SUZUKI

LT-4WD

SERVICE MANUAL

99500-42059-01E

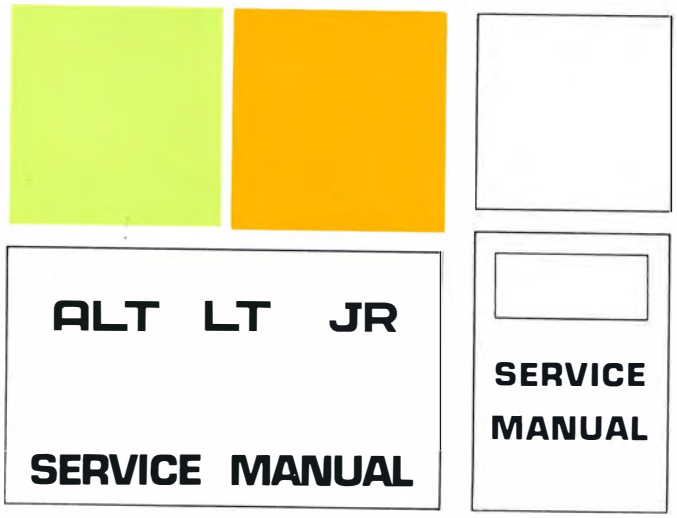
FOREWORD

The SUZUKI LT-4WD was designed to offer superior performance through four stroke power (Twin Dome Combustion Chamber engine), equipped with a three speed sub-transmission gear, reverse gear, differential gear which provides two-wheel drive, four-wheel drive and four-wheel drive differential lock. The suspension system consists of "double wishbone" for front and "diagonal swing axle" for rear.

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

The LT-4WD, manufactured to standard specifications, is the main subject matter of this manual. However, the LT-4WD 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. Later made 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

Overseas Service Department

SYMBOL MARK FOR COUNTRY

E-03: For U.S. model
E-24: For Australia model
E-28: For Canada model

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VIEW OF SUZUKI LT-4WDH ('87-MODEL)

RIGHT SIDE

LEFT SIDE

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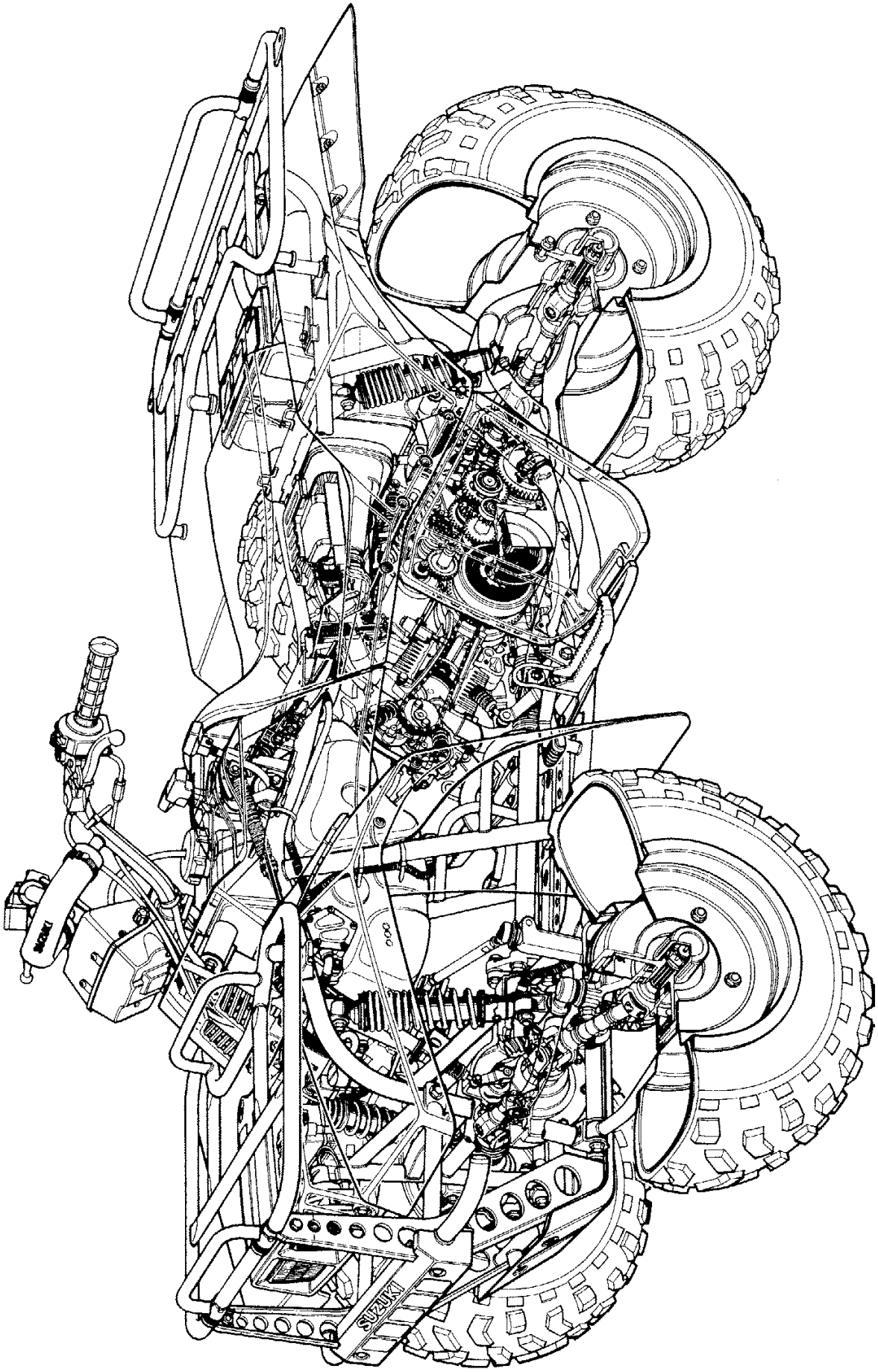
SUZUKI

GENERAL INFORMATION

1

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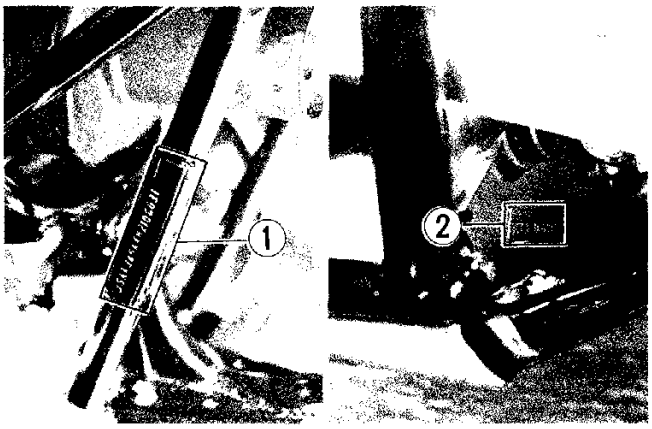
VIN AND SERIAL NUMBER LOCATIONS

The VIN number ① is stamped on the left frame member as shown in photograph. The engine serial number ② is located on the crankcase.
These numbers are required especially for registering the machine and ordering spare parts.



FUEL AND OIL RECOMMENDATIONS

FUEL

For U.S. model

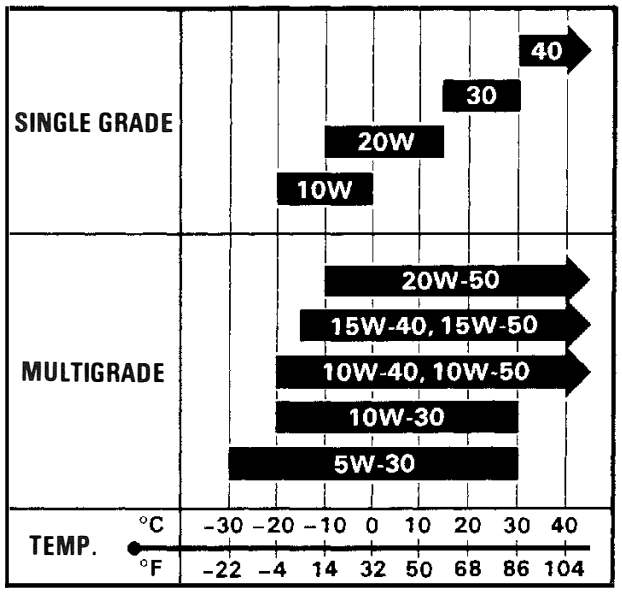
Use only unleaded or low-lead type gasoline of at least 85 – 95 pump octane ($\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.

For other models

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



DIFFERENTIAL GEAR OIL

Use SEA #90 hypoid gear oil which is rated GL-5 under API classification system. If you operate the vehicle where ambient temperature is below 0°C (32°F), use SAE #80 hypoid gear oil.

BRAKE FLUID

Specification and classification:	SAE J1703, DOT 3 or DOT 4

99000-23021	SUZUKI BRAKE FLUID Not available in U.S. model

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.

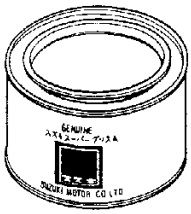
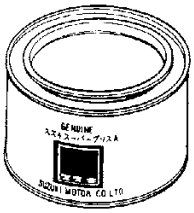
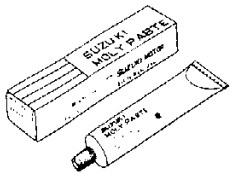
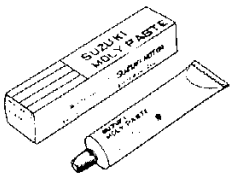
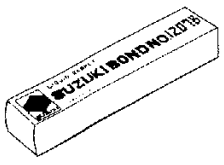
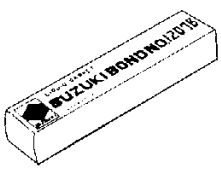
1. Keep to this break-in throttle position.

First 500 km (300 miles)	Less than 1/2 throttle

2. After the engine has been operated for 500 km (300 miles) the vehicle can be subjected to full throttle operation for short periods of time.

SPECIAL MATERIALS

The materials listed below are needed for maintenance work on the LT-4WD and should be kept on hand for ready use. These items supplement such standard materials as cleaning fluids, lubricant, emery cloth and the like. How to use them and where to use them are described in the text of this manual.

Material		Part	Page
For U.S. model	For other models		
 SUZUKI SUPER GREASE "A" 99000-25030	 SUZUKI SUPER GREASE "A" 99000-25010	• Throttle lever • Brake pedal shaft and rod link • Front brake anchor and cup • Oil seals • Recoil starter spiral spring, shaft and ratchet • O-ring • Propeller shaft and univaersal joint • Wheel cylinder dust seal • Inner spline of hub • Front wheel hub bearing • Steering shaft lower portion • Dust seals • Steering shaft holer and dust seals • Brake cam shaft • Rear hub spline • Spline and universal joint • Rear axle • Mating surface of lever and dust seal • Interlock shaft and spacer	2-20 2-20 2-20 3-50 6-9 3-80 4-37 7-12 7-14 2-20 7-22 7-31 7-31 7-32 7-32 7-40 7-41 7-49 2-20 7-50 7-55 7-55
 SUZUKI MOLY PASTE 99000-25140	 SUZUKI MOLY PASTE 99000-25140	• Valve stem • Piston pin • Camshaft journal • Rocker arms and shafts • De-compression shaft • Cam chain tensioner push rod • Armature end	3-37 3-73 3-76 3-76 3-76 3-78 6-8
 SUZUKI BOND No. 1207B 99104-31140	 SUZUKI BOND No. 1207B 99000-31140	• Oil filter mounting bolt • Cylinder head cover • Spark plug cap	2-9 2-4 3-77 6-3

Material		Part	Page
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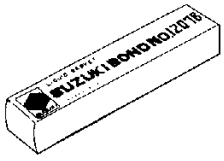
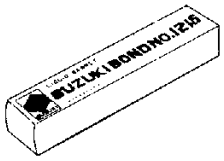
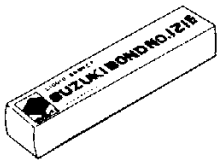
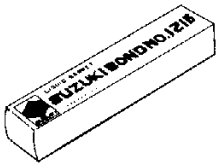
 SUZUKI BOND No. 1207B 99104-31140	 SUZUKI BOND No. 1215 99000-31110	• Magneto lead wire grommet • Mating surface of right crankcase	3-48 3-58
 SUZUKI BOND No. 1216 99104-31160	 SUZUKI BOND No. 1216 99000-31160	• Blow-by gas pipe • Mating surface of rear brake panel • Wheel hub bolts	3-58 7-40 7-41
Not available	SUZUKI BRAKE FLUID 99000-23021 (0.5 L)	• Brake fluid (front)	
THREAD LOCK SUPER "1303" 99000-32030	THREAD LOCK SUPER "1303" 99000-32030	• Starter clutch bolts • Oil pump case securing screw • Cam sprocket bolts	3-47 3-48 3-75
THREAD LOCK SUPER "1303" 99000-32030	THREAD LOCK SUPER "1305" 99000-32100	• Magneto rotor nut	3-60
THREAD LOCK SUPER "1303" 99000-32030	THREAD LOCK SUPER "1322" 99000-32110	• Differential bevel gear hub bolts • Propeller shaft coupling joint nuts • Lever knob securing screws • Bush (shock absorber/ wishbone arm) • Steering knuckle end bolt • Knuckle upper and lower bolts • Knuckle bolt	4-29 4-37 7-2 7-21 7-23 7-24 7-32

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THREAD LOCK SUPER "1303" 99000-32030	THREAD LOCK "1324" 99000-32120	• Secondary driven output shaft nut • Secondary driven output shaft • Drive gear nut and front drive output yoke nut • Differential gear shaft	4-7 4-8 4-11 4-19
THREAD LOCK SUPER "1333B" 99000-32020	THREAD LOCK SUPER "1333B" 99000-32020	• 2nd drive gear	3-53
THREAD LOCK SUPER "1333B" 99000-32020	THREAD LOCK SUPER "1322" 99000-32110	• Sub-transmission cam stopper bolt • Drive shift cam stopper bolt • Drive shift cam plate bolt • Gearshifter mounting bolt • Suspension arm bush	3-63 3-65 3-65 3-66 7-44
THREAD LOCK "1342" 99000-32050	THREAD LOCK "1342" 99000-32050	• Oil pump mounting screws • Stator mounting bolts • Starter motor housing screws	3-67 3-48 6-2 6-9
SUZUKI SILICONE GREASE 99000-25100	SUZUKI SILICONE GREASE 99000-25100	• Front brake shoe back plate	7-12

PRECAUTIONS AND GENERAL INSTRUCTIONS

Observe the following items without fail when disassembling and reassembling vehicles.

- 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 bolts and nuts from the ones of larger diameter to those of smaller diameter, and from inside to outside diagonally, to the specified tightening torque.
- Use special tools where specified.
- Use specified genuine parts and recommended oils.
- When more than 2 persons perform 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 ..... The personal safety of the rider or bystanders may be involved. Disregarding this information could result in personal injury.

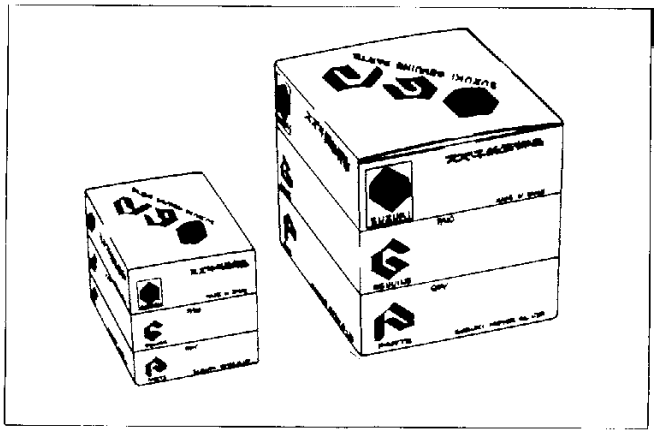
CAUTION ..... These instructions point out special service procedures or precautions that must be followed to avoid damaging the machine.

NOTE..... This provides special information to make maintenance easier or important instructions clearer.

REPLACEMENT PARTS

When you replace any parts, use only genuine SUZUKI replacement parts, or their equivalent. Genuine SUZUKI parts are high quality parts which are designd and built specifically for SUZUKI vehicles.

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



SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	1 940 mm (76.4 in)
Overall width	1 125 mm (44.3 in)
Overall height	1 055 mm (41.5 in)
Wheelbase	1 150 mm (45.3 in)
Front track	800 mm (31.5 in)
Rear track	800 mm (31.5 in)
Ground clearance	200 mm (7.8 in)
Seat height	755 mm (29.7 in)
Dry mass	227 kg (500 lbs)

ENGINE

Type	Four-stroke, air-cooled, OHC, TDCC
Number of cylinders	1
Bore	66.0 mm (2.598 in)
Stroke	72.0 mm (2.835 in)
Piston displacement	246 cm^3 (15.0 cu. in)
Compression ratio	8.5 : 1
Carburetor	MIKUNI VM24SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-sub-transmission
Gearshift pattern, Forward	All up, foot lever operated
Reverse	Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (17/16)
Sub-transmission, Super Low	3.176 (17/18 x 37/11)
Low	1.480 (37/25)
High	1.112 (11/25 x 43/17)
Final reduction, Front	3.090 (34/11)
Rear	3.647 (62/17)
Gear ratios, Low	3.083 (37/12)
2nd	1.933 (29/15)
3rd	1.388 (25/18)
4th	1.095 (23/21)
Top	0.913 (21/23)
Reverse	2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	5° B.T.D.C. below 1 800 r/min and 35° B.T.D.C. above 3 800 r/min
Spark plug	N.G.K. D7EA or NIPPON DENSO X22ES-U ..... E-03 N.G.K. D7EA E-24
Battery	12V 50.4 kC (14Ah)/10 HR
Headlight	12V 30W x 2 pcs.
Taillight	12V 5W

CHASSIS

Front suspension	Independent, double wishbone, oil damped, spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped, spring preload 5-way adjustable
Steering angle	Inside 43°48' Outside 29°12'
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	22 x 8.00-10 (x2)
Rear tire size	25 x 12.00-10 (x2)
Front wheel travel	85 mm (3.3 in)
Rear wheel travel	95 mm (3.7 in)

CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (2.1/1.8 US/Imp qt)
Engine oil, Oil change	3.5 L (3.7/3.1 US/Imp qt)
Filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil	150 ml (5.07/5.28 US/Imp oz)

* Specifications are subject to change without notice.

PERIODIC MAINTENANCE AND TUNE-UP PROCEDURES

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PERIODIC MAINTENANCE SCHEDULE

The chart below lists the recommended intervals for all the required periodic service work necessary to keep the vehicle operating at peak performance and economy. Mileages are expressed in terms of kilometers, miles and time for your convenience.

NOTE:
More frequent servicing may be perfomed on vehicles that are used under severe conditions.

PERIODIC MAINTENANCE SCHEDULE CHART

ENGINE AND CHASSIS

This interval should be judged by odometer reading or months, whichever comes first.	Initial 200 km (100 miles) or 1 month	Every 1 000 km (600 miles) or 3 months	Every 2 000 km (1 200 miles) or 6 months
Battery	I	I	–
Air cleaner element	–	C	–
Engine nuts and bolts	T	T	–
Valve clearance	I	I	–
Engine mounting rubber bush	Replace every 4 years		
Spark plug	–	I	–
	Replace every 6 000 km (4 000 miles) or 18 months		
Fuel lines	–	I	–
	Replace every 4 years		
Throttle cable	I	–	I
Engine idle speed	I	–	I
Engine oil and filter	R	R	–
Differential gear oil	I	–	I
	Replace every year		
Clutch	I	–	I
Tires	Inspect every month		
Brake pedal and lever	I	I	–
Brake fluid	I	I	–
	Replace every 2 years		
Brake hose	–	I	–
	Replace every 4 years		
Brake shoes	–	I	–
Steering	I	I	–
Suspension	–	–	I
Chassis nuts and bolts	T	T	–
General lubrications	–	L	–

NOTE: I = Inspect, T = Tighten, R = Replace, C = Clean, L = Lubricate.

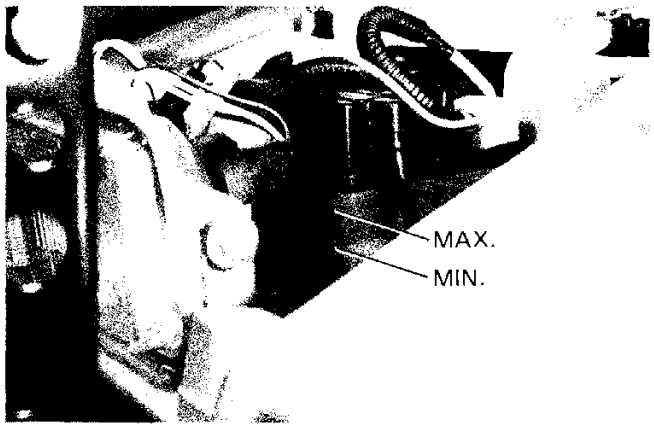
MAINTENANCE PROCEDURES

This section describes the service procedures for each section of Periodic Maintenance.

BATTERY

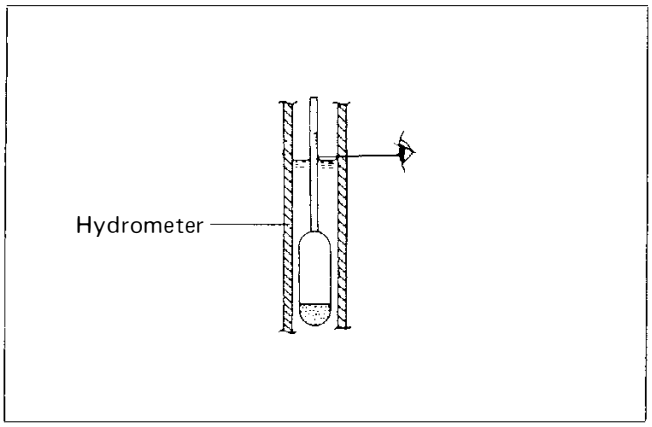
Inspect Initial 200 km (100 miles) and Every 1 000 km (600 miles)

- Remove the headlight cover.
- Check the level and specific gravity of electrolyte. Add distilled water, if necessary, to keep the surface of electrolyte above the MIN. level line and below the MAX. level line. To determine state of change, check specific gravity with hydrometer.



09900-28403	Hydrometer

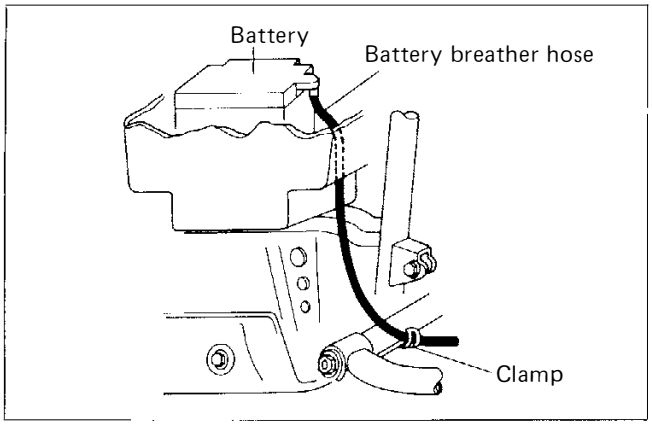
Standard specific gravity	1.28 at 20°C (68°F)



A specific gravity reading of 1.22 (at 20°C) or under means that the battery needs recharging.

CAUTION:
Do not charge the battery while connected to the vehicle. Charging the battery while connected into the circuit may damage the regulator/rectifier or other components.

WARNING:
When installing the battery lead wires, fix the ⊕ lead first and ⊖ lead last.



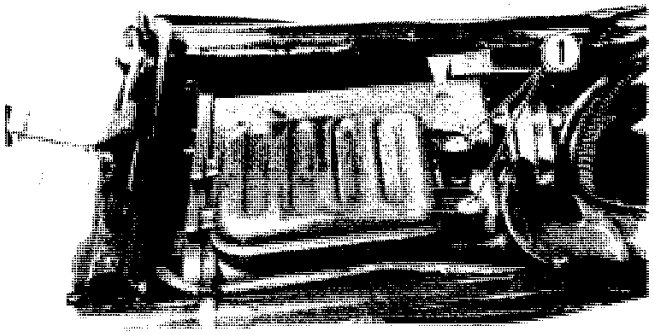
- Confirm that the battery breather hose is routed properly, as shown in the Fig. and that it is not kinked or pinched.

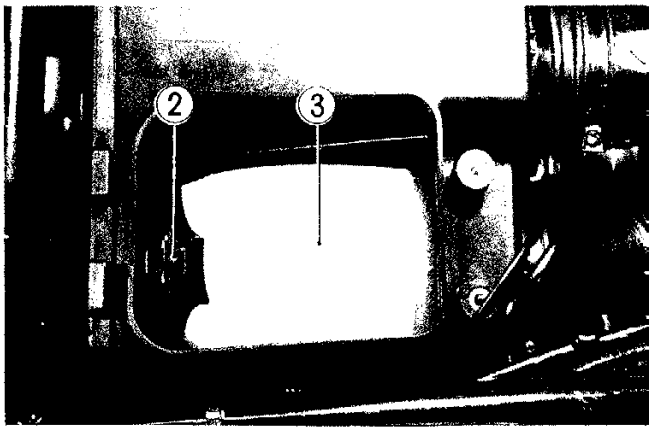
AIR CLEANER ELEMENT

Clean and oil Every 1 000 km (600 miles)

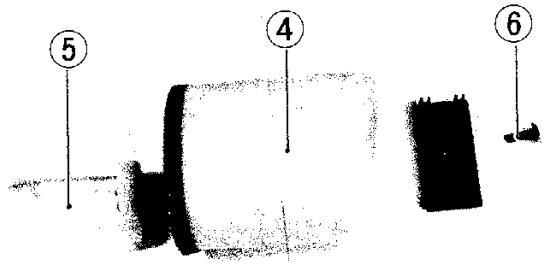
If the air cleaner is clogged with dust, intake resistance will be increased with a resultant decrease in power output and an increase in fuel consumption.
Check and clean the element in the following manner.

- Remove the seat.
- Remove the air cleaner case cover by loosening the screws ①.
- Remove the filter holder ② and then remove the air cleaner element ③.



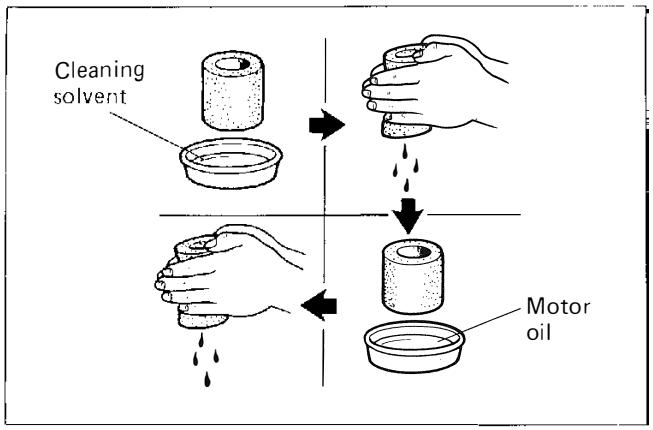


- Remove the polyurethane foam element ④ from the element frame ⑤ by loosening the screw ⑥.
- Fill a washing pan of a proper size with non-flammable cleaning solvent. Immerse the element in the cleaning solvent and wash it clean.
- Squeeze the cleaning solvent out of the washed element by pressing it between the palms of both hands.
- Immerse the element in motor oil, and squeeze the oil out of the element leaving it slightly wet with oil.



NOTE:
Do not twist or wring the element because it will tear or the individual cells of the element will be damaged.

CAUTION:
Inspect the element carefully for rips, torn seams, etc. If any damage is noted, replace the element.



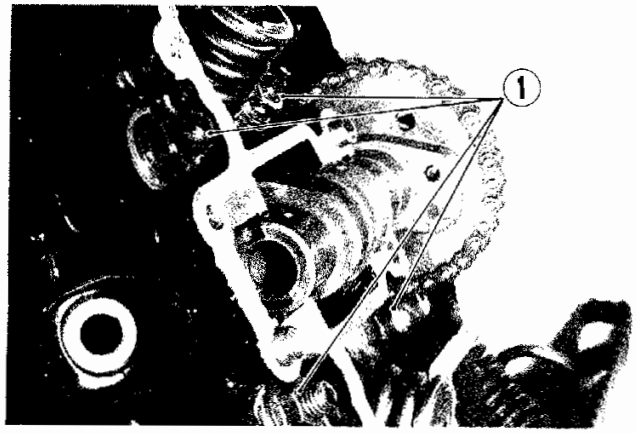
ENGINE NUTS AND BOLTS

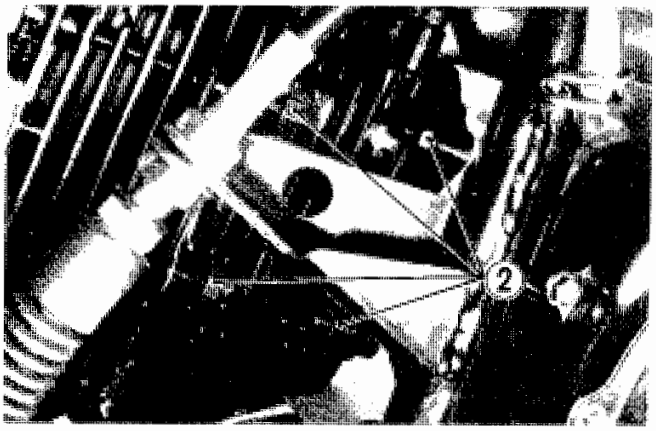
Tighten Initial 200 km (100 miles) and Every 1 000 km (600 miles)

Cylinder head and cylinder nuts

- Remove the seat, rear carrier and rear fender. (Refer to page 3-4.)
- Remove the cylinder head cover. (Refer to page 3-14.)
- First loosen and retighten the four 8-mm nuts ① and four 6-mm nuts ② to the specified torque with torque wrench, when engine is cold.

Tightening torque	8 mm ①	21 – 25 N·m (2.1 – 2.5 kg-m) (15.0 – 18.0 lb-ft)
	6 mm ②	7 – 11 N·m (0.7 – 1.1 kg-m) (5.0 – 8.0 lb-ft)





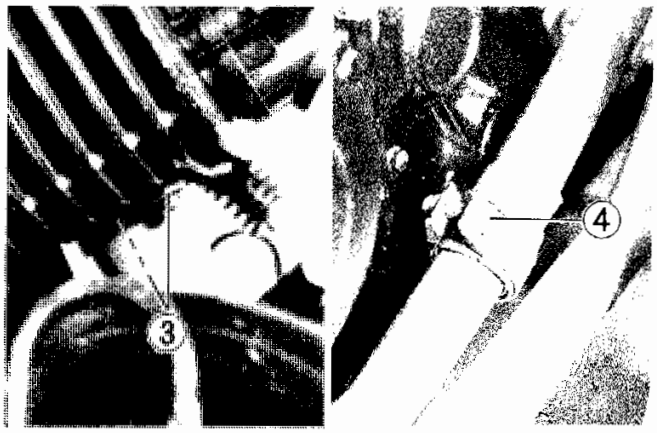
- When installing the cylinder head cover, apply SUZUKI Bond No. 1207B/1215 to the mating surface.

99104-31140 For U.S. model	SUZUKI Bond No. 1207B
99000-31110 For other models	SUZUKI Bond No. 1215

- Tighten the cylinder head cover bolts to the specified torque. (Refer to page 3-77.)

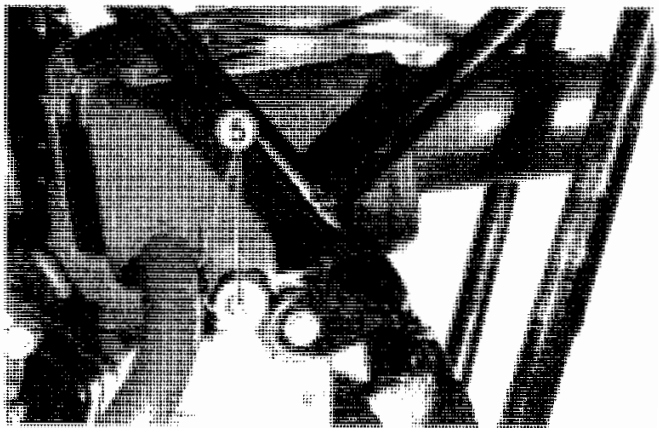
Exhaust pipe nuts and muffler bolts

- Tighten the exhaust pipe nuts ③, muffler connection bolt ④ and muffler mounting bolts ⑤ to the specified torque.



Tightening torque

Exhaust pipe nut ③	9 – 12 N·m (0.9 – 1.2 kg-m) (6.5 – 8.5 lb-ft)
Muffler connection bolt ④	18 – 23 N·m (1.8 – 2.3 kg-m) (13.0 – 16.5 lb-ft)
Muffler mounting bolt ⑤	18 – 28 N·m (1.8 – 2.8 kg-m) (13.0 – 20.0 lb-ft)



VALVE CLEARANCE

Inspect Initial 200 km (100 miles) and Every 1 000 km (600 miles)

Excessive valve clearance results in valve noise and insufficient valve clearance results in valve damage and reduced power. At the distances indicated above, check and adjust the clearance to the specification.

Valve clearance specifications

IN.	0.03 – 0.08 mm (0.001 – 0.003 in)
EX.	0.08 – 0.13 mm (0.003 – 0.005 in)

The procedure for adjusting the valve clearance is as follows.

NOTE:
Valve clearance is to be checked when the engine is cold.
Both the intake and exhaust valves must be checked and adjusted when the piston is at Top–Dead–Center (T.D.C.) of the compression stroke.

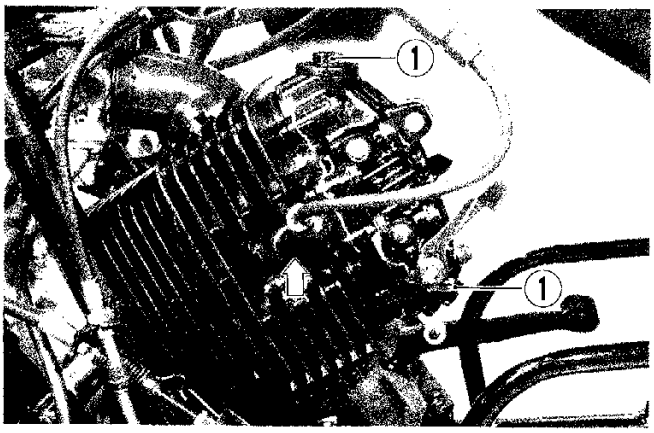
- Remove the seat, rear carrier and rear fender. (Refer to page 3-4.)
- Remove the spark plug and valve inspection caps ①.
- Remove the T.D.C. plug ②.
- Remove the recoil starter. (Refer to page 3-13.)
- Rotate the magneto rotor to set the piston at (T.D.C.) of the compression stroke by turning the starter cup. Rotate the rotor until the "T" line ③ on the rotor is aligned with the aligning mark ④.
- Insert the thickness gauge to the clearance between the valve stem end and the adjusting screw on the rocker arm.

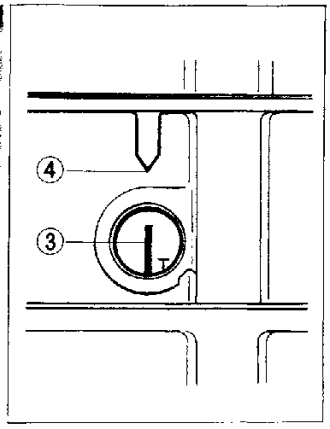
09900-20803	Thickness gauge

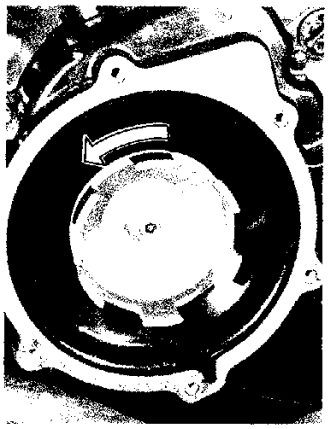
- If clearance is off the specification, bring it into the specified range using the screw driver.
- Reinstall the spark plug, valve inspection caps, T.D.C. plug and recoil starter.

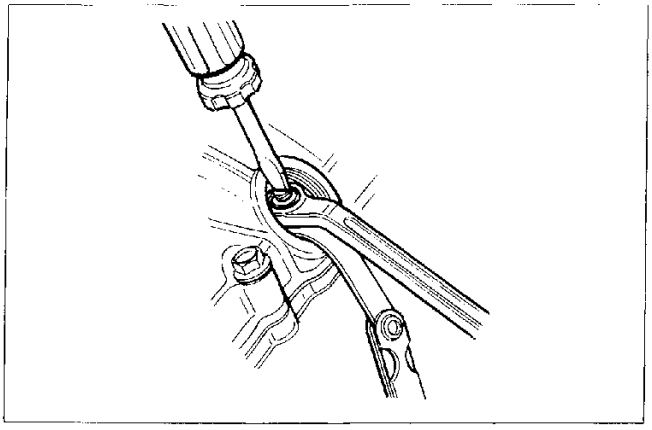
T.D.C. plug tightening torque	20 – 25 N·m (2.0 – 2.5 kg-m / 14.5 – 18.0 lb-ft)

CAUTION:
Securely tighten the lock nut after completing adjustment.





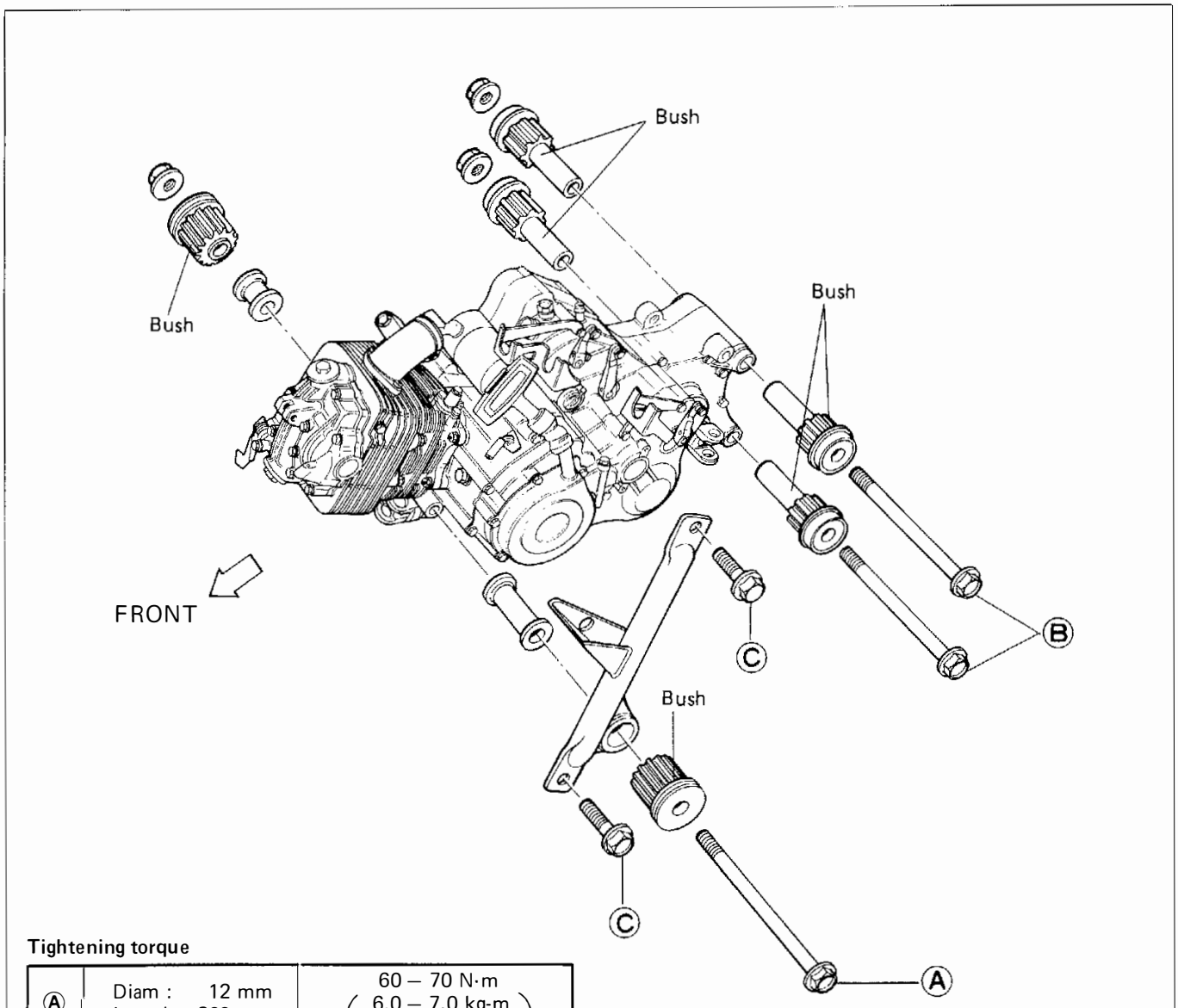




ENGINE MOUNTING RUBBER BUSH

Replace every 4 years.

- Remove the engine. (Refer to page 3-4.)
- Remove the six rubber bushes.
- After installing the new rubber bushes, remount the engine and tighten the engine mounting bolts to the specified torque.



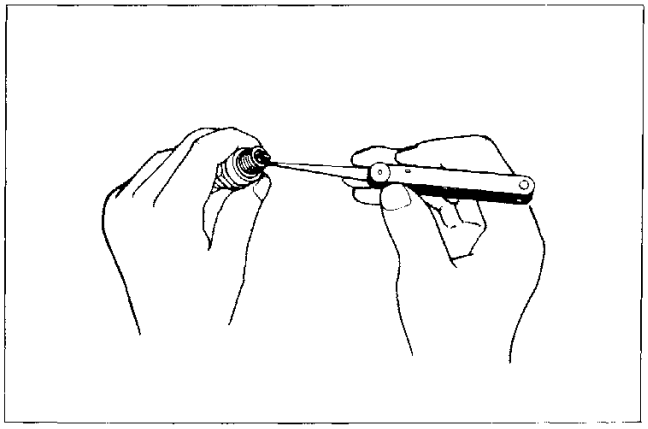
Tightening torque

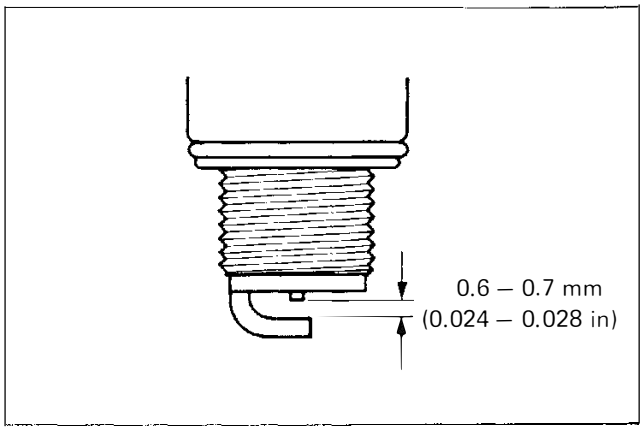
Ⓐ	Diam : 12 mm Length : 300 mm	60 – 70 N·m (6.0 – 7.0 kg-m 43.5 – 52.0 lb-ft)
Ⓑ	Diam : 10 mm Length : 190 mm	80 – 95 N·m (8.0 – 9.5 kg-m 58.0 – 68.5 lb-ft)
Ⓒ	Diam : 10 mm	60 – 70 N·m (6.0 – 7.0 kg-m 43.0 – 50.5 lb-ft)

SPARK PLUG

Inspect Every 1 000 km (600 miles) and Replace Every 6 000 km (4 000 miles) or 18 months

Remove the carbon deposits with wire or pin and adjust the spark plug gap to 0.6 – 0.7 mm (0.024 – 0.028 in), measuring with thickness gauge.
When removing carbon deposits, be sure to observe the appearance of the plug, noting the color of the carbon deposits.
The color observed indicates whether the standard plug is suitable or not. If the standard plug is apt to overheat (porcelain is whitish in appearance), replace with colder one.





FOR E-03

	Standard	Cold type
N.G.K.	D7EA	D8EA
N.D.	X22ES-U	X24ES-U

FOR E-24

	Standard	Cold type
N.G.K.	D7EA	D8EA

FOR E-28

	Standard	Cold type
N.G.K.	DR7ES	DR8ES-L
N.D.	X22ESR-U	X24ESR-U

"R" type spark plug

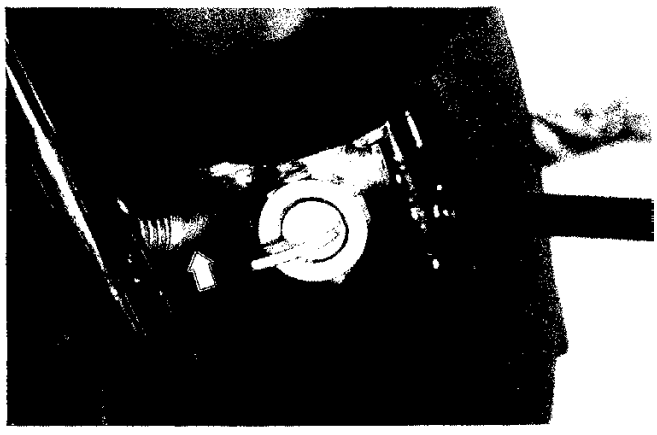
NOTE:
"R" type spark plug is installed for some specifications. "R" type spark plug has a resistor located at the center electrode to prevent radio noise.

FUEL LINES

Inspect every 1 000 km (600 miles)
Replace Every 4 years

Inspect the fuel lines and connections for damage and fuel leakage.
If any defects are found, the fuel lines must be replaced.

- When replacing the fuel lines, remove the seat, front carrier, front fender, rear carrier and rear fender.



THROTTLE CABLE

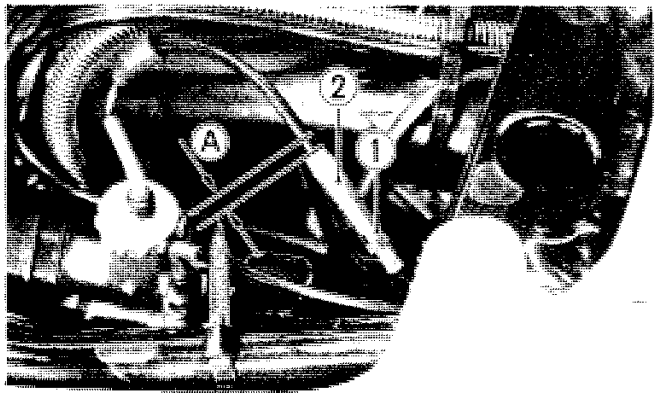
Inspect Initial 200 km (100 miles) and Every 2 000 km (1 200 miles)

Adjust the throttle cable play Ⓐ as follows.

- Remove the seat. (Refer to page 3-4.)
- Loosen the lock nut ①.
- Turn the adjuster ② in or out to obtain the correct play.

Throttle cable play Ⓐ	0.5 – 1.0 mm (0.02 – 0.04 in)

- After adjusting the play, tighten the lock nut ①.



ENGINE IDLE SPEED

Inspect Initial 200 km (100 miles) and Every 2 000 km (1 200 miles)

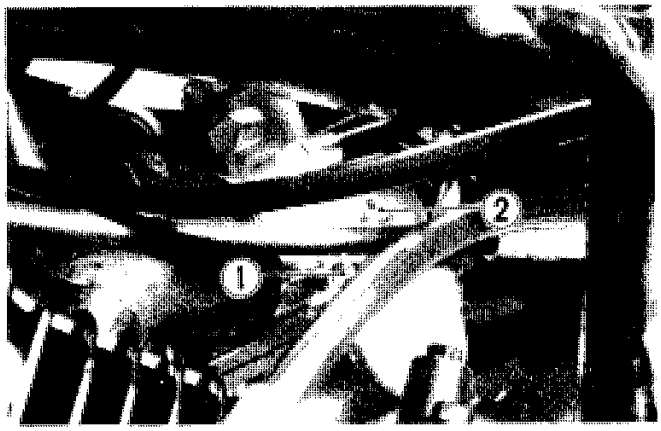
Idling adjustment

NOTE:
Make this adjustment when the engine is hot.

- Turn in the pilot screw ① until it bottoms.

NOTE:
Be careful not to overtighten the screw.

- From that position, turn out the pilot screw 2 3/8 turns.
- Connect a tachometer.
- Start up the engine and set its speed between 1 350 and 1 450 r/min by turning throttle stop screw ②.



- Turn in or out the pilot screw within 1/2 turn from the standard setting, and set it when the engine speed is at the highest possible level.
- After this adjustment, recheck the idling speed and adjust to between 1 350 and 1 450 r/min with throttle stop screw if necessary.

ENGINE OIL AND OIL FILTER

Replace (change) Initial 200 km (100 miles) and Every 1 000 km (600 miles)

Engine oil

Oil should be changed with the engine hot.

The procedure is as follows:

- Place the vehicle on level ground.
- Drain oil by removing the drain plug ① and filler cap ②.
- Fit the drain plug ① securely and add fresh oil through the filler ②. The engine will hold about 3 500 ml (3.7/3.1 US/Imp qt) of oil. Use 10W/40 viscosity of oil under API classification of SE or SF.

Drain plug tightening torque	18 – 23 N·m (1.8 – 2.3 kg-m / 13.0 – 16.5 lb-ft)

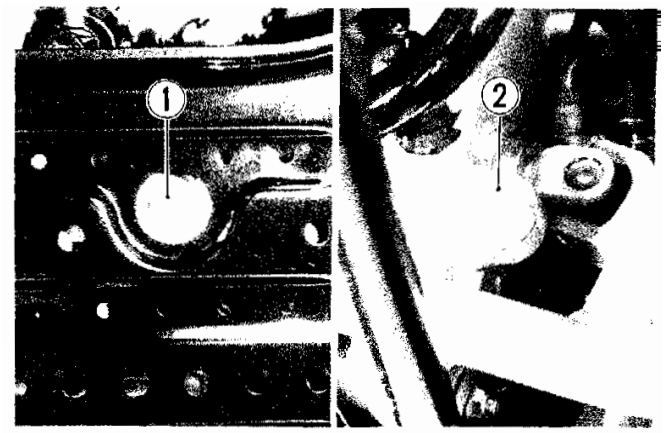
- Start up the engine and allow it to run for several seconds at idling speed.
- Shut down the engine and wait about one minute. Then check the oil level in the oil level window ③. The vehicle must be in a level position for accurate measurement. If the level is below the upper line, add oil until the level reaches the upper line.

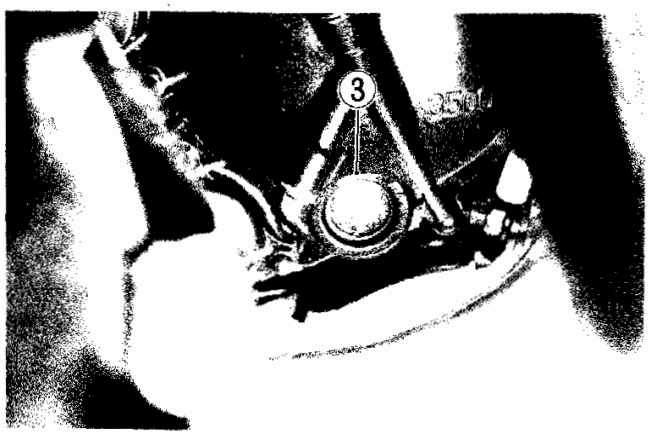
Engine oil filter

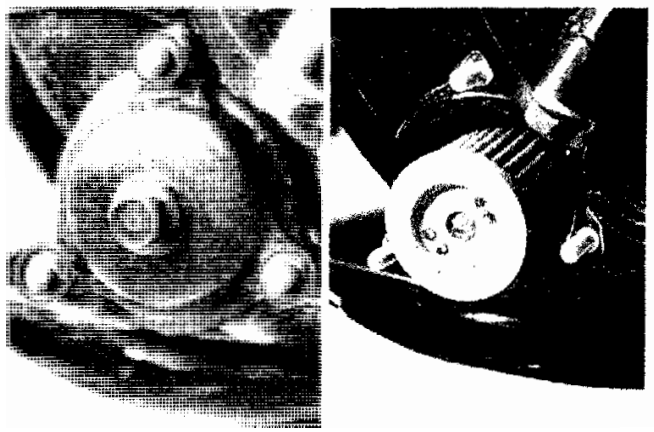
Replace the oil filter in the following manner:

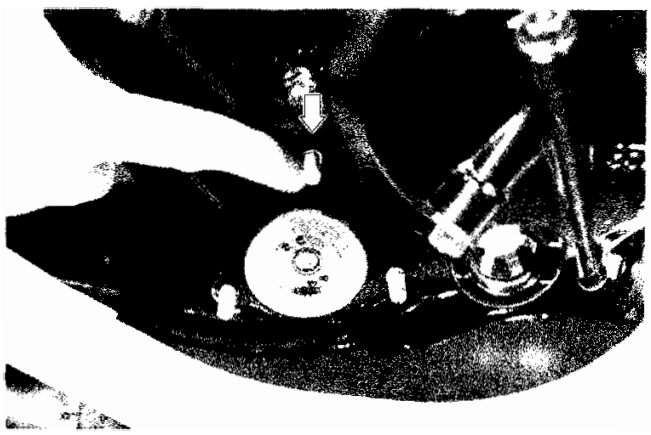
- Drain the engine oil by removing the drain plug and filler cap.
- Remove the oil filter cap by removing the three nuts.
- Pull out the oil filter.
- Replace the oil filter with new one.
- Apply SUZUKI BOND No. 1207B to the oil filter cap mounting bolt before installing the oil filter cap and three nuts.

99104-31140 For U.S. model	SUZUKI BOND No. 1207B
99000-31140 For other models	SUZUKI BOND No. 1207B



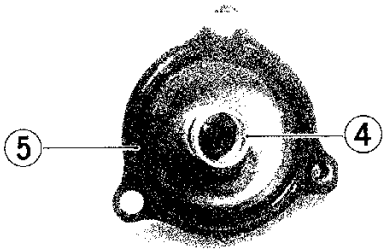






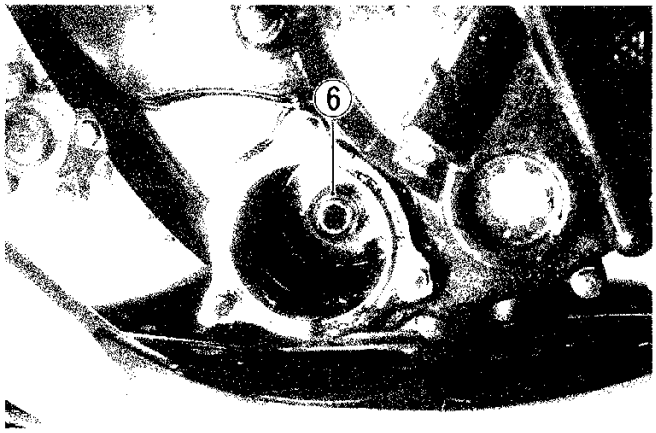
- Before putting on the oil filter cap, check to be sure that the spring ④ and a new O-ring ⑤ are installed correctly.

NOTE:
Be sure that the O-ring ⑥ behind the filter is in position.



- Install a new O-ring to the filter cap and replace the oil filter cap and tighten the nuts securely.
- Pour in engine oil and check the level.

NOTE:
Pour about 3 600 ml (3.8/3.2 US/Imp qt) of engine oil into the engine only when changing oil and replacing oil filter at the same time. When performing engine overhaul, the amount of oil to be replenished is 3 860 ml (4.1/3.4 US/Imp qt).



CAUTION:
When reassembling the oil filter, make sure to check that the oil filter is installed as shown above. If the filter is installed improperly, serious engine damage may result.

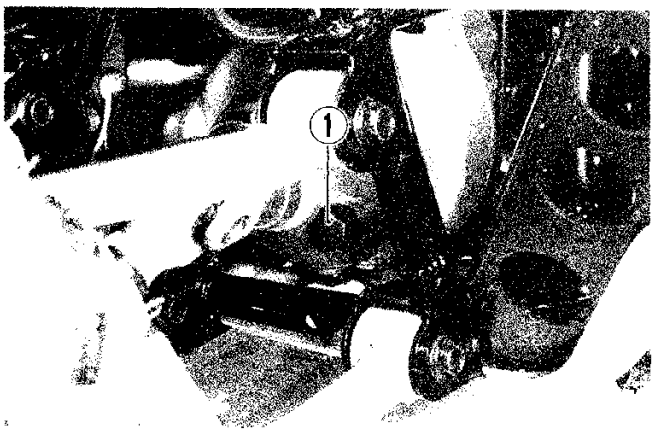
DIFFERENTIAL GEAR OIL

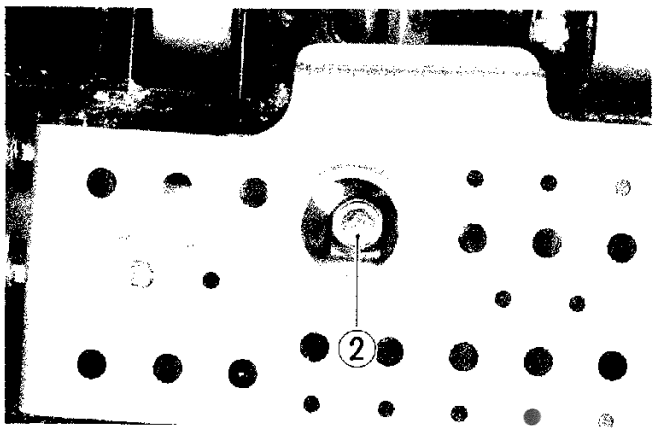
Inspect Initial 200 km (100 miles) and
Every 2 000 km (1 200 miles)
Replace Every year

To change the differential gear oil, locate the vehicle on level ground and carry out the following steps.

Use SEA #90 hypoid gear oil which is rated GL-5 under API classification system.

- Drain oil by removing the filler cap ①, and drain plug ②.
- Refit the drain plug ② and pour the specified oil in through the filler hole until it runs out from the filler hole.



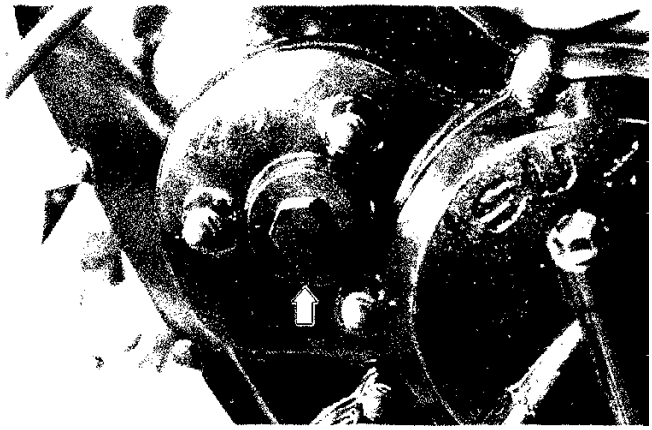


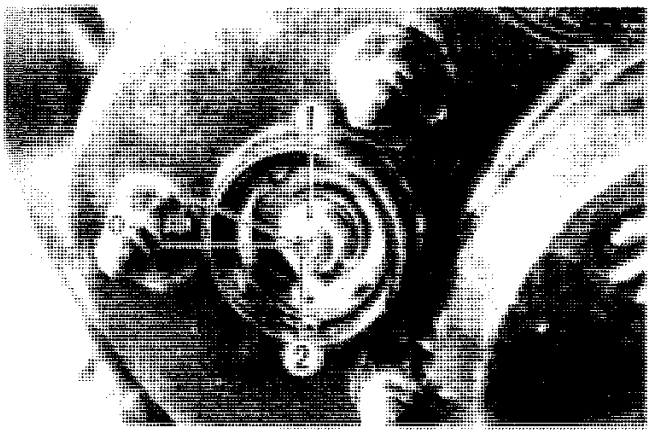
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)
Filler cap tightening torque	20 – 30 N·m (2.0 – 3.0 kg-m / 14.5 – 21.5 lb-ft)
Drain plug tightening torque	20 – 30 N·m (2.0 – 3.0 kg-m / 14.5 – 21.5 lb-ft)

CLUTCH

Inspect Initial 200 km (100 miles) and Every 2 000 km (1 200 miles)

- Remove the right rear tire.
- Remove the clutch adjuster cap bolt.
- Loosen the lock nut ①.
- First loosen the release screw ② and tighten it until resistance is felt.
- From that position, loosen the release screw 0—1/8 rotation, and tighten the lock nut while holding the release screw.
- Install the clutch adjuster cap bolt properly.

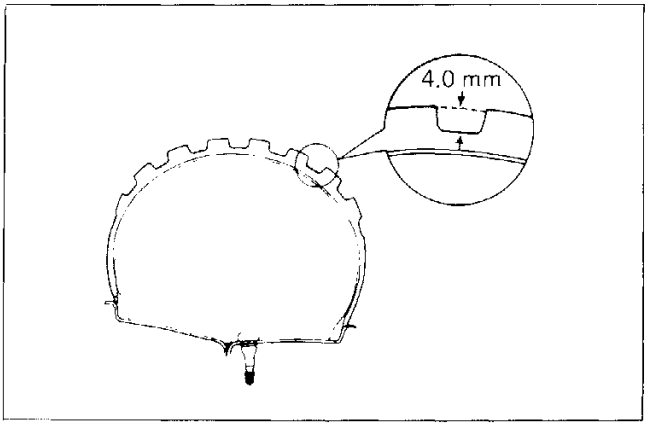




TIRES

Inspect Every month.

Inspect the tires for wear and damage.
Check the tire tread depth as shown.
Replace a badly worn or damaged tire.
A tire with its tread worn down to the limit (in terms of thread depth) must be replaced.



Tread depth service limit

Front Rear	4.0 mm (0.16 in)

Check the tire pressure, and examine the valve for evidence of air leakage.

LT-4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80–172 kg (175–380 lbs)
REAR	20	0.20	2.9	

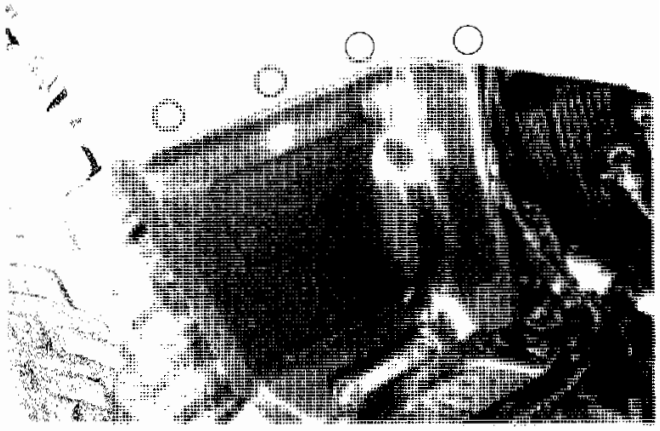
VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

LT-F4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	35	0.35	5.1	
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

CAUTION:
To minimize the possibility of tire damage from overinflation, we strongly recommend that a manual type air pump be used rather than a high pressure tire filler as found in gas stations. When pumping air in, never exceed 70 kPa (0.7 kg/cm², 10 psi).



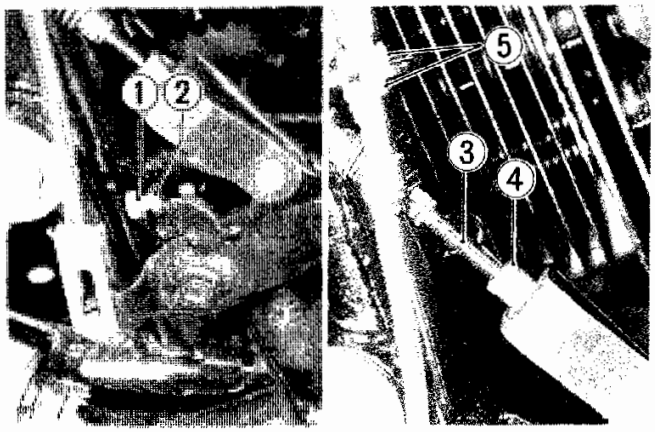
BRAKE PEDAL AND LEVER

Inspect Initial 200 km (100 miles) and Every 1 000 km (600 miles)

REAR BRAKE

The procedure for adjusting the brake is as follows:

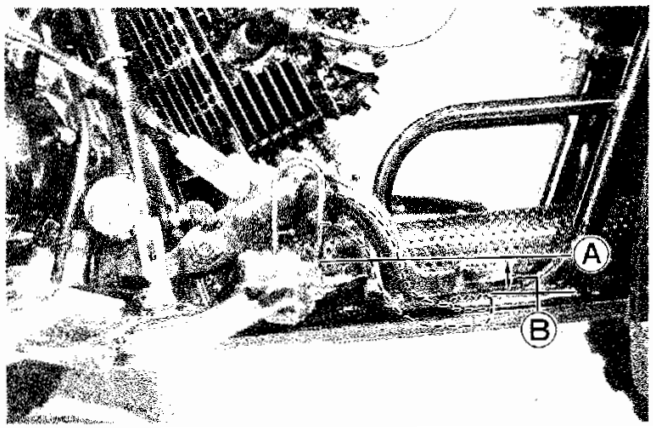
NOTE:
First adjust the brake pedal and next adjust the brake lever.



Brake pedal

- Remove the right rear mud guard.
- Level the brake pedal with the footrest. This is effected by turning the adjusting bolt ①. Be sure to tighten the lock nut ② good and hard after setting the bolt.
- When adjusting the travel of brake pedal, adjust the free travel Ⓑ to 20 – 30 mm (0.8 – 1.2 in) by turning the adjusting bolt ③. Be sure to tighten the lock nut ④.

Brake pedal height Ⓐ	0 (Zero)
Brake pedal play Ⓑ	20 – 30 mm (0.8 – 1.2 in)

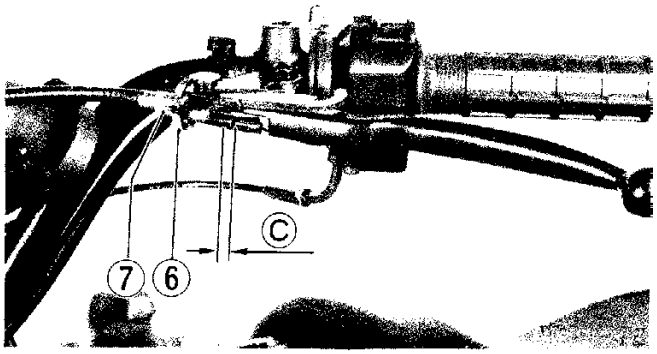


Rear brake lever

- After adjusting the rear brake pedal, contact the low end of brake lever adjuster plate with the brake pedal pin by turning the lock nuts ⑤.

- The brake lever play Ⓒ as measured at the lever holder should be 3 – 7 mm (0.1 – 0.3 in) when the lever is lightly pulled in towards the grip. If adjustment is necessary, slacken the cable by loosening the lock nut ⑥ and screwing the adjuster ⑦ on the brake lever holder all the way in. After adjusting the play, tighten the lock nut ⑥.

Brake lever play Ⓒ	3 – 7 mm (0.1 – 0.3 in)



BRAKE FLUID

Inspect Initial 200 km (100 miles) and Every 1 000 km (600 miles)
Replace (change) Every 2 years

FRONT BRAKE

Brake fluid level

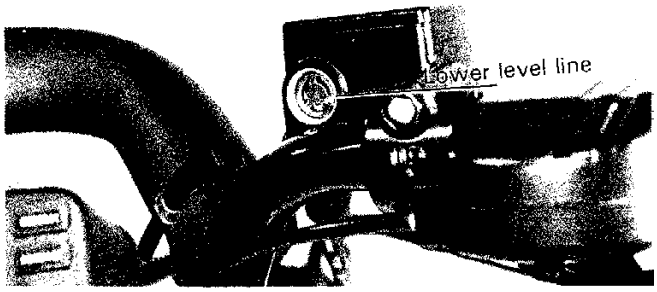
- Place the vehicle on level ground.
- Check the brake fluid level in the reservoir.
- If the level is found to be lower than the lower level line, replenish with brake fluid that meets the following specification.

Specification and Classification	SEA J 1703, DOT 3 or DOT 4

99000-23021	SUZUKI Brake fluid Not available in U.S. model

Bleeding air from the brake fluid circuit

Air trapped in the fluid circuit acts like a cushion to absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the drum brake. The presence of air is indicated by "sponginess" of the brake lever and also by lack of braking force.



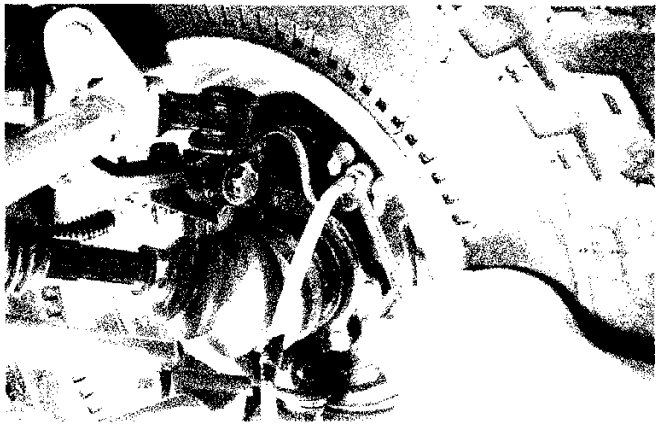
WARNING:
Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces.
Check the brake hoses for cracks and hose joint for leakage before riding.

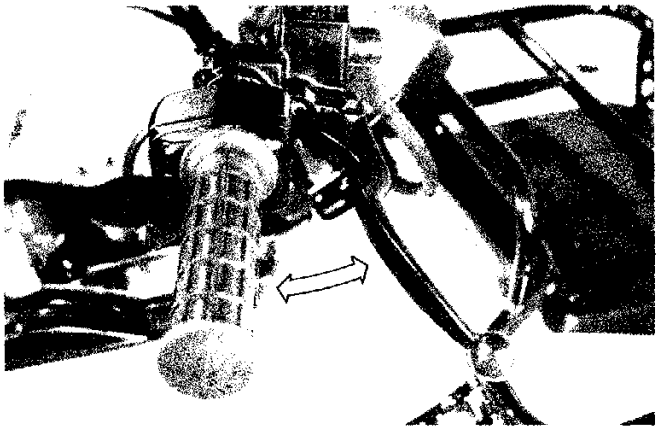
WARNING:
The brake system of this vehicle is filled with a glycol-based brake fluid. Do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will be caused. Do not use any brake fluid taken from old or used or unsealed containers. Never re-use the brake fluid left over from the last servicing and stored for long periods.

Considering the danger to which such trapped air exposes the machine and rider, it is essential that, after remounting the brake and restoring the brake system to the normal condition, the brake fluid circuit be purged of air in the following manner:

- Fill up the master cylinder reservoir to the upper end of the inspection window. Replace the reservoir cap to prevent entry of dirt.
- Attach a pipe to the bleeder valve, and insert the other end of the pipe into a receptacle containing a small amount of brake fluid. Make sure that the end of the pipe is kept submerged in the brake fluid. This will keep air from being drawn back in the brake system during the bleeding operation.
- Squeeze and release the brake lever several times in rapid succession, and squeeze the lever fully without releasing it. Loosen the bleeder valve by turning it a quarter of a turn or so that brake fluid runs into the receptacle; this will remove the tension of the brake lever causing it to touch the handlebars grip. Then, close the valve, pump and squeeze the lever, and open the valve. Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.

NOTE:
Replenish the brake fluid reservoir as necessary while bleeding the brake system.
Make sure that there is always some fluid visible in the reservoir.





- Close the bleeder valve, and disconnect the pipe. Fill the reservoir to the upper of inspection window.

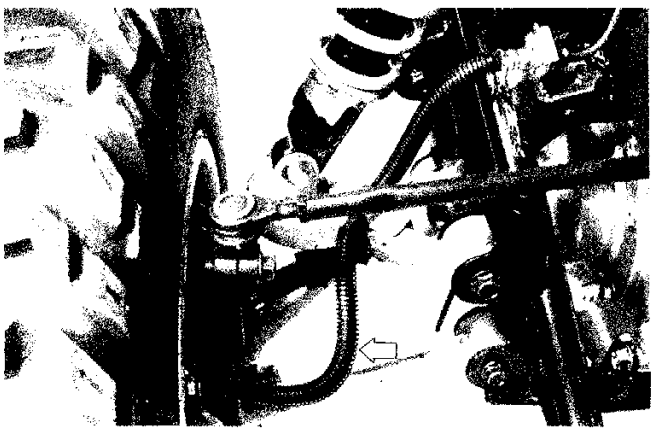
Bleeder valve Tightening torque	6 – 9 N·m (0.6 – 0.9 kg-m, 4.5 – 6.5 lb-ft)

CAUTION:
Handle the brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials, etc.

BRAKE HOSE

Inspect Every 1 000 km (600 miles)
Replace brake hose Every 4 years

- Remove the front fender. (Refer to page 7-1.)
- Check the brake hose for leakage, crack, wear and damage etc.



BRAKE SHOES

Inspect Every 1 000 km (600 miles)

Front brake lining wear limit

- Support the vehicle by jack and wooden block.
- Remove the front wheels.
- Pull out the brake drum.
- Mesure the thickness Ⓐ of brake shoe at the thinnest part of the shoe using special tool.

09900-20201	Vernier calipers

- If the thickness of brake shoe is less than specified limit (1.5 mm), replace both the right and left brake shoes.

Brake lining thickness Ⓐ	1.5 mm (0.06 in)

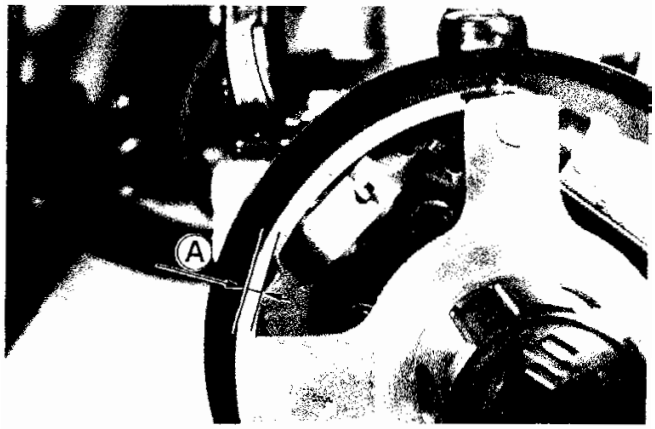
Rear brake lining wear limit

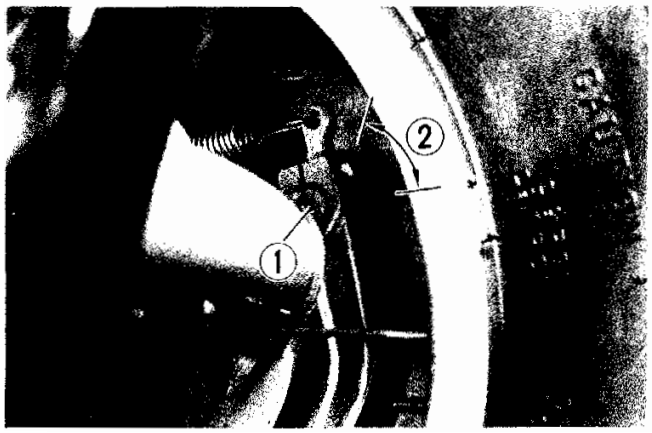
This vehicle is equipped with brake lining wear limit indicator on the brake panel. At the condition of normal lining wear, an extended line from the index mark on the brake camshaft should be within the range embossed on the brake panel with the brake on.

To check wear of the brake lining, follow the steps below.

- First check if the brake system is properly adjusted.
- While operating the brake, check to see that the extension line from the index mark ① is within the range ② on the brake panel.
- If the extension line is outside the range, the brake shoe assembly should be replaced to ensure safe operation.

WARNING:
If one of brake shoes is excessively worn, replace both the right and left brake shes. Replacing only one brake shoe can result in eneven braking action.





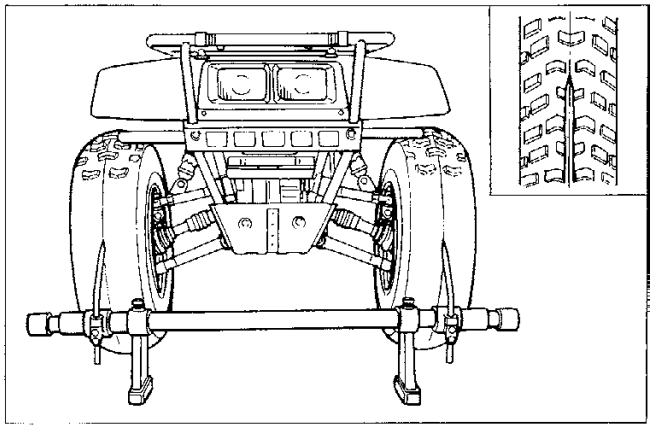
STEERING

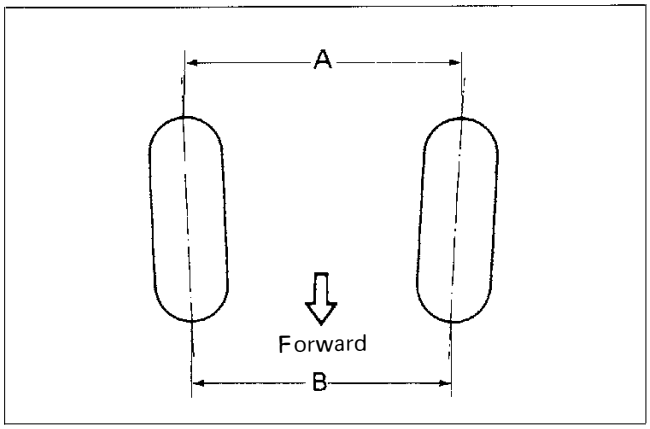
Inspect Initial 200 km (100 miles) and Every 1 000 km (600 miles)

Steering system should be adjusted properly for smooth manipulation of handlebars and safe running.

TOE-IN

- Place the vehicle on level ground.
- Make sure the tire pressure for both tires is the same and set to the specification properly.
- The front wheels are set in straightahead position.
- Mount 75 kg (165 lbs) load on the seat.
- Measure the distance (A and B in illustration) of front wheels with a toe-in gauge as shown in illustration and caliculate the difference between A and B.





Toe-in (with 75 kg (165 lbs) load)	11 – 19 mm (0.43 – 0.75 in)

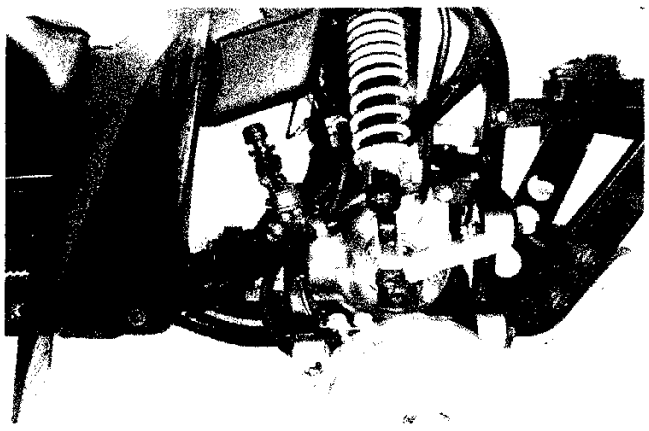
- If the toe-in is off the specification, bring it into the specified range. (Refer to page 7-34.)

SUSPENSION

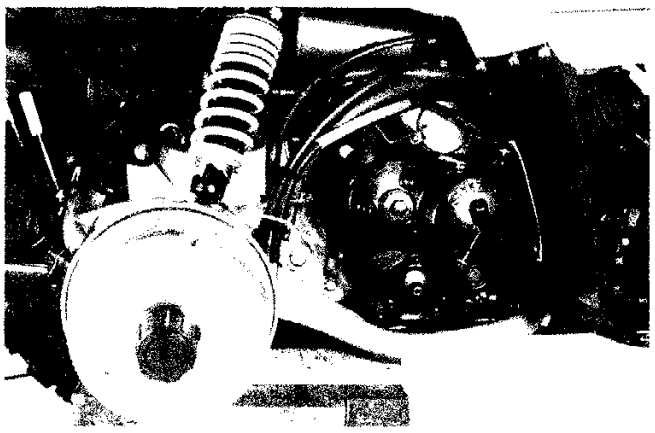
Inspect Every 2 000 km (1 200 miles)

- Support the machine by jack and wooden block.
- Remove the tires.
- Inspect the suspension arm for scratches or other damage.
- Inspect the bush for wear or damage.
- If any defects are found, the suspension or bush must be replaced. (Refer to page 7-17 and 7-42.)

Front suspension



Rear suspension



CHASSIS NUTS AND BOLTS

Tighten Initial 200 km (100 miles) and Every 1 000 km (600 miles)

ENGINE MOUNTING BOLTS AND NUTS

Tighten the engine mounting nuts to the specified torque value. (Refer to page 2-6.)

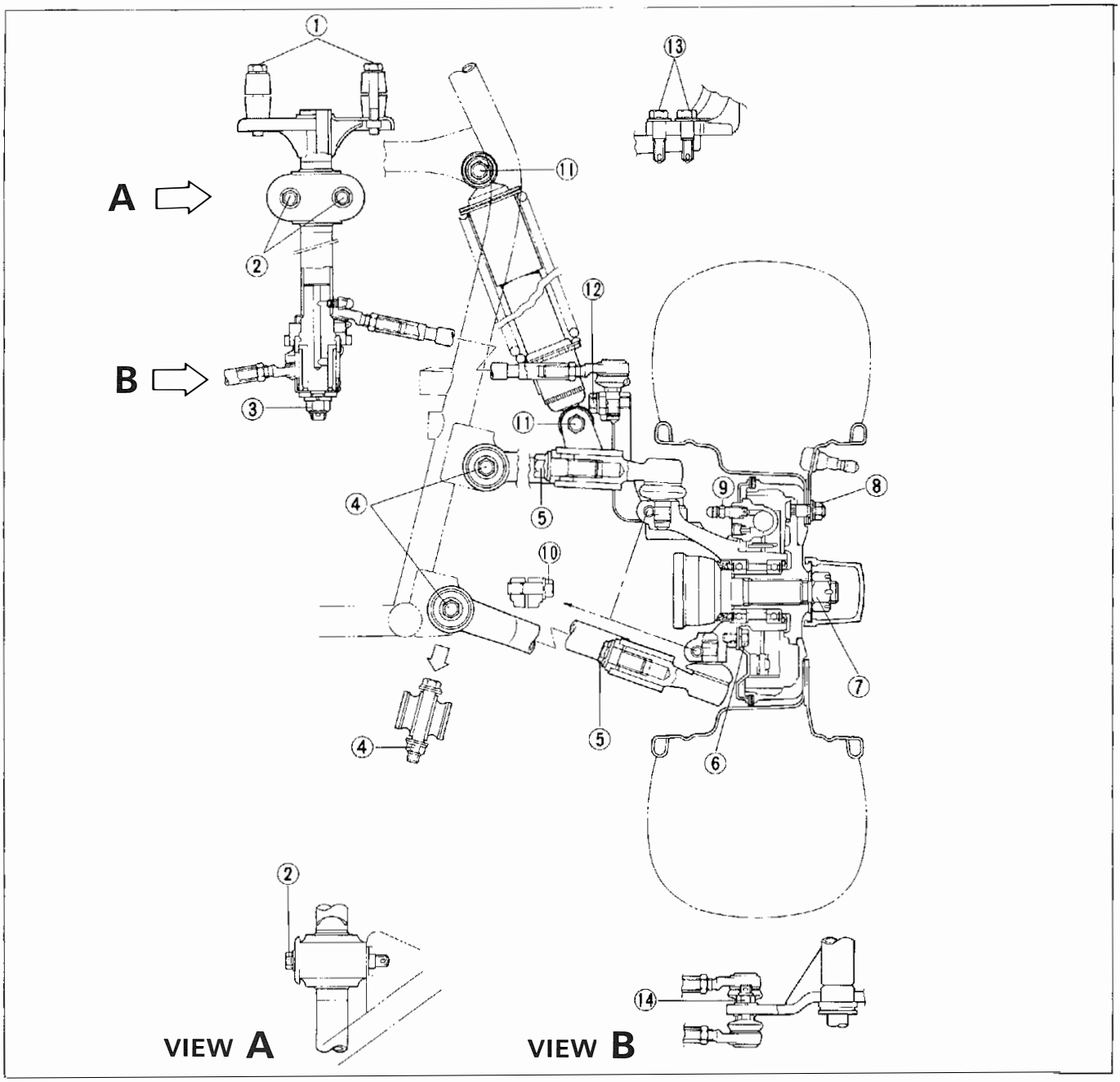
CHASSIS BOLTS AND NUTS

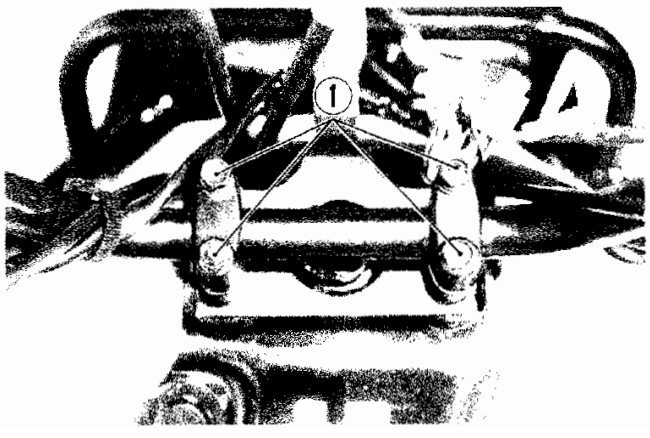
The bolts and nuts listed below are important parts, and they must be in good condition for safety. They must be retightened, as necessary, to the specified torque with torque wrench.

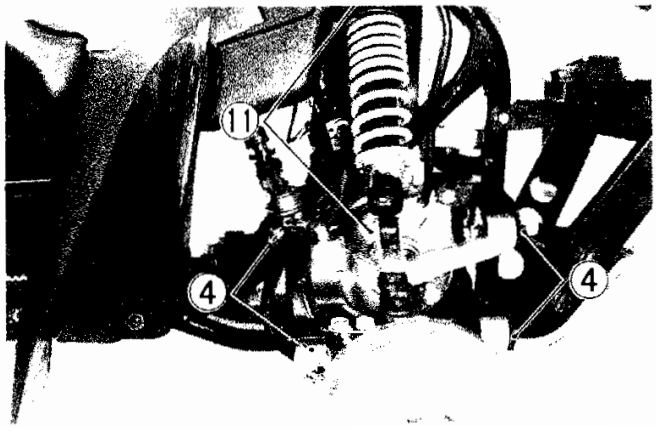
TIGHTENING TORQUE

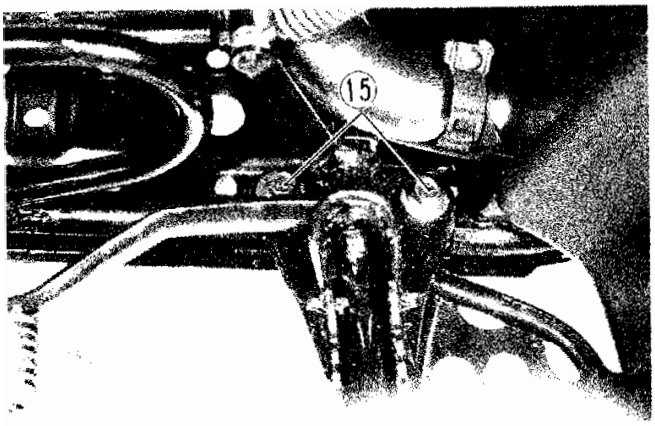
	ITEM	N·m	kg-m	lb-ft
①	Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
②	Steering shaft holder bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
③	Steering shaft nut	38 – 60	3.8 – 6.0	27.5 – 43.5
④	Wishbone arm pivot nut	40 – 60	4.0 – 6.0	29.0 – 43.5
⑤	Steering knuckle end bolt (Upper and Lower)	120 – 170	12.0 – 17.0	13.0 – 20.0
⑥	Front brake panel bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
⑦	Front axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
⑧	Front wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
⑨	Air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
⑩	Steering knuckle arm pinch bolt (Upper & Lower)	44 – 66	4.4 – 6.6	32.0 – 47.5
⑪	Shock absorber mounting bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
⑫	Steering knuckle arm end pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
⑬	Steering knuckle arm pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
⑭	Tie-rod end nut	22 – 35	2.2 – 3.5	16.0 – 25.5
⑮	Footrest bolt	40 – 50	4.0 – 5.0	29.0 – 36.0
⑯	Front brake master cylinder bolt	5 – 8	0.5 – 0.8	3.5 – 6.0
⑰	Front brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
⑱	Front brake pipe connecting bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
⑲	Propeller shaft coupling bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
⑳	Rear wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
㉑	Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
㉒	Rear brake cam lever nut	8 – 12	0.8 – 1.2	6.0 – 8.5
㉓	Rear shock absorber mounting bolt (Upper & Lower)	40 – 60	4.0 – 6.0	29.0 – 43.5
㉔	Rear suspension arm bolt (Front & Rear)	50 – 70	5.0 – 7.0	36.0 – 50.5

STEERING AND FRONT SUSPENSION





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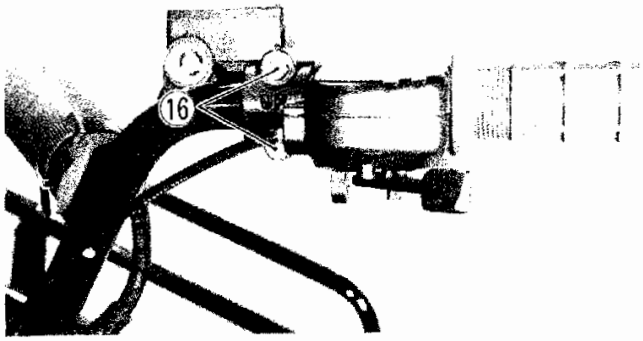
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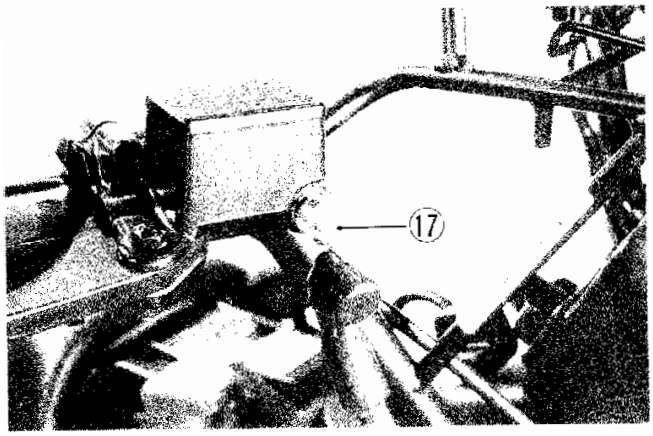
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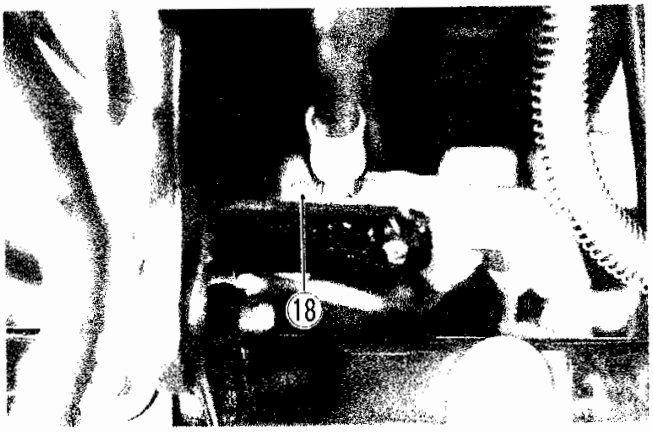
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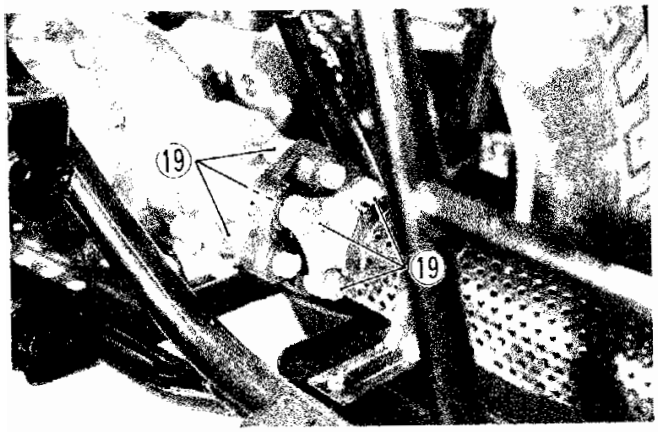
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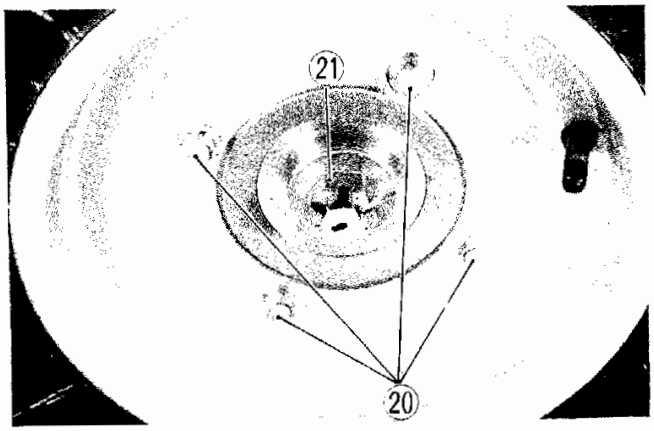
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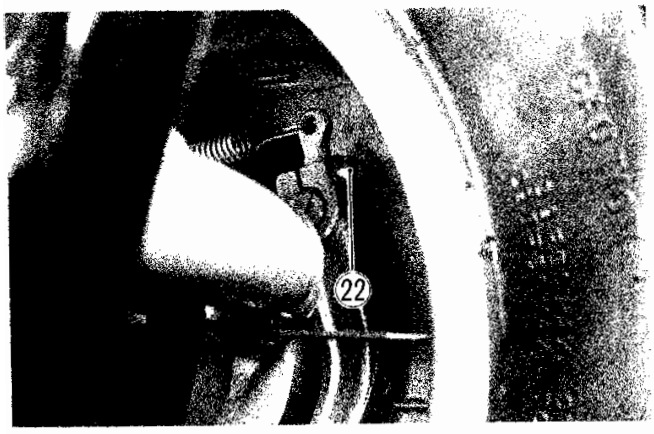
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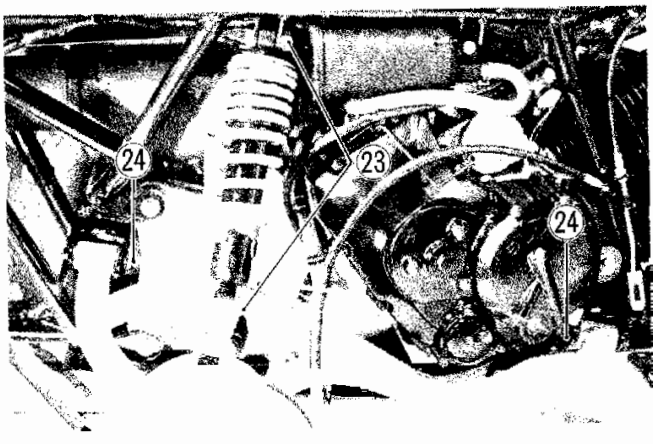
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24

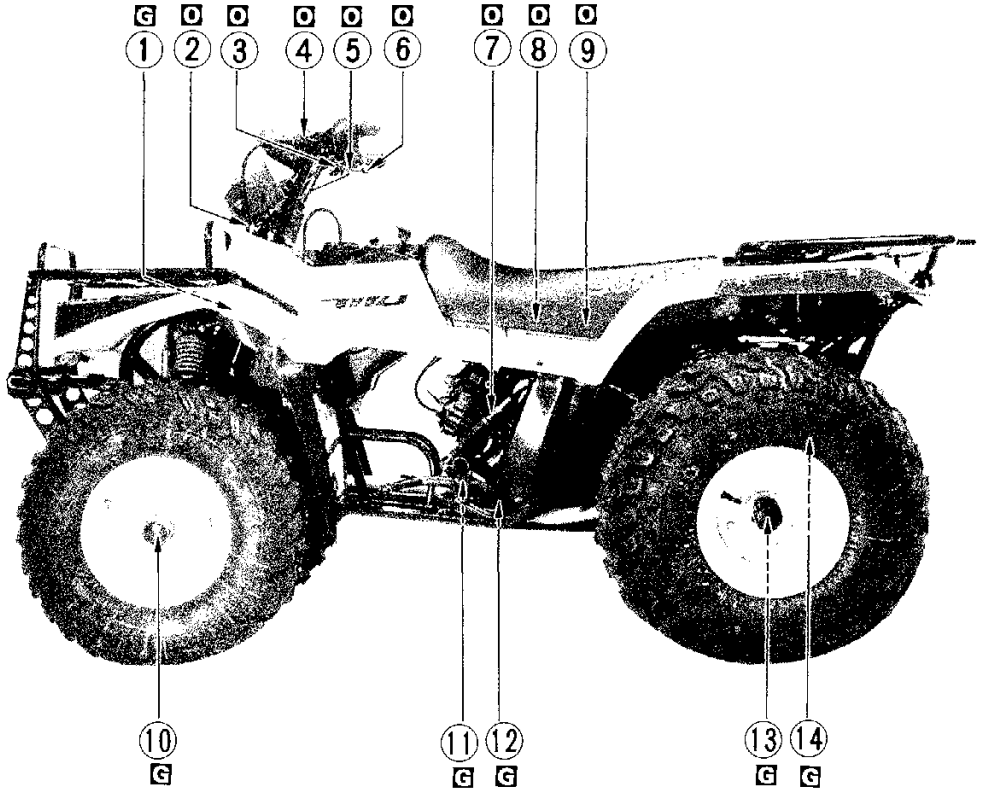
GENERAL LUBRICATION

Lubricate Every 1 000 km (600 miles)

Proper lubrication is important for smooth operation and long life of each working part of the vehicle. The major lubrication points are indicated below.

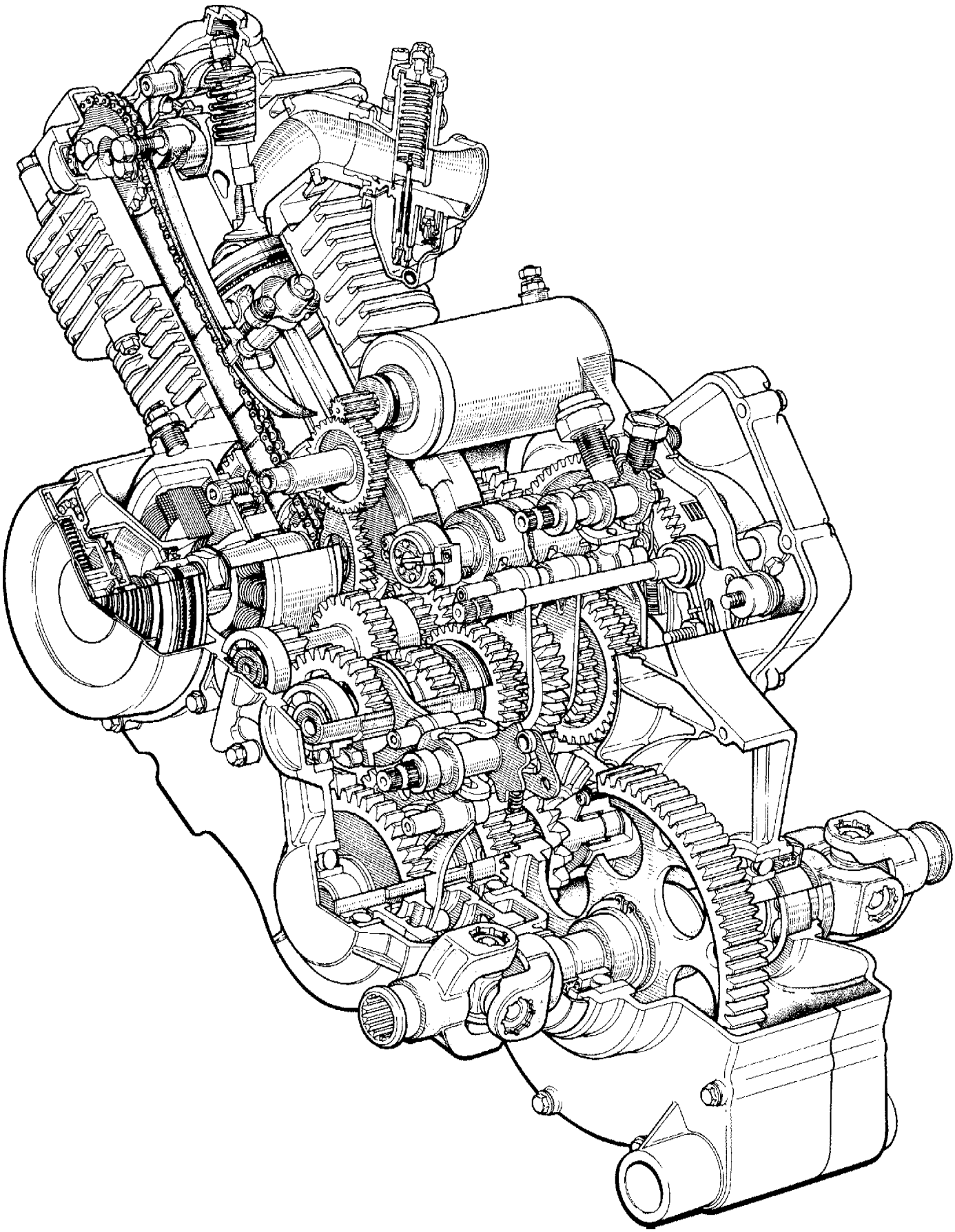
*** Lubricate exposed parts which are subject to rust, with motor oil or grease.**
*** Before lubricating each part, clean off any rusty spots and wipe off any grease, oil, dirt of grime.**

WARNING:
Be careful not to apply too much grease to the brake cam shaft. If grease gets on the linings, brake slippage will result.



① Steering shaft holder
② Speedometer cable
③ Choke cable
④ Brake lever holder and cable
⑤ Throttle cable and holder
⑥ Throttle lever
⑦ Shifting cable
⑧ Range cable
⑨ Reverse cable
⑩ Front wheel bearing
⑪ Brake pedal and rod link
⑫ Propeller shaft joint spline
⑬ Drive shaft joint spline
⑭ Brake cam

G : Grease
O : Oil



ENGINE

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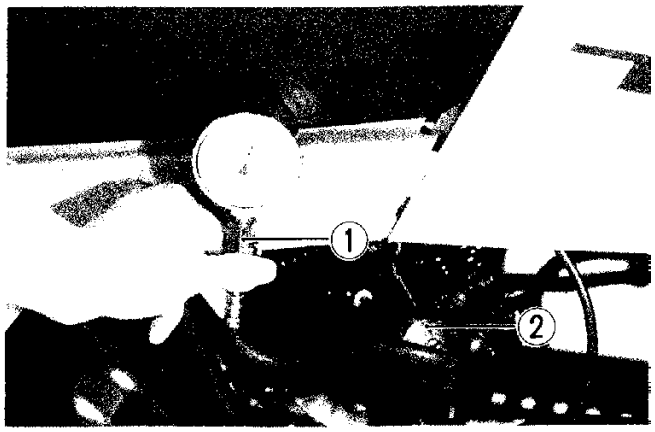
COMPRESSION CHECK

COMPRESSION TEST PROCEDURE

NOTE:
* **Before testing the engine for compression pressure, make sure that the cylinder head nuts are tightened to specified torque values and valves are properly adjusted.**
* **Have the engine warmed up by idling before testing it.**

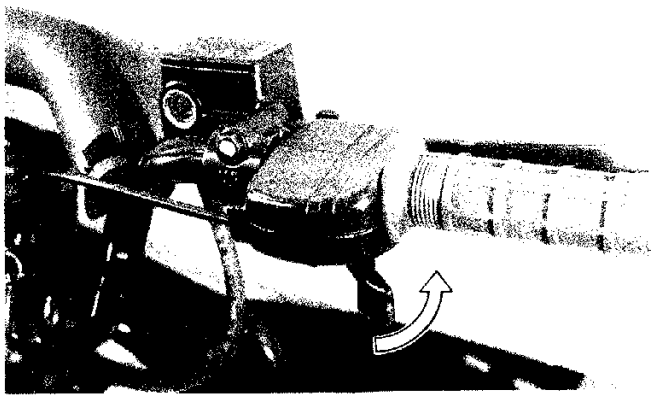
- Remove the spark plug.
- Fit the compression gauge set ① and ② to the plug hole, taking care to make the connection absolutely tight.
- Turn the throttle lever into wide-open position.
- Crank the engine for a few seconds with starter, and read the highest gauge indication as the compression of the cylinder.



①	09915-64510	Compression gauge
②	09915-63210	Adaptor

Compression pressure

Standard	Limit
1 000 – 1 400 kPa (10 – 14 kg/cm^2) (142 – 199 psi)	800 kPa (8 kg/cm^2) (114 psi)



A low compression pressure may indicate any of the following malfunctions:
* Excessively worn cylinder wall
* Worn piston or piston rings
* Piston rings stuck in the grooves
* Poor seating contact of valves
* Defective cylinder head gasket

When the compression pressure noted is down to or below the limit indicated above, the engine must be disassembled, inspected and repaired as required, with these five malconditions in mind.

INITIAL ENGAGEMENT AND CLUTCH LOCK-UP INSPECTION

The LT-4WD is equipped with a centrifugal type automatic clutch.
To insure proper performance and longevity of the clutch assemblies it is essential that the clutches engage smoothly and gradually. Two inspection checks must be performed to thoroughly check the operation of the drivetrain. Follow the procedures listed.

NOTE:
*** Before checking the initial engagement and clutch lock-up, check the oil level.**
*** Have the engine warmed up by idling before checking it.**

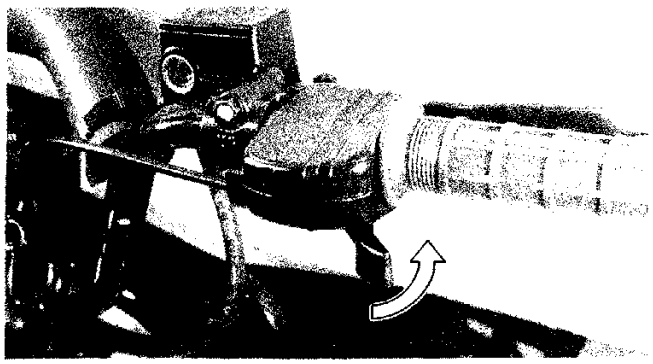
INITIAL ENGAGEMENT INSPECTION

- Connect an electric tachometer to the high tension cord.
- Start the engine.
- Shift the transfer lever to the "2WD" position and sub-transmission lever to the "High" position, and then shift the gearshift lever to the "Low" position.
- Seated on the machine, increase the engine RPMs slowly and note the RPM at which the machine begins to move forward.

09900-26005	Engine tachometer Not available in U.S. model

Engagement r/min

Standard	2 000 r/min
Tolerance	± 200 r/min



If the engagement r/min does not coincide with the standard range, inspect the following items for any abnormality.

Page
* Clutch shoes 3-45
* Clutch wheel 3-45
* Clutch drive and driven plates 3-44
3-45

CLUTCH LOCK-UP INSPECTION

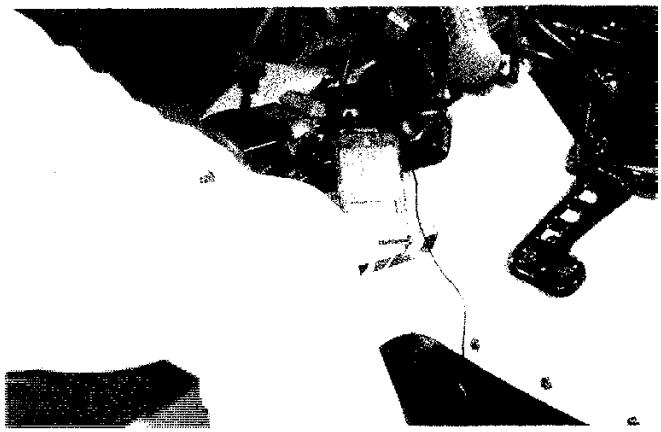
Perform this inspection to determine if the clutch is engaging fully and not slipping.

- Connect an electric tachometer to the engine.
- Start the engine.
- Shift the sub-transmission lever to the "High" position.
- Shift the gearshift lever to the "Low" position.
- Apply the front and rear brakes as firm as possible.
- Briefly open the throttle fully and note the maximum engine RPMs sustained during the test cycle.

Lock-up r/min.

Standard	3 400 r/min
Tolerance	± 300 r/min

CAUTION:
Do not apply full power for more than 10 seconds or damage to the clutch or engine may occur.



If the lock-up r/min does not coincide with the standard range, inspect the following items for any abnormality.

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ENGINE COMPONENTS REMOVABLE WITH THE ENGINE IN PLACE

The parts listed below can be removed and reinstalled without removing the engine from the frame. Refer to the page listed in this section for removal instruction.

ENGINE LEFT SIDE

	See page
Recoil starter assembly	3-13
Neutral indicator switch	3-25
Universal joint	3-8

ENGINE CENTER

	See page
Carburetor	3-7
Cam drive chain tensioner	3-13
Cylinder head cover	3-14
Camshaft	3-14
Cylinder head	3-15
Cylinder	3-15
Starter motor	3-16
Piston	3-16
Reverse switch	3-25
Oil sump filter	3-57
Neutral cam stopper bolt	3-25
Propeller shaft	3-9

ENGINE RIGHT SIDE

	See page
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Clutch release mechanism	3-17
Clutch shoe	3-17
Primary drive gear	3-17
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Oil pump drive gear	3-19
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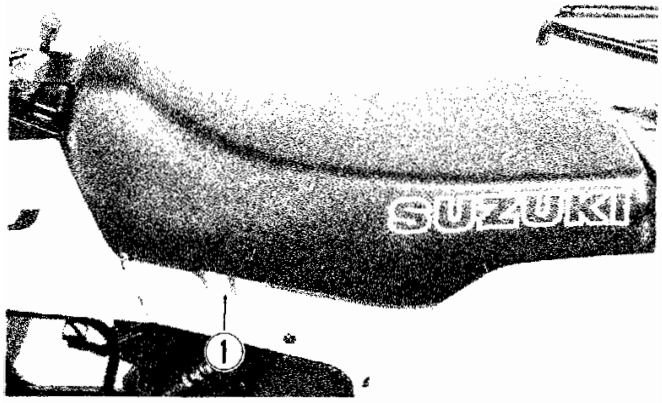
ENGINE REMOVAL AND REMOUNTING

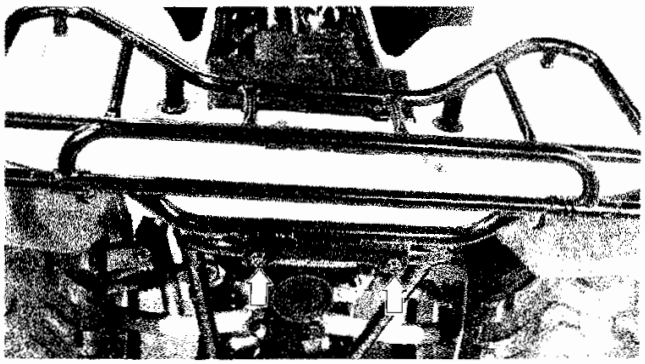
ENGINE REMOVAL

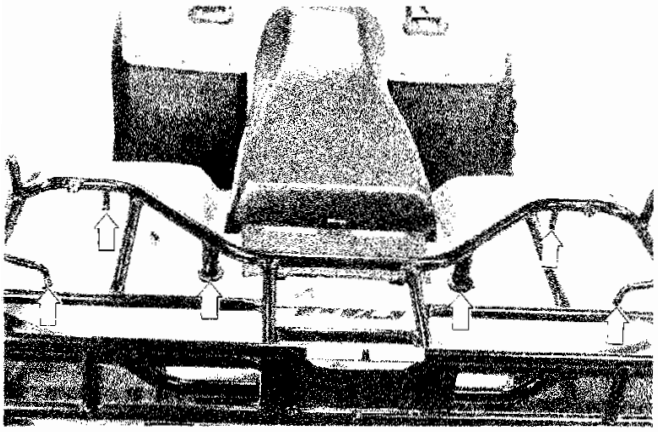
Before taking the engine out of the frame, thoroughly clean the engine with a suitable cleaner. The procedure of engine removal is sequentially explained in the following steps.

- Remove the seat by pulling the lever ①.

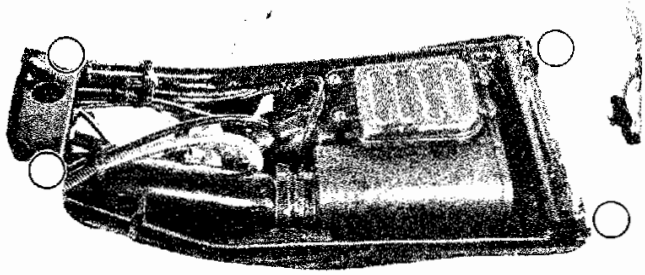


- Remove the rear carrier.

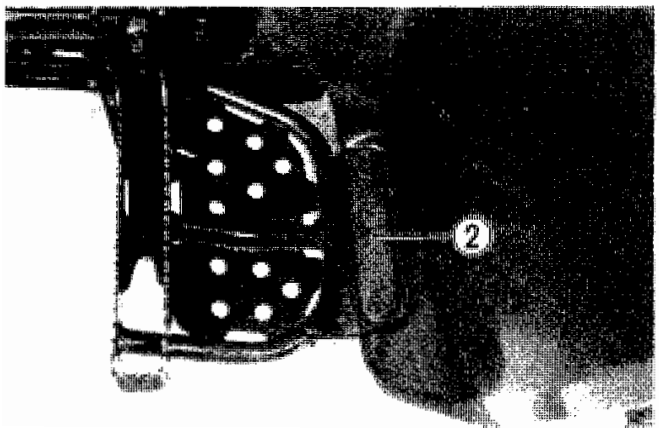




- Remove the four bolts.

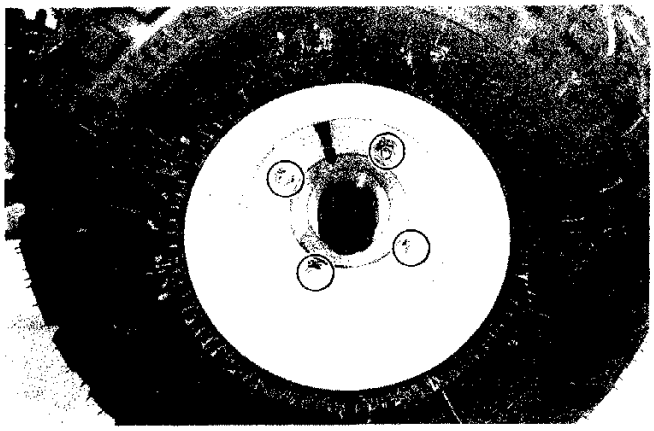


- Remove the mud flap mounting brackets ②, right and left.
- Remove the rear fender.

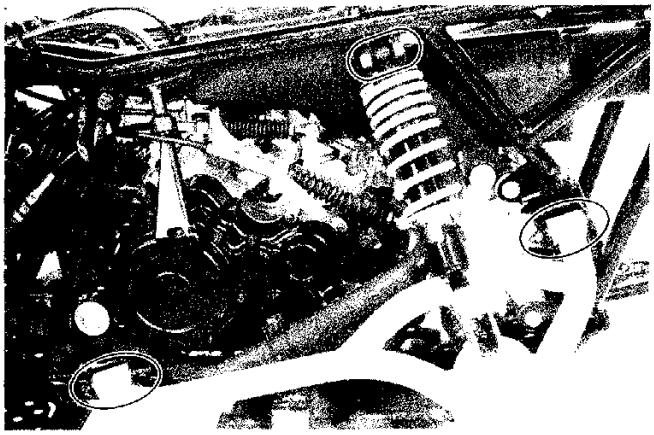


- Support the vehicle by jack or block.

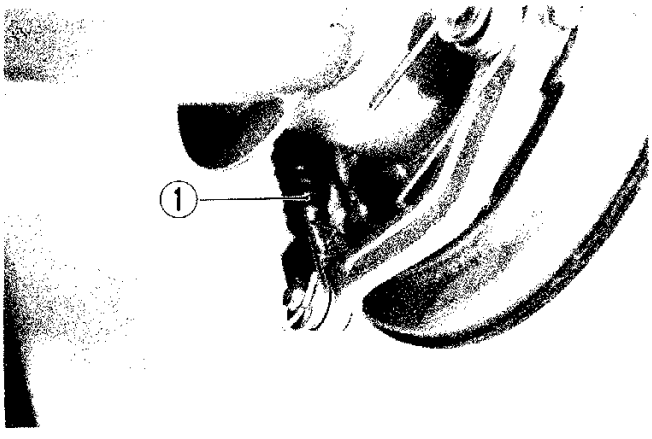
- Remove the rear wheels, right and left, by loosening nuts.



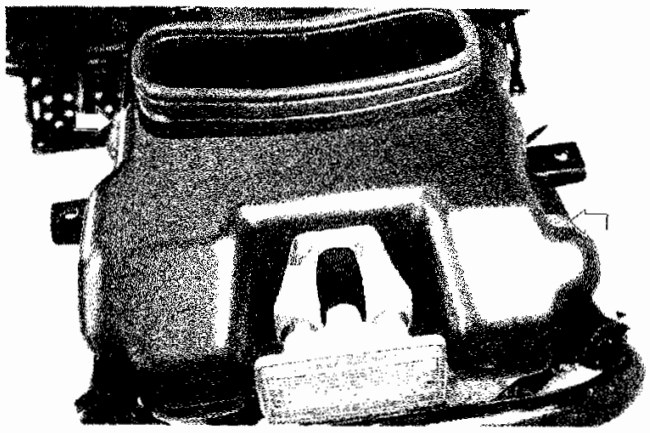
- Remove the rear suspensions and suspension arms, right and left, by removing bolts and nuts.



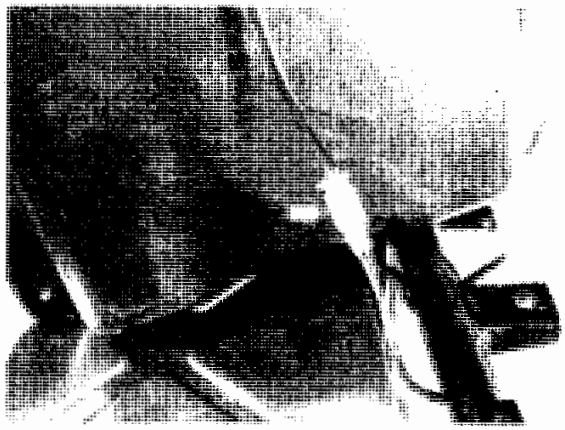
NOTE:
To remove the right suspension arm, it becomes necessary to disconnect the rear brake cable ①.



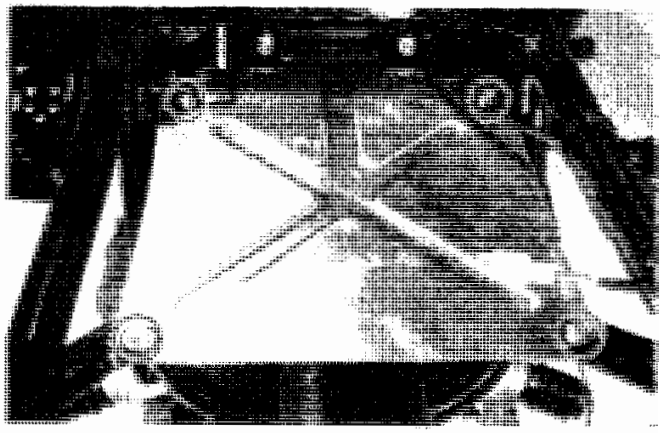
- Remove the two rear container mounting bolts.



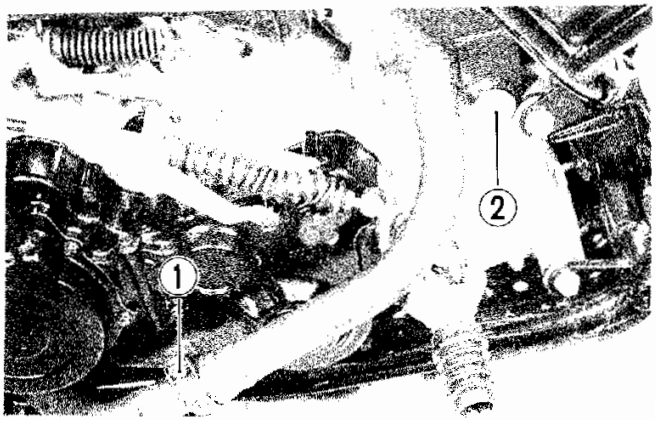
- Disconnect the lead wire and remove the rear container.



- Remove the four bolts and remove the plate.

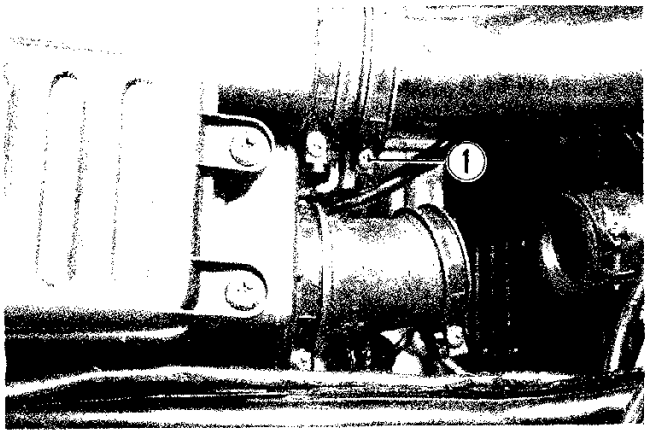


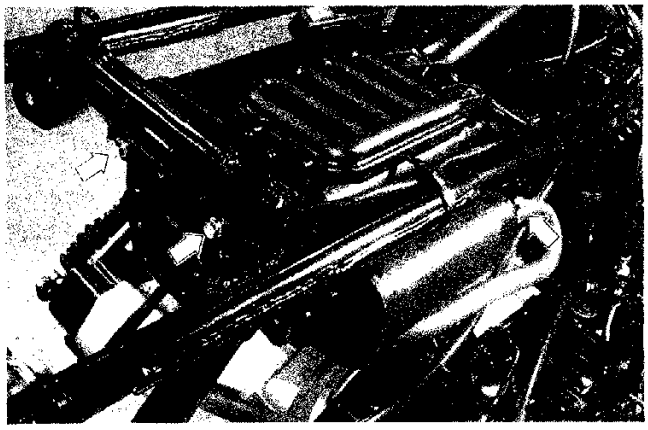
- Loosen the bolt ① and remove the bolts ②, right and left, and then remove the muffler backwards.

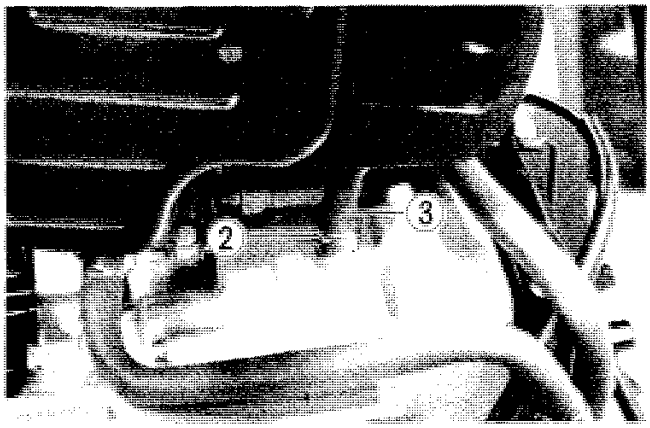


- Loosen two screws and take out the carburetor assembly.

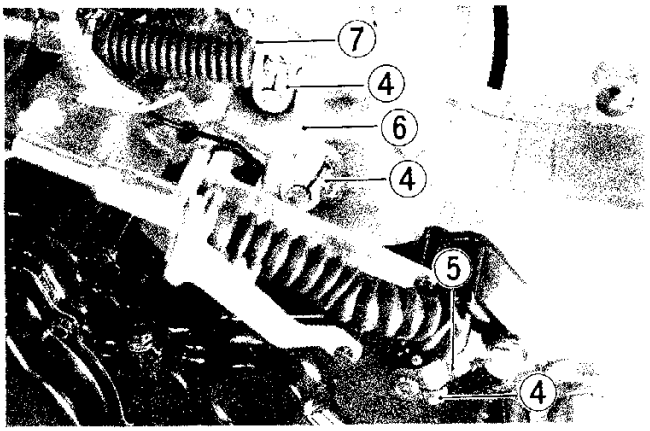
- Loosen an air cleaner intake pipe clamp screw ①.
- Remove the three air cleaner mounting bolts.
- Slide the clip ② and disconnect the blow-by gas hose ③.
- Take out the air cleaner.



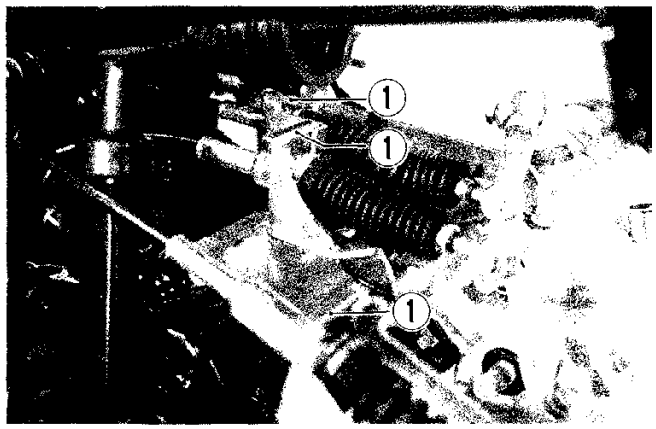




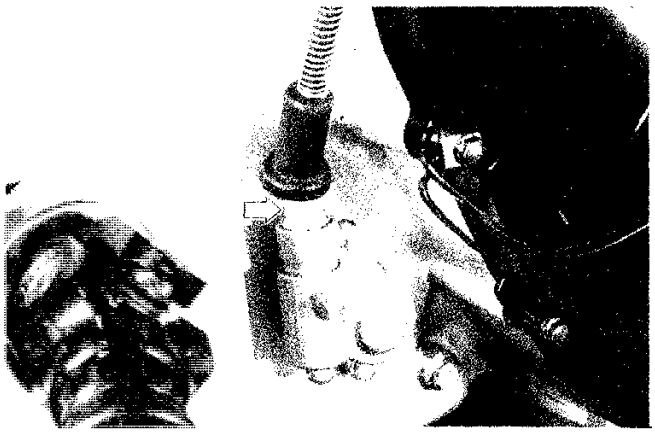
- Remove the three bolts ④ and pull out the sub-transmission lever ⑤, transmission lever ⑥ and reverse lever ⑦.



- Pull out the lever mounting brackets ①.

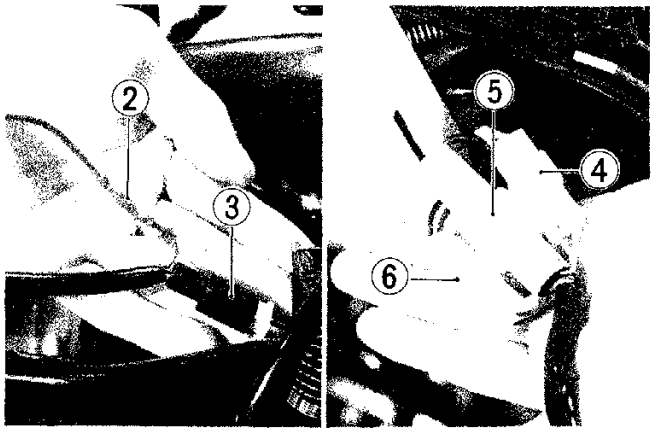


- Disconnect the speedometer cable.



- Disconnect the lead wires.

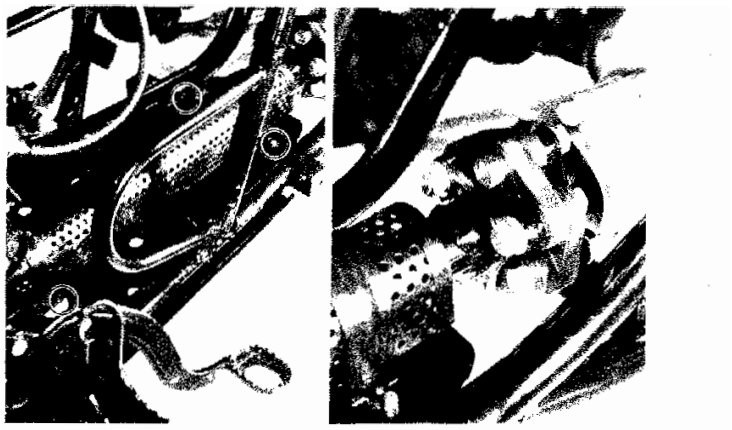
② : Neutral switch
③ : Reverse switch
④ : Charging
⑤ : Pick-up
⑥ : Power source



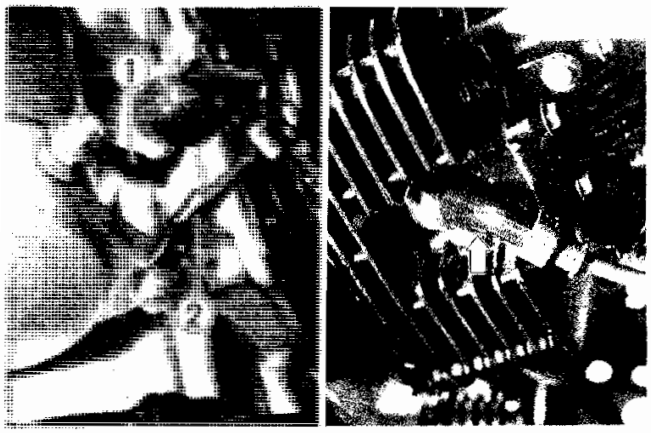
- Remove the universal joints, right and left, with the special tool.

09930-30102	Sliding shaft
09924-21910	Wheel hub remover set

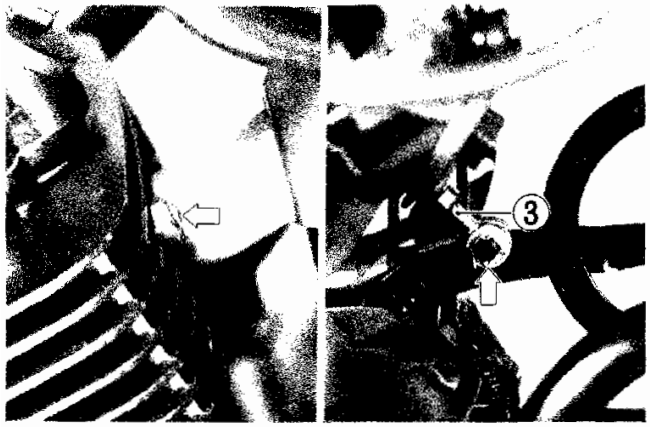
- Remove the four propeller shaft cover mounting bolts.
- Remoe the six nuts and bolts, and take out the propeller shaft and cover.



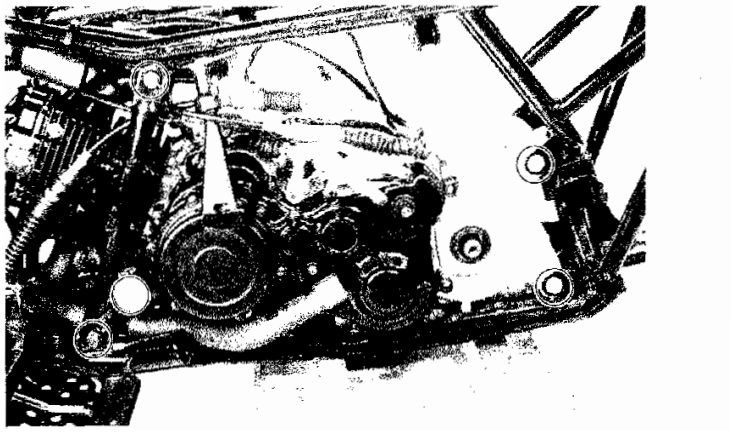
- Disconnect the starter motor lead ① and ground lead ②.
- Pull out the spark plug cap.



- Remove the two exhaust pipe clamp nuts.
- Pull out the cotter pin and disconnect the gearshift lever cable ③.



- Remove the engine mounting nuts.
- Remove the two bolts and then remove the left side frame bridge with engine mounting bolt.
- Use both hands, and remove the engine from the frame, removing it from the left side.



ENGINE REMOUNTING

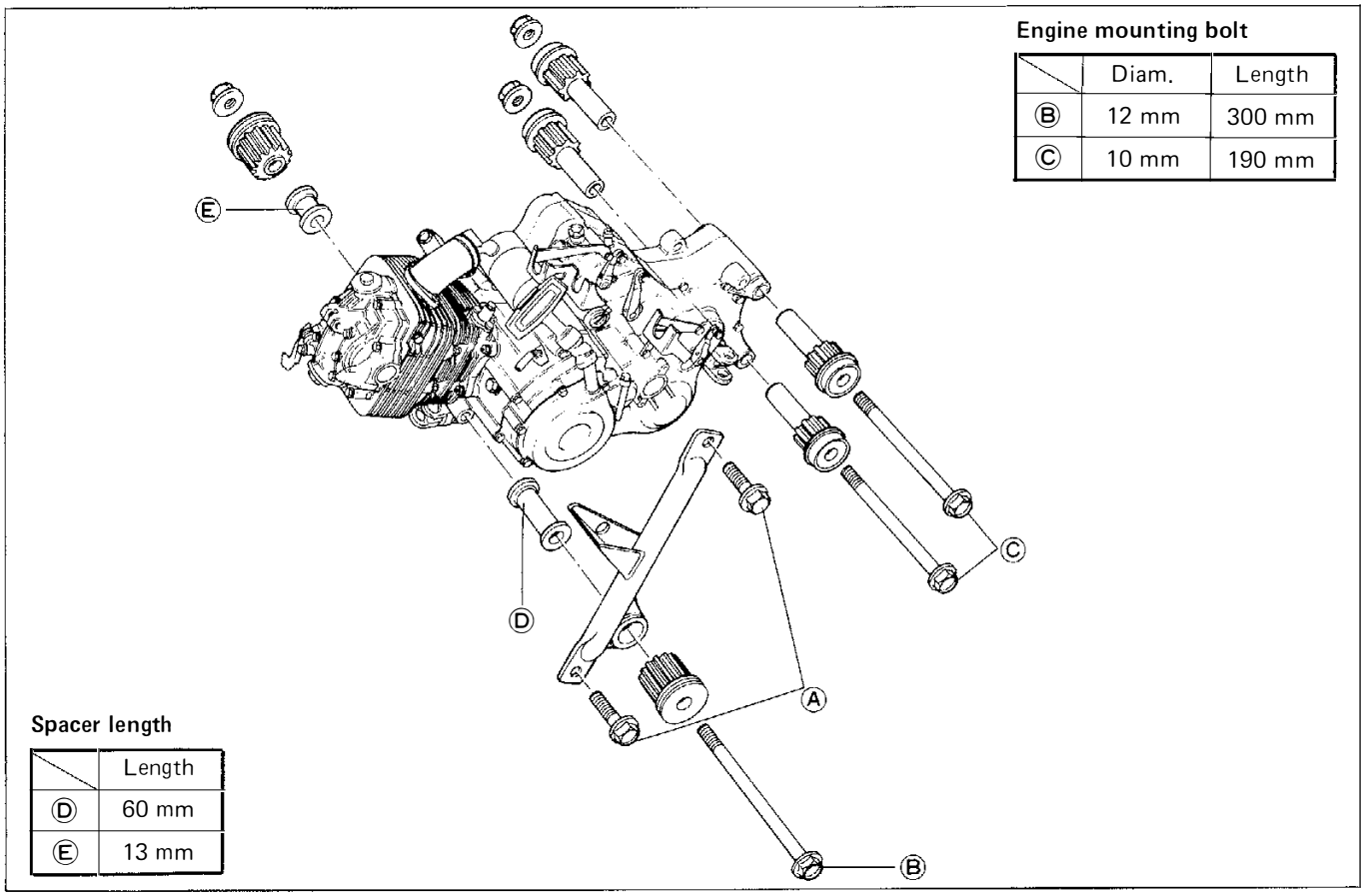
The engine can be mounted in the reverse order of removal.

- Tighten the left frame bridge bolts to the specified torque.

Tightening torque

ITEM	N·m	kg-m	lb-ft
Ⓐ	60 – 70	6.0 – 7.0	43.5 – 50.5

NOTE:
The engine mounting nuts are self-lock nut. Once the nut has been removed, it is no longer of any use. Be sure to use new nuts and tighten them to the specified torque.



Engine mounting bolt

	Diam.	Length
Ⓑ	12 mm	300 mm
Ⓒ	10 mm	190 mm

Spacer length

	Length
Ⓓ	60 mm
Ⓔ	13 mm

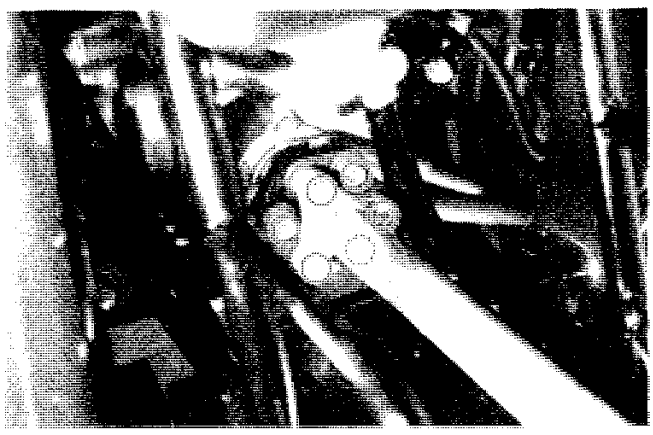
Tightening torque for engine mounting bolts

ITEM	N·m	kg-m	lb-ft
Ⓑ	60 – 72	6.0 – 7.2	43.5 – 52.0
Ⓒ	80 – 95	8.0 – 9.5	58.0 – 68.5

- Tighten the propeller shaft coupling bolts to the specified torque.

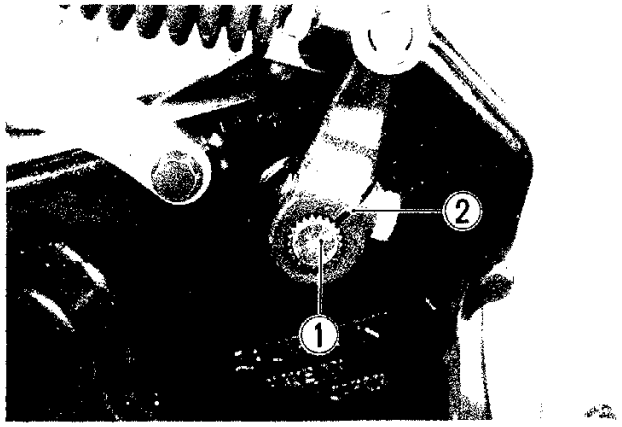
Tightening torque

N·m	kg-m	lb-ft
40 – 50	4.0 – 5.0	29.0 – 36.0



- Install the universal joint correctly.

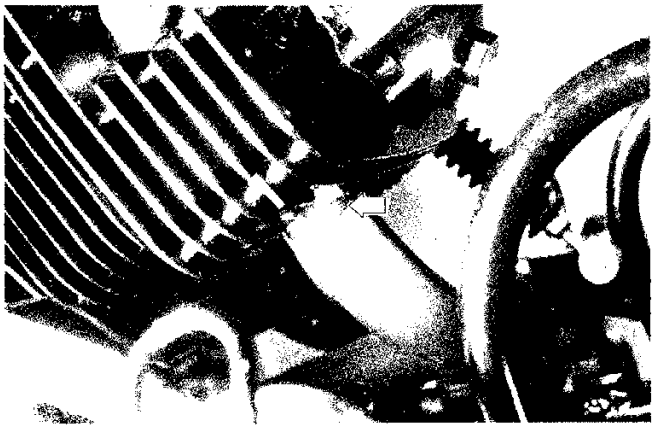
- When installing the reverse lever, transmission lever and sub-transmission lever, align the groove ① with slit ②.



- Tighten the exhaust pipe clamp nuts to the specified torque.

Tightening torque

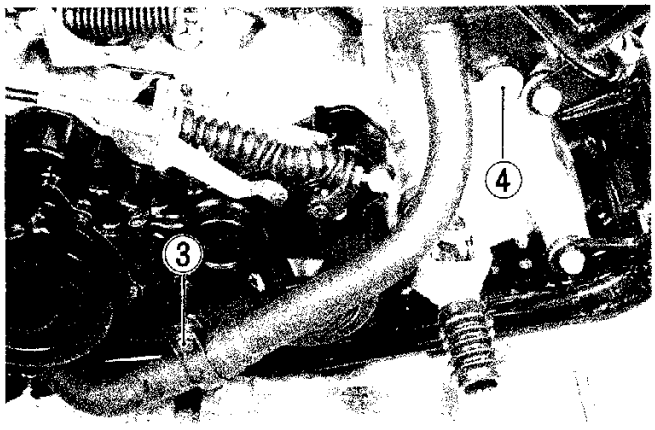
N·m	kg-m	lb-ft
9 – 12	0.9 – 1.2	6.5 – 8.5



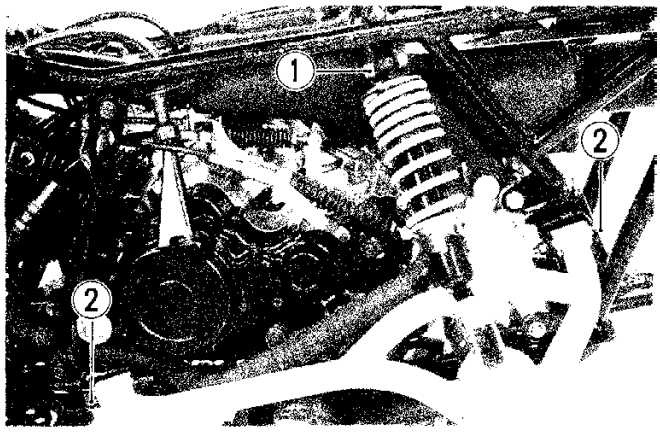
- Tighten the muffler connection bolt ③ and mounting bolts ④ to the specified torque.

Tightening torque

ITEM	N·m	kg-m	lb-ft
③	18 – 23	1.8 – 2.3	13.0 – 16.5
④	18 – 28	1.8 – 2.8	13.0 – 20.0



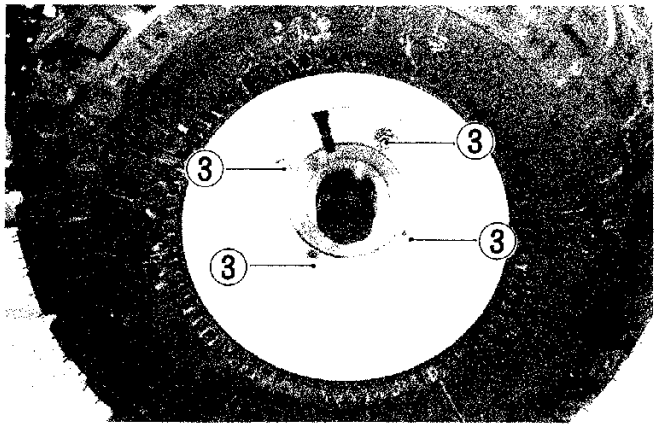
- Tighten the rear suspension mounting bolt ① and suspension arm mounting bolts ② to the specified torque.



Tightening torque

ITEM	N·m	kg-m	lb-ft
①	40 – 60	4.0 – 6.0	29.0 – 43.5
②	50 – 70	5.0 – 7.0	36.0 – 50.5

- Tighten the rear wheel set nuts ③ to the specified torque.



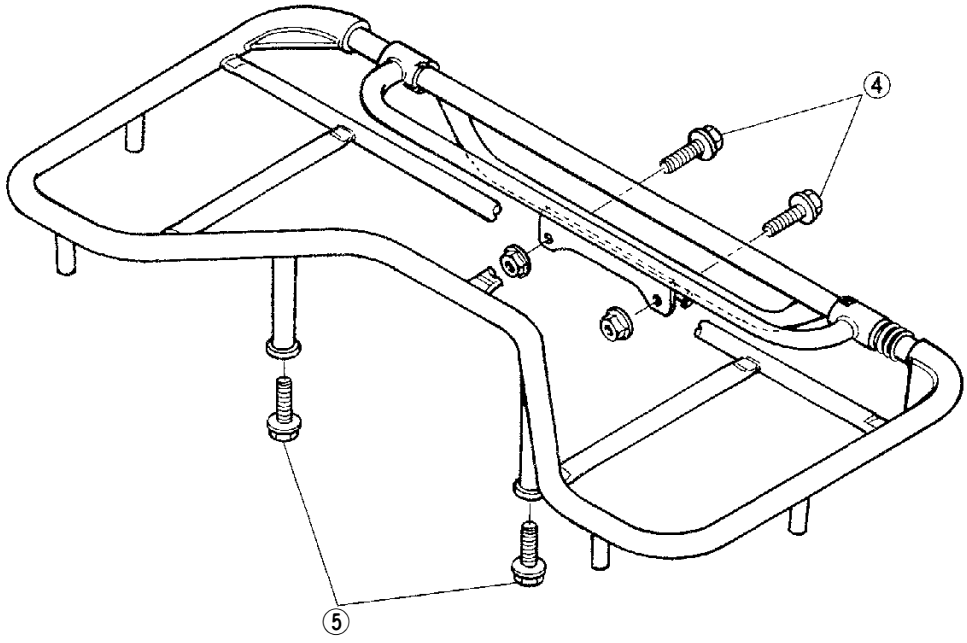
Tihgtening torque

ITEM	N·m	kg-m	lb-ft
③	45 – 65	4.5 – 6.5	32.5 – 47.0

- Tighten the rear carrier bolts ④ and ⑤ to the specified torque.

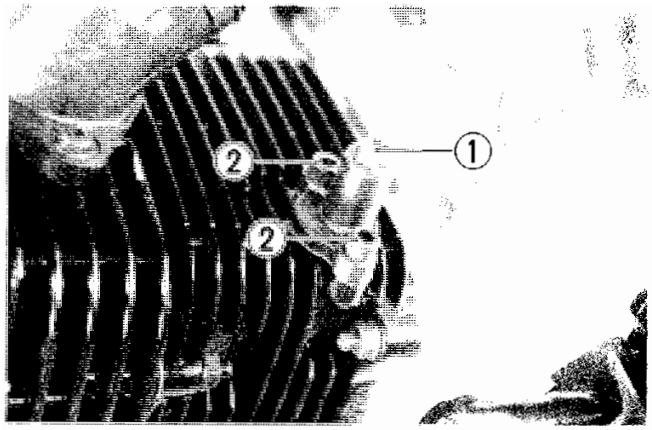
Tightening torque

ITEM	N·m	kg-m	lb-ft
④	30 – 40	3.0 – 4.0	21.5 – 29.0
⑤	20 – 30	2.0 – 3.0	14.5 – 21.5



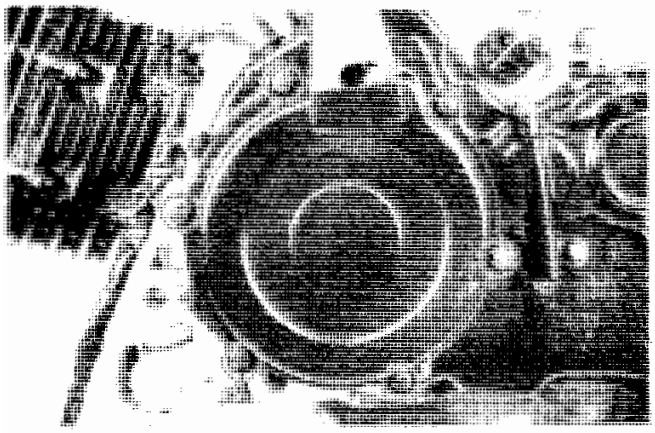
ENGINE DISASSEMBLY

- Loosen a bolt ① and then remove the chain tensioner by removing two Allen bolts ② .

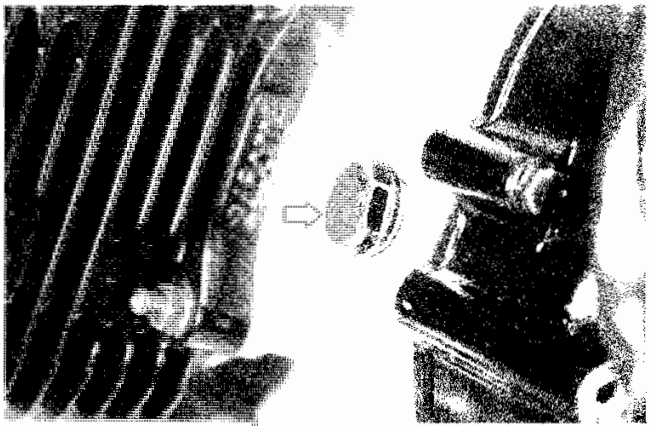


- Remove the recoil starter assembly.

09900-00302-011	"T" type box wrench (8 mm) Not available in U.S. model

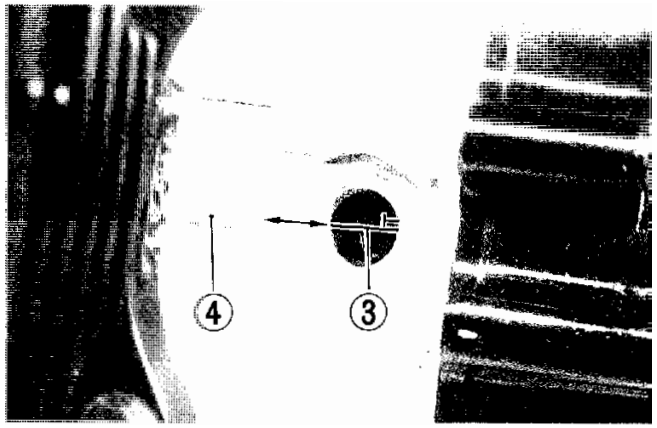


- Remove the inspection plug.

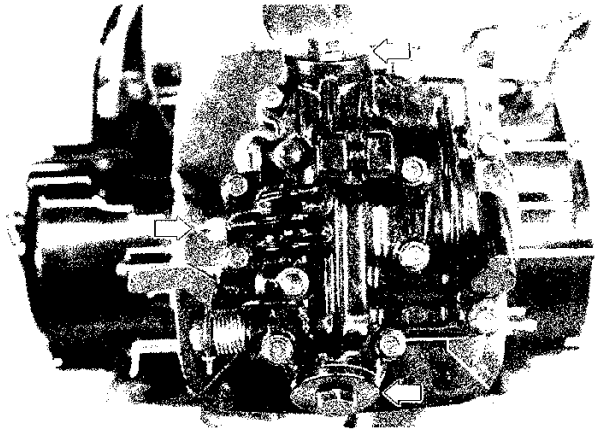


- Rotate the recoil cup until the "T" line ③ on the rotor is aligned with the index mark ④ on the crankcase.

NOTE:
When removing the cylinder head cover, piston must be at top dead center on compression stroke.

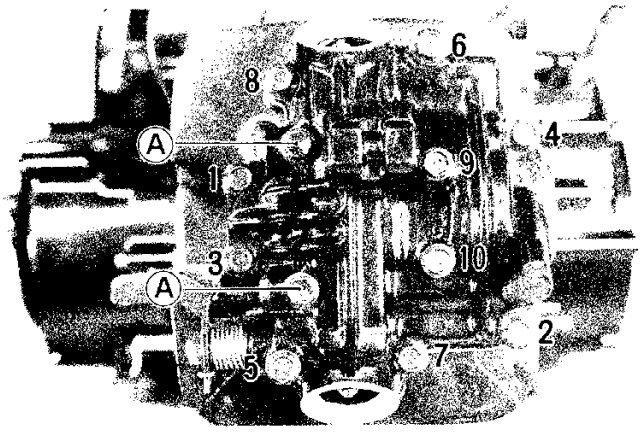


- Remove the valve inspection caps and spark plug.

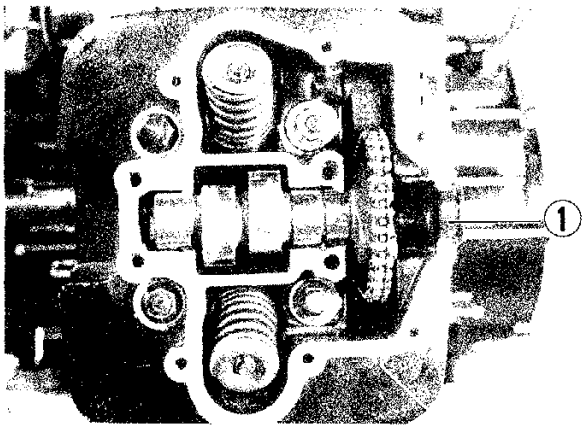


- Loosen the cylinder head cover bolts in the order indicated in photo and detach the cylinder head cover.

NOTE:
When removing the cylinder head cover, do not remove the conically recessed top bolts Ⓐ.

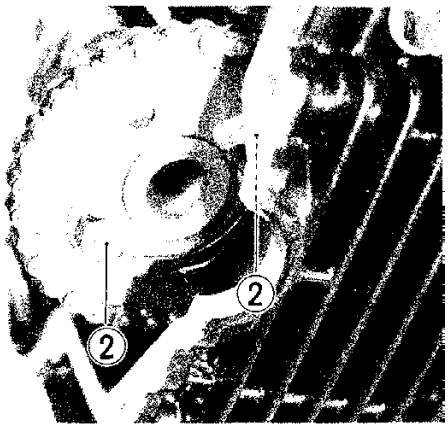


- Remove the camshaft end cap ①.



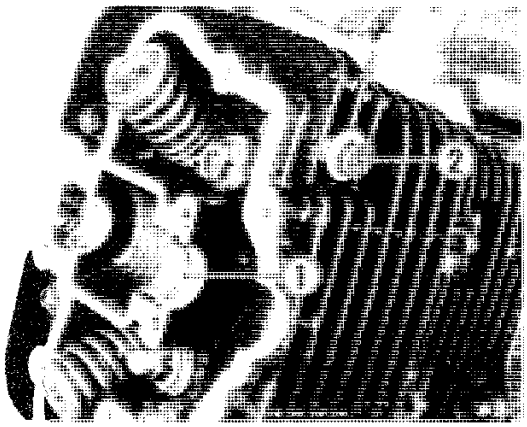
- Flatten the lock washer and remove the two camshaft sprocket bolts ②.
- Remove the camshaft and sprocket.

NOTE:
Do not drop camshaft drive chain, pin and sprocket into the crankcase.



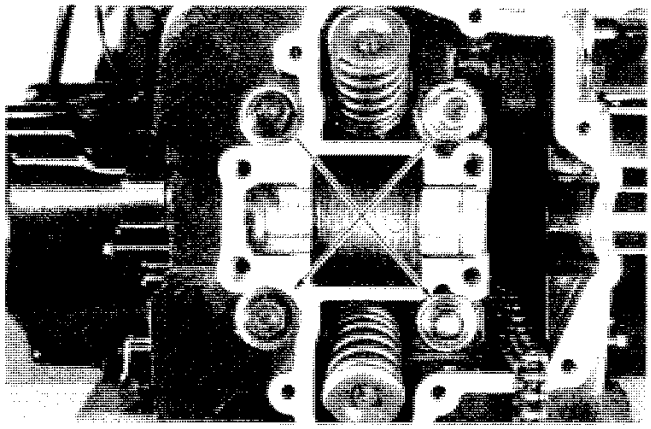
- Remove the C-ring ①.

NOTE:
The cam chain tensioner bolt ② is to be removed only when disassembling the engine.



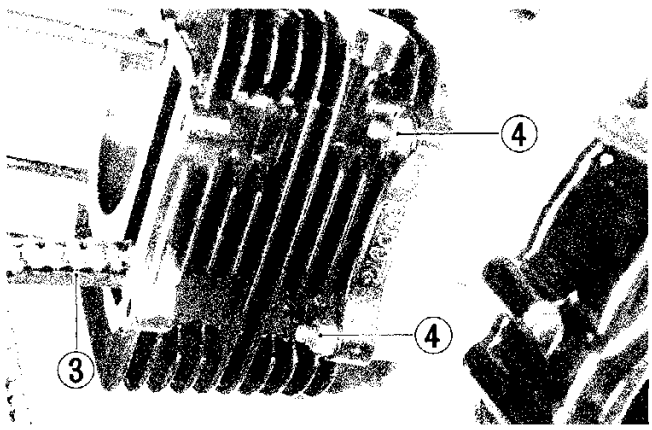
- Loosen the four cylinder head nuts diagonally and two nuts, then detach the cylinder head.

NOTE:
If it is difficult to remove the cylinder head, gently pry it off while tapping the finless portion of the cylinder head with a plastic hammer. Be careful not to break the fins.

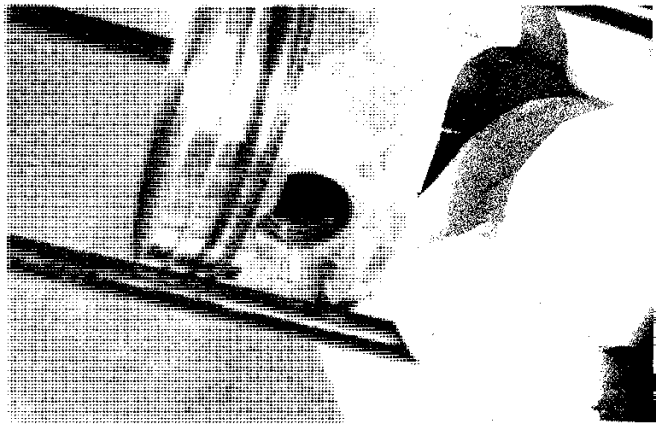


- Remove the cam chain guide ③.
- Remove the cylinder base nuts ④.
- Remove the cylinder.

CAUTION:
If tapping with plastic hammer is necessary, do not break the fins.

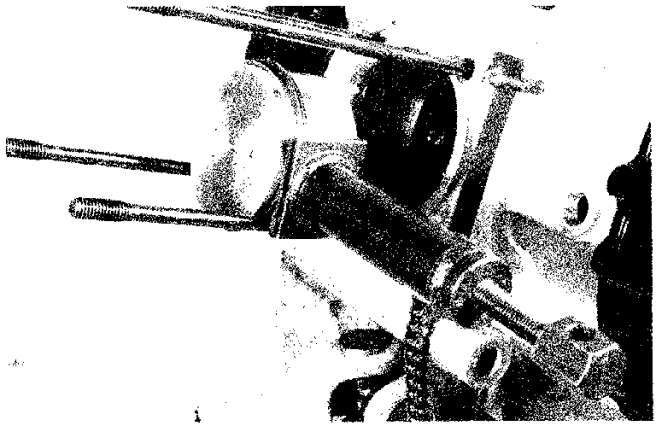


- Place a clean rag over the cylinder base to prevent piston pin circlip from dropping into crankcase, and then remove the piston pin circlip with long-nose pliers.

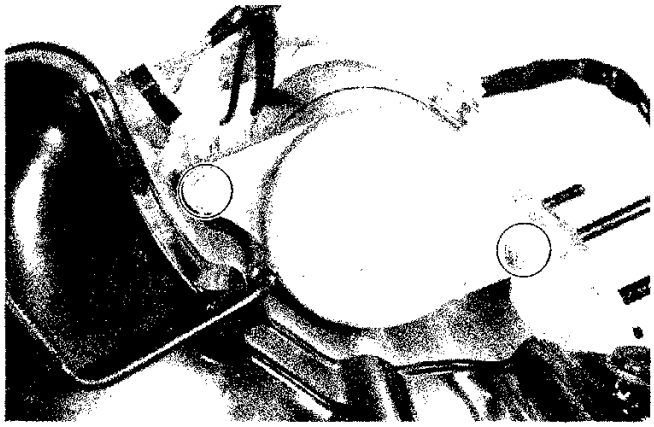


- Remove the piston pin with the special tool.

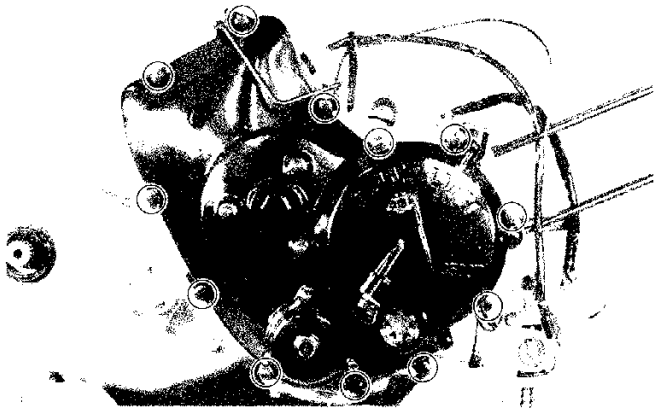
09910-34510	Piston pin puller



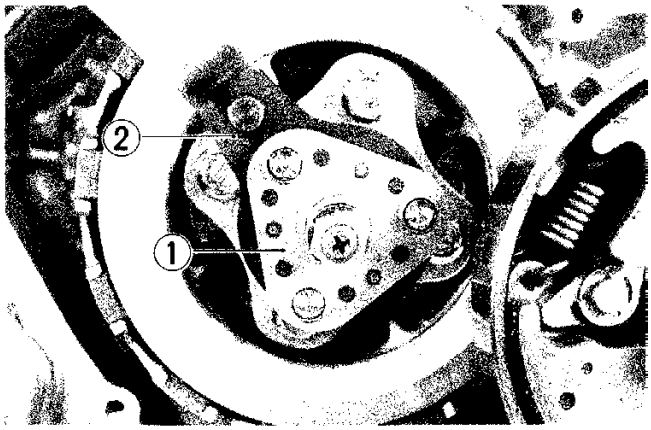
- Remove the starter motor.



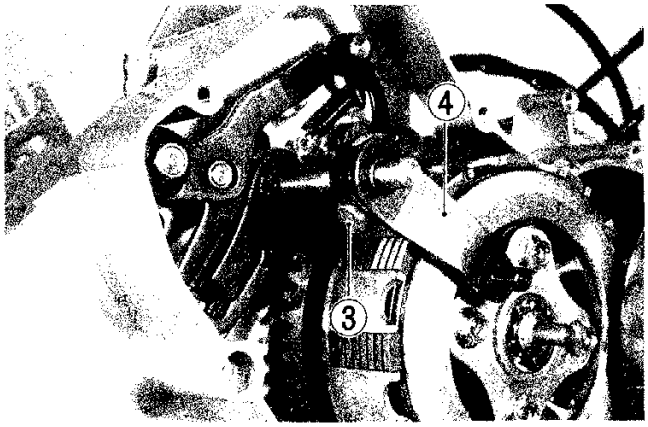
- Remove the clutch cover.



- Remove the clutch release ball assembly ① and bracket ② .

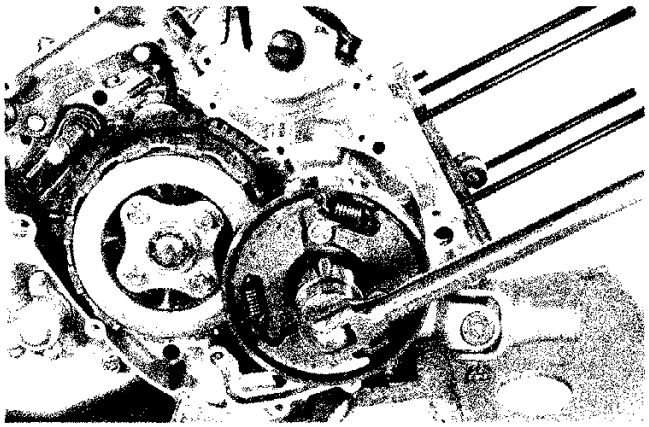


- Remove the bolt ③ and then remove the clutch release arm ④ .



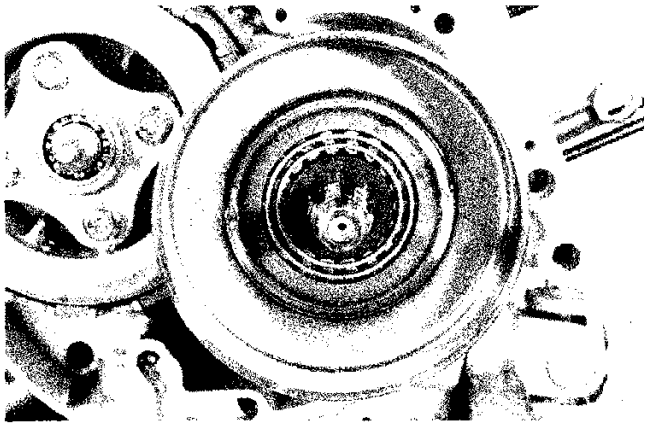
- Remove the clutch shoe nut with the special tool and then remove the clutch shoe assembly.

09910-20115	Conrod holder

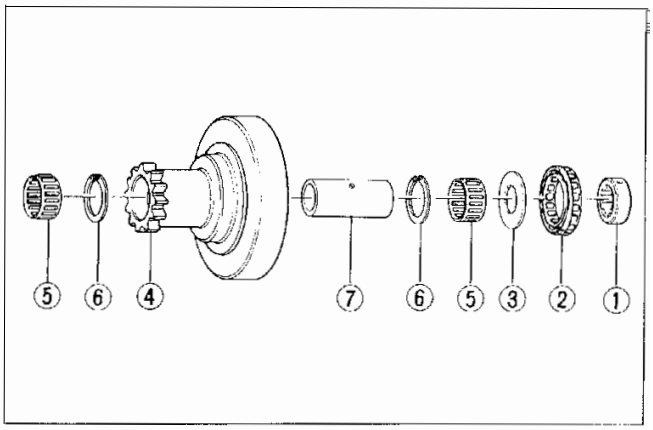


NOTE:
* **Clutch shoe nut has left-hand thread.**
* **Do not attempt to disassemble the clutch shoe, it is not serviceable.**
* **To prevent the conrod small end from getting into the conrod holder, insert the piston pin to the conrod small end.**

- Remove the one-way clutch inner race, one-way clutch, washer, primary drive gear, bearings, circlips and spacer.



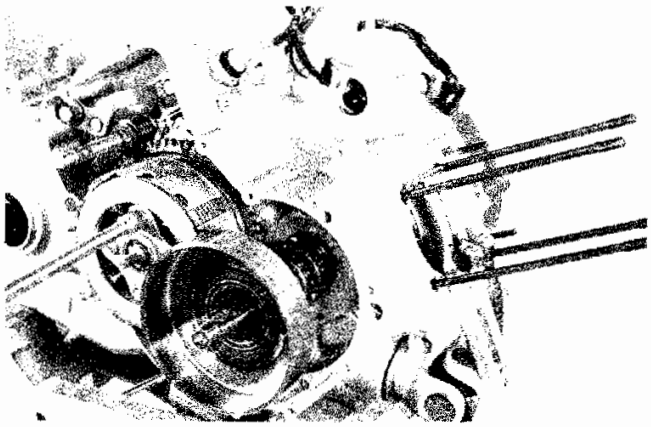
① One-way clutch inner race
② One-way clutch
③ Washer
④ Primary drive gear
⑤ Bearing
⑥ Circlip
⑦ Spacer



- Temporarily install the primary drive gear assembly, remove the four bolts with the special tool and then remove the release plate.

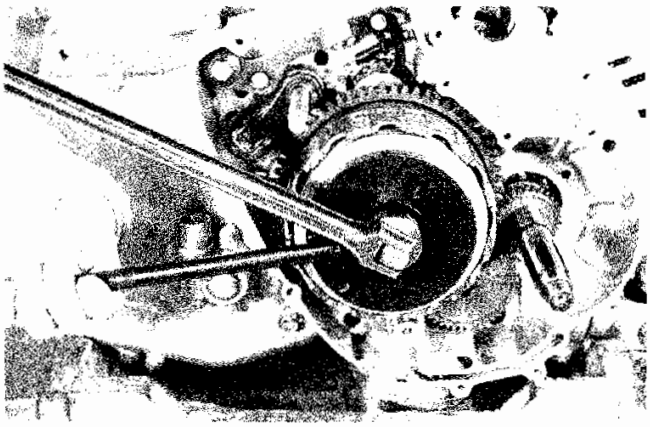
09910-20115	Conrod holder

NOTE:
To prevent the conrod small end from getting into the conrod holder, insert the piston pin to the conrod small end.

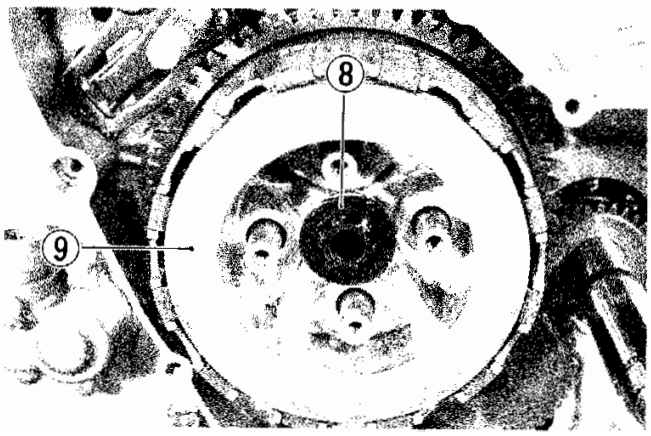


- Remove the clutch sleeve hub nut with the special tool.

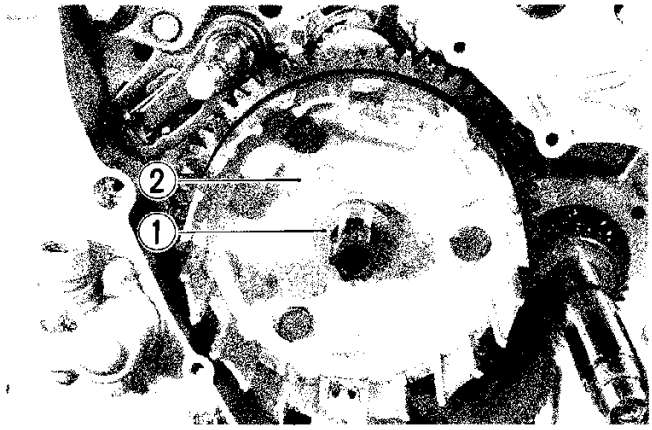
09920-53730	Clutch sleeve hub holder



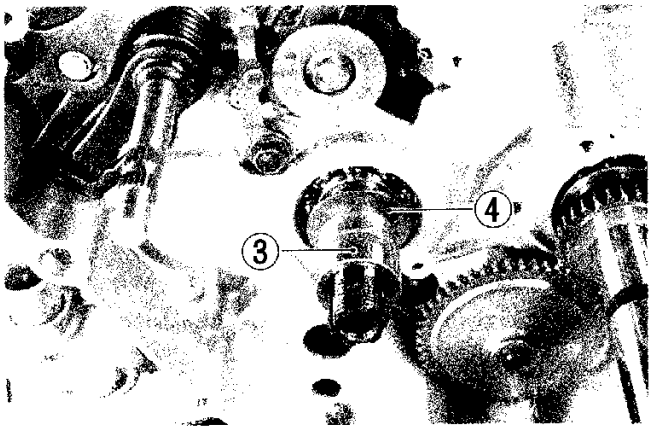
- Remove the concaved washer ⑧, clutch sleeve hub ⑨, drive plates, driven plates and pressure disc.



- Remove the washer ① and primary driven gear assembly ②.



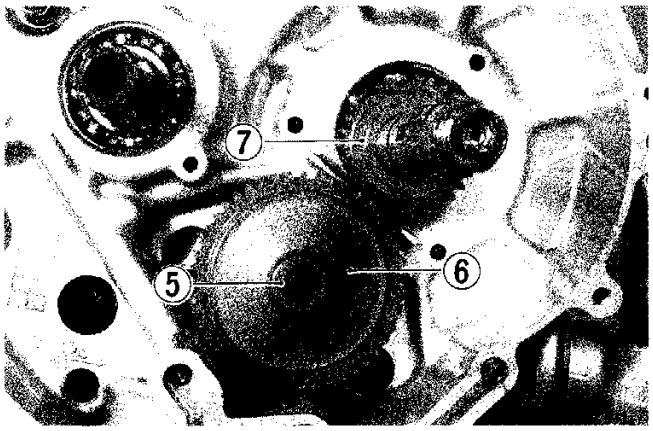
- Remove the spacer ③ and washer ④.



- Remove the E-ring ⑤ and oil pump driven gear ⑥.

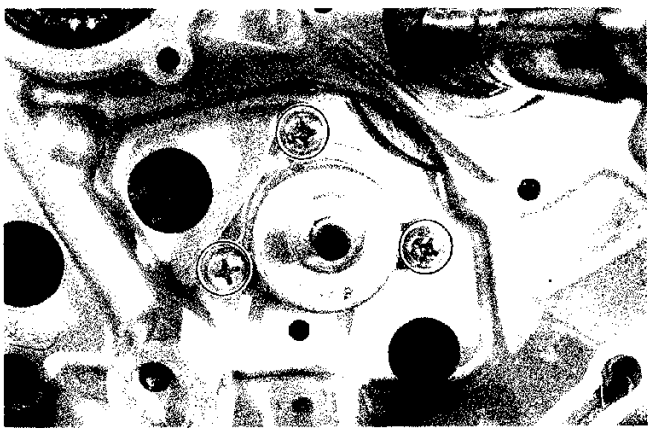
NOTE:
When removing the oil pump driven gear, be careful not to lose the pin.

- Remove the oil pump drive gear ⑦.

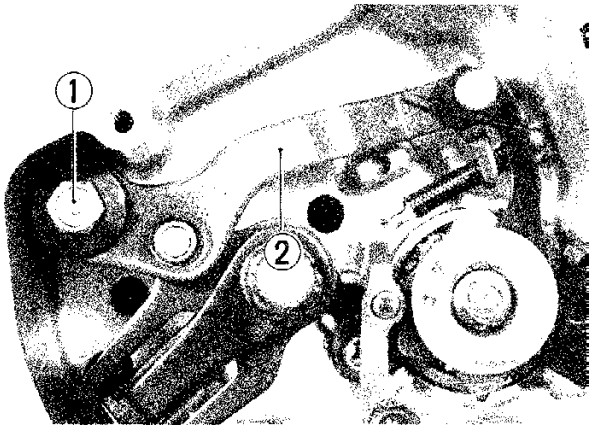


- Remove the oil pump with the special tool.

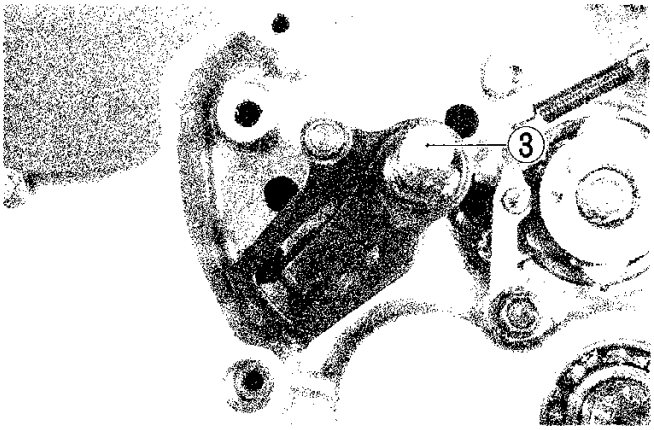
09900-09003	Impact driver set



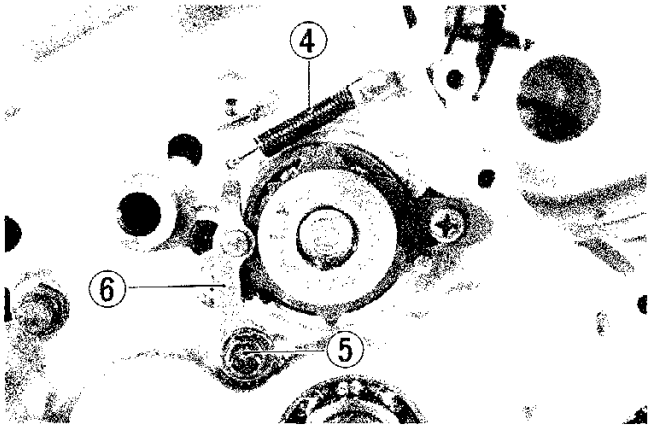
- Remove the bolt ① and washer, then remove the gearshifter ②.



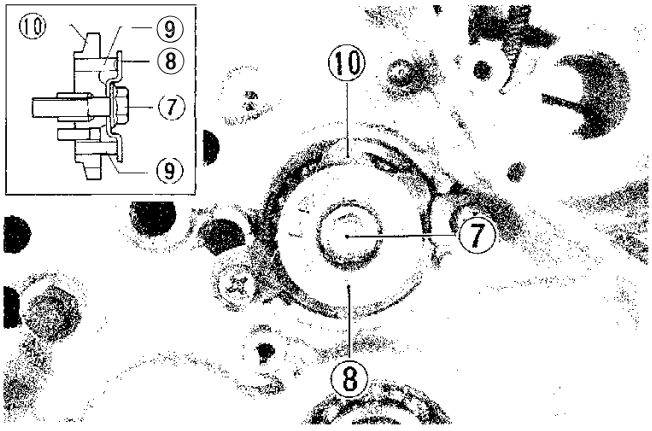
- Pull out the gearshifting shaft ③.



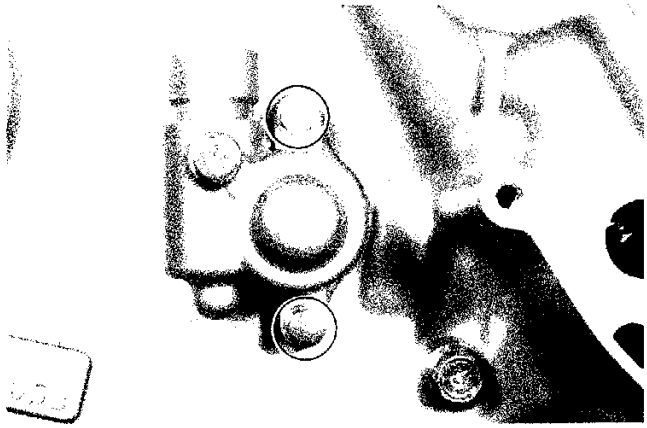
- Remove the cam stopper spring ④ with long nose pliers.
- Remove the bolt ⑤ and washer, then remove the cam stopper ⑥.



- Remove the bolt ⑦, shift cam stopper plate ⑧, pins ⑨ and shift cam drive pin retainer ⑩.



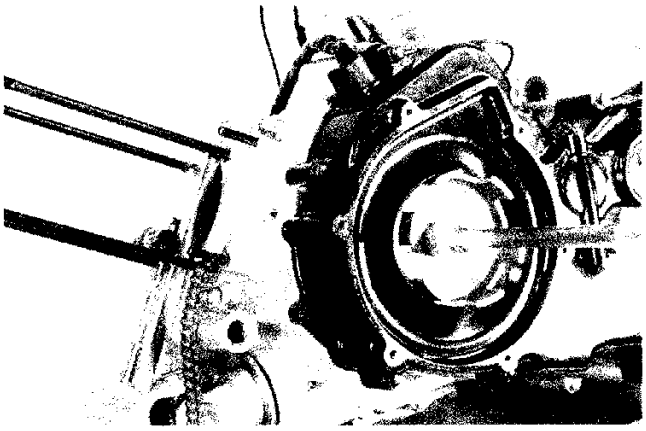
- Remove the speedometer drive gearbox.



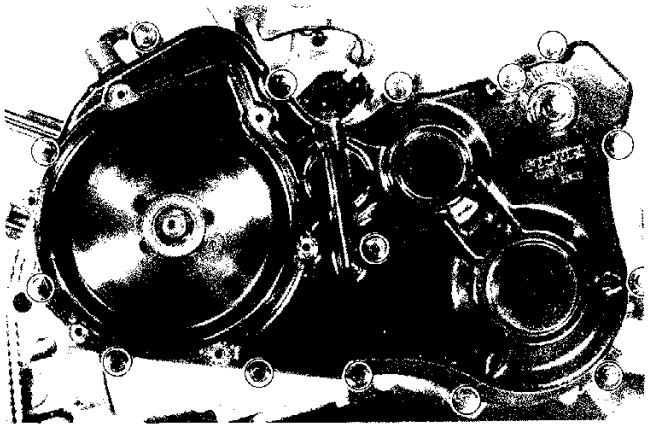
- Remove the starter cup nut with the special tool.

09910-20115	Conrod holder

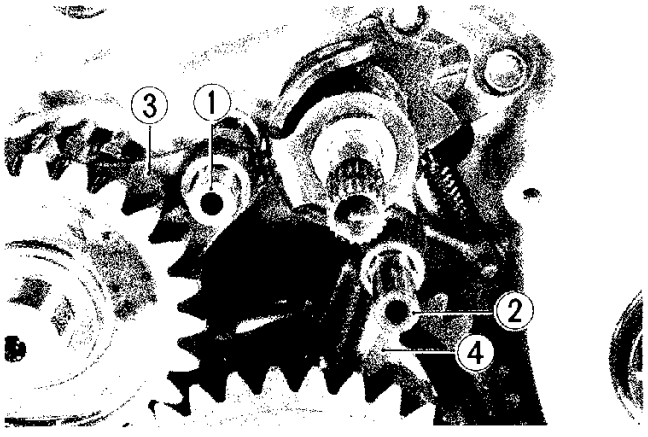
NOTE:
To prevent the conrod small end from getting into the conrod holder, insert the piston pin to the conrod small end.



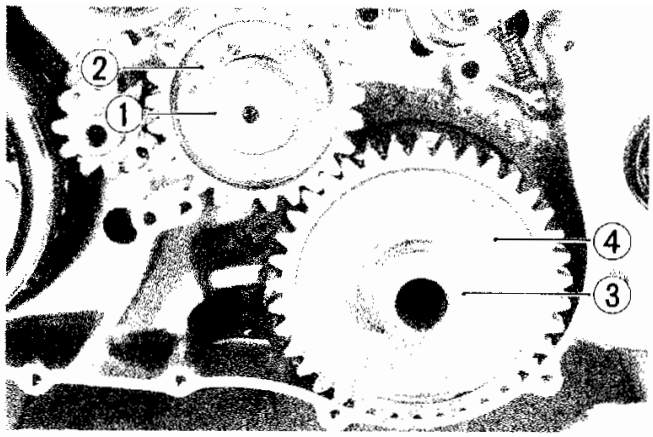
- Remove the starter cup.
- Remove the magneto cover.



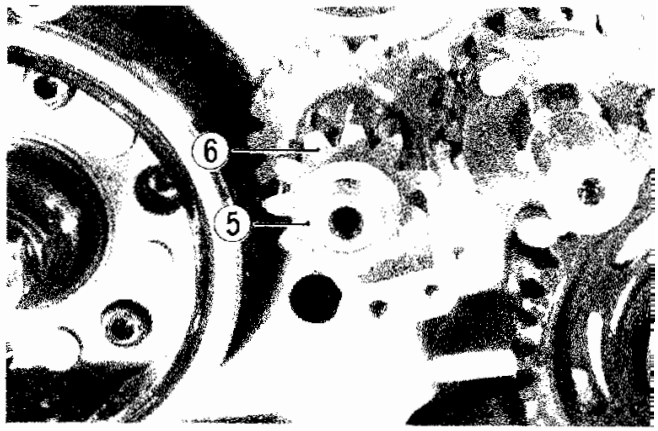
- Pull out the sub-transmission shift fork shafts No. 1 ① and No. 2 ②.
- Remove the sub-transmission shift forks No. 1 ③ and No. 2 ④.



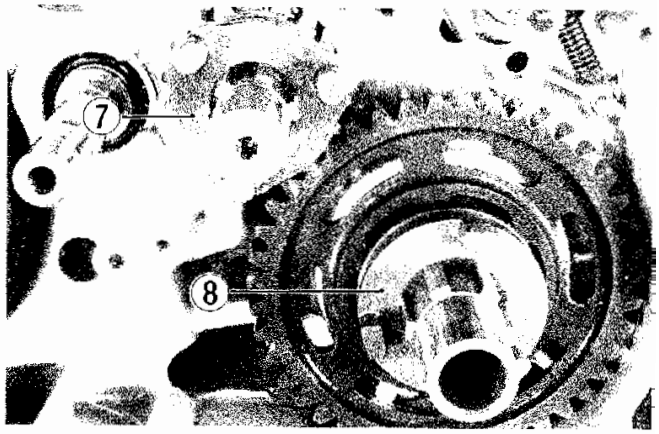
- Remove the washer ① and sub-transmission drive No. 2 gear ②.
- Remove the washer ③ and sub-transmission driven No. 2 gear ④.



- Remove the washer ⑤ and sub-transmission idle gear ⑥.

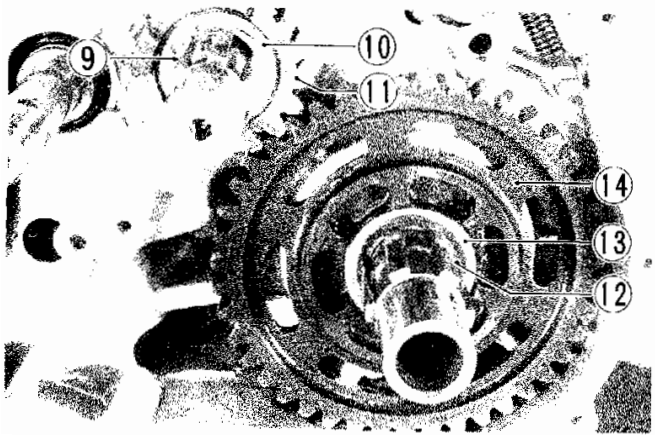


- Remove the sub-transmission drive sliding dog ⑦ and driven sliding dog ⑧.

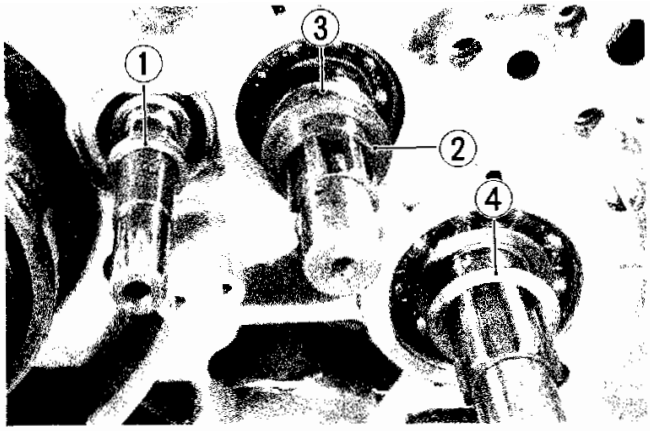


- Remove the circlip ⑨ with the special tool, and then remove the washer ⑩ and sub-transmission drive No. 1 gear ⑪.
- Remove the circlip ⑫ with the special tool, and then remove the washer ⑬ and sub-transmission driven No. 1 gear ⑭.

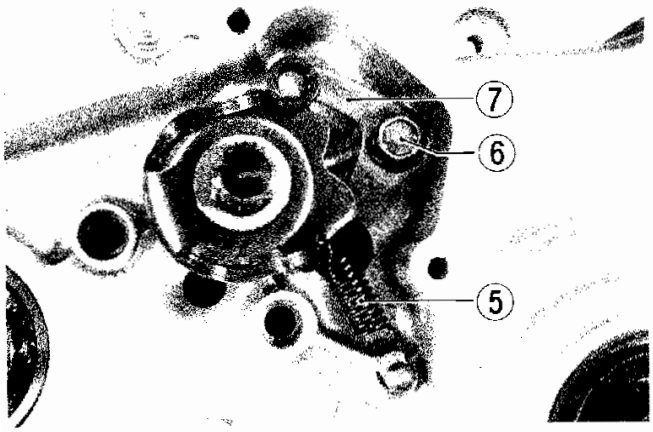
09900-06107	Snap ring pliers



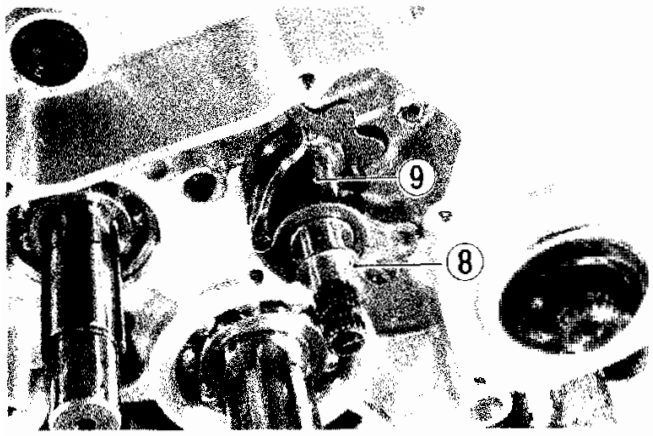
- Remove the spacer ①.
- Remove the bush ② and spacer ③.
- Remove the washer ④.



