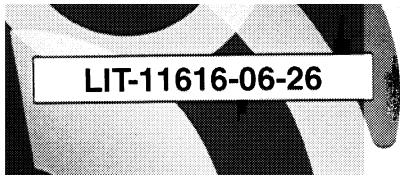
YAMAHA

TW200/E

Service Manual

274 Pgs + 2 f/o



TW200/200E (T-A) 87–90
SERVICE MANUAL

1st Edition, January 1987

Printed in U.S.A.
P/N: LIT-11616-06-26

NOTICE

This manual was written by the Yamaha Motor Company primarily 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 persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted 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, where applicable, appear in future editions of this manual.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

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

CAUTION: A CAUTION indicates special procedures that must be followed to avoid damage to the motorcycle.

WARNING: A WARNING indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

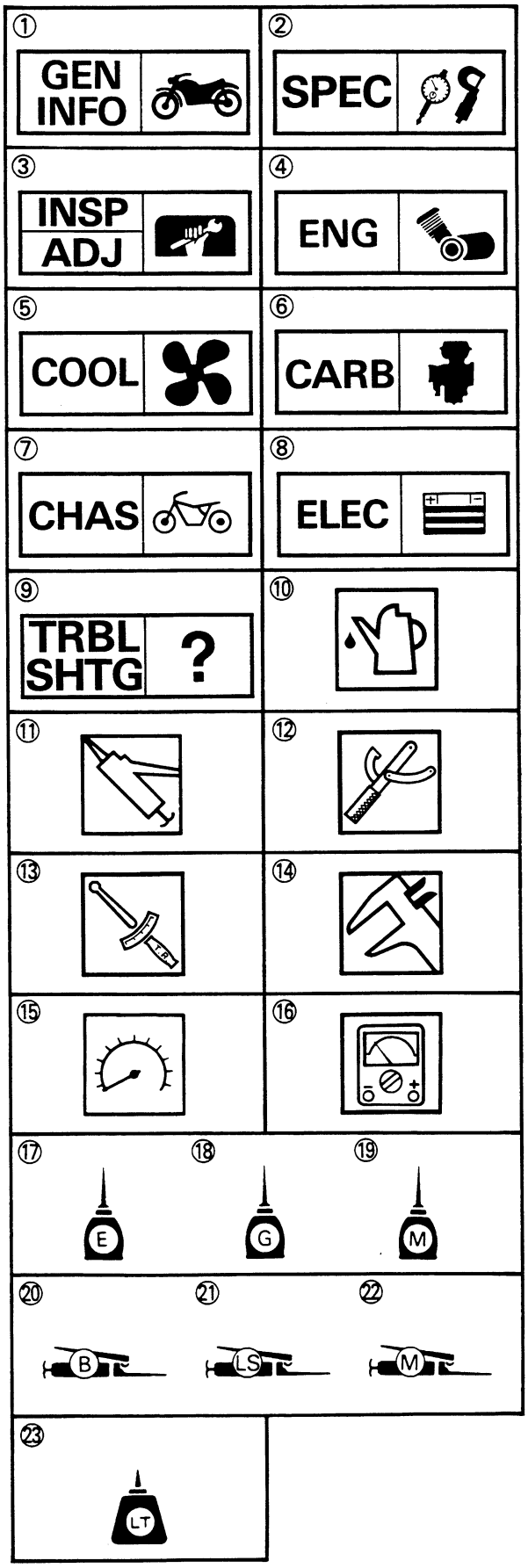
MANUAL FORMAT

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 inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage→Replace.

EXPLODED DIAGRAM

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



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 Ω, 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
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)

INDEX

CONTENTS

CHAPTER 1
GENERAL INFORMATION

CHAPTER 2
SPECIFICATIONS

CHAPTER 3
PERIODIC INSPECTION AND ADJUSTMENT

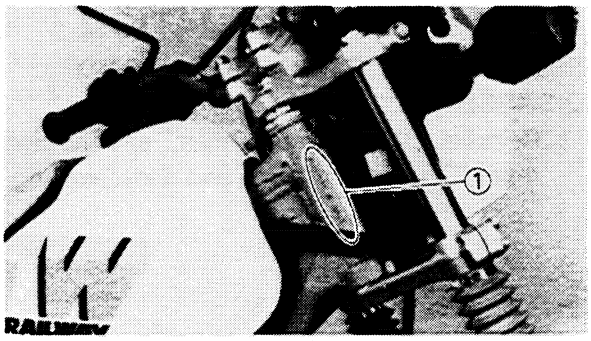
CHAPTER 4
ENGINE OVERHAUL

CHAPTER 5
CARBURETION

CHAPTER 6
CHASSIS

CHAPTER 7
ELECTRICAL

CHAPTER 8
TROUBLESHOOTING



GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

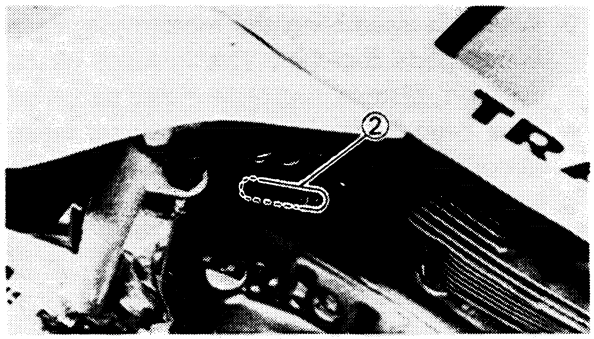
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is on the right side of the steering head pipe.

Starting Serial Number:
TW200T .....JYA 2JY00*HC000101
TW200TC .....JYA 2JX00*HC000101

NOTE:

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



ENGINE SERIAL NUMBER

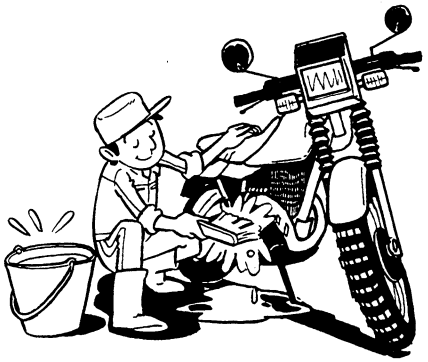
The engine serial number ② is stamped into the elevated part of the right rear section of the engine.

Starting Serial Number:
TW200T 2JY-000101
TW200TC 2JX-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.

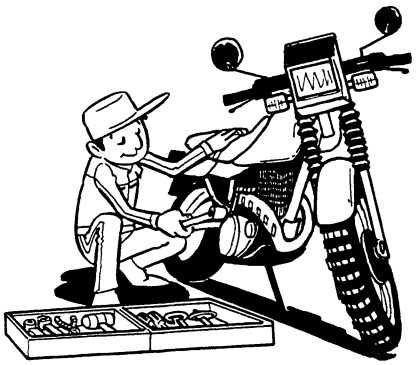
1



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".

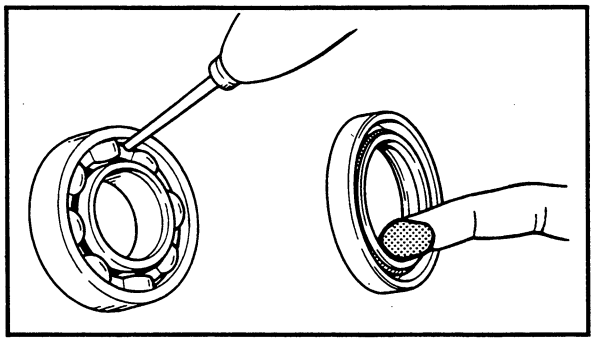
3. When disassembling the motorcycle, keep mated parts together. This includes gears, cylinders, pistons, and other mated parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.

4. During the motorcycle 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.

ALL REPLACEMENT PARTS

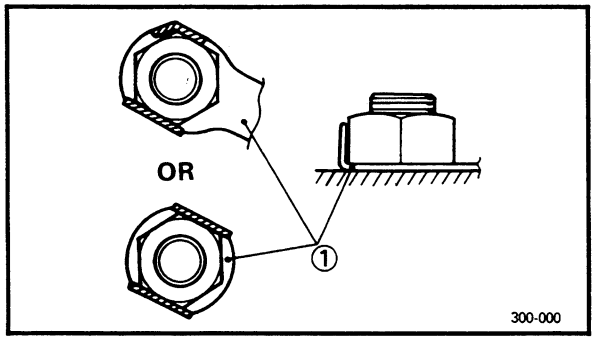
1. Use only genuine Yamaha parts for all replacements. Use oil and/or grease recommended by Yamaha for assembly and adjustment. Other brands may be similar in function and appearance, but inferior in quality.



GASKETS, OIL SEALS, AND O-RINGS

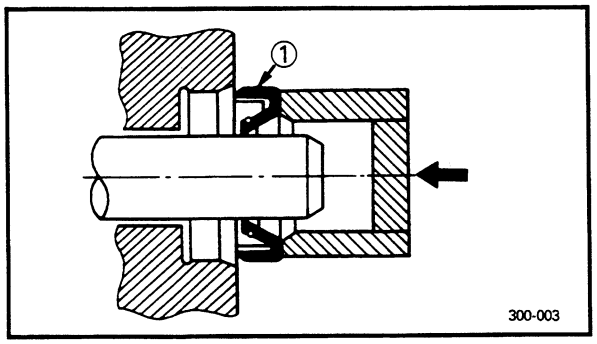
1. All gaskets, seals, and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips and O-rings must be cleaned.

2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



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.



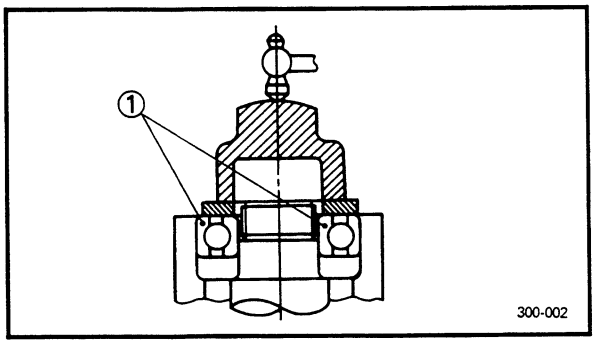
BEARINGS AND OIL SEALS

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.

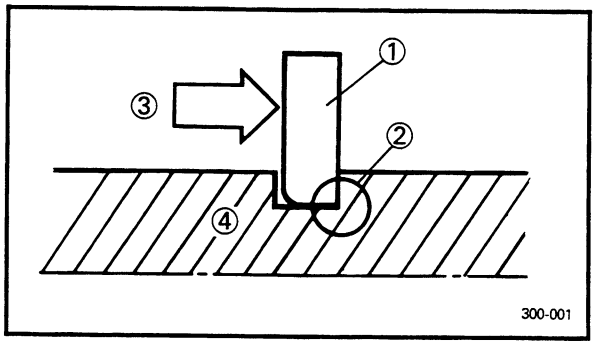
① Oil seal

CAUTION:

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



① Bearing



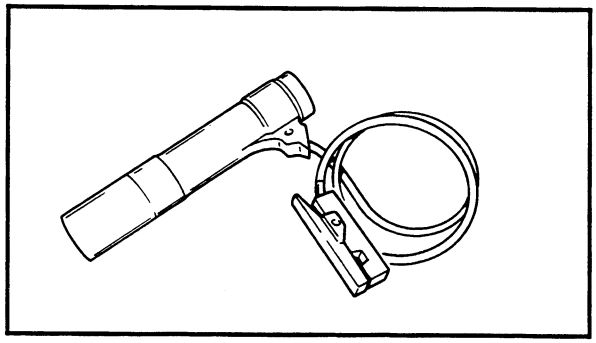
CIRCLIPS

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

SPECIAL TOOLS

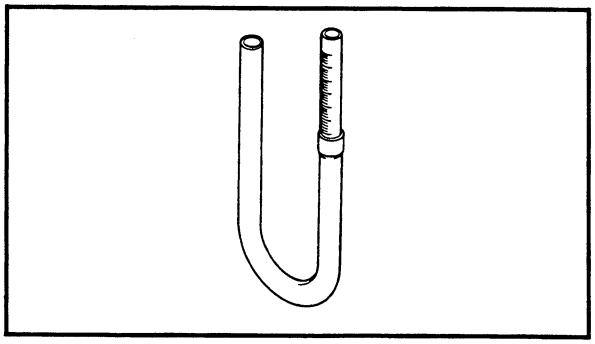
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



FOR TUNE-UP

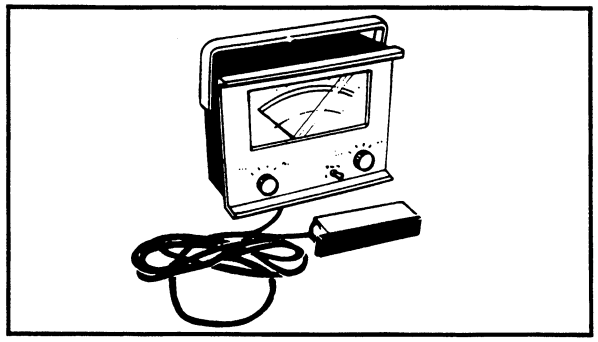
1. Inductive Timing Light
   P/N. YU-33277

This tool is necessary for adjusting the ignition timing.



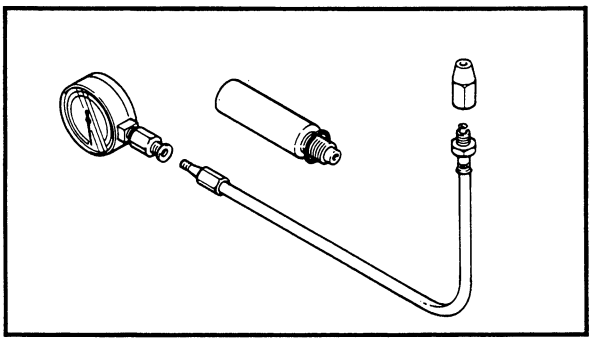
2. Fuel Level Gauge
   P/N. YM-01312

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



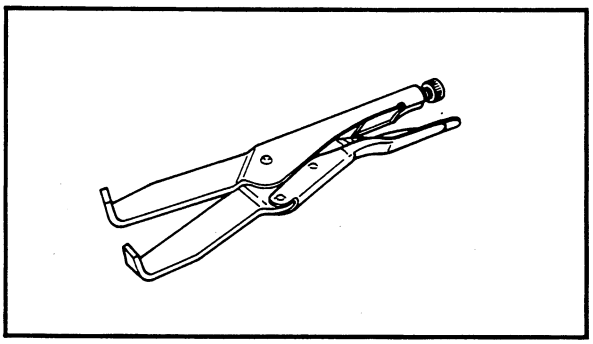
3. Inductive Tachometer
   P/N. YU-08036

This tool is needed for detecting engine r.p.m.



4. Compression Gauge
P/N. YU-33223

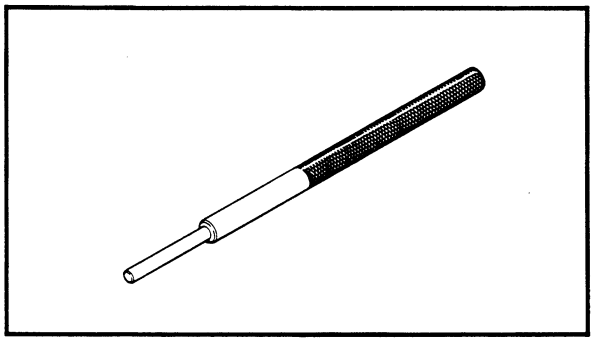
This gauge is used to measure the engine compression.



FOR ENGINE SERVICE

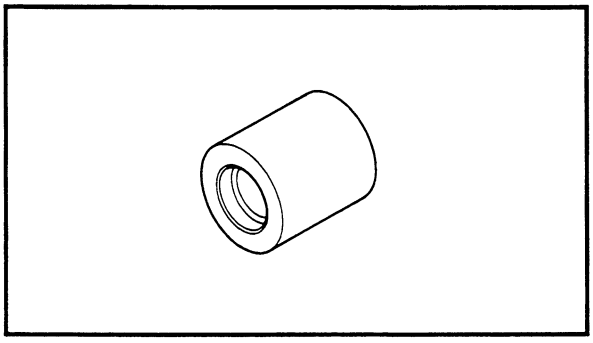
1. Universal Clutch Holder
P/N. YM-91042

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



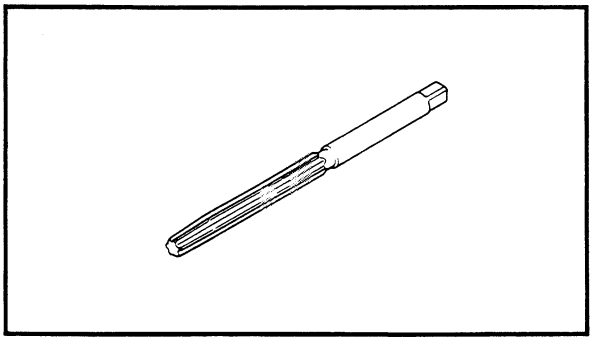
2. Valve Guide Remover (6.0 mm)
P/N. YM-04064-A

This tool is used to remove the valve guide.



3. Valve Guide Installer (6.0 mm)
P/N. YM-04065-A

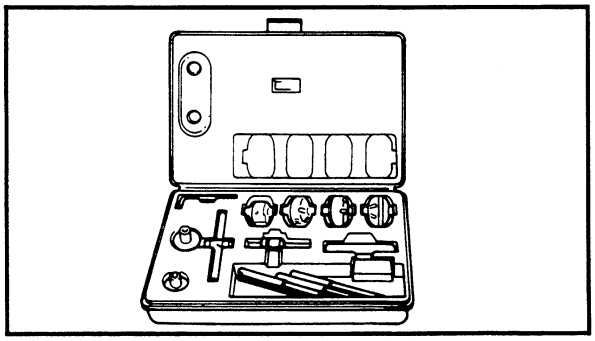
This tool is needed to install the valve guide properly together with the valve guide remover.



4. Valve Guide Reamer (6.0 mm)
P/N. YM-04066

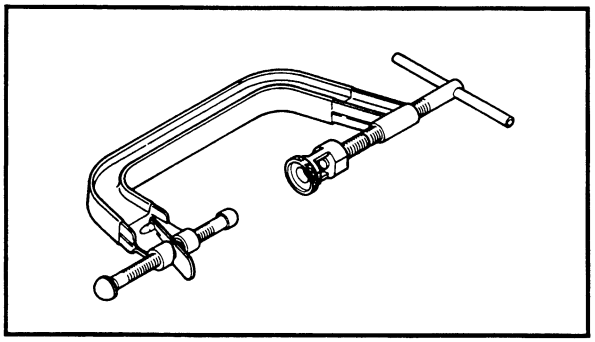
This tool is used to rebore the new valve guide.

1



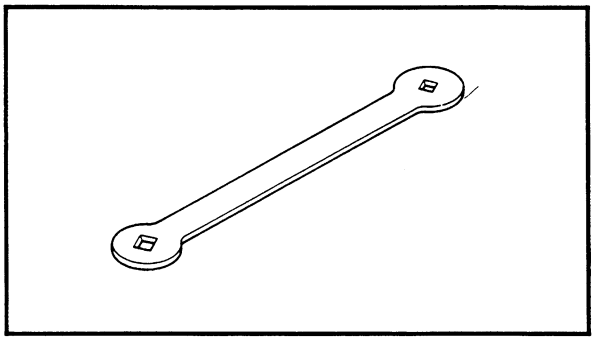
5. Valve Seat Cutter
P/N. YM-91043

This tool is needed to reface the valve seat.



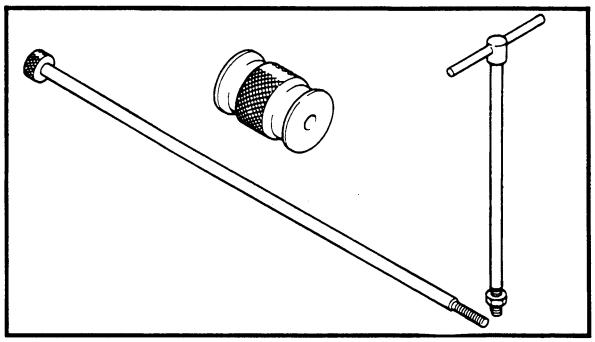
6. Valve Spring Compressor
P/N. YM-04019

This tool is needed to remove and install the valve assemblies.



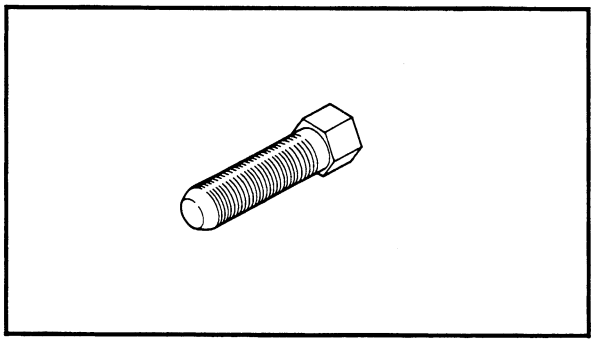
7. Valve Adjusting Tool
P/N. YM-08035

This tool is used for adjusting the valve clearance.



