FOREWORD

This manual contains an introductory description on the SUZUKI LT-A500F and procedures for its inspection, service, and overhaul of its main components.
Other information considered as generally known is not included.
Read the GENERAL INFORMATION section to familiarize yourself with the vehicle and its maintenance. Use this section as well as other sections as a guide for proper inspection and service.
This manual will help you know the vehicle better so that you can assure your customers of fast and reliable service.

- ** This manual has been prepared on the basis of the latest specifications at the time of publication. If modifications have been made since then, differences may exist between the content of this manual and the actual vehicle.*
- ** Illustrations in this manual are used to show the basic principles of operation and work procedures. They may not represent the actual vehicle exactly in detail.*
- ** This manual is written for persons who have enough knowledge, skills and tools, including special tools, for servicing SUZUKI vehicles. If you do not have the proper knowledge and tools, ask your authorized SUZUKI motorcycle dealer to help you.*

⚠ WARNING

Inexperienced mechanics or mechanics without the proper tools and equipment may not be able to properly perform the services described in this manual. Improper repair may result in injury to the mechanic and may render the vehicle unsafe for the rider.

SUZUKI MOTOR CORPORATION

GROUP INDEX

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99500-44045-01E

SUPPLEMENTS

LT-A500FK3 ('03-MODEL)	*10*
LT-A500FK4 ('04-MODEL)	*11*
LT-A500FK5 ('05-MODEL)	*12*
LT-A500FK6 ('06-MODEL)	*13*
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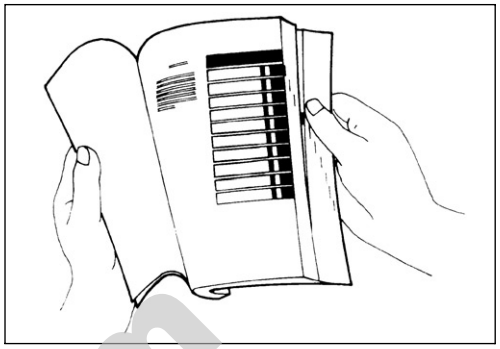
HOW TO USE THIS MANUAL

TO LOCATE WHAT YOU ARE LOOKING FOR:

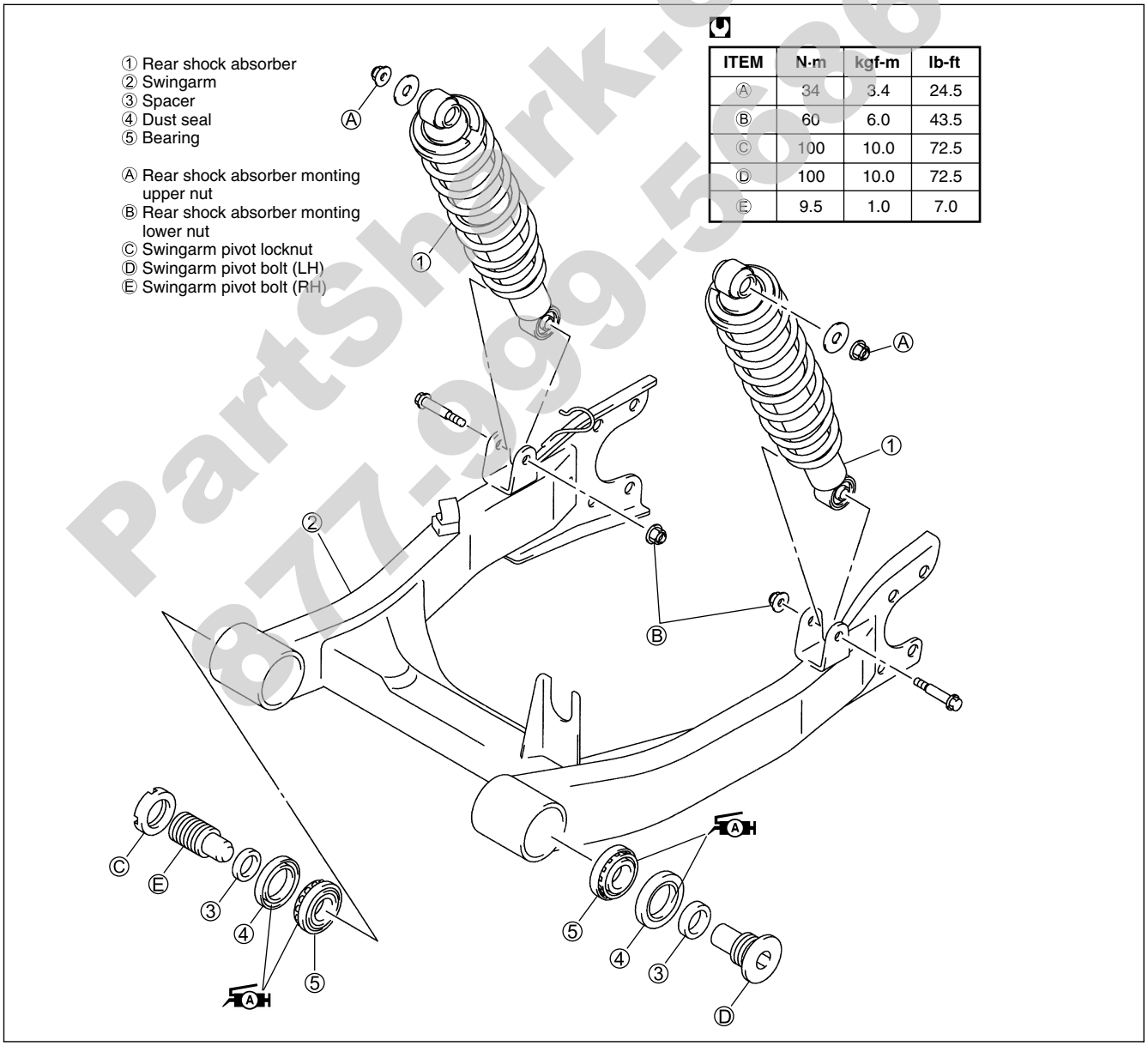
1. The text of this manual is divided into sections.
2. The section titles are listed in the GROUP INDEX.
3. Holding the manual as shown at the right will allow you to find the first page of the section easily.
4. The contents are listed on the first page of each section to help you find the item and page you need.



COMPONENT PARTS AND WORK TO BE DONE

Under the name of each system or unit there is an exploded view which provides work instructions and other service information (e.g.; tightening torque, lubricating points, and locking agent points).

Example: Rear suspension



SYMBOL

Listed in the table below are the symbols indicating instructions and other information necessary for servicing. The meaning of each symbol is also included in the table.

SYMBOL	DEFINITION	SYMBOL	DEFINITION
	Torque control required. Data beside it indicates specified torque.		Apply THREAD LOCK SUPER “1305”. 99000-32100
	Indicates service data.		Apply THREAD LOCK SUPER “1322”. 99000-32110 (Except USA)
	Apply oil. Use engine oil unless otherwise specified.		Apply THREAD LOCK “1342”. 99000-32050
	Apply hypoid gear oil.		Apply THREAD LOCK SUPER “1360”. 99000-32130
	Apply molybdenum oil solution. (mixture of engine oil and SUZUKI MOLY PASTE in a ratio of 1 : 1)		Apply or use brake fluid.
	Apply SUZUKI SUPER GREASE “A”. 99000-25030 (USA) 99000-25010 (Others)		Measure in voltage range.
	Apply SUZUKI SILICONE GREASE. 99000-25100		Measure in resistance range.
	Apply SUZUKI MOLY PASTE. 99000-25140		Measure in current range.
	Apply WATER RESISTANCE GREASE. 99000-25160		Measure in diode test range.
	Apply SUZUKI BOND “1207B” 99104-31140 (USA)		Measure in continuity test range.
	Apply SUZUKI BOND “1215”. 99000-31110 (Except USA)		Use special tool.
	Apply SUZUKI BOND “1216B”. 99100-31230		Use engine coolant. 99000-99032-11X (Except USA)
	Apply THREAD LOCK SUPER “1303”. 99000-32030		

GENERAL INFORMATION

1

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WARNING/CAUTION/NOTE

Please read this manual and follow its instructions carefully. To emphasize special information, the symbol and the words WARNING, CAUTION and NOTE have special meanings. Pay special attention to the messages highlighted by these signal words.

⚠ WARNING

Indicates a potential hazard that could result in death or injury.

CAUTION

Indicates a potential hazard that could result in vehicle damage.

NOTE:
Indicates special information to make maintenance easier or instructions clearer.

Please note, however, that the warnings and cautions contained in this manual cannot possibly cover all potential hazards relating to the servicing, or lack of servicing, of the vehicle. In addition to the WARNINGS and CAUTIONS stated, you must use good judgement and basic mechanical safety principles. If you are unsure about how to perform a particular service operation, ask a more experienced mechanic for advice.

GENERAL PRECAUTIONS

⚠ WARNING

- **Proper service and repair procedures are important for the safety of the service mechanic and the safety and reliability of the vehicle.**
- **When two or more persons work together, pay attention to the safety of each other.**
- **When it is necessary to run the engine indoors, make sure that exhaust gas is forced outdoors.**
- **When working with toxic or flammable materials, make sure that the area you work in is well ventilated and that you follow all of the manufacturer's instructions.**
- **Never use gasoline as a cleaning solvent.**
- **To avoid getting burned, do not touch the engine, engine oil, radiator, and exhaust system until they have cooled.**
- **After servicing the fuel, oil, engine coolant, exhaust or brake systems, check all of the lines, and fittings related to the system for leaks.**

CAUTION

*** If parts replacement is necessary, replace the parts with SUZUKI Genuine Parts or their equivalent.**
*** When removing parts that are to be reused, keep them arranged in an orderly manner so that they may be reinstalled in the proper order.**
*** Be sure to use special tools when instructed.**
*** Make sure that all parts used in reassembly are clean. Lubricate them when specified.**
*** Use the specified lubricants, bonds, or sealants.**
*** When removing the battery, disconnect the ⊖ battery lead wire first, then the ⊕ battery lead wire.**
*** When reconnecting the battery, connect the ⊕ battery lead wire first, then the ⊖ battery lead wire. Finally, cover the ⊕ battery terminal with the terminal cover.**
*** When performing service to electrical parts, disconnect the ⊖ battery lead wire, unless the service procedure requires the battery power.**
*** When tightening cylinder head and crankcase nuts and bolts, tighten the larger sizes first. Always tighten the nuts and bolts from the inside working out, diagnoally and to the specified torque.**
*** Whenever you remove oil seals, gaskets, packing, O-rings, self-locking nuts, locking washers, cotter pins, circlips, snap rings, and other specified parts, be sure to replace them with new ones. Also, before installing these new parts, be sure to remove any left over material from the mating surfaces.**
*** Never reuse a circlip and snap ring. When installing a new snap ring, take care not to expand the end gap larger than required to slip the snap ring over the shaft. After installing a snap ring, always ensure it is completely seated in its groove and securely fitted.**
*** Use a torque wrench to tighten fasteners to the specified torque. Wipe off grease and oil if a thread is smeared with them.**
*** After reassembling, check parts for tightness and proper operation.**

*** To protect the environment, do not unlawfully dispose of used motor oil, engine coolant, all other fluids, batteries, and tires.**
*** To protect the earth's natural resources, properly dispose of used vehicles and parts.**

SUZUKI LT-A500FK2 (2002-MODEL)

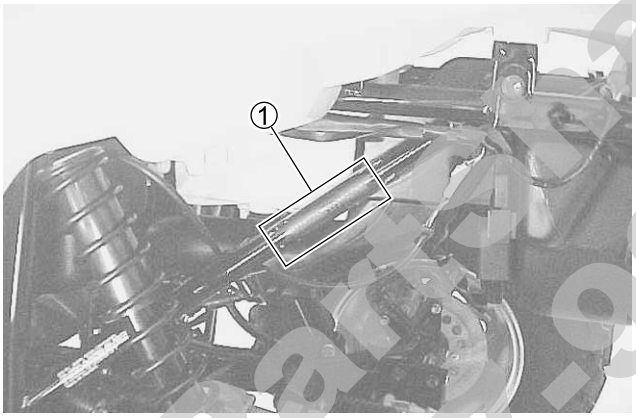
RIGHT SIDE

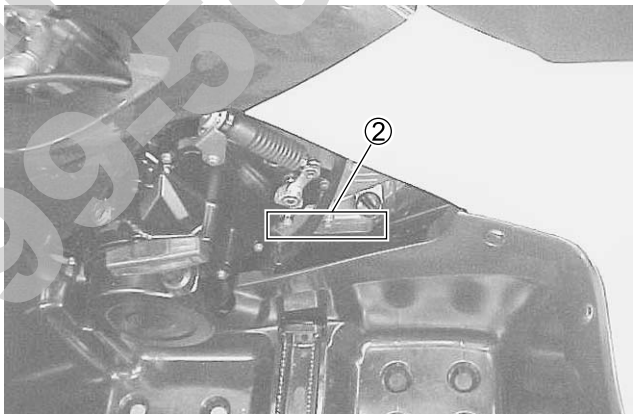
LEFT SIDE

* Difference between photographs and actual vehicles depends on the markets.

SERIAL NUMBER LOCATION

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





FUEL, OIL AND ENGINE COOLANT RECOMMENDATION

FUEL (For CANADA and USA)

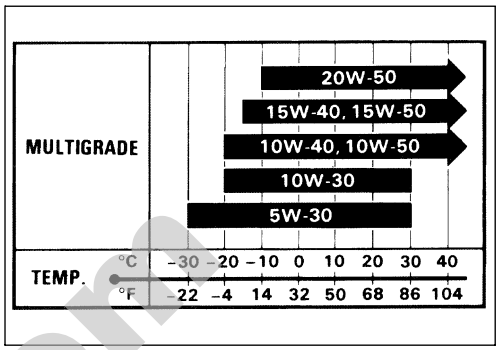
- Use only unleaded gasoline of at least 87 pump octane ($\frac{R+M}{2}$) method or 91 octane or higher rated by the Research Method.
- SUZUKI recommends that customers use alcohol-free unleaded gasoline whenever possible.
- Use of blended gasoline containing MTBE (Methyl Tertiary Butyl Ether) is permitted.
- Use of blended gasoline/alcohol fuel is permitted, provided that the fuel contains not more than 10% ethanol. Gasoline/alcohol fuel may contain up to 5% methanol if appropriate cosolvents and corrosion inhibitors are present in it.
- If the performance of the vehicle is unsatisfactory while using blended gasoline/alcohol fuel, you should switch to alcohol-free unleaded gasoline.
- Failure to follow these guidelines could possibly void applicable warranty coverage. Check with your fuel supplier to make sure that the fuel you intend to use meets the requirements listed above.

FUEL (For the other countries)

Use unleaded gasoline that is graded 91 octane or higher by the Research Method.

ENGINE OIL (For USA)

SUZUKI recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or oils that meet API service classifications SF or SG and that have a viscosity rating of SAE 10W/40. If engine oil with a rating of SAE 10W/40 is not available, select an alternative according to the chart.



ENGINE OIL (For the other countries)

Use a premium quality 4-stroke motor oil to ensure longer service life of your vehicle. Use only oils that meet API service classifications SF or SG and that have a viscosity rating of SAE 10W/40. If engine oil with a rating of SAE 10W/40 is not available, select an alternative according to the chart.

FRONT AND REAR DRIVE GEAR OIL

Use hypoid gear oil that meets the API service classification GL-5 and is rated SAE #90. Use a hypoid gear oil with a rating of SAE #80 if the vehicle is operated where the ambient temperature is below 0°C (32°F).

BRAKE FLUID

BF **Specification and classification: DOT 4**

⚠ WARNING

This vehicle uses a glycol-based brake fluid. Do not use or mix different types of brake fluid such as silicone-based and petroleum-based fluids for refilling the system, otherwise serious damage will result to the brake system.
Never use any brake fluid taken from old, used, or unsealed containers.
Never reuse brake fluid left over from the last servicing or which has been stored for a long period of time.

ENGINE COOLANT

Since antifreeze also has corrosion- and rust-inhibiting properties, always use engine coolant containing antifreeze, even if the atmospheric temperature does not go below the freezing point.
Use an antifreeze designed for aluminum radiators. SUZUKI recommends the use of SUZUKI COOLANT antifreeze. If this is not available, use an equivalent antifreeze for aluminum radiators.
Mix only distilled water with the antifreeze. Other types of water can corrode and clog the aluminum radiator.

Mix distilled water and antifreeze at a ratio of 50 : 50 – 40 : 60.

For more information, refer to page 6-2 in the Cooling System section.

CAUTION

The percentage of antifreeze in the coolant should be between 50 to 60%. If the percentage of antifreeze is above or below this range the coolant's frost protection and rust-inhibiting capabilities will be reduced. Always keep the antifreeze content above 50% even if the atmospheric temperature does not go below the freezing point.

BREAK-IN PROCEDURES

During manufacturing only the best possible materials are used and all machined parts are finished to a very high standard. 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. Refer to the following break-in engine speed recommendations.

- Keep to these breake-in engine speed limits.

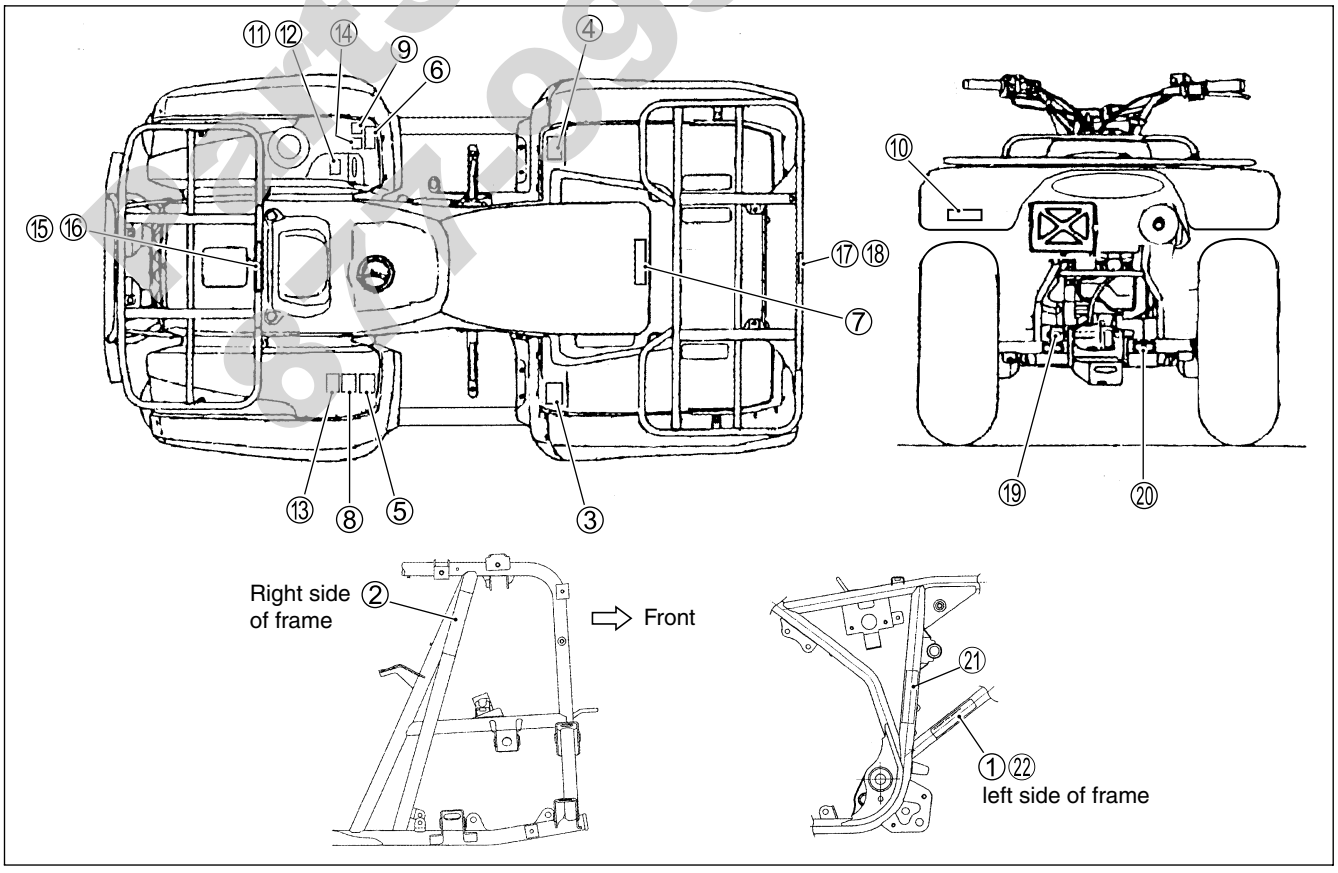
Break-in engine speeds
Initial 500 km (300 miles): Less than ½ throttle

- Upon reaching an odometer reading of 500 km (300 miles) you can subject the vehicle to full throttle operation, for short periods of time.

INFORMATION LABELS

NO	LABEL or PLATE NAME	APPLIED SPECIFICATION		
		E-03	E-28	E-33
①	Certification plate Ⓔ	○	—	○
②	Information label Ⓔ	—	—	○
③	Tire air pressure label Ⓔ	○	○	○
④	Tire air pressure label and warning no-passenger label Ⓕ	—	○	—
⑤	General warning label Ⓔ	○	○	○
⑥	General warning label Ⓕ	—	○	—
⑦	Warning no-passenger label Ⓔ	○	○	○
⑧	Age, 16 label Ⓔ	○	○	○
⑨	Age, 16 label Ⓕ	—	○	—
⑩	Manual notice label Ⓔ	○	—	○
⑪	Max AMP caution label Ⓔ	○	—	○
⑫	Max AMP caution label Ⓔ, Ⓕ	—	○	—
⑬	Gearshift label Ⓔ	○	○	○
⑭	Gearshift label Ⓕ	—	○	—
⑮	Front carrier warning label Ⓔ	○	—	○
⑯	Front carrier warning label Ⓔ, Ⓕ	—	○	—
⑰	Rear carrier warning label Ⓔ	○	—	○
⑱	Rear carrier warning label Ⓔ, Ⓕ	—	○	—
⑲	Trailer to warning label Ⓔ	○	○	○
⑳	Trailer to warning label Ⓕ	—	○	—
㉑	ICES Canada label Ⓕ	—	○	—
㉒	Compliance label Ⓕ	—	○	—

Ⓔ: English Ⓕ: French



SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 095 mm (82.5 in)
Overall width	1 170 mm (46.1 in)
Overall height	1 200 mm (47.2 in)
Wheelbase	1 270 mm (50.0 in)
Front track	935 mm (36.8 in)
Rear track	930 mm (36.6 in)
Ground clearance	250 mm (9.8 in)
Seat height	860 mm (33.9 in)
Dry mass	274 kg (604 lbs)

ENGINE

Type	Four-stroke, liquid-cooled, OHC
Number of cylinders	1
Bore	87.5 mm (3.445 in)
Stroke	82.0 mm (3.228 in)
Piston displacement	493 cm³ (30.1 cu.in)
Compression ratio	10.2 : 1
Carburetor	KEIHIN CVK36SS
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump

DRIVE TRAIN

Clutch	Wet shoe, automatic, centrifugal type
Transmission	Automatic, variable ratio (V-velt)
Transfer	2-speed forward with reverse
Gearshift pattern, Transmission	Automatic
Transfer	L-H-N-R (Hand operated)
Automatic transmission ratio	Variable change (2.876 – 0.703)
Secondary reduction ratio	2.562 (41/16)
Final reduction ratio (Front & Rear)	3.600 (36/10)
Transfer gear ratio, Low	2.500 (40/16)
High	1.200 (30/25)
Reverse	1.999 (28/16 × 32/28)
Drive system	Shaft drive

CHASSIS

Front suspension	Independent, double wishbone, coil spring, oil damped
Rear suspension	Swingarm type, coil spring, oil damped
Steering angle	Inside 38.5°
	Outside 26°
Caster	3.3°
Trail	17 mm (0.67 in)
Turning radius	3.0 m (9.8 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	AT25 × 8-12 ☆ ☆, tubeless
Rear tire size	AT25 × 10-12 ☆ ☆, tubeless
Front wheel travel	180 mm (7.1 in)
Rear wheel travel	200 mm (7.9 in)

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	10° BTDC at 1 500 r/min
Spark plug	NGK: CR6E
	DENSO: U20ESR-N
Battery	12 V 50.4 kC (14 Ah)/10 HR
Generator	Three-phase A.C. generator
Main fuse	30 A
Headlight	12 V 30/30 W × 2
Auxiliary light	12 V 40 W
Brake light/Taillight	12 V 21/5 W
Speedometer light	LED
Reverse indicator light	LED
Neutral indicator light	LED
Parking indicator light	LED
High beam indicator light	LED
Engine coolant temp. indicator light	LED

CAPACITIES

Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.2 L (1.1/0.9 US/Imp gal)
Engine oil, oil change	2 500 ml (2.6/2.2 US/Imp qt)
oil and filter change	2 700 ml (2.9/2.4 US/Imp qt)
engine overhaul	3 200 ml (3.4/2.8 US/Imp qt)
Front drive (differential) gear oil	300 ml (10.1/10.6 US/Imp oz)
Rear drive gear oil	250 – 350 ml (8.5/8.8 – 11.8/12.3 US/Imp oz)
Engine coolant	2.0 L (2.1/1.8 US/Imp oz)

NOTE:

** These specifications are subject to change without notice.*

COUNTRY AND AREA CODES

The following codes stand for the applicable countries and areas.

CODE	COUNTRY OR AREA
E-03	USA
E-28	Canada
E-33	California (USA)

PERIODIC MAINTENANCE

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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. Maintenance intervals are expressed in terms of kilometers, miles and months, and are dependent on whichever comes first.

NOTE:
More frequent servicing may be performed on vehicles that are use under severe conditions.

PERIODIC MAINTENANCE CHART

Item \ Interval				
	km	Initial 200	Every 1 000	Every 2 000
	miles	Initial 100	Every 600	Every 1 200
	months	1	3	6
Air cleaner		—	C	C
Exhaust pipe nuts and muffler bolts		T	T	T
Valve clearance		I	—	I
Spark plug		—	—	I
		Replace every 6 000 km (4 000 miles).		
Fuel line		—	I	I
		Replace every four years.		
Throttle cable play		I	I	I
Engine idle speed		I	I	I
Engine oil and oil filter		R	—	R
Front differential gear oil/Final gear oil		—	—	I
		Replace every two years.		
Engine coolant		Replace every two years.		
Radiator hose		—	—	I
Drive belt		—	—	I
Spark arrester		—	—	C
Brakes		I	I	I
Brake fluid		—	I	I
		Replace every two years.		
Brake hose		—	—	I
		Replace every four years.		
Tires		—	—	I
Steering system		I	I	I
Suspensions		—	—	I
Chassis nuts and bolts		T	T	T
General lubrications		—	L	L

I = Inspect and adjust, clean, lubricate, or replace as necessary.
R = Replace
T = Tighten
C = Clean
L = Lubricate

MAINTENANCE AND TUNE-UP PROCEDURES

This section describes the servicing procedures for each item mentioned in the Periodic Maintenance chart.

Before performing the servicing procedures mentioned in the Periodic Maintenance chart, remove following parts to ease servicing work;

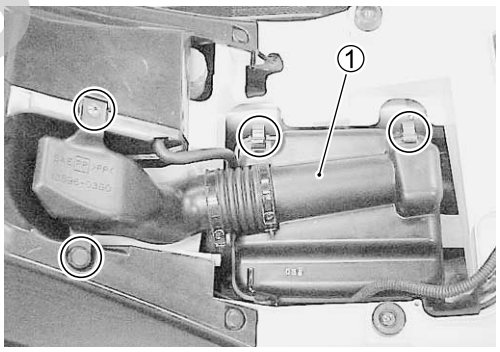
- Front carrier (☞7-4)
- Front grip bar (☞7-4)
- Head lamps (☞7-4)
- Seat (☞7-4)
- Auxiliary lamp cover (☞7-4)
- Speedometer panel (☞7-4)
- Front grille upper (☞7-4)
- Front grille lower (☞7-4)

- Front inner fender (☞7-6)
- Fuel tank cover (☞7-5)
- Fuel tank top cover (☞7-5)
- Front fender (☞7-5)
- Foot rest mad guard L & R (☞7-8)

AIR CLEANER

Clean every 1 000 km (600 miles, 3 months).

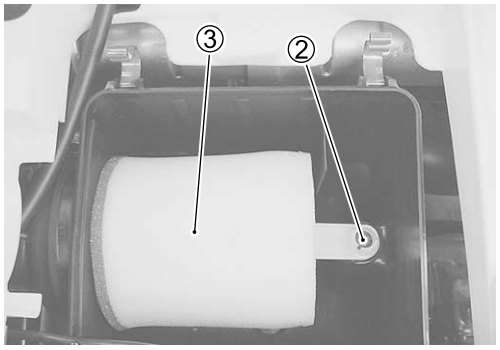
If the air cleaner is clogged with dust, intake resistance will be increased, with a resultant decrease in power output and an increase in fuel consumption. Check and clean the air cleaner element in the following manner.



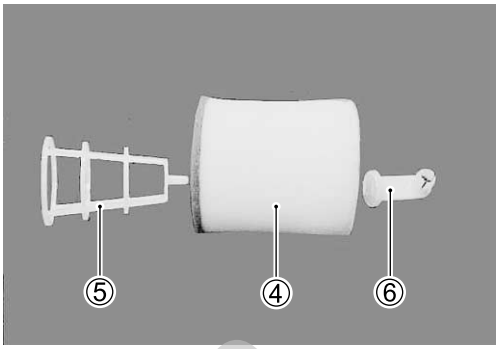
- Remove the air cleaner case cover ①.

NOTE:
Be careful not to drop the O-ring into the air cleaner box that is attached to the air cleaner case cover.

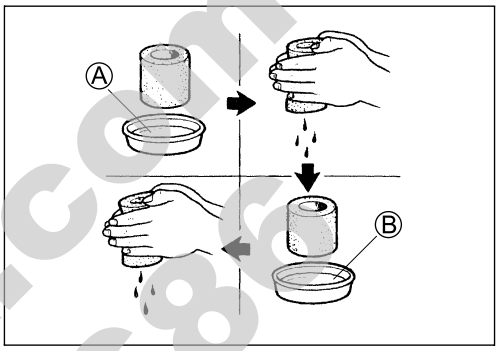
- Loosen screw ② to remove the air cleaner element ③.



• Separate the polyurethane foam element ④, element frame ⑤ and element holder ⑥.



• Fill a wash pan of a proper size with a non-flammable cleaning solvent. Immerse the air cleaner element in the cleaning solvent and wash it.
• Press the air cleaner element between the palms of both hands to remove the excess solvent: do not twist or wring the element or it will tear.
• Immerse the element in motor oil, and then squeeze out the excess oil leaving the element slightly wet.

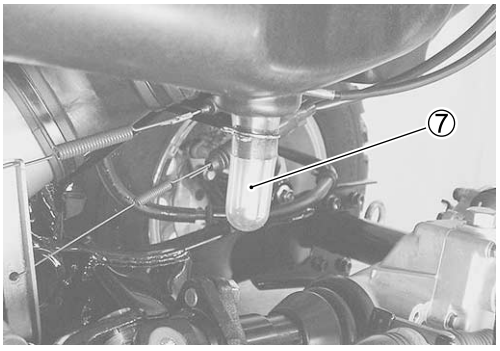


Ⓐ Non-flammable cleaning solvent
Ⓑ Motor oil SAE #30 or SAE 10W/40

CAUTION

*** Inspect the air cleaner element for tears. A torn element must be replaced.**
*** If driving under dusty conditions, clean the air cleaner element more frequently. The surest way to accelerate engine wear is to operate the engine without the element or with torn element. Make sure that the air cleaner element is in good condition at all times. Life of the engine depends largely on this component!**

• Remove the drain cap ⑦ of the air cleaner box to allow any water to drain out.

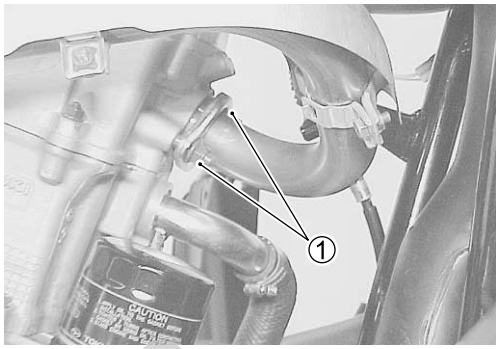


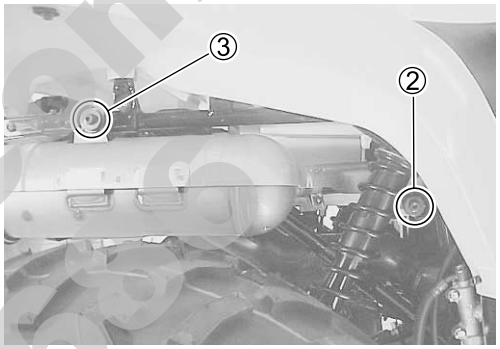
EXHAUST PIPE NUTS AND MUFFLER BOLTS

Tighten initially at 200 km (100 miles, 1 month) and every 1 000 km (600 miles, 3 months) thereafter.

- Tighten the exhaust pipe nuts ①, muffler connection bolt ②, and muffler mounting bolt ③ to the specified torque.

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





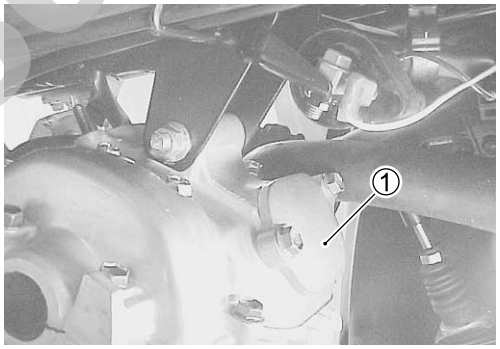
VALVE CLEARANCE

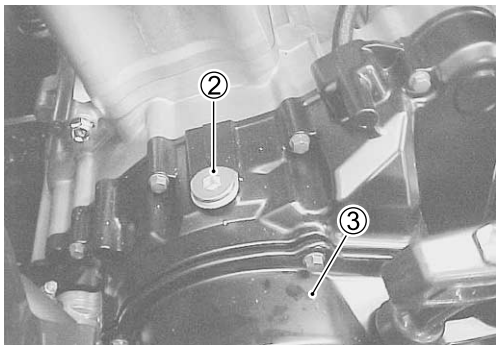
Inspect initially at 200 km (100 miles, 1 month) and every 2 000 km (1 200 miles, 6 months) thereafter.

Excessive valve clearance results in valve noise and insufficient valve clearance results in valve damage and reduced power. Check the intake and exhaust valve clearances at the distances indicated above and adjust the valve clearances to specification, if necessary.

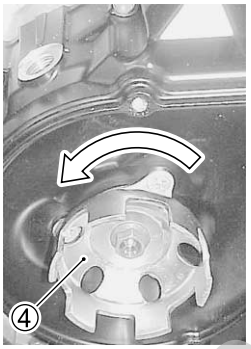
- Remove the fuel tank. (☞5-3)
- Remove the spark plug and valve inspection caps ①.
- Remove the TDC plug ②.
- Remove the recoil starter ③. (☞3-12)

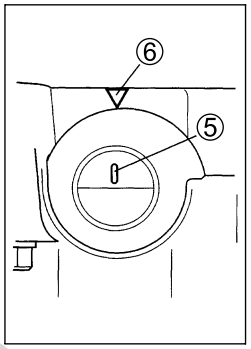
DATA Valve clearance (when cold)
IN: 0.05 – 0.10 mm (0.002 – 0.004 in)
EX: 0.17 – 0.22 mm (0.007 – 0.009 in)





NOTE:
Valve clearance is to be checked when the engine is cold.
The intake and exhaust valves must be checked and adjusted when the piston is at Top-Dead-Center (TDC) of the compression stroke.





- Turn the crankshaft until the piston reaches TDC on the compression stroke by turning the starter cup. Turn the starter cup until the line ⑤ on the generator rotor is aligned with the mark ⑥ on the crankcase.
- The crankshaft can be turned to align the line ⑤ and mark ⑥ by slowly pulling the recoil starter lope without removing the ricoil starter.
- Insert the thickness gauge to check the clearance between the valve stem end and the adjusting screw on the rocker arm.

TOOL 09900-20803: Thickness gauge

- If the clearance is out of specification, bring it into the specified range using the special tool.

TOOL 09917-14920 or 09917-10410: Valve adjuster driver

Valve clearance adjuster locknut:
10 N·m (1.0 kgf-m, 7.0 lb-ft)

CAUTION

Securely tighten the locknut after completing adjustment.

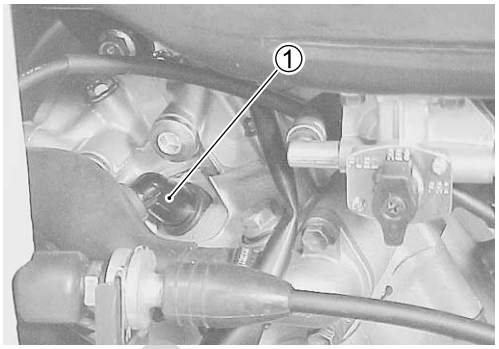
- Install the spark plug, valve inspection caps, TDC plug, and recoil starter. Apply a small quantity of THREAD LOCK "1342" to recoil starter fixing bolts.

1342 99000-32050: THREAD LOCK "1342" (USA)

1322 99000-32110: THREAD LOCK SUPER "1322" (Others)

TDC plug: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

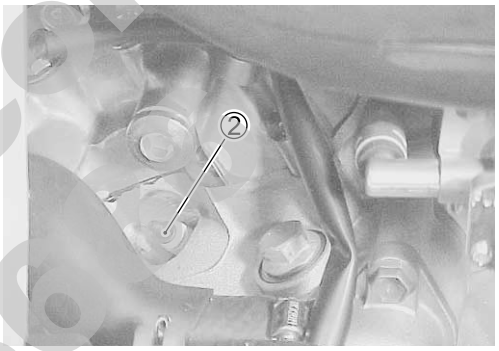
SPARK PLUG



Inspect every 2 000 km (1 200 miles, 6 months).
Replace every 6 000 km (4 000 miles).

- Remove the fuel tank cover. (☞7-5)
- Disconnect the spark plug cap ① and remove the spark plug ②.

	Standard	Cold type
NGK	CR6E	CR7E
DENSO	U20ESR-N	U22ESR-N

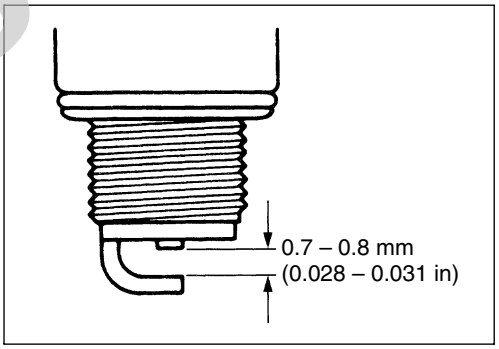


CARBON DEPOSITS

Check to see if there are carbon deposits on the spark plug. If carbon is deposited, remove it using a spark plug cleaner machine or carefully use a tool with a pointed end.

SPARK PLUG GAP

Measure the spark plug gap using a thickness gauge. If the spark plug gap is out of specification, adjust the gap.



DATA Standard

Spark plug gap: 0.7 – 0.8 mm (0.028 – 0.031 in)

TOOL 09900-20803: Thickness gauge

ELECTRODE

Check the condition of the electrode.

If the electrode is extremely worn or burnt, replace the spark plug with a new one.

Also, replace the spark plug if it has a broken insulator, damaged threads, etc.

CAUTION

Check the thread size and reach when replacing the spark plug. If the reach is too short, carbon will be deposited on the screw portion of the spark plug hole and engine damage may result.

SPARK PLUG INSTALLATION

CAUTION

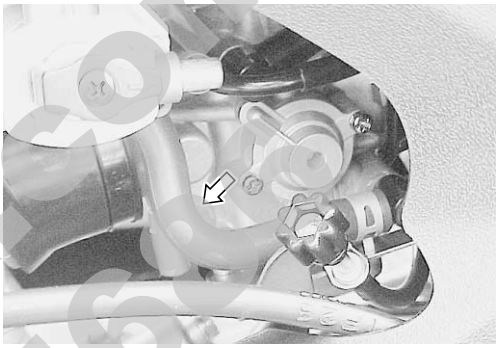
To avoid damaging the cylinder head threads; first, finger tighten the spark plug, and then tighten it to the specified torque using the spark plug wrench.

- Insert the spark plug and finger tighten it to the cylinder head and then tighten it to the specified torque.

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

FUEL HOSE

Inspect every 1 000 km (600 miles, 3 months).
Replace every four years.

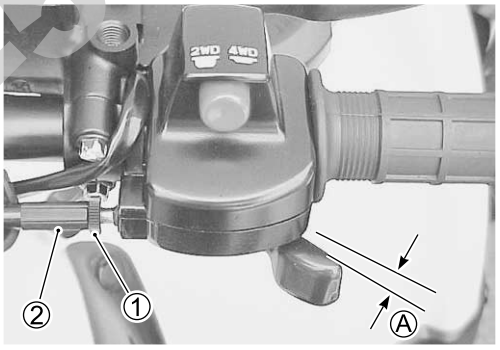


Inspect the fuel hose for damage and fuel leakage. If any damages are found, replace the fuel hoses with a new one.

- When replacing the fuel hoses, remove the fuel tank side cover. (☞7-5)

THROTTLE CABLE PLAY

Inspect initially at 200 km (100 miles, 1 month) and every 1 000 km (600 miles, 3 months) thereafter.



Adjust the throttle cable play Ⓐ as follows.

- Loosen the locknut ① of the throttle cable.
- Turn the adjuster ② in or out to obtain the correct play.

DATA Throttle cable play: 1 – 3 mm (0.04 – 0.12 in)

- After adjusting the throttle cable play, tighten the locknut ①.

ENGINE IDLE SPEED

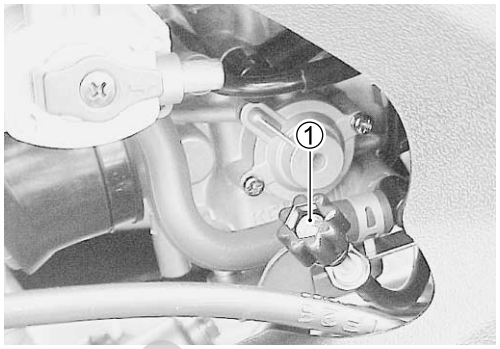
Inspect initially at 200 km (100 miles, 1 month) and every 1 000 km (600 miles, 3 months) thereafter.

NOTE:
Make this adjustment when the engine is hot.

- Connect the electric tachometer or the multi circuit tester to the high-tension cord.
- Start the engine and set the engine idle speed between 1 200 and 1 400 r/min by turning the throttle stop screw knob ①.

DATA Engine idle speed: 1 300 ± 100 r/min

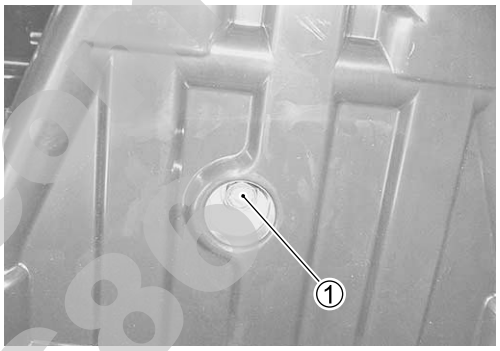
TOOL 09900-26006: Tachometer, or
09900-25008: Multi circuit tester set



ENGINE OIL AND OIL FILTER

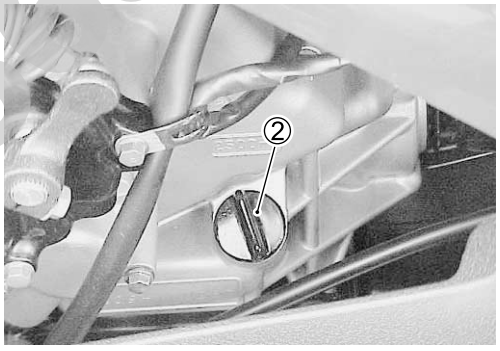
Replace initially at 200 km (100 miles, 1 month) and every 2 000 km (1 200 miles, 6 months) thereafter.

The oil should be changed while the engine is warm. Oil filter replacement at the above intervals, should be done together with the engine oil change.



ENGINE OIL REPLACEMENT

- Place an oil pan under the drain plug ①, and then drain out the engine oil by removing the engine oil drain plug ① and engine oil filler cap ②.
- Reinstall the drain plug ① and the gasket. Tighten the engine oil drain plug ① to the specicied torque, and then pour the new oil through the oil filler hole. When performing an oil change (without oil filter replacement), the engine will hold about 2.5 L (2.6 US qt, 2.2 Imp qt) of oil. Use an engine oil that meets the API service classifications SF or SG and that has a viscosity rating of SAE 10W/40.

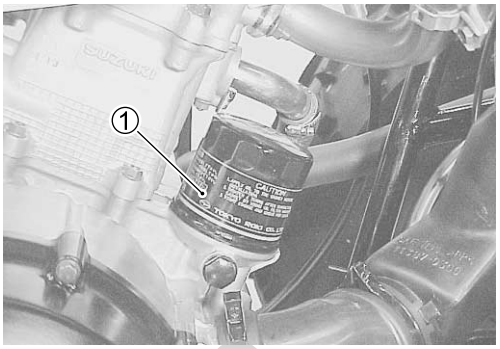


Engine oil drain plug: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

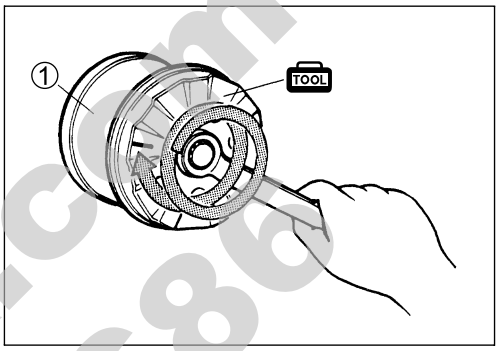
- Install the oil filler cap ③.
- Start the engine and allow it to run for a few minutes at idling speed.
- Turn off the engine and wait about three minutes, and then check the oil level on the dipstick ③. If the level is below upper line, add oil to that level. The vehicle must be in a level position for accurate measurement.

OIL FILTER REPLACEMENT

- Drian the engine oil. (☞2-9)
- Remove the oil filter ① using the special tool.
- Apply engine oil lightly to the gasket of the new oil filter, before installation.



- Install the new oil filter to the engine. Turn it by hand until you feel that the oil filter gasket has contacted the oil filter mounting surface. Then, tighten the oil filter two full turns using the special tool.



TOOL 09915-40610: Oil filter wrench

NOTE:
To properly tighten the oil filter, use the special tool. Never tighten the oil filter by hand.

- Pour the new engine oil through the oil filler. When performing the oil filter change, the engine will hold about 2.7 L (2.9 US qt, Imp qt) of oil.
- After three minutes engine idling, check the oil level. (☞)
- Add new engine oil and check the oil level. (☞2-9)

DATA Engine oil capacity

Oil change:	**2.5 L (2.6 US qt, 2.2 Imp qt)**
Oil and filter change:	**2.6 L (2.9 US qt, 2.4 Imp qt)**
Engine overhaul:	**3.2 L (3.4 US qt, 2.8 Imp qt)**

CAUTION

ONLY USE A GENUINE SUZUKI MOTORCYCLE OIL FILTER.
Other manufacture's oil filters may differ in thread specifications (thread diameter and pitch), filtering performance and durability which may lead to engine damage or oil leaks. Also, do not use a GENUINE SUZUKI AUTOMOBILE OIL FILTER on this vehicle.

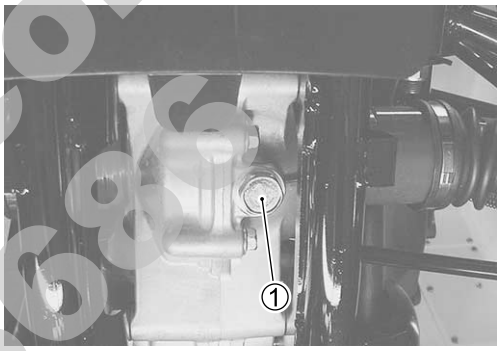
DIFFERENTIAL GEAR AND FINAL BEVEL GEAR OIL

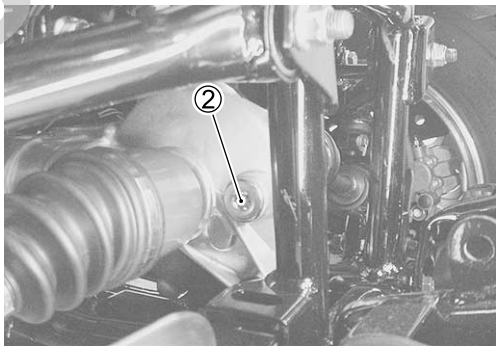
Inspect every 2 000 km (1 200 miles, 6 months).
Replace every two years.

To change the differential gear and final bevel gear oil, locate the vehicle on a level position and carry out the following steps. Use SAE #90 hypoid gear oil which is rated GL-5 under the API classification system. Use hypoid gear oil SAE 80, API grade GL-5, if the vehicle is ridden where the ambient temperature is below 0°C or 32°F.

DIFFERENTIAL GEAR OIL

- Remove the under cover. (☞3-5)
- Place an oil pan below the differential gear case, and then drain the oil by removing the drain plug ① and filler cap ②.
- Tighten the drain plug ① to the specified torque and pour the specified oil through the filler hole until it over flows.
- Tighten the filler cap ② to the specified torque.





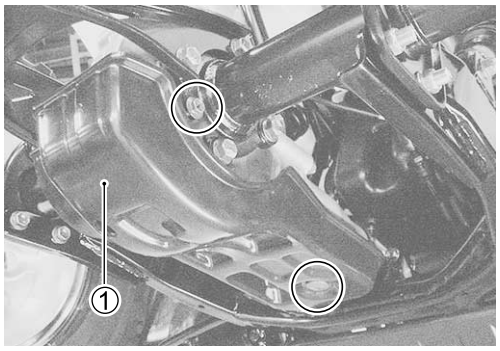
DATA Differential gear oil capacity:
300 ml (10.1 US oz, 10.6 Imp oz)

Differential gear oil drain plug:
32 N·m (3.2 kgf-m, 23 lb-ft)

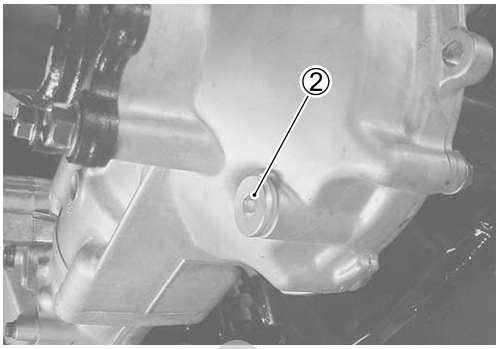
Differential gear oil filler cap:
35 N·m (3.5 kgf-m, 25.5 lb-ft)

FINAL BEVEL GEAR OIL

- Remove the final bevel gear case under cover ① by removing three bolts.



- Place an oil pan below the final gear case, and then drain the oil by removing the drain plug ② and filler cap ③.
- Tighten the drain plug ②.

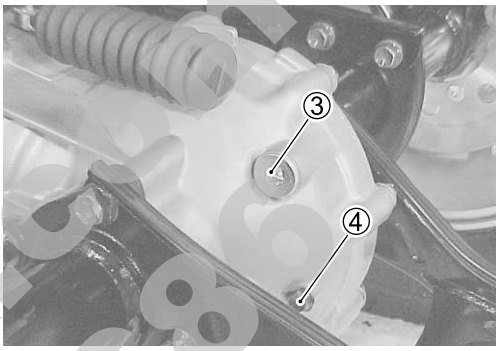


- Remove the oil level check bolt ④ and pour the specified oil through the filler hole until the oil over flows from the oil level check hole.
- Tighten the filler cap ③ and the oil level check bolt ④.

DATA Final bevel gear oil capacity:
250 – 350 ml (10.1 US oz, 10.6 Imp oz)

Final bevel gear oil drain plug:
33 N·m (3.3 kgf-m, 24 lb-ft)

Final bevel gear oil filler cap:
33 N·m (3.3 kgf-m, 24 lb-ft)

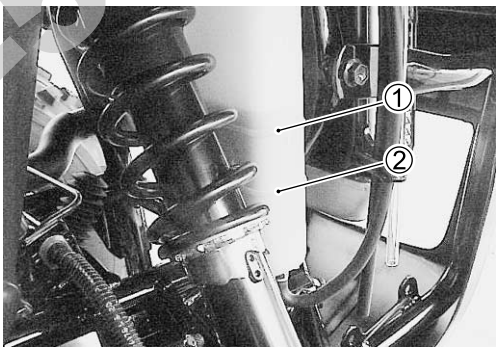


ENGINE COOLANT

Repalce the engine coolant every two years.

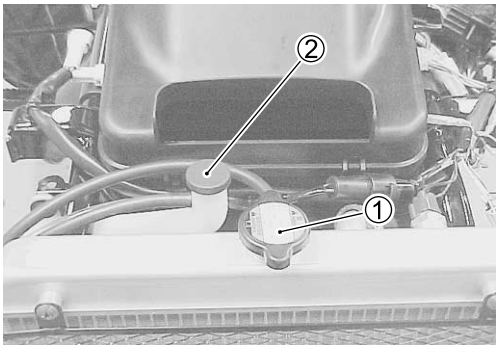
ENGINE COOLANT LEVEL CHECK

- Check the engine coolant level by observing the upper ① and lower ② lines on the engine coolant reservoir.
- If the level is below the lower line, add engine coolant until the level reaches the upper line.



ENGINE COOLANT REPLACEMENT

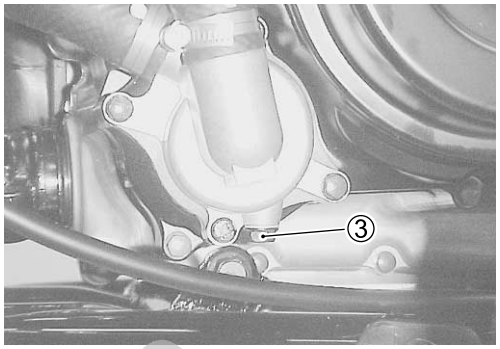
- Remove the radiator cap ① and engine coolant reservoir cap ②.
- Place a pan below the water pump, and then drain the engine coolant by removing the drain plug ③.



⚠ WARNING

*** Do not open the radiator cap when the engine is hot, as you may be injured by escaping hot liquid or vapor.**
*** Engine coolant may be harmful if swallowed or if it comes in contact with the skin or eyes. If engine coolant gets into the eyes or contacts the skin, flush the eyes or wash the skin thoroughly, with plenty of water. If engine coolant is swallowed, induce vomiting and call a physician immediately.**

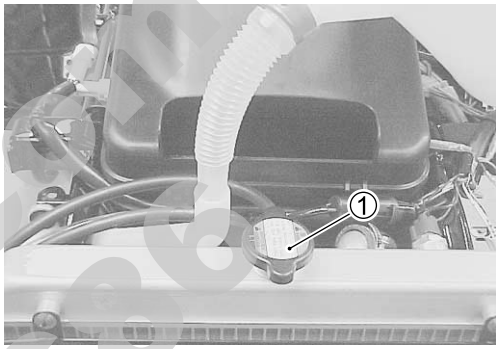
- Flush the radiator with fresh water, if necessary.
- Tighten the drain plug securely.
- Pour the specified engine coolant into the reservoir.



LLC Engine coolant:
Use and antifreeze designed for aluminum radiators mixed with distilled water only.
Water/antifreeze mixture ratio: 50 : 50 – 40 : 60

NOTE:
For engine coolant information, refer to page 6-2.

- Install the radiator cap ① securely.
- After warming up and cooling down the engine, add the specified engine coolant until the level is between the upper and lower lines on the engine coolant reservoir.



CAUTION

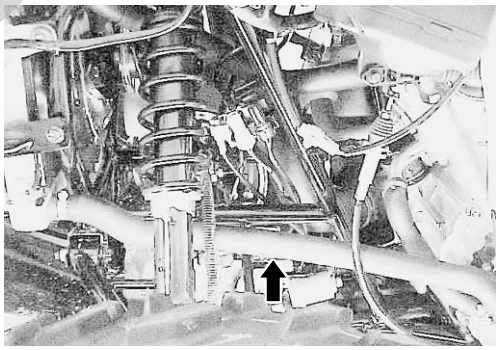
Repeat the above procedure several times and make sure the radiator is filled with engine coolant to the upper line of the engine coolant reservoir.

DATA Engine coolant capacity:
2 000 ml (2.1 US qt, 1.8 Imp qt)

RADIATOR HOSES

Inspect every 2 000 km (1 200 miles, 6 months).

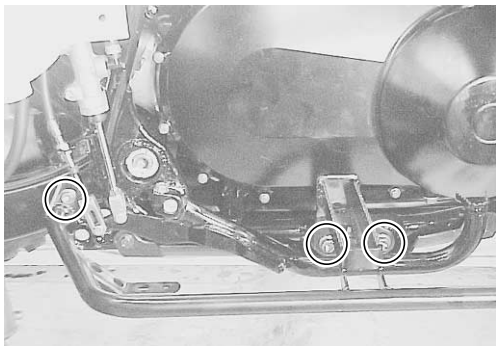
Inspect the radiator hoses for damage and engine coolant leakage. If any damages are found, replace the radiator hoses with new ones.



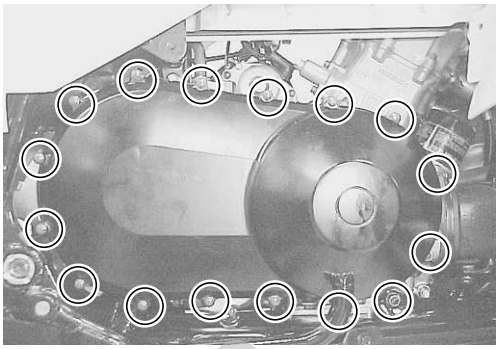
DRIVE BELT

Inspect every 2 000 km (1 200 miles, 6 months).

REMOVAL
- Remove the footrest mounting bolts.

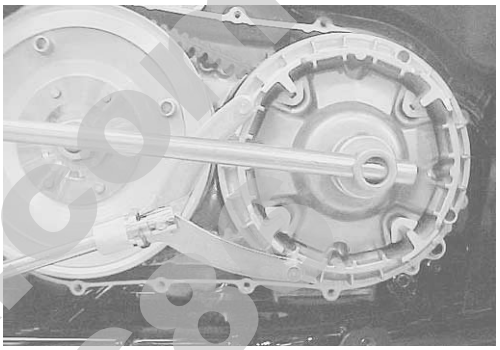


- Remove the drive belt cover.



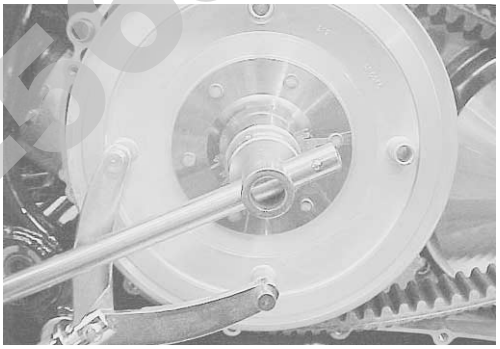
- Hold the movable drive face using the special tool and remove the movable drive face nut.

TOOL 09930-40113: Rotor holder

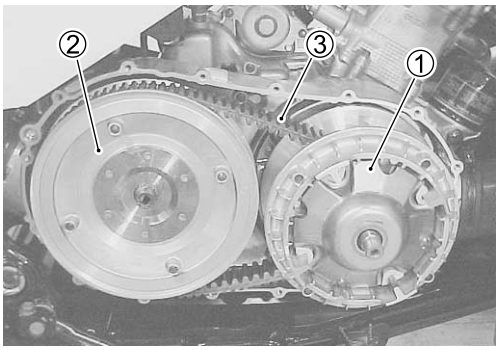


- Hold the movable driven face using the special tool and remove the movable driven face nut.

TOOL 09930-40113: Rotor holder

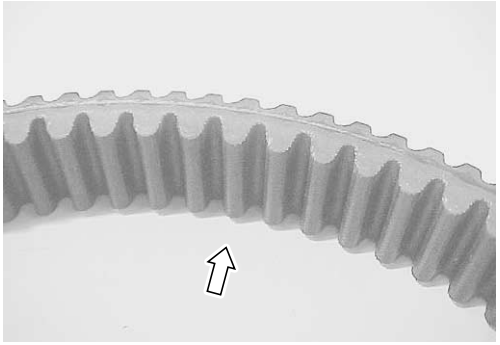


- Remove the movable drive face ①, movable driven face ②, and drive belt ③.



INSPECTION

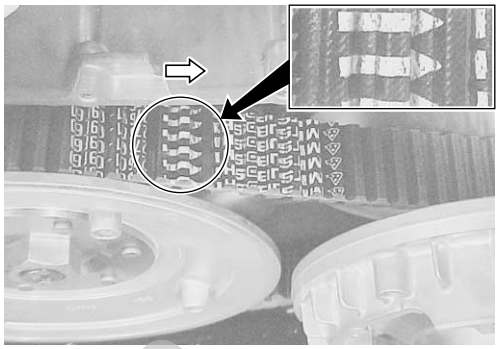
- Inspect the drive belt for wear and damage. If any cracks or damages are found, replace the drive belt with a new one.



REMOUNTING

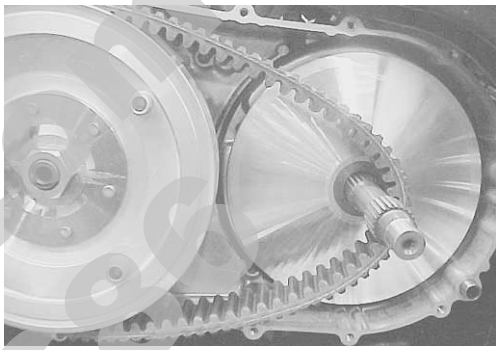
Remount the drive belt in reverse older of removal. Pay attention to the following points:

- Insert the drive belt, as low as possible, between the movable driven face to provide the maximum drive belt clearance before installing.
- Install the movable driven face with drive belt to the drive shaft and temporally tighten the nut.



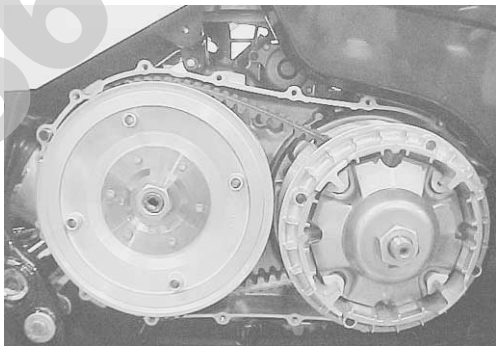
CAUTION

*** Fit the drive belt to the movable driven face so that the arrows on the drive belt outer surface aim toward normal turning direction.**
*** The drive belt contact surface of the driven face shoud be thoroughly cleaned.**



- Install the movable drive face assembly.

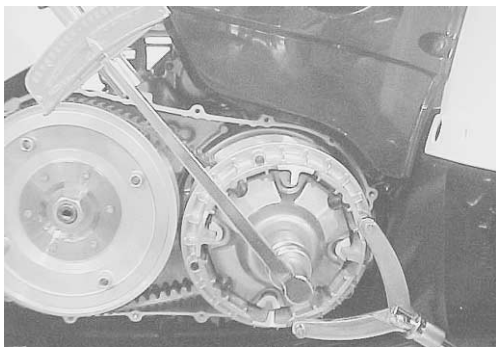
NOTE:
Thoroughly clean the drive belt contact surface.

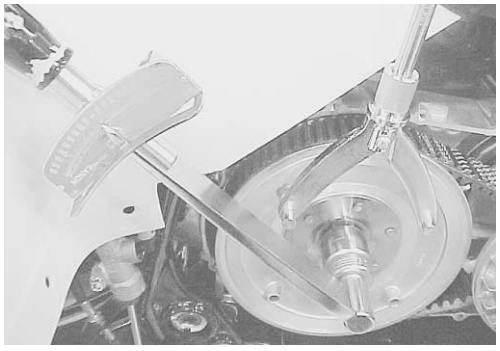


- Hold the movable drive face and movable driven face using the special tool and tighten them to the specified torque.

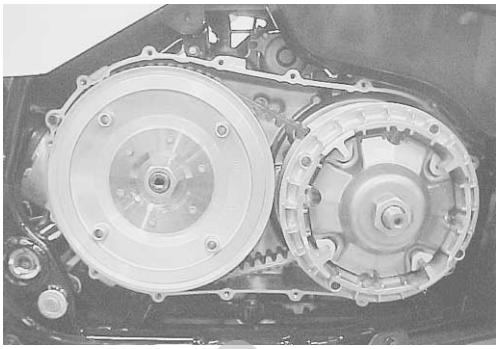
TOOL 09930-40113: Rotor holder

Movable drive face nut: 115 N·m (11.5 kgf-m, 83.0 lb-ft)
Movable driven face nut: 115 N·m (11.5 kgf-m, 83.0 lb-ft)





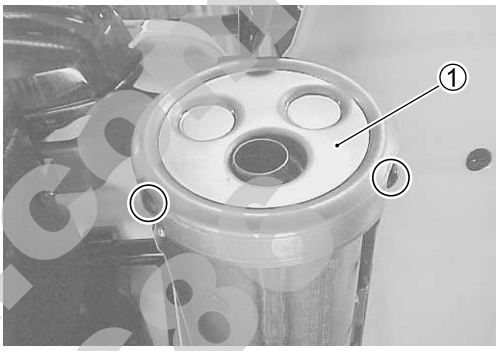
- Turn the fixed drive face, until the drive belt is properly seated and both the drive and driven face rotate together smoothly and without slipping.

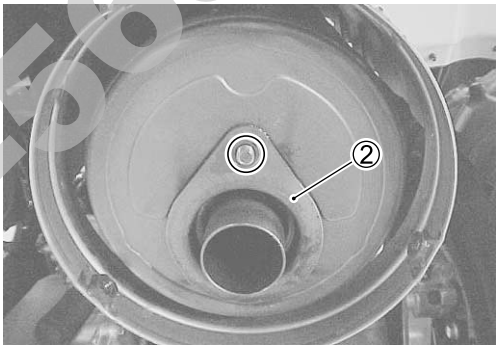


SPARK ARRESTER

Clean every 2 000 km (1 200 miles, 6 months).

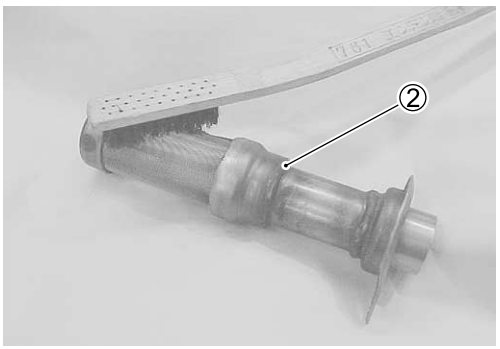
- Remove the muffler end cover ①.
- Extract the spark arrester pipe ② from the muffler.
- Clean the spark arrester pipe ② by brush.
- Reinstall the spark arrester pipe ②.





⚠ WARNING

Only clean the spark arrester in an open area away from combustible materials. Exhausted hot carbon particles can start a fire.



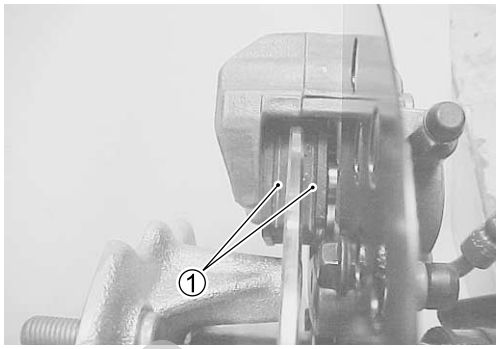
BRAKES

Inspect initially at 200 km (100 miles, 1 month) and every 1 000 km (600 miles, 3 months) thereafter.

BRAKE PADS

- Remove the front wheels and the left rear wheel. (☞7-10)

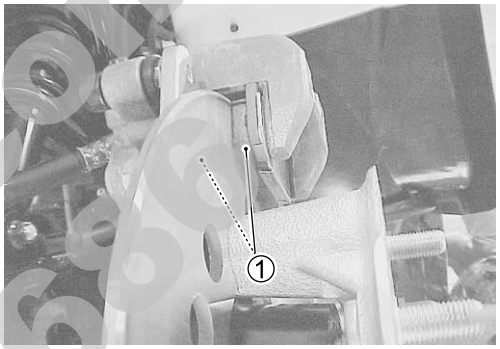
The extent of brake pad wear can be checked by observing the limit line ① on the side of brake pads. When the wear reaches the limit line, replace the pads with new ones. (☞7-19 and 7-49)



CAUTION

Replace the brake pads as a set, otherwise braking performance will be adversely affected.

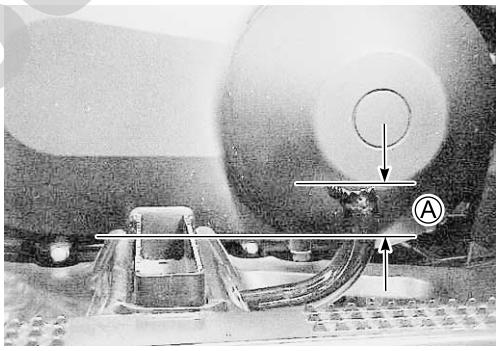
Brake pad mounting bolt (front and rear):
18 N·m (1.8 kgf-m, 13.0 lb-ft)



REAR BRAKE PEDAL AND LEVER

The procedure for adjusting the rear brake pedal and brake lever is as follows:

NOTE:
First adjust the brake pedal, and then adjust the brake lever.

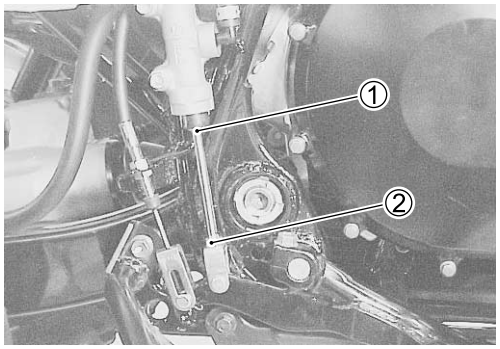


Brake pedal

- Turn the adjuster ① in or out until the pedal height Ⓐ to the specification, after loosening the locknut ②.
- Make sure to tighten the locknut ② securely.

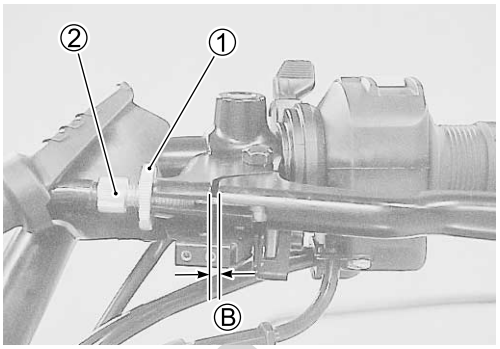
DATA Brake pedal height Ⓐ: 15 – 25 mm (0.6 – 1.0 in)

Rear master cylinder rod locknut:
18 N·m (1.8 kgf-m, 13.0 lb-ft)



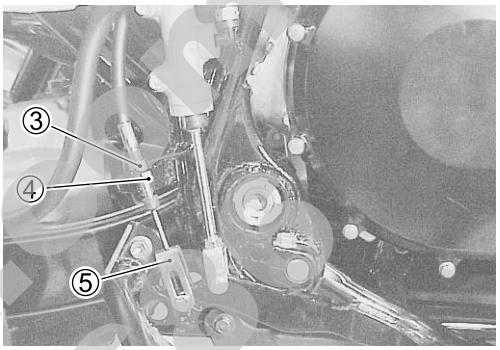
Rear brake lever

- After adjusting the brake pedal, check the rear brake lever play. The brake lever play Ⓑ as measured at the lever holder should be between 3 – 5 mm (0.1 – 0.2 in) when the lever is lightly pulled in towards the grip. If adjustment is necessary, slacken the cable by loosening the locknut ① and screwing the adjusters ② on the brake lever holder all the way in.



DATA Rear brake lever play Ⓑ: 3 – 5 mm (0.1 – 0.2 in)

- Loosen the locknut ④. Turn the adjuster ③ clockwise or counterclockwise to obtain the specified play.
- Minor adjustment can be made with the adjuster ②.
- Tighten the locknut ① and ④.
- Move the cable end ⑤ up and down to check cable play. If cable end has no play, readjust the cable play.
- After adjusting the play, check that the rear wheels roll freely without applying the brake, the transmission in neutral and the rear wheels off the ground. Readjust the rear brake lever if the rear wheels could not roll freely.



BRAKE FLUID

Inspect every 1 000 km (600 miles, 3 months).
Replace every two years.

BRAKE FLUID LEVEL

- Place the handlebar straight.
- Check the brake fluid level by observing the lower limit line on the front brake fluid reservoir.
- Remove the seat. Check the brake fluid level by observing the lower limit line on the rear brake fluid reservoir.
- When the brake fluid level is below the lower limit line, replenish with brake fluid that meets the following specification.

BF Specification and classification: DOT 4

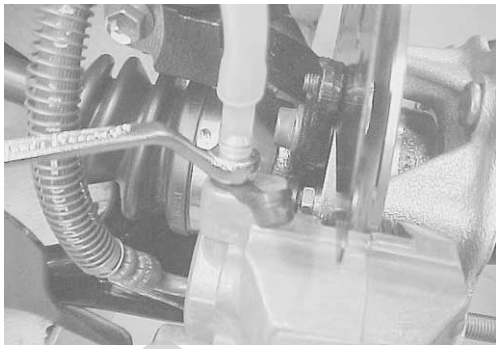
⚠ WARNING

*** 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 fluids. Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or stored for a long period of time.**

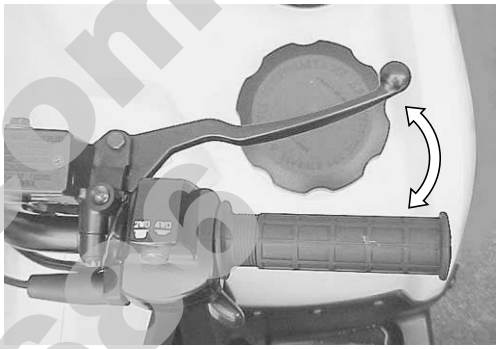
*** Brake fluid, if it leaks, will interfere with safe running and immediately discolor painted surfaces. Check the brake hoses and hose joints for cracks and oil leakage before riding.**

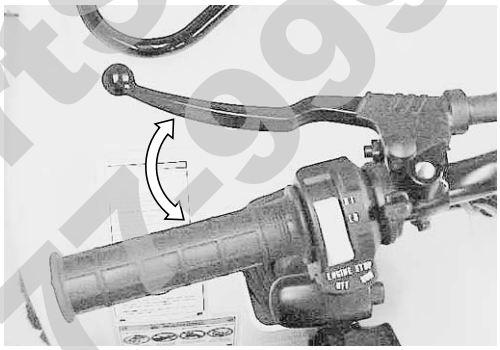
AIR BLEEDING THE BRAKE FLUID CIRCUIT

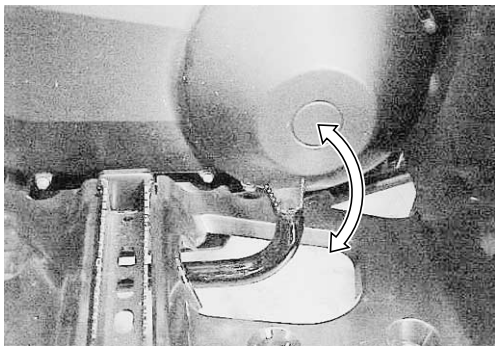
Air trapped in the brake fluid circuit acts like a cushion absorb a large proportion of the pressure developed by the master cylinder and thus interferes with the full braking performance of the brake caliper. The presence of air is indicated by “sponginess” of the brake lever and also by lack of braking force. 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 the front or rear brake reservoir with the specified brake fluid to the top of the inspection window or the upper limit line. Replace the reservoir cap to prevent dirt from entering.
- Attach a hose to the air bleeder valve, and insert the free end of the hose into a receptacle.
- Squeeze and release the brake lever or the brake pedal several times in rapid succession and squeeze the lever or the pedal fully without releasing it. Loosen the air bleeder valve by turning it a quarter of a turn so that the brake fluid runs into the receptacle, this will remove the tension of the brake lever causing it to touch the handlebar grip or the brake pedal reaching bottom of the stroke. Then, close the air bleeder valve, pump and squeeze the lever or the pedal, and open the valve. Repeat this process until the fluid flowing into the receptacle no longer contains air bubbles.



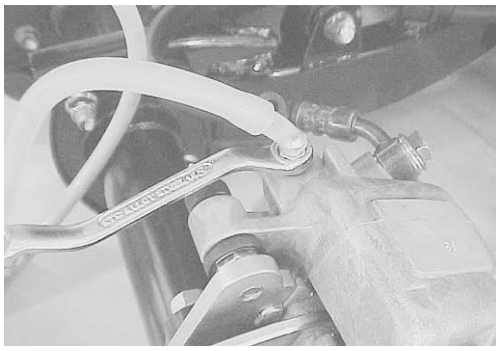




NOTE:
While bleeding the brake system, replenish the brake fluid in the reservoir as necessary. Make sure that there is always some fluid visible in the reservoir.

- Close the air bleeder valve, and disconnect the hose. Fill the reservoir with brake fluid to the top of the inspection window or the upper limit line.

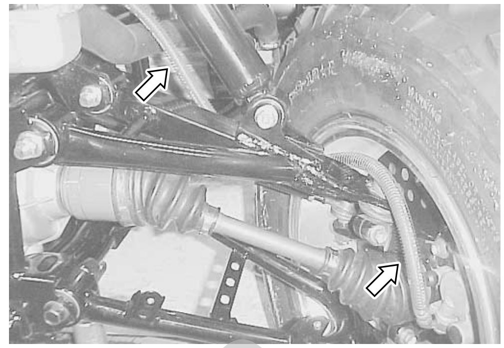
Air bleeder valve: 7.5 N·m (0.75 kgf-m, 5.5 lb-ft)

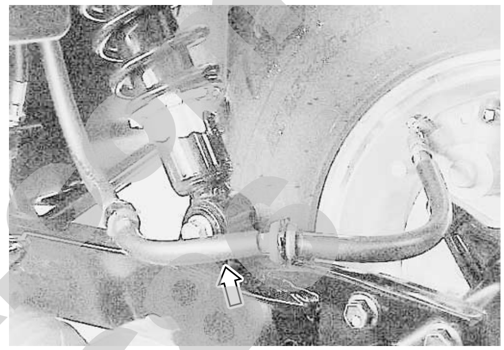


CAUTION

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

BRAKE HOSES

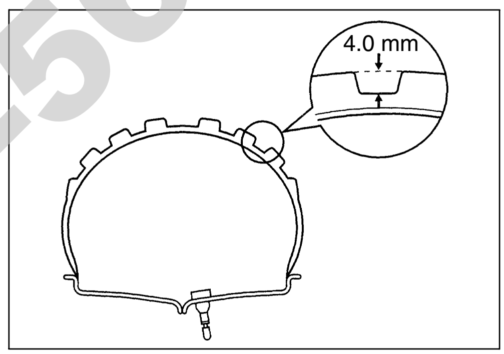




Inspect every 2 000 km (1 200 miles, 6 months).
Replace every four years.

- Check the brake hoses for leakage, cracks, wear and damage. If any damages are found, replace the brake hoses with new ones.

TIRES



Inspect every 2 000 km (1 200 miles, 6 months).

TIRE TREAD CONDITION

Operating the vehicle with excessively worn tires will decrease riding stability and consequently invite a dangerous situation. It is highy recommended to replace a tire when the remaining depth of the tire tread reaches the following specification.

09900-20805: Tire depth gauge

Service Limit
Tire tread depth: Front 4.0 mm (0.16 in)
Rear 4.0 mm (0.16 in)

TIRE PRESSURE

If the tire pressure is too high or too low, steering will be adversely affected and tire wear will increase. Therefore, maintain the correct tire pressure for good roadability and a longer tire life. Cold inflation tire pressure is as follows.

COLD INFLATION TIRE PRESSURE	kPa	kgf/cm^2	psi
FRONT	35	0.35	5.1
REAR	30	0.30	4.4

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

CAUTION

To minimize the possiblility of tire damage from over-inflation, we strongly recommended that a manual type air pump be used rather than a high pressure air compressor as found in service stations. When filling air into the tires, never exceed 70 kPa (0.7 kgf/cm², 10 psi).

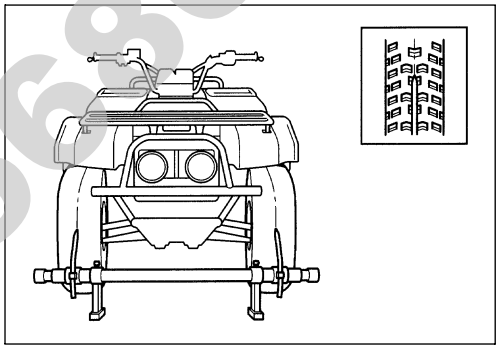
CAUTION

The standard tire fitted on this vehicle is an AT25×8-12☆☆ for the front and a AT25×10-12☆☆ for the rear. The use of tires other than those specified may cause instability. It is highly recommended to use the specified tires.

STEERING

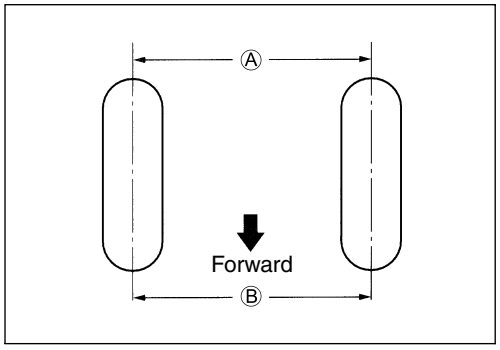
Inspect initially at 200 km (100 miles, 1 month) and every 1 000 km (600 miles, 3 months) thereafter.

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



TOE-IN

- Place the vehicle on level ground.
- Make sure the tire pressure for right and left tires is the same and set to the proper specification.
- Set the front wheels in the straight position.
- Place a load of 75 kg (165 lbs) on the seat.
- Measure the distance Ⓐ and Ⓑ of the front wheels with a toe-in gauge as shown and calculate the difference between Ⓐ and Ⓑ.



DATA Toe-in: 0 ± 4 mm (0 ± 0.16 in)

- If the toe-in is out of specification, bring it into the specified range. (☞7-46)

SUSPENSIONS

Inspect every 2 000 km (1 200 miles, 6 months).

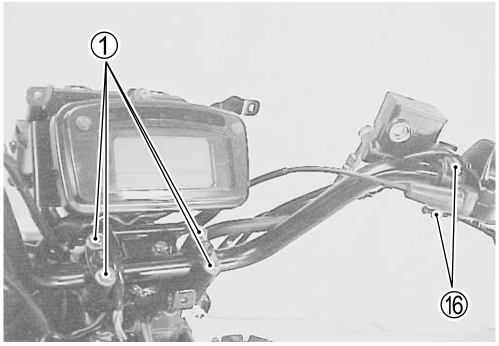
- Support the vehicle using a jack and wooden blocks.
- Remove the front and rear wheels. (☞7-10)
- Inspect the suspension arm and bushing for scratches, wear, or damage. If any damages are found, replace the suspension arm or bushing with a new one. (☞7-31)
- Inspect the swinging arm, rear axle and bearing for scratches, wear or damage. If any damages are found, replace them with a new one. (☞7-62)
- Inspect the front and rear shock absorbers for oil leakage or damage. If any damages are found, replace them with a new one. (☞7-32 and 7-62)

CHASSIS NUTS AND BOLTS

Tighten initially at 200 km (100 miles, 1 month) and every 1 000 km (600 miles, 3 months) thereafter.

Check that all chassis nuts and bolts are tightened to their specified torque. (Refer to page 2-21 for the locations of the following nuts and bolts.)

Item	N·m	kgf-m	lb-ft
① Handlebar clamp bolt	23	2.3	16.5
② Steering shaft holder bolt	23	2.3	16.5
③ Steering shaft lower nut	49	4.9	35.5
④ Wishbone arm pivot nut (upper and lower)	65	6.5	47.0
⑤ Hub nut (front and rear)	100	10.0	72.5
⑥ Wheel set nut (front and rear)	50	5.0	36.0
⑦ Steering knuckle pinch bolt (upper and lower)	50	5.0	36.0
⑧ Front shock absorber mounting nut (lower)	60	6.0	43.5
⑨ Front shock absorber mounting bolt (upper)	55	5.5	40.0
⑩ Tie rod end nut	35	3.5	25.5
⑪ Tie rod locknut	29	2.9	21.0
⑫ Brake air bleeder valve (front and rear)	7.5	0.75	5.5
⑬ Brake caliper mounting bolt (front and rear)	26	2.6	19.0
⑭ Footrest bolt (M8)	26	2.6	19.0
⑮ Footrest bolt (M10)	55	5.5	40.0
⑯ Brake master cylinder mounting bolt (front and rear)	10	1.0	7.3
⑰ Brake hose union bolt (front and rear)	23	2.3	16.5
⑱ Front brake pipe nut	16	1.6	11.5
⑲ Brake pedal bolt	26	2.6	19.0
⑳ Rear shock absorber mounting nut (upper)	34	3.4	24.5
㉑ Rear shock absorber mounting bolt (lower)	60	6.0	43.5
㉒ Rear swingarm pivot bolt (left)	100	10.0	72.5
㉓ Rear swingarm pivot bolt (right)	9.5	0.95	7.0
㉔ Rear swingarm pivot locknut (right)	100	10.0	72.5
㉕ Trailer towing mounting bolt	55	5.5	40.0
㉖ Axle housing mounting bolt	60	6.0	43.5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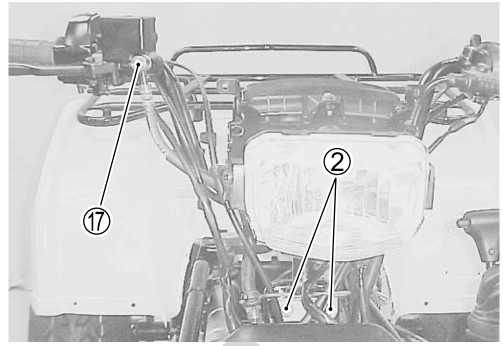
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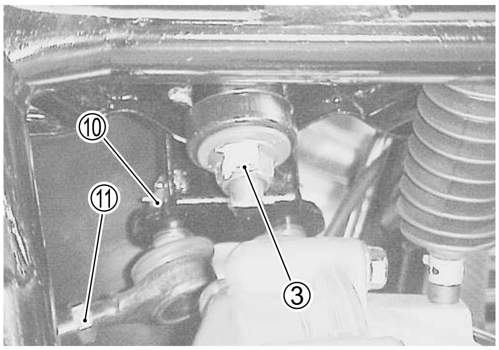
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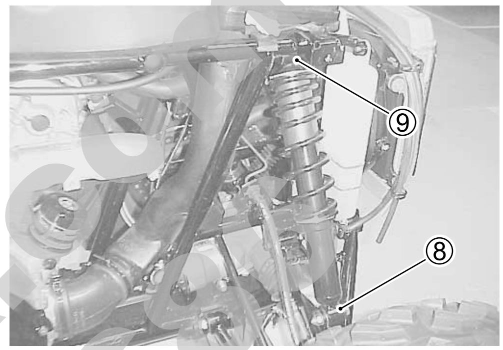
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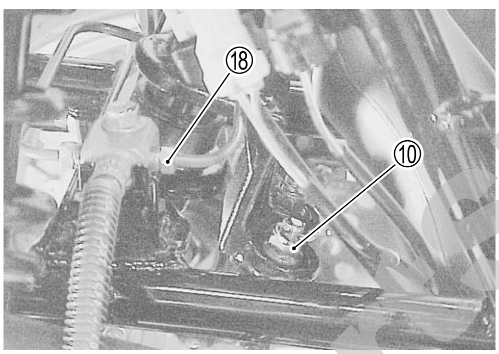
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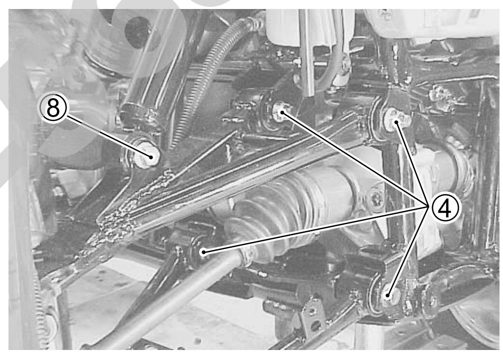
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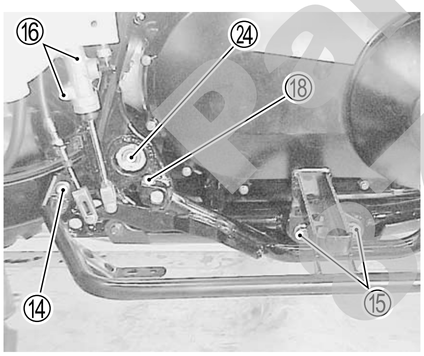
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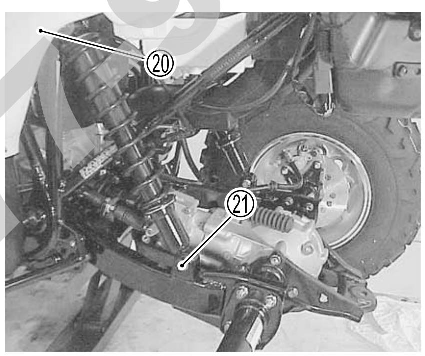
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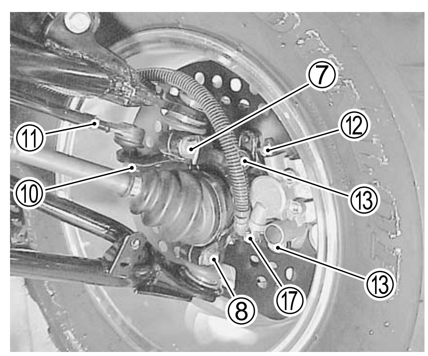
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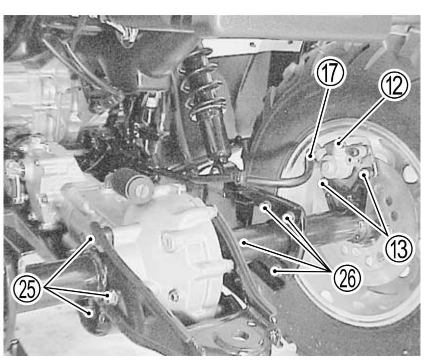
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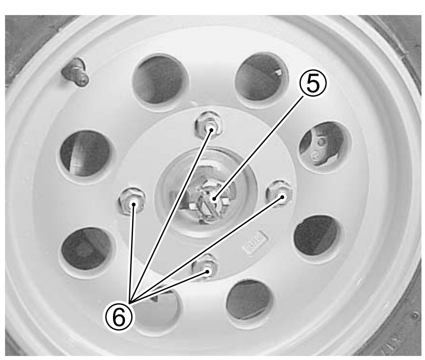
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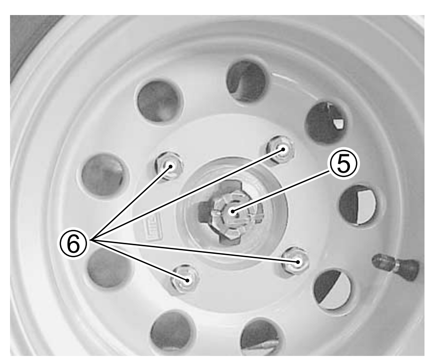
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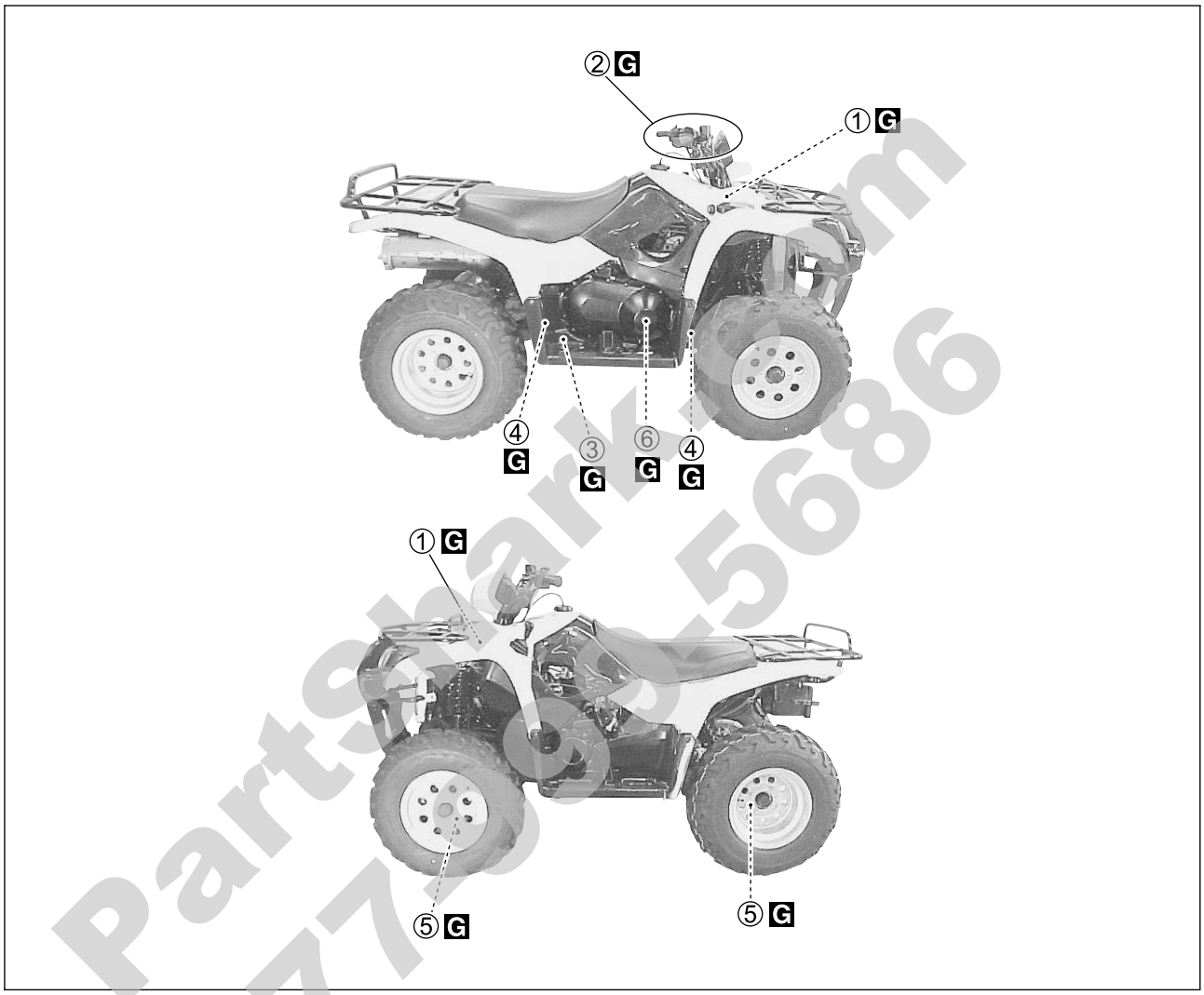
GENERAL LUBRICATION

Lubricate every 1000 km (600 miles, 3 months).

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



①Steering shaft holder
②Brake lever holder and throttle lever
③Brake pedal
④Propeller shaft joint spline
⑤Drive shaft joint spline
⑥Drive belt cover bearing (inner race)
G Grease

NOTE:

** Before lubricating each part, remove any rust and wipe off any grease, oil, dirt, or grime.*

** Lubricate exposed parts which are subject to rust, with a rust preventative spray, especially whenever the vehicle has been operated under wet or rainy conditions.*

COMPRESSION PRESSURE CHECK

The compression pressure reading of a cylinder is a good indicator of its internal condition.
The decision to overhaul the cylinder is often based on the results of a compression test. Periodic maintenance records kept at your dealership shoud include compression readings for each maintenance service.

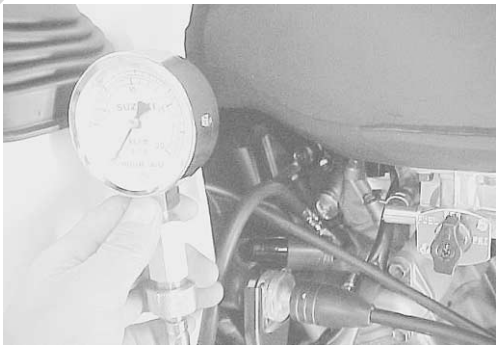
DATA **Compression pressure:**
Standard: 1 000 kPa (10.0 kgf/cm², 142 psi)
(Automatic decompression actuated)

Low compression pressure can indicate any of the following conditions:

* Excessively worn cylinder walls
* Worn piston or piston rings
* Piston rings stuck in grooves
* Poor valve seating
* Ruptured or otherwise defective cylinder head gasket

NOTE:
When the compression pressure goes below specification, check the engine for conditions listed above.

COMPRESSION TEST PROCEDURE



NOTE:
** Before testing the engine for compression pressure, make sure that the cylinder head nuts are tightened to the specified torque values and the valves are properly adjusted.*
** Warm up the engine before testing.*
** Make sure that the battery is fully charged.*

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

- Remove the spark plug. (☞2-7)
- Install the compression gauge and adaptor in the spark plug hole. Make sure that the connection is tight.
- Keep the throttle lever in the fully open position.
- Press the starter button and crank the engine for a few seconds. Record the maximum gauge reading as the cylinder compression.

TOOL **09915-64510: Compression gauge set**
09915-63310: Adaptor

OIL PRESSURE CHECK

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

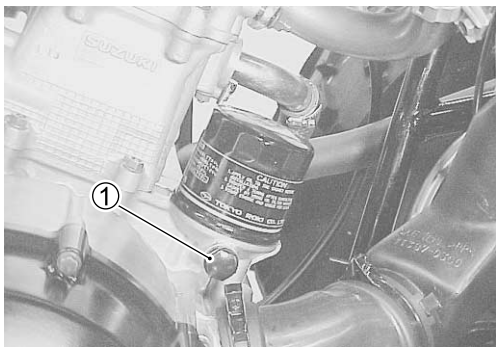
DATA Oil pressure:
Above 130 kPa (1.3 kgf/cm², 18.0 psi)
Below 170 kPa (1.7 kgf/cm², 24.0 psi)

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

LOW OIL PRESSURE
* Clogged oil filter
* Oil leakage from the oil passage
* Damaged O-ring
* Defective oil pump
* Combination of the above items

HIGH OIL PRESSURE
* Engine oil viscosity is too high
* Clogged oil passage
* Combination of the above items

OIL PRESSURE TEST PROCEDURE

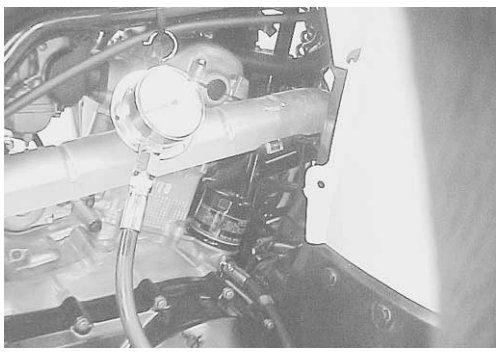


- Connect the tachometer onto the spark plug high-tension cord.
- Remove the main oil gallery plug ①.
- Install the oil pressure gauge and adaptor into the main oil gallery.
- Warm up the engine as follows:
  Summer: 10 minutes at 2 000 r/min
  Winter: 20 minutes at 2 000 r/min
- After warming up the engine, increase the engine speed to 3 000 r/min (observe the tachometer), and read the oil pressrure gauge.

TOOL 09915-74511: Oil pressure gauge

09900-26006: Tachometer

Main oil gallery plug: 23 N·m (2.3 kgf-m, 16.5 lb-ft)



INITIAL ENGAGEMENT AND CLUTCH LOCK-UP INSPECTION

The LT-A500F 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. Before checking the initial engagement and clutch lock-up two inspection checks must be performed to thoroughly check the operation of the drive train. Perform the following:

- Remove the fuel tank cover.
- Warm up the engine.

INITIAL ENGAGEMENT INSPECTION

- Connect the tachometer or the multi circuit tester onto the spark plug high-tension cord.
- Start the engine.
- Shift the range lever to the “High” position.
- Slowly open the throttle and note the engine speed (r/min) when the vehicle begins to move forward.

TOOL 09900-26006: Tachometer, or

09900-25008: Multi circuit tester set

DATA Engagement speed: 1 800 – 2 400 r/min

If the engagement speed does not coincide with the standard range, inspect the following items for any abnormalities.

* Clutch shoes . . . . . ☞3-41, 3-20, 3-85
* Clutch shoe wheel. . . . . ☞3-41, 3-20, 3-85
* Movable drive and driven face . . . . . ☞3-18, 3-43, 3-87

CLUTCH LOCK-UP INSPECTION

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

- Connect a tachometer onto the spark plug high-tension code.
- Start the engine.
- Shift the range lever to the “High” position.
- Apply the front and rear brakes as firmly as possible.
- Fully open the throttle for a brief period and note the maximum engine speed sustained during the test cycle.

DATA Lock-up speed: 3 300 – 3 900 r/min

CAUTION

Do not apply full power for more than 5 seconds or damage to the clutch or engine may occur.

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

* Clutch shoes . . . . . ☞3-38
* Clutch wheel . . . . . ☞3-38
* Movable drive and driven face . . . . . ☞3-41 to 3-44

ENGINE

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ENGINE COMPONENTS REMOVABLE WITH ENGINE IN PLACE

The parts listed below can be removed and installed without removing the engine from the frame. Refer to the page listed in each section for removal and installation instructions.

ENGINE LEFT SIDE

PARTS	REMOVAL	INSTALLATION
Recoil starter	3-12	3-101
Water pump	3-16	3-93
Starter cup	3-16	3-92
Starter driven gear	3-16	3-92
Starter idle gear	3-16	3-92
Gearshift	3-16	3-91
Generator	3-17	3-90
Water pump drive/driven gear	3-17	3-89
Speed sensor	3-18	3-89

ENGINE RIGHT SIDE

PARTS	REMOVAL	INSTALLATION
Clutch cover	3-18	3-88
Movable drive/driven face	3-18	3-87
Fixed drive face	3-19	3-87
Neutral switch	3-19	3-86
Clutch shoe	3-20	3-85
Cam chain	3-20	3-85
Oil pump	3-21	3-84

ENGINE CENTER

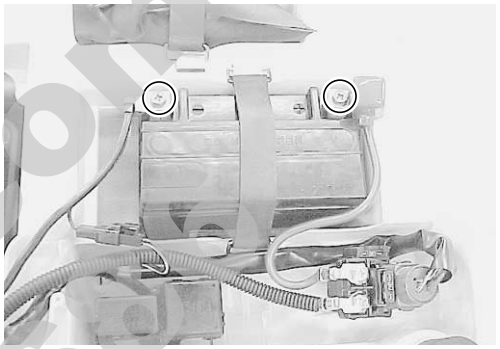
PARTS	REMOVAL	INSTALLATION
Starter motor	3-12	3-101
Cam chain tension adjuster	3-12	3-100
Cylinder head cover	3-13	3-98
Camshaft	3-13	3-96
Cylinder head	3-14	3-95
Cylinder	3-14	3-95
Piston	3-15	3-93
Oil filter	3-15	3-93
Oil sump filter	3-70	3-71
Gearshift cam stopper	3-75	3-75

ENGINE REMOVAL AND INSTALLATION

ENGINE REMOVAL

Before taking the engine out of the frame, wash the engine using a steam cleaner. Engine removal is sequentially explained in the following steps. Reinstall the engine by reversing the removal procedure.

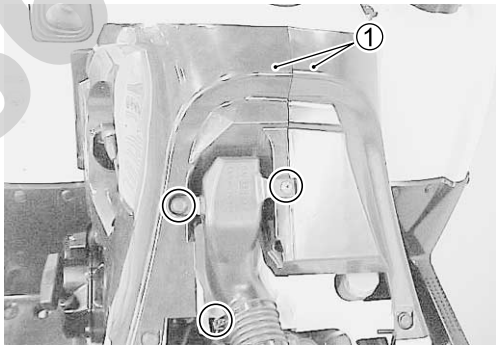
- Drain engine oil. (☞2-9)
- Drain engine coolant. (☞2-12)
- Remove the seat. (☞7-4)



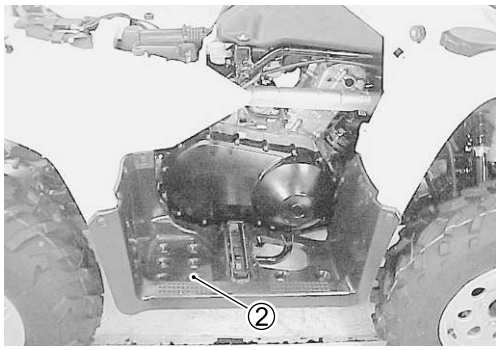
- Disconnect the battery lead wires.
- Remove the battery.

CAUTION

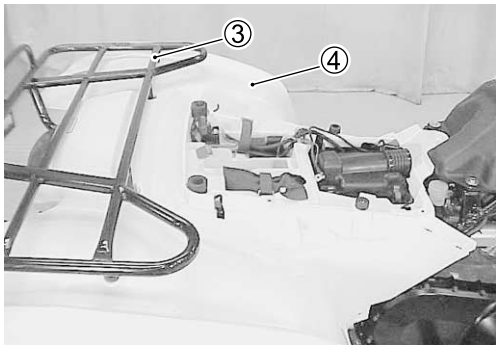
When disconnecting the lead wires, be sure to disconnect the ⊖ battery lead wire first.



- Remove the fuel tank covers ①.

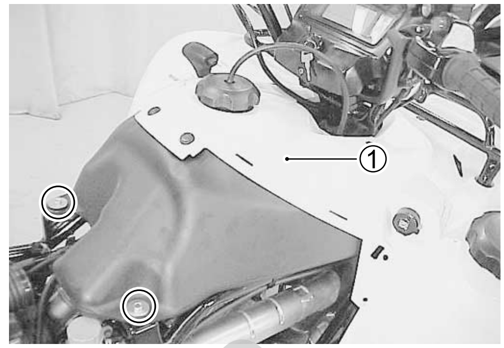


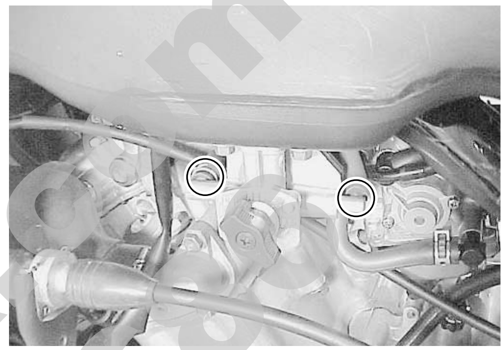
- Remove the footrest mud guard ②. (L&R)



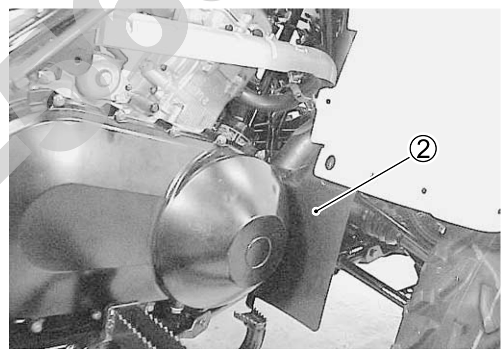
- Remove the rear carrier ③ and rear fender ④.

- Remove the fuel tank top cover ①.
- Turn the fuel valve to the "ON" position and remove the fuel tank.
  Fuel tank removal ☞5-3

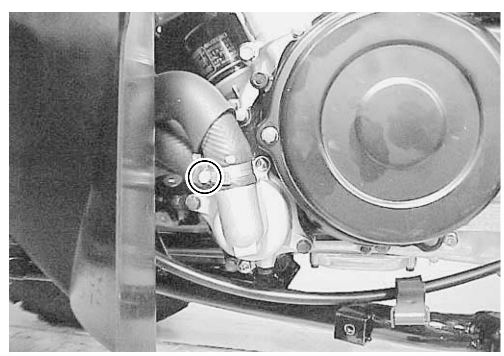


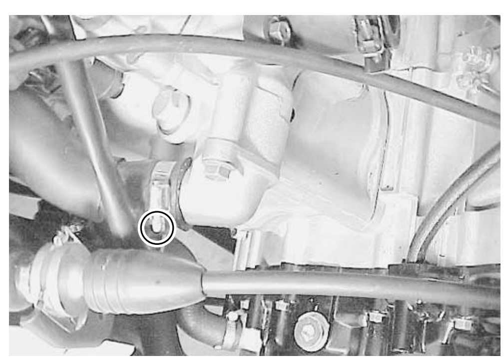


- Remove the right inner fender ②.

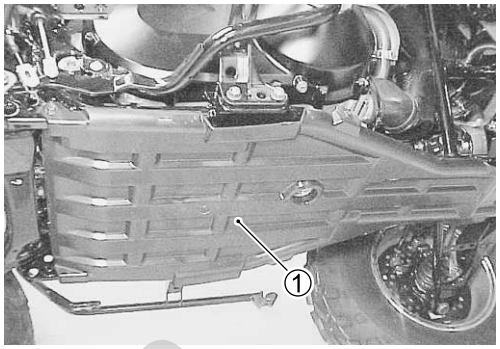


- Disconnect the water hoses.

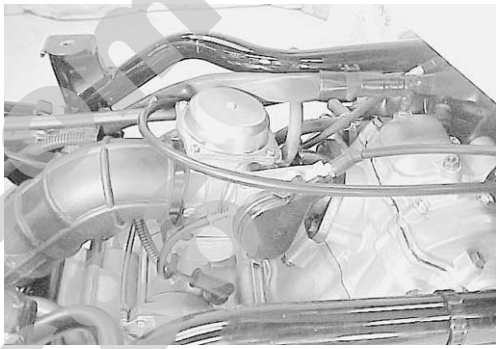




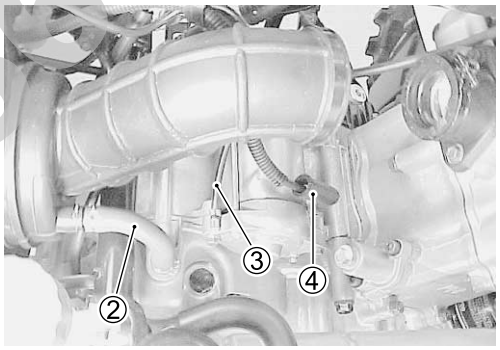
- Remove the engine under cover ①.



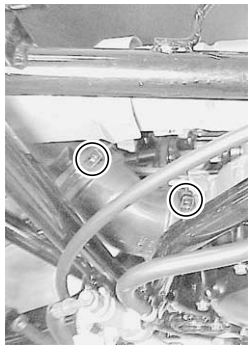
- Remove the carburetor.
  Carburetor removal ☞5-8

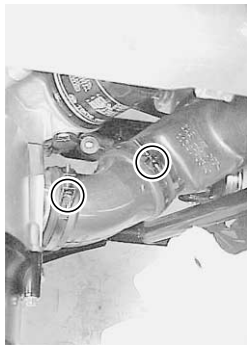


- Disconnect the breather hose ②.
- Disconnect the engine ground lead wire ③ and starter motor lead wire ④.

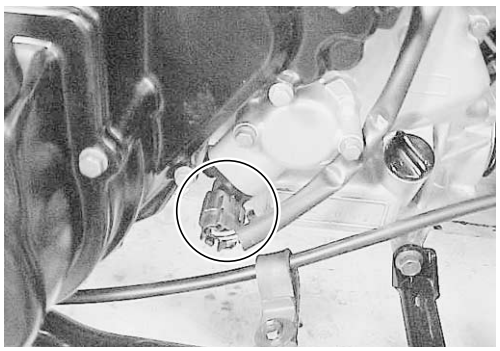


- Remove the cooling ducts. (Front & Rear)

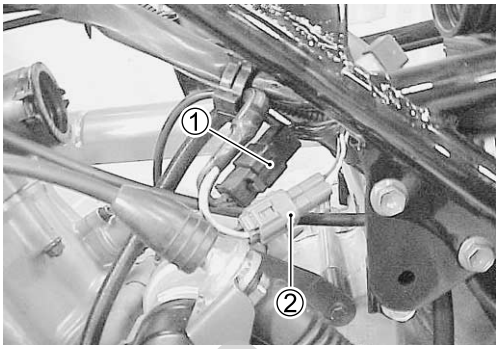




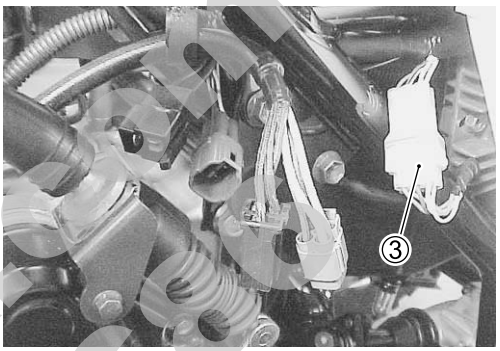
- Disconnect the speed sensor lead wire coupler.



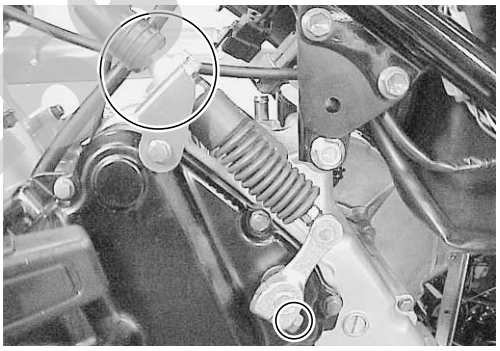
- Disconnect the generator lead wire coupler ① and signal generator lead wire coupler ②.



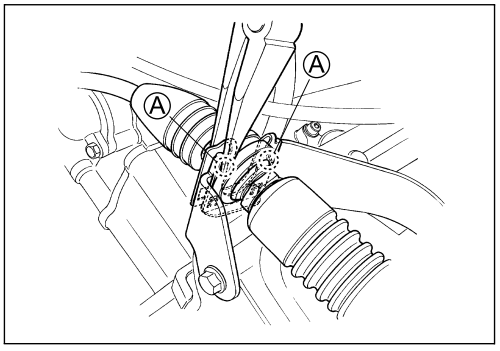
- Disconnect the neutral switch lead wire coupler ③.



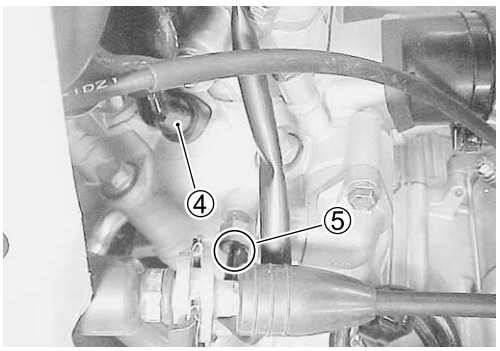
- Disconnect the gearshift arm.



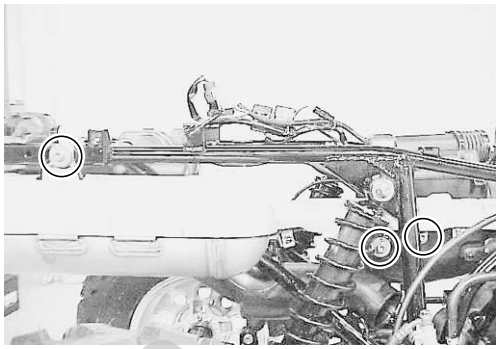
NOTE:
Flatten the locked parts Ⓐ with a long nose pliers.



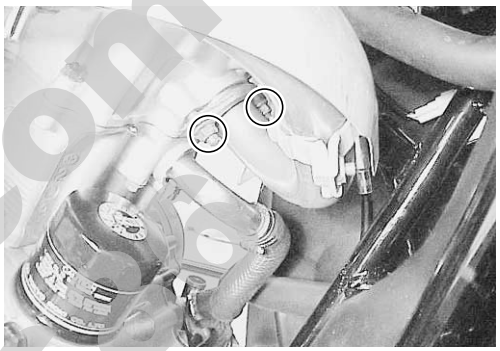
- Disconnect the spark plug cap ④.
- Disconnect the engine coolant temperature switch lead wire ⑤.



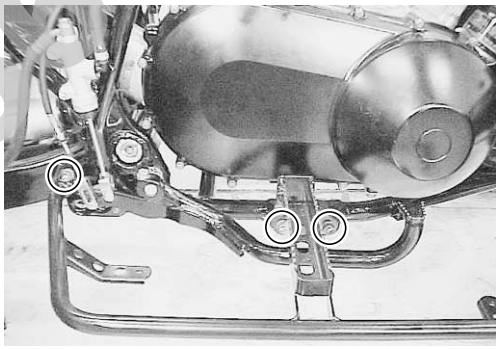
- Remove the muffler.



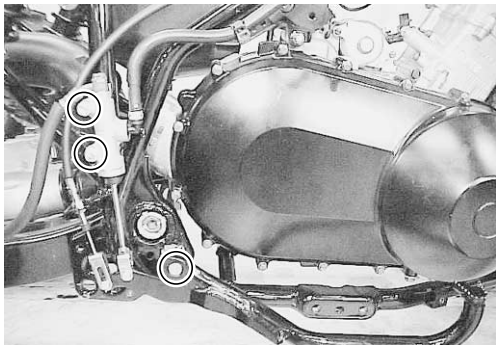
- Remove the exhaust pipe.



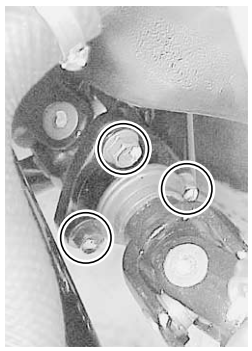
- Remove the right footrest.

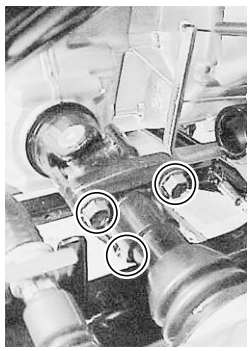


- Remove the brake pedal.

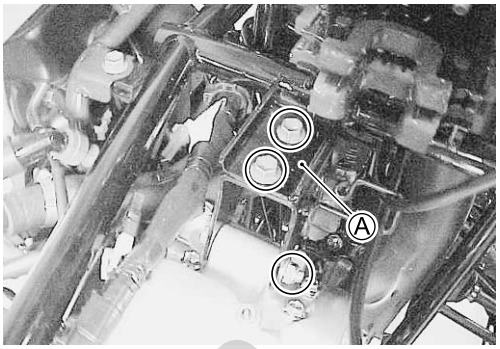


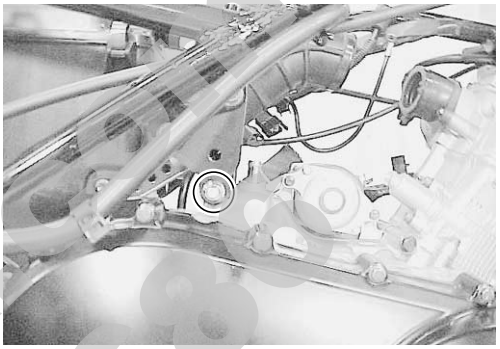
- Remove the propeller shaft flange coupling bolts, front and rear.

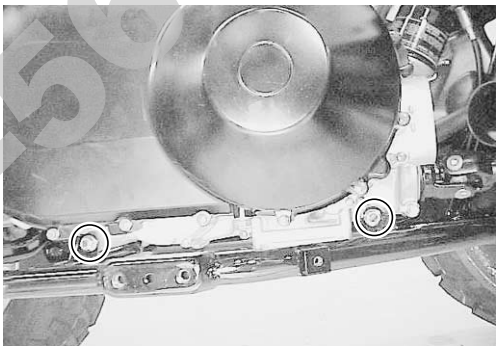




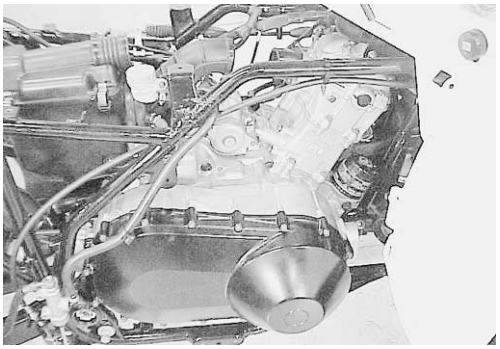
- Remove the engine mounting bolts and nuts.
- Remove the engine mounting bracket Ⓐ.







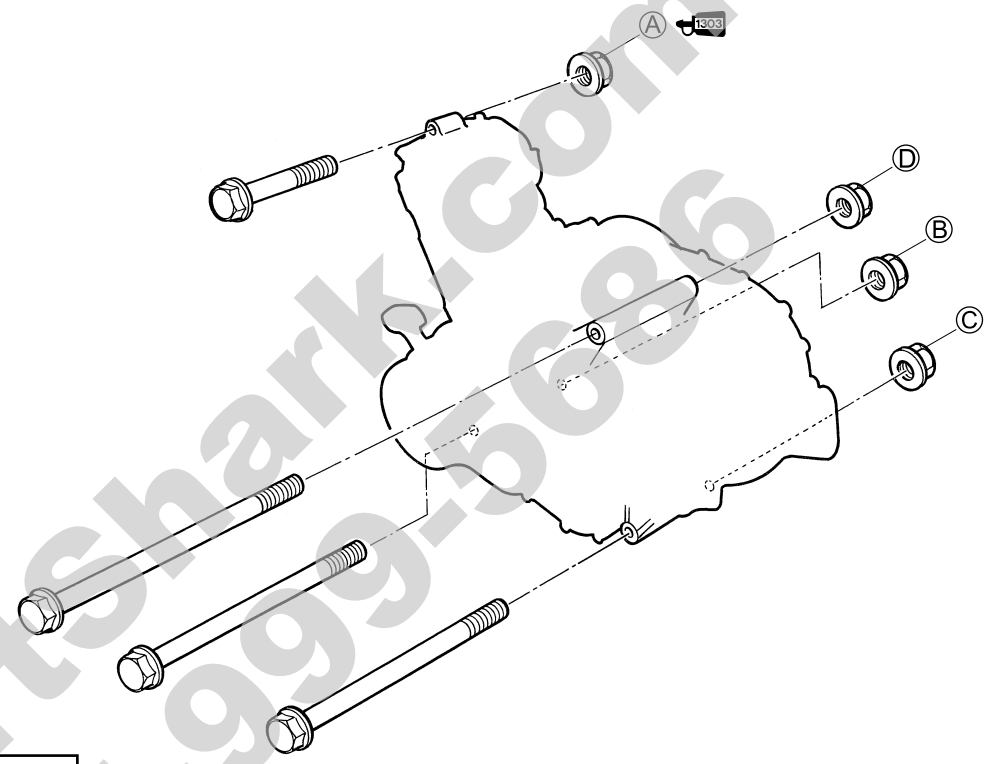
- Remove the engine from the right side.



ENGINE INSTALLATION

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

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



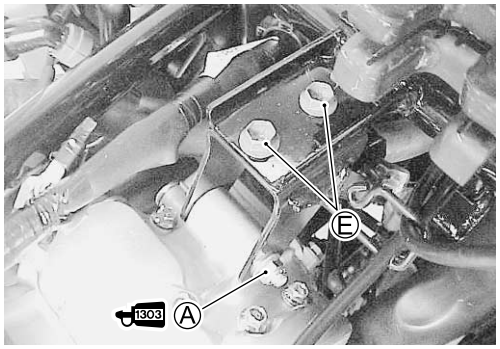
ITEM	N·m	kgf-m	lb-ft
Ⓐ	40	4.0	29.0
Ⓑ	55	5.5	40.0
Ⓒ	55	5.5	40.0
Ⓓ	55	5.5	40.0

- Tighten the bolts Ⓔ to the specified torque.

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

- Apply THREAD LOCK SUPER “1303” to the nut Ⓐ.

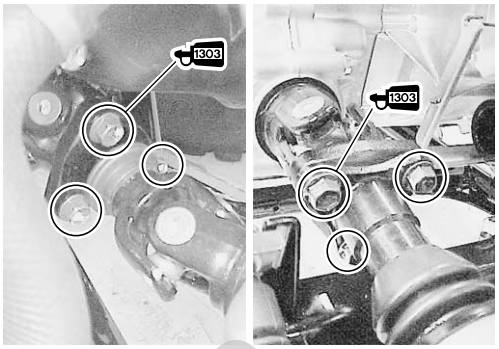
1303 99000-32030: THREAD LOCK SUPER “1303”



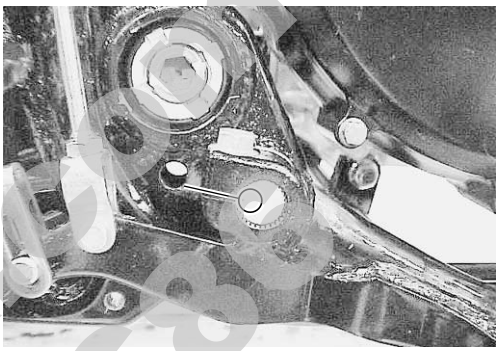
• Apply THREAD LOCK SUPER “1303” to the propeller shaft flange coupling bolts and tighten them to the specified torque.

1303 99000-32030: THREAD LOCK SUPER “1303”

Front propeller shaft flange coupling bolt:
45 N·m (4.5 kgf-m, 32.5 lb-ft)
Rear propeller shaft flange coupling bolt:
30 N·m (3.0 kgf-m, 21.5 lb-ft)



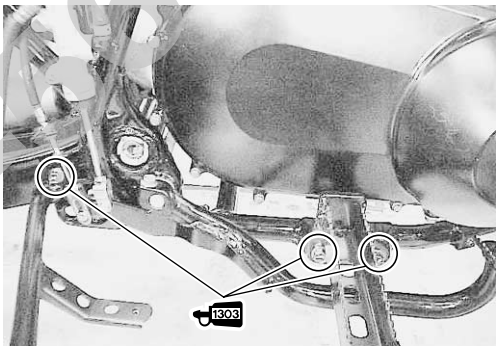
• Install the brake pedal by aligning the punched mark on the shaft with the slit of the pedal.



• Apply THREAD LOCK SUPER “1303” to the bolts and tighten them to the specified torque.

1303 99000-32030: THREAD LOCK SUPER “1303”

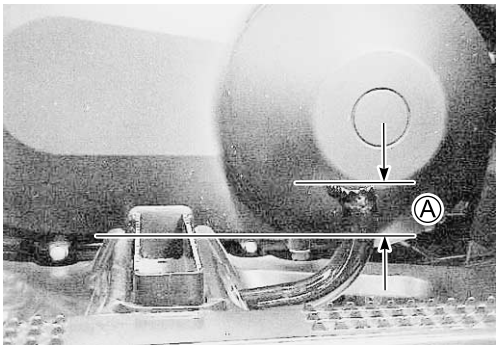
Footrest bolt: 8 mm: 26 N·m (2.6 kgf-m, 19.0 lb-ft)
10 mm: 55 N·m (5.5 kgf-m, 40.0 lb-ft)



• Adjust the brake pedal height as shown.

DATA Brake pedal height Ⓐ
Standard: 15 – 25 mm (0.6 – 1.0 in)

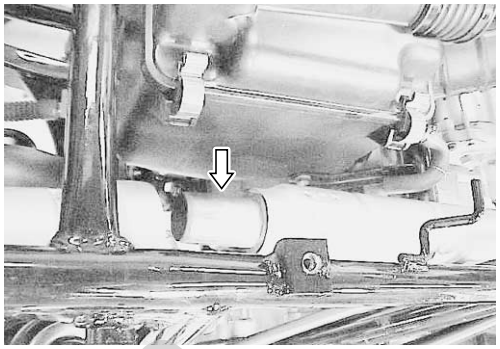
Brake pedal ☞2-17



• Install the new gasket and tighten the exhaust pipe nuts temporally.

• Apply gas sealer to the exhaust pipe connector.

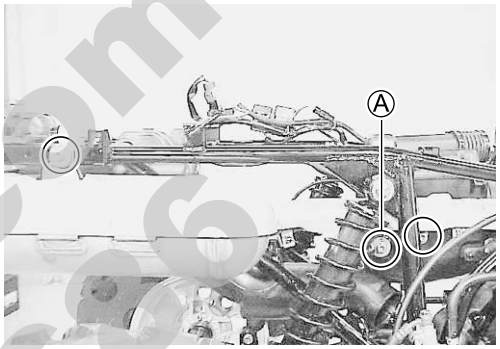
EXHAUST GAS SEALER: PERMATEX 1372



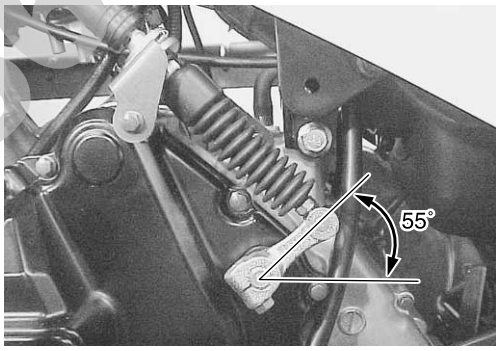
• Apply THREAD LOCK “1342” to the muffler mounting bolt Ⓐ.
• Tighten the muffler mounting bolts and exhaust pipe bolts to the specified torque.

1342 99000-32050: THREAD LOCK “1342”

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



• Install the gearshift arm as shown.



• After installing the engine, route the wire harness, cables and hoses properly. (☞9-14, 15)
• Adjust the following items.

* Engine oil ☞2-9
* Engine coolant ☞2-12
* Engine idle speed ☞2-9
* Throttle cable play ☞2-8

DATA Engine oil capacity
Oil change: 2.5 L (2.6/2.2 US/Imp qt)
Oil and filter change: 2.7 L (2.9/2.4 US/Imp qt)
Engine overhaul: 3.2 L (3.4/2.8 US/Imp qt)

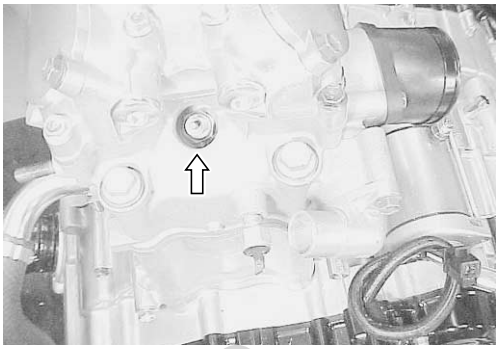
ENGINE DISASSEMBLY

ENGINE TOP SIDE

SPARK PLUG

- Remove the spark plug.

09930-10121: Spark plug wrench set

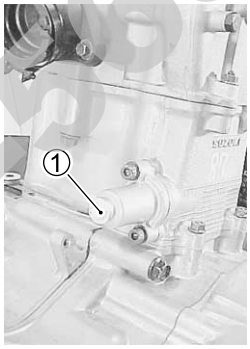


STARTER MOTOR

- Remove the starter motor.

CAM CHAIN TENSION ADJUSTER

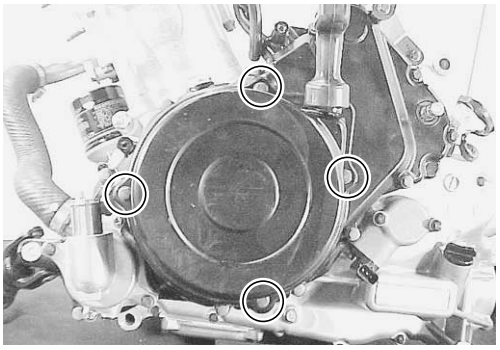
- Remove the cap bolt ① and insert the ⊖ screwdriver into the sloted end of the cam chain tension adjuster and turn it clockwise to lock the spring tension.



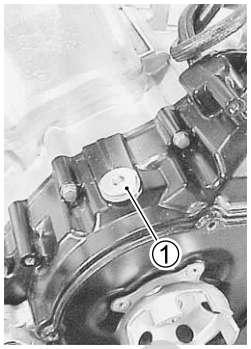
- Remove the cam chain tension adjuster.

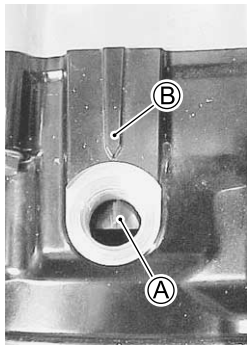
RECOIL STARTER

- Remove the recoil starter.



- Remove the valve timing inspection plug ①.
- Turn the crankshaft and align the “TDC” line Ⓐ on the generator rotor with the index mark Ⓑ on the crankcase.

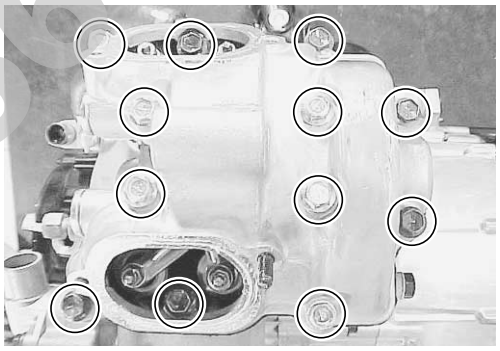




CYLINDER HEAD COVER

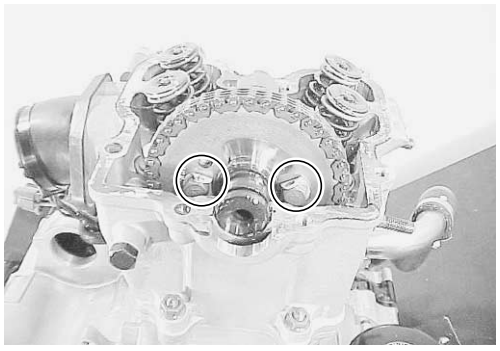
- Remove the valve inspection caps.

- Remove the cylinder head cover.

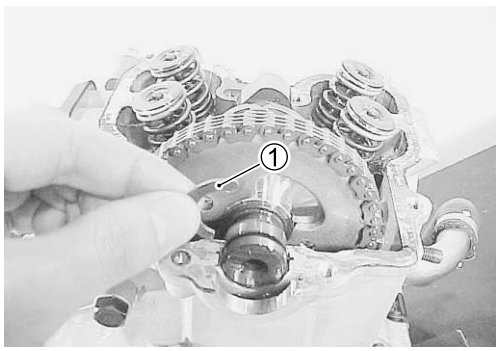


CAMSHAFT

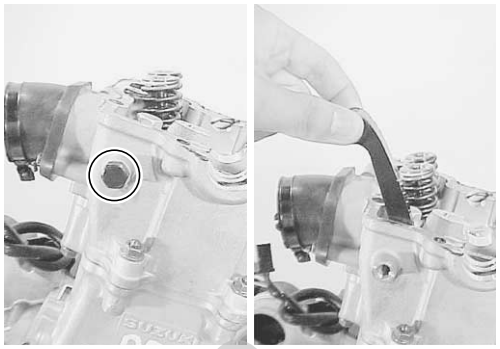
- Flatten the lock washer.
- Remove the cam chain sprocket bolts and lock washer.



- Remove the C-ring ①.
- Remove the camshaft and sprocket.

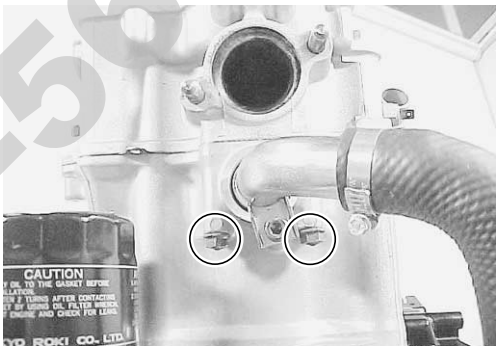


- Remove the cam chain tensioner by removing the bolt.

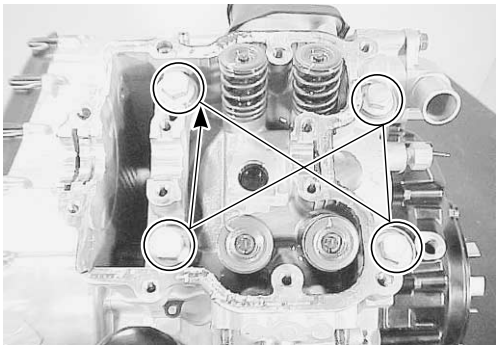


CYLINDER HEAD

- Remove the cylinder head bolts and nuts.

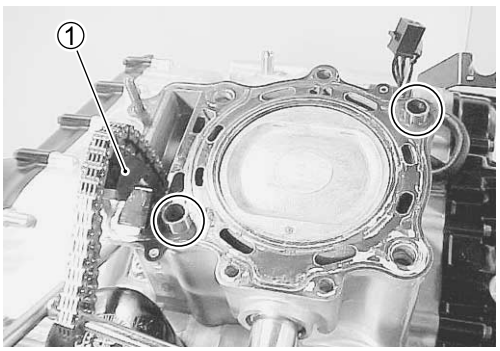


- Remove the cylinder head bolts diagonally.
- Remove the cylinder head.

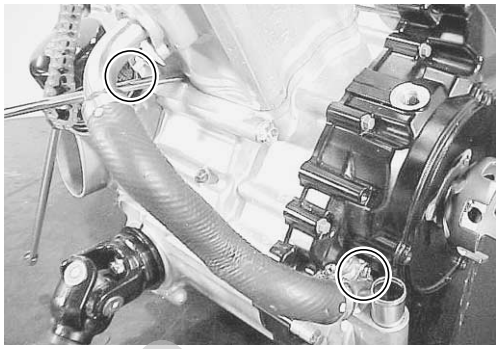


CYLINDER

- Remove the dowel pins and gasket.
- Remove the cam chain guide ①.

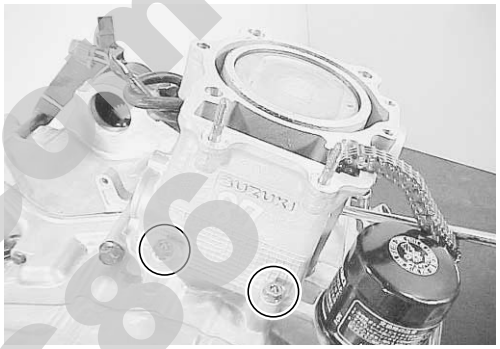


• Remove the water hose/pipe.

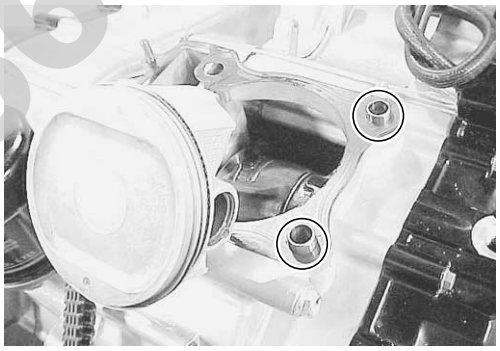


• Remove the cylinder nuts.
• Remove the cylinder.

NOTE:
Be careful not to drop the dowel pins into the crankcase.



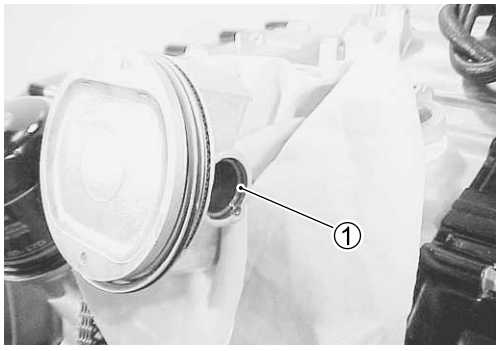
• Remove the dowel pins and gasket.



PISTON

• Remove the piston by removing the piston pin circlip ①.

NOTE:
Place a rag under the piston so as not to drop the piston pin circlip into the crankcase.



ENGINE BOTTOM SIDE

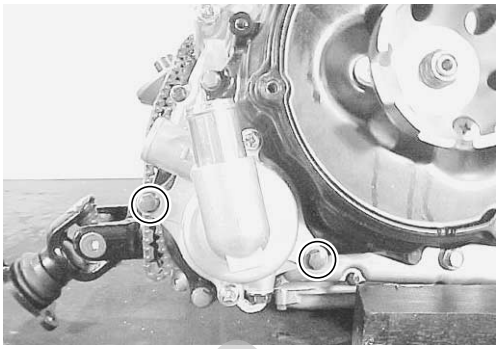
OIL FILTER

• Remove the oil filter with the special tool.

TOOL 09915-40610: Oil filter wrench

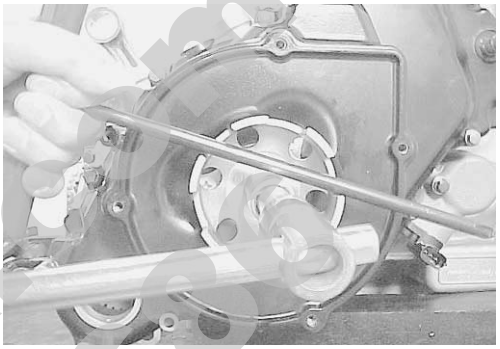
WATER PUMP

- Remove the water pump.

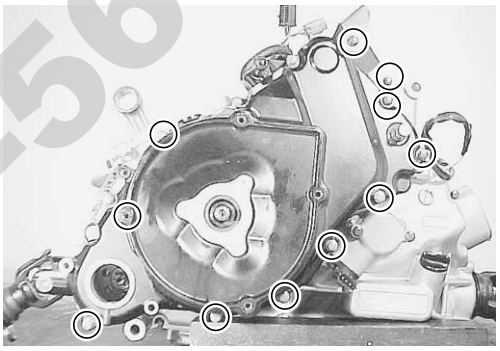


STARTER CUP

- Remove the starter cup nut by using a suitable bar.
- Remove the starter cup.

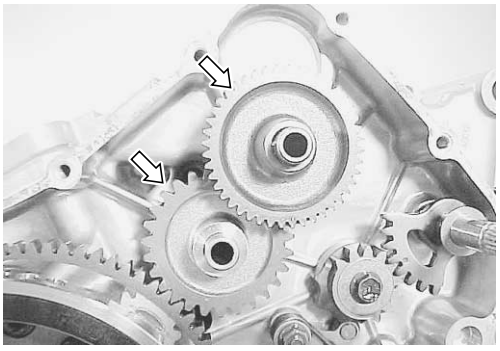


- Remove the generator rotor cover.



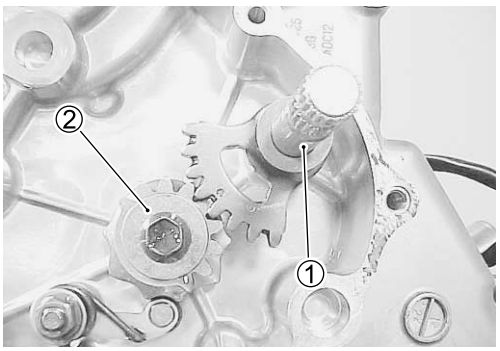
STARTER DRIVEN GEAR/IDLE GEAR

- Remove the starter driven gear and idle gear.



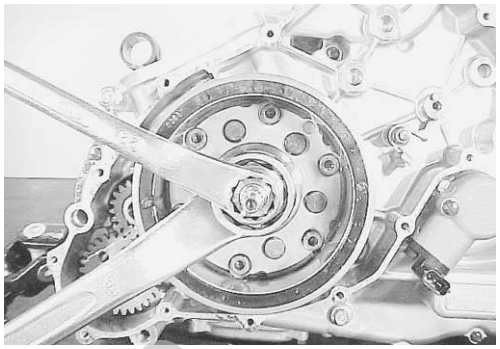
GEARSHIFT

- Remove the gearshift shaft ① and cam driven gear ②.



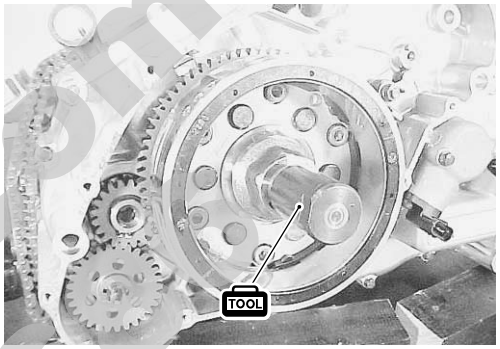
GENERATOR

- Remove the generator rotor bolt with a offset wrench.



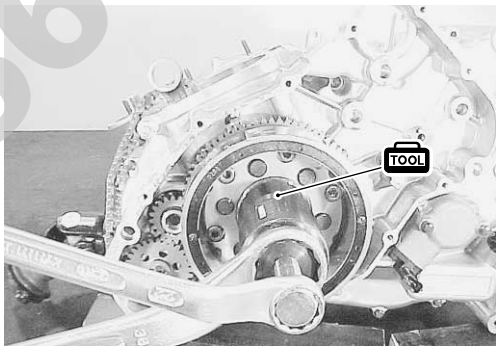
- Install the attachment to the crankshaft end.

TOOL **09930-31921: Rotor remover attachment**

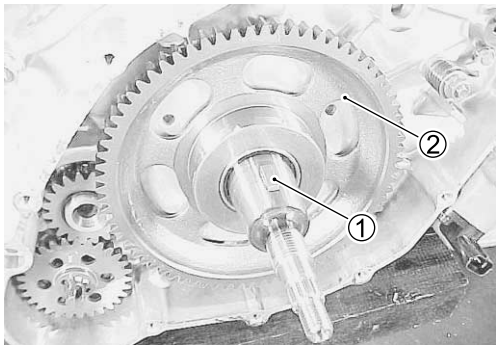


- Remove the generator rotor with the special tool.

TOOL **09930-30721: Rotor remover**



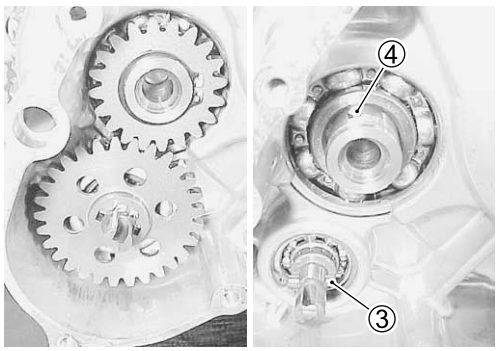
- Remove the key ①.
- Remove the starter driven gear ②.



WATER PUMP DRIVE/DRIVEN GEAR

- Remove the water pump drive/driven gears by removing the snap rings.
- Remove the pin ③ and pin ④.

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

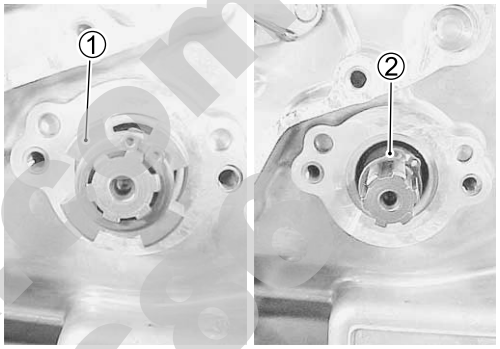


SPEED SENSOR

- Remove the speed sensor box.

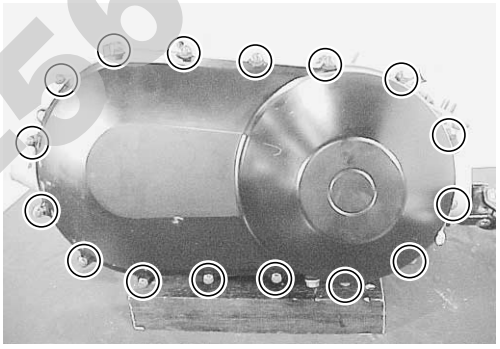
- Remove the speed sensor rotor ① by removing the snap ring.
- Remove the snap ring ②.

TOOL 09900-06107: Snap ring pliers



CLUTCH COVER

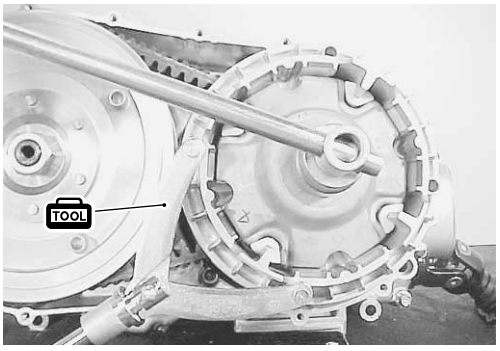
- Remove the clutch cover.



MOVABLE DRIVE FACE

- Remove the movable drive face nut with the special tool.
- Remove the movable drive face.

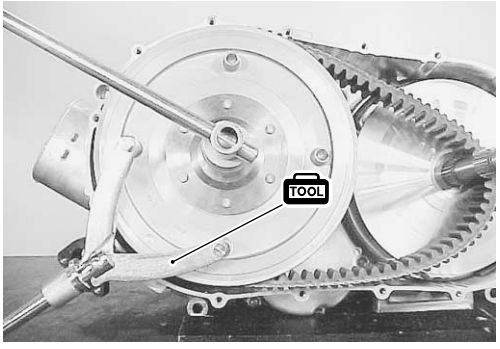
TOOL 09930-40113: Rotor holder



MOVABLE DRIVEN FACE

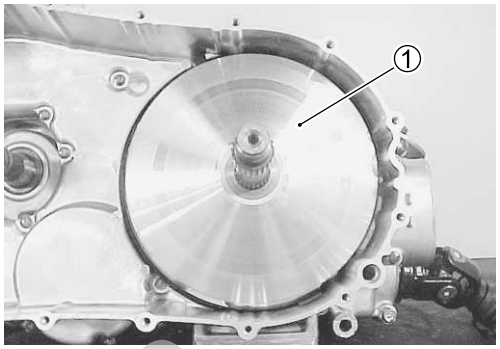
- Remove the movable driven face nut with the special tool.
- Remove the movable driven face assembly and drive belt.

