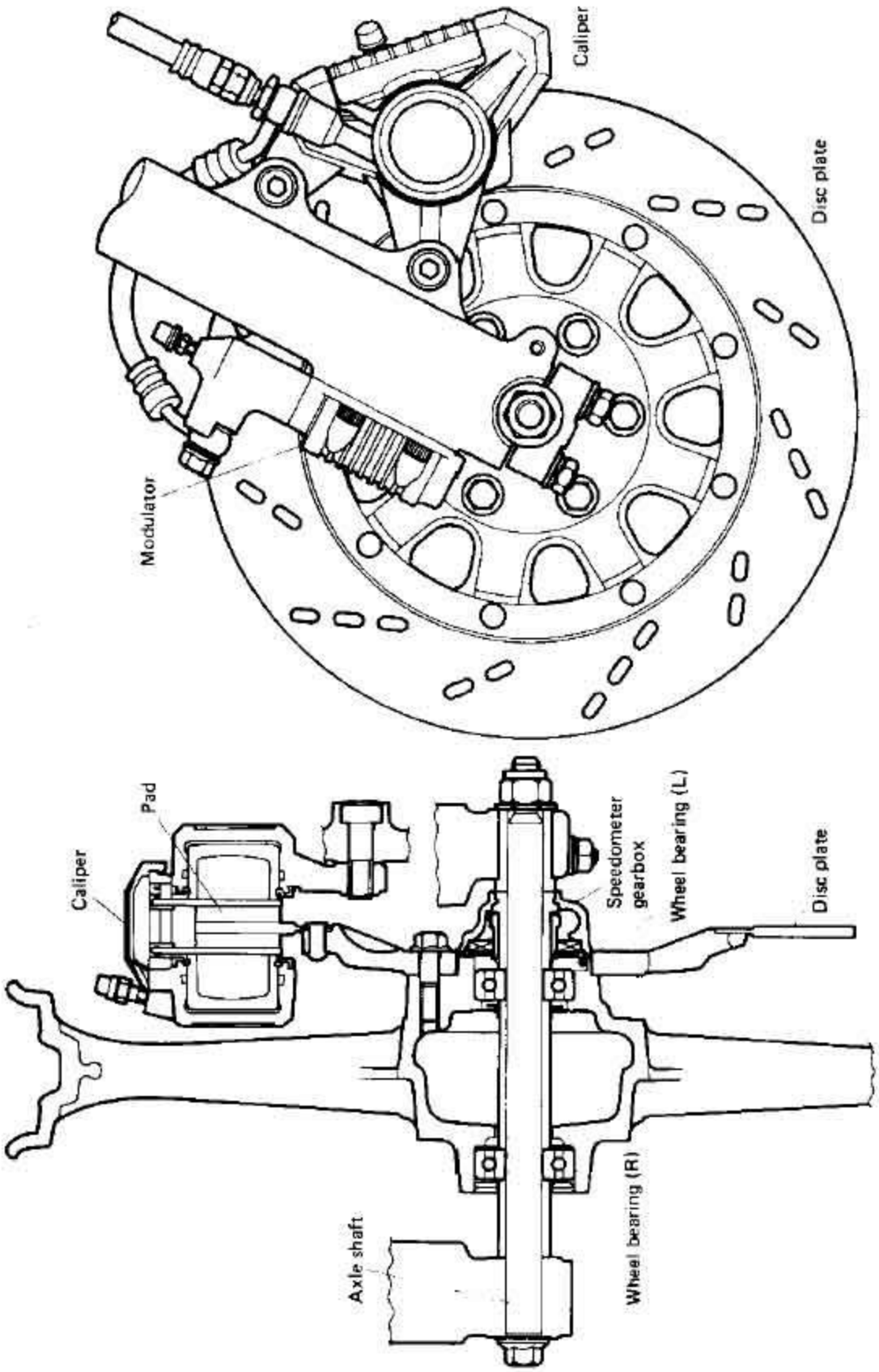


GS250FW

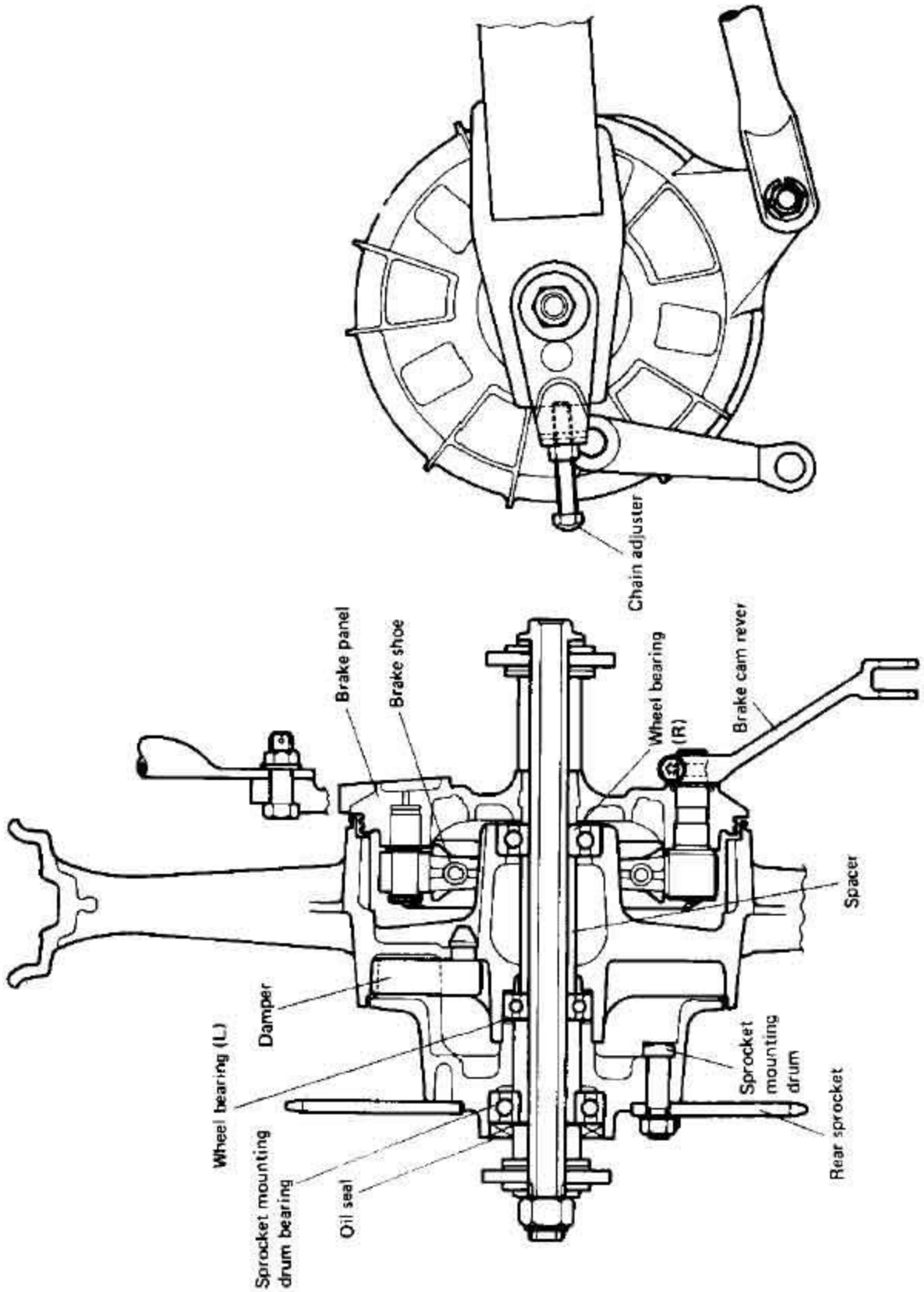


GS250FWS

FRONT BRAKE


Caliper
Disc plate
Modulator
Pad
Caliper
Speedometer gearbox
Wheel bearing (L)
Disc plate
Axle shaft
Wheel bearing (R)

REAR WHEEL


Chain adjuster
Brake panel
Brake shoe
Wheel bearing (R)
Brake cam rever
Spacer
Damper
Wheel bearing (L)
Sprocket mounting drum bearing
Oil seal
Sprocket mounting drum
Rear sprocket

SERVICE DATA

VALVE + GUIDE

Unit: mm

ITEM		STANDARD	LIMIT
Valve diam.	IN.	23.5	—
	EX.	20.5	—
Valve lift	IN.	7.5	—
	EX.	6.5	—
Tappet clearance (when cold)	IN. & EX.	0.10–0.20	—
Valve guide to vlave stem clearance	IN.	0.025–0.052	0.35
	EX.	0.040–0.067	0.35
Valve guide I.D.	IN. & EX.	5.000–5.012	—
Valve stem O.D.	IN.	4.960–4.975	—
	EX.	4.945–4.960	—
Valve stem runout	IN. & EX.	—	0.05
Valve head thickness	IN. & EX.	—	0.5
Valve stem end length	IN. & EX.	—	2.5
Valve seat width	IN. & EX.	0.9–1.1	—
Valve head radial runout	IN. & EX.	—	0.03
Valve spring free length (IN. & EX.)	INNER	—	36.2
	OUTER	—	40.4
Valve spring tension (IN. & EX.)	INNER	7.4–8.7 kg at length 32 mm	—
	OUTER	13.1–15.3 kg at length 37 mm	—