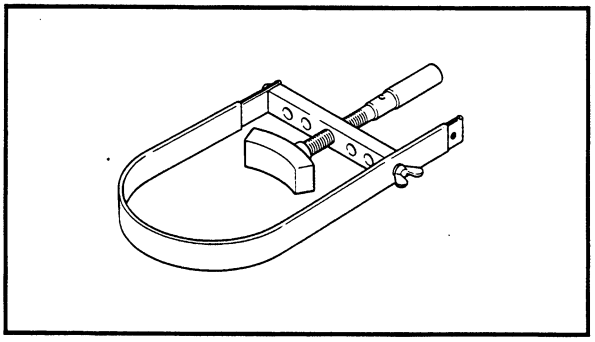
8. Slide Hammer Set
P/N. YU-01083

These tools are used for removing the rocker arm shaft.



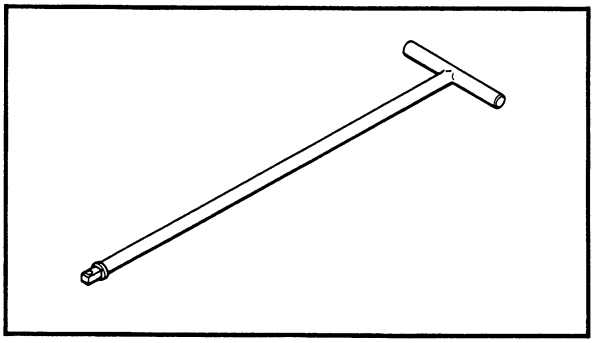
9. Rotor Puller
P/N. YM-01080

This tool is used for removing the C.D.I. magneto.



10. Sheave Holder
    P/N. YS-01880

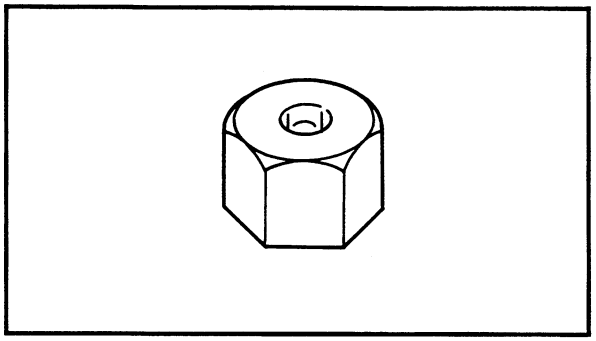
This tool is used when loosening or tightening the flywheel magneto securing bolt.



FOR CHASSIS SERVICE

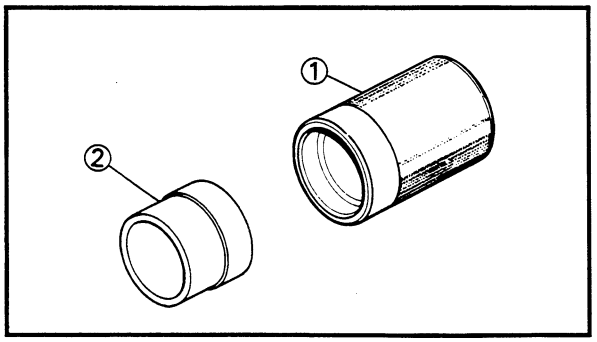
1. T-Handle
   P/N. YM-01326

This tool is used to loosen and tighten the front fork cylinder holding bolt.



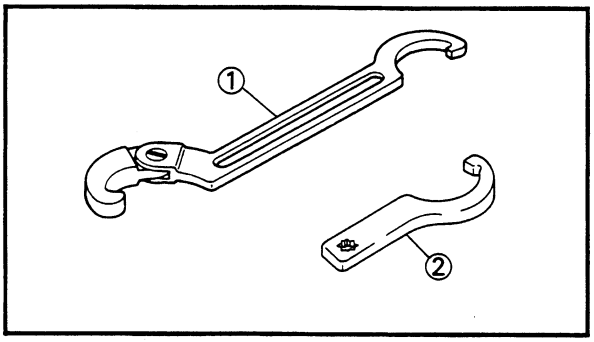
2. Fork Damper Rod Holder (19 mm)
   P/N. YM-33256

This tool is used to loosen and tighten the front fork cylinder holding bolt.



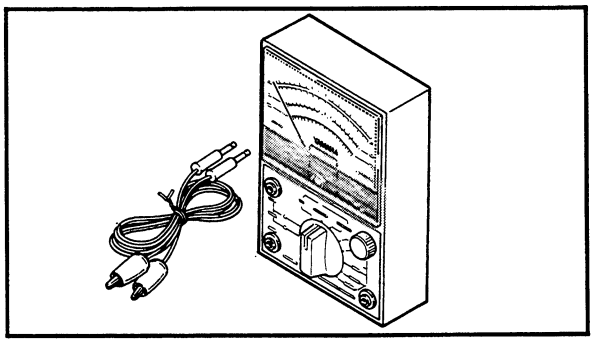
3. Front Fork Oil Seal Driver (Weight)
   P/N. YM-33963 ..... ①
   Attachment
   P/N. YM-1368 ..... ②

These tools are used for installing the fork seal.



4. Ring Nut Wrench
   P/N. YU-01268 ..... ①
   P/N. YU-33975 ..... ②

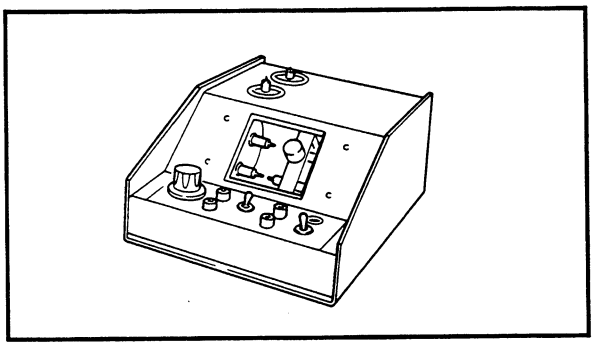
These tools are used to loosen and tighten the steering ring nut.



FOR ELECTRICAL COMPONENTS

1. Pocket Tester
   P/N. YU-03112

This instrument is invaluable for checking the electrical system.



2. Electro Tester
   P/N. YU-33261

This instrument is necessary for checking the ignition system components.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	TW200T/TC
Model Code Number:	TW200T: 2JY TW200TC: 2JX
Frame Starting Number:	TW200T: JYA2JY00*HC000101 TW200TC: JYA2JX00*HC000101
Engine Starting Number:	TW200T: 2JY-000101 TW200TC: 2JX-000101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 2,060 mm (81.1 in) 830 mm (32.7 in) 1,105 mm (43.5 in) 790 mm (31.1 in) 1,325 mm (52.2 in) 250 mm (9.8 in)
Basic Weight: With Oil and Full Fuel Tank	 TW200T: 126 kg (278 lb) TW200TC: 127 kg (280 lb)
Minimum Turning Radius:	1,900 mm (75 in)
Engine: Engine Type Cylinder Arrangement Displacement Bore × Stroke Compression Ratio Compression Pressure (Standard) Starting System	 Air cooled 4-stroke, SOHC Single cylinder 196 cm^3 67.0 × 55.7 mm (2.638 × 2.193 in) 9.5 : 1 900 kPa (9 kg/cm^2, 128 psi) Electric and kick starter
Lubrication System:	Wet sump
Oil Type or Grade: Engine Oil	 Yamalube 4-cycle oil, SAE 20W40 type SE or SAE 10W30 type SE motor oil
Oil Capacity: Engine Oil: Periodic Oil Change With Oil Filter Replacement Total Amount	 1.0 L (0.9 Imp qt, 1.1 US qt) 1.1 L (1.0 Imp qt, 1.2 US qt) 1.3 L (1.1 Imp qt, 1.4 US qt)
Air Filter:	Wet type element
Fuel: Type Tank Capacity Reserve Amount	 Regular gasoline 7.0 L (1.5 Imp gal, 1.8 US gal) 1.0 L (0.2 Imp gal, 0.3 US gal)

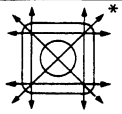
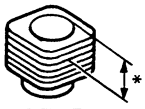
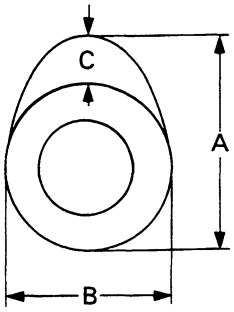
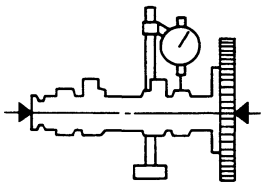
Model	TW200T/TC	
Carburetor:		
Type/Manufacturer	TW200T: Y24P-5C/TEIKEI KIKAKI TW200TC: Y24P-5B/TEIKEI KIKAKI	
Spark Plug:		
Type/Manufacturer	D8EA (NGK), X24ES-U (N.D.)	
Gap	0.6~0.7 mm (0.024~0.028 in)	
Clutch Type:	Wet, multiple-disc	
Transmission:		
Primary Reduction System	Gear	
Primary Reduction Ratio	73/22 (3.318)	
Secondary Reduction System	Chain	
Secondary Reduction Ratio	50/14 (3.571)	
Transmission Type	Constant mesh, 5-speed	
Operation	Left foot operation	
Gear Ratio 1st	34/12 (2.833)	
2nd	34/19 (1.789)	
3rd	29/22 (1.318)	
4th	26/25 (1.040)	
5th	23/28 (0.821)	
Chassis:		
Frame Type	Diamond	
Caster Angle	26.5°	
Trail	94 mm (3.7 in)	
Tire:		
Type	With tube	
Size (F)	130/80-18 BRIDGESTONE TW31	
Size (R)	180/80-14 BRIDGESTONE TW32	
Wear Limit	<1.0 mm (0.04 in)>	
Basic Weight:		
With Oil and Full Fuel Tank	126 kg (278 lb)/(TW200T), 127 kg (280 lb) (TW200TC)	
Maximum Load*	157 kg (346 lb)/(TW200T), 156 kg (344 lb) (TW200TC)	
Cold Tire Pressure:	Front	Rear
Up to 80 kg (176 lb) Load*	130 kPa (1.3 kg/cm^2, 18 psi)	130 kPa (1.3 kg/cm^2, 18 psi)
80 kg (176 lb)~Maximum Load*	150 kPa (1.5 kg/cm^2, 22 psi)	180 kPa (1.8 kg/cm^2, 26 psi)
Off-road Riding	130 kPa (1.3 kg/cm^2, 18 psi)	130 kPa (1.3 kg/cm^2, 18 psi)
High Speed Riding	150 kPa (1.5 kg/cm^2, 22 psi)	180 kPa (1.8 kg/cm^2, 26 psi)

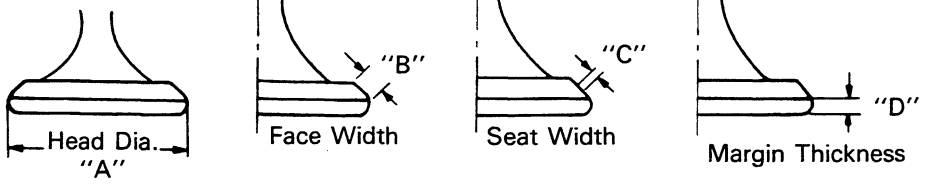
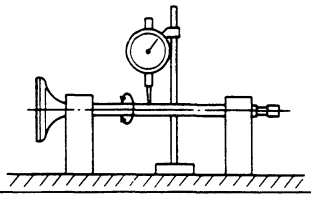
*Load is the total weight of cargo, rider, passenger and accessories.

Model	TW200T/TC
Brake:	
Front Brake Type	Drum brake
Operation	Right hand operation
Rear Brake Type	Drum brake
Operation	Right foot operation
Suspension:	
Front Suspension	Telescopic fork
Rear Suspension	Swingarm (Monocross suspension)
Shock Absorber:	
Front Shock Absorber	Air and coil spring/Oil damper
Rear Shock Absorber	Gas and coil spring/Oil damper
Wheel Travel:	
Front Wheel Travel	160 mm (6.3 in)
Rear Wheel Travel	150 mm (5.9 in)
Electrical:	
Ignition System	CDI
Generator System	Flywheel magneto
Battery Type	GM7CZ-3D
Battery Capacity	12V, 7AH
Headlight Type:	Quartz bulb
Bulb Wattage/Quantity:	
Headlight	12V, 35W/35W × 1
Tail/Brake Light	12V, 8W/27W × 2
Flasher Light	12V, 27W × 4
Meter Light	12V, 3.4W × 1
Indicator Light Wattage/Quantity:	
"NEUTRAL"	3.4W × 1
"HIGH BEAM"	3.4W × 1
"TURN"	3.4W × 1

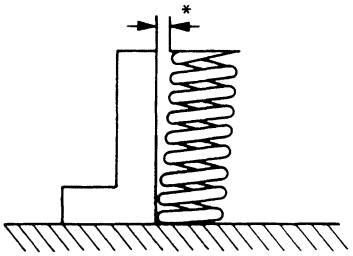
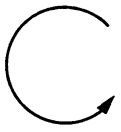
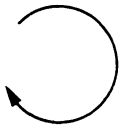
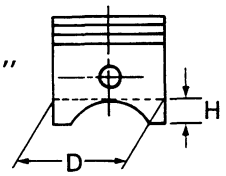
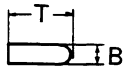
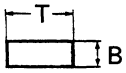
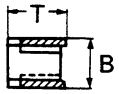
MAINTENANCE SPECIFICATIONS

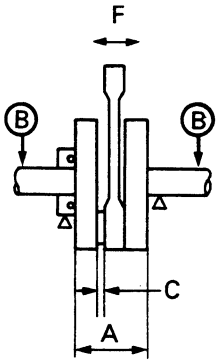
ENGINE

Model	TW200T/TC
Cylinder Head: Warp Limit* 	<0.03 mm (0.0012 in)> *Lines indicate straightedge measurement
Cylinder: Bore Size/Measuring Point*  Wear Limit	66.97~67.02 mm (2.637~2.639 in)/40 mm (1.6 in)* <67.10 mm (2.642 in)>
Camshaft: Drive Method Cam Cap Inside Diameter Camshaft Outside Diameter Shaft-to-cap Clearance Cam Dimensions: Intake: "A" "B" "C" Exhaust:  "A" "B" "C" Camshaft Runout Limit  Cam Chain Type/Number of Links Cam Chain Adjustment Method	Chain (Left) 25.000~25.021 mm (0.984~0.985 in) 24.96~24.98 mm (0.983~0.983 in) 0.020~0.061 mm (0.0008~0.0024 in) 36.538~36.638 mm (1.438~1.442 in) 30.152~30.252 mm (1.187~1.191 in) 6.588 mm (0.259 in) 36.58~36.68 mm (1.440~1.444 in) 30.266~30.366 mm (1.192~1.196 in) 6.63 mm (0.261 in) <0.03 mm (0.0012 in)> DID 25SH/104 Links Manual
Rocker Arm/Rocker Arm Shaft: Arm Inside Diameter Shaft Outside Diameter Arm-to-shaft Clearance <Limit>	12.00~12.02 mm (0.4724~0.4731 in) 11.98~11.99 mm (0.4717~0.4721 in) 0.009~0.037 mm (0.0004~0.0015 in) <0.1 mm (0.04 in)>

Model		TW200T/TC
Valve, Valve Seat, Valve Guide:		
Valve Clearance (Cold):		
	IN.	0.05~0.09 mm (0.002~0.004 in)
	EX.	0.11~0.15 mm (0.004~0.006 in)
Valve Dimensions:		
		
"A" Head Diameter:	IN.	33.9~34.1 mm (1.33~1.34 in)
	EX.	28.4~28.6 mm (1.12~1.13 in)
"B" Face Width:	IN.	2.26 mm (0.089 in)
	EX.	2.26 mm (0.089 in)
"C" Seat Width:	IN.	0.9~1.1 mm (0.035~0.043 in)
	EX.	0.9~1.1 mm (0.035~0.043 in)
"D" Margin Thickness Limit:	IN.	0.8~1.2 mm (0.032~0.047 in)
	EX.	0.8~1.2 mm (0.032~0.047 in)
Stem Outside Diameter:	IN.	5.975~5.990 mm (0.235~0.236 in)
	EX.	5.960~5.975 mm (0.234~0.235 in)
Guide Inside Diameter:	IN.	6.000~6.012 mm (0.236~0.237 in)
	EX.	6.000~6.012 mm (0.236~0.237 in)
Stem-to-guide Clearance:	IN.	0.010~0.037 mm (0.0004~0.0015 in)
	EX.	0.025~0.052 mm (0.001~0.002 in)
Valve Face Material:		Stellite
Valve Seat Width:	IN.	0.9~1.1 mm (0.035~0.043 in)
	EX.	0.9~1.1 mm (0.035~0.043 in)
Valve Seat Material:	IN.	PB7W
	EX.	PB7W
Stem Runout Limit:		<0.01 mm (0.0004 in)>
		
Valve Spring:		
Free Length:		
Inner Spring	IN.	36.2 mm (1.43 in)
	EX.	36.2 mm (1.43 in)
Outer Spring	IN.	36.6 mm (1.44 in)
	EX.	36.6 mm (1.44 in)

2

Model		TW200T/TC
Compression Length (Valve Closed):		
Inner Spring:	IN.	30.5 mm (1.20 in)
	EX.	30.5 mm (1.20 in)
Outer Spring:	IN.	32.0 mm (1.26 in)
	EX.	32.0 mm (1.26 in)
Tilt Limit*:		
Inner Spring	IN. and EX.	2.5° or 1.6 mm (0.063 in)
Outer Spring	IN. and EX.	2.5° or 1.6 mm (0.063 in)
		
Direction of Winding (Top View)		Inner Spring:  Outer Spring: 
Piston:		
Piston Size "D"/		66.935 ~ 66.985 mm (2.635 ~ 2.637 in)/
Measuring Point "H"		7.5 mm (0.30 in)
Piston to Cylinder		(From bottom line of piston skirt)
Clearance		0.025 ~ 0.045 mm (0.001 ~ 0.002 in)
<Limit>		<0.1 mm (0.04 in)>
Oversize: 1st		—
2nd		67.5 mm (2.66 in)
3rd		—
4th		68.0 mm (2.68 in)
Piston Ring:		
Sectional Sketch:		
Top Ring		Barrel B = 1.2 mm (0.047 in) T = 2.7 mm (0.106 in)
2nd Ring		Plain B = 1.2 mm (0.047 in) T = 2.7 mm (0.106 in)
Oil Ring		Expander B = 2.5 mm (0.098 in) T = 2.8 mm (0.110 in)

Model		TW200T/TC
End Gap (Installed):	Top Ring	0.15~0.30 mm (0.006~0.012 in)
	2nd Ring	0.15~0.30 mm (0.006~0.012 in)
	Oil Ring	0.3~0.9 mm (0.012~0.035 in)
Side Clearance:	Top Ring	0.03~0.07 mm (0.001~0.003 in)
	2nd Ring	0.02~0.06 mm (0.001~0.002 in)
Crankshaft:		
		
Crank Width "A"		55.95~56.00 mm (2.203~2.204 in)
Runout Limit "B"		<0.03 mm (0.001 in)>
Small End Free Play "F"		0.8 mm (0.031 in)
Big End Side Clearance "C"		0.35~0.65 mm (0.014~0.026 in)
Balancer Drive Method:		Gear
Clutch:		
Friction Plate Thickness/Quantity		2.9~3.1 mm (0.11~0.12 in)/5
Wear Limit		<2.80 mm (0.110 in)>
Clutch Plate Thickness/Quantity		1.5~1.7 mm (0.06~0.07 in)/4
Warp Limit		<0.2 mm (0.008 in)>
Clutch Spring Free Length/Quantity		37.3 mm (1.47 in)/4
Clutch Spring Minimum Length		35.3 mm (1.39 in)
Primary Reduction Gear Backlash Tolerance		9~73μ
Clutch Release Method		Inner push (Cam push)
Push Rod Bending Limit		<0.5 mm (0.02 in)>
Kick Starter:		
Kick Starter Type		Kick and mesh
Air Filter Oil Grade (Oiled Filter):		Foam-Air-filter Oil or SAE 10W30 SE motor oil

Model		TW200T/TC
Carburetor:		
I.D. Mark		TW200T: 2JY00 TW200TC: 2JX00
Main Jet	(M.J.)	#114
Main Air Jet	(M.A.J.)	φ1.0
Jet Needle-clip/Position	(J.N.)	5C74-1/1
Main Nozzle	(M.N.)	φ2.610
Cutaway	(C.A.)	#3.5
Pilot Jet	(P.J.)	#40
Pilot Air Jet	(P.A.J.)	φ1.0
Pilot Screw	(P.S.)	1-1/2~2-1/2
Valve Seat	(V.S.)	φ2.0
Starter Jet	($G.S_1$.)	#52
	($G.S_2$.)	φ0.7
Fuel Level	(F.L.)	7.5~8.5 mm (0.30~0.33 in)
Float Height		26~28 mm (1.02~1.10 in)
Float Valve Seat		φ2.0
Engine Idling Speed		1,350~1,450 r/min
Vacuum Pressure at Idling Speed		25.3 kPa (190 mmHg, 7.5 inHg) or more
Lubrication System:		
Oil Filter Type		Paper, Wire mesh
Oil Pump Type		Trochoid Type
Tip Clearance		0.15 mm (0.006 in)
Side Clearance		0.03~0.09 mm (0.001~0.004 in)
Bypass Valve Setting Pressure		78.5~117.7 kPa (0.8~1.2 kg/cm^2, 11.38~17.06 psi)
Oil Pressure		7.9 kPa (0.08 kg/cm^2, 1.14 psi)