TOOL 09930-40113: Rotor holder

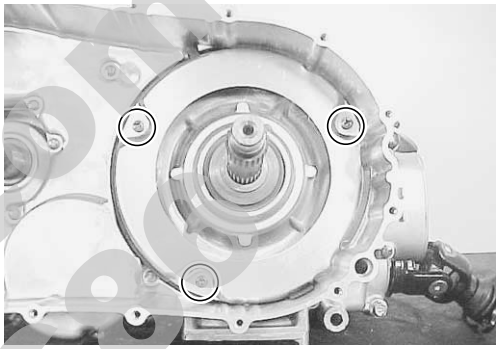


FIXED DRIVE FACE

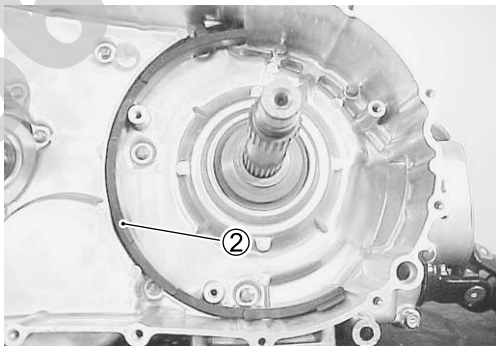
- Remove the fixed drive face ①.



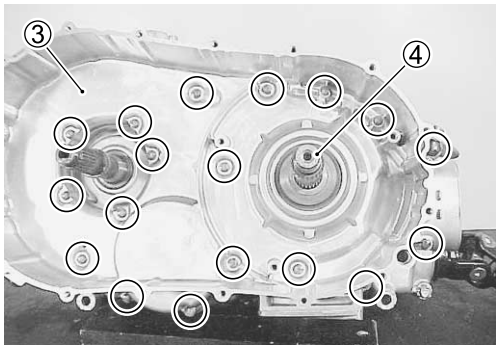
- Remove the fixed drive face back plate.



- Remove the rubber damper ②.

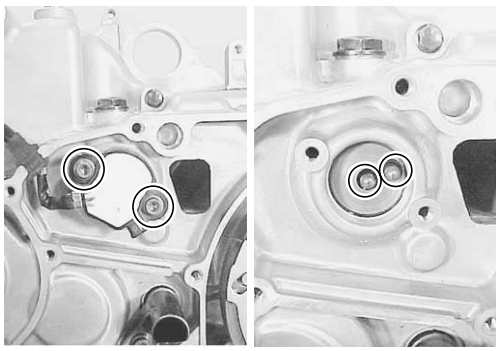


- Remove the clutch housing case ③ together with the clutch housing/shaft ④.

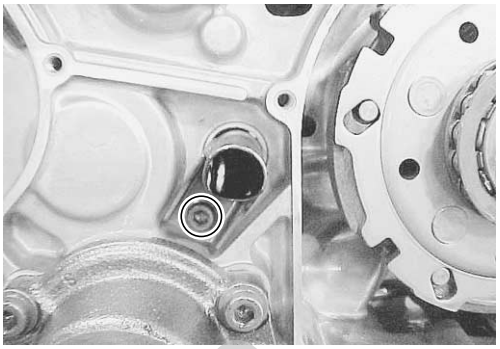


NEUTRAL SWITCH

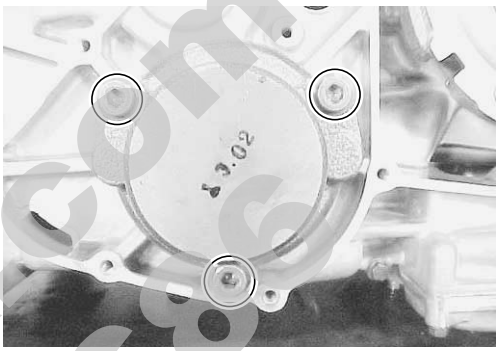
- Remove the neutral switch.
- Remove the springs and pins.



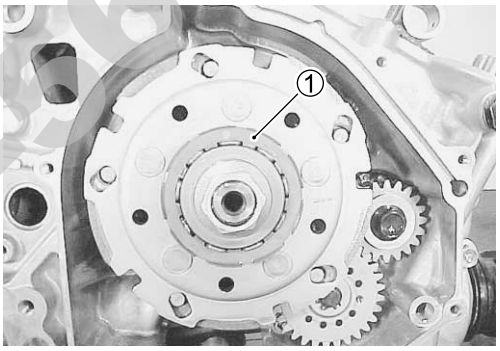
- Remove the breather pipe.



- Remove the output shaft housing.



- Remove the one way clutch ①.



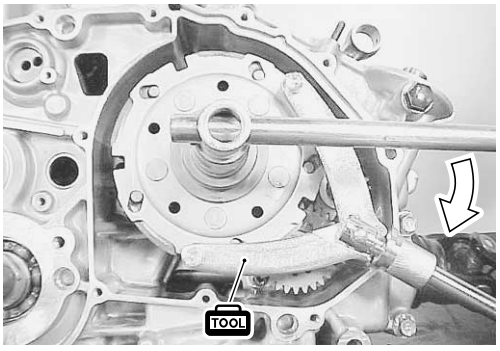
CLUTCH SHOE

- Remove the clutch shoe nut with the special tool.
- Remove the clutch shoe.

CAUTION

The clutch shoe nut has left-hand threads.

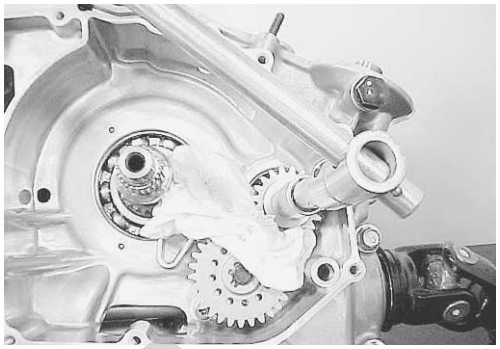
09930-40113: Rotor holder



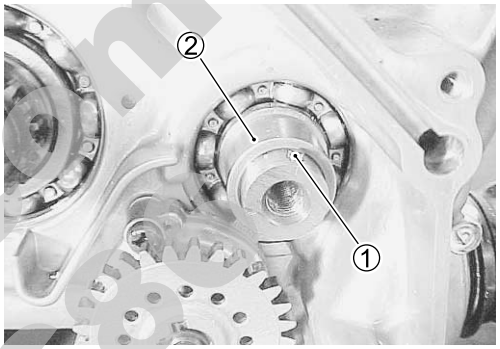
CAM CHAIN

- Remove the cam chain.

- Remove the oil pump drive gear bolt by engaging a rag between the gears as shown.
- Remove the washer and oil pump drive gear.



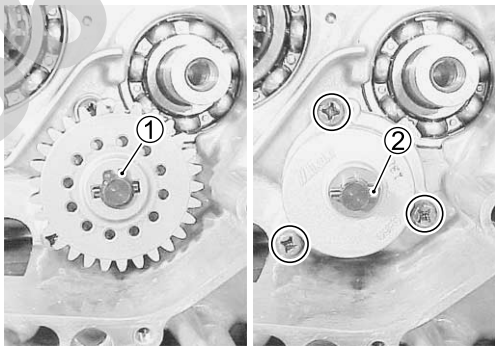
- Remove the pin ① and spacer ②.



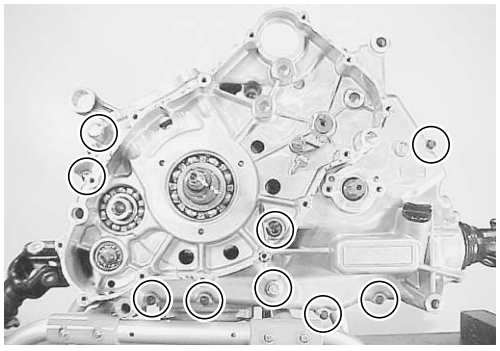
OIL PUMP

- Remove the oil pump driven gear by removing the snap ring ①.
- Remove the pin ② and washer.
- Remove the oil pump.

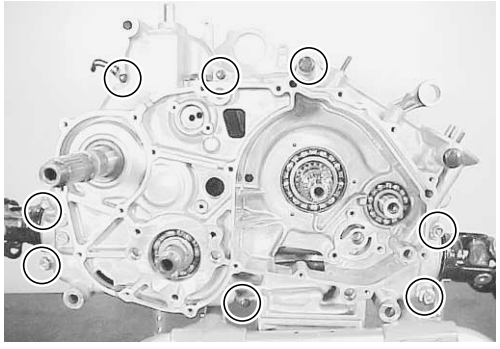
TOOL 09900-06107: Snap ring pliers



- Remove the left crankcase bolts.



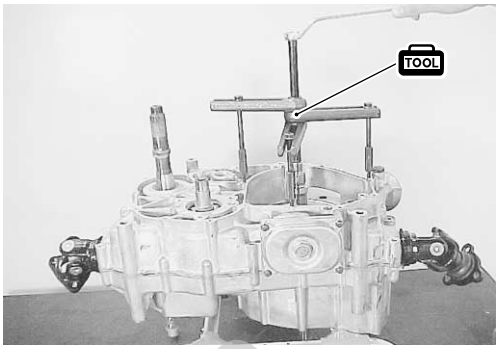
- Remove the right crankcase bolts.



• Separate the crankcase with the special tool.

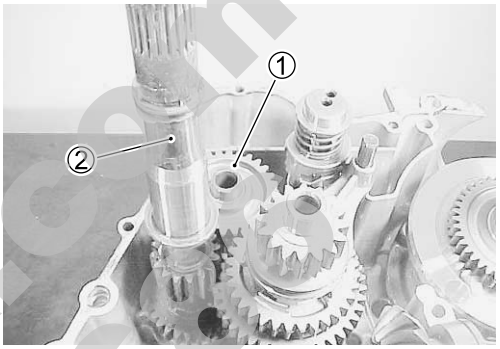
NOTE:
** The crankcase separator plate is parallel with the end face of the crankcase.*
** The crankshaft must remain in the left crankcase half.*

TOOL 09920-13120: Crankcase separator

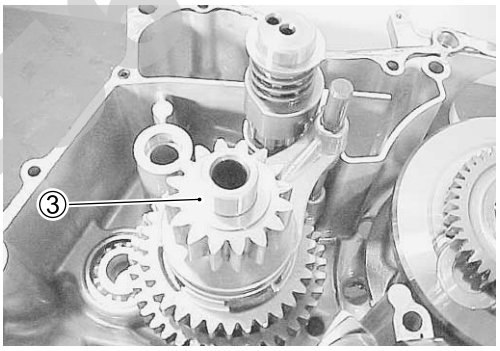


TRANSFER/DRIVE TRAIN/GEARSHIFT

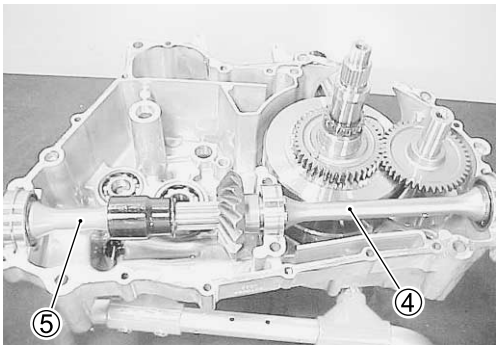
• Remove the reverse idle gear ①.
• Remove the transfer input shaft ②.



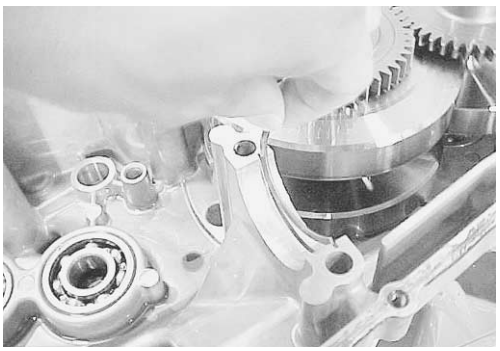
• Remove the gearshift related parts.
• Remove the transfer output shaft assembly ③.



• Remove the front output shaft ④ and rear output shaft ⑤.

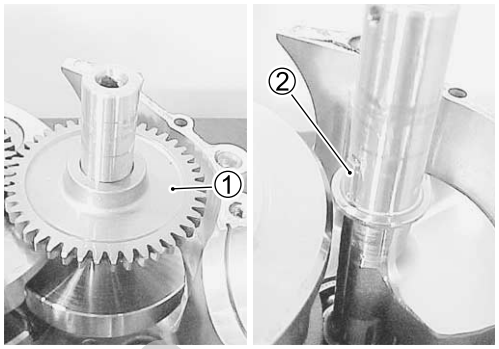


• Remove the C-ring.



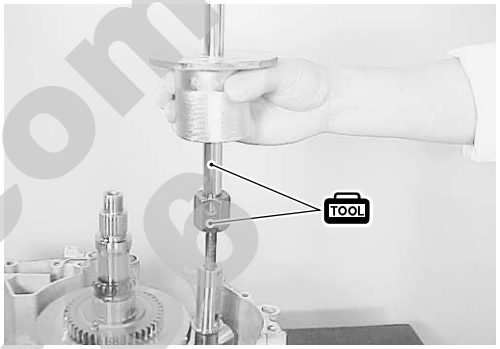
BALANCER

- Remove the balancershaft driven gear ①.
- Remove the key ②.



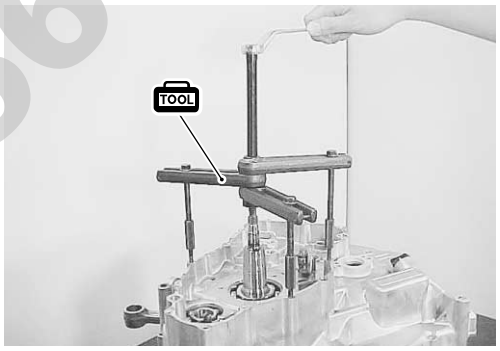
- Remove the balancershaft with the special tool.

TOOL **09930-30104: Sliding shaft**
09930-30141: Attachment Ⓐ



- Remove the crankshaft with the special tool.

TOOL **09920-13120: Crankcase separator**



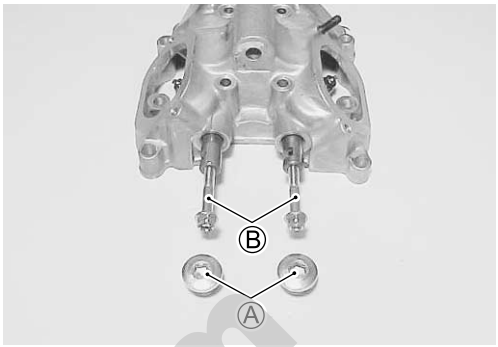
ENGINE COMPONENTS INSPECTION AND SERVICING

CYLINDER HEAD COVER

DISASSEMBLY

CAUTION

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



- Remove the rocker arm shaft bolts Ⓐ.
- Remove the rocker arm shaft by using 6 mm bolts Ⓑ.

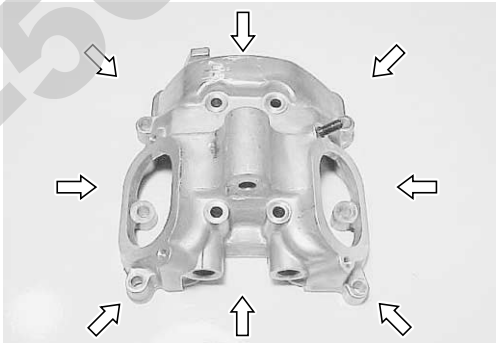
CYLINDER HEAD COVER DISTORTION

After removing sealant 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.

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

TOOL 09900-20803: Thickness gauge

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

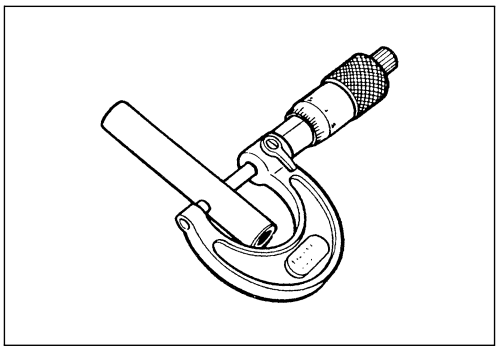


ROCKER ARM SHAFT O.D.

Measure diameter of rocker arm shaft.

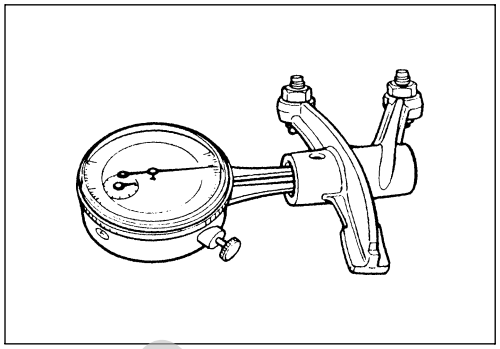
DATA Rocker arm shaft O.D. (IN & EX)
Standard: 11.973 – 11.984 mm (0.4714 – 0.4718 in)

TOOL 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.



DATA Rocker arm I.D.

Standard: 12.000 – 12.018 mm (0.4724 – 0.4731 in)

TOOL 09900-20605: Dial calipers

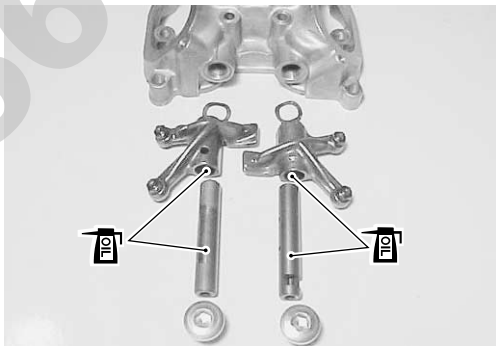
REASSEMBLY

NOTE:

Intake rocker arm shaft Ⓐ has the oil holes.

- Apply engine oil to the rocker arms and their shafts.
- Install the rocker arms and tighten the rocker arm shaft bolts to the specified torque.

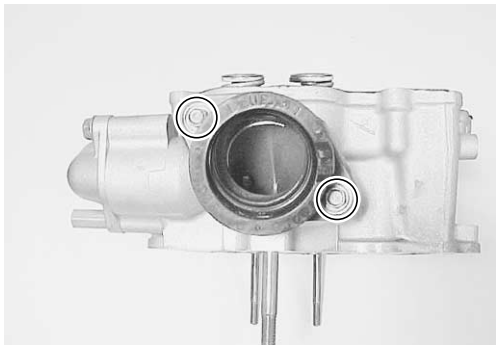
Rocker arm shaft bolt: 28 N·m (2.8 kgf-m, 20.0 lb-ft)



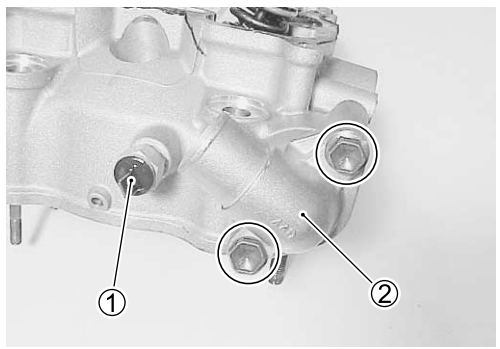
CYLINDER HEAD

DISASSEMBLY

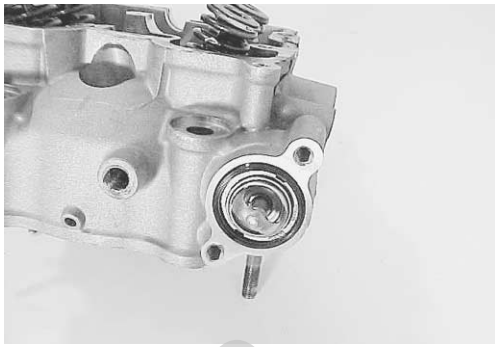
- Remove the intake pipe.



- Remove the engine coolant temperature switch ① and thermostat cover ②.

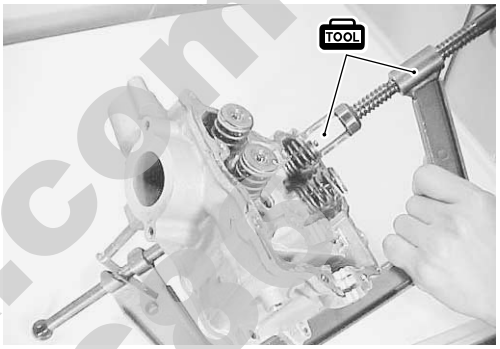


- Remove the thermostat.

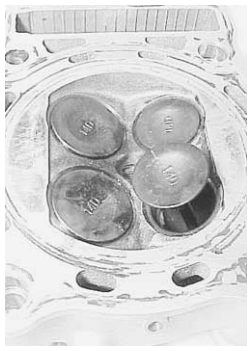


- Compress the valve spring and remove the valve cotters from the valve stem with the special tools.

TOOL 09916-14510: Valve spring compressor
09916-14910: Attachment
09916-84511: Tweezers

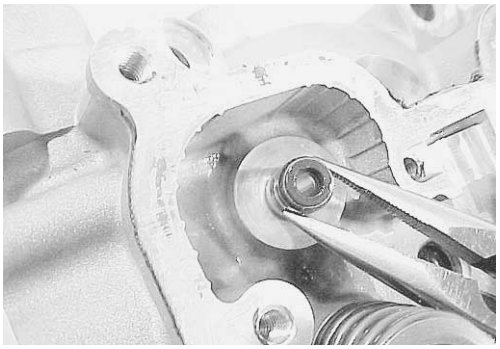


- Remove the valve spring retainer and valve spring.
- Remove the valve from the other side.

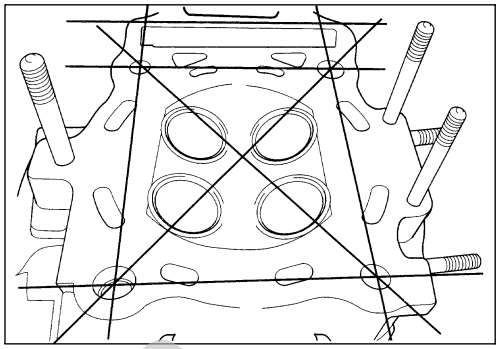


- Remove the oil seal with long-nose pliers.
- Remove the valve spring seat.

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



CYLINDER HEAD DISTORTION



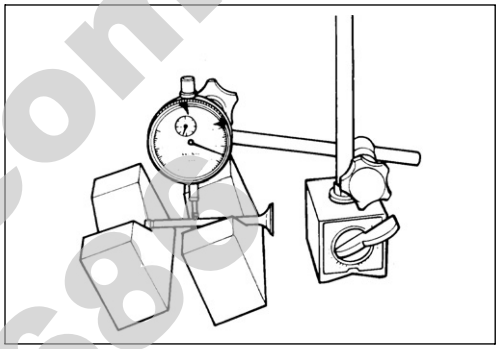
• Decarbonize the combustion chamber.

Check the gasket surface of the cylinder head for distortion using a straightedge and thickness gauge. Take clearance readings at several places. If any clearance reading exceeds the service limit, replace the cylinder head with a new one.

TOOL 09900-20803: Thickness gauge

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

VALVE STEM RUNOUT



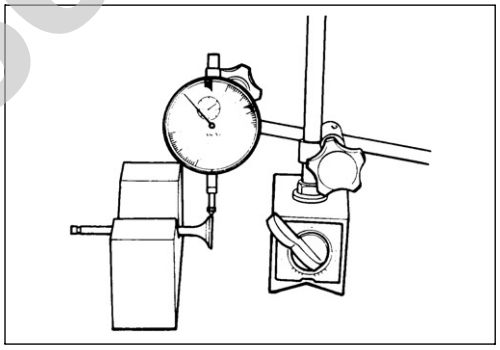
Support the valve with "V" blocks, as shown, and check its runout with a dial gauge.

The valve must be replaced if the runout exceeds the limit.

DATA Valve stem runout
Service Limit: 0.05 mm (0.002 in)

TOOL 09900-20701: Magnetic stand
09900-20606: Dial gauge (1/100 mm)
09900-21304: V-block

VALVE HEAD RADIAL RUNOUT



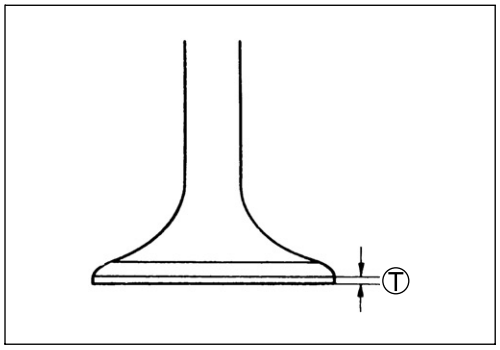
Place the dial gauge at right angles to the valve head face, and measure the valve head radial runout.

If it exceeds limit, replace the valve.

DATA Valve head radial runout
Service Limit: 0.03 mm (0.001 in)

TOOL 09900-20701: Magnetic stand
09900-20606: Dial gauge (1/100 mm)
09900-21304: V-block

VALVE FACE WEAR



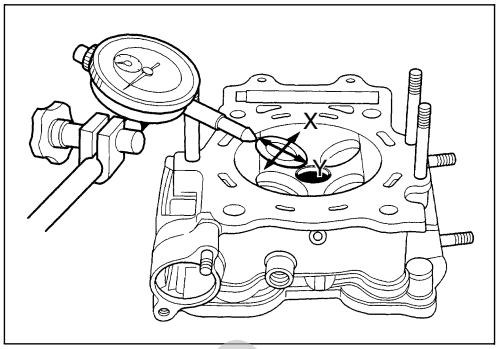
Visually inspect each valve face for wear or damage. If any abnormal wear is found, replace the respective valve with a new one. Measure the valve head thickness Ⓣ. If the valve head thickness is not within the specified value, replace the value with a new one.

TOOL 09900-20101: Vernier calipers

DATA Valve head thickness Ⓣ
Service Limit: 0.5 mm (0.02 in)

VALVE STEM DEFLECTION

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

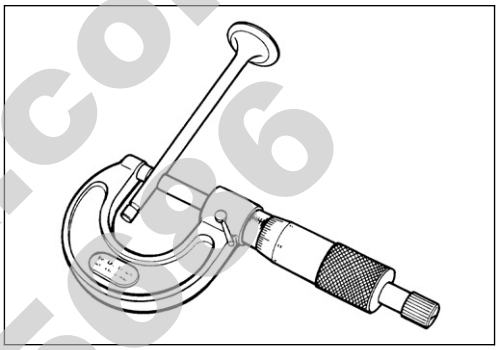


DATA Valve stem deflection (IN & EX)
Service Limit: 0.35 mm (0.14 in)

TOOL 09900-20606: Dial gauge (1/100 mm)
09900-20701: Magnetic stand

VALVE STEM WEAR

If the valve stem is worn down to the limit, as measured with a micrometer, where the clearance is found to be in excess of the limit indicated replace the valve, if the stem is within the limit, then replace the guide. After replacing valve or guide, be sure to re-check the clearance.

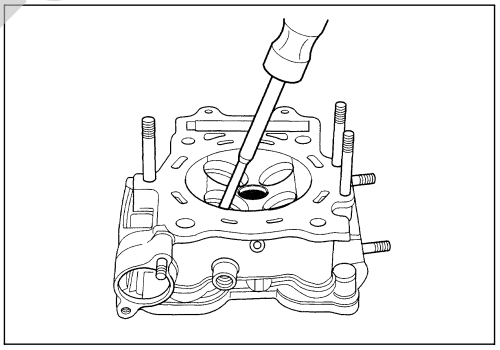


DATA Valve stem O.D.
Standard (IN) : 4.975 – 4.990 mm (0.1959 – 0.1965 in)
(EX) : 4.955 – 4.970 mm (0.1951 – 0.1957 in)

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

VALVE GUIDE SERVICING

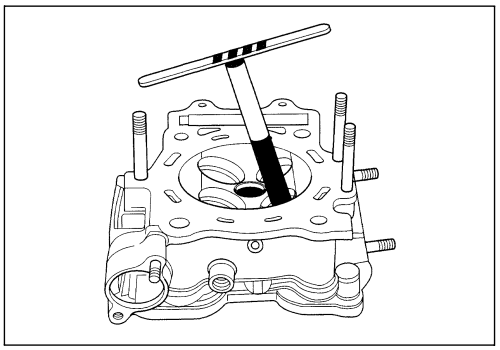
- Using the valve guide remover, drive the valve guide out toward the intake or exhaust rocker arm side.



TOOL 09916-44310: Valve guide remover/installer

NOTE:
** Discard the removed valve guide subassemblies.*
** Only oversized valve guides are available as replacement parts. (Part No. 11115-14D71)*

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



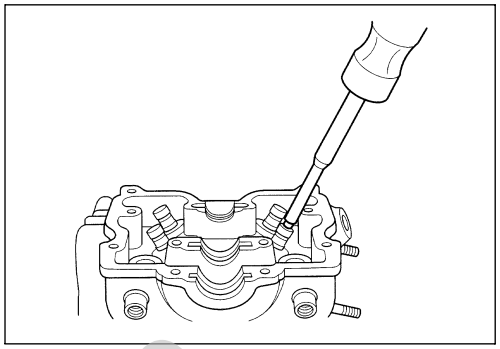
TOOL 09916-34580: Valve guide reamer (10.8 mm)
09916-34542: Reamer handle

- Oil the stem hole, too, of each valve guide and drive the guide into the guide hole with the valve guide installer.

TOOL 09916-44310: Valve guide remover/installer

CAUTION

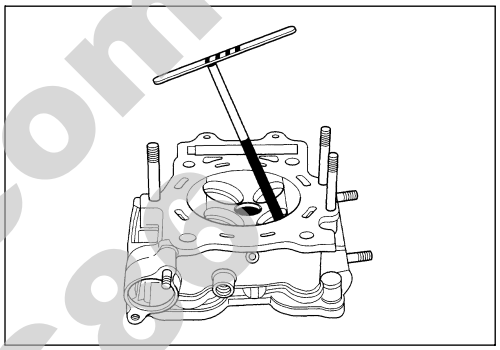
Failure to oil the valve guide hole before driving the new guide into place may result in a damaged guide or head.



- After fitting all valve guides, re-finish their guiding bores with the reamer. Be sure to clean and oil the guide after reaming.

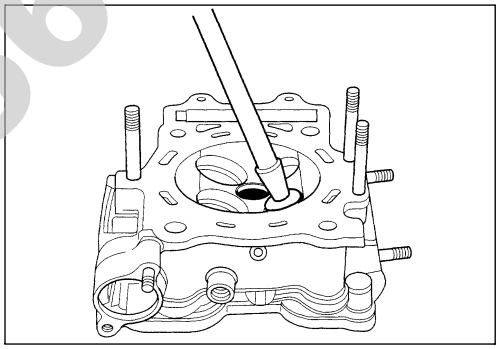
TOOL 09916-34570: Valve guide reamer (5.0 mm)
09916-34542: Reamer handle

NOTE:
Insert the reamer from the combustion chamber and always turn the reamer handle clockwise.



VALVE SEAT WIDTH

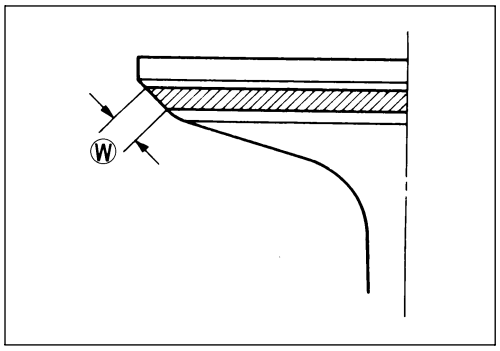
- Coat the valve seat with prussian blue uniformly. Fit the valve and tap the coated seat with the valve face in a rotating manner, in order to obtain a clear impression of the seating contact. In this operation, use the valve lapper to hold the valve head.
- The ring-like dye impression left on the 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 following specification :



DATA Valve seat width Ⓦ
Standard: 0.9 – 1.1 mm (0.035 – 0.043 in)

TOOL 09916-10911: Valve lapper set

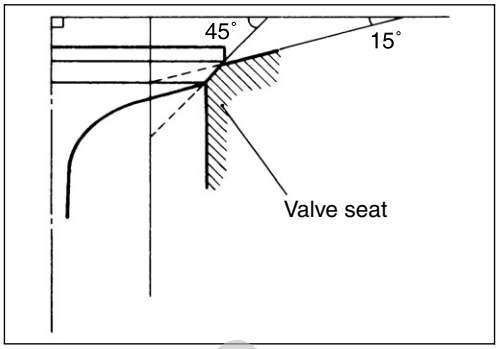
If either requirement is not met, correct the seat by servicing it as follows:



VALVE SEAT SERVICING

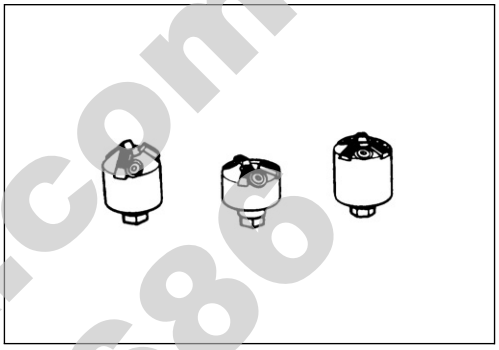
The valve seats for intake and exhaust valves are machined to two different angles. The seat contact surface is cut at 45°.

	INTAKE	EXHAUST
15°	N-608	N-608
45°	N-212	N-121

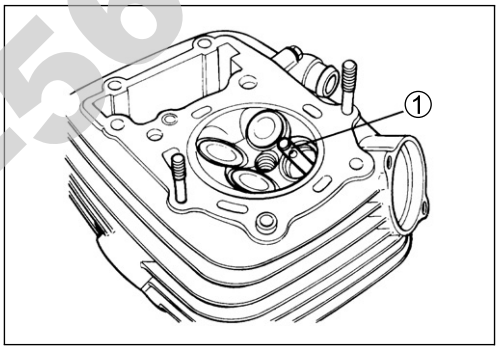


NOTE:
The valve seat contact area must be inspected after each cut.

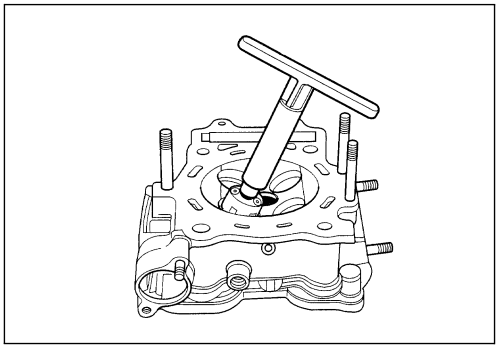
TOOL 09916-21111: Valve seat cutter set
09916-24900: Valve seat cutter set
09916-22410: Solid pilot (N-140-5.0)
09916-24311: Solid pilot (N-100-5.0)
09916-24935: Valve seat cutter (N-608)



- Insert the solid pilot ① with a slight rotation. Seat the pilot snugly.

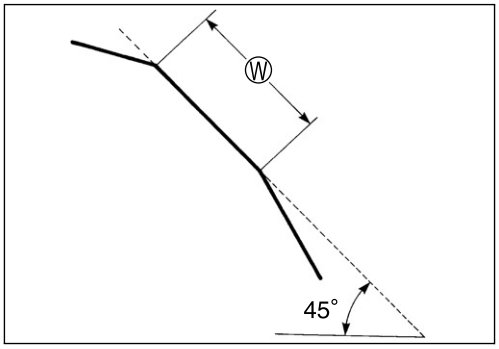


- Install the 45° cutter, attachment and T-handle.



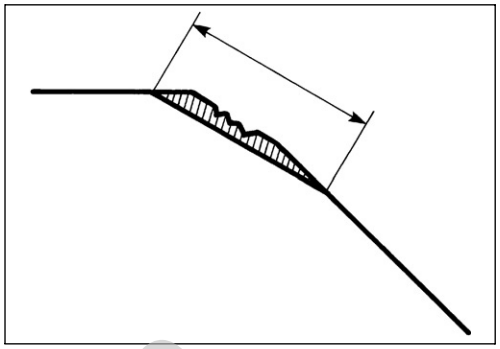
INITIAL SEAT CUT

- Using the 45° cutter, descale and clean up the seat. Rotate the cutter one or two turns.
- Measure the valve seat width Ⓦ after every cut.



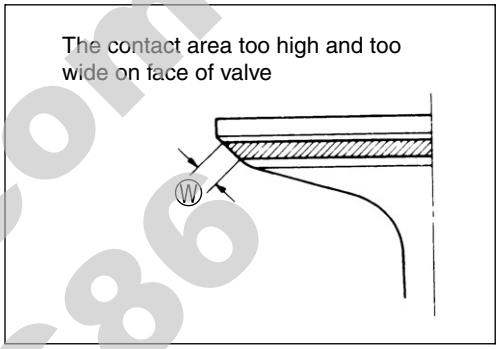
- If the valve seat is pitted or burned, use the 45° cutter to condition the seat some more.

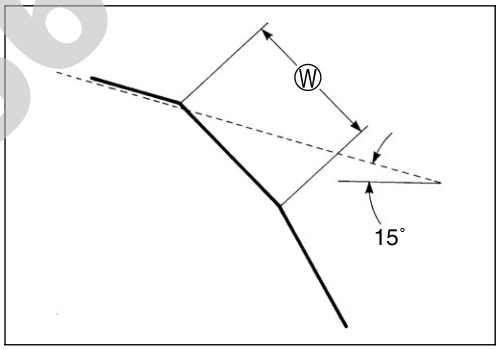
NOTE:
Cut only the minimum amount necessary from the seat to prevent the possibility of the valve stem becoming too close to the camshaft.



TOP NARROWING CUT

- If the contact area Ⓦ is too high on the valve, or if it is too wide, use the 15° cutter to lower and narrow the contact area.

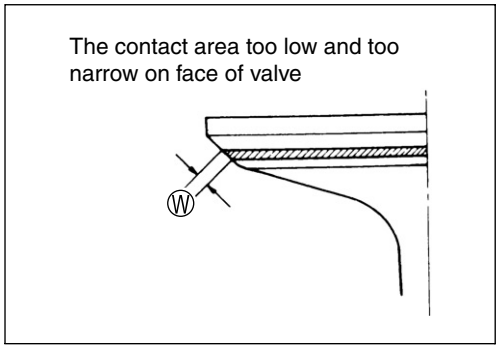


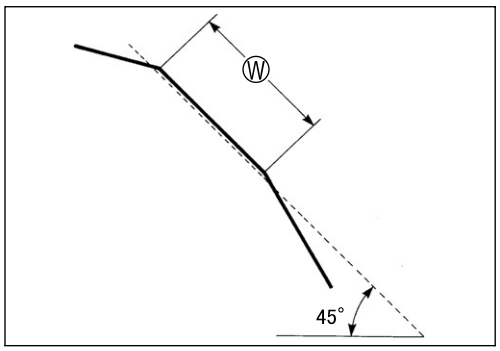


FINAL SEAT CUT

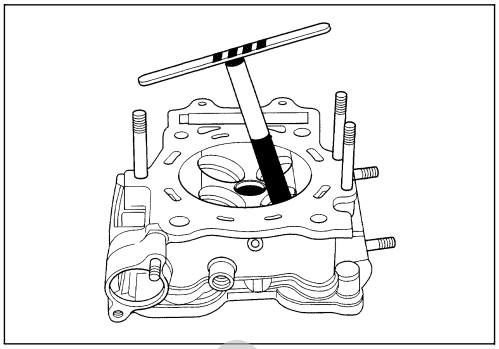
- If the contact area Ⓦ is too low or too narrow, use the 45° cutter to raise and widen the contact area.

NOTE:
After cutting the 15° angle, it is possible that the valve seat (45°) is too narrow. If so, re-cut the valve seat to the correct width.





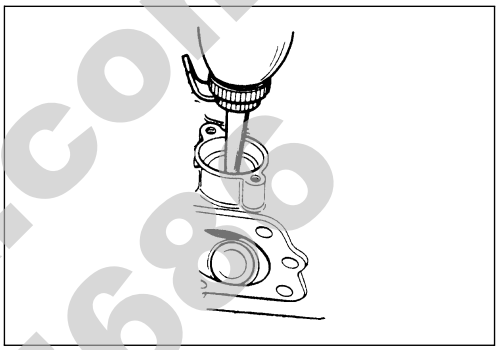
- After the desired seat position and width is achieved, use the 45° cutter very lightly to clean up any burrs caused by the previous cutting operations.



CAUTION

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

NOTE:
After servicing the valve seats, be sure to check the valve clearance after the cylinder head has been reinstalled. (☞2-6)



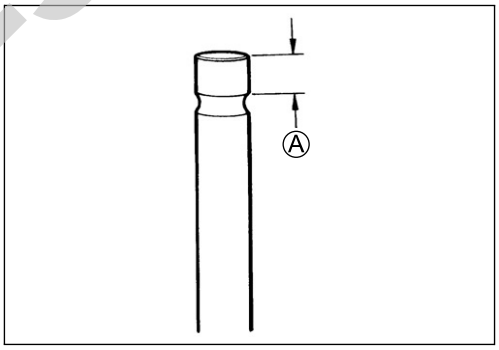
- Clean and assemble the head and valve components. Fill the intake and exhaust ports with gasoline to check for leaks.
- If any leaks occur, inspect the valve seat and face for burrs or other things that could prevent the valve from sealing.

⚠ WARNING

Always use extreme caution when handling gasoline.

VALVE 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 Ⓐ will not be reduced to less than the service limit. If this length becomes less than the service limit, the valve must be replaced.

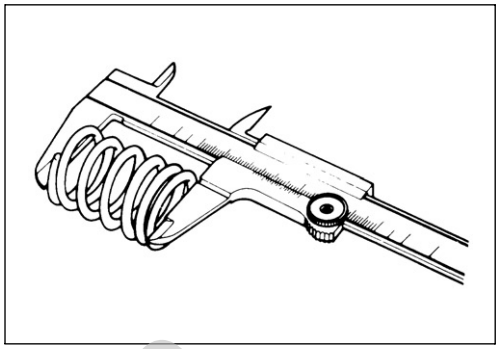


DATA Valve stem end length
Service Limit: 2.3 mm (0.09 in)

VALVE SPRING

The force of the coil spring keeps the valve seat tight. Weakened spring result in reduced engine power output, and often account for the chattering noise coming from the valve mechanism.

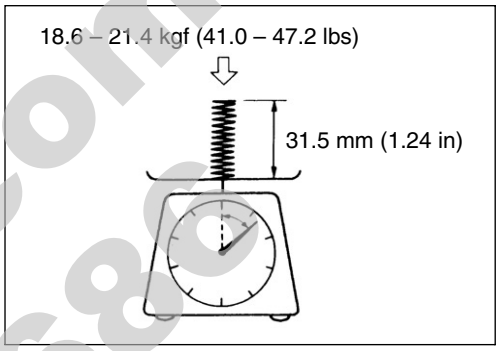
Check the valve springs for proper strength by measuring their free length and also by the force required to compress them. If the spring length is less than the service limit, or if the force required to compress the spring does not fall within the range specified, replace it.



TOOL 09900-20101: Vernier calipers

DATA Valve spring free length (IN & EX)
Service Limit: 38.8 mm (1.53 in)

DATA Valve spring tension (IN & EX)
Standard: 18.6 – 21.4 kgf/31.5 mm
(41.0 – 47.2 lbs/1.24 in)



REASSEMBLY

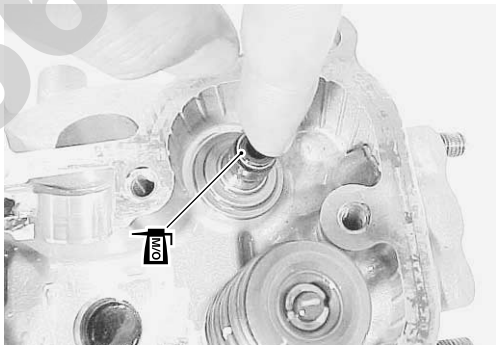
- Install each valve spring seat.
- Apply molybdenum oil solution to each oil seal and press-fit them into position.

TOOL 09916-44310: Valve guide remover/installer

MOLYBDENUM OIL

CAUTION

Do not reuse the oil seal.

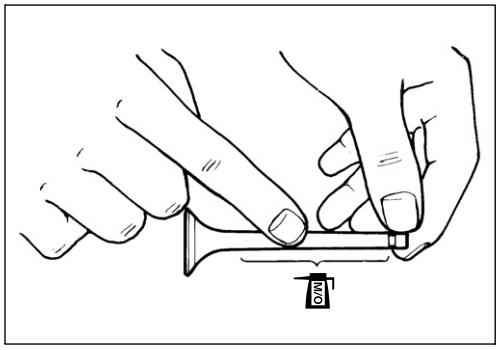


- Insert the valves, with their stems coated with molybdenum oil solution all around and along the full stem length without any break.

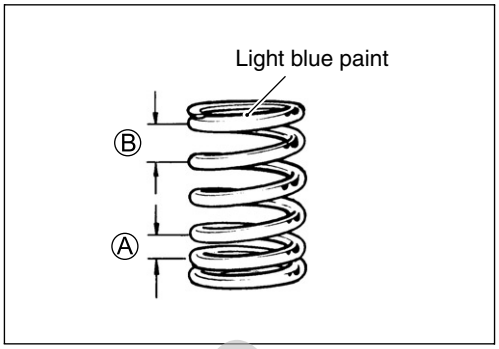
MOLYBDENUM OIL

CAUTION

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

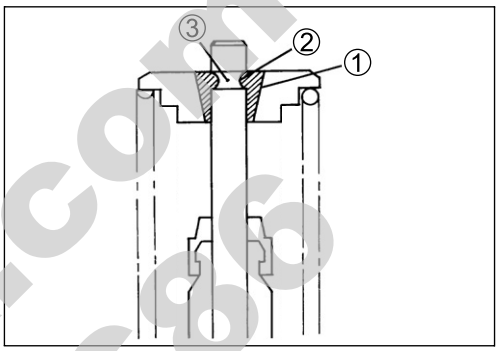


• Install the valve spring with the small-pitch portion Ⓐ facing cylinder head.
Ⓑ Large-pitch portion



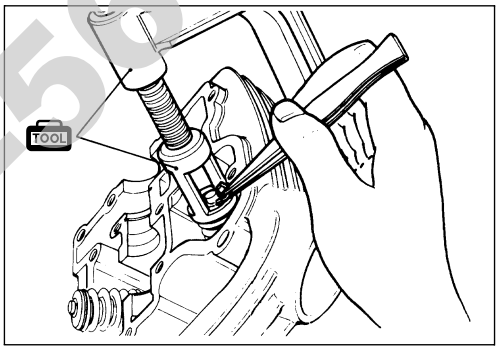
Put on the valve spring retainer using the valve spring compressor, press down the spring, fit the two cotter halves to the stem end, and release the compressor to allow the cotter ① to wedge in between seat and stem. Be sure that the rounded lip ② of the cotter fits snugly into the groove ③ in the stem end.

TOOL 09916-14510: Valve spring compressor
09916-14910: Valve spring compressor attachment
09916-84511: Tweezers

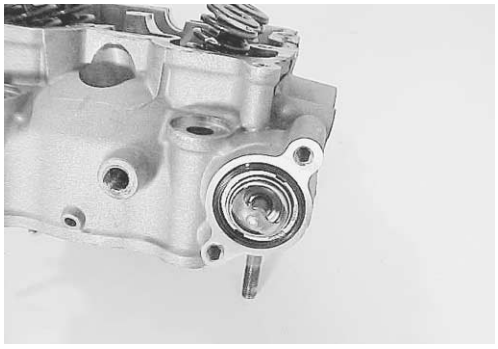


CAUTION

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



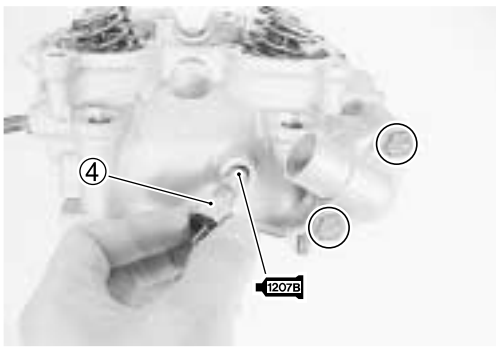
• Install the thermostat.



• Install the thermostat cover.
• Apply SUZUKI BOND “1207B”/“1215” to the engine coolant temperature switch ④ and tighten it to the specified torque.

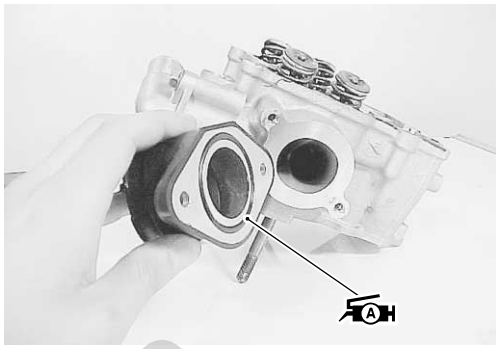
1207B 99104-31140: SUZUKI BOND “1207B” (USA)
1215 99000-31110: SUZUKI BOND “1215” (Others)

Engine coolant temperature switch: 7.5 N·m (0.75 kgf-m, 5.5 lb-ft)



- Apply SUZUKI SUPER GREASE “A” to the O-ring and install the intake pipe.

99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

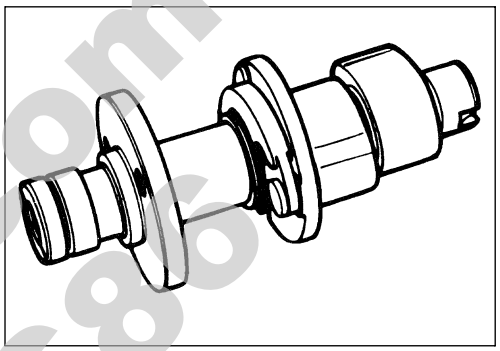


CAMSHAFT

The camshaft should be checked for wear and also for runout 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.

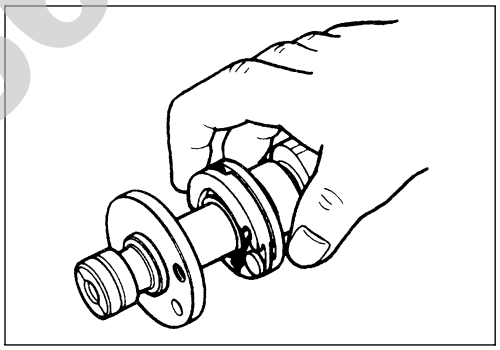
CAUTION

Do not attempt to disassemble the camshaft/automatic decompression assembly. It is not serviceable.



AUTOMATIC DECOMPRESSION

Move the automatic decompression weight by hand to inspect if it is operating smoothly. If it does not operate smoothly replace the camshaft/automatic decompression assembly with a new one.

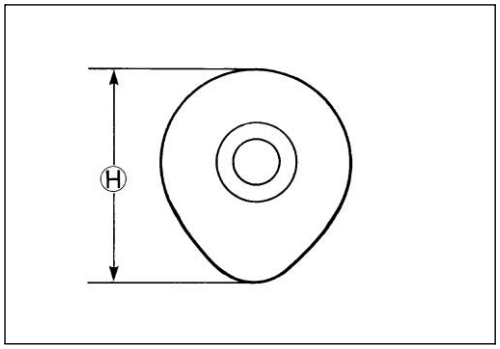


CAMSHAFT CAM WEAR

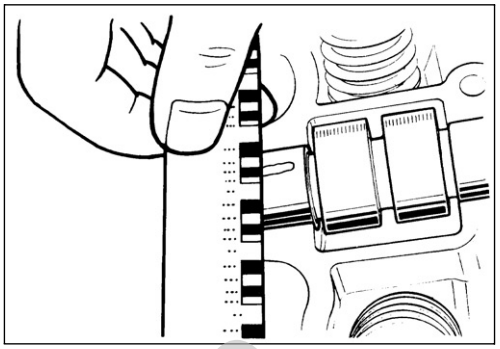
Worn-down cams are often the cause of mistimed valve operation resulting in reduced output power. The limit of cam wear is specified for both intake and exhaust cams in terms of cam height Ⓗ, which is to be measured with a micrometer. Replace camshaft if found worn down to the limit.

DATA Cam height Ⓗ
Service Limit (IN) : 33.130 mm (1.3043 in)
(EX) : 33.200 mm (1.3070 in)

TOOL 09900-20202: Micrometer (25 – 50 mm)



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:

DATA Camshaft journal oil clearance
Service Limit: 0.150 mm (0.0059 in)

TOOL 09900-22302: Plastigauge

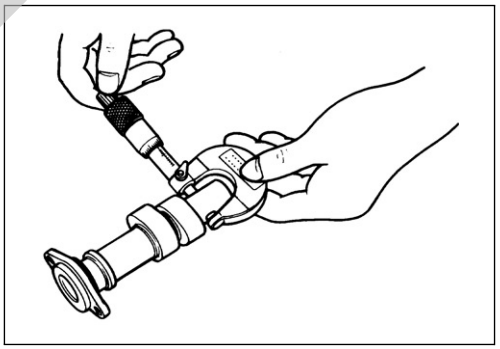
NOTE:
To properly measure the oil clearance with plastigauge, all gasket material must be removed from fitting surfaces of cylinder head and cover. Do not apply SUZUKI BOND "1216B" until after the oil clearance has been determined.

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

Cylinder head cover bolt: 10 N·m (1.0 kgf-m, 7.3 lb-ft)

NOTE:
Do not rotate the camshafts with the plastigauge in place.

Remove the cylinder head cover, and read the width of the compressed plastigauge with envelop scale. This measurement should be taken at the widest part.

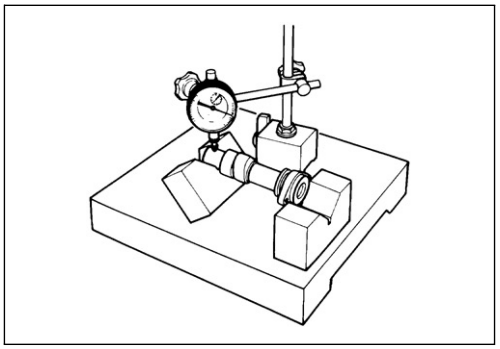


If the camshaft journal oil clearance measured exceeds the limit, measure the outside diameter of camshaft.
Replace either the cylinder head set or the camshaft if the clearance is incorrect.

DATA Camshaft journal O.D.
Standard (Sprocket side) : 21.959 – 21.980 mm
(0.8645 – 0.8654 in)
(Other side) : 17.466 – 17.484 mm
(0.6876 – 0.6883 in)

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

CAMSHAFT RUNOUT



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

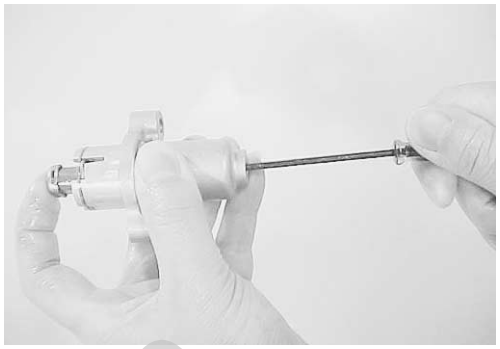
DATA Camshaft runout (IN & EX)
Service Limit: 0.10 mm (0.004 in)

TOOL 09900-20606: Dial gauge (1/100, 10 mm)
09900-20701: Magnetic stand
09900-21304: V-block (100 mm)

CAM CHAIN TENSION ADJUSTER

CAM CHAIN TENSION ADJUSTER

Insert the ⊖ screwdriver into the slotted end of cam chain tension adjuster and turn it clockwise to lessen the tension and release the ⊖ screwdriver. Then check the push rod movement. If the push rod is stuck or spring mechanism failed, replace the cam chain tension adjuster with a new one.



CAM CHAIN TENSIONER/GUIDE

Check the contacting surface of the cam chain tensioner and guide for wear and damage. If it is found to be damaged, replace it with a new one.

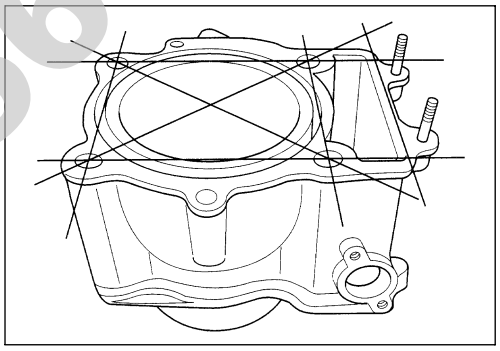
CYLINDER

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.

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

TOOL 09900-20803: Thickness gauge

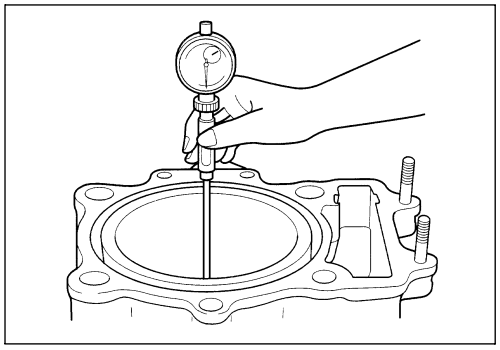


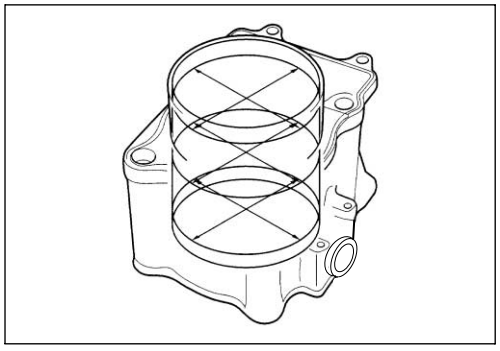
CYLINDER BORE

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

DATA Cylinder bore
Standard: 87.500 – 87.515 mm (3.4449 – 3.4455 in)

TOOL 09900-20508: Cylinder gauge set





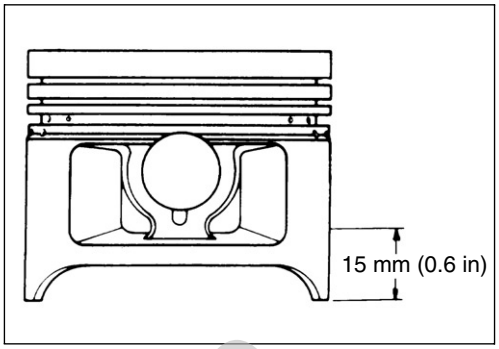
PISTON

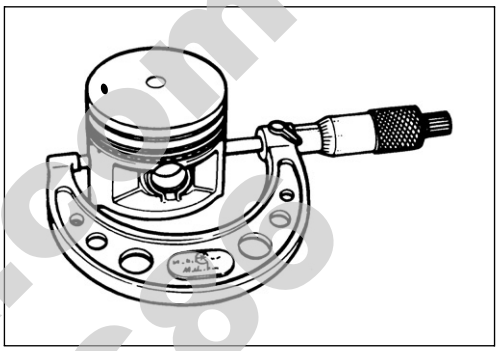
PISTON DIAMETER

Using a micrometer, measure the piston outside diameter at the place shown in Fig. If the measurement is less than the limit, replace the piston.

DATA Piston diameter
Service Limit: 87.380 mm (3.4402 in)

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





PISTON RING TO GROOVE CLEARANCE

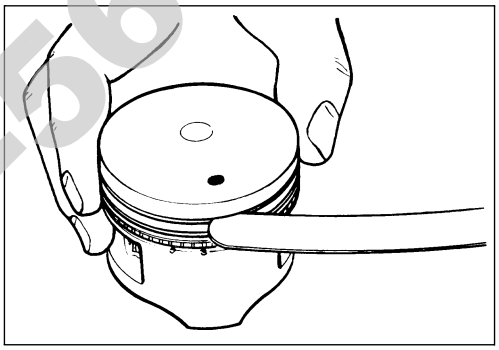
Using a thickness gauge, measure the side clearances of the 1st and 2nd rings. If any of the clearances exceeds the limit, replace both piston and piston rings.

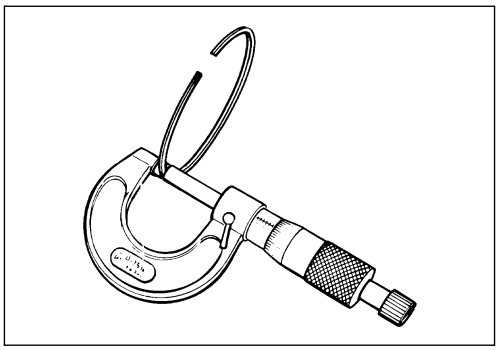
DATA Piston ring to groove clearance
Service Limit (1st) : 0.18 mm (0.0071 in)
(2nd) : 0.15 mm (0.0059 in)

DATA Piston ring groove width
Standard (1st) : 1.01 – 1.03 mm (0.0398 – 0.0406 in)
(2nd): 1.21 – 1.23 mm (0.0476 – 0.0484 in)
(Oil) : 2.51 – 2.53 mm (0.0988 – 0.0996 in)

DATA Piston ring thickness
Standard (1st) : 0.970 – 0.990 mm
(0.0382 – 0.0390 in)
(2nd): 1.170 – 1.190 mm
(0.0461 – 0.0469 in)

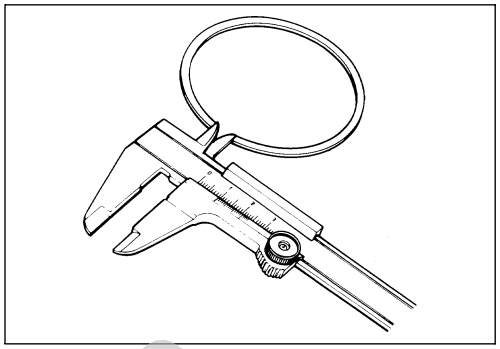
TOOL 09900-20803: Thickness gauge
09900-20205: Micrometer (0 – 25 mm)



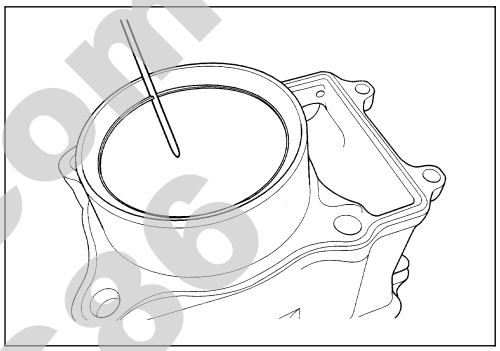


PISTON RING FREE END GAP AND END GAP

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.



DATA Piston ring free end gap
Service Limit (1st) : 8.9 mm (0.35 in)
(2nd): 9.5 mm (0.37 in)

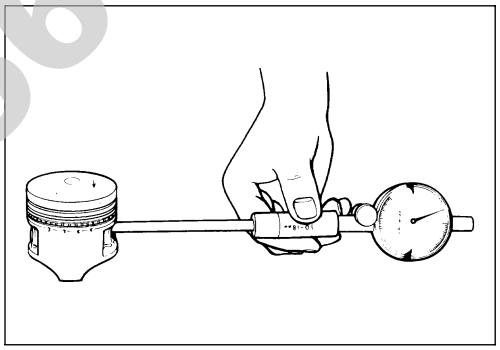


DATA Piston ring end gap
Service Limit (1st) : 0.50 mm (0.020 in)
(2nd): 0.50 mm (0.020 in)

TOOL 09900-20101: Vernier calipers
09900-20803: Thickness gauge

PISTON PIN AND PIN BORE

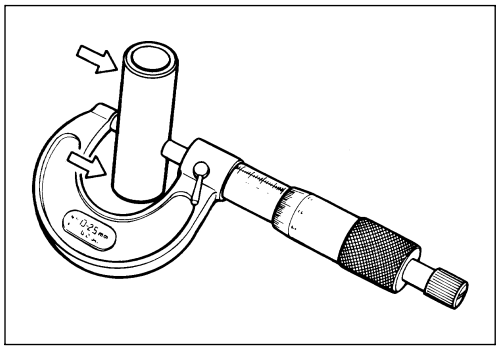
Using a small bore gauge, measure the piston pin bore inside diameter, and using a micrometer, measure the piston pin outside diameter. If the reading exceeds following limit, replace both piston and piston pin.



DATA Piston pin bore
Service Limit: 23.030 mm (0.9067 in)

TOOL 09900-20602: Dial gauge (1/1000 mm, 1 mm)
09900-22403: Small bore gauge (18 – 35 mm)

Using a micrometer, measure the piston pin outside diameter at three positions.



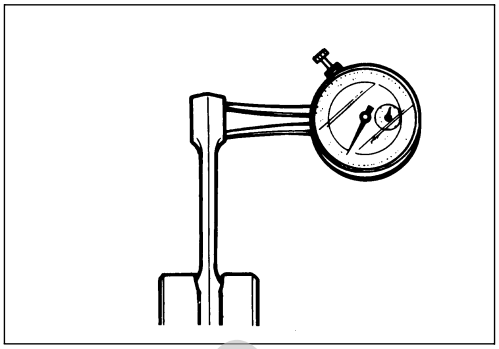
DATA Piston pin O.D.
Service Limit: 22.980 mm (0.9047 in)

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

CONROD/CRANKSHAFT

CONROD SMALL END I.D.

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



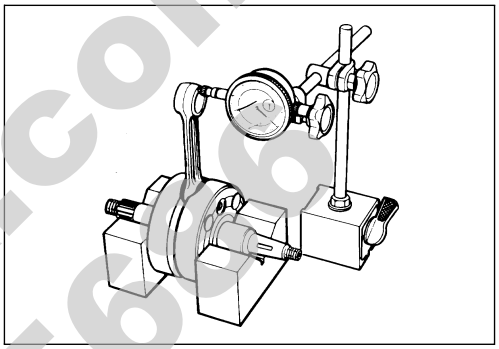
DATA Conrod small end I.D.
Service Limit: 23.040 mm (0.9071 in)

TOOL 09900-20605: Dial calipers (10 – 34 mm)
09900-22403: Small bore gauge (18 – 35 mm)

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

CONROD DEFLECTION

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 conrod's big end.

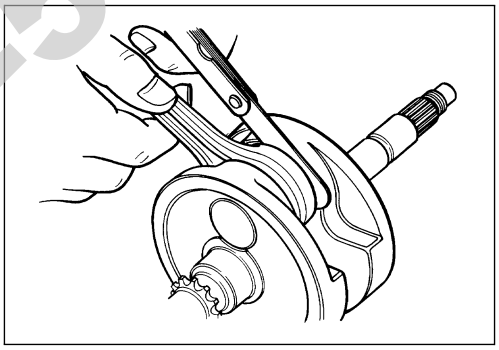


DATA Conrod deflection
Service Limit: 3.0 mm (0.12 in)

TOOL 09900-20701: Magnetic stand
09900-20606: Dial gauge (1/100 mm)
09900-21304: V-block

CONROD BIG END SIDE CLEARANCE

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



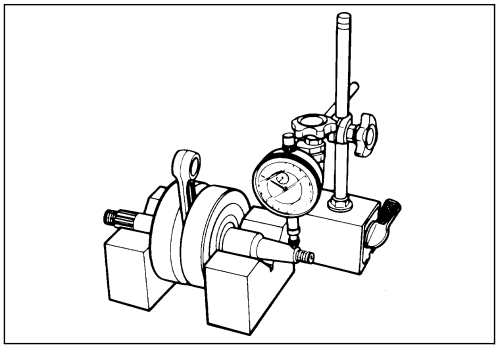
DATA Conrod big end side clearance
Service Limit: 1.0 mm (0.04 in)

TOOL 09900-20803: Thickness gauge

If the clearance exceeds the limit, replace the crankshaft assembly with a new one or bring the deflection and the side clearance within the service limit by replacing the worn parts (conrod, big end bearing, crank pin, etc.) with new ones.

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.



DATA Crankshaft runout
Service Limit: 0.08 mm (0.003 in)

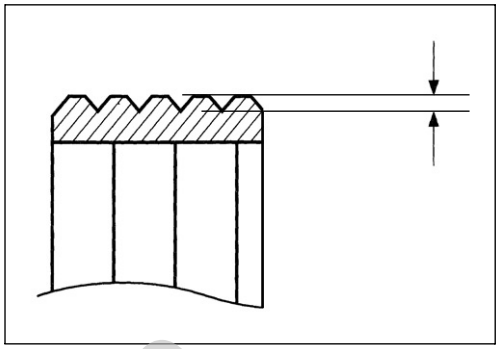
TOOL 09900-20606: Dial gauge (1/100 mm)
09900-20701: Magnetic stand
09910-21304: V-block set (100 mm)

CLUTCH

CLUTCH SHOES

Inspect the clutch shoes for chips, cracks, uneven wear, and heat discoloration. Also, check the depth of the grooves on the clutch shoes. If there is no groove at any part of the shoes, replace the shoes as a set.

NOTE:
The clutch shoes must always be changed as a set.



CLUTCH WHEEL

Inspect the condition of the inner clutch wheel surface for scuffs, scratches, cracks or uneven wear. If any damages are found, replace the clutch wheel with a new one.

OIL SEAL

Inspect the lip of the oil seal for wear or damage. If any damages are found, replace the oil seal with a new one.

- Remove the oil seal with the special tool.

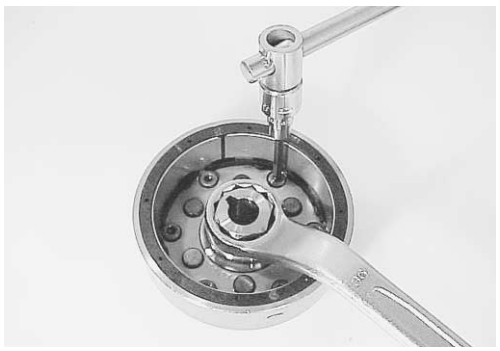
TOOL 09913-50121: Oil seal remover

- Install the new oil seal with the special tool.

TOOL 09913-70210: Bearing installer set

STARTER CLUTCH

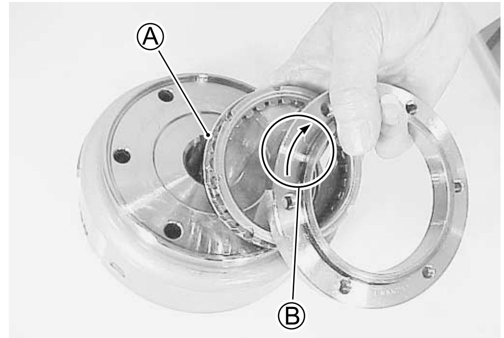
- Remove the starter clutch securing bolts with a offset wrench.



- Install the starter clutch in the proper direction.

NOTE:
** When installing the starter clutch onto the rotor, make sure the flange side Ⓐ of the one way clutch faces to the rotor.*
** Face the arrow mark Ⓑ to the engine side.*

- Apply engine oil to the starter clutch.



- Apply THREAD LOCK SUPER "1303" to the bolts, and then tighten them to the specified torque with a offset wrench.

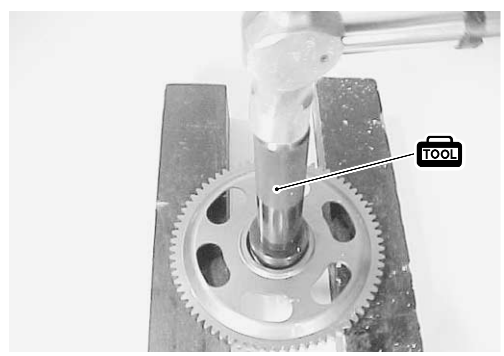
[1303] 99000-32030: THREAD LOCK SUPER "1303"

Starter clutch bolt: 26 N·m (2.6 kgf-m, 19.0 lb-ft)

- Install the starter driven gear to the starter clutch.
- Check that the starter driven gear turns in the opposite direction of the arrow mark Ⓑ on the rotor while holding the generator rotor. The gear never turns in the direction of the arrow.
- If there is anything unusual, replace the one way clutch.

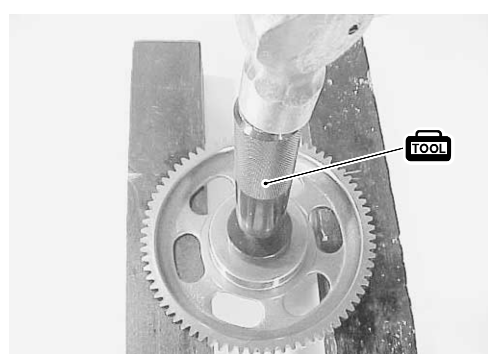
- Check the starter driven gear bearing. If there is anything unusual, replace the bearing.
- Remove the bearing with the special tool.

[TOOL] 09913-70210: Bearing installer/remover set

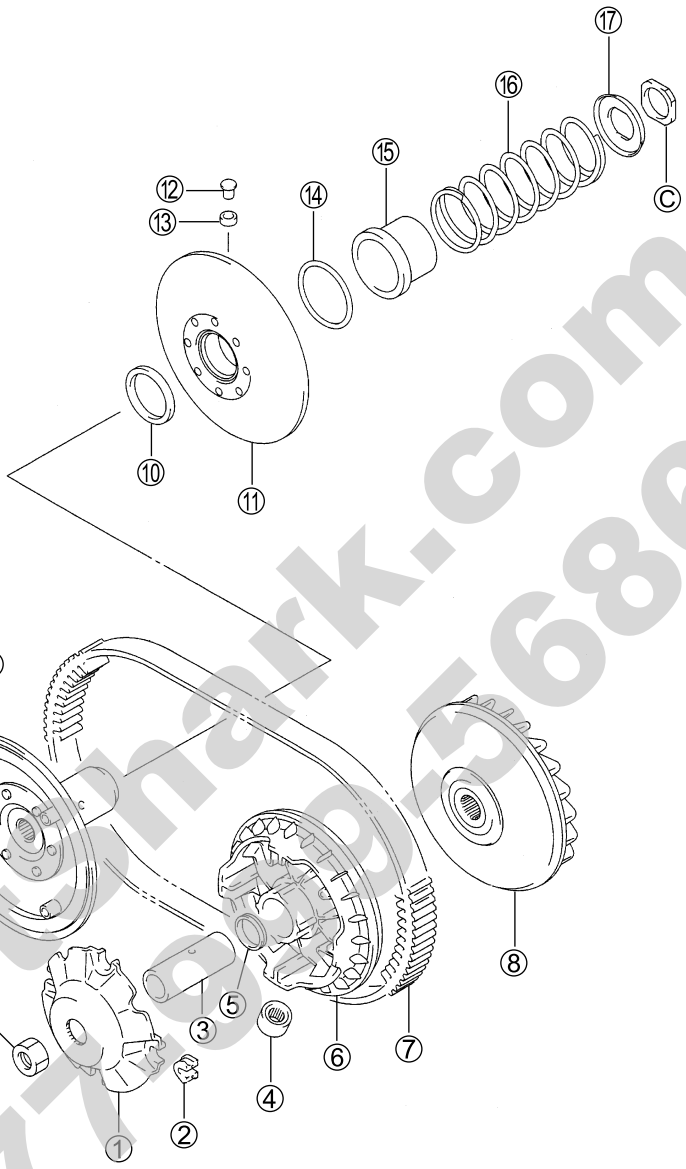


- Install the bearing with the special tool.

[TOOL] 09913-70210: Bearing installer/remover set



MOVABLE DRIVE FACE AND DRIVEN FACE



Ⓐ Movable drive face nut
Ⓑ Movable driven face nut
Ⓒ Movable driven face ring nut

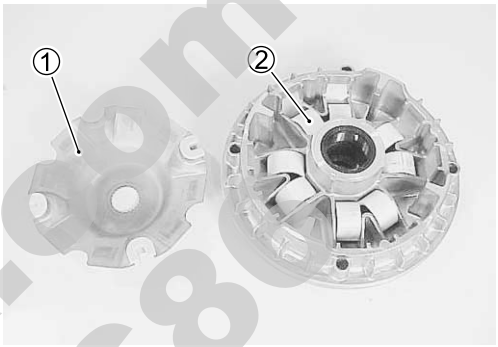
ITEM	N·m	kgf-m	lb-ft
Ⓐ	115	11.5	83.0
Ⓑ	115	11.5	83.0
Ⓒ	100	100	72.5

① Movable drive plate
② Damper (4 pcs)
③ Spacer
④ Roller (8 pcs)
⑤ Oil seal (2 pcs)
⑥ Movable drive face
⑦ Drive belt
⑧ Fixed drive face
⑨ Fixed driven face
⑩ Oil seal (2 pcs)
⑪ Movable driven face
⑫ Pin (4 pcs)
⑬ Spacer (4 pcs)
⑭ O-ring (2 pcs)
⑮ Spring seat
⑯ Spring
⑰ Spring plate

MOVABLE DRIVE FACE DISASSEMBLY

- Remove the spacer.

- Remove the movable drive face plate ① and rollers ②.



ROLLER AND SLIDING SURFACE

Inspect each roller and their sliding surface for wear or damage. If any damages are found, replace the rollers as a set.

NOTE:
The rollers must always be changed as a set.

OIL SEAL

Inspect the lip of the oil seal for wear or damage. If any damages are found, replace the oil seal with a new one.

- Remove the oil seal.

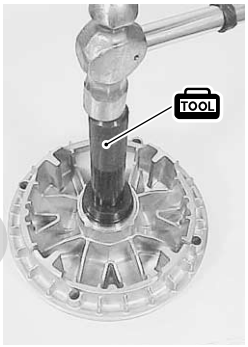
MOVABLE AND FIXED DRIVE FACE

Inspect the drive faces for any abnormal conditions such as stepped wear or discoloration caused by burning.

If any damages are found, replace the drive faces with new ones.

- Install the oil seal with the special tool.

TOOL 09913-70210: Bearing install set

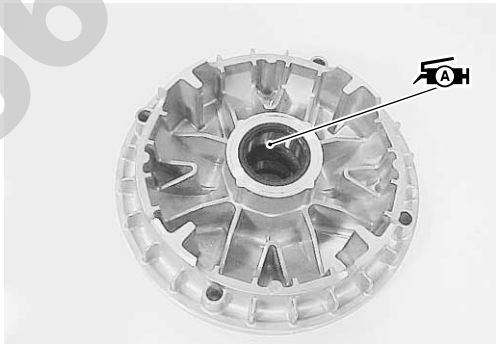


REASSEMBLY

Reassemble the movable and fixed drive face in the reverse order of disassembly. Pay attention to the following points:

- Apply a small amount of SUZUKI SUPER GREASE "A" to the bore and oil seal lip.

A H 99000-25030:SUZUKI SUPER GREASE "A" (USA)
99000-25010:SUZUKI SUPER GREASE "A" (Others)



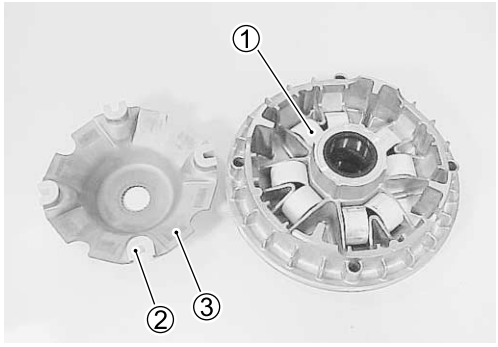
CAUTION

*** Wipe off any excess grease thoroughly.**
*** Take care not to apply grease to the contact surface of the drive belt.**

- Position the eight rollers ① on the movable drive face.
- Mount the damper ② on the movable drive face plate ③.
- Position the movable drive plate on the movable drive face.

NOTE:

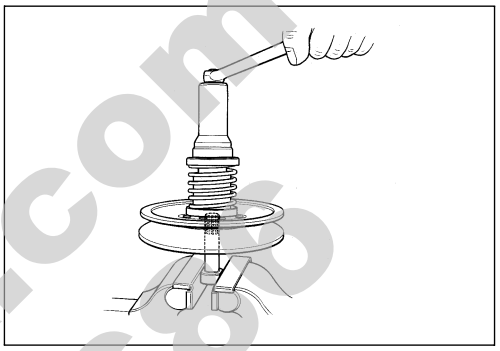
Press down the movable drive face plate so as not to cause the rollers to come out of position when inserting the spacer.



• Install the spacer.

MOVABLE DRIVEN FACE DISASSEMBLY

• Hold the movable driven face assembly with the special tool and vise, loosen the movable driven face ring nut with the special tool.



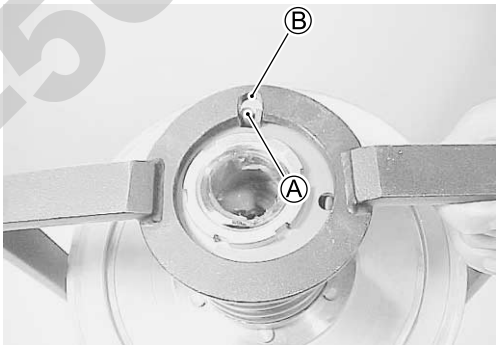
⚠ WARNING

Do not remove the movable driven face ring nut before attaching the clutch spring compressor.

TOOL 09917-23711: Ring nut socket wrench
09924-52420: Fixed driven face holder

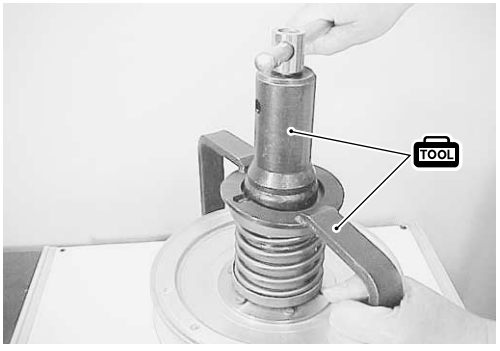
• Attach the special tool to the movable driven face assembly and compress the movable driven face assembly by turning in the special tool handle.

NOTE:
Make sure to insert the spring end Ⓐ into the slot Ⓑ of the special tool as shown.



• Remove the movable driven face ring nut.

TOOL 09922-31430: Movable driven face spring compressor

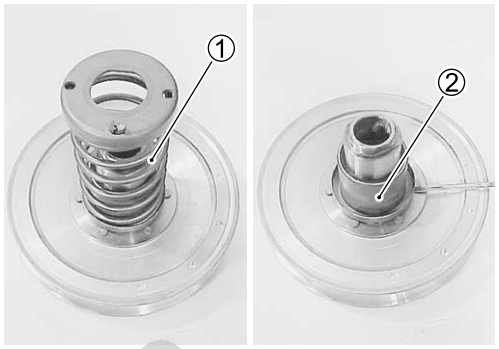


⚠ WARNING

Since a high spring force applies to the movable driven face, care must be used so as not to cause the movable driven face to come off abruptly.

• Loosen the special tool handle slowly and remove the special tool.

- Remove the spring ①.
- Remove the spring seat ②.



- Remove the pins and rollers.

- Remove the movable driven face ③.

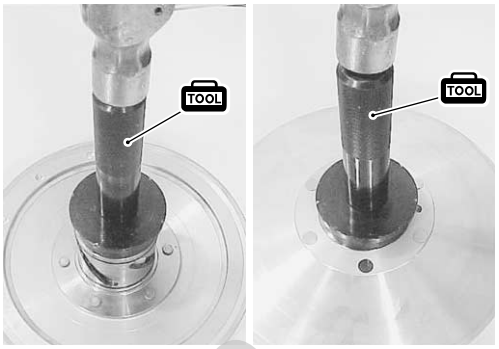
O-RING AND OIL SEAL

Inspect the O-rings and oil seals for wear or damage. If any damages are found, replace the O-rings and oil seals with new ones.

- Remove the oil seal.

• Install the oil seal with the special tool.

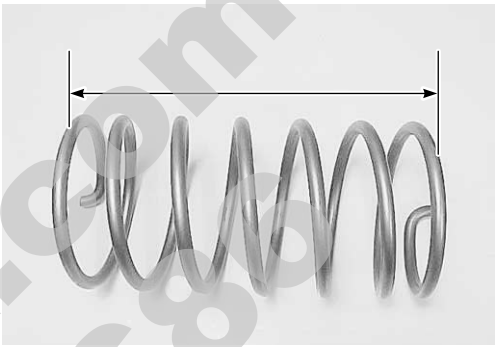
09913-70210: Bearing installer set



MOVABLE DRIVEN FACE SPRING

Measure the spring free length using the vernier calipers.
If the length is shorter than the service limit, replace the spring with a new one.

Movable driven face spring free length
Service Limit: 145.4 mm (5.72 in)



MOVABLE AND FIXED DRIVEN FACE

Inspect the driven face for any abnormal condition such as stepped wear or discoloration caused by burning. If any damages are found, replace the movable driven face with a new one.

REASSEMBLY

• Install the new O-rings.
• Apply SUZUKI SUPER GREASE "A" to the oil seal lips, O-rings and movable driven face inside grease groove.

99000-25030:SUZUKI SUPER GREASE "A" (USA)
99000-25010:SUZUKI SUPER GREASE "A" (Others)

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

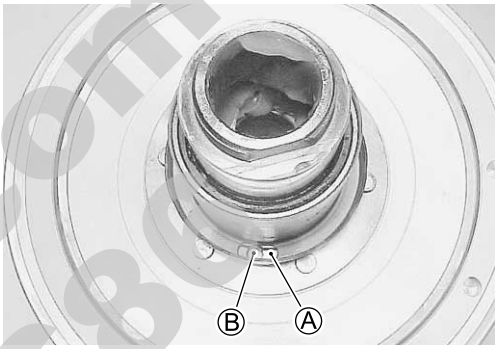
99000-25030:SUZUKI SUPER GREASE "A" (USA)
99000-25010:SUZUKI SUPER GREASE "A" (Others)

- Install the rollers and pins.

CAUTION

To prevent damaging the oil seal lip from during installation, slide the lip using a 0.1-mm steel sheet as a guide.

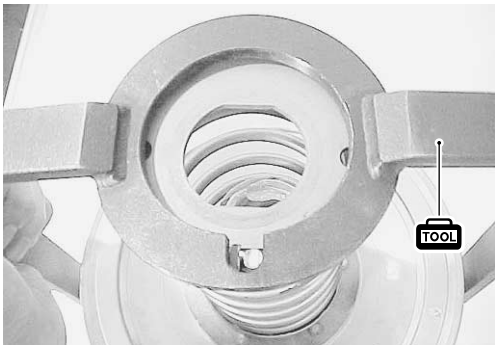
- Install the spring seat by aligning the hole Ⓐ with the hole Ⓑ.



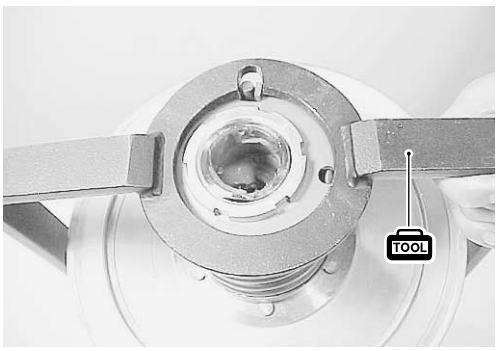
- Install the spring and spring plate by aligning the spring ends with the holes.

- Compress the spring with the special tool.
- Align the movable driven face end with the spring plate hole.

TOOL 09922-31430: Movable driven face spring compressor



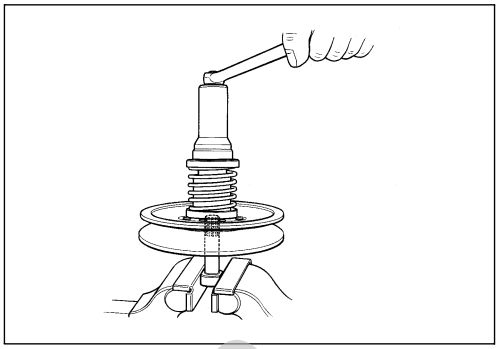
- Tighten the movable driven face ring nut temporarily.
- Remove the special tool from the movable driven face assembly.



• Tighten the movable driven face ring nut to the specified torque with the special tool.

Movable driven face ring nut:
100 N·m (10.0 kgf-m, 72.5 lb-ft)

09917-23711: Ring nut socket wrench
09924-52420: Fixed driven face holder



DRIVE BELT

INSPECTION

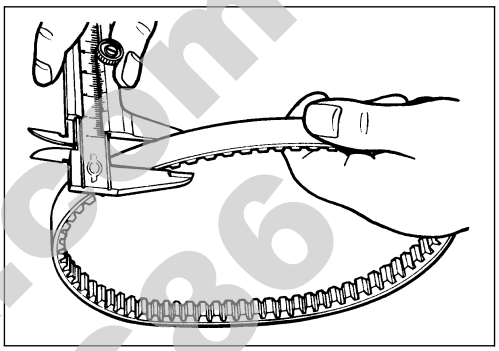
Check that the drive belt is free from any greasy substance.
Inspect the contact surface of the drive belt for cracks or damage and measure the width of the drive belt using the vernier calipers.
If any damages are found or the measurement exceeds the service limit, replace the drive belt with a new one.

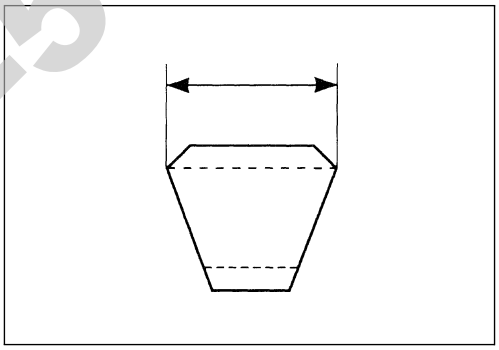
Drive belt width
Service Limit: 35.7 mm (1.41 in)

09900-20101: Vernier calipers

CAUTION

If grease or oil is present on the surface of the drive belt, degrease the belt thoroughly.





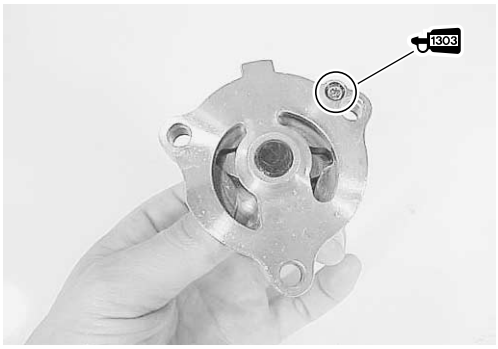
OIL PUMP

Rotate the oil pump by hand and check that it moves smoothly.
If it does not move smoothly, replace the oil pump assembly.

CAUTION

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

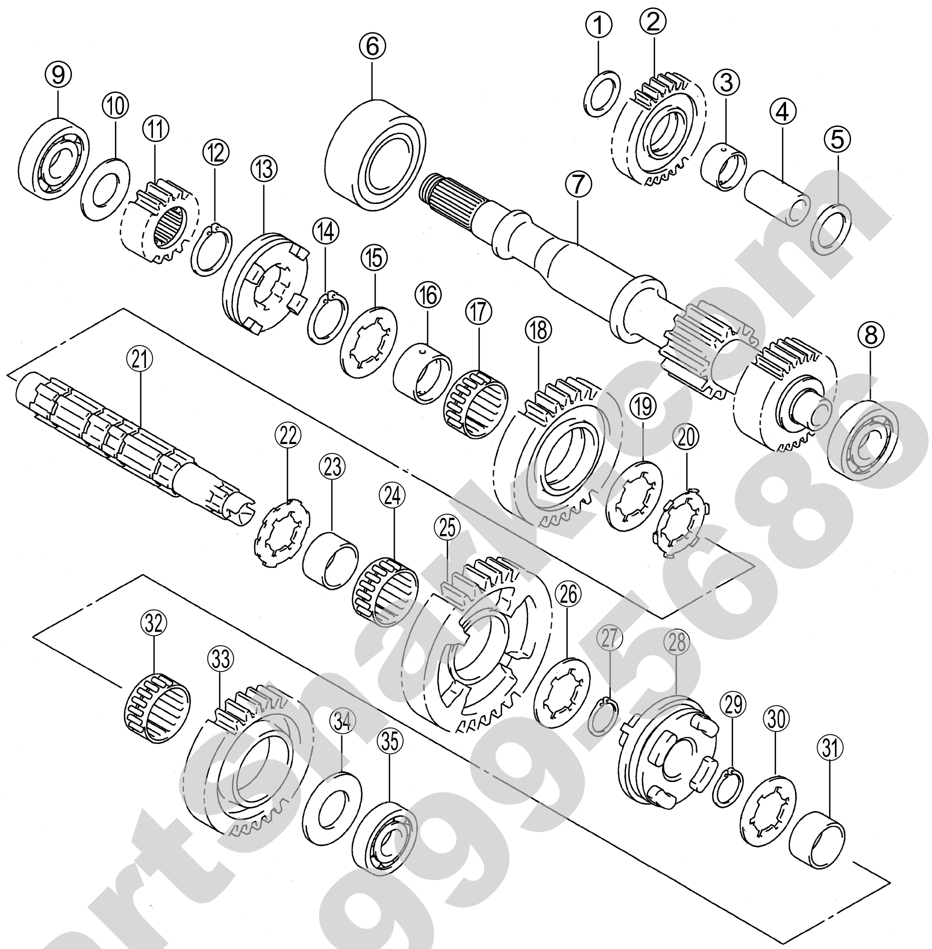
99000-32030: THREAD LOCK SUPER "1303"



TRANSFER

DISASSEMBLY

- Disassemble the transfer as shown.



① Washer
② Reverse idle gear
③ Spacer
④ Reverse idle gear shaft
⑤ Washer
⑥ Bearing
⑦ Transfer input shaft
⑧ Bearing
⑨ Bearing
⑩ Washer
⑪ Output shaft drive gear
⑫ Snap ring
⑬ Reverse gear dog
⑭ Snap ring
⑮ Washer
⑯ Spacer
⑰ Bearing
⑱ Reverse driven gear
⑲ Washer
⑳ Lock washer
㉑ Transfer output shaft
㉒ Washer
㉓ Spacer
㉔ Bearing
㉕ Low driven gear
㉖ Washer
㉗ Snap ring
㉘ High/Low gear selection dog
㉙ Snap ring
㉚ Washer
㉛ Spacer
㉜ Bearing
㉝ High driven gear
㉞ Washer
㉟ Bearing

REASSEMBLY

Assemble the transfer in the reverse order of disassembly. Pay attention to following points:

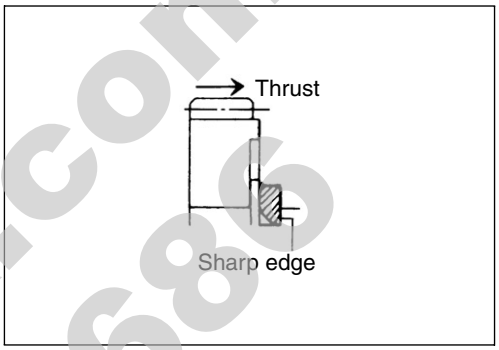
NOTE:
Always use new snap rings.

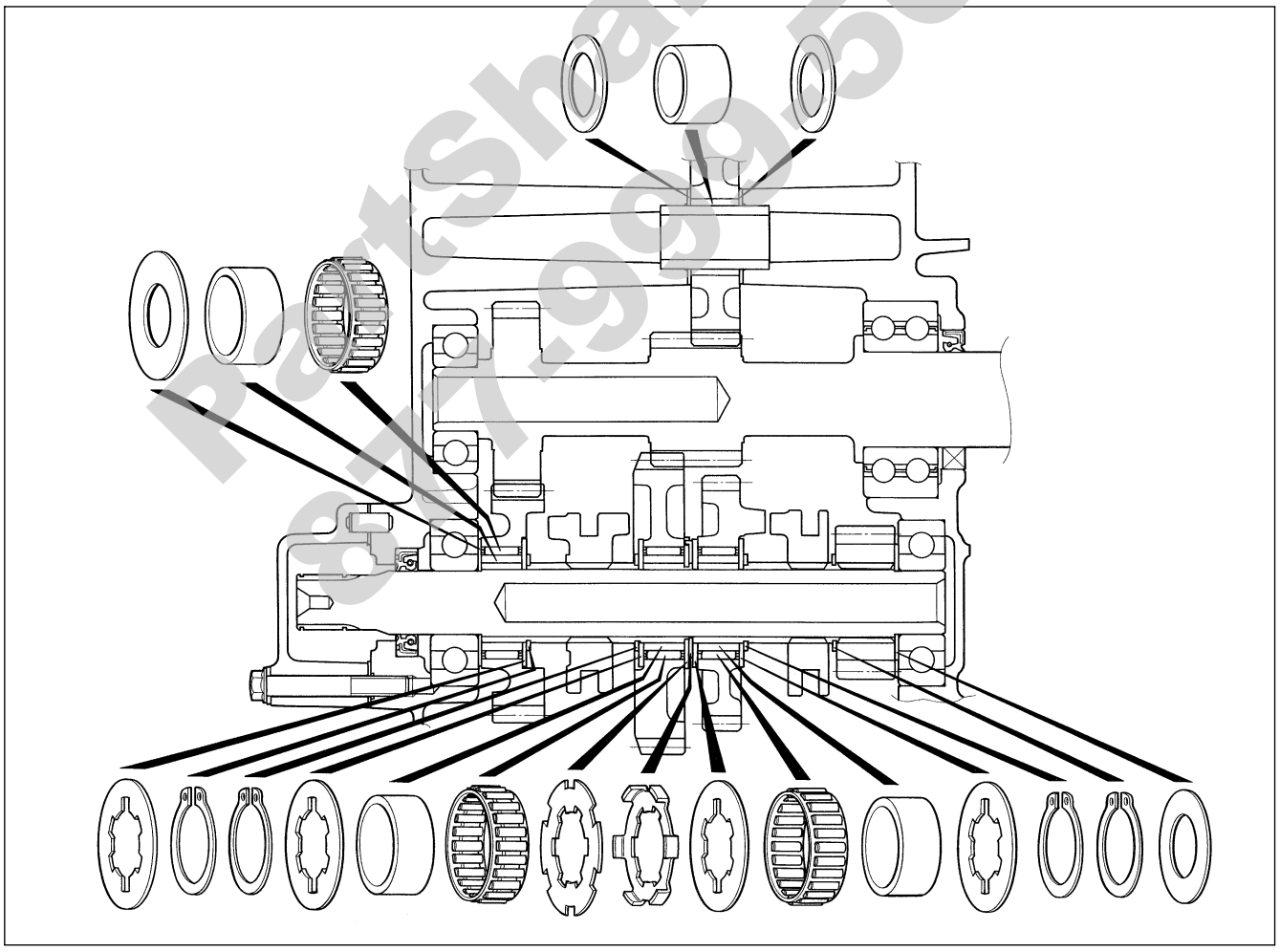
NOTE:
Before installing the gears, coat lightly engine oil to the transfer input/output shaft.

CAUTION

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

• When installing a new snap ring, pay attention to the directon of the snap ring. Fit it to the side where the thrust is as shown in figure.





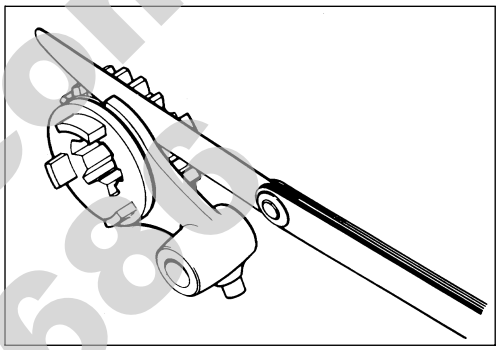
SHIFT FORK

SHIFT FORK TO GROOVE CLEARANCE

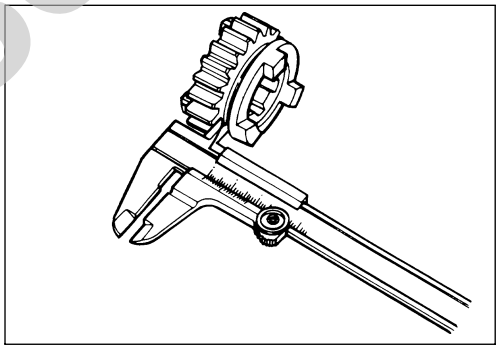
Using a thickness gauge, check the shifting fork clearance in the groove of its gear.
The clearance for each of the three shifting forks plays an important role in the smoothness and positiveness of shifting action.
If the clearance exceeds the limit, replace the fork or its gear, or both.

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

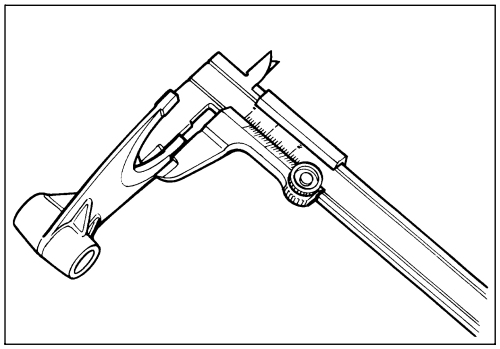
TOOL 09900-20803: Thickness gauge
09900-20101: Vernier calipers



DATA Shift fork groove width
Standard (High/Low):
5.50 – 5.60 mm (0.217 – 0.220 in)
(Reverse):
5.50 – 5.60 mm (0.217 – 0.220 in)



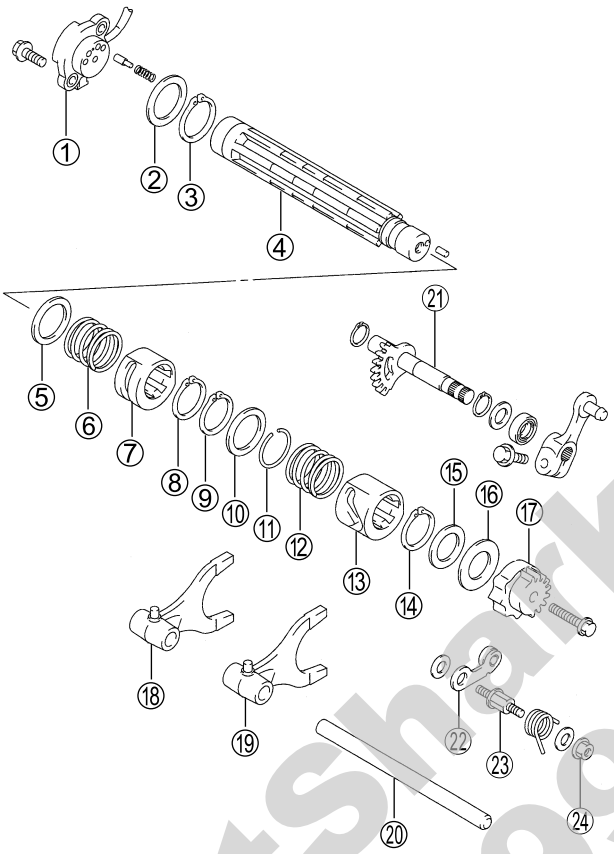
DATA Shift fork thickness
Standard (High/Low):
5.30 – 5.40 mm (0.209 – 0.213 in)
(Reverse):
5.30 – 5.40 mm (0.209 – 0.213 in)



GEARSHIFT CAM

DISASSEMBLY

• Disassemble the gearshift cam as shown.

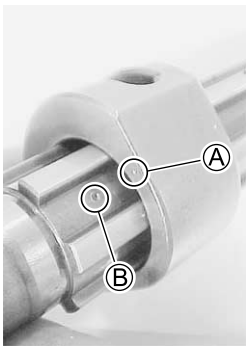


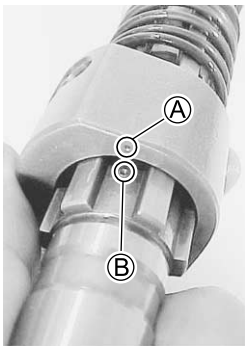
① Neutral switch
② Washer
③ Snap ring
④ Gearshift shaft
⑤ Washer
⑥ Spring
⑦ Reverse gear
⑧ Snap ring
⑨ Snap ring
⑩ Washer
⑪ Circlip
⑫ Spring
⑬ High/Low gear
⑭ Snap ring
⑮ Washer
⑯ Washer
⑰ Gearshift cam
⑱ Gearshift fork (For reverse)
⑲ Gearshift fork (For High/Low)
⑳ Gearshift fork shaft
㉑ Gearshift shaft
㉒ Gearshift cam stopper
㉓ Gearshift cam stopper bolt
㉔ Gearshift cam stopper nut

REASSEMBLY

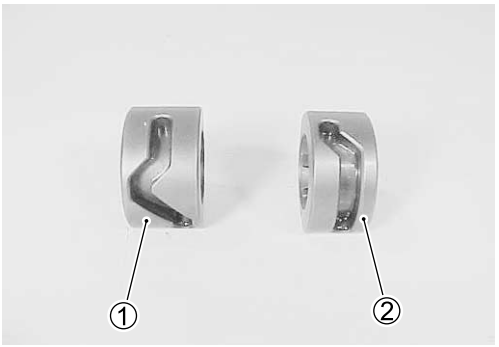
• Install the gearshift cams.

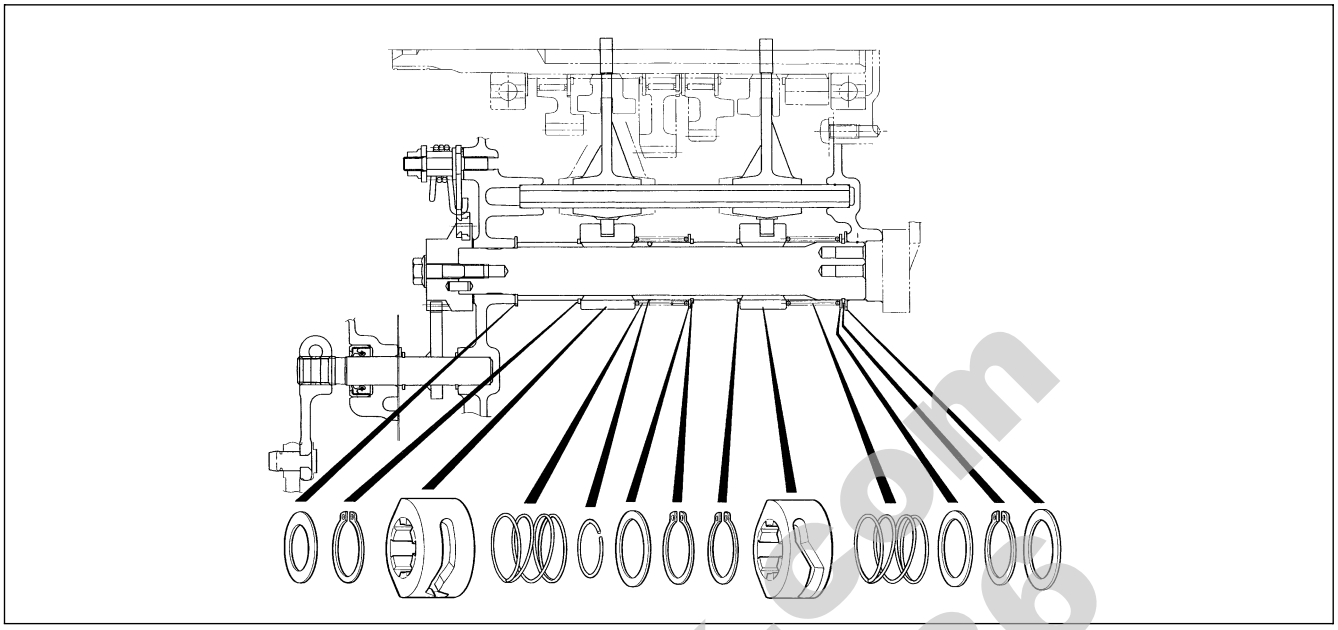
NOTE:
Align the punched mark Ⓐ with the punched mark Ⓑ.





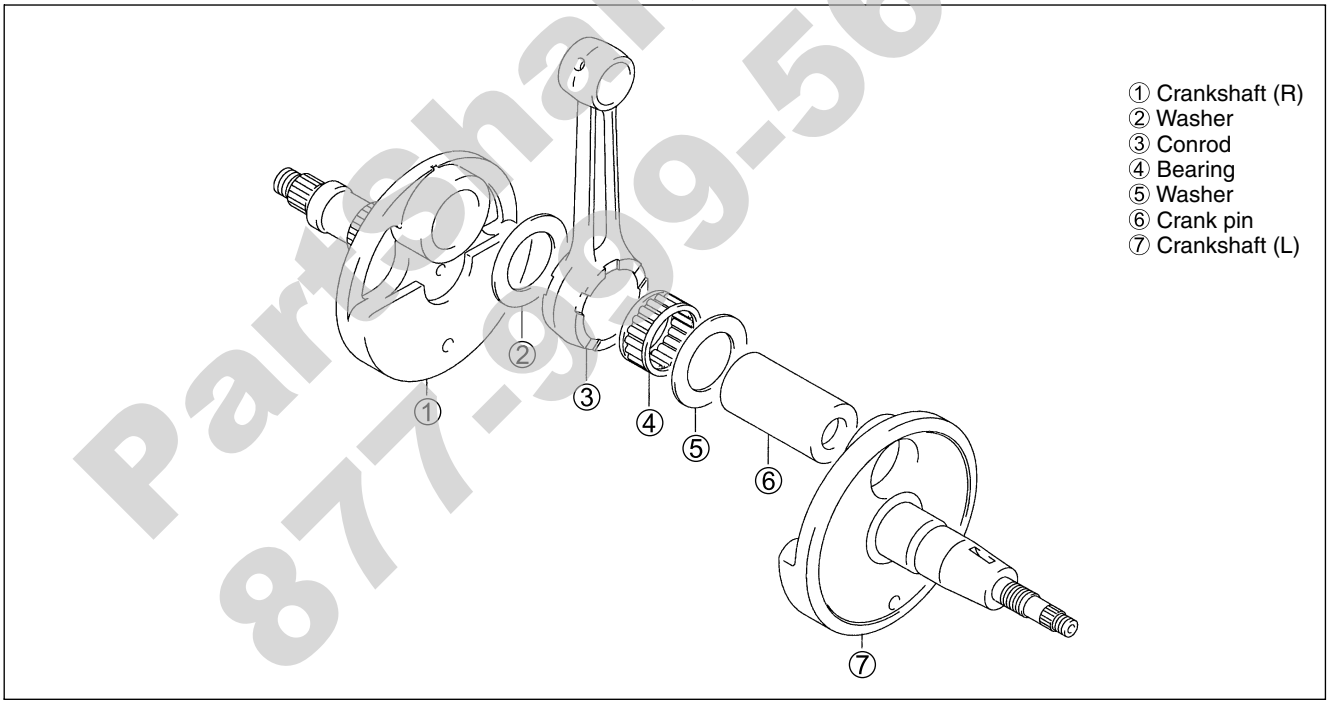
① For High/Low gear (Left side)
② For reverse gear (Right side)





CRANKSHAFT

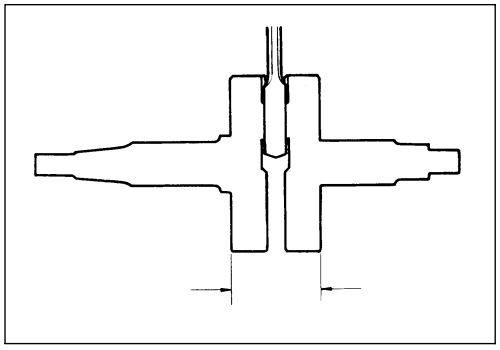
DISASSEMBLY



REASSEMBLY

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

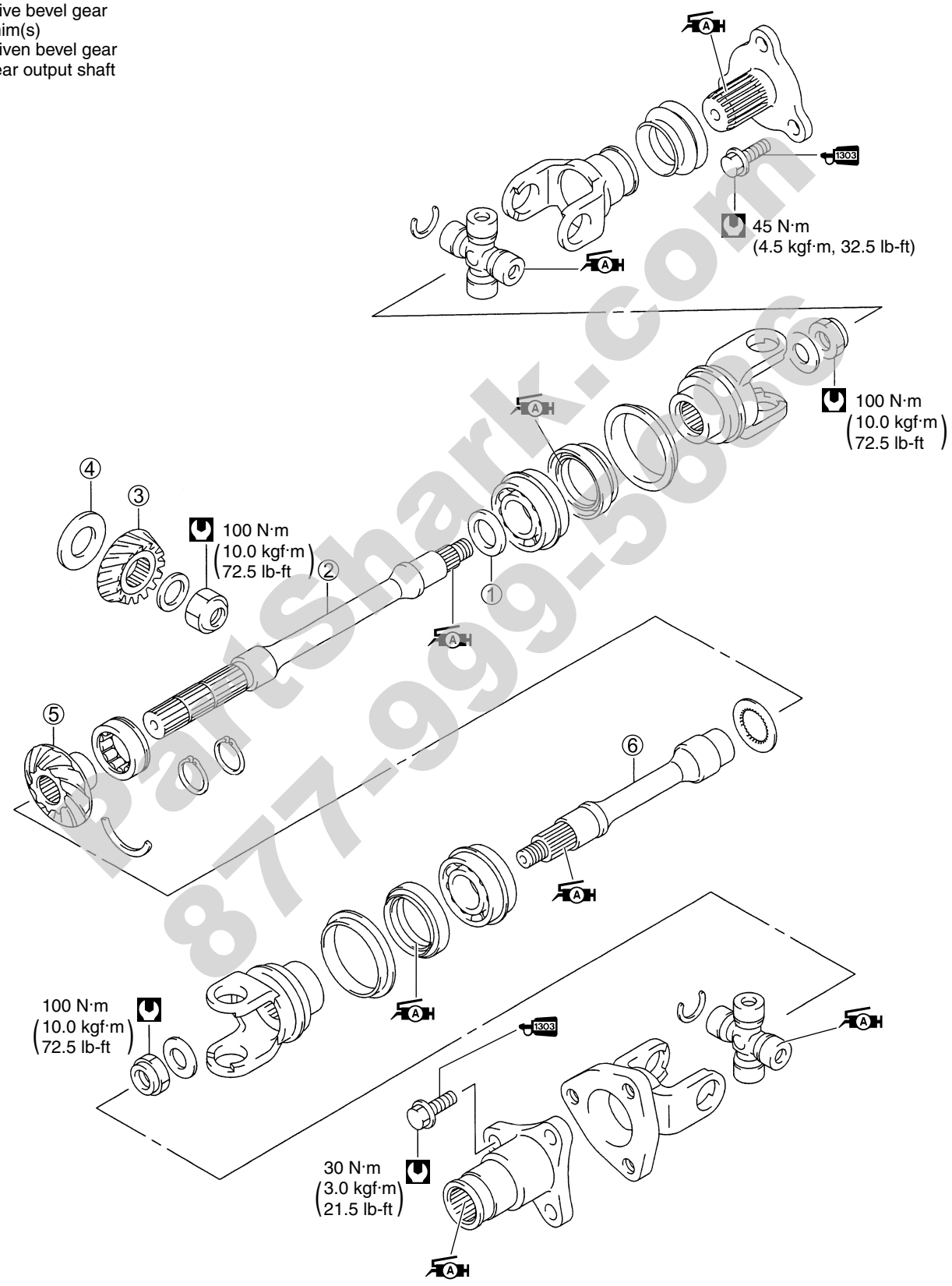
DATA Crank web to web width
Standard: 71.1 ± 0.1mm (2.795 ± 0.004 in)



DRIVE TRAIN (INBOARD SIDE)

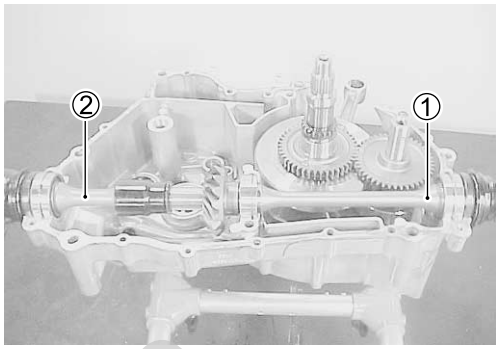
CONSTRUCTION

① Shim(s)
② Front output shaft
③ Drive bevel gear
④ Shim(s)
⑤ Driven bevel gear
⑥ Rear output shaft

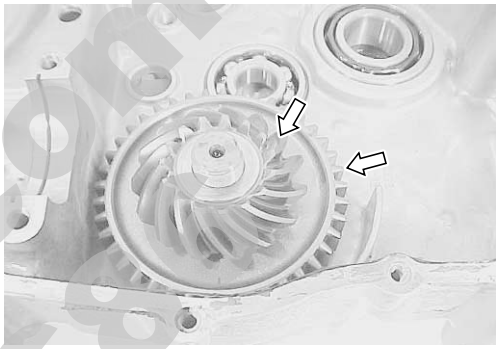


REMOVAL

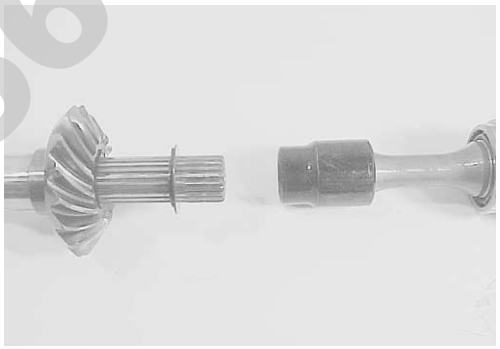
- Remove the transfer assemblies. (☞3-22)
- Remove the front output shaft ① and rear output shaft ②.



- After removing the drive bevel gear nut, remove the drive bevel gear and output driven gear. (☞3-69)



- Separate the front and rear output shafts.



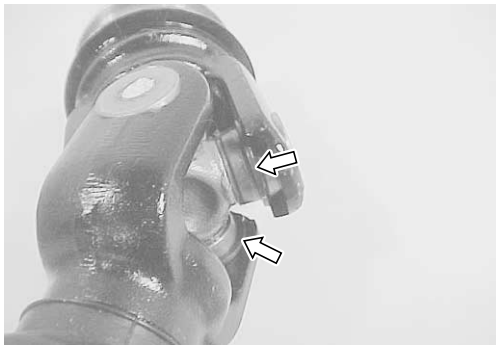
DISASSEMBLY

Front output shaft

- Remove the C-rings from the universal joint.

CAUTION

Replace the removed C-ring with a new one.



- Remove the bearings by tapping with the special tool and hammer.

TOOL 09913-70210: Bearing installer set

- Remove the universal joint.

- Using a chisel and unlock the nut.
- With the front output shaft held immovable with a vise, remove the nut.

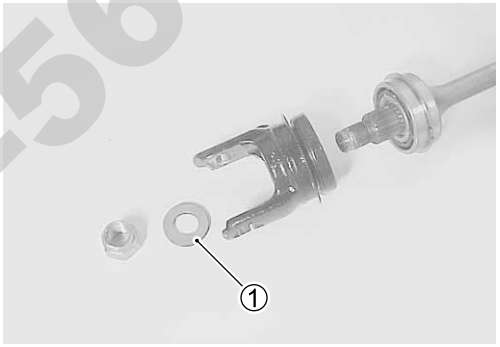
CAUTION

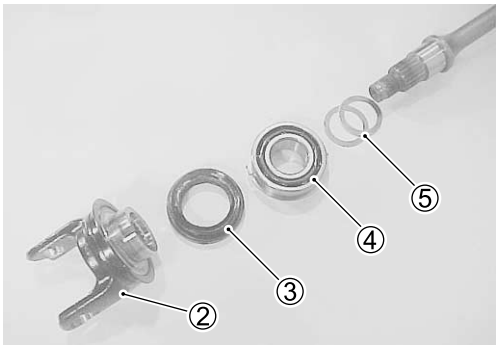
Replace the removed nut with a new one.

- Remove the washer ①, joint yoke ②, oil seal ③, bearing ④ and shim(s) ⑤.

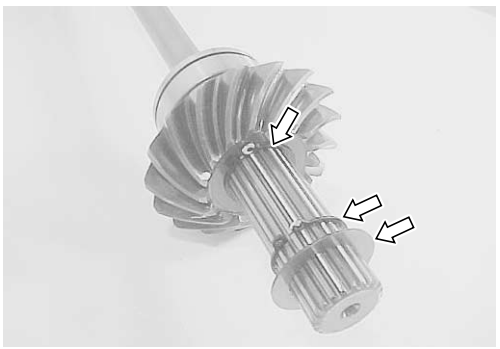
CAUTION

The removed bearing and oil seal must be replaced with the new ones.

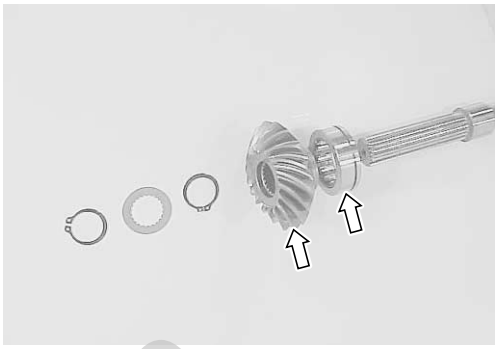




- Remove the washer and snap rings from the front output shaft.

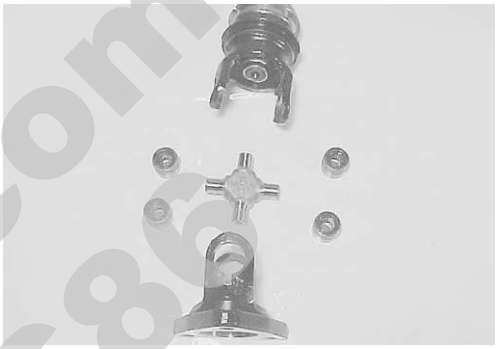


- Remove the driven bevel gear and bearing.



Rear output shaft

- Remove the C-rings from the universal joint. (☞3-57)
- Remove the bearing and universal joint. (☞3-57)



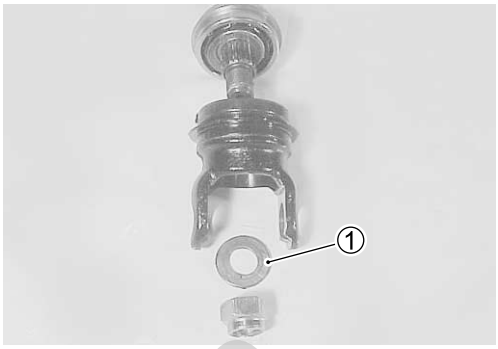
- Using a chisel and unlock the nut.

- With the rear output shaft held immovable with a vise, remove the nut.

CAUTION

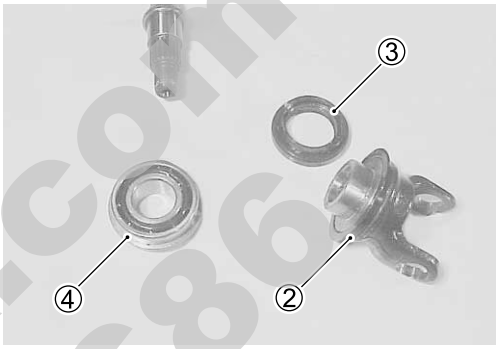
Replace the removed nut with a new one.

• Remove the washer ①, joint yoke ②, oil seal ③ and bearing ④.



CAUTION

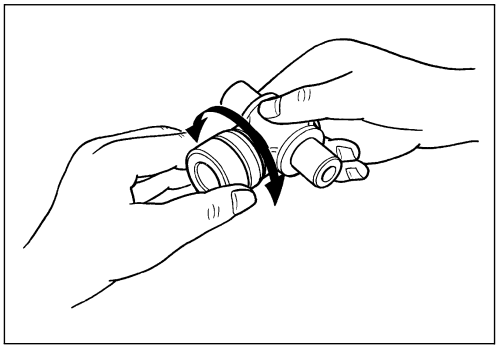
The removed bearing and oil seal must be replaced with the new ones.



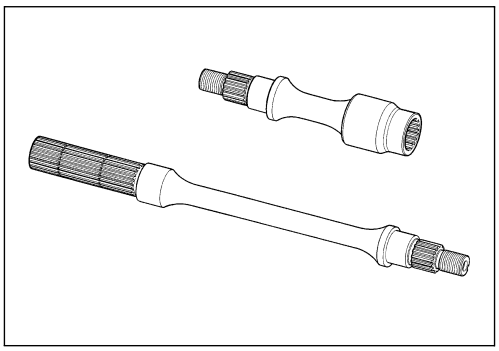
INSPECTION

Inspect the universal joint and outer surface of the bearing for scuffing, wear and damage. If any defects are found, replace the bearings and universal joint as a set.

Insert the universal joint to the bearing and check the play by turning the universal joint, as shown. If excessive play is noted, replace the bearing with a new one.



Inspect the front and rear output shafts for distortion. If distortion is found, replace the front or rear output shaft with a new one.



Inspect the drive and driven bevel gears for wear or damage. If any wear or damage is found, replace the drive and driven bevel gears as a set.

REASSEMBLY

Reassemble the front and rear output shafts in the reverse order of disassembly. Pay attention to the following points:

NOTE:

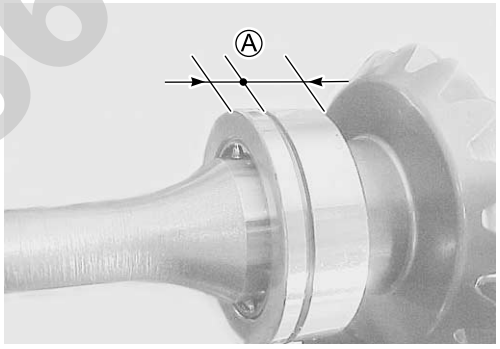
Before reassembly, thoroughly clean all parts in cleaning solvent.

Front output shaft

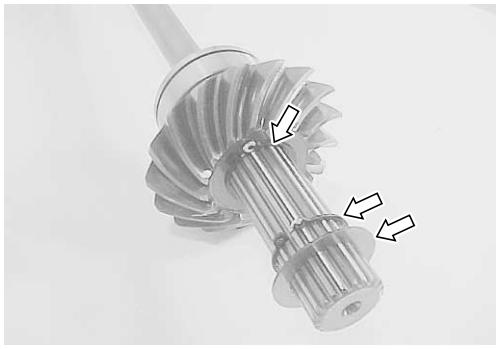
- Install the bearing and driven bevel gear.

NOTE:

The wider side Ⓐ of the bearing should be positionde bevel gear side.



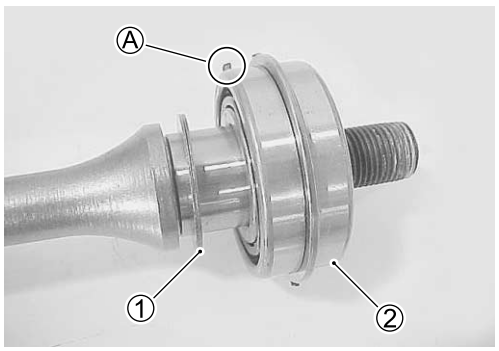
- Install the snap rings and washer.



- Install the shim(s) ① and bearing ②.

NOTE:

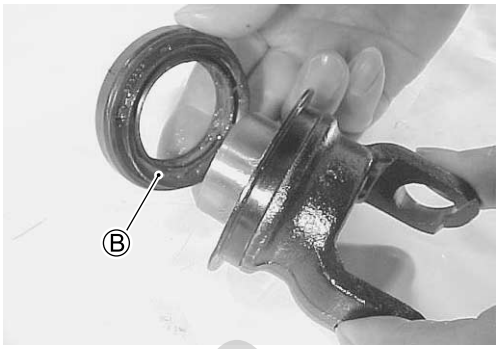
The bearing knock-pin Ⓐ should be positioned inside.



- Apply grease to the lip of the oil seal.
- Install the oil seal to the joint yoke.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

NOTE:
The lip Ⓑ of the oil seal should be positioned joint yoke side.



- With the front output shaft held immovable with a vise, tighten the new nut to the specified torque.

Front output shaft nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

NOTE:
Do not stake a lock portion on the nut at this stage. After the backlash and tooth contact have been checked or adjusted, stake the nut with a center punch.

- Apply grease to the bearing and its dust seal lip.
- Install the universal joint and bearings with the special tool.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

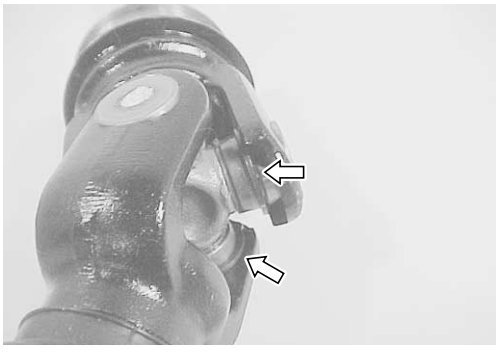
09913-70210: Bearing installer set

NOTE:
After the backlash and tooth contact have been checked or adjusted, reassemble the universal joint.

- Install the C-rings by tapping with a copper hammer.

CAUTION

Replace the removed C-ring with a new one.

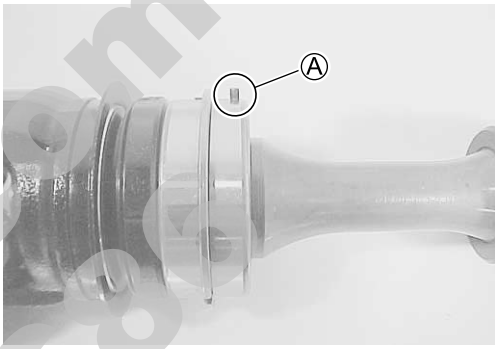


• After reassembling the universal joint, check the joint movement smoothly. If a large resistance is felt to movement, tap the bearing with a plastic mallet lightly.

Rear output shaft

• Install the bearing to the shaft.

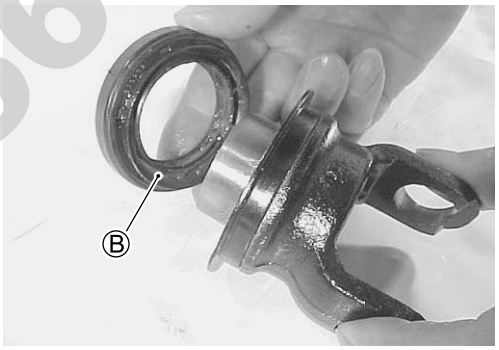
NOTE:
The bearing knock-pin Ⓐ should be positioned inside.



• Apply grease to the lip of the oil seal.
• Install the oil seal to the joint yoke.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

NOTE:
The lip Ⓑ of the oil seal should be positioned joint yoke side.



• With the rear output shaft held immovable with a vise, tighten the new nut to the specified torque.

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

• Stake the nut with a center punch.

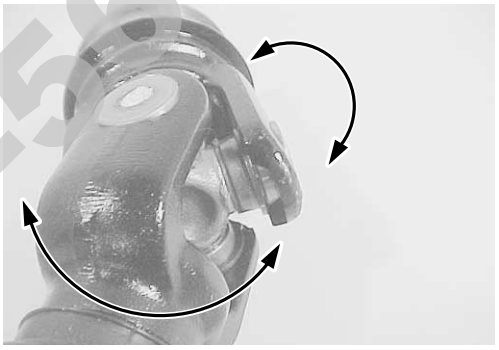
- Apply grease to the bearing and dust seal lip.
- Install the universal joint and bearings with the special tool. (☞3-62)
- Install the C-rings by tapping with a copper hammer. (☞3-62)

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

09913-70210: Bearing installer set

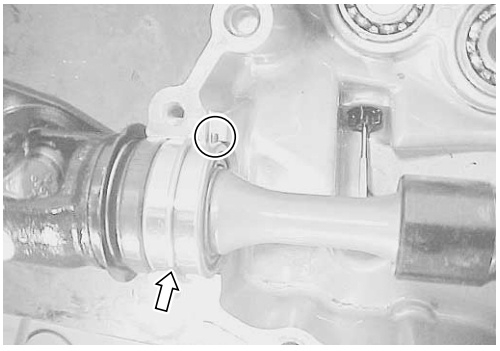
NOTE:
Reassemble the universal joint in the same manner as the front one. (☞3-62)

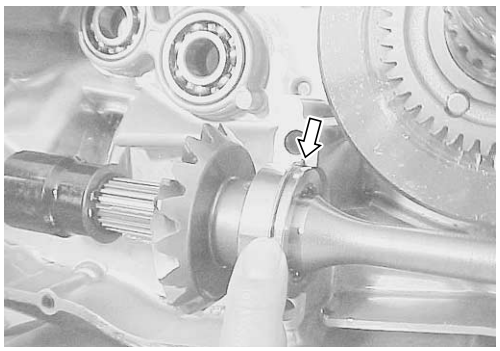
- After reassembling the universal joint, check the joint movement smoothly. If a large resistance is felt to movement, tap the bearing with a plastic mallet lightly.

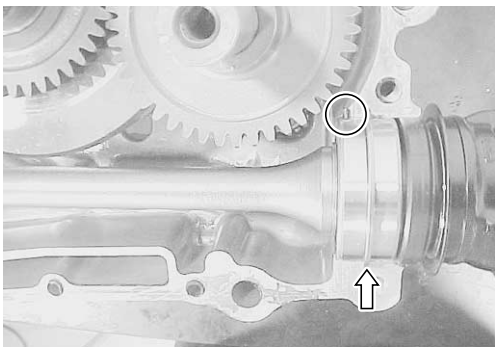


Front/Rear output shaft

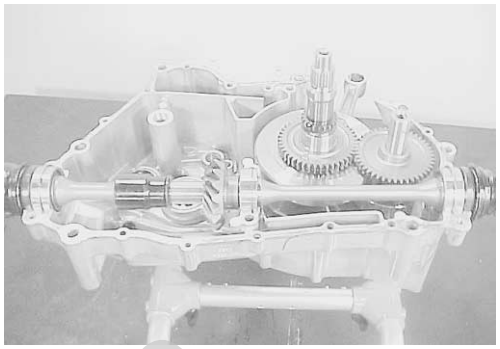
- Align the bearing rings with their grooves in the crankcase.
- Position the knock-pin on the bearings to the pin grooves in the crankcase.







• Check the front/rear output shaft to rotate smoothly.

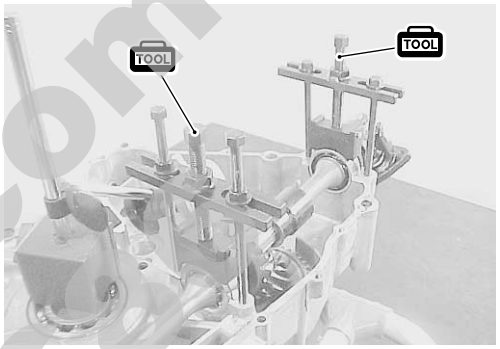


SHIM ADJUSTMENT

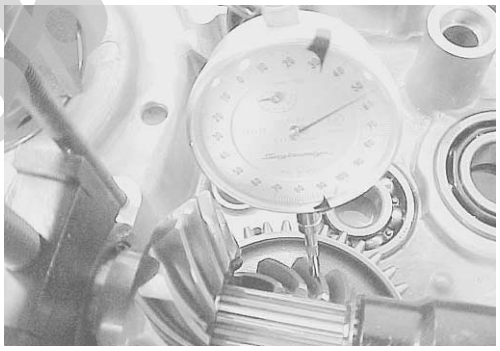
BACKLASH

• Install the output driven gear and drive bevel gear. (☞3-69)
• Place the front and rear output shafts on the right crankcase half and hold bearings with the special tool.

TOOL 09921-21910: Bearing holder



• Set a dial gauge as shown on the drive bevel gear.



Measure the backlash by turning the drive bevel gear shaft in each direction, reading the total backlash on the dial gauge. If the backlash is not within specification, the shim must be changed and the backlash should be re-checked until correct. Refer to the chart at the right for appropriate shim thickness.

DATA Bevel gear backlash
Standard: 0.03–0.15 mm (0.001–0.006 in)

NOTE:
Adjust the backlash by referring to the chart at the right and using the thickness of the removed shims as a guide.

Backlash	Shim adjustment
Under 0.03 mm (0.001 in)	Decrease shim thickness
0.03–0.15 mm (0.001–0.006 in)	Correct
Over 0.15 mm (0.006 in)	Increase shim thickness

For driven bevel gear (☞3-68)

Part No.	Shim thickness
09181-25051	0.60 mm (0.0236 in)
09181-25052	0.65 mm (0.0256 in)
09181-25053	0.70 mm (0.0276 in)
09181-25054	0.75 mm (0.0295 in)
09181-25055	0.80 mm (0.0315 in)
09181-25056	0.85 mm (0.0335 in)
09181-25057	0.90 mm (0.0354 in)
09181-25058	0.95 mm (0.0374 in)
09181-25059	1.00 mm (0.0394 in)
09181-25060	1.05 mm (0.0413 in)
09181-25061	1.10 mm (0.0433 in)
09181-25062	1.15 mm (0.0453 in)
09181-25063	1.20 mm (0.0472 in)

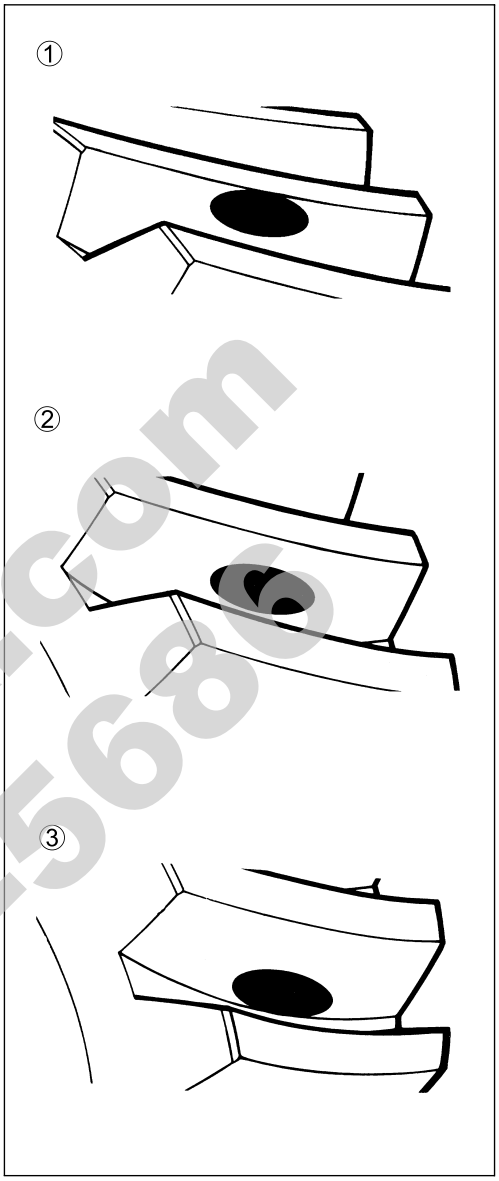
TOOTH CONTACT

After backlash adjustment is carried out, the tooth contact must be checked. Pay attention to the following procedures:

- Remove the front and rear output shafts from the crankcase.
- Clean and degrease several teeth of the drive and driven bevel gears.
- Apply a coating of machinist's layout dye or paste to several teeth of the driven bevel gear.
- Install the front and rear output shafts.
- Rotate the driven bevel gear several turns in both directions.
- Remove the output shafts and inspect the coated teeth of the drive bevel gear. The tooth contact pattern should be as shown in ①, ② and ③.
- If tooth contact is found to be correct (example ②), go to the FINAL ASSEMBLY section on p.3-67 to complete installation.

① Incorrect (contact at tooth top)
② Correct
③ Incorrect (contact at tooth root)

- If tooth contact is found to be incorrect (examples ① and ③), the shim thickness between the drive bevel gear and driven bevel gear must be changed and the tooth contact re-checked until correct.



CAUTION

Make sure to check the backlash after the tooth contact has been adjusted, since it may have changed. Adjust the tooth contact and backlash until they are both within specification. If the correct tooth contact cannot be maintained when adjusting the backlash, replace the drive and driven bevel gears.

Tooth contact	Shim adjustment
Contact at tooth top ①	Increase shim thickness
Contact at tooth root ③	Decrease shim thickness

For drive bevel gear (☞3-68)

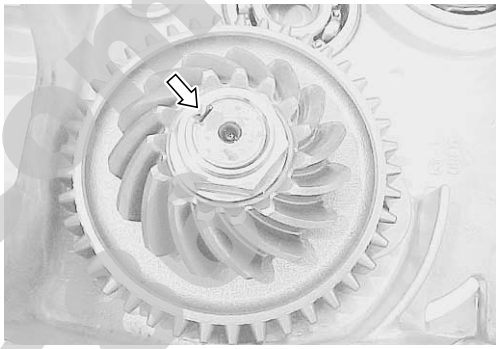
Part No.	Shim thickness	
24935-19B00-025: 0.25 mm (0.0098 in)	Combined shim	0.25+0.25=0.50 mm (0.0197 in)
		0.25+0.30=0.55 mm (0.0217 in)
		0.30+0.30=0.60 mm (0.0236 in)
		0.30+0.35=0.65 mm (0.0256 in)
24935-19B00-030: 0.30 mm (0.0118 in)		0.35+0.35=0.70 mm (0.0276 in)
		0.25+0.25+0.25=0.75 mm (0.0295 in)
24935-19B00-035: 0.35 mm (0.0138 in)		0.25+0.25+0.30=0.80 mm (0.0315 in)
		0.25+0.25+0.35=0.85 mm (0.0335 in)
24935-19B00-090	0.90 mm (0.0354 in)	
24935-19B00-095	0.95 mm (0.0374 in)	
24935-19B00-100	1.00 mm (0.0394 in)	
24935-19B00-105	1.05 mm (0.0413 in)	
24935-19B00-110	1.10 mm (0.0433 in)	
24935-19B00-115	1.15 mm (0.0453 in)	

FINAL ASSEMBLY

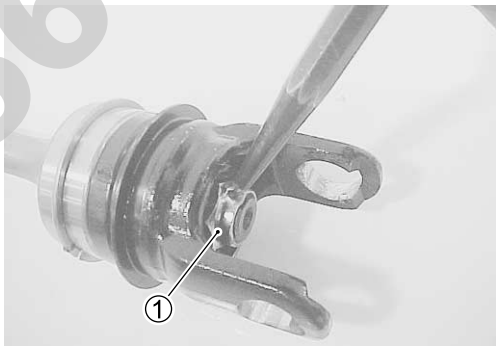
- After adjusting the gear backlash and tooth contact correctly, remove the front and rear output shafts and drive bevel gear.
- Clean off any machinist's dye or paste from the gear teeth, and lubricate the teeth with engine oil.
- Tighten the front output shaft nut and drive bevel gear nut to the specified torque.

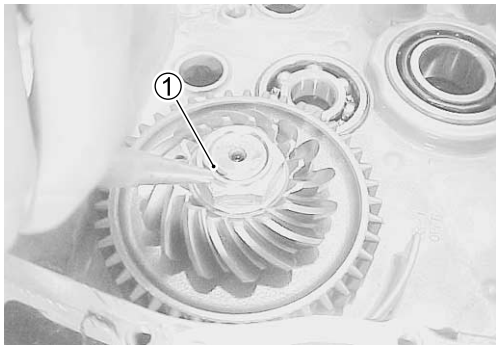
Front output shaft nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)
Drive bevel gear nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

09930-73160: Output shaft holder
(☞3-70)

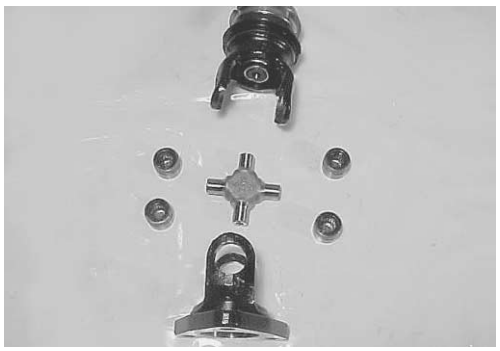


- Stake the collar of the nut ① into the notch in the shaft.



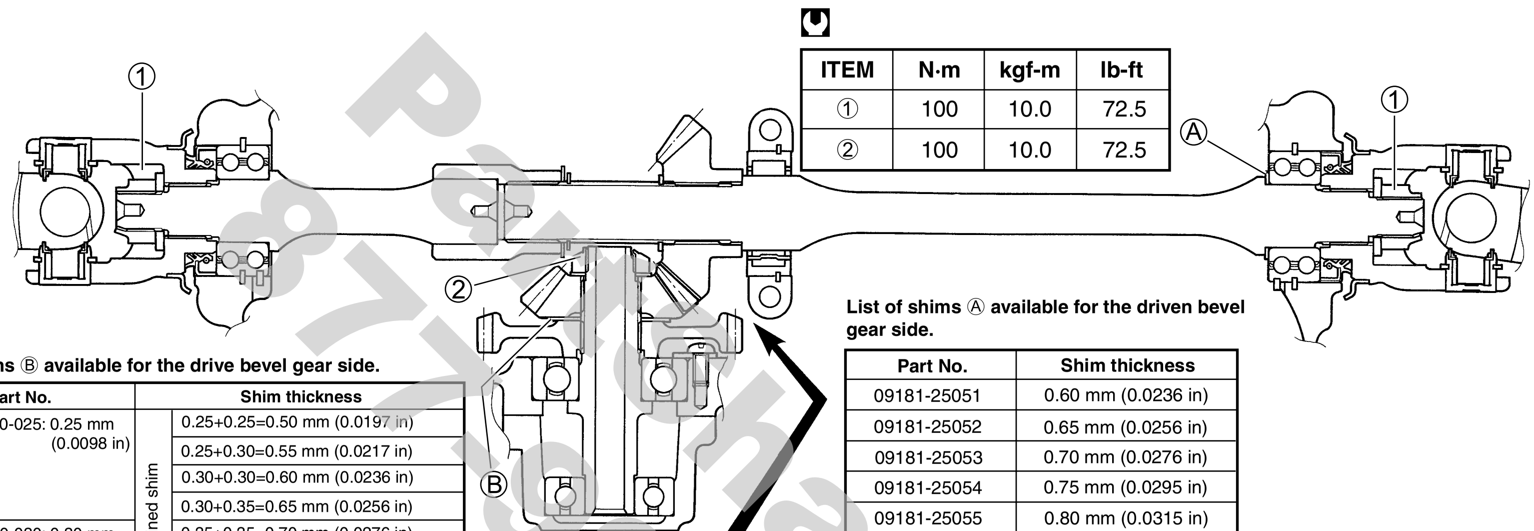


NOTE:
After the backlash and tooth contact have been checked or adjusted, reassemble the universal joint. (☞3-62)



REASSEMBLY INFORMATION

ITEM	N·m	kgf-m	lb-ft
①	100	10.0	72.5
②	100	10.0	72.5

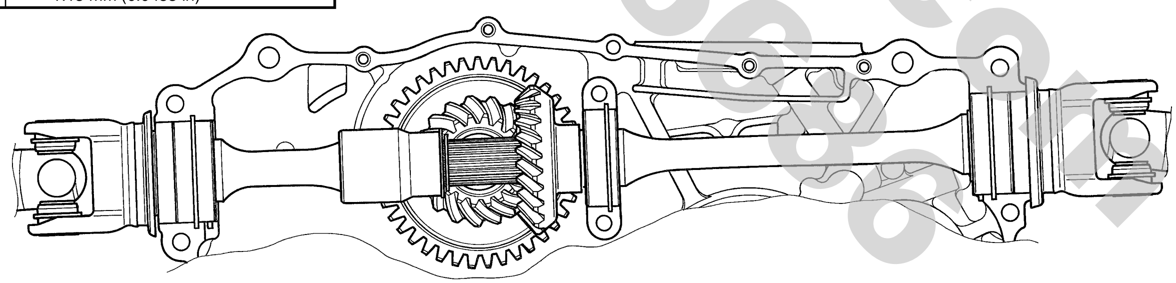


List of shims Ⓑ available for the drive bevel gear side.

Part No.		Shim thickness
24935-19B00-025: 0.25 mm (0.0098 in)	Combined shim	0.25+0.25=0.50 mm (0.0197 in)
		0.25+0.30=0.55 mm (0.0217 in)
		0.30+0.30=0.60 mm (0.0236 in)
		0.30+0.35=0.65 mm (0.0256 in)
24935-19B00-030: 0.30 mm (0.0118 in)		0.35+0.35=0.70 mm (0.0276 in)
		0.25+0.25+0.25=0.75 mm (0.0295 in)
24935-19B00-035: 0.35 mm (0.0138 in)		0.25+0.25+0.30=0.80 mm (0.0315 in)
		0.25+0.25+0.35=0.85 mm (0.0335 in)
24935-19B00-090		0.90 mm (0.0354 in)
24935-19B00-095		0.95 mm (0.0374 in)
24935-19B00-100		1.00 mm (0.0394 in)
24935-19B00-105		1.05 mm (0.0413 in)
24935-19B00-110		1.10 mm (0.0433 in)
24935-19B00-115		1.15 mm (0.0453 in)

List of shims Ⓐ available for the driven bevel gear side.

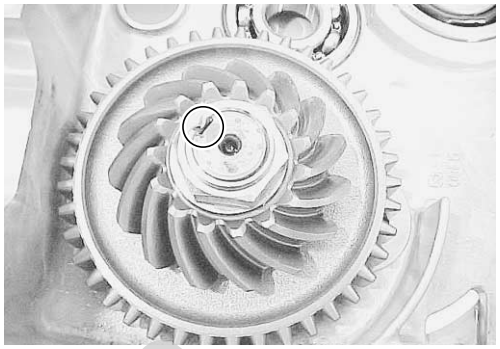
Part No.	Shim thickness
09181-25051	0.60 mm (0.0236 in)
09181-25052	0.65 mm (0.0256 in)
09181-25053	0.70 mm (0.0276 in)
09181-25054	0.75 mm (0.0295 in)
09181-25055	0.80 mm (0.0315 in)
09181-25056	0.85 mm (0.0335 in)
09181-25057	0.90 mm (0.0354 in)
09181-25058	0.95 mm (0.0374 in)
09181-25059	1.00 mm (0.0394 in)
09181-25060	1.05 mm (0.0413 in)
09181-25061	1.10 mm (0.0433 in)
09181-25062	1.15 mm (0.0453 in)
09181-25063	1.20 mm (0.0472 in)



CRANKCASE

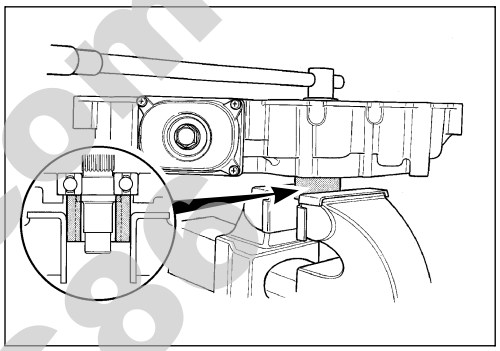
DRIVE BEVEL GEAR REMOVAL

- Using a chisel, unlock the nut.

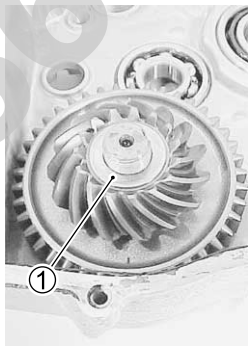


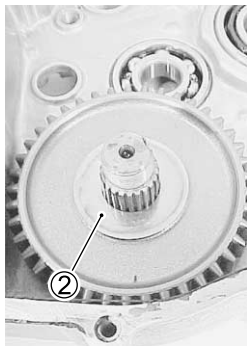
- Remove the drive bevel gear nut with the special tool.

