

**YAMAHA**

**RT100A**

**Service Manual**

**174**

LIT-11616-07-35

**RT 100A  
SERVICE MANUAL**

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1st Edition, January 1990**

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**P/N: LIT-11616-07-35**

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## NOTICE

This manual was by the Yamaha Motor Company primary for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that person using this book to perform maintenance and repairs on Yamaha machines have a basic understanding of the mechanical concepts and procedures inherent in machine repair technology. Without such knowledge, attempt repairs or service to this model may render it unfit to use and/or unsafe.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, there applicable, appear in future editions of this manual.

**TECHNICAL PUBLICATIONS  
SERVICE DIVISION  
MOTORCYCLE GROUP  
YAMAHA MOTOR CO.,LTD.**

### **PARTICULARLY IMPORTANT INFORMATION**

This material is distinguished by the following notation.



The Safety Alert Symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**



Failure to follow **WARNING** instructions could result in severe injury or death to the machine operator, a bystander, or a person inspecting or repairing the machine.



A **CAUTION** indicates special precautions that must be taken to avoid damage to the machine.



A **NOTE** provides key information to make procedures easier or clearer.

# HOW TO USE THIS MANUAL

## CONSTRUCTION OF THIS MANUAL

This manual consists of chapters for the main categories of subjects. (See "Illustrated symbols")

- 1st title ① : This is a chapter with its symbol on the upper right of each page.
- 2nd title ② : This title appears on the upper of each page on the left of the chapter symbol. (For the chapter "Periodic inspection and adjustment" the 3rd title appears.)
- 3rd title ③ : This is a final title.

## MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspections.

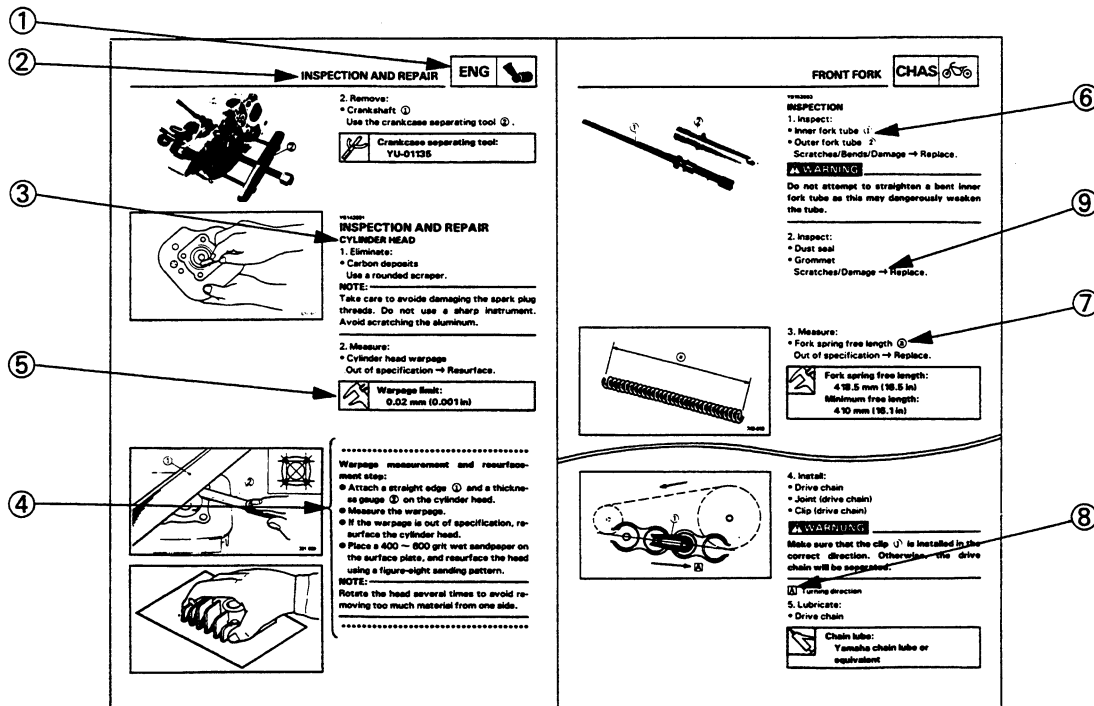
A set of particularly important procedure ④ is placed between a line of asterisks "\*" with each procedure preceded by "●".























## IMPORTANT FEATURES

- Data and a special tool are framed in a box preceded by a relevant symbol ⑤.
- An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter data or an alignment mark ⑦, the others being indicated by an alphabetical letter in a box ⑧.
- A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨.

## EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.



① GEN INFO 	② SPEC 	
③ INSP ADJ 	④ ENG 	
⑤ COOL 	⑥ CARB 	
⑦ CHAS 	⑧ ELEC 	
⑨ TRBL SHTG ?	⑩ 	
⑪ 	⑫ 	
⑬ 	⑭ 	
⑮ 	⑯ 	
⑰ 	⑱ 	⑲ 
⑳ 	㉑ 	㉒ 
㉓ 		

## ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

- ① General information
- ② Specifications
- ③ Periodic inspection and adjustment
- ④ Engine
- ⑤ Cooling system
- ⑥ Carburetion
- ⑦ Chassis
- ⑧ Electrical
- ⑨ Troubleshooting








Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

- ⑩ Filling fluid
- ⑪ Lubricant
- ⑫ Special tool
- ⑬ Tightening
- ⑭ Wear limit, clearance
- ⑮ Engine speed
- ⑯  $\Omega$ , V, A

Illustrated symbols ⑰ to ㉓ in the exploded diagram indicate grade of lubricant and location of lubrication point.

- ⑰ Apply engine oil
- ⑱ Apply gear oil
- ⑲ Apply molybdenum disulfide oil
- ㉑ Apply wheel bearing grease
- ㉒ Apply lightweight lithium-soap base grease
- ㉓ Apply molybdenum disulfide grease
- ⑳ Apply locking agent (LOCTITE®)

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<b>CARBURETION</b>	 <b>CARB 5</b>
<b>CHASSIS</b>	 <b>CHAS 6</b>
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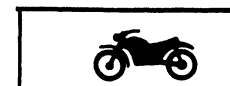
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**SPEC** **2**



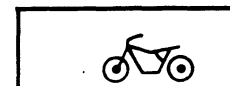
**INSP  
ADJ** **3**



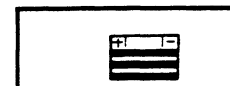
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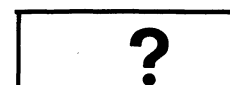
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**TRBL  
SHTG** **8**



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**GEN  
INFO 1**



**SPEC 2**



**INSP  
ADJ 3**



**ENG 4**



**CARB 5**



**CHAS 6**



**ELEC 7**



**TRBL  
SHTG 8**

---

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## **CHAPTER 8. TROUBLESHOOTING**

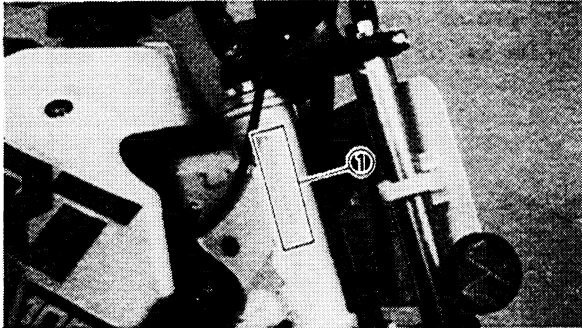
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YB111001

## GENERAL INFORMATION

### MACHINE IDENTIFICATION



#### VEHICLE IDENTIFICATION NUMBER

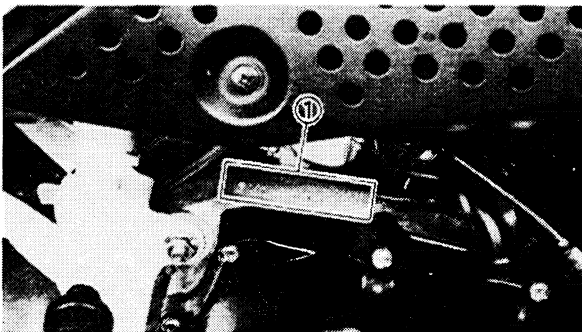
The vehicle identification number ① is stamped into the steering head pipe.

**Starting serial number:**

RT100A.....JYA3ULW0\*LC000101

**NOTE:** \_\_\_\_\_

The vehicle identification number is used to identify your machine and may be used to register your machine with the licensing authority in your state.



#### ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the left of the engine.

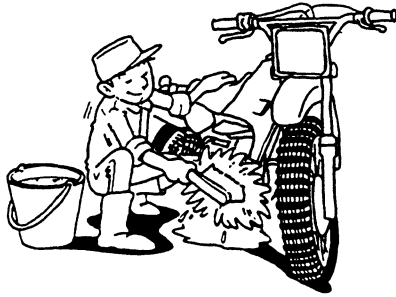
**Starting serial number:**

RT100A.....3UL-000101

**NOTE:** \_\_\_\_\_

- The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
- Designs and specifications are subject to change without notice.

**1**



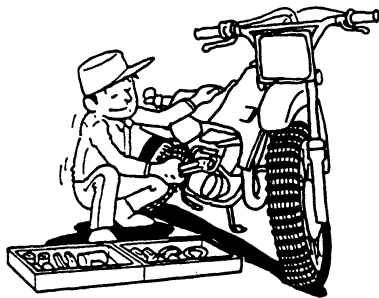
YB112001

**IMPORTANT INFORMATION**

**PREPARATION FOR REMOVAL AND DISASSEMBLY**

1. Remove all dirt, mud, dust, and foreign material before removing and disassembling.

2. Use proper tools and cleaning equipment. Refer to "SPECIAL TOOL".



3. When disassembling the machine keep mated parts together. This includes gears, cylinders, pistons, and other mated parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.



4. During the machine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled.



5. Keep away from fire.

YB112002

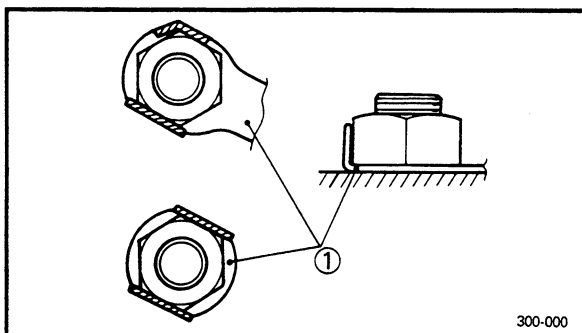
**ALL REPLACEMENT PARTS**

1. We recommend to use Yamaha genuine parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment.

YB112003

**GASKETS, OIL SEALS, AND O-RINGS**

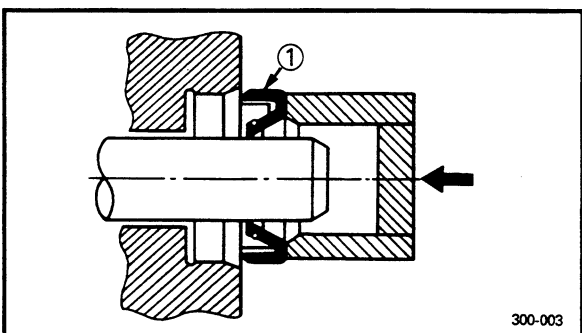
1. All gaskets, seals and O-rings should be replaced when an engine is overhauled. All gaskets surfaces, oil seal lips and O-rings must be cleaned.
2. Properly oil all mating parts and bearing during reassembly. Apply grease to the oil seal lips.



YB112004

**LOCK WASHERS/PLATES AND COTTER PINS**

1. All lock washers/plates ① and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.



YB112005

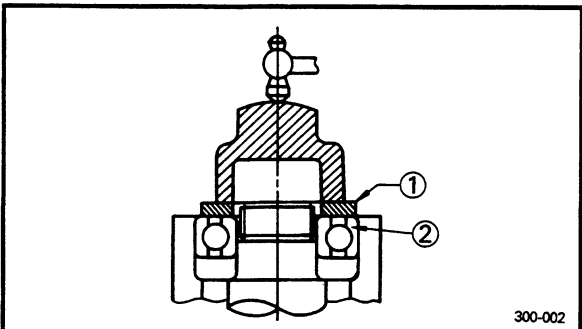
**BEARINGS AND OIL SEALS**

1. Install the bearing(s) and oil seal(s) with their manufacturer's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.

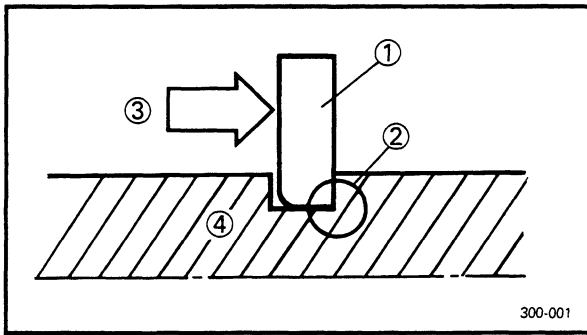
① Oil seal

**CAUTION:** \_\_\_\_\_

**Do not use compressed air to spin the bearings dry. This causes damage to the bearing surfaces.**



① Bearing



YB112006

**CIRCLIPS**

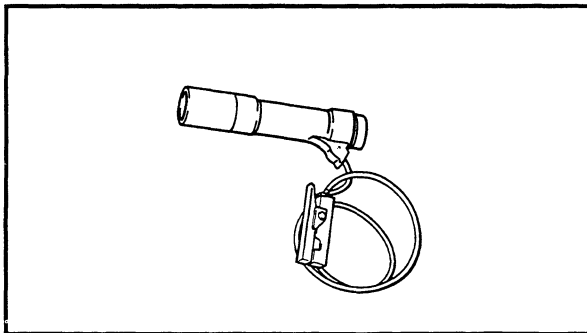
1. All circlips should be inspected carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip ①, make sure that the sharp edged corner ② is positioned opposite to the thrust ③ it receives. See the sectional view.

④ Shaft

YB113001

**SPECIAL TOOLS**

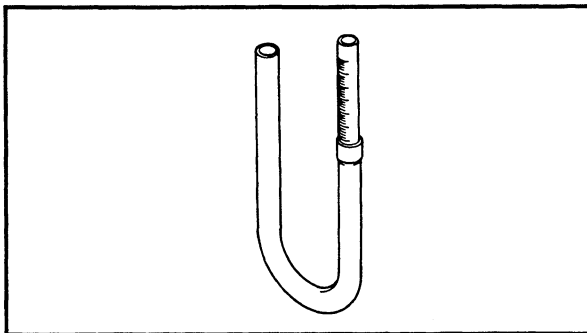
The prepare special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



**FOR TUNE UP**

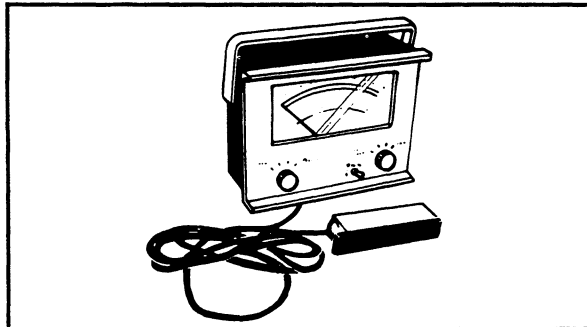
1. Inductive timing light  
P/N. YM-33277

This tool is necessary for adjusting ignition timing.



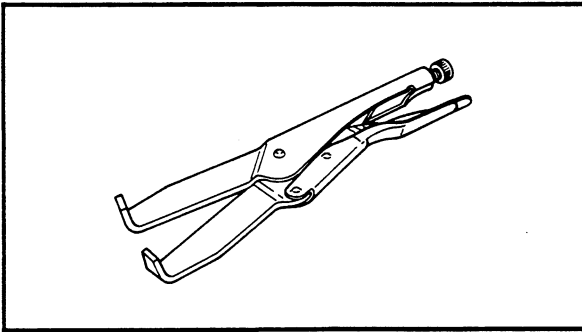
2. Fuel level gauge  
P/N. YM-01312

This tool is used to measure the fuel level in the float chamber.



3. Inductive tachometer  
P/N. YU-08036

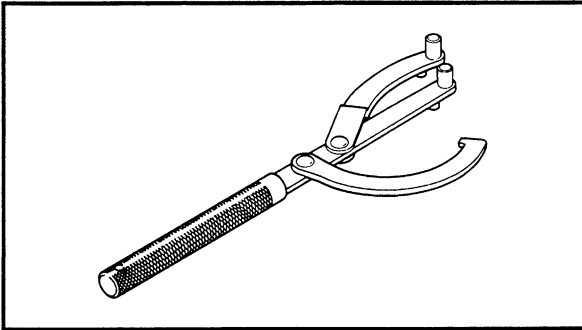
This tool is needed for detecting engine rpm.



**FOR ENGINE SERVICE**

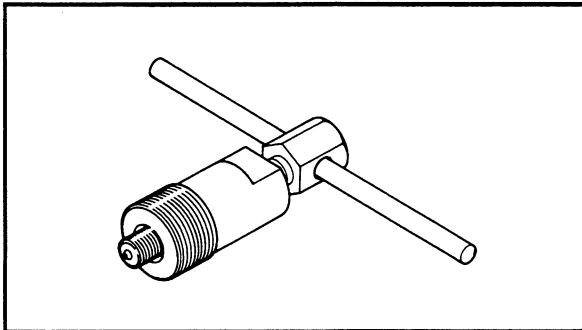
- 1. Universal clutch holder  
P/N. YM-91042

This tool is used to hold the clutch when loosening or tightening the clutch boss locknut.



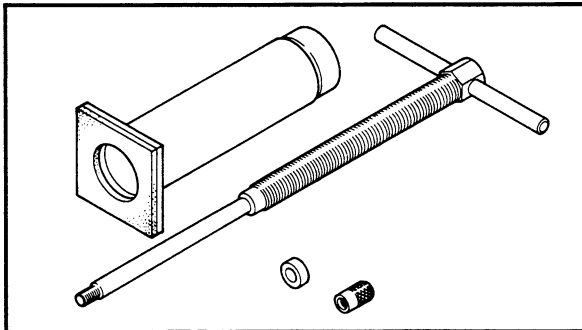
- 2. Universal rotor holder  
P/N. YU-01235

This tool is used when loosening or tightening the flywheel magneto securing bolt.



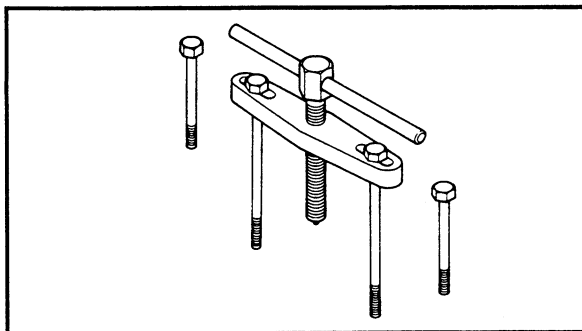
- 3. Flywheel puller  
P/N. YM-01189

This tool is used for removing the flywheel.



- 4. Piston pin puller  
P/N. YU-01304

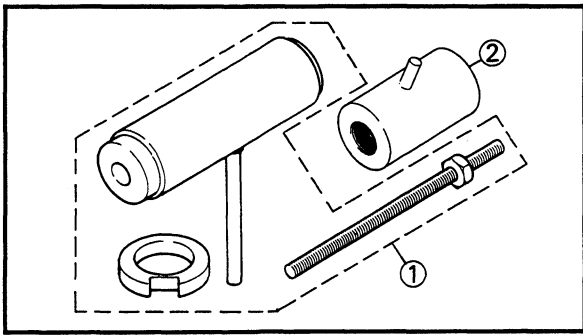
This tool is used to remove the piston pin.



- 5. Crankshaft separating tool  
P/N. YU-01135

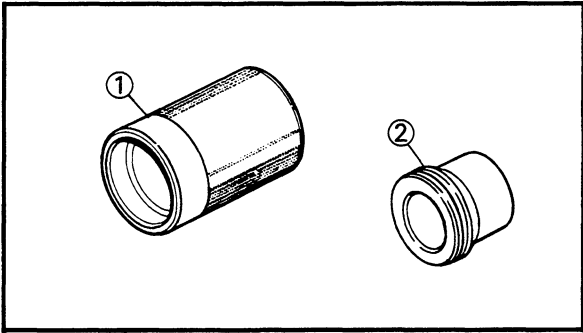
This tool is used to split the crankcase as well as remove the crankshaft from either case.





6. Crankshaft installing tool ①  
 P/N. YU-90050  
 Adapter ②  
 P/N. YM-90063

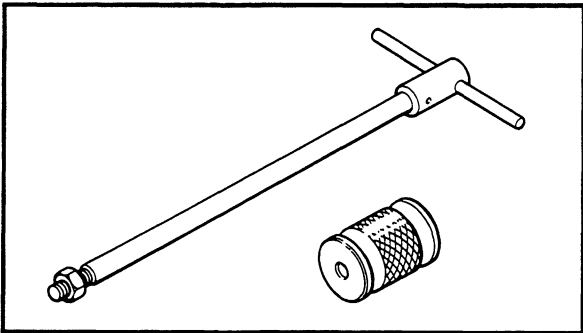
These tools are used to install the crankshaft.



**FOR CHASSIS SERVICE**

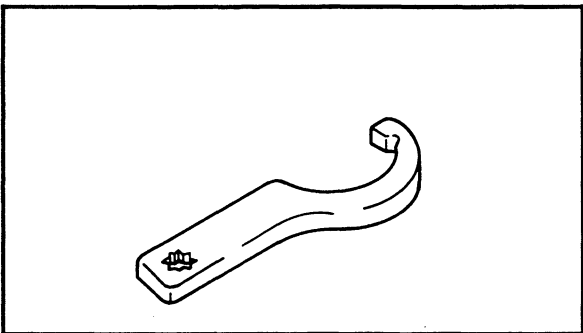
1. Front fork seal driver (Weight) ①  
 P/N. YM-33963  
 Adapter ②  
 P/N. YM-33281

This tools used when installing the fork seal.



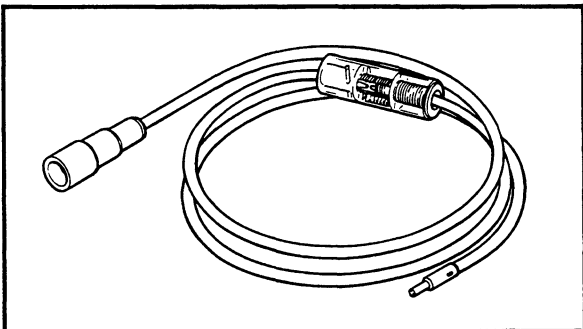
2. Slide hammer set  
 P/N. YU-01047

This tool is used when disassembling the front fork.



3. Ring nut wrench  
 P/N. YU-33975

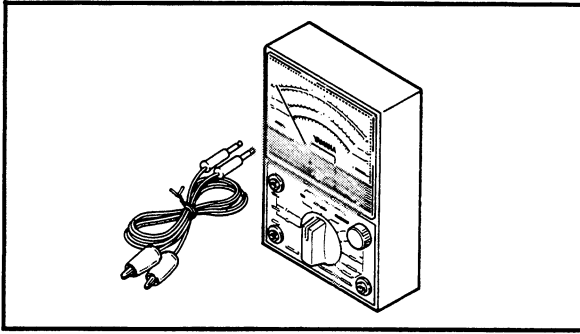
This tool is used to loosen and tighten the steering ring nut.



**FOR ELECTRICAL COMPONENTS**

1. Dynamic spark tester  
 P/N. YM-34487

This instrument is necessary for checking the ignition system components.



2. Pocket tester  
P/N. YU-03112

This tester is invaluable for checking the electrical system.

1





## SPECIFICATIONS

## GENERAL SPECIFICATIONS

Model	RT100A
Model Code Number:	3UL1
Vehicle Identification Number:	JYA3ULW0*LC000101
Engine Starting Number:	3UL-000101
Dimensions:	
Overall Length	1,795 mm (70.7 in)
Overall Width	760 mm (29.9 in)
Overall Height	960 mm (37.8 in)
Seat Height	730 mm (28.7 in)
Wheelbase	1,190 mm (46.9 in)
Minimum Ground Clearance	200 mm (7.9 in)
Basic Weight:	
With Oil and Full Fuel Tank	79 kg (174 lb)
Minimum Turning Radius:	1,810 mm (71.3 in)
Engine:	
Engine Type	Air cooled 2-stroke
Induction System	Reed valve
Cylinder Arrangement	Forward inclined single cylinder
Displacement	97 cm <sup>3</sup>
Bore × Stroke	52.0 × 45.6 mm (2.05 × 1.80 in)
Compression Ratio	6.7 : 1
Starting System	Kick starter
Lubrication System:	
Type	Separate lubrication (Yamaha Autolube)
Engine Oil Type	Yamalube "2" or air cooled 2 stroke engine oil with "BIA certified for service TC-W"
Transmission Oil Type	Yamalube "4", SAE 10W30 type SE motor oil or "GL" gear oil
Oil Capacity:	
Engine Oil (Oil Tank)	1.0 L (0.88 Imp qt, 1.06 US qt)
Transmission Oil:	
Periodic Oil Change	0.65 L (0.57 Imp qt, 0.69 US qt)
Total Amount	0.65 L (0.57 Imp qt, 0.69 US qt)
Air Filter	
Type	Wet type element

# GENERAL SPECIFICATIONS

**SPEC**



Model	RT100A	
<b>Fuel:</b> Type  Fuel Tank Capacity Full Amount Reserve Amount	(For USA) Unleaded fuel recommended (For CDN) Regular unleaded gasoline  5.0 L (1.10 Imp gal, 1.32 US gal) 1.5 L (0.33 Imp gal, 0.39 US gal)	
<b>Carburetor:</b> Type/Quantity Manufacturer	VM22SS/1 pc. MIKUNI	
<b>Spark Plug:</b> Type/Quantity  Manufacturer Plug Gap	(For USA) B7ES (For CDN) BR7ES NGK 0.5 ~ 0.6 mm (0.020 ~ 0.024 in)	
<b>Clutch:</b> Type	Wet, multiple disc	
<b>Transmission:</b> Type Primary Reduction System Primary Reduction Ratio Secondary Reduction System Secondary Reduction Ratio Operation Gear Ratio 1st 2nd 3rd 4th 5th	Constant mesh 5-speed Helical gear 74/19 (3.895) Chain drive 48/14 (3.429) Left foot operation  35/11 (3.182) 30/15 (2.000) 26/19 (1.368) 23/23 (1.000) 20/25 (0.800)	
<b>Chassis:</b> Frame Type Caster Angle Trail	Double cradle 29° 103 mm (4.06 in)	
<b>Tire:</b> Type Size Front Rear	With tube  2.50-18 4PR 3.00-16 4PR	
<b>Tire Pressure (Cold Tire):</b> Basic Weight: With Oil and Full Fuel Tank	79 kg (174 lb)	
<b>Cold Tire Pressure:</b>	FRONT	REAR
	125 kPa (1.25 kg/cm <sup>2</sup> , 18 psi)	125 kPa (1.25 kg/cm <sup>2</sup> , 18 psi)

# GENERAL SPECIFICATIONS

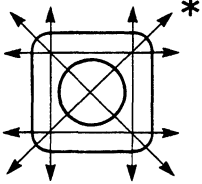
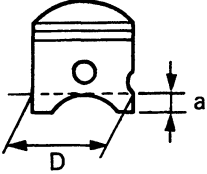
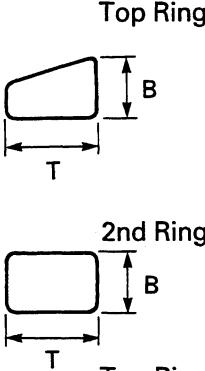
**SPEC**



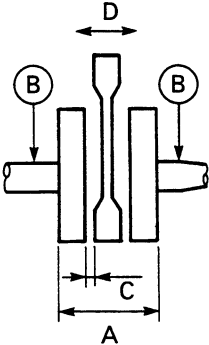
Model	RT100A
<b>Brake:</b> Front Brake Type Front Brake Operation Rear Brake Type Rear Brake Operation	Drum brake Right hand operation Drum brake Right foot operation
<b>Suspension:</b> Front Suspension Type Rear Suspension Type	Telescopic fork Swingarm
<b>Shock Absorber:</b> Front Shock Absorber Rear Shock Absorber	Coil spring/Oil damper Coil spring/Oil damper
<b>Wheel Travel:</b> Front Wheel Travel Rear Wheel Travel	110 mm (4.3 in) 84 mm (3.3 in)
<b>Electrical:</b> Ignition System Generator System	CDI Magneto Flywheel magneto

**2**

**MAINTENANCE SPECIFICATIONS**  
**ENGINE**

Model	RT100A
Cylinder Head: Warpage Limit 	0.03 mm (0.0012 in) *Lines indicate straightedge measurement.
Cylinder: Bore Size Taper Limit Out of Round Limit	52.00 ~ 52.02 mm (2.047 ~ 2.048 in) 0.05 mm (0.002 in) 0.01 mm (0.0004 in)
Piston: Piston Size "D" Measuring Point "a"   Piston Off-Set Piston-to-Cylinder Clearance <Limit> Oversize 1st Oversize 2nd Oversize 3rd Oversize 4th	51.94 ~ 52.00 mm (2.045 ~ 2.047 in) 10 mm (0.39 in)  0.5 mm (0.020 in) 0.050 ~ 0.055 mm (0.0020 ~ 0.0022 in) <0.1 mm (0.004 in)> 52.25 mm (2.057 in) 52.50 mm (2.067 in) 52.75 mm (2.077 in) 53.00 mm (2.087 in)
Piston Ring: Sectional Sketch   End Gap (Installed) Side Clearance	Top Ring Keystone type B=1.2 mm (0.047 in) T=2.0 mm (0.079 in)  2nd Ring Plain type B=1.2 mm (0.047 in) T=1.6 mm (0.063 in)  Top Ring 0.3 ~ 0.5 mm (0.01 ~ 0.02 in) 2nd Ring 0.3 ~ 0.5 mm (0.01 ~ 0.02 in) Top Ring 0.03 ~ 0.05 mm (0.001 ~ 0.002 in) 2nd Ring 0.03 ~ 0.05 mm (0.001 ~ 0.002 in)



Model	RT100A
<p>Crankshaft:</p> <p>Crank Width "A"</p> <p>Runout Limit "B"</p> <p>Big End Side Clearance "C"</p> <p>&lt;Limit&gt;</p> <p>Small End Free Play "D"</p> <p>&lt;Limit&gt;</p> 	<p>49.90 ~ 49.95 mm (1.965 ~ 1.967 in)</p> <p>0.03 mm (0.0012 in)</p> <p>0.2 ~ 0.7 mm (0.008 ~ 0.028 in)</p> <p>&lt;1.0 mm (0.04 in)&gt;</p> <p>0.8 ~ 1.0 mm (0.032 ~ 0.039 in)</p> <p>&lt;2.0 mm (0.08 in)&gt;</p>
<p>Clutch:</p> <p>Friction Plate:</p> <p>Thickness</p> <p>Quantity</p> <p>Wear Limit</p> <p>Clutch Plate:</p> <p>Thickness</p> <p>Quantity</p> <p>Warpage Limit</p> <p>Clutch Spring:</p> <p>Free Length</p> <p>Quantity</p> <p>Minimum Free Length</p> <p>Clutch Release Method</p> <p>&lt;Push Rod Bending Limit&gt;</p>	<p>3.0 mm (0.120 in)</p> <p>5 pcs.</p> <p>2.7 mm (0.106 in)</p> <p>1.2 mm (0.047 in)</p> <p>4 pcs.</p> <p>0.05 mm (0.002 in)</p> <p>31.5 mm (1.24 in)</p> <p>5 pcs.</p> <p>30.5 mm (1.20 in)</p> <p>Inner push, cam push</p> <p>&lt;0.15 mm (0.006 in)&gt;</p>
<p>Transmission:</p> <p>Main Axle Runout Limit</p> <p>Drive Axle Runout Limit</p>	<p>0.08 mm (0.003 in)</p> <p>0.08 mm (0.003 in)</p>
<p>Shifter:</p> <p>Type</p> <p>Guide Bar Bending Limit</p>	<p>Cam drum and guide bar</p> <p>0.025 mm (0.001 in)</p>
<p>Kick Starter:</p> <p>Type</p>	<p>Kick and Mesh type</p>





Model	RT100A
Air Filter: Oil Grade	Foam-Air-Filter oil or Yamalube "2"
Carburetor: I.D. Mark	3JL00
Main Jet (M.J.)	#140
Air Jet (A.J.)	φ2.5
Jet Needle-Position (J.N.)	4L6-3
Needle Jet (N.J.)	O-6
Cutaway (C.A.)	2.0
Pilot Outlet (P.O.)	φ0.6
Pilot Jet (P.J.)	#17.5
Air Screw (A.S.)	1-1/2
Valve Seat Size (V.S.)	φ1.5
Starter Jet (G.S.)	#30
Fuel Level (F.L.)	-0.5 ~ +0.5 mm (-0.02 ~ +0.02 in)
Float Height (F.H.)	20 ~ 22 mm (0.79 ~ 0.87 in)
Idling Speed	1,300 ~ 1,450 r/min
Reed Valve: Valve Thickness	0.2 mm (0.008 in)
Valve Stopper Height	6.7 ~ 7.3 mm (0.26 ~ 0.29 in)
Valve Bending Limit	0.3 mm (0.012 in)
Lubrication System: Autolube Pump Color Code	Green
Minimum Stroke	0.20 ~ 0.25 mm (0.008 ~ 0.010 in)
Maximum Stroke	1.85 ~ 2.05 mm (0.073 ~ 0.081 in)
Minimum Output	0.50 ~ 0.62 cm <sup>3</sup> per 200 strokes
Maximum Output	4.64 ~ 5.15 cm <sup>3</sup> per 200 strokes
Pulley Adjusting Mark	At idle



TIGHTENING TORQUE

Part to be tightened	Bolt/Nut size	Tightening torque		
		Nm	m • kg	ft • lb
Spark plug	M14 × 1.25	25	2.5	18
Cylinder head	M8 × 1.25	22	2.2	16
Autolube pump	M5 × 0.8	4	0.4	2.9
Intake manifold	M6 × 1.0	10	1.0	7.2
Muffler (Front)	M6 × 1.0	8	0.8	5.8
Muffler (Rear)	M8 × 1.25	18	1.8	13
Crankcase	M6 × 1.0	8	0.8	5.8
Crankcase cover (Right)	M6 × 1.0	10	1.0	7.2
Crankcase cover (Left)	M6 × 1.0	7	0.7	5.1
Transmission oil drain bolt	M12 × 1.5	20	2.0	14
Autolube pump cover	M6 × 1.0	8	0.8	5.8
Kick crank assembly	M8 × 1.25	16	1.6	11
Primary drive gear	M12 × 1.0	60	6.0	43
Clutch boss	M12 × 1.0	45	4.5	32
Pressure plate	M5 × 0.8	6	0.6	4.3
Stopper plate (Bearing)	M6 × 1.0	10	1.0	7.2
Shift cam stopper bolt (Neutral)	M14 × 1.5	25	2.5	18
Change pedal	M6 × 1.0	11	1.1	8.0
Drive sprocket	M16 × 1.0	55	5.5	40
Stator	M6 × 1.0	8	0.8	5.8
CDI magneto	M12 × 1.0	50	5.0	36

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**CHASSIS**

Model	RT100A
<b>Steering System:</b> Bearing Type Bearing Size (Quantity) Upper Lower	Ball Bearing  3/16 in (22 pcs.) 1/4 in (19 pcs.)
<b>Front Suspension:</b> Front Fork Travel Fork Spring Free Length (Left side only) <Limit> Spring Rate (K <sub>1</sub> ) (K <sub>2</sub> ) Stroke (K <sub>1</sub> ) (K <sub>2</sub> ) Optional Spring Oil Capacity Oil Grade	110 mm (4.33 in) 418.5 mm (16.5 in) <410 mm (16.1 in)> 4.2 N/mm (0.42 kg/mm, 23.5 lb/in) 5.7 N/mm (0.57 kg/mm, 31.9 lb/in) 0.0 ~ 70.0 mm (0.0 ~ 2.8 in) 70 ~ 110 mm (2.8 ~ 4.3 in) No. 110 cm <sup>3</sup> (3.87 Imp oz, 3.72 US oz) Yamaha fork oil 10WT or equivalent
<b>Rear Suspension:</b> Shock Absorber Travel Spring Free Length Fitting Length Spring Rate (K <sub>1</sub> ) (K <sub>2</sub> ) Stroke (K <sub>1</sub> ) (K <sub>2</sub> ) Optional Spring	75 mm (2.95 in) 205.6 mm (8.09 in) 201.6 mm (7.94 in) 11 N/mm (1.1 kg/mm, 61.6 lb/in) 17.4 N/mm (1.74 kg/mm, 97.4 lb/in) 0.0 ~ 50 mm (0.0 ~ 1.97 in) 50 ~ 75 mm (1.97 ~ 2.95 in) No.
<b>Swingarm:</b> Free Play Limit (Swingarm end)	1.0 mm (0.039 in) Move swingarm end side to side
<b>Front Wheel:</b> Type Rim Size Rim Material Rim Runout Limit Vertical Lateral	Spoke wheel 18 × MT1.40 Steel  2.0 mm (0.08 in) 2.0 mm (0.08 in)

Model	RT100A
<b>Rear Wheel:</b> Type Rim Size Rim Material Rim Runout Limit Vertical Lateral	Spoke wheel 16 × MT1.60 Steel  2.0 mm (0.08 in) 2.0 mm (0.08 in)
<b>Drive Chain:</b> Type/Manufacturer Number of Links Chain Free Play	RS420/TSUBAKIMOTO 103 Links + joint 20 ~ 30 mm (0.8 ~ 1.2 in)
<b>Front Drum Brake:</b> Type Drum Inside Diameter <Limit> Shoe Spring Free Length Lining thickness <Limit>	Leading, trailing 110 mm (4.33 in) <111 mm (4.37 in)> 34.5 mm (1.36 in) 4 mm (0.16 in) <2 mm (0.08 in)>
<b>Rear Drum Brake:</b> Type Brake Drum Inside Diameter <Limit> Shoe Spring Free Length Lining Thickness <Limit>	Leading, Trailing 110 mm (4.33 in) <111 mm (4.37 in)> 34.5 mm (1.36 in) 4 mm (0.16 in) <2 mm (0.08 in)>
<b>Brake Lever and Brake Pedal:</b> Brake Lever Free Play Brake Pedal Free Play	5 ~ 8 mm (0.20 ~ 0.31 in) 20 ~ 30 mm (0.8 ~ 1.2 in) Below top of footrest
<b>Clutch Lever and Throttle Grip:</b> Clutch Lever Free Play Throttle Cable Free Play	2 ~ 3 mm (0.08 ~ 0.12 in) 3 ~ 5 mm (0.12 ~ 0.20 in) At grip flange



**TIGHTENING TORQUE**

Part to be tightened	Bolt/Nut size	Tightening torque		
		Nm	m • kg	ft • lb
<b>Chassis:</b>				
Engine mounting;				
Front upper	M8 × 1.25	26	2.6	19
Rear upper	M8 × 1.25	26	2.6	19
Rear lower	M10 × 1.25	39	3.9	28
Pivot shaft and nut	M12 × 1.25	43	4.3	31
Rear shock absorber and frame (Upper)	M12 × 1.25	39	3.9	28
Rear shock absorber and rear arm (Lower)	M10 × 1.25	25	2.5	18
Handle crown and inner tube	M8 × 1.25	26	2.6	19
Handle crown and handlebar	M8 × 1.25	20	2.0	14
Under bracket and inner tube	M10 × 1.25	39	3.9	28
Under bracket and steering lock	M5 × 0.8	6	0.6	4.3
Steering ring nut	M25 × 1.25	6	0.6	4.3
Refer to NOTE				
Handle crown and steering shaft	M14 × 1.25	65	6.5	47
Front wheel axle and nut	M12 × 1.25	43	4.3	31
Brake cam lever and camshaft	M6 × 1.0	9	0.9	6.5
Rear wheel sprocket and wheel hub	M8 × 1.25	20	2.0	14
Tension bar and plate	M8 × 1.25	18	1.8	13
Tension bar and rear arm	M8 × 1.25	18	1.8	13
Rear wheel axle and nut	M10 × 1.25	39	3.9	28
Sproket shaft and rear arm	M18 × 1.0	85	8.5	61
Footrest and frame	M8 × 1.25	18	1.8	13

**NOTE:**

1. First, tighten the ring nut approximately 36 Nm (3.6 m•kg, 25 ft•lb) by using the torque wrench, then loosen the ring nut one turn.
2. Retighten the ring nut to specification.



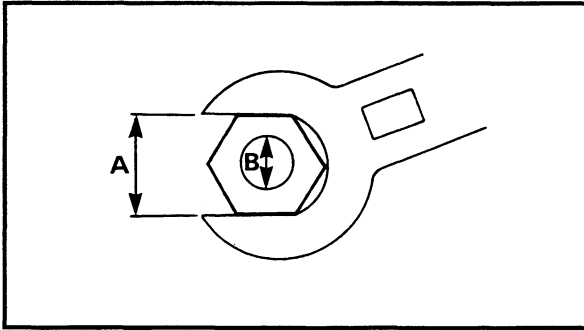
**ELECTRICAL**

Model	RT100A																				
Ignition System: Ignition Timing (B.T.D.C.) Advancer Type	27° at 2,000 r/min Electrical type <div style="text-align: center;"> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption>Ignition Timing Data</caption> <thead> <tr> <th>Engine speed (x1,000 r/min)</th> <th>Ignition timing (B.T.D.C.)</th> </tr> </thead> <tbody> <tr><td>0.5</td><td>16</td></tr> <tr><td>1.0</td><td>22</td></tr> <tr><td>2.0</td><td>27</td></tr> <tr><td>3.0</td><td>28</td></tr> <tr><td>4.0</td><td>28</td></tr> <tr><td>5.0</td><td>28</td></tr> <tr><td>6.0</td><td>28</td></tr> <tr><td>7.0</td><td>28</td></tr> <tr><td>8.0</td><td>28</td></tr> </tbody> </table> </div>	Engine speed (x1,000 r/min)	Ignition timing (B.T.D.C.)	0.5	16	1.0	22	2.0	27	3.0	28	4.0	28	5.0	28	6.0	28	7.0	28	8.0	28
Engine speed (x1,000 r/min)	Ignition timing (B.T.D.C.)																				
0.5	16																				
1.0	22																				
2.0	27																				
3.0	28																				
4.0	28																				
5.0	28																				
6.0	28																				
7.0	28																				
8.0	28																				
C.D.I.: Magneto Model/Manufacturer C.D.I. Unit Model/Manufacturer Pickup Coil Resistance (Color) Source Coil Resistance (Color)	F3T10471/MITSUBISHI F008T/MITSUBISHI 9 ~ 11Ω at 20°C (68°F) (White/Red—Black) 270 ~ 330Ω at 20°C (68°F) (Brown—Black)																				
Ignition Coil: Model/Manufacturer Minimum Spark Gap Primary Coil Resistance Secondary Coil Resistance	F6T411/MITSUBISHI 6 mm (0.24 in) 0.9 ~ 1.1Ω at 20°C (68°F) 4.7 ~ 7.1kΩ at 20°C (68°F)																				
Spark Plug Cap: Type Plug Cap Resistance	Resin Type 4 ~ 6kΩ at 20°C (68°F)																				

**GENERAL TORQUE SPECIFICATIONS**

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A (Nut)	B (Bolt)	General torque specifications		
		Nm	m•kg	ft•lb
10 mm	6 mm	6	0.6	4.3
12 mm	8 mm	15	1.5	11
14 mm	10 mm	30	3.0	22
17 mm	12 mm	55	5.5	40
19 mm	14 mm	85	8.5	61
22 mm	16 mm	130	13.0	94


















A: Distance across flats  
B: Outside thread diameter

**DEFINITION OF UNITS**

Unit	Read	Definition	Measure
mm cm	millimeter centimeter	$10^{-3}$ meter $10^{-2}$ meter	Length Length
kg	kilogram	$10^3$ gram	Weight
N	Newton	$1 \text{ kg} \times \text{m}/\text{sec}^2$	Force
Nm m•kg	Newton meter Meter kilogram	$\text{N} \times \text{m}$ $\text{m} \times \text{kg}$	Torque Torque
Pa N/mm	Pascal Newton per millimeter	$\text{N}/\text{m}^2$ N/mm	Pressure Spring rate
L cm <sup>3</sup>	Liter Cubic centimeter	—	Volume or capacity
r/min	Revolution per minute	—	Engine speed










**LUBRICATION POINTS AND LUBRICANT TYPE**

**ENGINE**

Lubrication Points (Part name)	Lubricant Type
Oil seal lip	
O-ring	
Small end/Big end bearing	
Bearing	
Piston ring	
Piston	
Cylinder inner surface	
Piston pin	
Kick axle	
Primary driven/drive gear	
Push rod	
Push lever	
Guide bar (Shift fork)	
Shift shaft	
Shift cam	

2

**CHASSIS**

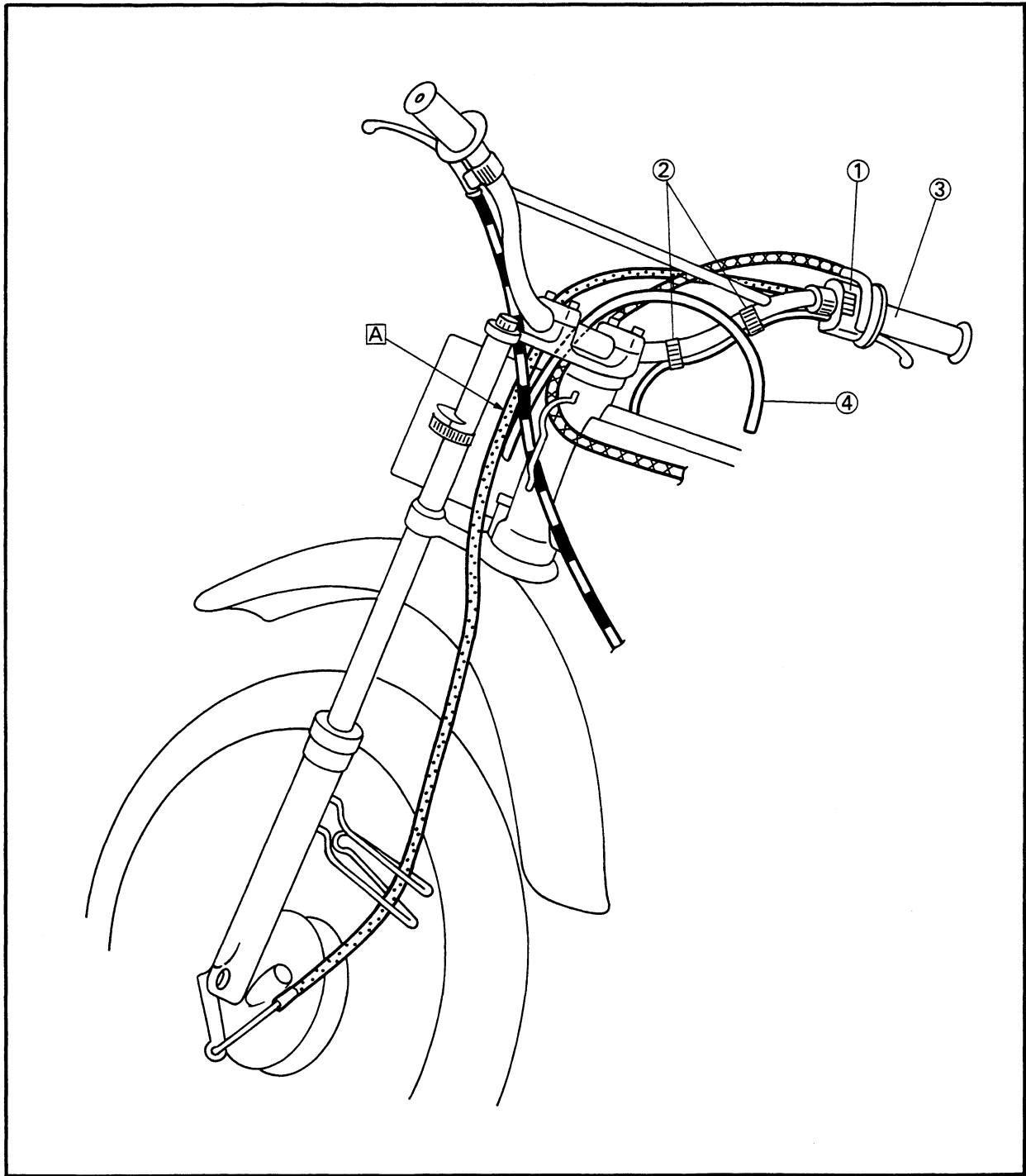
Lubrication Points (Part name)	Lubricant Type
Steering Upper/Lower balls	
Front/Rear wheel oil seal lip	
Brake cam shaft	
Brake pedal pivot	
Handlebar (Right) end	
Sidestand pivot	
Clutch lever pivot/cable end	
Brake lever pivot/cable end	
Pivot shaft	