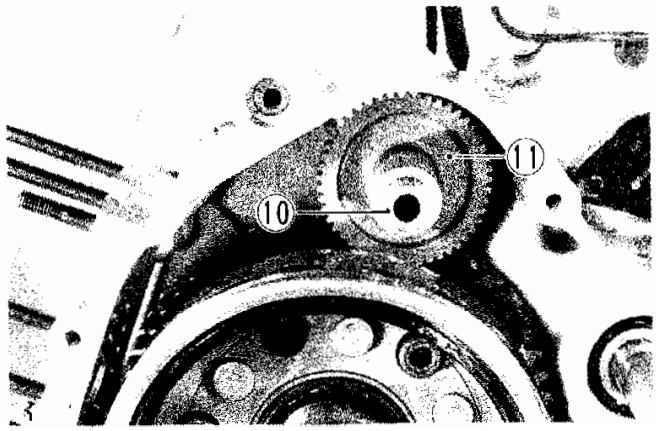
- Remove the sub-transmission shift cam stopper spring ⑤.
- Remove the bolt ⑥ and then remove the sub-transmission shift cam stopper ⑦ and washer.



- Remove the washer ⑧ and pull out the sub-transmission shift cam ⑨.

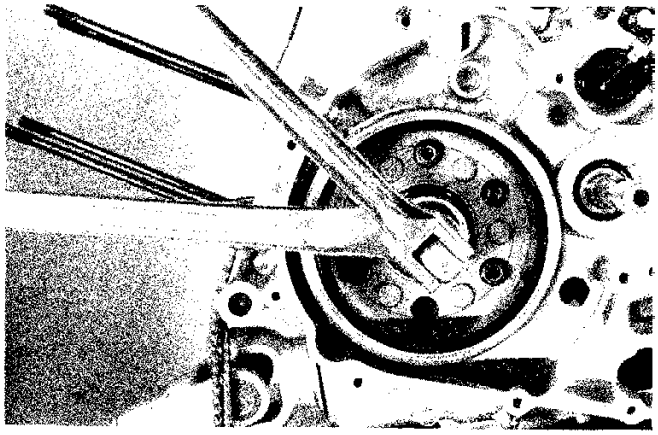


- Pull out the shaft ⑩ and remove the starter idle gear ⑪ and spacer.



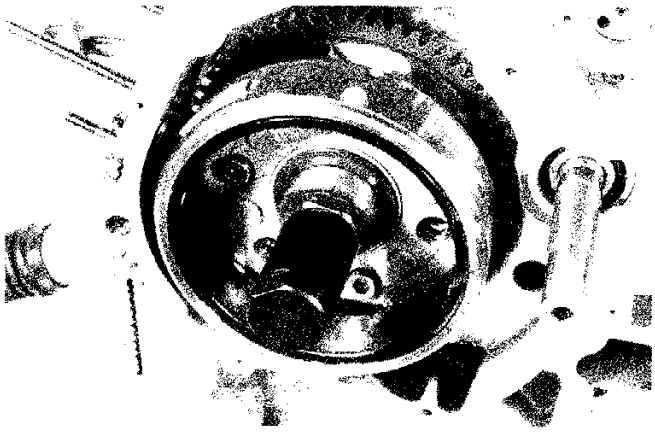
- Remove the magneto nut with the special tool while holding the magneto with 29 mm offset wrench.

09924-62420	22 mm Long socket Not available in U.S. model



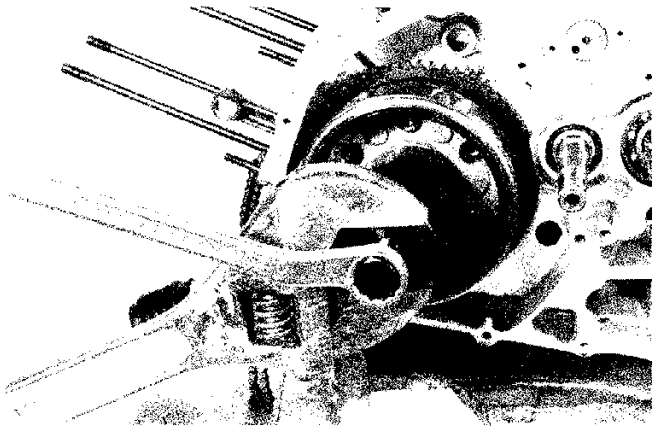
- Screw in the rotor remover attachment until the left surface of the crankshaft seats the attachment.

09930-31920	Rotor remover set

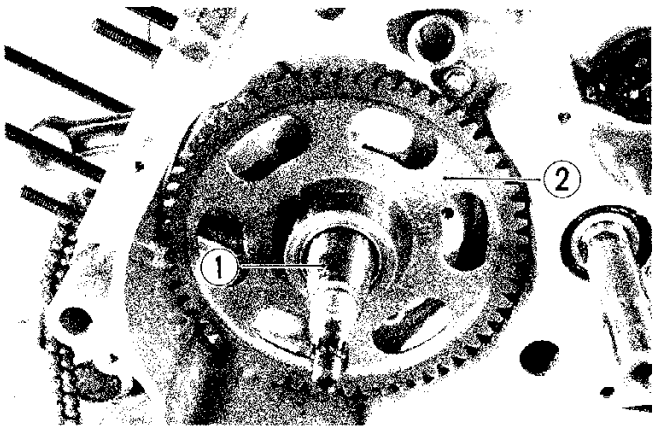


- Install the rotor remover correctly, and remove the rotor.

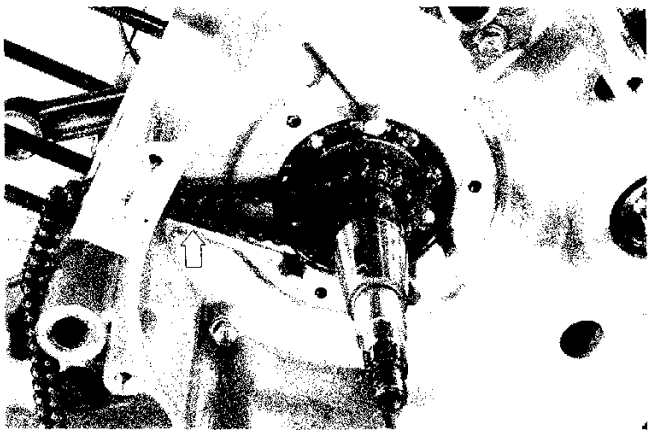
NOTE:
Do not hit the rotor with a hammer.



- Remove the key ①.
- Pull out the starter clutch gear ②.

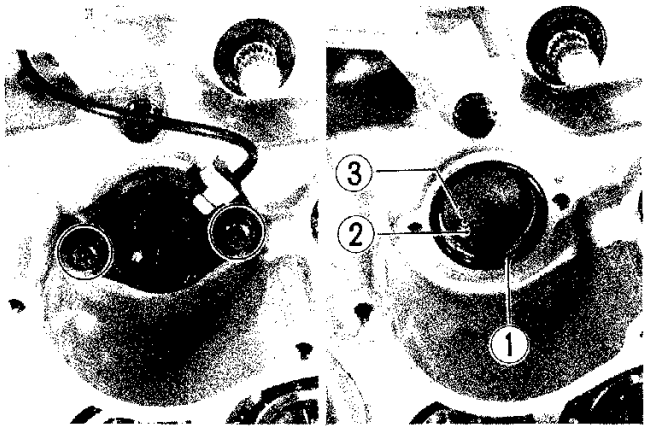


- Remove the cam chain.

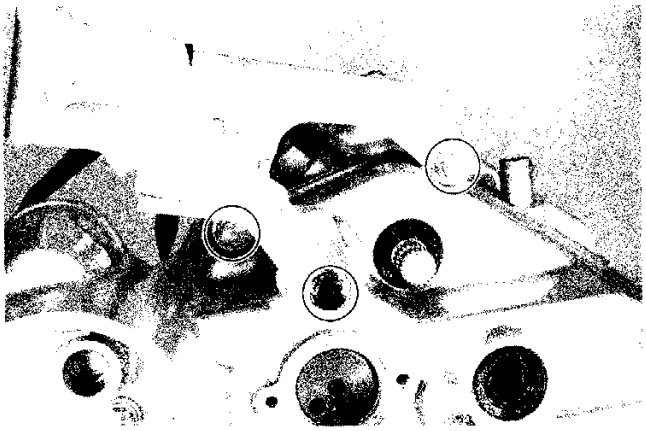


- Remove the neutral switch.

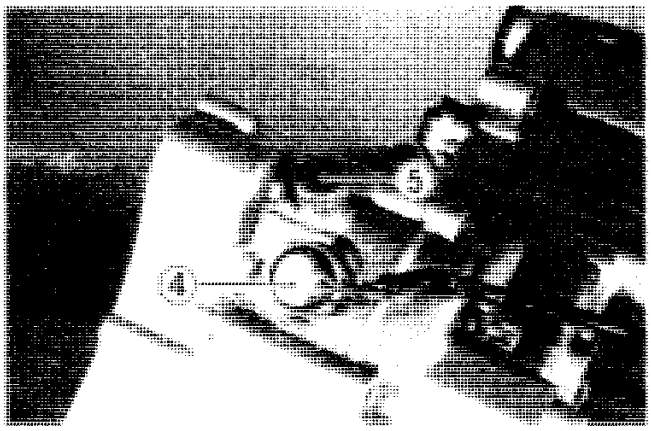
① : O-ring
② : Pin
③ : Spring



- Remove the reverse lever bracket.

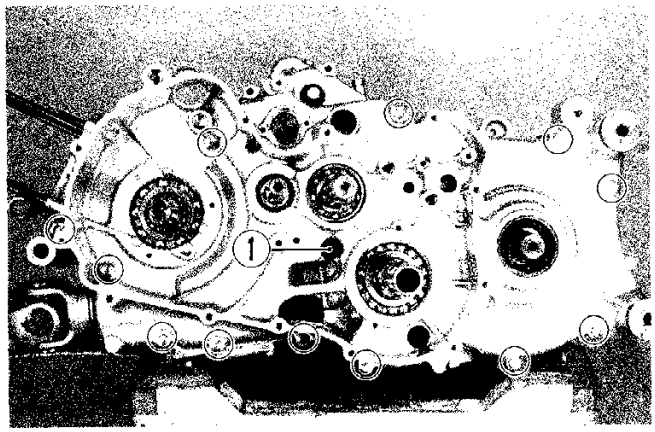


- Remove the reverse switch ④ and reverse cam stopper bolt ⑤ .



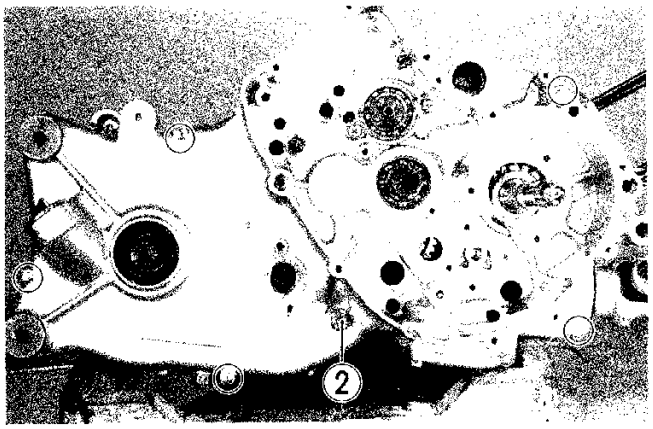
- Remove the crankcase securing bolts for left side.

NOTE:
Be sure to remove a bolt ① inside.



- Remove the crankcase securing bolts for right side.

NOTE:
Be sure to remove a bolt ②.

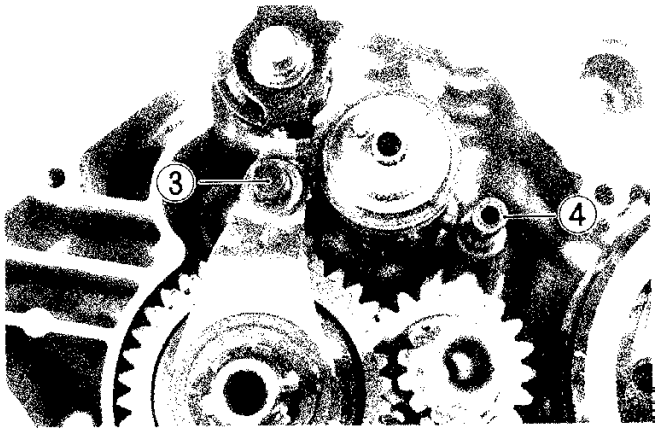


- Separate the crankcase with the special tool.

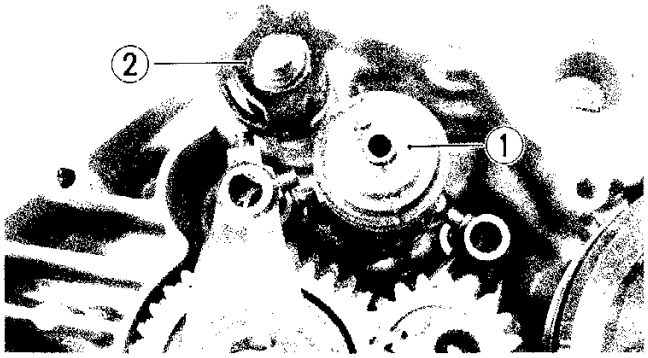
09920-13120	Crankcase separating tool

NOTE:
Fit the crankcase separating tool to the right side, so that the tool plate is paralleled with the end face of the crankcase.

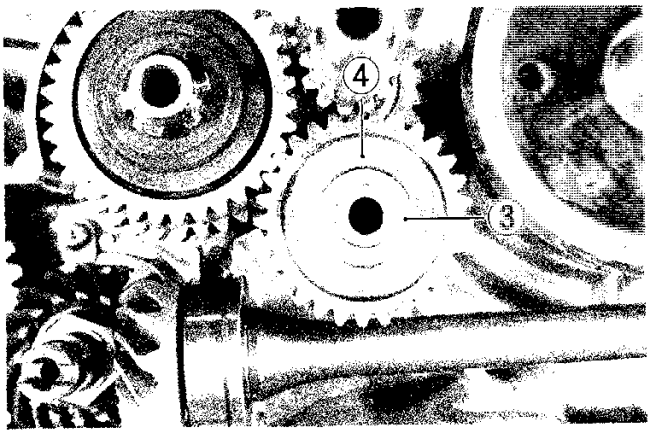
- Pull out the shift fork shafts, No. 1 ③ and No. 2 ④.



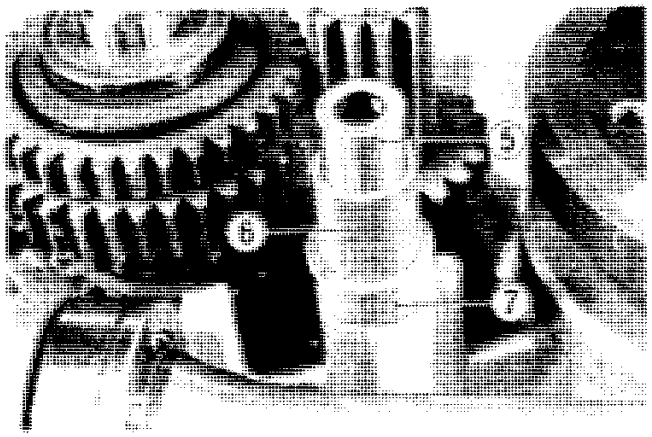
- Pull out the shift cam ① and reverse cam ②, and then take out the reverse shift fork and shift forks.



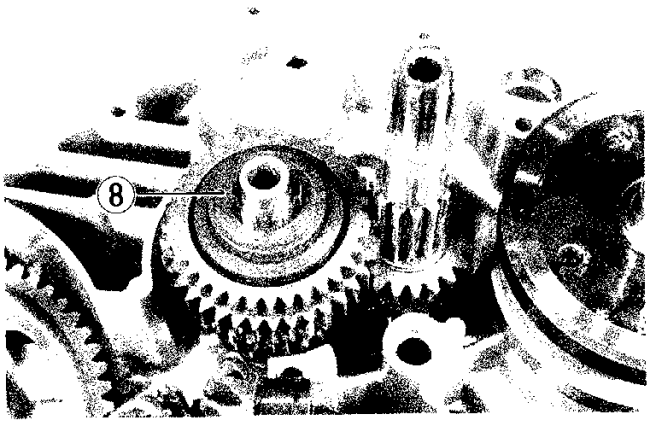
- Remove the washer ③ and the reverse idle gear ④.



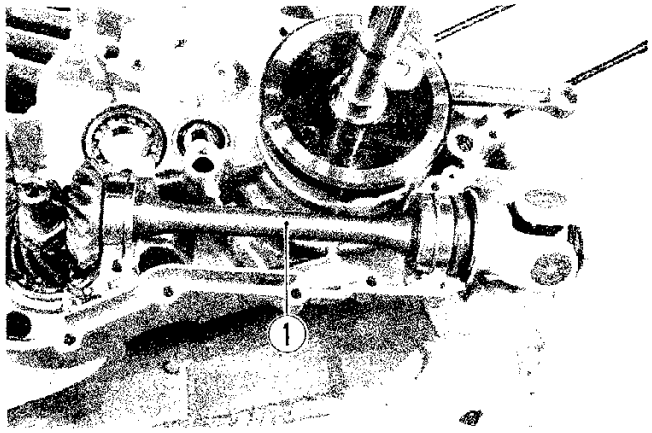
- Remove the reverse idle gear shaft ⑤, bush ⑥ and spacer ⑦.



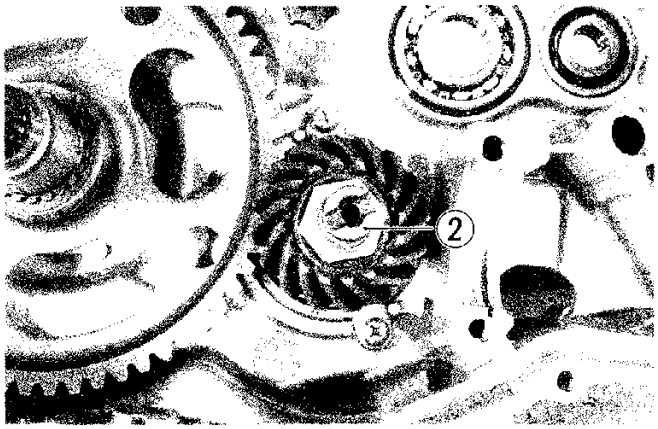
- Remove the reverse sliding dog ⑧, and then remove the countershaft and driveshaft assemblies.



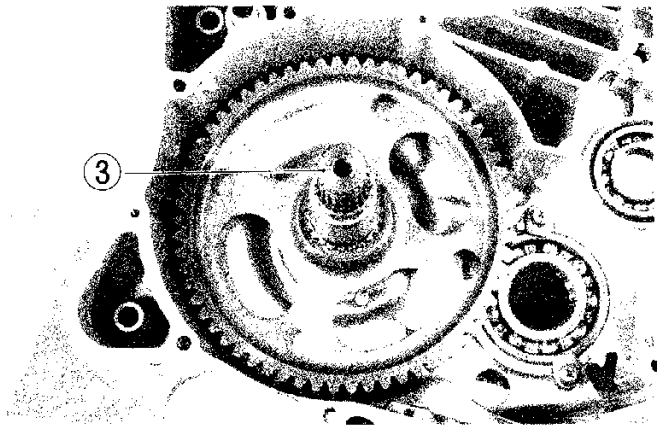
- Remove the secondary driven output shaft assembly ①.



- Draw out the sub-transmission output shaft assembly ② by tapping with a plastic hammer from the opposite side.

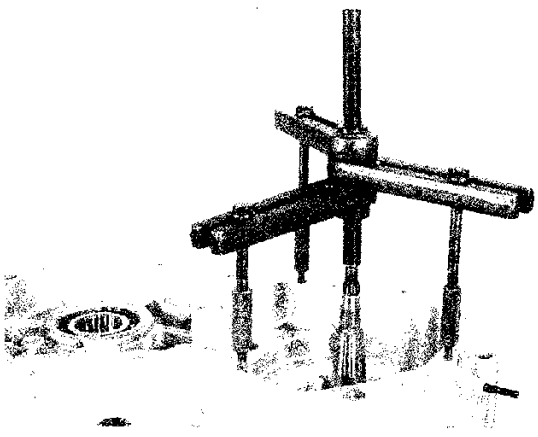


- Draw out the rear final driven shaft assembly ③ by tapping with a plastic hammer from the opposite side.



- Remoe the crankshaft from the crankcase with the special tool.

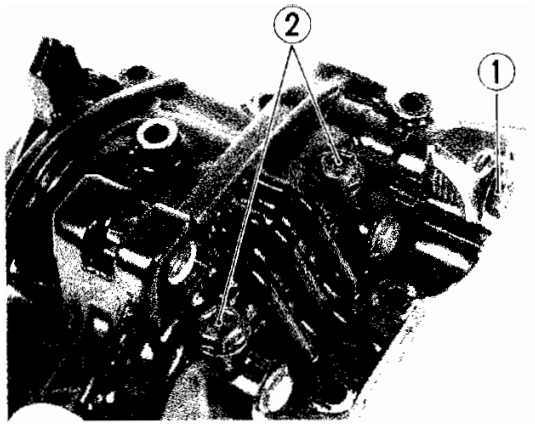
09920-13120	Crankshaft remover (Crankcase separating tool)



ENGINE COMPONENTS INSPECTION AND SERVICING

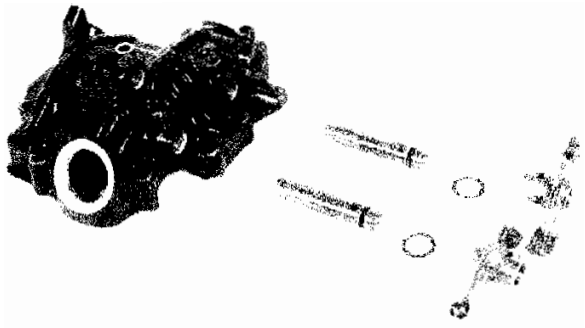
CYLINDER HEAD SERVICING

CAUTION:
Be sure to identify each removed part as to its location, and lay the parts out in groups designated as "Exhaust" and "Inlet", so that each will be restored to the original location during assembly.

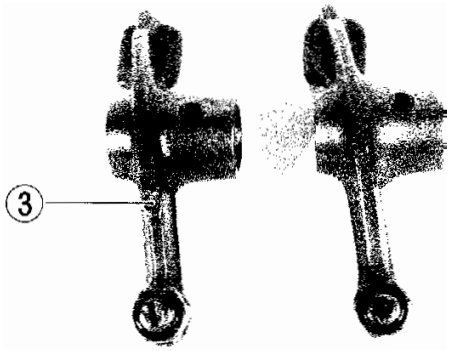


- Pull out the de-compression shaft ①.
- Remove the rocker arm shaft set bolts ②, and pull out the rocker arm shafts with a pliers.

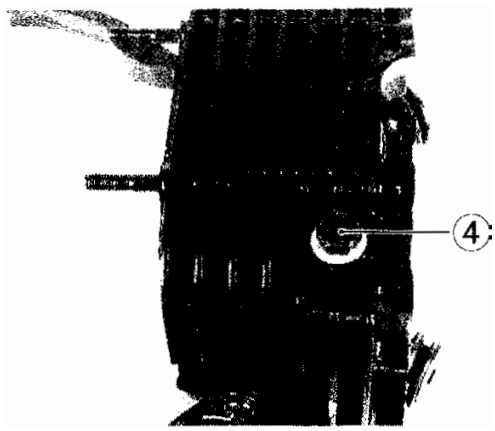
CAUTION:
Use a new gasket on the set bolt ② to prevent oil leakage.



- The exhaust rocker arm can be distinguished from that of the intake by the de-compression shaft contacting surface ③ (for exhaust).

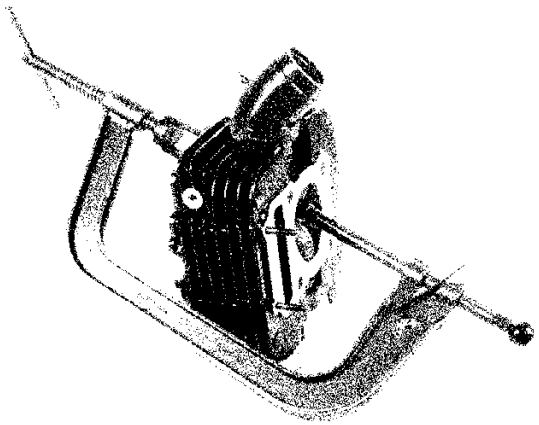


- Remove the cam chain tensioner bolt ④ and take off the cam chain tensioner.



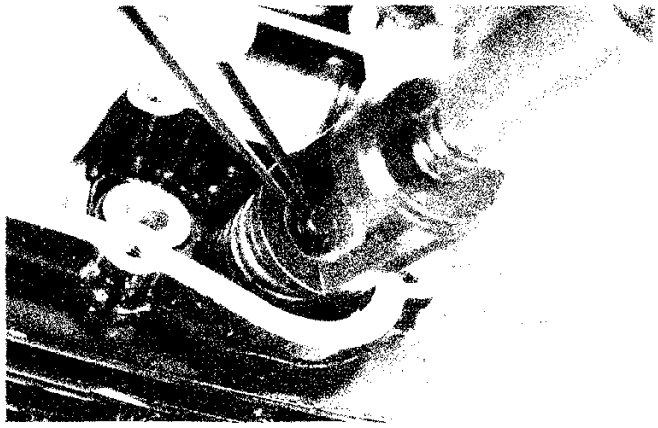
- Compress the valve spring.

09916-14510	Valve spring compressor
09916-14910	Attachment

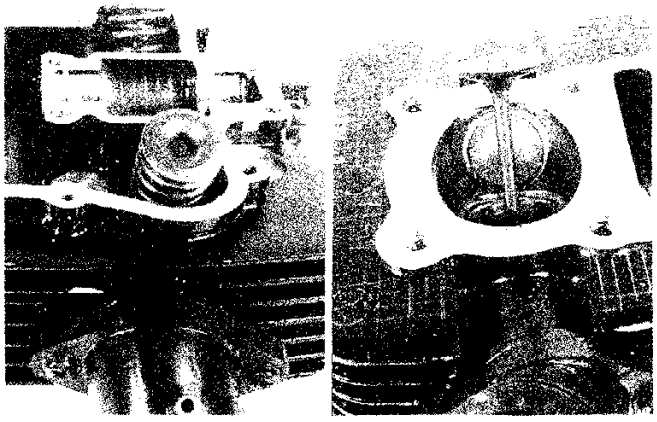


- Take off the valve cotters from the valve stem.

09916-84510	Tweezers

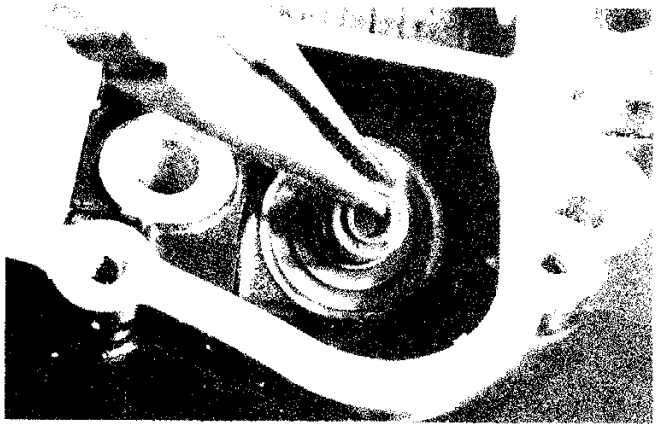


- Take off the valve retainer, inner spring and outer spring.
- Pull out the valve from the other side.



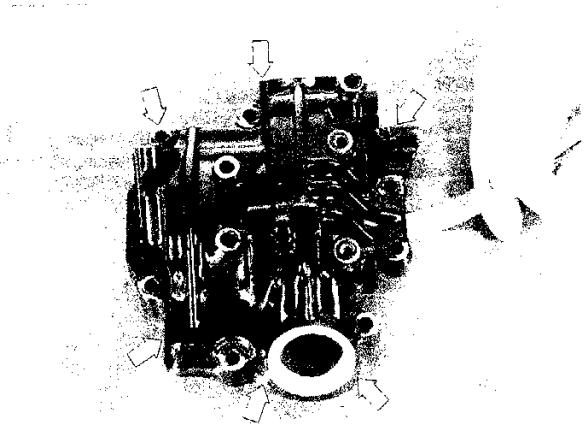
- Remove the oil seal, using long-nose pliers.
- Take off the spring seat.

NOTE:
Removal of valves completes ordinary disassembling work. If valve guides have to be removed for replacement after inspecting related parts, carry out the steps shown in valve guide servicing.



CYLINDER HEAD COVER DISTORTION

After removing sealant (SUZUKI BOND No. 1207B) from the fitting surface of the cylinder head cover, place the cylinder head cover on a surface plate and check for distortion with a thickness gauge. Check points are shown in photograph.

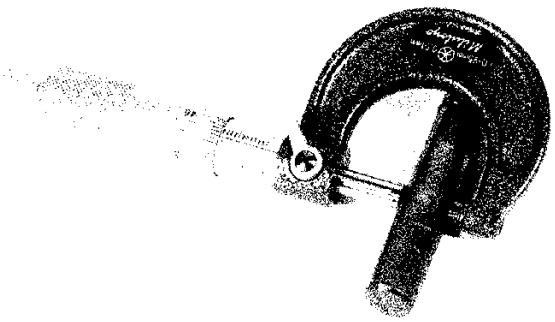


Service Limit	0.05 mm (0.002 in)

If the distortion exceeds the limit, replace the cylinder head cover.

ROCKER ARM SHAFT O.D.

Measure the diameter of rocker arm shaft with a micrometer.

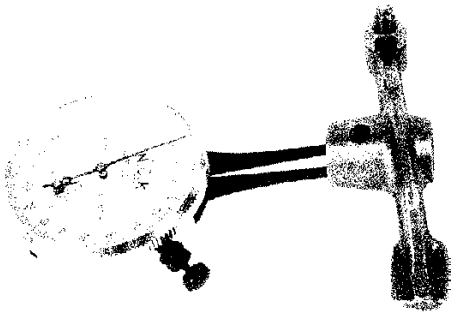


Standard	11.966 – 11.984 mm (0.4711 – 0.4718 in)

09900-20205	Micrometer (0 – 25 mm)

ROCKER ARM I.D.

When checking the valve rocker arm, the inside diameter of the valve rocker arm and wear of the camshaft contacting surface should be checked.



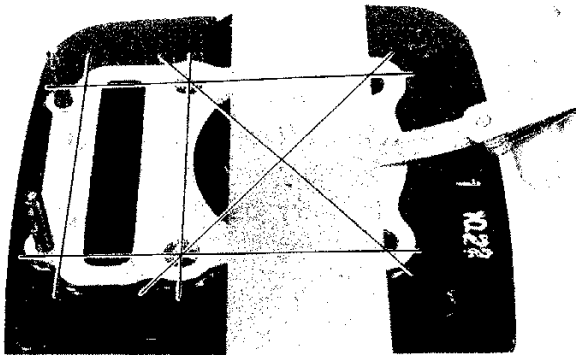
Standard	12.000 – 12.012 mm (0.4724 – 0.4729 in)

09900-20605	Dial calipers Not available in U.S. model

CYLINDER HEAD DISTORTION

Decarbon combustion chamber.

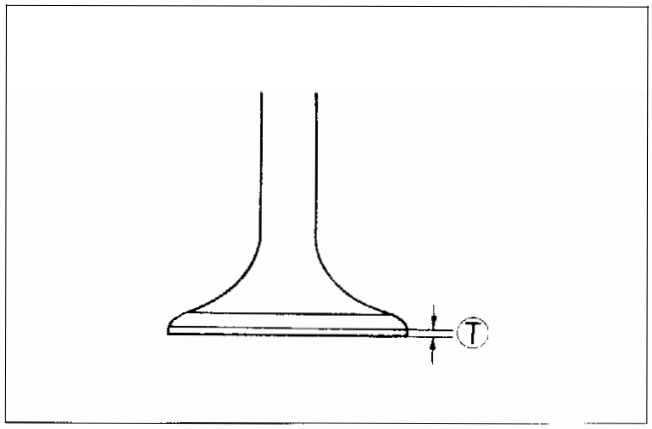
Check the gasketed surface of the cylinder head for distortion with a straightedge and thickness gauge, taking a clearance reading at several places as indicated. If the largest reading at any position of the straightedge exceeds the limit, replace the cylinder head.



Service Limit	0.05 mm (0.002 in)

VALVE FACE WEAR

Measure the thickness Ⓣ and, if the thickness is found to have been reduced to the limit, replace the valve.



NOTE:
Visually inspect each valve for wear of its seating face. Replace any valve with an abnormally worn face.

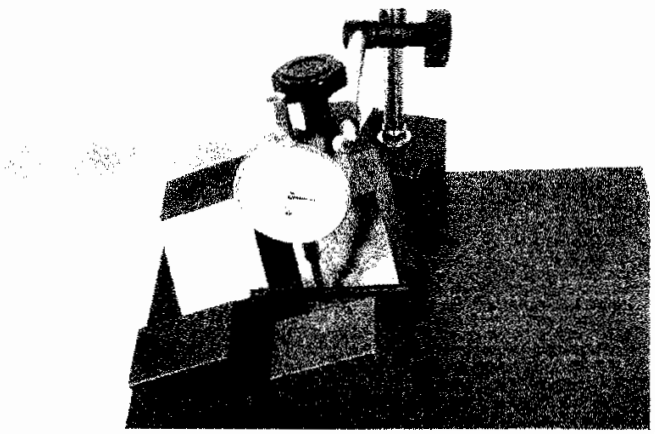
Service Limit	0.5 mm (0.02 in)

VALVE STEM RUNOUT

Support the valve with "V" blocks, as shown, and check its runout with a dial gauge. The valve must be replaced if the runout exceeds the limit.

Service Limit	0.05 mm (0.002 in)

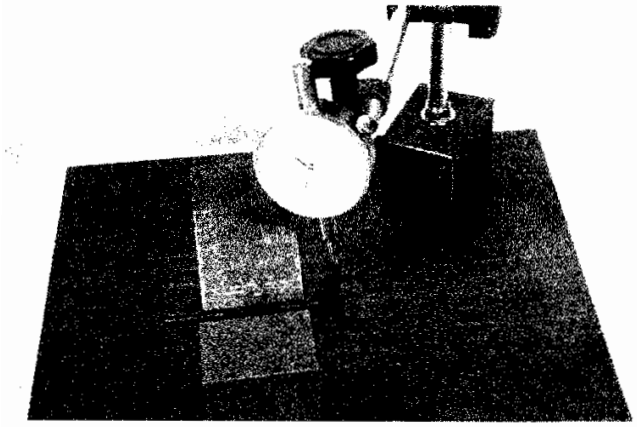
09900-20701	Magnetic stand Not available in U.S. model
09900-20606	Dial gauge (1/100 mm)



VALVE HEAD RADIAL RUNOUT

Place the dial gauge at right angles to the valve head, and measure the valve head radial runout. If it measures more than limit, replace the valve.

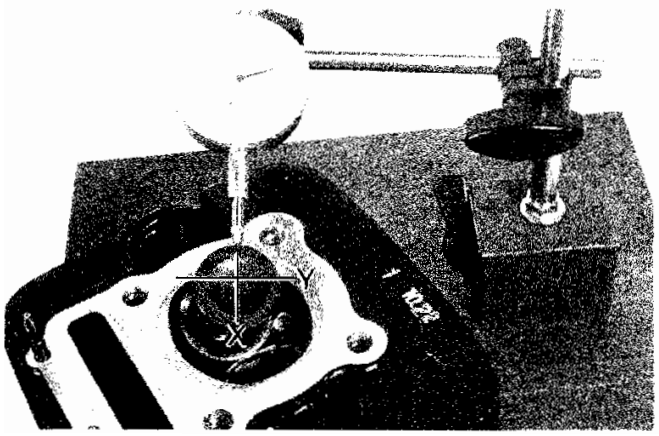
Service Limit	0.03 mm (0.001 in)



VALVE GUIDE-VALVE STEM CLEARANCE

Measure the clearance in two directions, "X" and "Y", perpendicular to each other, by rigging up the dial gauge as shown. If the clearance measured exceeds the limit specified below, then determine whether the valve or the guide should be replaced to reduce the clearance to within the standard range:

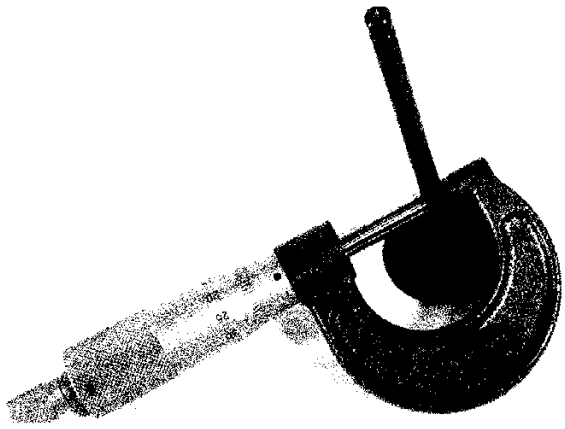
	Standard	Service Limit
IN.	0.025 – 0.052 mm (0.0010 – 0.0020 in)	0.35 (0.014 in)
EX.	0.040 – 0.067 mm (0.0016 – 0.0026 in)	0.35 mm (0.014 in)



VALVE STEM WEAR

If the valve stem is worn down to the limit, when measured with a micrometer, and the clearance is found to be in excess of the limit indicated above, replace the valve, if the stem is within the limit, then replace the guide. After replacing valve or guide, be sure to recheck the clearance.

09900-20205	Micrometer (0 – 25 mm)



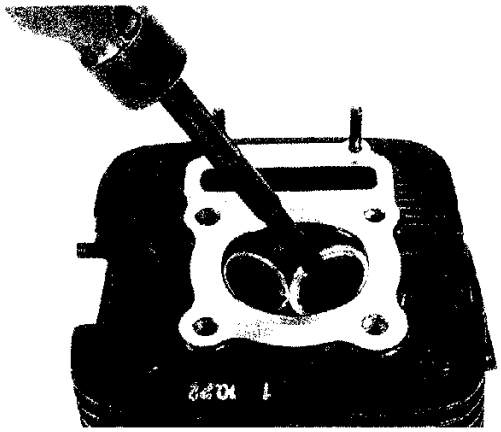
Valve stem O.D.

	Standard
IN.	5.460 – 5.475 mm (0.2150 – 0.2156 in)
EX.	5.445 – 5.460 mm (0.2144 – 0.2150 in)

VALVE GUIDE SERVICING

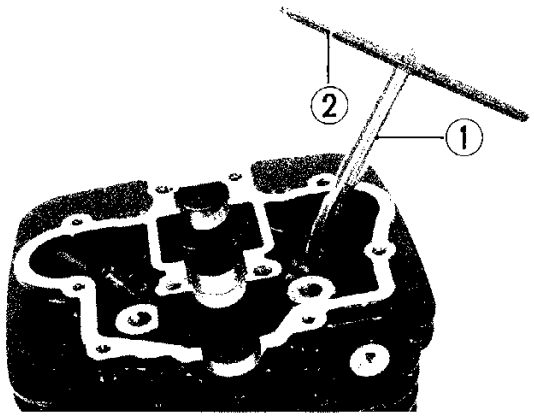
- Remove the valve guide with the valve guide remover.

09916-44910	Valve guide remover



- Re-finish the valve guide holes in cylinder head with a 11.3 mm reamer ① and handle ②.

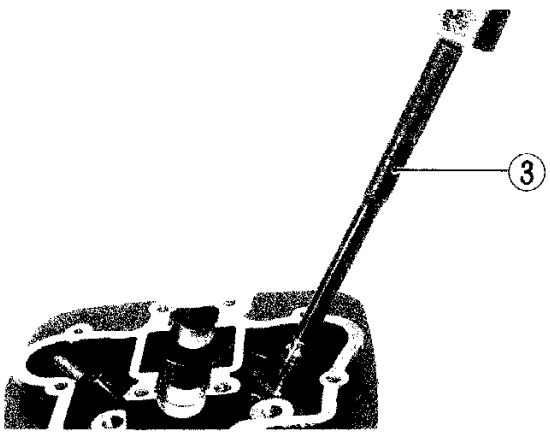
09916-34561	11.3 mm reamer
09916-34541	Handle



- Fit a ring to each valve guide. Be sure to use new rings and valve guides. Rings and valve guides removed in disassembly must be discarded.

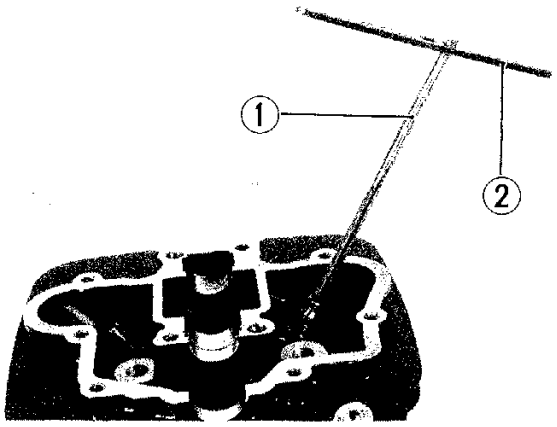
- Lubricate each valve guide and drive the guide into the guide hole using the valve guide installer ③.

09916-44910	Valve guide installer and remover

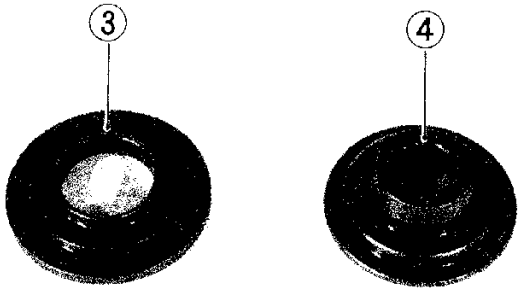


- After fitting valve guides, re-finish their guiding bores with a 5.5 mm reamer ① and handle ②. Be sure to clean and oil the guides after reaming.

09916-34550	5.5 mm reamer
09916-34541	Handle

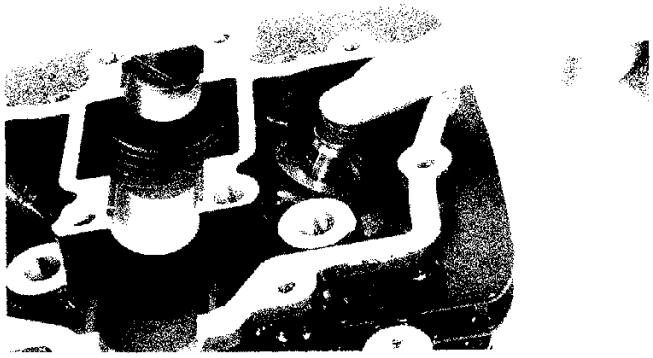


- Install valve spring lower seat ③. Be careful not to confuse the lower seat with the spring retainer ④.



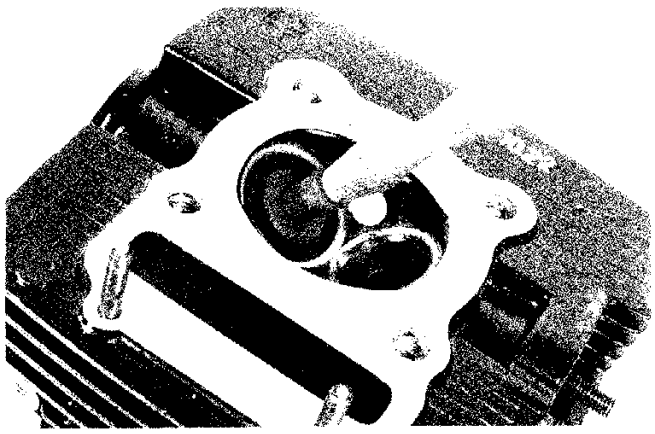
- Lubricate each seal, and drive them into position with the finger tip.

CAUTION:
Do not reuse the oil seals.



VALVE AND SEAT CONDITION
VALVE SEAT WIDTH

Coat the valve seat with prussian blue uniformly. Fit the valve and tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating contact. In this operation, use the valve lapper to hold the valve head.

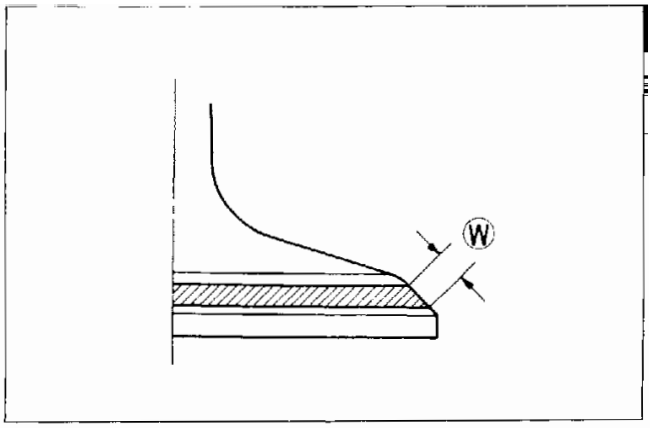


The ring-like dye impression left on the valve face must be continuous-without any break. In addition, the width of the dye ring, which is the visualized seat "width", must be within the specification.

Valve seat width

STD. Ⓦ	0.9 – 1.1 mm (0.035 – 0.043 in)

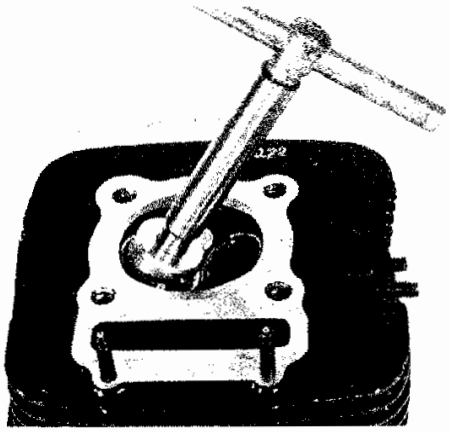
If either requirements is not met, correct the seat by servicing it as follows.



VALVE SEAT SERVICING

The valve seats for both intake and exhaust valves are angled to present two bevels, 15° and 45°.

	Intake side	Exhaust side
45°	N-608	N-122
15°	N-212	N-121

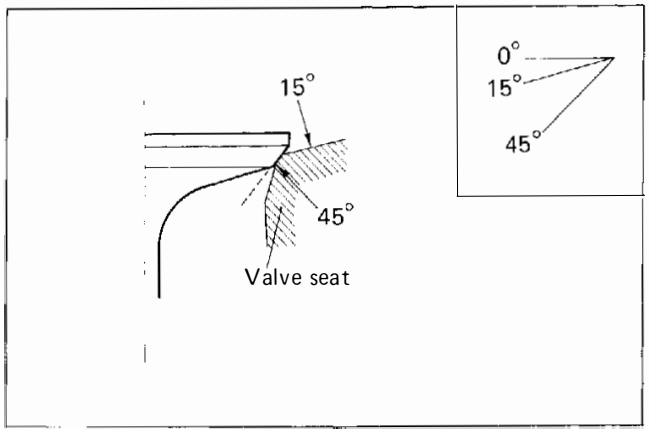


For U.S. model

N-140-5.5	Solid pilot (IN.)
N-100-10	Solid pilot (EX.)

For other models

09916-21110	Valve seat cutter set
09916-24900	Valve seat cutter set
09916-20610	Cutter (N-121)
09916-20620	Cutter (N-122)
09916-24910	Cutter (N-212)
09916-24935	Cutter (N-608)
09916-24480	Solid pilot (N-140-5.5)
09916-24450	Solid pilot (N-100-10)



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

1. Insert with a slight rotation, the solid pilot that gives a snug fit. The shoulder on the pilot should be about 10 mm (0.39 in) from the valve guide.
2. Using the 45° cutter, descale and cleanup the seat with one or two turns.
3. Inspect the seat by the previous seat width measurement procedure. If the seat is pitted or burned, additional seat conditioning with the 45° cutter is required.

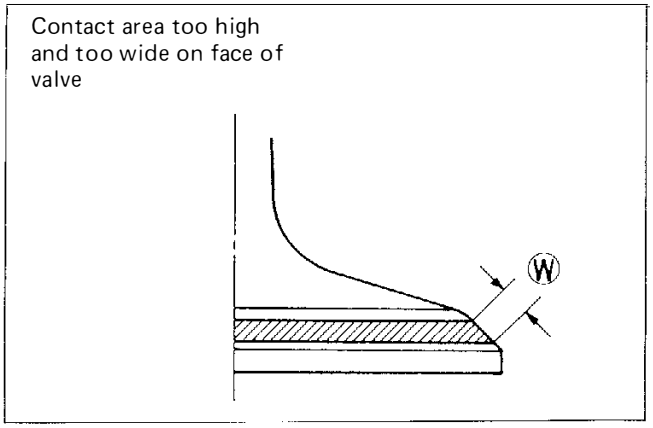
CAUTION:
Cut the minimum amount necessary from the seat to prevent the possibility of the valve stem becoming too close to the rocker arm for correct valve contact angle.

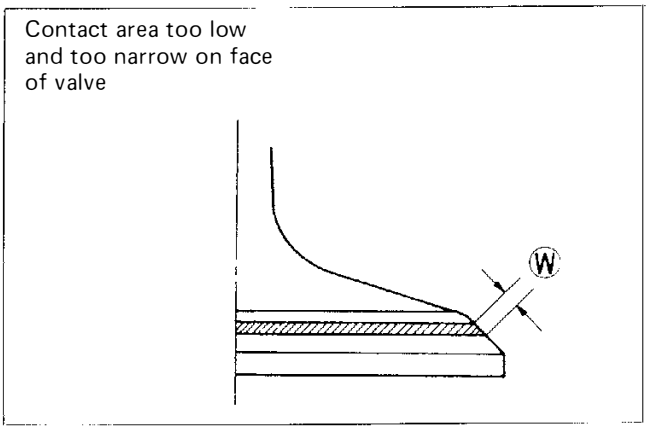
If the contact area is too low or too narrow, use the 45° cutter to raise and widen the contact area. If the contact area is too high or too wide, use the 15° cutter to lower and narrow the contact area.

4. After the desired seat position and width is achieved, use the 45° cutter very lightly to clean up any burrs caused by the previous cutting operations. DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.
5. Clean and assemble the head and valve components. Fill the intake and exhaust ports with gasoline to check for leaks. If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.

WARNING:
Always use extreme caution when handling gasoline.

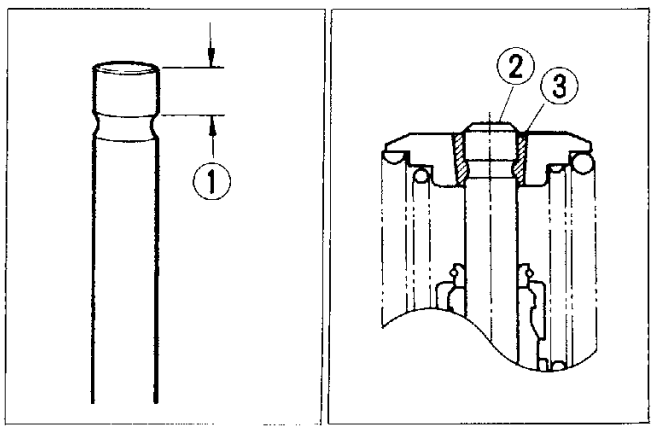
NOTE:
Be sure to adjust the valve clearance after reassembling the engine.





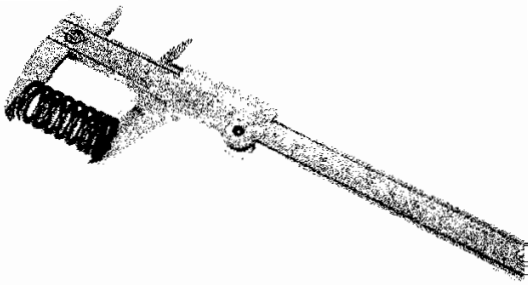
VALVE STEM END CONDITION

Inspect the valve stem end face for pitting and wear. If pitting or wear of the stem end face are present, the valve stem end may be resurfaced, providing that the length ① will not be reduced to less than 2.7 mm (0.11 in). If this length becomes less than 2.7 mm (0.11 in), the valve must be replaced. After installing a valve whose stem end has been ground off as above, check to ensure that the face ② of the valve stem end is above the cotters ③.



VALVE SPRINGS

Check the springs for strength by measuring their free lengths and also the force required to compress them. If the limit indicated below is exceeded by the free length reading or if the measured force does not fall within the range specified, replace with a SUZUKI spring as a set.

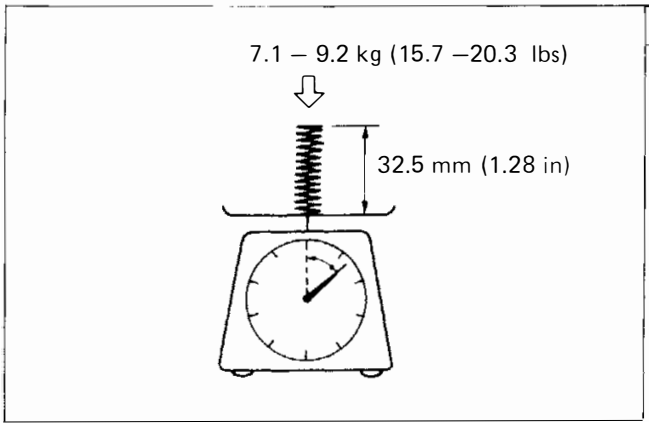


Valve spring free length

Spring	Service Limit
INNER	35.1 mm (1.38 in)
OUTER	39.9 mm (1.57 in)

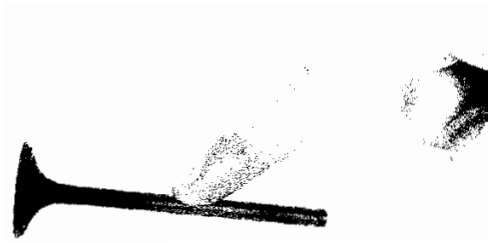
Valve spring tension

Spring	Standard
INNER	7.1 – 9.2 kg/32.5 mm (15.7 – 20.3 lbs/1.28 in)
OUTER	17.3 – 21.3 kg/36.0 mm (38.1 – 47.0 lbs/1.42 in)



REASSEMBLY

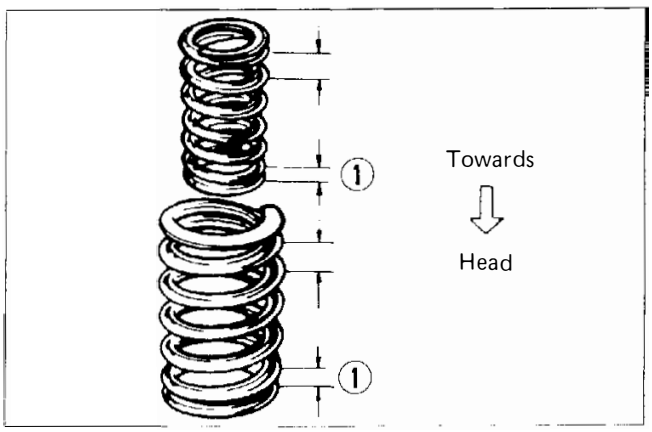
- Insert the valve, with their stems coated with (SUZUKI MOLY PASTE) all around and along the full stem length without any break.
  Similarly oil the lip of the stem seal.



99000-25140	SUZUKI Moly paste

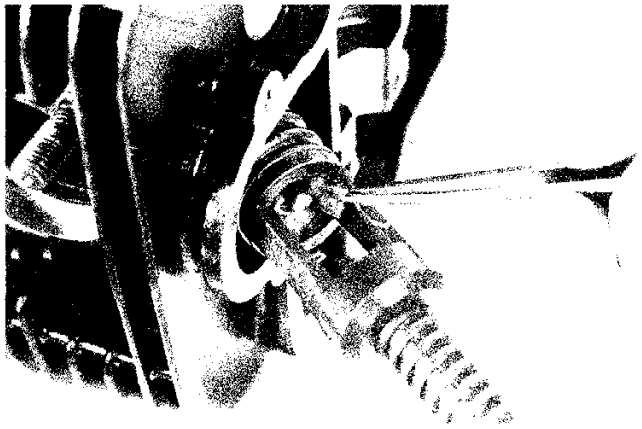
CAUTION:
When inserting each valve, take care not to damage the lip of the stem seal.

- Install the valve springs, making sure that the close-pitch end ① of each spring goes in first to rest on the head. The coil pitch of both the inner and outer springs vary: the pitch decreases from top to bottom, as shown in the illustration.



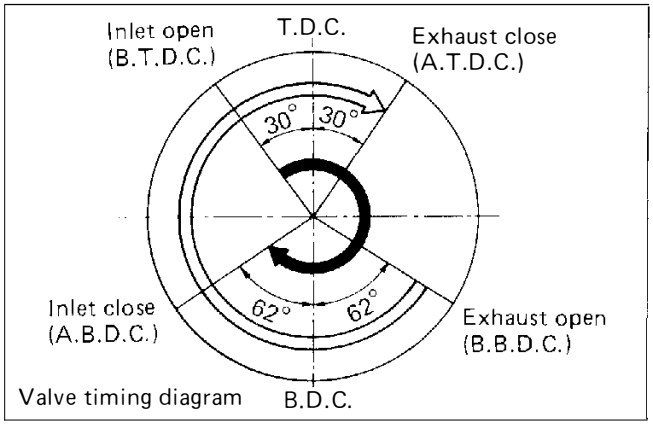
- Fit a valve spring retainer, compress the springs with a valve spring compressor and insert the cotters.

09916-14510	Valve spring compressor
09916-14910	Attachment
09916-84510	Tweezers



CAMSHAFT

The camshaft should be checked for runout and also for wear of cams and journals if the engine has been noted to produce abnormal noise or vibration or to lack output power. Any of these malconditions could be caused by a worn camshaft.

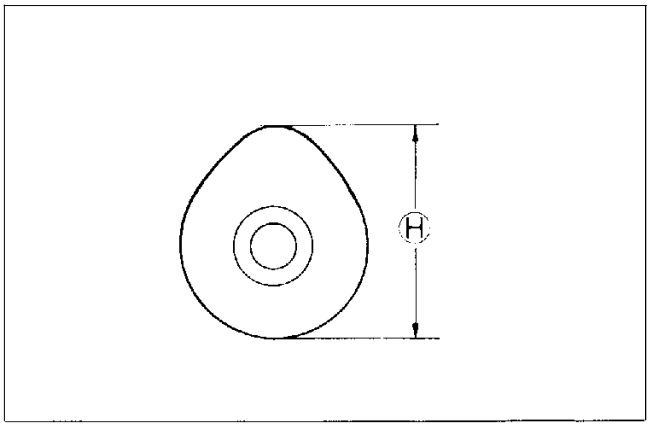


Valve timing diagram

CAMSHAFT CAM WEAR

Worn-down cams are often the cause of mistimed valve operation resulting in reduced output power. The limit of cam wear is specified for both intake and exhaust cams in terms of cam height Ⓗ, which is to be measured with a micrometer. Replace the camshaft if found it worn down to the limit.

09900-20202	Micrometer (25 – 50 mm)

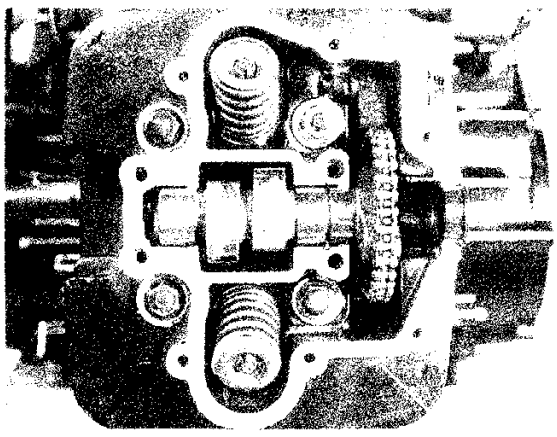


Cam height

Height Ⓗ	Service Limit
Intake cam	33.870 mm (1.3335 in)
Exhaust cam	33.170 mm (1.3059 in)

CAMSHAFT JOURNAL WEAR

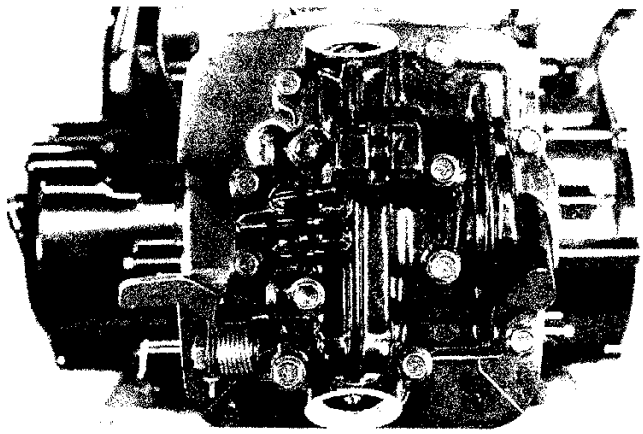
Determine whether each journal is worn down to the limit or not by measuring camshaft journal oil clearance with the camshaft installed. Use plastigauge to read the clearance, which is specified as follows:



Camshaft journal oil clearance

Service Limit	0.150 mm (0.0059 in)

NOTE:
To properly measure the oil clearance with plastigauge, all gasket material must be removed from fitting surfaces of cylinder head and cover. Do not apply SUZUKI BOND No. 1207B until after the oil clearance has been determined.

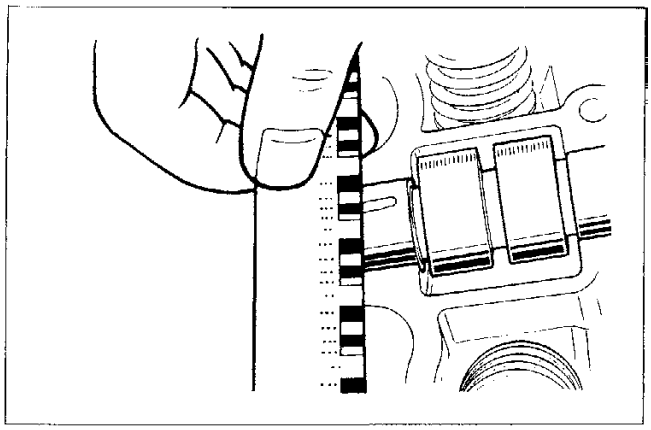


- Tighten the cylinder head cover bolts evenly and diagonally to the specified torque.

Cylinder head cover tightening torque

Tightening torque	9 – 11 N·m (0.9 – 1.1 kg-m) (6.5 – 8.0 lb-ft)

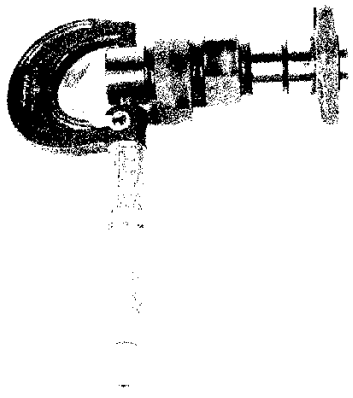
09900-22301	Plastigauge Not available in U.S. model



If the camshaft journal oil clearance measured exceeds the limit, measure the outside diameter of camshaft.
Replace either the cylinder head set or the camshaft if the clearance is incorrect.

09900-20205	Micrometer (0 – 25 mm)

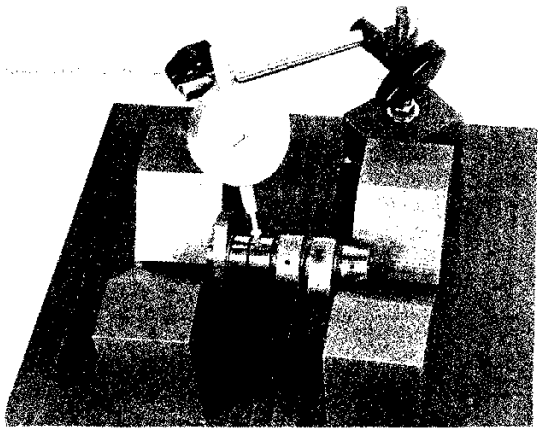
Camshaft journal O.D.	21.959 – 21.976 mm (0.8645 – 0.8652 in)



CAMSHAFT RUNOUT

Measure the runout with a dial gauge. Replace the camshaft if the runout exceeds the limit.

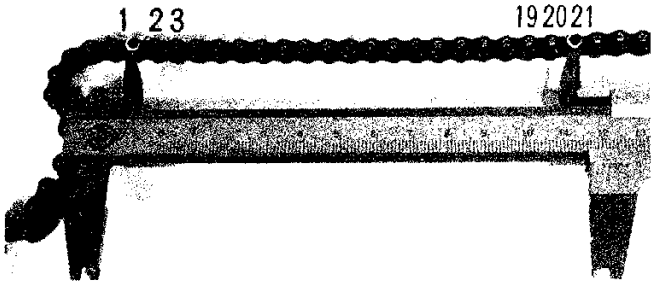
Service Limit	0.10 mm (0.004 in)



CAM CHAIN 20-PITCH LENGTH

Pull the chain tight to remove any slack, then using venier calipers, measure the 20-pitch (21 pins) length of cam chain. If it measures more than the limit replace the cam-chain.

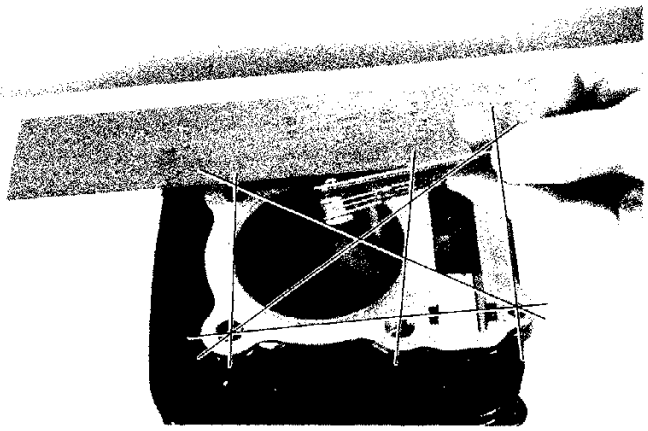
Service Limit	129.0 mm (5.08 in)



CYLINDER DISTORTION

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

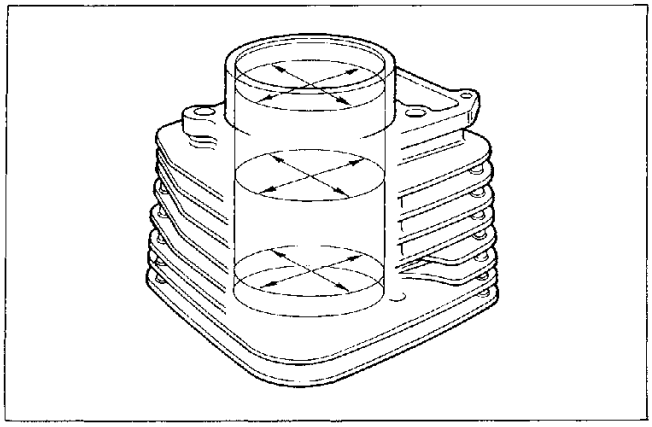
Service Limit	0.05 mm (0.002 in)



CYLINDER BORE

Measure the cylinder bore diameter at six places. If any one of the measurements exceeds the limit, overhaul the cylinder and replace the piston with an oversize, or replace the cylinder.

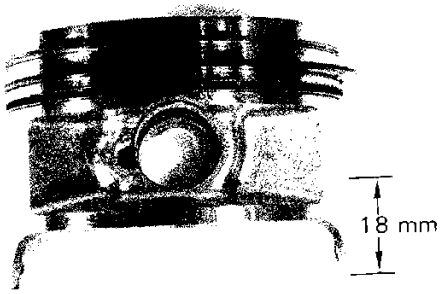
09900-20508	Cylinder gauge set
Service Limit	66.090 mm (2.6020 in)



PISTON DIAMETER

Using a micrometer, measure the piston outside diameter at the place 18 mm (0.71 in) from the skirt end as shown in Fig. If the measurement is less than the limit, replace the piston.

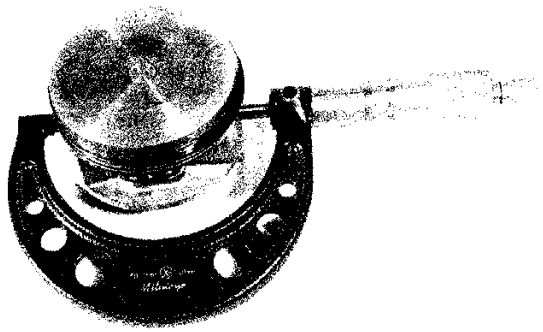
09900-20203	Micrometer (50 – 75 mm)
Service Limit	65.880 mm (2.5937 in)
Piston oversize	0.5, 1.0 mm



PISTON-CYLINDER CLEARANCE

As a result of the previous measurement, if the piston to cylinder clearance exceeds the limit shown in the table below, overhaul the cylinder and use an oversize piston, or replace both cylinder and piston.

Service Limit	0.120 mm (0.0047 in)



PISTON RING-GROOVE CLEARANCE

Using a thickness gauge, measure the side clearance of the 1st and 2nd rings. If any of the clearances exceeds the limit, replace both piston and piston rings.

09900-20803	Thickness gauge

Piston ring-groove clearance

Piston ring	Service Limit
1st	0.180 mm (0.0071 in)
2nd	0.150 mm (0.0059 in)

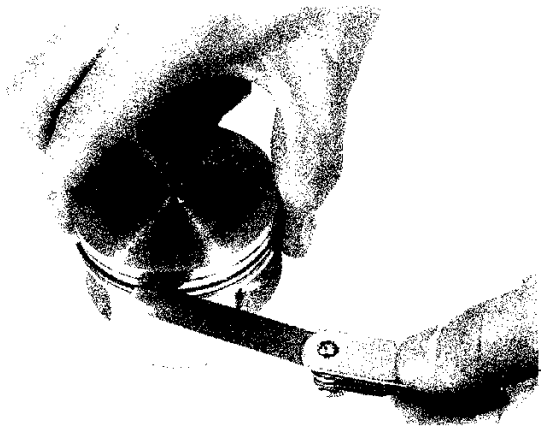
Piston ring groove width

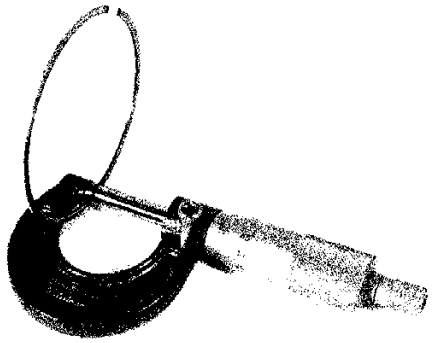
Piston ring	Standard
1st	1.01 – 1.03 mm (0.0398 – 0.0406 in)
2nd	1.22 – 1.24 mm (0.0480 – 0.0488 in)
Oil	2.01 – 2.03 mm (0.0791 – 0.0799 in)

Piston ring thickness

Piston ring	Standard
1st	0.97 – 0.99 mm (0.0382 – 0.0390 in)
2nd	1.17 – 1.19 mm (0.0461 – 0.0479 in)

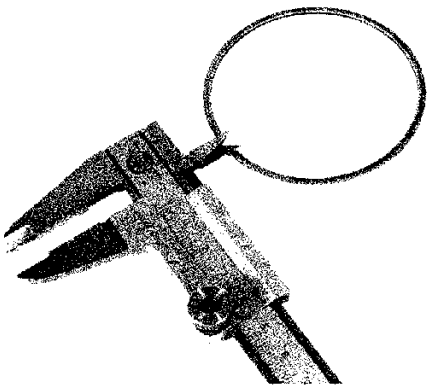
NOTE:
Using a soft metal scraper, decarbon the crown of the piston. Clean the ring grooves similarly.





PISTON RING FREE END GAP AND PISTON RING END GAP

Before installing piston rings, measure the free end gap of each ring using vernier calipers.
Next, fit the ring in the cylinder, and measure each ring end gap using a thickness gauge.
If any ring has an excess end gap, replace the ring.



Piston ring free end gap

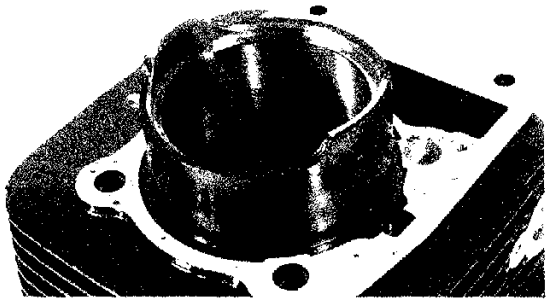
Piston ring	Service Limit
1st	6.0 mm (0.24 in)
2nd	7.5 mm (0.30 in)

09900-20101	Vernier calipers

Piston ring end gap

Piston ring	Service Limit
1st and 2nd	0.70 mm (0.028 in)

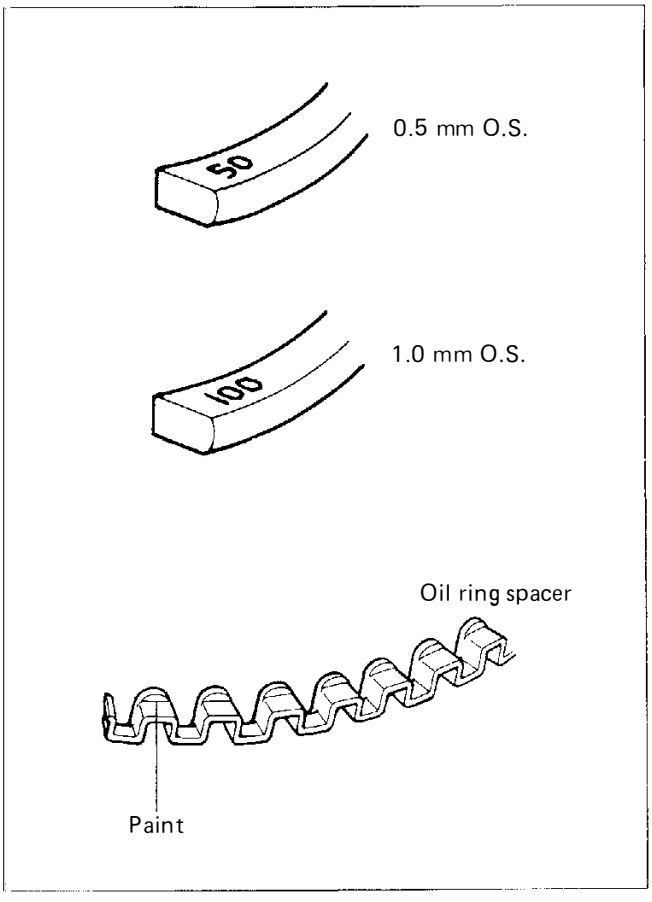
09900-20803	Thickness gauge



OVERSIZE RINGS

- **Oversize piston rings**
  The following two types of oversize piston rings are used. They bear the following identification numbers.

Piston ring	1st	2nd
0.5 mm O.S.	50	50
1.0 mm O.S.	100	100



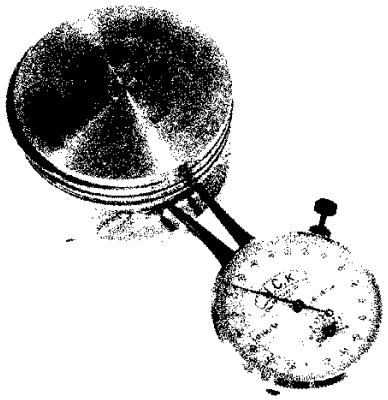
- **Oversize oil rings**
  The following two types of oversize oil rings are used. They bear the following identification marks.

SIZE	MARK
Standard	NIL
0.5 mm O.S.	Painted red
1.0 mm O.S.	Painted yellow

- **Oversize rail**
  Just measure outside diameter while holding the rail that has no end gap to identify the side rail as there is no mark or number on it.

PISTON PIN AND PIN BORE

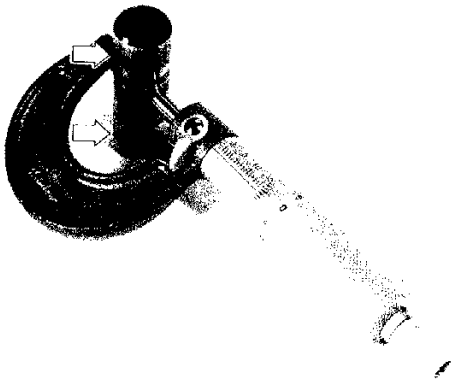
Using a caliper gauge, measure the piston pin bore inside diameter, and using a micrometer measure the piston pin outside diameter. If the difference between these two measurements is more than the limits, replace both piston and piston pin.



09900-20605	Dial calipers Not available in U.S. model
09900-20205	Micrometer (0 – 25 mm)

Piston pin bore

Service Limit	16.030 mm (0.6311 in)

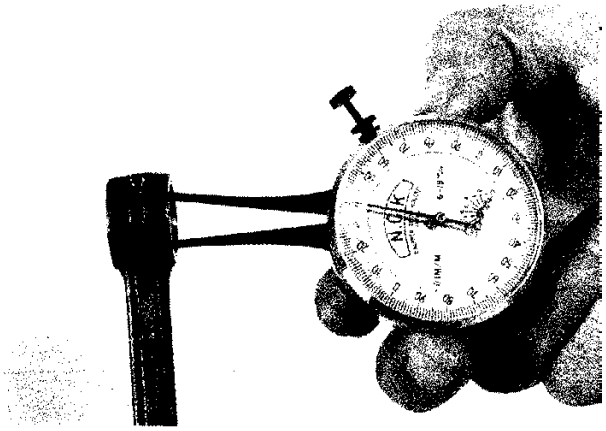


Piston pin O.D.

Service Limit	15.980 mm (0.6291 in)

CONROD SMALL END I.D.

Using a caliper gauge, measure the conrod small end inside diameter.

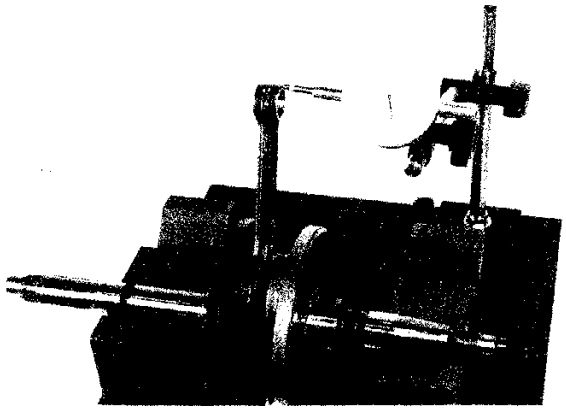


Service Limit	16.040 mm (0.6315 in)

If the conrod small end bore inside diameter exceeds the limit, replace conrod.

CONROD DEFLECTION AND CONROD BIG END SIDE CLEARANCE

Wear on the big end of the conrod can be estimated by checking the movement of the small end of the rod. This method can also check the extent of wear on the parts of the conrod's big end.



Service Limit	3.0 mm (0.12 in)

09900-20701	Magnetic stand Not available in U.S. model
09900-20606	Dial gauge (1/100 mm)
09900-21304	V-block Not available in U.S. model

Push the big end of the conrod to one side and measure the side clearance with a thickness gauge.

09900-20803	Thickness gauge

Standard	Service Limit
0.10 – 0.45 mm (0.004 – 0.018 in)	1.00 mm (0.039 in)

Where the limit is exceeded, replace crankshaft assembly or reduce the deflection and the side clearance to within the limit by replacing the worn parts – conrod, big end bearing and crankpin, etc.

CRANKSHAFT RUNOUT

Support the crankshaft with ''V'' blocks as shown, with the two end journals resting on the blocks.
Position the dial gauge, as shown, and rotate the crankshaft slowly to read the runout.
Correct or replace the crankshaft if the runout is greater than the limit.

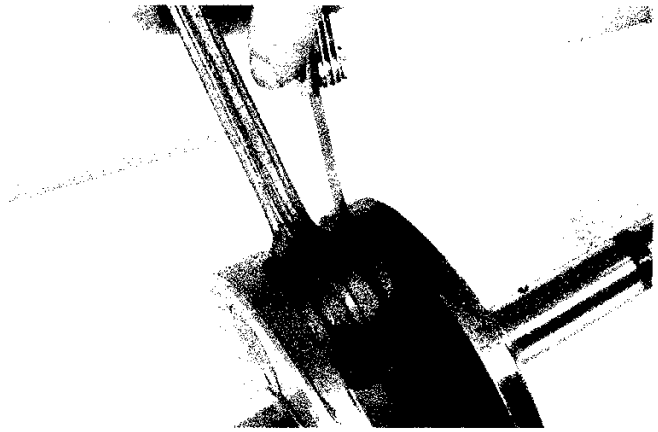
Service Limit	A	0.05 mm (0.002 in)
	B	0.08 mm (0.003 in)

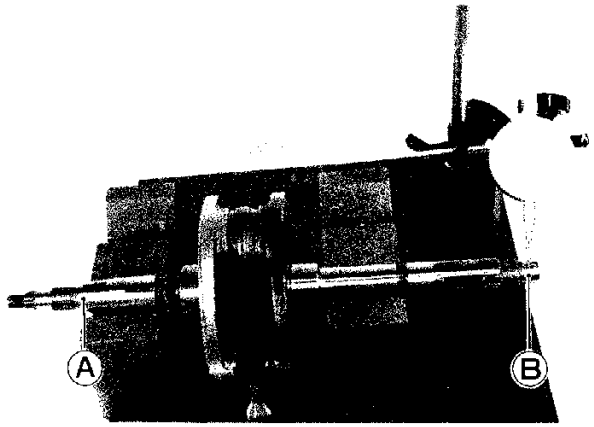
CLUTCH DRIVE PLATE

Measure the thickness and claw width of each drive plate with vernier calipers. Replace drive plates found to have worn down to the limit.

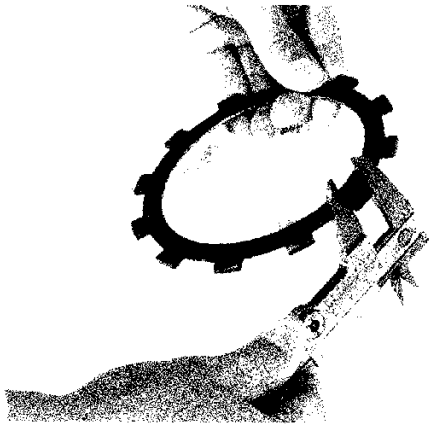
09900-20101	Vernier calipers

Item	Standard	Service Limit
Thickness	2.7 – 2.9 mm (0.106 – 0.114 in)	2.4 mm (0.094 in)
Claw width	11.8 – 12.0 mm (0.46 – 0.47 in)	11.0 mm (0.43 in)





Checking thickness



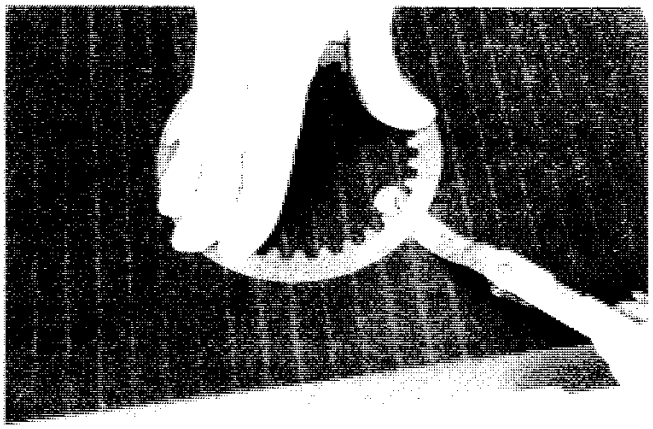
Checking claw width

CLUTCH DRIVEN PLATE

Measure each driven plate for distortion with a thickness gauge. Replace driven plates which exceed the limit.

09900-20803	Thickness gauge

Service Limit	0.10 mm (0.004 in)



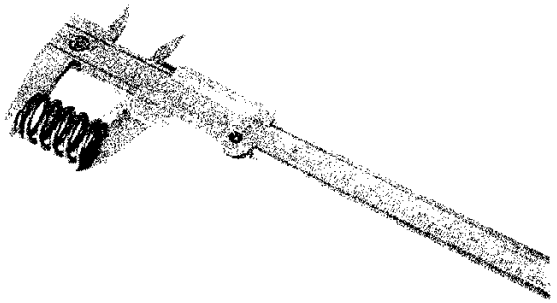
Checking distortion

CLUTCH SPRING FREE LENGTH

Measure the free length of each coil spring with a vernier calipers, and determine the elastic strength of each. Replace all the springs if any one of springs one is not within the limit.

09900-20101	Vernier calipers

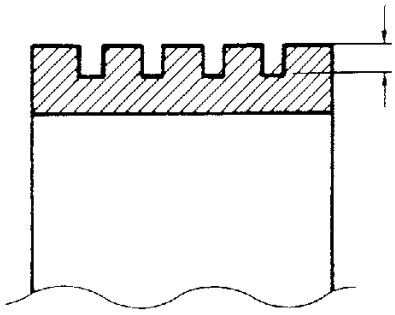
Service Limit	27.5 mm (1.08 in)



NOTE:
Clutch spring must be changed as a set and never individually.

CLUTCH SHOE

Inspect the shoes visually for chips, cracking, uneven wear, and burning, and check the depth of the grooves on the shoes. If there is no groove at any part of the shoes, replace them as a set.

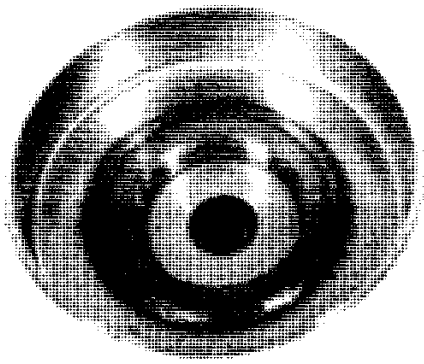


Inspecting clutch shoe groove

NOTE:
Clutch shoes must be changed as a set and never individually.

CLUTCH WHEEL

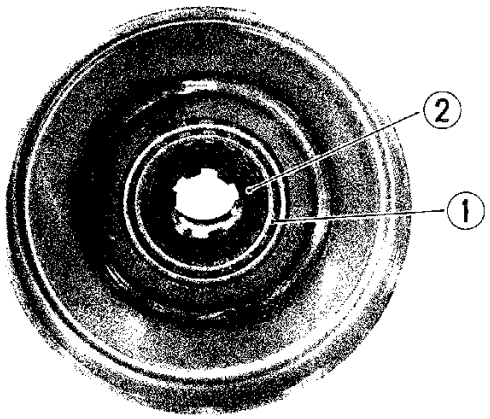
Inspect visually the condition of the inner clutch wheel surface for scuffing, scratches, cracks or uneven wear. If the surface shows any abnormality, replace the clutch wheel with a new one.



ONE-WAY CLUTCH

Inspect the one-way clutch ① by hand while fixing it in the clutch housing. Rotate the inner race ② by hand to inspect that inner race turns to one direction only and never turns to the opposite direction.

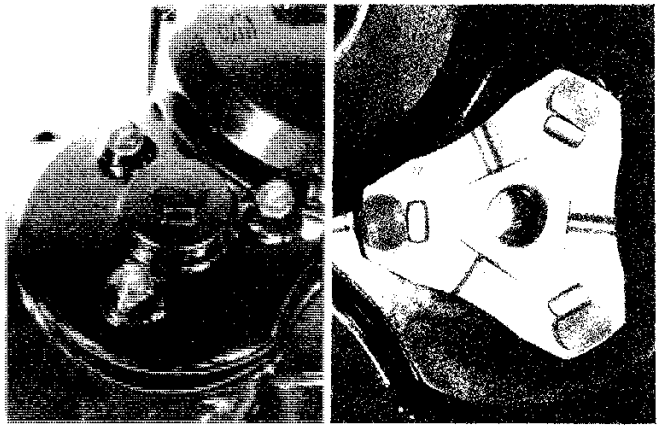
If the inner race turns both directions or is locked, replace the one-way clutch assembly with a new one.



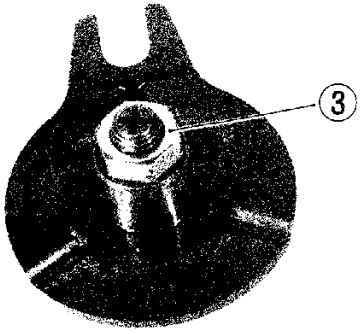
CLUTCH RELEASE MECHANISM

REMOVAL

Remove the clutch release outer guide, release ball, inner guide and washer.



- Remove the lock nut ③ and pull out the clutch release.

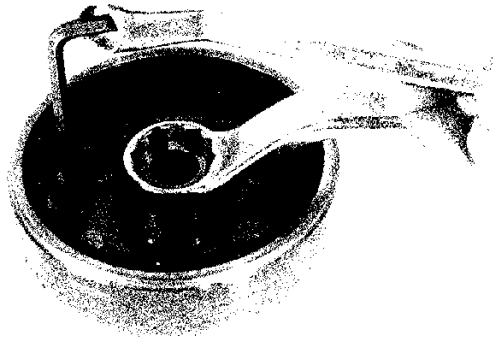


CLUTCH RELEASE BALL

Rotate the balls by hand to inspect for an abnormal noise and a smooth rotation. Replace the clutch release ball if there is anything unusual.

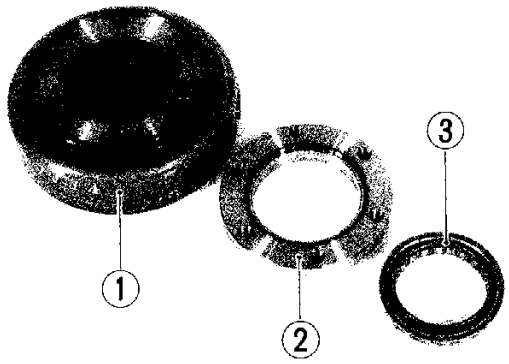
STARTER CLUTCH

- Hold the rotor with 29 mm off-set wrench, and remove the three Allen bolts.



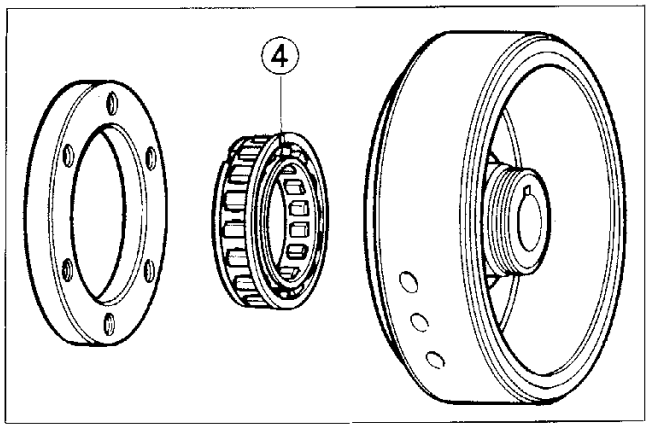
- Disassemble each part.

① : Rotor
② : Starter clutch holder
③ : Starter clutch



- The starter clutch must be installed in the proper direction as shown in Fig.

NOTE:
When installing the starter clutch to the rotor, face the cut ④ of the cage to the rotor.

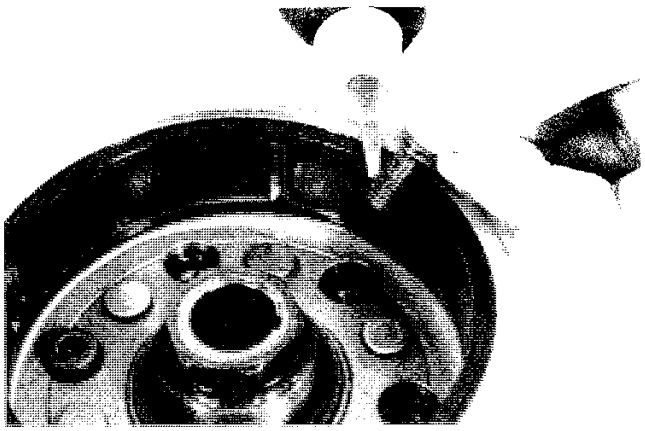


- Apply engine oil to the starter clutch.

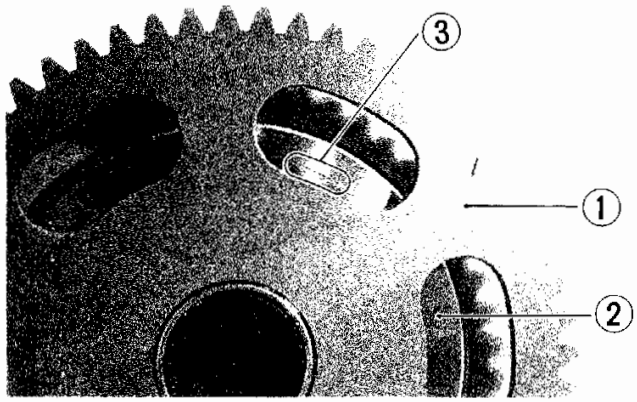
- Apply THREAD LOCK SUPER "1303" to Allen bolts. Tighten them to the specified torque while holding the rotor by using the 29 mm off-set wrench.

99000-32030	Thread Lock Super "1303"

Tightening torque	23 – 28 N·m (2.3 – 2.8 kg-m) (16.5 – 20.0 lb-ft)



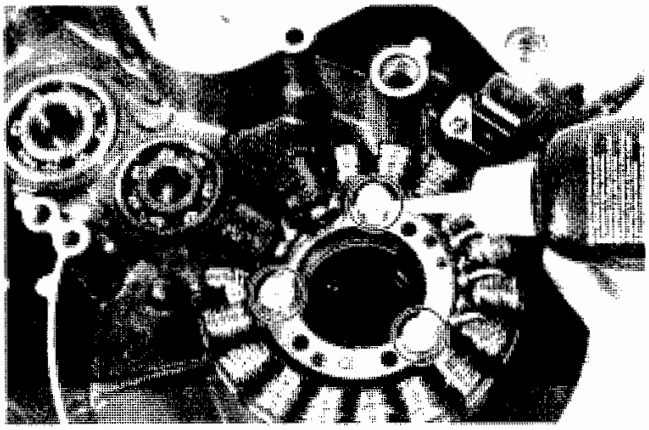
- Install the starter gear ① to the starter clutch.
- Check that the rotor ② turns in the direction of the arrow ③ on the rotor while holding the starter gear ①, and that the rotor ② never turns in the opposite direction of the arrow ③.



MAGNETO

- Fit the stator on the magneto cover and apply a small quantity of THREAD LOCK "1342" to the stator mounting bolts.

99000-32050	Thread Lock "1342"



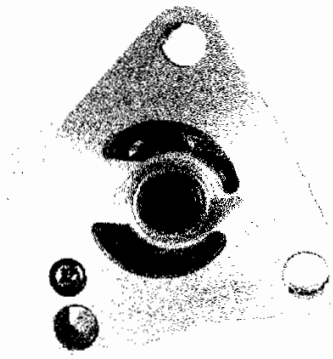
NOTE:
Bond No. 1207B/1215 should be applied to the groove of magneto lead wire grommet.

99104-31140 For U.S. model	SUZUKI BOND No. 1207B
99000-31110 For other models	SUZUKI BOND No. 1215

OIL PUMP

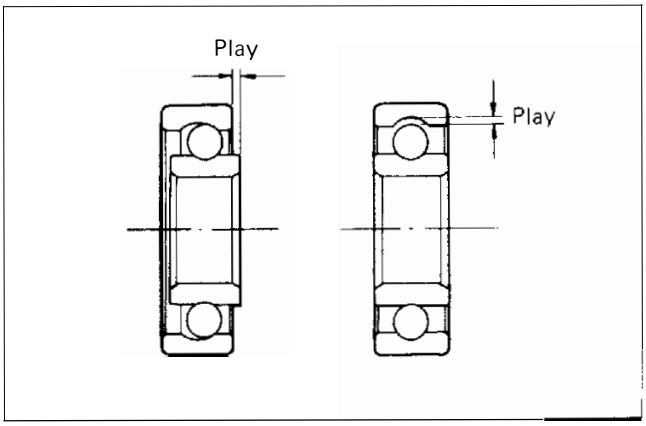
CAUTION:
The oil pump case securing screw is applied with SUZUKI THREAD LOCK SUPER "1303". If an attempt is made to overhaul the oil pump assembly, the screw may be damaged. As a replacement, only the oil pump unit is available.

99000-32030	Thread Lock Super "1303"



CRANKCASE BEARINGS

Inspect the play of crankcase bearing inner race by hand while fixing it in the case. Rotate the crankcase bearing inner race by hand to inspect for any abnormal noise or lack of smooth operation. Replace the bearing if there is anything unusual.



GEAR-SHIFT FORK CLEARANCE

Using a thickness gauge, check the shifting fork clearance in the groove of its gear. If the clearance limit is exceeded on any of the six gears, determine whether the gear or the gear shifting fork should be replaced by measuring the thickness and groove width.

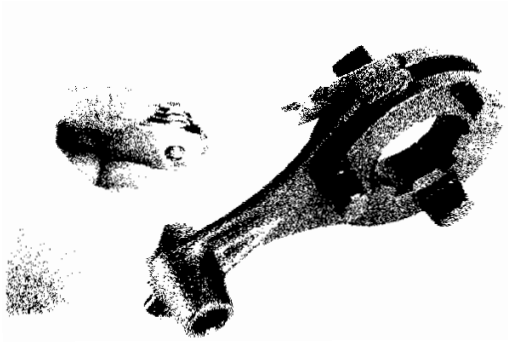
09900-20803	Thickness gauge

Item	Standard	Limit
Shift fork to groove clearance	0.10 – 0.30 mm (0.004 – 0.012 in)	0.50 mm (0.020 in)

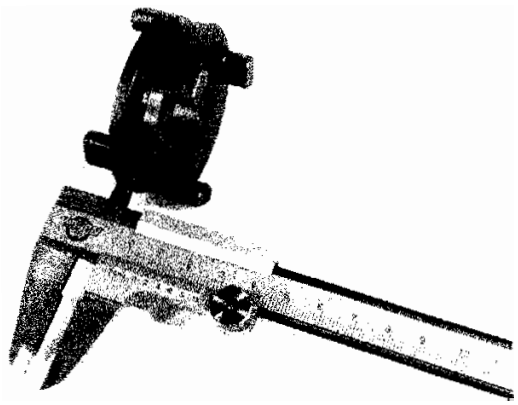
09900-20101	Vernier calipers

Shift fork groove width		
Standard	Transmission No. 1, No. 3 & No. 2	4.50 – 4.60 mm (0.177 – 0.181 in)
	Sub-transmission No. 1 & No. 2	5.45 – 5.55 (0.215 – 0.219 in)
	Reverse	4.00 – 4.10 mm (0.157 – 0.161 in)

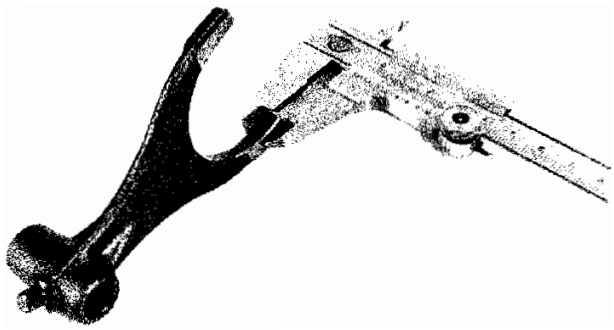
Shift fork thickness		
Standard	Transmission No. 1 , No. 3 & No. 2	4.30 – 4.40 mm (0.169 – 0.173 in)
	Sub-transmission No. 1 & No. 2	5.30 – 5.40 mm (0.209 – 0.213 in)
	Reverse	3.80 – 3.90 mm (0.150 – 0.154 in)



Checking clearance



Checking groove width



Checking thickness

ENGINE REASSEMBLY

Reassembly is generally performed in the reverse order of disassembly, but there are numbers of reassembling steps that demand or deserve detailed explanation or emphasis. These steps will be taken up for respective parts and components.

NOTE:
Apply engine oil to each running and sliding part before reassembling.

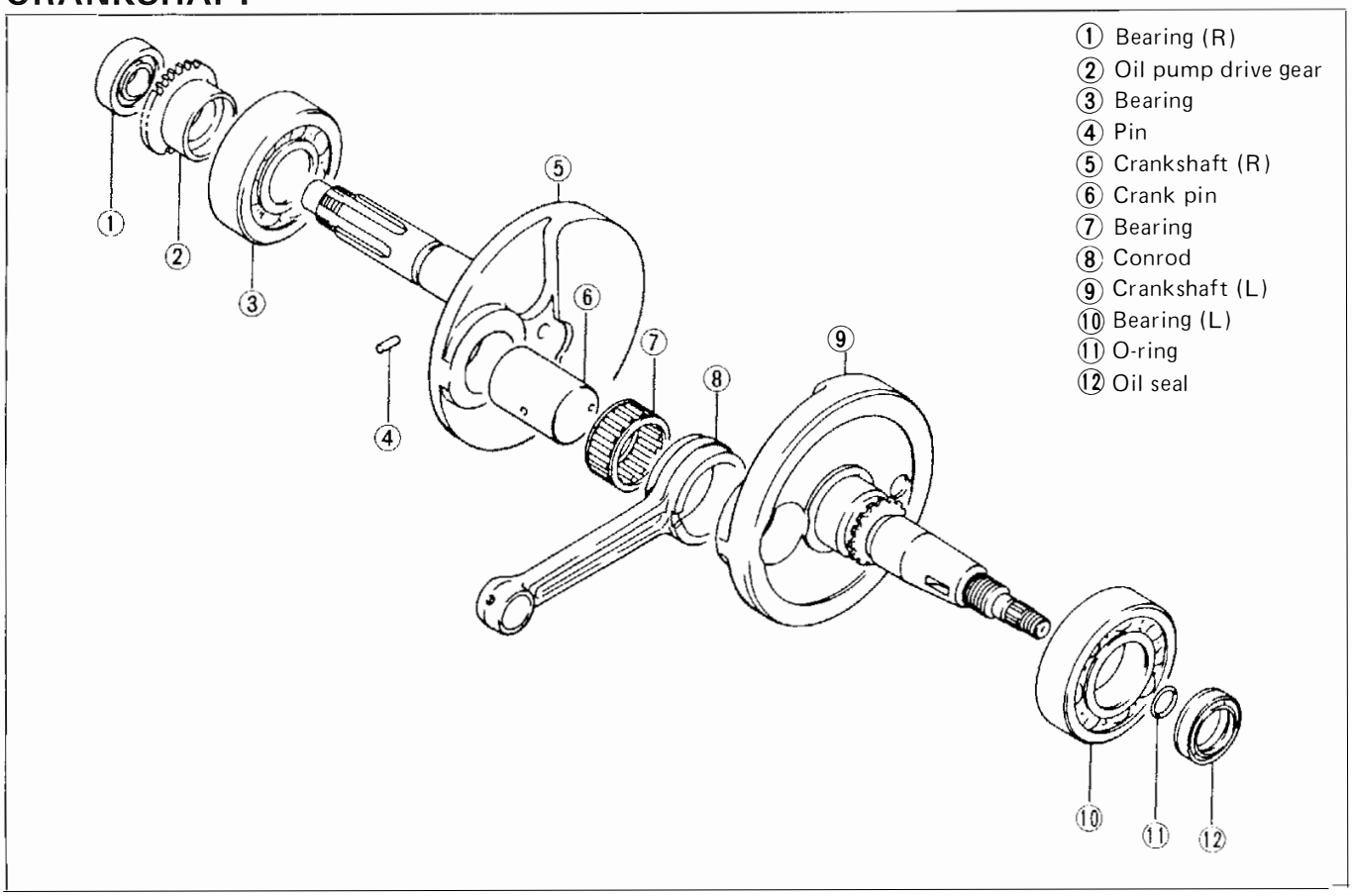
OIL SEALS

- Apply grease to the lip of oil seals.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	

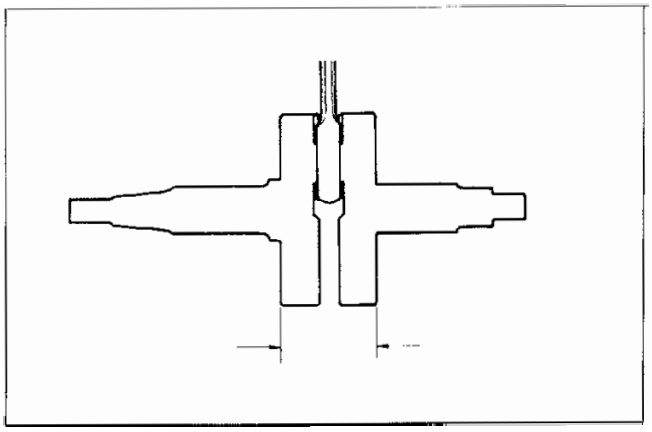
NOTE:
Replace the oil seals with new ones every disassembly to prevent oil leakage.

CRANKSHAFT



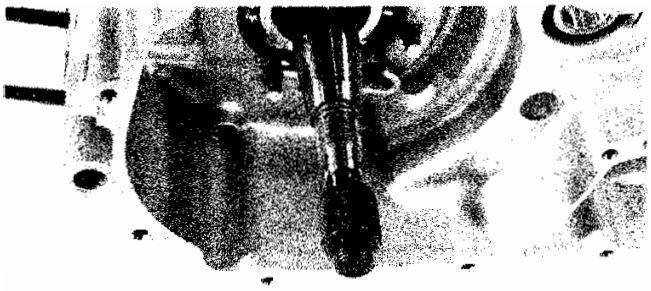
- Decide the width between the webs referring to the figure when rebuilding the crankshaft.

STD width between webs	53.0 ± 0.1 mm (2.087 ± 0.004 in)

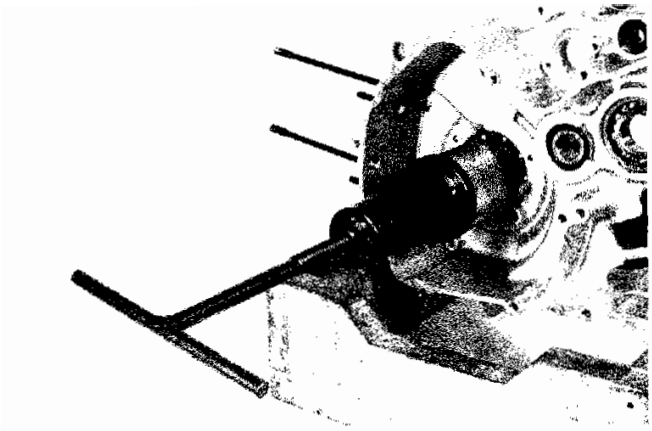


- When mounting the crankshaft in the crankcase, it is necessary to pull its left end into the crankcase by using the special tools.

09910-32812	Crankshaft installer

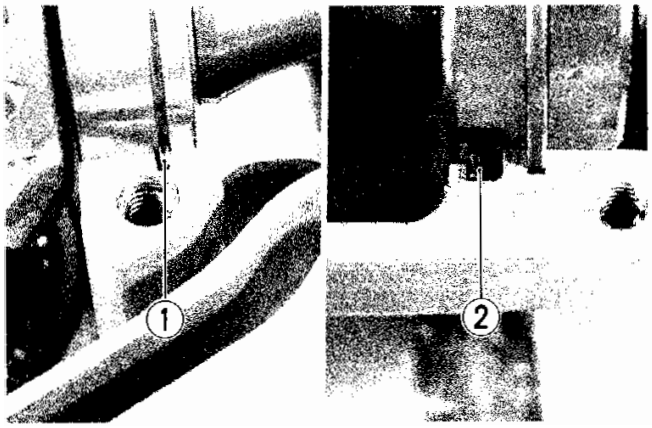


CAUTION:
Never fit the crankshaft into the crankcase by striking it with a plastic hammer.
Always use the special tool, otherwise crankshaft alignment accuracy will be affected.



SECONDARY DRIVEN OUT-PUT SHAFT

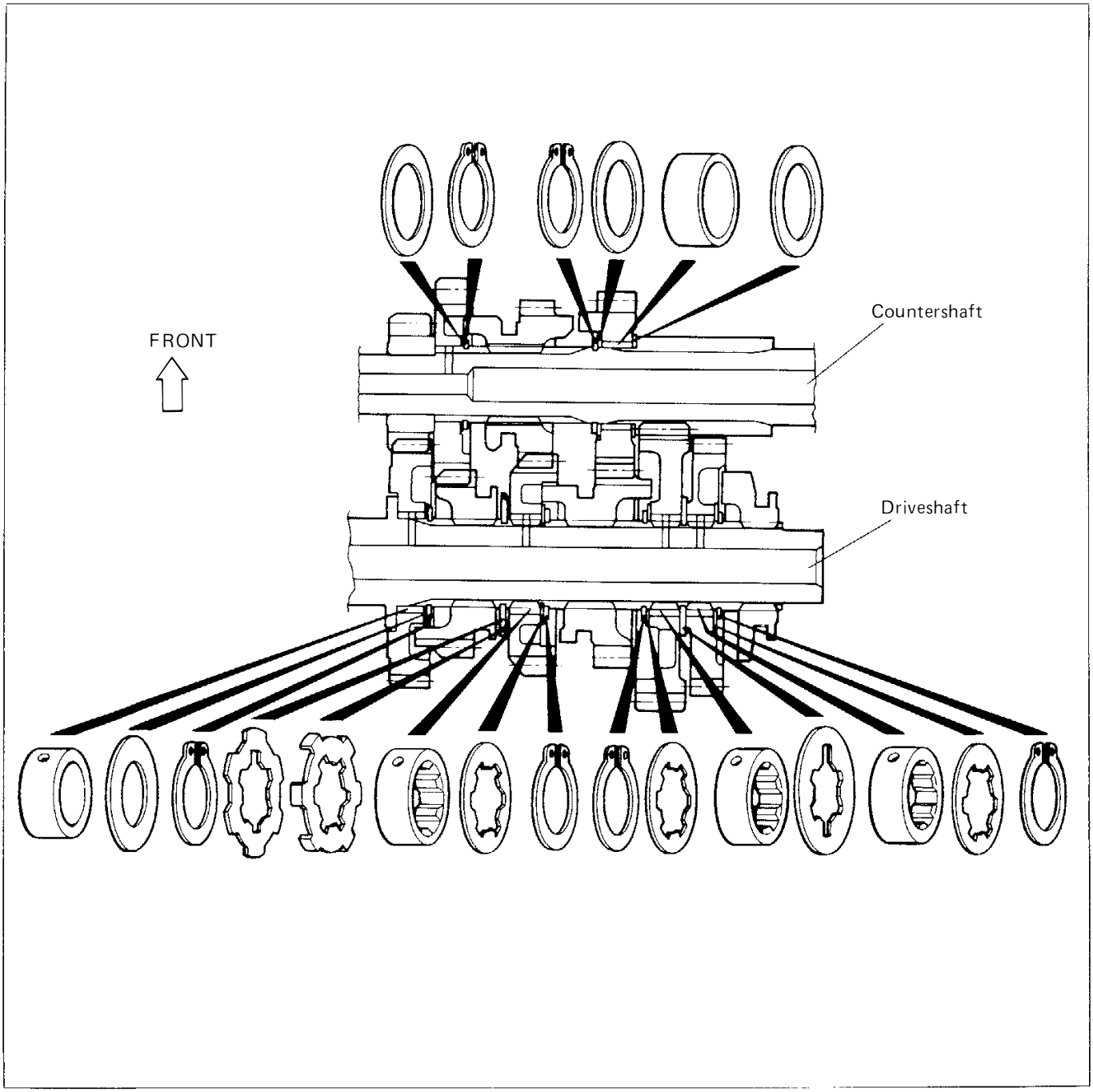
- When installing the secondary driven out-put shaft assembly, be sure to install the C-ring ① for the rear side bearing and place the pin ② to the groove for the front side bearing.



TRANSMISSION

NOTE:
In reassembling the transmission, attention must be given to the locations and positions of washers and circlips. The cross sectional view given here will serve as a reference for correctly mounting the gears, washers and circlips.

CAUTION:
* Never reuse a circlip. After a circlip has been removed from a shaft, the removed circlip 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.



MOUNTING THE 2ND DRIVE GEAR

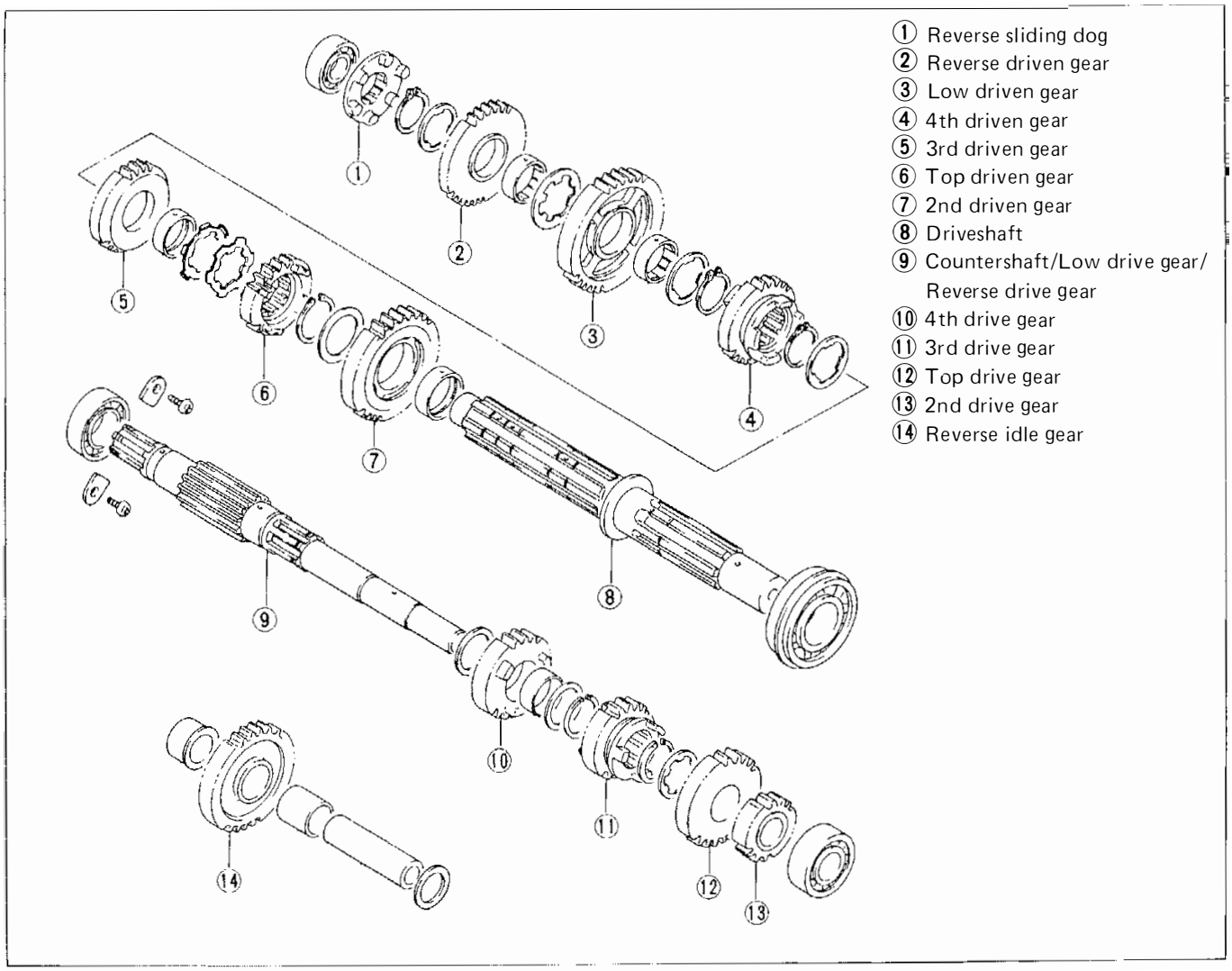
- Press-fit 2nd drive gear onto the countershaft.

NOTE:
Before reassembling, coat the internal face of the 2nd drive gear with THREAD LOCK SUPER "1333B".

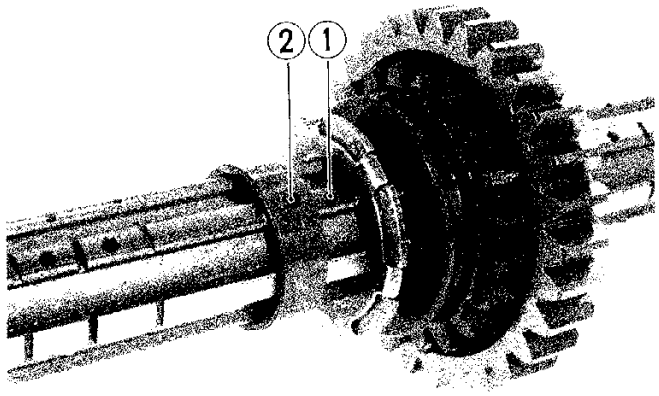
99000-32020	Thread Lock Super "1333B"

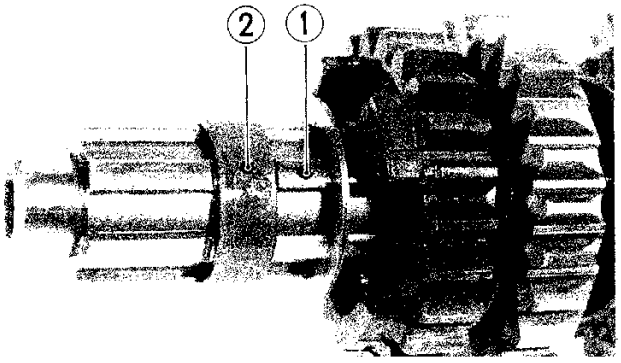
NOTE:
Take care not to smear TOP drive gear with THREAD LOCK SUPER "1333B".

NOTE:
*** After mounting the 2nd drive gear, check that TOP drive gear spins smoothly by moving it with your fingers.**
*** This procedure may be performed only twice before shaft replacement is required.**

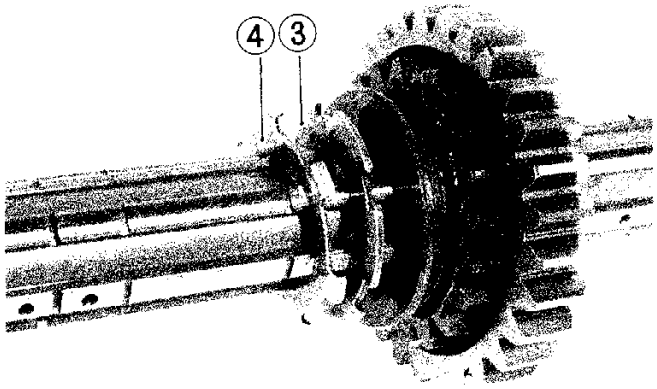


- When installing the bushing on the shaft, align the oil hole ① of the shaft with the bushing oil hole ②.

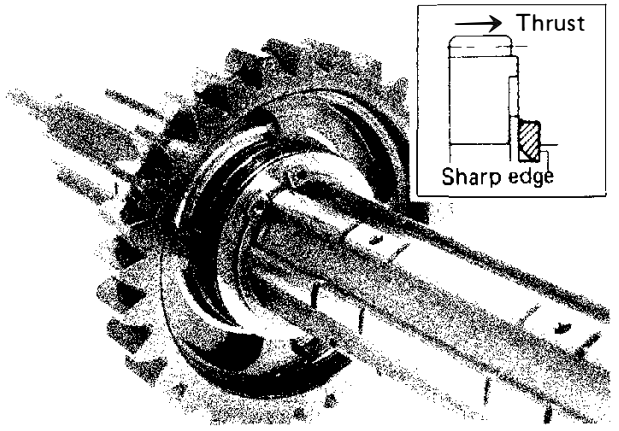




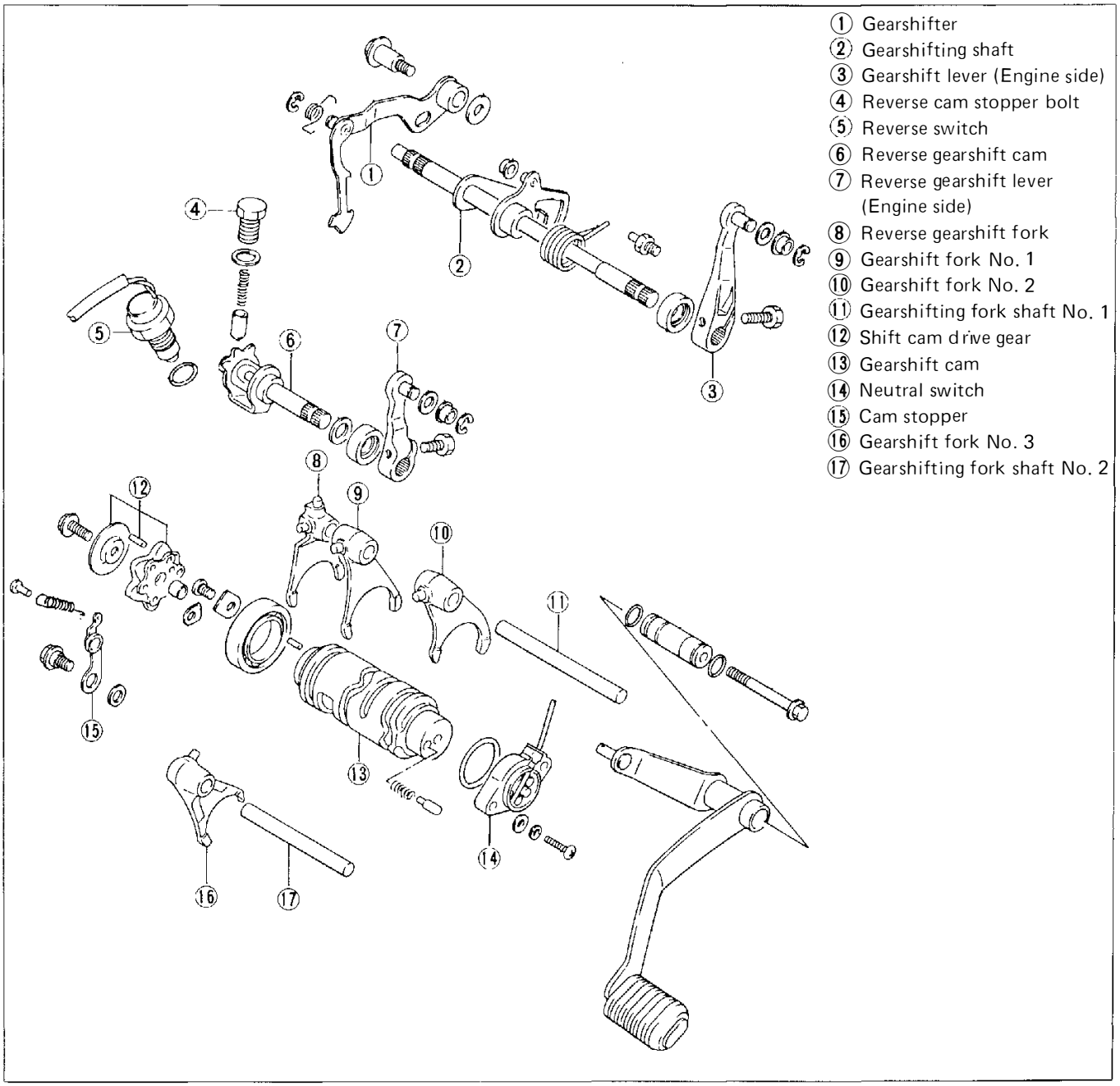
- When mounting the 3rd driven gear on the drive shaft, insert lock washer No. 2 ③ into the drive shaft, and turn and fit it into the groove. Then, fit the lock washer No. 1 ④ in the lock washer No. 2.



- When installing a circlip, pay attention to the direction of the circlip. Fit it to the side where the thrust is as shown in the figure with the rounded side against the gear surface.

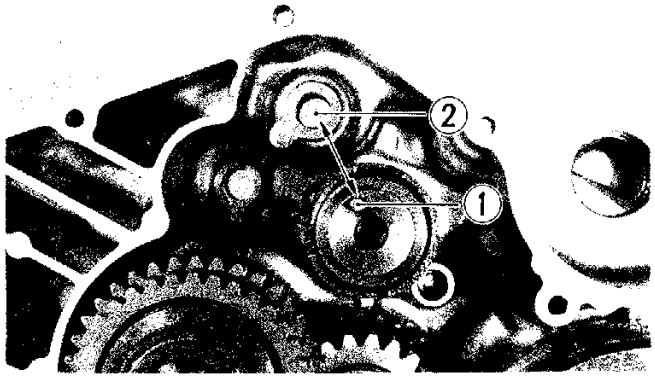


GEARSHIFT CAM AND FORK

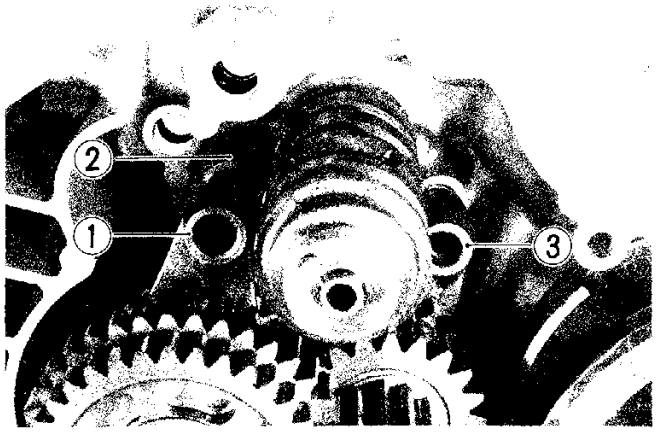


① Gearshifter
② Gearshifting shaft
③ Gearshift lever (Engine side)
④ Reverse cam stopper bolt
⑤ Reverse switch
⑥ Reverse gearshift cam
⑦ Reverse gearshift lever (Engine side)
⑧ Reverse gearshift fork
⑨ Gearshift fork No. 1
⑩ Gearshift fork No. 2
⑪ Gearshifting fork shaft No. 1
⑫ Shift cam drive gear
⑬ Gearshift cam
⑭ Neutral switch
⑮ Cam stopper
⑯ Gearshift fork No. 3
⑰ Gearshifting fork shaft No. 2

- Install the countershaft and driveshaft to the crankcase.
- Install the gear shifting cam so that the pin ① faces to the reverse shifting cam shaft hole ② to bring the gears into the neutral position.

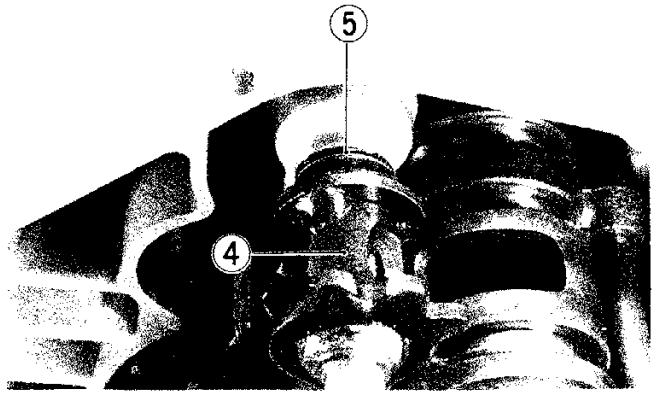


- Fit the gearshift forks No. 1 ①, No. 2 ② and No. 3 ③ into the gearshifting grooves.

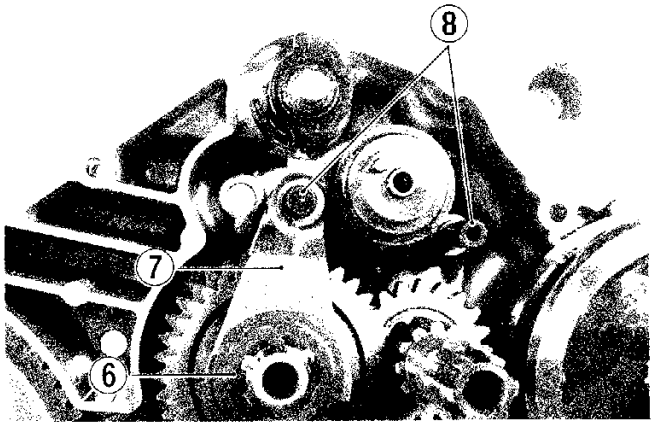


- Install the reverse gearshifting cam ④.

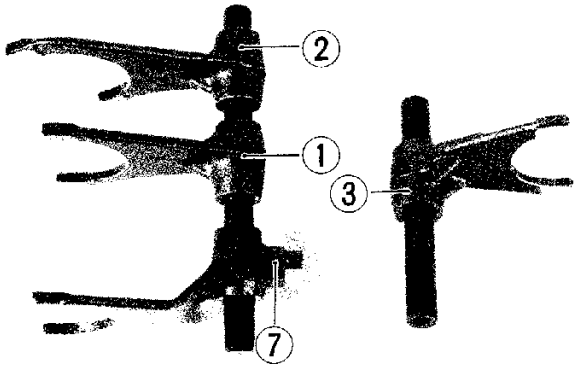
NOTE:
When installing the reverse gearshifting cam, be sure to install the washer ⑤.



- Install the reverse sliding dog ⑥.
- Fit the reverse gearshift fork ⑦ into the gearshifting groove and reverse gearshifting groove.
- Install the gearshifting fork shafts ⑧.

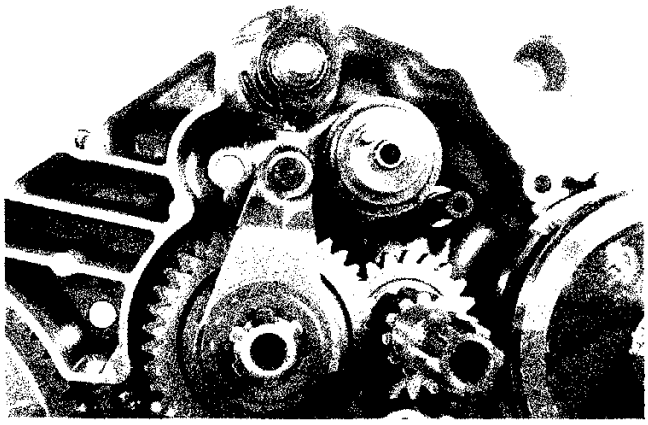


NOTE:
Four kinds of gear shifting forks are used.
They resemble each other very closely in external appearance and configuration.



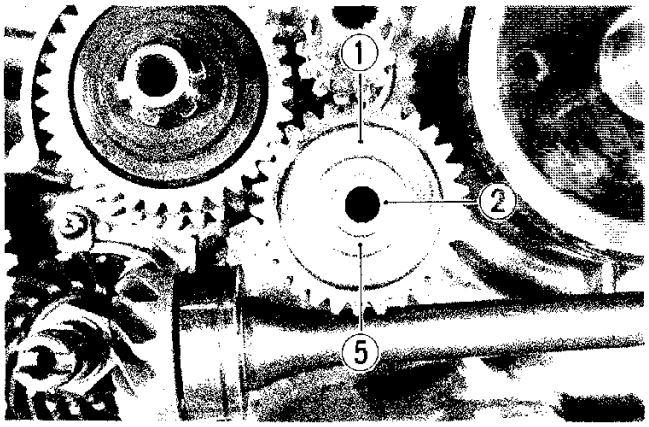
①: Gearshift fork No. 1
②: Gearshift fork No. 2
③: Gearshift fork No. 3
⑦: Reverse gearshift fork

- After installing the gearshift forks and gears, turn the gearshift cam and check to see that gears engage positively.

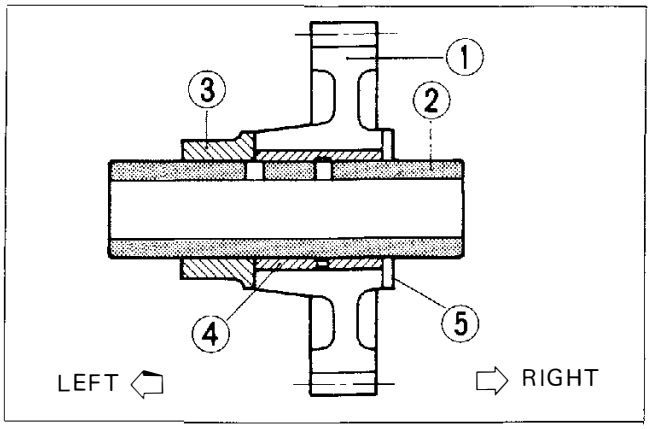


NOTE:
After the gearshifting fork shafts and gear shifting forks have been fitted, confirm that gear change is normal while turning the countershaft and driveshaft. If gear change is not obtained, it means that assembly of gears or installation of gearshifting fork is incorrect. If this is the case, disassemble and trace the mistake.

- Install the reverse idle gear ①, shaft ②, spacer ③, bush ④ and washer ⑤ correctly.



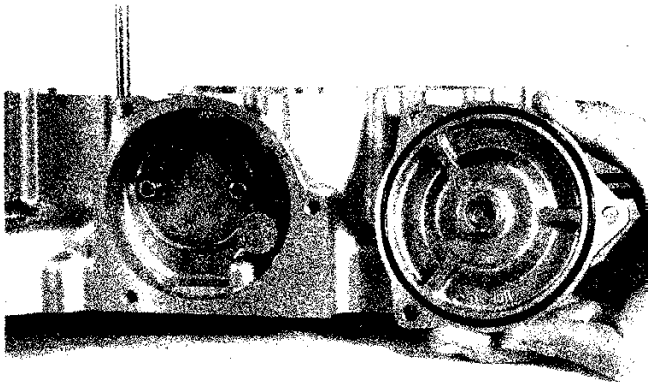
NOTE:
* **The flange side of the spacer ③ should face to the reverse idle gear ①.**
* **After the reverse idle gear has been fitted, confirm that reverse gear change is normal while shifting the gearshift into the neutral position. If reverse gear change is not obtained, it means that assembly of reverse parts is incorrect. If this is the case, disassemble and trace the mistake.**



CRANKCASE

When reassembling the crankcase, pay attention to the following points.

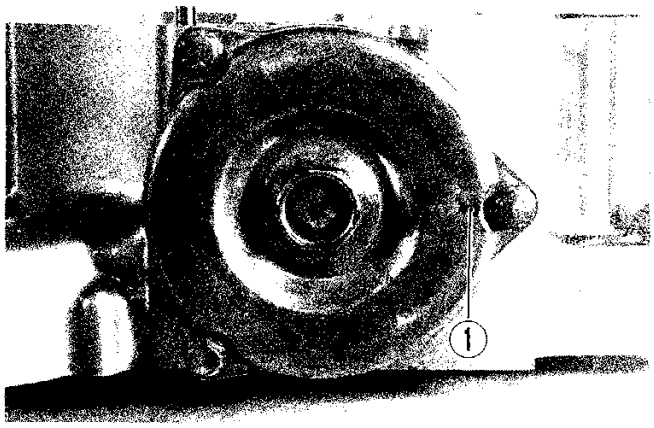
- Remove sealant material on the fitting surfaces of right and left halves of crankcase and thoroughly remove oil stains.
- Before installing the sump filter, wash the sump filter with cleaning solvent, and then blow compressed air through it to dry off solvent.
- Fit the O-ring to the O-ring groove as shown in Fig.



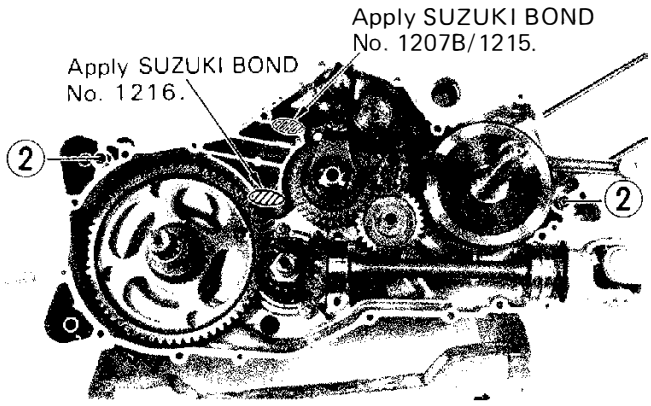
CAUTION:
Use a new O-ring to prevent oil leakage.

NOTE:
Coat the O-ring of sump filter cap with grease.

- When installing the oil sump filter cap to the right half of crankcase, be sure to face the arrow mark ① on the cap to the front.

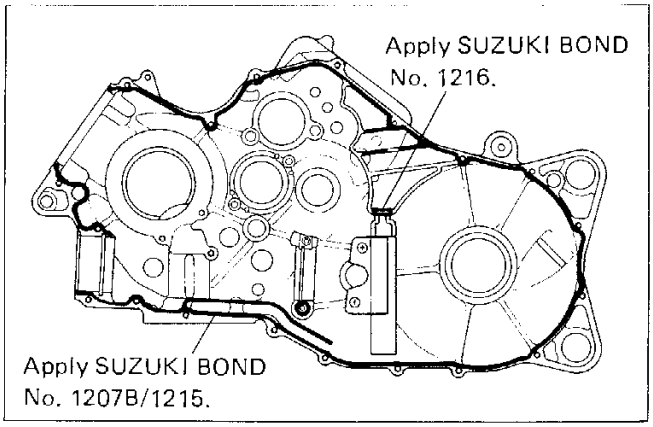


- Fit dowel pins ② on the left half.
- Apply engine oil to the big end of the crankshaft conrod and all parts of the transmission gears.
- Apply SUZUKI BOND No. 1207B/1215 uniformly to the fitting surface of the right half of the crankcase, and assemble the cases within few minutes.



99104-31140 For U.S. model	SUZUKI BOND No. 1207B
99000-31110 For other models	SUZUKI BOND No. 1215

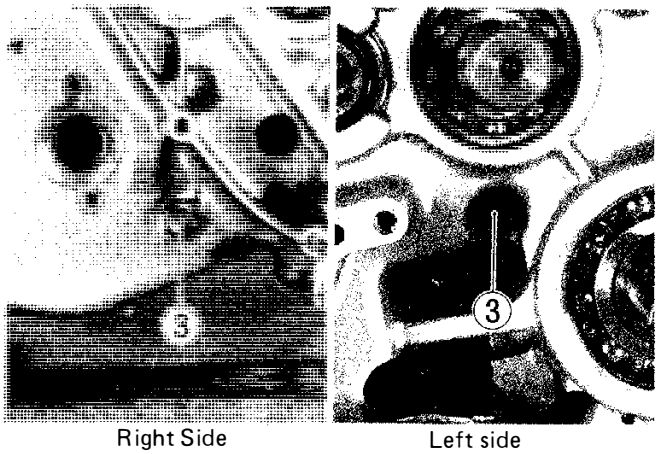
- Apply SUZUKI BOND No. 1216 to the blow-by gas pipe mating surfaces of the right and left crankcase as indicated in the figure.



99104-31160 For U.S. model	SUZUKI BOND No. 1216
99000-31160 For other models	SUZUKI BOND No. 1216

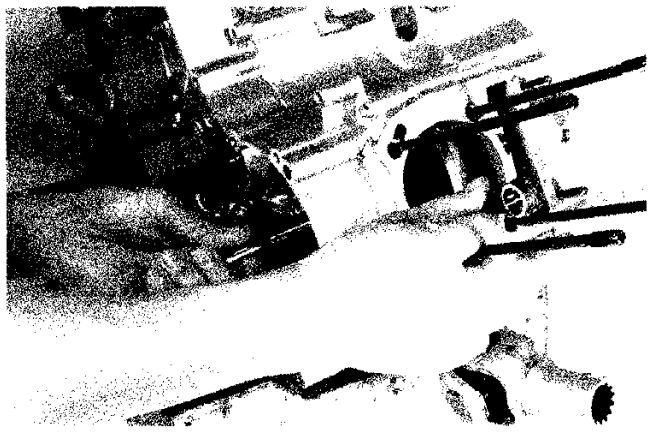
- First tighten the two 8 mm crankcase securing bolts ③, and then 6 mm bolts to the specified torque.

Tightening torque	6 mm	9 – 13 N·m (0.9 – 1.3 kg-m, 6.5 – 9.5 lb-ft)
	8 mm	20 – 24 N·m (2.0 – 2.4 kg-m, 14.5 – 17.5 lb-ft)



Right Side Left side

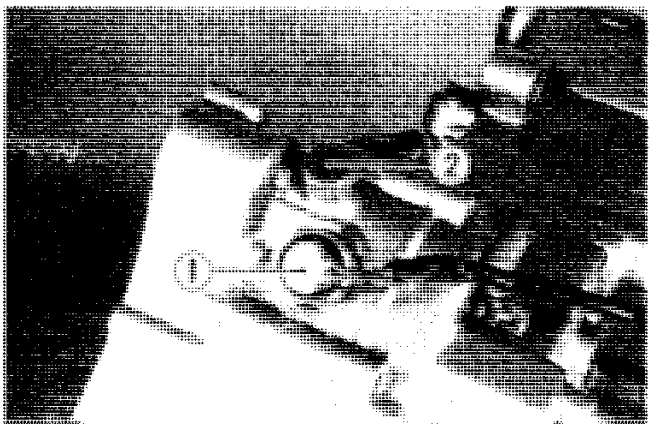
- After the crankcase bolts have been tightened, check if crankshaft, countershaft, driveshaft, sub-transmission output shaft, rear final driven shaft and secondary driven output shaft rotate smoothly.
- If a large resistance is felt to rotation, try to free the shafts by tapping the shafts with a plastic hammer.



REVERSE SWITCH AND REVERSE CAM STOPPER BOLT

- Tighten the reverse switch ① and reverse cam stopper bolt ② to the specified torque.

Tightening torque	20 – 25 N·m (2.0 – 2.5 kg-m 14.5 – 18.0 lb-ft)

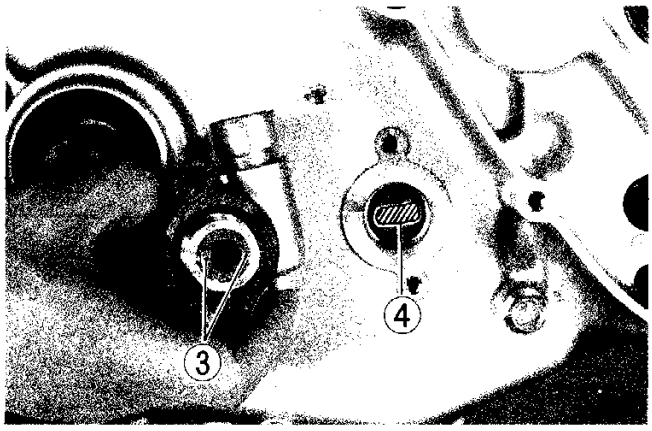


SPEEDOMETER DRIVE GEARBOX

- Fit the gasket to the gearbox.

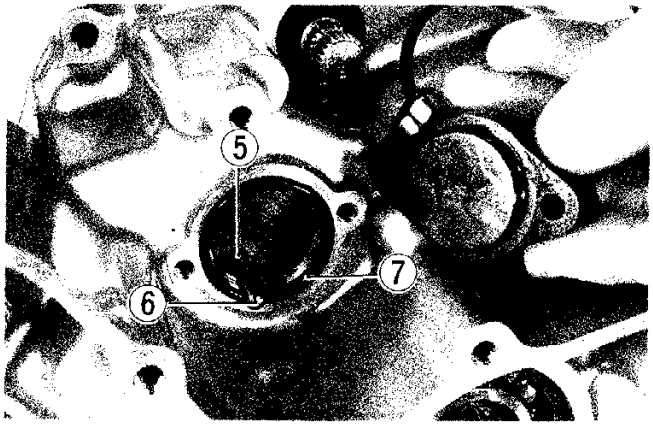
CAUTION:
Use a new gasket to prevent oil leakage.

- Align the protrusion ③ of the gearbox with the groove ④ of the sub-transmission output shaft.



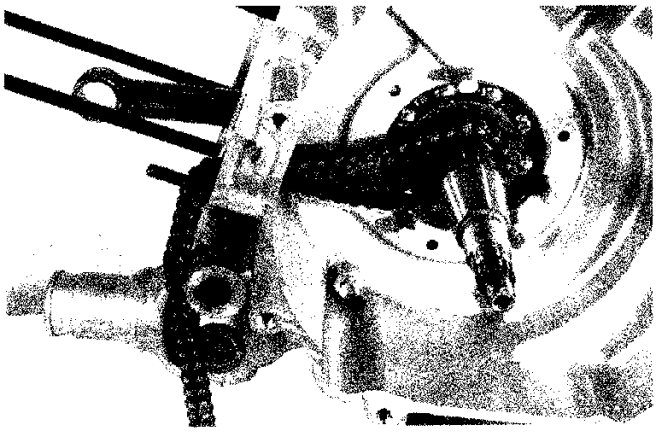
NEUTRAL SWITCH

- After positioning the spring ⑤ and switch contact ⑥, install the switch body with a new O-ring ⑦.

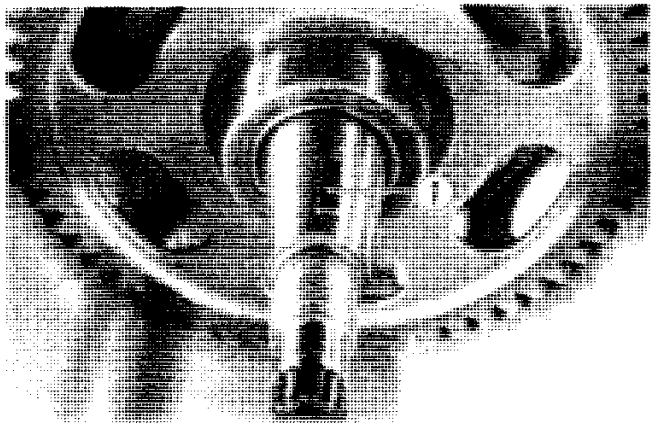


STARTER CLUTCH AND MAGNETO ROTOR

- Engage the cam drive chain on the sprocket.
- Degrease the tapered portion of the crankshaft and also the rotor.

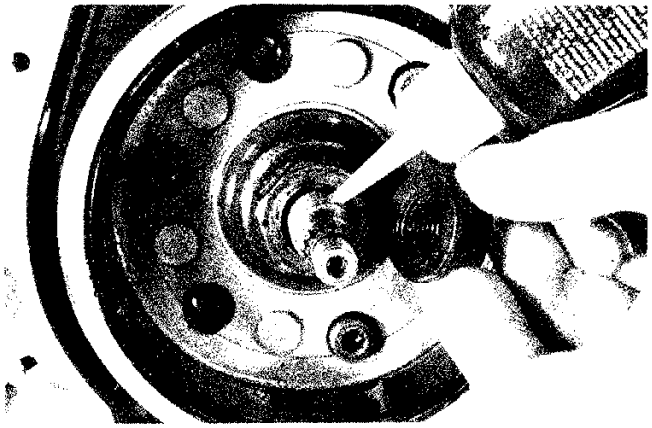


- Install the starter gear and key ①.



- Apply a small quantity of THREAD LOCK SUPER "1303/1305" to the rotor nut.

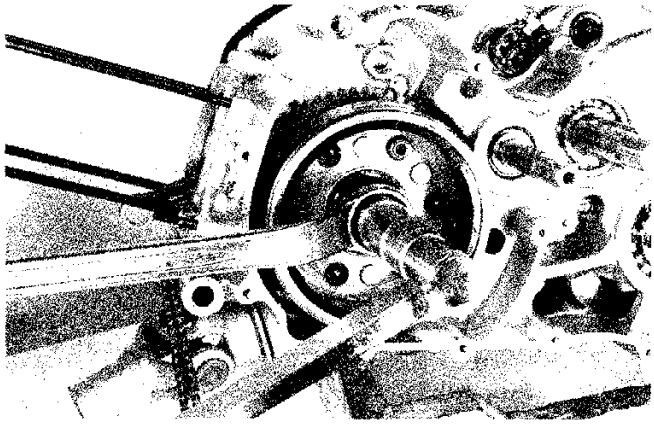
99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32100 For other models	Thread Lock Super "1305"



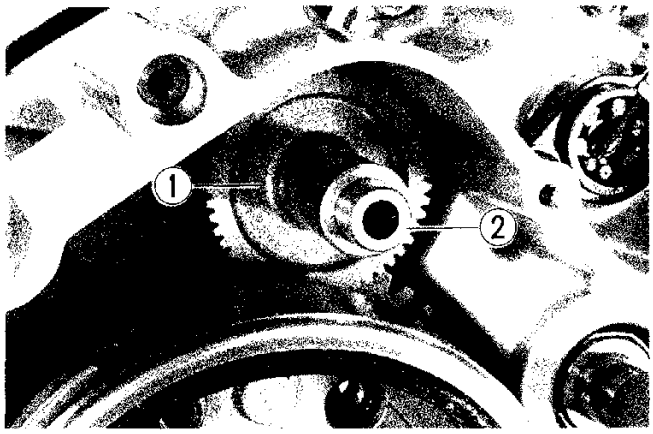
- Tighten the rotor nut to the specified torque by using 29 mm off-set wrench, 22 mm long socket and torque wrench.

09924-62420	22 mm Long Socket Not available in U.S. model

Tightening torque	145 – 175 N·m (14.5 – 17.5 kg-m 105.0 – 126.5 lb-ft)



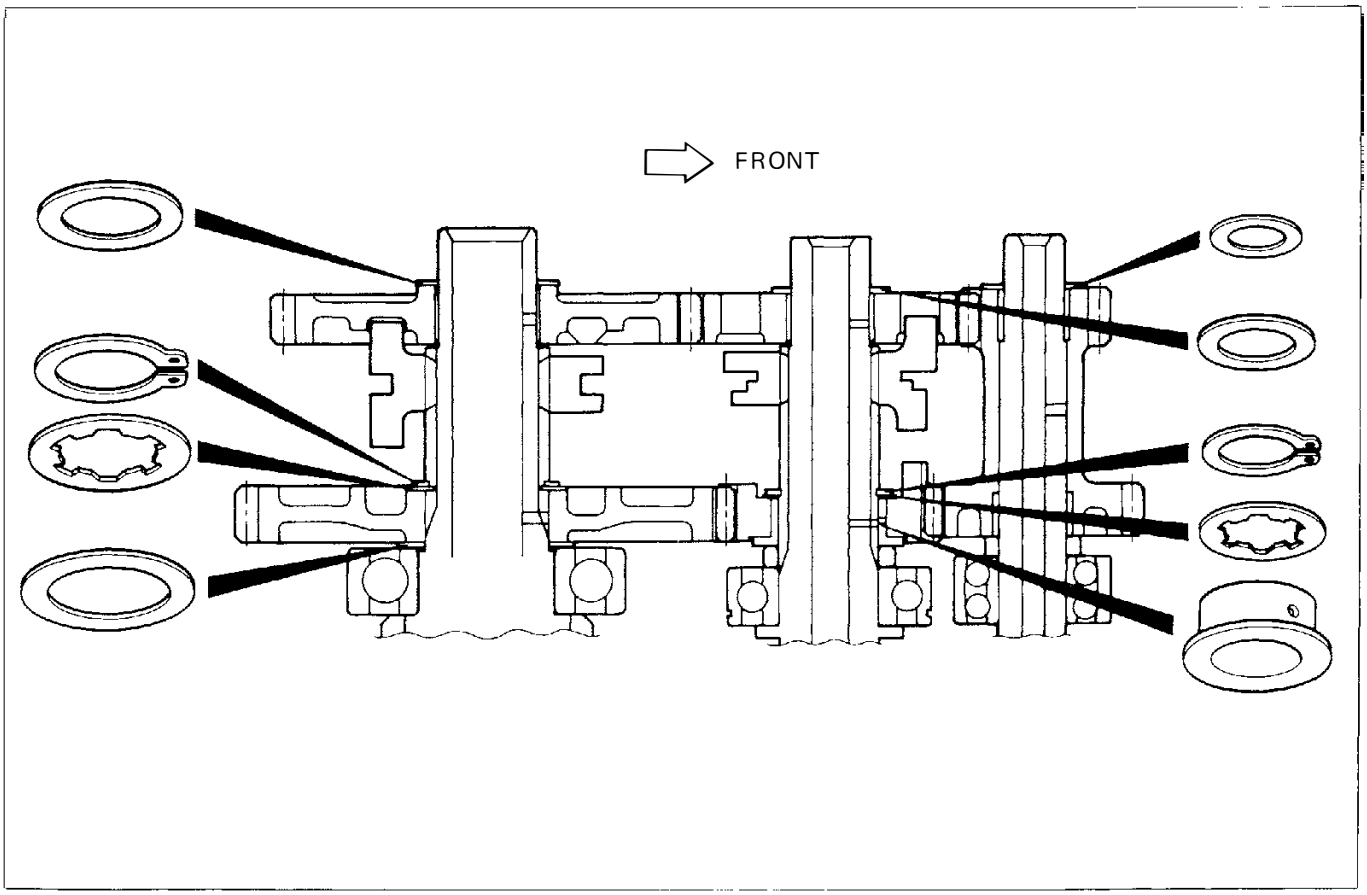
- Install the spacer, starter idle gear ① and shaft ②.

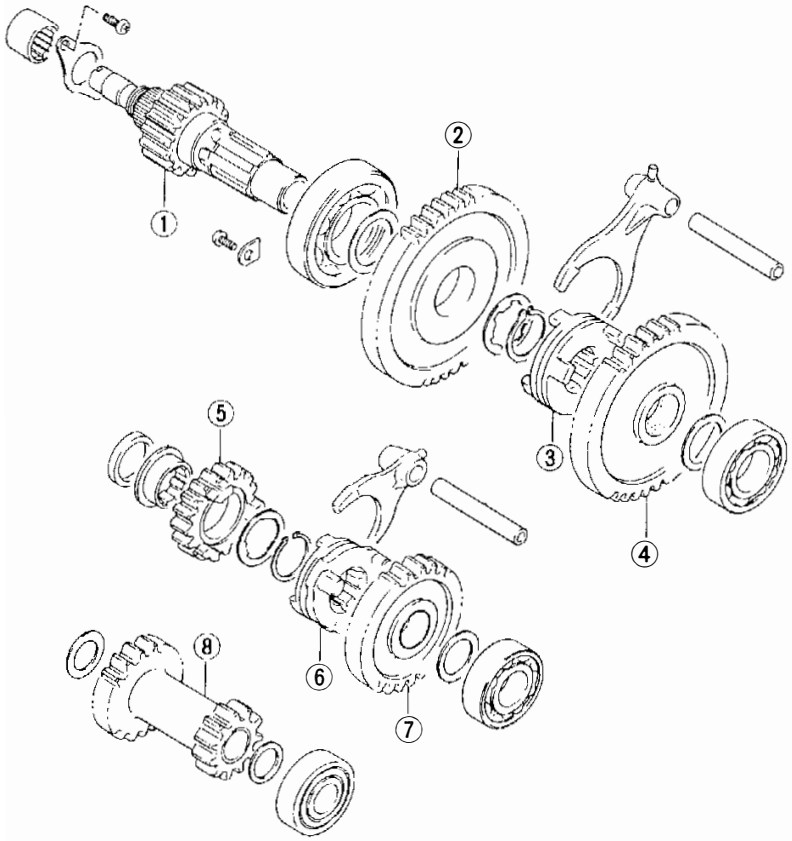


SUB-TRANSMISSION

NOTE:
In reassembling the sub-transmission, attention must be given to the locations and positions of washers and circlips. The cross sectional view given here will serve as a reference for correctly mounting the gears, washers and circlips.

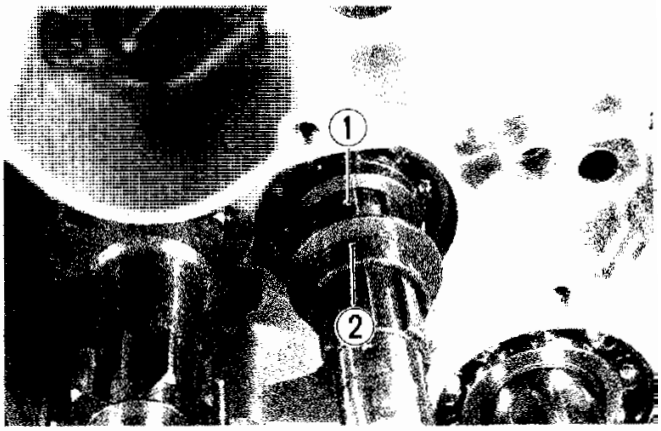
CAUTION:
* Never reuse a circlip. After a circlip has been removed from a shaft, the removed circlip should be discarded and a new circlip must be installed.
* When installing a new circlip, care must be taken not to expand the end gap larger than required to slip the circlip over the shaft.
* After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



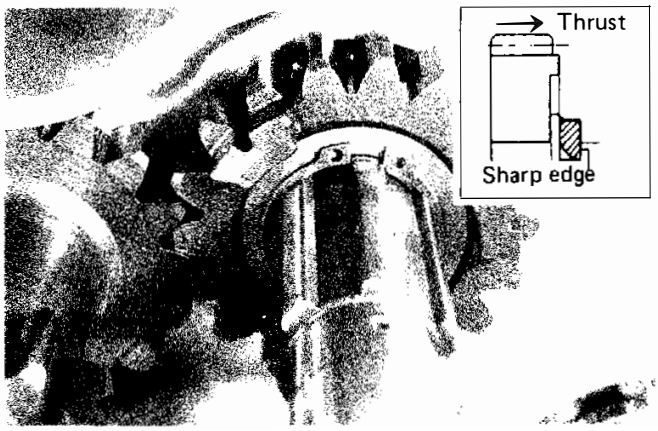


① Sub-transmission output shaft
② Sub-transmission driven No. 1 gear
③ Sub-transmission driven sliding dog
④ Sub-transmission driven No. 2 gear
⑤ Sub-transmission drive No. 1 gear
⑥ Sub-transmission drive sliding dog
⑦ Sub-transmission drive No. 2 gear
⑧ Sub-transmission idle gear

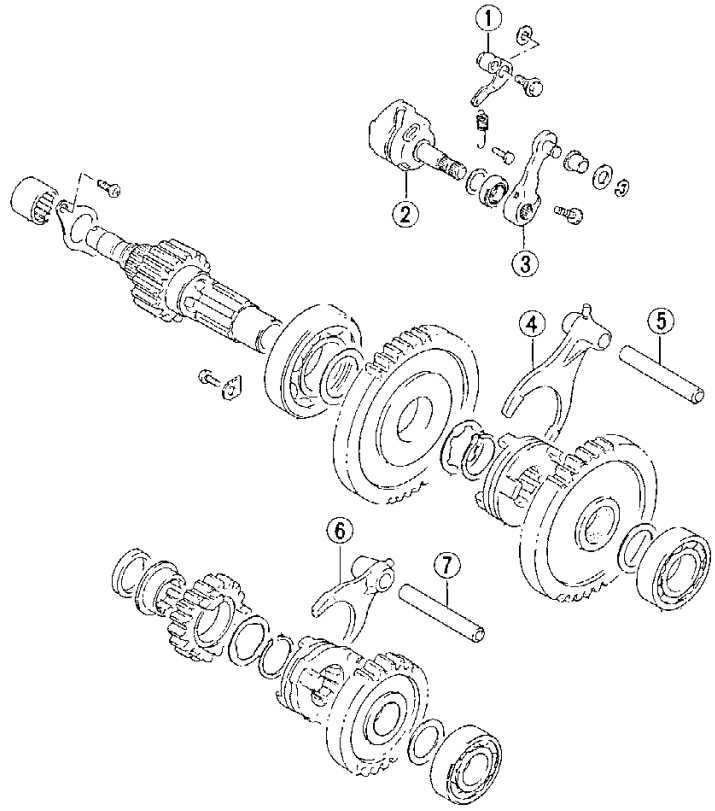
- When installing the bushing of sub-transmission drive No. 1 gear on the shaft, align the oil hole ① of the shaft with the bushing oil hole ② .



- When installing circlips for sub-transmission drive No. 1 gear and driven No. 1 gear, pay attention to the direction of the circlip. Fit it to the side where the thrust is as shown in the figure with the rounded side against the gear surface.

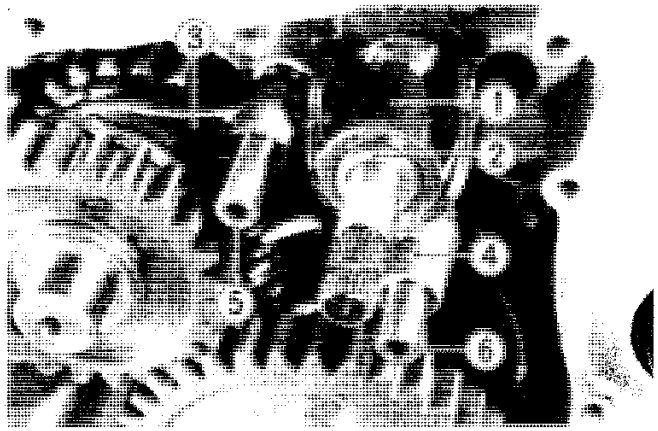


SUB-TRANSMISSION GEARSHIFT CAM AND FORK



① Sub-transmission shift cam stopper
② Sub-transmission gearshifting cam
③ Sub-transmission gearshift lever (Engine side)
④ Sub-transmission gearshifting fork No. 2
⑤ Sub-transmission gearshifting shaft No. 2
⑥ Sub-transmission gearshifting fork No. 1
⑦ Sub-transmission gearshifting shaft No. 1

- Install the sub-transmission gearshifting cam ① with a washer ②.
- Fit the sub-transmission gearshifting forks No. 1 ③ and No. 2 ④ into the sub-transmission gearshifting groove.
- Install the sub-transmission gearshifting shafts No. 1 ⑤ and No. 2 ⑥.

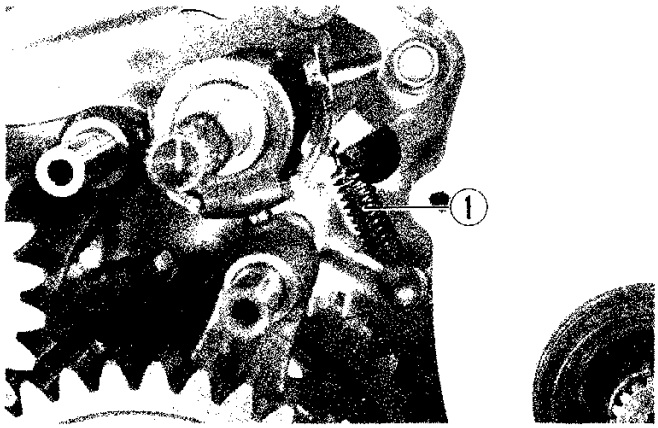


NOTE:
When the shafts No. 1 ⑤ and No. 2 ⑥ are installed correctly, the shaft of No. 2 ⑥ is stuck out, comparing with the shaft No. 1 ⑤.

- Apply a small quantity of THREAD LOCK "1333B/1322" to the threaded parts of the bolt, and install the sub-transmission shift cam stopper with a washer.

99000-32020 For U.S. model	Thread Lock Super "1333B"
99000-32110 For other models	Thread Lock Super "1322"

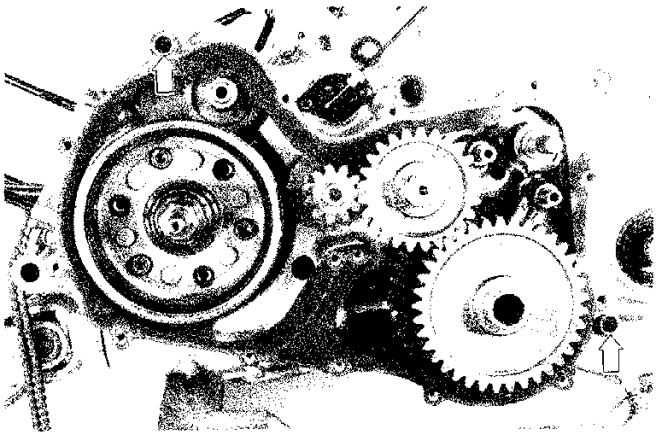
- Hook the cam stopper spring ①.



NOTE:
After the sub-transmission gearshifting fork shafts and gearshifting forks have been fitted, confirm that gear change is normal while turning the sub-transmission driveshaft, drivenshaft and out-put shaft. If gear change is not obtained, it means that assembly of gears or installation of gearshifting fork is incorrect. If this is the case, disassemble and trace the mistake.

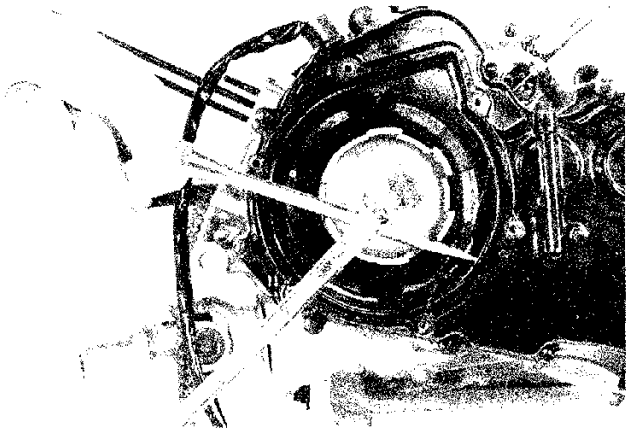
MAGNETO COVER

- Fit two dowel pins and a new gasket.
- Install the magneto cover.



CAUTION:
* Make sure to properly position the lip of the gasket.
* Use a new gasket to prevent oil leakage.

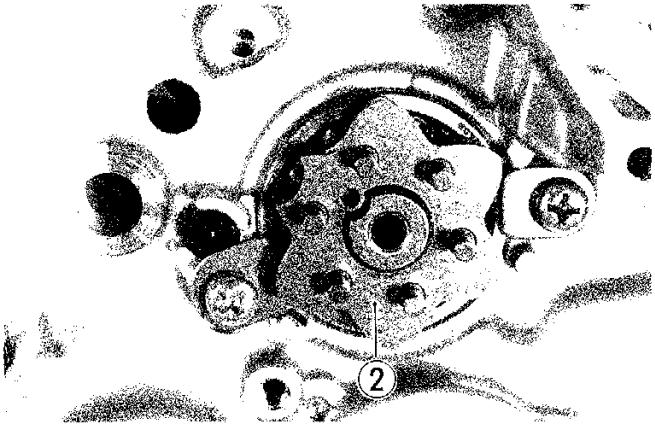
- Install the starter cup and tighten the mounting nut to the specified torque.



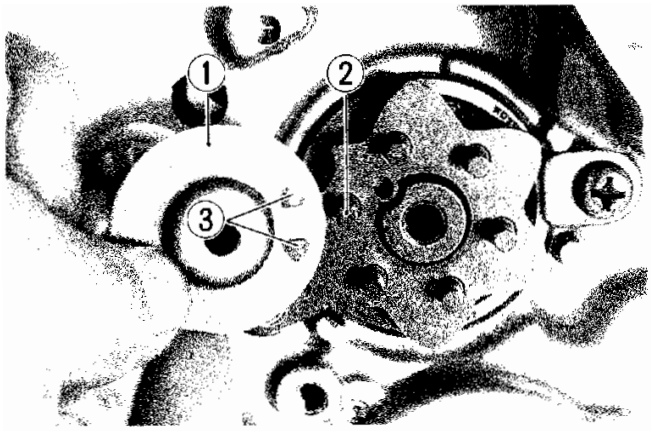
Tightening torque	30 – 35 N·m (3.0 – 3.5 kg-m 21.5 – 25.5 lb-ft)

DRIVE SHIFT CAM

- Install the shift cam drive pin retainer ② and pins.



- Install the shift cam stopper plate ①, so that the pin ② is positioned between the two protrusions ③.

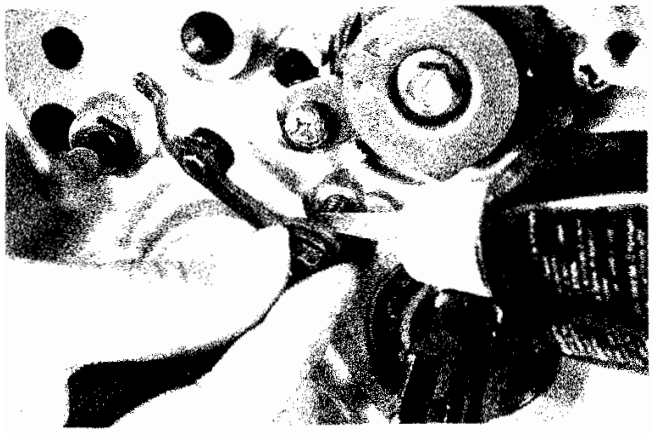


- Apply a small quantity of THREAD LOCK "1333B/1322" to the threaded parts of the bolt, and tighten the bolt.

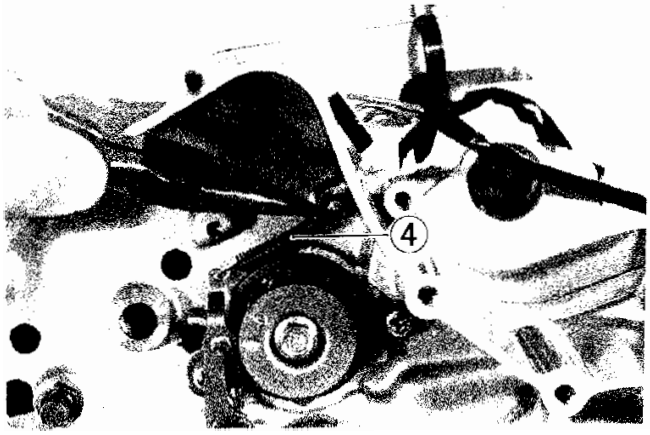
99000-32020 For U.S. model	Thread Lock Super "1333B"
99000-32110 For other models	Thread Lock Super "1322"

- Apply a small quantity of THREAD LOCK "1333B/1322" to the threaded parts of the bolt, and install the shift cam stopper with a washer.

99000-32020 For U.S. model	Thread Lock Super "1333B"
99000-32110 For other models	Thread Lock Super "1322"

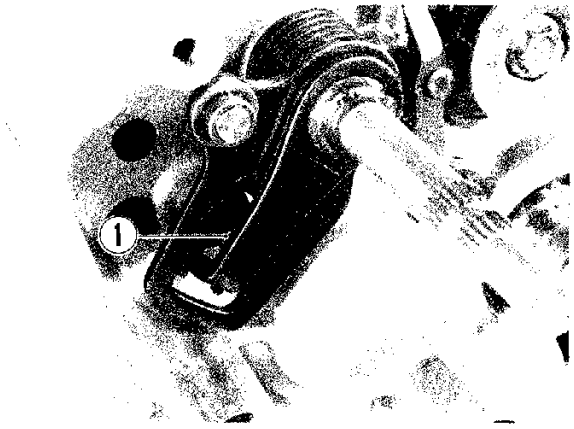


- Hook the cam stopper spring ④.



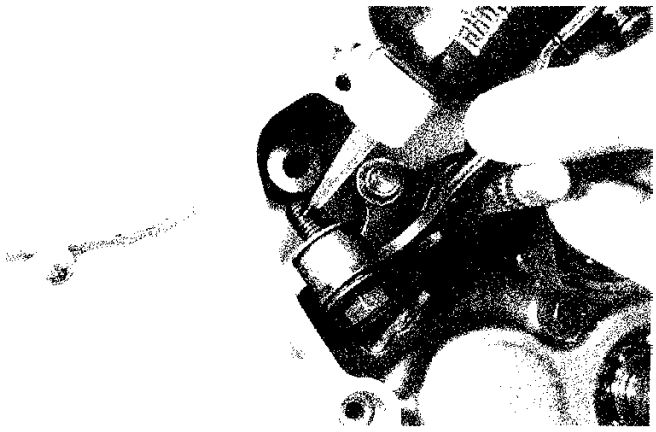
- Fit the spring to the gearshifting shaft correctly.

- Install the gearshifting shaft so that the pin ① is positioned between the spring.



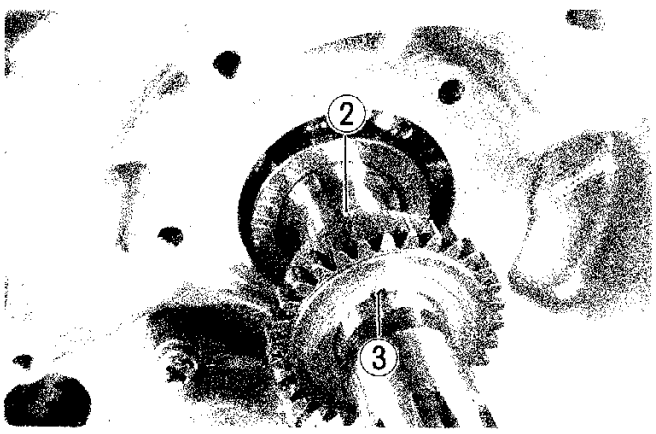
- Apply a small quantity of THREAD LOCK "1333B/1322" to the threaded parts of the bolt, and install the gear shifter with a washer.

99000-32020 For U.S. model	Thread Lock Super "1333B"
99000-32110 For other models	Thread Lock Super "1322"



OIL PUMP DRIVE GEAR

When installing the oil pump drive gear, align the pin ② with the groove ③.



OIL PUMP

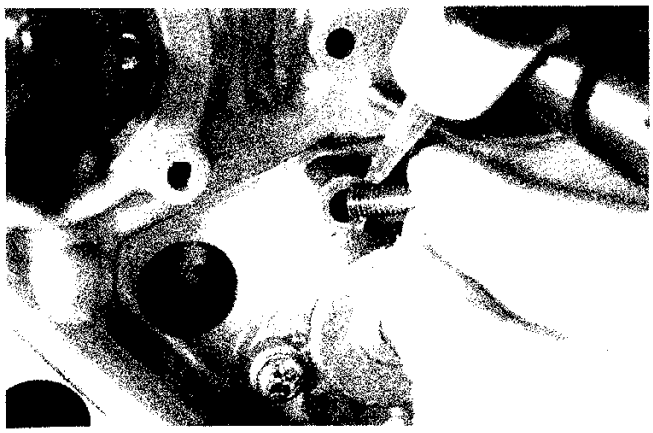
- Before mounting the oil pump, apply engine oil to the sliding surfaces of the case, outer rotor, inner rotor and shaft.
- Apply a small quantity of THREAD LOCK "1342" to the threaded parts of oil pump mounting screws.

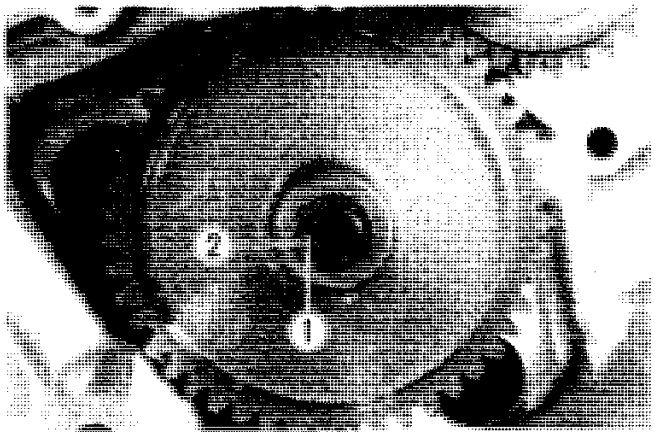
99000-32050	Thread Lock "1342"

- Tighten the oil pump mounting screws.

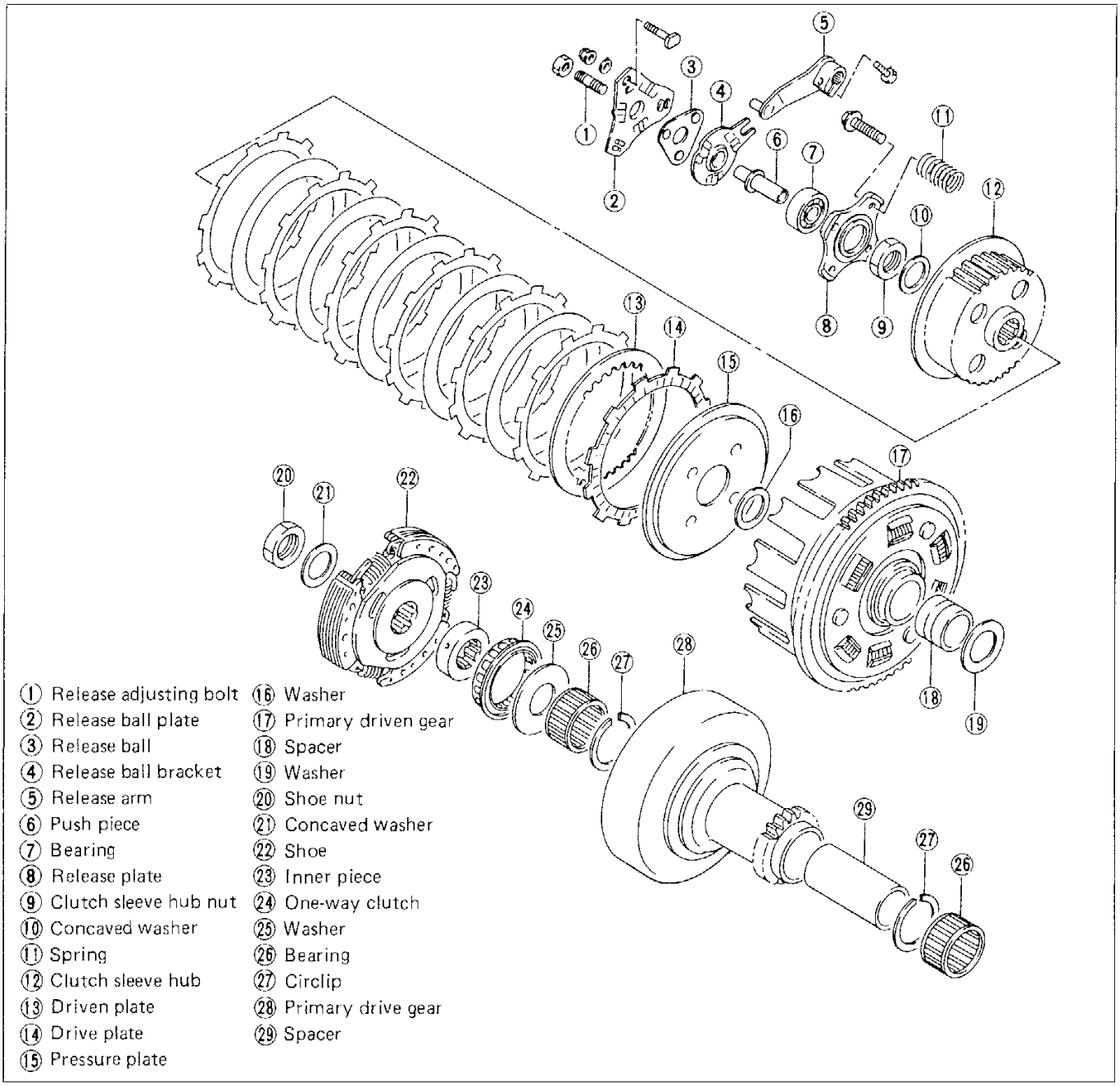
Tightening torque	7 – 10 N·m (0.7 – 1.0 kg-m) 5.0 – 7.0 lb-ft

- When installing the oil pump driven gear, align the pin ① with the pin groove ②.



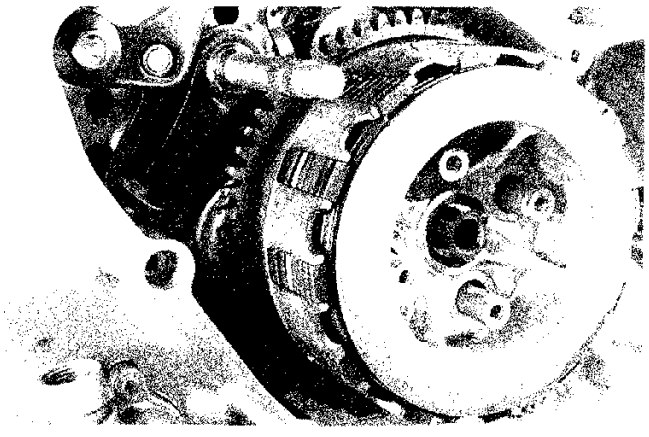


CLUTCH

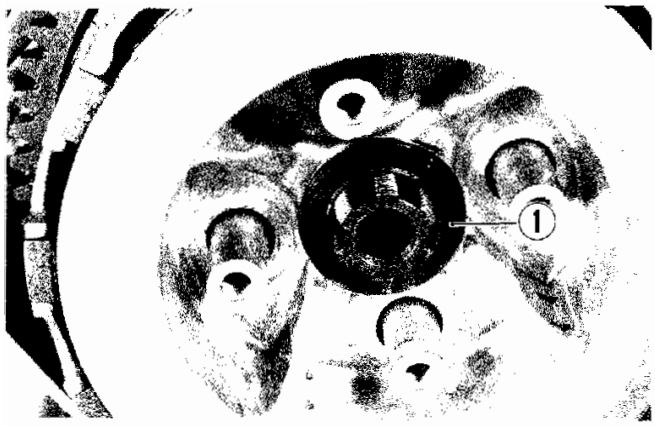


① Release adjusting bolt
② Release ball plate
③ Release ball
④ Release ball bracket
⑤ Release arm
⑥ Push piece
⑦ Bearing
⑧ Release plate
⑨ Clutch sleeve hub nut
⑩ Concaved washer
⑪ Spring
⑫ Clutch sleeve hub
⑬ Driven plate
⑭ Drive plate
⑮ Pressure plate
⑯ Washer
⑰ Primary driven gear
⑱ Spacer
⑲ Washer
⑳ Shoe nut
㉑ Concaved washer
㉒ Shoe
㉓ Inner piece
㉔ One-way clutch
㉕ Washer
㉖ Bearing
㉗ Circlip
㉘ Primary drive gear
㉙ Spacer

- Install the washer, spacer, primary driven gear and washer.
- Install the clutch plates to the clutch sleeve hub and engage the clutch pressure plate to the sleeve hub.



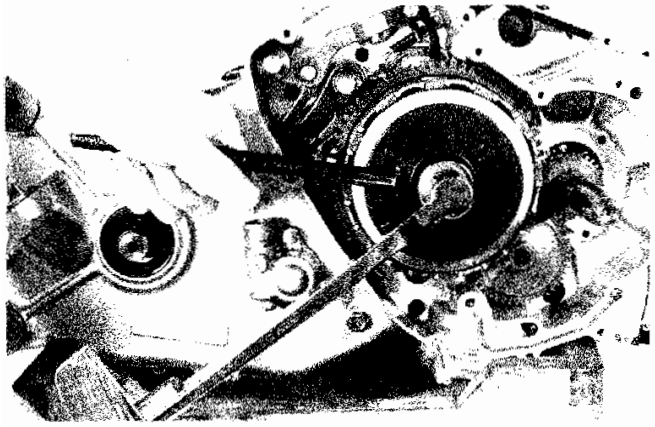
- Install a concaved washer ① on the countershaft.



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

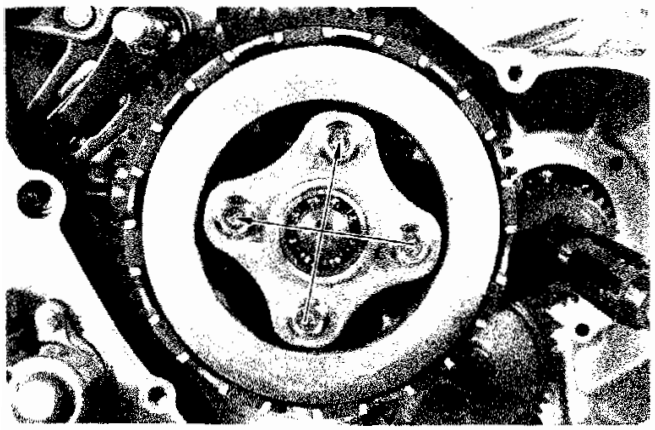
09920-53730	Clutch sleeve hub holder

Tightening torque	60 – 80 N·m (6.0 – 8.0 kg-m 43.5 – 58.0 lb-ft)

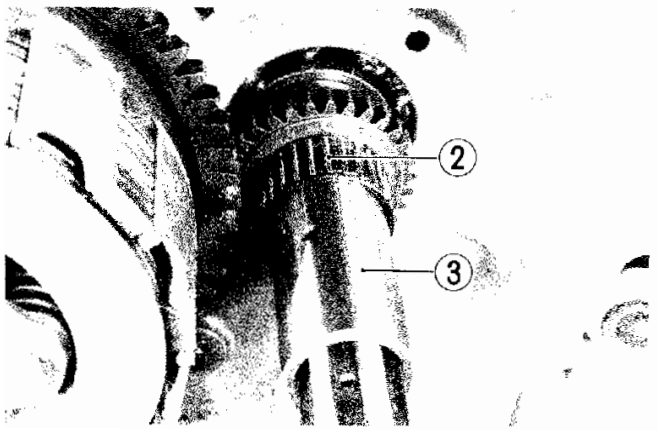


- Install the clutch springs and clutch release plate.
- Tighten the clutch spring bolts diagonally.

NOTE:
After tightening the clutch spring bolts, make sure to have no clearance between clutch plates.

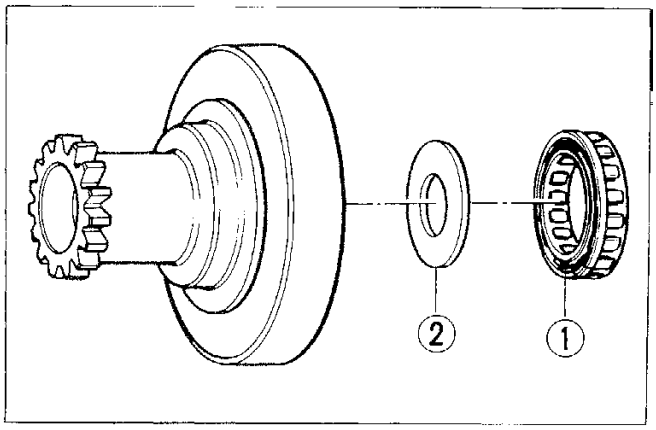


- Install the bearing ② and spacer ③ to the crankshaft.
- Install the primary drive gear.



- The one-way clutch must be installed in the proper direction as shown in Fig.

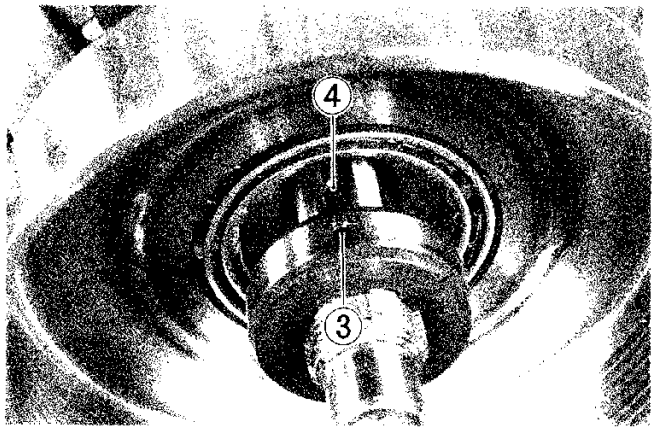
NOTE:
When installing the one-way clutch to the clutch housing, face the cut ① of the cage to the washer ② .



- Apply engine oil to the one-way clutch.

- When installing the inner piece, align its oil hole ③ with crankshaft oil hole ④ .

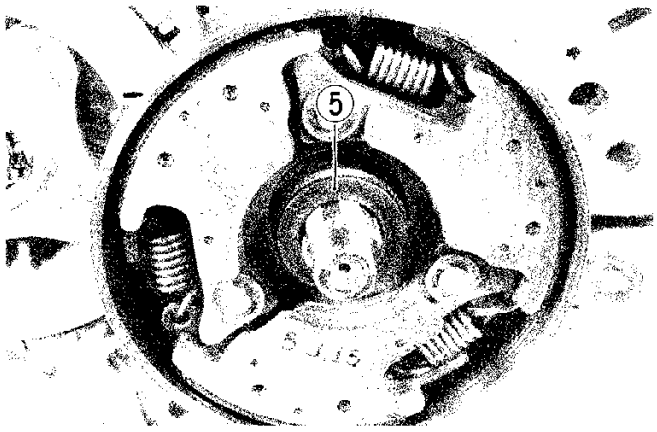
NOTE:
After installing the inner piece, make sure that the clutch wheel turns counter-clockwise freely and never turns clockwise.



- Install the concaved washer ⑤ and tighten the shoe nut to the specified torque with the special tool.

09910-20115	Conrod holder

NOTE:
To prevent the conrod small end from getting into the conrod holder, insert the piston pin to the conrod small end.

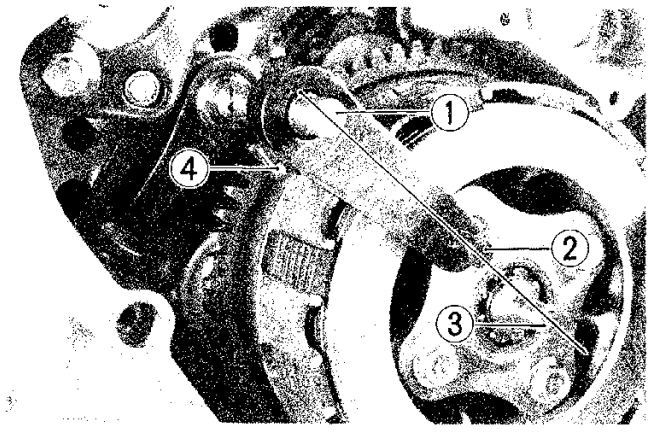


Tightening torque	90 – 110 N·m (9.0 – 11.0 kg-m) (65.0 – 79.5 lb-ft)

NOTE:
Shoe nut has left-hand thread.