TOOL 09930-73160: Output shaft holder

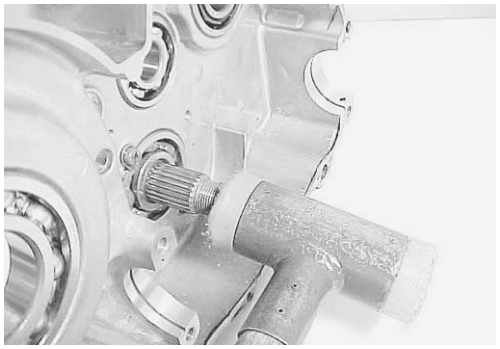


- Remove the washer ① and drive bevel gear.
- Remove the shim ② and output driven gear.





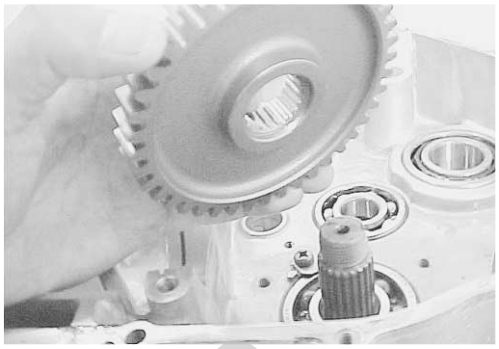
- Remove the output shaft with a plastic mallet.



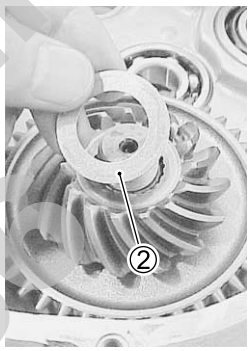
DRIVE BEVEL GEAR INSTALLATION

- Install the output shaft with a plastic mallet.

- Install the output driven gear.



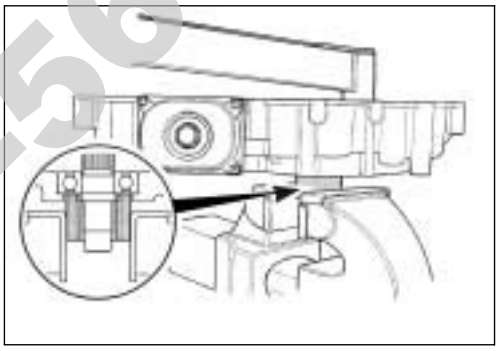
- Install the shim ①.
- Install the drive bevel gear and washer ②.



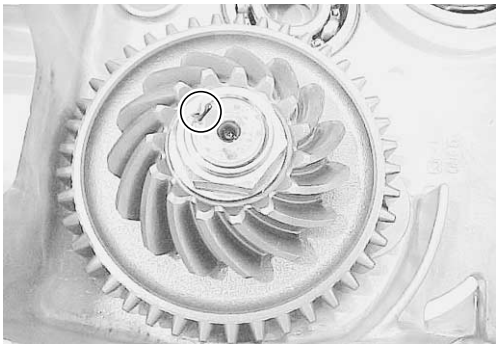
- Tighten the drive bevel gear nut to the specified torque with the special tool.

Drive bevel gear nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

09930-73160: Output shaft holder

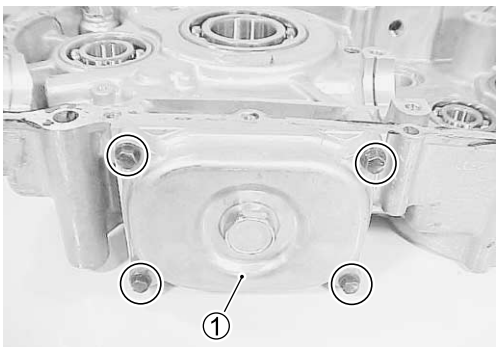


- Stake the nut with a center punch.

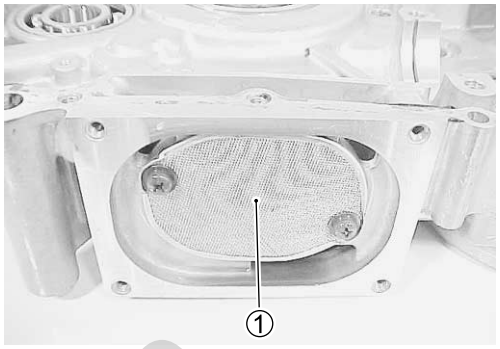


OIL SUMP FILTER

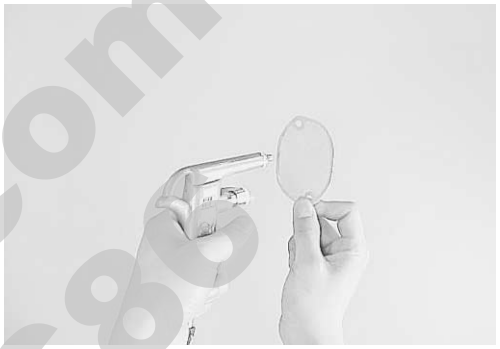
- Remove the oil sump filter cover ①.



- Remove the oil sump filter ①.

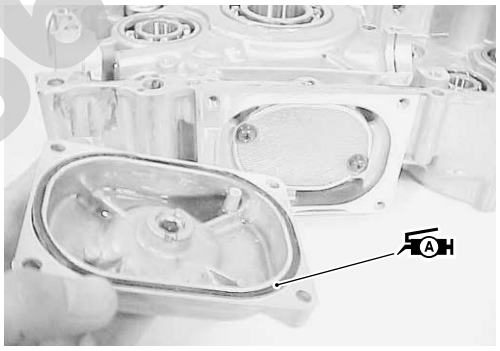


- Clean the oil sump filter by using compressed air.



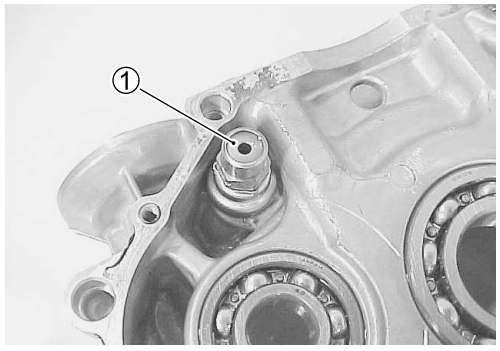
- When installing the oil sump filter, apply grease to the new O-ring.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



OIL PRESSURE REGULATOR

- Remove the oil pressure regulator ①.



- When installing the oil pressure regulator ①, tighten it to the specified torque.

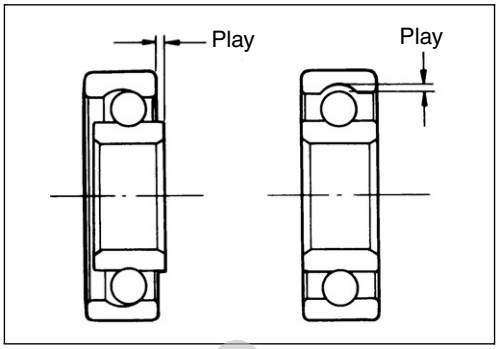
Oil pressure regulator: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Check the operation of the oil pressure regulator pushing on the piston with an appropriately shaped tool. If the piston does not operate, replace the oil pressure regulator with a new one.

BEARING INSPECTION

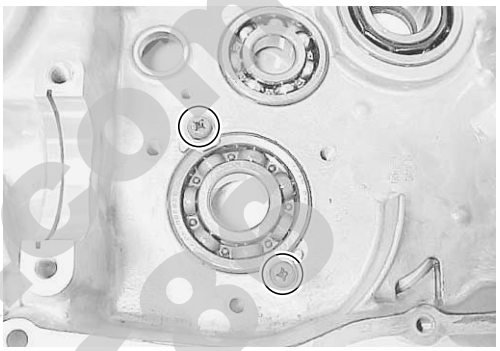
Rotate the bearing inner race by finger to inspect for abnormal play, noise and smooth rotation while the bearings are in the crankcase.

Replace the bearing in the following procedure if there is anything unusual.



BEARING DISASSEMBLY

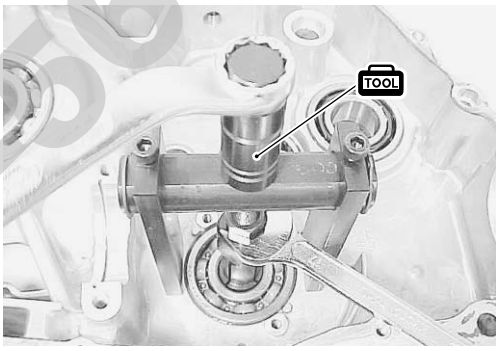
- Remove the bearing retainers.

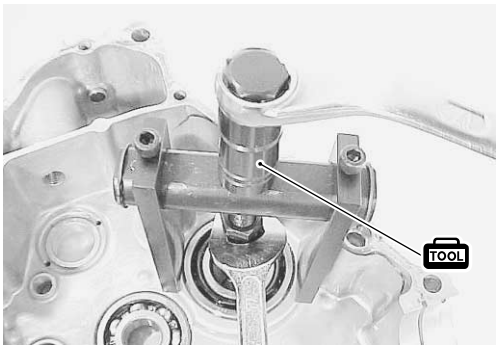


- Remove the bearing with the special tool.

TOOL 09921-20240: Bearing remover set

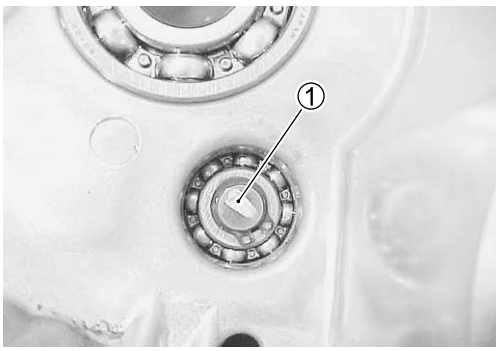
NOTE:
If there is no abnormal noise, the bearing removal is not necessary.





- Remove the water pump drive shaft ① by removing the snap ring.

TOOL 09900-06107: Snap ring pliers

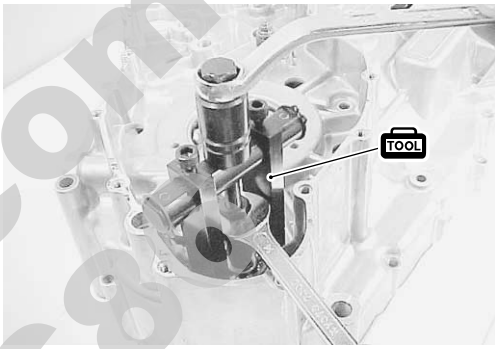


• Remove the snap ring.

TOOL **09900-06108: Snap ring pliers**

• Remove the bearing with the special tool.

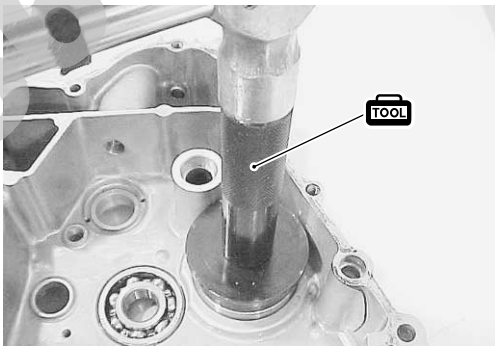
TOOL **09921-20240: Bearing remover set**

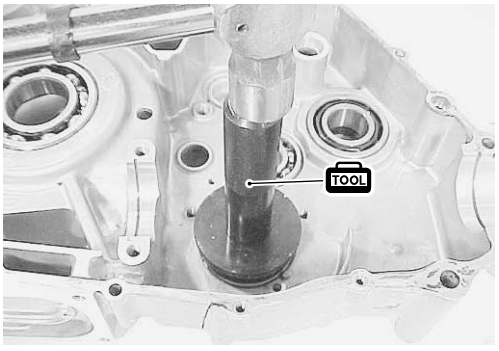


BEARING REASSEMBLY

• Install the bearing with the special tool.

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

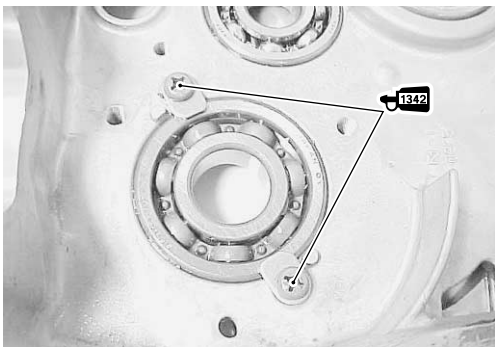




• Install the bearing retainers.

NOTE:
When installing the bearing retainers, apply a small quantity of THREAD LOCK to the screws.

1342 **09900-32050: THREAD LOCK "1342"**



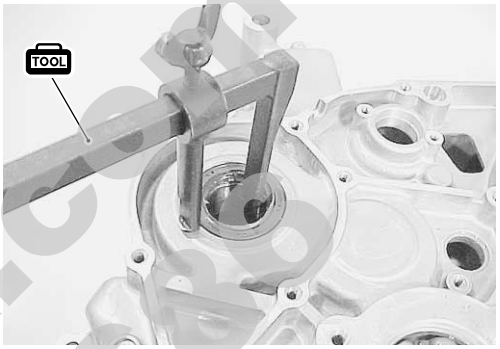
• Install the water pump drive shaft ① and snap ring.

TOOL 09900-06107: Snap ring pliers

OIL SEAL

• Remove the oil seal with the special tool.

TOOL 09913-50121: Oil seal remover



• Remove the oil seal.

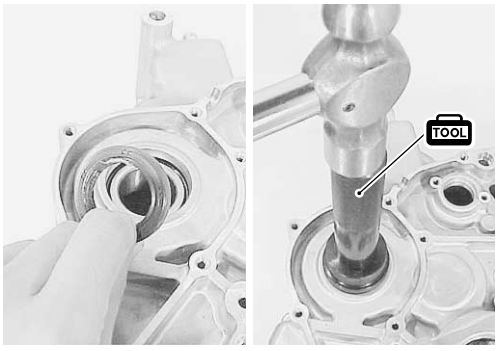
• Install the oil seal with the special tool.

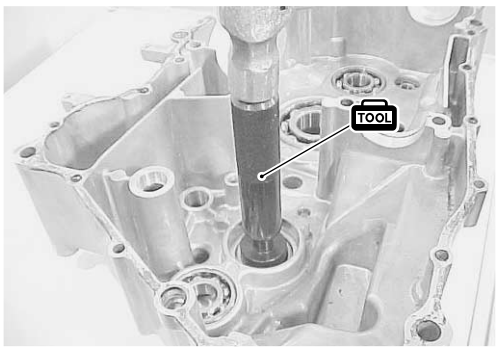
TOOL 09913-70210: Bearing installer set

CAUTION

Use the new oil seal to prevent oil leakage.

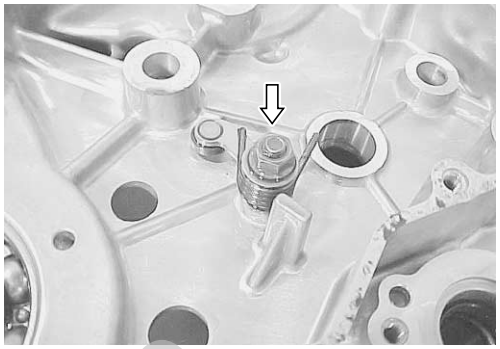
NOTE:
The stamped mark on the oil seal faces outside.





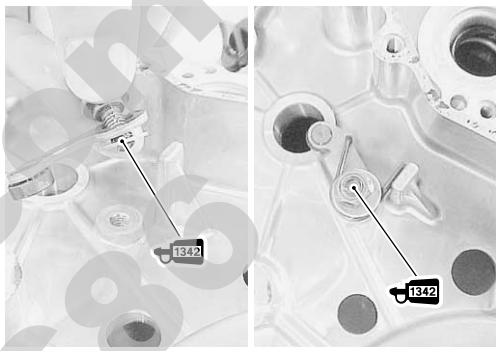
GEARSHIFT CAM STOPPER

- Remove the gearshift cam stopper bolt.



- When installing the gearshift cam stopper, apply a small quantity of THREAD LOCK “1342” to the thread of the bolt and nut.

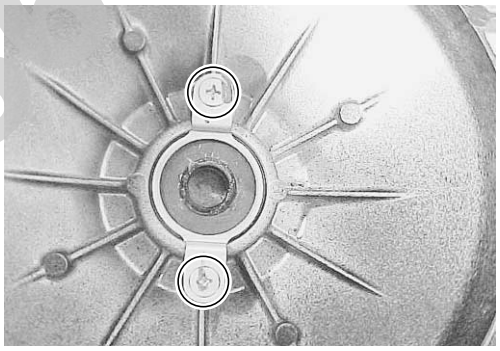
1342 99000-32050: THREAD LOCK “1342”



DRIVE BELT COVER

INSPECTION

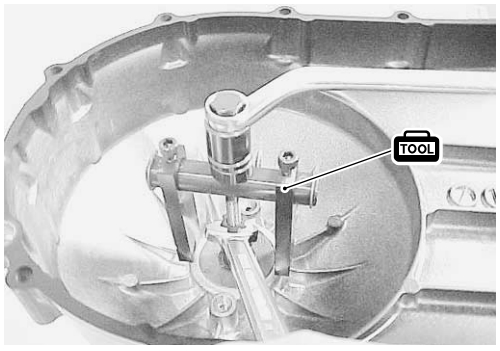
Inspect the oil seal for damage or wear on the lip.
If any defects are found, replace the oil seal with a new one.



DISASSEMBLY

- Remove the oil seal retainer.
- Remove the bearing together with the oil seal.

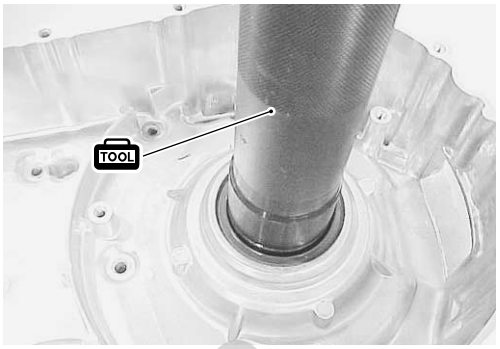
TOOL 09921-20240: Bearing remover set



- Remove the bearing retainers.

• Remove the bearing with the special tool.

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



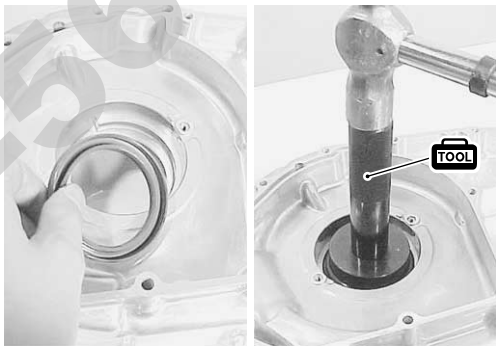
• Remove the oil seal with the special tool.

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

REASSEMBLY

• Install the oil seal with the special tool.

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



• Install the bearing with the special tool.

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

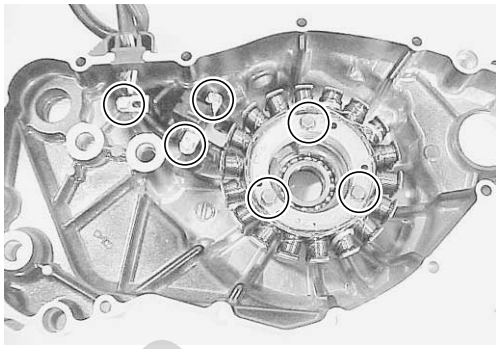
• When installing the bearing retainers, apply a small quantity of THREAD LOCK to the screws.

1342 **09900-32050: THREAD LOCK "1342"**

GENERATOR COVER

DISASSEMBLY

- Remove the generator stator.

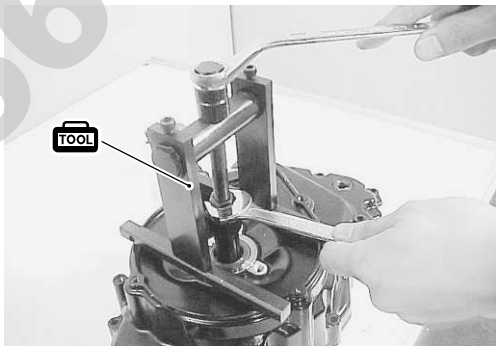


- Remove the oil seal retainer.

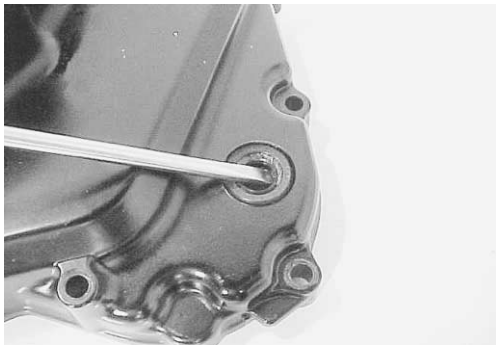
- Remove the bearing together with the oil seal by the special tool and suitable bars as shown.

TOOL 09921-20240: Bearing remover set

NOTE:
If there is no abnormal noise, the bearing removal is not necessary.



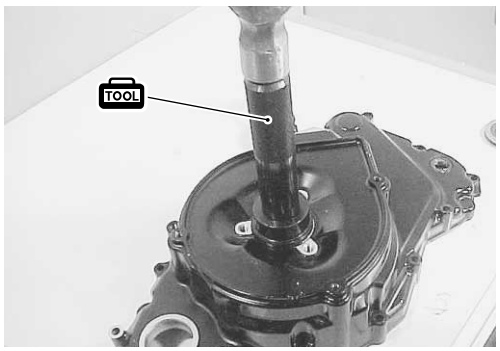
- Remove the oil seal.



REASSEMBLY

- Install the bearing with the special tool.

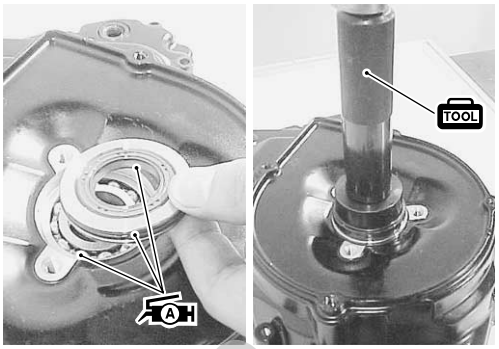
TOOL 09913-70210: Bearing installer



- Apply SUZUKI SUPER GREASE “A” to the oil seal lip, O-ring and bearing.
- Install the oil seal with the special tool.

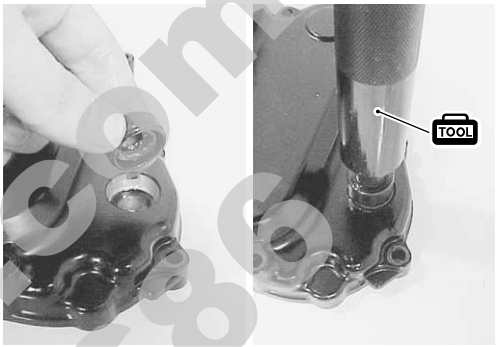
99000-25010: SUZUKI SUPER GREASE “A” (USA)
99000-25030: SUZUKI SUPER GREASE “A” (Others)

09913-70210: Bearing installer set



- Install the oil seal with the special tool.

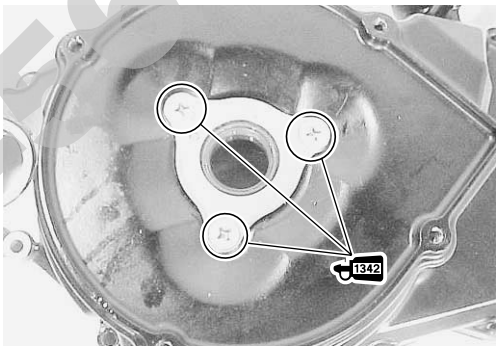
09913-70210: Bearing installer set



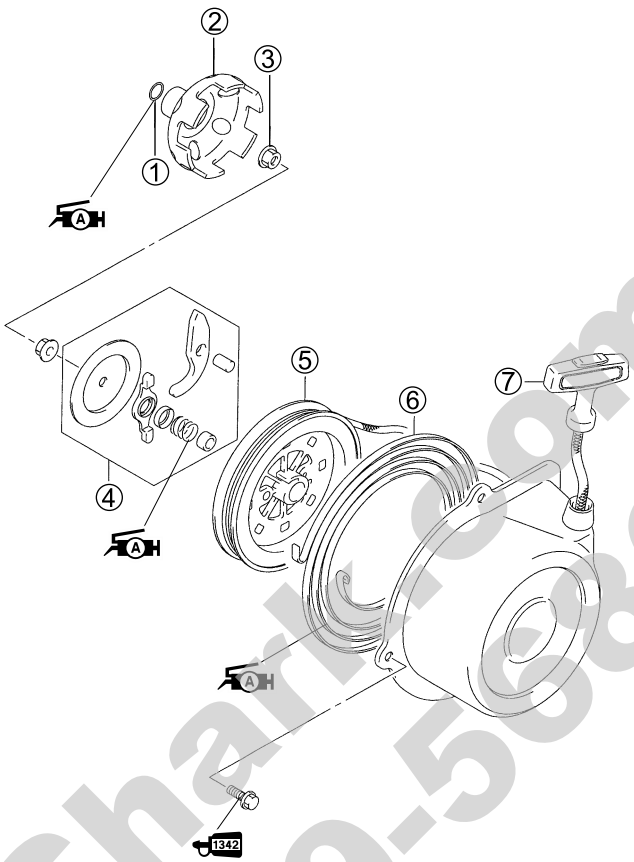
- Install the bearing retainer.

NOTE:
When installing the bearing retainer, apply a small quantity of THREAD LOCK to the screws.

09900-32050: THREAD LOCK “1342”



RECOIL STARTER

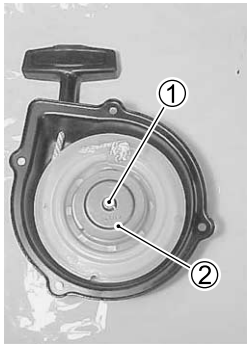


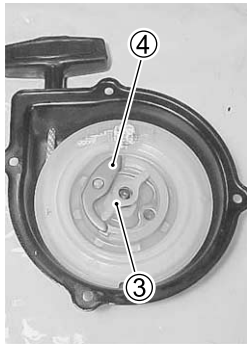
① O-ring
② Starter cup
③ Starter cup nut
④ Ratchet set
⑤ Reel
⑥ Spiral spring
⑦ Rope assembly

DISASSEMBLY

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

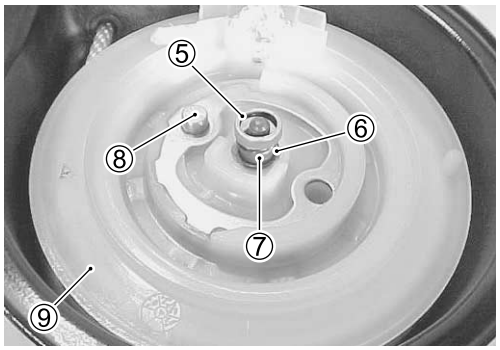
① Nut
② Friction plate
③ Ratchet guide
④ Ratchet
⑤ Spring cover
⑥ Spring
⑦ Spacer
⑧ Pin
⑨ Reel





⚠ WARNING

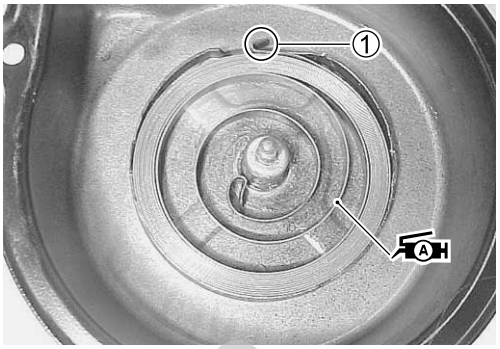
Wear hand and eye protection when removing the reel, since the spring may quickly unwind and cause an injury.



REASSEMBLY

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

- When installing the spiral spring, hook the spiral spring end ① with the recoil starter case.

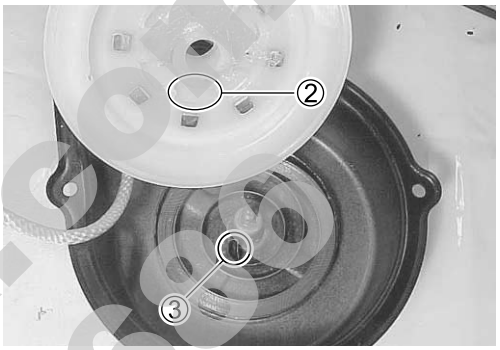


⚠ WARNING

Wear hand and eye protection when installing the reel, since the spring may quickly unwind and cause an injury.

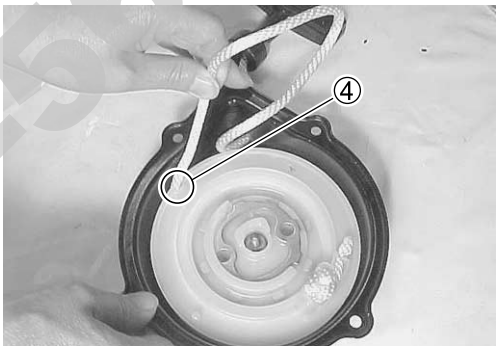
- Apply SUZUKI SUPER GREASE "A" to the spiral spring.

A: 99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



- Turn the starter rope on the reel properly.
- After installing the spiral spring, engage the part ② of the reel with the spiral spring end ③.

- Hook the rope onto the hook part ④ of the reel, turn the reel clockwise three of four times with the rope.

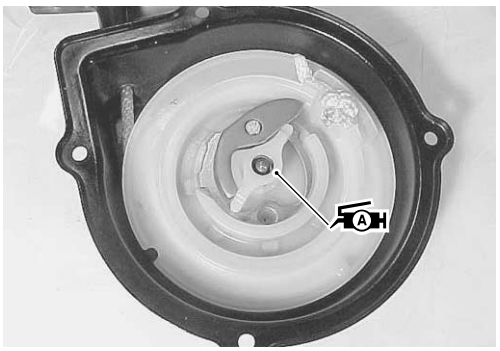


- Install the ratchet related parts.

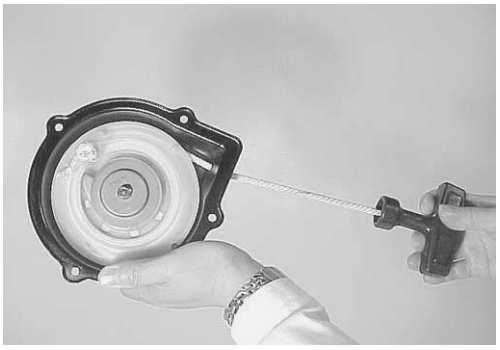
NOTE:

- Apply SUZUKI SUPER GREASE "A" to the shaft and ratchet.

A: 99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



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



ENGINE REASSEMBLY

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

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

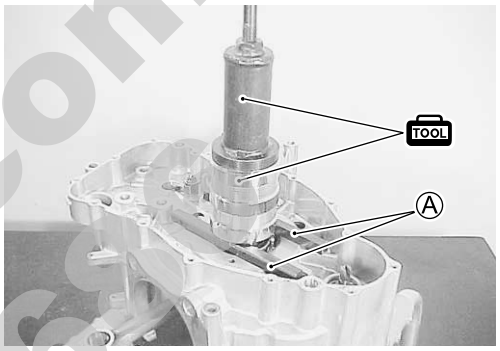
CAUTION

Always keep the drive belt, drive face and driven face away from any greasy matter.

ENGINE BOTTOM SIDE

CRANKSHAFT

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



NOTE:
Use the front fork oil seal installer and suitable bars Ⓐ as an attachment.

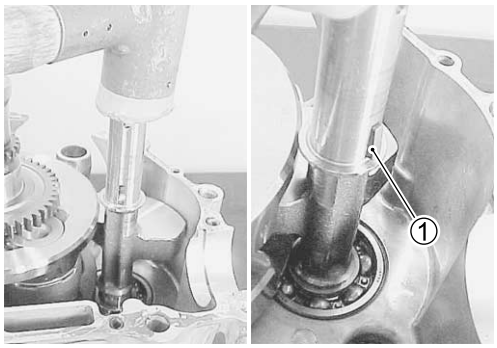
TOOL 09910-32812: Crankshaft installer
09940-52861: Front fork oil seal installer

CAUTION

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

BALANCER

- Install the balancershaft.
- Install the key ①.



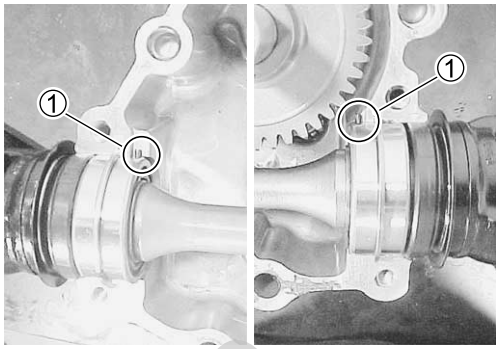
- Install the balancer driven gear by aligning the punched marks.

NOTE:
The flange side of the balancer driven gear faces outside (right side).

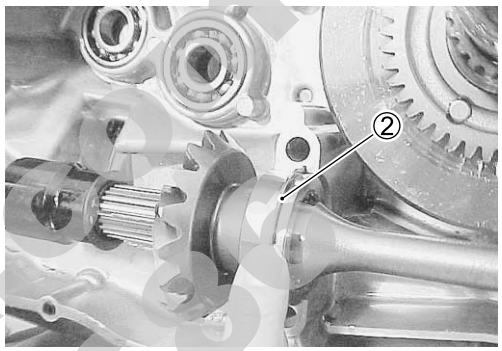
FRONT/REAR OUTPUT SHAFT

- Install the front and rear output shafts.

NOTE:
Be sure to fit the pins ① on the bearing into the groove of the crankcase.



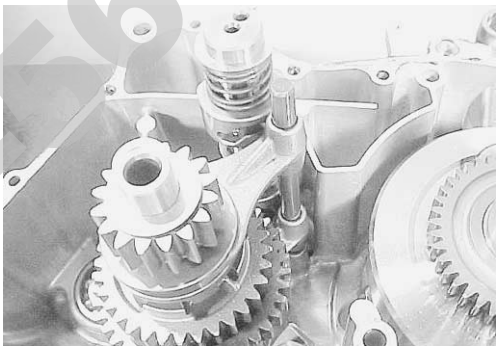
- Install the C-ring ②.



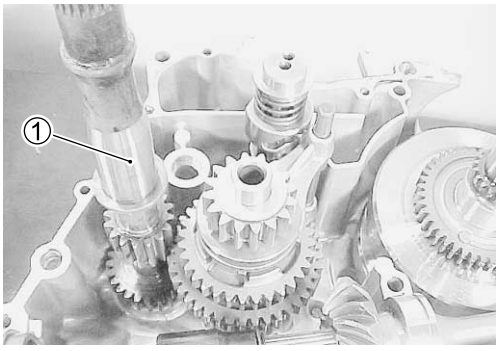
TRANSFER

- Install the transfer related parts.

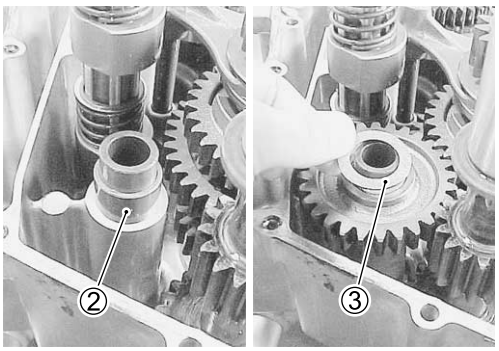
NOTE:
High/Low gearshift fork and reverse gearshift fork are the same parts.



- Install the transfer input shaft ①.

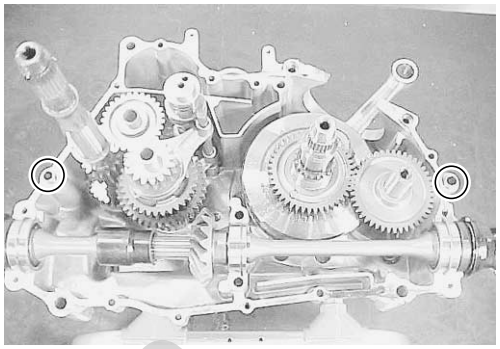


- Install the spacer ② and reverse idle gear.
- Install the washer ③.



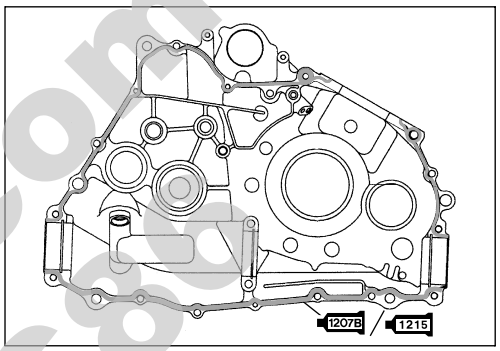
CRANKCASE

- Wipe the crankcase mating surfaces (both surfaces) with a cleaning solvent.
- Fit the dowel pins onto the left half on the crankcase.
- Apply engine oil to the conrod big end and the gears.



- Apply SUZUKI BOND "1207B"/"1215" to the mating surface of the left crankcase.

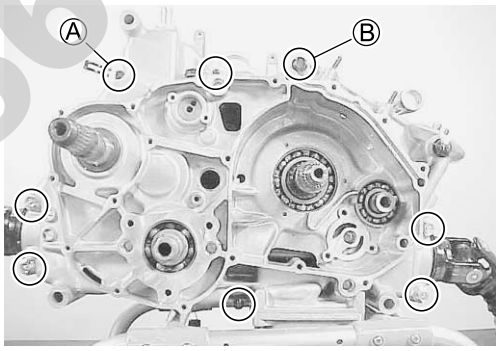
1207B **99104-31140: SUZUKI BOND "1207B" (USA)**
1215 **99000-31110: SUZUKI BOND "1215" (Others)**

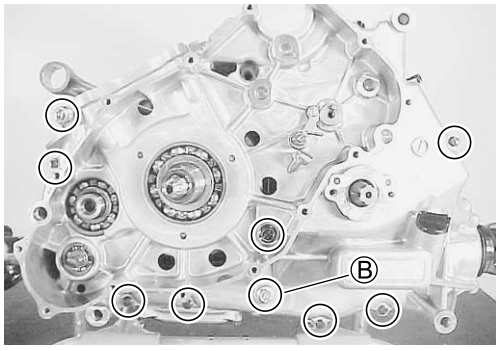


- Assemble the crankcase within few minutes.

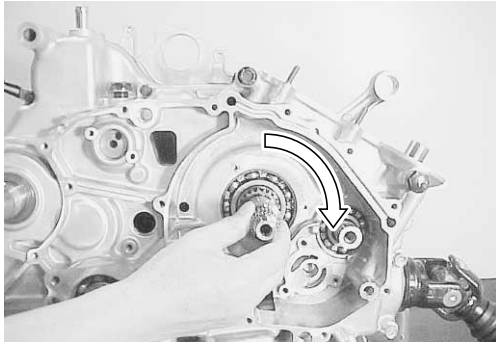
NOTE:

** After crankcase screws have been tightened, check if crankshaft rotate smoothly.*
** Fit the clamp to the bolt Ⓐ.*
** Fit the copper washer to the bolts Ⓑ.*





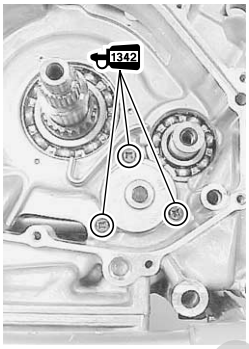
- After the crankcase bolts have been tightened, check if the each shaft rotates smoothly. If a large resistance is felt to rotation, try to free the shafts by tapping them with a plastic hammer.

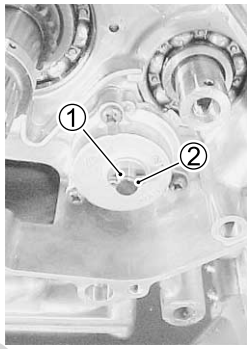


OIL PUMP

- Apply a small quantity of THREAD LOCK "1342" to the screws and install the oil pump.
- Install the washer ① and pin ②.

1342 99000-32050: THREAD LOCK "1342"

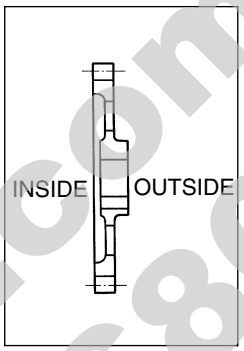




- Install the oil pump driven gear.
- Install the snap ring.

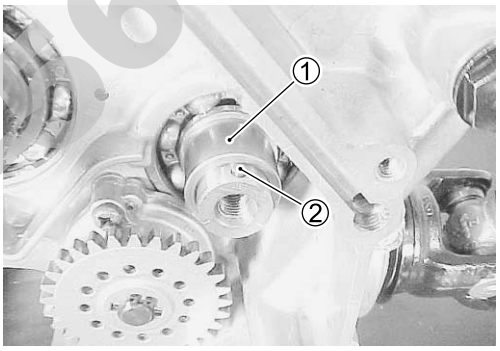
TOOL 09900-06107: Snap ring pliers

NOTE:
Pay attention to the direction of the gear.



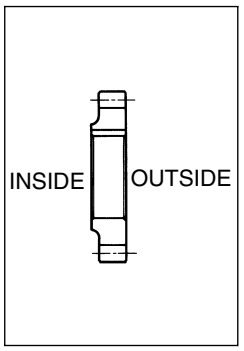
OIL PUMP DRIVE GEAR

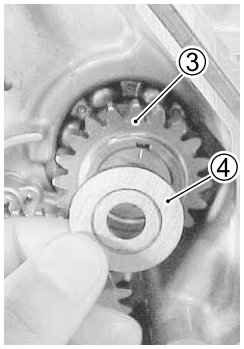
- Install the spacer ① and pin ②.



- Install the oil pump drive gear ③ and washer ④.

NOTE:
The flange side of the gear faces inside.

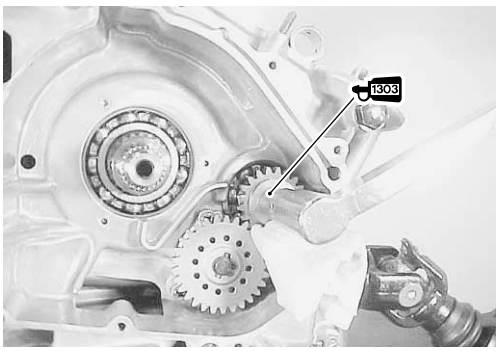




- Apply THREAD LOCK SUPER "1303" to the oil pump drive gear bolt.
- Tighten the bolt to the specified torque by engaging a rag between the gears as shown.

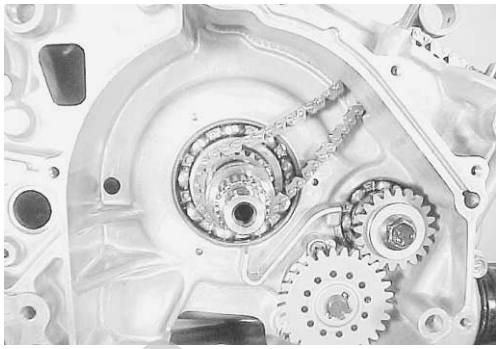
Oil pump drive gear bolt: 50 N·m (5.0 kgf-m, 36.0 lb-ft)

1303 99000-32030: THREAD LOCK SUPER "1303"



CAM CHAIN

- Install the cam chain.



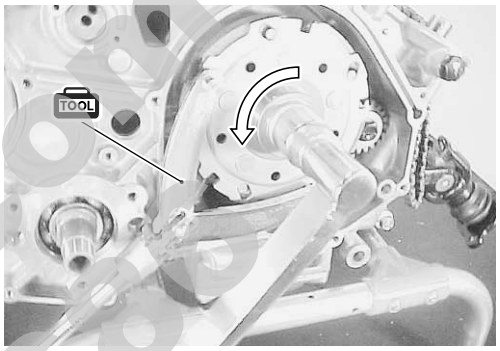
CLUTCH SHOE

- Apply THREAD LOCK SUPER "1303" to the clutch shoe nut.
- Install the clutch shoe assembly and tighten the clutch shoe nut to the specified torque with the special tool.

Clutch shoe nut: 120 N·m (12.0 kgf-m, 87.0 lb-ft)

1303 99000-32030: THREAD LOCK SUPER "1303"

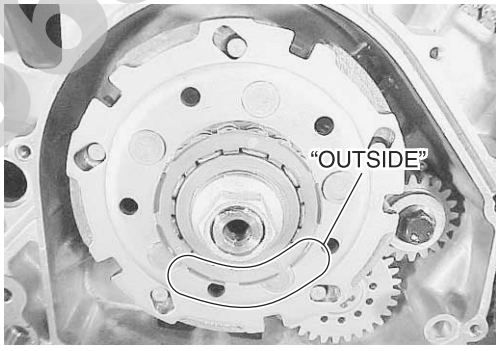
TOOL 09930-40113: Rotor holder



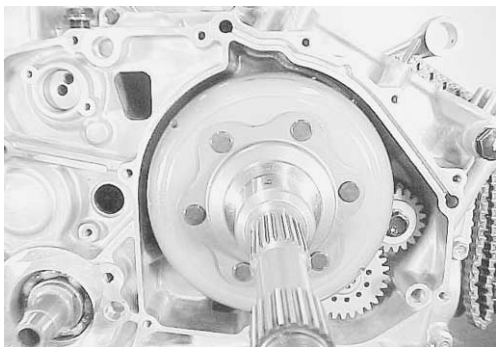
CAUTION

The clutch shoe nut has left-hand threads.

- Install the one way clutch with facing the "OUTSIDE" mark outside.



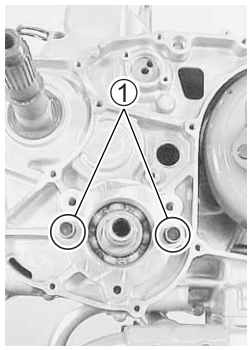
- Install the clutch housing/shaft.

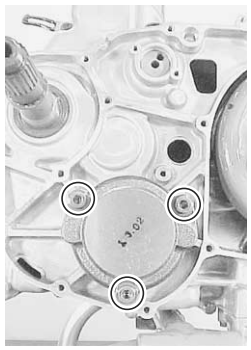


OUTPUT SHAFT HOUSING

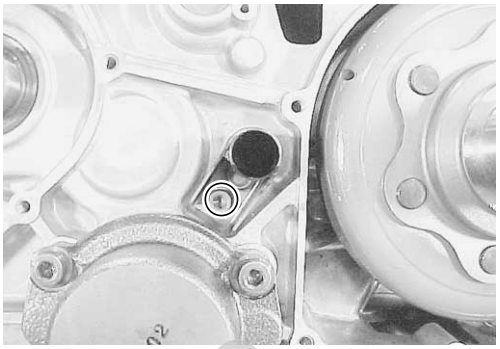
- Install the dowel pins ①.
- Apply THREAD LOCK "1342" to the bolts and install the output shaft housing.

Output shaft housing bolt: 26 N·m (2.6 kgf-m, 19.0 lb-ft)





• Install the breather pipe.

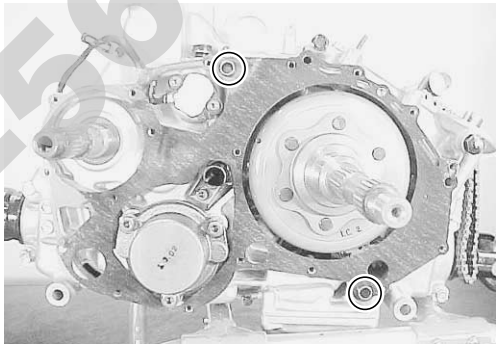


NEUTRAL SWITCH

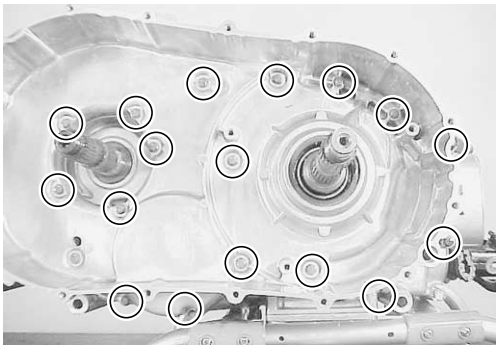
• Install the springs and switch contacts.
• Install the neutral switch.

CLUTCH HOUSING CASE

• Install the dowel pins and new gasket.



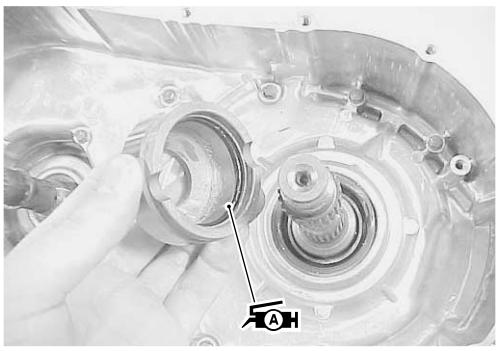
• Tighten the clutch housing case bolts.



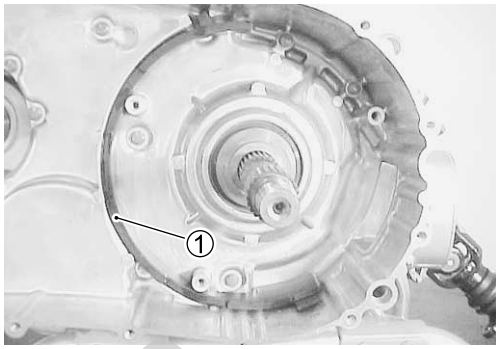
• Install the collar.

NOTE:
Use a new O-ring and apply SUZUKI SUPER GREASE "A" to it.

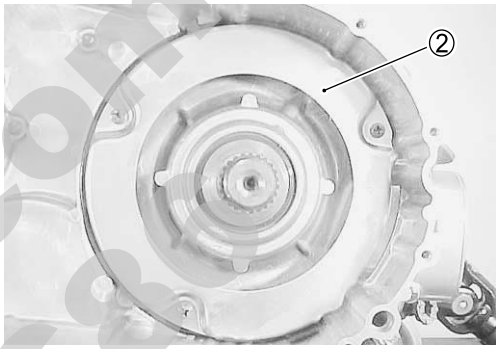
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



• Install the rubber damper ①.

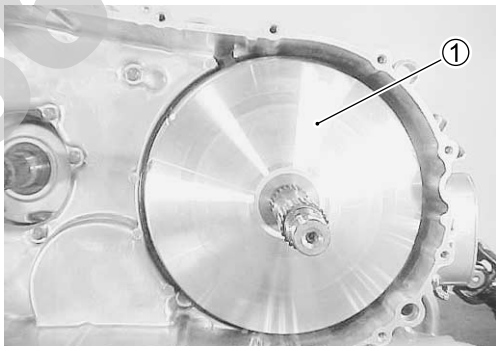


• Install the fixed drive face back plate ②.



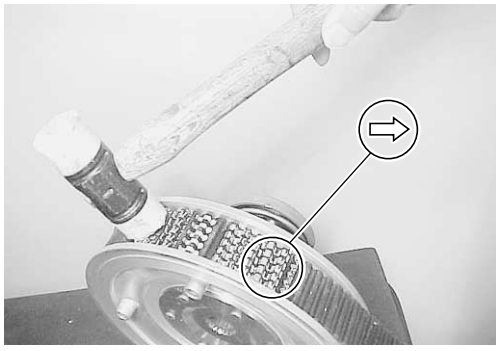
FIXED DRIVE FACE

• Install the fixed drive face ①.



MOVABLE DRIVE/DRIVEN FACE AND DRIVE BELT

• Install the drive belt, as low as possible, between the movable driven face and fixed driven face by tapping with a plastic mallet.

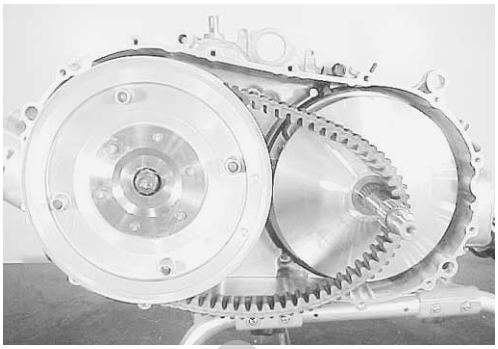


CAUTION

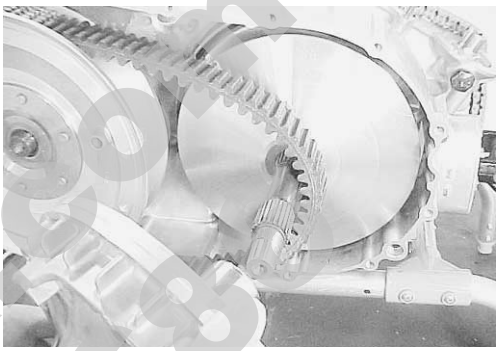
*** The drive belt should be installed so that the arrows on the drive belt periphery point in the normal turning direction.**

*** The drive belt contact surface of the driven face should be thoroughly cleaned.**

• Install the movable driven face assembly.



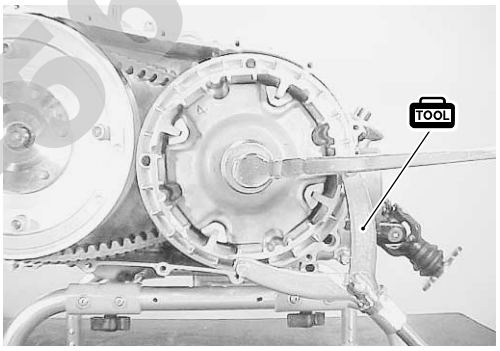
• Install the movable drive face assembly.



• Tighten the movable drive face nut to the specified torque with the special tool.

Movable drive face nut: 115 N·m (11.5 kgf-m, 83.0 lb-ft)

09930-40113: Rotor holder

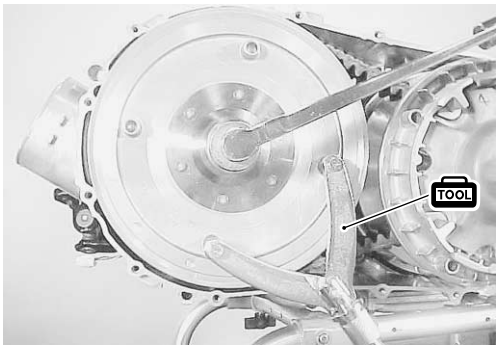


• Tighten the movable driven face nut to the specified torque with the special tool.

Movable driven face nut: 115 N·m (11.5 kgf-m, 83.0 lb-ft)

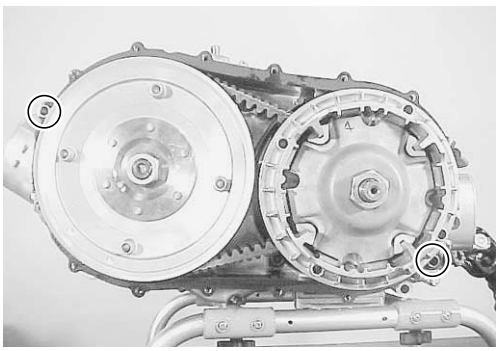
09930-40113: Rotor holder

NOTE:
Turn the fixed drive face until the belt is seated in and both the drive and driven faces will move together smoothly without slip.

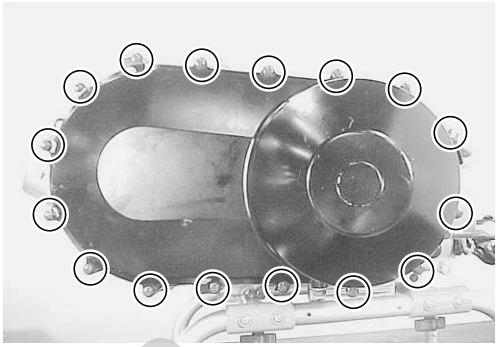


CLUTCH COVER

• Install the new gasket and dowel pins.



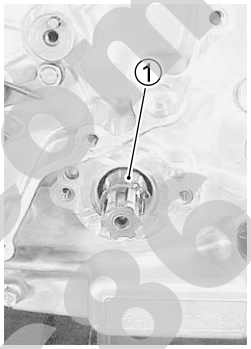
- Install the clutch cover.

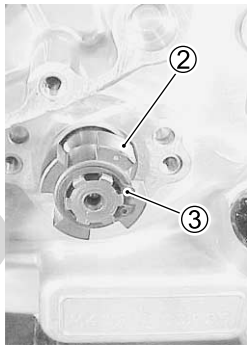


SPEED SENSOR

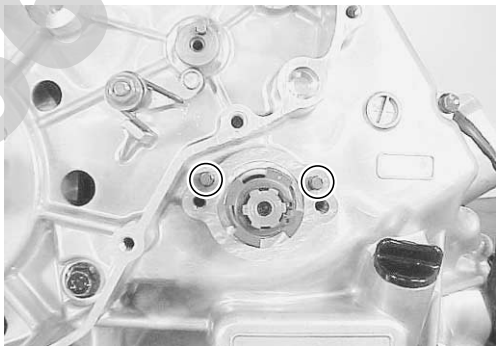
- Install the snap ring ①.
- Install the speed sensor rotor ② by installing the snap ring ③.

TOOL 09900-06107: Snap ring pliers

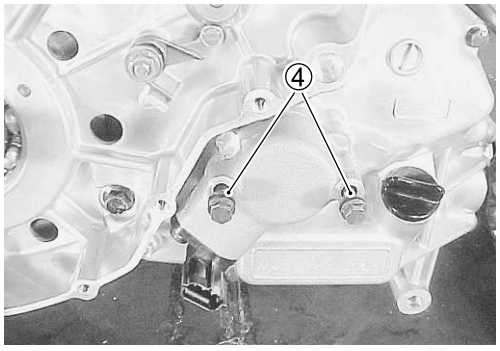




- Install the new gasket and dowel pins.



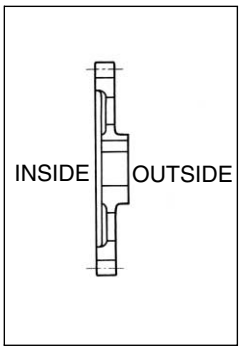
- Install the new gaskets ④ and tighten the speed sensor mounting bolts.



WATER PUMP DRIVE/DRIVEN GEAR

- Install the pin ① and water pump driven gear.

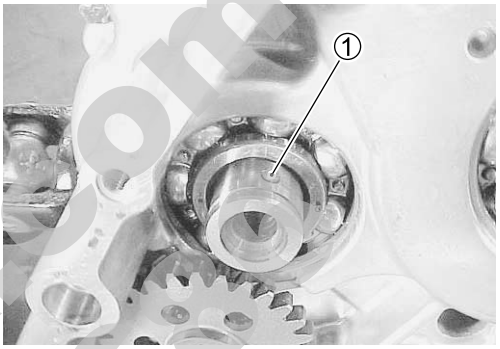
NOTE:
Pay attention to the direction of the gear.



• Install the snap ring.

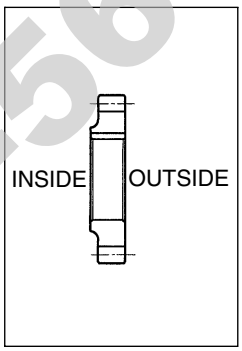
TOOL **09900-06107: Snap ring pliers**

• Install the pin ①.



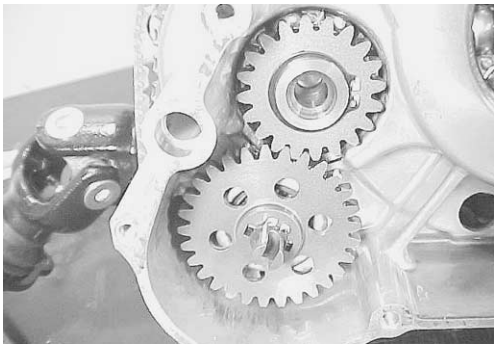
• Install the water pump drive gear.

NOTE:
Pay attention to the direction of the gear.



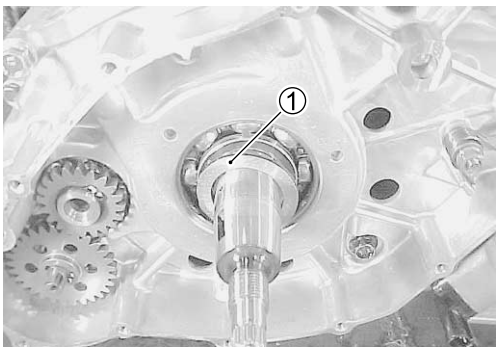
• Install the snap ring.

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



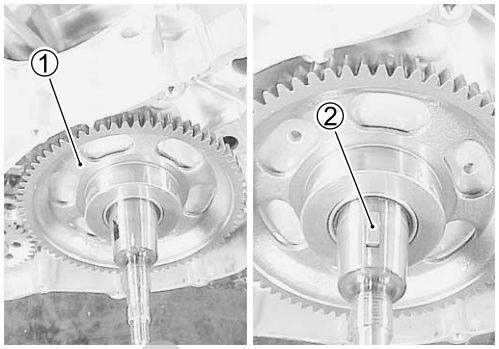
GENERATOR

• Install the washer ①.



- Install the starter driven gear ①.
- Install the key ②.

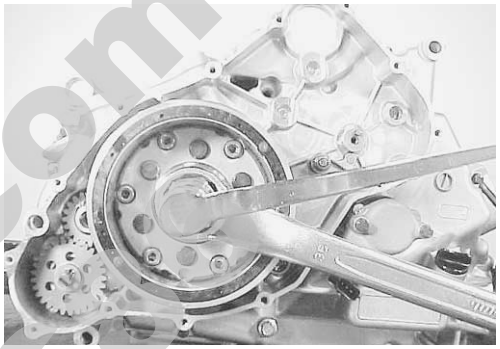
NOTE:
Degrease the tapered portion of the generator rotor assembly and also the crankshaft. Use nonflammable cleaning solvent to wipe off the oily or greasy matter to make these surfaces completely dry.



- Install the generator rotor assembly.

CAUTION

Make sure that the one way clutch on the crankshaft rotor is fitted into the generator rotor properly.

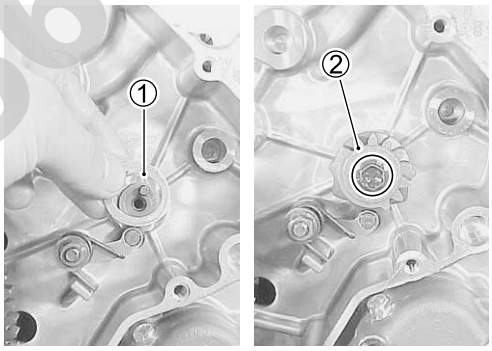


- Tighten the generator rotor nut to the specified torque with an offset wrench.

Generator rotor nut: 160 N·m (16.0 kgf-m, 115.5 lb-ft)

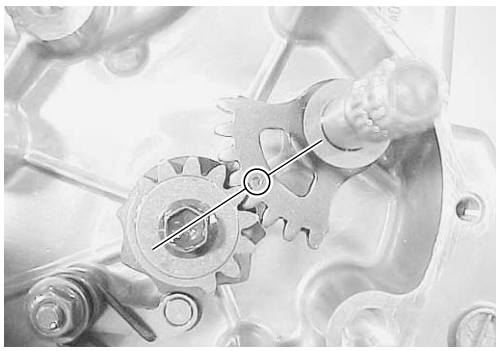
GEARSHIFT

- Install the washer ①.
- Install the cam driven gear ②.



- Reassemble the gearshift shaft.

- Install the gearshift by aligning the punched mark Ⓐ with the center of the cam driven gear.

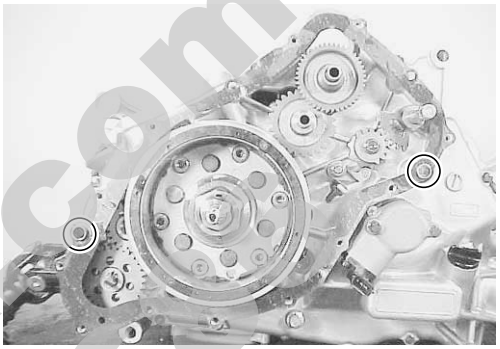


STARTER DRIVEN GEAR/IDLE GEAR

- Install the starter driven gear and idle gear.

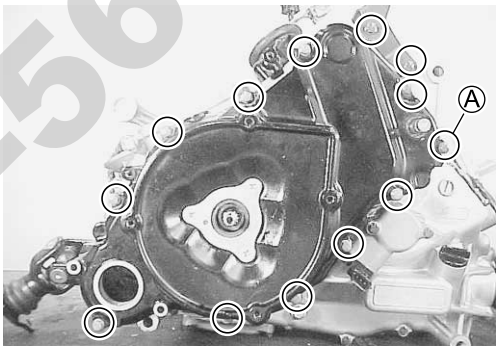
GENERATOR COVER

- Install the dowel pins and new gasket.



- Tighten the generator cover bolt.

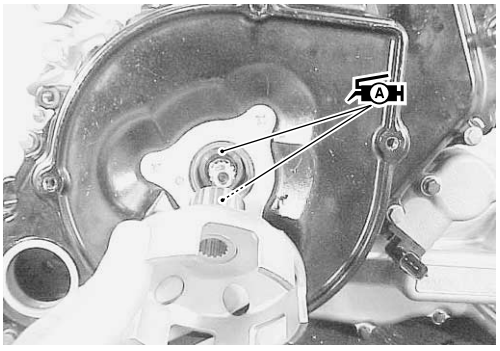
NOTE:
Fit the clamp to the bolt Ⓐ.



STARTER CUP

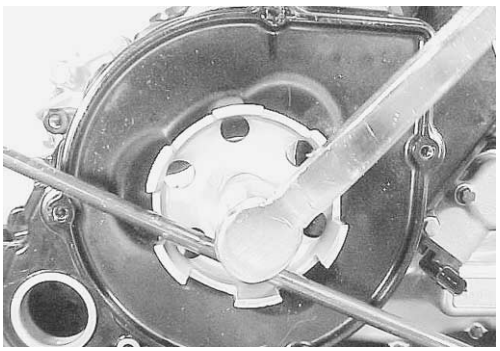
- Apply SUZUKI SUPER GREASE "A" to the O-ring and lip of the oil seal.
- Install the starter cup.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



- Tighten the starter cup nut by using a suitable bar.

Starter cup nut: 33 N·m (3.3 kgf-m, 24.0 lb-ft)



WATER PUMP

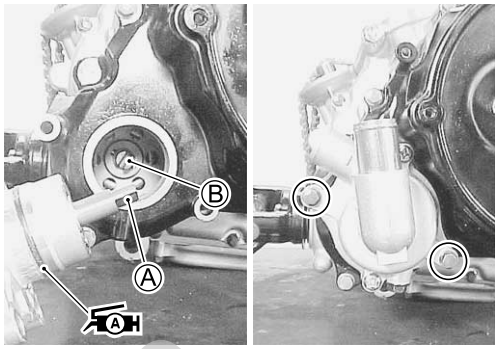
- Install the water pump.

NOTE:

** Apply grease to the O-ring.*

** Set the water pump driven shaft end Ⓐ to the water pump drive shaft Ⓑ.*

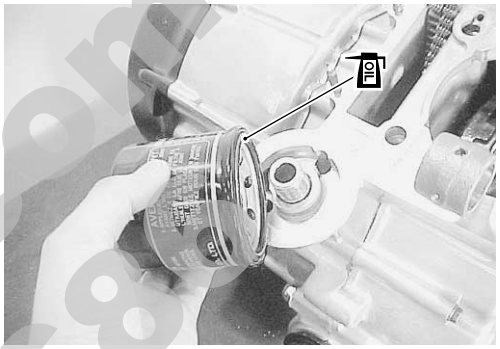
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



OIL FILTER

- Apply engine oil lightly to the O-ring.
- Install the oil filter turning it by hand until feeling that the filter gasket contacts the mounting surface. Then tighten it 2 turns using the oil filter wrench.

09915-40610: Oil filter wrench



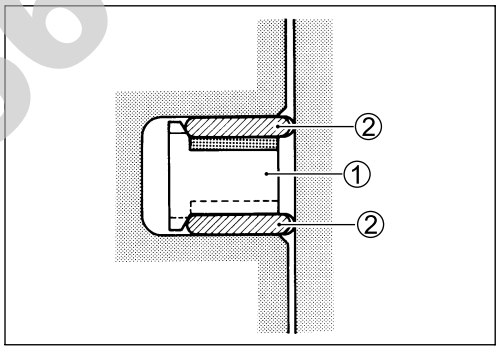
ENGINE TOP SIDE

PISTON

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

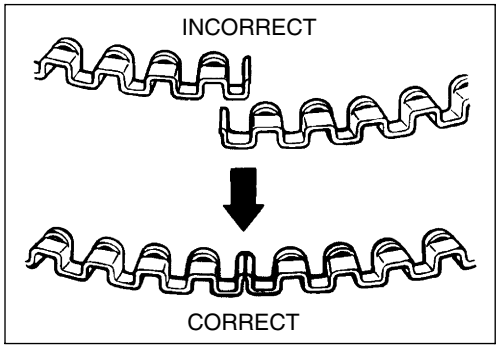
NOTE:

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



CAUTION

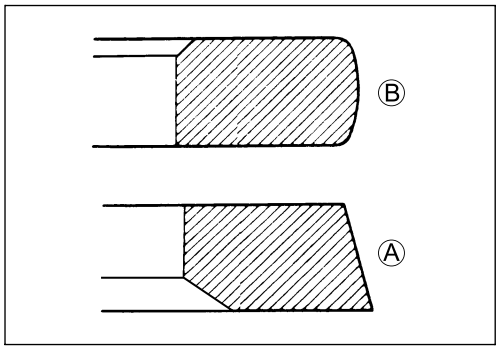
When installing the spacer, be careful not to allow its two ends to overlap in the groove.



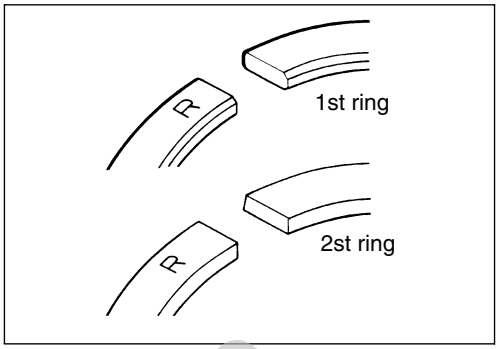
- Install the 2nd ring Ⓐ and 1st ring Ⓑ.

NOTE:

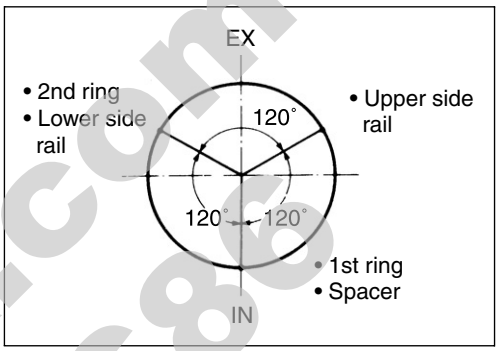
1st ring and 2nd ring differ in shape.



- 1st ring and 2nd ring have letter “R” marked on the side. 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 the piston into the cylinder, check that the gaps are so located.

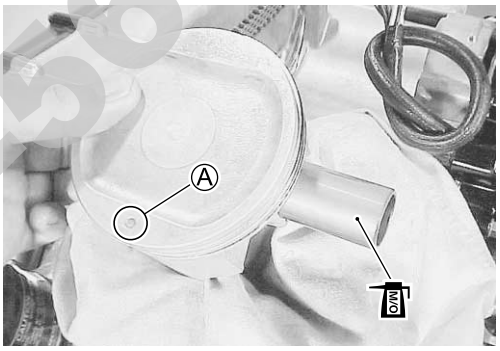


- Apply a light coat of molybdenium oil solution to the piston pin.

MOLYBDENUM OIL

- Install the piston and piston pin.

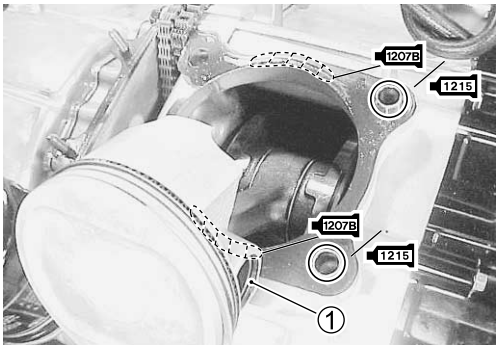
NOTE:
When installing the piston, the punched mark Ⓐ on the piston head is located to the exhaust side.



- Place a cloth beneath the piston, install the circlip ①.

CAUTION

When turning the crankshaft, pull the cam chain upward, or the chain will be caught between the crankcase and the cam drive sprocket.



- Fit the dowel pins and the new gasket.

CAUTION

Use a new gasket to prevent gas leakage.

- Coat SUZUKI BOND “1207B/1215” lightly to the mating surfaces among the crankcase mating surfaces.

1207B 99104-31140: SUZUKI BOND “1207B” (USA)

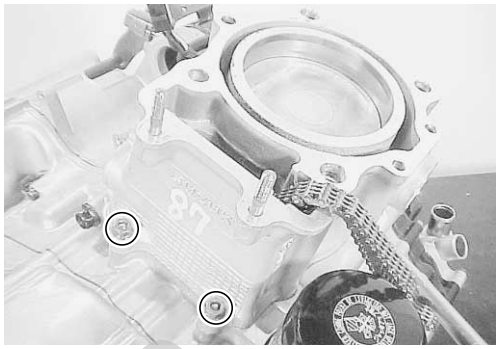
1215 99000-31110: SUZUKI BOND “1215” (Others)

CYLINDER

- Hold each piston ring with properly position, insert the piston into the cylinder.
- Tighten the cylinder base nuts temporarily.

CAUTION

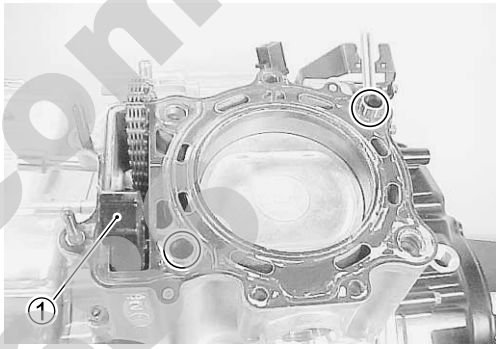
When installing the cylinder and cylinder head, pull the cam chain upward, or the chain will be caught between the crankcase and cam drive sprocket.



- Install the cam chain guide ①.
- Fit the dowel pins and new cylinder head gasket.

CAUTION

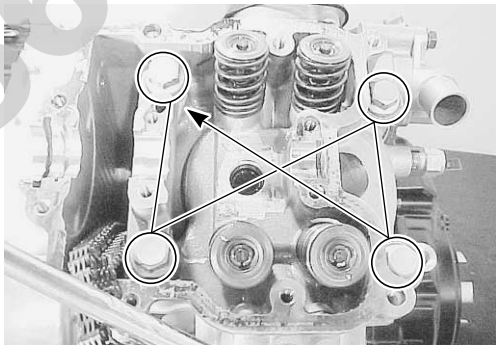
Use a new gasket to prevent gas leakage.



CYLINDER HEAD

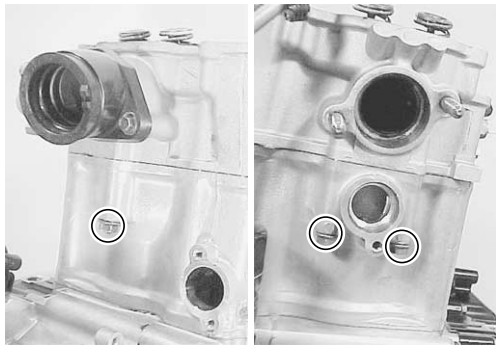
- Install the cylinder head and tighten the cylinder head bolts diagonally to the specified torque.

Cylinder head bolt
Initial: 25 N·m (2.5 kgf-m, 18.0 lb-ft)
Final: 38 N·m (3.8 kgf-m, 27.5 lb-ft)



- Tighten the cylinder head bolts to the specified torque.

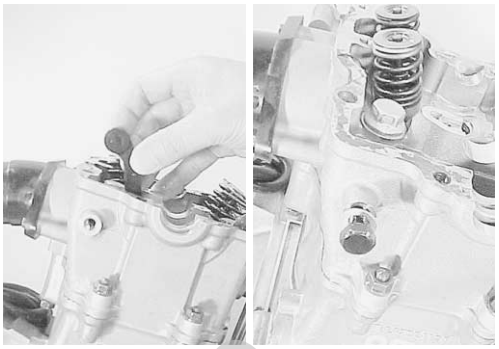
Cylinder head nut
6 mm: 10 N·m (1.0 kgf-m, 7.0 lb-ft
8 mm: Internal 10 N·m (1.0 kgf-m, 7.0 lb-ft)
Final 25 N·m (2.5 kgf-m, 18.0 lb-ft)



- Tighten the cylinder base nuts and cylinder head nuts to the specified torque.

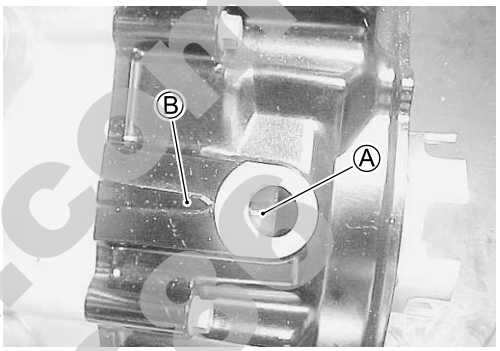
Cylinder base nut: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

• Install the cam chain tensioner.



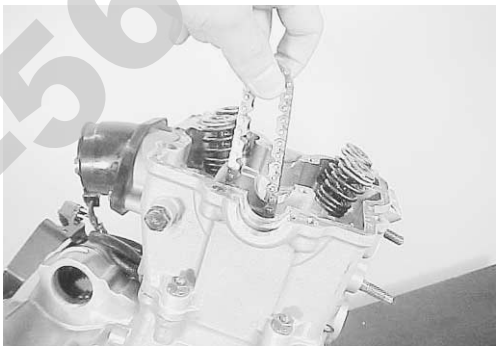
CAMSHAFT

• Align the line Ⓐ on the generator rotor with the index mark Ⓑ on the crankcase.



CAUTION

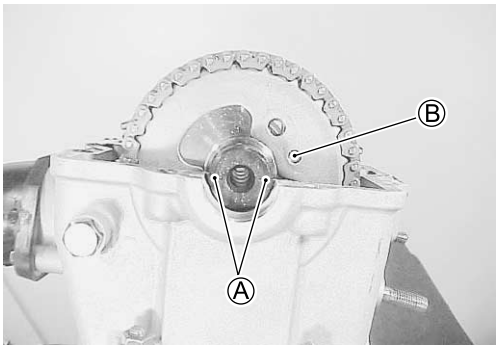
Pull the cam chain upward, or the chain will be caught between crankcase and cam drive sprocket.



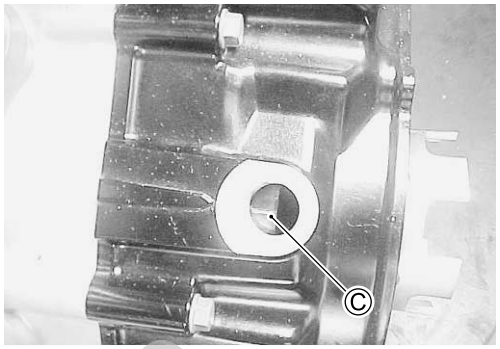
• Align the marks Ⓐ on the camshaft so that they are parallel with the surface of the cylinder head.

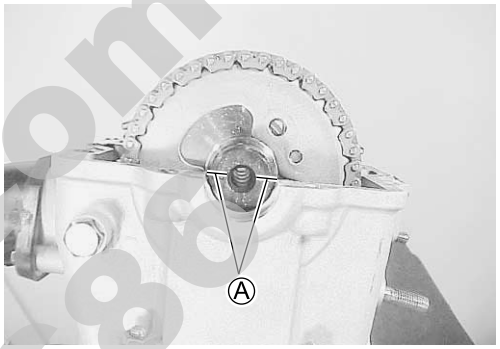
NOTE:
Do not rotate the generator while doing this. When the sprocket is not positioned correctly, turn the sprocket.

• Engage the chain on the cam sprocket with the locating pin hole Ⓑ as shown.

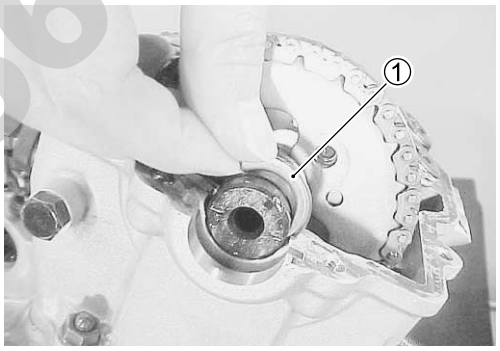


• Recheck the position of the line Ⓒ and the marks Ⓐ.





• Install the C-ring ①.

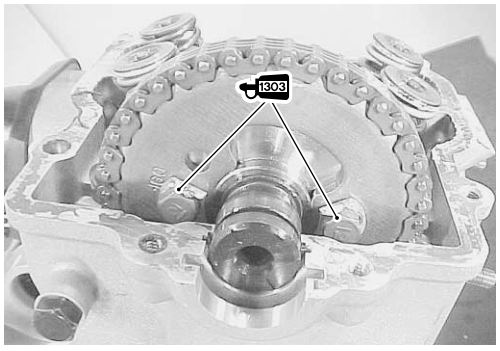


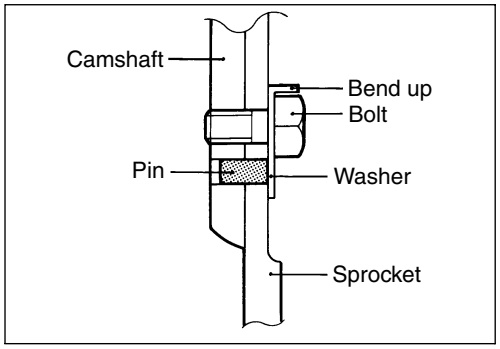
• Install the lock washer so that it is covering the locating pin.
• Apply THREAD LOCK SUPER “1303” to the bolts and tighten them to the specified torque.

Cam chain sprocket bolt: 15 N·m (1.5 kgf-m, 11.0 lb-ft)

1303 99000-32030: THREAD LOCK SUPER “1303”

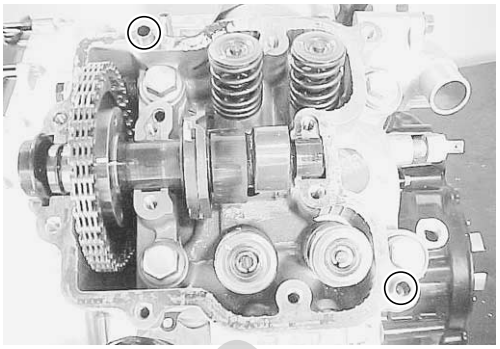
• Bend up the washer tongue positively to lock the bolts.





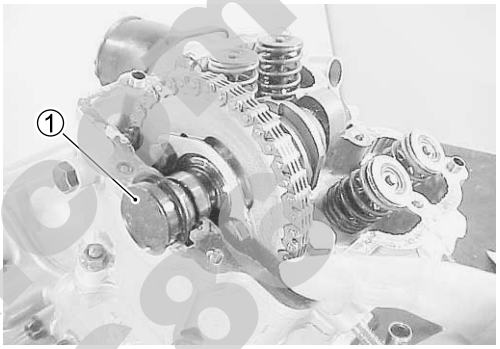
CYLINDER HEAD COVER

- Clean the mating surfaces of the cylinder head and head cover before matching.
- Install the dowel pins to the cylinder head.



- Apply SUZUKI BOND “1216B” to the mating surface of the cylinder head cover.
- Fit the camshaft end cap ①.

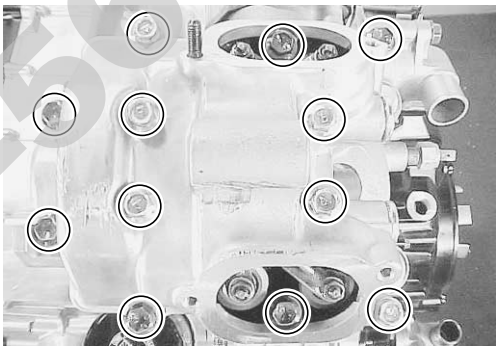
1216B 99000-31230: SUZUKI BOND “1216B”



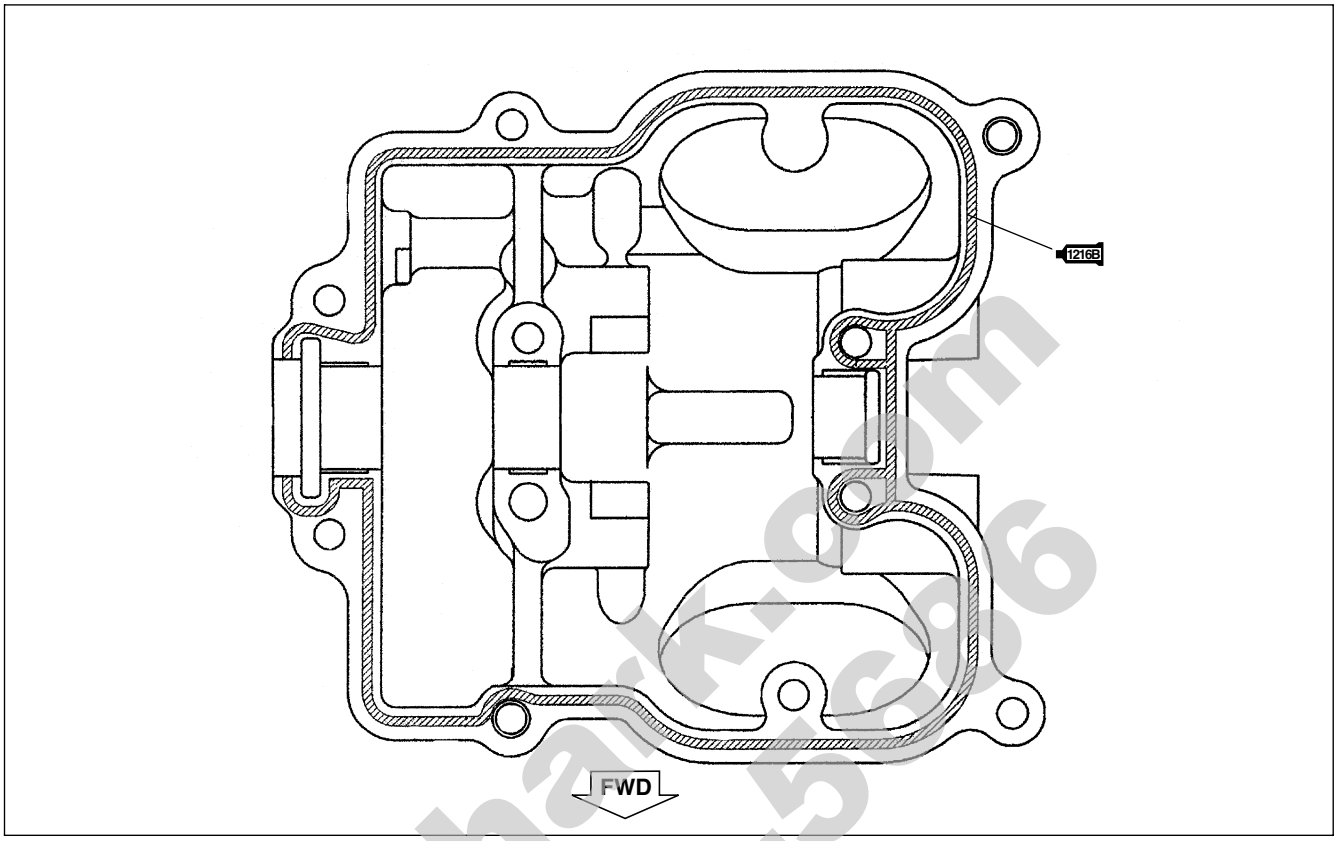
- Lightly tighten the cylinder head cover bolts diagonally, and then if everything is satisfactory, tighten securely with a torque wrench to the specified torque.

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

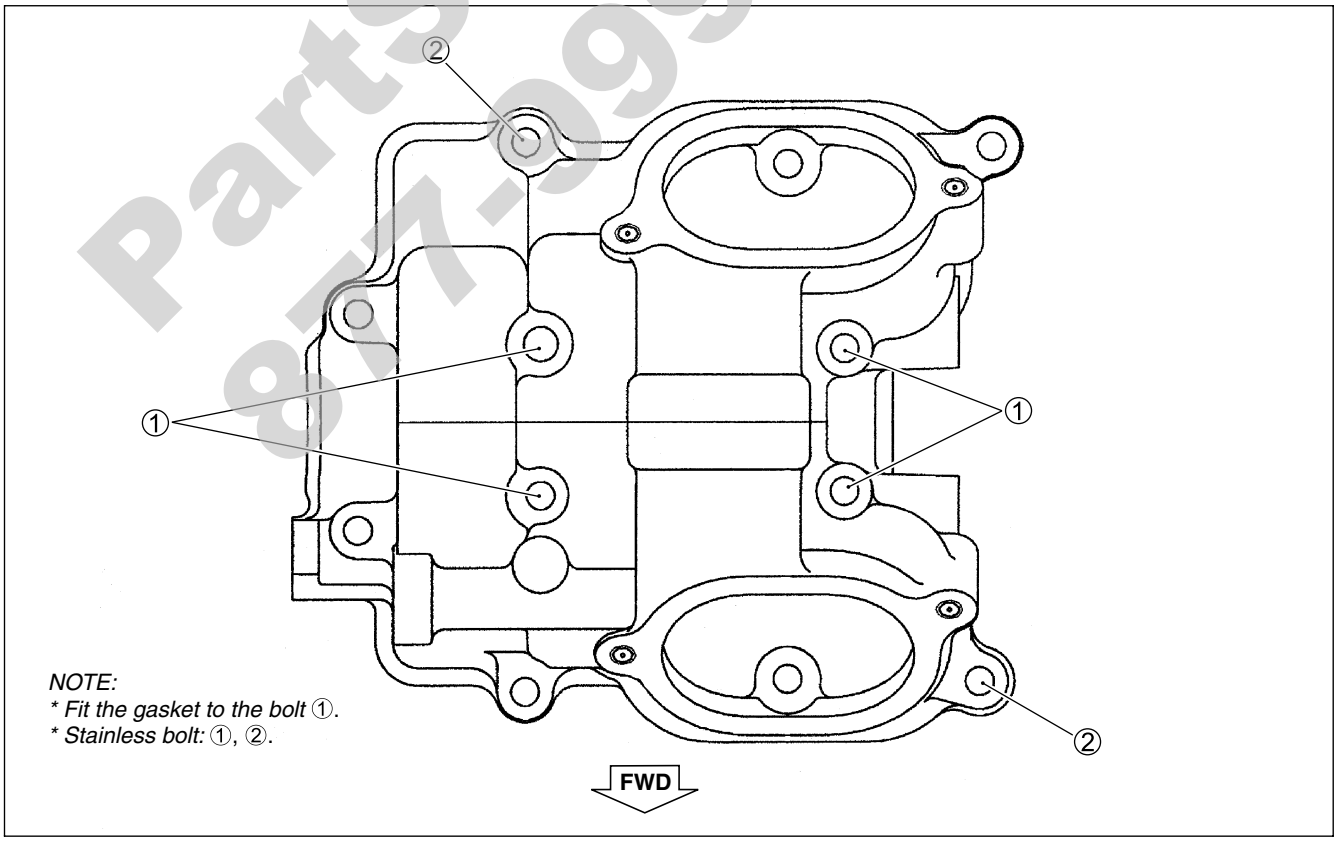
NOTE:
When tightening the cylinder head cover bolts, the piston must be at top dead center on the compression stroke.



LIQUID GASKET APPLYING PLACE



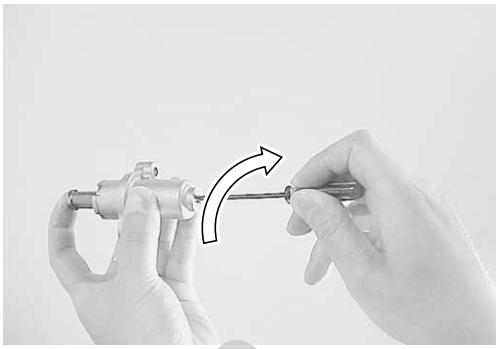
LOCATION OF CYLINDER HEAD COVER BOLT



NOTE:
** Fit the gasket to the bolt ①.*
** Stainless bolt: ①, ②.*

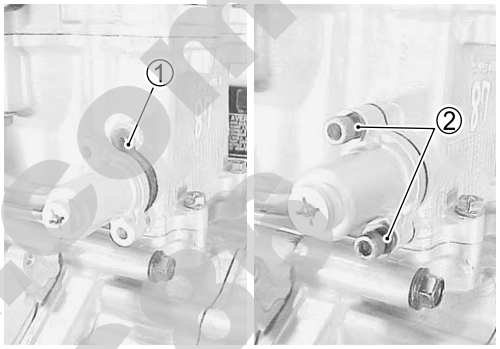
CAM CHAIN TENSION ADJUSTER

- Insert the ⊖ screwdriver into the slotted end of the cam chain tension adjuster, then turn it clockwise to lock the spring tension.



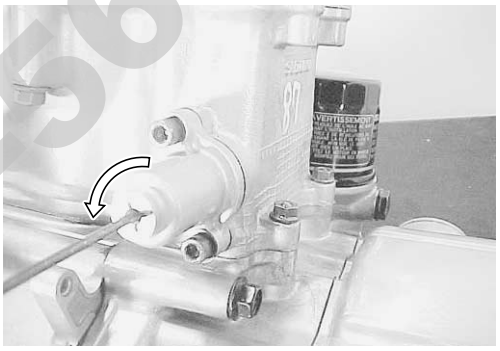
- Install the new gasket ① and cam chain tension adjuster.
- Install the new gaskets ② and tighten the bolts to the specified torque.

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



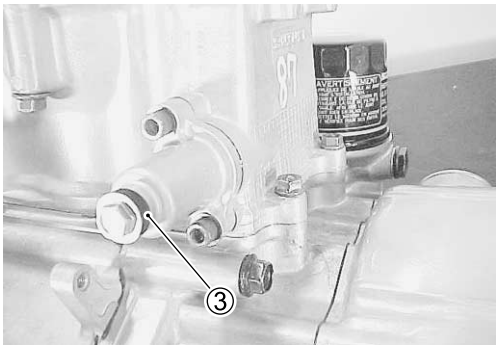
- After installing the cam chain tension adjuster, turn a ⊖ screwdriver counterclockwise.

NOTE:
As the slotted end turns, the tension rod is advanced under spring force and pushes the cam chain tension adjuster against the cam chain.



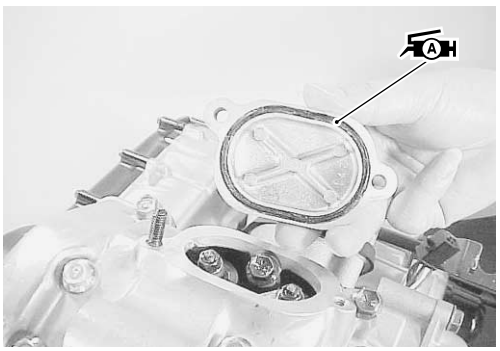
- Install the new gasket ③ and tighten the spring holder bolt to the specified torque.

Spring holder bolt: 8 N·m (0.8 kgf-m, 5.7 lb-ft)



- Apply grease to the new O-rings and install the valve inspection caps.

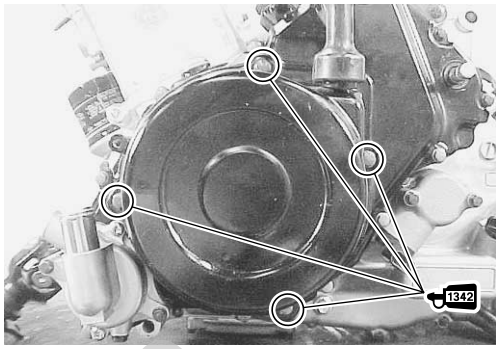
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



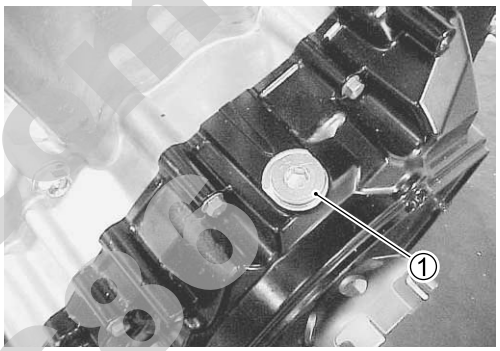
RECOIL STARTER

- Apply a small quantity of THREAD LOCK “1342” to the bolts.
- Install the recoil starter.

99000-32050: THREAD LOCK “1342”



- Install the valve timing inspection plug ①.

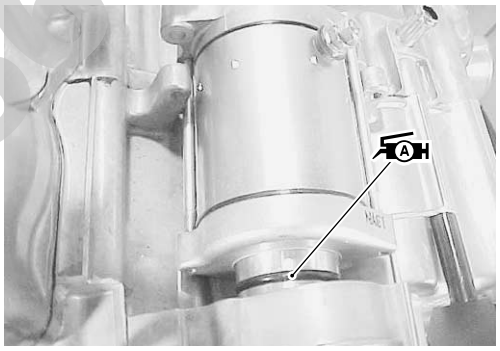


STARTER MOTOR

- Install the starter motor.

NOTE:
Apply grease to the new O-ring.

99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

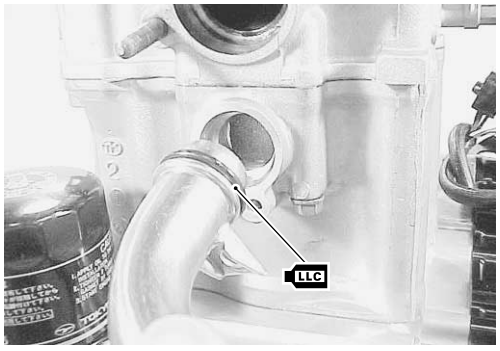


- Install the new O-ring to the water pipe.

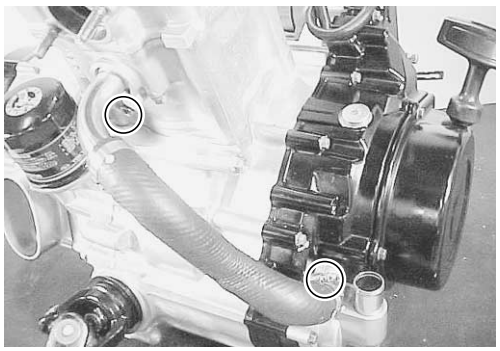
CAUTION

Use a new O-ring to prevent engine coolant leakage.

NOTE:
Apply engine coolant to the O-ring.



- Install the water hose/pipe.



DRIVE TRAIN

CONTENTS

FRONT DRIVING SYSTEM 4- 2
FRONT DRIVE (DIFFERENTIAL) REMOVAL 4- 3
FRONT DRIVE (DIFFERENTIAL) DISASSEMBLY 4- 3
FRONT DRIVE (DIFFERENTIAL) INSPECTION 4- 7
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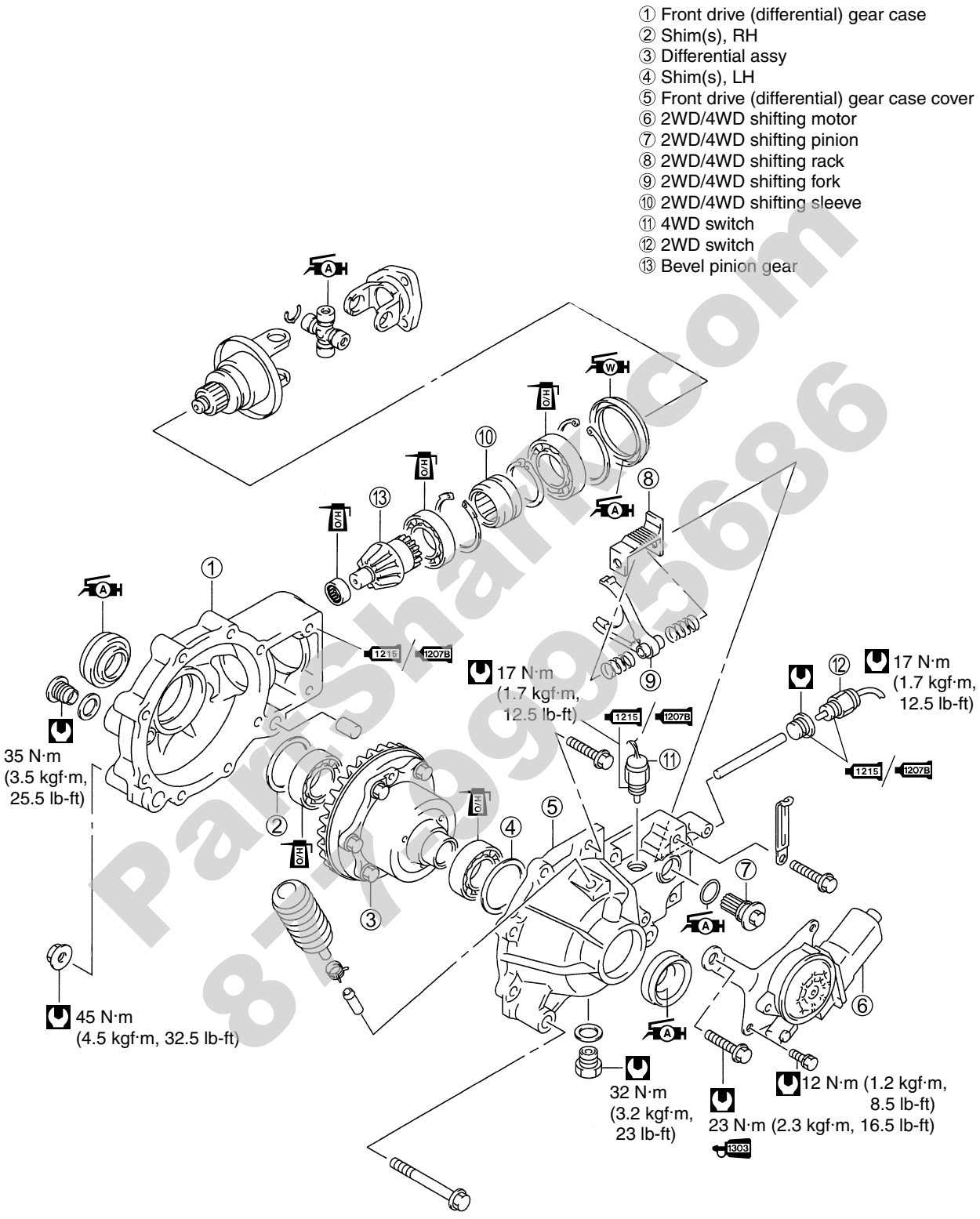
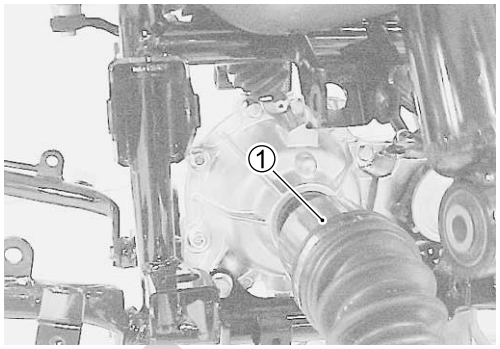
FRONT DRIVING SYSTEM



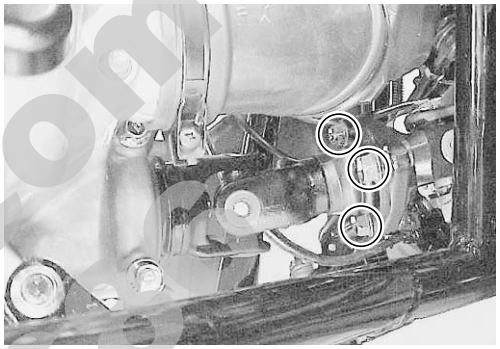
FRONT DRIVE (DIFFERENTIAL) REMOVAL

- Remove the front wheels and front fender. (☞7-5)
- Drain the differential gear oil. (☞2-11)
- Remove the front suspension. (☞7-31)
- Hold the inboard joint ① of the drive shaft and tug the drive shaft horizontally.

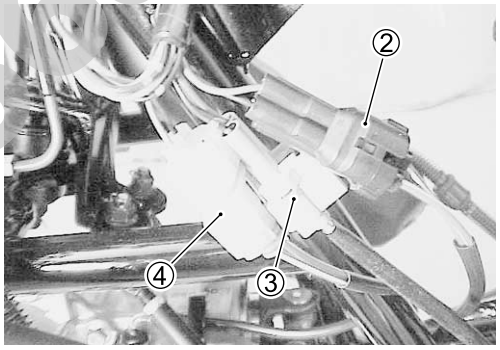


NOTE:
If it is difficult to remove the drive shaft from the differential case, use the special tool.

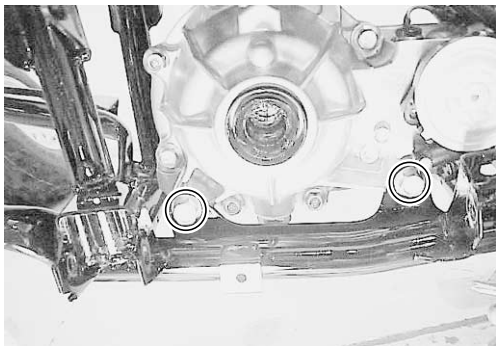
- Remove the front propeller shaft flange coupling bolts.



- Disconnect the following lead wire couples.
  ② 2WD lead wire coupler
  ③ 2WD/4WD motor lead wire coupler
  ④ 4WD lead wire coupler



- Remove the front drive (differential) gear case mounting bolts.
- Remove the front drive (differential) assembly out of the frame.

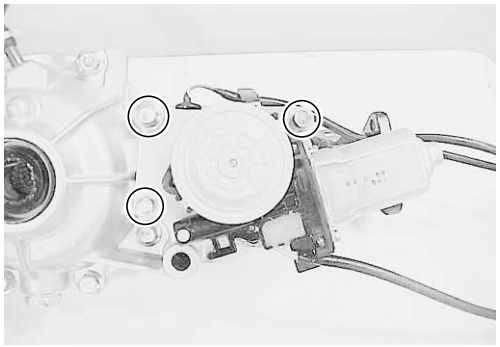


FRONT DRIVE (DIFFERENTIAL) DISASSEMBLY

2WD/4WD SHIFTING MOTOR

- Remove the 2WD/4WD shifting motor assembly.

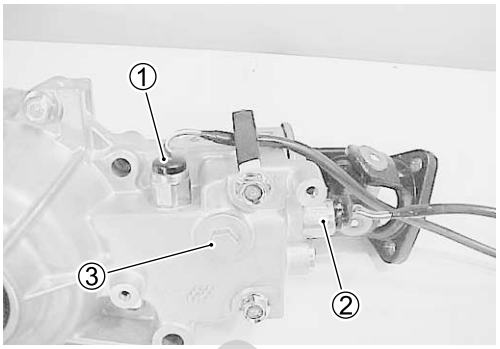
MOTOR INSPECTION ☞8-25.



2WD/4WD SHIFTING PINION AND SWITCH

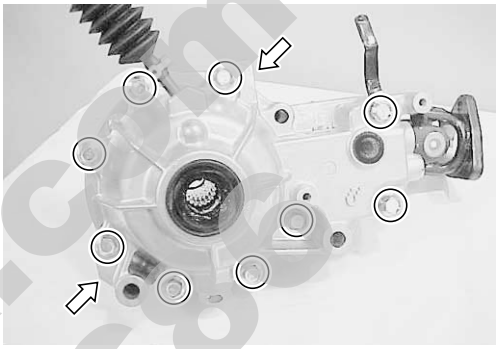
- Remove the 4WD switch ① and 2WD switch ②.
- Remove the 2WD/4WD shifting pinion ③.

2WD/4WD SWITCHES INSPECTION ☞8-36.



FRONT DRIVE (DIFFERENTIAL) GEAR CASE

- Remove the front drive (differential) gear case cover bolts in a crisscross pattern.
- Pry the cover at the arrows as shown by using a screwdriver.



- Remove the differential assembly and shims.

CAUTION

*** Do not attempt to disassemble the differential assembly.**
*** The differential is available only as an assembly.**

- Remove the bearings from the differential assembly with a commercially available bearing puller.

NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.

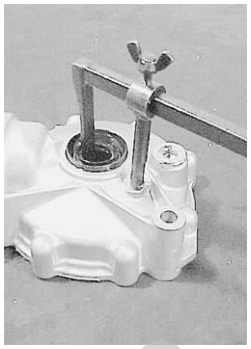
- Remove the oil seals out of the gear case and its cover with the special tool.

TOOL 09913-50121: Oil seal remover

NOTE:
If there is no abnormal condition, the oil seal removal is not necessary.

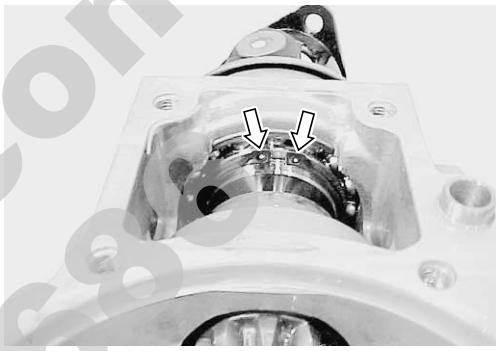
CAUTION

The removed oil seal must be replaced with a new one.



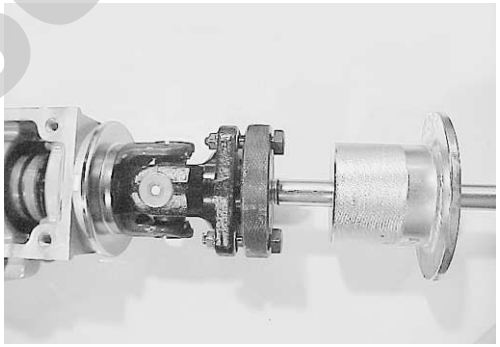
SHIFTING SLEEVE/UNIVERSAL JOINT YOKE

- Remove the snap ring out of its groove and slide it towards the shifting sleeve.



- Remove the universal joint yoke assembly with the special tool.

TOOL 09930-30190: Rotor remover attachment
09930-30104: Sliding shaft



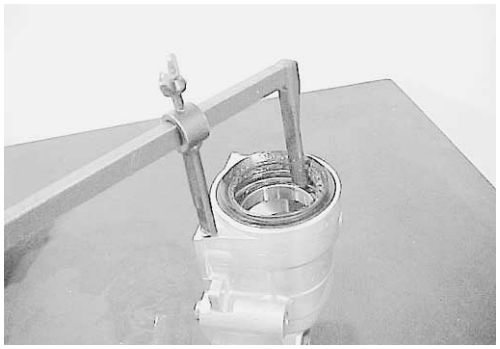
- Remove the oil seal out of the gear case with the special tool.

TOOL 09913-50121: Oil seal remover

NOTE:
If there is no abnormal condition, the oil seal removal is not necessary.

CAUTION

The removed oil seal must be replaced with a new one.



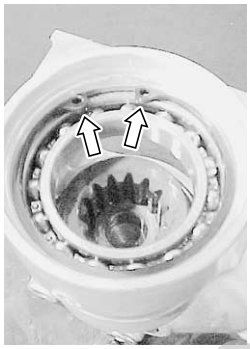
- Remove the snap ring.
- Remove the bearing with the special tool.

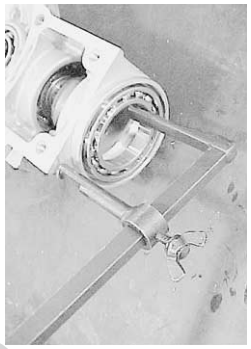
TOOL 09913-50121: Oil seal remover

NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.

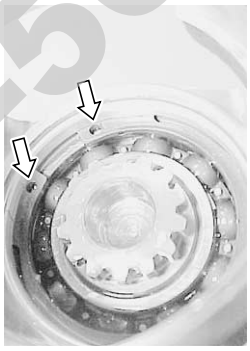


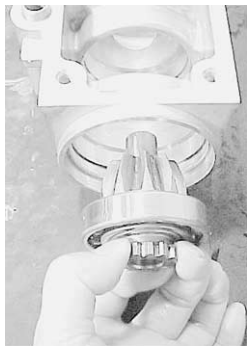


- Remove the shifting sleeve.

BEVEL PINION GEAR

- Remove the snap ring.
- Remove the pinion gear together with the bearing.





BEVEL PINION GEAR BEARING

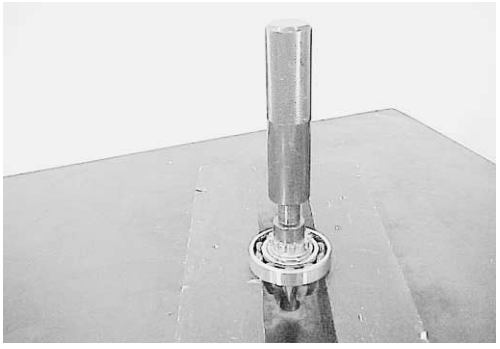
- Remove the bearing from the pinion gear with the special tool.

TOOL 09913-70210: Bearing installer set

NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.



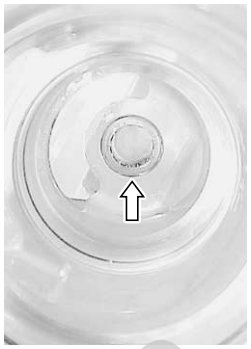
• Remove the pinion gear pilot bearing with the special tools.

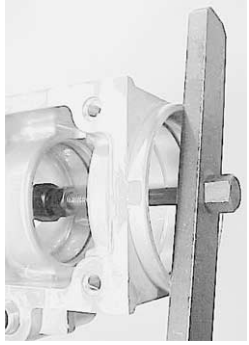
TOOL 09921-20240: Bearing remover set
09917-50410: Bearing remover

NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.





UNIVERSAL JOINT

• Remove the C-rings from the universal joint.

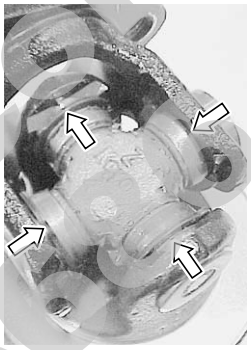
CAUTION

Replace the removed C-ring with a new one.

• Remove the bearings by tapping with the special tool and hammer. (☞3-57)

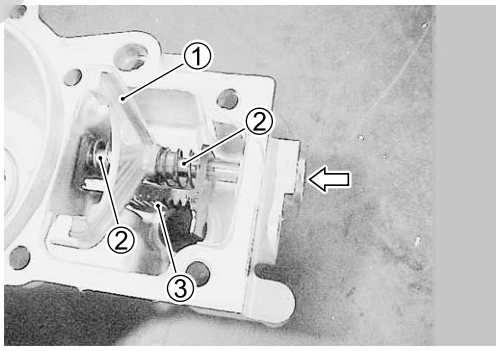
TOOL 09913-70210: Bearing installer set

• Remove the universal joint.



2WD/4WD SHIFTING

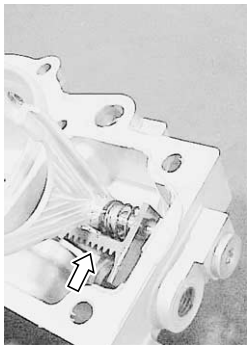
• Remove the 2WD/4WD shifting fork shaft plug.
• Remove the 2WD/4WD shifting fork ①, spring ② and shifting rack ③ by removing shaft.



FRONT DRIVE (DIFFERENTIAL) INSPECTION

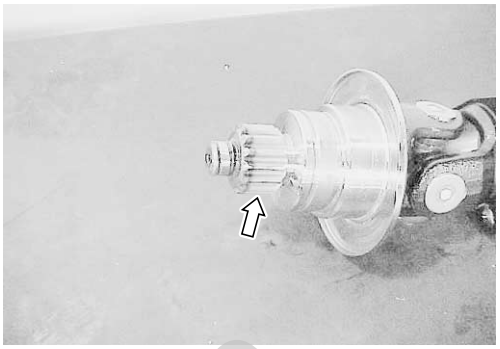
2WD/4WD SHIFTING

Inspect the shifting fork and its rack-and-pinion for wear and damage. If any defects are found, replace the shifting fork and its rack-and-pinion with the new ones.
If the shifting fork is damaged, inspect the groove of the shifting sleeve.



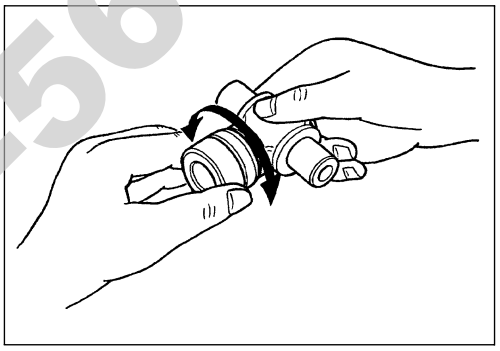
UNIVERSAL JOINT YOKE

Inspect the splines of universal joint for wear or damage. If any defects are found, replace the universal joint yoke with a new one.



Inspect the universal joint and outer surface of the bearing for scuffing, wear and damage. If any defects are found, replace the bearings and universal joint as a set.

Insert the universal joint to the bearing and check the play by tuming the universal joint, as shown. If excessive play is noted, replace the bearing with a new one.



FRONT DRIVE GEAR CASE

Inspect the gear case and case cover oil seals for wear or damage.

If any wear or damage is found, replace the oil seal with a new one.

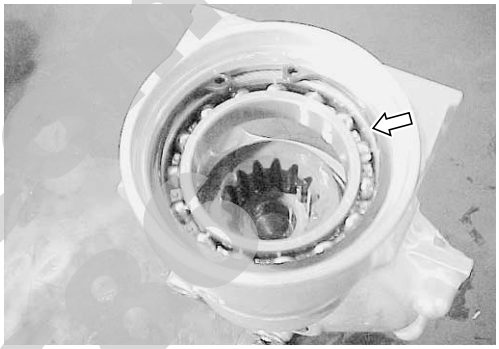
OIL SEAL REMOVAL ☞4-5.

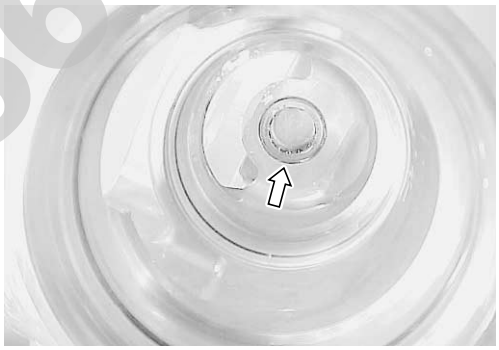
Check the outer race play and smooth rotation of the bearing by hand while it is on the pinion gear shaft.
Inspect the pinion gear for wear or damage.
If the pinion gear is damaged, inspect the ring gear.
If any defects are found, replace the bearing and gear with the new ones.

BEARING AND GEAR REMOVAL ☞4-6.

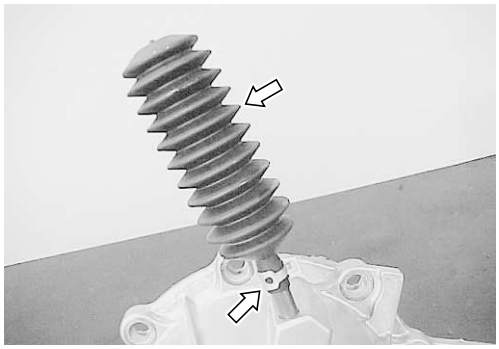
Check the gear case bearings for wear or damage.
If any wear or damage is found, replace the bearing with a new one.

BEARING REMOVAL ☞4-6.





Check the breather rubber case for wear or damage. Also, check that the joint of the rubber case fits tightly.



DIFFERENTIAL BEARING/BEVEL RING GEAR
Check the outer race play and smooth rotation of the bearing by hand while it is on the differential.
Inspect the ring gear for wear or damage.
If the ring gear is damaged, inspect the pinion gear also.
If any defects are found, replace the bearings and ring gear with the new ones.

BEARING REMOVAL ☞4-4.

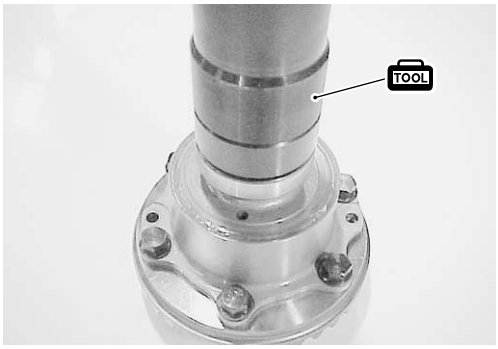
FRONT DRIVE (DIFFERENTIAL) REASSEMBLY

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

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

DIFFERENTIAL BEARING
- Drive the bearings to the differential with the special tool.

TOOL 09913-70210: Bearing installer set

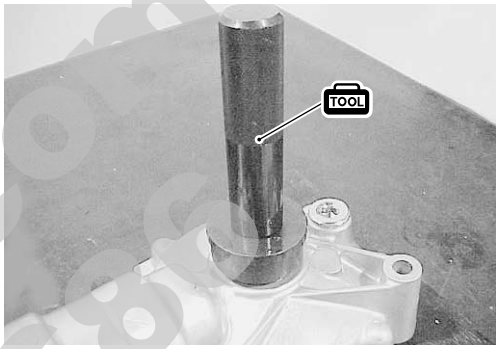


FRONT DRIVE GEAR CASE OIL SEAL

- Install the new oil seals into the gear case and case cover with the special tool.
- Apply grease to the new oil seal lips.

09913-70210: Bearing installer set

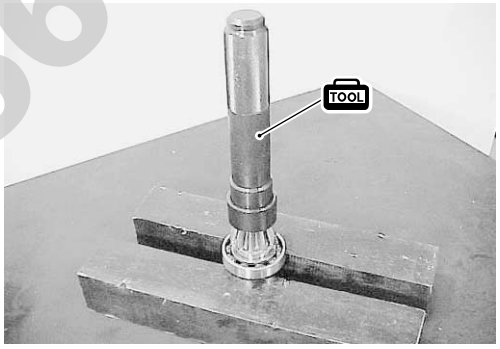
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



BEVEL PINION GEAR BEARING

- Drive the bearing onto the shaft with the special tool.

09913-70210: Bearing installer set



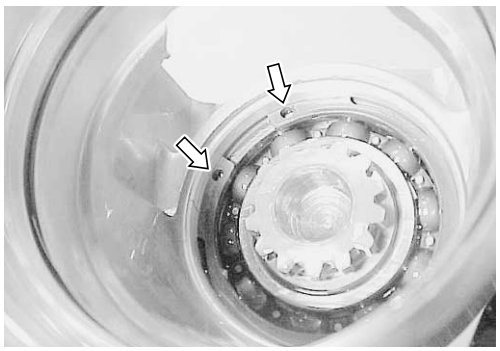
BEVEL PINION GEAR PILOT BEARING

- Drive the bearing into the gear case with the special tool.

09913-70210: Bearing installer set

BEVEL PINION GEAR

- Install the pinion gear assembly and fix the bearing race with the snap ring.

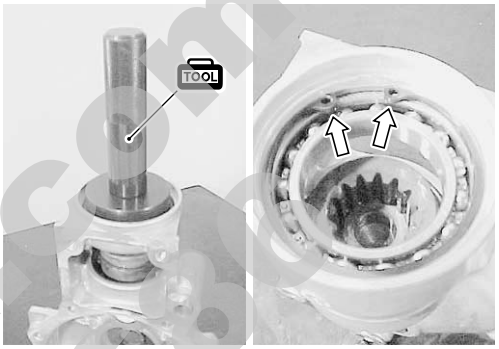


SHIFTING SLEEVE/UNIVERSAL JOINT YOKE

- Install the shifting sleeve to the pinion gear shaft.

- Drive the new bearing into the gear case with the special tool and fix it with the snap ring.

09913-70210: Bearing installer set



- Install the oil seal into the gear case with the special tool.

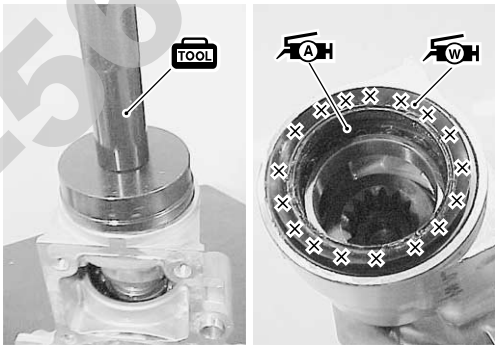
09913-70210: Bearing installer set

- Apply grease to the seal lip groove.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Apply 4 – 5 gram of water resistance grease to the outside of seal lip groove.

99000-25160: WATER RESISTANCE GREASE



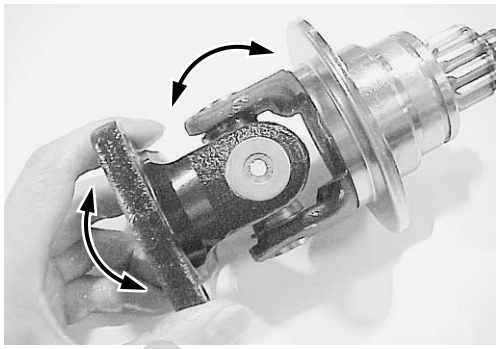
- Apply grease to the bearing and dust seal lip.
- Install the universal joint and bearings with the special tool. (☞3-62)
- Install the C-rings by tapping with a copper hammer. (☞3-62)

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

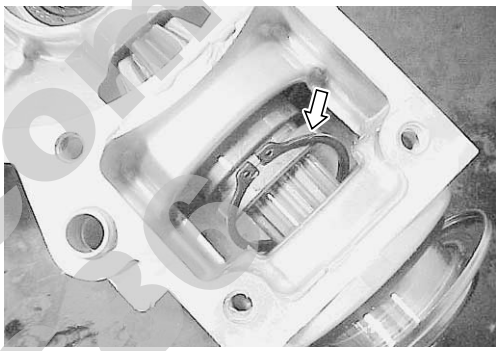
09913-70210: Bearing installer set

NOTE:
Reassemble the universal joint in the same manner as the front/ rear output shaft.

- After reassembling the universal joint, check the joint movement smoothly. If a large resistance is felt to movement, tap the bearing with a plastic mallet lightly.

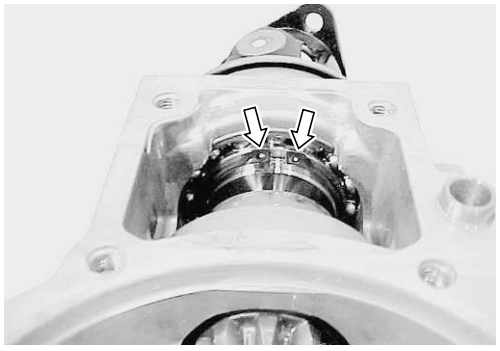


- Before installing the universal joint yoke assembly, place the snap ring between the shifting sleeve and splines of universal joint.



- Install the universal joint yoke assembly by tapping with a plastic mallet.

- Fix the universal joint yoke with the snap ring.

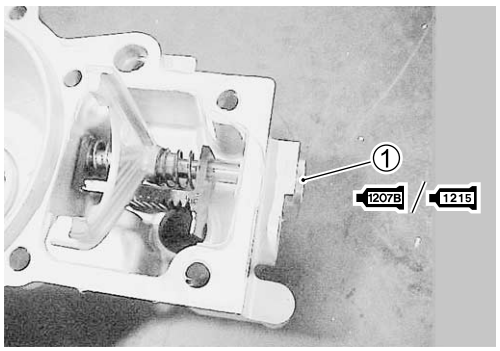


2WD/4WD SHIFTING

- Install the 2WD/4WD shifting fork, springs and shifting rack as shown.
- Apply sealant to the shifting fork shaft plug ① and tighten it to the specified torque.

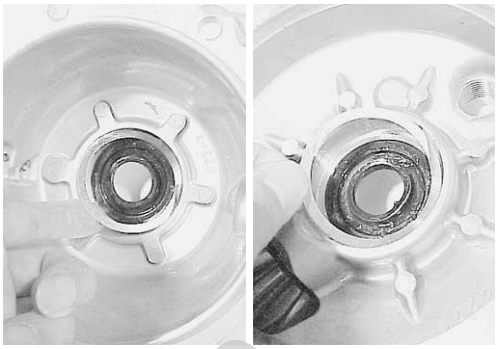
1207B 99104-31140: SUZUKI BOND "1207B" (USA)
1215 99000-31110: SUZUKI BOND "1215" (Others)

Shifting fork shaft plug: 15 N·m (1.5 kgf-m, 11 lb-ft)



FRONT DRIVE (DIFFERENTIAL) GEAR CASE [FINAL ASSEMBLY]

- Install the removed shims to the gear case and its cover.

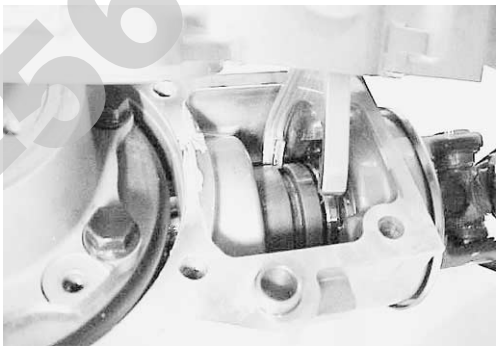


- Install the differential assembly to the gear case.
- Install the dowel pin and apply a sealant to the mating surface of the case.

1207B 99104-31140: SUZUKI BOND "1207B" (USA)
1215 99000-31110: SUZUKI BOND "1215" (Others)

NOTE:
After the backlash and tooth contact have been checked or adjusted, apply a sealant to the mating surface of the case.

- When installing the gear case cover, align the shifting fork with its groove.

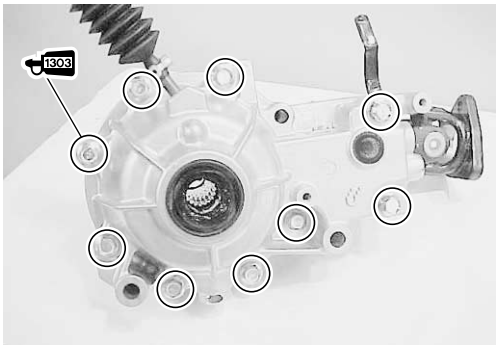


- Apply THREAD LOCK SUPER "1303" to the case cover bolts and tighten them to the specified torque in a crisscross pattern.

1303 99000-32030: THREAD LOCK SUPER "1303"

Gear case cover bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

NOTE:
After the backlash and tooth contact have been checked or adjusted, apply THREAD LOCK SUPER "1303" to the case cover bolts.

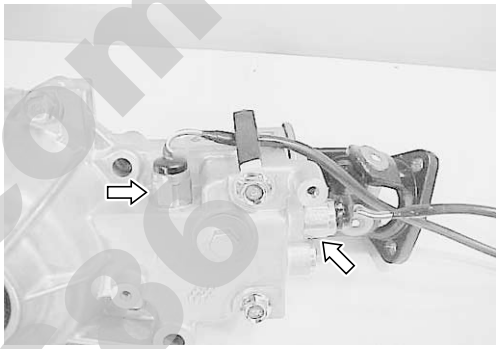


2WD/4WD SHIFTING PINION AND SWITCH

- Coat a new O-ring with grease and install the 2WD/4WD shifting pinion.

- Apply sealant to the 2WD/4WD switches and tighten them to the specified torque.

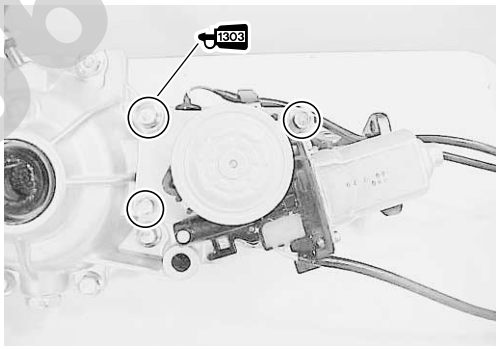
1207B **99104-31140: SUZUKI BOND "1207B" (USA)**
1215 **99000-31110: SUZUKI BOND "1215" (Others)**
2WD/4WD switch: 22 N·m (2.2 kgf-m, 16 lb-ft)



2WD/4WD SHIFTING MOTOR

- Apply THREAD LOCK SUPER "1303" to the M8 bolt.
- Install the 2WD/4WD shifting motor and tighten its mounting bolts to the specified torque.

1303 **99000-32030: THREAD LOCK SUPER "1303"**
2WD/4WD shifting motor mounting bolt
(M8): 23 N·m (2.3 kgf-m, 16.5 lb-ft)
(M6): 12 N·m (1.2 kgf-m, 8.5 lb-ft)

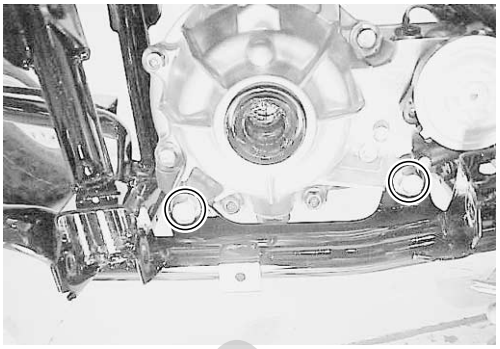


FRONT DRIVE (DIFFERENTIAL) INSTALLATION

Install the front drive (differential) in the reverse order of removal. Pay attention to the following points:

- Tighten the front drive (differential) gear case mounting bolts to the specified torque.

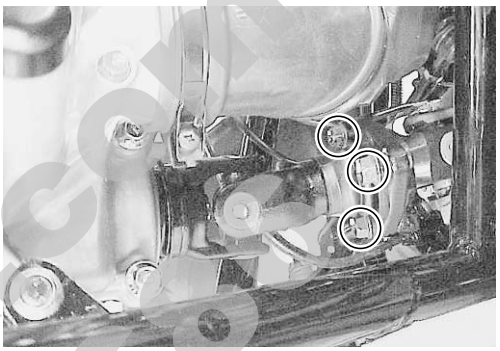
Front drive gear case mounting bolt:
45 N·m (4.5 kgf-m, 32.5 lb-ft)



- Apply THREAD LOCK SUPER “1303” to the front propeller shaft flange coupling bolts and tighten them to the specified torque.

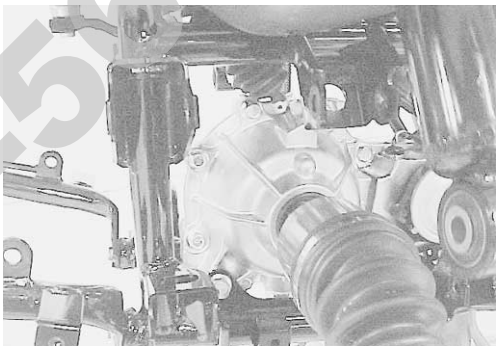
99000-32030: THREAD LOCK SUPER “1303”

Flange coupling bolt: 45 N·m (4.5 kgf-m, 32.5 lb-ft)



- Install a new stopper ring into its groove in the splines.
- Apply grease to the splines of the drive shafts and install the drive shafts to the front drive (differential) gear case.

99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)



CAUTION

Be careful not to damage the oil seal in the front drive (differential) gear case.

NOTE:
After installing both drive shafts, check the stopper rings are seated properly by pulling on both sides of the inboard joints lightly.

- Pour the specified hypoid gear oil (SAE #90) in through the filler hole. (☞2-11)

Gear oil capacity: 300 ml (10.1/10.6 US/Imp oz)

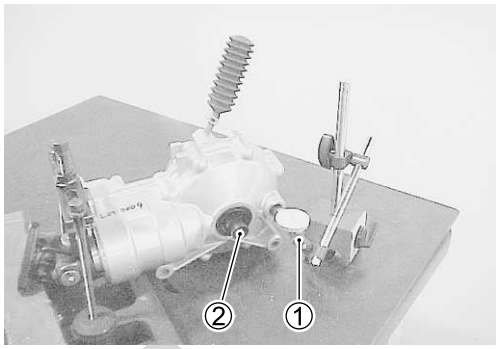
- Install the front suspension. (☞7-37)
- Install the front fender. (☞7-5)

SHIM ADJUSTMENT

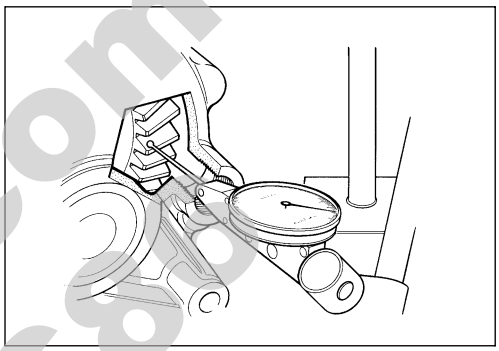
BACKLASH

- Install the removed left and right side shims and differential assembly.
- Assemble the gear case cover. (☞4-14)

NOTE:
At this time, it is not necessary to apply a sealant to the mating surface of the gear case. (☞4-14)



Remove the oil filler cap and measure the backlash of the differential ring gear using the horizontal type dial gauge ① and proper size of wooden piece or plastic piece ②, as shown. Take backlash readings at three places while turning the ring gear slightly in each direction and securely holding the pinion gear. Read the total backlash on the dial gauge.
Remove the dial gauge and turn the ring gear 120°, then measure the backlash. Repeat this procedure once more and compare the difference of the three measurements.
If the backlash is not within specification, the shim must be changed and the backlash should be re-checked until correct. Refer to the chart at the right for the appropriate shim thickness.



DATA Backlash

Standard: 0.05 – 0.10 mm (0.0020 – 0.0040 in)

NOTE:
Adjust the backlash by referring to the chart at the right and using the thickness of the removed shims as a guide.

Backlash	Shim adjustment
Under 0.05 mm (0.0020 in)	Increase shim thickness
0.05 – 0.10 mm (0.0020 – 0.0040 in)	Correct
Over 0.10 mm (0.0040 in)	Decrease shim thickness

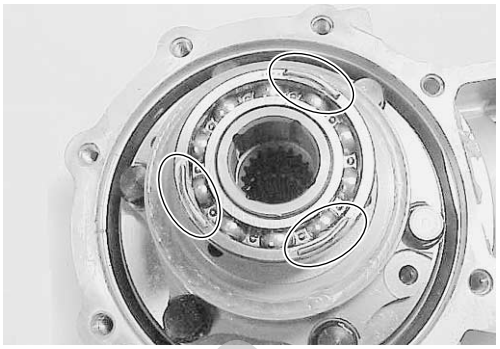
If the backlash is too small, replace the right side shim(s) with a thicker one.
If the backlash is too large, replace the right side shim(s) with a thinner one.
If the right side shim was changed with a 0.10 mm thicker shim, replace the left side shim with one that is 0.10 mm thinner.

For differential ring gear (☞4-20)

Part No.	Shim thickness
27445-38FA0 (Shim set: 16 pcs)	0.70 mm (0.0276 in)
	0.75 mm (0.0295 in)
	0.80 mm (0.0315 in)
	0.85 mm (0.0335 in)
	0.90 mm (0.0354 in)
	0.95 mm (0.0374 in)
	1.00 mm (0.0394 in)
	1.05 mm (0.0413 in)
	1.10 mm (0.0433 in)
	1.15 mm (0.0453 in)
	1.20 mm (0.0472 in)
	1.25 mm (0.0492 in)
	1.30 mm (0.0512 in)
	1.35 mm (0.0531 in)
	1.40 mm (0.0551 in)
	1.45 mm (0.0571 in)

LEFT SIDE SHIM SELECTION

- Install the removed right side shim(s) and differential assembly.
- Put a few pieces of solder (O.D.: 1.2 – 1.5 mm × L: 6 mm) on the bearing outer race, as shown.

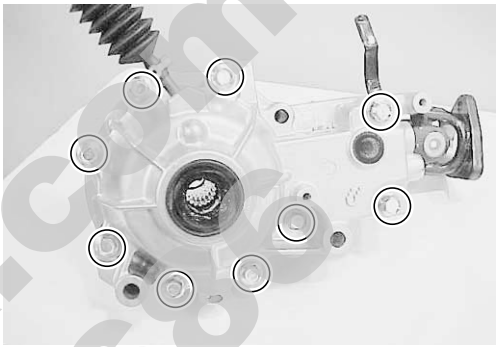


NOTE:

** Do not install the left side shim(s) at this time.*

** Apply a small quantity of grease to the solders to prevent them from falling.*

- Assemble the gear case cover and tighten its bolts to the specified torque in a crisscross pattern. (☞4-14)



NOTE:

** Do not apply a sealant to the mating surface of the gear case.*

** Do not apply a thread lock to the case cover bolts. (☞4-14)*

Gear case cover bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Remove the gear case cover. (☞4-4)
- Measure the thickness of compressed solder with the micrometer.

TOOL 09900-20205: Micrometer

- Select the proper size of shim(s) from the right chart, according as the compressed solder thickness.
- After selecting the proper size of shim(s), check or adjust the backlash and tooth contact.

For left side of differential ring gear (☞4-20)

Part No.	Shim thickness
27445-38FA0 (Shim set: 16 pcs)	0.70 mm (0.0276 in)
	0.75 mm (0.0295 in)
	0.80 mm (0.0315 in)
	0.85 mm (0.0335 in)
	0.90 mm (0.0354 in)
	0.95 mm (0.0374 in)
	1.00 mm (0.0394 in)
	1.05 mm (0.0413 in)
	1.10 mm (0.0433 in)
	1.15 mm (0.0453 in)
	1.20 mm (0.0472 in)
	1.25 mm (0.0492 in)
	1.30 mm (0.0512 in)
	1.35 mm (0.0531 in)
	1.40 mm (0.0551 in)
	1.45 mm (0.0571 in)

TOOTH CONTACT

After backlash adjustment and left side shim selection are carried out, the tooth contact must be checked. Pay attention to the following points:

- Remove the differential ring gear.
- Clean and degrease several teeth on the ring gear and pinion gear, and then apply a coating of machinist's layout dye or paste to several teeth of the pinion gear.
- Install the removed left and right side shims and differential assembly.
- Assemble the gear case cover. (☞4-14)

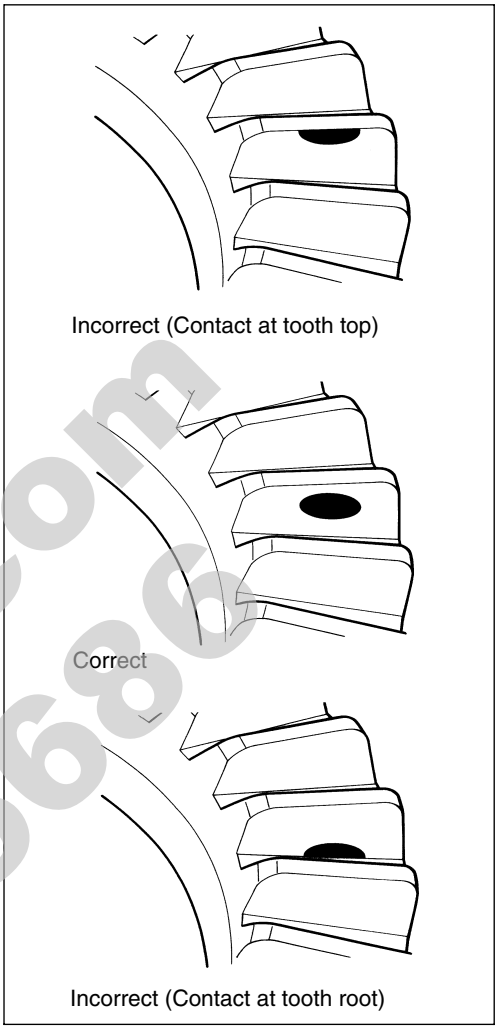
NOTE:

** Do not apply a sealant to the mating surface of the gear case.*

** Do not apply a thread lock to the case cover bolts. (☞4-14)*

Gear case cover bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

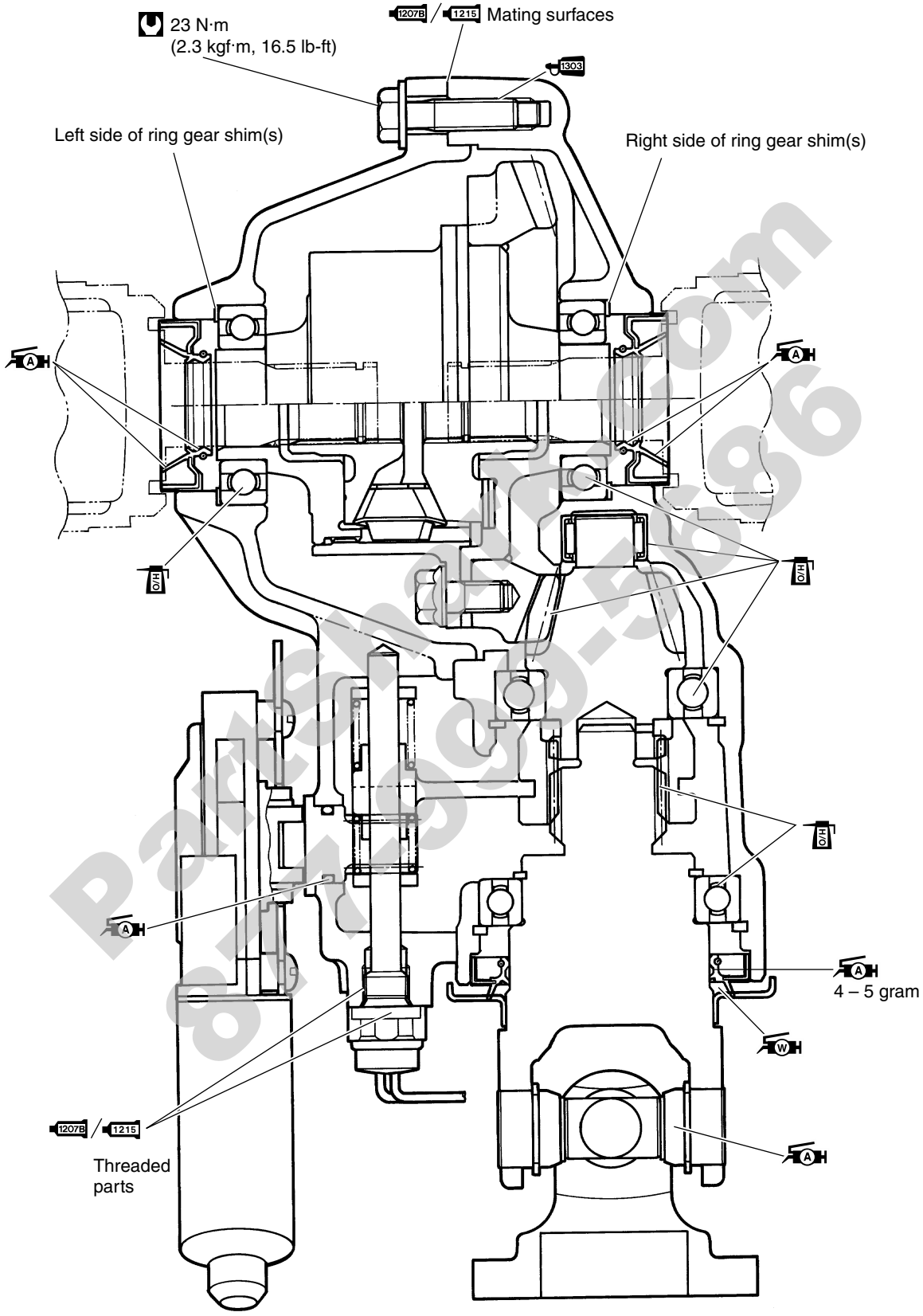
- Rotate the differential ring gear several turns in each direction. This will provide a contact pattern on the coated teeth of ring gear.
- Remove the differential ring gear and compare the coated teeth to the examples shown in ①, ② and ③.
- If tooth contact is found to be correct (example ②), go to the FINAL ASSEMBLY sub-section on p.4-14 to complete installation.
- If tooth contact is found to be incorrect (example ① and ③), the shim must be changed and the tooth contact should be rechecked until correct.



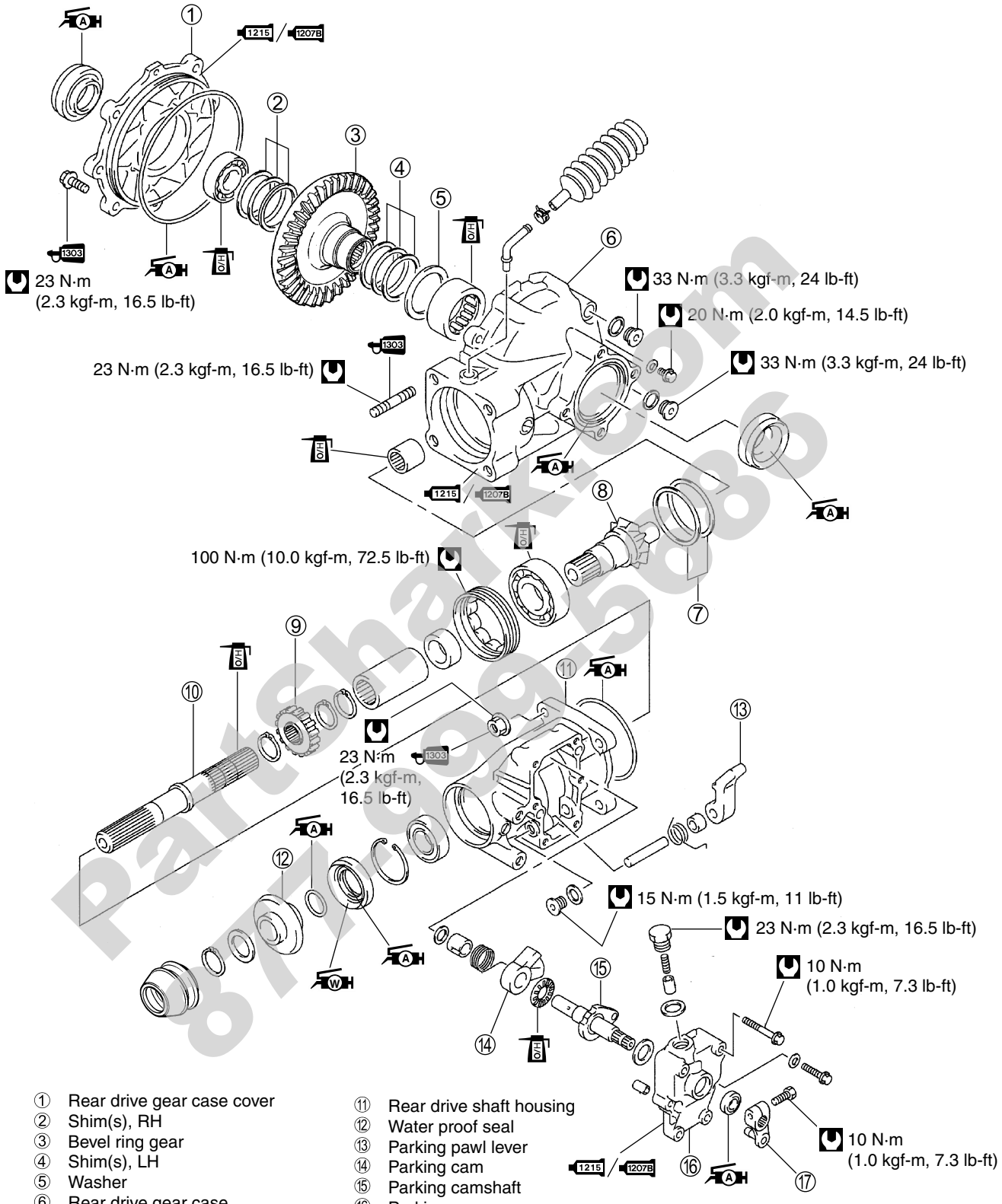
CAUTION

Make sure to check the backlash and shim thickness after the tooth contact has been adjusted, since it may have changed. Adjust the tooth contact and backlash until they are both within specification. If the correct tooth contact cannot be maintained when adjusting the backlash, replace the pinion gear and ring gear as a set.