**CABLE ROUTING**

- ① Handlebar switch
- ② Switch lead band
- ③ Throttle grip
- ④ Fuel tank breather hose

**A** Pass the brake cable outside of the clutch cable.

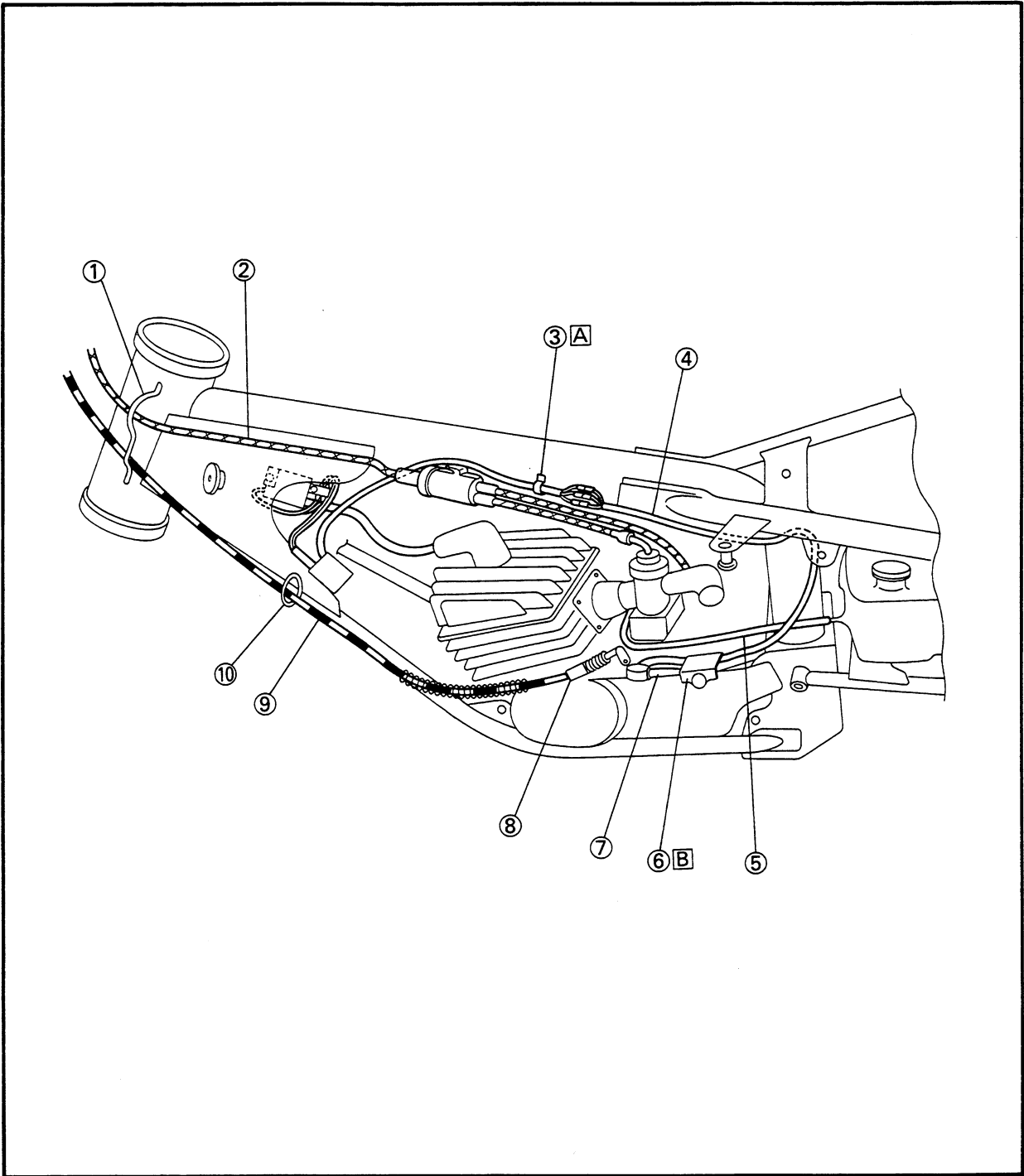




**CABLE ROUTING**

- ① Cable guide
- ② Throttle cable
- ③ Clamp
- ④ CDI magneto lead
- ⑤ Oil hose
- ⑥ Clamp
- ⑦ Engine breather hose
- ⑧ Clutch cable holder
- ⑨ Clutch cable
- ⑩ Clamp

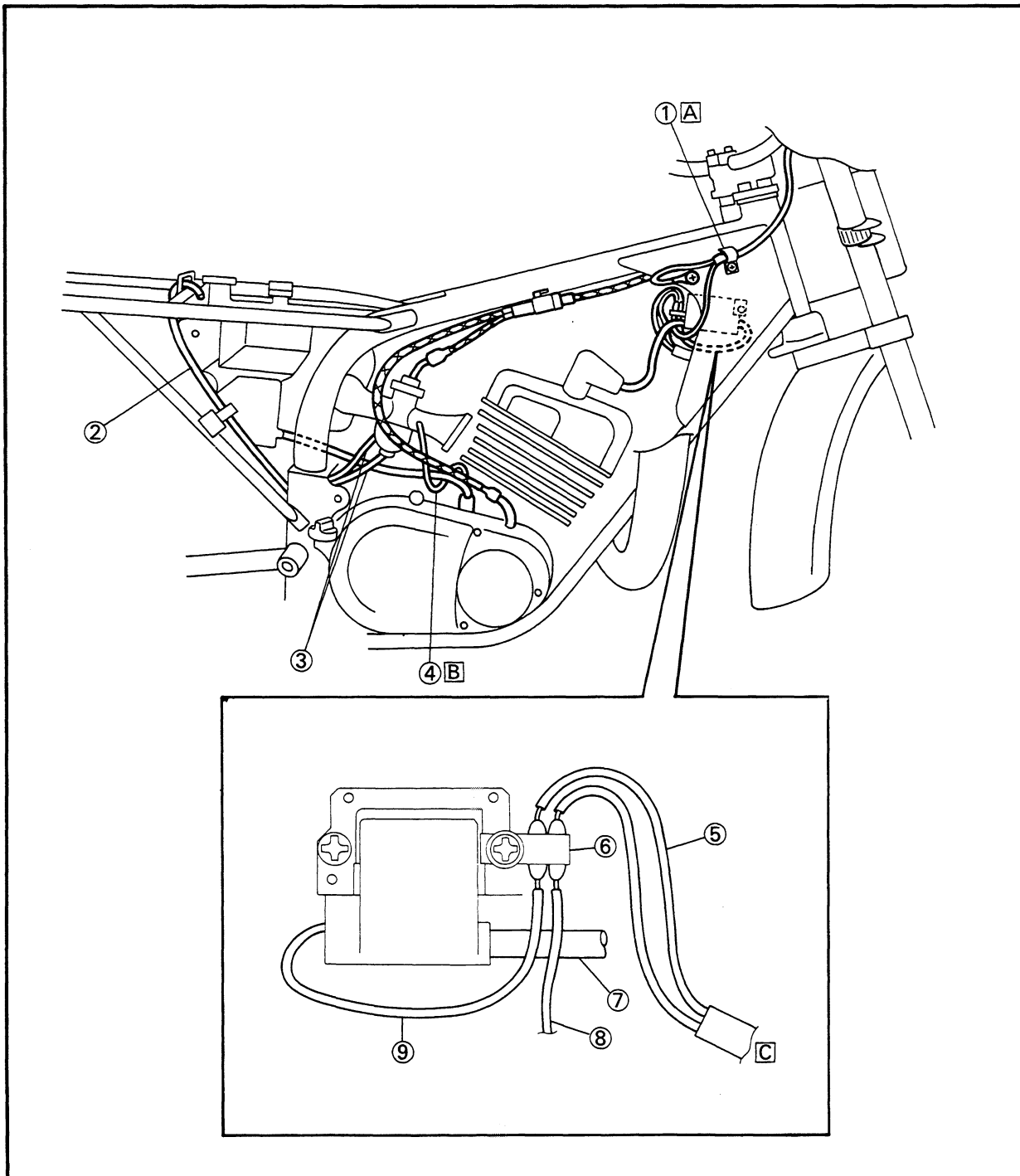
- Ⓐ Clamp the CDI unit lead.
- Ⓑ Clamp the CDI magneto lead and engine breather hose.



**CABLE ROUTING**

- ① Clamp
- ② Oil tank breather hose
- ③ Carburetor overflow/air bent hose
- ④ Oil delivery hose
- ⑤ CDI unit lead
- ⑥ Clamp
- ⑦ Spark plug lead
- ⑧ Engine stop switch lead
- ⑨ Ignition coil lead

- A Clamp the engine stop switch lead.
- B Do not clamp the oil delivery hose.
- C To CDI unit.



## PERIODIC INSPECTION AND ADJUSTMENT

### INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

### PERIODIC MAINTENANCE/LUBRICATION INTERVALS

ITEM	REMARKS	BREAK-IN 1 month	EVERY	
			6 months	12 months
Spark plug	Check condition. Clean or replace if necessary.	○	○	○
Air filter	Clean. Replace if necessary.		○	○
Carburetor*	Check idle speed/starter operation. Adjust if necessary.	○	○	○
Fuel line*	Check fuel hose for cracks or damage. Replace if necessary.		○	○
Transmission oil*	Check oil level/oil leakage. Correct if necessary. Replace every 24 months. (Warm engine before draining.)	REPLACE	○	○
Autolube pump*	Check operation. Correct if necessary. Air bleeding.	○	○	○
Brakes*	Check operation. Adjust if necessary.		○	○
Clutch	Check operation. Adjust if necessary.		○	○
Rear arm pivot*	Check rear arm assembly for looseness. Correct if necessary. Moderately repack every 24 months.**	○		○
Wheels*	Check balance/damage/runout/spoke tightness. Repair if necessary.		○	○
Wheel bearings*	Check bearings assembly for looseness/damage. Replace if damaged.		○	○
Steering bearing*	Check bearings assembly for looseness. Correct if necessary. Moderately repack every 24 months.**	○		
Front forks*	Check operation/oil leakage. Repair if necessary.		○	○
Rear shock absorber*	Check operation/oil leakage. Repair if necessary.		○	○
Drive chain	Check chain slack/alignment. Adjust necessary. Clean and lube.		Every Ride (More often in wet or dusty areas)	
Fittings/Fasteners*	Check all chassis fittings and fasteners. Correct if necessary.	○	○	○
Sidestand*	Check operation. Repair if necessary.	○	○	○

\*: It is recommended that these items be serviced by a Yamaha dealer.

\*\* : Medium weight wheel bearing grease.

YB1AE004

## ENGINE

### IDLING SPEED ADJUSTMENT

1. Start the engine and let it warm up for several minutes.


2. Attach:

- Inductive tachometer (to the spark plug lead).

	<b>Inductive tachometer:</b> <b>YU-08036</b>
---	---

3. Check:

- Engine idling speed  
Out of specification → Adjust.

	<b>Engine idling speed:</b> <b>1,300 ~ 1,450 r/min</b>
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4. Adjust:

- Engine idling speed

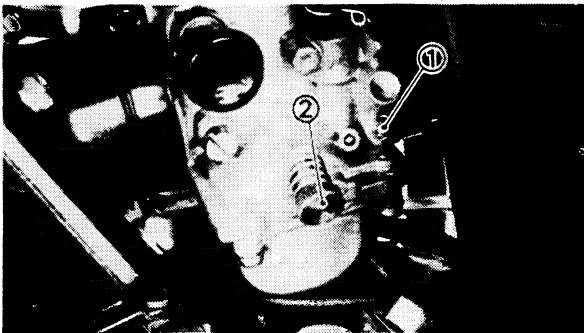
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#### Adjustment steps:

- Turn in the pilot air screw ① until it is lightly seated.
- Turn out the pilot air screw for the specified number of turns.

<b>Pilot air screw:</b> <b>1 and 1/2 turns out</b>
---

- Turn the throttle stop screw ② in or out until specified idling speed is obtained.




<b>Turning in</b>	<b>Idling speed becomes higher.</b>
<b>Turning out</b>	<b>Idling speed becomes lower.</b>

\*\*\*\*\*

5. Adjust:

- Throttle cable free play

Refer to "THROTTLE CABLE FREE PLAY ADJUSTMENT" section.

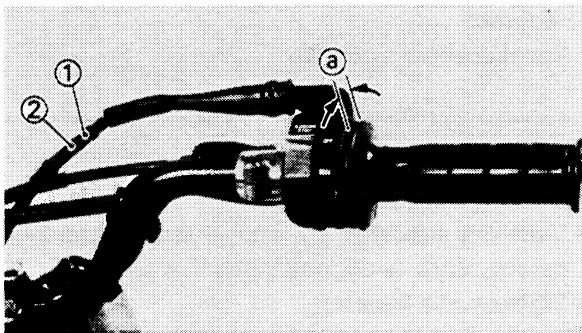
	<p><b>Free play:</b>                  3 ~ 5 mm (0.12 ~ 0.20 in)                  at throttle grip flange</p>
---	--

YB1AE008

## THROTTLE CABLE ADJUSTMENT

**NOTE:**


Engine idling speed should be adjusted properly before adjusting the throttle cable free play.



1. Check:

- Throttle cable free play ①

Out of specification → Adjust.

	<p><b>Free play:</b>                  3 ~ 5 mm (0.12 ~ 0.20 in)                  at throttle grip flange</p>
--	--

2. Adjust:

- Throttle cable free play

\*\*\*\*\*

**Adjustment steps:**

- Loosen the locknut ① .
- Turn the adjuster ② in or out until the specified free play is obtained.

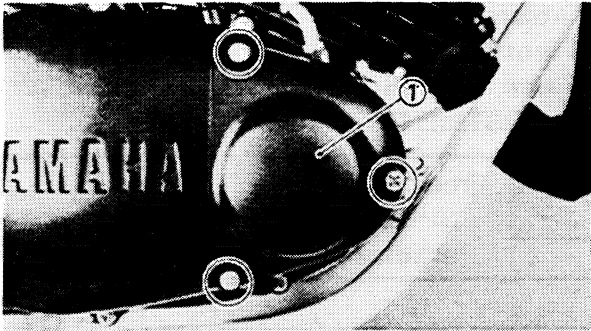
Turning in	Free play is increased.
Turning out	Free play is decreased.

- Tighten the locknut.

**⚠ WARNING**

After adjusting, turn the handlebar to right and left and make sure that the engine idling does not run faster.

\*\*\*\*\*



YB1AC002

**AUTOLUBE PUMP CABLE ADJUSTMENT**

**NOTE:**

Engine idling speed and throttle cable free play should be adjusted properly before adjusting the autolube pump cable.

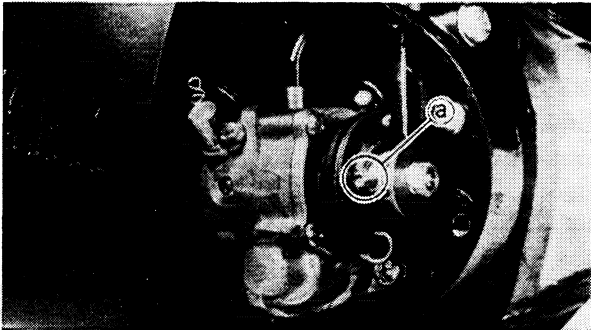
**1. Remove:**

- Autolube pump cover ①

**2. Close the throttle completely.**

**3. Check:**

- Alignment mark ②
- Not aligned → Adjust Autolube pump cable.



**4. Adjust:**

- Autolube pump cable

\*\*\*\*\*

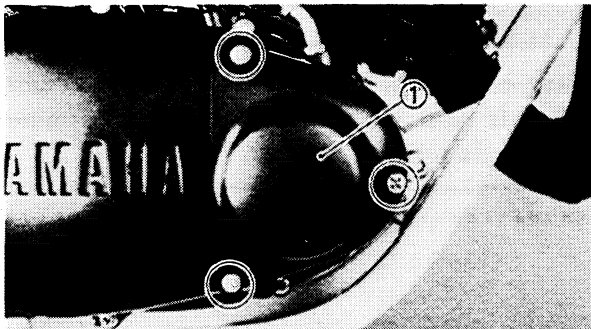
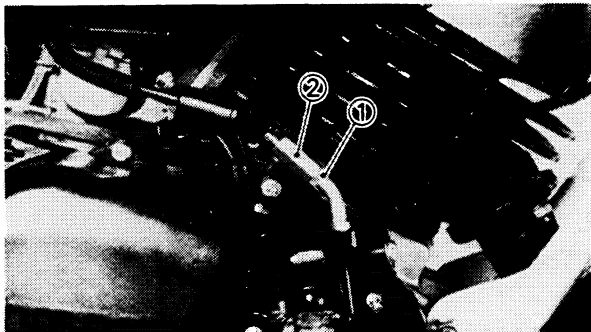
**Adjustment steps:**

- Loosen the locknut ① .
- Turn the adjuster ② in or out until the alignment mark is aligned with the pin.
- Tighten the locknut.

\*\*\*\*\*

**5. Install:**

- Autolube pump cover



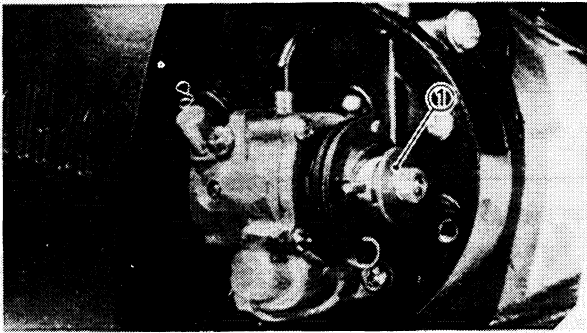
YB1AC004

**AUTOLUBE PUMP STROKE ADJUSTMENT**

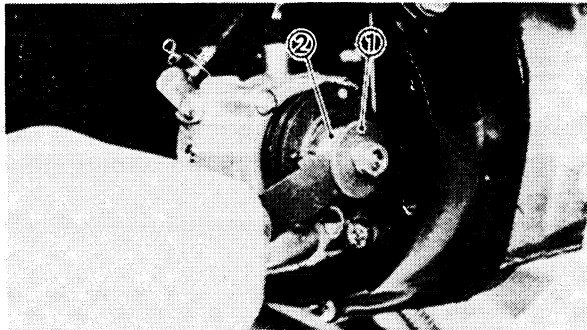
**1. Remove:**

- Autolube pump cover ①

**2. Start the engine and let it warm up for several minutes.**




3. While running the engine at idle, observe the pump adjusting plate carefully. Stop the engine the moment that the adjusting plate ① moves out to its limit.



4. Measure:

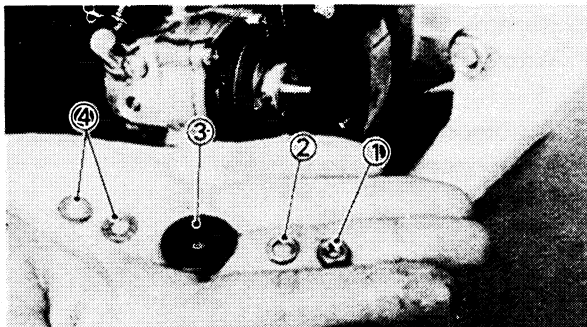
- Gap  
Out of specification → Adjust.  
Measure the gap with the thickness gauge between the raised boss ② on the pump adjusting pulley and the adjusting plate ①.

	<p><b>Minimum pump stroke:</b>                  0.20~0.25 mm                  (0.008~0.010 in)</p>
---	--

3

**NOTE:**

When inserting the thickness gauge between the adjusting plate and the adjusting pulley, be careful that neither the plate nor the pulley is moved. In other words, do not force the thickness gauge into the gap.



5. Adjust:

- Autolube pump minimum stroke

\*\*\*\*\*


**Adjustment steps:**

- Remove the locknut ①, spring washer ② and adjusting plate ③.
- Adjust the pump stroke by adding or removing a shim ④.



<b>Adding shim</b>	<b>Pump stroke is increased</b>
<b>Removing shim</b>	<b>Pump stroke is decreased</b>

- Install the adjusting plate, spring washer and locknut.

	<b>Locknut:</b> <b>7 Nm (0.7 m · kg, 5.1 ft · lb)</b>
---	--

- Recheck the minimum pump stroke. If out of specification, perform the above steps again.

**6. Install:**

- Autolube pump cover

YB1AC005

**AUTOLUBE PUMP AIR BLEEDING**

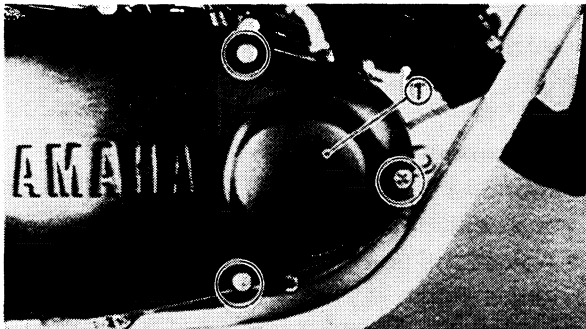
**CAUTION:** \_\_\_\_\_

The Autolube pump and delivery lines must be bled on the following occasions:

- Setting up a new machine out of the crate.
- Whenever the oil tank has run dry.
- Whenever any portion of the engine oil system is disconnected.

**1. Inspect:**

- Engine oil level  
Oil level low → Add oil to proper level.  
Refer to the "ENGINE OIL LEVEL INSPECTION" section.

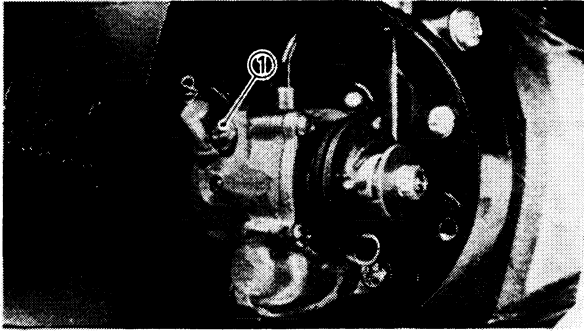


**2. Remove:**

- Autolube pump cover ①

**3. Air bleed:**

- Pump case and/or oil hose



\*\*\*\*\*

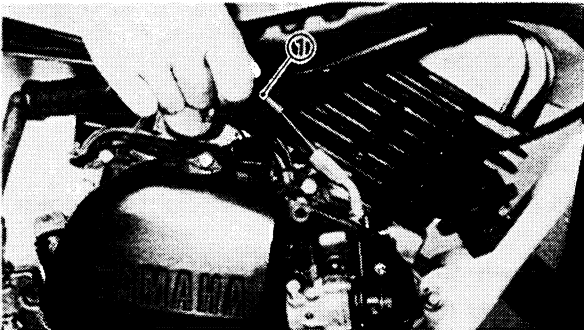
**Air bleeding steps:**

- Place a rag under the Autolube pump to catch oil.
- Remove the bleed screw ① .
- Keep the oil running out until air bubbles disappear.
- When air bubbles are expelled completely, tighten the bleed screw.

\*\*\*\*\*

**NOTE:** \_\_\_\_\_

Check the bleed screw gasket. If damaged, replace with a new one.



**4. Air bleed:**

- Pump distributor and/or delivery hose

\*\*\*\*\*

**Air bleeding steps:**

- Start the engine.
- Pull the pump cable ① all the way out to set the pump stroke to a maximum.

**NOTE:** \_\_\_\_\_

It is difficult to bleed the distributor completely with the pump stroke at a minimum, and therefore the pump stroke should be set to a maximum.

- Keep the engine running at about 2,000 r/min for two minutes or so, then, both distributor and delivery hose can be completely bled.

\*\*\*\*\*

**5. Install:**

- Autolube pump cover

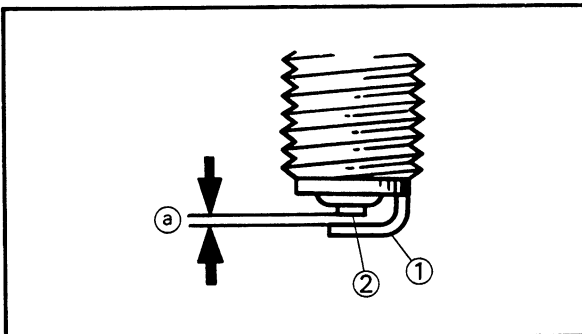
YB1AA009

## SPARK PLUG INSPECTION

1. Remove:
- Spark plug

2. Inspect:
- Spark plug type  
Incorrect → Replace.


<b>Standard spark plug:</b> For USA...B7ES/NGK For CDN...BR7ES/NGK
--




3. Inspect:
- Electrode ①  
Wear/Damage → Replace.
  - Insulator ②  
Abnormal color → Replace  
Normal color is a medium-to-light tan color.

4. Clean the spark plug with a spark plug cleaner or wire brush.

5. Measure:
- Plug gap ③  
Use a Wire Gauge or Feeler Gauge.  
Out of specification → Re-gap.

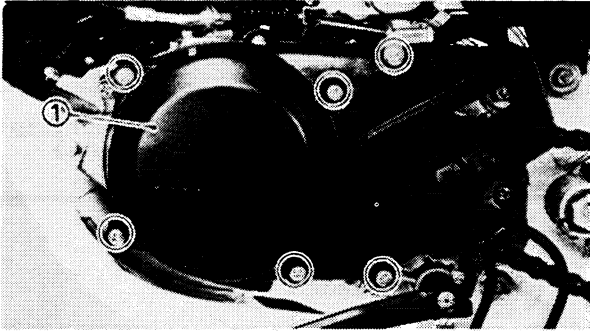
	<b>Spark plug gap:</b> 0.5~0.6 mm (0.020~0.024 in)
---	---

6. Tighten:
- Spark plug

	<b>Spark plug:</b> 25 Nm (2.5 m · kg, 18 ft · lb)
---	--

**NOTE:** \_\_\_\_\_  
Before installing a spark plug, clean the gasket surface and plug surface.

---



YB1AA012

## IGNITION TIMING CHECK

### NOTE:

Engine idling speed and throttle cable free play should be adjusted properly before checking the ignition timing.

#### 1. Remove:

- Crankcase cover (left) ①

#### 2. Attach:

- Timing light and inductive tachometer



**Timing light:**

**YM-33277**

**Inductive tachometer:**

**YU-08036**

# 3

#### 3. Check:

- Ignition timing

\*\*\*\*\*

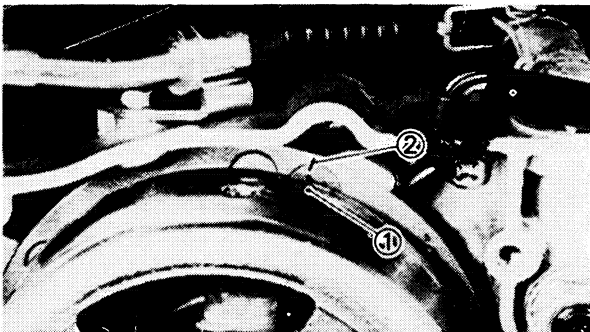
#### Checking steps:

- Warm up the engine and keep it at the specified speed.



**Engine speed:**

**2,000 r/min.**



- Visually check the stationary pointer ① to verify it is within the required firing range ② indicated on the timing plate. Incorrect firing range → Check timing plate and/or pickup assembly.

\*\*\*\*\*

#### 4. Install:

- Crankcase cover (left)

YB1AC007

**ENGINE OIL LEVEL INSPECTION**

**NOTE:** \_\_\_\_\_

Position the machine straight up when inspecting the oil level.

---

1. Place the machine on a level surface.

**NOTE:** \_\_\_\_\_

Place a suitable stand under the engine.

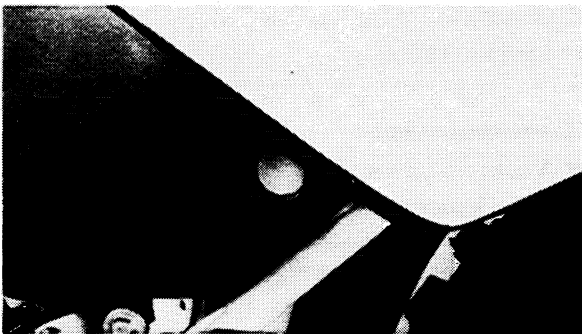
---


2. Check:

- Oil level

Oil level low → Add sufficient oil.

① Oil level window



	<b>Recommended oil:</b> Yamalube "2" or air cooled 2 stroke engine oil with "BIA certified for service TC-W"
	<b>Oil tank capacity:</b> 1.0 L (0.88 Imp qt, 1.06 US qt)

**CAUTION:** \_\_\_\_\_

Always use the same type of engine oil; mixing oils may result in a harmful chemical reaction and lead to poor performance.

---

YB1AC039

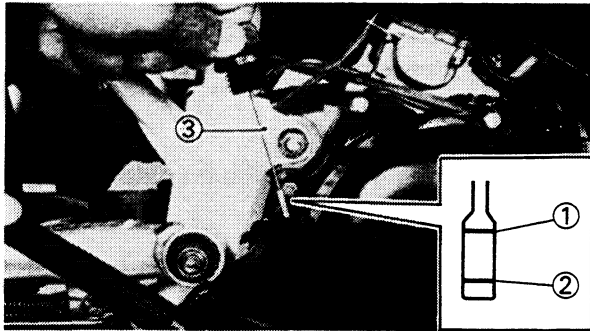
**TRANSMISSION OIL LEVEL INSPECTION**

1. Place the machine on a level place.

**NOTE:** \_\_\_\_\_

Place a suitable stand under the engine.


---



2. Inspect:

- Oil level  
Oil level should be between maximum ① and minimum ② marks.  
Oil level is low → Add oil to proper level.

**NOTE:** Do not screw the dipstick ③. Insert the dipstick lightly when inspecting the oil level.

	<p><b>Recommended oil:</b> Yamalube "4" or SAE 10W30 type SE motor oil</p>
---	--

**NOTE:** Recommended oil classification; API Service "SE", "SF" type or equivalent (e.g. "SF-SE", "SF-SE-CC", "SF-SE-SD" etc).

**CAUTION:**

- Do not add any chemical additives. Transmission oil also lubricates the clutch and additives could cause clutch slippage.
- Do not allow foreign material to enter the crankcase.

**⚠ WARNING**

Never attempt to remove the dipstick just after high speed operation. The heated oil could spout out, causing danger. Wait until the oil cools down.

3. Start the engine and let it warm up for several minutes.

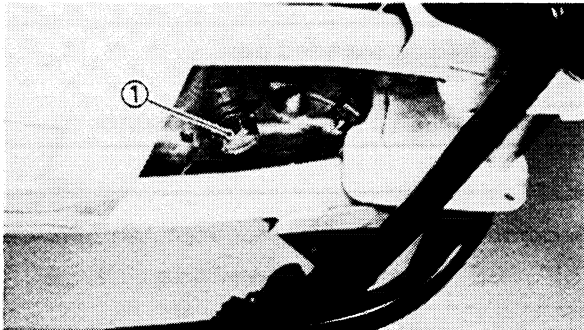
4. Stop the engine and inspect the oil level once again.

**NOTE:** Wait a few minutes until settles before inspecting the oil level.

YB1AC042


## TRANSMISSION OIL REPLACEMENT

1. Start the engine and let it warm up for several minutes.
2. Stop the engine and place an oil pan under the engine.



3. Remove:
  - Oil filler plug
  - Drain plug ①Drain the transmission case of its oil.


4. Install:
  - Drain plug

	<b>Drain plug:</b> 20 Nm (2.0 m · kg, 14 ft · lb)
--	--

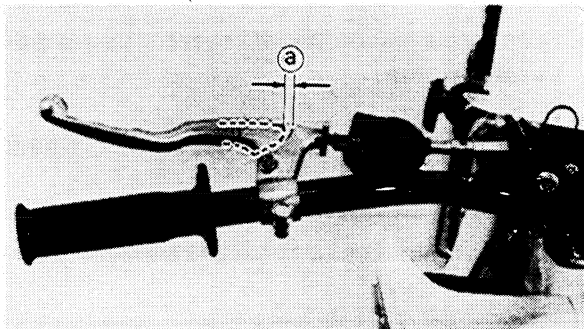
### NOTE:

Check the gasket (drain plug). If damaged, replace it with a new one.

5. Fill:
  - Transmission case

	<b>Oil quantity (periodic oil change):</b> 0.65 L (0.57 Impqt, 0.69 USqt)
---	--


Refer to the "TRANSMISSION OIL LEVEL INSPECTION" section.

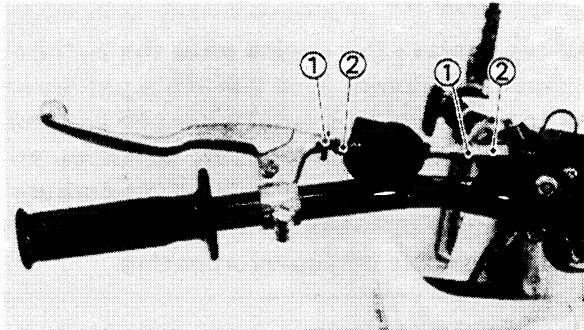


YB1AF002

## CLUTCH ADJUSTMENT

1. Check:
  - Clutch cable free play ②Out of specification → Adjust.

	<p><b>Free play:</b>                  2 ~ 3 mm (0.08 ~ 0.12 in)                  at clutch lever pivot</p>
---	--



**2. Adjust:**

- Clutch cable free play  
 \*\*\*\*\*

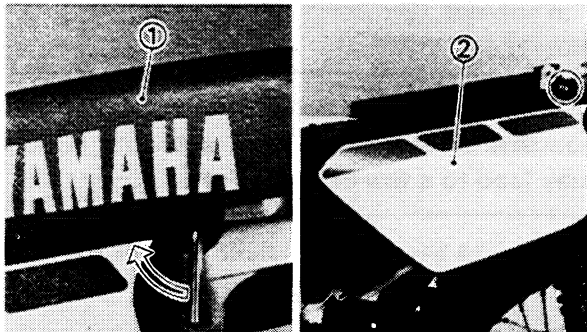
**Adjustment steps:**

- Loosen the locknut(s) ① .
- Turn the adjuster(s) ② in or out until the specified free play is obtained.

<b>Turning in</b>	<b>Free play is increased.</b>
<b>Turning out</b>	<b>Free play is decreased.</b>

- Tighten the locknut(s).  
 \*\*\*\*\*

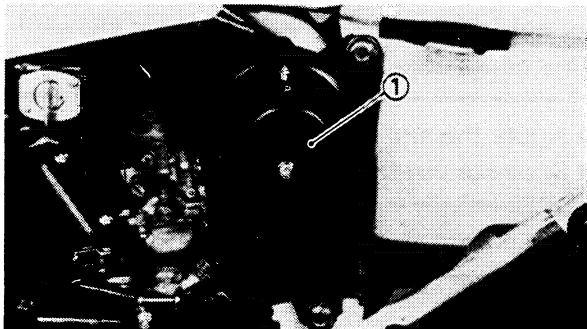
3



YB1AB003  
**AIR FILTER CLEANING**

**1. Remove:**

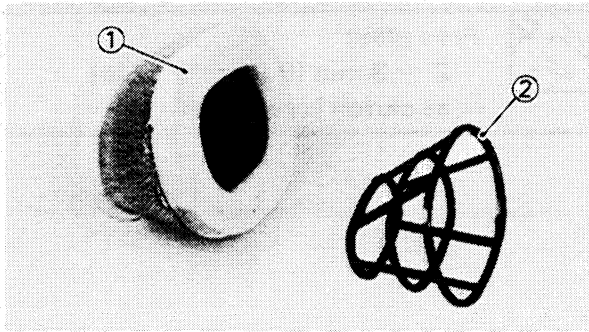
- Seat ①
- Side cover (left) ②



**2. Remove:**

- Air filter case cover ①





3. Remove:
- Air filter element ①
  - Element guide ②

**CAUTION:**

Never operate the engine with the air filter element removed. This will allow unfiltered air to enter, causing rapid wear and possible engine damage. Additionally, operation without the filter element will affect carburetor tuning with subsequent poor performance and possible engine overheating.

4. Inspect:
- Air filter element
  - Damage → Replace.

5. Clean:
- Air filter element

\*\*\*\*\*

**Cleaning steps:**

- Wash the element gently, but thoroughly in solvent ①.

**⚠ WARNING**

Use parts cleaning solvent only. Never use gasoline or low flash point solvents which may lead to a fire or explosion.

- Squeeze the excess solvent out of the element and let dry.

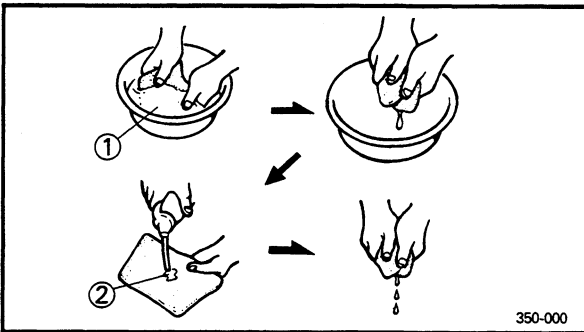
**CAUTION:**

Do not twist or wring out the foam element. This could damage the foam material.

- Apply the engine oil ②.
- Squeeze out the excess oil.

**NOTE:**  
The element should be wet but not dripping.

\*\*\*\*\*



350-000

**6. Install:**

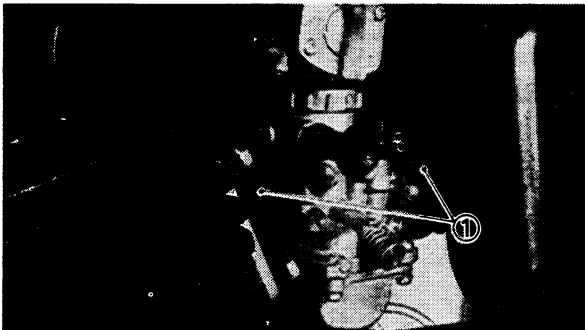
- Air filter element
- Air filter case cover

**NOTE:**

When installing the element in its case, be sure its sealing surface matches the sealing surface of the case so there is no air leak.

**7. Install:**

- Side cover
- Seat

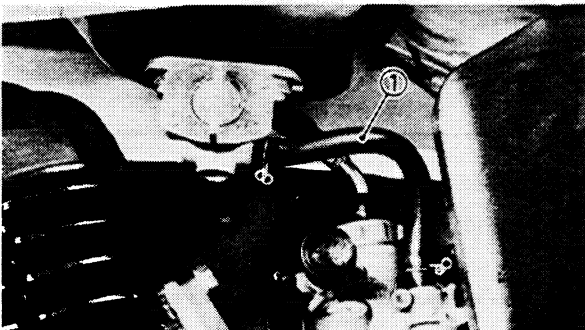


YB1AB006

**CARBURETOR JOINT INSPECTION**

**1. Inspect:**

- Carburetor joints ①  
Cracks/Damage → Replace.  
Refer to the "CHAPTER 5-CARBURETION"  
section.

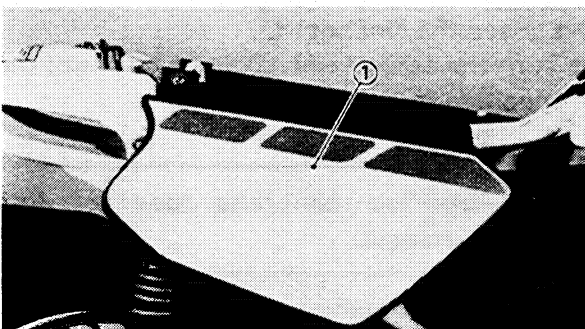


YB1AE015

**FUEL LINE INSPECTION**

**1. Inspect:**

- Fuel hose ①  
Crack/Damage → Replace.

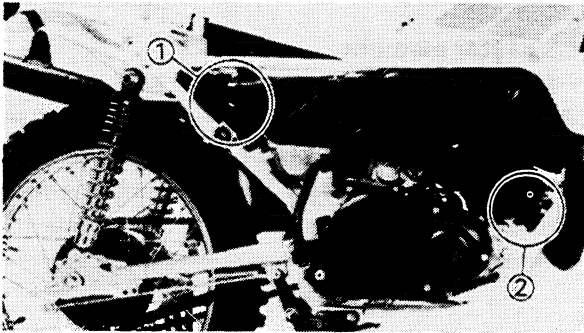


YB1AB009

**EXHAUST SYSTEM INSPECTION**

**1. Remove:**

- Seat
- Side cover (right) ①

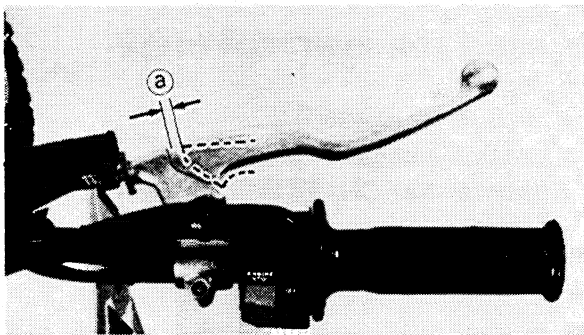


2. Inspect:

- Muffler(s) ①  
Cracks/Damage→Replace.
- Gasket(s) ②  
Exhaust gas leaks→Replace.

3. Install:

- Side cover (right)
- Seat

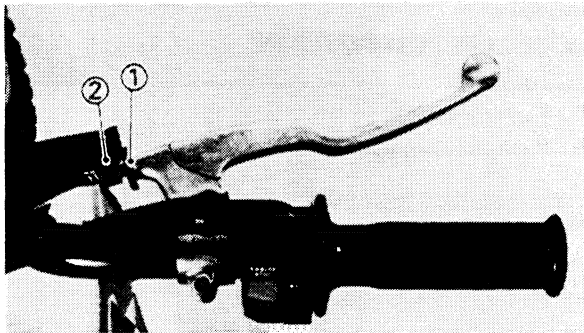



YB1A3002

**CHASSIS**  
**FRONT BRAKE ADJUSTMENT**

1. Check:

- Brake lever free play ②  
Out of specification→Adjust.



	<p><b>Free play:</b> 5 ~ 8 mm (0.2 ~ 0.3 in) at brake lever pivot</p>
---	---

2. Adjust:

- Brake lever free play

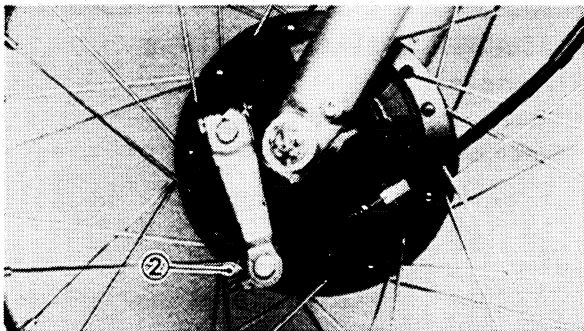
\*\*\*\*\*

**Adjustment steps:**

- Loosen the locknut ① .
- Turn the adjuster(s) ② in or out until the specified free play is obtained.

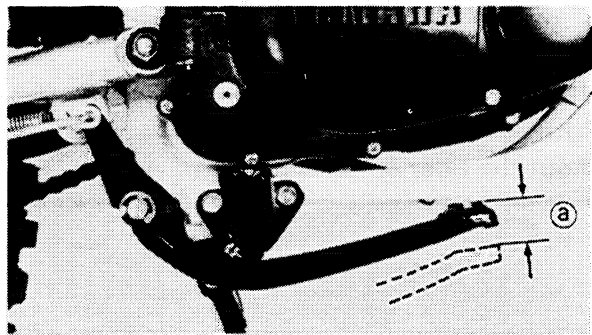
**CAUTION:** \_\_\_\_\_

**Make sure that the brake does not drag after adjusting it.**



- Tighten the locknut.


\*\*\*\*\*

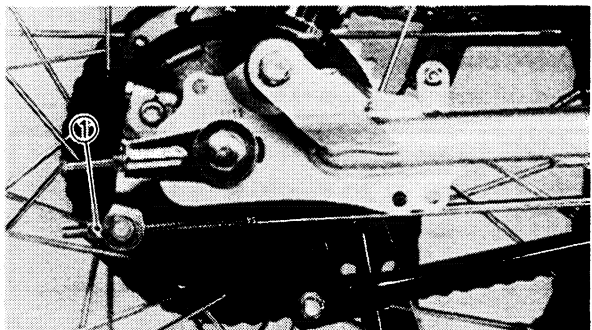


YB1A3006

**REAR BRAKE ADJUSTMENT**

1. Check:
- Brake pedal free play ②  
Out of specification → Adjust.

	<p><b>Free play:</b> 20 ~ 30 mm (0.8 ~ 1.2 in)</p>
---	--



2. Adjust:
- Brake pedal free play

\*\*\*\*\*

**Adjustment steps:**

- Turn the adjuster(s) ① in or out until the specified free play is obtained.

Turning in	Free play is decreased.
Turning out	Free play is increased.

**CAUTION:** \_\_\_\_\_

Make sure that the brake does not drag after adjusting it.

\*\*\*\*\*

YB1A4022

**DRIVE CHAIN SLACK ADJUSTMENT**

**NOTE:** \_\_\_\_\_

Before checking and/or adjusting, rotate the rear wheel several revolutions and check slack at several points to find the tightest point. Check and/or adjust the chain slack with the rear wheel in this "tightest" position.

**CAUTION:** \_\_\_\_\_

Too little of chain slack will overload the engine and other vital parts; keep the slack within the specified limits.

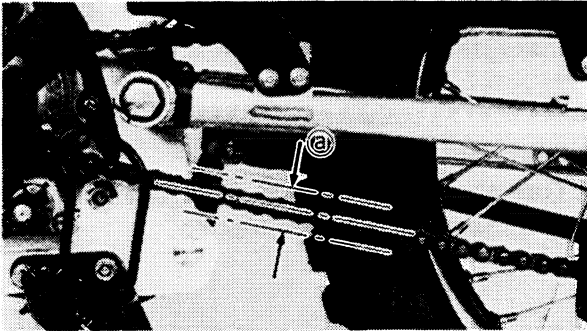
**WARNING** \_\_\_\_\_

Securely support the machine so there is no danger of it falling over.

1. Place the machine on a level place, and hold it in an upright position.


**NOTE:**

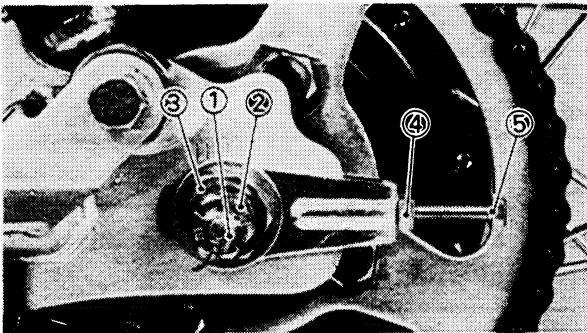
Both wheels should be on the ground without the rider on it.



2. Check:

- Drive chain slack **a**  
Out of specification → Adjust.

	<p><b>Drive chain slack:</b> 20 ~ 30 mm (0.8 ~ 1.2 in) at both wheels on ground without rider</p>
---	---



3. Remove:

- Cotter pin **1**

4. Loosen:

- Axle nut **2**
- Sprocket shaft nut **3**

5. Adjust:

- Drive chain slack

\*\*\*\*\*

**Adjustment steps:**


- Loosen the locknut(s) **4**.
- Turn the adjuster(s) **5** in or out until the specified slack is obtained.