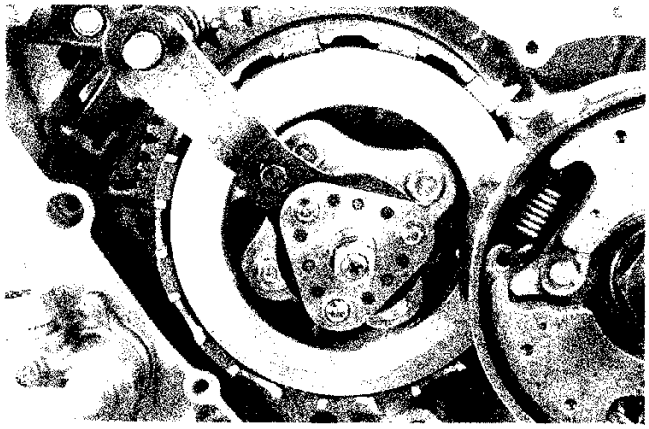
CLUTCH COVER

- Install the clutch release arm so that the gear-shifting shaft head ①, pin head ② and push piece head ③ are aligned.
- Tighten the bolt ④ to the specified torque.



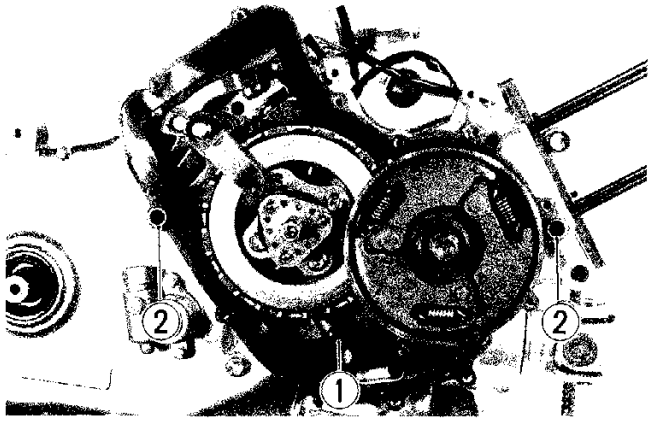
Tightening torque	8 – 12 N·m (0.8 – 1.2 kg-m) (6.0 – 8.5 lb-ft)

- Install the clutch release ball assembly as shown in Fig.



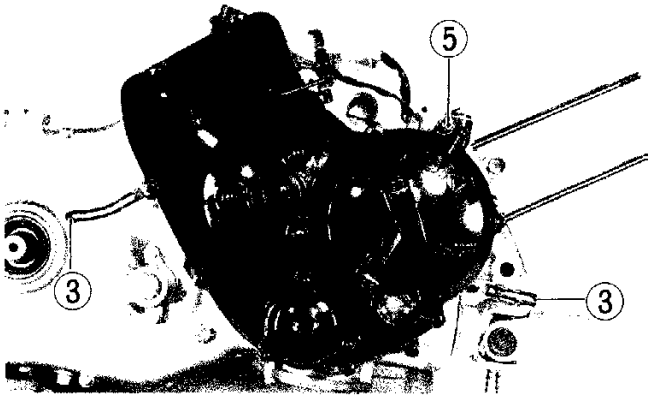
- Install an oil jet ①.
- Fit two dowel pins ② and a new gasket.
- Install the clutch cover.

CAUTION:
*** Make sure to properly position the lip of the gasket.**
*** Use a new gasket to prevent oil leakage.**



- Tighten the clutch cover bolts.

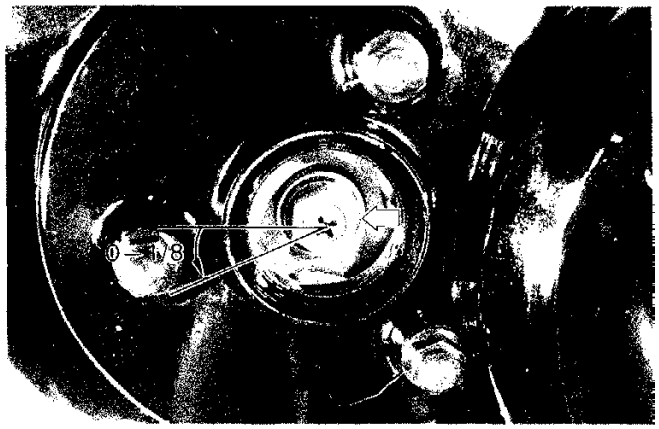
NOTE:
Position the two clamps ③ correctly.



- Fit a gasket ④ to a bolt ⑤ as shown in Fig.

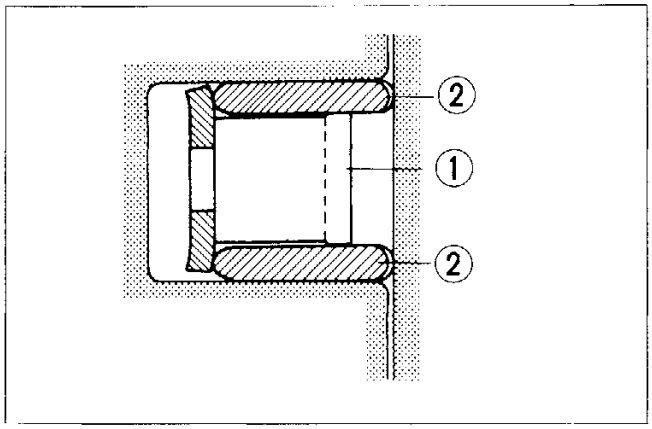
CAUTION:
Do not use the old gasket to prevent oil leakage.

- Tighten the release adjusting bolt until resistance is felt, then loosen it 0 — 1/8 turn.
- Secure the lock nut.



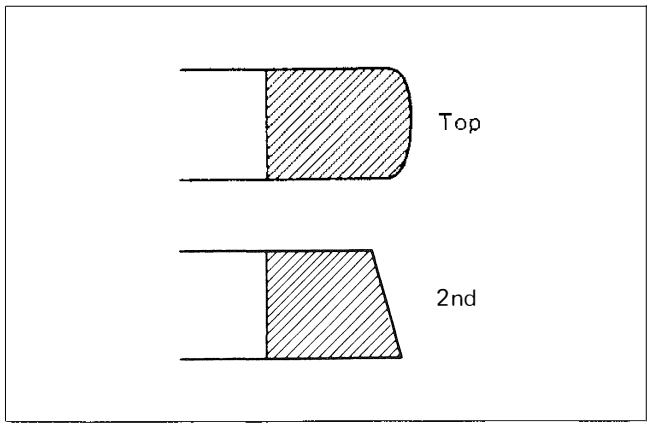
OIL RING

Install spacer ① into the bottom ring groove first. Then install both side rails ②, one on each side of the spacer. The spacer and side rails do not have a specific top or bottom when they are new. When reassembling used parts, install them in their original place and direction.

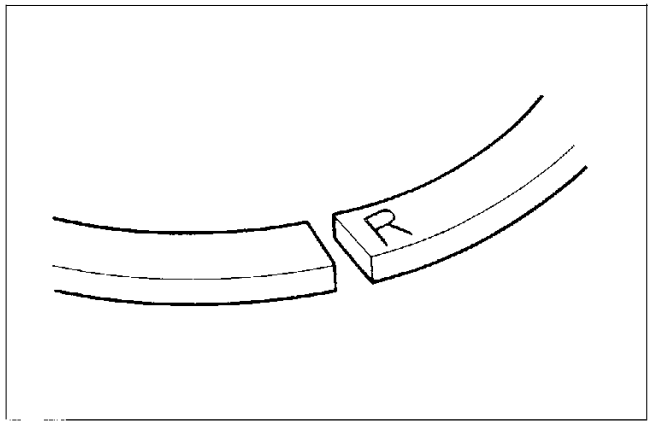


TOP RING AND 2ND RING

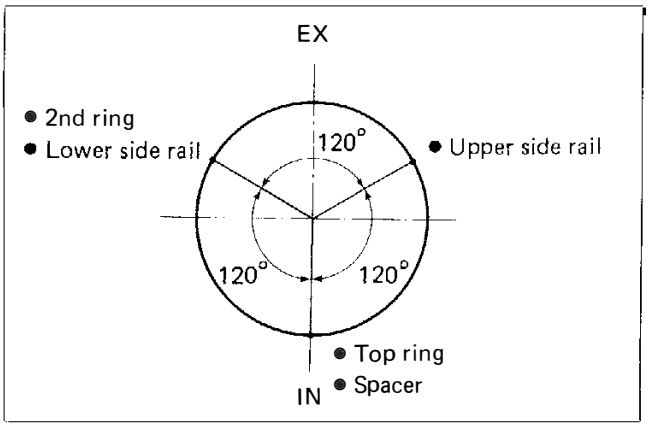
Top ring and 2nd ring differ in the shape of ring face and the face of top ring is chrome-plated whereas that of 2nd ring is not. The color of 2nd ring appears darker than that of the top one.



Top and 2nd rings have the letter "R" marked on the top. Be sure to bring the marked side to the top when fitting them to the piston.



Position the gaps of the three rings as shown.
Before inserting piston into the cylinder, check that the gaps are so located.



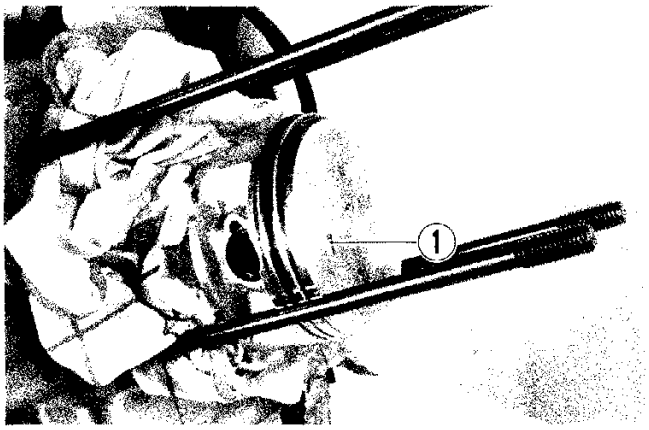
PISTON AND CYLINDER

The followings are reminders for piston and cylinder installation:

- Rub a small quantity of SUZUKI MOLY PASTE onto the piston pin.
- Place a clean rag over the cylinder base to prevent piston pin circlip from dropping into crankcase, and then fit the piston pin circlip with long-nose pliers.

CAUTION:
Use a new piston pin circlip to prevent circlip failure which will occur with a bent one.

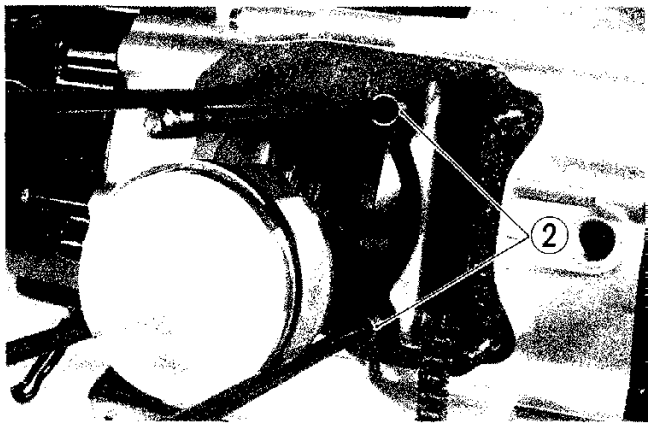
- When fitting the piston, turn triangle mark ① on the piston head to exhaust side.



99000-25140	SUZUKI Moly Paste

Before mounting the cylinder block, oil the big end and small end of the conrod and also the sliding surface of the piston.

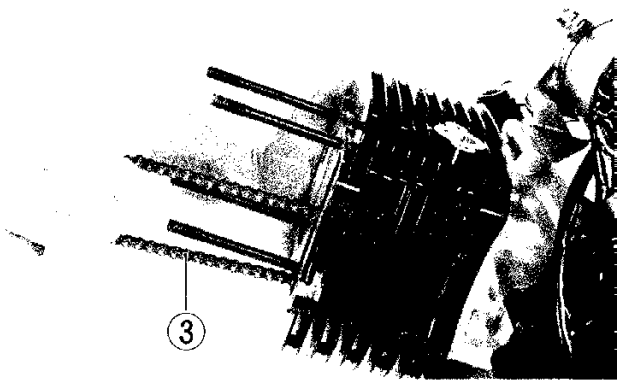
- Fit dowel pins ② to crankcase, and then fit the gasket.



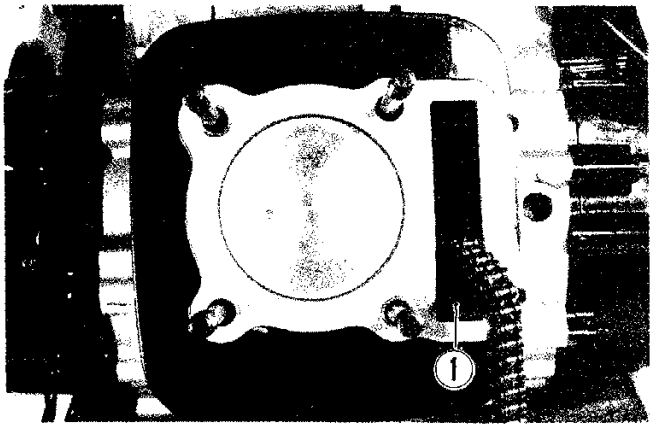
CAUTION:
To prevent oil leakage, do not use the old gasket again, always use a new one.

- Hold each piston ring with the piston ring sections positioned and put them into the cylinder.
  Comfirm that the piston rings are caught by the cylinder skirt.

NOTE:
When mounting the cylinder, after attaching camshaft drive chain ③, keep the camshaft drive chain taut. The camshaft drive chain must not be caught between cam drive chain sprocket and crankcase when crankshaft is rotated.



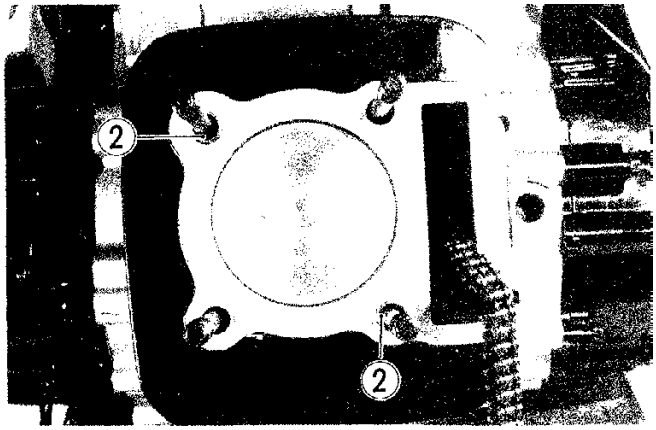
NOTE:
There is a holder for the bottom end of the cam chain guide cast in the crankcase. Be sure that the guide ① is inserted properly or binding of the cam chain and guide may result.



CYLINDER HEAD

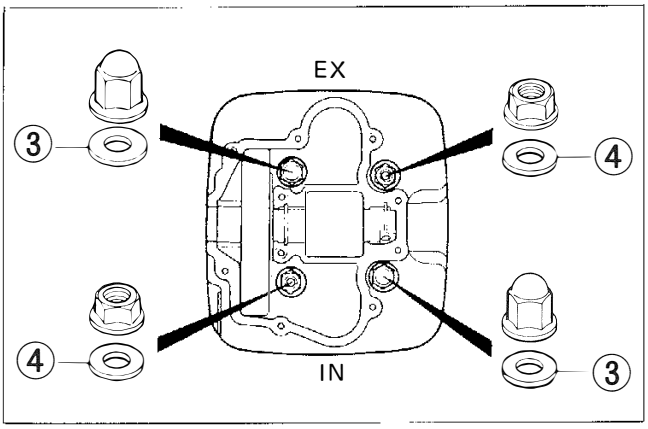
- Fit dowel pins ② to the cylinder, then attach new gasket to the cylinder.

CAUTION:
Use a new cylinder head gasket to prevent oil leakage. Do not use the old gasket.



- Copper washers and cap nuts are also used to secure the cylinder head. These parts must be fitted in the correct position, as shown in the illustration.

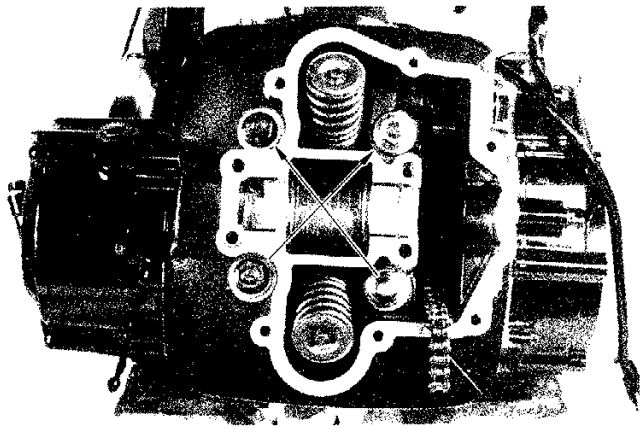
③ Copper washer
④ Steel washer



- With the head snugly seated on the cylinder, secure it by tightening the nuts diagonally. Tighten each nut to the torque value specified below.

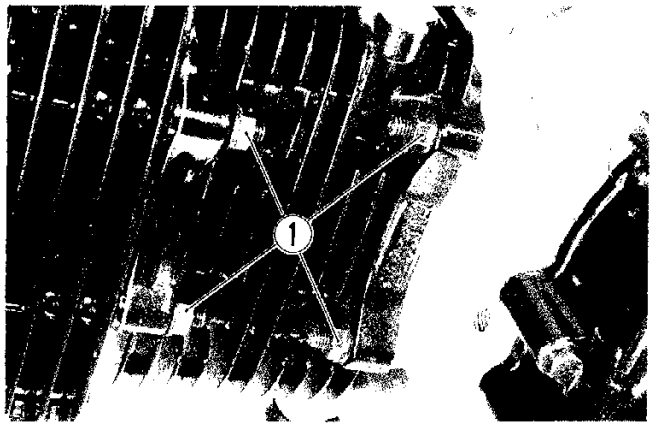
Cylinder head nuts tightening torque

8 mm Diam. nut	21 – 25 N·m (2.1 – 2.5 kg-m 15.0 – 18.0 lb-ft)



- After tightening the cylinder head nuts to the specified torque, tighten the cylinder head and base nuts ①.

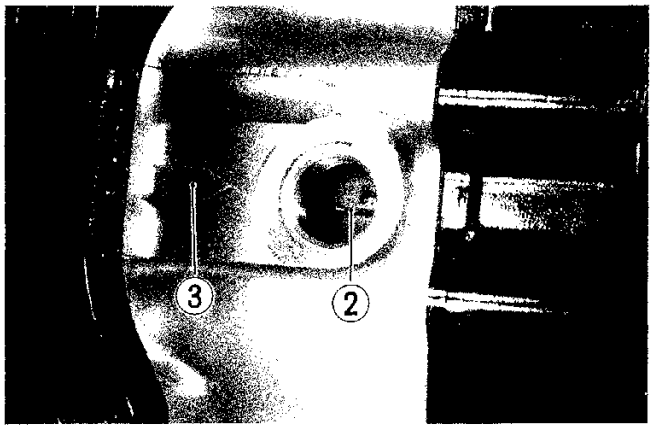
6 mm Diam. nut	7 – 11 N·m (0.7 – 1.1 kg-m, 5.0 – 8.0 lb-ft)



CAMSHAFT

- Align "T" line ② on magneto rotor with the index mark ③ on the crankcase keeping the camshaft drive chain pulled upward.

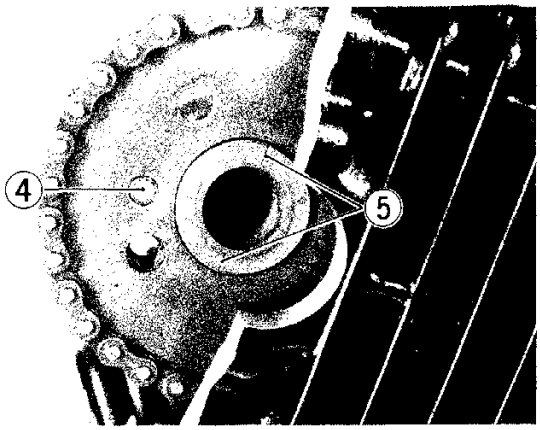
CAUTION:
If crankshaft is turned without drawing the camshaft drive chain upward, the chain will be caught between crankcase and cam chain drive sprocket.



NOTE:
Apply grease on the cam sprocket locating pin and install the pin into the camshaft.

- Engage the chain on the cam sprocket with the locating pin hole ④ at just before top position.

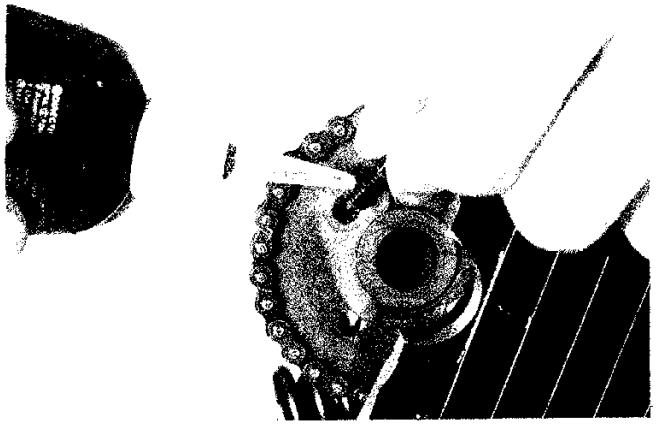
NOTE:
Do not rotate magneto rotor while doing this. When the sprocket is not positioned correctly, turn the sprocket. When installing the camshaft into the cam sprocket, pay attention not to dislodge the locating pin or it may fall into the crankcase.



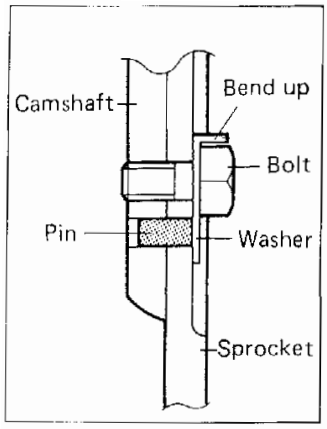
- Align the marks ⑤ on the camshaft so they are parallel with the surface of the cylinder head.
- Install the C-ring into the its groove of the cylinder head.
- Fit lock washer so that it is covering the locating pin.
- Apply THREAD LOCK SUPER "1303" to the bolts and tighten them.

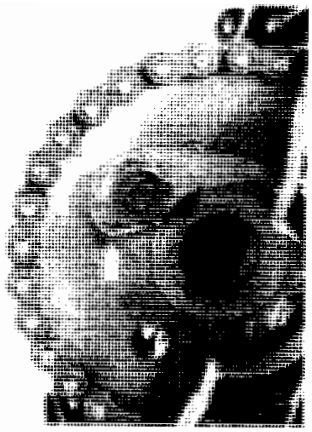
Tightening torque	10 – 12 N·m (1.0 – 1.2 kg-m, 7.0 – 8.5 lb-ft)

99000-32030	Thread Lock Super "1303"



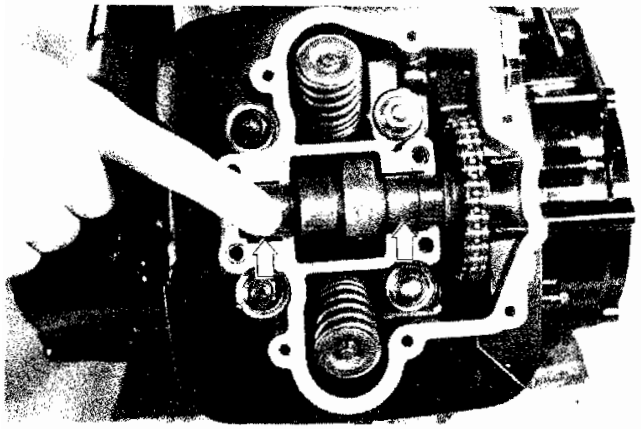
- Bend up the washer tongue positively to lock the bolts.





- Apply SUZUKI MOLY PASTE to the camshaft journals.

99000-25140	SUZUKI Moly Paste

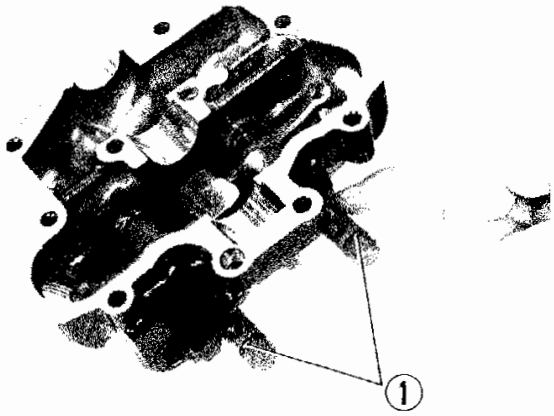


VALVE ROCKER ARM AND SHAFT

- Apply SUZUKI MOLY PASTE to the rocker arms and shafts.
- After inserting the shafts, tighten the set bolts.

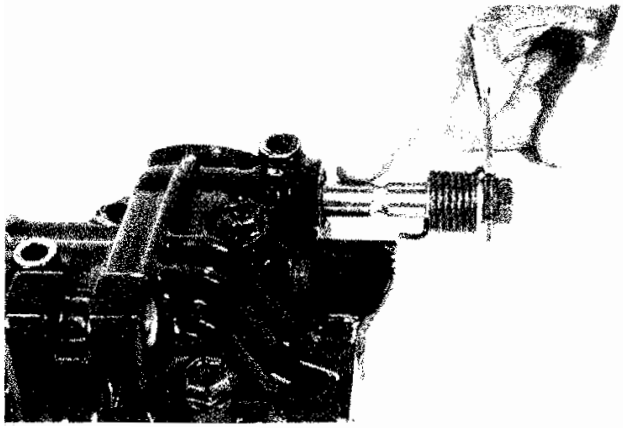
NOTE:
Use a conically recessed top bolt as the set bolts.

CAUTION:
*** Use a new O-ring ① on the rocker arm shafts to prevent oil leakage.**
*** Use a new gasket on the set bolts to prevent oil leakage.**



DE-COMPRESSION SHAFT

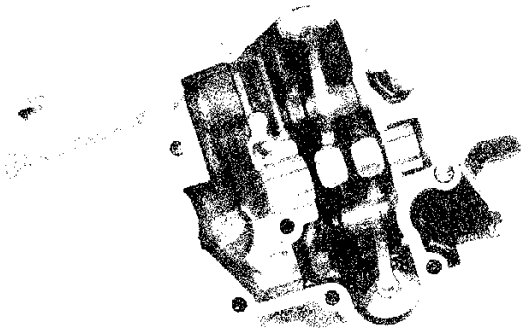
- Apply SUZUKI MOLY PASTE to the de-compression shaft, and then insert the de-compression shaft.



CYLINDER HEAD COVER

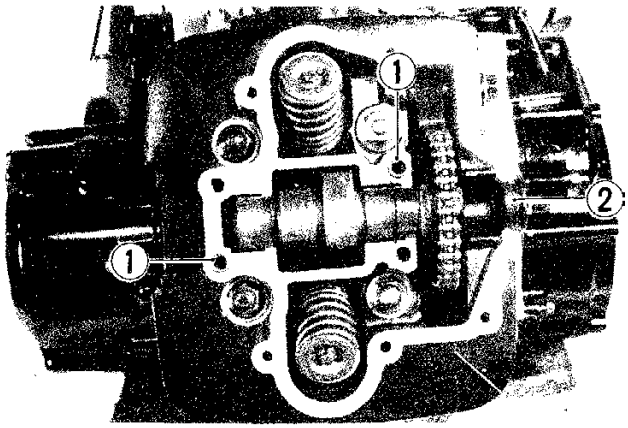
- Thoroughly wipe off oil from the fitting surfaces of cylinder head and cover.
- Uniformly apply SUZUKI BOND No. 1207B to the cylinder head cover.

99104-31140 For U.S. model	SUZUKI Bond No. 1207B
99000-31140 For other models	SUZUKI Bond No. 1207B



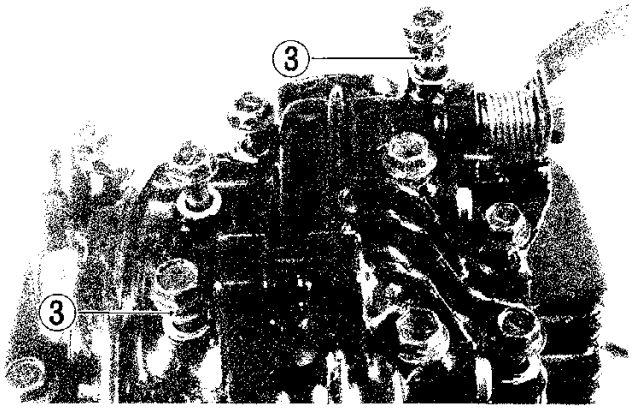
NOTE:
Do not apply SUZUKI BOND No. 1207B to the camshaft end cap ②.

- Apply engine oil to the cams and cam drive chain.
- Fit the two dowel pins ① to the cylinder head side.
- Fit the camshaft end cap ②.



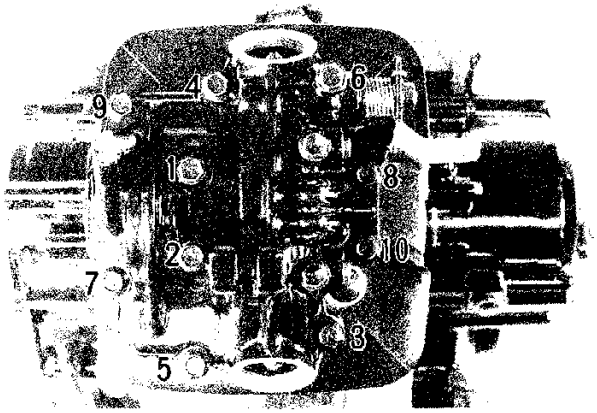
- Fit a gasket ③ to each head cover bolt as shown in Fig.

CAUTION:
Do not use the old gaskets ③ to prevent oil leakage.



NOTE:
When tightening the cylinder head cover bolts, piston position must be at top dead center on compression stroke.

- Lightly tighten the cylinder head cover bolts diagonally, and then if everything is satisfactory, tighten securely with a torque wrench to the specified torque in the order indicated in photo.



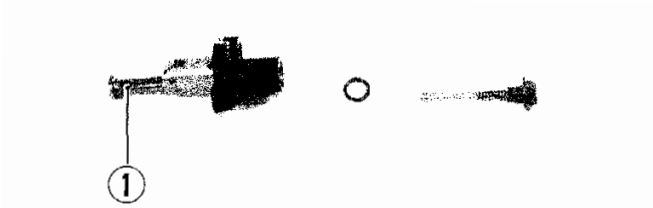
Tightening torque	9 – 11 N·m (0.9 – 1.1 kg-m) (6.5 – 8.0 lb-ft)

CAM DRIVE CHAIN TENSIONER

Install the cam drive chain tensioner following the procedure below.

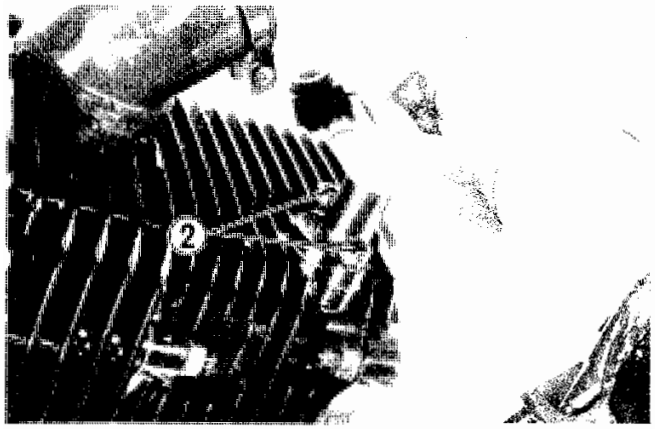
- Apply SUZUKI MOLY PASTE to the push rod ①.

99000-25140	SUZUKI Moly Paste



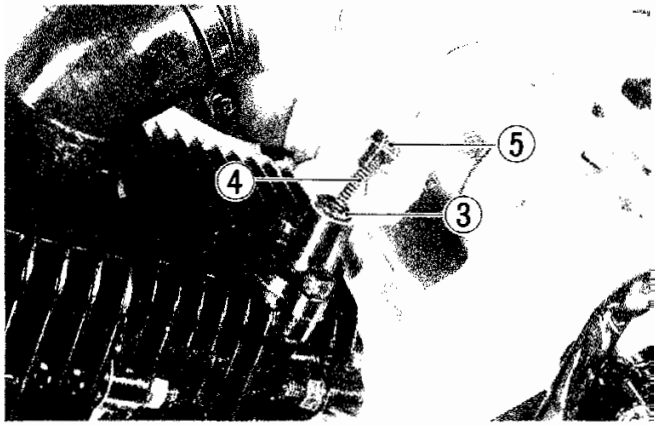
- Fit a gasket to the tensioner body.
- Mount the tensioner body to the cylinder, and tighten the two Allen bolts ② to the specified torque.

Tightening torque	8 – 12 N·m (0.8 – 1.2 kg-m 6.0 – 8.5 lb-ft)



- Fit an O-ring ③ and spring ④ and tighten the bolt ⑤ to the specified torque.

Tightening torque	7 – 9 N·m (0.7 – 0.9 kg-m 5.0 – 6.5 lb-ft)

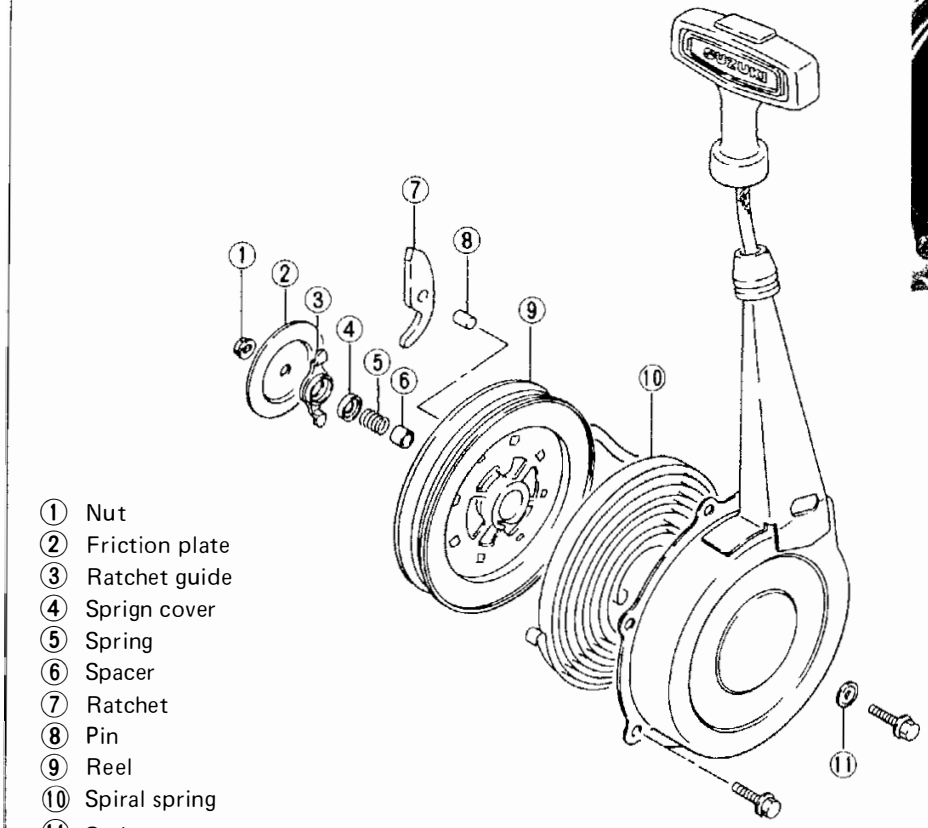


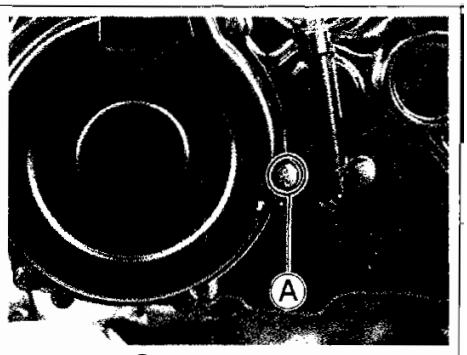
CAUTION:
Always use a new gasket and a O-ring to prevent oil leakage.

VALVE CLEARANCE

- After tightening the head cover bolts, check and adjust the valve clearance. Refer to page 2-5 for procedure.

RECOIL STARTER





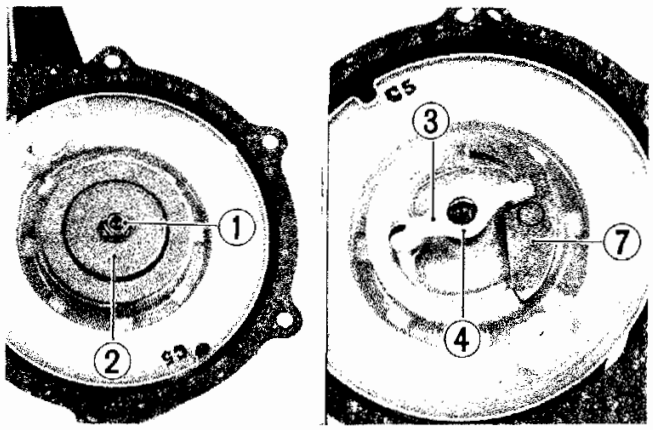
Ⓐ : Gasket position

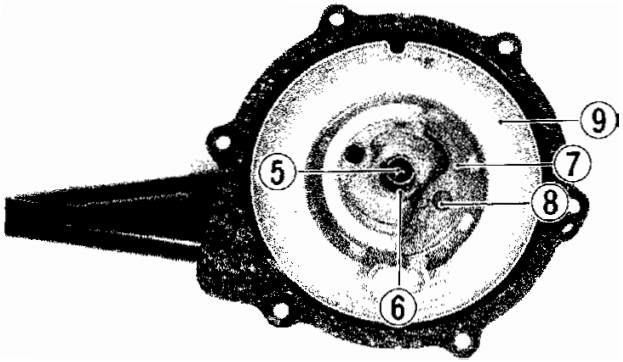
DISASSEMBLY

- After removing the nut ①, take out the recoil starter related parts from the housing.

① Nut
② Friction plate
③ Ratchet guide
④ Spring cover
⑤ Spring
⑥ Spacer
⑦ Ratchet
⑧ Pin
⑨ Reel

WARNING:
When removing the reel, spiral spring will expand. Protect your hands with gloves.

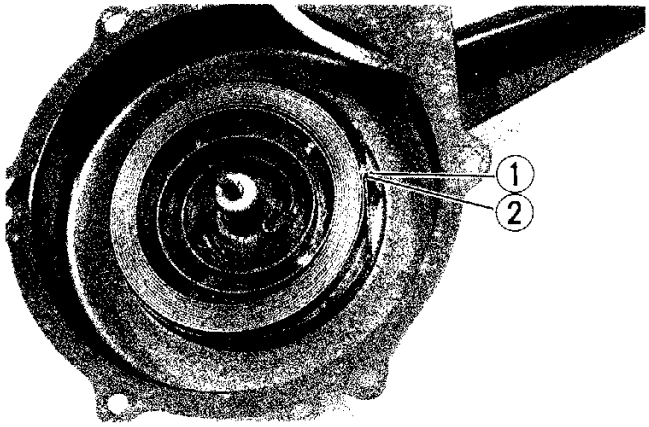




REASSEMBLY

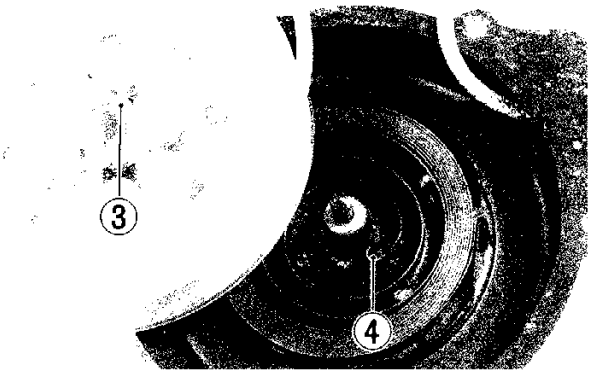
Assemble the recoil starter, in the reverse order of disassembly. Pay attention to the following points.

- When installing the spiral spring, hook the part ① of spiral spring with the part ② of recoil starter case.
- Apply grease to the spiral spring.



WARNING:
When installing the spiral spring, protect your hands with gloves.

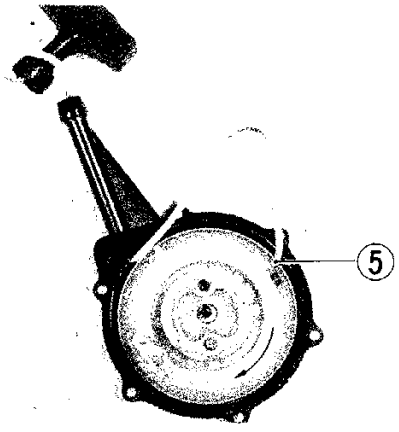
99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	



- Turn the starter rope on the reel properly.
- After installing the spiral spring, engage the part ③ of reel with the part ④ of spiral spring.

- Apply grease to the shaft and ratchet.

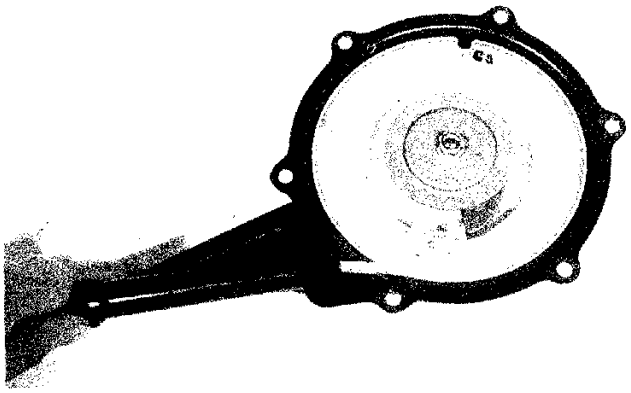
99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	



Spiral spring tension adjustment

- Hook the rope onto the hook part ⑤ of reel, turn the reel clockwise 3 or 4 times with the rope.

- Pull the rope and check that the ratchet is pushed out.



SHAFT DRIVE AND DIFFERENTIAL

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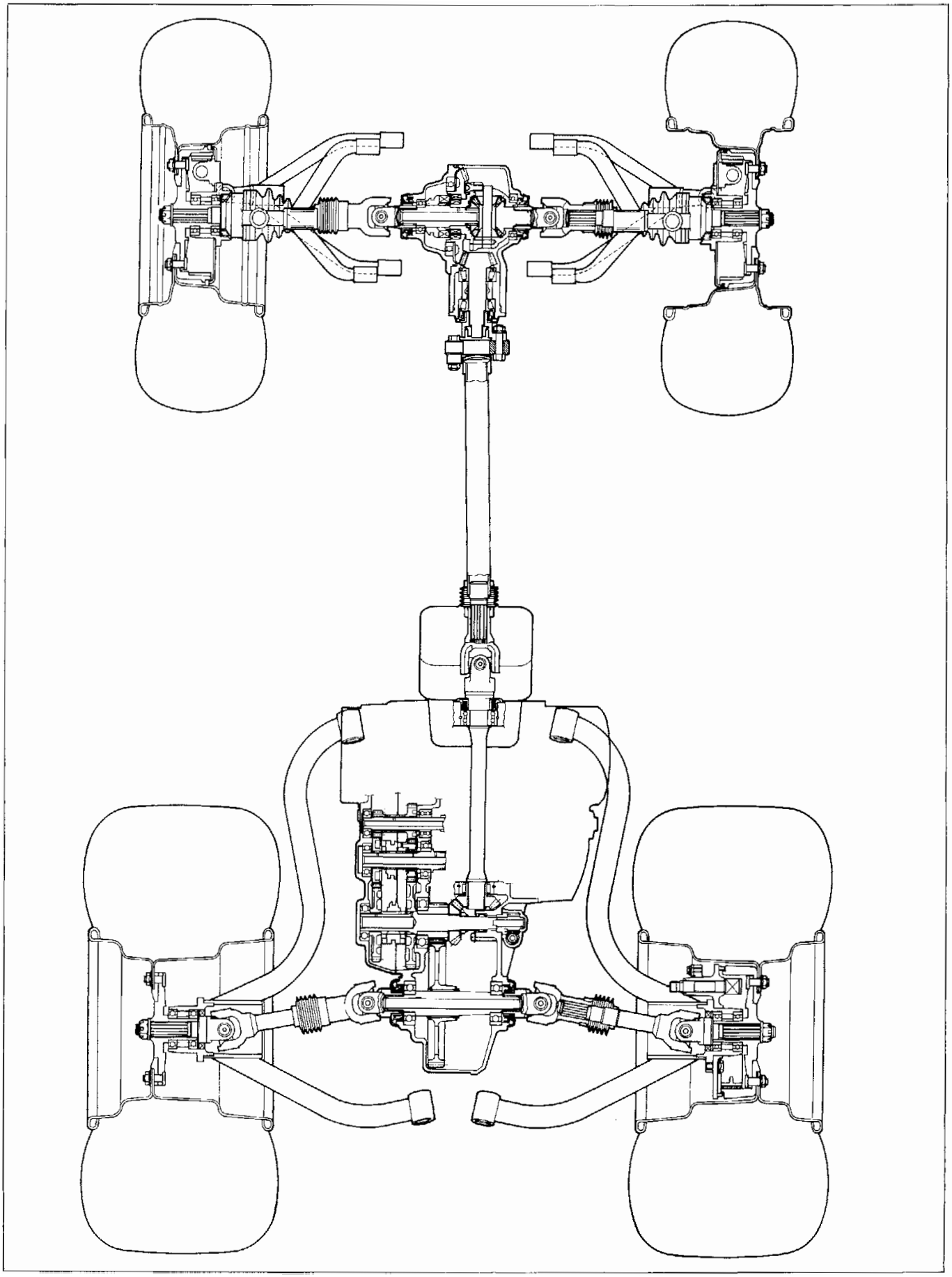
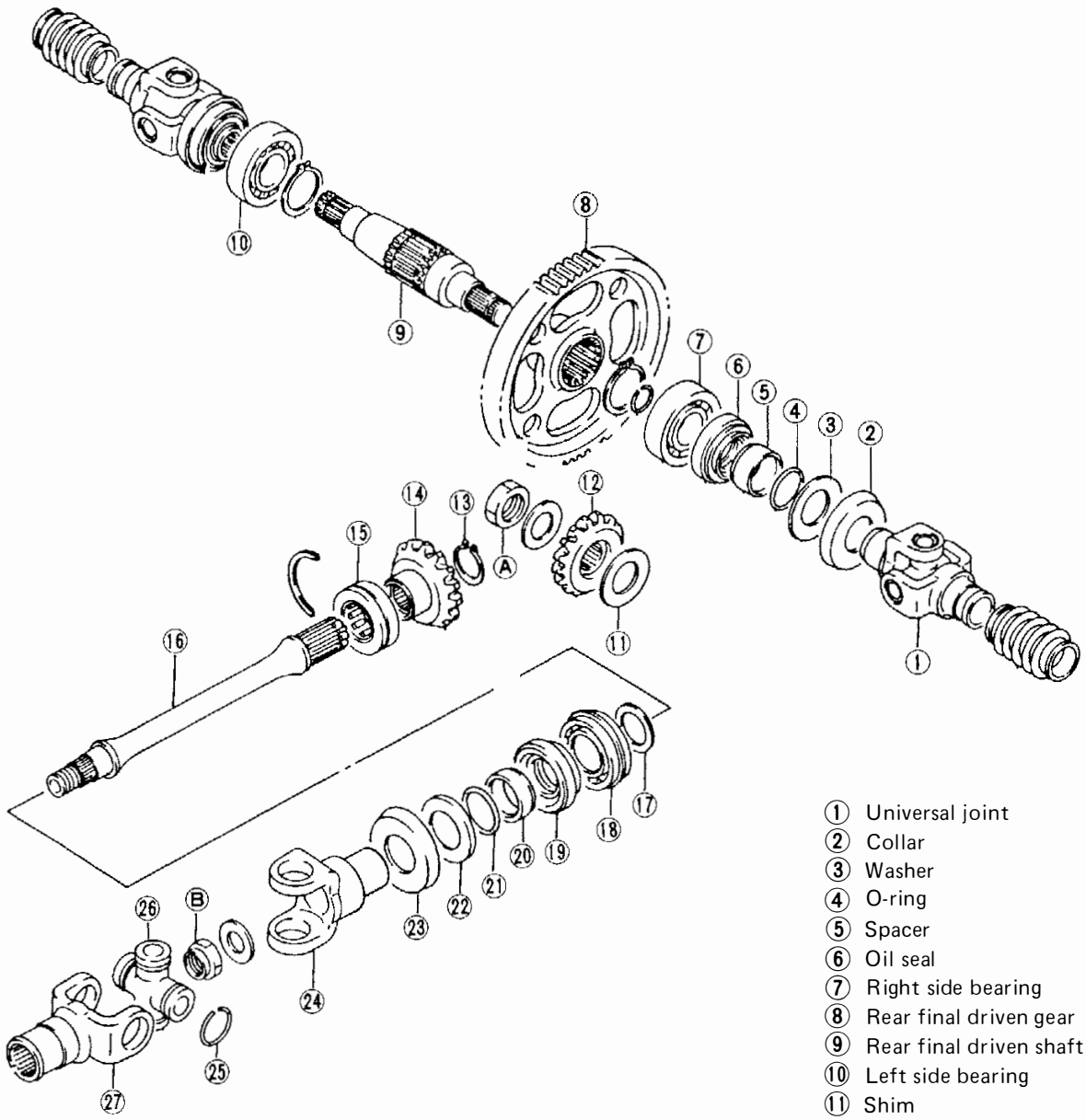
DRIVE LINE



SECONDARY BEVEL GEARS CONSTRUCTION



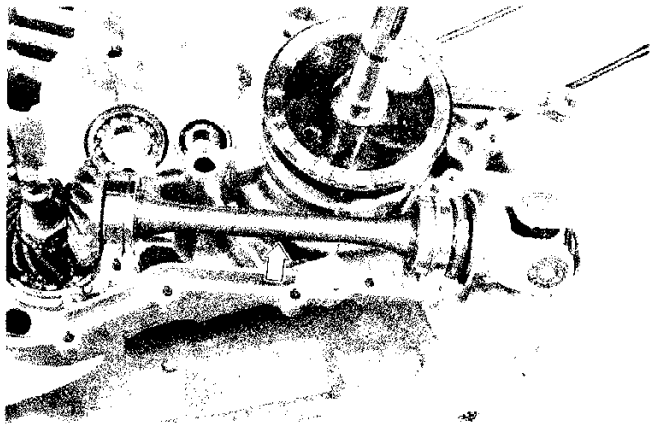
① Universal joint
② Collar
③ Washer
④ O-ring
⑤ Spacer
⑥ Oil seal
⑦ Right side bearing
⑧ Rear final driven gear
⑨ Rear final driven shaft
⑩ Left side bearing
⑪ Shim
⑫ Secondary drive bevel gear
⑬ Circlip
⑭ Secondary driven bevel gear
⑮ Secondary driven output shaft rear bearing
⑯ Secondary driven output shaft
⑰ Shim
⑱ Secondary driven output shaft front bearing
⑲ Oil seal
⑳ Spacer
㉑ O-ring
㉒ Washer
㉓ Collar
㉔ Front drive output yoke
㉕ C-ring
㉖ Universal joint
㉗ Propeller shaft yoke

Tightening torque

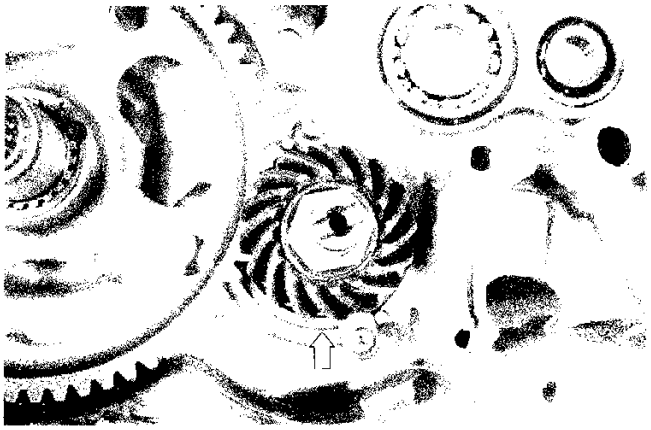
Item	N·m	kg-m	lb-ft
Ⓐ	90 – 110	9,0 – 11,0	65,0 – 79,5
Ⓑ	90 – 110	9,0 – 11,0	65,0 – 79,5

REMOVAL

- Remove the engine. (Refer to page 3-4.)
- Separate the crankcase. (Refer to page 3-26.)
- Remove the secondary driven output shaft.



- Remove the sub-transmission output shaft.

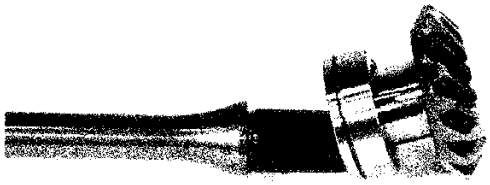


DISASSEMBLY

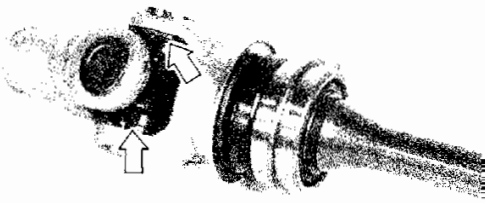
SECONDARY DRIVEN OUTPUT SHAFT

- Remove the circlip.

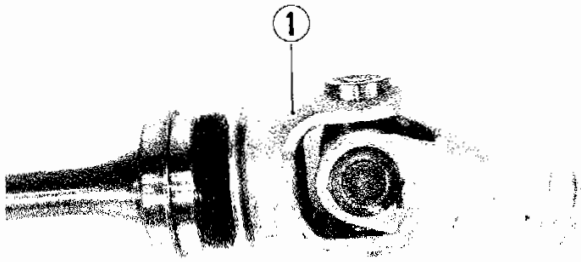
09900-06107	Snap ring pliers



- Remove the C-ring.

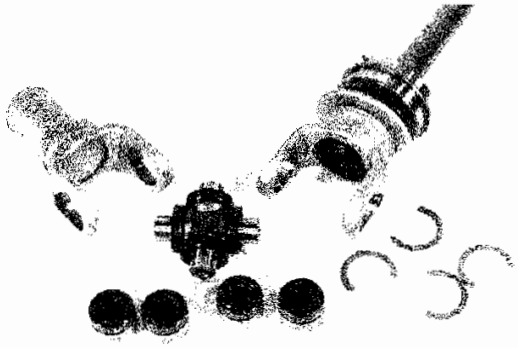


- Remove the bearing by hitting the copper hammer on the position ① of front drive output yoke.

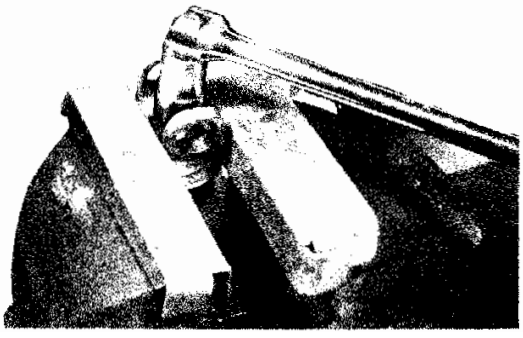


- Separate the front drive output yoke and propeller shaft joint yoke.
- Remove the bearing from propeller shaft joint yoke by the same manner of front drive output yoke.

NOTE:
Take care not to drop the needle roller.



- Loosen the front drive output yoke nut by holding the yoke with vise.

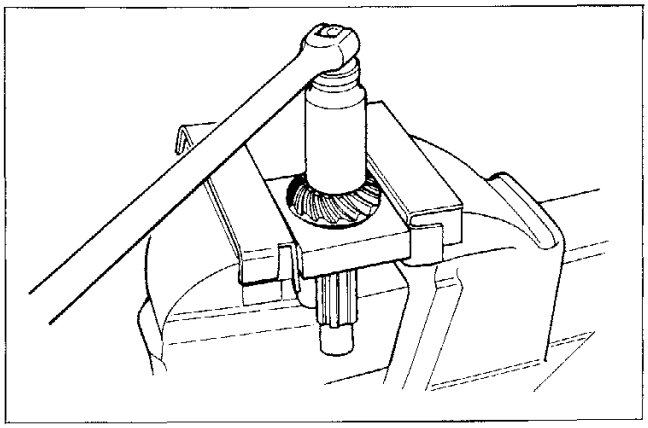


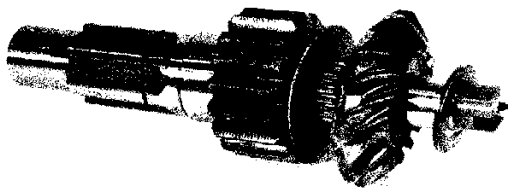
- Remove the bearing and shims with the hydraulic press.

SUB-TRANSMISSION OUTPUT SHAFT

- Loosen the sub-transmission output shaft nut with the special tool and vise.

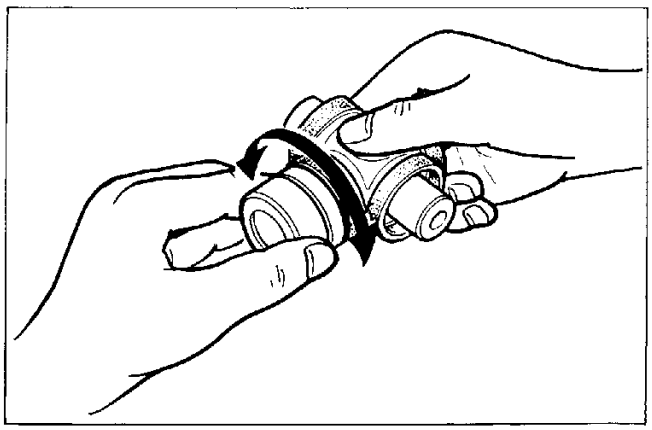
09921-51910	Output shaft holder
09924-51910 (Not available in U.S. model)	27 mm deep socket



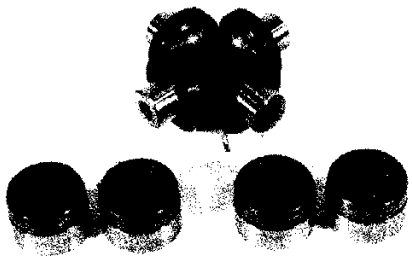


INSPECTION

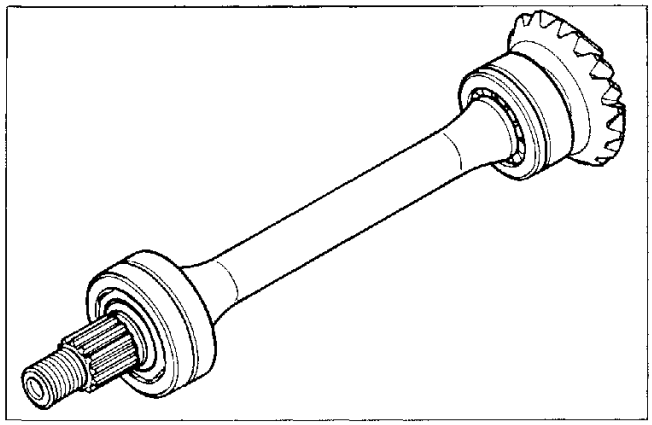
- Insert the universal joint to the bearing and check the play by moving the universal joint. If an excessive play is noted, replace the bearing with a new one.



- Inspect the universal joint and outer surface of bearing for scuffing and flaw.



- Inspect the secondary driven output shaft for distortion.
- The drive and driven bevel gears must be inspected thoroughly for excessive wear or damage. It is important that both gears be in good condition to maintain proper tooth contact.

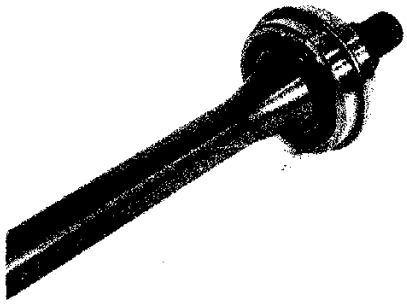


REASSEMBLY

- Reassemble the gears in the reverse order of disassembly, and also carry out the following steps:

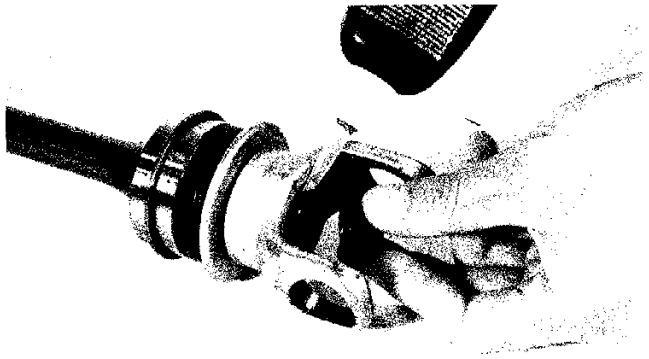
NOTE:
Before reassembly, thoroughly clean all parts in cleaning solvent.

- Install the removed shim on the secondary driven output shaft, and then press-fit the bearing on the secondary driven output shaft.



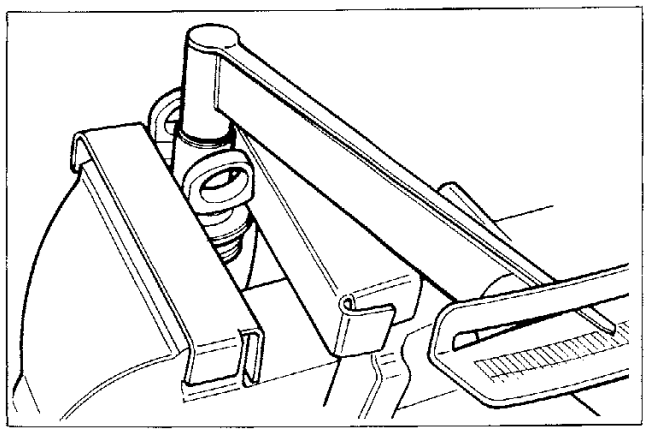
- Install the front drive output yoke on the secondary driven output shaft.
- Apply THREAD LOCK "1303" to the thread of nut.

99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32120 For the other models	Thread Lock "1324"



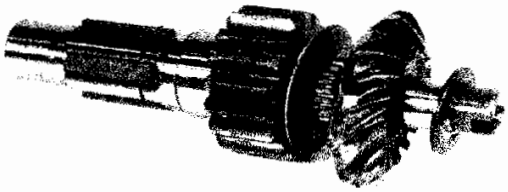
- Tighten the front drive output yoke nut to the specified torque.

Tightening torque	90 – 110 N·m (9.0 – 11.0 kg-m) (65.0 – 79.5 lb-ft)



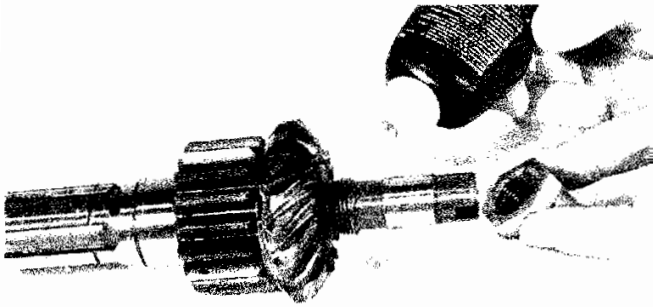
- When installing the universal joint, take care not to drop the needle roller from cage.
  Use the C-ring with new ones.

- Install the removed shim and gear on the sub-transmission output shaft.



- Apply THREAD LOCK "1303" to the thread part of shaft.

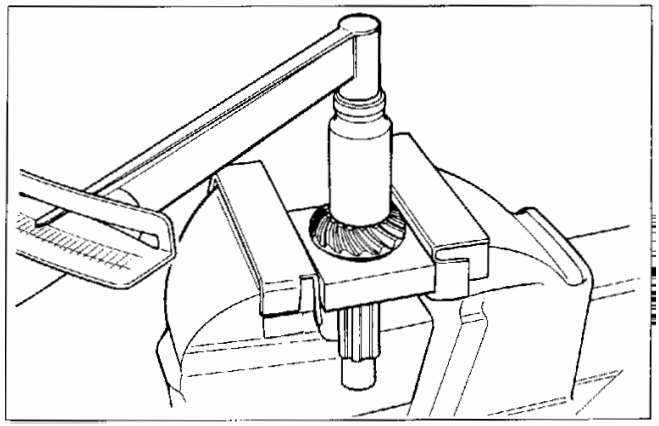
99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32120 For the other models	Thread Lock "1324"



- Tighten the sub-transmission output shaft nut to the specified torque with the special tool.

Tightening torque	90 – 110 N·m (9.0 – 11.0 kg-m) (65.0 – 79.5 lb-ft)

09921-51910	Output shaft holder
09924-51910 (Not available in U.S model)	27 mm deep socket



"SECONDARY GEARS SHIM ADJUSTMENT" is necessary.

SECONDARY GEARS SHIM ADJUSTMENT

BACKLASH

NOTE:
When measuring the backlash or checking tooth contact, it is unnecessary that universal joint is installed and thread lock is applied to the nut.

- Install the magneto cover on the left crankcase to prevent the runout of sub-transmission output shaft.
- Install the sub-transmission output shaft.
- Place the secondary driven output shaft assembly on the crankcase with the special tool.

09921-21910	Bearing holder

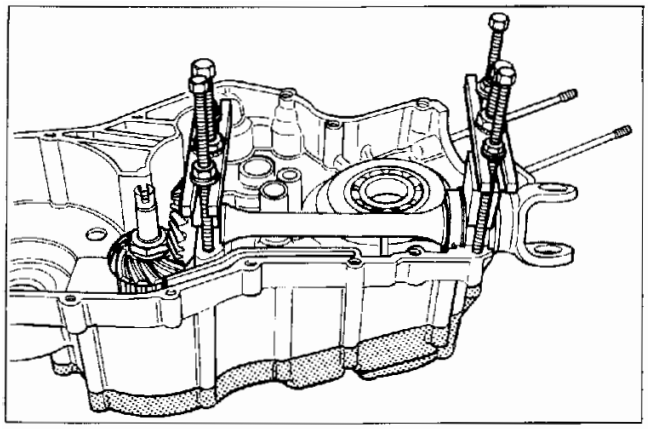
- Set a dial gauge as shown on the secondary driven bevel gear and measure the backlash by turning the driven bevel gear in each direction, reading the total backlash on the dial gauge.

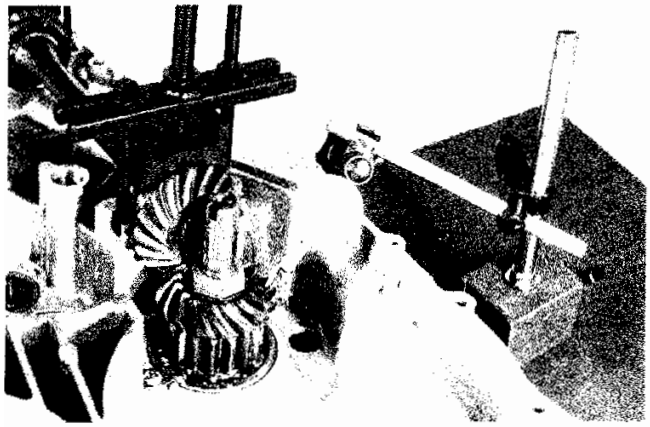
Secondary bevel gear backlash	0.05 – 0.32 mm (0.002 – 0.013 in)

NOTE:
Remove the coupling and coupling joints when measuring the backlash.

- If the backlash is not within the specification, the shims must be changed and the backlash should be re-checked until correct.
  Refer to the chart at right for appropriate changes.

NOTE:
When changing the shims, measure the thickness of old shims. Using the thickness of the old shims as a guide, adjust the backlash by referring to the chart at right.





Backlash	Shim adjustment
Under 0.05 mm (0.002 in)	Decrease shim thickness
0.05 – 0.32 mm (0.002 – 0.013 in)	Correct
Over 0.32 mm (0.013 in)	Increase shim thickness

List of shims Ⓐ (Secondary driven gear shims)
(Refer to page 4-12.)

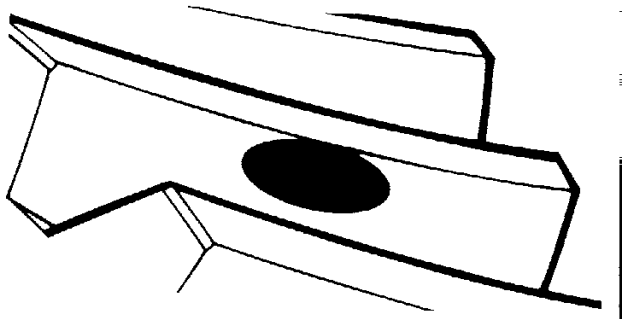
Unit: mm

Part No.	Shim thickness
09181-25055	0.80
09181-25056	0.85
09181-25057	0.90
09181-25058	0.95
09181-25059	1.00
09181-25060	1.05
09181-25061	1.10
09181-25062	1.15
09181-25063	1.20

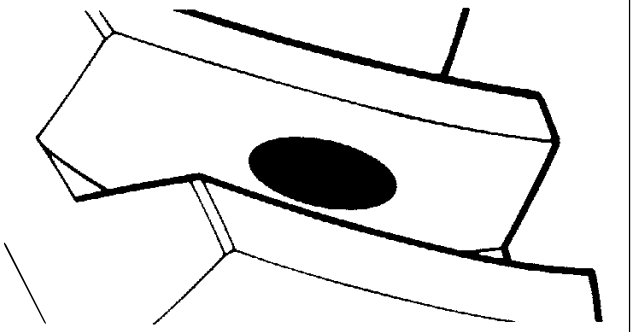
TOOTH CONTACT

- After bringing the backlash within the specification by changing the secondary driven bevel gear shims, it will be necessary to check tooth contact.
- Remove the secondary driven output shaft assembly from the left crankcase.
- Clean and degrease the secondary driven bevel gear teeth, and apply a coating of machinist's layout dye or paste to several teeth.
- Reinstall the secondary driven output shaft assembly.
- Rotate the secondary driven bevel gear several turns in both directions.
- Observe the tooth contact pattern made in the dye or paste.
- Compare the tooth contact pattern to the examples as shown in ①, ② and ③.
- If tooth contact is found to be correct, go to the Final Assembly sub-section, and complete.

① INCORRECT (Contact at tooth top)

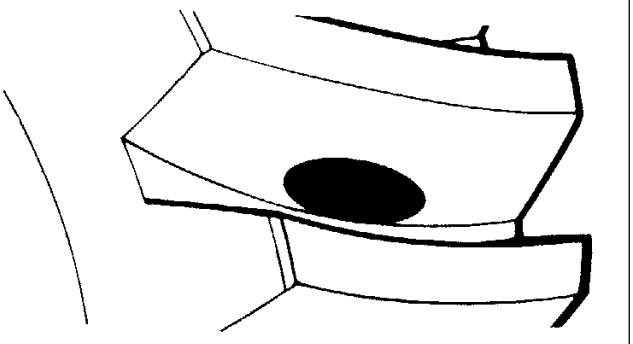


② CORRECT



- If tooth contact is found to be incorrect ① and ③, the shims of the secondary drive bevel gear and secondary driven bevel gear must be changed, tooth contact should be re-checked until correct.

③ INCORRECT (Contact at tooth root)



CAUTION:
After the tooth contact adjustment has been performed, the backlash must be re-checked, because it may have changed. Refer to the backlash check sub-section, and readjust until tooth contact and backlash are both within the specifications. If you cannot maintain the correct tooth contact when adjusting backlash, both the drive and driven bevel gears should be replaced.

Tooth contact	Shim adjustment
Contact at tooth top ①	Decrease thickness of shims Ⓐ or Ⓑ
Contact at tooth root ③	Increase thickness of shims Ⓐ or Ⓑ

List of shim Ⓑ (Secondary drive gear shim)
(Refer to page 4-12.)

Unit: mm

Part No.	Shim thickness
24935-19B00-090	0.90
24935-19B00-095	0.95
24935-19B00-100	1.00
24935-19B00-105	1.05
24935-19B00-110	1.10
24935-19B00-115	1.15
24935-19B00-120	1.20

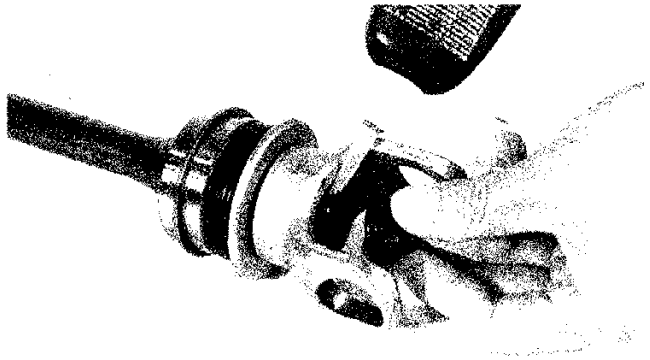
List of shim Ⓐ (Secondary driven gear shim)
(Refer to page 4-12.)

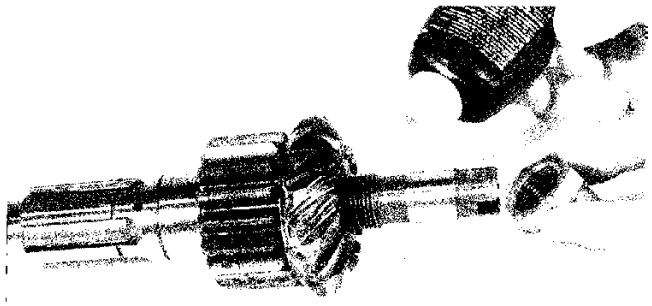
Unit: mm

Part No.	Shim thickness
09181-25055	0.80
09181-25056	0.85
09181-25057	0.90
09181-25058	0.95
09181-25059	1.00
09181-25060	1.05
09181-25061	1.10
09181-25062	1.15
09181-25063	1.20

FINAL ASSEMBLY AND REMOUNTING

- After both gear backlash and tooth contact are correct, remove the secondary driven output shaft and sub-transmission output shaft.
- Clean off any machinist's dye or paste from the gear teeth, and lubricate the teeth with engine oil.
- Apply THREAD LOCK SUPER "1303" to the drive gear nut and front drive output yoke nut.

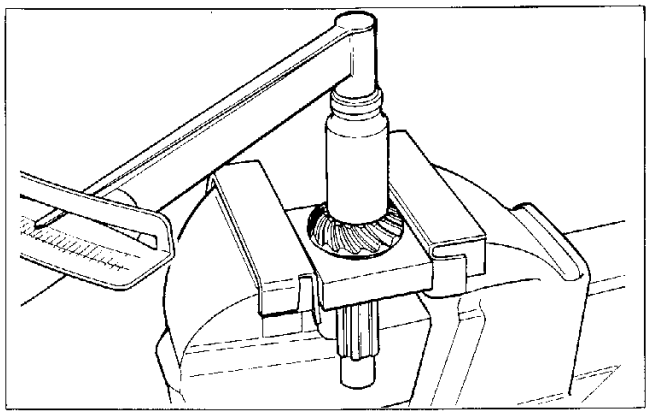




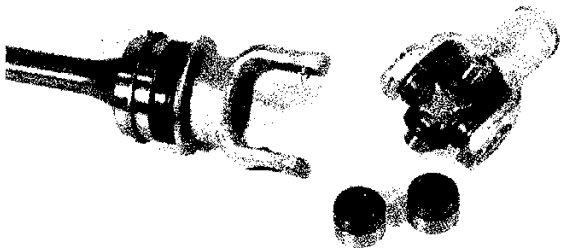
99000-32030 For US model	Thread Lock "1303"
99000-32120 For the other models	Thread Lock "1324"

- Tighten the sub-transmission output shaft nut and front drive output yoke nut to the specified torque. (Refer to page 4-7 and 4-8)

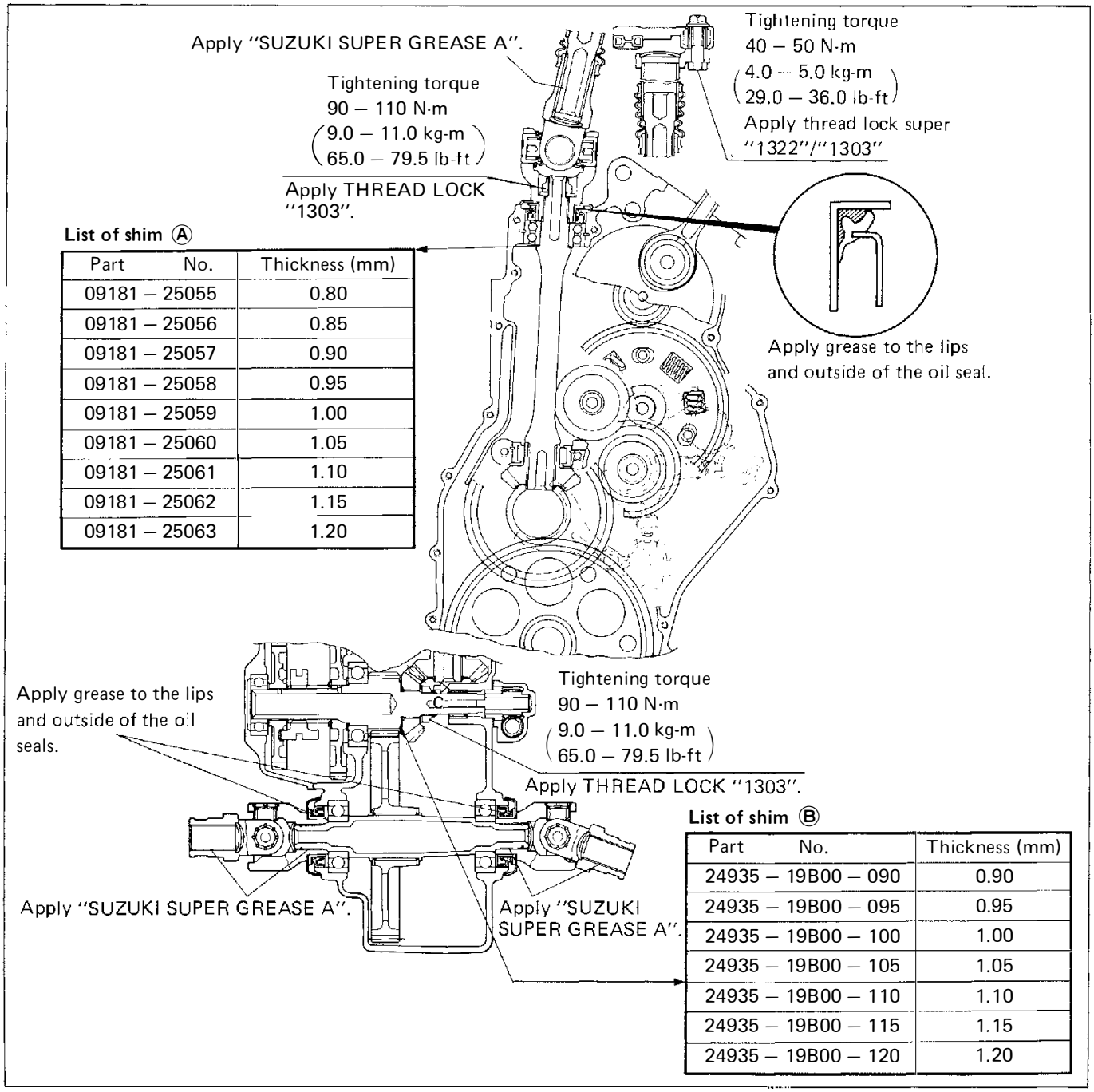
Tightening torque	90 – 110 N·m (9.0 – 11.0 kg-m) (65.0 – 79.5 lb-ft)



NOTE:
Before installing the front drive output shaft, assemble the universal joint.



REASSEMBLY INFORMATION



List of shim Ⓐ

Part No.	Thickness (mm)
09181 – 25055	0.80
09181 – 25056	0.85
09181 – 25057	0.90
09181 – 25058	0.95
09181 – 25059	1.00
09181 – 25060	1.05
09181 – 25061	1.10
09181 – 25062	1.15
09181 – 25063	1.20

List of shim Ⓑ

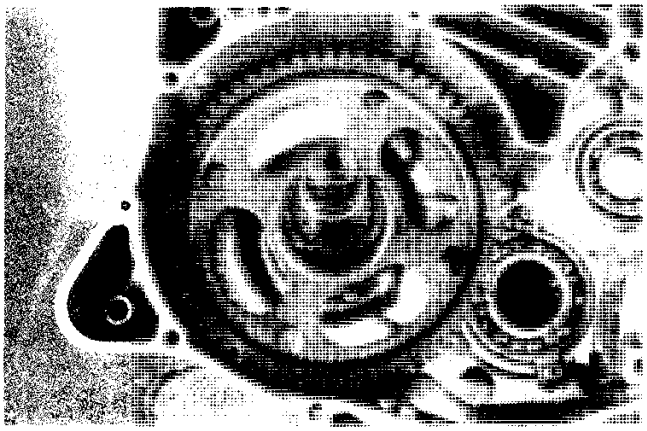
Part No.	Thickness (mm)
24935 – 19B00 – 090	0.90
24935 – 19B00 – 095	0.95
24935 – 19B00 – 100	1.00
24935 – 19B00 – 105	1.05
24935 – 19B00 – 110	1.10
24935 – 19B00 – 115	1.15
24935 – 19B00 – 120	1.20

REAR AXLE

REMOVAL AND DISASSEMBLY

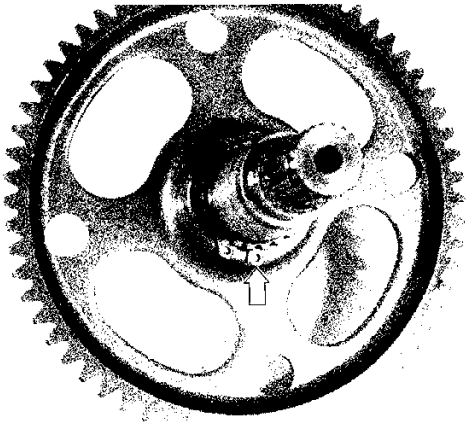
- Remove the engine. (Refer to page 3-4.)
- Separate the crankcase. (Refer to page 3-26.)
- Remove the secondary driven output shaft and sub-transmission output shaft. (Refer to page 4-2.)

- Remove the rear final driven shaft.



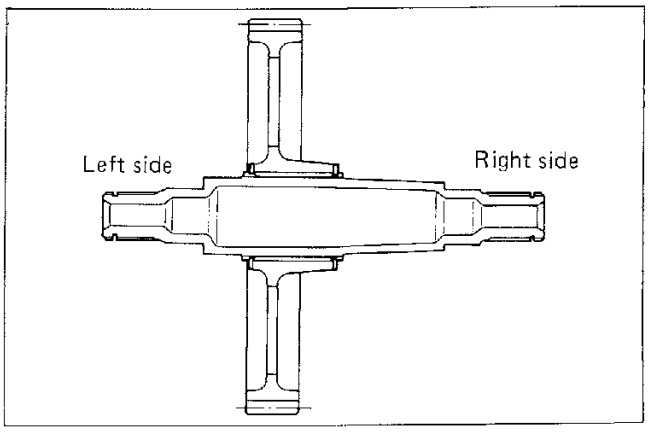
- Remove the circlip with the special tool.

09900-06107	Snap ring pliers

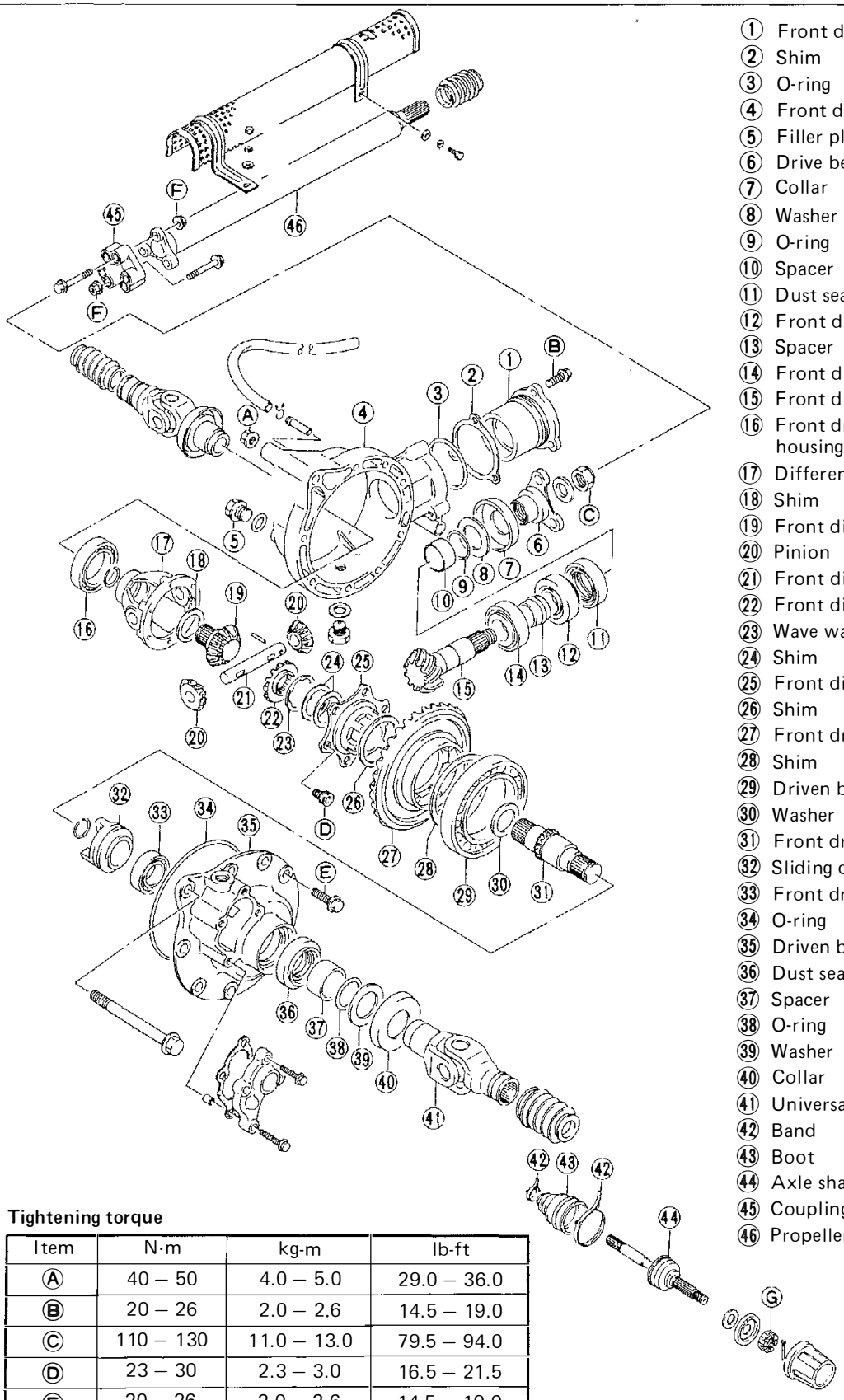


REASSEMBLY

- Install the rear final driven gear onto the shaft as shown in the illustration.



DIFFERENTIAL BEVEL GEARS CONSTRUCTION



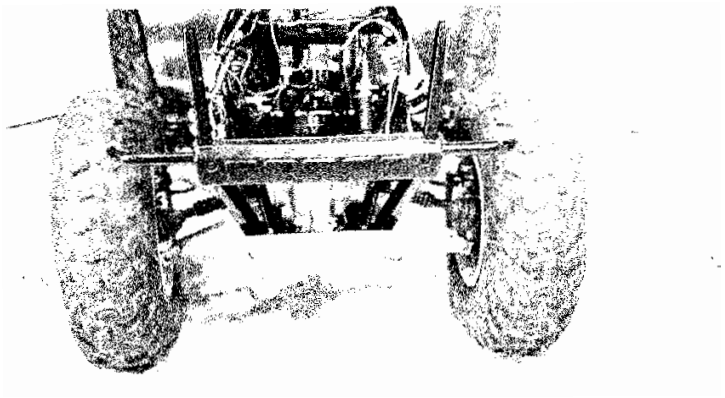
① Front drive bevel gear housing
② Shim
③ O-ring
④ Front driven bevel gear housing
⑤ Filler plug
⑥ Drive bevel gear flange
⑦ Collar
⑧ Washer
⑨ O-ring
⑩ Spacer
⑪ Dust seal
⑫ Front drive bevel gear rear bearing
⑬ Spacer
⑭ Front drive bevel gear front bearing
⑮ Front drive bevel gear
⑯ Front driven bevel gear housing right bearing
⑰ Differential bevel gear case
⑱ Shim
⑲ Front differential right side gear
⑳ Pinion
㉑ Front differential pinion shaft
㉒ Front differential left side gear
㉓ Wave washer
㉔ Shim
㉕ Front differential bevel gear hub
㉖ Shim
㉗ Front driven bevel gear
㉘ Shim
㉙ Driven bevel gear bearing
㉚ Washer
㉛ Front driven output shaft
㉜ Sliding dog
㉝ Front driven output shaft bearing
㉞ O-ring
㉟ Driven bevel gear bearing case
㊱ Dust seal
㊲ Spacer
㊳ O-ring
㊴ Washer
㊵ Collar
㊶ Universal joint
㊷ Band
㊸ Boot
㊹ Axle shaft
㊺ Coupling
㊻ Propeller shaft

Tightening torque

Item	N·m	kg-m	lb-ft
Ⓐ	40 – 50	4.0 – 5.0	29.0 – 36.0
Ⓑ	20 – 26	2.0 – 2.6	14.5 – 19.0
Ⓒ	110 – 130	11.0 – 13.0	79.5 – 94.0
Ⓓ	23 – 30	2.3 – 3.0	16.5 – 21.5
Ⓔ	20 – 26	2.0 – 2.6	14.5 – 19.0
Ⓕ	40 – 50	4.0 – 5.0	29.0 – 36.0
Ⓖ	85 – 115	8.5 – 11.5	61.5 – 83.0

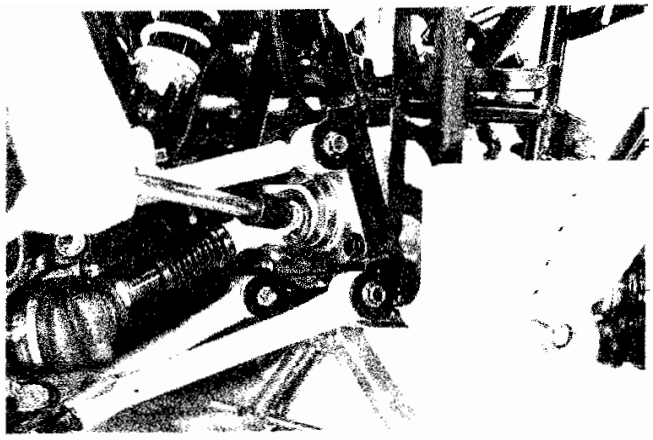
REMOVAL

- Remove the front fender. (Refer to page 4-2.)
- Drain differential gear oil. (Refer to page 2-10.)
- Support the vehicle with a jack or block.
- Remove the cap, and then loosen the axle nut after removing the cotter pin.
- Remove the front wheels.

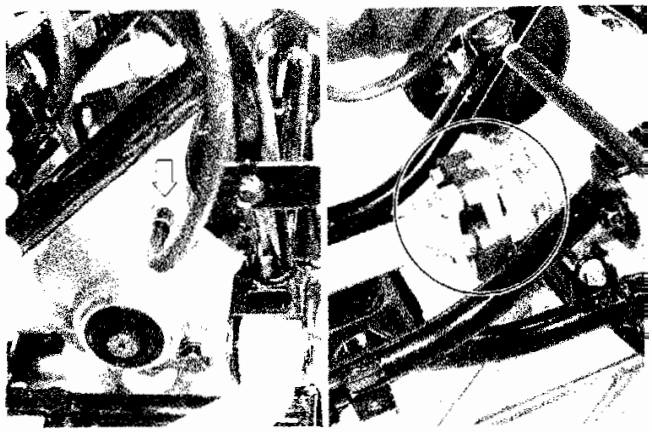


- Remove the universal joint from differential gear case with the special tool.

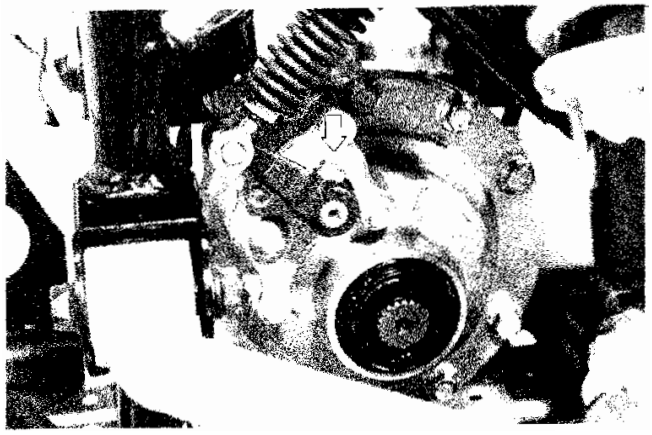
09924-21910	Wheel hub remover set



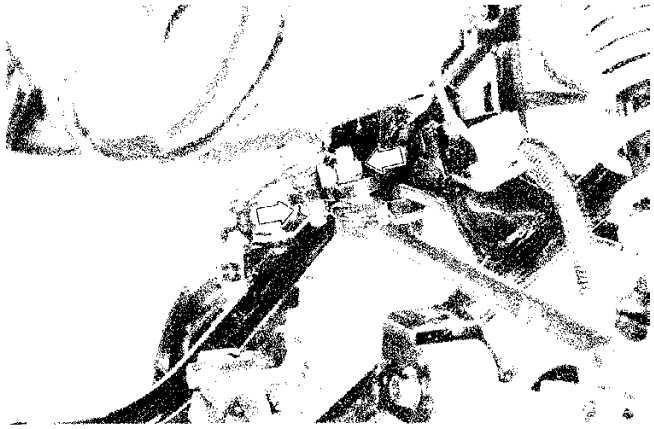
- Remove the axle shaft.
- Disconnect the selection lever cable and breather hose.



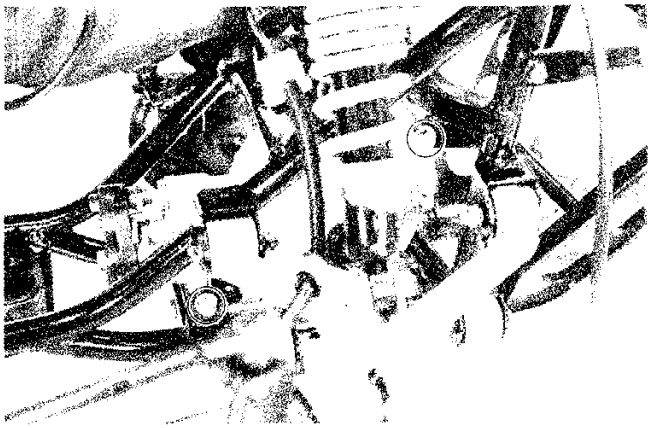
- Remove the propeller shaft cover.
- Loosen the propeller shaft coupling joint nuts.



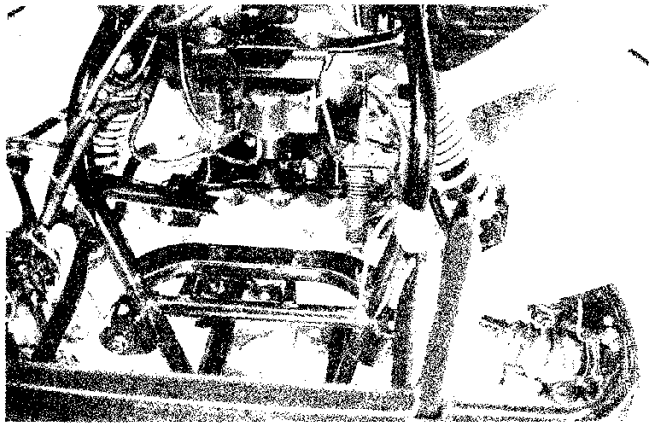
- Remove the cotter pins, and then loosen the right and left tie rod end nuts.
- Remove the right tie rod.

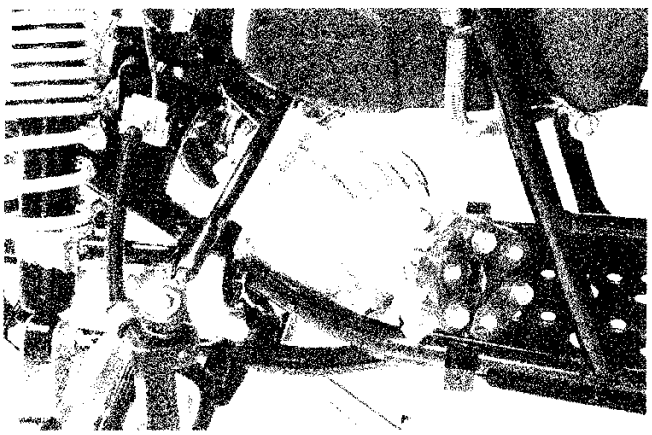


- Loosen the front differential securing nuts.



- Remove the front differential from chassis.

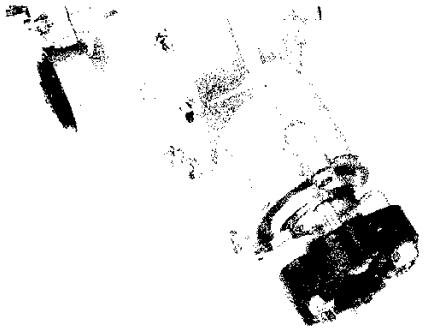




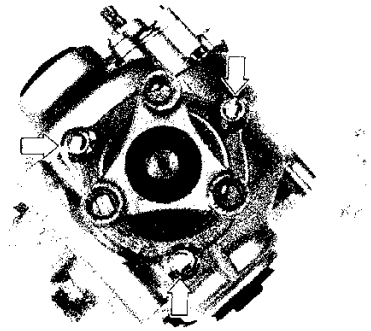
FRONT DRIVE BEVEL GEAR HOUSING

DISASSEMBLY

- Loosen the nuts and remove the coupling.

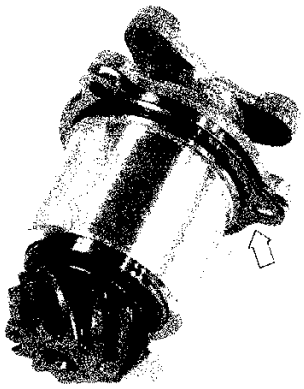


- Loosen the front drive bevel gear housing bolts.
- Remove the drive gear housing.

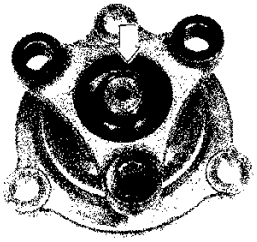


- Remove the drive gear, O-ring and shims.

NOTE:
Do not lose the removed shims.

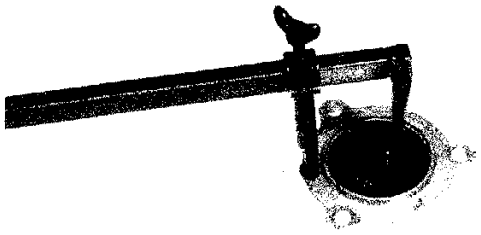


- Loosen the front drive bevel gear nut by holding the flange with vise.



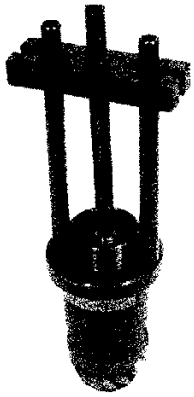
- Remove the dust seal with the special tool.

09913-50121	Oil seal remover



- Remove the front drive bevel gear front bearing with the special tool.

09941-84510	Bearing remover



- Remove the outer race with the special tool.

09941-54911	Bearing outer race remover
09913-84510	Bearing installer

INSPECTION

Inspect and check the following items.

- Bearing race wear and brinelling
- Worn or damaged bearing
- Front drive bevel gear housing brinelling
- Worn oil seal

If the excessive wear is found, replace the oil seal and collar.

REASSEMBLY

NOTE:
Apply Hypoid gear oil to the moving part before assembling.

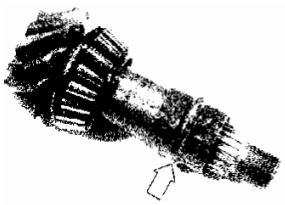
- Install the outer race with the special tool.

09924-84510	Bearing installer

- Install a new front drive bevel gear front bearing with the special tool.

09941-74910	Bearing installer

- Install a new spacer.



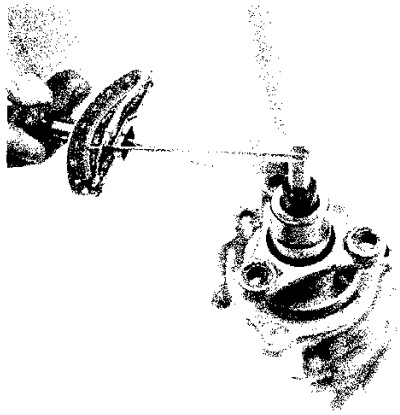
- Apply THREAD LOCK SUPER "1303" to the thread of gear shaft.

99000-32030 For US model	Thread Lock Super "1303"
99000-32120 For other models	Thread Lock Super "1324"

- Tighten the front drive bevel gear nut to specified torque.

Tightening torque	110 – 130 N·m (11.0 – 13.0 kg-m) (79.5 – 94.0 lb-ft)

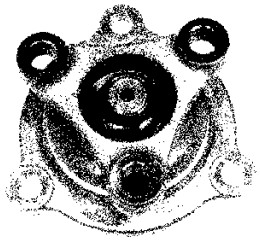
- Measure the bearing pre-load with the special tools.



NOTE:
Before measuring pre-load, be sure to rotate the gear several turns in both directions to seat the bearings.

Pre-load	5 – 9 kg-cm (4.3 – 7.8 lb-in)

09900-21107	Torque wrench
09915-24550 (Not available in US model)	Adaptor 12.7 x 6.3 mm



If the bearing pre-load is not within the specification, retighten the nut to the specified torque and bring the pre-load to the specification.

Tightening torque	90 – 110 N·m (9.0 – 11.0 kg-m) (65.0 – 79.5 lb-ft)

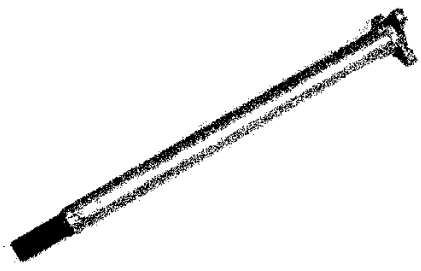
CAUTION:
It is necessary to check the backlash and tooth contact when changing the gear, bearing and/or outer race.

REFER TO SHIM ADJUSTMENT SECTION.

PROPELLER SHAFT

INSPECTION

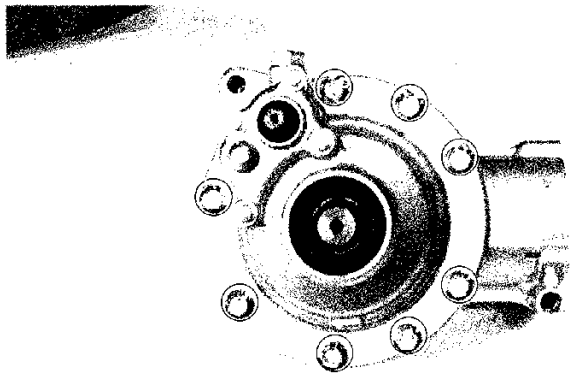
Inspect the propeller shaft for distorsion.



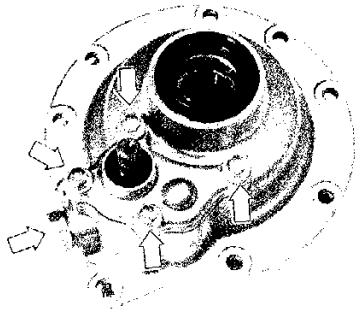
FRONT DRIVEN BEVEL GEAR AND DIFFERENTIAL GEARS

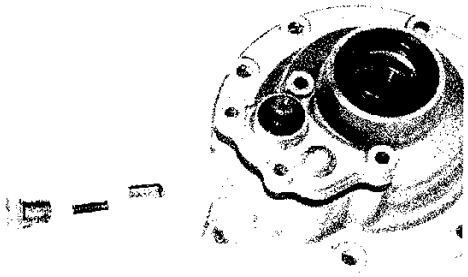
DISASSEMBLY

- Loosen the driven bevel gear bearing case securing bolts.
- Remove the driven bevel gear bearing case.

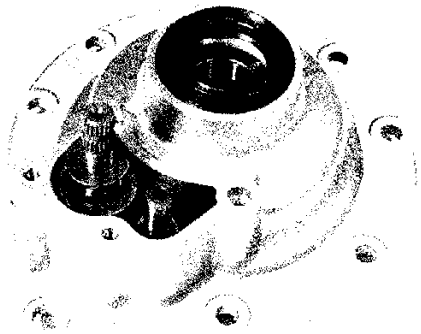


- Remove the cam stopper bolt and cam cover.

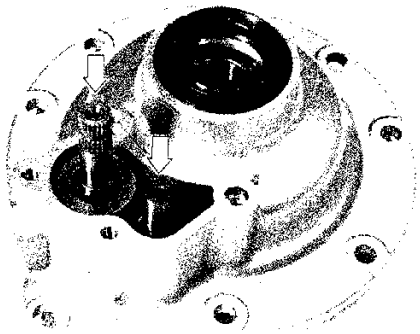




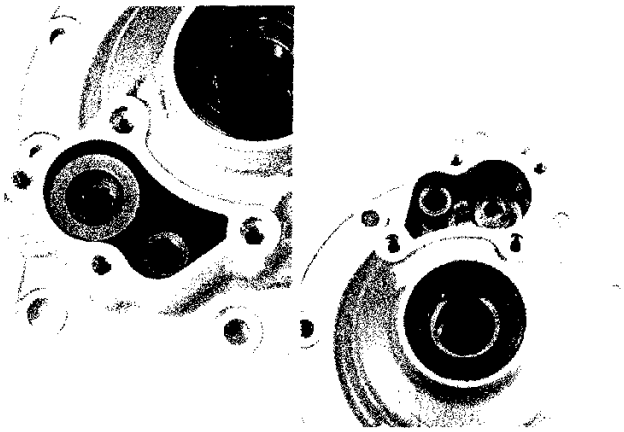
- Remove the washer and spring.



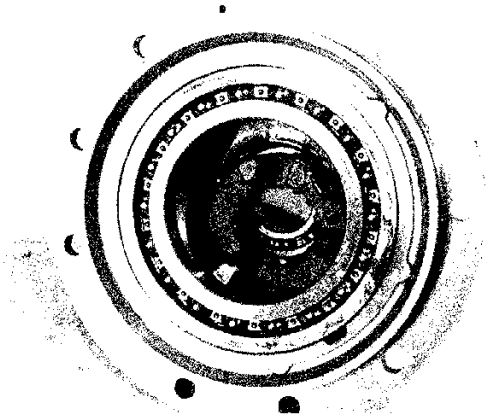
- Remove the cam shaft and shift fork shaft.



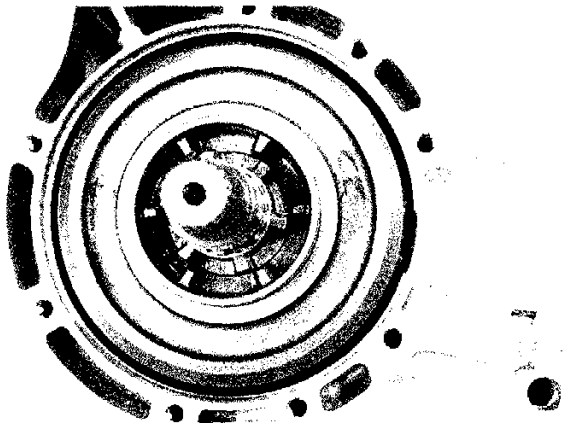
- Remove the cam and washer.



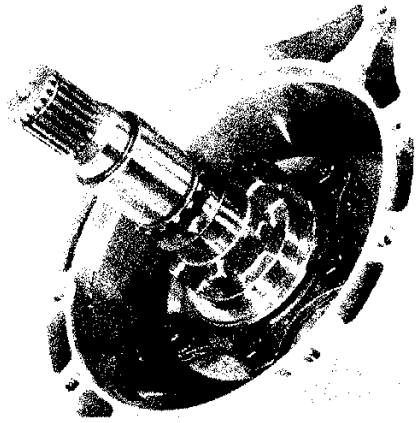
- Remove the sliding dog and shift fork.



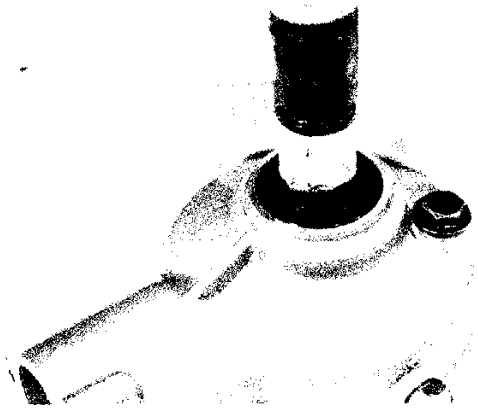
- Remove the driven gear and shims.



- Remove the front driven output shaft and shims.



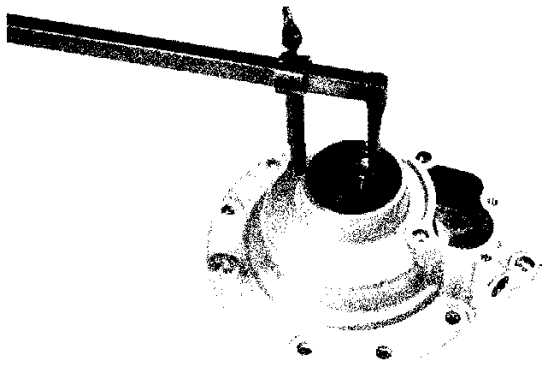
- Remove the differential bevel gear case from the front driven bevel gear housing.



Oil seal/bearing removal and reinstallation

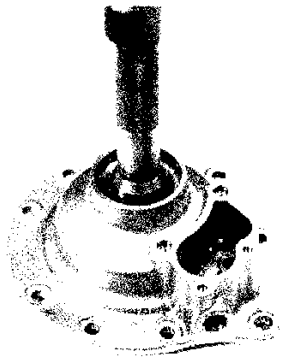
- Remove the dust seal with the special tool.

09913-50121	Oil seal remover

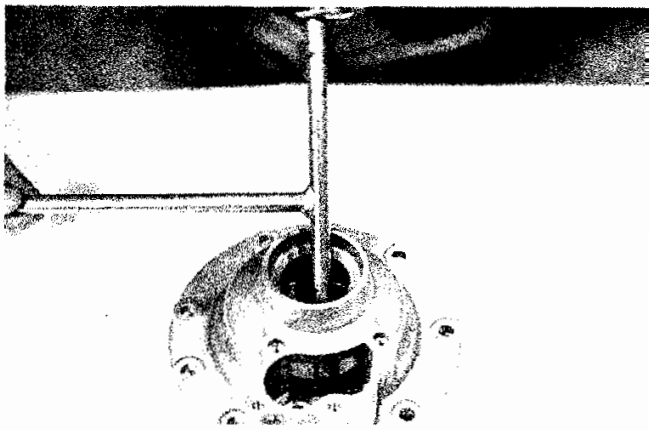


- Remove the front driven output shaft bearing with the special tool.

09913-75820	Bearing remover

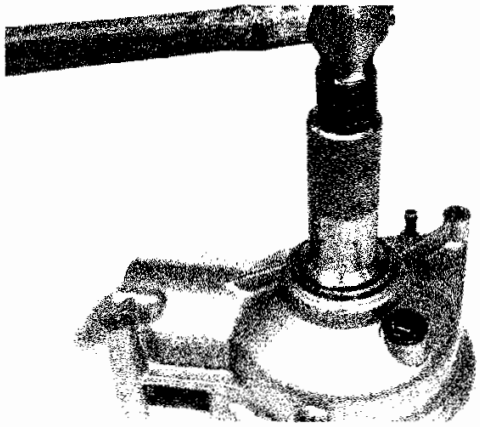


- Remove the driven bevel gear bearing with the appropriate bar.



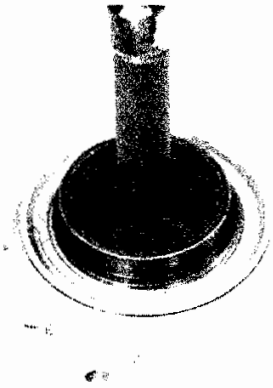
- Remove the front driven bevel gear housing right bearing with the special tool.

09913-76010	Bearing remover



- Install a new driven bevel gear bearing with the special tools.

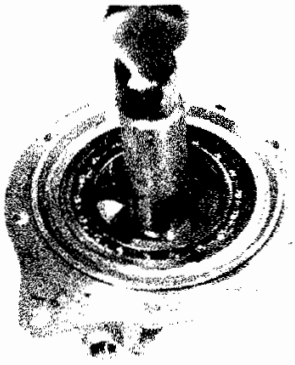
09924-74510	Installer handle
09924-74520	Installer



NOTE:
When installing the bearing, tap on the punched mark side of bearing with the bearing installer.

- Install a new front driven output shaft bearing with the special tool.

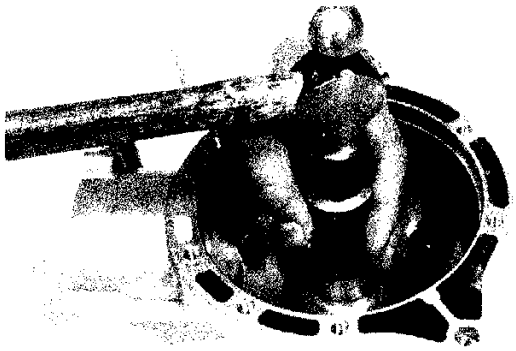
09913-75520	Bearing installer



NOTE:
When installing the bearing, tap on the punched mark side of bearing with the bearing installer.

- Install a new front driven bevel gear housing right bearing with the special tool.

09913-75520	Bearing installer



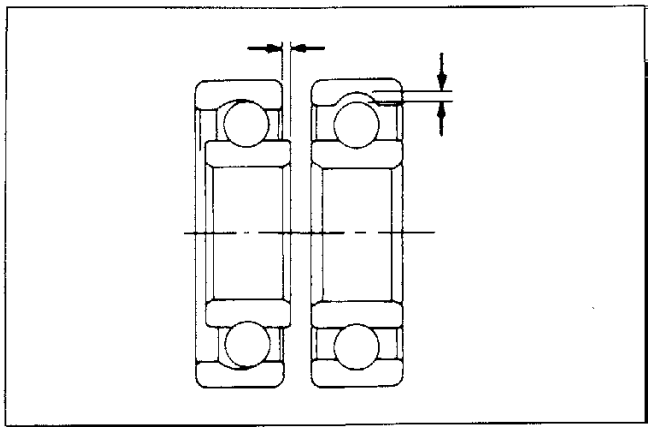
INSPECTION AND SERVICING

BEARINGS

Inspect the play of bearing inner race by hand while it is in the case.

Rotate the inner race by hand to inspect for abnormal noise and smooth rotation.

Replace the bearing if there is anything unusual.



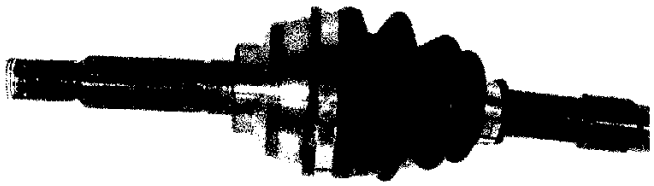
OIL SEAL

- Inspect the oil seal for wear.
  If the excessive wear is found, replace the oil seal and collar with new ones.

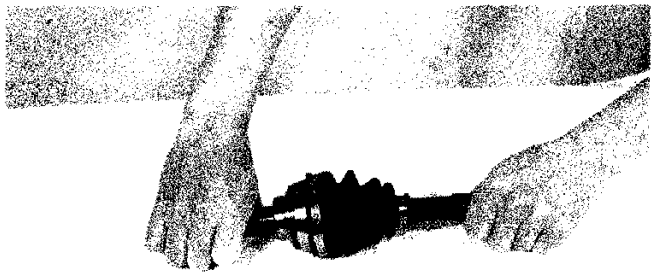
AXLE SHAFT

NOTE:
Do not disassemble the axle shaft joint.

- Inspect the boot and boot bands for crack or deterioration or breakage. Replace them as necessary.



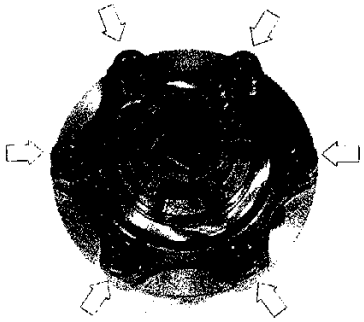
- Check the play by moving the shaft. If an excessive play is noted, replace it with a new unit as an assembly.



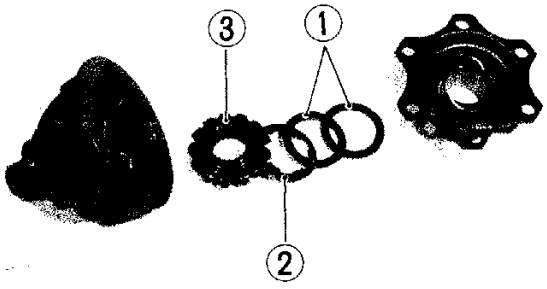
DIFFERENTIAL BEVEL GEAR CASE

- Loosen the front differential bevel gear hub bolts with the special tool.

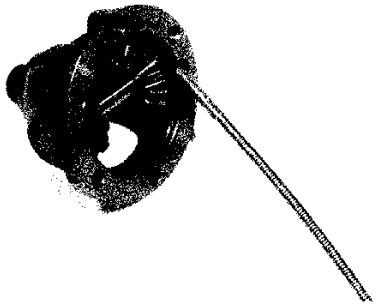
09900-00401	Hexagon wrench set



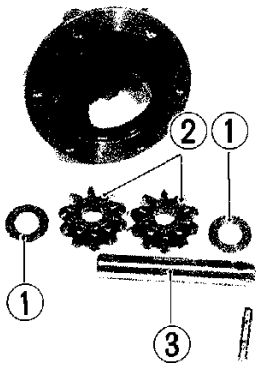
① Shim
② Wave washer
③ Front differential left side gear



- Remove the pin with the magnetic hand.



① Thrust washer
② Pinion
③ Front differential pinion shaft

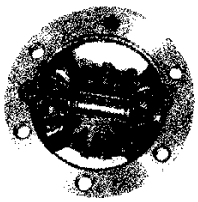


- Remove the front differential right side gear and shims.

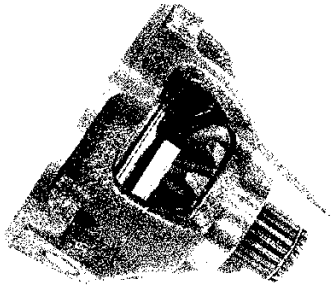
NOTE:
Do not lose the removed shims.

MEASURING THE BACKLASH

- Install the right side gear, removed shims, pinion shaft and pinions in the original position.

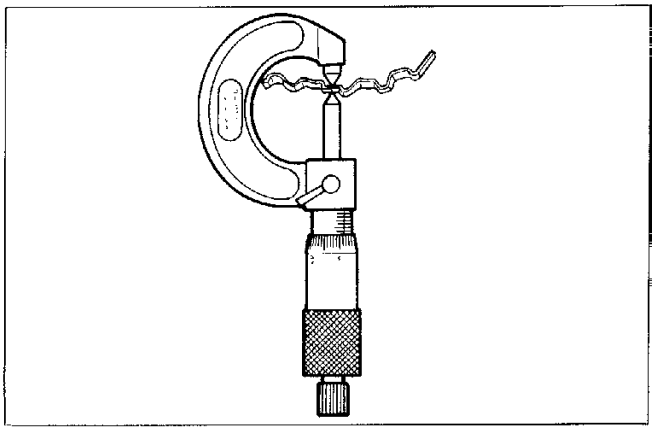


- Insert the 0.5 mm (0.02 in) diameter solder between center teeth of right side gear and center teeth of pinion.



- Measure the thinner point of solder with the point micrometer.

NOTE:
The backlash is measured by the thickness of the crashed solder.



- If the backlash is not within the specification, the shims must be changed and the backlash should be re-checked until correct.
  Refer to the chart at right for appropriate changes.

Front differential right side gear backlash	0.05 – 0.1 mm (0.002 – 0.004 in)

NOTE:
When changing the shims, measure the thickness of the old shim. Using the thickness of the old shims as a guide, adjust the backlash by referring to the chart at right.

Backlash	Shim adjustment
Under 0.05 mm (0.002 in)	Decrease shim thickness
0.05 – 0.1 mm (0.002 – 0.004 in)	Correct
Over 0.1 mm (0.004 in)	Increase shim thickness

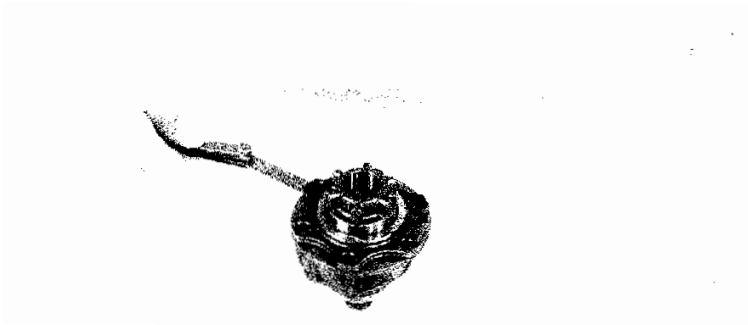
List of shims Ⓐ (front differential right side gear shims) (Refer to page 4-38.)

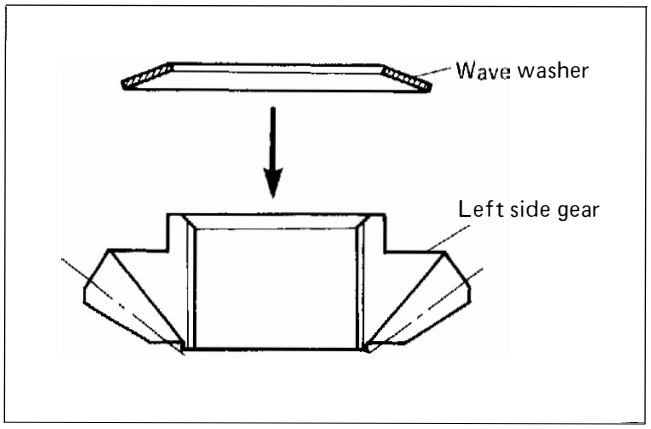
Unit: mm

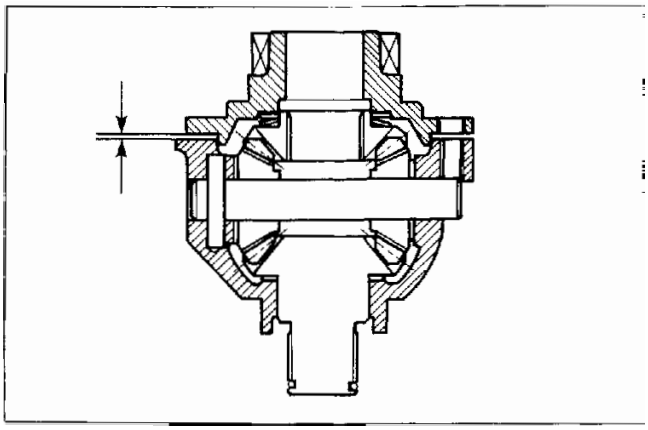
Part No.	Shim thickness
09160-29011	0.8
09160-29012	1.0
09160-29013	1.2

- Install the wave washer and removed shims on the front differential left side gear.
- Place the front differential bevel gear hub on the front differential bevel gear case.
- Measure the clearance between case and hub with the special tool at any point.

09900-20803	Thickness gauge







- If it is not within the specification, the shims must be changed.

Clearance	0.4 – 0.6 mm (0.016 – 0.024 in)

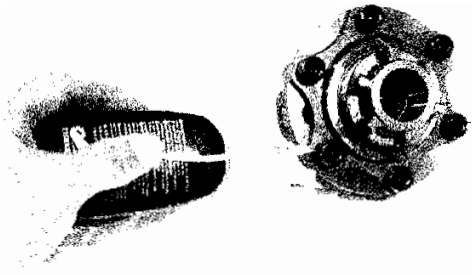
NOTE:
When changing the shims, measure the thickness of the old shims as a guide, adjust the clearance by referring the right chart.

List of shims Ⓑ (Refer to page 4-38.) Unit: mm

Part No.	Shim thickness
09160-29011	0.8
09160-29012	1.0
09160-29013	1.2

- Apply THREAD LOCK SUPER "1303" to the differential bevel gear hub bolts.

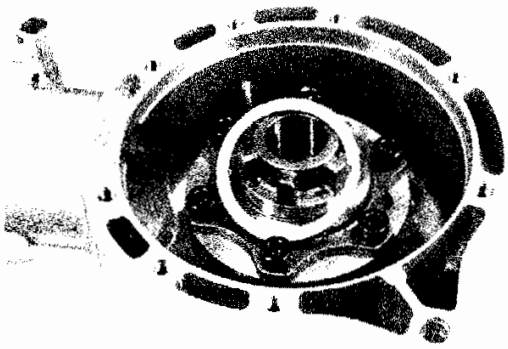
99000-32030 For US model	Thread Lock Super "1303"
99000-32110 For the other models	Thread Lock Super "1322"



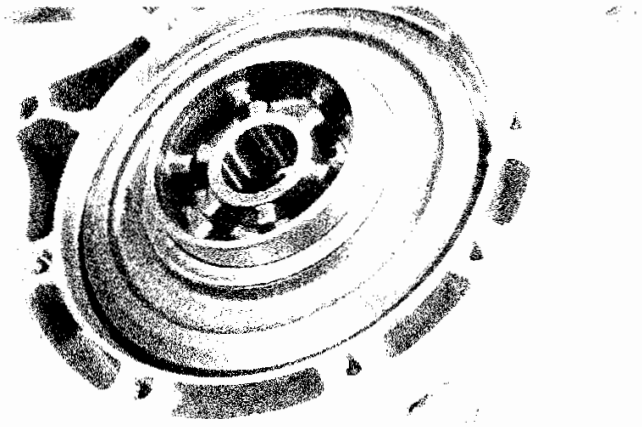
- Tighten the front differential bevel gear hub bolts to specified torque.

Tightening torque	23 – 30 N·m (2.3 – 3.0 kg-m 16.5 – 21.5 lb-ft)

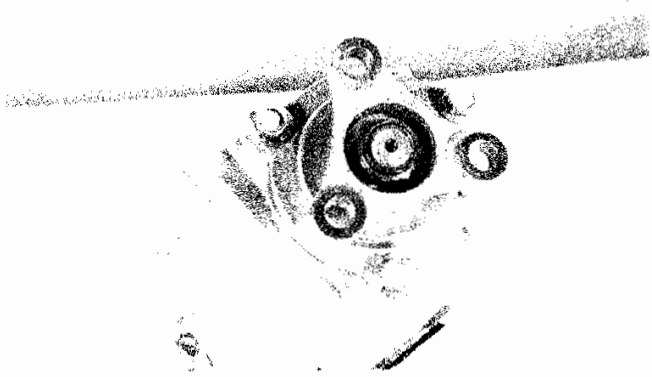
- Install the differential bevel gear case into the front driven bevel gear housing.
- Place the removed shims on the front differential bevel gear hub.



- Install the front driven bevel gear on the differential bevel gear hub.



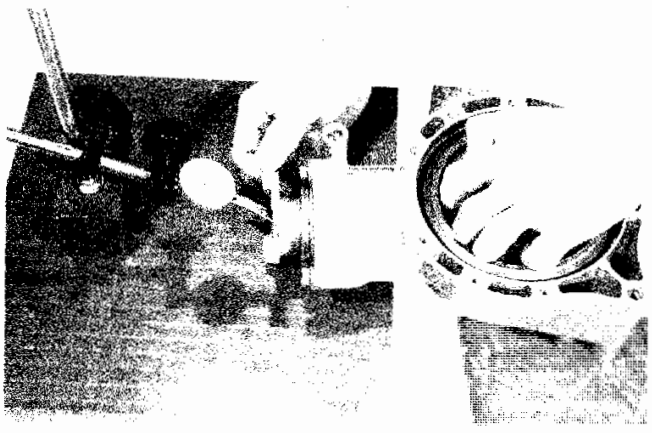
- Install the removed shim on the drive bevel gear housing.
- Install the drive bevel gear into the front driven bevel gear housing.



BACKLASH MEASUREMENT

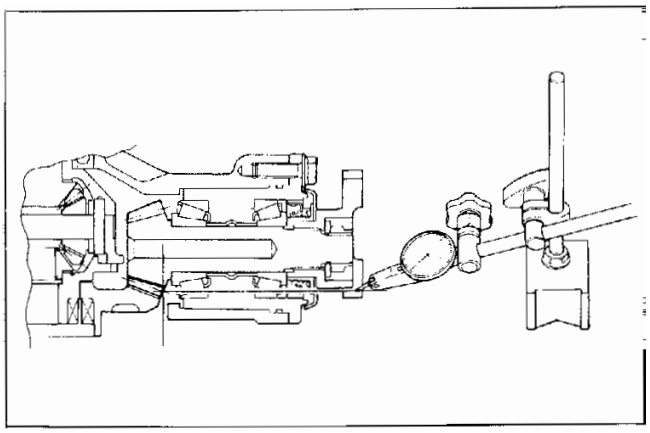
- Set-up a dial gauge as shown in the Fig.

Differential drive gear backlash	0 – 0.05 mm (0 – 0.002 in)



- Adjust the dial gauge so that it touches the drive bevel gear flange; hold the final driven bevel gear securely, and turn the flange slightly in each direction, reading the total backlash on the dial gauge.

NOTE:
If the backlash is not within the specification, adjust the shim thickness as follows:



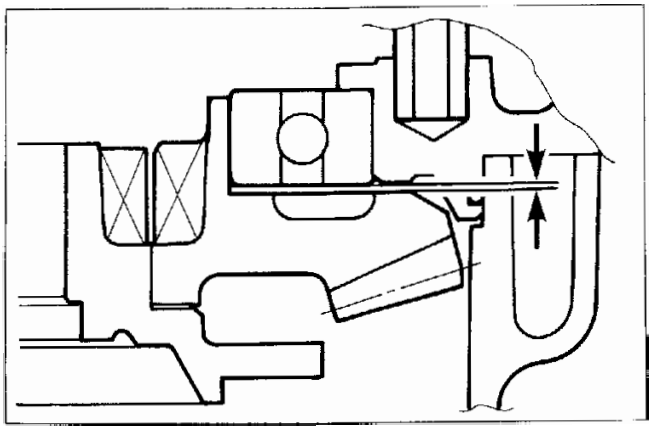
- Remove the shims from the differential bevel gear hub, and measure the thickness.
- If backlash is too large:
  Install a thinner shim pack © between final driven bevel gear and the differential bevel gear hub.
- If backlash is too small:
  a) Install a thicker shim pack © between final driven bevel gear and the differential bevel gear hub.

List of shims © (Refer to page 4-38.) Unit: mm

Part No.	Shim thikness
27326-19B00-035	0.35
27326-19B00-040	0.40
27326-19B00-050	0.50
27326-19B00-060	0.60

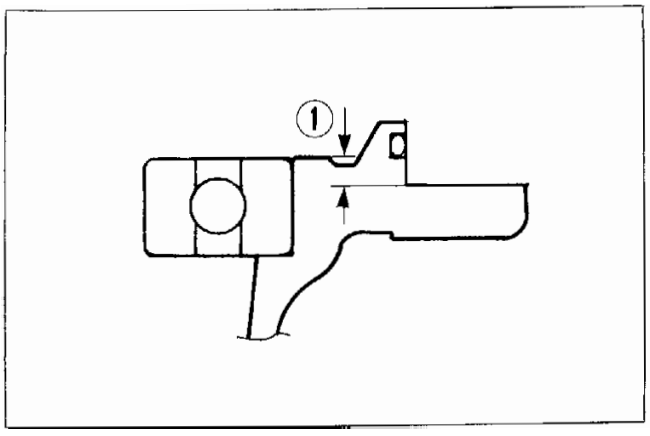
FRONT DRIVEN BEVEL GEAR TO DRIVEN BEVEL GEAR BEARING SHIM ADJUSTMENT

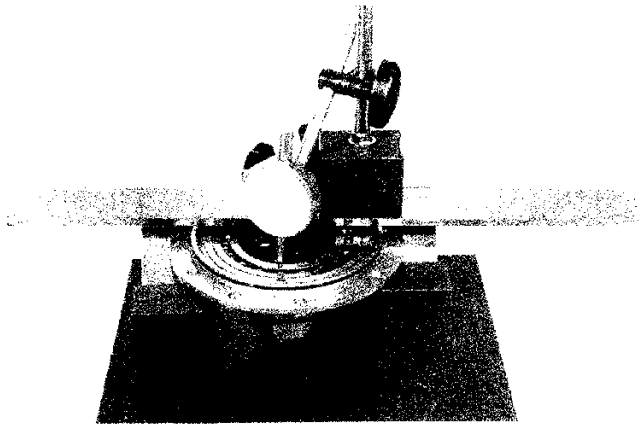
Measure the clearance between the driven gear and bearing in the following steps.

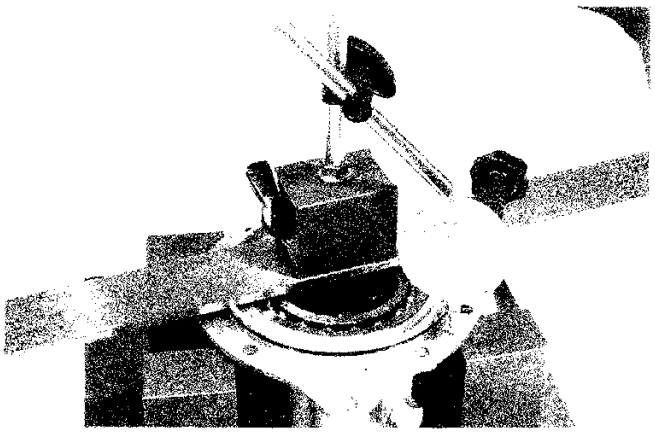


- Measure the height ① of the bearing inner race surface and bearing case flange with the special tools and straightedge.

09900-20602	Dial gauge
09900-20701 (Not available in US model)	Magnetic stand
09900-21203 (Not available in US model)	Surface plate
09900-21304 (Not available in US model)	"V" block set

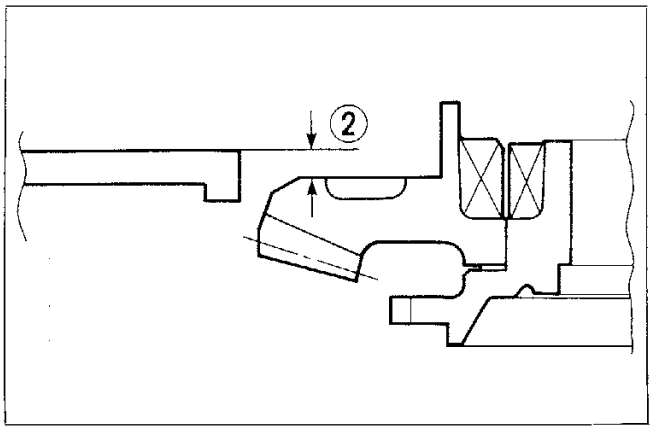


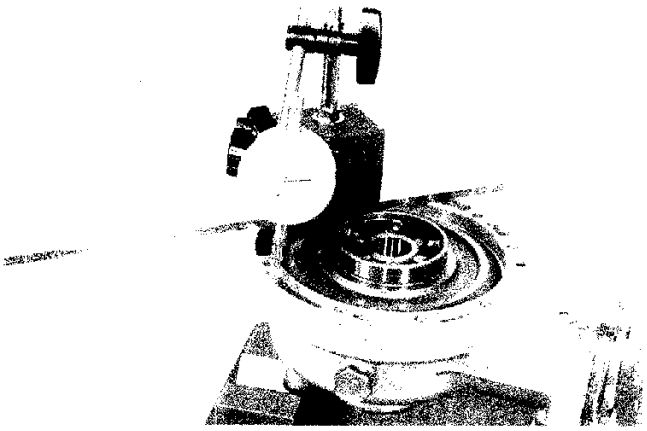


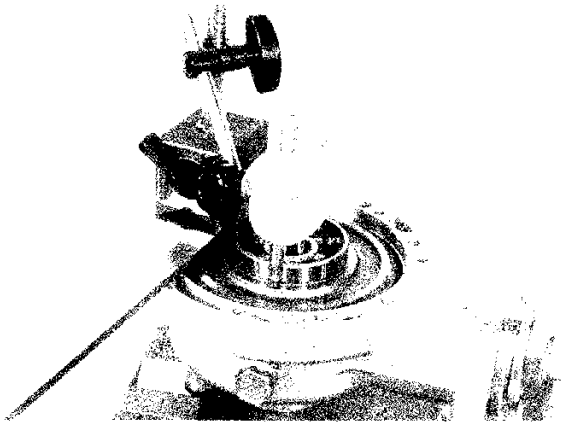


- Measure the height ② of the mating surface of gear case and driven gear back side with the special tool and straightedge.

09900-20602	Dial gauge
09900-20701 (Not available in US model)	Magnetic stand
09900-21203 (Not available in US model)	Surface plate
09900-21304 (Not available in US model)	"V" block set







Decide the proper shim thickness Ⓓ by the following formula.

② - ① - 0.15 mm = Shim thickness Ⓓ

0.15 mm: Proper clearance

Ⓓ: Proper shim thickness

EXAMPLE

② : 5.00 mm

① : 3.75 mm

5.00 - 3.75 - 0.15 = 1.10

So, 1.10 is the proper shim size.

Select the 1.10 mm shims from the right table.

List of shims Ⓓ (Refer to page 4-38.) Unit: mm

Part No.	Shim thickness
27327-34200	0.35
27327-34210	0.40
27327-34220	0.50
27327-34230	0.60

TOOTH CONTACT

- After backlash adjustment is carried out, the tooth contact must be checked.
- Do not misplace the shims. Remove the front driven bevel gear.
- Clean and de-grease several teeth on the front driven bevel gear. Coat these teeth with machinist's dye or paste, preferably of a light color.
- Re-install the driven bevel gear with shims in place, positioning the coated teeth so that they are centered on the front drive bevel gear.
- Install the driven gear bearing case and tighten the bolts to the specification.

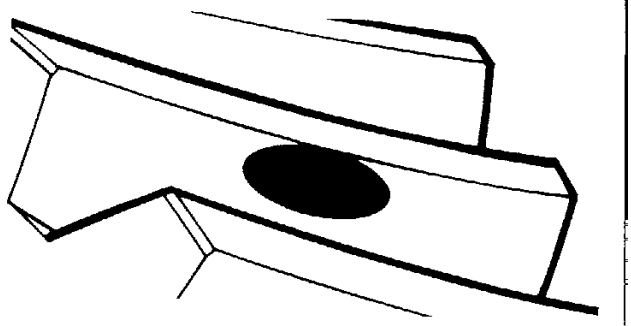
Driven gear bearing case bolt tightening torque	20 – 26 N·m (2.0 – 2.6 kg-m / 14.5 – 19.0 lb-ft)

NOTE:
At this time, it is not necessary to install the shifting related parts.

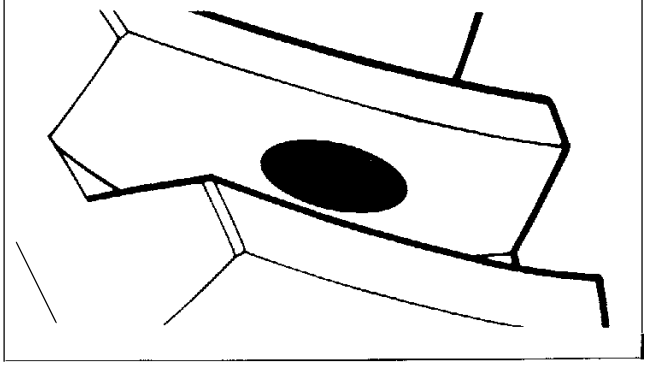
- Rotate the drive bevel gear several turns in each direction, while loading the driven bevel gear. This will provide a contact pattern on the coated teeth of the drive bevel gear.
- Remove the drive bevel gear, and inspect the coated teeth of the drive bevel gear. The contact patch should be as shown at right:
- If the tooth contact pattern is correct, as shown in ②, go to the Final Assembly sub-section.

- If the tooth contact pattern is incorrect, as shown in ①, a thinner shim is needed between the front drive bevel gear housing and the driven bevel gear housing.
- If the tooth contact pattern is incorrect, as shown in ③, a thicker shim is needed between the front drive bevel gear housing and driven bevel gear housing.
- If the tooth contact pattern is incorrect for either reason, the appropriate shim must be installed, and the tooth contact pattern rechecked by repeating the tooth coating procedure above.

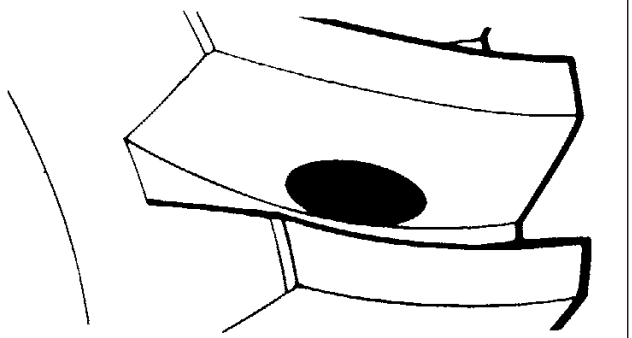
① INCORRECT (Contact at tooth top)



② CORRECT



③ INCORRECT (Contact at tooth root)



NOTE:
If it is necessary to adjust the shim thickness between the front drive bevel gear housing and the front driven bevel gear housing, the gear backlash may change, and should be re-checked according to the procedure outlined under the Backlash Measurement subsection. Both adjustments may be needed until both backlash and tooth contact are correct.

List of shims Ⓔ (Refer to page 4-38.)

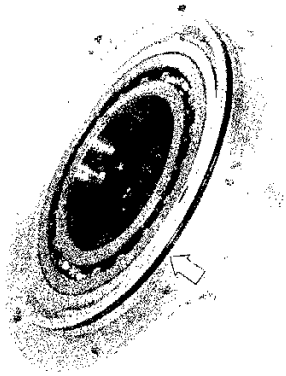
Unit: mm

Part No.	Shim thickness
27445-19B00-015	0.15
27445-19B00-030	0.30
27445-19B00-035	0.35
27445-19B00-040	0.40

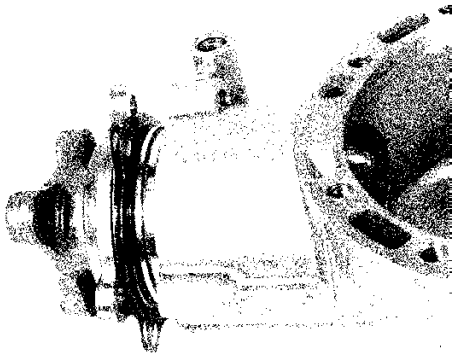
FINAL ASSEMBLY

After adjusting the backlash, tooth contact and clearance between the driven bevel gear and the driven gear bearing case, remove the driven gear bearing case, front driven bevel gear and front bevel gear housing from front driven bevel gear housing.

- Clean off any machinist's dye or paste from the gear teeth, and lubricate the teeth with Hypoid gear oil.
- Install new O-rings to the driven gear bearing case and front drive bevel gear housing. Coat the O-rings with grease.

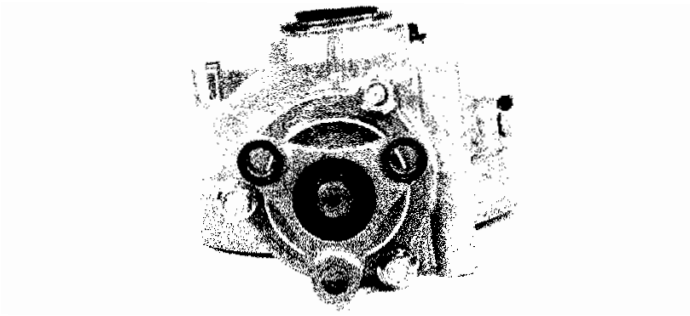


- Install the front drive bevel gear housing into the front driven bevel gear housing.

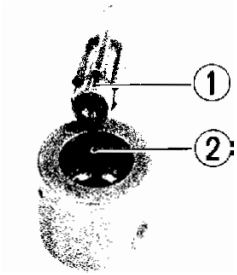


- Tighten the front drive bevel gear housing bolts to the specified torque.

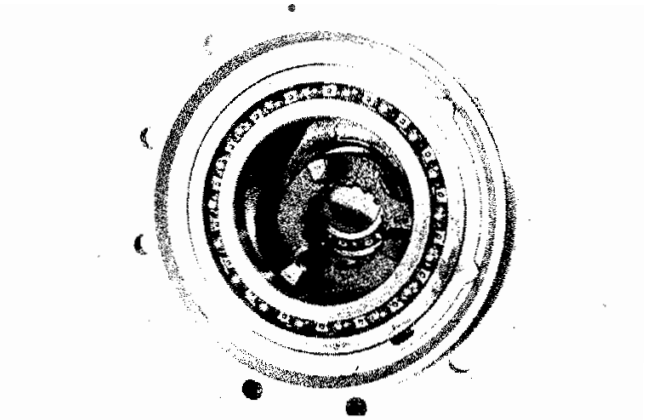
Tightening torque	20 – 26 N·m (2.0 – 2.6 kg-m) (14.5 – 19.0 lb-ft)



- Align the punched mark ① of cam shaft with punched mark ② of cam.

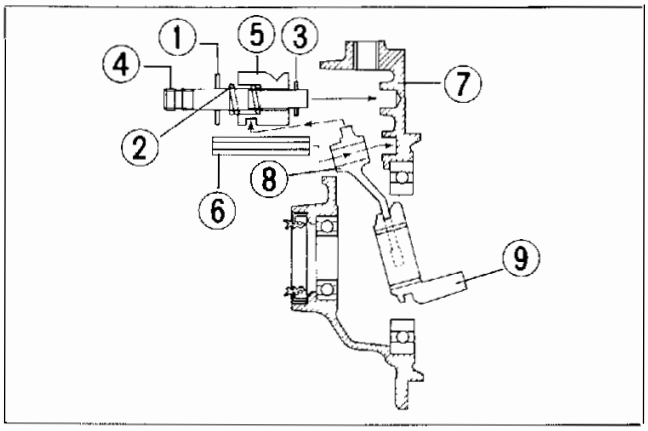


- Install the dog and shift fork into the driven gear bearing case.

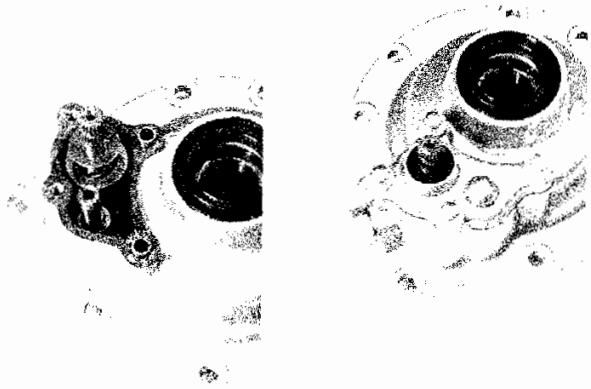


- Install the shift fork shaft and shift cam into the driven gear bearing case as shown in the illustration.

① Washer
② Spring
③ Washer
④ Cam shaft
⑤ Cam
⑥ Shift fork shaft
⑦ Driven bevel gear bearing case
⑧ Dog
⑨ Shift fork

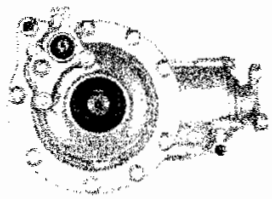


- Install the gasket and dowel pins, and then install the cover and cam stopper.



- Install the driven gear bearing case, and then tighten the securing bolts.

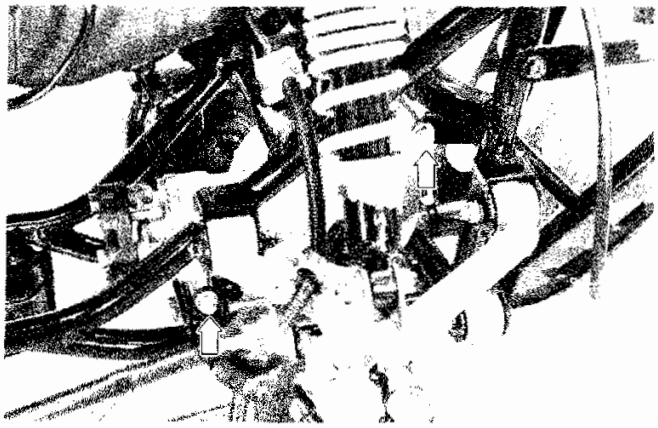
Tightening torque	20 – 26 N·m (2.0 – 2.6 kg-m) (14.5 – 19.0 lb-ft)



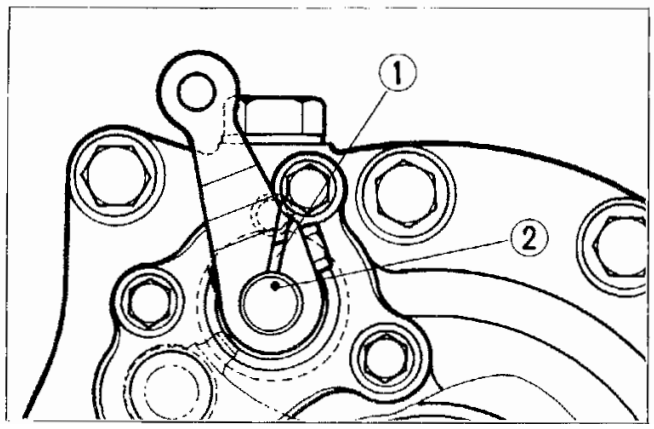
REMOUNTING

- Remount the front differential.
- Tighten the mounting nuts to the specified torque.

Tightening torque	40 – 50 N·m (4.0 – 5.0 kg-m) (29.0 – 36.0 lb-ft)

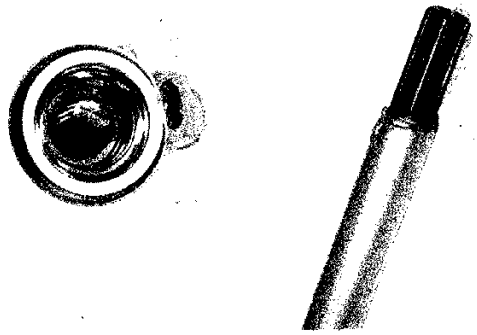


- When installing the selection lever (differential gear case side) to the cam shaft, align the slit ① of lever with mark ② of cam shaft as shown in the illustration.



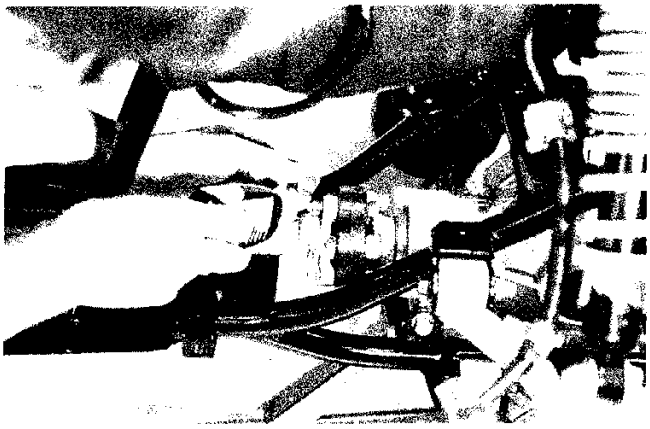
- Apply SUZUKI SUPER GREASE "A" to the spline of propeller shaft and universal joint.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For the other models	SUZUKI Super Grease "A"

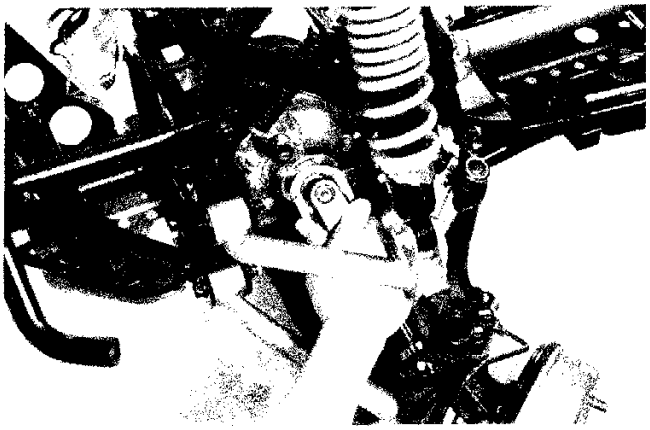


- Tighten the propeller shaft coupling joint nuts to the specified torque after applying THREAD LOCK SUPER "1303" to the thread.

Tightening torque	40 – 50 N·m (4.0 – 5.0 kg-m) (29.0 – 36.0 lb-ft)
99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32110 For the other models	Thread Lock Super "1322"



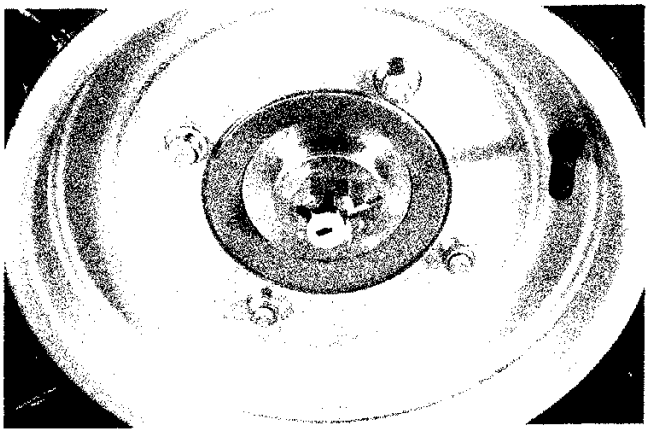
- Engage the universal joint to the differential spline securely.



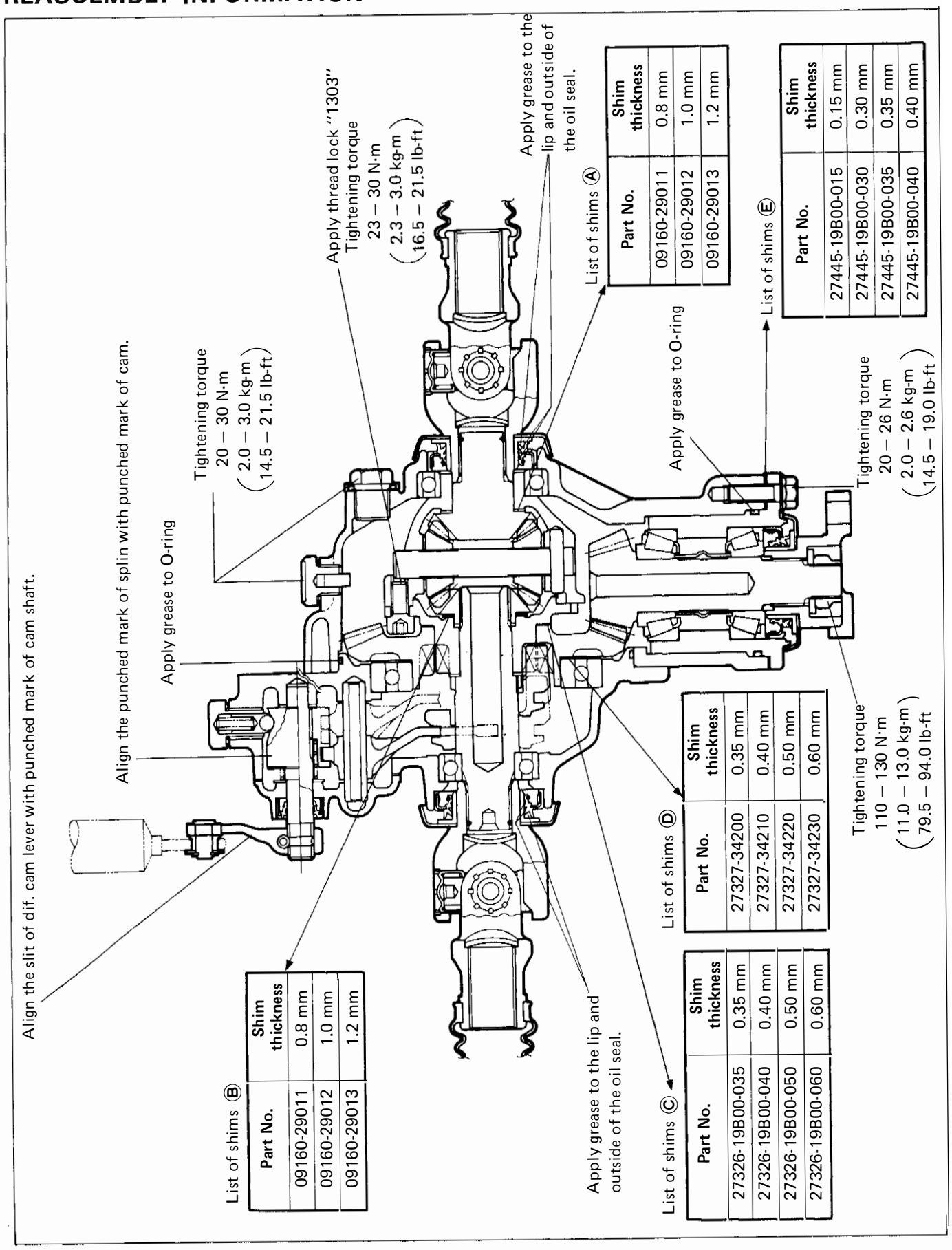
- Tighten the axle nut and wheel set nut.

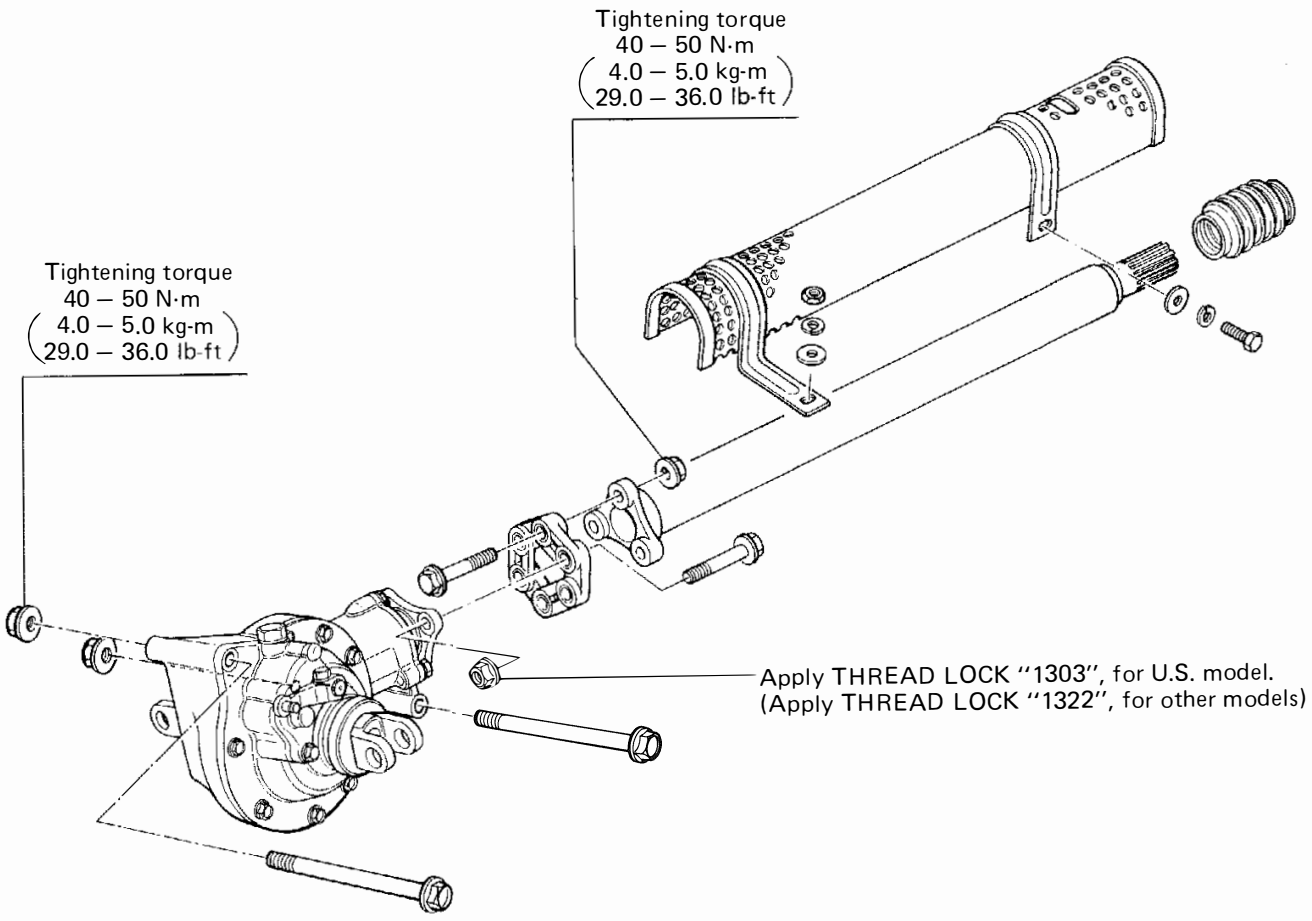
Tightening torque

Axle nut	85 – 115 N·m (8.5 – 11.5 kg-m) (61.5 – 83.0 lb-ft)
Wheel set nut	45 – 65 N·m (4.5 – 6.5 kg-m) (32.5 – 47.0 lb-ft)



REASSEMBLY INFORMATION




Tightening torque
40 – 50 N·m
(4.0 – 5.0 kg-m
29.0 – 36.0 lb-ft)
Tightening torque
40 – 50 N·m
(4.0 – 5.0 kg-m
29.0 – 36.0 lb-ft)
Apply THREAD LOCK "1303", for U.S. model.
(Apply THREAD LOCK "1322", for other models)

FUEL AND LUBRICATION SYSTEM

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FUEL COCK REMOVAL AND INSPECTION 5- 3
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FUEL PUMP REMOVAL AND INSPECTION 5- 5
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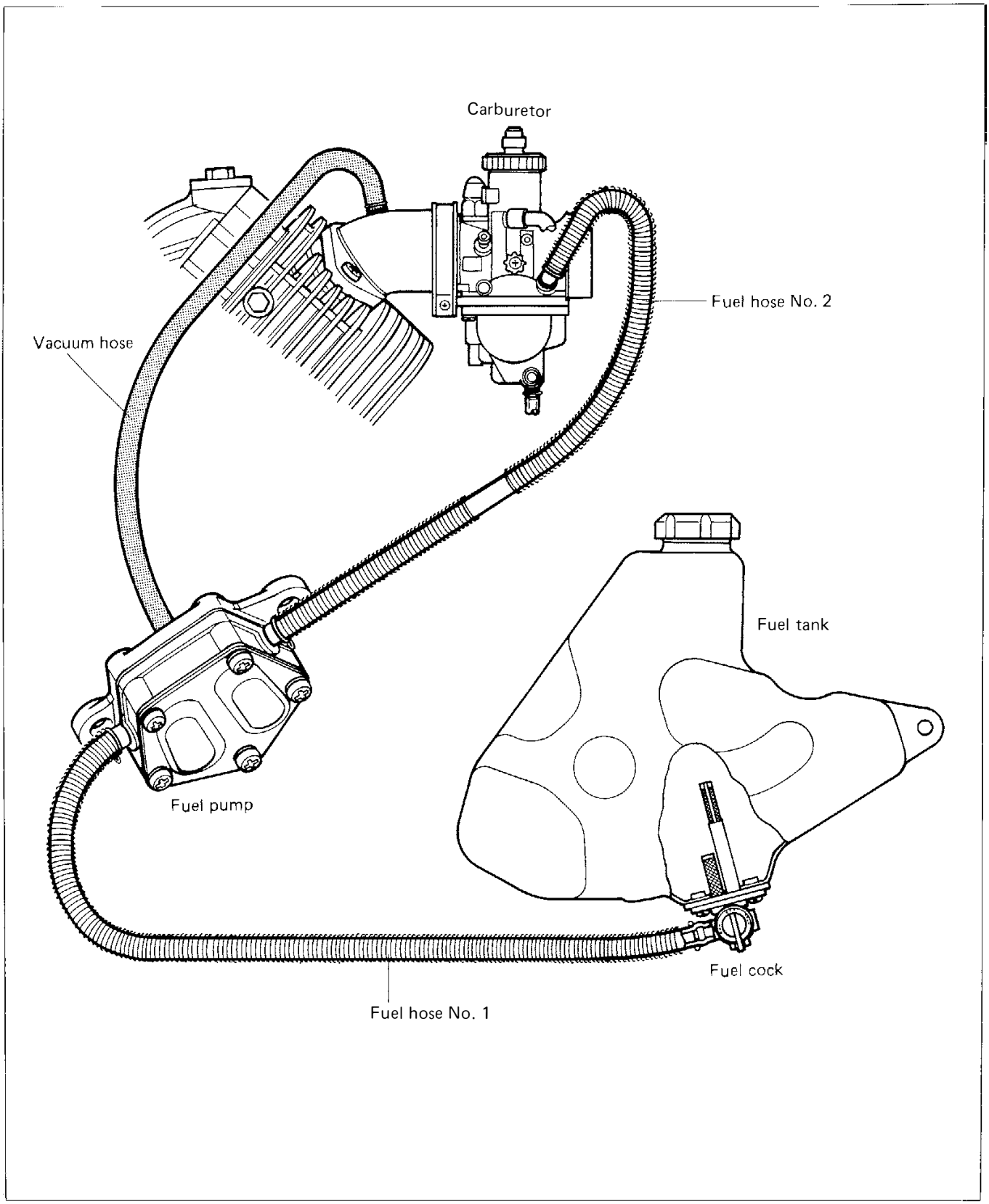
LUBRICATION SYSTEM 5-19

FUEL SYSTEM

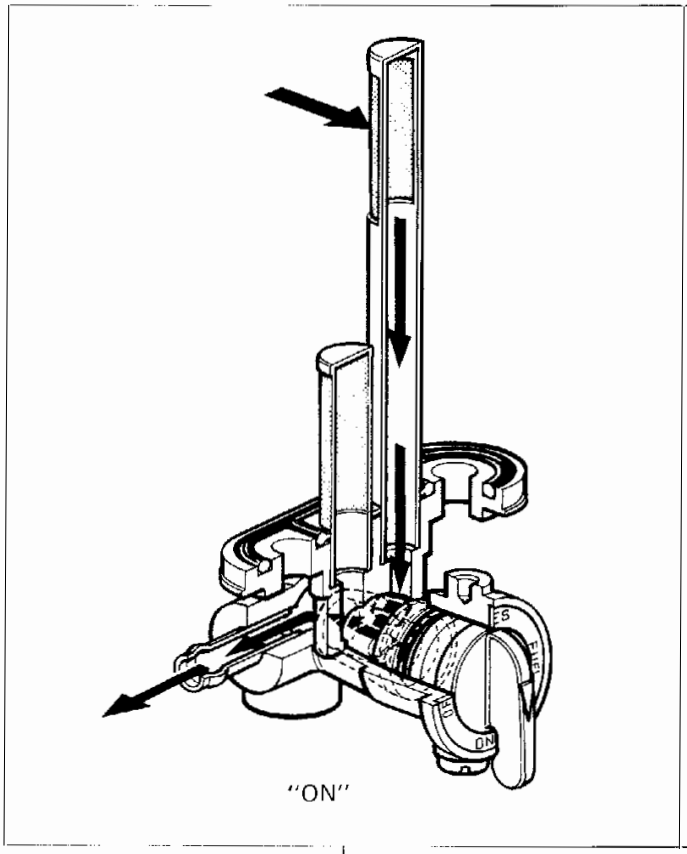
A vacuum-operated fuel pump is used to supply fuel from the fuel tank to the carburetor. The pump is necessary as the fuel tank is mounted lower than the carburetor fuel bowl. In addition, the pump assures an adequate supply of fuel to the engine under the steepest climbing conditions as well as while running across rough terrain.



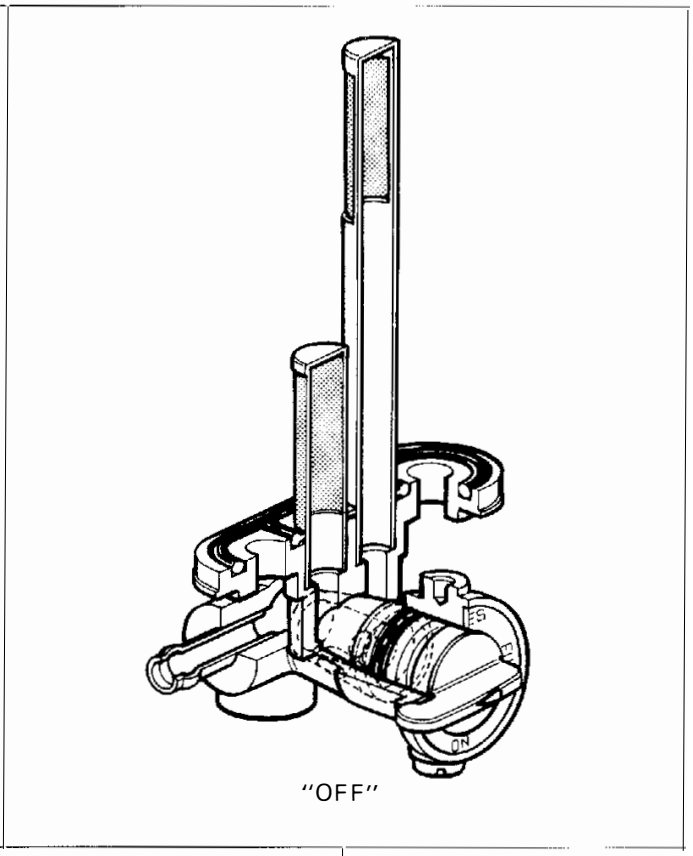
FUEL COCK

FUEL COCK MECHANISM

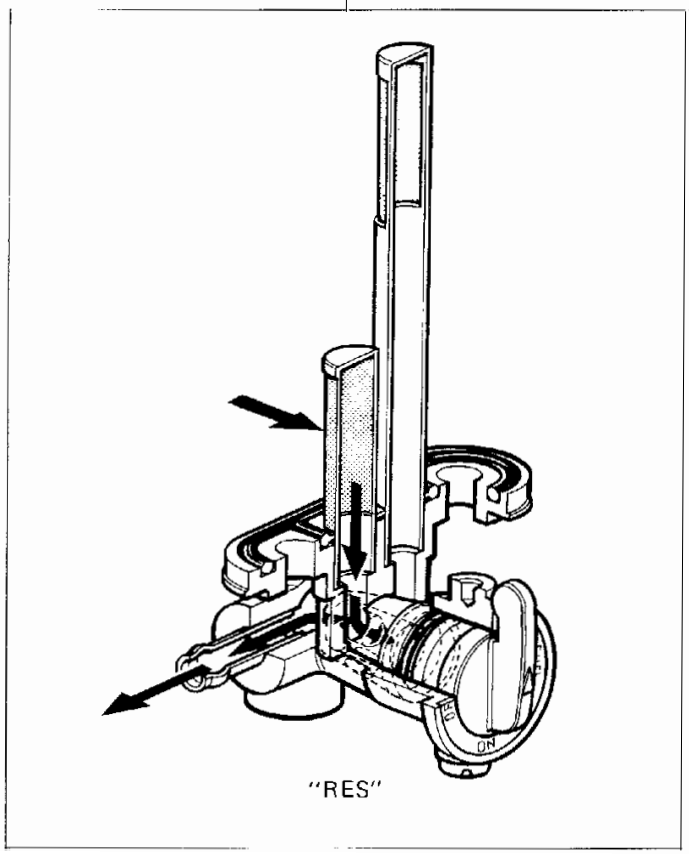
A valve is provided at the top of the fuel cock lever and can switch over to ''OFF'', ''ON'' and ''RES''. With the valve ''ON'' (normal), the main passage opens. With the valve ''OFF'', both holes close.



''ON''



''OFF''



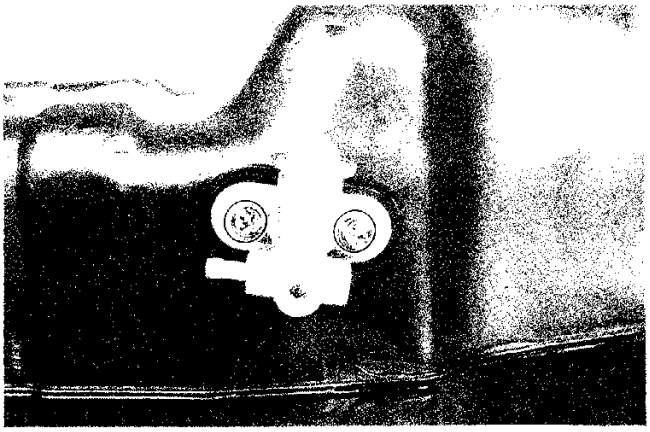
''RES''

FUEL COCK REMOVAL AND INSPECTION

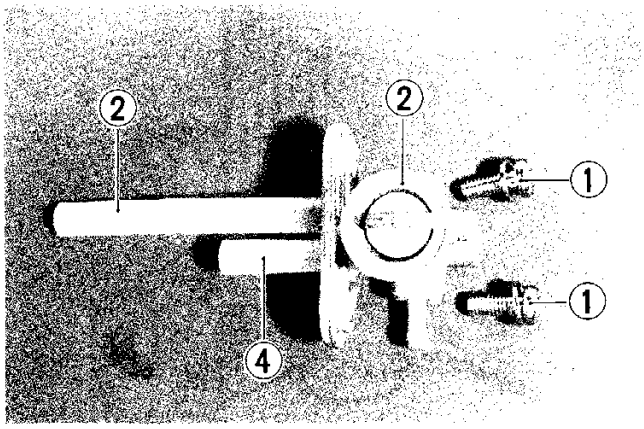
- Drain fuel completely.

WARNING:
Gasoline is very explosive. Extreme care must be taken.

- Remove the two screws, and then remove the fuel cock assembly.

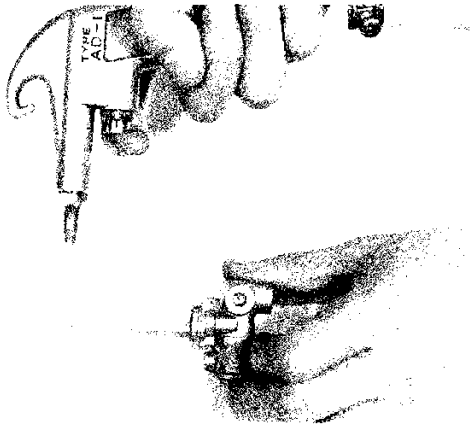


① : Screw
② : Fuel cock body
③ : "ON" fuel strainer
④ : "RES" fuel strainer



FUEL STRAINER

Wash the strainer with non-flammable cleaning solvent, and blow compressed air through it to dry off solvent.



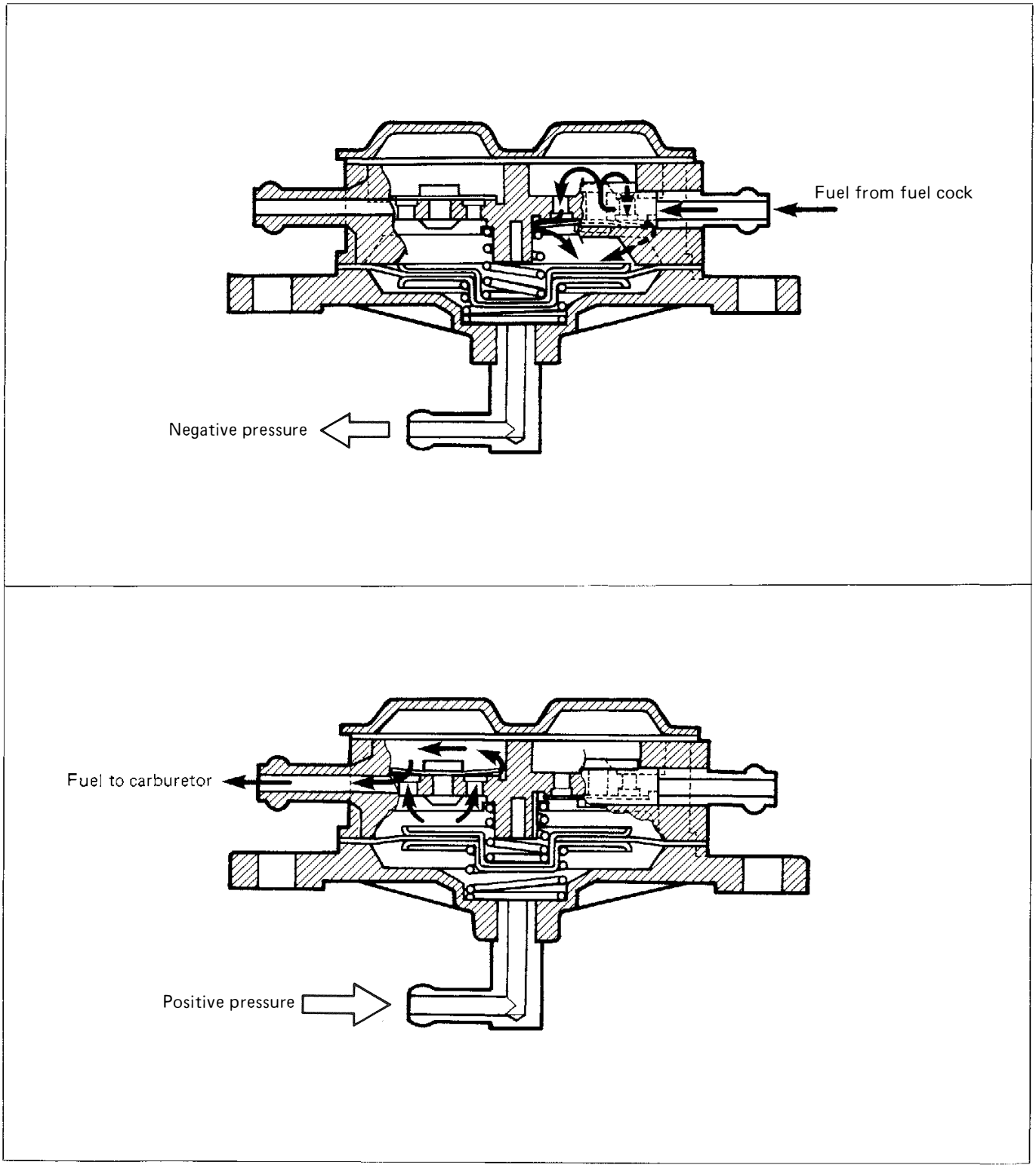
NOTE:
When reinstalling the fuel cock to the fuel tank, fit a new O-ring correctly.
Always use a new O-ring to prevent fuel leakage.

FUEL PUMP

FUEL PUMP MECHANISM

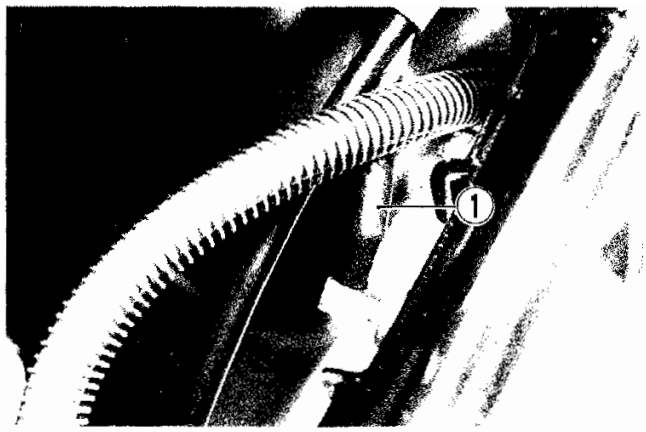
Vacuum pulsations from the carburetor intake tract are used to operate the pump diaphragm. When vacuum is applied to the diaphragm, fuel is drawn from the tank into the diaphragm's chamber. As positive pressure is applied, the spring forces the diaphragm back, pushing the fuel through the outlet to the carburetor.

A series of check valves is used in the fuel flow route to allow the fuel to move in only one direction, through the pump body. The pump is mounted as near to the fuel tank as possible for the greatest efficiency.

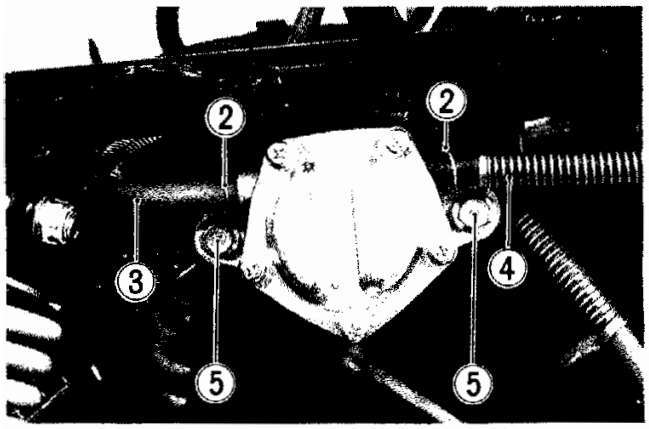


FUEL PUMP REMOVAL AND INSPECTION

- Remove the front carrier and front fender. (Refer to page 7-1.)
- Disconnect the vacuum hose ①.



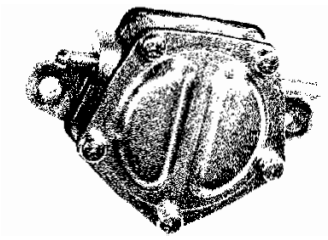
- Slide the clips ②, and disconnect the fuel inlet hose ③ and fuel outlet hose ④.
- Remove the two bolts ⑤ and then remove the fuel pump.



In case of fuel leak at fuel pump or air leak into the fuel line, check the following items:

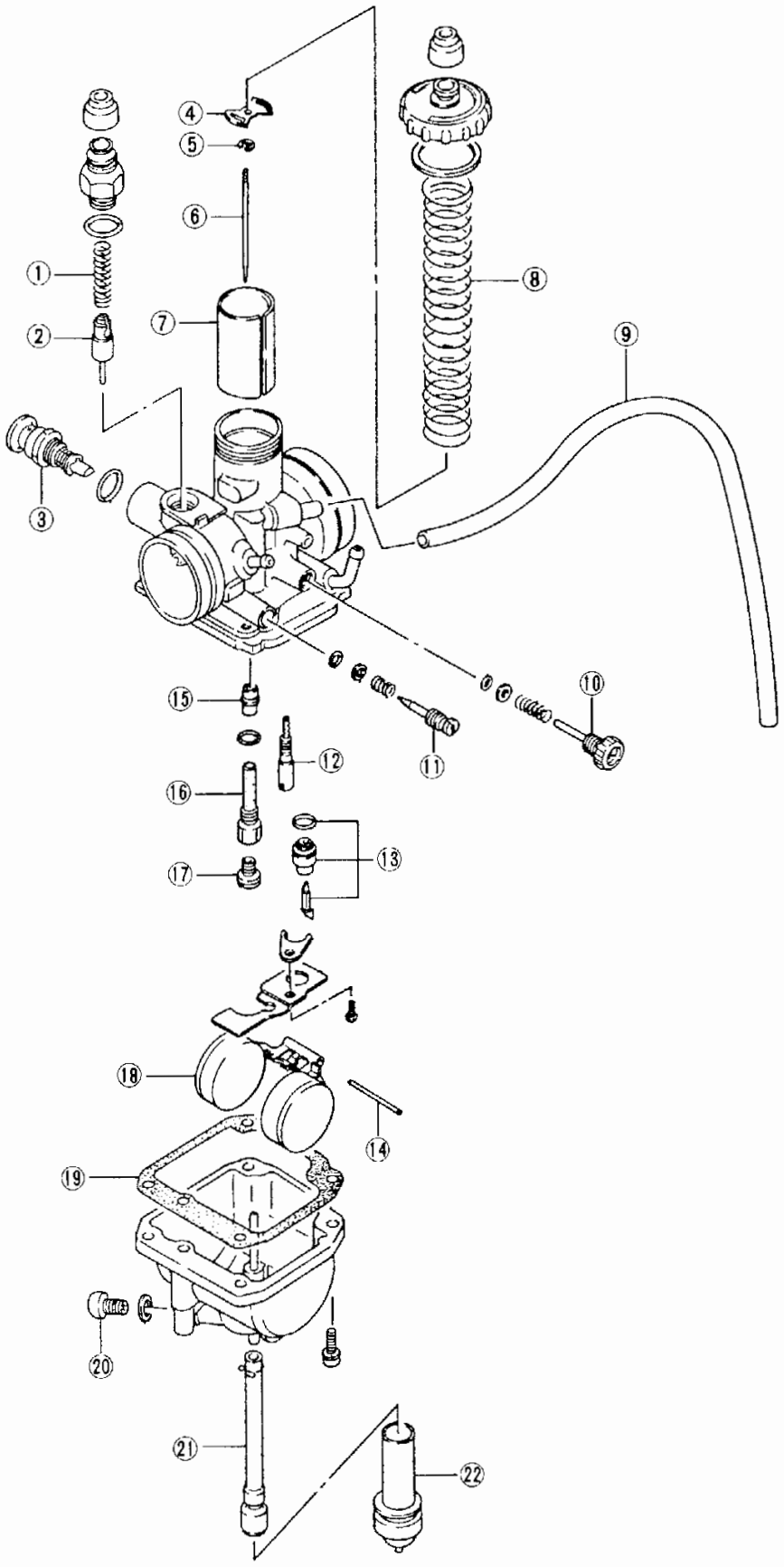
* Broken diaphragm
* Malfunction of check valve
* Loose screws on fuel pump

If any defect is found, replace the fuel pump assembly with a new one.



CARBURETOR

CARBURETOR CONSTRUCTION



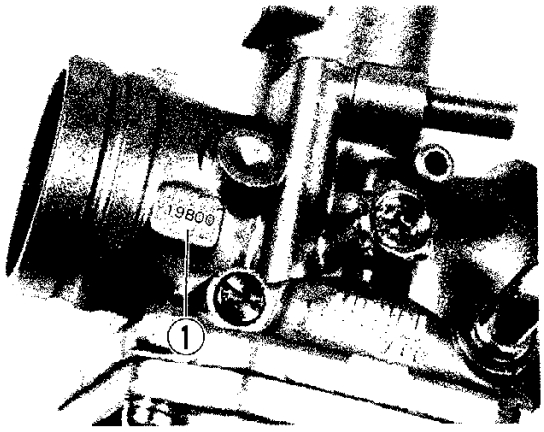
① Starter plunger spring
② Starter plunger
③ Starter limiter
④ Jet needle stopper plate
⑤ E-ring
⑥ Jet needle
⑦ Throttle valve
⑧ Throttle valve return spring
⑨ Breather hose
⑩ Throttle stop screw
⑪ Pilot screw
⑫ Pilot jet
⑬ Needle valve
⑭ Float arm pin
⑮ Needle jet
⑯ Air bleeder
⑰ Main jet
⑱ Float
⑲ Gasket
⑳ Drain screw
㉑ Drain hose
㉒ One-way valve

SPECIFICATION

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM24SS
Bore size		24 mm (0.94 in)
I.D. No.		19B00
Idle r/min		1 400 ± 50 r/min
Float height		24.5 ± 1.0 mm (0.96 ± 0.04 in)
Main jet	(M.J.)	# 100
Main air jet	(M.A.J.)	1.0 mm (0.04 in)
Jet needle	(J.N.)	5L21-3rd
Needle jet	(N.J.)	O-1
Cut-away	(C.A.)	1.5
Pilot jet	(P.J.)	# 22.5
By-pass	(B.P.)	0.8 mm (0.031 in)
Pilot outlet	(P.O.)	0.7 mm (0.028 in)
Valve seat	(V.S.)	1.2 mm (0.05 in)
Starter jet	(G.S.)	# 30
Pilot screw	(P.S.)	PRE-SET (2.0 turns back)
Pilot air jet	(P.A.J.)	1.5 mm (0.06 in)
Throttle cable play		0.5 – 1.0 mm (0.02 – 0.04 in)

I.D. NO. LOCATION

Each carburetor has I.D. Number ① printed on the carburetor body according to its specifications.