CAMSHAFT + CYLINDER HEAD

Unit: mm

ITEM		STANDARD	LIMIT
Cam height	IN.	33.780–33.820	33.480
	EX.	32.770–32.810	32.470
Camshaft journal oil clearance	IN. & EX.	0.032–0.066	0.150
Camshaft journal holder I.D.	IN. & EX.	20.012–20.025	—
Camshaft journal O.D.	IN. & EX.	19.959–19.980	—
Camshaft runout	IN. & EX.	—	0.10
Cam chain 20-pitch length		—	157.80
Cam chain pin (at arrow "3")		18th pin	—
Cylinder head distortion		—	0.20

CYLINDER + PISTON + PISTON RING

Unit: mm

ITEM	STANDARD	LIMIT
Compression pressure	11–15 kg/cm²	9 kg/cm²
Compression pressure difference	—	2 kg/cm²
Piston to cylinder clearance	0.040–0.050	0.120
Cylinder bore	44.000–44.015	44.090
Piston diam.	43.955–43.970 Measure at 12 from the skirt end.	43.880
Cylinder distortion	—	0.20

ITEM			STANDARD	LIMIT
Piston ring free end gap	1st	R	Approx. 4.1	3.3
		T	Approx. 4.0	3.2
	2nd	R	Approx. 5.7	4.6
		T	Approx. 6.0	4.8
Piston ring end gap	1st		0.10—0.25	0.70
	2nd		0.10—0.30	0.70
Piston ring to groove clearance	1st		—	0.180
	2nd		—	0.150
Piston ring groove width	1st		1.21—1.23	—
	2nd		1.21—1.23	—
	Oil		2.01—2.03	—
Piston ring thickness	1st		1.175—1.190	—
	2nd		1.175—1.190	—
Piston pin bore	12.002—12.008			12.030
Piston pin O.D.	11.996—12.000			11.980

CONROD + CRANKSHAFT + BALANCER

Unit: mm

ITEM	STANDARD	LIMIT
Conrod small end I.D	12.010—12.018	12.040
Conrod big end side clearance	0.10—0.20	0.30
Conrod big end width	16.95—17.00	—
Crank pin width	17.10—17.15	—
Conrod big end oil clearance	0.032—0.056	0.080
Crank pin O.D.	27.976—28.000	—
Crankshaft journal oil clearance	0.020—0.044	0.080
Crankshaft journal O.D.	27.976—28.000	—
Crankshaft thrust bearing thickness	2.350—2.500	—
Crankshaft thrust clearance	0.045—0.100	—
Crankshaft journal holder width	13.05—13.13	—
Crankshaft journal width	18.00—18.05	—
Crankshaft runout	—	0.05

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	2.238 (78/36 x 31/30)	—
Oil pressure (at 60°C, 140°F)	Above 2.5 kg/cm^2 Below 5.5 kg/cm^2 at 3 000 r/min.	

CLUTCH

Unit: mm

ITEM	STANDARD	LIMIT
Clutch cable play	4	—
Clutch release screw	1/4—1/2 turn back	—
Drive plate thickness	2.90—3.10	2.60

ITEM	STANDARD	LIMIT
Drive plate claw width	12.00–12.02	11.20
Driven plate thickness	1.60 ± 0.10	—
Driven plate distortion	—	0.10
Clutch spring free length	—	33.7

THERMOSTAT + RADIATOR + FAN

ITEM		STANDARD	LIMIT
Thermostat valve opening temperature		75.0 ± 1.5°C	
Thermostat valve lift		Approx. 3.0 mm at 90°C	
Radiator cap valve release pressure		0.9 ± 0.15 kg/cm²	
Electric fan	ON	Approx. 105°C	—
	OFF	Approx. 98°C	—

TRANSMISSION + DRIVE CHAIN

Unit: mm Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		2.166 (78/36)	—
Final reduction ratio		3.615 (47/13)	—
Gear ratios	Low	3.454 (38/11)	
	2nd	2.266 (34/15)	—
	3rd	1.750 (28/16)	—
	4th	1.450 (29/20)	—
	5th	1.250 (30/24)	—
	Top	1.150 (23/20)	—
Shift fork to groove clearance		0.10–0.30	0.50
Shift fork groove width		5.00–5.10	
Shift fork thickness		4.80–4.90	
Countershaft length (Low to 2nd)		101.1–101.2	
Drive chain	Type	D.I.D.: 520VCR TAKASAGO: RK520BO	—
	Links	108 links	—
	20-pitch length	—	319.4
Drive chain slack		25–35	—