<b>Turning in</b>	<b>Slack is decreased.</b>
<b>Turning out</b>	<b>Slack is increased.</b>

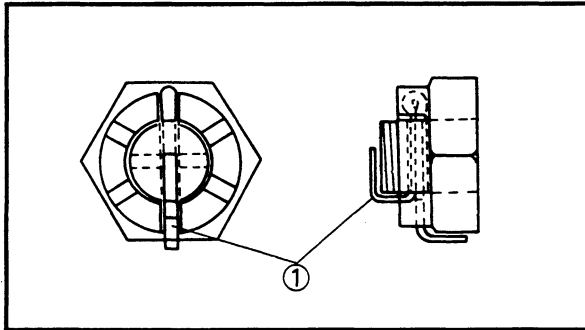
**NOTE:**

Turn each adjuster exactly the same amount to maintain correct axle alignment. (There are marks on each side of swingarm and on each chain puller; use them to check for proper alignment.)

- Tighten the sprocket shaft nut and axle nut to specification, while pushing up or down on the chain to zero slack.

	<b>Sprocket shaft nut:</b>
	<b>85Nm (8.5 m · kg, 61 ft · lb)</b>
	<b>Axle nut:</b>
	<b>39 Nm (3.9 m · kg, 28 ft · lb)</b>

- Tighten the locknut(s).
- \*\*\*\*\*



6. Install:
- Cotter pin ①

**CAUTION:**

Do not loosen the axle nut after torque tightening. If the axle nut groove is not aligned with the cotter pin hole, align groove with the hole by tightening up on the axle nut.

**WARNING**

Always use a new cotter pin.

7. Adjust:
- Rear brake
- Refer to the "REAR BRAKE ADJUSTMENT" section.

YB1A4026

**DRIVE CHAIN LUBRICATION**

The chain consists of many parts which work against each other. If the chain is not maintained properly, it will wear out rapidly, therefore, form the habit of periodically servicing the chain. This service is especially necessary when riding in dusty conditions.

1. Use any brands of spray type chain lubricant. First, remove all dirt and mud from the chain with a brush or cloth, then spray a lubricant between both rows of side plates and on all center rollers.
2. To clean the chain, remove the chain from the machine, dip it in solvent, and clean out as much dirt as possible. Take the chain out of the solvent and dry it. Imme-



diately lubricate the chain to prevent rust.



**Recommended lubricant:  
Yamaha chain and cable lube  
or SAE 10W30 motor oil**

YB1A1000

## STEERING HEAD ADJUSTMENT

### **⚠ WARNING**

**Securely support the machine so there is no danger of it falling over.**

1. Elevate the front wheel by placing a suitable stand under the engine.

2. Check:

- Steering assembly bearings  
Grasp the bottom of the forks and gently rock the fork assembly back and forth.  
Looseness → Adjust steering head.

3. Remove:

- Front wheel  
Refer to the "FRONT WHEEL" section in the CHAPTER 6.
- Seat
- Fuel tank

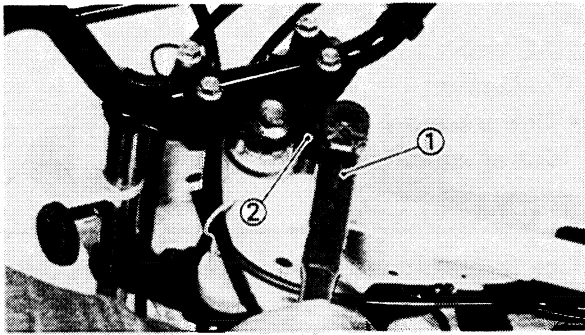
4. Adjust:

- Steering head

\*\*\*\*\*


#### **Adjustment steps:**

- Loosen the bolt (handle crown).
- Tighten the ring nut using the ring nut wrench.



**NOTE:** \_\_\_\_\_  
 Set the torque wrench ① to the ring nut wrench ② so that they form a right angle.


	<b>Ring nut wrench:</b> YU-33975
---	-------------------------------------

	<b>Ring nut (initial tightening):</b> 36 Nm (3.6 m · kg, 25 ft · lb)
---	---

- Loosen the ring nut one turn.
- Retighten the ring nut using the Ring nut wrench.


**⚠ WARNING** \_\_\_\_\_

**Avoid over-tightening.**

	<b>Ring nut (final tightening):</b> 6 Nm (0.6 m · kg, 4.3 ft · lb)
---	---

**NOTE:** \_\_\_\_\_  
 Recheck the steering head by turning the steering from lock to lock, after adjusting steering head.  
 If steering is binded, loosen the ring nut but not to the extent of free play in bearing.  
 If steering is loosened, repeat the adjustment steps.

- Tighten the bolt (handle crown).

	<b>Bolt (handle crown):</b> 65 Nm (6.5 m · kg, 47 ft · lb)
---	---

\*\*\*\*\*

5. Install:
- Fuel tank
  - Seat
  - Front wheel
- Refer to the "FRONT WHEEL" section in the CHAPTER 6.



YB1A3014

**TIRE INSPECTION**

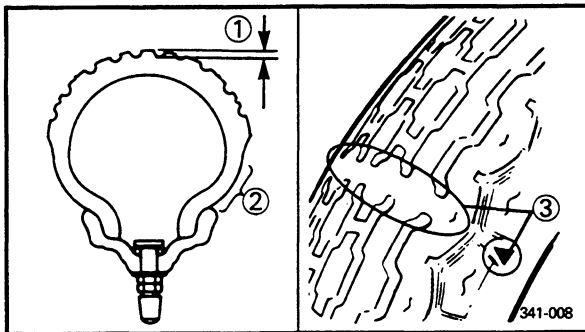
1. Measure:

- Tire pressure  
Out of specification → Adjust.

**⚠ WARNING**

Tire inflation pressure should be checked and adjusted when the temperature of the tire equals the ambient air temperature.

Cold tire pressure	Front	Rear
Off road riding	125kPa (1.25kg/cm <sup>2</sup> 18psi)	125kPa (1.25kg/cm <sup>2</sup> 18psi)



2. Inspect:

- Tire surfaces  
Wear/Damage → Replace.

	<p><b>Minimum tire tread depth:</b> (front and rear) 4.5 mm (0.18 in)</p>
--	---

- ① Tread depth
- ② Side wall
- ③ Wear indicator

**⚠ WARNING**

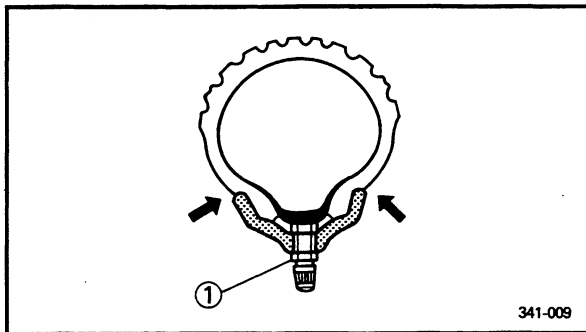
- It is dangerous to ride with a wornout tire. When a tire tread begins to show lines, replace the tire immediately.
- Patching a punctured tube is not recommended. If it is absolutely necessary to do so, use great care and replace the tube as soon as possible with a good quality replacement.
- Do not attempt to use tubeless tires on a wheel designed for tube type tires only. Tire failure and personal injury may result from sudden deflation.

Wheel	Tire
Tube type	Tube type only
Tubeless	Tube type or tubeless

- Be sure to install the correct tube when using tube type tires.
- After extensive tests, the tires mentioned below have been approved by Yamaha motor Co., Ltd. for this model. No guarantee for handling characteristics can be given if tire combinations other than what is approved are used on this machine. The front and rear tires should be of the same manufacture and design.


3

Manufacture	Size	Type
(Front): <b>CHENG SIGN</b>	2.50-18 4PR	KNOBBY
(Rear): <b>CHENG SIGN</b>	3.00-16 4PR	KNOBBY



**⚠ WARNING**

- After mounting a tire, ride conservatively to allow proper tire to rim seating. Failure to do so may cause an accident resulting in machine damage and possible operator injury.
- After a tire repair or replacement, be sure to torque tighten the valve stem locknut ① to specification.

	<b>Valve stem locknut:</b> 1.5 Nm (0.15 m · kg, 1.1 ft · lb)
---	---

YB1A3016

**WHEEL INSPECTION**

1. Inspect:

- Wheels

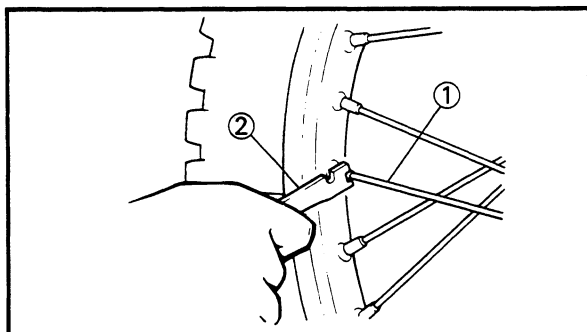
Damage/Bends→Replace.

**NOTE:**

Always balance the wheel when a tire or wheel has been changed or replaced.

**⚠ WARNING**

Never attempt even small repairs to the wheel.



YB1A3017

**SPOKES INSPECTION AND TIGHTENING**

1. Inspect:

- Spokes ①

Bend/Damage→Replace.

Loose spoke→Retighten.

2. Tighten:

- Spokes

- ② Spoke wrench

**NOTE:**

Be sure to retighten these spokes before and after Break-in.

YB1A1001

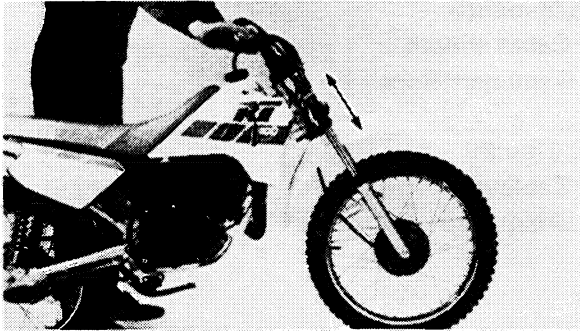
**FRONT FORK INSPECTION**

**⚠ WARNING**

Securely support the machine so there is no danger of it falling over.

1. Place the machine on a level place.

2. Check:
  - Inner tube  
Scratch/Damage→Replace.
  - Oil seal  
Excessive oil leakage→Replace.
3. Hold the machine on upright position and apply the front brake.



4. Check:
  - Operation  
Pump the front fork up and down for several times.  
Unsmooth operation→Repair.  
Refer to the "FRONT FORK" section in the CHAPTER 6.

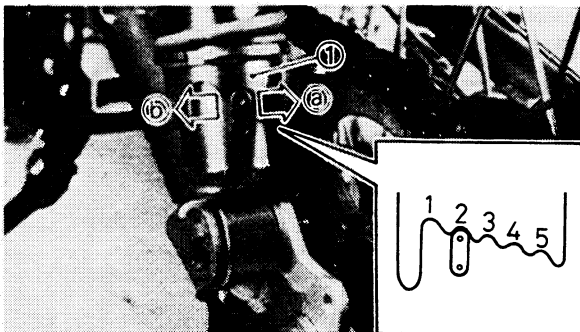
YB1A2001

## REAR SHOCK ABSORBER ADJUSTMENT

3

### **⚠ WARNING**

- Always adjust each rear shock absorber preload to the same setting. Uneven adjustment can cause poor handling and loss of stability.
- Securely support the machine so there is no danger of it falling over.



1. Adjust:
  - Spring preload  
Turn the adjuster ① to direction ② or ③.

Turning ②	Spring preload is decreased.
Turning ③	Spring preload is increased.

<b>Adjuster position:</b>	
Standard...	2
Minimum...	1
Maximum...	5

### **CAUTION:**

Never attempt to turn the adjuster beyond the maximum or minimum setting.



YB1A3018

**CABLE INSPECTION AND LUBRICATION**

**⚠ WARNING**

Damaged cable sheath may cause corrosion and interfere with the cable movement. An unsafe condition may result so replace such cable as soon as possible.

1. Inspect:

- Cable sheath  
Damage→Replace.

2. Check:

- Cable operation  
Unsmooth operation→Lubricate.



**Recommended lubricant:  
Yamaha chain and cable lube  
or SAE 10W30 motor oil**

**NOTE:**

Hold cable end high and apply several drops of lubricant to cable.

YB1A3019

**LEVER AND PEDAL LUBRICATION**

Lubricate the lever and pedal at their pivoting points.



**Recommended lubricant:  
Yamaha chain and cable lube  
or SAE 10W30 motor oil**

YB1A5000

**SIDESTAND LUBRICATION**

Lubricate the sidestand at pivoting points.



**Recommended lubricant:  
Yamaha chain and cable lube  
or SAE 10W30 motor oil**



YB141000

## ENGINE OVERHAUL ENGINE REMOVAL

### NOTE:

It is not necessary to remove the engine in order to remove the following components:

- Cylinder head
- Cylinder
- Piston and piston ring
- Primary drive gear
- Kick axle
- Shift shaft
- CDI magneto
- Autolube pump

YB141001

### TRANSMISSION OIL

#### 1. Drain:

- Transmission oil

Refer to "CHAPTER 3-TRANSMISSION OIL REPLACEMENT".

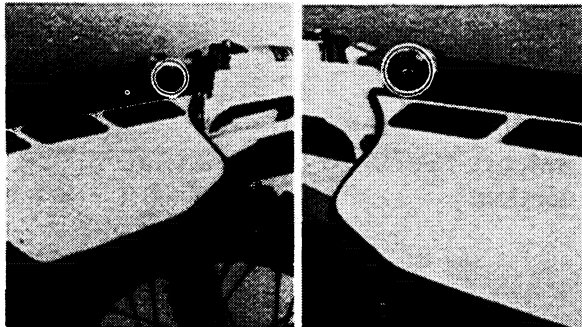
**4**

YB141002

### SEAT AND SIDE COVER

#### 1. Remove:

- Seat
- Side covers (left and right)

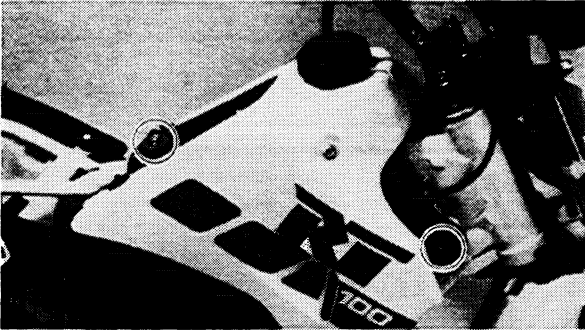




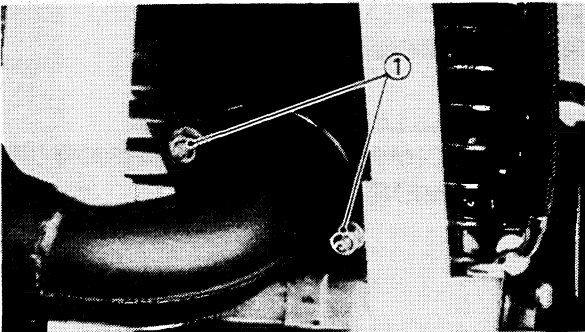
YB141003

**FUEL TANK**

1. Turn the fuel cock to "OFF" position and disconnect the fuel hose ①.



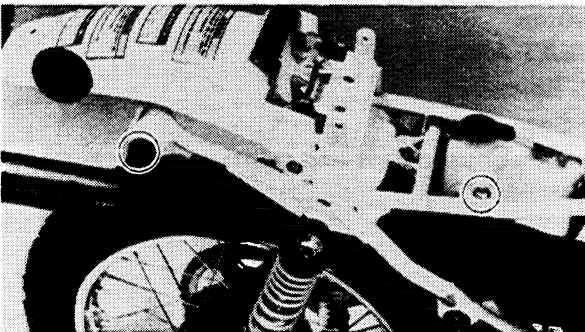
2. Remove:
  - Fuel tank



YB141004

**MUFFLER**

1. Remove:
  - Nuts ①

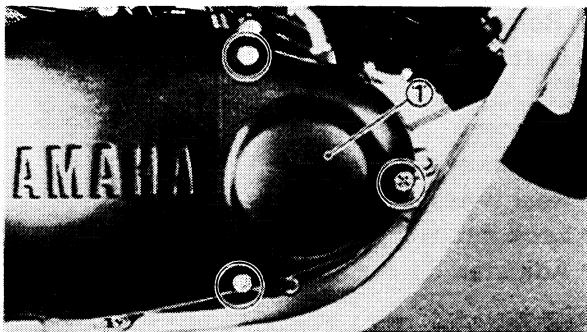


2. Remove:
  - Muffler

YB141005

**CARBURETOR**

1. Remove:
  - Carburetor assembly
 Refer to the "CHAPTER 5- CARBURETOR" section.

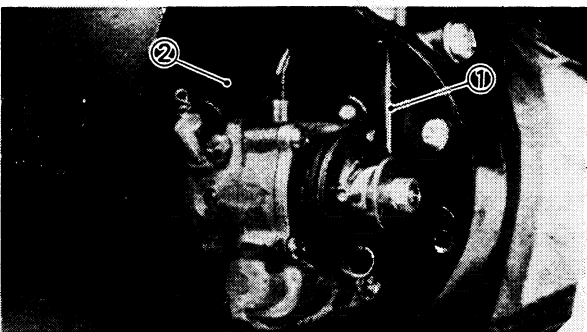


YB141006

**AUTOLUBE PUMP CABLE AND HOSE**

1. Remove:

- Autolube pump cover ①

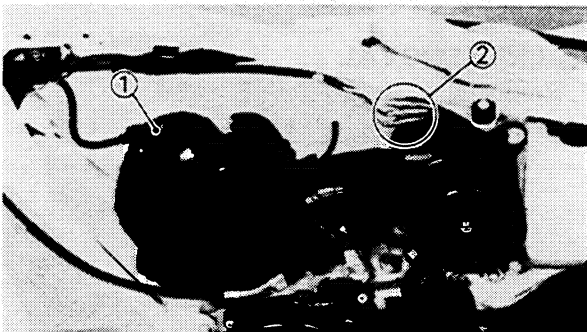


2. Disconnect:

- Autolube pump cable ①
- Oil hose ②
- Oil delivery hose

**NOTE:**

Plug the oil hose end with a suitable screw.



YB141007

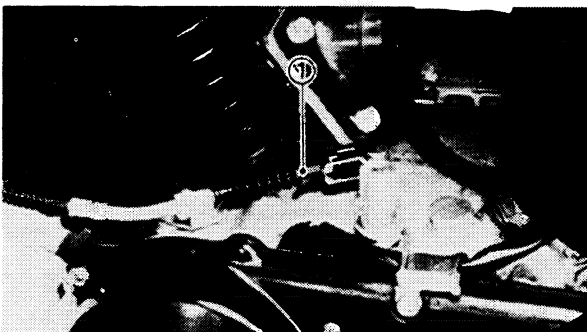
**LEADS**

1. Disconnect:

- Spark plug lead ①

2. Disconnect:

- CDI magneto leads ②

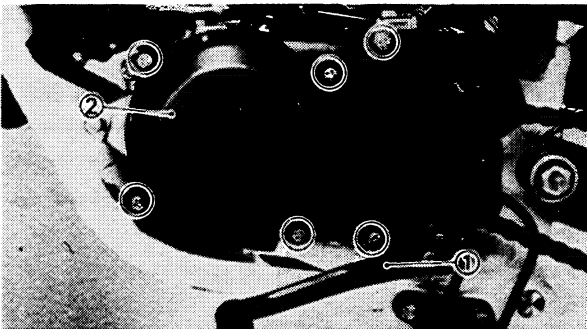


YB141008

**CLUTCH CABLE**

1. Disconnect:

- Clutch cable (handlebar side)
- Clutch cable (engine side) ①



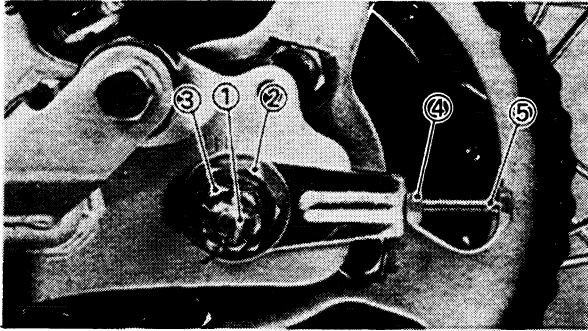
YB141009

**DRIVE CHAIN**

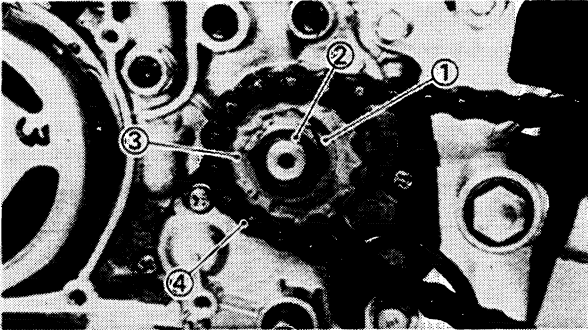
1. Remove:

- Change pedal ①
- Crankcase cover (left) ②

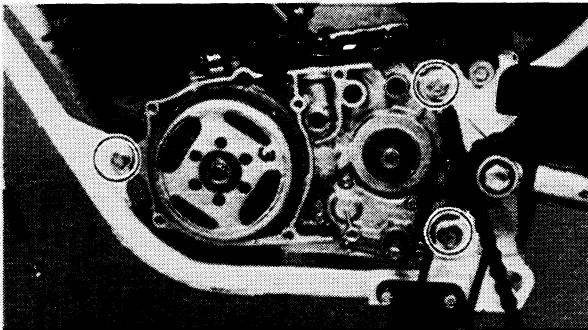




2. Remove:
- Cotter pin ①
3. Loosen:
- Sprocket shaft nut ②
  - Rear wheel axle nut ③
  - Lock nut ④
  - Adjuster ⑤



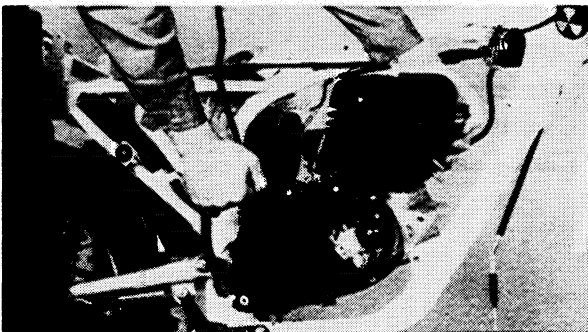
4. Straighten:
- Lock washer ①
5. Remove:
- Nut ②
  - Lock washer ①
  - Drive sprocket ③
  - Drive chain ④



YB141010

## ENGINE REMOVAL

1. Removal:
- Bolts



2. Remove:
- Engine assembly (from right side)

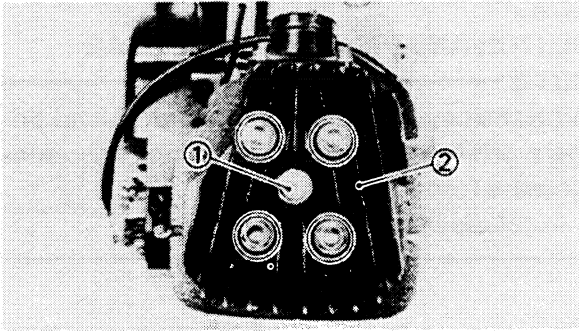
YB142001

## ENGINE DISASSEMBLY CYLINDER HEAD, CYLINDER AND PISTON

**NOTE:** \_\_\_\_\_

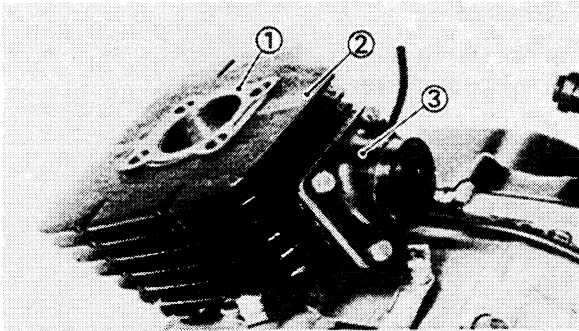
With the engine mounted, the cylinder head, cylinder and piston can be maintained by removing the following parts.

- Fuel tank
- Muffler



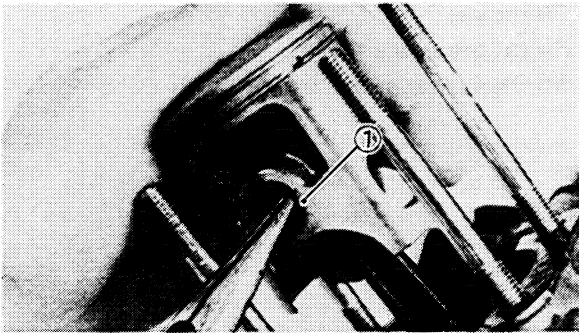
1. Remove:

- Spark plug ①
- Cylinder head ②



2. Remove:

- Gasket (cylinder head) ①
- Cylinder ②
- Gasket (cylinder)
- Intake manifold ③
- Reed valve
- Gasket (reed valve)



3. Remove:

- Piston pin clip ①

**NOTE:** \_\_\_\_\_

Before removing piston pin circlip, cover crankcase with a clean rag to prevent circlip from falling into crankcase cavity.

4

4. Remove:

- Piston pin
- Piston
- Small end bearing

**NOTE:** \_\_\_\_\_

Before removing the piston pin, debar the clip grooved and pin hole area. If the piston pin groove is debarred and piston pin is still difficult to remove, use piston pin puller.



**Piston pin puller:**  
YU-01304

**CAUTION:** \_\_\_\_\_

Do not use a hammer to drive the piston pin out.



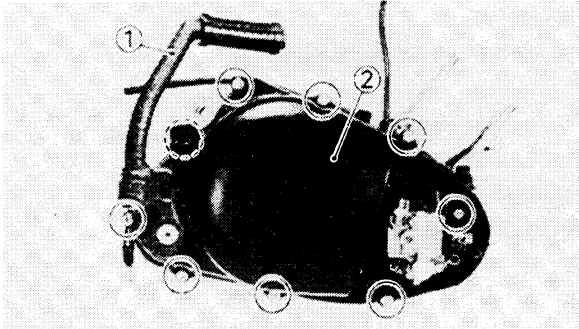
YB142002

## CLUTCH AND PRIMARY DRIVE GEAR

### NOTE:

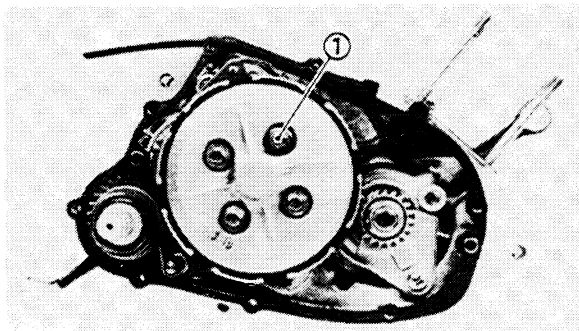
With the engine mounted, the clutch and primary drive gear can be maintained by removing the following parts.

- Autolube pump cable and hoses



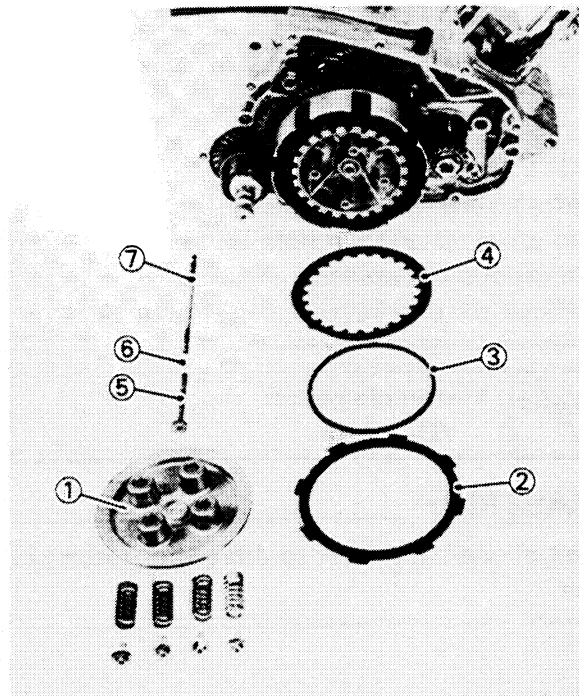
### 1. Remove:

- Kick crank ①
- Crankcase cover (right) ②



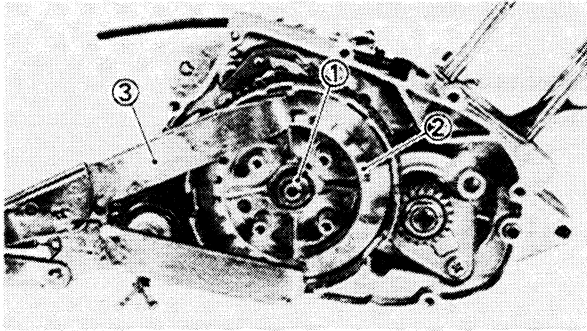
### 2. Remove:

- Bolts (pressure plate) ①
- Springs (pressure plate)



### 3. Remove:

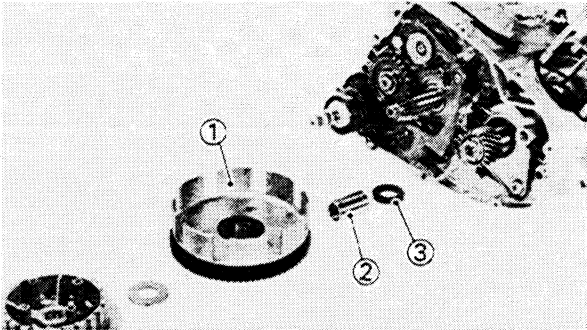
- Pressure plate ①
- Friction plate ②
- Clutch damper ③
- Clutch plate ④
- Push rod #1 ⑤
- Ball ⑥
- Push rod #2 ⑦



## 4. Remove:

- Nut (clutch boss) ①
- Conical spring washer
- Clutch boss ②
- Thrust washer

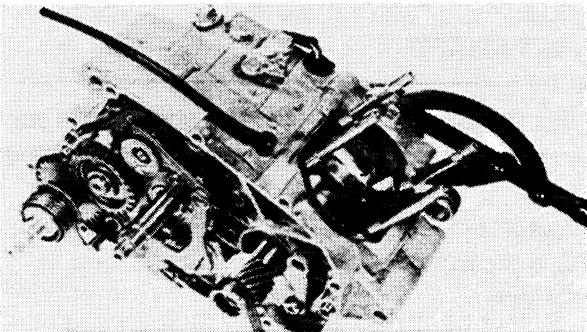
Use the universal clutch holder ③ to hold the clutch boss.



**Universal clutch holder:**  
YM-91042

## 5. Remove:

- Clutch housing ①
- Spacer ②
- Thrust washer ③

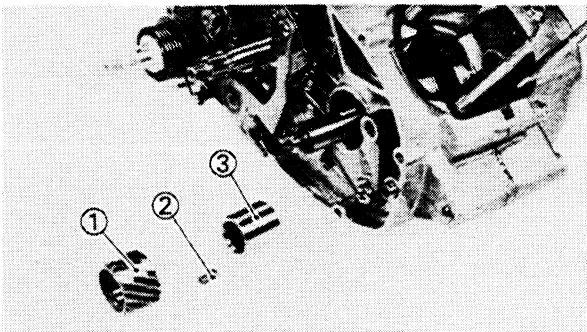


## 6. Remove:

- Nut (primary drive gear)
- Conical spring washer

**NOTE:**

When loosening the nut (primary drive gear), hold the CDI magneto using universal rotor holder.



**Universal rotor holder:**  
YU-01235

## 7. Remove:

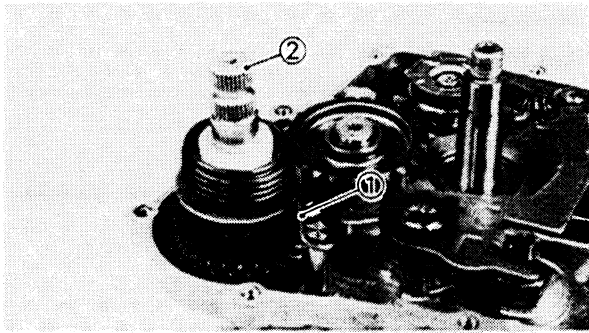
- Primary drive gear ①
- Straight key ②
- Collar ③

YB142003

**KICK AXLE****NOTE:**

With the engine mounted, the kick axle and kick idle gear can be maintained by removing the following parts.

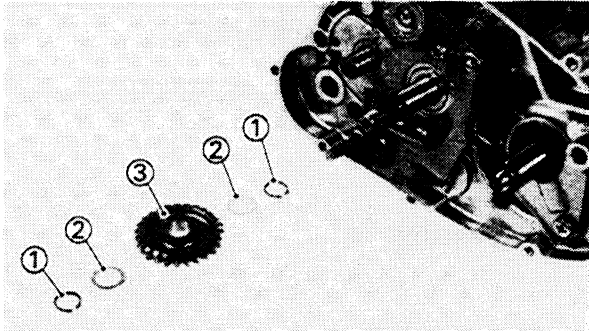
- Autolube pump cable and hoses
- Crankcase cover (right)
- Clutch



1. Unhook the spring ① .

2. Remove:

- Kick axle assembly ②



3. Remove:

- Circlips ①
- Washers ②
- Kick idle gear ③

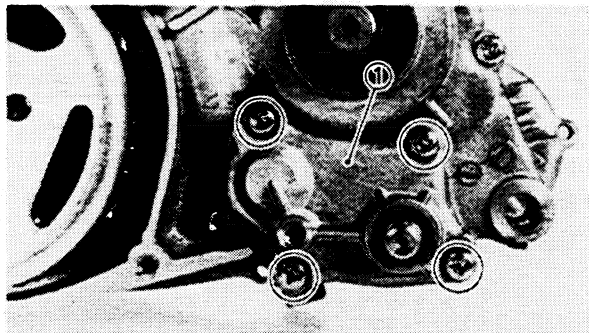
YB142004

## SHIFT SHAFT

### NOTE:

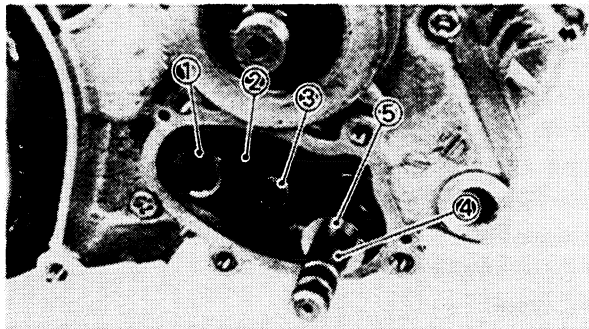
With the engine mounted, the shift shaft can be maintained by removing the following parts.

- Autolube pump cable and hoses
- Crankcase cover (right)
- Clutch



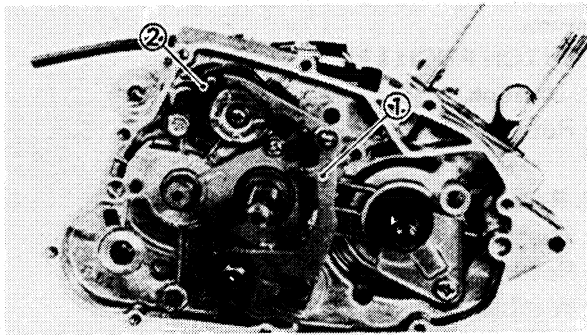
1. Remove:

- Change pedal shaft cover ①
- Dowel pins



2. Remove:

- Circlip ①
- Change pedal lever ②
- Collar (change pedal shaft) ③
- Change pedal shaft ④
- Washers ⑤



3. Remove:
- Shift shaft ①
  - Shift lever ②

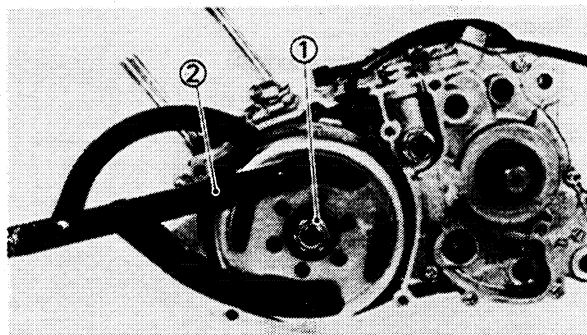
YB142005

**CDI MAGNETO**

**NOTE:**

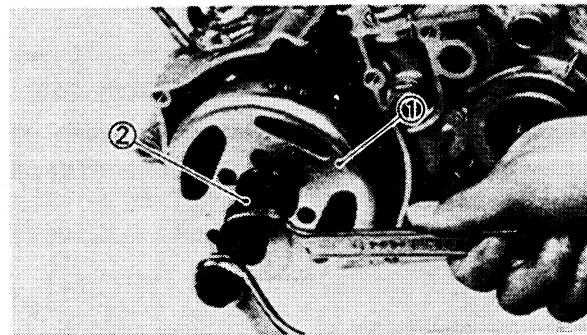
With the engine mounted, the CDI magneto can be maintained by removing the following parts.

- Crankcase cover (left)



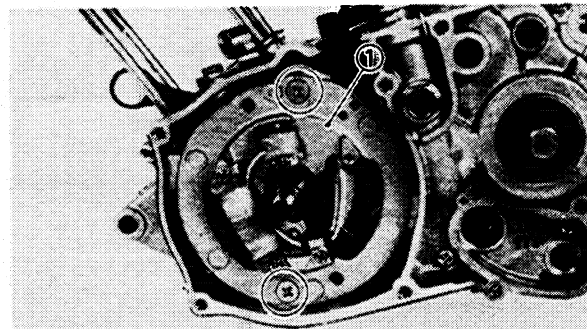
1. Remove:
- Nut (rotor) ①
  - Spring washer (rotor)
  - Plain washer (rotor)
- Use the universal rotor holder ② to hold the CDI magneto.

	<b>Universal rotor holder:</b> YU-01235
--	--

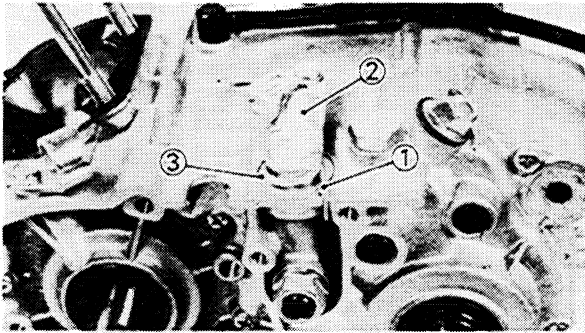


2. Remove:
- Rotor ①
  - Woodruff key
- Use the flywheel puller ② to remove the rotor.

	<b>Flywheel puller:</b> YM-01189
--	-------------------------------------



3. Remove:
- Stator ①



YB142006

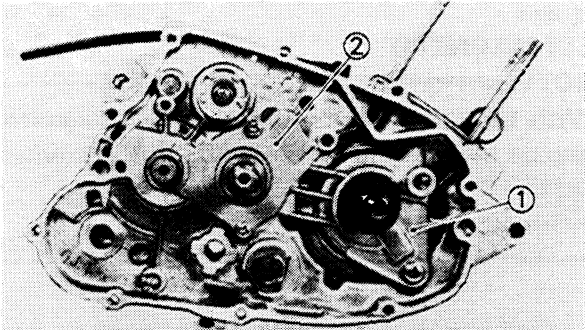
## CLUTCH PUSH LEVER

### 1. Unhook:

- Return spring ①

### 2. Remove:

- Push lever (clutch) ②
- Return spring ①
- Washer ③

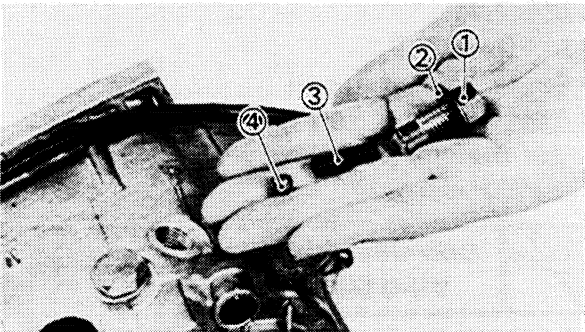


YB142007

## CRANKCASE

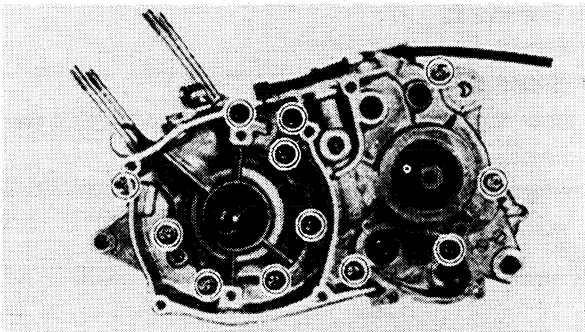
### 1. Remove:

- Oil seal holder ①
- Bearing holder ②



### 2. Remove:

- Bolt (shift cam stopper) ①
- Gasket ②
- Spring ③
- Ball ④

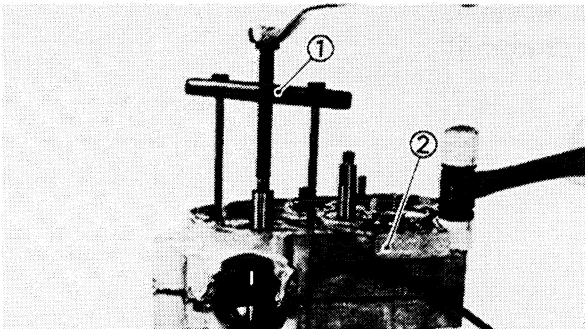


### 3. Remove:

- Screws (crankcase)

### NOTE:

Working in a crisscross pattern, loosen all screws 1/4 turn each. Remove them after all are loosened.



### 4. Attach:

- Crankcase separating tool ①



**Crankcase separating tool:**  
YU-01135



5. Remove:

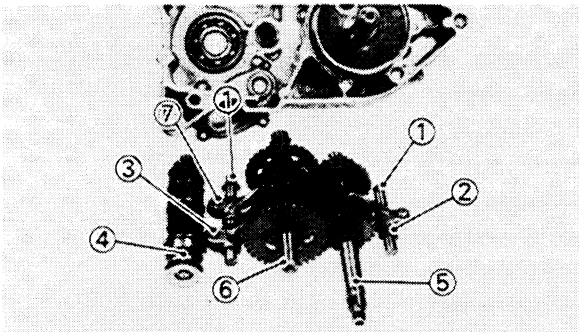
- Crankcase (right) ②

**NOTE:**

- Fully tighten the tool holding bolts, but make sure the tool body is parallel with the case. If necessary, one screw may be backed out slightly to level tool body.
- As pressure is applied, alternately tap on the front engine mounting boss, transmission shafts, and shift cam.

**CAUTION:**

Use soft hammer to tap on the case half. Tap only on reinforced portions of case. Do not tap on gasket mating surface. Work slowly and carefully. Make sure the case halves separate evenly. If one end "hang up," take pressure off the push screw, realign, and start over. If the cases do not separate, check for a remaining case screw or fitting. Do not force.



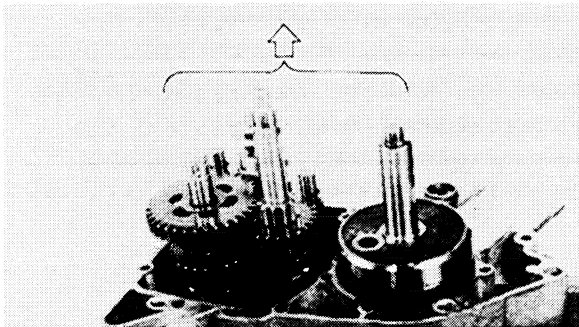
YB142008

**TRANSMISSION, SHIFTER AND CRANK-SHAFT**

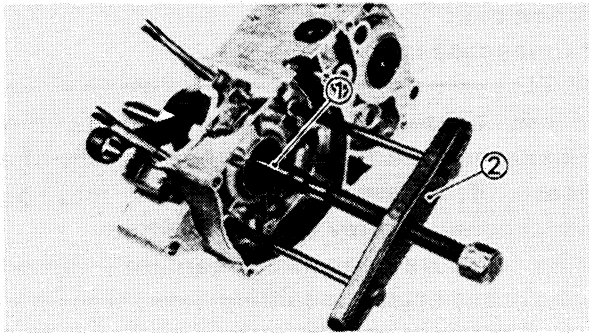
1. Remove:

- Guide bar ①
- Shift fork #2 ②
- Shift fork #3 ③
- Shift cam ④
- Main axle ⑤
- Drive axle ⑥
- Shift fork #1 ⑦

Remove the transmission assembly upward.







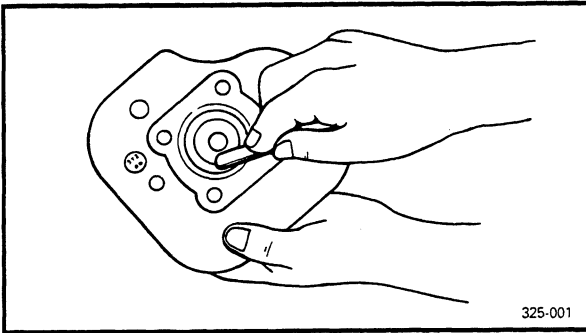
2. Remove:

- Crankshaft ①

Use the crankcase separating tool ②.



**Crankcase separating tool:**  
**YU-01135**



YB143001

**INSPECTION AND REPAIR  
CYLINDER HEAD**

1. Eliminate:

- Carbon deposits

Use a rounded scraper.

**NOTE:**

Take care to avoid damaging the spark plug threads. Do not use a sharp instrument. Avoid scratching the aluminum.

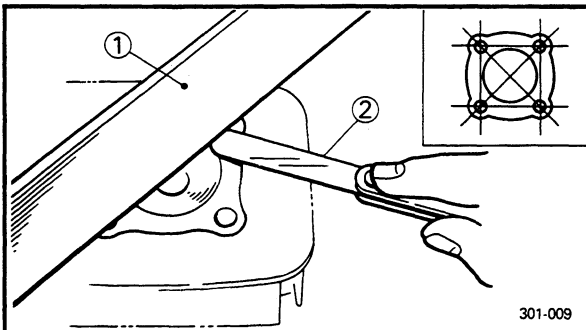
2. Measure:

- Cylinder head warpage

Out of specification → Resurface.



**Warpage limit:**  
**0.02 mm (0.001 in)**



\*\*\*\*\*

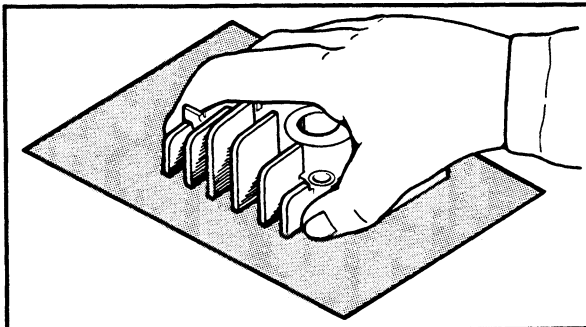
**Warpage measurement and resurfacing step:**

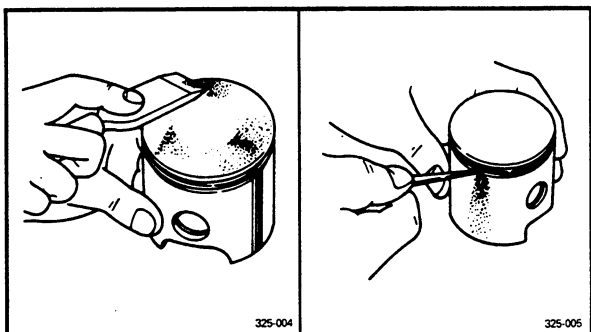
- Attach a straight edge ① and a thickness gauge ② on the cylinder head.
- Measure the warpage.
- If the warpage is out of specification, resurface the cylinder head.
- Place a 400 ~ 600 grit wet sandpaper on the surface plate, and resurface the head using a figure-eight sanding pattern.

**NOTE:**

Rotate the head several times to avoid removing too much material from one side.