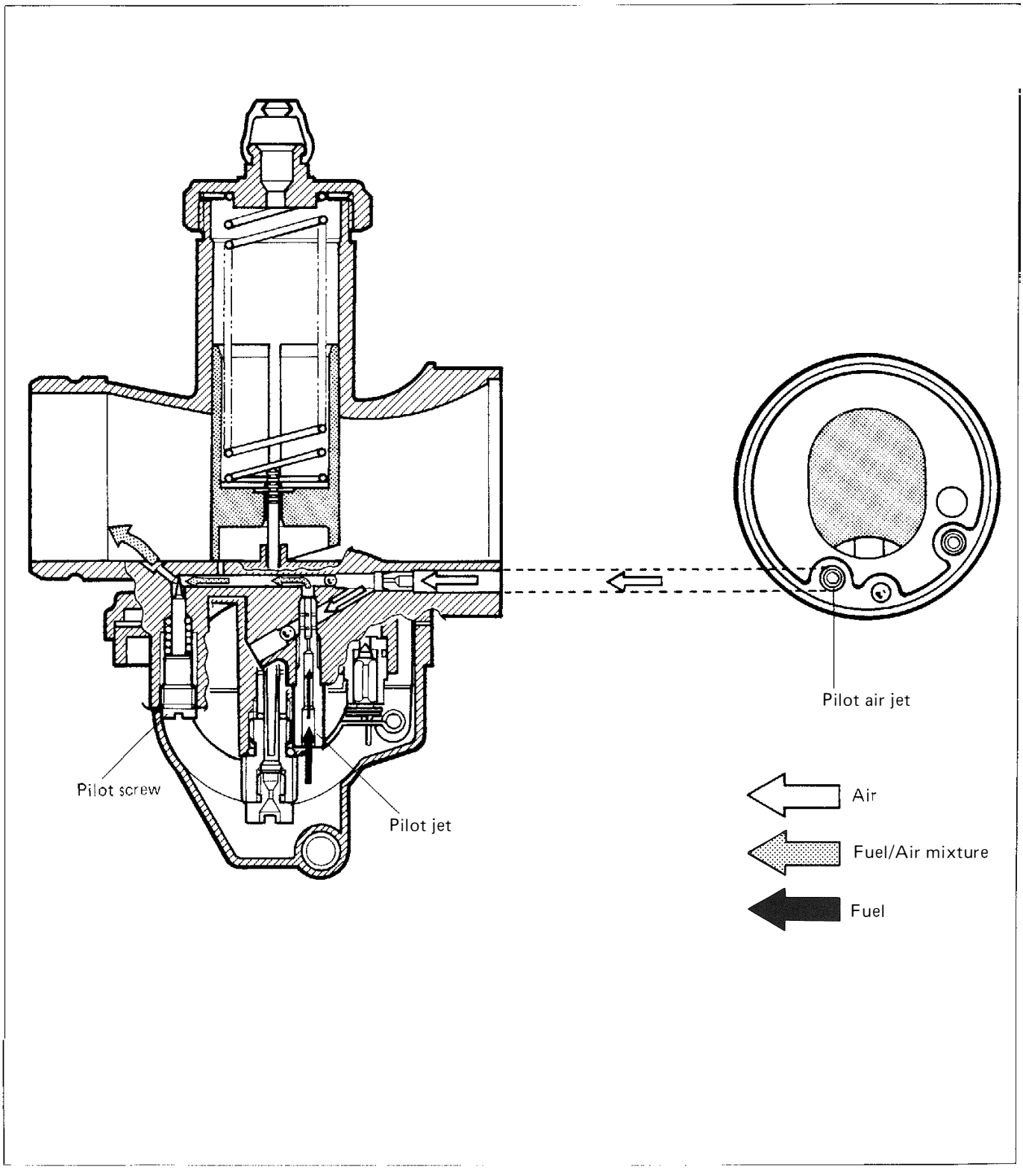


SLOW SYSTEM

This system supplies fuel during engine operation with piston valve closed or slightly opened.

The fuel metered by the pilot jet is mixed with the proper amount of air metered by the pilot air jet and is separated into fine particles. Mixture then exits into the main bore through the pilot outlet.

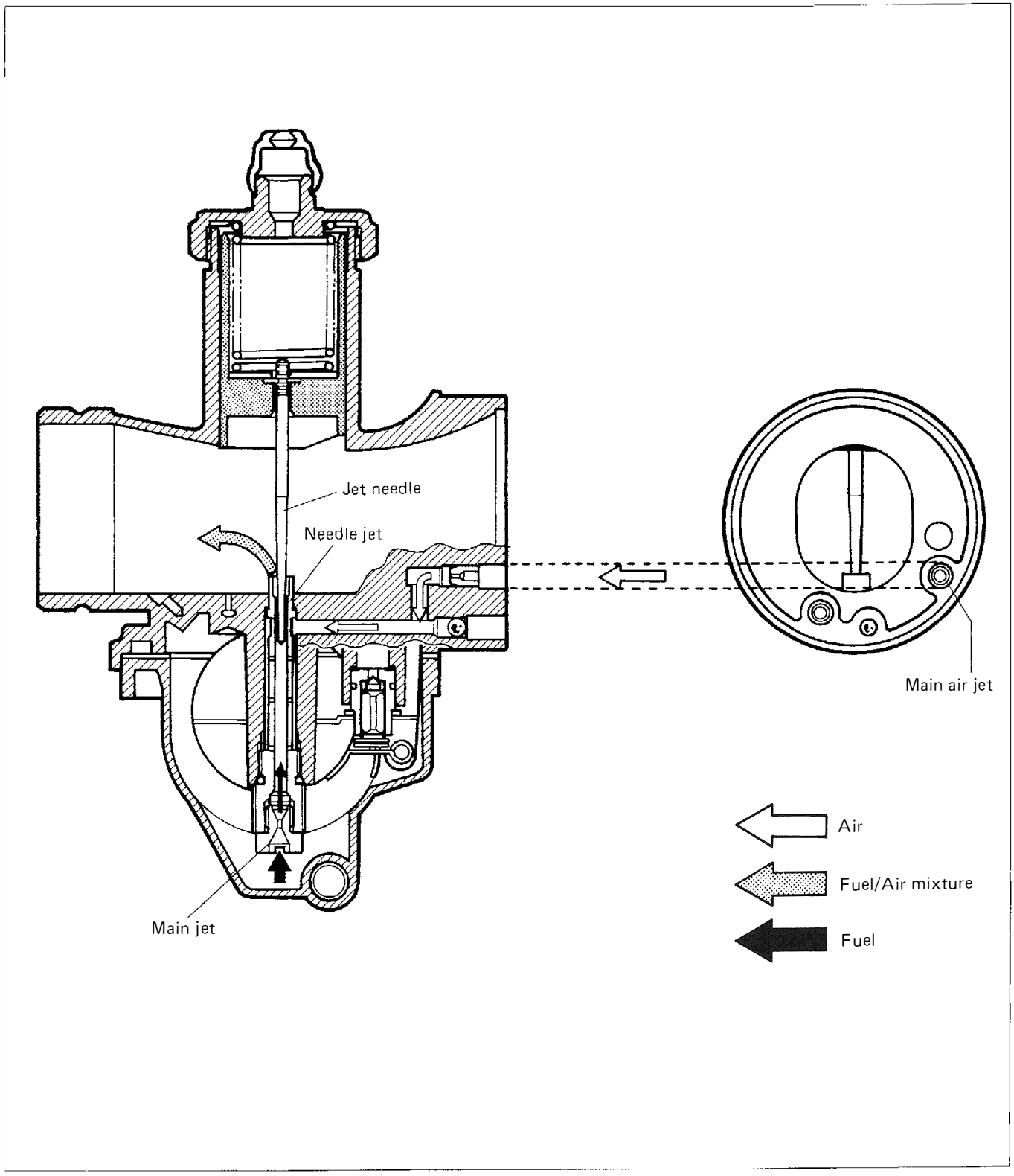
The pilot screw controls the amount of mixture. When the piston valve opens a little, the mixture jets through the by-pass and the pilot outlet.



MAIN SYSTEM

This system supplies fuel during engine operation when the piston valve is 1/4—Full open.

The fuel passes through the main jet and mixes with air metered by the main air jet. The mixture passes by the clearance between the needle jet and jet needle and then exits into the main bore after being metered by the jet needle.



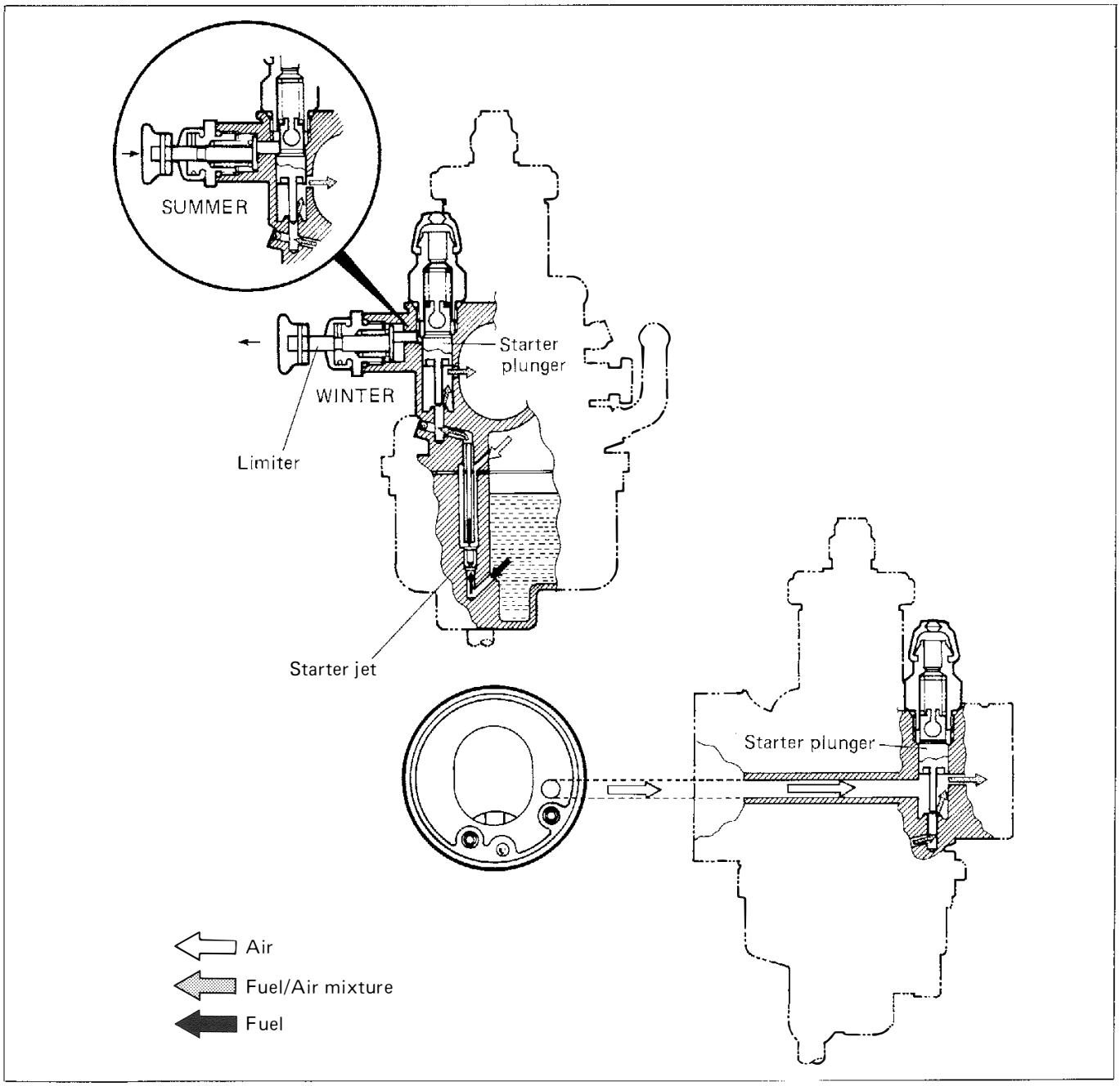
STARTER SYSTEM WITH LIMITER

When the starter valve is pulled up, the fuel metered by the starter jet is mixed with air coming from the float chamber. This mixture, rich with fuel, flows into the starter valve area and mixes again with air coming from the starter air passage.

The two successive mixings of fuel with air are such that a proper fuel/air mixture for starting is produced when the mixture is sprayed out through starter outlet into the main bore.

The starter system features both a summer and winter starter setting for easy starting in all air temperature conditions. The starter circuit is fitted with a "limiter" device that allows the starter plunger to only move to the summer starting position under normal use of the starter. Summer starting temperature conditions are considered to be in the 5°C(40°F) and higher range.

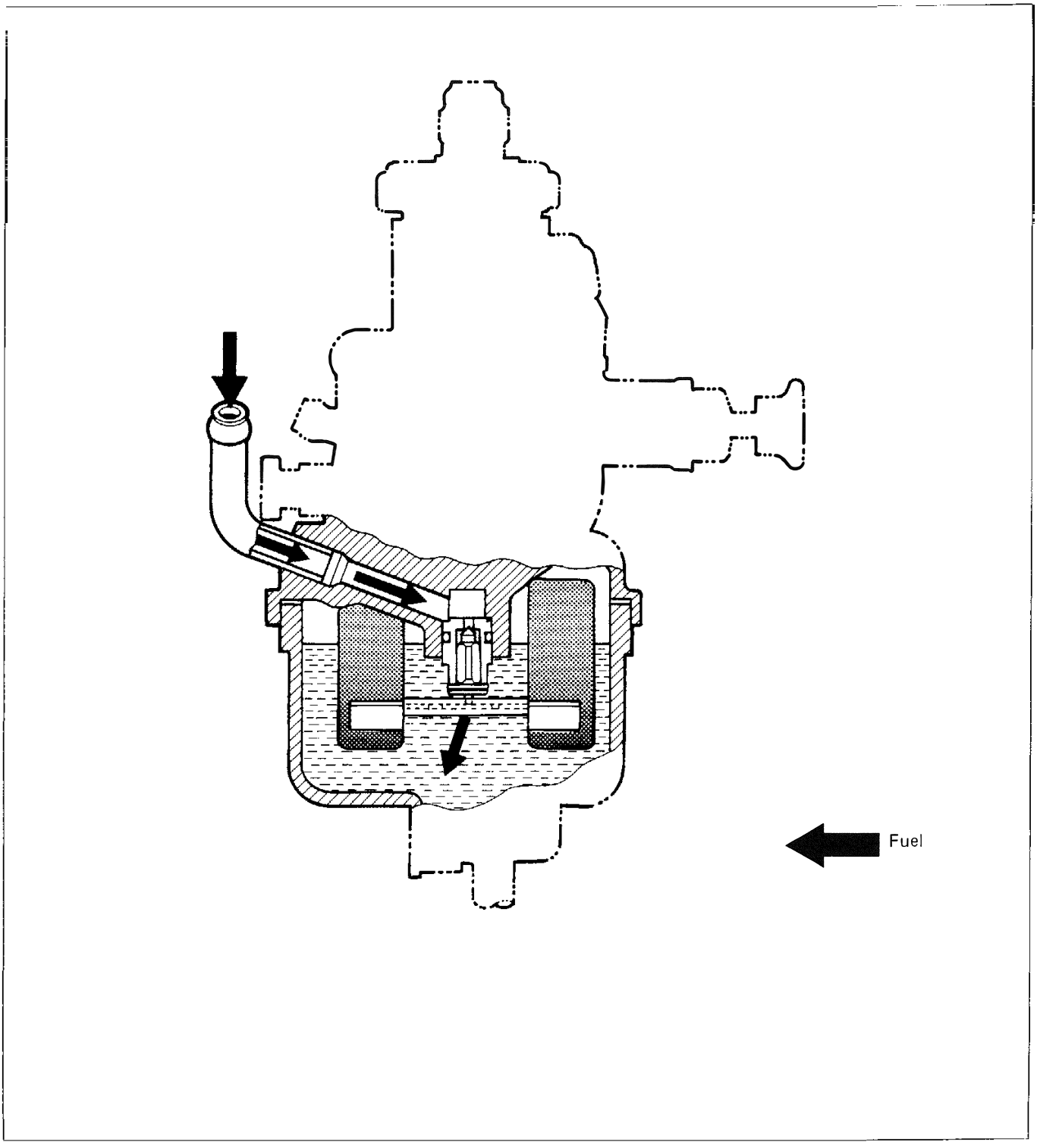
Under winter type air temperature conditions, below 5°C (40°F), the limiter should be pulled out and then the regular starter knob can "open" the starter circuit further providing the richer fuel mixture needed for easy cold weather starts.



FLOAT SYSTEM

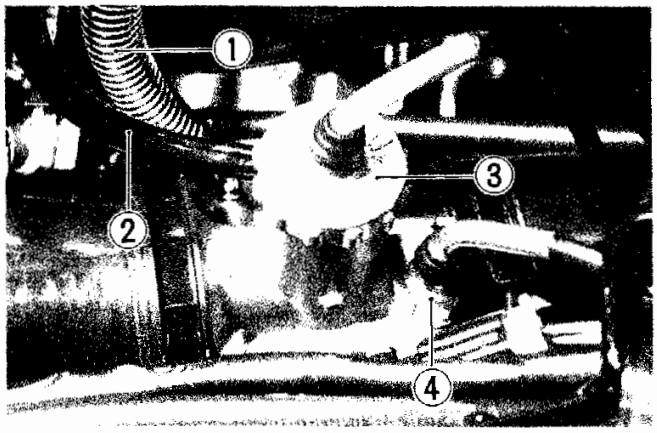
Floats and needle valve are associated with the same mechanism, so that, as the floats move up and down, the needle valve too moves likewise. When fuel level is up in float chamber, floats are up and needle valve remains pushed up against valve seat. Under this condition, no fuel enters the float chamber.

As the fuel level falls, floats go down and needle valve unseats itself to admit fuel into the chamber. In this manner, needle valve admits and shuts off fuel alternately to maintain a practically constant fuel level inside the float chamber.

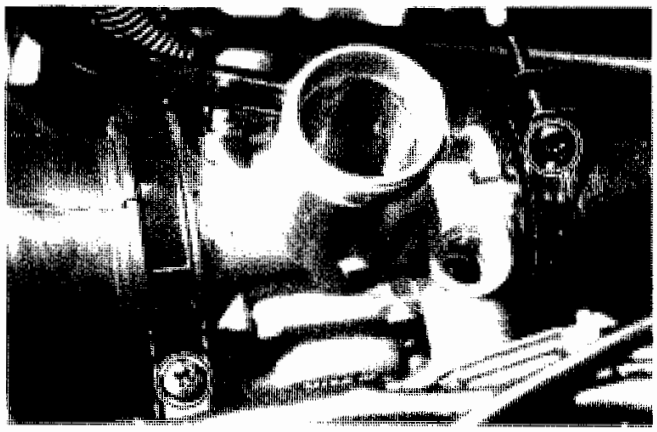


CARBURETOR REMOVAL AND DISASSEMBLY

- Remove the seat. (Refer to page 3-4.)
- Slide the clip and disconnect the fuel hose ① and breather hose ②.
- Loosen the carburetor top cap ③ and separate the throttle valve assembly.
- Loosen the nut ④ and separate the starter plunger assembly.

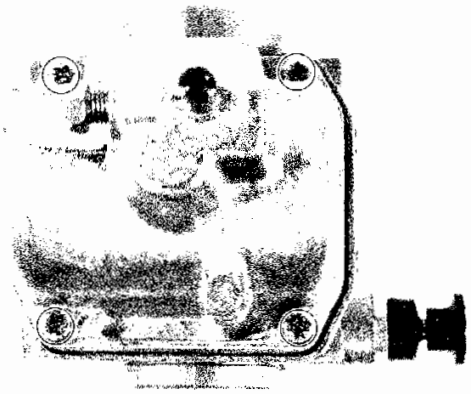


- Loosen two carburetor clamp screws and then remove the carburetor.



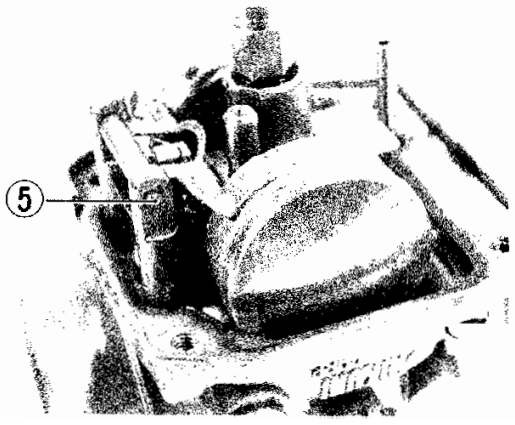
- Remove the float chamber body by removing four screws with the special tool.

09900-09003	Impact driver set

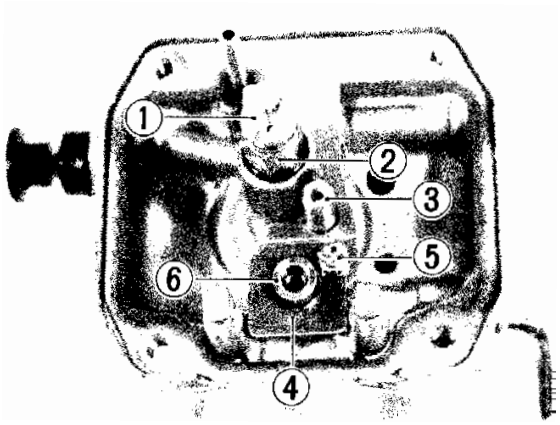


- Pull out the float arm pin ⑤ and remove the float.

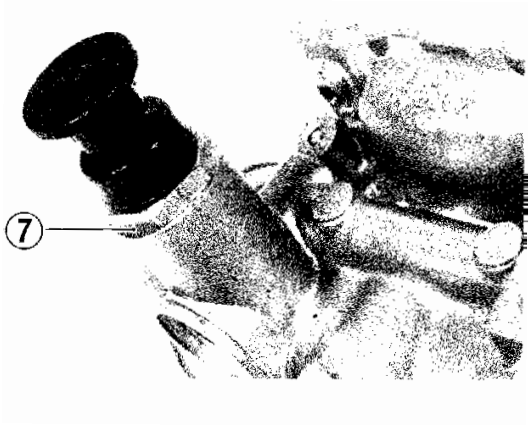
CAUTION:
When removing the float arm pin, be careful not to damage the carburetor body.



- Remove the main jet ①, needle jet ② and pilot jet ③.
- Remove the plate ④ by removing the screw ⑤, then remove the needle valve seat ⑥.

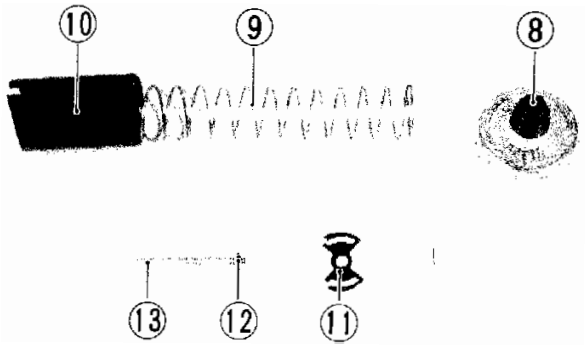


- Remove the nut ⑦ and take out the limiter.

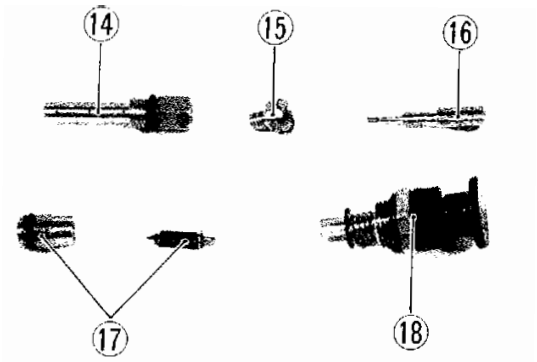


- Separate the throttle valve assembly.

⑧ : Top cap
⑨ : Return spring
⑩ : Throttle valve
⑪ : Stopper plate
⑫ : E-ring
⑬ : Jet needle



⑭ : Needle jet
⑮ : Main jet
⑯ : Pilot jet
⑰ : Needle valve
⑱ : Limiter



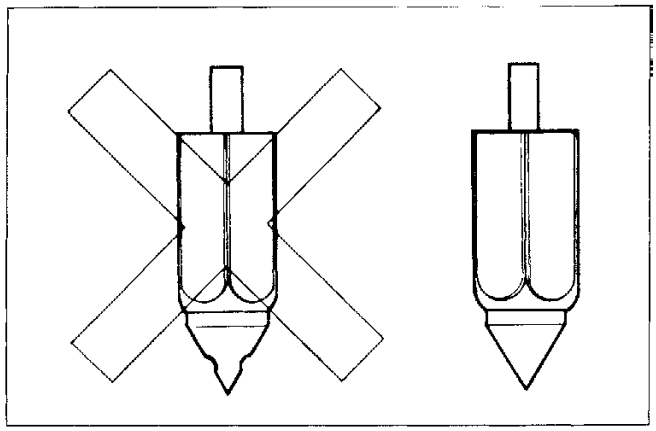
INSPECTION

Check following items for any damage or clogging.

* Pilot jet
* Main jet
* Needle jet air bleeding hole
* Float
* Needle valve mesh
* Gasket
* Throttle valve
* Pilot outlet and bypass holes

NEEDLE VALVE INSPECTION

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



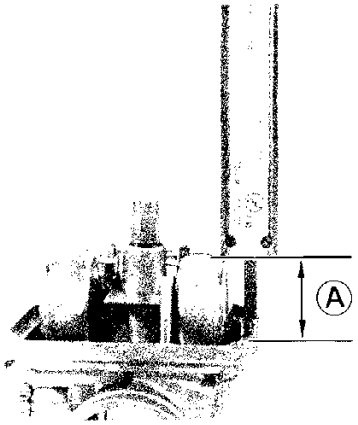
FLOAT HEIGHT ADJUSTMENT

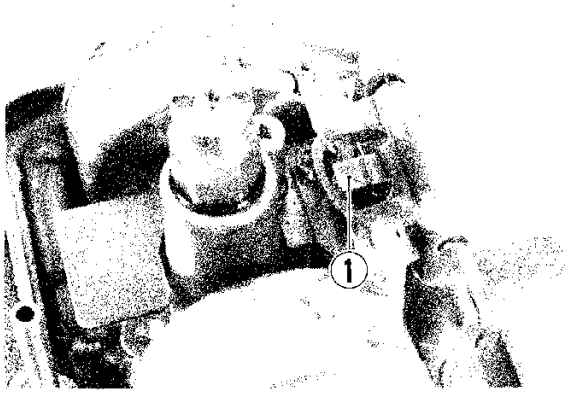
To check the float height, invert the carburetor body, with the float arm kept free, measure the height Ⓐ while float arm is just in contact with needle valve with calipers.

Bend the tongue ① as necessary to bring the height Ⓐ to this value.

Float height Ⓐ	24.5 ± 1.0 mm (0.96 ± 0.04 in)

09900-20101	Vernier calipers





CARBURETOR REASSEMBLY AND REMOUNTING

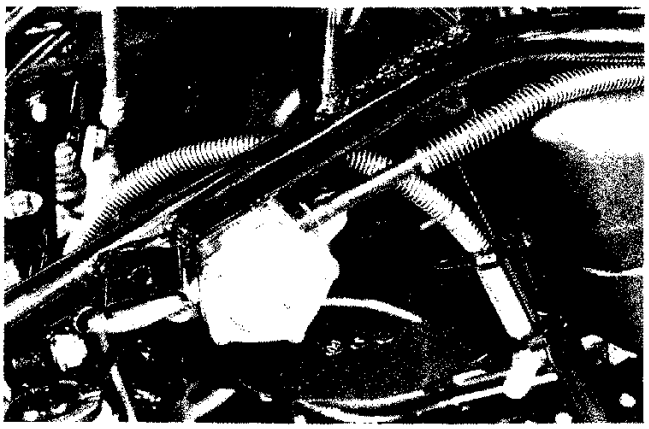
Reassemble and remount the carburetor by reversing the sequence of removal and disassembly, and following adjustments are necessary after remounting the carburetor.

Throttle cable play (Refer to page 2-8.)
Idling adjustment (Refer to page 2-8.)

FUEL TANK REMOVAL AND REMOUNTING

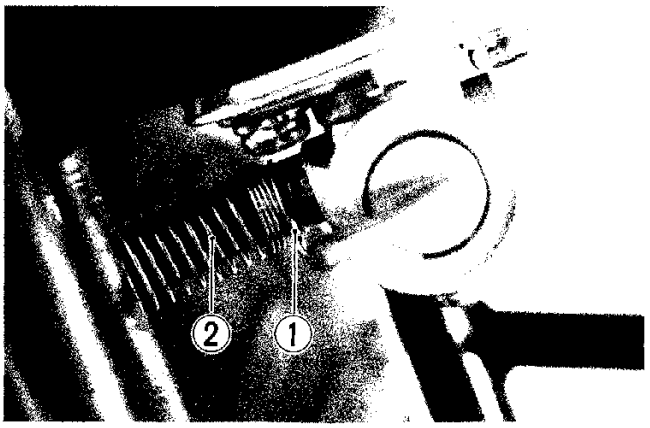
FUEL LINE INSPECTION

Visually inspect the fuel lines, fuel tank and tank cap for damage and fuel leakage. If they are found to be damaged, replace them with new ones.

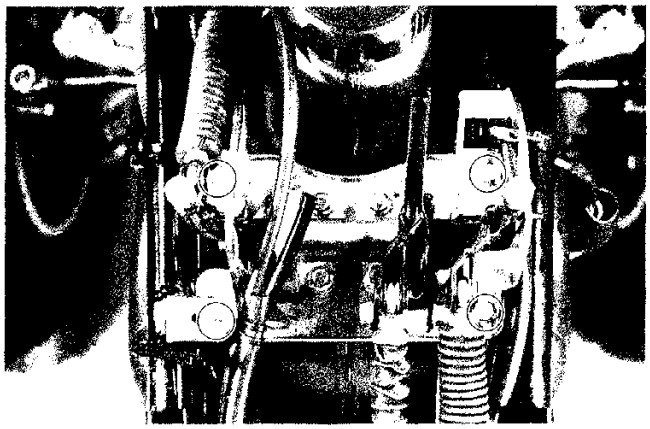


REMOVAL

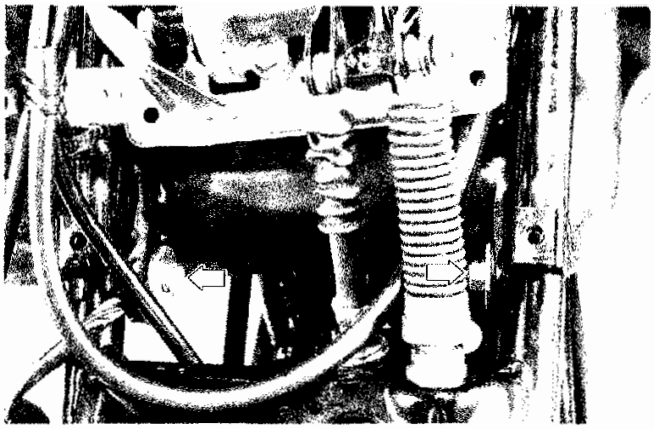
- Remove the front carrier and fender. (Refer to page 7-1.)
- Remove the engine. (Refer to page 3-4.)
- Turn the fuel cock to "OFF" position.
- Slide the clip ① and disconnect the fuel hose ②.



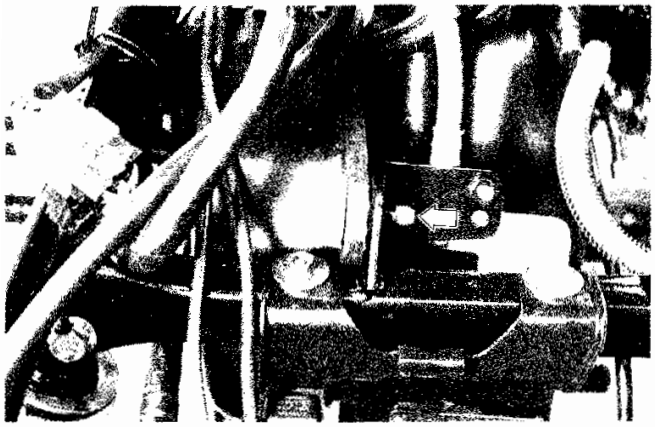
- Remove the four lever mounting bracket bolts and slide the bracket backwards.



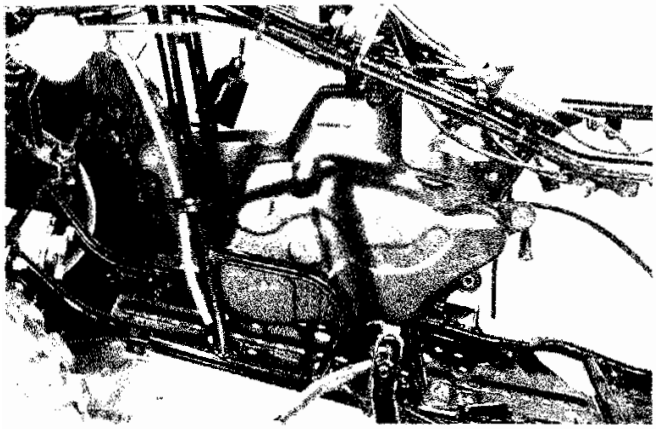
- Remove the two fuel tank mounting bolts, rear side.



- Remove a fuel tank mounting bolt, front side.



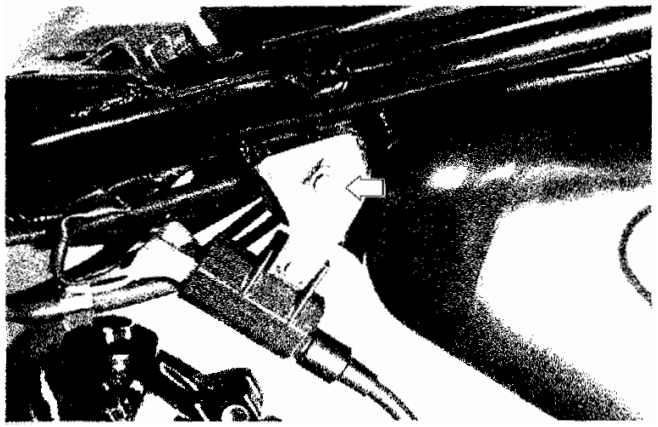
- Remove the fuel tank cap.
- Slide down and back the fuel tank, and remove it from the frame.



REMOUNTING

Remount the fuel tank by reversing the sequence of removal, and following step is necessary.

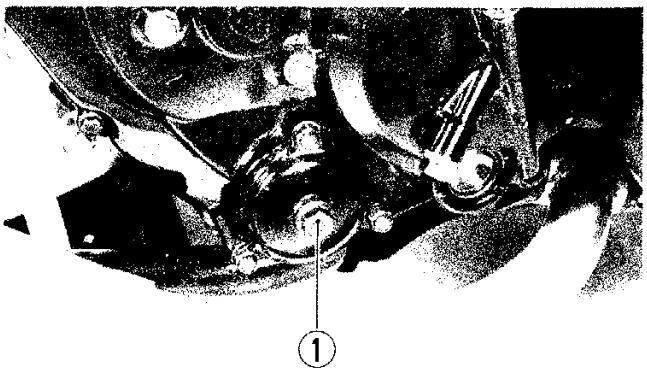
- When mounting the fuel tank bolts, right side rear bolt is installed with the ignition coil mounting bracket.

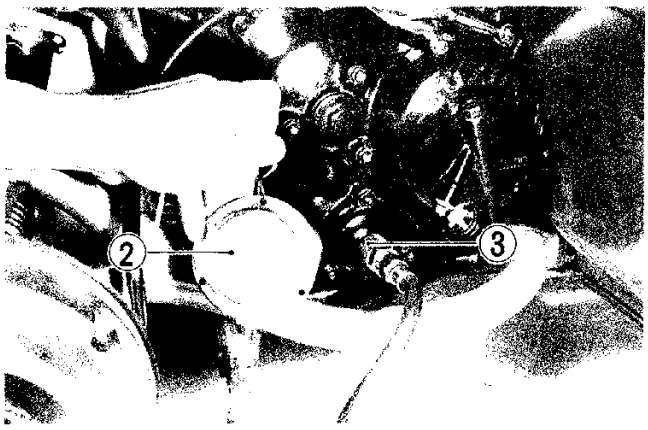


LUBRICATION SYSTEM

OIL PRESSURE

- Support the vehicle by jack or block.
- Remove the right side rear wheel. (Refer to page 3-5.)
- Connect an electric tachometer to the engine.
- Remove the bolt ① on the oil filter cap.
- Install the oil pressure gauge set ② and adaptor ③ in the position shown in Fig.
- Warm up the engine as follows.
  Summer approx. 10 min. at 2 000 r/min.
  Winter approx. 20 min. at 2 000 r/min.
- After the warming up operation, increase the engine speed to 3 000 r/min, and read the oil pressure gauge.





09900-26005	Engine tachometer Not available in U.S. model

NOTE:
Engine oil must be warmed up to 60°C (140°F) when checking the oil pressure.

②	09915-74510	Oil pressure gauge
③	09915-74530	Adaptor

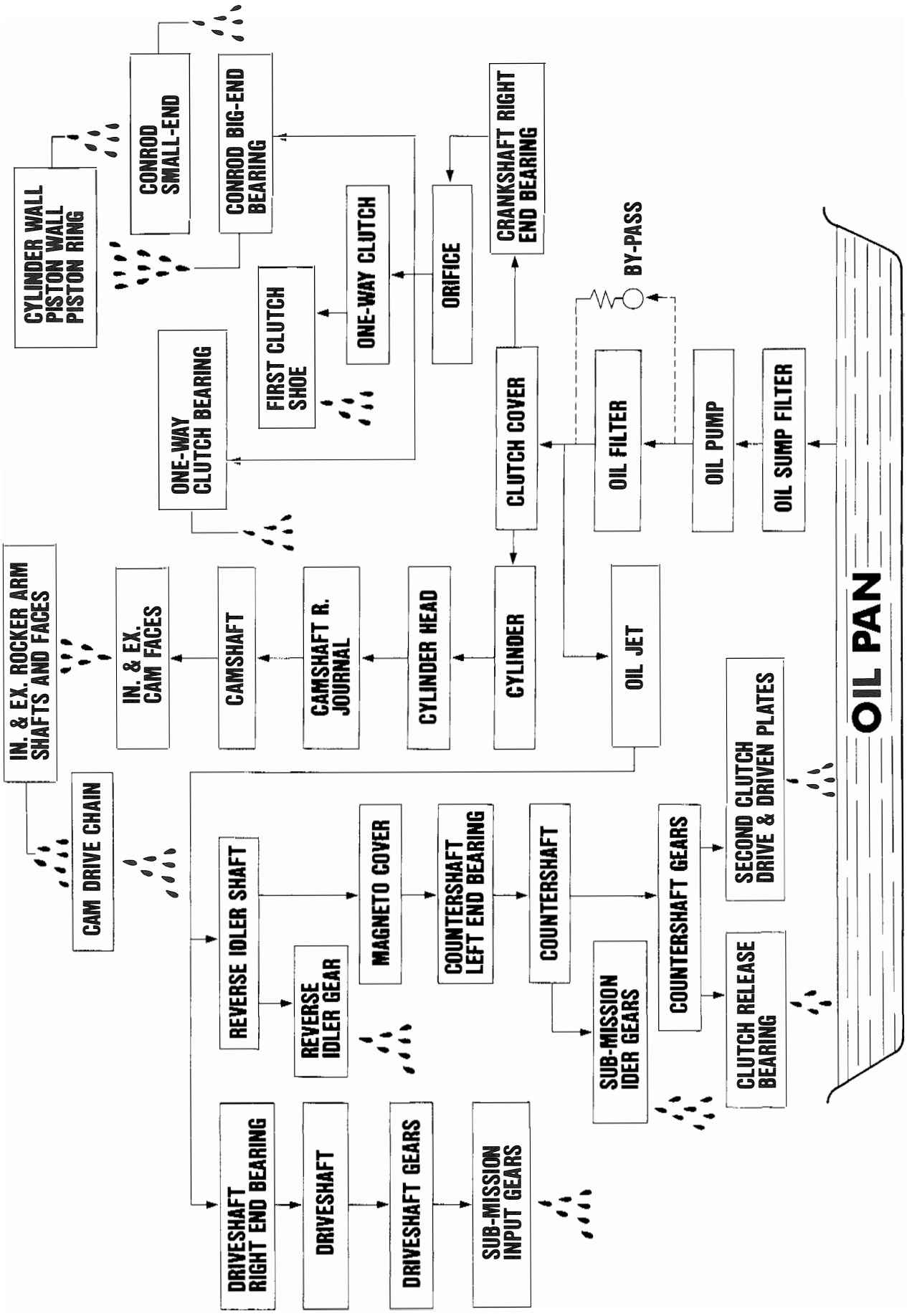
Oil pressure specification

Above 30 kPa (0.30 kg/cm², 4.3 psi),
Below 70 kPa (0.70 kg/cm², 10.0 psi)
at 3 000 r/min. Oil temp. at 60°C (140°F)

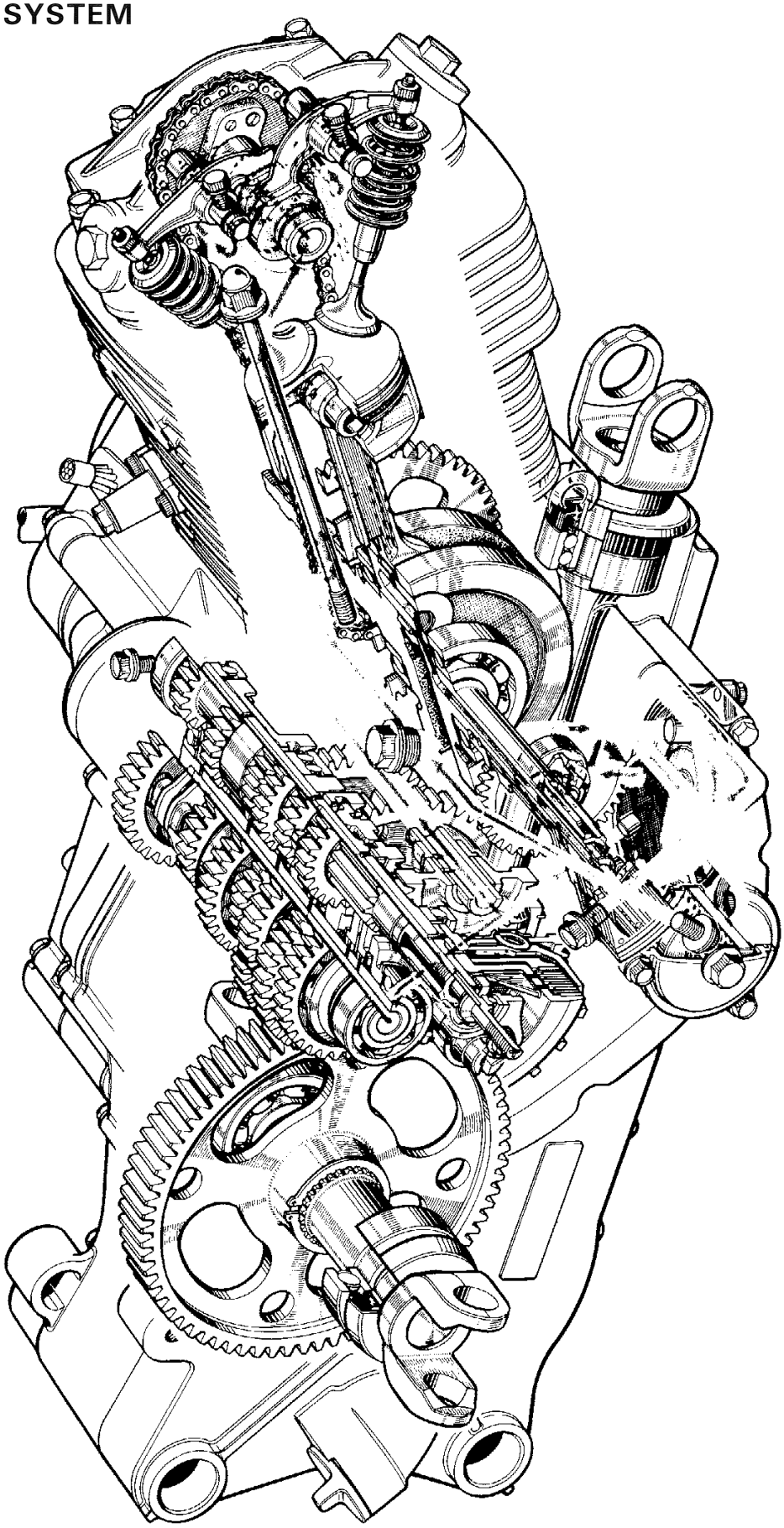
If the oil pressure is lower or higher than the specifications, several causes may be considered.

* Low oil pressure is usually the result of a oil leakage from the oil passageway, damaged oil seal, a defective oil pump or a combination of these items.
* Hight oil pressure is usually caused by an engine oil which is too heavy a weight, a clogged oil passage or filter, improper installation of the oil filter or a combination of these items.

LUBRICATION SYSTEM CHART



LUBRICATION SYSTEM



ELECTRICAL SYSTEM

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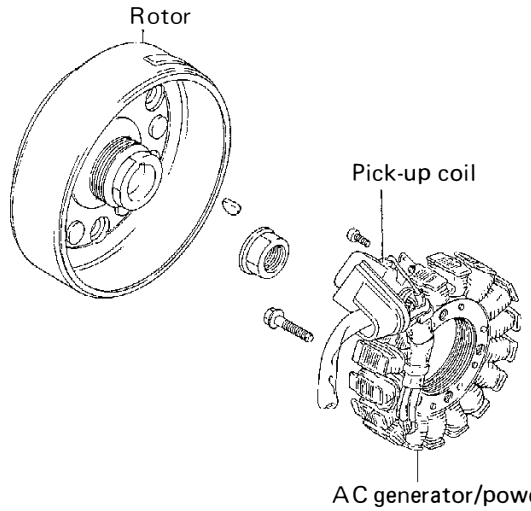
IGNITION SYSTEM

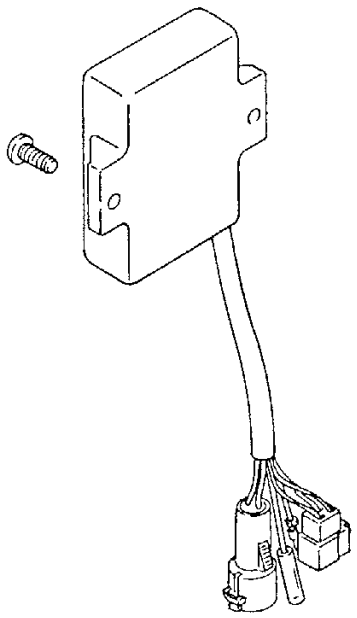
DESCRIPTION

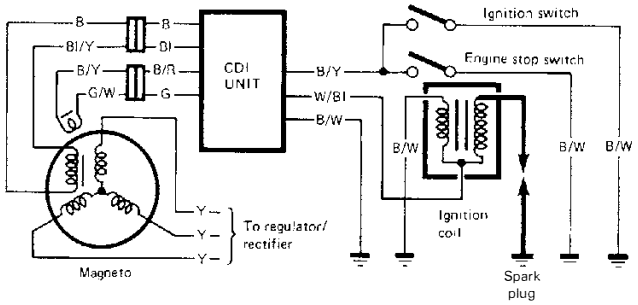
In the capacitor discharged ignition system, the electrical energy generated by the magneto charges the capacitor. This energy is released in a single surge at the specified ignition timing point, and current flows through the primary side of the ignition coil. A high voltage current is induced in the secondary windings of the ignition coil resulting in strong spark between the spark plug gap.

MAGNETO



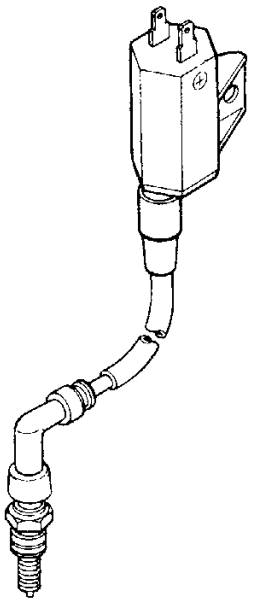
CDI UNIT





WIRE COLOR

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



IGNITION COIL AND SPARK PLUG

INSPECTION

MAGNETO COIL

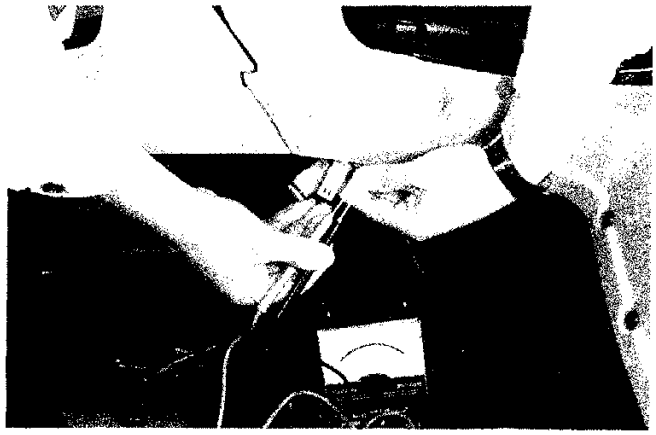
- Remove the seat.
- Disconnect the pick-up and power source lead wire couplers at the magneto.
- Using the pocket tester, measure the resistance between the lead wires in the following table.

09900-25002	Pocket tester

Magneto coil resistance	
Pick-up	B/Y – G/W 90 – 140 Ω
Power source	B – Bl/Y 105 – 160 Ω

WIRE COLOR

B : Black
G/W : Green with White tracer
B/Y : Black with Yellow tracer
Bl/Y : Blue with Yellow tracer



NOTE:
When replacing the stator, apply a small quantity of THREAD LOCK "1342" to the stator bolts. (Refer to page 3-48)

99000-32050	Thread Lock "1342"

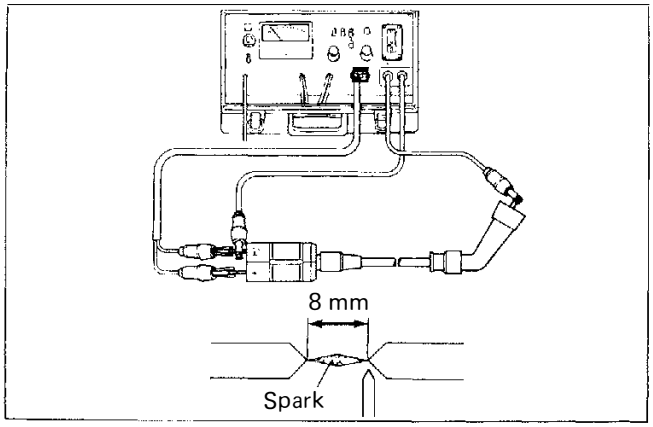
IGNITION COIL

Checking with electro tester.

- Remove the ignition coil from the frame.
- Test the ignition coil for sparking performance. Test connection is as indicated. Make sure that the three-needle sparking distance is at least 8 mm.

09900-28106	Electro tester

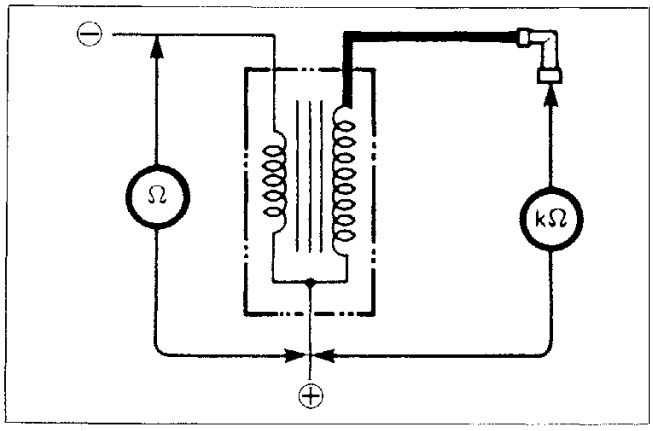
STD Spark performance	8 mm (0.3 in)



Checking with pocket tester.

09900-25002	Pocket tester

Ignition coil resistance	
Primary	⊕ tap – ⊖ tap 0 – 0.5 Ω
Secondary	Plug cap – ⊕ tap 10 – 16 kΩ

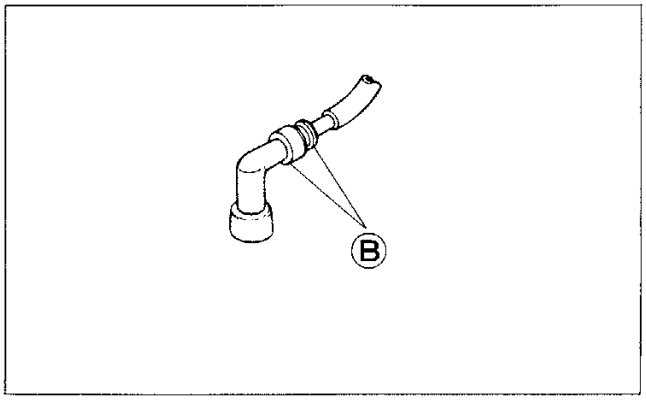


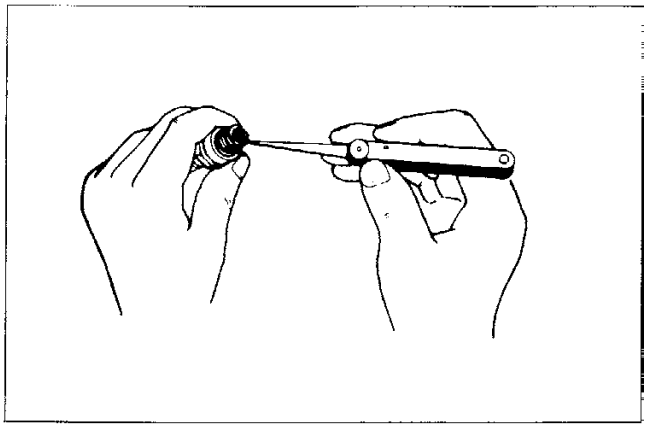
SPARK PLUG

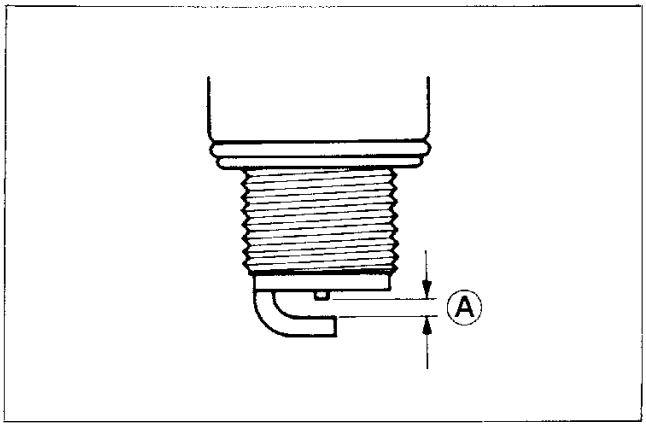
- Clean the plug with a wire brush and pin. Use the pin to remove carbon, taking care not to damage the porcelain.
- Check the gap with a thickness gauge.

Spark plug gap Ⓐ	0.6 – 0.7 mm (0.024 – 0.028 in)

NOTE:
When replacing the spark plug cap, apply BOND No. 1207B to the grooves Ⓑ of the spark plug cap boot.







CDI UNIT

- Disconnect the lead wire couplers at the CDI unit.
- Using the pocket tester (X 1 kΩ range), measure the resistance between the lead wires in the following table.
  If the resistance checked is incorrect, replace the CDI unit.

09900-25002	Pocket tester

Unit: Approx. kΩ

⊖ Probe of tester to : / ⊕ Probe of tester to :	B	Bl	G	B/R	W/Bl	B/W	B/Y
B		10–80	10–60	10–60	∞	10–60	2–10
Bl	5–40		5–30	4–20	∞	4–20	20–100
G	3–20	3–20		1–6	∞	1–6	8–40
B/R	2–10	2–10	1–6		∞	0	5–30
W/Bl	∞	∞	∞	∞		∞	∞
B/W	2–10	2–10	1–6	0	∞		5–30
B/Y	∞	∞	∞	∞	∞	∞	

WIRE COLOR

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

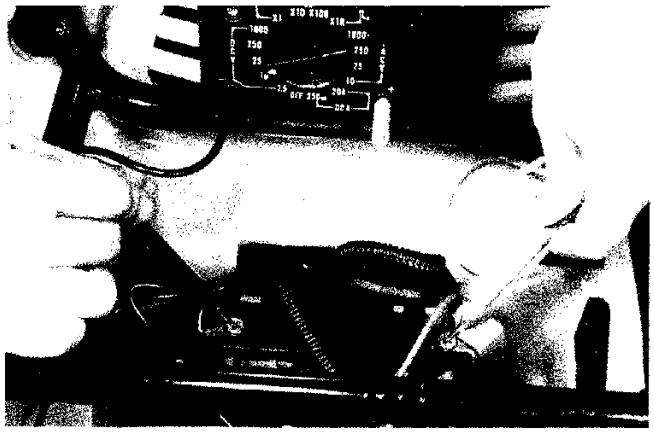
CAUTION:
As transistors, capacitors, zener diodes, etc. are used inside this CDI unit, the resistance values will differ when an ohmmeter other than the Suzuki pocket tester is used.

CHARGING SYSTEM

INSPECTION

CHARGING OUTPUT

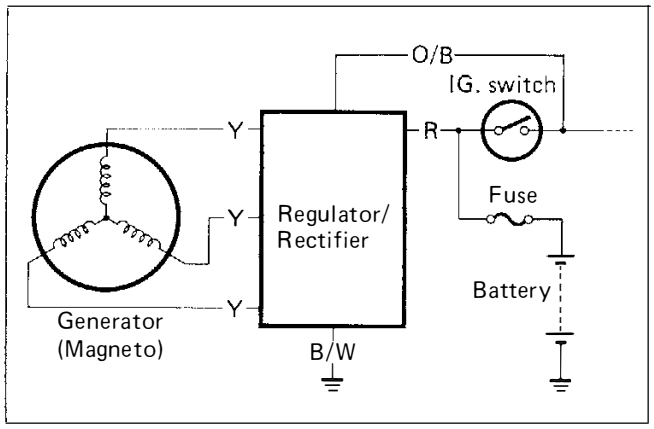
- Remove the headlight cover. (Refer to page 7-2.)
- Start the engine and keep it running at 5 000 r/min and ignition switch turned LIGHT position.
- Using the pocket tester, measure the DC voltage between the battery terminals, ⊕ and ⊖.
  If the tester reads under 14.0V or over 15.5V, check the AC generator no-load performance and regulator/rectifier.



NOTE:
When making this test, be sure that the battery is fully-charged condition.

STD charging output	14.0 – 15.5V (DC) at 5 000 r/min

09900-25002	Pocket tester

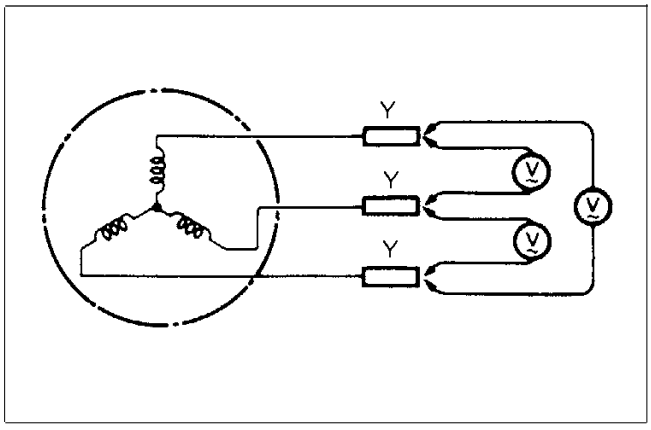


AC GENERATOR NO-LOAD PERFORMANCE

- Remove the seat.
- Disconnect the AC generator lead wire coupler.
- Start the engine and keep it running at 5 000 r/min.
- Using the pocket tester, measure the AC voltage between the three yellow lead wires.
  If the tester reads under 55V, the AC generator (stator or rotor) is faulty.

STD No-load performance (When engine is cold)	More than 55V (AC) at 5 000 r/min

09900-25002	Pocket tester



AC GENERATOR CONTINUITY

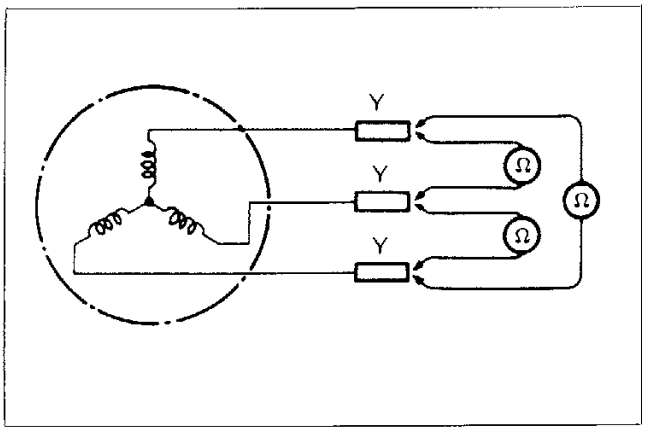
- Using the pocket tester, check the continuity or resistance between the three yellow lead wires. Also check that the stator core is insulated.
- Check that there is no continuity between the stator leads and ground.
  If the continuity or resistance checked is incorrect, replace the stator.

NOTE:
When making this test, it is not necessary to remove the AC generator.

09900-25002	Pocket tester

Stator (Charging coil)	Y – Y 0.1 – 1.0 Ω

WIRE COLOR
Y : Yellow



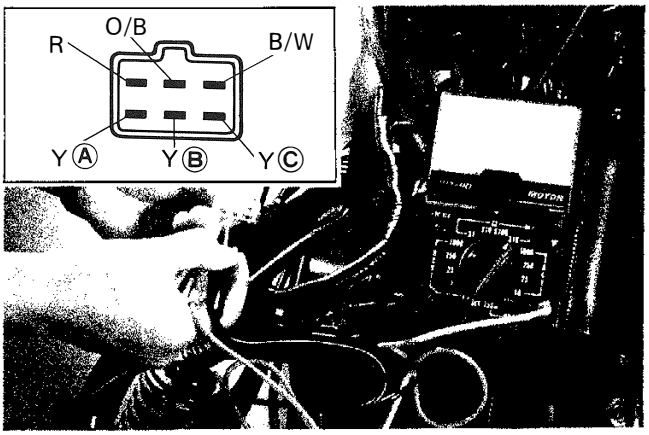
REGULATOR/RECTIFIER

- Remove the seat, headlight cover, battery and front fender. (Refer to page 7-2.)
- Using the pocket tester (X 1kΩ range), measure the resistance between the lead wires in the following table.
  If the resistance checked is incorrect, replace the regulator/rectifier.

09900-25002	Pocket tester

Unit: Approx. kΩ

⊖ Probe of tester to : / ⊕ Probe of tester to :	R	O/B	B/W	Y Ⓐ	Y Ⓑ	Y Ⓒ
R		∞	∞	∞	∞	∞
O/B	6–20		0.1–1	2–7	2–7	2–7
B/W	6–20	0.1–1		1–6	1–6	1–6
Y Ⓐ	1–6	∞	∞		∞	∞
Y Ⓑ	1–6	∞	∞	∞		∞
Y Ⓒ	1–6	∞	∞	∞	∞	



CAUTION:
As transistors, capacitors, zener diodes, etc. are used inside this regulator/rectifier, the resistance values will differe when an ohmmeter other than the Suzuki pocket tester is used.

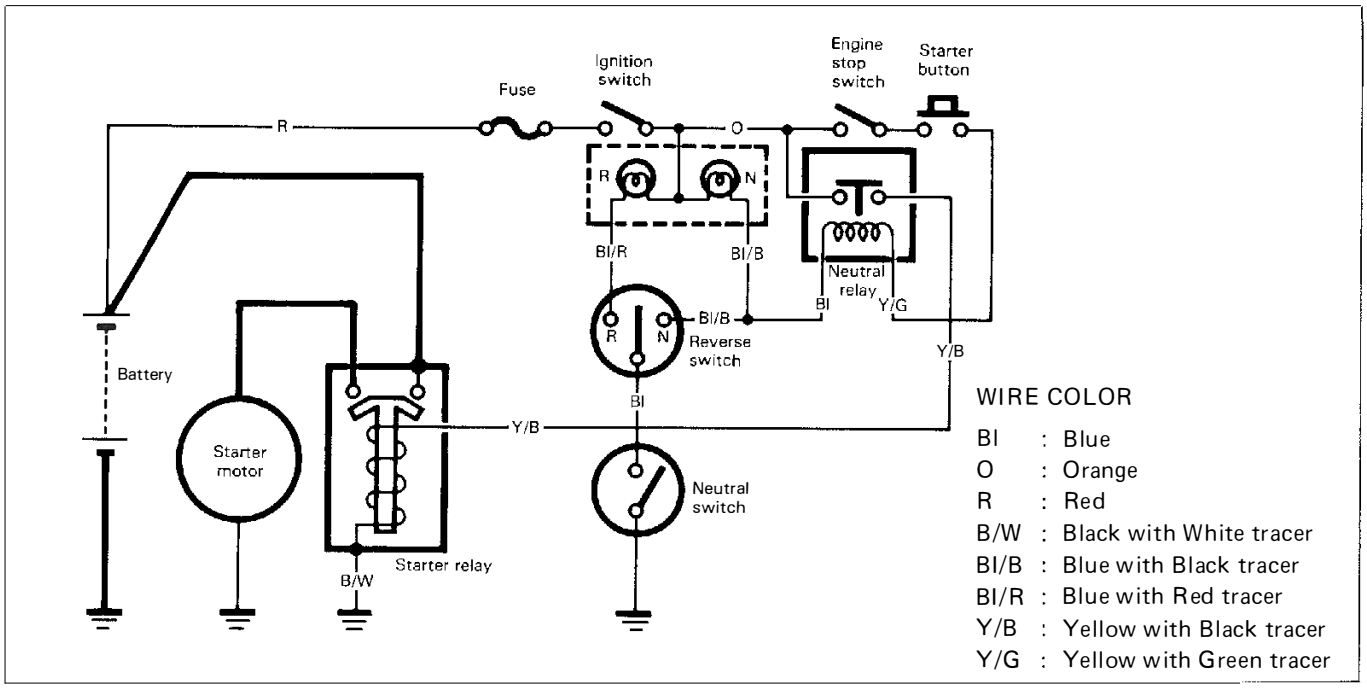
WIRE COLOR

R	:	Red	O/B	:	Orange with Black tracer
Y	:	Yellow	B/W	:	Black with White tracer
∞	:	Infinity			

STARTER SYSTEM

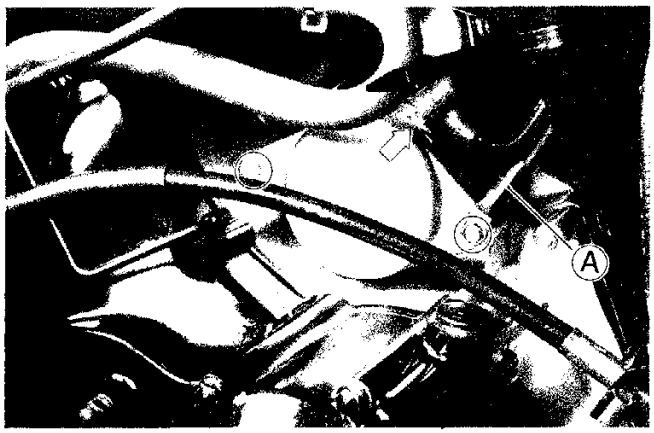
DESCRIPTION

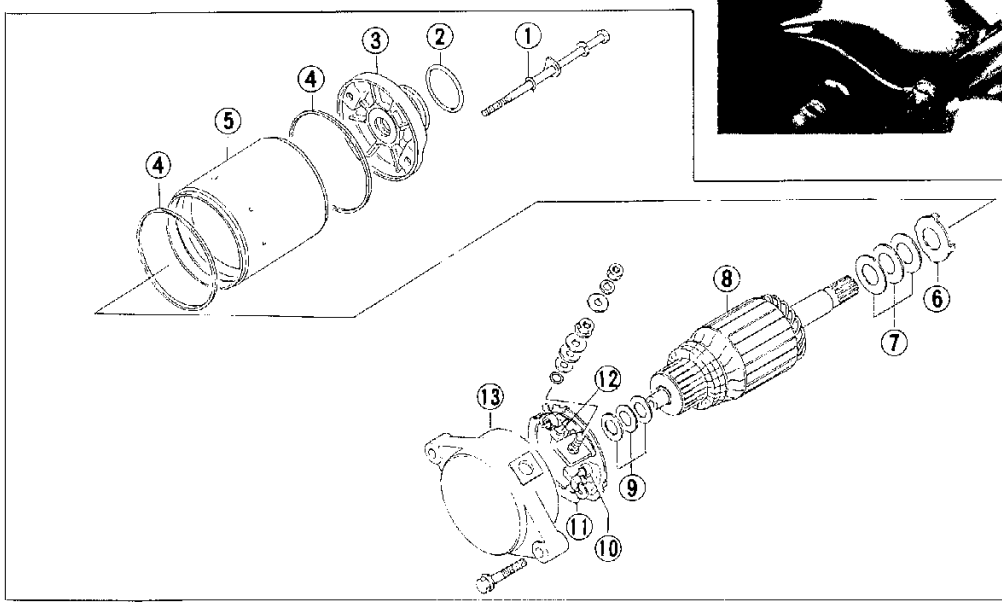
The starter system is shown in the diagram below: namely, the starter motor, starter relay, neutral relay, reverse switch, neutral switch, starter button, engine stop switch, ignition switch and battery. Depressing the starter button (on the left handlebar switch box) energizes the relay, causing the contact points to close which connects the starter motor to the battery. The motor draws about 80 amperes to start the engine.



STARTER MOTOR REMOVAL AND DISASSEMBLY

- Disconnect the starter motor lead wire by removing the nut, then remove the starter motor by removing the mounting bolts.
  Ⓐ Engine ground wire.
- Disassemble the starter motor as shown in the following illustration.



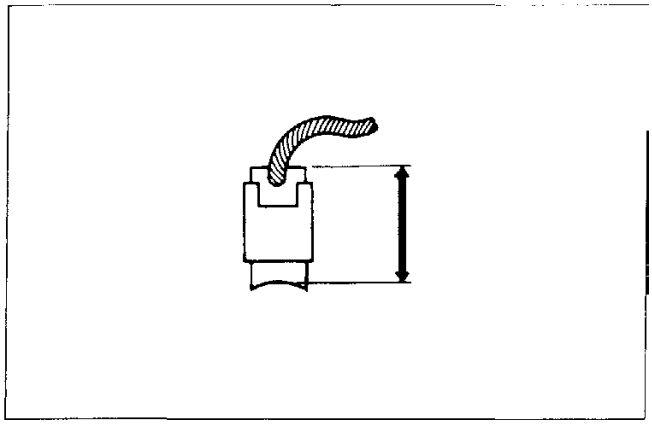


STARTER MOTOR INSPECTION

CARBON BRUSH

When the brushes are worn, the motor will be unable to produce sufficient torque, and the engine will be difficult to turn over. To prevent this, periodically, inspect the length of the brushes, replacing them when they are too short or chipping.

Service Limit	9 mm (0.4 in)

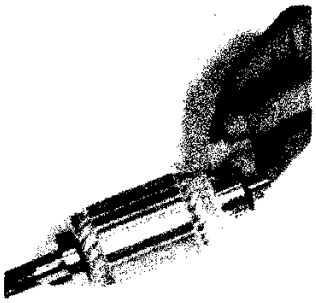


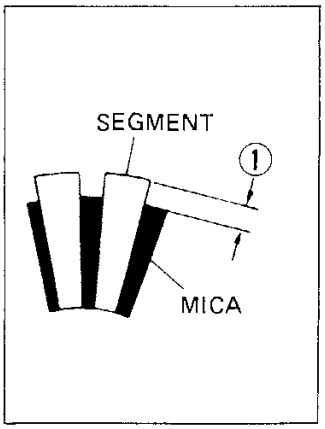
COMMUTATOR

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 (0.008 in)



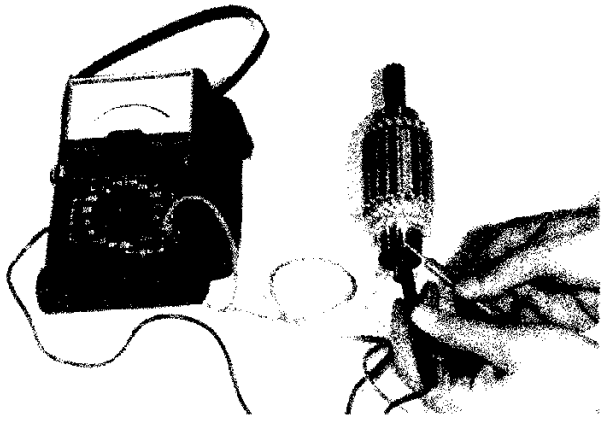


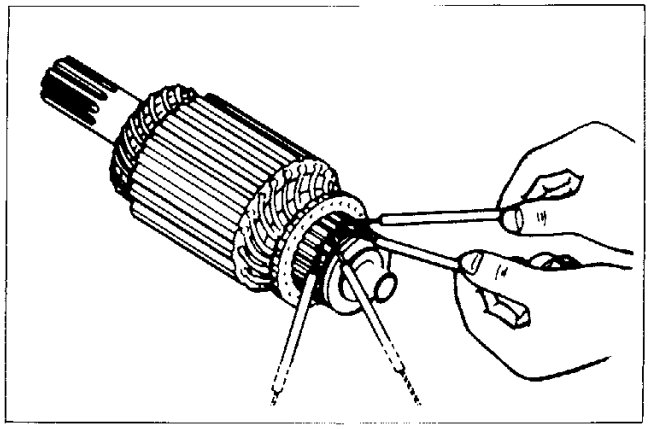
ARMATURE COIL

Using a pocket tester, check the coil for open and ground by placing probe pins on each commutator segment and rotor core (to test for ground) and on any two segments at various places (to test for open), with the brushes lifted off the commutator surface.

If the coil is found to be open circuited or grounded, replace the armature. Continuous use of a defective armature will cause the starter motor to suddenly fail.

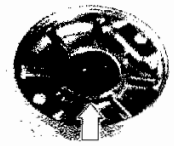
09900-25002	Pocket tester





OIL SEAL

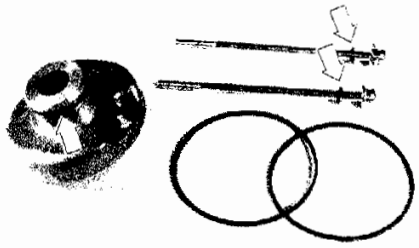
Check the seal lip for damage or oil leakage. If any damage is found, replace it.



STARTER MOTOR REASSEMBLY

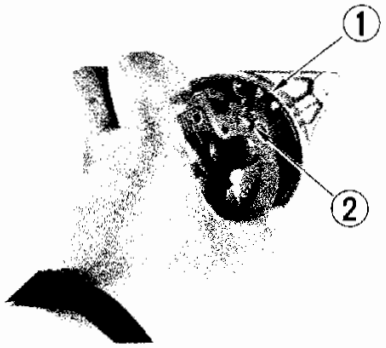
O-RING

CAUTION:
Replace the O-rings with new ones to prevent oil leakage and moisture.



BRUSH HOLDER

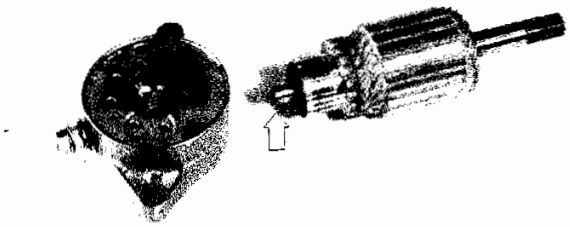
- Align the groove ① on the housing end with the tab ② of brush holder.



ARMATURE

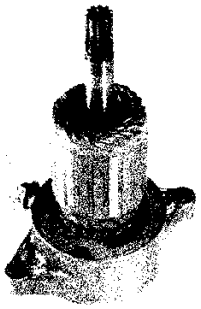
- Apply a small quantity of moly paste to the armature end.

99000-25140	SUZUKI Moly Paste



- Install the armature to the housing end.

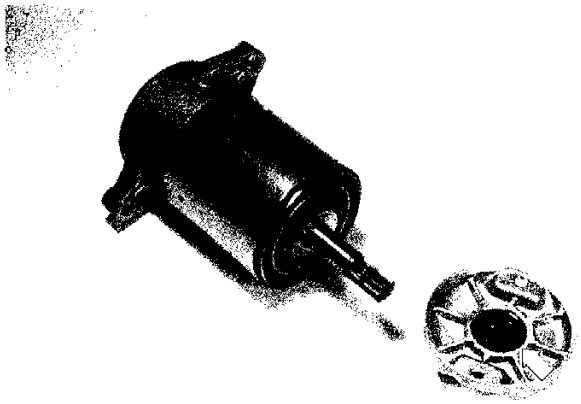
NOTE:
Be sure to check that the brushes are seated on the commutator properly.



- Apply grease to the lip of oil seal.
- Align the grooves on the housing end with the tabs of washer.

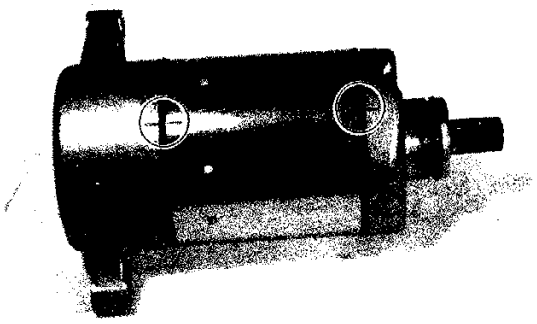
99000-25030 For U.S. model	SUZUKI Super Grease "A"

99000-25010 For other models	SUZUKI Super Grease "A"



HOUSING END

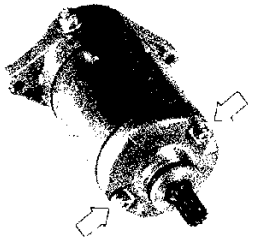
- Align the engraved line marks on the housing ends with the engraved line marks on the starter motor case.



HOUSING SCREW

- Apply a small quantity of THREAD LOCK "1342" to the starter motor housing screws and tighten them.

99000-32050	Thread Lock "1342"

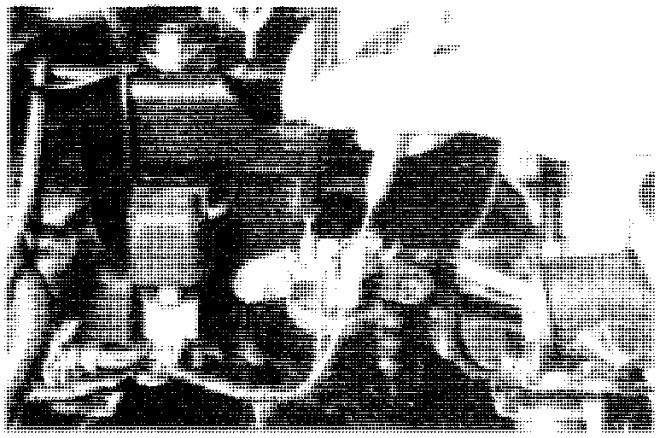


STARTER RELAY INSPECTION

- Remove the seat, headlight cover, battery and front fender. (Refer to page 7-2.)
- Disconnect the lead wire ① of the starter motor at starter relay.

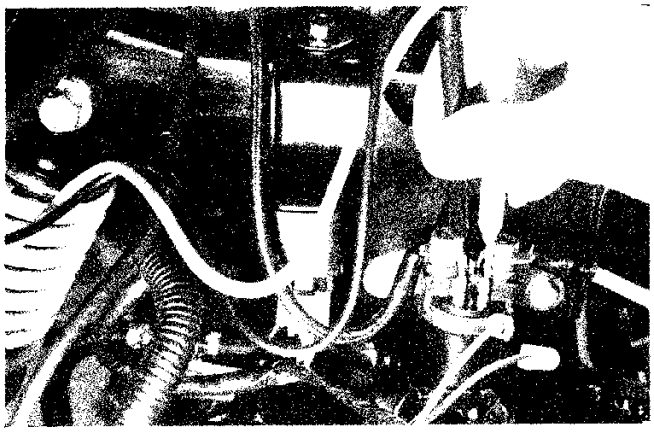
CAUTION:
When removing the lead wire from the starter relay terminal, do not touch the wrench to the other terminal.

- Turn on the ignition switch, inspect the continuity between the terminals, positive and negative, when pushing the starter button.
  If the starter relay is in sound condition, continuity is found.



09900-25002	Pocket tester

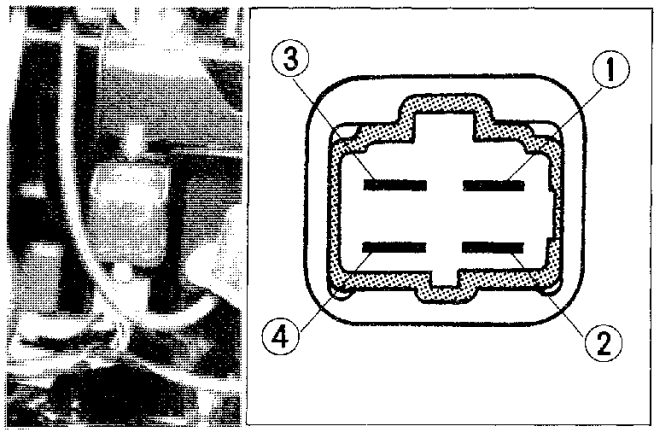
- Disconnect the two lead wires from the starter relay.
- Check the coil for "open", "ground" and ohmic resistance. The coil is in good condition if the resistance is as follows.



09900-25002	Pocket tester
STD resistance	3 – 7 Ω

NEUTRAL RELAY INSPECTION

- Remove the neutral relay from the starter relay holder.
- Apply 12 volts to ① and ② terminals, ⊕ to ① and ⊖ to ②, and check the continuity between ③ and ④ with pocket tester. If there is no continuity, replace the neutral relay assembly with a new one.



09900-25002	Pocket tester

LAMPS

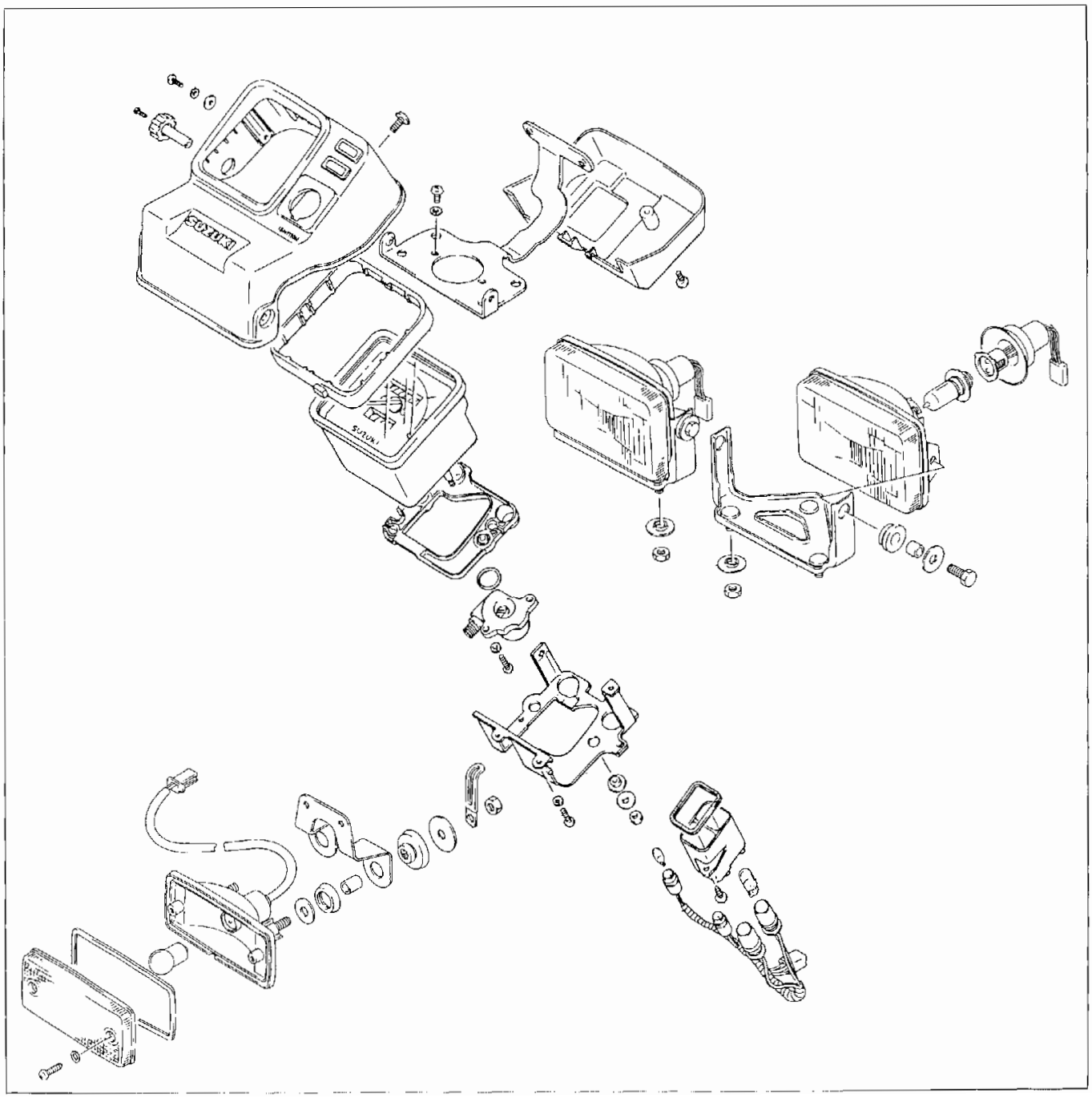
INSPECTION

After installing a new bulb, check for continuity. If the bulb does not light, inspect the wiring for open or short circuit.

Headlight	12V 30/30W
Taillight	12V 5W
Speedometer	12V 3.4W
Reverse indicator light	12V 3.4W
Neutral indicator light	12V 3.4W

09900-25002	Pocket tester

CAUTION:
Do not overtighten the lens fitting screws.



SWITCHES

INSPECTION

Inspect each switch for continuity with the pocket tester referring to the chart. If any abnormality is found, replace the respective switch assemblies with new ones.

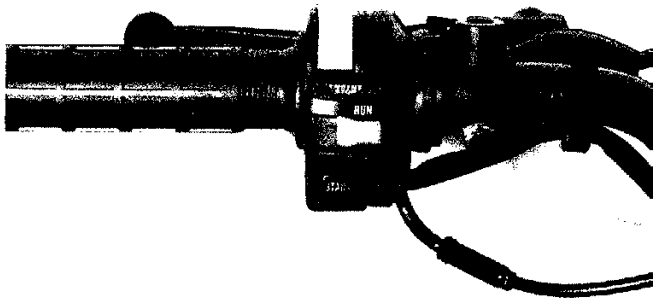
09900-25002	Pocket tester

ENGINE STOP AND START SWITCH

POSITION \ COLOR	B/W	B/Y	O	O/W	Y/G
OFF	○——	——○			
RUN			○——	——○	
START (Push)				○—	—○

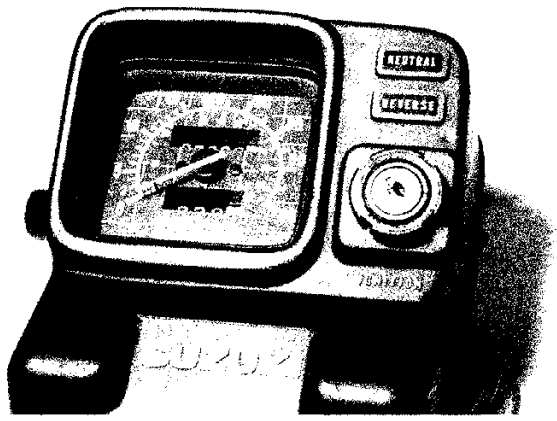
DIMMER SWITCH

POSITION \ COLOR	Gr	Y	W
HI	○——	——○	
LO	○ —	——	— ○



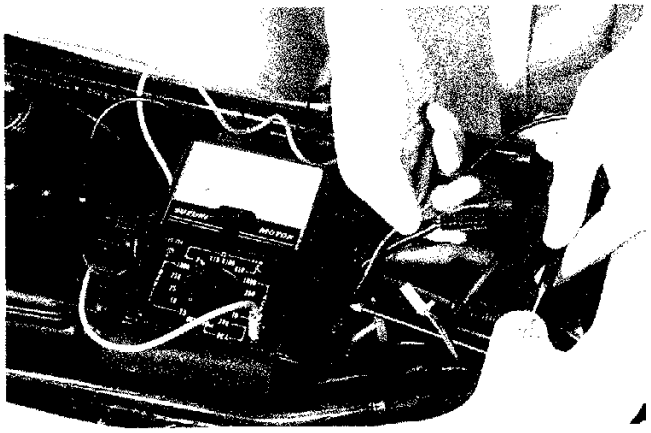
IGNITION AND LIGHTING SWITCH

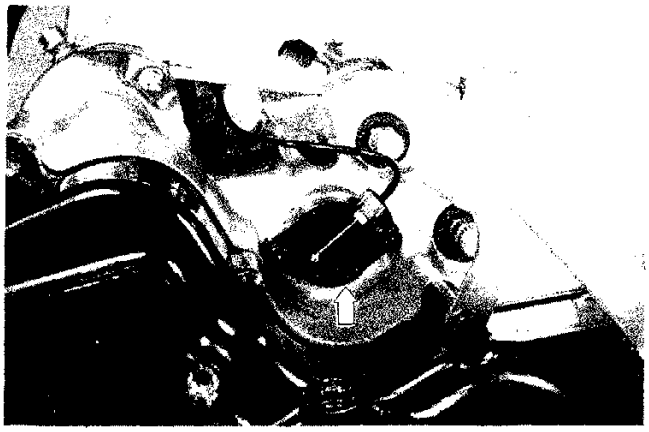
POSITION \ COLOR	R	O	Gr	B/Y	B/W
OFF				○——	——○
ON	○——	——○			
LIGHT	○——	——○	—○		



NEUTRAL SWITCH

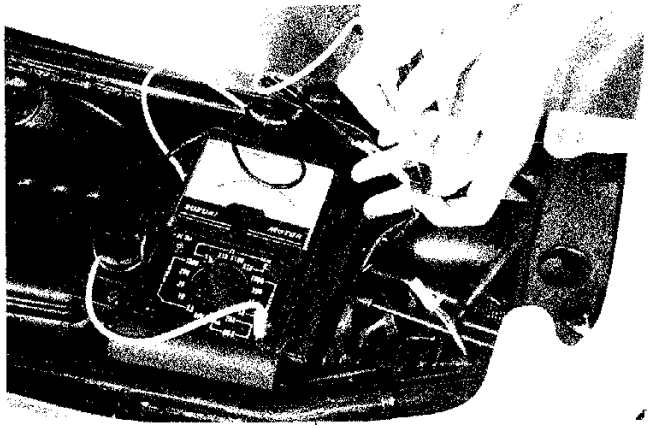
COLOR / POSITION	Bl	Ground
ON	○———	———○
OFF		

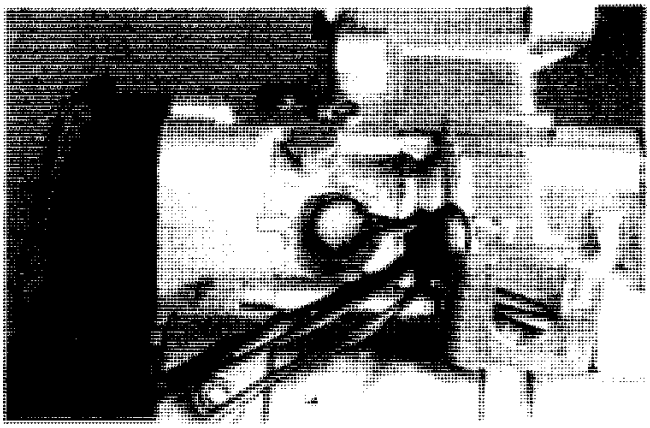




REVERSE SWITCH

COLOR / POSITION	Bl/B	Bl/R	Bl
NEUTRAL	○———		———○
REVERSE		○———	———○





WIRE COLOR

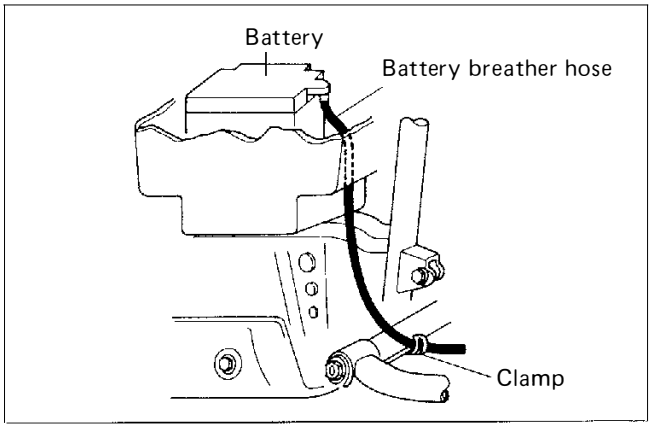
O . . . . . Orange	B/W . . . . . Black with White tracer
Gr . . . . . Gray	O/W . . . . . Orange with White tracer
W . . . . . White	Y/G . . . . . Yellow with Green tracer
Y . . . . . Yellow	B/Y . . . . . Black with Yellow tracer
Bl . . . . . Blue	Bl/R . . . . . Blue with Red tracer
R . . . . . Red	Bl/B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

BATTERY

SPECIFICATIONS

Type designation	FB14A-A2
Capacity	12V, 50.4 kC (14 Ah)/ 10HR
Standard electrolyte S.G.	1.28 at 20°C (60°F)

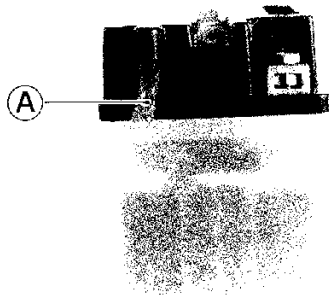
In fitting the battery to the vehicle, connect the breather hose to the battery vent.



INITIAL CHARGING

Filling electrolyte

Remove the short sealed tube before filling electrolyte. (Only for YUASA battery) Fill the battery with electrolyte (dilute sulfuric acid solution with acid concentration of 35.0% by weight, having a specific gravity of 1.28 at 20°C (68°F)) up to indicated MAX. LEVEL. Electrolyte should be always cooled below 30°C (86°F) before filling into battery. Leave battery standing for half an hour after filling. Add additional electrolyte if necessary. Charge battery with current as described in the tables shown below.



Ⓐ **Sealed tube**

Maximum charging current	1.4A

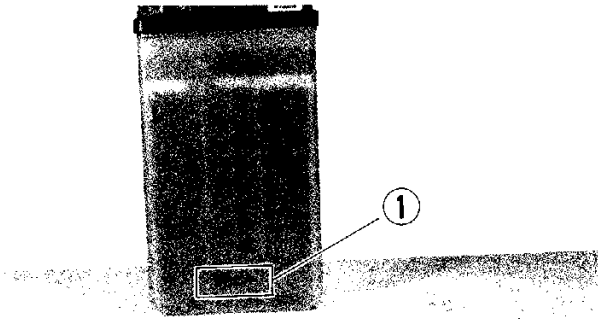
Charging time

The charging time for a new battery is determined by the number of months that have elapsed since the date of manufacture.

Confirmation for date of manufacture

Date of manufacture is indicated by a three-part number ①, as shown in the photograph, each indicating month, date and year.

Near the end of charging period, adjust the specific gravity of electrolyte to value specified. After charging, adjust the electrolyte level to the MAX. LEVEL with DISTILLED WATER.



Months after manufacturing	Within 6	Within 9	Within 12	Over 12
Necessary charging hours	20	30	40	60

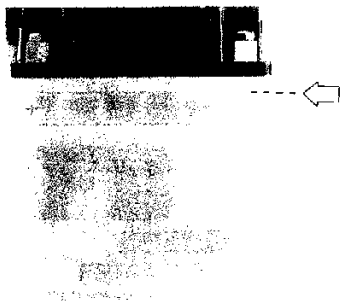
SERVICING

Visually inspect the surface of the battery container. If any signs of cracking or electrolyte leakage from the sides of the battery have occurred, replace the battery with a new one.

If the battery terminals are found to be coated with rust or an acidic white powdery substance, then this can be cleaned away with sandpaper.

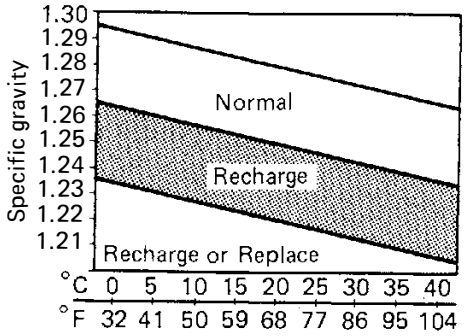
Check the electrolyte level and add distilled water, as necessary to raise the electrolyte to each cell's MAX. level.
Check the battery for proper charge by taking an electrolyte S.G. reading. If the reading is 1.22 or less, as corrected to 20°C (68°F), it means that the battery is still in a run-down condition and needs recharging.

NOTE:
First, remove the ⊖ lead wire.



RECHARGING OPERATION BASED ON S.G. READING

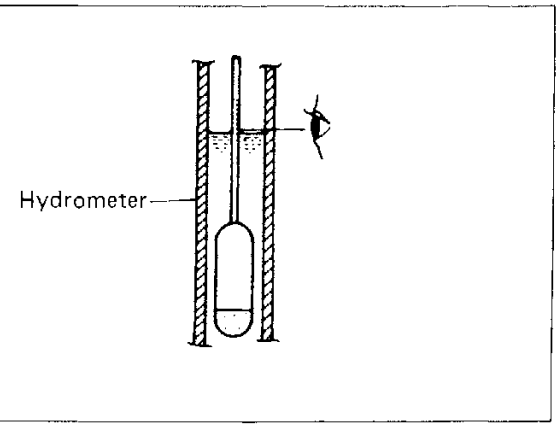
To read the S.G. on the hydrometer, bring the electrolyte in the hydrometer to eye level and read the graduations on the float scale bordering on the meniscus (curved-up portion of electrolyte surface), as shown in figure.



Check the reading (as corrected to 20°C) with chart to determine the recharging time in hour by constant-current charging at a charging rate of 1.4 amperes (which is tenth of the capacity of the present battery).

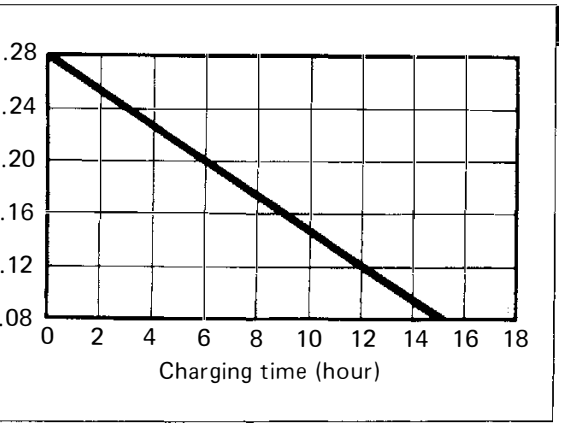
Be careful not to permit the electrolyte temperature to exceed 45°C (113°F), at any time, during the recharging operation. Interrupt the operation, as necessary, to let the electrolyte cool down. Recharge the battery to the specification.

Electrolyte specific gravity	1.28 at 20°C (68°F)



CAUTION:
Constant-voltage charging, otherwise called "quick" charging, is not recommendable for it could shorten the life of the battery.

09900-28403	Hydrometer



SERVICE LIFE

Lead oxide is applied to the pole plates of the battery which will come off gradually during the service. When the bottom of the battery case becomes full of the sediment, the battery cannot be used any more. If the battery is not charged for a long time, lead sulfate is generated on the surface of the pole plates and will deteriorate the performance (sulfation). Replace the battery with new one in such a case.

When a battery is left for a long term without using, it is apt to subject to sulfation. When the vehicle is not used for more than 1 month (especially during the winter season), recharge the battery once a month at least.

WARNING:

- **Before charging a battery, remove the seal cap from each cell.**
- **Keep fire and sparks away from a battery being charged.**
- **When removing a battery from the vehicle, be sure to remove the ⊖ terminal first.**

CHASSIS

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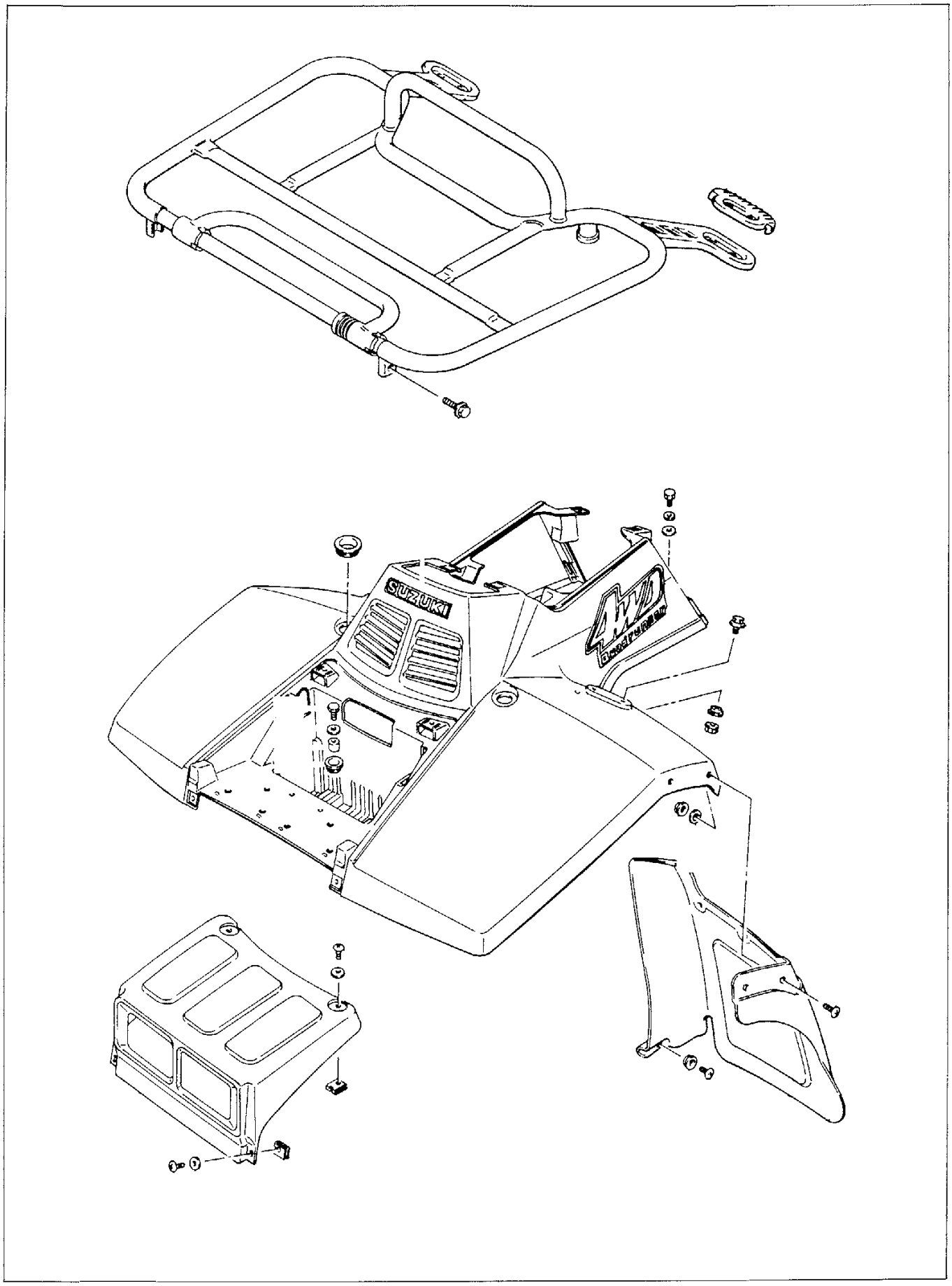
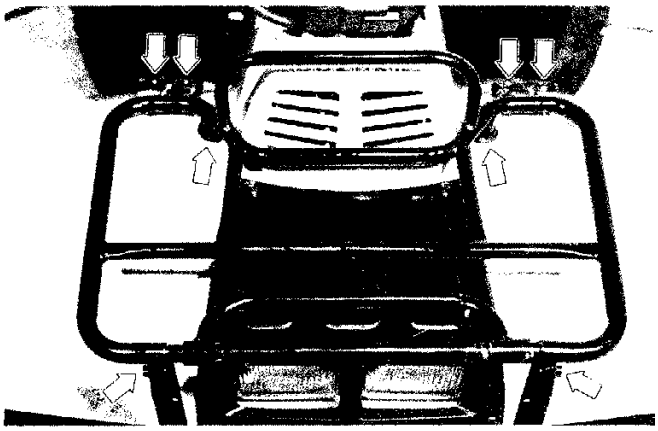
FRONT CARRIER AND FRONT FENDER

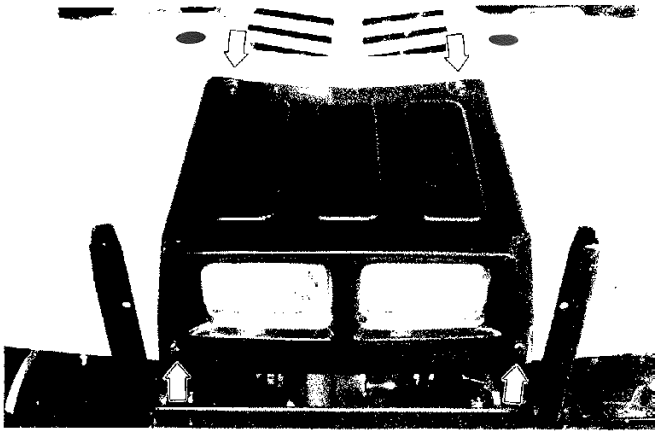


REMOVAL

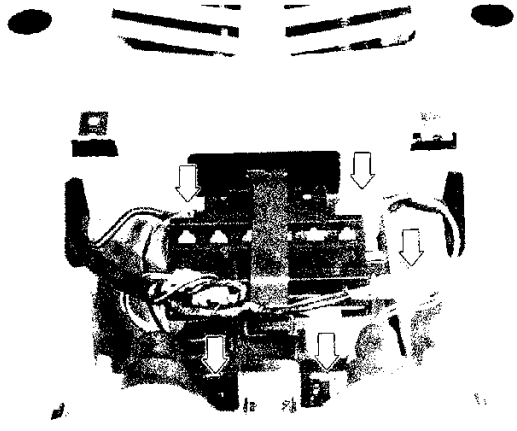
- Remove the front carrier mouting bolts.
- Remove the front carrier.



- Remove the headlight cover.



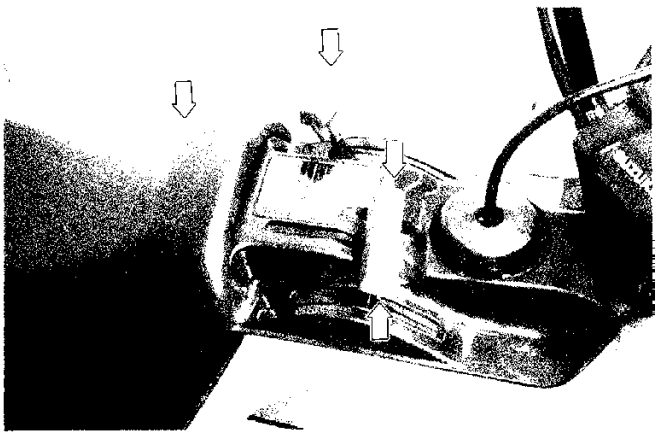
- Disconnect the battery ⊖ lead wire, and then battery ⊕ lead wire.
- Remove the band, and remove the battery.
- Disconnect the other lead wires.



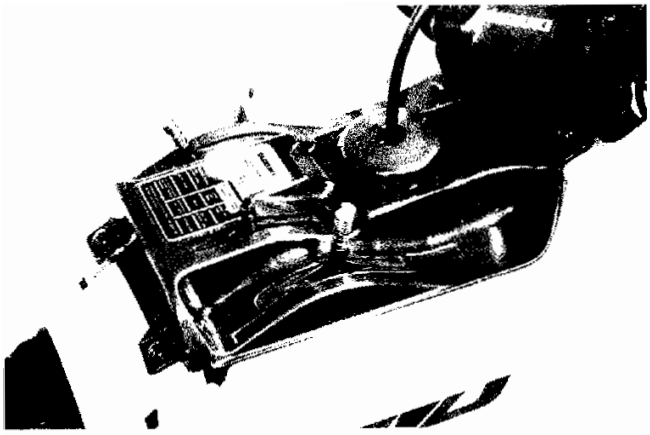
- Remove the seat and lever knobs by unscrewing the securing screws.

NOTE:
When installing the lever knobs, apply THREAD LOCK SUPER "1303/1322" to the securing screws.

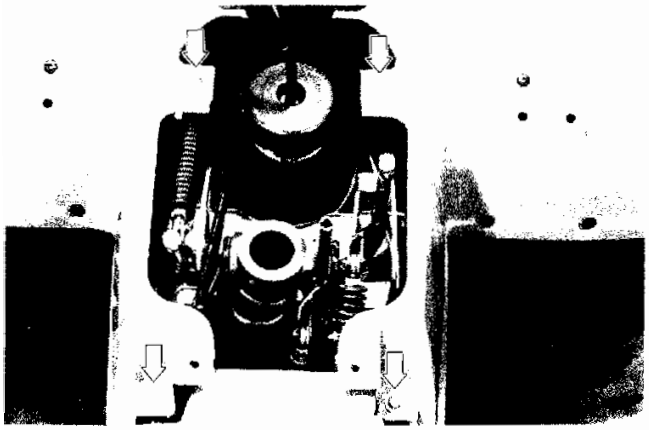
99000-32030 For US model	Thread Lock Super "1303"
99000-32110 For other models	Thread Lock Super "1322"

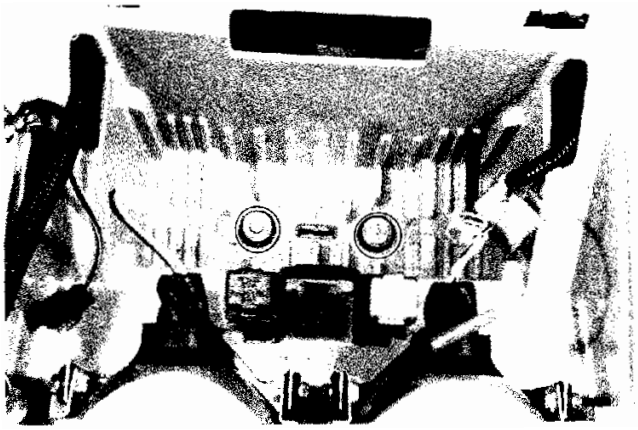


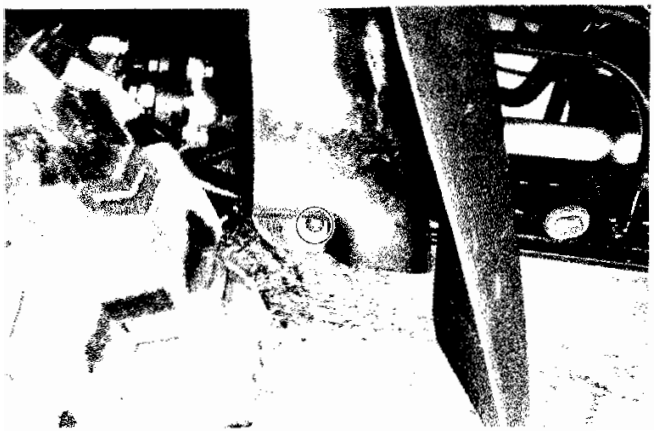
- Remove the fuel tank cap and center cover.
- After removing the center cover, reinstall the fuel tank cap.



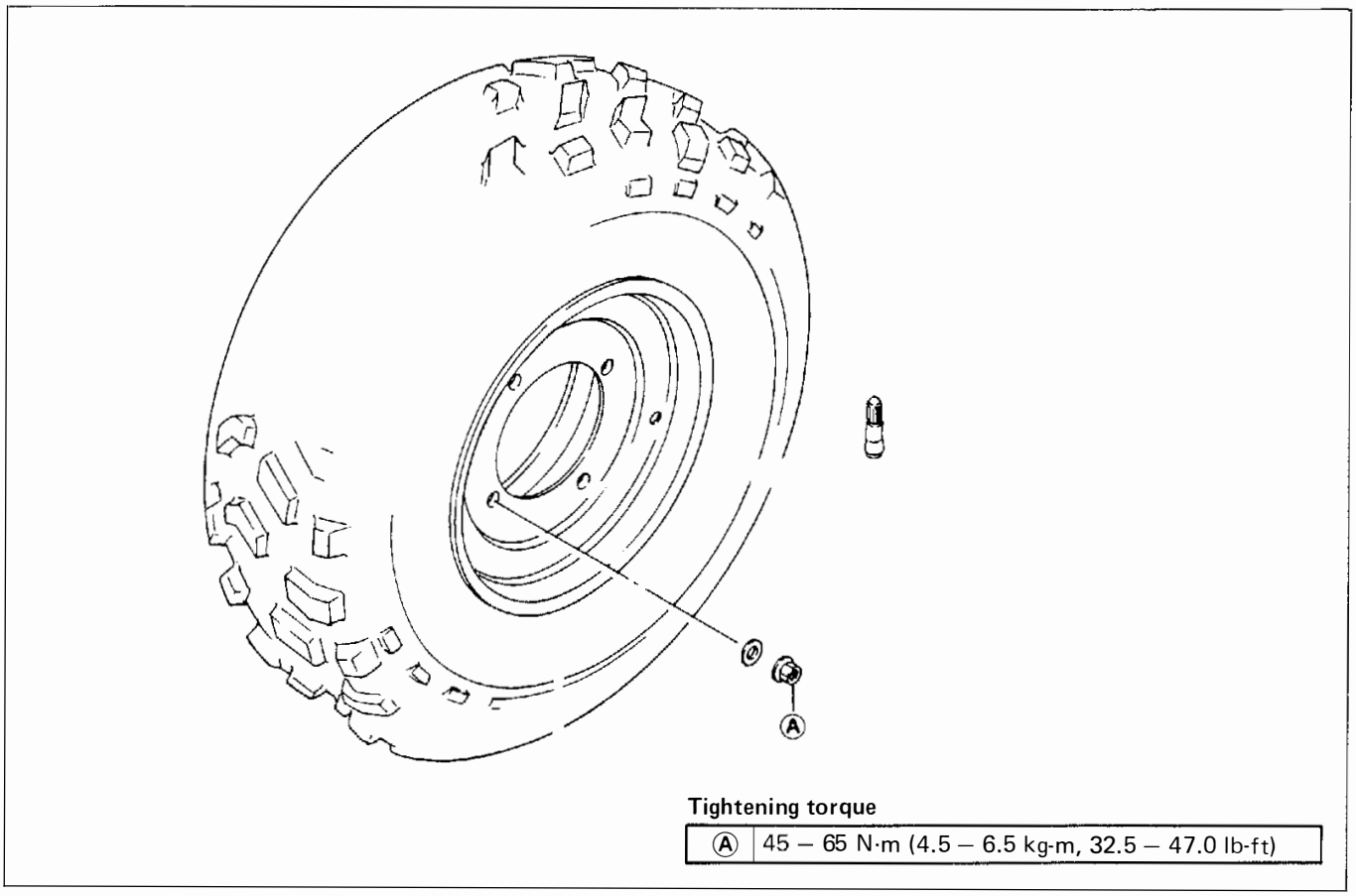
- Loosen the front fender securing bolts and screws, and then remove the front fender.







FRONT AND REAR WHEELS

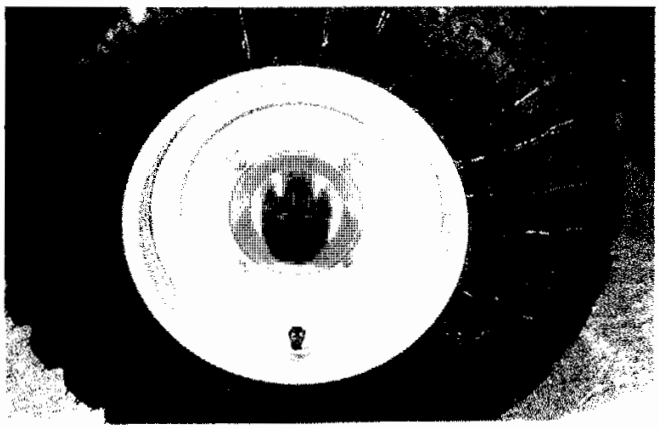


Tightening torque

Ⓐ	45 – 65 N·m (4.5 – 6.5 kg-m, 32.5 – 47.0 lb-ft)

REMOVAL

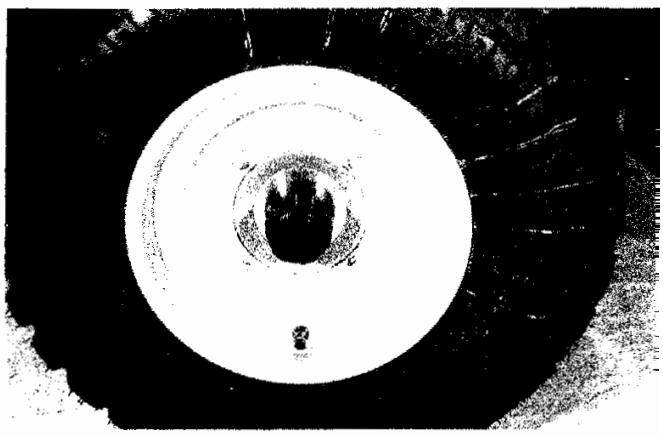
- Place the vehicle on level ground.
- Support the vehicle by jack or block.
- Remove the wheel by removing the wheel set nuts.



REMOUNTING

- Tighten the wheel set nuts to the specified torque.

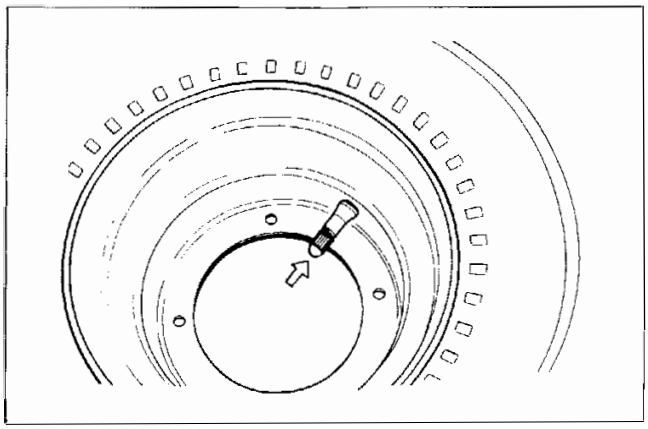
Tightening torque	45 – 65 N·m (4.5 – 6.5 kg-m, 32.5 – 47.0 lb-ft)



TIRE AND WHEEL

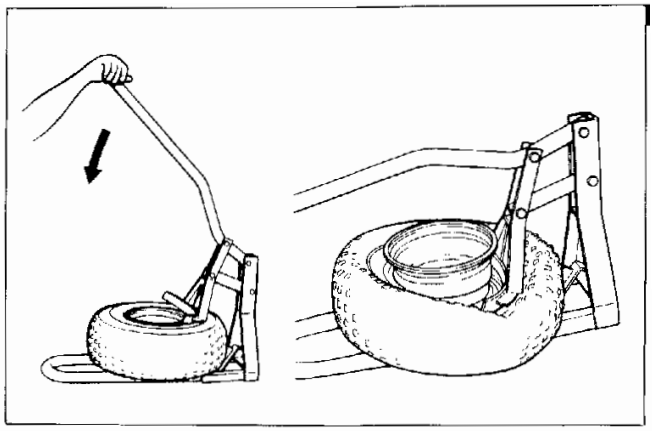
REMOVAL AND DISASSEMBLY

- After removing the air valve cap, release the air pressure by depressing the nozzle.

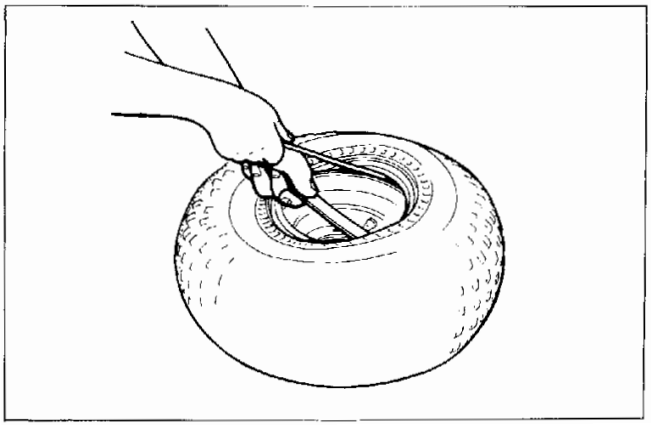


NOTE:
For inspecting the tire, refer to the page 2-11.

- Dismount the bead from the rim completely as shown in the illustration.



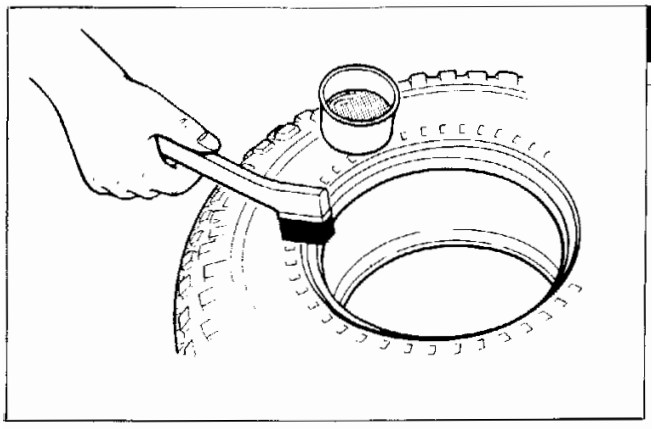
- Using a set of tire levers, separate the tire from the wheel.



CAUTION:
When using the tire levers, do not scratch or hit the sealing portion (hump) of the wheel or it may cause air-leakage.

REASSEMBLY

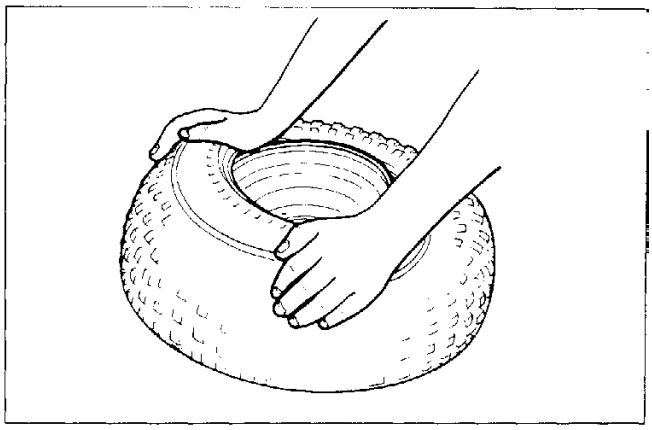
- Lubricate the tire beads and rim flanges with clean water.



CAUTION:
Never use engine oil or gasoline because they will deteriorate the tire.

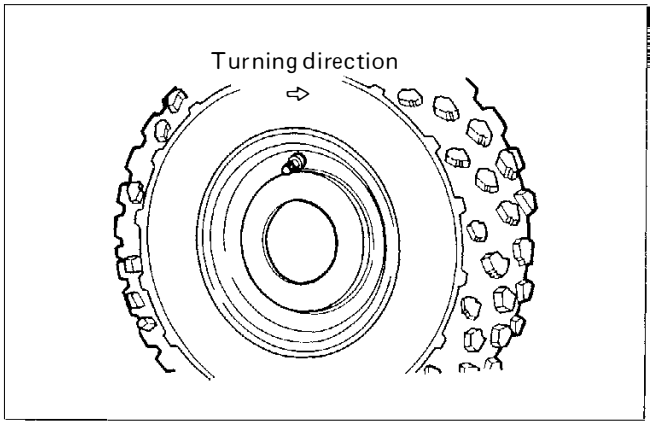
CAUTION:
The standard tire fitted on the vehicle is 22 x 8.00-10 for front and 25 x 12.00-10 for rear. The use of tire other than the standard may cause instability. It is highly recommended to use a SUZUKI Genuine tire.

- Mount the tire on the wheel by hand as shown in the illustration.



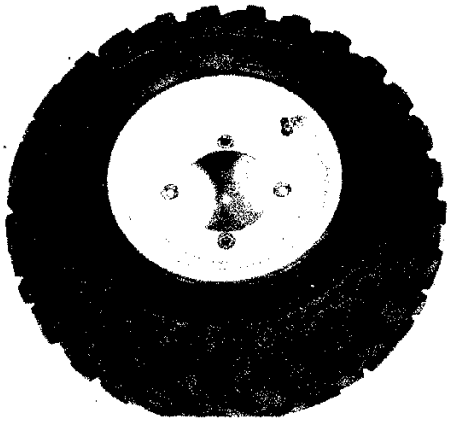
NOTE:
Before mounting the tire on the wheel, inspect the sealing portion of wheel.
When mounting a tire, be sure to install the tire onto the rim with the arrow on the side wall pointing in the direction of rotation. Also, be certain that outer side of wheel rim faces to the outside.

NOTE:
Before installing the valve core, inspect the core.



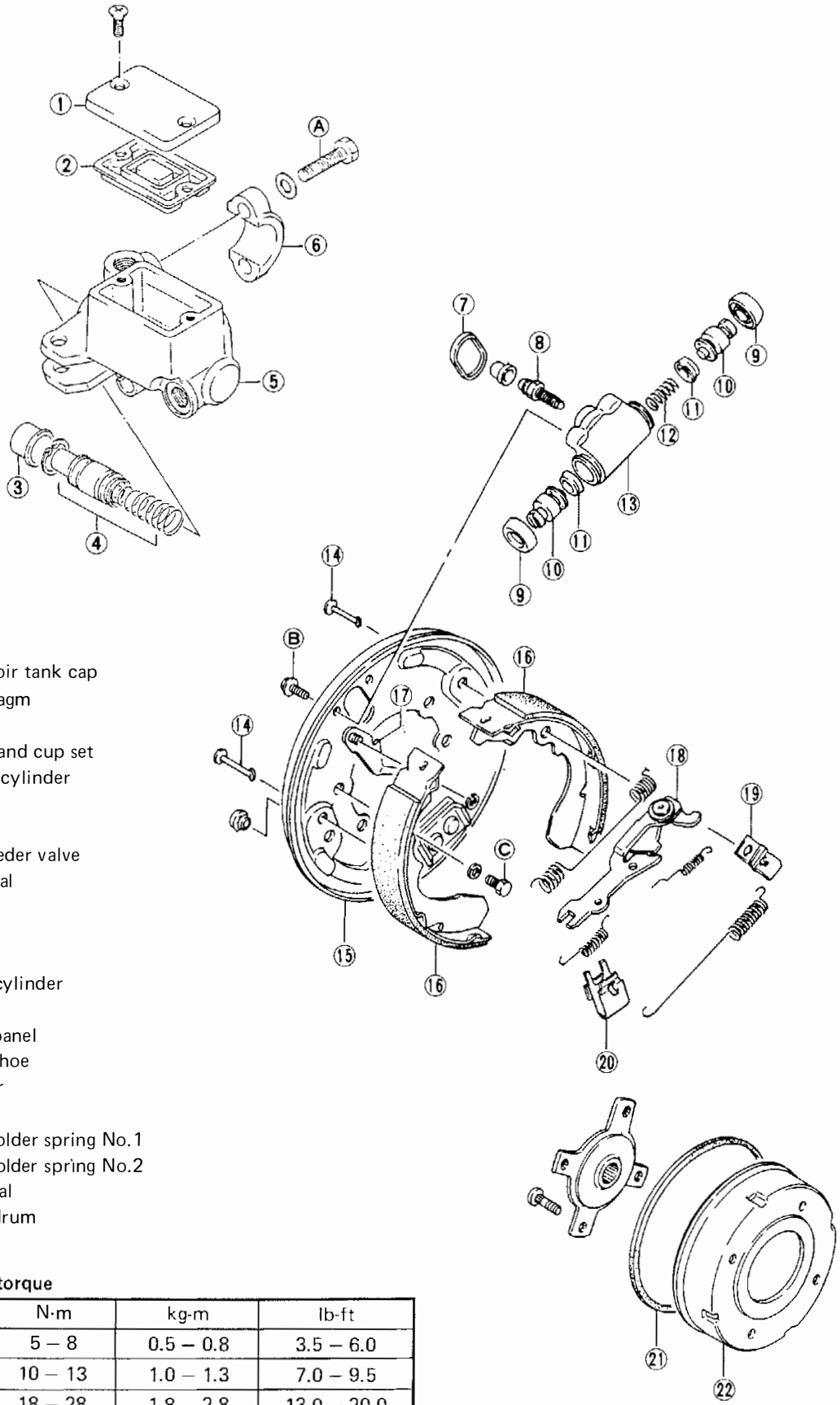
- Pump up the tire with air. (Refer to page 2-11.)

WARNING:
* Do not inflate the tire to more than 70 kPa (0.7 kg/cm^2, 10 psi). Over -inflation may damage the tire.
* We strongly recommend that a manual type air pump be used rather than a high pressure tire filler as found in gas stations.



NOTE:
Check the "rim line" cast on the tire side walls. It must be equally spaced from the wheel rim all the way around. If the distance between the rim line and the wheel rim varies, this indicates that the bead is not properly seated. If this is so, deflate the tire completely, and unseat the bead for the both sides. Coat the bead with lubricant, and try again.

FRONT BRAKE



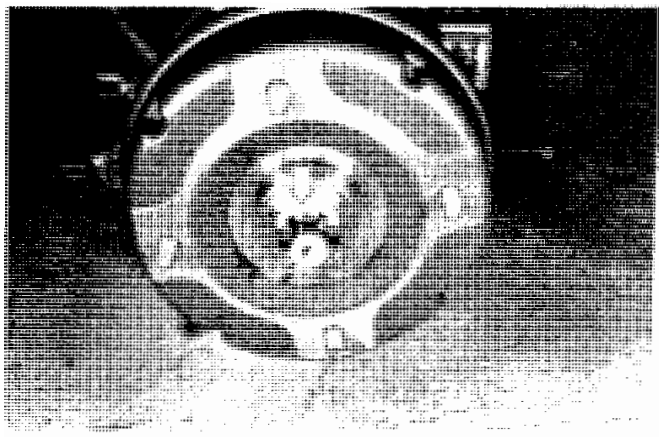
① Reservoir tank cap
② Diaphragm
③ Boot
④ Piston and cup set
⑤ Master cylinder
⑥ Clamp
⑦ Gasket
⑧ Air bleeder valve
⑨ Dust seal
⑩ Piston
⑪ Cup
⑫ Spring
⑬ Wheel cylinder
⑭ Pin
⑮ Brake panel
⑯ Brake shoe
⑰ Stopper
⑱ Strut
⑲ Shoe holder spring No.1
⑳ Shoe holder spring No.2
㉑ Dust seal
㉒ Brake drum

Tightening torque

Item	N·m	kg-m	lb-ft
Ⓐ	5 – 8	0.5 – 0.8	3.5 – 6.0
Ⓑ	10 – 13	1.0 – 1.3	7.0 – 9.5
Ⓒ	18 – 28	1.8 – 2.8	13.0 – 20.0
⑧	6 – 9	0.6 – 0.9	4.5 – 6.5

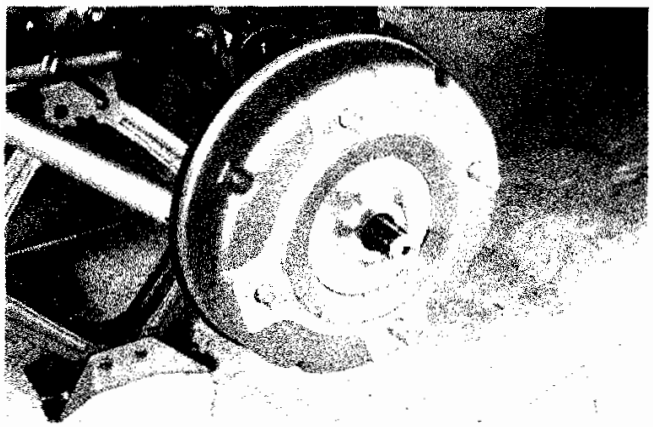
REMOVAL

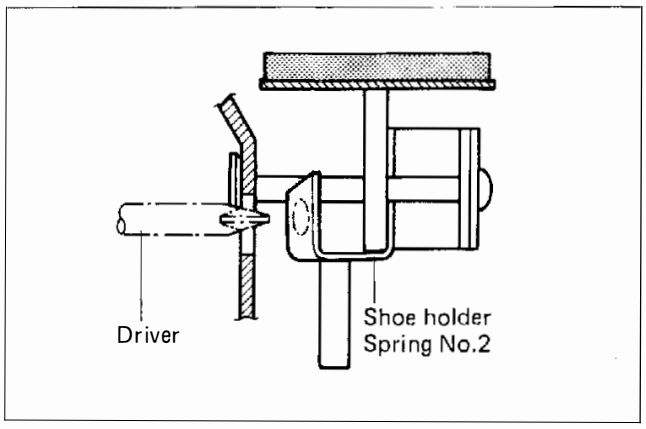
- Support the vehicle with the jack and block.
- Remove the front wheel.
- Pull out the cotter pin.
- Loosen the axle nut by applying the front brake.

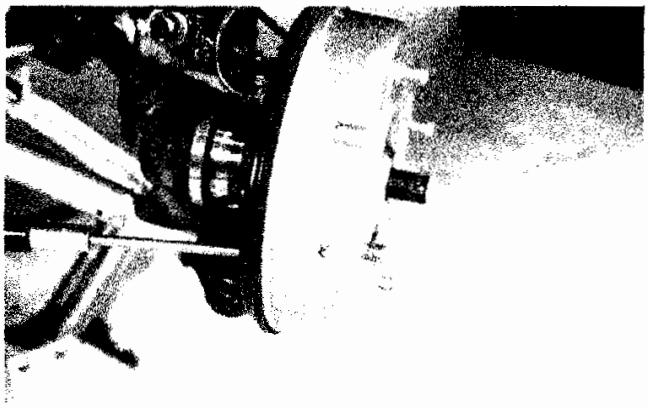


- Remove the brake drum.

NOTE:
If removal of brake drum is difficult, push the shoe hold spring by using the screw-driver.

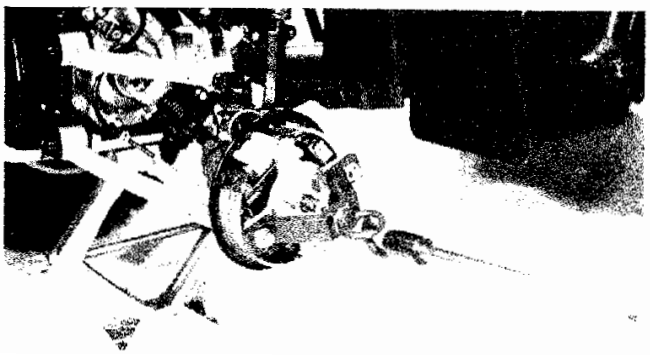




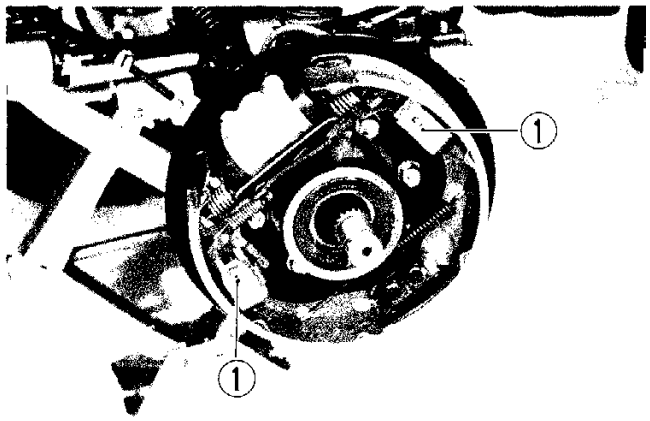


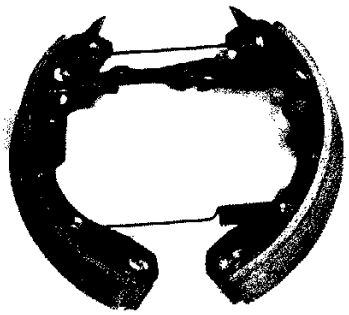
- Remove the front wheel hub with the special tool.

09924-21910	Wheel hub remover
09930-30102	Sliding shaft

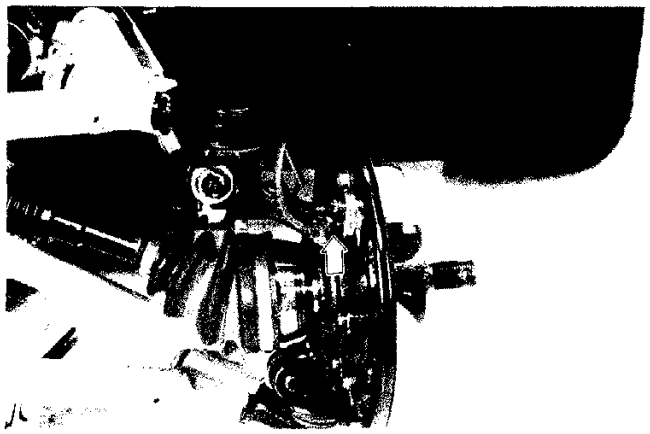


- Remove the two shoe holder springs by turning the pins ① 90° and then remove the shoes.

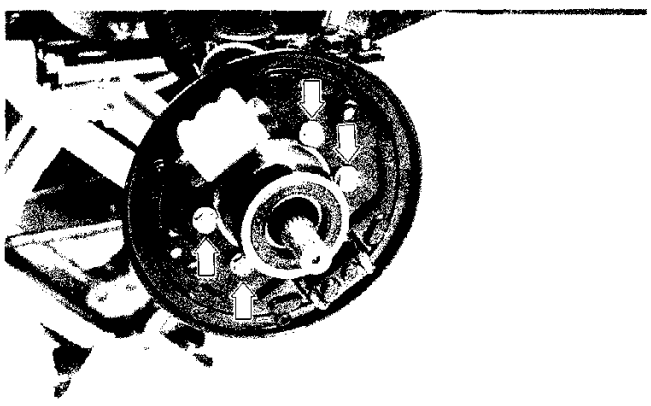




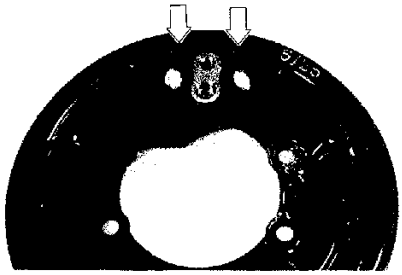
- Disconnect the brake pipe with pipe wrench.



- Loosen the brake panel bolts, and then remove the brake panel.

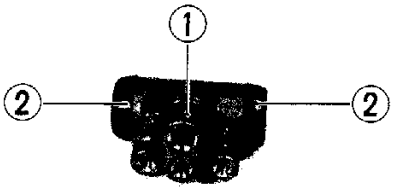


- Loosen the wheel cylinder mounting bolts, and then remove the wheel cylinder.

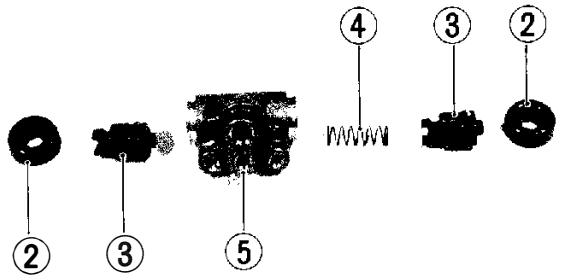


WHEEL CYLINDER

- Remove the gasket, dust seal, pistons and spring.



① Gasket
② Dust seal
③ Piston
④ Spring
⑤ Wheel cylinder

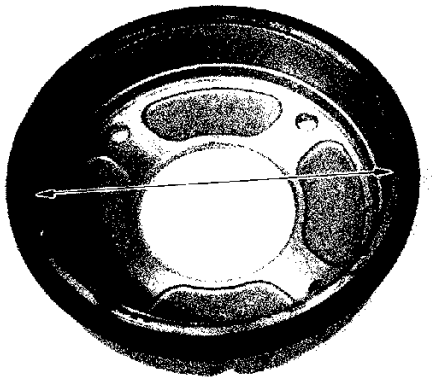


INSPECTION

BRAKE DRUM

Measure the brake drum I.D. to determine the extent of wear and, if the limit is exceeded by the wear noted, replace the brake drum.
The value of this limit is indicated inside of drum.

Service Limit	165.7 mm (6.52 in)

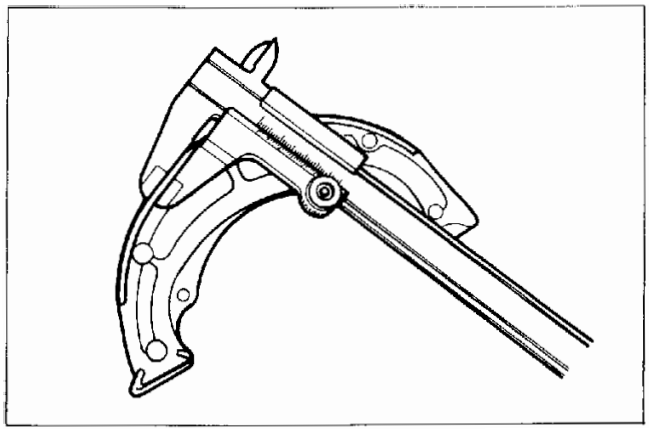


BRAKE SHOE

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

Service Limit	1.5 mm (0.06 in)

CAUTION:
Replace the brake shoe as a set, otherwise braking parformance will be adversely affected.



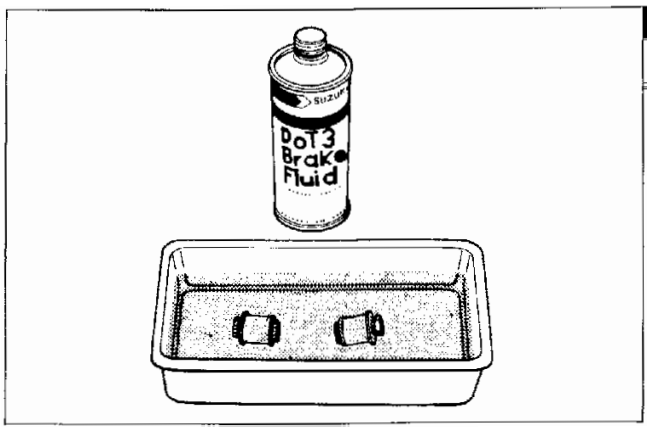
CYLINDER

- Inspect the cylinder bore for any scratches or other damage.
- Inspect the cup and boot for scratches or other damage. Replace the cup and boot with new ones if any defects are found.

REASSEMBLY AND REMOUNTING

Reassemble and remount the front brake in the reverse order of disassembly and removal, and also carry out the following steps:

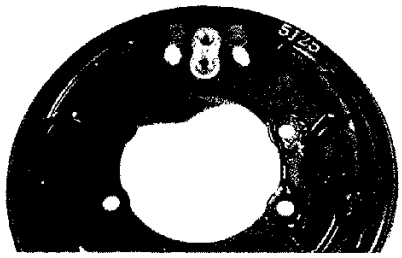
CAUTION:
Wash the cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them. Apply brake fluid to the cylinder bore and two cups to be inserted into the bore.



- Install a new gasket on the wheel cylinder.

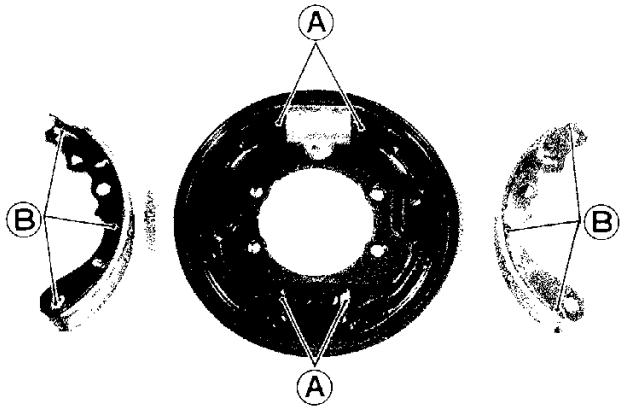
- Tighten the wheel cylinder bolts to the specified torque.

Tightening torque	10 – 13 N·m (1.0 – 1.3 kg-m 7.0 – 9.5 lb-ft)

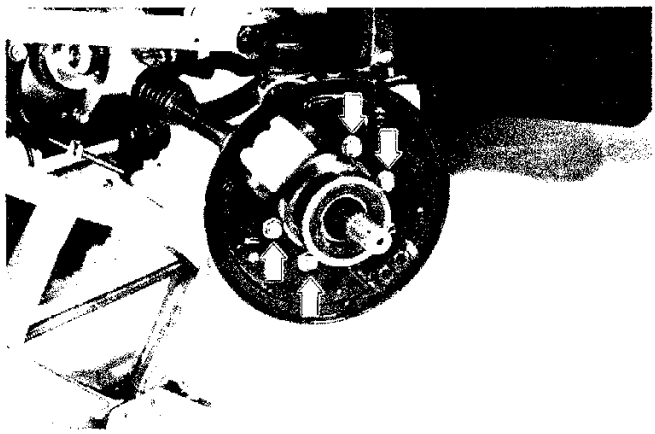


- Apply grease to the part Ⓐ.
- Apply SUZUKI silicone grease to the part Ⓑ.

Ⓐ	99000-25030 For U.S. model	SUZUKI Super Grease "A"
	99000-25010 For other models	
Ⓑ	99000-25100	SUZUKI Silicone Grease



CAUTION:
Be careful not to apply too much grease to the part Ⓐ and Ⓑ. If grease gets on the lining, brake slippage will result.

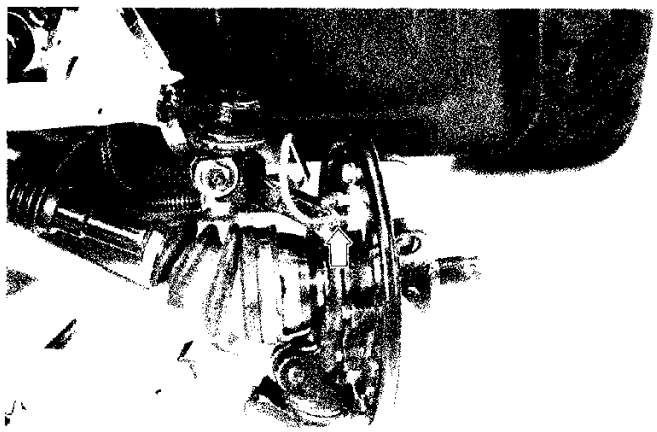


- Tighten the brake panel bolts to the specified torque.

Tightening torque	18 – 28 N·m (1.8 – 2.8 kg-m 13.0 – 20.0 lb-ft)

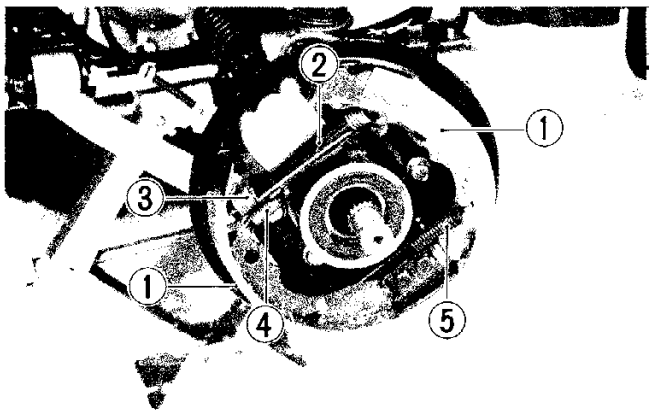
- Tighten the brake pipe nut to the specified torque.

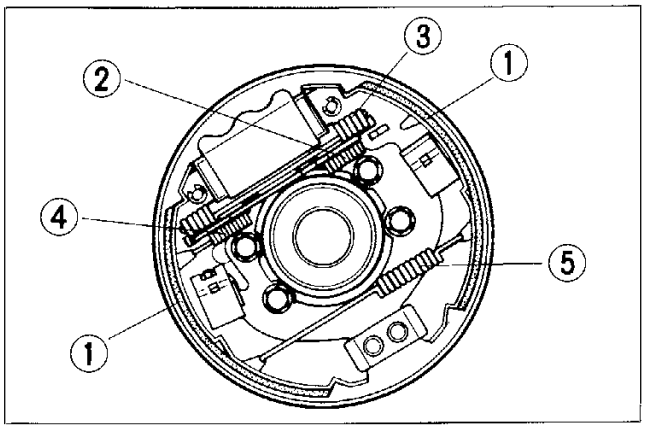
Tightening torque	13 – 18 N·m (1.3 – 1.8 kg-m 9.5 – 13.0 lb-ft)



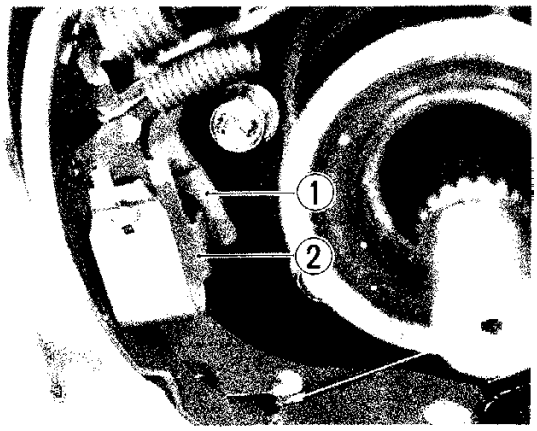
CAUTION:
Bleed the air after reassembling the front brake. (Refer to page 2-13.)

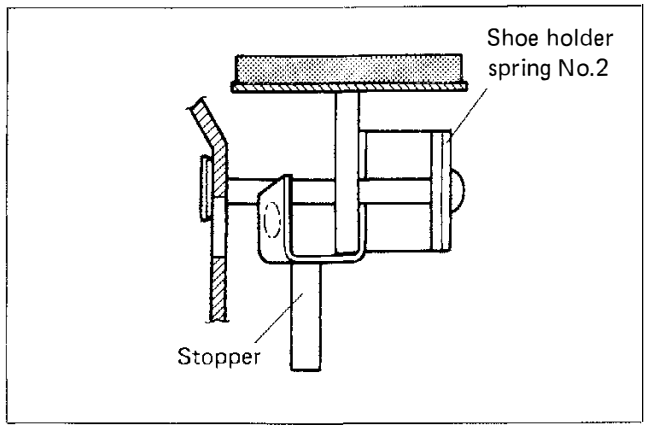
- Install the shoes ①, strut ② and springs ③, ④, ⑤ to the proper position as shown in figure.





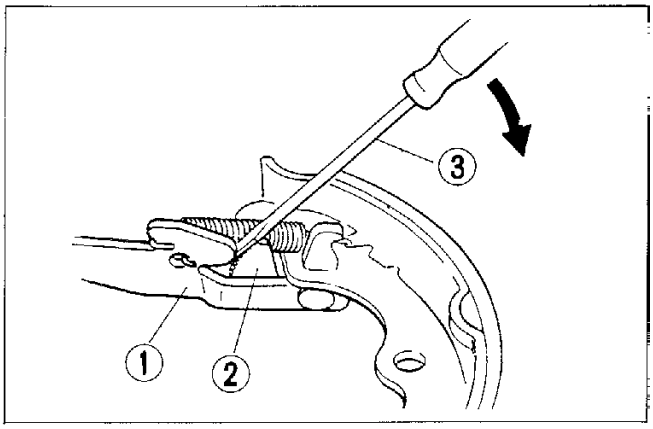
WARNING:
After completing the above steps, make sure that the stopper ① is hitched on the holder spring ②.

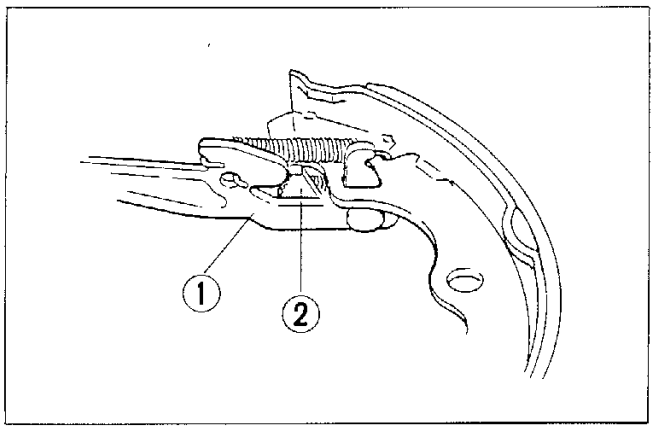




- Before installing brake drum, to maximize brake shoe-to-drum clearance, put screwdriver between strut and ratchet, and push down ratchet as shown in Figure.

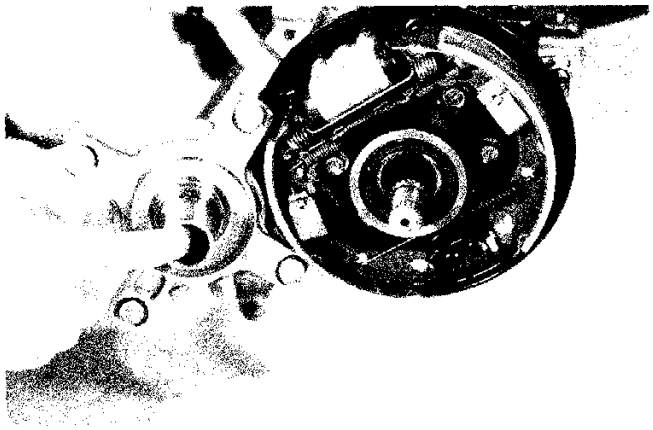
  ① Strut
  ② Ratchet
  ③ Screwdriver





- Apply grease to the inner spline of hub.

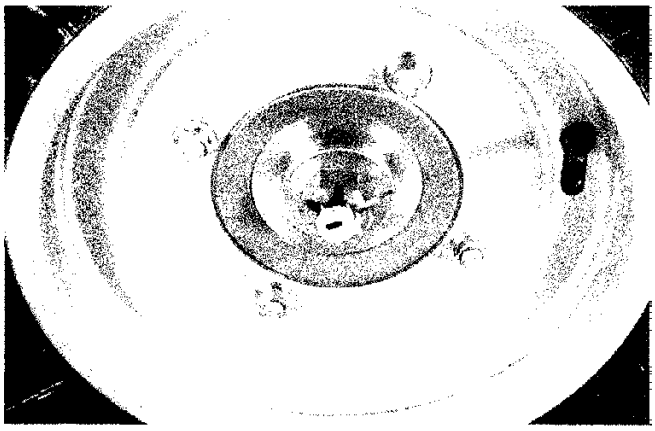
99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	



- Tighten the front wheel set nuts and axle nut to the specified torque.

Tightening torque

Item	N·m	kg-m	lb-ft
Front Wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0

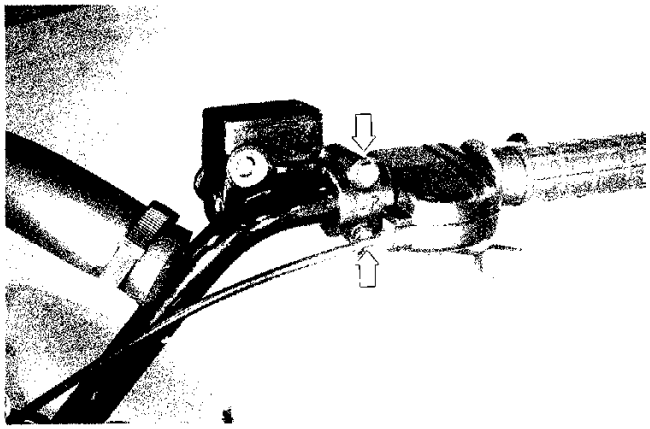


MASTER CYLINDER
REMOVAL

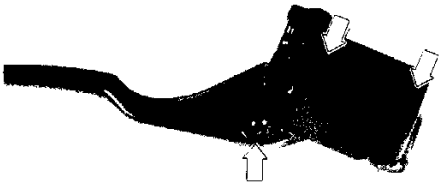
- Place a cloth underneath the union bolt on the master cylinder to catch spilled drops of brake fluid. Remove the union bolt and disconnect the brake hose/master cylinder joint.

CAUTION:
Completely wipe off any brake fluid adhering to any part of vehicle. The fluid reacts chemically with paint, plastics, rubber materials, etc.

- Remove the two clamp bolts and then remove the master cylinder assembly.



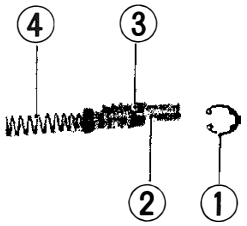
- Remove the front brake lever.
- Remove the reservoir cap and diaphragm.
- Drain brake fluid.



- Pull out the dust boot.
- Remove the circlip with the special tool.
- Remove the piston, primary cup and spring.

09900-06108	Snap ring pliers

① Circlip
② Piston
③ Primary cup
④ Return spring



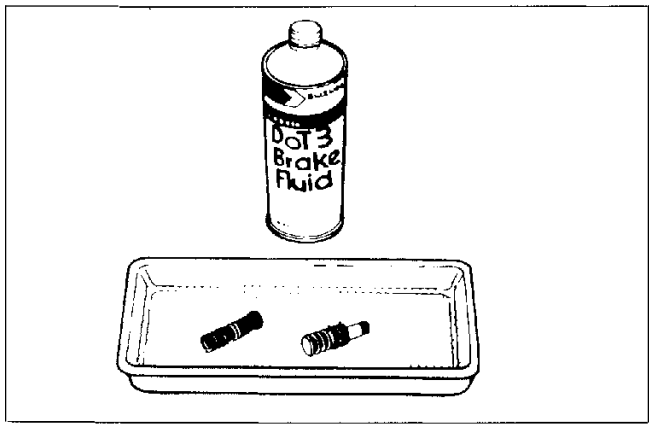
INSPECTION

- Inspect the master cylinder bore for any scratches or other damage.
- Inspect the piston surface for scratches or other damage
- Inspect the primary cup and dust boot for wear or damage.

REASSEMBLY AND REMOUNTING

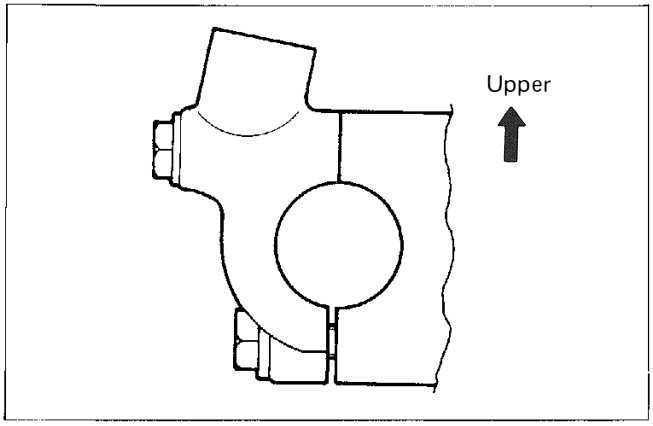
Reassemble and remount the master cylinder in the reverse order of disassembly and removal, and also carry out the following steps:

CAUTION:
Wash the master cylinder components with fresh brake fluid before reassembly. Never use cleaning solvent or gasoline to wash them. Apply brake fluid to the cylinder bore and all the internals to be inserted into the bore.



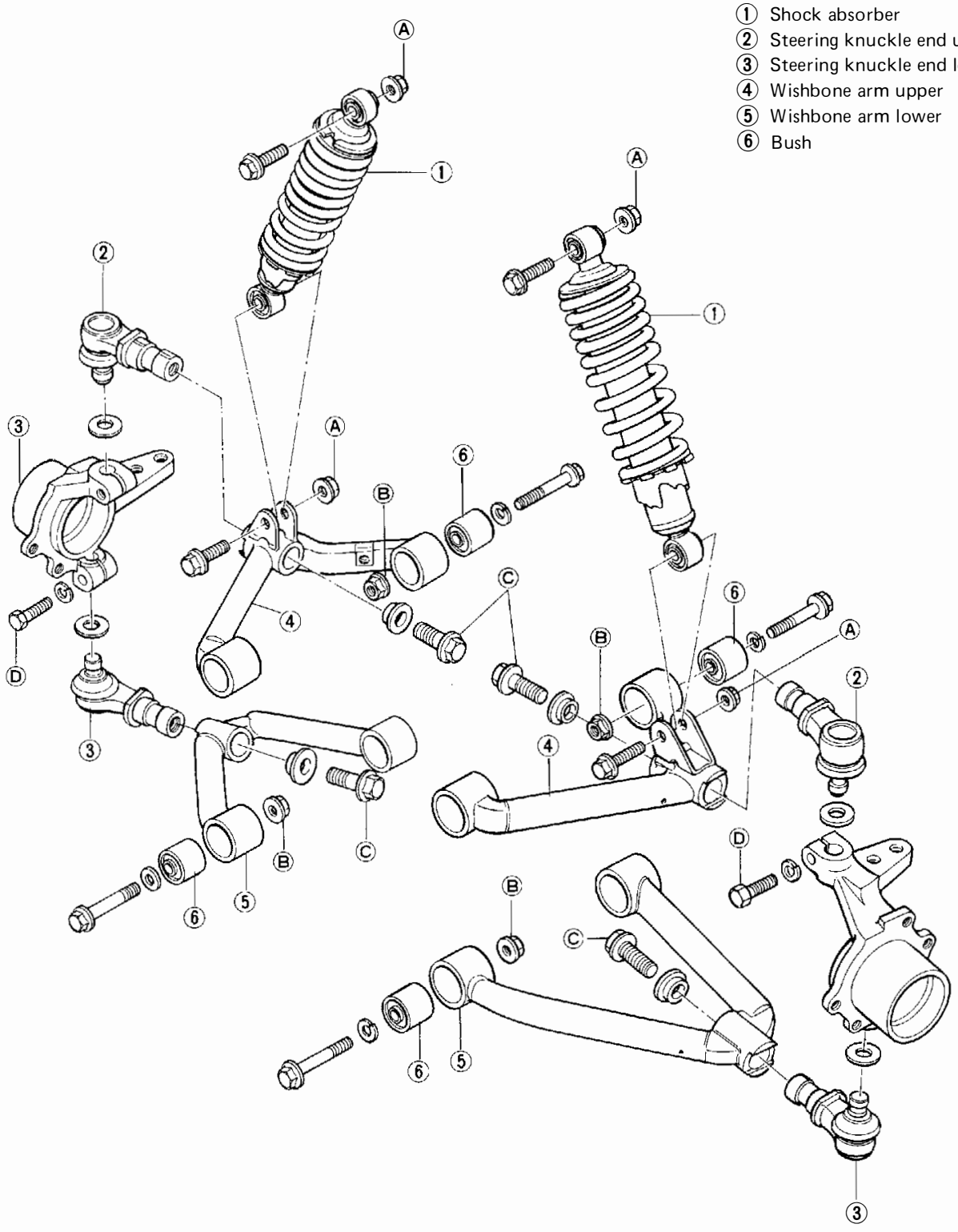
When remounting the master cylinder on the handlebars, first tighten the upper clamp bolt as shown.

Master cylinder clamp bolt tightening torque	6 – 9 N·m (0.6 – 0.9 kg-m / 4.5 – 6.5 lb-ft)



CAUTION:
Bleed the air after reassembling the master cylinder. (Refer to page 2-13.)

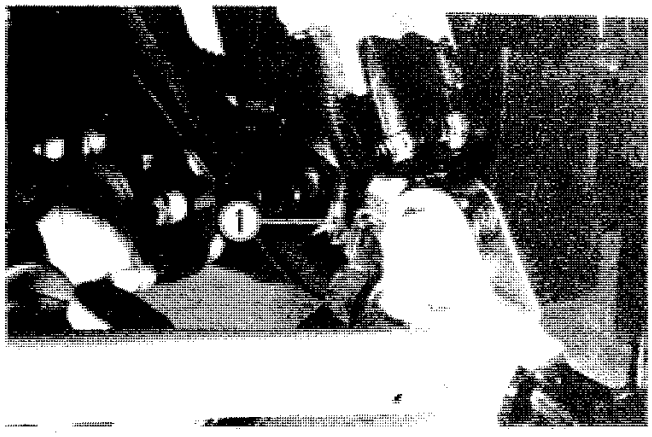
FRONT SUSPENSION



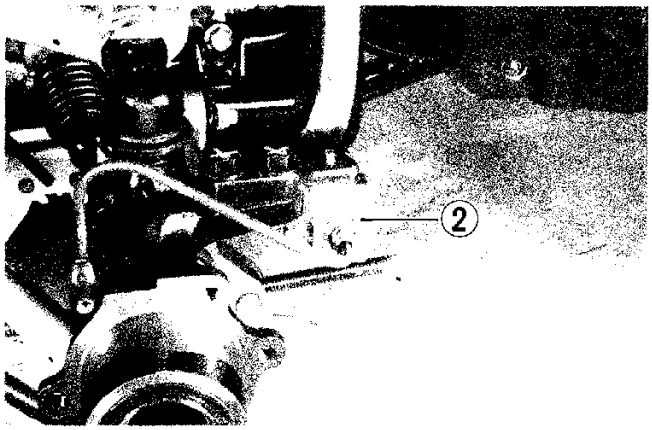
Tightening torque

Item	N·m	kg-m	lb-ft
Ⓐ	40 – 60	4.0 – 6.0	29.0 – 43.5
Ⓑ	50 – 70	5.0 – 7.0	36.0 – 50.5
Ⓒ	120 – 170	12.0 – 17.0	87.0 – 123.0
Ⓓ	44 – 66	4.4 – 6.6	32.0 – 47.5

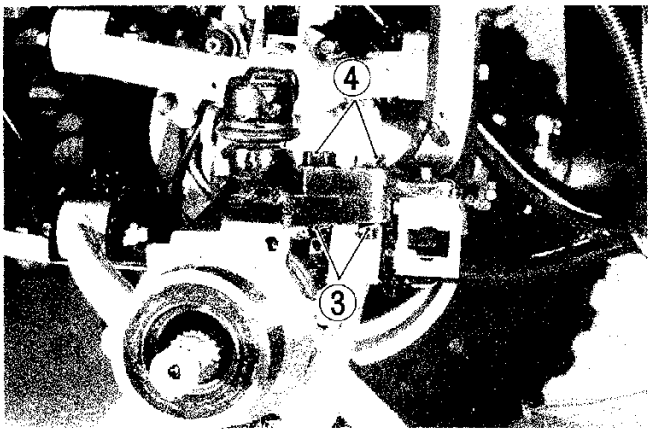
- Remove the front wheel. (Refer to page 7-4.)
- Remove the front brake. (Refer to page 7-8.)
- Loosen the brake hose retainer bolt ①.



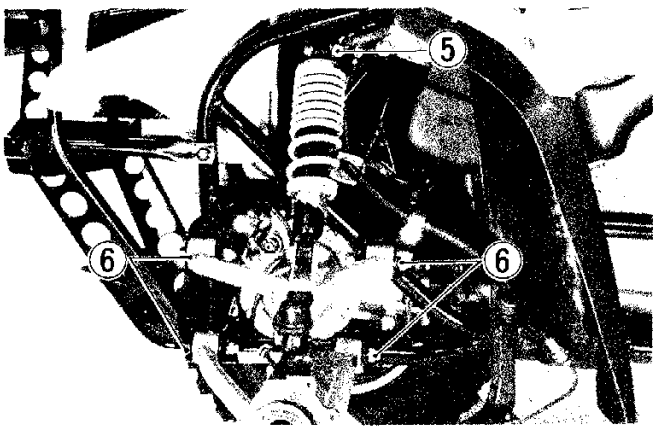
- Remove the brake hose stopper ring ②, and then remove the brake hose.



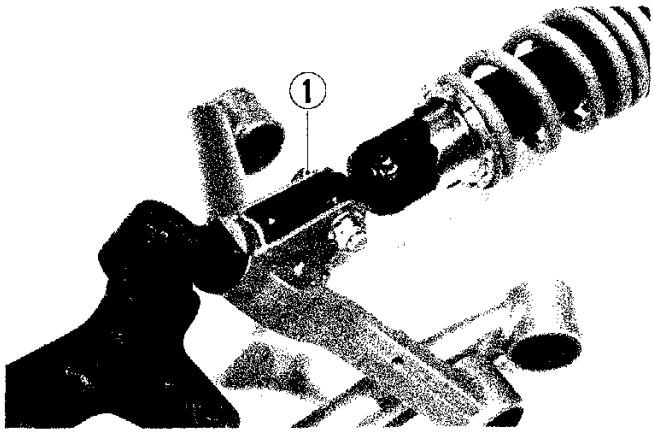
- Remove the cotter pin ③ and loosen the steering knuckle arm pinch bolt ④.



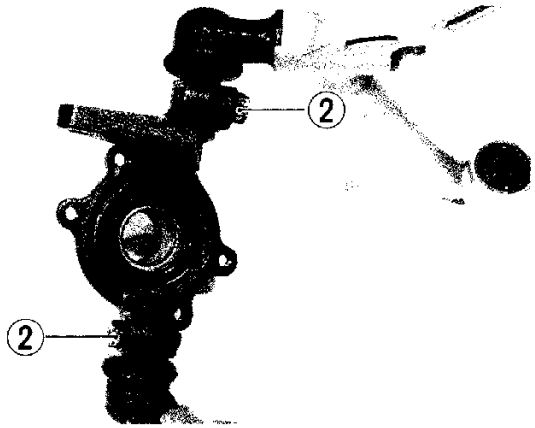
- Loosen the shock absorber upper mounting bolt ⑤ and Upper/Lower wishbone arm pivot bolts ⑥.

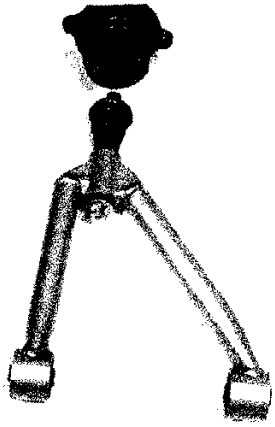


- Loosen the shock absorber lower bolt ①.

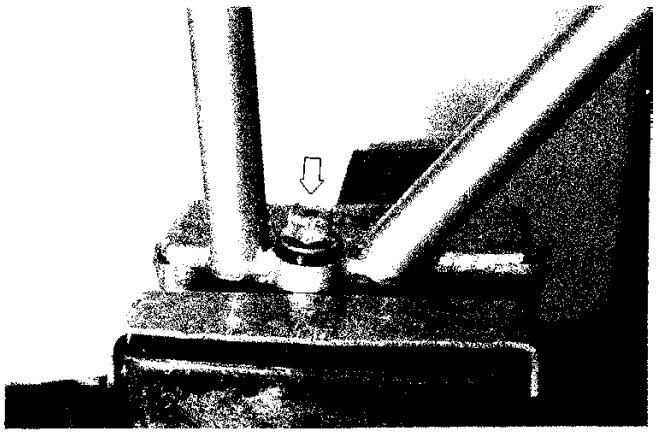


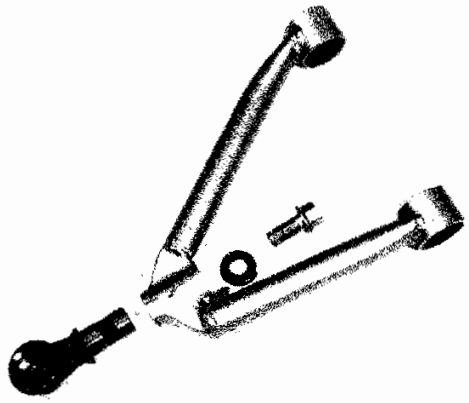
- Loosen the knuckle upper/lower bolts ②.





- Loosen the steering knuckle end bolt by holding its end side with vise.

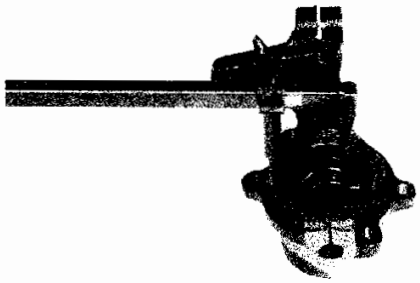




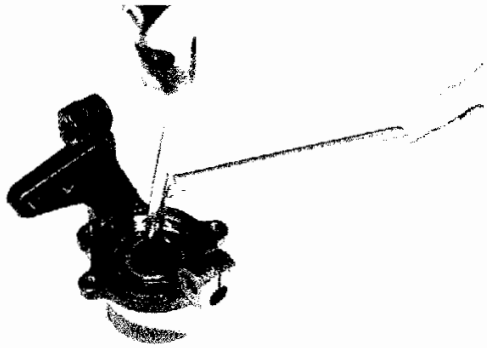
STEERING KNUCKLE

- Remove the oil seal with the special tool.

09913-50121	Oil seal remover

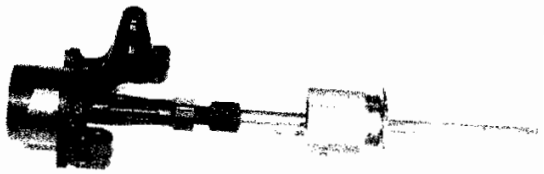


- First, tap the bearing with the bar to get the clearance between bearing and spacer.



- Then, remove the bearing with the special tool.

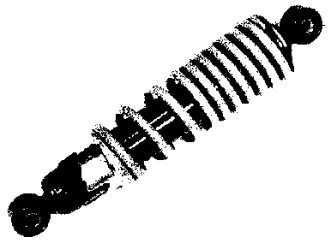
09923-74510	Bearing puller
09930-30102	Sliding shaft



INSPECTION

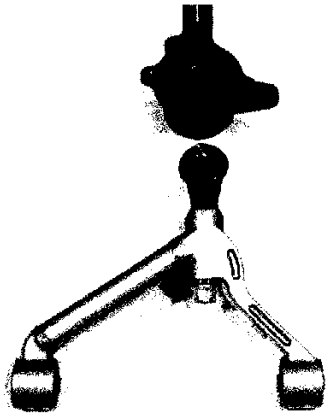
SHOCK ABSORBER

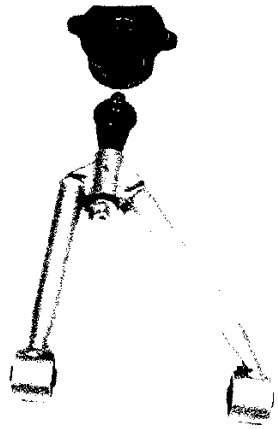
Inspect the shock absorber for oil leakage or other damage.



WISHBONE ARM

Inspect the wishbone upper and lower arms for distortion or other damage.



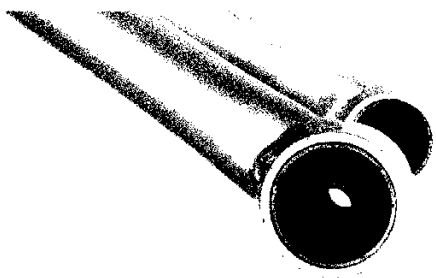


BUSH

Inspect the rubber bush (shock absorber/wishbone arm) for wear or other damage.

If any damage or wear is noted, replace it with a new one.

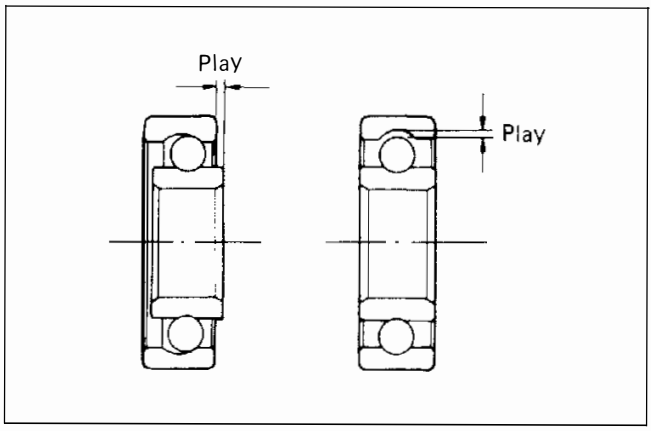
When replacing the wishbone arm bush, apply THREAD LOCK SUPER "1303" to the outer surface of bush.



99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32110 For other models	Thread Lock Super "1322"

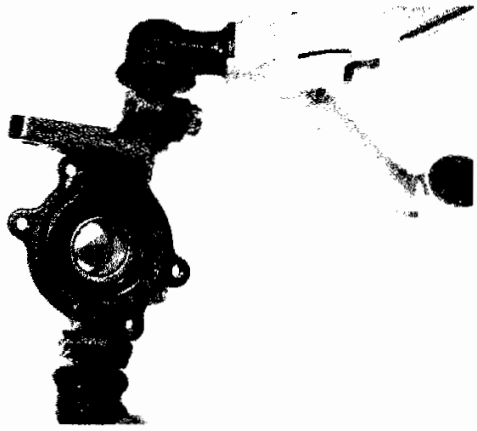
HUB BEARING

Inspect the play of hub bearings inner race by hand while it is in the steering knuckle.
Rotate the inner race by hand to inspect for abnormal noise and smooth rotation.
Replace the bearing if there is anything unusual.



DUST SEAL

Inspect the dust seal lip for wear or damage.
If any wear or damage is noted, replace it with a new one.



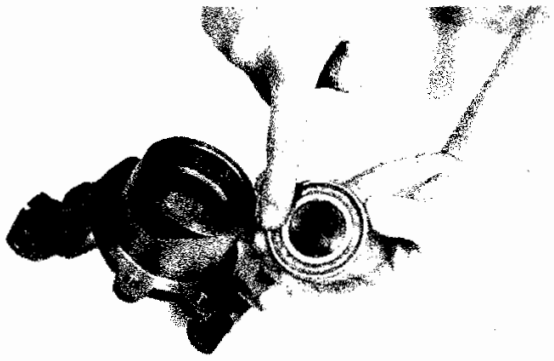
REASSEMBLY

Reassemble and remount the front suspension in the reverse order of disassembly and removal, and also carry out the following steps:

HUB BEARING

Apply grease to the bearing and the dust seal before installing them.

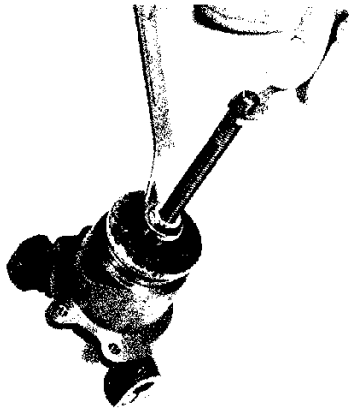
99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	

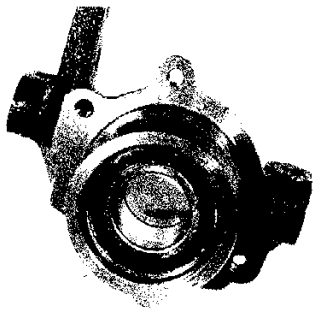


- Install the wheel bearings with the special tool.

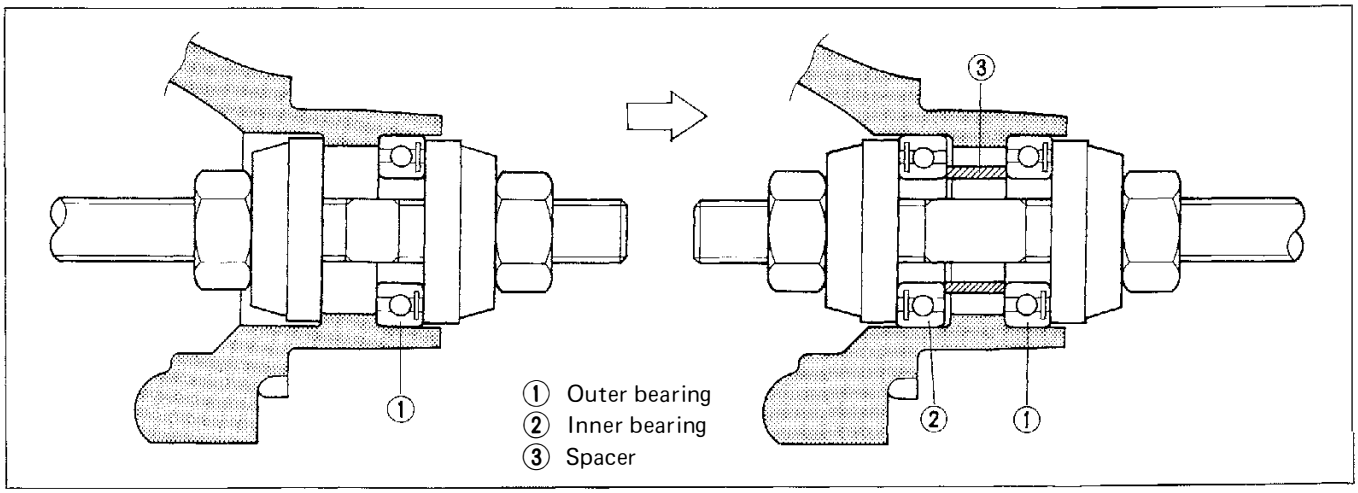
09924-84510	Bearing installer set

- Install the out side bearing first.



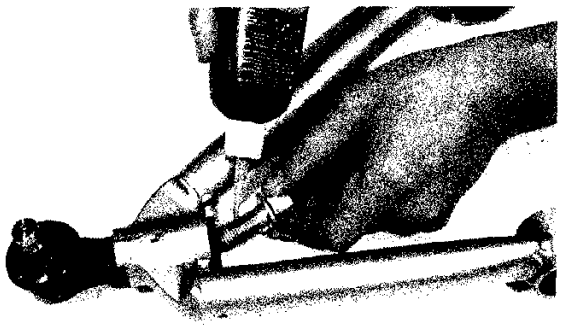


NOTE:
When installing the bearing, sealed side of bearing comes outside.



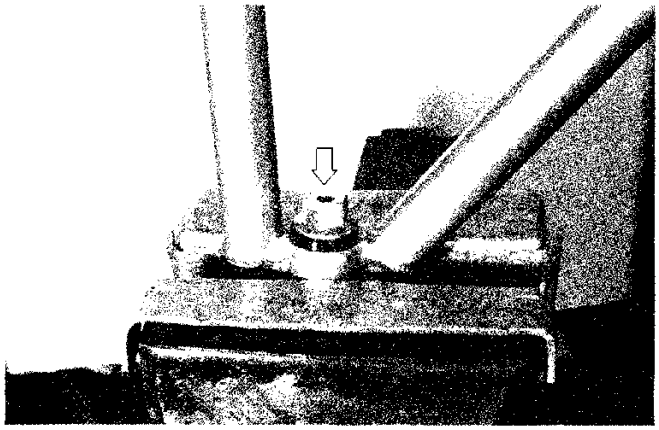
- Apply THREAD LOCK SUPER "1303" to the steering knuckle end bolt.

99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32110 For other models	Thread Lock Super "1322"



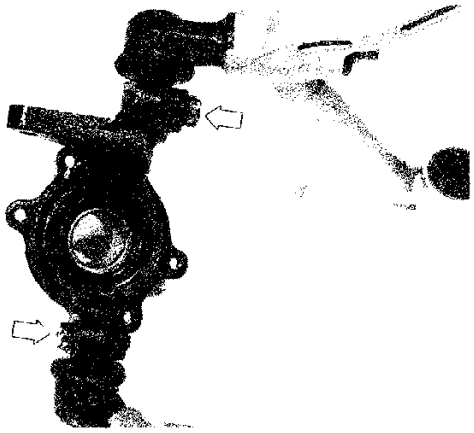
- Tighten the steering knuckle end upper and lower bolts to the specified torque by holding the steering knuckle end with vise.

Tightening torque	120 – 170 N·m (12.0 – 17.0 kg-m) (87.0 – 123.0 lb-ft)



- Apply THREAD LOCK SUPER "1303" to the knuckle upper and lower bolts, and then tighten them to the specified torque.

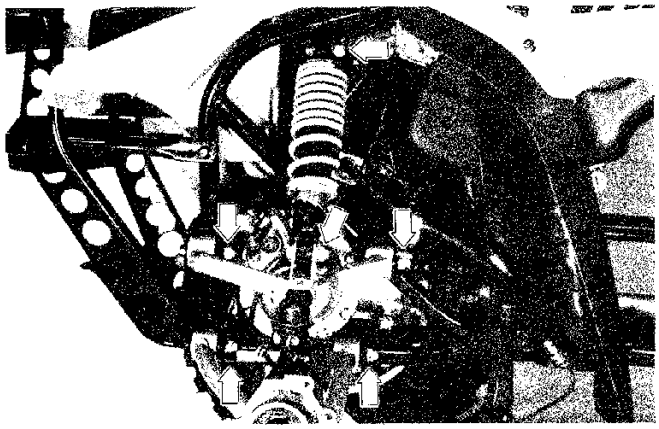
99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32110 For other models	Thread Lock Super "1322"
Tightening torque	44 – 66 N·m (4.4 – 6.6 kg-m) (32.0 – 47.5 lb-ft)



- Tighten the shock absorber upper and lower mounting nuts and wishbone arm pivot nuts.

Tightening torque

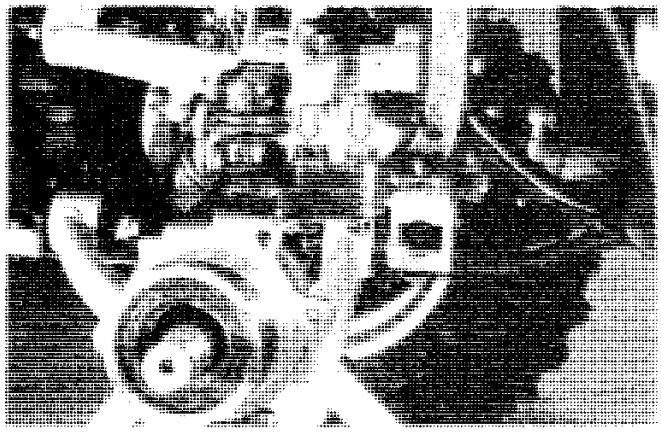
Shock absorber mounting bolt	40 – 60 N·m (4.0 – 6.0 kg-m) (29.0 – 43.5 lb-ft)
Wishbone arm pivot bolt	50 – 70 N·m (5.0 – 7.0 kg-m) (36.0 – 50.5 lb-ft)



- Tighten the steering knuckle arm bolts to the specified torque.