TIGHTENING TORQUE

Parts to be tightened		Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Cylinder head	Checking bolt	M6	1	7	0.7	5.1	
	Bolt	M8	4	22	2.2	16	Apply engine oil onto the plain washer.
	Bolt	M8	2	20	2.0	14	
Cylinder head cover	Screw	M6	2	7	0.7	5.1	
	Bolt	M6	4	10	1.0	7.2	
	Bolt	M6	2	8	0.8	5.8	Use lock washer.
Spark plug		M12	1	17.5	1.75	12	
Cylinder	Bolt	M6	2	10	1.0	7.2	
Balancer drive gear	Nut	M14	1	50	5.0	36	Use lock washer.
Rotor	Bolt	M10	1	50	5.0	36	
Cam chain sprocket	Bolt	M10	1	60	6.0	43	
Cam chain tensioner	Nut	M14	1	30	3.0	22	
Cam chain tensioner cap		M14	1	5	0.5	3.6	
Stopper guide	Bolt	M6	2	8	0.8	5.8	
Oil pump	Screw	M6	3	7	0.7	5.1	
Valve clearance adjuster	lock nut	M6	2	14	1.4	10	
Engine oil drain bolt		M35	1	43	4.3	31	
Oil filter cover	Screw	M6	2	7	0.7	5.1	
	Bolt	M6	1	10	1.0	7.2	
Carburetor joint	Bolt	M6	2	12	1.2	8.7	
Carburetor	Screw	M5	2	2	0.2	1.4	
Air cleaner	Bolt	M6	3	10	1.0	7.2	
Overflow hose	Bolt	M8	1	17	1.7	12	
Muffler	Bolt (Front)	M8	1	42	4.2	30	
	Bolt (Rear)	M8	1	27	2.7	19	
Exhaust pipe	Bolt	M6	2	10	1.0	7.2	
Exhaust pipe protector	Screw	M6	2	10	1.0	7.2	Apply LOCTITE®
Muffler protector	Screw	M8	2	7	0.7	5.1	Apply LOCTITE®
Muffler and exhaust pipe connecting bolt		Bolt	1	20	2.0	14	
Crankcase breather hose	Screw	M6	1	10	1.0	7.2	
Crankcase	Screw	M6	12	7	0.7	5.1	
Crankcase cover (Left)	Screw	M6	9	7	0.7	5.1	
Crankcase cover (Right)	Screw	M6	12	7	0.7	5.1	
Kick pedal boss	Bolt	M8	1	20	2.0	14	
Kick pedal	Screw	M6	1	7	0.7	5.1	
Primary drive gear	Nut	M14	1	50	5.0	36	Use lock washer.
Clutch spring	Screw	M5	4	6	0.6	4.2	
Clutch boss	Nut	M14	1	50	5.0	36	Use lock washer.
Push lever	Screw	M8	1	12	1.2	8.7	
	Nut	M6	1	8	0.8	5.8	
Drive sprocket	Bolt	M5	1	4	0.4	2.9	
Cover plate	Screw	M6	2	7	0.7	5.1	
Starter clutch	Bolt	M8	3	30	3.0	22	Apply LOCTITE®

Parts to be tightened		Thread size	Q'ty	Tightening torque			Remarks
				Nm	m•kg	ft•lb	
Change pedal	Bolt	M6	1	10	1.0	7.2	
	Screw	M6	1	12	1.2	8.7	Apply LOCTITE®
Pulser coil	Screw	M6	2	7	0.7	5.1	
Neutral switch		M10	1	20	2.0	14	
Lighting coil	Screw	M5	2	4	0.4	2.9	
Charge coil	Screw	M5	2	4	0.4	2.9	

CHASSIS

Model		TW200T/TC
Steering System:		
Steering Bearing Type		Ball bearing
No./Size of Steel Balls	Upper	22 pcs. 3/16 in
	Lower	19 pcs. 1/4 in
Front Suspension:		
Front Fork Travel		160 mm (6.3 in)
Fork Spring Free Length Standard/Limit		312 mm (12.3 in)/<307 mm (12.1 in)>
Spring Rate/Stroke		5.0 N/mm (0.5 kg/mm, 28 lb/in)/ 0~165 mm (0~6.5 in)
Optional Spring		No.
Oil Capacity or Oil Level		238 cm^3 (8.38 Imp oz, 8.05 US oz) 135 mm (5.31 in) (From top of inner tube fully compressed without spring)
Oil Grade		Yamaha fork oil 10WT or Equivalent
Enclosed Air Pressure		0 kPa (0 kg/cm^2, 0 psi)
Collar Length		190 mm (7.48 in)
Rear Suspension:		
Shock Absorber Travel		48 mm (1.9 in)
Spring Free Length		190 mm (7.5 in)
Spring Rate/Stroke	K_1	130 N/mm (13.0 kg/mm, 728 lb/in)/ 0~32 mm (0~1.26 in)
	K_2	190 N/mm (19.0 kg/mm, 1,064 lb/in)/ 32~48 mm (1.26~1.89 in)
Optional Spring		No.
Enclosed Gas Pressure		2,500 kPa (25 kg/cm^2, 356 psi)
Swingarm:		
Swingarm Free Play Limit (At Swingarm End)		1.0 mm (0.04 in)
Swingarm Side Clearance (At Arm Pivot)		0.4~0.7 mm (0.016~0.028 in)
Wheel:		
Front Wheel Type		Spoke wheel
Rear Wheel Type		Spoke wheel
Front Rim Size/Material		2.50×18/Aluminum
Rear Rim Size/Material		MT4.50×14/Steel
Rim Runout Limit—Vertical		<1.0 mm (0.04 in)>
—Lateral		<0.5 mm (0.02 in)>
Drive Chain:		
Type/Manufacturer		428DS/DAIDO
Number of Links		121 Links+Joint
Chain Free Play		30~40 mm (1.2~1.6 in)

Model		TW200T/TC
Drum Brake:		
Type	Front	Leading and trailing
	Rear	Leading and trailing
Drum Inside Dia.	Front	130 mm (5.12 in)
<Limit>		<131 mm (5.16 in)>
	Rear	110 mm (4.33 in)
<Limit>		<111 mm (4.37 in)>
Lining Thickness	Front	4 mm (0.16 in)
<Limit>		<2 mm (0.08 in)>
Shoe Spring Free Length	Front	36.5 mm (1.44 in)
	Rear	50.5 mm (1.99 in)
Brake Lever and Brake Pedal:		
Brake Lever Free Play (At Lever End)		10~20 mm (0.4~0.8 in)
Brake Pedal Free Play (At Pedal End)		20~30 mm (0.8~1.2 in)
Brake Pedal Position		10 mm (0.4 in) (Vertical height below footrest top.)
Clutch Lever Free Play (At Lever Pivot):		2~3 mm (0.08~0.12 in)

TIGHTENING TORQUE

Parts to be tightened	Thread size	Tightening torque			Remarks
		Nm	m•kg	ft•lb	
Engine stay (Front) and engine/frame	M8 ×1.25	33	3.3	24	
Engine stay (Top) and engine/frame	M8 ×1.25	33	3.3	24	
Engine and frame	M8 ×1.25	33	3.3	24	
Helmet holder and frame	M6 ×1.0	4	0.4	2.9	
Engine protector and engine/frame	M6 ×1.0	7	0.7	5.1	
License bracket and frame	M6 ×1.0	5	0.5	3.6	
Air cleaner case and frame	M6 ×1.0	5	0.5	3.6	
Pivot shaft and nut	M12×1.25	80	8.0	58	
Rear shock absorber and frame	M12×1.25	50	5.0	36	
Drive chain case and rear arm	M5 ×0.8	4	0.4	2.9	
Drive chain guard and rear arm	M6 ×1.0	5	0.5	3.6	
Drive chain support and rear arm	M6 ×1.0	5	0.5	3.6	
Handle crown and inner tube	M8 ×1.25	23	2.3	17	
Under bracket and inner tube		23	2.3	17	
Handle crown and steering shaft	M14×1.25	90	9.0	65	
Steering shaft and ring nut	M25×1.0	6	0.6	4.4	
		Refer to NOTE			
Headlight stay and handle crown	M6 ×1.0	7	0.7	5.1	
Fuel tank and frame	M6 ×1.0	7	0.7	5.1	
Front wheel axle and nut	M14×1.5	90	9.0	65	
Brake cam lever and shaft	M6 ×1.0	9	0.9	6.5	
Brake drum mounting bolt	M8 ×1.25	28	2.8	20	
Rear wheel axle and nut	M16×1.5	90	9.0	65	
Rear wheel sprocket and wheel hub	M8 ×1.25	35	3.5	25	
Footrest (Right) and frame	M10×1.25	45	4.5	32	
Footrest (Left) and frame	M12×1.25	60	6.0	43	
Rear footrest and frame	M8 ×1.25	14	1.4	10	
Sidestand and frame	M10×1.25	40	4.0	29	
Horn and frame	M6 ×1.0	7	0.7	5.1	
Main switch and handle crown	M6 ×1.0	7	0.7	5.1	
Rectifier with regulator and frame	M6 ×1.0	7	0.7	5.1	

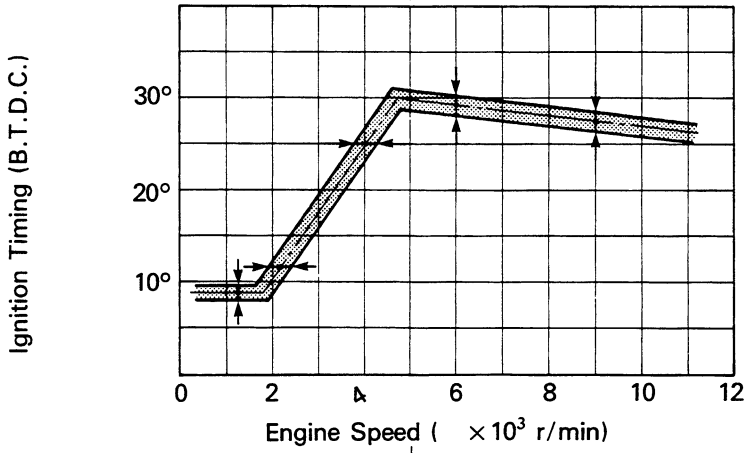
NOTE:

- Ring nut (lower):

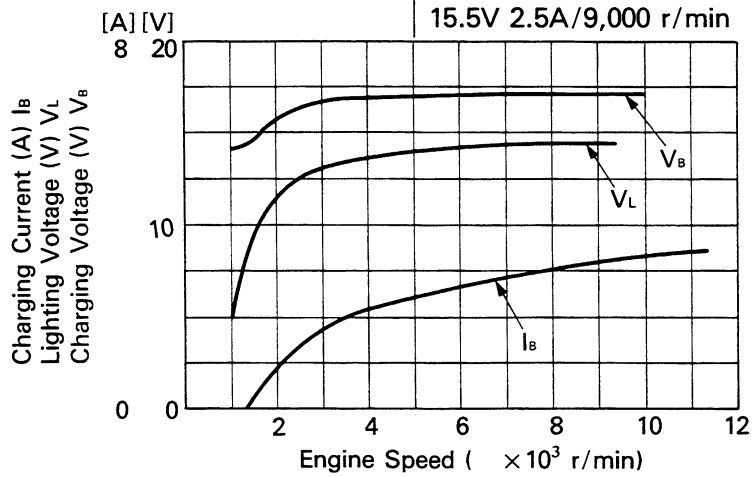
1) First, tighten the ring nut approximately 38 Nm (3.8 m•kg, 27 ft•lb) by using the torque wrench, then loosen the ring nut completely.
2) Retighten the ring nut 6 Nm (0.6 m•kg, 4.4 ft•lb).

ELECTRICAL

Model	TW200T/TC
Voltage:	12V
Ignition System:	
Ignition Timing (B.T.D.C.)	9°/1,300 r/min
Advanced Timing (B.T.D.C.)	29°/6,000 r/min



Advancer Type	Electric type
C.D.I.:	
Magneto Model/Manufacturer	2JX/YAMAHA
Pickup Coil Resistance (Color)	650~790Ω at 20°C (68°F) (G—W)
Source Coil Resistance (Color)	400~450Ω at 20°C (68°F) (Br—R)
C.D.I. Unit-Model/Manufacturer	2JX/YAMAHA
Ignition Coil:	
Model/Manufacturer	2JX/YAMAHA
Minimum Spark Gap	6 mm (0.24 in) or more at 500 r/min
Primary Winding Resistance	1.3~1.9Ω at 20°C (68°F)
Secondary Winding Resistance	5.3~7.9Ω at 20°C (68°F)
Charging System:	
Type	A.C. Magneto Generator
Model/Manufacturer	2JX/YAMAHA
Output	12V 0.7A/3,000 r/min
	15.5V 2.5A/9,000 r/min



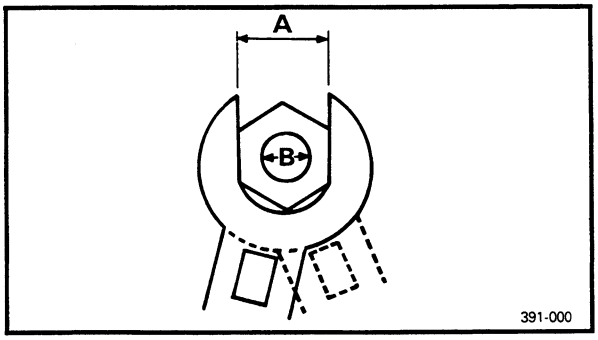
Charging Coil Resistance (Color)	0.3~0.5Ω at 20°C (68°F) (W—Y)

Model	TW200T/TC
Voltage Regulator:	
Type	Semi conductor type
Model/Manufacturer	SH582/SHINDENGEN
Rectifier:	
Model/Manufacturer	SH582/SHINDENGEN
Capacity	8A
Withstand Voltage	120V
Battery:	
Capacity	12V 7AH
Specific Gravity	1.280
Electric Starter System:	
Type	Constant Mesh Type
Starter Motor:	
Model/Manufacturer	2JX/YAMAHA
Output	0.4kW
Brush Overall Length	10 mm (0.39 in)
<Limit>	<3.5 mm (0.14 in)>
Brush Spring Pressure	560~840 g (19.8~29.6 oz)
<Limit>	<450 g (0.98 oz)>
Commutator Dia.	22 mm (0.87 in)
<Limit>	<21 mm (0.83 in)>
Mica Undercut	1.5 mm (0.06 in)
Starter Switch:	
Model/Manufacturer	22U/HONDA LOCK
Amperage Rating	150A
Horn:	
Type/Quantity	Plain type/1
Model/Manufacturer	MF-12/NIKKO
Maximum-Amperage	1.5A
Flasher Relay:	
Type	Condenser type
Model/Manufacturer	FZ257SD/NIPPONDENSO
Self Cancelling Device	No.
Flasher Frequency	75~95 cycle/min
Wattage	27W×2+3.4W
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit	
Main	10A

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	6.1
22 mm	16 mm	130	13.0	94



A: Distance cross 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 kg × m/sec^2	Force
Nm m•kg	Newton meter Meter kilogram	N × m m × kg	Torque Torque
Pa N/mm	Pascal Newton per millimeter	N/m^2 N/mm	Pressure Spring rate
L cm^3	Liter Cubic centimeter	—	Volume or Capacity
r/min	Rotation per minute	—	Engine Speed

LUBRICATION POINTS AND TYPE OF LUBRICANTS

ENGINE

Part name	Type of lubricants
Oil seal lip (All)	LS
Bearing retainer (All)	E
Bolt thread and Copper Washer (Cylinder head)	E
Crankshaft: Crank pin Big end	 E E
Piston pin	E
Piston	E
Balancer gear	E
Valve stem	M
Valve stem end	E
Rocker arm shaft	E
Camshaft profeel and journal	M
Rocker arm	E
O-ring (Drain plug)	LS
Kick idle gear	E
Kick axle shaft	M
Push rod (Short)	E
O-ring (Push rod-short)	LS
Primary driven gear	E
Push lever shaft	E
Starter wheel gear	E
Starter idle gear and shaft	E
O-ring (Starter motor)	LS
Transmission sliding gear and free movement gear	M
Shift fork shaft and shift fork	E
Shift cam and shift shaft	E

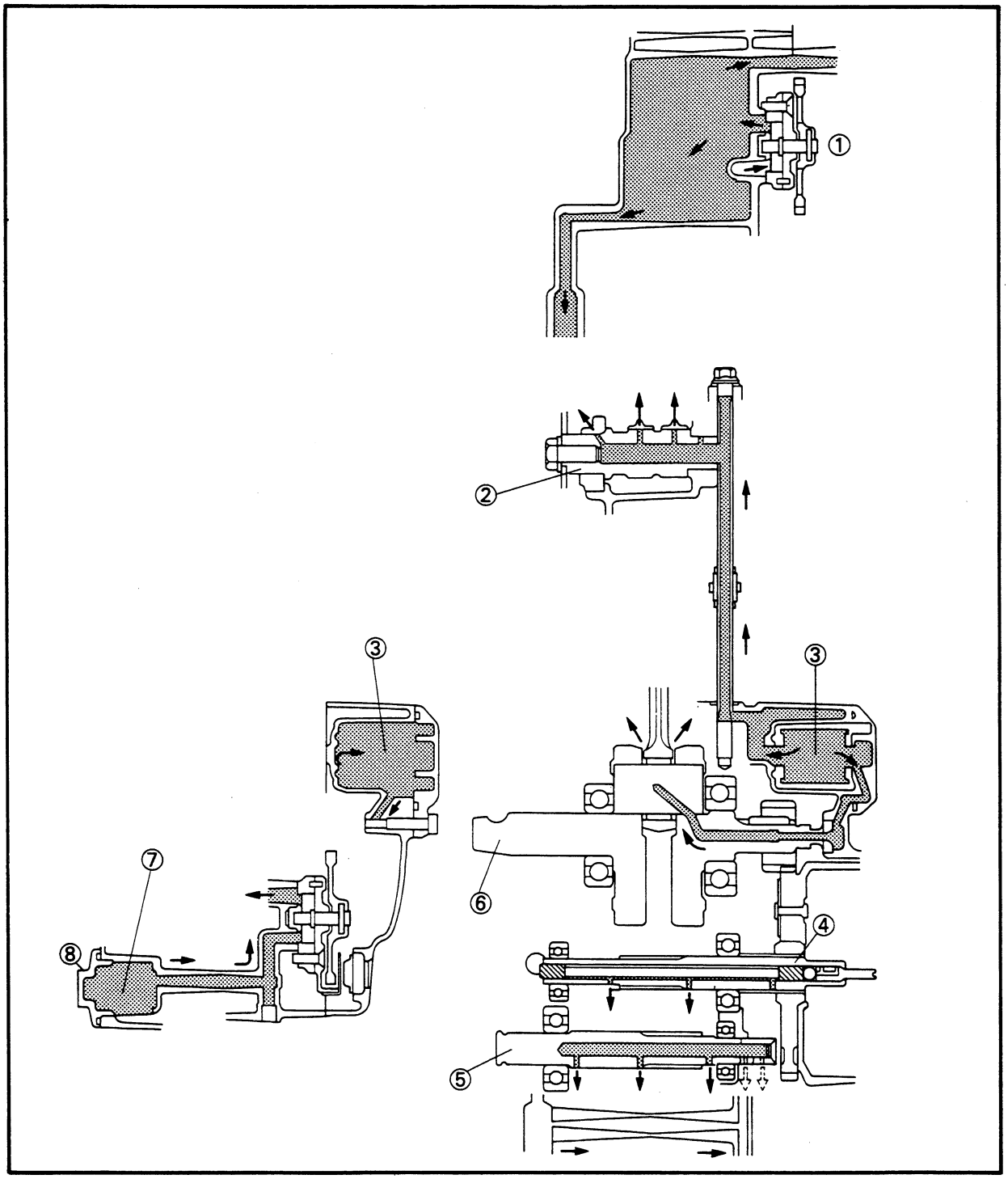
LUBRICATION POINTS AND TYPE OF LUBRICANTS

CHASSIS

Part name	Type of lubricants
Steering shaft bearing (Upper and lower)	LS
Steering beering cover lip	LS
Swingarm:	
Collar	LS
Oil seal lip	LS
Thrust cover lip	LS
Pivot shaft	LS
Rear shock absorber:	
Lower mounting pin	LS
Oil seal lip	LS
Brake camshaft (Front and rear)	LS
Speedometer drive gear and shaft	LS
Speedometer gear housing	LS
Wheel (Front and rear):	
Oil seal lip	LS
Wheel axle	LS
Wheel bearing	LS
Throttle grip inner surface	LS
Clutch lever and brake lever pivot	E
Brake pedal pivot	E
Sidestand pivot	E
Kick axle pivot	E