\*\*\*\*\*





YB143002

**CYLINDER AND PISTON**

**1. Eliminate:**

- Carbon deposits  
From the piston crown and ring grooves.

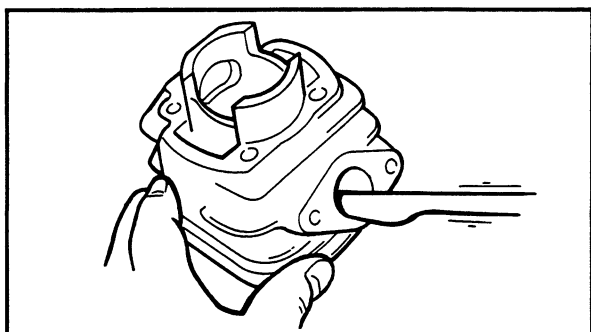


**2. Eliminate:**

- Score marks and lacquer deposits  
From the sides of piston.  
Use a 600 ~ 800 grit wet sandpaper.

**NOTE:**

Sand in a crisscross pattern. Do not sand excessively.

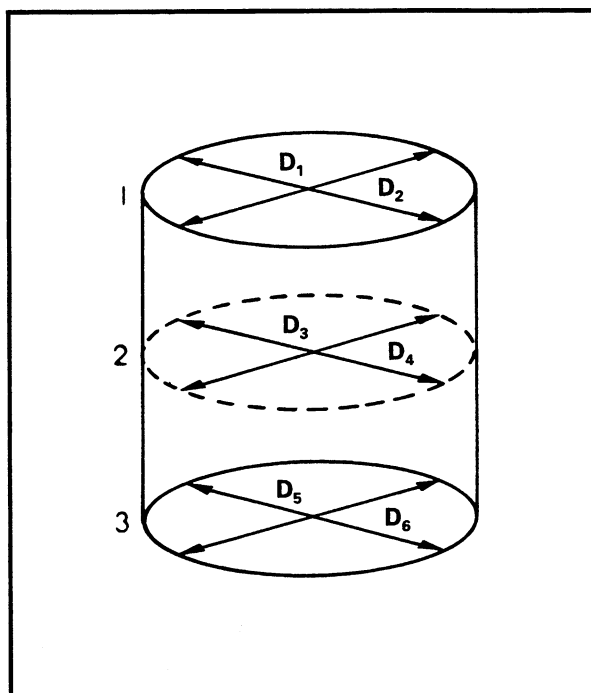


**3. Inspect:**

- Piston wall  
Wear/Scratches/Damage → Replace.

**4. Remove:**

- Carbon deposits  
Use a rounded scraper.



**5. Measure:**

- Piston-to-cylinder clearance

\*\*\*\*\*

**Measurement steps:**

**First step:**

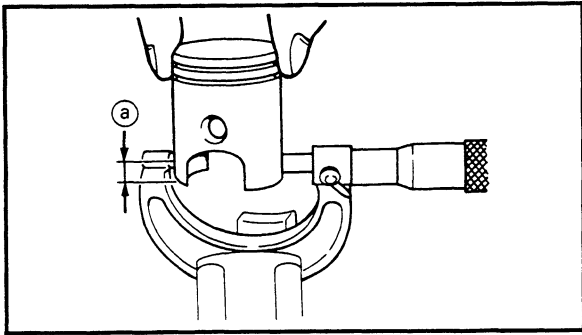
- Measure the cylinder bore "C" with a cylinder bore gauge.

**NOTE:**

Measure the cylinder bore "C" in parallel to and at right angle to the crankshaft. Then, find the average of the measurements.

Cylinder bore "C"	52.00~52.02 mm (2.047~2.048 in)
Taper limit "T"	0.05 mm(0.002 in)
Out of round "R"	0.01 mm (0.0004 in)
<b>"C"=Maximum D</b>	
<b>"T"=(Maximum D<sub>1</sub>, or D<sub>2</sub>)-(Maximum D<sub>5</sub> or D<sub>6</sub>)</b>	
<b>"R"=(Maximum D<sub>1</sub>, D<sub>3</sub> or D<sub>5</sub>)-(Minimum D<sub>2</sub>, D<sub>4</sub> or D<sub>6</sub>)</b>	

- If out of specification, rebore or replace cylinder, and replace piston and piston rings as a set.



**Second step:**

- Measure the piston skirt diameter "P" with a micrometer.

Ⓐ 10 mm (0.39 in) from the piston bottom edge.

	Piston size P
<b>Standard</b>	<b>51.94~52.00 mm (2.045~2.047 in)</b>
<b>Oversize 1</b>	<b>52.25 mm (2.057 in)</b>
<b>Oversize 2</b>	<b>52.50 mm (2.067 in)</b>
<b>Oversize 3</b>	<b>52.75 mm (2.077 in)</b>
<b>Oversize 4</b>	<b>53.00 mm (2.087 in)</b>


- If out of specification, replace piston and piston rings as a set.

**Third step:**

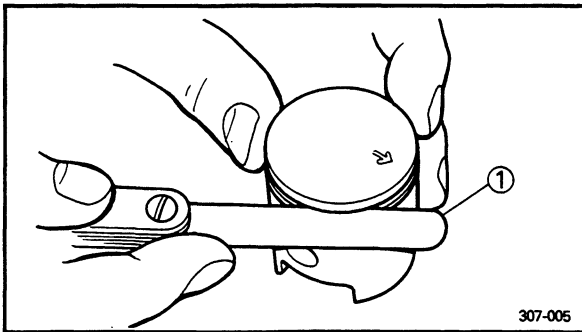
- Calculate the piston-to-cylinder clearance with following formula:

$$\text{Piston-to-cylinder clearance} = \text{Cylinder bore "C"} - \text{Piston skirt diameter "P"}$$

- If out of specification, rebore or replace cylinder, and replace piston and piston rings as a set.

	<b>Piston-to-cylinder clearance:</b> 0.050~0.055 mm (0.0020~0.0022 in) Limit: 0.1 mm (0.004 in)
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\*\*\*\*\*




YB143003

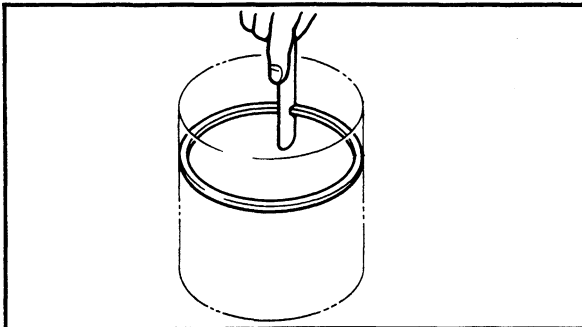
**PISTON RINGS**

**1. Measure:**

- Side clearance  
 Out of specification → Replace piston and/or rings.  
 Use a feeler gauge ①.

4

	<b>Side clearance:</b>	
<b>Top</b>		<b>0.03~0.05 mm</b> (0.001~0.002 in)
<b>2nd</b>		<b>0.03~0.05 mm</b> (0.001~0.002 in)




**2. Install:**

- Piston ring  
 Into the cylinder.  
 Push the ring with the piston crown.

**3. Measure:**

- End gap  
 Out of specification → Replace rings as a set.  
 Use a feeler gauge.

	<b>End gap:</b>	
<b>Top</b>	<b>0.3~0.5 mm (0.01~0.02 in)</b>	
<b>2nd</b>	<b>0.3~0.5 mm (0.01~0.02 in)</b>	

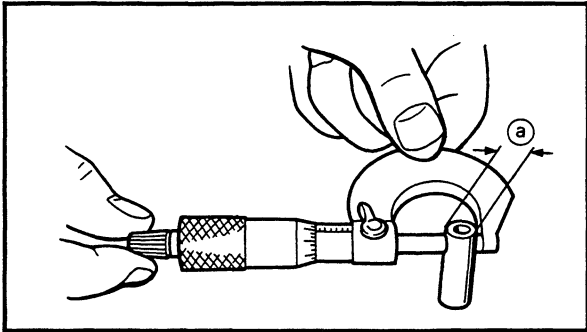
<b>Oversize piston ring</b>	
<b>Oversize 1</b>	<b>25</b>
<b>Oversize 2</b>	<b>50</b>
<b>Oversize 3</b>	<b>75</b>
<b>Oversize 4</b>	<b>100</b>

YB143004

**PISTON PIN AND BEARING**

**1. Inspect:**

- Piston pin  
Blue discoloration/groove → Replace, then inspect lubrication system.




**2. Measure:**

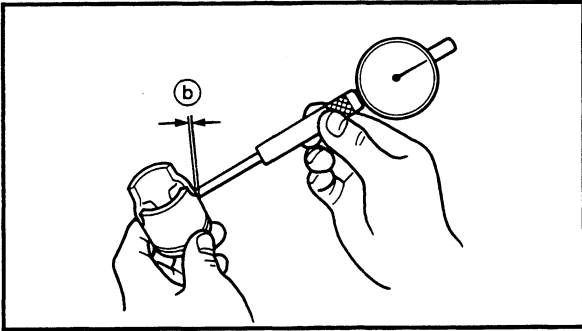
- piston pin-to-piston clearance

\*\*\*\*\*

**Measurement steps:**

- Measure the piston pin outside diameter (a) .  
If out of specification, replace the piston pin.


	<b>Outside diameter (piston pin): 13.996~14.000 mm (0.5510~0.5512 in)</b>
---	---



- Measure the piston inside diameter ① .
- Calculate the piston pin-to-piston clearance with following formula:

$$\text{Piston pin-to-piston clearance} = \text{Bore size (piston pin) ①} - \text{Outside diameter (piston pin) ②}$$

- If out of specification, replace the piston.



**Piston pin-to-piston clearance:**  
 0.004~0.019 mm  
 (0.0002~0.0007 in)  
 Limit:0.07 mm (0.003 in)

\*\*\*\*\*

3. Inspect:

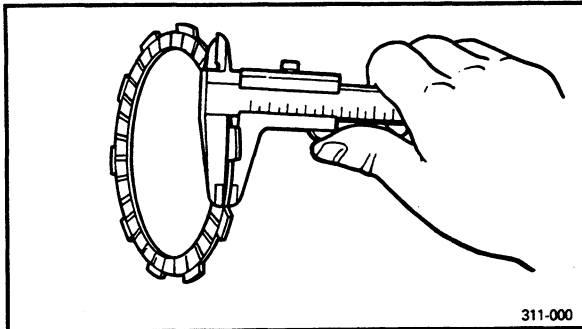
- Bearing (piston pin)  
Pitting/ Damage → Replace.

YB143005

**CLUTCH**


1. Inspect:

- Friction plate  
Damage/Wear → Replace friction plate as a set.



2. Measure:

- Friction plate thickness  
Out of specification → Replace friction plate as a set.  
Measure at all four points.

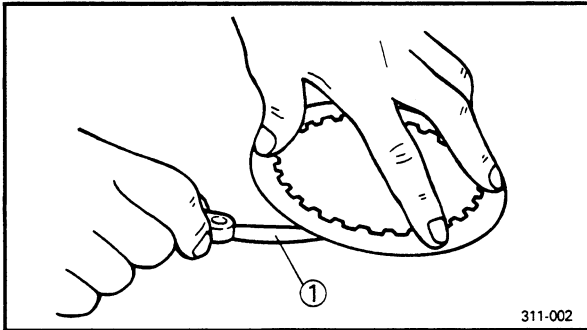


**Wear limit: 2.7 mm (0.106 in)**



## 3. Inspect:

- Clutch plate  
Damage → Replace clutch plate as a set.



## 4. Measure:

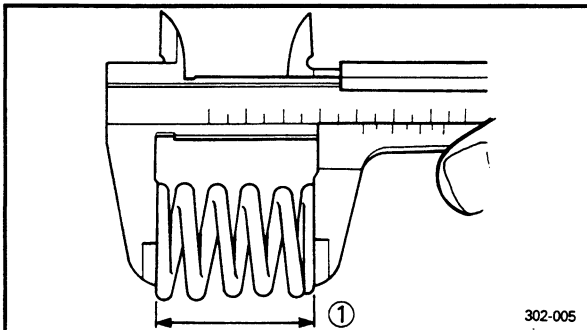
- Clutch plate warpage  
Out of specification → Replace clutch plate as a set.  
Use a surface plate and feeler gauge ①.



**Warp limit: 0.05 mm (0.002 in)**

## 5. Inspect:

- Clutch damper  
Wear/Damage → Replace.

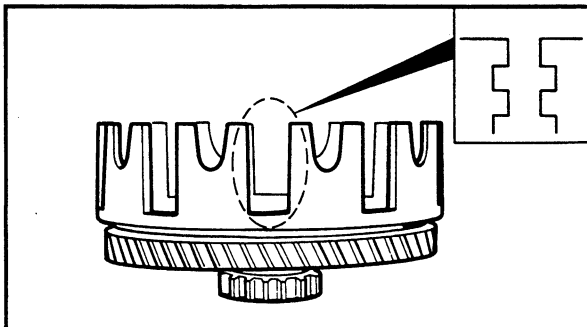


## 6. Measure:

- Clutch spring free length ①  
Out of specification → Replace spring as a set.



**Clutch spring minimum length:  
30.5 mm (1.20 in)**

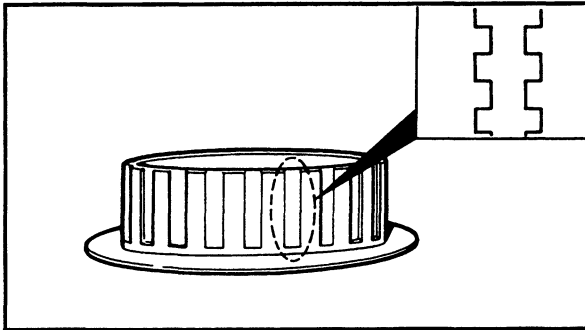


## 7. Inspect:

- Dogs on the clutch housing  
Cracks/Wear/Damage → Deburr or replace.
- Clutch housing bearing  
Scoring/Wear/Damage → Replace clutch housing.

**NOTE:**

Scoring on the clutch housing dogs will cause erratic operation.



8. Inspect:

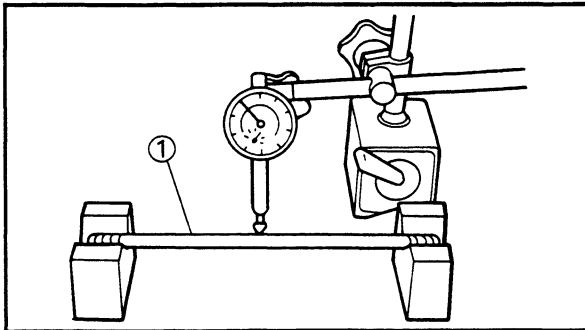
- Clutch boss splines  
Scoring/Wear/Damage → Replace clutch boss.

**NOTE:**

Scoring on the clutch boss splines will cause erratic operation.

9. Check:

- Circumferential play  
Free play exists → Replace.

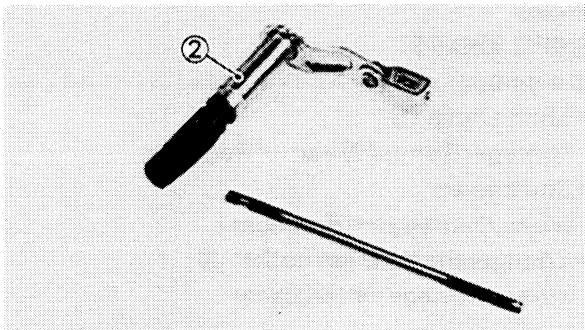


10. Measure:

- Push rod ① runout  
Out of specification → Replace.

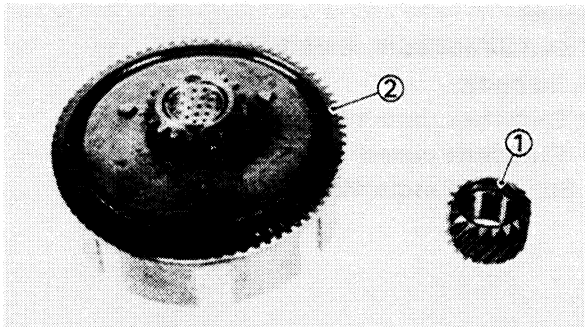
	<b>Bending limit:</b> 0.15 mm (0.006 in)
--	---

4



11. Inspect:

- Push lever ②  
Wear/Damage → Replace.



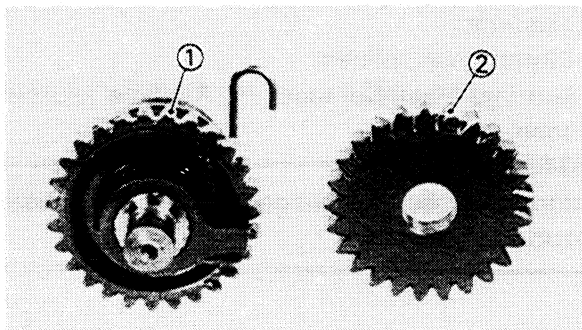
YB143006

**PRIMARY DRIVE**

1. Inspect:

- Primary drive gear tooth ①
- Primary driven gear tooth ②  
Wear/Damage → Replace both gears.  
Excessive noises during operation → Replace both gears.





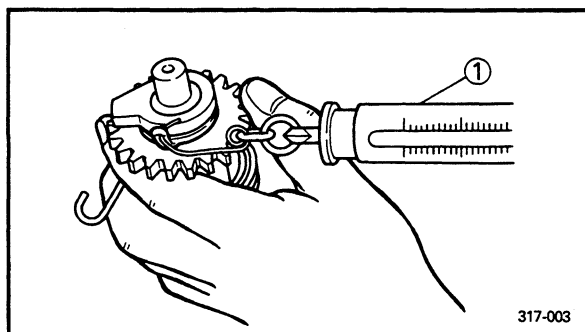
YB143007

**KICK STARTER**

1. Inspect:

- Kick gear teeth ①
- Kick idle gear teeth ②

Damage/Wear → Replace both gears.



2. Measure:

- Kick clip tension

Out of specification → Replace.

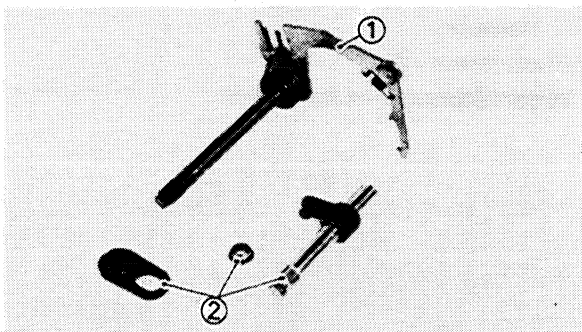
Use a spring balance ① .

**Kick clip tension:**

0.8 ~ 1.2 kg (1.76 ~ 2.65 lb)

**CAUTION:**

Do not try bend the clip.

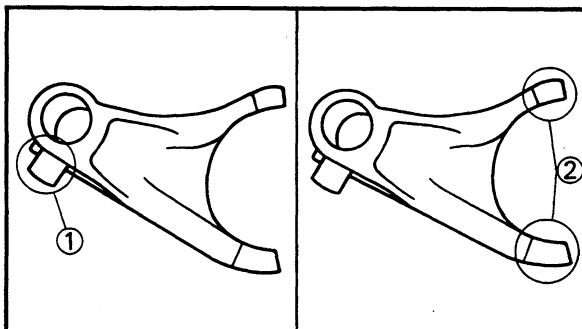


YB143008

**SHIFT SHAFT**

1. Inspect:

- Shift shaft ①  
Damage/Bends/Wear → Replace.
- Shift lever  
Wear/Damage → Replace.
- Change shaft/lever/collar ②  
Wear/Damage → Replace.



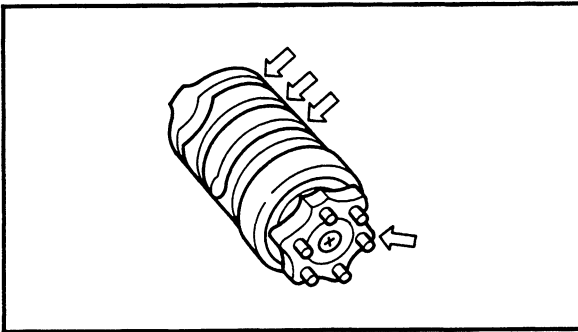
YB143009

**TRANSMISSION AND SHIFTER**

1. Inspect:

- Shift fork cam follower ①
- Shift fork pawl ②

Scoring/Bends/Wear → Replace.

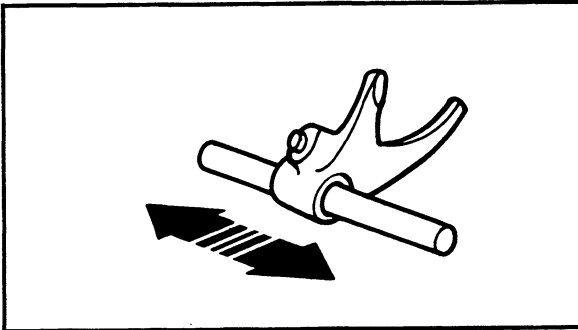


## 2. Inspect:

- Shift cam groove
  - Shift cam segment
- Wear/Damage → Replace.

## 3. Check:

- Shift fork movement
- Unsmooth operation → Replace shift fork and/or guide bar.

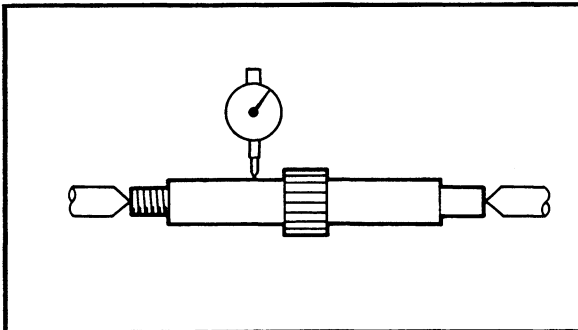


## 4. Inspect:

- Guide bar
- Roll the guide bar on a flat surface.  
Bends → Replace.

**⚠ WARNING**

Do not attempt to straighten a bent guide bar.



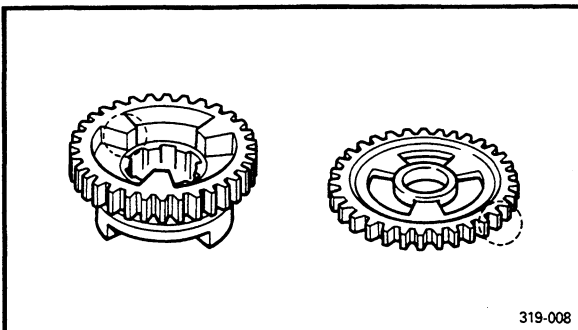
## 5. Measure:

- Axle runout
- Use centering device and dial gauge.  
Out of specification → Replace bent axle.



**Runout limit:**  
0.08 mm (0.003 in)

**4**



319-008

## 6. Inspect:

- Gear teeth
- Blue discoloration/Pitting/Wear → replace.
  - Mated dogs

Rounded edges/Cracks/Missing portions → Replace.

## 7. Check:

- Proper gear engagement (each gear) (to its counterpart)
- Incorrect → Reassemble.
  - Gear movement

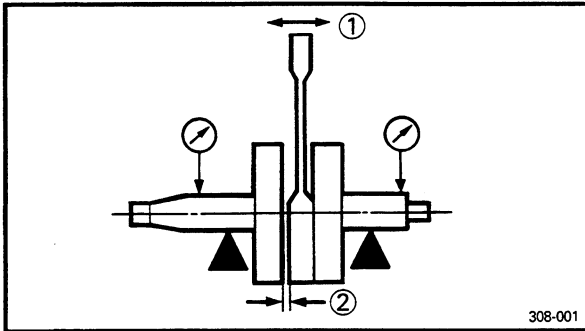
Roughness → Replace.



## 8. Inspect:

- Circlips

Damage/Looseness/Bends → Replace.



308-001

YB143010

**CRANKSHAFT**

## 1. Measure:

- Runout

Use a centering device and dial gauge.

Out of specification → Replace or repair.

**Runout limit:****0.03 mm (0.0012 in)**

## 2. Measure:

- Small end free play ①

Use a dial gauge.

Out of specification → Replace the defective parts.

**Small end free play:****0.8~1.0 mm (0.032~0.039 in)****<Limit>:****<1.5 mm (0.060 in)>**

## 3. Measure:

- Big end side clearance ②

Use a feeler gauge.

Out of specification → Replace the defective parts.

**Big end side clearance:****0.2~0.7 mm (0.008~0.028 in)****<Limit>****<1.0 mm (0.04 in)>**

**4. Inspect:**

- Crankshaft bearing  
Pitting/Damage → Replace.

**NOTE:**

Lubricate the bearing immediately after examining them to prevent rust.

**5. Inspect:**

- Oil seals  
Wear/Damage → Replace.

YB143011

**CRANKCASE**

1. Thoroughly wash the case halves in mild solvent.
2. Clean all the gasket mating surface and crankcase mating surface thoroughly.

**3. Inspect:**

- Crankcase  
Cracks/Damage → Replace.
- Oil delivery passages  
Clog → Blow out with compressed air.

**4. Inspect:**

- Bearings  
Pitting/Damage → Replace.

YB143012

**AUTOLUBE PUMP**

Wear or an internal malfunction may cause pump output to vary from the factory setting. This situation is, however, extremely rare. If improper output is suspected, inspect the following:



**1. Inspect:**

- Delivery line  
Obstructions → Blow out.
- Pump body seal/Crankcase cover seal  
Wear/Damage → Replace.
- Check ball/Spring  
Miss/Improper → Repair.

**2. Inspect:**

- Allowing air  
Air exists → Air bleed.

**3. Check:**

- Pump output  
Out of specification → Adjust.

**Minimum output/200 stroke:**

**0.50 ~ 0.63 cm<sup>3</sup>**

**Maximum output/200 stroke:**

**4.64 ~ 5.15 cm<sup>3</sup>**

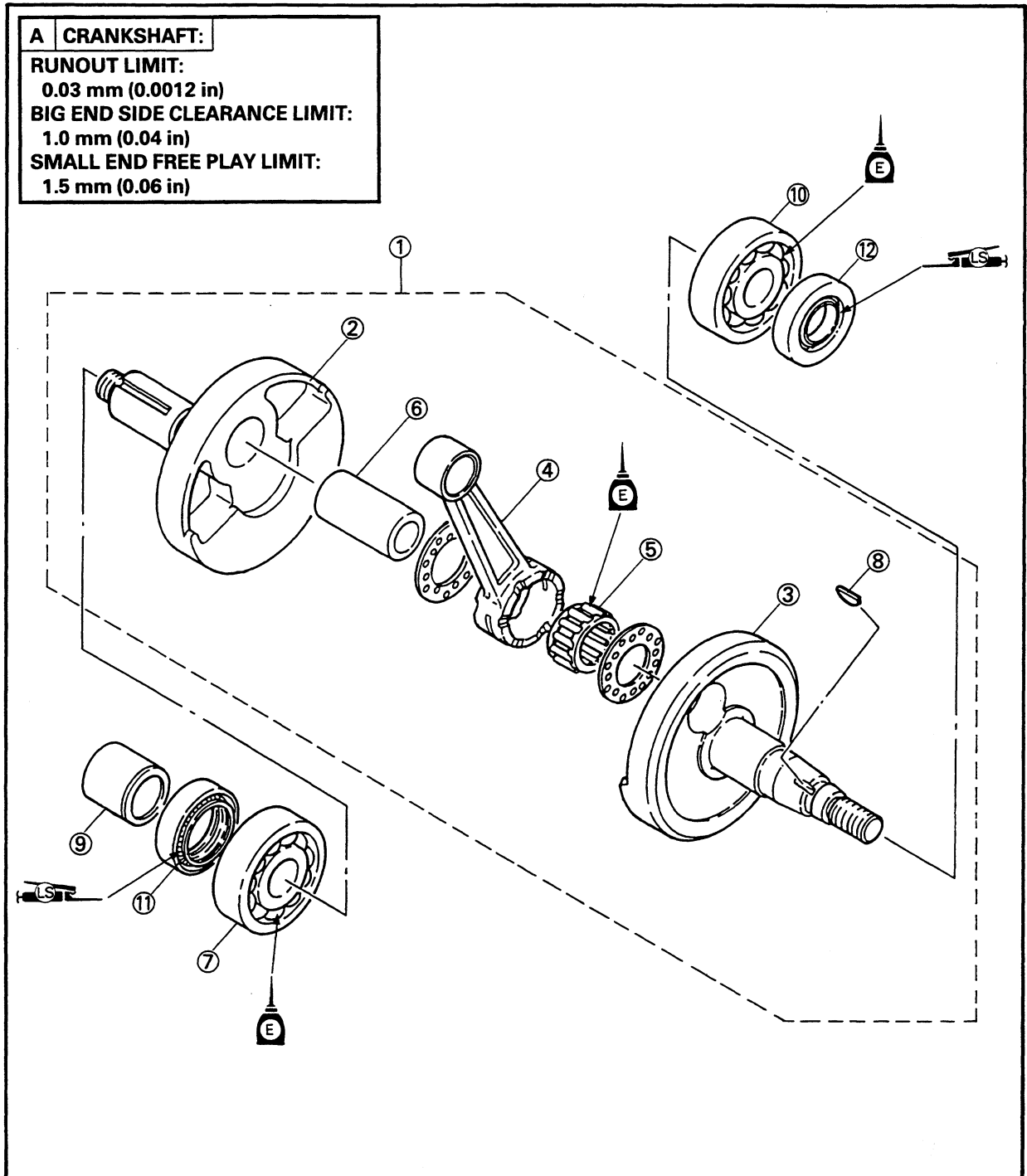
**4. Inspect:**

- Oil hose
- Oil delivery hose  
Crack/Damage/Clog → Replace.



**CRANKSHAFT**

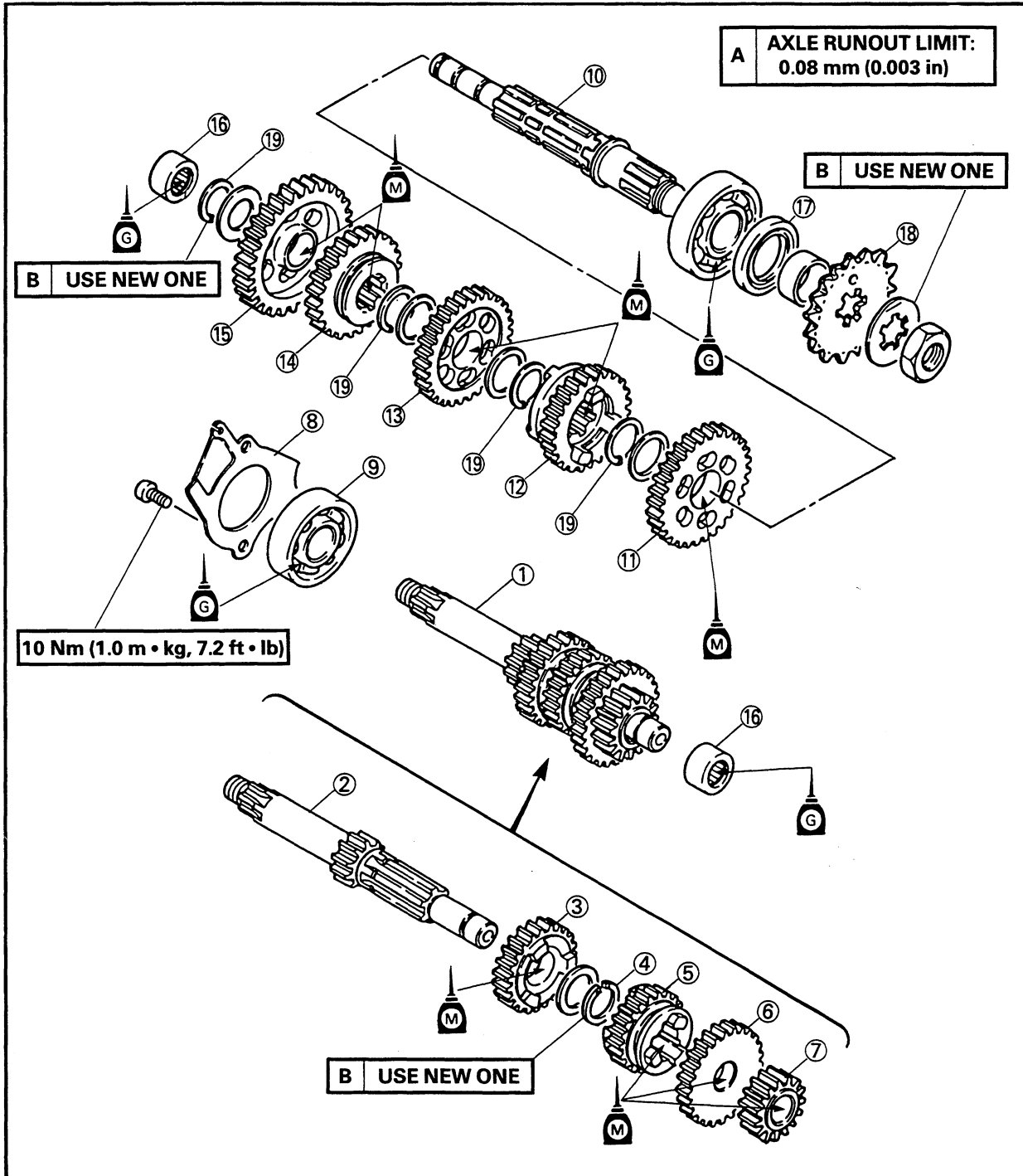
- |                       |                    |
|-----------------------|--------------------|
| ① Crankshaft assembly | ⑦ Bearing          |
| ② Crank (Right)       | ⑧ Woodruff key     |
| ③ Crank (Left)        | ⑨ Collar           |
| ④ Connecting rod      | ⑩ Bearing          |
| ⑤ Big end bearing     | ⑪ Oil seal (Right) |
| ⑥ Crank pin           | ⑫ Oil seal (Left)  |





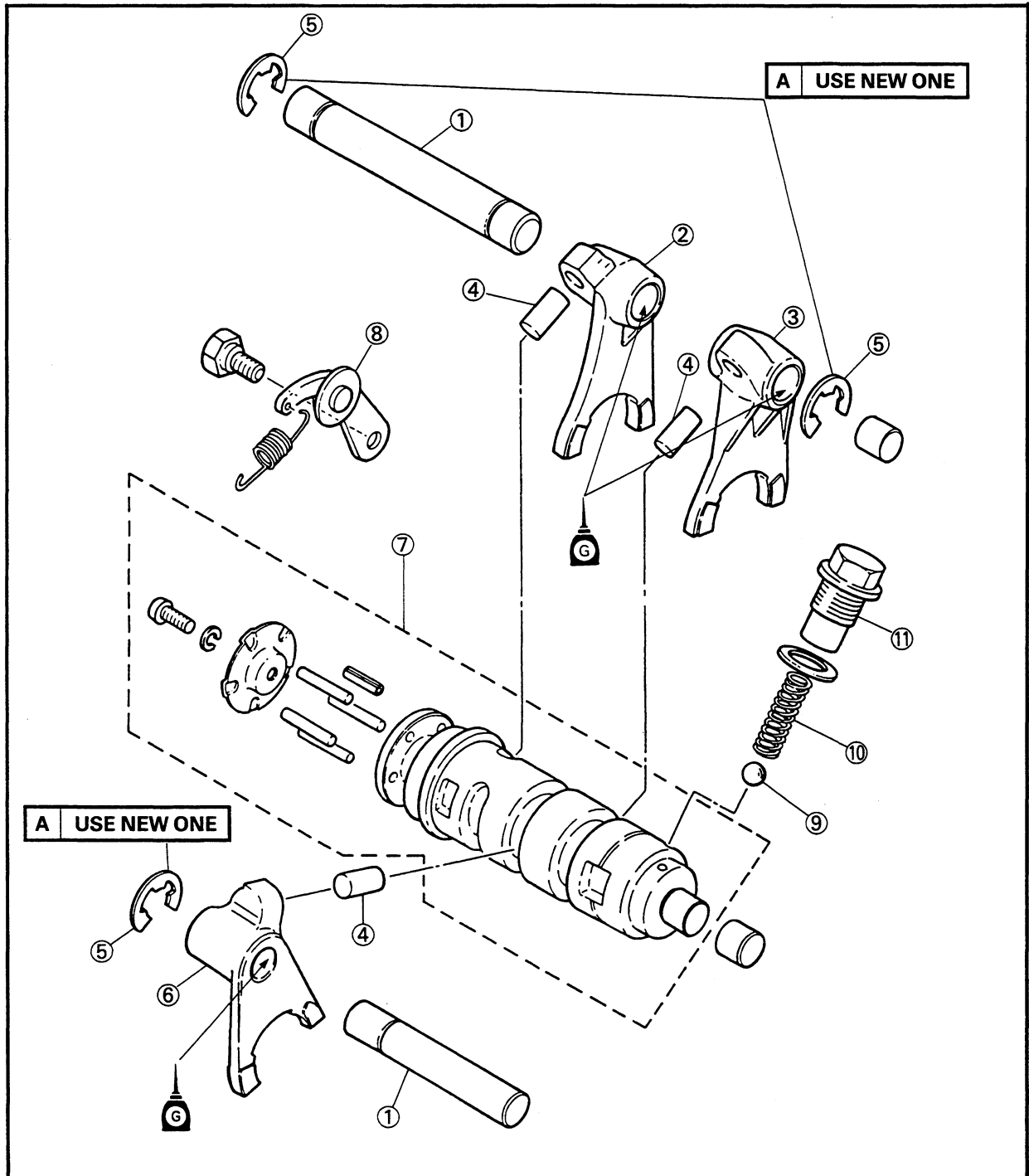
### TRANSMISSION

- |                      |                  |
|----------------------|------------------|
| ① Main axle assembly | ⑪ 2nd wheel gear |
| ② Main axle          | ⑫ 5th wheel gear |
| ③ 4th pinion gear    | ⑬ 3rd wheel gear |
| ④ Circlip            | ⑭ 4th wheel gear |
| ⑤ 3rd pinion gear    | ⑮ 1st wheel gear |
| ⑥ 5th pinion gear    | ⑯ Bearing        |
| ⑦ 2nd pinion gear    | ⑰ Oil seal       |
| ⑧ Bearing holder     | ⑱ Drive sprocket |
| ⑨ Bearing            | ⑲ Circlip        |
| ⑩ Drive axle         |                  |

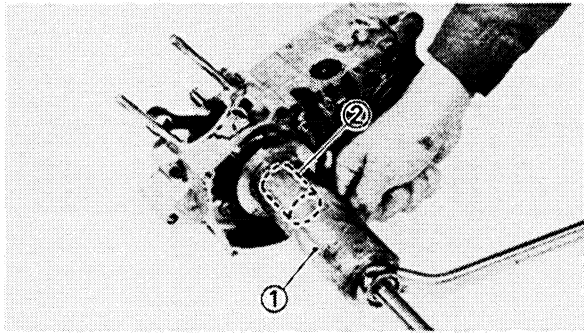


**SHIFTER**

- ① Guide bar (Shift fork)
- ② Shift fork #3
- ③ Shift fork #1
- ④ Pin
- ⑤ Circlip
- ⑥ Shift fork #2
- ⑦ Shift cam assembly
- ⑧ Shift lever
- ⑨ Ball
- ⑩ Spring
- ⑪ Bolt







YB144001

### CRANKSHAFT, SHIFTER AND TRANSMISSION

#### 1. Attach:

- Crankshaft installing tool ①
- Adapter ②



**Crankshaft installing tool:**

**YU-90050**

**Adapter:**

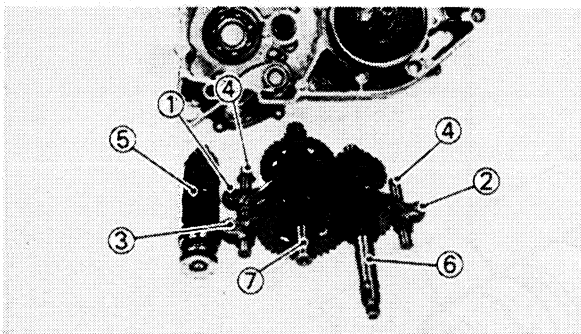
**YU-90063**

#### 2. Install:

- Crankshaft  
To crankcase (left)

### CAUTION:

Hold the connecting rod at top dead center with one hand while turning the nut of the installing tool with the other. Operate the installing tool until the crankshaft bottoms against the bearing.

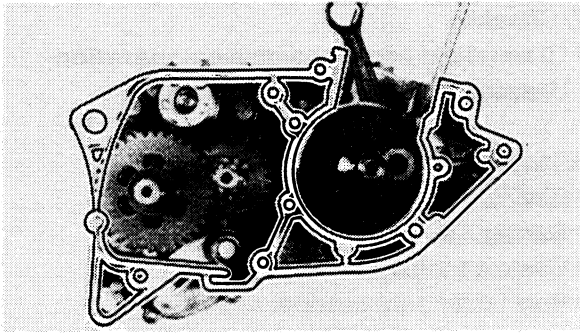


#### 3. Install:

- Shift fork #1 ①
- Shift fork #2 ②
- Shift fork #3 ③
- Guide bar (shift fork) ④
- Shift cam ⑤
- Main axle assembly ⑥
- Drive axle assembly ⑦

#### 4. Check:

- Shifter operation
  - Transmission operation
- Unsmooth operation → Repair.



YB144002

**CRANKCASE****1. Apply:**

- Sealant

To the mating surface of both crankcase halves.



**Quick sealant®:**  
**ACC-11001-05-01**

**2. Install:**

- Dowel pins

Onto the crankcase (lower)

**3. Fit the right crankcase onto the left case.**

Tap lightly on the case with a soft hammer.

**CAUTION:**

**Before installing and torquing the crankcase holding screws, be sure to check whether the transmission is functioning properly by manually rotating the shift cam either way.**

**4. Tighten:**

- Screw (crankcase)

**NOTE:**

Tighten the crankcase tightening screws in stages, using a crisscross pattern.



**Screws (crankcase):**  
**8 Nm (0.8 m · kg, 5.8 ft · lb)**

**5. Remove:**

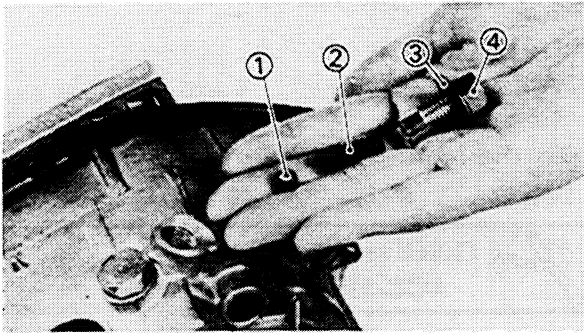
- Bond

Forced out on-the cylinder mating surface.

**6. Apply:**

- Yamalube "2"

To the crank pin, bearing and oil delivery hole.

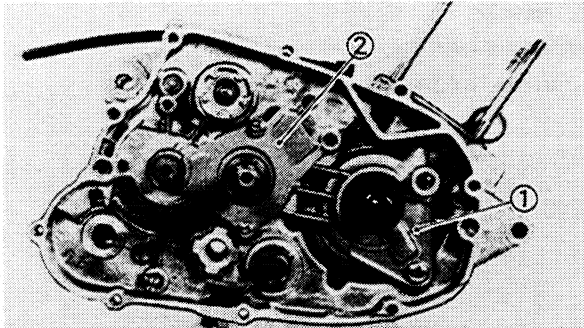


### 7. Check:

- Crankshaft and transmission operation  
Unsmooth operation → Repair.

### 8. Install:

- Ball ①
- Spring ②
- Gasket (new) ③
- Bolt (shift cam stopper) ④



### 9. Install:

- Oil seal holder ①
- Bearing holder ②



**Screws (bearing holder):**

10 Nm (1.0 m · kg, 7.2 ft · lb)

**Screw (oil seal holder):**

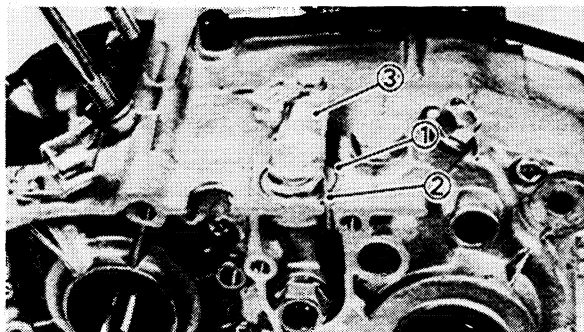
10 Nm (1.0 m · kg, 7.2 ft · lb)

YB144009

## CLUTCH PUSH LEVER

### 1. Lubricate:

- Bearing
- Oil seal (lip)
- Washer
- Push lever

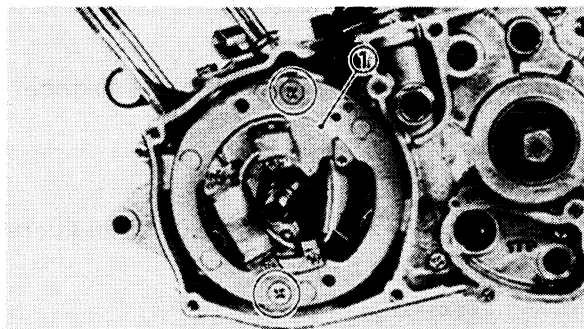


**Lithium soap base grease**

### 2. Install:

- Washer ①
- Return spring ②
- Push lever ③

3. Set the return spring ② to the spring hook.



YB144003

## CDI MAGNETO

### 1. Install:

- Stator ①



**Screws (stator):**

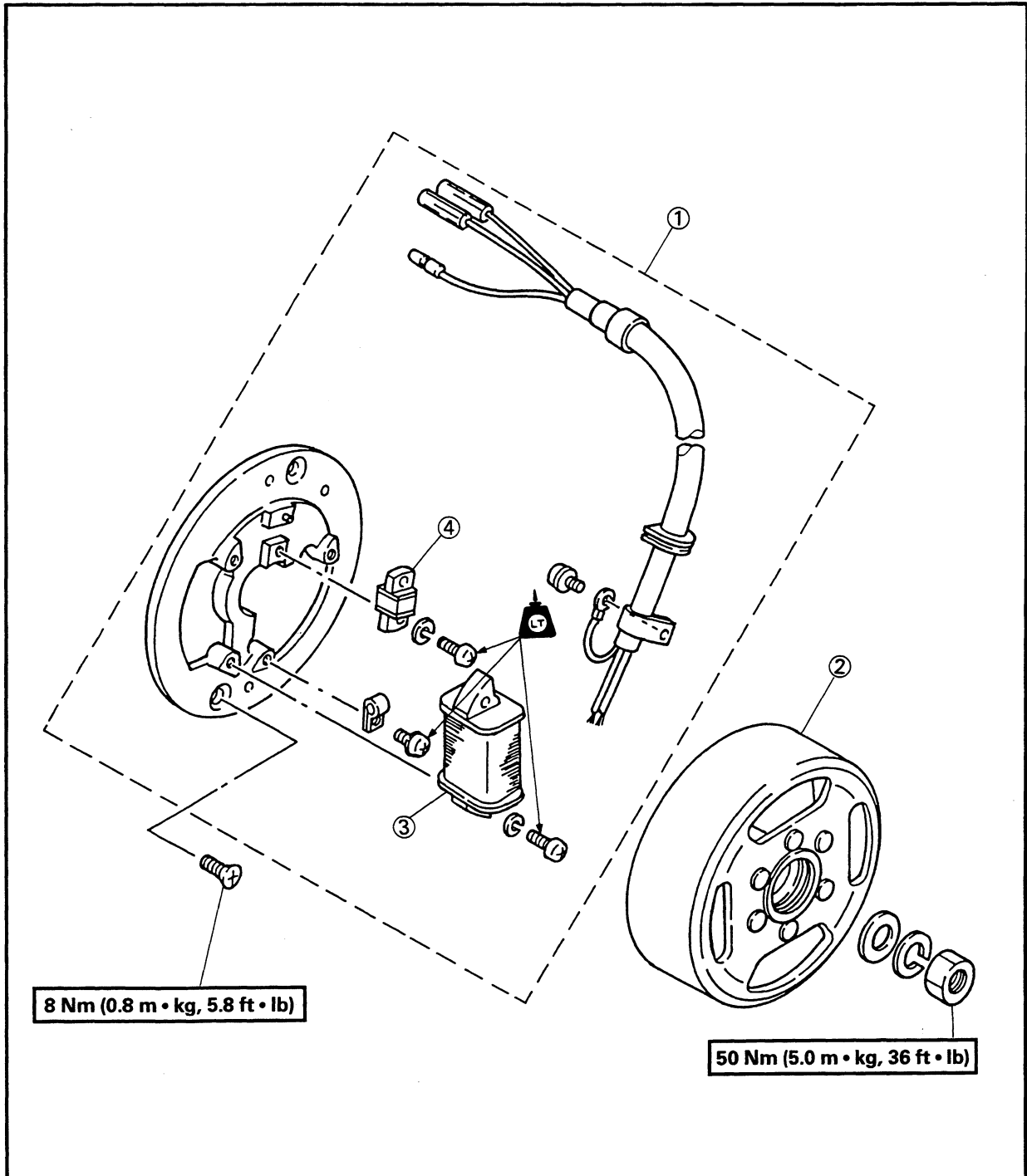
8 Nm (0.8 m · kg, 5.8 ft · lb)

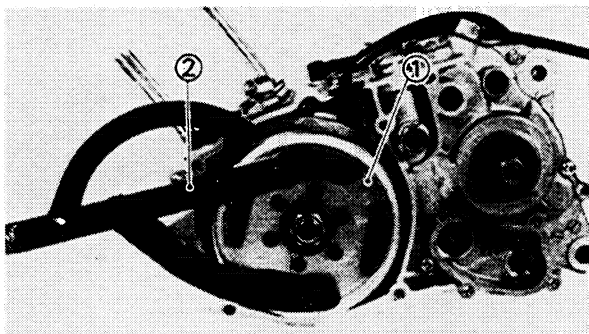
### 2. Install:

- Woodruff key

**CDI MAGNETO**

- ① Stator assembly
- ② Rotor
- ③ Source coil
- ④ Pickup coil





- Rotor ①

**NOTE:**

When installing the rotor, make sure the woodruff key is properly seated in the key of the crankshaft.