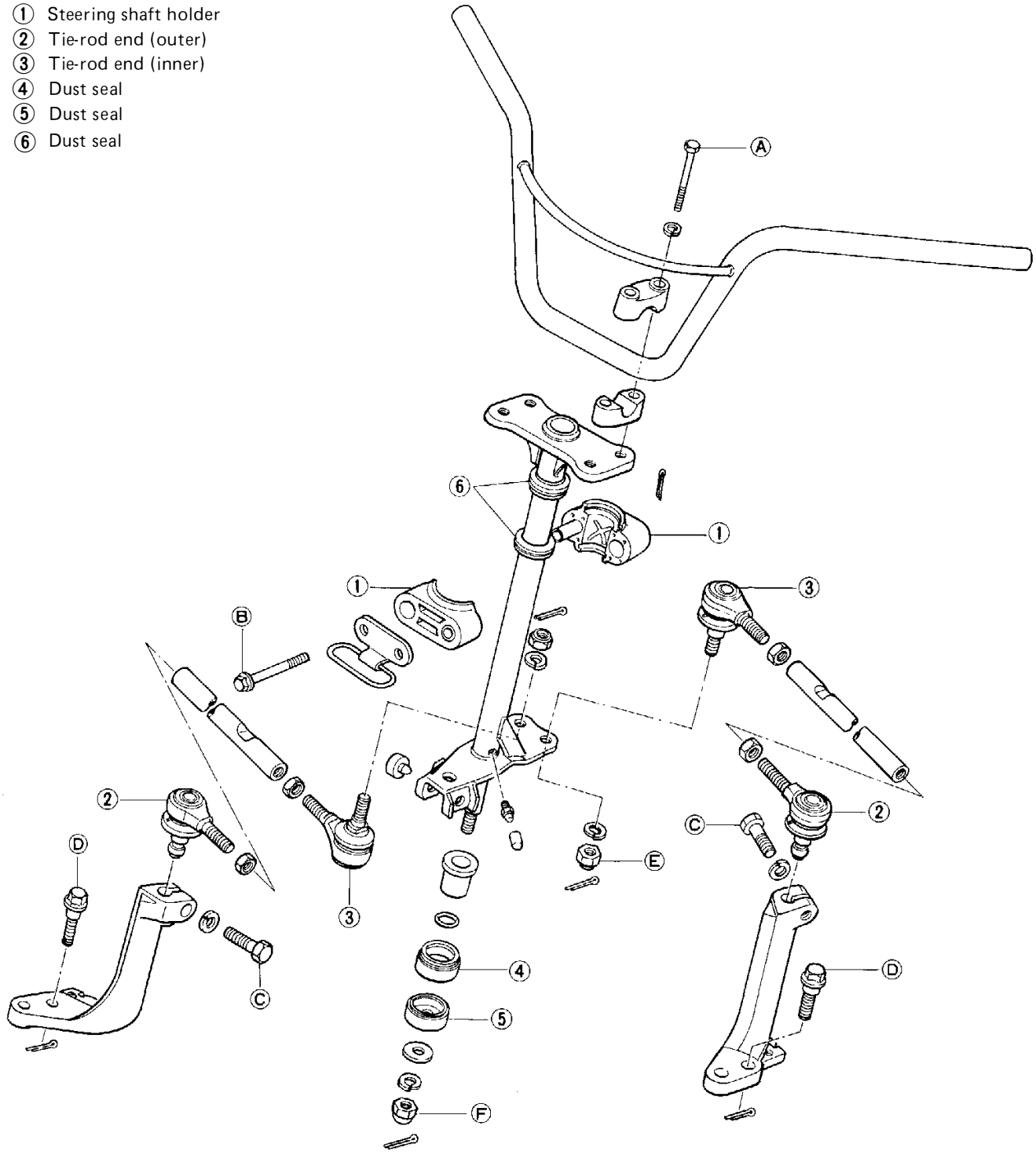
Tightening torque	40 – 60 N·m (4.0 – 6.0 kg-m) (29.0 – 43.5 lb-ft)

CAUTION:
Route the brake hose properly. (Refer to page 7-59.)



STEERING

① Steering shaft holder
② Tie-rod end (outer)
③ Tie-rod end (inner)
④ Dust seal
⑤ Dust seal
⑥ Dust seal

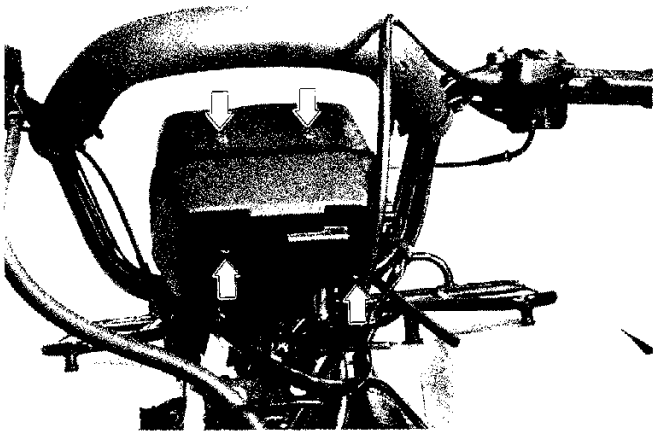


Tightening torque

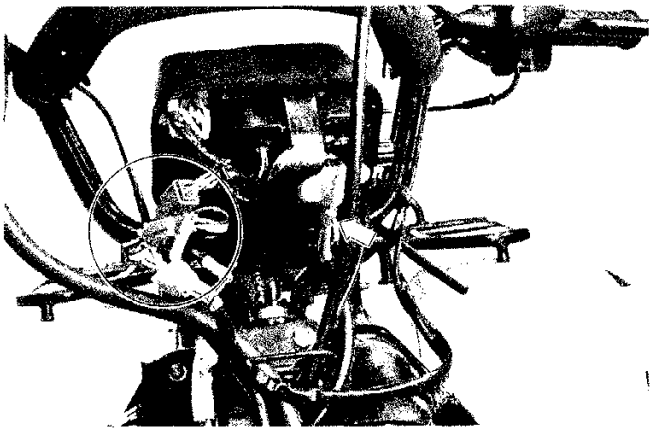
Item	N·m	kg-m	lb-ft
Ⓐ	18 – 28	1.8 – 2.8	13.0 – 20.0
Ⓑ	18 – 28	1.8 – 2.8	13.0 – 20.0
Ⓒ	44 – 66	4.4 – 6.6	32.0 – 47.5
Ⓓ	40 – 60	4.0 – 6.0	29.0 – 43.5
Ⓔ	22 – 35	2.2 – 3.5	16.0 – 25.5
Ⓕ	38 – 60	3.8 – 6.0	27.5 – 43.5

REMOVAL

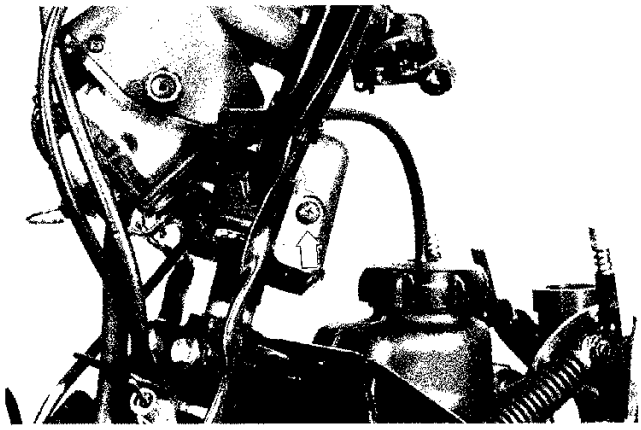
- Remove the front fender. (Refer to page 7-2.)
- Remove the speedometer lower cover.



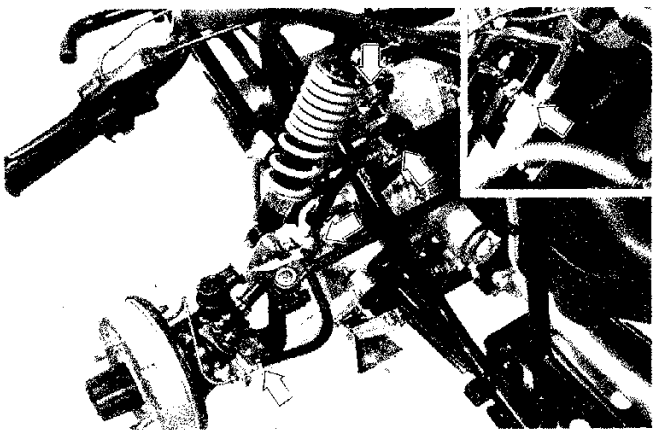
- Disconnect the lead wires and speedometer cable.



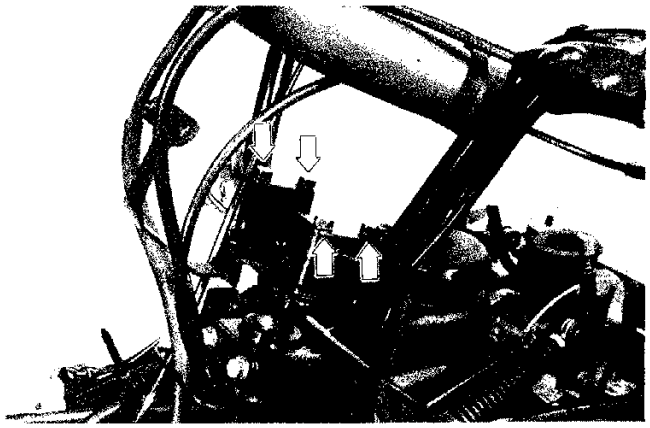
- Remove the speedometer.



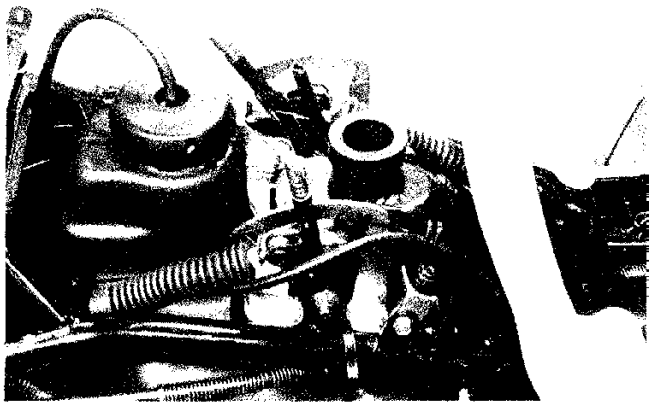
- Remove the front wheel. (Refer to page 7-4.)
- Loosen the brake hose joint securing bolt.
- Remove the selection lever cable securing clip.

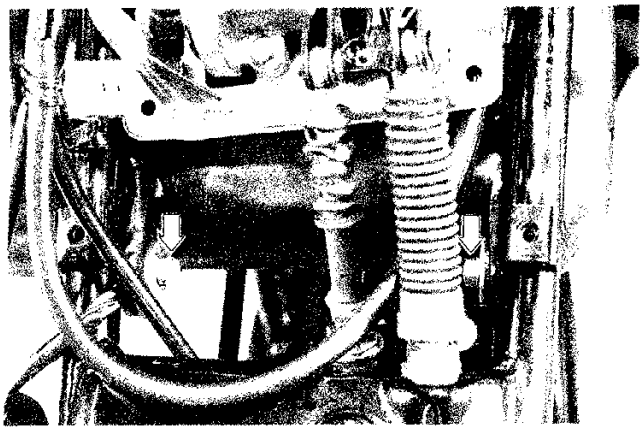


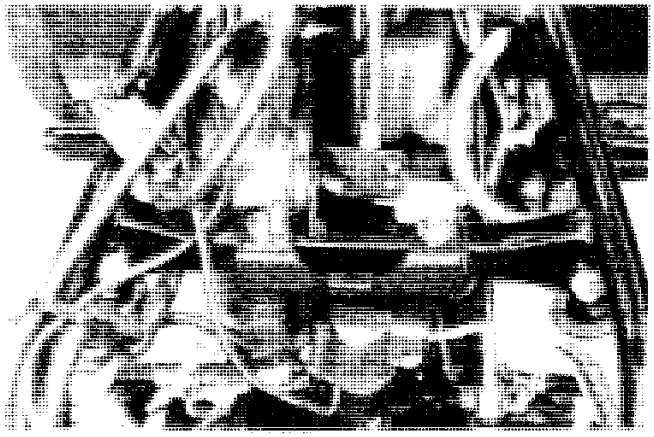
- Loosen the handlebars clamp bolts.



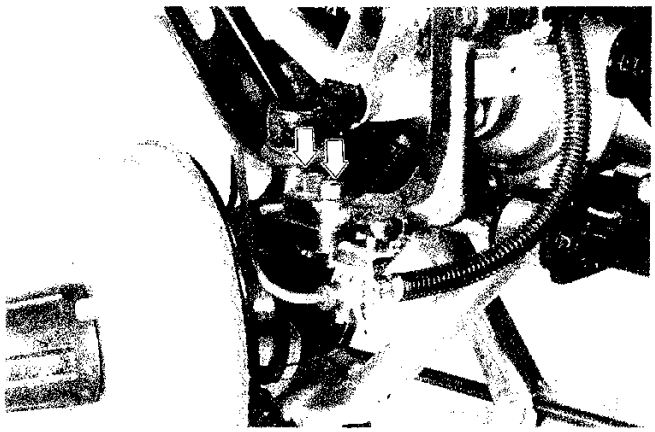
- Remove the lever case. (Refer to page 7-52.)
- Loosen the fuel tank securing bolts. (Refer to page 5-15.)



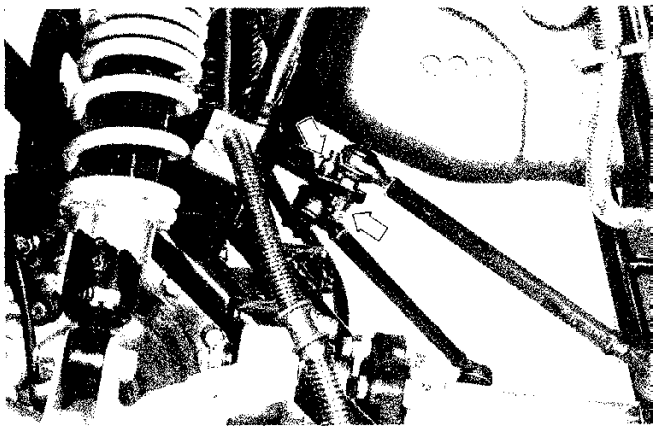




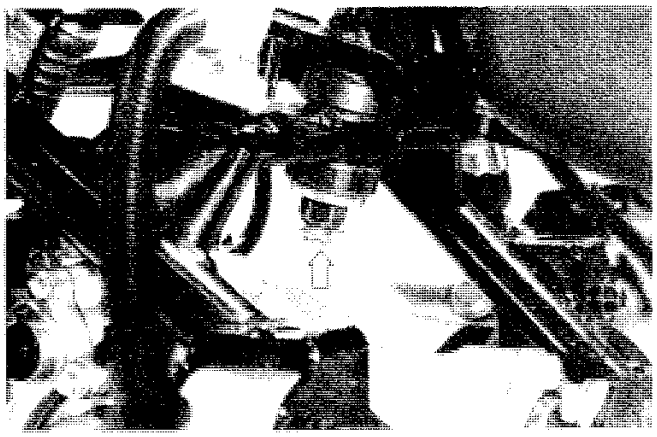
- After removing the cotter pin, loosen the steering knuckle arm bolts.



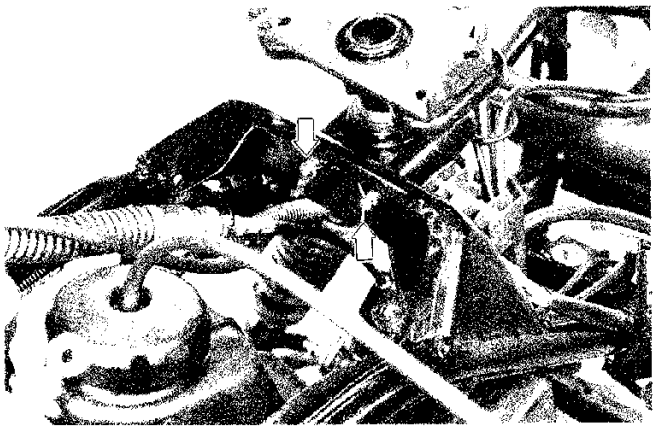
- After removing the cotter pins, loosen the tie-rod end nuts.
- Remove the tie-rods, right and left, while pulling the fuel tank backward.



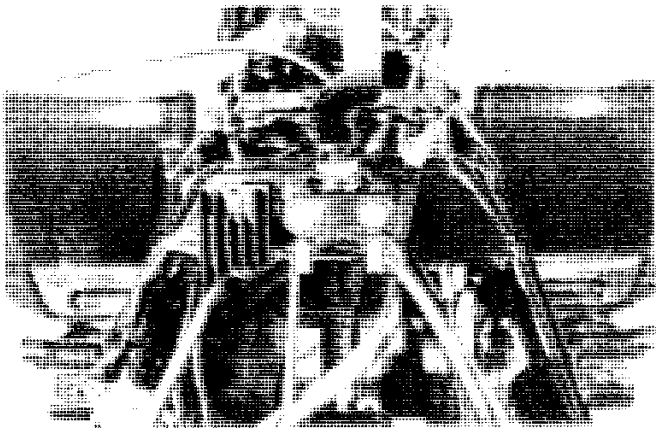
- After removing the cotter pin, loosen the steering shaft lower nut.



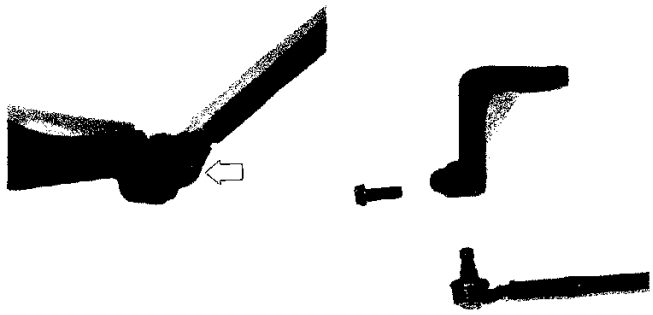
- Remove the cotter pin.



- Loosen the steering shaft holder bolts.
- Remove the steering shaft.

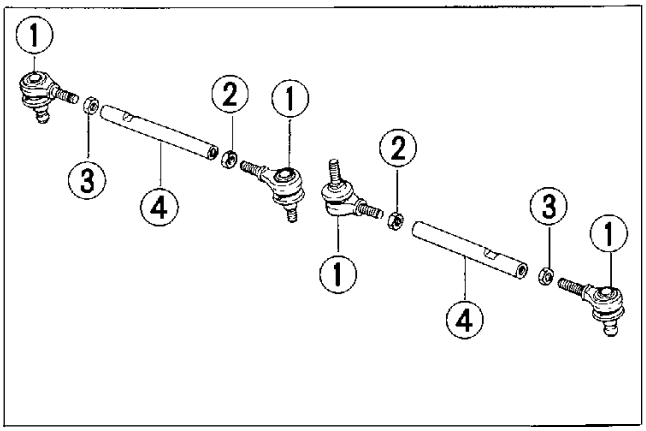


- Loosen the knuckle bolt, and then separate the tie-rod and steering knuckle arm.



- Separate the tie-rod ends ① , nuts ② , ③ and tie rods ④.

NOTE:
Inside lock nuts ② (surface finishing of yellow) are left-hand thread.



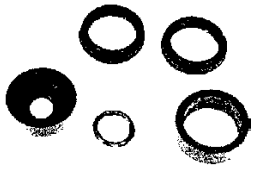
INSPECTION

Inspect the removed parts for the following abnormalities.

* Handlebars distortion
* Handlebars clamp wear

DUST SEAL

Inspect the dust seals and O-rings for wear or damage.

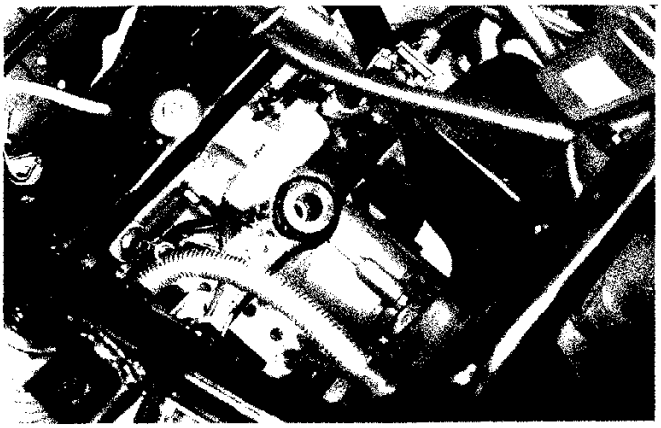


TIE-ROD

Inspect the tie-rod for distortion and the boot for wear.
Inspect the tie-rod end for smooth movement.

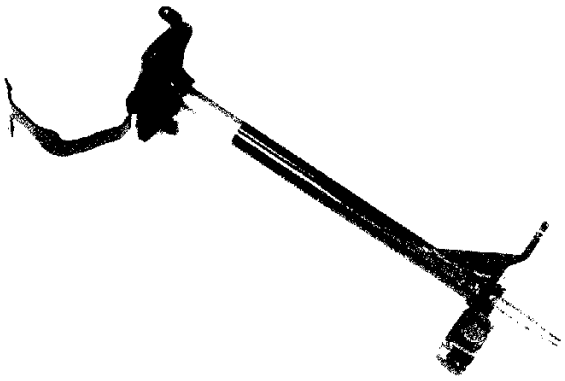
BUSH

Inspect the bush for wear or other damage.



STEERING SHAFT AND HOLDER

Inspect the steering shaft for distortion or bend.



Inspect the two steering shaft holders for wear.

REASSEMBLY AND REMOUNTING

Reassemble and remount the removed part in the reverse order of disassembly and removal, and also carry out the following steps:

STEERING DUST SEAL

- Apply grease to the dust seal and install it to the steering shaft.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	

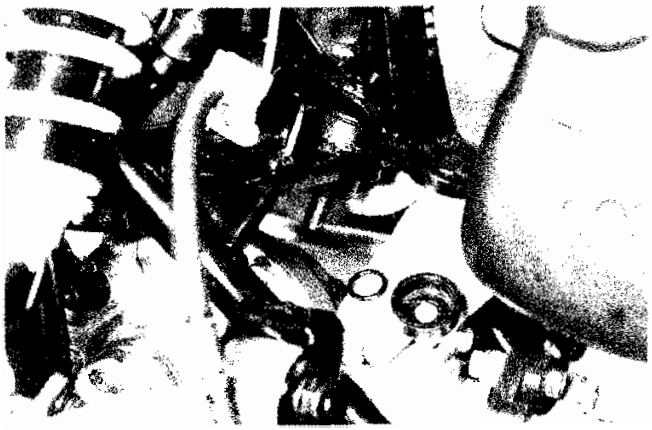
- Fit the ring to the dust seal.

STEERING SHAFT

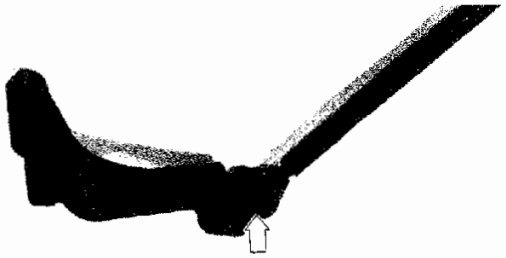
- Apply grease to the steering shaft lower portion.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	

- Install a new O-ring and dust cover.



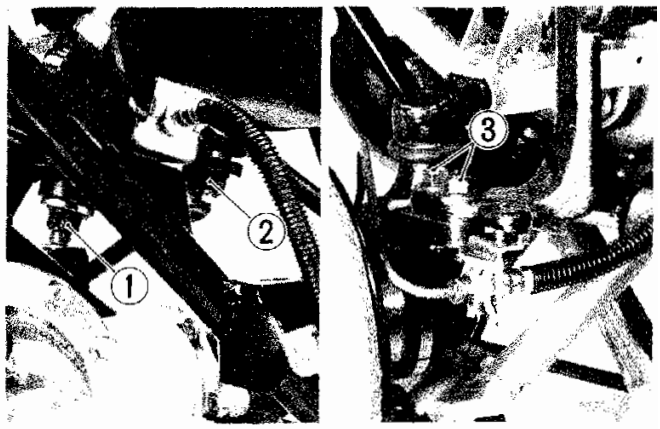
- Tighten the knuckle bolt to the specified torque after applying THREAD LOCK SUPER "1303" to the knuckle bolt.



Tightening torque	44 – 66 N·m (4.4 – 6.6 kg-m 32.0 – 47.5 lb-ft)

99000-32030 For U.S. model	Thread Lock Super "1303"
99000-32110 For other models	Thread Lock Super "1322"

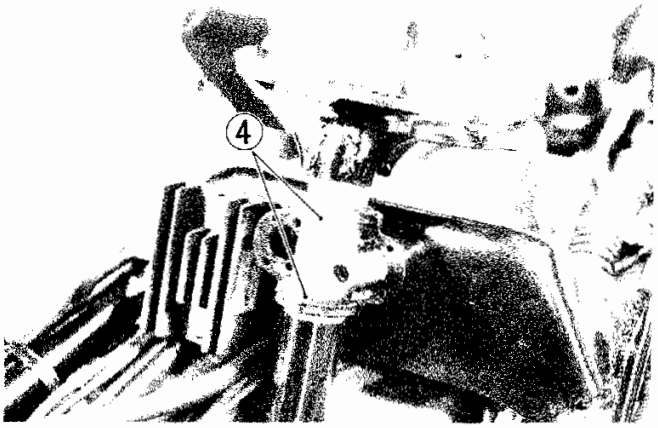
- Tighten the steering shaft lower nut ①, tie-rod end nuts ② and steering knuckle arm bolt ③ to the specified torque and install new cotter pins.



Tightening torque

Item	N·m	kg-m	lb-ft
①	38 – 60	3.8 – 6.0	27.5 – 43.5
②	22 – 35	2.2 – 3.5	16.0 – 25.5
③	40 – 60	4.0 – 6.0	29.0 – 43.5

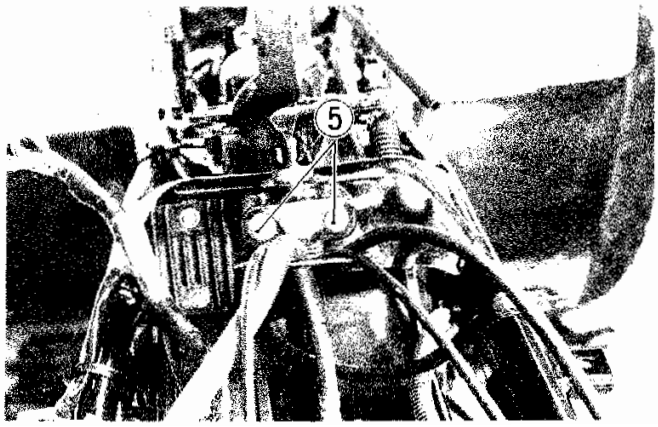
- Apply grease to the steering shaft holders and dust seals.



99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	

NOTE:
The dust seal end ④ should be mounted on the steering shaft facing forward to prevent entry of dirt.

- Tighten the steering shaft holder bolts ⑤ to the specified torque.

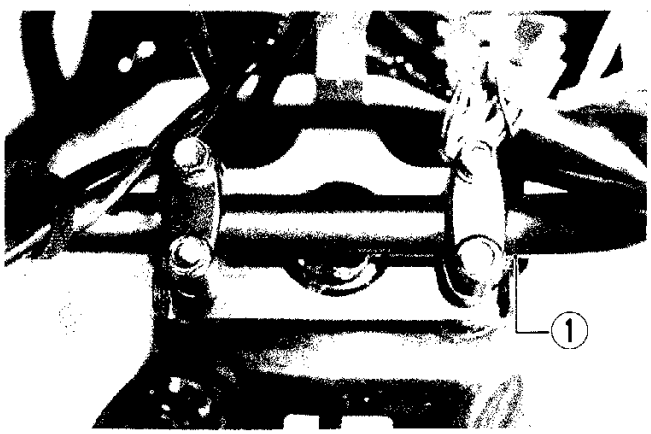


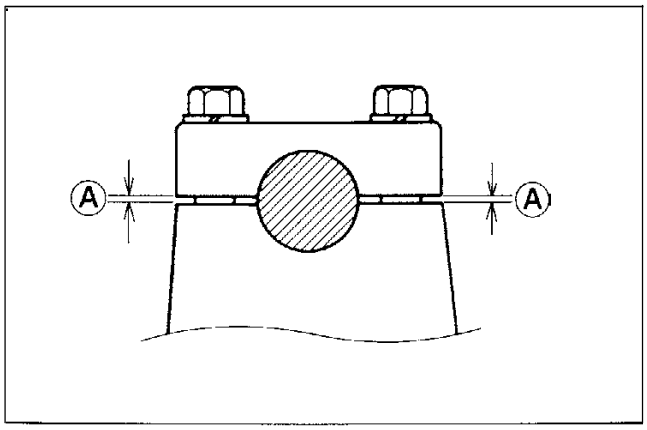
Tightening torque	18 – 28 N·m (1.8 – 2.8 kg-m 13.0 – 20.0 lb-ft)

HANDLEBARS

- Set the handlebars to match its punched mark ① to the mating face of the handlebars clamps.
- Secure the each handlebars clamp in such a way that the cleanrances Ⓐ ahead of and behind the handlebar should be equalized.

Tightening torque	18 – 28 N·m (1.8 – 2.8 kg-m 13.0 – 20.0 lb-ft)



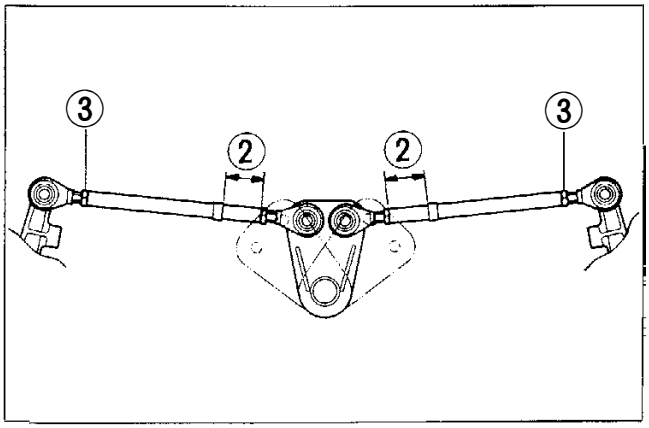


- Route the brake hose properly. (Refer to page 7-57.)

TIE-ROD

- When installing the tie-rod, make sure that the narrow side ② of the tie-rod comes inside.

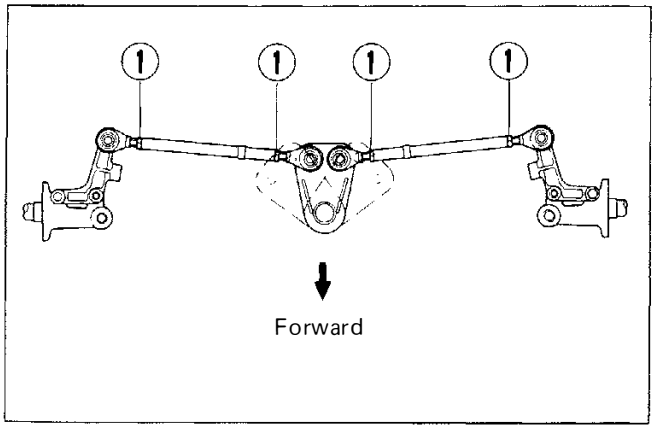
NOTE:
Outside lock nuts ③ (surface finishing of yellow) are left-hand thread.



TOE-IN ADJUSTMENT

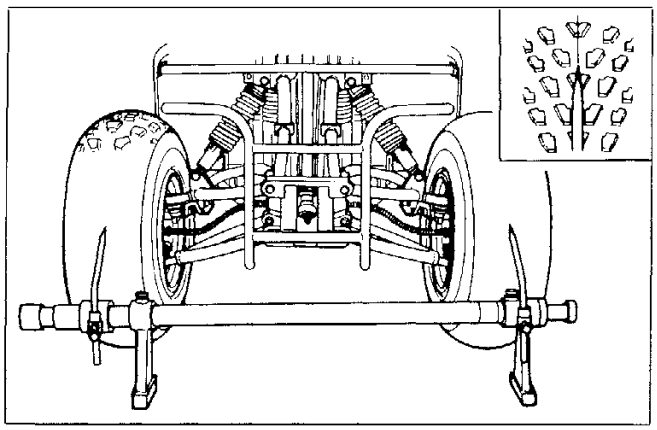
The procedure for adjusting the toe-in is as follows.

- Place the vehicle on level ground and set the handlebars straight.
  Make sure that all the tires are inflated to the standard pressure. (Refer to page 2-11.)
- Place a 75 kg (165 lbs) weight on the seat.
- Loosen the lock nuts ① on each tie-rod.



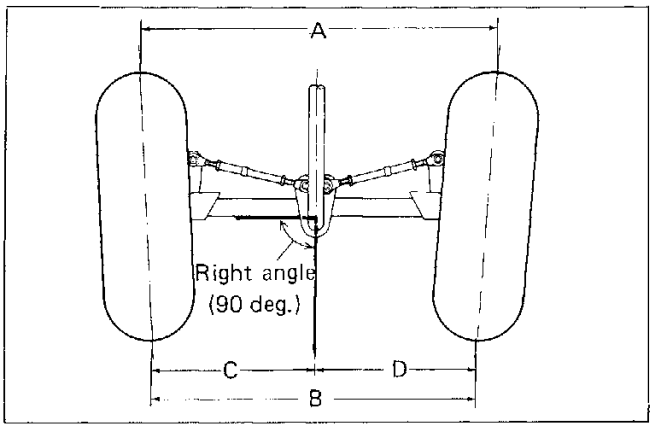
NOTE:
Lock nuts with yellow surface finishing are left-hand thread.

- Measure the distance A and B of front wheels (in illustration) and adjust the tie-rods, right and left, to within the specified range.
  A – B = Toe-in



Toe-in	11 – 19 mm (0.43 – 0.75 in)

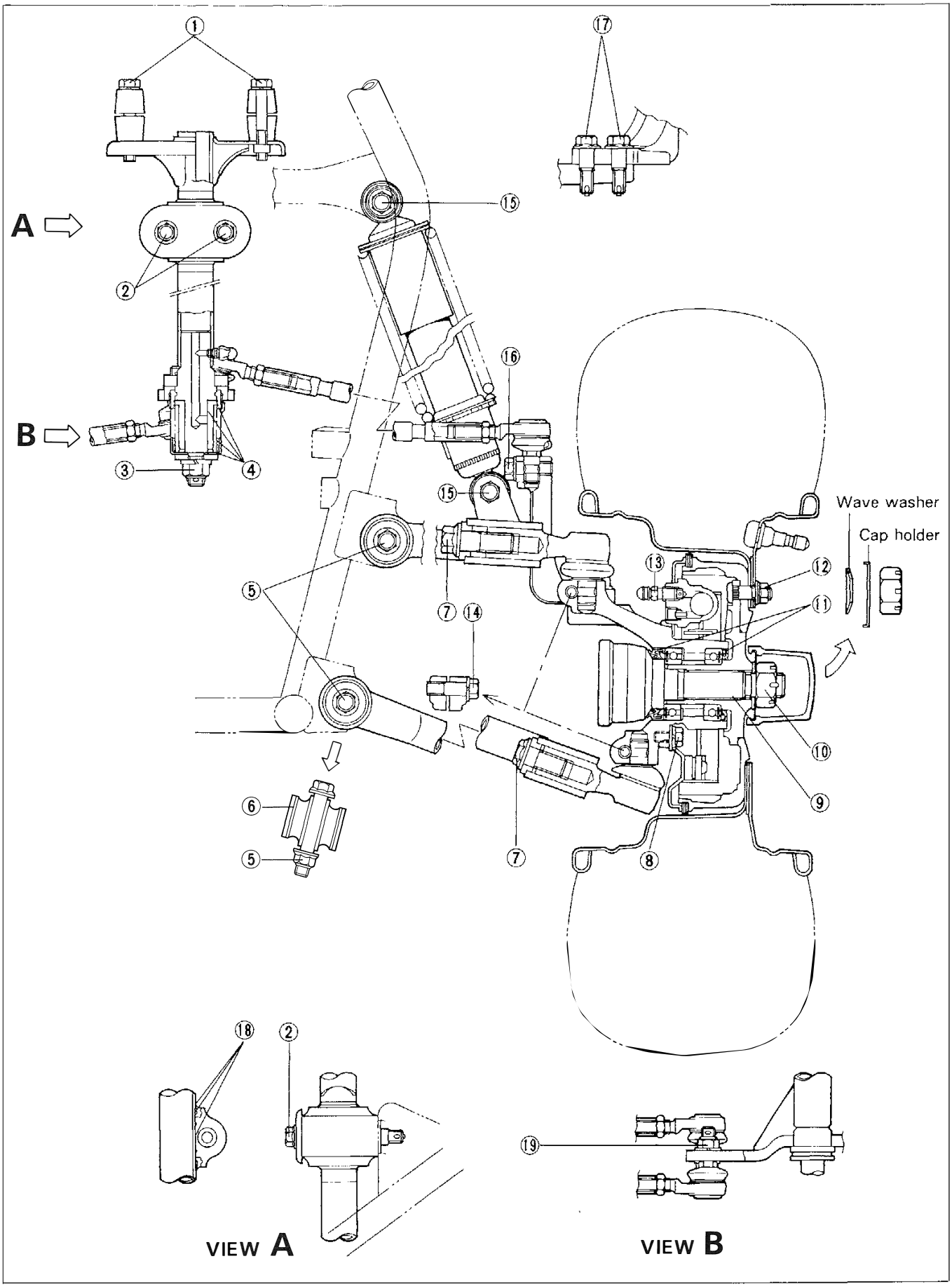
- Temporarily tighten the four lock nuts.
- Check that the distances C and D (in illustration) are equal. If the distances C and D are not equal, readjust the tie-rod, right or left, whichever makes the toe-in value closer to the specification. Check the toe-in again by measuring the distances A and B.
- If the toe-in is not within the specification, repeat the adjustment as above until proper toe-in value is obtained and at the same time the distances C and D become equal.
- Tighten the four nuts ① after adjustment of toe-in is made.



Tightening torque	22 – 35 N·m (2.2 – 3.5 kg-m 16.0 – 25.5 lb-ft)

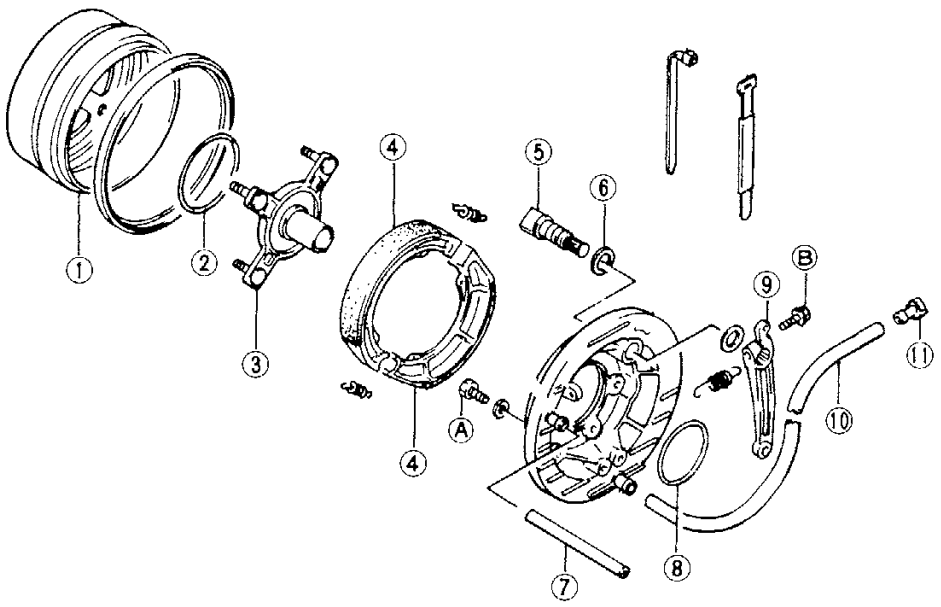
CAUTION:
Bleed the air after reassembling steering system. (Refer to page 2-13.)

FRONT WHEEL, FRONT SUSPENSION AND STEERING REASSEMBLING INFORMATION



ITEM	TIGHTNING TORQUE			NOTE	
	N·m	kg-m	lb-ft	For U.S. model	For other models
① Handlebars clamp bolt	18–28	1.8–2.8	13.0–20.0		
② Steering shaft holder bolt	18–28	1.8–2.8	13.0–20.0		
③ Steering shaft nut	38–60	3.8–6.0	27.5–43.5		
④ Bush and dust seal				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑤ Wishbone arm pivot nut	50–70	5.0–7.0	36.0–50.5		
⑥ Bush (outer surface)				Thread Lock Super "1333B" (99000-32020)	Thread lock Super "1322" (99000-32110)
⑦ Steering knuckle end bolt (upper and lower)	120–170	12.0–17.0	87.0–123.0		
⑧ Front brake panel bolt	18–28	1.8–2.8	13.0–20.0		
⑨ Front axle				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑩ Front axle nut	85–115	8.5–11.5	61.5–83.0		
⑪ Dust seal				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑫ Front wheel set nut	45–65	4.5–6.5	32.5–47.0		
⑬ Air bleeder valve	6–9	0.6–0.9	4.5–6.5		
⑭ Steering knuckle arm pinch bolt (upper and lower)	44–66	4.4–6.6	32.0–47.5	Thread Lock Super "1333B" (99000-32020)	Thread Lock Super "1322" (99000-32110)
⑮ Shock absorber mounting bolt	40–60	4.0–6.0	29.0–43.5		
⑯ Steering knuckle arm end pinch bolt	40–60	4.0–6.0	29.0–43.5	Thread Lock Super "1333B" (99000-32020)	Thread Lock Super "1322" (99000-32110)
⑰ Steering knuckle arm pinch bolt	40–60	4.0–6.0	29.0–43.5		
⑱ Steering shaft holder and dust seal				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑲ Tie-rod end nut	22–35	2.2–3.5	16.0–25.5		

REAR BRAKE



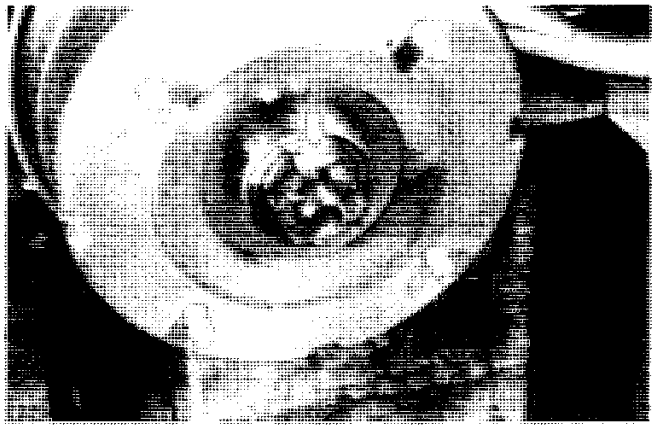
① Brake drum
② O-ring
③ Rear wheel hub
④ Brake shoe
⑤ Brake cam shaft
⑥ O-ring
⑦ Breather hose
⑧ O-ring
⑨ Brake cam lever
⑩ Water drain hose
⑪ Plug

Tightening torque

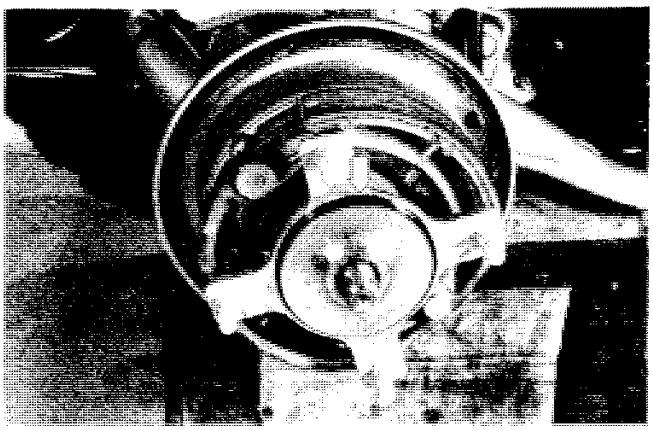
Item	N·m	kg-m	lb-ft
Ⓐ	18 – 28	1.8 – 2.8	13.0 – 20.0
Ⓑ	8 – 12	0.8 – 1.2	6.0 – 8.5

REMOVAL AND DISASSEMBLY

- Remove the rear wheel. (Refer to page 7-4.)
- Loosen the rear axle nut by applying the rear brake, after removing the cotter pin.
- Remove the brake durm.

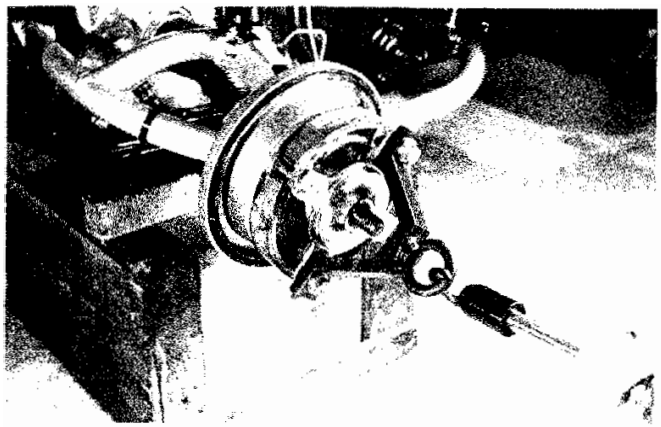


- Remove the O-ring.

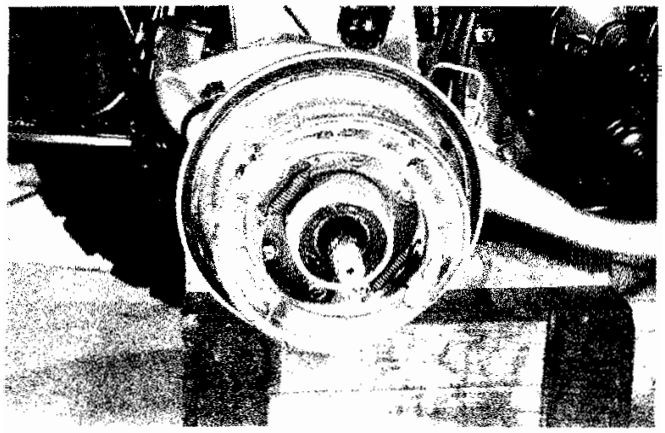


- Remove the rear wheel hub with the special tools.

09924-21910	Wheel hub remover
09930-30102	Sliding shaft



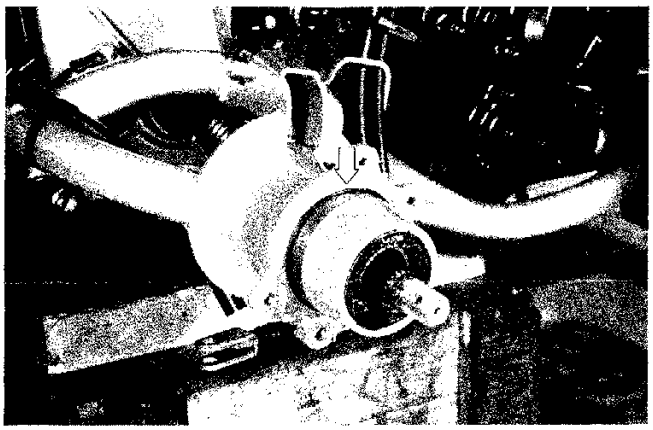
- Remove the brake shoes.



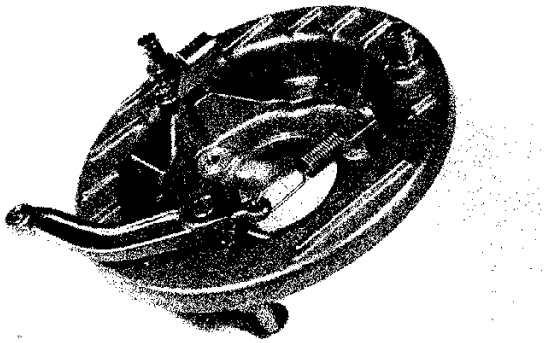
- Disconnect the rear brake cable, water drain hose and breather hose.

- Remove the brake panel by unscrewing the securing bolts.

- Remove the O-ring.



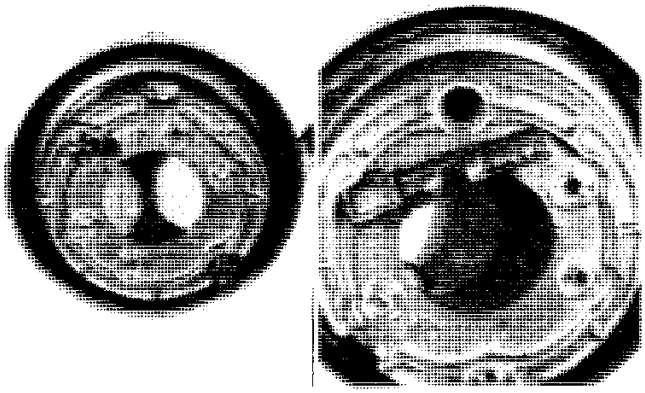
- Remove the spring, and then remove the brake cam lever bolt.

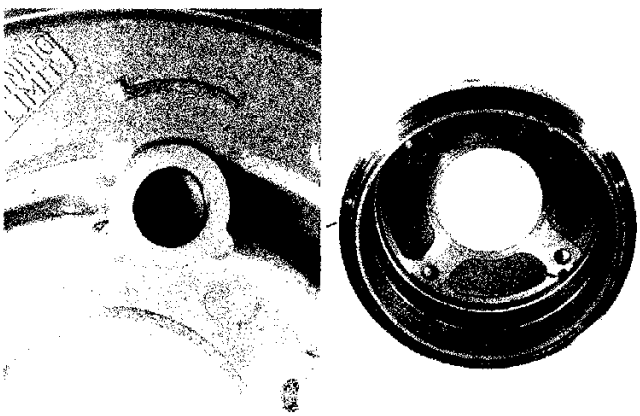


INSPECTION

- Inspect the dust seal and O-ring for wear or other damage.
  If wear or other damage is noted, replace them with new ones.
- Inspect the seal ring mounted on brake drum for any scuffing or flaws.

CAUTION:
The removed dust seal and O-ring should be replaced with new ones.





Inspect the following items

- Brake drum (Refer to page 7-10.)

Service Limit	165.7 mm (6.52 in)

- Brake shoe (Refer to page 7-11.)

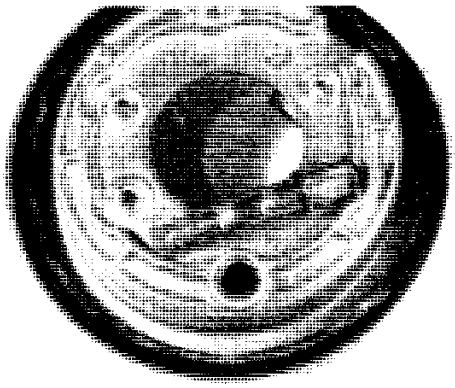
Service Limit	1.5 mm (0.06 in)

REASSEMBLY

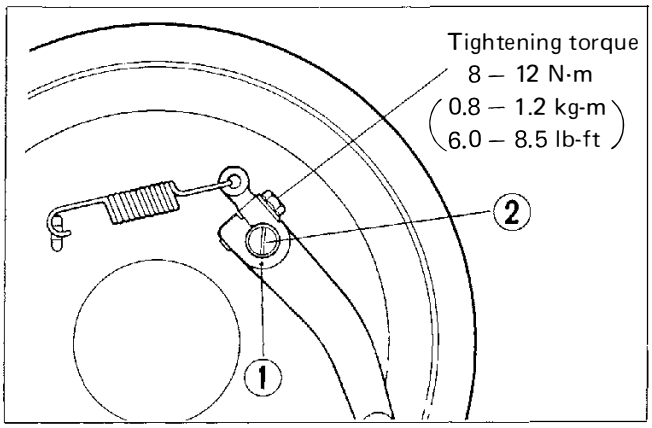
Install the new dust seal on the brake panel.

- Apply grease to the brake cam shaft, camshaft surface, O-ring and dust seal.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	

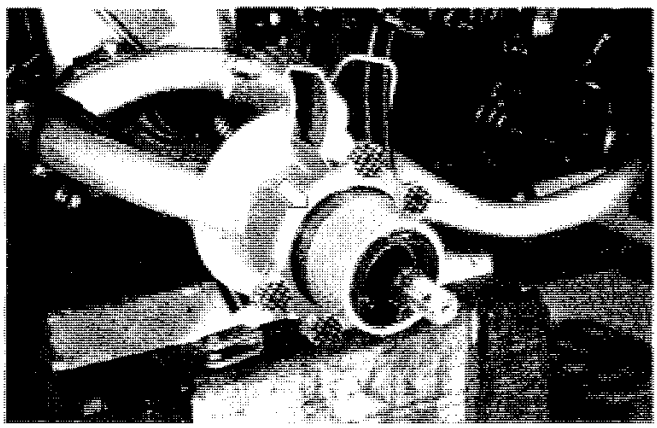


- Install the new O-rings on brake camshaft.
- When installing the brake cam lever on the camshaft, align the punched mark ① of cam lever with slit ② of camshaft.



- Apply SUZUKI Bond No 1216 to the mating surface of brake panel.

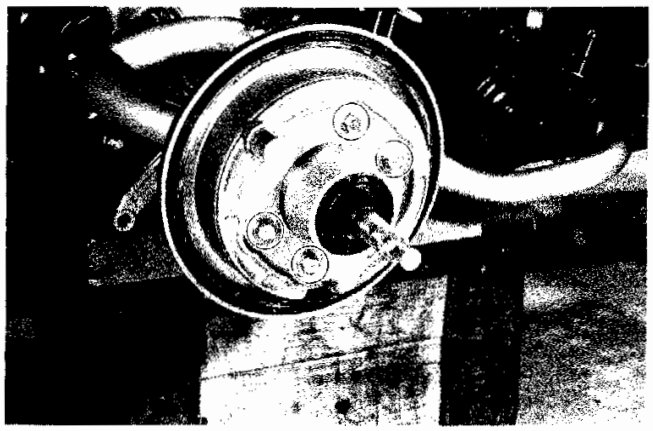
99104-31160 For U.S. medels	SUZUKI BOND No 1216
99000-31160 For other models	



- Install a new O-ring.

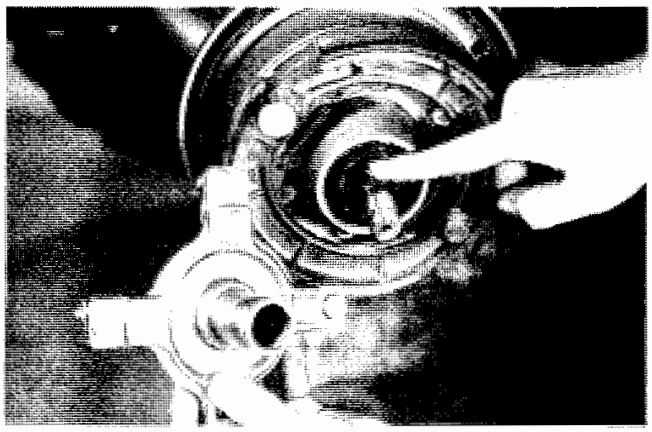
- Install the brake panel and tighten the bolts to the specified torque.

Tightening torque	18 – 28 N·m (1.8 – 2.8 kg-m 13.0 – 20.0 lb-ft)



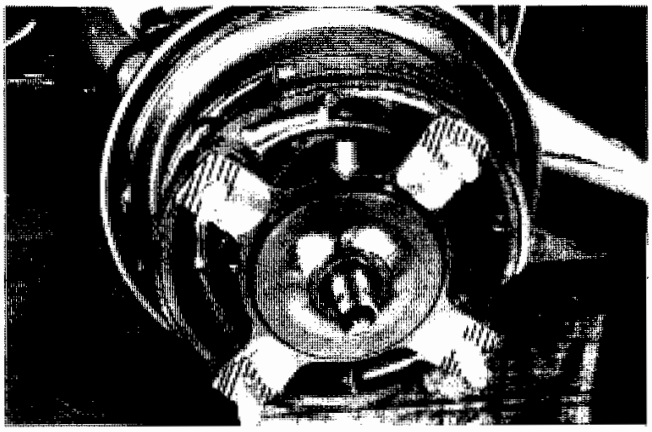
- Apply grease to the hub spline.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	



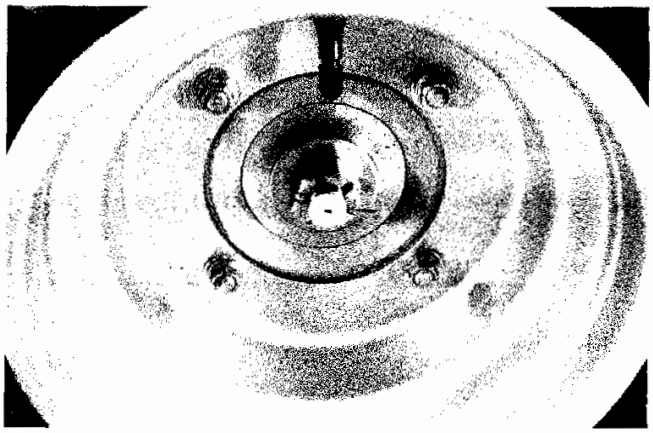
- Apply SUZUKI BOND No 1216 to the joint of bolts and hub, and then install a new O-ring.

99104-31160 For U.S. model	SUZUKI Bond No 1216
99000-31160 For other models	



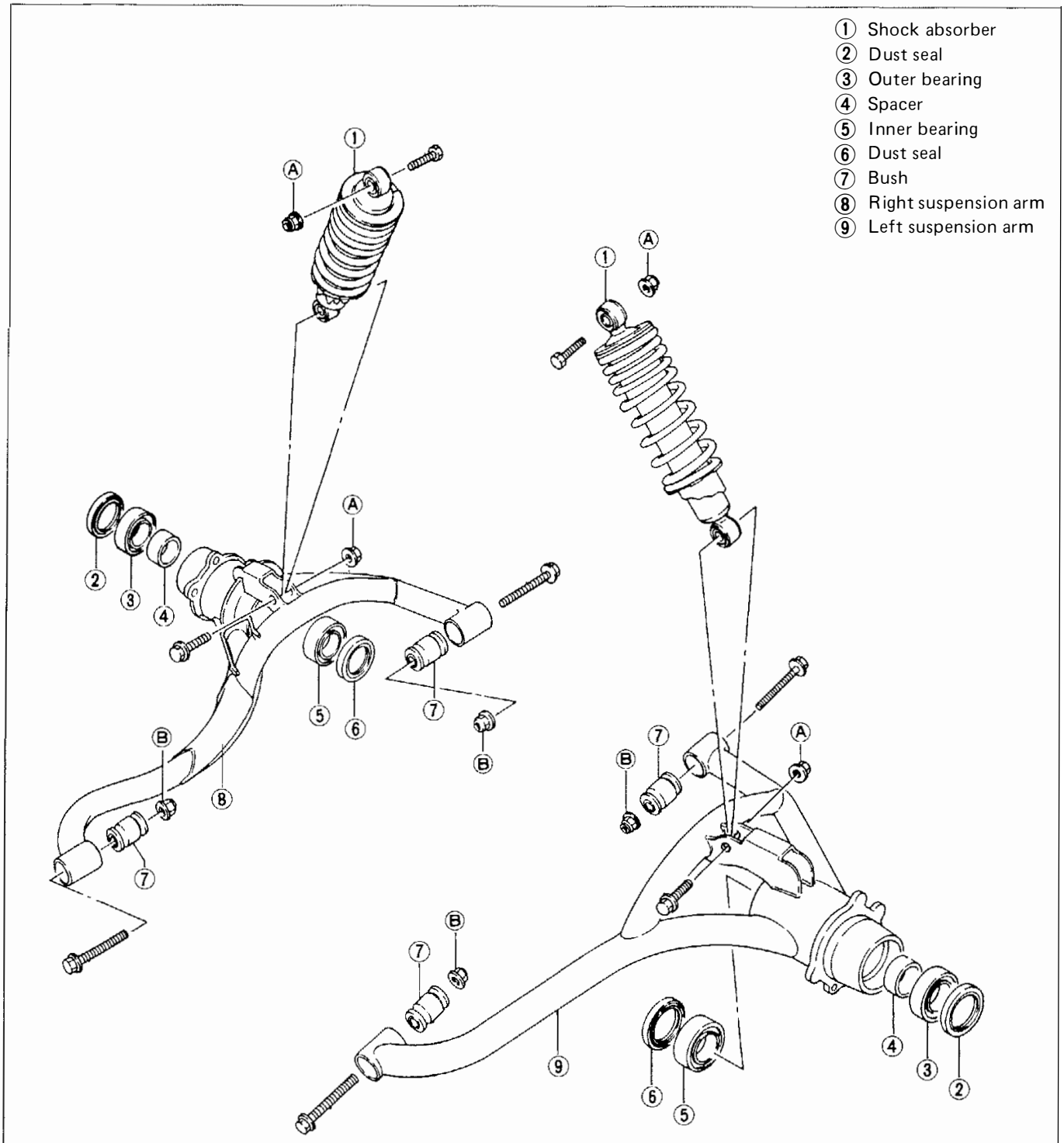
- Tighten the rear axle nut to the specified torque.

Tightening torque	85 – 115 N·m (8.5 – 11.5 kg-m 61.5 – 83.0 lb-ft)



- After installing the rear brake, adjust the following items.
  * Rear brake cable play 2-12
  * Parking brake cable play 2-13

REAR SUSPENSION

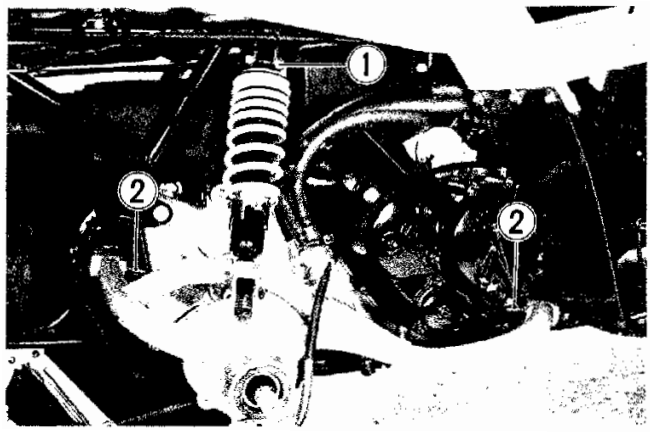


Tightening torque

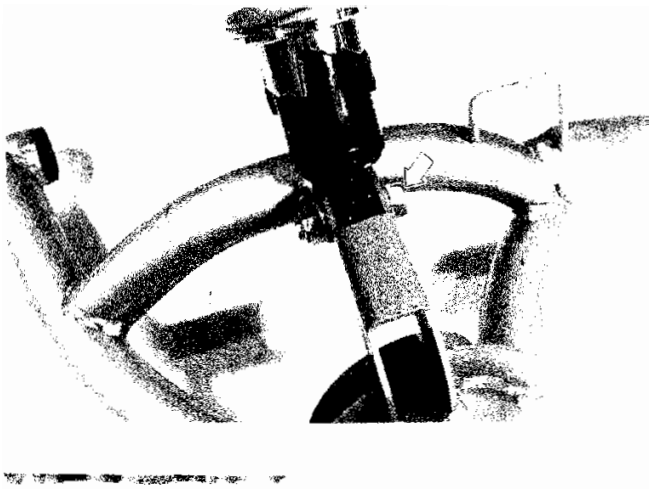
Item	N·m	kg-m	lb-ft
Ⓐ	40 – 60	4.0 – 6.0	29.0 – 43.5
Ⓑ	50 – 70	5.0 – 7.0	36.0 – 50.5

REMOVAL AND DISASSEMBLY

- Remove the rear wheel. (Refer to page 7-4.)
- Remove the rear brake. (Refer to page 7-37.)
- Remoe the shock absorber upper bolt ① and suspension arm mounting bolts ②, and remove the suspension arm and shock absorber.

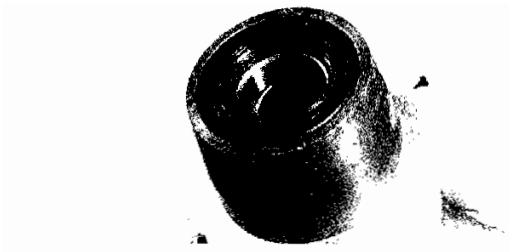


- Remove the shock absorber lower bolt and nut, and then separate the shock absorber from the suspension arm.

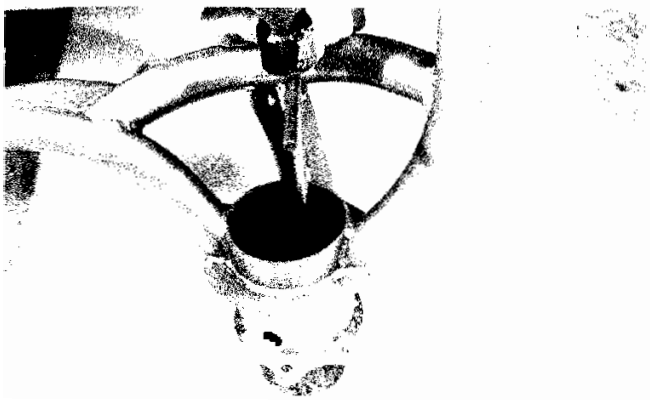


- Remove the dust seal with the special tool.

09913-50121	Oil seal remover

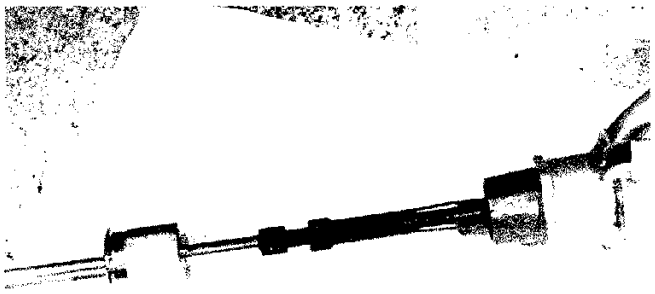


- First tap the bearing with the bar to get the clearance between bearing and spacer.



- Then remove the outer and inner bearings with the special tools.

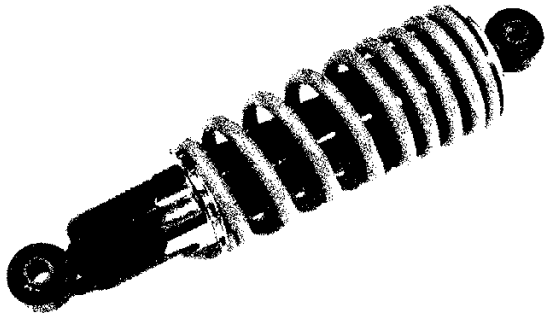
09913-60710	Bearing remover
09930-30102	Sliding shaft



INSPECTION

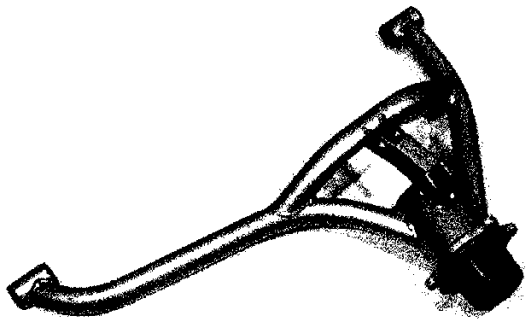
SHOCK ABSORBER

- Inspect the shock absorber for oil leakage or other damage.



SUSPENSION ARM

Inspect the suspension arm for distortion or other damage.

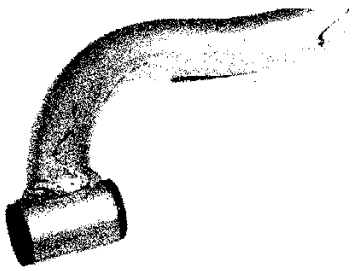


BUSH

If wear or damage is noted, replace the respective bushes.

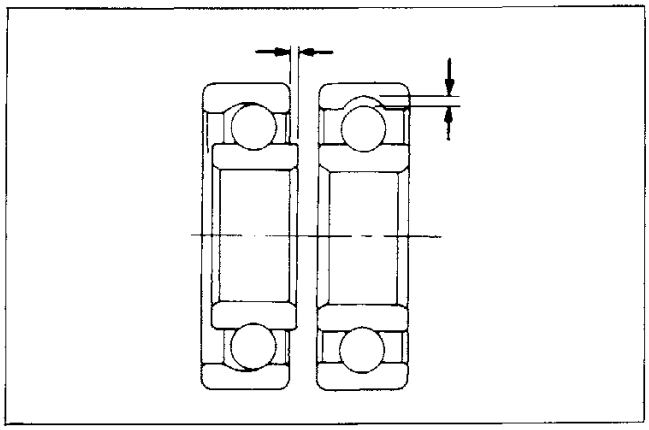
When replacing the suspension arm bush, apply THREAD LOCK SUPER "1333B" to outer surface of bush.

99000-32020 For U.S. model	Thread Lock Super "1333B"
99000-32110 For other models	Thread Lock Super "1322"



HUB BEARING

Inspect the play of hub bearings inner race by hand while it is in the suspension arm.
Rotate the inner race by hand to inspect for abnormal noise and smooth rotation.
Replace the bearing if there is anything unusual.



DUST SEAL

Inspect the dust seal lip for damage or wear.
If wear or other damage is noted, replace it with a new one.

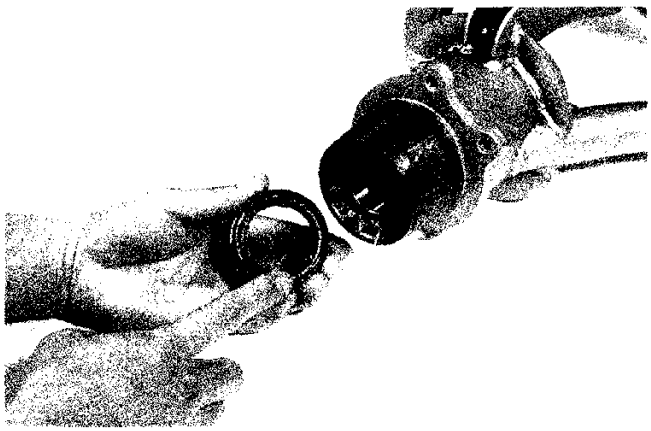
REASSEMBLY

Reassemble and remount the rear suspension in the reverse order of disassembly and removal, and also carry out the following steps.

HUB BEARING

Apply grease to the bearing and dust seal before installing them.

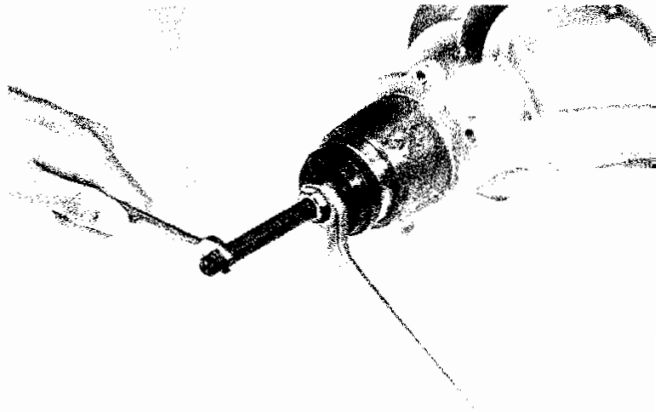
99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	



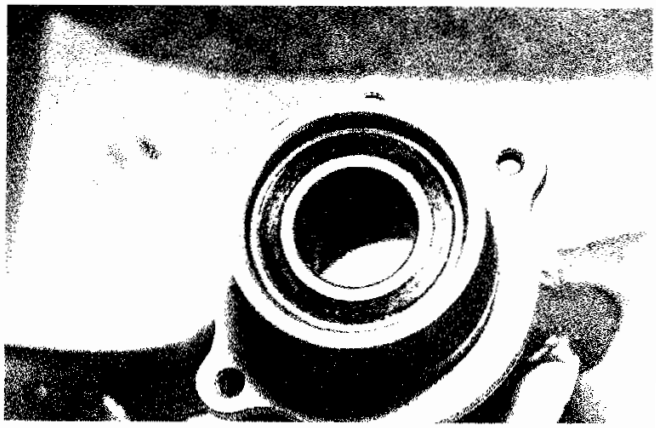
- Install the hub bearing with the special tool.

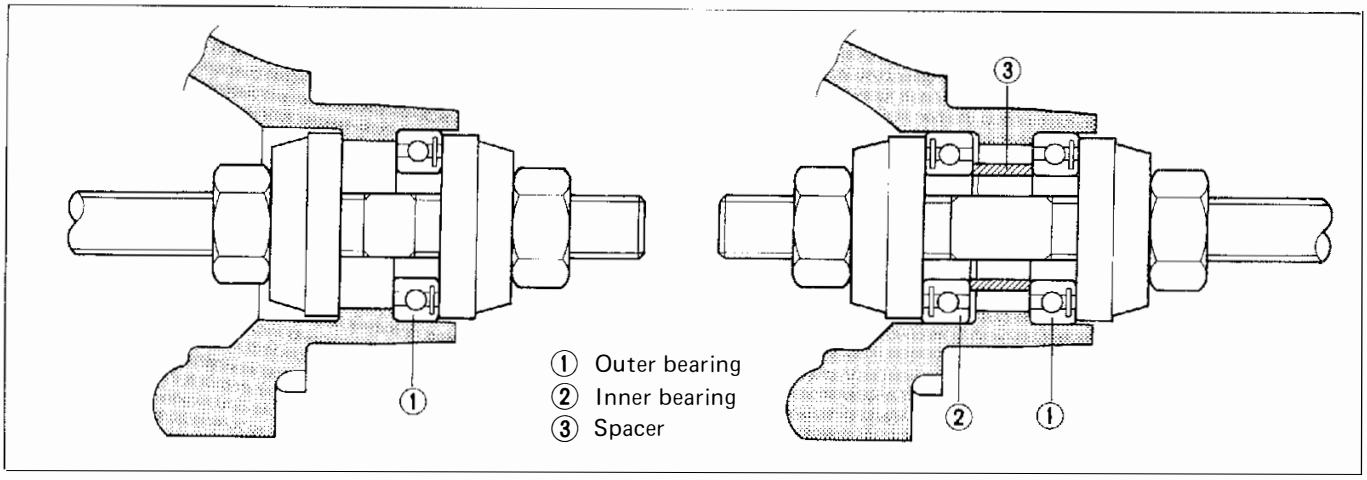
09924-84510	Bearing installer set

- Install the outside bearing first.



NOTE:
When installing the bearing, sealed side bearing comes outside.

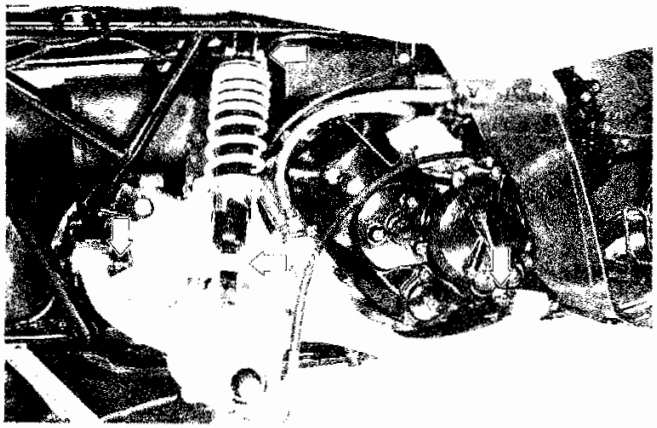




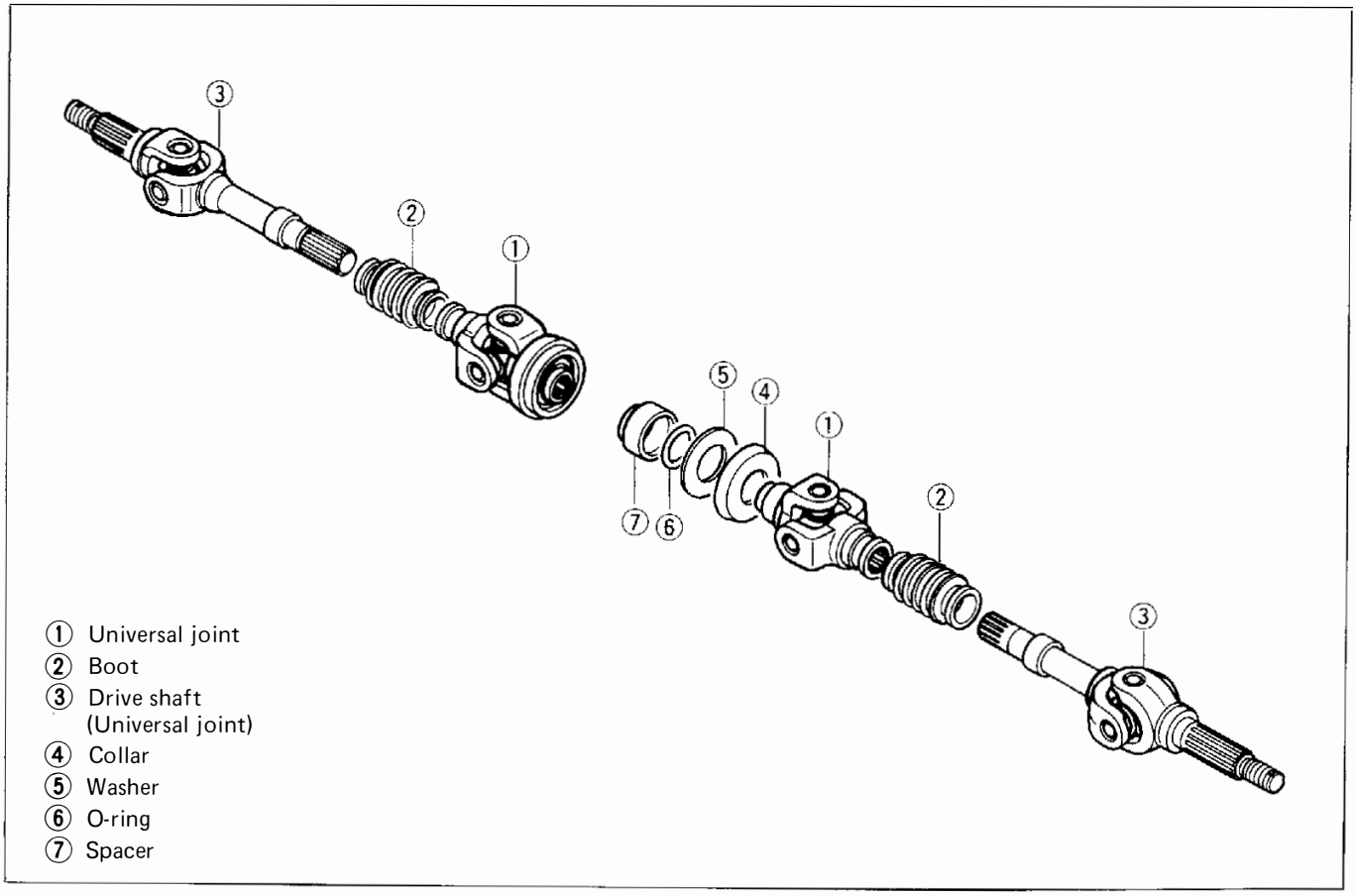
- Tighten the shock absorber mounting bolts and suspension arm pivot bolts to the specified torque.

Tightening torque

Shock absorber mounting bolt	40 – 60 N·m (4.0 – 6.0 kg-m / 29.0 – 43.5 lb-ft)
Suspension arm pivot bolt	50 – 70 N·m (5.0 – 7.0 kg-m / 36.0 – 50.5 lb-ft)



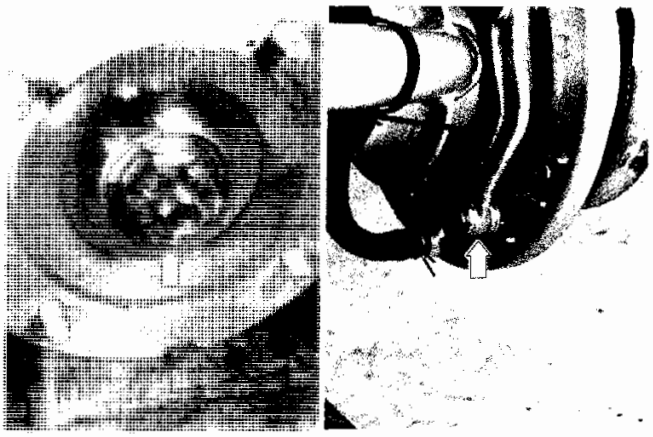
REAR AXLE SHAFT



① Universal joint
② Boot
③ Drive shaft (Universal joint)
④ Collar
⑤ Washer
⑥ O-ring
⑦ Spacer

REMOVAL

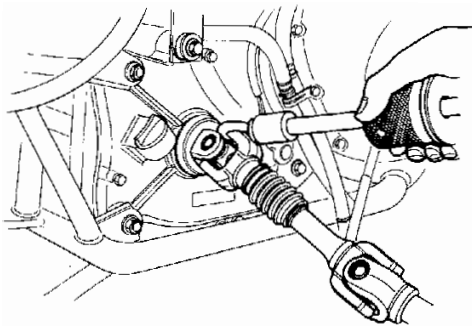
- Remove the rear wheel. (Refer to page 7-4.)
- Pull out the cotter pin and remove the rear axle nut.
- Disconnect the rear brake cable.
- Disconnect the breathe hose.
- Remove the rear suspension. (Refer to page 7-43.)



NOTE:
It is not necessary to remove the rear brake.

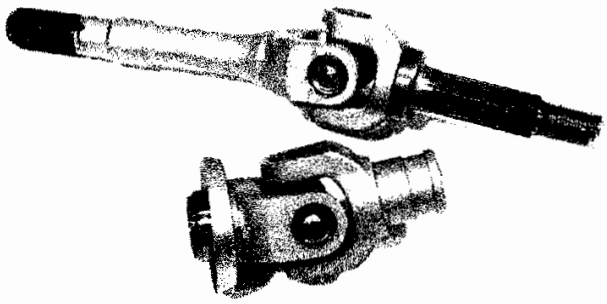
- Remove the axle shaft and universal joint with the special tool.

09924-21910	Wheel remover set
09930-30102	Sliding shaft



INSPECTION

- Inspect the universal joint for wear, breakage and other damage.
  If any damage is found, replace it with a new one.

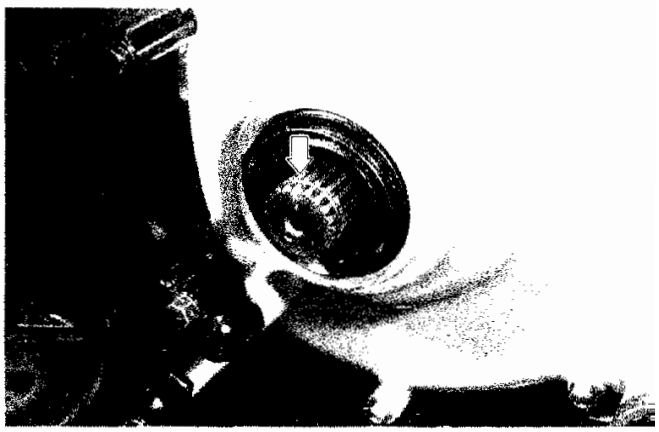


- Inspect the rubber boot for wear, breakage and other damage.
  If wear or other damage is noted, replace it with a new one.

REASSEMBLY

- Reassemble and remount the rear axle shaft in the reverse order of disassembly and removal, and also carry out the following steps.

CAUTION:
When assembling the universal joint, always use a new C-ring.

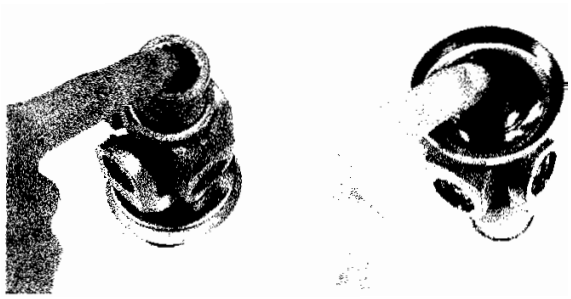


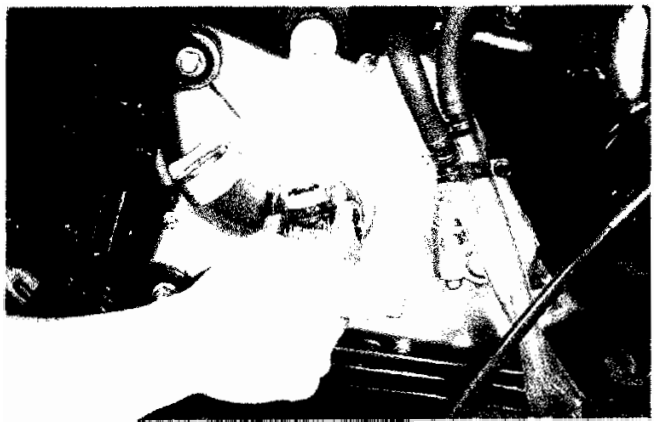
CAUTION:
When replacing the dust seal, replace it together with spacer, collar and O-ring.

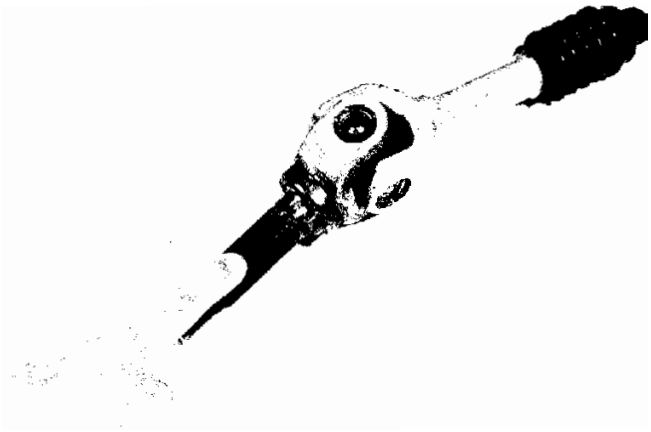
- Apply grease to the spline and universal joint.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	

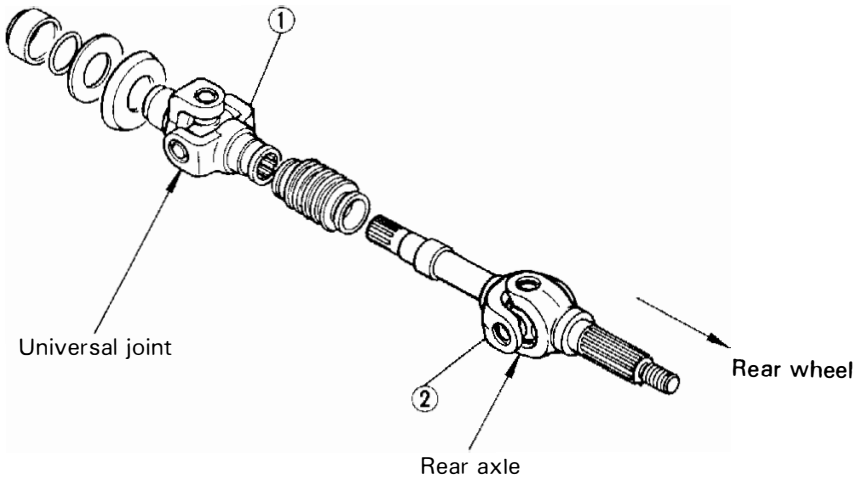
- Reinstall the universal joint securely.



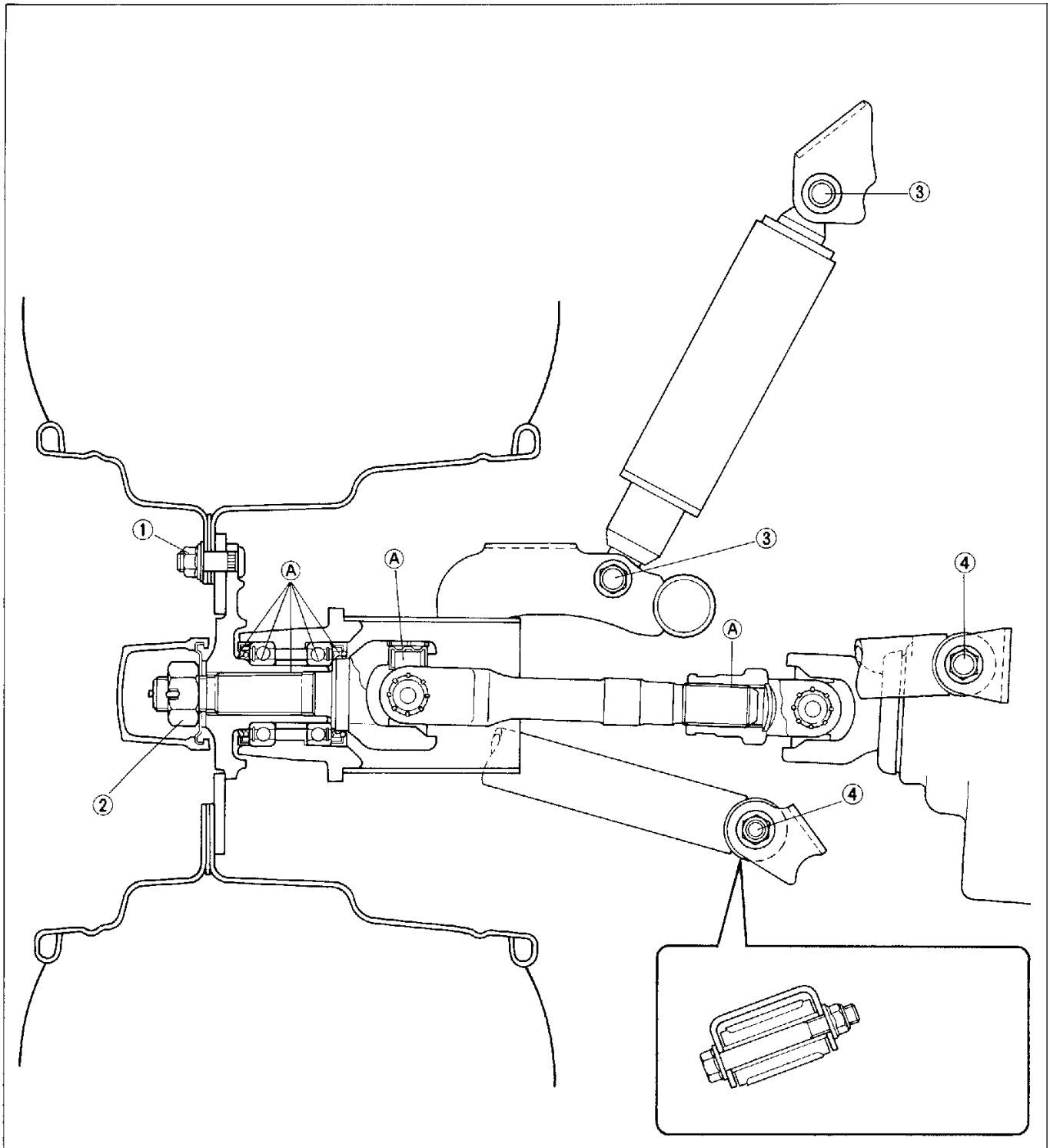




Properly align the universal joint and rear axle when mounting the rear axle to the universal joint. Otherwise a large fluctuation of the torque transmitted to the wheel during rear axle rotation takes place and produce vibration.
To prevent the above phenomenon, it is necessary to synchronize the universal joint ① with the universal joint ② when installing the rear axle shaft.
To synchronize them, align the phase of universal joint ② with that of universal joint ①.



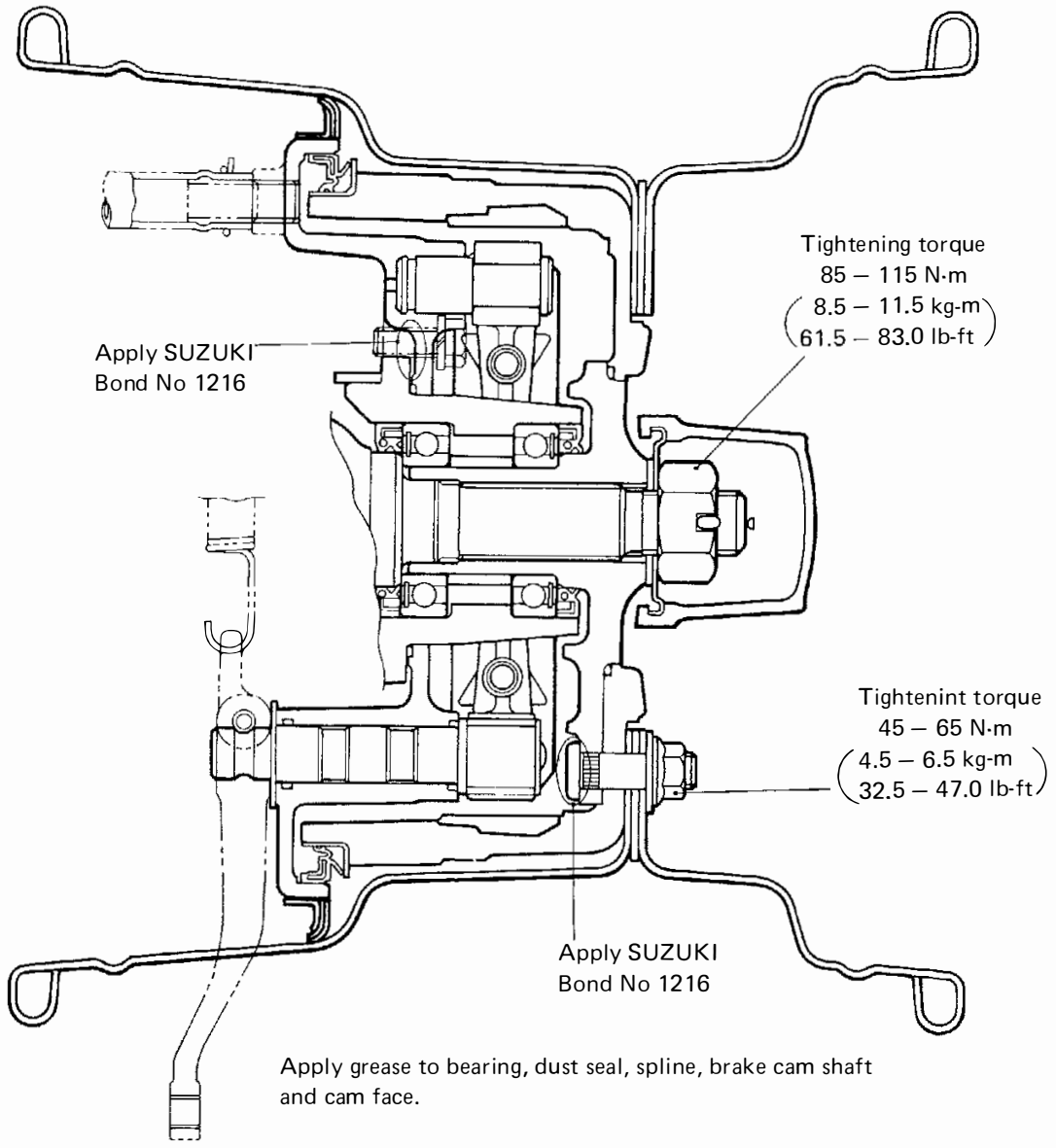
REAR BRAKE, REAR SUSPENSION AND REAR AXLE SHAFT REASSEMBLING INFORMATION

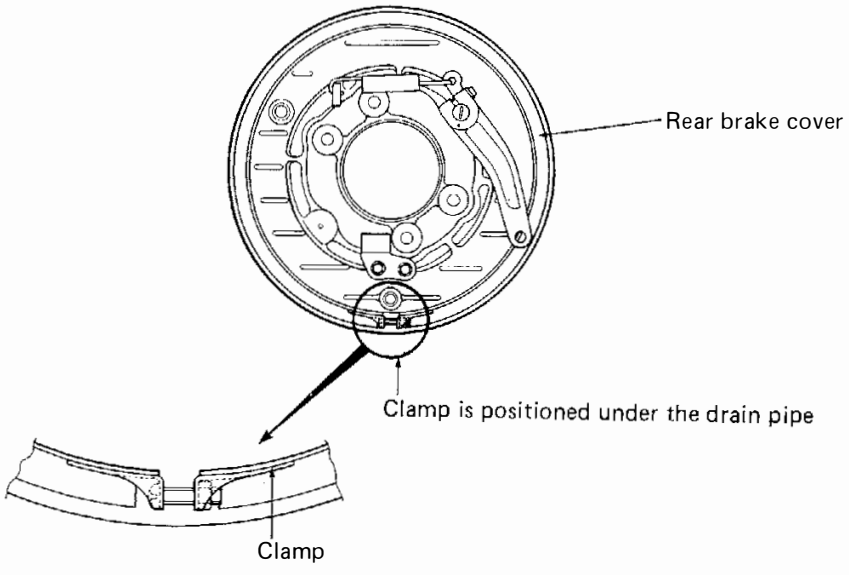


Tightening torque

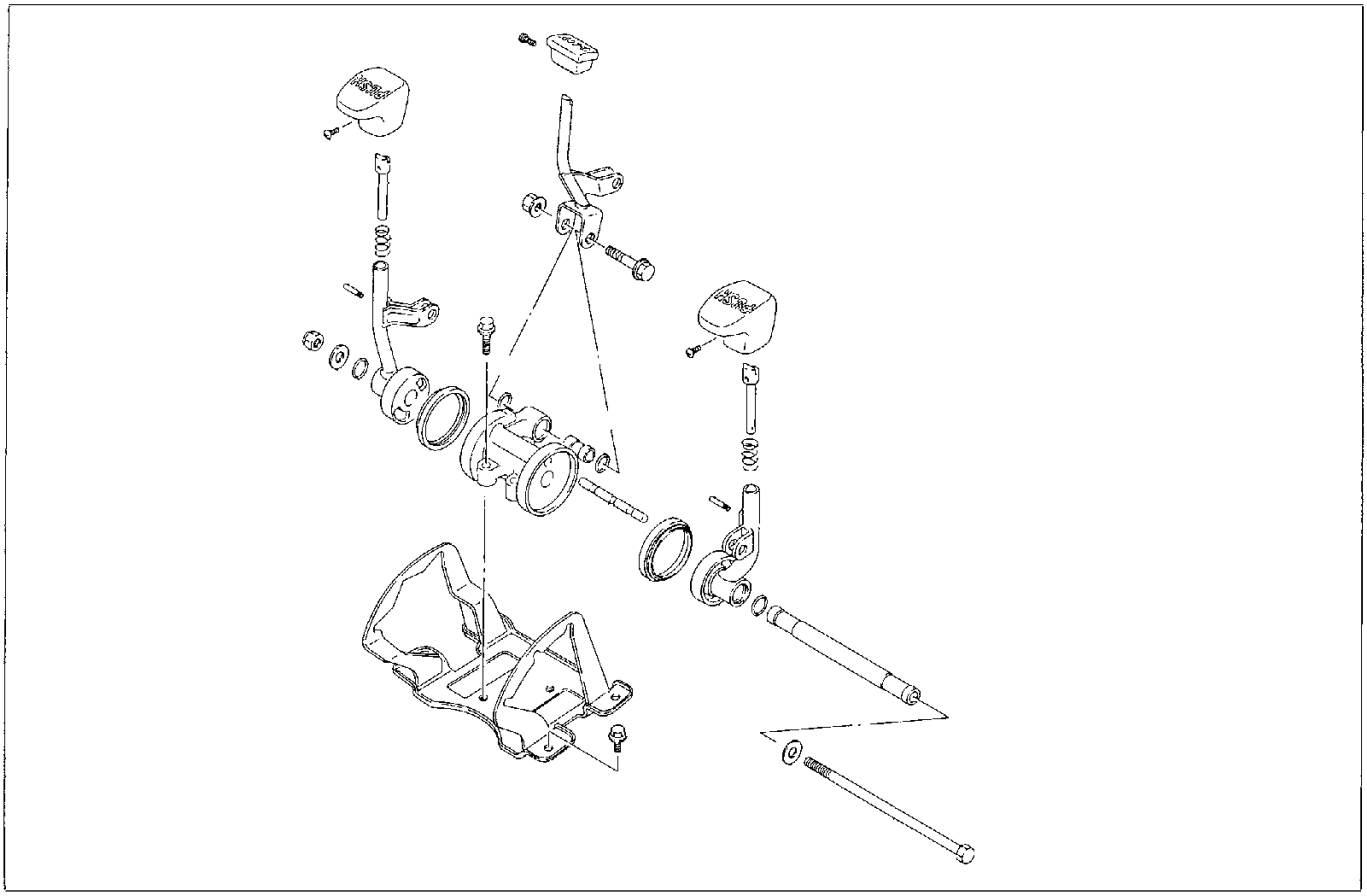
Item	N·m	kg-m	lb-ft
①	45 – 65	4.5 – 6.5	32.5 – 47.0
②	85 – 115	8.5 – 11.5	61.5 – 83.0
③	40 – 60	4.0 – 6.0	29.0 – 43.5
④	50 – 70	5.0 – 7.0	36.0 – 50.5

Ⓐ Apply grease to the bearing, dust seal and spline.


Tightening torque
85 – 115 N·m
(8.5 – 11.5 kg-m
61.5 – 83.0 lb-ft)
Apply SUZUKI
Bond No 1216
Tightenint torque
45 – 65 N·m
(4.5 – 6.5 kg-m
32.5 – 47.0 lb-ft)
Apply SUZUKI
Bond No 1216
Apply grease to bearing, dust seal, spline, brake cam shaft
and cam face.

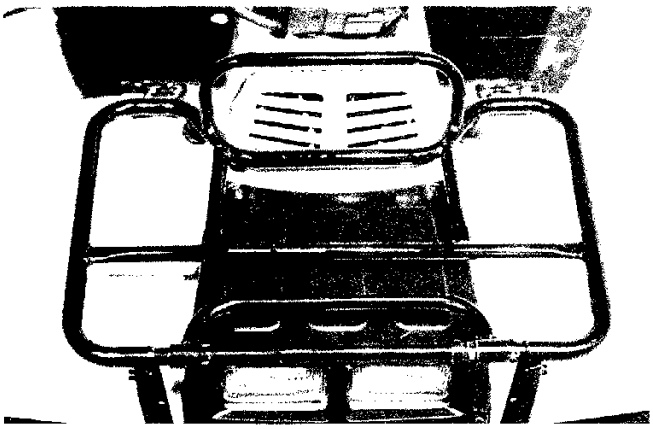

Rear brake cover
Clamp is positioned under the drain pipe
Clamp

LEVER CASE

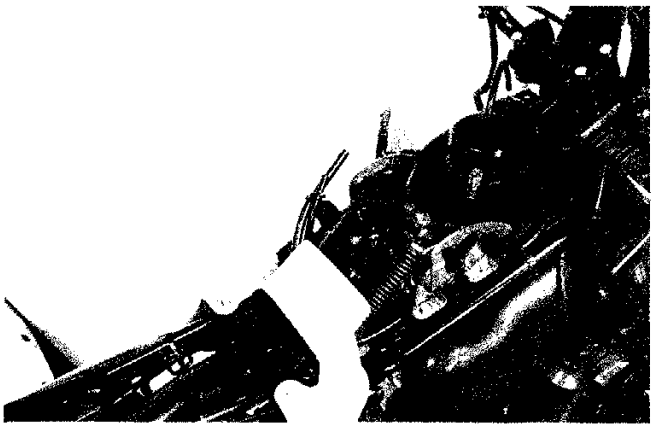


REMOVAL

- Remove the front fender. (Refer to page 7-2.)
- Disconnect the selection lever cable, reverse cable and range lever cable.

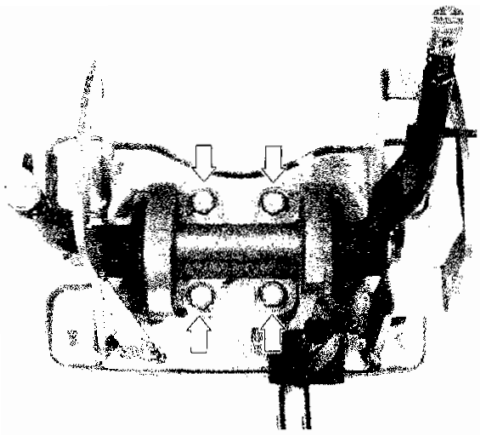


- Loosen the air cleaner inlet securing bolt and lever case bracket bolts.

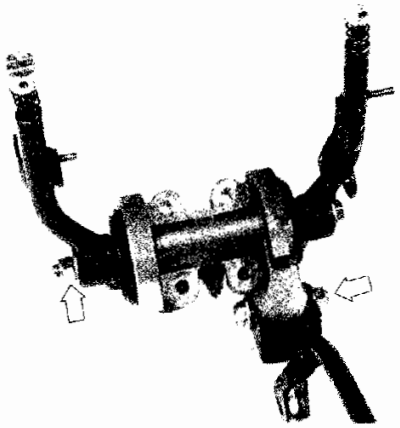


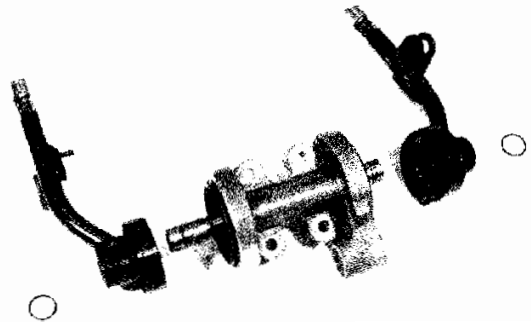
DISASSEMBLY

- Remove the case securing bolts.
- Remove the lever case from case bracket.



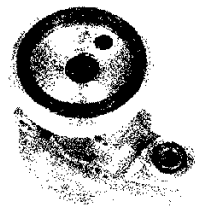
- Remove the lever holder bolts.



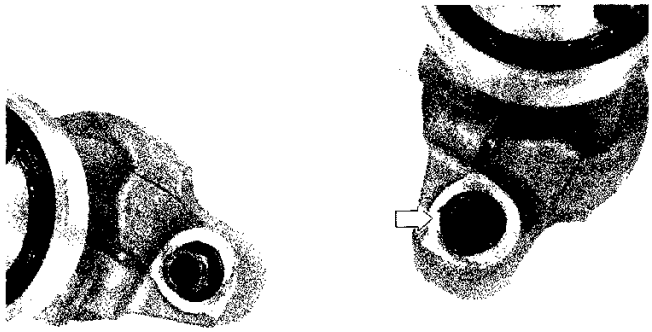


- Remove the shaft and interlock shaft.

- Remove the dust seal.

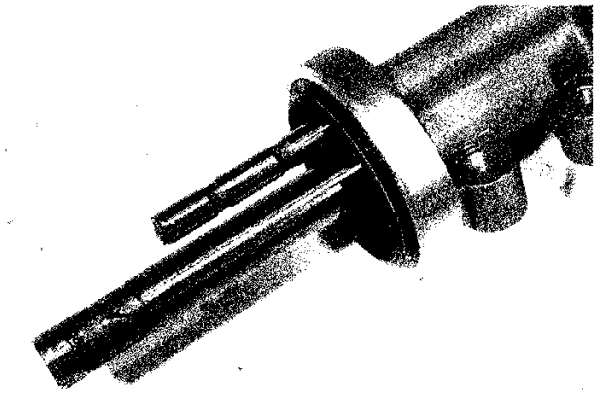


- Remove the spacer and O-ring.

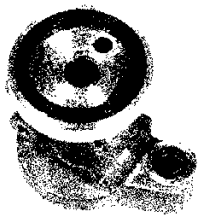


INSPECTION

- Inspect the shaft for wear, distortion or other damage.



- Inspect the dust seal for wear or other damage.

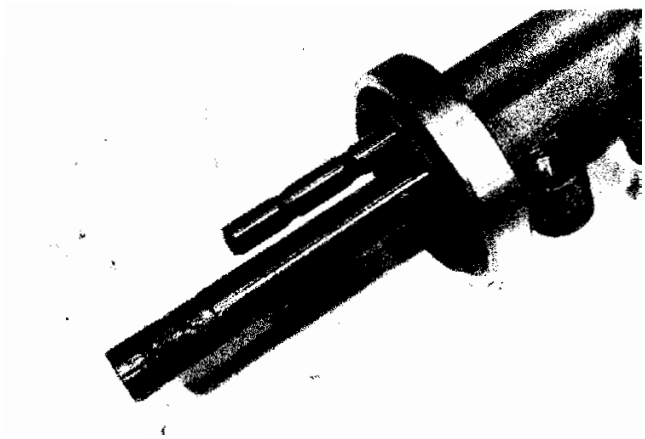


REASSEMBLY

- Reassemble and remount the lever case in the reverse order of disassembly and removal, and also carry out the following steps:

- Apply grease to the shaft, interlock shaft, spacer, mating surface of lever and dust seal.

99000-25030 For U.S. model	SUZUKI Super Grease "A"
99000-25010 For other models	



PUSH-PULL CABLE

INSTALLATION AND ADJUSTMENT

[1] SELECTION LEVER CABLE

Install the lever and a cable onto the differential case as follows.

Set the selection lever to the 4WD position and select the 4WD position on the differential case. (Fig. 1 and Fig. 2)

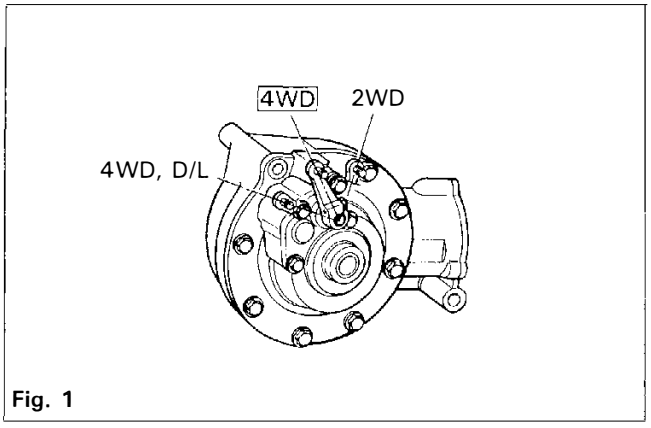


Fig. 1

With the slit in the lever aligned with the punched mark on the camshaft, fit the lever into serration and then tighten the bolt. (Fig. 3)

Tightening torque	5—8 N·m (0.5—0.8 kg-m) (3.5—6.0 lb-ft)

Install the cable and fit the washer ① and E-ring ② to the lever. (Fig. 3)

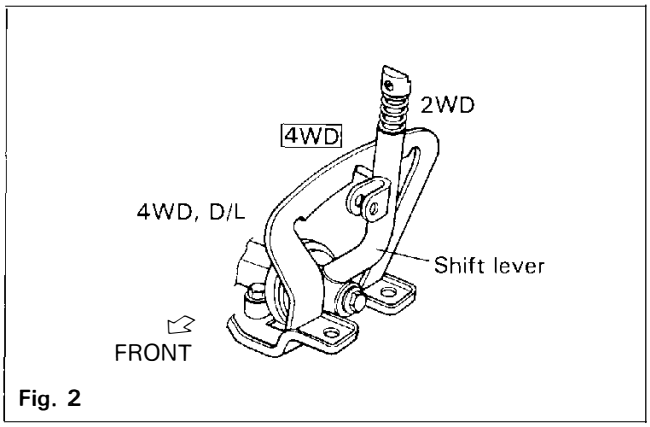


Fig. 2

Fit the cable into the stopper of the selection lever case side. (Do not fit the clip in this state.) (Fig. 4)

Fit the cable into the stopper of the selection lever side so that the stopper comes between the two adjusting nuts and washers. (Tighten the adjusting nuts ③ temporarily.) (Fig. 5)

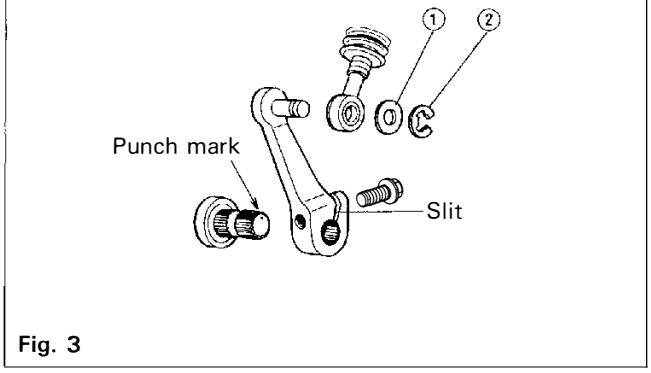


Fig. 3

Fit the clip to the stopper of the differential case side. (Fig. 4)

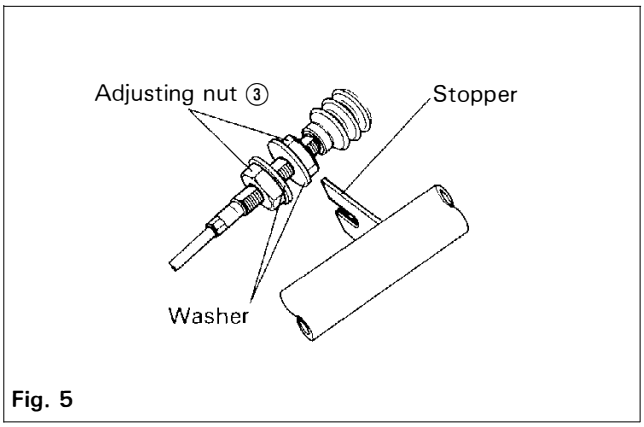


Fig. 5

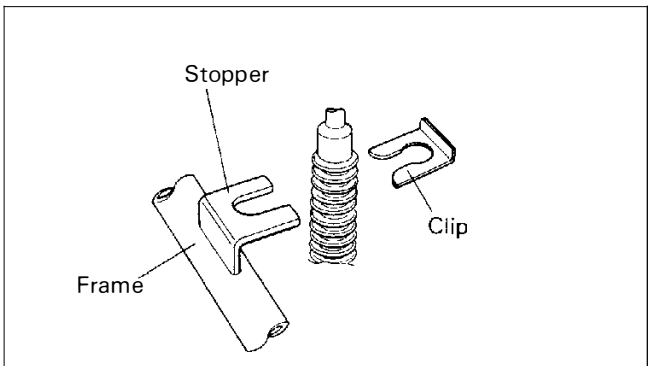


Fig. 4

Adjust the cable as follows.

By turning the adjusting nuts ③, align the cable hole of the shift lever with cable eye rod hole, and then fix the cable to the stopper of the shift lever side by tightening the adjusting nuts ③.

Match the pin hole with the notch (4WD position notch) in the center of the shift lever bracket. With the cable also matched there, put through the pin from the inside of the shift lever bracket and install an E-ring to the pin correctly. (Fig. 6)

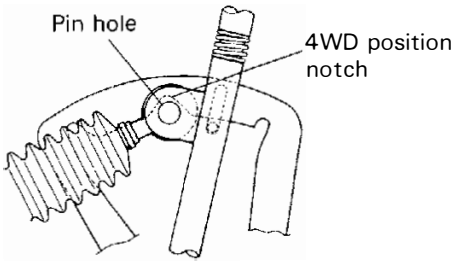


Fig. 6

[2] RANGE LEVER CABLE

Fundamentally, use the same procedure as that for the selection lever cable. The only differences are as described below.

Set the shift lever to the "L" range and select the "L" range position on the crankcase. (Fig. 7, Fig. 8) refer to that for the selection lever cable, but the word "differencial case" should be replaced with "crankcase" and "stopper on the frame" with "cable stopper on the crankcase".

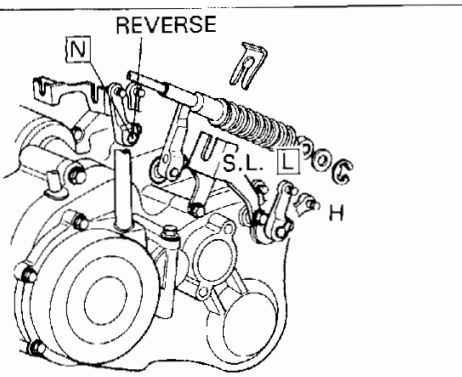


Fig. 7

By putting the pin through the pin hole, fasten the cable and lever, and secrue installation with an E-ring. (The pin can be put throught in either direction.)

[3] REVERSE CABLE

Set the shift lever to the neutral position and select the neutral position on the crankcase. The shift lever is in the neutral position when the end face of the U-shaped bracket contacts the body stopper. (Fig. 8)
For the rest of the installation and adjustment procedure, refer to that for the sub-transmission cable.

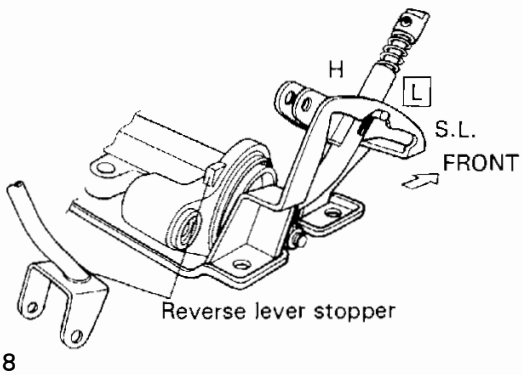
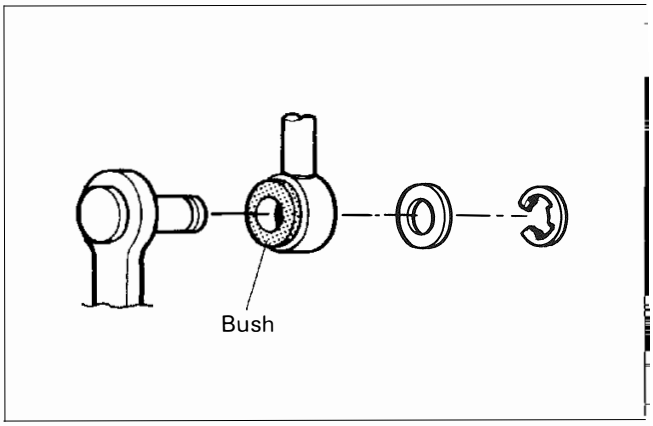


Fig. 8

[4] OTHER PRECAUTIONS

Installation direction of eye rod (lever on transfer and crankcase side)
On the shift lever side, the direction is determined by the lever installation.

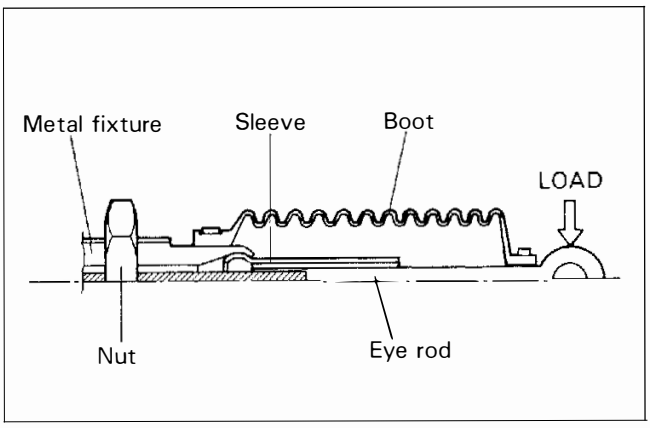
> CAUTION:
> **Be sure to install so that the flange face of the bushing contacts the lever end face.**



Make sure to apply "SUZUKI SUPER GREASE A" to the sliding parts of the cable and lever. (inner and end surfaces of resin bushing of eye rod)

In handling the push-pull cable, use care not to bend it. Shown in the illustration is a strictly prohibited example.

> CAUTION:
> **Do not apply a load to the end of the eye rod with the cable fixed with the metal fixture.**



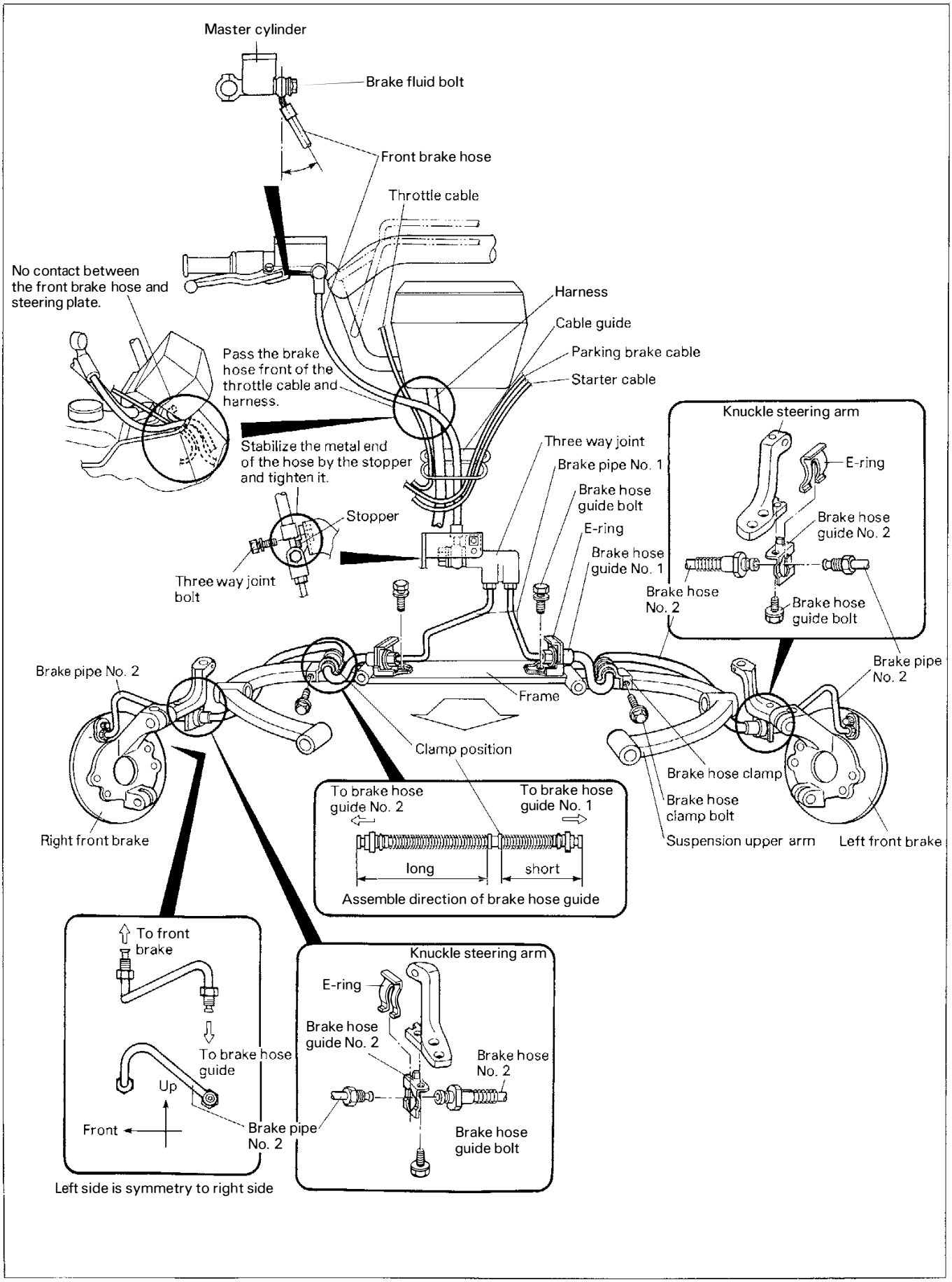
Applying a load in such a state may cause the sleeve to break or come off the pivot suspension, resulting in unusable state.

Make sure to adjust the cable length. As it is positioned on the shift lever side, proper adjustment must be made with the transfer and transmission side, or such a trouble as poor shifting may occur.

When installing the outer cable, be careful not to kink it. Kinking the cable will increase the sliding resistance and cause poor shift feeling.

Make sure that the installation angle of the lever is accurate and its position in adjustment is proper. Failure in observing the above may cause poor shifting.

BRAKE HOSE ROUTING



SERVICING INFORMATION

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SPECIAL TOOLS 8-18
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TROUBLESHOOTING

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to shart.	**Compression too low**	
	1. Valve clearance out of adjustment.	Adjust.
	2. Worn valve guides or poor seating of valves.	Repair or replace.
	3. Valves mistiming.	Adjust.
	4. Piston rings excessively worn.	Replace.
	5. Worn-down cylinder bore.	Replace or rebore.
	6. Poor seating of spark plug.	Retighten.
	7. Starter motor cranks too slowly or does not turn.	Consult "electrical complaints".
	Plug not sparking	
	1. Fouled spark plug.	Clean or replace.
	2. Wet spark plug.	Clean and dry.
	3. Defective magneto.	Replace.
	4. Defective CDI unit.	Replace.
	5. Defective ignition coil	Replace.
	6. Open or short circuit in high-tension cord.	Replace.
	No fuel reaching the carburetor	
	1. Clogged fuel tank vent hose.	Clean.
	2. Clogged or defective fuel pump.	Clean or replace.
	3. Defective carburetor float valve.	Replace.
	4. Clogged fuel pipe.	Clean or replace.
	5. Clogged fuel filter.	Clean or replace.
Engine stalls easily.	1. Fouled spark plug.	Clean.
	2. Defective magneto.	Replace.
	3. Defective CDI unit.	Replace.
	4. Defective fuel pump.	Clean or replace.
	4. Clogged or defective fuel pump.	Clean.
	6. Clogged jets in carburetor.	Clean.
	7. Valve clearance out of adjustment.	Adjust.
Noisy engine.	**Excessive valve chatter**	
	1. Valve clearance too large.	Adjust.
	2. Weakened or broken valve springs.	Replace.
	3. Worn down rocker arm or rocker arm shaft.	Replace.
	Noise appears to come from piston	
	1. Piston or cylinder worn down.	Replace.
	2. Combustion chamber fouled with carbon.	Clean.
	3. Piston pin or piston pin bore worn.	Replace.
	4. Piston rings or ring groove worn.	Replace.
	Noise seems to come from timing chain	
	1. Stretched chain.	Replace.
	2. Worn sprockets.	Replace.
	3. Tension adjuster not working.	Repair or replace.
	Noise seems to come from clutch	
	1. Worn splines of crankshaft or inner race.	Replace.
	2. Worn splines of countershaft or hub.	Replace.
	3. Worn teeth of clutch plates.	Replace.
	4. Distorted clutch plates, driven and drive.	Replace.
	5. Clutch dampers weakened.	Replace.
	Noise seems to come from crankshaft	
	1. Worn or burnt bearing.	Replace.
	2. Big-end bearing worn or burnt.	Replace.
	3. Thrust clearance too large.	Replace.

Complaint	Symptom and possible causes	Remedy
Noisy engine.	**Noise seems to come from transmission**	
	1. Gears worn or rubbing.	Replace.
	2. Badly worn splines.	Replace.
	3. Primary gears worn or rubbing.	Replace.
	4. Badly worn bearings.	Replace.
	5. Worn bushing.	Replace.
	Noise seems to come from sub-transmission	
	1. Worn down gears or shafts.	Replace.
	2. Damage to bearings/bushing.	Replace.
	Noise seems to come from secondary bevel gear and rear final driven shaft.	
	1. Drive and driven bevel gears damaged or worn.	Replace.
	2. Excessive backlash.	Adjust.
	3. Improper tooth contact.	Adjust.
	4. Damage to bearing.	Replace.
	5. Gears worn or rubbing.	Replace.
	6. Badly worn splines.	Replace.
	7. Final driven shaft thrust clearnce too large.	Replace.
Slipping clutch.	1. Clutch control out of adjustment or loss of play.	Adjust.
	2. Weakened clutch springs.	Replace.
	3. Worn clutch shoes.	Replace.
	4. Worn or distorted pressure plate.	Replace.
	5. Distorted clutch plates, driven and drive.	Replace.
Dragging clutch.	1. Clutch control out of adjustment or too much play.	Adjust.
	2. Some clutch springs weakened while others are not.	Replace.
	3. Distorted pressure plate or clutch plates.	Replace.
	4. Worn or damage clutch release mechanism.	Adjust or replace.
Transmission will not shift.	1. Broken gearshift cam.	Replace.
	2. Distorted gearshift forks.	Replace.
	3. Worn gearshift shaft.	Replace.
	4. Worn or damage clutch release mechanism.	Adjust or replace.
	5. Improperly adjusted reverse cable.	Adjust.
	6. Improperly adjusted gearshift cable.	Adjust.
Transmission will not shift back.	1. Broken reverse shift cam.	Replace.
	2. Shift shafts are rubbing or sticky.	Repair.
	3. Distorted or worn gearshift forks	Replace.
	4. Broken or damaged gearshift lever return spring.	Replace.
Transmission jumps out of gear.	1. Worn shifting gears on driveshaft or countershaft.	Replace.
	2. Distorted or worn gearshift forks.	Replace.
	3. Weakened cam stopper spring on gearshift cam.	Replace.
	4. Worn gearshift lever stopper pin.	Replace.
Sub-transmission will not shift or shift back.	1. Broken or worn sliding dog.	Replace.
	2. Broken or worn gearshift fork	Replace.
	3. Gearshift cable out of adjustment.	Adjust.
	4. Worn gearshift cam.	Replace.
	5. Weakened cam stopper spring.	Replace.
	6. Worn gearshift fork shaft.	Replace.
Engine idles poorly.	1. Valve clearance out of adjustment.	Adjust.
	2. Poor seating of valves.	Replace.
	3. Defective valve guides.	Replace.
	4. Worn rocker arms or arm shaft.	Replace.
	5. Defective magneto.	Replace.
	6. Defective CDI unit.	Replace.

Complaint	Symptom and possible causes	Remedy
Engine idles poorly.	7. Spark plug gap too wide.	Adjust or replace.
	8. Defective ignition coil resulting in weak sparking.	Replace.
	9. Float-chamber fuel level out of adjustment in carburetor.	Adjust.
	10. Clogged jets.	Clean.
	11. Defective fuel pump.	Replace.
	12. Improperly set pilot screw.	Adjust.
Engine runs poorly in high speed range.	1. Valve springs weakened.	Replace.
	2. Valve timing out of adjustment.	Adjust.
	3. Worn cams or rocker arms.	Replace.
	4. Spark plug gap too narrow.	Adjust.
	5. Defective ignition coil.	Replace.
	6. Float-chamber fuel level too low.	Adjust.
	7. Clogged air cleaner element.	Clean.
	8. Clogged fuel pipe, resulting in inadequate fuel supply to carburetor.	Clean and prime.
	9. Defective fuel pump.	Replace.
Dirty or heavy exhaust smoke.	1. Too much engine oil in the engine.	Check with inspection window, drain out excess oil.
	2. Worn piston rings or cylinder.	Replace.
	3. Worn valve guides.	Replace.
	4. Cylinder wall scored or scuffed.	Replace.
	5. Worn valve stems.	Replace.
	6. Defective stem seals.	Replace.
Engine lacks power.	1. Loss of valve clearance.	Adjust.
	2. Weakened valve springs.	Replace.
	3. Valve timing out of adjustment.	Adjust.
	4. Worn piston ring or cylinder.	Replace.
	5. Poor seating of valves.	Repair.
	6. Fouled spark plug.	Clean or replace.
	7. Worn rocker arms or shafts.	Replace.
	8. Spark plug gap incorrect.	Adjust or replace.
	9. Clogged jets in carburetor.	Clean.
	10. Float-chamber fuel level out of adjustment.	Adjust.
	11. Clogged air cleaner element.	Clean.
	12. Too much engine oil.	Drain out excess oil.
	13. Sucking air around intake pipe.	Retighten or replace.
Engine overheats.	1. Heavy carbon deposit on piston crown.	Clean.
	2. Not enough oil in the engine.	Add oil.
	3. Defective oil pump or clogged oil circuit.	Replace or clean.
	4. Fuel level too low in float chamber.	Adjust.
	5. Air leak from intake pipe.	Retighten or replace.
	6. Use of incorrect engine oil.	Change.

SHAFT DRIVE

Complaint	Symptom and possible causes	Remedy
No power transmitted from engine to rear wheel.	1. Worn or broken rear axle shaft serration.	Replace.
No power transmitted from engine to front wheel.	1. Broken secondary drive and driven gear teeth.	Replace.
	2. Worn or broken propeller shaft serration.	Replace.
	3. Damaged coupling.	Replace.
	4. Worn or damaged coupling joint serration.	Replace.
	5. Broken or damaged front drive and driven bevel gears.	Replace.
	6. Broken or damaged front differential gears/pinions.	Replace.
	7. Improperly adjusted differential control cable.	Adjust.
	8. Worn or damaged sliding dog/shaft/fork of the differential gears.	Replace.
	9. Worn or damaged CV joint.	Replace.
	10. Worn or damaged front axle/CV joint serration.	Replace.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Trouble with starting.	1. Starter jet is clogged. 2. Starter pipe is clogged. 3. Air leaking from a joint between starter body and carburetor. 4. Starter plunger is not operating properly.	Clean. Clean. Check starter body and carburetor for tightness, adjust and replace gasket. Check and adjust.
Idling or low-speed trouble.	1. Pilot jet, pilot air jet are clogged or loose. 2. Pilot outlet or bypass is clogged. 3. Improperly set pilot screw. 4. Starter plunger is not fully closed. 5. Incorrect float height.	Check and clean. Check and clean. Adjust. Check and adjust. Adjust.
Medium- or high-speed trouble.	1. Main jet or main air jet is clogged. 2. Needle jet is clogged. 3. Throttle valve is not operating properly. 4. Filter is clogged. 5. Incorrect float height. 6. Starter plunger is not fully closed.	Check and clean. Check and clean. Check throttle valve for operation. Check and clean. Adjust. Close.
Overflow and fuel level fluctuations.	1. Needle valve is worn or damaged. 2. Spring in needle valve is broken. 3. Float is not working properly. 4. Foreign matter has adhered to needle valve. 5. Fuel level is too high or low.	Replace. Replace. Adjust or replace. Clean. Adjust float height.

FUEL PUMP

Complaint	Symptom and possible causes	Remedy
Idling or low-speed trouble. **Medium or high-speed trouble.**	1. No fuel reaching the carburetor. 2. Clogged fuel tank vent hose. 3. Fuel pump is not operating properly.	Clean or replace. Clean or replace. Check fuel pump for operation.

ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plug. 3. Defective magneto. 4. Defective CDI unit. 5. Defective pick-up coil.	Replace. Replace. Replace. Replace. Replace.
Spark plug soon becomes fouled with carbon.	1. Mixture too rich. 2. Idling speed set too high. 3. Incorrect gasoline. 4. Dirty element in air cleaner. 5. Spark plug too cold.	Adjust carburetor. Adjust carburetor. Change. Clean. Replace by hot type plug.
Spark plug becomes fouled too soon.	1. Worn piston rings. 2. Piston or cylinder worn. 3. Excessive clearance of valve stems in valve guides. 4. Worn stem oil seal.	Replace. Replace. Replace. Replace.

Complaint	Symptom and possible causes	Remedy
Spark plug electrodes overheat or burn.	1. Spark plug too hot. 2. The engine overheats. 3. Spark plug loose. 4. Mixture too lean.	Replace by cold type plug. Tune up. Retighten. Adjust carburetor.
Magneto does not charge.	1. Open or short in lead wires, or loose lead connections. 2. Shorted, grounded or open magneto coils. 3. Shorted or punctured regulator/rectifier.	Repair, replace or retighten. Replace. Replace.
Magneto charges, but charging rate is below the specification.	1. Lead wires tend to get shorted or open-circuited or loosely connected at terminals. 2. Grounded or open-circuited stator coils of magneto. 3. Defective regulator/rectifier. 4. Not enough electrolyte in the battery. 5. Defective cell plates in the battery.	Repair or retighten. Replace. Replace. Add distilled water to the upper level. Replace the battery.
Magneto overcharges.	1. Internal short-circuit in the battery. 2. Resistor element in the regulator/rectifier damaged or defective. 3. Regulator/rectifier poorly grounded.	Replace the battery. Replace. Clean and tighten ground connection.
Unstable charging.	1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting. 2. Magneto internally shorted. 3. Defective regulator/rectifier.	Replace. Replace. Replace.
Starter button is not effective.	1. Battery run down. 2. Defective switch contacts. 3. Brushes not seating properly on commutator in starter motor. 4. Defective starter relay. 5. Wiring connections loose or disconnected.	Recharge or replace. Replace. Repair or replace. Replace. Connect, tighten or repair.
Battery "sulfation" ("Sulfation", acidic white powdery substance or spots on surfaces of cell plates.)	1. Charging rate too low or too high. (When not in use batteries should be recharged at least once a month to avoid sulfation.) 2. Battery electrolyte excessive or insufficient, or its specific gravity too high or too low. 3. The battery left unused in a run-down condition for too long in cold climate. 4. Contaminated electrolyte. (Foreign matter has entered, mixed with the electrolyte, and contaminated it.)	Replace the battery. Keep the electrolyte up to the prescribed level, or adjust the S.G. by consulting the battery maker's directions. Replace the battery, if badly sulfated. If "sulfation" has not advanced too far, try to restore the battery by replacing the electrolyte, recharging it fully with the battery detached from the vehicle and then adjusting electrolyte's S.G.

Complaint	Symptom and possible causes	Remedy
Battery discharges too rapidly.	1. Dirty container. 2. Impurities in the electrolyte or electrolyte S.G. is too high. 3. The charging system is not set for proper charging operation. 4. Cell plates have lost much of their active material as a result of overcharging. 5. A short-circuit condition exists within the battery due to an excessive accumulation of sediments caused by the electrolyte's high S.G. 6. Electrolyte's S.G. is too low. 7. Contaminated electrolyte.	Clean. Change the electrolyte by consulting the battery maker's directions. Check the magneto, regulator/rectifier and circuit connections, and make necessary adjustments for specified charging operation. Replace the battery, and correct the charging system. Replace the battery. Recharge the battery fully and adjust electrolyte's S.G. Replace the electrolyte, recharge the battery and then adjust S.G. or replace the battery.
Reversed battery polarity.	The battery has been connected the other way around in the system, so that it is being charged in the reverse direction.	Replace the battery and be sure to connect the battery properly.

CHASSIS

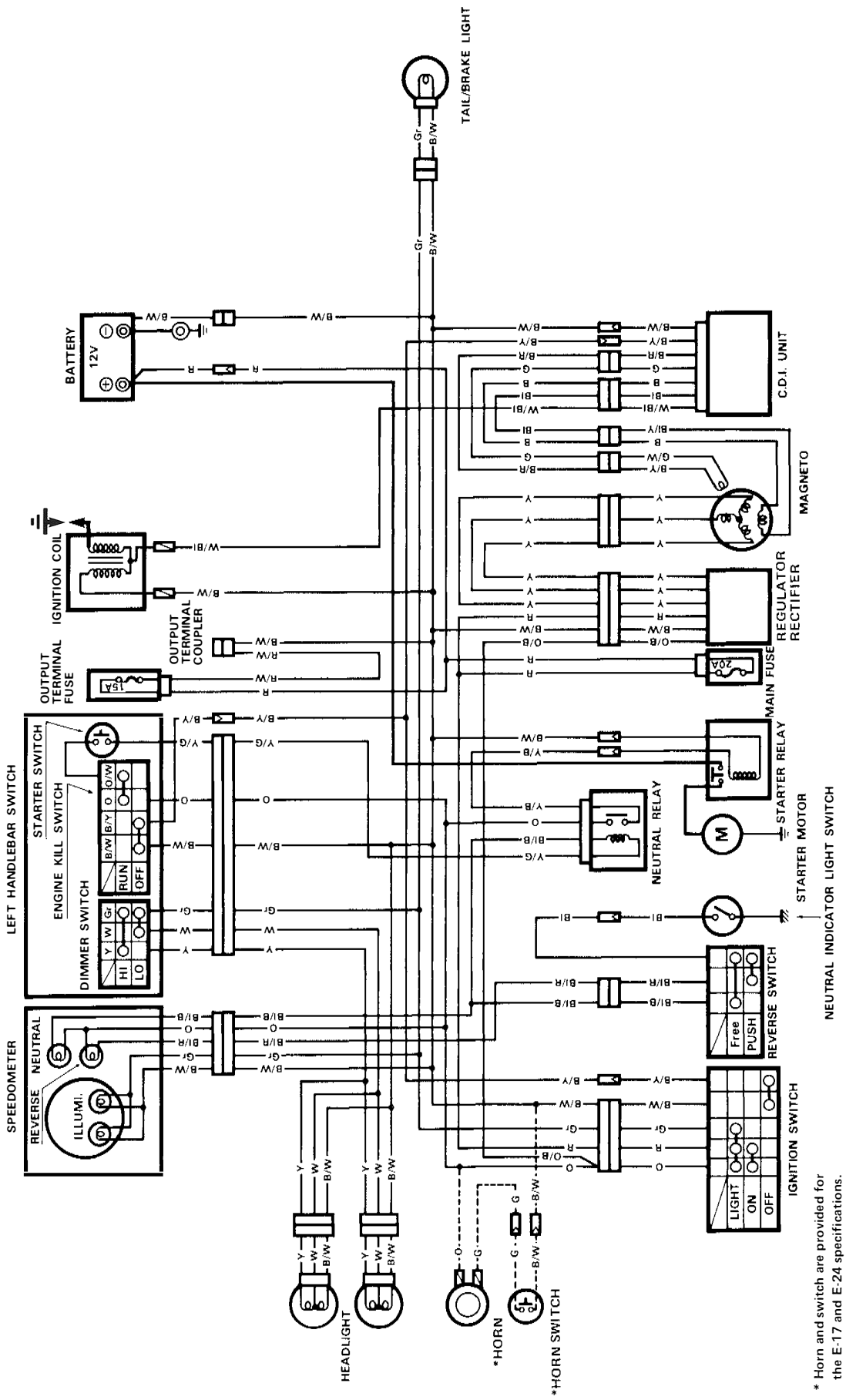
Complaint	Symptom and possible causes	Remedy
Handling feels too heavy or stiff.	1. Disturbed front wheel alignment. 2. Poorly lubricated. 3. Not enough pressure in tires. 4. Tie rod ends tending to seize. 5. Linkage connections tending to seize.	Adjust. Lubricate. Adjust. Replace. Repair or replace.
Steering oscillation.	1. Wheel tires inflated unequally. 2. Wobbly wheels. 3. Loose nut on wheel hub. 4. Damaged or worn wheel hub bearing. 5. Worn or loose tie rod ends. 6. Defective or incorrect tires. 7. Damaged wishbone arm bushings. 8. Loosen bolts and nuts on chassis.	Adjust tire pressure. Replace. Retighten. Replace. Replace or retighten. Replace. Replace. Retighten.
Steering pulling to one side.	1. Wheel tires unequally inflated. 2. Disturbed front wheel alignment. 3. Worn or broken wheel hub bearings. 4. Distorted frame. 5. Defective shock absorber.	Adjust tire pressure. Adjust. Replace. Repair or replace. Replace.
Shocks coming to steering.	1. Tire inflating pressure too high. 2. Worn steering linkage connections. 3. Loosen bolts on suspension system.	Adjust. Replace. Retighten.
Rapid wear or uneven wear of tires.	1. Worn or loosen wheel hub bearings. 2. Disturbed front wheel alignment.	Replace. Adjust.

Complaint	Symptom and possible causes	Remedy
Steering noise.	1. Loose bolts and nuts. 2. Broken or otherwise damaged wheel hub bearings. 3. Poorly lubricated.	Retighten. Replace. Lubricate.
Suspension too soft.	1. Weakened spring. 2. Oil leakage of shock absorber. 3. Suspension adjuster improperly set.	Replace. Replace. Adjust.
Suspension too stiff.	1. Worn wishbone arm related bushing. 2. Suspension adjuster improperly set.	Replace. Adjust.
Noisy suspension.	1. Loose bolts on suspension system. 2. Worn wishbone arm related bushing.	Retighten. Replace.
Rear wheel oscillation.	1. Worn or loose rear wheel hub bearings. 2. Defective or incorrect tires. 3. Distorted wheel rim. 4. Loose nuts on wheel hub. 5. Loose nut on axle shaft. 6. Improperly adjusted rear brake. 7. Worn rear suspension arm related bushing. 8. Oil leakage of rear shock absorber. 9. Loose nut on rear suspension arm.	Replace. Replace. Replace. Retighten. Retighten. Adjust. Replace. Replace. Retighten.

BRAKES

Complaint	Symptom and possible causes	Remedy
Poor braking.	1. Lining worn down. 2. Too much play on brake lever and pedal. 3. Leakage of brake fluid from hydraulic system. 4. Air entered into hydraulic system. 5. Worn piston seal or cup in the master cylinder/ brake cylinder.	Replace. Adjust. Repair or replace. Bleed air. Replace.
Excessive brake lever stroke.	1. Air entered into hydraulic system. 2. Insufficient brake fluid. 3. Improper quality of brake fluid. 4. Worn piston seal or cup.	Bleed air. Replenish fluid to normal level, bleed air. Replace with correct fluid. Replace.
Leakage of brake fluid.	1. Insufficient tightening of connection joints. 2. Cracked hose. 3. Worn piston seal.	Tighten to specified torque. Replace. Replace.

WIRING DIAGRAM



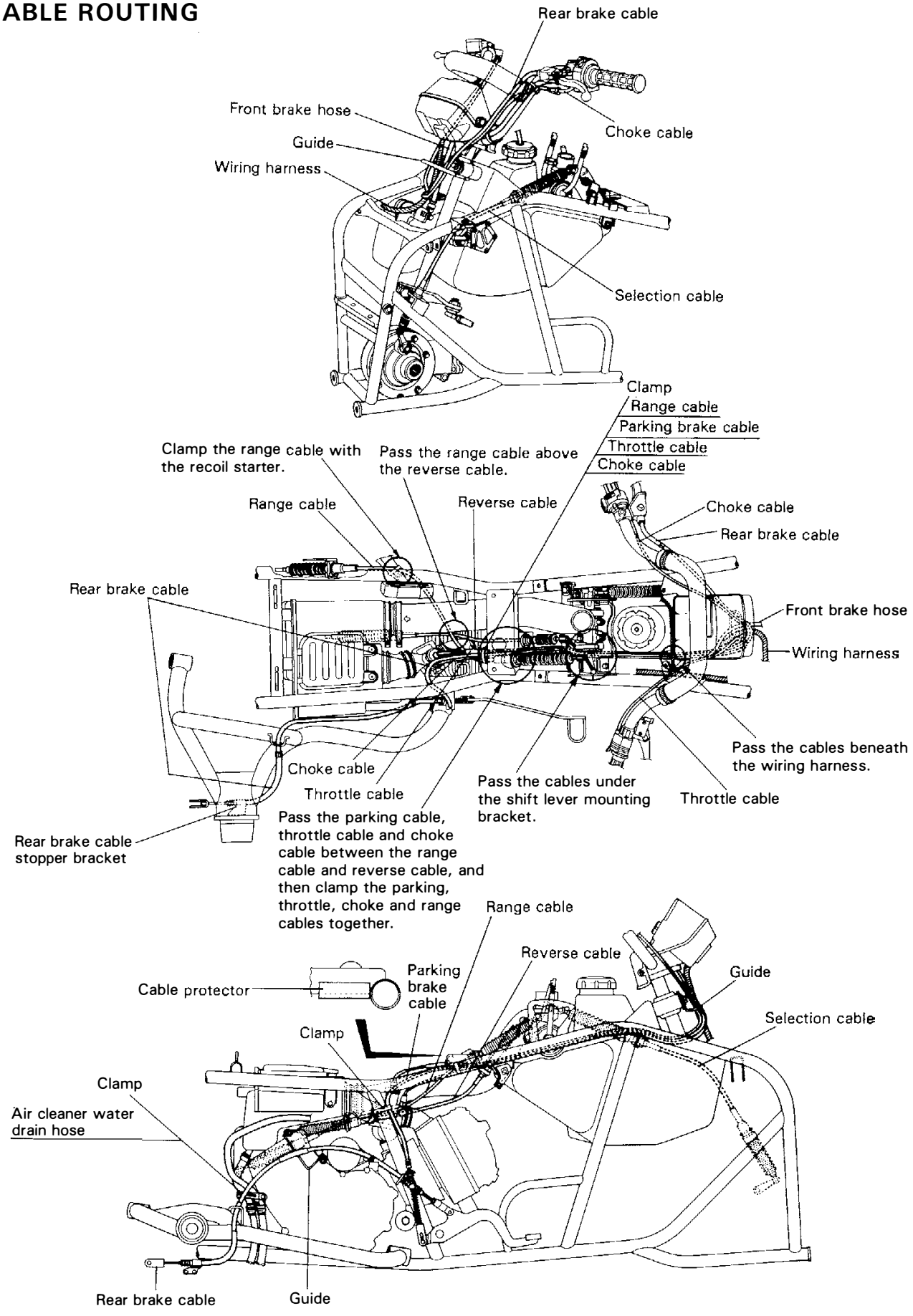
* Horn and switch are provided for the E-17 and E-24 specifications.

WIRE COLOR

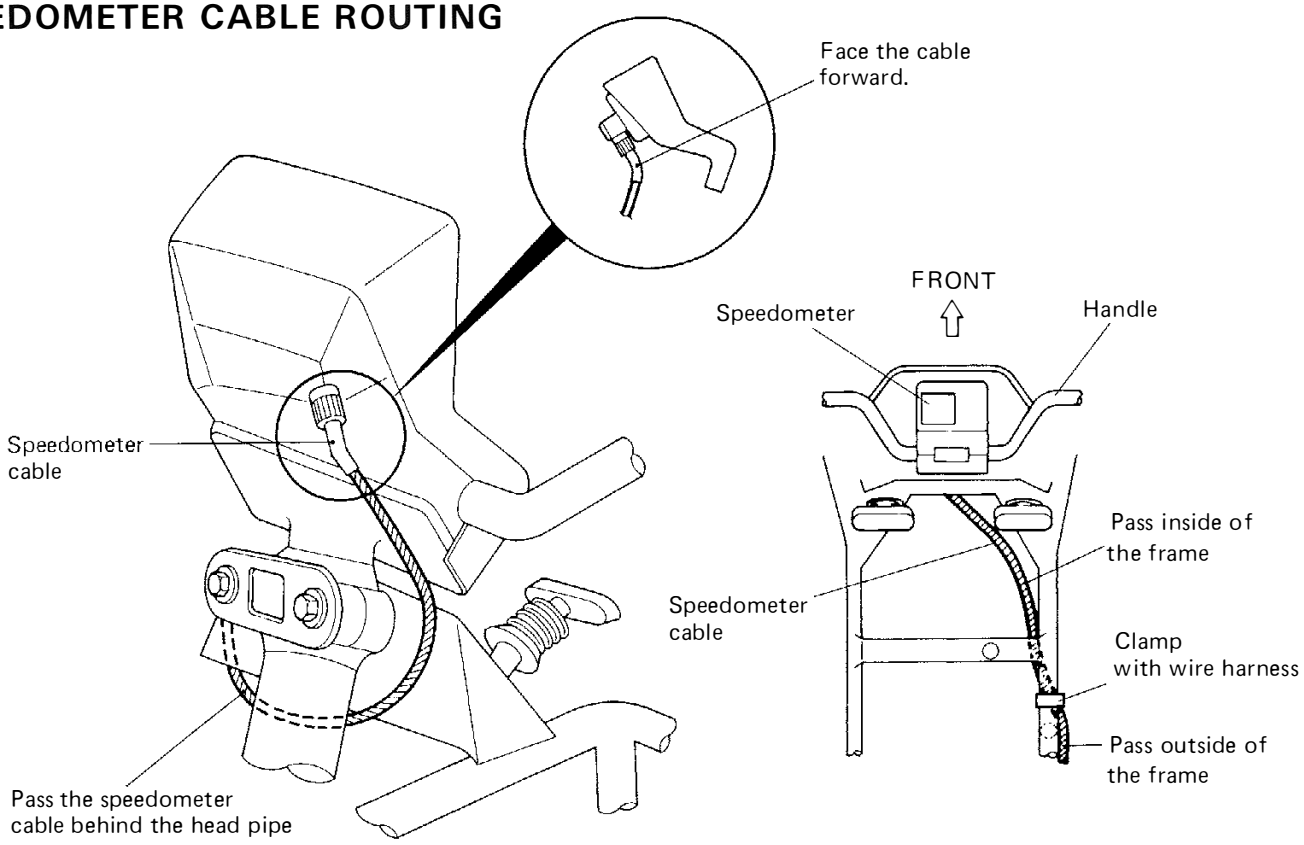
B	Black	R	Red
Bl	Blue	W	White
Br	Brown	Y	Yellow
G	Green	B/W	Black with White tracer
Gr	Gray	B/Y	Black with Yellow tracer
Lbl	Light blue	G/W	Green with White tracer
Lg	Light green	G/Y	Green with Yellow tracer
O	Orange	O/B	Orange with Black tracer
O/Bl	Orange with Blue tracer
O/G	Orange with Green tracer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

CABLE, HARNESS AND HOSE ROUTING

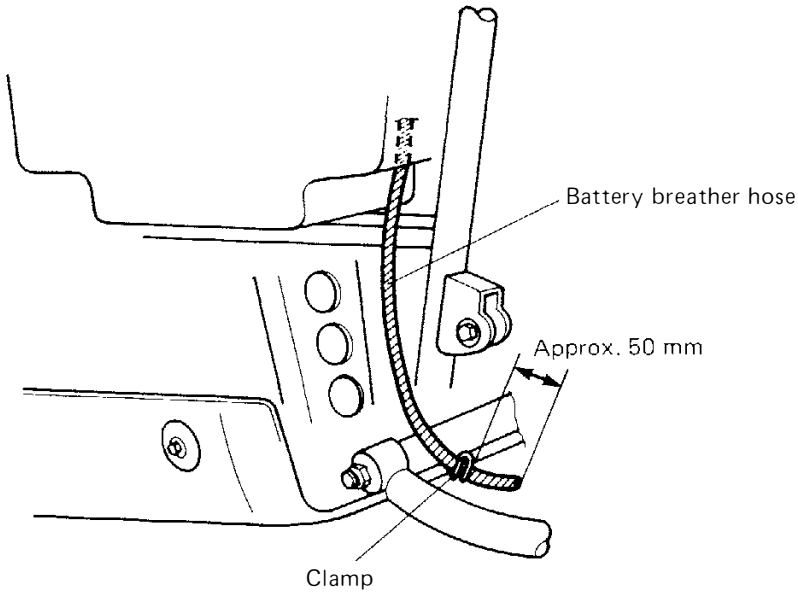
CABLE ROUTING



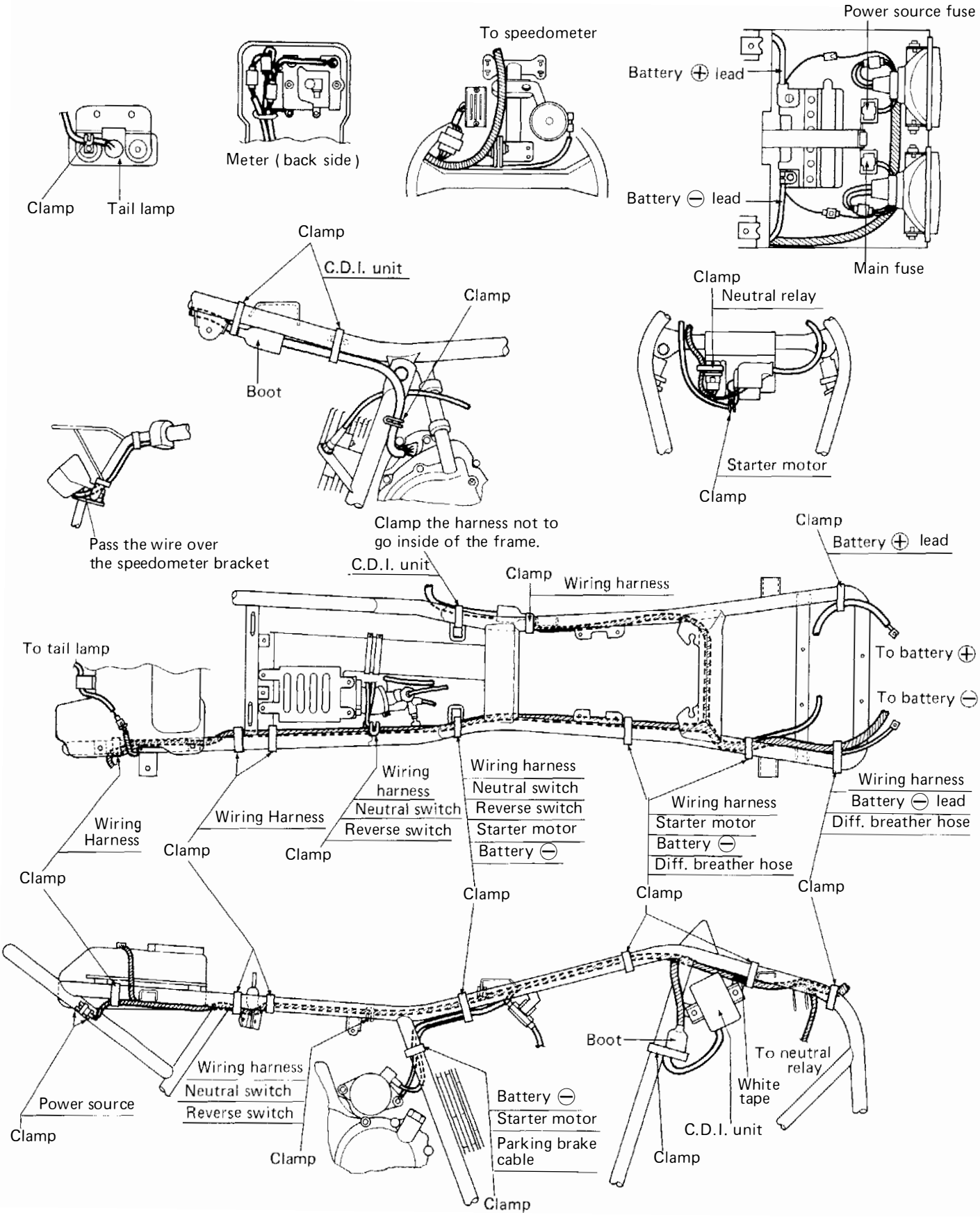
SPEEDOMETER CABLE ROUTING



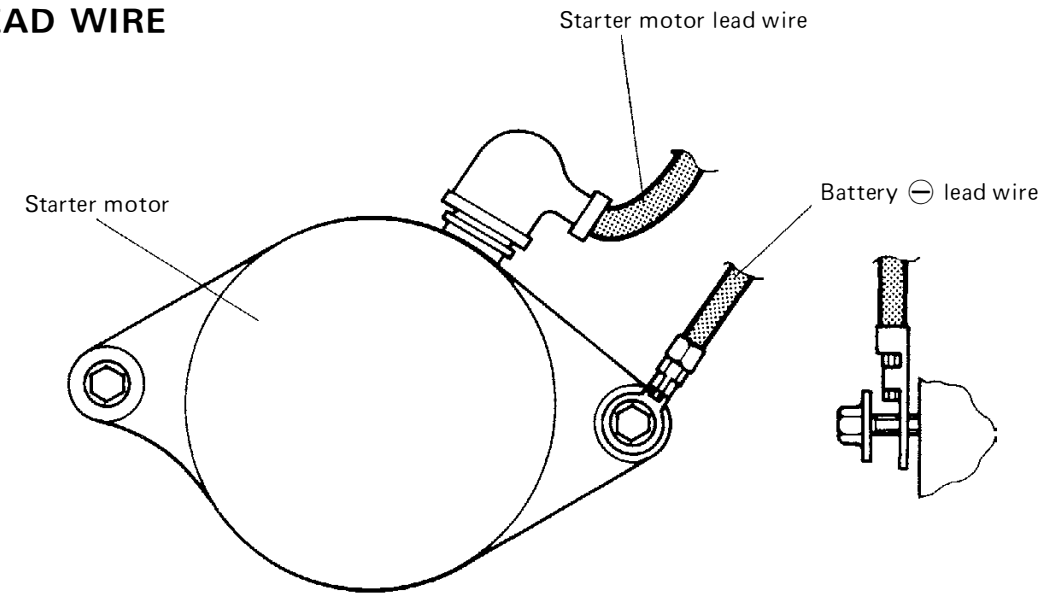
BATTERY BREATHER HOSE ROUTING



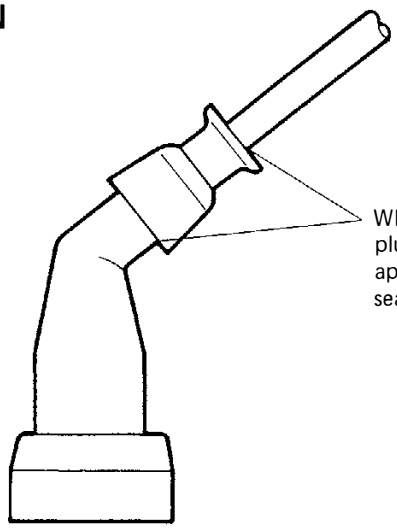
HARNESS ROUTING



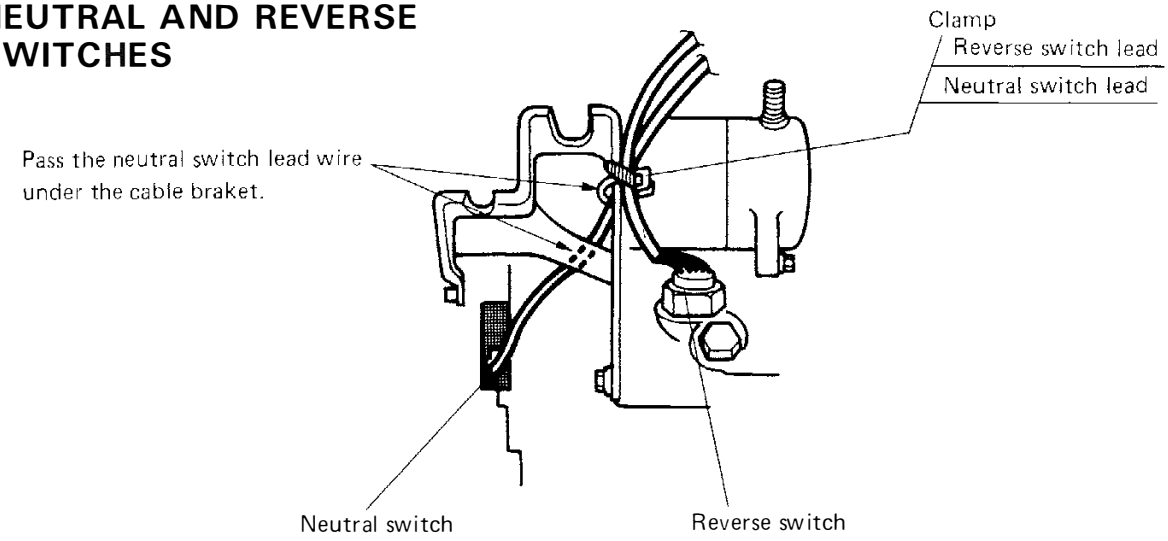
BATTERY ⊖ LEAD WIRE



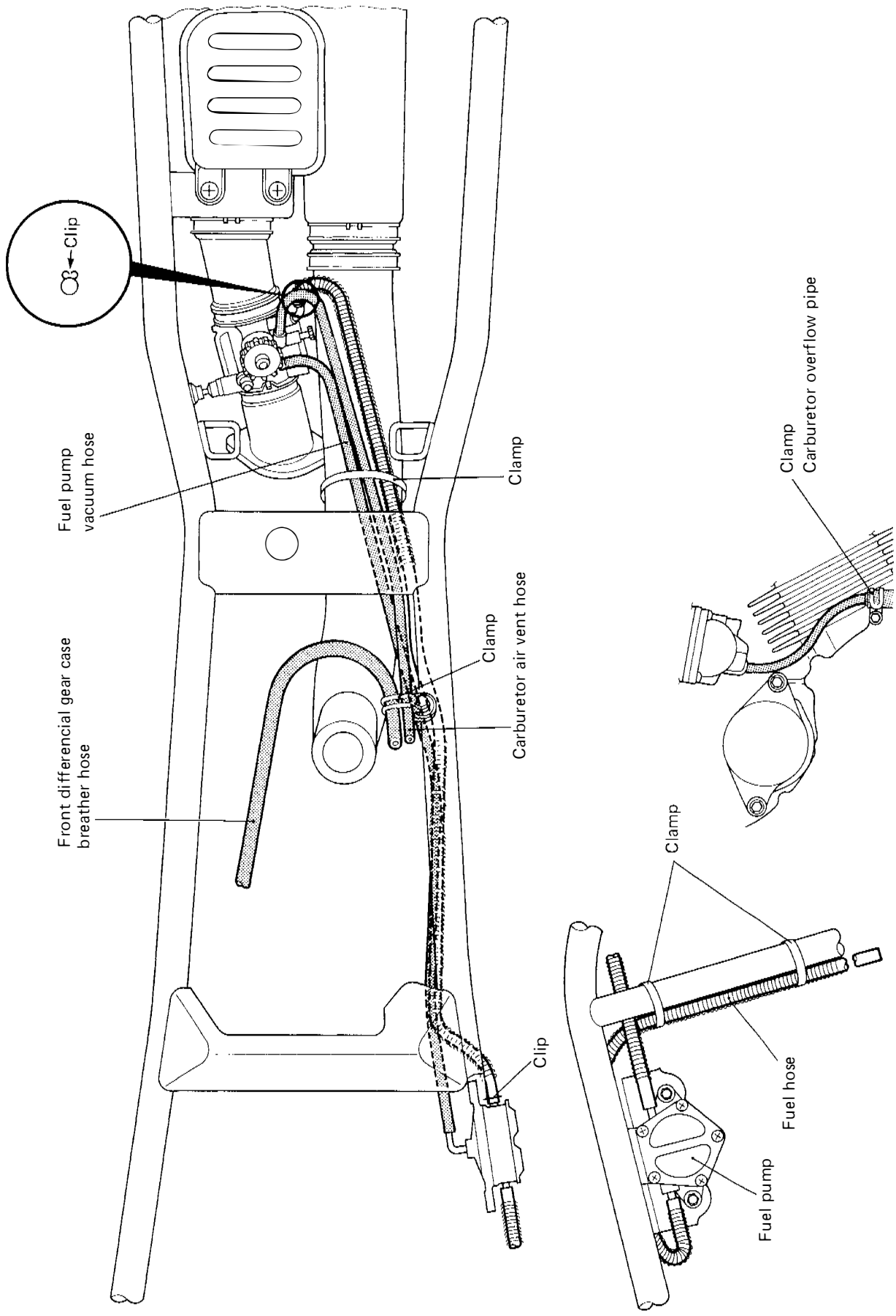
PLUG CAP INSTALLATION



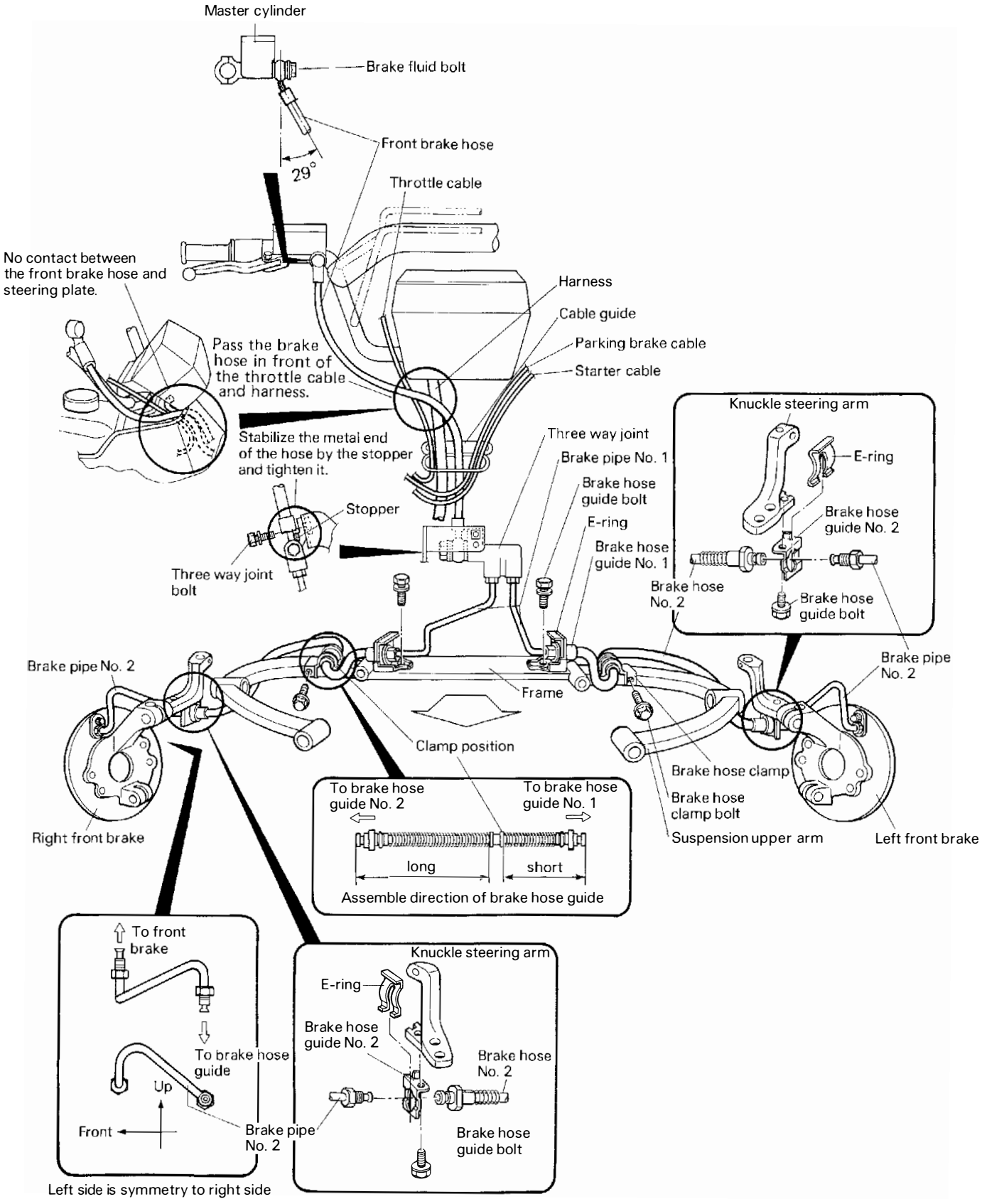
NEUTRAL AND REVERSE SWITCHES



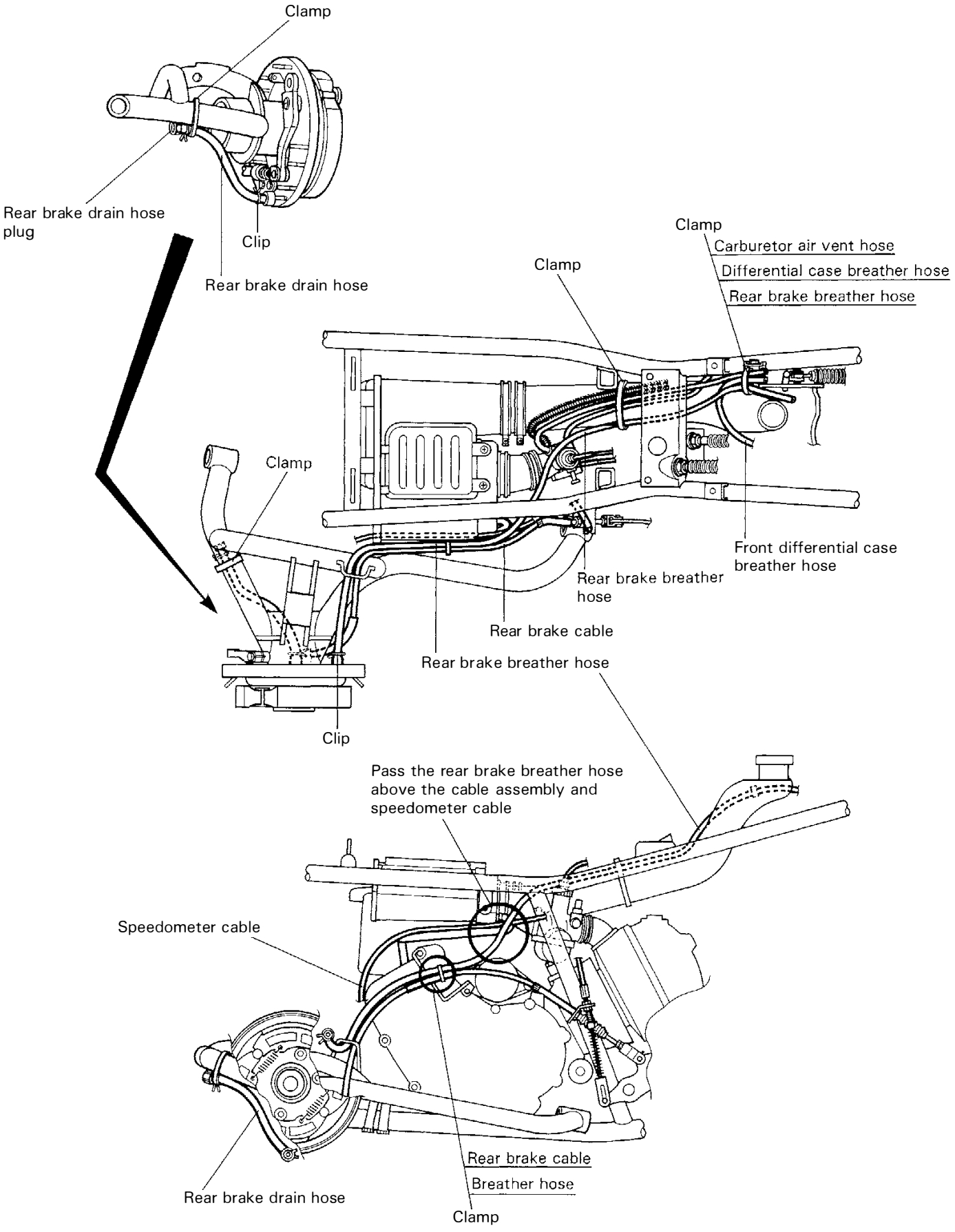
HOSE ROUTING



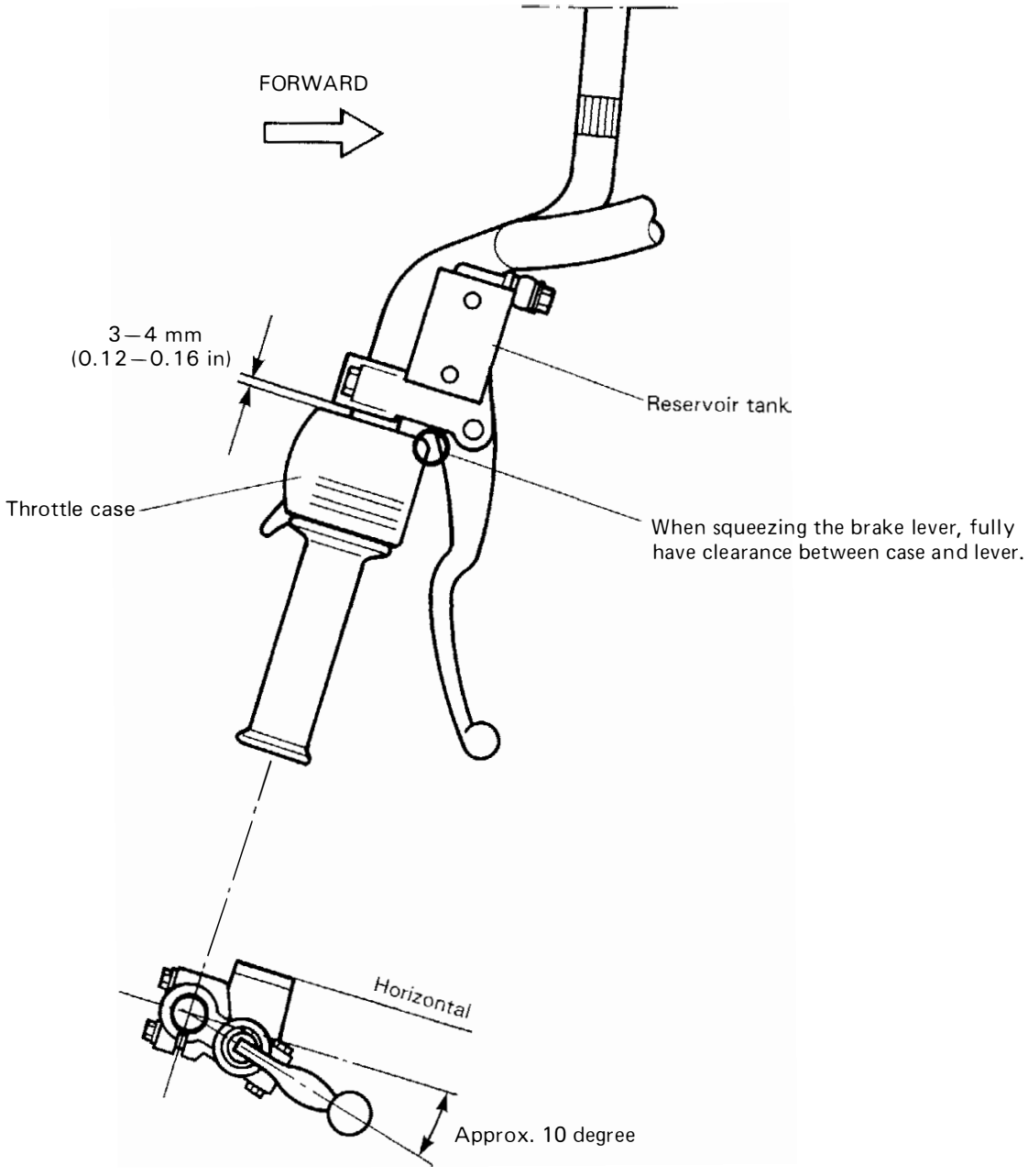
FRONT BRAKE PIPING

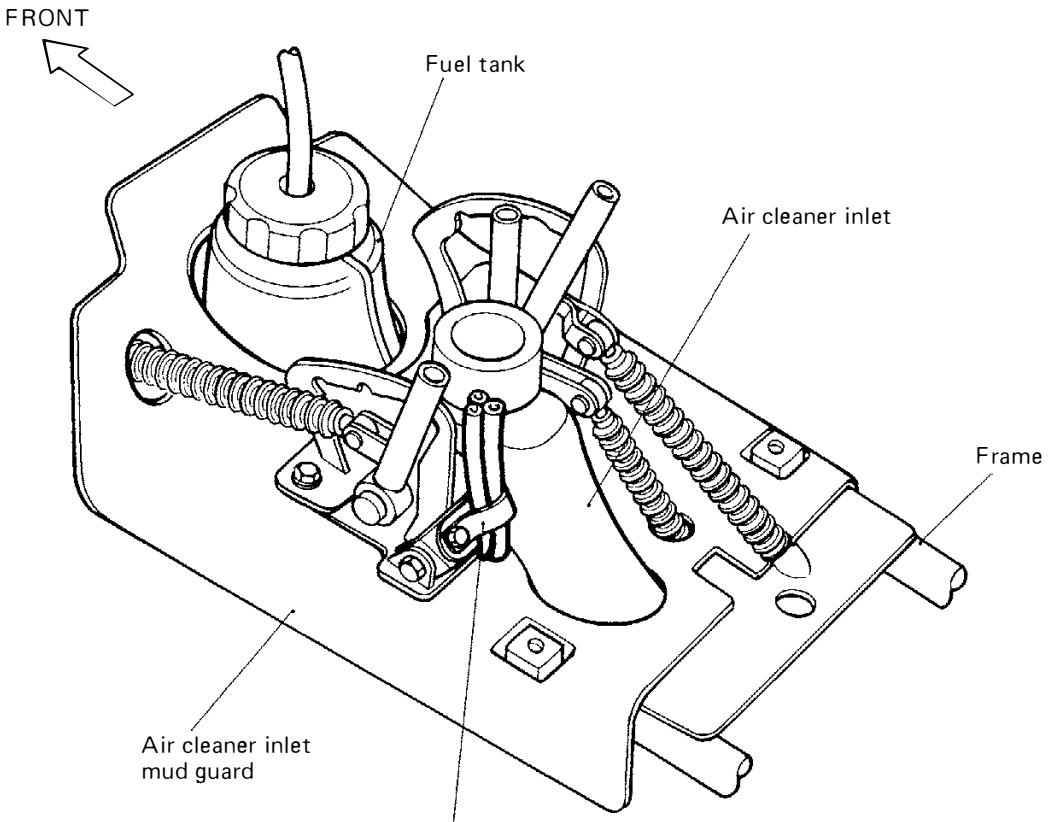


REAR BRAKE BREATHER HOSE ROUTING



BRAKE LEVER INSTALLATION

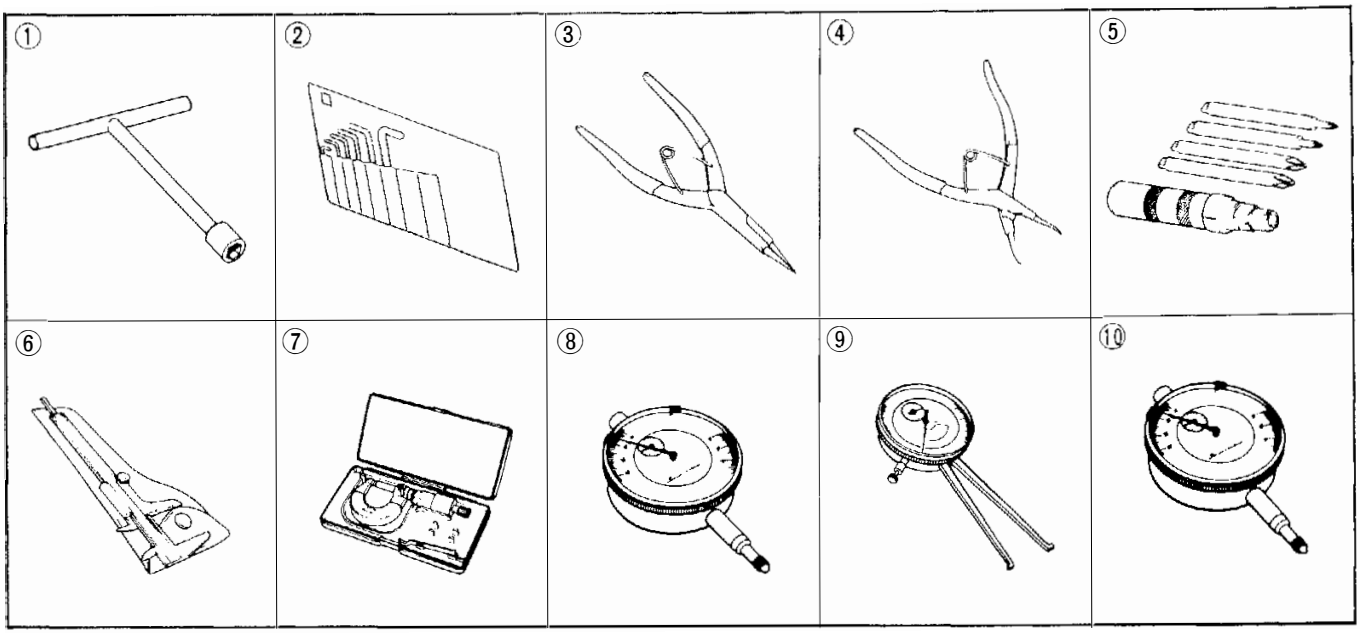


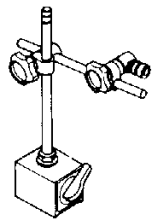
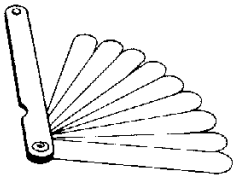
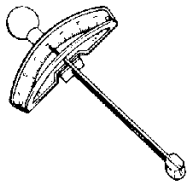
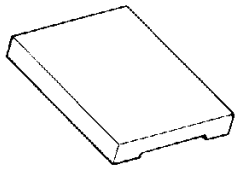
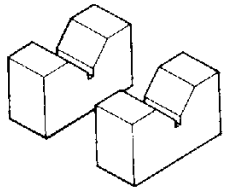
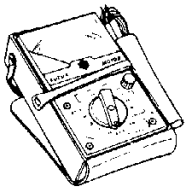
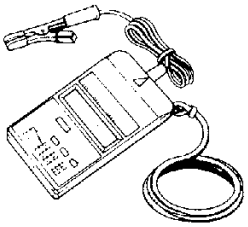
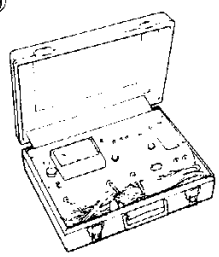
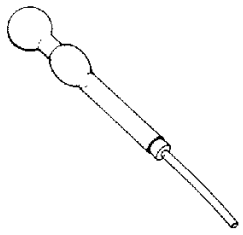
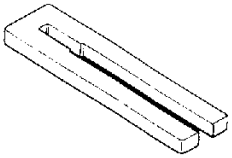
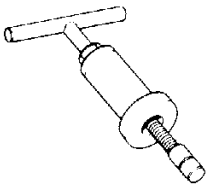
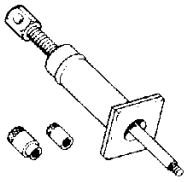
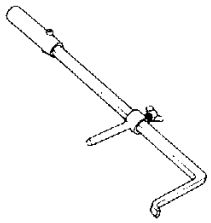
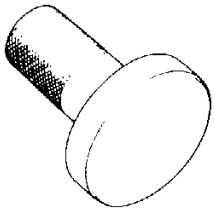
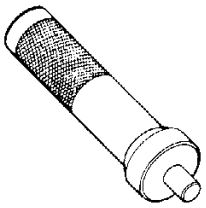
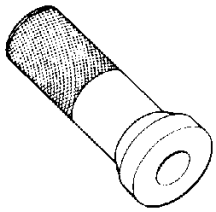
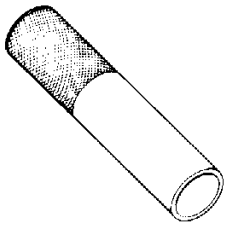
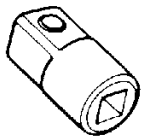
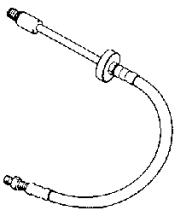
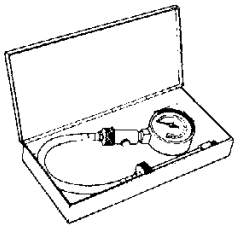
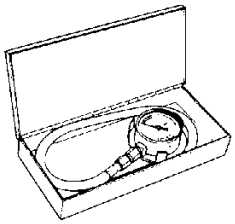
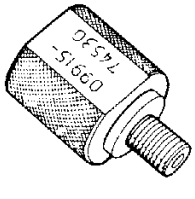
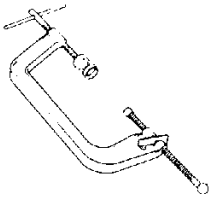
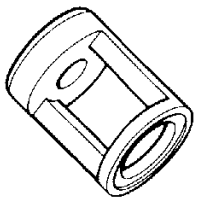
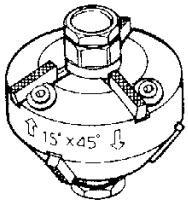
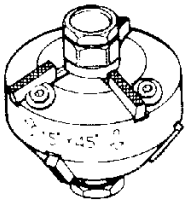
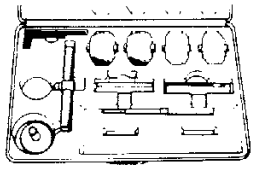
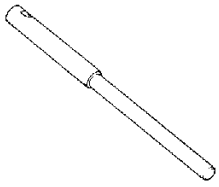

FRONT
Fuel tank
Air cleaner inlet
Frame
Air cleaner inlet
mud guard
Clamp
Front differential case breather hose
Rear brake drum breather hose
Outlet tube

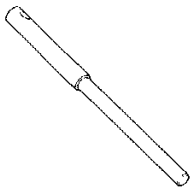
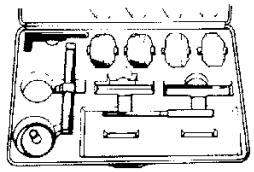
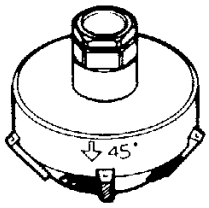
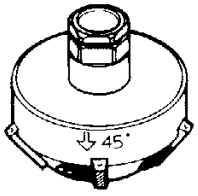
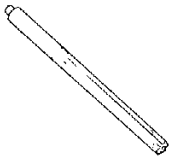
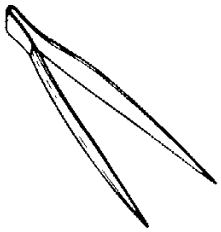
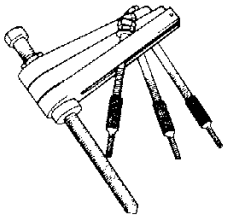
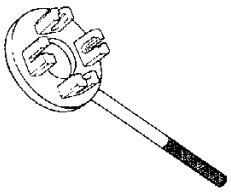
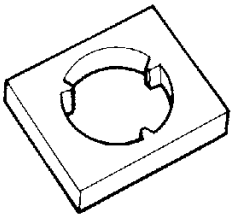
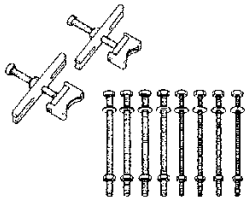
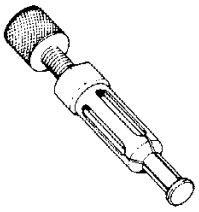
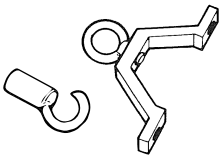
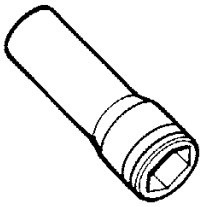
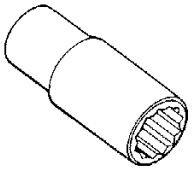
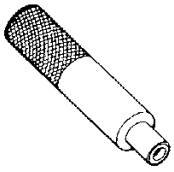
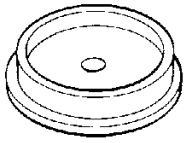
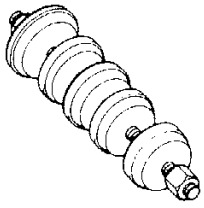
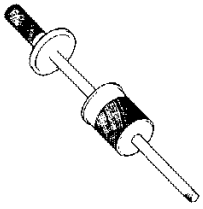
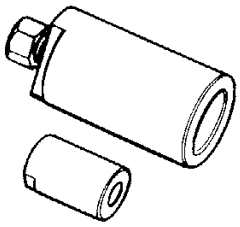
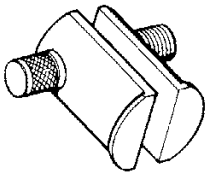
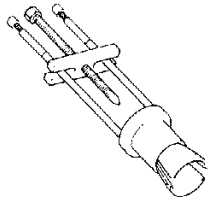
SPECIAL TOOLS

ITEM	PART NO.	PART NAME
①	09900-00302-011	T-type box wrench (8 mm) (N.A. in USA)
②	09900-00401	Hexagon wrench set
③	09900-06107	Snapring pliers
④	09900-06108	Snapring pliers
⑤	09900-09003	Impact driver set
⑥	09900-20101	Vernier calipers
⑦	09900-20205	Micrometer (0 – 25 mm)
⑧	09900-20602	Dial gauge
⑨	09900-20605	Dial caliper (N.A. in USA)
⑩	09900-20606	Dial gauge (1/100 mm)
⑪	09900-20701	Magnetic stand (N.A. in USA)
⑫	09900-20803	Thickness gauge
⑬	09900-21107	Torque wrench
⑭	09900-21203	Surface plate
⑮	09900-21304	Steel "V" block set
⑯	09900-22301	Plastigauge
⑰	09900-25002	Pocket tester
⑱	09900-26005	Engine tachometer
⑲	09900-28106	Electro tester
⑳	09900-28403	Hydrometer
㉑	09910-20115	Conrod holder
㉒	09910-32812	Crankshaft installer
㉓	09910-34510	Piston pin puller
㉔	09913-50121	Oil seal remover
㉕	09913-60710	Bearing remover
㉖	09913-75520	Bearing installer
㉗	09913-75820	Bearing remover
㉘	09913-76010	Bearing remover
㉙	09913-84510	Bearing installer
㉚	09915-24550	Adaptor (12.7 x 6.3 mm)
㉛	09915-63210	Compression gauge adaptor
㉜	09915-64510	Compression gauge
㉝	09915-74510	Oil pressure gauge
㉞	09915-74530	Adaptor
㉟	09916-14510	Valve spring compressor
㊱	09916-14910	Attachment
㊲	09916-20610	Cutter head (N-121)
㊳	09916-20620	Cutter head (N-122)
㊴	09916-21110	Valve seat cutter set
㊵	09916-24450	Solid pilot (N-100-10)
㊶	09916-24480	Solid pilot (N-140-5.5)

ITEM	PART NO.	PART NAME
㊷	09916-24900	Valve seat cutter set
㊸	09916-24910	Cutter head (N-212)
㊹	09916-24935	Cutter head (N-608)
㊺	09916-34541	Handle
㊻	09916-34550	5.5 mm reamer
㊼	09916-34561	11.3 mm reamer
㊽	09916-44910	Valve guide remover
㊾	09916-84510	Tweezers
㊿	09920-13120	Crankcase separating tool
(51)	09920-53730	Clutch sleeve hub holder
(52)	09921-21910	Bearing holder
(53)	09921-51910	Output shaft holder
(54)	09923-74510	Bearing puller
(55)	09924-21910	Wheel hub remover set
(56)	09924-51910	27 mm deep socket (N.A. in USA)
(57)	09924-62420	22 mm long socket (N.A. in USA)
(58)	09924-74510	Installer handle
(59)	09924-74520	Installer
(60)	09924-84510	Bearing installer
(61)	09930-30102	Sliding shaft
(62)	09930-31920	Rotor remover set
(63)	09941-54911	Bearing outer race remover
(64)	09941-74910	Bearing installer
(65)	09941-84510	Bearing remover



⑪ 	⑫ 	⑬ 	⑭ 	⑮ 
⑯	⑰ 	⑱ 	⑲ 	⑳ 
㉑ 	㉒ 	㉓ 	㉔ 	㉕
㉖ 	㉗ 	㉘ 	㉙ 	㉚ 
㉛ 	㉜ 	㉝ 	㉞ 	㉟ 
㊱ 	㊲ 	㊳ 	㊴ 	㊵ 

㊶ 	㊷ 	㊸ 	㊹ 	㊺
㊻	㊼ 	㊽	㊾ 	㊿ 
(51) 	(52) 	(53) 	(54) 	(55) 
(56) 	(57) 	(58) 	(59) 	(60) 
(61) 	(62) 	(63) 	(64)	(65) 

TIGHTENING TORQUE

ENGINE

ITEM		N·m	kg-m	lb-ft
Cylinder head cover bolt		8 – 10	0.8 – 1.0	6.0 – 7.0
De-compression shaft mounting nut		15 – 20	1.5 – 2.0	11.0 – 14.5
Camshaft sprocket bolt		10 – 12	1.0 – 1.2	7.0 – 8.5
Tensioner bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Tensioner cap bolt		7 – 9	0.7 – 0.9	5.0 – 6.5
Cylinder head nut	8 mm	21 – 25	2.1 – 2.5	15.0 – 18.0
	6 mm	7 – 11	0.7 – 1.1	5.0 – 8.0
Cylinder base nut		7 – 11	0.7 – 1.1	5.0 – 8.0
Recoil starter cup nut		30 – 35	3.0 – 3.5	21.5 – 25.5
Magneto rotor nut		145 – 175	14.5 – 17.5	105.0 – 126.5
First clutch shoe nut		90 – 110	9.0 – 11.0	65.0 – 79.5
Starter clutch bolt		23 – 28	2.3 – 2.8	16.5 – 20.0
Clutch sleeve hub nut		60 – 80	6.0 – 8.0	43.5 – 58.0
Clutch release arm bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
T.D.C. inspection plug		20 – 25	2.0 – 2.5	14.5 – 18.0
Oil pressure checking bolt		9 – 15	0.9 – 1.5	6.5 – 11.0
Oil pump mounting bolt		7 – 10	0.7 – 1.0	5.0 – 7.0
Engine oil drain plug	14 mm	20 – 25	2.0 – 2.5	14.5 – 18.0
	12 mm	18 – 23	1.8 – 2.3	13.0 – 16.5
Reverse switch		20 – 25	2.0 – 2.5	14.5 – 18.0
Reverse switch cam stopper bolt		20 – 25	2.0 – 2.5	14.5 – 18.0
Crankcase securing bolt	6 mm	9 – 13	0.9 – 1.3	6.5 – 9.5
	8 mm	20 – 24	2.0 – 2.4	14.5 – 17.5
Engine mounting bolt	10 mm	80 – 95	8.0 – 9.5	58.0 – 68.5
	12 mm	60 – 72	6.0 – 7.2	43.5 – 52.0
Exhaust pipe nut		9 – 12	0.9 – 1.2	6.5 – 8.5
Muffler connection bolt		18 – 23	1.8 – 2.3	13.0 – 16.5
Muffler mounting bolt		18 – 28	1.8 – 2.8	13.0 – 20.0
Gearshift arm stopper bolt		15 – 23	1.5 – 2.3	11.0 – 16.5
Gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Sub-mission gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Reverse gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5

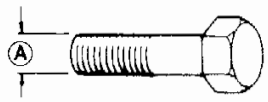
CHASSIS

ITEM	N·m	kg-m	lb-ft
Frame bridge bolt	60 – 70	6.0 – 7.0	43.5 – 50.5
Differential case filler cap	20 – 30	2.0 – 3.0	14.5 – 21.5
Differential case drain plug	20 – 30	2.0 – 3.0	14.5 – 21.5
Secondary drive gear nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Front drive bevel gear nut	110 – 130	11.0 – 13.0	79.5 – 94.0
Front drive output yoke nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Propeller shaft joint nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential case bolt	23 – 30	2.3 – 3.0	16.5 – 21.5
Final driven gear bearing case bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Drive bevel gear housing bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Differential gear case mounting nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft holder bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft lower nut	38 – 60	3.8 – 6.0	27.5 – 43.5
Steering knuckle end bolt (Upper & Lower)	120 – 170	12.0 – 17.0	87.5 – 123.0
Steering knuckle arm end pinch bolt	44 – 66	4.4 – 6.6	32.0 – 47.5
Steering knuckle arm bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Tie-rod lock nut	22 – 35	2.2 – 3.5	16.0 – 25.5
Tie-rod end pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Front shock absorber mounting bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Wishbone arm pivot nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Front axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Front wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Front brake master cylinder mounting bolt	6 – 9	0.6 – 0.9	4.5 – 6.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Brake pipe nut	13 – 18	1.3 – 1.8	9.5 – 13.0
Brake air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
Front brake panel bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Front wheel cylinder bolt	10 – 13	1.0 – 1.3	7.0 – 9.5
Footrest bolt	40 – 50	4.0 – 5.0	29.0 – 36.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Rear wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Rear brake cam lever nut	8 – 12	0.8 – 1.2	6.0 – 8.5
Rear brake drum cover bolt	18 – 25	1.8 – 2.5	13.0 – 18.0
Rear shock absorber mounting bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Rear suspension arm pivot bolt	50 – 70	5.0 – 7.0	36.0 – 50.5
Rear carrier bolt	30 – 40	3.0 – 4.0	21.5 – 29.0

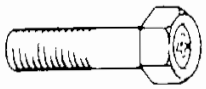
TIGHTENING TORQUE CHART

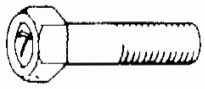
For other bolts and nuts not listed prescribed, refer to this chart.