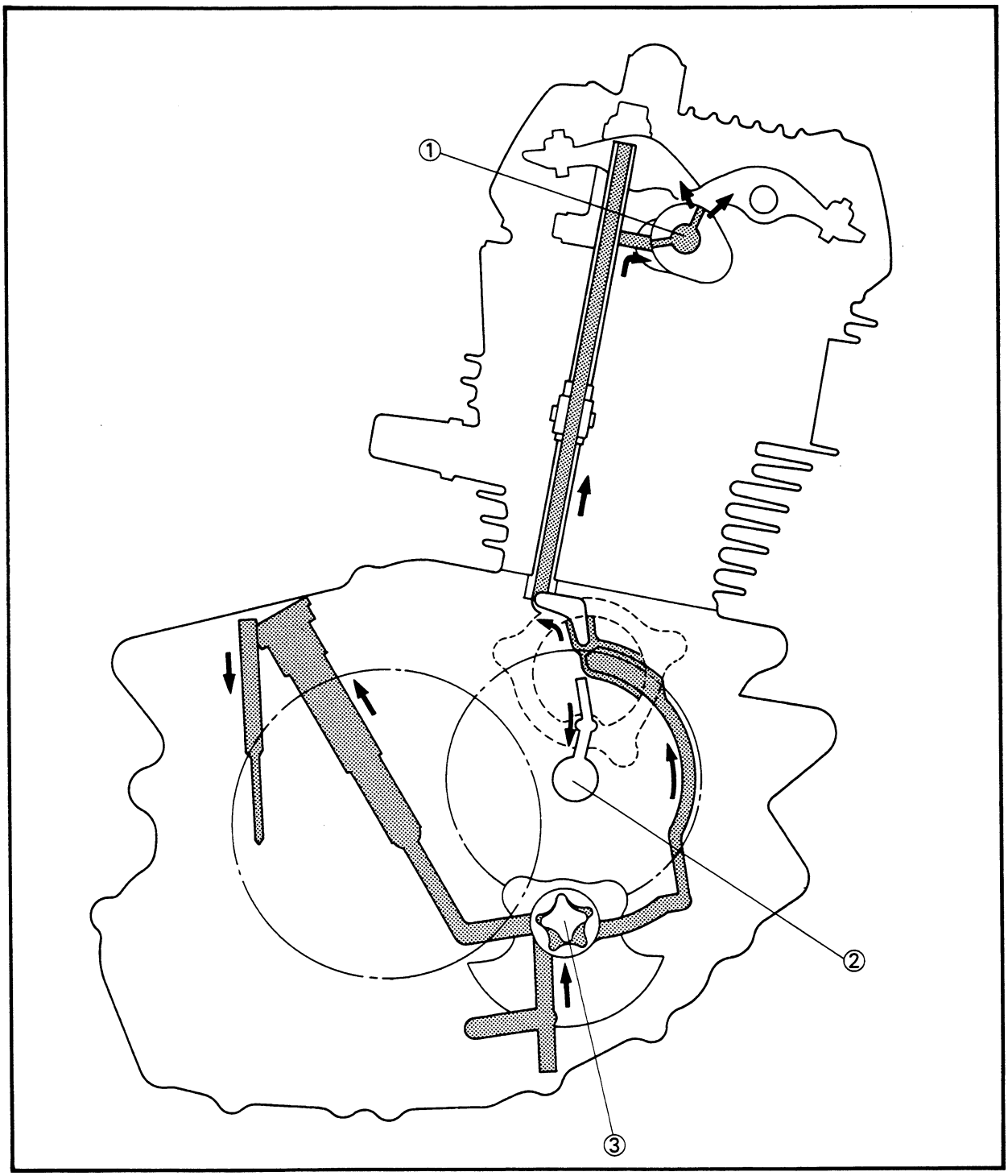
LUBRICATION DIAGRAMS

① Oil pump
② Rocker arm shaft
③ Oil filter element
④ Main axle
⑤ Drive axle
⑥ Crankshaft
⑦ Oil strainer
⑧ Drain plug



LUBRICATION DIAGRAMS

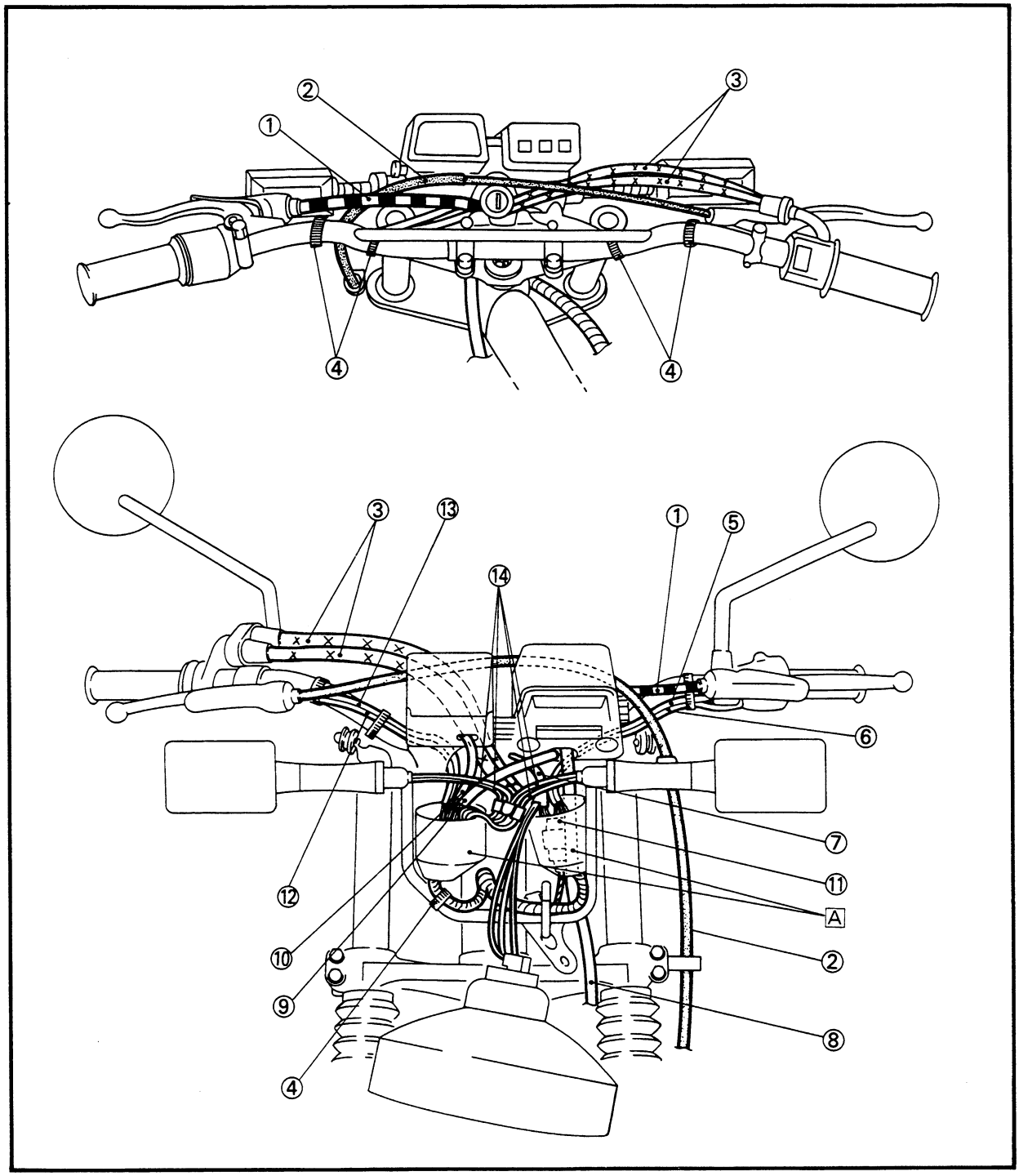
① Camshaft
② Crankshaft
③ Oil pump



CABLE ROUTING

① Clutch cable
② Front brake cable
③ Throttle cable
④ Band
⑤ Handlebar switch (Left) lead
⑥ Clutch switch lead
⑦ Main switch lead
⑧ Speedometer cable
⑨ Meter light lead
⑩ Indicator lights lead
⑪ Flasher relay
⑫ Front brake switch lead
⑬ Handlebar switch (Right) lead
⑭ Flasher light leads

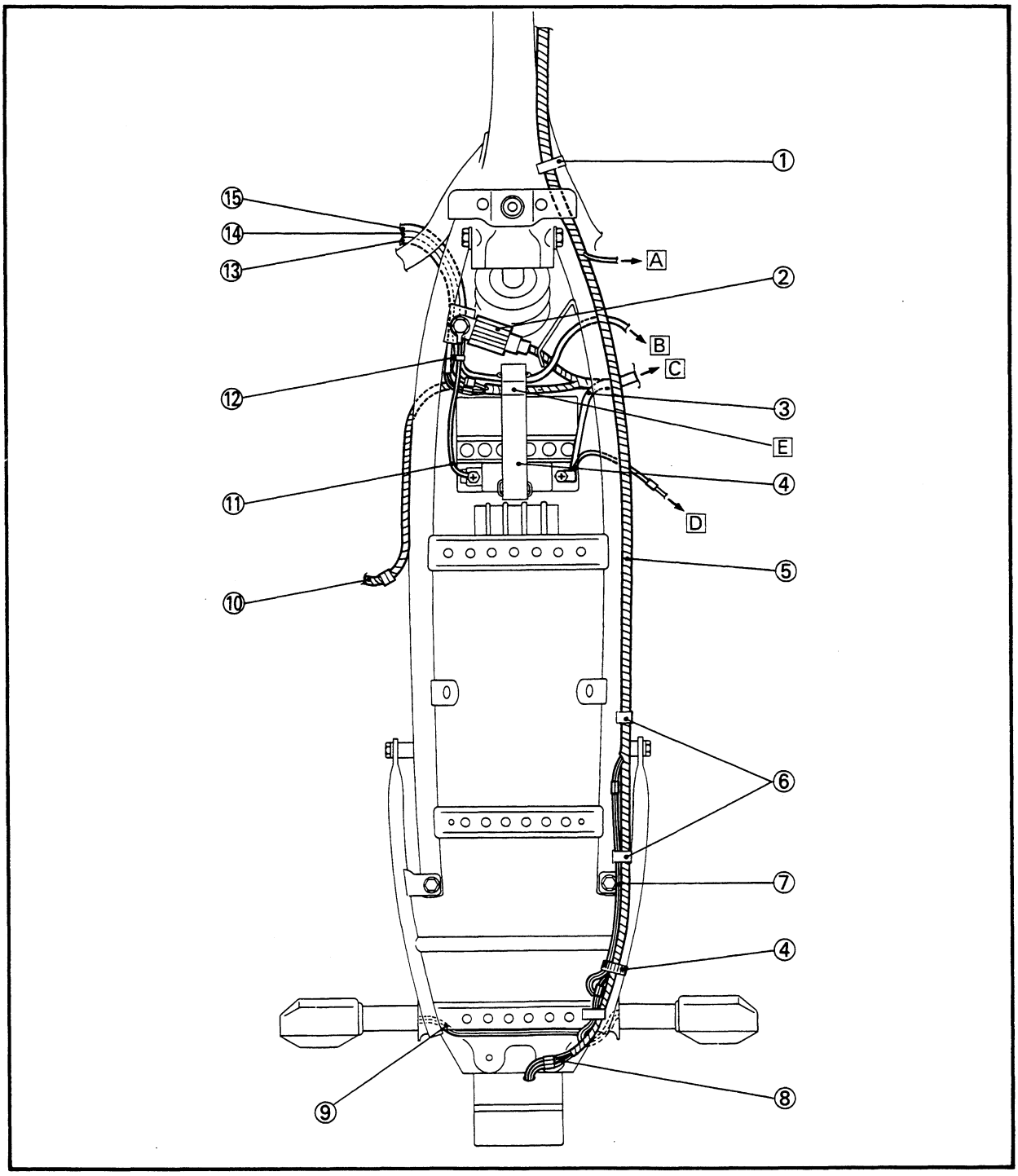
[A] Cover the couplers with rubber boots.



CABLE ROUTING

① Clamp
② Rectifier/Regulator
③ Battery positive (+) lead
④ Band
⑤ Wireharness
⑥ Clamp
⑦ Flasher light (Right) lead
⑧ Taillight lead
⑨ Flasher light (Left) lead
⑩ Sidestand switch lead
⑪ Battery negative (−) lead
⑫ Guide
⑬ CDI magneto lead
⑭ Neutral switch lead
⑮ Starter motor lead

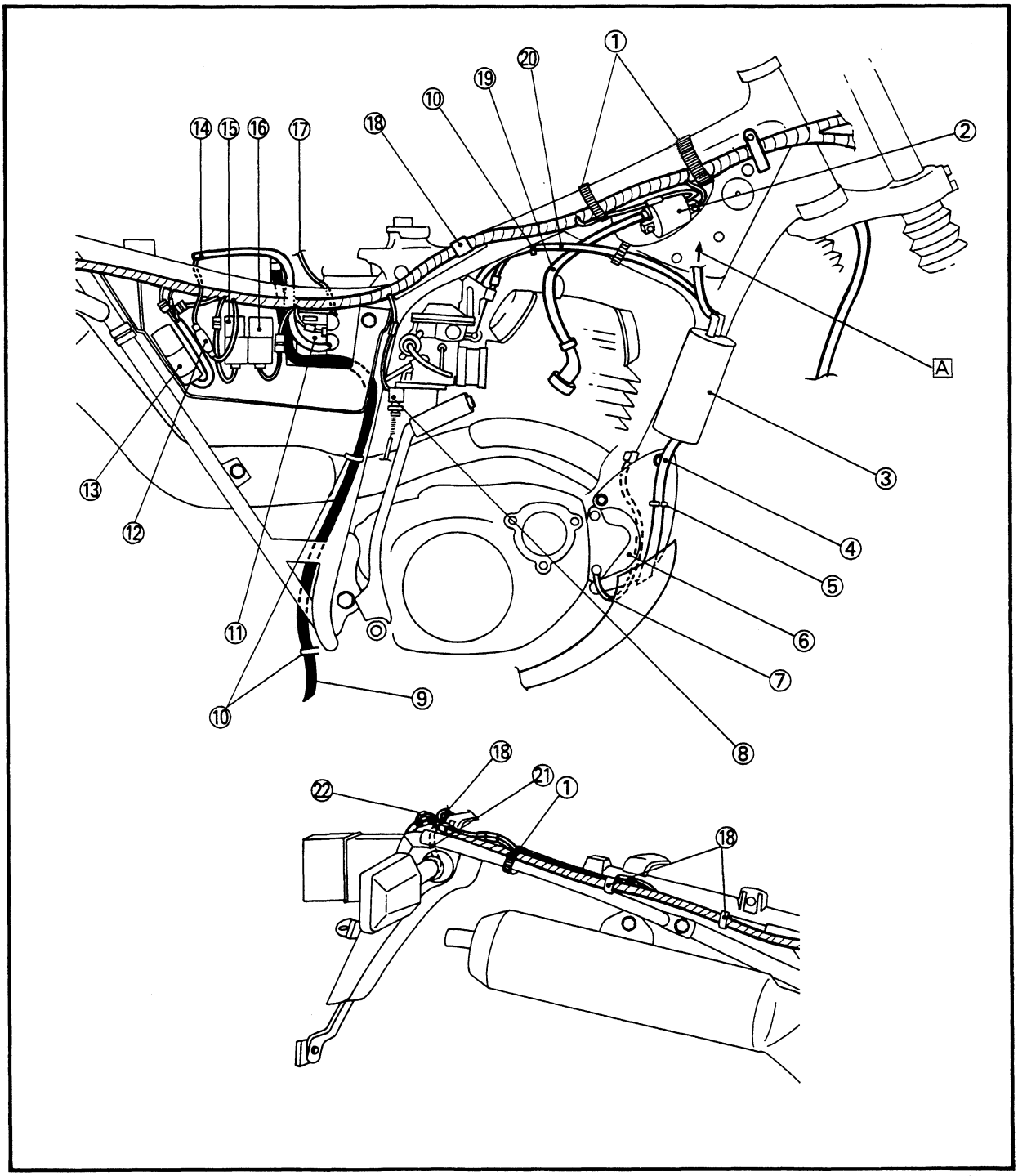
[A] To rear brake switch
[B] To starter relay
[C] To starter relay
[D] To fuse
[E] Band the wireharness and the leads.



CABLE ROUTING

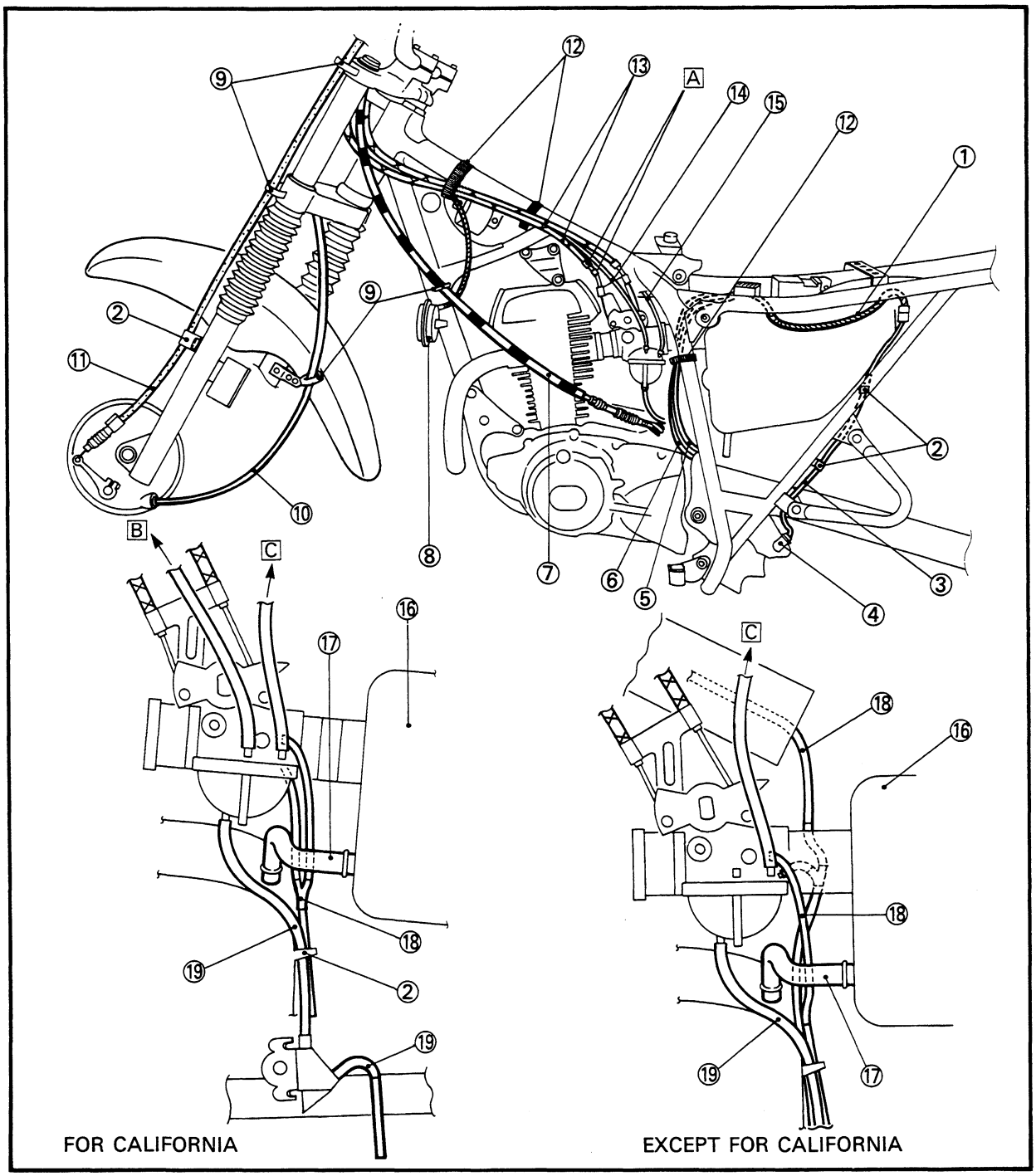
① Band
② Ignition coil
③ Canister (For California only)
④ Breather hose (For California only)
⑤ Clamp (For California only)
⑥ Starter motor
⑦ Ground lead
⑧ Rear brake switch
⑨ Battery breather hose
⑩ Cable guide
⑪ Starter relay
⑫ Fuse
⑬ CDI unit
⑭ Battery positive (+) lead
⑮ Ignition circuit cut-off relay
⑯ Starting circuit cut-off relay
⑰ Starter motor lead
⑱ Clamp
⑲ High tension cord
⑳ Canister hose
㉑ Flasher light lead
㉒ Taillight lead

[A] To fuel tank



CABLE ROUTING

① Wireharness
② Clamp
③ Sidestand switch lead
④ Sidestand switch
⑤ CDI magneto/neutral switch lead
⑥ Starter motor lead
⑦ Clutch cable
⑧ Horn
⑨ Cable holder
⑩ Speedometer cable
⑪ Front brake cable
⑫ Band
⑬ Throttle cable
⑭ Canister hose (For California)
⑮ Fuel hose
⑯ Air cleaner case
⑰ Breather hose
⑱ Carburetor air vent hose
⑲ Carburetor overflow hose
[A] Throttle cable with Gray mark→Lower side
[B] To canister
[C] To fuel tank



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

No.	ITEM	REMARKS	TYPE	INITIAL	ODOMETER READINGS			
				1,000 km or 1 month (600 mi)	**1 6,000 km or 7 months (3,800 mi)	**2 11,000 km or 13 months (6,900 mi)	16,000 km or 19 months (10,000 mi)	**3 21,000 km or 25 months (13,100 mi)
1.	Engine oil	Warm-up engine before draining.	1) Yamalube 4-cycle oil or SAE 20W40 type "SE" motor oil. 2) SAE 10W30 type "SE" motor oil.	○	○	○	○	○
2.*	Oil filter/ Strainer	Replace filter element and clean oil strainer. Replace oil strainer if damaged.	—	○		○		○
3.*	Air filter	Wet type filter must be washed and damped with oil.	Yamalube 2-cycle oil or equivalent.	○	○	○	○	○
4.*	Brake system	Adjust free play. Replace shoes if necessary.	—	○	○	○	○	○
5.*	Clutch	Adjust free play.	—	○	○	○	○	○
6.	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE 30 ~ 50W motor oil.	Every 500 km (300 mi)				
7.	Control and meter cable	Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○
8.*	Rear arm pivot shaft	Apply until new grease show.	Lithium soap base grease.		○	○	○	○
9.	Brake/ Clutch lever pivot shaft	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○

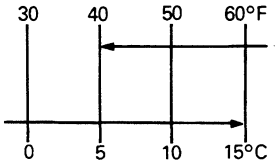
No.	ITEM	REMARKS	TYPE	INITIAL	ODOMETER READINGS			
				1,000 km or 1 month (600 mi)	**1 6,000 km or 7 months (3,800 mi)	**2 11,000 km or 13 months (6,900 mi)	16,000 km or 19 months (10,000 mi)	**3 21,000 km or 25 months (13,100 mi)
10.	Brake pedal and change pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○
11.*	Sidestand pivots and kick crank boss	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○
12.*	Front fork oil	Check operation and leakage.	—		○	○	○	○
13.*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 15,000 km (9,400 mi)	Medium weight wheel bearing grease.		○	○	Repack	○
14.*	Wheel bearings	Check bearings for smooth rotation.	—		○	○	○	○
15.	Battery	Check specific gravity and breather pipe for proper operation.	—		○	○	○	○
16.*	Sidestand switch	Check and clean or replace if necessary.	—	○	○	○	○	○

3

* It is recommended that these items be serviced by Yamaha dealer or other qualified mechanic.