Clean the tapered portion of the crankcase end with a cloth.

**3. Tighten:**

- Nut (rotor)

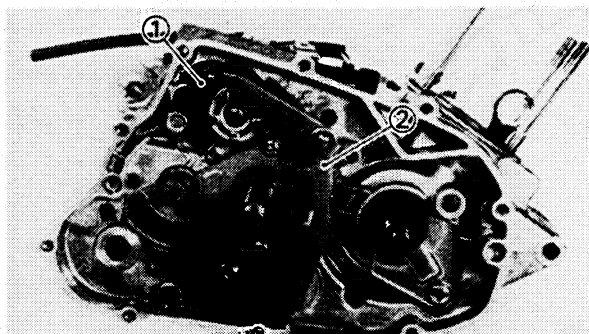
Use the universal rotor holder ② to hold the rotor.



**Universal rotor holder:**  
YU-01235



**Nut (rotor):**  
50 Nm (5.0 m · kg, 36 ft · lb)



YB144004

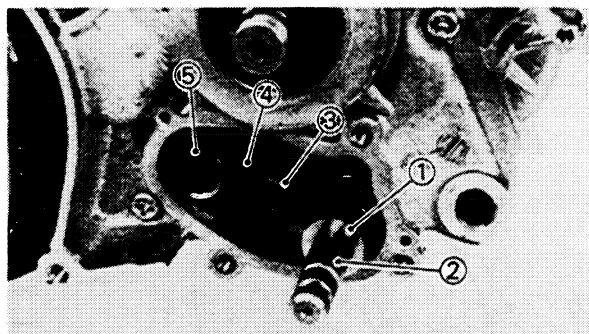
**SHIFT SHAFT**

**1. Install:**

- Shift lever ①
- Shift shaft ②

**NOTE:**

Be sure the shift lever ① correctly engages the shift cam.

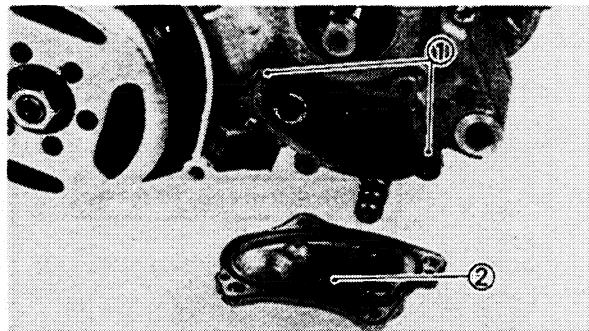


**2. Install:**

- Washers ①
- Change shaft ②
- Collar ③
- Washers
- Change shaft lever ④
- Circlip ⑤

**NOTE:**

Be sure the change shaft lever ④ correctly engages the shift lever splines.



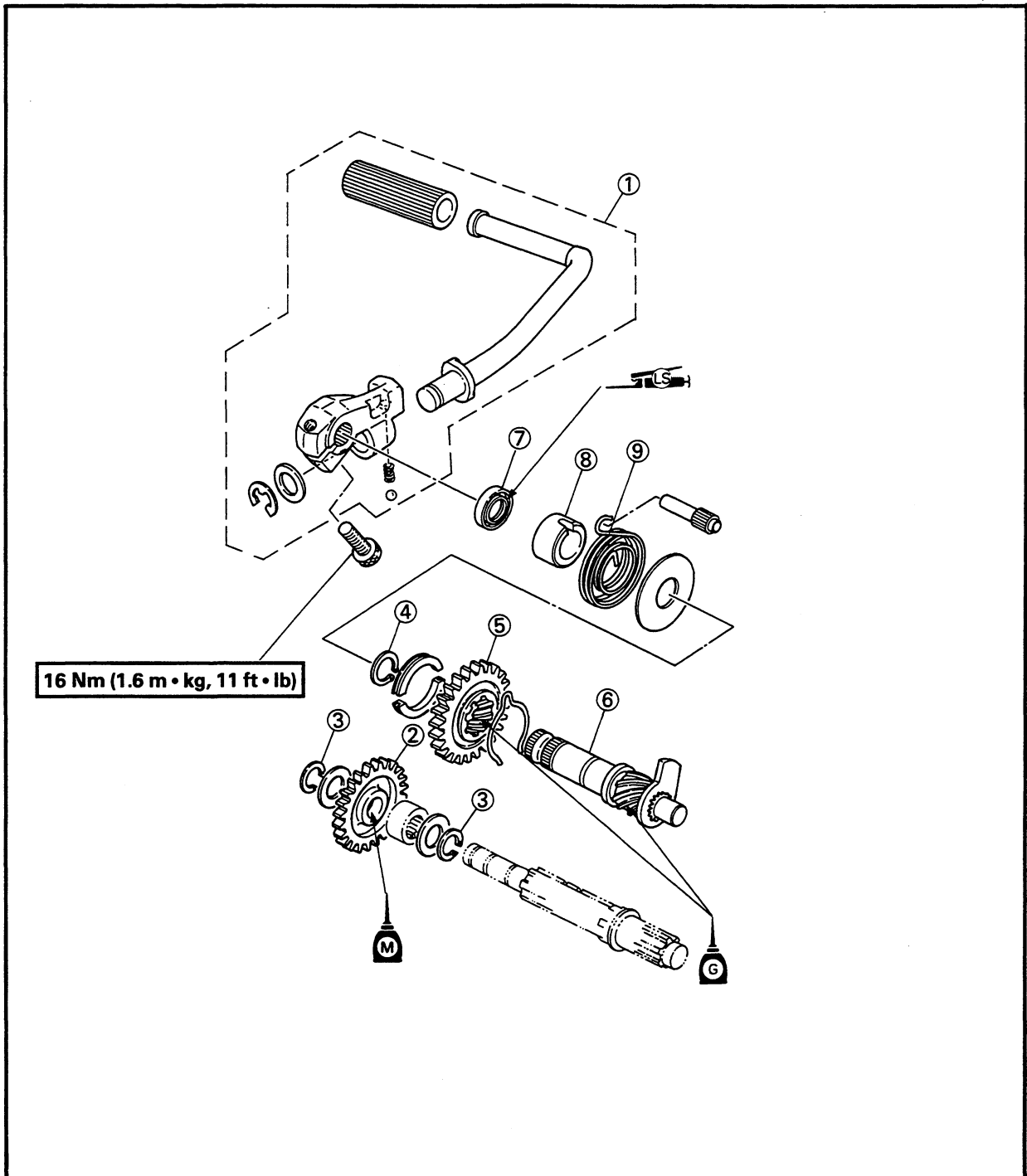
**3. Install:**

- Dowel pin ①
- Change shaft cover ②



**KICK AXLE**

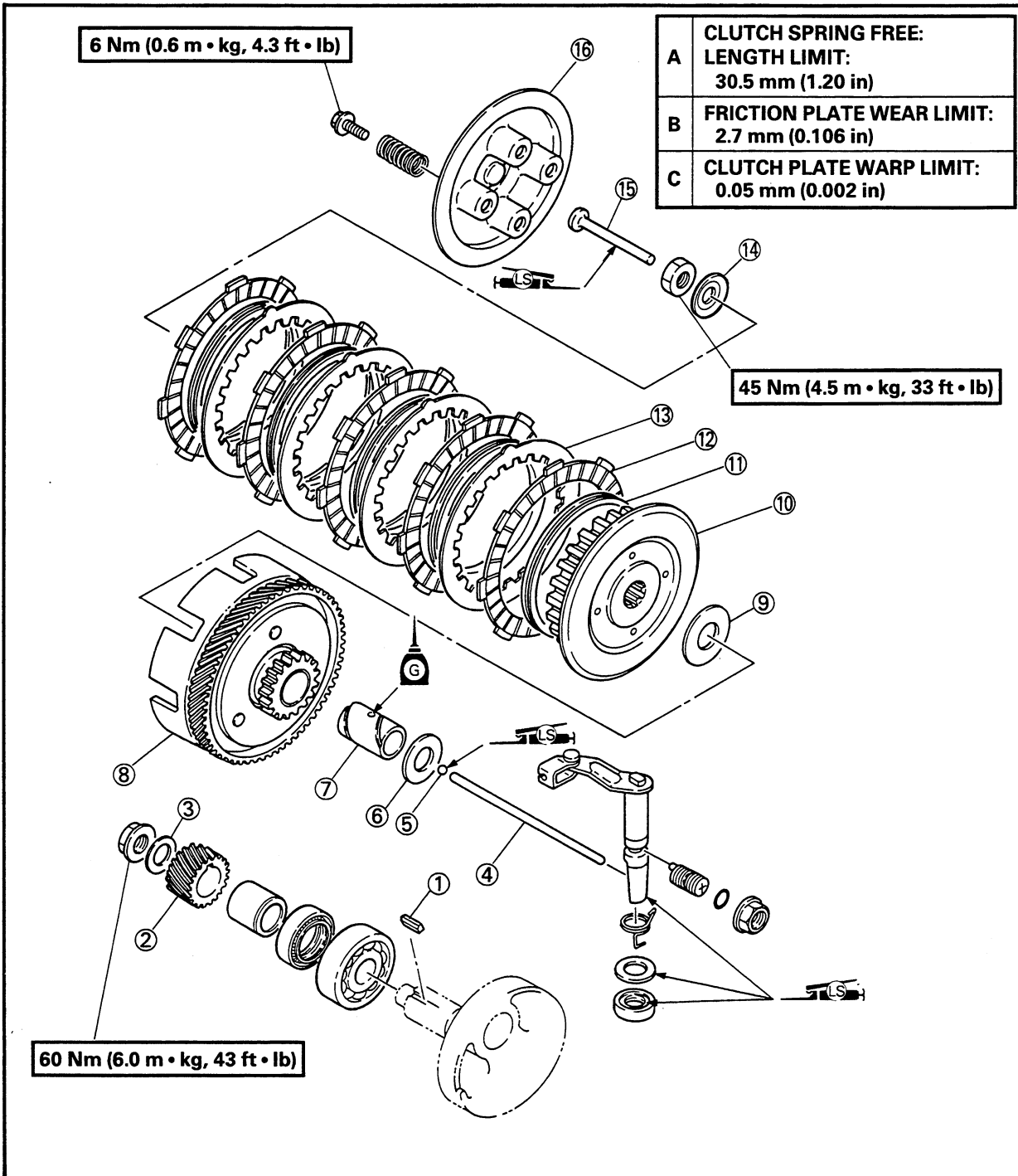
- ① Kick crank assembly
- ② Kick idle gear
- ③ Circlip
- ④ Circlip
- ⑤ Kick gear
- ⑥ Kick axle
- ⑦ Oil seal
- ⑧ Spacer
- ⑨ Return spring

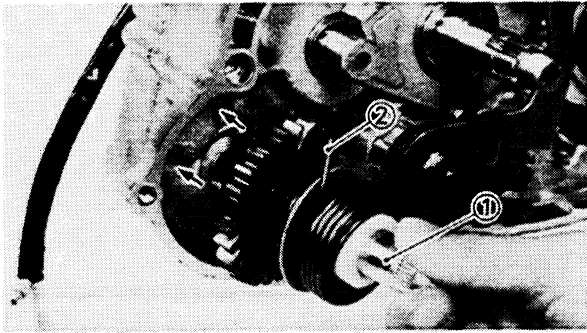




## CLUTCH AND PRIMARY DRIVE GEAR

- ① Straight key
- ② Primary drive gear
- ③ Conical spring washer
- ④ Push rod #2
- ⑤ Ball
- ⑥ Thrust washer
- ⑦ Collar
- ⑧ Clutch housing
- ⑨ Thrust washer
- ⑩ Clutch boss
- ⑪ Clutch damper
- ⑫ Friction plate
- ⑬ Clutch plate
- ⑭ Conical spring washer
- ⑮ Push rod #1
- ⑯ Pressure plate





YB144005

**KICK AXLE**

1. Install:

- Kick axle assembly ①

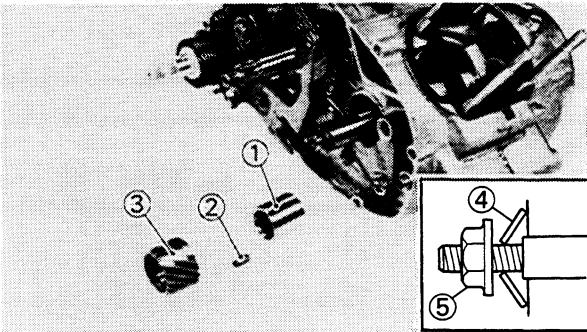
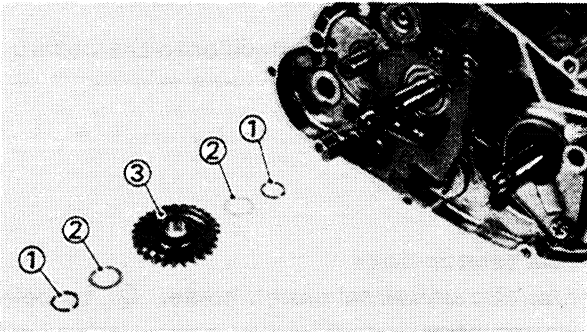
**NOTE:**

- Make sure that the kick stopper is stopped at the projection of the crankcase.
- Make sure that the kick clip is engaged with the crankcase hole.

2. Hook the kick spring ② .

3. Install:

- Circlips ①
- Washers ②
- Kick idle gear ③



YB144006

**CLUTCH AND PRIMARY DRIVE GEAR**

1. Install:

- Collar ①
- Straight key ②
- Primary drive gear ③
- Conical spring washer ④
- Nut ⑤

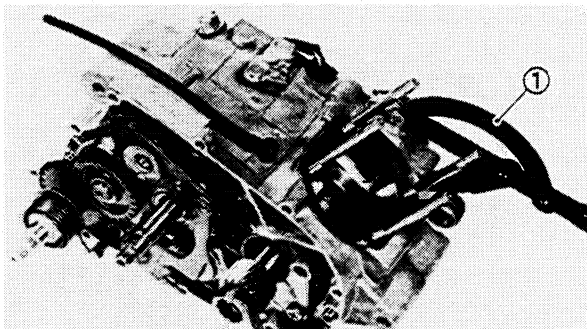
**NOTE:**

- Be sure to install the conical spring washer ④ as shown.
- Apply the transmission oil onto the collar.

2. Tighten:

- Nut (primary drive gear)

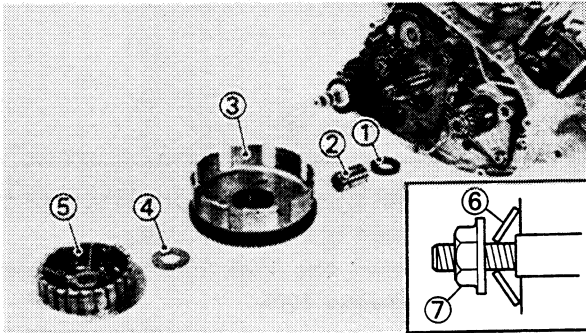
Use the universal rotor holder ① to hold CDI magneto.



	<b>Universal rotor holder:</b> YU-01235
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	<b>Nut (primary drive gear):</b> 60 Nm (6.0 m · kg, 43 ft · lb)
--	--





### 3. Install:

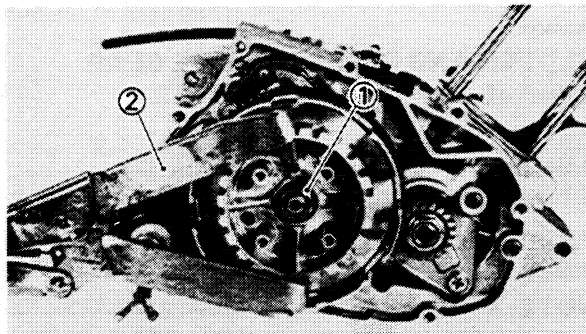
- Thrust washer ①
- Collar ②
- Clutch housing ③
- Thrust washer ④
- Clutch boss ⑤
- Conical spring washer ⑥
- Nut (clutch boss) ⑦

### NOTE:

- Be sure to install the conical spring washer ⑥ as shown.
- Apply the transmission oil onto the collars.

### 4. Tighten:

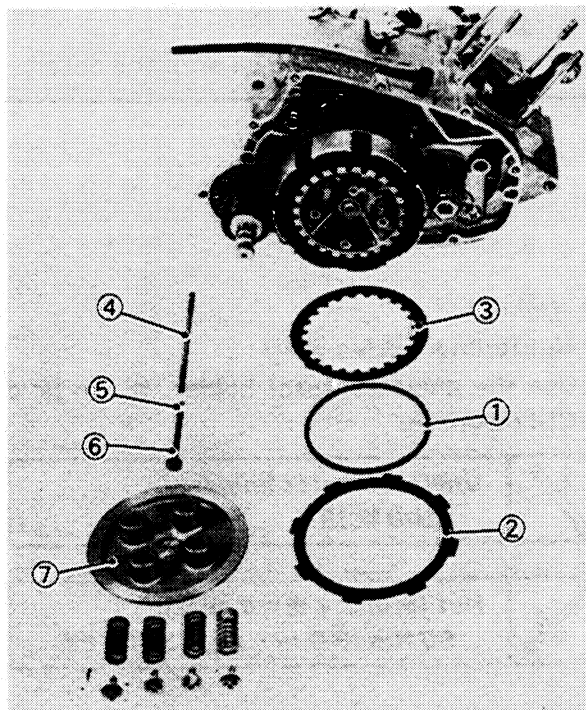
- Nut (clutch boss) ①
- Use the universal clutch holder ② to hold clutch boss.



**Universal clutch holder:**  
YM-91042

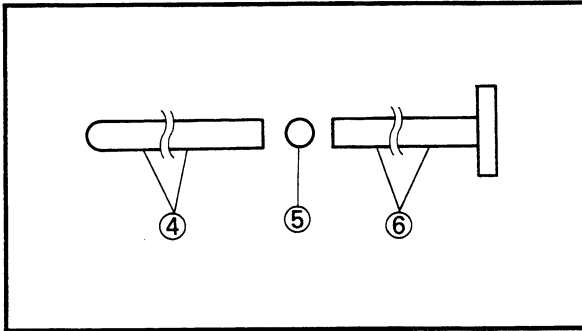
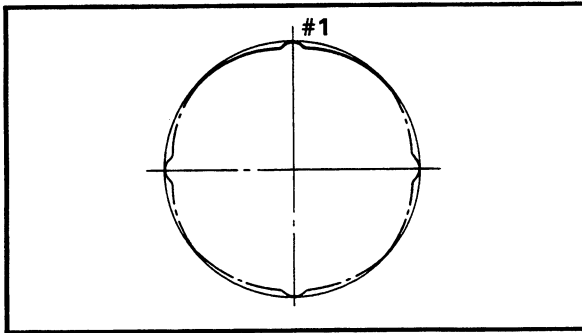


**Nut (clutch boss):**  
45 Nm (4.5 m · kg, 33 ft · lb)



### 5. Install:

- Clutch damper ①
- Friction plate ②
- Clutch plate ③
- Push rod #2 ④
- Ball ⑤
- Push rod #1 ⑥
- Pressure plate ⑦



\*\*\*\*\*

**Installation steps:**

- Install the clutch damper and friction plate onto the clutch boss.
- Install the clutch plate so as to locate the projection at #1.
- Next install the remaining clutch dampers, friction plates and clutch plates alternately on the clutch boss.
- Be sure to install a clutch plate with projection offset approximately 90° from previous plate projection.

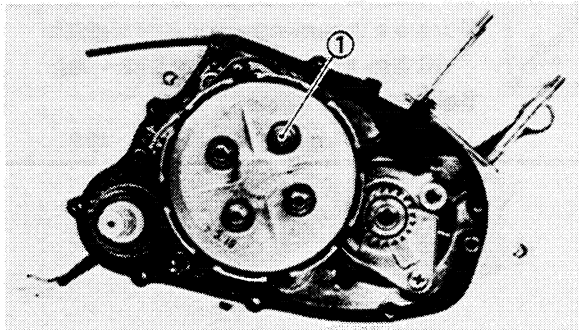
Continue this procedure in a clockwise direction until all clutch plates are installed.

**NOTE:**

- Before installing a friction and clutch plates apply sufficient coating of transmission oil to each plate.
- Install the push rods as shown.

- ④ Push rod #2
- ⑤ Ball
- ⑥ Push rod #1

\*\*\*\*\*




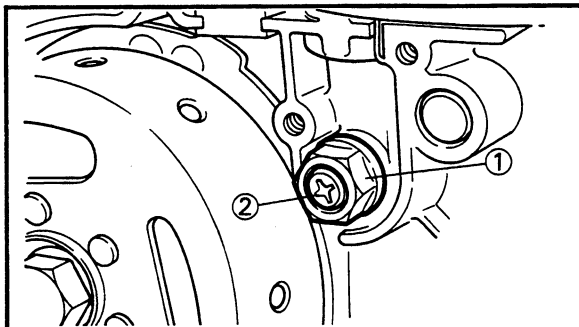
**6. Install:**

- Springs (pressure plate)
- Bolts (pressure plate) ①

**NOTE:**

Tighten the bolt in stages, using a crisscross pattern.

	<p><b>Bolts (pressure plate):</b> 6 Nm (0.6 m · kg, 4.3 ft · lb)</p>
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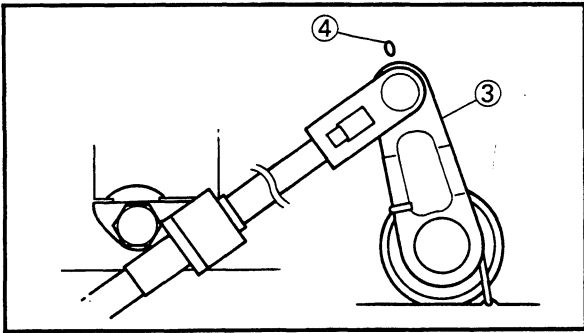
**7. Adjust:**

- Clutch push lever

\*\*\*\*\*

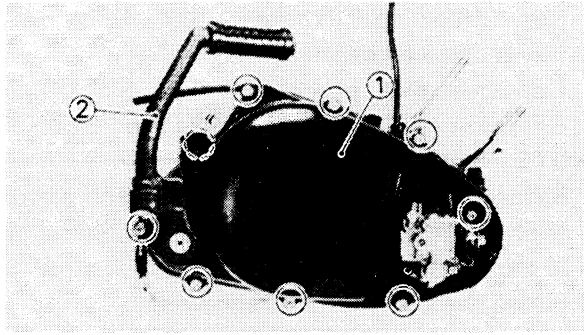
**Adjustment steps:**

- Loosen the locknut ① .
- Turn the adjuster ② in until stop it.



- Push the push lever ③ toward the front with your finger until it stops.
- With the push lever in this position, turn the adjuster ② in or out until the push lever ③ to align the mark ④ .
- Tighten the locknut.


\*\*\*\*\*



8. Install:
- Dowel pins
  - Gasket (crankcase cover—new)
  - Crankcase cover ①
  - Kick crank ②

**NOTE:** \_\_\_\_\_  
Tighten the screws in stages, using a crisscross pattern.

**CAUTION:** \_\_\_\_\_  
Be sure to install the kick crank in such a way that it does not make contact with the crankcase cover.

	<b>Screws (crankcase cover right):</b>
	10 Nm (1.0 m · kg, 7.2 ft · lb)
	<b>Bolt (kick crank)</b>
	16 Nm (1.6 m · kg, 11 ft · lb)

YB144007

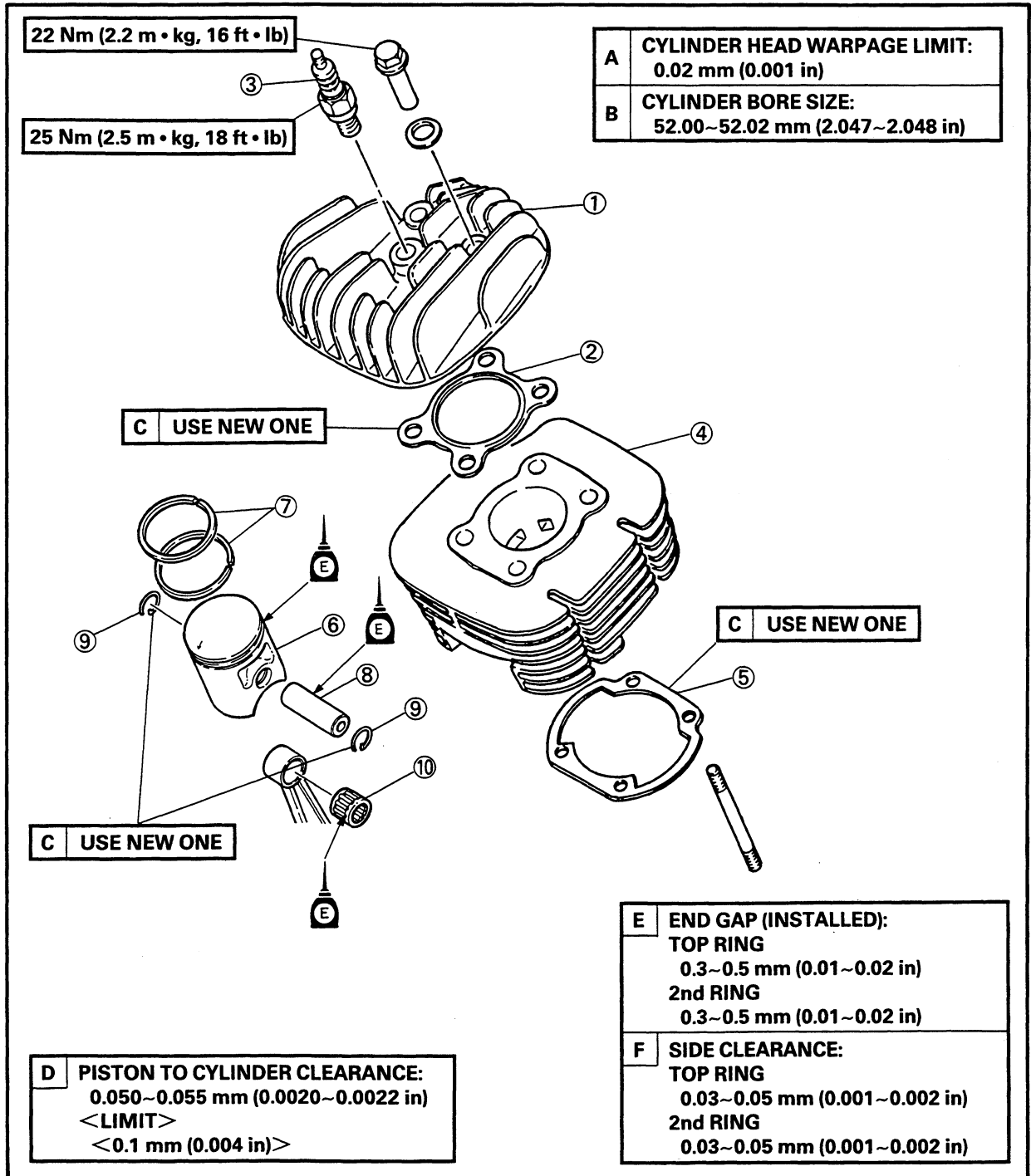
**CYLINDER HEAD, CYLINDER AND PISTON**

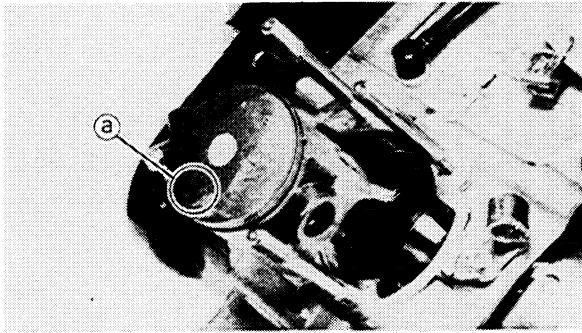
1. Apply:
- Engine oil
- To the small end bearing and big end bearing.



## CYLINDER HEAD, CYLINDER AND PISTON

- ① Cylinder head
- ② Gasket (Cylinder head)
- ③ Spark plug
- ④ Cylinder
- ⑤ Gasket (Cylinder)
- ⑥ Piston
- ⑦ Piston ring set
- ⑧ Piston pin
- ⑨ Piston pin clip
- ⑩ Small end bearing





**2. Install:**

- Small end bearing
- Piston
- Piston pin

**NOTE:**

The allow ⓐ on the piston must point to the front of the engine.



**3. Install:**

- Piston pin clip ①

**NOTE:**

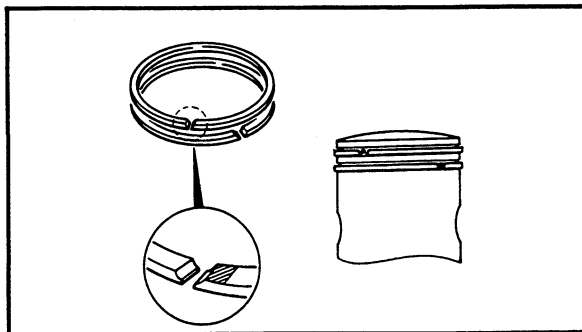
Before installing the piston pin clip, cover the crankcase with a clean towel or rag so you will not accidentally drop the pin clip and material into the crankcase.

**⚠ WARNING**

Always use a new piston pin clip.

**4. Install:**

- Gaskets (cylinder—new)



**5. Install:**

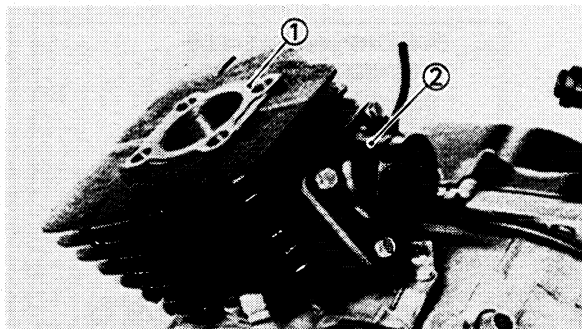
- Cylinder

**NOTE:**

Install the cylinder with one hand while compressing the piston rings with the other hand.

**CAUTION:**

Before installing the cylinder, make sure ring's ends are properly fitted around the ring locating pins in the grooves.



**6. Install:**

- Gasket (cylinder head—new) ①
- Cylinder head
- Reed valve
- Gasket
- Intake manifold ②

**NOTE:**

Tighten the nuts in stages, using a crisscross pattern.



**Nuts (cylinder head):**  
**22 Nm (2.2 m · kg, 16 ft · lb)**

7. Install:

- Spark plug



**Spark plug:**  
**25 Nm (2.5 m · kg, 18 ft · lb)**

YB144008

### REMountING ENGINE

Reverse the engine removal procedure.  
Note the following points.

1. Install:

- Engine assembly

2. Install:

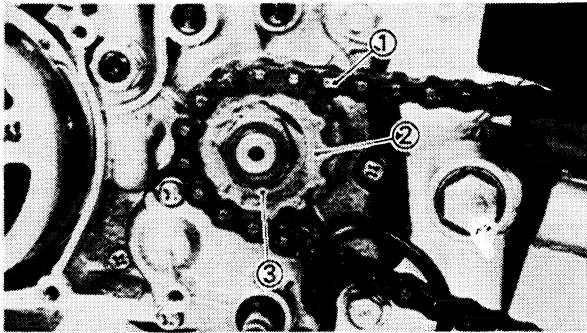
- Bolts

3. Tighten:

- Nuts
- Bolt



**Nut (front—upper):**  
**26 Nm (2.6 m · kg, 19 ft · lb)**  
**Nut (rear—upper):**  
**26 Nm (2.6 m · kg, 19 ft · lb)**  
**Bolt (rear—lower):**  
**39 Nm (3.9 m · kg, 28 ft · lb)**



#### 4. Install:

- Drive chain ①
- Drive sprocket ②
- Lock washer (new) ③

#### NOTE:

Before installing the drive sprocket, loosen the rear wheel axle and push forward the rear wheel.

### **⚠ WARNING**

Use a new lock washer.

#### 5. Install:

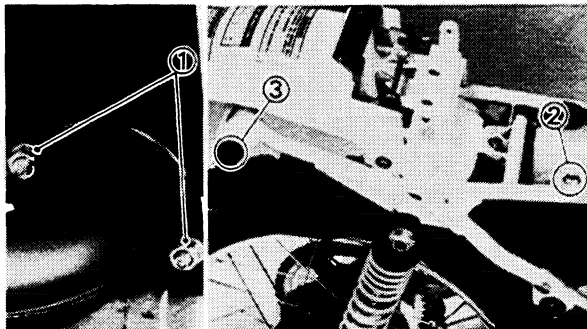
- Gasket (crankcase cover—new)
- Crankcase cover (left)
- Change pedal

#### NOTE:

Tighten the screws in stages, using a crisscross pattern.

#### 6. Adjust:

- Autolube pump cable:  
Refer to "CHAPTER 3-AUTOLUBE PUMP CABLE" section.



#### 7. Install:

- Muffler



**Nut ① (exhaust pipe):**

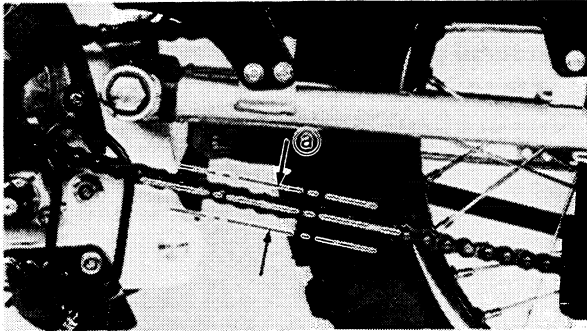
7 Nm (0.7 m · kg, 5.1 ft · lb)

**Bolt ② (muffler):**

16 Nm (1.6 m · kg, 11 ft · lb)

**Bolt ③ (muffler):**

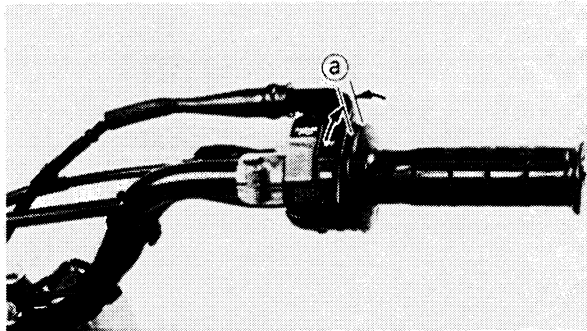
23 Nm (2.3 m · kg, 17 ft · lb)



8. Adjust:
- Drive chain slack ②

	<b>Drive chain slack:</b>
	20 ~ 30 mm (0.8 ~ 1.2 in)

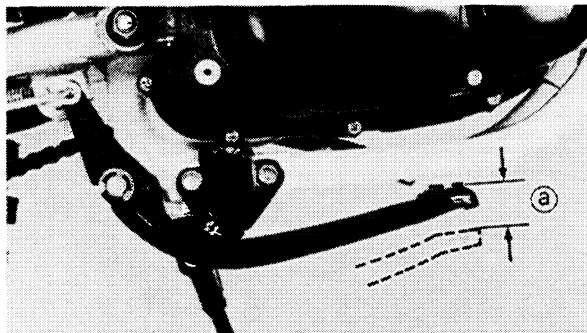
Refer to "CHAPTER 3—DRIVE CHAIN SLACK ADJUSTMENT" section.



9. Adjust:
- Throttle cable free play ②

	<b>Throttle cable free play:</b>
	3 ~ 5 mm (0.12 ~ 0.20 in)

Refer to "CHAPTER 3—THROTTLE CABLE ADJUSTMENT" section.



10. Adjust:
- Brake pedal free play ②

	<b>Brake pedal free play:</b>
	20 ~ 30 mm (0.8 ~ 1.2 in)

Refer to "CHAPTER 3—REAR BRAKE ADJUSTMENT" section.

11. Adjust:
- Clutch cable free play

	<b>Clutch cable free play:</b>
	2 ~ 3 mm (0.08 ~ 0.12 in)

Refer to "CHAPTER 3—CLUTCH ADJUSTMENT" section.

12. Fill:
- Transmission oil

	<b>Total amount:</b>
	0.65 L
	(0.57 Imp qt, 0.69 US qt)

Refer to "CHAPTER 3—TRANSMISSION OIL REPLACEMENT" section.





## 13. Air bleed:

- Autolube pump

Refer to "CHAPTER 3—AUTOLUBE PUMP AIR BLEEDING" section.

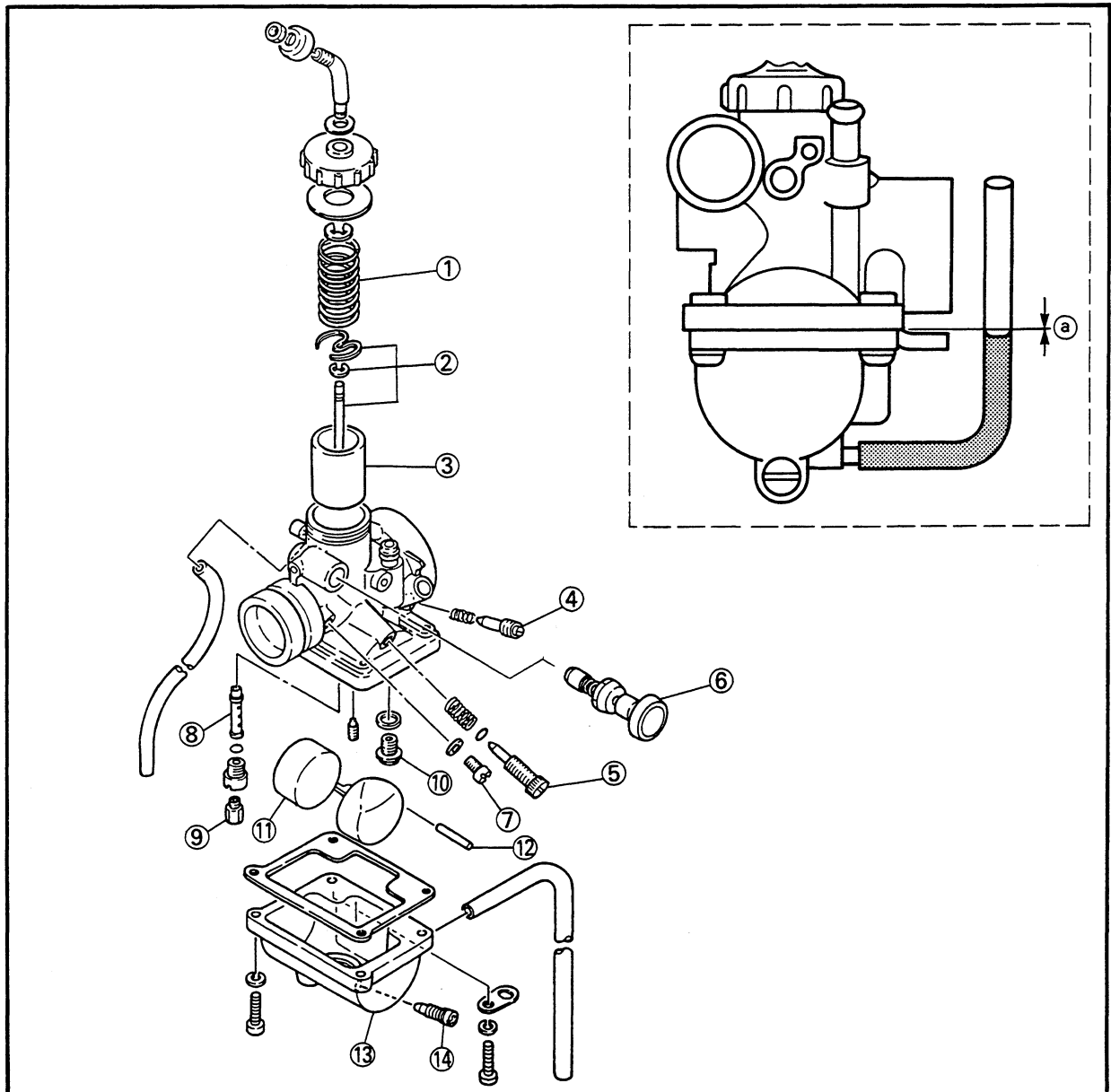


CARBURETION

CARBURETOR

- ① Spring (Throttle valve)
- ② Jet needle assembly
- ③ Throttle valve
- ④ Pilot screw
- ⑤ Throttle stop screw
- ⑥ Starter plunger
- ⑦ Plug
- ⑧ Main nozzle
- ⑨ Main jet
- ⑩ Valve seat assembly
- ⑪ Float
- ⑫ Pin (Float)
- ⑬ Float chamber
- ⑭ Drain screw

SPECIFICATIONS	
MAIN JET	# 140
PILOT JET	# 17.5
JET NEEDLE	4L6-3
NEEDLE JET	O-6
THROTTLE VALVE	2.0
CUT-AWAY	
PILOT SCREW	1-1/2
VALVE SEAT SIZE	1.5
STARTER JET	#30
FLOAT HEIGHT	20~22 mm (0.79~0.87 in)
FUEL LEVEL <sup>a</sup>	-0.5~+0.5 mm (-0.02~+0.02 in)



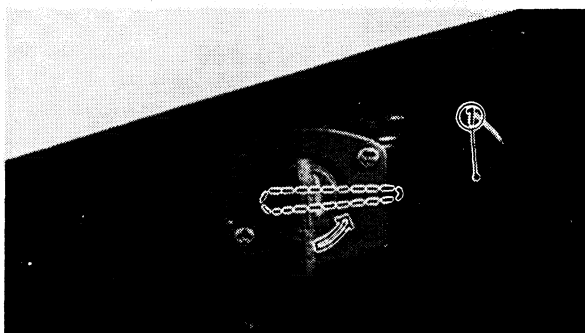
YB151001

**REMOVAL**

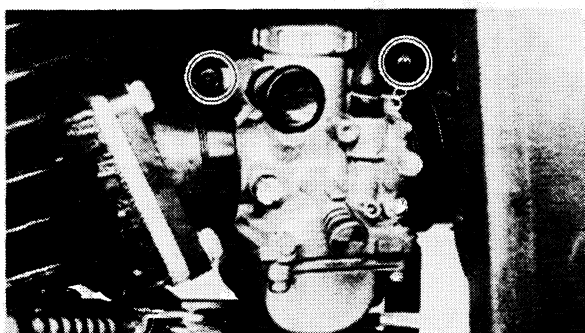
**NOTE:**

The following parts can be cleaned and inspected without carburetor disassembly.

- Throttle valve
- Starter plunger
- Pilot screw
- Throttle stop screw

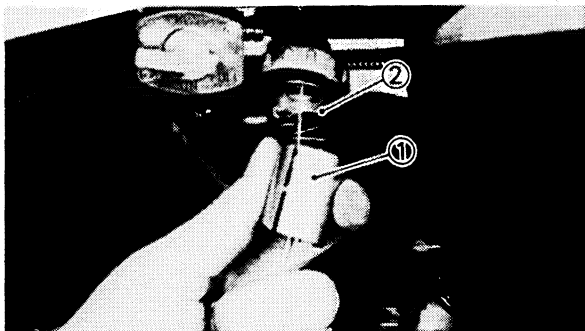


1. Turn the fuel cock to "OFF" position and disconnect the hose ①.



2. Loosen:
  - Screws (carburetor joint)

3. Remove:
  - Oil delivery hose
  - Carburetor top
  - Carburetor assembly

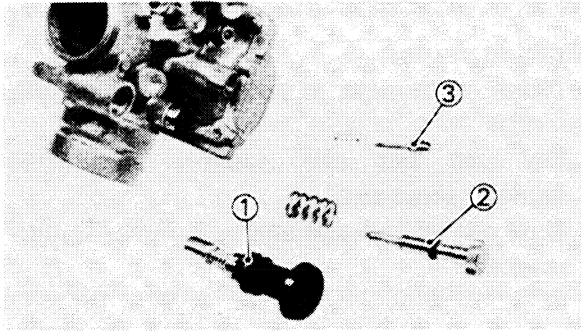


YB151002

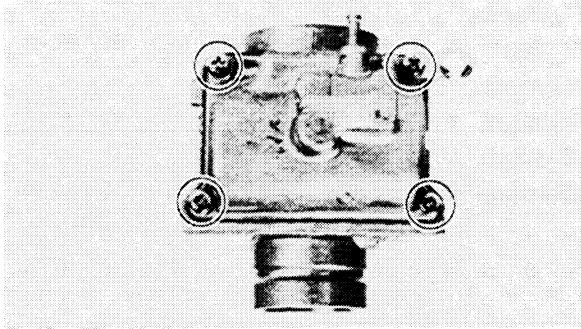
**DISASSEMBLY**

1. Remove:

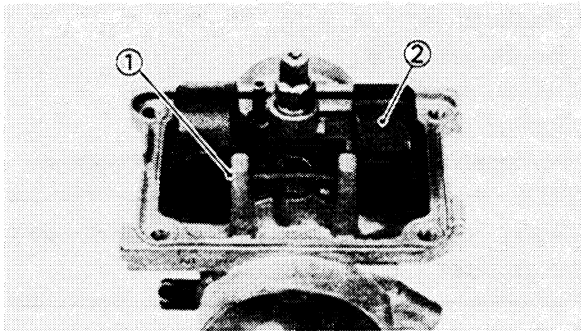
- Throttle valve assembly ①
- Spring (throttle valve) ②



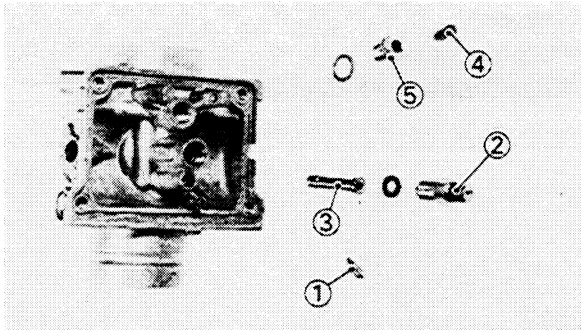
2. Remove:
- Starter plunger ①
  - Throttle stop screw ②
  - Pilot screw ③



3. Remove:
- Float chamber

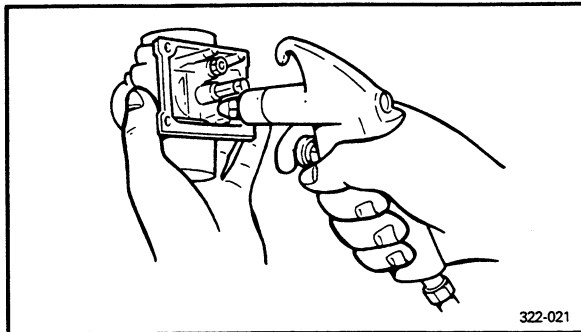


4. Remove:
- Pin (float) ①
  - Float ②



5. Remove:
- Pilot jet ①
  - Main jet ②
  - Main nozzle ③
  - Needle valve ④
  - Valve seat ⑤

**5**



YB151003

**INSPECTION**

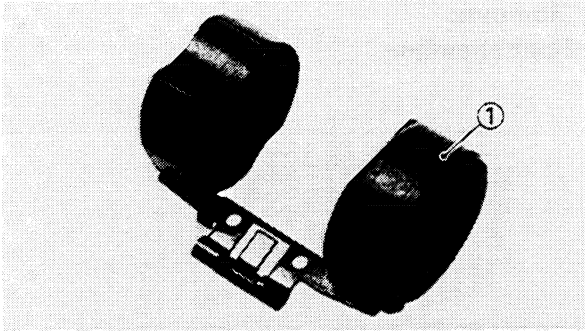
1. Inspect:
- Carburetor body
  - Fuel passage
- Contamination → Clean as indicated.