REASSEMBLY INFORMATION



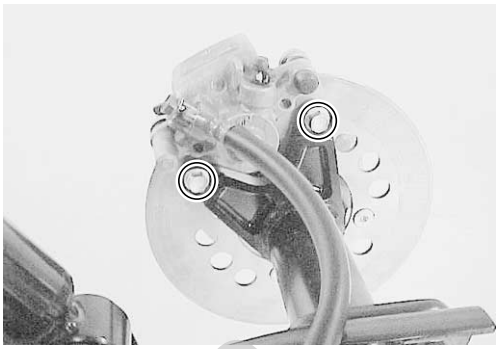
REAR DRIVING SYSTEM



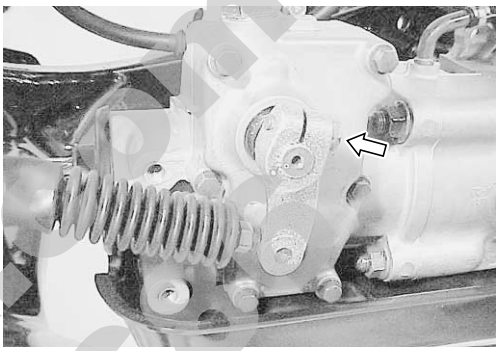
① Rear drive gear case cover
② Shim(s), RH
③ Bevel ring gear
④ Shim(s), LH
⑤ Washer
⑥ Rear drive gear case
⑦ Shim(s)
⑧ Bevel pinion gear
⑨ Parking gear
⑩ Rear drive shaft
⑪ Rear drive shaft housing
⑫ Water proof seal
⑬ Parking pawl lever
⑭ Parking cam
⑮ Parking camshaft
⑯ Parking cam cover
⑰ Parking cam lever

REAR DRIVE REMOVAL

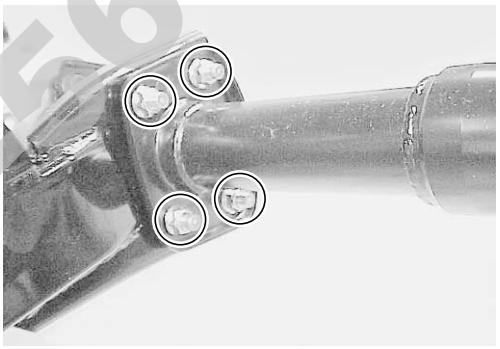
- Remove the rear wheels. (☞7-10)
- Remove the rear brake caliper.



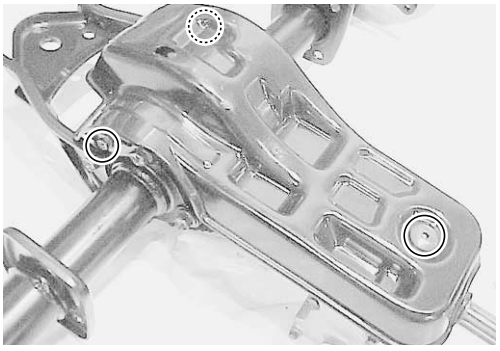
- Remove the parking cam lever.



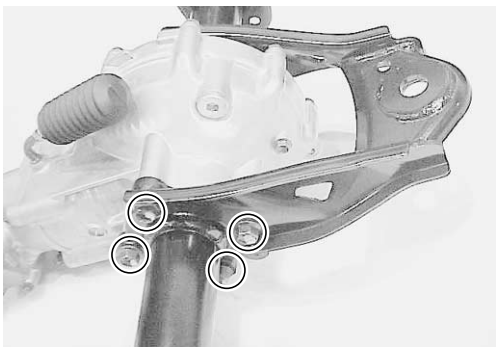
- Remove the axle housing mounting bolts.
- Remove the rear drive gear case together with the axle housing.



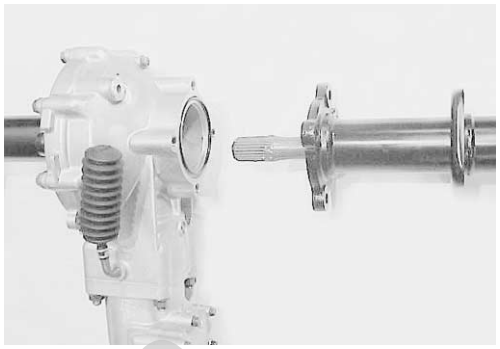
- Remove the rear drive gear case under cover.
- Drain the gear oil. (☞2-11)



- Remove the axle housing bolts, left and right.



• Remove the rear axle together with the axle housing.

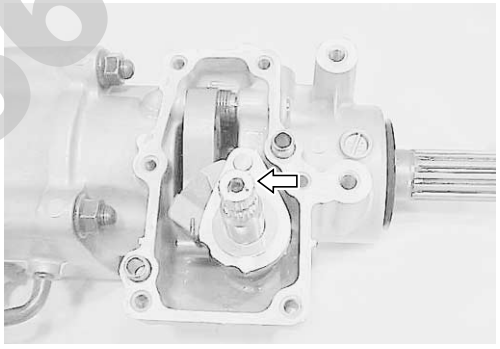


REAR DRIVE DISASSEMBLY

PARKING/REAR DRIVE SHAFT

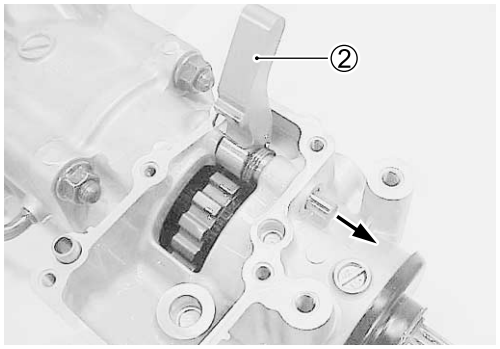
• Remove the parking cam stopper and cover.

• Remove the parking camshaft assembly.

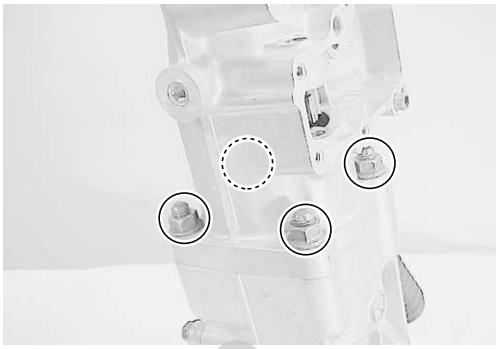


• Remove the parking pawl lever shaft plug ①.

• Remove the parking pawl lever ② by removing its shaft.



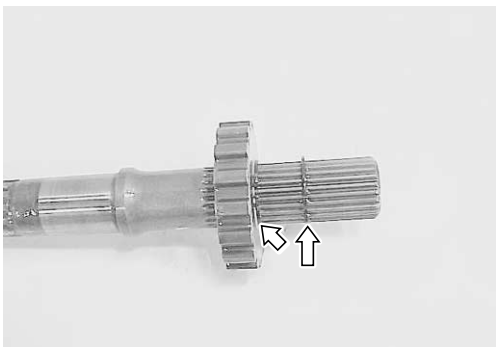
- Remove the rear drive shaft housing nuts.



- Remove the snap ring and washer from the drive shaft.

- Remove the drive shaft and waterproof seal by tapping with a plastic mallet.

- Remove the parking gear by removing the snap rings.



• Remove the oil seal with the special tool.

TOOL 09913-50121: Oil seal remover

NOTE:
If there is no abnormal condition, the oil seal removal is not necessary.

CAUTION

The removed oil seal must be replaced with a new one.

• Remove the snap ring.
• Remove the bearing out of the drive shaft housing with the special tool.

TOOL 09913-70210: Bearing installer set

NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.

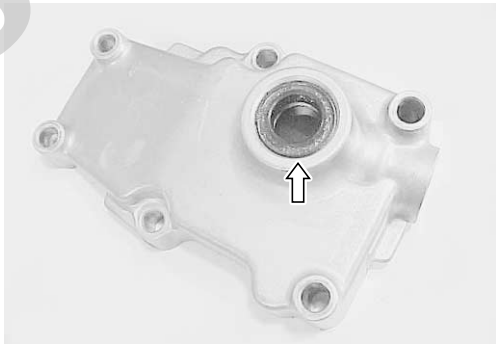
• Remove the oil seal with the special tool.

TOOL 09913-50121: Oil seal remover

NOTE:
If there is no abnormal condition, the oil seal removal is not necessary.

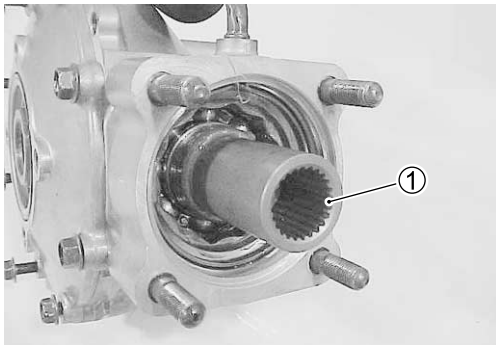
CAUTION

The removed oil seal must be replaced with a new one.

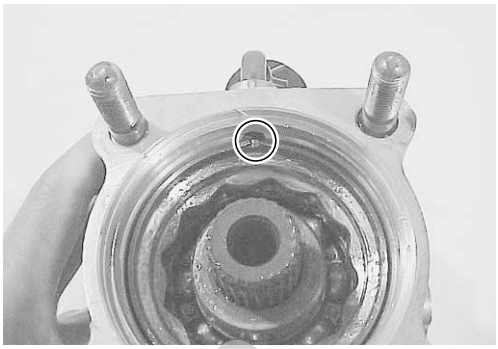


REAR DRIVE GEAR CASE

• Remove the rear drive shaft coupling joint ①.



• Unstake the bearing locknut with a small chisel or drill.

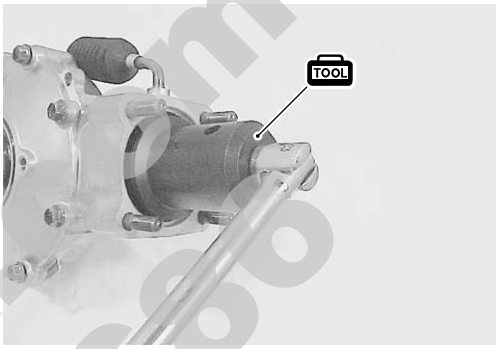


• Remove the bearing locknut with the special tool.

TOOL 09924-41830: Bearing lock nut wrench

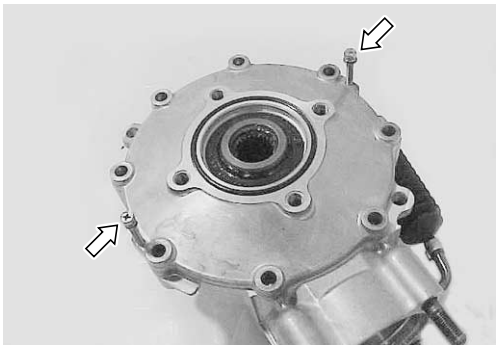
CAUTION

The removed locknut must be replaced with a new one.

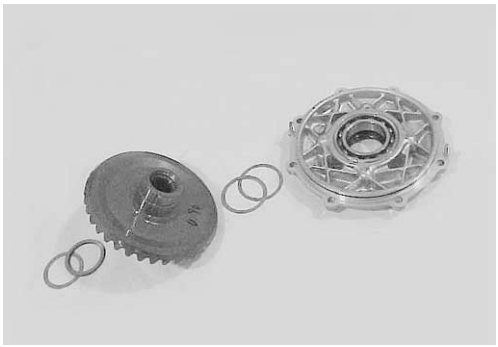


• Remove the pinion gear assembly and shims out of the case.

• Remove the eight case cover bolts diagonally and evenly.
• Pry the case cover with 5 mm screws as shown.



• Remove the ring gear, shims and washer.



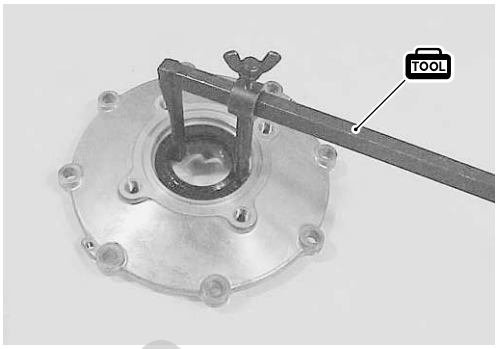
• Remove the oil seal out of the cover with the special tool.

TOOL 09913-50121: Oil seal remover

NOTE:
If there is no abnormal condition, the oil seal removal is not necessary.

CAUTION

The removed oil seal must be replaced with a new one.



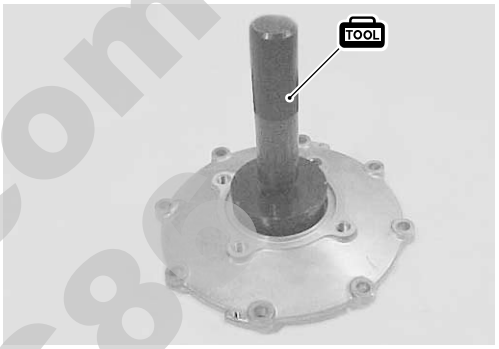
• Remove the bearing out of the cover with the special tool.

TOOL 09913-70210: Bearing installer set

NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.

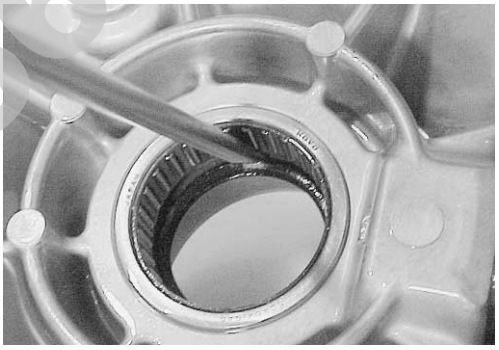


• Remove the oil seal out of the case with a suitable tool.

NOTE:
If there is no abnormal condition, the oil seal removal is not necessary.

CAUTION

The removed oil seal must be replaced with a new one.



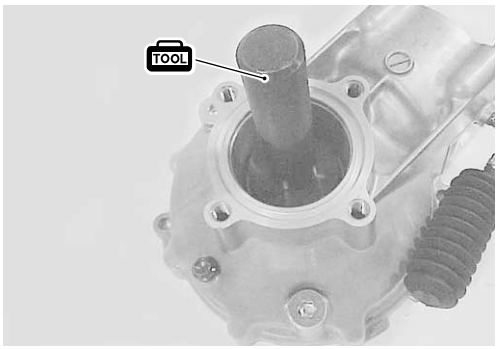
• Remove the bearing out of the case with the special tool.

TOOL 09913-70210: Bearing installer set

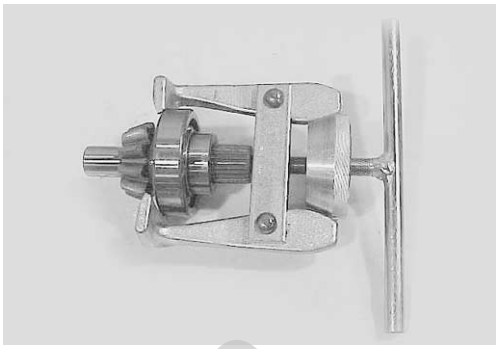
NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.



- Remove the bearing from the shaft with a commercially available bearing puller or hydraulic press.

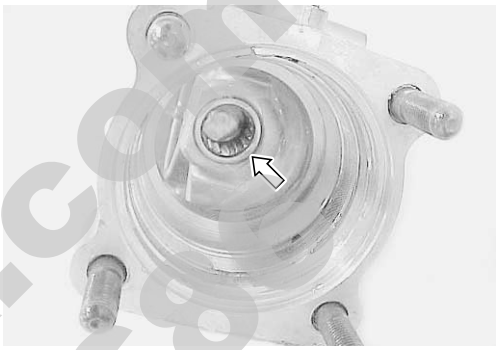


NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.

- Remove the pinion gear pilot bearing with the special tools.



TOOL 09921-20240: Bearing remover set
09917-50410: Bearing remover

NOTE:
If there is no abnormal condition, the bearing removal is not necessary.

CAUTION

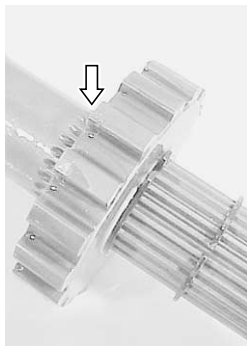
The removed bearing must be replaced with a new one.

REAR DRIVE INSPECTION

PARKING/REAR DRIVE SHAFT

Inspect the parking pawl and parking gear for wear and damage.
If any defects are found, replace the pawl and gear as a set.

PARKING PAWL AND PARKING GEAR REMOVAL ☞4-23, 24.



Inspect the splines of rear drive shaft and its coupling joints for wear or damage.
Also, inspect the boot for cuts or damage.
If any defects are found, replace the rear drive shaft and coupling joint with the new ones.

Inspect the parking cam, thrust bearing and return spring for any flaws or damage. If any defects are found, replace the cam, bering and spring with the new ones.

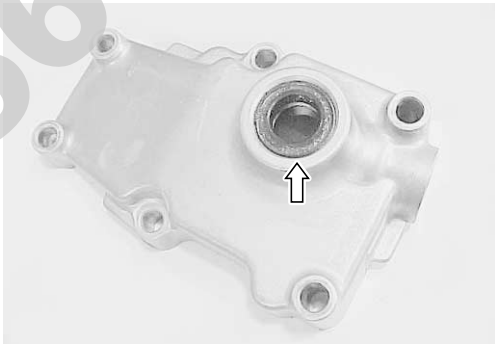
PARKING CAMSHAFT REMOVAL ☞4-23.

Inspect the oil seal for wear or damage.
Check the inner race play and smooth rotation of the bearing by hand while it is in the case.
If any defects are found, replace the oil seal and bearing with the new ones.

OIL SEAL AND BEARING REMOVAL ☞4-25.

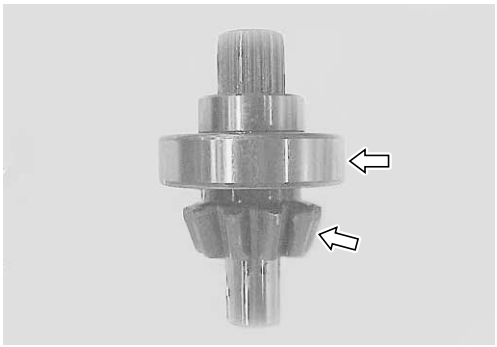
Inspect the parking cam cover oil seal for wear or damage.
If any wear or damage is found, replace the oil seal with a new one.

OIL SEAL REMOVAL ☞4-25.



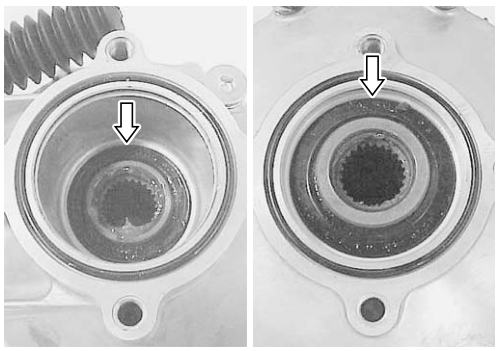
REAR DRIVE GEAR CASE
Check the outer race play and smooth rotation of the bearing by hand while it is on the pinion gear shaft.
Inspect the pinion gear for wear or damage.
If the pinion gear is damaged, inspect the ring gear also.
If any defects are found, replace the bearing and gear with the new ones.

BEARING AND GEAR REMOVAL ☞4-28.



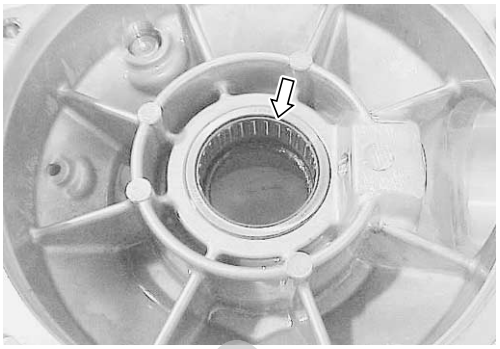
Inspect the gear case and case cover oil seals for wear or damage.
If any wear or damage is found, replace the oil seal with a new one.

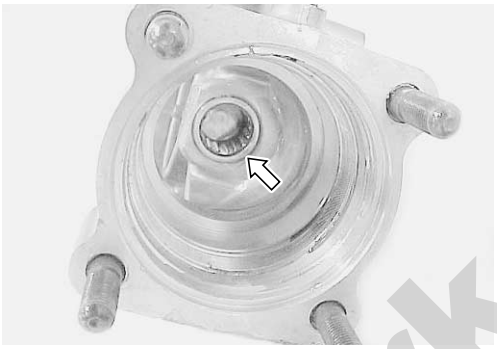
OIL SEAL REMOVAL ☞4-27.

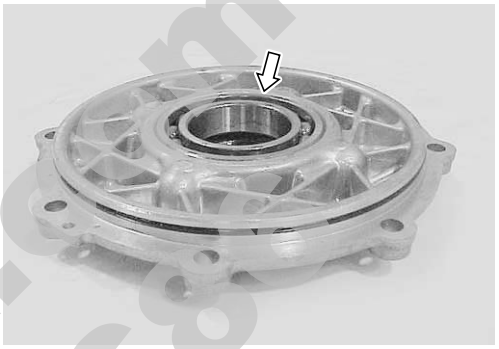


Check the gear case and case cover bearings for wear or damage.
If any wear or damage is found, replace the bearing with a new one.

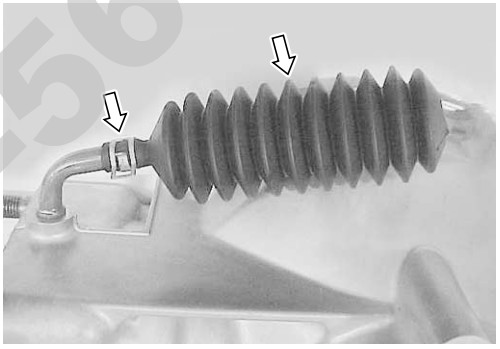
BEARING REMOVAL ☞4-27, 28.







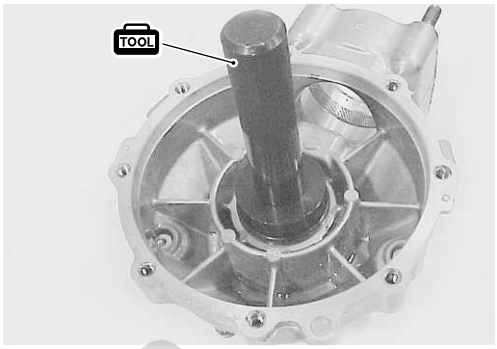
Check the breather rubber case for wear or damage. Also check that the joint of the rubber case fits tightly.



REAR DRIVE REASSEMBLY

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

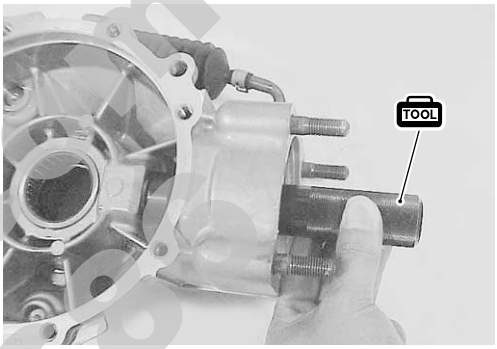
NOTE:
Before reassembly, thoroughly clean all parts in cleaning solvent.

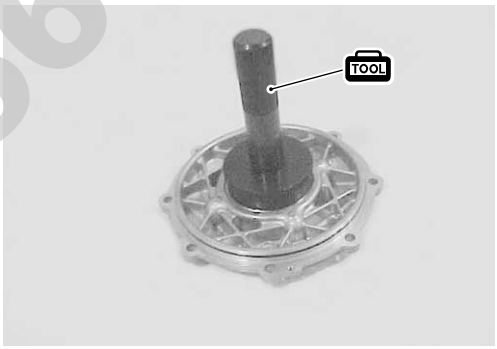


GEAR CASE BEARING

- Drive the bearings into the gear case and case cover with the special tool.

TOOL 09913-70210: Bearing installer set



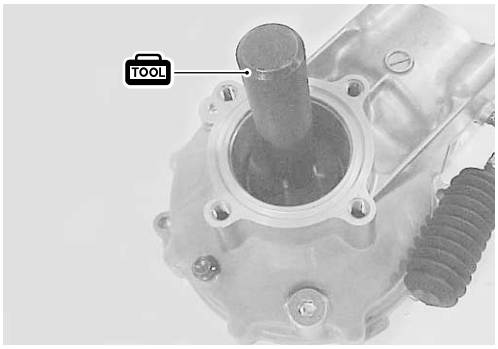


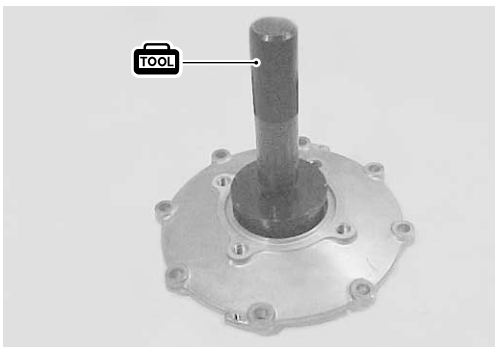
GEAR CASE OIL SEAL

- Install the new oil seals into the gear case and case cover with the special tool.
- Apply grease to the new oil seal lips.

TOOL 09913-70210: Bearing installer set

A 99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

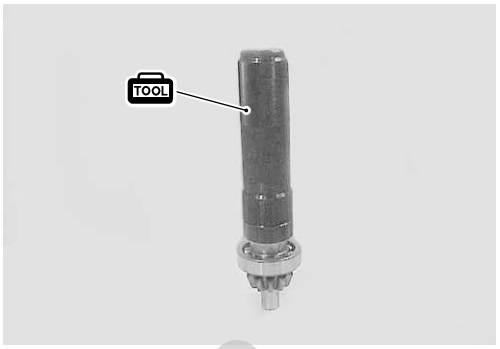




BEVEL PINION GEAR SHAFT BEARING/LOCKNUT

- Drive the bearing onto the shaft with the special tool.

TOOL 09913-70210: Bearing installer set

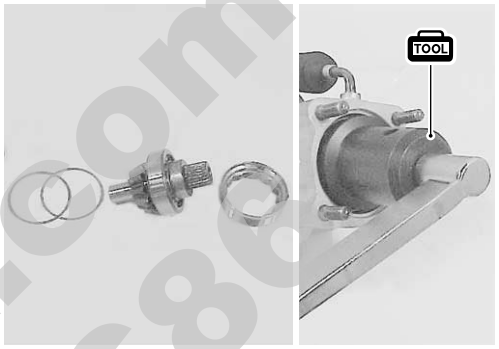


BEVEL PINION GEAR/SHIM [FINAL ASSEMBLY]

- Install the shims, pinion gear assembly and bearing locknut.
- Tighten the new locknut to the specified torque.

TOOL 09924-41830: Bearing locknut wrench

Bearing locknut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

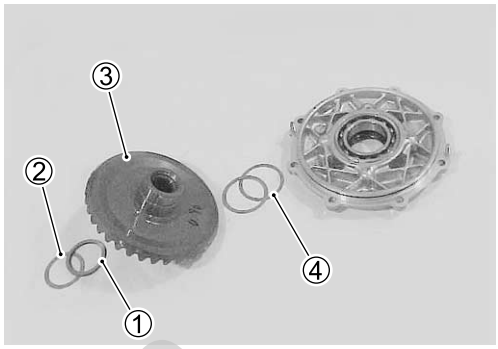


NOTE:

After the backlash and tooth contact have been checked or adjusted, stake the nut with a center punch.

BEVEL RING GEAR/SHIM

- Place the removed washer ① and shim(s) ② on the gear case bearing (at the left bearing), then install the ring gear ③ and removed shim(s) ④.



GEAR CASE COVER/GEAR CASE [FINAL ASSEMBLY]

- Coat a new O-ring with grease and apply sealant to the mating surface of the cover, then install the gear case cover.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

99104-31140: SUZUKI BOND "1207B" (USA)
99000-31110: SUZUKI BOND "1215" (Others)

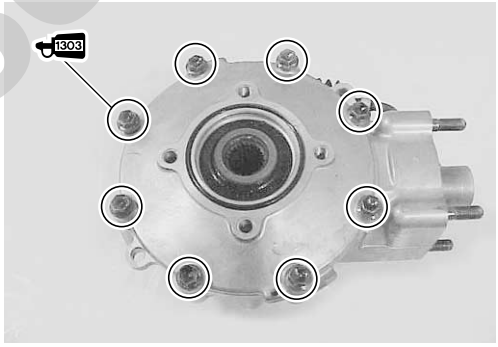
NOTE:
After the backlash and tooth contact have been checked or adjusted, install a new O-ring and apply sealant.

- Apply THREAD LOCK SUPER "1303" to the case cover bolts and tighten them to the specified torque in a crisscross pattern.

99000-32030: THREAD LOCK SUPER "1303"

Gear case cover bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

NOTE:
After the backlash and tooth contact have been checked or adjusted, apply THREAD LOCK SUPER "1303" to the case cover bolts.



REAR DRIVE SHAFT/ PARKING

- Drive the new bearing into the rear drive shaft housing, then install the new snap ring into its groove properly.
- Install the oil seal into the rear drive shaft housing.

09913-70210: Bearing installer set

- Apply grease to the seal lip groove.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Apply 4 – 5 gram of water resistance grease to the outside of seal lip groove.

99000-25160: WATER RESISTANCE GREASE

- Fix the parking gear with the new snap rings.

- Install the drive shaft into its housing by tapping with a plastic mallet.

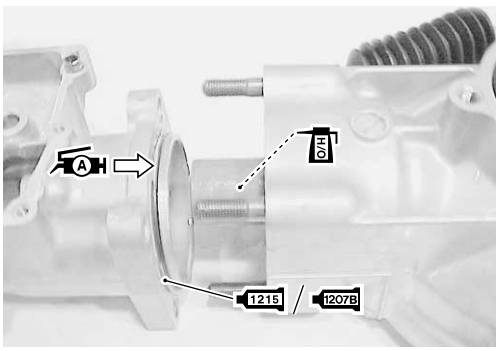
- Apply grease to the new O-ring in the waterproof seal's collar.
- Install the waterproof seal with collar and washer, then install the new snap ring.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Apply hypoid gear oil to the coupling joint splines and install the coupling joint to the pinion gear shaft.
- Coat a new O-ring with grease and apply sealant to the mating surface of the housing, then install the rear drive shaft housing.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

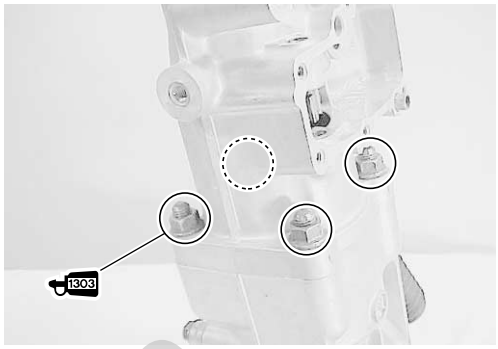
99104-31140: SUZUKI BOND "1207B" (USA)
99000-31110: SUZUKI BOND "1215" (Others)



- Apply THREAD LOCK SUPER “1303” to the rear drive shaft housing nuts and tighten them to the specified torque.

1303 99000-32030: THREAD LOCK SUPER “1303”

Final drive shaft housing nut:
23 N·m (2.3 kgf-m, 16.5 lb-ft)

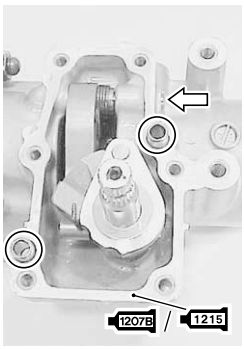


- Apply hypoid gear oil to the parking camshaft thrust bearing ①.

- Install the new oil seal to the parking cam cover with the special tool, and then apply grease to the seal lip.

TOOL 09913-70210: Bearing installer set

A H 99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)



- Install the parking pawl lever and parking camshaft assembly.
- Install the parking pawl lever shaft plug with a new sealing washer and tighten the plug to the specified torque.

Parking pawl lever shaft plug: 15 N·m (1.5 kgf-m, 11 lb-ft)

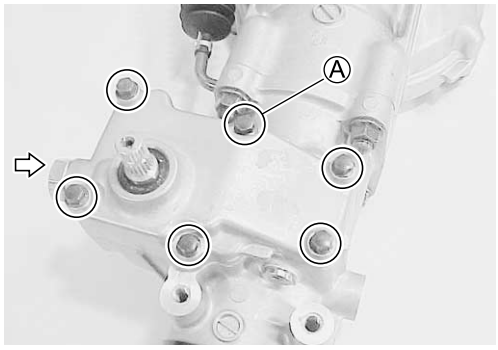
- Install the dowel pins and apply sealant to the mating surface of the cover.

1207B 99104-31140: SUZUKI BOND “1207B” (USA)
1215 99000-31110: SUZUKI BOND “1215” (Others)

- Install the new seal washer to the cover bolt Ⓐ.

CAUTION

Replace the seal washer with a new one.



- Tighten the cover bolts to the specified torque in a crisscross pattern.

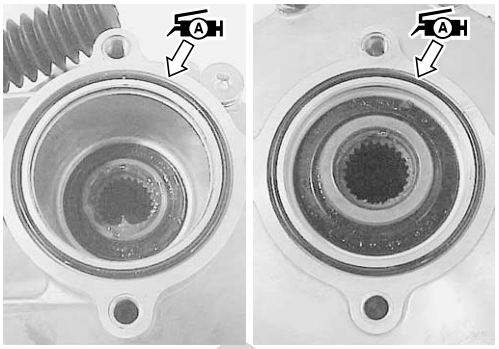
Parking cam cover bolt: 10 N·m (1.0 kgf-m, 7.3 lb-ft)

- Tighten the parking cam stopper to the specified torque.

Parking cam stopper: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

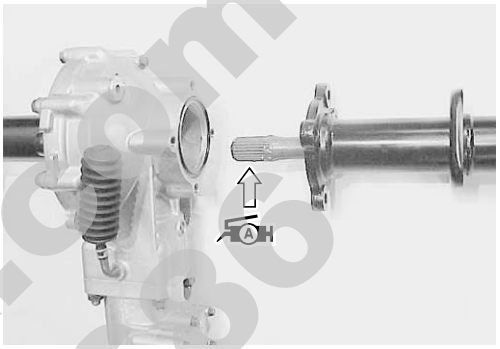
REAR DRIVE INSTALLATION

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



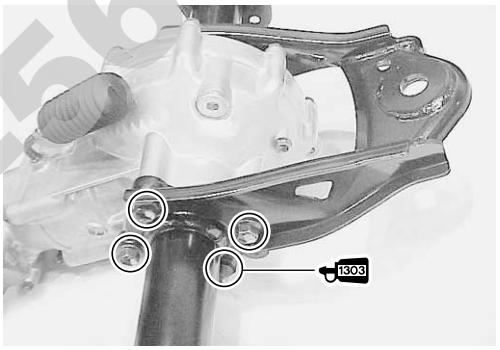
- Coat the new O-rings with grease and install them into the grooves in the gear case and cover.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



- Apply grease to the splines of the axle and rear drive shaft splines too.

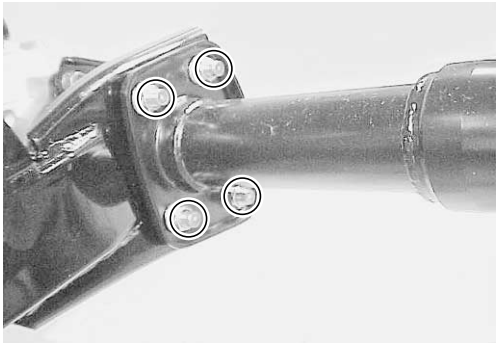
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



- Apply THREAD LOCK SUPER "1303" to the axle housing bolts and tighten them to the specified torque.

99000-32030: THREAD LOCK SUPER "1303"

Axle housing bolt: 55 N·m (5.5 kgf-m, 40 lb-ft)



- Install the rear drive gear case under cover.
- Tighten the axle housing mounting bolts to the specified torque.

Axle housing mounting bolt:
60 N·m (6.0 kgf-m, 43.5 lb-ft)

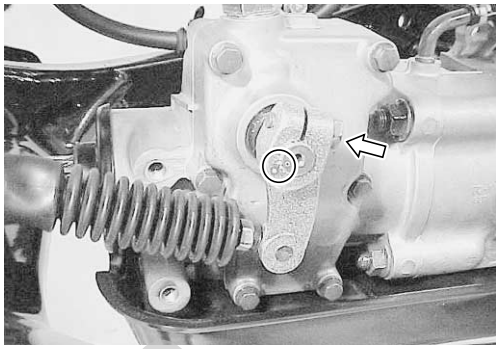
- When installing the parking cam lever, align the punched marks on the shaft and lever.
- Tighten the lever bolt to the specified torque.

Parking cam lever bolt: 10 N·m (1.0 kgf-m, 7.3 lb-ft)

- Pour the specified hypoid gear oil (SAE #90) in through the filler hole. (☞2-11)

Gear oil capacity: 250 – 350 ml
(8.5/8.8 – 11.8/12.3 US/Imp oz)

- Install the rear brake caliper. (☞7-54)
- Install the rear wheels. (☞7-10)



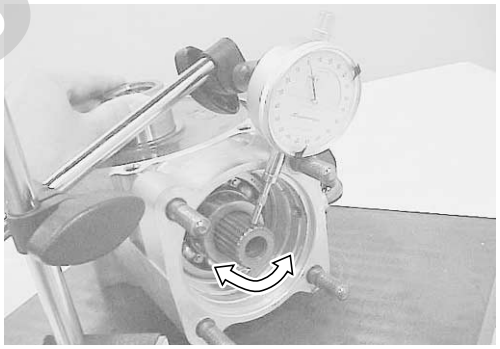
SHIM ADJUSTMENT

BACKLASH

- Install the pinion gear assembly, removed shim(s) and new bearing locknut. (☞4-32)
- Tighten the bearing locknut to the specified torque. (☞4-32)

NOTE:
At this time, it is not necessary to stake the bearing locknut. (☞*4*-32)

- Install the removed left side shim(s) and ring gear. (☞4-33)
- Measure the backlash using the dial gauge, as shown. Take backlash readings at several places while turning the pinion gear shaft in each direction and securely holding the ring gear. If the backlash is not within specification, the shim must be changed and the backlash should be re-checked until correct. Refer to the chart at the right for the appropriate shim thickness.



DATA Backlash

Standard: 0.02 – 0.06 mm (0.0008 – 0.0024 in)
.....Without gear case cover specification
0.08 – 0.13 mm (0.0031 – 0.0051 in)
.....Gear case cover assembled specification

NOTE:
Adjust the backlash by referring to the chart at the right and using the thickness of the removed shims as a guide.

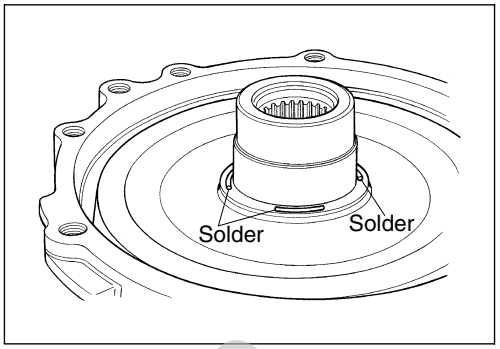
Backlash	Shim adjustment
Under 0.02 mm (0.0008 in)	Increase shim thickness
0.02 – 0.06 mm (0.0008 – 0.0024 in)	Correct
Over 0.06 mm (0.0024 in)	Decrease shim thickness

For left side of ring gear (☞4-40)

Part No.	Shim thickness
27326-09F70-030	0.30 mm (0.0118 in)
27326-09F70-035	0.35 mm (0.0138 in)
27326-09F70-040	0.40 mm (0.0157 in)
27326-09F70-050	0.50 mm (0.0197 in)
27326-09F70-060	0.60 mm (0.0236 in)

RIGHT SIDE SHIM SELECTION

- After the backlash has been checked or adjusted, put a few pieces of solder (O.D.: 1.2 – 1.5 mm × L: 6 mm) on the ring gear back side, as shown.

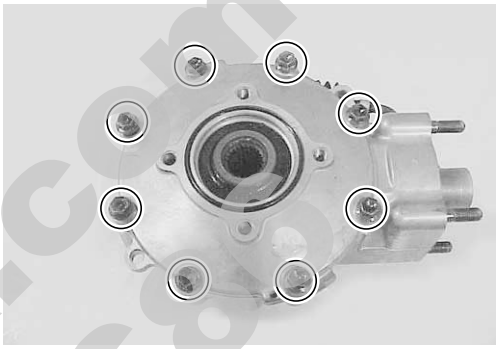


NOTE:

** Do not install the right side shim(s) at this time.*

** Apply a small quantity of grease to the solders to prevent them from falling.*

- Install the gear case cover and tighten its bolts to the specified torque in a crisscross pattern. (☞4-33)



NOTE:

** Do not install the new O-ring to the gear case cover at this time.*

** Do not apply a thread lock to the case cover bolts.*

Gear case cover bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Remove the gear case cover. (☞4-26)
- Measure the thickness of compressed solder with the micrometer.

TOOL 09900-20205: Micrometer

- Select the proper size of shim(s) from the right chart, according as the compressed solder thickness.
- After selecting the proper size of shim(s), install it on the ring gear back side.

For right side of ring gear (☞4-40)

Part No.	Shim thickness
27326-18A00-035	0.35 mm (0.0138 in)
27326-18A00-040	0.40 mm (0.0157 in)
27326-18A00-050	0.50 mm (0.0197 in)
27326-18A00-060	0.60 mm (0.0236 in)

TOOTH CONTACT

After backlash adjustment and right shim selection are carried out, the tooth contact must be checked. Pay attention to the following procedures:

- Remove the ring gear.
- Clean and degrease several teeth on the ring gear and pinion gear, and then apply a coating of machinist's layout dye or paste to several teeth of the pinion gear.
- Install the ring gear with the shims in place.
- Install the gear case cover, and then tighten the bolts to the specified torque in a crisscross pattern. (☞4-33)

Gear case cover bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

NOTE:

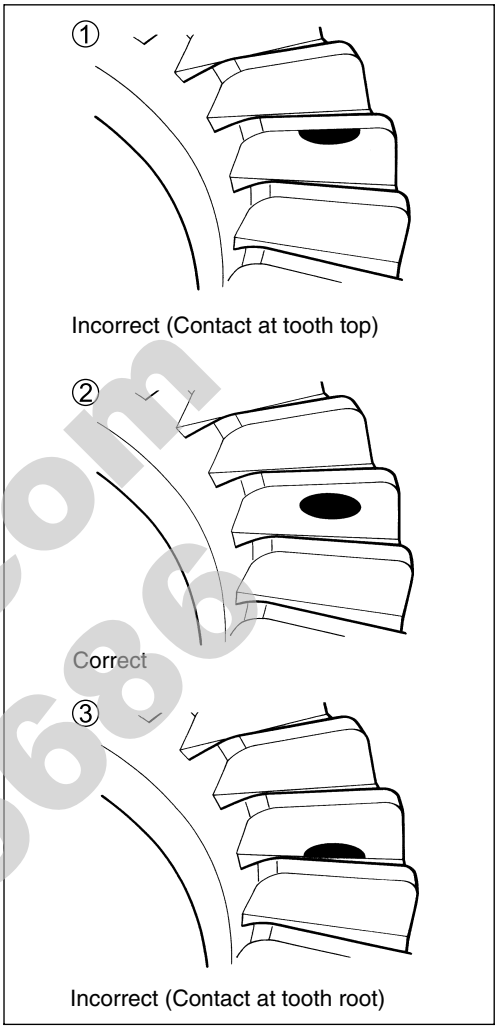
At this time, it is not necessary to install the gear case cover's O-ring.

- Rotate the gear several turns in each direction. This will provide a contact pattern on the coated teeth of the gear.
- Remove the ring gear and compare the coated teeth to the examples shown in ①,② and ③.
- If tooth contact is found to be correct (example ②), go to the FINAL ASSEMBLY sub-section on p.4-33 to complete installation.
- If tooth contact is found to be incorrect (examples ① and ③), the shim between the pinion gear bearing and gear case must be changed and the tooth contact re-checked until correct.

Tooth contact	Shim adjustment
Contact at tooth top ①	Decrease shim thickness
Contact at tooth root ③	Increase shim thickness

CAUTION

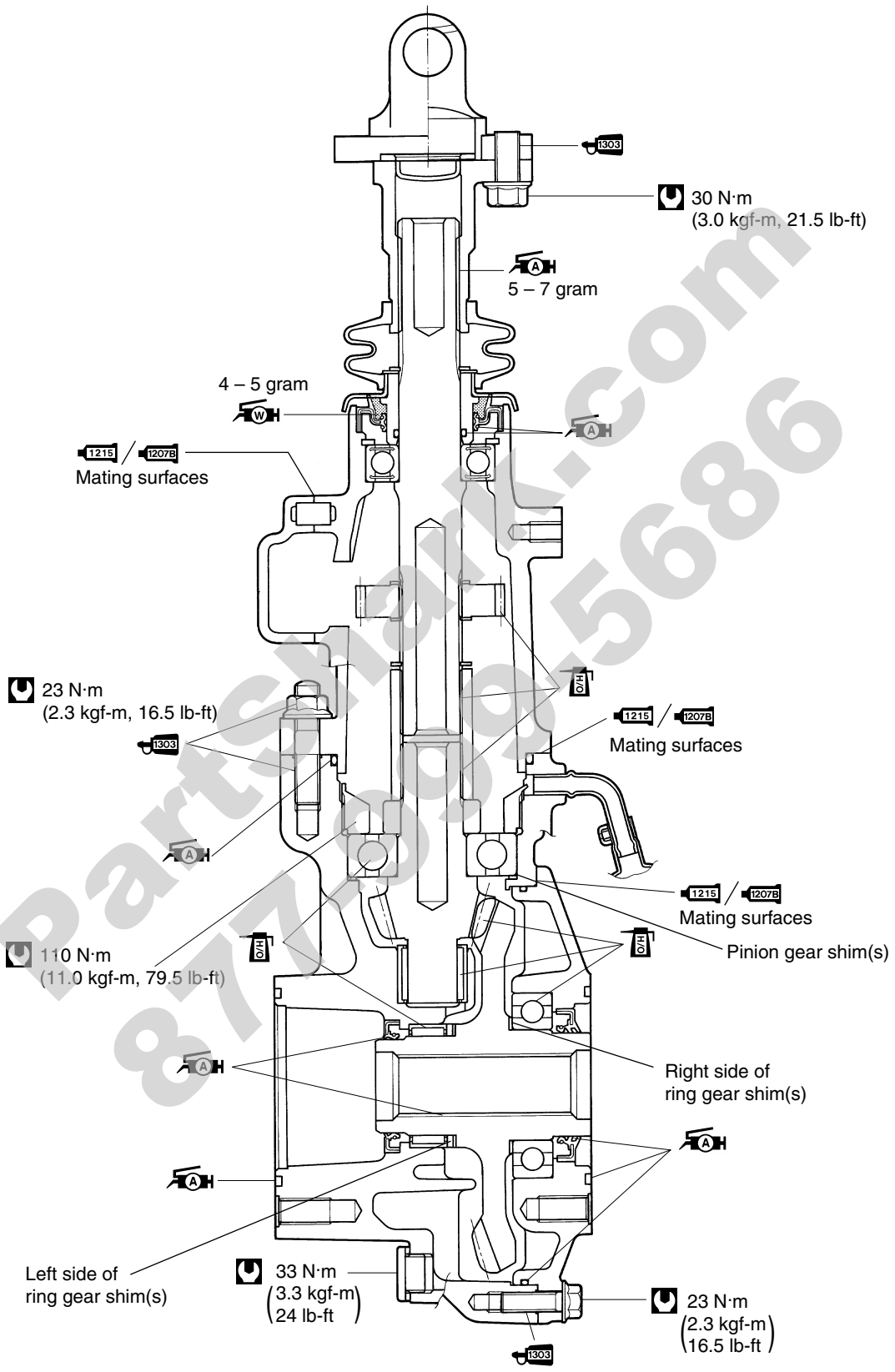
Make sure to check the backlash and shim thickness after the tooth contact has been adjusted, since it may have changed. Adjust the tooth contact and backlash until they are both within specification. If the correct tooth contact cannot be maintained when adjusting the backlash, replace the pinion gear and ring gear as a set.

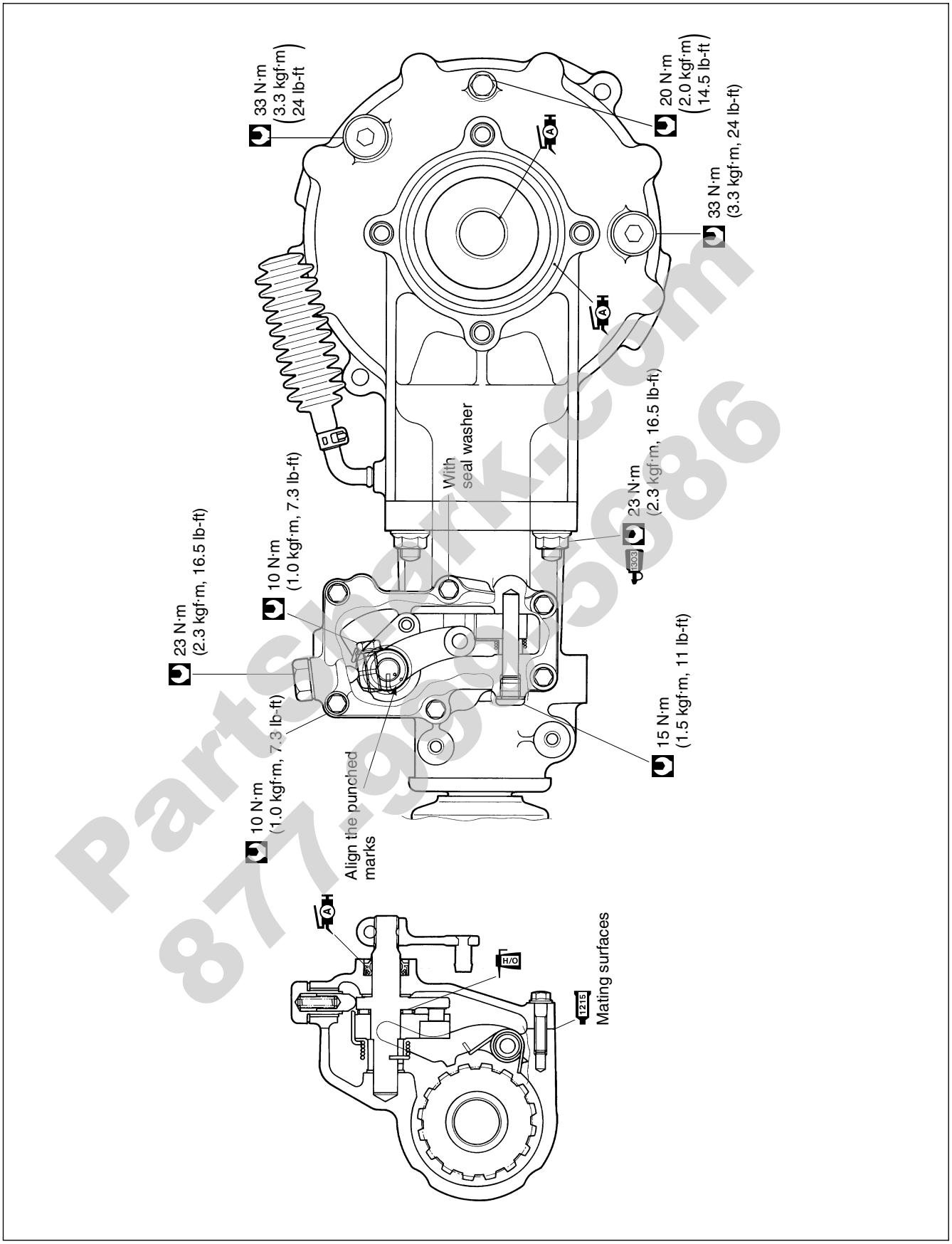


For pinion gear (☞4-40)

Part No.	Shim thickness
27445-24A01-030	0.30 mm (0.0118 in)
27445-24A01-035	0.35 mm (0.0138 in)
27445-24A01-040	0.40 mm (0.0157 in)
27445-24A01-050	0.50 mm (0.0197 in)
27445-24A01-060	0.60 mm (0.0236 in)

REASSEMBLY INFORMATION





FUEL SYSTEM

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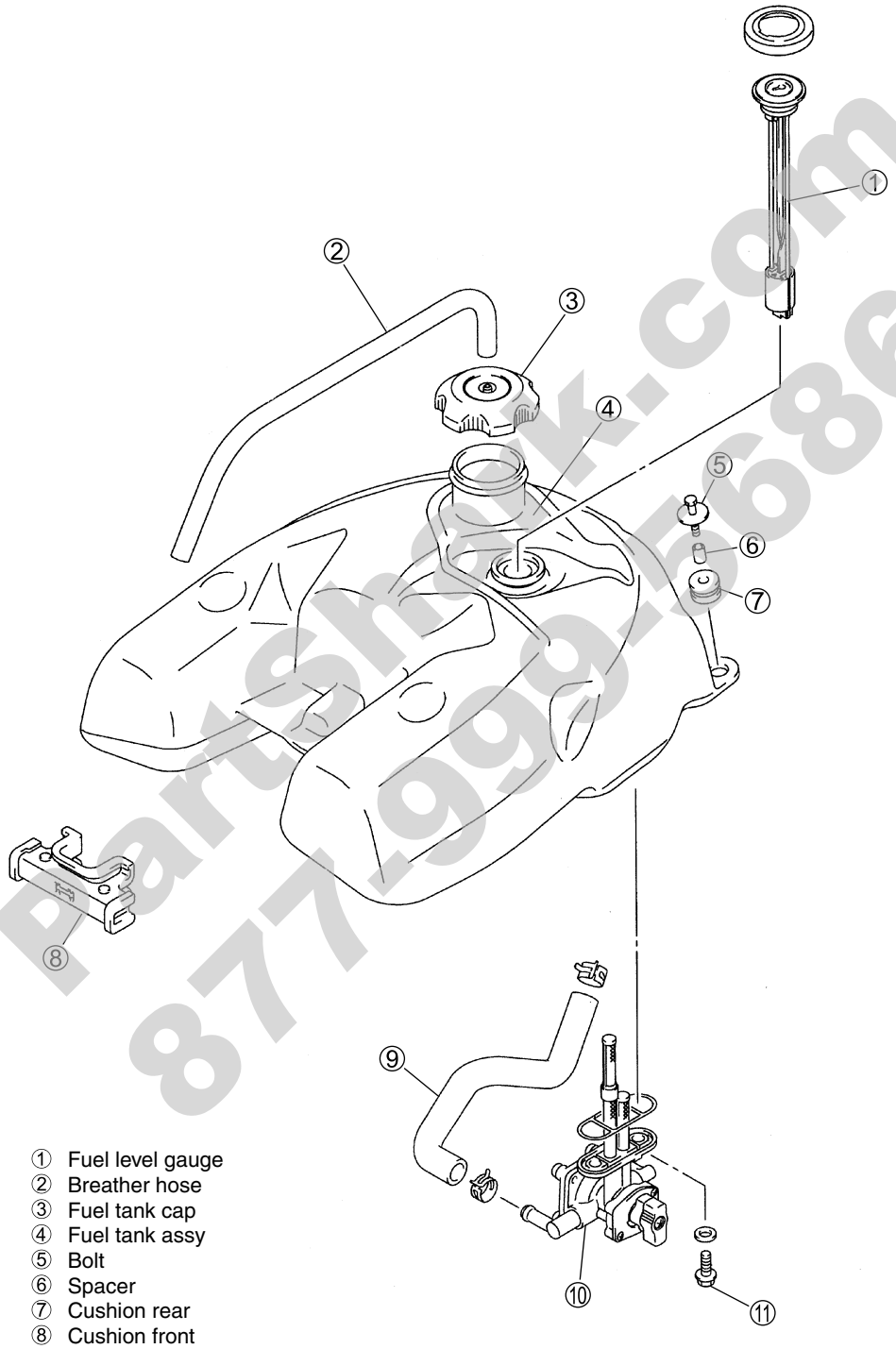
FUEL TANK

CONSTRUCTION



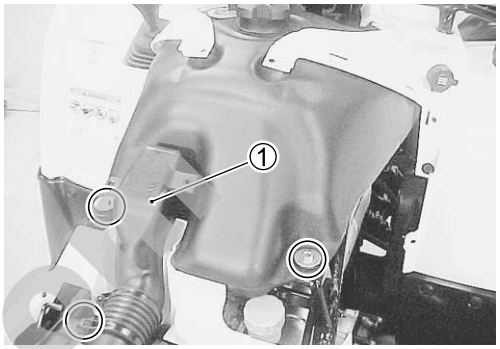
① Fuel level gauge
② Breather hose
③ Fuel tank cap
④ Fuel tank assy
⑤ Bolt
⑥ Spacer
⑦ Cushion rear
⑧ Cushion front
⑨ Fuel hose
⑩ Fuel valve
⑪ Bolt

FUEL LINE INSPECTION

Inspect the fuel lines, fuel tank, and fuel tank cap for damage and fuel leakage. If any damages are found, replace the defective parts with new ones.

REMOVAL

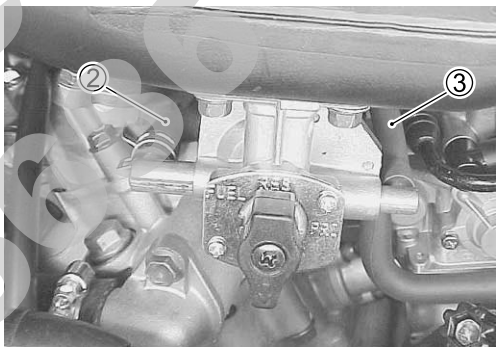
- Remove the seat, fuel tank covers and fuel tank top cover. (☞7-5)
- Remove the air cleaner duct ①.
- Remove the fuel tank mounting bolts.



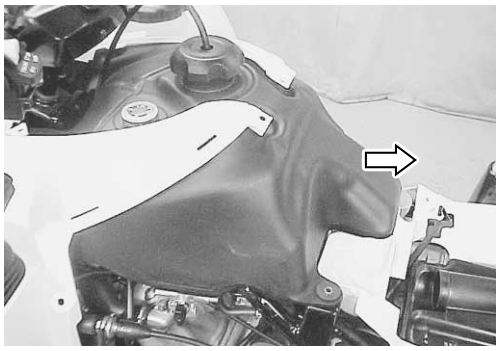
- Turn the fuel valve to the “ON” position.
- Disconnect the fuel hose ② and vacuum hose ③.

⚠ WARNING

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



- Remove the fuel tank.
- Drain the fuel completely.

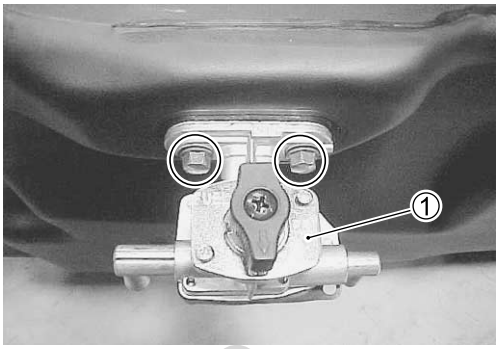


REMOUNTING

Remount the fuel tank in the reverse order of removal.

FUEL VALVE

REMOVAL AND INSPECTION



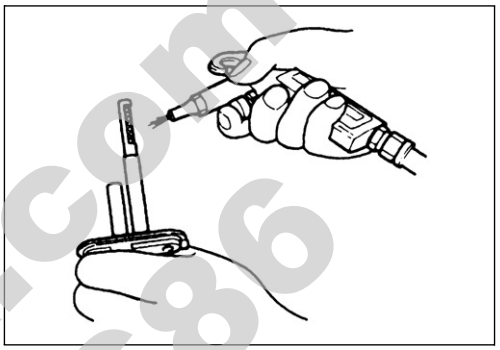
- Remove the fuel tank. (☞5-3)
- Remove the fuel valve ①.

⚠ WARNING

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

FUEL STRAINER

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



REMOUNTING

Remount the fuel valve in the reverse order of removal.

⚠ WARNING

Replace the removed gasket with a new one to prevent fuel leakage.

FUEL LEVEL GAUGE

REMOVAL

- Remove the fuel tank cover. (☞7-5)
- Remove the fuel level gauge cap.

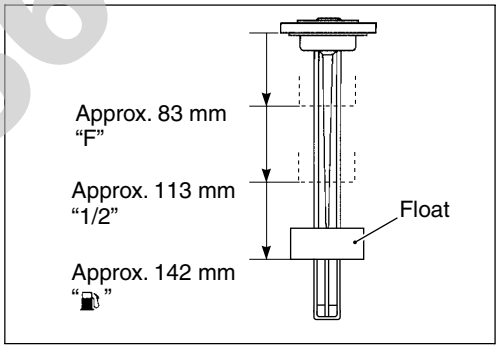
⚠ WARNING

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

- Remove the fuel level gauge.

INSPECTION

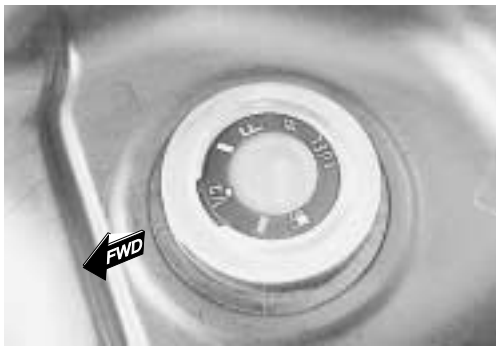
Inspect the float of the fuel gauge assembly moves smoothly.
Inspect that the needle moves correctly as the float of the fuel gauge assembly moves up and down as shown in the illustration.



REMOUNTING

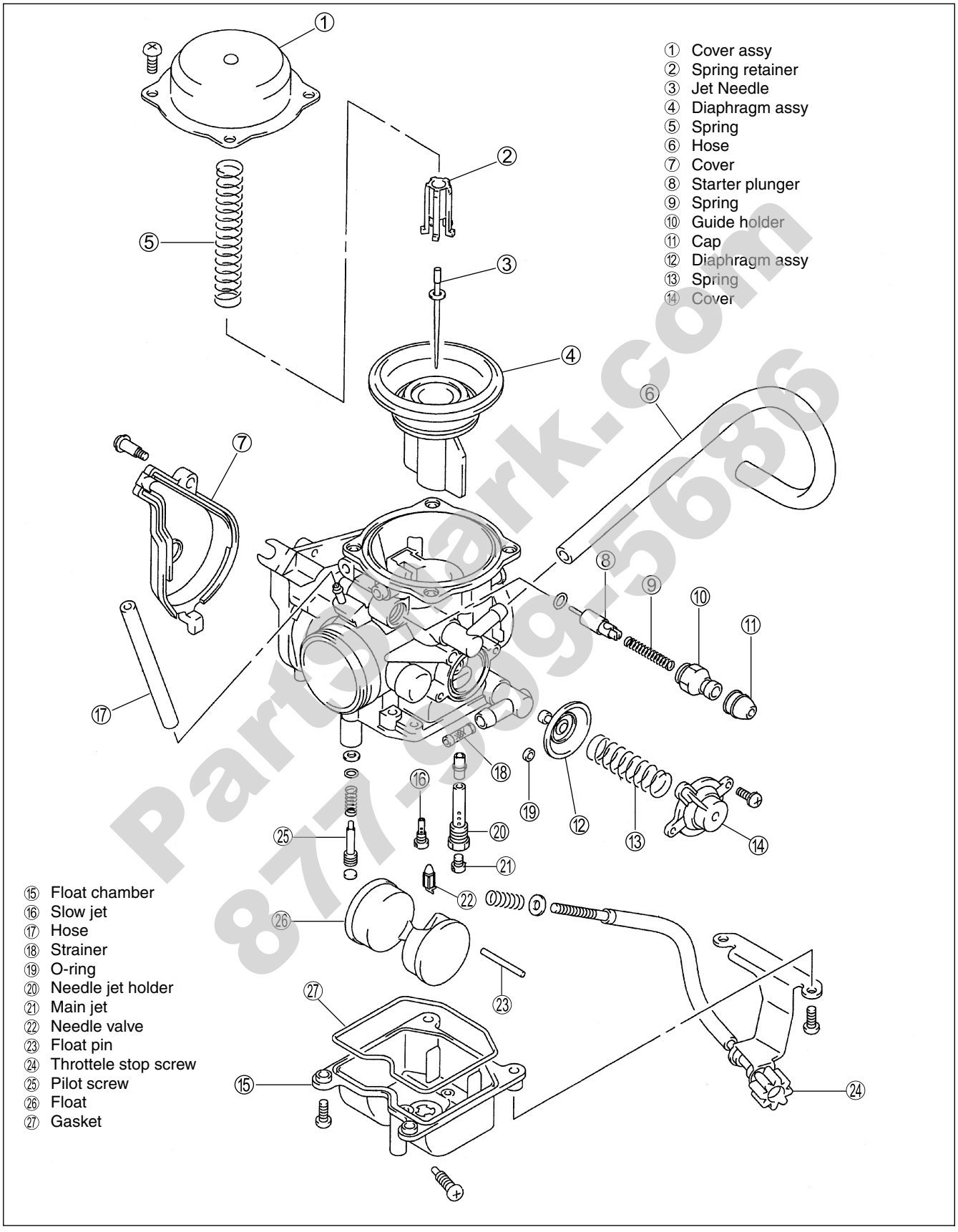
- Remount the fuel level gauge in the reverse order of removal.

NOTE:
When installing the fuel level gauge, "½" indication must be faced to forward.



CARBURETOR

CONSTRUCTION



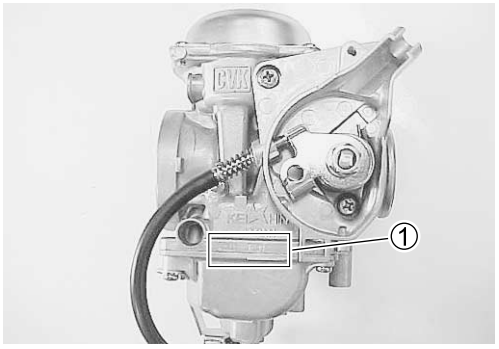
SPECIFICATIONS

ITEM		SPECIFICATION	
		E-03, 28	E-33
Carburetor type		KEIHIN CVK36	←
Bore size		36 mm	←
I.D. No.		03G0	03G1
Idle r/min		1 300 ± 100 r/min	←
Float height		17.0 ± 1.0 mm (0.67 ± 0.04 in)	←
Main jet	(M.J.)	#128	# 128
Jet needle	(J.N.)	NBAY	←
Needle jet	(N.J.)	#6	# 6
Slow jet	(S.J.)	#35	# 35
Pilot screw	(P.S.)	1 7/8	PRE-SET
Throttle cable play (pulling cable)		3 – 5 mm (0.12 – 0.20 in)	←
Starter (enricher) plunger cable play		0.5 – 1.0 mm (0.02 – 0.04 in)	←

E-03: USA E-28: Canada E-33: California (USA)

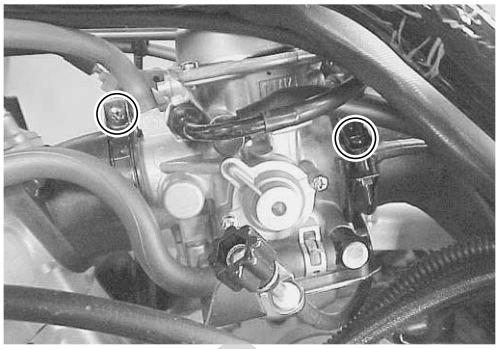
I.D. NO. LOCATION

Carburetor has an I.D. number ① punched on its body.

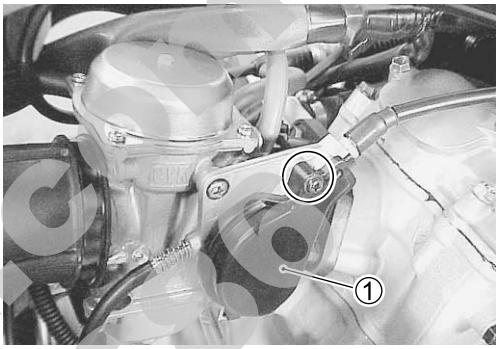


REMOVAL

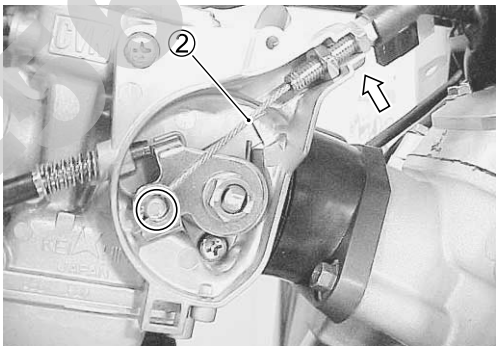
- Remove the fuel tank. (☞5-2)
- Loosen the carburetor clamp screws.



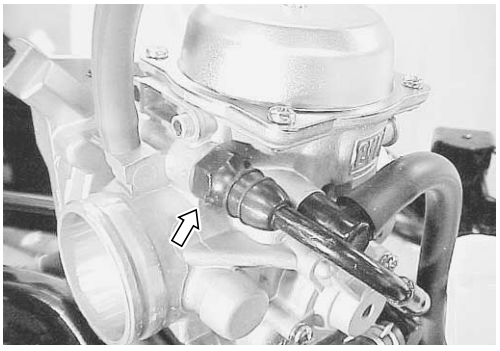
- Remove the carburetor side cap ①.



- Disconnect the throttle cable ②.
- Remove the carburetor.

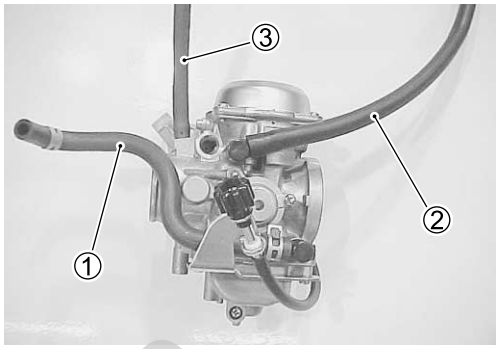


- Disconnect the starter cable.

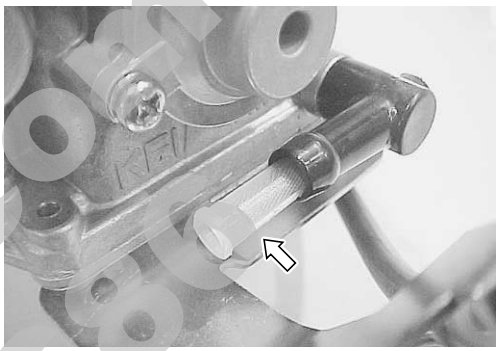


DISASSEMBLY

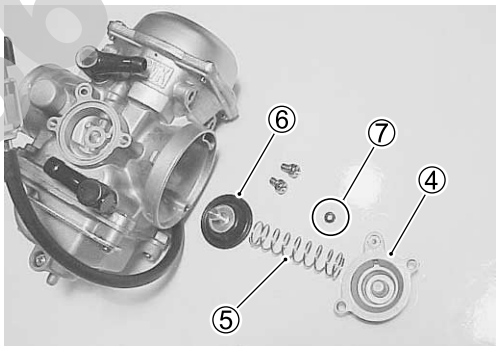
- Remove the fuel hose ①, air vent hoses ② and vacuum hose ③.



- Remove the strainer.



- Remove the coasting enrichment valve cover ④, spring ⑤, coasting enrichment valve ⑥ and O-ring ⑦.

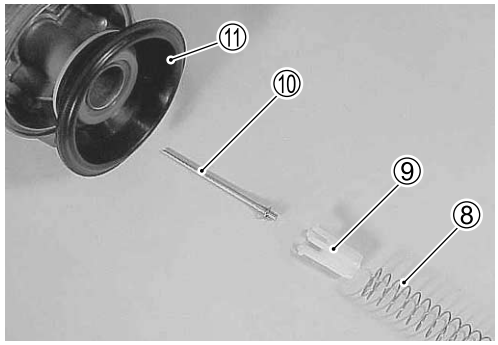


- Remove the top cap.

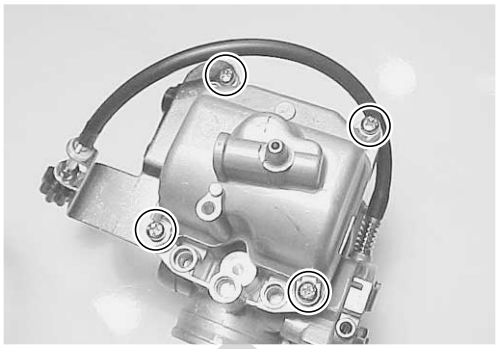
CAUTION

Do not use compressed air on the carburetor body before removing the diaphragm; this may damage the diaphragm.

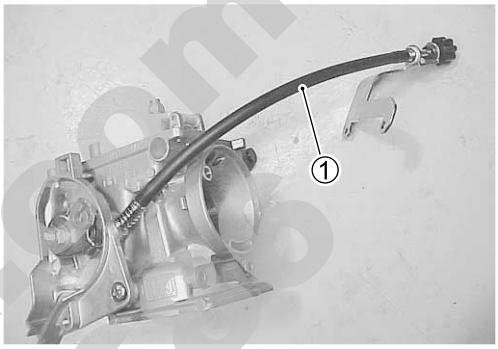
- Remove the spring ⑧, spring retainer ⑨, jet needle ⑩ and diaphragm ⑪.



- Remove the float chamber.



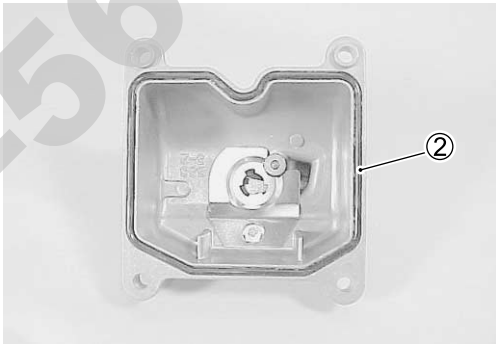
- Remove the throttle stop screw ①.



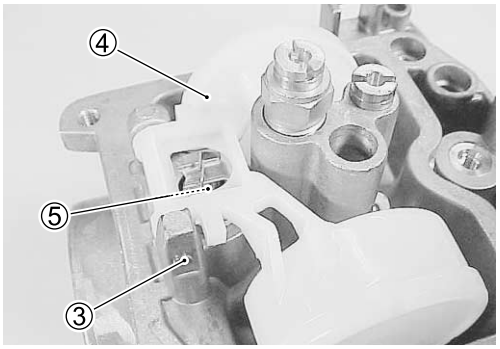
- Remove the O-ring ②.

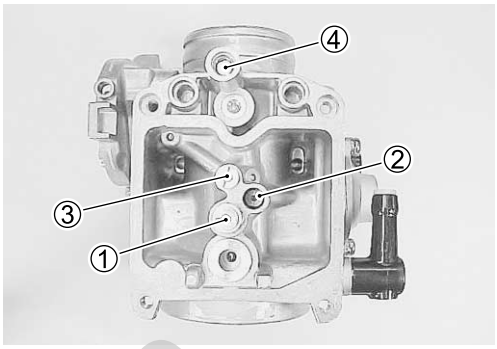
CAUTION

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



- Remove the float pin ③, float ④ and needle valve ⑤.





• Remove the following parts.

① Main jet and needle jet holder
② Slow jet
③ Starter jet
④ Pilot screw

NOTE:
Before removing the pilot screw ④, its setting must be determined. Slowly turn the pilot screw clockwise and count the number of turns until it is lightly seated. Make a note of how many turns were made.
When reassembling the pilot screw, you will want to set it to its original position.

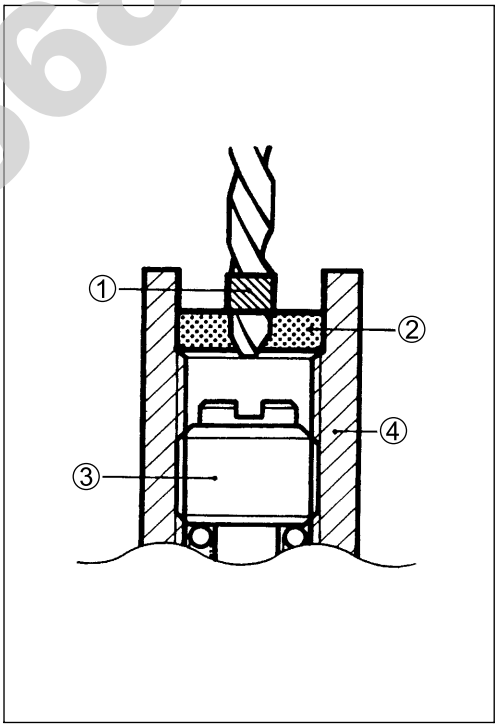
CAUTION

Do not use wire to clean the passageways, valve seat and jets. Used compressed air only.

PILOT SCREW REMOVAL (For E-33)

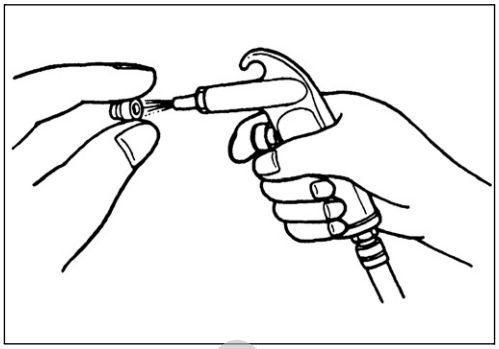
Because harsh cleaning solvents can damage the O-ring seals in the pilot system, the pilot system components should be removed before cleaning.

- Use a 1/8" size drill bit with a drill-stop to remove the pilot screw plug. Set the drill-stop 4 mm (0.16 in) from the end of the bit to prevent drilling into the pilot screw. Carefully drill through the plug.
- Thread a self-tapping sheet metal screw into the plug. Pull on the screw head with pliers to remove the plug. Carefully clean any metal shavings from the area.
- Slowly turn the pilot screw clockwise and count the number of turns until the screw is lightly seated. Make a note of how many turns were made so the screw can be reset correctly after cleaning.
- Remove the pilot screw along with the spring, washer and O-ring.
- After cleaning, install the pilot screw to the original setting by turning the screw in until it lightly seats, and then backing it out the same number of turns counted during disassembly.
- Install a new plug by tapping it into place with a punch.



① Drill-stop
② Plug
③ Pilot screw
④ Carburetor body

CLEANING



⚠ WARNING

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

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

CAUTION

Do not use a wire to clean the jets or passageways. If wire is used, the jets and passageways may become damaged. If the components cannot be cleaned with a spray-type cleaner it may be necessary to soak the components in a dip-type cleaning solution. Always follow the chemical manufacturer's instructions for proper use and cleaning of the carburetor components.

- After cleaning, reassemble the carburetor with new O-rings.

CAUTION

Replace the removed O-rings with new ones.

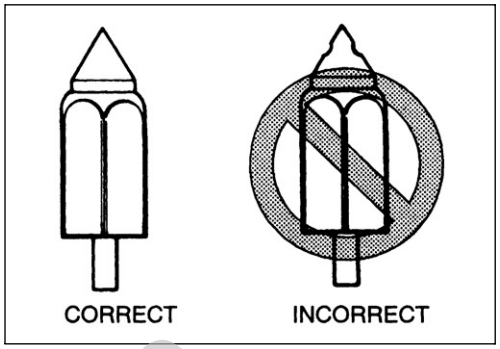
INSPECTION

Check the following items for any damage or clogging. If any damages are found, replace the damaged parts with new ones.

* Slow jet
* Main jet
* Main air jet
* Slow air jet
* Needle jet air bleeding hole
* Float
* Needle valve
* Jet needle
* Valve seat
* Piston valve
* Starter jet
* O-ring
* Throttle valve
* Diaphragm
* Pilot outlet and by-pass ports
* Fuel strainer ①

NEEDLE VALVE INSPECTION

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

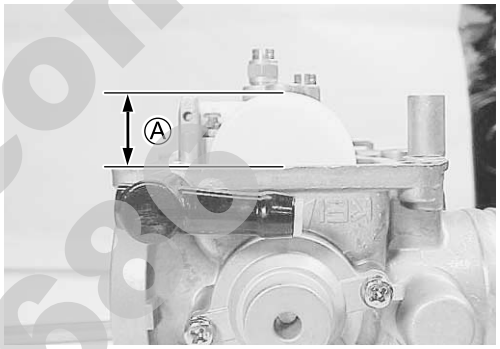


FLOAT HEIGHT ADJUSTMENT

To check the float height, turn the carburetor upside down.
Measure the float height Ⓐ while the float arm is just contacting the needle valve using venier calipers.
Bend the tongue as necessary to bring the float height Ⓐ to the specified level.

TOOL 09900-20101: Venier calipers

DATA Float height Ⓐ: 17.0 ± 1.0 mm (0.67 ± 0.04 in)



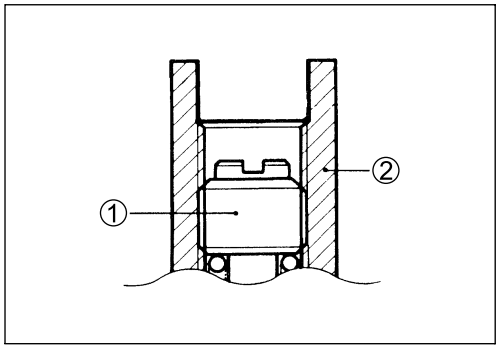
REASSEMBLY

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

PILOT SCREW

- After cleaning, install the pilot screw ① to the original setting by turning the screw in until it lightly seats, and then backing it out the same number of turns counted during disassembly.

① Pilot screw
② Carburetor body

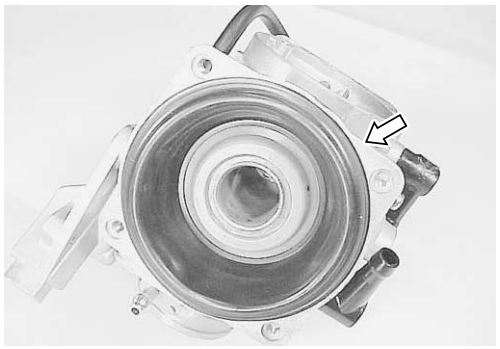


CAUTION

Replace the removed O-ring with a new one.

- Install the diaphragm.

NOTE:
When installing the diaphragm, make sure the tab of the diaphragm is aligned with the concave section of the carburetor body's rim.



THROTTLE STOP SCREW

- Apply the grease to thread part of the throttle stop screw, then install the throttle stop screw to the carburetor.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

REMOUNTING

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

- Align the lug on the carburetor with the intake pipe's cutout.

After the carburetor assembly has been remounted onto the engine perform the following adjustments:

* Throttle cable play ..... ☞2-8
* Engine idle speed ..... ☞2-9

COOLING AND LUBRICATION SYSTEM

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ENGINE COOLANT

At the time of manufacture, the cooling system is filled with a 50:50 mixture of distilled water and ethylene glycol anti-freeze. This 50:50 mixture will provide the optimum corrosion protection and excellent heat protection, and will protect the cooling system from freezing at temperatures above –31°C (–24°F).
If the vehicle is to be exposed to temperatures below –31°C (–24°F), this mixing ratio should be increased up to 55% or 60% according to the figure.

Anti-freeze density	Freezing point
50%	–30˚C (–24˚F)
55%	–40˚C (–44˚F)
60%	–55˚C (–67˚F)

CAUTION

- **Use a high quality ethylene glycol base anti-freeze, mixed with distilled water. Do not mix an alcohol base anti-freeze and different brands of anti-freeze.**
- **Do not put in more than 60% anti-freeze or less than 50%. (Refer to Right figure.)**
- **Do not use a radiator anti-leak additive.**

50% Engine coolant including reserve tank capacity

Anti-freeze	1 000 ml (2.1/1.8 US/Imp. pt)
Water	1 000 ml (2.1/1.8 US/Imp. pt)

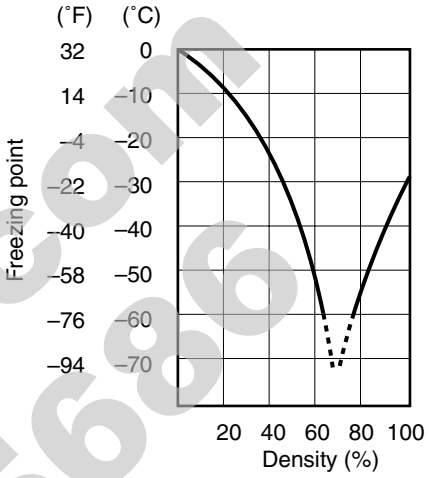


Fig.1 Engine coolant density-freezing point curve.

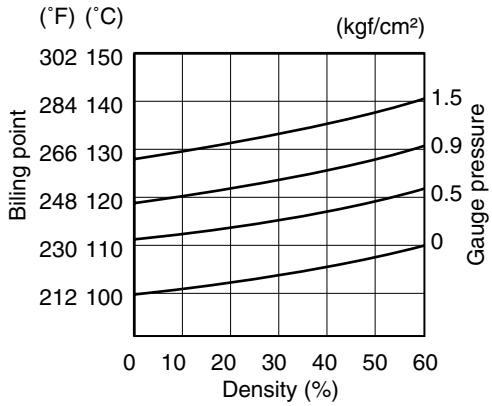
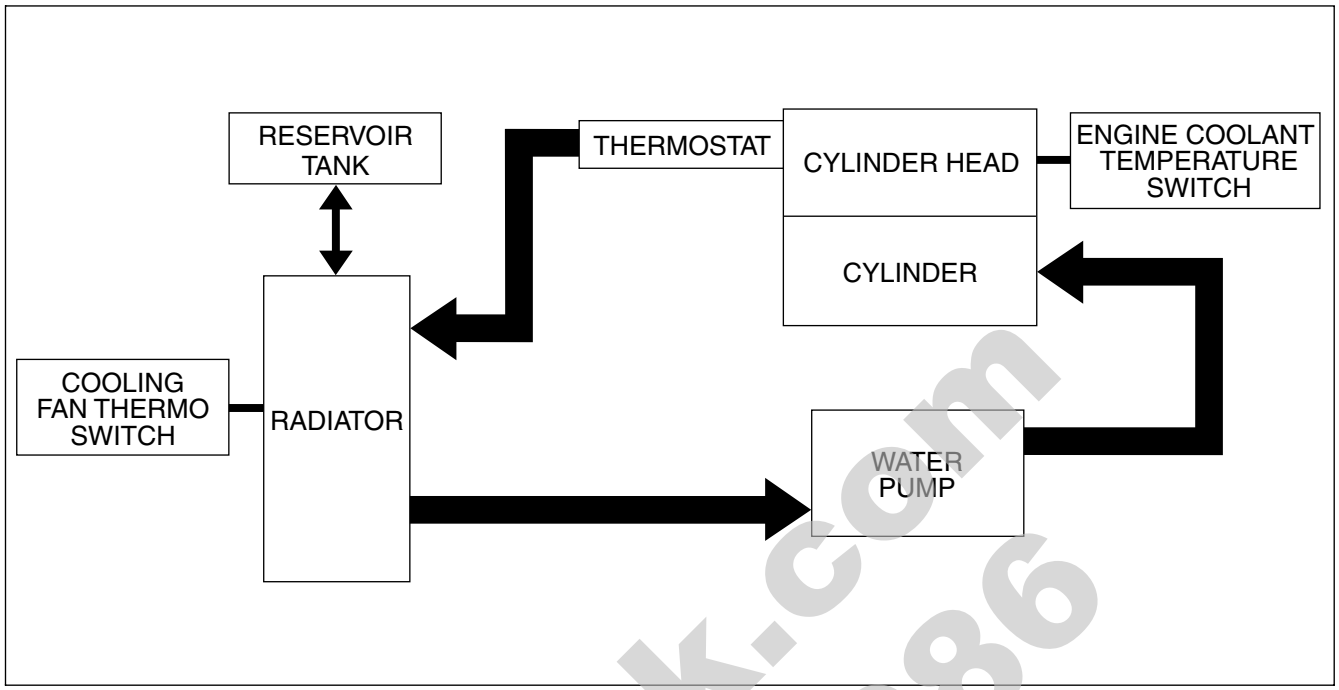


Fig.2 Engine coolant density-boiling point curve.

⚠ WARNING

- **You can be injured by scalding fluid or steam if you open the radiator cap when the engine is hot. After the engine cools, wrap a thick cloth around cap and carefully remove the cap by turning it a quarter turn to allow pressure to escape and then turn the cap all the way off.**
- **The engine must be cool before servicing the cooling system.**
- **Coolant is harmful;**
  - **If it comes in contact with skin or eyes, flush with water.**
  - **If swallowed accidentally, induce vomiting and call physician immediately.**
  - **Keep it away from children.**

COOLING CIRCUIT



COOLING CIRCUIT INSPECTION

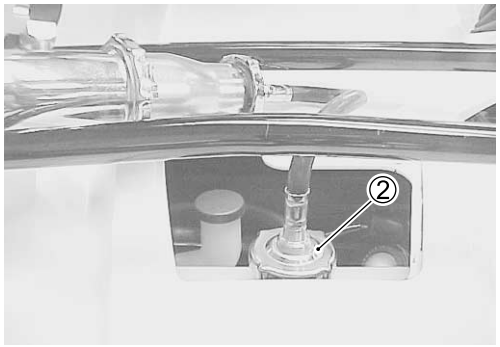
Before removing the radiator and draining the engine coolant, inspect the cooling circuit for tightness.

- Remove the radiator cap lid.
- Remove the radiator cap ① and connect the tester ② to the filler.

⚠ WARNING

Do not remove the radiator cap when the engine is hot.

- Give a pressure of about 120 kPa (1.2 kgf/m², 17 psi) and see if the system holds this pressure for 10 seconds.
- If the pressure should fall during this 10-second interval, it means that there is a leaking point in the system. In such a case, inspect the entire system and replace the leaking component or part.



⚠ WARNING

When removing the radiator cap tester, put a rag on the filler to prevent spouting of engine coolant.

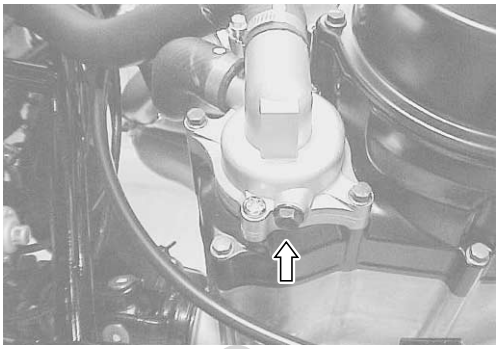
CAUTION

Do not allow the pressure to exceed the radiator cap release pressure, or the radiator can be damaged.

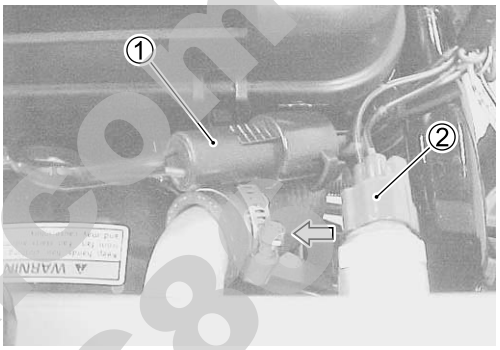
RADIATOR AND HOSES

RADIATOR REMOVAL

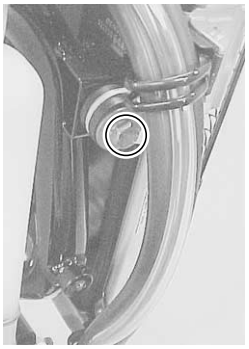
- Remove the front fender. (☞7-5)
- Drain engine coolant by removing the drain plug.



- Disconnect the cooling fan motor lead wire coupler ① and cooling fan thermo-switch lead wire coupler ②.
- Disconnect the upper and lower radiator hoses.
- Disconnect the siphon hose from the radiator.



- Remove the two mounting bolts and radiator assembly.



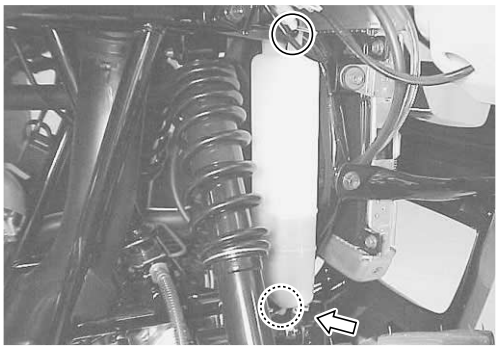
RADIATOR REMOUNTING

- Install the radiator.
- Connect the radiator hoses. (☞9-17)
- Connect the siphon hose, cooling fan thermo-switch lead wire coupler and cooling fan motor lead wire coupler.
- Install the drain plug with a new sealing washer.
- Pour engine coolant. (☞2-12)
- Bleed air from the cooling curcuit. (☞2-12)
- Install the front fender.

RADIATOR RESERVOIR TANK

REMOVAL/INSTALLATION

- Remove the reservoir tank mounting bolts and disconnect the siphon hose from the reservoir tank and drain engine coolant.
- Install the reservoir tank in the reverse order of removal.
- Fill the reservoir tank to the upper level line.

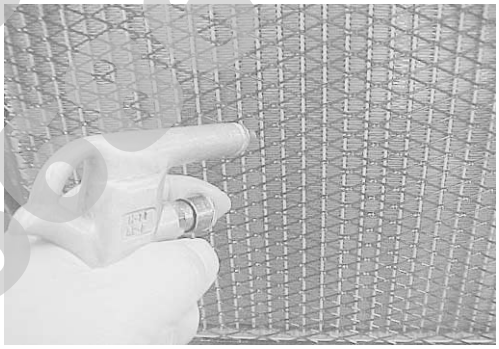


RADIATOR CAP INSPECTION

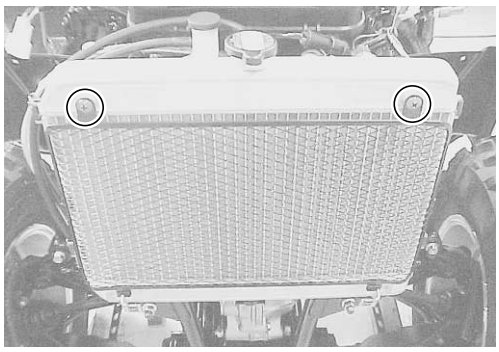
- Remove the radiator cap lid.
- Fit the cap ① to the radiator cap tester ②.
- Build up pressure slowly by operating the tester. Make sure that the pressure build-up stops at 95–125 kPa (0.95–1.25 kgf/cm², 13.5–17.8 psi) and that, with the tester held standstill, the cap is capable of holding that pressure for at least 10 seconds.
- Replace the cap if it is found not to satisfy either of these two requirements.

DATA Radiator cap valve opening pressure
Standard: 95 – 125 kPa
(0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi)

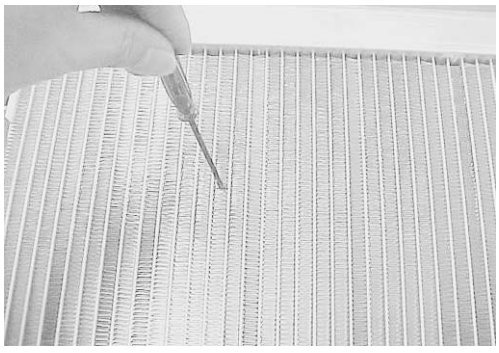
RADIATOR INSPECTION AND CLEANING



- Road dirt or trash stuck to the fins must be removed.
- Use of compressed air is recommended for this cleaning.



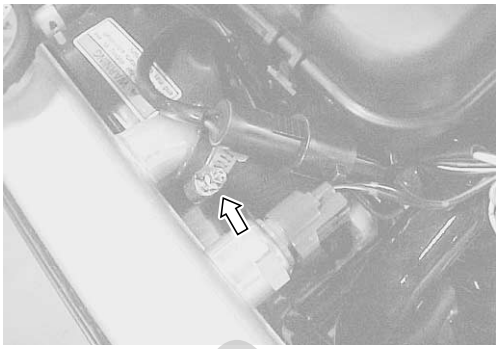
- Remove the front fender. (☞7-5)
- Remove the radiator fin guard net.

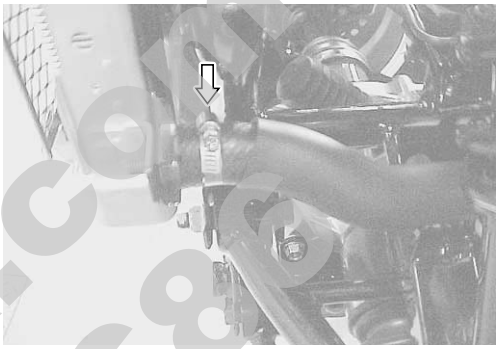


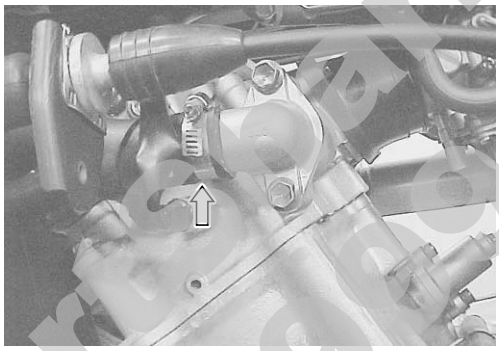
- Fins bent down or dented can be repaired by straightening them with the blade of a small screwdriver.

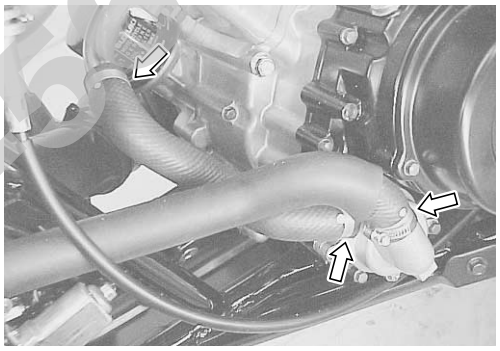
RADIATOR HOSE INSPECTION

- Remove the front fender. (☞7-5)
- Any radiator hose found in a cracked condition or flattened must be replaced.
- Any leakage from the connecting section should be corrected by proper tightening.





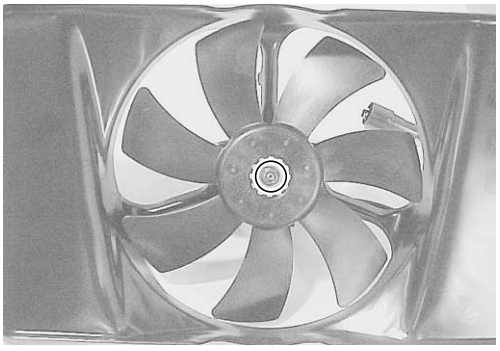




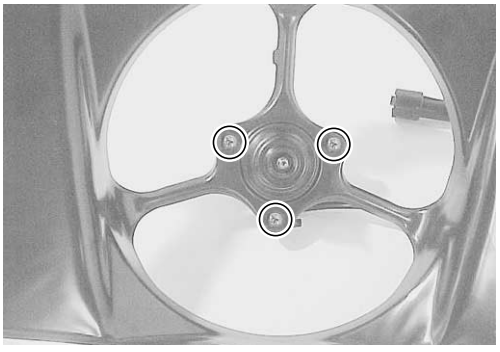
COOLING FAN

REMOVAL

- Remove the front fender. (☞7-5)
- Drain engine coolant. (☞6-4)
- Remove the radiator. (☞6-4)
- Remove the cooling fan.

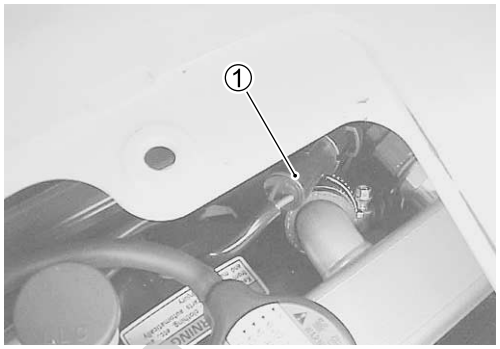


- Remove the cooling fan motor.



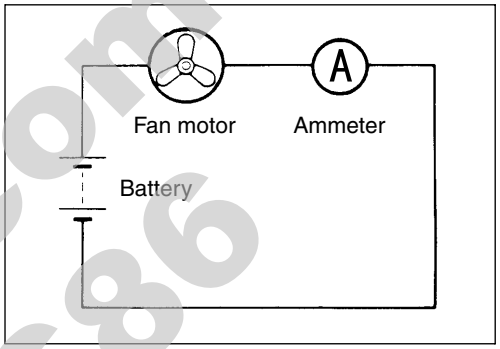
INSPECTION

- Remove the radiator cap lid.
- Disconnect the cooling fan motor lead wire coupler ①.
- Test the cooling fan motor for load current with an ammeter connected as shown in the illustration.



- The voltmeter is for making sure that the battery applies 12 volts to the motor. With the motor with electric motor fan running at full speed, the ammeter should be indicating not more than 5 amperes.
- If the fan motor does not turn, replace the motor assembly with a new one.

NOTE:
When making above test, it is not necessary to remove the cooling fan.

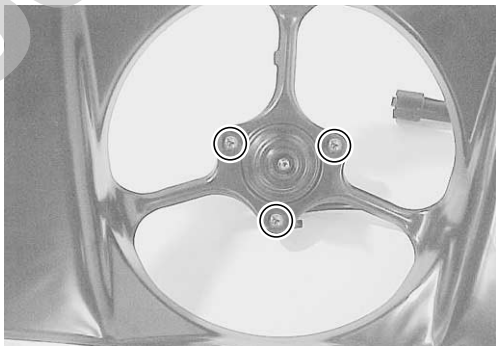


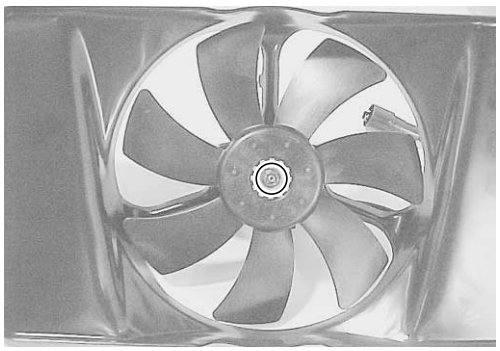
INSTALLATION

- Install the cooling fan motor and cooling fan.

Cooling fan motor mounting screw: 8 N·m (0.8 kgf-m, 6.0 lb-ft)

Cooling fan nut: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

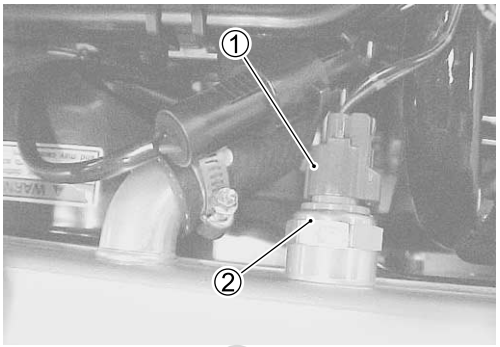




- Install the radiator. (☞6-4)
- Connect the radiator hoses. (☞6-6, 9-17)
- Pour engine coolant. (☞2-12)
- Bleed air from the cooling circuit. (☞2-12)
- Install the front fender. (☞7-5)

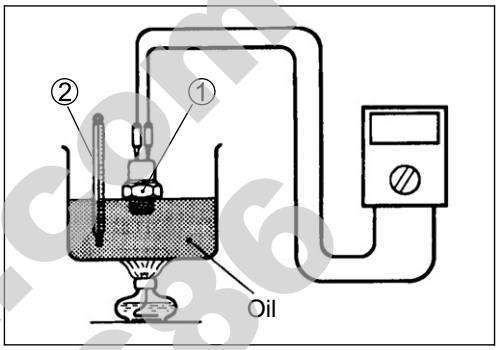
COOLING FAN THERMO-SWITCH

REMOVAL



- Remove the front fender. (☞7-5)
- Drain a small amount of engine coolant. (☞6-4)
- Disconnect the cooling fan thermo-switch lead wire coupler ①.
- Remove the cooling fan thermo-switch ②.

INSPECTION



- Check the thermo-switch closing or opening temperatures by testing it at the bench as shown in the figure. Connect the thermo-switch ① to a circuit tester and place it in the oil contained in a pan, which is placed on a stove.
- Heat the oil to raise its temperature slowly and read the column thermometer ② when the switch closes or opens.

09900-25008: Multi circuit tester set

Tester knob indication: Continuity test (•))))

Cooling fan thermo-switch operating temperature
Standard (OFF→ON): Approx. 88°C (190°F)
(ON→OFF): Approx. 82°C (180°F)

CAUTION

*** Take special care when handling the thermo-switch. It may cause damage if it gets a sharp impact.**
*** Do not contact the cooling fan thermo-switch ① and the column thermometer ② with a pan.**

INSTALLATION

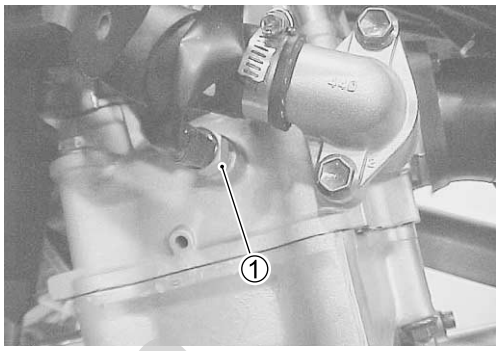
- Install the new O-ring ①.
- Tighten the cooling fan thermo-switch to the specified torque.

Cooling fan thermo-switch: 17 N·m (1.7 kgf-m, 12.5 lb-ft)

- Pour engine coolant. (☞2-12)
- Install the front fender. (☞7-5)

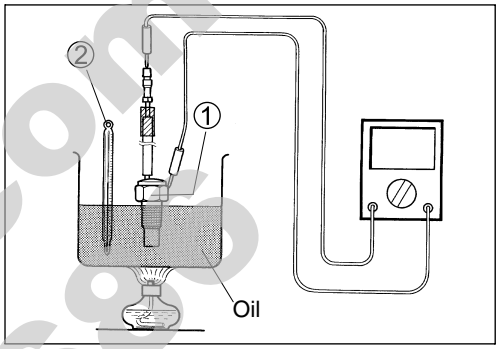
ENGINE COOLANT TEMPERATURE SWITCH

REMOVAL



- Remove the fuel tank cover. (☞7-5)
- Drain a small amount of engine coolant. (☞6-4)
- Disconnect the engine coolant temperature switch lead wire coupler.
- Place a rag under the switch and remove the engine coolant temperature swicth ①.

INSPECTION



- Check the engine coolant temperature switch by testing it at the bench as shown in the figure. Connect the temperature switch ① to a circuit tester and place it in the oil contained in a pan, which is placed on a stove.
- Heat the oil to raise its temperature slowly and read the column thermometer ② when the switch closes or opens.

TOOL 09900-25008: Multi circuit tester set

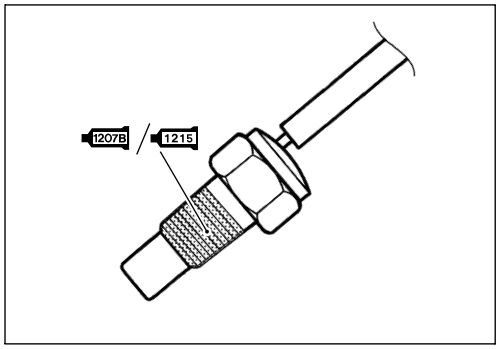
Tester knob indication: Continuity test (•)))

DATA Engine coolant temp. switch operating temperature
Standard (OFF→ON): Approx. 115°C (239°F)
(ON→OFF): Approx. 108°C (226°F)

CAUTION

*** Take special care when handling the temperature switch. It may cause damage if it gets a sharp impact.**
*** Do not contact the engine coolant temperature switch ① and the column thermometer ② with a pan.**

INSTALLATION



- Apply sealant to the thread portion of the engine coolant temp. switch.

1207B 99104-31140: SUZUKI BOND "1207B" (USA)
1215 99000-31110: SUZUKI BOND "1215" (Others)

- Tighten the engine coolant temperature switch to the specified torque.

Engine coolant temperature switch:
10 N·m (1.0 kgf-m, 7.3 lb-ft)

CAUTION

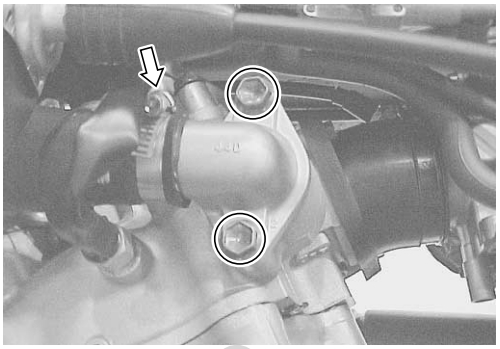
Take special care when handling the temperature switch. It may cause damage if it gets a sharp impact.

- Install the fuel tank cover. (☞7-5)
- Pour engine coolant. (☞2-12)

THERMOSTAT

REMOVAL

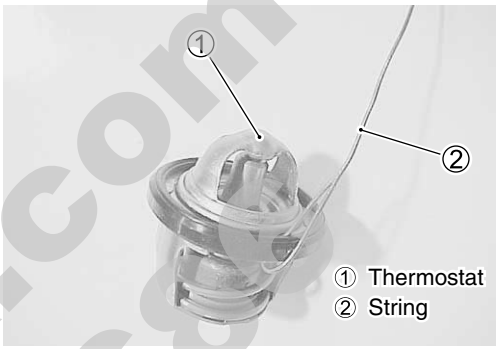
- Remove the fuel tank cover. (☞7-5)
- Drain a small amount of engine coolant. (☞6-4)
- Place a rag under the thermostat case.
- Remove the thermostat case.
- Remove the thermostat.



INSPECTION

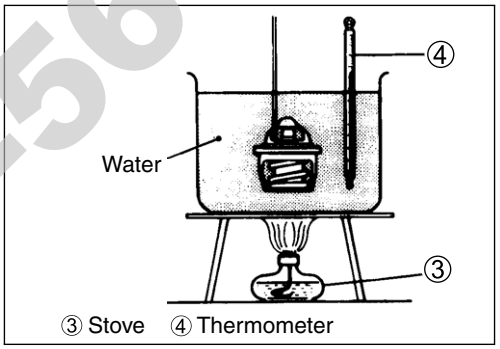
Inspect the thermostat pellet for signs of cracking.
Test the thermostat at the bench for control action, in the following manner.

- Pass a string between flange, as shown in the photograph.
- Immerse the thermostat in the water contained in a beaker, as shown in the illustration. Note that the immersed thermostat is in suspension. Heat the water by placing the beaker on a stove and observe the rising temperature on a thermometer.



- Read the thermometer just when opening the thermostat. This reading, which is the temperature level at which the thermostat valve begins to open, should satisfy the standard value.

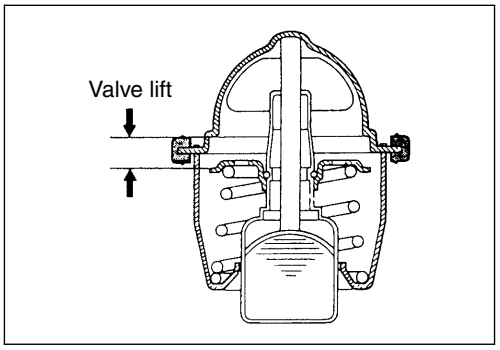
DATA Thermostat valve opening temperature
Standard: 73.5–76.5 °C (164–170 °F)



- Keep on heating the water to raise its temperature.
- Just when the water temperature reaches specified value, the thermostat valve should have lifted by at least 3.0 mm (0.12 in).

DATA Thermostat valve lift
Standard: Over 3.0 mm at 90°C (Over 0.12 in at 194°F)

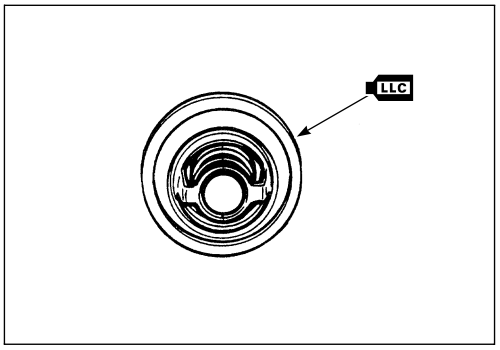
- A thermostat failing to satisfy either of the two requirements (start-to-open temperature and valve lift) must be replaced.



INSTALLATION

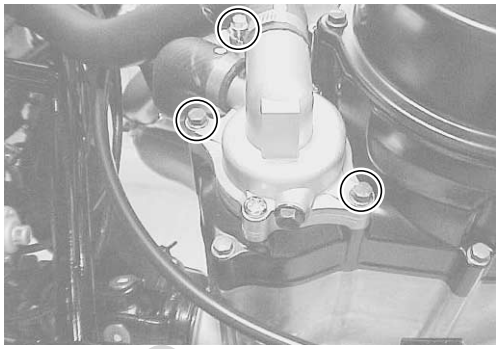
- Install the thermostat in the reverse order of removal.
- Apply engine coolant to the rubber seal on the thermostat.
- After installing the thermostat, be sure to add engine coolant. (☞2-12)
- Install the fuel tank cover. (☞7-5)
- Tighten the thermostat case bolts to the specified torque.

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



WATER PUMP

REMOVAL AND DISASSEMBLY

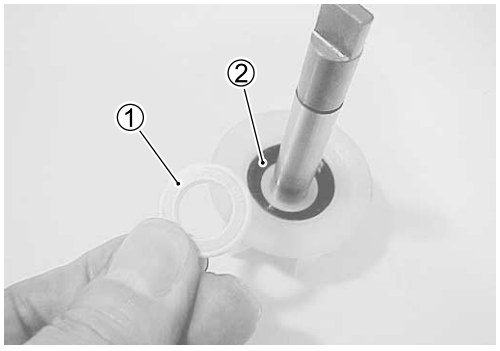


- Remove the left mud guard. (☞7-8)
- Drain engine coolant. (☞6-4)
- Remove the water pump.

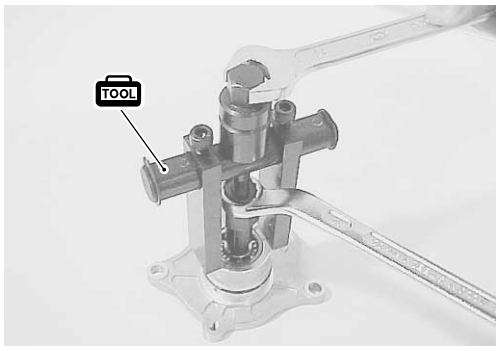
NOTE:
Before draining engine coolant, inspect engine coolant leakage between the water pump and crankcase. If engine oil is leaking, visually inspect the oil seal and O-ring. If engine coolant is leaking, visually inspect the mechanical seal and seal ring. (☞6-12)

- Remove the water pump cover.

- Remove the impeller by removing E-ring.



- Remove the mechanical seal ring ① and the rubber seal ② from the impeller.



- Remove the bearing using the special tool.

TOOL 09921-20240: Bearing remover set

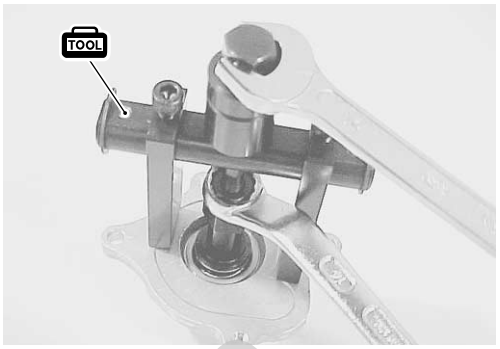
NOTE:
If there is no abnormal noise, bearing removal is not necessary.

CAUTION

The removed bearing must be replaced with a new one.

• Remove the mechanical seal using the special tool.

TOOL 09921-20240: Bearing remover set



NOTE:
If there is no abnormal condition, the mechanical seal removal is not necessary.

CAUTION

The removed mechanical seal must be replaced with a new one.

• Place a rag over the water pump.
• Remove the oil seal using a suitable bar.

NOTE:
If there is no abnormal condition, the oil seal removal is not necessary.

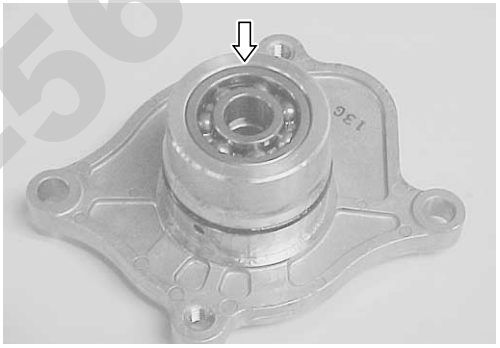
CAUTION

The removed oil seal must be replaced with a new one.

INSPECTION

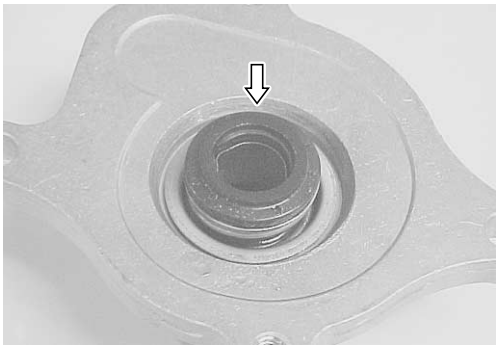
BEARING

• Inspect the play of the bearing by hand while it is in the water pump case.
• Rotate the inner race by hand to inspect for abnormal noise and smooth rotation.
• Replace the bearing if there is anything unusual.



MECHANICAL SEAL

• Visually inspect the mechanical seal for damage, with particular attention given to the sealing face.
• Replace the mechanical seal that shows indications of leakage. Also replace the seal ring if necessary.

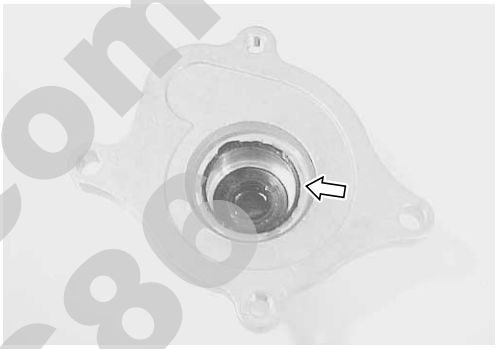


OIL SEAL

• Visually inspect the oil seal for damage, with particular attention given to the lip.
• Replace the oil seal that shows indications of leakage.

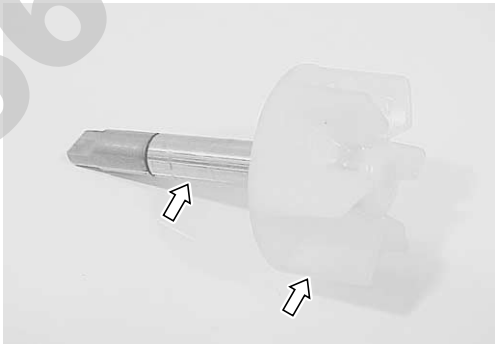
BEARING CASE/MECHANICAL CASE

- Visually inspect the bearing case and mechanical case for damage.
- Replace the water pump body if necessary.



IMPELLER

- Visually inspect the impeller and its shaft for damage.

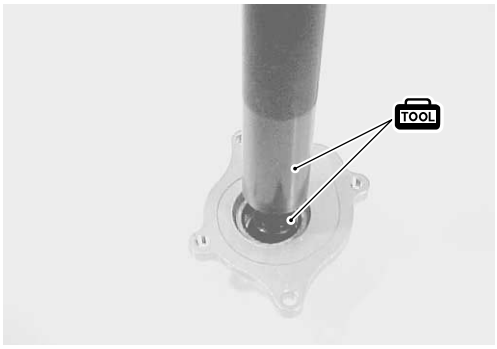


REASSEMBLY AND INSTALLATION

- Install the oil seal using the special tool.

TOOL 09913-70210: Bearing installer set

NOTE:
The stamped mark on the oil seal faces outside.

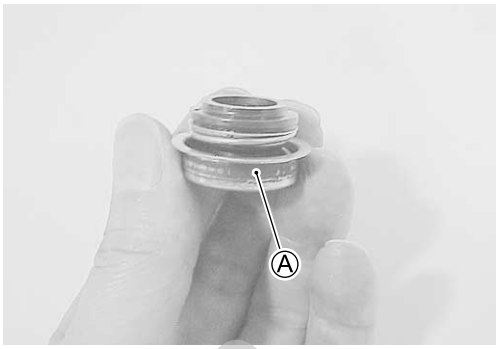


- Apply a small quantity of the SUZUKI SUPER GREASE "A" to the oil seal lip.

A H 99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Install the new mechanical seal using a suitable size socket wrench.

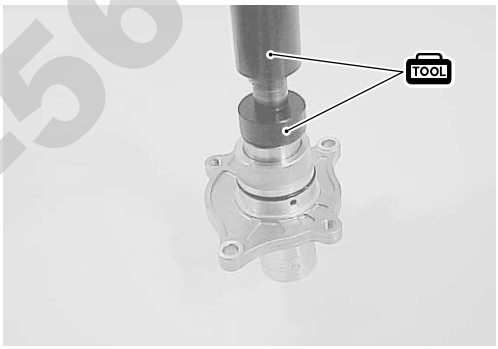
NOTE:
On the new mechanical seal, the seealer Ⓐ has been applied.



- Install the new bearing using the special tool.

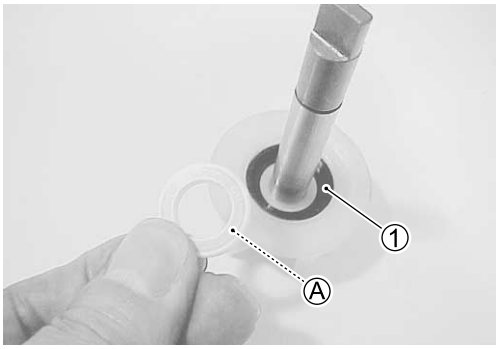
09913-70210: Bearing installer set

NOTE:
The stamped mark on the bearing faces crankcase side.



- Install the rubber seal ① into the impeller.
- After wiping off the oily or greasy matter from the mechanical seal ring, install it into the impeller.

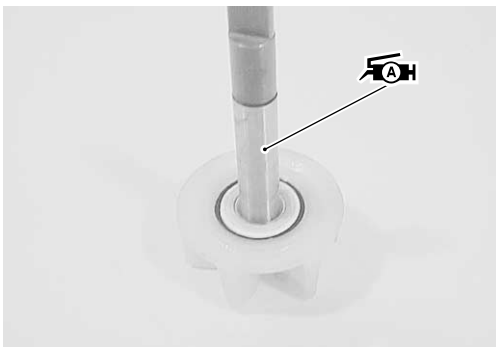
NOTE:
The paint marked side Ⓐ of the mechanical seal ring faces the impeller.



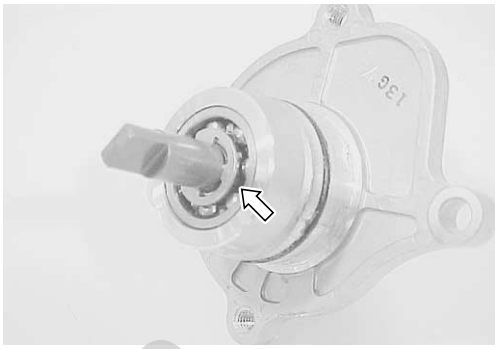
- Apply grease to the impeller shaft.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Install the impeller shaft to the water pump body.



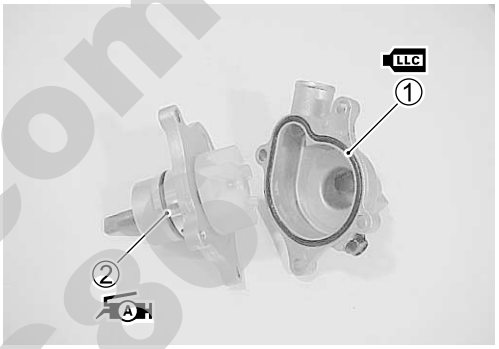
- Install the E-ring to the impeller shaft.



- Install the new O-rings, ① and ②.

CAUTION

Use the new O-rings to prevent engine coolant engine oil leakage.



NOTE:
** Apply engine coolant to the O-ring ①.*
** Apply grease to the O-ring ②.*

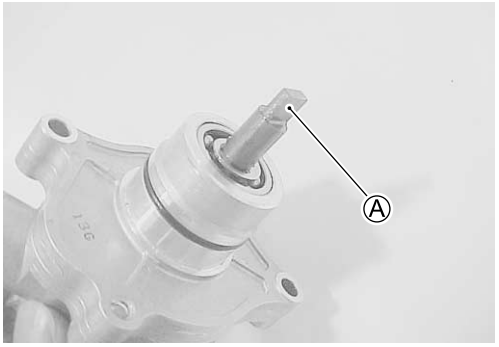
A 99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Tighten the water pump cover screws to the specified torque.

Water pump cover screw: 6 N·m (0.6 kgf-m, 4.5 lb-ft)

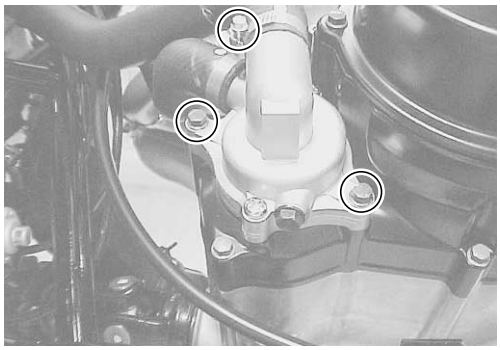
- Install the water pump and tighten its mounting bolts to the specified torque.

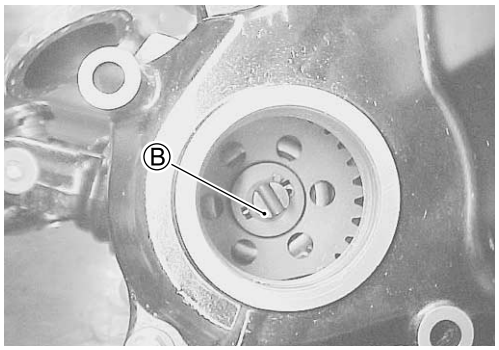
Water pump mounting bolt: 10 N·m (1.0 kgf-m, 7.0 lb-ft)

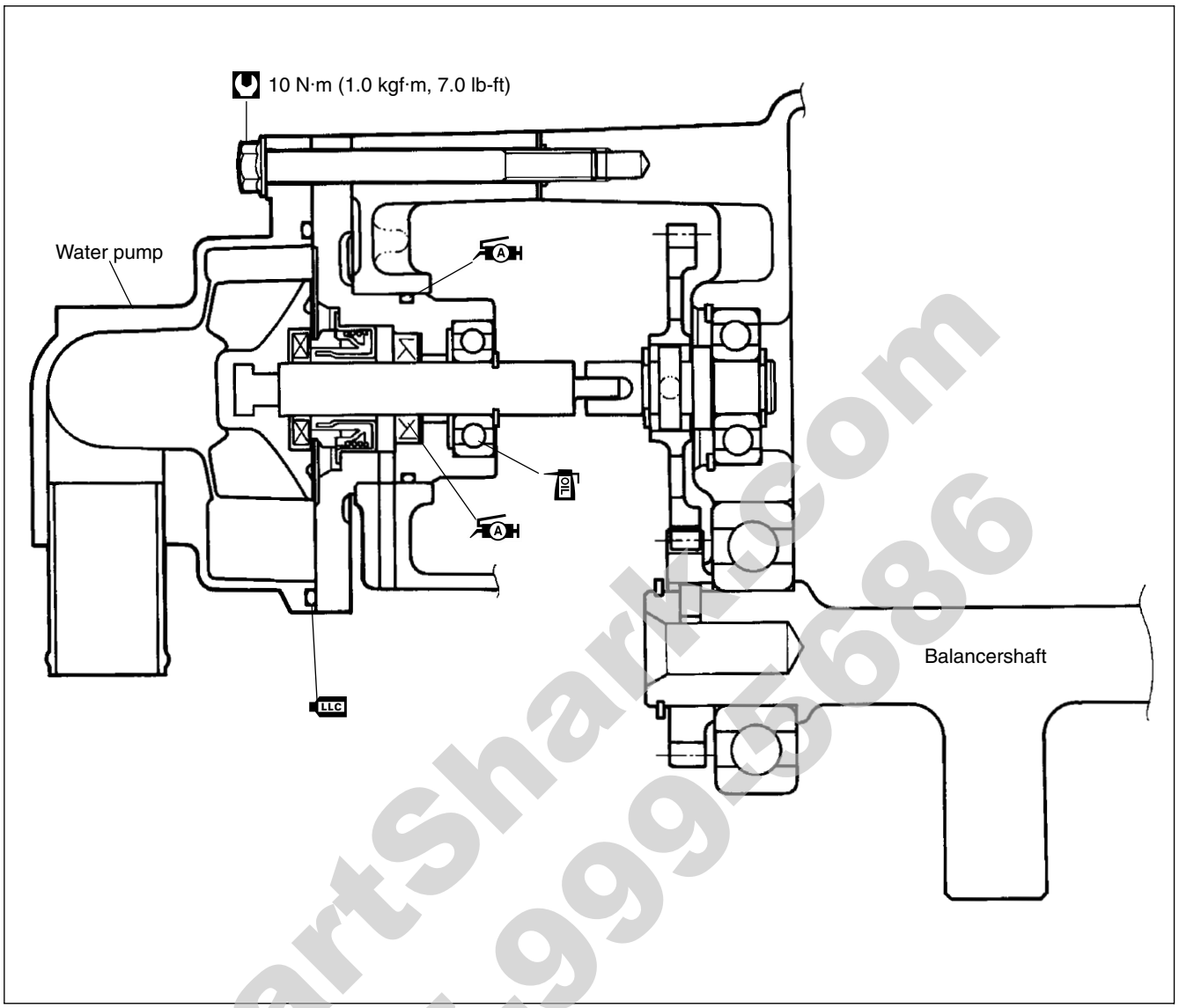


NOTE:
Set the water pump shaft end Ⓐ to the water pump drive shaft Ⓑ as shown in the figures.

- Connect the radiator hoses. (☞9-17)
- Pour engine coolant. (☞2-12)
- Install the left footrest mud guard.







LUBRICATION SYSTEM

OIL PRESSURE

☞2-26

OIL FILTER

☞2-10

OIL PRESSURE REGULATOR

☞3-70, 3-71

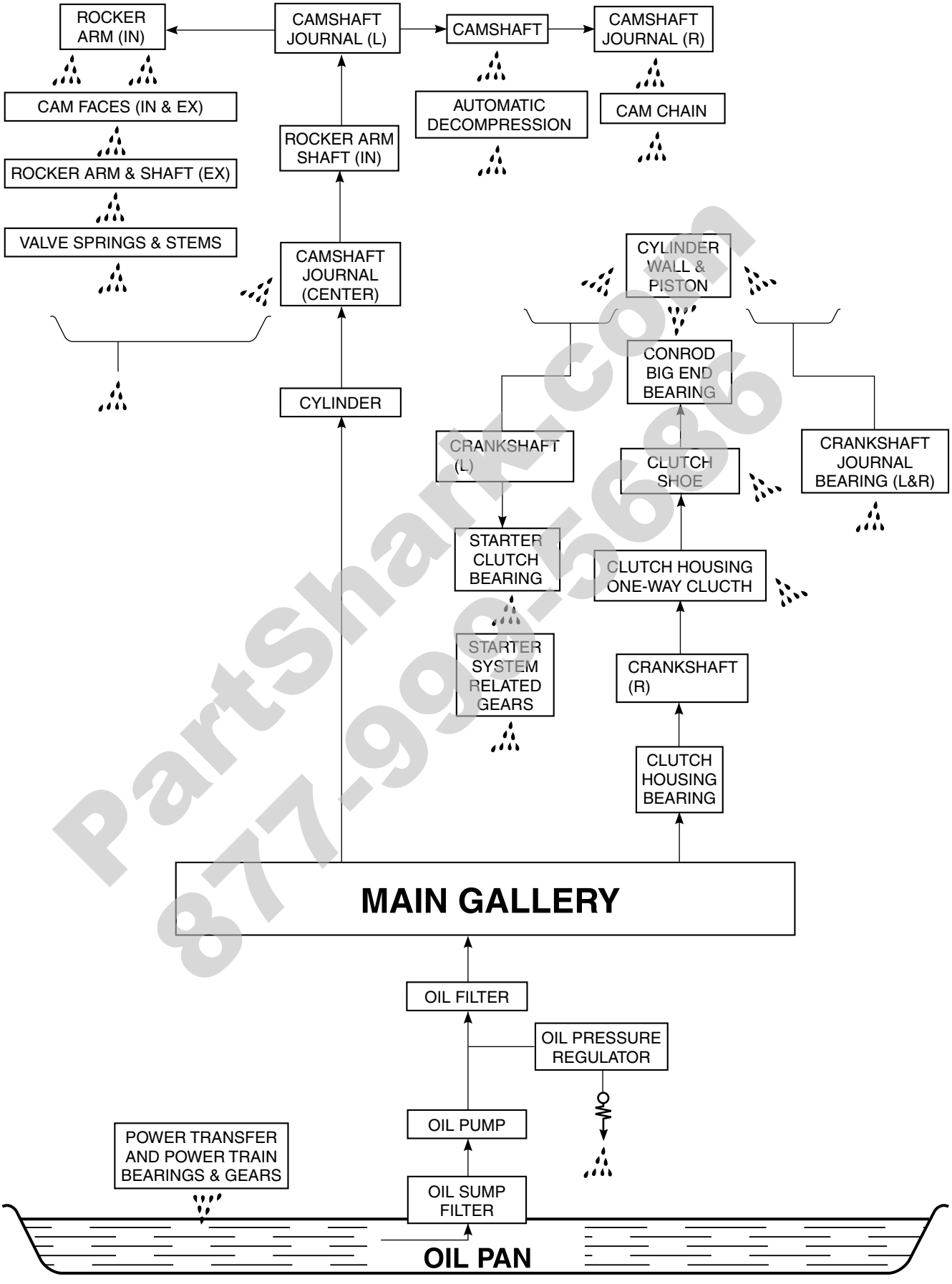
OIL STRAINER

☞3-71

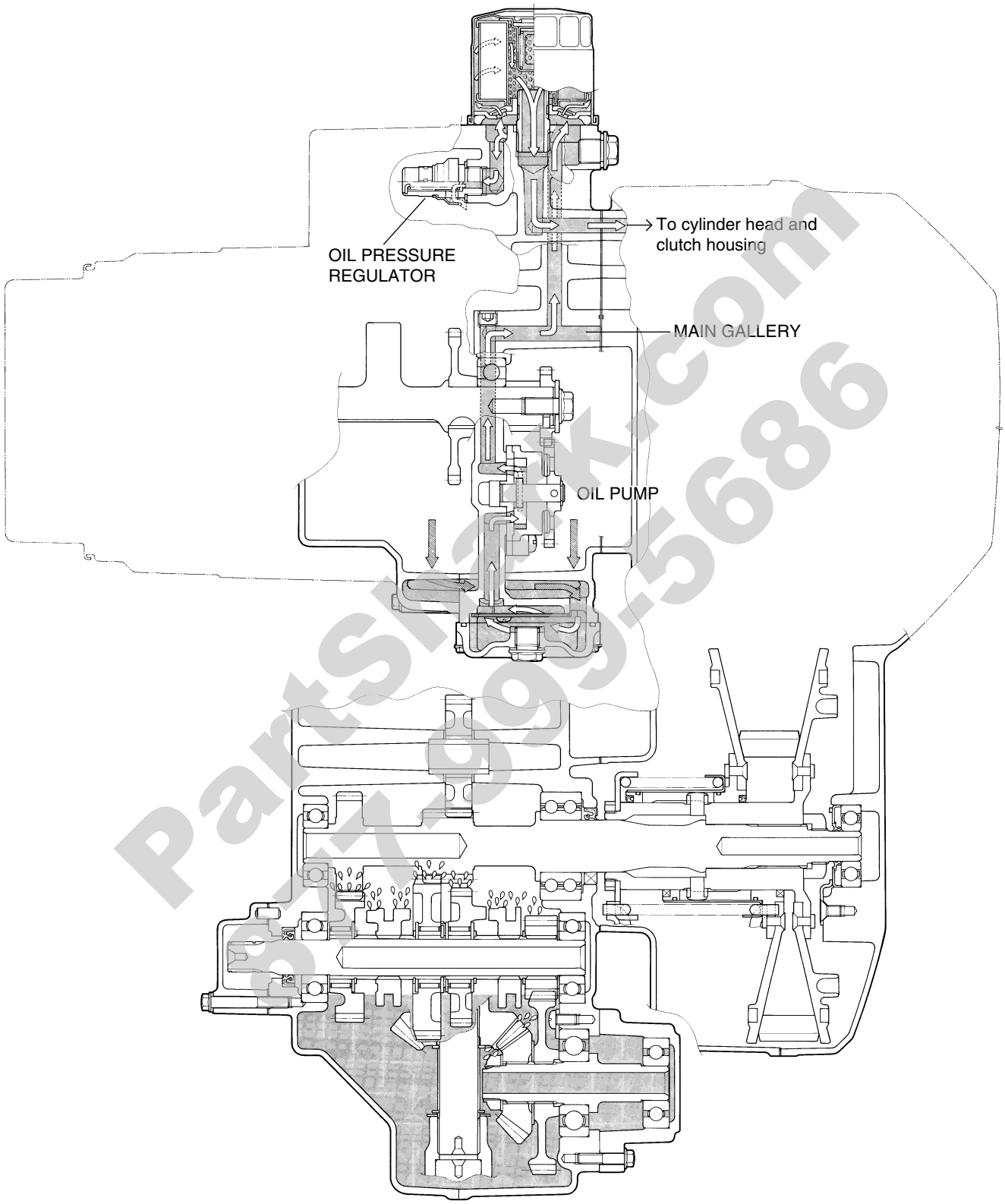
OIL PUMP

☞3-21, 3-84

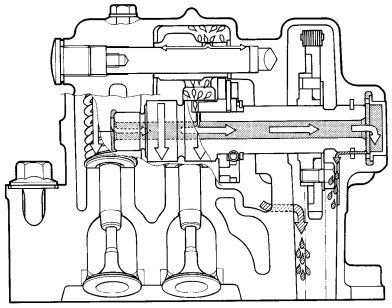
ENGINE LUBRICATION SYSTEM CHART



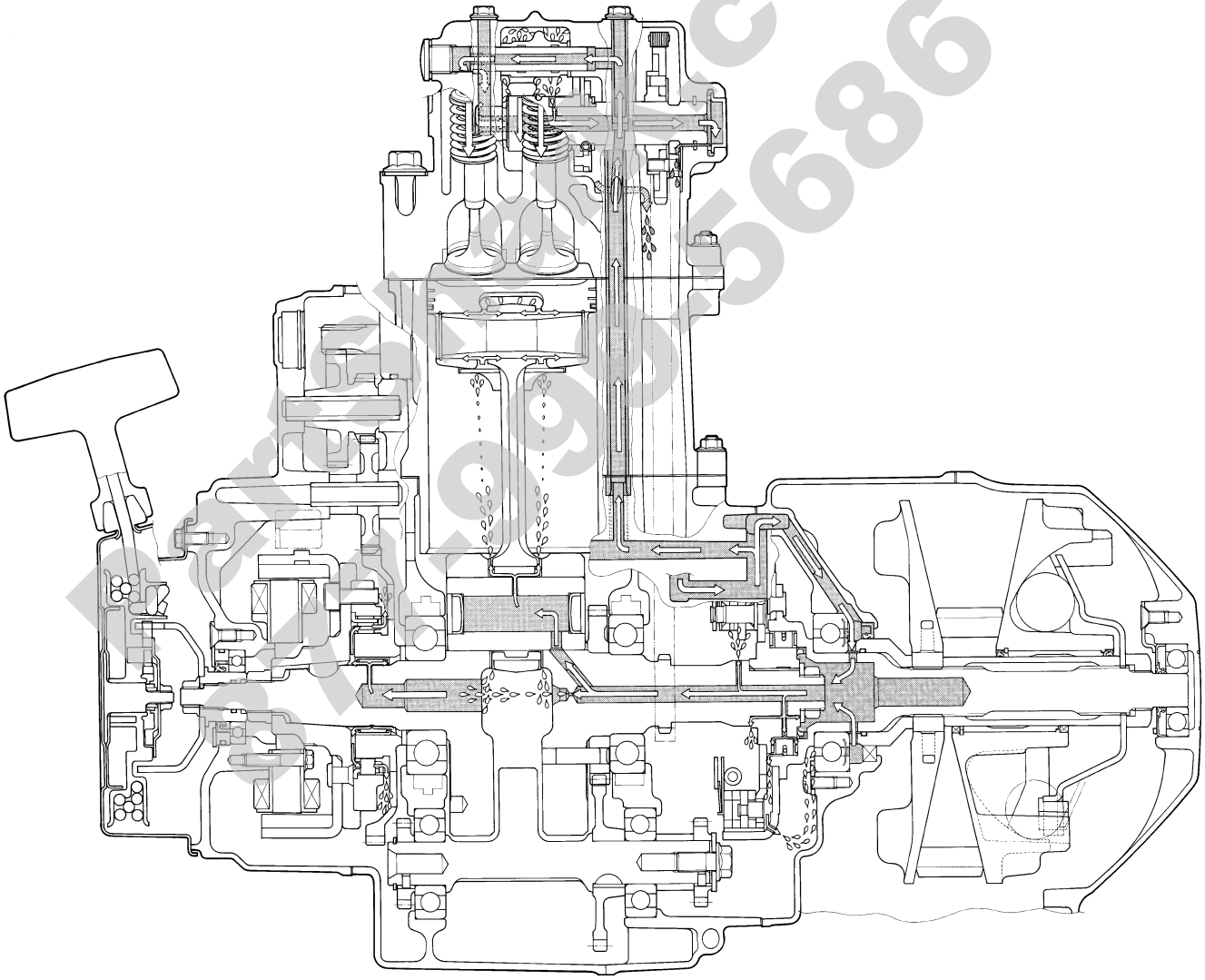
ENGINE LUBRICATION SYSTEM



EXHAUST SIDE



INTAKE SIDE



CHASSIS

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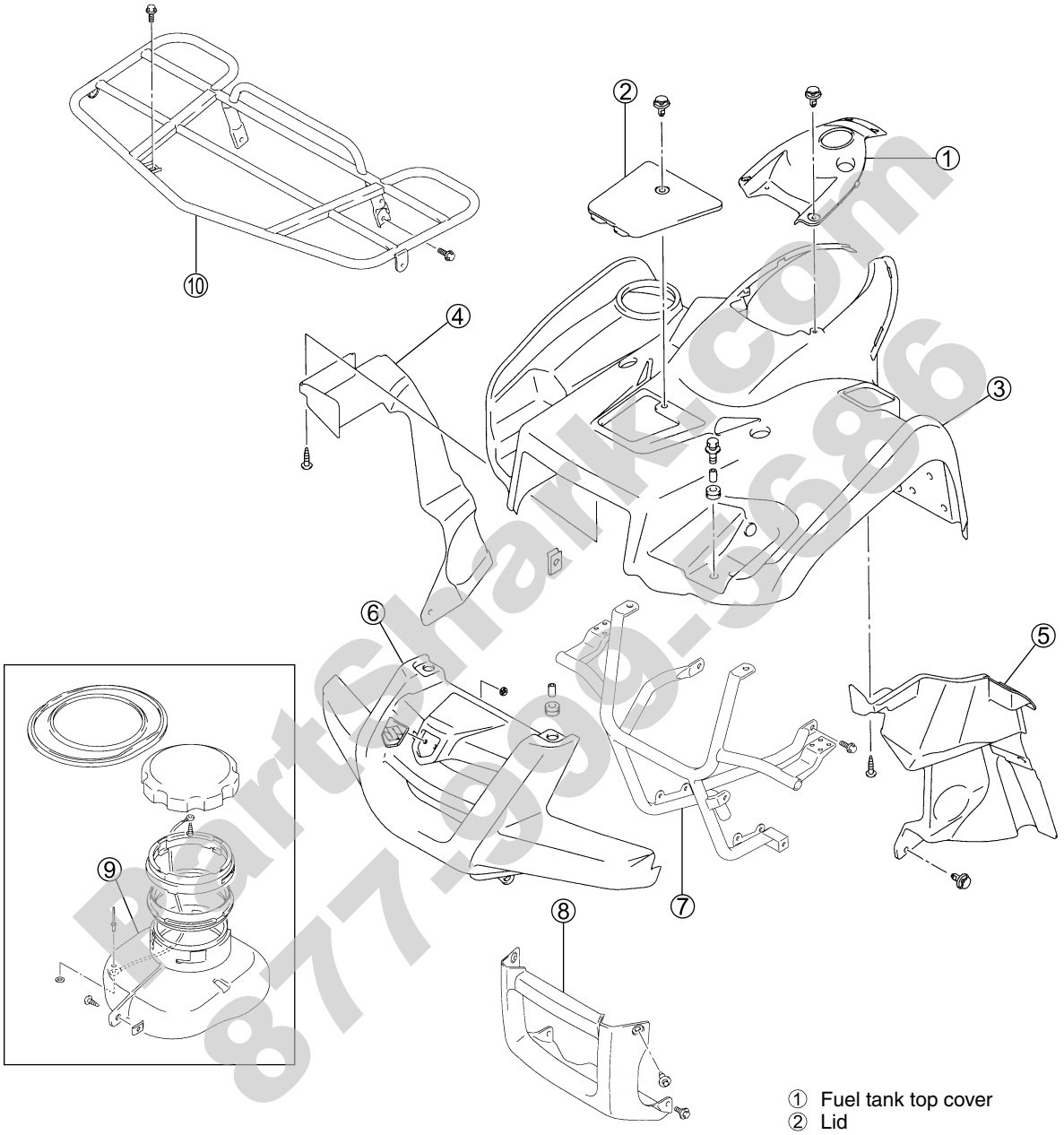
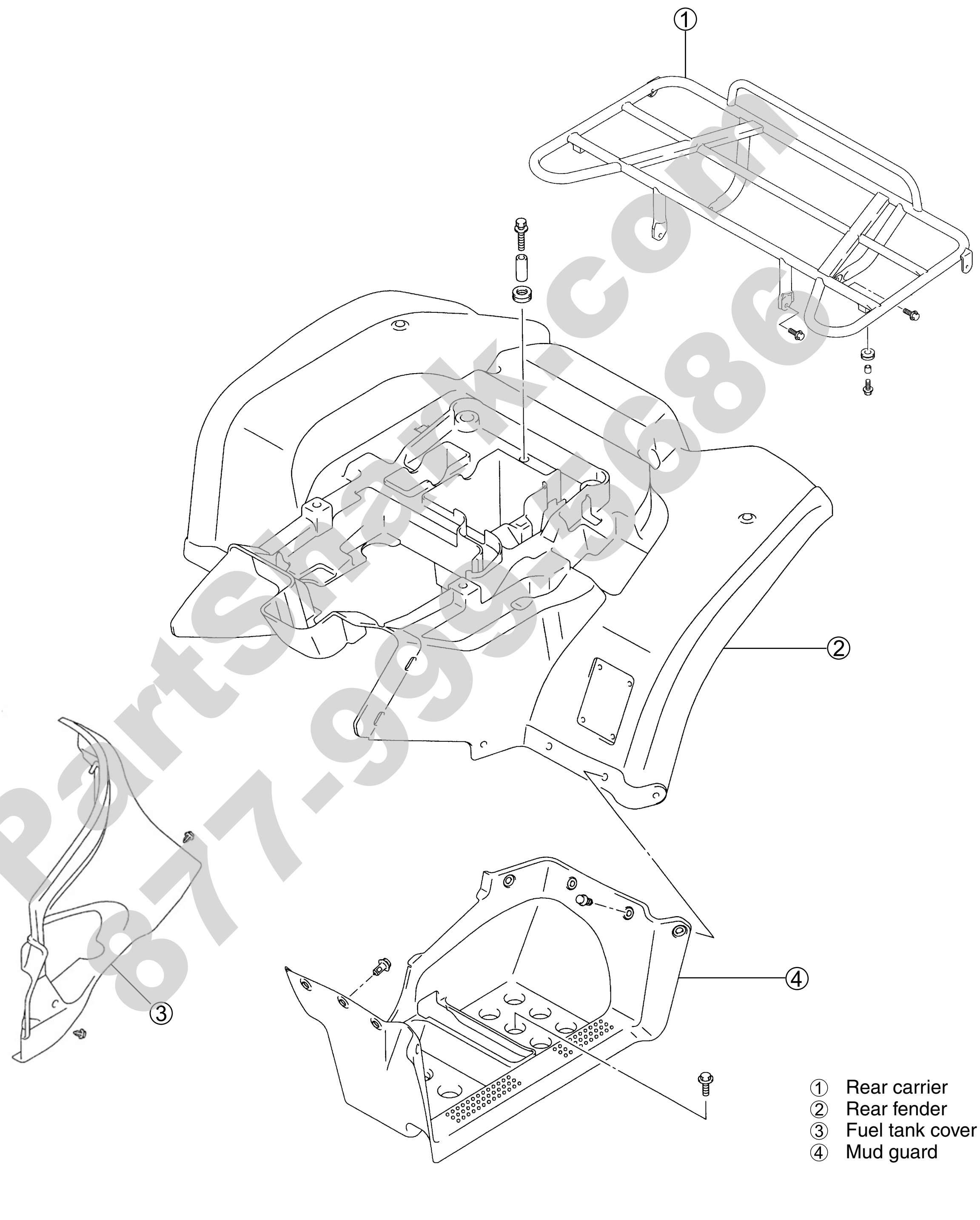
EXTERIOR PARTS
CONSTRUCTION



① Fuel tank top cover
② Lid
③ Front fender
④ Front inner fender (RH)
⑤ Front inner fender (LH)
⑥ Front grill upper
⑦ Front grip bar
⑧ Front grill lower
⑨ Front box
⑩ Front carrier

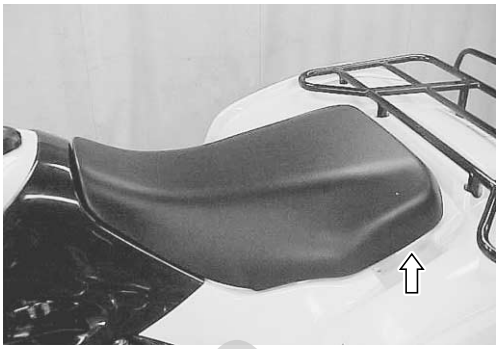


① Rear carrier
② Rear fender
③ Fuel tank cover
④ Mud guard

REMOVAL

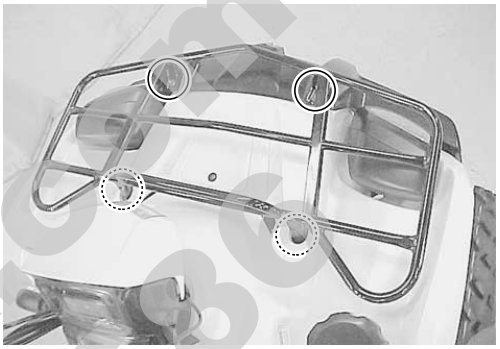
SEAT

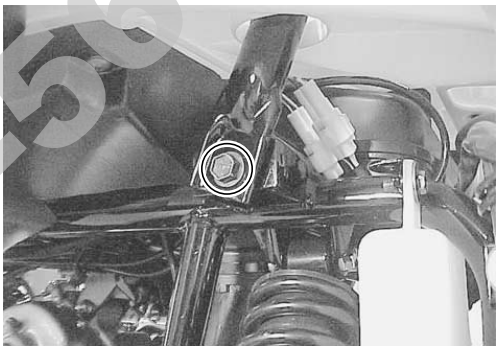
- Remove the seat.