NOTE:

- For farther odometer reading, repeat the above maintenance at the period established; **1: Every 5,000 km (3,000 mi), **2: Every 10,000 km (6,000 mi), and **3: Every 20,000 km (12,000 mi) intervals.
- Recommended oil:



Yamalube 4-cycle Oil or
SAE 20W40 Type SE Motor Oil

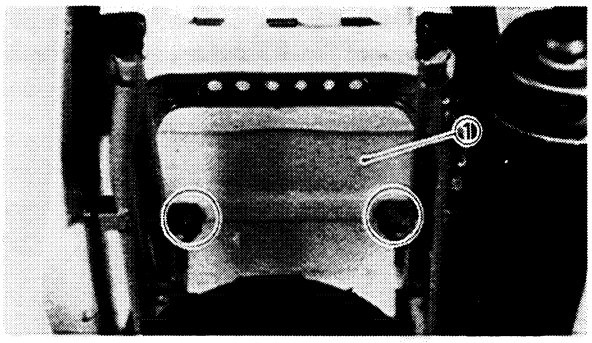
SAE 10W30 Type SE Motor Oil

ENGINE

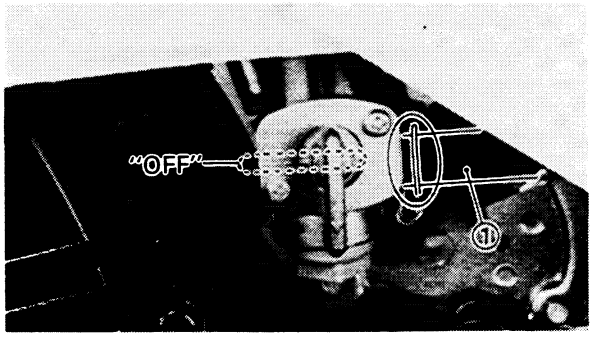
VALVE CLEARANCE ADJUSTMENT

NOTE:

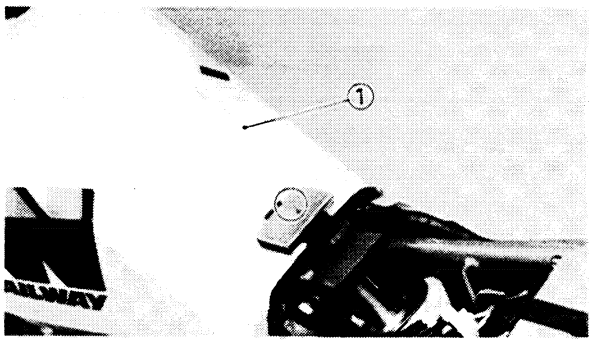
- Valve clearance should be measured or adjusted when the engine is cool to the touch.
- Measure or adjust valve clearance when piston at Top Dead Center (T.D.C.) on compression stroke.



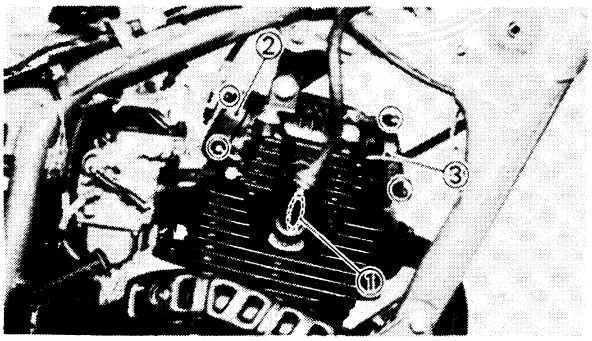
1. Remove:
   - Seat ①



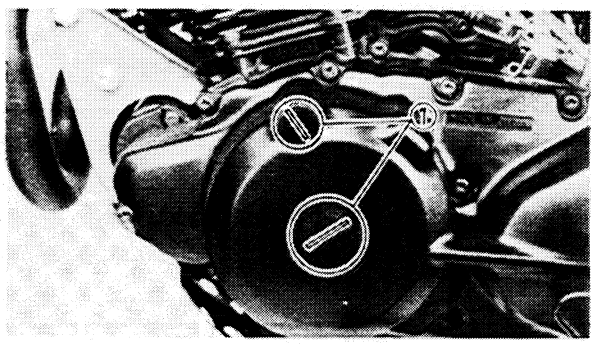
2. Turn the fuel cock to "OFF".
3. Disconnect:
   - Fuel hose ①



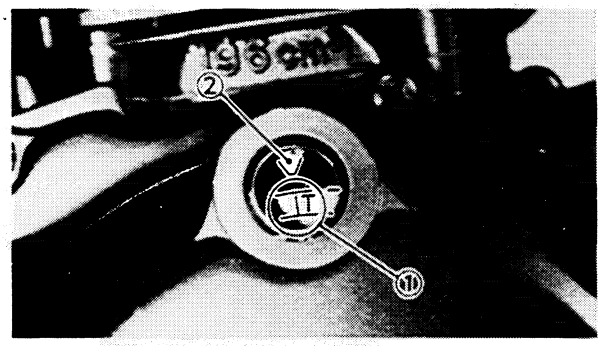
4. Remove:
   - Fuel tank ①



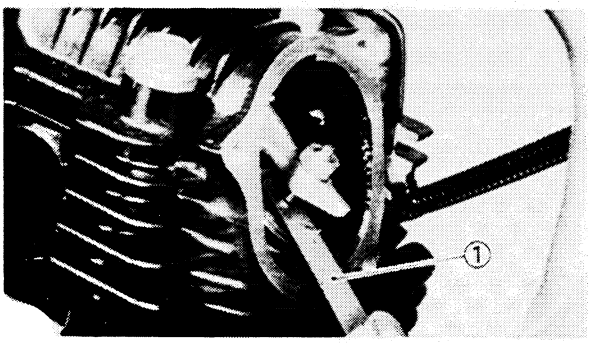
5. Remove:
   - Spark plug ①
   - Tappet cover (Intake) ②
   - Tappet cover (Exhaust) ③



6. Remove:
   - Blind plug (Upper and lower) ①

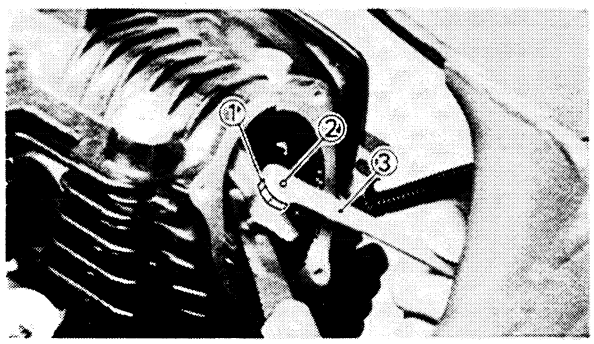


7. Turn the crankshaft counterclockwise to align the "T" mark ① on the rotor with the crankcase cover mark ② when the piston is at TDC on the compression stroke.



8. Measure:
   - Valve clearance (Use a feeler gauge ①)
     Out of specification→Adjust.

Valve Clearance (Cold):	
Intake:	**0.05~0.09 mm (0.002~0.004 in)**
Exhaust:	**0.11~0.15 mm (0.004~0.006 in)**



9. Adjust:
   - Valve clearance

Adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② in or out using the Valve Adjusting Tool ③.

Valve Adjusting Tool:
P/N YM-08035

Turn it	**Clearance is decreased.**
Turn out	**Clearance is increased.**

- Tighten the locknut while holding the adjuster.

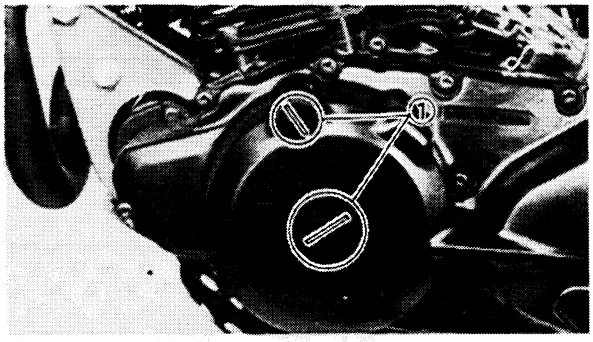
Locknut:
14 Nm (1.4 m•kg, 1.0 ft•lb)

10. Inspect:
    - O-ring (Blind plug)
      Damage→Replace.
11. Install:
    - Spark plug
    - Tappet covers
    - Blind plugs
    - Fuel tank
    - Seat

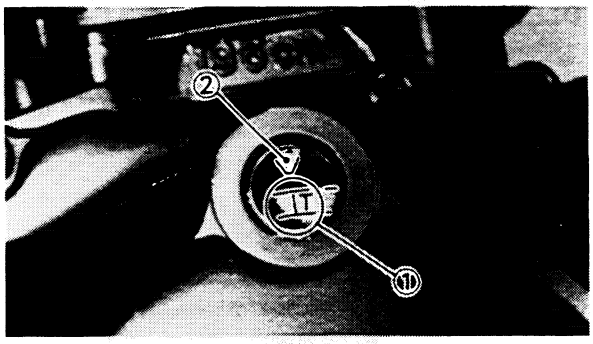
Spark Plug:
17.5 Nm (1.75 m•kg, 12 ft•lb)
Bolts (Tappet Covers):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Blind Plugs:
7 Nm (0.7 m•kg, 5.1 ft•lb)
Bolt (Fuel Tank):
7 Nm (0.7 m•kg, 5.1 ft•lb)

CAM CHAIN ADJUSTMENT

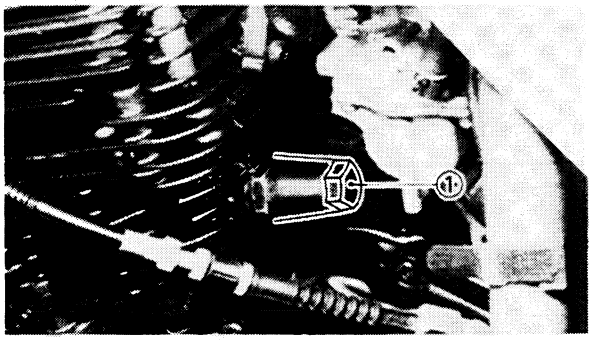
1. Remove:
   - Blind plug (Upper and lower) ①

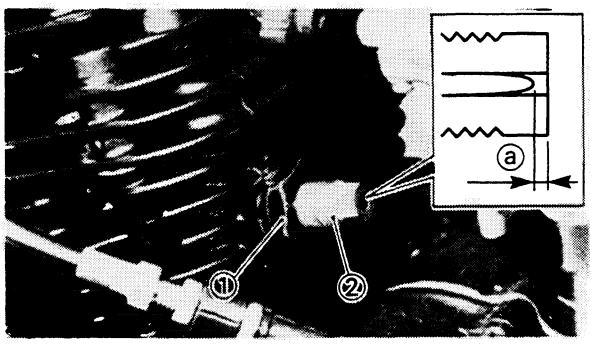


2. Turn the crankshaft counterclockwise to align the "T" mark ① on the rotor with the crankcase cover mark ② when the piston is at TDC on the compression stroke.



3. Remove:
   - Adjuster cap ①





4. Check:
   • Tensioner rod position ⓐ
   Out of specification → Adjust.

Tensioner Rod Position:
0 ~ 0.5 mm (0 ~ 0.02 in)

Cam chain adjustment steps:
- Loosen the locknut ①.
- Turn in the cam chain adjuster ② until specified tensioner rod position is obtained.
- Tighten the locknut.

Locknut:
30 Nm (3.0 m•kg, 22 ft•lb)

5. Install:
   • Adjuster cap
   • Blind plug (Upper and lower)

Adjuster Cap:
5 Nm (0.5 m•kg, 3.6 ft•lb)

CAUTION:

Adjuster cap is made from plastic. Do not overtighten.

IDLE SPEED ADJUSTMENT

1. Start the engine and warm it up for a few minutes.

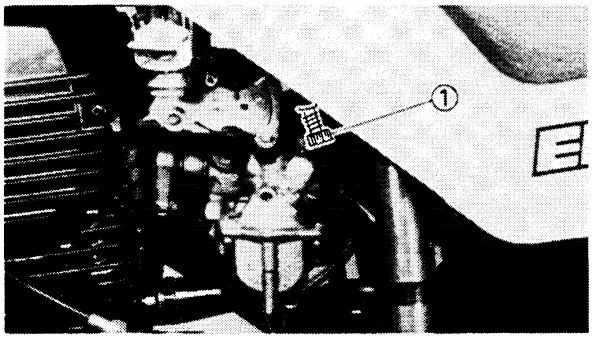
2. Attach:
   • Inductive Tachometer
   To spark plug lead.

Inductive Tachometer:
P/N YU-08036

3. Measure:
   • Engine idle speed
   Out of specification → Adjust.

Engine Idle Speed:
1,350 ~ 1,450 r/min

INSP ADJ



4. Adjust:
   • Engine idle speed

Adjustment steps:
• Turn the throttle stop screw ① in or out until the specified engine speed is obtained.

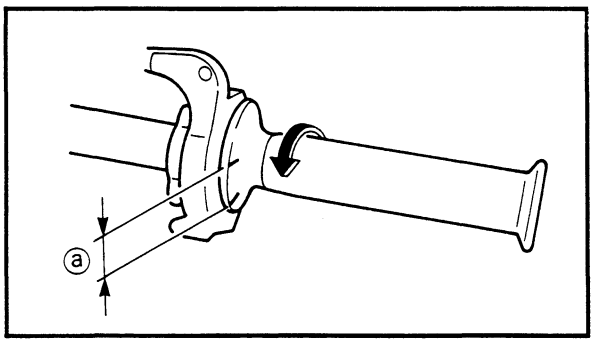
Turn it	**Idle speed becomes higher.**
Turn out	**Idle speed becomes lower.**

NOTE:
After adjusting the engine idle speed, the throttle cable free play should be adjusted.

3

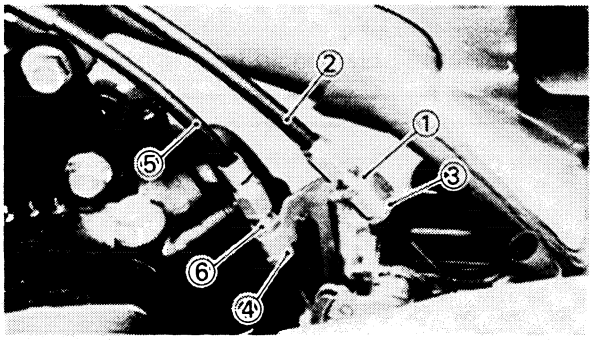
THROTTLE CABLE FREE PLAY ADJUSTMENT

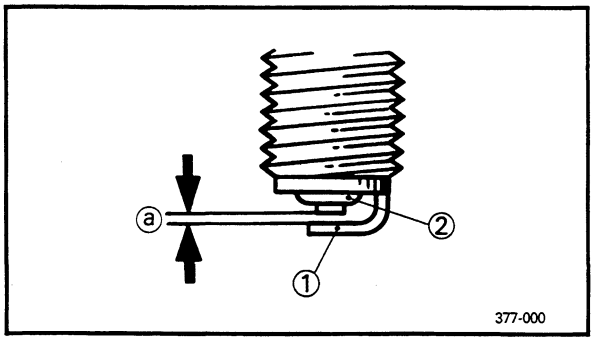
NOTE:
Before adjusting the throttle cable free play, the engine idle speed should be adjusted.



1. Inspect:
   • Throttle cable free play ⓐ
   Out of specification → Adjust.

Throttle Cable Free Play:
2 ~ 5 mm (0.08 ~ 0.20 in)





2. Adjust:
   - Throttle cable free play

   By the following adjustment steps.

Throttle cable adjustment steps:
- Remove the fuel tank.
- Loosen the locknut ① on the throttle cable 1 ②.
- Turn the adjuster ③ clockwise or counterclockwise until proper free play is attained.
- If the play is still incorrect after the adjuster is loosened 5 mm (0.2 in), make an adjustment with the adjuster ④ on the throttle cable 2 ⑤.

⑥ Locknuts
- Tighten the locknuts.
- Install the fuel tank.

SPARK PLUG INSPECTION

1. Inspect:
   - Electrode ①

   Wear/Damage→Replace.
   - Insulator ② color

   Normal condition is a medium to light tan color.

   Distinctly different color→Check the engine condition.
2. Clean:
   - Spark plug

   Clean the spark plug with a spark plug cleaner or wire brush.
3. Inspect:
   - Spark plug type

   Incorrect→Replace.

Standard Spark Plug:
D8EA (NGK), X24ES-U (N.D.)

4. Measure:
   - Plug gap ⓐ

   Use a Wire Gauge or Feeler Gauge.

   Out of specification→Regap.

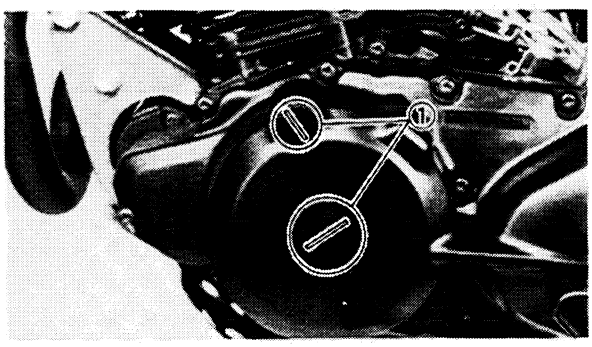
Spark Plug Gap:
0.6~0.7 mm (0.024~0.028 in)

5. Tighten:
   • Spark plug(s)
   Before installing a spark plug, clean the gasket and plug surfaces.

	Spark Plug: **17.5 Nm (1.75 m•kg, 12 ft•lb)**

NOTE:

Finger-tighten the spark plug(s) before torquing to specification.



IGNITION TIMING CHECK

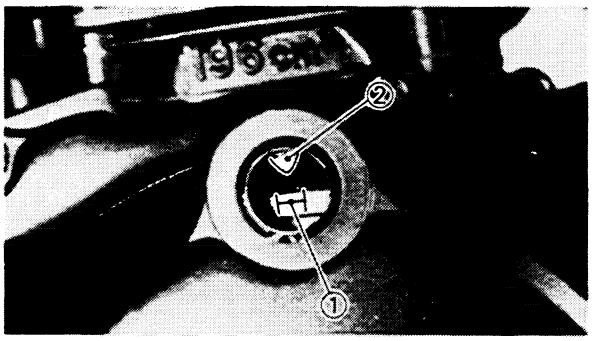
1. Remove:
   • Blind plug (Upper and lower) ①

2. Attach:
   • Inductive Tachometer
   • Inductive Timing Light
   To spark plug lead.

	Inductive Tachometer: **P/N YU-08036** **Inductive Timing Light:** **P/N YU-33277**

3. Warm up the engine and allow it to idle at the specified speed.

	Engine Idle Speed: **1,400 r/min**



4. Check:
   • Ignition timing
   Visually check the crankcase cover mark ② is within the firing range ① indicated on the rotor.

   Incorrect firing range→Check flywheel and/or pickup assembly (Tightness damage).

5. Install:
   • Blind plug (Upper and lower)

COMPRESSION PRESSURE MEASUREMENT

NOTE:

Insufficient compression pressure will result in performance loss.

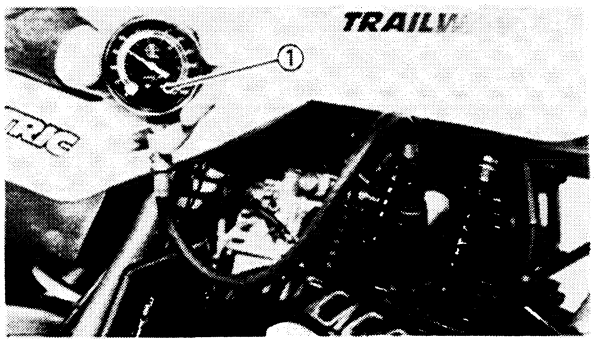
1. Measure:
   - Valve clearance
     Out of specification→Adjust.
     Refer to "VALVE CLEARANCE ADJUSTMENT" section.

2. Warm up the engine.

3

3. Remove:
   - Spark plug

4. Measure:
   - Compression pressure



Compression pressure measurement steps:

- Install the Compression Gauge ① using an adapter.

Compression Gauge:
P/N YU-33223

- Crank over the engine with the electric starter (be sure the battery is fully charged) with the throttle wide open until the compression reading on the gauge stabilizes.
- Check readings with specified levels (See chart).