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 – 35.5	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 – 40.0	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	194.0 – 137.5	200.0 – 280.0	20.0 – 28.0	144.5 – 202.5



Conventional bolt


"4" marked bolt


"7" marked bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM		STANDARD	LIMIT
Valve diam.	IN.	33 (1.3)	———
	EX.	28 (1.1)	———
Valve lift	IN.	8.0 (0.31)	———
	EX.	7.0 (0.28)	———
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	———
	EX.	0.08—0.13 (0.003—0.005)	———
Valve guide to valve stem clearance	IN.	0.025—0.052 (0.0010—0.0020)	0.35 (0.014)
	EX.	0.040—0.067 (0.0016—0.0026)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	———
Valve stem O.D.	IN.	5.460—5.475 (0.2150—0.2156)	———
	EX.	5.445—5.460 (0.2144—0.2150)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	———	35.1 (1.38)
	OUTER	———	39.9 (1.57)
Valve spring tension (IN. & EX.)	INNER	7.1—9.2 kg (15.7—20.3 lbs) at length 32.5 mm (1.28 in)	———
	OUTER	17.3—21.3 kg (38.1—47.0 lbs) at length 36.0 mm (1.42 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM		STANDARD	LIMIT
Cam height	IN.	34.166—34.206 (1.3451—1.3467)	33.870 (1.3335)
	EX.	33.464—33.504 (1.3175—1.3191)	33.170 (1.3059)
Camshaft journal oil clearance		0.036—0.066 (0.0014—0.0026)	0.150 (0.0059)

ITEM	STANDARD	LIMIT
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)	———
Camshaft journal O.D.	21.959—21.976 (0.8645—0.8652)	———
Camshaft runout	———	0.10 (0.004)
Cam chain 20-pitch length	———	129.0 (5.08)
Rocker arm I.D.	IN. & EX. 12.000—12.012 (0.4724—0.4729)	———
Rocker arm shaft O.D.	IN. & EX. 11.966—11.984 (0.4711—0.4718)	———
Cylinder head distortion	———	0.05 (0.002)
Cylinder head cover distortion	———	0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD	LIMIT
Compression pressure	1 000—1 400 kPa (10—14 kg/cm² 142—199 psi)	800 kPa (8 kg/cm² 114 psi)
Piston to cylinder clearance	0.040—0.050 (0.0016—0.0020)	0.120 (0.0047)
Cylinder bore	66.000—66.015 (2.5984—2.5990)	66.090 (2.6020)
Piston diam.	65.955—65.970 (2.5966—2.5972) Measure at 18 (0.71) from the skirt end.	65.880 (2.5937)
Cylinder distortion	———	0.05 (0.002)
Piston ring free end gap (1st R)	Approx. 7.5 (0.30)	6.0 (0.24)
Piston ring free end gap (2nd R)	Approx. 9.4 (0.37)	7.5 (0.30)
Piston ring end gap (1st & 2nd)	0.10—0.25 (0.004—0.010)	0.70 (0.028)
Piston ring to groove clearance (1st)	———	0.180 (0.0071)
Piston ring to groove clearance (2nd)	———	0.150 (0.0059)
Piston ring groove width (1st)	1.01—1.03 (0.040—0.041)	———
Piston ring groove width (2nd)	1.22—1.24 (0.048—0.049)	———
Piston ring groove width (Oil)	2.01—2.03 (0.079—0.080)	———
Piston ring thickness (1st)	0.97—0.99 (0.038—0.039)	———
Piston ring thickness (2nd)	1.17—1.19 (0.046—0.047)	———

ITEM	STANDARD	LIMIT
Piston pin bore	16.002—16.008 (0.6300—0.6302)	16.030 (0.6311)
Piston pin O.D.	15.996—16.000 (0.6298—0.6299)	15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM		STANDARD	LIMIT
Conrod small end I.D.		16.006—16.014 (0.6302—0.6305)	16.040 (0.6315)
Conrod deflection		———	3.0 (0.12)
Conrod big end side clearance		0.10—0.45 (0.004—0.018)	1.00 (0.039)
Conrod big end width		17.95—18.00 (0.707—0.709)	———
Crank web to web width		53.0 ± 0.1 (2.087 ± 0.004)	———
Crankshaft runout	at left side	———	0.05 (0.002)
	at right side	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	———
Oil pressure (at 60°C, 140°F)	Above 30 kPa (0.30 kg/cm^2, 4.3 psi) Below 70 kPa (0.70 kg/cm^2, 10.0 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	0—1/8 turn back	———
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ ($4.567 \pm {}^{0.006}_{0}$)	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.250 (65/20)	———
Final reduction ratio	Front	3.284 (17/16 × 34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 × 25/11 × 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 × 18/17 × 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reverse	2.833 (29/12 × 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork to groove clearance		0.05—0.25 (0.002—0.010)	0.05 (0.020)
Reverse fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.10 (0.157—0.161)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Shift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM24SS
Bore size		29 mm (0.94 in)
I.D. No.		19B00
Idle r/min.		1 400 ± 50 r/min.
Float height		24.5 ± 1.0 mm (0.96 ± 0.04 in)
Main jet	(M.J.)	#100
Main air jet	(M.A.J.)	1.0 mm (0.04 in)
Jet needle	(J.N.)	5L21-3rd
Needle jet	(N.J.)	O-1
Cut-away	(C.A.)	1.5
Pilot jet	(P.J.)	#22.5
By-pass	(B.P.)	0.8 mm (0.031 in)
Pilot outlet	(P.O.)	0.7 mm (0.028 in)
Valve seat	(V.S.)	1.2 mm (0.05 in)
Starter jet	(G.S.)	#30
Pilot screw	(P.S.)	PRE-SET (2.0 turns back)
Pilot air jet	(P.A.J.)	1.5 mm (0.06 in)
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	5° B.T.D.C. Below 1 800 ± 100 r/min. and 35° B.T.D.C. Above 3 800 ± 100 r/min.		
Spark plug	Type	N.D.: X22ES-U NGK: D7EA	For E-03 model
	Type	NGK: D7EA	For E-24 model
	Type	N.D.: X22ESR-U NGK: DR7ES	For E-28 model
	Gap	0.6—0.7 (0.024—0.028)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	⊕ tap— ⊖ tap 0—0.5 Ω	
	Secondary	Plug cap— ⊕ tap 10—16 kΩ	
Generator coil resistance	Pick-up	B/Y—G/W 90—140 Ω	
	Power source	B—Bl/Y 105—160 Ω	
	Charging	Y—Y 0.1—1.0 Ω	
Generator no-load voltage (When engine is cold)	More than 55 V (AC) at 5 000 r/min.		

ITEM		SPECIFICATION	NOTE
Regulated voltage		14,0—15,5 V at 5 000 r/min.	
Starter motor brush length		Limit: 6 (0.24)	MITSUBA
Commutator under-cut		Limit: 0.2 (0.008)	
Starter relay resistance		3—7 Ω	
Battery	Type designation	FB14A-A2	
	Capacity	12V 50.4 kC (14 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	Main	20 A	
	Power source	15 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Tailight		5
Speedometer light		3.4 × 2 pcs.
Reverse indicator light		3.4
Neutral indicator light		3.4

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake cable play	3—7 (0.1—0.3)		———
Rear brake pedal free travel	20—30 (0.8—0.2)		———
Rear brake pedal height	0 (Zero)		———
Brake drum I.D.	Front	———	165.7 (6.52)
	Rear	———	165.7 (6.52)
Brake lining thickness	———		1.5 (0.06)
Master cylinder bore	Front	12.700—12.743 (0.5000±0.5017)	———
Master cylinder piston diam.	Front	12.657—12.684 (0.4983—0.4994)	———
Steering angle	Inside	38° ± 3°	———
	Outside	28° ± 3°	———
Turning radius	2.9 m (9.5 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	1°		———

ITEM	STANDARD		LIMIT
Kingpin inclination	12°		———
Caster	3°30′		———
Tire size	Front	22 × 8.00-10	———
	Rear	25 × 12.00-10	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80—172 kg (175—380 lbs)
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded or low-lead type gasoline of at least 85-95 pump octane ($\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.		For E-03 model
	Gasoline used should be graded 85-95 octane or higher. An unleaded or low-lead type gasoline is recommended.		For E-24 and 28 models
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (2.1/1.8 US/Imp qt)		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	

ITEM	SPECIFICATION	NOTE
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5	
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)	
Brake fluid type	DOT3, DOT4 or SAE J1703	

LT-F4WDH ('87-MODEL)

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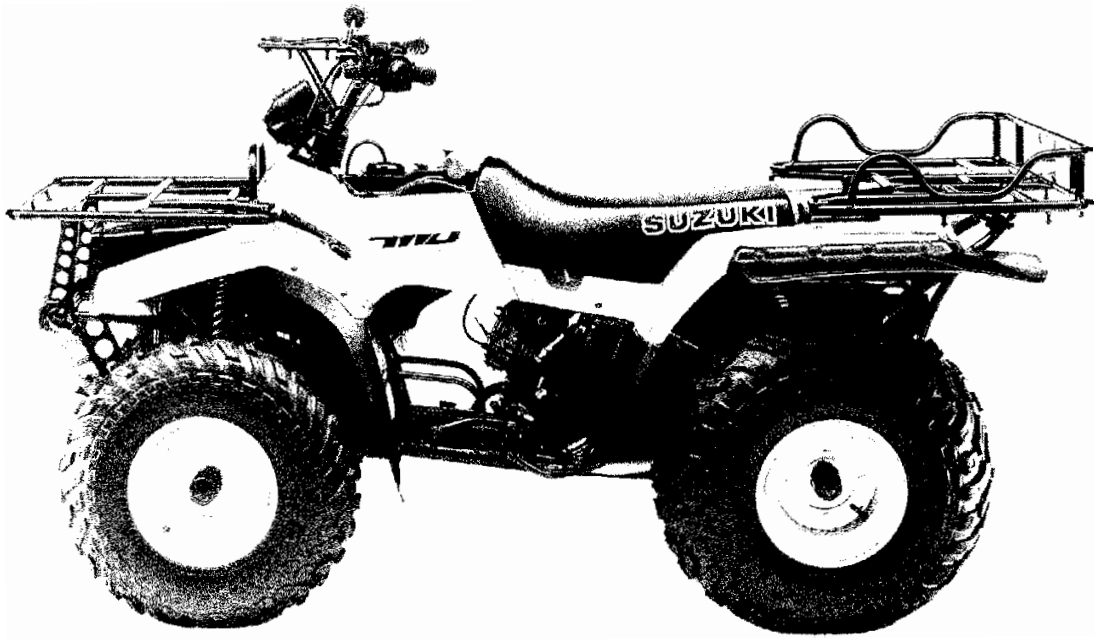
SERVICE DATA 9- 5

NOTE:
Any differences in service specifications with those that apply to the LT-F4WD model are clearly indicated with an asterisk (*).
Please refer to the sections 1 through 8 for details which are not given in this section.

VIEW OF SUZUKI LT-F4WDH ('87-MODEL)

RIGHT SIDE



LEFT SIDE

SPECIFICATIONS

DIMENSIONS AND DRY MASS

*Overall length	*2 060 mm (81.1 in)
Overall width	1 125 mm (44.3 in)
Overall height	1 055 mm (41.5 in)
Wheelbase	1 150 mm (45.3 in)
Front track	800 mm (31.5 in)
Rear track	800 mm (31.5 in)
Ground clearance	200 mm (7.8 in)
Seat height	755 mm (29.7 in)
*Dry mass	*232 kg (511 lbs)

ENGINE

Type	Four-stroke, air-cooled, OHC, TDCC
Number of cylinders	1
Bore	66.0 mm (2.598 in)
Stroke	72.0 mm (2.835 in)
Piston displacement	246 cm^3 (15.0 cu. in)
Compression ratio	8.5 : 1
Carburetor	MIKUNI VM24SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with sub-transmission
Gearshift pattern, Forward	All up, foot lever operated
Reverse	Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (17/16)
Sub-transmission, Super Low	3.176 (17/18 x 37/11)
Low	1.480 (37/25)
High	1.112 (11/25 x 43/17)
Final reduction, Front	3.090 (34/11)
Rear	3.647 (62/17)
Gear ratios, Low	3.083 (37/12)
2nd	1.933 (29/15)
3rd	1.388 (25/18)
4th	1.095 (23/21)
Top	0.913 (21/23)
Reverse	2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	5° B.T.D.C. below 1 800 r/min and 35° B.T.D.C. above 3 800 r/min
*Spark plug	N.G.K. D7EA or NIPPON DENSO X22ES-U ..... E-03 N.G.K. D7EA ..... E-24 N.G.K. DR7ES or NIPPON DENSO X22ESR-U E-28
*Battery	12V 50.4 kC (14 Ah)/10HR ..... E-03 12V 72 kC (20 Ah)/10HR ..... others
Headlight	12V 30W x 2pcs.
Taillight	12V 5W

CHASSIS

Front suspension	Independent, double wishbone, oil damped, spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped, spring preload 5-way adjustable
Steering angle	Inside 38° ± 3° Outside 28° ± 3°
Caster	3°30'
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	22 x 8.00 - 10 (x 2)
Rear tire size	25 x 12.00 - 10 (x 2)
Front wheel travel	85 mm (3.5 in)
Rear wheel travel	95 mm (3.7 in)

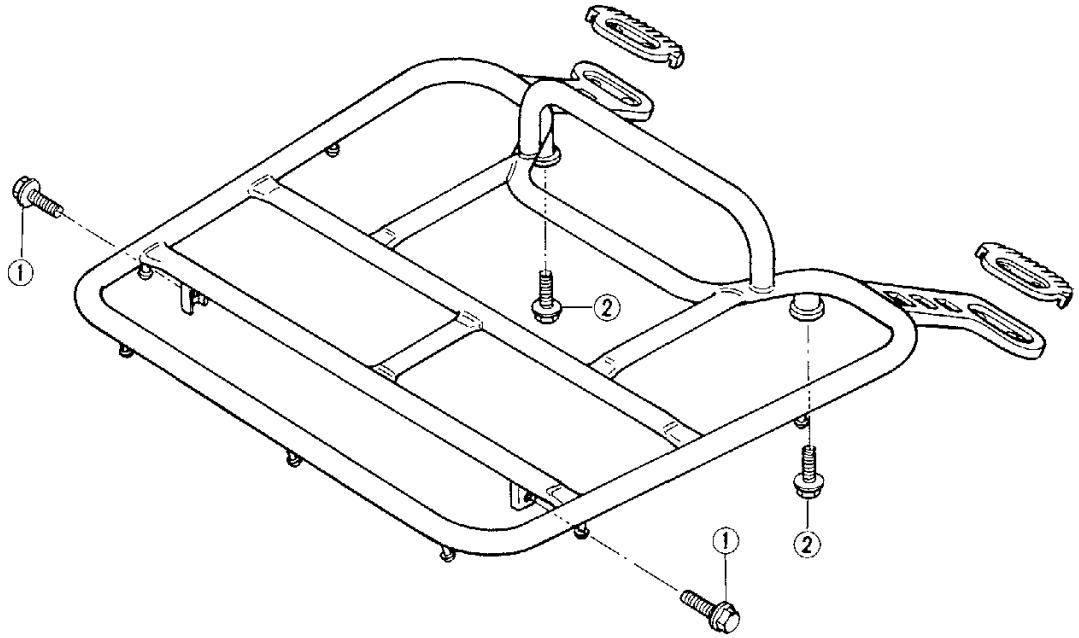
CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imps gal)
reserve	2.0 L (2.1/1.8 US/Imp qt)
Engine oil, Oil change	3.5 L (3.7/3.1 US/Imp qt)
Filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil	150 ml (5.07/5.28 US/Imp oz)

Specifications marked with asterisks (*) are exclusive to LT-F4WD.
Specifications are subject to change without notice.

CARRIER

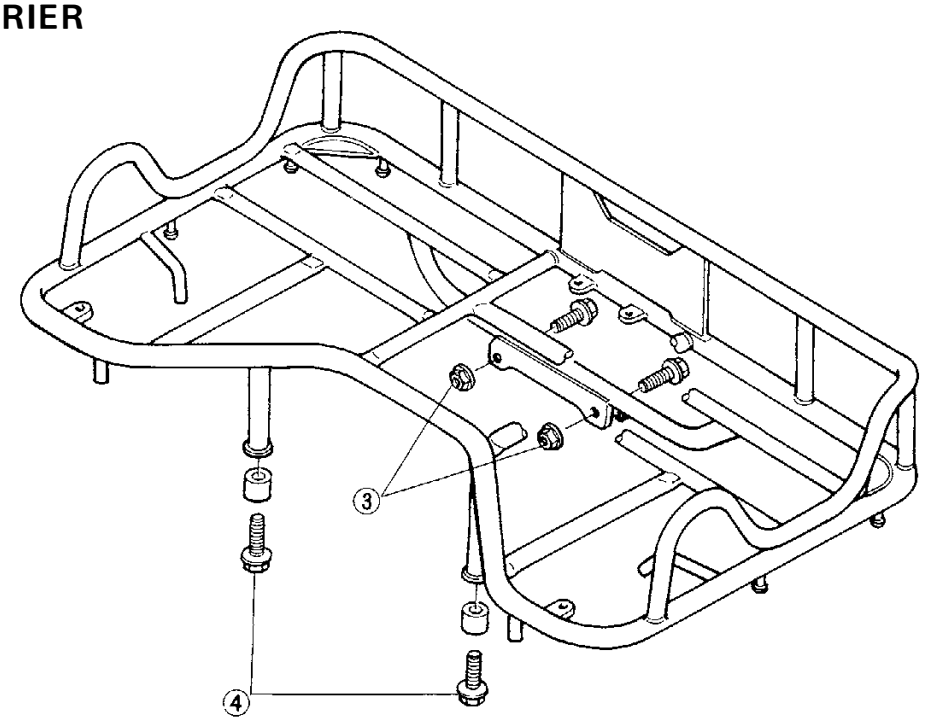
FRONT CARRIER



Tightening torque

ITEM	N·m	kg-m	lb-ft
①	20 – 30	2.0 – 3.0	14.5 – 21.5
②	20 – 30	2.0 – 3.0	14.5 – 21.5

REAR CARRIER



Tightening torque

ITEM	N·m	kg-m	lb-ft
③	20 – 30	2.0 – 3.0	14.5 – 21.5
④	20 – 30	2.0 – 3.0	14.5 – 21.5

SERVICE DATA

ELECTRICAL

ITEM		SPECIFICATION	NOTE
*Battery	Type designation	FB14A-A2	E-03
	Capacity	12V 50.4 kC (14 Ah)/10 HR	
	Standard ellectrolyte S.G.	1.28 at 20°C (68°F)	
	Type designation	Y50-N18A-A	Others
	Capacity	12V 72 kC (20 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kg/cm^2	psi
FRONT	35	0.35	5.1
REAR	20	0.20	2.9

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

Specification marked with asterisks (*) are exclusive to LT-F4WD.

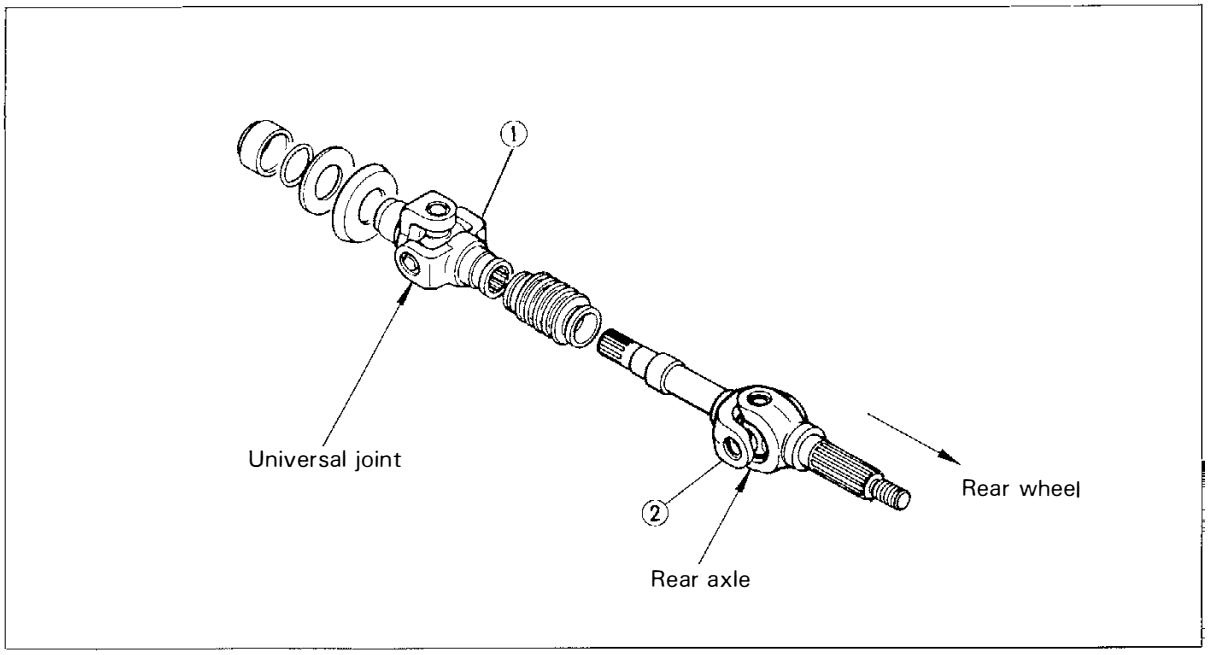
APPENDIX (LT-4WD AND LT-F4WD)

CONTENTS

REASSEMBLY OF REAR AXLE 10- 1

REASSEMBLY OF REAR AXLE

Properly align the universal joint and rear axle when mounting the rear axle to the universal joint. Otherwise a large fluctuation of the torque transmitted to the wheel during rear axle rotation takes place and produces vibration.
To prevent the above phenomenon, it is necessary to synchronize the universal joint ① with the universal joint ② when installing the rear axle shaft.
To synchronize them, align the phase of universal joint ② with that of universal joint ①.
At the same time, the right and left universal joints should be also aligned each other at the same position.



NOTE:
Apply grease to the splines of universal joint and rear axle.

STEERING SHAFT GREASING

Apply grease to the steering shaft with a grease gun.
Amount : 3 – 5 ml
Period : Every 600 miles (1 000 km) or every 3 months

Grease :	99000-25010	SUZUKI SUPER GREASE "A"

LT-4WDJ AND LT-F4WDJ ('88-MODEL)

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1

NOTE:
Please refer to the sections 1 through 10 for details which are not given in this section.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	1 940 mm (76.4 in) LT-4WD
	2 060 mm (81.1 in) LT-F4WD
Overall width	1 125 mm (44.3 in)
Overall height	1 055 mm (41.5 in)
Wheelbase	1 150 mm (45.3 in)
Front track	800 mm (31.5 in)
Rear track	800 mm (31.5 in)
Ground clearance	200 mm (7.8 in)
Seat height	755 mm (29.7 in)
Dry mass	233 kg (513 lbs) LT-4WD
	238 kg (524 lbs) LT-F4WD

ENGINE

Type	Four-stroke, air-cooled, OHC, TDCC
Number of cylinders	1
Bore	66.0 mm (2.598 in)
Stroke	72.0 mm (2.835 in)
Piston displacement	246 cm^3 (15.0 cu. in)
Compression ratio	8.5 : 1
Carburetor	MIKUNI VM24SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-speed sub-transmission
Gearshift pattern, Forward	All up, foot lever operated
Reverse	Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (17/16)
Sub-transmission, Super Low	3.176 (17/18 x 37/11)
Low	1.480 (37/25)
High	1.112 (11/25 x 43/17)
Final reduction, Front	3.090 (34/11)
Rear	3.647 (62/17)
Gear ratios, Low	3.083 (37/12)
2nd	1.933 (29/15)
3rd	1.388 (25/18)
4th	1.095 (23/21)
Top	0.913 (21/23)
Reverse	2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	5° B.T.D.C. below 1 800 r/min and 35° B.T.D.C. above 3 800 r/min
Spark plug	N.G.K. D7EA . . . E-03, 24 N.G.K. DR7ES . . E-02, 17, 28
Battery	12V 50.4 kC (14Ah)/10 HR . .E-03 12V 72 kC (20Ah)/10 HR . . . E-02, 17, 24, 28
Headlight	12V 30W x 2 pcs.
Taillight	12V 5W

CHASSIS

Front suspension	Independent, double wishbone, oil damped, spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped, spring preload 5-way adjustable
Steering angle	Inside 38° Outside 28°
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	22 x 8.00-10
Rear tire size	25 x 12.00-10
Front wheel travel	85 mm (3.5 in)
Rear wheel travel	95 mm (3.7 in)

CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (2.1/1.8 US/Imp qt)
Engine oil, Oil change	3.5 L (3.7/3.1 US/Imp qt)
Filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil	150 ml (5.07/5.28 US/Imp oz)

* Specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	———
	EX.	28 (1.1)	———
Valve lift	IN.	7.5 (0.30)	———
	EX.	6.5 (0.26)	———
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	———
	EX.	0.08—0.13 (0.003—0.005)	———
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	0.35 (0.014)
	EX.	0.030—0.057 (0.0012—0.0022)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	———
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	———
	EX.	5.455—5.470 (0.2148—0.2154)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	IN. & EX.	———	41.0 (1.68)
Valve spring tension (IN. & EX.)	24.1—29.3 kg (53.1—64.6 lbs) at length 36.8 mm (1.45 in)		———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.780—33.820 (1.3299—1.3315)	33.480 (1.3181)
	EX.	32.990—33.030 (1.2988—1.3004)	32.690 (1.2870)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)

ITEM	STANDARD	LIMIT
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)	———
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)	———
Camshaft runout	———	0.10 (0.004)
Cam chain 20-pitch length	———	129.0 (5.08)
Rocker arm I.D.	IN. & EX. 12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.	IN. & EX. 11.977—11.995 (0.4715—0.4722)	———
Cylinder head distortion	———	0.05 (0.002)
Cylinder head cover distortion	———	0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD	LIMIT
Compression pressure	1 000—1 400 kPa (10—14 kg/cm² 142—199 psi)	800 kPa (8 kg/cm² 114 psi)
Piston to cylinder clearance	0.040—0.050 (0.0016—0.0020)	0.120 (0.0047)
Cylinder bore	66.000—66.015 (2.5984—2.5990)	66.090 (2.6020)
Piston diam.	65.955—65.970 (2.5966—2.5972) Measure at 18 (0.71) from the skirt end.	65.880 (2.5937)
Cylinder distortion	———	0.05 (0.002)
Piston ring free end gap	1st R Approx. 7.5 (0.30)	6.0 (0.24)
	2nd R Approx. 9.0 (0.35)	7.2 (0.28)
Piston ring end gap	1st & 2nd 0.10—0.25 (0.004—0.010)	0.70 (0.028)
Piston ring to groove clearance	1st ———	0.180 (0.0071)
	2nd ———	0.150 (0.0059)
Piston ring groove width	1st 1.01—1.03 (0.040—0.041)	———
	2nd 1.22—1.24 (0.048—0.049)	———
	Oil 2.01—2.03 (0.079—0.080)	———
Piston ring thickness	1st 0.97—0.99 (0.038—0.039)	———
	2nd 1.17—1.19 (0.046—0.047)	———

ITEM	STANDARD	LIMIT
Piston pin bore	16.002—16.008 (0.6300—0.6302)	16.030 (0.6311)
Piston pin O.D.	15.996—16.000 (0.6298—0.6299)	15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM		STANDARD	LIMIT
Conrod small end I.D.		16.006—16.014 (0.6302—0.6305)	16.040 (0.6315)
Conrod deflection		———	3.0 (0.12)
Conrod big end side clearance		0.10—0.45 (0.004—0.018)	1.00 (0.039)
Conrod big end width		17.95—18.00 (0.707—0.709)	———
Crank web-to-web width		53.0 ± 0.1 (2.087 ± 0.004)	———
Crankshaft runout	at left side	———	0.05 (0.002)
	at right side	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	———
Oil pressure (at 60°C, 140°F)	Above 30 kPa (0.30 kg/cm², 4.3 psi) Below 70 kPa (0.70 kg/cm², 10.0 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	0—1/8 turn back	———
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ ($4.567 \pm {}^{0.006}_{0}$)	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.250 (65/20)	———
Final reduction ratio	Front	3.284 (17/16 × 34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 × 25/11 × 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 × 18/17 × 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reverse	2.833 (29/12 × 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork-to-groove clearance		0.05—0.25 (0.002—0.010)	0.05 (0.020)
Reverse fork-to-groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.10 (0.157—0.161)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Shift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI VM24SS
Bore size		24 mm (0.94 in)
I.D. No.		19B01
		19B02
Idle r/min.		1 400 ± 50 r/min.
Float height		24.5 ± 1.0 mm (0.96 ± 0.04 in)
Main jet	(M.J.)	#100
Main air jet	(M.A.J.)	1.0 mm (0.04 in)
Jet needle	(J.N.)	5L21-3rd
Needle jet	(N.J.)	O-1
Cut-away	(C.A.)	1.5
Pilot jet	(P.J.)	#22.5
By-pass	(B.P.)	0.8 mm (0.031 in)
Pilot outlet	(P.O.)	0.7 mm (0.028 in)
Valve seat	(V.S.)	1.2 mm (0.05 in)
Starter jet	(G.S.)	#30
Pilot screw	(P.S.)	PRE-SET (1 3/4 turns back)
Pilot air jet	(P.A.J.)	1.5 mm (0.06 in)
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION	NOTE
Ignition timing		5° B.T.D.C. Below 1 800 ± 100 r/min. and 35° B.T.D.C. Above 3 800 ± 100 r/min.	
Spark plug	Type	NGK: D7EA	For E-03 and 24 model
		NGK: DR7ES	For E-02,17 and 28 model
	Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.	
Ignition coil resistance	Primary	⊕ tap— ⊖ tap 0—0.5 Ω	
	Secondary	Plug cap— ⊕ tap 10—16 kΩ	
Generator coil resistance	Pick-up	B/Y—G/W 90—140 Ω	
	Power source	B—Bl/Y 105—160 Ω	
	Charging	Y—Y 0.1—1.0 Ω	
Generator no-load voltage (When engine is cold)		More than 55 V (AC) at 5 000 r/min.	

ITEM		SPECIFICATION	NOTE
Regulated voltage		14.0—15.5 V at 5 000 r/min.	
Starter motor brush length		Limit: 6 (0.24)	MITSUBA
Commutator under-cut		Limit: 0.2 (0.008)	
Starter relay resistance		3—7 Ω	
Battery	Type designation	FB14A-A2	For E-02 and 03 model
	Capacity	12V 50.4 kC (14 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
	Type designation	Y50-N18A-A	For the other models
	Capacity	12V 72 kC (20 Ah)/10HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	Main	20 A	
	Power source	15 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Taillight		5
Speedometer light		3.4 × 2 pcs.
Reverse indicator light		3.4
Neutral indicator light		3.4

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake cable play	3—7 (0.1—0.3)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Rear brake pedal height	0 (Zero)		———
Brake drum I.D.	Front	———	165.7 (6.52)
	Rear	———	165.7 (6.52)
Brake lining thickness	———		1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	———
Master cylinder piston diam.	Front	13.957—13.984 (0.5495—0.5506)	———
Steering angle	Inside	38° ± 3°	———
	Outside	28° ± 3°	———
Turning radius	2.9 m (9.5 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	1°		———

ITEM	STANDARD		LIMIT
Kingpin inclination	12°		———
Caster	3°30′		———
Tire size	Front	22 × 8.00-10	———
	Rear	25 × 12.00-10	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE
LT-4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80—172 kg (175—380 lbs)
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

LT-F4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	35	0.35	5.1
REAR	20	0.20	2.9

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded or low-lead type gasoline of at least 85-95 pump octane ($\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.		For E-03 and 28 models
	Gasoline used should be graded 85-95 octane or higher. An unleaded or low-lead type gasoline is recommended.		For E-02, 17 and 24 models
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (2.1/1.8 US/Imp qt)		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	

ITEM	SPECIFICATION	NOTE
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5	
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)	
Brake fluid type	DOT3 or DOT4	E-03 model
	DOT3, DOT4 or SAE J1703	E-02,17,24 and 28 models

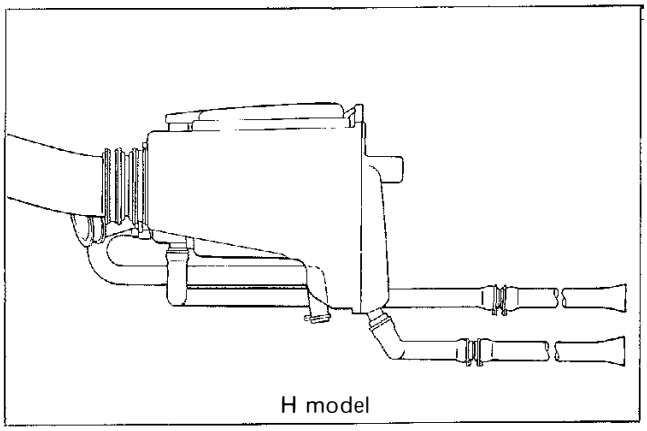
SPECIFICATION AND DISTINATION

E-02: For U.K.
E-03: For U.S.A.
E-17: For Sweden
E-24: For Australia
E-28: For Canada

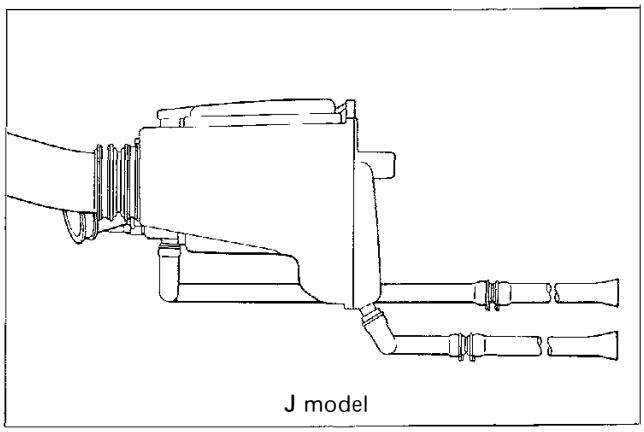
CHANGE

AIR CLEANER

- The hole for crankcase breather hose is eliminated on the air cleaner case.
- Crankase breather hose routing also has been changed. (Refer to page 28.)



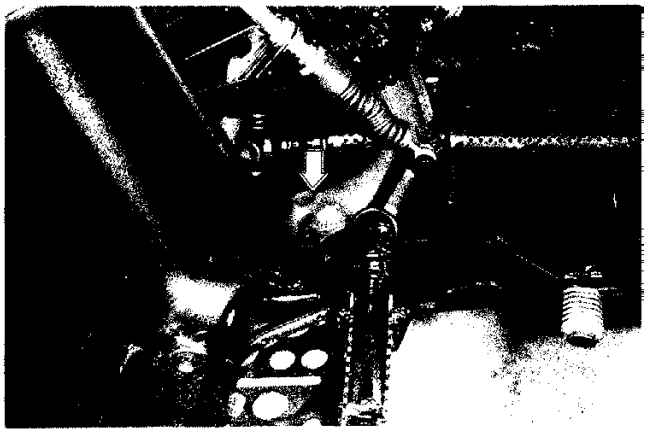
H model



J model

EXHAUST PIPE COVER

Exhaust pipe covers mounting method and its shape are changed.

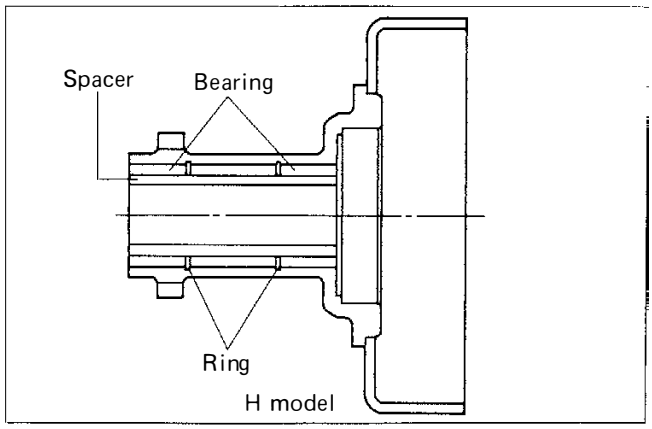


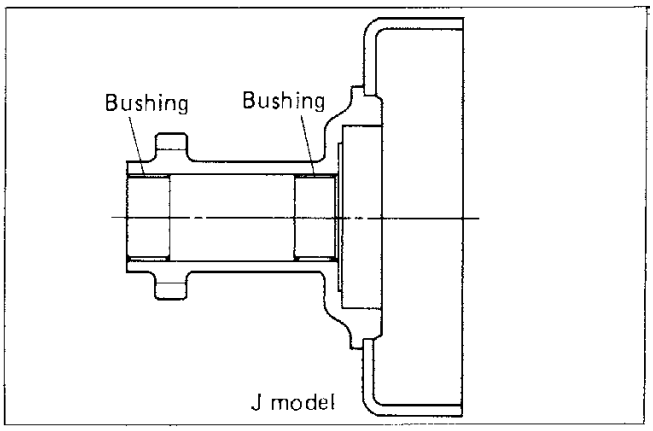
VALVE SPRING

For the valve spring, use of double coil type is changed to single coil type.

PRIMARY DRIVE GEAR

The bearing for primary drive gear is changed to bushing. In accordance with above change, the spacer and ring are eliminated.

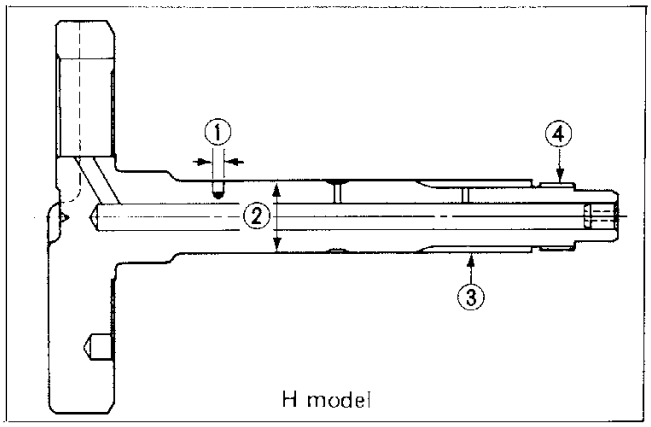


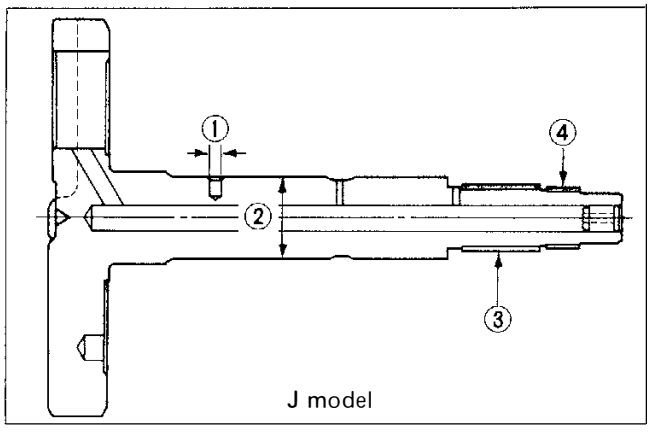


RIGHT CRANKSHAFT

The dimensions of right crankshaft are modified as shown below.

	H model	J model
①	3 mm	4 mm
②	22 mm	25 mm
③	22 mm (spline)	20 mm (spline)
④	Thread 20 mm	Thread 18 mm





In accordance with this modification, the tightening torque of the shoe nut is also changed as indicated in the right table.
When installing the shoe nut, apply the THREAD LOCK SUPER "1303"/"1305" to the threads of nut.

	Tightening torque
"H" model	90 – 110 N·m (9.0 – 11.0 kg-m / 65.0 – 79.5 lb-ft)
"J" model	110 – 130 N·m (11.0 – 13.0 kg-m / 79.5 – 94.0 lb-ft)

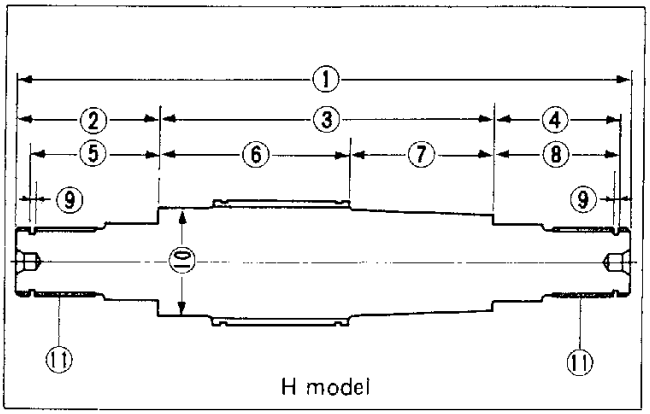
99000-32030	Thread Lock Super "1303" For U.S. model
99000-32100	Thread Lock Super "1305" For other models

REAR FINAL DRIVEN SHAFT

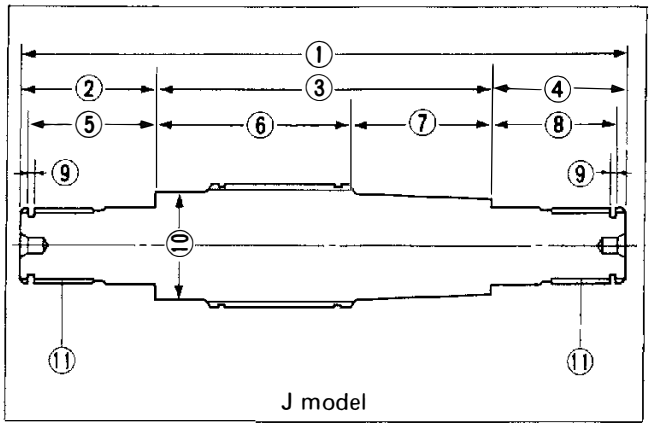
The dimensions of the rear final driven shaft are modified as illustrated.

Unit: mm (in)

Item	H model	J model
①	198 (7.80)	197 (7.76)
②	44.5 (1.75)	44.0 (1.73)
③	109 (4.29)	←
④	44.5 (1.75)	44.0 (1.73)
⑤	41.0 (1.61)	41.2 (1.62)
⑥	63 (2.48)	←
⑦	46 (1.81)	←
⑧	41.0 (1.61)	41.2 (1.62)
⑨	1.6 (0.06)	1.8 (0.07)
⑩	35 (1.38)	33 (1.30)
⑪	22 (0.87)	24 (0.94)



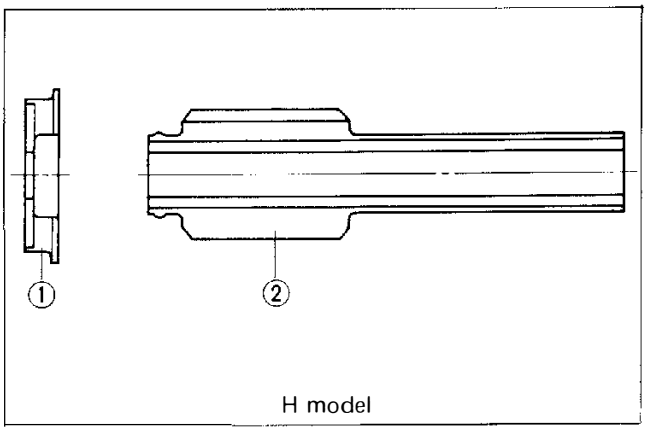
H model



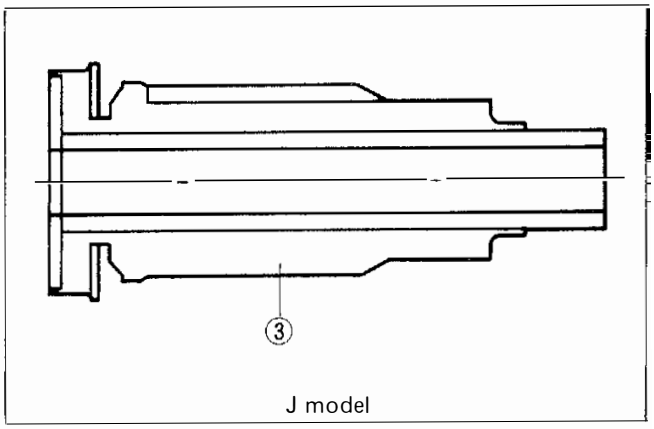
J model

ENGINE MOUNTING BUSH

The engine mounting side damper ① and the engine mounting bushing ② are integrated to be one-piece engine mounting ③.



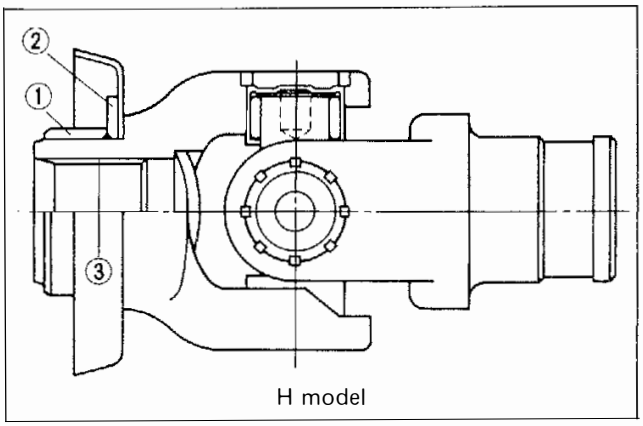
H model



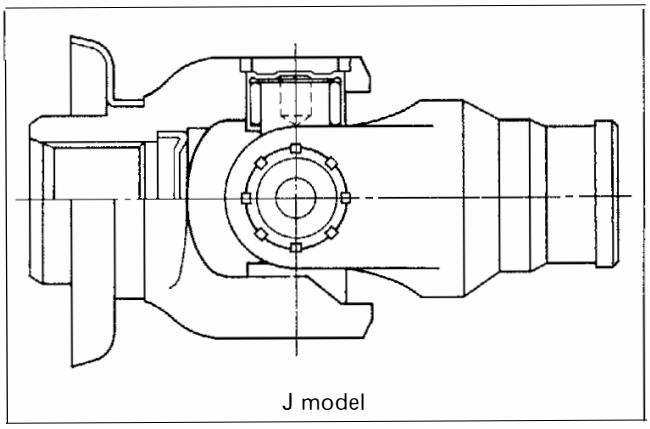
J model

REAR FINAL OUTPUT JOINT COMP.

On the rear final output joint comp., the shapes are modified as shown in the right figure. The oil seal collar ① and plate ② are eliminated.
The dimension ③ of spline has been changed from 22 mm to 24 mm.

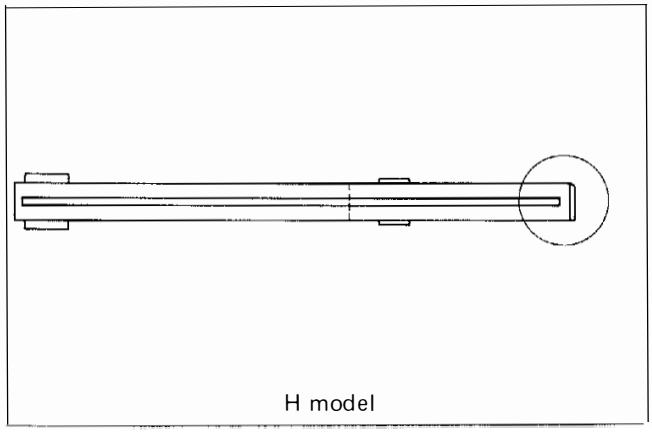


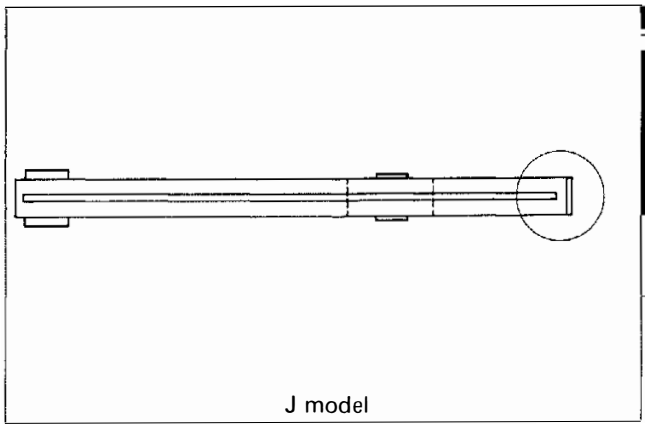
H model


J model

CAM CHAIN TENSIONER

The shape of tensioner is modified.

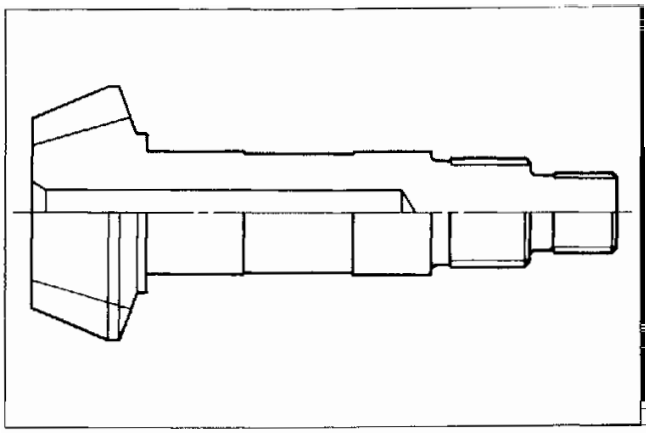

H model



J model

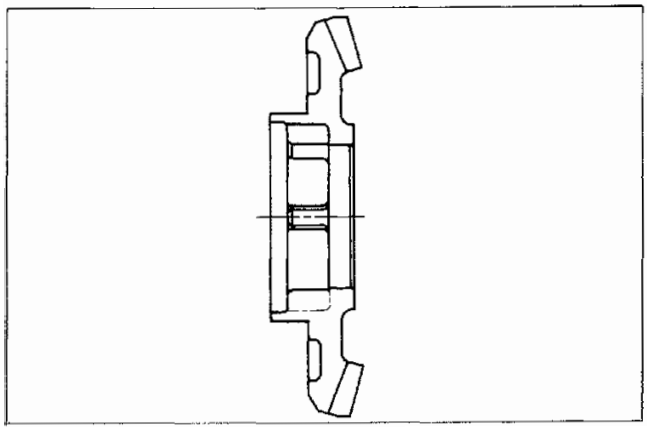
FRONT DRIVE BEVEL GEAR

The pressure angle of teeth has been changed from 20 degrees to 22 degrees and 30 minutes.



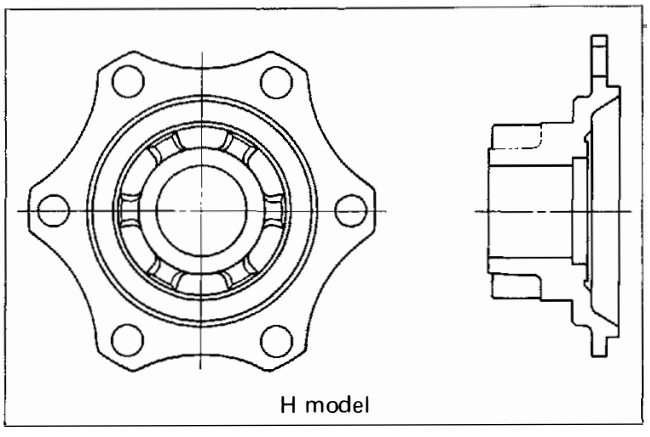
FRONT DRIVEN BEVEL GEAR

The pressure angle of teeth has been changed from 20 degrees to 22 degrees and 30 minutes.

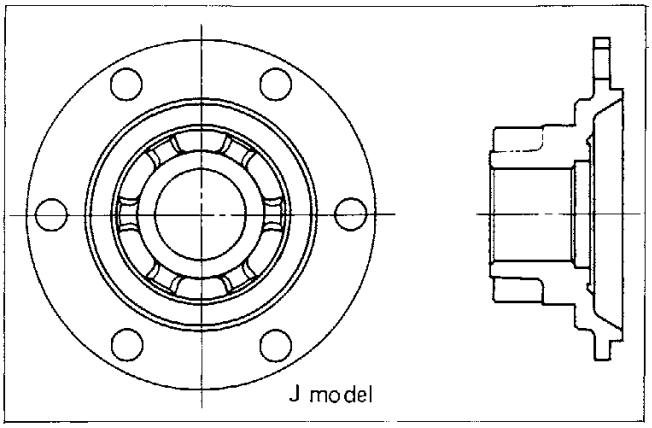


FRONT DIFFERENTIAL BEVEL GEAR HUB

The shape of the front differential bevel gear hub has been modified.

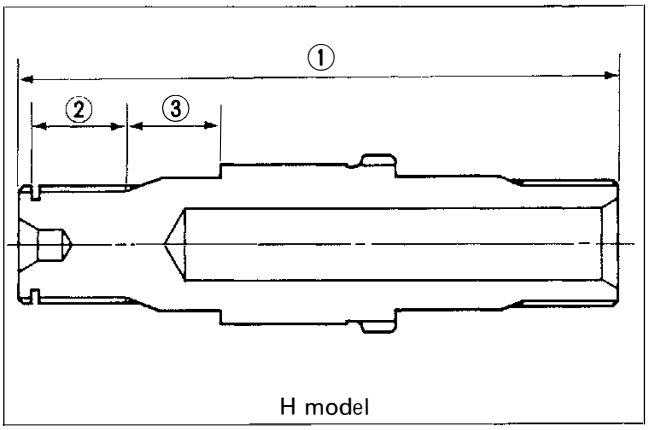


H model



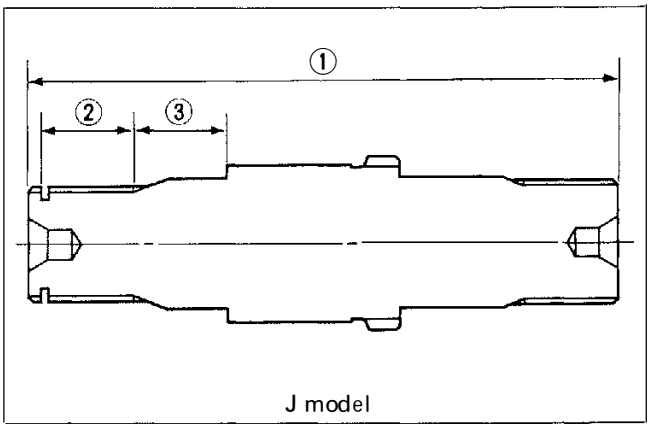
FRONT DIFFERENTIAL DRIVEN OUTPUT SHAFT

The following dimensions of output shaft have been modified.



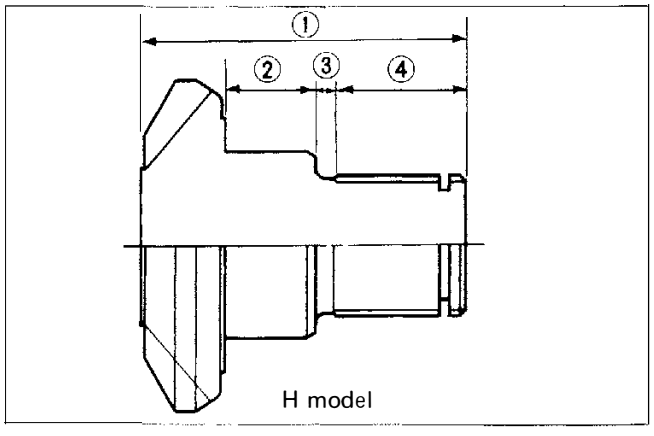
Unit: mm(in)

	H model	J model
①	113.5 (4.47)	116.5 (4.59)
②	18 (0.71)	21 (0.83)
③	15 (0.59)	15 (0.59)



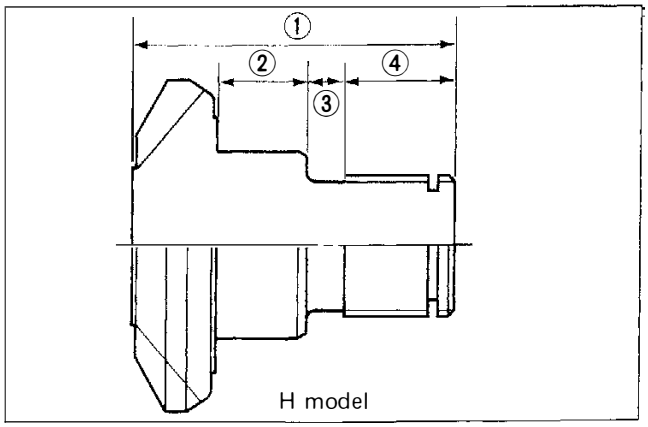
FRONT DIFFERENTIAL RIGHT GEAR

The following dimensions of fromt differential right gear have been modified.



Unit: mm(in)

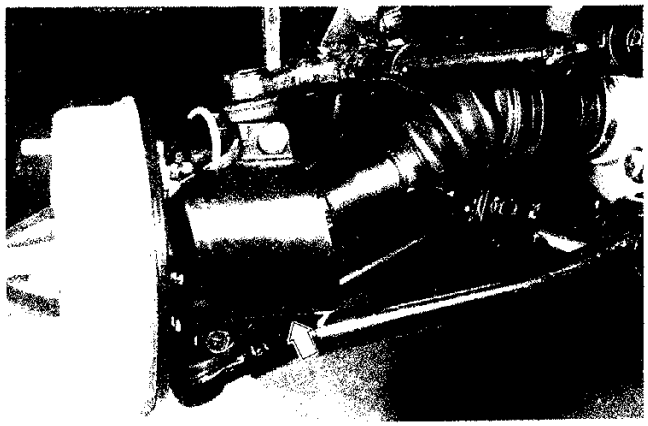
	H model	J model
①	50 (1.97)	53 (2.09)
②	14 (0.55)	←
③	3 (0.12)	6 (0.24)
④	20.5 (0.81)	←



H model

FRONT DRIVE SHAFT PROTECTOR

The front drive shaft protectors are equipped from "J" model.

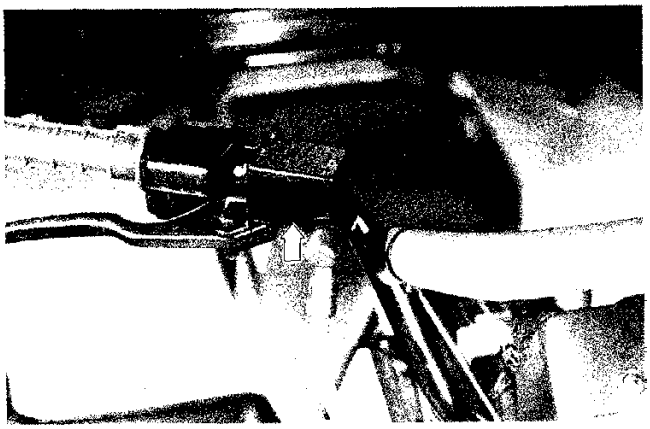


FRONT BRAKE MASTER CYLINDER

The master cylinder bore diameter is enlarged modified over that of "J" model.

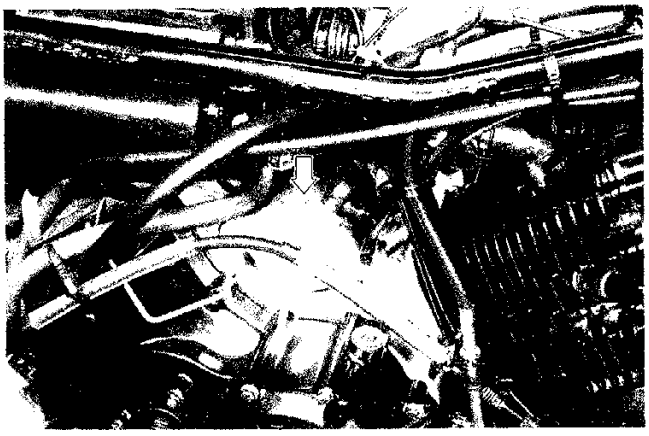
"J" model

Item	STANDARD
Master cylinder bore	14.000 – 14.043 (0.5512 – 0.5529)
Master cylinder piston diameter	13.957 – 13.984 (0.5495 – 0.5506)



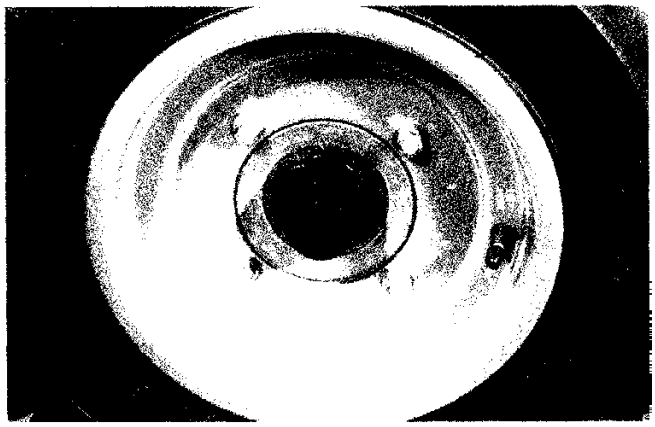
STARTER MOTOR

The starter motor has been changed to compact size. Its capacity remains the same as that of "H" model.



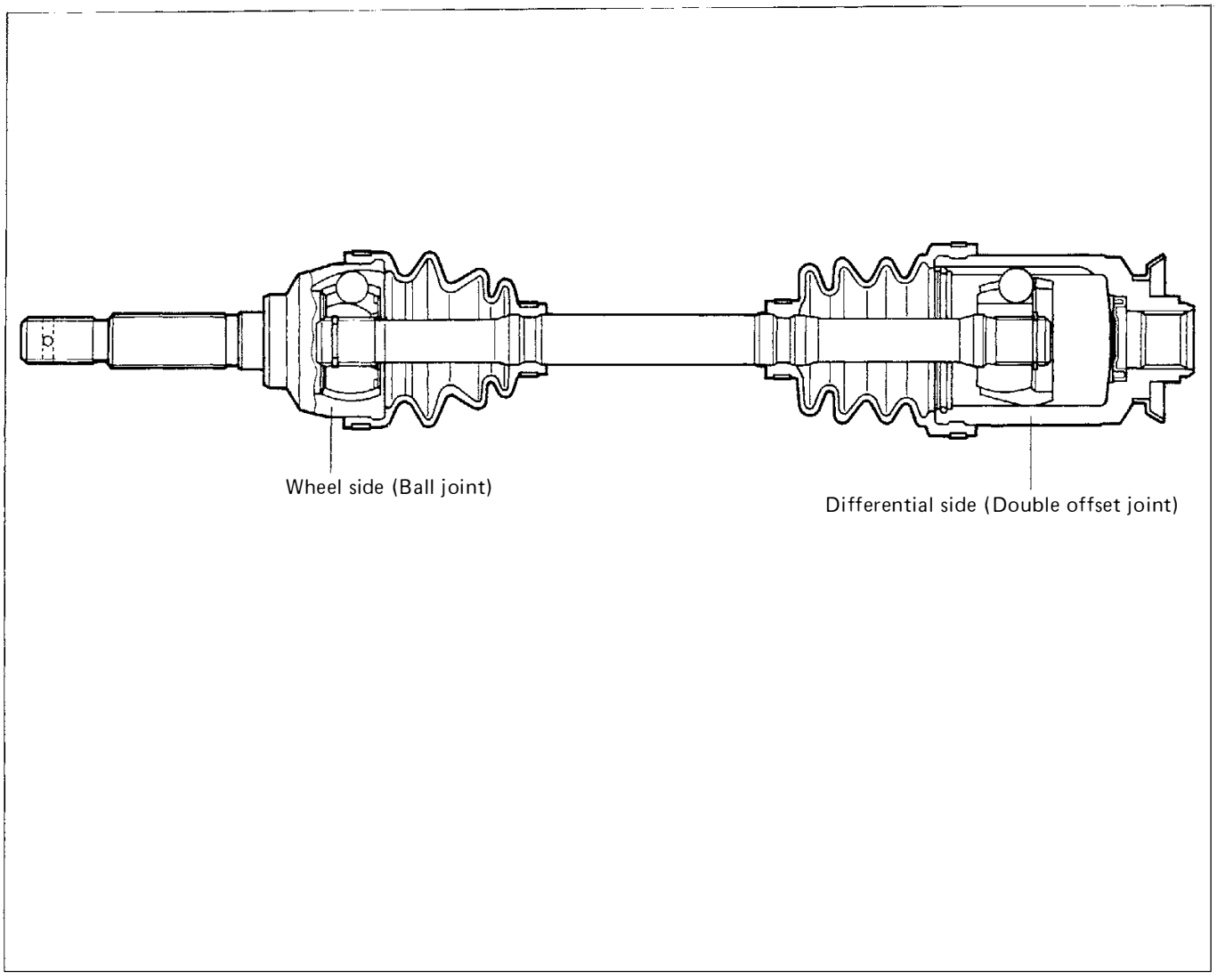
WHEEL CENTER CAP

The wheel center cap is changed as shown in the photograph.



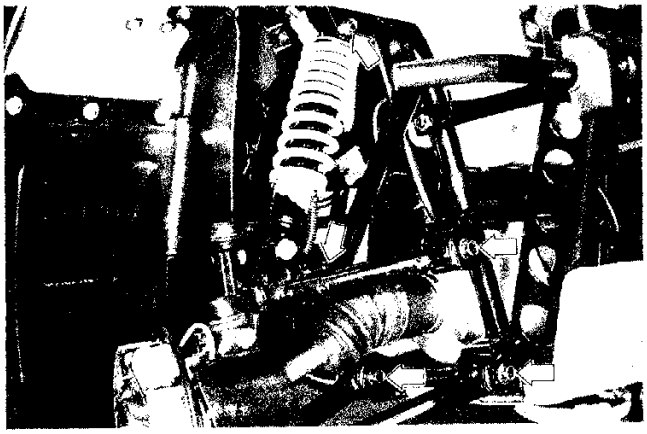
FRONT DRIVE AXLE SHAFT DESCRIPTON

The drive shaft joint is a constant velocity joint (C.V. joint) which slides in the axial direction. The joint is composed of an outer race, cage, inner race and balls. In the turning direction, the joint rotates in the same way as a ball bearing. The 6 balls lock rotation completely and transmit drive. In addition, this vehicle is also characterized by a function that the shaft can slide through the balls in the grooves of the outer race in the extention/contraction direction of the drive shaft.

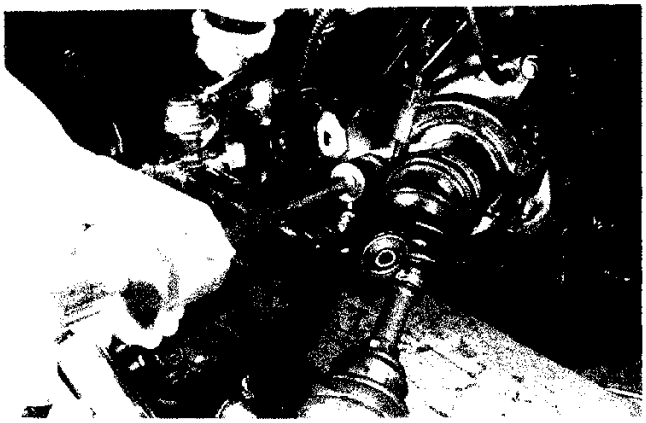


DISMOUNTING

- Remove the front wheel.
- Loosen the front axle nut.
- Remove the front suspension.



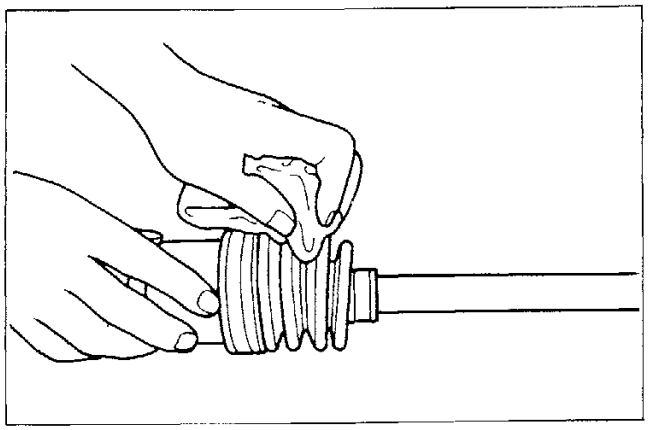
- Remove the front axle shaft with the special tools.



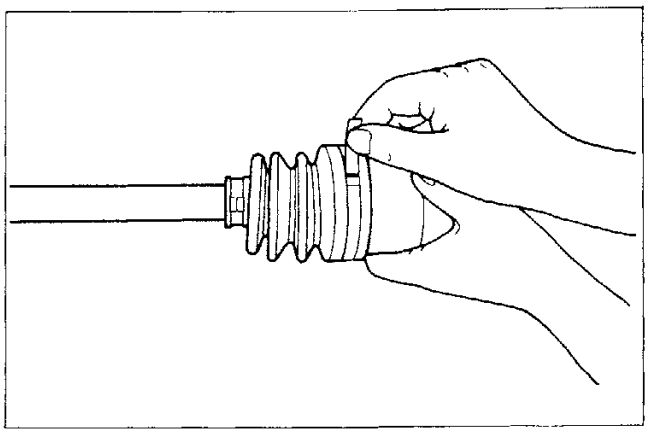
09930-30102	Sliding shaft
09950-81910	Remover
09924-21910	Wheel hub remover set

DISASSEMBLY

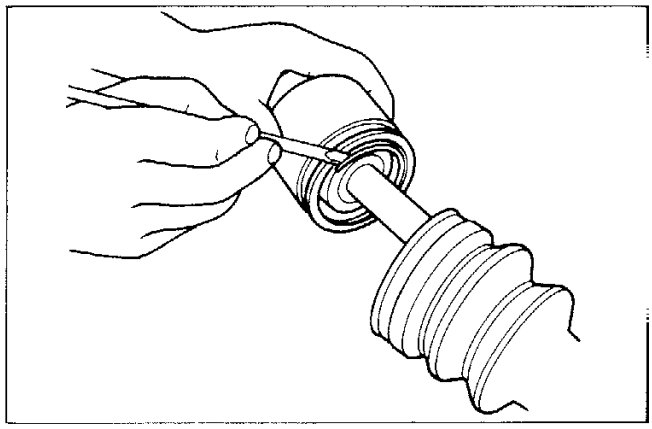
- Clean the front axle shaft.



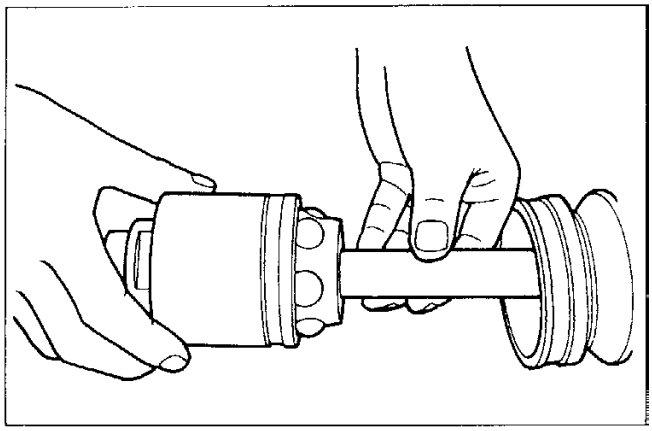
- Remove the boot band of differential side joint (Double offset joint)



- Slide the boot toward the center of the shaft and remove the snap ring from the outer race.

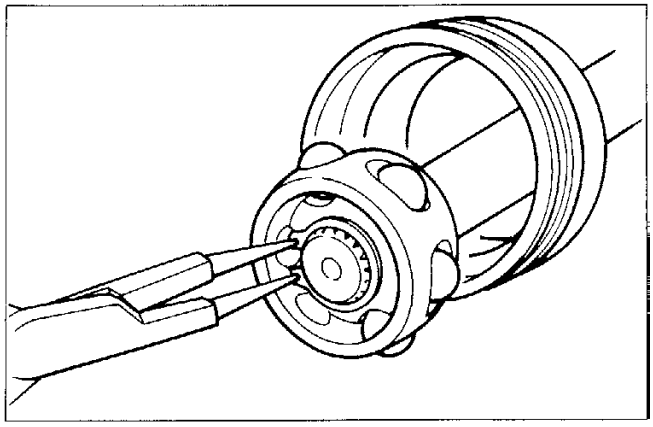


- Separate the outer race from the shaft.

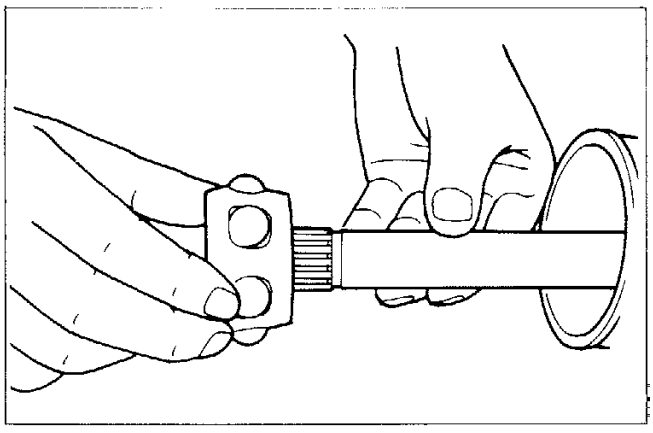


- Wipe off grease and remove the circlip fixing the cage on the shaft.

09900-06107	Snap ring pliers



- Remove the cage and boot from the shaft.



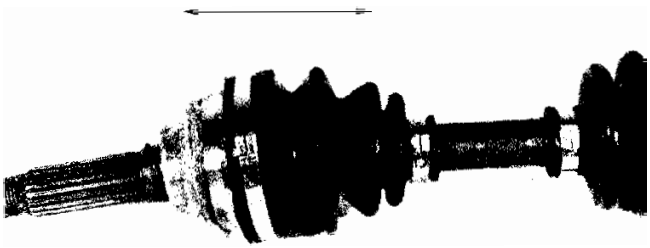
CAUTION:
Don't disassemble the wheel side joint (Double offset joint). If any malcondition is found, replace it with a new one.

INSPECTION

- Check the boots for breakage or deterioration. Replace them as necessary.

- Check the circlip, snap ring and boot bands for breakage or deformation. Replace them as necessary.

- To be checked on this joint is its axial play, which shows up when a push-and-pull motion is given to the live axle shaft and wheel spindle held in the both hands, as shown in the photograph. There should be no play at all but a play of up to 1,5 mm (0.06 in) is permissible. If the play exceeds the limit, replace it.



	Standard	Service limit
Axial play	0 mm (0 in)	1.5 mm (0.06 in)

CLEANING

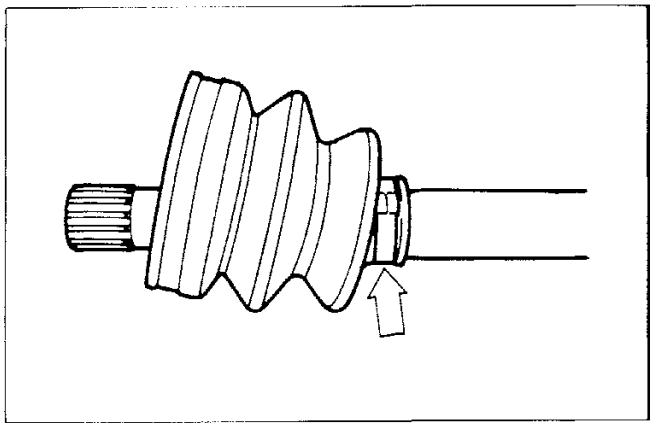
- Wash the disassembled parts (except for the boot). After washing, dry the parts completely by blowing air.
- Clean the boots with cloth.
  Don't wash the boot in degreaser, such as gasoline or kerosene, etc. Washing in the degreaser causes deterioration of the boot.

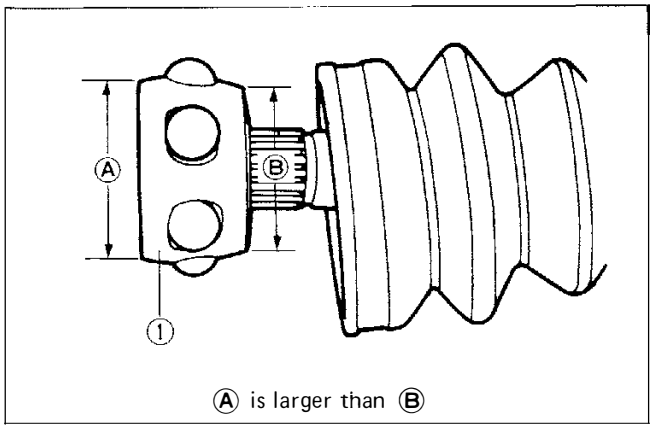
ASSEMBLY

CAUTION:
Wash all parts before installation, wipe out the boot with a cloth.

- Fit a boot on the drive shaft end, fitting the small diameter side of the boot to the shaft groove, fix its end with a new band.
- Install the cage ① on the shaft.

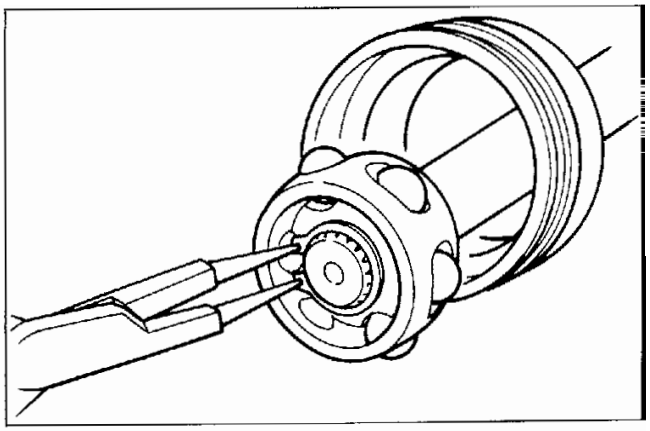
CAUTION:
Install the cage directing the larger diameter side to the shaft end.





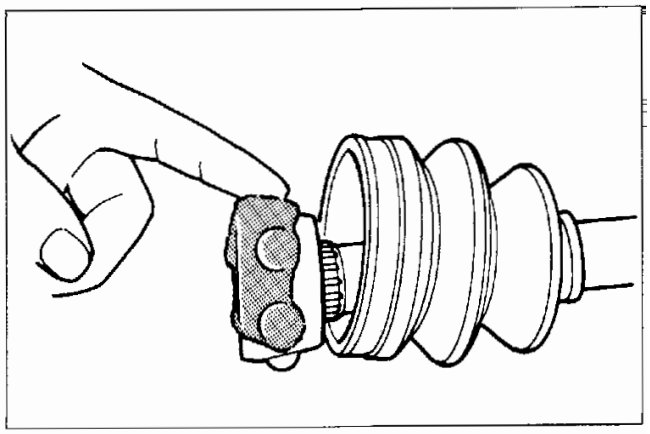
Ⓐ is larger than Ⓑ

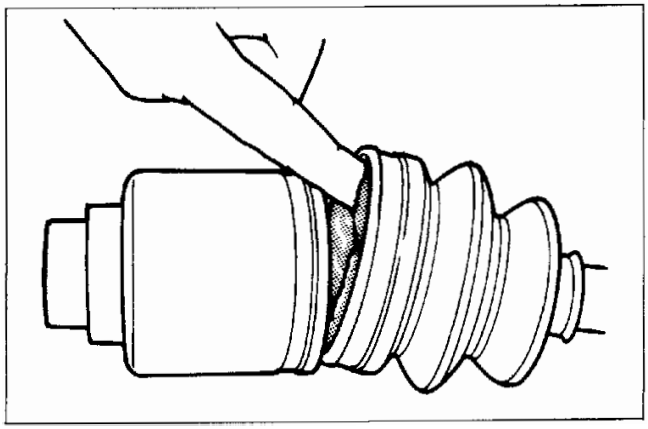
- Do not forget to fit a circlip when fitting the cage.



- Apply grease to entire surface of cage and inside of outer race.

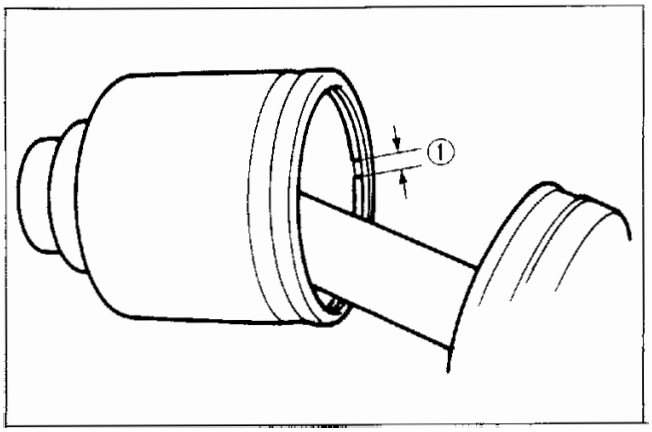
NOTE:
* **Use the yellow joint grease in the tube included in the differential side boot set or the differential side joint assembly of spare parts.**
* **Use the black joint grease in the tube included in the wheel side boot set or wheel side joint assembly of spare parts.**



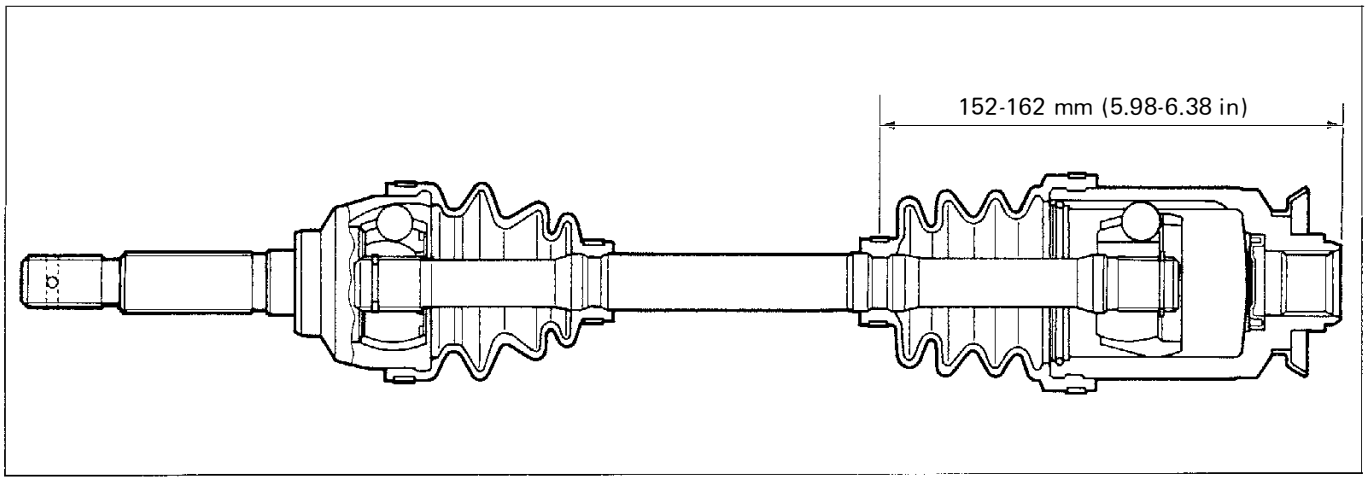


- Insert the cage into the outer race and fit a snap ring in the groove of the outer race.

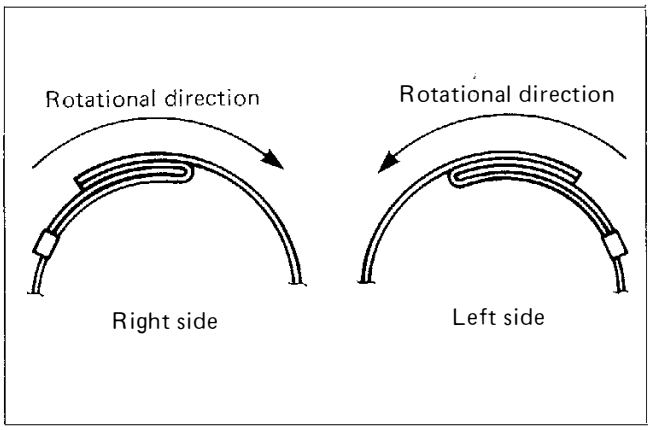
CAUTION:
Locate the opening of the snap ring ① so that the opening is not lined up with a ball.



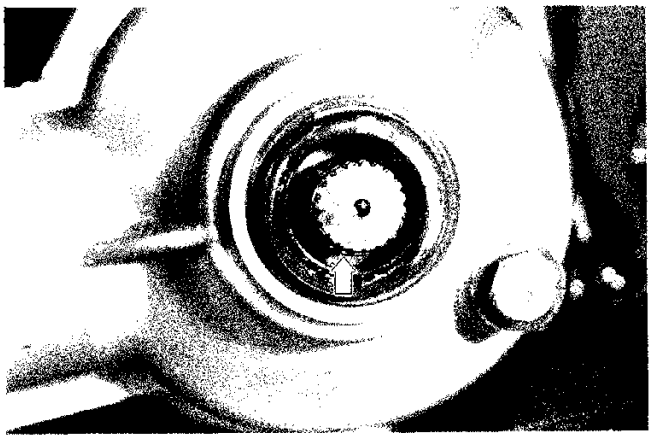
- After fitting the boot on the outer race, insert a driver into the boot on the outer race side and allow the air to enter the boot so that the air pressure in the boot becomes the same as the atmospheric pressure at the positions indicated in the illustration.



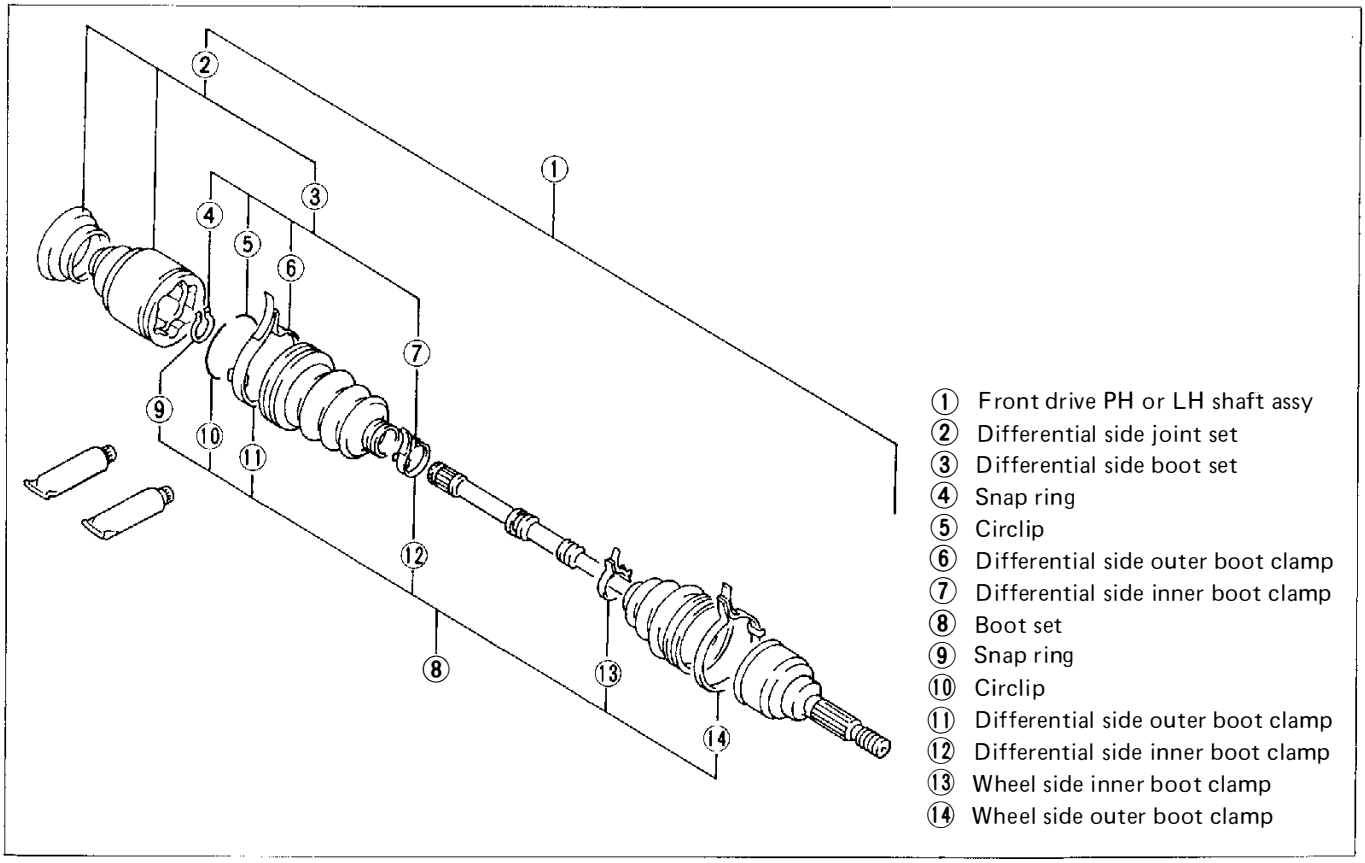
- Fix the boot on the outer race with a boot band, taking care not to distort the boot, as shown in the illustration.



- After installing the new ring on the shaft, reinstall the front drive axle shaft.



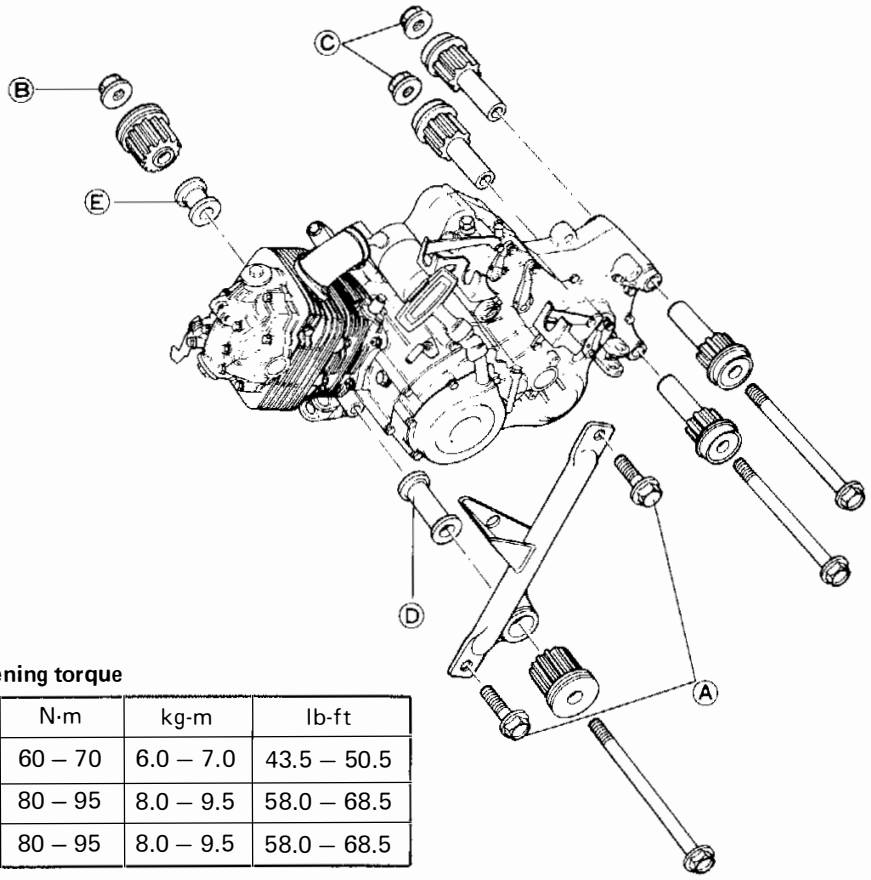
REASSEMBLY INFORMATION



FRONT WHEEL, FRONT SUSPENSION AND STEERING REASSEMBLING INFORMATION

ITEM	TIGTENING TORQUE			NOTE	
	N·m	kg-m	lb-ft	For US model	For other model
Wishbone arm pivot nut	40 – 60	4.0 – 6.0	29.0 – 44.0		
Steering knuckle arm pivot bolt	40 – 60	4.0 – 6.0	29.0 – 44.0	Thread Lock Super "1303 B" (99000 – 32020)	Thread Lock Super "1322" (99000-32110)

ENGINE MOUNTING BOLTS AND NUTS



Engine mounting bolt

	Diam.	Length
Ⓑ	12 mm	300 mm
Ⓒ	10 mm	190 mm

Tightening torque

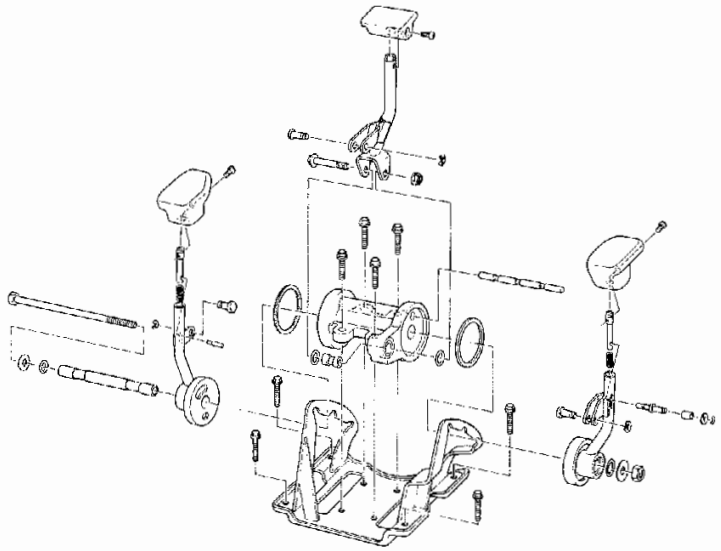
	N·m	kg-m	lb-ft
Ⓐ	60 – 70	6.0 – 7.0	43.5 – 50.5
Ⓑ	80 – 95	8.0 – 9.5	58.0 – 68.5
Ⓒ	80 – 95	8.0 – 9.5	58.0 – 68.5

Spacer length

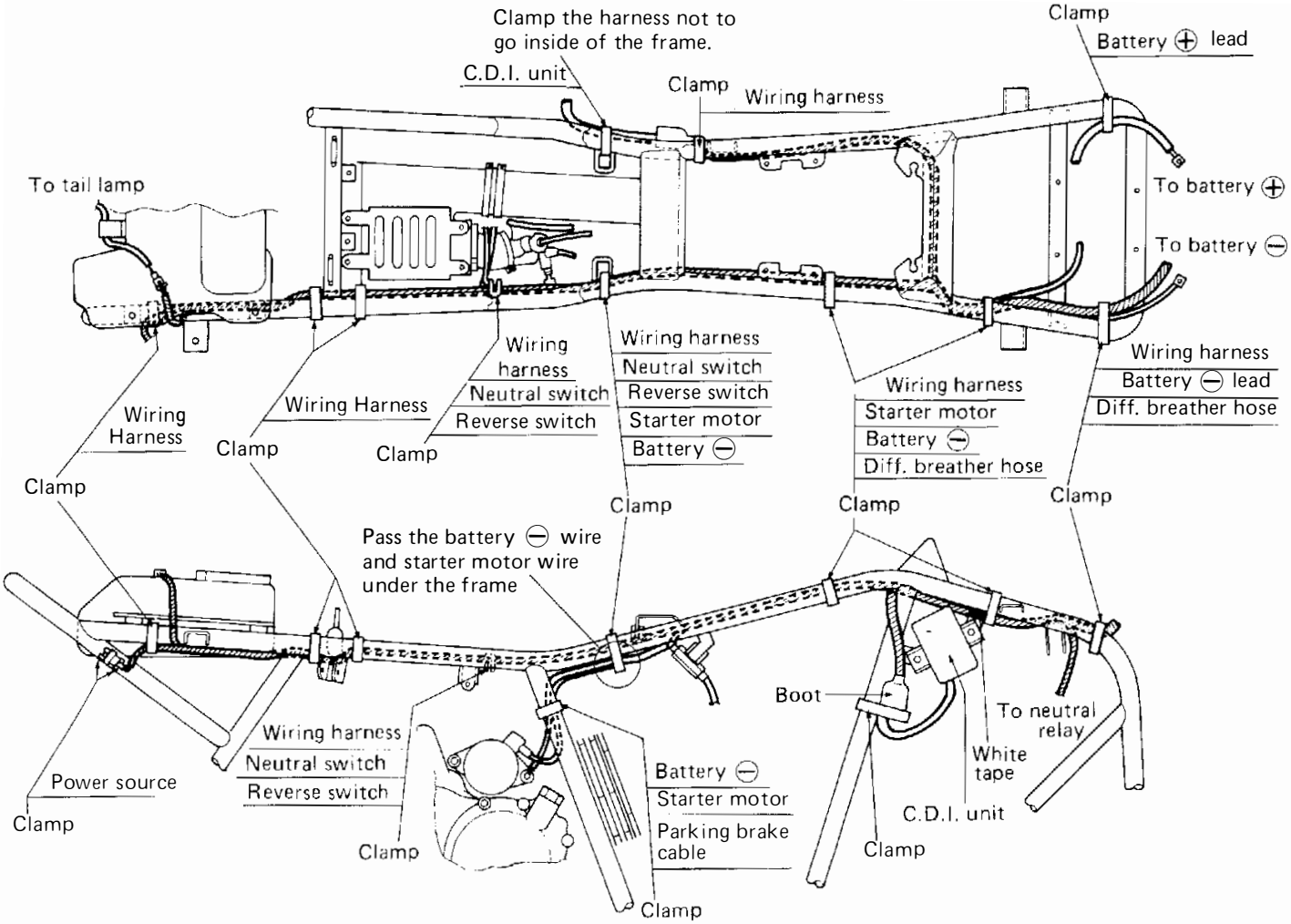
	Length
Ⓓ	60 mm
Ⓔ	13 mm

LEVER CASE

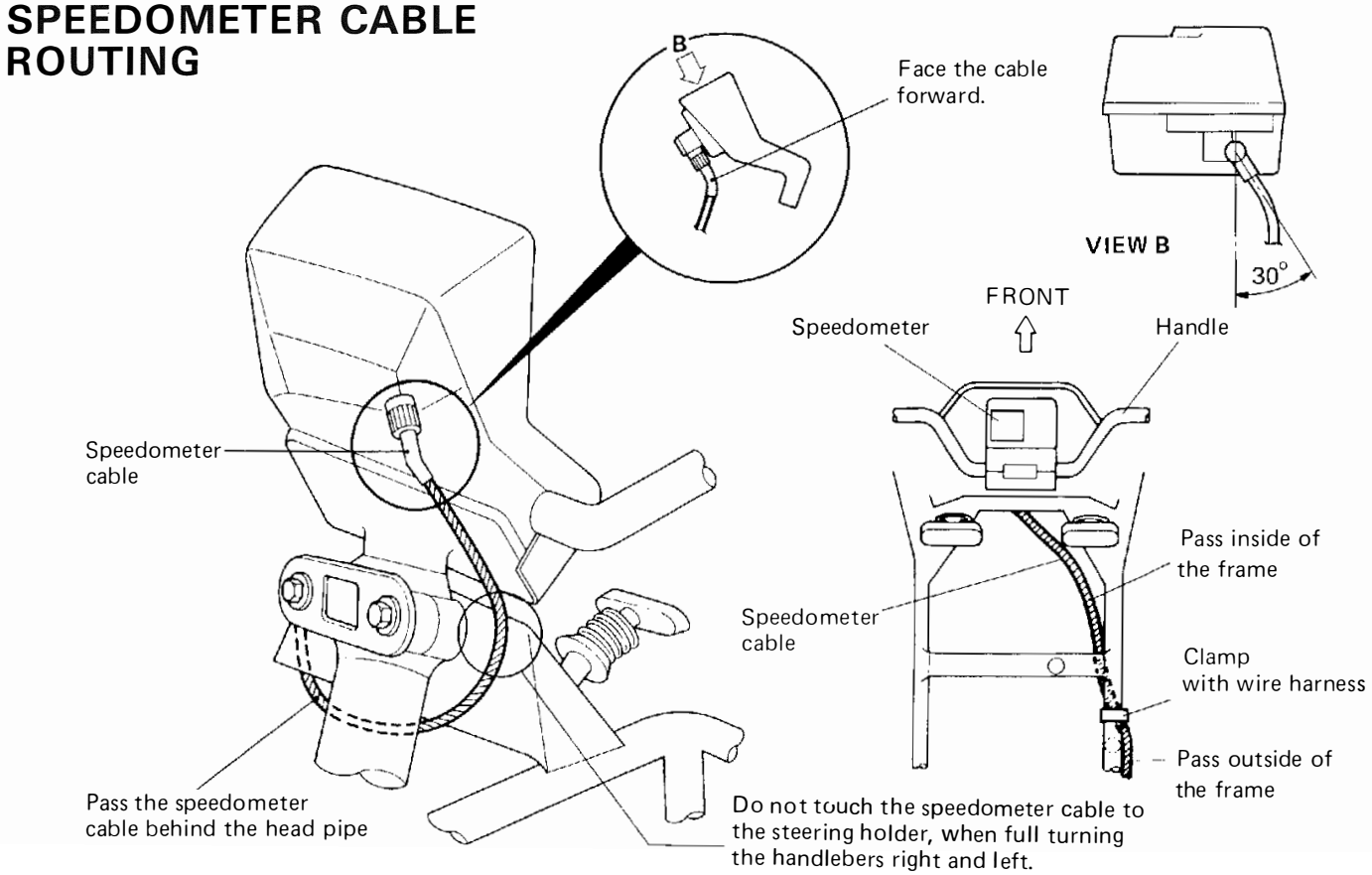
EXPLODED VIEW



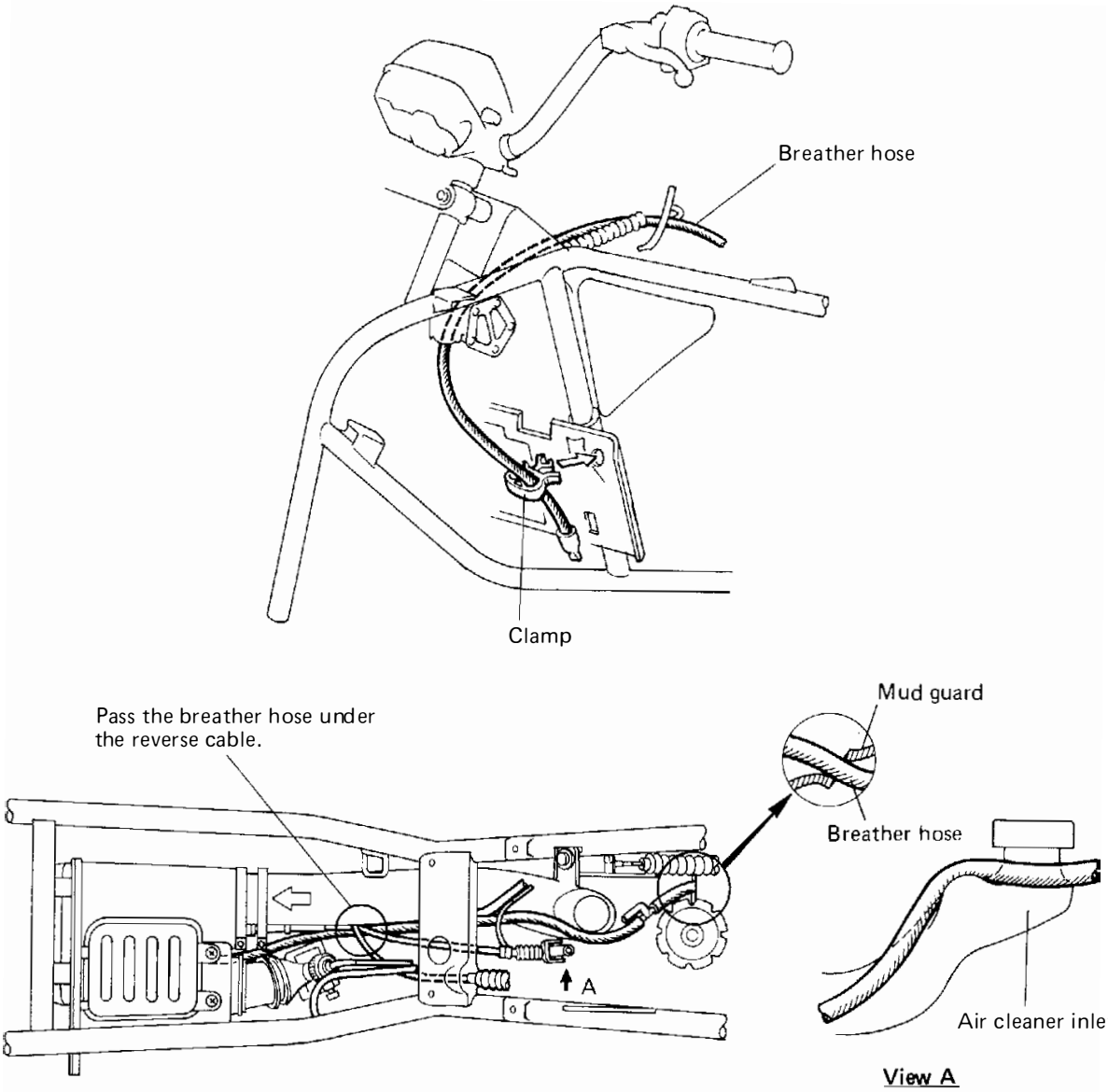
HARNESS ROUTING



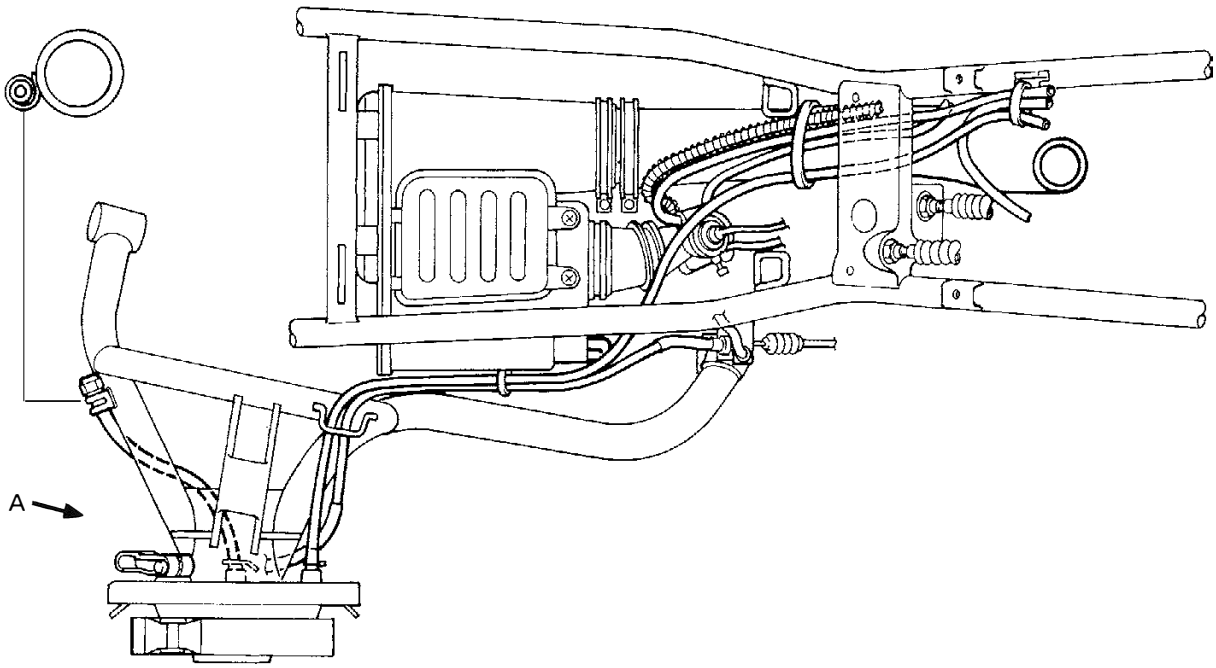
SPEEDOMETER CABLE ROUTING

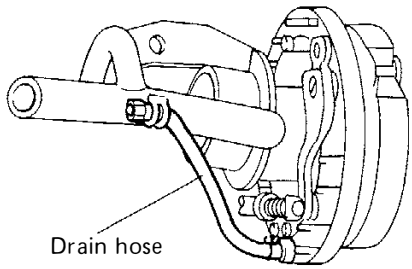


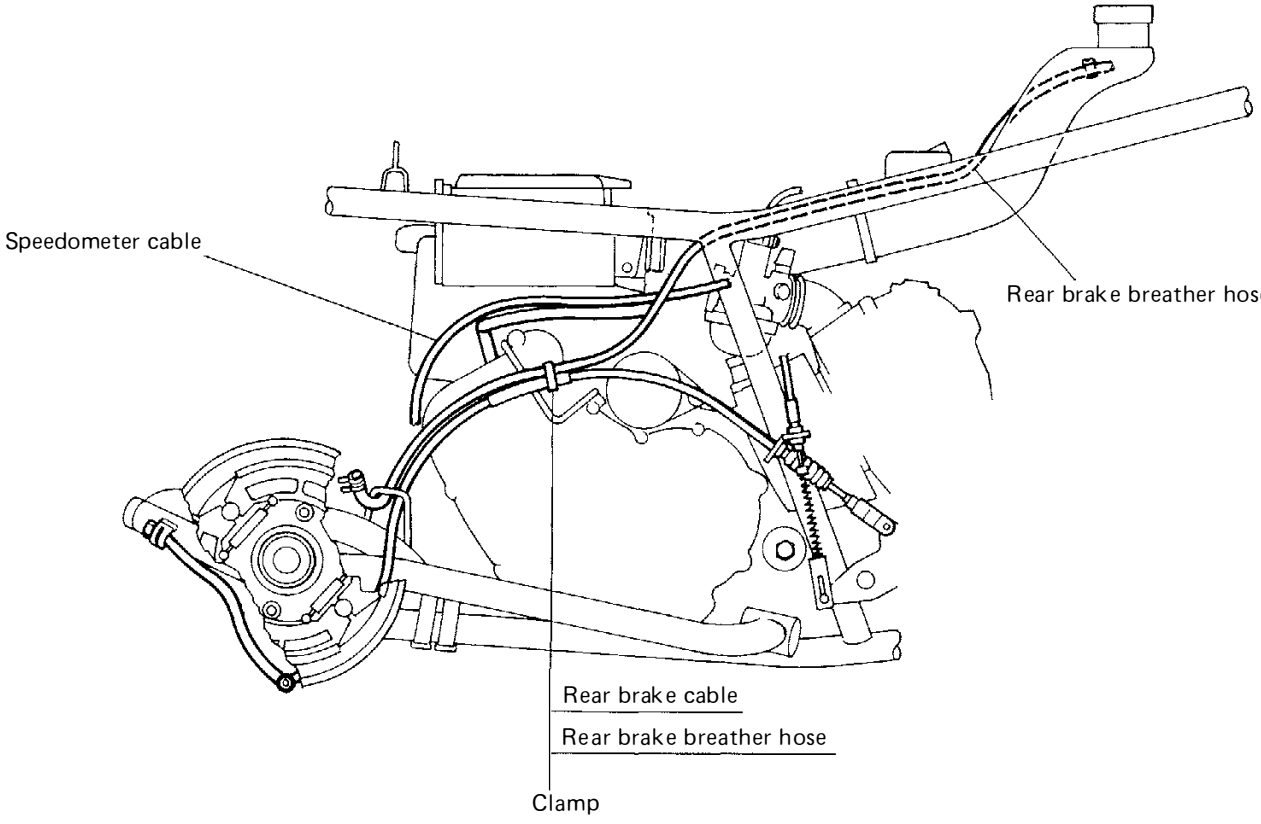
CRANKCASE BREATHER HOSE ROUTING



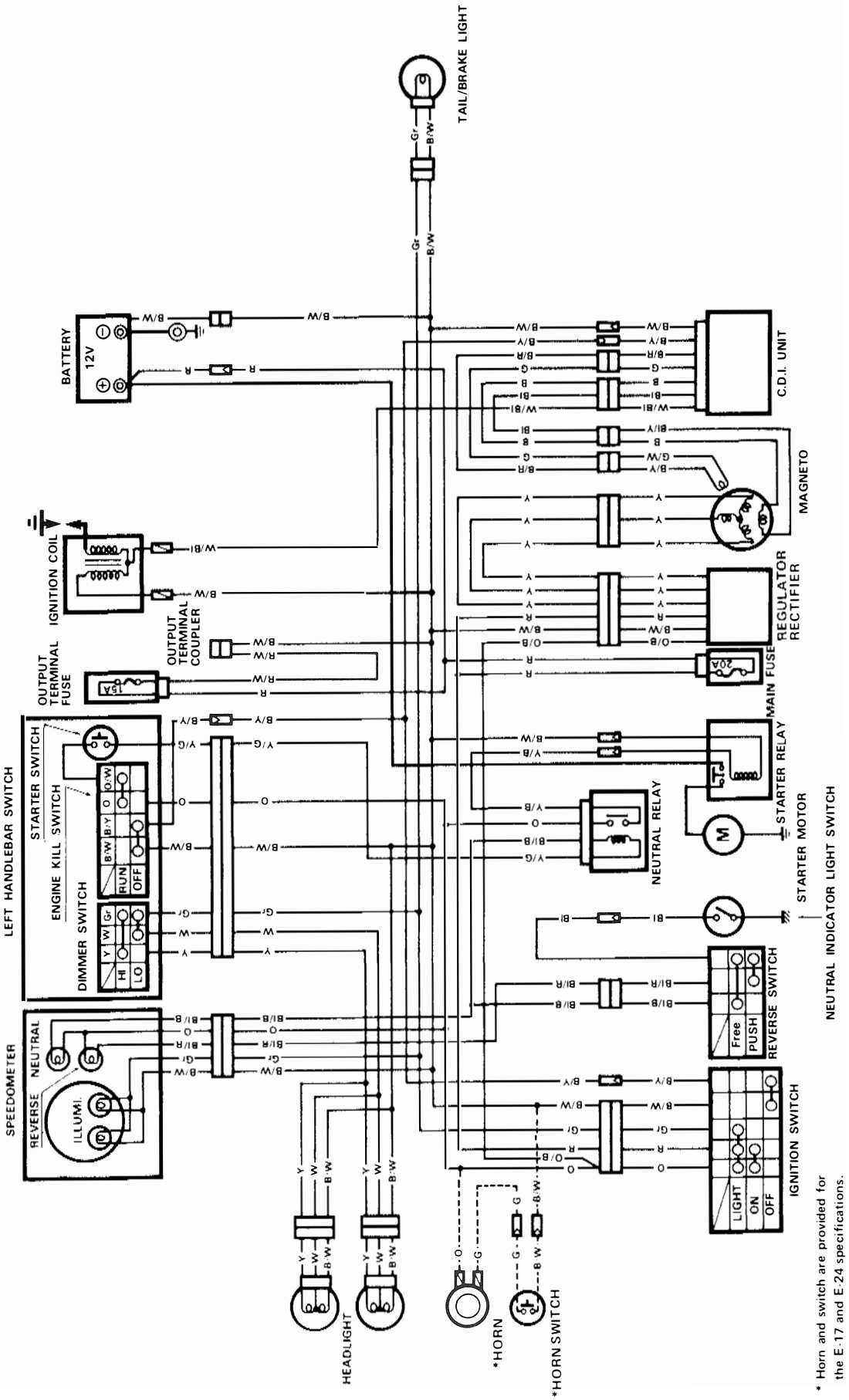
REAR BRAKE DRAIN HOSE AND BREATHER HOSE ROUTING







WIRING DIAGRAM



TIGHTENING TORQUE

ENGINE

ITEM		N·m	kg-m	lb-ft
Cylinder head cover bolt		8 – 10	0.8 – 1.0	6.0 – 7.0
De-compression shaft mounting nut		15 – 20	1.5 – 2.0	11.0 – 14.5
Camshaft sprocket bolt		10 – 12	1.0 – 1.2	7.0 – 8.5
Tensioner bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Tensioner cap bolt		7 – 9	0.7 – 0.9	5.0 – 6.5
Cylinder head nut	8 mm	21 – 25	2.1 – 2.5	15.0 – 18.0
	6 mm	7 – 11	0.7 – 1.1	5.0 – 8.0
Cylinder base nut		7 – 11	0.7 – 1.1	5.0 – 8.0
Recoil starter cup nut		30 – 35	3.0 – 3.5	21.5 – 25.5
Magneto rotor nut		145 – 175	14.5 – 17.5	105.0 – 126.5
First clutch shoe nut		110 – 130	11.0 – 13.0	79.5 – 94.0
Starter clutch bolt		23 – 28	2.3 – 2.8	16.5 – 20.0
Clutch sleeve hub nut		60 – 80	6.0 – 8.0	43.5 – 58.0
Clutch release arm bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
T.D.C. inspection plug		20 – 25	2.0 – 2.5	14.5 – 18.0
Oil pressure checking bolt		9 – 15	0.9 – 1.5	6.5 – 11.0
Oil pump mounting bolt		7 – 10	0.7 – 1.0	5.0 – 7.0
Engine oil drain plug	14 mm	20 – 25	2.0 – 2.5	14.5 – 18.0
	12 mm	18 – 23	1.8 – 2.3	13.0 – 16.5
Reverse switch		20 – 25	2.0 – 2.5	14.5 – 18.0
Reverse switch cam stopper bolt		20 – 25	2.0 – 2.5	14.5 – 18.0
Crankcase securing bolt	6 mm	9 – 13	0.9 – 1.3	6.5 – 9.5
	8 mm	20 – 24	2.0 – 2.4	14.5 – 17.5
Engine mounting bolt	10 mm	80 – 95	8.0 – 9.5	58.0 – 68.5
	12 mm	80 – 95	8.0 – 9.5	58.0 – 68.5
Exhaust pipe nut		9 – 12	0.9 – 1.2	6.5 – 8.5
Muffler connection bolt		18 – 23	1.8 – 2.3	13.0 – 16.5
Muffler mounting bolt		18 – 28	1.8 – 2.8	13.0 – 20.0
Gearshift arm stopper bolt		15 – 23	1.5 – 2.3	11.0 – 16.5
Gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Sub-transmission gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Reverse gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5

CHASSIS

ITEM	N·m	kg-m	lb-ft
Frame bridge bolt	60 – 70	6.0 – 7.0	43.5 – 50.5
Differential case filler cap	20 – 25	2.0 – 2.5	14.5 – 18.0
Differential case drain plug	20 – 25	2.0 – 2.5	14.5 – 18.0
Secondary drive gear nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Front drive bevel gear nut	110 – 130	11.0 – 13.0	79.5 – 94.0
Front drive output yoke nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Propeller shaft joint nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential case bolt	23 – 28	2.3 – 2.8	16.5 – 20.0
Driven bevel gear bearing case bolt	18 – 23	1.8 – 2.3	13.0 – 16.5
Drive bevel gear housing bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Differential gear case mounting nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential lock cam cover	8 – 12	0.8 – 1.2	6.0 – 8.5
Differential lock cam stopper	20 – 25	2.0 – 2.5	14.5 – 18.0
Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft holder bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft lower nut	38 – 60	3.8 – 6.0	27.5 – 43.5
Steering knuckle end bolt (Upper & Lower)	120 – 170	12.0 – 17.0	87.5 – 123.0
Steering knuckle arm end pinch bolt	44 – 66	4.4 – 6.6	32.0 – 47.5
Steering knuckle arm pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Tie-rod end nut	22 – 35	2.2 – 3.5	16.0 – 25.5
Tie-rod end pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Front shock absorber mounting nut	40 – 60	4.0 – 6.0	29.0 – 43.5
Wishbone arm pivot nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Front axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Front wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Front brake master cylinder mounting bolt	6 – 9	0.6 – 0.9	4.5 – 6.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Brake pipe nut	13 – 18	1.3 – 1.8	9.5 – 13.0
Brake air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
Front brake panel bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Front wheel cylinder bolt	10 – 13	1.0 – 1.3	7.0 – 9.5
Footrest bolt	40 – 50	4.0 – 5.0	29.0 – 36.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Rear wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Rear brake cam lever nut	8 – 12	0.8 – 1.2	6.0 – 8.5

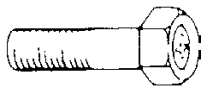
ITEM	N·m	kg-m	lb-ft
Rear brake drum cover bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Rear shock absorber mounting bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Rear suspension arm pivot bolt	50 – 70	5.0 – 7.0	36.0 – 50.5
Rear carrier bolt	30 – 40	3.0 – 4.0	21.5 – 29.0

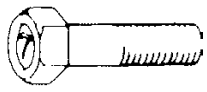
TIGHTENING TORQUE CHART

For other bolts and nuts not listed in the preceding chart, refer to the chart below.

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 – 40.0	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	194.0 – 137.5	200.0 – 280.0	20.0 – 28.0	144.5 – 202.5

Conventional bolt


"4" marked bolt


"7" marked bolt

LT-4WDK AND LT-F4WDK ('89-MODEL)

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NOTE
Please refer to the sections 1 through 11 for details which are not given in this section.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length		1 940 mm (76.4 in) For CANADA 2 060 mm (81.1 in) For U.S.A
Overall width		1 200 mm (47.2 in)
Overall height		1 055 mm (41.5 in)
Wheelbase		1 150 mm (45.3 in)
Ground clearance		200 mm (7.8 in)
Front track		800 mm (31.5 in)
Rear track		800 mm (31.5 in)
Seat height		755 mm (29.7 in)
Dry mass	LT-4WD	236 kg (520 lbs) For U.S.A. 233 kg (513 lbs) For CANADA
	LT-F4WD	238 kg (524 lbs)

ENGINE

Type		Four-stroke, air-cooled, OHC, TDCC
Number of cylinders		1
Bore		66.0 mm (2.598 in)
Stroke		72.0 mm (2.835 in)
Piston displacement		246 cm^3 (15.0 cu. in)
Compression ratio		8.5 : 1
Carburetor	Others	MIKUNI VM24SS, single
	Canada	MIKUNI BST31SS, single
Air cleaner		Polyurethane foam element
Starter system		Electric and recoil starter
Lubrication system		Wet sump

TRANSMISSION

Clutch	Wet multi-plate, aut-matic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-subtransmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (171/16)
Sub-transmission, Super Low Low High	3.176 (17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1,933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	5° B.T.D.C below 1 800 r/min. and 35° B.T.D.C. above 3 800 r/min.
Spark plug	N.G.K.: D7EA...For U.S.A. N.G.K.: DR7ES...For CANADA
Batery	12V 50.4KC (14Ah)/ 10HR...For U.S.A. 12V 72 kC (20 Ah)/ 10HR...For CANADA
Headlight	12V 30W × 2pcs.
Taillight	12V 5W

CHASSIS

Front suspension	Independent, duble wishbone, oil damped spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped spring preload 5-way adjustable
Steering angle	Inside 43°48' Outside 29°12'
Caster	3°30'
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydi-raulieally operated
Rear brake	Internal expanding, mechanically operated
Front tire size	22 × 8.00 – 10 (× 2)
Rear tire size	25 × 12.00 – 10 (× 2)
Front wheel travel	85 mm (3.3 in)
Rear wheel travel	95 mm (3.7 in)

CAPACITIES

Fueltank including	reserve	12.0 L (3.2/2.6 US/Imp gal)
	reserve	2.0 L (2.11/1.8 US/Imp gt)
Engine oil, oil change		3.5 L (3.7/3.1 US/Imp qt)
	filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gearoil		150 ml (5.07/5.28 US/Imp oz)

These specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	———
	EX.	28 (1.1)	———
Valve lift	IN.	7.5 (0.30)	———
	EX.	6.5 (0.26)	———
Valve clearance (when cold)	IN	0.03—0.08 (0.001—0.003)	———
	EX.	0.08—0.13 (0.003—0.005)	———
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	0.35 (0.014)
	EX.	0.030—0.057 (0.0012—0.0024)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	———
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	———
	EX.	5.455—5.470 (0.2148—0.2154)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	IN. & EX.	———	41.0 (1.68)
Valve spring tension (IN. & EX.)	24.1—29.3 kg (53.1—64.6 lbs) at length 36.8 mm (1.45 in)		———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.780—33.820 (1.3299—1.3315)	33.480 (1.3181)
	EX.	32.990—33.030 (1.2988—1.3004)	32.690 (1.2870)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)
Camshaft journal holder I.D.	20.012—20.025 (0.8666—0.8671)		———
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)		———

ITEM	STANDARD		LIMIT
Camshaft runout	———		0.10 (0.004)
Cam chain 20-pitch length	———		129.0 (5.08)
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.	IN. & EX.	11.977—11.995 (0.4715—0.4722)	———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	1 000—1 400 kPa (10—14 kg/cm²) (142—199 psi)			800 kPa (8 kg/cm²) (114 psi)
Piston to cylinder clearance	0.040—0.050 (0.0016—0.0020)			0.120 (0.0047)
Cylinder bore	66.000—66.015 (2.5984—2.5990)			66.090 (2.6020)
Piston diam.	65.955—65.970 (2.5966—2.5972) Measure at 18 (0.71) from the skirt end.			65.880 (2.5937)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 7.5 (0.30)	6.0 (0.24)
	2nd	R	Approx. 9.0 (0.35)	7.2 (0.28)
Piston ring end gap	1st & 2nd		0.10—0.25 (0.004—0.0010)	0.70 (0.028)
Piston ring to groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.01—1.03 (0.040—0.041)	———
	2nd		1.22—1.24 (0.048—0.049)	———
	Oil		2.01—2.03 (0.079—0.080)	———
Piston ring thickness	1st		0.97—0.99 (0.038—0.039)	
	2nd		1.17—1.19 (0.046—0.047)	
Piston pin bore	16.002—16.008 (0.6300—0.6302)			16.030 (0.6311)
Piston pin O.D.	15.996—16.000 (0.6298—0.6299)			15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD		LIMIT
Conrod small end I.D.	16.006—16.014 (0.6302—0.6305)		16.040 (0.6315)
Conrod deflection	———		3.0 (0.12)
Conrod big end side clearance	0.10—0.45 (0.004—0.018)		1.00 (0.039)
Conrod big end width	17.95—18.00 (0.707—0.709)		———
Crank web to web width	53.0 ± 0.1 (2.087 ± 0.004)		———
Crankshaft runout	at left side	———	0.05 (0.002)
	at right side	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	———
Oil pressure (at 60°C, 140°F)	Above 30 kPa (0.30 kg/cm^2, 4.3 psi) Below 70 kPa (0.70 kg/cm^2, 10.0 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	1/8 turn back	———
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ ($4.567 \pm {}^{0.006}_{0}$)	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.250 (65/20)	———
Final reduction ratio	Front	3.284 (17/16 × 34/11)	———
	Rear	3.647 (62/17)	———

ITEM		STANDARD	LIMIT
Sub-transmission reduction ratio	Super low	3.176 (17/18 × 25/11 × 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 × 18/17 × 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reverse	2.833 (29/12 × 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork to groove clearance		0.05—0.25 (0.002—0.010)	0.05 (0.020)
Reverse fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2, No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.10 (0.157—0.161)	———
Shift fork thickness	No.1, No.2, No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Shift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg·cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

CARBURETOR

ITEM	SPECIFICATION	
	Others	Canada
Carburetor type	MIKUNI VM24SS	MIKUNI BST31SS
Bore size	24 mm (0.94 in)	31 mm (1.22 in)

ITEM		SPECIFICATION	
		Others	Canada
I.D. No.		19B02	19B50
Idle r/min.		1 400±50 r/min.	←
Float height		24.5±1.0 mm (0.96±0.04 in)	13±0.5 mm (0.51±0.02 in)
Main jet	(M.J.)	#100	#120
Main air jet	(M.A.J.)	1.0 mm (0.04 in)	0.6 mm (0.02 in)
Jet needle	(J.N.)	5L21-3rd	5D40-3th
Needle jet	(N.J.)	O-1	P-4
Cut-away	(C.A.)	1.5	
Throttle valve	(Th.V.)		#125
Pilot jet	(P.J.)	#22.5	#42.5
By-pass	(B.P.)	0.8 mm (0.03 in)	←
Pilot outlet	(P.O.)	0.7 mm (0.028 in)	0.8 mm (0.031 in)
Valve seat	(V.S.)	1.2 m (0.05 in)	1.5 mm (0.06 in)
Starter jet	(G.S.)	#30	#50
Pilot screw	(P.S.)	PRE-SET (1 3/4 turns back)	PRE-SET (2.0 turns back)
Pilot air jet	(P.A.J.)	1.5 mm (0.006 in)	#160
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)	←

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	5° B.T.D.C. Below 1 800 ± 100 r/min. and 35° B.T.D.C. Above 3 800 ± 100 r/min.		
Spark plug	Type	NGK: D7EA	For Australia and U.S.A.
		NGK: DR7ES	For Others
	Gap	0.6—0.7 (0.024—0.028)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	⊕ tap— ⊖ tap 0—0.5 Ω	
	Secondary	Plug cap— ⊕ tap 10—16 kΩ	
Generator coil resistance	Pick-up	B/Y—G/W 90—140 Ω	
	Power source	B—Bl/Y 105—160 Ω	
	Charging	Y—Y 0.1—1.0 Ω	
Generator no-load voltage	More than 55 V (AC) at 5 000 r/min.		
Generator no-load voltage (When engine is cold)	More than 55 V (AC) at 5 000 r/min.		
Regulated voltage	14.0—15.5 V at 5 000 r/min.		
Starter motor brush length	Limit: 6 (0.24)		MITSUBA
Commutator under-cut	Limit: 0.2 (0.008)		
Starter relay resistance	3—7 Ω		

ITEM		SPECIFICATION	NOTE
Battery	Type designation	FB14A-A2	For U.K. and U.S.A.
	Capacity	12V 50.4 kC (14 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
	Type designation	Y50 N18A-A	For Others
	Capacity	12V 72 kC (20 Ah/10 HR)	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	Main	20 A	
	Power source	15 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION	
		For Sweden	For others
Headlight	HI	35 × 2 pcs.	30 × 2 pcs.
	LO	36.5 × 2 pcs.	30 × 2 pcs.
Taillight		5	←
Speedometer light		3.4 × 2 pcs.	←
Reverse indicator light		3.4	←
Neutral indicator light		3.4	←

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake cable play	3—7 (0.1—0.3)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Rear brake pedal height	0 (Zero)		———
Brake drum I.D.	Front	———	165.7 (6.52)
	Rear	———	165.7 (6.52)
Brake lining thickness	———		1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	———
Master cylinder piston diam.	Front	13.957—13.984 (0.5495—0.5506)	———
Steering angle	Inside	38° ± 3°	———
	Outside	28° ± 3°	———
Turning radius	2.9 m (9.5 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	1°		
Kingpin inclination	12°		———
Caster	3°30′		———

ITEM	STANDARD		LIMIT
Tire size	Front	22 × 8.00-10	———
	Rear	25 × 12.00-10	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE
LT-4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80—172 kg (175—380 lbs)
REAR	20	0.20	2.9	

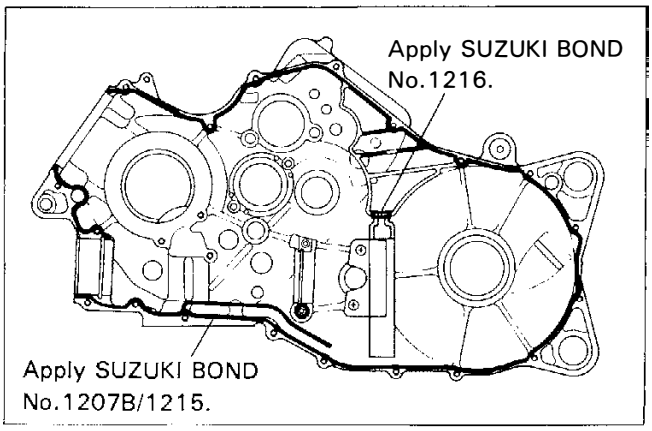
VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

FUEL + OIL

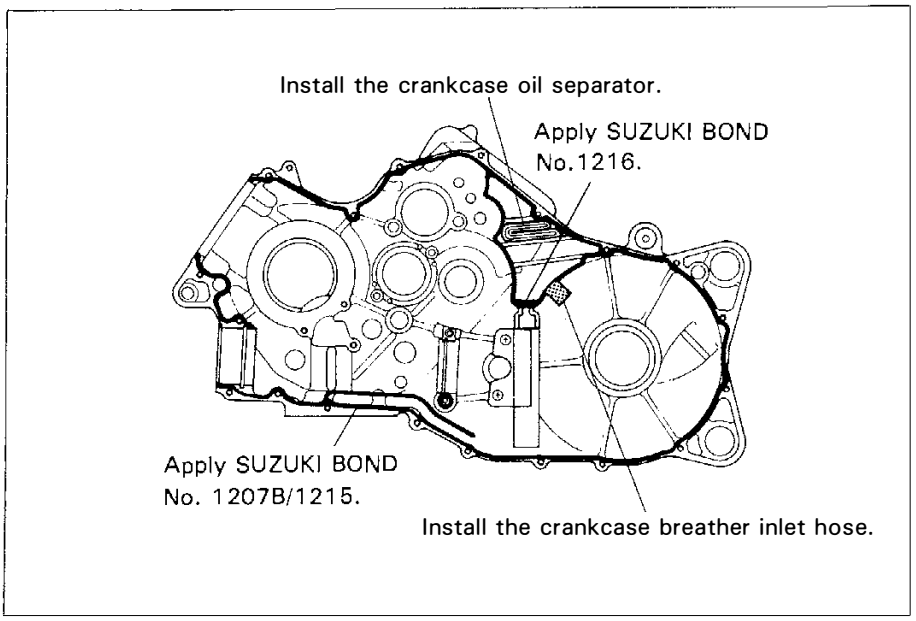
ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded type gasoline of at least 85-95 pump octane ($\frac{R+M}{2}$) or 89 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		For U.S.A.
	Use only unleaded or low-lead type gasoline of at least 85-95 pump octane ($\frac{R+M}{2}$ method) or 89 octane or higher rated by the Research Method.		For Canada
	Gasoline used should be graded 85-95 octane or higher. An unleaded or low-lead type gasoline is recommended.		For Others
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (2.1/1.8 US/Imp gal)		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	
Differential gear oil type	Hypoid gear oil SAE#90, API grade GL-5		
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)		
Brake fluid type	DOT3 or DOT4		For U.S.A.
	DOT3, DOT4 or SAE J1703		For Canada

CHANGES

CRANKCASE



LT-4WDJ AND LT-4WDJ



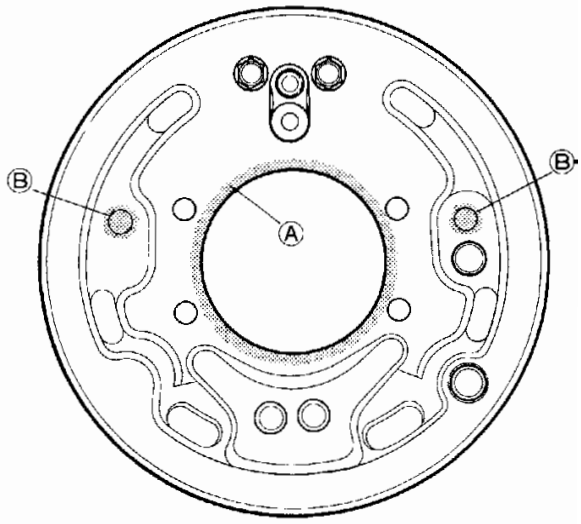
LT-4WDK AND LT-F4WDK

- Apply SUZUKI BOND No.1216 to the blowby gas pipe mating surfaces of the right and left crankcase as indicated in the figure.

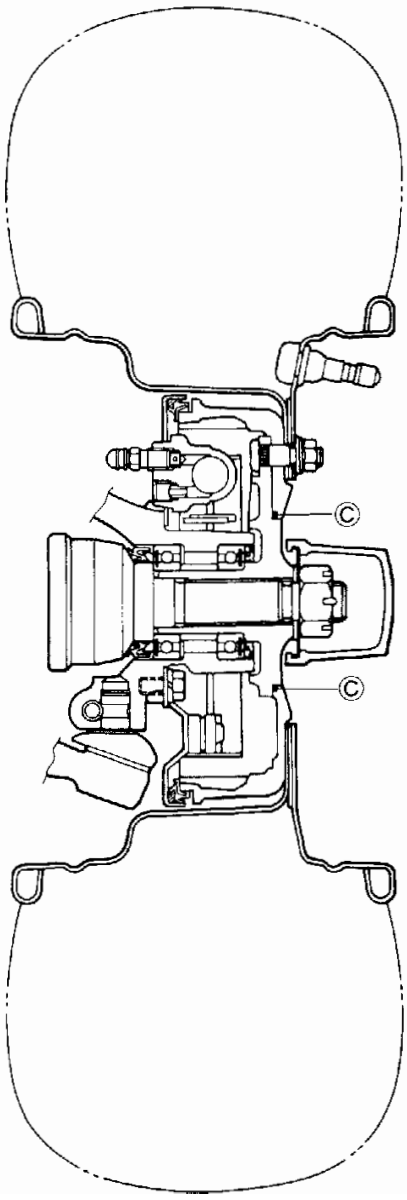
99104-31160 For U.S. model	SUZUKI BOND No.1216
99000-31160 For other models	SUZUKI BOND No.1216

Ⓐ Apply Suzuki Bond No.1216 all around the center bore of the brake back plate and install the brake assembly to the steering knuckle.

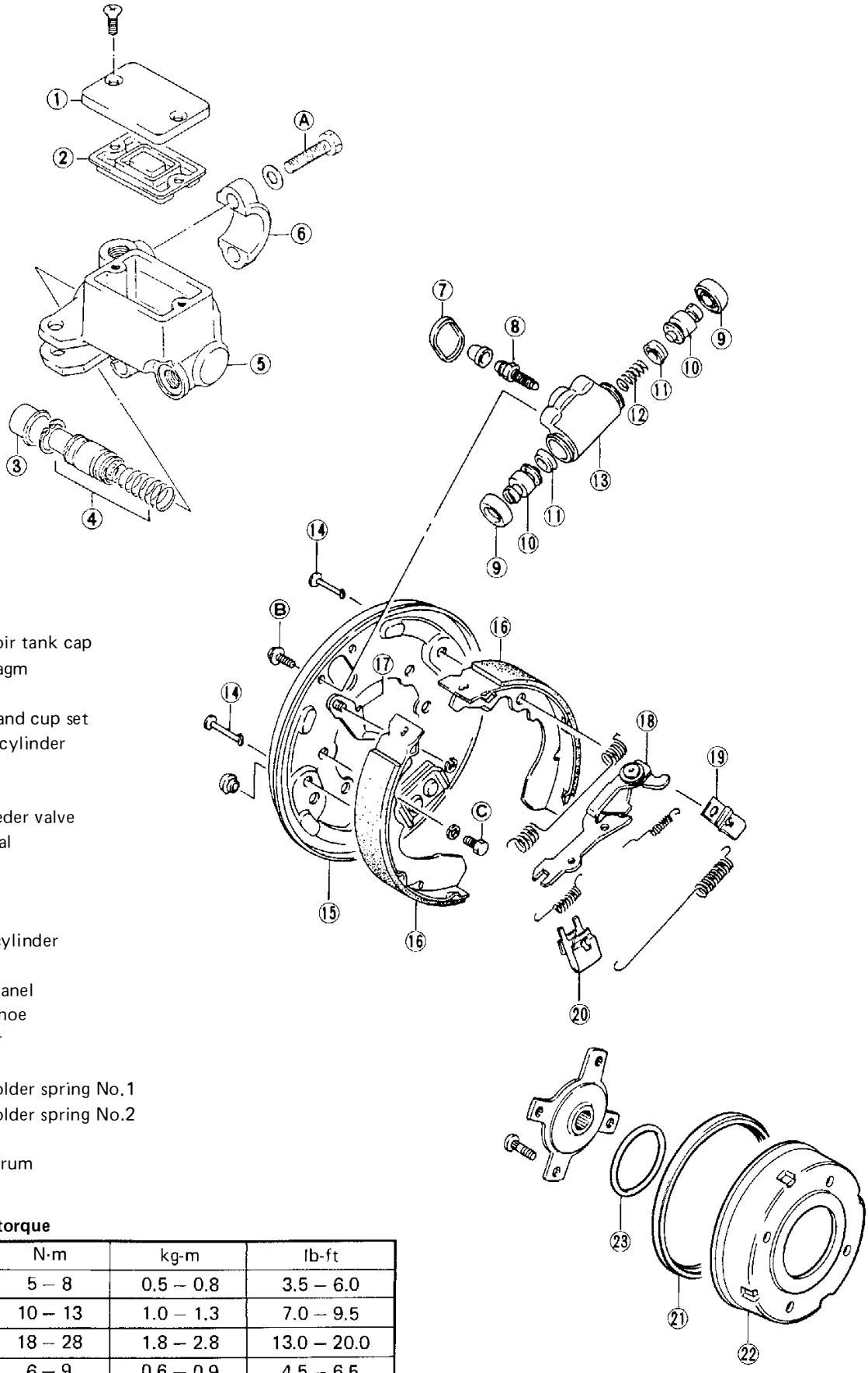
Ⓑ When the hold down pin is turned or removed due to brake shoe replacement or other disassembly work, be sure to throughly clean off the sealant at the hold down pin. And after relocating the pin properly, reseal it with Suzuki Bond No.1216 so that there is no clearance between the pin head and brake back plate.



Ⓒ Install the new O-ring.



FRONT BRAKE

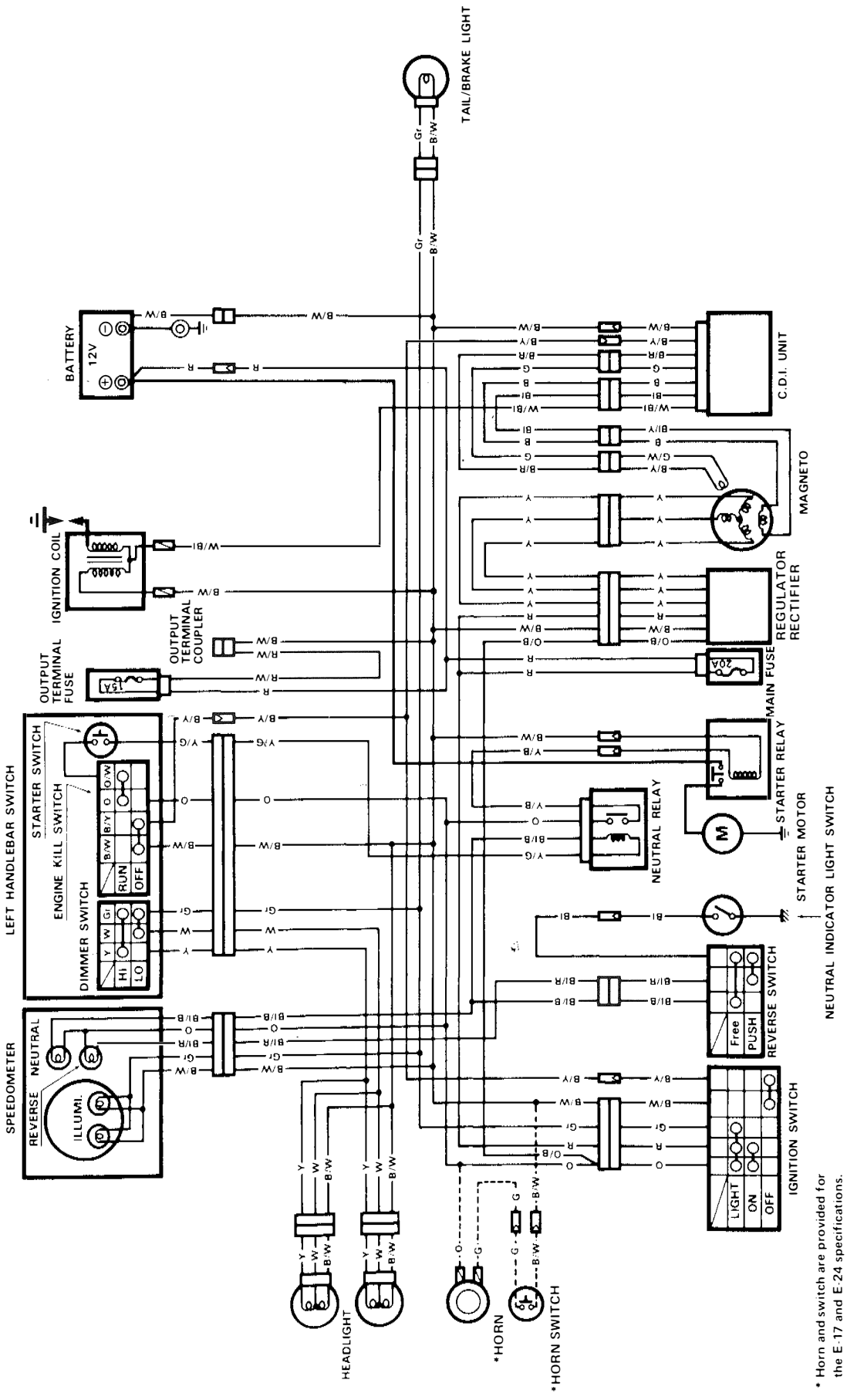


① Reservoir tank cap
② Diaphragm
③ Boot
④ Piston and cup set
⑤ Master cylinder
⑥ Clamp
⑦ Gasket
⑧ Air bleeder valve
⑨ Dust seal
⑩ Piston
⑪ Cup
⑫ Spring
⑬ Wheel cylinder
⑭ Pin
⑮ Brake panel
⑯ Brake shoe
⑰ Stopper
⑱ Strut
⑲ Shoe holder spring No.1
⑳ Shoe holder spring No.2
㉑ O-ring
㉒ Brake drum
㉓ O-ring

Tightening torque

Item	N·m	kg-m	lb-ft
Ⓐ	5 – 8	0.5 – 0.8	3.5 – 6.0
Ⓑ	10 – 13	1.0 – 1.3	7.0 – 9.5
Ⓒ	18 – 28	1.8 – 2.8	13.0 – 20.0
⑧	6 – 9	0.6 – 0.9	4.5 – 6.5

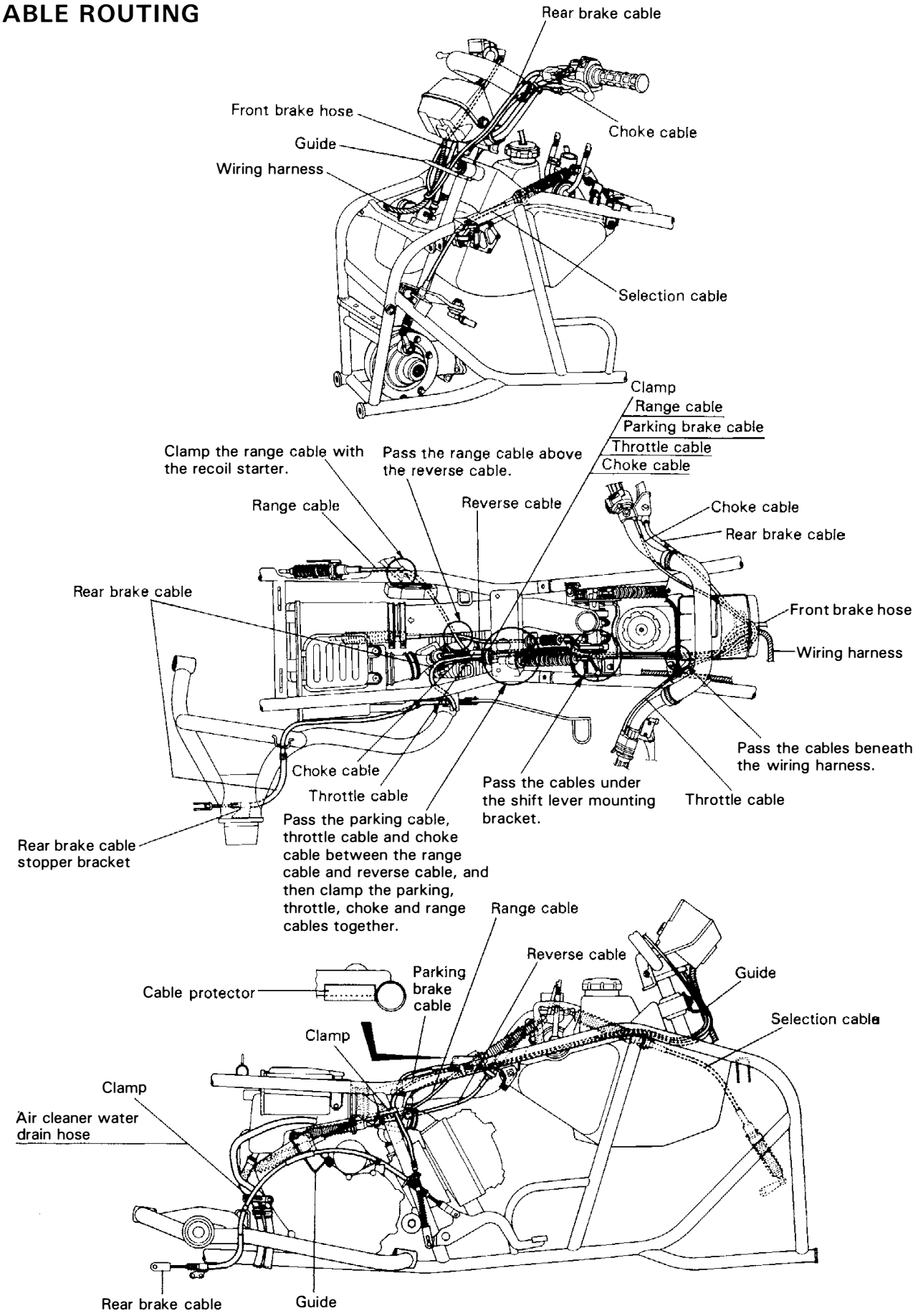
WIRING DIAGRAM



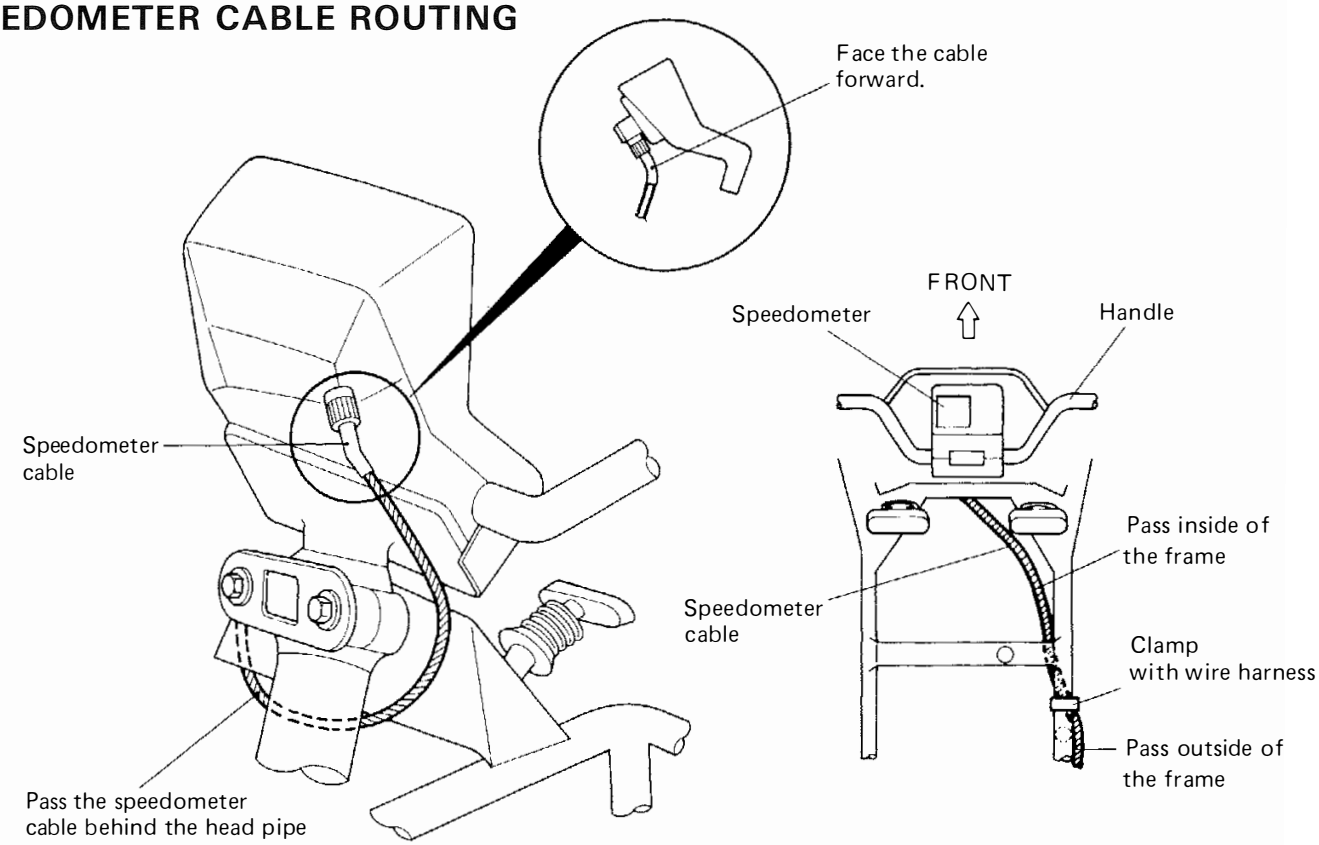
* Horn and switch are provided for the E-17 and E-24 specifications.

CABLE, HARNESS AND HOSE ROUTING

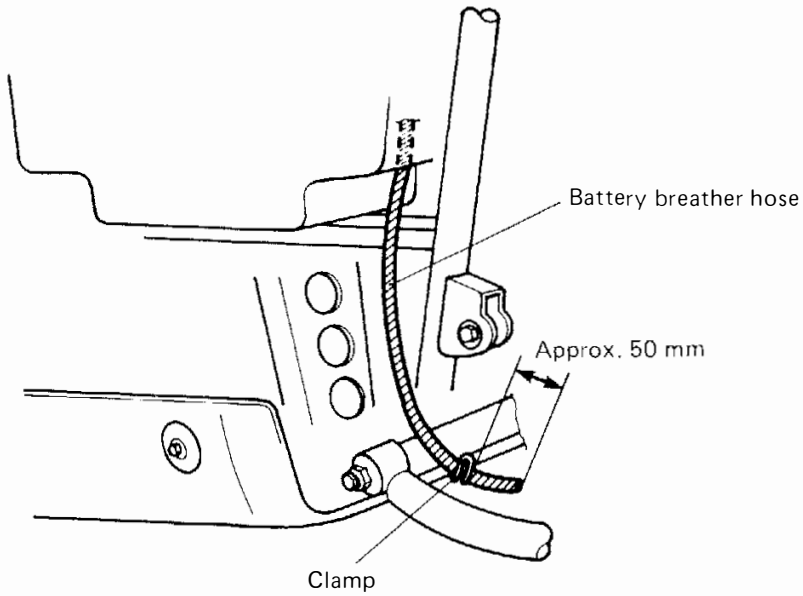
CABLE ROUTING



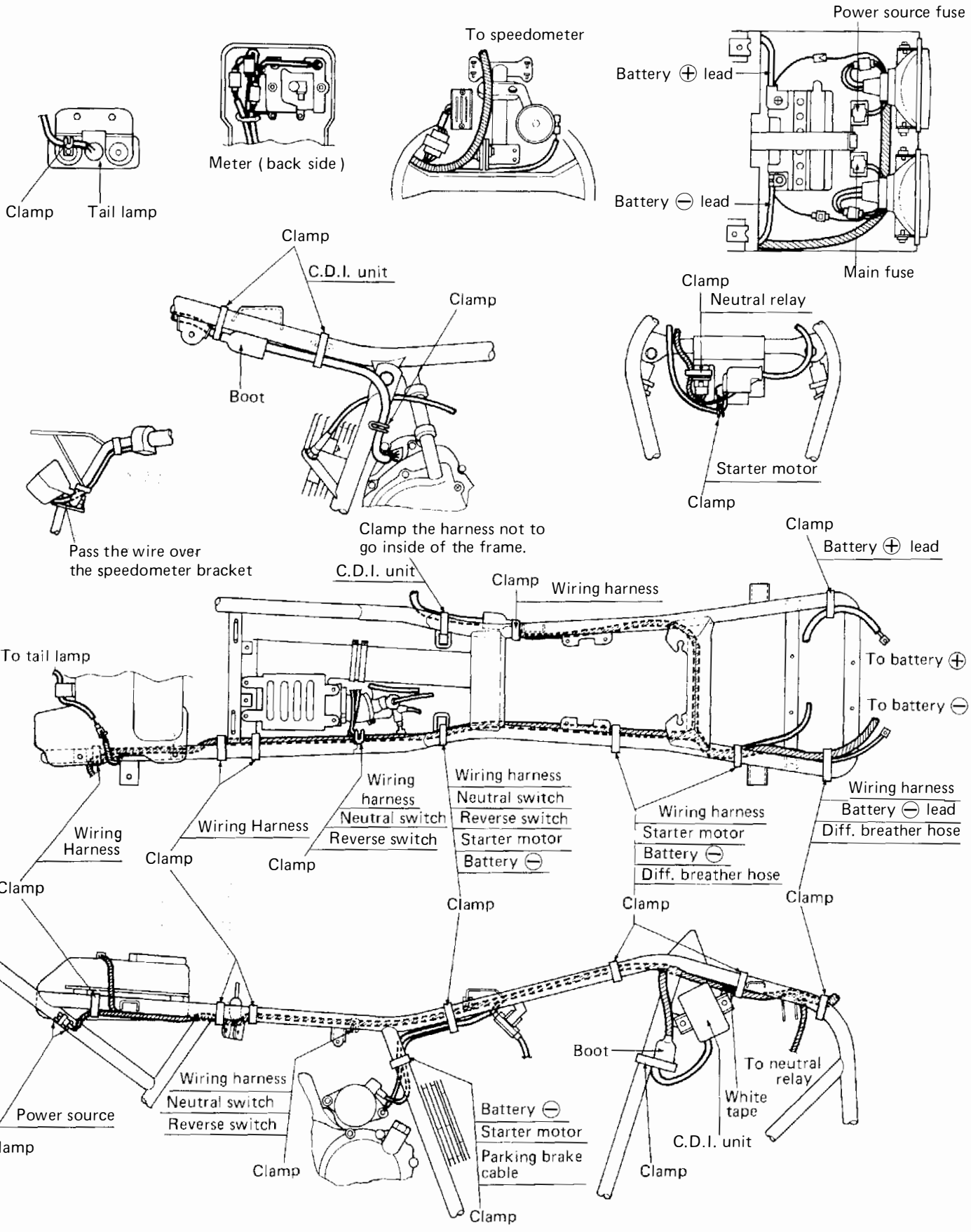
SPEEDOMETER CABLE ROUTING



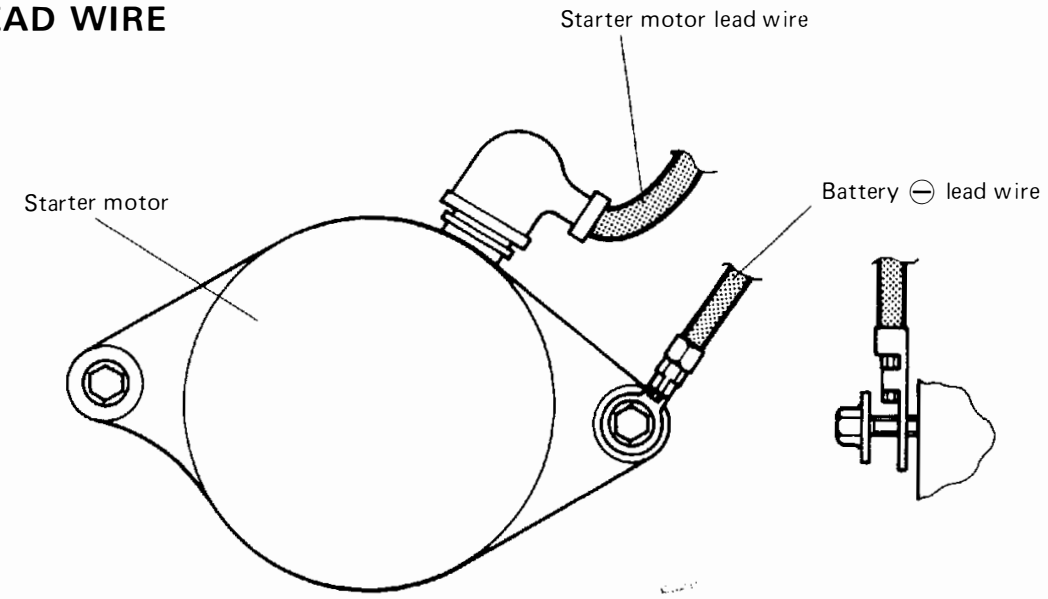
BATTERY BREATHER HOSE ROUTING



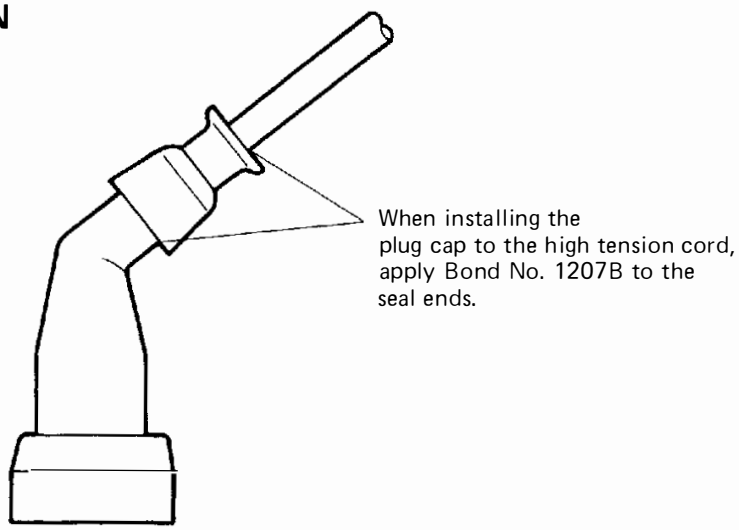
HARNESS ROUTING



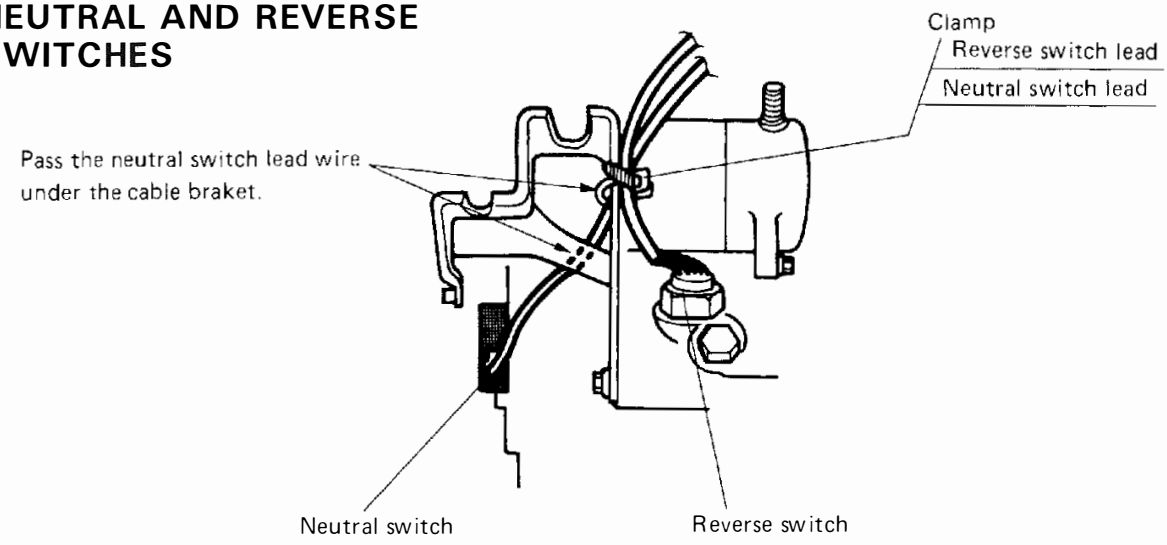
BATTERY ⊖ LEAD WIRE



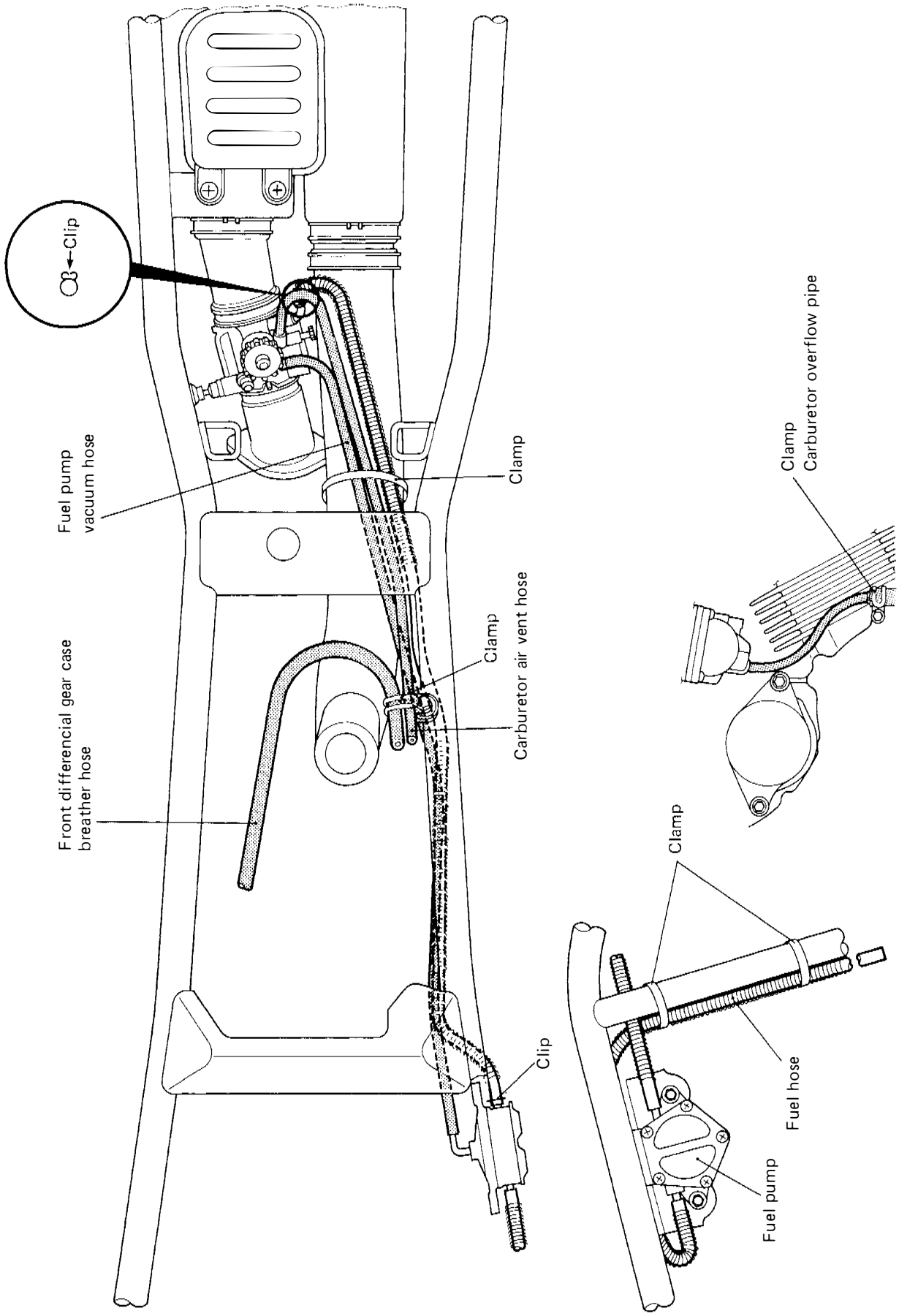
PLUG CAP INSTALLATION



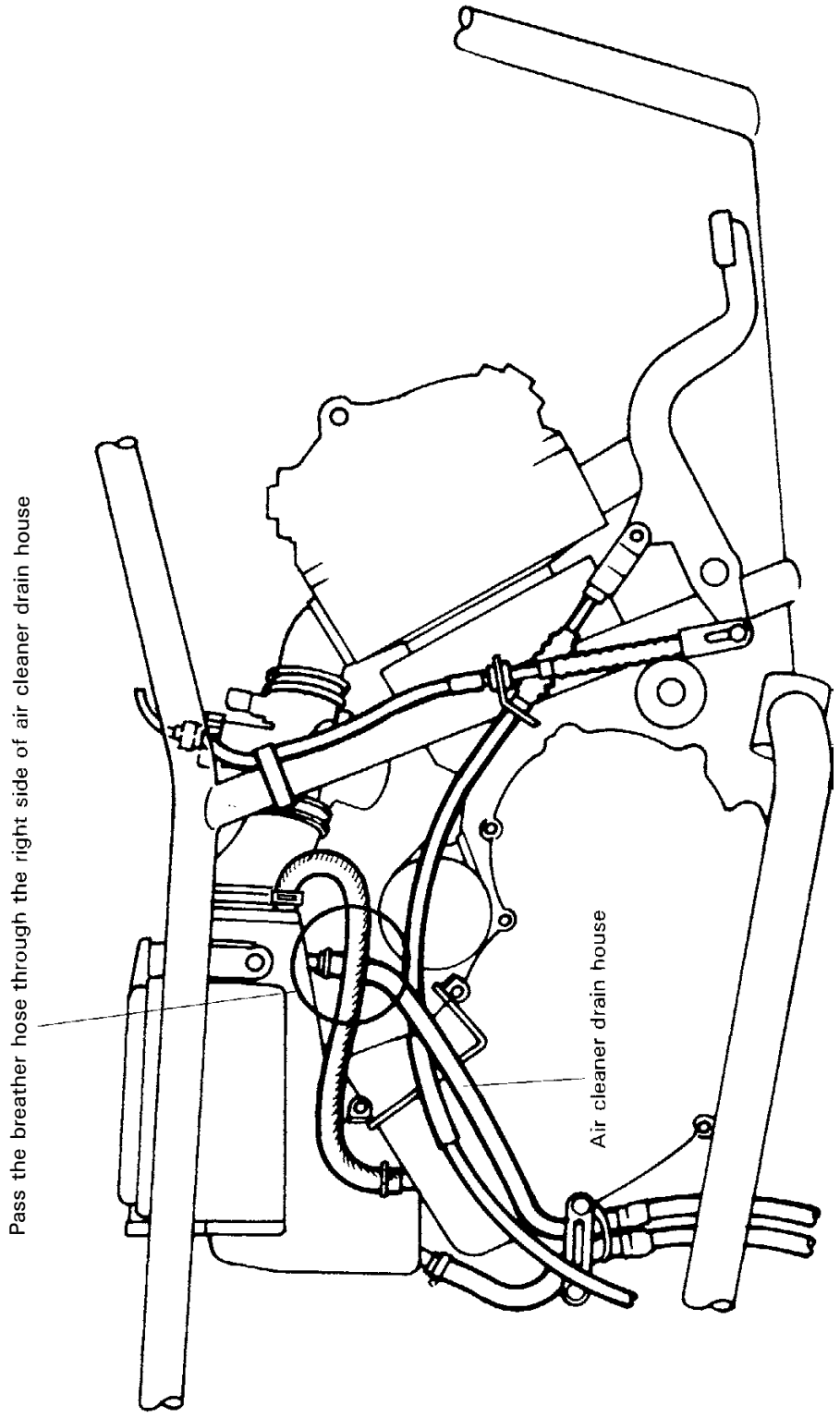
NEUTRAL AND REVERSE SWITCHES



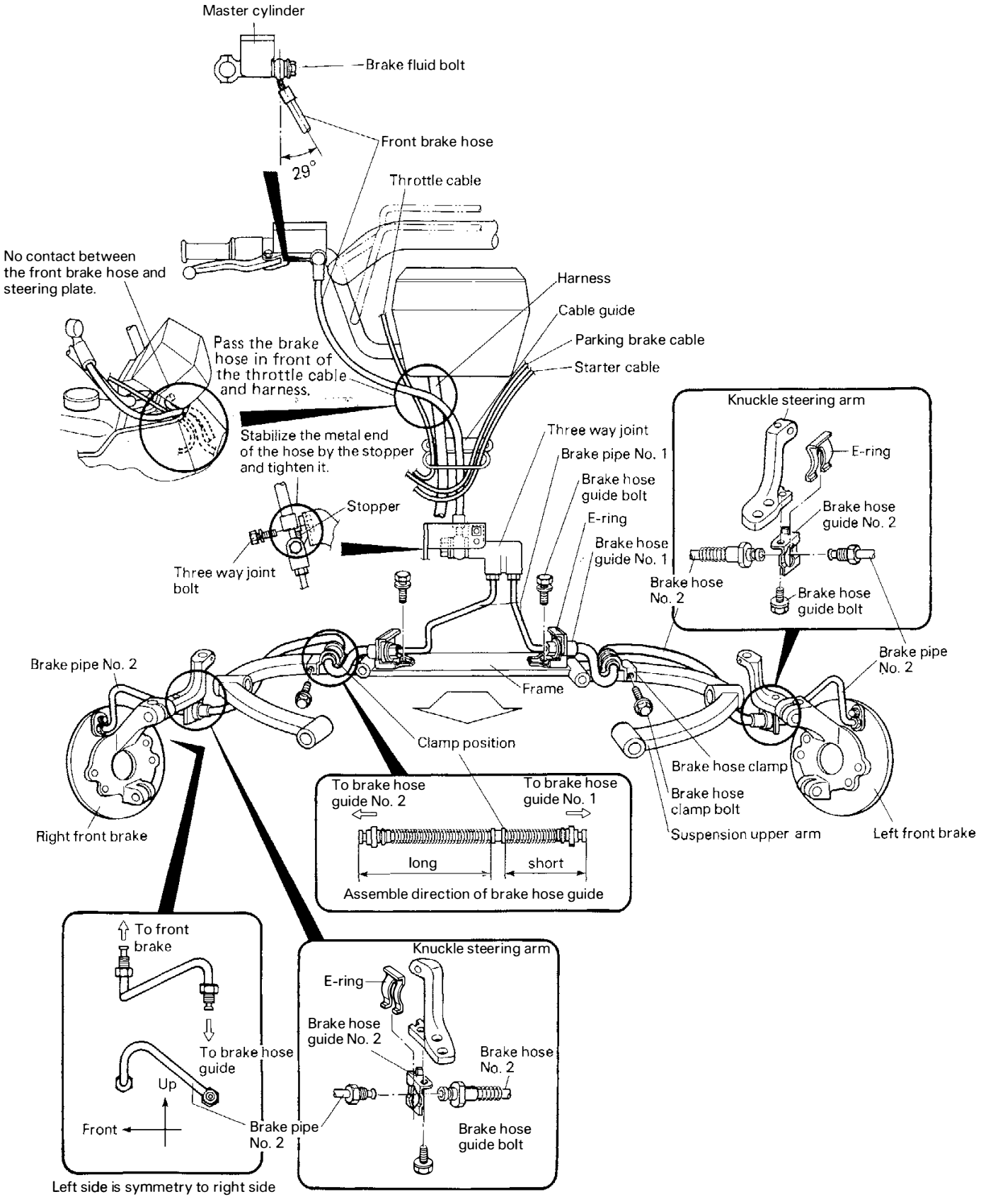
HOSE ROUTING



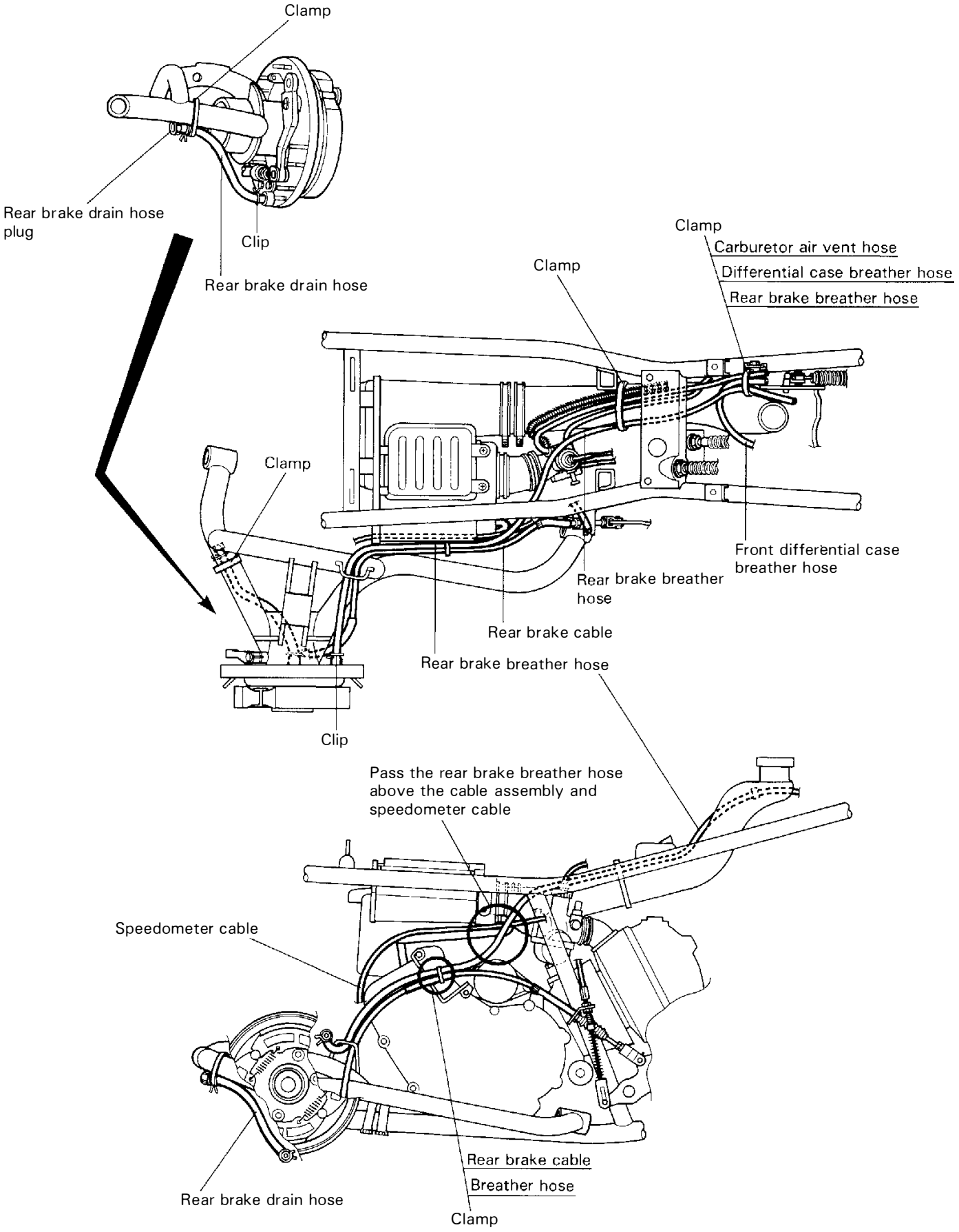
CRANKCASE BREATHER HOSE ROUTING



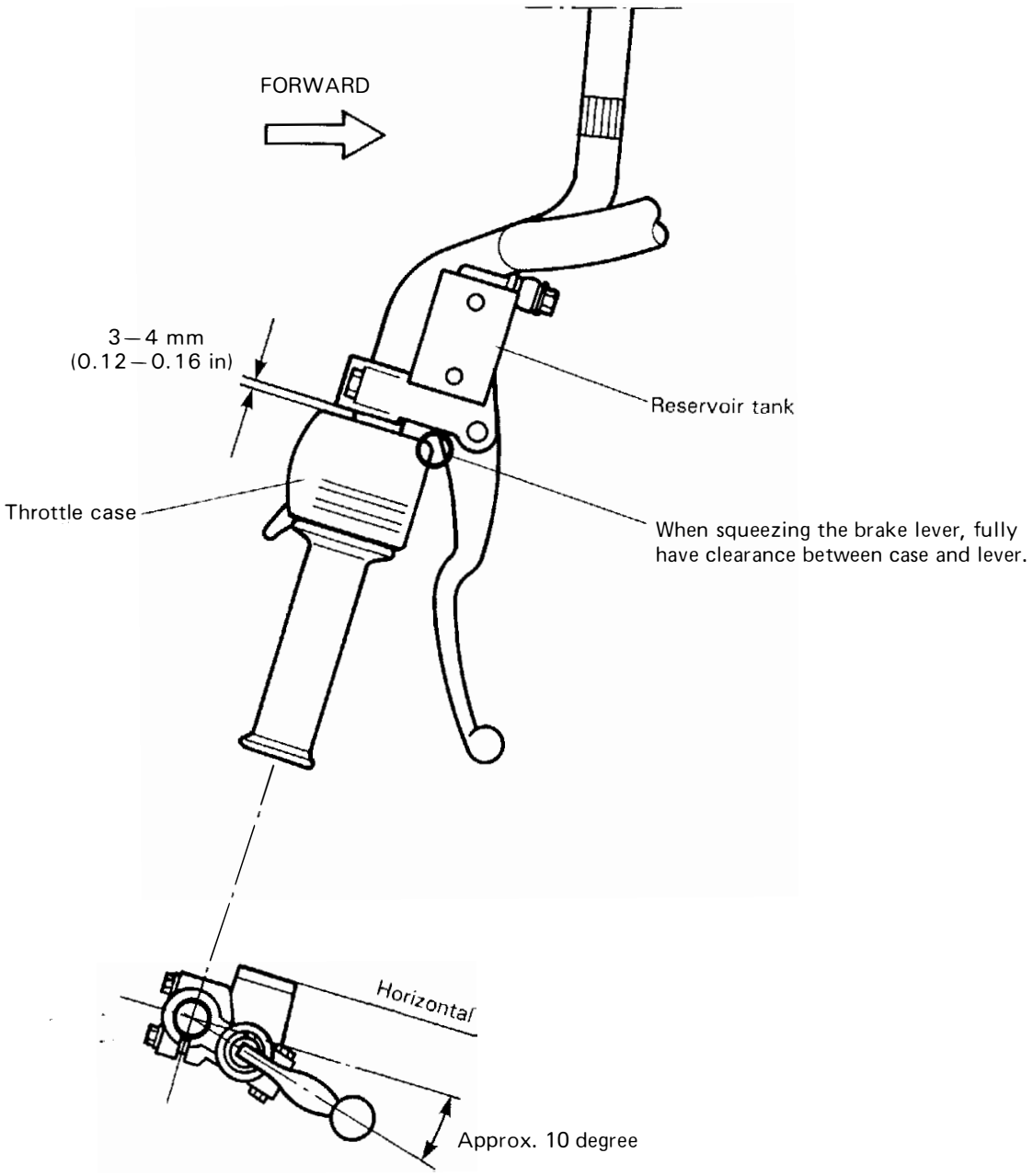
FRONT BRAKE PIPING

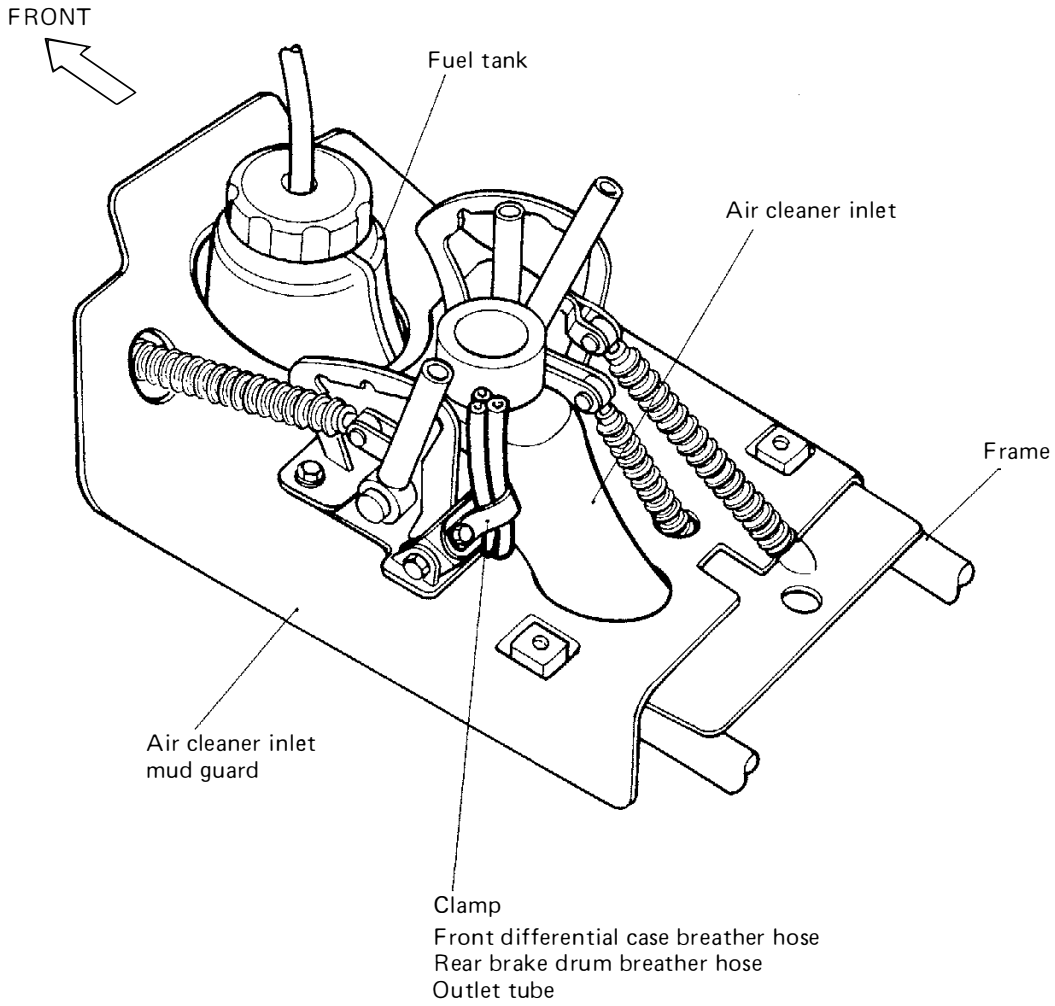


REAR BRAKE BREATHER HOSE ROUTING



BRAKE LEVER INSTALLATION




FRONT
Fuel tank
Air cleaner inlet
Frame
Air cleaner inlet
mud guard
Clamp
Front differential case breather hose
Rear brake drum breather hose
Outlet tube

LT-4WDL/LT-F4WDL ('90-MODEL)

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NOTE
Please refer to the sections 1 through 12 for details which are not given in this section.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 060 mm (81.1 in)
Overall width	1 200 mm (47.2 in)
Overall height	1 055 mm (41.5 in)
Wheelbase	1 150 mm (45.3 in)
Ground clearance	200 mm (7.8 in)
Front track	800 mm (31.5 in)
Rear track	800 mm (31.5 in)
Seat height	755 mm (29.7 in)
Dry mass	236 kg (520 lbs) LT-4WD 238 kg (524 lbs) LT-F4WD

ENGINE

Type	Four-stroke, air-cooled, OHC, TDCC
Number of cylinders	1
Bore	66.0 mm (2.598 in)
Stroke	72.0 mm (2.835 in)
Piston displacement	246 cm^3 (15.0 cu. in)
Compression ratio	8.5 : 1
Carburetor	*MIKUNI BST31SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-sub-transmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (17/16)
Sub-transmission, Super Low Low High	 3.176 (17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1.933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type	SUZUKI "PEI"
Ignition timing	5° B.T.D.C below 1 800 r/min. and 35° B.T.D.C. above 3 800 r/min.
Spark plug	N.G.K.: D7EA ...For Australia and U.S.A. N.G.K.: DR7ES ...For the others
Batery	12V 50.4KC (14Ah)/ 10HR...For U.S.A. and U.K. 12V 72 kC (20 Ah)/ 10HR...For the others
Headlight	12V 30W × 2pcs.
Taillight	12V 5W

CHASSIS

Front suspension	Independent, duble wishbone, oil damped spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped spring preload 5-way adjustable
Steering angle	Inside 38° Outside 28°
Caster	3°30'
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	*AT22 × 8-10☆☆
Rear tire size	*AT25 × 12-10☆
Front wheel travel	85 mm (3.3 in)
Rear wheel travel	95 mm (3.7 in)

CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (0.5/0.4 US/Imp gal)
Engine oil, oil change	3.5 L (3.7/3.1 US/Imp qt)
filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gearoil	150 ml (5.07/5.28 US/Imp oz)

Asterisk mark (*) indicates the New "L" model specifications.

These specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	———
	EX.	28 (1.1)	———
Valve lift	IN.	7.5 (0.30)	———
	EX.	6.5 (0.26)	———
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	———
	EX.	0.08—0.13 (0.003—0.005)	———
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	0.35 (0.014)
	EX.	0.030—0.057 (0.0012—0.0022)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	———
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	———
	EX.	5.455—5.470 (0.2148—0.2154)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	IN. & EX.	———	41.0 (1.68)
Valve spring tension (IN. & EX.)	24.1—29.3 kg (53.1—64.6 lbs) at length 36.8 mm (1.45 in)		———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.780—33.820 (1.3299—1.3315)	33.480 (1.3181)
	EX.	32.990—33.030 (1.2988—1.3004)	32.690 (1.2870)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)

ITEM	STANDARD		LIMIT
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)		———
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)		———
Camshaft runout	———		0.10 (0.004)
Cam chain 20-pitch length	———		129.0 (5.08)
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.	IN. & EX.	11.977—11.995 (0.4715—0.4722)	———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	1 000—1 400 kPa (10—14 kg/cm² 142—199 psi)			800 kPa (8 kg/cm² 114 psi)
Piston to cylinder clearance	0.040—0.050 (0.0016—0.0020)			0.120 (0.0047)
Cylinder bore	66.000—66.015 (2.5984—2.5990)			66.090 (2.6020)
Piston diam.	65.955—65.970 (2.5966—2.5972) Measure at 18 (0.71) from the skirt end.			65.880 (2.5937)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 7.5 (0.30)	6.0 (0.24)
	2nd	R	Approx. 9.0 (0.35)	7.2 (0.28)
Piston ring end gap	1st & 2nd		0.10—0.25 (0.004—0.010)	0.70 (0.028)
Piston ring to groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.01—1.03 (0.040—0.041)	———
	2nd		1.22—1.24 (0.048—0.049)	———
	Oil		2.01—2.03 (0.079—0.080)	———
Piston ring thickness	1st		0.97—0.99 (0.038—0.039)	———
	2nd		1.17—1.19 (0.046—0.047)	———

ITEM	STANDARD	LIMIT
Piston pin bore	16.002—16.008 (0.6300—0.6302)	16.030 (0.6311)
Piston pin O.D.	15.996—16.000 (0.6298—0.6299)	15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM		STANDARD	LIMIT
Conrod small end I.D.		16.006—16.014 (0.6302—0.6305)	16.040 (0.6315)
Conrod deflection		———	3.0 (0.12)
Conrod big end side clearance		0.10—0.45 (0.004—0.018)	1.00 (0.039)
Conrod big end width		17.95—18.00 (0.707—0.709)	———
Crank web-to-web width		53.0 ± 0.1 (2.087 ± 0.004)	———
Crankshaft runout	at left side	———	0.05 (0.002)
	at right side	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	———
Oil pressure (at 60°C, 140°F)	Above 30 kPa (0.30 kg/cm², 4.3 psi) Below 70 kPa (0.70 kg/cm², 10.0 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	0—1/8 turn back	———
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ ($4.567 \pm {}^{0.006}_{0}$)	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.250 (65/20)	———
Final reduction ratio	Front	3.284 (17/16 × 34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 × 25/11 × 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 × 18/17 × 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reverse	2.833 (29/12 × 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork-to-groove clearance		0.05—0.25 (0.002—0.010)	0.05 (0.020)
Reverse fork-to-groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.10 (0.157—0.161)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Shift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		*MIKUNI BST31SS
Bore size		*31 mm
I.D. No.		*19B60
Idle r/min.		*1 500 ± 100 r/min.
Float height		*13 ± 0.5 mm (0.51 ± 0.02 in)
Main jet	(M.J.)	*#122.5
Main air jet	(M.A.J.)	*0.6 mm (0.02 in)
Jet needle	(J.N.)	*5D40-4th
Needle jet	(N.J.)	*P-4
Throttle valve	(Th.V.)	*#125
Pilot jet	(P.J.)	*#40
By-pass	(B.P.)	0.8 mm (0.03 in)
Pilot outlet	(P.O.)	0.8 mm (0.03 in)
Valve seat	(V.S.)	*1.5 mm (0.06 in)
Starter jet	(G.S.)	*#50
Pilot screw	(P.S.)	*2 7/8 turns back
Pilot air jet	(P.A.J.)	*#160
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	5° B.T.D.C. Below 1 800 r/min. and 35° B.T.D.C. Above 3 800 r/min.		
Spark plug	Type	NGK: D7EA	For Australia and U.S.A
		NGK: DR7ES	For the others
	Gap	0.6—0.7 (0.024—0.028)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	0.1—0.5 Ω	Terminal — Ground
	Secondary	*12—20 kΩ	Plug cap— Ground
Generator coil resistance	Pick-up	90—140 Ω	B/Y—G/W
	Charging	0.1—1.0 Ω	Y—Y
Generator no-load voltage (When engine is cold)	More than *60 V (AC) at 5 000 r/min.		
Regulated voltage	*13—15 V at 5 000 r/min.		
Starter motor brush length	Limit: 6 (0.24)		MITSUBA
Commutator under-cut	Limit: 0.2 (0.008)		
Starter relay resistance	3—7 Ω		

Asterisk mark (*) indicates the New "L" model specifications.

ITEM		SPECIFICATION	NOTE
Battery	Type designation	FB14A-A2	For U.K. and U.S.A
	Capacity	12V 50.4 kC (14 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
	Type designation	Y50-N18A-A	For the others
	Capacity	12V 72 kC (20 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	Main	20 A	
	Power source	15 A	
	Cooling fan	10 A	For Sweden

WATTAGE

Unit: W

ITEM		SPECIFICATION	
		For Sweden	For the others
Headlight	HI	35 × 2 pcs.	30 × 2 pcs.
	LO	36.5 × 2 pcs.	30 × 2 pcs.
Taillight		5	←
Speedometer light		3 × 2 pcs.	←
Reverse indicator light		3.4	←
Neutral indicator light		3.4	←
High beam indicator light		1.7	
Fan indicator light		3.4	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake cable play	3—7 (0.1—0.3)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Rear brake pedal height	0 (Zero)		———
Brake drum I.D.	Front	———	165.7 (6.52)
	Rear	———	165.7 (6.52)
Brake lining thickness	———		1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	———
Master cylinder piston diam.	Front	13.957—13.984 (0.5495—0.5506)	———

Asterisk mark (*) indicates the New ''L'' model specification.

ITEM	STANDARD		LIMIT
Steering angle	Inside	38° ± 3°	———
	Outside	28° ± 3°	———
Turning radius	2.7 m (8.9 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	1°		———
Kingpin inclination	12°		———
Caster	3°30′		———
Tire size	Front	*AT22 x 8-10☆☆	———
	Rear	*AT25 x 12-10☆	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE
LT-4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80—172 kg (175—380 lbs)
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

LT-F4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	35	0.35	5.1
REAR	20	0.20	2.9

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

Asterisk mark (*) indicates the New ''L'' model specifications.

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded type gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		For U.S.A.
	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$ method) or 91 octane or higher rated by the Research Method.		For Canada
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		For the others
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (0.5/0.4 US/Imp gal)		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5		
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)		
Brake fluid type	*DOT 4		

Asterisk mark (*) indicates the New ''L'' model specifications.

TIGHTENING TORQUE

ENGINE

ITEM		N·m	kg-m	lb-ft
Cylinder head cover bolt		8 – 10	0.8 – 1.0	6.0 – 7.0
De-compression shaft mounting nut		15 – 20	1.5 – 2.0	11.0 – 14.5
Camshaft sprocket bolt		10 – 12	1.0 – 1.2	7.0 – 8.5
Tensioner bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Tensioner cap bolt		7 – 9	0.7 – 0.9	5.0 – 6.5
Cylinder head nut	8 mm	21 – 25	2.1 – 2.5	15.0 – 18.0
	6 mm	7 – 11	0.7 – 1.1	5.0 – 8.0
Cylinder base nut		7 – 11	0.7 – 1.1	5.0 – 8.0
Recoil starter cup nut		30 – 35	3.0 – 3.5	21.5 – 25.5
Magneto rotor nut		145 – 175	14.5 – 17.5	105.0 – 126.5
First clutch shoe nut		110 – 130	11.0 – 13.0	79.5 – 94.0
Starter clutch bolt		23 – 28	2.3 – 2.8	16.5 – 20.0
Clutch sleeve hub nut		60 – 80	6.0 – 8.0	43.5 – 58.0
Clutch release arm bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
T.D.C. inspection plug		20 – 25	2.0 – 2.5	14.5 – 18.0
Oil pressure checking bolt		9 – 15	0.9 – 1.5	6.5 – 11.0
Oil pump mounting bolt		7 – 10	0.7 – 1.0	5.0 – 7.0
Engine oil drain plug	14 mm	20 – 25	2.0 – 2.5	14.5 – 18.0
	12 mm	18 – 23	1.8 – 2.3	13.0 – 16.5
Reverse switch		20 – 25	2.0 – 2.5	14.5 – 18.0
Reverse switch cam stopper bolt		20 – 25	2.0 – 2.5	14.5 – 18.0
Crankcase securing bolt	6 mm	9 – 13	0.9 – 1.3	6.5 – 9.5
	8 mm	20 – 24	2.0 – 2.4	14.5 – 17.5
Engine mounting bolt	10 mm	*64 – 76	*6.4 – 7.6	*46.5 – 55.0
	12 mm	*60 – 72	*6.0 – 7.2	*43.5 – 52.0
Exhaust pipe nut		9 – 12	0.9 – 1.2	6.5 – 8.5
Muffler connection bolt		18 – 23	1.8 – 2.3	13.0 – 16.5
Muffler mounting bolt		18 – 28	1.8 – 2.8	13.0 – 20.0
Gearshift arm stopper bolt		15 – 23	1.5 – 2.3	11.0 – 16.5
Gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Sub-transmission gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Reverse gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Cooling fan switch (only for Sweden)		17 – 23	1.7 – 2.3	12.5 – 16.5

Asaterisk mark (*) indicates the New ''L'' model specifications.

CHASSIS

ITEM	N·m	kg-m	lb-ft
Frame bridge bolt	60 – 70	6.0 – 7.0	43.5 – 50.5
Differential case filler cap	20 – 25	2.0 – 2.5	14.5 – 18.0
Differential case drain plug	20 – 25	2.0 – 2.5	14.5 – 18.0
Secondary drive gear nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Front drive bevel gear nut	110 – 130	11.0 – 13.0	79.5 – 94.0
Front drive output yoke nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Propeller shaft joint nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential case bolt	23 – 28	2.3 – 2.8	16.5 – 20.0
Driven bevel gear bearing case bolt	18 – 23	1.8 – 2.3	13.0 – 16.5
Drive bevel gear housing bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Differential gear case mounting nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential lock cam cover	8 – 12	0.8 – 1.2	6.0 – 8.5
Differential lock cam stopper	20 – 25	2.0 – 2.5	14.5 – 18.0
Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft holder bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft lower nut	38 – 60	3.8 – 6.0	27.5 – 43.5
Steering knuckle end bolt (Upper & Lower)	120 – 170	12.0 – 17.0	87.5 – 123.0
Steering knuckle arm end pinch bolt	44 – 66	4.4 – 6.6	32.0 – 47.5
Steering knuckle arm pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Tie-rod end nut	22 – 35	2.2 – 3.5	16.0 – 25.5
Tie-rod end pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Front shock absorber mounting nut	40 – 60	4.0 – 6.0	29.0 – 43.5
Wishbone arm pivot nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Front axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Front wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Front brake master cylinder mounting bolt	6 – 9	0.6 – 0.9	4.5 – 6.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Brake pipe nut	13 – 18	1.3 – 1.8	9.5 – 13.0
Brake air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
Front brake panel bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Front wheel cylinder bolt	10 – 13	1.0 – 1.3	7.0 – 9.5
Footrest bolt	40 – 50	4.0 – 5.0	29.0 – 36.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Rear wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Rear brake cam lever nut	8 – 12	0.8 – 1.2	6.0 – 8.5

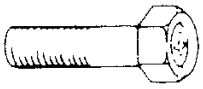
ITEM	N·m	kg-m	lb-ft
Rear brake drum cover bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Rear shock absorber mounting bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Rear suspension arm pivot bolt	50 – 70	5.0 – 7.0	36.0 – 50.5
Rear carrier bolt	30 – 40	3.0 – 4.0	21.5 – 29.0

TIGHTENING TORQUE CHART

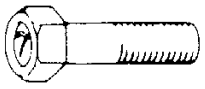
For other bolts and nuts not listed in the preceding chart, refer to the chart below.

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 – 40.0	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	194.0 – 137.5	200.0 – 280.0	20.0 – 28.0	144.5 – 202.5

Conventional bolt



"4" marked bolt



"7" marked bolt

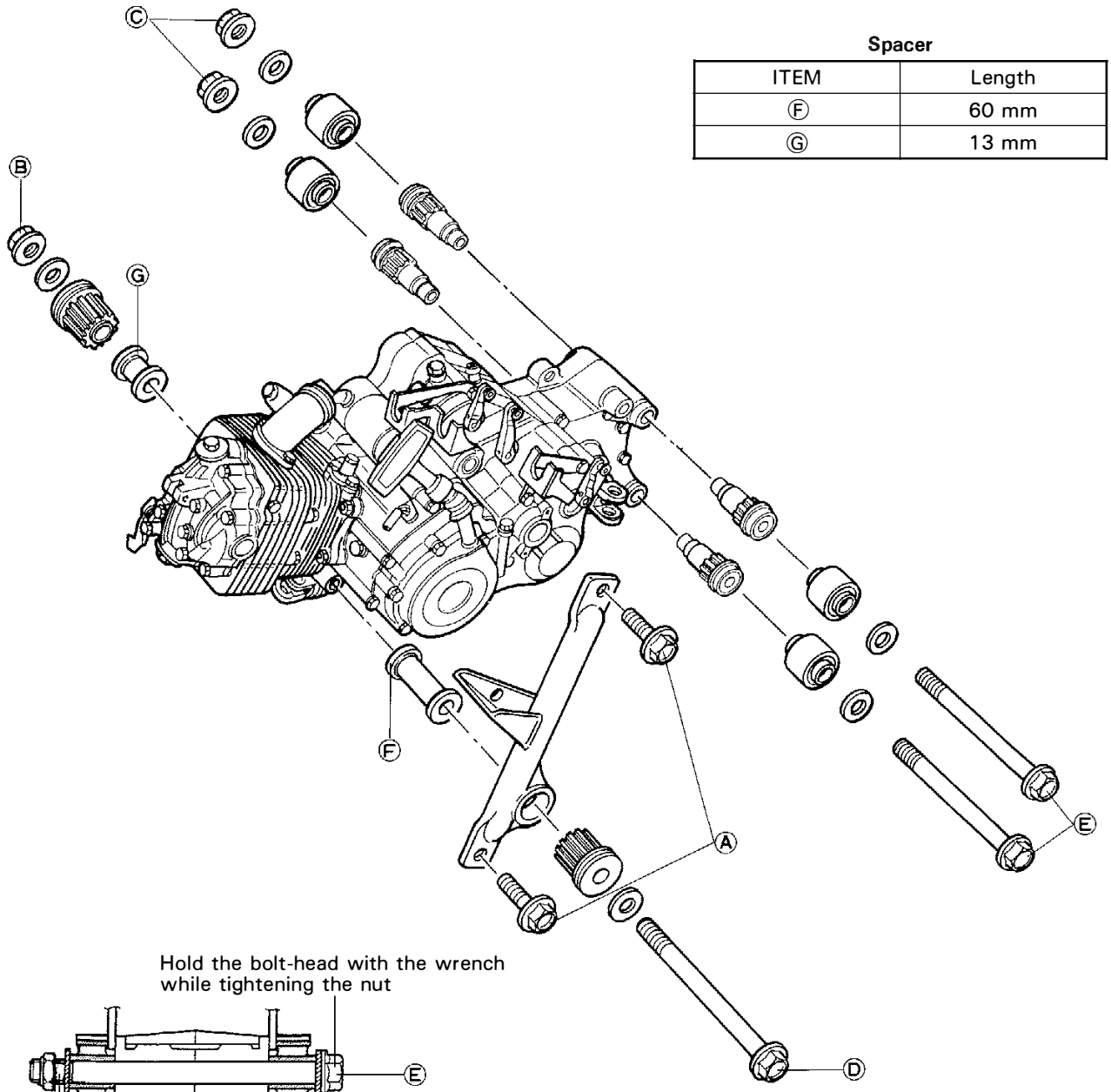
ENGINE MOUNTING

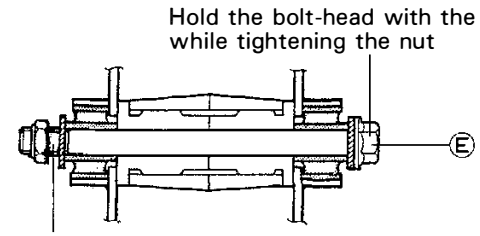
Engine mounting bolt

ITEM	Diam.	Length
Ⓓ	12 mm	300 mm
Ⓔ	10 mm	240 mm

Spacer

ITEM	Length
Ⓕ	60 mm
Ⓖ	13 mm





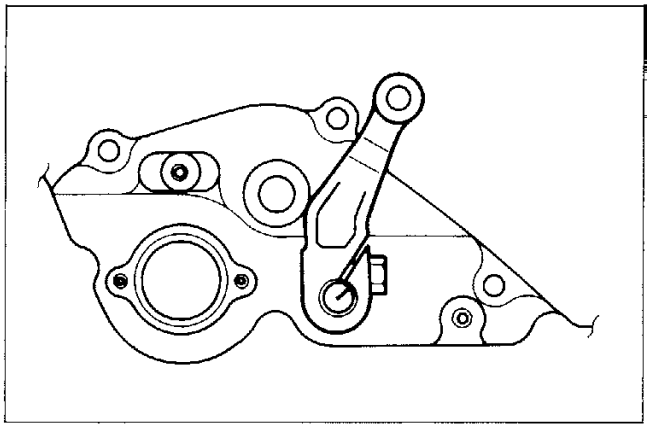
Tightening torque

ITEM	N·m	kg-m	lb-ft
Ⓐ	60—70	6.0—7.0	43.5—50.5
Ⓑ	60—72	6.0—7.2	43.5—52.0
Ⓒ	64—76	6.4—7.6	46.5—55.0

GEARSHIFT ARM LEVER

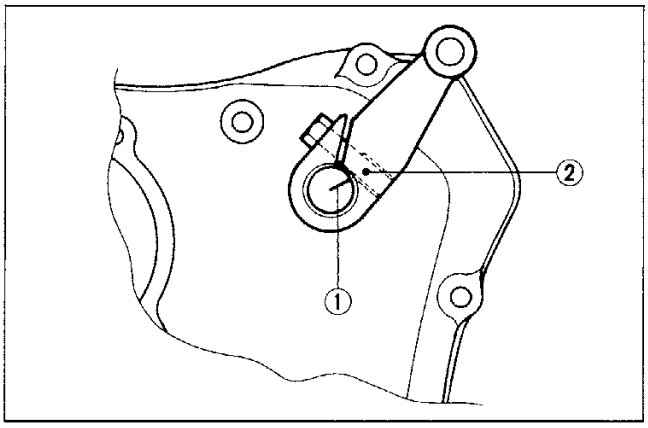
- Install the gearshift arm lever to the gearshift shaft vertically as shown in the illustration.

NOTE:
Do not align the groove on the shaft with slit.

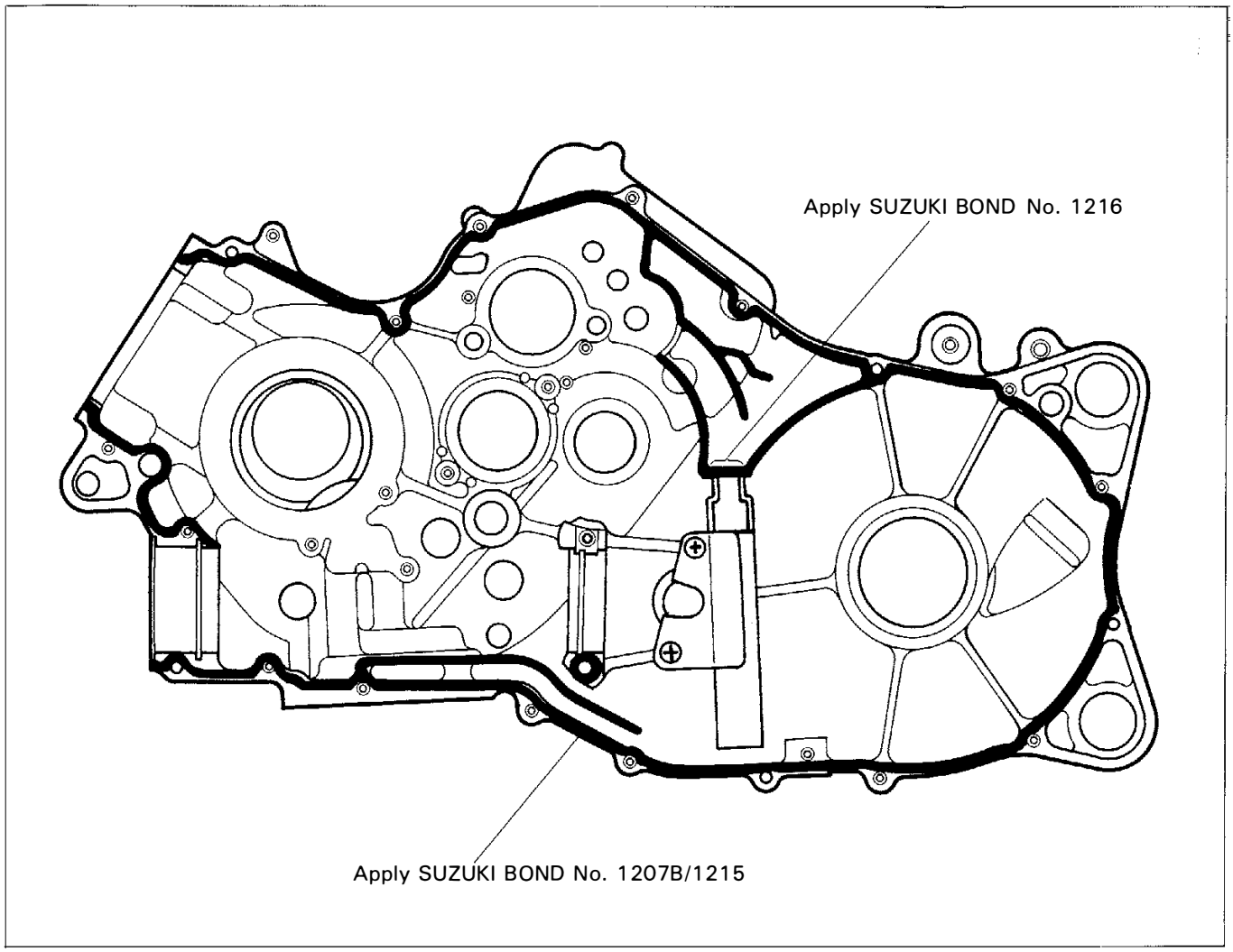


SUB-TRANSMISSION ARM LEVER

- When installing the sub-transmission arm lever, align the groove ① on the shaft with the punched mark ② on the lever.



CRANKCASE



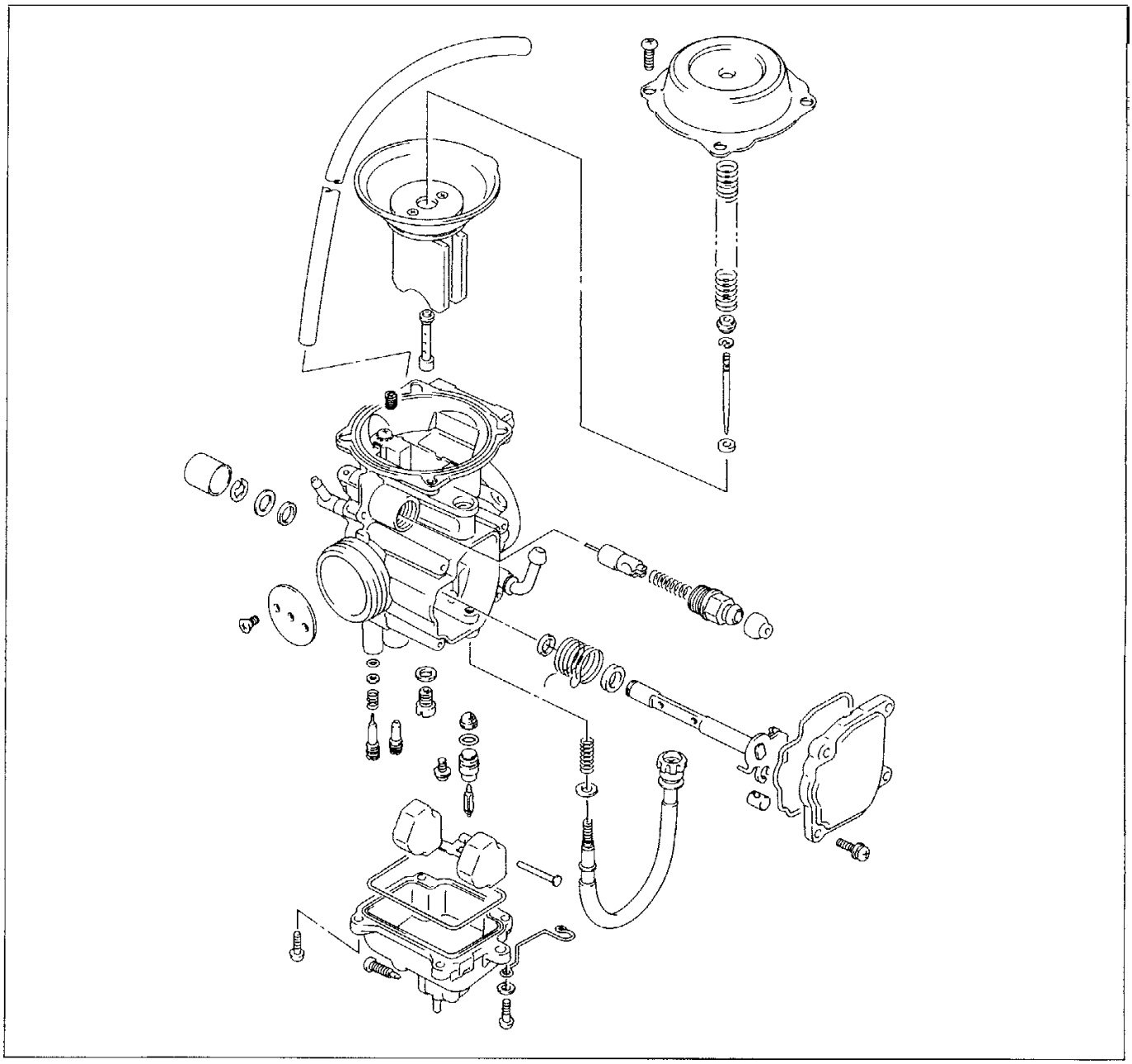
- Apply SUZUKI BOND No. 1207B/1215 uniformly to the fitting surface of the right half of the crankcase, and assembly the cases within the few minutes.

99104-31140 For U.S. model	SUZUKI BOND No. 1207B
99000-31110 For other models	SUZUKI BOND No. 1215

- Apply SUZUKI BOND No. 1216 to the blow-by gas pipe mating surfaces of the right and left crankcases as indicated in the illustration.

99104-31160 For U.S. Model	SUZUKI BOND No. 1216
99000-31160 For other models	SUZUKI BOND No. 1216

CARBURETOR



SPECIFICATION

ITEM	SPECIFICATION
Carburetor type	MIKUNI BST31SS
Bore size	31 mm
I.D. No.	19B60
Idle r/min	1 500 ± 100 r/min
Float height	13 ± 0.5 mm (0.51 ± 0.02 in)
Main jet (M.J.)	#122.5
Main air jet (M.A.J.)	0.6 mm (0.02 in)
Jet needle (J.N.)	5D40—4th
Needle jet (N.J.)	P-4

ITEM	SPECIFICATION
Throttle valve (Th.V.)	#125
Pilot jet (P.J.)	#40
By-pass (B.P.)	0.8 mm (0.03 in)
Pilot outlet (P.O.)	0.8 mm (0.03 in)
Valve seat (V.S.)	1.5 mm (0.06 in)
Starter jet (G.S.)	#50
Pilot screw (P.S.)	2-3/4 turns back
Pilot air jet (P.A.J.)	#160
Throttle cable play	0.5—1.0 mm (0.02—0.04 in)

IGNITION SYSTEM

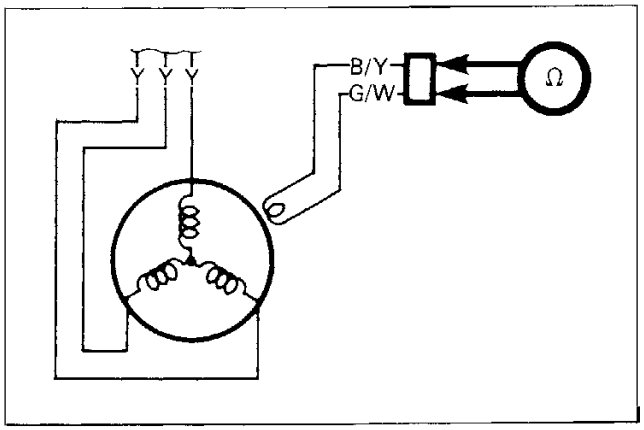
MAGNETO

- Remove the seat.
- Disconnect the pick-up coil lead wires.

Measure the resistance between the lead wires with the pocket tester.

Pick-up coil resitance	90 — 140 Ω (B/Y — G/W)

09900-25002	Pocket tester



IGNITION COIL

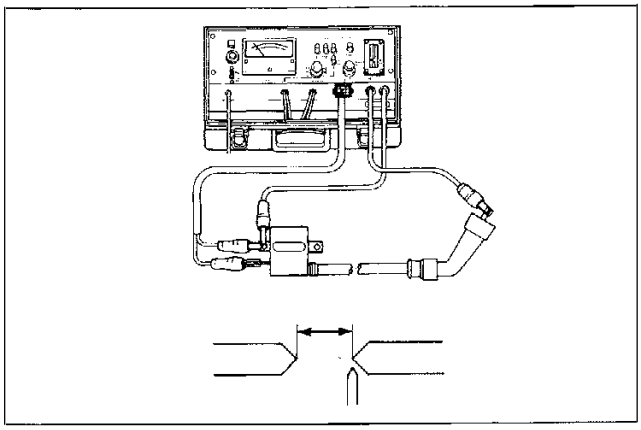
Checking with electro tester

- Remove the ignition coil from the frame.

Test the ignition coil for sparking performance. Test connection is as indicated. Make sure that the three-needle sparking distance is at least 8 mm.

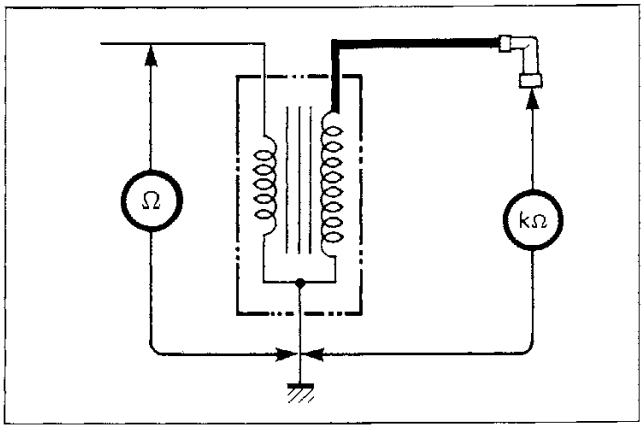
STD sparking performance	8 mm (0.3 in)

09900-28106	Electro tester



Checking with pocket tester

Ignition coil resistance	
Primary	0.1 — 0.5 Ω (Terminal — Ground)
Secondary	12 — 20 kΩ (Plug cap — ground)



REGULATOR/RECTIFIER

NOTE:
When the engine misfires or idles unsmoothly, attempt to disconnect the charging lead wire of the magneto (three yellow wires). If the engine resumes its smooth operation with this disconnection, the regulator/rectifier is faulty and should be replaced.

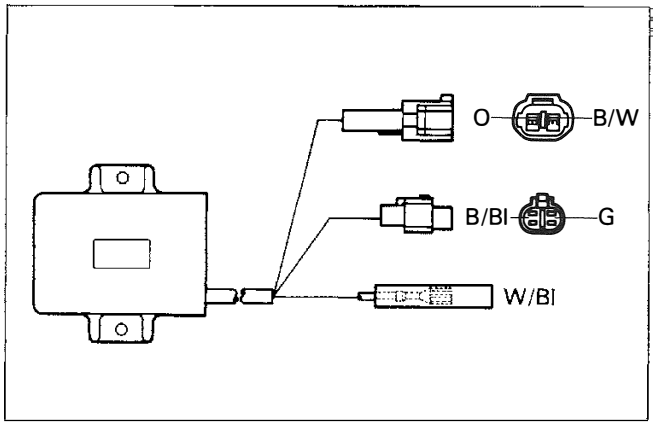
CDI UNIT

- Disconnect the lead wires at the CDI unit.

Measure the resistance between the lead wires in the following table with the pocket tester.

Unit: kΩ

Probe of tester to: ⊖ \ ⊕ Probe of tester to:		0	B/W	G	B/Bl	W/Bl
	0		2–12	3–20	2–12	∞
	B/W	∞		1–6	0	∞
	G	∞	1–6		1–6	∞
	B/Bl	∞	0	1–6		∞
⊖	W/Bl	∞	1–6	3–15	1–6	



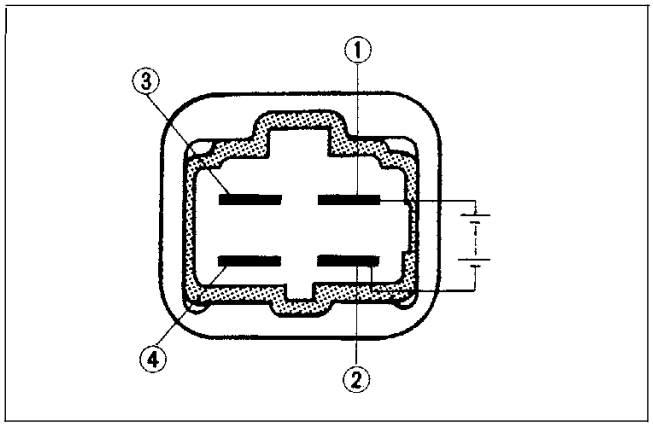
WIRE COLOR
G: Green
O: Orange
B/Bl: Black with Blue tracer
B/W: Black with White tracer
W/Bl: White with Blue tracer

STARTER SYSTEM

NEUTRAL RELAY INSPECTION

- Remove the neutral relay from the starter relay holder.

Apply 12 volts to ① and ② terminals, ⊕ to ① and ⊖ to ②, and check the continuity between ③ and ④ with pocket tester. If there is no continuity, replace the neutral relay assembly with a new one.



09900-25002	Pocket tester

CAUTION:
When connecting the battery ⊕ and ⊖ terminals to the neutral relay, be sure that the ⊕ to ① and ⊖ to ② as shown in the illustration.

CHARGING SYSTEM

CHARGING OUTPUT

- Remove the headlight cover.
- Start the engine and keep it running at 5 000 r/min and ignition switch turned LIGHT position.

Measure the DC voltage between the battery terminals, ⊕ and ⊖ with the pocket tester.
If the tester reads under 13V or over 15V, check the AC generator no-load performance and regulator/rectifier.

STD charging output	13 – 15 V (DC) at 5000 r/min

09900-25002	Pocket tester

NOTE:
When making this test, be sure that the battery is fully-charged condition.

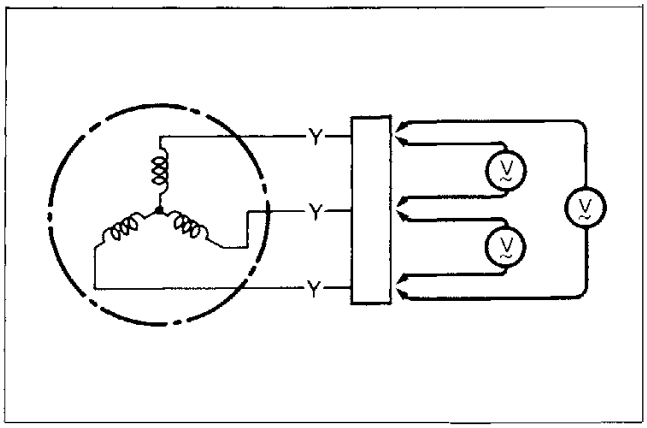
AC GENERATOR NO-LOAD PERFORMANCE

- Remove the seat.
- Disconnect the AC generator lead wires.
- Start the engine and keep it running at 5 000 r/min.

Measure the AC voltage between the three yellow lead wires with the pocket tester.
If the tester reads under 60V, the AC generator is faulty.

STD No-load performance (When engine is cold)	More than 60V (AC) at 5 000 r/min

09900-25002	Pocket tester



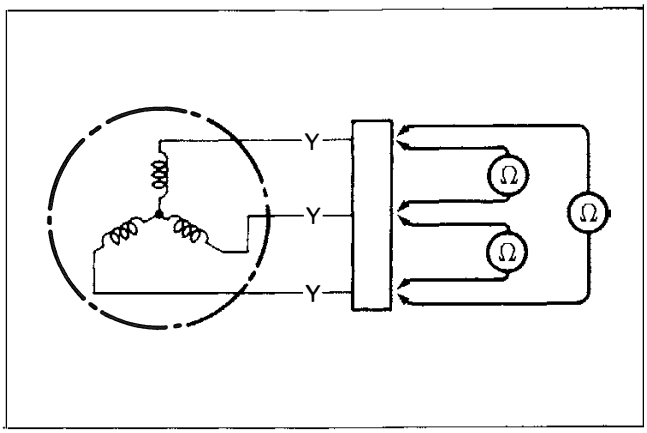
AC GENERATOR CONTINUITY

Check the continuity or resistance between the three yellow lead wires. Also check that the stator core is insulated.
Check that there is no continuity between the startor leads and ground.
If the continuity or resistance checked is incorrect, replace the stator.

Charging coil resistance	0.1 — 1.0 Ω

09900-25002	Pocket tester

NOTE:
When making this test, it is not necessary to remove the AC generator.



WIRE COLOR
Y: Yellow

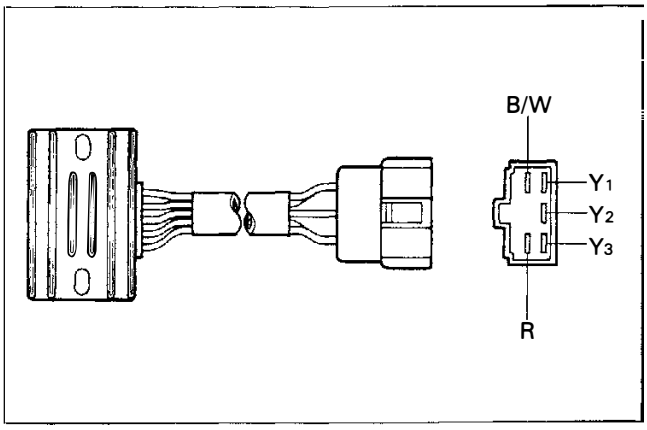
REGULATOR/RECTIFIER

- Remove the seat, headlight cover, battery and front fender.

Using the pocket tester (× 1 kΩ range), measure the resistance between the lead wires in the following table.
If the resistance checked is incorrect, replace the regurator/rectifier.

Unit: kΩ

⊖ Probe of tester to: / ⊕ Probe of tester to:	R	Y1	Y2	Y3	B/W
R		20—100	20—100	20—100	15—60
Y1	1—8		20—200	20—200	20—100
Y2	1—8	20—200		20—200	20—100
Y3	1—8	20—200	20—200		20—100
B/W	1.5—10	1—8	1—8	1—8	

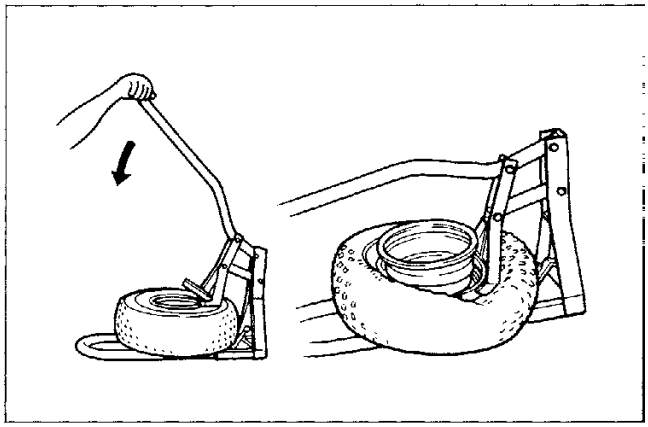


WIRE COLOR
R: Red
Y: Yellow
B/W: Black with White tracer

TIRES

TIRE REPLACEMENT

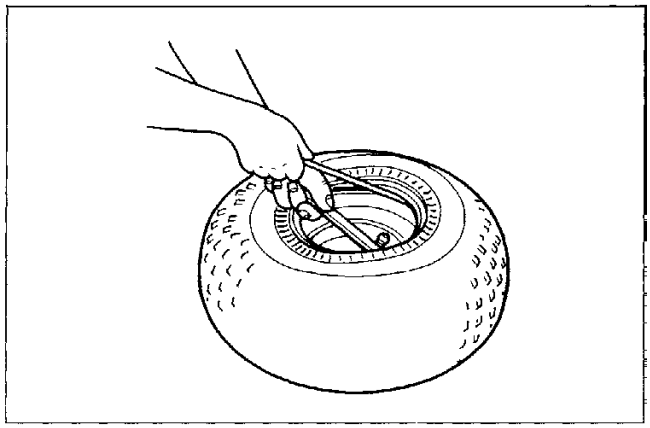
- Remove the front or rear wheel.
- After removing the air valve cap, release the tire pressure by depressing the nozzle.
- Dismount the bead from the rim completely as shown in the illustration.



- Using a set of tire levers and rim protectors, separate the tire from the rim.

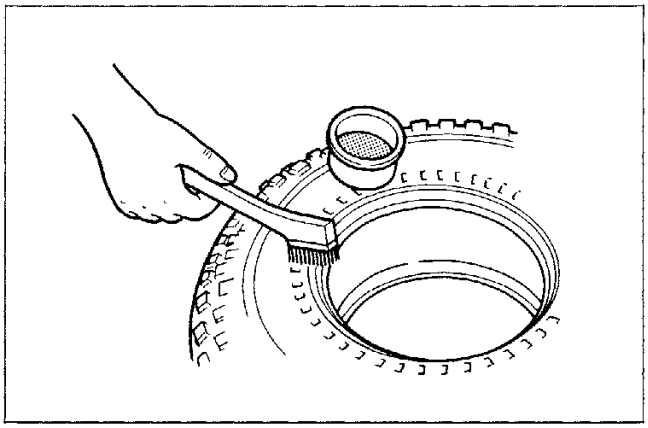
09941-94510	Rim protector

CAUTION:
When using the tire lever, do not scratch or hit the sealing portion (hump) of the wheel or it may cause air-leakage.



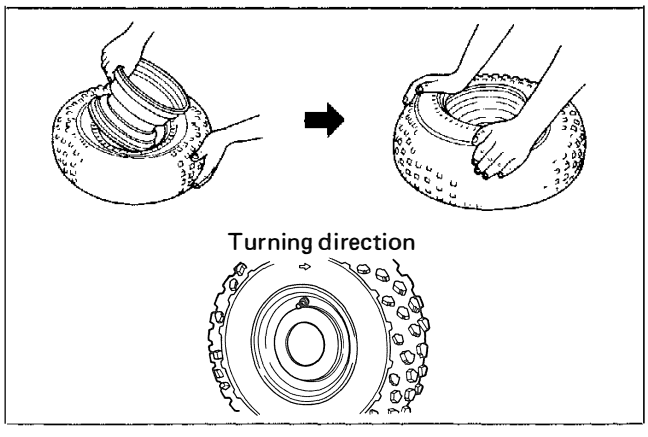
- Apply clean water to the tire bead and the flange of the rim.

CAUTION:
Never use engine oil or gasoline because they will deteriorate the tire.



CAUTION:
The standard tire fitted on this vehicle is AT22 × 8-10☆ ☆ for front and AT25 × 12-10☆ for rear.
The use of a tire other than the standard may cause instability. It is highly recommended to use a SUZUKI Genuine tire.

- Mount the tire on the rim by hand as shown in the illustration.



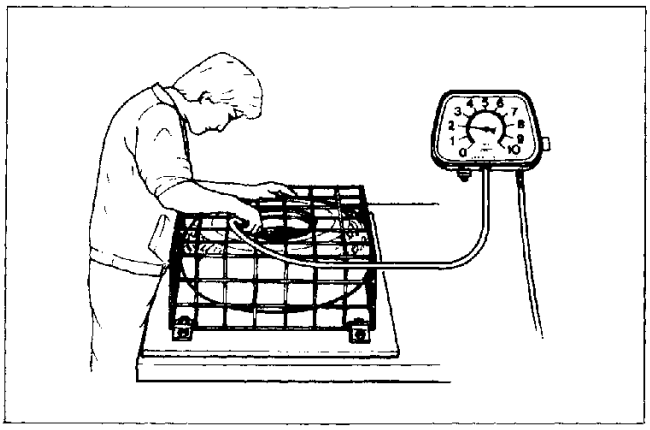
NOTE:
*** Before mounting the tire on the rim, inspect the sealing portion of rim.**
When mounting a tire, be sure to install the tire onto the rim with the arrow on the side wall pointing in the direction of rotation. Also, be certain that outer side of wheel rim faces to the outside.
*** Before installing the valve core, inspect the core.**

• Inflate the tire to seat the bead.

Max. BEAD SEAT PRESSURE (FRONT & REAR)

250 kPa (2.5 kg/cm², 36 psi)	For Sweden
200 kPa (2.0 kg/cm², 29 psi)	For the others

CAUTION:
Place the tire under a protective tire cage or similar protective covering before inflating the tire. To minimize the possibility of tire damage when seating the bead, never exceed the MAX. BEAD SEAT PRESSURE rating shown on the tire.



NOTE:
Check the "rim line" cast on the tire side walls. It must be equally spaced from the wheel rim all the way around. If the distance between the rim line and the wheel rim varies, this indicates that the bead is not properly seated. If this is so, deflate the tire completely, and unseat the bead for the both sides. Coat the bead with clean water, and try again.

• As soon as the bead is seated, deflate the tire and reinflate it to the proper operating pressure.

LT-4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80 – 172 kg (175 – 380 lbs)
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

LT-F4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	35	0.35	5.1
REAR	20	0.20	2.9

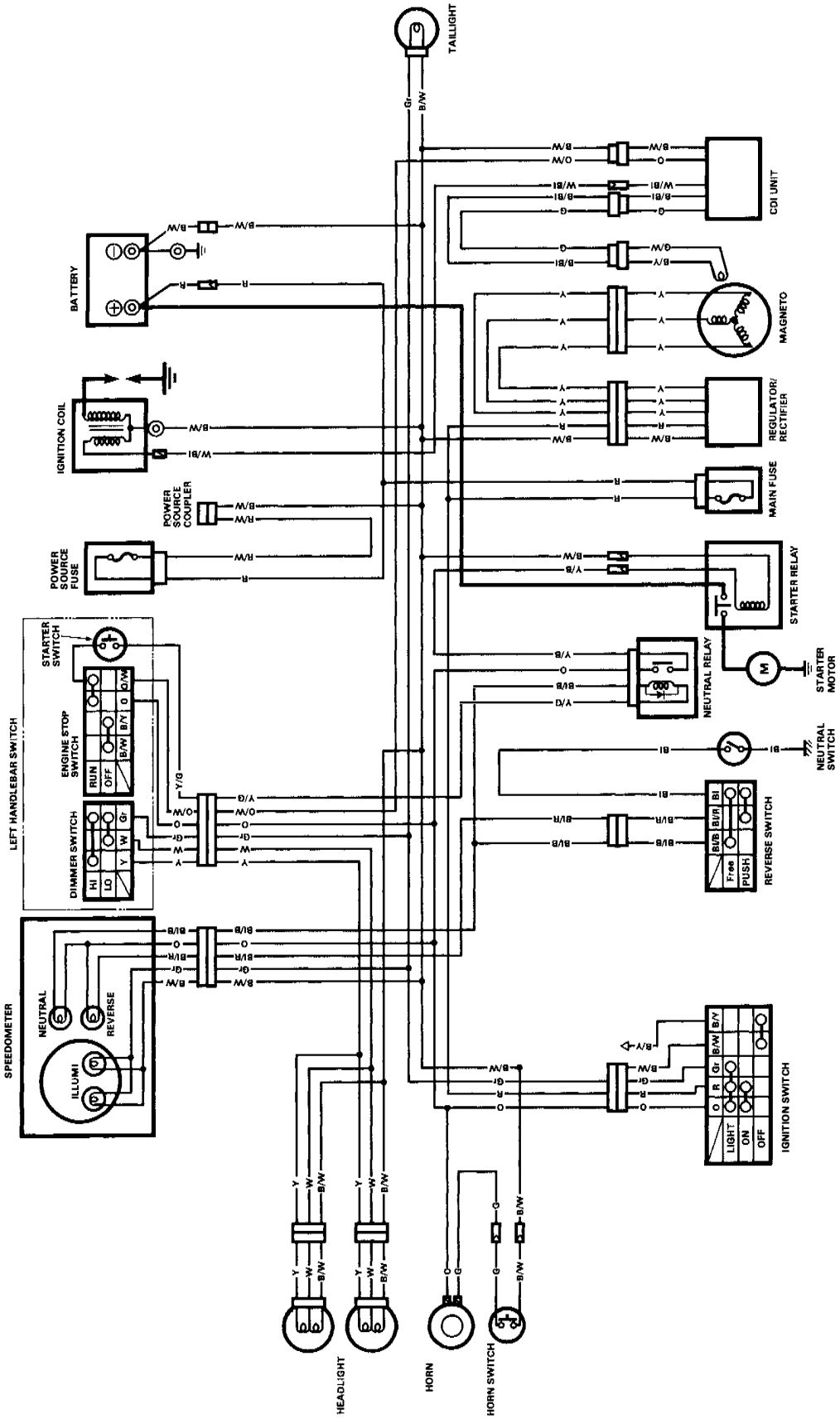
VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

CAUTION:
Before inflating the tire, check the MAX. OPERATING PRESSURE rating of the tire. This is indicated by a "☆" following the tire size shown on the sidewall. The number of "☆" on the tire indicates the max. operating pressure as shown right.

	MAX. OPERATING PRESSURE		
	kPa	kg/cm²	psi
☆	25	0.25	3.6
☆☆	35	0.35	5.1
☆☆☆	45	0.45	6.5

WIRING DIAGRAM

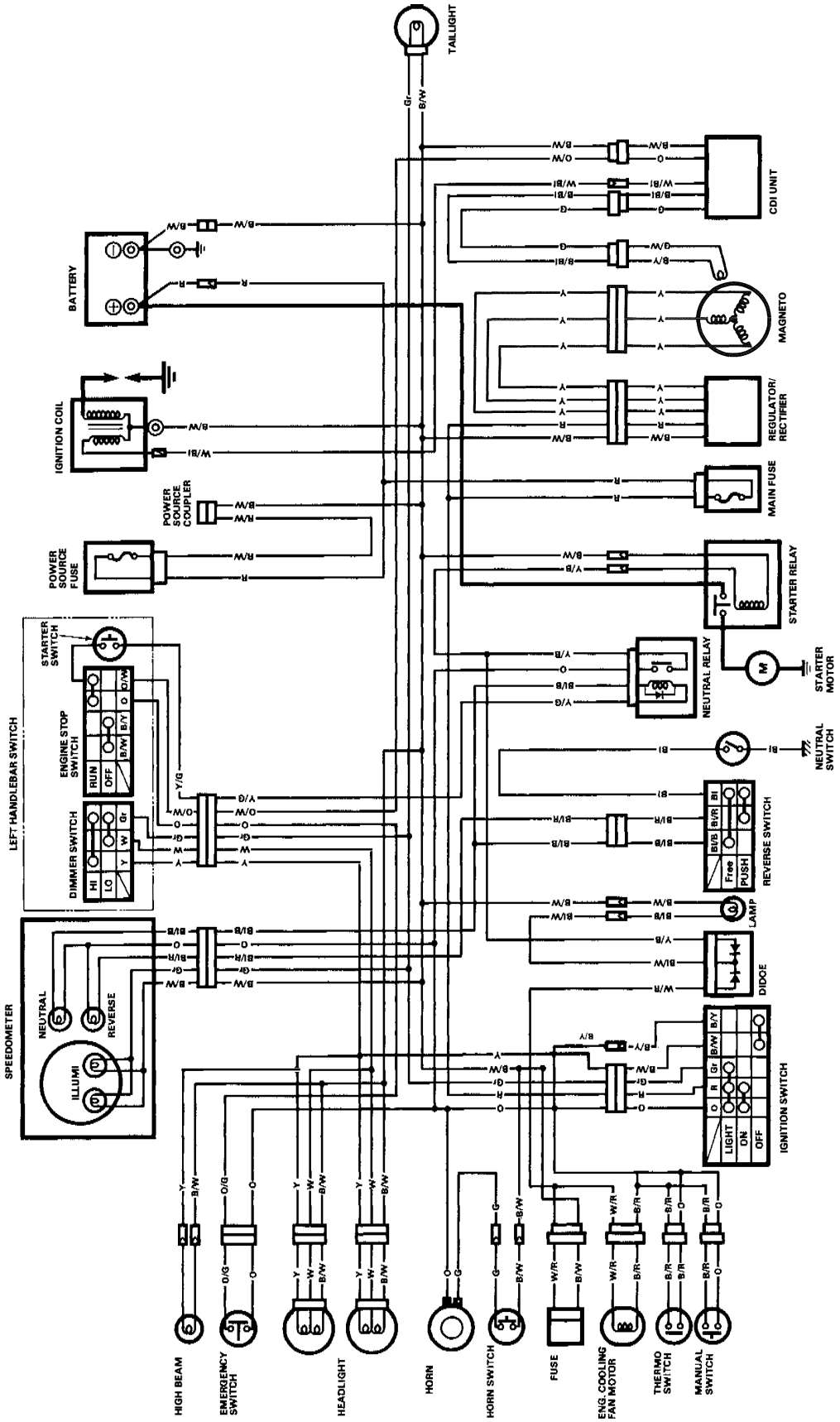
For Australia



WIRE COLOR

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

For Sweden

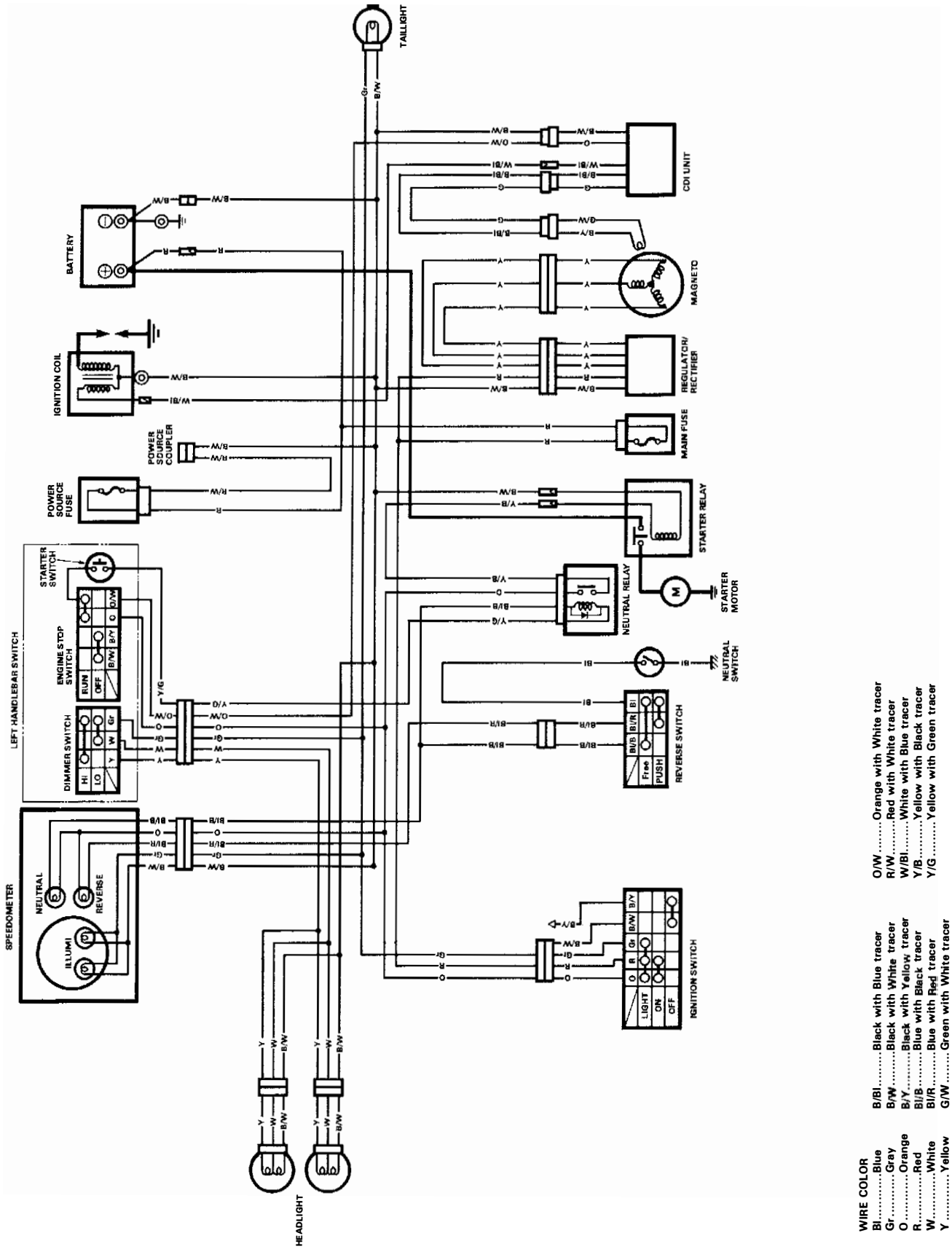


WIRE COLOR
Bl.....Blue
G.....Green
Gr.....Gray
O.....Orange
R.....Red
W.....White
Y.....Yellow
B/Bl.....Black with Blue tracer

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

R/W.....Red with White tracer
W/Bl.....White with Blue tracer
W/R.....White with Red tracer
Y/B.....Yellow with Black tracer
Y/G.....Yellow with Green tracer

For the others



WIRE COLOR

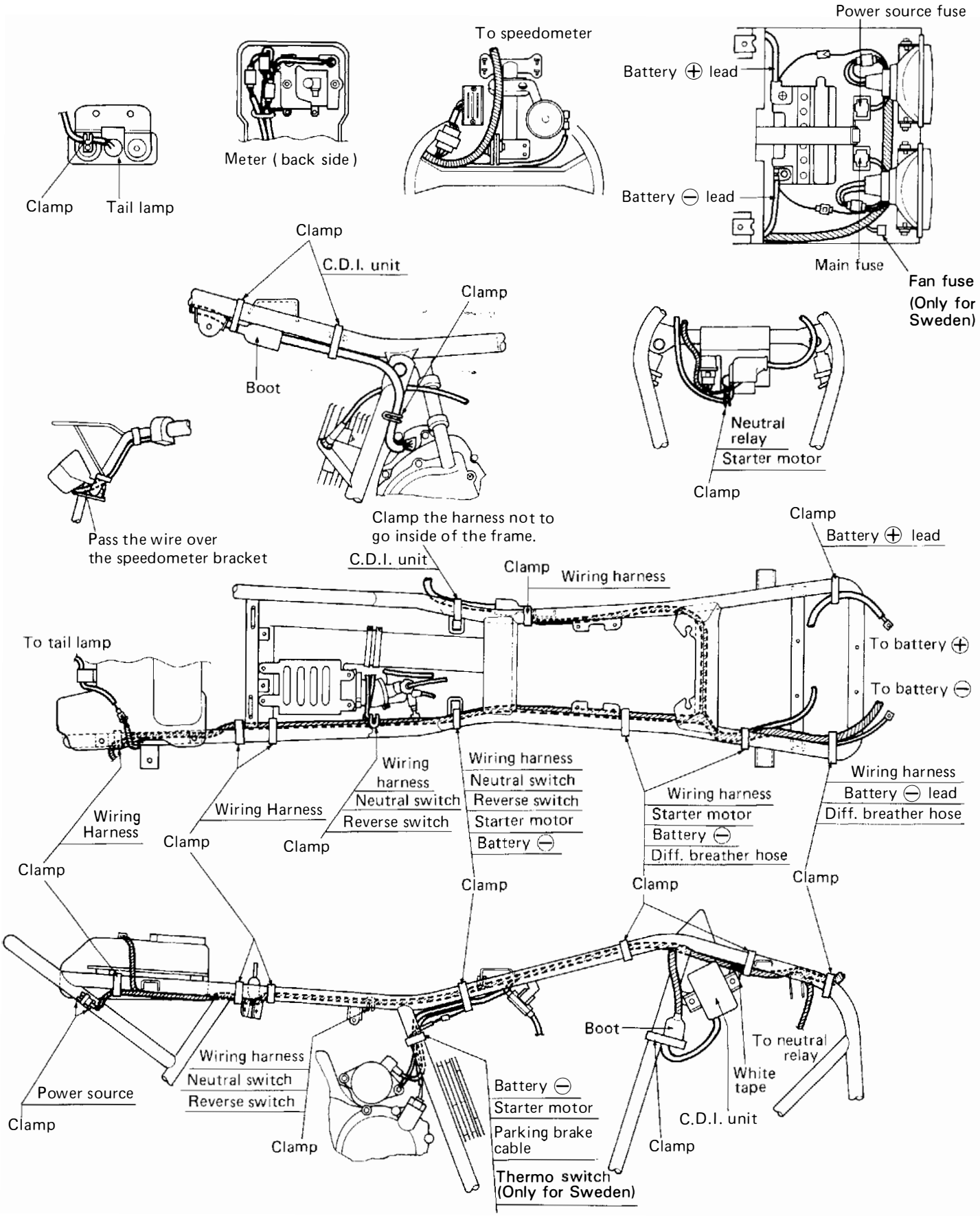
Bl.....Blue
Gr.....Gray
O.....Orange
R.....Red
W.....White
Y.....Yellow

B/Bl.....Black with Blue tracer
B/W.....Black with White tracer
B/Y.....Black with Yellow tracer
Bl/B.....Blue with Black tracer
Bl/R.....Blue with Red tracer
G/W.....Green with White tracer

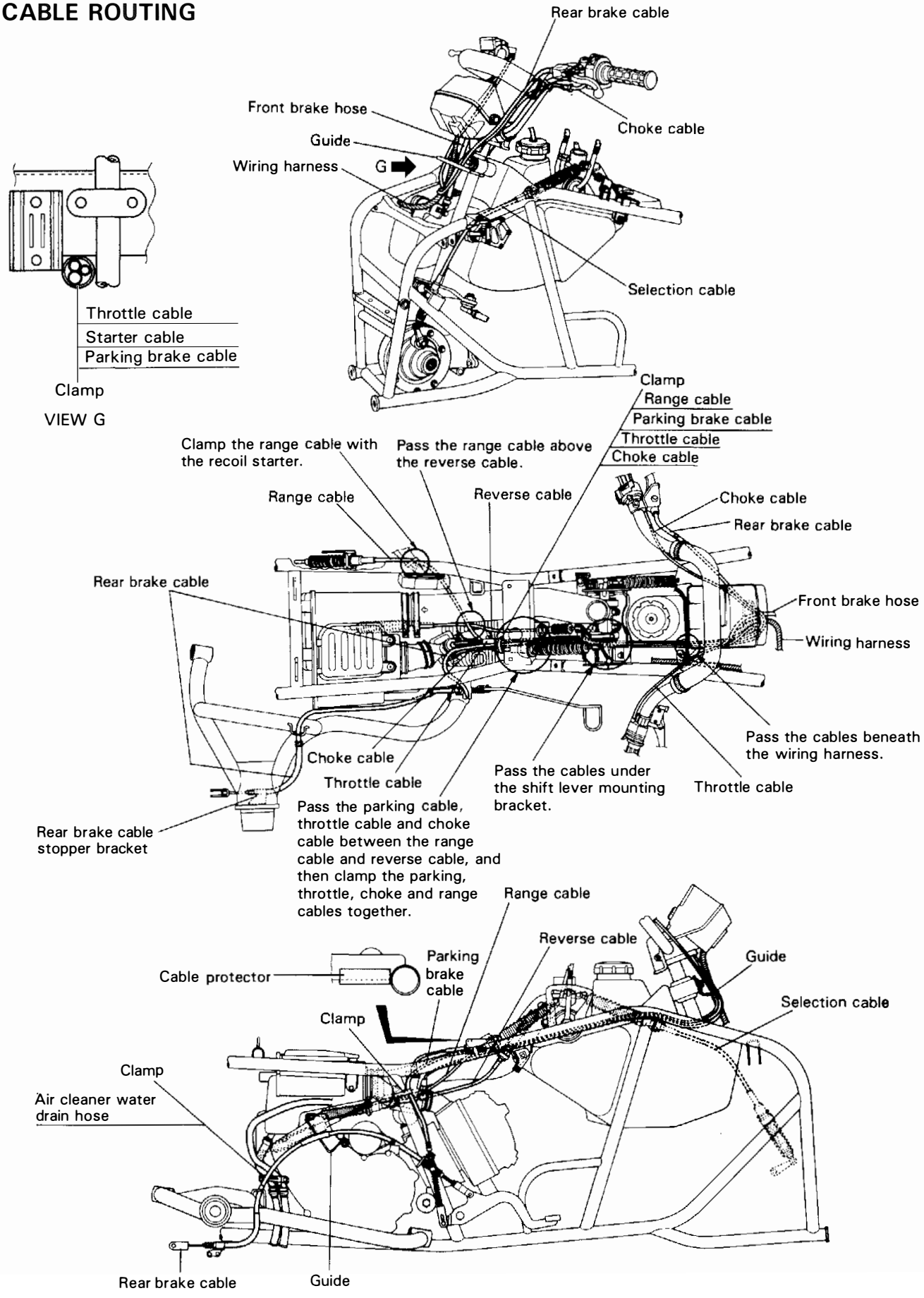
O/W.....Orange with White tracer
R/W.....Red with White tracer
W/Bl.....White with Blue tracer
Y/B.....Yellow with Black tracer
Y/G.....Yellow with Green tracer

WIRE AND CABLE ROUTING

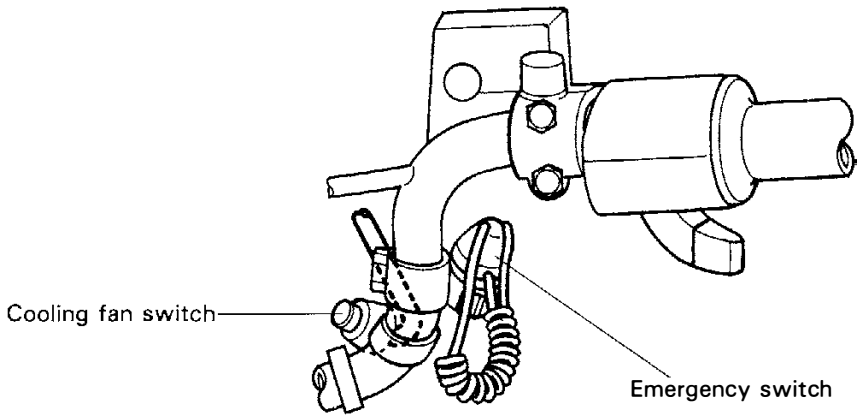
WIRE ROUTING

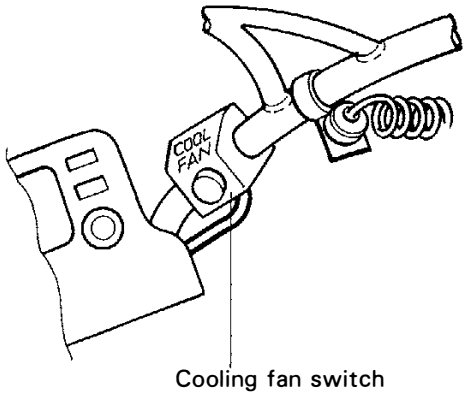


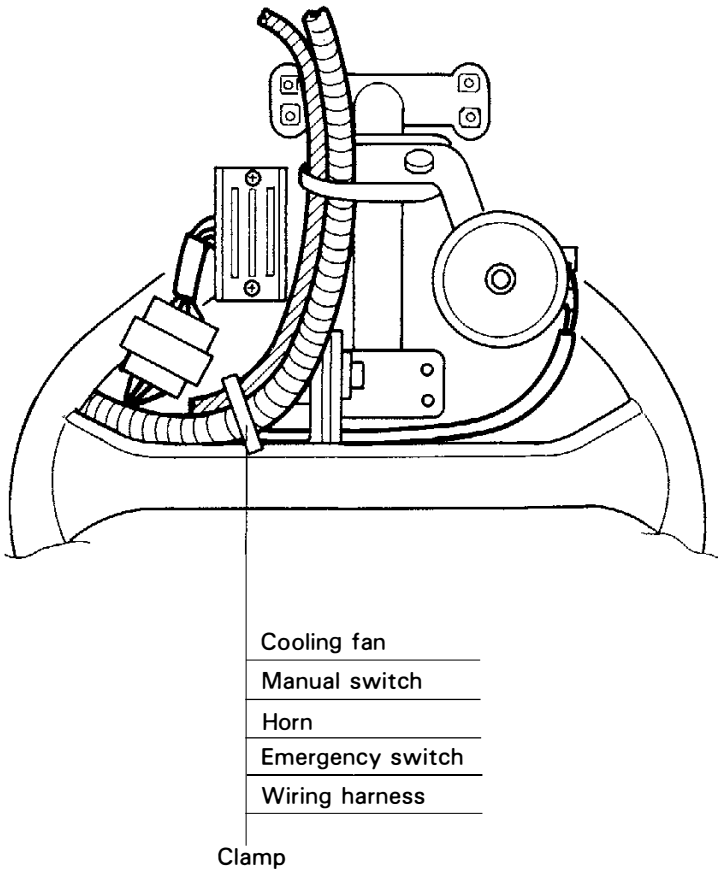
CABLE ROUTING



For Sweden


Cooling fan switch
Emergency switch


COOL FAN
Cooling fan switch


Cooling fan
Manual switch
Horn
Emergency switch
Wiring harness
Clamp

LT-4WDM AND LT-F4WDM ('91-MODEL)

CONTENTS

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FUEL HOSE ROUTING 14-16

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 060 mm (81.1 in)
Overall width	1 200 mm (47.2 in)
Overall height	1 055 mm (41.5 in)
Wheelbase	1 150 mm (45.3 in)
Ground clearance	200 mm (7.8 in)
Front track	800 mm (31.5 in)
Rear track	800 mm (31.5 in)
Seat height	755 mm (29.7 in)
Dry mass	242 kg (534 lbs) LT-4WD 244 kg (538 lbs) LT-F4WD

ENGINE

Type	Four-stroke, air-cooled, OHC, TDCC
Number of cylinders	1
Bore	66.0 mm (2.598 in)
Stroke	72.0 mm (2.835 in)
Piston displacement	246 cm^3 (15.0 cu. in)
Compression ratio	8.5 : 1
Carburetor	MIKUNI BST31SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-subtransmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (17/16)
Sub-transmission, Super Low Low High	 3.176(17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1,933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type	SUZUKI ''PEI''
Ignition timing	5° B.T.D.C below 1 800 r/min. and 35° B.T.D.C. above 3 800 r/min.
Spark plug	N.G.K.: D7EA ...For Australia and U.S.A. N.G.K.: DR7ES ...For the others
Batery	12V 50.4KC (14Ah)/ 10HR...For U.S.A. and U.K. 12V 72 kC (20 Ah)/ 10HR...For the others

CHASSIS

Front suspension	Independent, duble wishbone, oil damped spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped spring preload 5-way adjustable
Steering angle	Inside 38° Outside 28°
Caster	3°30′
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	AT22 × 8-10 ☆☆
Rear tire size	AT25 × 12-10 ☆
Front wheel travel	85 mm (3.3 in)
Rear wheel travel	95 mm (3.7 in)

CAPACITIES

Fueltank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (0.5/0.4 US/Imp gt)
Engine oil, oil change	3.5 L (3.7/3.1 US/Imp qt)
filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gearoil	150 ml (5.07/5.28 US/Imp oz)

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	———
	EX.	28 (1.1)	———
Valve lift	IN.	7.5 (0.30)	———
	EX.	6.5 (0.26)	———
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	———
	EX.	0.08—0.13 (0.003—0.005)	———
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	0.35 (0.014)
	EX.	0.030—0.057 (0.0012—0.0022)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	———
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	———
	EX.	5.455—5.470 (0.2148—0.2154)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	IN. & EX.	———	41.0 (1.68)
Valve spring tension (IN. & EX.)	24.1—29.3 kg (53.1—64.6 lbs) at length 36.8 mm (1.45 in)		———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.780—33.820 (1.3299—1.3315)	33.480 (1.3181)
	EX.	32.990—33.030 (1.2988—1.3004)	32.690 (1.2870)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)

ITEM	STANDARD	LIMIT
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)	———
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)	———
Camshaft runout	———	0.10 (0.004)
Cam chain 20-pitch length	———	129.0 (5.08)
Rocker arm I.D.	IN. & EX. 12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.	IN. & EX. 11.977—11.995 (0.4715—0.4722)	———
Cylinder head distortion	———	0.05 (0.002)
Cylinder head cover distortion	———	0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM			STANDARD	LIMIT
Compression pressure			1 000—1 400 kPa (10—14 kg/cm² 142—199 psi)	800 kPa (8 kg/cm² 114 psi)
Piston to cylinder clearance			0.040—0.050 (0.0016—0.0020)	0.120 (0.0047)
Cylinder bore			66.000—66.015 (2.5984—2.5990)	66.090 (2.6020)
Piston diam.			65.955—65.970 (2.5966—2.5972) Measure at 18 (0.71) from the skirt end.	65.880 (2.5937)
Cylinder distortion			———	0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 7.5 (0.30)	6.0 (0.24)
	2nd	R	Approx. 9.0 (0.35)	7.2 (0.28)
Piston ring end gap	1st & 2nd		0.10—0.25 (0.004—0.010)	0.70 (0.028)
Piston ring to groove clearance	1st		———	0.180 (0.0071)
	2nd		———	0.150 (0.0059)
Piston ring groove width	1st		1.01—1.03 (0.040—0.041)	———
	2nd		1.22—1.24 (0.048—0.049)	———
	Oil		2.01—2.03 (0.079—0.080)	———
Piston ring thickness	1st		0.97—0.99 (0.038—0.039)	———
	2nd		1.17—1.19 (0.046—0.047)	———

ITEM	STANDARD	LIMIT
Piston pin bore	16.002—16.008 (0.6300—0.6302)	16.030 (0.6311)
Piston pin O.D.	15.996—16.000 (0.6298—0.6299)	15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM		STANDARD	LIMIT
Conrod small end I.D.		16.006—16.014 (0.6302—0.6305)	16.040 (0.6315)
Conrod deflection		———	3.0 (0.12)
Conrod big end side clearance		0.10—0.45 (0.004—0.018)	1.00 (0.039)
Conrod big end width		17.95—18.00 (0.707—0.709)	———
Crank web-to-web width		53.0 ± 0.1 (2.087 ± 0.004)	———
Crankshaft runout	at left side	———	0.05 (0.002)
	at right side	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	———
Oil pressure (at 60°C, 140°F)	Above 30 kPa (0.30 kg/cm^2, 4.3 psi) Below 70 kPa (0.70 kg/cm^2, 10.0 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	0—1/8 turn back	———
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	———	0.10 (0.004)
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ ($4.567 \pm {}^{0.006}_{0}$)	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.250 (65/20)	———
Final reduction ratio	Front	3.284 (17/16 × 34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 × 25/11 × 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 × 18/17 × 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reverse	2.833 (29/12 × 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork-to-groove clearance		0.05—0.25 (0.002—0.010)	0.05 (0.020)
Reverse fork-to-groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.40 (0.157—0.173)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Shift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI BST31SS
Bore size		31 mm
I.D. No.		19B60
Idle r/min.		1 500 ± 100 r/min.
Float height		13 ± 0.5 mm (0.51 ± 0.02 in)
Main jet	(M.J.)	#122.5
Main air jet	(M.A.J.)	0.6 mm (0.02 in)
Jet needle	(J.N.)	5D40-4th
Needle jet	(N.J.)	P-4
Throttle valve	(Th.V.)	#125
Pilot jet	(P.J.)	#40
By-pass	(B.P.)	0.8, 0.8, 0.8 mm
Pilot outlet	(P.O.)	0.8 mm (0.03 in)
Valve seat	(V.S.)	1.5 mm (0.06 in)
Starter jet	(G.S.)	#42.5
Pilot screw	(P.S.)	2 7/8 turns back
Pilot air jet	(P.A.J.)	#160
Throttle cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM	SPECIFICATION		NOTE
Ignition timing	5° B.T.D.C. Below 1 800 r/min. and 35° B.T.D.C. Above 3 800 r/min.		
Spark plug	Type	NGK: D7EA	For Australia and U.S.A
		NGK: DR7ES	For the others
	Gap	0.6—0.7 (0.024—0.028)	
Spark performance	Over 8 (0.3) at 1 atm.		
Ignition coil resistance	Primary	0.1—0.5 Ω	Terminal — Ground
	Secondary	12—20 kΩ	Plug cap— Ground
Generator coil resistance	Pick-up	90—140 Ω	B/Y—G/W
	Charging	0.1—1.0 Ω	Y—Y
Generator no-load voltage (When engine is cold)	More than 60 V (AC) at 5 000 r/min.		
Regulated voltage	13—15 V at 5 000 r/min.		
Starter motor brush length	Limit: 6 (0.24)		MITSUBA
Commutator under-cut	Limit: 0.2 (0.008)		
Starter relay resistance	3—7 Ω		

ITEM		SPECIFICATION	NOTE
Battery	Type designation	FB14A-A2	For U.K. and U.S.A
	Capacity	12V 50.4 kC (14 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
	Type designation	Y50-N18A-A	For the others
	Capacity	12V 72 kC (20 Ah)/10 HR	
	Standard electrolyte S.G.	1.28 at 20°C (68°F)	
Fuse size	Main	20 A	
	Power source	15 A	
	Cooling fan	10 A	For Sweden

WATTAGE

Unit: W

ITEM		SPECIFICATION	
		For Sweden	For the others
Headlight	HI	35 × 2 pcs.	30 × 2 pcs.
	LO	36.5 × 2 pcs.	30 × 2 pcs.
Taillight		5	←
Speedometer light		3 × 2 pcs.	←
Reverse indicator light		3.4	←
Neutral indicator light		3.4	←
High beam indicator light		1.7	
Fan indicator light		3.4	

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake cable play		3—7 (0.1—0.3)	———
Rear brake pedal free travel		20—30 (0.8—1.2)	———
Rear brake pedal height		0 (Zero)	———
Brake drum I.D.	Front	———	165.7 (6.52)
	Rear	———	165.7 (6.52)
Brake lining thickness		———	1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	———
Master cylinder piston diam.	Front	13.957—13.984 (0.5495—0.5506)	———

ITEM	STANDARD		LIMIT
Steering angle	Inside	38° ± 3°	———
	Outside	28° ± 3°	———
Turning radius	2.7 m (8.9 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	1°		———
Kingpin inclination	12°		———
Caster	3°30'		———
Tire size	Front	AT22 × 8-10☆☆	———
	Rear	AT25 × 12-10☆	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE
LT-4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80—172 kg (175—380 lbs)
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

LT-F4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	35	0.35	5.1
REAR	20	0.20	2.9

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded type gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		For U.S.A.
	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$ method) or 91 octane or higher rated by the Research Method.		For Canada
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		For the others
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (0.5/0.4 US/Imp gal)		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5		
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)		
Brake fluid type	DOT 4		

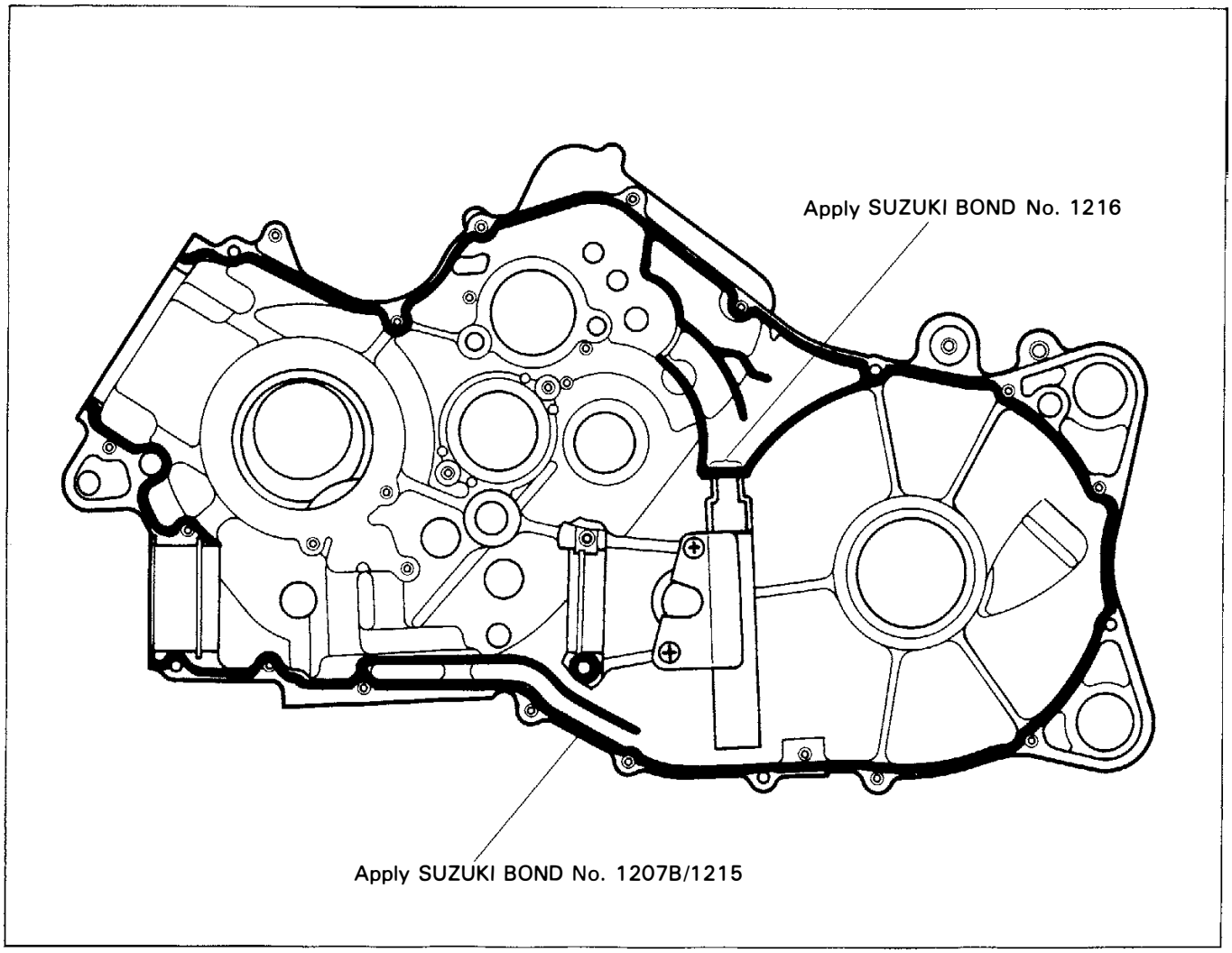
TIGHTENING TORQUE

CHASSIS

ITEM	N·m	kg-m	lb-ft
Frame bridge bolt	60 – 70	6.0 – 7.0	43.5 – 50.5
Differential case filler cap	20 – 25	2.0 – 2.5	14.5 – 18.0
Differential case drain plug	20 – 25	2.0 – 2.5	14.5 – 18.0
Secondary drive gear nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Front drive bevel gear nut	110 – 130	11.0 – 13.0	79.5 – 94.0
Front drive output yoke nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Propeller shaft joint nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential case bolt	23 – 28	2.3 – 2.8	16.5 – 20.0
Driven bevel gear bearing case bolt	18 – 23	1.8 – 2.3	13.0 – 16.5
Drive bevel gear housing bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Differential gear case mounting nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential lock cam cover	8 – 12	0.8 – 1.2	6.0 – 8.5
Differential lock cam stopper	20 – 25	2.0 – 2.5	14.5 – 18.0
Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft holder bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft lower nut	38 – 60	3.8 – 6.0	27.5 – 43.5
Steering knuckle end bolt (Upper & Lower)	120 – 170	12.0 – 17.0	87.5 – 123.0
Steering knuckle arm end pinch bolt	44 – 66	4.4 – 6.6	32.0 – 47.5
Steering knuckle arm pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Tie-rod end nut	22 – 35	2.2 – 3.5	16.0 – 25.5
Tie-rod end pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Front shock absorber mounting nut	48 – 72	4.8 – 7.2	34.5 – 52.0
Wishbone arm pivot nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Front axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Front wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Front brake master cylinder mounting bolt	6 – 9	0.6 – 0.9	4.5 – 6.5
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Brake pipe nut	13 – 18	1.3 – 1.8	9.5 – 13.0
Brake air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
Front brake panel bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Front wheel cylinder bolt	10 – 13	1.0 – 1.3	7.0 – 9.5
Footrest bolt	40 – 50	4.0 – 5.0	29.0 – 36.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Rear wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Rear brake cam lever nut	8 – 12	0.8 – 1.2	6.0 – 8.5

ITEM	N·m	kg-m	lb-ft
Rear brake drum cover bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Rear shock absorber mounting bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Rear suspension arm pivot bolt	50 – 70	5.0 – 7.0	36.0 – 50.5
Rear carrier bolt	30 – 40	3.0 – 4.0	21.5 – 29.0

CRANKCASE



- Apply SUZUKI BOND No. 1207B/1215 uniformly to the fitting surface of the right half of the crankcase, and assembly the cases within the few minutes.

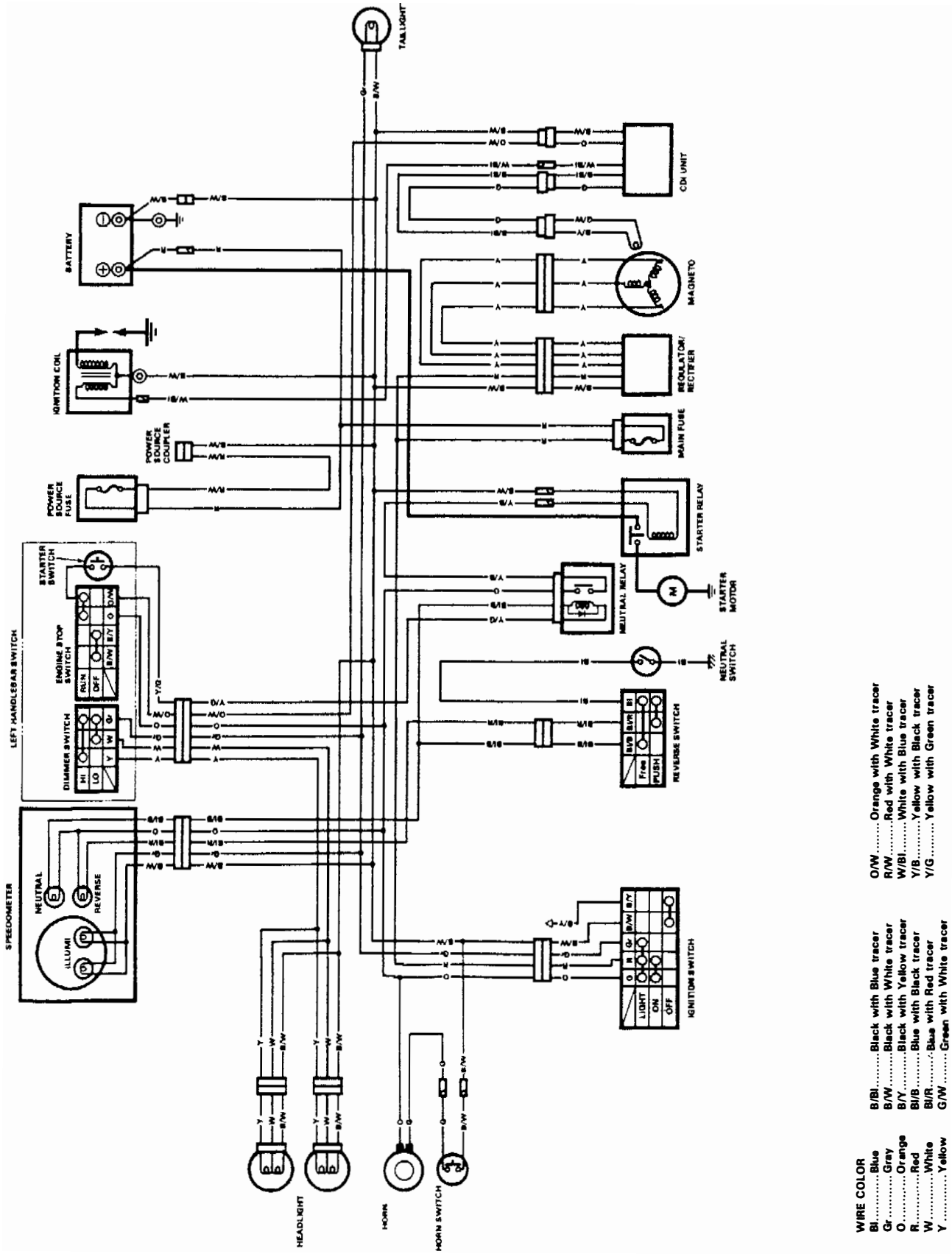
99104-31140 For U.S. model	SUZUKI BOND No. 1207B
99000-31110 For other models	SUZUKI BOND No. 1215

- Apply SUZUKI BOND No. 1216 to the blow-by gas pipe mating surfaces of the right and left crankcases as indicated in the illustration.

99104-31160 For U.S. Model	SUZUKI BOND No. 1216
99000-31160 For other models	SUZUKI BOND No. 1216

WIRING DIAGRAM

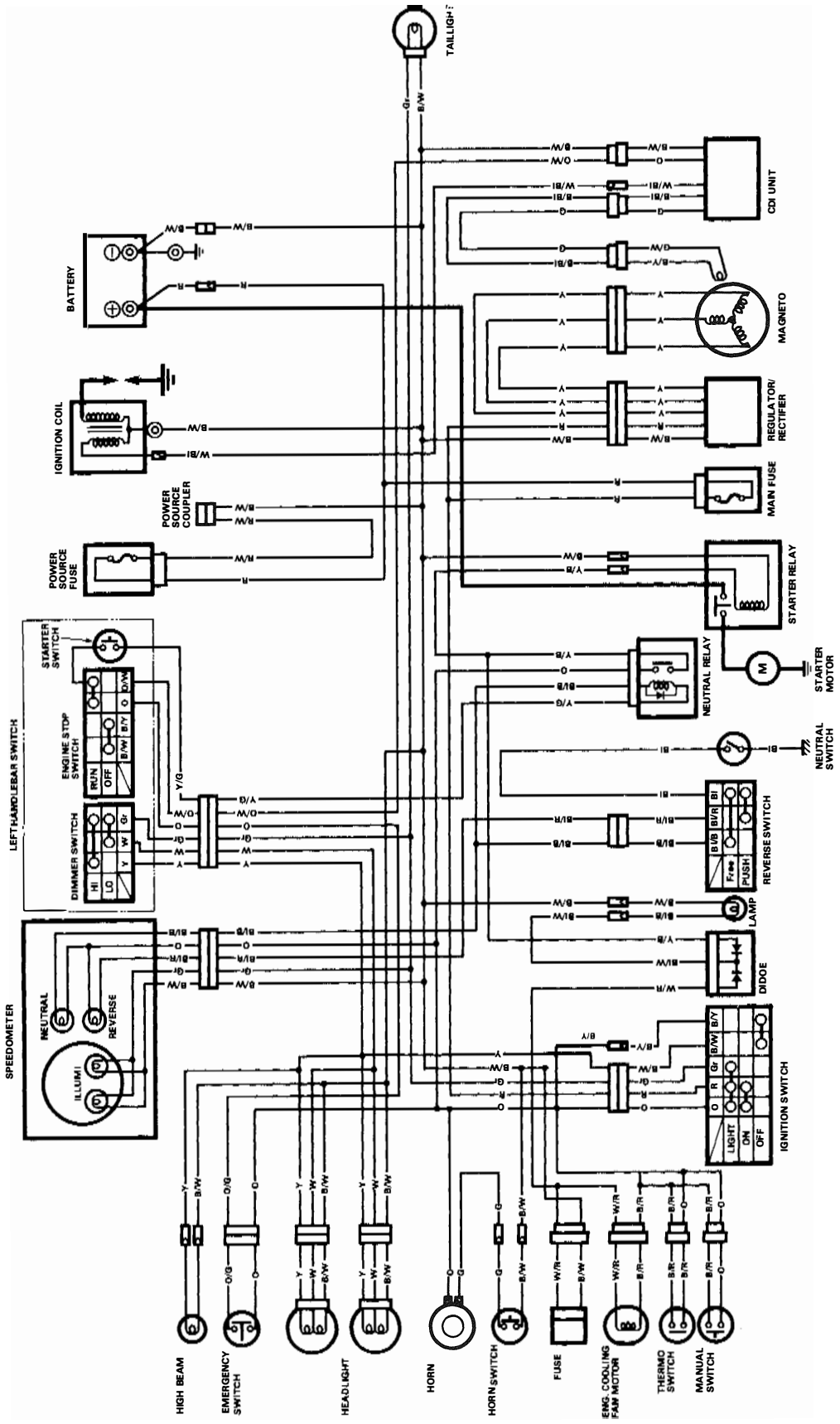
For Australia



WIRE COLOR

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

For Sweden

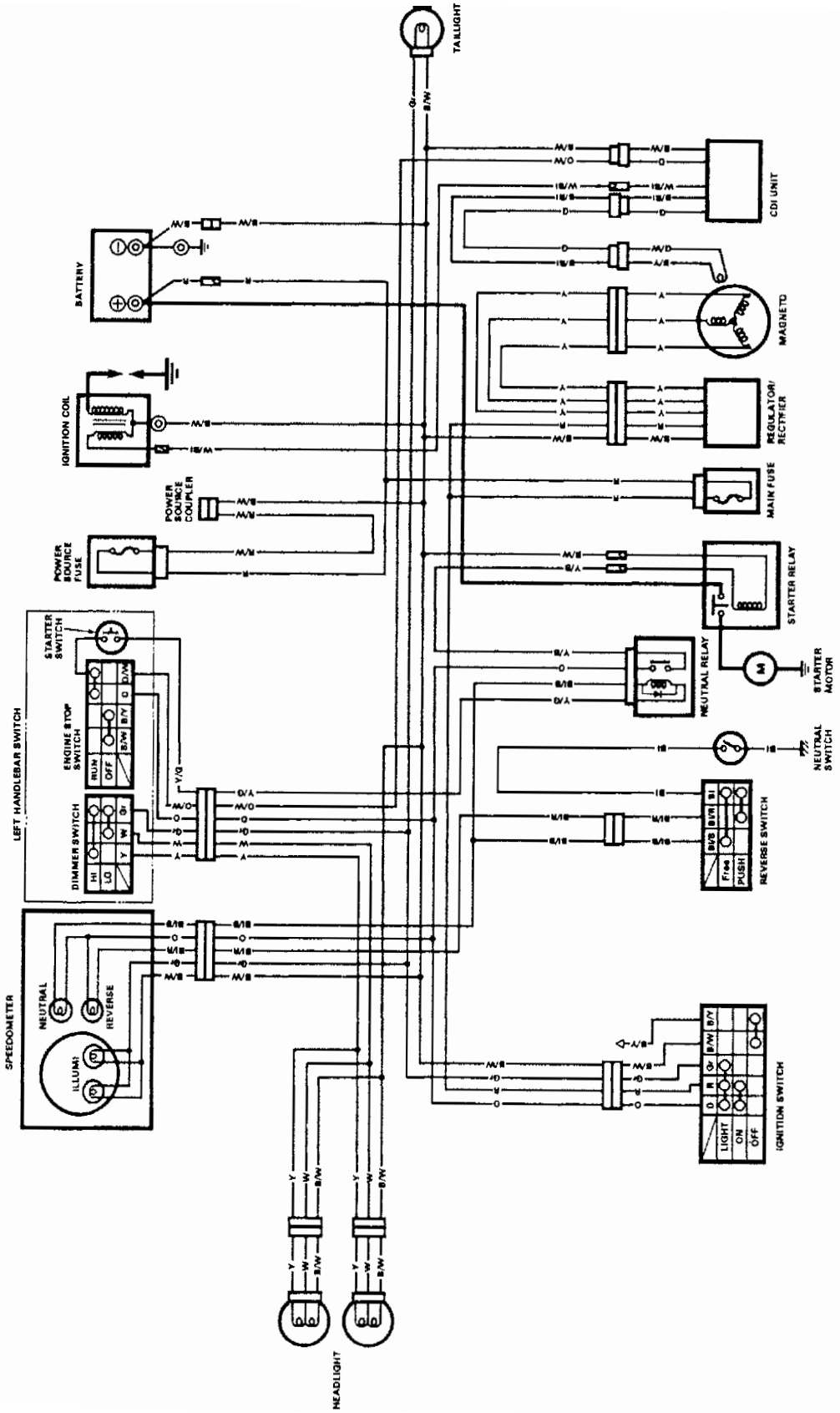


WIRE COLOR
Bl.....Blue
G.....Green
Gr.....Gray
O.....Orange
R.....Red
W.....White
Y.....Yellow
B/Bl.....Black with Blue tracer

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

R/W.....Red with White tracer
W/Bl.....White with Blue tracer
W/R.....White with Red tracer
Y/B.....Yellow with Black tracer
Y/G.....Yellow with Green tracer

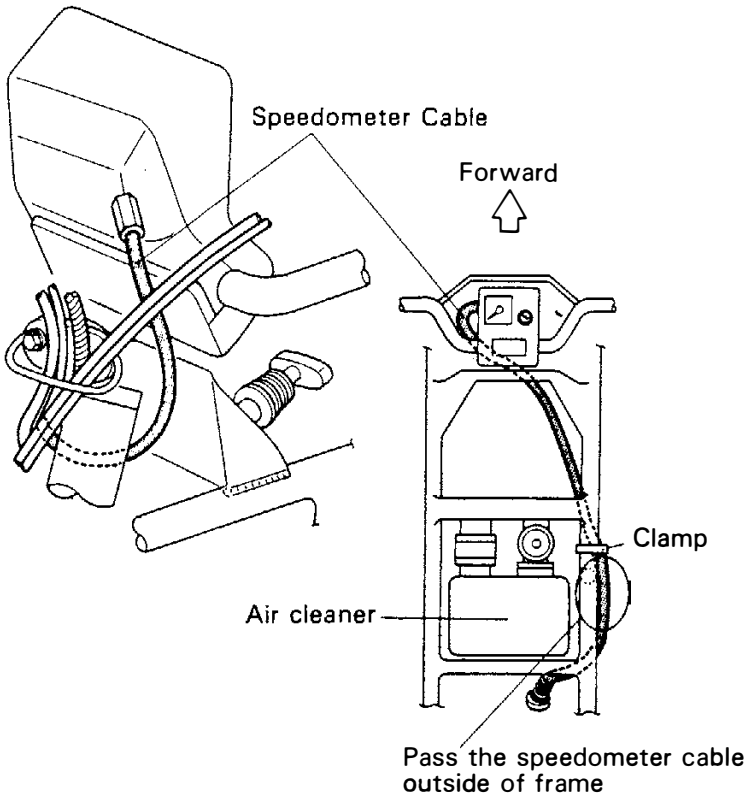
For the others

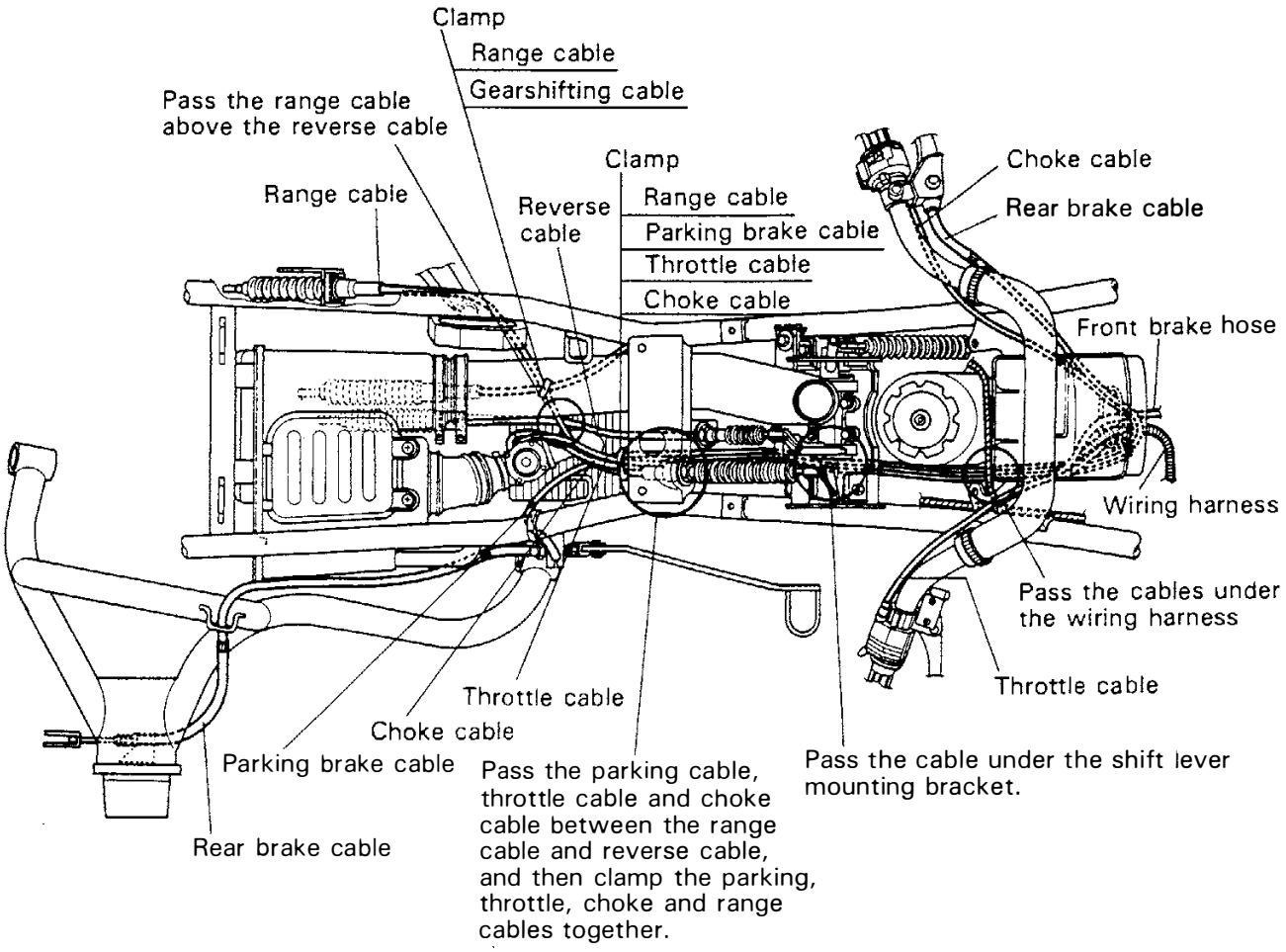


WIRE COLOR

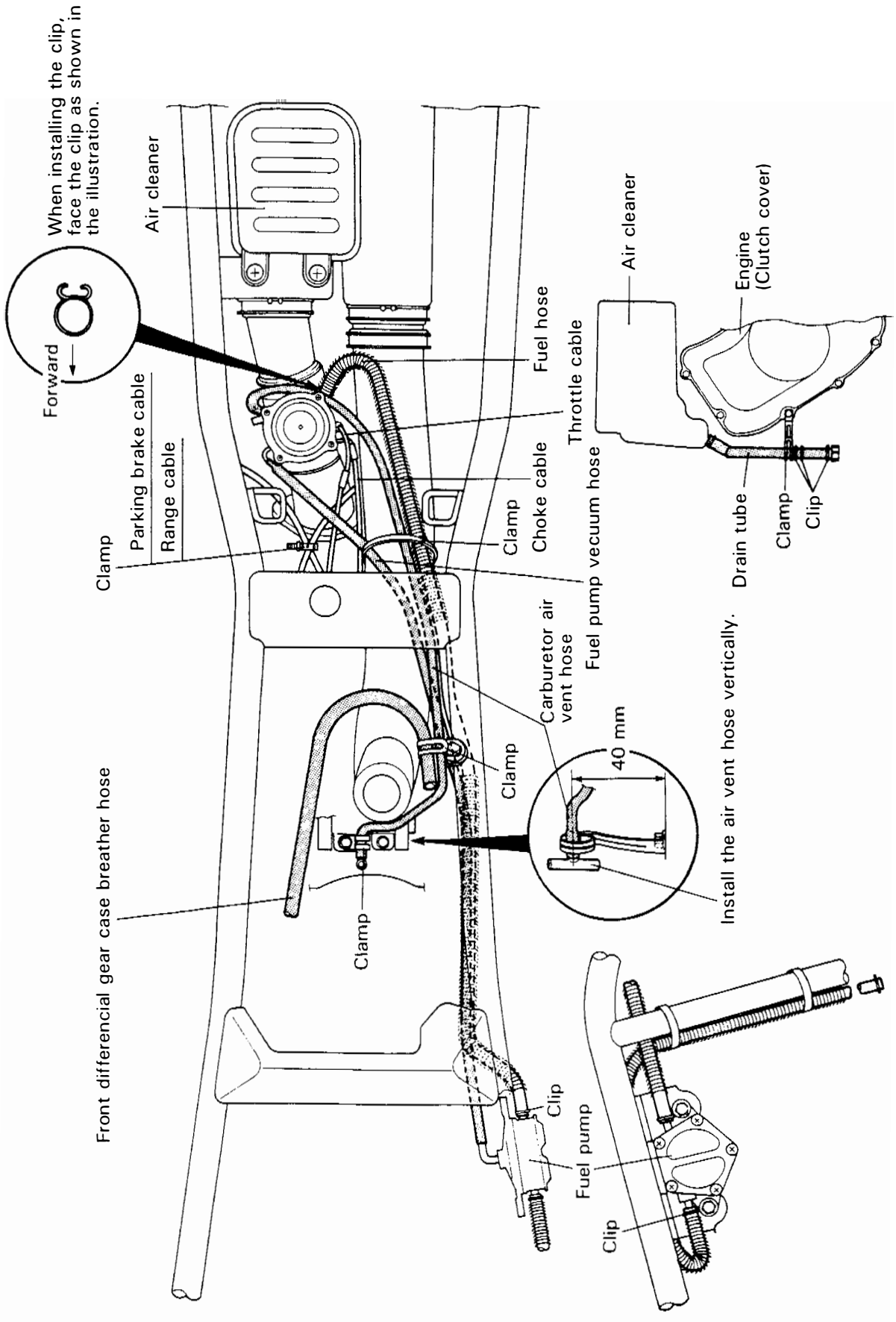
Bl.....Blue	B/Bl.....Black with Blue tracer	O/W.....Orange with White tracer
Gr.....Gray	B/W.....Black with White tracer	R/W.....Red with White tracer
O.....Orange	B/Y.....Black with Yellow tracer	W/Bl.....White with Blue tracer
R.....Red	Bl/B.....Blue with Black tracer	Y/B.....Yellow with Black tracer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

CABLE ROUTING





FUEL HOSE ROUTING



LT-F4WDXM ('91-MODEL)

FOREWORD

This section describes up-to-date service procedures which differ from those of the LT-4WDL/LT-F4WDL ('90-model).

NOTE:
- *Any differences between LT-4WDL/LT-F4WDL ('90-model) and LT-F4WDXM ('91-model) in specifications and service data are clearly indicated with the asterisk marks (*).*
- *Please refer to the sections 1 through 14 for details which are not given in this section.*

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SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 060 mm (81.1 in)
Overall width	1 200 mm (47.2 in)
Overall height	*1 085 mm (42.7 in)
Wheelbase	*1 165 mm (45.9 in)
Ground clearance	* 210 mm (8.3 in)
Front track	* 860 mm (33.9 in)
Rear track	* 860 mm (33.9 in)
Seat height	* 775 mm (30.5 in)
Dry mass	*274 kg (604 lbs)

ENGINE

Type	*Four-stroke, air-cooled, with oil cooler OHC
Number of cylinders	1
Bore	*68.5 mm (2.697 in)
Stroke	*76.0 mm (2.992 in)
Piston displacement	*280 cm^3 (17.1 cu.in)
Compression ratio	*8.9 : 1
Carburetor	MIKUNI BST31SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-sub-transmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	*3.150 (63/20)
Secondary reduction, Front	*1.125 (18/16)
Sub-transmission, Super Low Low High	 3.176 (17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1.933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front Rear	Shaft drive Gear drive

ELECTRICAL

Ignition type	SUZUKI "PEI" (CDI)
Ignition timing	*5° B.T.D.C. below 1 800 r/min. and 30° B.T.D.C. above 3 800 r/min.
Spark plug	NGK: D7EA ...For Australia and U.S.A. NGK: DR7ES ...For the others
Battery	12V 50.4 kC (14 Ah)/ 10HR...For U.S.A. and U.K. 12V 72 kC (20 Ah)/ 10HR...For the others

CHASSIS

Front suspension	Independent, double wishbone, oil damped spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped spring preload 5-way adjustable
Steering angle	Inside 36° Outside 26°
Caster	*5°30'
Trail	*35 mm (1.4 in)
Turning radius	*3.2 m (10.5 ft)
Front brake	Internal expanding, hydraulieally operated
Rear brake	Internal expanding, mechanically operated
Front tire size	*AT24 × 8-11☆☆
Rear tire size	*AT25 × 10-12☆☆
Front wheel travel	*100 mm (3.9 in)
Rear wheel travel	*125 mm (4.9 in)

CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (0.5/0.4 US/Imp gal)
Engine oil, oil change	3.5 L (3.7/3.1 US/Imp qt)
filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil	150 ml (5.1/5.3 US/Imp oz)

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.
These specifications are subject to change without notice.

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM		STANDARD	LIMIT
Valve diam.	IN.	33 (1.3)	———
	EX.	28 (1.1)	———
Valve lift	IN.	*8.0 (0.31)	———
	EX.	*7.5 (0.30)	———
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	———
	EX.	0.13—0.18 (0.005—0.007)	———
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	0.35 (0.014)
	EX.	0.030—0.057 (0.0012—0.0024)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	———
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	———
	EX.	5.455—5.470 (0.2148—0.2154)	———
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	———
Valve head radial runout	IN. & EX.	———	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	———	*35.1 (1.38)
	OUTER	———	*39.9 (1.57)
Valve spring tension (IN. & EX.)	INNER	*7.1—9.2 kg (15.7—20.3 lbs) at length 32.5 mm (1.28 in)	———
	OUTER	*17.3—21.3 kg (38.1—47.0 lbs) at length 36.0 mm (1.42 in)	———

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	*34.112—34.152 (1.3430—1.3446)	*33.820 (1.3315)
	EX.	*33.790—33.830 (1.3303—1.3319)	*33.490 (1.3185)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)		———
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)		———
Camshaft runout	———		0.10 (0.004)
Cam chain 20-pitch length	———		129 (5.08)
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	———
Rocker arm shaft O.D.	IN. & EX.	11.977—11.995 (0.4715—0.4722)	———
Cylinder head distortion	———		0.05 (0.002)
Cylinder head cover distortion	———		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD		LIMIT
Compression pressure	1 000—1 400 kPa (10—14 kg/cm², 142—199 psi)		800 kPa (8 kg/cm², 114 psi)
Piston to cylinder clearance	*0,060—0,070 (0,0024—0,0028)		0.120 (0.0047)
Cylinder bore	*68.500—68.515 (2.6968—2.6974)		*68.580 (2.7000)
Piston diam.	*68.445—68.460 (2.6947—2.6953) Measure at 18 mm (0.71 in) from the skirt end.		*68.380 (2.6921)
Cylinder distortion	———		0.05 (0.002)
Piston ring free end gap	1st R	Approx. *7.8 (0.31)	*6.2 (0.24)
	2nd R	Approx. *9.1 (0.36)	*7.3 (0.29)
Piston ring end gap	1st	*0.15—0.30 (0.006—0.012)	0.70 (0.028)
	2nd	*0.50—0.65 (0.020—0.026)	*1.00 (0.039)
Piston ring to groove clearance	1st	———	0.180 (0.0071)
	2nd	———	0.150 (0.0059)

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	*1.01—1.04 (0.040—0.041)	———
	2nd	1.22—1.24 (0.048—0.049)	———
	Oil	2.01—2.03 (0.079—0.080)	———
Piston ring thickness	1st	0.97—0.99 (0.038—0.039)	———
	2nd	1.17—1.19 (0.046—0.047)	———
Piston pin bore	*17.002—17.008 (0.6694—0.6696)		*17.030 (0.6705)
Piston pin O.D.	*16.996—17.000 (0.6691—0.6693)		*16.980 (0.6685)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD		LIMIT
Conrod small end I.D.	*17.006—17.014 (0.6695—0.6698)		*17.040 (0.6709)
Conrod deflection	———		3.0 (0.12)
Conrod big end side clearance	0.10—0.45 (0.004—0.018)		1.00 (0.039)
Conrod big end width	17.95—18.00 (0.707—0.709)		———
Crank web to web width	*55.0 ± 0.1 (2.165 ± 0.004)		———
Crankshaft runout	at left side	———	0.05 (0.002)
	at right side	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	———
Oil pressure (at 60°C,140°F)	Above 30 kPa (0.30 kg/cm², 43 psi) Below 70 kPa (0.70 kg/cm², 10.0 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	⅛ turn back	———
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	———	0.10 (0.004)

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

ITEM	STANDARD	LIMIT
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116\ ^{+0.15}_{-0}$ ($4.567\ ^{+0.006}_{-0}$)	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		*3.150 (63/20)	———
Secondary reduction ratio	Front	*1.125 (18/16)	———
Final reduction ratio	Front	3.090 (34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 x 25/11 x 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 x 18/17 x 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reserve	2.833 (29/12 x 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork to groove clearance		0.05—0.25 (0.002—0.010)	0.50 (0.020)
Reverse fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 & No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.10 (0.157—0.161)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Gearshift lever height		17 (0.7)	———

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

OIL TEMP. THERMO-SWITCH

ITEM	STANDARD		LIMIT
Oil temp. indicator light thermo-switch operating temperature	OFF→ON	Approx.*150°C (302°F)	———
	ON→OFF	Approx.*135°C (275°F)	———

CARBURETOR

ITEM	SPECIFICATION
Carburetor type	MIKUNI BST31SS
Bore size	31 mm
I.D. No	*19B8
Idle r/min.	1 500 ± 100 r/min.
Float height	13 ± 0.5 mm (0.51±0.02 in)
Main jet (M.J.)	*# 120
Main air jet (M.A.J.)	*1.1 mm
Jet needle (J.N.)	5D40-4th
Needle jet (N.J.)	*P-2
Throttle valve (Th.V.)	*#130
Pilot jet (P.J.)	*#37.5
By-pass (B.P.)	0.8 mm
Pilot outlet (P.O.)	0.8 mm (0.03 in)
Valve seat (V.S.)	1.5 mm (0.06 in)
Starter jet (G.S.)	*#42.5
Pilot screw (P.S.)	*2-⅝ turns back
Pilot air jet (P.A.J.)	*#155
Throttle cable play	0.5—1.0 mm (0.02—0.04 in)

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		5° B.T.D.C. Below 1 800 r/min. and 30°B.T.D.C. Above 3 800 r/min.		
Spark plug		Type	NGK: D7EA	E-03,24
			NGK: DR7ES	For the others
		Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1—0.5 Ω	Terminal—Ground
		Secondary	12—20 kΩ	Plug cap-Ground
Generator coil resistance		Pick-up	90—140 Ω	B/Y—G/W
		Charging	0.1—1.0 Ω	Y—Y
Generator no-load voltage (When engine is cold)		More than 60 V (AC)		
Regulated voltage		13—15 V at 5 000 r/min.		
Starter motor brush length		Limit: 6 (0.24)		MITSUBA
Commutator under-cut		Limit: 0.2 (0.008)		
Starter relay resistance		3—7 Ω		
Battery	Type designation	*YB14A-A2		For U.K. and U.S.A.
	Capacity	12 V 50.4 kC (14 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
	Type designation	Y50-N18A-A		For the others
	Capacity	12 V 72 kC (20 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Main	20 A		
	Power source	15 A		
	Cooling fan	10 A		For Sweden

WATTAGE

Unit:W

ITEM		SPECIFICATION	
		For the others	For Sweden
Headlight	HI	30 x 2pcs.	35 x 2 pcs.
	LO	30 x 2pcs.	36.5 x 2 pcs.
Taillight		5	←
Speedometer light		3 x 2 pcs.	←
Reverse indicator light		3.4	←
Neutral indicator light		3.4	←
High beam indicator light			1.7
Engine oil temp. indicator light		*3.4	←

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.
NOTE: E-03 ··· For U.S.A, E-24 ··· For Australia.

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake cable play	3—7 (0.1—0.3)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Rear brake pedal height	0 (Zero)		———
Brake drum I.D.	Front	———	*180.7 (7.11)
	Rear	———	*180.7 (7.11)
Brake lining thickness	———		1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	
Master cylinder piston diam.	Rear	13.957—13.984 (0.5495—0.5506)	———
Steering angle	Inside	*36° ± 3°	———
	Outside	*26° ± 3°	———
Turning radius	*3.2 m (10.5 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	*1° (Negative)		———
Kingpin inclination	*8° 54′		———
Caster	*5° 30′		———
Tire size	Front	*AT24 x 8-11 ☆☆	———
	Rear	*AT25 x 10-12 ☆☆	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	*30	*0.30	*4.4
REAR	*27.5	*0.275	*4.0

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		For U.S.A.
	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$ method) or 91 octane or higher rated by the Reserch Method.		For Canada
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		For the others
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (0.5/0.4 US/Imp gal)		
Engine oil type	SAE 10W/40, API SE or SF		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5		
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)		
Brake fluid type	DOT 4		

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

TIGHTENING TORQUE

ENGINE

ITEM		N·m	kg-m	lb-ft
Cylinder head cover bolt		*9 – 11	*0.9 – 1.1	*6.5 – 8.0
De-compression shaft mounting nut		15 – 20	1.5 – 2.0	11.0 – 14.5
Camshaft sprocket bolt		10 – 12	1.0 – 1.2	7.0 – 8.5
Tensioner bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Tensioner cap bolt		7 – 9	0.7 – 0.9	5.0 – 6.5
Cylinder head nut	8 mm	21 – 25	2.1 – 2.5	15.0 – 18.0
	6 mm	7 – 11	0.7 – 1.1	5.0 – 8.0
Cylinder base nut		7 – 11	0.7 – 1.1	5.0 – 8.0
Recoil starter cup nut		30 – 35	3.0 – 3.5	21.5 – 25.5
Magneto rotor nut		145 – 175	14.5 – 17.5	105.0 – 126.5
First clutch shoe nut		110 – 130	11.0 – 13.0	79.5 – 94.0
Starter clutch bolt		23 – 28	2.3 – 2.8	16.5 – 20.0
Clutch sleeve hub nut		60 – 80	6.0 – 8.0	43.5 – 58.0
Clutch release arm bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
T.D.C. inspection plug		20 – 25	2.0 – 2.5	14.5 – 18.0
Oil pressure checking bolt		9 – 15	0.9 – 1.5	6.5 – 11.0
Oil pump mounting bolt		7 – 10	0.7 – 1.0	5.0 – 7.0
Engine oil drain plug	14 mm	20 – 25	2.0 – 2.5	14.5 – 18.0
	12 mm	18 – 23	1.8 – 2.3	13.0 – 16.5
Reverse switch		20 – 25	2.0 – 2.5	14.5 – 18.0
Reverse switch cam stopper bolt		20 – 25	2.0 – 2.5	14.5 – 18.0
Crankcase securing bolt	6 mm	9 – 13	0.9 – 1.3	6.5 – 9.5
	8 mm	20 – 24	2.0 – 2.4	14.5 – 17.5
Engine mounting bolt	10 mm	64 – 76	6.4 – 7.6	46.5 – 55.0
	12 mm	60 – 72	6.0 – 7.2	43.5 – 52.0
Exhaust pipe nut		9 – 12	0.9 – 1.2	6.5 – 8.5
Muffler connection bolt		18 – 23	1.8 – 2.3	13.0 – 16.5
Muffler mounting bolt		18 – 28	1.8 – 2.8	13.0 – 20.0
Gearshift arm stopper bolt		15 – 23	1.5 – 2.3	11.0 – 16.5
Gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Sub-transmission gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Reverse gearshift lever bolt		8 – 12	0.8 – 1.2	6.0 – 8.5
Oil indicator light thermo-switch		*17 – 23	*1.7 – 2.3	12.5 – 16.5
Oil hose mounting bolt		*9 – 11	*0.9 – 1.1	*6.5 – 8.0

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

CHASSIS

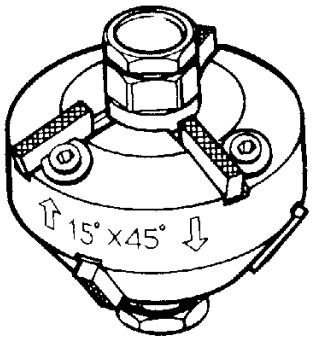
ITEM	N·m	kg-m	lb-ft
Frame bridge bolt	60 – 70	6.0 – 7.0	43.5 – 50.5
Differential case filler cap	20 – 25	2.0 – 2.5	14.5 – 18.0
Differential case drain plug	20 – 25	2.0 – 2.5	14.5 – 18.0
Secondary drive gear nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Front drive bevel gear nut	110 – 130	11.0 – 13.0	79.5 – 94.0
Front drive output yoke nut	90 – 110	9.0 – 11.0	65.0 – 79.5
Propeller shaft joint nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential case bolt	23 – 28	2.3 – 2.8	16.5 – 20.0
Driven bevel gear bearing case bolt	18 – 23	1.8 – 2.3	13.0 – 16.5
Drive bevel gear housing bolt	20 – 26	2.0 – 2.6	14.5 – 19.0
Differential gear case mounting nut	40 – 50	4.0 – 5.0	29.0 – 36.0
Differential lock cam cover	8 – 12	0.8 – 1.2	6.0 – 8.5
Differential lock cam stopper	20 – 25	2.0 – 2.5	14.5 – 18.0
Handlebar clamp bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft holder bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Steering shaft lower nut	38 – 60	3.8 – 6.0	27.5 – 43.5
Steering knuckle end bolt (Upper & Lower)	120 – 170	12.0 – 17.0	87.5 – 123.0
Steering knuckle arm end pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Steering knuckle arm pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Steering knuckle arm bolt	*18 – 28	*1.8 – 2.8	*13.0 – 20.0
Tie-rod end nut	22 – 35	2.2 – 3.5	16.0 – 25.5
Tie-rod lock nut	22 – 35	2.2 – 3.5	16.0 – 25.5
Tie-rod end pinch bolt	40 – 60	4.0 – 6.0	29.0 – 43.5
Front shock absorber mounting nut	*48 – 72	*4.8 – 7.2	*34.5 – 52.0
Wishbone arm pivot nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Front axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0
Front wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Front brake master cylinder mounting bolt	*5 – 8	*0.5 – 0.8	*3.5 – 6.0
Brake hose union bolt	20 – 25	2.0 – 2.5	14.5 – 18.0
Brake pipe nut	13 – 18	1.3 – 1.8	9.5 – 13.0
Brake air bleeder valve	6 – 9	0.6 – 0.9	4.5 – 6.5
Front brake panel bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Front wheel cylinder bolt	10 – 13	1.0 – 1.3	7.0 – 9.5
Footrest bolt	*30 – 40	*3.0 – 4.0	*21.5 – 29.0
Rear axle nut	85 – 115	8.5 – 11.5	61.5 – 83.0

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

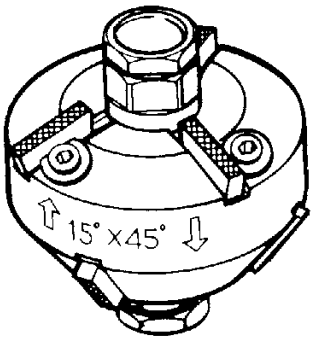
ITEM	N·m	kg-m	lb-ft
Rear wheel set nut	45 – 65	4.5 – 6.5	32.5 – 47.0
Rear brake cam lever bolt	8 – 12	0.8 – 1.2	6.0 – 8.5
Rear brake drum nut	*48 – 72	*4.8 – 7.2	*34.5 – 52.0
Rear brake drum cover bolt	18 – 28	1.8 – 2.8	13.0 – 20.0
Rear shock absorber mounting nut	40 – 60	4.0 – 6.0	29.0 – 43.5
Rear suspension arm pivot nut	50 – 70	5.0 – 7.0	36.0 – 50.5
Rear carrier bolt	30 – 40	3.0 – 4.0	21.5 – 29.0
Rear brake pedal bolt	9 – 14	0.9 – 1.4	6.5 – 10.0
Rear brake plug	*5 – 8	*0.5 – 0.8	*3.5 – 6.0

Specifications marked with asterisk (*) are exclusive to LT-F4WDXM.

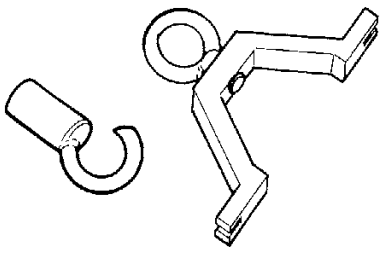
SPECIAL TOOLS



This tool is used for servicing the valve seat.
09916-24420: Valve seat cutter head (N-116).



This tool is used for servicing the valve seat.
09916-27720: Valve seat cutter head (N-229).



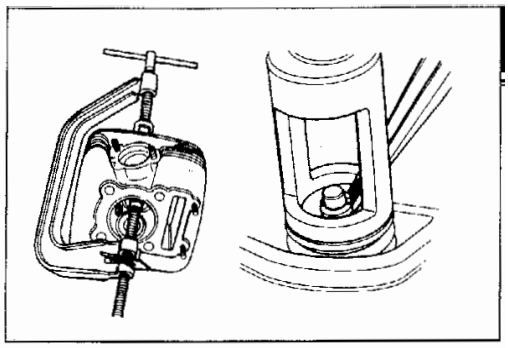
This tool is used for removing the wheel hub.
09924-21920: Wheel hub remover set.

CYLINDER HEAD

CYLINDER HEAD SERVICING

- Compress the valve spring with the special tools.

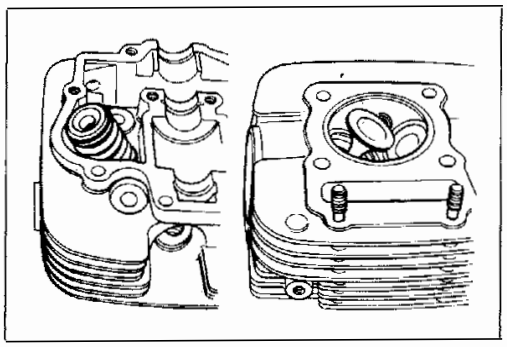
09916-14510: Valve spring compressor
09916-14910: Valve spring compressor attachment



- Remove the valve cotters with the special tool.

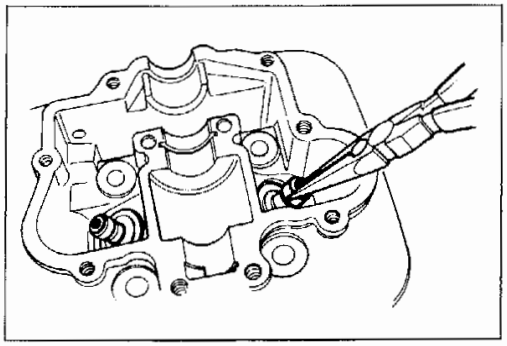
09916-84510: Tweezers

- Remove the valve spring retainer and springs
- Remove the valve from the other side.



- Remove the oil seal with a long-nose pliers.
- Remove the spring seat.

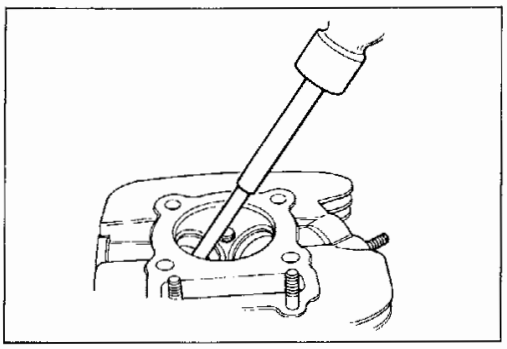
NOTE:
Removal of valves completes ordinary disassembling work. If valve guides have to be removed for replacement after inspecting related parts, carry out the steps shown in valve guide servicing.



VALVE GUIDE SERVICING

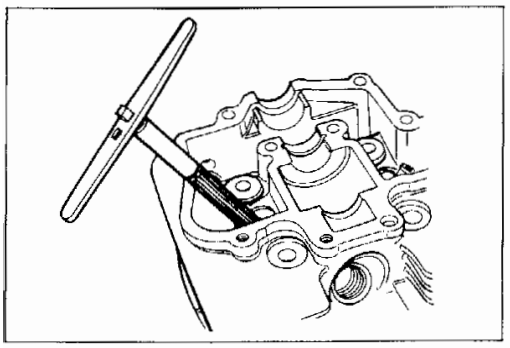
- Remove the valve guide with a valve guide remover.

09916-44910: Valve guide remover



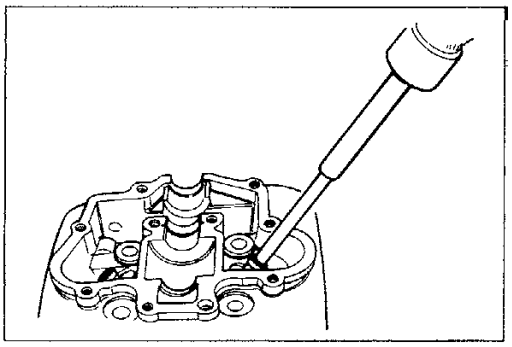
- Re-finish the valve guide holes in cylinder head with a 11.3 mm reamer and handle.

09916-34561: 11.3 mm reamer
09916-34542: Reamer handle



- Fit a ring to each valve guide. Be sure to use new rings and valve guides. Rings and valve guides removed in disassembly must be discarded.
- Lubricate each valve guide and drive the guide into the guide hole with a valve guide installer.

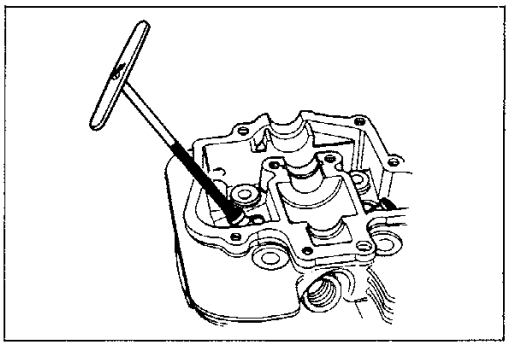
09916-44910: Valve guide installer and remover



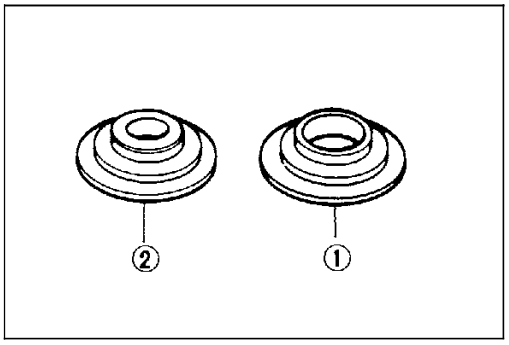
- After fitting valve guides, re-finish their guiding bores with a 5.5 mm reamer and handle.

09916-34550: 5.5 mm reamer
09916-34542: Reamer handle

NOTE:
Be sure to clean and oil the guides after reaming.

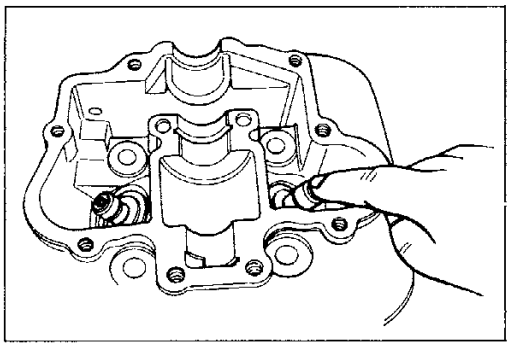


- Install valve spring lower seat ①. Be careful not to confuse the lower seat with the spring retainer ②.



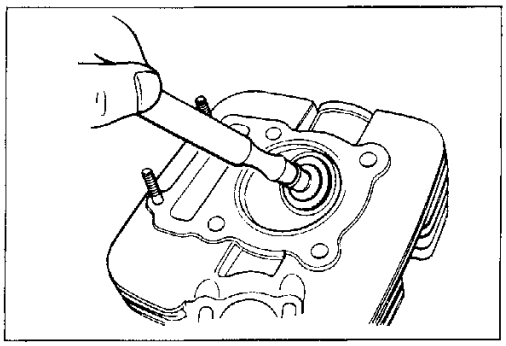
- Lubricate each seal, and push them into position with the finger tip.

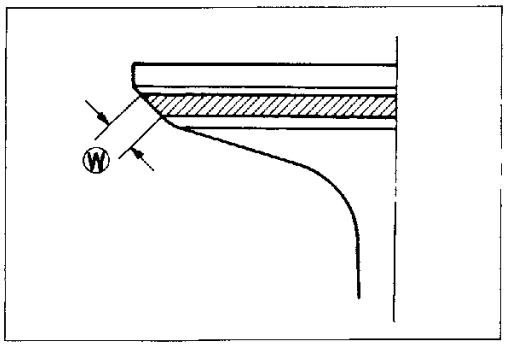
CAUTION:
Do not reuse the oil seals.



VALVE AND SEAT CONDITION
VALVE SEAT WIDTH

Coat the valve seat with prussian blue uniformly.
Fit the valve and tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating contact. In this operation, use the valve lapper to hold the valve head.
The ring-like dye impression left on the valve face must be continuous-without any break. In addition, the width of the dye ring, which is the visualized seat ''width'', must be within the specification.





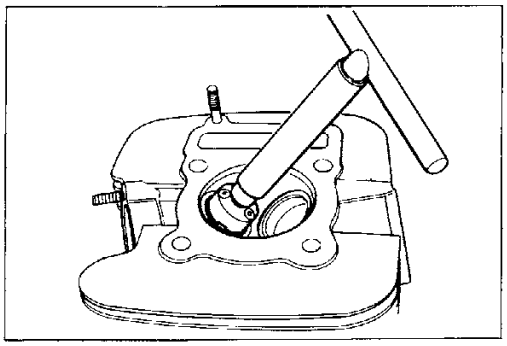
Valve seat width
Standard Ⓦ : 0.9 — 1.1 mm (0.035 — 0.043 in)

If either requirement is not met, correct the seat by servicing it as follows.

VALVE SEAT SERVICING

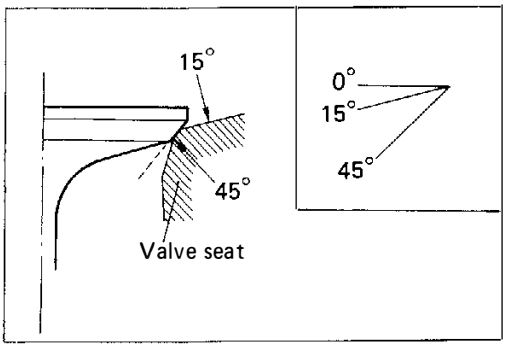
The valve seats for both intake and exhaust valves are angled to present two bevels, 15° and 45°.

	Intake side	Exhaust side
45°	N-608	N-116
15°	N-229	N-116



For U.S.A. model

N-140-5.5	Solid pilot (IN.)
N-100-10	Solid pilot (EX.)



For other models
09916-21110: Valve seat cutter set
09916-24900: Valve seat cutter set
09916-24420: Cutter (N-116)
09916-27720: Cutter (N-229)
09916-24935: Cutter (N-608)
09916-24480: Solid pilot (N-140-5.5)
09916-24450: Solid pilot (N-100-10)

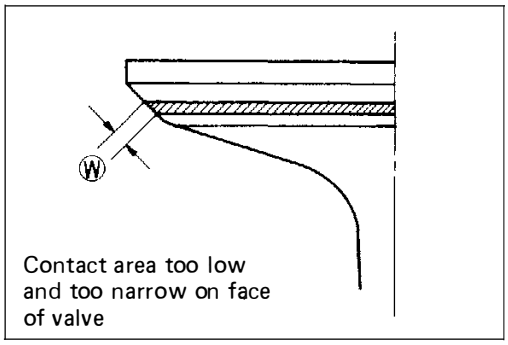
NOTE:
The valve seat contact area must be inspected after each cut.

1. Insert with a slight rotation, the solid pilot that gives a snug fit. The shoulder on the pilot should be about 10 mm (0.39 in) from the valve guide.
2. Using the 45° cutter, descale and cleanup the seat with one or two turns.
3. Inspect the seat by the previous seat width measurement procedure. If the seat is pitted or burned, additional seat conditioning with the 45° cutter is required.

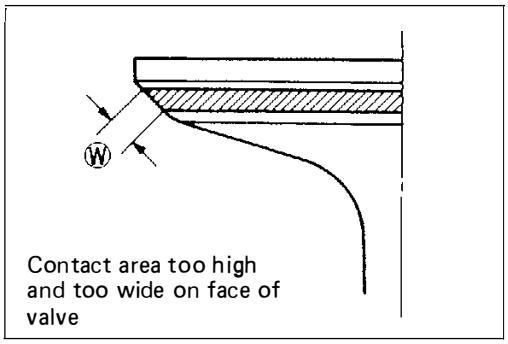
CAUTION:
Cut the minimum amount necessary from the seat to prevent the possibility of the valve stem becoming too close to the rocker arm for correct valve contact angle.

If the contact area is too low or too narrow, use the 45° cutter to raise and widen the contact area. If the contact area is too high or too wide, use the 15° cutter to lower and narrow the contact area.

4. After the desired seat position and width is achieved, use the 45° cutter very lightly to clean up any burrs caused by the previous cutting operations. DO NOT use lapping compound after the final cut is made. The finished valve seat should have a velvety smooth finish and not a highly polished or shiny finish. This will provide a soft surface for the final seating of the valve which will occur during the first few seconds of engine operation.
5. Clean and assemble the head and valve components. Fill the intake and exhaust ports with gasoline to check for leaks. If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.



Contact area too low and too narrow on face of valve



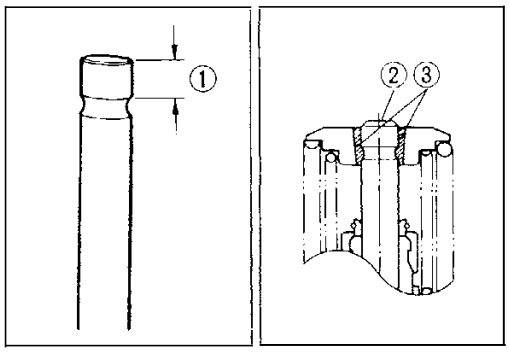
Contact area too high and too wide on face of valve

WARNING:
Always use extreme caution when handling gasoline.

NOTE:
Be sure to adjust the valve clearance after reassembling the engine.

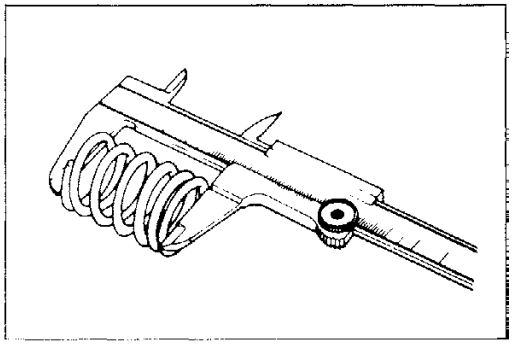
VALVE STEM END CONDITION

Inspect the valve stem end face for pitting and wear. If pitting or wear of the stem end face are present, the valve stem end may be resurfaced, providing that the length ① will not be reduced to less than 2.5 mm (0.10 in). If this length becomes less than 2.5 mm (0.10 in), the valve must be replaced. After installing a valve whose stem end has been ground off as above, check to ensure that the face ② of the valve stem end is above the cotters ③



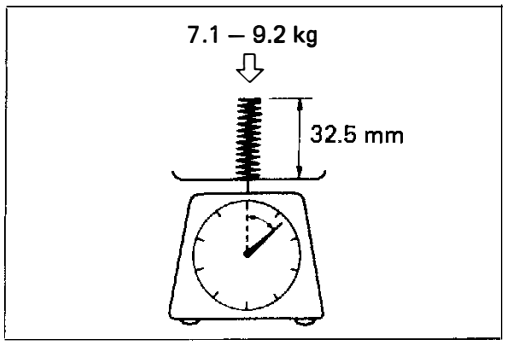
VALVE SPRINGS

Check the springs for strength by measuring their free lengths and also the force required to compress them. If the limit indicated below is exceeded by the free length reading or if the measured force does not fall within the range specified, replace with a SUZUKI spring as a set.



Valve spring free length (IN. & EX.)
Service Limit INNER : 35.1 mm (1.38 in)
OUTER: 39.9 mm (1.57 in)

Valve spring tension (IN. & EX.)
Standard INNER : 7.1 — 9.2 kg/32.5 mm
(15.7 — 20.3 lbs/1.28 in)
OUTER: 17.3 — 21.3 kg/36.0 mm
(38.1 — 47.0 lbs/1.42 in)

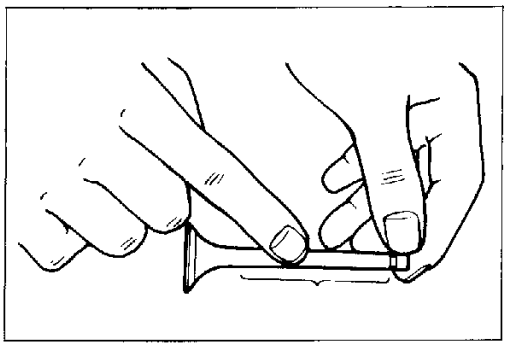


REASSEMBLY

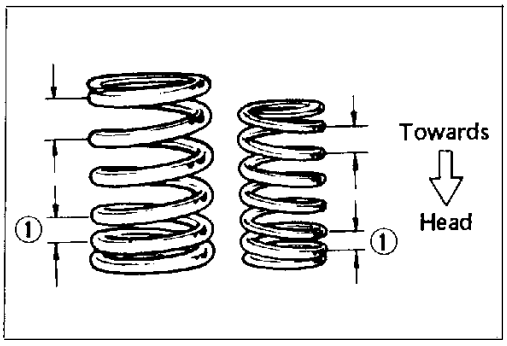
- Insert the valves, with their stems coated with (SUZUKI MOLY PASTE) all around and along the full stem length without any break. Similarly oil the lip of the stem seal.

99000-25140: SUZUKI Moly paste

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

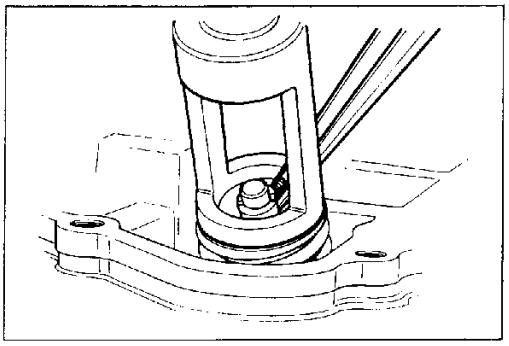


- Install the valve springs, making sure that the close-pitch end ① of each spring goes in first to rest on the head. The coil pitch of both inner and outer springs vary: the pitch decreases from top to bottom, as shown in the illustration.



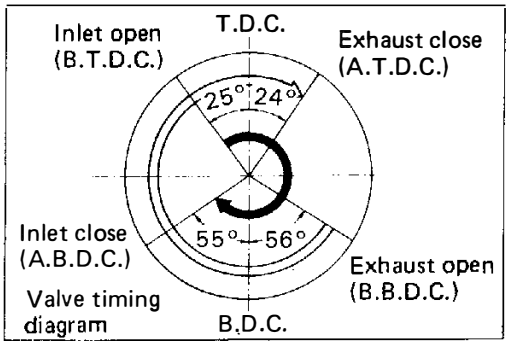
- Fit a valve spring retainer, compress the spring with a valve spring compressor and insert the cotters.

09916-14510: Valve spring compressor
09916-14910: Attachment
09916-84510: Tweezers



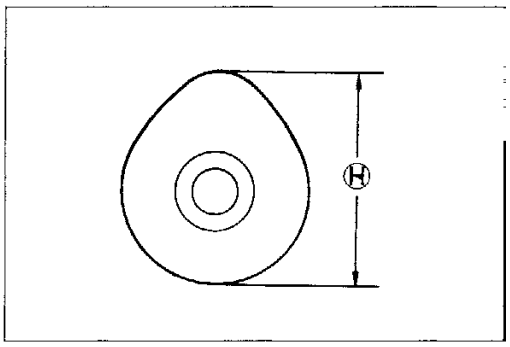
CAMSHAFT

The camshaft should be checked for runout and also for wear of cams and journals if the engine has been noted to produce abnormal noise or vibration or to lack output power. Any of these malconditions could be caused by a worn camshaft.



CAMSHAFT CAM WEAR

Worn-down cams are often the cause of mistimed valve operation resulting in reduced power output. The limit of cam wear is specified for both intake and exhaust cams in terms of cam height Ⓗ, which is to be measured with a micrometer. Replace camshaft if it is found worn down to the limit.

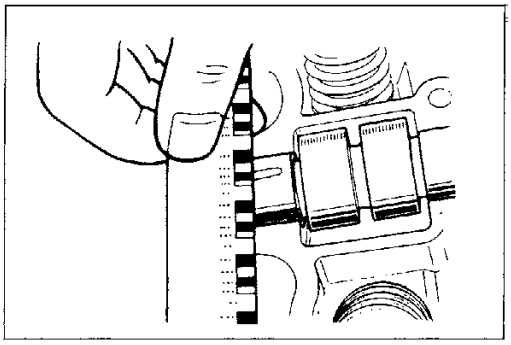


09900-20202: Micrometer (25 — 50 mm)

Cam height
Service Limit IN. : 33.820 mm (1.3315 in)
EX.: 33.490 mm (1.3185 in)

CAMSHAFT JOURNAL WEAR

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



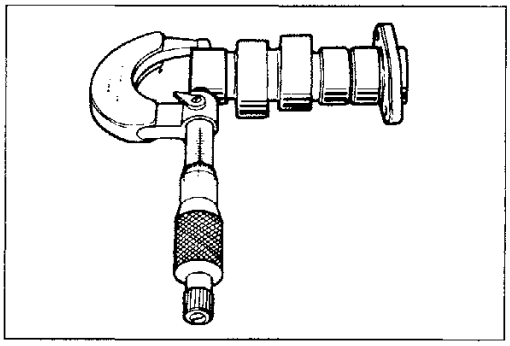
Camshaft journal oil clearance
Service Limit: 0.150 mm (0.0059 in)

- Tighten the cylinder head cover bolts evenly and diagonally to the specified torque.

Tightening torque: 9 — 11 N·m
(0.9 — 1.1 kg-m, 6.5 — 8.0 lb-ft)

NOTE:
To properly measure the oil clearance with plastigauge, all gasket material must be removed from fitting surfaces of cylinder head and cover. Do not apply SUZUKI BOND No. 1207B/1215 until after the oil clearance has been determined.

If the camshaft journal oil clearance measured exceeds the limit, measure the outside diameter of camshaft.
Replace either the cylinder head set or the camshaft if the clearance is incorrect.



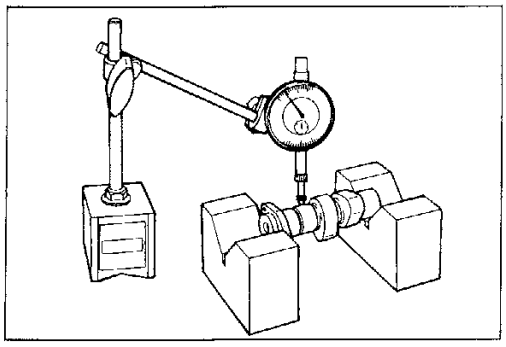
Camshaft journal O.D. Standard:
21.959 — 21.980 mm (0.8645 — 0.8654 in)

09900-20205: Micrometer (0 — 25 mm)

CAMSHAFT RUNOUT

Measure the runout with a dial gauge. Replace the camshaft if the runout exceeds the limit.

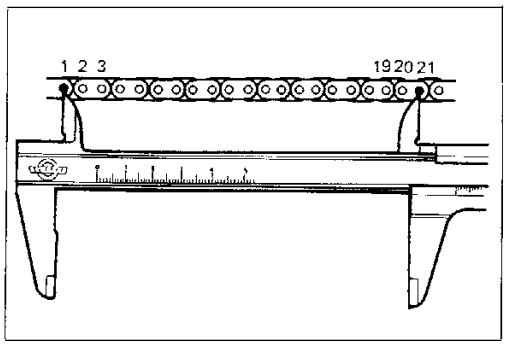
Service Limit: 0.10 mm (0.004 in)



CAM CHAIN 20-PITCH LENGTH

Pull the chain tight to remove any slack, then using vernier calipers, measure the 20-pitch (21 pins) length of cam chain. If it measures more than the limit, replace the cam chain.

Service Limit: 129.0 mm (5.08 in)

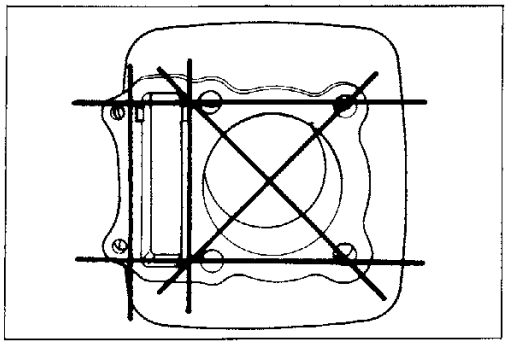


CYLINDER, PISTON AND PISTON RING

CYLINDER DISTORSION

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

Service Limit: 0.05 mm (0.002 in)

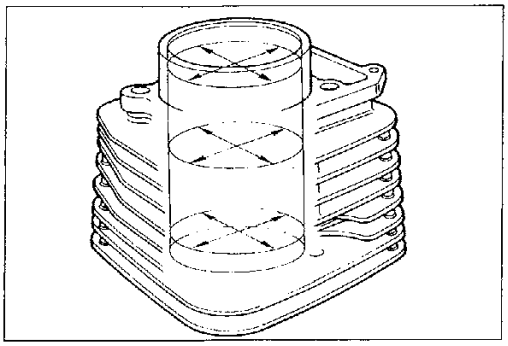


CYLINDER BORE

Measure the cylinder bore diameter at six places. If any one of the measurements exceeds the limit, overhaul the cylinder and replace the piston with an oversize, or replace the cylinder.

Service Limit: 68.580 mm (2.7000 in)

09900-20508: Cylinder gauge set



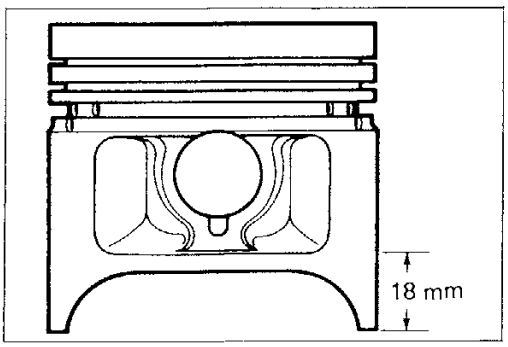
PISTON DIAMETER

Using a micrometer, measure the piston outside diameter 18 mm (0.71 in) from the skirt end as shown in the illustration. If the measurement is less than the limit, replace the piston.

Service Limit: 68.380 mm (2.6921 in)

09900-20203: Micrometer (50 — 70 mm)

Piston oversize: 0.5, 1.0 mm



PISTON-CYLINDER CLEARANCE

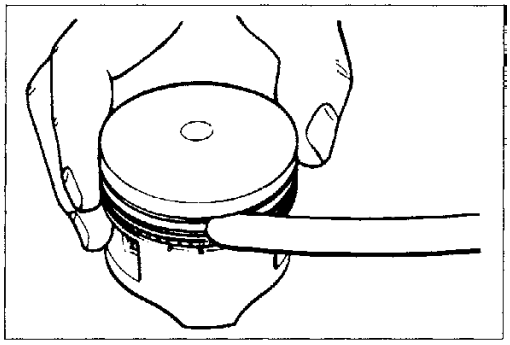
As a result of the previous measurement, if the piston to cylinder clearance exceeds the limit shown below, overhaul the cylinder and use an oversize piston, or replace both cylinder and piston.

Service Limit: 0.120 mm (0.0047 in)

PISTON RING-GROOVE CLEARANCE

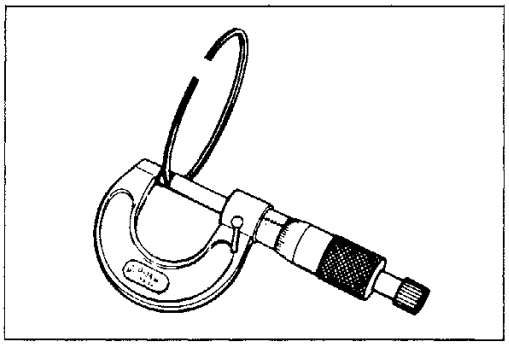
Measure the side clearance of the 1st and 2nd rings with a thickness gauge. If any of the clearances exceeds the limit, replace both piston and piston rings.

09900-20803: Thickness gauge



NOTE:
Using a soft metal scraper, decarbon the crown of the piston. Clean the ring grooves similarly.

Piston ring-groove clearance
Service Limit 1st : 0.180 mm (0.0071 in)
2nd: 0.150 mm (0.0059 in)



Piston ring groove width

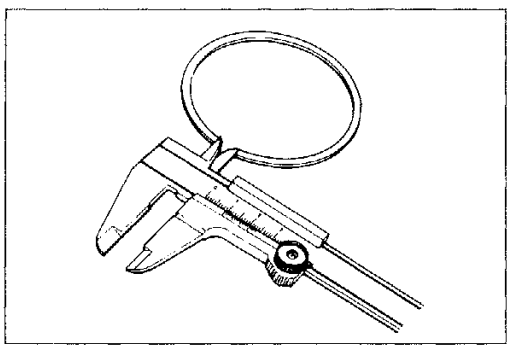
Piston ring	Standard
1st	1.01 — 1.03 mm (0.040 — 0.041 in)
2nd	1.22 — 1.24 mm (0.048 — 0.049 in)
Oil	2.01 — 2.03 mm (0.079 — 0.080 in)

Piston ring thickness

Piston ring	Standard
1st	0.97 — 0.99 mm (0.038 — 0.039 in)
2nd	1.17 — 1.19 mm (0.046 — 0.047 in)

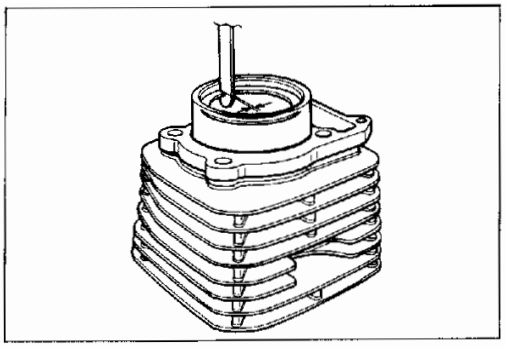
PISTON RING FREE END GAP AND PISTON RING END GAP

Before installing piston rings, measure the free end gap of each ring with a vernier calipers.
Next, fit the ring in the cylinder, and measure each ring end gap with a thickness gauge.
If any ring has an excess end gap, replace the ring.



Piston ring free end gap
Service Limit 1st : 6.2 mm (0.24 in)
2nd: 7.3 mm (0.29 in)

Piston ring end gap
Service Limit 1st : 0.70 mm (0.028 in)
2nd: 1.00 mm (0.039 in)



OVERSIZE RINGS

Oversize piston rings

The following two types of oversize piston rings are used. They bear the following identification numbers.

Piston ring	1st	2nd
0.5 mm O.S.	50	50
1.0 mm O.S.	100	100

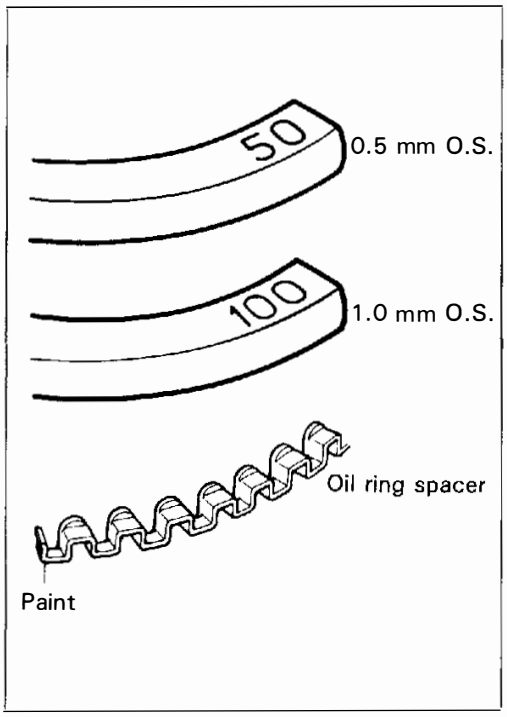
Oversize oil rings

The following two types of oversize oil rings are used. They bear the following identification marks.

0.5 mm O.S.	Painted red
1.0 mm O.S.	Painted yellow

Oversize rail

Just measure outside diameter to identify the side rail as there is no mark on numbers on it.



PISTON PIN AND CONROD

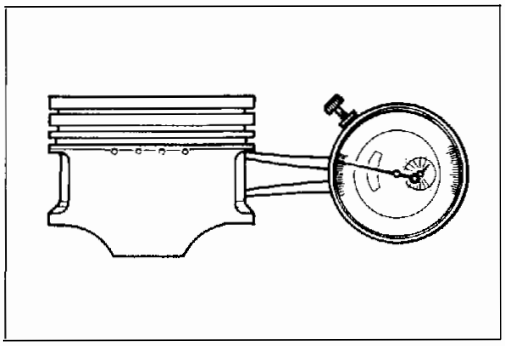
PISTON PIN BORE AND PIN

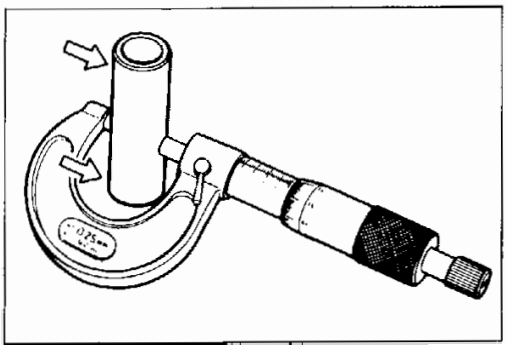
Measure the piston pin bore inside diameter with a caliper gauge, and measure the piston pin outside diameter with a micrometer. If the difference between these two measurements is more than the limits, replace both piston and piston pin.

Piston pin bore
Service Limit: 17.030 mm (0.6705 in)

Piston pin bore
Service Limit: 16.980 mm (0.6685 in)

09900-20605: Dial calipers
09900-20205: Micrometer (0 — 25 mm)





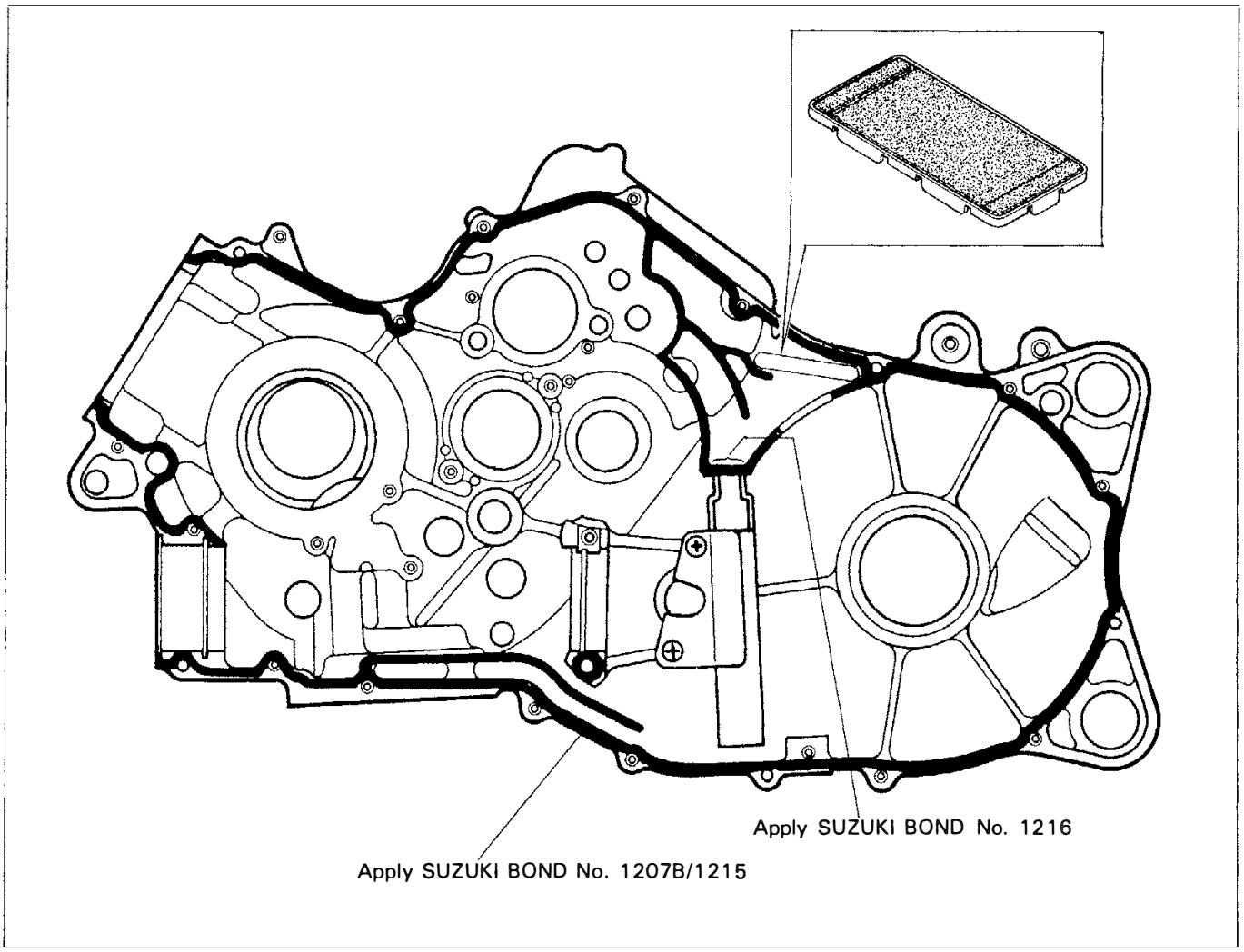
CONROD SMALL END I.D.

Measure the conrod small end inside diameter with a caliper gauge.

Service Limit: 17.040 mm (0.6709 in)

If the conrod small end bore inside diameter exceeds the limit, replace conrod.

CRANKCASE



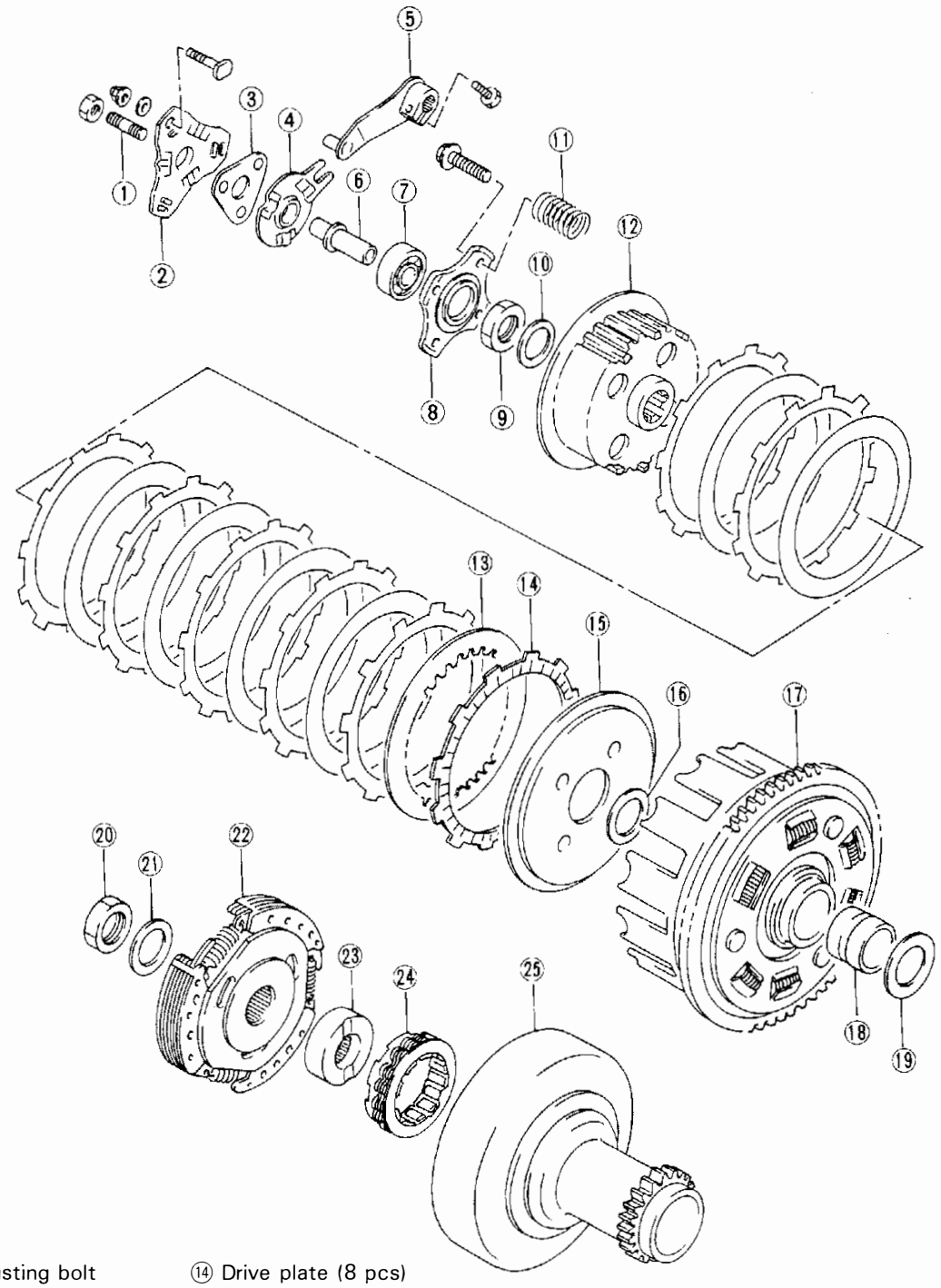
- Apply SUZUKI BOND No. 1207B/1215 uniformly to the fitting surface of the right half of the crankcase, and assembly the cases within the few minutes.

99104-31140 For U.S. model	SUZUKI BOND No. 1207B
99000-31110 For other models	SUZUKI BOND No. 1215

- Apply SUZUKI BOND No. 1216 to the blow-by gas pipe mating surfaces of the right and left crankcases as indicated in the illustration.

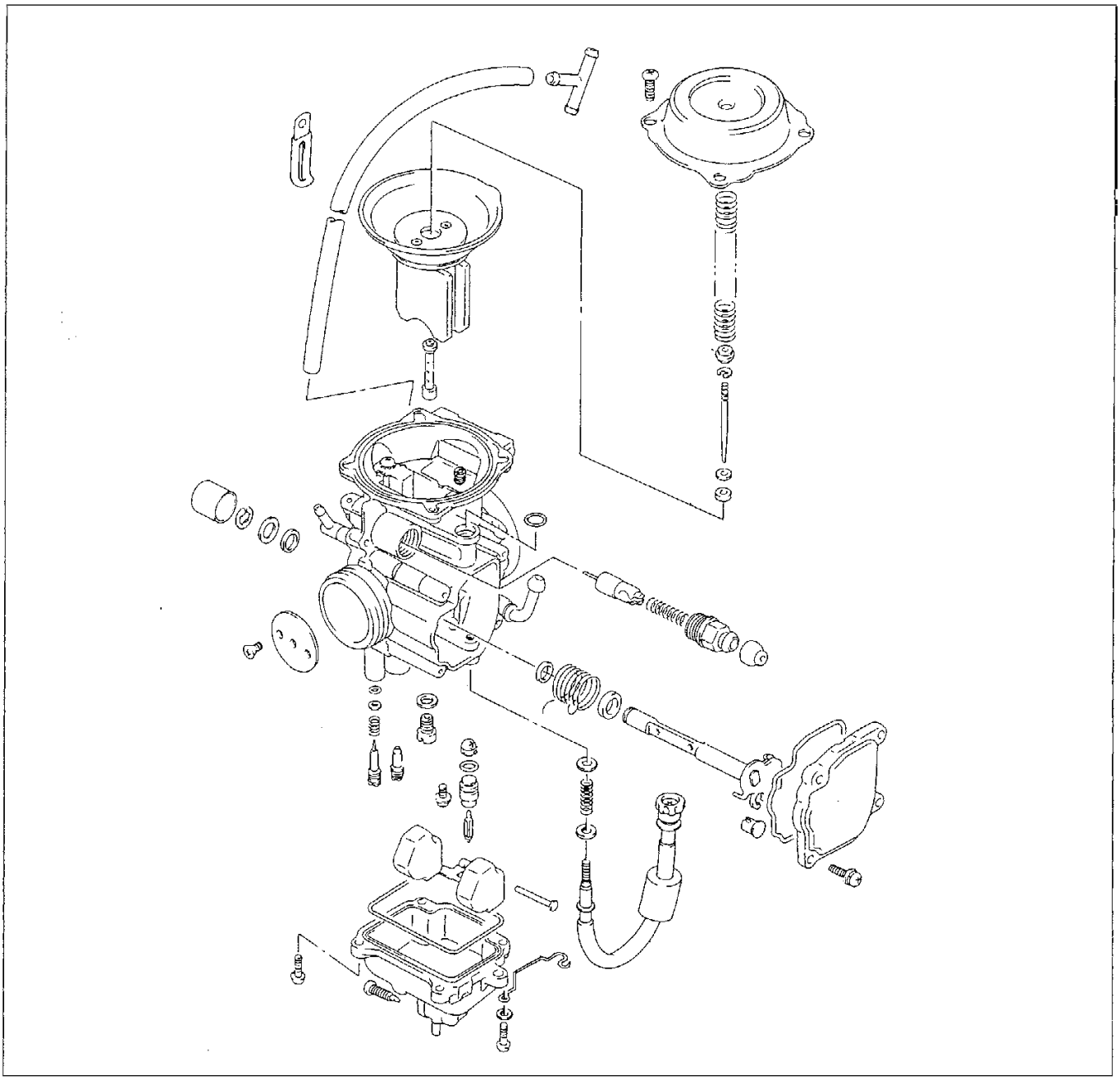
99104-31160 For U.S. Model	SUZUKI BOND No. 1216
99000-31160 For other models	SUZUKI BOND No. 1216

CLUTCH



① Release adjusting bolt
② Release ball plate
③ Release ball
④ Release ball bracket
⑤ Release arm
⑥ Push piece
⑦ Bearing
⑧ Release plate
⑨ Clutch sleeve hub nut
⑩ Concaved washer
⑪ Spring
⑫ Clutch sleeve hub
⑬ Driven plate (7 pcs)
⑭ Drive plate (8 pcs)
⑮ Pressure plate
⑯ Washer
⑰ Primary driven gear
⑱ Spacer
⑲ Washer
⑳ Shoe nut
㉑ Concaved washer
㉒ Shoe
㉓ Inner piece
㉔ One-way clutch
㉕ Primary drive gear

CARBURETOR

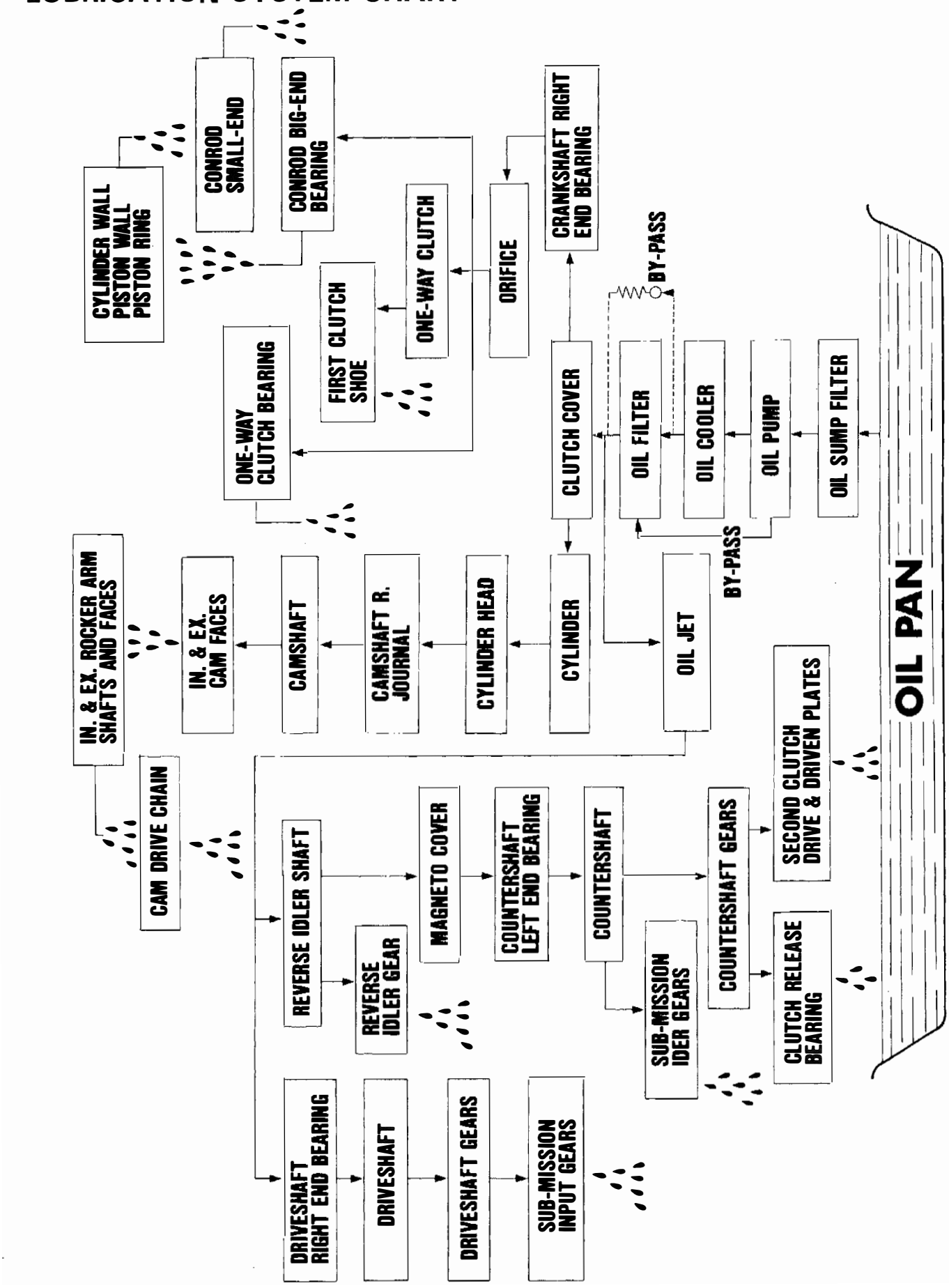


SPECIFICATION

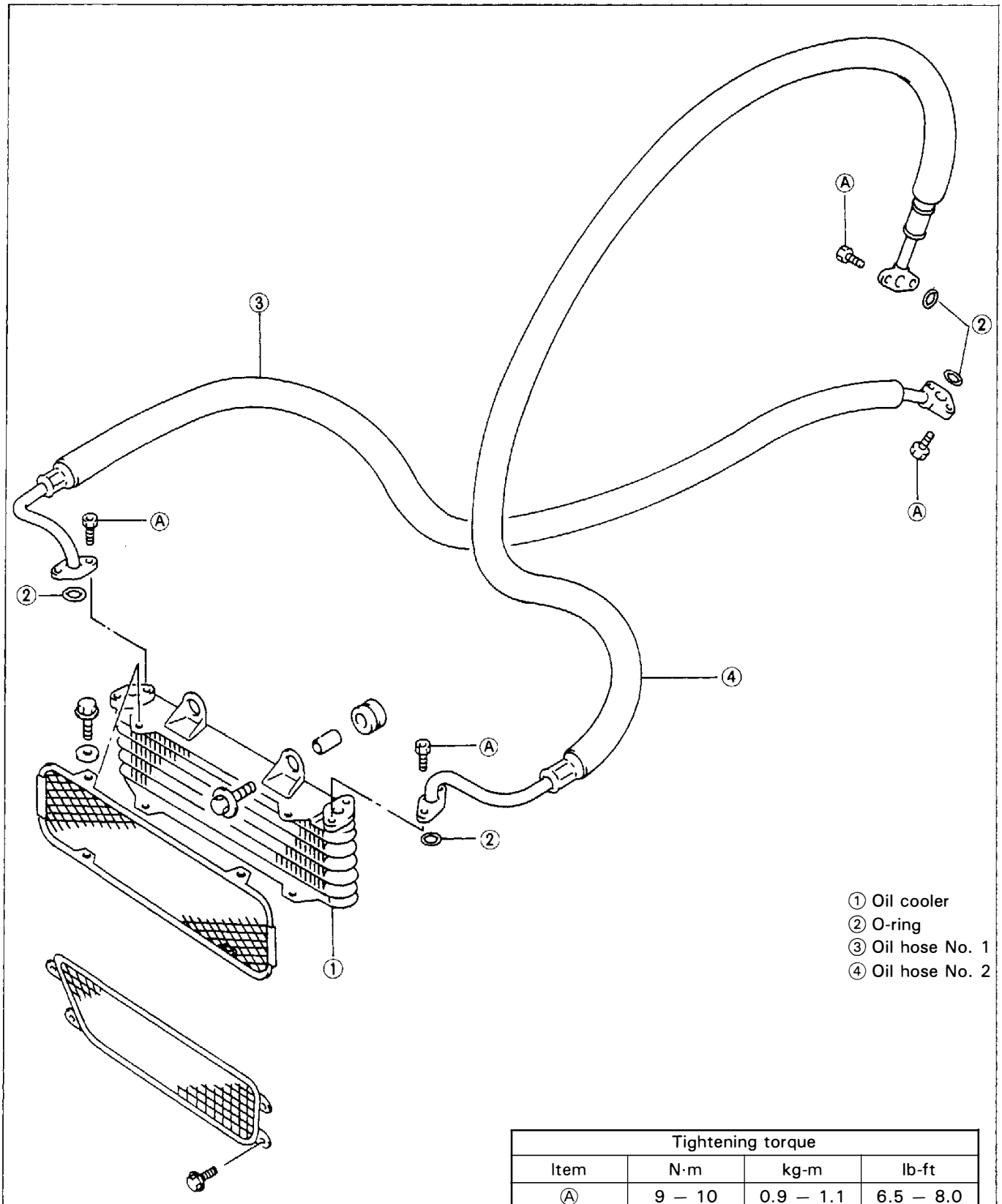
ITEM	SPECIFICATION
Carburetor type	MIKUNI BST31SS
Bore size	31 mm
I.D. No.	19B8
Idle r/min	1 500 ± 100 r/min
Float height	13 ± 0.5 mm (0.51 ± 0.02 in)
Main jet (M.J.)	#122.5
Main air jet (M.A.J.)	1.1 mm
Jet needle (J.N.)	5D40 — 4th
Needle jet (N.J.)	P-2

ITEM	SPECIFICATION
Throttle valve (Th.V.)	#130
Pilot jet (P.J.)	#37.5
By-pass (B.P.)	0.8 mm
Pilot outlet (P.O.)	0.8 mm
Valve seat (V.S.)	1.5 mm
Starter jet (G.S.)	#42.5
Pilot screw (P.S.)	2-5/8 turns back
Pilot air jet (P.A.J.)	#155
Throttle cable play	0.5 — 1.0 mm (0.02 — 0.04 in)

LUBRICATION SYSTEM CHART



OIL COOLER

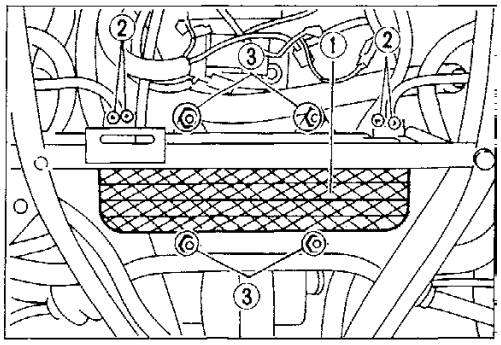


① Oil cooler
② O-ring
③ Oil hose No. 1
④ Oil hose No. 2

Tightening torque			
Item	N·m	kg-m	lb-ft
Ⓐ	9 — 10	0.9 — 1.1	6.5 — 8.0

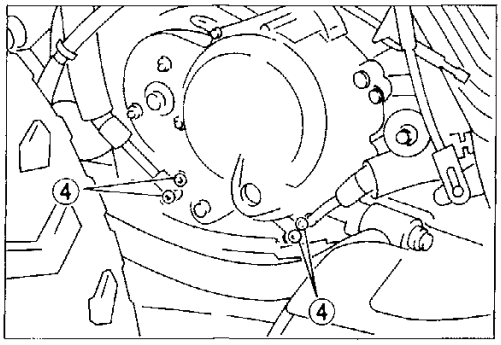
REMOVAL

- Remove the front fender and rear fender.
- Drain engine oil.
- Remove the oil cooler ① by removing the oil hose mounting bolts ② and oil cooler mounting bolts ③.