\*\*\*\*\*

**Cleaning steps:**

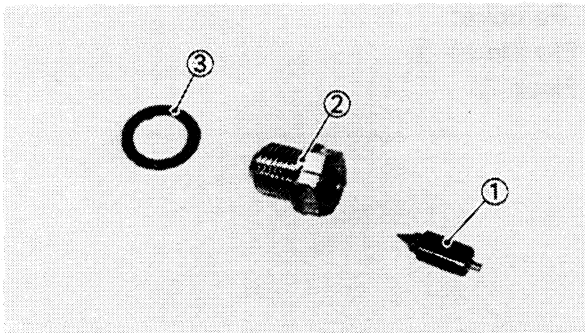
- Wash carburetor in petroleum based solvent.  
(Do not use any caustic carburetor cleaning solution).
- Blow out all passage and jets with compressed air.

\*\*\*\*\*



**2. Inspect:**

- Float ①  
Damage → Replace.
- Gasket
- O-ring  
Damage → Replace.

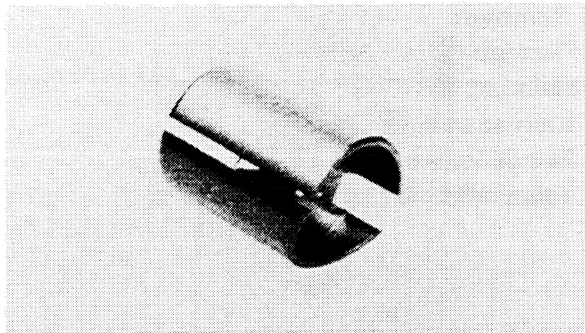


**3. Inspect:**

- Needle valve ①
- Valve seat ②
- Gasket ③  
Damage/Wear/Contamination → Replace.

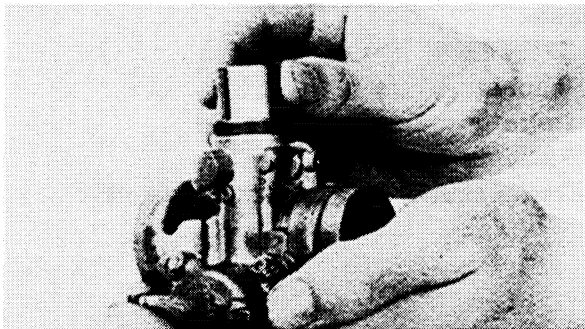
**NOTE:**

Always replace the needle valve and valve seat as a set.



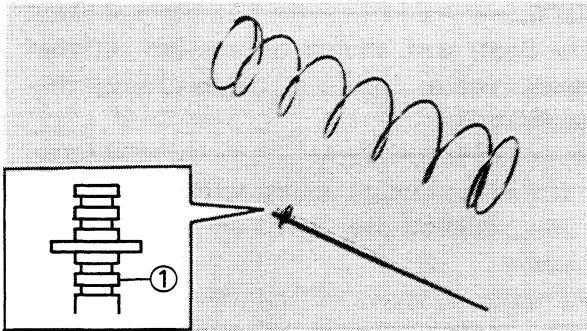
**4. Inspect:**

- Throttle valve  
Wear/Damage → Replace.



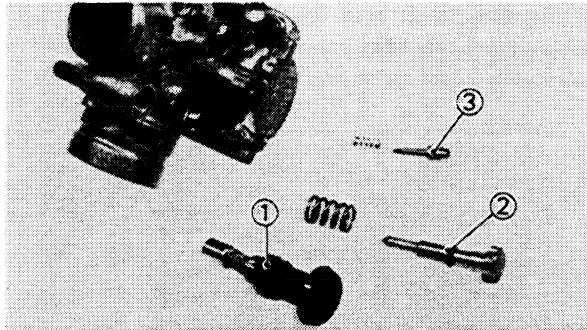
**5. Check:**

- Free movement  
Stick → Replace.  
Insert the throttle valve into the carburetor body, and check for free movement.



6. Inspect:
- Jet needle ①  
Bends/Wear → Replace.
  - Clip position

**Standard clip position:  
No. 3 groove**



7. Inspect:
- Starter plunger ①  
Wear/Damage → Replace.
  - Throttle stop screw ②
  - Pilot screw ③  
Wear/Damage → Replace.

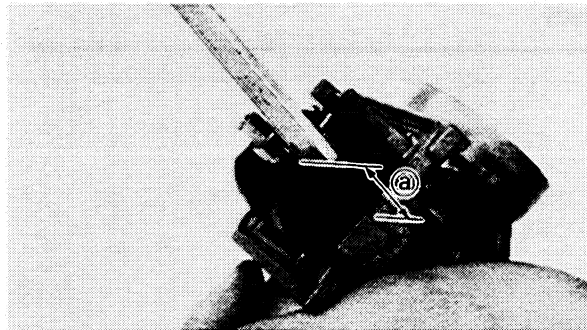
YB151004

**ASSEMBLY**


Reverse the disassembly procedure.  
Note the following points.

**CAUTION:** \_\_\_\_\_

**Before reassembling, wash all parts in clean gasoline.**



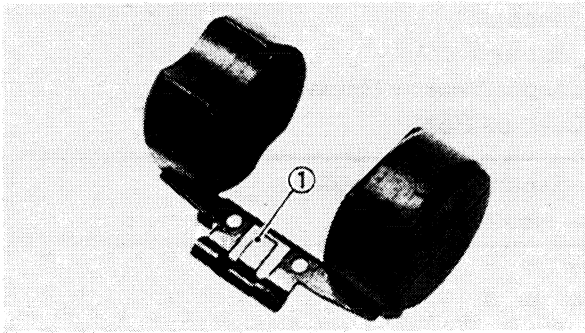
1. Measure:
- Float height ②  
Out of specification → Adjust.

 **Float height ② :**  
**20 ~ 22 mm (0.79 ~ 0.87 in)**

\*\*\*\*\*

**Measurement and adjustment steps:**

- Hold the carburetor in an upside down position.
- Measure the distance between the mating surface of the float chamber and top of the float using a gauge.

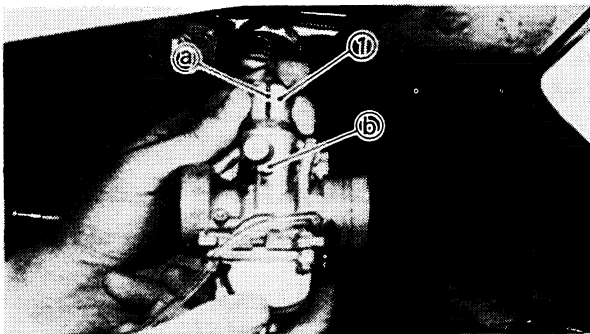


**NOTE:**

The float arm should be resting on the needle valve, but not compressing the needle valve.

- If the float height is not within specification, inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both fine, adjust the float height by bending the float tang ① on the float.
- Recheck the float height.

\*\*\*\*\*



YB151005

**INSTALLATION**

Reverse the removal procedures.

Note the following points.

1. Install:

- Throttle valve assembly ①  
To carburetor body.

**NOTE:**

Align the groove ② of the throttle valve with the projection ③ of the carburetor body.

2. Adjust:

- Idle speed

Refer to "CHAPTER 3—IDLE SPEED ADJUSTMENT" section.

	<p><b>Engine idle speed:</b> 1,300 ~ 1,450 r/min</p>
--	--



3. Adjust:

- Throttle cable free play

Refer to the "CHAPTER 3—THROTTLE CABLE FREE PLAY ADJUSTMENT" section.



**Throttle cable free play:**  
3 ~ 5 mm (0.12 ~ 0.20 in)

YB151006

**ADJUSTMENT**

**Fuel level adjustment**

**NOTE:**

Before adjusting the fuel level, the float height should be adjusted.

1. Place the machine on a level place.

2. Use a garage jack under the engine to ensure that the carburetor is positioned vertically.

3. Attach the fuel level gauge ① to the float chamber nozzle.

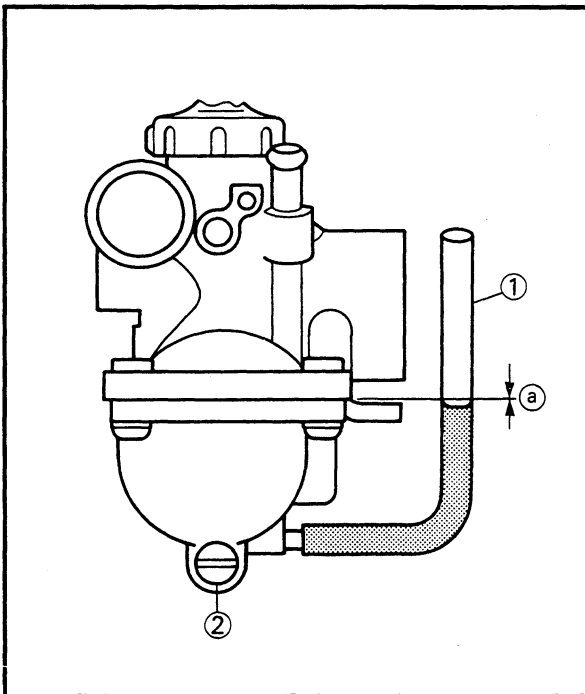


**Fuel level gauge:**  
YM-01312

4. Loosen the drain screw ②, and warm up the engine for several minutes.

5. Measure:

- Fuel level ②  
Out of specification → Adjust.

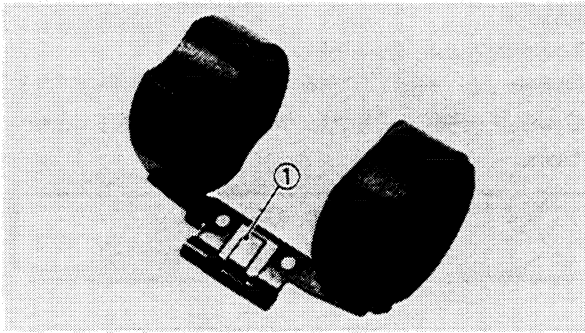


**Fuel level ② :**  
-0.5 ~ +0.5 mm  
(-0.02 ~ +0.02 in)

6. Adjust:

- Fuel level





\*\*\*\*\*

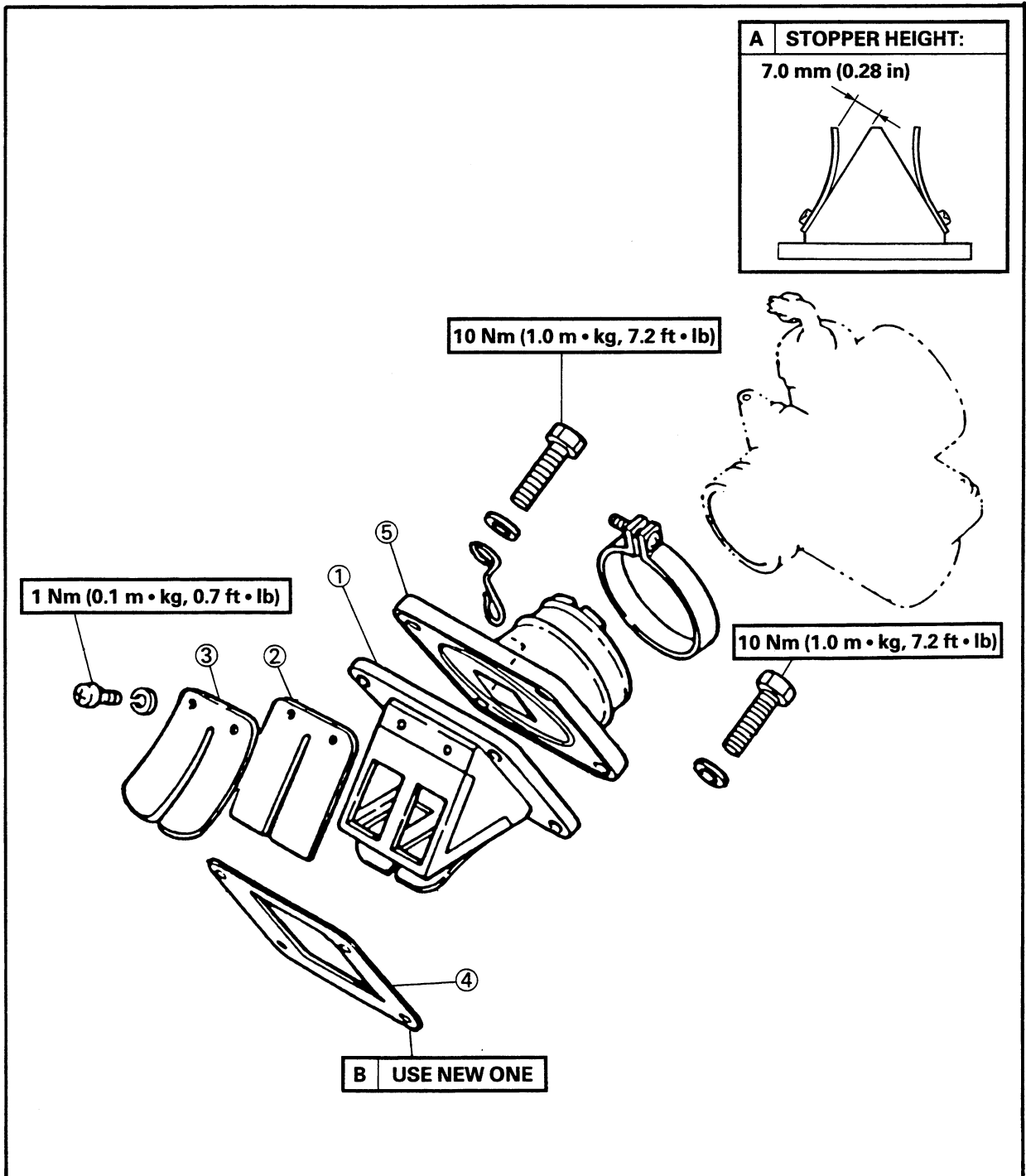
**Adjustment steps:**

- Remove the carburetor.
- Inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float tang ① on the float.
- Recheck the fuel level.

\*\*\*\*\*

**REED VALVE**

- ① Reed valve assembly
- ② Reed valve
- ③ Stopper plate
- ④ Gasket
- ⑤ Carburetor joint

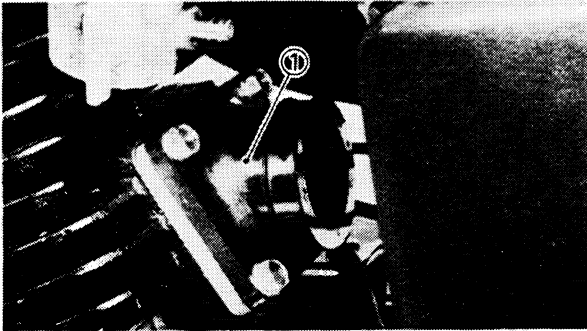


YB152001

**REMOVAL**

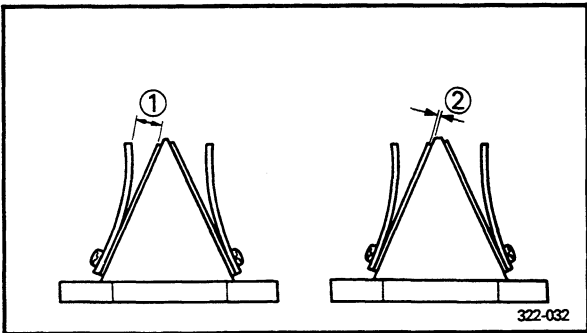
1. Remove:

- Carburetor assembly  
Refer to "CARBURETOR—REMOVAL" section.



2. Remove:

- Carburetor joint ①
- Reed valve



YB152002

**INSPECTION**


1. Measure:

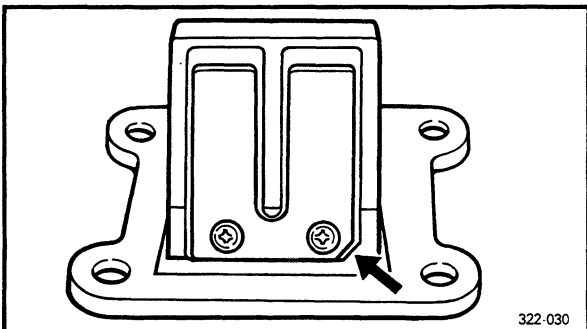
- Valve stopper height ①  
Out of specification → Replace.

	<b>Valve stopper height:</b> 6.7 ~ 7.3 mm (0.26 ~ 0.29 in)
---	---

2. Measure:

- Reed valve bending ②  
Out of specification → Replace.

	<b>Reed valve bending limit:</b> 0.3 mm (0.012 in)
---	---



\*\*\*\*\*

**Replacement steps:**

- Remove the screws (reed valve)
- Install the reed valves (new)

**NOTE:** \_\_\_\_\_  
Install the reed valves as shown.

- Tighten the screws (reed valve).

**CAUTION:**

Tighten each screw gradually to avoid warping.



**Screw (reed valve):**  
1 Nm (0.1 m · kg, 0.7 ft · lb)

- Recheck reed valve bending.

\*\*\*\*\*

YB152003

**INSTALLATION**

Reverse the removal procedure.

Note following points.

1. Tighten:

- Carburetor joint



**Bolt (carburetor joint):**  
10 Nm (1.0 m · kg, 7.2 ft · lb)

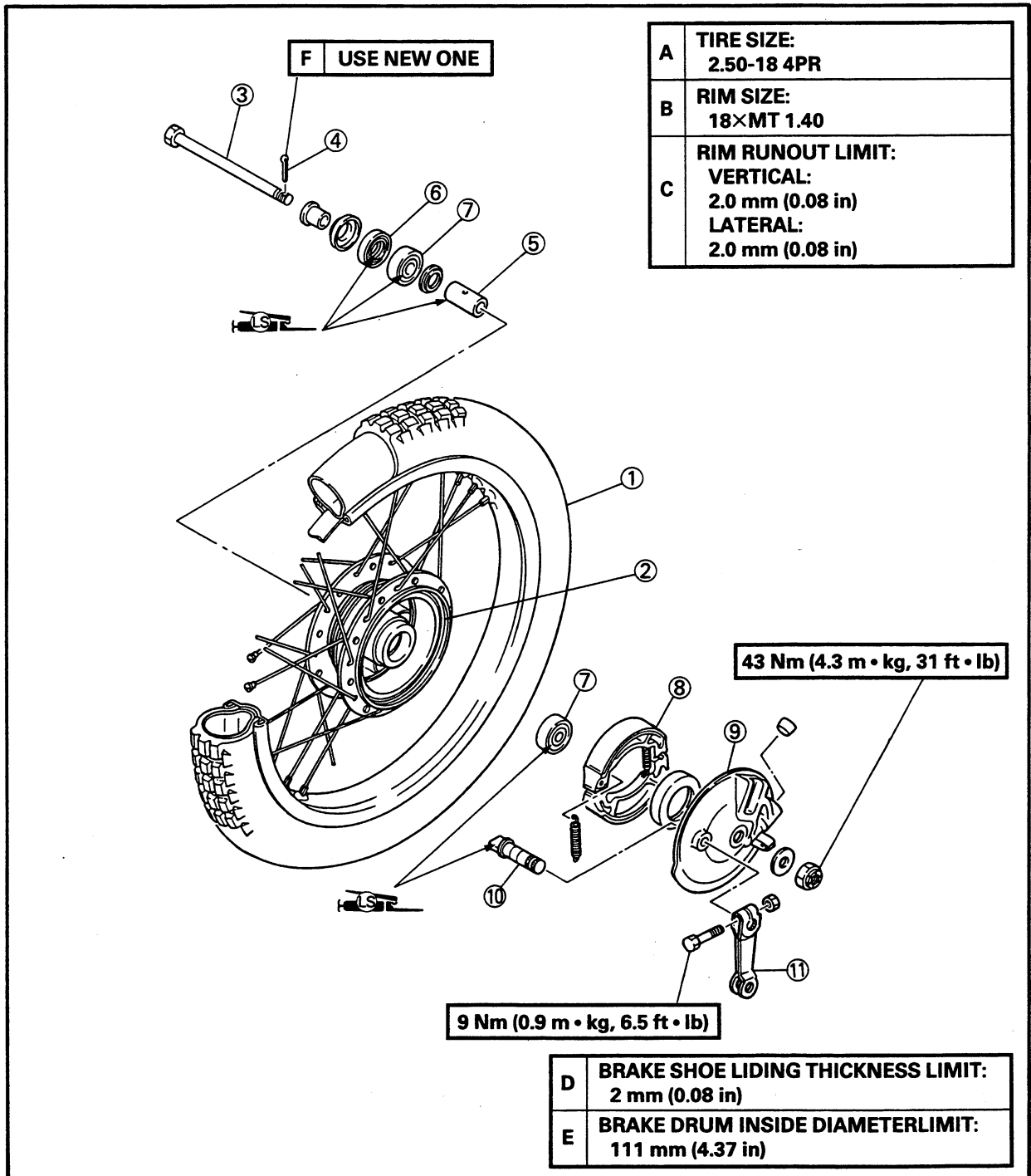


CHASSIS

FRONT WHEEL

- ① Front wheel
- ② Hub
- ③ Front wheel axle
- ④ Cotter pin
- ⑤ Collar
- ⑥ Oil seal
- ⑦ Bearing
- ⑧ Brake shoes
- ⑨ Brake shoe plate
- ⑩ Brake cam shaft
- ⑪ Brake cam lever

COLD TIRE PRESSURE:	FRONT	REAR
OFF ROAD RIDING	125 kPa (1.25 kg/cm <sup>2</sup> , 18 psi)	125 kPa (1.25 kg/cm <sup>2</sup> , 18 psi)

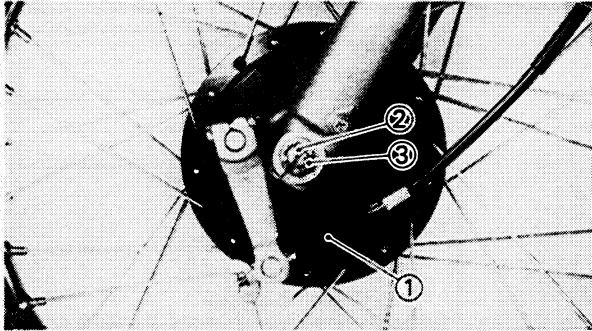


YB161001

**REMOVAL**

**⚠ WARNING**

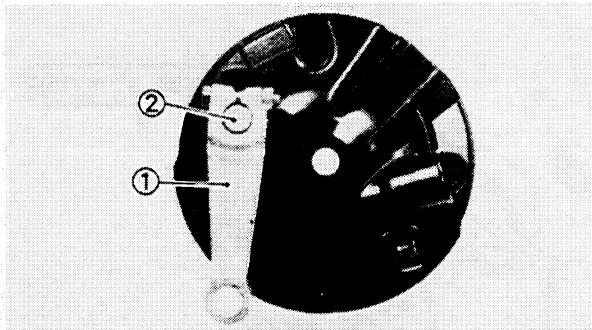
Support the machine securely so there is no danger of it falling over.



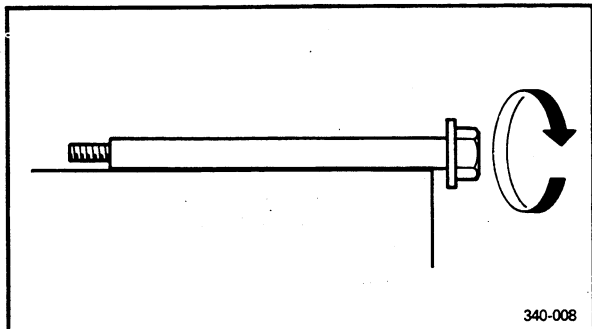
1. Remove:
  - Front brake cable ①
  - Cotter pin ②
  - Nut (front wheel axle) ③
  - Washer

2. Elevate the front wheel by placing a suitable stand under the engine.

3. Remove:
  - Front wheel axle
  - Front wheel
  - Collar



4. Remove:
  - Brake cam lever ①
  - Brake shoes
  - Springs (brake shoe)
  - Brake cam shaft ②



YB161002

**INSPECTION**

1. Eliminate any corrosion from parts.

2. Inspect:
  - Front axle

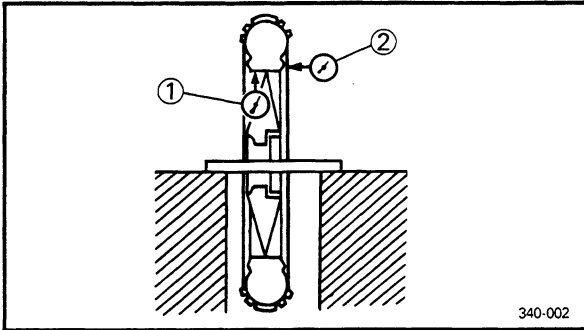
Roll the axle on a flat surface.  
Bends → Replace.

**⚠ WARNING**

**Do not attempt to straighten a bent axle.**


**3. Inspect:**

- Wheel  
Cracks/Bends/Warpage → Replace.



**4. Measure:**

- Wheel runout  
Out of specification → Check the wheel and bearing play.

	<b>Rim runout limit:</b>
	<b>Radial ① : 2.0 mm (0.08 in)</b>
	<b>Lateral ② : 2.0 mm (0.08 in)</b>

**5. Check:**

- Wheel bearings  
Bearings allow play in the wheel hub or wheel turns roughly → Replace.
- Oil seals  
Wear/Damage → Replace.

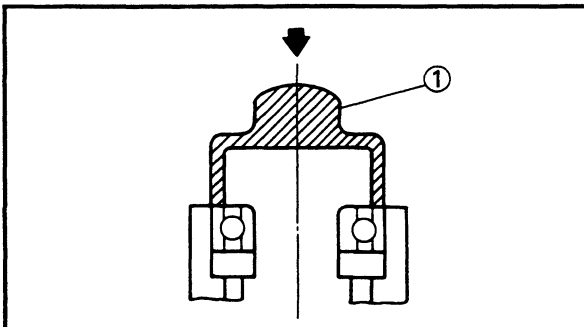
\*\*\*\*\*

**Replacement steps:**

- Clean the out side of the wheel hub.
- Remove the oil seals use a flat-head screw driver.

**NOTE:**

Place a rag against the outer edge to protect this edge.



- Remove the bearing using a general bearing puller.
- Install the new bearing and oil seal by reversing the previous steps.

**NOTE:**

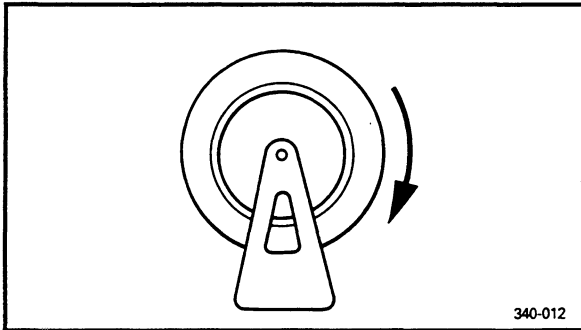
Use a socket ① that matches the outside diameter of the race of the bearing and oil seal.



**CAUTION:**

Do not strike the inner race of balls of the bearing. Contact should be made only with the outer race.

\*\*\*\*\*



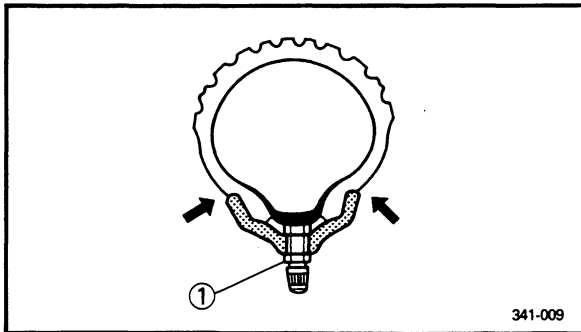
340-012

6. Check:

- Wheel balance

Wheel is not statically balanced if it comes to rest at the same point after several light rotations.

Out of balance → Install appropriate balance weight at lightest point (on top).



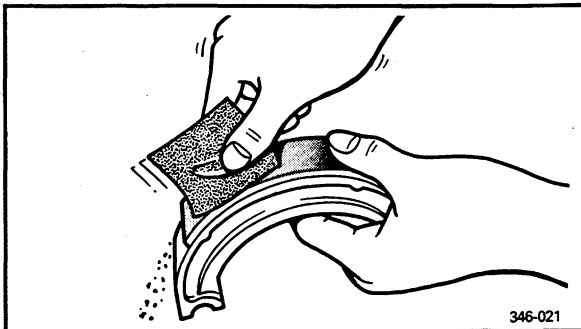
341-009

**⚠ WARNING**

- After mounting a tire, ride conservatively to allow proper tire to rim seating. Failure to do so may cause an accident resulting in machine damage and possible operator injury.
- After a tire repair or replacement, be sure to torque tighten the valve stem locknut ① to specification.



**Valve-stem locknut:**  
1.5 Nm (0.15 m · kg, 1.1 ft · lb)



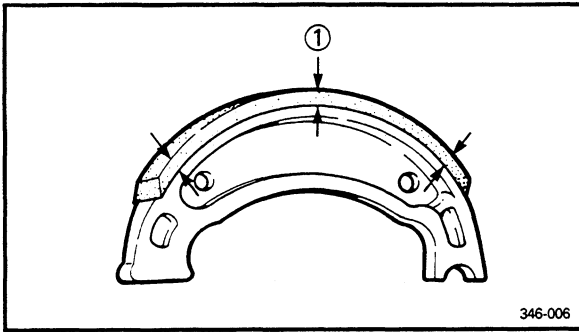
346-021

7. Inspect:

- Brake lining surface  
Blazed areas → Remove.  
Use a coarse sand paper.

**NOTE:**

After using the sand paper, clean of the polished particles with cloth.



8. Measure:

- Brake lining thickness  
Out of specification → Replace.

① Measuring points



**Brake lining thickness:**

**4 mm (0.16 in)**

**Wear limit:**

**2 mm (0.08 in)**

**NOTE:**

Replace the brake shoes as a set if either is found to be worn to the wear limit.

9. Inspect:

- Brake drum inner surface  
Oil/Scratches → Remove.

<b>Oil</b>	<b>Use a rag soaked in lacquer thinner or solvent.</b>
<b>Scratches</b>	<b>Use an emery cloth (lightly and evenly polishing).</b>

10. Measure:

- Brake drum inside diameter  
Out of specification → Replace.



**Brake drum wear limit:**

**111 mm (4.37 in)**

YB161003

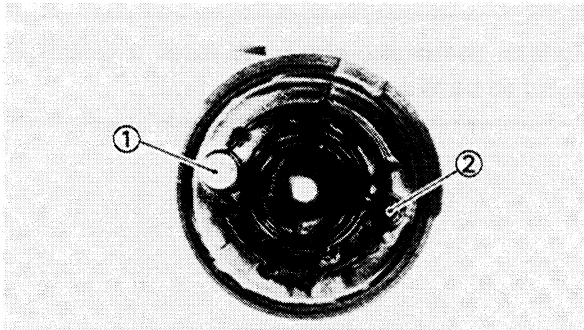
**INSTALLATION**

Reverse the removal procedure.  
Note the following points.

1. Install:  
 • Brake cam shaft

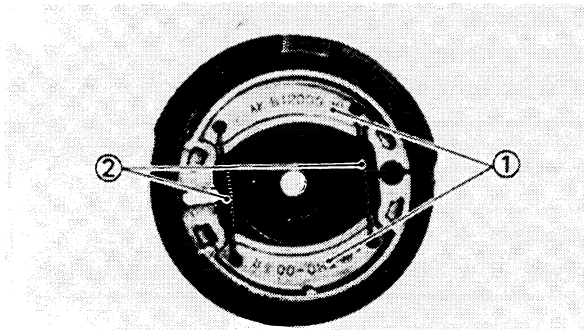
**NOTE:** \_\_\_\_\_  
 Apply the lithium soap base grease onto the brake cam shaft.

**CAUTION:** \_\_\_\_\_  
 Wipe off the excess grease.



2. Apply:  
 • Lithium soap base grease  
 Onto the brake cam lever ① and pivot shaft ②.

**CAUTION:** \_\_\_\_\_  
 Wipe off the excess grease.



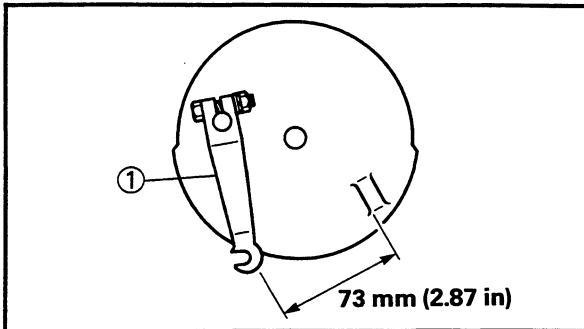
3. Install:  
 • Brake shoes ①  
 • Springs (brake shoe) ②


**CAUTION:** \_\_\_\_\_  
 When installing the spring and brake shoe, take care not to damage the spring and not to apply grease to the brake shoes.

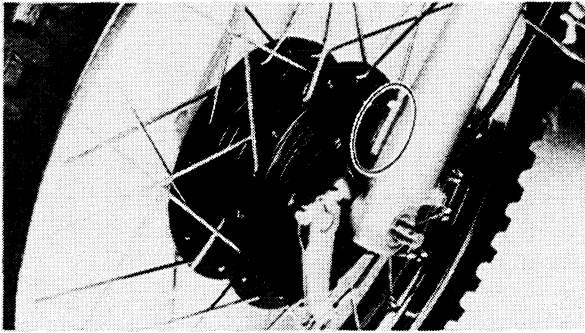
4. Apply:  
 • Lithium base grease  
 Lightly grease to the oil seal lips.

5. Install:  
 • Brake cam lever ①

**NOTE:** \_\_\_\_\_  
 Install the brake cam lever as shown.



	<b>Bolt (brake cam lever):</b> 9 Nm (0.9 m · kg, 6.5 ft · lb)
---	--



6. Install:
- Front wheel assembly

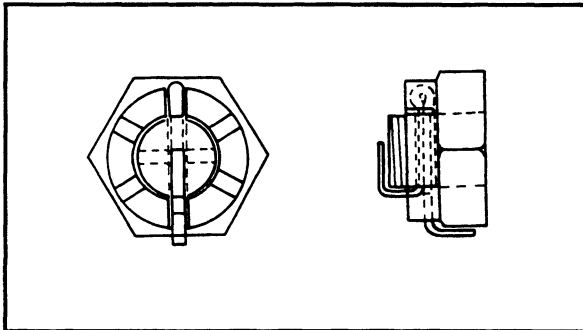
**⚠ WARNING**

Be sure the boss on the outer fork tube correctly engages with the locating slot on the brake shoe plate.

7. Tighten:
- Nut (front wheel axle)



Nut (front wheel axle):  
43 Nm (4.3 m · kg, 31 ft · lb)



8. Install:
- Cotter pin (new)

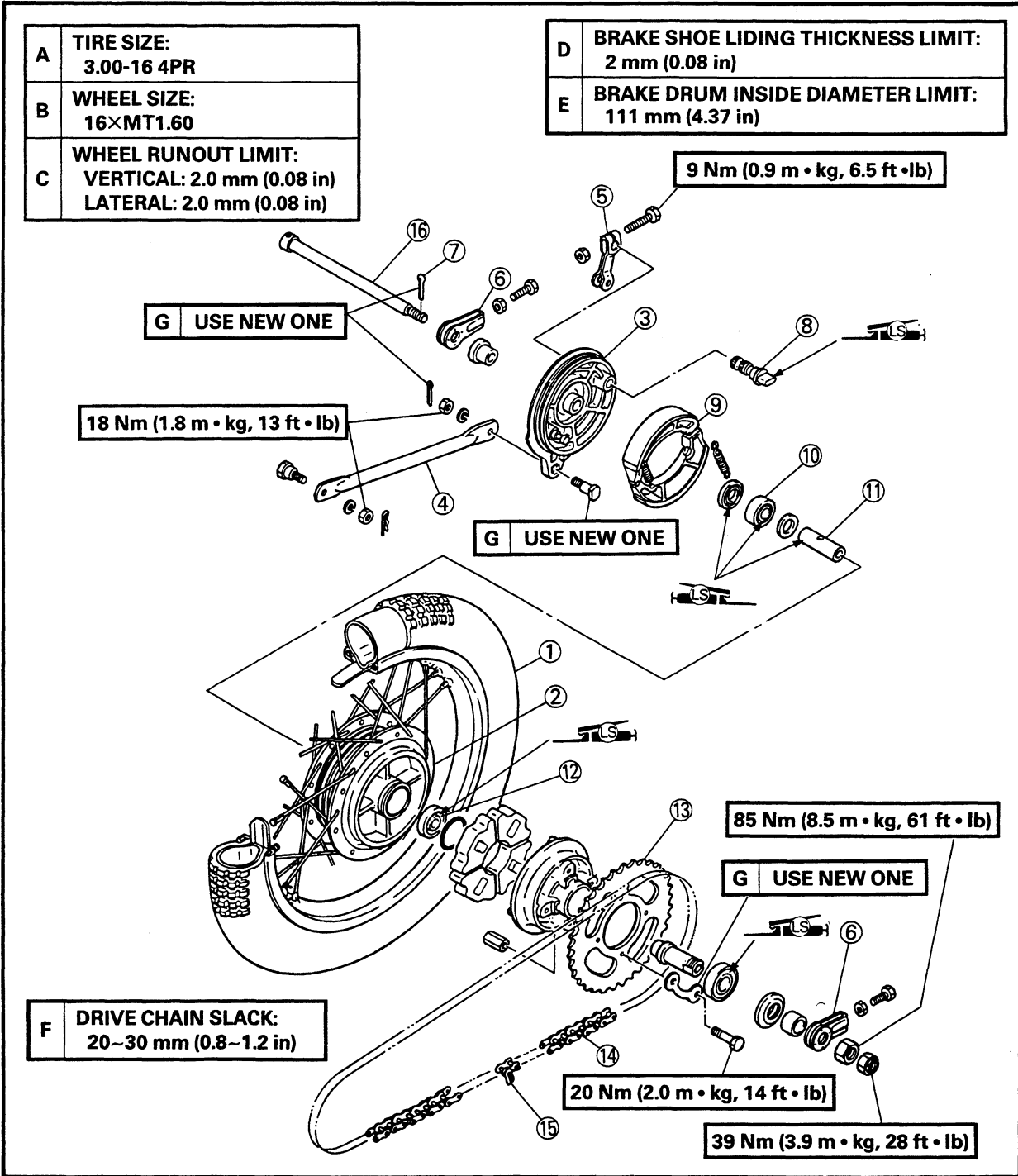
**⚠ WARNING**

Always use a new cotter pin.

9. Bend the end of cotter pin.

**REAR WHEEL**

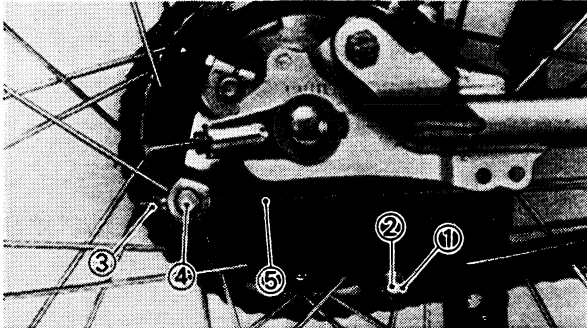
- ① Rear wheel
- ② Hub
- ③ Brake shoe plate
- ④ Tension bar
- ⑤ Brake cam lever
- ⑥ Drive chain puller
- ⑦ Cotter pin
- ⑧ Brake cam shaft
- ⑨ Brake shoes
- ⑩ Bearing
- ⑪ Collar
- ⑫ Bearing
- ⑬ Driven sprocket
- ⑭ Drive chain
- ⑮ Joint
- ⑯ Rear wheel axle



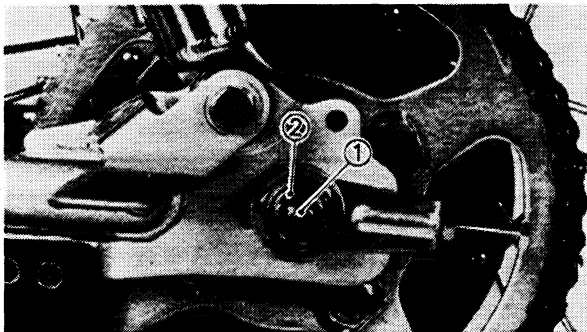
YB162001

**REMOVAL****⚠ WARNING**

Support the machine securely so there is no danger of it falling over.

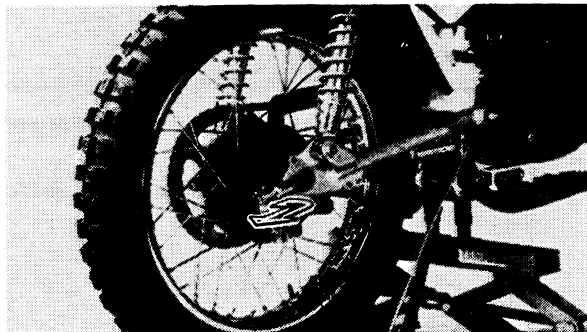
**1. Remove:**

- Cotter pin (tension bar) ①
- Nut (tension bar) ②
- Adjuster (rear brake) ③
- Pin ④
- Spring ⑤

**2. Remove:**

- Cotter pin (rear wheel axle) ①
- Nut (rear wheel axle) ②

**3. Elevate the rear wheel by placing a suitable stand under the engine.**

**4. Remove:**

- Rear wheel axle
- Collar
- Rear wheel assembly

**5. Remove:**

- Brake cam lever
- Brake shoes
- Springs (brake shoe)
- Brake cam shaft

YB162002

**INSPECTION**

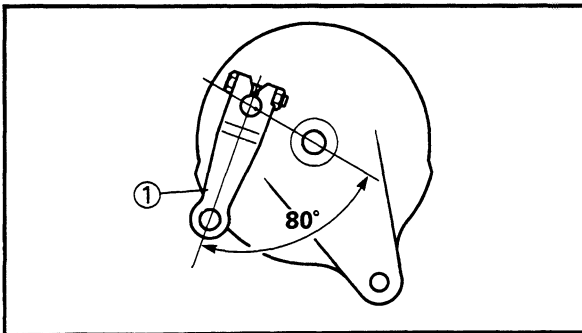
1. Eliminate any corrosion from parts.
2. Inspect:  
Refer to "FRONT WHEEL—INSPECTION" section.

YB162003

**INSTALLATION**


Reverse the removal procedure.  
Note the following points.

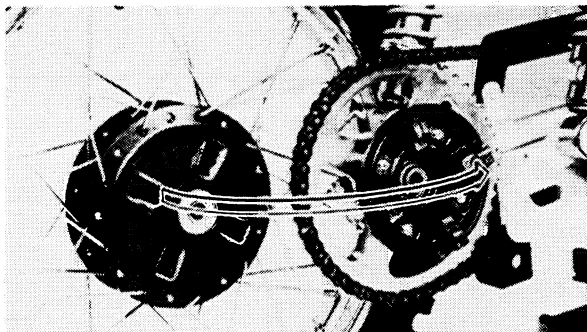
1. Install:
  - Brake shoe plate assembly  
Refer to "FRONT WHEEL—INSTALLATION" section.



2. Install:
  - Brake cam lever ①

**NOTE:** \_\_\_\_\_  
Install the brake cam lever sa shown.


	<p><b>Bolt (brake cam lever):</b> 9 Nm (0.9 m · kg, 6.5 ft · lb)</p>
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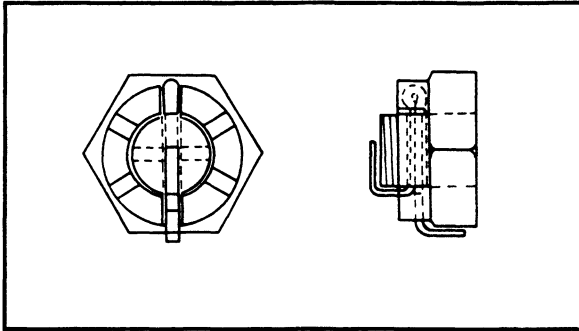


3. Install:
  - Rear wheel assembly

**NOTE:** \_\_\_\_\_  
Be sure the slots on the rear wheel damper fit into rear sprocket wheel.

4. Tighten:
  - Nut (rear wheel axle)
  - Nut (tension bar)

	<p><b>Nut (rear wheel axle):</b> 39 Nm (3.9 m · kg, 28 ft · lb)</p> <p><b>Nut (tension bar):</b> 18 Nm (1.8 m · kg, 13 ft · lb)</p>
---	---



5. Install:

- Cotter pin

**⚠ WARNING**

**Always use a new cotter pin.**

6. Bend the end of cotter pin.

7. Adjust:

- Rear brake pedal free play

Refer to "CHAPTER 3—REAR BRAKE ADJUSTMENT" section.



**Rear brake pedal free play:**  
20 ~ 30 mm (0.8 ~ 1.2 in)

8. Check:

- Drive chain slack

Refer to "CHAPTER 3—DRIVE CHAIN ADJUSTMENT" section.