Compression Pressure (At Sea Level):

Standard:
900 kPa (9.0 kg/cm^2, 128 psi)

Minimum:
800 kPa (8.0 kg/cm^2, 114 psi)

Maximum:
1,050 kPa (10.5 kg/cm^2, 149 psi)

WARNING:

When cranking the engine, ground spark plug lead to prevent sparking.

- If pressure falls bellow the minimum level:

1. Squirt a few drops of oil into the affected cylinder.
2. Measure the compression again.

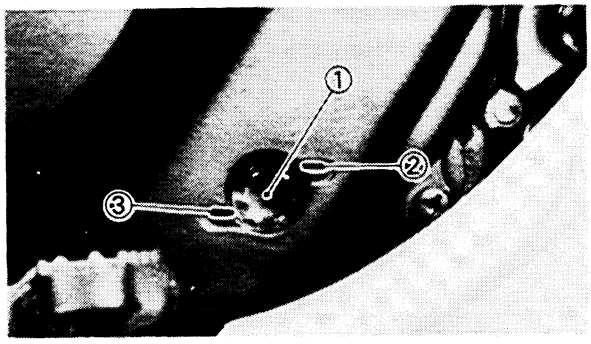
Compression Pressure (with oil introduced into cylinder)	
Reading	**Diagnosis**
Higher than without oil	**Worn or damaged pistons**
Same as without oil	**Defective ring(s), valves, cylinder head gasket or piston is possible.**
Above maximum level	**Inspect cylinder head, valve surfaces, or piston crown for carbon deposits.**

ENGINE OIL LEVEL INSPECTION

1. Start the engine and warm it up for several minutes.
2. Place the motorcycle on a level place and hold it on uplight position.

NOTE:

Position motorcycle straight up when checking oil level, a slight tilt to the side can produce false readings.



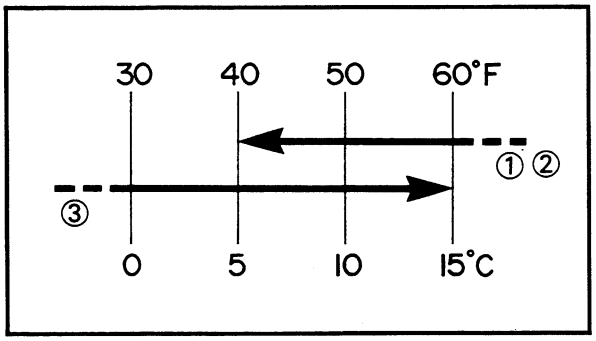
3. Stop the engine and visually check the oil level throught the level window ①.
4. Inspect:
   - Oil level

   Oil level should be between maximum ② and minimum ③ marks.

   Oil level low→Add oil to proper level.

NOTE:

Wait a few minutes until level settles before inspecting.



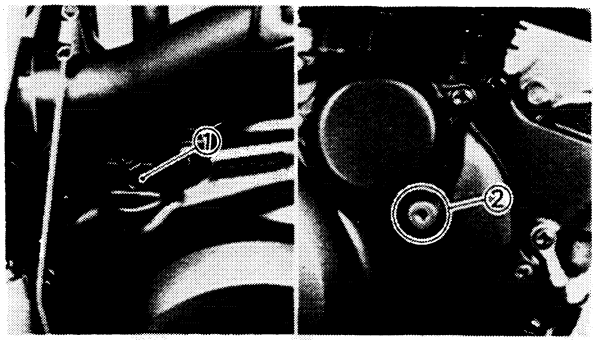
Recommended Engine Oil:
Yamalube 4-cycle Oil, ① SAE 10W30 Type SE Motor Oil ② or SAE 20W40 Type SE Motor Oil ③

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

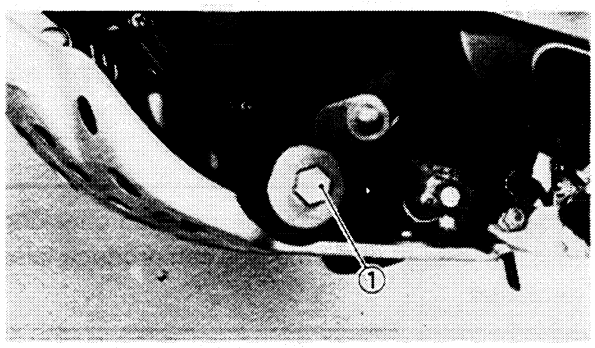
ENGINE OIL REPLACEMENT

Without Oil Filter Change

1. Start the engine and warm it up for several minutes.
2. Place the motorcycle on a level place and place a receptacle under the engine.



3. Remove:
   - Oil filler cap ①
   - Bolt (Oil filter cover—Lower) ②



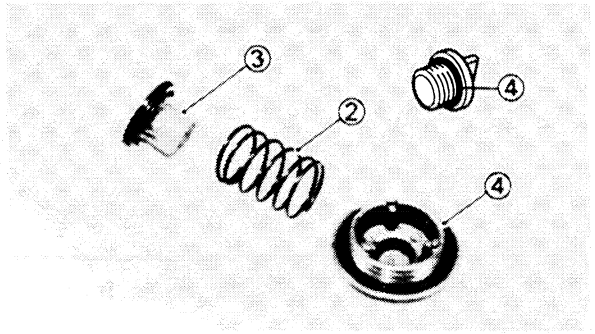
4. Remove:
   - Drain plug ①
   - Compression spring ②
   - Oil strainer ③

   Drain the engine oil.
5. Inspect:
   - O-rings ④

     Cracks/Damage→Replace.
   - Oil strainer ③

     Contamination→Clean.

     Damage→Replace.



6. Install:
   - Oil strainer
   - Compression spring
   - O-ring
   - Drain plug
   - Bolt (Oil filter cover—Lower)

Drain Plug:
43 Nm (4.3 m•kg, 31 ft•lb)
Bolt (Oil Filter Cover—Lower):
10 Nm (1.0 m•kg, 7.2 ft•lb)

7. Fill:
   - Crankcase

   With recommended engine oil.

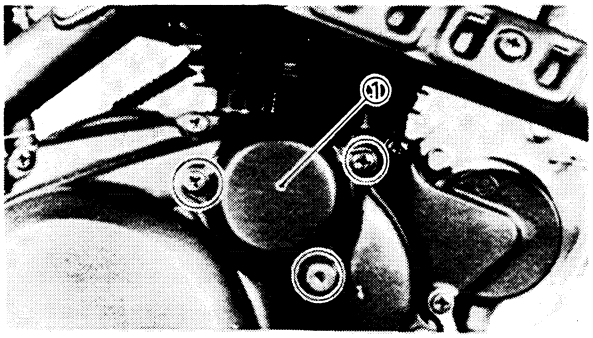
Recommended Engine Oil:
Refer to page 3-12.
Oil Capacity (Without Oil Filter Change):
1.0 L (0.88 Imp qt, 1.06 US qt)

CAUTION:

- **Do not add any chemical additives. Engine oil also lubricates the clutch and additives could cause clutch slippage.**
- **Be sure no foreign material enters the crankcase.**

8. Inspect:
   - Engine oil level

   Refer to the "ENGINE OIL LEVEL INSPECTION" section.
9. Install:
   - Oil filler cap
10. Warm up the engine and check for oil leaks. Stop the engine instantly if leaking occurs.
    - Leaks→Check cause.

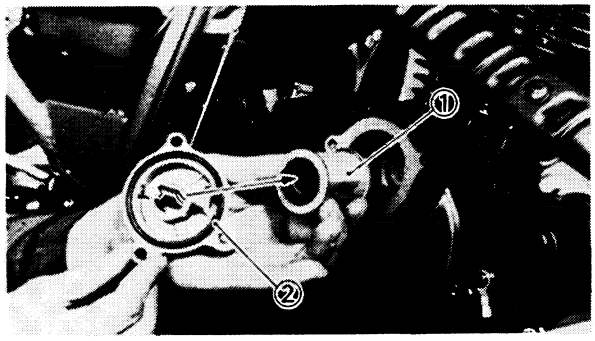


With Oil Filter Change

Follow the "Without Oil Filter Change" steps 1~5.

Then proceed as follows:

1. Remove:
   - Oil filter cover ①
   - Oil filter



2. Install:
   • Oil filter (New) ①
   Replace periodically as indicated.

3. Inspect:
   • O-ring ②
   Cracks/Damage → Replace.

4. Install:
   • Oil strainer
   • Compression spring
   • O-rings
   • Drain plug
   • Oil filter cover

Drain Plug:
43 Nm (4.3 m•kg, 31 ft•lb)
Screw (Oil Filter Cover—Upper)
7 Nm (0.7 m•kg, 5.1 ft•lb)
Bolt (Oil Filter Cover—Lower)
10 Nm (1.0 m•kg, 7.2 ft•lb)

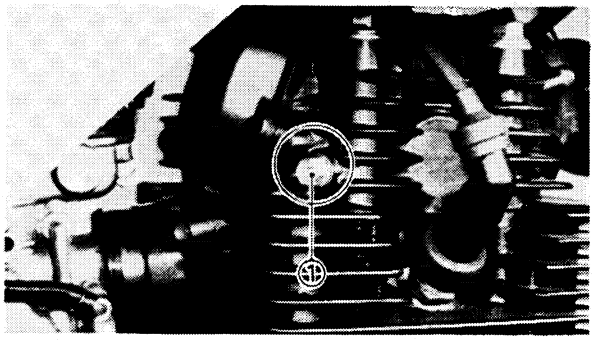
5. Fill:
   • Crankcase
   With recommended engine oil.

Recommended Engine Oil:
Refer to page 3-12.
Oil Capacity (With Oil Filter Change):
1.1 L (0.97 Imp qt, 1.16 US qt)

CAUTION:

- **Do not add any chemical additives. Engine oil also lubricates the clutch and additives could cause clutch slippage.**
- **Be sure no foreign material enters the crankcase.**

6. Inspect:
   • Engine oil level
   Refer to the "ENGINE OIL LEVEL INSPECTION" section.
7. Install:
   • Oil filler cap
8. Warm up engine and check for oil leaks.
   Stop engine instantly if leaking occurs.
   Leaks → Check cause.

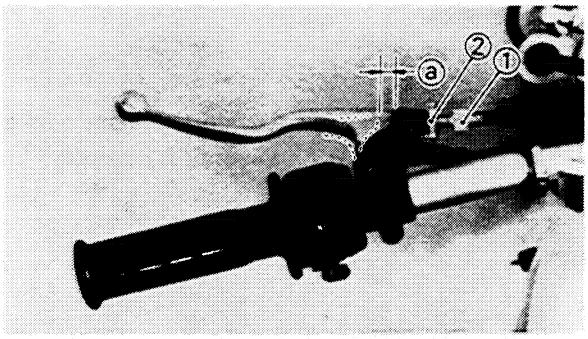


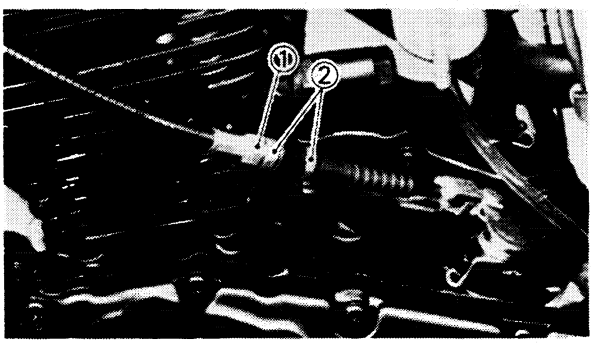
CAUTION:

After replacing the engine oil, be sure to check the oil flow in the following procedures:

- **Slightly loosen the oil gallery bolt ① in the cylinder head.**
- **Start the engine and keep it idling until oil begins to seep from the oil gallery bolt. If no oil comes out after one minute, turn the engine off so it will not seize.**
- **Restart the engine after solving the problem(s), and recheck the oil pressure.**
- **After checking, tighten the oil gallery bolt to specification.**

	Oil Gallery Bolt: 10 Nm (1.0 m•kg, 7.2 ft•lb)





CLUTCH ADJUSTMENT

Free Play Adjustment

1. Check:
   - Clutch lever free play ⓐ
     Out of specification→Adjust

	Clutch Lever Free Play ⓐ: 2~3 mm (0.08~0.12 in)

2. Adjust:
   - Clutch lever free play

Clutch lever free play adjustment steps:

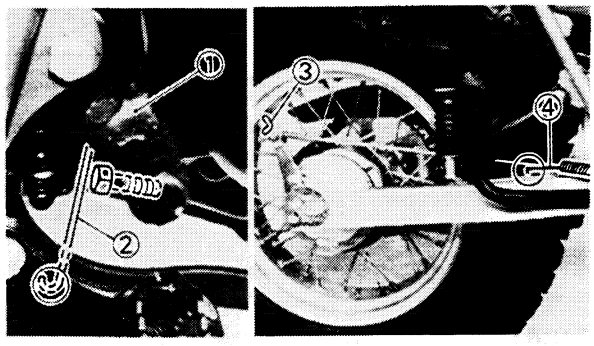
- Loosen the locknut ②.
- Turn the adjuster ① until free play ⓐ is within the specified limits.
- Tighten the locknut.

NOTE:

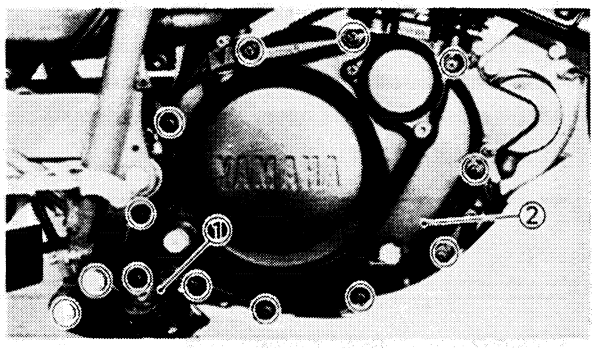
The above procedure provides for maximum cable free play to allow for proper clutch actuating mechanism adjustment.

Mechanism Adjustment

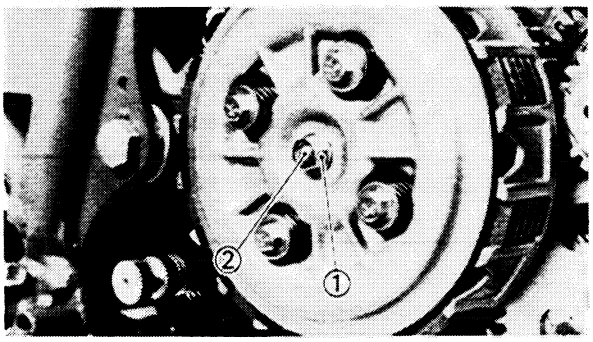
1. Loosen:
   - Cable length adjuster locknuts (Fully)
2. Tighten:
   - Cable length adjusters (Until tight)
3. Drain:
   - Engine oil
     Refer to the "ENGINE OIL REPLACEMENT" section.



4. Remove:
   - Kick crank ①
   - Brake light switch bar ②
   - Rear brake cable adjuster ③
   - Return spring ④



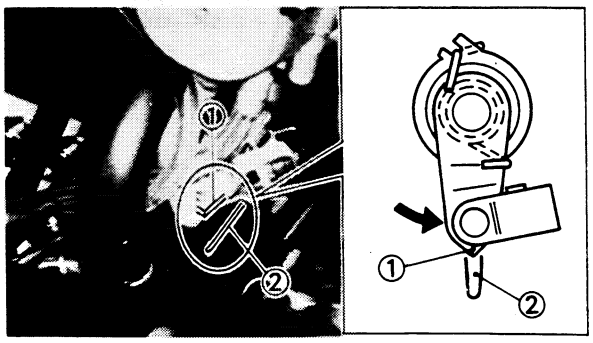
5. Remove:
   - Footrest (Right) ①
   - Crankcase cover (Right) ②



6. Loosen:
   - Locknut ①

7. Push the push lever toward the front of the engine with your finger until it stops.

② Adjuster



8. Adjust:
   - Free play

   With the push lever in this position, turn the adjuster either in or out until the push lever projection ① and crankcase match mark ② are aligned.

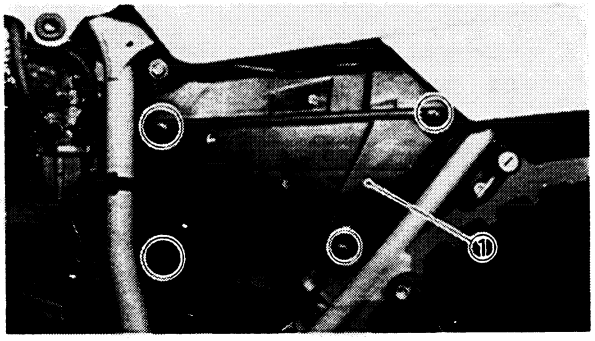
9. Tighten:
   - Locknut

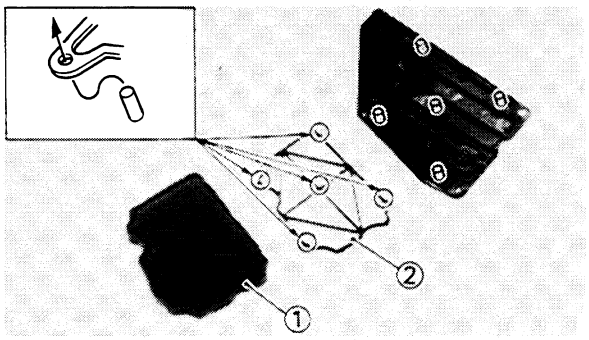
	Locknut: **8 Nm (0.8 m•kg, 5.8 ft•lb)**

10. Install:
    - Crankcase cover (Right)
    - Kick crank
    - Dowel pins
    - Gasket
    - Rear brake switch bar
    - Rear brake adjuster

Screws (Crankcase Cover—Right):
7 Nm (0.7 m•kg, 5.1 ft•lb)
Bolt (Kick Crank):
20 Nm (2.0 m•kg, 14 ft•lb)

11. Fill:
    - Crankcase
      With recommended engine oil.
      Refer to "ENGINE OIL REPLACEMENT" section.
12. Adjust:
    - Clutch cable free play
      Refer to the "Free play adjustment" section.
    - Rear brake pedal free play
      Refer to "REAR BRAKE ADJUSTMENT" section.





AIR FILTER CLEANING

1. Remove:
   - Side cover (Left)
   - Air filter cover ①

CAUTION:

The engine should never be run without the air filter element; excessive piston and cylinder wear may result.

2. Remove:
   - Air filter element ①
   - Element guide ②
     From the air filter cover.
3. Clean:
   - Air filter element

Cleaning steps:
- Wash the element gently, but thoroughly in solvent.

WARNING:

Never use low flash point solvents such as gasoline to clean the element. Such solvent may lead to a fire or explosion.

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

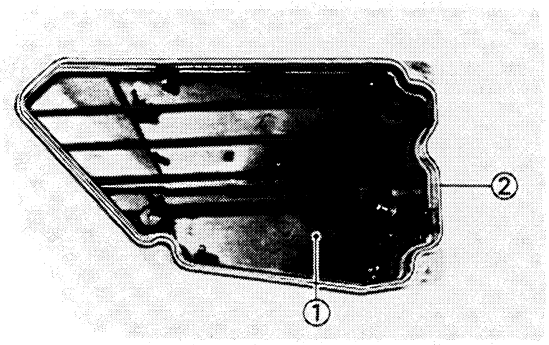
CAUTION:

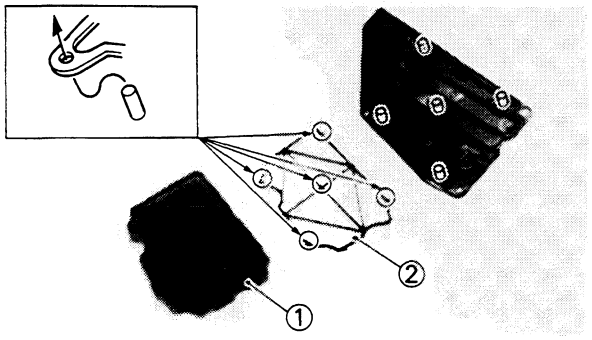
Do not twist the element when squeezing the element.

4. Inspect:
   - Air filter element
     Damage→Replace.
   - Air filter cover ①
     Crack/Damage→Replace.
   - Seal ②
     Damage→Replace.
5. Apply:
   - Foam-air-filter oil or SAE 10W30 SE motor oil
6. Squeeze out the excess oil.

NOTE:

The element should be wet but not dripping.



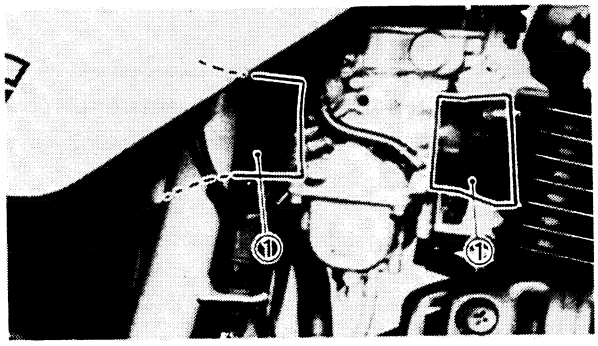


7. Install:
   - Element guide ①
   - Air filter element ②
     To Air filter cover.

NOTE:

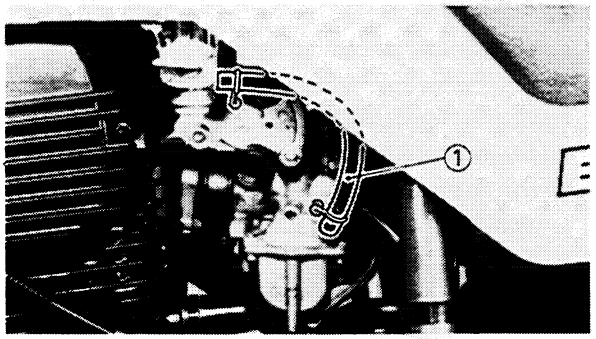
Position the element guide and air filter element as shown and insert the projections on air filter cover into the element guide holes.