FRONT CARRIER

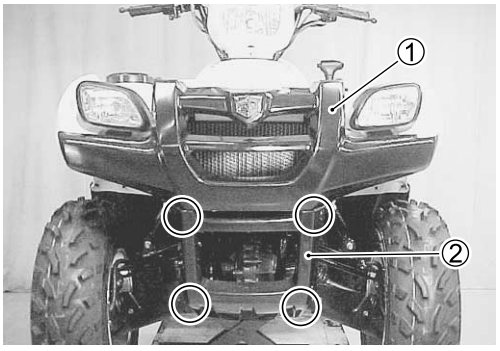
- Remove the front carrier.





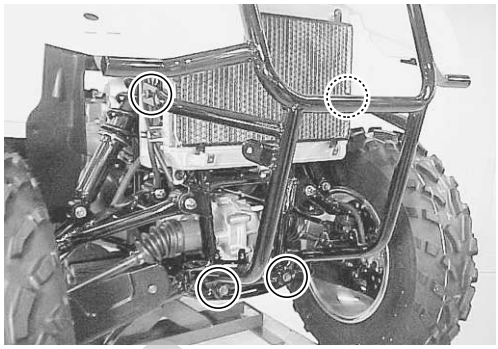
FRONT GRIP BAR

- Remove the grill upper cover ①.
- Remove the grill lower cover ②.



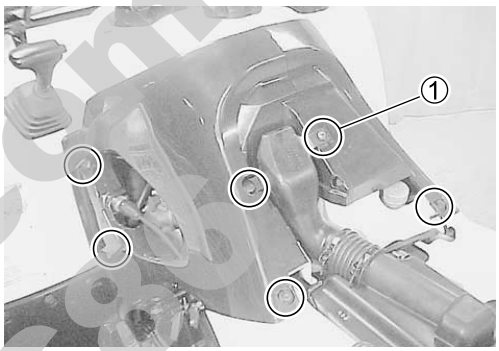
- Disconnect the headlight couplers ③.
- Remove the headlight mounting nuts.

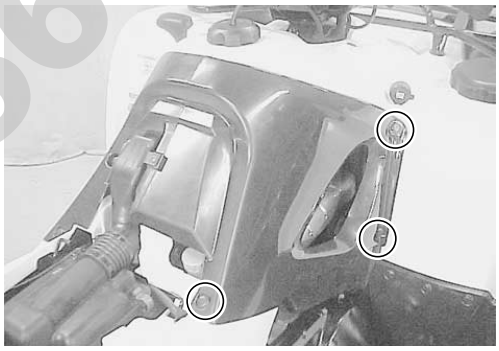
- Remove the front grip bar.



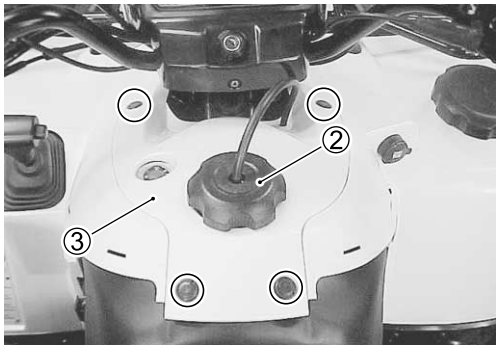
FUEL TANK COVER

- Remove the seat.
- Remove the air cleaner duct mounting screw ①.
- Remove the fuel tank covers.





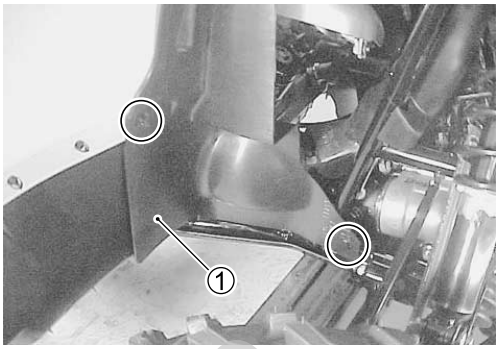
- Remove the fuel tank cap ②.
- Remove the fuel tank top cover ③.

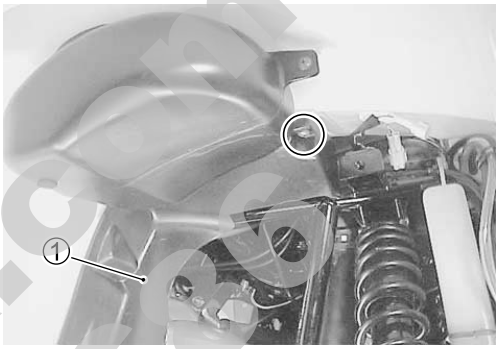


FRONT FENDER

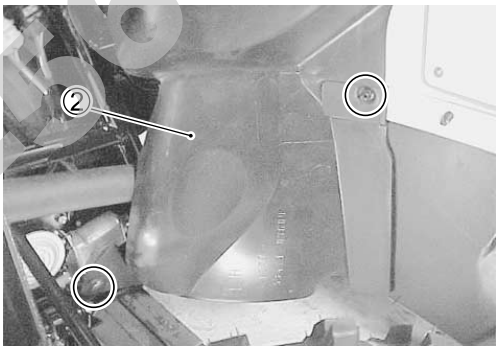
- Remove the seat.
- Remove the fuel tank covers. (☞7-5)
- Remove the front carrier. (☞7-4)
- Remove the gear selection lever knob ①.

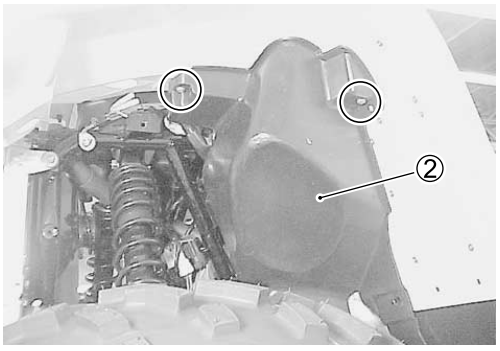
• Remove the right inner fender ①.



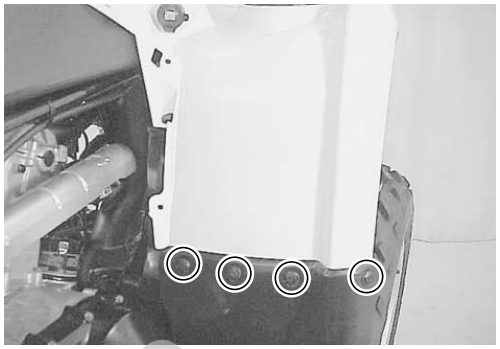


• Remove the left inner fender ②.





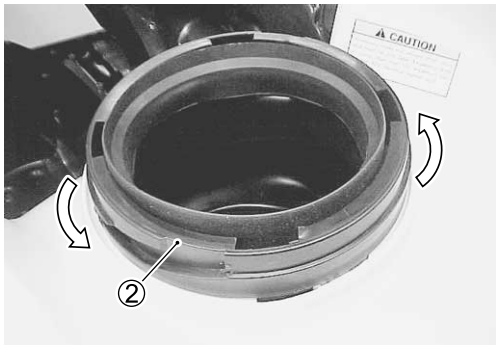
- Remove the front fender.



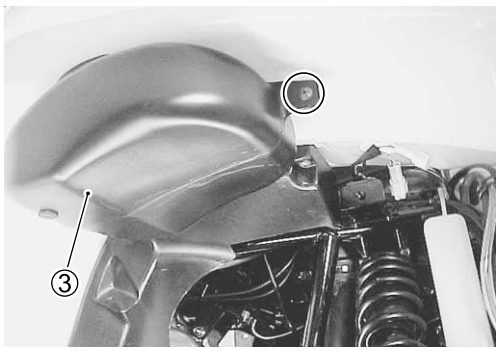
FRONT BOX

- Remove the front box cap ①.
- Disconnect the front box cap wire.

- Turn the front box holder ② counterclockwise and remove it.

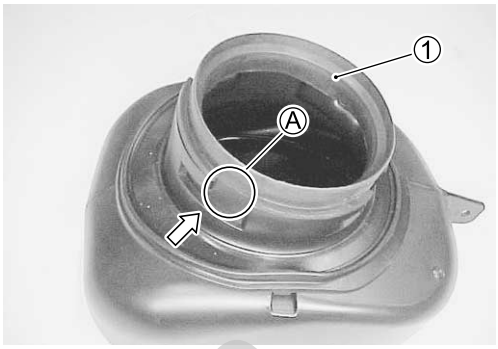


- Loosen the front box mounting screw.
- Remove the front box ③.



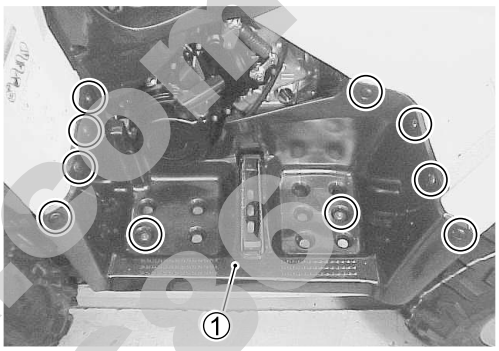
• Remove the cushion ① from the front box.

NOTE:
When installing the cushion to the front box, align Ⓐ to the cut-out on the front box.



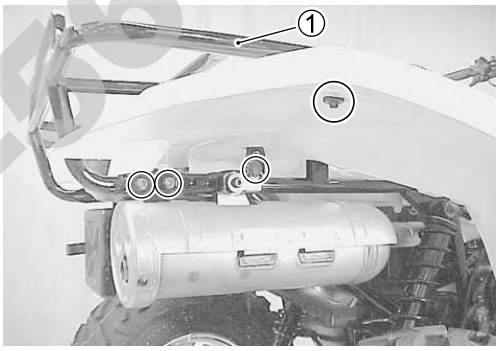
MUD GUARD

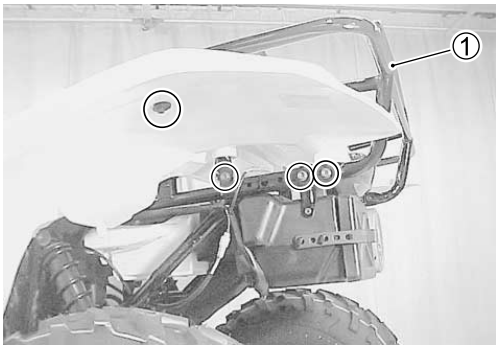
• Remove the right/left mud guard ①.



REAR CARRIER

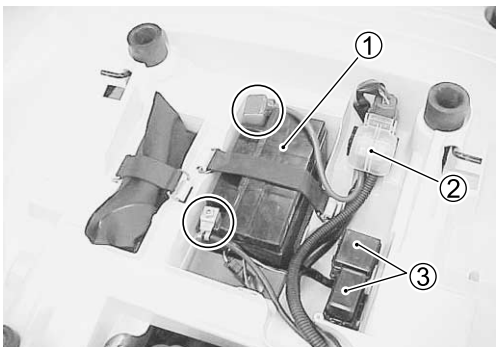
• Remove the rear carrier ①.



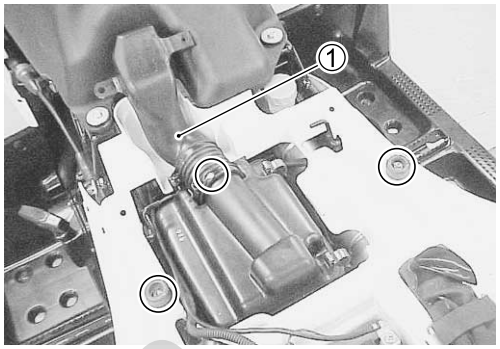


REAR FENDER

• Remove the rear carrier. (☞above)
• Disconnect the battery ① and remove it.
• Remove the starter motor relay ② and fuse box/neutral relay ③ from the rear fender.



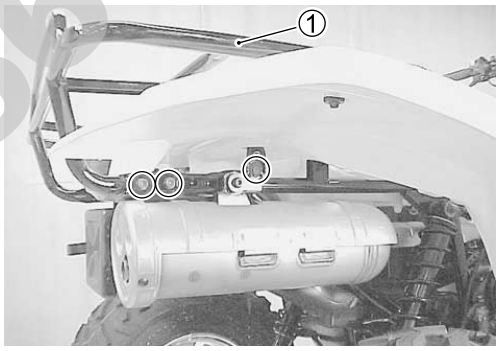
- Remove the air cleaner duct ①.
- Remove the rear fender bolts.



- Remove the rear fender bolt.
- Remove the rear fender.

REMOUNTING

Remounting the exterior parts in reverse order of removal. Pay attention the following points:

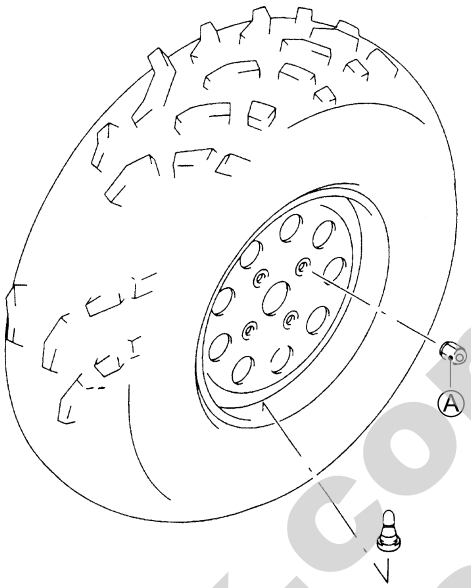


REAR CARRIER

- Apply THREAD LOCK "1342" to the rear carrier mounting bolts.
- Remounting the rear carrier ① and tighten the rear carrier mounting bolts.

99000-32050: THREAD LOCK "1342"

FRONT AND REAR WHEELS
CONSTRUCTION



Ⓐ Wheel set nut

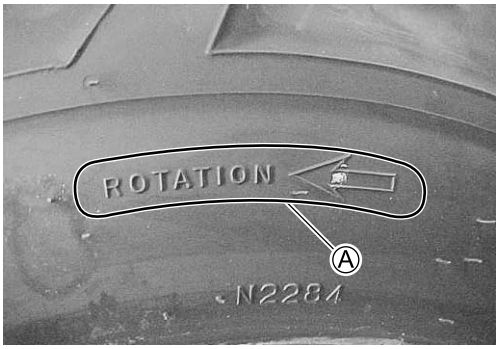
ITEM	N·m	kgf-m	lb-ft
Ⓐ	50	5.0	36.0

REMOVAL
- Place the vehicle on level ground.
- Support the vehicle with a jack or wooden block and remove the front and rear wheels.
- Remove the wheel set nuts.

REMOUNTING
Remount the wheels in the reverse order of removal. Pay attention to the following points:

- When installing each wheel, make sure the arrow Ⓐ on the tire points in the direction of rotation.
- Tighten the wheel set nuts to the specified torque.

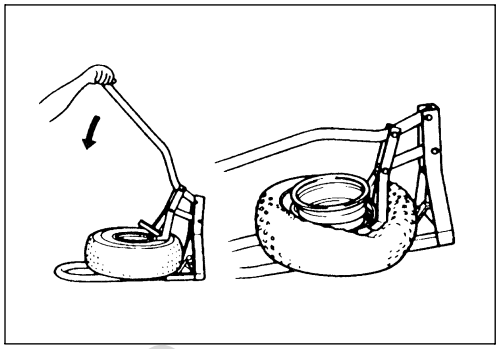
Front and rear wheel set nut:
50 N·m (5.0 kgf-m, 36.0 lb-ft)



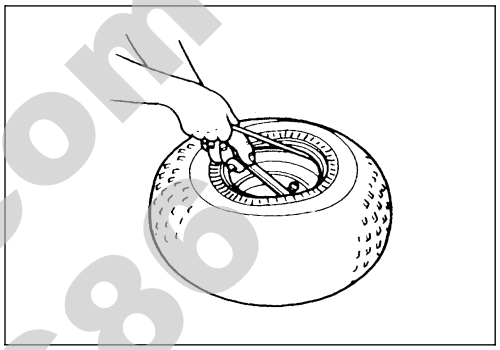
TIRES

TIRE REPLACEMENT

- Remove the front and rear wheels. (☞7-10)
- After removing the air valve cap, release the tire pressure by depressing the valve.
- Dismount the bead from the rim completely as shown.



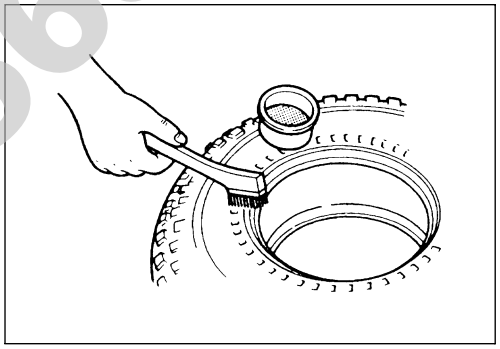
- Separate the tire from the rim by using a set of tire levers and rim protectors.



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 tire lubricant to the tire bead and the flange of the rim.

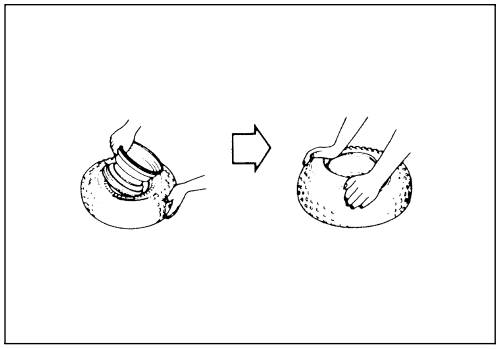


CAUTION

Never apply grease, oil, or gasoline to the tire bead because they will deteriorate the tire.

CAUTION

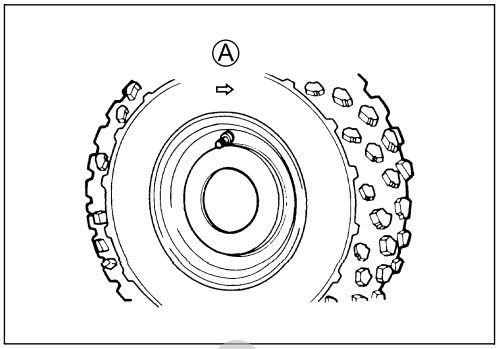
The standard tire fitted on this vehicle is AT25 × 8-12☆☆ for the front and AT25 × 10-12☆☆ for the rear. The use of tires other than the standard may cause instability. It is highly recommended to use the specified tire.



- Mount the tire on the rim by hand as shown.

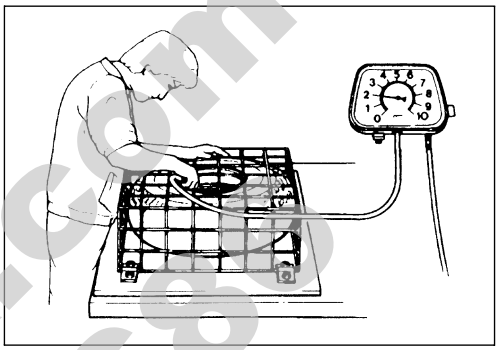
NOTE:
Inspect the sealing portion of the rim before installing the tire on the rim.

• When installing each tire, make sure the arrow Ⓐ on the tire points in the direction of rotation. Also, make sure the outer side of the wheel rim is facing outward.



NOTE:
For inspecting the tire refer to page 2-20.
Inspect the valve core, before installation.

• Inflate the tire to seat the tire bead.

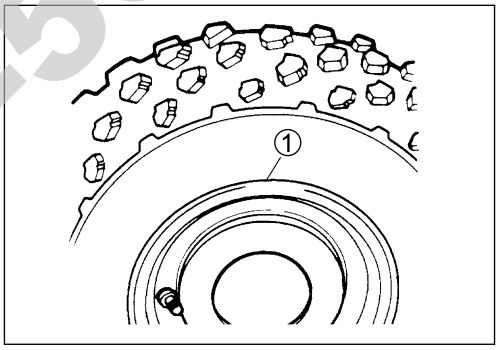


DATA Maximum tire bead seat pressure
Front : 250 kPa (2.5 kgf/cm², 36 psi)
Rear : 250 kPa (2.5 kgf/cm², 36 psi)

CAUTION

Place the tire under a protective tire cage or similar protective covering device before inflating the tire. To minimize the possibility of tire damage when seating the tire bead, never exceed the MAXIMUM TIRE BEAD SEAT PRESSURE rating shown on the tire.

NOTE:
Check the "rim line" ① cast on the tire side walls. It must be equidistant 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 tire bead on both sides. Then, coat the bead with clean water, and re-seat the tire.



• Adjust the tire pressure to specification.

DATA Cold inflation tire pressure
Front : 35 kPa (0.35 kgf/cm², 5.1 psi)
Rear : 30 kPa (0.30 kgf/cm², 4.4 psi)

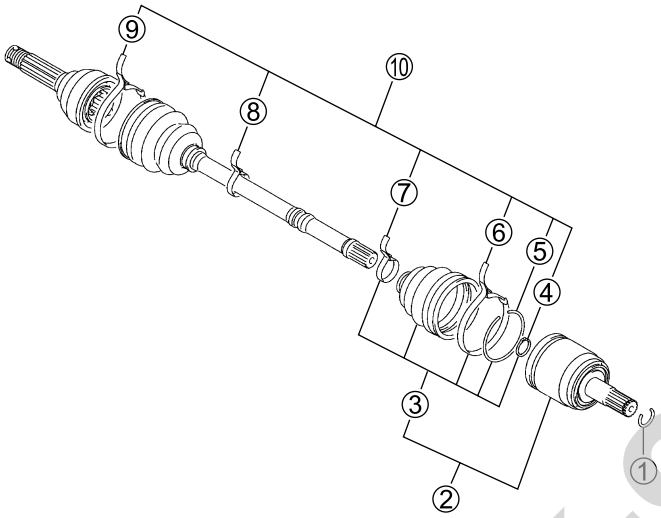
DATA Vehicle load capacity: 172 kg (380 lbs)

CAUTION

Before inflating the tire, check the MAXIMUM 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 maximum operating pressure.

DATA Maximum operating pressure
☆: 25 kPa (0.25 kgf/cm², 3.6 psi)
☆☆: 35 kPa (0.35 kgf/cm², 5.1 psi)
☆☆☆: 45 kPa (0.45 kgf/cm², 6.5 psi)

FRONT DRIVE SHAFT
CONSTRUCTION

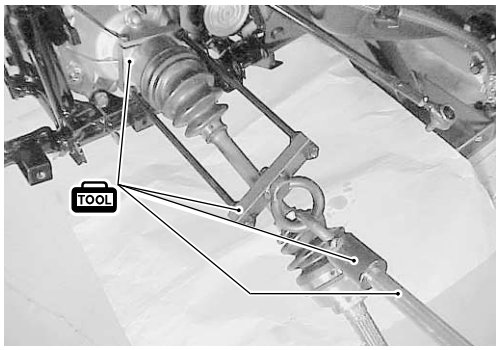


① Circlip
② Differential side joint set
③ Differential side boot set
④ Snap ring
⑤ Circlip
⑥ Differential side outer boot clamp
⑦ Differential side inner boot clamp
⑧ Wheel side inner boot clamp
⑨ Wheel side outer boot clamp
⑩ Boot set

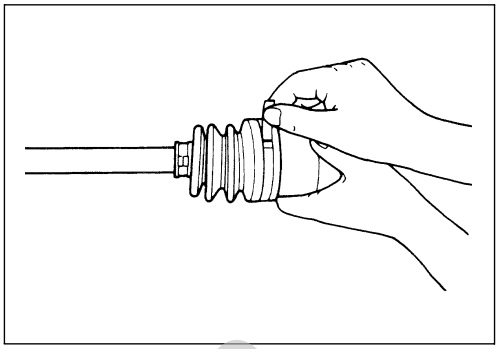
REMOVAL
• Remove the front drive shaft. (☞4-3)

NOTE:
If it is difficult to remove the front drive shaft by hand, use the special tools.

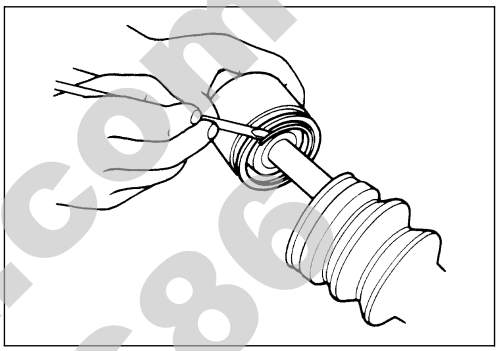
TOOL **09924-21940: Wheel hub remover**
09924-21920: Drive shaft remover
09930-30104: Sliding hammer
09924-21950: Front drive shaft remover



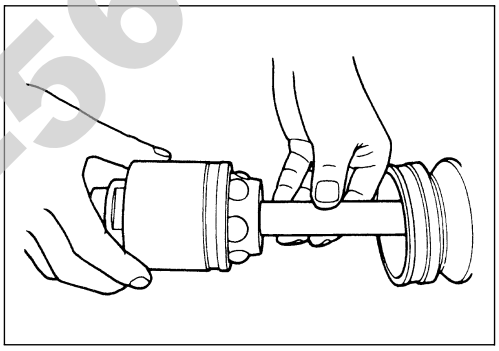
- Remove the boot band of the differential side joint (double offset joint).



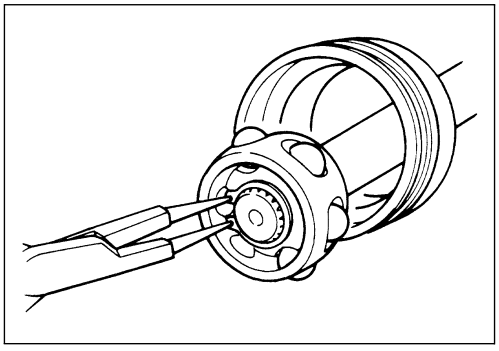
- Slide the boot toward the center of the front drive shaft and remove the stopper ring from the outer race.



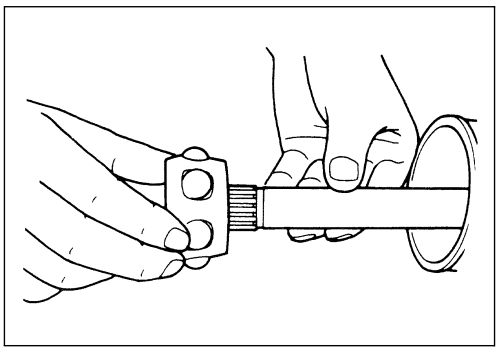
- Separate the outer race from the front drive shaft.



- Wipe off any grease and remove the snap ring from the cage on the front drive shaft.



- Remove the cage and boot from the front drive shaft.



CAUTION

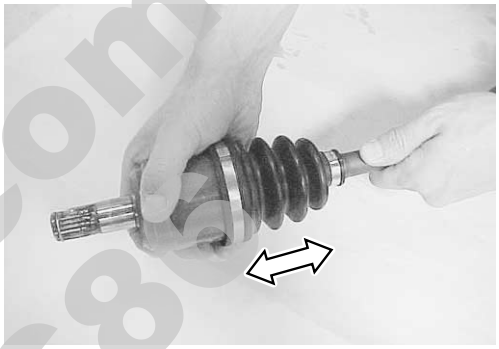
Do not disassemble the wheel side joint (double offset joint). If any damages are found, replace the wheel side joint with a new one.

INSPECTION AND REASSEMBLY

Inspect the boots for wear or damage. If any damages are found, replace the boots with new ones.

Inspect the stopper ring, snap ring and boot bands for wear or damage. If any damages are found, replace them with new ones.

Inspect the axle play by using a push-and-pull motion given to the axle shaft and wheel spindle, as shown.



NOTE:

** Wash the disassembled parts (except for the boot). After washing, completely dry the parts using compressed air.*

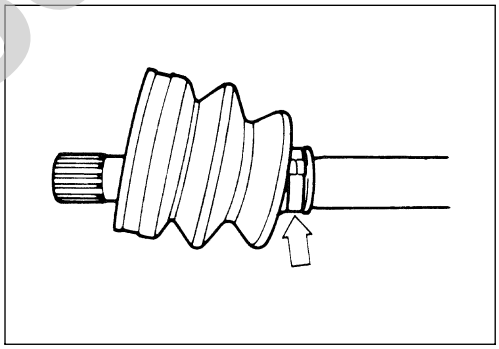
** Clean the boots with a cloth.*

CAUTION

*** Wash all parts before installation, clean the inside and outside of the boot with a cloth.**

*** Do not wash the boots in any commercially available degreaser, such as gasoline or kerosene. Washing in a degreaser causes deterioration of the boot.**

- 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.



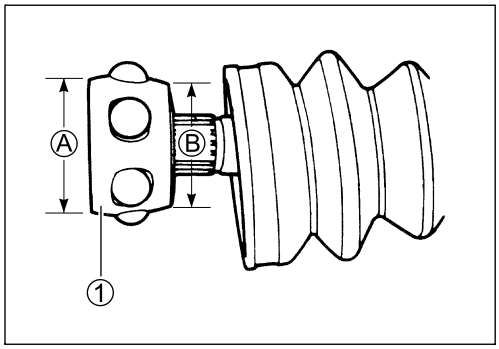
- Install the cage ① on the shaft.

CAUTION

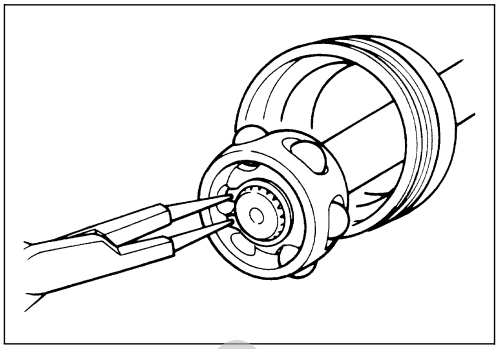
Install the cage with the large diameter side facing the shaft end.

Ⓐ Large diameter

Ⓑ Small diameter



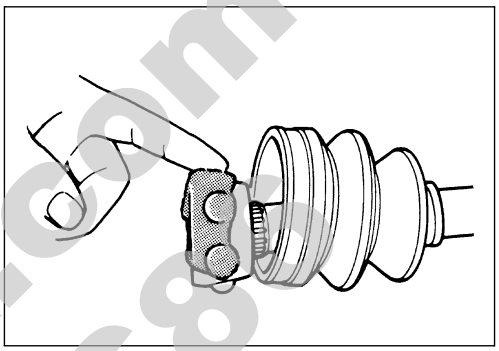
• Install the snap ring to the cage.

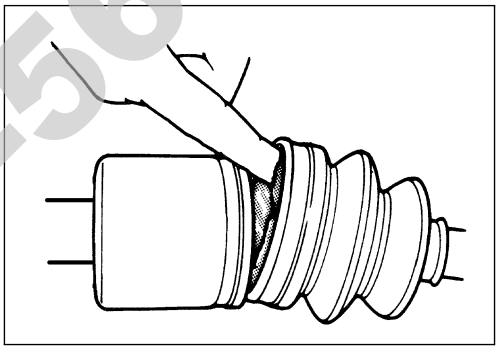


• Apply grease to the entire surface of the cage and the inside of the outer race.

Position / Grease	Wheel side	Differential side
Quantity	45 g	85 g

NOTE:
The tube of joint grease is included in the wheel side boot set or wheel side joint assembly of spare parts.

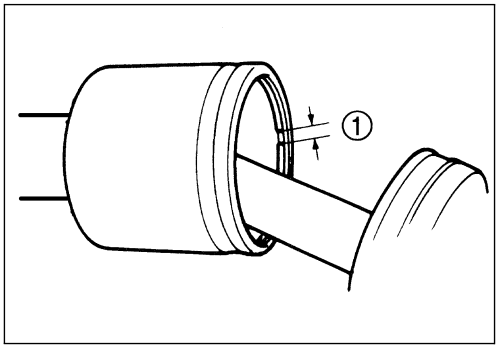




• Insert the cage into the outer race and fit a stopper ring in the groove of the outer race.

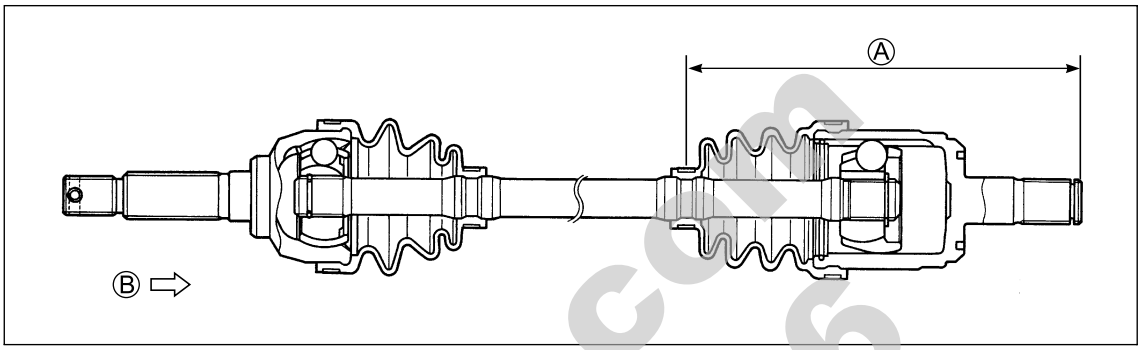
CAUTION

Locate the opening of the stopper ring ① so that the opening is not lined up with a ball.



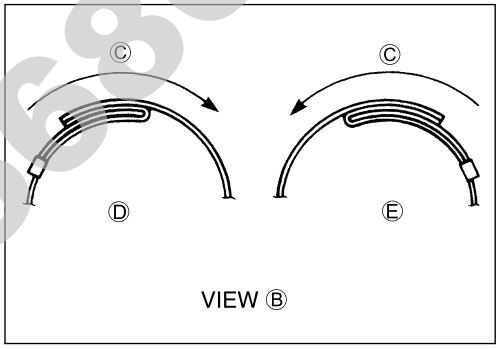
• After fitting the boot on the outer race, insert a screw driver into the boot on the outer race side and allow air to enter the boot so that the air pressure in the boot becomes the same as the atmospheric pressure at the positions indicated in the illustration.

Ⓐ 188 – 198 mm (7.4 – 7.8 in)



• Fix the boot on the outer race with a boot band, taking care not to distort the boot.

Ⓒ Rotation direction
Ⓓ Right side
Ⓔ Left side



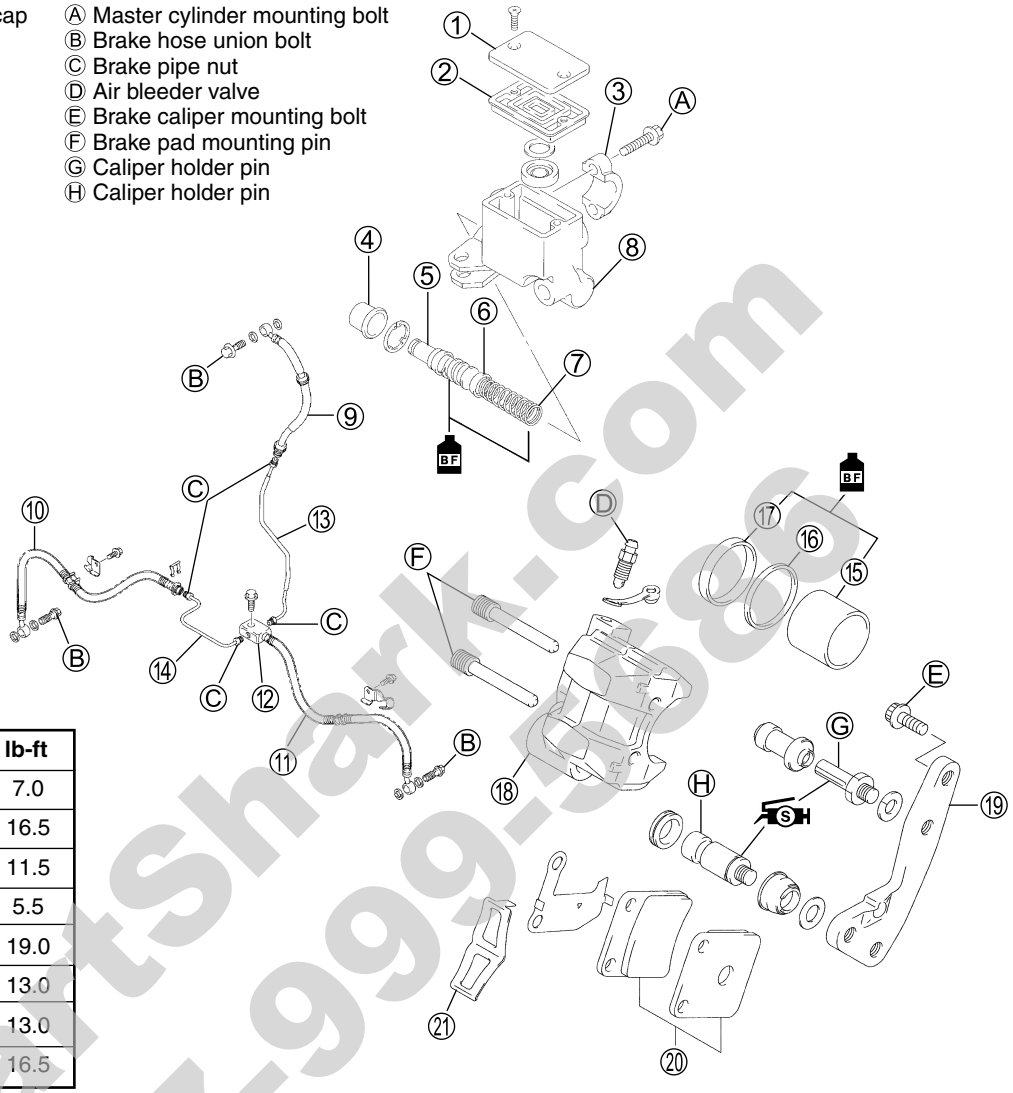
REMOUNTING

• Install the front drive shaft. (☞4-16)

FRONT BRAKE
CONSTRUCTION

① Master cylinder reservior cap
② Diaphragm
③ Master cylinder clamp
④ Boot
⑤ Piston/cup set
⑥ Cup
⑦ Spring
⑧ Master cylinder
⑨ Brake hose No.1
⑩ Brake hose No.2, RH
⑪ Brake hose No.2, LH
⑫ Brake pipe joint
⑬ Brake pipe, No.1
⑭ Brake pipe, No.2
⑮ Piston
⑯ Piston seal
⑰ Dust seal
⑱ Brake caliper
⑲ Brake caliper holder
⑳ Brake pad
㉑ Pad spring

Ⓐ Master cylinder mounting bolt
Ⓑ Brake hose union bolt
Ⓒ Brake pipe nut
Ⓓ Air bleeder valve
Ⓔ Brake caliper mounting bolt
Ⓕ Brake pad mounting pin
Ⓖ Caliper holder pin
Ⓗ Caliper holder pin



ITEM	N·m	kgf-m	lb-ft
Ⓐ	10	1.0	7.0
Ⓑ	23	2.3	16.5
Ⓒ	16	1.6	11.5
Ⓓ	7.5	0.75	5.5
Ⓔ	26	2.6	19.0
Ⓕ	18	1.8	13.0
Ⓖ	18	1.8	13.0
Ⓗ	23	2.3	16.5

⚠ WARNING

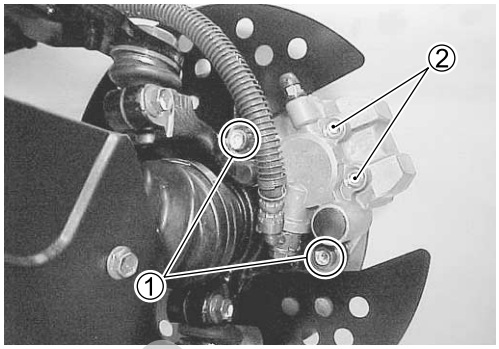
*** This brake system is filled with an ethylene glycol-based DOT 4 brake fluid. Do not use or mix different types of fluid, such as silicone-based or petroleum-based brake fluids.**
*** Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or which has been stored for a long periods of time.**
*** When storing brake fluid, seal the container completely and keep it away from children.**
*** When replenishing brake fluid, take care not to get dust into the fluid.**
*** When washing brake components, use new brake fluid. Never use cleaning solvent.**
*** A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the brake disc with high quality brake cleaner or a neutral detergent.**

CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc. and will damage them severly.

BRAKE PAD REPLACEMENT

- Remove the front wheel. (☞7-10)
- Remove the brake caliper mounting bolts ① and brake pad mounting pins ②.



- Remove the brake pads.

CAUTION

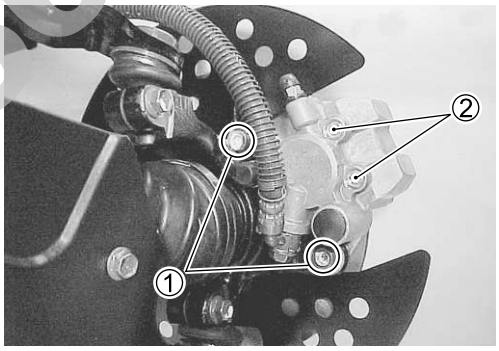
*** Do not operate the brake lever during or after brake pad removal.**
*** Replace the brake pads as a set, otherwise braking performance will be adversely affected.**

- Install the new brake pads.

NOTE:
The shim must be installed to the caliper piston side pad.

- Tighten the brake pad mounting pins ① and brake caliper mounting bolts ② to the specified torque.

Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)
Brake caliper mounting bolt:
26 N·m (2.6 kgf-m, 19.0 lb-ft)

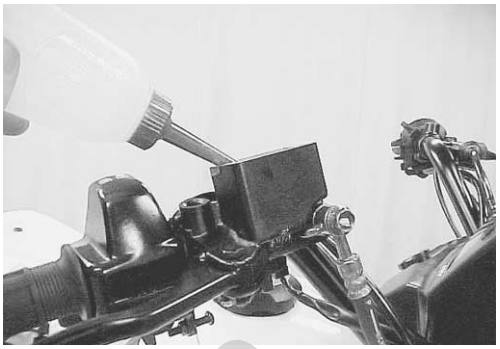


NOTE:
After replacing the brake pads, pump the brake lever a few times to check for proper brake operation and then check the brake fluid level.

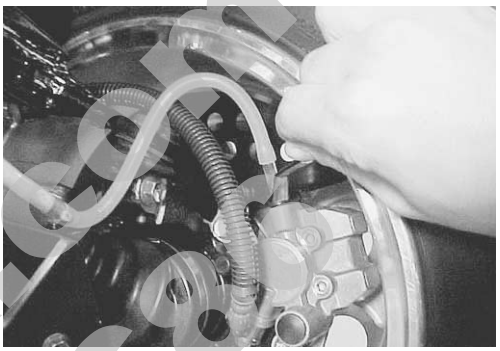
BRAKE FLUID REPLACEMENT

- Place the vehicle on a level surface and keep the handlebar straight.
- Remove the master cylinder reservoir cap and diaphragm.
- Suck up the old brake fluid as much as possible.
- Fill the reservoir with new brake fluid.

Specification and classification: DOT 4

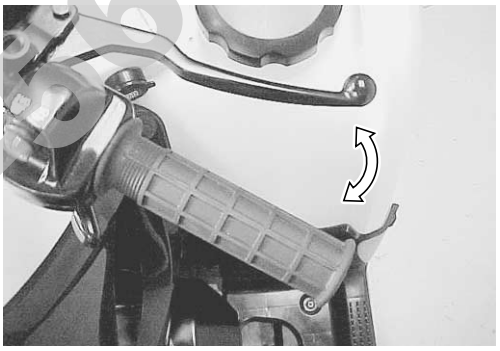


- Connect a clear hose to the air bleeder valve and insert the other end of the hose into a receptacle.
- Loosen the air bleeder valve and pump the brake lever until the old brake fluid is completely out of the brake system.
- Close the air bleeder valve and disconnect the clear hose. Fill the reservoir with new brake fluid to the upper end of the inspection window.



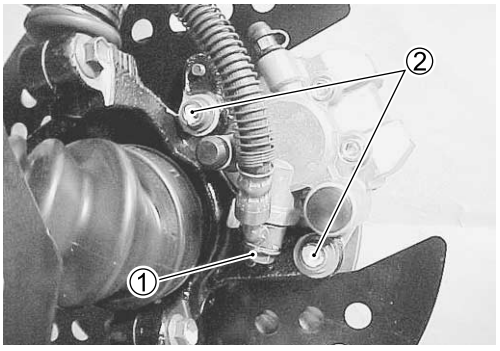
CAUTION

*** Never reuse the brake fluid left over from previous servicing and which has been stored for long periods of time.**
*** Bleed air from the brake system. (☞2-19)**



BRAKE CALIPER REMOVAL AND DISASSEMBLY

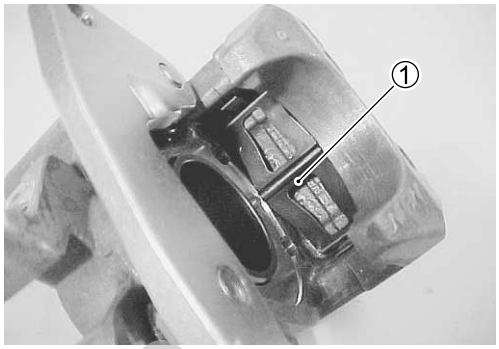
- Remove the front wheel. (☞7-10)
- Disconnect the brake hose from the brake caliper by removing the brake hose union bolt ① and allow the brake fluid to drain into a suitable receptacle.
- Remove the brake caliper by removing the brake caliper mounting bolts ②.
- Remove the brake pads. (☞7-19)



⚠ WARNING

Brake fluid, if it leaks, will interfere with safe running and discolor painted surfaces. Check the brake hose and hose joints for cracks and oil leakage.

• Remove the spring ①.



• Place a rag over the brake caliper pistons to prevent them from popping out and then force out the pistons using compressed air.

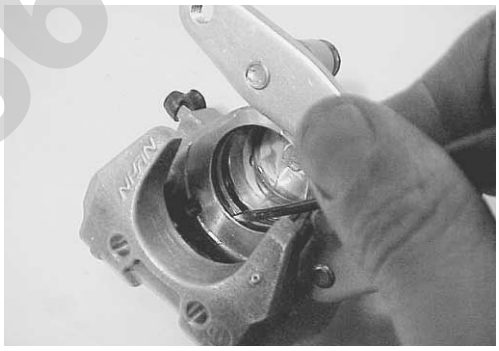
CAUTION

Do not use high pressure air to prevent brake caliper piston damage.

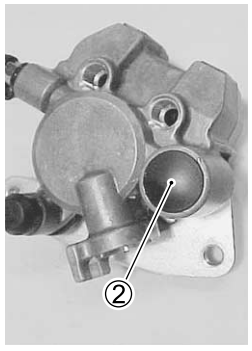
• Remove the dust seals and piston seals.

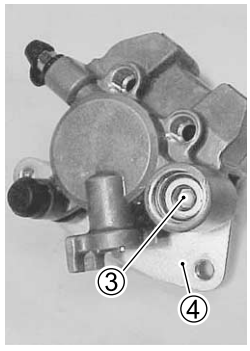
CAUTION

Do not reuse the dust seal and piston seal to prevent fluid leakage.

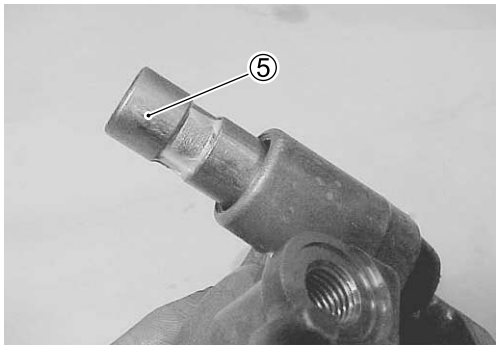


• Remove the cap ② and loosen the brake caliper holder pin ③.
• Remove the brake caliper holder ④.





• Remove the brake caliper holder pin ⑤.



BRAKE CALIPER INSPECTION

BRAKE CALIPER

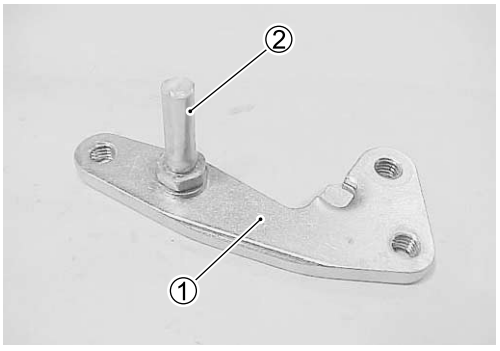
Inspect the brake caliper cylinder wall for nicks, scratches or other damage. If any damages are found, replace the brake caliper with a new one.

BRAKE CALIPER PISTON

Inspect the brake caliper piston for any scratches or other damage. If any damages are found, replace the piston with a new one.

RUBBER PARTS

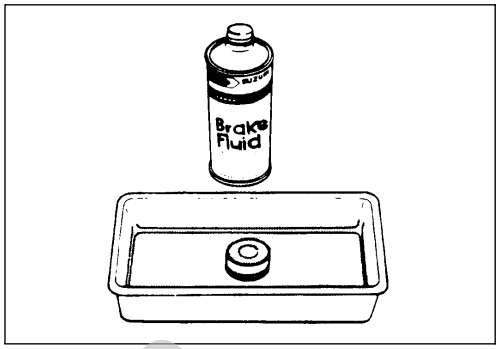
Replace the removed rubber parts with new ones.



CALIPER HOLDER

Inspect the caliper holder ① and pin ② for damage. If any damages are found, replace them with new ones.

BRAKE CALIPER REASSEMBLY AND REMOUNTING



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

- Wash the caliper bores and pistons with the specified brake fluid. Thoroughly wash the dust seal grooves and piston seal grooves.

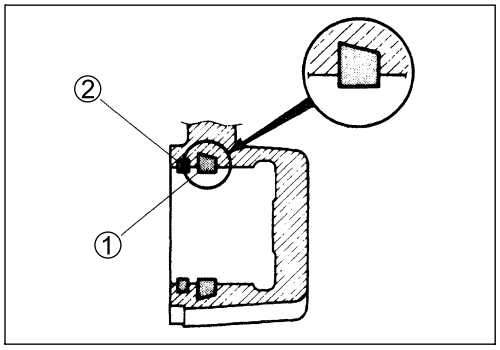
BF Specification and classification: DOT 4

CAUTION

*** Wash the brake caliper components with new brake fluid before reassembly.**
*** Do not wipe the brake fluid off with a rag after washing the components.**
*** When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
*** Replace the removed piston seals and dust seals with new ones.**
*** Apply brake fluid to all of the seals, brake caliper bores and pistons before reassembly.**

PISTON SEALS

- Install the piston seal ① and dust seal ② as shown.



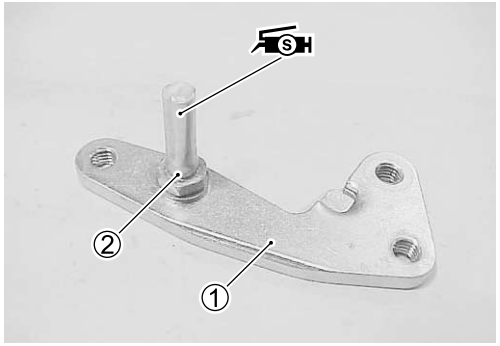
BRAKE CALIPER HOLDER

- Tighten the pin ② to the caliper holder ① to the specified torque.

Caliper holder pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)

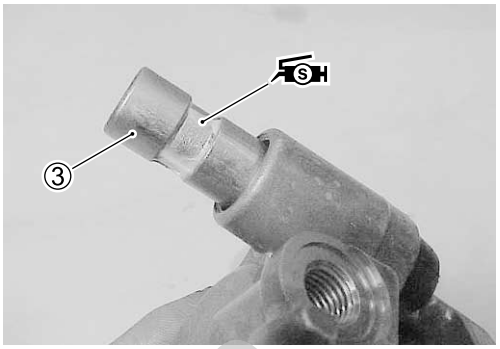
- Apply SUZUKI SILICON GREASE to the brake caliper holder pin.

99000-25100: SUZUKI SILICONE GREASE



- Apply SUZUKI SILICON GREASE to the pin ③.

99000-25100: SUZUKI SILICON GREASE



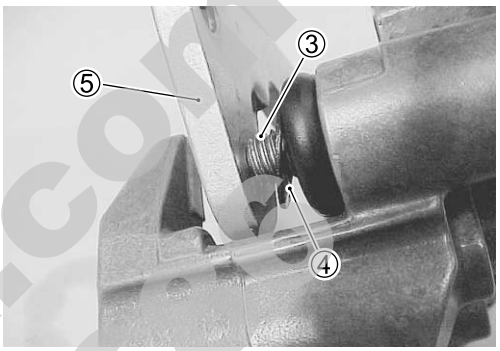
- Install the pin ③, washer ④ and caliper holder ⑤ to the caliper.
- Apply THREAD LOCK SUPER “1360” to the pin ③.

99000-32130: THREAD LOCK SUPER “1360”

- Tighten the pin ③ to the specified torque.

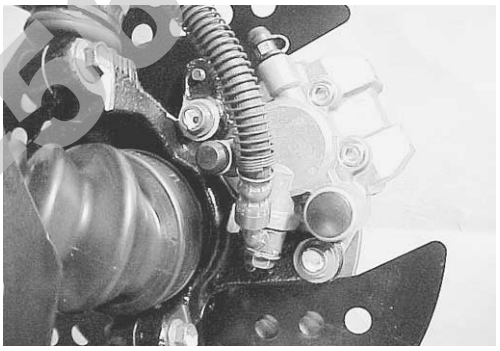
Caliper holder pin: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Install the pads to the caliper.



- Tighten the brake pad mounting pins ①, brake caliper mounting bolts ②, and brake hose union bolt ③ to the specified torque.

Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)
Brake caliper mounting bolt: 26 N·m (2.6 kgf-m, 19.0 lb-ft)
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)



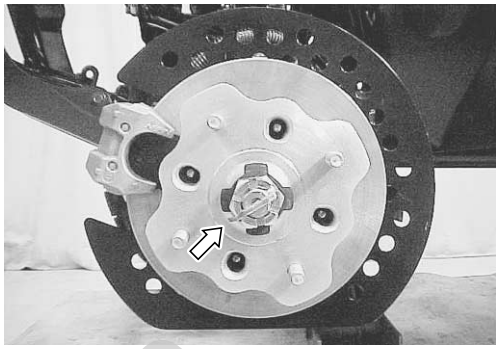
NOTE:
Before remounting the brake caliper, push the brake caliper pistons all the way into the caliper.

CAUTION

Bleed air from the system after reassembling the brake caliper. (☞2-19)

BRAKE DISC REMOVAL AND DISASSEMBLY

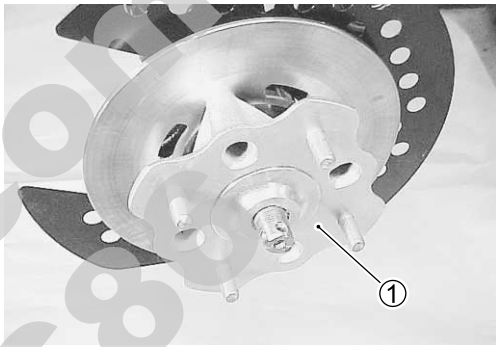
- Remove the front wheel. (☞7-10)
- Remove the cotter pin.



CAUTION

Replace the removed cotter pin with a new one.

- Loosen the axle nut by applying the front brake.
- Remove the brake caliper. (☞7-20)
- Remove the axle nut.
- Remove the front wheel hub ①.



- Remove the brake disc.

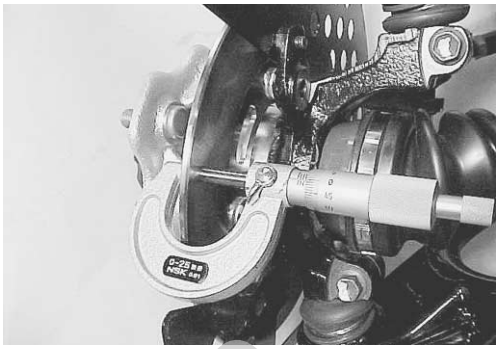
BRAKE DISC INSPECTION

• Remove the front wheel. (☞7-10)

Inspect the brake disc for cracks or damage and measure the thickness using the micrometer. If any damages are found or if the thickness is less than the service limit, replace the brake disc with a new one.

09900-20205: Micrometer (0 – 25 mm)

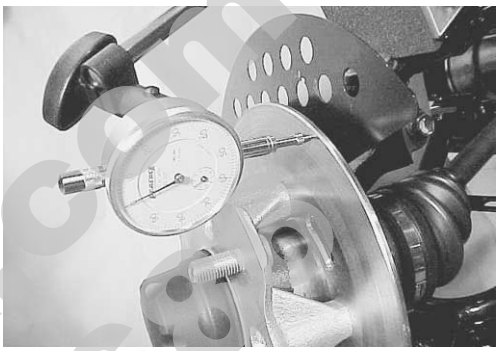
Brake disc thickness
Service Limit: 3.0 mm (0.12 in)



Measure the runout using the dial gauge. If the runout exceeds the service limit, replace the brake disc with a new one.

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

Brake disc runout
Service Limit: 0.3 mm (0.012 in)



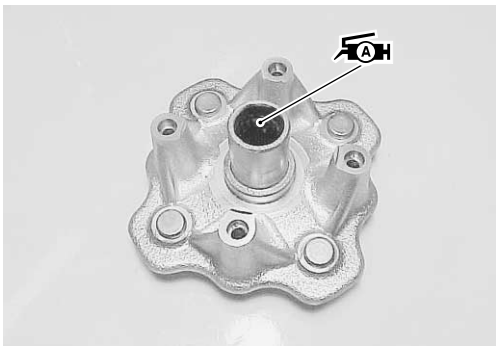
• If either measurement exceeds the service limit, replace the brake disc with a new one.

BRAKE DISC REASSEMBLY AND REMOUNTING

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

• Apply SUZUKI SUPER GREASE "A" to the wheel hub spline.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



• Install the disc to the wheel hub with the punching letter showed.
• Apply THREAD LOCK SUPER "1360" to the brake disc bolts and tighten them to the specified torque.

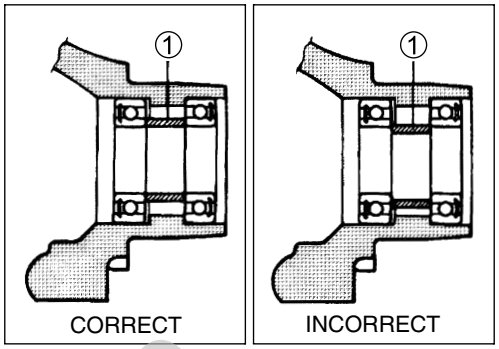
99000-32130: THREAD LOCK SUPER "1360"

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

• Install the wheel hub.

CAUTION

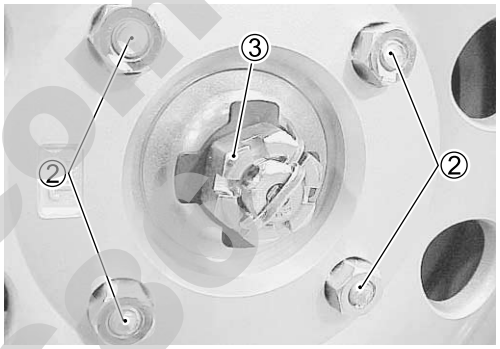
When installing the wheel hub, make sure the spacer ① is properly positioned.



• Install the front caliper. (☞7-24)

• Tighten the front wheel set nuts ②, and hub nut ③ to the specified torque.

Front wheel set nut: 50 N·m (5.0 kgf-m, 36.0 lb-ft)
Front hub nut: 100 N·m (10.0 kgf-m, 72.0 lb-ft)



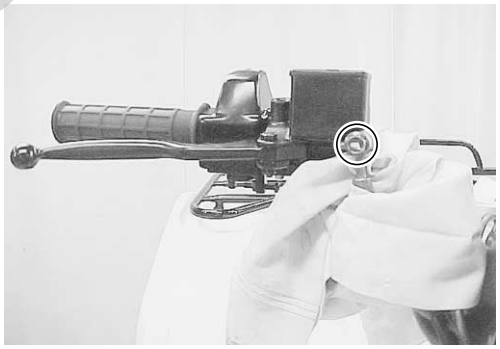
NOTE:

** First, remount the front wheels and lower the jack, and then tighten the front hub nut to specified torque.*

** After installing the front hub nut, insert a new cotter pin into the driver shaft.*

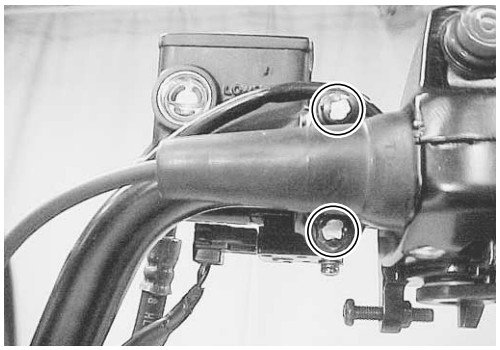
MASTER CYLINDER REMOVAL AND DISASSEMBLY

• Place a rag underneath the brake hose union bolt on the master cylinder to catch any spilt brake fluid. Remove the brake hose union bolt and disconnect the brake hose.



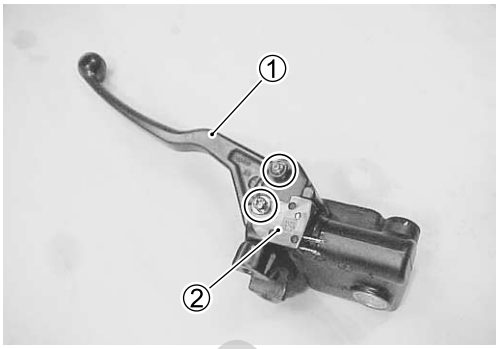
CAUTION

Immediately wipe off any brake fluid contacting any part of the vehicle. The brake fluid reacts chemically with paint, plastics, rubber materials, etc., and will damage them severely.

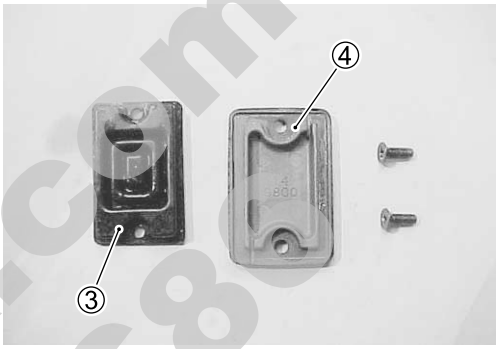


• Remove the master cylinder assembly.

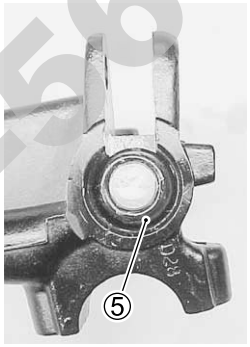
- Remove the brake lever ① and brake switch ②.

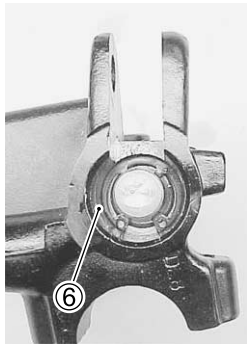


- Remove the reservoir cap ③ and diaphragm ④.
- Drain the brake fluid.



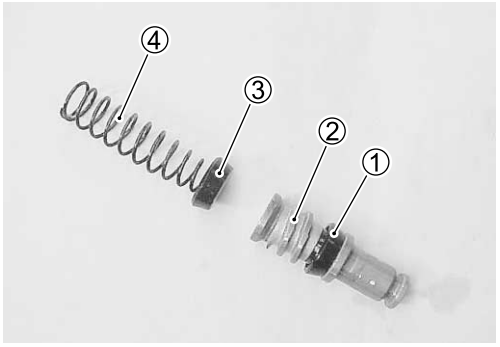
- Pull the dust boot ⑤ out and remove the circlip ⑥.





- Remove the piston/secondary cup, primary cup and spring.

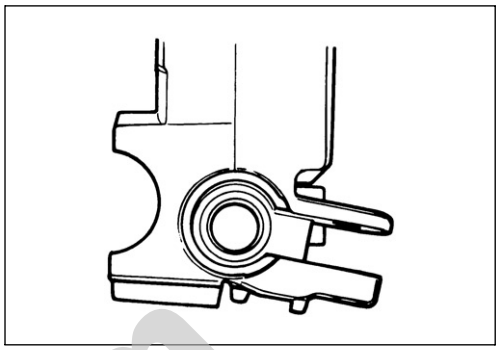
① Secondary cup
② Piston
③ Primary cup
④ Spring



MASTER CYLINDER INSPECTION

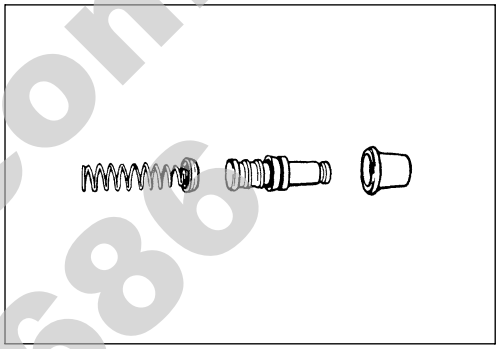
MASTER CYLINDER

Inspect the master cylinder bore for any scratches or damage. If any damages are found, replace the master cylinder with a new one.



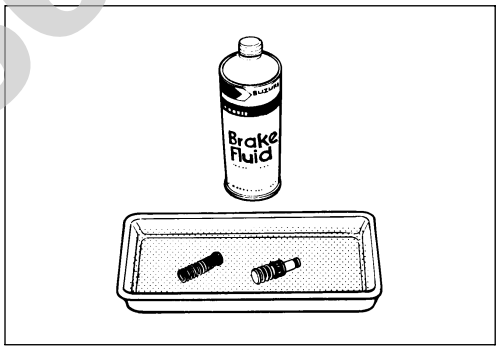
PISTON AND RUBBER PARTS

Inspect the piston surface, primary cup, secondary cup and dust seal for any scratches, wear or damage. If any damages are found, replace the piston set with a new one.



MASTER CYLINDER REASSEMBLY AND REMOUNTING

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



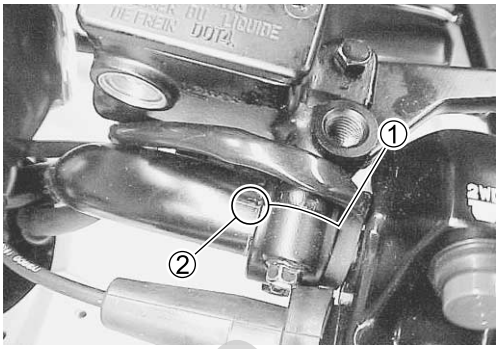
CAUTION

*** Wash the master cylinder components with new brake fluid before reassembly.**
*** Do not wipe the brake fluid off with a rag after washing the components.**
*** When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
*** Apply brake fluid to the master cylinder bore and all the component to be inserted to the bore.**

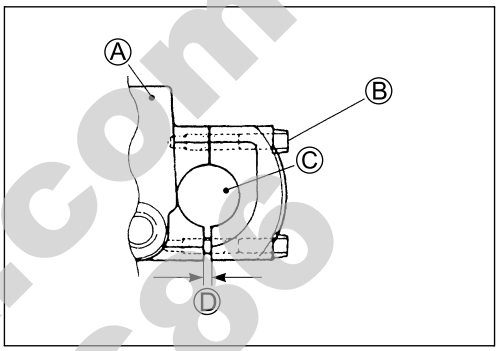
BF **Specification and classification: DOT 4**

When remounting the master cylinder on the handlebars, align the master cylinder holder's mating surface ① with the punch mark ② on the handlebar and tighten the upper clamp bolt first.

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



Ⓐ Master cylinder
Ⓑ Master cylinder upper clamp bolt
Ⓒ Handlebar
Ⓓ Clearance



- Tighten the brake hose union bolt to the specified torque.

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

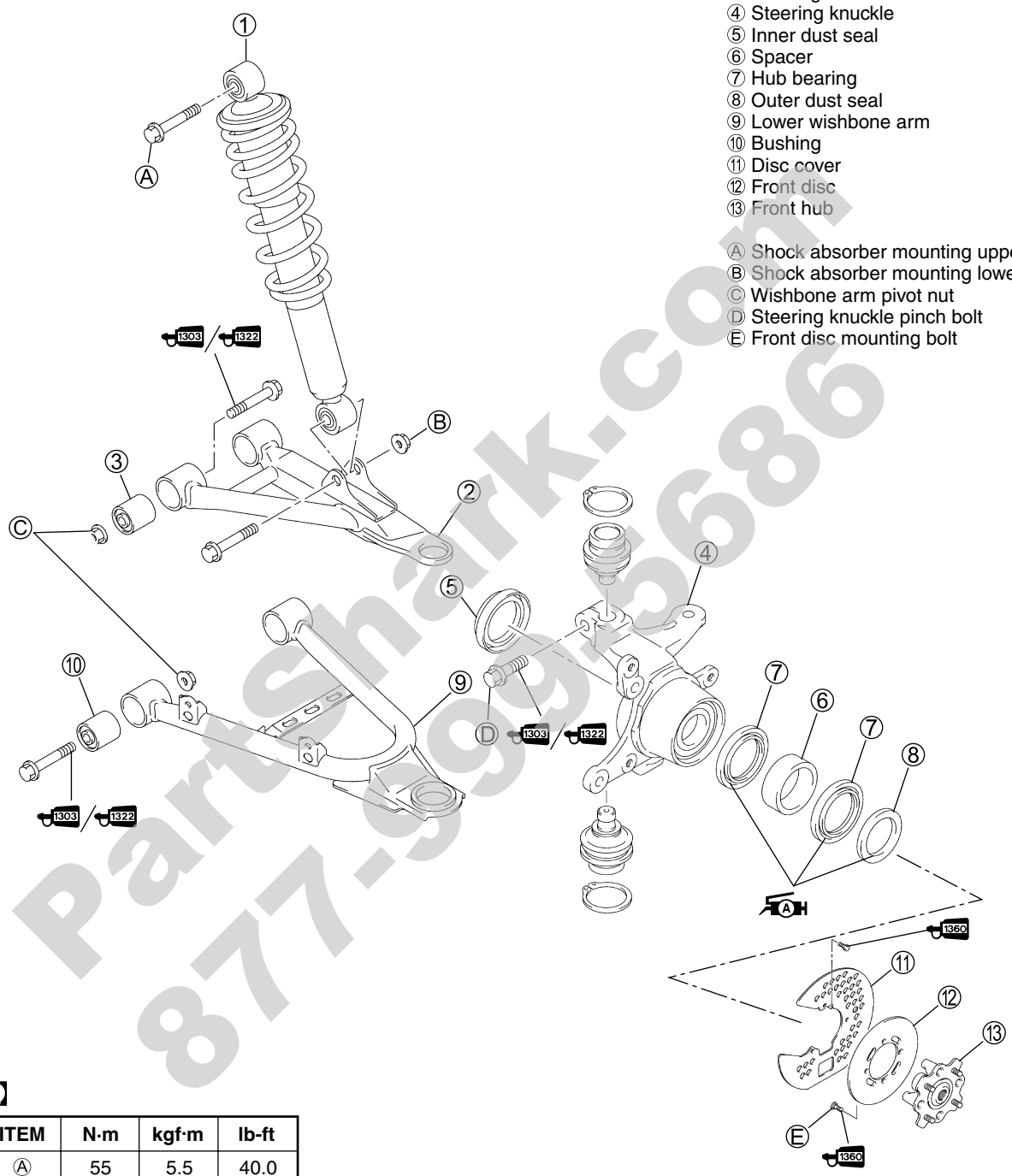
CAUTION

Bleed air from the brake system after reassembling the master cylinder. (☞2-19)

FRONT SUSPENSION
CONSTRUCTION

① Front shock absorber
② Upper wishbone arm
③ Bushing
④ Steering knuckle
⑤ Inner dust seal
⑥ Spacer
⑦ Hub bearing
⑧ Outer dust seal
⑨ Lower wishbone arm
⑩ Bushing
⑪ Disc cover
⑫ Front disc
⑬ Front hub

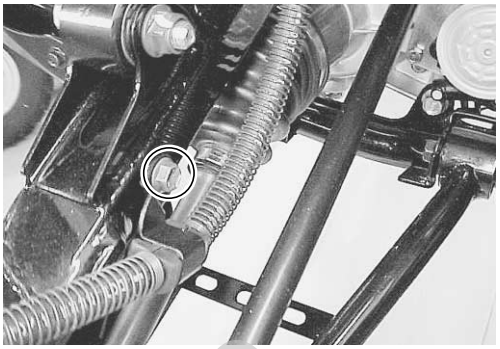
Ⓐ Shock absorber mounting upper bolt
Ⓑ Shock absorber mounting lower nut
Ⓒ Wishbone arm pivot nut
Ⓓ Steering knuckle pinch bolt
Ⓔ Front disc mounting bolt



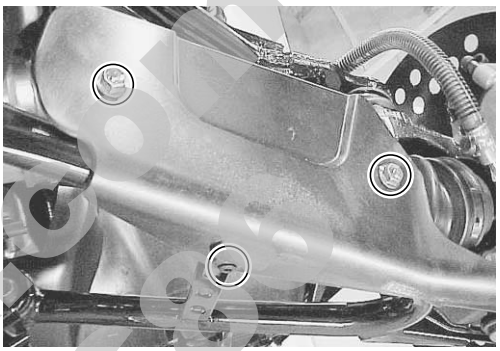
ITEM	N·m	kgf·m	lb-ft
Ⓐ	55	5.5	40.0
Ⓑ	60	6.0	43.5
Ⓒ	65	6.5	47.0
Ⓓ	50	5.0	36.0
Ⓔ	23	2.3	16.5

REMOVAL AND DISASSEMBLY

- Remove the wheel hub with brake disc. (☞7-25)
- Remove the brake hose clamp.



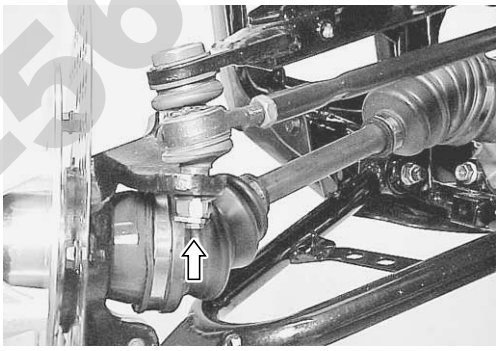
- Remove the drive shaft cover.



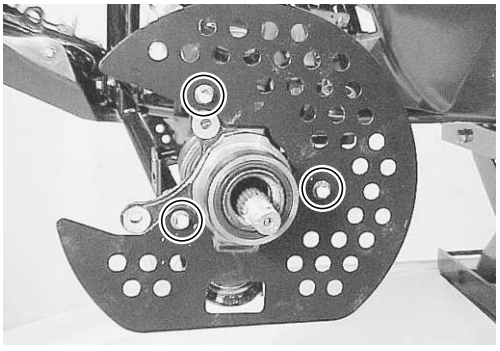
- Remove the cotter pin and tie rod end nut.

CAUTION

Replace the removed cotter pin with a new one.

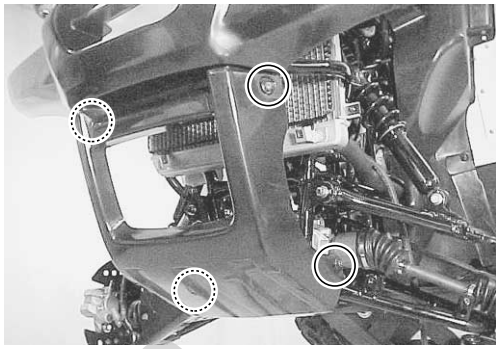


- Remove the front disc cover.

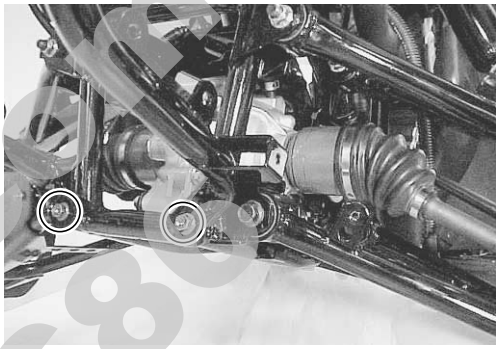


- Loosen the steering knuckle pinch bolts and remove the steering knuckle.

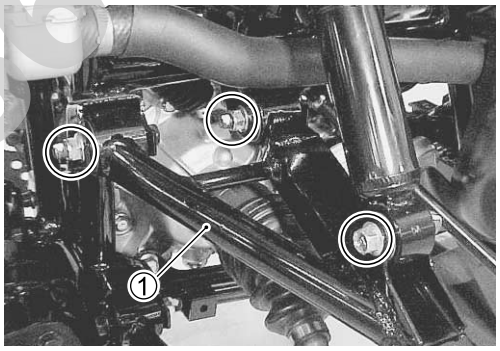
- Remove the front grip lower cover.



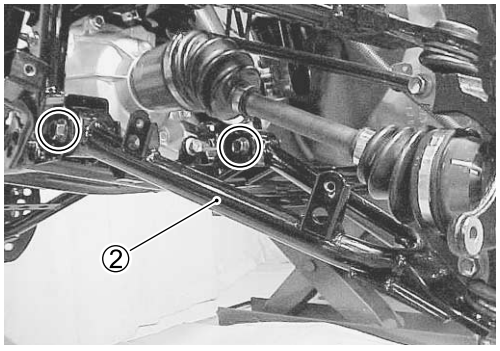
- Remove the front grip mounting bolts for helping to remove the lower wishbone arm mounting bolt.



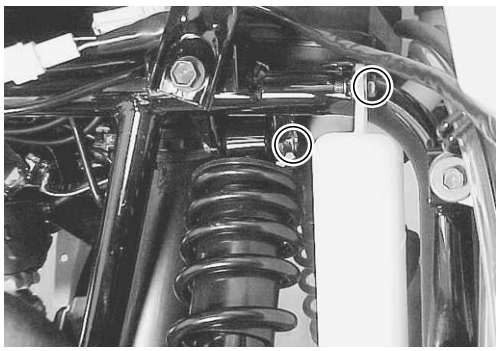
- Loosen the upper wishbone arm pivot bolts/nuts and lower shock absorber mounting bolt/nut.
- Remove the upper wishbone ①.



- Loosen the lower wishbone arm pivot bolts/nuts.
- Remove the lower wishbone ②.



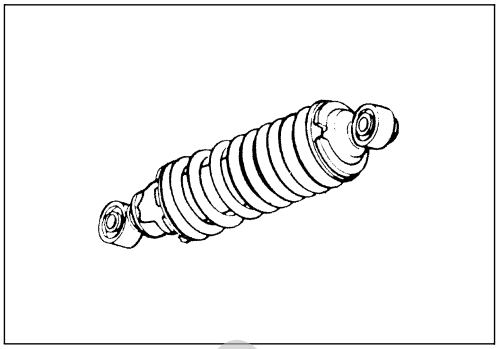
- Loosen the engine coolant reservoir mounting bolts.
- Loosen the shock absorber mounting bolt.
- Remove the shock absorber.



INSPECTION

FRONT SHOCK ABSORBER

Inspect the shock absorber for oil leakage or damage. If any damages are found, replace the front shock absorber with a new one.



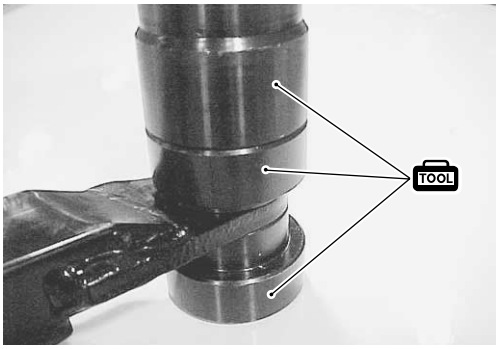
KNUCKLE END

Inspect the knuckle end boot for wear or damage. If any damages are found, replace the knuckle end with a new one.

- Remove the circlip.

- Remove the knuckle end by using the special tools.

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



WISHBONE ARM

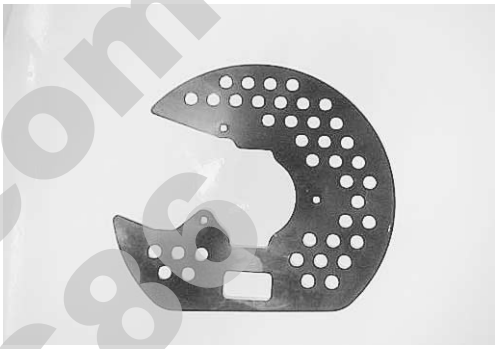
Inspect the wishbone arm for damage. If any damages are found, replace the wishbone arm with a new one.

DRIVE SHAFT COVER

Inspect the drive shaft cover for damage. If any damages are found, replace the drive shaft cover with a new one.

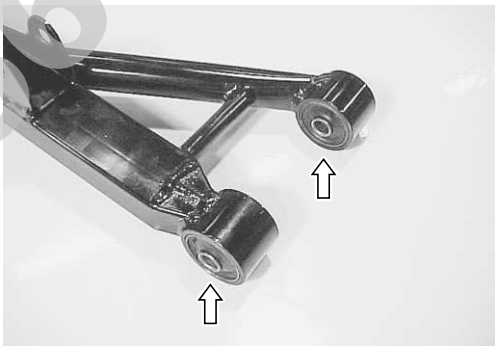
BRAKE DISC COVER

Inspect the brake disc cover for damage. If any damages are found, replace the brake disc cover with a new one.



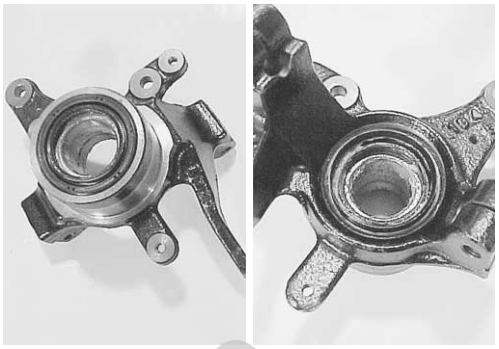
BUSHING

Inspect the rubber bushing (shock absorber/wishbone arm) for wear or other damage. If any damages are found, replace the bushing with a new one.



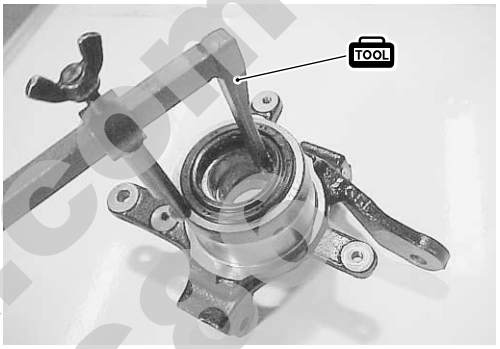
DUST SEAL

Inspect the dust seal lips for wear or damage. If any damages are found, replace the dust seal with a new one.



- Remove the steering knuckle dust seal by using the special tool.

09913-50121: Oil seal remover



CAUTION

Replace the removed dust seal with a new one.

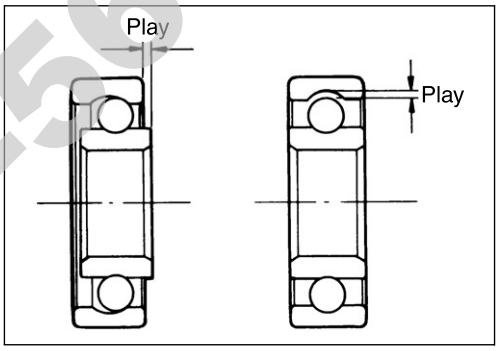
HUB BEARINGS

Inspect the inner race play of the hub bearing by hand while it is in the steering knuckle.

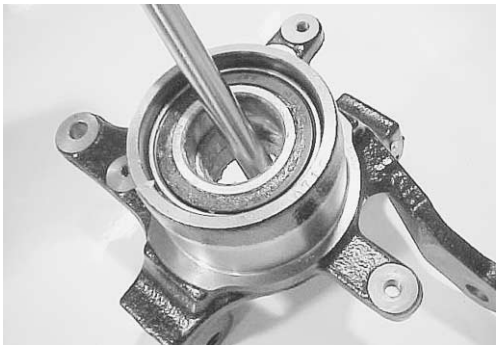
Rotate the inner race by hand to inspect for abnormal noise and smooth rotation. If there is anything unusual, replace the bearing with a new one.

NOTE:

Make sure to check each bearing in the same manner.



- Remove the hub bearings using the appropriate bar.

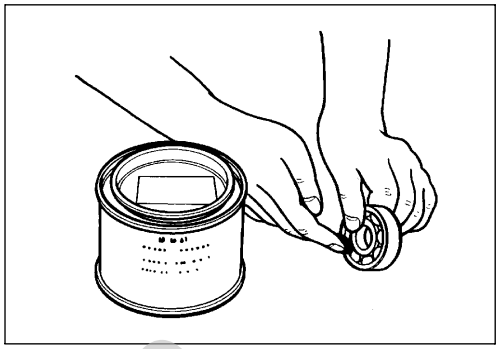


REASSEMBLY AND REMOUNTING

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

- Apply SUZUKI SUPER GREASE "A" to the hub bearings and the lip of the dust seals before installing them.

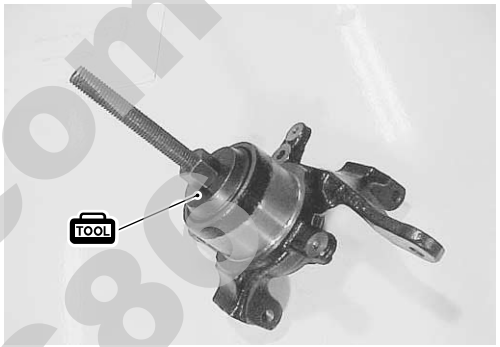
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

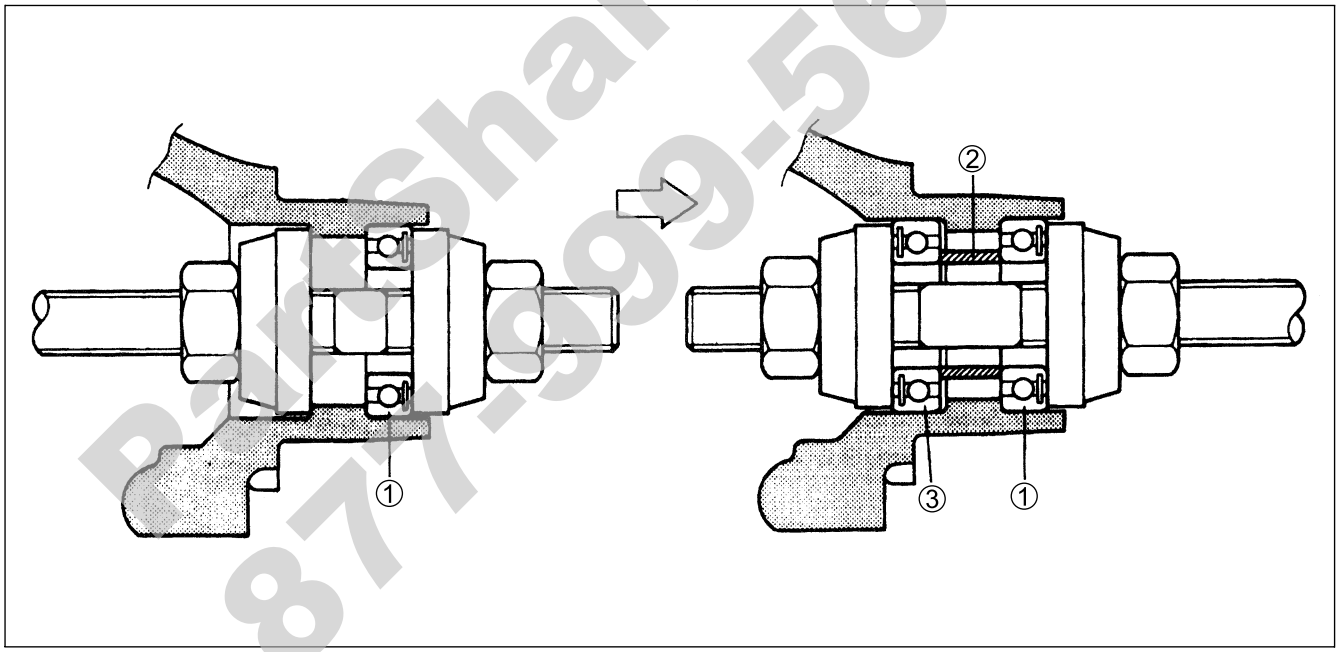


- Install the hub bearings using the special tool.

09924-84510: Bearing installer set

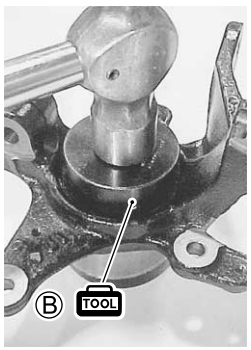
NOTE:
Install the outer bearing ①, the spacer ②, and then the inner bearing ③. Make sure the sealed side of the bearing faces outward.

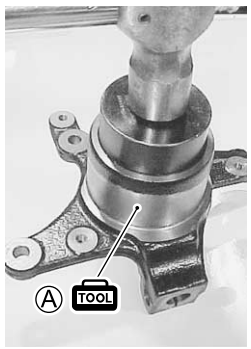




- Install the steering knuckle dust seal using the special tool.

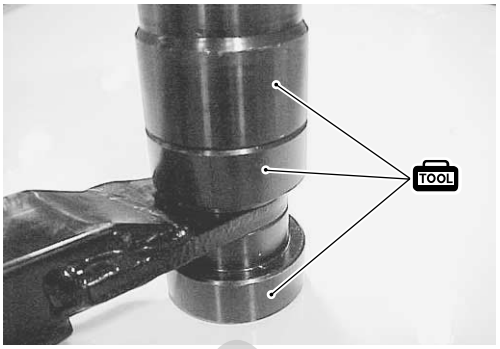
Ⓐ **09913-70210: Bearing installer set**
Ⓑ **09944-66020: Bearing installer**





- Install the knuckle end to the wishbone arm by using the special tools.

TOOL 09913-70210: Bearing installer

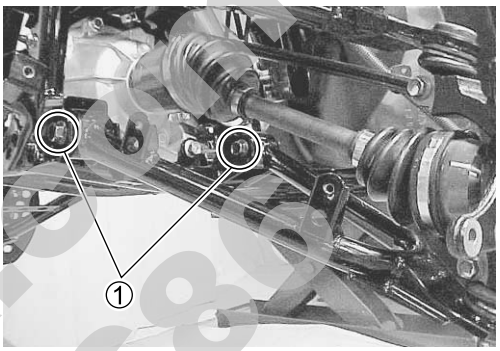


- Apply THREAD LOCK SUPER “1303” or “1322” to the wishbone arm pivot bolts, and then tighten the nuts ① to the specified torque.

1303 99000-32030: THREAD LOCK SUPER “1303” (USA)

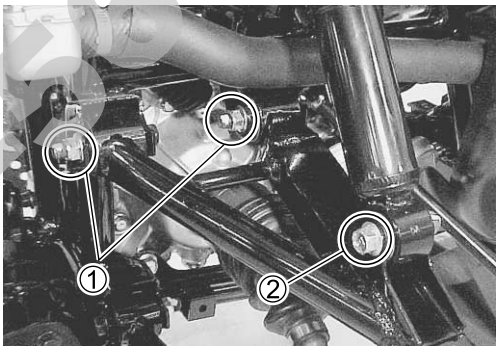
1322 99000-32110: THREAD LOCK SUPER “1322” (Others)

Wishbone arm pivot nut: 65 N·m (6.5 kgf-m, 47.0 lb-ft)



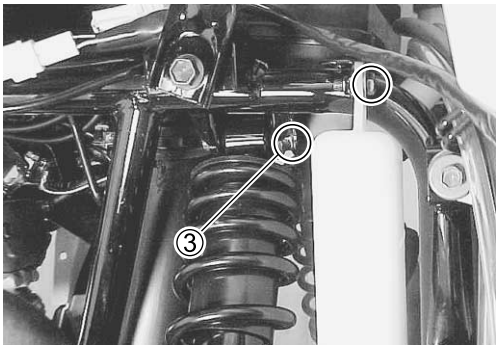
- Tighten the shock absorber mounting lower bolt/nut ② to the specified torque.

Shock absorber mounting lower nut:
60 N·m (6.0 kgf-m, 43.5 lb-ft)



- Tighten the shock absorber mounting upper bolt ③.
- Tighten the engine coolant reservoir mounting bolt.

Shock absorber mounting upper bolt:
55 N·m (5.5 kgf-m, 40.0 lb-ft)



- Apply THREAD LOCK SUPER “1303” or “1322” to the steering knuckle pinch bolts, and then tighten them to the specified torque.

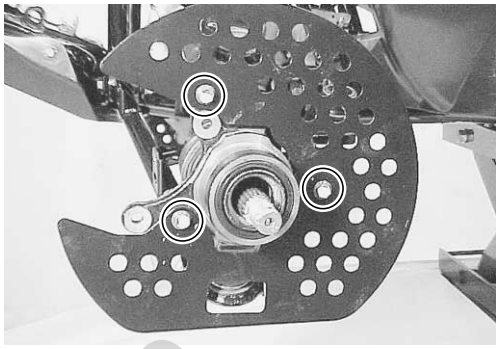
1303 99000-32030: THREAD LOCK SUPER “1303” (USA)

1322 99000-32110: THREAD LOCK SUPER “1322” (Others)

Steering knuckle pinch bolt: 50 N·m (5.0 kgf-m, 36.0 lb-ft)

- Apply THREAD LOCK SUPER “1360” to the disc cover mounting bolts, and then tighten.

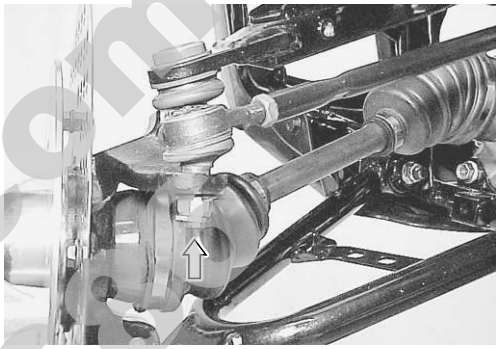
1360 99000-32130: THREAD LOCK SUPER “1360”



- Tighten the tie rod end nut to the specified torque.

Tie rod end nut: 35 N·m (3.5 kgf-m, 25.5 lb-ft)

NOTE:
After installing the tie rod end nut, insert a new cotter pin into the tie rod end.



- Install the front wheel hub. (☞7-27)
- Install the front brake caliper. (☞7-24)
- Install the front wheel. (☞7-10)

SPRING PRE-LOAD ADJUSTMENT

After installing the front shock absorber, adjust the spring pre-load.

Position “1” provides the minimum spring pre-load.
Position “5” provides the maximum spring pre-load.

STD POSITION: 1

POSITION “1” (STD)

POSITION “5”

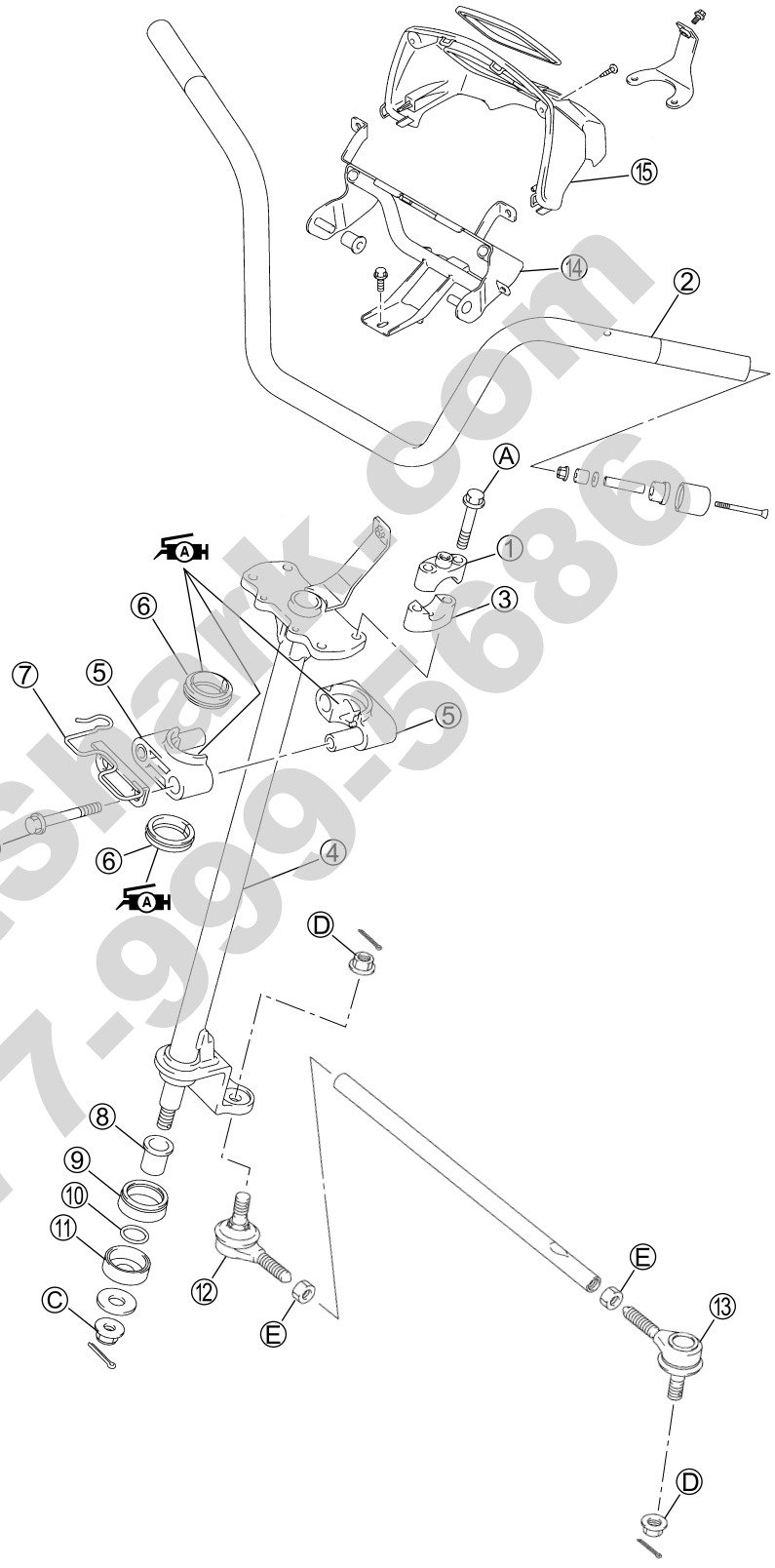
⚠ WARNING

Be sure to adjust the spring pre-load on the both suspensions equally.

STEERING
CONSTRUCTION

① Handlebar upper clamp
② Handlebars
③ Handlebar lower clamp
④ Steering shaft
⑤ Steering shaft holder
⑥ Dust seal
⑦ Cable guide
⑧ Bushing
⑨ Dust seal
⑩ O-ring
⑪ Dust seal
⑫ Tie rod end (inside)
⑬ Tie rod end (outside)
⑭ Handlebar cover bracket
⑮ Handlebar cover

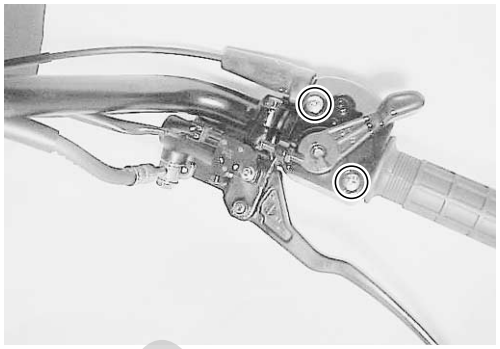
Ⓐ Handlebar clamp bolt
Ⓑ Steering shaft holder bolt
Ⓒ Steering shaft nut
Ⓓ Tie rod end nut
Ⓔ Tie rod locknut



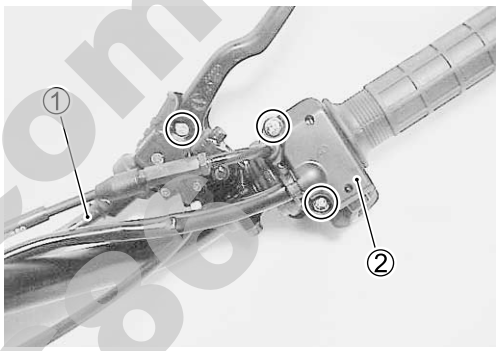
ITEM	N·m	kgf-m	lb-ft
Ⓐ	23	2.3	16.5
Ⓑ	23	2.3	16.5
Ⓒ	49	4.9	35.5
Ⓓ	35	3.5	25.5
Ⓔ	29	2.9	21.0

REMOVAL AND DISASSEMBLY

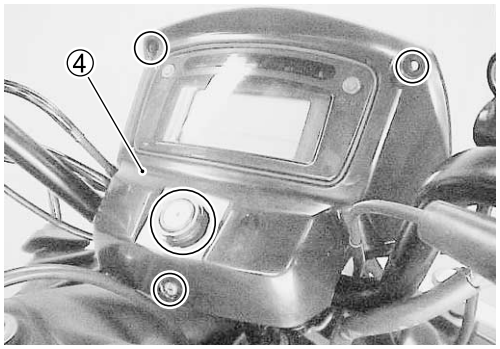
- Remove the front fender. (☞7-5)
- Remove the front wheel. (☞7-10)
- Remove the master cylinder assembly. (☞7-27)
- Remove the throttle lever case.



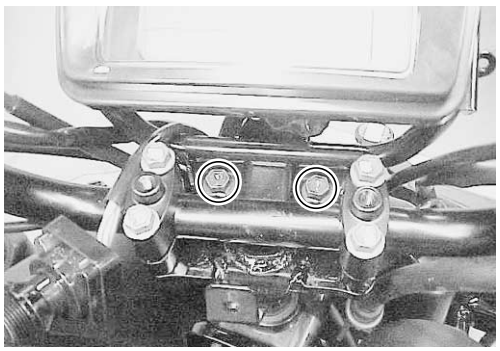
- Disconnect the rear brake cable ① and remove the handlebar switch ②.



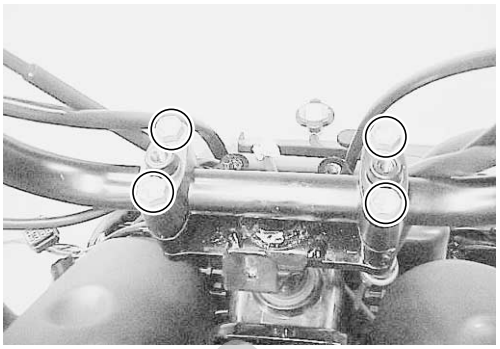
- Remove the auxiliary light cover ③ and speedometer cover ④.



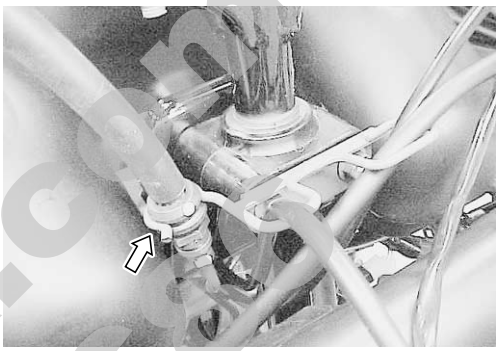
- Remove the speedometer assembly.



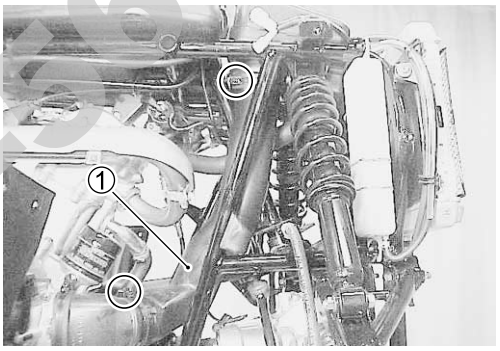
• Remove the handlebar clamp bolts and handlebars assembly.



• Disconnect the brake hose clamp.



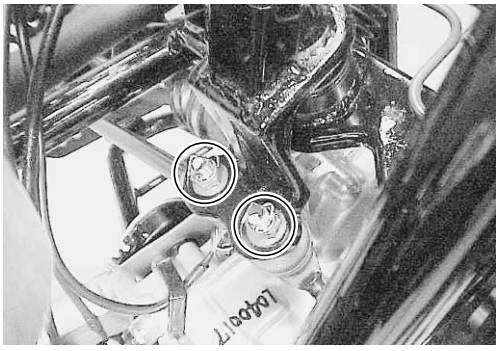
• Remove the cooling duct ①.



• Remove the cotter pins and tie rod end nuts.

CAUTION

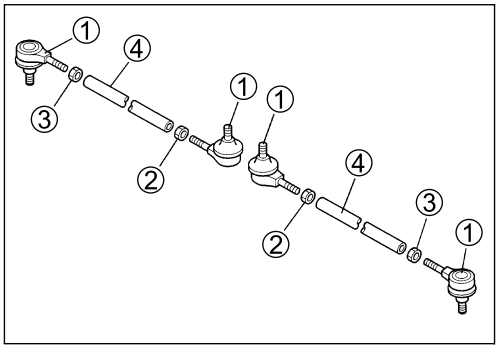
Replace the removed cotter pins with new ones.



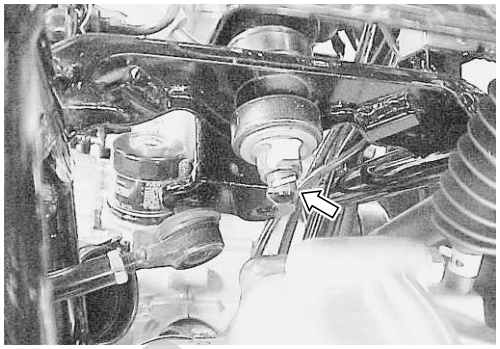
• Separate the tie rod ends ①, nuts ② and ③, and tie rods ④.

CAUTION

The locknuts ② have left-hand threads.



• Remove the cotter pin and steering shaft nut.



CAUTION

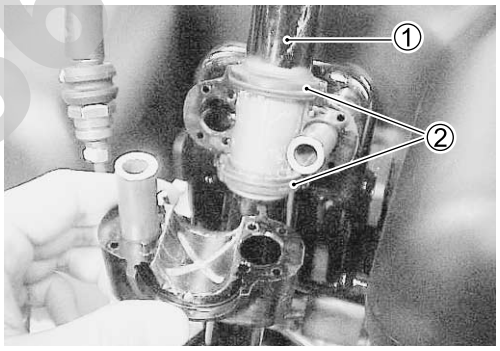
Replace the removed cotter pins with new ones.

• Remove the steering shaft holder bolts.

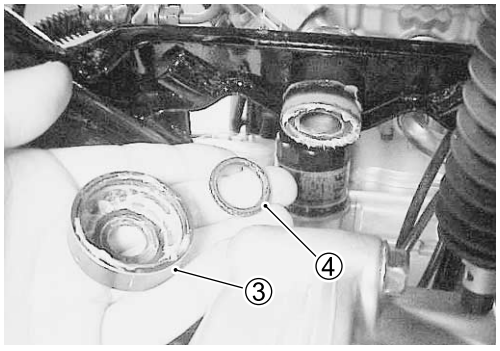
CAUTION

Replace the removed clips with new ones.

• Remove the steering shaft ①.
• Remove the dust seals ② from the steering shaft.



• Remove the dust seal ③ and O-ring ④ from the frame.



CAUTION

Replace the removed O-ring with a new one.

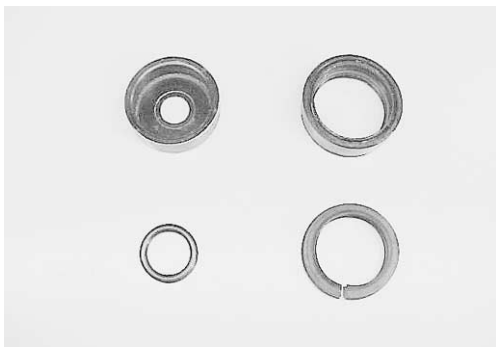
INSPECTION

Inspect the removed parts for the following abnormalities.

* Handlebar distortion
* Handlebar clamp wear

DUST SEALS AND O-RING

Inspect the dust seals and O-ring for wear or damage. If any damages are found, replace the dust seals with new ones.



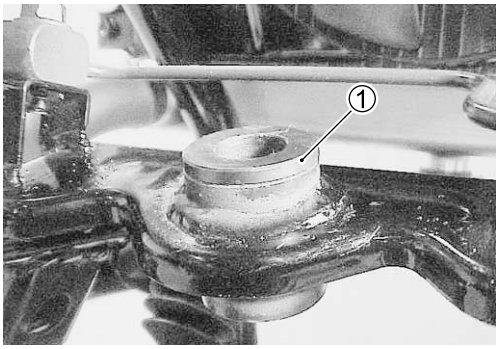
TIE ROD
Inspect the tie rod for distortion or damage. If any damages are found, replace the tie rod with a new one.

TIE ROD END
Inspect the tie rod end and boots for smooth movement. If there are any abnormalities, replace the tie rod end with a new one.

STEERING SHAFT AND HOLDER
Inspect the steering shaft for distortion or bends. If any damages are found, replace the steering shaft with a new one.

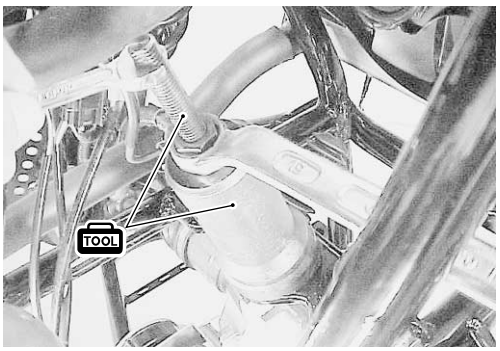
Inspect the two steering shaft holders for wear or damage. If any damages are found, replace the steering shaft holders with new ones.

STEERING SHAFT BUSHING
Inspect the steering shaft bushing ① for wear and damage. If any damages are found, replace it with a new one.



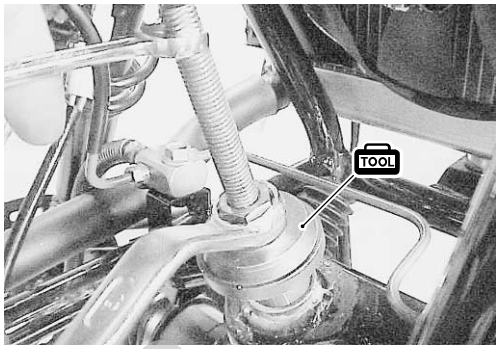
- Remove the steering shaft bushing with the special tools.

TOOL **09917-23711: Ring nut socket**
09924-84510: Bearing installer set



• Install the steering shaft bushing with the special tool.

09924-84510: Bearing installer set



REASSEMBLY AND REMOUNTING

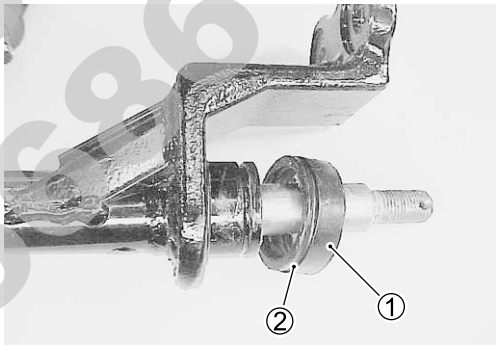
Reassemble and remount the steering stem in the reverse order of removal and disassembly. Pay attention to the following points:

STEERING SHAFT

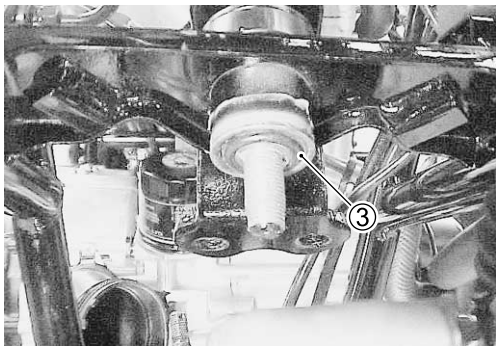
• Apply SUZUKI SUPER GREASE "A" to the O-ring and dust seals before remounting the steering shaft.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

• Install the dust seal ① to the steering shaft.
• Install the clip ② to the dust seal.



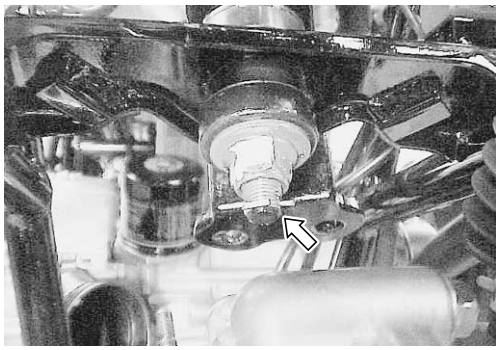
• Install the new O-ring ③ and dust seal to the steering shaft.



• Tighten the steering shaft nut to the specified torque.

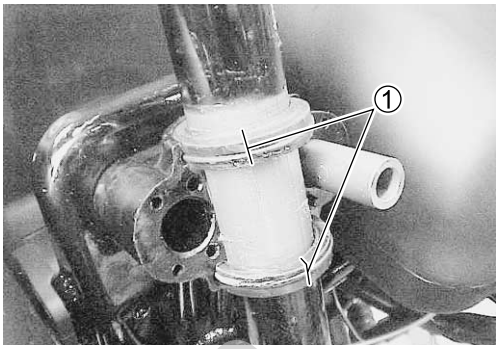
Steering shaft nut: 49 N·m (4.9 kgf-m, 35.5 lb-ft)

NOTE:
After installing the steering shaft nut, install a new cotter pin into the steering shaft.



• Apply SUZUKI SUPER GREASE “A” to the steering shaft holders and dust seals before remounting the steering shaft holders.

99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

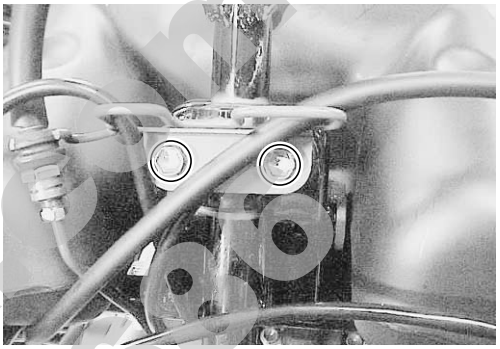


CAUTION

To prevent the entry of dirt, the dust seal end ① must face forward when installed to the steering shaft.

• Tighten the steering shaft holder bolts to the specified torque.

Steering shaft holder bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

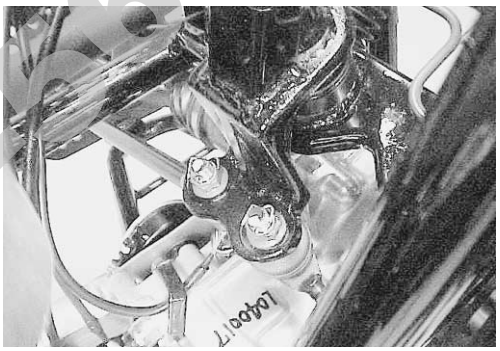


NOTE:
Make sure that the wiring harness, cables and brake hose routing are properly. (☞9-11, 14 and 18)

TIE ROD

• Tighten the tie rod end nuts to the specified torque.

Tie rod end nut: 35 N·m (3.5 kgf-m, 25.5 lb-ft)

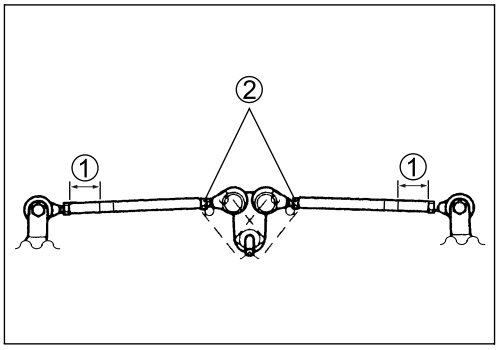


NOTE:
After installing the tie rod end nuts, install the new cotter pins into the tie rod end.

• When installing the tie rod, make sure the narrow end ① of the tie rod comes out.

CAUTION

The locknuts ② have left-hand threads.

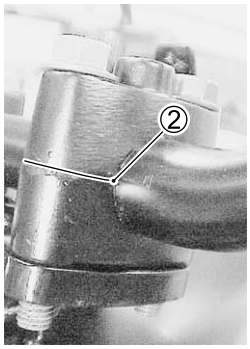


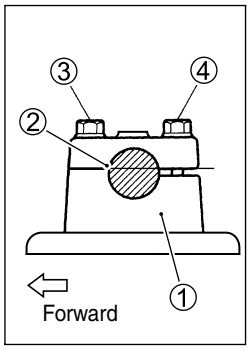
HANDLEBARS

When installing the lower handlebar holder ① to the steering shaft, the higher mating portion must face to forward.

• Set the handlebars to match its punched mark ② to the mating face of the handlebar clamps.
• First tighten the bolts ③ to the specified torque and then tighten the bolts ④.

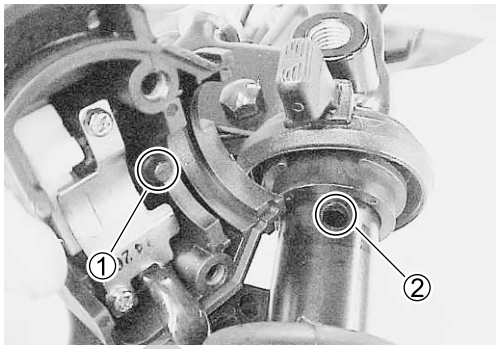
Handlebar clamp bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)





• Install the handle switch with the lug ① on the switch half inserted into the hole ② on the handlebars.

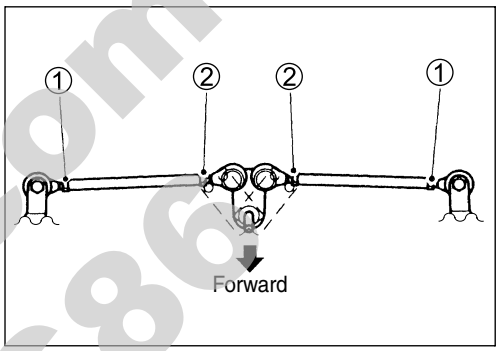
NOTE:
After installing the handlebars, make sure that the cable, wiring harness and brake hose routing. (☞9-11, 14 and 18)



TOE-IN ADJUSTMENT

Adjust the toe-in as follows:

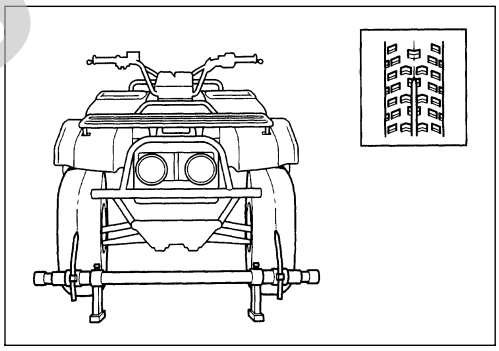
• Place the vehicle on level ground and set the handlebars straight.
Make sure all the tires are inflated to the standard pressure. (☞2-20)
• Place 75 kg (165 lbs) of weight on the seat.
• Loosen the locknuts (①, ②) on each tie rod.



CAUTION

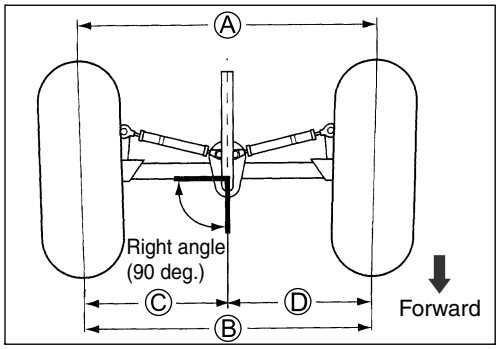
The locknuts ② have left-hand threads.

• Measure the distances (Ⓐ and Ⓑ) between the front wheels. Subtract the measurements of Ⓐ from the measurements of Ⓑ to find the toe-in. If the toe-in is not within specification, adjust the tie rod to the right or left until the toe-in is within the specified range.
Ⓐ – Ⓑ = Toe-in



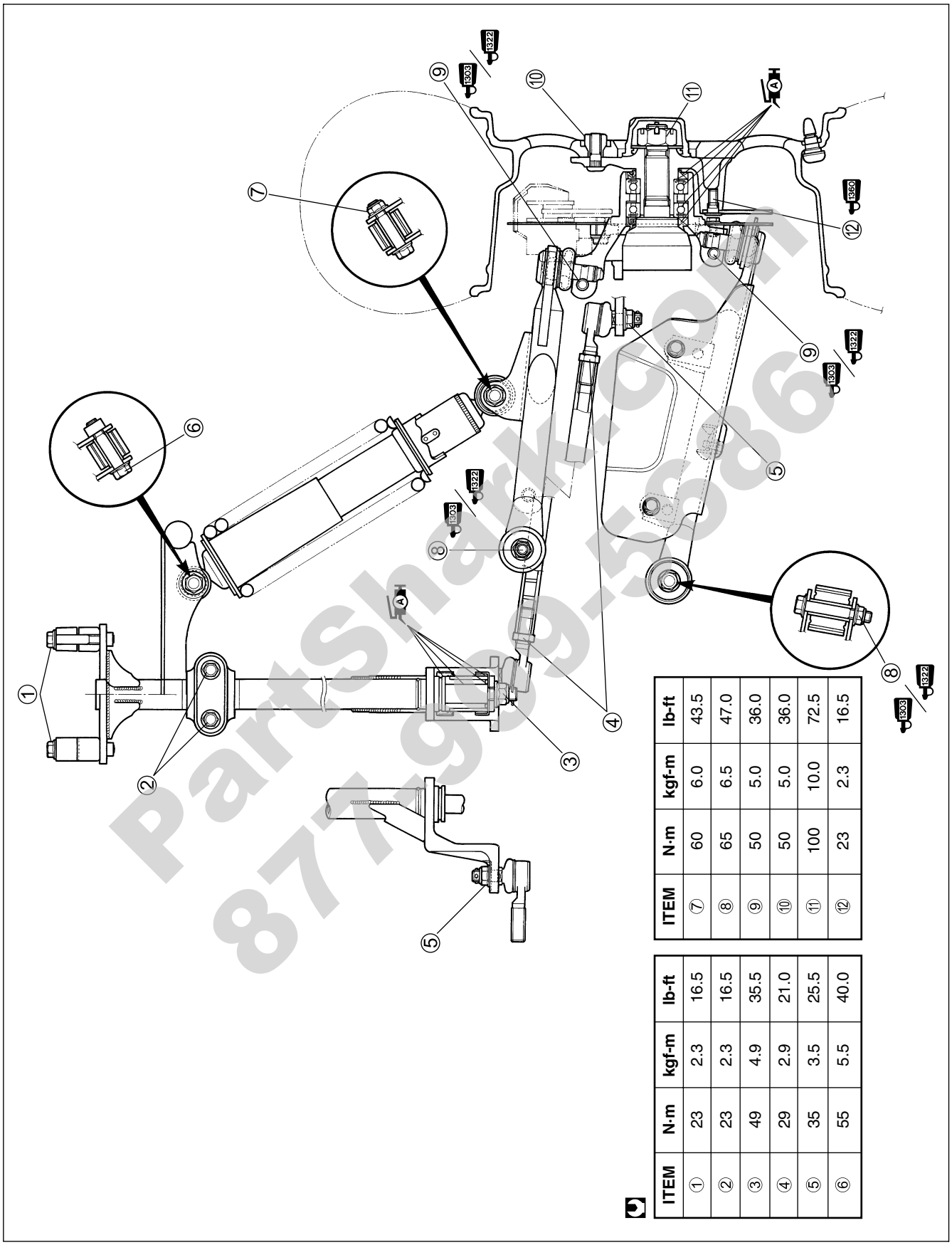
DATA Toe-in
Standard: 0 ± 4 mm (0 ± 0.16 in)

• Temporarily tighten the four locknuts.
• Check that the distances (Ⓒ and Ⓓ) are equal, as shown. If the distances are not equal, adjust the tie rod to the right or left until the toe-in is within specification. Check the toe-in again by measuring distances Ⓐ and Ⓑ.
• If the toe-in is not within specification, repeat the adjustment as above until the proper toe-in is obtained and distances Ⓒ and Ⓓ become equal.
• After adjustment has been made, tighten the four locknuts ① to the specified torque.



Tie rod locknut: 29 N·m (2.9 kgf-m, 21.0 lb-ft)

FRONT WHEEL, FRONT BRAKE, FRONT SUSPENSION AND STEERING REASSEMBLING INFORMATION



ITEM	N·m	kgf-m	lb-ft
①	23	2.3	16.5
②	23	2.3	16.5
③	49	4.9	35.5
④	29	2.9	21.0
⑤	35	3.5	25.5
⑥	55	5.5	40.0

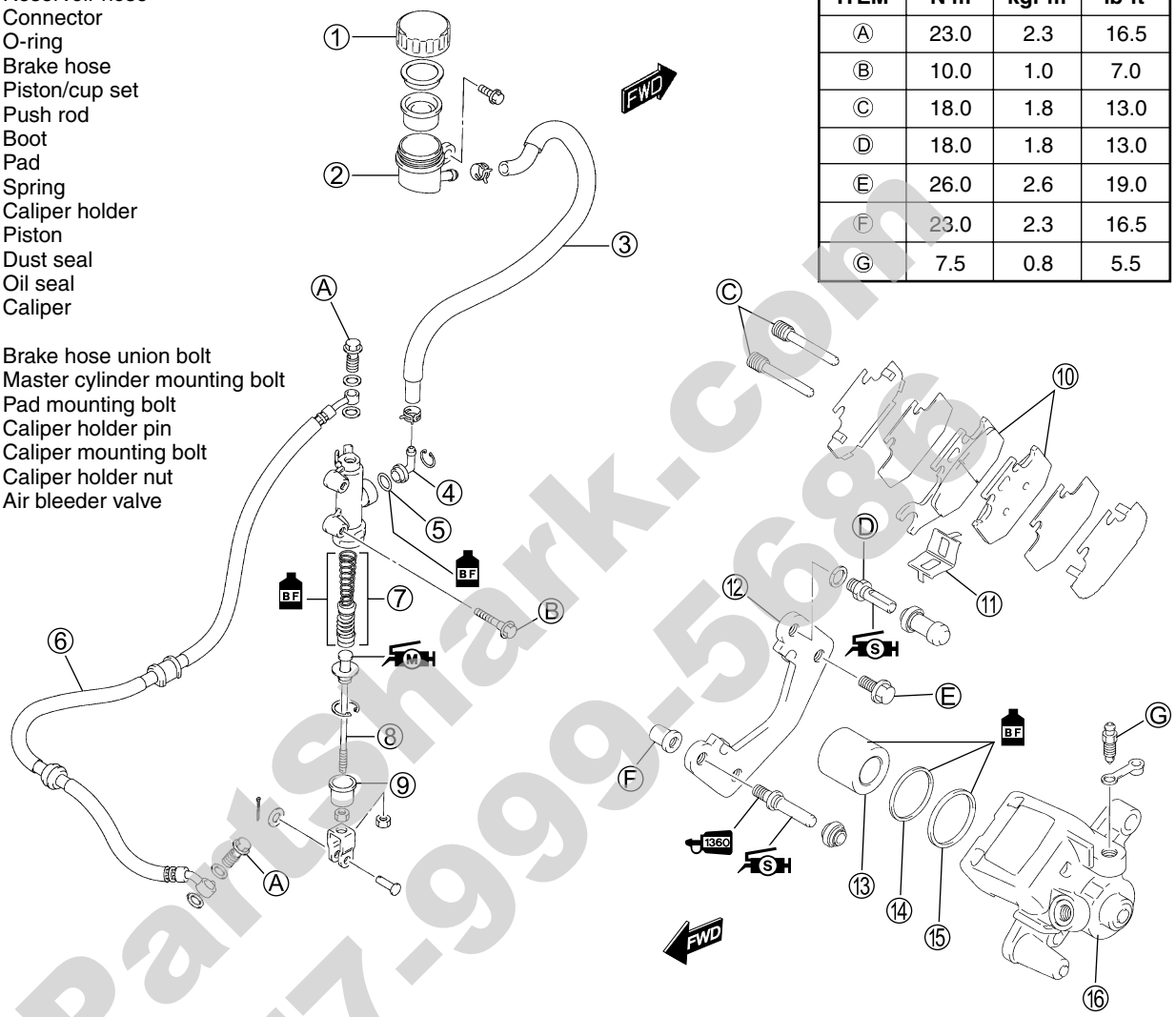
ITEM	N·m	kgf-m	lb-ft
⑦	60	6.0	43.5
⑧	65	6.5	47.0
⑨	50	5.0	36.0
⑩	50	5.0	36.0
⑪	100	10.0	72.5
⑫	23	2.3	16.5

REAR BRAKE
CONSTRUCTION

① Reservoir tank cap
② Reservoir tank
③ Reservoir hose
④ Connector
⑤ O-ring
⑥ Brake hose
⑦ Piston/cup set
⑧ Push rod
⑨ Boot
⑩ Pad
⑪ Spring
⑫ Caliper holder
⑬ Piston
⑭ Dust seal
⑮ Oil seal
⑯ Caliper

Ⓐ Brake hose union bolt
Ⓑ Master cylinder mounting bolt
Ⓒ Pad mounting bolt
Ⓓ Caliper holder pin
Ⓔ Caliper mounting bolt
Ⓕ Caliper holder nut
Ⓖ Air bleeder valve

ITEM	N·m	kgf-m	lb-ft
Ⓐ	23.0	2.3	16.5
Ⓑ	10.0	1.0	7.0
Ⓒ	18.0	1.8	13.0
Ⓓ	18.0	1.8	13.0
Ⓔ	26.0	2.6	19.0
Ⓕ	23.0	2.3	16.5
Ⓖ	7.5	0.8	5.5



⚠ WARNING

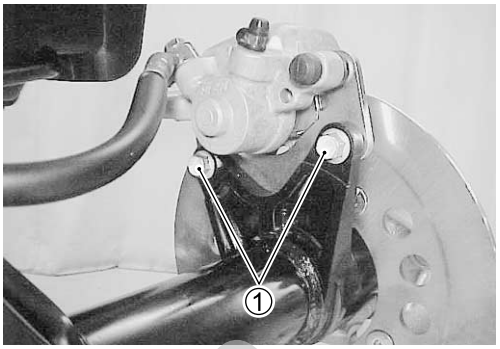
*** This brake system is filled with an ethylene glycol-based DOT 4 brake fluid. Do not use or mix different types of fluid, such as silicone-based or petroleum-based brake fluids.**
*** Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or which has been stored for a long periods of time.**
*** When storing brake fluid, seal the container completely and keep it away from children.**
*** When replenishing brake fluid, take care not to get dust into the fluid.**
*** When washing brake components, use new brake fluid. Never use cleaning solvent.**
*** A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the brake disc with high quality brake cleaner or a neutral detergent.**

CAUTION

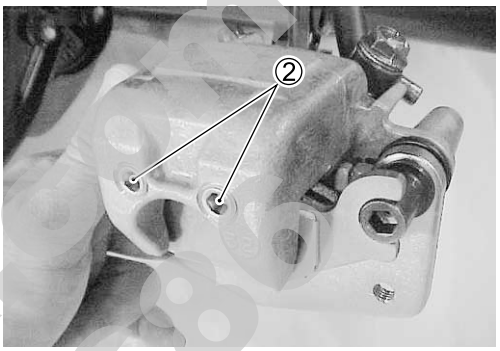
Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc. and will damage them severly.

BRAKE PAD REPLACEMENT

- Remove the rear wheel. (☞7-10)
- Remove the brake caliper mounting bolts ①.



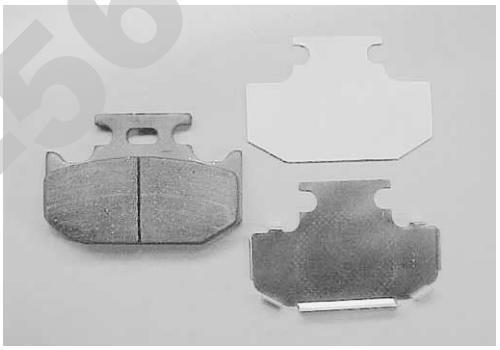
- Remove the brake pad mounting pins ②.



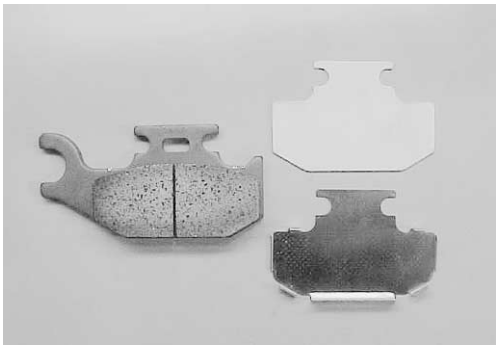
- Remove the brake pads.

CAUTION

*** Do not operate the brake lever during or after brake pad removal.**
*** Replace the brake pads as a set, otherwise braking performance will be adversely affected.**



- Install the new brake pads with shims.

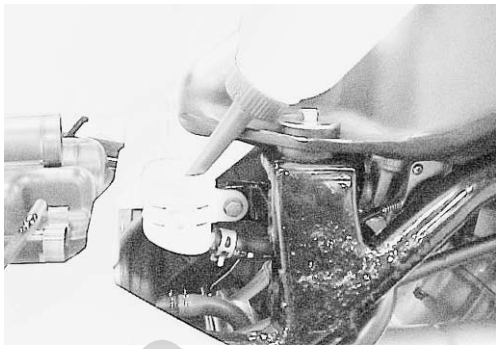


- Tighten the brake pad mounting pins and brake caliper mounting bolts to the specified torque.

Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)
Brake caliper mounting bolts:
26 N·m (2.6 kgf-m, 19.0 lb-ft)

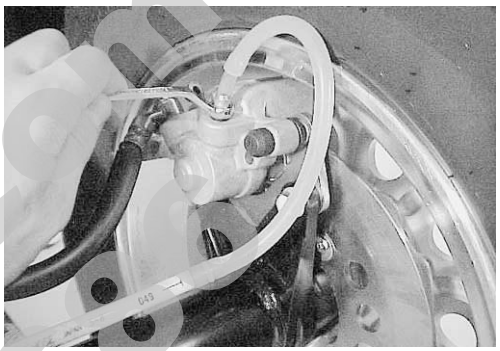
NOTE:
After replacing the brake pads, pump the brake lever a few times to check for proper brake operation and then check the brake fluid level.

BRAKE FLUID REPLACEMENT

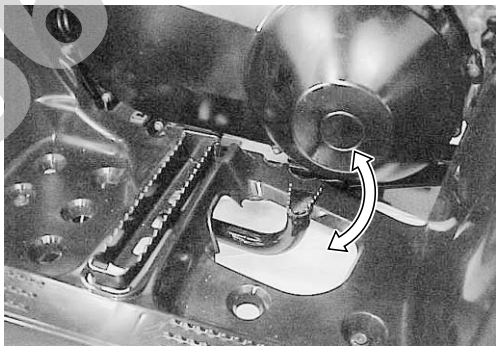


- Place the vehicle on a level surface.
- Remove the seat and fuel tank covers. (☞7-4 and 7-5)
- Remove the master cylinder reservoir cap and diaphragm.
- Suck up the old brake fluid as much as possible.
- Fill the reservoir with new brake fluid.

Specification and classification: DOT 4



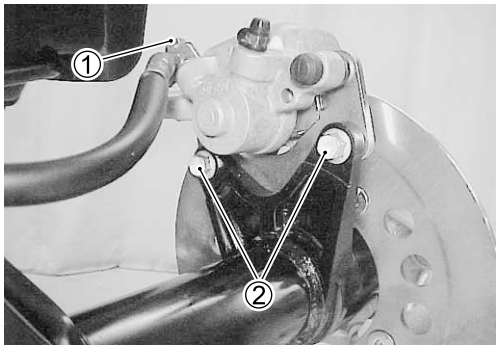
- Connect a clear hose to the air bleeder valve and insert the other end of the hose into a receptacle.
- Loosen the air bleeder valve and pump the brake lever until the old brake fluid is completely out of the brake system.
- Close the air bleeder valve and disconnect the clear hose. Fill the reservoir with new brake fluid to the upper end of the inspection window.



CAUTION

*** Never reuse the brake fluid left over from previous servicing and which has been stored for long periods of time.**
*** Bleed air from the brake system. (☞2-19)**

BRAKE CALIPER REMOVAL AND DISASSEMBLY

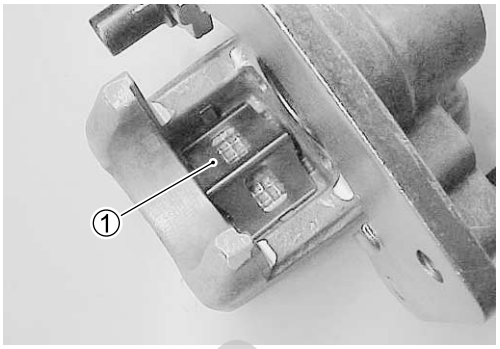


- Remove the rear wheel. (☞7-10)
- Disconnect the brake hose from the brake caliper by removing the brake hose union bolt ① and allow the brake fluid to drain into a suitable receptacle.
- Remove the brake caliper by removing the brake caliper mounting bolts ②.
- Remove the brake pads. (☞7-50)

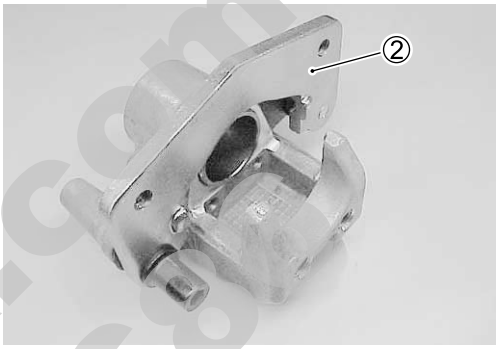
⚠ WARNING

Brake fluid, if it leaks, will interfere with safe running and discolor painted surfaces. Check the brake hose and hose joints for cracks and oil leakage.

- Remove the spring ①.



- Remove the brake caliper holder ②.



- Place a rag over the brake caliper pistons to prevent them from popping out and then force out the pistons using compressed air.

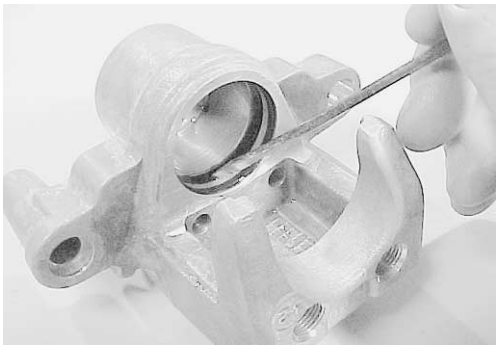
CAUTION

Do not use high pressure air to prevent brake caliper piston damage.

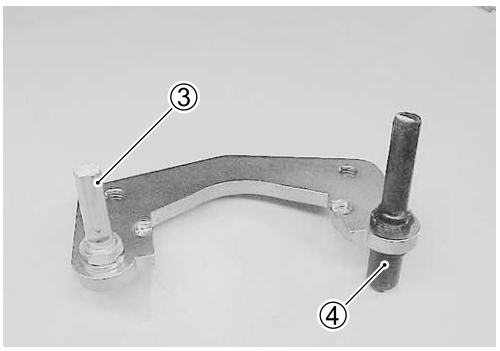
- Remove the dust seals and piston seals.

CAUTION

Do not reuse the dust seals and piston seals to prevent fluid leakage.



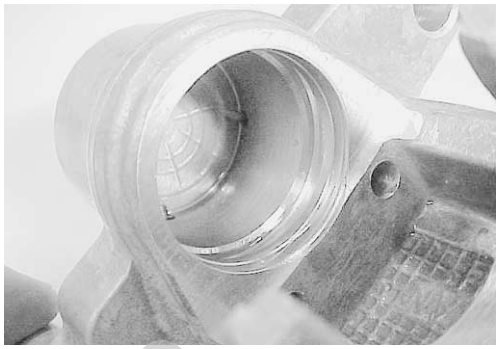
- Remove the brake caliper holder pin ③ and nut ④.



BRAKE CALIPER INSPECTION

BRAKE CALIPER

Inspect the brake caliper cylinder wall for nicks, scratches or other damage. If any damages are found, replace the brake caliper with a new one.



BRAKE CALIPER PISTON

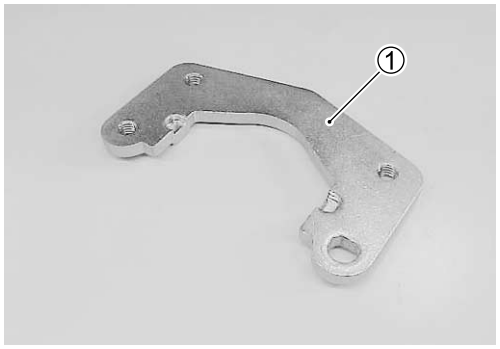
Inspect the brake caliper piston for any scratches or other damage. If any damages are found, replace the piston with a new one.

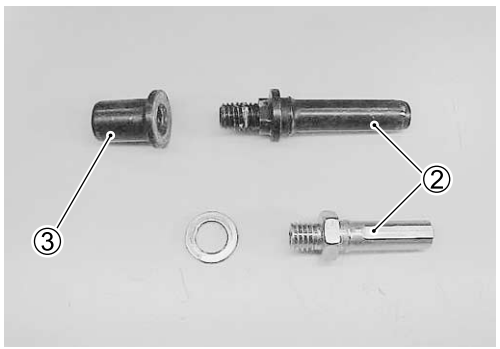
RUBBER PARTS

Replace the removed rubber parts with new ones.

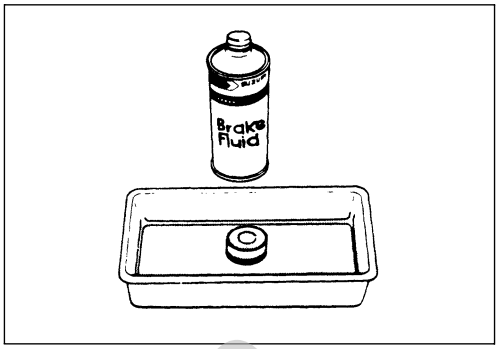
CALIPER HOLDER

Inspect the caliper holder ①, pin ② and nut ③ for damage. If any damages are found, replace them with new ones.





BRAKE CALIPER REASSEMBLY AND REMOUNTING



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

- Wash the caliper bores and pistons with the specified brake fluid. Thoroughly wash the dust seal groove and piston seal groove.

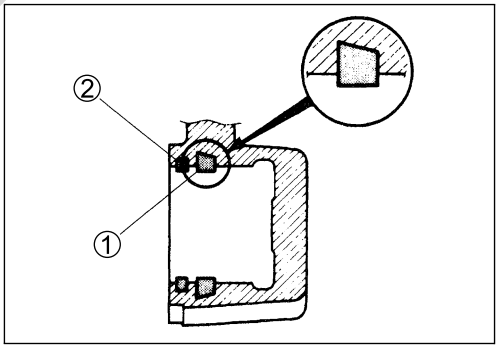
BF Specification and classification: DOT 4

CAUTION

*** Wash the brake caliper components with new brake fluid before reassembly.**
*** Do not wipe the brake fluid off with a rag after washing the components.**
*** When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
*** Replace the removed piston seals and dust seals with new ones.**
*** Apply brake fluid to all of the seals, brake caliper bores and pistons before reassembly.**

PISTON SEALS

- Install the piston seal ① and dust seal ② as shown.



BRAKE CALIPER HOLDER

- Tighten the pin ② to the caliper holder ① to the specified torque.

Caliper holder pin:18 N·m (1.8 kgf-m, 13.0 lb-ft)

- Apply SUZUKI SILICON GREASE to the pin ②.

99000-25100: SUZUKI SILICON GREASE

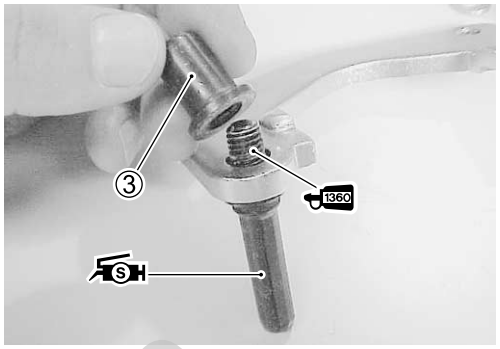
- Apply THREAD LOCK SUPER “1360” to the nut ③ and tighten it to specified torque.

99000-32130: THREAD LOCK SUPER “1360”

Caliper holder nut: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Apply SUZUKI SILICON GREASE to the brake caliper holder pin.

99000-25100: SUZUKI SILICONE GREASE



- Assemble the caliper holder and the caliper.

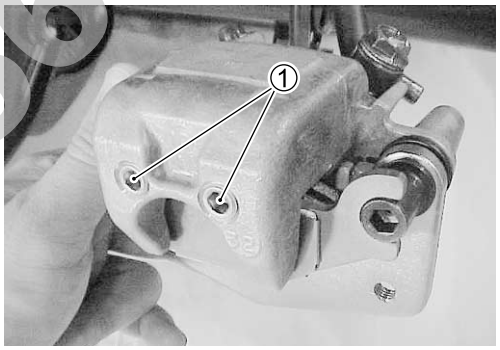
NOTE:
Make sure that the boots must be set into the holder pin’s grooves securely.

- Install the spring.
- Install the pads to the caliper.

- Tighten the brake pad mounting pins ①, brake caliper mounting bolts ②, and brake hose union bolt ③ to the specified torque. (Brake hose routing: ☞9-19)

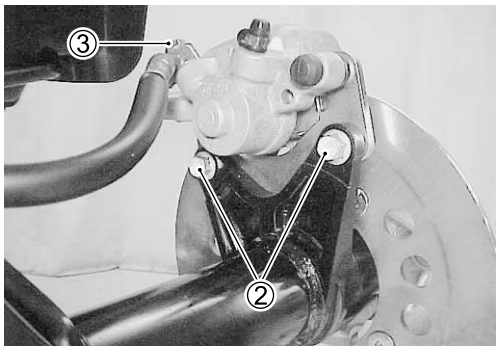
Brake pad mounting pin: 18 N·m (1.8 kgf-m, 13.0 lb-ft)
Brake caliper mounting bolt: 26 N·m (2.6 kgf-m, 19.0 lb-ft)
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

NOTE:
Before remounting the brake caliper, push the brake caliper pistons all the way into the caliper.



CAUTION

*** The seal washers should be replaced by the new ones to prevent fluid leakage.**
*** Bleed air from the brake system after reassembling the master cylinder. (☞2-19)**



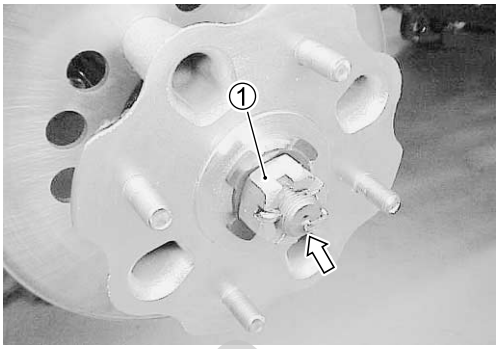
BRAKE DISC REMOVAL AND DISASSEMBLY

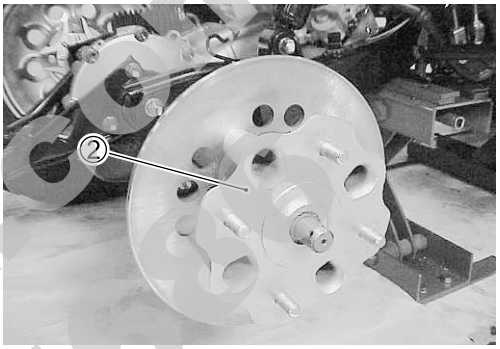
- Remove the rear wheel. (☞7-10)
- Remove the cotter pin.