CARBURETOR

ITEM	SPECIFICATION
Carburetor type	MIKUNI BSW24SS
Bore size	24 mm
I.D. No.	38400
Idle r/min.	1 250 ± 50 r/min.
Fuel level	6.5 ± 0.5 mm
Float height	20.5 ± 1.0 mm
Main jet (M.J.)	# 85

ITEM		SPECIFICATION
Main air jet	(M.A.J.)	1.5 mm
Jet needle	(J.N.)	4CH01-3rd
Needle jet	(N.J.)	O-1
Throttle valve	(Th.V.)	# 90
Pilot jet	(P.J.)	# 30
By pass	(B.P.)	0.9, 0.8, 0.8 mm
Pilot outlet	(P.O.)	0.8 mm
Valve seat	(V.S.)	2.0 mm
Starter jet	(G.S.)	# 32.5
Pilot screw	(P.S.)	1 1/2 turn out
Pilot air jet	(P.A.J.)	# 160
Throttle cable play		0.5 – 1.0 mm
Choke cable play		0.5 – 1.0 mm

ELECTRICAL

Unit: mm

ITEM	SPECIFICATION		NOTE
Ignition timing	20° B.T.D.C. Below 1 650 ± 100 r/min and 40° B.T.D.C. Above 3 500 ± 100 r/min.		
Firing order			
Spark plug	Type	N.D.: X27ES-U NGK: D9EA	
	Gap	0.6 – 0.7	
Spark performance	Over 8 at 1 atm.		
Signal coil resistance	250 – 500 Ω		
Ignition coil resistance	Primary	⊕ tap – ⊖ tap 3 – 5 Ω	
	Secondary	Plug cap – Plug cap 30 – 60 kΩ	
Generator no-load voltage	More than 75V (AC) at 5 000 r/min.		
Regulated voltage	14 – 15 V at 5 000 r/min.		
Starter motor brush length	Limit: 9		N.D.
Commutator under-cut	Limit: 0.2		
Starter relay resistance	3 – 5 Ω		
Thermostat resistance	104 Ω at 60 ± 10°C		
	27.4 Ω at 100 ± 2°C		
Battery	Type designation	YB10L-A2	
	Capacity	12V43.2kC(12Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	20 A		

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	60
	LO	55

ITEM	SPECIFICATION
Tail/Brake light	23/8
Turn signal light	23
Meter light	3.4
Turn signal indicator light	3.4
High beam indicator light	1.7
Neutral indicator light	3.4
Oil pressure indicator light	3.4
License light	8
Gear position indicator light	1.12

BRAKE + WHEEL

Unit: mm

ITEM		STANDARD	LIMIT
Rear brake pedal free travel		20–30	—
Rear brake pedal height		35	—
Brake drum I.D.	Rear	—	160.7
Brake lining thickness		—	1.5
Brake disc thickness	Front	5.0 ± 0.2	4.5
Brake disc runout		—	0.30
Master cylinder bore	Front	12.700–12.743	—
Master cylinder piston diam.	Front	12.657–12.684	—
Brake caliper cylinder bore	Front	38.180–38.256	—
Brake caliper piston diam.	Front	38.098–38.148	—
Wheel rim runout	Axial	—	2.0
	Radial	—	2.0
Wheel axle runout	Front	—	0.25
	Rear	—	0.25
Tire size	Front	100/90-16 54S	—
	Rear	110/90-18 56S	—
Tire tread depth	Front	—	1.6
	Rear	—	2.0

SUSPENSION

Unit: mm

ITEM	STANDARD	LIMIT	NOTE
Front fork stroke	130	—	
Front fork spring free length	—	509.4	
Front fork oil level	140	—	
Rear wheel travel	120	—	
Swing arm pivot shaft runout	—	0.3	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	NORMAL RIDING			
	SOLO RIDING		DUAL RIDING	
	kPa	kg/cm²	kPa	kg/cm²
FRONT	200	2.00	200	2.00
REAR	225	2.25	250	2.50

FUEL + OIL + COOLANT

ITEM	SPECIFICATION		NOTE
Fuel type	Gasoline used should be graded 85-95 octane or higher. An unleaded or low-lead gasoline t ype is recommended.		
Fuel tank including reserve	15.0 L		
reserve	2.2 L		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	2 200 ml	
	Filter change	2 400 ml	
	Overhaul	2 600 ml	
Coolant type	Use an anti-freeze & Summer coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.		
Radiator including reserve	1 650 ml		
reserve	250 ml		
Front fork oil type	Fork oil #15		
Front fork oil capacity	285 ml		R side
	315 ml		L side
Brake fluid type	DOT3, DOT4 or SAE J1703		

Prepared by

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