8. Install:
   - Air filter cover
   - Side cover (Left)



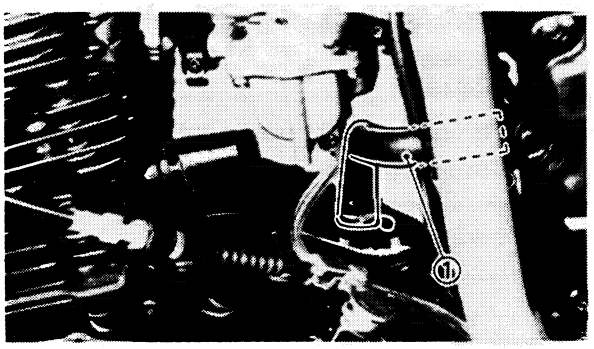
CARBURETOR JOINT INSPECTION

1. Inspect:
   - Carburetor joint ①
     Cracks/Damage→Replace.



FUEL LINE INSPECTION

1. Inspect:
   - Fuel hose ①
     Cracks/Damage→Replace.



CRANKCASE VENTILATION HOSE INSPECTION

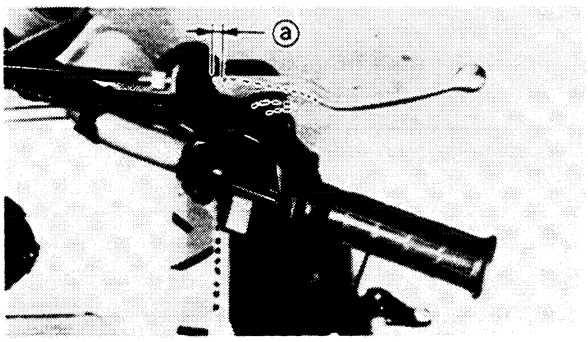
1. Inspect:
   - Crankcase ventilation hose ①
     Cracks/Damage→Replace.

EXHAUST SYSTEM INSPECTION

1. Inspect:
   - Exhaust pipe
   - Muffler
     Cracks/Damage→Replace.
   - Gaskets
     Exhaust gas leaks→Replace.

2. Tighten
   - Bolt (Exhaust pipe)
   - Bolt (Muffler—Exhaust pipe)

Bolt (Exhaust Pipe):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Bolt (Muffler—Exhaust Pipe):
42 Nm (4.2 m•kg, 30 ft•lb)

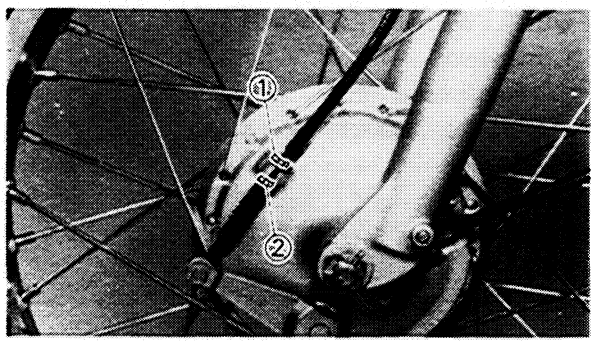


CHASSIS

FRONT BRAKE ADJUSTMENT

1. Check:
   - Front brake lever free play ⓐ
     Out of specification→Adjust.

Free Play:
2~4 mm (0.08~0.16 in)



2. Adjust:
   • Front brake lever free play

Adjustment steps:
- Loosen the locknuts ①.
- Turn the adjusters ② in or out until the specified free play is obtained.
- Tighten the locknut.

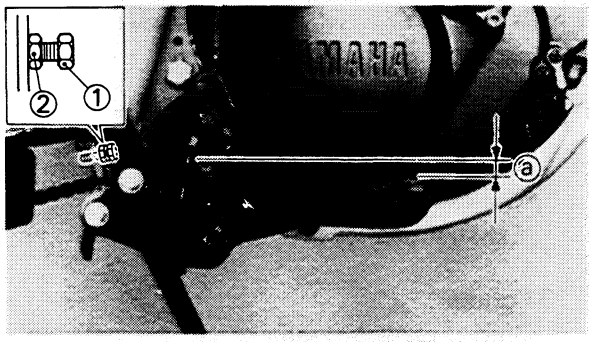
REAR BRAKE ADJUSTMENT

WARNING:

After adjusting the brake pedal height or free play, brake light switch should be adjusted.

1. Check:
   • Brake pedal height
   Out of specification → Adjust.

Brake Pedal Height ⓐ:
10 mm (0.4 in)

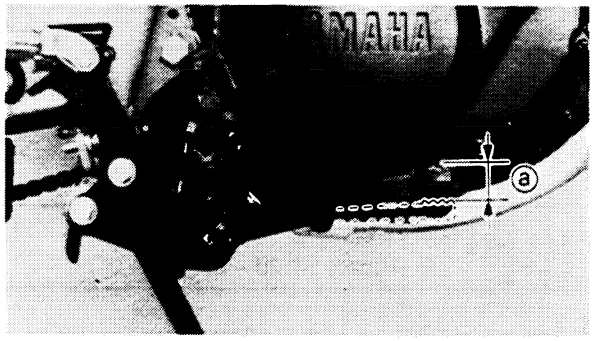


2. Adjust:
   • Brake pedal height

Brake pedal height adjustment steps:
- Loosen the locknut ②.
- Turn the adjuster ① until pedal height ⓐ is within the specified limits.
- Tighten the locknut.

WARNING:

After adjusting the brake pedal height, adjust the brake pedal pree play

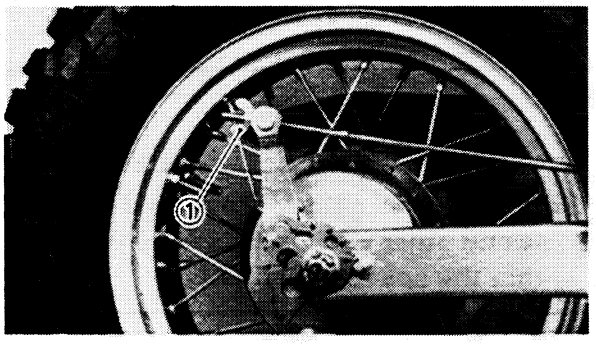


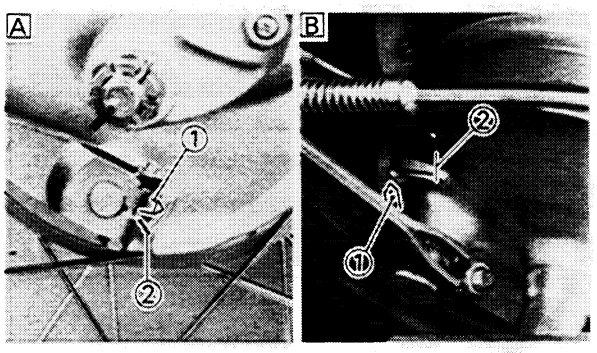
3. Check:
   • Brake pedal free play ⓐ
   Out of specification → Adjust.

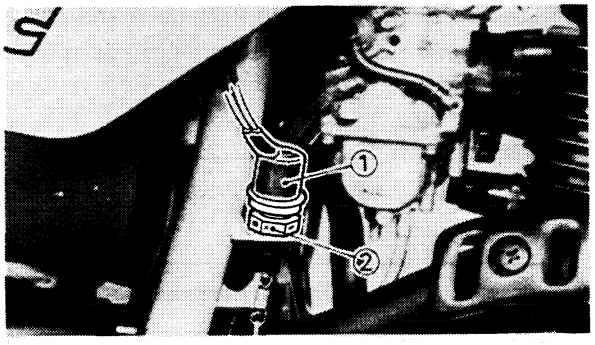
Brake Pedal Free Play ⓐ:
20 ~ 30 mm (0.8 ~ 1.2 in)

NOTE:

Before adjusting the brake pedal free play, the brake pedal height should be adjusted.







4. Adjust:
   - Brake pedal free play

Brake pedal free play adjustment steps:
- Turn the adjuster ① until free play is within the specified limits.

BRAKE SHOE INSPECTION

1. Squeeze the front brake lever.
2. Inspect:
   - Wear indicator ①
     Indicator at wear limit line ②→Replace front brake shoes.
3. Depress the rear brake pedal.
4. Inspect:
   - Wear indicator ①
     Indicator at wear limit line ②→Replace rear brake shoes.

A Front
B Rear

BRAKE LIGHT SWITCH ADJUSTMENT

1. Adjust:
   - Brake light operating timing
     Hold the main body ① of the switch with your hand so that it does not rotate, and turn the adjuster ② until the operating timing is correct.

DRIVE CHAIN SLACK ADJUSTMENT

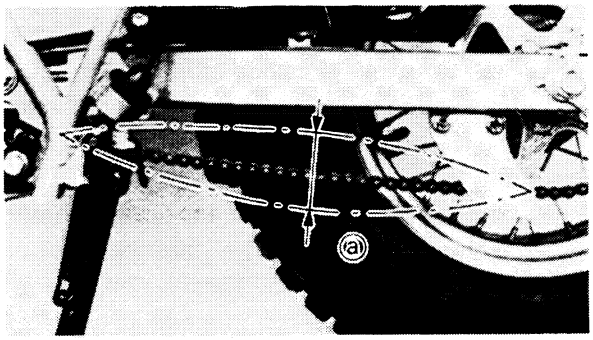
NOTE:

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

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

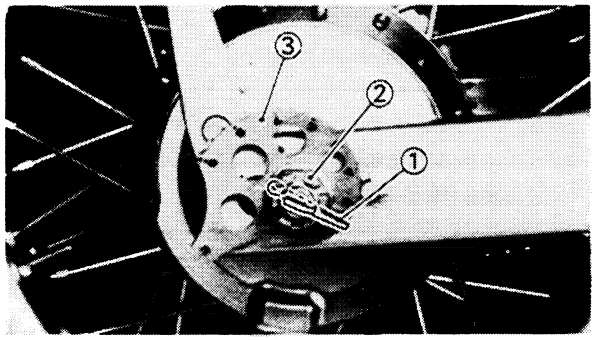
NOTE:

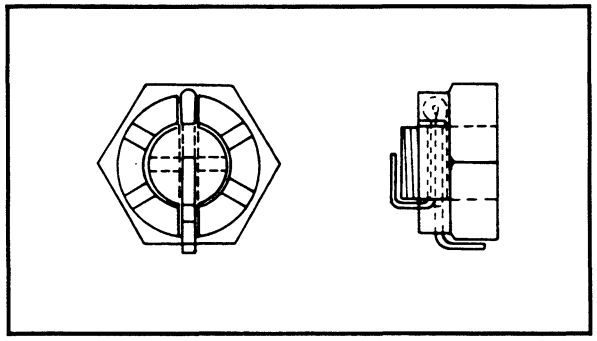
The both wheels on the ground without rider on it.



2. Check:
   - Drive chain slack ⓐ
     Out of specification→Adjust.

Drive Chain Slack:
30 ~ 40 mm (1.2 ~ 1.6 in)





3. Adjust:
   • Drive chain slack

Adjustment steps:

CAUTION:

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

- Loosen the rear brake adjuster.
- Remove the cotter pin ① from the rear wheel axle nut ②.
- Loosen the rear wheel axle nut ②.
- Turn chain puller ③ both left and right, until axle is situated in same puller slot position.
- After adjusting, be sure to tighten the axle nut.

Nut (Rear Wheel Axle):
90 Nm (9.0 m•kg, 65 ft•lb)

- Insert new cotter pin into the rear wheel axle nut and bend the end of cotter pin as shown in the illustration.

WARNING:

Always use a new cotter pin on the axle nut.

- Adjust the free play in the brake pedal.

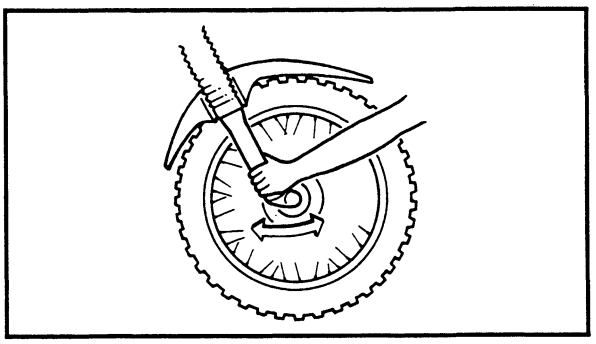
WARNING:

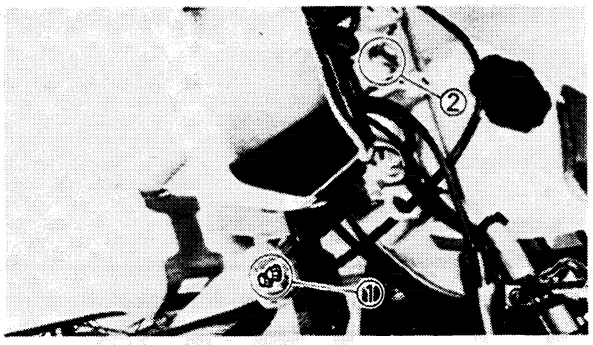
Check the operation of the brake light after adjusting the rear brake.

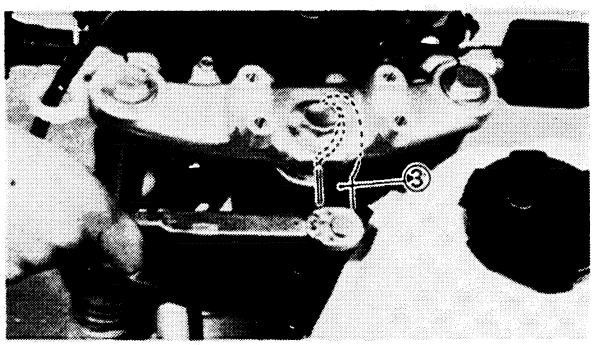
DRIVE CHAIN LUBRICATION

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. Immediately lubricate the chain to prevent rust.







STEERING HEAD ADJUSTMENT

WARNING:

Securely support the motorcycle 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. Adjust:
   - Steering head

Adjustment steps:
- Remove the handlebar.
- Loosen the pinch bolts ① and steering fitting bolt ②.
- Tighten the ring nut using the Ring Nut Wrench ③.

Ring Nut Wrench:
P/N YU-33975

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

Ring Nut (Initial Tightening):
38 Nm (3.8 m•kg, 27 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)

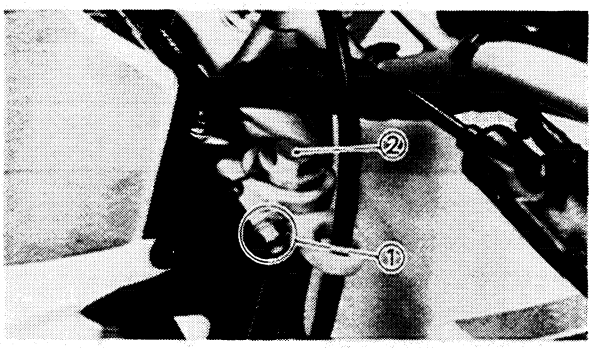
- Tighten the steering fitting bolt and pinch bolts.
- Install the handlebar.

Steering Fitting Bolt:
90 Nm (9.0 m•kg, 65 ft•lb)
Pinch Bolts:
23 Nm (2.3 m•kg, 17 ft•lb)
Bolt (Handlebar):
20 Nm (2.0 m•kg, 14 ft•lb)

FRONT FORK OIL REPLACEMENT

WARNING:

• Fork oil leakage can cause loss of stability and safe handling. Have any problem corrected before operating the motorcycle.
• Securely support the motorcycle so there is no danger of it falling over.

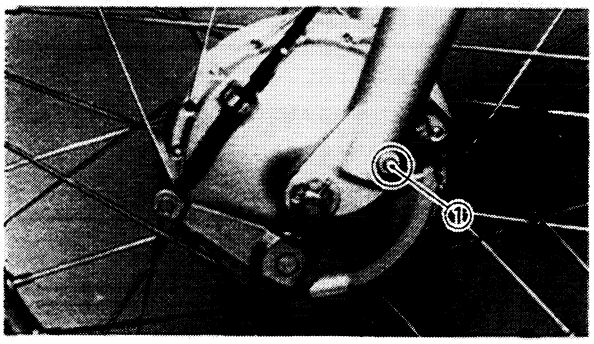


1. Elevate the front wheel by placing a suitable stand under the engine.
2. Loosen:
   • Pinch bolt (Upper) ①
3. Remove:
   • Fork cap bolt ②

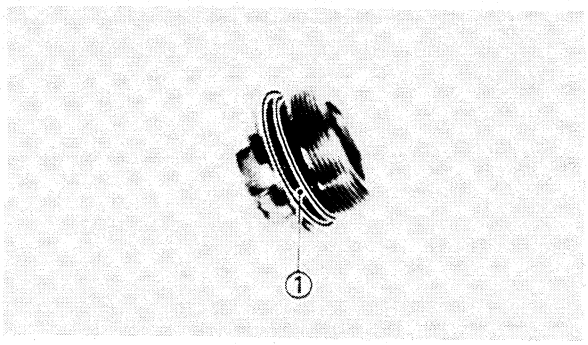
WARNING:

If the cap bolts on both sides are removed, make sure that the front wheel is elevated.

4. Place an open container under the drain hole.

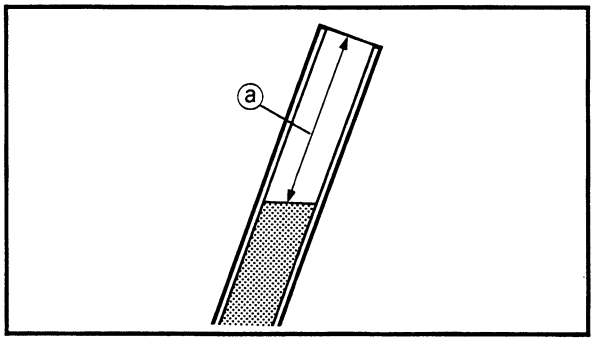


5. Remove:
   • Drain screw ①
6. After most of the oil has been drained, slowly pump the forks up and down to remove any remaining oil.



7. Inspect:
   • Gasket (Drain screw)
   • O-ring (Cap bolt) ①
   Damage → Replace.
8. Install:
   • Gasket (Drain screw)
   • Drain screw

	Drain Screw: **2 Nm (0.2 m•kg, 1.4 ft•lb)**



9. Fill:
   - Front fork

   With recommended fork oil.

Recommended Fork Oil:
YAMAHA Fork Oil 10WT or Equivalent
Oil Capacity:
238 cm³ (8.38 Imp oz, 8.05 US oz)

10. After filling slowly pump the forks up and down to distribute the oil.

11. Measure:
    - Front fork oil level ⓐ

Measuring steps:
- Make sure the collar and the fork spring is removed.
- Fully bottom the front fork.
- Measure the front fork oil level.

Fork Oil Level:
135 mm (5.32 in)
From the Top of the Inner Tube Fully Compressed Without Spring.

NOTE:
- Measure the fork oil level at the cylinder center line.
- When measuring the fork oil level, make sure that the handlebar is positioned for a straight run.

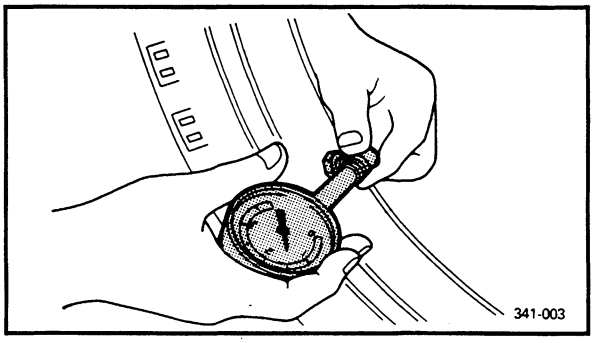
Out of specification→Adjust.

12. Install:
    - Fork spring
    - Collar
    - Cap bolt

Cap Bolt:
23 Nm (2.3 m•kg, 17 ft•lb)

13. Tighten:
    - Pinch bolt (Upper)

Pinch Bolt (Upper):
23 Nm (2.3 m•kg, 17 ft•lb)



TIRE INSPECTION

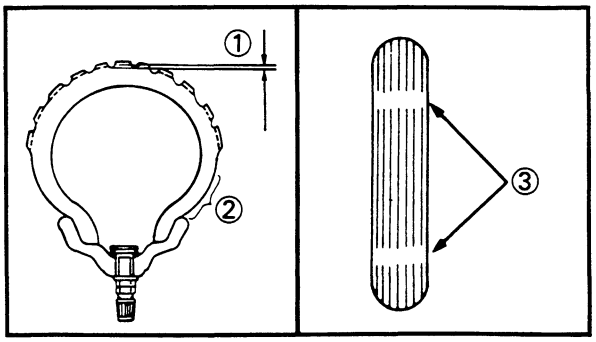
1. Measure:
   • Tire pressure
   Out of specification → Adjust.