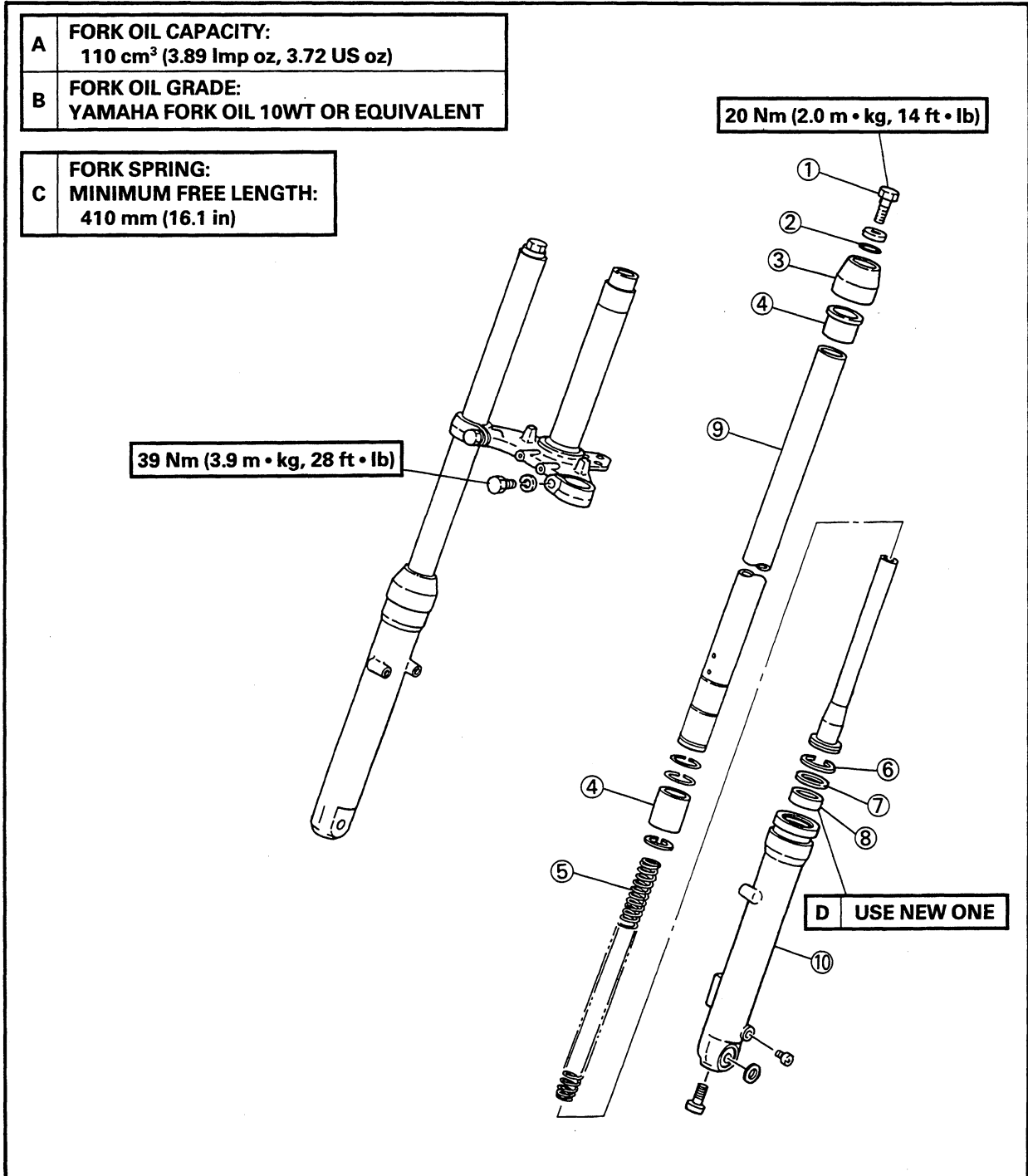


**Drive chain slack:**  
20 ~ 30 mm (0.8 ~ 1.2 in)



**FRONT FORK**

- ① Cap bolt
- ② O-ring
- ③ Dust seal
- ④ Slide metal
- ⑤ Fork spring
- ⑥ Circlip
- ⑦ Plain washer
- ⑧ Oil seal
- ⑨ Inner tube
- ⑩ Outer tube

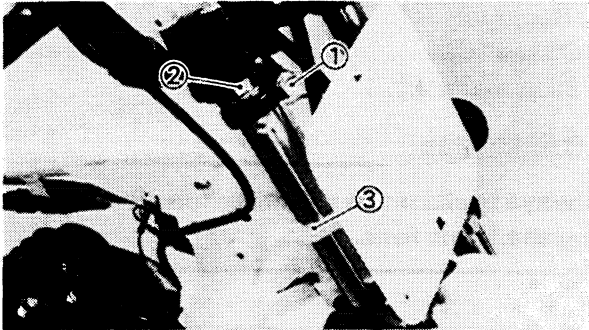


YB163001

**REMOVAL**

**⚠ WARNING**

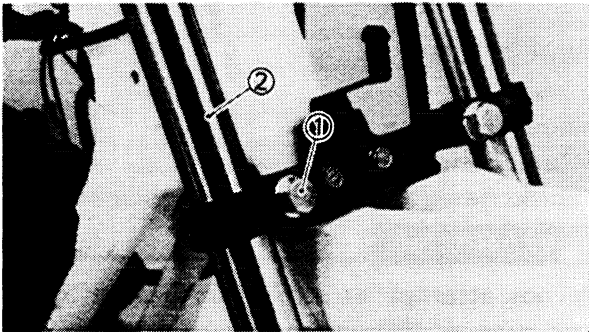
Support the machine securely so there is no danger of it falling over.



1. Remove:
  - Front wheel
  - Refer to "FRONT WHEEL—REMOVAL" section.

2. Loosen:
  - Pinch bolt (upper) ①

3. Remove:
  - Cap bolt ②
  - Washer
  - Grommet
  - Band (number plate) ③

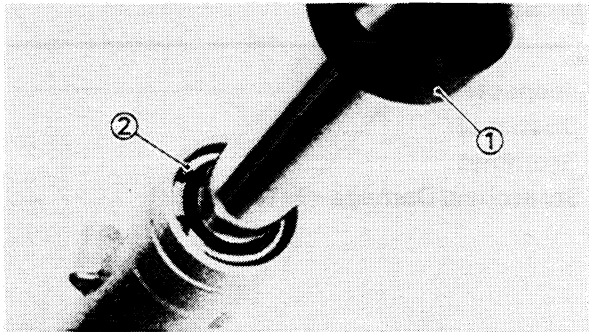


4. Loosen:
  - Pinch bolt (lower) ①

5. Remove:
  - Front fork ②

**CAUTION:**

Support the front fork before loosening the pinch bolt.



YB163002

**DISASSEMBLY**

1. Drain:
  - Fork oil

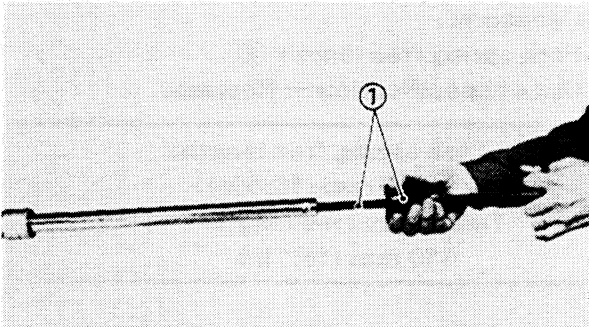
2. Remove:
  - Dust seal ①
  - Circlip ②
  - Plain washer

3. Remove:
  - Inner tube

\*\*\*\*\*

**Removal steps:**

- Hold the fork leg horizontally.
- Attach the slide hammer set ① to the inner tube.

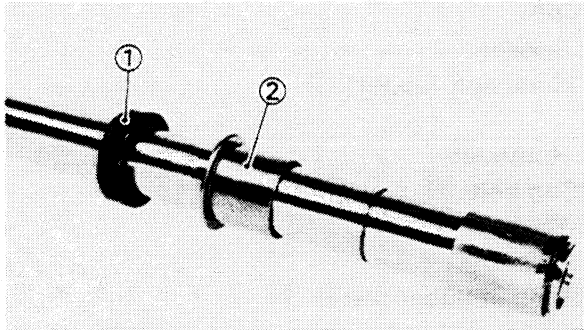




Slide hammer set:  
YU-01047

- Pull out the inner tube from the outer tube using slide hammer.

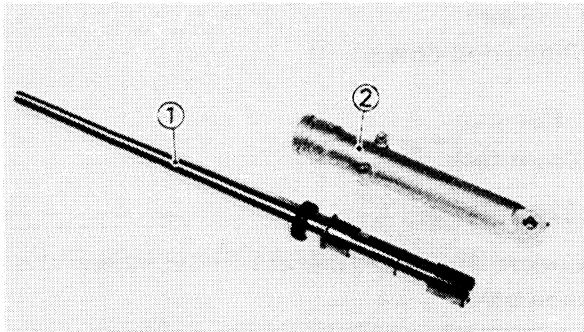
\*\*\*\*\*



4. Remove:
- Oil seal ①
  - Slide metal ②

**CAUTION:** \_\_\_\_\_

Always replace the oil seal when disassembling the front fork.



YB163003

**INSPECTION**

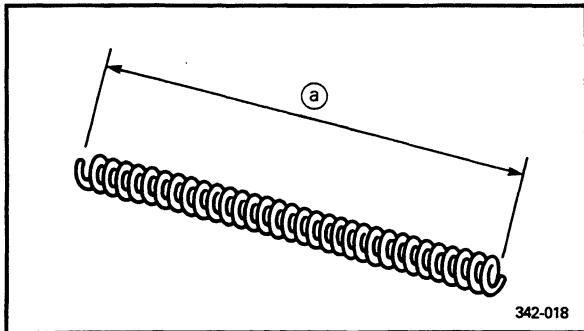
1. Inspect:
- Inner fork tube ①
  - Outer fork tube ②
- Scratches/Bends/Damage → Replace.

**⚠ WARNING** \_\_\_\_\_

Do not attempt to straighten a bent inner fork tube as this may dangerously weaken the tube.

2. Inspect:
- Dust seal
  - Grommet
- Scratches/Damage → Replace.

3. Measure:
- Fork spring free length ③
- Out of specification → Replace.



Fork spring free length:  
418.5 mm (16.5 in)  
Minimum free length:  
410 mm (16.1 in)



## 4. Inspect:

- Slide metal
- Scratches/Wear/Damage → Replace.

YB163004

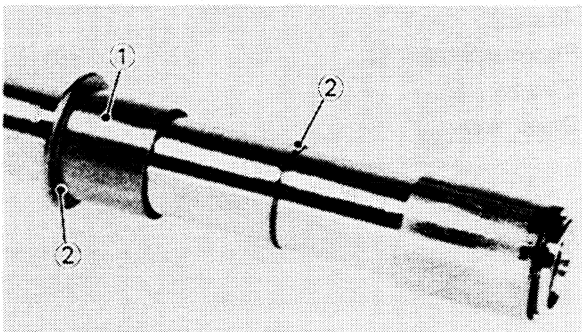
**ASSEMBLY**

Reverse the disassembly procedure.

Note the following points.

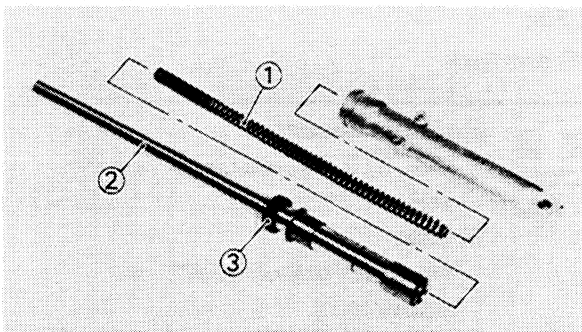
**NOTE:**

Be sure all components are clean before assembly.



## 1. Install:

- Slide metal ①
  - Clip ②
- To inner tube.



## 2. Install:

- Fork spring ①
- Inner tube ②

**NOTE:**

Install the fork spring so that small pitched side face upward.

## 3. Install:

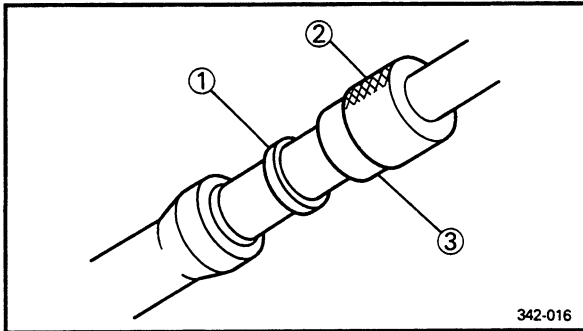
- Oil seal (new) ③

**NOTE:**

- Apply the lithium soap base grease onto the oil seal lip before installing the oil seal.
- Be sure oil seal numbered side face upward.

**CAUTION:**

- Take care not to damage the oil seal lip.
- Always sure a new oil seal.



4. Press the oil seal ① into the inner tube with fork seal driver ③ and weight ②.

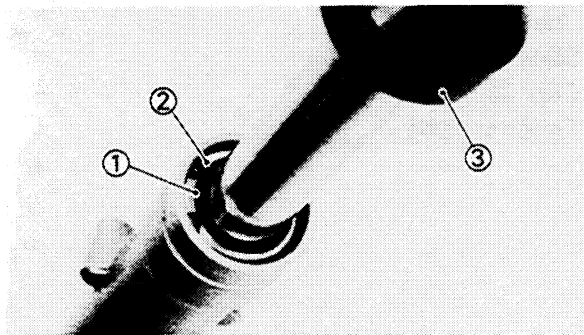


Fork seal driver ③ :

YM-33281

Weight ② :

YM-33963



5. Install:

- Plain washer ①
- Circlip ②
- Dust seal ③

6. Fill:

- Front fork



Fork oil capacity:

110 cm<sup>3</sup> (3.89 Imp oz, 3.72 US oz)

Grade:

Yamaha fork oil 10WT or equivalent

**NOTE:**

After filling the front fork with fork oil, slowly pump the front fork up and down to distribute oil.

YB163005

**INSTALLATION**

Reverse the removal procedure.

Note the following points.

**1. Install:**

- Front fork

Temporary tighten the pinch bolts.

**NOTE:**

Position the inner fork tube end in such a way that it is flush with the top of the handle crown.

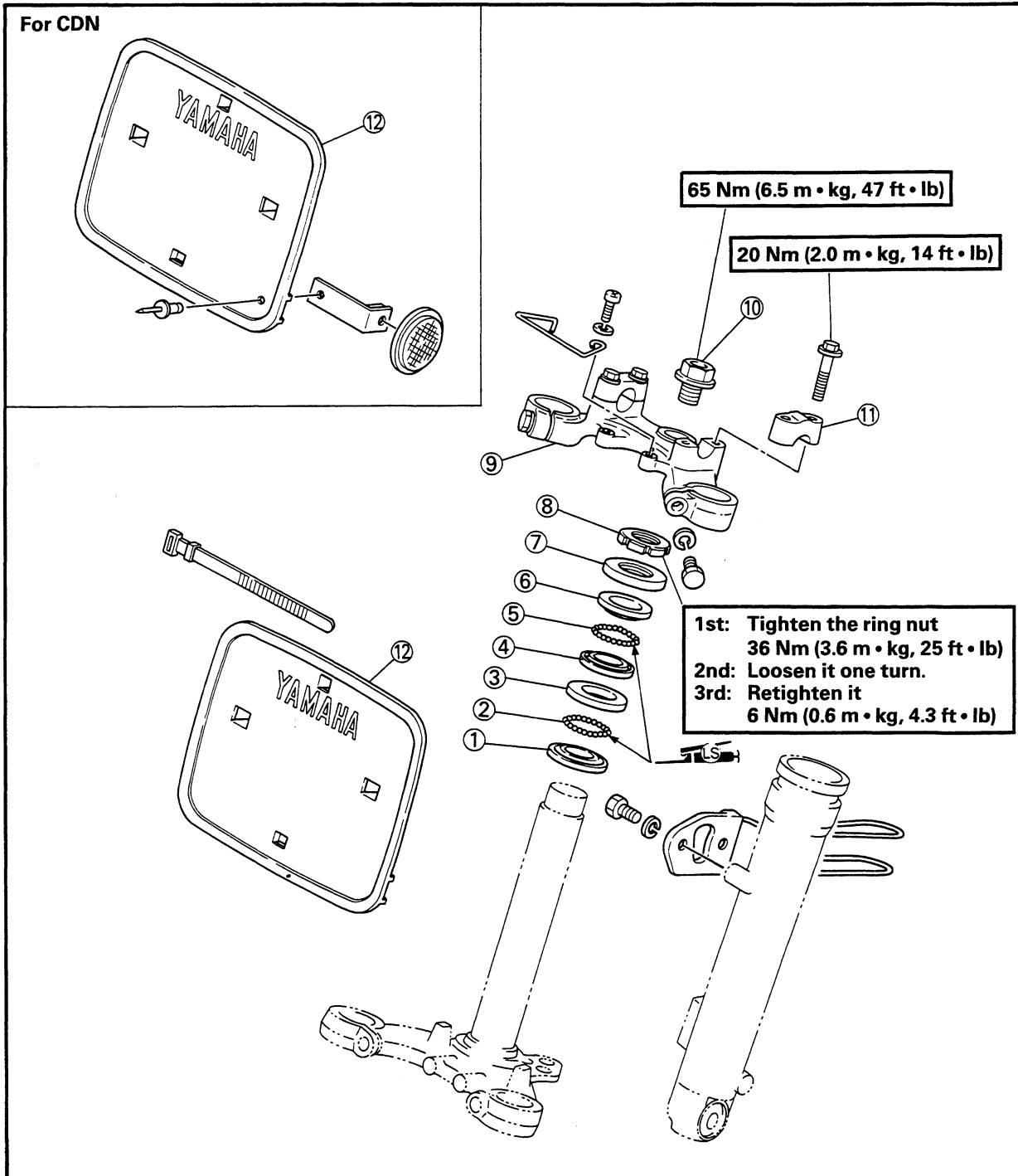
**2. Tighten:**

- Pinch bolt (lower)
- Cap bolt
- Pinch bolt (upper)

**Pinch bolt:****Lower:****39 Nm (3.9 m · kg, 28 ft · lb)****Upper:****26 Nm (2.6 m · kg, 19 ft · lb)****Cap bolt:****20 Nm (2.0 m · kg, 14 ft · lb)**

## STEERING HEAD AND HANDLEBAR

- |                               |                      |
|-------------------------------|----------------------|
| ① Bearing race (Lower—Bottom) | ⑦ Bearing race cover |
| ② Ball (1/4 in—19 pcs.)       | ⑧ Ring nut           |
| ③ Bearing race (Lower—Top)    | ⑨ Handle crown       |
| ④ Bearing race (Upper—Bottom) | ⑩ Steering stem bolt |
| ⑤ Ball (3/16 in—22 pcs.)      | ⑪ Handlebar holder   |
| ⑥ Bearing race (Upper—Top)    | ⑫ Number plate       |





YB164001

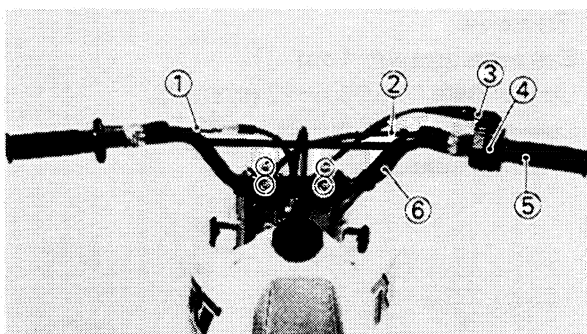
## REMOVAL

### **⚠ WARNING**

Securely support the machine so there is no danger of it falling over.

#### 1. Remove:

- Front wheel  
Refer to "FRONT WHEEL—REMOVAL" section.



#### 2. Disconnect:

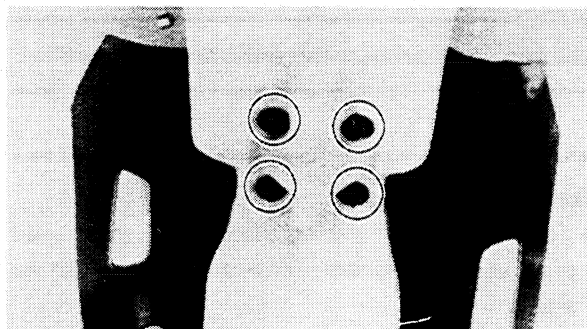
- Clutch cable ①
- Front brake cable ②
- Throttle cable ③

#### 3. Remove:

- Handlebar switch (right) ④
- Throttle grip ⑤
- Handlebar ⑥

#### 4. Remove:

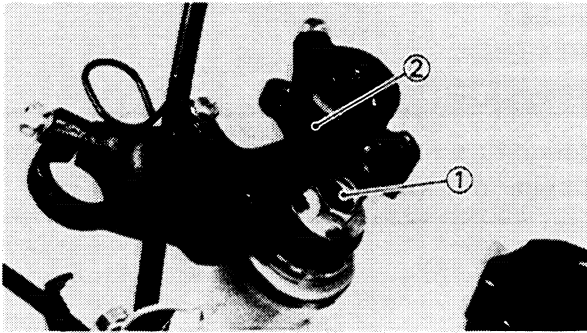
- Front forks  
Refer to "FRONT FORK—REMOVAL" section.



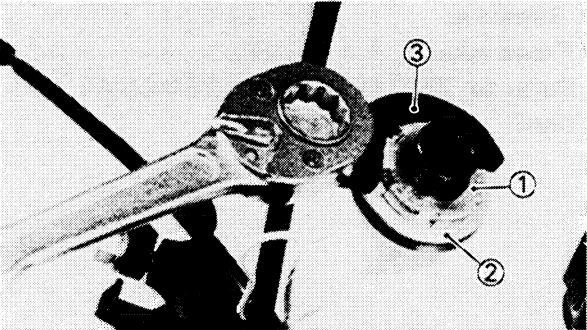
#### 5. Remove:

- Front fender




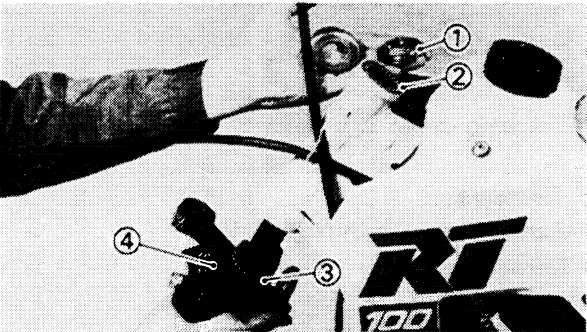


6. Remove:
- Steering stem bolt ①
  - Handle crown ②



7. Remove:
- Ring nut ①
  - Ball race cover ②
- Use ring nut wrench ③ .

 **Ring nut wrench:**  
YU-33975



8. Remove:
- Ball race (upper—top) ①
  - Upper balls (3/16 in—22 pcs.) ②
  - Lower balls (1/4 in—19 pcs.) ③
  - Under bracket ④

YB164002

**INSPECTION**

1. Wash the ball bearing races with a solvent.

2. Inspect:

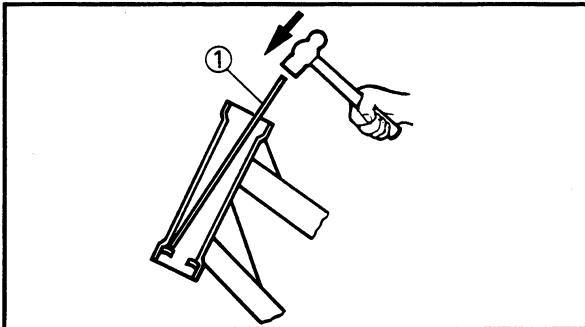
- Ball bearings
  - Bearing races
- Pitting/Damage → Replace.

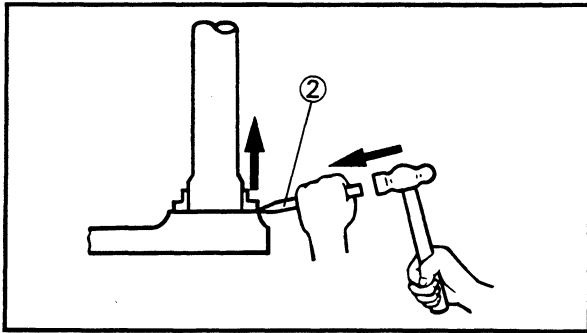
**NOTE:** \_\_\_\_\_  
Always replace bearing and races as a set.  
\_\_\_\_\_

\*\*\*\*\*

**Replacement steps:**

- Remove the bearing races on the head pipe using long rod ① and the hammer as shown.





- Remove the bearing race on the under bracket using the floor chisel ② and the hammer as shown.
- Install the new dust seal and races.  
\*\*\*\*\*

3. Inspect:

- Handlebar crown
- Under bracket  
Cracks/Bends/Damage → Replace.

4. Inspect:

- Handlebar  
Bends/Cracks/Damage → Replace.

**⚠ WARNING**

**Do not attempt to straighten a bent handlebar as this may dangerously weaken the handlebar.**

YB164003

**INSTALLATION**

Reverse the removal procedure.  
Note the following points.

1. Apply:

- Lithium soap base grease  
To bearing race.

2. Install:

- Upper balls ①  
To bearing race (upper—top).
- Lower balls ②  
To bearing race (lower—bottom).  
Arrange the bearings around race, and apply more grease.



Ball quantity/Size:  
Upper 22 pcs./ 3/16 in  
Lower 19 pcs./ 1/4 in

3. Install:

- Under bracket ③

**CAUTION:** \_\_\_\_\_

Hold the under bracket until it is secured.

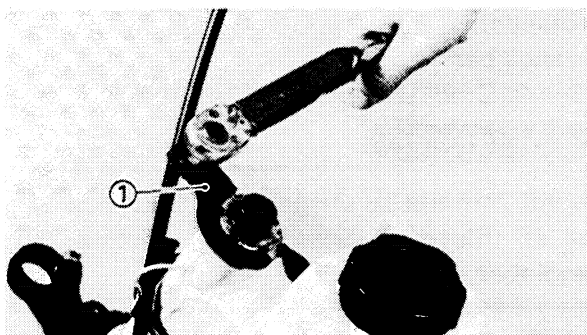
4. Tighten:


- Ring nut

\*\*\*\*\*

**Tightening steps:**


- Tighten the ring nut using the ring nut wrench ①.



 **Ring nut wrench:**  
YU-33975

**NOTE:** \_\_\_\_\_


Set the torque wrench to the ring nut wrench so that they form a right angle.

 **Ring nut (initial tightening):**  
36 Nm (3.6 m · kg, 25 ft · lb)

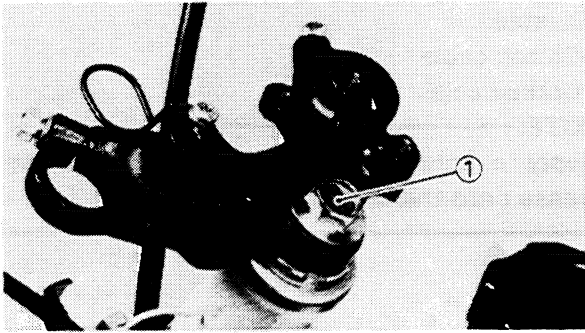
- Loosen the ring nut one turn.
- Retighten the ring nut using the ring nut wrench.

**⚠ WARNING** \_\_\_\_\_

Avoid over-tightening.

 **Ring nut (final tightening):**  
6 Nm (0.6 m · kg, 4.3 ft · lb)


\*\*\*\*\*




5. Install:
- Handle crown

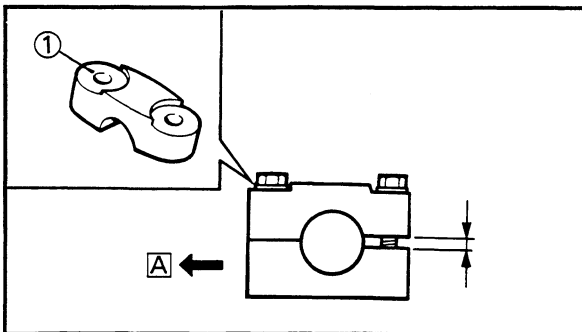
**NOTE:** \_\_\_\_\_  
 Temporary tighten the steering fitting bolt ① .

6. Install:
- Front forks
- Refer to "FRONT FORK—INSTALLATION" section.


	<b>Pinch bolt (lower):</b> 39 Nm (3.9 m · kg, 28 ft · lb)
---	--

7. Tighten:
- Steering stem bolt
  - Pinch bolt (upper)

	<b>Steering stem bolt:</b> 65 Nm (6.5 m · kg, 47 ft · lb)
	<b>Pinch bolt (upper):</b> 26 Nm (2.6 m · kg, 19 ft · lb)



8. Install:
- Handlebar
  - Handlebar holders

	<b>Bolt (handlebar holder):</b> 20 Nm (2.0 m · kg, 14 ft · lb)
---	---

**NOTE:** \_\_\_\_\_

- The upper handlebar holder should be installed with the punched mark ① forward **A** .
- Apply a light coat of lithium soap base grease onto the right handlebar end and install the throttle grip to the handlebar.

**CAUTION:** \_\_\_\_\_

First tighten the bolts on the front side of the handlebar holder, and then tighten the bolts on the rear side.

9. Install:

- Clutch cable
- Brake cable

**NOTE:**

Apply a light coat of lithium soap base grease onto the clutch/brake cable end.

10. Install:

- Front wheel

Refer to "FRONT WHEEL—INSTALLATION" section.



**Nut (front wheel axle):**

**43 Nm (4.3 m · kg, 31 ft · lb)**

11. Adjust:

- Clutch cable free play
- Brake cable free play



**Clutch lever free play:**

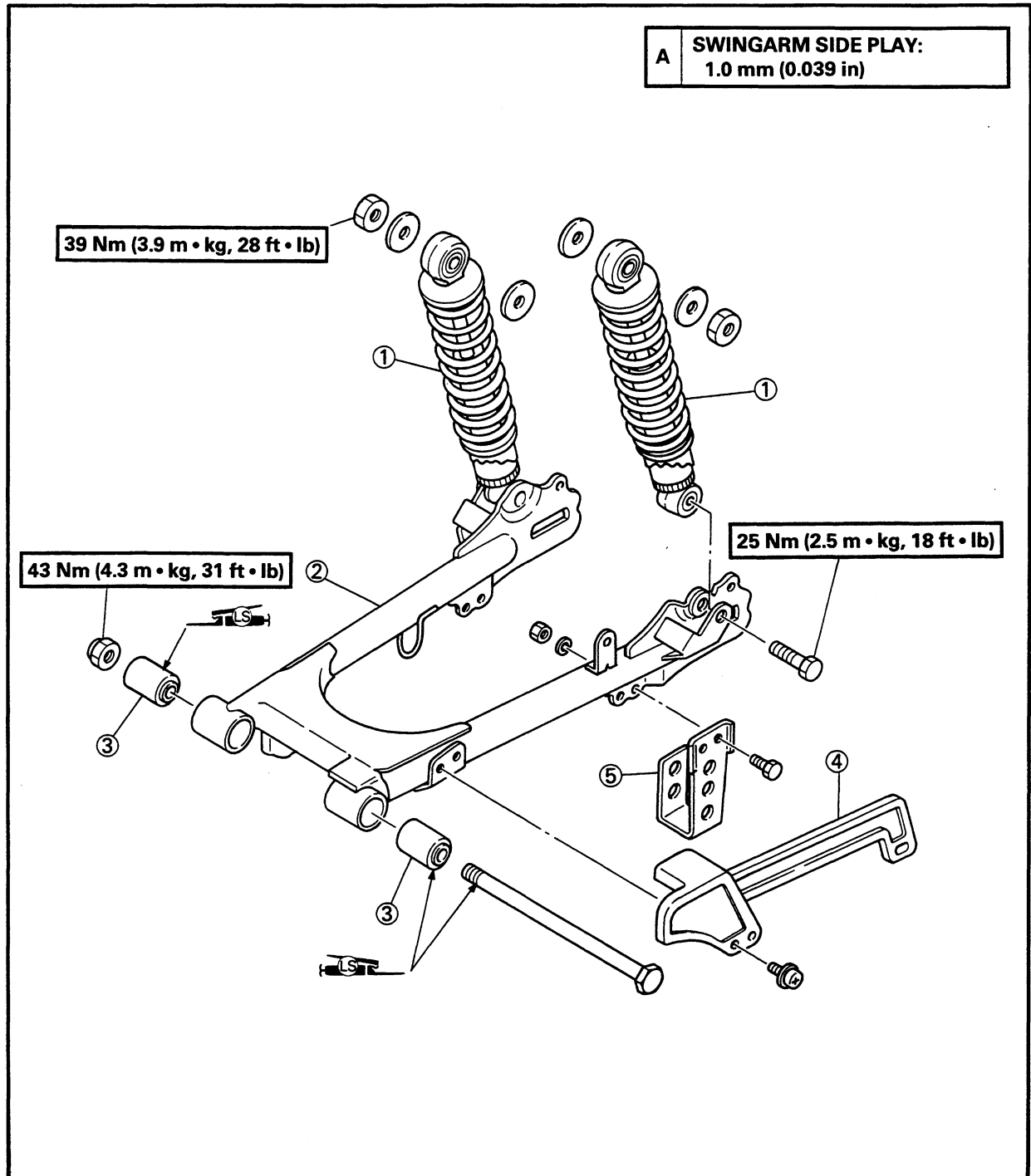
**2 ~ 3 mm (0.08 ~ 0.12 in)**

**Brake lever free play:**

**5 ~ 8 mm (0.20 ~ 0.31 in)**

**REAR SHOCK ABSORBER AND SWINGARM**

- ① Rear shock absorber
- ② Swingarm
- ③ Bush
- ④ Chain cover
- ⑤ Chain guide



YB165001

## REMOVAL

### **⚠ WARNING**

Securely support the machine so there is no danger of it falling over.

#### Rear shock absorber

1. Remove:

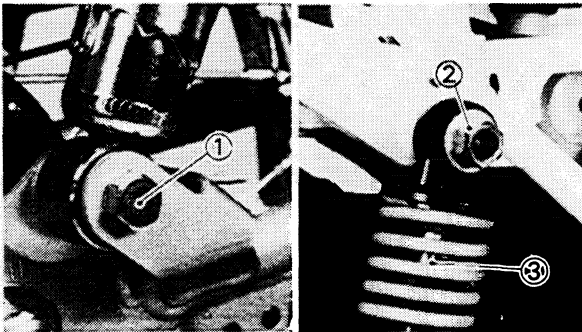
- Seat
- Side covers (left and right)

Refer to "CHAPTER 4—SEAT AND SIDE COVER" section.

2. Place a jack under the engine and elevate the machine.

3. Remove:

- Bolt (rear shock absorber—lower) ①
- Nut (rear shock absorber—upper) ②
- Washers
- Rear shock absorber ③



#### Swingarm

### **⚠ WARNING**

Securely support the machine so there is no danger of it falling over.

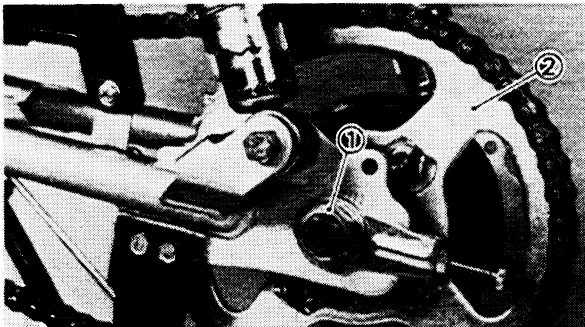
1. Remove:

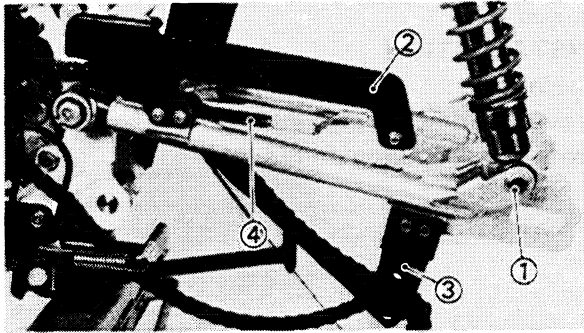
- Rear wheel

Refer to "REAR WHEEL—REMOVAL" section.

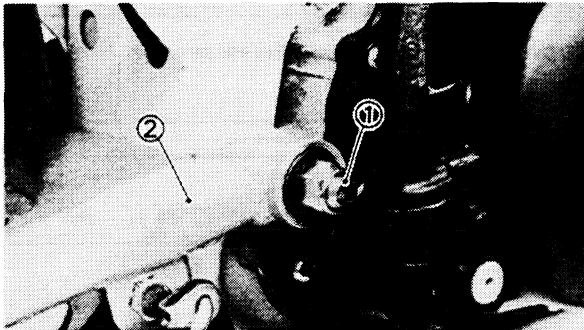
2. Remove:

- Sprocket shaft nut ①
- Rear sprocket wheel assembly ②

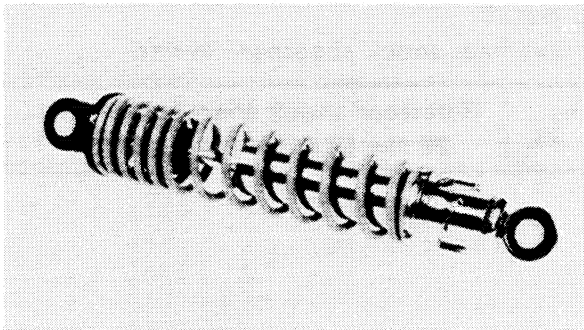




3. Remove:
  - Bolt (rear shock absorber—lower) ①
4. Remove:
  - Chain cover ②
  - Chain guide ③
5. Unhook:
  - Spring (rear brake) ④



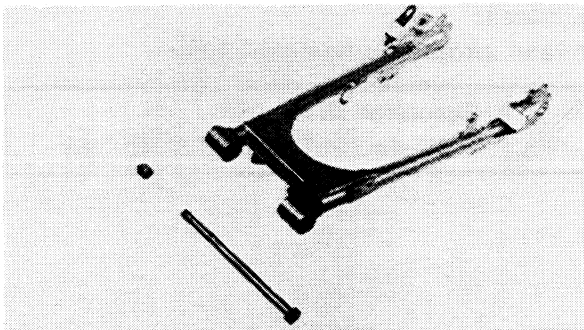
6. Remove:
  - Pivot shaft ①
  - Swingarm ②



YB165002

### INSPECTION

1. Inspect:
  - Rear shock absorber  
Oil leaks/Damage → Replace.



2. Inspect:
  - Swingarm  
Bends/Cracks/Damage → Replace.

3. Inspect:
  - Pivot shaft  
Roll the axle on a flat surface.  
Bends → Replace.

**⚠ WARNING**

**Do not attempt to straighten a bent axle.**



YB165003

## INSTALLATION

### Swingarm

Reverse removal procedure.

Note the following points.

1. Install:

- Swingarm

**NOTE:**

Apply the lithium soap base grease onto the pivot shaft.



**Nut (pivot shaft):**

**43 Nm (4.3 m · kg, 31 ft · lb)**

2. Install:

- Bolt (rear shock absorber—lower)



**Bolt (rear shock absorber):**

**25 Nm (2.5 m · kg, 18 ft · lb)**

3. Install:

- Rear sprocket wheel assembly



**Sprocket shaft nut:**

**85 Nm (8.5 m · kg, 61 ft · lb)**

4. Install:

- Rear wheel

Refer to "REAR WHEEL—INSTALLATION" section.



**Nut (rear wheel axle):**

**39 Nm (3.9 m · kg, 28 ft · lb)**


**Nut (tension bar):**

**18 Nm (1.8 m · kg, 13 ft · lb)**

5. Adjust:

- Brake pedal free play
- Drive chain slack

Refer to "CHAPTER 3—REAR BRAKE ADJUSTMENT" section.

	<b>Drive chain slack:</b> 20 ~ 30 mm (0.8 ~ 1.2 in)
	<b>Brake pedal free play:</b> 20 ~ 30 mm (0.8 ~ 1.2 in)


**Rear shock absorber**

Reverse the removal procedure.

Note the following points.

1. Install:

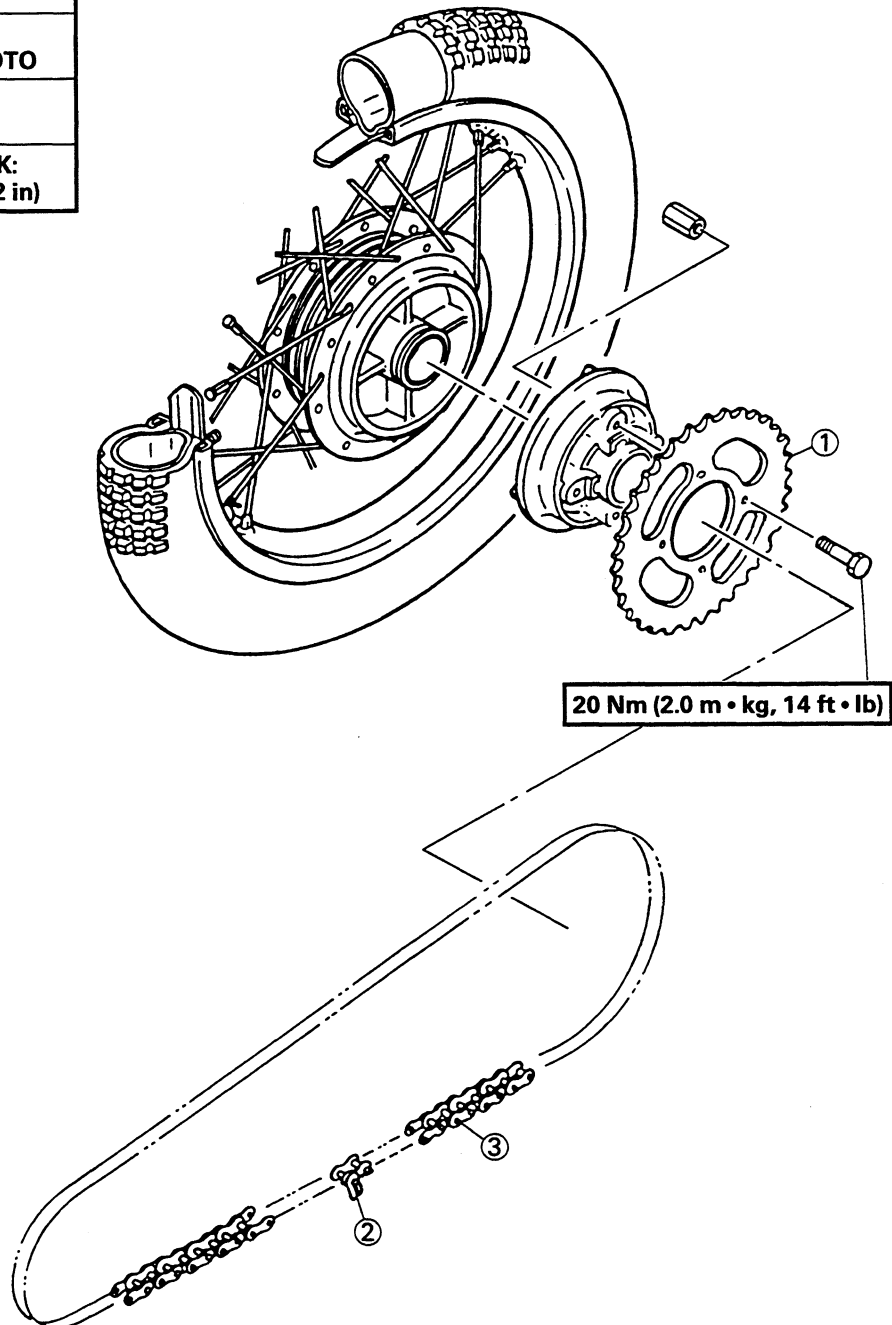
- Rear shock absorber

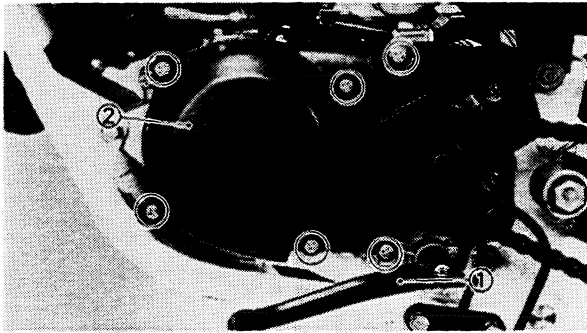
	<b>Bolt (upper):</b> 39 Nm (3.9 m · kg, 28 ft · lb)
	<b>Bolt (lower):</b> 25 Nm (2.5 m · kg, 18 ft · lb)

**DRIVE CHAIN AND SPROCKETS**

- ① Drive sprocket
- ② Chain joint
- ③ Drive chain

<b>A</b>	<b>DRIVE CHAIN:</b>
<b>B</b>	<b>TYPE:</b> RS420/TSUBAKIMOTO
<b>C</b>	<b>NO. OF LINKS:</b> 103+Joint
<b>D</b>	<b>DRIVE CHAIN SLACK:</b> 20~30 mm (0.8~1.2 in)



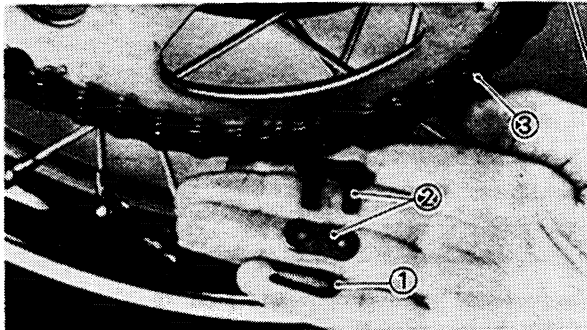


YB166001

**REMOVAL**

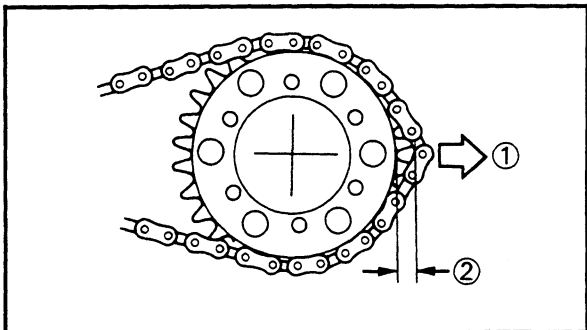
1. Remove:

- Change pedal ①
- Crankcase (Cover left) ②



2. Remove:

- Clip (drive chain) ①
- Joint (drive chain) ②
- Drive chain ③

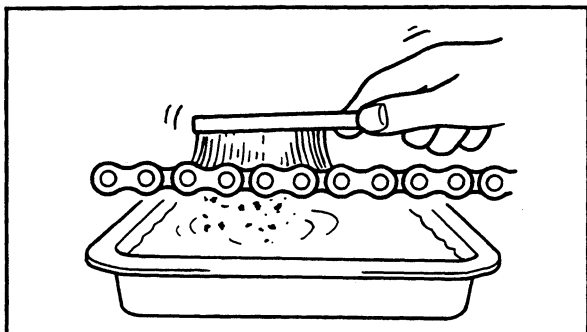


YB166002

**INSPECTION**

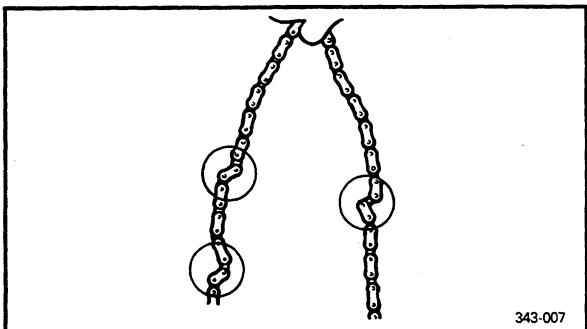
1. Check:

- Drive chain stretch  
Pull ② the chain away from the rear sprocket wheel.  
Distance chain/sprocket higher than 1/2 tooth ① → Replace drive chain.



2. Clean:

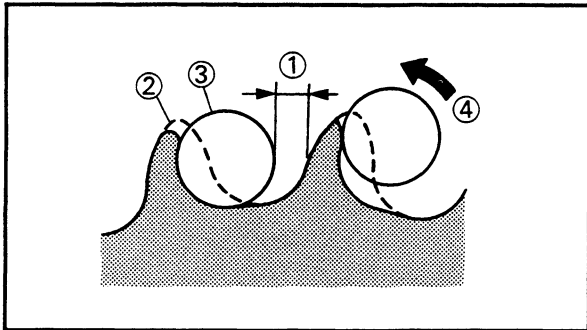
- Drive chain  
Place it in solvent, and brush off as much dirt as possible. Then remove the chain from the solvent and dry the chain.



3. Check:

- Drive chain stiffness  
Clean and oil the chain and hold as illustrated.  
Stiff → Replace drive chain.

343-007



**4. Inspect:**

- Drive and rear wheel sprocket  
Wear/Damage → Replace.

- ① 1/4 tooth
- ② Correct
- ③ Roller
- ④ Slip off

\*\*\*\*\*

**Replacement steps:**

- Straighten the lock washer tabs and remove the rear wheel sprocket.
- Install a new rear wheel sprocket and lock washers.

**⚠ WARNING**

**Always use new lock washers.**



**Nut (rear wheel sprocket):**  
**20 Nm (2.0 m · kg, 14 ft · lb)**

- Bent the lock washer tabs along the nut flats.

\*\*\*\*\*

YB166003

**INSTALLATION**

Reverse the removal steps.  
Note the following points.