CAUTION

Replace the removed cotter pin with a new one.

- Loosen the axle nut by applying the rear brake.
- Remove the rear brake caliper. (☞7-50)
- Remove the axle nut ①.
- Remove the rear wheel hub ②.





- Remove the brake disc.

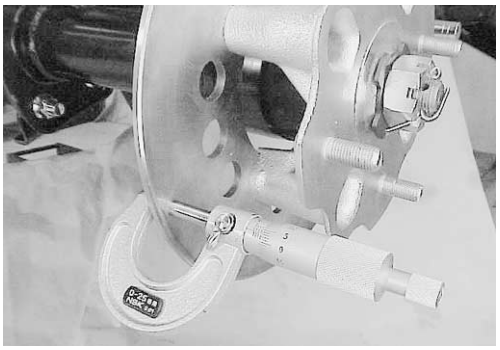
BRAKE DISC INSPECTION

- Remove the rear wheel. (☞7-10)

Inspect the brake disc for cracks or damage and measure the thickness using the micrometer. If any damages are found or if the thickness is less than the service limit, replace the brake disc with a new one.

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

DATA Brake disc thickness
Service Limit: 3.5 mm (0.12 in)

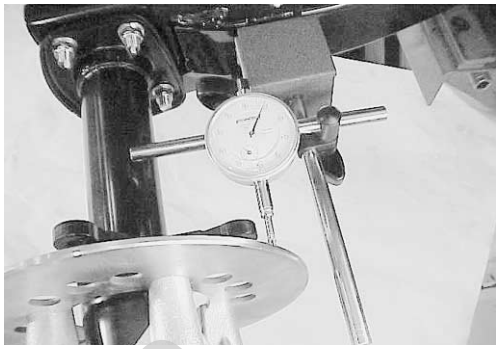


Measure the runout using the dial gauge. If the runout exceeds the service limit, replace the brake disc with a new one.

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

Brake disc runout
Service Limit: 0.3 mm (0.012 in)

- If either measurement exceeds the service limit, replace the brake disc with a new one.



BRAKE DISC REASSEMBLY AND REMOUNTING

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

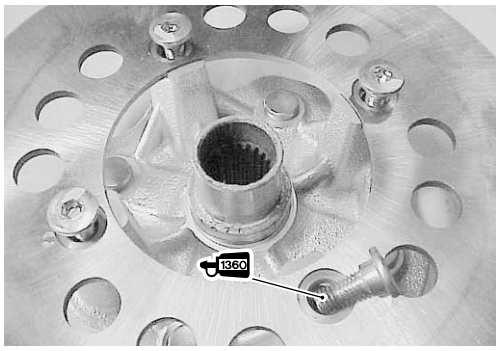
- Apply SUZUKI SUPER GREASE "A" to the wheel hub spline.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

- Apply THREAD LOCK SUPER "1360" to the brake disc bolts and tighten them to the specified torque.

99000-32130: THREAD LOCK SUPER "1360"

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



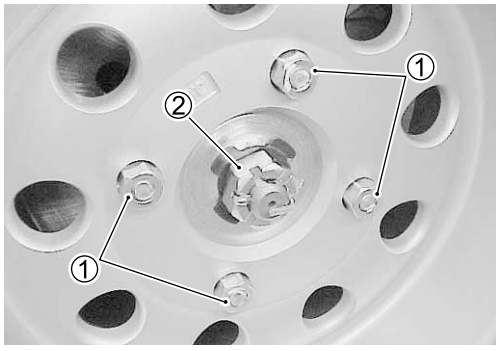
- Tighten the rear wheel set nuts ①, and hub nut ② to the specified torque.

Rear wheel set nut: 50 N·m (5.0 kgf-m, 36.0 lb-ft)
Rear hub nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

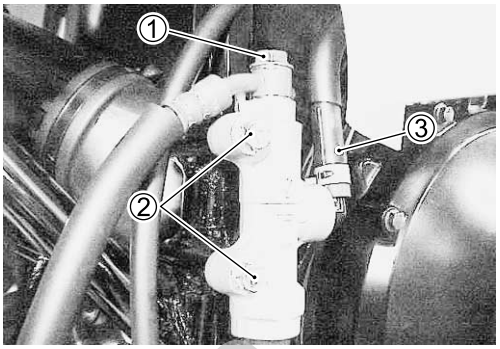
NOTE:

** First, remount the rear wheels and lower the jack, and then tighten the rear hub nut to specified torque.*

** After installing the rear hub nut, insert a new cotter pin into the driver shaft.*



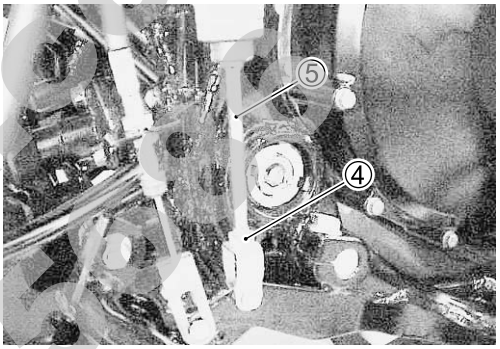
MASTER CYLINDER REMOVAL AND DISASSEMBLY



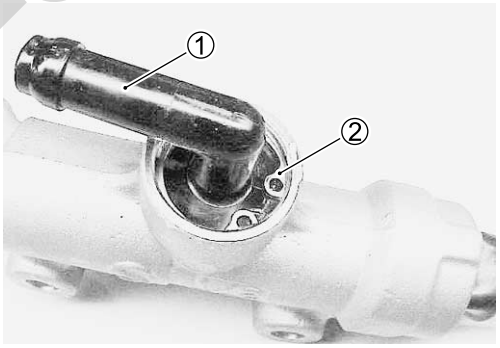
- Place a rag underneath the brake hose union bolt on the master cylinder to catch any spilt brake fluid. Remove the brake hose union bolt ① and disconnect the brake hose.
- Remove the master cylinder mounting bolts ②.
- Disconnect the reservoir hose ③.

CAUTION

Immediately wipe off any brake fluid contacting any part of the vehicle. The brake fluid reacts chemically with paint, plastics, rubber materials, etc., and will damage them severely.



- Loosen the lock nut ④.
- Remove the master cylinder assembly by turning the master cylinder rod ⑤.

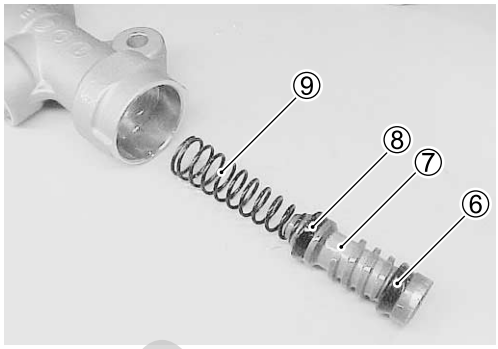


- Remove the connector ① and O-ring by removing the snap ring ②.

- Remove the boot ③ and snap ring ④.
- Remove the push rod ⑤.

• Remove the piston/secondary cup, primary cup and spring.

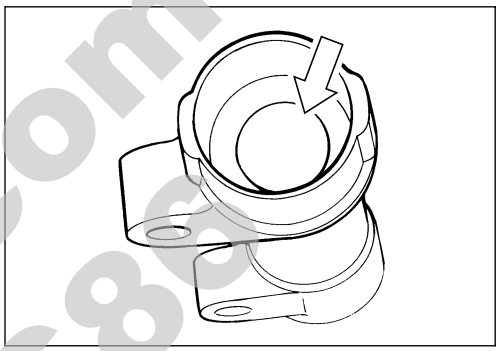
⑥ Secondary cup
⑦ Piston
⑧ Primary cup
⑨ Spring



MASTER CYLINDER INSPECTION

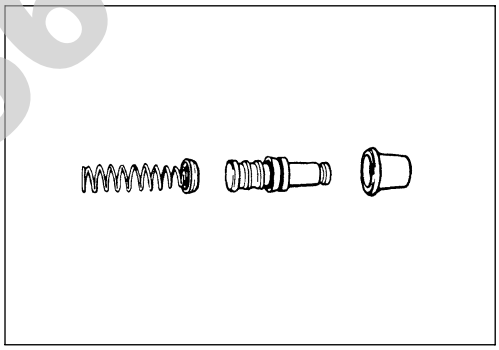
MASTER CYLINDER

Inspect the master cylinder bore for any scratches or damage. If any damages are found, replace the master cylinder with a new one.



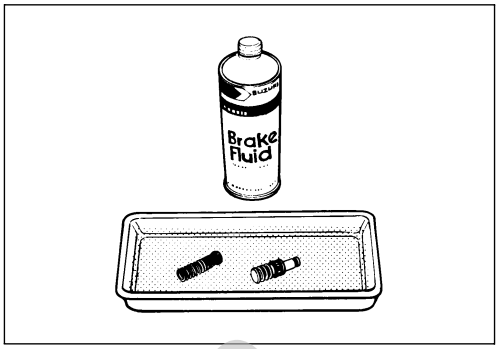
PISTON AND RUBBER PARTS

Inspect the piston surface, primary cup, secondary cup and boot for any scratches, wear or damage. If any damages are found, replace them with new ones.



MASTER CYLINDER REASSEMBLY AND REMOUNTING

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



CAUTION

*** Wash the master cylinder components with new brake fluid before reassembly.**
*** Do not wipe the brake fluid off with a rag after washing the components.**
*** When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
*** Apply brake fluid to the master cylinder bore and all the component to be inserted into the bore.**

Specification and classification: DOT 4

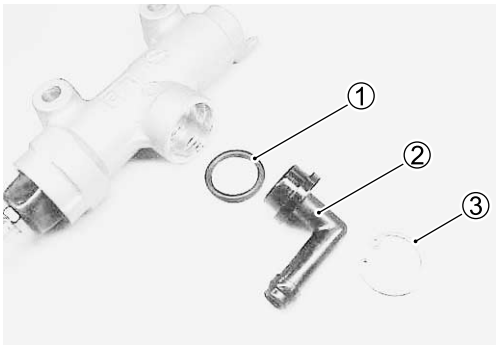
- Apply the SUZUKI MOLY PASTE to the push rod.

99000-25140: SUZUKI MOLY PASTE

- Install the O-ring ①, connector ② and snap ring ③ to the master cylinder.

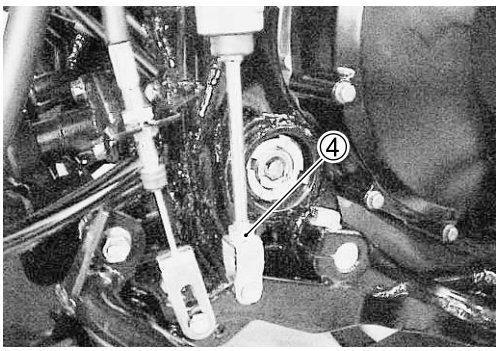
CAUTION

Replace the O-ring with a new one.

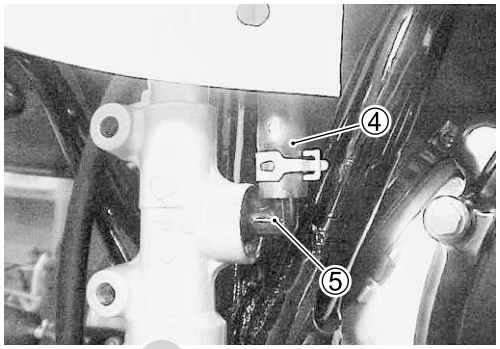


- Install the master cylinder.
- Tighten the lock nut ④.

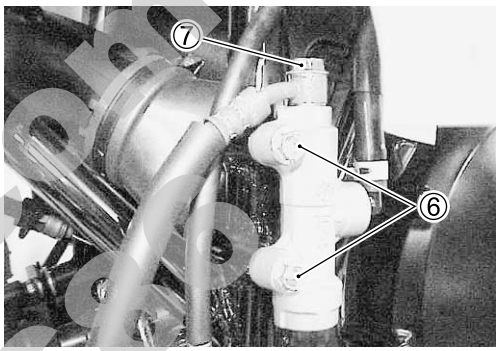
Rear master cylinder rod lock nut:
18 N·m (1.8 kgf-m, 13.0 lb-ft)



- Connect the reservoir hose ④ to the connector ⑤.



- Tighten the master cylinder mounting bolts ⑥ to the specified torque.
- Connect the brake hose to the master cylinder.
  (Rear brake hose routing: ☞9-19)
- Tighten the brake hose union bolt ⑦ to the specified torque.



Rear master cylinder mounting bolt:
10 N·m (1.0 kgf-m, 7.3 lb-ft)
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

- Adjust the brake pedal height. (☞2-16)

CAUTION

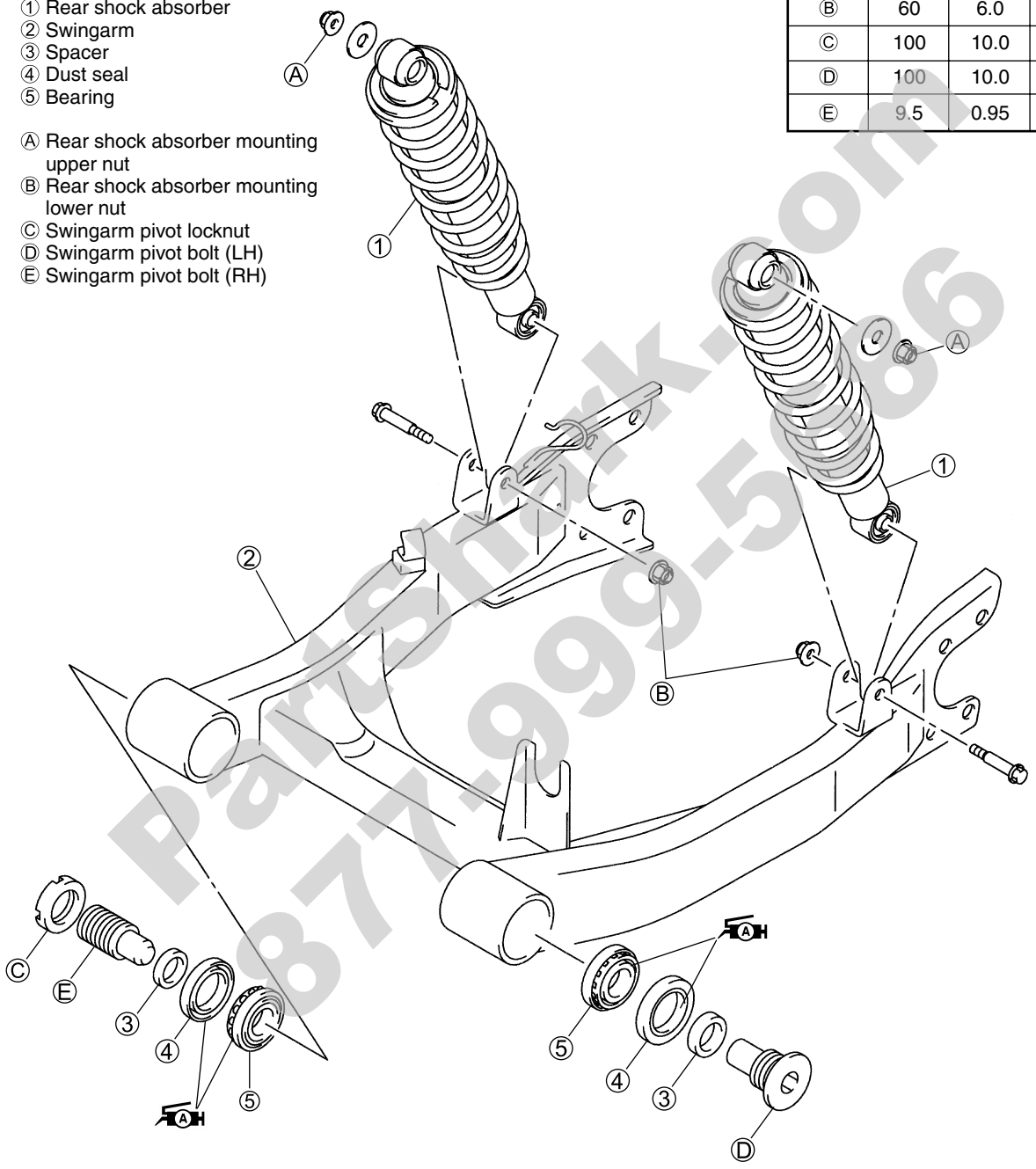
*** The seal washers should be replaced by the new ones to prevent fluid leakage.**
*** Bleed air from the brake system after reassembling the master cylinder. (☞2-19)**

REAR SUSPENSION
CONSTRUCTION

ITEM	N·m	kgf-m	lb-ft
Ⓐ	34	3.4	24.5
Ⓑ	60	6.0	43.5
Ⓒ	100	10.0	72.5
Ⓓ	100	10.0	72.5
Ⓔ	9.5	0.95	7.0

① Rear shock absorber
② Swingarm
③ Spacer
④ Dust seal
⑤ Bearing

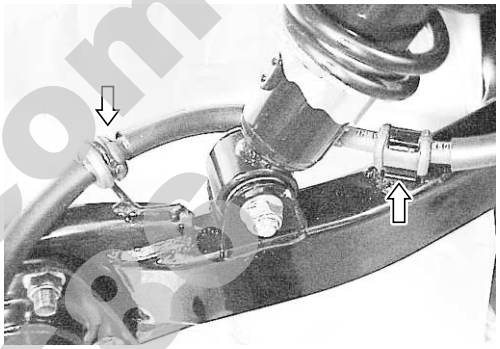
Ⓐ Rear shock absorber mounting upper nut
Ⓑ Rear shock absorber mounting lower nut
Ⓒ Swingarm pivot locknut
Ⓓ Swingarm pivot bolt (LH)
Ⓔ Swingarm pivot bolt (RH)



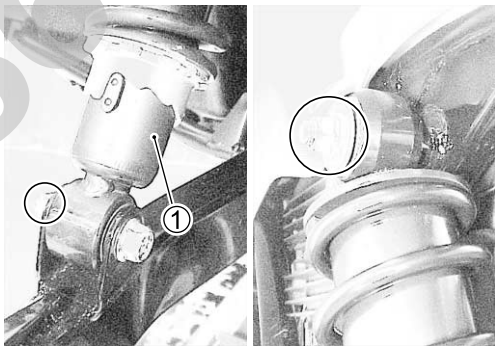
REMOVAL

- Remove the rear wheel. (☞7-10)
- Remove the rear caliper. (☞7-51)
- Remove the rear drive gear case and rear axle housing. (☞4-22)

- Disconnect the rear brake hose from the clamp and guide.



- Remove the rear shock absorbers ①.

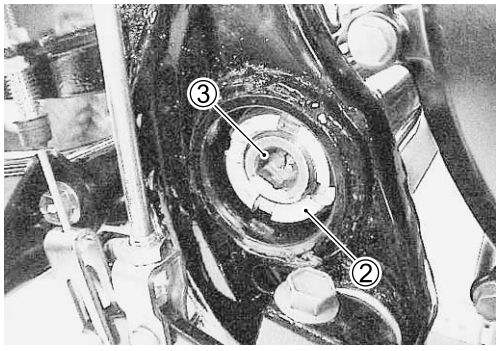


- Loosen the swingarm pivot bolt locknut ② with special tool.

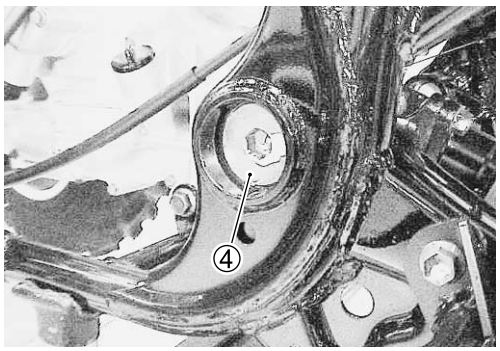
TOOL **09940-14970: Swingarm pivot adjust wrench**

- Loosen the swingarm pivot bolt ③ (RH) with special tool.

TOOL **09900-18710: Hexagon socket (12mm)**



- Loosen the swingarm pivot bolt ④ (LH).
- Remove the rear swingarm.



• Remove the pivot spacers ①.

INSPECTION AND DISASSEMBLY

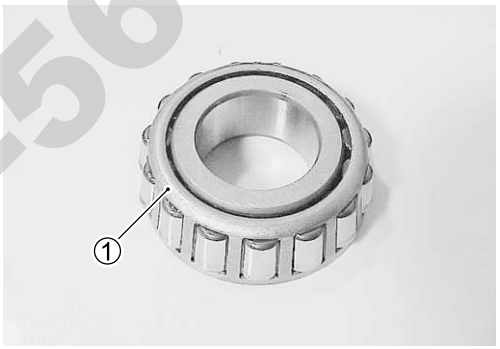
DUST SEAL AND SPACERS

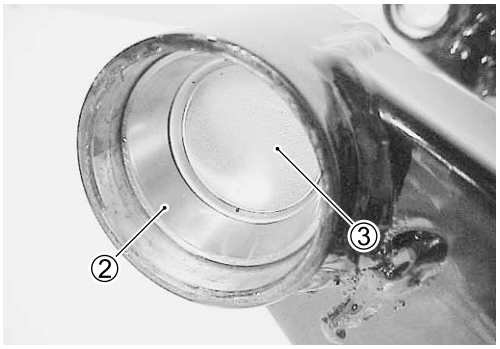
Inspect the spacer and dust seal for wear or damage. If any damages are found, replace them with new ones.

SWINGARM BEARING

- Remove the dust seals with the special tool.
- Remove the swingarm bearings.
- Inspect the swingarm bearing ①, outer race ② and bearing ③ plate, if any damages are found, replace the swingarm bearing with a new one.

TOOL 09913-50121: Oil seal remover



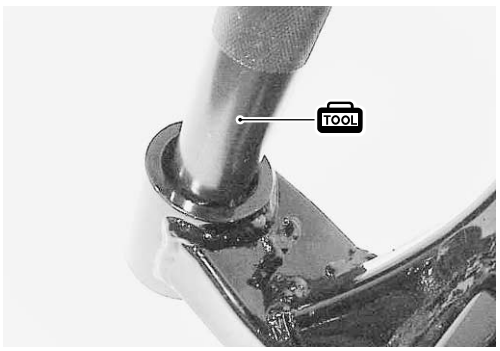


• Remove the swingarm bearing race and bearing plate by using the special tool.

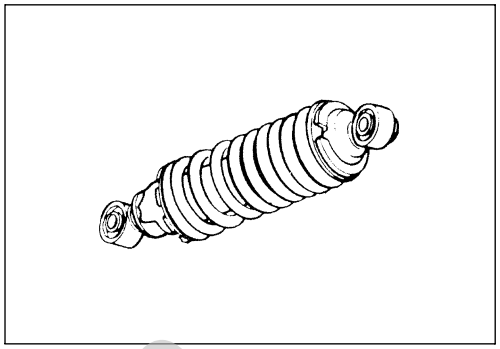
TOOL 09913-70210: Bearing installer set

CAUTION

The removed bearing and dust seal must be replaced with new ones.



REAR SHOCK ABSORBER
Inspect the rear shock absorber for oil leakage or damage. If any damages are found, replace it with a new one.



SWINGARM
Inspect the suspension arm for distortion or damage. If any damage are found, replace the swingarm with a new one.

REASSEMBLY AND REMOUNTING

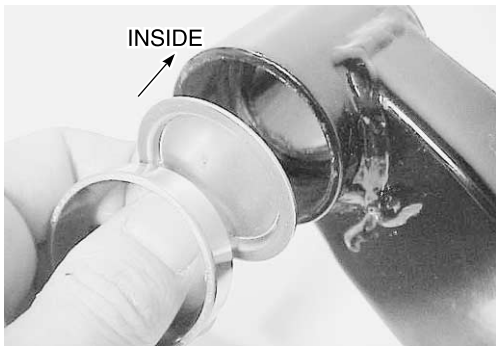
Reassembly and remount the rear swingarm and suspension in the reverse order of removal and disassembly. Pay attention to the following points:

SWINGARM

- Install the swingarm bearing race and its plate to the swingarm by using the special tool.

TOOL 09913-70210: Bearing installer set

NOTE:
When installing the bearing plate, make sure that the bulge of bearing plate faces inside.



- Apply SUZUKI SUPER GREASE “A” to the swingarm bearings and lips of dust seals, then install them into the swingarm with the special tool.

A 99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

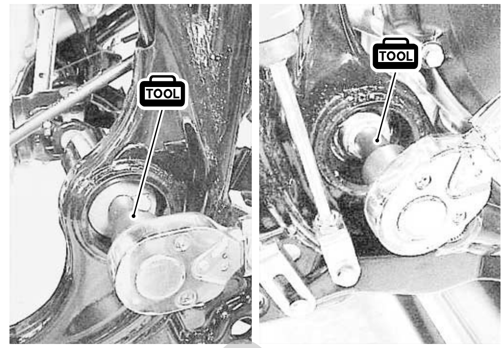
TOOL 09913-70210: Bearing installer set

- Install the spacers to the swingarm.

- Tighten the swingarm pivot bolts temporarily.
- Tighten the left side swingarm pivot bolt to the specified torque first, and then tighten the right side bolt with special tool.

Swingarm pivot bolt (LH): 100 N·m (10.0 kgf-m, 72.5 lb-ft)
Swingarm pivot bolt (RH): 9.5 N·m (0.95 kgf-m, 7.0 lb-ft)

TOOL **09900-18710: Hexagon socket (12 mm)**

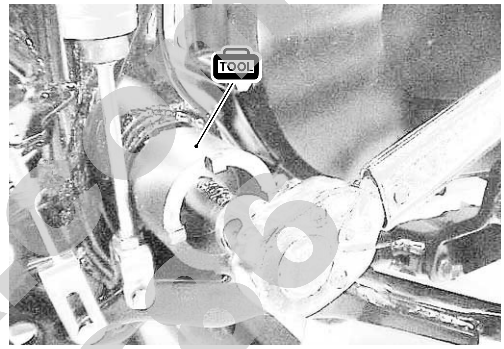


- Tighten the swingarm pivot locknut to the specified torque with the special tool.

Swingarm pivot lock nut: 100 N·m (10.0 kgf-m, 72.5 lb-ft)

TOOL **09940-14970: Swingarm pivot adjust wrench**

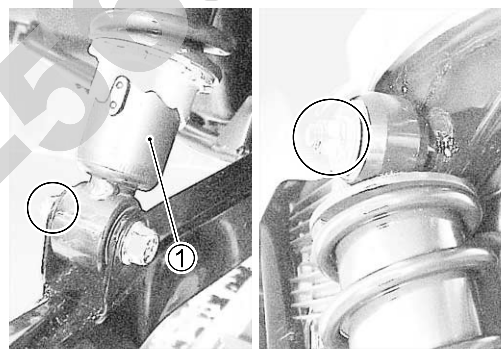
NOTE:
After remounting the swingarm, inspect the swingarm whether it moves smoothly.



- Install the rear shock absorber ①.
- Tighten the rear shock absorber mounting bolt/nut.

Rear shock absorber mounting nut (upper) :
34 N·m (3.4 kgf-m, 24.5 lb-ft)
Rear shock absorber mounting bolt/nut (lower) :
60 N·m (6.0 kgf-m, 43.5 lb-ft)

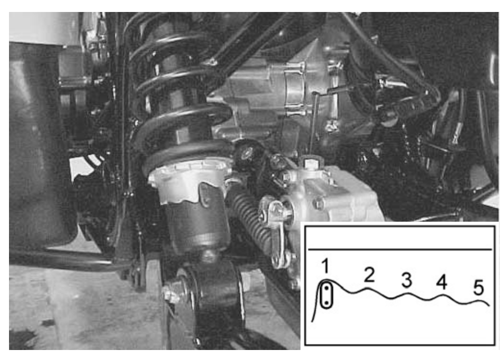
NOTE:
When tightening the rear shock absorber mounting bolt/nut, place 75 kg (165 lbs) of weight on the seat.



SPRING PRE-LOAD ADJUSTMENT
After installing the rear suspension, adjust the spring pre-load.

Position "1" provides the softest spring pre-load.
Position "5" provides the stiffest spring pre-load.

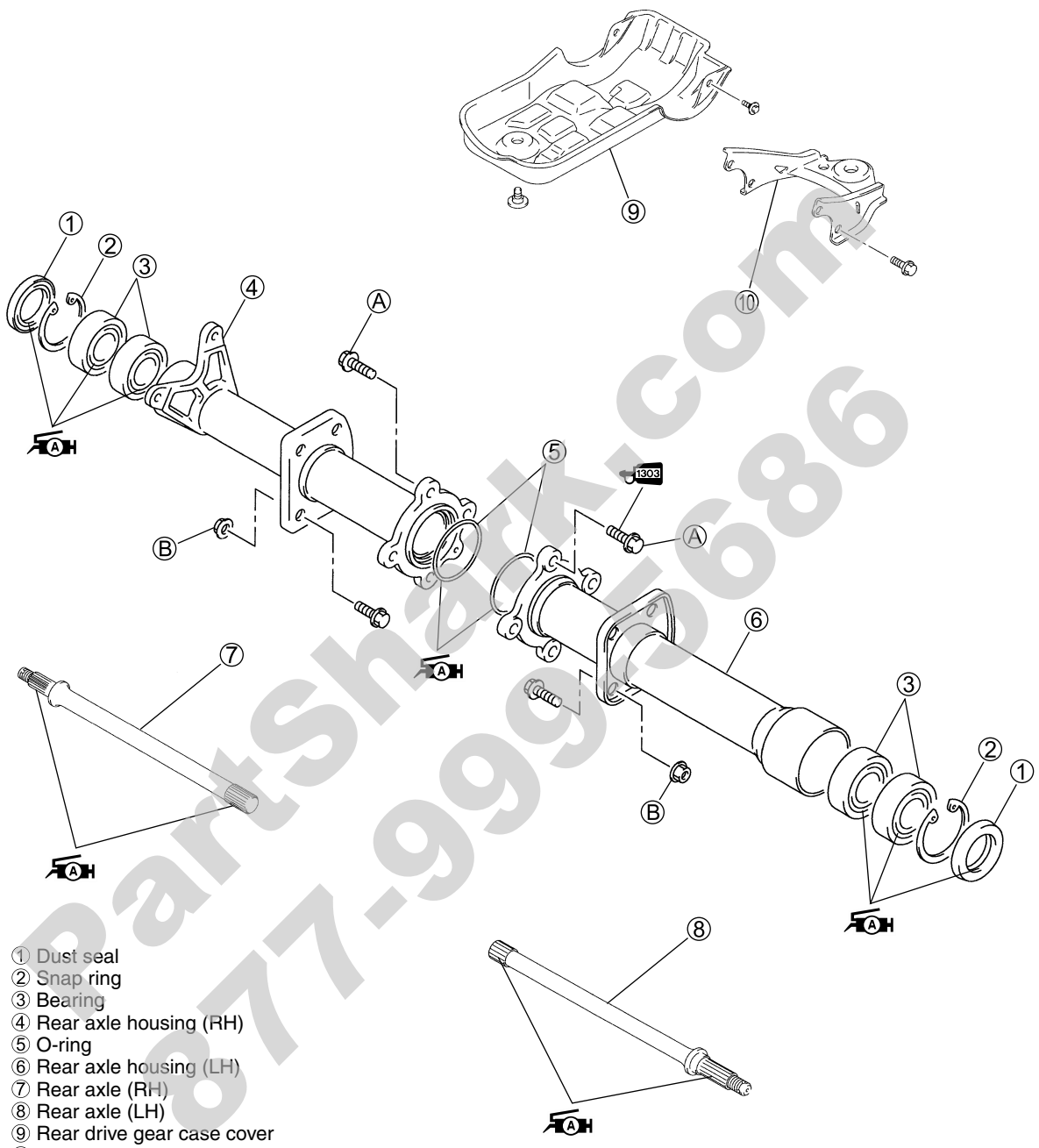
STD POSITION: "1"



⚠ WARNING

Be sure to adjust the spring pre-load on the both suspensions equally.

REAR AXLE
CONSTRUCTION



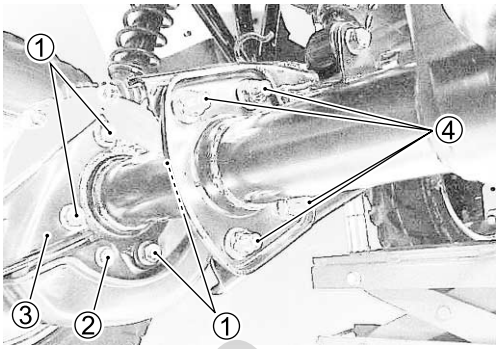
① Dust seal
② Snap ring
③ Bearing
④ Rear axle housing (RH)
⑤ O-ring
⑥ Rear axle housing (LH)
⑦ Rear axle (RH)
⑧ Rear axle (LH)
⑨ Rear drive gear case cover
⑩ Trailer towing

Ⓐ Rear axle housing bolt
Ⓑ Rear axle housing mounting nut

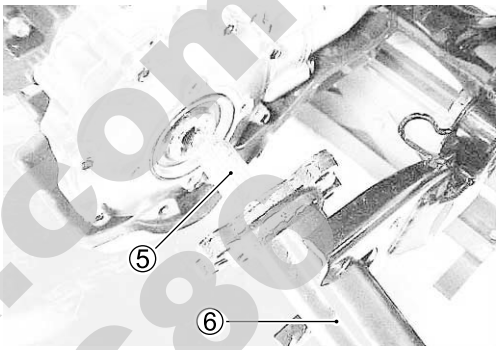
ITEM	N·m	kgf-m	lb-ft
Ⓐ	55	5.5	40.0
Ⓑ	60	6.0	43.5

REMOVAL

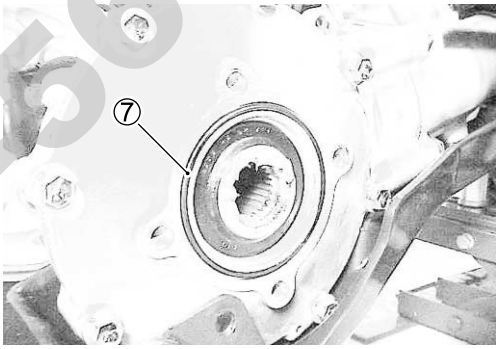
- Place the vehicle on level ground.
- Remove the rear wheel. (☞7-10)
- Remove the rear caliper. (☞7-51)
- Remove the wheel hub. (☞7-56)
- Loosen the rear axle housing bolts ①.
- Remove the rear drive gear case cover bolts ②.
- Remove the trailer towing ③.
- Remove the swingarm bracket bolts and nuts ④.



- Remove the rear axle ⑤ and rear axle housing ⑥.



- Remove the O-ring ⑦.



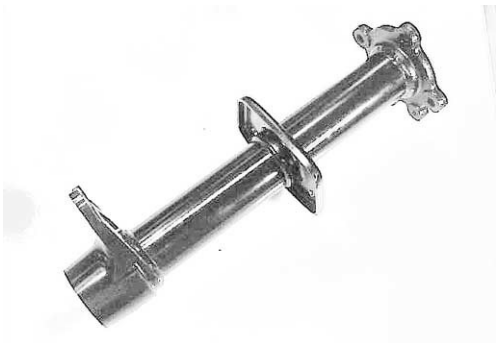
INSPECTION AND DISASSEMBLY

REAR AXLE SHAFT

Inspect the rear axle shaft for distortion or damages. If any damages are found, replace the rear axle shaft with a new one.

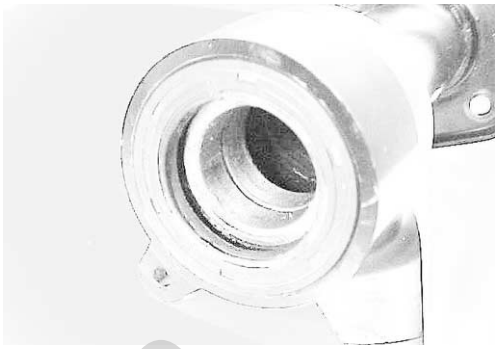
REAR AXLE HOUSING

Inspect the rear axle housing for distortion or damages. If any damages are found, replace the rear axle housing with a new one.



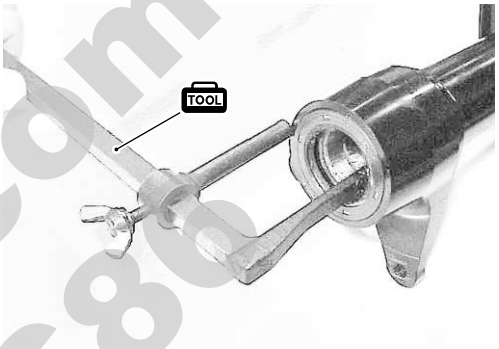
DUST SEAL

Inspect the dust seal's lip for wear or damage. If any damages are found, replace the dust seal with a new one.



- Remove the dust seal using the special tool.

TOOL 09913-50121: Oil seal remover



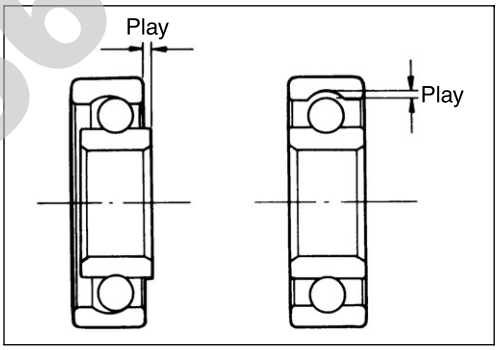
HUB BEARING

Inspect the inner race play of the hub bearing by hand while it is in the rear axle housing.

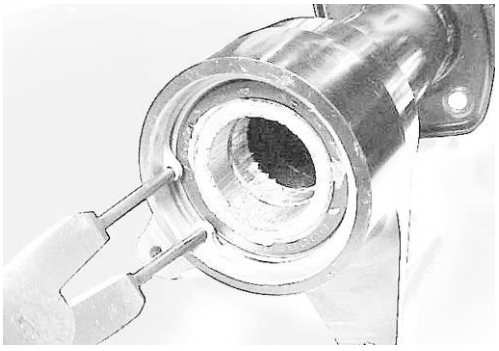
Rotate the inner race by hand to inspect for abnormal noise and smooth rotation. If there is anything unusual, replace the bearing with a new one.

NOTE:

Make sure to check each bearing in the same manner.

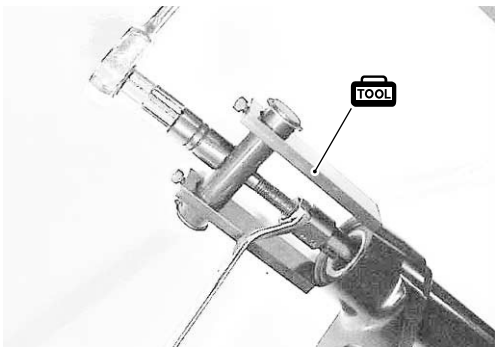


- Remove the snap ring.



- Remove the hub bearings using the special tool.

TOOL 09921-20240: Bearing remover set

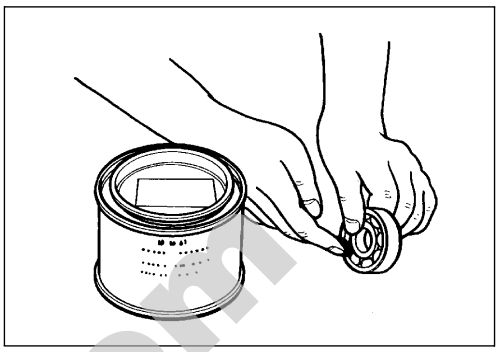


REASSEMBLY AND REMOUNTING

Reassembly and remounting the rear axle in reverse order of removal and disassmebly. Pay attention to the following points:

- Apply SUZUKI SUPER GREASE "A" to the hub bearings and dust seals before installing them.

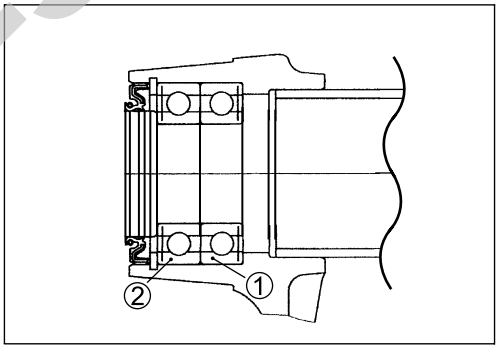
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)



- Install the hub bearings and dust seal with the special tool.

09913-70210: Bearing installer set

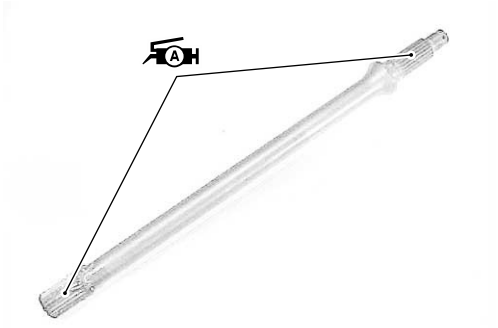
NOTE:
When installing the hub bearings to the axle housing, the sealed cover of inner bearing ① must face inside, and the sealed cover of outer bearing ② must face outside.



- Apply SUZUKI SUPER GREASE "A" to the rear axle shaft spline.

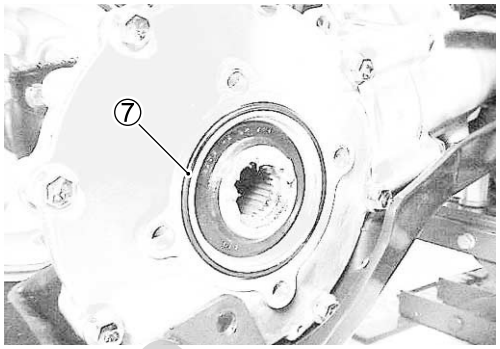
99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

NOTE:
Overall length of RH axle shaft is shorter than LH axle shaft.



• Install the O-ring to the rear drive gear case.

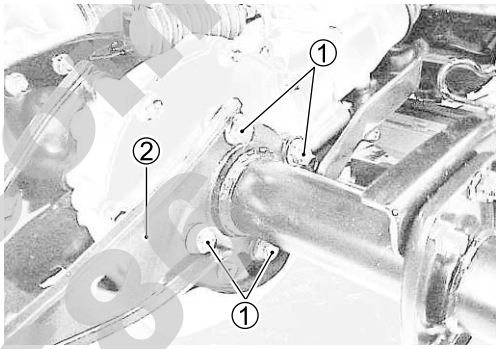
NOTE:
Before installing the O-ring, apply grease to it.



• Install the rear axle shaft and rear axle housing to the rear drive gear case.
• Apply THREAD LOCK SUPER “1303” to the rear axle housing bolts ①.
• Install the trailer towing ② and tighten the rear axle housing bolts ① to the specified torque.

1303 99000-32030: THREAD LOCK SUPER “1303”

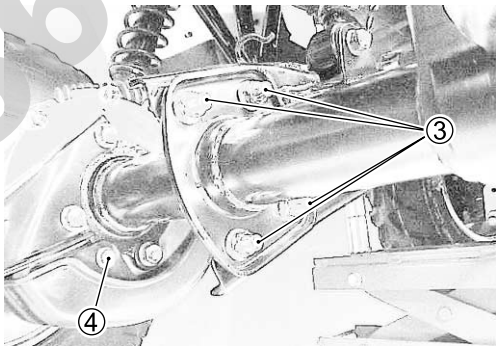
Rear axle housing bolt: 55 N·m (5.5 kgf-m, 40.0 lb-ft)



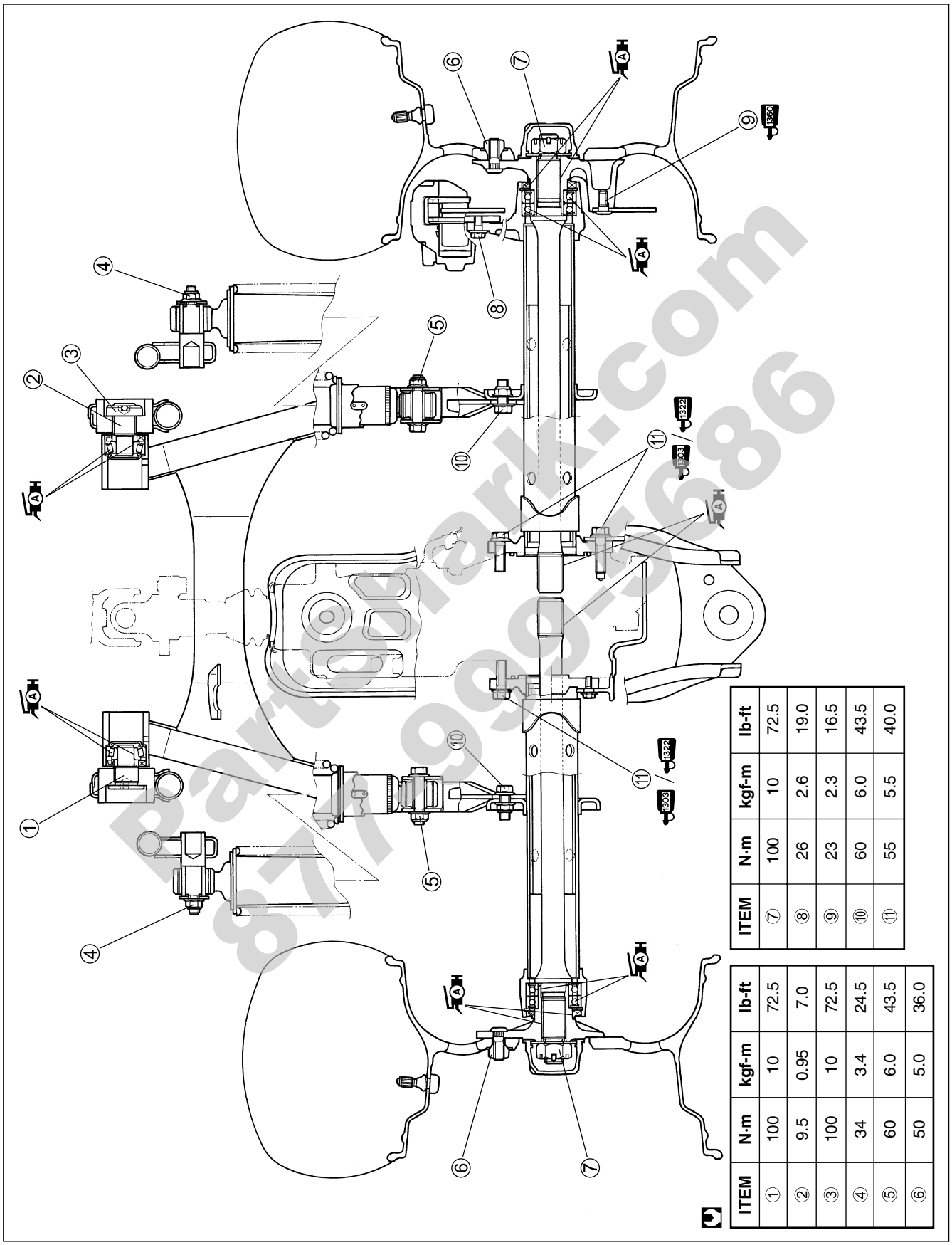
• Tighten the axle housing mounting bolts/nuts ③ to the specified torque.

Axle housing mounting bolts/nuts:
60 N·m (6.0 kgf-m, 43.5 lb-ft)

• Tighten the final drive gear case cover bolts ④.



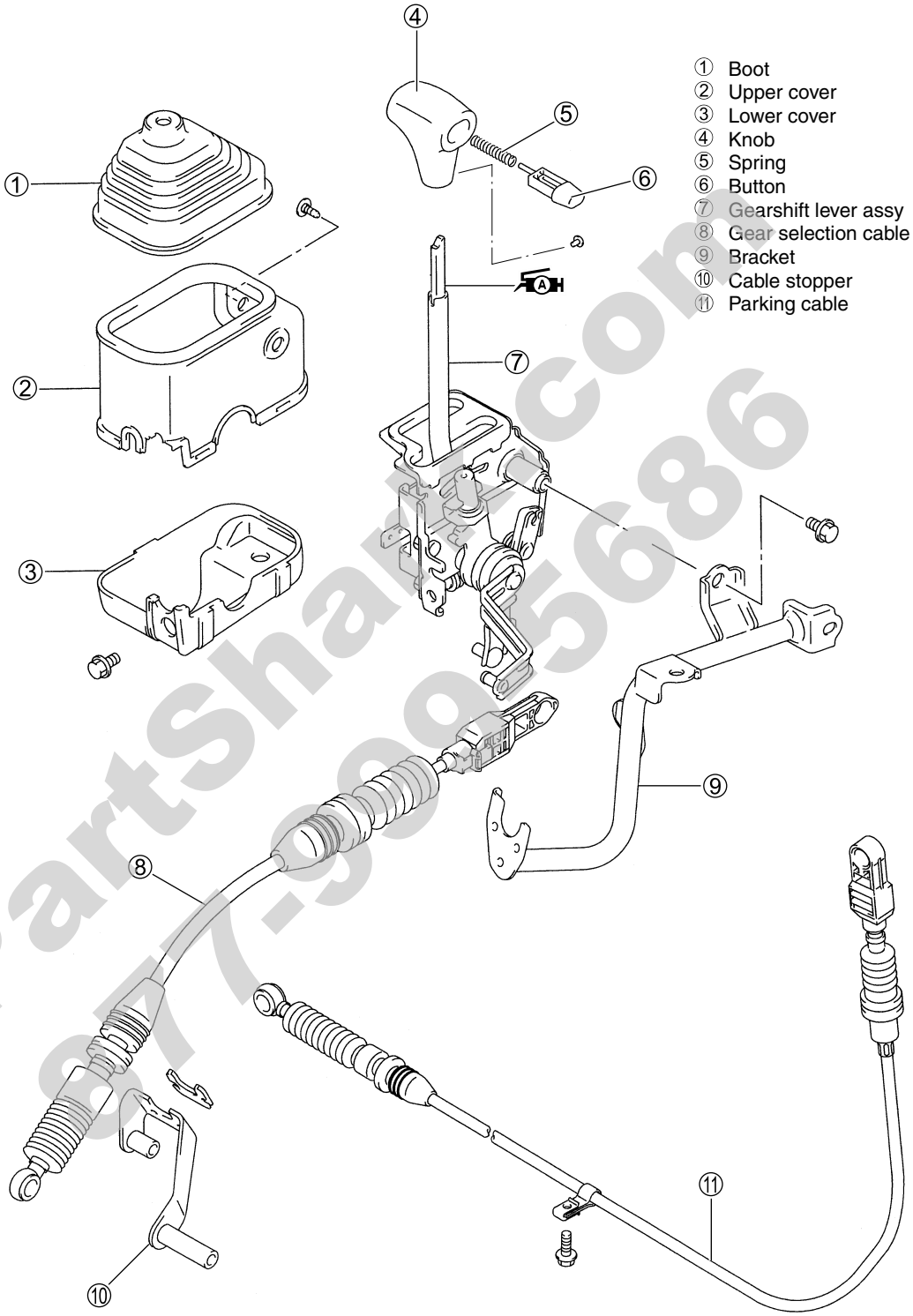
REAR WHEEL, REAR BRAKE, REAR SUSPENSION, REAR SWINGARM AND REAR AXLE SHAFT REASSEMBLING INFORMATION



ITEM	N·m	kgf-m	lb-ft
①	100	10	72.5
②	9.5	0.95	7.0
③	100	10	72.5
④	34	3.4	24.5
⑤	60	6.0	43.5
⑥	50	5.0	36.0

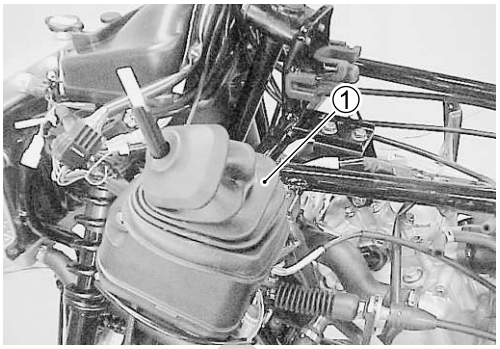
ITEM	N·m	kgf-m	lb-ft
⑦	100	10	72.5
⑧	26	2.6	19.0
⑨	23	2.3	16.5
⑩	60	6.0	43.5
⑪	55	5.5	40.0

GEARSHIFT LEVER
CONSTRUCTION

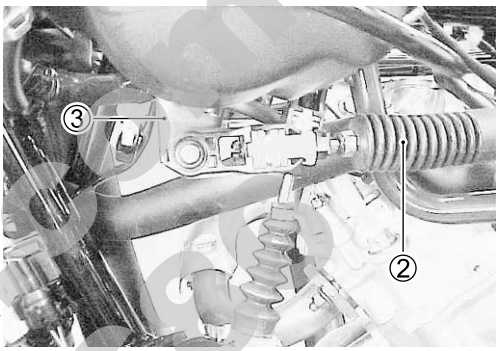


REMOVAL AND DISASSEMBLY

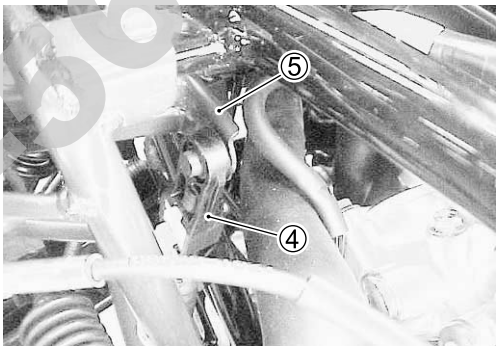
- Remove the front fender. (☞7-5)
- Disconnect the neutral/parking switch.
- Remove the boot ①.



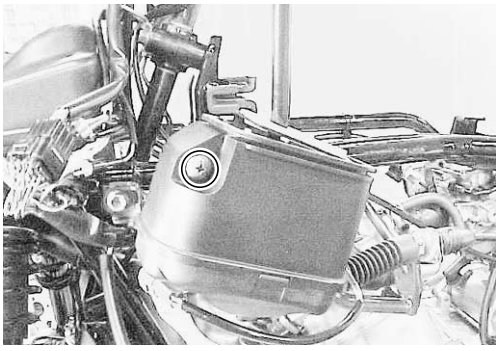
- Disconnect the gear selection cable ② from the reverse arm ③.



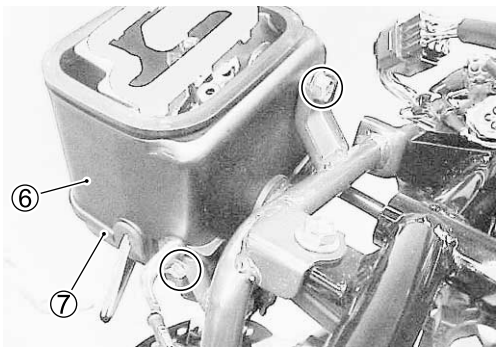
- Disconnect the parking cable ④ from the parking arm ⑤.



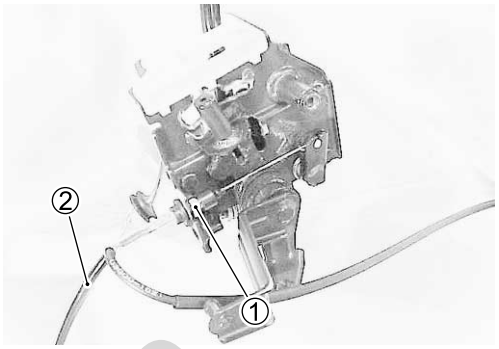
- Remove the screw.



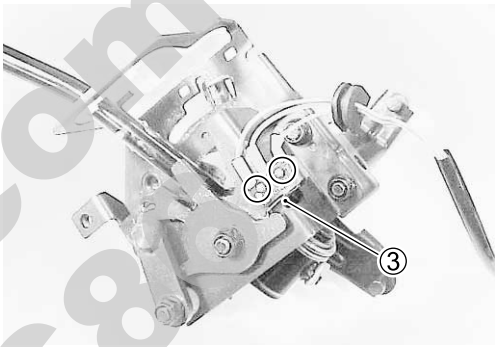
- Loosen the mounting bolts and remove the shift lever assy.
- Remove the upper ⑥ and lower cover ⑦.



- Loosen the lock nut ①.
- Disconnect the parking interlock cable ②.



- Remove the parking/neutral switch ③.



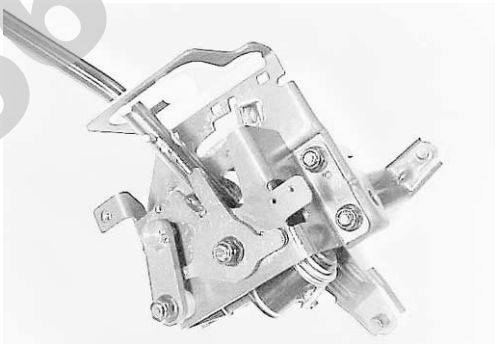
INSPECTION

GEARSHIFT LEVER ASSEMBLY

Inspect the gearshift lever assembly for wear or damage. If any damage are found, replace the gear shift lever assembly.

NOTE:

Do not disassemble the gearshift lever assembly.



REASSEMBLY AND REMOUNTING

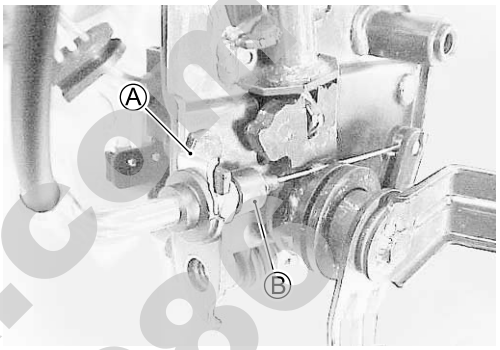
Reassemble and remount the gearshift lever in the reverse order of removal and disassembly. Pay attention to the following points:

- Apply SUZUKI SUPER GREASE “A” to the each pivot, sliding area and lock pins.

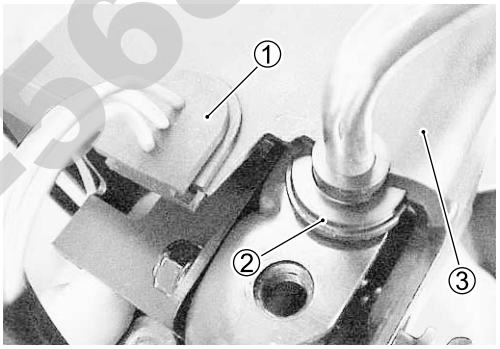
99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

- Install the parking/neutral switch.
- Install the parking interlock cable with the cable’s claw Ⓐ up.

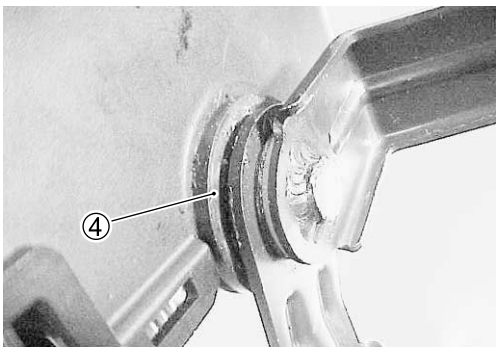
NOTE:
Make sure that the boot Ⓑ is fitted securely.



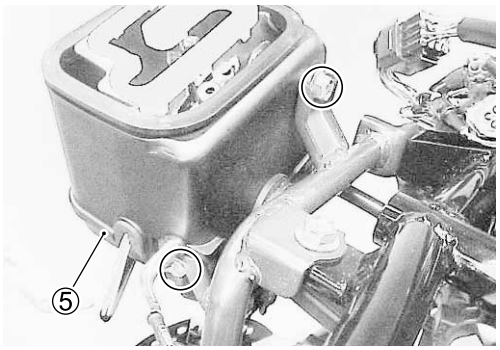
- Install the gear shift covers to the gearshift lever assembly.
- Fit the parking/neutral switch read wire’s grommet ① and parking interlock cable’s dust cover ② to the gearshift upper covers ③.



- Fit the gearshift covers to the dust seal ④ on the gearshift arm pivot.



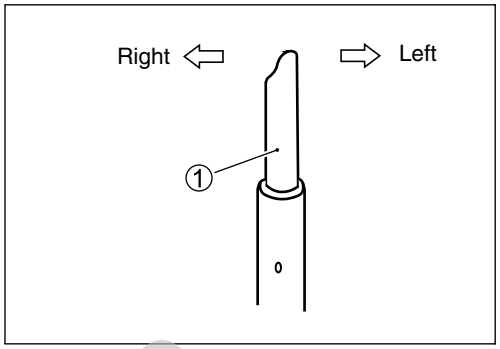
- Install the lower cover ⑤.
- Install the gearshift lever assembly to the frame bracket.
- Connect the each cables to the gearshift lever assembly. (☞7-78 and 7-79)
- Install the front fender. (☞7-5)



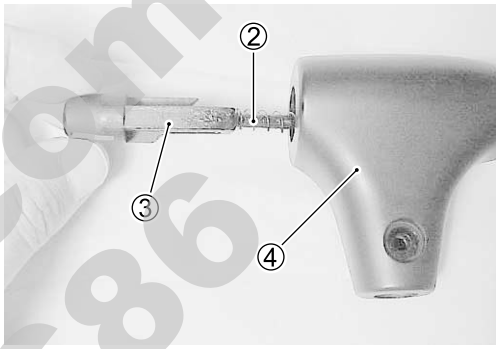
- Apply SUZUKI SUPER GREASE “A” to the gearshift lever rod ① and install it.

99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

NOTE:
The slant on the shift lever rod must be faced to the right side of the vehicle.



- Install the spring ② and shift button ③ into the shift knob ④.
- Install the shift knob to the gearshift lever assembly with the button ③ depressed.



- Tighten the screw.

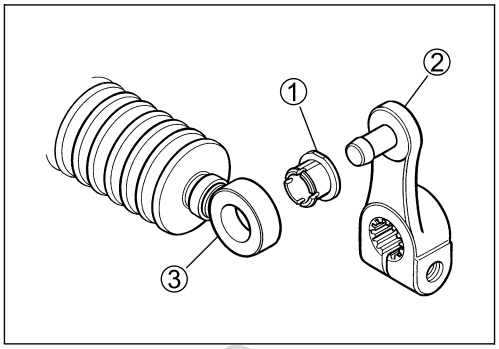
CABLES

INSTALLATION

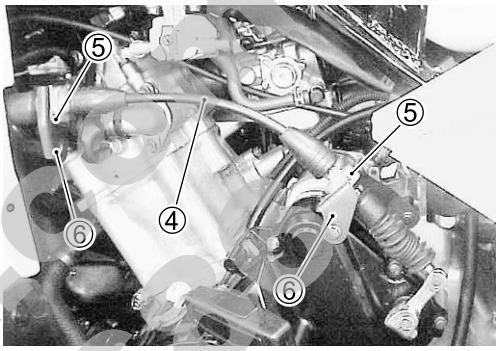
GEAR SELECTION CABLE

Before removing the gear selection cable, keep the gear selection arm ② in the "N" position.

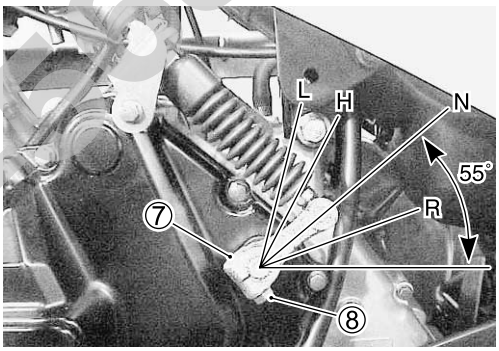
- Release the cable adjuster lock. (☞7-80)
- Install the busing ① to the gear selection arm ②.
- Connect the gear selection arm ② to the gear selection cable ③.



- Install the gear selection cable ④ and clips ⑤ to the stoppers ⑥.



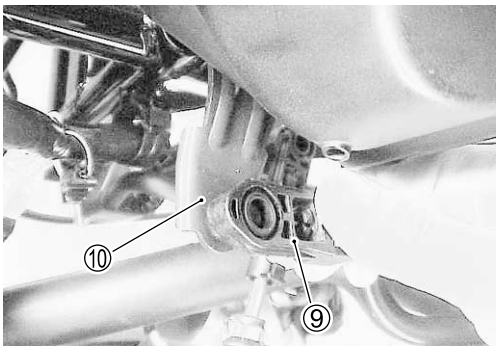
- Install the gear selection arm ⑦ onto its shaft so that the setting angle becomes 55° from the horizontal at the "N" position.
- Tighten the bolt ⑧ securely.



CAUTION

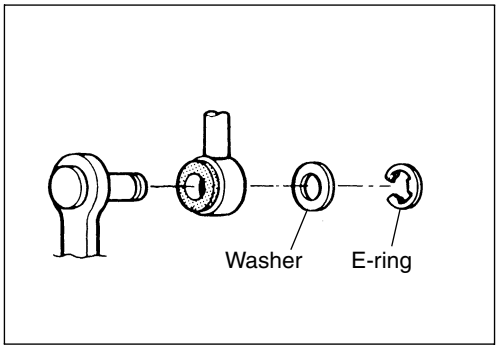
Make sure the installation angle of the gear selection arm is accurate.

- Install the gear selection cable ⑨, washer and E-ring to the gear selection arm ⑩.
- Adjust the cable play. (☞7-80)



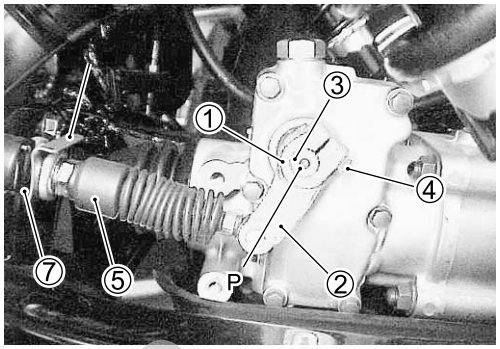
CAUTION

Do not apply a load to the end of the eye rod with the cable and the metal fixture. Applying such a load may cause the sleeve to brake or come off the pivot suspension.



PARKING CABLE

Before removing the cable, keep the gear selection arm ② in the "P" position.

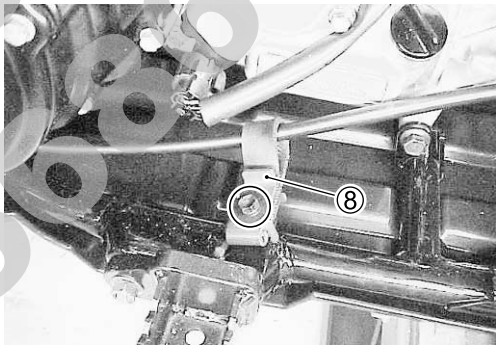


- Release the cable adjuster lock. (☞7-80)
- Connect the parking cam arm ② to the parking cable ⑤.
- Align the punched mark ① on the parking cam arm ② with the punched mark ③ on the parking cam shaft.
- Tighten the bolt ④.
- Install the cable ⑤ and clip ⑥ to the stopper ⑦ on the swingarm.
- Make sure that the parking cam arm is in "P" position.

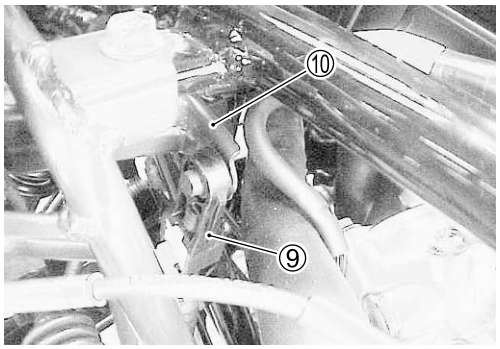
CAUTION

Make sure that the installation angle of the parking lever is accurate.

- Install the cable guide ⑧ to the frame.



- Install the parking cable ⑨ to the gear selection arm ⑩.
- Adjust the cable play. (☞7-80)



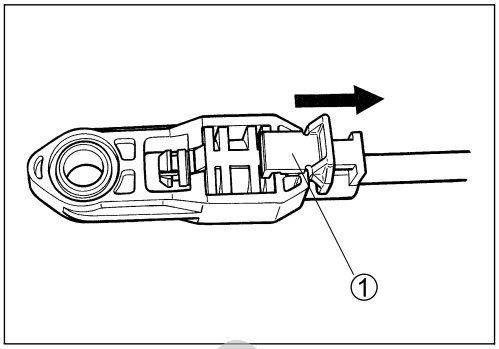
CAUTION

Do not apply a load to the end of the eye rod with the cable and the metal fixture. Applying such a load may cause the sleeve to break or come off the pivot suspension.

CABLE PLAY ADJUSTMENT

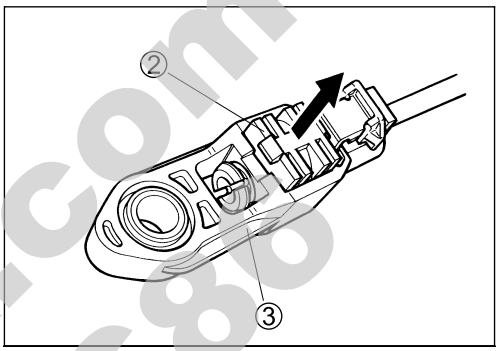
Before installing the cable, release the cable adjuster lock.

- Slide the lock cover ① on the cable adjuster.



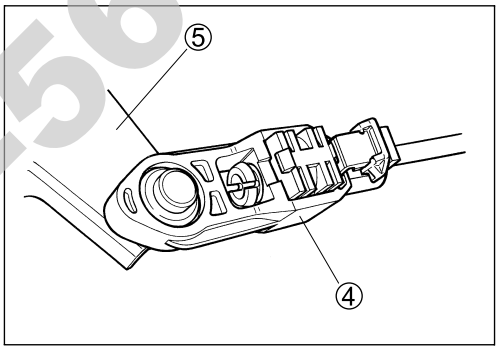
- Push out the lock piece ② to an extent where the adjuster ③ slides smoothly.

NOTE:
Do not remove the lock piece ② from the cable adjuster.

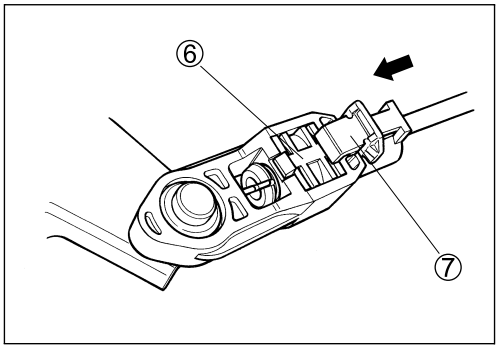


- Fit the cable adjuster ④ onto the selection arm ⑤ securely.

NOTE:
Before fitting the cable adjuster, make sure that the gear shift lever position is same as the selection lever arm position.



- Push the lock piece ⑥ into the cable adjuster.
- Slide the lock cover ⑦.



ELECTRICAL SYSTEM

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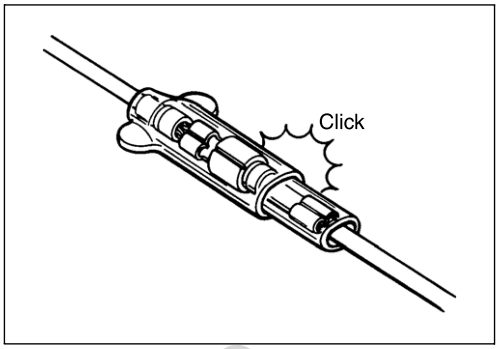
8

AUTIONS IN SERVICING

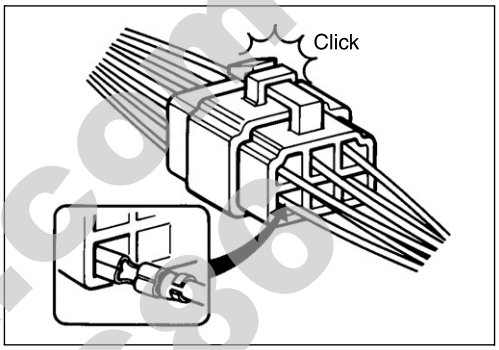
CONNECTORS

- When disconnecting a connector, be sure to hold the terminals; do not pull the lead wires.
- When connecting a connector, push it in so it is firmly attached.
- Inspect the connector for corrosion, contamination and any breakage in the cover.



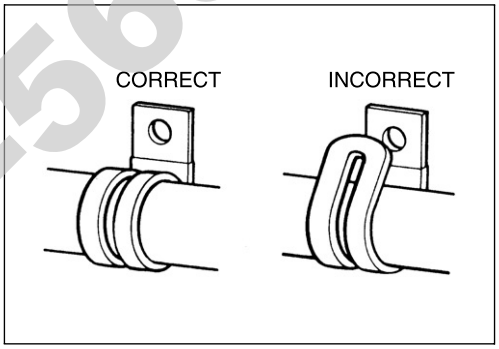
COUPLERS

- With a lock-type coupler, be sure to release the lock before disconnecting it. When connecting a coupler, push it in until the lock clicks shut.
- When disconnecting a coupler, be sure to hold the coupler; do not pull the lead wires.
- Inspect each terminal on the coupler for looseness or bends.
- Inspect each terminal for corrosion and contamination.



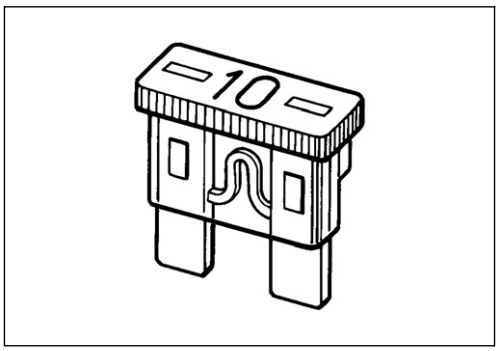
CLAMPS

- Refer to the “WIRE HARNESS ROUTING” section for proper clamping procedures. (☞9-11 to 9-13)
- Bend the clamp properly, as shown in the illustration.
- When clamping the wire harness, do not allow it to hang down.
- Do not use wire or any substitutes for the band-type clamp.



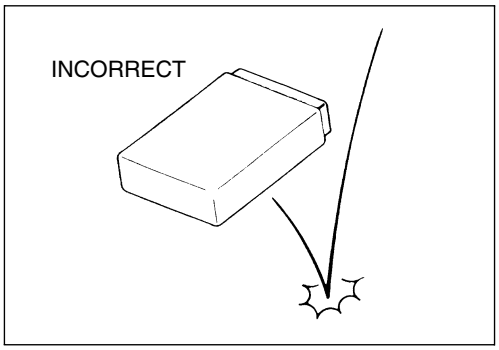
FUSES

- When a fuse blows, always investigate the cause, correct the problem, and then replace the fuse.
- Do not use a fuse of a different capacity.
- Do not use any substitutes for the fuse (e.g., wire).



SEMI-CONDUCTOR EQUIPPED PARTS

- Do not drop any part that contains a semi-conductor (e.g., CDI unit, regulator/rectifier).
- When inspecting the part, follow the inspection instructions carefully. Neglecting proper procedures may cause this part to be damaged.

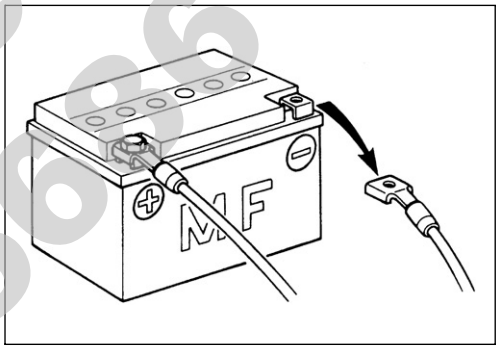


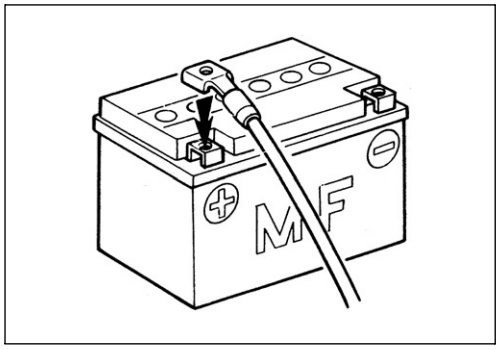
BATTERY

- The MF battery used in this vehicle does not require maintenance (e.g., electrolyte level inspection, distilled water replenishment).
- During normal charging, no hydrogen gas is produced. However, if the battery is overcharged, hydrogen gas may be produced. Therefore, be sure there are no fire or spark sources (e.g., short circuit) nearby when charging the battery.
- Be sure to recharge the battery in a well-ventilated and open area.
- Note that the charging system for the MF battery is different from that of a conventional battery. Do not replace the MF battery with a conventional battery.

CONNECTING THE BATTERY

- When disconnecting terminals from the battery for disassembly or servicing, be sure to disconnect the ⊖ battery lead wire, first.
- When connecting the battery lead wires, be sure to connect the ⊕ battery lead wire, first.
- If the terminal is corroded, remove the battery, pour warm water over it and clean it with a wire brush.
- After connecting the battery, apply a light coat of grease to the battery terminals.
- Install the cover over the ⊕ battery terminal.



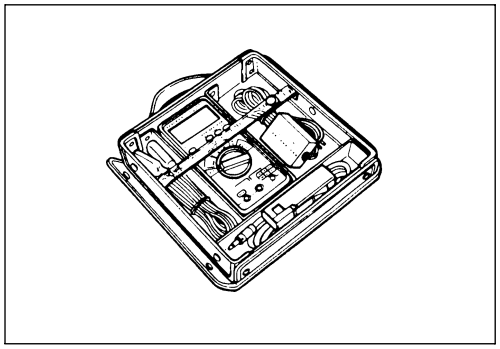


WIRING PROCEDURE

- Properly route the wire harness according to the “WIRE ROUTING” section. (☞9-11 to 9-13)

USING THE MULTI CIRCUIT TESTER

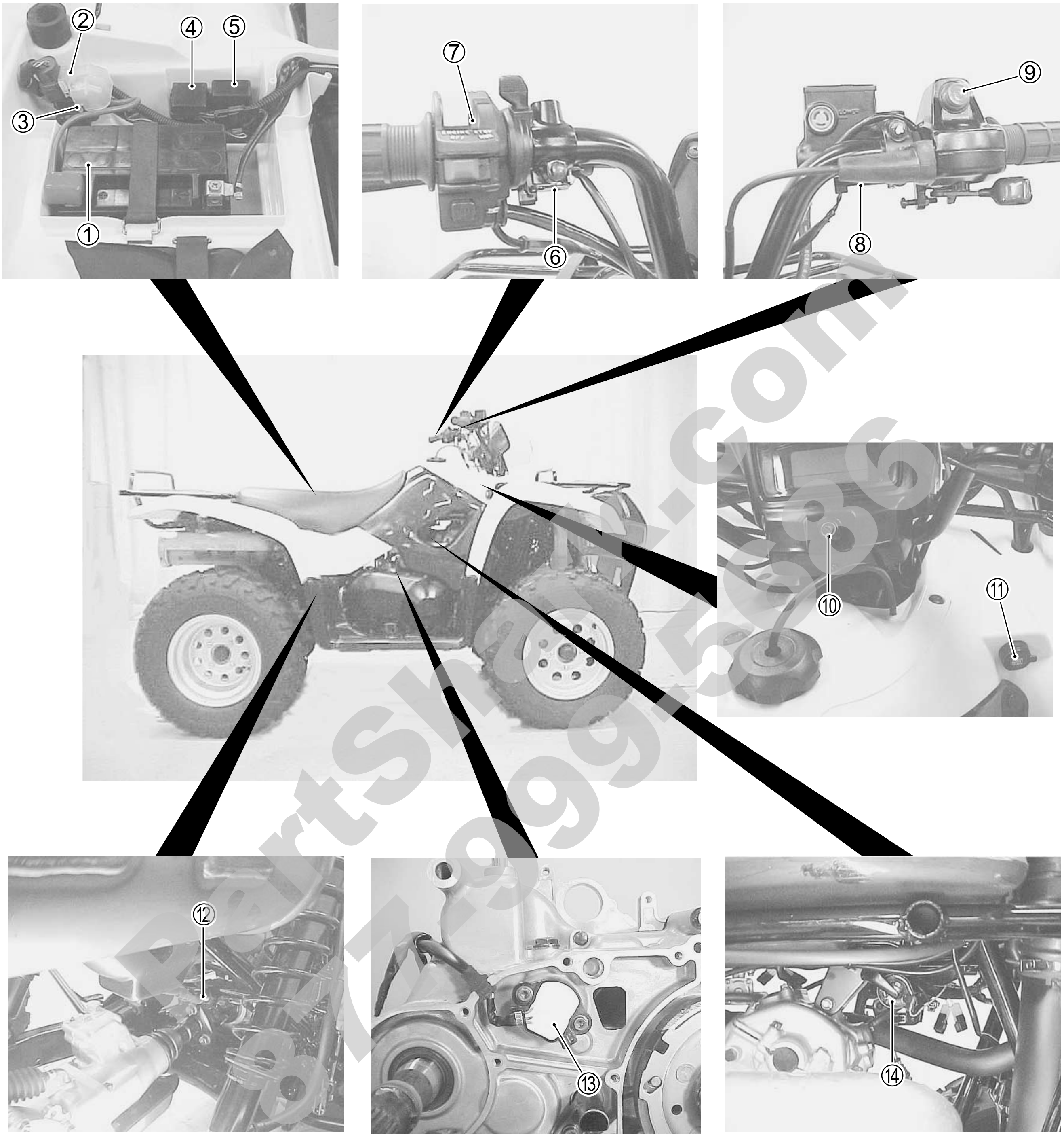
- Properly use the multi circuit tester ⊕ and ⊖ probes. Improper use can cause damage to the vehicle and tester.
- If the voltage and current values are not known, begin measuring in the highest range.
- When measuring the resistance, make sure no voltage is applied. If voltage is applied, the tester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



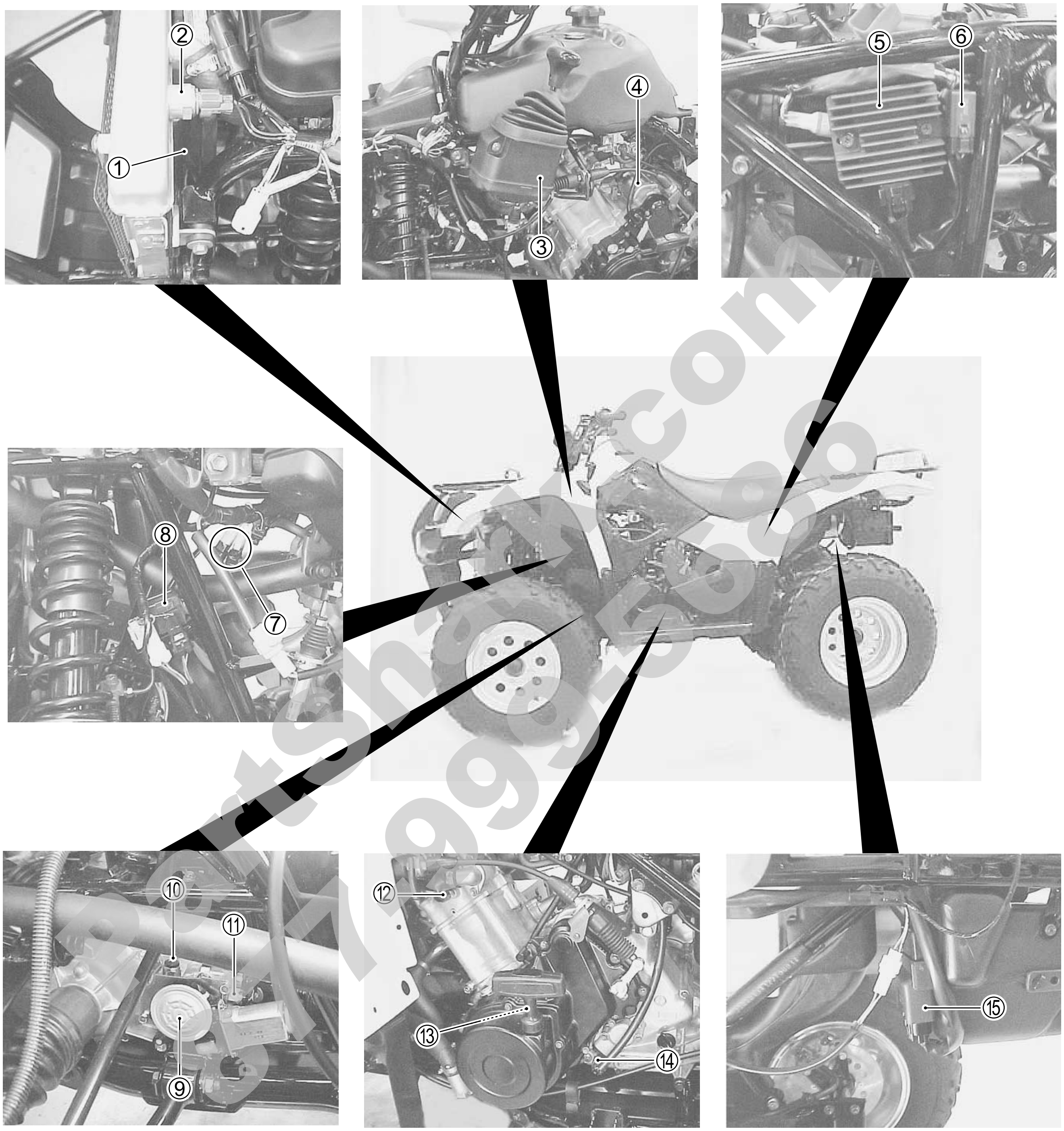
CAUTION

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

LOCATION OF ELECTRICAL COMPONENTS

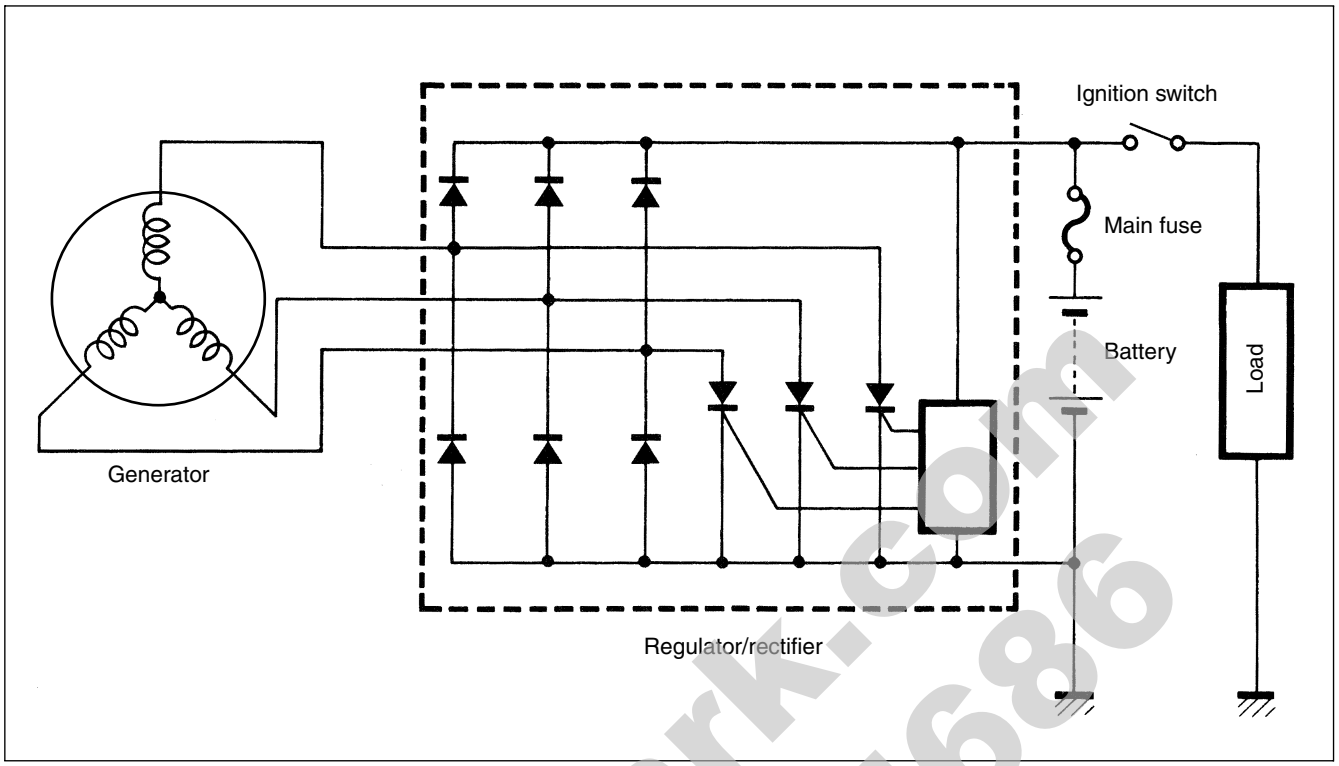


① Battery
② Main fuse
③ Starter relay
④ Fuse box
⑤ Neutral relay
⑥ Parking brake switch
⑦ Handlebar switch (L)
⑧ Front brake switch
⑨ 2WD/4WD selection button
⑩ Ignition switch
⑪ Power source
⑫ Rear brake switch
⑬ Neutral switch
⑭ Ignition coil



① Cooling fan (☞6-7)
② Cooling fan thermo-switch (☞6-8)
③ Parking/neutral position switch
④ Starter motor
⑤ Regulator/rectifier
⑥ Ignition/starter control relay
⑦ HIGH & LOW gear position diode
⑧ 2WD/4WD selecting relay
⑨ 2WD/4WD motor
⑩ 4WD switch
⑪ 2WD switch
⑫ Engine coolant temp. switch (☞6-9)
⑬ Generator
⑭ Speed sensor
⑮ CDI unit

CHARGING SYSTEM



TROUBLESHOOTING

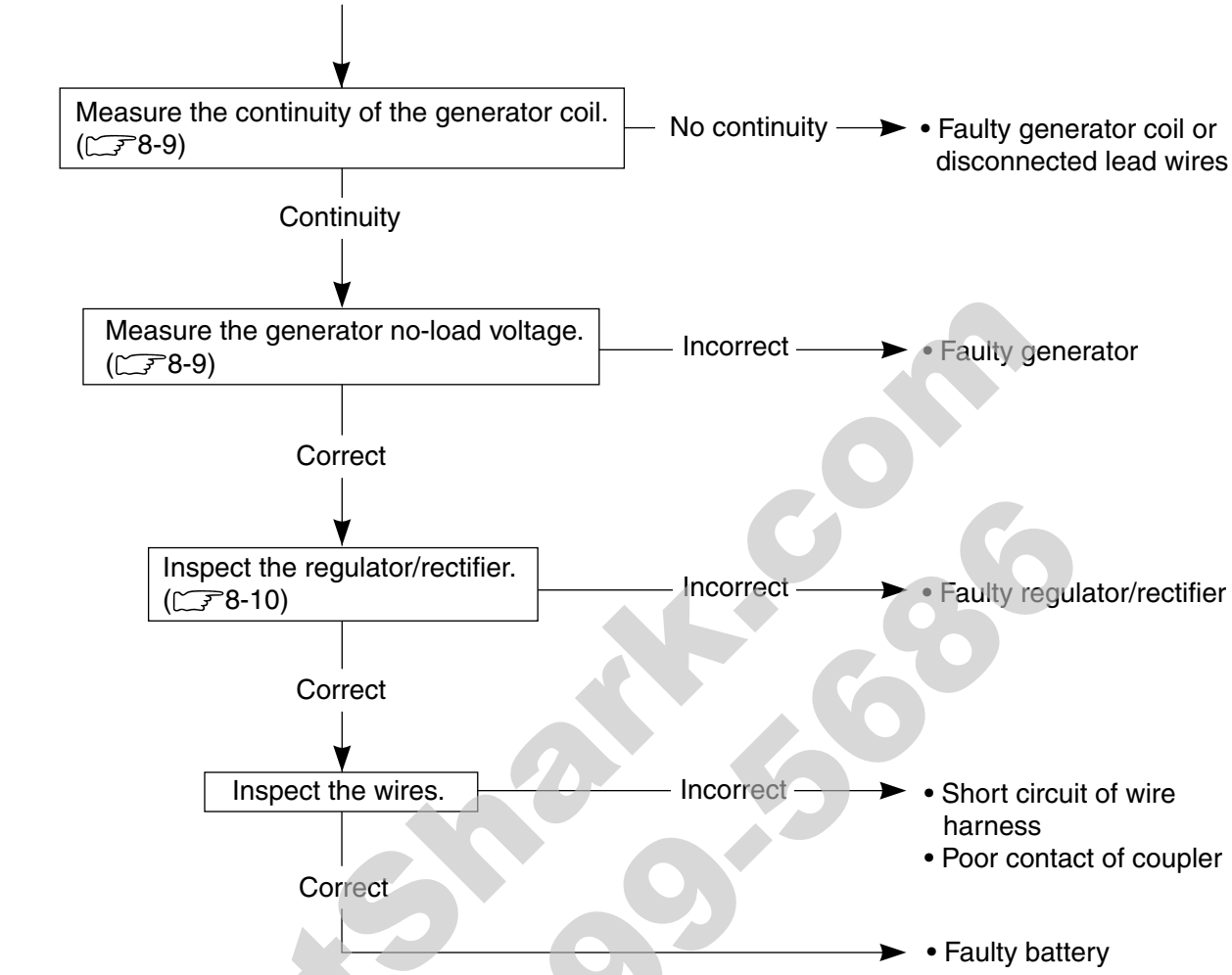
Battery runs down quickly.

Check accessories which use excessive amounts of electricity.
- Accessories are installed → • Remove accessories
- No accessories ↓

Check the battery for current leaks. (☞8-8)
- Current leaks → • Short circuit of wire harness • Faulty electrical equipment
- No current leaks ↓

Measure the charging voltage between the battery terminals. (☞8-8)
- Correct → • Faulty battery • Abnormal driving condition
- Incorrect ↓

Continued on next page



Others

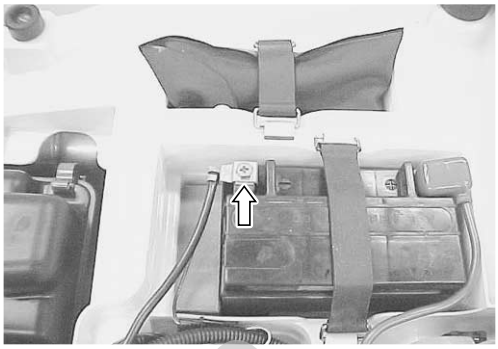
Battery overcharges	• Faulty regulator/rectifier • Faulty battery • Poor contact of generator lead wire coupler

INSPECTION

BATTERY CURRENT LEAKAGE

- Remove the seat. (☞7-4)
- Turn the ignition switch to the "OFF" position.
- Disconnect the ⊖ battery lead wire.

Measure the current between ⊖ battery terminal and the ⊖ battery lead wire using the multi circuit tester. If the reading exceeds the specified value, leakage is evident.



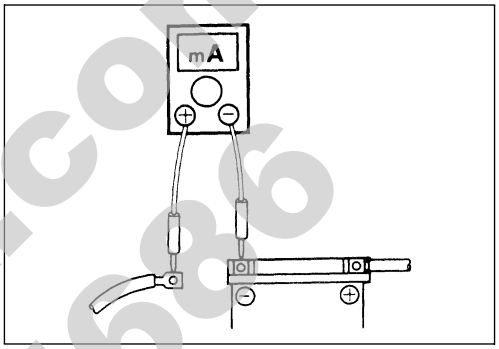
TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Current (⎓, 20 mA)

DATA Battery current (leak): Under 2.5 mA

CAUTION

*** Because the current leak might be large, turn the tester to the high range first to avoid tester damage.**
*** Do not turn the ignition switch to the "ON" position when measuring current.**

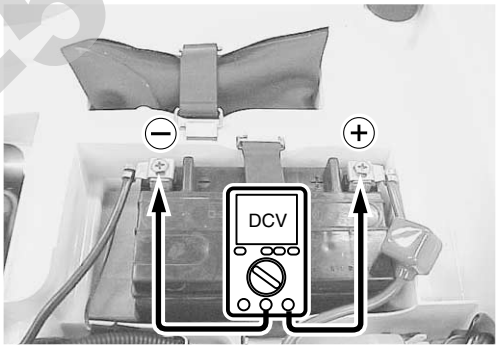


When checking to find the excessive current leakage, remove the couplers and connectors, one by one, checking each part.

REGULATED VOLTAGE

- Remove the seat. (☞7-4)
- Start the engine, turn the ignition switch to AUX (☼) and the dimmer switch to HI and run the engine at 5 000 r/min.

Measure the DC voltage between the ⊕ and ⊖ battery terminals using the multi circuit tester. If the voltage is not within the specified value, inspect the generator and regulator/rectifier. (☞8-9 and 8-10)



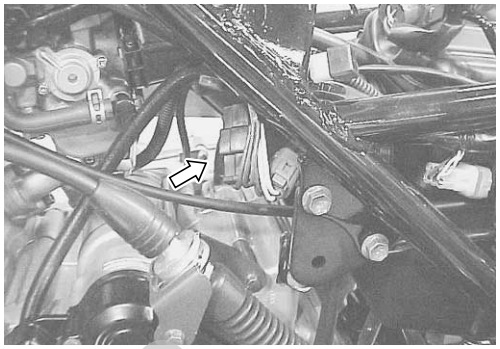
NOTE:
When making this test, be sure that the battery is in fully-charged condition.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Voltage (⎓)

DATA Regulated voltage: 13.5 – 15.0 V at 5 000 r/min

GENERATOR COIL RESISTANCE



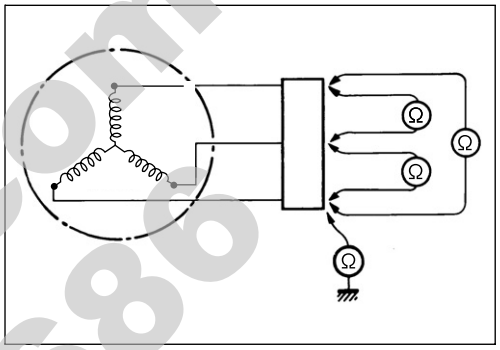
- Remove the fuel tank side cover. (☞7-5)
- Disconnect the generator coupler.

Measure the resistance between the three lead wires.
If the resistance is not specified value, replace the stator coil with a new one.
Also, check that the generator core is insulated.

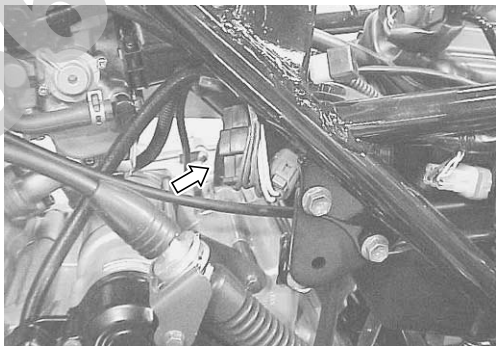
TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

DATA Generator coil resistance: 0.1 – 1.5 Ω (Black – Black)
∞ Ω (Black – Ground)



GENERATOR NO-LOAD PERFORMANCE



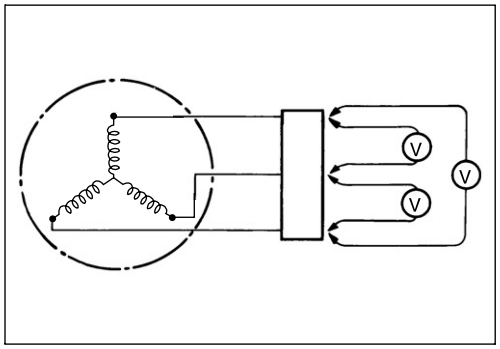
- Remove the fuel tank side cover. (☞7-5)
- Disconnect the generator lead wire coupler.
- Start the engine and run it at 5 000 r/min.

Measure the AC voltage between the lead wires of the generator using the multi circuit tester.
If the voltage is under the specified value, replace the AC generator with a new one.

TOOL 09900-25008: Multi circuit tester set

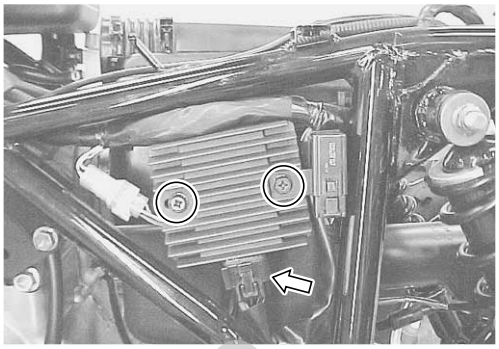
Tester knob indication: Voltage (~)

DATA Generator no-load performance (when engine is cold):
More than 60 V (AC) at 5 000 r/min



REGULATOR/RECTIFIER

- Remove the rear fender. (☞7-8)
- Remove the regulator/rectifier.



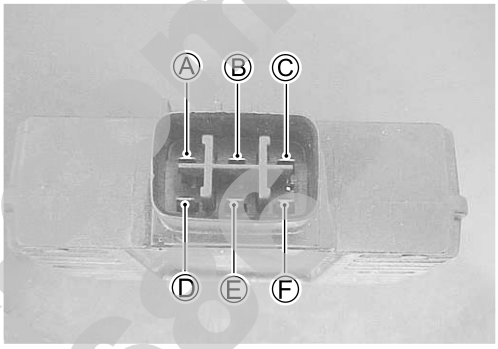
Measure the voltage between the terminals using the multi circuit tester, as indicated in the table below.
If the voltage is not within the specified value, replace the regulator/rectifier with a new one.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Diode test (⊣◀)

Unit: V

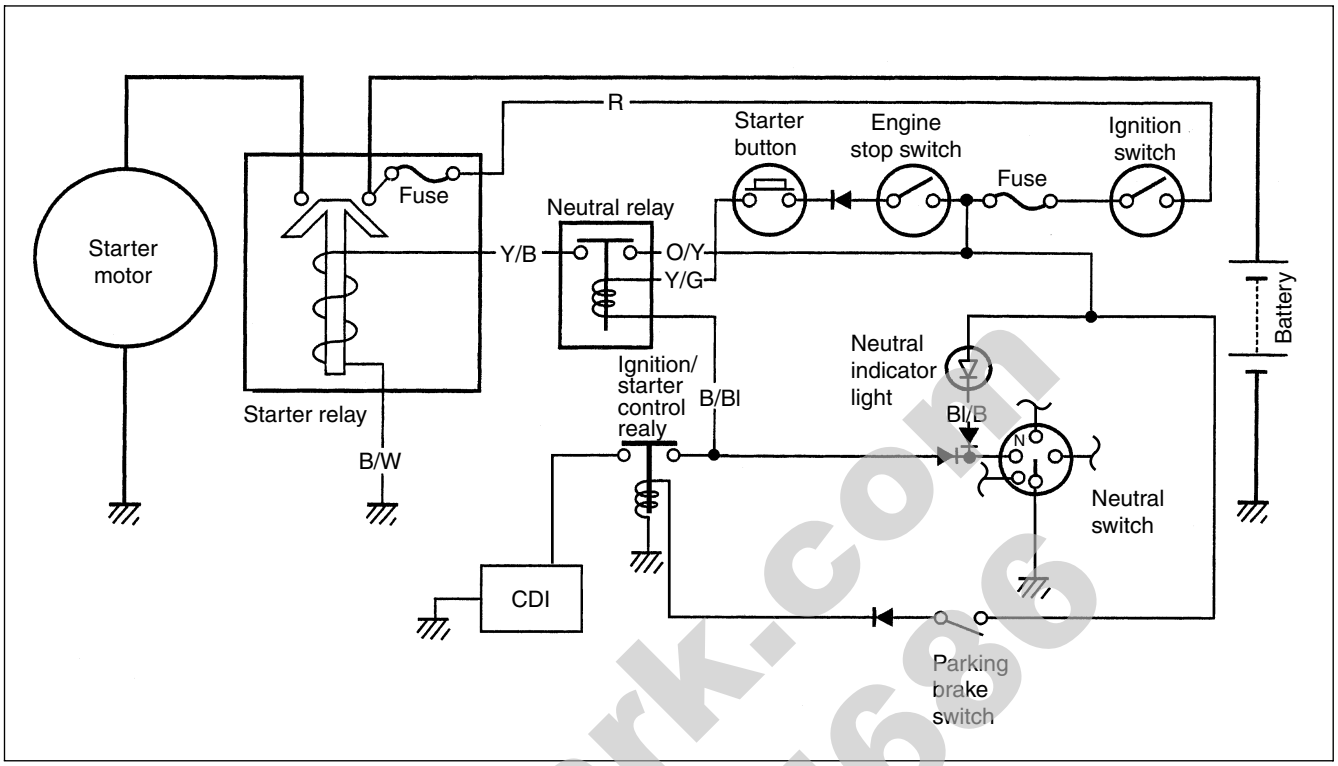
⊖ Tester probe	⊕ Tester probe Ⓐ	Ⓑ	Ⓒ	Ⓓ	Ⓔ	Ⓕ
Ⓐ		✻	0.4–0.7	0.3–0.6	0.3–0.6	0.3–0.6
Ⓑ	✻		✻	✻	✻	✻
Ⓒ	✻	✻		✻	✻	✻
Ⓓ	✻	✻	0.3–0.6		✻	✻
Ⓔ	✻	✻	0.3–0.6	✻		✻
Ⓕ	✻	✻	0.3–0.6	✻	✻	



✻ More than 1.4 V (tester's battery voltage)

NOTE:
If the tester reads under 1.4 V when the tester probes are not connected, replace the battery of multi circuit tester.

STARTER SYSTEM



TROUBLESHOOTING

Starter motor will not run.

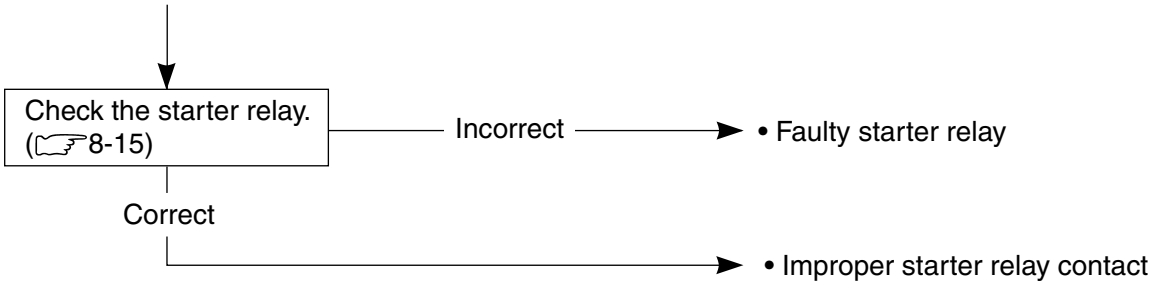
The transfer is in neutral. Turn on the ignition switch with the engine stop switch in the "RUN" position. Listen for a click from the starter relay when the starter button is pushed.

- Clicks → Check if the starter motor runs when its terminal is connected to the ⊕ battery terminal (Do not use a thin wire because a large amount of current flows.)
  - Runs
    - • Faulty starter relay
    - • Loose or disconnected starter motor lead wire
  - Does not run
    - • Faulty starter motor
- No click

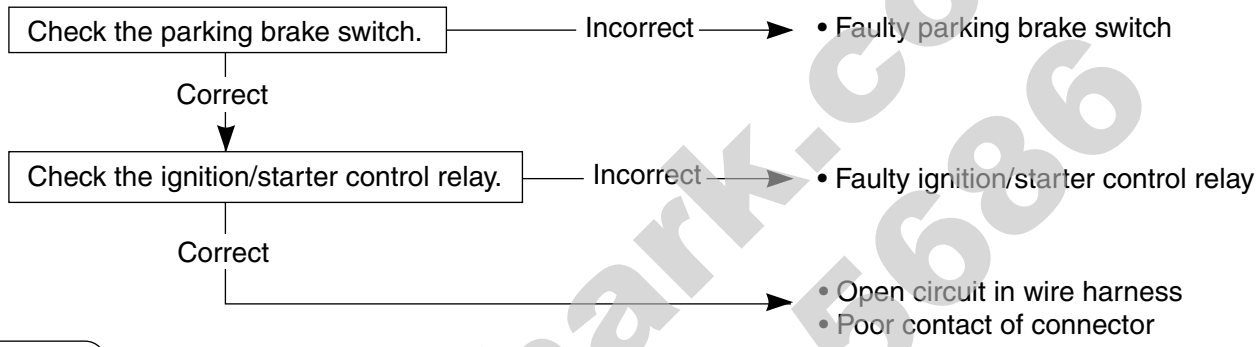
Measure the starter relay voltage at the starter relay connectors (between Y/B ⊕ and B/W ⊖) when the starter button is pushed.

- No voltage
  - • Faulty ignition switch
  - • Faulty engine stop switch
  - • Faulty neutral relay
  - • Faulty starter button
  - • Improper connector contact
  - • Open circuit in wire harness
- Voltage

Continued on next page



The starter motor runs when the transfer gear position is in neutral, but does not run when the transfer gear position is in any position other than neutral, with the parking brake lever grasp firmly.

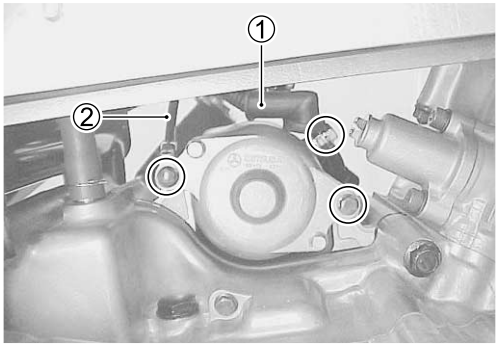


Others

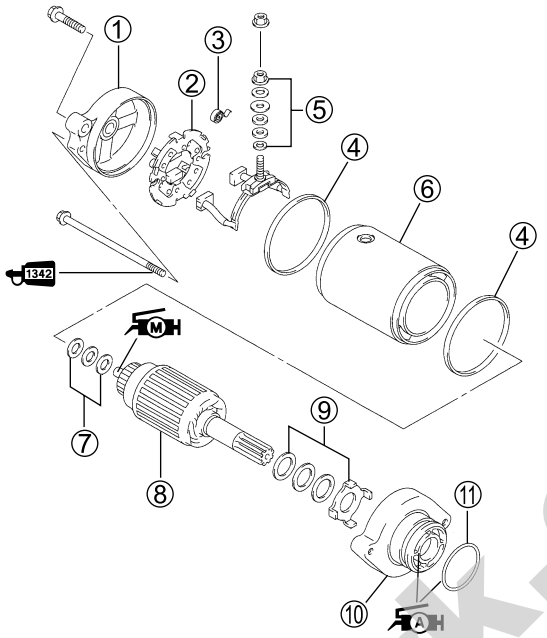
Engine does not turn though the starter motor runs.	• Faulty starter clutch

STARTER MOTOR REMOVAL AND DISASSEMBLY

- Remove the fuel tank side cover. (☞7-5)
- Disconnect the starter motor lead wire ① and engine ground lead wire ②.
- Remove the starter motor.



• Disassembly the starter motor, as shown.

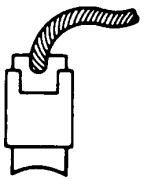


① Housing end (outside)
② Brush holder
③ Brush spring
④ O-ring
⑤ Brush terminal set
⑥ Starter motor case
⑦ Washer set
⑧ Armature
⑨ Washer set
⑩ Housing end (inside)
⑪ O-ring

STARTER MOTOR INSPECTION

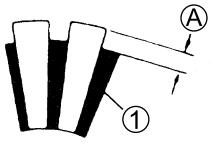
CARBON BRUSHES

Inspect the carbon brushes for abnormal wear, cracks, or smoothness in the brush holder.
If any damages are found, replace the brush assembly with a new one.



COMMUTATOR

Inspect the commutator for discoloration, abnormal wear or undercut Ⓐ.
If abnormal wear is found, replace the armature with a new one.
If the commutator surface is discolored, polish it with #400 sandpaper and wipe it using a clean, dry cloth.
If there is no undercut, scrape out the insulator ① with a saw blade.

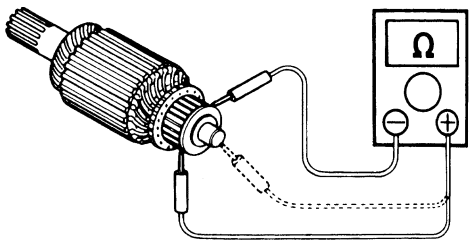


ARMATURE COIL INSPECTION

Check for continuity between each segment and between each segment and the armature shaft using the multi circuit tester.
If there is no continuity between the segments or there is continuity between the segments and shaft, replace the armature with a new one.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Continuity test (•)))



OIL SEAL

Check the seal lip for damage or leakage. If any damages are found, replace the starter motor with a new one.

STARTER MOTOR REASSEMBLY AND REMOUNTING

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

CAUTION

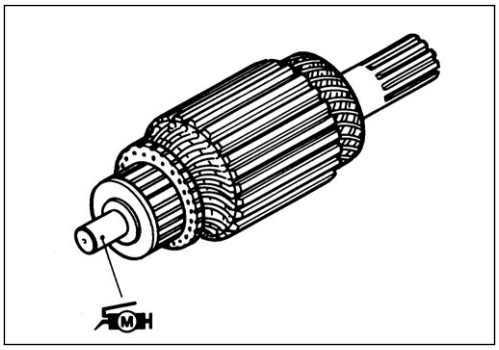
Replace the removed O-rings with new ones to prevent oil leakage and moisture.

- Apply SUZUKI SUPER GREASE "A" to the lip of the oil seal.

99000-25030: SUZUKI SUPER GREASE "A" (USA)
99000-25010: SUZUKI SUPER GREASE "A" (Others)

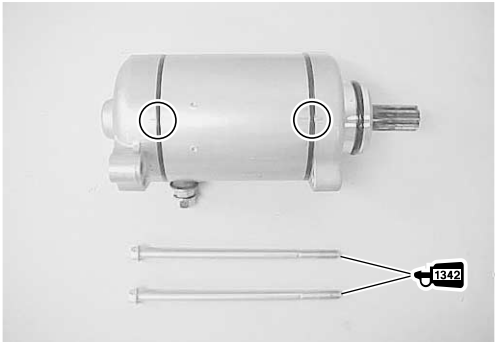
- Apply a small quantity of SUZUKI MOLY PASTE to the armature shaft.

99000-25140: SUZUKI MOLY PASTE



- Align the match marks on the starter motor case with the match mark on the housing end.
- Apply a small quantity of THREAD LOCK "1342" to the starter motor housing bolts and tighten it sequrely.

99000-32050: THREAD LOCK "1342"



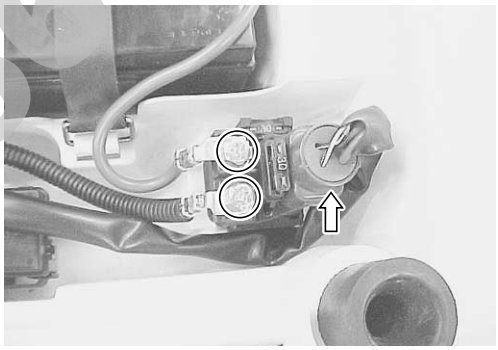
- Apply SUZUKI SUPER GREASE “A” to the O-ring .

99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

STARTER RELAY INSPECTION

- Remove the seat. (☞7-4)
- Disconnect the battery ⊖ lead wire at battery terminal.
- Remove the starter relay cover ①.

- Disconnect the starter motor lead wire, battery lead wire and starter relay coupler at the starter relay.
- Remove the starter relay.



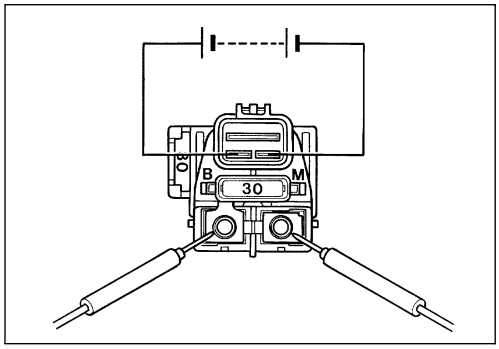
Apply 12 V to the terminals and check for continuity between the positive and negative terminals using the multi circuit tester. If the starter relay clicks and continuity is found, the relay is ok.

09900-25008: Multi circuit tester set

Tester knob indication: Continuity test (•)))

CAUTION

Do not apply a battery voltage to the starter relay for more than five seconds.
This may overheat and damage the relay coil.

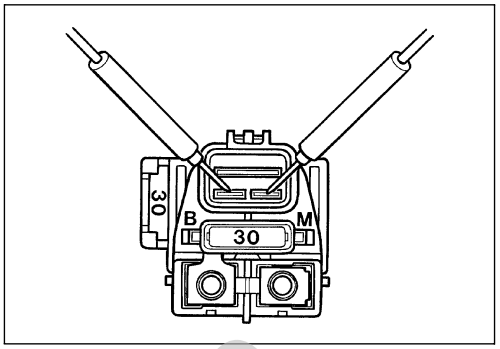


Measure the relay coil resistance between the terminals using the multi circuit tester. If the resistance is not within the specified value, replace the starter relay with a new one.

09900-25008: Multi circuit tester set

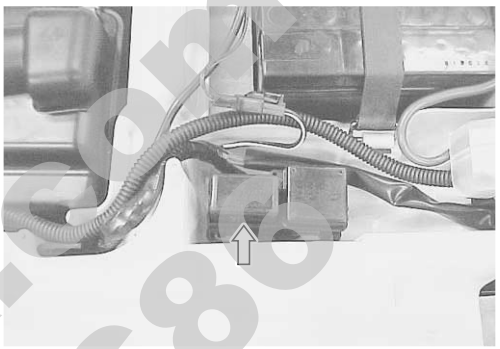
Tester knob indication: Resistance (Ω)

Starter relay resistance
Standard: 3 – 5 Ω



NEUTRAL RELAY INSPECTION

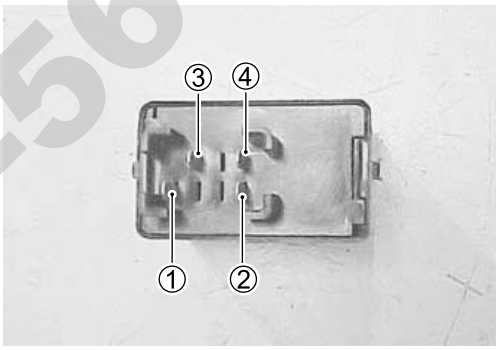
- Remove the seat. (☞7-4)
- Disconnect the neutral relay.



Apply 12 V to terminals ① and ② (⊕ to ① and ⊖ to ②) and check the continuity between ③ and ④ using a multi circuit tester. If there is no continuity found, replace the neutral relay with a new one.

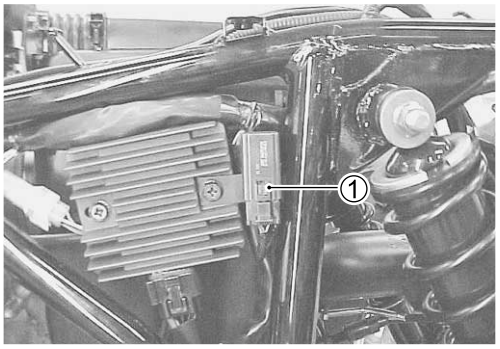
09900-25008: Multi circuit tester set

Tester knob indication: Continuity set (•))))

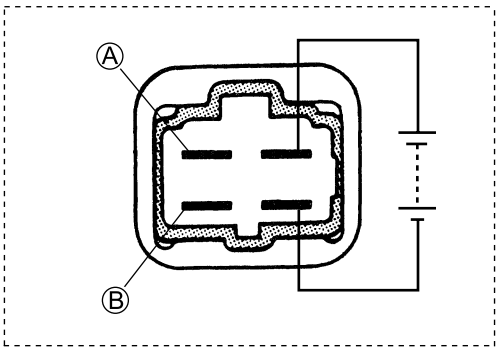


IGNITION/STARTER CONTROL RELAY

- Remove the rear fender. (☞7-8)
- Remove the ignition/starter control relay ①.



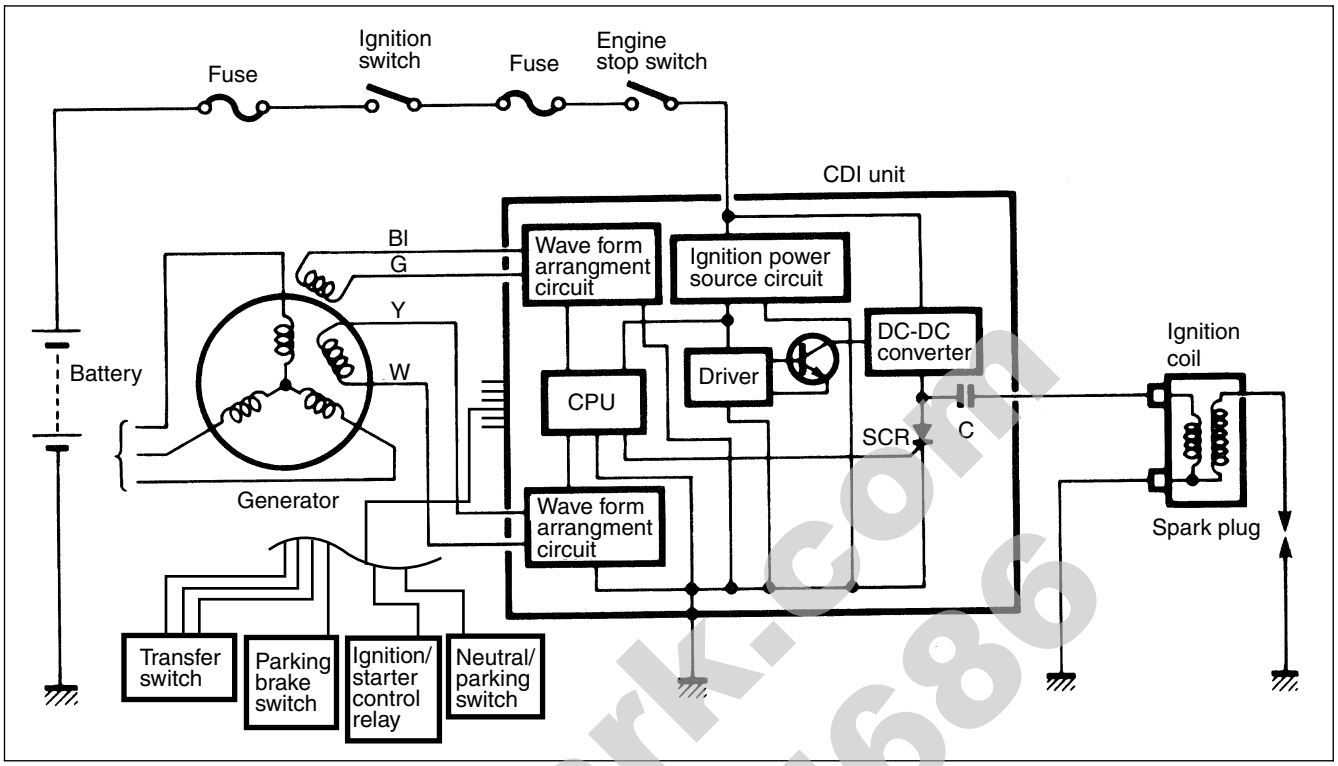
First check the insulation between Ⓐ and Ⓑ terminals with the tester. Then apply 12 V to terminals as shown and check the continuity between Ⓐ and Ⓑ. If there is no continuity, replace the turn signal/side-stand relay with a new one.



PARKING BRAKE SWITCH

(☞8-36)

IGNITION SYSTEM



TROUBLESHOOTING

✻ Make sure the transfer is in the neutral position and the engine stop switch is in the “RUN” position. Also, make sure the fuse is not blown and the battery is fully-charged before diagnosing.

No spark or poor spark

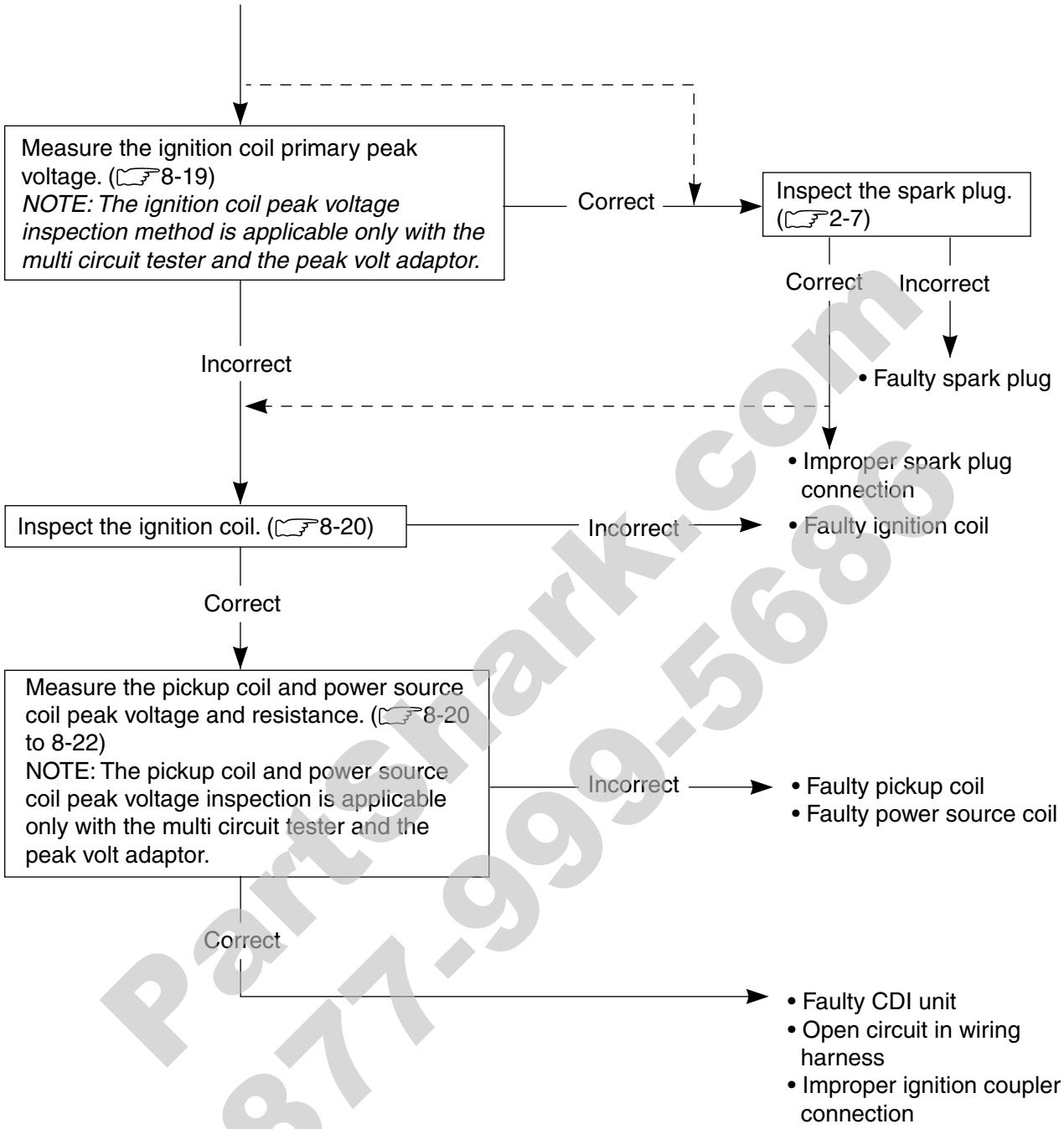
Check ignition system couplers for poor connections.
- Looseness → • Improper coupler connection

Correct

Measure the battery voltage between input lead wires (O/W and B/W) at the CDI unit with the ignition switch in the “ON” position.
- Inorrect → • Faulty ignition switch
  • Faulty engine stop switch
  • Broken wire harness or poor connection of related circuit couplers

Correct

Continued on next page

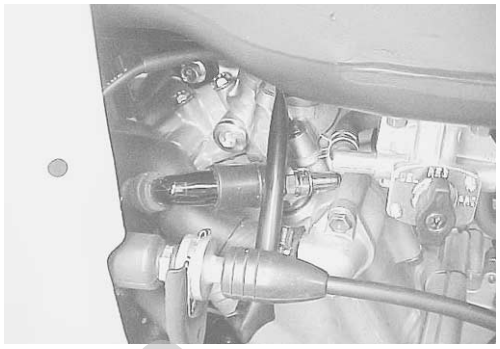


INSPECTION

IGNITION COIL PRIMARY PEAK VOLTAGE

- Remove the fuel tank side cover. (☞7-5)
- Remove the spark plug cap.
- Connect a new spark plug to spark plug cap and ground it to the cylinder head.

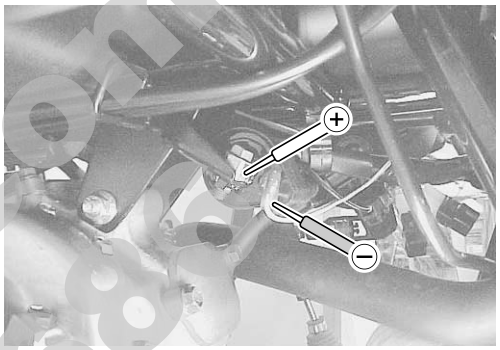
NOTE:
Make sure that the spark plug cap and spark plug are connected properly and the battery is fully-charged.



Measure ignition coil primary peak voltage using the multi circuit tester in the following procedure.

- Connect the multi circuit tester with the peak voltage adaptor as follows.

⊕ Probe: Black/White lead wire or Ground
⊖ Probe: White/Blue lead wire

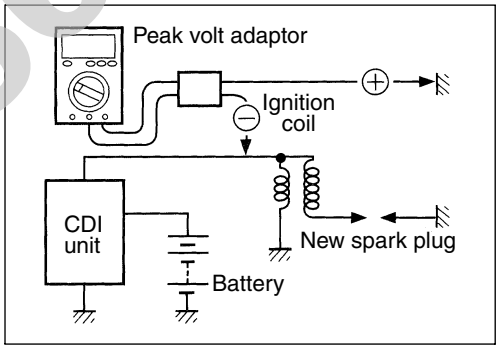


NOTE:
Do not disconnect the ignition coil primary wire.

TOOL 09900-25008: Multi circuit tester set

CAUTION

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.



- Shift the transfer to the neutral position and turn the ignition switch to the "ON" position.
- Press the starter button and allow the engine to crank for a few seconds, and then measure the ignition coil primary peak voltage.
- Repeat the above procedure a few times and measure the highest ignition coil primary peak voltage.

Tester knob indication: Voltage (⎓)

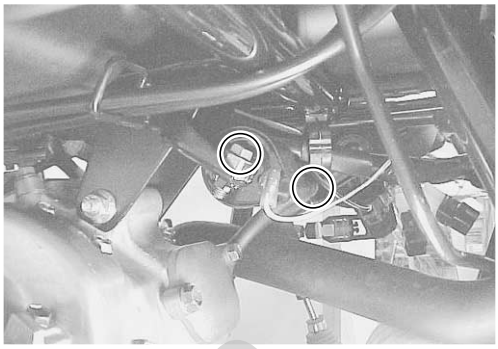
DATA Ignition coil primary peak voltage: More than 150 V

⚠ WARNING

While testing, do not touch the tester probes and spark plug to prevent receiving an electric shock.

If the voltage is lower than the standard values, inspect the ignition coil. (☞8-20)

IGNITION COIL RESISTANCE



- Remove the fuel tank. (☞5-3)
- Disconnect the ignition coil lead wire and spark plug cap, and remove the ignition oil.

Measure the ignition coil resistance in both the primary and secondary windings using the multi circuit tester. If the resistance in both the primary and secondary windings is close to the specified values, the windings are in sound condition.

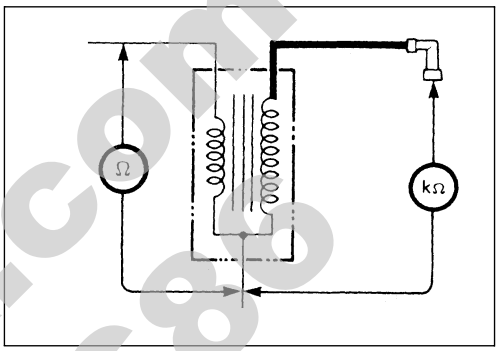
TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

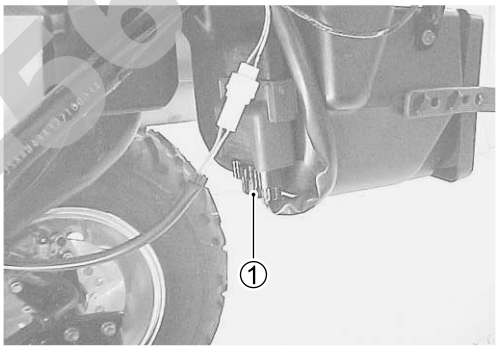
DATA Ignition coil resistance

Primary : 0.1 – 1.5 Ω (Terminal – Ground)

Secondary : 12 – 22 kΩ (spark plug cap – terminal)



PICKUP COIL AND POWER SOURCE COIL PEAK VOLTAGE



NOTE:

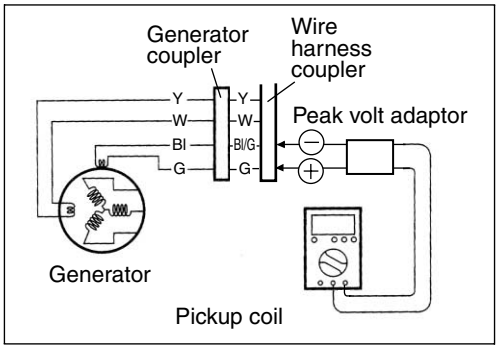
Make sure all of the couplers are connected properly.

- Disconnect the CDI unit coupler ①.

Measure the pickup coil and power source coil peak voltage in the following procedure.

- Connect the multi circuit tester with the peak volt adaptor as follows.

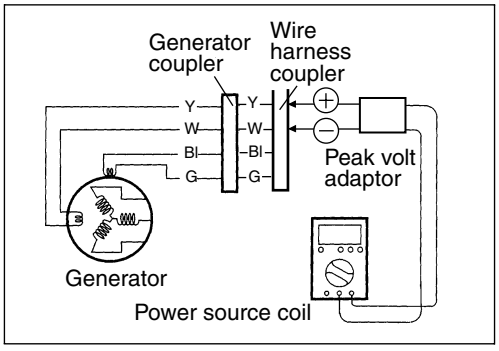
Pickup coil: ⊕ Probe...Green lead wire
⊖ Probe...Blue/Green lead wire
Power source coil: ⊕ Probe...Yellow lead wire
⊖ Probe...White lead wire



TOOL 09900-25008: Multi circuit tester set

CAUTION

When using the multi circuit tester and peak volt adaptor, refer to the appropriate instruction manual.



- Shift the transfer to the neutral position, turn the ignition switch to the "ON" position.
- Press the starter button and allow the engine to turn for a few seconds, and then measure the pickup coil and power source coil peak voltage.

• Repeat the above procedure a few times and measure the highest pickup coil and power source coil peak voltage.

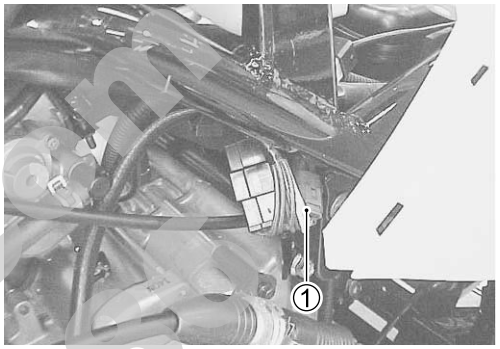
Tester knob indication: Voltage (⎓)

DATA Pickup coil peak voltage: More than 4.0 V
Power source coil peak voltage: More than 0.3 V

If the peak voltage measured on the CDI unit coupler is lower than the standard value, measure the peak voltage on the generator coupler as follows.

• Remove the fuel tank side cover. (☞7-5)
• Disconnect the generator coupler ① and connect the multi circuit tester with the peak volt adaptors follows.

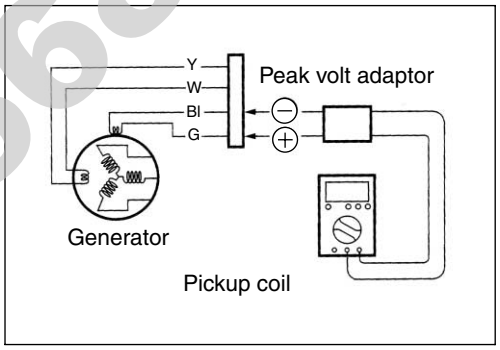
Pickup coil: ⊕ Probe...Green lead wire
⊖ Probe...Blue lead wire
Power source coil:⊕ Probe...Yellow lead wire
⊖ Probe...White lead wire



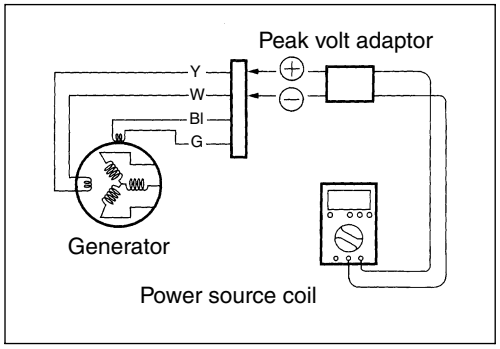
Measure the pickup coil and power source coil peak voltage in the same manner as on the CDI unit coupler.

Tester knob indication: Voltage (⎓)

DATA Pickup coil peak voltage: More than 4.0 V
Power source coil peak voltage: More than 0.3 V

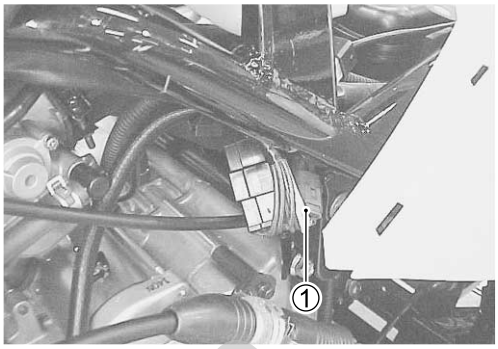


If the peak voltage on the generator coupler is within the specification, but on the CDI unit coupler is not within specification, replace the wire harness with a new one. If both peak voltages are out of specification, replace the generator with a new one.



PICKUP COIL AND POWER SOURCE COIL RESISTANCE

- Remove the fuel tank side cover. (☞7-5)
- Disconnect the generator coupler ①.



Measure the resistance between the lead wires using the multi circuit tester. If the resistance is not within the spcified value, stator coil must be replaced.

09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

Pickup coil resistance: 150 – 300 Ω (Blue – Green)
Power source coil resistance:
0.05 – 1.0 Ω (Yellow – White)

2WD/4WD SELECTING SYSTEM

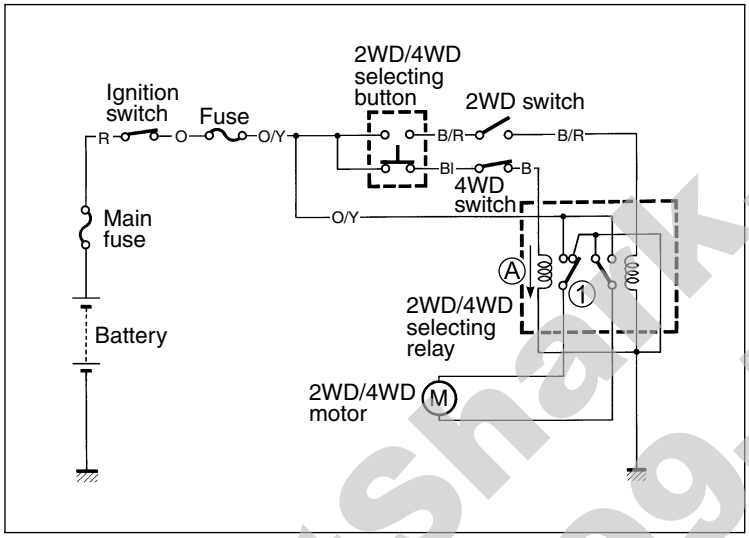
DESCRIPTION

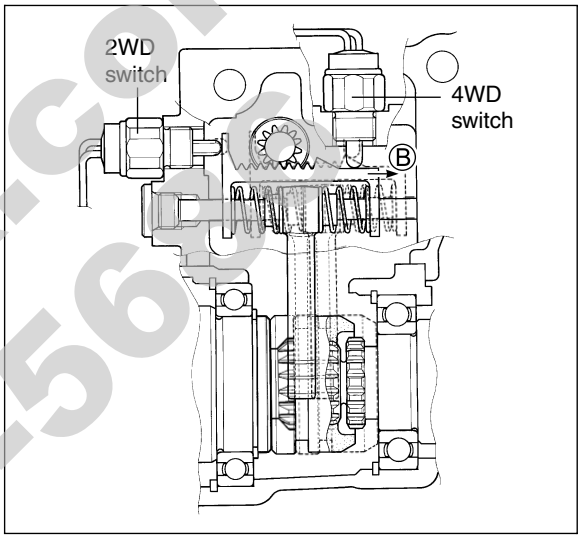
The 2WD/4WD selecting system consists of the following components: the 2WD/4WD selecting button, 2WD switch, 4WD switch, 2WD/4WD selecting relay, 2WD/4WD motor and battery.

TO SHIFT FROM 2-WHEEL DRIVE TO 4-WHEEL DRIVE:

Depress the 2WD/4WD selecting button with the ignition switch in ON position.

Depressing this switch causes current Ⓐ to flow as shown, energizing the 2WD/4WD selecting relay coil. The coil pulls and closes the contact point ① allowing current to flow to the motor. Then, the motor starts to operate and moves the rack in the direction Ⓑ together with the shift fork and sliding dog. As a result, the driving mode is changed from 2-wheel drive to 4-wheel drive. Also operated at this time are the 4WD switch and 2WD switch. The 4WD switch turns OFF from ON while the 2WD switch turns ON from OFF. Therefore, current Ⓐ is interrupted and the contact point ① returns to OFF state. Now the motor stops operating.

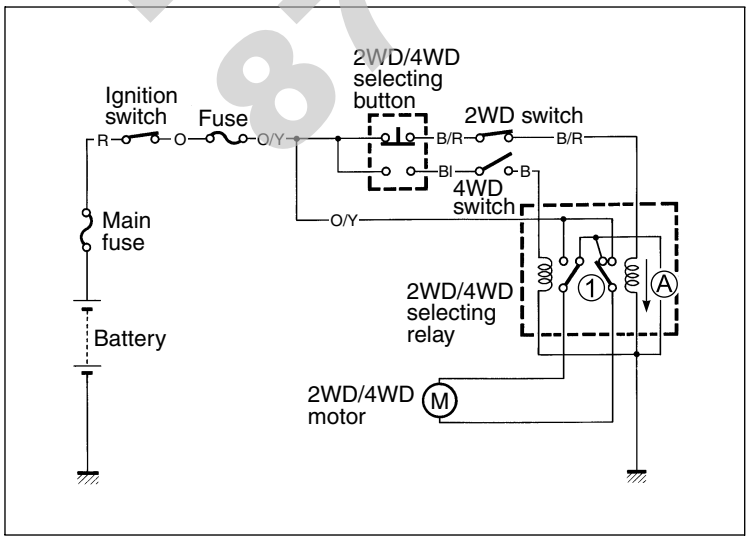


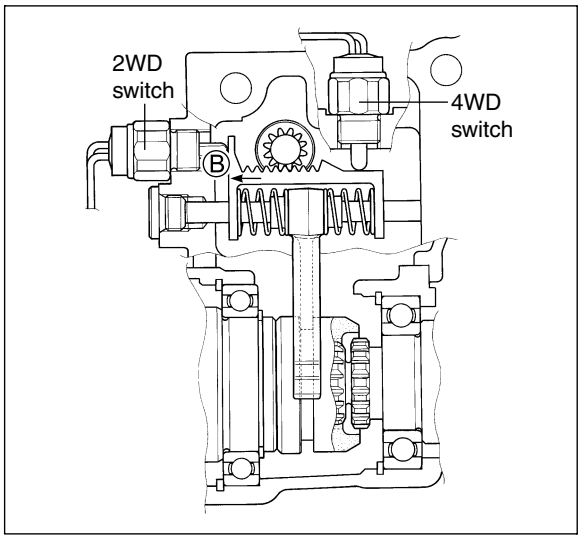


TO SHIFT FROM 4-WHEEL DRIVE TO 2-WHEEL DRIVE:

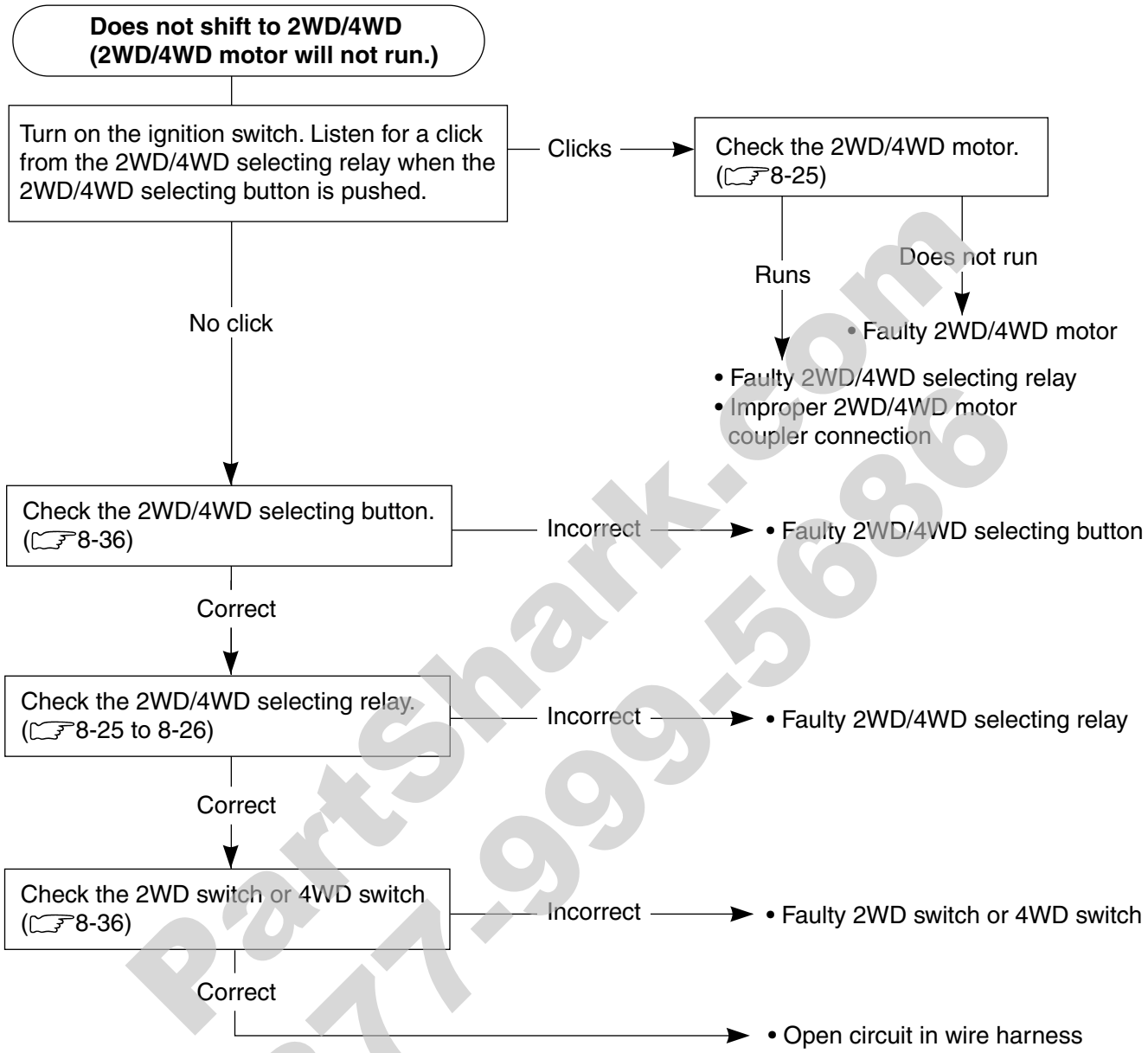
Depress the 2WD/4WD selecting button.

Current Ⓐ flows and the contact point ① closes, causing the motor to turn reversely as opposite to the phase of 2WD→4WD. The rack as shown moves in the direction Ⓑ, causing the driving mode to change from 4-wheel drive to 2-wheel drive. This time, the 2WD switch operates as ON→OFF and 4WD switch as OFF→ON. Then, current Ⓐ no longer flows allowing the contact point ① to return to OFF. Now the motor stops.





TROUBLESHOOTING

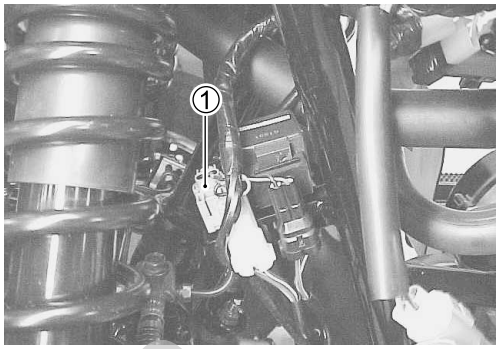


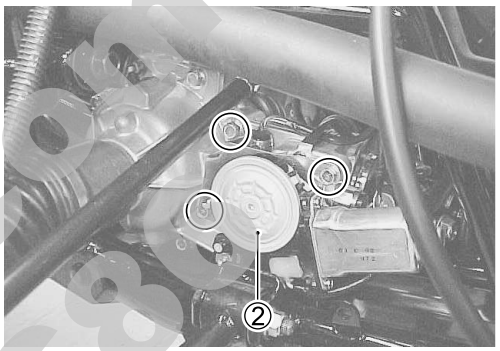
The 2WD/4WD motor runs, but does not shift to 2WD/4WD.
Check the front differential sliding dog. (☞4-7)

INSPECTION

2WD/4WD MOTOR

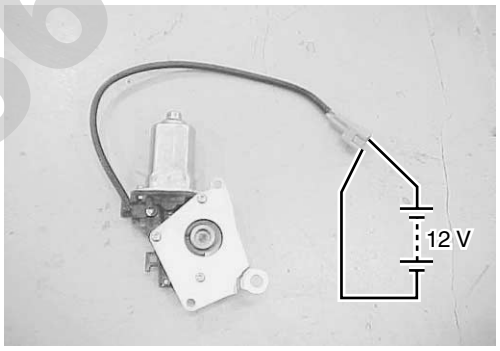
- Remove the inner fender. (☞7-6)
- Disconnect the 2WD/4WD motor coupler ①.
- Remove the 2WD/4WD motor ②.