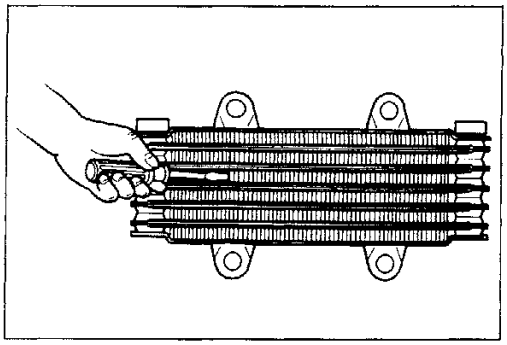
- Remove the oil hose mounting bolts ④.
- Remove the oil hose by removing the oil hose clamps.

CAUTION:
The removed O-ring should be replaced with new ones.



INSPECTION

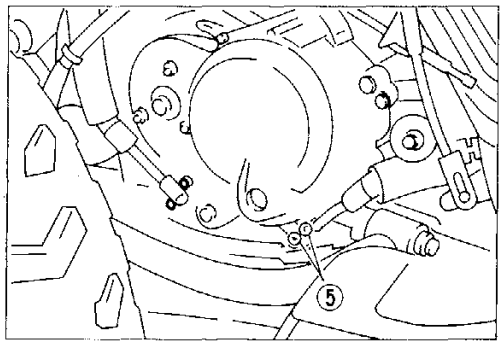
Road dirt or trashes stuck to the fins must be removed. Use of compressed air is recommended for this cleaning. Fins bent down or dented can be repaired by straightening them with the blade of a small screwdriver.
Any oil hose found in cracked condition or damaged must be replaced.



INSTALLATION

This oil cooler is to be installed in the reverse order of removal, and refer to pages 26 and 42.

- Install the new O-rings.
- After installing the oil cooler, be sure to add engine oil.
- Apply SUZUKI BOND No. 1207B to the oil hose No. 1 mounting bolts ⑤ and tighten them to the specified torque.

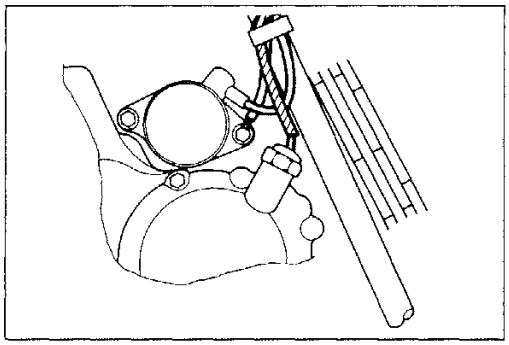


99104-31140: SUZUKI Bond No. 1207B (For U.S.A.)
99000-31140: SUZUKI Bond No. 1207B (For the others)

Tightening torque: 9 — 10 N·m
(0.9 — 1.0 kg-m, 6.5 — 8.0 lb-ft)

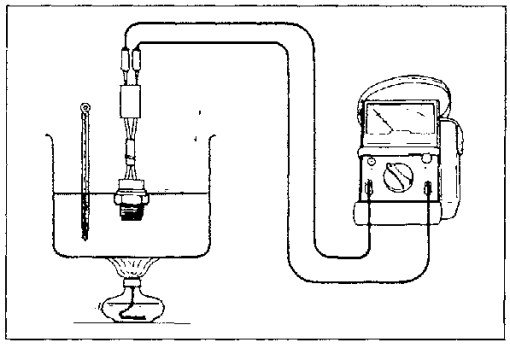
OIL INDICATOR LIGHT THERMO-SWITCH

REMOVAL



- Remove the rear fender.
- Remove the thermo-switch after disconnecting the lead wire coupler.

INSPECTION



The thermo-switch must be checked for its temperature-initiated closing action at the specification value of 150°C (302°F) by testing it at the bench as shown in the illustration. Connect the switch to the pocket tester and raise the temperature of oil in the pan, and read the column thermometer when the switch closes.

Thermo-switch specification

OFF → ON	Approx. 150°C (302°F)
ON → OFF	Approx. 135°C (275°F)

09900-25002: Pocket tester

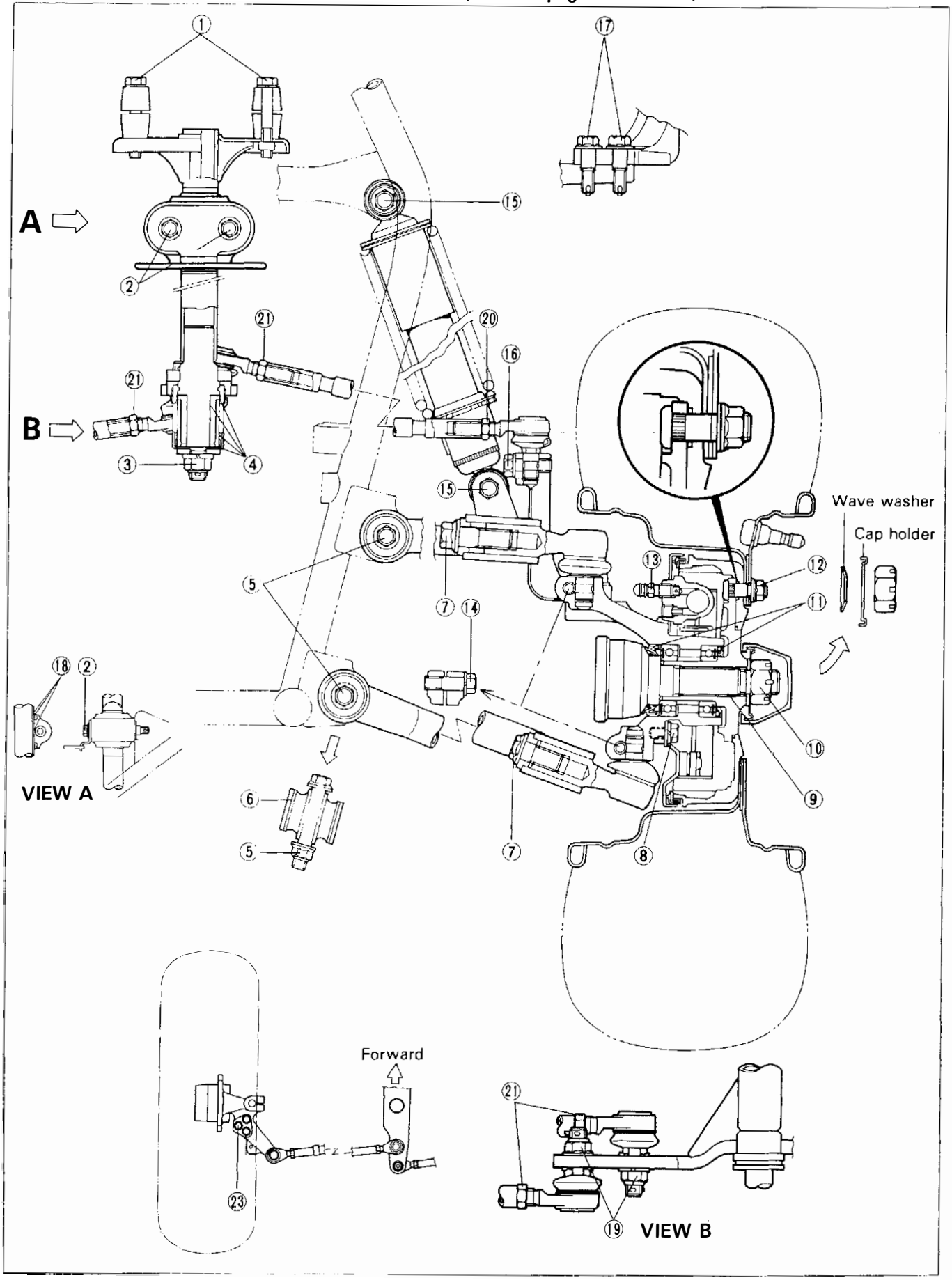
REINSTALLATION

- Apply SUZUKI BOND No. 1215 to the thread portion of the thermo-switch and tighten it to the specified torque.

99000-31140: SUZUKI BOND No. 1215

Tightening torque: 17 — 23 N·m
(1.7 — 2.3 kg-m, 12.5 — 16.5 lb-ft)

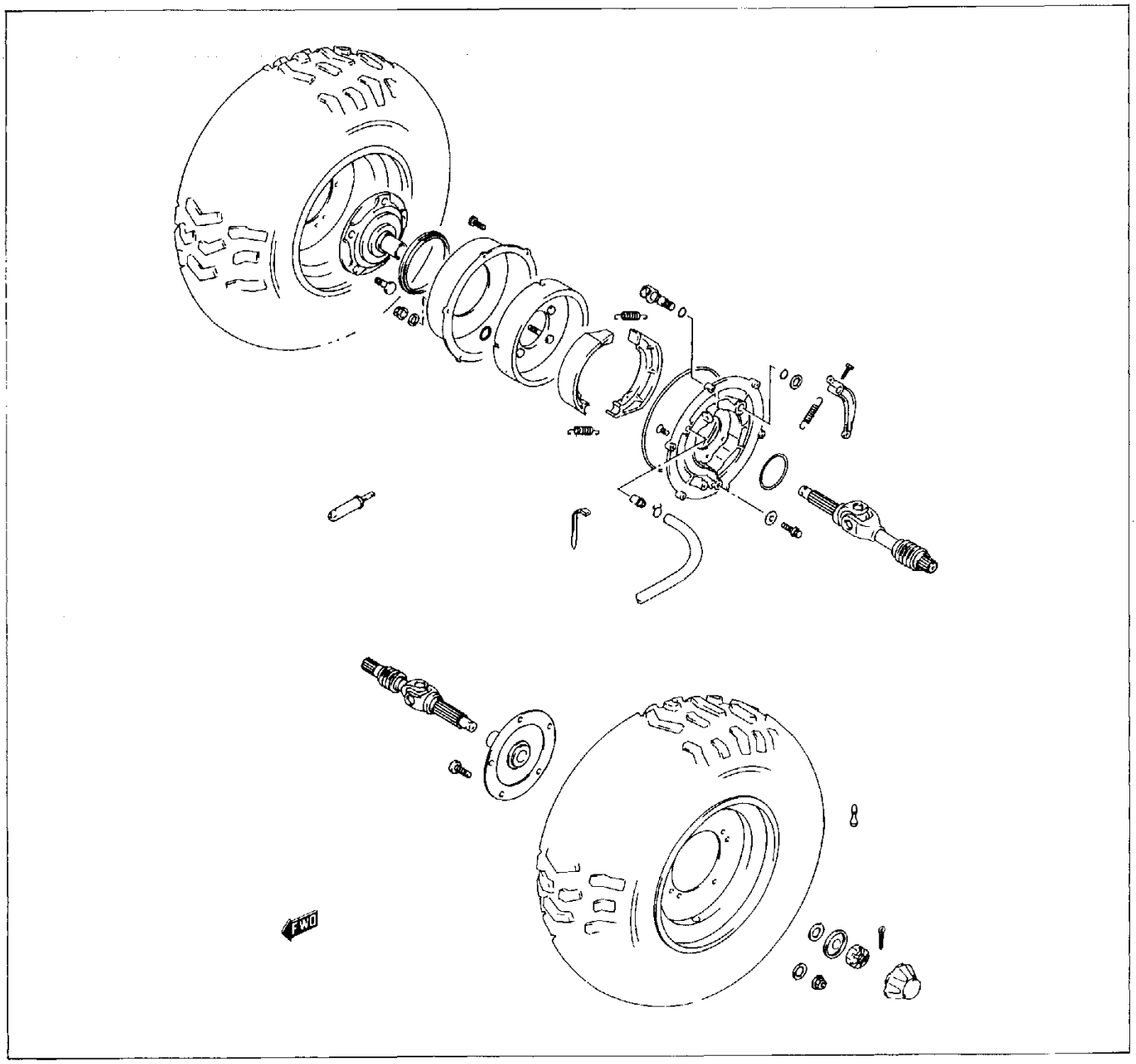
FRONT WHEEL, FRONT SUSPENSION AND STEERING
REASSEMBLING INFORMATION (Refer to page 30 and 31.)



ITEM	TIGHTENING TORQUE			NOTE	
	N·m	kg-m	lb-ft	For U.S. model	For other models
① Handlebars clamp bolt	18—28	1.8—2.8	13.0—20.0		
② Steering shaft holder bolt	18—28	1.8—2.8	13.0—20.0		
③ Steering shaft nut	38—60	3.8—6.0	27.5—43.5		
④ Bushing and dust seal				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑤ Wishbone arm pivot nut	50—70	5.0—7.0	36.0—50.5		
⑥ Bushing (outer surface)				Thread Lock Super "1333B" (99000-32020)	Thread Lock Super "1322" (99000-32110)
⑦ Steering knuckle end bolt (upper and lower)	120—170	12.0—17.0	87.0—123.0		
⑧ Front brake panel bolt	18—28	1.8—2.8	13.0—20.0		
⑨ Front axle				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑩ Front axle nut	85—115	8.5—11.5	61.5—83.0		
⑪ Dust seal				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑫ Front wheel set nut	45—65	4.5—6.5	32.5—47.0		
⑬ Air bleeder valve	6—9	0.6—0.9	4.5—6.5		
⑭ Steering knuckle arm pinch bolt (upper and lower)	44—66	4.4—6.6	32.0—47.5	Thread Lock Super "1333B" (99000-32020)	Thread Lock Super "1322" (99000-32110)
⑮ Front shock absorber nut	48—72	4.8—7.2	34.5—52.0		
⑯ Steering knuckle arm end pinch bolt	40—60	4.0—6.0	29.0—43.5	Thread Lock Super "1333B" (99000-32020)	Thread Lock Super "1322" (99000-32110)
⑰ Steering knuckle arm pinch bolt	40—60	4.0—6.0	29.0—43.5	Thread Lock Super "1333B" (99000-32020)	Thread Lock Super "1322" (99000-32110)
⑱ Steering shaft holder and dust seal				SUZUKI Super Grease "A" (99000-25030)	SUZUKI Super Grease "A" (99000-25010)
⑲ Tie-rod end nut	22—35	2.2—3.5	16.0—25.5		

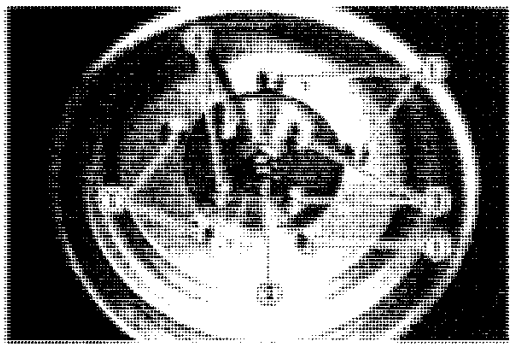
ITEM	TIGHTENING TORQUE			NOTE	
	N·m	kg-m	lb-ft	For U.S. model	For other models
⑳ Tie-rod lock nut	22—35	2.2—3.5	16.0—25.5		
㉑ Tie-rod lock nut	22—35	2.2—3.5	16.0—25.5		
㉒ Wishbone arm bushing				Thread Lock Super "1333B" (99000-32020)	Thread Lock Super "1322" (99000-32110)
㉓ Steering knuckle arm bolt	18—28	1.8—2.8	13.0—20.0		

REAR WHEEL AND REAR BRAKE



REMOVAL AND DISASSEMBLY

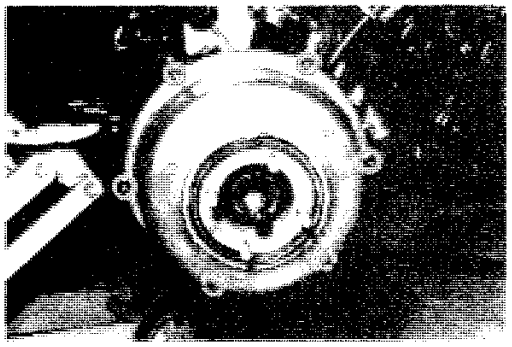
- Remove the rear wheel by removing the mounting nuts ①.
- Remove the cotter pin and axle nut ②.
- Remove the rear brake drum nuts ③.



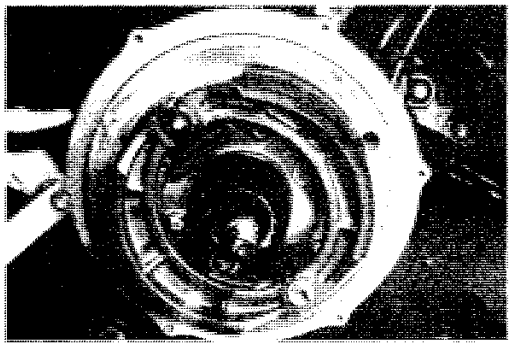
- Remove the rear wheel hub with the special tools.

09924-21920: Wheel hub remover set
09930-30102: Sliding shaft

- Remove the rear brake cover by removing the mounting bolts.
- Remove the rear brake drum.



- Remove the brake shoes.

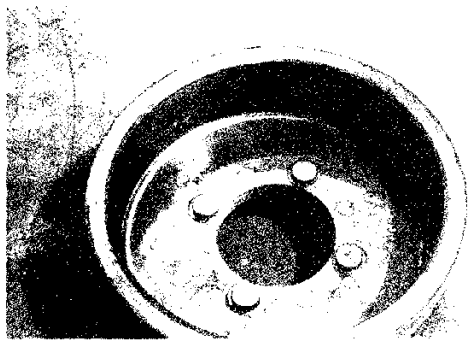


INSPECTION

BRAKE DRUM

Measure the brake drum I.D. to determine the extent of wear and, if the limit is exceeded by the wear noted, replace the brake drum.
The value of this limit is indicated inside of drum.

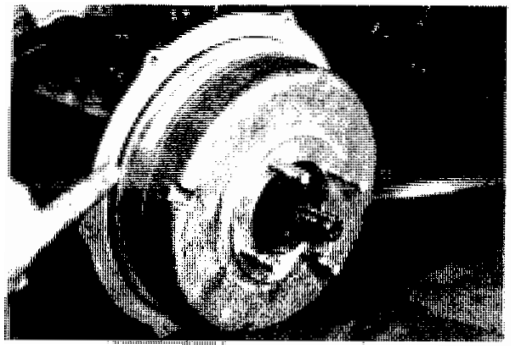
Service Limit: 180.7 mm (7.11 in)

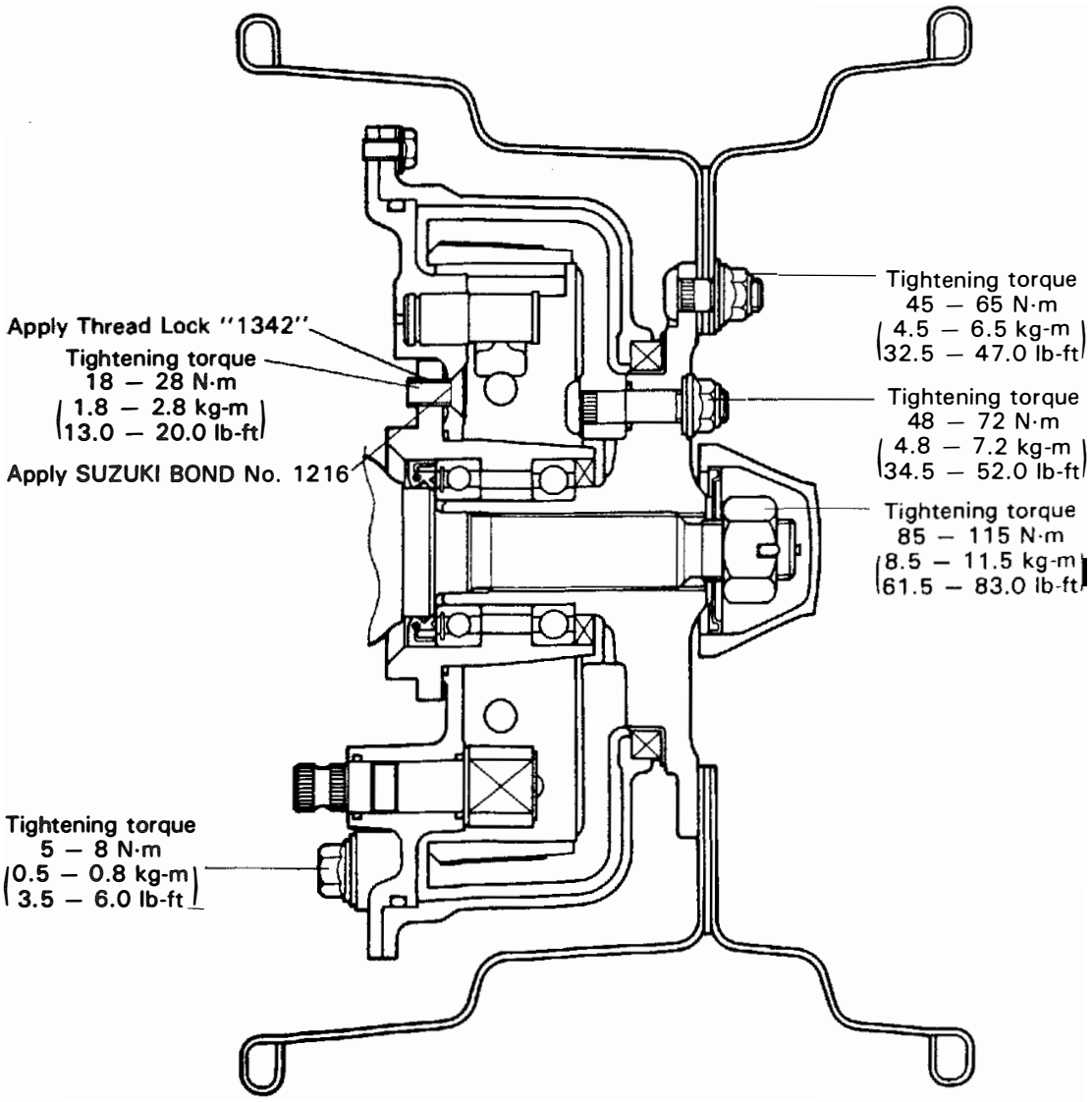


REASSEMBLY AND REMOUNTING

Reassemble and remount the rear brake and rear wheel in the reverse order of removal and disassembly, and also carry out the following steps.

- Apply grease to the O-ring, before installing the brake drum cover.

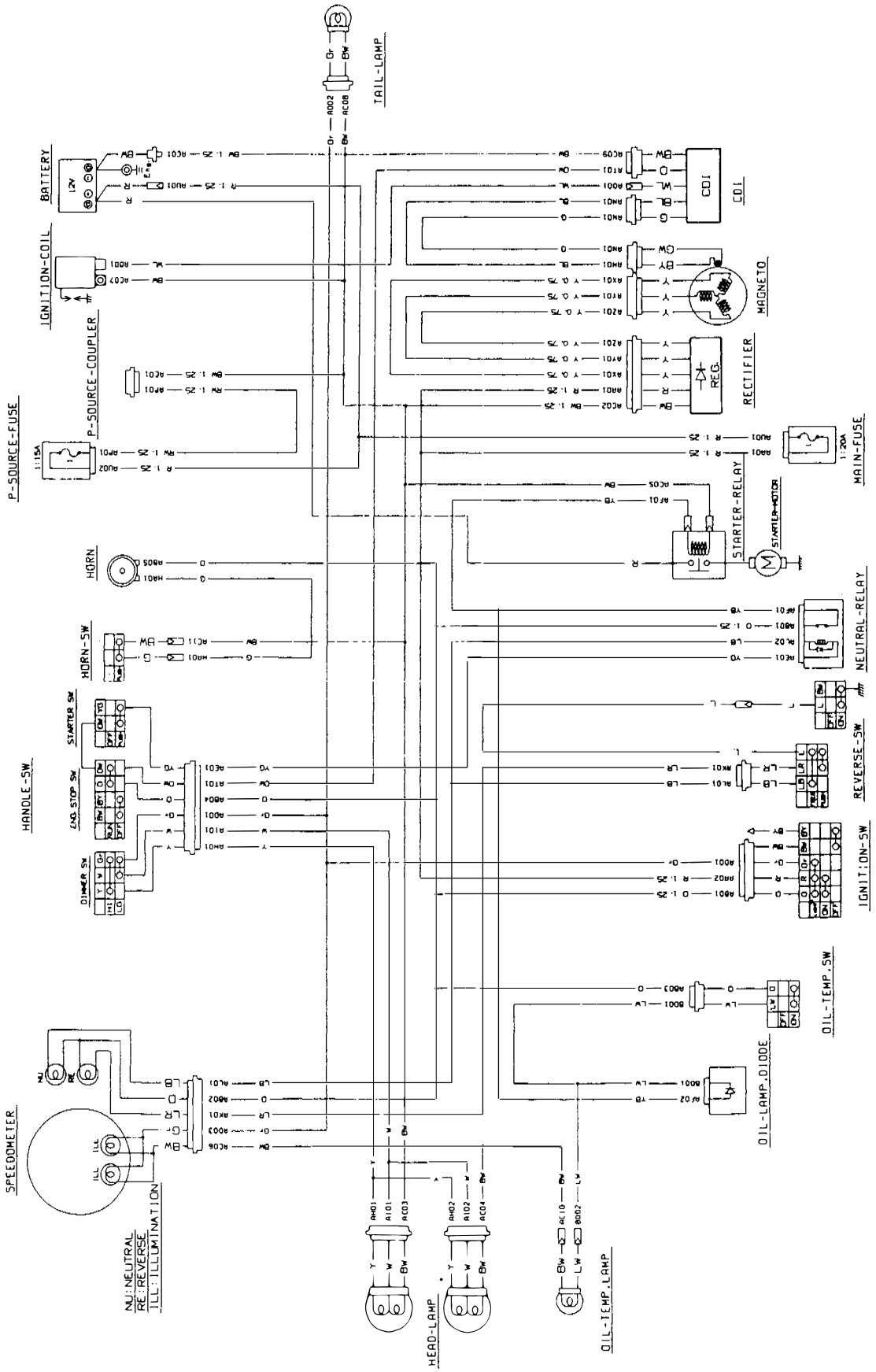




Apply grease to bearings, dust seal, spline, brake camshaft and cam face.

WIRING DIAGRAM

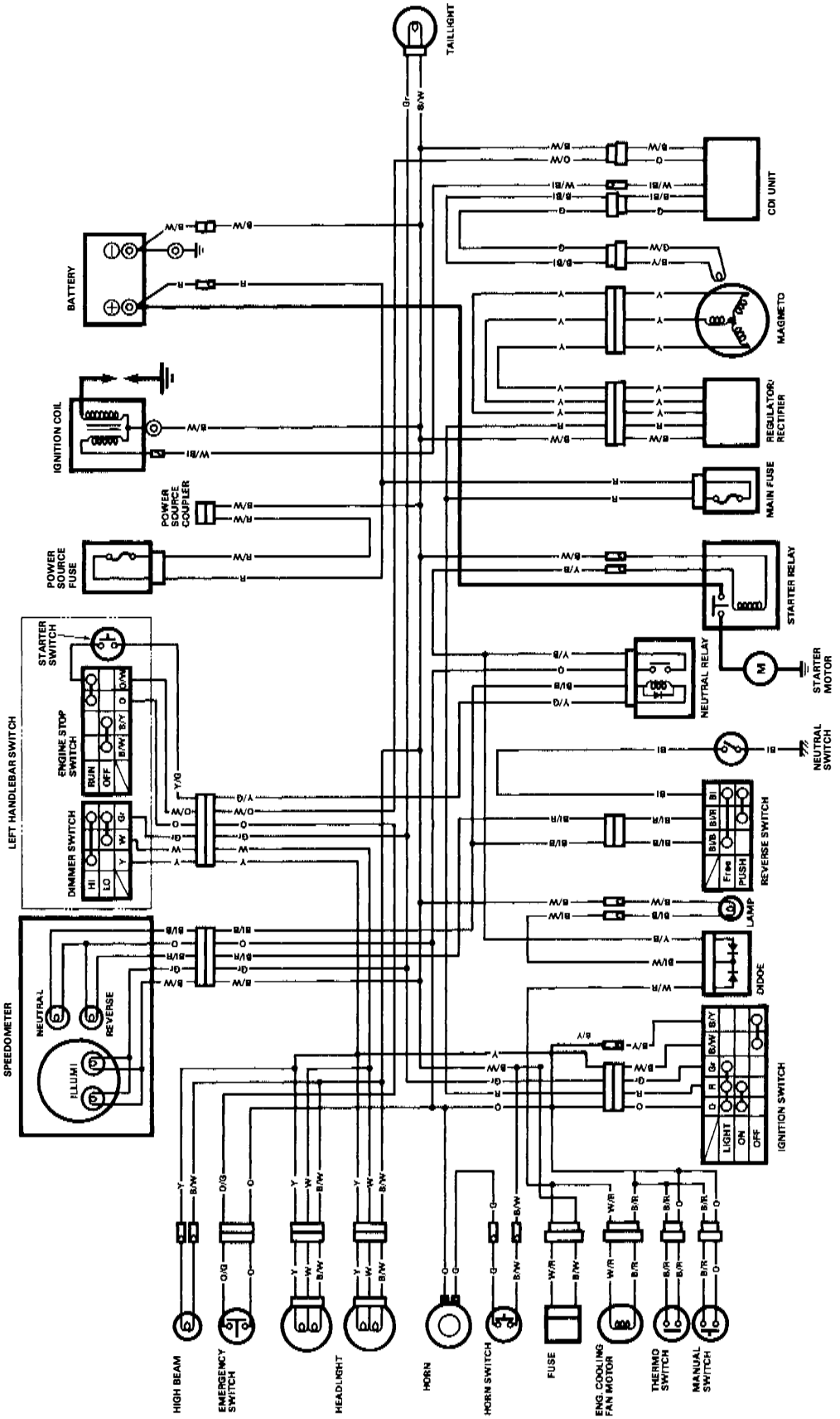
For Australia



WIRE COLOR

G	: Green	W	: White	GW	: Green with White tracer	OW	: Orange with White tracer
Gr	: Gray	Y	: Yellow	LB	: Blue with Black tracer	RW	: Red with White tracer
L	: Blue	BL	: Black with Blue tracer	LR	: Blue with Red tracer	WL	: White with Blue tracer
O	: Orange	BW	: Black with White tracer	LW	: Blue with White tracer	YB	: Yellow with Black tracer
R	: Red	BY	: Black with Yellow tracer	OG	: Orange with Green tracer	YG	: Yellow with Green tracer

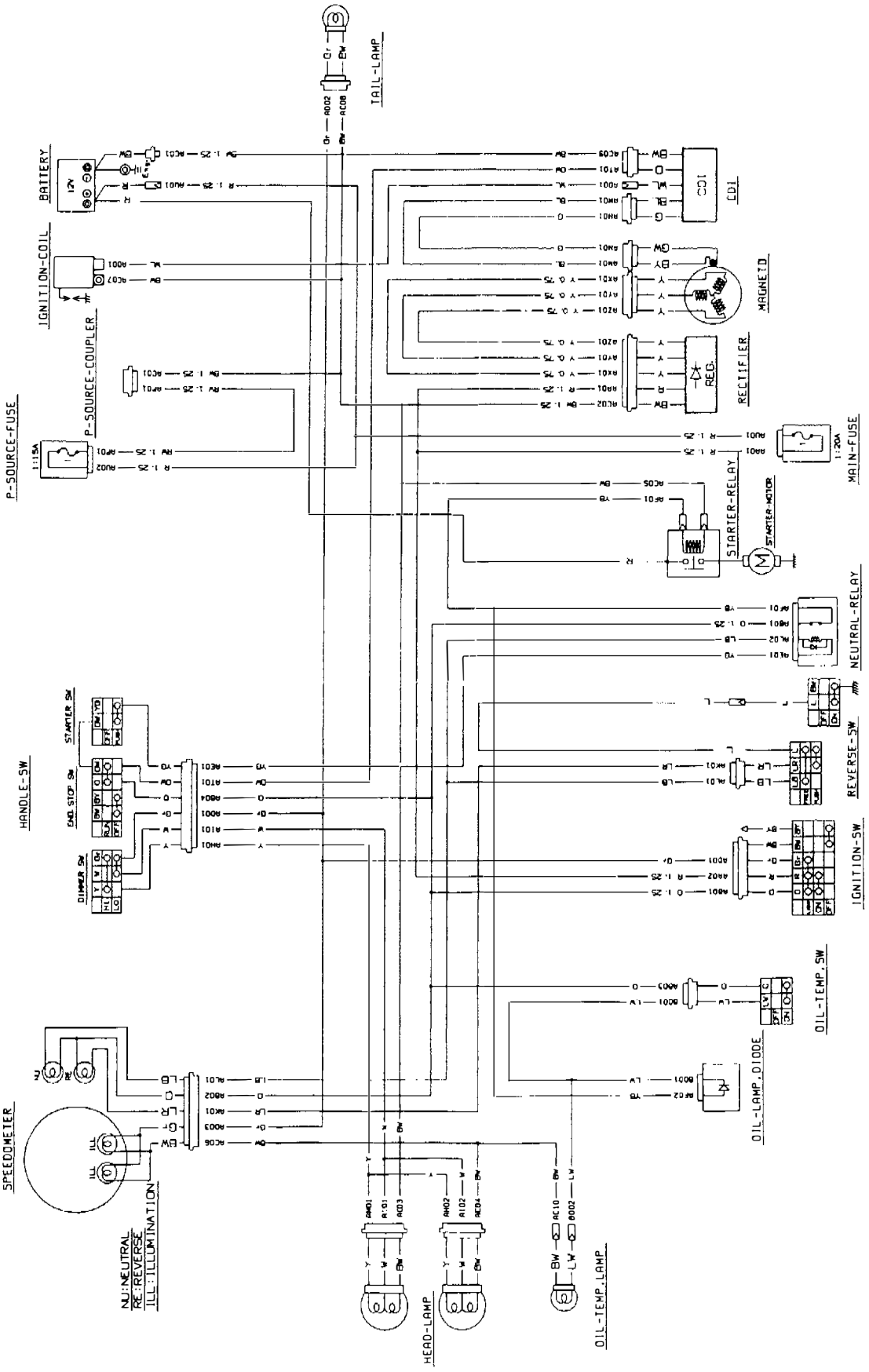
For Sweden



WIRE COLOR

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

For The Others

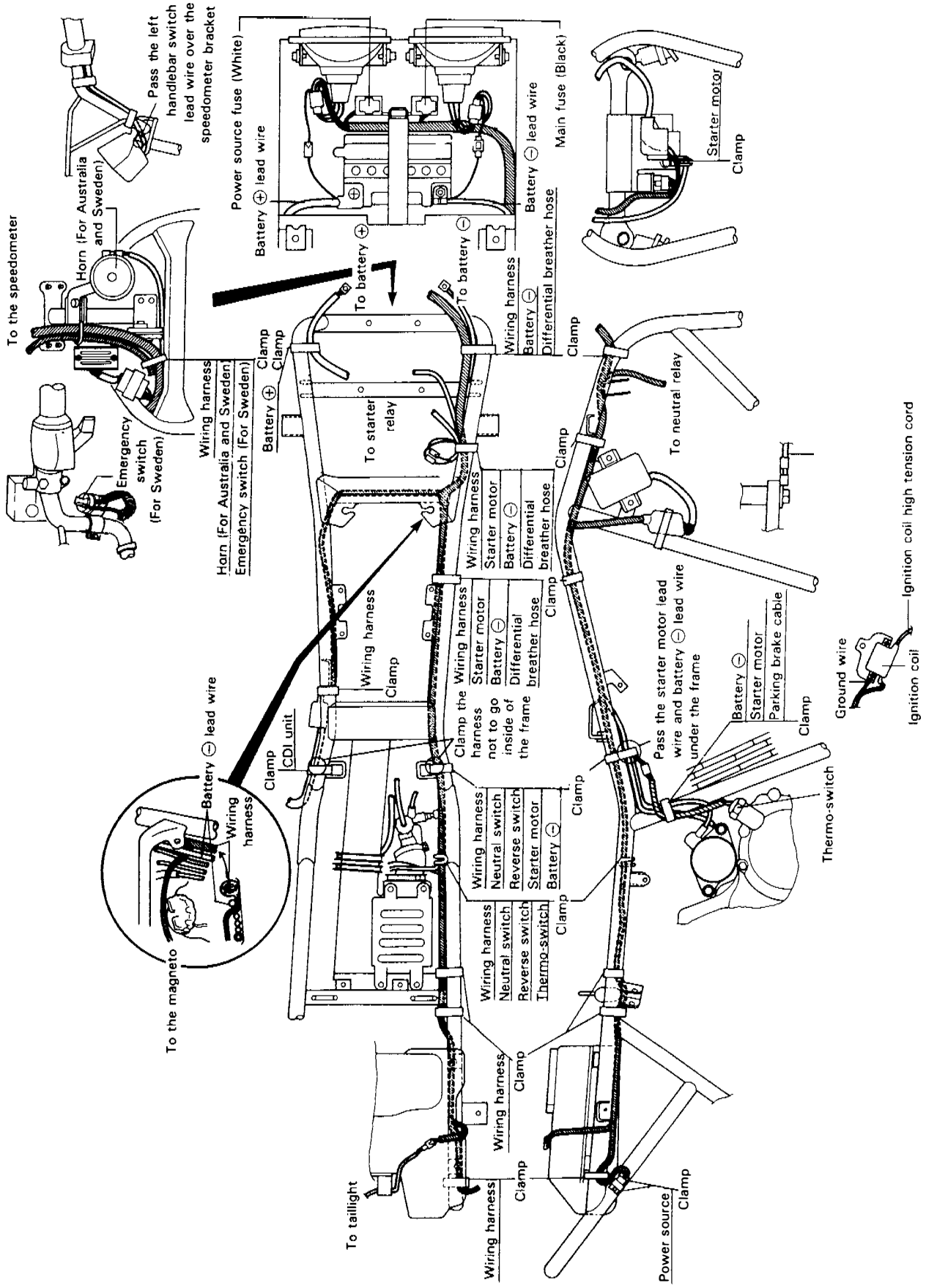


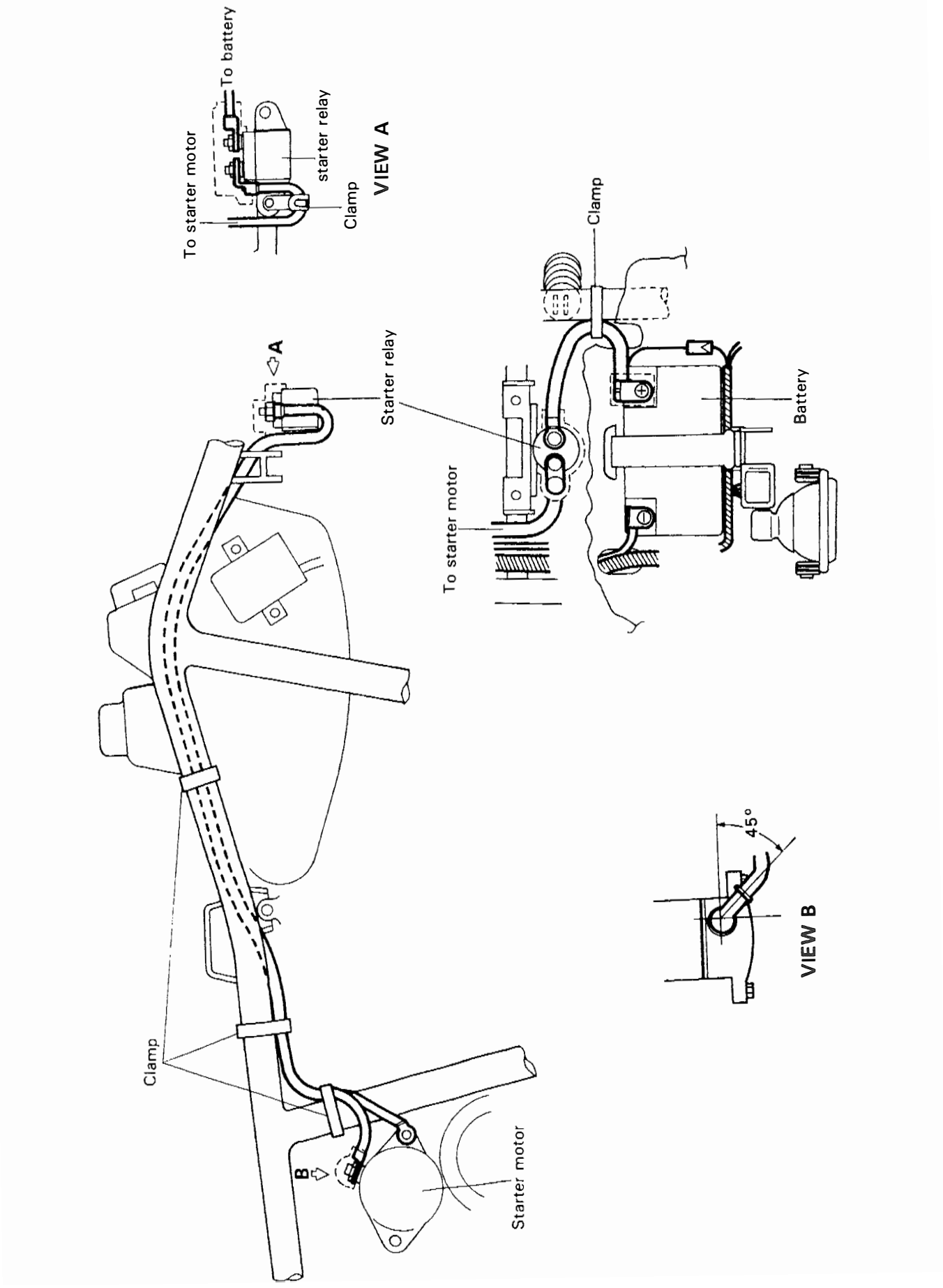
WIRE COLOR

G	: Green	W	: White	GW	: Green with White tracer	OW	: Orange with White tracer
Gr	: Gray	Y	: Yellow	LB	: Blue with Black tracer	RW	: Red with White tracer
L	: Blue	BL	: Black with Blue tracer	LR	: Blue with Red tracer	WL	: White with Blue tracer
O	: Orange	BW	: Black with White tracer	LW	: Blue with White tracer	YB	: Yellow with Black tracer
R	: Red	BY	: Black with Yellow tracer	OG	: Orange with Green tracer	YG	: Yellow with Green tracer

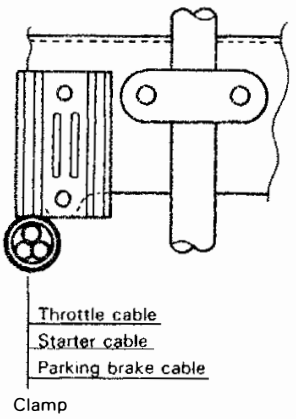
WIRE, CABLE AND HOSE ROUTING

WIRE ROUTING

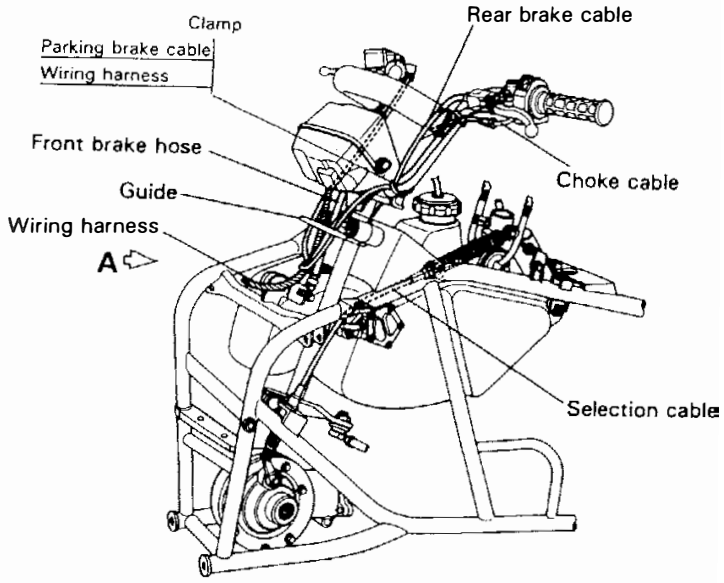


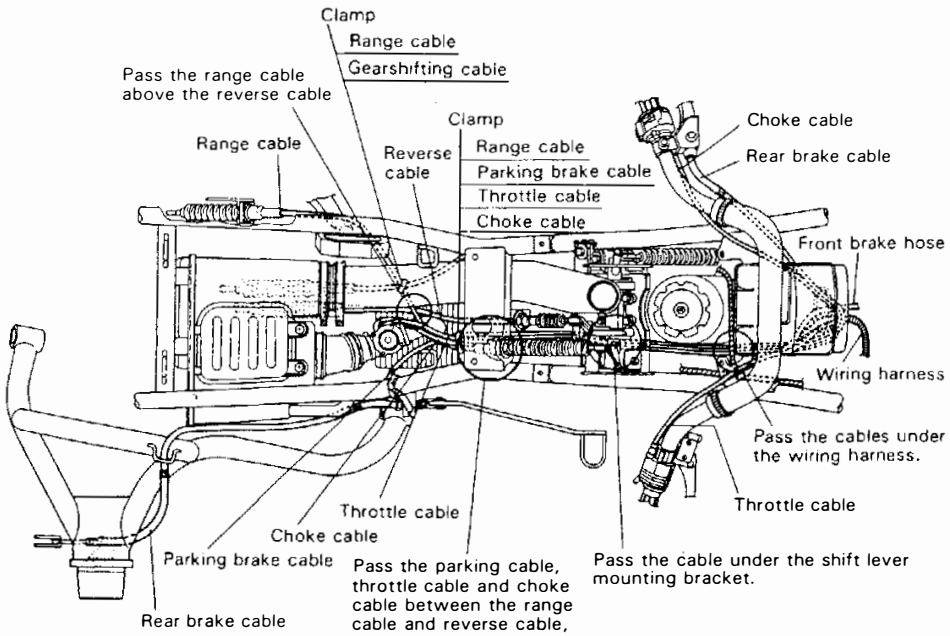

To battery
To starter motor
starter relay
Clamp
VIEW A
Clamp
Battery
A
Starter relay
To starter motor
45°
VIEW B
Clamp
B
Starter motor

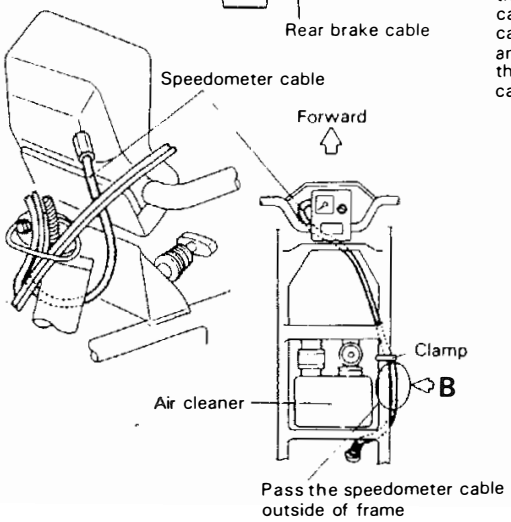
CABLE ROUTING

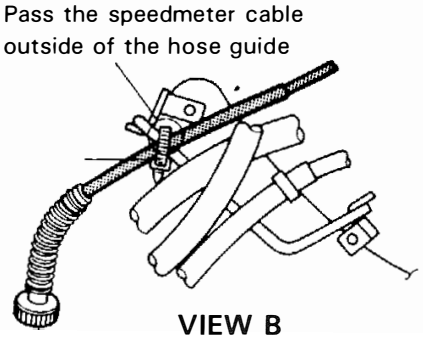


VIEW A



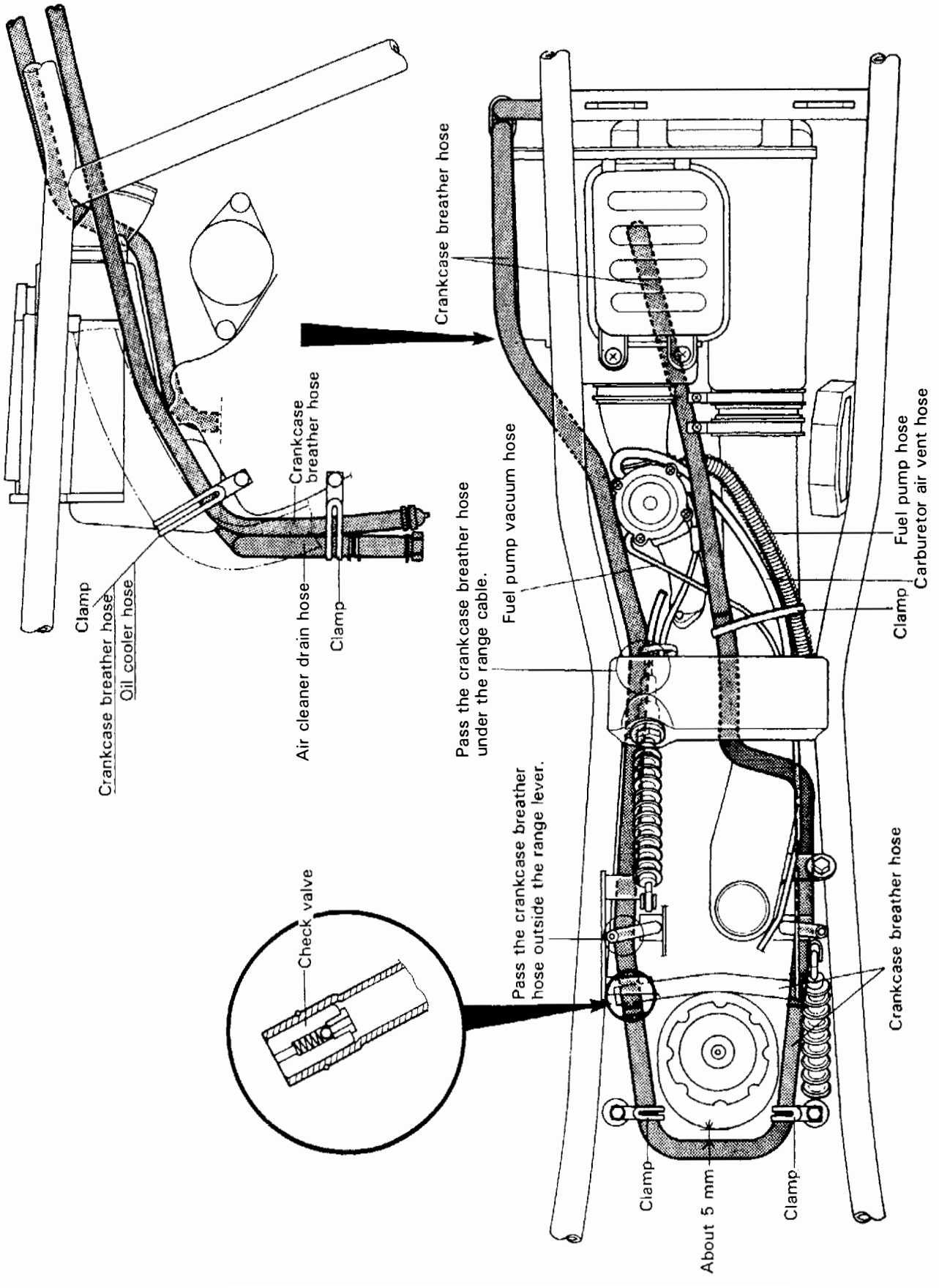




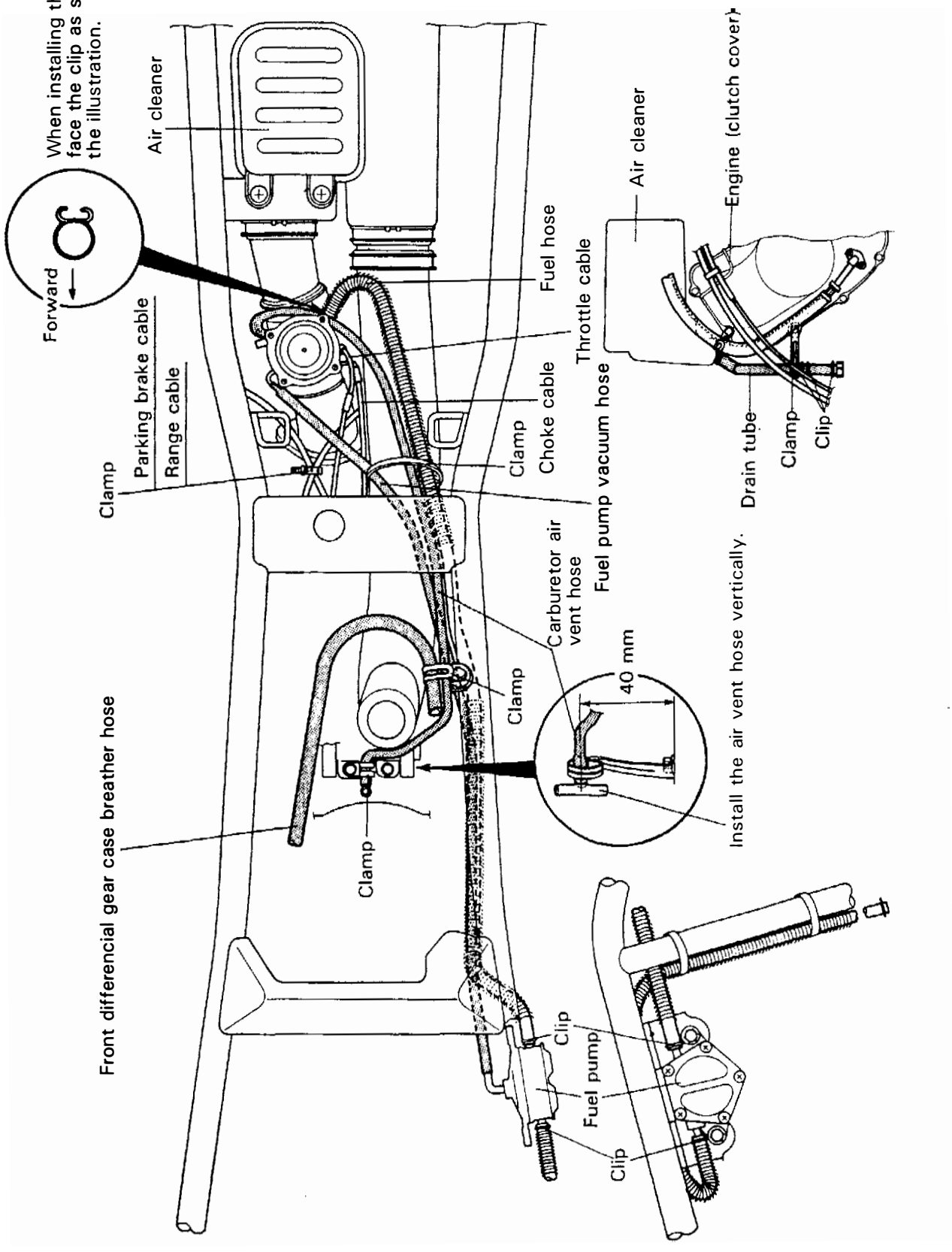


VIEW B

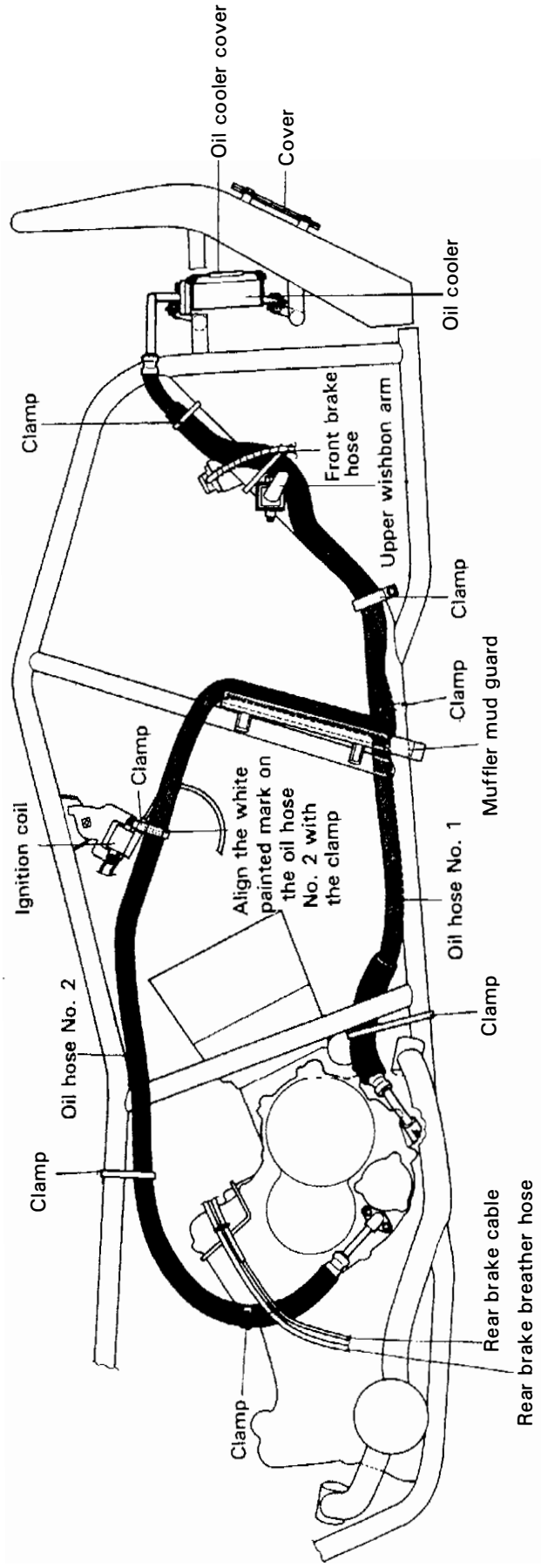
CRANKCASE BREATHER HOSE ROUTING

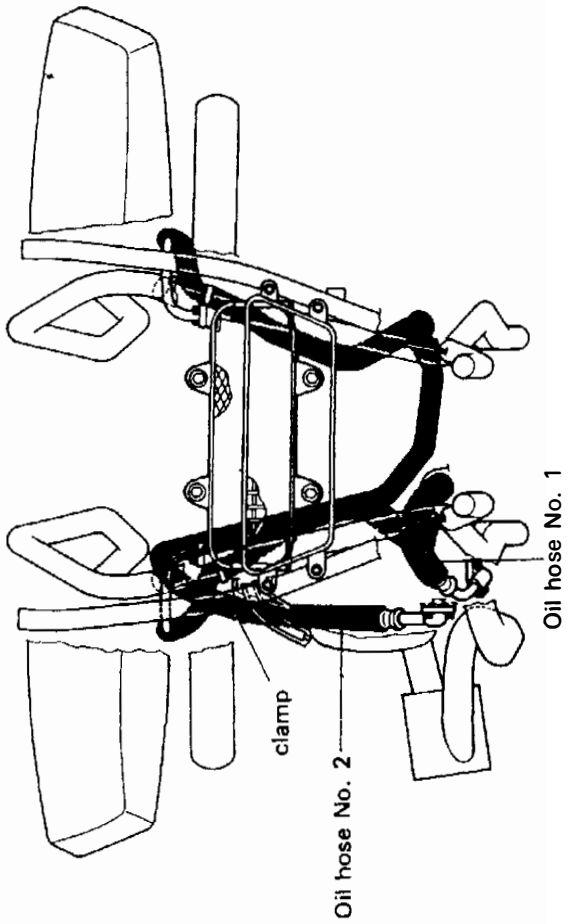


FUEL HOSE AND AIR CLEANER DRAIN HOSE ROUTING

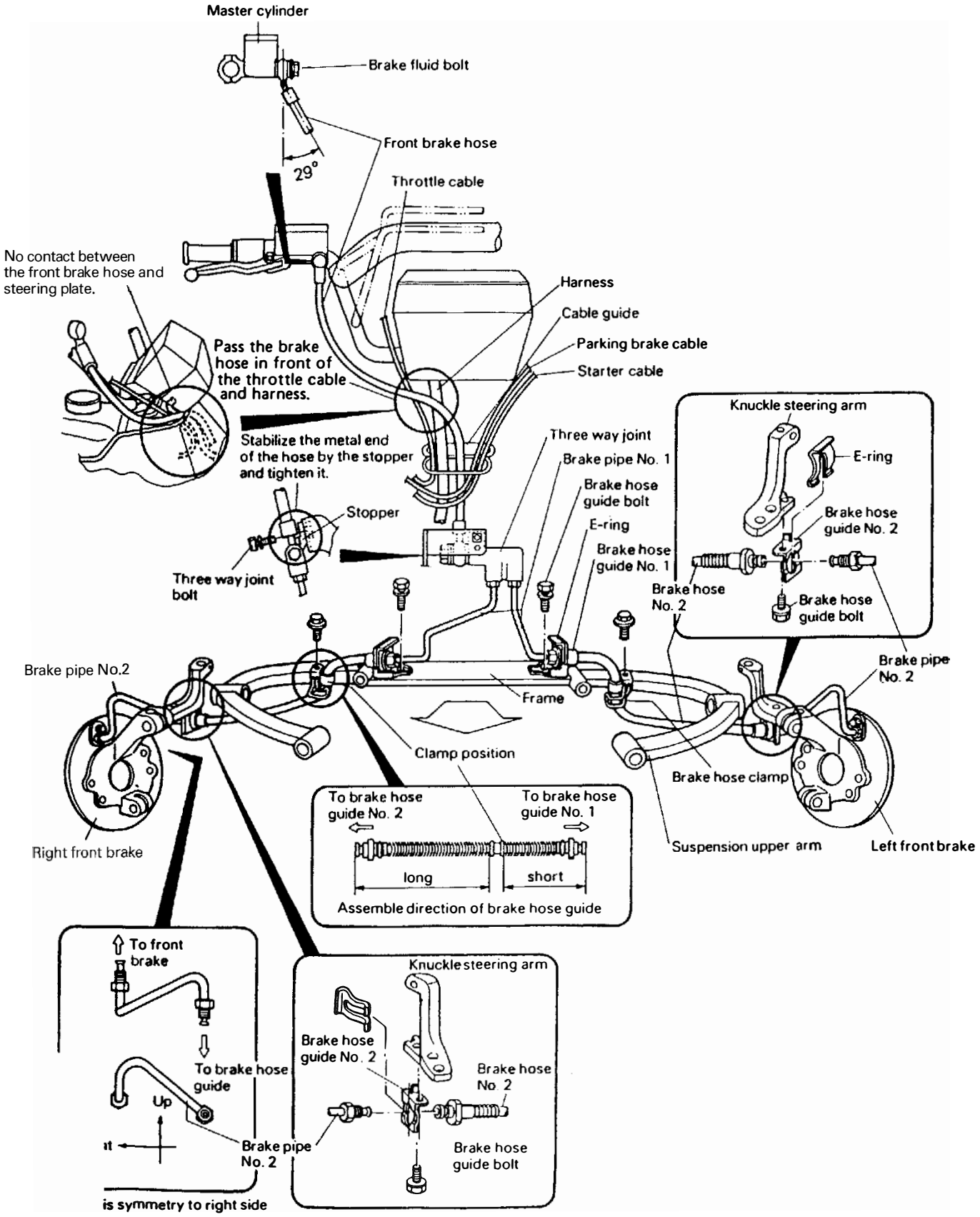


OIL COOLER HOSE ROUTING

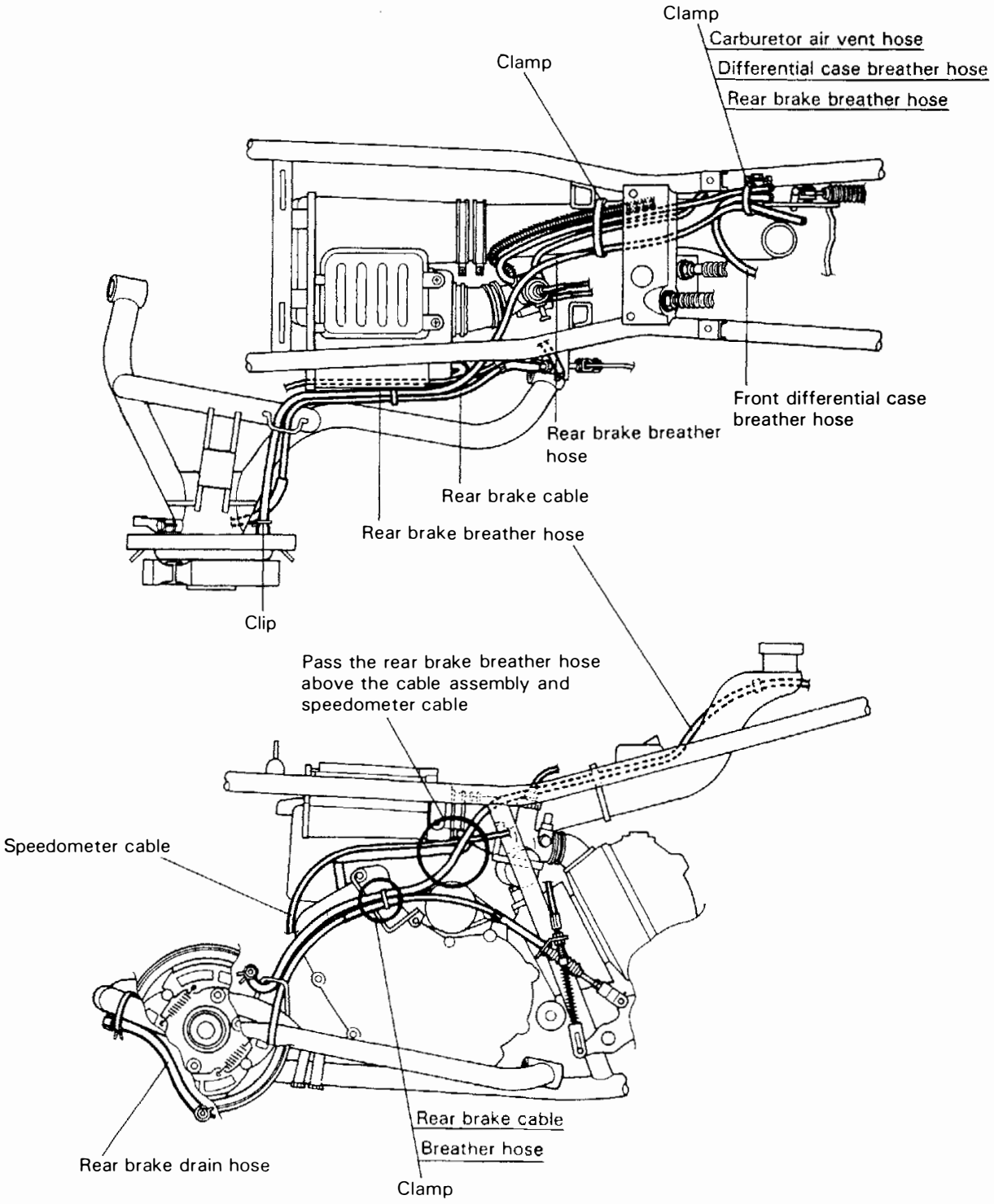




FRONT BRAKE HOSE ROUTING



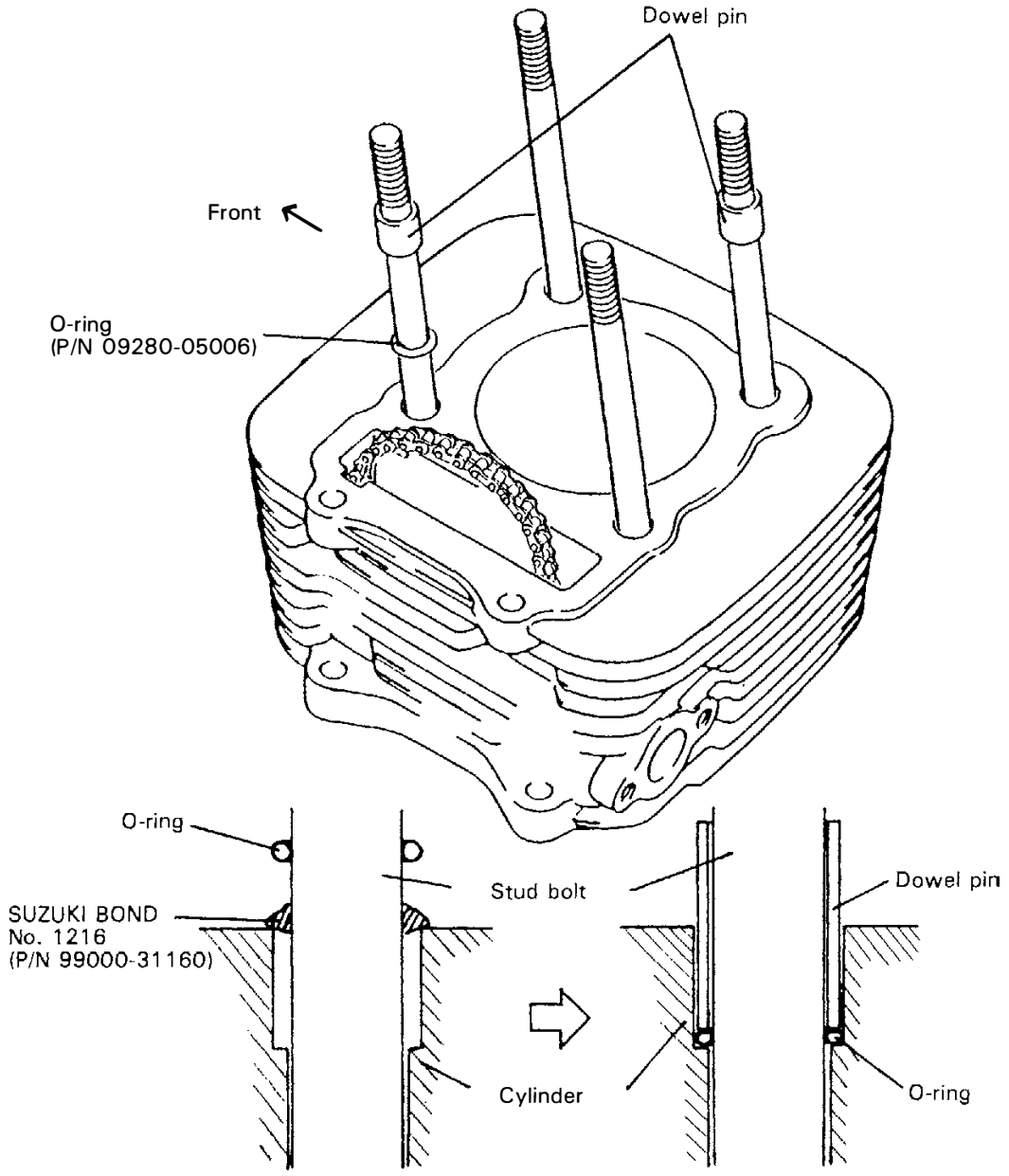
REAR BRAKE BREATHER HOSE ROUTING



APPENDIX (CYLINDER O-RING)

All LT-4WDX have been fitted an O-ring in their cylinders from their first production.

Before fitting the dowel pin into the cylinder, apply SUZUKI BOND No. 1216 slightly to the groove around the front LH studbolt, then press new O-ring into the groove.



LT-4WD, LT-F4WD AND LT-F4WDX N,P,R,S,T ('92,'93,'94,'95 AND 96-MODELS)

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1

SPECIFICATIONS

LT-4WD AND LT-F4WD

DIMENSIONS AND DRY MASS

Overall length	2 060 mm (81.1 in)
Overall width	1 200 mm (47.2 in)
Overall height	1 055 mm (41.5 in)
Wheelbase	1 150 mm (45.3 in)
Ground clearance	200 mm (7.8 in)
Front track	800 mm (31.5 in)
Rear track	800 mm (31.5 in)
Seat height	755 mm (29.7 in)
Dry mass	242 kg (534 lbs) LT-4WD 244 kg (538 lbs) LT-F4WD

ENGINE

Type	Four-stroke, air-cooled, OHC, TDCC
Number of cylinders	1
Bore	66.0 mm (2.598 in)
Stroke	72.0 mm (2.835 in)
Piston displacement	246 cm^3 (15.0 cu. in)
Compression ratio	8.5 : 1
Carburetor	MIKUNI BST31SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-subtransmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (17/16)
Sub-transmission, Super Low Low High	 3.176 (17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1.933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type	Electronic Ignition (CDI)
Ignition timing	5° B.T.D.C. below 1 800 r/min. and 35° B.T.D.C. above 3 800 r/min.
Spark plug	N.G.K.: D7EA ...For Australia and U.S.A. N.G.K.: DR7ES ...For the others
Battery	12V 50.4 kC (14Ah)/ 10HR...For U.S.A. and U.K. 12V 72 kC (20 Ah)/ 10HR...For the others

CHASSIS

Front suspension	Independent, double wishbone, oil damped, spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped, spring preload 5-way adjustable
Steering angle	Inside 38° Outside 28°
Caster	3° 30′
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	AT22 × 8-10☆☆
Rear tire size	AT25 × 12-10☆
Front wheel travel	85 mm (3.3 in)
Rear wheel travel	95 mm (3.7 in)

CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (0.5/0.4 US/Imp gal)
Engine oil, oil chang	3.5 L (3.7/3.1 US/Imp qt)
filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil	150 ml (5.07/5.28 US/Imp oz)

These specifications are subject to change without notice.

SPECIFICATIONS

LT-4WDX

DIMENSIONS AND DRY MASS

Overall length	2 060 mm (81.1 in)
Overall width	1 200 mm (47.2 in)
Overall height	1 085 mm (42.7 in)
Wheelbase	1 165 mm (45.9 in)
Ground clearance	210 mm (8.3 in)
Front track	860 mm (33.9 in)
Rear track	860 mm (33.9 in)
Seat height	775 mm (30.5 in)
Dry mass	274 kg (604 lbs)

ENGINE

Type	Four-stroke, air-cooled, with oil cooler OHC
Number of cylinders	1
Bore	68.5 mm (2.697 in)
Stroke	76.0 mm (2.992 in)
Piston displacement	280 cm^3 (17.1 cu. in)
Compression ratio	8.9 : 1
Carburetor	MIKUNI BST31SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-sub-transmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	3.150 (63/20)
Secondary reduction, Front	1.125 (18/16)
Sub-transmission, Super Low Low High	 3.176 (17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1.933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front Rear	Shaft drive Gear drive

ELECTRICAL

Ignition type	Electronic Ignition (CDI)
Ignition timing	5° B.T.D.C. below 1 800 r/min. and 30° B.T.D.C. above 3 800 r/min.
Spark plug	N.G.K.: D7EA ...For Australia and U.S.A. N.G.K.: DR7ES ...For the others
Battery	12V 50.4 kC (14Ah)/ 10HR...For U.S.A. and U.K. 12V 72 kC (20 Ah)/ 10HR...For the others

CHASSIS

Front suspension	Independent, double wishbone, oil damped, spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped, spring preload 5-way adjustable
Steering angle	Inside 36° Outside 26°
Caster	5° 30′
Trail	35 mm (1.4 in)
Turning radius	3.2 m (10.5 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	AT24×8-11☆☆
Rear tire size	AT25 × 10-12☆☆
Front wheel travel	100 mm (3.9 in)
Rear wheel travel	125 mm (4.9 in)

CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (0.5/0.4 US/Imp gal)
Engine oil, oil change	3.5 L (3.7/3.1 US/Imp qt)
filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil	150 ml (5.1/5.3 US/Imp oz)

These specifications are subject to change without notice.

SERVICE DATA

LT-4WDT AND LT-F4WDT

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	—
	EX.	28 (1.1)	—
Valve lift	IN.	7.5 (0.30)	—
	EX.	6.5 (0.26)	—
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	—
	EX.	0.08—0.13 (0.003—0.005)	—
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	0.35 (0.014)
	EX.	0.030—0.057 (0.0012—0.0024)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	—
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	—
	EX.	5.455—5.470 (0.2148—0.2154)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length	IN. & EX.	—	41.0 (1.68)
Valve spring tension (IN. & EX.)	24.1—29.3 kg (53.1—64.6 lbs) at length 36.8 mm (14.5 in)		—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.780—33.820 (1.3299—1.3315)	33.480 (1.3181)
	EX.	32.990—33.030 (1.2988—1.3004)	32.690 (1.2870)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)		—
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)		—
Camshaft runout	—		0.10 (0.004)
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	—
Rocker arm shaft O.D.	IN. & EX.	11.977—11.995 (0.4715—0.4722)	—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD		LIMIT
Compression pressure	1 000— 1 400 kPa (10—14 kg/cm², 142—199 psi)		800 kPa (8 kg/cm², 114 psi)
Piston to cylinder clearance	0.040—0.050 (0.0016—0.0020)		0.120 (0.0047)
Cylinder bore	66.000—66.015 (2.5984—2.5990)		66.090 (2.6020)
Piston diam.	65.955—65.970 (2.5966—2.5972) Measure at 18 (0.71) from the skirt end		65.880 (2.5937)
Cylinder distortion	—		0.05 (0.002)
Piston ring free end gap	1st R	Approx. 7.5 (0.30)	6.0 (0.24)
	2nd R	Approx. 9.0 (0.35)	7.2 (0.28)
Piston ring end gap	1st & 2nd	0.10—0.25 (0.004—0.010)	0.70 (0.028)
Piston ring to groove clearance	1st	—	0.180 (0.0071)
	2nd	—	0.150 (0.0059)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	1.01—1.03 (0.040—0.041)	—
	2nd	1.22—1.24 (0.048—0.049)	—
	Oil	2.01—2.03 (0.079—0.080)	—
Piston ring thickness	1st	0.97—0.99 (0.038—0.039)	—
	2nd	1.17—1.19 (0.046—0.047)	—
Piston pin bore	16.002—16.008 (0.6300—0.6302)		16.030 (0.6311)
Piston pin O.D.	15.996—16.000 (0.6298—0.6299)		15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD		LIMIT
Conrod small end I.D.	16.006—16.014 (0.6302—0.6305)		16.040 (0.6315)
Conrod deflection	—		3.0 (0.12)
Conrod big end side clearance	0.10—0.45 (0.004—0.018)		1.00 (0.039)
Conrod big end width	17.95—18.00 (0.707—0.709)		—
Crank web to web width	53.0 ± 0.1 (2.087 ± 0.004)		—
Crankshaft runout	at left side	—	0.05 (0.002)
	at right side	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	—
Oil pressure (at 60°C, 140°F)	Above 30 kPa (0.30 kg/cm², 4.3 psi) Below 70 kPa (0.70 kg/cm², 10.0 psi) at 3 000 r/min.	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	0—⅛ turn back	—
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	—	0.10 (0.004)

ITEM	STANDARD	LIMIT
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ $\left(4.567 \pm {}^{0.006}_{0}\right)$	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.250 (65/20)	———
Final reduction ratio	Front	3.284 (17/16 x 34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 x 25/11 x 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 x 18/17 x 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reverse	2.833 (29/12 x 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork to groove clearance		0.05—0.25 (0.002—0.010)	0.50 (0.020)
Reverse fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.40 (0.157—0.173)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Gearshift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

COOLING FAN THERMO-SWITCH (For E-17,24)

ITEM		STANDARD	LIMIT
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 120°C (248°F)	———
	ON → OFF	Approx. 108°C (226°F)	———

CARBURETOR

ITEM		SPECIFICATION
Carburetor type		MIKUNI BST31SS
Bore size		31 mm
I.D. No		19B6 19BA...On and after '95-MODEL
Idle r/min.		1 500 ± 100 r/min
Float height		13.0 ± 0.5 mm (0.51 ± 0.02 in)
Main jet	(M.J.)	#122.5
Main air jet	(M.A.J.)	0.6 mm
Jet needle	(J.N.)	5D40-4th 5D67-3rd...On and after '95-MODEL
Needle jet	(N.J.)	P-4
Throttle valve	(Th.V.)	#125
Pilot jet	(P.J.)	#40
By-pass	(B.P.)	0.8,0.8,0.8 mm
Pilot outlet	(P.O.)	0.8 mm
Valve seat	(V.S.)	1.5 mm
Starter jet	(G.S.)	#42.5
Pilot screw	(P.S.)	2⅞ turns back
Pilot air jet	(P.A.J.)	#160
Throttle cable play		1—3 mm (0.04—0.12 in)
Choke cable play		0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		5° B.T.D.C. Below 1 800 r/min and 35° B.T.D.C. Above 3 800 r/min.		
Spark plug		Type	NGK: D7EA	E-03,24
			NGK: DR7ES	For the others
		Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1—0.5 Ω	Terminal—Ground
		Secondary	12—20 kΩ	Plug cap—Ground
Generator coil resistance		Pick-up	90—140 Ω	B/Y—G/W
		Charging	0.1—1.0 Ω	Y—Y
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min.		
Generator Max. output		Approx. 200 W at 5 000 r/min.		The rotation of the generator
Regulated voltage		13—15 V at 5 000 r/min.		
Starter motor brush length		Limit: 6 (0.24)		MITSUBA
Commutator under-cut		Limit: 0.2 (0.008)		
Starter relay resistance		3—7 Ω		
Battery	Type designation	FB14A-A2		E-02,03
	Capacity	12V 50.4 kC (14 Ah)/10HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
	Type designation	Y50-N18A-A		For the others
	Capacity	12V 72 kC (20 Ah)/10HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Main	20A		
	Power source	15A		
	Fan	10A		E-17,24

WATTAGE

Unit: W

ITEM		SPECIFICATION		
		E-17	E-24	For the others
Headlight	HI	35 x 2 pcs.	30 x 2 pcs.	←
	LO	36.5 x 2 pcs.	30 x 2 pcs.	←
Taillight		5	←	←
Speedometer light		3 x 2 pcs.	←	←
Reverse indicator light		3.4	←	←
Neutral indicator light		3.4	←	←
High beam indicator light		1.7		
Fan indicator light		3.4	←	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake cable play	3—7 (0.1—0.3)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Rear brake pedal height	0 (Zero)		———
Brake drum I.D.	Front	———	165.7 (6.52)
	Rear	———	165.7 (6.52)
Brake lining thickness	———		1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	———
Master cylinder piston diam.	Front	13.957—13.984 (0.5495—0.5506)	———
Steering angle	Inside	38° ± 3°	———
	Outside	28° ± 3°	———
Turning radius	2.7 m (8.9 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	1°		———
Kingpin inclination	12°		———
Caster	3° 30′		———
Tire size	Front	AT22 x 8-10 ☆☆	———
	Rear	AT25 x 12-10☆	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE

LT-4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80—172 kg (175—380 lbs)
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

LT-F4WD

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	35	0.35	5.1
REAR	20	0.20	2.9

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03
	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$ method) or 91 octane or higher rated by the Research Method.		E-28
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		For the others
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (0.5/0.4 US/Imp gal)		
Engine oil type	SAE 10W/40, API SE, SF or SG		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5		
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)		
Brake fluid type	DOT 4		

SERVICE DATA

LT-F4WDXT

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	—
	EX.	28 (1.1)	—
Valve lift	IN.	8.0 (0.31)	—
	EX.	7.5 (0.30)	—
Valve clearance (when cold)	IN.	0.03 − 0.08 (0.001 − 0.003)	—
	EX.	0.13 − 0.18 (0.005 − 0.007)	—
		* 0.17 − 0.22 (0.007 − 0.009)	—
Valve guide to valve stem clearance	IN.	0.010 − 0.037 (0.0004 − 0.0015)	—
	EX.	0.030 − 0.057 (0.0012 − 0.0024)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500 − 5.512 (0.2165 − 0.2170)	—
Valve stem O.D.	IN.	5.475 − 5.490 (0.2156 − 0.2161)	—
	EX.	5.455 − 5.470 (0.2148 − 0.2154)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.7 (0.11)
Valve seat width	IN. & EX.	0.9 − 1.1 (0.035 − 0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	—	35.1 (1.38)
	OUTER	—	39.9 (1.57)
Valve spring tension (IN. & EX.)	INNER	7.1 − 9.2 kg (15.7 − 20.3 lbs) at length 32.5 mm (1.28 in)	—
	OUTER	17.3 − 21.3 kg (38.1 − 47.0 lbs) at length 36.0 mm (1.42 in)	—

* On and after '95-model

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	34.112—34.152 (1.3430—1.3446)	33.820 (1.3315)
	EX.	33.790—33.830 (1.3303—1.3319)	33.490 (1.3185)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)		—
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)		—
Camshaft runout	—		0.10 (0.004)
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	—
Rocker arm shaft O.D.	IN. & EX.	11.977—11.995 (0.4715—0.4722)	—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	1 000—1 400 kPa (10—14 kg/cm^2) (142—199 psi)			800 kPa (8 kg/cm^2) (114 psi)
Piston to cylinder clearance	0,060—0,070 0,0024—0,0028			0.120 (0.0047)
Cylinder bore	68.500—68.515 (2.6968—2.6974)			68.580 (2.7000)
Piston diam.	68.445—68.460 (2.6947—2.6953) Measure at 18 mm (0.71 in) from the skirt end.			68.380 (2.6921)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 7.8 (0.31)	6.2 (0.24)
	2nd	R	Approx. 9.1 (0.36)	7.3 (0.29)
Piston ring end gap	1st		0.15—0.30 (0.006—0.012)	0.70 (0.028)
	2nd		0.50—0.65 (0.020—0.026)	1.00 (0.039)
Piston ring to groove clearance	1st		—	0.180 (0.0071)
	2nd		—	0.150 (0.0059)

Unit: mm (in)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	1.01—1.04 (0.040—0.041)	—
	2nd	1.22—1.24 (0.048—0.049)	—
	Oil	2.01—2.03 (0.079—0.080)	—
Piston ring thickness	1st	0.97—0.99 (0.038—0.039)	—
	2nd	1.17—1.19 (0.046—0.047)	—
Piston pin bore	17.002—17.008 (0.6694—0.6696)		17.030 (0.6705)
Piston pin O.D.	16.996—17.000 (0.6691—0.6693)		16.980 (0.6685)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD		LIMIT
Conrod small end I.D.	17.006—17.014 (0.6695—0.6698)		17.040 (0.6709)
Conrod deflection	—		3.0 (0.12)
Conrod big end side clearance	0.10—0.45 (0.004—0.018)		1.00 (0.039)
Conrod big end width	17.95—18.00 (0.707—0.709)		—
Crank web to web width	55.0±0.1 (2.165±0.004)		—
Crankshaft runout	at left side	—	0.05 (0.002)
	at right side	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	—
Oil pressure (at 60°C,140°F)	Above 30 kPa (0.30 kg/cm², 43 psi) Below 70 kPa (0.70 kg/cm², 10.0 psi) at 3 000 r/min.	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	⅛ turn back	—
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	—	0.10 (0.004)

ITEM	STANDARD	LIMIT
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ $\left(4.567 \pm {}^{0.006}_{0}\right)$	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	1 900 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.150 (63/20)	———
Secondary reduction ratio	Front	1.125 (18/16)	———
Final reduction ratio	Front	3.090 (34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 x 25/11 x 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 x 18/17 x 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reserve	2.833 (29/12 x 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork to groove clearance		0.05—0.25 (0.002—0.010)	0.50 (0.020)
Reverse fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 & No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.10 (0.157—0.161)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Gearshift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	—
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	—
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	—
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	—
Differential side gear backlash (Left side)	0 (Zero)	—

OIL TEMP. THERMO-SWITCH

ITEM	STANDARD		LIMIT
Oil temp. indicator light thermo-switch operating temperature	OFF→ON	Approx. 160°C (320°F)	—
	ON→OFF	Approx. 140°C (284°F)	—

CARBURETOR

ITEM	SPECIFICATION
Carburetor type	MIKUNI BST31SS
Bore size	31 mm
I.D. No	19B8 19B9...On and after '94-MODEL
Idle r/min.	1 500 ± 100 r/min.
Float height	13 ± 0.5 mm (0.51 ± 0.02 in)
Main jet (M.J.)	#120
Main air jet (M.A.J.)	1.1 mm
Jet needle (J.N.)	5D40-4th
Needle jet (N.J.)	P-2
Throttle valve (Th.V.)	#130
Pilot jet (P.J.)	#37.5
By-pass (B.P.)	0.8 mm
Pilot outlet (P.O.)	0.8 mm (0.03 in)
Valve seat (V.S.)	1.5 mm (0.06 in)
Starter jet (G.S.)	#42.5
Pilot screw (P.S.)	2 5/8 turns back
Pilot air jet (P.A.J.)	#155
Throttle cable play	1—3 mm (0.04—0.12 in)
Choke cable play	0.5—1.0 mm (0.02—0.04 in)

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Ignition timing		5° B.T.D.C. Below 1 800 r/min. and 30°B.T.D.C. Above 3 800 r/min.		
Spark plug		Type	NGK: D7EA	E-03
			NGK: DR7ES	For the others
		Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1—0.5 Ω	Terminal—Ground
		Secondary	12—20 kΩ	Plug cap-Ground
Generator coil resistance		Pick-up	90—140 Ω	B/Y—G/W
		Charging	0.1—1.0 Ω	Y—Y
Generator no-load voltage (When engine is cold)		More than 60 V (AC)		
Generator Max. output		Approx. 200W		The rotation of the generator
Regulated voltage		13—15 V at 5 000 r/min.		
Starter motor brush length		Limit: 6 (0.24)		MITSUBA
Commutator under-cut		Limit: 0.2 (0.008)		
Starter relay resistance		3—7 Ω		
Battery	Type designation	YB14A-A2		E-02, 03
	Capacity	12 V 50.4 kC (14 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
	Type designation	Y50-N18A-A		For the others
	Capacity	12 V 72 kC (20 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Main	20 A		
	Power source	15 A		
	Fan	10A		E-17,27

WATTAGE

Unit:W

ITEM		SPECIFICATION	
		E-02,03,24,27,28	E-17
Headlight	HI	30 x 2pcs.	35 x 2 pcs.
	LO	30 x 2pcs.	36.5 x 2 pcs.
Taillight		5	←
Speedometer light		3 x 2 pcs.	←
Reverse indicator light		3.4	←
Neutral indicator light		3.4	←
High beam indicator light			1.7
Engine oil temp. indicator light		3.4	←

BRAKE + WHEEL

Unit: mm (in)

ITEM		STANDARD	LIMIT
Rear brake cable play		3—7 (0.1—0.3)	—
Rear brake pedal free travel		20—30 (0.8—1.2)	—
Rear brake pedal height		0 (Zero)	—
Brake drum I.D.	Front	—	180.7 (7.11)
	Rear	—	180.7 (7.11)
Brake lining thickness		—	1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	—
Master cylinder piston diam.	Rear	13.957—13.984 (0.5495—0.5506)	—
Steering angle	Inside	36° ± 3°	—
	Outside	26° ± 3°	—
Turning radius		3.2 m (10.5 ft)	—
Toe-in (with 75 kg, 165 lbs)		11—19 (0.43—0.75)	—
Camber (with 75 kg, 165 lbs)		1° (Negative)	—
Kingpin inclination		8° 54′	—
Caster		5° 30′	—
Tire size	Front	AT24 x 8-11 ☆☆	—
	Rear	AT25 x 10-12 ☆☆	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	30	0.30	4.4
REAR	27.5	0.275	4.0

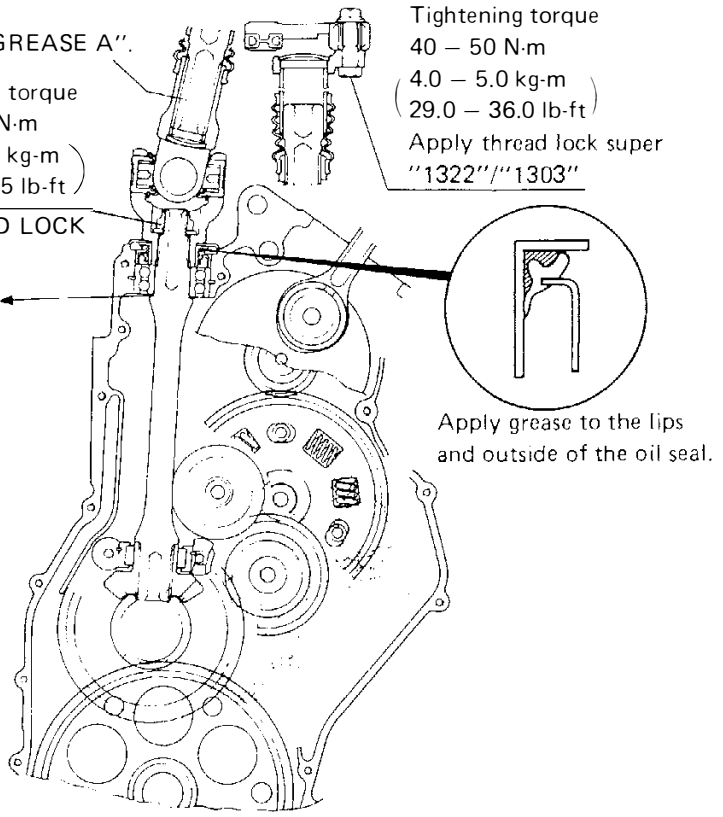
VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03
	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$ method) or 91 octane or higher rated by the Reserch Method.		E-28
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		For the others
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (0.5/0.4 US/Imp gal)		
Engine oil type	SAE 10W/40, API SE, SF or SG		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5		
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)		
Brake fluid type	DOT 4		

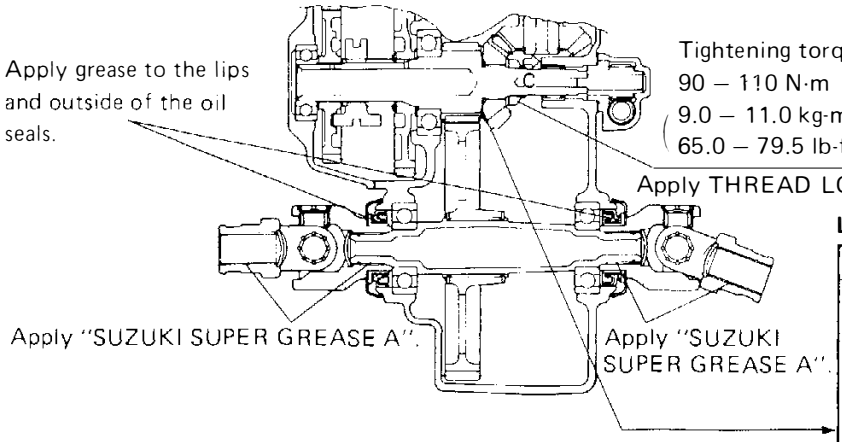
SECONDARY DRIVE AND DRIVEN SHIM (On and after '92-model)

REASSEMBLY INFORMATION



List of shim Ⓐ

Part No.	Thickness (mm)
08221 – 25365	0.50
09181 – 25051	0.60
09181 – 25052	0.65
09181 – 25053	0.70
09181 – 25054	0.75
09181 – 25055	0.80
09181 – 25056	0.85
09181 – 25057	0.90
09181 – 25058	0.95
09181 – 25059	1.00
09181 – 25060	1.05
09181 – 25061	1.10
09181 – 25062	1.15
09181 – 25063	1.20

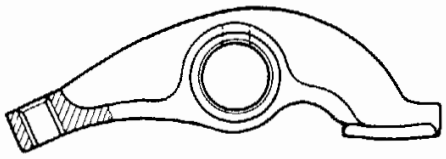


List of shim Ⓑ

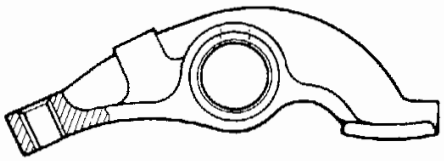
Part No.	Thickness (mm)
24935 – 19B00 – 025 (Thickness: 0.25 mm)	0.50
	0.55
24935 – 19B00 – 030 (Thickness. 0.30 mm)	0.60
	0.65
24935 – 19B00 – 035 (Thickness: 0.35 mm)	0.70
	0.75
	0.80
	0.85
24935 – 19B00 – 090	0.90
24935 – 19B00 – 095	0.95
24935 – 19B00 – 100	1.00
24935 – 19B00 – 105	1.05
24935 – 19B00 – 110	1.10
24935 – 19B00 – 115	1.15
24935 – 19B00 – 120	1.20

ROCKER ARMS (On and after '93-model)

The rocker arms have been changed as shown below.

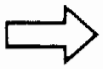


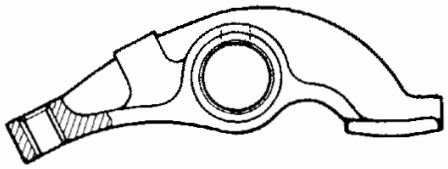
IN.



Part No. 12850-25C00
EX.

N-Model



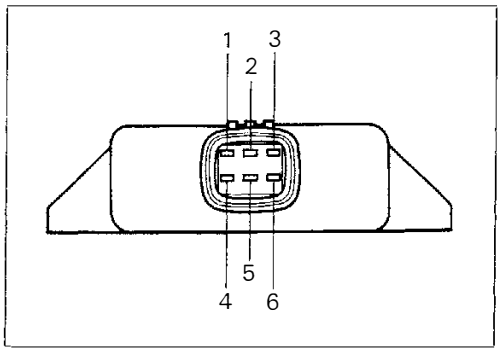


Part No. 12850-24400
IN. and EX.

P-Model

CDI UNIT INSPECTION (On and after '95-model)

LT-4WDS, LT-F4WDS AND LT-F4WDXS



- Disconnect the lead wire coupler. Using the pocket tester (× 1 kΩ range), measure the resistance between the terminals as shown in the illustration. If the resistance checked is incorrect, replace the CDI unit.

09900-25002: Pocket tester

Unit: kΩ

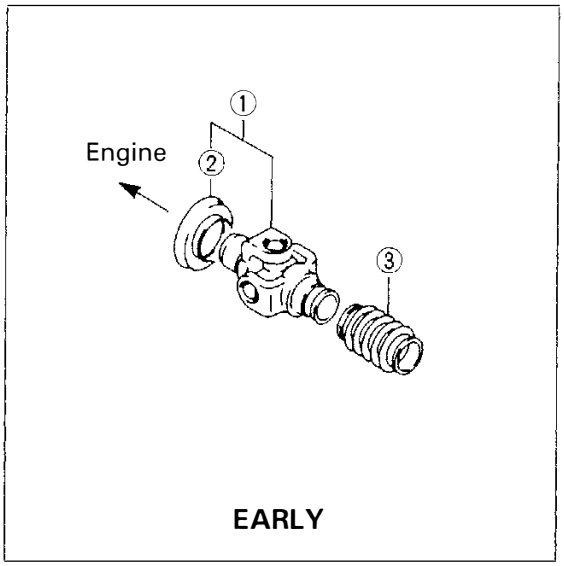
⊖ Probe of tester to:	⊕ Probe of tester to:						
		1	2	3	4	5	6
1	1		2—10	50—150	∞	2—10	2—10
2	2	∞		20—80	∞	0	0
3	3	∞	20—100		∞	20—100	20—100
4	4	∞	1—7	50—150		1—7	1—7
5	5	∞	0	20—80	∞		0
⊖	6	∞	0	20—80	∞	0	

CAUTION:

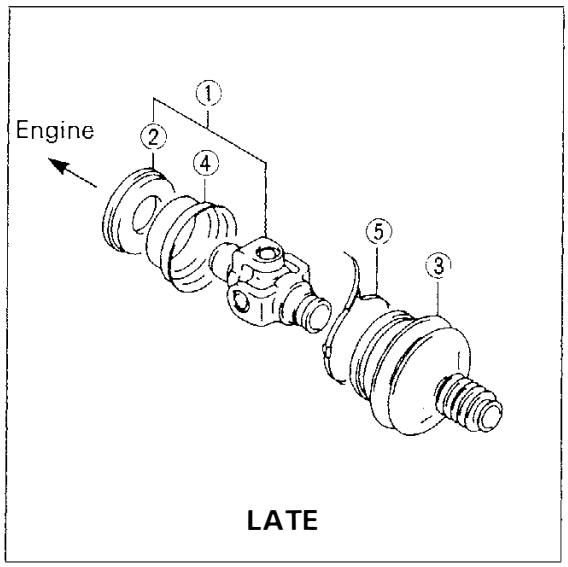
As transistors, capacitors, zener diodes, etc. are used inside this CDI unit, the resistance values will differ when an ohmmeter other than the Suzuki pocket tester is used.

REAR UNIVERSAL JOINT BOOT (On and after '94-model)

Rear universal joint boot and its related parts have been changed as shown in the following illustrations.



EARLY



LATE

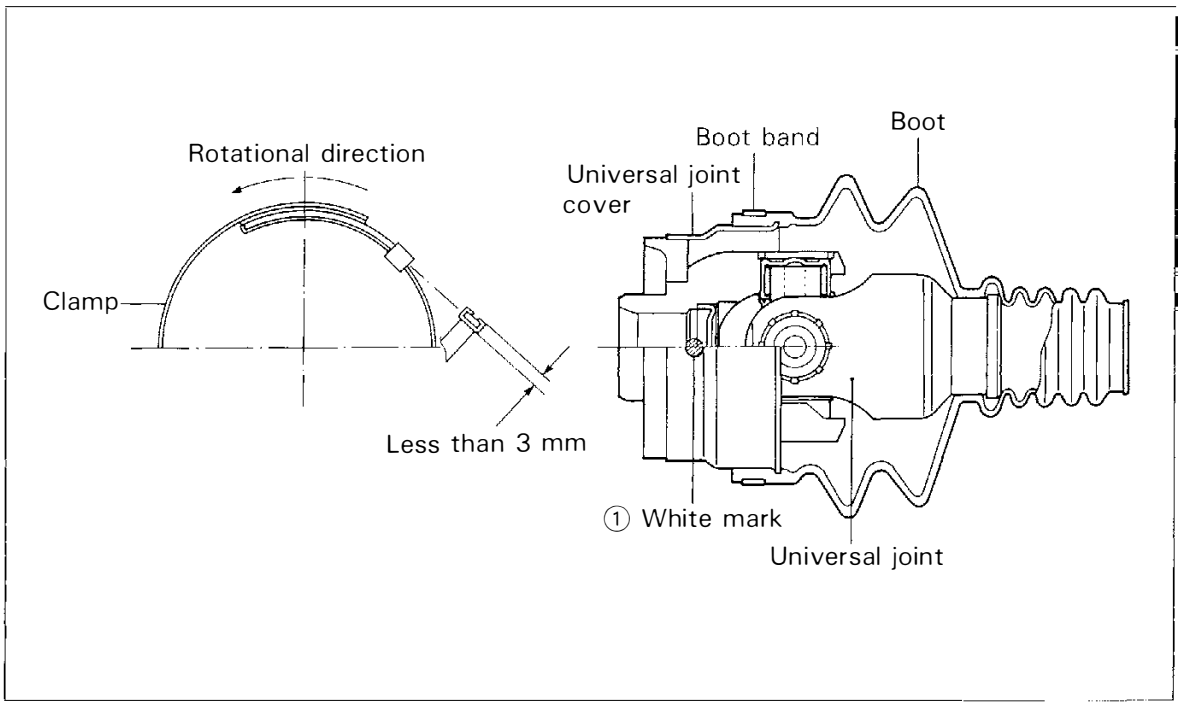
PART SUPPLY DATA

PART NAME	PART NO. [EARLY]	PART NO. [LATE]
① : Rear universal joint	27501-19B11	27501-19B70
② : Oil seal cover	27592-19B10	27592-19B70
③ : Boot	27153-62021	27153-19B70
④ : Universal joint cover		27593-19B70
⑤ : Boot band		44123-60A00

Both EARLY and LATE parts are available.

EFFECTIVE FRAME No. LT-4WDR: R2101156, LT-F4WDXR: R2100004

Installation manner of the late type boot is as shown in the following illustration.



CAUTION:

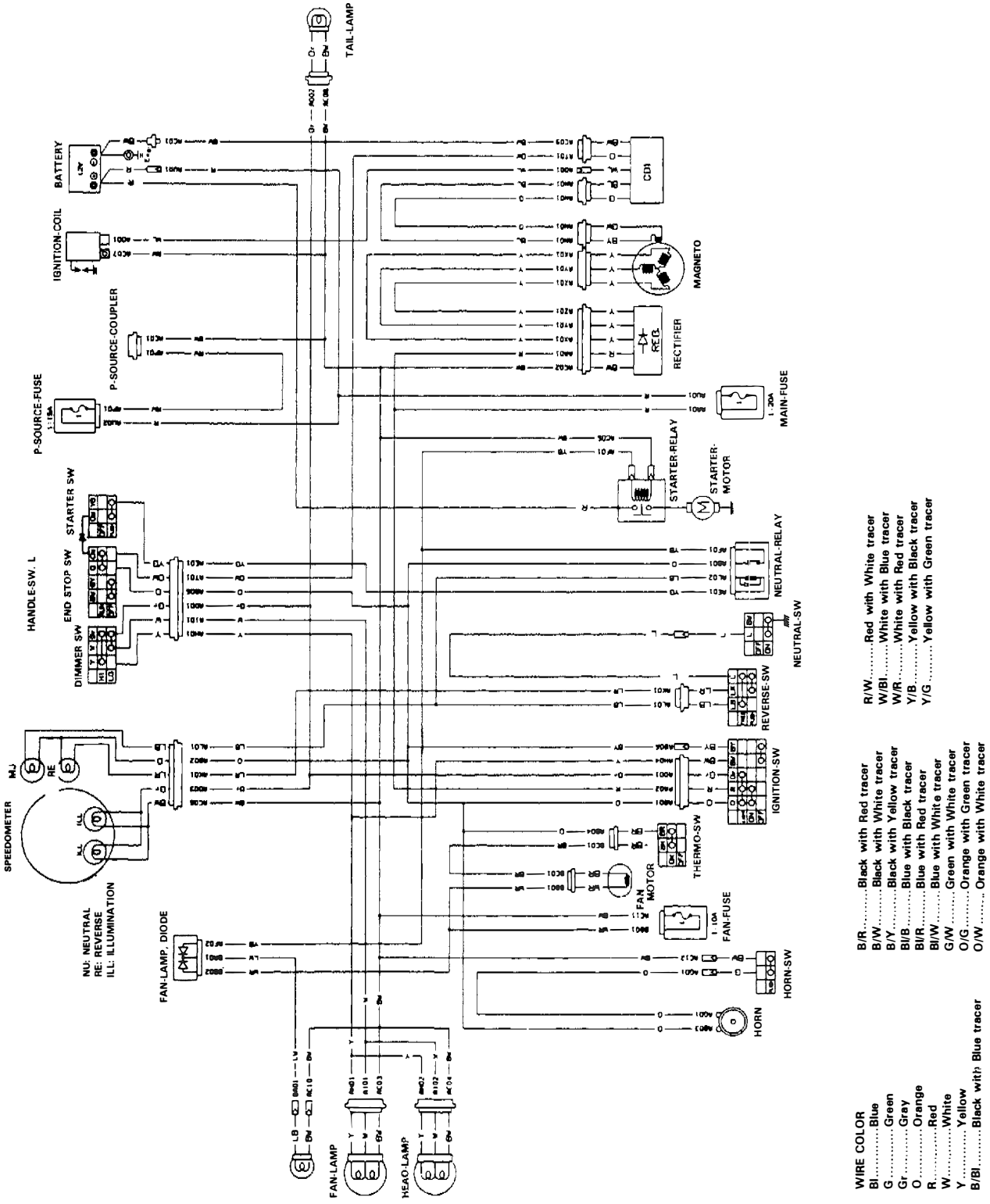
*** White painted mark ① is assemble mark of the universal joint to get proper alignment.**

*** Assemble direction of the boot band is as shown in the above illustrations.**

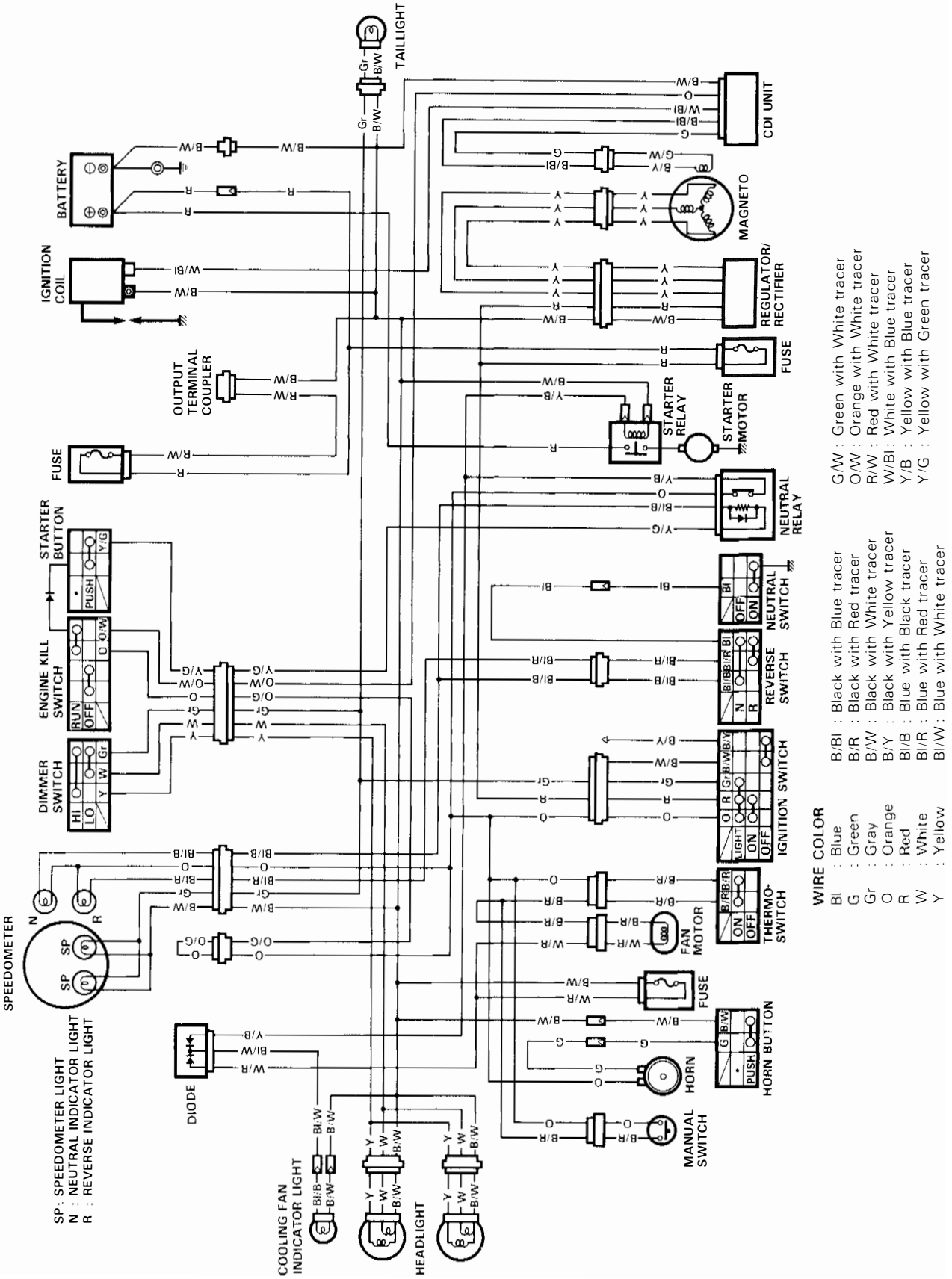
*** Late type boot and related parts are applicable after the LT-F4WDL and LT-F4WDXM models and for the models "J" and "K" are not applicable due to the late type boot will be touch to the muffler.**

WIRING DIAGRAM

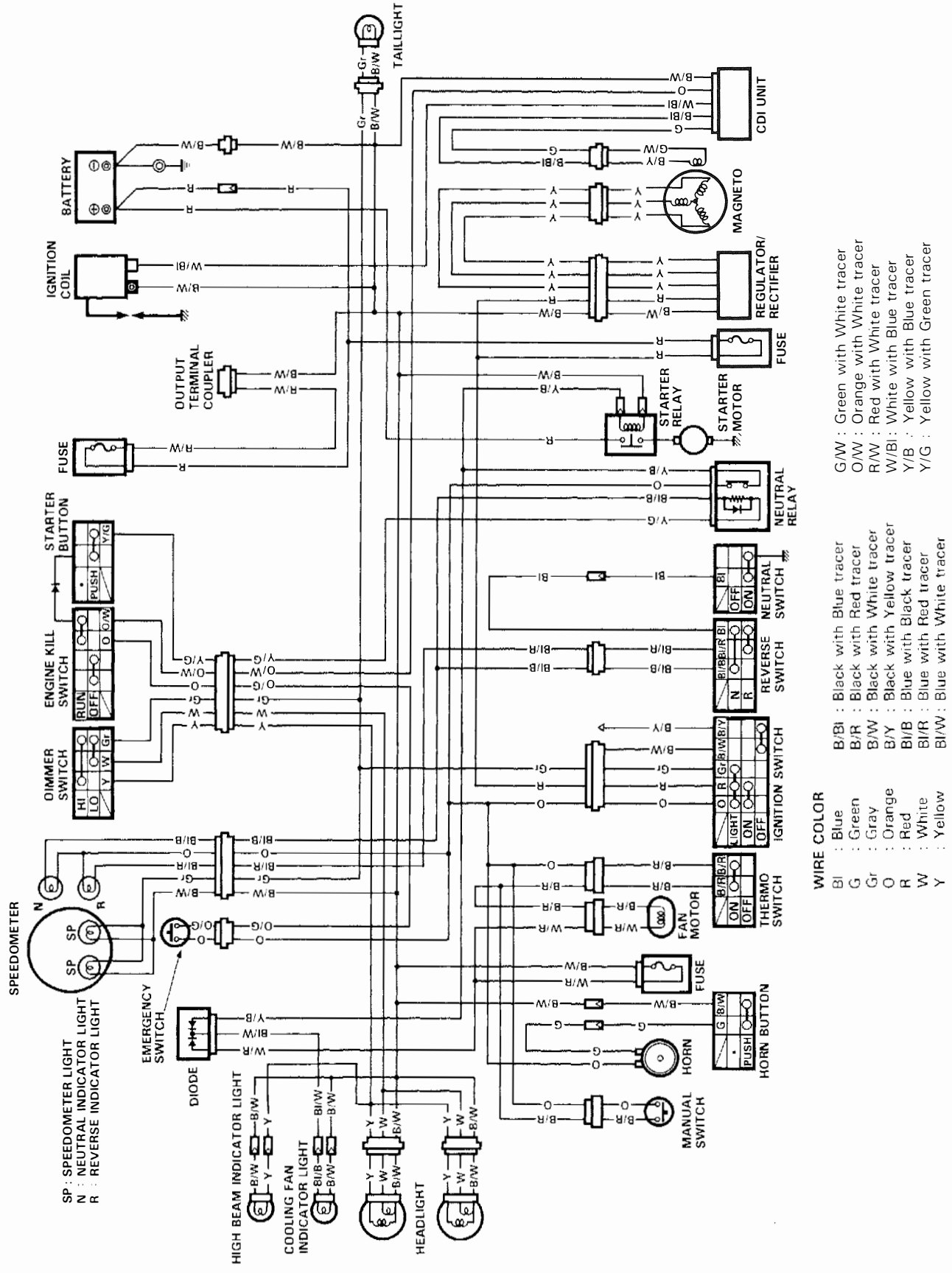
LT-4WDN AND LT-F4WDN (For Australia)



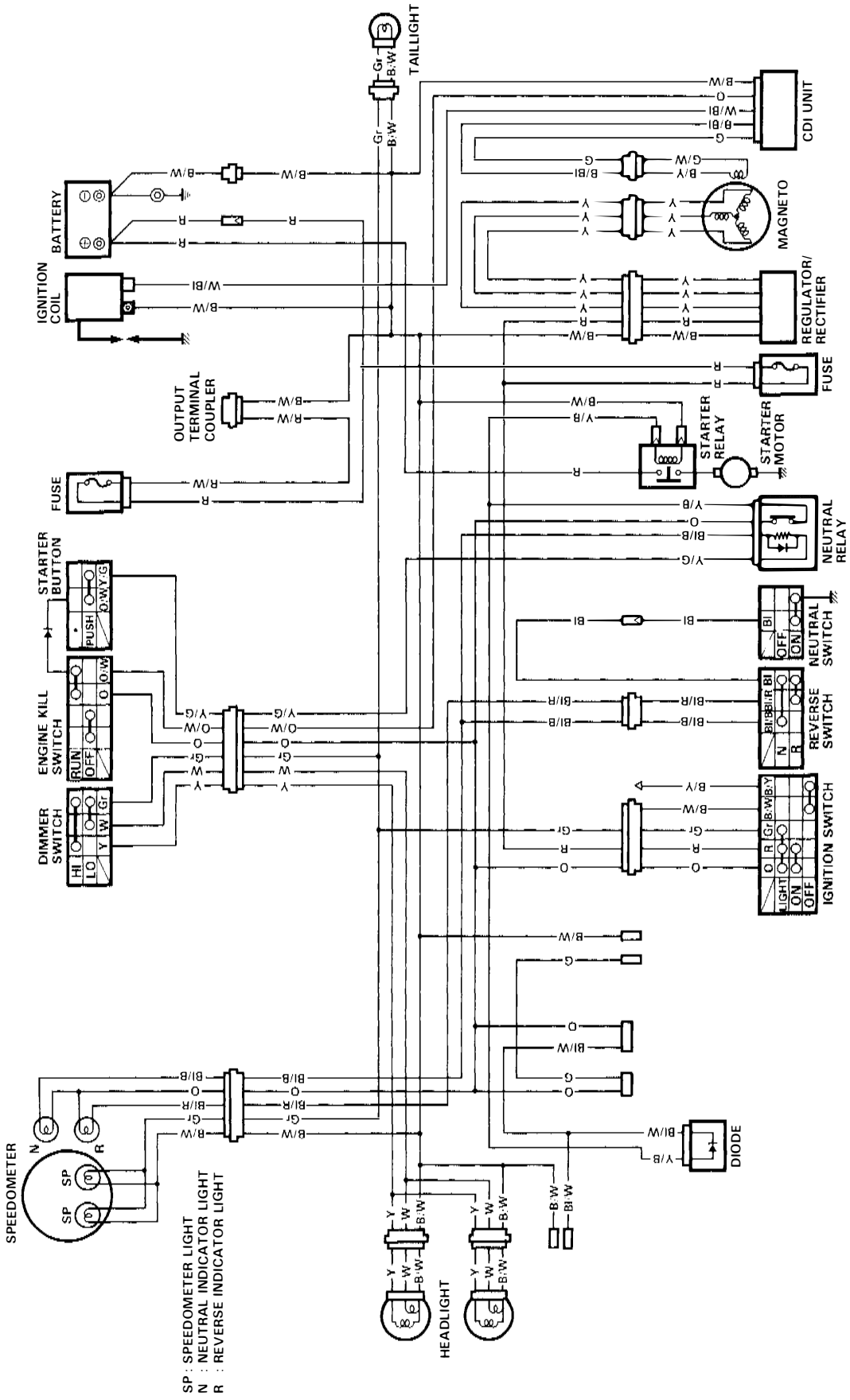
LT-4WDS AND LT-F4WDS (For Australia)



LT-4WDS AND LT-F4WDS (For Sweden)



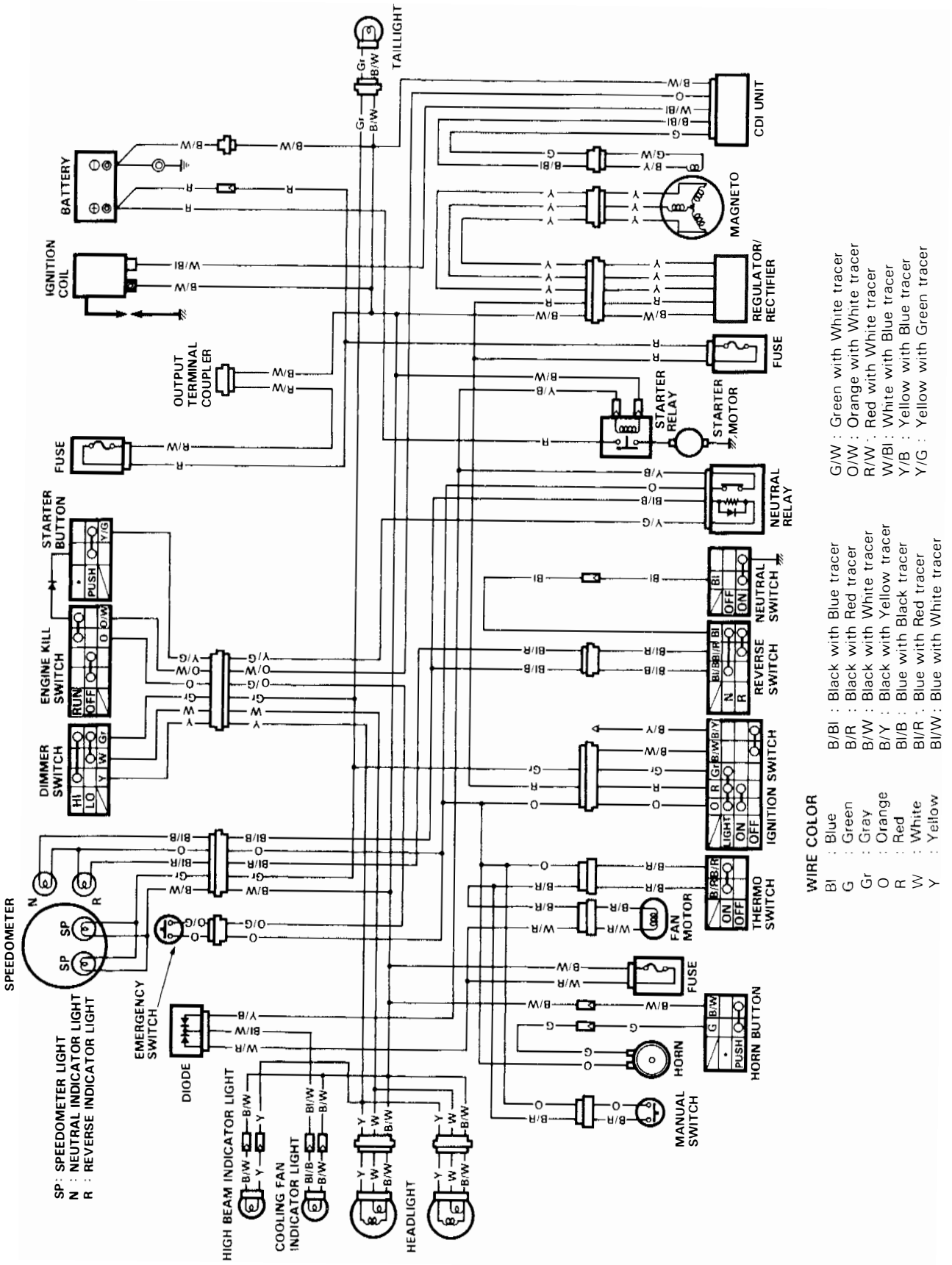
LT-4WDS AND LT-F4WDS (For the others)



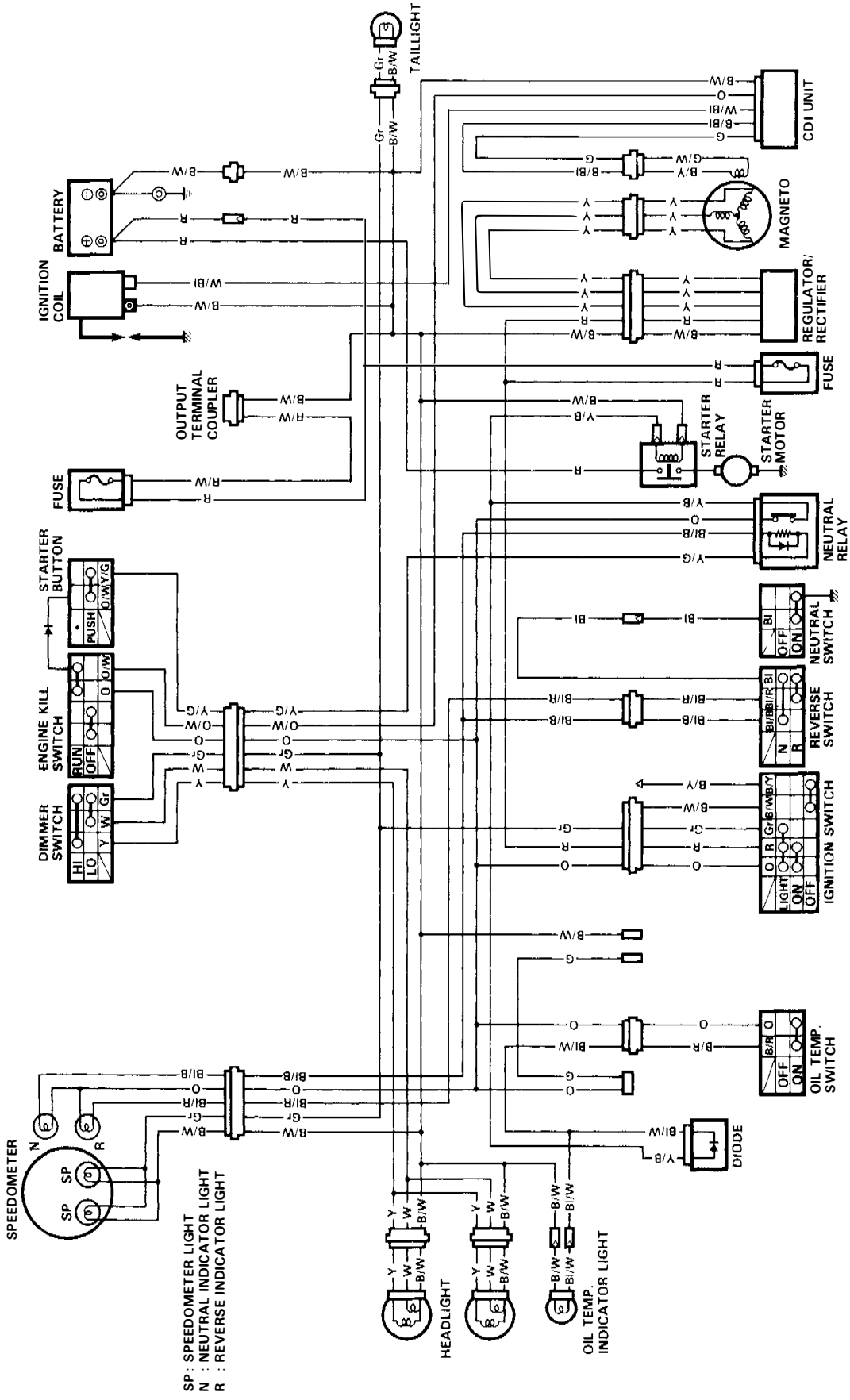
WIRE COLOR

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

LT-F4WDXS (For New Zealand and Sweden)



LT-F4WDXS (For the others)

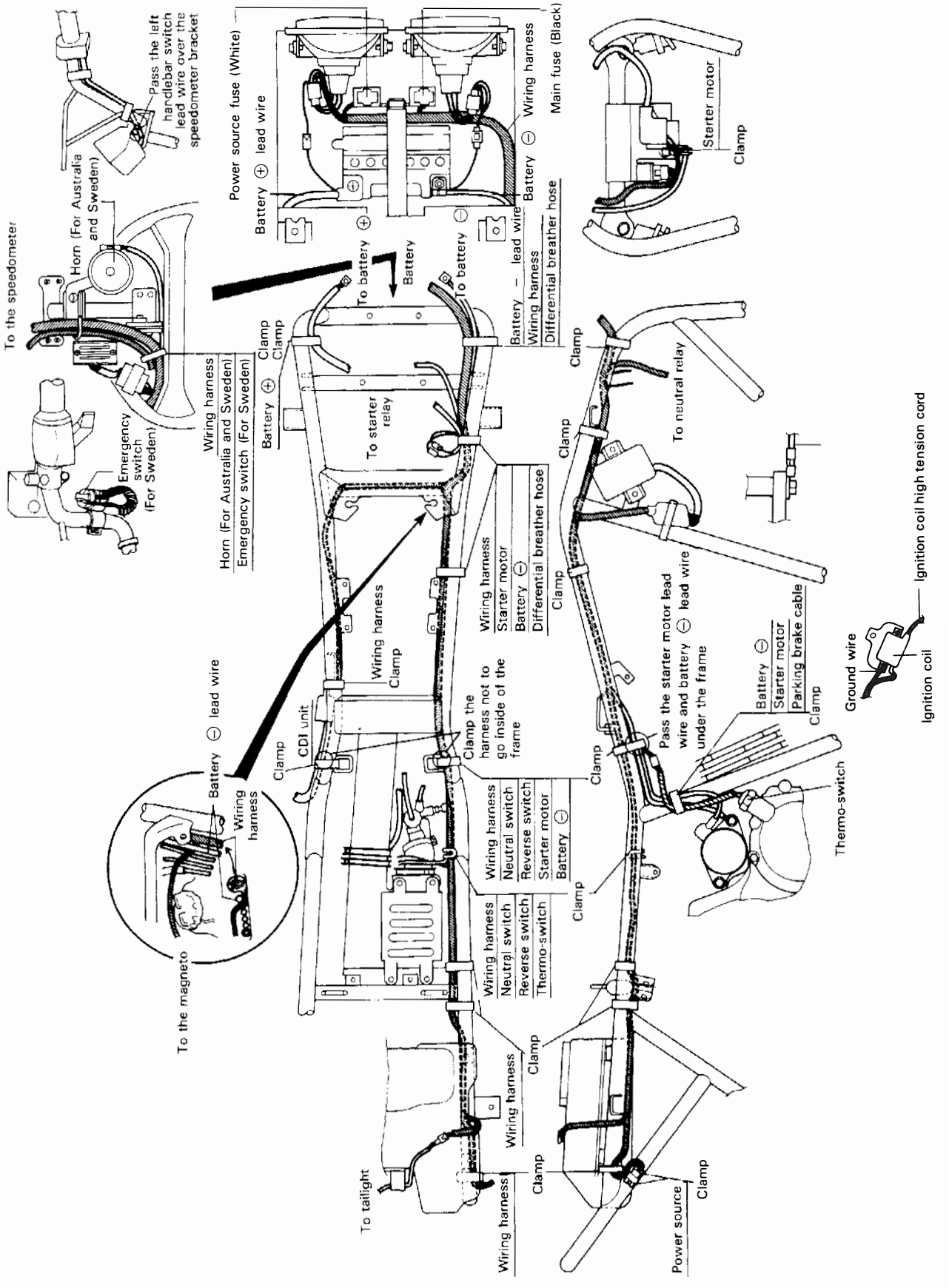


WIRE COLOR

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

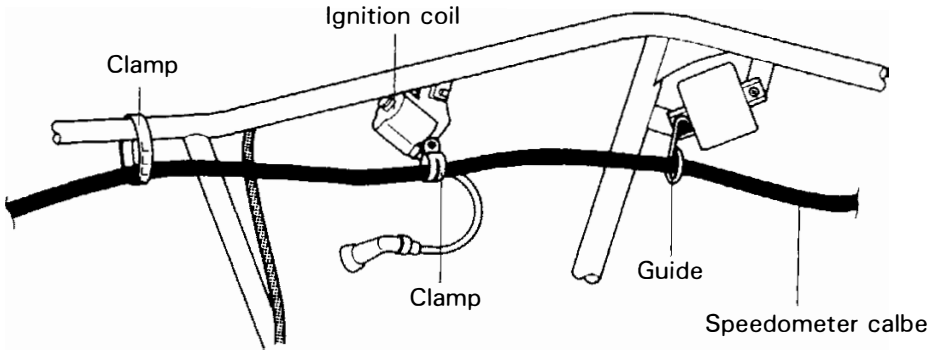
WIRE ROUTING

LT-4WDN AND LT-F4WDN

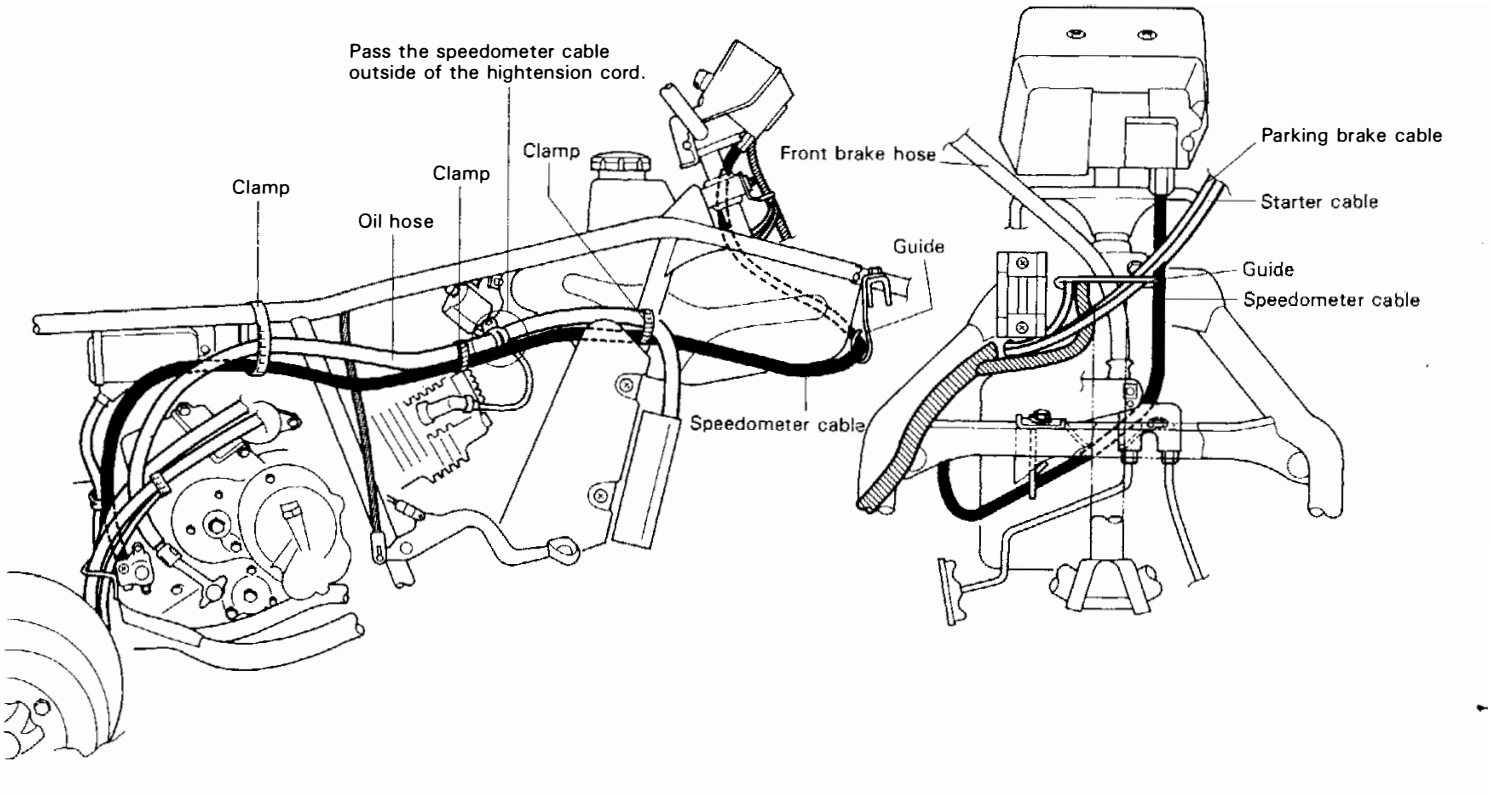


SPEEDOMETER CABLE ROUTING

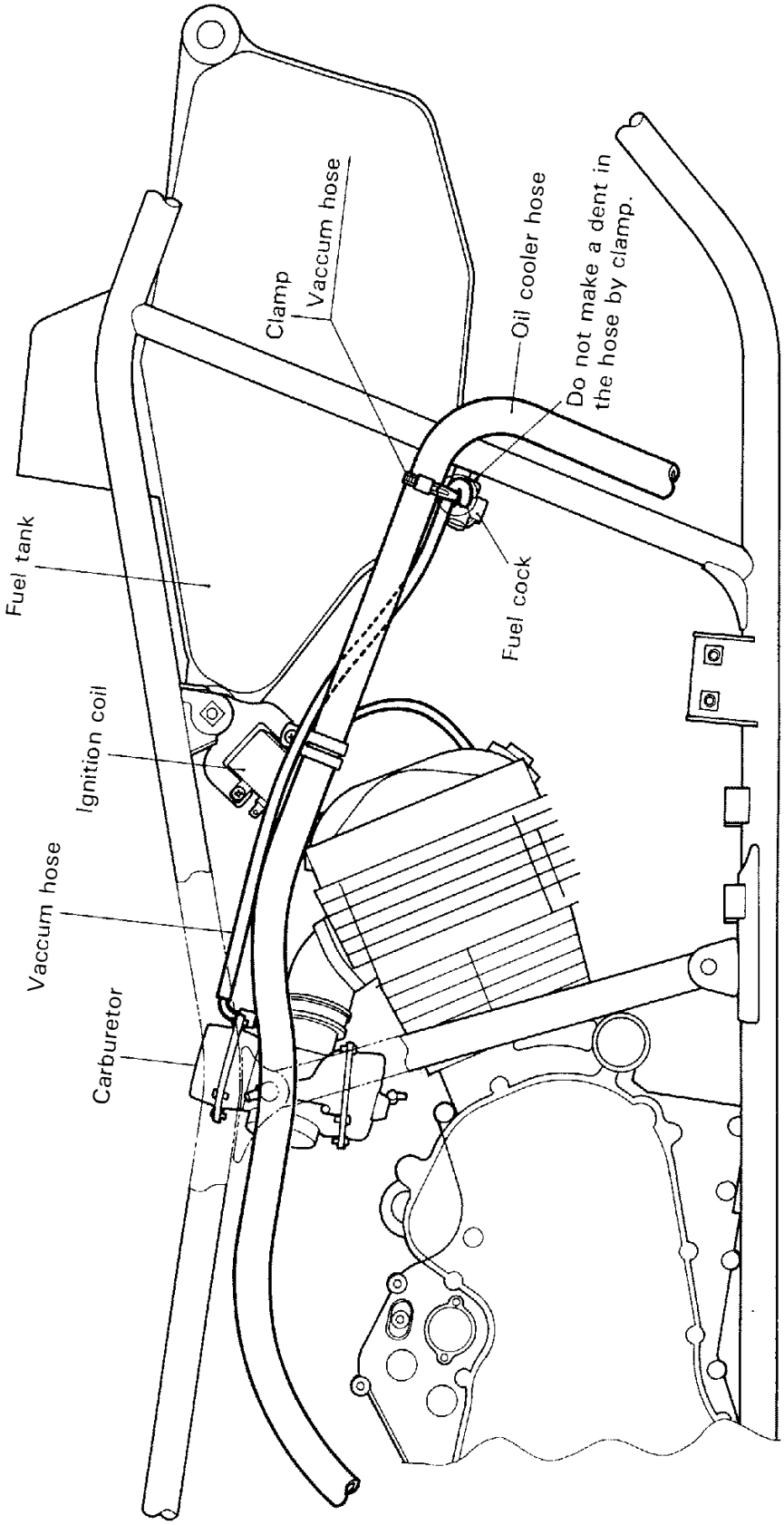
LT-4WDN AND LT-F4WDN



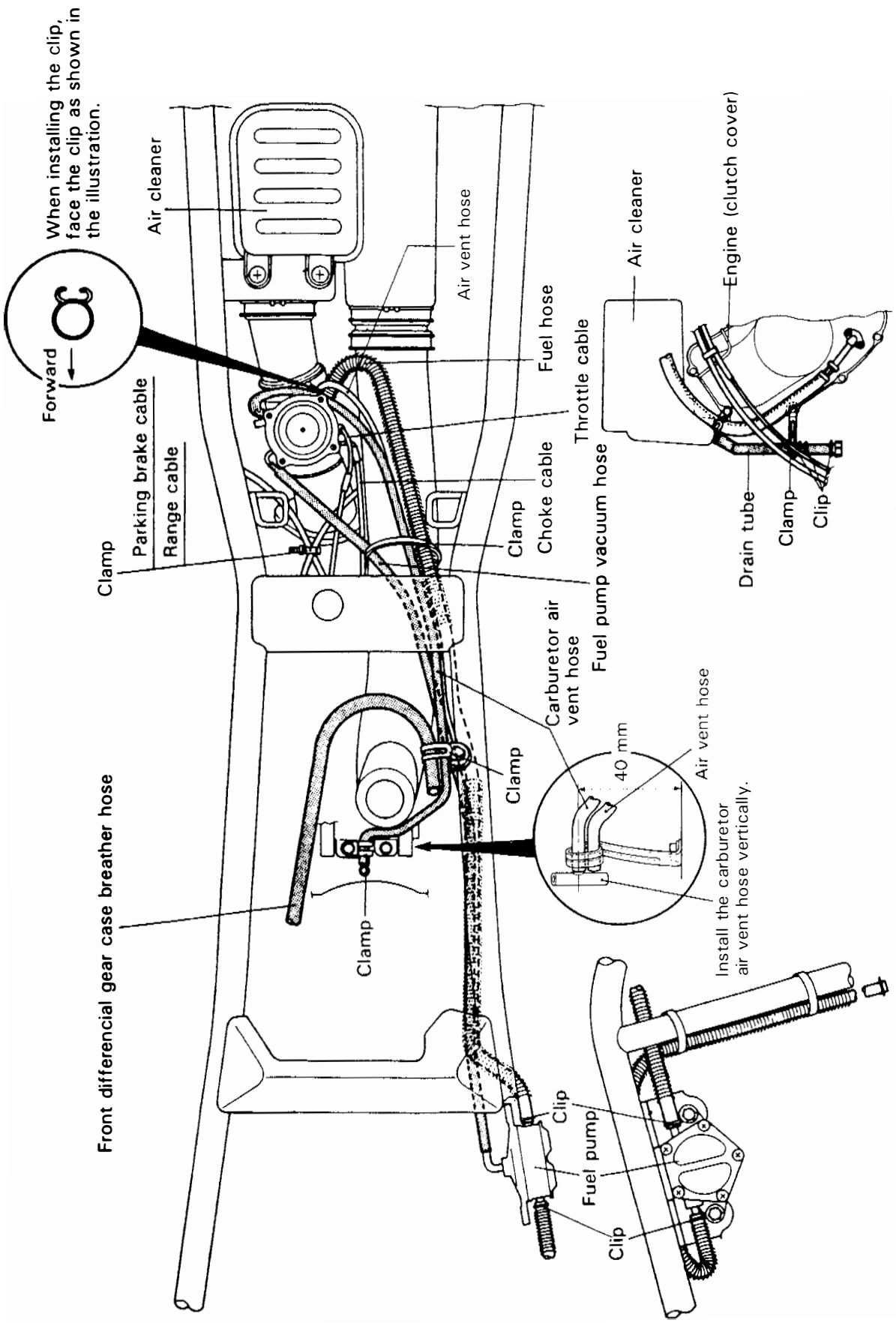
LT-F4WDXN



FUEL COCK VACUUM HOSE ROUTING (LT-F4WDXR)

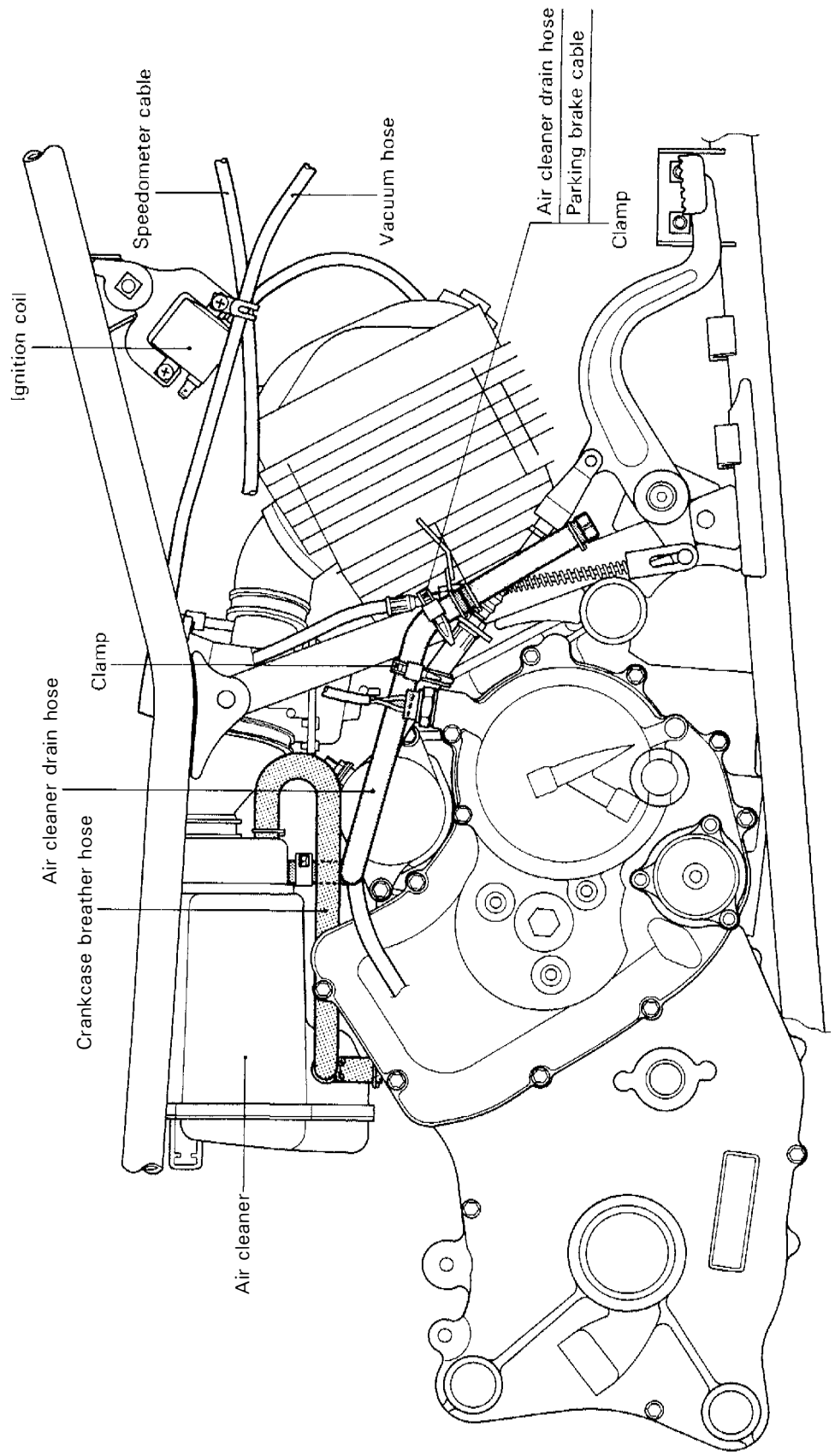


FUEL HOSE AND AIR CLEANER DRAIN HOSE ROUTING (LT-F4WDXS)

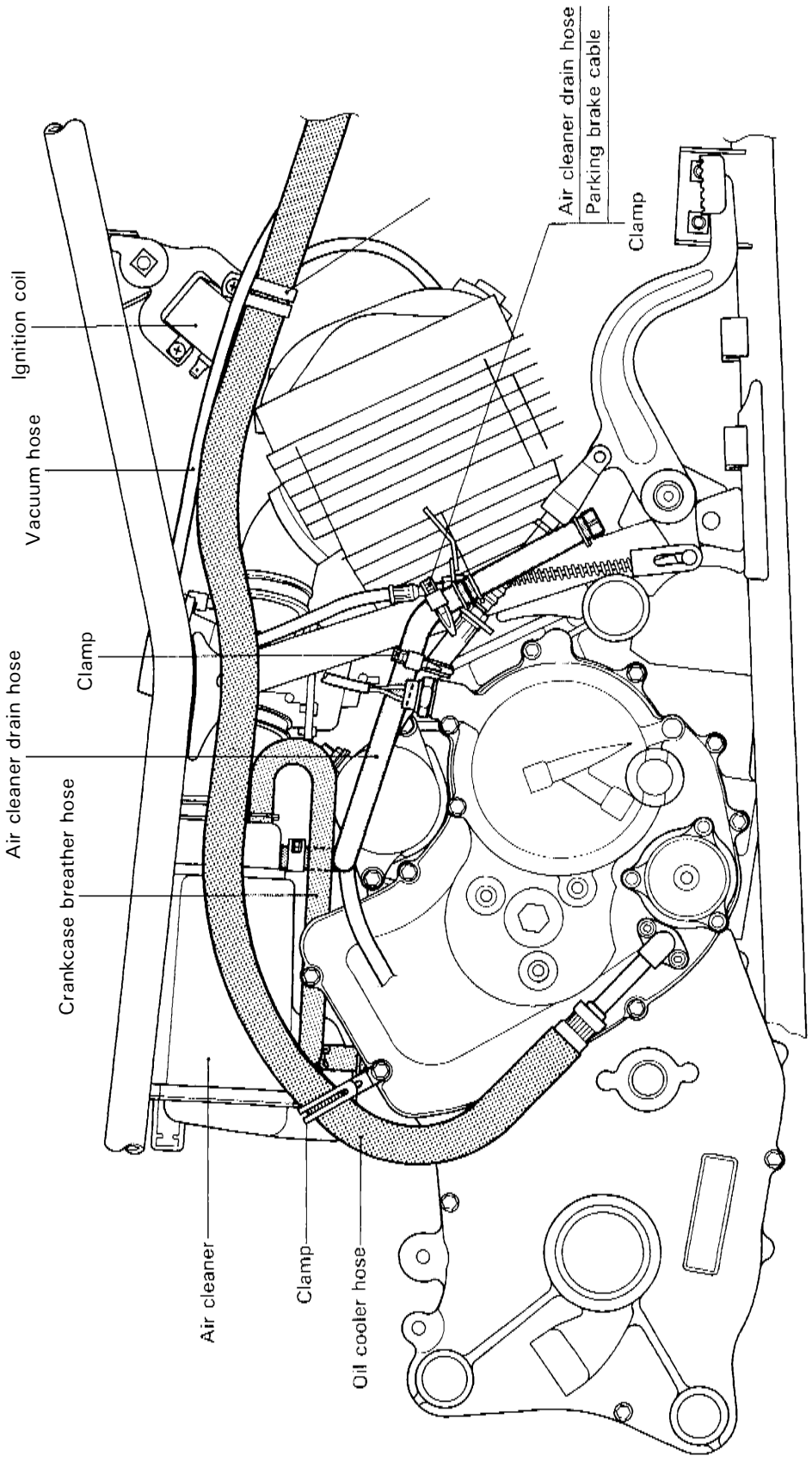


AIR CLEANER DRAIN HOSE ROUTING

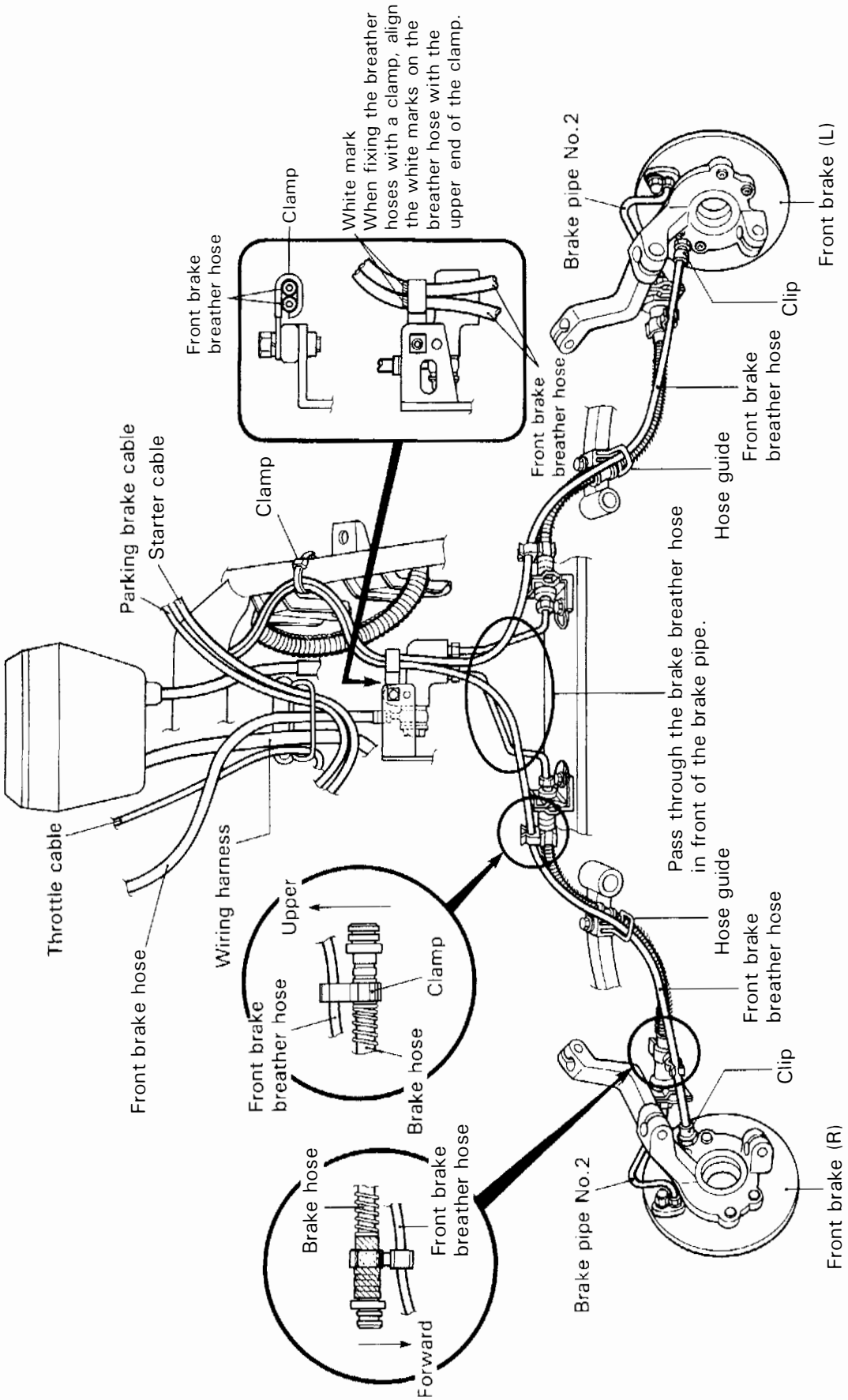
LT-4WDT AND LT-F4WDT

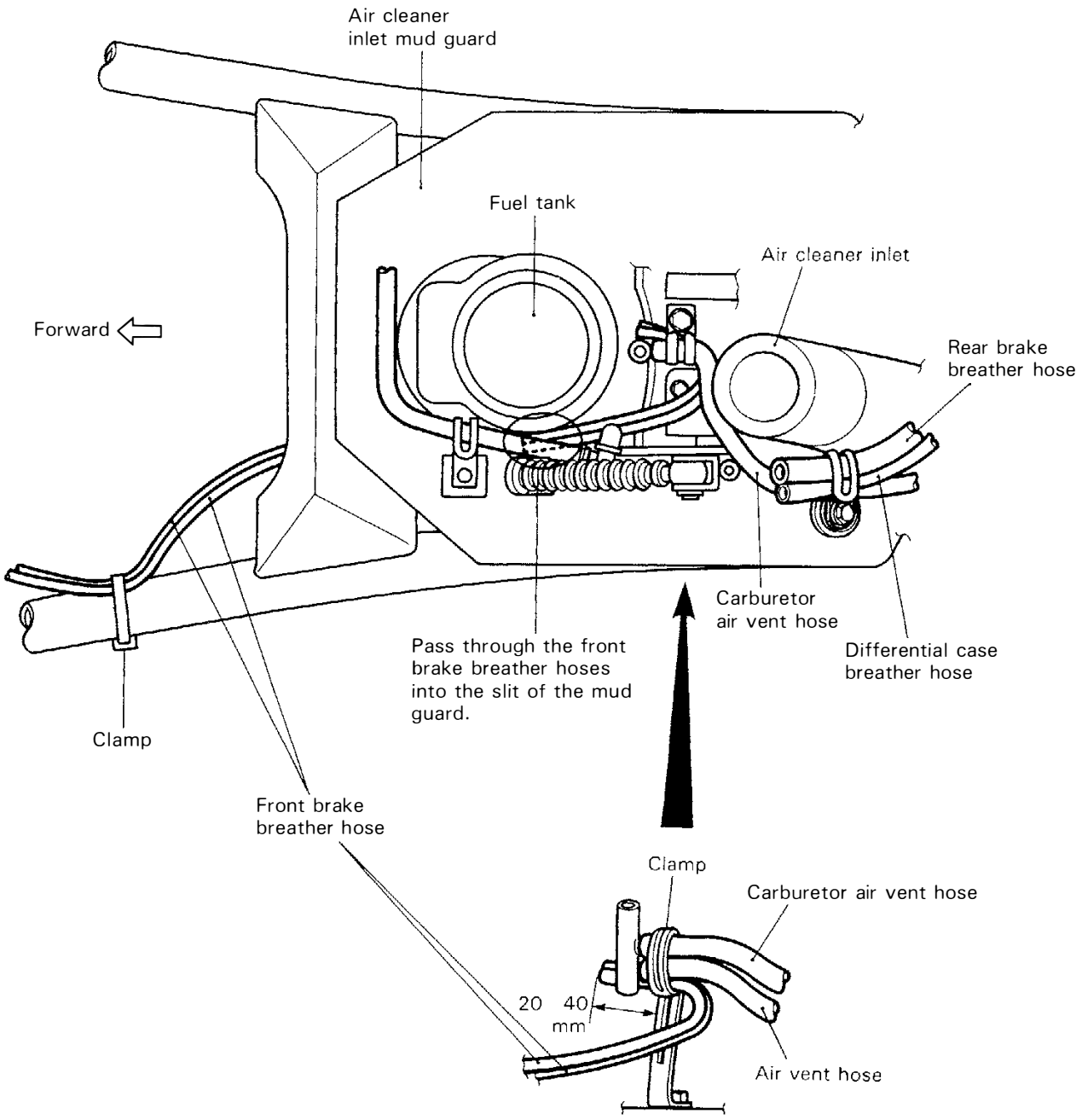


LT-F4WDXT

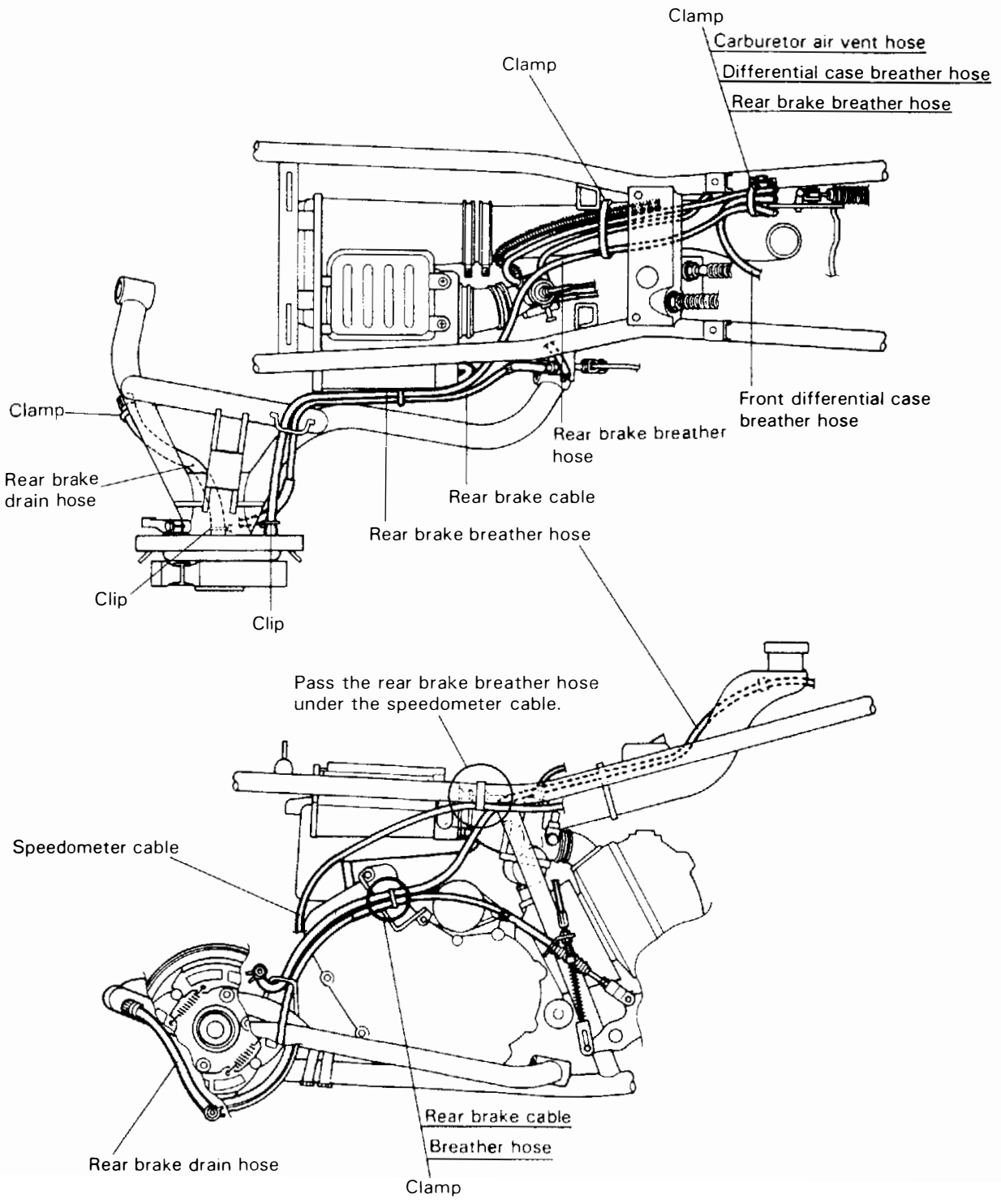

Air cleaner drain hose
Parking brake cable
Clamp
Ignition coil
Vacuum hose
Clamp
Air cleaner drain hose
Crankcase breather hose
Air cleaner
Clamp
Oil cooler hose

FRONT BRAKE BREATHER HOSE ROUTING (LT-F4WDXS)




Air cleaner
inlet mud guard
Fuel tank
Air cleaner inlet
Forward
Rear brake
breather hose
Carburetor
air vent hose
Differential case
breather hose
Pass through the front
brake breather hoses
into the slit of the mud
guard.
Clamp
Front brake
breather hose
Clamp
Carburetor air vent hose
20 40
mm
Air vent hose

REAR BRAKE BREATHER HOSE ROUTING (LT-F4WDXS)



LT-F4WDV/W AND LT-F4WDXV/W ('97 AND '98-MODELS

CONTENTS

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SPECIFICATIONS

LT-F4WD

DIMENSIONS AND DRY MASS

Overall length	2 060 mm (81.1 in)
Overall width	1 200 mm (47.2 in)
Overall height	1 055 mm (41.5 in)
Wheelbase	1 150 mm (45.3 in)
Ground clearance	200 mm (7.8 in)
Front track	800 mm (31.5 in)
Rear track	800 mm (31.5 in)
Seat height	755 mm (29.7 in)
Dry mass	244 kg (538 lbs)

ENGINE

Type	Four-stroke, air-cooled, OHC, TDCC
Number of cylinders	1
Bore	66.0 mm (2.598 in)
Stroke	72.0 mm (2.835 in)
Piston displacement	246 cm^3 (15.0 cu. in)
Compression ratio	8.5 : 1
Carburetor	MIKUNI BST31SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-subtransmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	3.250 (65/20)
Secondary reduction, Front	1.062 (17/16)
Sub-transmission, Super Low Low High	 3.176 (17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1.933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front & Rear	Shaft drive

ELECTRICAL

Ignition type		Electronic Ignition (CDI)
Ignition timing		5° B.T.D.C. below 1 800 r/min. and 35° B.T.D.C. above 3 800 r/min.
Spark plug	'97	NGK : D7EA•••E03 NGK : DR7ES•••others
	'98	NGK : DR7EA DENSO : X22ESR-U
Battery		12V 50.4 kC (14Ah)/ 10HR...For E-03,33 12V 72 kC (20 Ah)/ 10HR...For the others

CHASSIS

Front suspension	Independent, double wishbone, oil damped, spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped, spring preload 5-way adjustable
Steering angle	Inside 38° Outside 28°
Caster	3° 30′
Trail	16 mm (0.6 in)
Turning radius	2.7 m (8.9 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	AT22 × 8-10☆☆
Rear tire size	AT25 × 12-10☆
Front wheel travel	85 mm (3.3 in)
Rear wheel travel	95 mm (3.7 in)

CAPACITIES

Fuel tank including reserve	12.0 L (3.2/2.6 US/Imp gal)
reserve	2.0 L (0.5/0.4 US/Imp gal)
Engine oil, oil change	3.5 L (3.7/3.1 US/Imp qt)
filter change	3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil	150 ml (5.07/5.28 US/Imp oz)

These specifications are subject to change without notice.

LT-F4WDX

DIMENSIONS AND DRY MASS

Overall length	2 060 mm (81.1 in)
Overall width	1 200 mm (47.2 in)
Overall height	1 150 mm (45.3 in) E-17 1 085 mm (42.7 in) others
Wheelbase	1 165 mm (45.9 in)
Ground clearance	210 mm (8.3 in)
Front track	860 mm (33.9 in)
Rear track	860 mm (33.9 in)
Seat height	775 mm (30.5 in)
Dry mass	274 kg (604 lbs)

ENGINE

Type	Four-stroke, air-cooled, with oil cooler OHC
Number of cylinders	1
Bore	68.5 mm (2.697 in)
Stroke	76.0 mm (2.992 in)
Piston displacement	280 cm^3 (17.1 cu. in)
Compression ratio	9.2 : 1•••E-17 8.9 : 1•••others
Carburetor	MIKUNI BST31SS, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

TRANSMISSION

Clutch	Wet multi-plate, automatic, centrifugal type
Transmission	5-forward constant mesh, 1-reverse with 3-sub-transmission
Gearshift pattern, Forward Reverse	 All up, foot lever operated Hand lever operated
Primary reduction	3.150 (63/20)
Secondary reduction, Front	 1.125 (18/16)
Sub-transmission, Super Low Low High	 3.176 (17/18 × 37/11) 1.480 (37/25) 1.112 (11/25 × 43/17)
Final reduction, Front Rear	3.090 (34/11) 3.647 (62/17)
Gear ratios, Low 2nd 3rd 4th Top Reverse	3.083 (37/12) 1.933 (29/15) 1.388 (25/18) 1.095 (23/21) 0.913 (21/23) 2.833 (34/12)
Drive system, Front Rear	Shaft drive Gear drive

ELECTRICAL

Ignition type		Electronic Ignition (CDI)
Ignition timing		5° B.T.D.C. below 1 800 r/min. and 30° B.T.D.C. above 3 800 r/min.
Spark plug	'97	NGK : D7EA•••E03,33 NGK : DR7ES•••others
	'98	NGK : DR7EA DENSO : X22ESR-U
Battery		12V 50.4 kC (14Ah)/10HR...For E-03,33 12V 72 kC (20 Ah)/10HR...For the others

CHASSIS

Front suspension	Independent, double wishbone, oil damped, spring preload 5-way adjustable
Rear suspension	Independent, diagonal swing axle, oil damped, spring preload 5-way adjustable
Steering angle	Inside 36° Outside 26°
Caster	5° 30'
Trail	35 mm (1.4 in)
Turning radius	3.2 m (10.5 ft)
Front brake	Internal expanding, hydraulically operated
Rear brake	Internal expanding, mechanically operated
Front tire size	AT24 × 8-11 ☆ ☆
Rear tire size	AT25 × 10-12 ☆ ☆
Front wheel travel	100 mm (3.9 in)
Rear wheel travel	125 mm (4.9 in)

CAPACITIES

Fuel tank including	reserve	12.0 L (3.2/2.6 US/Imp gal)
	reserve	2.0 L (0.5/0.4 US/Imp gal)
Engine oil, oil change		3.5 L (3.7/3.1 US/Imp qt)
filter change		3.6 L (3.8/3.2 US/Imp qt)
Differential gear oil		150 ml (5.1/5.3 US/Imp oz)

These specifications are subject to change without notice.

SERVICE DATA

LT-F4WD

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	—
	EX.	28 (1.1)	—
Valve lift	IN.	7.5 (0.30)	—
	EX.	6.5 (0.26)	—
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	—
	EX.	0.08—0.13 (0.003—0.005)	—
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	0.35 (0.014)
	EX.	0.030—0.057 (0.0012—0.0024)	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	—
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	—
	EX.	5.455—5.470 (0.2148—0.2154)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length	IN. & EX.	—	41.0 (1.68)
Valve spring tension (IN. & EX.)	24.1—29.3 kg (53.1—64.6 lbs) at length 36.8 mm (14.5 in)		—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.780—33.820 (1.3299—1.3315)	33.480 (1.3181)
	EX.	32.990—33.030 (1.2988—1.3004)	32.690 (1.2870)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)		—
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)		—
Camshaft runout	—		0.10 (0.004)
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	—
Rocker arm shaft O.D.	IN. & EX.	11.977—11.995 (0.4715—0.4722)	—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	1 000— 1 400 kPa (10—14 kg/cm², 142—199 psi)			800 kPa (8 kg/cm², 114 psi)
Piston to cylinder clearance	0.040—0.050 (0.0016—0.0020)			0.120 (0.0047)
Cylinder bore	66.000—66.015 (2.5984—2.5990)			66.090 (2.6020)
Piston diam.	65.955—65.970 (2.5966—2.5972) Measure at 18 (0.71) from the skirt end			65.880 (2.5937)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 7.5 (0.30)	6.0 (0.24)
	2nd	R	Approx. 9.0 (0.35)	7.2 (0.28)
Piston ring end gap	1st & 2nd		0.10—0.25 (0.004—0.010)	0.70 (0.028)
Piston ring to groove clearance	1st		—	0.180 (0.0071)
	2nd		—	0.150 (0.0059)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	1.01—1.03 (0.040—0.041)	—
	2nd	1.22—1.24 (0.048—0.049)	—
	Oil	2.01—2.03 (0.079—0.080)	—
Piston ring thickness	1st	0.97—0.99 (0.038—0.039)	—
	2nd	1.17—1.19 (0.046—0.047)	—
Piston pin bore	16.002—16.008 (0.6300—0.6302)		16.030 (0.6311)
Piston pin O.D.	15.996—16.000 (0.6298—0.6299)		15.980 (0.6291)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD		LIMIT
Conrod small end I.D.	16.006—16.014 (0.6302—0.6305)		16.040 (0.6315)
Conrod deflection	—		3.0 (0.12)
Conrod big end side clearance	0.10—0.45 (0.004—0.018)		1.00 (0.039)
Conrod big end width	17.95—18.00 (0.707—0.709)		—
Crank web to web width	53.0 ± 0.1 (2.087 ± 0.004)		—
Crankshaft runout	at left side	—	0.05 (0.002)
	at right side	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	—
Oil pressure (at 60°C,140°F)	Above 30 kPa (0.30 kg/cm², 4.3 psi) Below 70 kPa (0.70 kg/cm², 10.0 psi) at 3 000 r/min.	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	0—⅛ turn back	—
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	—	0.10 (0.004)

ITEM	STANDARD	LIMIT
Clutch spring free length	———	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ $\left(4.567 \pm {}^{0.006}_{0}\right)$	Scuffing or scratch on contacting surface
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	2 000 ± 200 r/min.	———
Clutch lock-up r/min.	3 400 ± 300 r/min.	———

TRANSMISSION

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.250 (65/20)	———
Final reduction ratio	Front	3.284 (17/16 x 34/11)	———
	Rear	3.647 (62/17)	———
Sub-transmission reduction ratio	Super low	3.176 (17/18 x 25/11 x 37/25)	———
	Low	1.480 (37/25)	———
	High	1.112 (11/25 x 18/17 x 43/18)	———
Gear ratios	Low	3.083 (37/12)	———
	2nd	1.933 (29/15)	———
	3rd	1.388 (25/18)	———
	4th	1.095 (23/21)	———
	Top	0.913 (21/23)	———
	Reverse	2.833 (29/12 x 34/29)	———
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork to groove clearance		0.05—0.25 (0.002—0.010)	0.50 (0.020)
Reverse fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 No.3	4.50—4.60 (0.177—0.181)	———
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	———
	Reverse	4.00—4.40 (0.157—0.173)	———
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	———
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	———
	Reverse	3.80—3.90 (0.150—0.154)	———
Gearshift lever height		17 (0.7)	———

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

COOLING FAN THERMO-SWITCH (For E-17,24)

ITEM	STANDARD		LIMIT
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 120°C (248°F)	———
	ON → OFF	Approx. 108°C (226°F)	———

CARBURETOR

ITEM	SPECIFICATION		
	'97-model and E-03,17,28('98-model)	E-24 ('98-model)	E-33 ('98-model)
Carburetor type	MIKUNI BST31SS	←	←
Bore size	31 mm	←	←
I.D. No	19BA	19BC	39D0
Idle r/min.	1 500 ± 100 r/min	←	←
Float height	13.0 ± 0.5 mm (0.51 ± 0.02 in)	←	←
Main jet (M.J.)	#122.5	←	#117.5
Jet needle (J.N.)	5D67-3rd	←	5D84
Needle jet (N.J.)	P-4	P-4M	O-6M
Throttle valve (Th.V.)	#125	←	#125
Piklot jet (P.J.)	#40	←	#25
Starter jet (G.S.)	#42.5	←	#37.5
Pilot screw (P.S.)	2⅞ turns back	←	PRE-SET
Pilot air jet (P.A.J.)	#160	←	#170
Throttle cable play	1—3 mm (0.04—0.12 in)	←	←
Choke cable play	0.5—1.0 mm (0.02—0.04 in)	←	←

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Ignition timing		5° B.T.D.C. Below 1 800 r/min and 35° B.T.D.C. Above 3 800 r/min.		
Spark plug		Type	NGK : D7EA•••E03,33 NGK : DR7ES•••E17,28	'97-MODEL
			NGK : DR7EA DENSO : X22ESR-U	'98-MODEL
		Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1—0.5 Ω	Terminal—Ground
		Secondary	12—20 kΩ	Plug cap—Ground
Generator coil resistance		Pick-up	90—140 Ω	B/Y—G/W
		Charging	0.1—1.0 Ω	Y—Y
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min.		
Generator Max. output		Approx. 200 W at 5 000 r/min.		The rotation of the generator
Regulated voltage		13—15 V at 5 000 r/min.		
Starter motor brush length		Limit: 6 (0.24)		MITSUBA
Commutator under-cut		Limit: 0.2 (0.008)		
Starter relay resistance		3—7 Ω		
Battery	Type designation	FB14A-A2		E-03,33
	Capacity	12V 50.4 kC (14 Ah)/10HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
	Type designation	Y50-N18A-A		E-17,24,28
	Capacity	12V 72 kC (20 Ah)/10HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Main	20A		
	Power source	15A		
	Fan	10A		E-17,24

WATTAGE

Unit: W

ITEM		SPECIFICATION		
		E-17	E-24	E-03,28,33
Headlight	HI	35 x 2 pcs.	30 x 2 pcs.	←
	LO	36.5 x 2 pcs.	30 x 2 pcs.	←
Taillight		5	←	←
Speedometer light		3 x 2 pcs.	←	←
Reverse indicator light		3.4	←	←
Neutral indicator light		3.4	←	←
High beam indicator light		1.7		
Fan indicator light		3.4	←	

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD		LIMIT
Rear brake cable play	3—7 (0.1—0.3)		———
Rear brake pedal free travel	20—30 (0.8—1.2)		———
Rear brake pedal height	0 (Zero)		———
Brake drum I.D.	Front	———	165.7 (6.52)
	Rear	———	165.7 (6.52)
Brake lining thickness	———		1.5 (0.06)
Master cylinder bore	Front	14.000—14.043 (0.5512—0.5529)	———
Master cylinder piston diam.	Front	13.957—13.984 (0.5495—0.5506)	———
Steering angle	Inside	38° ± 3°	———
	Outside	28° ± 3°	———
Turning radius	2.7 m (8.9 ft)		———
Toe-in (with 75 kg, 165 lbs)	11—19 (0.43—0.75)		———
Camber (with 75 kg, 165 lbs)	1°		———
Kingpin inclination	12°		———
Caster	3° 30′		———
Wheel rim size	Front	10 × 6.0 AT	———
	Rear	10 × 9.5 AT	———
Tire size	Front	AT22 x 8-10 ☆☆	———
	Rear	AT25 x 12-10☆	———
Tire tread depth	Front	———	4.0 (0.16)
	Rear	———	4.0 (0.16)

TIRE PRESSURE

E-03,33 ('98-model)

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi	NOTE
FRONT	30	0.30	4.4	LOAD CAPACITY UP TO 80 kg (175 lbs)
REAR	20	0.20	2.9	
FRONT	35	0.35	5.1	LOAD CAPACITY 80—172 kg (175—380 lbs)
REAR	20	0.20	2.9	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

'97-model and E-17,24,28 ('98-model)

COLD INFLATION TIRE PRESSURE	kPa	kg/cm²	psi
FRONT	35	0.35	5.1
REAR	20	0.20	2.9

VEHICLE LOAD CAPACITY LIMIT: 177 kg (390 lbs)

FUEL + OIL

ITEM	SPECIFICATION		NOTE
Fuel type	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		E-03,33
	Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$ method) or 91 octane or higher rated by the Research Method.		E-28
	Gasoline used should be graded 85-95 octane or higher. An unleaded gasoline is recommended.		E-17,24
Fuel tank including reserve	12 L (3.2/2.6 US/Imp gal)		
reserve	2.0 L (0.5/0.4 US/Imp gal)		
Engine oil type	SAE 10W/40, API SF or SG		
Engine oil capacity	Change	3 500 ml (3.7/3.1 US/Imp qt)	
	Filter change	3 600 ml (3.8/3.2 US/Imp qt)	
	Overhaul	3 860 ml (4.1/3.4 US/Imp qt)	
Differential gear oil type	Hypoid gear oil SAE #90, API grade GL-5		
Differential gear oil capacity	150 ml (5.1/5.3 US/Imp oz)		
Brake fluid type	DOT 4		

LT-F4WDX

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	33 (1.3)	—
	EX.	28 (1.1)	—
Valve lift	IN.	8.0 (0.31)	—
	EX.	7.5 (0.30)	—
Valve clearance (when cold)	IN.	0.03—0.08 (0.001—0.003)	—
	EX.	0.17—0.22 (0.007—0.009)	—
Valve guide to valve stem clearance	IN.	0.010—0.037 (0.0004—0.0015)	—
	EX.	0.030—0.057 (0.0012—0.0024)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve guide I.D.	IN. & EX.	5.500—5.512 (0.2165—0.2170)	—
Valve stem O.D.	IN.	5.475—5.490 (0.2156—0.2161)	—
	EX.	5.455—5.470 (0.2148—0.2154)	—
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.7 (0.11)
Valve seat width	IN. & EX.	0.9—1.1 (0.035—0.043)	—
Valve head radial runout	IN. & EX.	—	0.03 (0.001)
Valve spring free length (IN. & EX.)	INNER	—	35.1 (1.38)
	OUTER	—	39.9 (1.57)
Valve spring tension (IN. & EX.)	INNER	7.1—9.2 kg (15.7—20.3 lbs) at length 32.5 mm (1.28 in)	—
	OUTER	17.3—21.3 kg (38.1—47.0 lbs) at length 36.0 mm (1.42 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	34.112—34.152 (1.3430—1.3446)	33.820 (1.3315)
	EX.	33.790—33.830 (1.3303—1.3319)	33.490 (1.3185)
Camshaft journal oil clearance	0.032—0.066 (0.0013—0.0026)		0.150 (0.0059)
Camshaft journal holder I.D.	22.012—22.025 (0.8666—0.8671)		—
Camshaft journal O.D.	21.959—21.980 (0.8645—0.8654)		—
Camshaft runout	—		0.10 (0.004)
Rocker arm I.D.	IN. & EX.	12.000—12.018 (0.4724—0.4731)	—
Rocker arm shaft O.D.	IN. & EX.	11.977—11.995 (0.4715—0.4722)	—
Cylinder head distortion	—		0.05 (0.002)
Cylinder head cover distortion	—		0.05 (0.002)

CYLINDER + PISTON + PISTON RING

Unit: mm (in)

ITEM	STANDARD			LIMIT
Compression pressure	1 000—1 400 kPa (10—14 kg/cm², 142—199 psi)			800 kPa (8 kg/cm², 114 psi)
Piston to cylinder clearance	0.060—0.070 (0.0024—0.0028)			0.120 (0.0047)
Cylinder bore	68.500—68.515 (2.6968—2.6974)			68.580 (2.7000)
Piston diam.	68.445—68.460 (2.6947—2.6953) Measure at 18 mm (0.71 in) from the skirt end.			68.380 (2.6921)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 7.8 (0.31)	6.2 (0.24)
	2nd	R	Approx. 9.1 (0.36)	7.3 (0.29)
Piston ring end gap	1st		0.15—0.30 (0.006—0.012)	0.70 (0.028)
	2nd		0.50—0.65 (0.020—0.026)	1.00 (0.039)
Piston ring to groove clearance	1st		—	0.180 (0.0071)
	2nd		—	0.150 (0.0059)

Unit: mm (in)

ITEM	STANDARD		LIMIT
Piston ring groove width	1st	1.01—1.04 (0.040—0.041)	—
	2nd	1.22—1.24 (0.048—0.049)	—
	Oil	2.01—2.03 (0.079—0.080)	—
Piston ring thickness	1st	0.97—0.99 (0.038—0.039)	—
	2nd	1.17—1.19 (0.046—0.047)	—
Piston pin bore	17.002—17.008 (0.6694—0.6696)		17.030 (0.6705)
Piston pin O.D.	16.996—17.000 (0.6691—0.6693)		16.980 (0.6685)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD		LIMIT
Conrod small end I.D.	17.006—17.014 (0.6695—0.6698)		17.040 (0.6709)
Conrod deflection	—		3.0 (0.12)
Conrod big end side clearance	0.10—0.45 (0.004—0.018)		1.00 (0.039)
Conrod big end width	17.95—18.00 (0.707—0.709)		—
Crank web to web width	55.0±0.1 (2.165±0.004)		—
Crankshaft runout	at left side	—	0.05 (0.002)
	at right side	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pump reduction ratio	1.566 (47/30)	—
Oil pressure (at 60°C,140°F)	Above 30 kPa (0.30 kg/cm², 43 psi) Below 70 kPa (0.70 kg/cm², 10.0 psi) at 3 000 r/min.	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch release screw	⅛ turn back	—
Drive plate thickness	2.7—2.9 (0.106—0.114)	2.4 (0.094)
Drive plate claw width	11.8—12.0 (0.46—0.47)	11.0 (0.43)
Driven plate distortion	—	0.10 (0.004)

ITEM	STANDARD	LIMIT
Clutch spring free length	—	27.5 (1.08)
Clutch wheel I.D.	$116 \pm {}^{0.15}_{0}$ $\left(4.567 \pm {}^{0.006}_{0}\right)$	Scuffing or scratch on contacting surface
Clutch shoe	—	No groove at any part
Clutch engagement r/min.	1 900 ± 200 r/min.	—
Clutch lock-up r/min.	3 400 ± 300 r/min.	—

TRANSMISSION + DRIVE CHAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Primary reduction ratio		3.150 (63/20)	—
Secondary reduction ratio	Front	1.125 (18/16)	—
Final reduction ratio	Front	3.090 (34/11)	—
	Rear	3.647 (62/17)	—
Sub-transmission reduction ratio	Super low	3.176 (17/18 x 25/11 x 37/25)	—
	Low	1.480 (37/25)	—
	High	1.112 (11/25 x 18/17 x 43/18)	—
Gear ratios	Low	3.083 (37/12)	—
	2nd	1.933 (29/15)	—
	3rd	1.388 (25/18)	—
	4th	1.095 (23/21)	—
	Top	0.913 (21/23)	—
	Reserve	2.833 (29/12 x 34/29)	—
Shift fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Sub-transmission fork to groove clearance		0.05—0.25 (0.002—0.010)	0.50 (0.020)
Reverse fork to groove clearance		0.10—0.30 (0.004—0.012)	0.50 (0.020)
Shift fork groove width	No.1, No.2 & No.3	4.50—4.60 (0.177—0.181)	—
	Sub-transmission No.1, No.2	5.45—5.55 (0.215—0.219)	—
	Reverse	4.00—4.10 (0.157—0.161)	—
Shift fork thickness	No.1, No.2 No.3	4.30—4.40 (0.169—0.173)	—
	Sub-transmission No.1, No.2	5.30—5.40 (0.209—0.213)	—
	Reverse	3.80—3.90 (0.150—0.154)	—
Gearshift lever height		17 (0.7)	—

SHAFT DRIVE

Unit: mm (in)

ITEM	STANDARD	LIMIT
Final drive bevel gear backlash (Engine side)	0.05—0.32 (0.002—0.013)	———
Final drive bevel gear backlash (Dif. side)	0—0.05 (0—0.002)	———
Final drive bevel gear pre-load (Dif. side)	5—9 kg-cm (4.3—7.8 lb-in)	———
Differential side gear backlash (Right side)	0.05—0.10 (0.002—0.004)	———
Differential side gear backlash (Left side)	0 (Zero)	———

OIL TEMP. THERMO-SWITCH

ITEM	STANDARD		LIMIT
Oil temp. indicator light thermo-switch operating temperature	OFF→ON	Approx. 160°C (320°F)	———
	ON→OFF	Approx. 140°C (284°F)	———

CARBURETOR

ITEM	SPECIFICATION		
	E-03,17,28	E-27	E-33
Carburetor type	MIKUNI BST31SS	←	←
Bore size	31 mm	←	←
I.D. No	19B9	19BB	39D1
Idle r/min.	1 500 ± 100 r/min.	←	←
Float height	13±0.5 mm (0.51±0.02 in)	←	←
Main jet (M.J.)	#120	←	#117.5
Jet needle (J.N.)	5D40-4th	←	5D84
Needle jet (N.J.)	P-2	P-2M	0-6M
Throttle valve (Th.V.)	#130	←	←
Pilot jet (P.J.)	#37.5	←	#25
Starter jet (G.S.)	#42.5	←	#37.5
Pilot screw (P.S.)	2 5/8 turns back	←	PRE-SET
Pilot air jet (P.A.J.)	#155	←	#175
Throttle cable play	1—3 mm (0.04—0.12 in)	←	←
Choke cable play	0.5—1.0 mm (0.02—0.04 in)	←	←

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Ignition timing		5° B.T.D.C. Below 1 800 r/min. and 30°B.T.D.C. Above 3 800 r/min.		
Spark plug		Type	NGK : D7EA•••E03,33 NGK : DR7ES•••E17,27,28	'97-MODEL
			NGK : DR7EA DENSO : X22ESR-U	'98-MODEL
		Gap	0.6—0.7 (0.024—0.028)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1—0.5 Ω	Terminal—Ground
		Secondary	12—20 kΩ	Plug cap-Ground
Generator coil resistance		Pick-up	90—140 Ω	B/Y—G/W
		Charging	0.1—1.0 Ω	Y—Y
Generator no-load voltage (When engine is cold)		More than 60 V (AC)		
Generator Max. output		Approx. 200W		The rotation of the generator
Regulated voltage		13—15 V at 5 000 r/min.		
Starter motor brush length		Limit: 6 (0.24)		MITSUBA
Commutator under-cut		Limit: 0.2 (0.008)		
Starter relay resistance		3—7 Ω		
Battery	Type designation	YB14A-A2		E-03,33
	Capacity	12 V 50.4 kC (14 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
	Type designation	Y50-N18A-A		E-17,27,28
	Capacity	12 V 72 kC (20 Ah)/10 HR		
	Standard electrolyte S.G.	1.28 at 20°C (68°F)		
Fuse size	Main	20 A		
	Power source	15 A		
	Fan	10A		E-17,27

WATTAGE

Unit:W

ITEM		SPECIFICATION	
		E-03,28,33	E-17,27
Headlight	HI	30 x 2pcs.	35 x 2 pcs.
	LO	30 x 2pcs.	36.5 x 2 pcs.
Taillight		5	←
Speedometer light		3 x 2 pcs.	←
Reverse indicator light		3.4	←
Neutral indicator light		3.4	←
High beam indicator light			1.7
Engine oil temp. indicator light		3.4	←

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