**1. Install:**

- Rear wheel sprocket



**Nut (rear wheel sprocket):**  
**85 Nm (8.5 m · kg, 61 ft · lb)**  
**Nut (rear wheel axle):**  
**39 Nm (3.9 m · kg, 28 ft · lb)**  
**Nut (tension bar):**  
**18 Nm (1.8 m · kg, 13 ft · lb)**

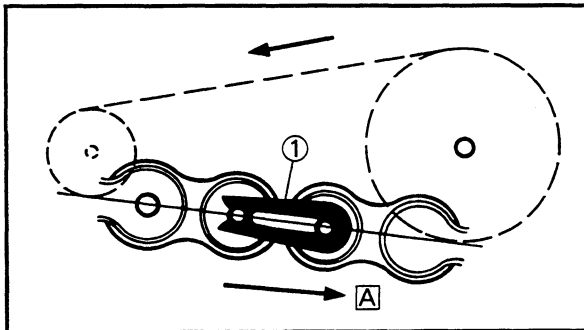
2. Install:
- Drive sprocket
  - Lock washer

	<p><b>Nut (drive sprocket):</b>  <b>55 Nm (5.5 m · kg, 40 ft · lb)</b></p>
---	--

3. Bend the lock washer tab along the nut flats.

**⚠ WARNING**

Always use a new lock washer (drive sprocket).




4. Install:
- Drive chain
  - Joint (drive chain)
  - Clip (drive chain)

**⚠ WARNING**


Make sure that the clip ① is installed in the correct direction. Otherwise, the drive chain will be separated.

**A** Turning direction

5. Lubricate:
- Drive chain

	<p><b>Chain lube:</b>  <b>Yamaha chain lube or equivalent</b></p>
---	---

6. Install:
- Crankcase cover
  - Change pedal

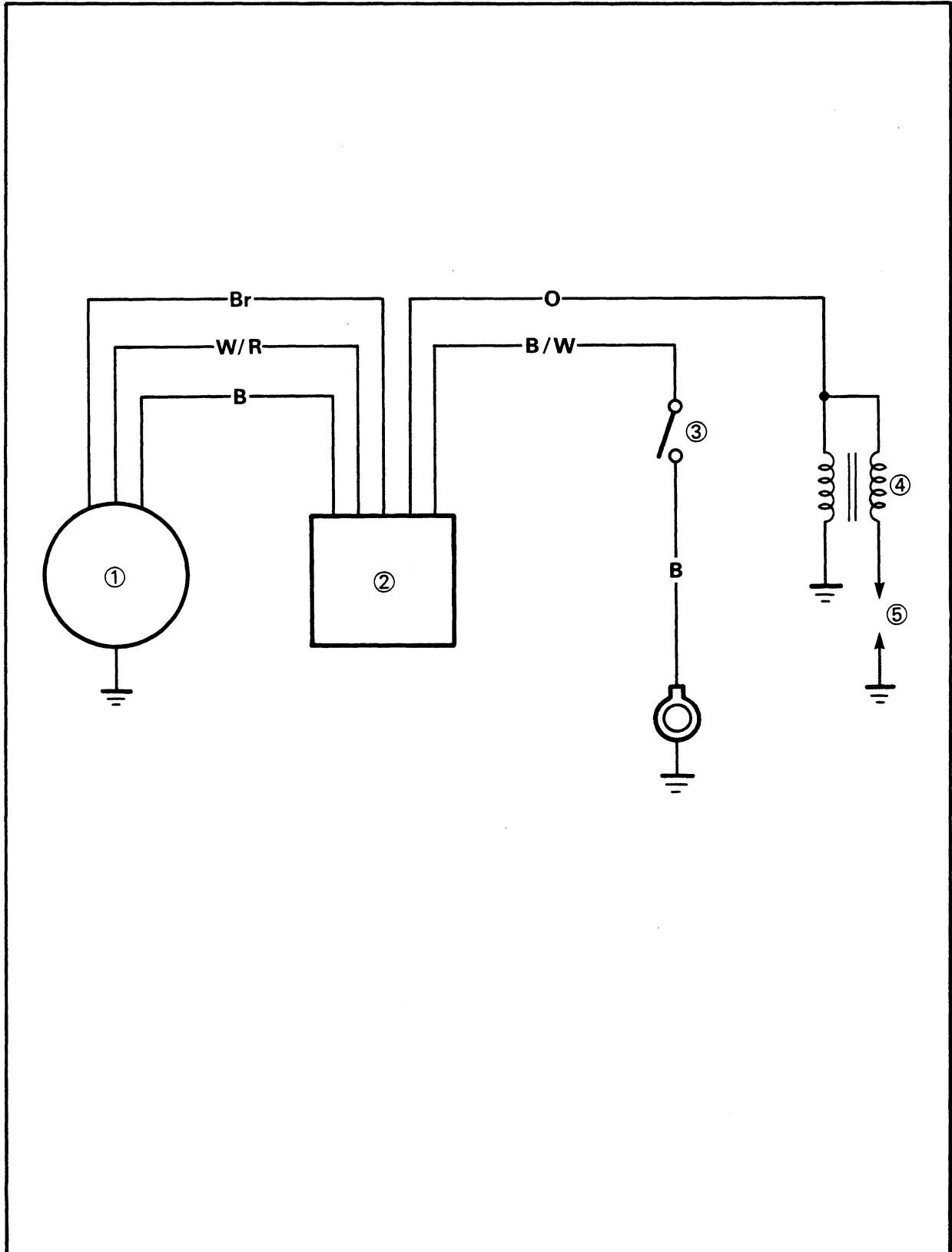
	<p><b>Screw (crankcase cover—left):</b>  <b>7 Nm (0.7 m · kg, 5.1 ft · lb)</b></p> <p><b>Bolt (change pedal):</b>  <b>11 Nm (1.1 m · kg, 8.0 ft · lb)</b></p>
---	---





ELECTRICAL

IGNITION SYSTEM  
CIRCUIT DIAGRAM







Aforementioned circuit diagram shows ignition circuit in circuit diagram

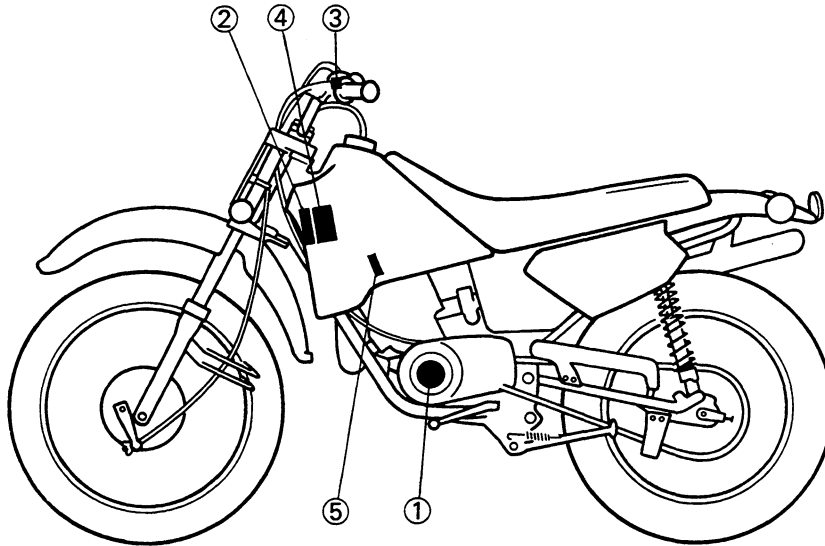
**NOTE:**

For the color codes, see page 7-2.

- ① CDI magneto
- ② CDI unit
- ③ "ENGINE STOP" switch
- ④ Ignition coil
- ⑤ Spark plug

**COLOR CODE**

<b>B</b>	<b>Black</b>
<b>O</b>	<b>Orange</b>
<b>Br</b>	<b>Brown</b>
<b>B/W</b>	<b>Black/White</b>
<b>W/R</b>	<b>White/Red</b>



TROUBLESHOOTING

IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE  
(NO SPARK OR INTERMITTENT SPARK)

Procedure

Check;


- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Spark plug</li> <li>2. Ignition spark gap</li> <li>3. Spark plug cap resistance</li> <li>4. Ignition coil resistance</li> </ol> | <ol style="list-style-type: none"> <li>5. "ENGINE STOP" switch</li> <li>6. Source coil resistance</li> <li>7. Pickup coil resistance</li> <li>8. Wiring connection<br/>(Entire ignition system)</li> </ol> |
|---|--|


NOTE:

•Remove the following parts before troubleshooting.

- 1) Side cover (Left)
- 2) Side cover (Right)
- 3) Seat
- 4) Fuel tank

•Use the following special tools in this troubleshooting.


 **Pocket tester:**  
YU-03112

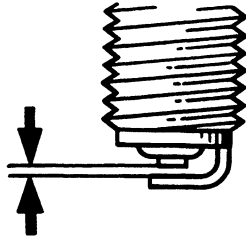
 **Dynamic coil tester:**  
YM-34487

1. Spark plug

- Check the spark plug type.
- Check the spark plug condition.
- Check the spark plug gap.  
Refer to the "SPARK PLUG INSPECTION" section in the CHAPTER 3.

**Standard spark plug:**  
For USA B7ES  
For CDN BR7ES

 **Spark plug gap:**  
0.5~0.6 mm



INCORRECT

Repair or replace spark plug.

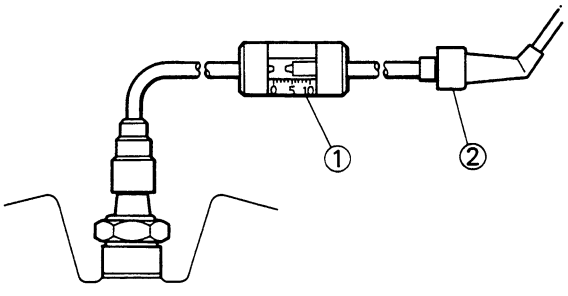
CORRECT

\*




2. Ignition spark gap

- Disconnect the spark plug cap from the spark plug.
- Connect the Dynamic Spark Tester ① to the spark plug and spark plug cap ②, and set the specified spark gap.



- Turn the "ENGINE STOP" switch to "RUN" then, shift the gear in neutral.
- Start the engine.
- Check the ignition spark condition.

 **Minimum spark gap:**  
6 mm (0.24 in)

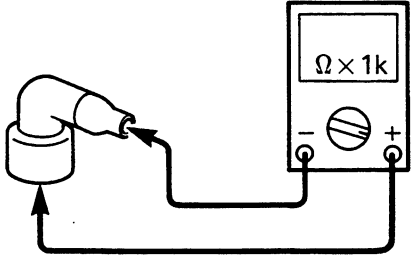
SPARK

Ignition circuit is good.


OUT OF SPECIFICATION

3. Spark plug cap resistance

- Remove the spark plug cap.
- Connect the Pocket Tester ( $\Omega \times 1k$ ) to the spark plug cap.



- Check the spark plug cap for specified resistance.

 **Spark plug cap resistance:**  
4 ~ 6 k $\Omega$  at 20°C (68°F)

OUT OF SPECIFICATION

Replace spark plug cap.

MEETS SPECIFICATION

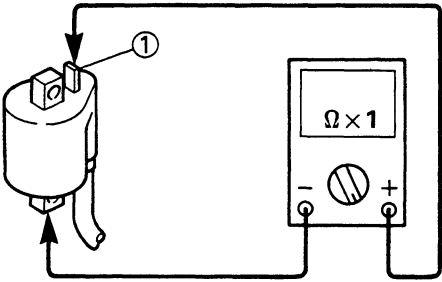





4. Ignition coil resistance

- Disconnect the ignition coil lead (Orange) from the wireharness.
- Connect the Pocket Tester ( $\Omega \times 1$ ) to the ignition coil.

**Tester (+) lead** → Orange ① terminal  
**Tester (-) lead** → Ignition coil base

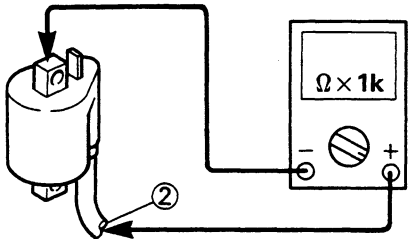


- Measure the primary coil resistance.


 **Primary coil resistance:**  
0.9 ~ 1.1  $\Omega$  at 20°C (68°F)

- Connect the Pocket Tester ( $\Omega \times 1k$ ) to the ignition coil.

**Tester (+) lead** → Spark plug lead ②  
**Tester (-) lead** → Ignition coil base



- Measure the Secondary coil resistance.

 **Secondary coil resistance:**  
4.7 ~ 7.1 k $\Omega$  at 20°C (68°F)

OUT OF SPECIFICATION

Replace ignition coil.

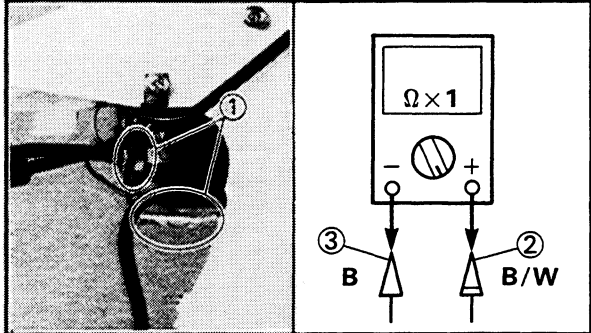
BOTH MEET SPECIFICATIONS



5. "ENGINE STOP" switch

- Disconnect the "ENGINE STOP" switch leads ① from the wireharness.
- Connect the Pocket Tester ( $\Omega \times 1$ ) to the "ENGINE STOP" switch.

Tester (+) lead → Black/White ② lead  
 Tester (-) lead → Black ③ lead



- Turn the "ENGINE STOP" switch to "OFF" and "RUN".
- Check the "ENGINE STOP" switch for continuity.

Switch position	Bad condition			
	Good condition	○	×	○
RUN	×	○	×	○
OFF	○	×	×	○

○: Continuity    ×: Nocontinuity

BAD CONDITION

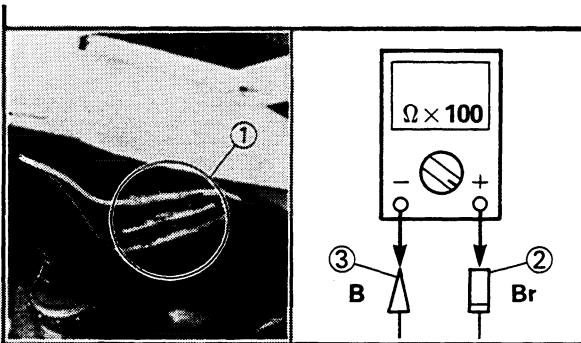
Replace "ENGINE STOP" switch

GOOD CONDITION

6. Source coil resistance

- Disconnect the CDI magneto coupler ① from the wireharness.
- Connect the Pocket Tester ( $\Omega \times 100$ ) to the source coil.

Tester (+) lead → Brown ② terminal  
 Tester (-) lead → Black ③ terminal



• Measure the source coil resistance.



**Source coil resistance:**  
270 ~ 330Ω at 20°C (68°F)

MEETS SPECIFICATION

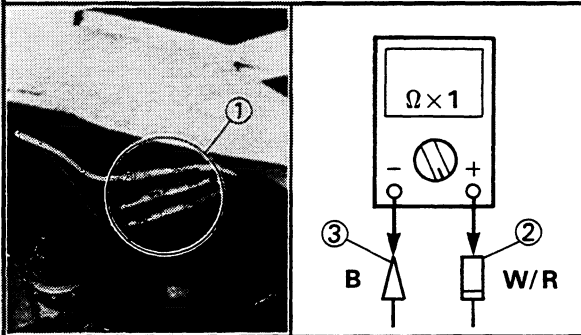
OUT OF SPECIFICATION

Replace source coil.

7. Pickup coil resistance

- Disconnect the CDI magneto coupler ① from the wireharness.
- Connect the Pocket Tester ( $\Omega \times 1$ ) to the pick-up coil.

Tester (+) lead → White/Red ② terminal  
Tester (-) lead → Black ③ terminal



• Measure the pickup coil resistance.



**Pickup coil resistance:**  
9 ~ 11Ω at 20°C (68°F)

MEETS SPECIFICATION

OUT OF SPECIFICATION

Replace pickup coil.

8. Wiring connection

- Check the entire ignition system for connections.
- Refer to the "WIRING DIAGRAM" section.

CORRECT

POOR CONNECTION

Correct.

Replace CDI unit.



## TROUBLESHOOTING

**NOTE:**

The following troubleshooting does not cover all the possible causes of trouble. It should be helpful, however, as a guide to troubleshooting. Refer to the relative procedure in this manual for inspection, adjustment and replacement or parts.

### STARTING FAILURE/HARD STARTING

**FUEL SYSTEM**

**PROBABLE CAUSE**

Fuel tank	<ul style="list-style-type: none"> <li>• Empty</li> <li>• Clogged fuel filter</li> <li>• Clogged air passage (Fuel tank cap)</li> <li>• Deteriorated fuel or fuel containing water or foreign material</li> </ul>
Fuel cock	<ul style="list-style-type: none"> <li>• Clogged fuel hose</li> </ul>
Carburetor	<ul style="list-style-type: none"> <li>• Deteriorated fuel, fuel containing water or foreign material</li> <li>• Clogged pilot jet</li> <li>• Clogged pilot air passage</li> <li>• Sucked-in air</li> <li>• Deformed float</li> <li>• Groove-worn needle valve</li> <li>• Improperly sealed valve seat</li> <li>• Improperly adjusted fuel level</li> <li>• Improperly set pilot jet</li> <li>• Clogged starter jet</li> <li>• Starter plunger malfunction</li> <li>• Improperly adjusted starter cable</li> </ul>
Air cleaner	<ul style="list-style-type: none"> <li>• Clogged air filter</li> </ul>



# STARTING FAILURE/HARD STARTING



## ELECTRICAL SYSTEM

### PROBABLE CAUSE

- Spark plug
  - Improper plug gap
  - Worn electrodes
  - Wire between terminals broken
  - Improper heat range
  - Faulty spark plug cap
- Ignition coil
  - Broken or shorted primary/secondary
  - Faulty spark plug lead
  - Broken body
- C.D.I. unit system
  - Faulty C.D.I. unit
  - Faulty source coil
  - Faulty pick-up coil
  - Broken woodruff key
- Switches and wiring
  - Faulty engine stop switch
  - Broken or shorted wiring

## COMPRESSION SYSTEM

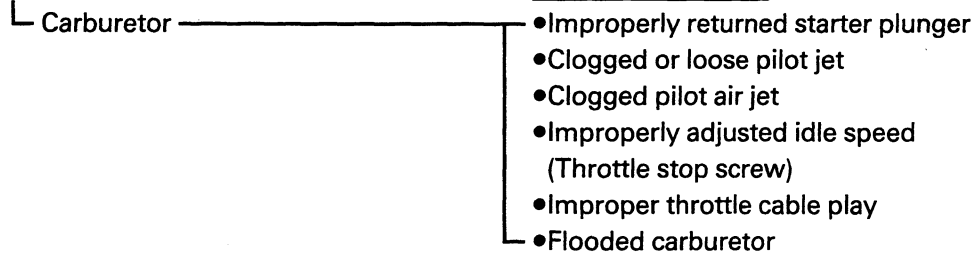
### PROBABLE CAUSE

- Cylinder and cylinder head
  - Loose spark plug
  - Loose cylinder head or cylinder
  - Broken cylinder head gasket
  - Broken cylinder gasket
  - Worn, damaged or seized cylinder
- Piston and piston rings
  - Improperly installed piston ring
  - Worn, fatigued or broken piston ring
  - Seized piston ring
  - Seized or damaged piston
- Crankcase and crankshaft
  - Improperly seated crankcase
  - Improperly sealed crankcase (Damaged oil seal)
  - Seized crankshaft
- Reed valve
  - Deformed reed valve stopper
  - Improperly seated reed valve
  - Loose intake manifold
  - Broken gasket
  - Broken reed valve

**POOR IDLE SPEED PERFORMANCE**

**POOR IDLE SPEED PERFORMANCE**

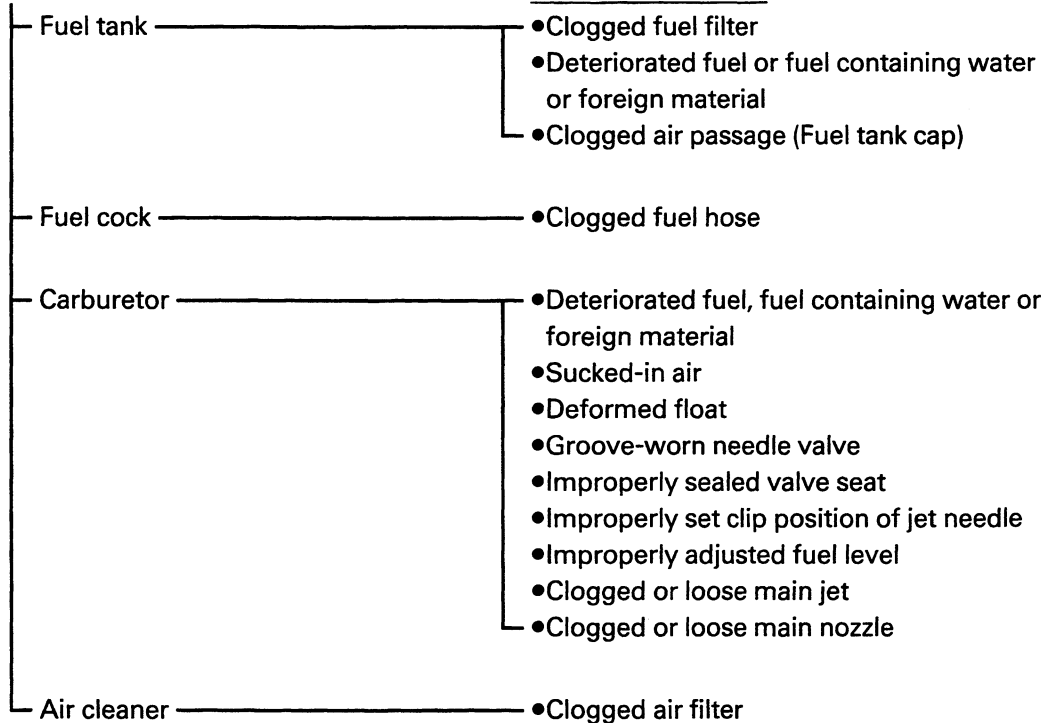
**PROBABLE CAUSE**



**POOR MEDIUM AND HIGH SPEED PERFORMANCE**

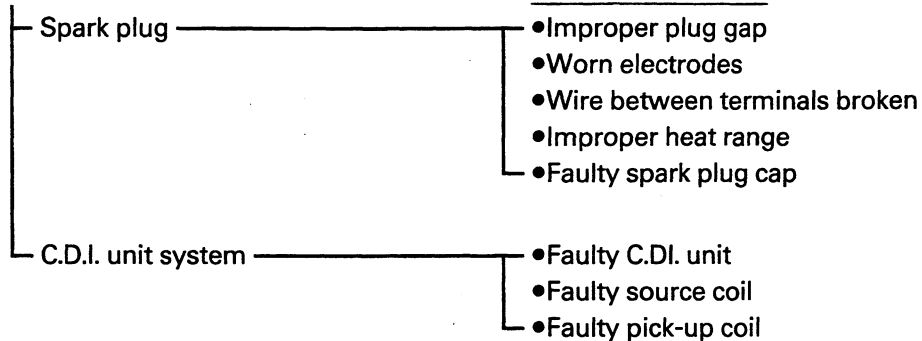
**FUEL SYSTEM**

**PROBABLE CAUSE**



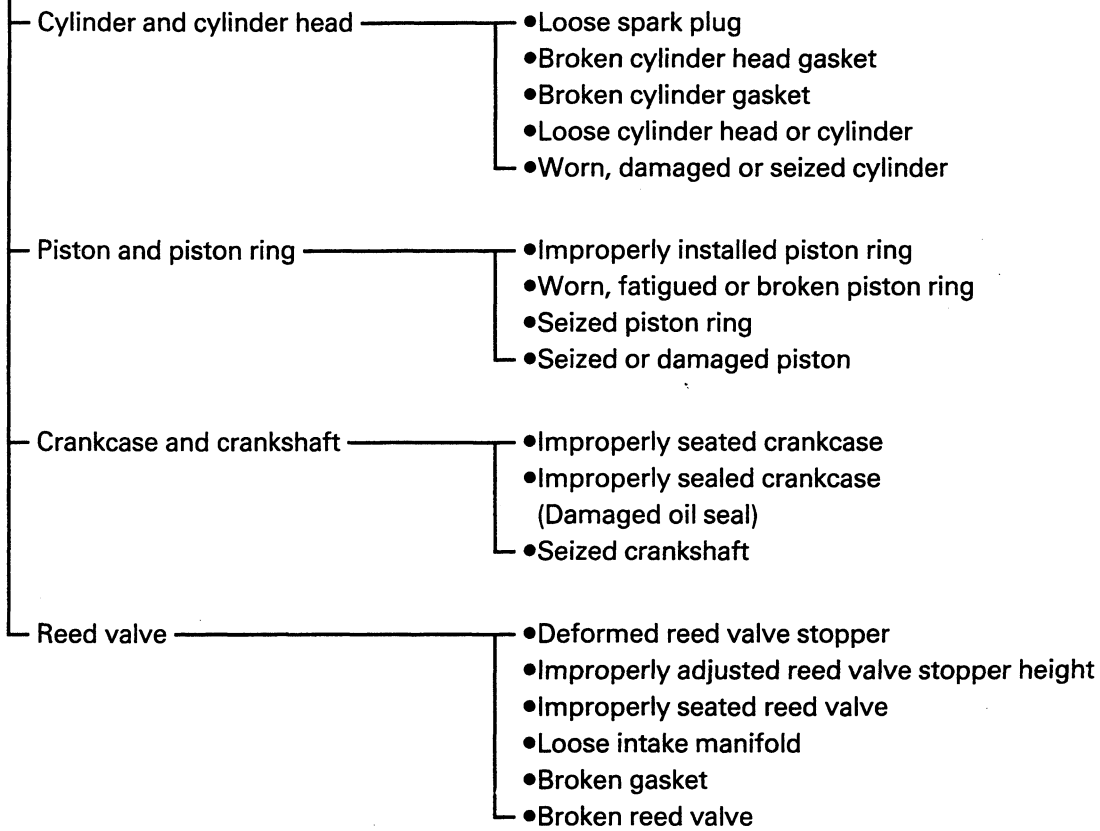
**ELECTRICAL SYSTEM**

**PROBABLE CAUSE**



**COMPRESSION SYSTEM**

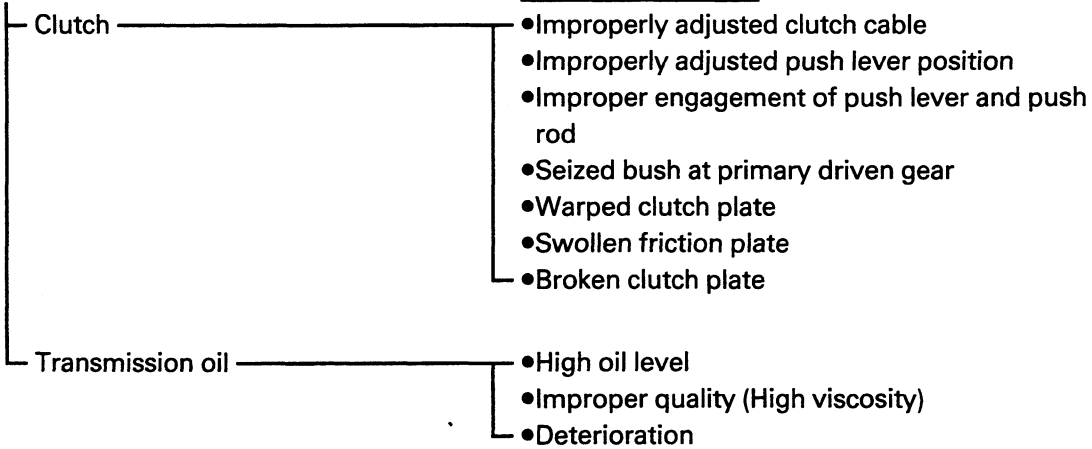
**PROBABLE CAUSE**



**FAULTY GEAR SHIFTING**

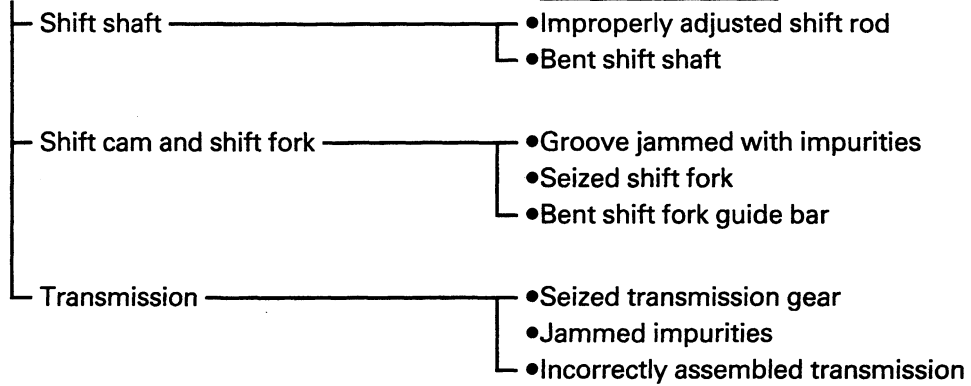
**HARD SHIFTING**

**PROBABLE CAUSE**



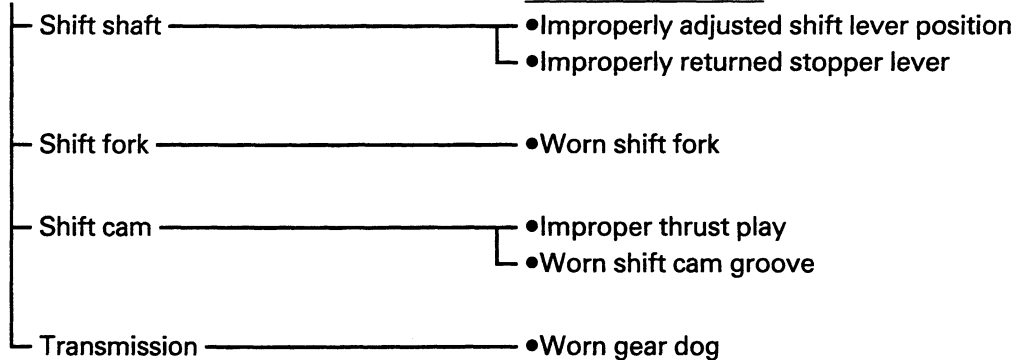
## CHANGE PEDAL DOES NOT MOVE

### PROBABLE CAUSE



## JUMP-OUT GEAR

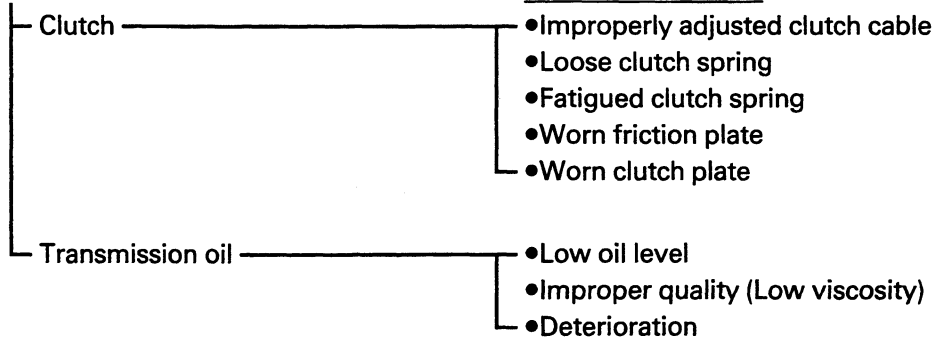
### PROBABLE CAUSE



## CLUTCH SLIPPING/Dragging

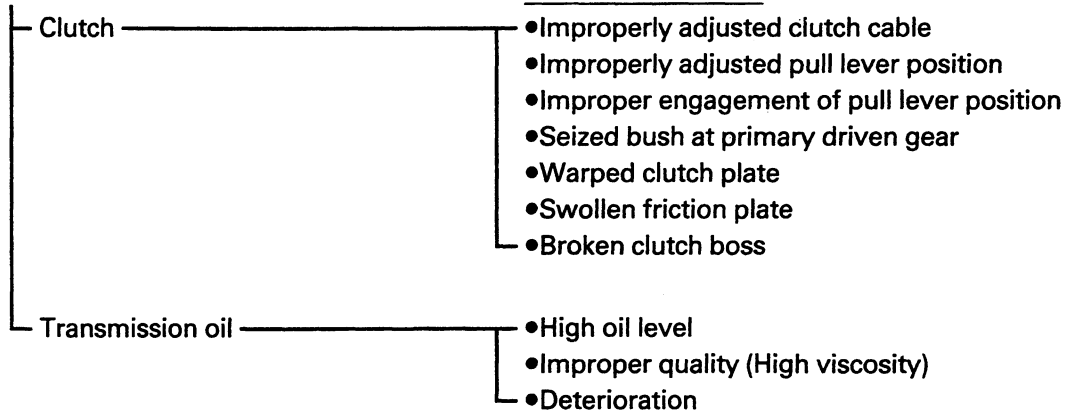
### CLUTCH SLIPPING

### PROBABLE CAUSE



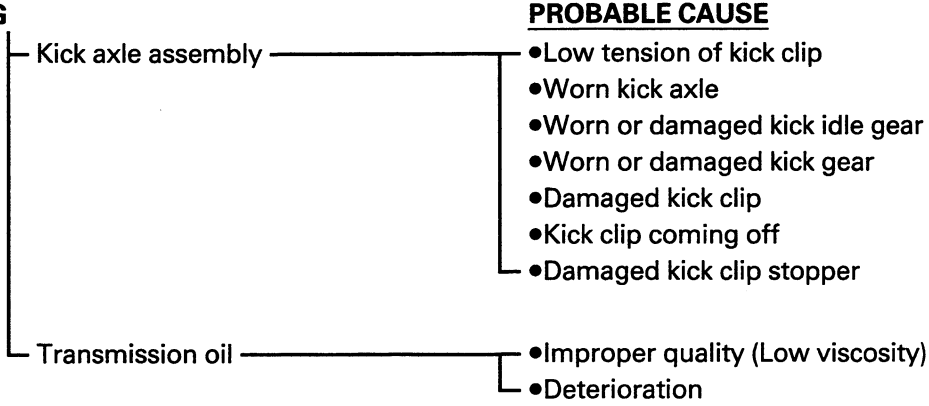
### CLUTCH DRAGGING

### PROBABLE CAUSE

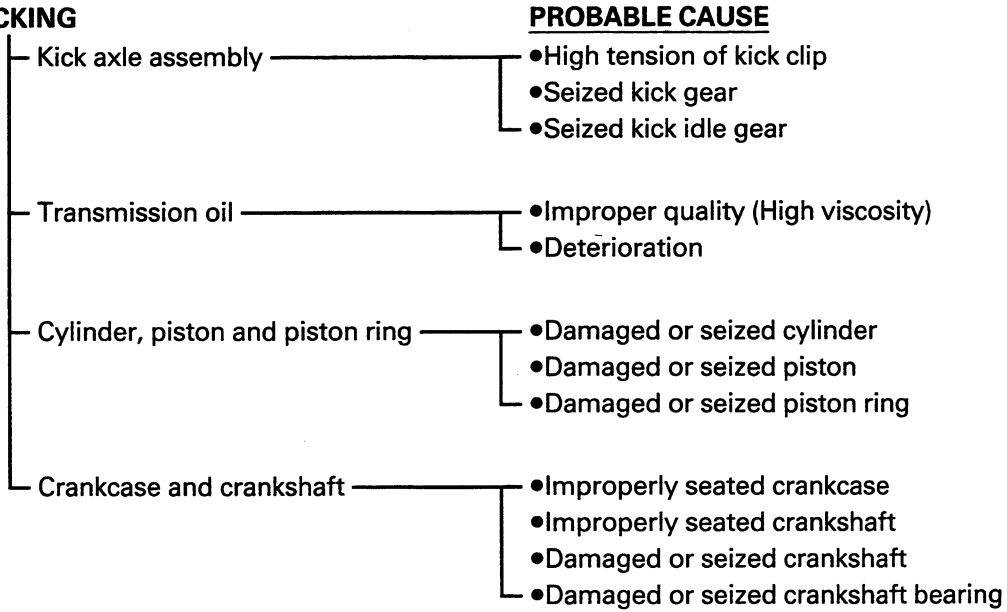


**IMPROPER KICKING**

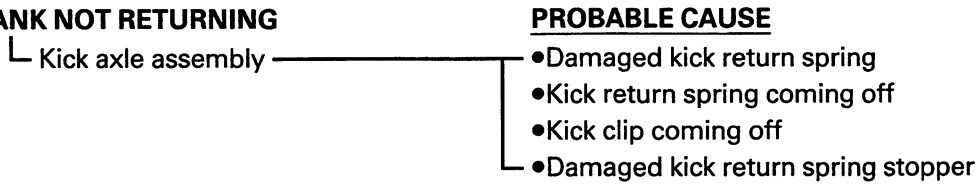
**SLIPPING**



**HARD KICKING**



**KICK CRANK NOT RETURNING**



**FAULTY BRAKE**

**POOR BRAKING EFFECT**

└ Drum brake

**PROBABLE CAUSE**

- Worn brake shoe
- Worn or rusty brake drum
- Improperly adjusted brake cable/  
pedal free play
- Improper brake cam lever position
- Improper brake shoe position
- Fatigued or/damaged return spring
- Oily or greasy brake shoe
- Rusty, oily or greasy brake drum
- Broken brake cable

**FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION**

**OIL LEAKAGE**

**PROBABLE CAUSE**

- Bent, damaged or rusty inner tube
- Damaged or cracked outer tube
- Damaged oil seal lip
- Improperly installed oil seal
- Improper oil level (too much)
- Loose damper rod holding bolt
- Broken cap bolt O-ring
- Loose drain bolt
- Damaged drain bolt gasket

**MALFUNCTION**

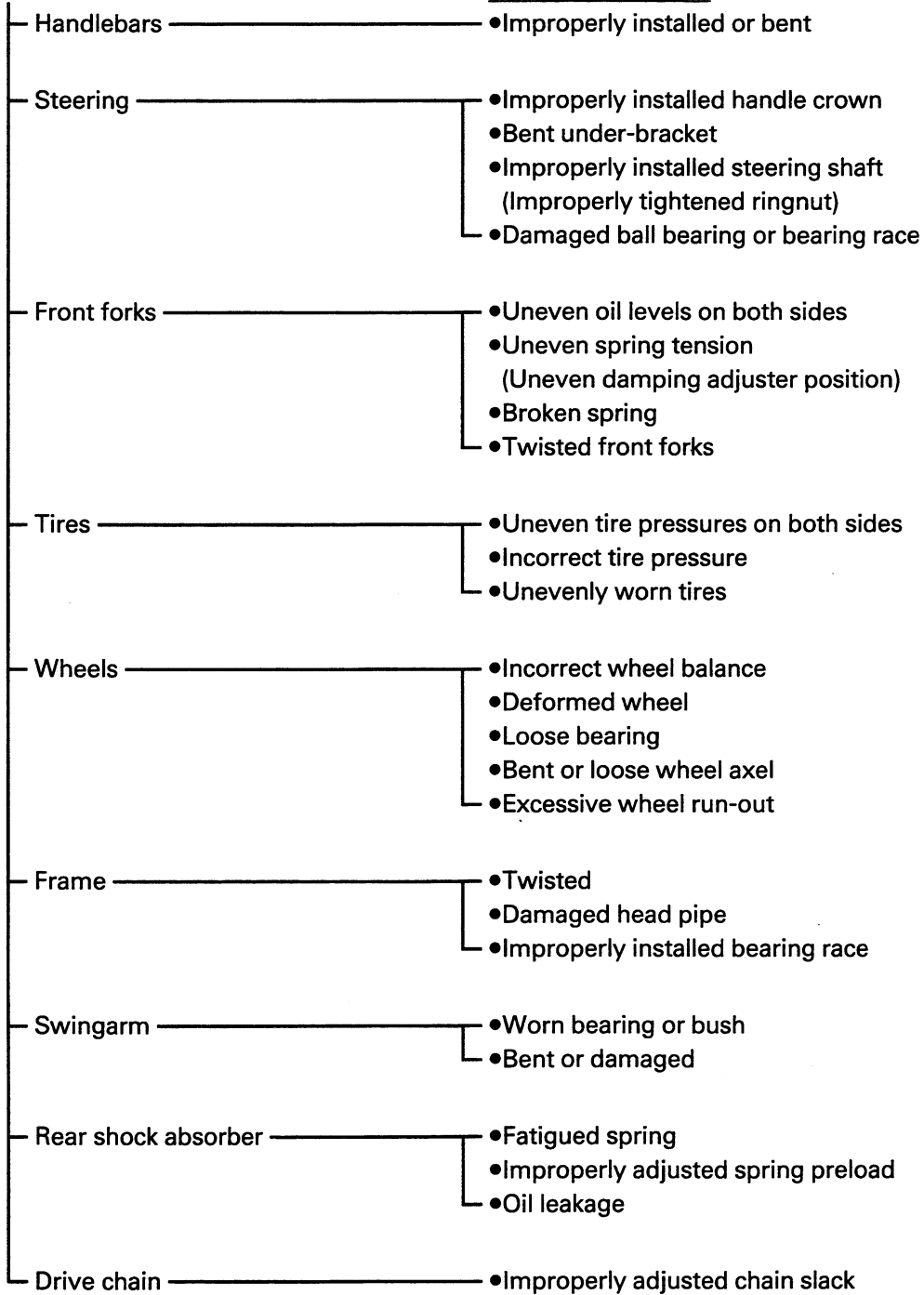
**PROBABLE CAUSE**

- Bent, deformed or damaged inner tube
- Bent or deformed outer tube
- Damaged fork spring
- Worn or damaged slide metal
- Bent or damaged damper rod
- Improper oil viscosity
- Improper oil level

**INSTABLE HANDLING**

**INSTABLE HANDLING**

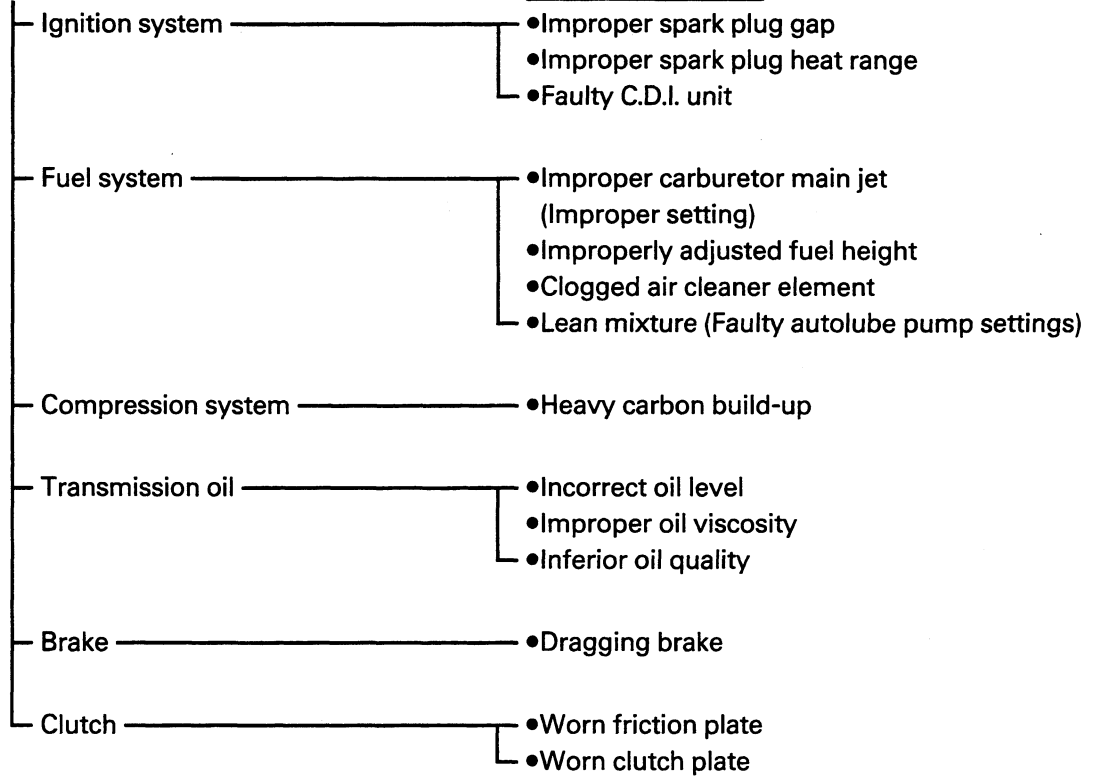
**PROBABLE CAUSE**



**OVERHEATING**

**OVERHEATING**

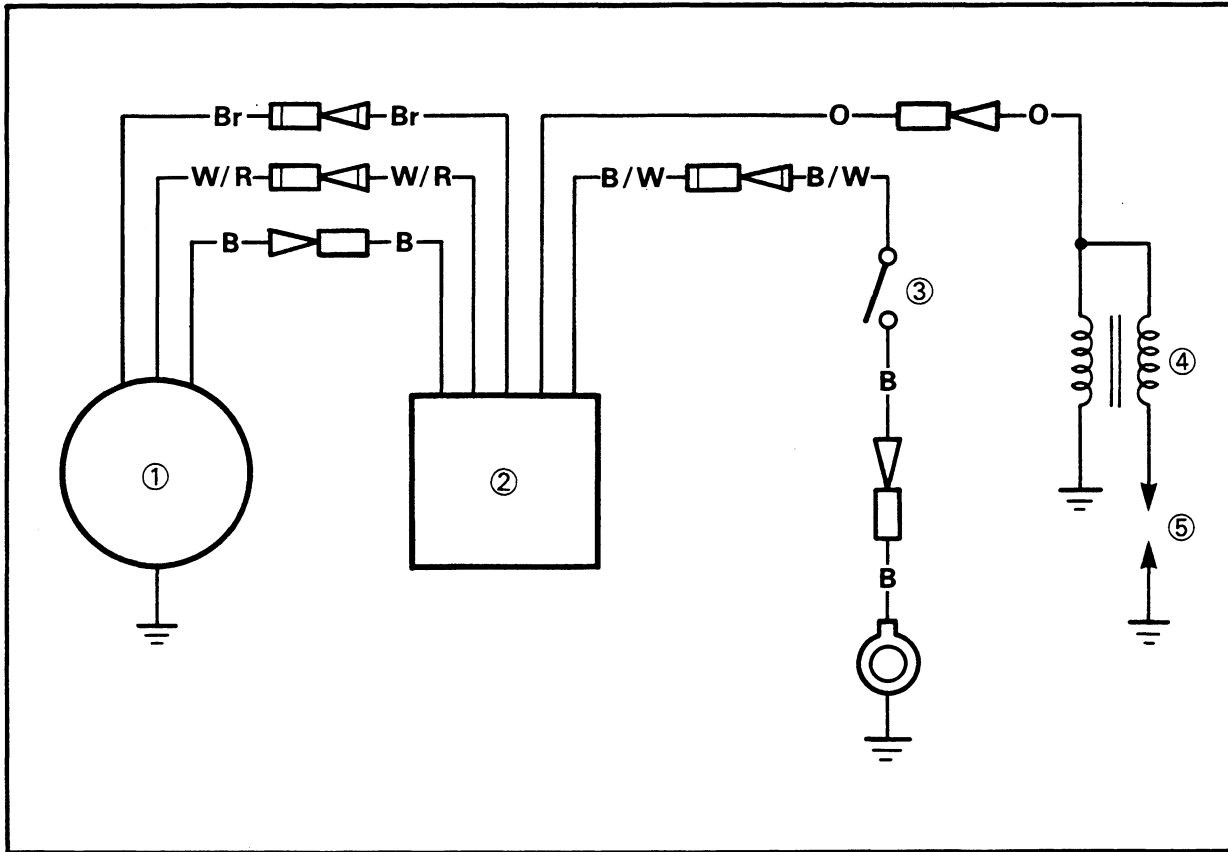
**PROBABLE CAUSE**





# RT100A WIRING DIAGRAM

## WIRING DIAGRAM



- ① CDI magneto
- ② CDI unit
- ③ Engine stop switch
- ④ Ignition coil
- ⑤ Spark plug

**COLOR CODE**  
 B . . . . .Black  
 O . . . . .Orange  
 Br . . . . .Brown  
 B/W . . .Black/White  
 W/R . . .White/Red