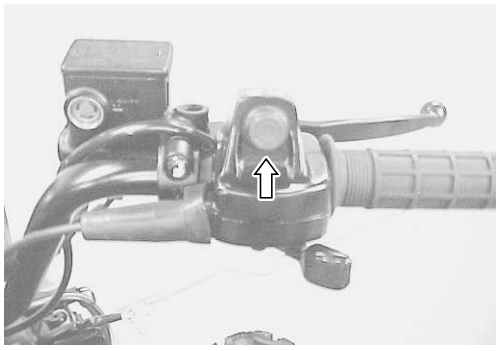
Connect the 12 V battery to the 2WD/4WD motor lead wires as shown. If the motor does not run, replace the motor assembly with a new one.

- Install the 2WD/4WD motor and tighten the bolts to the specified torque. (☞4-15)



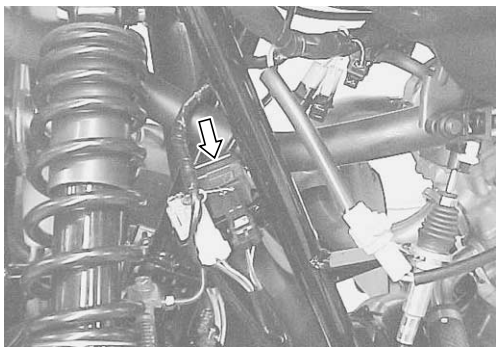
2WD/4WD SELECTING BUTTON

(☞8-36)



2WD/4WD SELECTING RELAY

- Remove the inner fender. (☞7-6)
- Remove the 2WD/4WD selecting relay.



First check the insulation between Ⓑ and Ⓒ and between Ⓐ and Ⓒ terminals with the tester.
Apply 12 V to the terminals as shown in Fig-1, and check the continuity between Ⓑ and Ⓒ.
Apply 12 V to the terminals as shown in Fig-2, and check the continuity between Ⓐ and Ⓒ.
If there is no continuity, replace the 2WD/4WD selecting relay with a new one.

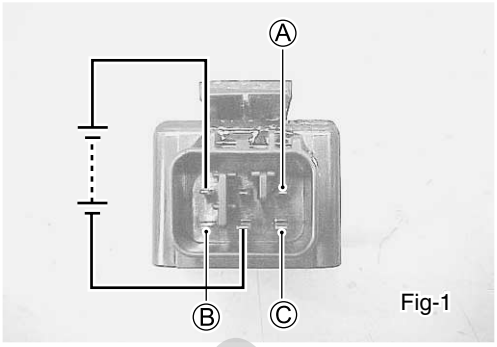


Fig-1

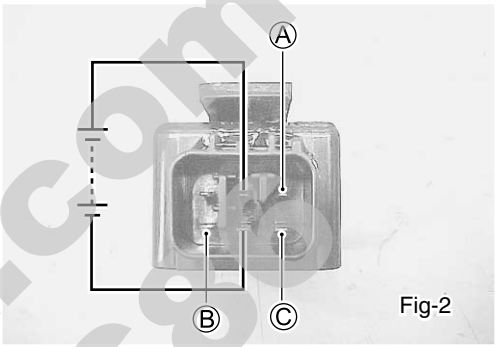
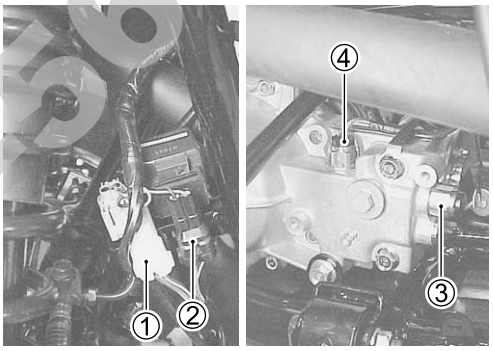


Fig-2

2WD SWITCH AND 4WD SWITCH

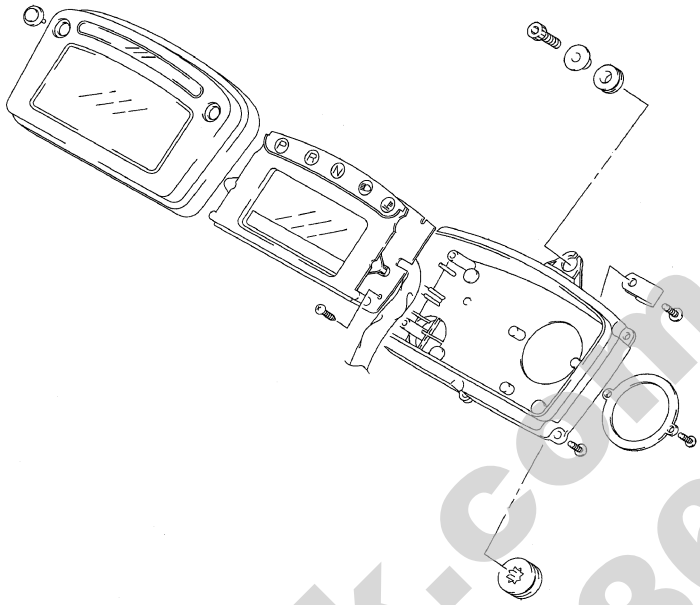
- Remove the 2WD/4WD motor. (☞8-25)
- Disconnect the switch couplers (①, ②).
- Remove the 2WD switch ③ and 4WD switch ④.



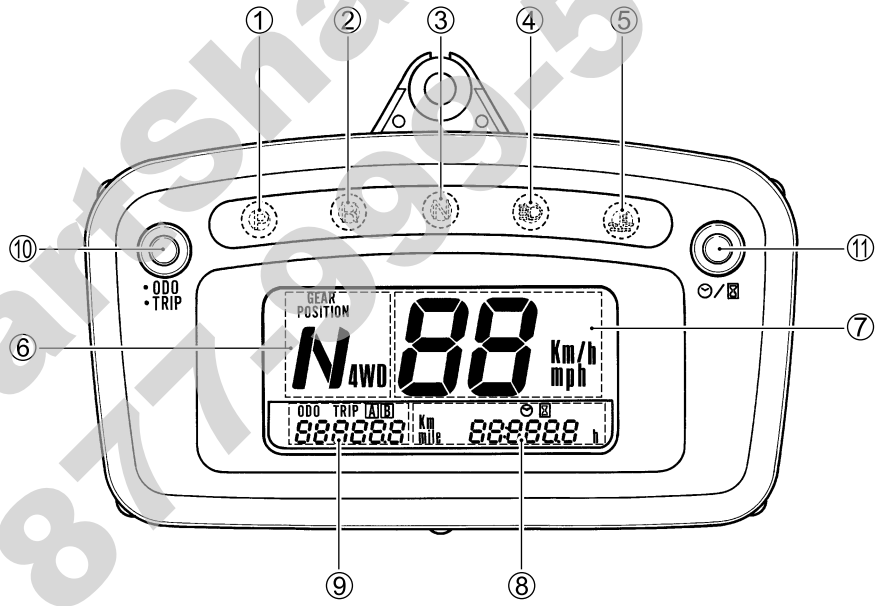
Inspect the switches. (☞8-36)

- Install the 2WD switch and 4WD switch. (☞4-15)

SPEEDOMETER



PARTS NAMES



① Parking indicator light
② Reverse indicator light
③ Neutral indicator light
④ High beam indicator light
⑤ Engine coolant temperature indicator light
⑥ Gear position
⑦ Speedometer
⑧ Clock/hour
⑨ Odometer/tripmeter (A, B)
⑩ ODO/TRIP button
⑪ Clock/Hour button

OPERATING PROCEDURE

INITIAL DISPLAY

When the ignition switch is set to ON, all LCD and engine coolant temperature indicator light light up for two seconds.

NOTE:

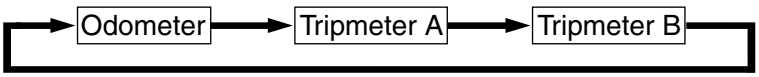
If the power supply is cut (e.g., when the battery is replaced);

** The odometer, tripmeter and clock are displayed after the initial display appears.*

** Since the clock resets to "1:00", it will need to be readjusted.*

CHANGE THE DISPLAY MODE

With each press of the ODO/TRIP button, the display changes between odometer, tripmeter A and tripmeter B as shown.



Hold down the ⏲/⏳ (CLOCK/HOUR) button over two seconds while pressing the ODO/TRIP button, the display changes between "mph" and "km/h", when displaying odometer as shown.

With each press of the ⏲/⏳ (CLOCK/HOUR) button, the display changes between clock and hour as shown.

⚠ WARNING

To aboid riding with only one hand, do not operate the buttons while riding.

ODOMETER

Displays the total distance travelled.

TRIPMETER

Displays the distance travelled since the tripmeter was last reset.

NOTE:

The tripmeters A and B can be used independently.

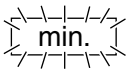
Hold down the ODO/TRIP button over two seconds to reset the tripmeter.

CLOCK

Displays the time (hour and minutes) on a 12-hour clock.

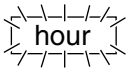
Setting the time

Hold down the ⏲/⏳ button over two seconds and then flashing the minute display.



⇨ Select the correct minutes by pressing the ⏲/⏳ button.

Decide the minutes by pressing the ODO/TRIP button, and then flashing the hour display.



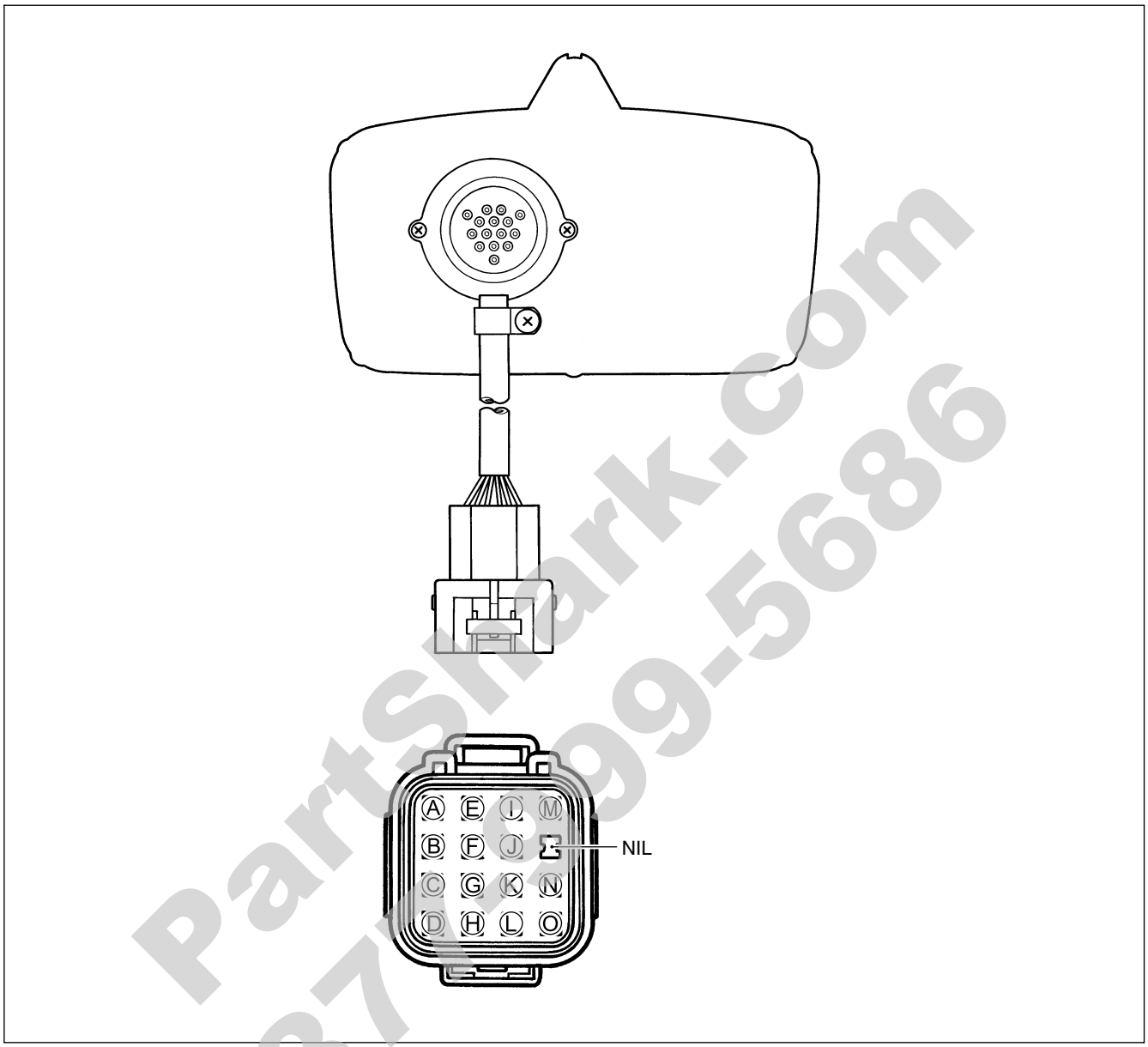
⇨ Select the correct hour by pressing the ⏲/⏳ button.

Decide the hours by pressing the ODO/TRIP button.

INSPECTION

SPEEDOMETER

• Remove the speedometer assembly. (☞7-40)

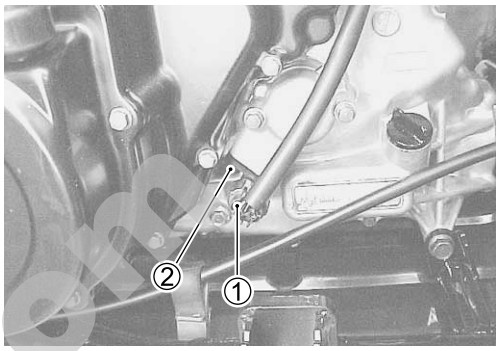


ITEM	Battery ⊕	Battery ⊖	ITEM	Battery ⊕	Battery ⊖
All LCD	Ⓔ	Ⓞ	Neutral indicator light	Ⓖ	Ⓓ
P: Parking (LCD)	Ⓔ & Ⓚ	Ⓞ	Meter illumination	Ⓛ	Ⓞ
N: Neutral (LCD)	Ⓔ & Ⓖ	Ⓞ & Ⓓ	High beam indicator light	Ⓒ	Ⓞ
R: Reverse (LCD)	Ⓔ	Ⓞ & Ⓝ	Parking indicator light	Ⓚ	Ⓞ
L: Low (LCD)	Ⓔ	Ⓞ & Ⓕ	Reverse indicator light	Ⓔ	Ⓝ
H: High (LCD)	Ⓔ	Ⓞ & Ⓙ	Engine coolant temperature indicator light	Ⓔ	Ⓗ
4WD (LCD)	Ⓔ	Ⓞ & Ⓑ			

If the speedometer, odometer or trip meter does not function properly. Inspect the speed sensor and connection of couplers. If the speed sensor and connection is all right, replace the speedometer with a new one.

SPEED SENSOR

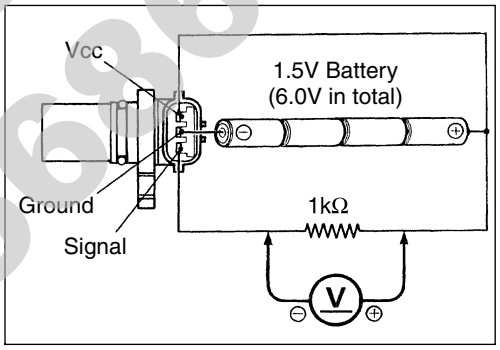
- Remove the left footrest mud guard. (☞7-8)
- Disconnect the speed sensor lead wire coupler ①.
- Remove the speed sensor ②.



Arrange four new 1.5 V batteries in series (check that total voltage is 6.0 – 6.5 V) and connect ⊖ terminal to ground terminal and ⊕ to the Vcc terminal.
Connect 1 kΩ resistor and the multi circuit tester as shown.

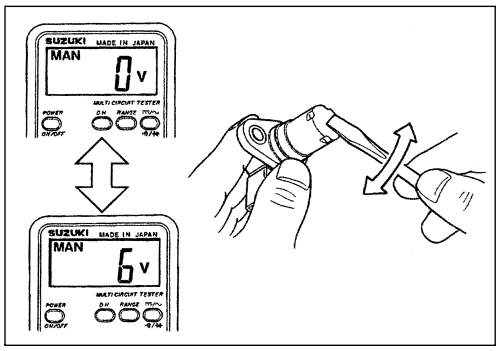
09900-25008: Multi circuit tester set

Tester knob indication: Voltage (⎓)



Under above condition, when a suitable screwdriver touching the pick-up surface of the speed sensor moves, the tester reading voltage relatively changes (0 V → 6 V or 6 V → 0 V). If the tester reading voltage does not change, replace the speed sensor with a new one.

NOTE:
The highest tester reading voltage (6 V) while testing is same as the total voltage of four batteries.

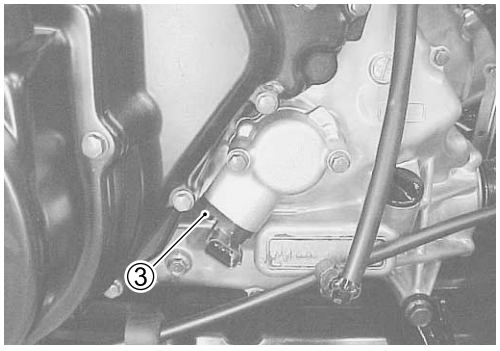


- Apply SUZUKI SUPER GREASE “A” to the speed sensor O-ring before installing it.

99000-25030: SUZUKI SUPER GREASE “A” (USA)
99000-25010: SUZUKI SUPER GREASE “A” (Others)

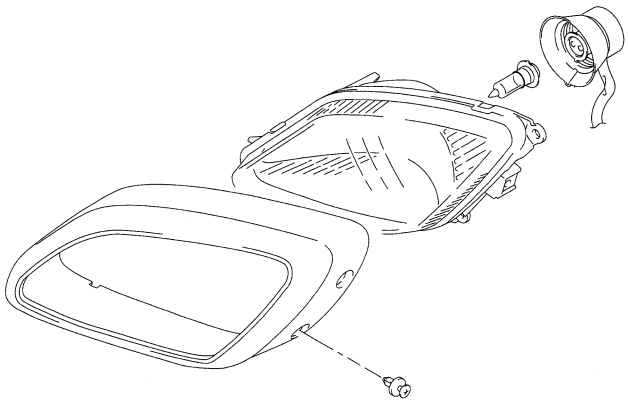
- Apply THREAD LOCK SUPER “1303” to the speed sensor mounting bolt ③ and then tighten it securely.

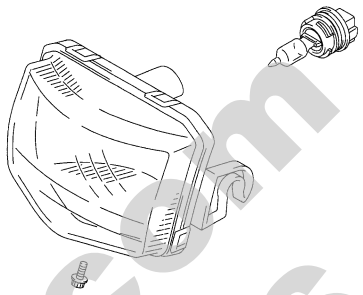
99000-32030: THREAD LOCK SUPER “1303”



LAMPS

HEADLIGHT AND AUXILIARY LIGHT





Headlight bulb: 12 V 30/30 W (Right & Left)

Auxiliary light: 12 V 40 W

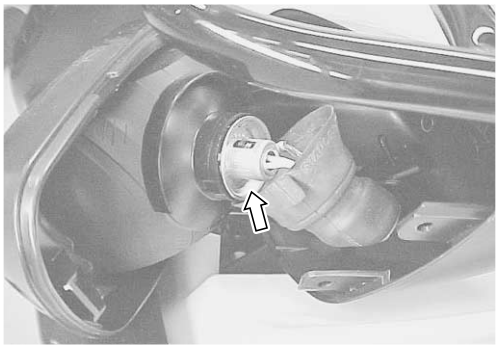
CAUTION

If you touch the bulb with your bare hands, clean the bulb with a cloth moistened with alcohol or soapy water to prevent premature bulb failure.

HEADLIGHT BULB REPLACEMENT

- Remove the headlight.

- Remove the rubber cap.
- Remove the socket.
- Remove the bulb.
- Install the new bulb in the reverse order of removal.



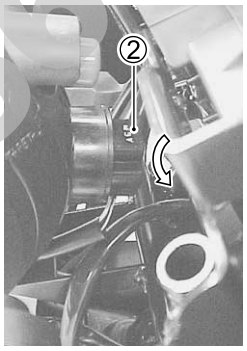
CAUTION

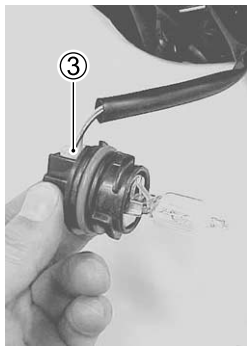
Install the socket cover correctly.

AUXILIARY LIGHT BULB REPLACEMENT

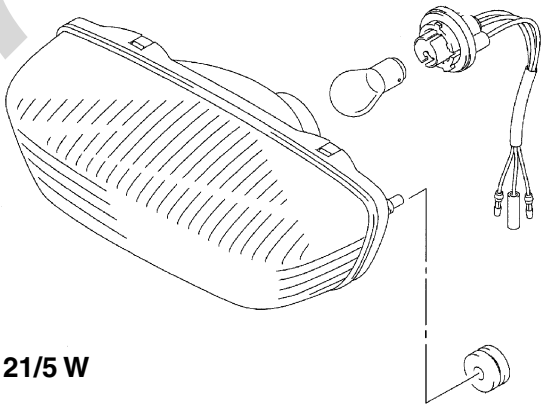
- Remove the auxiliary light cover ①.

- Remove the socket ② with lead wire.
- Disconnect the lead wire coupler ③.
- Install the new bulb assembly in the reverse order of removal.





BRAKE LIGHT/TAILLIGHT



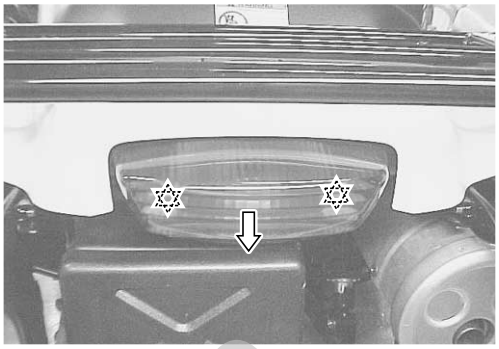
Brake light/taillight: 12 V 21/5 W

CAUTION

If you touch the bulb with your bare hands, clean the bulb with a cloth moistened with alcohol or soapy water to prevent premature bulb failure.

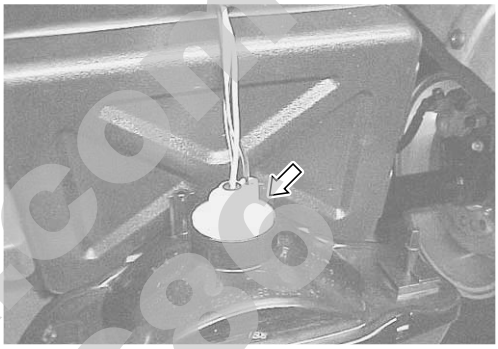
BULB REPLACEMENT

- Remove the brake light/taillight assembly backward.



✡ Boss of connector

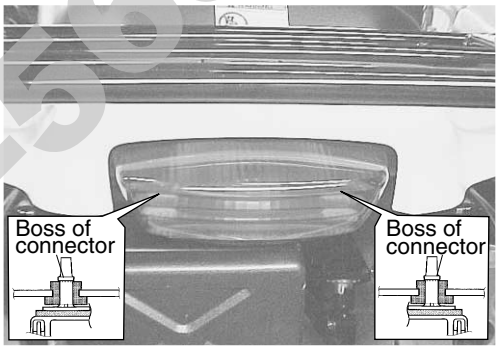
- Remove the socket.
- Remove the bulb.
- Install the new bulb in the reverse order of removal.



- Install the brake light/taillight assembly.

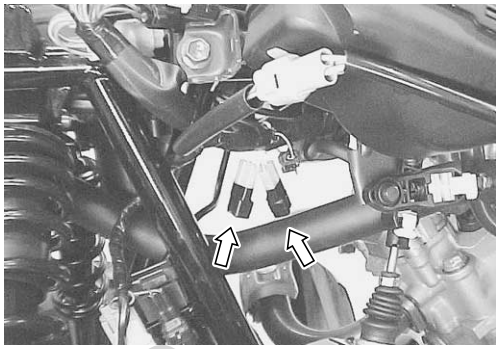
CAUTION

Be sure to fix the boss of connector correctly as shown.



DIODE

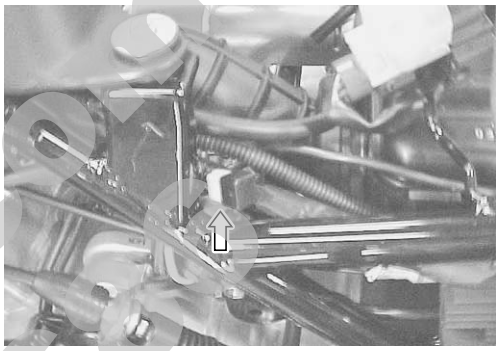
- The gear position diodes is located under the fuel tank.
- The neutral relay diodes are located under the seat.
- Remove the seat. (☞7-4)



Measure the voltage between the terminals using the multi circuit tester as indicated in the table below.

TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Diode test (⊣◀)

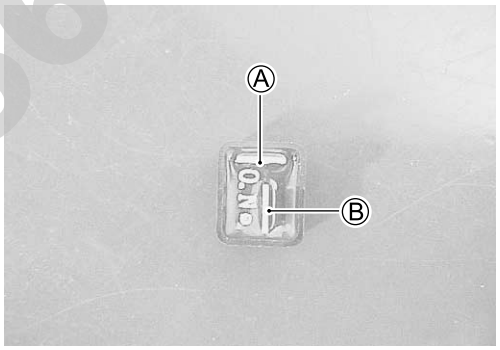


Unit: V

⊖ Tester probe	⊕ Tester probe Ⓐ	⊕ Tester probe Ⓑ
Ⓐ		0.3 – 0.6
Ⓑ	✻	

✻ More than 1.4 V (tester's battery voltage)

NOTE:
If the tester reads under 1.4 V when the tester probes are not connected, replace the battery of multi circuit tester.



SWITCHES

Measure each switch for continuity using a multi circuit tester. If any abnormality is found, replace the respective switch assemblies with a new one.

TOOL 09900-25008: Multi circuit tester set

IGNITION SWITCH

Position \ Color	R	O	Gr	P
AUX (☼)	○	○	○	○
LIGHT (☼)	○	○	○	
ON	○	○		
OFF				

DIMMER SWITCH

Position \ Color	Y	W	Gr
HI	○		○
LO		○	○

ENGINE STOP SWITCH

Position \ Color	O	O/W
RUN	○	○
OFF		

STARTER BUTTON

Position \ Color	O/W	Y/G
•		
PUSH	○	○

NEUTRAL SWITCH

Position \ Color	Bl	R	W	G	B
Neutral	○				○
Reverse		○			○
LO			○		○
HI				○	○

REAR BRAKE SWITCH

Position \ Color	O	W/B
ON	○	○
OFF		

FRONT BRAKE SWITCH

Position \ Color	Terminal	Terminal
ON	○	○
OFF		

PARKING/NEUTRAL POSITION SWITCH

Position \ Color	B/Bl	O	V
P-Position		○	○
N-Position	○	○	

2WD/4WD SELECTING BUTTON

Position \ Color	O	B	Bl
2WD	○	○	
4WD	○		○

PARKING BRAKE SWITCH

Position \ Color	W	Bl
ON	○	○
OFF		

2WD AND 4WD SWITCH

Position \ Color	R/W	R/W
•	○	○
PUSH		

HORN BUTTON (For E-24)

Position \ Color	G	B/W
•		
PUSH	○	○

COOLING FAN THERMO SWITCH

☞ 6-8

ENGINE COOLANT TEMPERATURE SWITCH

☞ 6-9

WIRE COLOR

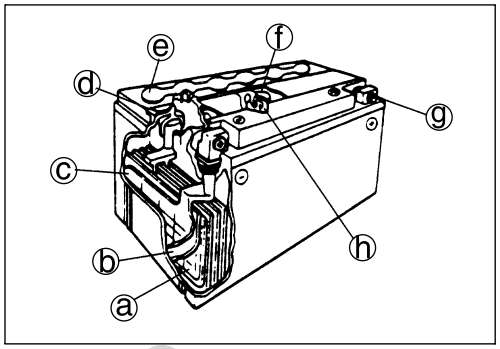
B : Black	B/Bl : Black with Blue tracer
Bl : Blue	B/W : Black with White tracer
G : Green	O/W : Orange with White tracer
Gr : Gray	R/W : Red with White tracer
O : Orange	W/B : White with Black tracer
P : Pink	Y/G : Yellow with Green tracer
R : Red	
V : Violet	
W : White	
Y : Yellow	

BATTERY

SPECIFICATIONS

Type designation	FTH16-BS
Capacity	12V, 50.4 kC (14 Ah)/10HR

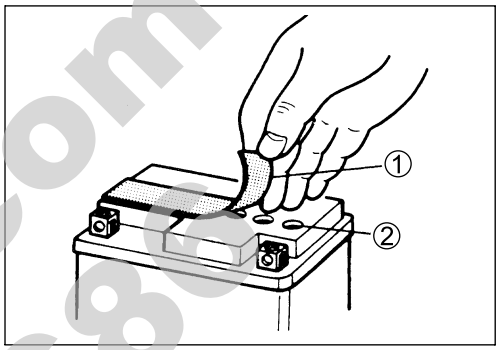
ⓐ Anode plates
ⓑ Separator (fiberglass plate)
ⓒ Cathode plates
ⓓ Upper cover breather
ⓔ Stopper
ⓕ Filter
ⓖ Terminal
ⓗ Safty valve



INITIAL CHARGING

FILLING ELECTROLYTE

- Remove the aluminum tape ① which seals the battery filler holes ②.

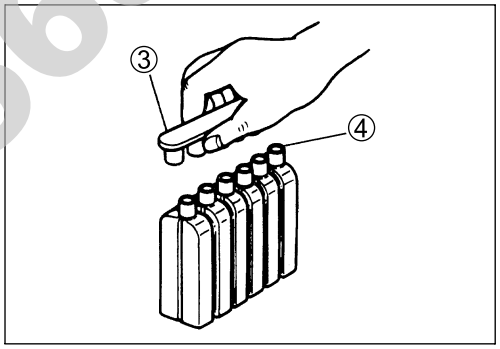


- Remove the caps ③ from the electrolyte container.

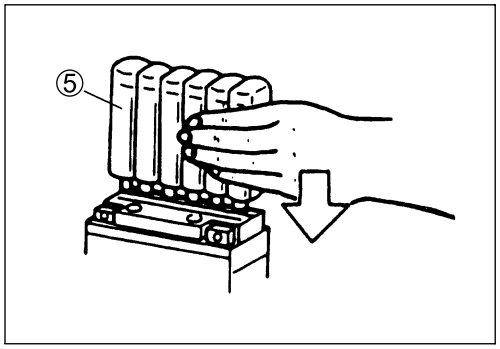
NOTE:

** Do not remove or pierce the sealed areas ④ of the electrolyte container.*

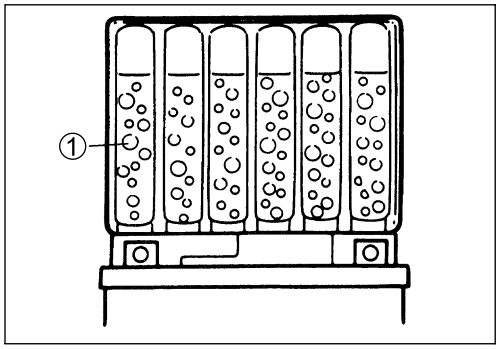
** After completely filling the battery with electrolyte, use the caps ③ from the electrolyte container to seal the battery filler holes.*



- Insert the nozzles of the electrolyte container ⑤ into the electrolyte filler holes of the battery. Hold the electrolyte container firmly so that it does not fall. Do not allow any of the electrolyte to spill.

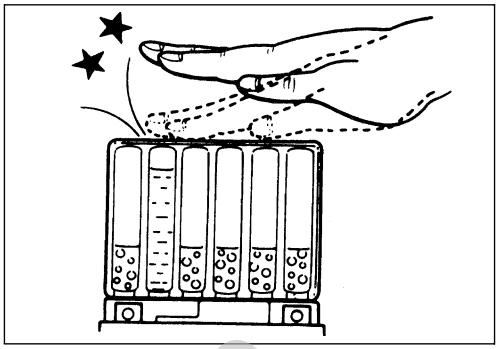


- Make sure the air bubbles ① rise to the top of each electrolyte container and leave the electrolyte container in this position for more than 20 minutes.



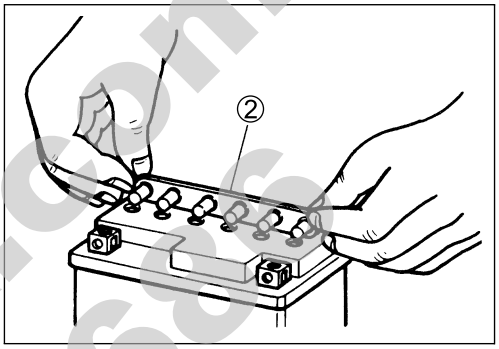
NOTE:
If air bubbles do not rise from any one of the filler ports, tap the bottom of the electrolyte container two or three times.
Never remove the electrolyte container from the battery while there is still electrolyte in the container.

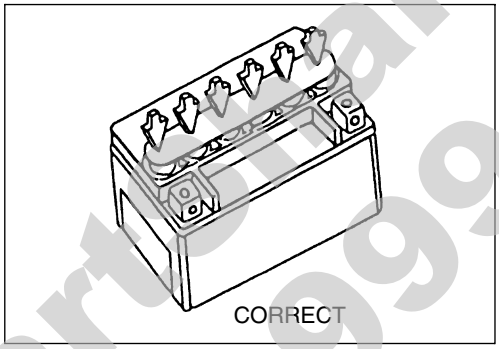
- After the electrolyte container is completely empty, remove it from the battery and wait about 20 minutes.
- Insert the caps ② firmly into the filler holes, so that the top of the caps do not protrude above the upper surface of the top cover of the battery.

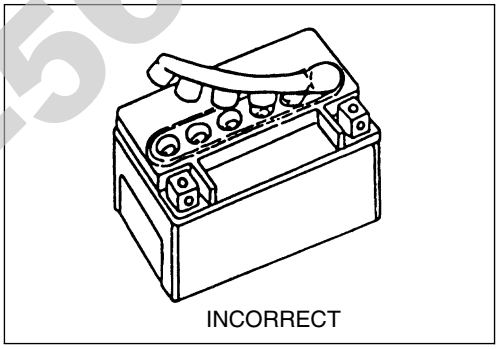


CAUTION

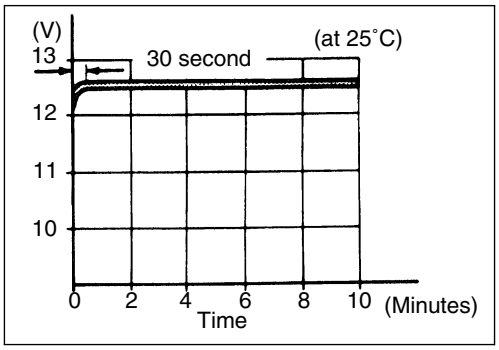
*** Never use anything except the specified battery.**
*** Once install the caps to the battery; do not remove the caps.**
*** Do not tap the caps with a hammer when installing them.**




CORRECT


INCORRECT

Measure the battery voltage using multi circuit tester. The tester should indicate more than 12.5 – 12.6 V (DC) as shown in the Fig. If the battery voltage is lower than the specification, charge the battery with a battery charger. (Refer to the recharging operation)



CAUTION

Do not remove the caps on the battery top while charging.

NOTE:
Initial charging for a new battery is recommended if two years have elapsed since the date of manufacture.

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, clean the battery terminals with sandpaper.

RECHARGING OPERATION

Measure the battery voltage using the multi circuit tester. If the voltage reading is less than the 12 V (DC), recharge the battery with a battery charger.

CAUTION

When recharging the battery, remove the battery from the vehicle.

NOTE:
While recharging, do not remove the caps on the top of the battery.

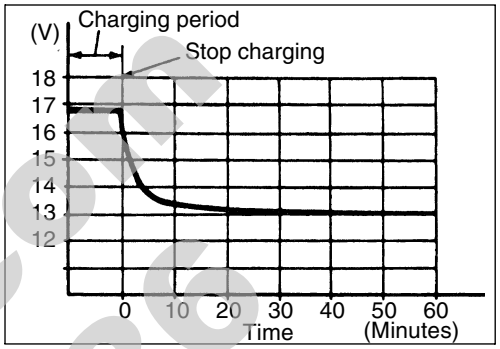
Recharging time: 1.4 A for 5 to 10 hours or 7 A for 1 hour.

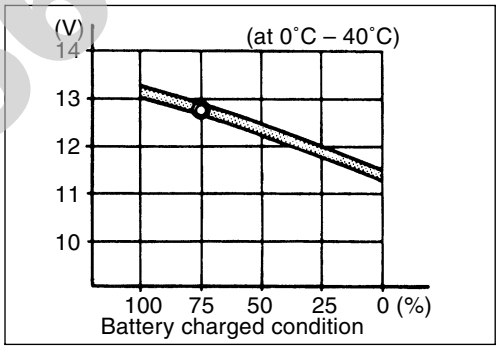
CAUTION

Be careful not to permit the charging current to exceed 7 A at any time.

After recharging, wait at least 30 minutes and then measure the battery voltage using the multi circuit tester. If the battery voltage is less than 12.5 V, recharge the battery again. If the battery voltage is still less than 12.5 V after recharging, replace the battery with a new one.

When a battery is left unused for a long time, its voltage needs to be regularly measured. When the vehicle is not used for more than one month (especially during the winter season), measure the battery voltage at least once a month.





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TROUBLESHOOTING

ENGINE

Complaint	Symptom and possible causes	Remedy
Engine will not start or is hard to start.	**Compression too low**	
	1. Worn cylinder.	Replace.
	2. Worn piston ring.	Replace.
	3. Worn valve guide or improper valve seating.	Repair or replace.
	4. Loose spark plug.	Tighten.
	5. Slow cranking starter motor.	See electrical section.
	6. Mistimed valves.	Adjust.
	7. Valve clearance out of adjustment.	Adjust.
	Spark plug not sparking	
	1. Fouled spark plug.	Clean or replace.
	2. Wet spark plug.	Clean and dry or replace.
	3. Defective ignition coil.	Replace.
	4. Open or short in high-tension cord.	Replace.
	5. Defective generator.	Replace.
	6. Defective CDI unit.	Replace.
	No fuel reaching the carburetor	
	1. Clogged fuel tank vent hose.	Clean or replace.
	2. Clogged or defective fuel valve.	Clean or replace.
	3. Defective carburetor needle valve.	Replace.
	4. Clogged fuel hose.	Clean or replace.
	5. Clogged fuel filter.	Clean or replace.
Engine stalls easily.	1. Fouled spark plug.	Clean or replace.
	2. Defective generator.	Replace.
	3. Defective CDI unit.	Replace.
	4. Clogged or defective fuel valve.	Clean or replace.
	5. Clogged carburetor jet.	Clean.
	6. Valve clearance out of adjustment.	Adjust.

Complaint	Symptom and possible causes	Remedy
Engine is noisy.	**Excessive valve chatter**	
	1. Excessive valve clearance.	Adjust.
	2. Weak or broken valve spring.	Replace.
	3. Worn rocker arm and rocker arm shaft.	Replace.
	Noise seems to come from the piston	
	1. Worn piston.	Replace.
	2. Worn cylinder.	Replace.
	3. Carbon build-up in combustion chamber.	Clean.
	4. Worn piston pin or piston pin bore.	Replace.
	5. Worn piston ring or ring groove.	Replace.
	Noise seems to come from the cam chain	
	1. Stretched cam chain.	Replace cam chain and sprockets.
	2. Worn cam chain sprocket.	Replace cam chain and sprockets.
	3. Improperly working cam chain tension adjuster.	Repair or replace.
	Noise seems to come from the clutch	
	1. Worn crankshaft spline.	Replace crankshaft.
	2. Worn inner race spline.	Replace inner race.
	Noise seems to come from the crankshaft	
	1. Rattling bearing.	Replace.
	2. Worn or burnt crank pin bearing.	Replace.
	3. Excessive thrust clearance.	Replace crankshaft or conrod.
	Noise seems to come from the movable drive and driven face	
	1. Worn or slipping drive belt.	Replace.
	2. Worn rollers in movable drive face.	Replace.
	Noise seems to come from the transfer	
	1. Worn or rubbing gear.	Replace.
	2. Worn transfer input/output shaft.	Replace shaft.
	3. Worn bearing.	Replace.
	4. Worn bushing.	Replace.
	Noise seems to come from front/rear output shaft bevel gear, front drive (differential) bevel gear and rear drive bevel gear	
	1. Worn or damage drive and driven bevel gears.	Replace.
	2. Excessive backlash.	Adjust.
	3. Improper tooth contact.	Adjust.
	4. Damage bearing.	Replace.
	5. Worn or rubbing gears.	Replace.
	6. Worn output shaft spline.	Replace output shaft.
	7. Front drive gear thrust clearance too large.	Adjust or replace.
	8. Rear drive gear thrust clearanve too large.	Adjust or replace.
Transfer will not shift.	1. Broken gearshift cam.	Replace.
	2. Distorted gearshift fork.	Replace.
	3. Worn gearshift shaft.	Replace.
	4. Improperly adjusted gearshift cable.	Adjust.

Complaint	Symptom and possible causes	Remedy
Slipping clutch.	1. Worn or damaged clutch shoes.	Replace.
	2. Weakened clutch shoe springs.	Replace.
	3. Worn clutch housing.	Replace.
	4. Worn or slipping drive belt.	Replace.
Engine idles poorly.	1. Valve clearance out of adjustment.	Adjust.
	2. Improper valve seating.	Replace.
	3. Defective valve guide.	Replace.
	4. Worn rocker arm or rocker arm shaft.	Replace.
	5. Excessive spark plug gap.	Adjust or replace.
	6. Defective ignition coil.	Replace.
	7. Defective CDI unit.	Replace.
	8. Defective generator.	Replace.
	9. Incorrect float chamber fuel level.	Adjust float height.
	10. Clogged carburetor jet.	Clean.
	11. Defective fuel valve.	Replace.
	12. Improperly set pilot screw.	Adjust.
Engine runs poorly in high-speed range.	1. Weak valve spring.	Replace.
	2. Worn camshaft.	Replace.
	3. Insufficient spark plug gap.	Regap or replace.
	4. Mistimed valves.	Adjust.
	5. Defective ignition coil.	Replace.
	6. Low float chamber fuel level.	Adjust float height.
	7. Dirty air cleaner element.	Clean or replace.
	8. Clogged fuel hose, resulting in inadequate fuel supply to carburetor.	Clean and prime.
	9. Defective fuel valve.	Replace.
Exhaust smoke is dirty or thick.	1. Excessive amount of engine oil.	Check level and drain.
	2. Worn piston ring.	Replace.
	3. Worn valve guide.	Replace.
	4. Scored or scuffed cylinder wall.	Replace.
	5. Worn valve stem.	Replace valve.
	6. Defective valve stem oil seal.	Replace.
Engine lacks power.	1. Insufficient valve clearance.	Adjust.
	2. Weak valve spring.	Replace.
	3. Mistimed valves.	Adjust.
	4. Worn cylinder.	Replace.
	5. Worn piston ring.	Replace.
	6. Improper valve seating.	Repair.
	7. Fouled spark plug.	Clean or replace.
	8. Incorrect spark plug gap.	Adjust or replace.
	9. Clogged carburetor jet.	Clean.
	10. Incorrect float chamber fuel level.	Adjust float height.
	11. Dirty air cleaner element.	Clean or replace.
	12. Worn rocker arm or shaft.	Replace.
	13. Air leakage from intake pipe.	Tighten or replace.
	14. Excessive amount of engine oil.	Check level and drain.
Engine overheats.	1. Carbon build-up on piston crown.	Clean.
	2. Insufficient amount of engine oil.	Check level and add.
	3. Defective oil pump.	Replace.
	4. Clogged oil circuit.	Clean.
	5. Float chamber fuel level too low.	Adjust float height.
	6. Air leakage from intake pipe.	Tighten or replace.
	7. Incorrect engine oil.	Change.

DRIVE TRAIN

Complaint	Symptom and possible causes	Remedy
Power will not transmit from the engine to the rear wheel.	1. Broken drive and driven bevel gear teeth.	Replace.
	2. Broken rear output shaft.	Replace.
	3. Worn or broken rear axle serration.	Replace.
	4. Worn or dameged coupling joint serration.	Replace.
	5. Broken or damaged rear drive and driven bevel gears.	Replace.
	6. Worn or damaged universal joint.	Replace.
Power will not transmit from engine to the front wheel.	1. Broken drive and driven bevel 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 dameged front drive (differential) gear or pinion.	Replace.
	6. Improperly operated front drive (differential) shifting motor.	Repair or replace.
	7. Worn or damaged shifting sleeve, shaft and fork of the 2WD/4WD shifting.	Replace.
	8. Worn or damaged universal joint.	Replace.
	9. Worn or damaged front axle or universal joint serration.	Replace.

CARBURETOR

Complaint	Symptom and possible causes	Remedy
Starting difficulty.	1. Clogged starter jet.	Clean.
	2. Clogged starter jet passage.	Clean.
	3. Air leaking from joint between starter body and carburetor.	Tighten, adjust or replace gasket.
	4. Improperly working starter (enricher) plunger.	Adjust.
Idling or low-speed trouble.	1. Clogged or loose slow jet.	Clean or tighten.
	2. Clogged slow jet passage.	Clean.
	3. Clogged pilot outlet port.	Clean.
	4. Clogged bypass port.	Clean.
	5. Starter (enricher) plunger not fully closed.	Adjust.
	6. Improperly set pilot screw.	Adjust.
	7. Incorrect float height.	Adjust.
Medium-or high speed trouble.	1. Clogged main jet.	Clean.
	2. Clogged main air jet.	Clean.
	3. Clogged needle jet.	Clean.
	4. Improperly working throttle valve.	Adjust.
	5. Clogged fuel filter.	Clean or replace.
	6. Incorrect float height.	Adjust.
	7. Starter (enricher) plunger not fully closed.	Adjust.
Overflow and fuel level fluctuations.	1. Worn or damaged needle valve.	Replace.
	2. Broken needle valve spring.	Replace.
	3. Improperly working float.	Adjust or replace.
	4. Foreign matter on the needle valve.	Clean or replace with needle valve seat.
	5. Incorrect float chamber fuel level.	Adjust float height.

CHASSIS

Complaint	Symptom and possible causes	Remedy
Handling is too heavy or stiff.	1. Improper front wheel alignment. 2. Insufficiently lubricated. 3. Low air pressure in front tires. 4. Tie rod ends tending to seize. 5. Linkage connections tending to seize.	Adjust. Lubricate. Adjust. Replace. Repair or replace.
Steering wobbles.	1. Unequally inflated tires. 2. Loose front wheel hub nuts. 3. Damaged or worn front wheel hub bearings. 4. Worn or loose tie rod ends. 5. Defective or incorrect front tires. 6. Damaged or worn wishbone arms and related bushings. 7. Distorted front wheels. 8. Loose chassis nuts and bolts.	Regulate. Tighten. Replace. Replace or tighten. Replace. Replace. Replace. Tighten.
Steering pulls to one side.	1. Unequally inflated tires. 2. Improper front wheel alignment. 3. Worn front wheel hub bearings. 4. Distorted frame. 5. Defective shock absorber.	Regulate. Adjust. Replace. Repair or replace. Replace.
Shocks felt in the steering.	1. High tire pressure. 2. Worn steering linkage connections. 3. Loose suspension system bolts.	Regulate. Replace. Tighten.
Tires rapidly or unevenly wear.	1. Worn or loose front wheel hub bearings. 2. Improper front wheel alignment.	Replace. Adjust.
Steering too noisy.	1. Loose nuts and bolts. 2. Damaged or worn front wheel hub bearings. 3. Insufficiently lubricated.	Tighten. Replace. Lubricate.
Suspension too soft.	1. Weakened spring. 2. Shock absorber leaks oil. 3. Improper suspension setting.	Replace. Replace. Adjust.
Suspension too stiff.	1. Worn upper or lower wishbone arms and related bushings. 2. Improper suspension setting. 3. Bent shock absorber rod.	Tighten. Adjust. Replace.
Suspension too noisy.	1. Loose suspension system bolts. 2. Worn wishbone arms and related bushings. 3. Worn swingarm bearings.	Tighten. Replace. Replace.
Rear wheels wobble.	1. Distorted rear wheel rims. 2. Damage or worn rear wheel hub bearings. 3. Defective or incorrect rear tires. 4. Loose rear wheel hub nuts. 5. Loose rear axle shaft nut. 6. Loosen rear axle housing mounting bolts. 7. Improper rear brake adjustment. 8. Damaged or worn rear swingarm and related bushings. 9. Rear shock absorber leaks oil. 10. Loose rear swingarm arm nut.	Replace. Replace. Replace. Tighten. Tighten. Tighten. Adjust. Replace. Replace. Tighten.

BRAKES

Complaint	Symptom and possible causes	Remedy
Poor braking.	1. Insufficient brake fluid. 2. Air in brake fluid circuit. 3. Worn pads. 4. Too much play on brake pedal.	Refill to level mark. Bleed air out. Replace. Adjust.
Insufficient brake power.	1. Leakage of brake fluid from hydraulic system. 2. Worn pads. 3. Oil adhesion on engaging surface of pads. 4. Worn disc. 5. Air in hydraulic system.	Repair or replace. Replace. Clean disc and pads. Replace. Bleed.
Brake squeaks.	1. Carbon adhesion on pad surface. 2. Titled pad. 3. Loose front wheel axle or rear wheel axle. 4. Worn brake pads. 5. Foreign material in brake fluid. 6. Clogged return port of master cylinder. 7. Caliper binding on caliper axles.	Repair surface with emery paper. Modify pad fitting or replace. Tighten to specified torque. Replace. Replace brake fluid. Disassemble and clean master cylinder. Clean and lubricate.
Excessive brake lever stroke.	1. Air in hydraulic system. 2. Insufficient brake fluid. 3. Improper quality of brake fluid.	Bleed. Replenish fluid to specified level and bleed air. Replace with correct fluid.
Brake fluid leakage.	1. Insufficient tightening of connection joints. 2. Cracked hose. 3. Worn piston and/or cup.	Tighten to specified torque and add brake fluid. Replace. Replece piston and/or cup.

RADIATOR (COOLING SYSTEM)

Complaint	Symptom and possible causes	Remedy
Engine overheats.	1. Not enough engine coolant. 2. Clogged radiator core with dirt or scale. 3. Fautly cooling fan. 4. Defective cooling fan thermo-switch. 5. Clogged water passage. 6. Air trapped in the cooling circuit. 7. Defective water pump. 8. Use of incorrect coolant. 9. Defective thermostat.	Add coolant. Clean. Repair or replace. Replace. Clean. Bleed air. Replace. Replace. Replace.
Engine overcools.	1. Defective cooling fan thermo-switch. 2. Extremely cold weather. 3. Defective thermostat.	Replace. Put on radiator cover. Replace.

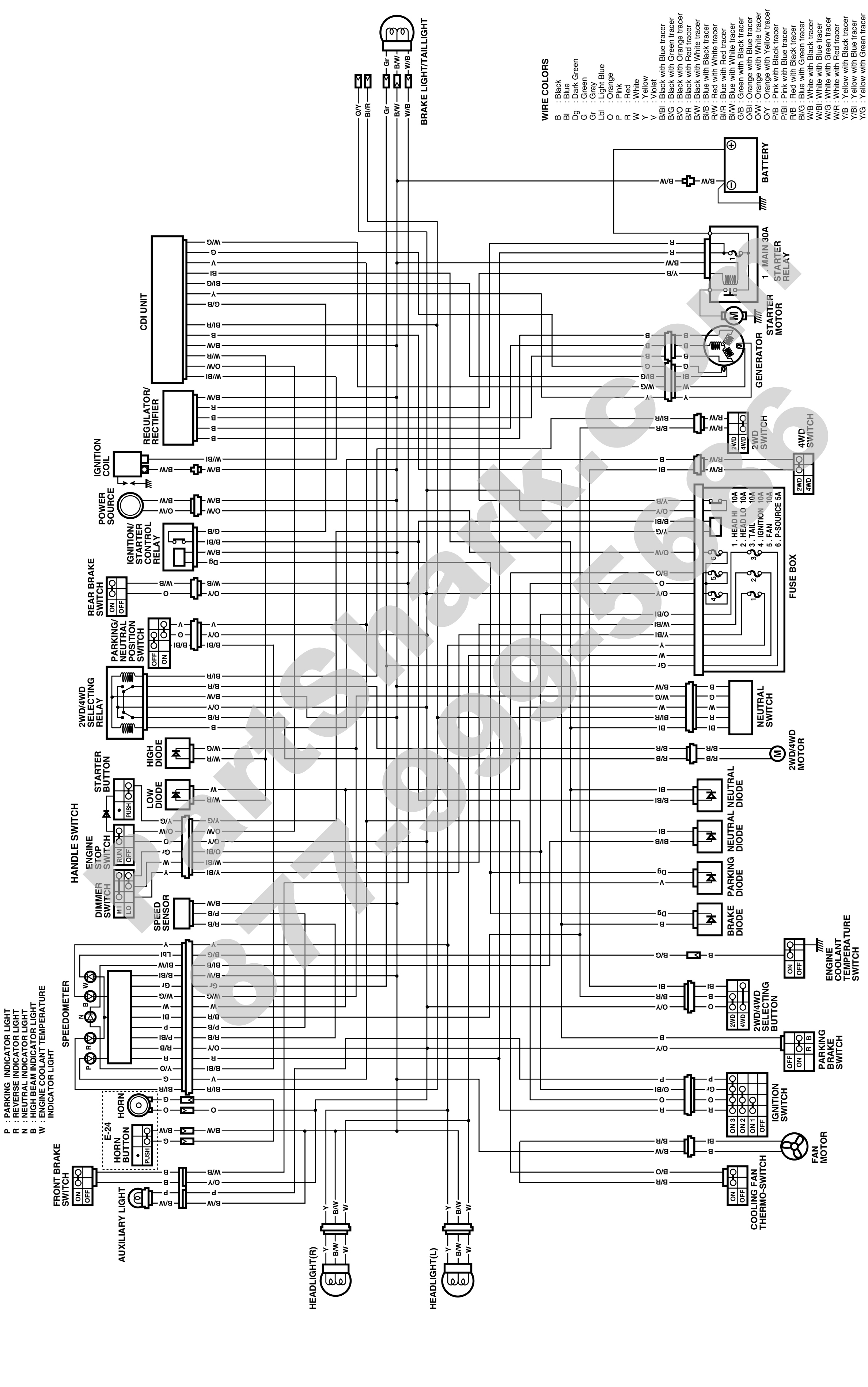
ELECTRICAL

Complaint	Symptom and possible causes	Remedy
No sparking or poor sparking.	1. Defective ignition coil. 2. Defective spark plug. 3. Defective generator. 4. Defective CDI unit. 5. Defective pickup coil or power source coil.	Replace. Replace. Replace. Replace. Replace.
Spark plug is wet or quickly becomes fouled with carbon.	1. Excessively rich air/fuel mixture. 2. Excessively high idling speed. 3. Incorrect gasoline. 4. Dirty air cleaner element. 5. Incorrect spark plug (cold type).	Adjust carburetor. Adjust carburetor. Change. Clean or replace. Change to standard spark plug.
Spark plug quickly becomes fouled with oil or carbon.	1. Worn piston ring. 2. Worn piston. 3. Worn cylinder. 4. Excessive valve-stem-to-valve-guide clearance. 5. Worn valve stem oil seal.	Replace. Replace. Replace. Replace. Replace.
Spark plug electrodes overheat or burn.	1. Incorrect spark plug. 2. Overheated engine. 3. Loose spark plug. 4. Excessively lean air/fuel mixture.	Change to cold type spark plug. Turn-up. Tighten. Adjust carburator.
Generator does not charge.	1. Open or short in lead wires, or loose lead connections. 2. Shorted, grounded or open generator coil. 3. Shorted or punctured regulator/rectifier.	Repair, replace or connect properly. Replace. Replace.
Generator charges but charging rate is below specification.	1. Lead wires tend to get shorted, open-circuited, or loosely connected at terminal. 2. Grounded or open-circuited stator coils or generator. 3. Defective regulator/rectifier.	Repair or tighten. Replace. Replace.
Generator over-charges.	1. Internal short-circuit in the battery. 2. Damaged or defective regulator/rectifier.	Replace battery. Replace.
Unstable charging.	1. Lead wire insulation frayed due to vibration, resulting in intermittent shorting. 2. Internally shorted generator. 3. Defective regulator/rectifier.	Repair or replace. Replace. Replace.
Starter button does not work.	1. Run down battery. 2. Defective switch contact. 3. Brushes do not seat properly on the commutator in the starter motor. 4. Defective starter relay. 5. Defective ignition/starter control relay. 6. Defective parking brake switch. 7. Wiring connections loose or disconnected.	Recharge or replace. Replace. Repair or replace. Replace. Replace. Replace. Connect, tighten or repair.
2WD/4WD button does not work.	1. Defective 2WD/4WD selecting relay. 2. Defective 2WD switch or 4WD switch. 3. Wiring connections loose or disconnected.	Replace. Replace. Connect, tighten or repair.

BATTERY

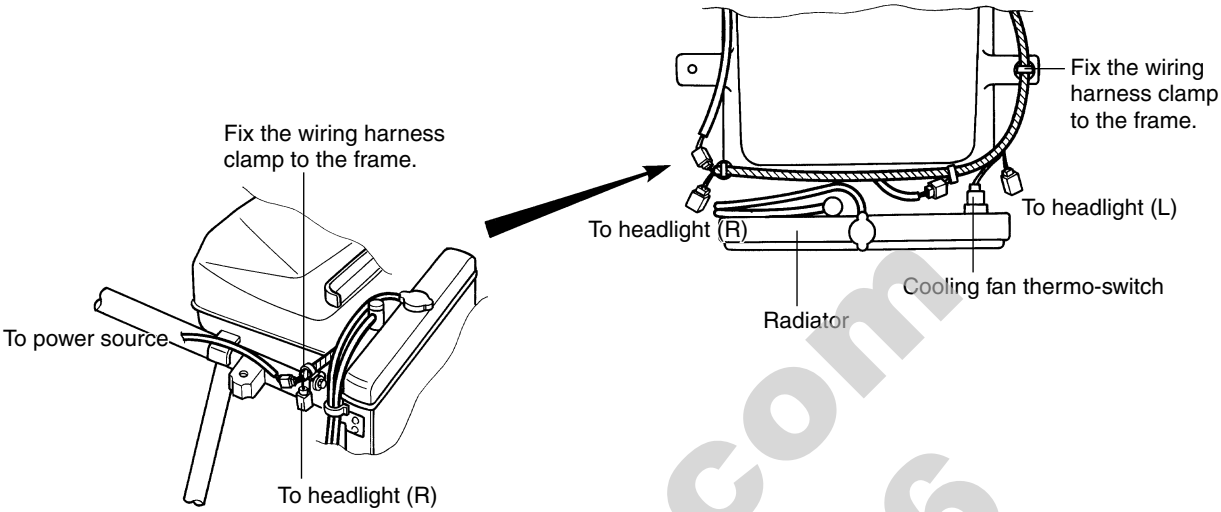
Complaint	Symptom and possible causes	Remedy
Sulfation or spots on surfaces of cell plates.	1. Cracked battery case. 2. Battery has been left in a run-down condition for a long time.	Replace. Replace.
Battery runs down quickly.	1. Incorrect charging method. 2. Battery cell plates have lost much of their active material as a result of overcharging. 3. Internally shorted battery. 4. Old battery.	Check the generator, and regulator/rectifier circuit connections, and make necessary adjustments to obtain specified charging operation. Replace the battery and correct the charging system. Replace. Replace.
Reversed battery polarity.	1. Improperly connected battery leads. (i.e., ⊖ to ⊕ and ⊕ to ⊖)	Replace the battery and be sure to connect it properly.
Battery discharged too rapidly.	1. Dirty container top and sides. 2. Old battery.	Clean. Replace.
Battery sulfation.	1. Incorrect charging rate. (When not in use, the battery should be checked at least once a month and properly charged if necessary, to avoid sulfation.) 2. The battery was left unused in a cold climate for too long.	Replace. Replace the battery if badly sulfated.

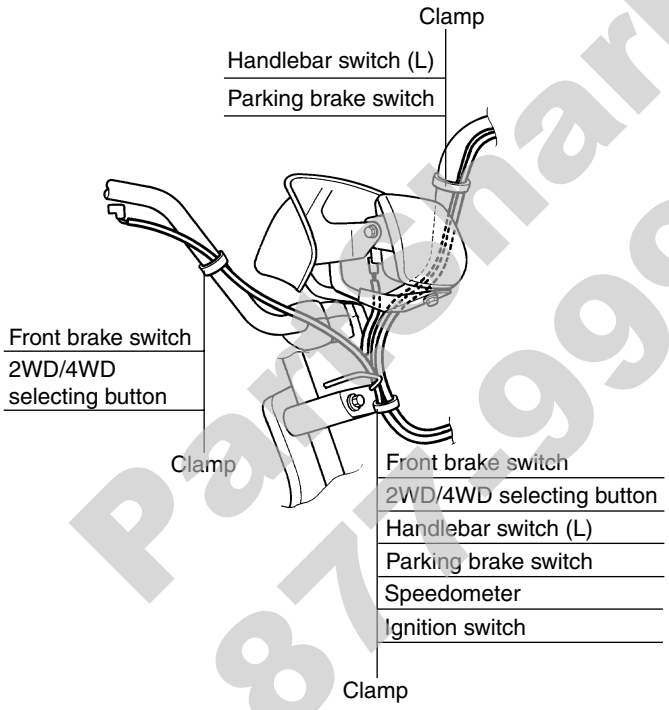
WIRING DIAGRAM

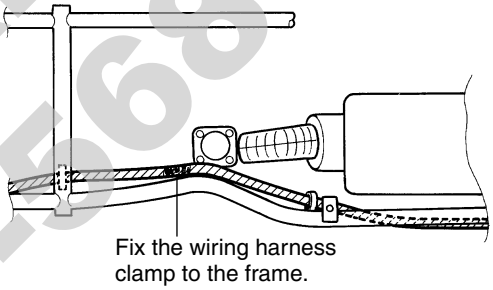


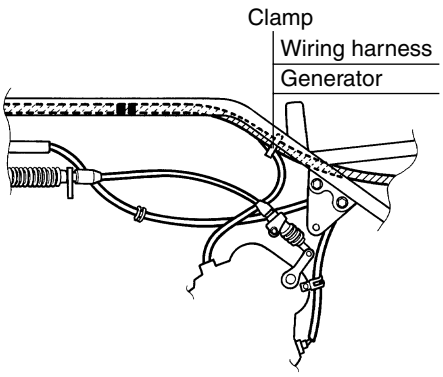
WIRING HARNESS, CABLE, AND HOSE ROUTING

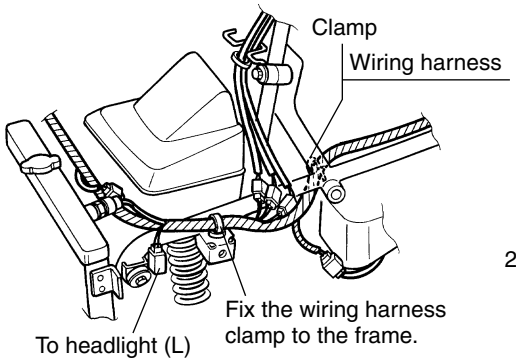
WIRING HARNESS ROUTING

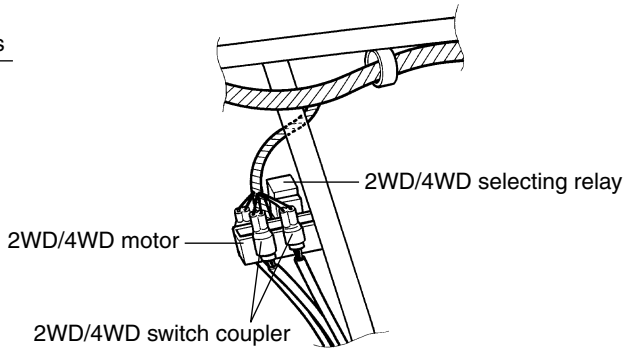


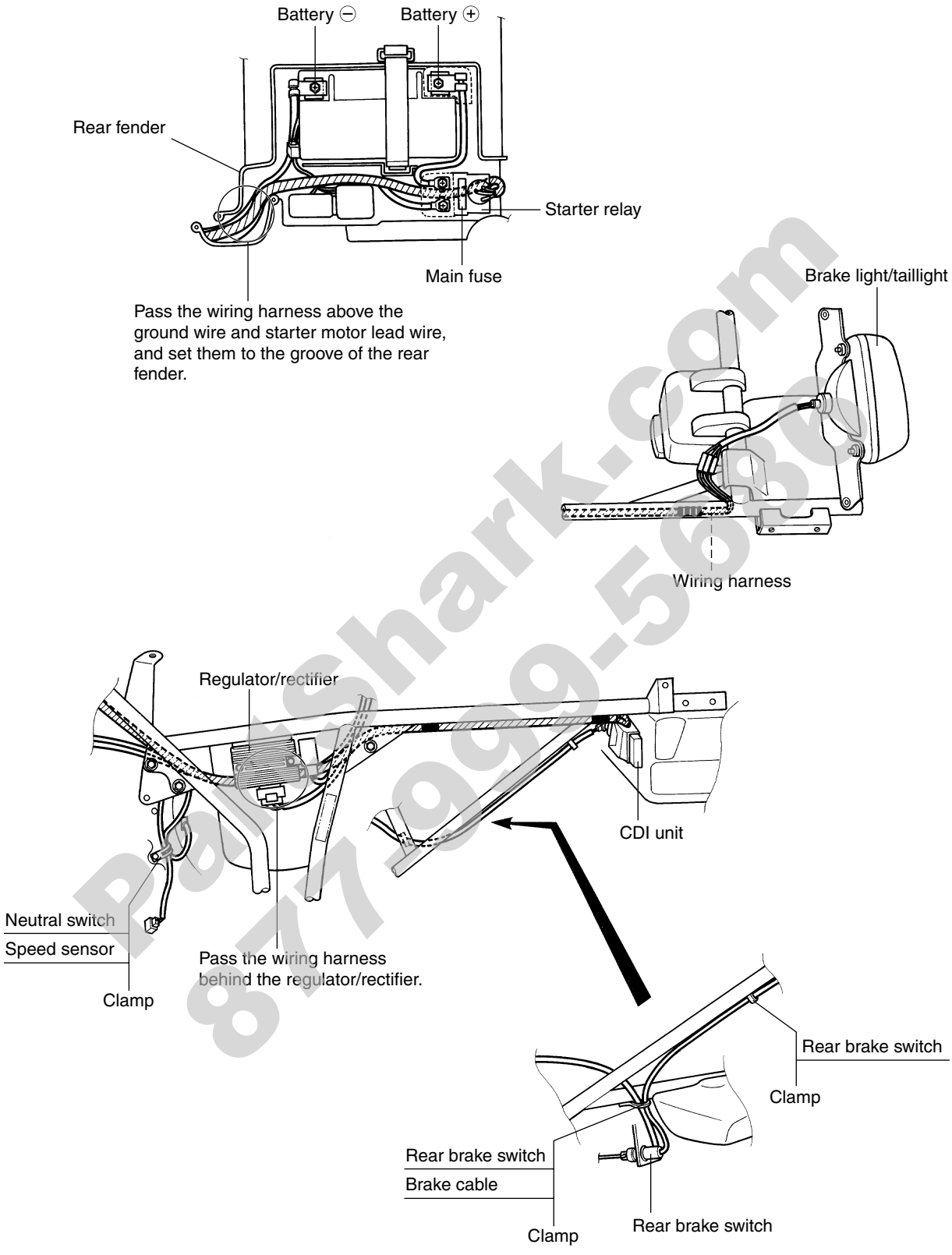


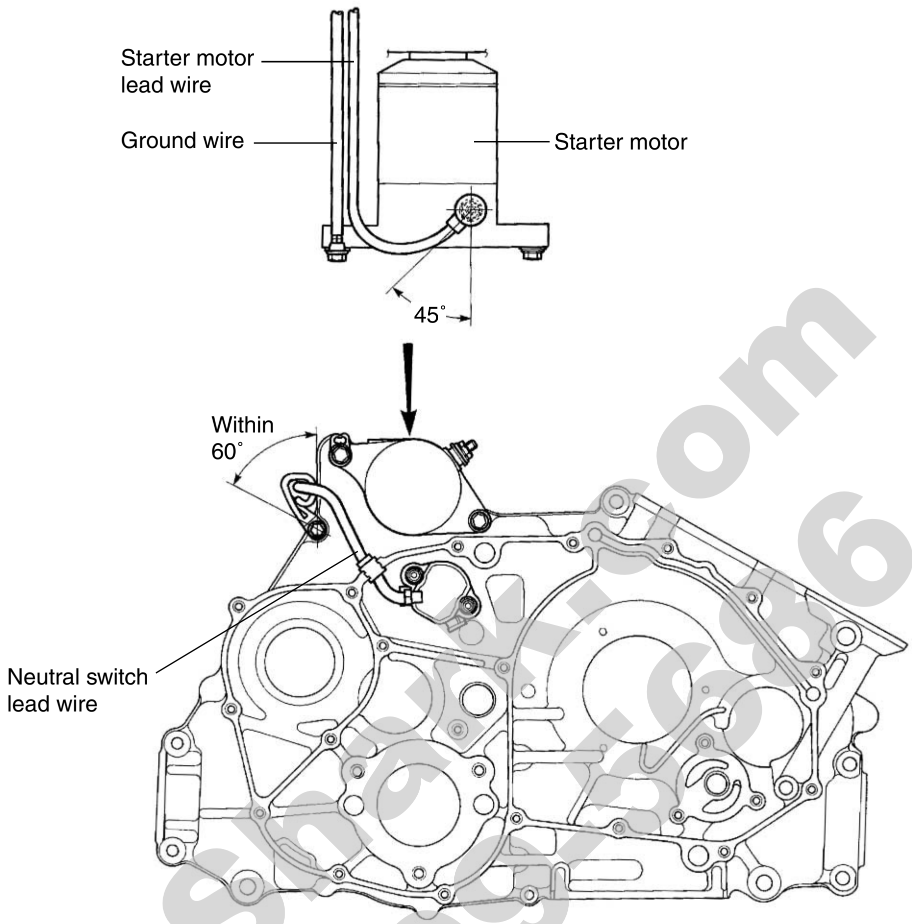




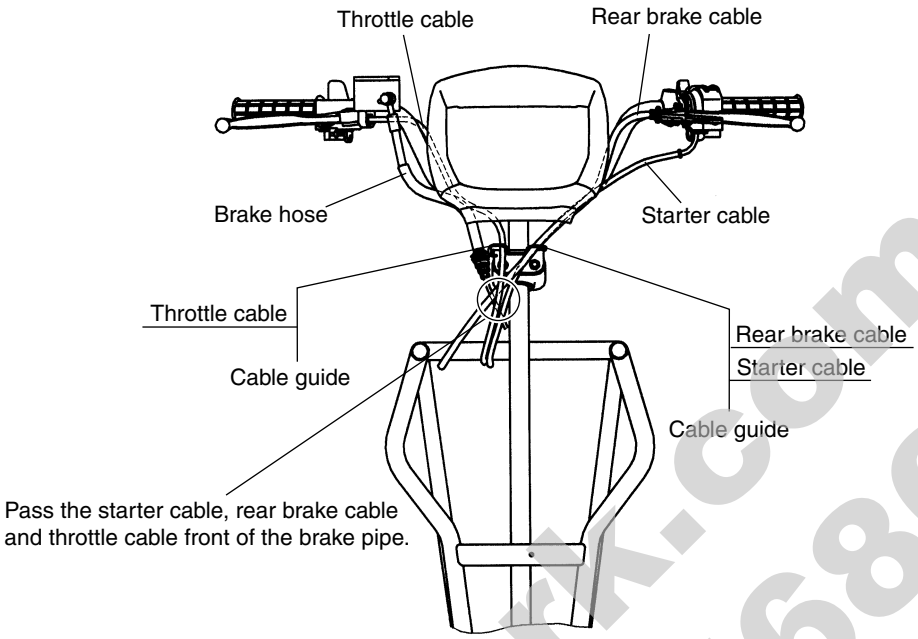


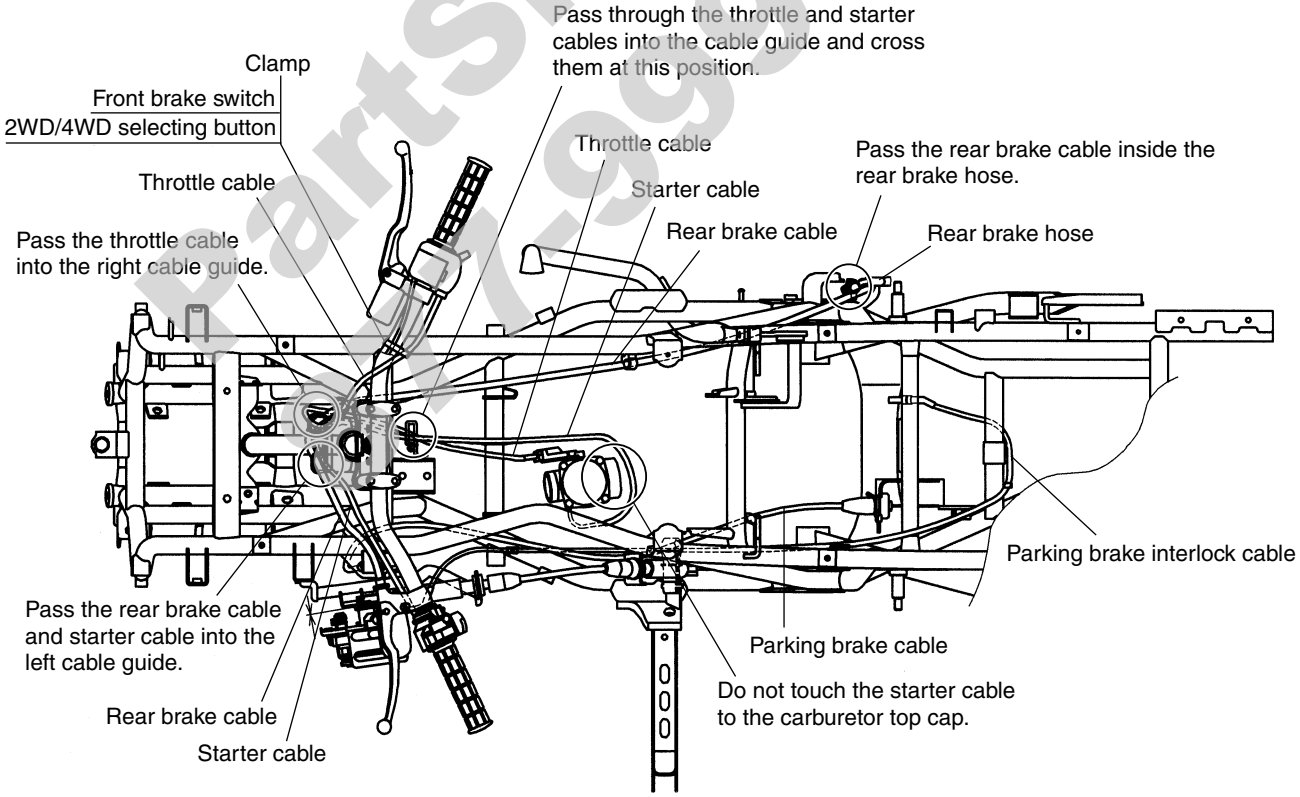


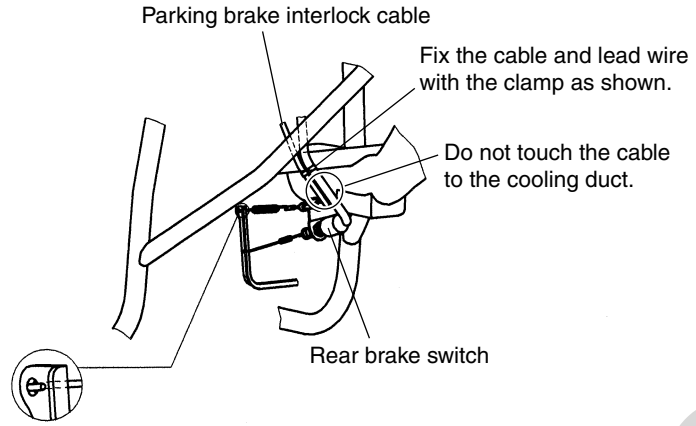




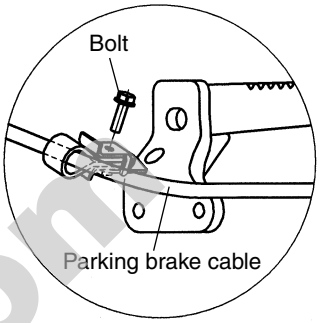
CABLE ROUTING







VIEW A



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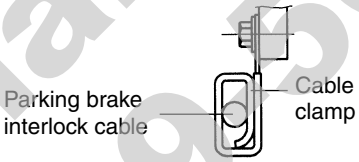

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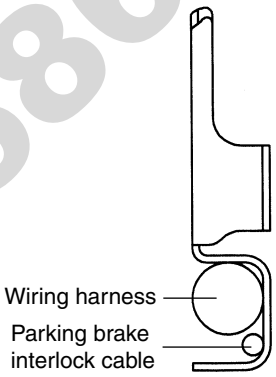

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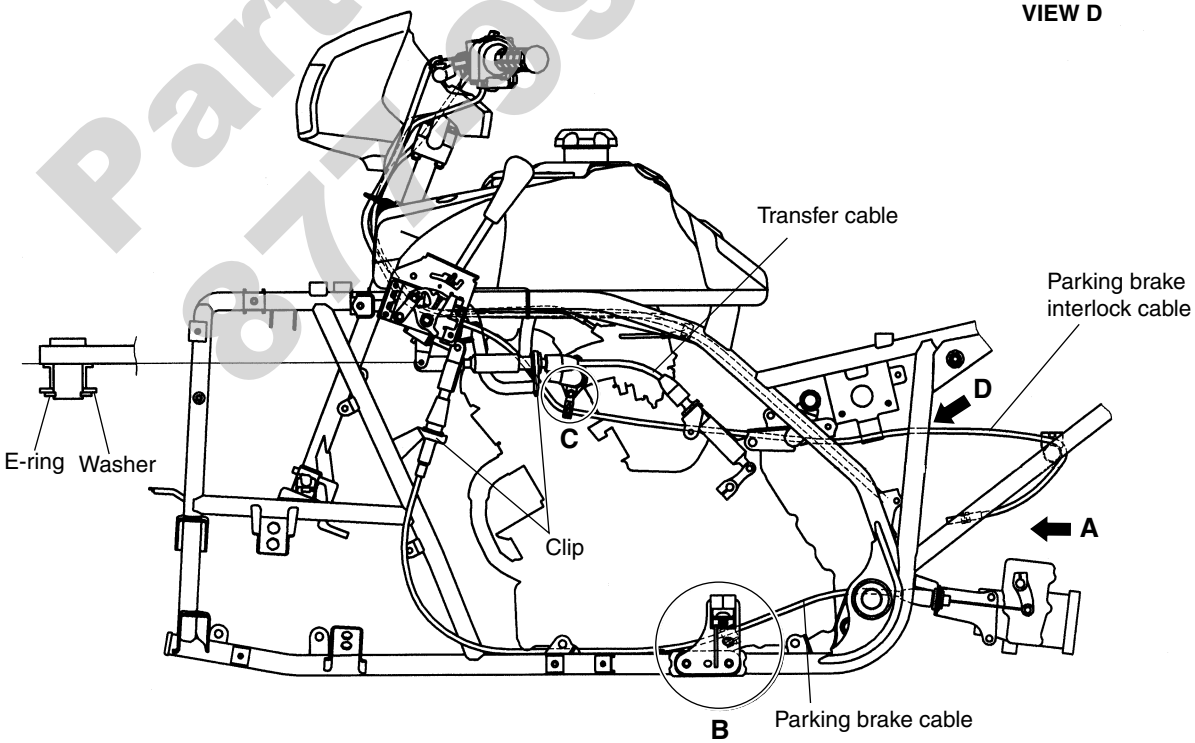
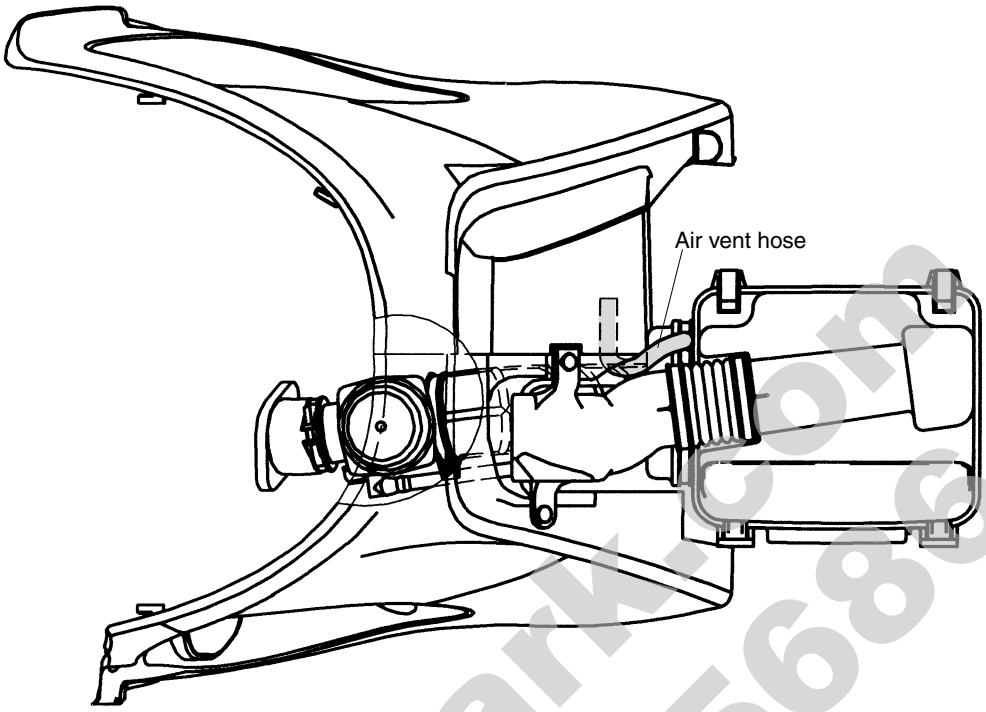
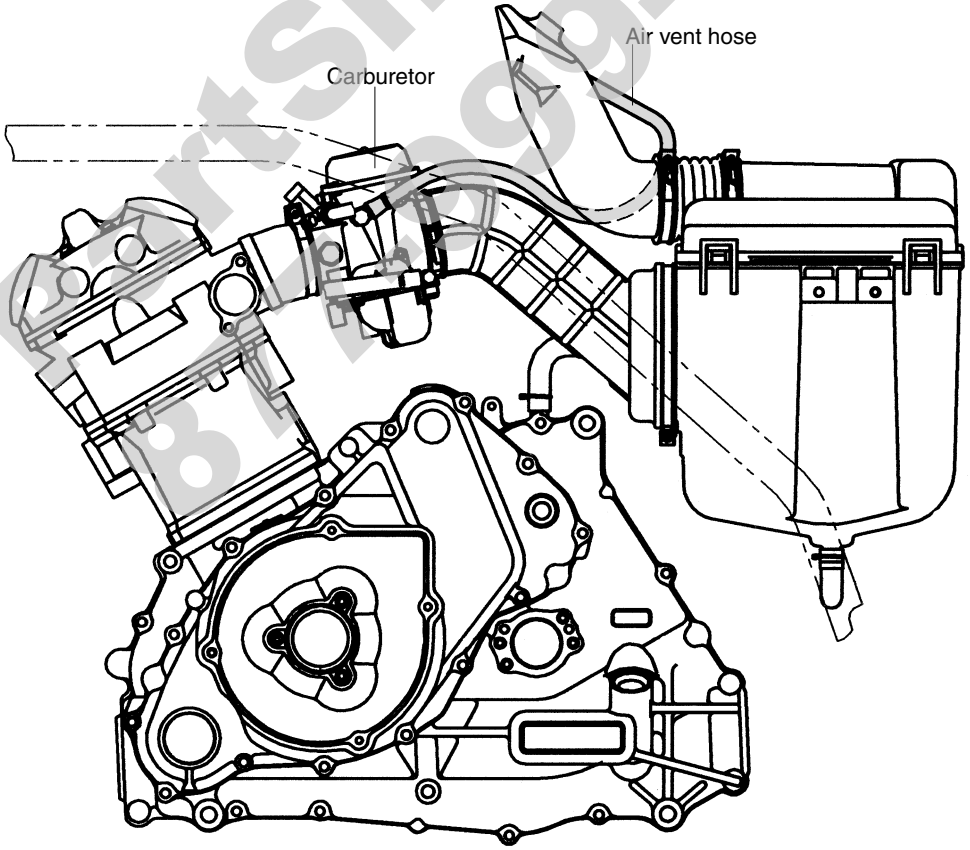
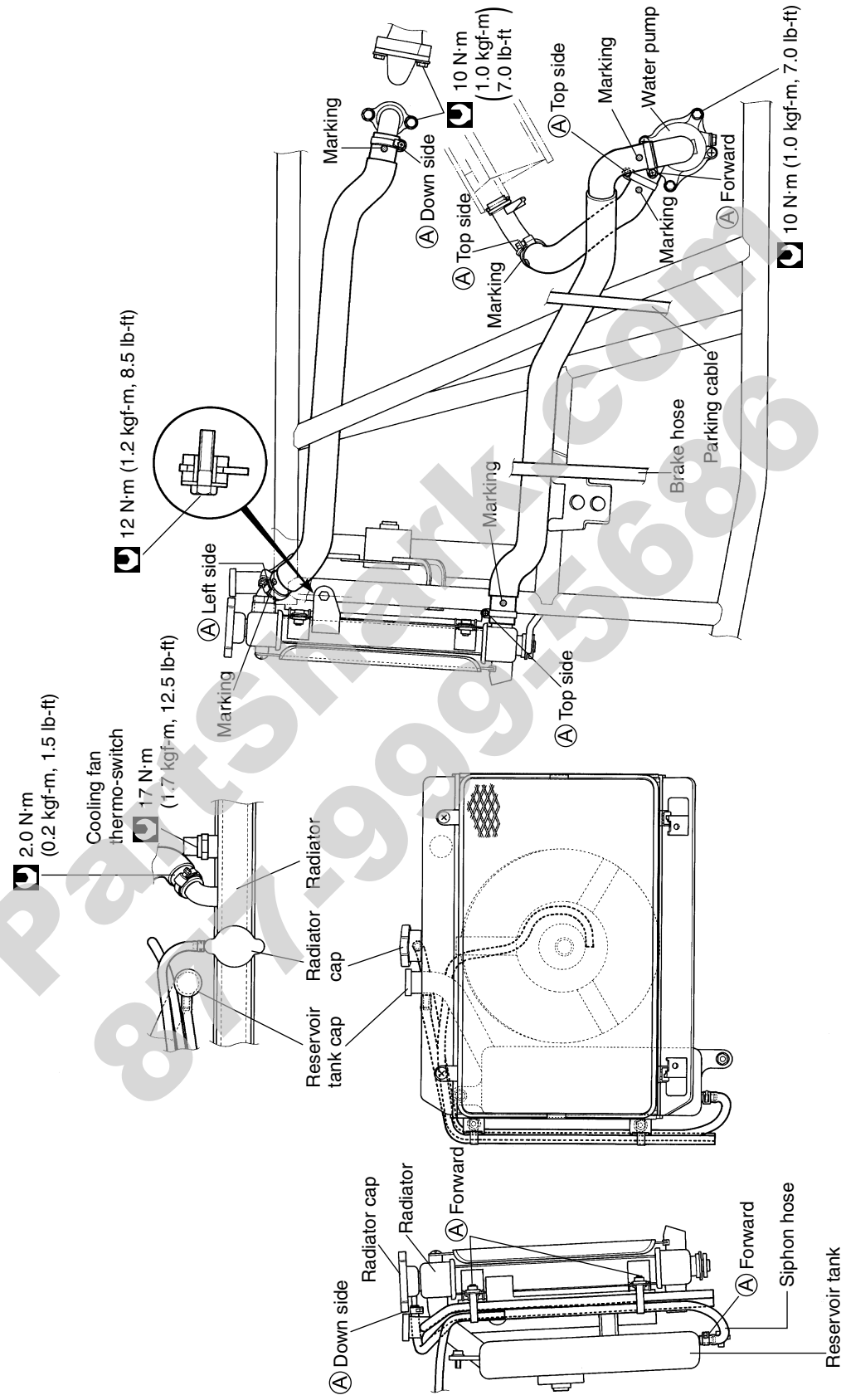


CARBURETOR HOSE ROUTING

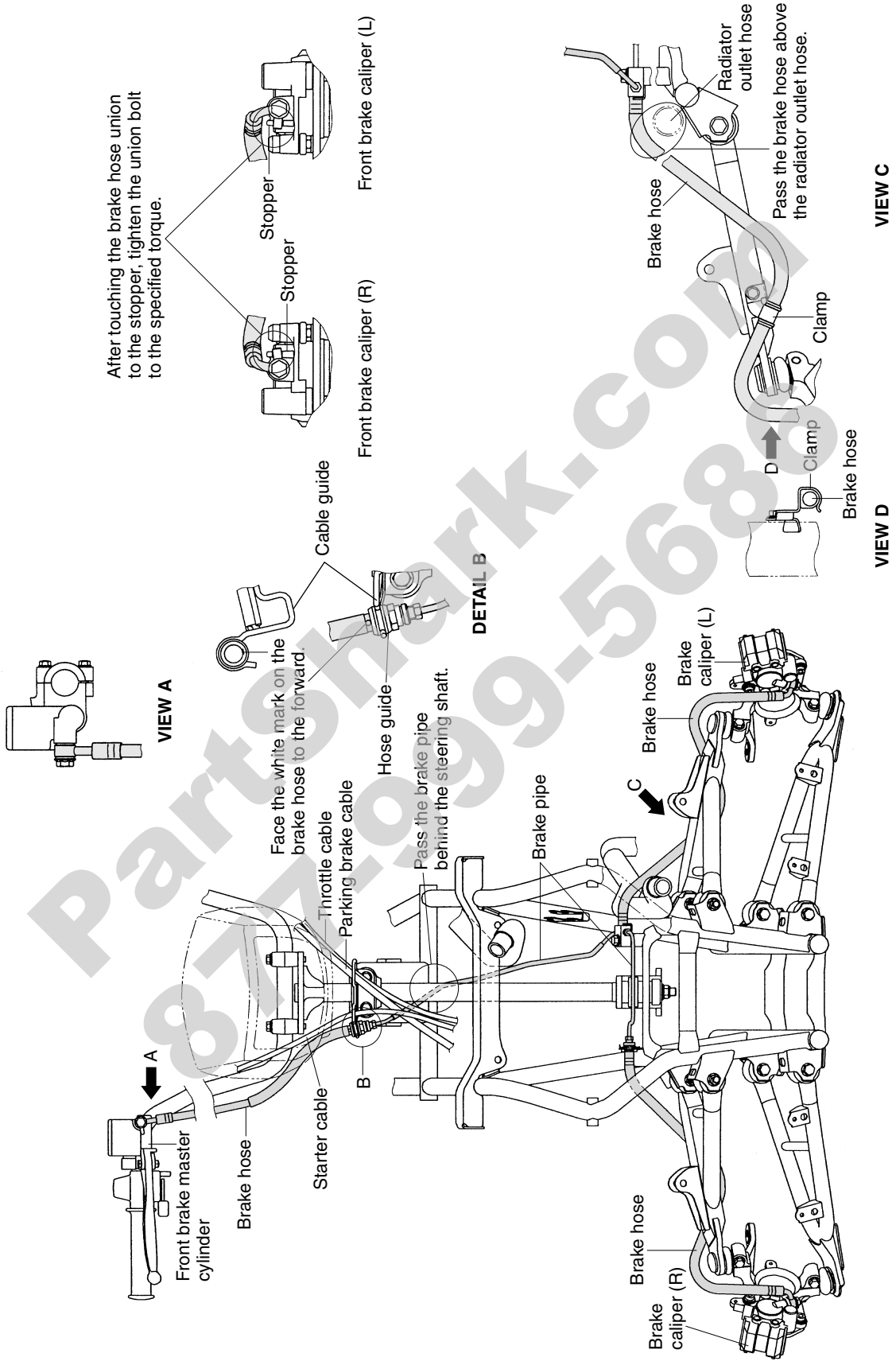




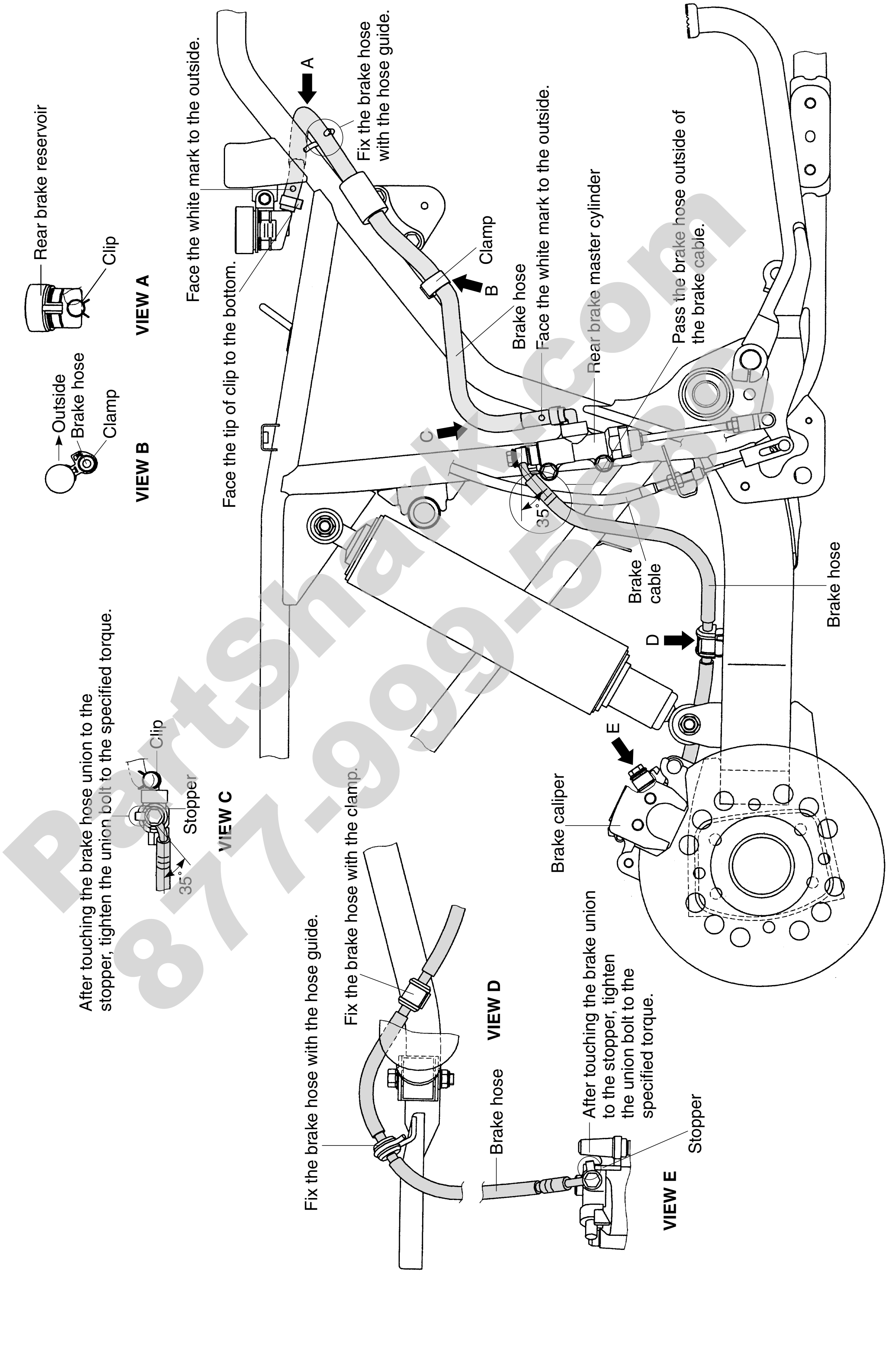
COOLING SYSTEM HOSE ROUTING



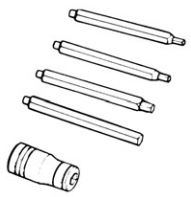
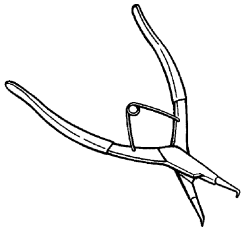
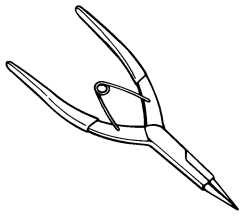
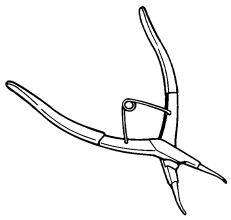
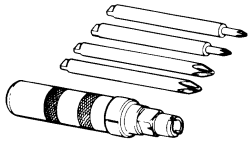
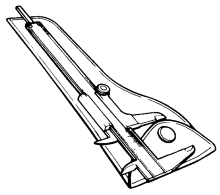
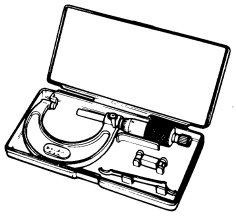
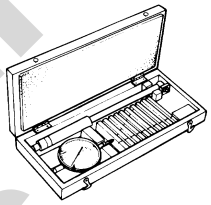
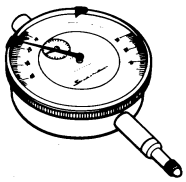
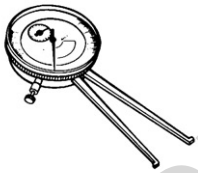
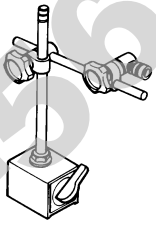
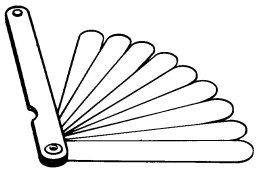
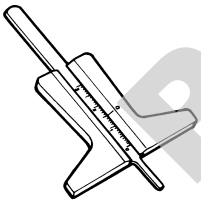
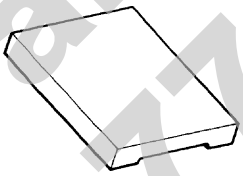
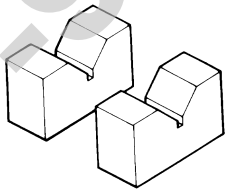
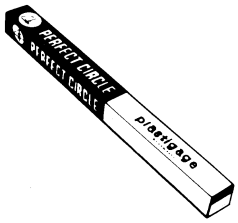
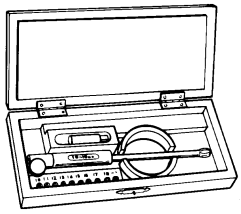
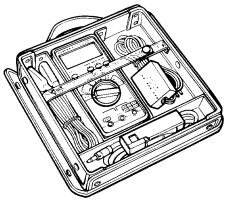
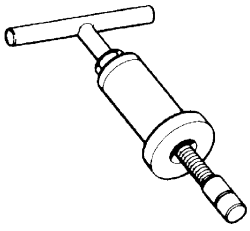
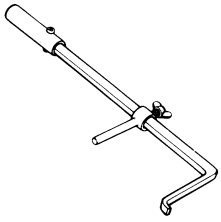
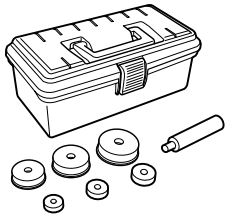
FRONT BRAKE HOSE ROUTING

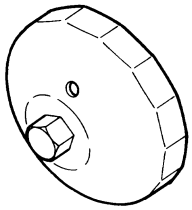
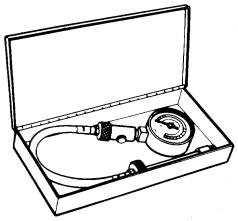
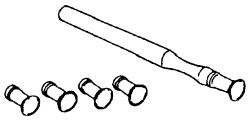
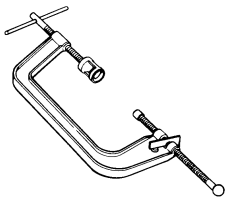
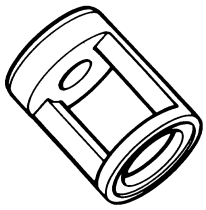
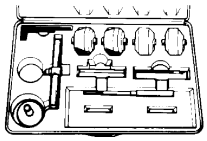
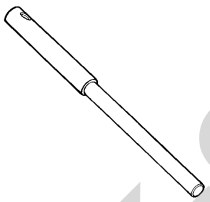
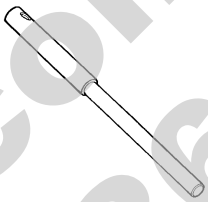
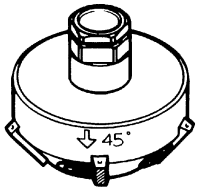
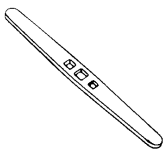
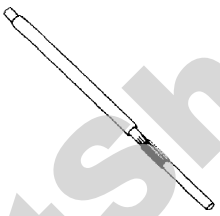
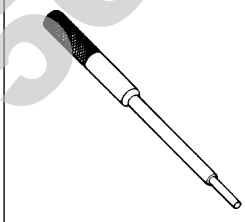
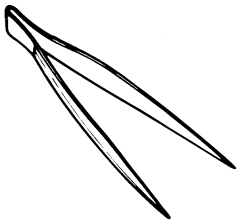
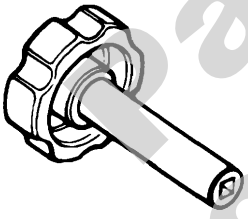
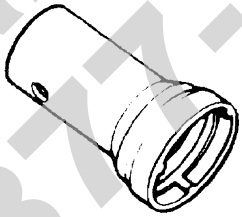
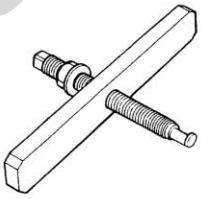
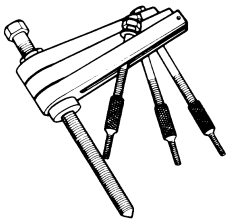
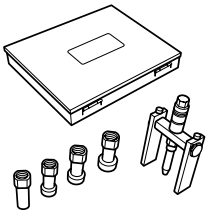
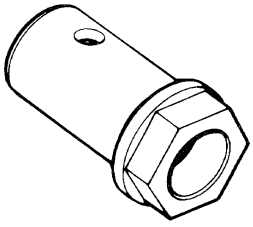
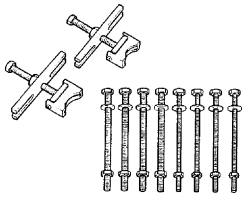
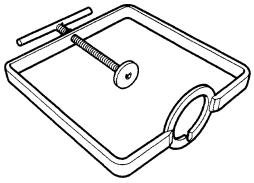
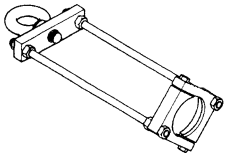
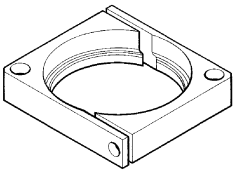


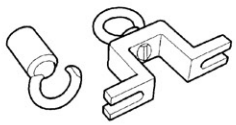
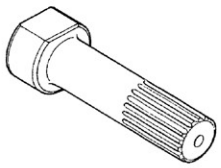
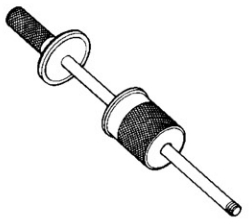
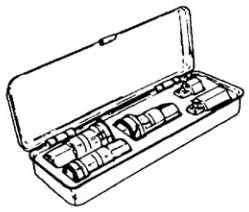
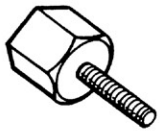
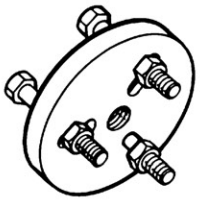
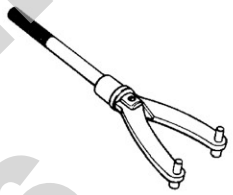
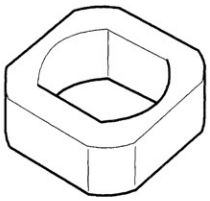
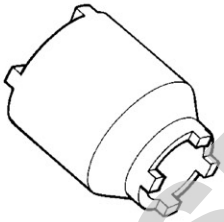
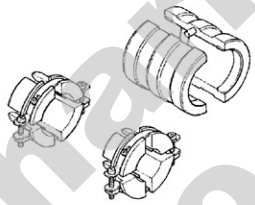
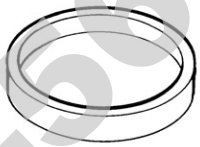
REAR BRAKE HOSE ROUTING



SPECIAL TOOLS

 **09900-00410 Hexagon wrench set**	 **09900-06106 Snap ring pliers**	 **09900-06107 Snap ring pliers**	 **09900-06108 Snap ring pliers**	 **09900-09004 Impact driver set**
 **09900-20101 Vernier calipers**	 **09900-20202 Micrometer (1/100 mm, 25–50 mm)**	 **09900-20204 Micrometer (1/100 mm, 75–100 mm)**	 **09900-20205 Micrometer (1/1000 mm, 0–25 mm)**	 **09900-20508 Cylinder gauge set (1/100 mm, 40–80 mm)**
 **09900-20602 Dial gauge (1/1000 mm)**	 **09900-20605 Dial calipers (1/100 mm, 10–34 mm)**	 **09900-20607 Dial gauge (1/100 mm)**	 **09900-20701 Magnetic stand**	 **09900-20803 Tickness gauge**
 **09900-20805 Tire depth gauge**	 **09900-21203 Surface plate**	 **09900-21304 V-block set (100 mm)**	 **09900-22302 Plastigauge**	 **09900-22403 Small bore gauge (18–35 mm)**
 **09900-25008 Multi circuit tester set**	 **09900-26006 Tachometer**	 **09910-32812 Crankshaft installer**	 **09913-50121 Oil seal remover**	 **09913-70210 Bearing installer set**

 **09915-40610** **Oil filter wrench**	 **09915-64510** **Compression gauge set** **09915-63310** **(Adaptor)**	 **09915-74511** **Oil pressure gauge**	 **09916-10911** **Valve lapper set**	 **09916-14510** **Valve lifter**
 **09916-14910** **Valve lifter attachment**	 **09916-21111** **09916-24900** **Valve seat cutter set**	 **09916-24311** **Solid pilot** **(N-100-5.0)**	 **09916-22410** **Solid pilot** **(N-140-5.0)**	 **09916-24935** **Valve stem cutter** **(N-608)**
 **09916-34542** **Reamer handle**	 **09916-34570** **Valve guide reamer** **(5.0 mm)**	 **09916-34580** **Valve guide reamer** **(10.8 mm)**	 **09916-44310** **Valve guide remover/installer**	 **09916-84511** **Tweezers**
 **09917-14920** **Valve adjuster driver**	 **09917-23711** **Ring nut socket wrench**	 **09917-50410** **Bearing remover**	 **09920-13120** **Crankcase separating tool**	 **09921-20240** **Bearing remover set**
 **09924-41830** **Bearing locknut wernch**	 **09921-21910** **Bearing holder**	 **09922-31430** **Movable driven face spring compressor**	 **09924-21930** **Drive shaft remover**	 **09924-21950** **Front axle coupling puller attachment**

 09924-21940 Wheel hub remover	 09924-52420 Fixed driven face holder	 09924-84510 Bearing installer set	 09930-30104 Sliding hammer	 09930-10121 Spark plug wrench set
 09930-30141 Attachment Ⓐ	 09930-30190 Rotor remover attachment	 09930-30721 Rotor remover	 09930-31921 Rotor remover	 09930-40113 Rotor holder
 09930-73160 Output shaft holder	 **09900-14970** **Swingarm pivot adjuster wrench**	 09940-52861 Front fork oil seal installer	 09944-66020 Bearing remover	

NOTE:
When ordering a special tool, please confirm whether it is available or not.

TIGHTENING TORQUE

ENGINE

ITEM		N·m	kgf-m	lb-ft
Cylinder head cover bolt		10	1.0	7.0
Cam chain sprocket bolt		15	1.5	11.0
Cylinder head bolt		38	3.8	27.5
Cylinder head nut	6 mm	10	1.0	7.0
	8 mm	25	2.5	18.0
Cylinder base nut		10	1.0	7.0
Cam chain tensioner bolt		13	1.3	9.5
Cam chain tension adjuster mounting bolt		10	1.0	7.0
Cam chain tension adjuster spring holder bolt		8	0.8	6.0
Spark plug		11	1.1	8.0
Valve clearance adjuster locknut		10	1.0	7.0
Rocker arm shaft set bolt		28	2.8	20.0
Crankcase bolt	6 mm	11	1.1	8.0
	8 mm	26	2.6	19.0
Neutral switch bolt		6.5	0.65	4.5
T.D.C. plug		23	2.3	16.5
Clutch shoe nut		120	12.0	87.0
Movable drive face nut		115	11.5	83.0
Movable driven face nut		115	11.5	83.0
Movable driven face ring nut		100	10.0	72.5
Generator rotor nut		160	16.0	115.5
Starter clutch bolt		26	2.6	19.0
Oil pump drive gear bolt		50	5.0	36.0
Gearshift cam stopper		23	2.3	16.5
Exhaust pipe nut		23	2.3	16.5
Muffler mounting bolt		23	2.3	16.5
Muffler connecting bolt		23	2.3	16.5
Engine oil drain plug		23	2.3	16.5
Drive/driven bevel gear nut		100	10.0	72.5
Engine mounting nut	8 mm	40	4.0	29.0
	10 mm	55	5.5	40.0
Engine mounting bracket bolt		26	2.6	19.0
Front drive (differential) gear case mounting bolt		45	4.5	32.5
Front/rear output shaft nut		100	10.0	72.5

DIFFERENTIAL

ITEM	N·m	kgf-m	lb-ft
Front drive (differential) gear oil drain plug	32	3.2	23.0
Front drive (differential) gear oil filler plug	35	3.5	25.5
Front drive (differential) gear case mounting nut	45	4.5	32.5
Front drive (differential) gear case bolt	23	2.3	16.5
Front propeller shaft flange coupling bolt	45	4.5	32.5
Rear drive shaft housing nut	23	2.3	16.5
Rear propeller shaft flange coupling bolt	30	3.0	21.5
Rear drive gear case bolt	23	2.3	16.5
Rear drive gear oil filler plug	33	3.3	24.0
Rear drive gear oil drain plug	33	3.3	24.0

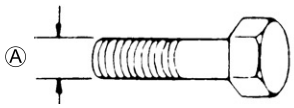
CHASSIS

ITEM	N·m	kgf-m	lb-ft
Handlebar clamp bolt	23	2.3	16.5
Steering shaft holder bolt	23	2.3	16.5
Steering shaft nut	49	4.9	35.5
Steering knuckle pinch bolt	50	5.0	36.0
Tie rod end nut	35	3.5	25.5
Tie rod locknut	29	2.9	21.0
Front shock absorber mounting bolt (upper)	55	5.5	40.0
Front shock absorber mounting nut (lower)	60	6.0	43.5
Wishbone arm pivot nut	65	6.5	47.0
Hub nut (front and rear)	100	10.0	72.5
Wheel set nut (front and rear)	50	5.0	36.0
Brake master cylinder mounting bolt (front and rear)	10	1.0	7.0
Brake hose union bolt	23	2.3	16.5
Front brake pipe nut	16	1.6	11.5
Brake air bleeder valve (front and rear)	7.5	0.75	5.5
Brake disc bolt (front and rear)	23	2.3	16.5
Brake caliper mounting bolt (front and rear)	26	2.6	19.0
Brake pad mounting bolt (front and rear)	18	1.8	13.0
Footrest bolt 8 mm	26	2.6	19.0
Footrest bolt 10 mm	55	5.5	40.0
Rear master cylinder rod locknut	18	1.8	13.0
Rear brake pedal bolt	26	2.6	19.0
Rear shock absorber mounting nut (upper)	34	3.4	24.5
Rear shock absorber mounting nut (lower)	60	6.0	43.5
Rear swingarm pivot bolt (left)	100	10.0	72.5
Rear swingarm pivot bolt (right)	9.5	0.95	7.0
Rear swingarm locknut (right)	100	10.0	72.5

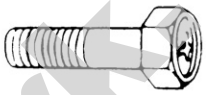
TIGHTENING TORQUE CHART

For other nuts and bolts not listed in the preceding page, refer to this chart:

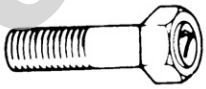
Bolt Diameter Ⓐ (mm)	Conventional or "4" marked bolt			"7" marked bolt		
	N·m	kgf-m	lb-ft	N·m	kgf-m	lb-ft
4	1.5	0.15	1.0	2.3	0.23	1.5
5	3	0.3	2.0	4.5	0.45	3.0
6	5.5	0.55	4.0	10	1.0	7.0
8	13	1.3	9.5	23	2.3	16.5
10	29	2.9	21.0	50	5.0	36.0
12	45	4.5	32.5	85	8.5	61.5
14	65	6.5	47.0	135	13.5	97.5
16	105	10.5	76.0	210	21.0	152.0
18	160	16.0	115.5	240	24.0	173.5



Conventional bolt



"4" marked bolt



"7" marked bolt

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	30.6 (1.20)	———
	EX.	27.0 (1.06)	———
Valve clearance (when cold)	IN.	0.05 – 0.10 (0.002 – 0.004)	———
	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 guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	———
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	———
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	———
Valve stem deflection	IN. & EX.	———	0.35 (0.014)
Valve stem runout	IN. & EX.	———	0.05 (0.002)
Valve head thickness	IN. & EX.	———	0.5 (0.02)
Valve stem end length	IN. & EX.	———	2.3 (0.09)
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.	———	38.8 (1.53)
Valve spring tension	IN. & EX.	18.6 – 21.4 kgf (41.0 – 47.2 lbs) at length 31.5 mm (1.24 in)	———

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.430 – 33.490 (1.3161 – 1.3185)	33.130 (1.3043)
	EX.	33.500 – 33.560 (1.3189 – 1.3213)	33.200 (1.3070)
Camshaft journal oil clearance	ϕ 22	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
	ϕ 17.5	0.028 – 0.059 (0.0011 – 0.0023)	0.150 (0.0059)
Camshaft journal holder I.D.	ϕ 22	22.012 – 22.025 (0.8666 – 0.8671)	———
	ϕ 17.5	17.512 – 17.525 (0.6894 – 0.6900)	———
Camshaft journal O.D.	ϕ 22	21.959 – 21.980 (0.8645 – 0.8654)	———
	ϕ 17.5	17.466 – 17.484 (0.6876 – 0.6883)	———
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.	11.973 – 11.984 (0.4714 – 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 (Automatic-decomp. actuated)	1 000 kPa Approx. (10.0 kgf/cm^2 142 psi)			———
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			———
Cylinder bore	87.500 – 87.515 (3.4449 – 3.4455)			Nicks or Scratches
Piston diam.	87.465 – 87.480 (3.4435 – 3.4441) Measure at 15 mm (0.6 in) from the skirt end.			87.380 (3.4402)
Cylinder distortion	———			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 11.2 (0.44)	8.9 (0.35)
	2nd	R	Approx. 11.9 (0.47)	9.5 (0.37)
Piston ring end gap	1st		0.10 – 0.25 (0.004 – 0.009)	0.50 (0.020)
	2nd		0.10 – 0.25 (0.004 – 0.009)	0.50 (0.020)

ITEM	STANDARD		LIMIT
Piston ring to groove clearance	1st	———	0.180 (0.0071)
	2nd	———	0.150 (0.0059)
Piston ring groove width	1st	1.01 – 1.03 (0.0398 – 0.0406)	———
	2nd	1.21 – 1.23 (0.0476 – 0.0484)	———
	Oil	2.51 – 2.53 (0.0988 – 0.0996)	———
Piston ring thickness	1st	0.97 – 0.99 (0.0382 – 0.0390)	———
	2nd	1.17 – 1.19 (0.0461 – 0.0469)	———
Piston pin bore	23.002 – 23.008 (0.9056 – 0.9058)		23.030 (0.9067)
Piston pin O.D.	22.995 – 23.000 (0.9053 – 0.9055)		22.980 (0.9047)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006 – 23.014 (0.9057 – 0.9061)	23.040 (0.9071)
Conrod deflection	———	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.04)
Conrod big end width	24.95 – 25.00 (0.982 – 0.984)	———
Crank web to web width	71.0 ± 0.1 (2.795 ± 0.004)	———
Crankshaft runout	———	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60°C, 140°F)	Above 130 kPa (1.3 kgf/cm^2, 18 psi) Below 170 kPa (1.7 kgf/cm^2, 24 psi) at 3 000 r/min.	———

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch wheel I.D.	140.0 – 140.2 (5.512 – 5.520)	140.5 (5.53)
Clutch shoe	———	No groove at any part
Clutch engagement r/min.	1 600 – 2 000 r/min.	———
Clutch lock-up r/min.	3 900 – 4 500 r/min.	———

DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Automatic transmission ratio		Variable change (2.876 – 0.703)	———
Secondary reduction ratio		2.562 (41/16)	———
Final reduction ratio	Front	3.600 (36/10)	———
	Rear	3.600 (36/10)	———
Transfer gear ratio	Low	2.500 (40/16)	———
	High	1.200 (30/25)	———
	Reverse	1.999 (28/16 × 32/28)	———
Drive belt width		36.7 (1.44)	35.7 (1.41)
Movable driven face spring free length		153.0 (6.02)	145.4 (5.72)
Shift fork to groove clearance		0.10 – 0.30 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width	High/Low	5.50 – 5.60 (0.217 – 0.220)	———
	Reverse	5.50 – 5.60 (0.217 – 0.220)	———
Shift fork thickness	High/Low	5.30 – 5.40 (0.209 – 0.213)	———
	Reverse	5.30 – 5.40 (0.209 – 0.213)	———
Front/rear output shaft bevel gear backlash		0.03 – 0.15 (0.001 – 0.006)	———
Front drive (differential) gear backlash		0.05 – 0.10 (0.002 – 0.004)	———
Rear drive (final) gear backlash		0.08 – 0.013 (0.0031 – 0.0051)	———

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM		STANDARD/SPECIFICATION	LIMIT
Thermostat valve opening temperature		73.5 – 76.5°C (164 – 170°F)	———
Thermostat valve lift		Over 3 mm (0.12 in) at 90°C (194°F)	———
Radiator cap valve opening pressure		95 – 125 kPa (0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi)	———
Engine coolant temp. indicator light switch operating temperature	OFF → ON	Approx. 115°C (239°F)	———
	ON → OFF	Approx. 108°C (226°F)	———
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 88°C (190°F)	———
	ON → OFF	Approx. 82°C (180°F)	———
Engine coolant type		Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.	———
Engine coolant including reserve		2 000 ml (2.1/1.8 US/Imp qt)	———

CARBURETOR

ITEM	SPECIFICATION	
	E-03, 28	E-33
Caburetor type	KEIHIN CVK36	←
Bore size	36 mm	←
I.D. No.	03G0	03G1
Idle r/min.	1 300 ± 100 r/min.	←
Float height	17.0 ± 1.0 mm (0.67 ± 0.04 in)	←
Main jet (M.J.)	#128	# 128
Jet needle (J.N.)	NBAY	←
Needle jet (N.J.)	#6	# 6
Slow jet (S.J.)	#35	# 35
Pilot screw (P.S.)	1 7/8 turns back	PRE-SET
Throttle cable play	3 – 5 mm (0.12 – 0.20 in)	←
Choke cable play	0.5 – 1.0 mm (0.02 – 0.04 in)	←

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR6E DENSO: U20ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.5 Ω	Terminal – Ground
		Secondary	12 – 22 kΩ	Plug cap – Terminal
Generator coil resistance		Pick-up	150 – 300 Ω	Bl – G
		Power source	0.05 – 1.0 Ω	Y – W
		Charging	0.1 – 1.5 Ω	B – B
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min.		
Generator Max. output		Approx. 325 W at 5 000 r/min.		
Regulated voltage		13.5 – 15.0 V at 5 000 r/min.		
Ignition coil primary peak voltage		More than 150 V		⊕ : Ground ⊖ : W/Bl
Pick-up coil peak voltage		More than 4.0 V		⊕ : G, ⊖ : Bl
Power source coil peak voltage		More than 0.3 V		⊕ : Y, ⊖ : W
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	FTH16-BS		
	Capacity	12 V 50.4 kC (14 Ah)/10 HR		

ITEM		SPECIFICATION	NOTE
Fuse size	Main	30 A	
	Power source	5 A	
	Headlight (HI)	10 A	
	Headlight (LO)	10 A	
	Ignition	10 A	
	Fan	10 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Auxiliary light		40
Brake light/Taillight		21/5
Speedometer light		LED
Reverse indicator light		LED
Neutral indicator light		LED
Parking indicator light		LED
High beam indicator light		LED
Engine coolant temp. indicator light		LED

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake cable play	3 – 5 (0.12 – 0.20)		—
Rear brake pedal height	15 – 25 (0.59 – 0.98)		—
Brake disc thickness	Front	3.3 – 3.7 (0.130 – 0.146)	3.0 (0.12)
	Rear	3.8 – 4.2 (0.209 – 0.224)	3.5 (0.197)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	32.030 – 32.280 (1.2610 – 1.2630)	—
	Rear	32.030 – 32.280 (1.2610 – 1.2630)	—
Brake caliper piston diam.	Front	31.948 – 31.998 (1.2578 – 1.2598)	—
	Rear	31.948 – 31.998 (1.2578 – 1.2598	—

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake fluid type	DOT 4		—
Steering angle	Inside	38.5°	—
	Outside	26°	—
Turning radius	3.0 m (9.8 ft)		—
Toe-in (with 75 kg, 165 lbs)	0 ± 4 (0 ± 0.16)		—
Camber	0.6°		—
Caster	3.3°		—
Wheel rim size	Front	12 × 6.0 AT	—
	Rear	12 × 7.5 AT	—
Tire size	Front	AT25 8-12 ☆ ☆	—
	Rear	AT25 10-12 ☆ ☆	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kgf/cm²	psi	NOTE
FRONT	35	0.35	5.1	LOAD CAPACITY
REAR	30	0.30	4.4	UP TO 172 kg (380 lbs)

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 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 reserch 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.		
Fuel tank including reserve	19.0 L (5.0/4.2 US/Imp gal)		
reserve	4.2 L (1.1/0.9 US/Imp gal)		
Engine oil type	SAE 10W-40, API SF or SG		
Engine oil capacity	Change	2 500 ml (2.6/2.2 US/Imp qt)	
	Filter change	2 700 ml (2.9/2.4 US/Imp qt)	
	Overhaul	3 200 ml (3.4/2.8 US/Imp qt)	
Front/Rear drive gear oil type	Hypoid gear oil SAE #90 API grade GL-5		
Front drive (differential) gear oil capacity	300 ml (10.1/10.6 US/Imp oz)		
Rear drive gear oil capacity	250 – 350 ml (8.5/8.8 – 11.8/12.3 US/Imp oz)		

LT-A500FK3 ('03-MODEL)

10

This chapter describes service data, service specifications and servicing procedures which differ from those of the LT-A500FK2 ('02-MODEL).

NOTE:
- *Any differences between the LT-A500FK2 ('02-model) and LT-A500FK3 ('03-model) in specifications and service data are indicated with an asterisk mark (*).*
- *Please refer to the chapters 1 through 9 for details which are not given in this chapter.*

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SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 095 mm (82.5 in)
Overall width	1 170 mm (46.1 in)
Overall height	1 200 mm (47.2 in)
Wheelbase	1 270 mm (50.0 in)
Ground clearance	250 mm (9.8 in)
Seat height	860 mm (33.9 in)
Dry mass	274 kg (604 lbs)
Front track	935 mm (36.8 in)
Rear track	930 mm (36.6 in)

ENGINE

Type	4-stroke, liquid-cooled, OHC
Number of cylinders	1
Bore	87.5 mm (3.445 in)
Stroke	82.0 mm (3.228 in)
Displacement	493 cm³ (30.1 cu. in)
Compression ratio	10.2 : 1
Carburetor	KEIHIN CVK36, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump
Idle speed	1 300 ± 100 r/min

DRIVE TRAIN

Clutch	Wet shoe, automatic, centrifugal type
Transmission	Automatic variable ratio (V-velt)
Transfer	2-speed forward with reverse
Gearshift pattern, Transmission	Automatic
Transfer	L-H-N-R (Hand operated)
Automatic transmission ratio	Variable change (2.876 – 0.703)
Secondary reduction ratio	2.562 (41/16)
Final reduction ratio (Front & Rear)	3.600 (36/10)
Transfer gear ratio, Low	2.500 (40/16)
High	1.200 (30/25)
Reverse	1.999 (28/16 × 32/28)
Drive system	Shaft drive

CHASSIS

Front suspension	Independent, double wishbone, coil spring, oil damped
Rear suspension	Swingarm type, coil spring, oil damped
Front wheel travel	180 mm (7.1 in)
Rear wheel travel	200 mm (7.9 in)
Caster	3.3°
Trail	17 mm (0.7 in)
Toe-in	0 mm
Camber	0.6°
Steering angle	45° (right & left)
Turning radius	3.0 m (9.8 ft)
Front brake	Disk brake, twin
Rear brake	Disk brake
Front tire size	AT25 × 8-12☆☆, tubeless
Rear tire size	AT25 × 10-12☆☆, tubeless

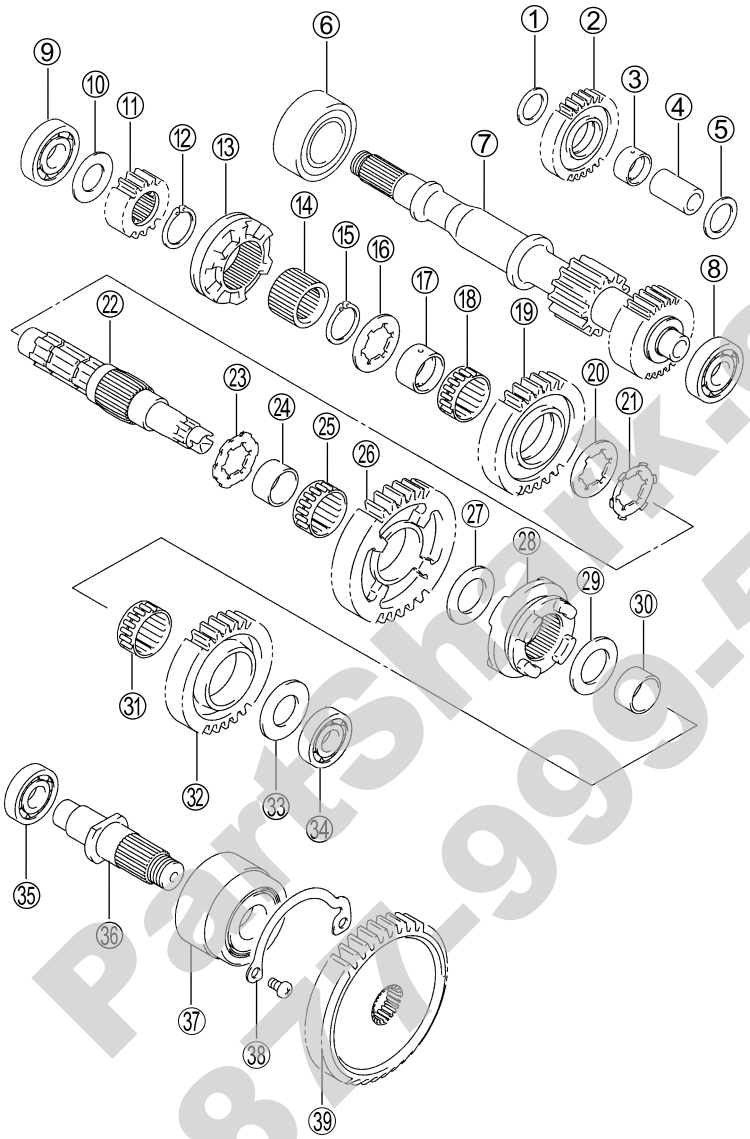
ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	10° B.T.D.C. at 1 500 r/min
Spark plug	NGK CR6E or DENSO U20ESR-N
Battery	12V 50.4 kC (14Ah)/10HR
Generator	Three-phase A.C. generator
Main fuse	30A
Fuse	Head-Hi 10/Head Lo 10/Fan 10/Ignition 10/P-Source 10A
Headlight	12V 30/30W × 2
AUX lamp	12V 40W
Brake light/Taillight	12V 21/5W
Parking indicator light	LED
Speedometer light	LED
Coolant temperature warning light	LED
Neutral indicator light	LED
High beam indicator light	LED
Reverse indicator light	LED

CAPACITIES

Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.2 L (1.1/0.9 US/Imp gal)
Engine oil, oil change	2 500 ml (2.6/2.2 US/Imp qt)
with filter change	2 700 ml (2.9/2.4 US/Imp qt)
overhaul	3 200 ml (3.4/2.8 US/Imp qt)
Differential gear oil	300 ml (10.1/10.6 US/Imp oz)
Final gear oil	350 ml (11.8/12.3 US/Imp oz)
Coolant	2.0 L (2.1/1.8 US/Imp qt)

ENGINE
TRANSFER
DISASSEMBLY
• Disassemble the transfer as shown.



① Washer
② Reverse idle gear
③ Spacer
④ Reverse idle gear shaft
⑤ Washer
⑥ Bearing
⑦ Transfer input shaft
⑧ Bearing
⑨ Bearing
⑩ Washer
⑪ Output shaft drive gear
⑫ Snap ring
⑬ Reverse gear dog
⑭ Spacer
⑮ Snap ring
⑯ Washer
⑰ Spacer
⑱ Bearing
⑲ Reverse driven gear
⑳ Washer
㉑ Lock washer
㉒ Transfer output shaft
㉓ Washer
㉔ Spacer
㉕ Bearing
㉖ Low driven gear
㉗ Washer
㉘ High/Low gear selection dog
㉙ Washer
㉚ Spacer
㉛ Bearing
㉜ High driven gear
㉝ Washer
㉞ Bearing
㉟ Bearing
㊱ Output shaft
㊲ Bearing
㊳ Bearing retainer
㊴ Output driven gear

REASSEMBLY
Assemble the transfer in the reverse order of disassembly. Pay attention to following points:

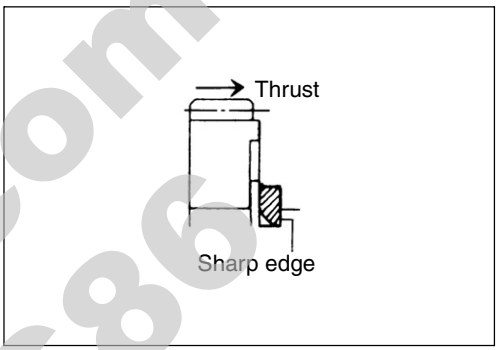
NOTE:
Always use new snap rings.

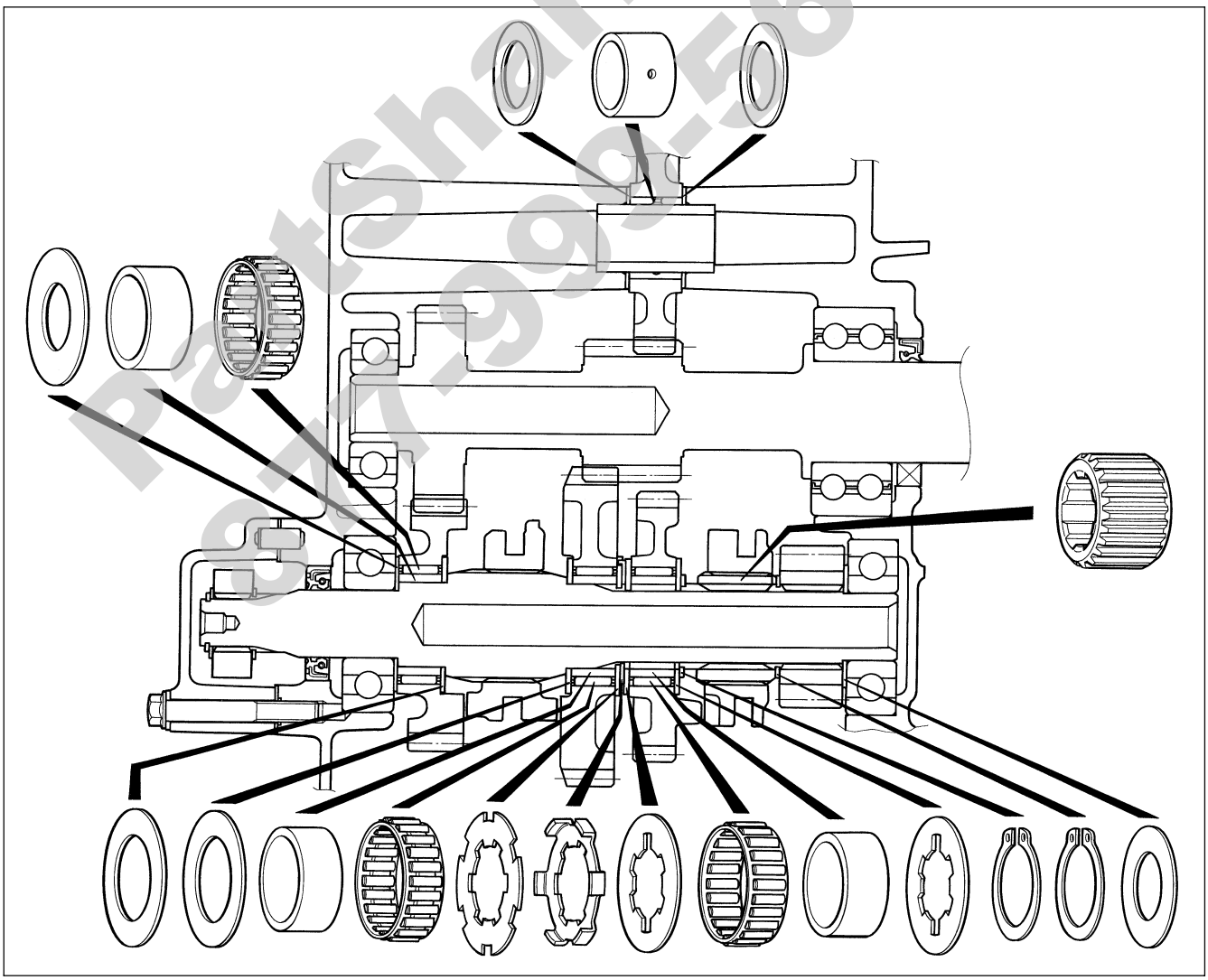
NOTE:
Before installing the gears, coat lightly engine oil to the transfer input/output shaft.

CAUTION

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

- When installing a new snap ring, pay attention to the directon of the snap ring. Fit it to the side where the thrust is as shown in figure.

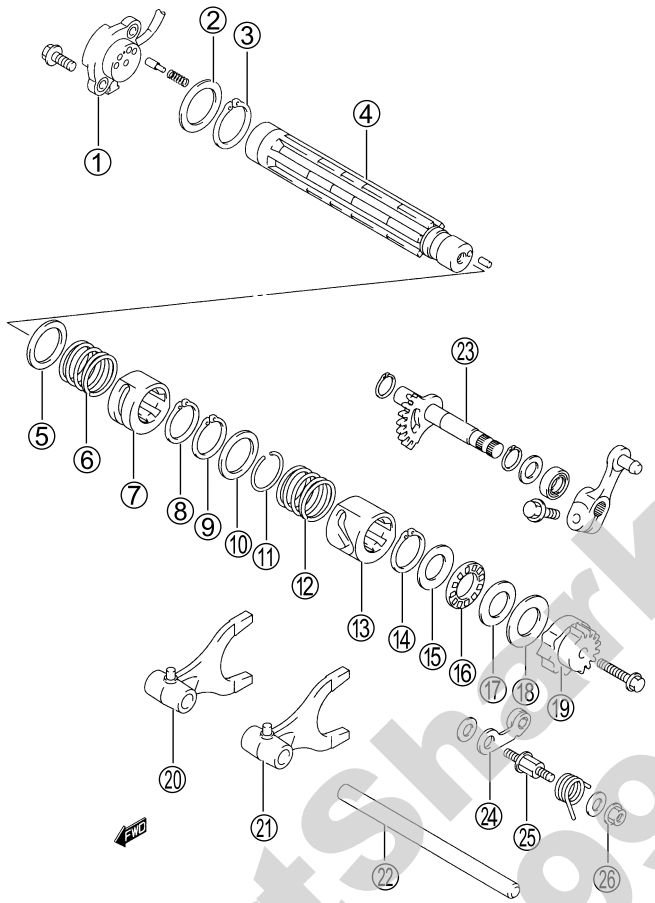




GEARSHIFT CAM

DISASSEMBLY

• Disassemble the gearshift cam as shown.

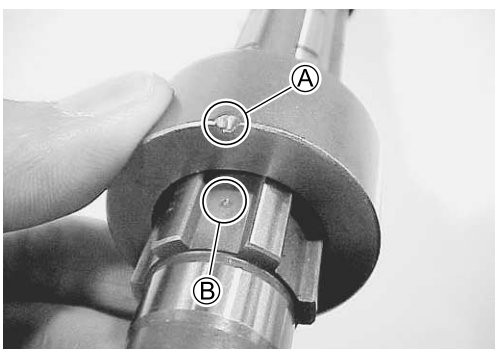


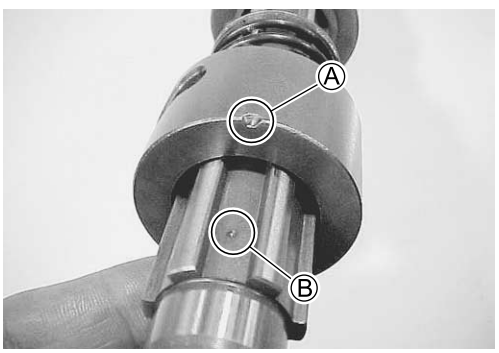
① Neutral switch
② Washer
③ Snap ring
④ Gearshift shaft
⑤ Washer
⑥ Spring
⑦ Reverse gear
⑧ Snap ring
⑨ Snap ring
⑩ Washer
⑪ Circlip
⑫ Spring
⑬ High/Low gear
⑭ Snap ring
⑮ Washer
⑯ Bearing
⑰ Washer
⑱ Washer
⑲ Gearshift cam
⑳ Gearshift fork (For reverse)
㉑ Gearshift fork (For High/Low)
㉒ Gearshift fork shaft
㉓ Gearshift shaft
㉔ Gearshift cam stopper
㉕ Gearshift cam stopper bolt
㉖ Gearshift cam stopper nut

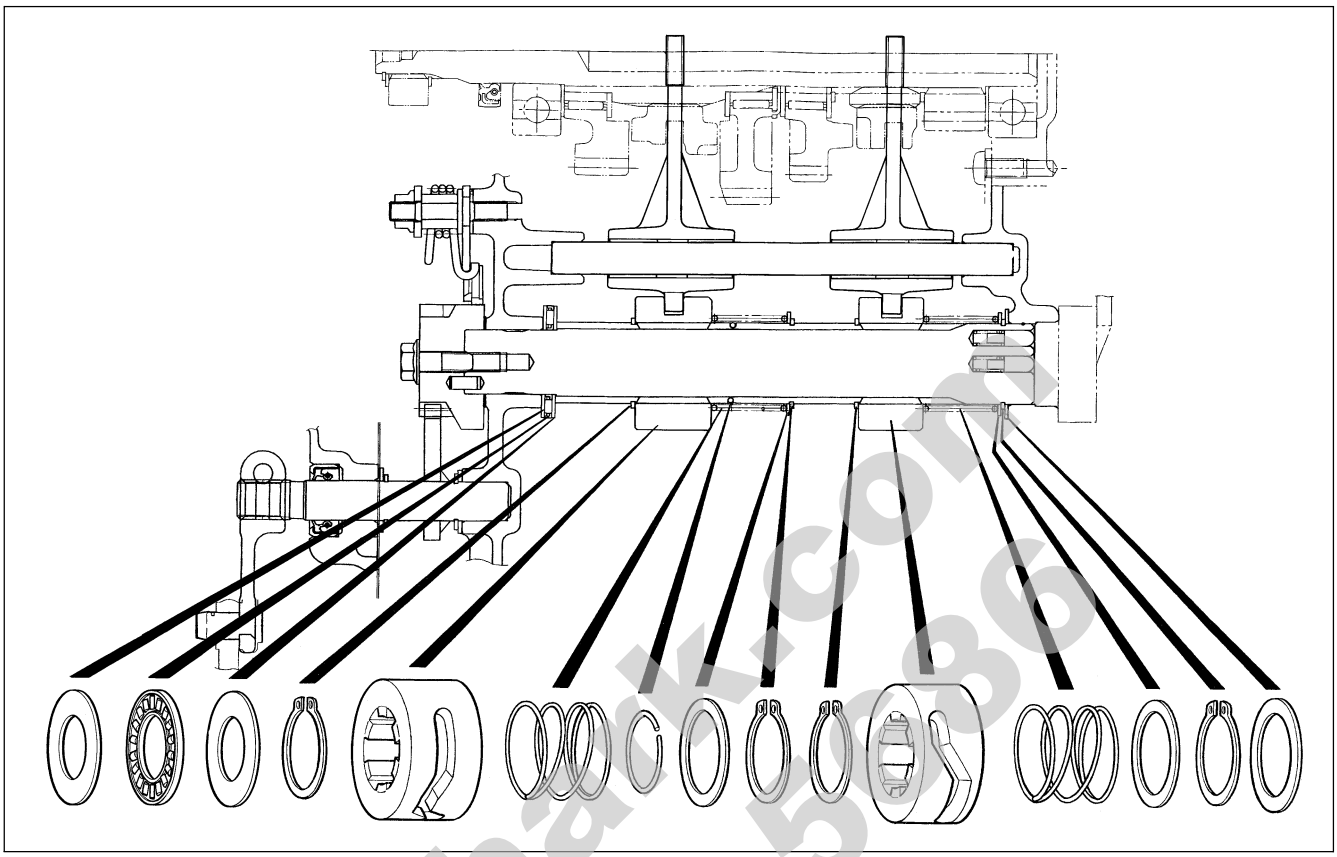
REASSEMBLY

• Install the gearshift cams.

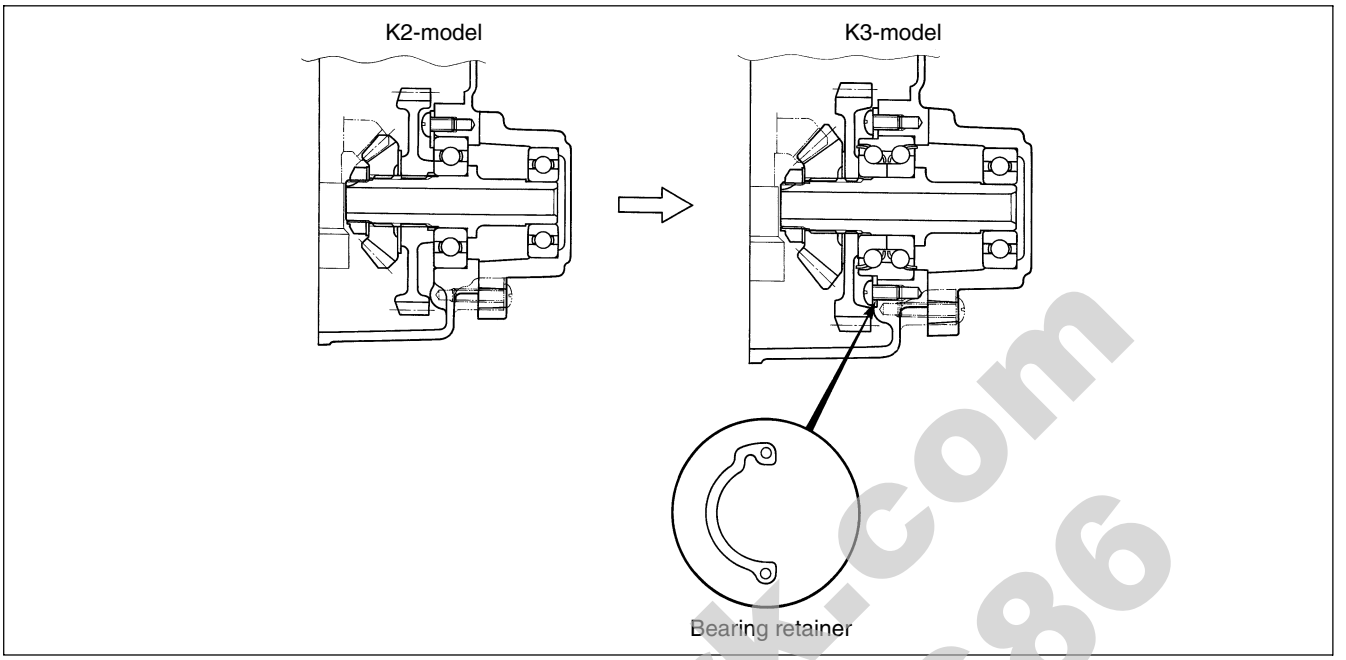
NOTE:
Align the punched mark Ⓐ with the punched mark Ⓑ.





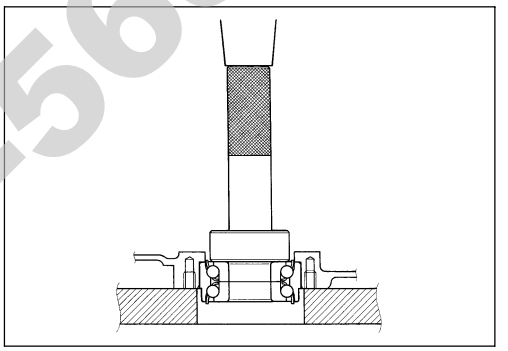


DRIVE BEVEL GEAR BEARING



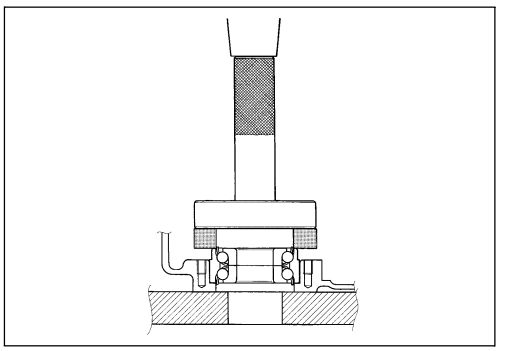
REMOVAL

- Put the bearing remover onto the bearing inner race.
- Remove the bearing with a hydraulic press.



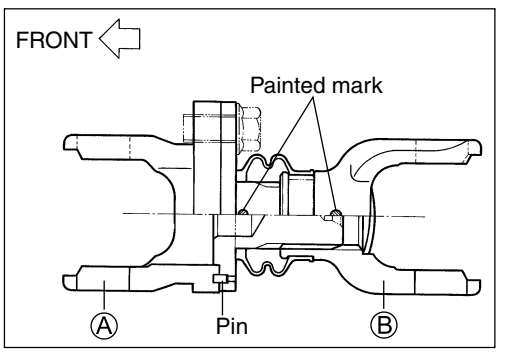
INSTALLATION

- Install the bearing by pressing the bearing outer race with a hydraulic press.



PROPELLER SHAFT INSTALLATION

- When installing the front propeller shaft, align the phase of universal joint Ⓐ with that of universal joint Ⓑ as shown.



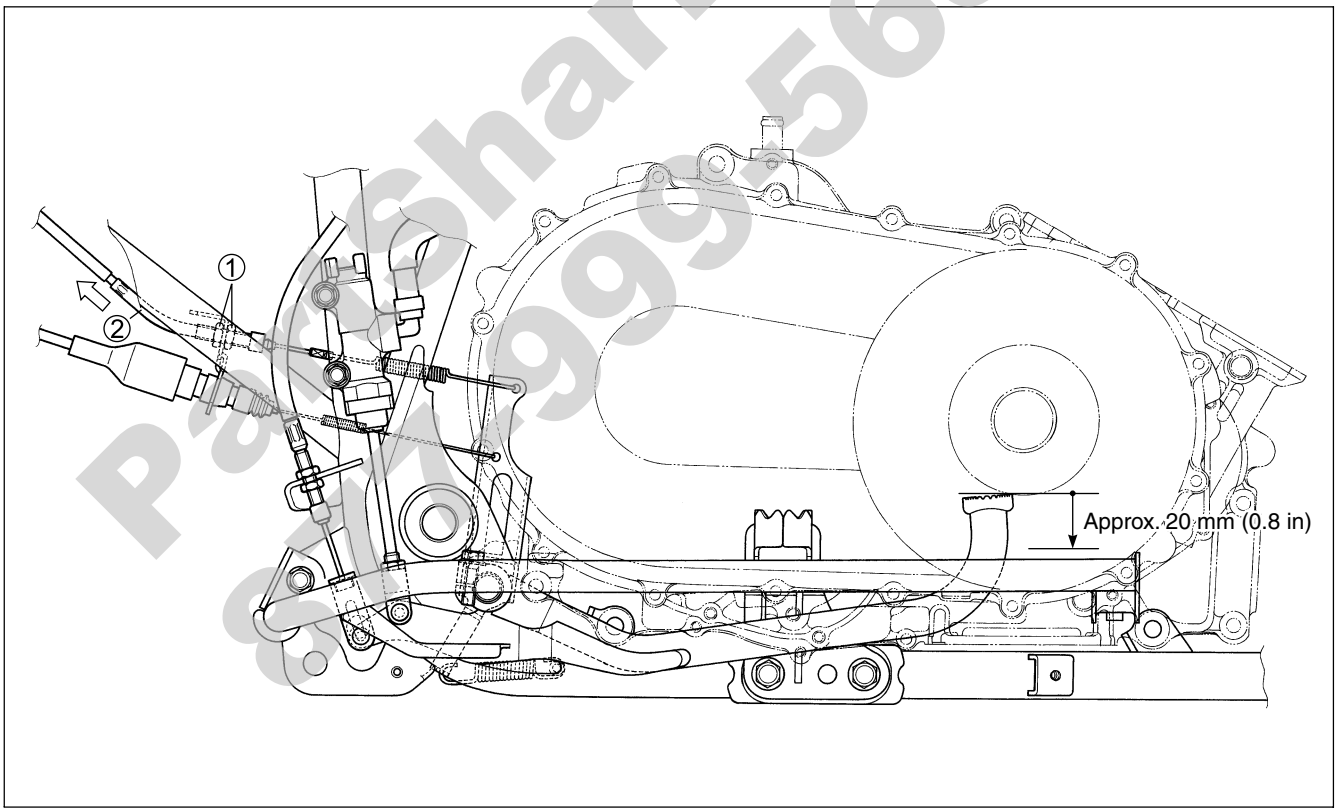
CHASSIS

PARKING INTERLOCK CABLE ADJUSTMENT

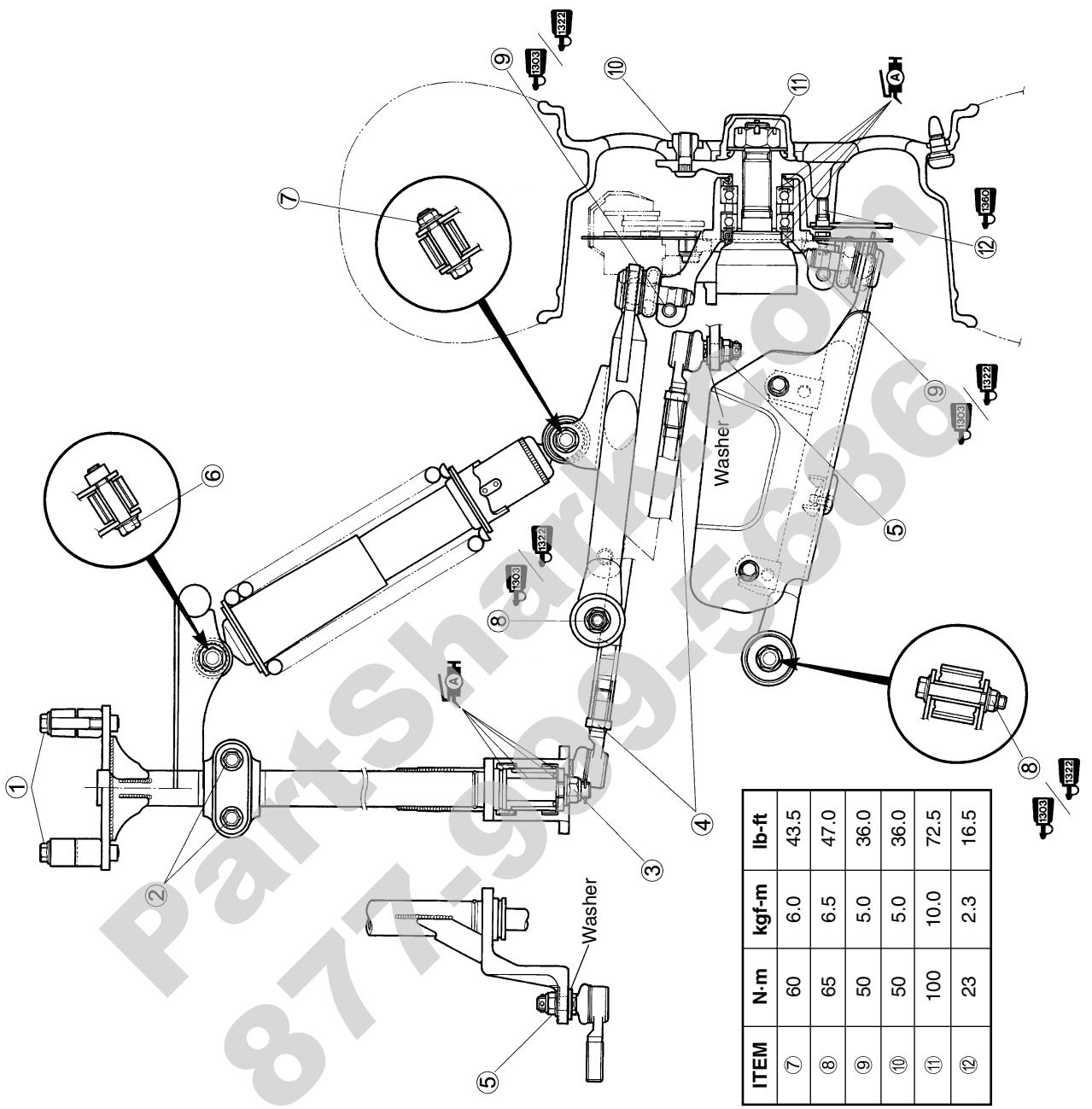
Before adjusting the parking interlock cable play, adjust the rear brake pedal height and the rear brake lever play properly.

- Shift the shift lever into "N".
- Loosen the locknuts ①.

- Tighten the locknuts ① with pulling the parking interlock cable ② lightly.
- Make sure that the shift lever could be shifted into "P" when the rear brake pedal is depressed approx. 20 mm (0.8 in).



FRONT WHEEL, FRONT BRAKE, FRONT SUSPENSION AND STEERING REASSEMBLING INFORMATION



ITEM	N·m	kgf-m	lb-ft
①	23	2.3	16.5
②	23	2.3	16.5
③	49	4.9	35.5
④	29	2.9	21.0
⑤*	60	6.0	43.5
⑥	55	5.5	40.0

ITEM	N·m	kgf-m	lb-ft
⑦	60	6.0	43.5
⑧	65	6.5	47.0
⑨	50	5.0	36.0
⑩	50	5.0	36.0
⑪	100	10.0	72.5
⑫	23	2.3	16.5

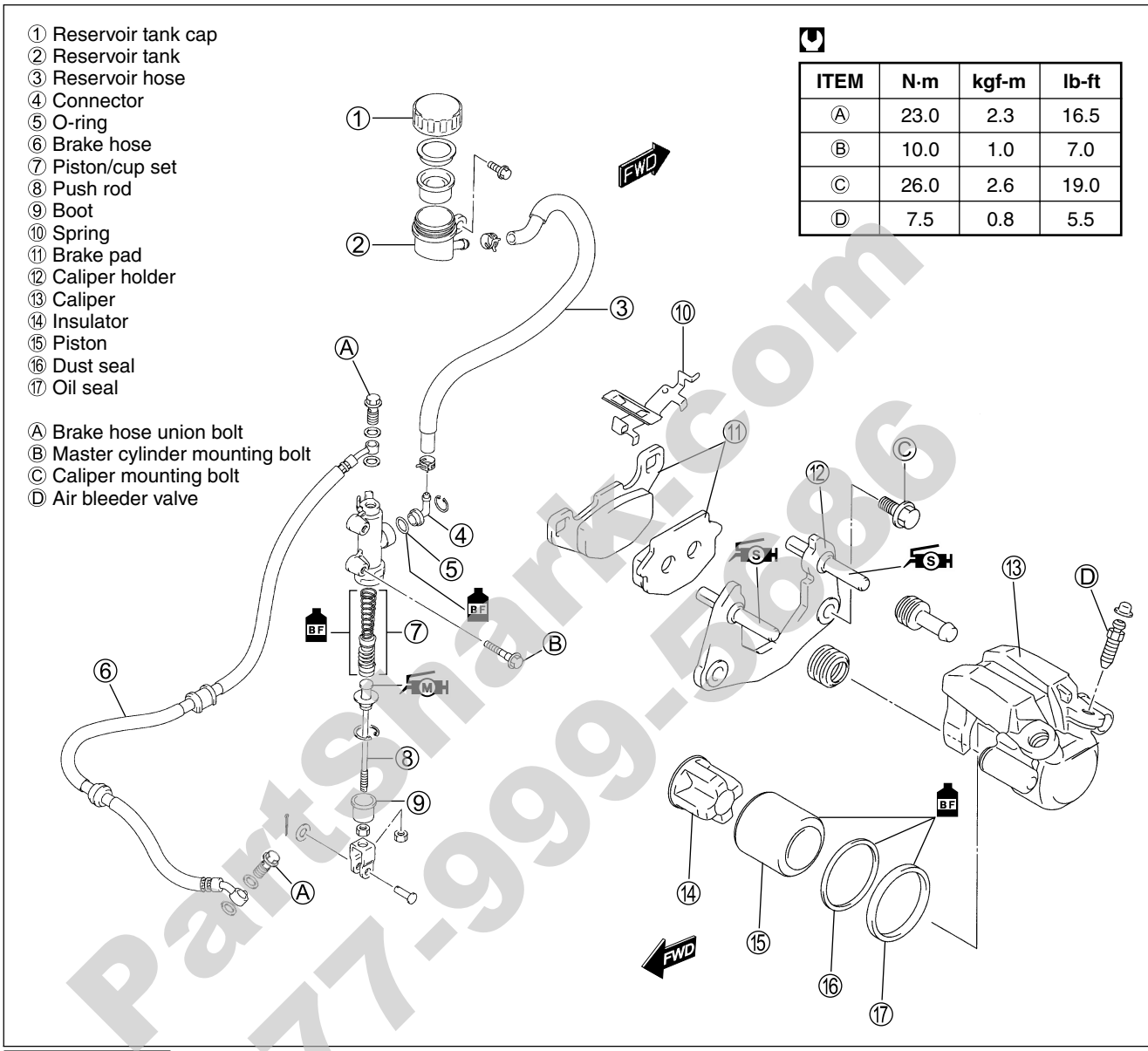
REAR BRAKE

CONSTRUCTION

① Reservoir tank cap
② Reservoir tank
③ Reservoir hose
④ Connector
⑤ O-ring
⑥ Brake hose
⑦ Piston/cup set
⑧ Push rod
⑨ Boot
⑩ Spring
⑪ Brake pad
⑫ Caliper holder
⑬ Caliper
⑭ Insulator
⑮ Piston
⑯ Dust seal
⑰ Oil seal

Ⓐ Brake hose union bolt
Ⓑ Master cylinder mounting bolt
Ⓒ Caliper mounting bolt
Ⓓ Air bleeder valve

ITEM	N·m	kgf-m	lb-ft
Ⓐ	23.0	2.3	16.5
Ⓑ	10.0	1.0	7.0
Ⓒ	26.0	2.6	19.0
Ⓓ	7.5	0.8	5.5



⚠ WARNING

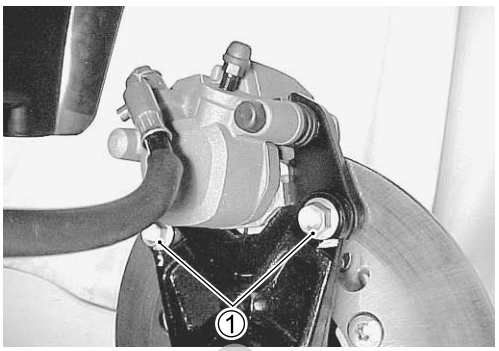
*** This brake system is filled with an ethylene glycol-based DOT 4 brake fluid. Do not use or mix different types of fluid, such as silicone-based or petroleum-based brake fluids.**
*** Do not use any brake fluid taken from old, used or unsealed containers. Never reuse brake fluid left over from the last servicing or which has been stored for a long periods of time.**
*** When storing brake fluid, seal the container completely and keep it away from children.**
*** When replenishing brake fluid, take care not to get dust into the fluid.**
*** When washing brake components, use new brake fluid. Never use cleaning solvent.**
*** A contaminated brake disc or brake pad reduces braking performance. Discard contaminated pads and clean the brake disc with high quality brake cleaner or a neutral detergent.**

CAUTION

Handle brake fluid with care: the fluid reacts chemically with paint, plastics, rubber materials etc. and will damage them severly.

BRAKE PAD REPLACEMENT

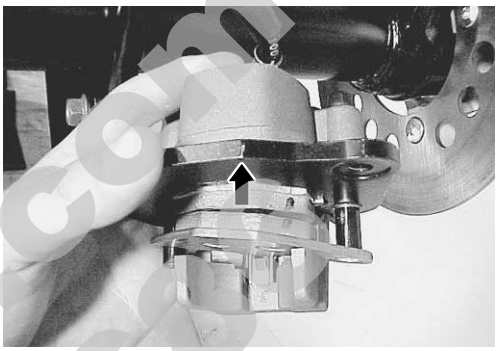
- Remove the rear wheel.
- Remove the brake caliper mounting bolts ①.



- Remove the brake pads.

CAUTION

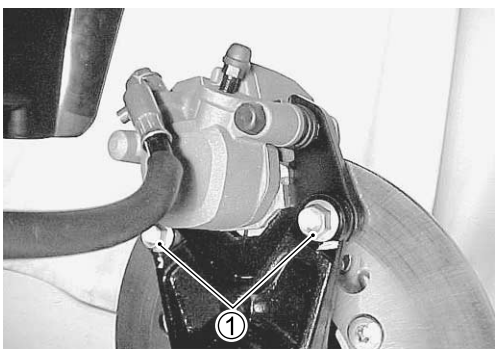
*** Do not operate the brake lever during or after brake pad removal.**
*** Replace the brake pads as a set, otherwise braking performance will be adversely affected.**



- Install the new brake pads.

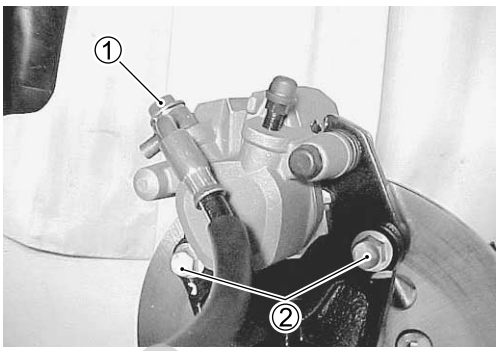
- Tighten the brake caliper mounting bolts ① to the specified torque.

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



NOTE:
After replacing the brake pads, pump the brake lever a few times to check for proper brake operation and then check the brake fluid level.

BRAKE CALIPER REMOVAL AND DISASSEMBLY

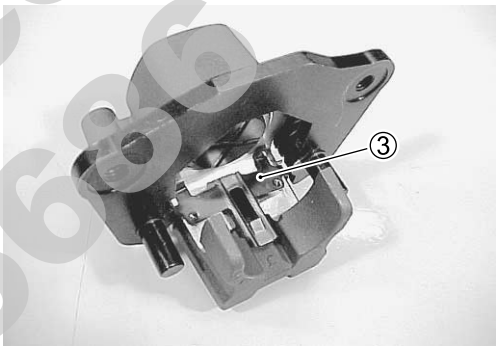


- Remove the rear wheel.
- Disconnect the brake hose from the brake caliper by removing the brake hose union bolt ① and allow the brake fluid to drain into a suitable receptacle.
- Remove the brake caliper by removing the brake caliper mounting bolts ②.
- Remove the brake pads.

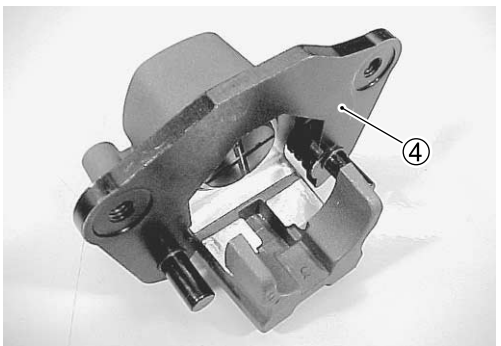
⚠ WARNING

Brake fluid, if it leaks, will interfere with safe running and discolor painted surfaces. Check the brake hose and hose joints for cracks and oil leakage.

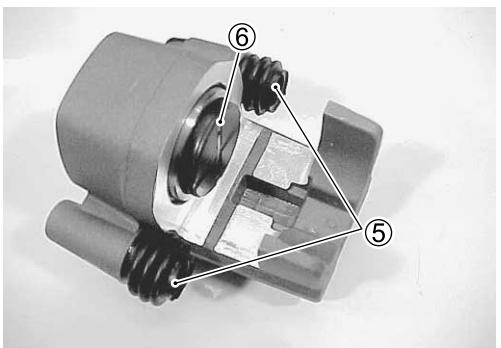
- Remove the spring ③.



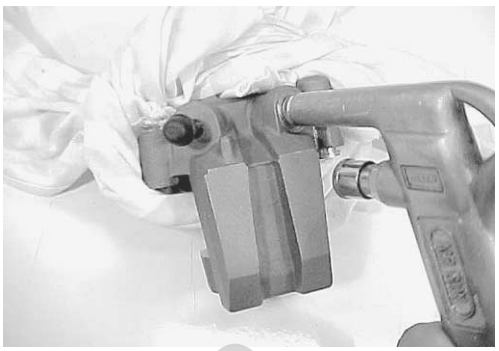
- Remove the brake caliper holder ④.



- Remove the rubber parts ⑤.
- Remove the insulator ⑥.



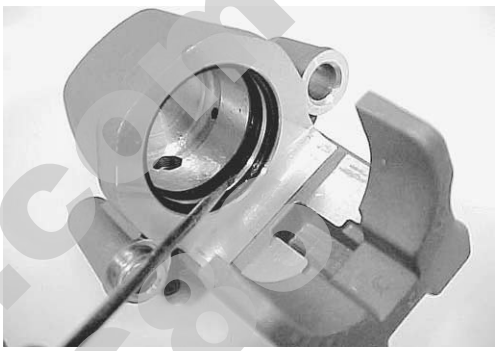
- Place a rag over the brake caliper piston to prevent it from popping out and then force out the piston using compressed air.



CAUTION

Do not use high pressure air to prevent brake caliper piston damage.

- Remove the dust seal and piston seal.



CAUTION

Do not reuse the dust seal and piston seal to prevent fluid leakage.

BRAKE CALIPER INSPECTION

Brake caliper

Inspect the brake caliper cylinder wall for nicks, scratches or other damage. If any damages are found, replace the brake caliper with a new one.

BRAKE CALIPER PISTON/INSULATOR

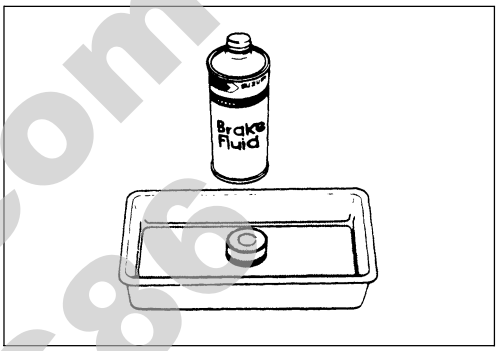
Inspect the brake caliper piston and insulator for any scratches or other damage. If any damages are found, replace the piston with a new one.

RUBBER PARTS

Replace the removed rubber parts with new ones.

Caliper holder
Inspect the caliper holder for damage. If any damages are found, replace it with a new one.

BRAKE CALIPER REASSEMBLY AND REMOUNTING
Reassemble and remount the brake caliper in the reverse order of removal and disassembly. Pay attention to the following points:



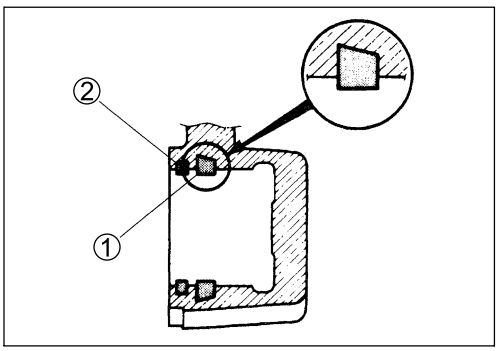
- Wash the caliper bore and piston with the specified brake fluid. Thoroughly wash the dust seal groove and piston seal groove.

BF **Specification and classification: DOT 4**

CAUTION

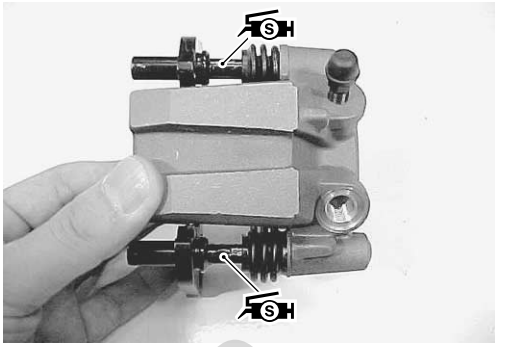
*** Wash the brake caliper components with new brake fluid before reassembly.**
*** Do not wipe the brake fluid off with a rag after washing the components.**
*** When washing the components, use the specified brake fluid. Never use different types of fluid or cleaning solvents such as gasoline, kerosine, etc.**
*** Replace the removed piston seal and dust seal with new ones.**
*** Apply brake fluid to all of the seals, brake caliper bores and pistons before reassembly.**

PISTON SEALS
- Install the piston seal ① and dust seal ② as shown.



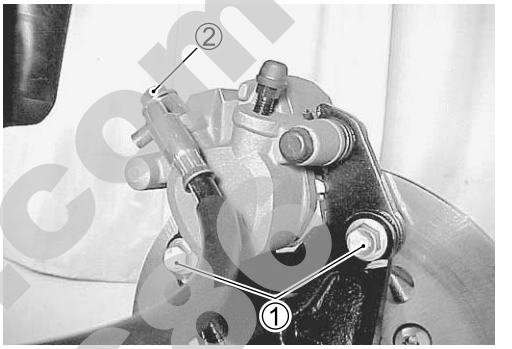
- Apply SUZUKI SILICON GREASE to the brake caliper holder pins.

99000-25100: SUZUKI SILICONE GREASE



- Install the spring.
- Install the brake pads.

- Tighten the brake caliper mounting bolts ① and brake hose union bolt ② to the specified torque.



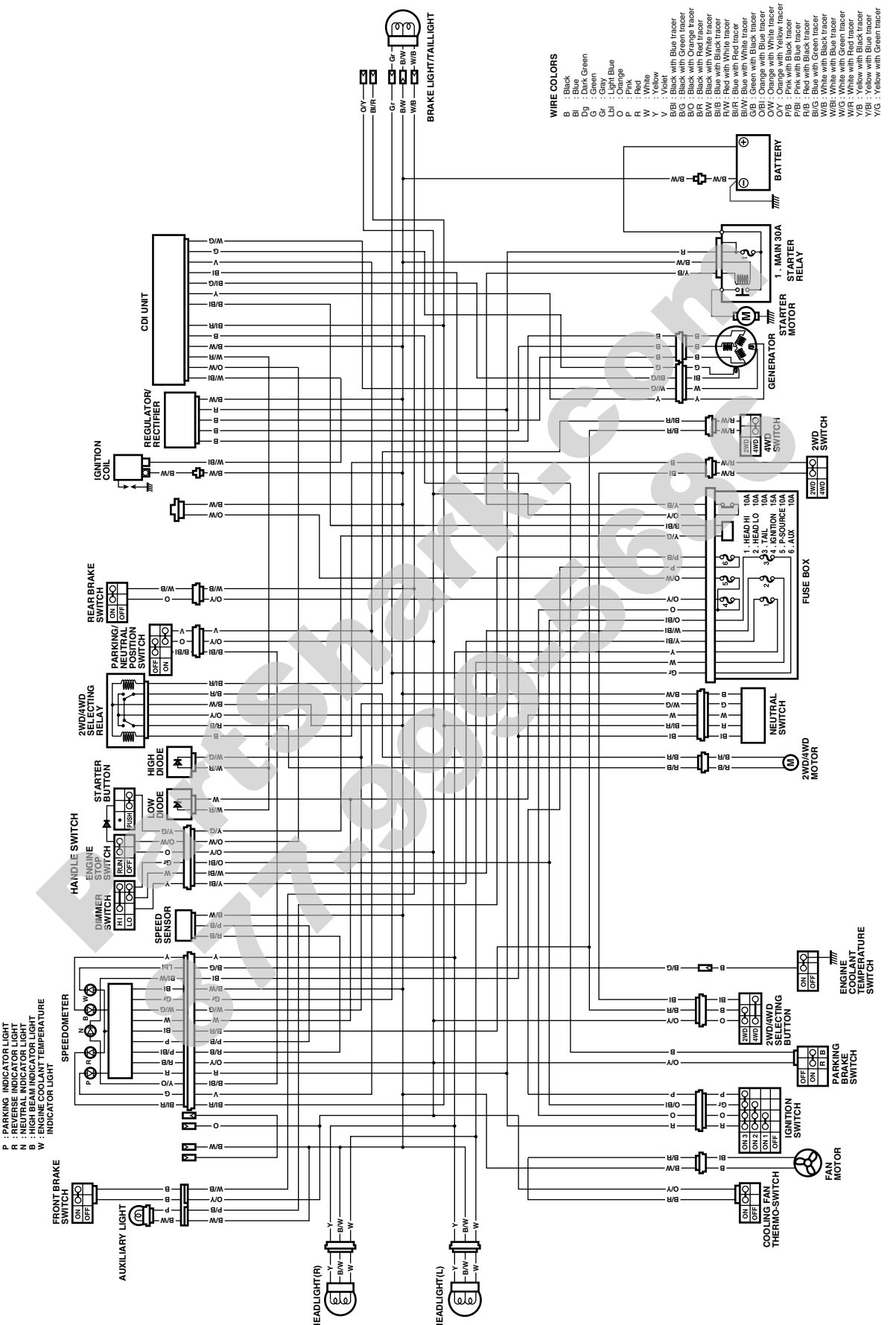
Brake caliper mounting bolt:
26 N·m (2.6 kgf-m, 19.0 lb-ft)
Brake hose union bolt: 23 N·m (2.3 kgf-m, 16.5 lb-ft)

NOTE:
Before remounting the brake caliper, push the brake caliper piston all the way into the caliper.

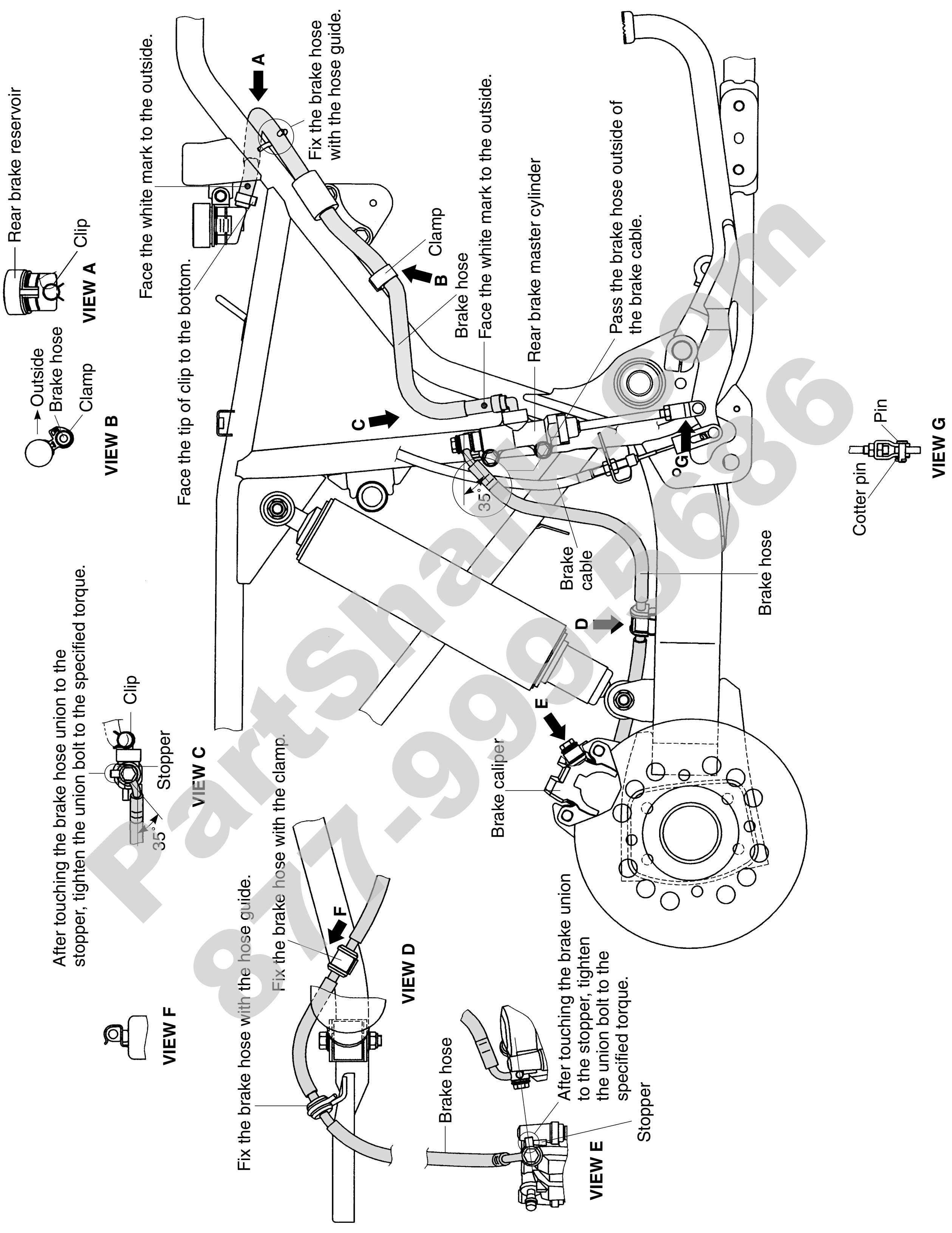
CAUTION

*** The seal washers should be replaced by the new ones to prevent fluid leakage.**
*** Bleed air from the brake system after reassembling the brake system.**

WIRING DIAGRAM



REAR BRAKE HOSE ROUTING



SERVICE DATA
VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	30.6 (1.20)	—
	EX.	27.0 (1.06)	—
Valve clearance (when cold)	IN.	0.05 – 0.10 (0.002 – 0.004)	—
	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 guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.3 (0.09)
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.	—	38.3 (1.53)
Valve spring tension	IN. & EX.	18.6 – 21.4 kgf (41.0 – 47.2 lbs) at length 31.5 mm (1.24 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.430 – 33.490 (1.3161 – 1.3185)	33.130 (1.3043)
	EX.	33.500 – 33.560 (1.3189 – 1.3213)	33.200 (1.3070)
Camshaft journal oil clearance	ϕ22	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
	ϕ17.5	0.028 – 0.059 (0.0011 – 0.0023)	0.150 (0.0059)
Camshaft journal holder I.D.	ϕ22	22.012 – 22.025 (0.8666 – 0.8671)	—
	ϕ17.5	17.512 – 17.525 (0.6894 – 0.6900)	—
Camshaft journal O.D.	ϕ22	21.959 – 21.980 (0.8645 – 0.8654)	—
	ϕ17.5	17.466 – 17.484 (0.6876 – 0.6883)	—
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.	11.973 – 11.984 (0.4714 – 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 (Automatic-decomp. actuated)	1 000 kPa Approx. (10.0 kgf/cm^2, 142 psi)			—
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			—
Cylinder bore	87.500 – 87.515 (3.4449 – 3.4455)			Nicks or Scratches
Piston diam.	87.465 – 87.480 (3.4435 – 3.4441) Measure at 15 mm (0.6 in) from the skirt end.			87.380 (3.4402)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 11.2 (0.44)	8.9 (0.35)
	2nd	R	Approx. 11.9 (0.47)	9.5 (0.37)
Piston ring end gap	1st		0.10 – 0.25 (0.004 – 0.009)	0.50 (0.020)
	2nd		0.10 – 0.25 (0.004 – 0.009)	0.50 (0.020)

ITEM	STANDARD		LIMIT
Piston ring to groove clearance	1st	—	0.180 (0.0071)
	2nd	—	0.150 (0.0059
Piston ring groove width	1st	1.01 – 1.03 (0.0398 – 0.0406)	—
	2nd	1.21 – 1.23 (0.0476 – 0.0484)	—
	Oil	2.51 – 2.53 (0.0988 – 0.0996)	—
Piston ring thickness	1st	0.97 – 0.99 (0.0382 – 0.0390)	—
	2nd	1.17 – 1.19 (0.0461 – 0.0469)	—
Piston pin bore	23.002 – 23.008 (0.9056 – 0.9058)		23.030 (0.9067)
Piston pin O.D.	22.995 – 23.000 (0.9053 – 0.9055)		22.980 (0.9047)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006 – 23.014 (0.9057 – 0.9061)	23.040 (0.9071)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.04)
Conrod big end width	24.95 – 25.00 (0.982 – 0.984)	—
Crank web to web width	71.0 ± 0.1 (2.795 ± 0.004)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60 °C, 140 °F)	Above 130 kPa (1.3 kgf/cm^2, 18 psi) Below 170 kPa (1.7 kgf/cm^2, 24 psi) at 3 000 r/min.	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch wheel I.D.	140.0 – 140.2 (5.512 – 5.520)	140.5 (5.53)
Clutch shoe	—	No groove at any part
Clutch engagement r/min.	1 600 – 2 000 r/min.	—
Clutch lock-up r/min.	3 600 – 4 200 r/min.	—

DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Automatic transmission ratio		Variable change (2.876 – 0.703)	—
Secondary reduction ratio		2.562 (41/16)	—
Final reduction ratio	Front	3.600 (36/10)	—
	Rear	3.600 (36/10)	—
Transfer gear ratio	Low	2.500 (40/16)	—
	High	1.200 (30/25)	—
	Reverse	1.999 (28/16 × 32/28)	—
Drive belt width		36.7 (1.44)	35.7 (1.41)
Movable driven face spring free length		153.0 (6.02)	145.4 (5.72)
Shift fork to groove clearance		0.10 – 0.30 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width	High/Low	5.50 – 5.60 (0.217 – 0.220)	—
	Reverse	5.50 – 5.60 (0.217 – 0.220)	—
Shift fork thickness	High/Low	5.30 – 5.40 (0.209 – 0.213)	—
	Reverse	5.30 – 5.40 (0.209 – 0.213)	—
Front/rear output shaft bevel gear backlash		0.03 – 0.15 (0.001 – 0.006)	—
Front drive (differential) gear backlash		0.05 – 0.10 (0.002 – 0.004)	—
Rear drive (final) gear backlash		0.08 – 0.013 (0.0031 – 0.0051)	—

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STANDARD/SPECIFICATION		LIMIT
Thermostat valve opening temperature	73.5 – 76.5 °C (164 – 170 °F)		—
Thermostat valve lift	Over 3 mm (0.12 in) at 90 °C (194 °F)		—
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)		—
Engine coolant temp. indicator light switch operating temperature	OFF → ON	Approx. 115 °C (239 °F)	—
	ON → OFF	Approx. 108 °C (226 °F)	—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 88 °C (190 °F)	—
	ON → OFF	Approx. 82 °C (180 °F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50 : 50.		—
Engine coolant including reserve	2 000 ml (2.1/1.8 US/Imp qt)		—

CARBURETOR

ITEM		SPECIFICATION	
		E-03, 28	E-33
Caburetor type		KEIHIN CVK36	←
Bore size		36 mm	←
I.D. No.		03G0	03G1
Idle r/min.		1 300 ± 100 r/min.	←
Float height		17.0 ± 1.0 mm (0.67 ± 0.04 in)	←
Main jet	(M.J.)	#128	# 128
Jet needle	(J.N.)	NBAY	←
Needle jet	(N.J.)	#6	# 6
Slow jet	(S.J.)	#35	# 35
Pilot screw	(P.S.)	1 7/8 turns back	PRE-SET
Throttle cable play		3 – 5 mm (0.12 – 0.20 in)	←
Choke cable play		0.5 – 1.0 mm (0.02 – 0.04 in)	←

ELECTRICAL

Unit: mm (in)

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR6E DENSO: U20ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.5 Ω	Terminal – Ground
		Secondary	12 – 22 kΩ	Plug cap – Terminal
Generator coil resistance		Pick-up	150 – 300 Ω	Bl – G
		Power source	0.05 – 1.0 Ω	Y – W
		Charging	0.1 – 1.5 Ω	B – B
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min.		
Generator Max. output		Approx. 325 W at 5 000 r/min.		
Regulated voltage		13.5 – 15.0 V at 5 000 r/min.		
Ignition coil primary peak voltage		More than 150 V		⊕ : Ground ⊖ : W/Bl
Pick-up coil peak voltage		More than 4.0 V		⊕ : G, ⊖ : Bl
Power source coil peak voltage		More than 0.3 V		⊕ : Y, ⊖ : W
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	FTH16-BS		
	Capacity	12 V 50.4 kC (14 Ah)/10 HR		

ITEM		SPECIFICATION	NOTE
Fuse size	Main	30 A	
	Power source	5 A	
	Headlight (HI)	10 A	
	Headlight (LO)	10 A	
	Ignition	10 A	
	Fan	10 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Auxiliary light		40
Brake light/Taillight		21/5
Speedometer light		LED
Reverse indicator light		LED
Neutral indicator light		LED
Parking indicator light		LED
High beam indicator light		LED
Engine coolant temp. indicator light		LED

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake cable play	3 – 5 (0.12 – 0.20)		—
Rear brake pedal height	15 – 25 (0.59 – 0.98)		—
Brake disc thickness	Front	3.3 – 3.7 (0.130 – 0.146)	3.0 (0.12)
	Rear	3.8 – 4.2 (0.209 – 0.224)	3.5 (0.197)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	32.030 – 32.280 (1.2610 – 1.2630)	—
	Rear	33.960 – 34.036 (1.3370 – 1.3400)	—
Brake caliper piston diam.	Front	31.948 – 31.998 (1.2578 – 1.2598)	—
	Rear	33.884 – 33.934 (1.3340 – 1.3360)	—

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake fluid type	DOT 4		—
Steering angle	Inside	38.5°	—
	Outside	26°	—
Turning radius	3.0 m (9.8 ft)		—
Toe-in (with 75 kg, 165 lbs)	0 ± 4 (0 ± 0.16)		—
Camber	0.6°		—
Caster	3.3°		—
Wheel rim size	Front	12 × 6.0 AT	—
	Rear	12 × 7.5 AT	—
Tire size	Front	AT25 8-12 ☆ ☆	—
	Rear	AT25 10-12 ☆ ☆	—
Tire tread depth	Front	—	4.0 (0.16)
	Rear	—	4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kgf/cm^2	psi	NOTE
FRONT	35	0.35	5.1	LOAD CAPACITY
REAR	30	0.30	4.4	UP TO 172 kg (380 lbs)

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 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 reserch 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.		
Fuel tank including reserve	19.0 L (5.0/4.2 US/Imp gal)		
reserve	4.2 L (1.1/0.9 US/Imp gal)		
Engine oil type	SAE 10W-40, API SF or SG		
Engine oil capacity	Change	2 500 ml (2.6/2.2 US/Imp qt)	
	Filter change	2 700 ml (2.9/2.4 US/Imp qt)	
	Overhaul	3 200 ml (3.4/2.8 US/Imp qt)	
Front /Rear drive gear oil type	Hypoid gear oil SAE #90 API grade GL-5		
Front drive (differential) gear oil capacity	300 ml (10.1/10.6 US/Imp oz)		
Rear drive gear oil capacity	350 ml (11.8/12.3 US/Imp oz)		

LT-A500FK4 ('04-MODEL)

This chapter describes service data, service specifications and servicing procedures which differ from those of the LT-A500FK3 ('03-MODEL).

NOTE:
- *Any differences between the LT-A500FK3 ('03-model) and LT-A500FK4 ('04-model) in specifications and service data are indicated with an asterisk mark (*).*
- *Please refer to the chapters 1 through 10 for details which are not given in this chapter.*

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WIRE HARNESS ROUTING 11-18
CABLE ROUTING 11-20

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length		2 095 mm (82.5 in)
Overall width		1 170 mm (46.1 in)
Overall height		1 235 mm (48.6 in)
Wheelbase		1 270 mm (50.0 in)
Ground clearance		250 mm (9.8 in)
Seat height		860 mm (33.9 in)
Dry mass		274 kg (604 lbs)
Front track	*	940 mm (37.0 in)
Rear track		930 mm (36.6 in)

ENGINE

Type		4-stroke, liquid-cooled, OHC
Number of cylinders		1
Bore		87.5 mm (3.445 in)
Stroke		82.0 mm (3.228 in)
Displacement		493cm³ (30.1 cu. in)
Compression ratio		10.2 : 1
Carburetor		KEIHIN CVK36, single
Air cleaner		Polyurethane foam element
Starter system		Electric and recoil starter
Lubrication system		Wet sump
Idle speed		1 300 ± 100 r/min

DRIVE TRAIN

Clutch		Wet shoe, automatic, centrifugal type
Transmission		Automatic variable ratio (V-belt)
Transfer		2-speed forward with reverse
Gearshift pattern, Transmission		Automatic
Transfer		L-H-N-R (Hand operated)
Automatic transmission ratio		Variable change (2.876 – 0.703)
Secondary reduction ratio		2.562 (41/16)
Final reduction ratio (Front & Rear)		3.600 (36/10)
Transfer gear ratio, Low		2.500 (40/16)
High		1.200 (30/25)
Reverse		2.000 (28/16 × 32/28)
Drive system		Shaft drive

CHASSIS

Front suspension		Independent, double wishbone, coil spring, oil damped
Rear suspension		Swing arm type, coil spring, oil damped
Front wheel travel		180 mm (7.1 in)
Rear wheel travel		200 mm (7.9 in)
Caster		3.3°
Trail		17 mm (0.67 in)
Toe-in	*	7 mm (0.3 in)
Camber	*	0.45°
Steering angle		45° (right & left)
Turning radius		3.0 m (9.8 ft)
Front brake		Disc brake, twin
Rear brake		Disc brake
Front tire size		AT25 × 8-12☆☆, tubeless
Rear tire size		AT25 ×10-12☆☆, tubeless

ELECTRICAL

Ignition type		Electronic ignition (CDI)
Ignition timing		10° B.T.D.C. at 1 300 r/min
Spark plug		NGK CR6E or DENSO U20ESR-N
Battery	*	12 V 64.8 kC (18 Ah)/10HR
Generator		Three-phase A.C. generator
Main fuse		30 A
Fuse		10/10/10/10/10/15 A
Headlight		12 V 30/30 W × 2
AUX lamp		12 V 40 W
Brake light/Taillight		12 V 21/5 W
Parking indicator light		LED
Speedometer light		LED
Coolant temperature warning light		LED
Neutral indicator light		LED
High beam indicator light		LED
Reverse indicator light		LED

CAPACITIES

Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.2 L (1.1/0.9 US/Imp gal)
Engine oil, oil change	2 500 ml (2.6/2.2 US/Imp qt)
with filter change	2 700 ml (2.9/2.4 US/Imp qt)
overhaul	3 200 ml (3.4/2.8 US/Imp qt)
Differential gear oil	300 ml (10.1/10.6 US/Imp oz)
Final gear oil	350 ml (11.8/12.3 US/Imp oz)
Coolant	2.0 L (2.1/1.8 US/Imp qt)

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	30.6 (1.20)	—
	EX.	27.0 (1.06)	—
Valve clearance (when cold)	IN.	0.05 – 0.10 (0.002 – 0.004)	—
	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 guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.3 (0.09)
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.	—	38.3 (1.53)
Valve spring tension	IN. & EX.	18.6 – 21.4 kgf (41.0 – 47.2 lbs) at length 31.5 mm (1.24 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.430 – 33.498 (1.3161 – 1.3188)	33.130 (1.3043)
	EX.	33.500 – 33.568 (1.3189 – 1.3216)	33.200 (1.3071)
Camshaft journal oil clearance	ϕ22	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
	ϕ17.5	0.028 – 0.059 (0.0011 – 0.0023)	0.150 (0.0059)
Camshaft journal holder I.D.	ϕ22	22.012 – 22.025 (0.8666 – 0.8671)	—
	ϕ17.5	17.512 – 17.525 (0.6894 – 0.6900)	—
Camshaft journal O.D.	ϕ22	21.959 – 21.980 (0.8645 – 0.8654)	—
	ϕ17.5	17.466 – 17.484 (0.6876 – 0.6883)	—
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.	11.973 – 11.984 (0.4714 – 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 (Automatic-decomp. actuated)	Approx. 1 000 kPa (10.0 kgf/cm^2, 142 psi)			—
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			—
Cylinder bore	87.500 – 87.515 (3.4449 – 3.4455)			Nicks or Scratches
Piston diam.	87.465 – 87.480 (3.4435 – 3.4441) Measure at 15 mm (0.6 in) from the skirt end.			87.380 (3.4402)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 11.2 (0.44)	8.9 (0.35)
	2nd	R	Approx. 11.9 (0.47)	9.5 (0.37)
Piston ring end gap	1st	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)
	2nd	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)

ITEM	STANDARD		LIMIT
Piston ring to groove clearance	1st	—	0.180 (0.0071)
	2nd	—	0.150 (0.0059)
Piston ring groove width	1st	1.01 – 1.03 (0.0398 – 0.0406)	—
	2nd	1.21 – 1.23 (0.0476 – 0.0484)	—
	Oil	2.51 – 2.53 (0.0988 – 0.0996)	—
Piston ring thickness	1st	0.097 – 0.99 (0.0382 – 0.0390)	—
	2nd	1.17 – 1.19 (0.0461 – 0.0469)	—
Piston pin bore	23.002 – 23.008 (0.9056 – 0.9058)		23.030 (0.9067)
Piston pin O.D.	22.995 – 23.000 (0.9053 – 0.9055)		22.980 (0.9047)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006 – 23.014 (0.9057 – 0.9061)	23.040 (0.9071)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.04)
Conrod big end width	24.95 – 25.00 (0.982 – 0.984)	—
Crank web to web width	71.0 ± 0.1 (2.795 ± 0.004)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60°C, 140°F)	Above 130 kPa (1.3 kgf/cm^2, 18 psi) Below 170 kPa (1.7 kgf/cm^2, 24 psi) at 3 000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch wheel I.D.	140.0 – 140.2 (5.512 – 5.520)	140.5 (5.53)
Clurch shoe	—	No groove at any part
Clutch engagement r/min	1 600 – 2 000 r/min	—
Clutch lock-up r/min	3 600 – 4 200 r/min	—

DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Automatic transmission ratio		Variable change (2.876 – 0.703)	—
Secondary reduction ratio		2.562 (41/16)	—
Final reduction ratio	Front	3.600 (36/10)	—
	Rear	3.600 (36/10)	—
Transfer gear ratio	Low	2.500 (40/16)	—
	High	1.200 (30/25)	—
	Reverse	2.000 (28/16 × 32/28)	—
Drive belt width		36.7 (1.44)	35.7 (1.41)
Movable driven face spring free length		153.0 (6.02)	145.4 (5.72)
Shift fork to groove clearance		0.10 – 0.30 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width	High/Low	5.50 – 5.60 (0.217 – 0.220)	—
	Reverse	5.50 – 5.60 (0.217 – 0.220)	—
Shift fork thickness	High/Low	5.30 – 5.40 (0.209 – 0.213)	—
	Reverse	5.30 – 5.40 (0.209 – 0.213)	—
Front/rear output shaft bevel gear backlash		0.03 – 0.15 (0.001 – 0.006)	—
Front drive (defferential) gear backlash		0.05 – 0.10 (0.002 – 0.004)	—
Rear drive (final) gear backlash		0.08 – 0.013 (0.0031 – 0.0051)	—

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STANDARD/SPECIFICATION		LIMIT
Thermostat valve opening temperature	73.5 – 76.5 °C (164 – 170 °F)		—
Thermostat valve lift	Over 3 mm (0.12 in) at 90 °C (194 °F)		—
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi)		—
Engine coolant temp. indicator light switch operating temperature	OFF → ON	Approx. 115 °C (239 °F)	—
	ON → OFF	Approx. 108 °C (226 °F)	—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 88 °C (190 °F)	—
	ON → OFF	Approx. 82 °C (180 °F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		—
Engine coolant including reserve	2 000 ml (2.1/1.8 US/Imp qt)		—

CARBURETOR

ITEM		SPECIFICATION	
		P-24, 28	P-33
Carburetor type		KEIHIN CVK36	←
Bore size		36 mm	←
I.D. No		03G0	03G1
Idle r/min		1 300 ± 100 r/min	←
Float height		17.0 ± 1.0 mm (0.67 ± 0.04 in)	←
Main jet	(M.J.)	#128	# 128
Jet needle	(J.N.)	NBAY	←
Needle jet	(N.J.)	#6	# 6
Slow jet	(S.J.)	#35	# 35
Pilot screw	(P.S.)	1-7/8 turns back	PRE-SET
Throttle cable play		3 – 5 mm (0.12 – 0.20 in)	←
Choke cable play		0.5 – 1.0 mm (0.02 – 0.04 in)	←

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR6E DENSO: U20ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.5 Ω	Terminal – Ground
		Secondary	12 – 22 kΩ	Plug cap – Terminal
Generator coil resistance		Pick-up	150 – 300 Ω	Bl – G
		Power source	0.05 – 1.0 Ω	Y – W
		Charging	0.1 – 1.5 Ω	B – B
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min		
Generator MAX. output		Approx. 325 W at 5 000 r/min		
Regulated voltage		13.5 – 15.0 V at 5 000 r/min		
Ignition coil primary peak voltage		More than 150 V		⊕ : Ground ⊖ : W/Bl
Pick-up coil peak voltage		More than 4.0 V		⊕ : G, ⊖ : Bl
Power source coil peak voltage		More than 0.3 V		⊕ : Y, ⊖ : W
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	YTX20CH-BS		
	Capacity	* 12 V 64.8 kC (18 Ah)/10 HR		

ITEM		SPECIFICATION	NOTE
Fuse size	Main	30 A	
	Power source	* 10 A	
	Headlight (HI)	10 A	
	Headlight (LO)	10 A	
	Tail	10 A	
	Ignition	* 15 A	
	Fan	10 A	

WATTAGE

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Auxiliary light		40
Brake light/Taillight		21/5
Speedometer light		LED
Reverse indicator light		LED
Neutral indicator light		LED
Parking indicator light		LED
Hight beam indicator light		LED
Engine coolant temp. indicator light		LED

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake cable play	3 – 5 (0.12 – 0.20)		—
Rear brake pedal height	15 – 25 (0.59 – 0.98)		—
Brake disc thickness	Front	3.3 – 3.7 (0.130 – 0.146)	3.0 (0.12)
	Rear	3.8 – 4.2 (0.209 – 0.224)	3.5 (0.197)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	32.030 – 32.280 (1.2610 – 1.2630)	—
	Rear	33.960 – 34.036 (1.3370 – 1.3400)	—
Brake caliper piston diam.	Front	31.948 – 31.998 (1.2578 – 1.2598)	—
	Rear	33.884 – 33.934 (1.3340 – 1.3360)	—

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake fluid type	DOT 4		—
Steering angle	Right	45°	—
	Left	45°	—
Turning radius	3.0 m (9.8 ft)		—
Toe-in (with 75 kg, 165 lbs)	* 7 ± 4 (0.30 ± 0.16)		—
Camber	* 0.45°		—
Caster	3.3°		—
Wheel rim size	Front	12 × 6.0 AT	—
	Rear	12 × 7.5 AT	—
Tire size	Front	AT25 8-12 ☆ ☆	—
	Rear	AT25 10-12 ☆ ☆	—
Tire type	Front	DUNLOP: KT121D	—
	Rear	DUNLOP: KT405D	—
Tire tread depth	—		4.0 (0.16)
	—		4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kgf/cm²	psi	NOTE
FRONT	35	0.35	5.1	LOAD CAPACITY
REAR	30	0.30	4.4	UP TO 172 kg (380 lbs)

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

FUEL + OIL

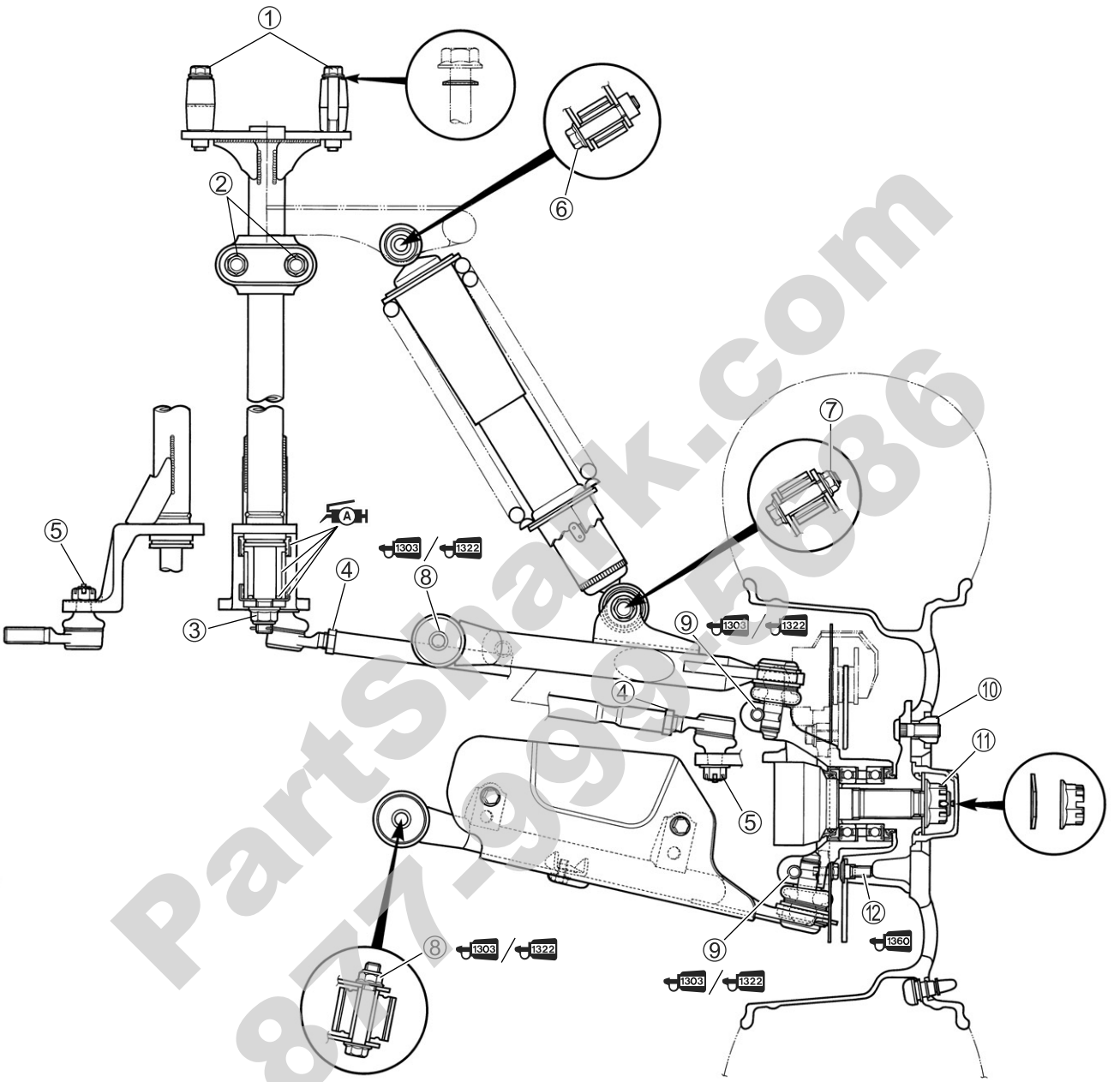
ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 87 pump octane (R/2 + M/2) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		
Fuel tank including	reserve	19.0 L (5.0/4.2 US/Imp gal)		
	reserve	4.2 L (1.1/0.9 US/Imp gal)		
Engine oil type		SAE 10W-40, API SF or SG		
Engine oil capacity		Change	2 500 ml (2.6/2.2 US/Imp qt)	
		Filter change	2 700 ml (2.9/2.4 US/Imp qt)	
		Overhaul	3 200 ml (3.4/2.8 US/Imp qt)	
Front/Rear drive gear oil type		Hypoid gear oil SAE #90 API grade GL-5		
Front drive (differential) gear oil capacity		300 ml (10.1/10.6 US/Ipm oz)		
Rear drive gear oil capacity		350 ml (11.8/12. US/Ipm oz)		

TIGHTENING TORQUE

CHASSIS

ITEM		N·m	kgf-m	lb-ft
Handlebar clamp bolt		* 26	* 2.6	* 19.0
Steering shaft holder bolt		23	2.3	16.5
Steering shaft nut		49	4.9	35.5
Steering knuckle pinch bolt		50	5.0	36.0
Tie rod end nut		* 29	* 2.9	* 21.0
Tie rod locknut		29	2.9	21.0
Front shock absorber mounting bolt (upper)		55	5.5	40.0
Front shock absorber mounting nut (lower)		60	6.0	43.5
Wishbone arm pivot nut		65	6.5	47.0
Hub nut (front and rear)		* 110	* 11.0	* 79.5
Wheel set nut (front and rear)		50	5.0	36.0
Brake master cylinder mounting bolt (front and rear)		10	1.0	7.0
Brake hose union bolt		23	2.3	16.5
Front brake pipe nut		16	1.6	11.5
Brake air bleeder valve	(front)	* 6.0	* 0.6	* 4.5
	(rear)	7.5	0.75	5.5
Brake disc bolt (front and rear)		23	2.3	16.5
Brake caliper mounting bolt (front and rear)		26	2.6	19.0
Brake pad mounting bolt (front and rear)		18	1.8	13.0
Footrest bolt	8 mm	26	2.6	19.0
	10 mm	55	5.5	40.0
Rear master cylinder rod locknut		18	1.8	13.0
Rear brake pedal bolt		26	2.6	19.0
Rear shock absorber mounting nut	(upper)	* 35	* 3.5	* 25.5
	(lower)	60	6.0	43.5
Rear swingarm pivot bolt	(left)	100	10.0	72.5
	(right)	9.5	0.95	7.0
	locknut (right)	100	10.0	72.5

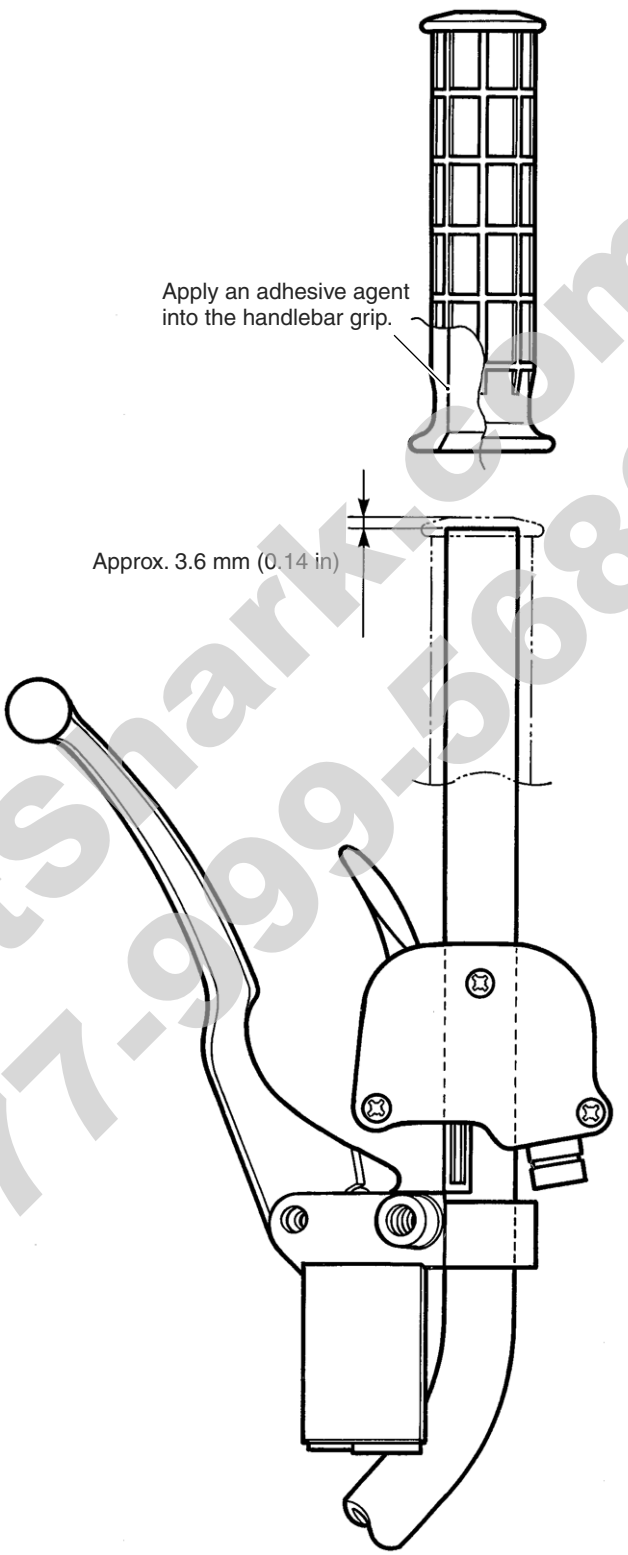
FRONT WHEEL, FRONT SUSPENSION AND STEERING ASSEMBLY



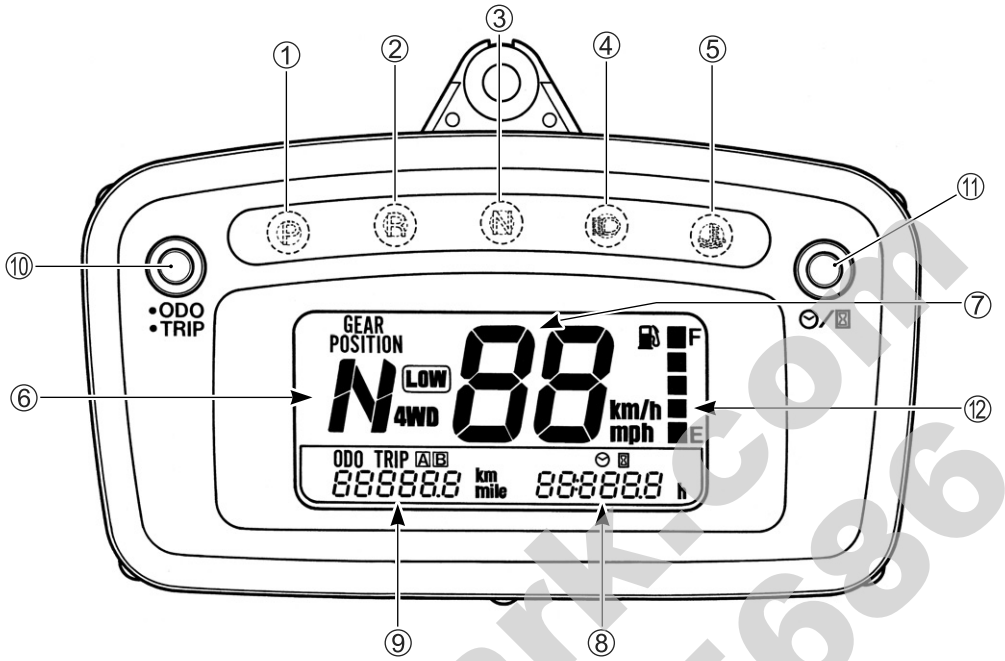
Item	N·m	kgf-m	lb-ft
①	* 26	* 2.6	* 19.0
②	23	2.3	16.5
③	49	4.9	35.5
④	29	2.9	21.0
⑤	* 29	* 2.9	* 21.0
⑥	55	5.5	40.0

Item	N·m	kgf-m	lb-ft
⑦	60	6.0	43.5
⑧	65	6.5	47.0
⑨	50	5.0	36.0
⑩	50	5.0	36.0
⑪	* 110	* 11.0	* 79.5
⑫	23	2.3	16.5

HANDLEBAR GRIP INSTALLATION

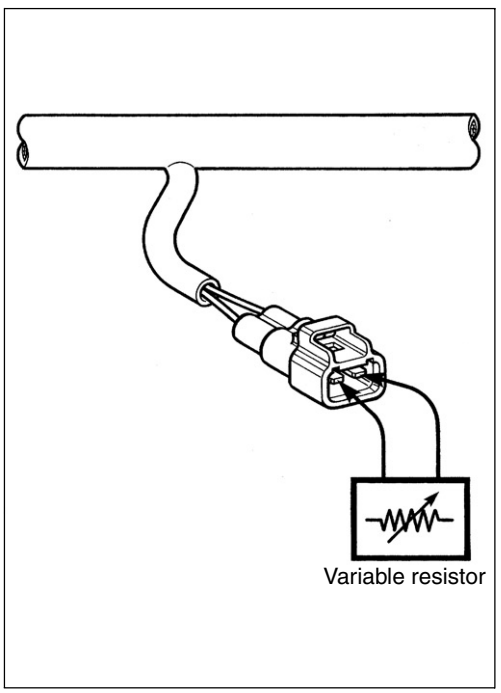


FUEL METER INSPECTION



① Parking indicator light
② Reverse indicator light
③ Neutral indicator light
④ High beam indicator light
⑤ Engine coolant temperature indicator light
⑥ Gear position
⑦ Speedometer
⑧ Clock/hour
⑨ Odometer/tripmeter (A, B)
⑩ ODO/TRIP button
⑪ Clock/Hour button
⑫ Fuel meter

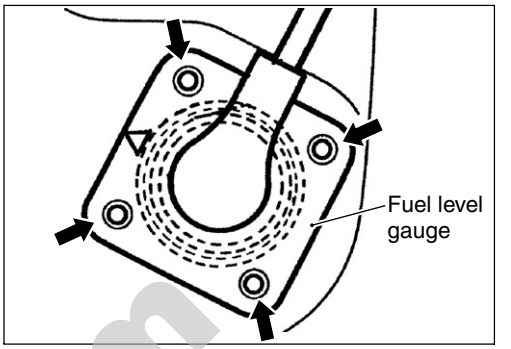
- Remove the fuel tank cover.
- Disconnect the fuel level gauge coupler.
- Connect the variable resistor between lead wires at the disconnected coupler of the wire harness.
- Turn the ignition switch "ON" position and wait for about 10 seconds.
- Check the display of the fuel meter. If any abnormality is found, replace the speedometer assembly with a new one.



Resistance	Less than 12.3 Ω	Approx. 93 Ω	More than 187 Ω
Fuel level	F E	F E	Blinking F E

FUEL LEVEL GAUGE INSPECTION

- Remove the fuel tank cover.
- Disconnect the fuel level gauge coupler.
- Remove the fuel level gauge.

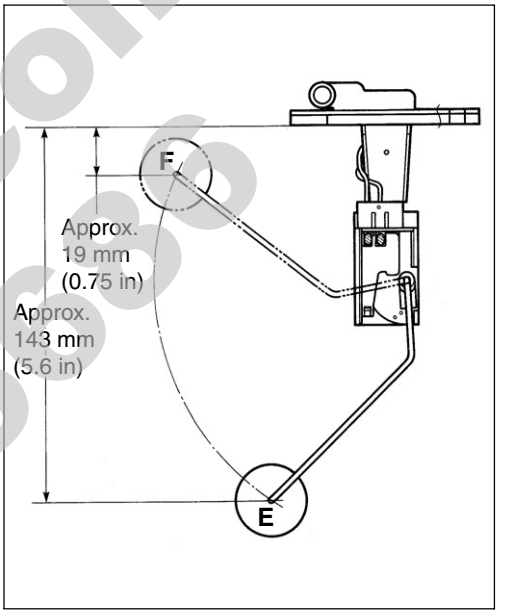


⚠ WARNING

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

- Measure the resistance at each fuel level gauge float position. If the resistance is incorrect, replace the fuel level gauge with a new one.

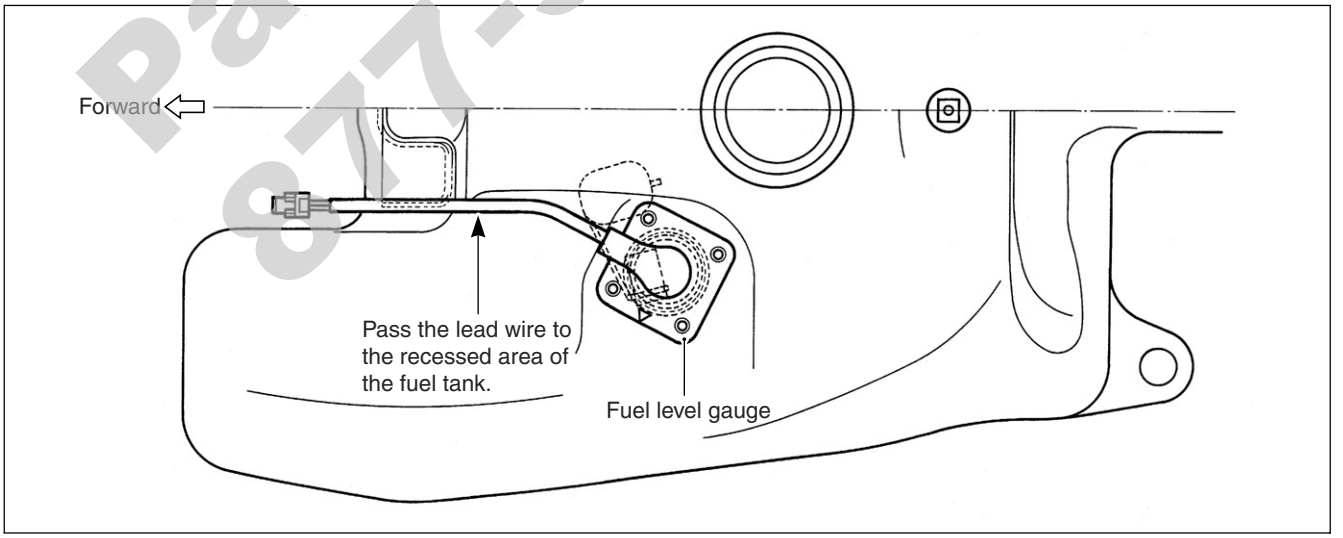
Float position	Resistance
"F" (Full)	Approx. 4 Ω
"E" (Empty)	Approx. 216 Ω



TOOL 09900-25008: Multi circuit tester set

Tester knob indication: Resistance (Ω)

FUEL LEVEL GAUGE INSTALLATION

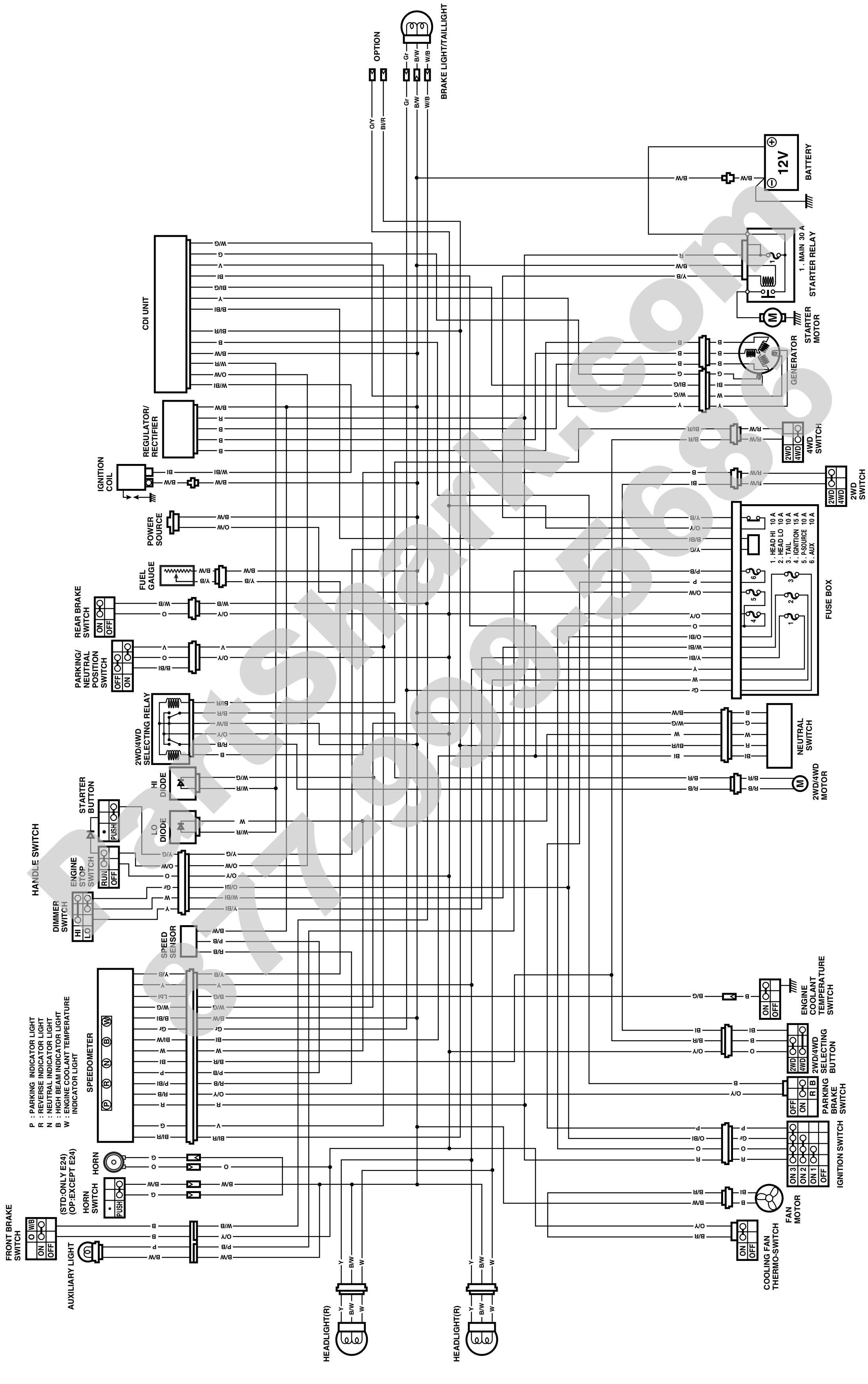


- Tighten the fule level gauge mounting screws diagonally to the specified torque.

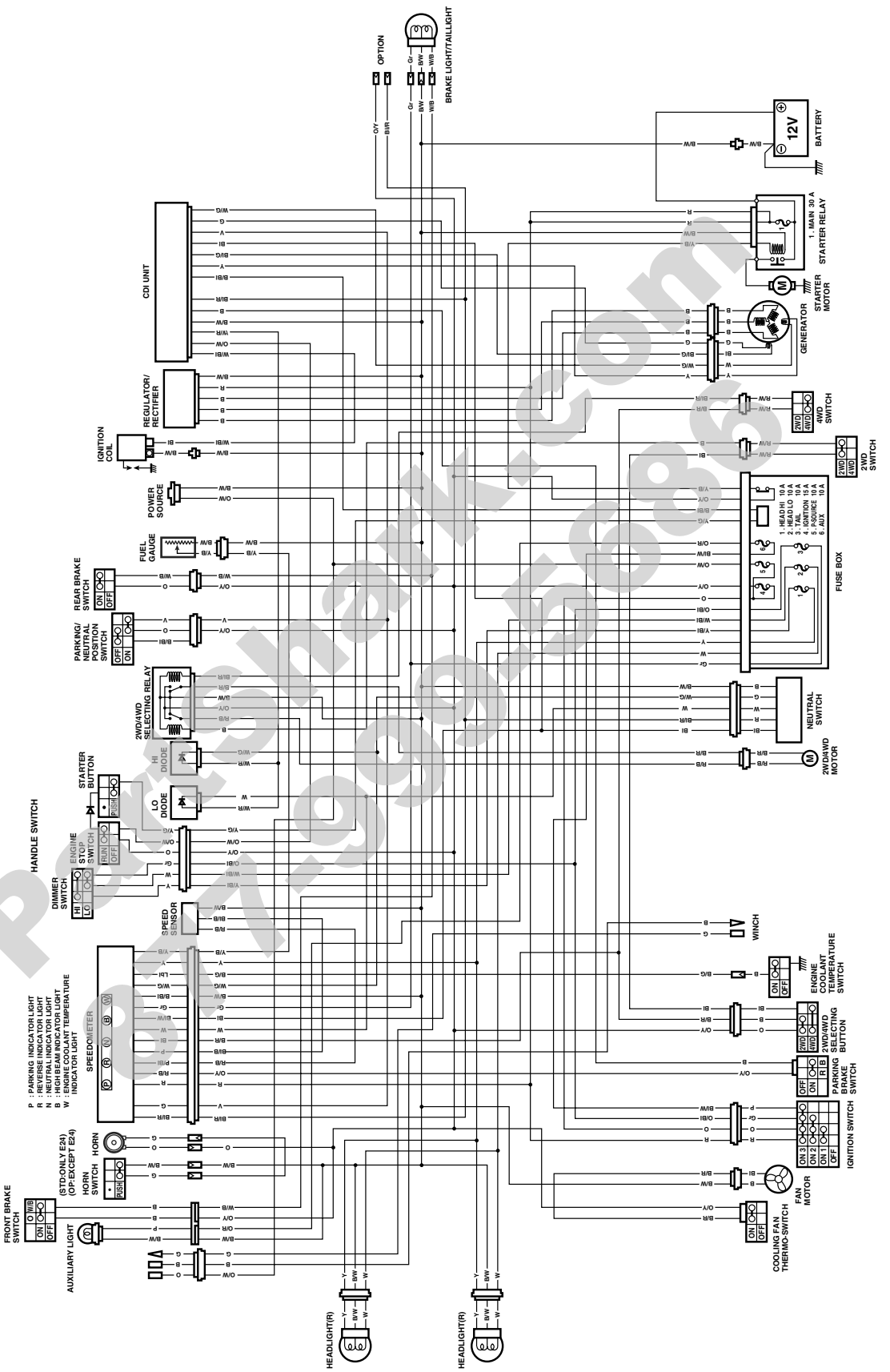
Fuel level gauge mounting screw: 4.6 N·m (0.46 kgf-m, 3.3 lb-ft)

WIRING DIAGRAM

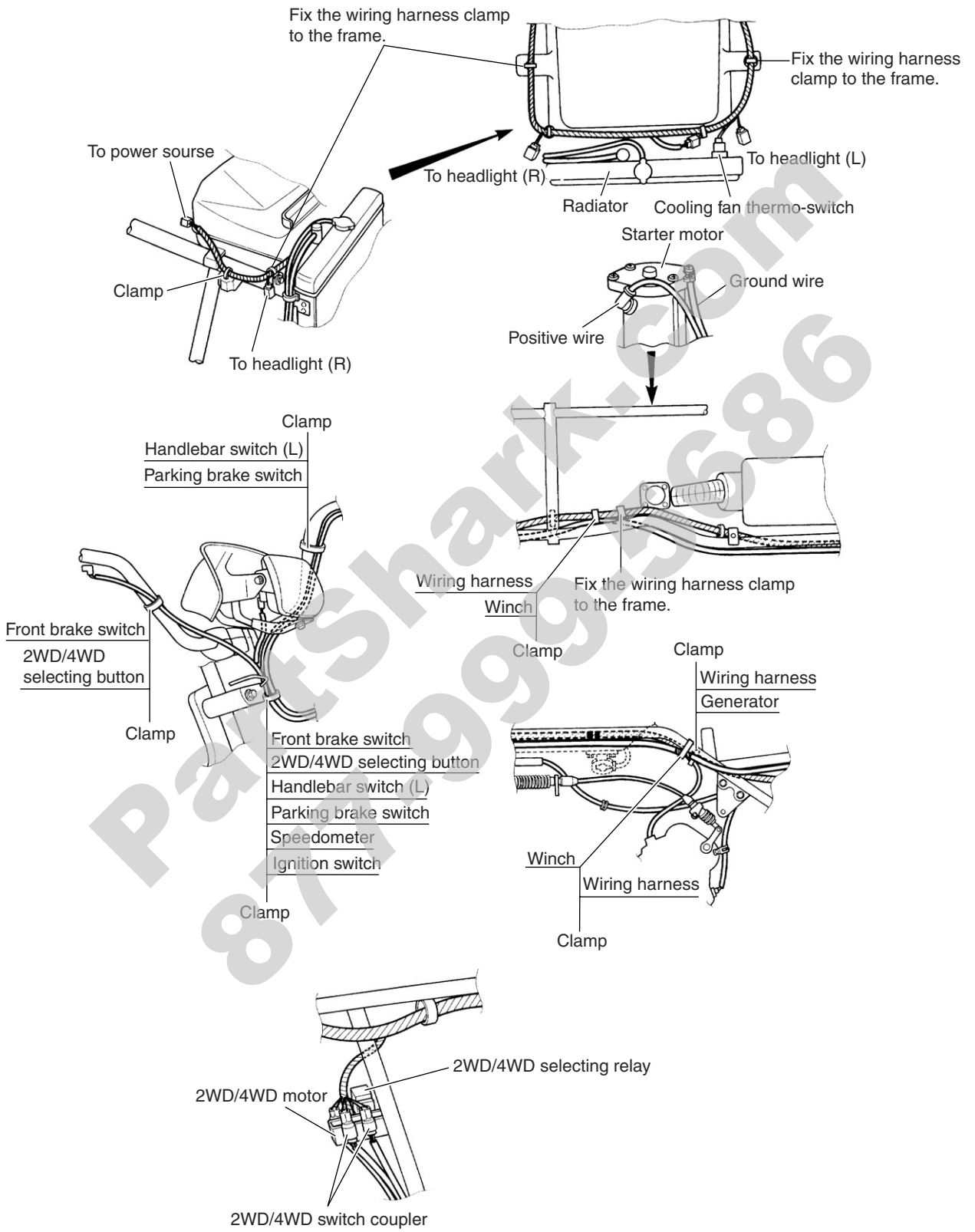
For P-24

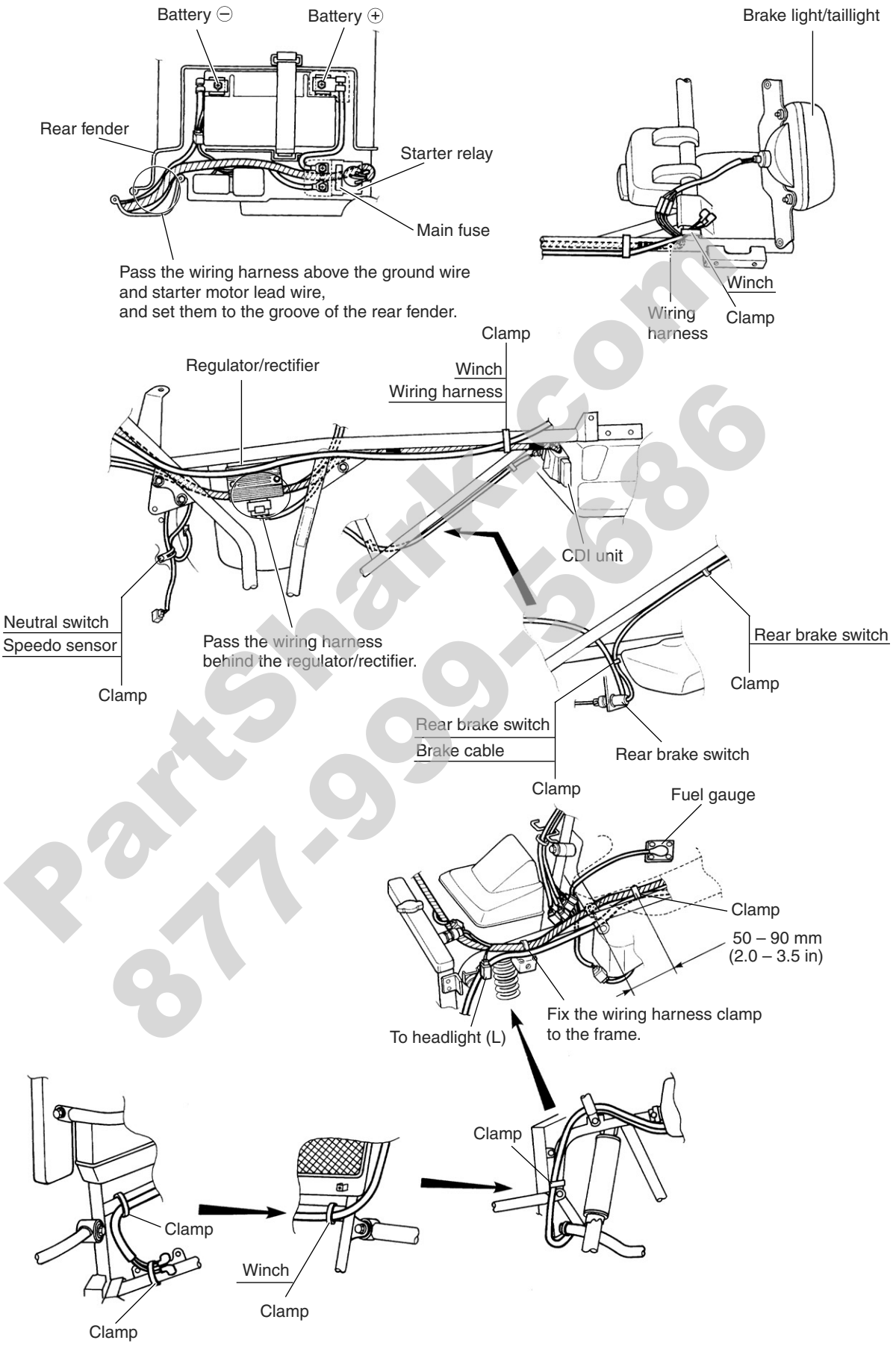


For P-28, 33

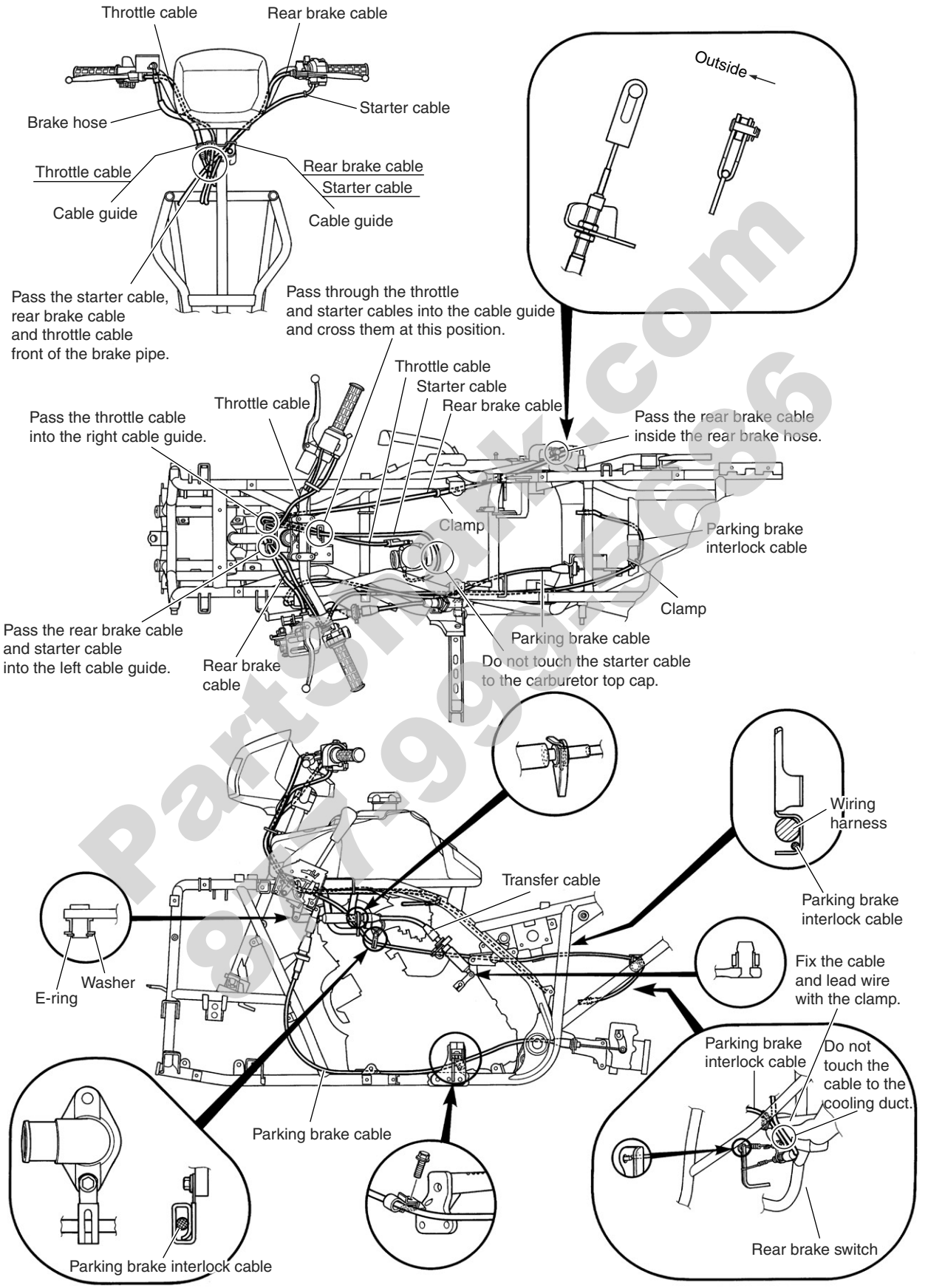


WIRE HARNESS ROUTING





CABLE ROUTING



LT-A500FK5 ('05-MODEL)

This chapter describes service data, service specifications and servicing procedures which differ from those of the LT-A500FK4 ('04-MODEL).

NOTE:
- *Any differences between the LT-A500FK4 ('04-model) and LT-A500FK5 ('05-model) in specifications and service data are indicated with an asterisk mark (*).*
- *Please refer to the chapters 1 through 11 for details which are not given in this chapter.*

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SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 095 mm (82.5 in)
Overall width	1 170 mm (46.1 in)
Overall height	1 235 mm (48.6 in)
Wheelbase	1 270 mm (50.0 in)
Ground clearance	250 mm (9.8 in)
Seat height	860 mm (33.9 in)
Dry mass	274 kg (604 lbs)
Front track	940 mm (37.0 in)
Rear track	930 mm (36.6 in)

ENGINE

Type	4-stroke, liquid-cooled, OHC
Number of cylinders	1
Bore	87.5 mm (3.445 in)
Stroke	82.0 mm (3.228 in)
Displacement	493 cm³ (30.1 cu. in)
Compression ratio	10.2 : 1
Carburetor	KEIHIN CVK36, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump
Idle speed	1 300 ± 100 r/min

DRIVE TRAIN

Clutch	Wet shoe, automatic, centrifugal type
Transmission	Automatic variable ratio (V-belt)
Transfer.	2-speed forward with reverse
Gearshift pattern, Transmission	Automatic
Transfer	L-H-N-R (Hand operated)
Automatic transmission ratio	Variable change (2.876 – 0.703)
Secondary reduction ratio	2.562 (41/16)
Final reduction ratio (Front & Rear)	3.600 (36/10)
Transfer gear ratio, Low	2.500 (40/16)
High	1.200 (30/25)
Reverse	2.000 (28/16 × 32/28)
Drive system	Shaft drive

CHASSIS

Front suspension	Independent, double wishbone, coil spring, oil damped
Rear suspension	Swingarm type, coil spring, oil damped
Front wheel travel	180 mm (7.1 in)
Rear wheel travel	200 mm (7.9 in)
Caster	3.3°
Trail	17 mm (0.67 in)
Toe-in	7 mm (0.3 in)
Camber	0.45°
Steering angle	45° (right & left)
Turning radius	3.0 m (9.8 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	AT25 × 8-12☆☆, tubeless
Rear tire size	AT25 × 10-12☆☆, tubeless

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	10° B.T.D.C. at 1 300 r/min
Spark plug	NGK CR6E or DENSO U20ESR-N
Battery	12 V 64.8 kC (18 Ah)/10 HR
Generator	Three-phase A.C. generator
Main fuse	30 A
Fuse	10/10/10/10/10/15 A
Headlight	12 V 30/30 W × 2
AUX lamp	12 V 40 W
Brake light/Taillight	12 V 21/5 W
Parking indicator light	LED
Speedometer light	LED
Coolant temperature warning light	LED
Neutral indicator light	LED
High beam indicator light	LED
Reverse indicator light	LED

CAPACITIES

Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.2 L (1.1/0.9 US/Imp gal)
Engine oil, oil change	2 500 ml (2.6/2.2 US/Imp qt)
with filter change	2 700 ml (2.9/2.4 US/Imp qt)
overhaul	3 200 ml (3.4/2.8 US/Imp qt)
Differential gear oil	300 ml (10.1/10.6 US/Imp oz)
Final gear oil	350 ml (11.8/12.3 US/Imp oz)
Coolant	2.0 L (2.1/1.8 US/Imp qt)

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	30.6 (1.20)	—
	EX.	27.0 (1.06)	—
Valve clearance (when cold)	IN.	0.05 – 0.10 (0.002 – 0.004)	—
	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 guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.3 (0.09)
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.	—	38.3 (1.53)
Valve spring tension	IN. & EX.	182 – 210 N (18.6 – 21.4 kgf, 41.0 – 47.2 lbs) at length 31.5 mm (1.24 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.430 – 33.498 (1.3161 – 1.3188)	33.130 (1.3043)
	EX.	33.500 – 33.568 (1.3189 – 1.3216)	33.200 (1.3071)
Camshaft journal oil clearance	ϕ22	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
	ϕ17.5	0.028 – 0.059 (0.0011 – 0.0023)	0.150 (0.0059)
Camshaft journal holder I.D.	ϕ22	22.012 – 22.025 (0.8666 – 0.8671)	—
	ϕ17.5	17.512 – 17.525 (0.6894 – 0.6900)	—
Camshaft journal O.D.	ϕ22	21.959 – 21.980 (0.8645 – 0.8654)	—
	ϕ17.5	17.466 – 17.484 (0.6876 – 0.6883)	—
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.	11.973 – 11.984 (0.4714 – 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 (Automatic-decomp. actuated)	Approx. 1 000 kPa (10.0 kgf/cm^2, 142 psi)			—
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			—
Cylinder bore	87.500 – 87.515 (3.4449 – 3.4455)			Nicks or Scratches
Piston diam.	87.465 – 87.480 (3.4435 – 3.4441) Measure at 15 mm (0.6 in) from the skirt end.			87.380 (3.4402)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 11.2 (0.44)	8.9 (0.35)
	2nd	R	Approx. 11.9 (0.47)	9.5 (0.37)
Piston ring end gap	1st	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)
	2nd	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)

ITEM	STANDARD		LIMIT
Piston ring to groove clearance	1st	—	0.180 (0.0071)
	2nd	—	0.150 (0.0059)
Piston ring groove width	1st	1.01 – 1.03 (0.0398 – 0.0406)	—
	2nd	1.21 – 1.23 (0.0476 – 0.0484)	—
	Oil	2.51 – 2.53 (0.0988 – 0.0996)	—
Piston ring thickness	1st	0.97 – 0.99 (0.038 – 0.039)	—
	2nd	1.17 – 1.19 (0.0461 – 0.0469)	—
Piston pin bore	23.002 – 23.008 (0.9056 – 0.9058)		23.030 (0.9067)
Piston pin O.D.	22.995 – 23.000 (0.9053 – 0.9055)		22.980 (0.9047)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006 – 23.014 (0.9057 – 0.9061)	23.040 (0.9071)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.04)
Conrod big end width	24.95 – 25.00 (0.982 – 0.984)	—
Crank web to web width	71.0 ± 0.1 (2.795 ± 0.004)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60°C, 140°F)	Above 130 kPa (1.3 kgf/cm^2, 18 psi) Below 170 kPa (1.7 kgf/cm^2, 24 psi) at 3 000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch wheel I.D.	140.0 – 140.2 (5.512 – 5.520)	140.5 (5.53)
Clurch shoe	—	No groove at any part
Clutch engagement r/min	1 600 – 2 000 r/min	—
Clutch lock-up r/min	3 600 – 4 200 r/min	—

DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Automatic transmission ratio		Variable change (2.876 – 0.703)	—
Secondary reduction ratio		2.562 (41/16)	—
Final reduction ratio	Front	3.600 (36/10)	—
	Rear	3.600 (36/10)	—
Transfer gear ratio	Low	2.500 (40/16)	—
	High	1.200 (30/25)	—
	Reverse	2.000 (28/16 × 32/28)	—
Drive belt width		34.7 (1.37)	33.7 (1.33)
Movable driven face spring free length		153.0 (6.02)	145.4 (5.72)
Shift fork to groove clearance		0.10 – 0.30 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width	High/Low	5.50 – 5.60 (0.217 – 0.220)	—
	Reverse	5.50 – 5.60 (0.217 – 0.220)	—
Shift fork thickness	High/Low	5.30 – 5.40 (0.209 – 0.213)	—
	Reverse	5.30 – 5.40 (0.209 – 0.213)	—
Front/rear output shaft bevel gear backlash		0.03 – 0.15 (0.001 – 0.006)	—
Front drive (defferential) gear backlash		0.05 – 0.10 (0.002 – 0.004)	—
Rear drive (final) gear backlash		0.08 – 0.013 (0.0031 – 0.0051)	—

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STANDARD/SPECIFICATION		LIMIT
Thermostat valve opening temperature	73.5 – 76.5 °C (164 – 170 °F)		—
Thermostat valve lift	Over 3 mm (0.12 in) at 90 °C (194 °F)		—
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)		—
Engine coolant temp. indicator light switch operating temperature	OFF → ON	Approx. 115 °C (239 °F)	—
	ON → OFF	Approx. 108 °C (226 °F)	—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 88 °C (190 °F)	—
	ON → OFF	Approx. 82 °C (180 °F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		—
Engine coolant including reserve	2 000 ml (2.1/1.8 US/Imp qt)		—

CARBURETOR

ITEM		SPECIFICATION	
		P-24, 28	P-33
Carburetor type		KEIHIN CVK36	←
Bore size		36 mm	←
I.D. No.		* 03G2	* 03G3
Idle r/min		1 300 ± 100 r/min	←
Float height		17.0 ± 1.0 mm (0.67 ± 0.04 in)	←
Main jet	(M.J.)	#128	←
Jet needle	(J.N.)	NBAY	←
Needle jet	(N.J.)	#6	←
Slow jet	(S.J.)	#35	←
Pilot screw	(P.S.)	1 and 7/8 turns back	PRE-SET
Throttle cable play		3 – 5 mm (0.12 – 0.20 in)	←
Choke cable play		0.5 – 1.0 mm (0.02 – 0.04 in)	←

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR6E DENSO: U20ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.5 Ω	Terminal – Ground
		Secondary	12 – 22 kΩ	Plug cap – Terminal
Generator coil resistance		Pick-up	150 – 300 Ω	Bl – G
		Power source	0.05 – 1.0 Ω	Y – W
		Charging	0.1 – 1.5 Ω	B – B
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min		
Generator Max. output		Approx. 325 W at 5 000 r/min		
Regulated voltage		13.5 – 15.0 V at 5 000 r/min		
Ignition coil primary peak voltage		More than 150 V		⊕ : Ground ⊖ : W/Bl
Pick-up coil peak voltage		More than 4.0 V		⊕ : G, ⊖ : Bl
Power source coil peak voltage		More than 0.3 V		⊕ : Y, ⊖ : W
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	YTX20CH-BS		
	Capacity	12 V 64.8 kC (18 Ah)/10 HR		

ITEM		SPECIFICATION	NOTE
Fuse size	Main	30 A	
	Power source	10 A	
	Headlight (HI)	10 A	
	Headlight (LO)	10 A	
	Tail	10 A	
	Ignition	15 A	
	Fan	10 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Auxiliary light		40
Brake light/Taillight		21/5
Speedometer light		LED
Reverse indicator light		LED
Neutral indicator light		LED
Parking indicator light		LED
Hight beam indicator light		LED
Engine coolant temp. indicator light		LED

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake cable play	3 – 5 (0.12 – 0.20)		—
Rear brake pedal height	15 – 25 (0.59 – 0.98)		—
Brake disc thickness	Front	3.3 – 3.7 (0.130 – 0.146)	3.0 (0.12)
	Rear	3.8 – 4.2 (0.209 – 0.224)	3.5 (0.197)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	32.030 – 32.280 (1.2610 – 1.2630)	—
	Rear	33.960 – 34.036 (1.3370 – 1.3400)	—

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake caliper piston diam.	Front	31.948 – 31.998 (1.2578 – 1.2598)	—
	Rear	33.884 – 33.934 (1.3340 – 1.3360)	—
Brake fluid type	DOT 4		—
Steering angle	Right	45°	—
	Left	45°	—
Turning radius	3.0 m (9.8 ft)		—
Toe-in (with 75 kg, 165 lbs)	7 ± 4 (0.30 ± 0.16)		—
Camber	0.45°		—
Caster	3.3°		—
Wheel rim size	Front	12 × 6.0 AT	—
	Rear	12 × 7.5 AT	—
Tire size	Front	AT25 8-12 ☆ ☆	—
	Rear	AT25 10-12 ☆ ☆	—
Tire type	Front	DUNLOP: KT121D	—
	Rear	DUNLOP: KT405D	—
Tire tread depth	—		4.0 (0.16)
	—		4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kgf/cm²	psi	NOTE
FRONT	35	0.35	5.1	LOAD CAPACITY UP TO 172 kg (380 lbs)
REAR	30	0.30	4.4	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

FUEL + OIL

ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 87 pump octane (R/2 + 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.		
Fuel tank capacity	including reserve	19.0 L (5.0/4.2 US/Imp gal)		
	reserve	4.2 L (1.1/0.9 US/Imp gal)		
Engine oil type		SAE 10W-40, API SF or SG		
Engine oil capacity		Change	2 500 ml (2.6/2.2 US/Imp qt)	
		Filter change	2 700 ml (2.9/2.4 US/Imp qt)	
		Overhaul	3 200 ml (3.4/2.8 US/Imp qt)	
Front/Rear drive gear oil type		Hypoid gear oil SAE #90 API grade GL-5		
Front drive (differential) gear oil capacity		300 ml (10.1/10.6 US/Ipm oz)		
Rear drive gear oil capacity		350 ml (11.8/12. US/Ipm oz)		

TIGHTENING TORQUE
CHASSIS

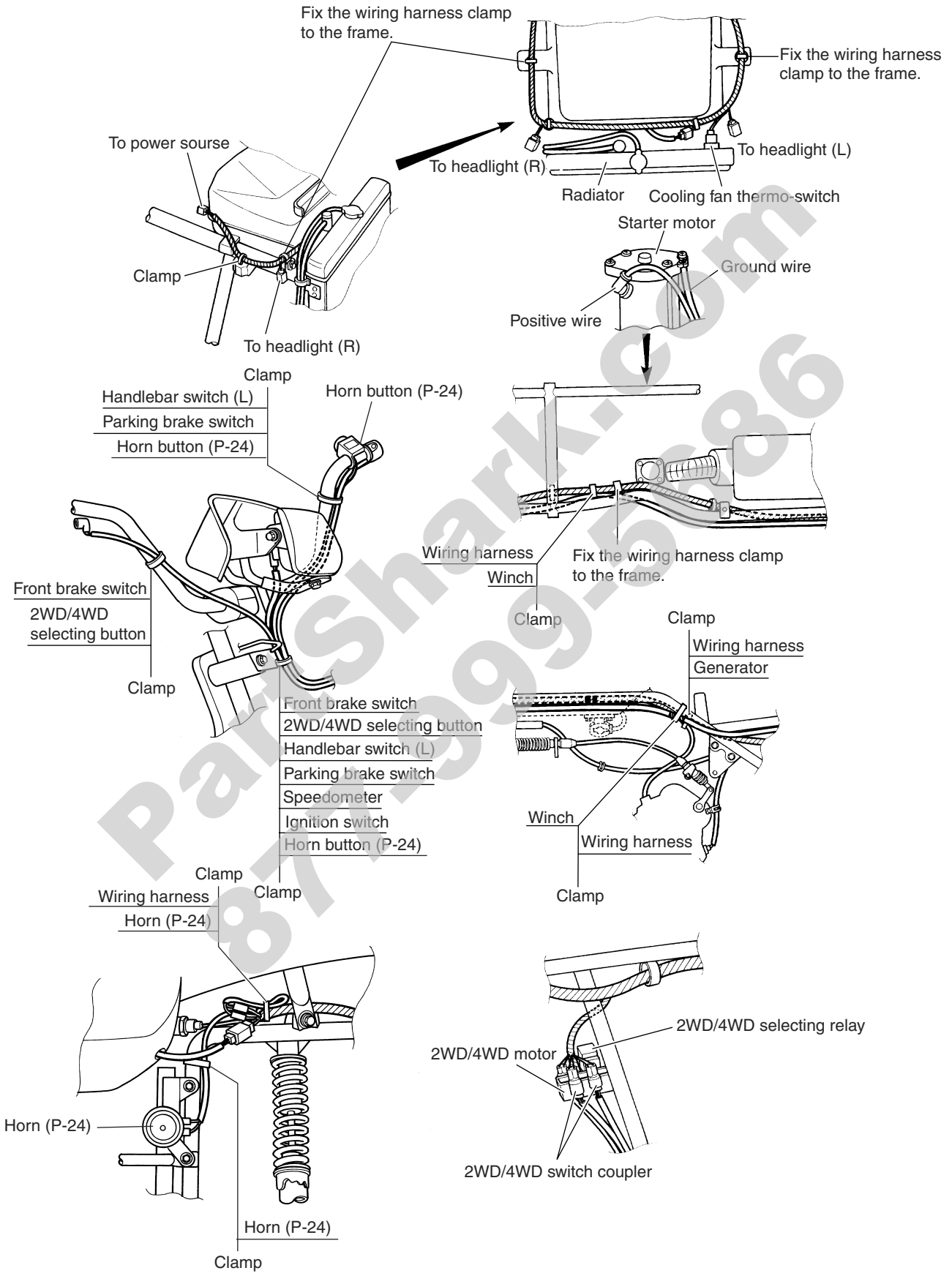
ITEM		N·m	kgf-m	lb-ft
Handlebar clamp bolt		26	2.6	19.0
Steering shaft holder bolt		23	2.3	16.5
Steering shaft nut		49	4.9	35.5
Steering knuckle pinch bolt		50	5.0	36.0
Tie rod end nut		29	2.9	21.0
Tie rod locknut		29	2.9	21.0
Front shock absorber mounting bolt (upper)		55	5.5	40.0
Front shock absorber mounting nut (lower)		60	6.0	43.5
Wishbone arm pivot nut		65	6.5	47.0
Hub nut (front and rear)		110	11.0	79.5
Wheel set nut (front and rear)		* 60	* 6.0	* 43.5
Brake master cylinder mounting bolt (front and rear)		10	1.0	7.0
Brake hose union bolt		23	2.3	16.5
Front brake pipe nut		16	1.6	11.5
Brake air bleeder valve	(front)	6.0	0.6	4.5
	(rear)	7.5	0.75	5.5
Brake disc bolt (front and rear)		23	2.3	16.5
Brake caliper mounting bolt	(front)	26	2.6	19.0
	(rear)	32	3.2	23.0
Brake pad mounting bolt (front and rear)		18	1.8	13.0
Footrest bolt	8 mm	26	2.6	19.0
	10 mm	55	5.5	40.0
Rear master cylinder rod locknut		18	1.8	13.0
Rear brake pedal bolt		26	2.6	19.0
Rear shock absorber mounting nut	(upper)	35	3.5	25.5
	(lower)	60	6.0	43.5
Rear swingarm pivot bolt	(left)	100	10.0	72.5
	(right)	9.5	0.95	7.0
	locknut (right)	100	10.0	72.5

FRONT AND REAR BRAKE CALIPER MOUNTING BOLTS

Apply THREAD LOCK SUPER "1360" to the front and rear caliper mounting bolts, before tightening them.

1360 99000-32130: THREAD LOCK SUPER "1360"

WIRING HARNESS ROUTING



LT-A500FK6 ('06-MODEL)

This chapter describes service data, service specifications and servicing procedures which differ from those of the LT-A500FK5 ('05-MODEL).

NOTE:
- *Any differences between the LT-A500FK5 ('05-model) and LT-A500FK6 ('06-model) in specifications and service data are indicated with an asterisk mark (*).*
- *Please refer to the chapters 1 through 12 for details which are not given in this chapter.*

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WIRING DIAGRAM 13-12

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 095 mm (82.5 in)
Overall width	1 170 mm (46.1 in)
Overall height	1 235 mm (48.6 in)
Wheelbase	1 270 mm (50.0 in)
Ground clearance	250 mm (9.8 in)
Seat height	860 mm (33.9 in)
Dry mass	274 kg (604 lbs)
Front track	940 mm (37.0 in)
Rear track	930 mm (36.6 in)

ENGINE

Type	4-stroke, liquid-cooled, OHC
Number of cylinders	1
Bore	87.5 mm (3.445 in)
Stroke	82.0 mm (3.228 in)
Displacement	493 cm^3 (30.1 cu. in)
Compression ratio	10.2 : 1
Carburetor	KEIHIN CVK36, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump
Idle speed	1 300 ± 100 r/min

DRIVE TRAIN

Clutch	Wet shoe, automatic, centrifugal type
Transmission	Automatic variable ratio (V-belt)
Transfer	2-speed forward with reverse
Gearshift pattern, Transmission	Automatic
Transfer	L-H-N-R(Hand operated)
Automatic transmission ratio	Variable change (2.876 – 0.703)
Secondary reduction ratio	2.562 (41/16)
Final reduction ratio (Front & Rear)	3.600 (36/10)
Transfer gear ratio, Low	2.500 (40/16)
High	1.200 (30/25)
Reverse	2.000 (28/16 × 32/28)
Drive system	Shaft drive

CHASSIS

Front suspension	Independent, double wishbone, coil spring, oil damped
Rear suspension	Swing arm type, coil spring, oil damped
Front wheel travel	180 mm (7.1 in)
Rear wheel travel	200 mm (7.9 in)
Caster	3.3°
Trail	17 mm (0.67 in)
Toe-in	7 mm (0.3 in)
Camber	0.45°
Steering angle	45° (right & left)
Turning radius	3.0 m (9.8 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	AT25 × 8-12☆☆, tubeless
Rear tire size	AT25 × 10-12☆☆, tubeless

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	10° B.T.D.C. at 1 300 r/min
Spark plug	NGK CR6E or DENSO U20ESR-N
Battery	12 V 64.8 kC (18 Ah)/10 HR
Generator	Three-phase A.C. generator
Main fuse	30 A
Fuse	10/10/10/10/10/15 A
Headlight	12 V 30/30 W
AUX lamp	12 V 40 W
Brake light/Taillight	12 V 21/5 W
Parking indicator light	LED
Speedometer light	LED
Coolant temperature warning light	LED
Neutral indicator light	LED
High beam indicator light	LED
Reverse indicator light	LED

CAPACITIES

Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.2 L (1.1/0.9 US/Imp gal)
Engine oil, oil change	2 500 ml (2.6/2.2 US/Imp qt)
with filter change	2 700 ml (2.9/2.4 US/Imp qt)
overhaul	3 200 ml (3.4/2.8 US/Imp qt)
Differential gear oil	300 ml (10.1/10.6 US/Imp oz)
Final gear oil	350 ml (11.8/12.3 US/Imp oz)
Coolant	2.0 L (2.1/1.8 US/Imp qt)

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	30.6 (1.20)	—
	EX.	27.0 (1.06)	—
Valve clearance (when cold)	IN.	0.05 – 0.10 (0.002 – 0.004)	—
	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 guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.3 (0.09)
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.	—	38.3 (1.53)
Valve spring tension	IN. & EX.	182 – 210 N (18.6 – 21.4 kgf, 41.0 – 47.2 lbs) at length 31.5 mm (1.24 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.430 – 33.498 (1.3161 – 1.3188)	33.130 (1.3043)
	EX.	33.500 – 33.568 (1.3189 – 1.3216)	33.200 (1.3071)
Camshaft journal oil clearance	ϕ22	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
	ϕ17.5	0.028 – 0.059 (0.0011 – 0.0023)	0.150 (0.0059)
Camshaft journal holder I.D.	ϕ22	22.012 – 22.025 (0.8666 – 0.8671)	—
	ϕ17.5	17.512 – 17.525 (0.6894 – 0.6900)	—
Camshaft journal O.D.	ϕ22	21.959 – 21.980 (0.8645 – 0.8654)	—
	ϕ17.5	17.466 – 17.484 (0.6876 – 0.6883)	—
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.	11.973 – 11.984 (0.4714 – 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 (Automatic-decomp. actuated)	Approx. 1 000 kPa (10.0 kgf/cm^2, 142 psi)			—
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			—
Cylinder bore	87.500 – 87.515 (3.4449 – 3.4455)			Nicks or Scratches
Piston diam.	87.465 – 87.480 (3.4435 – 3.4441) Measure at 15 mm (0.6 in) from the skirt end.			87.380 (3.4402)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 11.2 (0.44)	8.9 (0.35)
	2nd	R	Approx. 11.9 (0.47)	9.5 (0.37)
Piston ring end gap	1st	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)
	2nd	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)

ITEM	STANDARD		LIMIT
Piston ring to groove clearance	1st	—	0.180 (0.0071)
	2nd	—	0.150 (0.0059)
Piston ring groove width	1st	1.01 – 1.03 (0.0398 – 0.0406)	—
	2nd	1.21 – 1.23 (0.0476 – 0.0484)	—
	Oil	2.51 – 2.53 (0.0988 – 0.0996)	—
Piston ring thickness	1st	0.97 – 0.99 (0.038 – 0.039)	—
	2nd	1.17 – 1.19 (0.0461 – 0.0469)	—
Piston pin bore	23.002 – 23.008 (0.9056 – 0.9058)		23.030 (0.9067)
Piston pin O.D.	22.995 – 23.000 (0.9053 – 0.9055)		22.980 (0.9047)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006 – 23.014 (0.9057 – 0.9061)	23.040 (0.9071)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.04)
Conrod big end width	24.95 – 25.00 (0.982 – 0.984)	—
Crank web to web width	71.0 ± 0.1 (2.795 ± 0.004)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60°C, 140°F)	Above 130 kPa (1.3 kgf/cm², 18 psi) Below 170 kPa (1.7 kgf/cm², 24 psi) at 3 000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch wheel I.D.	140.0 – 140.2 (5.512 – 5.520)	140.5 (5.53)
Clutch shoe	—	No groove at any part
Clutch engagement r/min	1 600 – 2 000 r/min	—
Clutch lock-up r/min	3 600 – 4 200 r/min	—

DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Automatic transmission ratio		Variable change (2.876 – 0.703)	—
Secondary reduction ratio		2.562 (41/16)	—
Final reduction ratio	Front	3.600 (36/10)	—
	Rear	3.600 (36/10)	—
Transfer gear ratio	Low	2.500 (40/16)	—
	High	1.200 (30/25)	—
	Reverse	2.000 (28/16 × 32/28)	—
Drive belt width		34.7 (1.37)	33.7 (1.33)
Movable driven face spring free length		153.0 (6.02)	145.4 (5.72)
Shift fork to groove clearance		0.10 – 0.30 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width	High/Low	5.50 – 5.60 (0.217 – 0.220)	—
	Reverse	5.50 – 5.60 (0.217 – 0.220)	—
Shift fork thickness	High/Low	5.30 – 5.40 (0.209 – 0.213)	—
	Reverse	5.30 – 5.40 (0.209 – 0.213)	—
Front/rear output shaft bevel gear backlash		0.03 – 0.15 (0.001 – 0.006)	—
Front drive (defferential) gear backlash		0.05 – 0.10 (0.002 – 0.004)	—
Rear drive (final) gear backlash		0.08 – 0.013 (0.0031 – 0.0051)	—

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STANDARD/SPECIFICATION		LIMIT
Thermostat valve opening temperature	73.5 – 76.5 °C (164 – 170 °F)		—
Thermostat valve lift	Over 3 mm (0.12 in) at 90 °C (194 °F)		—
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm², 13.5 – 17.8 psi)		—
Engine coolant temp. indicator light switch operating temperature	OFF → ON	Approx. 115 °C (239 °F)	—
	ON → OFF	Approx. 108 °C (226 °F)	—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 88 °C (190 °F)	—
	ON → OFF	Approx. 82 °C (180 °F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		—
Engine coolant including reserve	2 000 ml (2.1/1.8 US/Imp qt)		—

CARBURETOR

ITEM	SPECIFICATION	
	P-24, 28	P-33
Carburetor type	KEIHIN CVK36	←
Bore size	36 mm	←
I.D. No.	03G2	03G3
Idle r/min	1 300 ± 100 r/min	←
Float height	17.0 ± 1.0 mm (0.67 ± 0.04 in)	←
Main jet (M.J.)	#128	←
Jet needle (J.N.)	NBAY	←
Needle jet (N.J.)	#6	←
Slow jet (S.J.)	#35	←
Pilot screw (P.S.)	1 and 7/8 turns back	PRE-SET
Throttle cable play	3 – 5 mm (0.12 – 0.20 in)	←
Choke cable play	0.5 – 1.0 mm (0.02 – 0.04 in)	←

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR6E DENSO: U20ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.5 Ω	Terminal – Ground
		Secondary	12 – 22 kΩ	Plug cap – Terminal
Generator coil resistance		Pick-up	150 – 300 Ω	Bl – G
		Power source	0.05 – 1.0 Ω	Y – W
		Charging	0.1 – 1.5 Ω	B – B
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min		
Generator Max. output		Approx. 325 W at 5 000 r/min		
Regulated voltage		13.5 – 15.0 V at 5 000 r/min		
Ignition coil primary peak voltage		More than 150 V		⊕ : Ground ⊖ : W/Bl
Pick-up coil peak voltage		More than 4.0 V		⊕ : G, ⊖ : Bl
Power source coil peak voltage		More than 0.3 V		⊕ : Y, ⊖ : W
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	YTX20CH-BS		
	Capacity	12 V 64.8 kC (18 Ah)/10 HR		

ITEM		SPECIFICATION	NOTE
Fuse size	Main	30 A	
	Power source	10 A	
	Headlight (HI)	10 A	
	Headlight (LO)	10 A	
	Tail	10 A	
	Ignition	15 A	
	Fan	10 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Auxiliary light		40
Brake light/Taillight		21/5
Speedometer light		LED
Reverse indicator light		LED
Neutral indicator light		LED
Parking indicator light		LED
High beam indicator light		LED
Engine coolant temp. indicator light		LED

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake cable play	3 – 5 (0.12 – 0.20)		—
Rear brake pedal height	15 – 25 (0.59 – 0.98)		—
Brake disc thickness	Front	3.3 – 3.7 (0.130 – 0.146)	3.0 (0.12)
	Rear	3.8 – 4.2 (0.209 – 0.224)	3.5 (0.197)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	32.030 – 32.280 (1.2610 – 1.2630)	—
	Rear	33.960 – 34.036 (1.3370 – 1.3400)	—

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake caliper piston diam.	Front	31.948 – 31.998 (1.2578 – 1.2598)	—
	Rear	33.884 – 33.934 (1.3340 – 1.3360)	—
Brake fluid type	DOT 4		—
Steering angle	Right	45°	—
	Left	45°	—
Turning radius	3.0 m (9.8 ft)		—
Toe-in (with 75 kg, 165 lbs)	7 ± 4 (0.30 ± 0.16)		—
Camber	0.45°		—
Caster	3.3°		—
Wheel rim size	Front	12 × 6.0 AT	—
	Rear	12 × 7.5 AT	—
Tire size	Front	AT25 8-12 ☆ ☆	—
	Rear	AT25 10-12 ☆ ☆	—
Tire type	Front	DUNLOP: KT121D	—
	Rear	DUNLOP: KT405D	—
Tire tread depth	—		4.0 (0.16)
	—		4.0 (0.16)

TIRE PRESSURE

COLD INFLATION TIRE PRESSURE	kPa	kgf/cm²	psi	NOTE
FRONT	35	0.35	5.1	LOAD CAPACITY
REAR	30	0.30	4.4	UP TO 172 kg (380 lbs)

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

FUEL + OIL

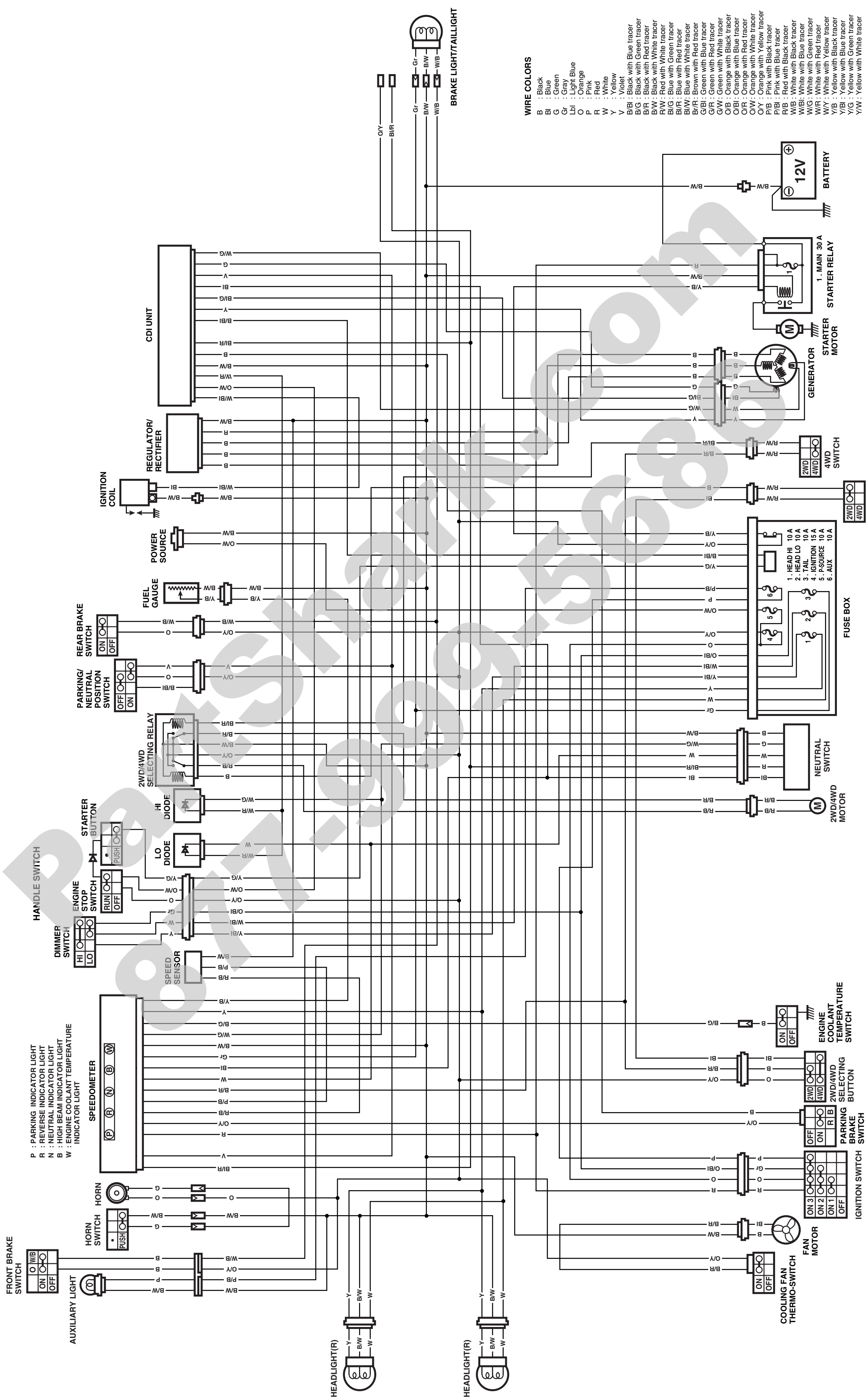
ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 87 pump octane (R/2 + M/2) or 91 octane or higher rated by the research method. Gasoline containing MTBE (Methyl Tertiary Butyl Ether), less than 10% ethanol, or less than 5% methanol with appropriate cosolvents and corrosion inhibitor is permissible.		
Fuel tank capacity	including reserve	19.0 L (5.0/4.2 US/Imp gal)		
	reserve	4.2 L (1.1/0.9 US/Imp gal)		
Engine oil type		* SAE 10W-40, API SF/SG or SH/SJ with JASO MA		
Engine oil capacity		Change	2 500 ml (2.6/2.2 US/Imp qt)	
		Filter change	2 700 ml (2.9/2.4 US/Imp qt)	
		Overhaul	3 200 ml (3.4/2.8 US/Imp qt)	
Front/Rear drive gear oil type		Hypoid gear oil SAE #90 API grade GL-5		
Front drive (differential) gear oil capacity		300 ml (10.1/10.6 US/Ipm oz)		
Rear drive gear oil capacity		350 ml (11.8/12. US/Ipm oz)		

TIGHTENING TORQUE
CHASSIS

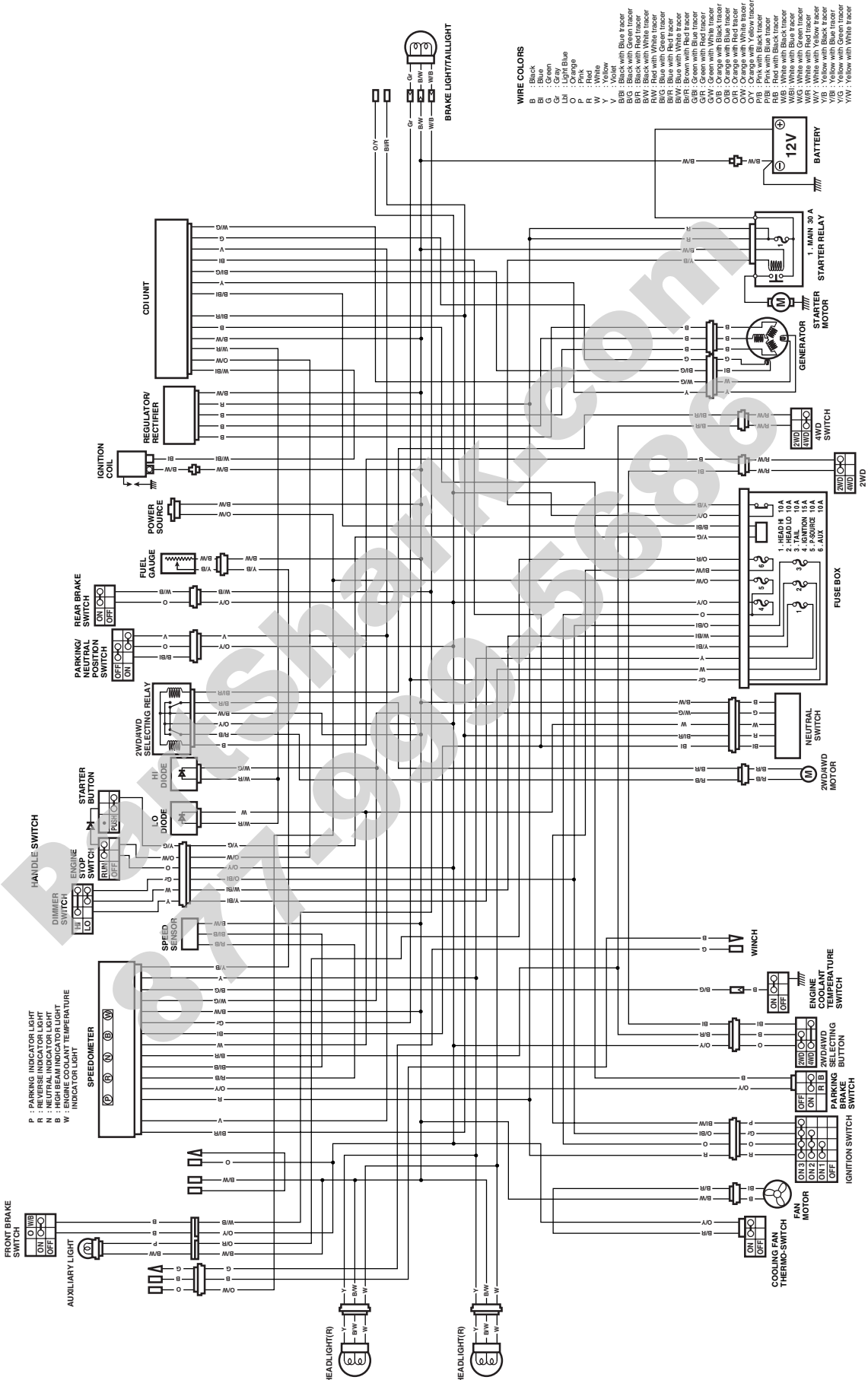
ITEM		N·m	kgf-m	lb-ft
Handlebar clamp bolt		26	2.6	19.0
Steering shaft holder bolt		23	2.3	16.5
Steering shaft nut		49	4.9	35.5
Steering knuckle pinch bolt		50	5.0	36.0
Tie rod end nut		29	2.9	21.0
Tie rod locknut		29	2.9	21.0
Front shock absorber mounting bolt (upper)		55	5.5	40.0
Front shock absorber mounting nut (lower)		60	6.0	43.5
Wishbone arm pivot nut		65	6.5	47.0
Hub nut	(front)	110	11.0	79.5
	(rear)	* 121	* 12.1	* 87.5
Wheel set nut (front and rear)		60	6.0	43.5
Brake master cylinder mounting bolt (front and rear)		10	1.0	7.0
Brake hose union bolt		23	2.3	16.5
Front brake pipe nut		16	1.6	11.5
Brake air bleeder valve	(front)	6.0	0.6	4.5
	(rear)	7.5	0.75	5.5
Brake disc bolt (front and rear)		23	2.3	16.5
Brake caliper mounting bolt (front)		26	2.6	19.0
Brake caliper mounting bolt (rear)		32	3.2	23.0
Brake pad mounting bolt (front)		18	1.8	13.0
Footrest bolt	8 mm	26	2.6	19.0
	10 mm	55	5.5	40.0
Rear master cylinder rod locknut		18	1.8	13.0
Rear brake pedal bolt		26	2.6	19.0
Rear shock absorber mounting nut	(upper)	35	3.5	25.5
	(lower)	60	6.0	43.5
Rear swingarm pivot bolt	(left)	100	10.0	72.5
	(right)	9.5	0.95	7.0
	locknut (right)	100	10.0	72.5

WIRING DIAGRAM

For P-24



For P-28, 33



LT-A500FK7 ('07-MODEL)

This chapter describes service data, service specifications and servicing procedures which differ from those of the LT-A500FK6 ('06-MODEL).

NOTE:
Any differences between the LT-A500FK6 ('06-model) and LT-A500FK7 ('07-model) in specifications and service data are indicated with an asterisk mark (*).
Please refer to the chapters 1 through 13 for details which are not given in this chapter.

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FRONT BRAKE HOSE ROUTING 14-11
REAR BRAKE HOSE ROUTING 14-12

NOTE:
The specifications and service data are same as K6 model.

SPECIFICATIONS

DIMENSIONS AND DRY MASS

Overall length	2 095 mm (82.5 in)
Overall width	1 170 mm (46.1 in)
Overall height	1 235 mm (48.6 in)
Wheelbase	1 270 mm (50.0 in)
Ground clearance	250 mm (9.8 in)
Seat height	860 mm (33.9 in)
Dry mass	274 kg (604 lbs)
Front track	940 mm (37.0 in)
Rear track	930 mm (36.6 in)

ENGINE

Type	4-stroke, liquid-cooled, OHC
Number of cylinders	1
Bore	87.5 mm (3.445 in)
Stroke	82.0 mm (3.228 in)
Displacement	493 cm^3 (30.1 cu. in)
Compression ratio	10.2 : 1
Carburetor	KEIHIN CVK36, single
Air cleaner	Polyurethane foam element
Starter system	Electric and recoil starter
Lubrication system	Wet sump
Idle speed	1 300 ± 100 r/min

DRIVE TRAIN

Clutch	Wet shoe, automatic, centrifugal type
Transmission	Automatic variable ratio (V-belt)
Transfer	2-speed forward with reverse
Gearshift pattern, Transmission	Automatic
Transfer	L-H-N-R(Hand operated)
Automatic transmission ratio	Variable change (2.876 – 0.703)
Secondary reduction ratio	2.562 (41/16)
Final reduction ratio (Front & Rear)	3.600 (36/10)
Transfer gear ratio, Low	2.500 (40/16)
High	1.200 (30/25)
Reverse	2.000 (28/16 × 32/28)
Drive system	Shaft drive

CHASSIS

Front suspension	Independent, double wishbone, coil spring, oil damped
Rear suspension	Swing arm type, coil spring, oil damped
Front wheel travel	180 mm (7.1 in)
Rear wheel travel	200 mm (7.9 in)
Caster	3.3°
Trail	17 mm (0.67 in)
Toe-in	7 mm (0.3 in)
Camber	0.45°
Steering angle	45° (right & left)
Turning radius	3.0 m (9.8 ft)
Front brake	Disc brake, twin
Rear brake	Disc brake
Front tire size	AT25 × 8-12☆☆, tubeless
Rear tire size	AT25 × 10-12☆☆, tubeless

ELECTRICAL

Ignition type	Electronic ignition (CDI)
Ignition timing	10° B.T.D.C. at 1 300 r/min
Spark plug	NGK CR6E or DENSO U20ESR-N
Battery	12 V 64.8 kC (18 Ah)/10 HR
Generator	Three-phase A.C. generator
Main fuse	30 A
Fuse	10/10/10/10/10/15 A
Headlight	12 V 30/30 W × 2
AUX lamp	12 V 40 W
Brake light/Taillight	12 V 21/5 W
Parking indicator light	LED
Speedometer light	LED
Coolant temperature indicator light	LED
Neutral indicator light	LED
High beam indicator light	LED
Reverse indicator light	LED

CAPACITIES

Fuel tank, including reserve	19.0 L (5.0/4.2 US/Imp gal)
reserve	4.2 L (1.1/0.9 US/Imp gal)
Engine oil, oil change	2 500 ml (2.6/2.2 US/Imp qt)
with filter change	2 700 ml (2.9/2.4 US/Imp qt)
overhaul	3 200 ml (3.4/2.8 US/Imp qt)
Differential gear oil	300 ml (10.1/10.6 US/Imp oz)
Final gear oil	350 ml (11.8/12.3 US/Imp oz)
Coolant	2.0 L (2.1/1.8 US/Imp qt)

SERVICE DATA

VALVE + GUIDE

Unit: mm (in)

ITEM	STANDARD		LIMIT
Valve diam.	IN.	30.6 (1.20)	—
	EX.	27.0 (1.06)	—
Valve clearance (when cold)	IN.	0.05 – 0.10 (0.002 – 0.004)	—
	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 guide I.D.	IN. & EX.	5.000 – 5.012 (0.1969 – 0.1973)	—
Valve stem O.D.	IN.	4.975 – 4.990 (0.1959 – 0.1965)	—
	EX.	4.955 – 4.970 (0.1951 – 0.1957)	—
Valve stem deflection	IN. & EX.	—	0.35 (0.014)
Valve stem runout	IN. & EX.	—	0.05 (0.002)
Valve head thickness	IN. & EX.	—	0.5 (0.02)
Valve stem end length	IN. & EX.	—	2.3 (0.09)
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.	—	38.3 (1.53)
Valve spring tension	IN. & EX.	182 – 210 N (18.6 – 21.4 kgf, 41.0 – 47.2 lbs) at length 31.5 mm (1.24 in)	—

CAMSHAFT + CYLINDER HEAD

Unit: mm (in)

ITEM	STANDARD		LIMIT
Cam height	IN.	33.430 – 33.498 (1.3161 – 1.3188)	33.130 (1.3043)
	EX.	33.500 – 33.568 (1.3189 – 1.3216)	33.200 (1.3071)
Camshaft journal oil clearance	ϕ22	0.032 – 0.066 (0.0013 – 0.0026)	0.150 (0.0059)
	ϕ17.5	0.028 – 0.059 (0.0011 – 0.0023)	0.150 (0.0059)
Camshaft journal holder I.D.	ϕ22	22.012 – 22.025 (0.8666 – 0.8671)	—
	ϕ17.5	17.512 – 17.525 (0.6894 – 0.6900)	—
Camshaft journal O.D.	ϕ22	21.959 – 21.980 (0.8645 – 0.8654)	—
	ϕ17.5	17.466 – 17.484 (0.6876 – 0.6883)	—
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.	11.973 – 11.984 (0.4714 – 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 (Automatic-decomp. actuated)	Approx. 1 000 kPa (10.0 kgf/cm^2, 142 psi)			—
Piston to cylinder clearance	0.030 – 0.040 (0.0012 – 0.0016)			—
Cylinder bore	87.500 – 87.515 (3.4449 – 3.4455)			Nicks or Scratches
Piston diam.	87.465 – 87.480 (3.4435 – 3.4441) Measure at 15 mm (0.6 in) from the skirt end.			87.380 (3.4402)
Cylinder distortion	—			0.05 (0.002)
Piston ring free end gap	1st	R	Approx. 11.2 (0.44)	8.9 (0.35)
	2nd	R	Approx. 11.9 (0.47)	9.5 (0.37)
Piston ring end gap	1st	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)
	2nd	0.10 – 0.25 (0.004 – 0.009)		0.50 (0.020)

ITEM	STANDARD		LIMIT
Piston ring to groove clearance	1st	—	0.180 (0.0071)
	2nd	—	0.150 (0.0059)
Piston ring groove width	1st	1.01 – 1.03 (0.0398 – 0.0406)	—
	2nd	1.21 – 1.23 (0.0476 – 0.0484)	—
	Oil	2.51 – 2.53 (0.0988 – 0.0996)	—
Piston ring thickness	1st	0.97 – 0.99 (0.038 – 0.039)	—
	2nd	1.17 – 1.19 (0.0461 – 0.0469)	—
Piston pin bore	23.002 – 23.008 (0.9056 – 0.9058)		23.030 (0.9067)
Piston pin O.D.	22.995 – 23.000 (0.9053 – 0.9055)		22.980 (0.9047)

CONROD + CRANKSHAFT

Unit: mm (in)

ITEM	STANDARD	LIMIT
Conrod small end I.D.	23.006 – 23.014 (0.9057 – 0.9061)	23.040 (0.9071)
Conrod deflection	—	3.0 (0.12)
Conrod big end side clearance	0.10 – 0.65 (0.004 – 0.026)	1.0 (0.04)
Conrod big end width	24.95 – 25.00 (0.982 – 0.984)	—
Crank web to web width	71.0 ± 0.1 (2.795 ± 0.004)	—
Crankshaft runout	—	0.08 (0.003)

OIL PUMP

ITEM	STANDARD	LIMIT
Oil pressure (at 60 °C, 140 °F)	Above 130 kPa (1.3 kgf/cm^2, 18 psi) Below 170 kPa (1.7 kgf/cm^2, 24 psi) at 3 000 r/min	—

CLUTCH

Unit: mm (in)

ITEM	STANDARD	LIMIT
Clutch wheel I.D.	140.0 – 140.2 (5.512 – 5.520)	140.5 (5.53)
Clutch shoe	—	No groove at any part
Clutch engagement r/min	1 600 – 2 000 r/min	—
Clutch lock-up r/min	3 600 – 4 200 r/min	—

DRIVE TRAIN

Unit: mm (in) Except ratio

ITEM		STANDARD	LIMIT
Automatic transmission ratio		Variable change (2.876 – 0.703)	—
Secondary reduction ratio		2.562 (41/16)	—
Final reduction ratio	Front	3.600 (36/10)	—
	Rear	3.600 (36/10)	—
Transfer gear ratio	Low	2.500 (40/16)	—
	High	1.200 (30/25)	—
	Reverse	2.000 (28/16 × 32/28)	—
Drive belt width		34.7 (1.37)	33.7 (1.33)
Movable driven face spring free length		153.0 (6.02)	145.4 (5.72)
Shift fork to groove clearance		0.10 – 0.30 (0.004 – 0.012)	0.50 (0.020)
Shift fork groove width	High/Low	5.50 – 5.60 (0.217 – 0.220)	—
	Reverse	5.50 – 5.60 (0.217 – 0.220)	—
Shift fork thickness	High/Low	5.30 – 5.40 (0.209 – 0.213)	—
	Reverse	5.30 – 5.40 (0.209 – 0.213)	—
Front/rear output shaft bevel gear backlash		0.03 – 0.15 (0.001 – 0.006)	—
Front drive (defferential) gear backlash		0.05 – 0.10 (0.002 – 0.004)	—
Rear drive (final) gear backlash		0.08 – 0.013 (0.0031 – 0.0051)	—

THERMOSTAT + RADIATOR + FAN + COOLANT

ITEM	STANDARD/SPECIFICATION		LIMIT
Thermostat valve opening temperature	73.5 – 76.5 °C (164 – 170 °F)		—
Thermostat valve lift	Over 3 mm (0.12 in) at 90 °C (194 °F)		—
Radiator cap valve opening pressure	95 – 125 kPa (0.95 – 1.25 kgf/cm^2, 13.5 – 17.8 psi)		—
Engine coolant temp. indicator light switch operating temperature	OFF → ON	Approx. 115 °C (239 °F)	—
	ON → OFF	Approx. 108 °C (226 °F)	—
Cooling fan thermo-switch operating temperature	OFF → ON	Approx. 88 °C (190 °F)	—
	ON → OFF	Approx. 82 °C (180 °F)	—
Engine coolant type	Use an anti-freeze/coolant compatible with aluminum radiator, mixed with distilled water only, at the ratio of 50:50.		—
Engine coolant including reserve	2 000 ml (2.1/1.8 US/Imp qt)		—

CARBURETOR

ITEM	SPECIFICATION	
	P-24, 28	P-33
Carburetor type	KEIHIN CVK36	←
Bore size	36 mm	←
I.D. No.	03G2	03G3
Idle r/min	1 300 ± 100 r/min	←
Float height	17.0 ± 1.0 mm (0.67 ± 0.04 in)	←
Main jet (M.J.)	#128	←
Jet needle (J.N.)	NBAY	←
Needle jet (N.J.)	#6	←
Slow jet (S.J.)	#35	←
Pilot screw (P.S.)	1 and 7/8 turns back	PRE-SET
Throttle cable play	3 – 5 mm (0.12 – 0.20 in)	←
Choke cable play	0.5 – 1.0 mm (0.02 – 0.04 in)	←

ELECTRICAL

ITEM		SPECIFICATION		NOTE
Spark plug		Type	NGK: CR6E DENSO: U20ESR-N	
		Gap	0.7 – 0.8 (0.028 – 0.031)	
Spark performance		Over 8 (0.3) at 1 atm.		
Ignition coil resistance		Primary	0.1 – 1.5 Ω	Terminal – Ground
		Secondary	12 – 22 kΩ	Plug cap – Terminal
Generator coil resistance		Pick-up	150 – 300 Ω	Bl – G
		Power source	0.05 – 1.0 Ω	Y – W
		Charging	0.1 – 1.5 Ω	B – B
Generator no-load voltage (When engine is cold)		More than 60 V (AC) at 5 000 r/min		
Generator Max. output		Approx. 325 W at 5 000 r/min		
Regulated voltage		13.5 – 15.0 V at 5 000 r/min		
Ignition coil primary peak voltage		More than 150 V		⊕ : Ground ⊖ : W/Bl
Pick-up coil peak voltage		More than 4.0 V		⊕ : G, ⊖ : Bl
Power source coil peak voltage		More than 0.3 V		⊕ : Y, ⊖ : W
Starter relay resistance		3 – 5 Ω		
Battery	Type designation	YTX20CH-BS		
	Capacity	12 V 64.8 kC (18 Ah)/10 HR		

ITEM		SPECIFICATION	NOTE
Fuse size	Main	30 A	
	Power source	10 A	
	Headlight (HI)	10 A	
	Headlight (LO)	10 A	
	Tail	10 A	
	Ignition	15 A	
	Fan	10 A	

WATTAGE

Unit: W

ITEM		SPECIFICATION
Headlight	HI	30 × 2 pcs.
	LO	30 × 2 pcs.
Auxiliary light		40
Brake light/Taillight		21/5
Speedometer light		LED
Reverse indicator light		LED
Neutral indicator light		LED
Parking indicator light		LED
High beam indicator light		LED
Engine coolant temp. indicator light		LED

BRAKE + WHEEL

Unit: mm (in)

ITEM	STANDARD/SPECIFICATION		LIMIT
Rear brake cable play	3 – 5 (0.12 – 0.20)		—
Rear brake pedal height	15 – 25 (0.59 – 0.98)		—
Brake disc thickness	Front	3.3 – 3.7 (0.130 – 0.146)	3.0 (0.12)
	Rear	3.8 – 4.2 (0.209 – 0.224)	3.5 (0.197)
Brake disc runout	—		0.30 (0.012)
Master cylinder bore	Front	14.000 – 14.043 (0.5512 – 0.5529)	—
	Rear	12.700 – 12.743 (0.5000 – 0.5017)	—
Master cylinder piston diam.	Front	13.957 – 13.984 (0.5495 – 0.5506)	—
	Rear	12.657 – 12.684 (0.4983 – 0.4994)	—
Brake caliper cylinder bore	Front	32.030 – 32.280 (1.2610 – 1.2630)	—
	Rear	33.960 – 34.036 (1.3370 – 1.3400)	—

ITEM	STANDARD/SPECIFICATION		LIMIT
Brake caliper piston diam.	Front	31.948 – 31.998 (1.2578 – 1.2598)	—
	Rear	33.884 – 33.934 (1.3340 – 1.3360)	—
Brake fluid type	DOT 4		—
Steering angle	Right	45°	—
	Left	45°	—
Turning radius	3.0 m (9.8 ft)		—
Toe-in (with 75 kg, 165 lbs)	7 ± 4 (0.30 ± 0.16)		—
Camber	0.45°		—
Caster	3.3°		—
Wheel rim size	Front	12 × 6.0 AT	—
	Rear	12 × 7.5 AT	—
Tire size	Front	AT25 8-12 ☆ ☆	—
	Rear	AT25 10-12 ☆ ☆	—
Tire type	Front	DUNLOP: KT121D	—
	Rear	DUNLOP: KT405D	—
Tire tread depth	—		4.0 (0.16)
	—		4.0 (0.16)

TIRE PRESSURE

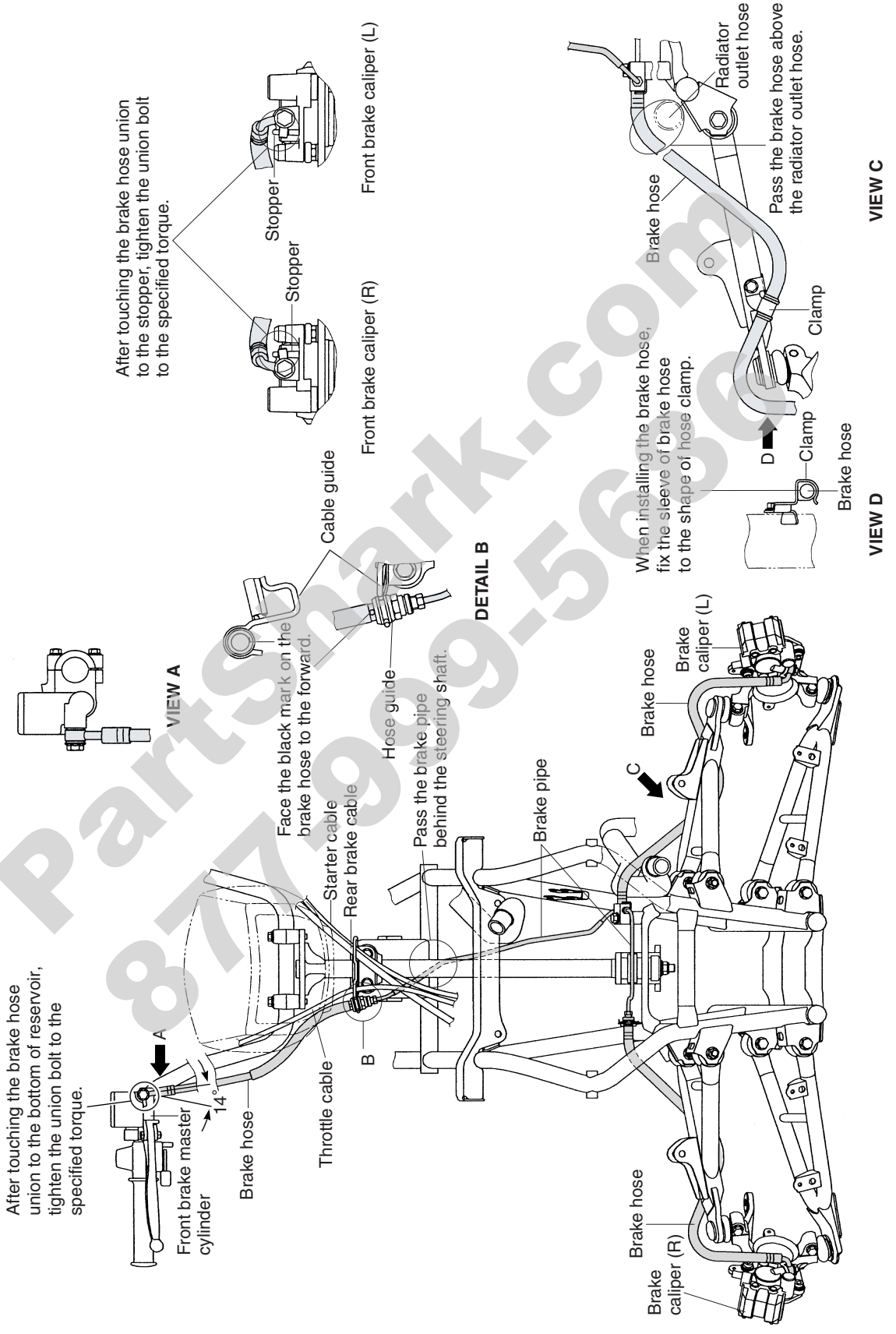
COLD INFLATION TIRE PRESSURE	kPa	kgf/cm²	psi	NOTE
FRONT	35	0.35	5.1	LOAD CAPACITY UP TO 172 kg (380 lbs)
REAR	30	0.30	4.4	

VEHICLE LOAD CAPACITY LIMIT: 172 kg (380 lbs)

FUEL + OIL

ITEM		SPECIFICATION		NOTE
Fuel type		Use only unleaded gasoline of at least 87 pump octane (R/2 + 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.		
Fuel tank capacity	including reserve	19.0 L (5.0/4.2 US/Imp gal)		
	reserve	4.2 L (1.1/0.9 US/Imp gal)		
Engine oil type		SAE 10W-40, API SF/SG or SH/SJ with JASO MA		
Engine oil capacity		Change	2 500 ml (2.6/2.2 US/Imp qt)	
		Filter change	2 700 ml (2.9/2.4 US/Imp qt)	
		Overhaul	3 200 ml (3.4/2.8 US/Imp qt)	
Front/Rear drive gear oil type		Hypoid gear oil SAE #90 API grade GL-5		
Front drive (differential) gear oil capacity		300 ml (10.1/10.6 US/Ipm oz)		
Rear drive gear oil capacity		350 ml (11.8/12. US/Ipm oz)		

FRONT BRAKE HOSE ROUTING



REAR BRAKE HOSE ROUTING