Basic weight: With oil and full fuel tank	**126 kg (278 lb) (TW200T) 127 kg (280 lb) (TW200TC)**	
Maximum load*	**157 kg (346 lb) (TW200T) 156 kg (344 lb) (TW200TC)**	
Cold tire pressure	**Front**	**Rear**
Up to 80 kg (176 lb) load*	**130 kPa (1.3 kg/cm², 18 psi**	**130 kPa (1.3 kg/cm², 18 psi**
80 kg (176 lb) ~ Maximum load*	**150 kPa (1.5 kg/cm², 21 psi)**	**180 kPa (1.8 kg/cm², 25 psi)**
High speed riding	**150 kPa (1.5 kg/cm², 21 psi)**	**180 kPa (1.8 kg/cm², 25 psi)**

***Load is the total weight of cargo, rider, passenger, and accessories.**

WARNING:

Tire inflation pressure should be checked and adjusted when the temperature of the tire equals the ambient air temperature. Tire inflation pressure must be adjusted according to total weight of cargo, rider, passenger, and accessories (fairing, saddlebags, etc. if approved for this model), and vehicle speed.



2. Inspect:
   • Tire surfaces
   Wear/Damage → Replace.

Minimum Tire Tread Depth: (Front and Rear) 1.0 mm (0.04 in)

① Tread depth
② Side wall
③ Wear indicator

Recommended Tire:		
Front:		
Manufacture	**Size**	**Type**
Bridgestone	**130/80-18**	**TW31**
Rear:		
Manufacture	**Size**	**Type**
Bridgestone	**180/80-14**	**TW32**

WARNING:

1. **It is dangerous to ride with a wornout tire. When a tire tread begins to show lines, replace the tire immediately.**
2. **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.**
3. **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 motorcycle.**
   The front and rear tires should be of the same manufacture and design.

WHEEL INSPECTION

1. Inspect:
   - Wheels
     Damage/Bends→Replace.

NOTE:

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

WARNING:

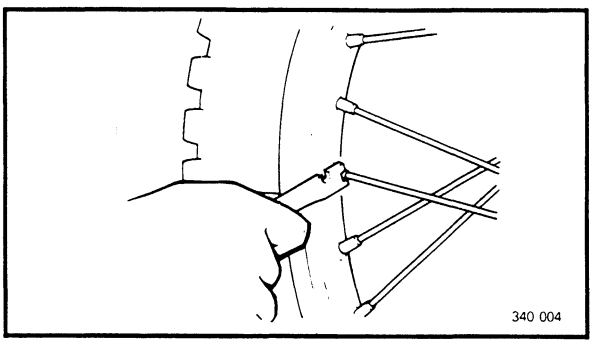
Never attempt even small repairs to the wheel.

2. Tighten:
   - Valve stem locknut

	1.5 Nm (0.15 m•kg, 1.1 ft•lb)

WARNING:

Ride conservatively after installing a tire to allow it to seat itself properly on the rim.



SPOKE INSPECTION AND TIGHTENING

1. Inspect:
   - Spokes
     Bend/Damage→Replace.
     Loose spoke→Retighten.
2. Tighten:
   - Spokes

	Spoke Nipple: **6 Nm (0.6 m•kg, 4.3 ft•lb)**

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.

Inspection

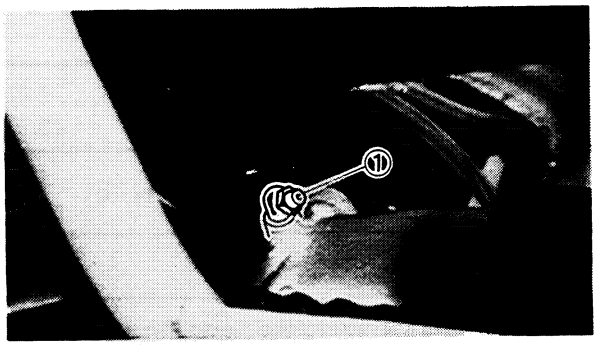
1. Inspect:
   - Cable sheath
     Damage→Replace.

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.



Lubrication

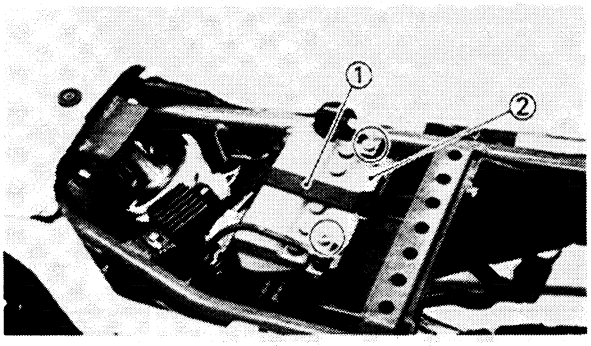
1. Lubricate:
   - Swingarm pivot

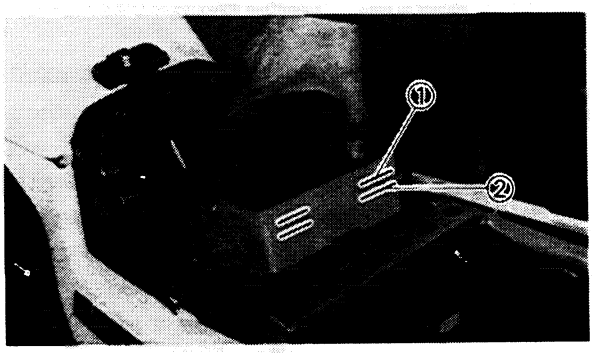
Lithium Soap Base Grease

① Grease nipple

2. Lubricate:
   - Levers pivot
   - Rear brake arm pivot
   - Kick starter pivot
   - Pedals pivot
   - Footrests pivot
   - Sidestand pivot

SAE 10W30 SE Motor Oil,
Yamaha Cable Lube or Equivalent





ELECTRICAL

BATTERY INSPECTION

1. Remove:
   - Seat
   - Band ①
   - Battery ②

NOTE:

Disconnect the negative lead first, and then disconnect the positive lead.

2. Check:
   - Fluid level

   Incorrect→Refill.

   Fluid level should be between upper ① and lower ② level marks.

CAUTION:

Refill with distilled water only; tap water contains minerals harmful to a battery.

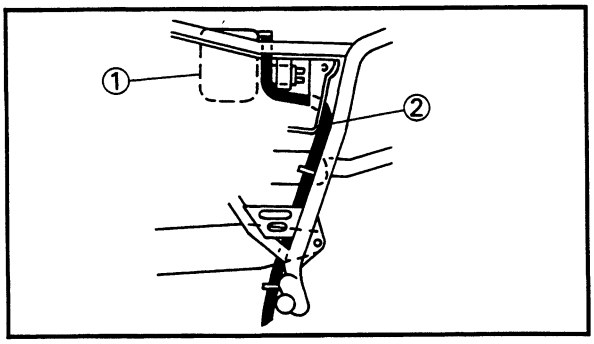
3. Inspect:
   - Battery terminal

   Dirty terminal→Clean with wire brush.

   Poor connection→Correct.

NOTE:

After cleaning the terminals, apply grease lightly to the terminals.



4. Connect:
   - Breather pipe ②

   Be sure the hose is properly attached and routed.

① Battery

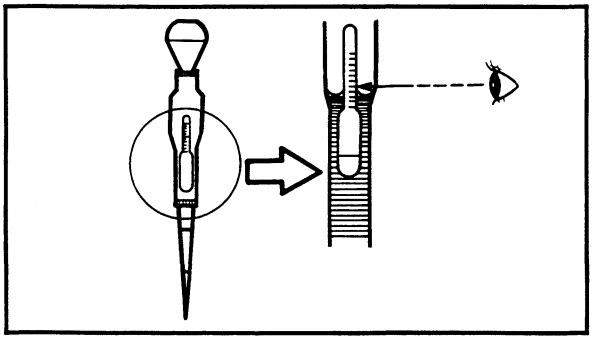
5. Inspect:
   - Breather pipe

   Obstruction→Remove.

   Damage→Replace.

CAUTION:

When inspecting the battery, be sure the breather pipe is routed correctly. If the breather pipe touches the frame or exits in such a way as to cause battery electrolyte or gas to exit onto the frame, structural and cosmetic damage to the machine can occur.



6. Check:
   - Specific gravity
     Less than 1.280→Recharge battery.

Charging Current:
0.7 amps/10 hrs
Specific Gravity:
1.280 at 20°C (68°F)

Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate one cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.

CAUTION:

Always charge a new battery before using it to ensure maximum performance.

WARNING:

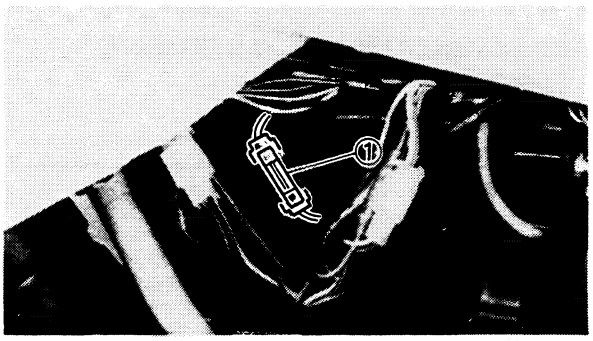
Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.
Always follow these preventive measures:
- **Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.**
- **Wear protective eye gear when handling or working near batteries.**

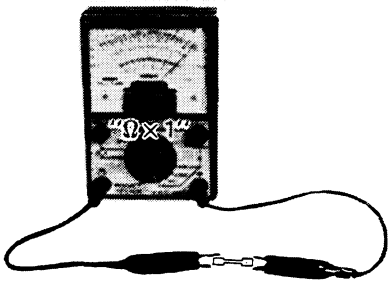
Antidote (EXTERNAL):
- **SKIN—Flush with water.**
- **EYES—Flush with water for 15 minutes and get immediate medical attention.**

Antidote (INTERNAL):
- **Drink large quantities of water or milk follow with milk of magnesia, beaten egg, or vegetable oil. Get immediate medical attention.**

Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:
- **Charge batteries in a well-ventilated area.**
- **Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)**
- **DO NOT SMOKE When charging or handling batteries.**

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.





FUSE INSPECTION

1. Remove:
   - Seat
2. Remove:
   - Fuse ①
3. Inspect:
   - Fuse

Inspection steps:
- Connect the Pocket Tester to the fuse and check it for continuity.

Pocket Tester:
P/N YU-03112

NOTE:
Set the tester selector to "Ω×1" position.

- If the tester is indicated at ∞. The fuse is blown, replace it.

4. Replace:
   - Blown fuse

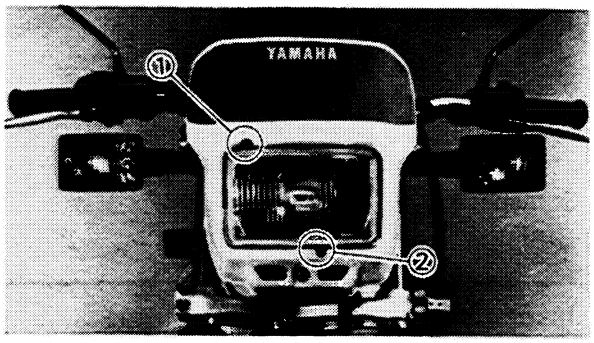
Blown fuse replacement steps:
- Turn off ignition and the circuit.
- Install a new fuse of proper amperage.

Recommended Fuse Amperage:
10 A

- Turn on switches to verify operation of electrical device.
- If fuse blows immediately again, check circuit in question.

WARNING:

Do not use fuses of higher amperage rating than recommended. Extensive electrical system damage and fire could result from substitution of a fuse of improper amperage.



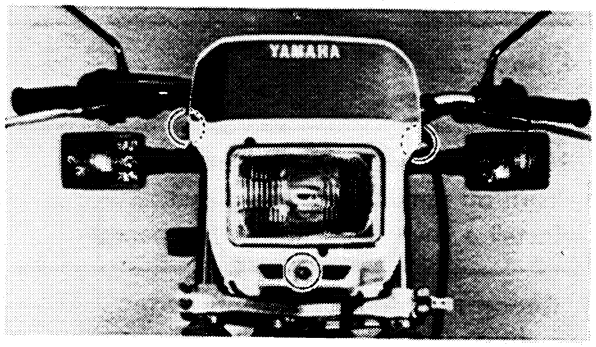
HEADLIGHT BEAM ADJUSTMENT

1. Adjust:
   - Headlight beam (Vertical)

To raise the beam	**Turn the adjuster ② clockwise.**
To lower the beam	**Turn the adjuster ② counterclockwise.**

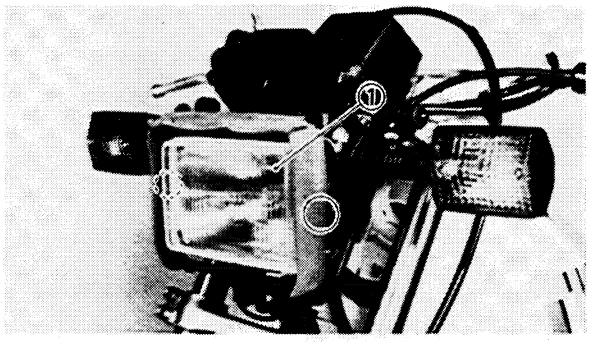
- Headlight beam (Horizontal)

To adjust the beam to the left	**Turn the adjuster ① clockwise.**
To adjust the beam to the right	**Turn the adjuster ① counterclockwise.**

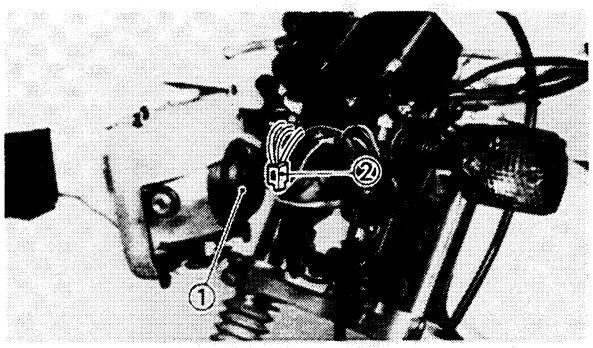


HEADLIGHT BULB REPLACEMENT

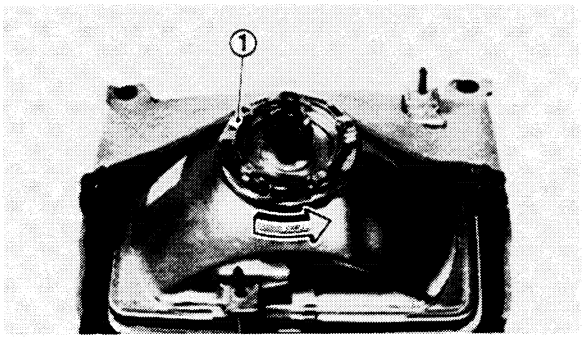
1. Remove:
   - Headlight cowl



2. Remove:
   • Headlight unit ①



3. Remove:
   • Bulb cover ①
4. Disconnect
   • Headlight lead ②



5. Turn the bulb holder ① counterclockwise and remove the defective bulb.

WARNING:

Keep flammable products or your hands away from the bulb while it is on, it will be hot. Do not touch the bulb until it cools down.

6. Install:
   • Bulb (New)
   Secure the new bulb with the bulb holder.

CAUTION:

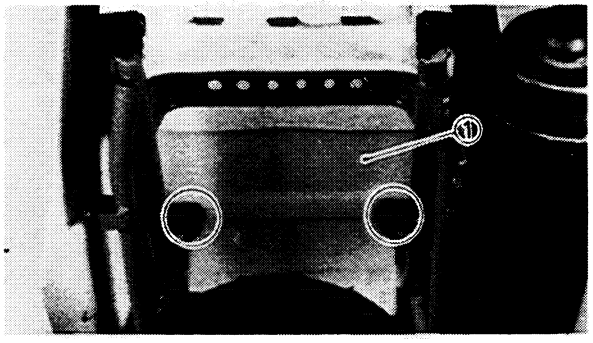
Avoid touching glass part of bulb. Also keep it free from oil otherwise, transparency of glass, bulb life and illuminous flux will be adversely affected. If oil gets on bulb, clean it with a cloth moistened thoroughly with alcohol or lacquer thinner.

7. Install:
   • Bulb cover.
8. Connect:
   • Headlight lead
9. Install:
   • Headlight unit
   • Headlight cowl

ENGINE OVERHAUL

NOTE:

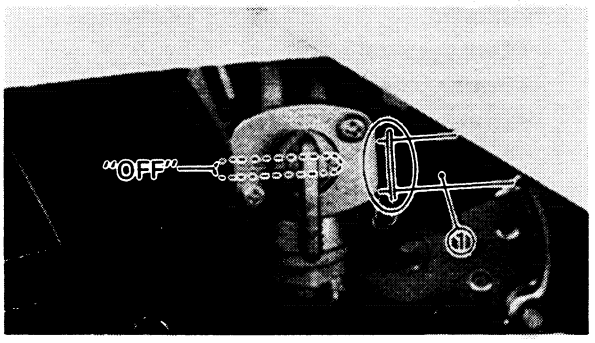
Drain the engine oil completely. Refer to "CHAPTER 3. PERIODIC INSPECTIONS AND ADJUSTMENTS—ENGINE OIL REPLACEMENT" section.



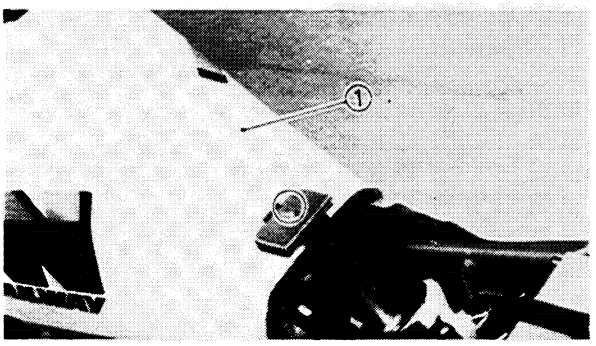
ENGINE REMOVAL

FUEL TANK

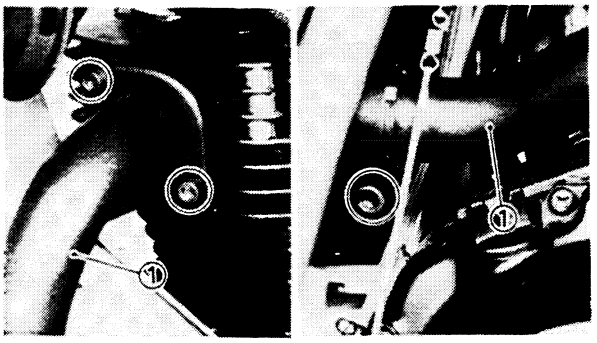
1. Remove:
   - Seat ①
   - Side covers (Left and right)



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

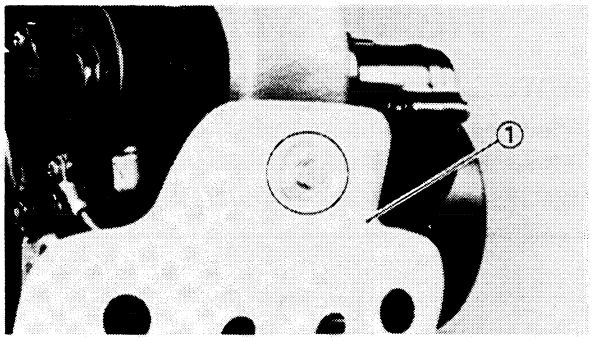


3. Remove:
   - Fuel tank ①

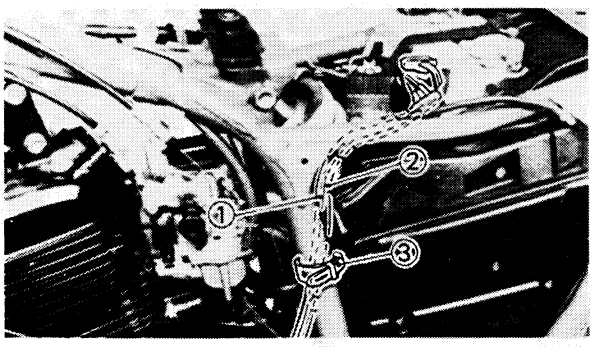


EXHAUST PIPE AND ENGINE GUARD

1. Remove:
   - Exhaust pipe ①

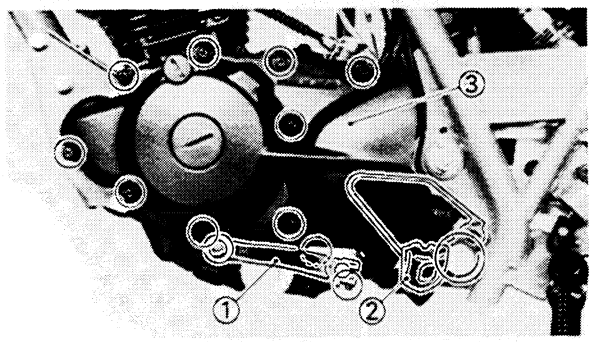


2. Remove:
   - Engine guard ①

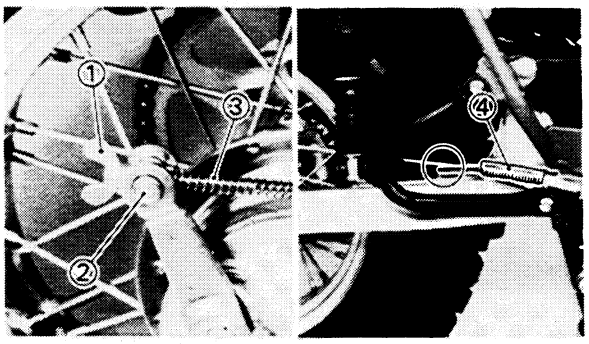


CRANKCASE COVER (LEFT)

1. Disconnect:
   - CDI magneto lead ①
   - Neutral switch lead ②
2. Remove:
   - Band ③

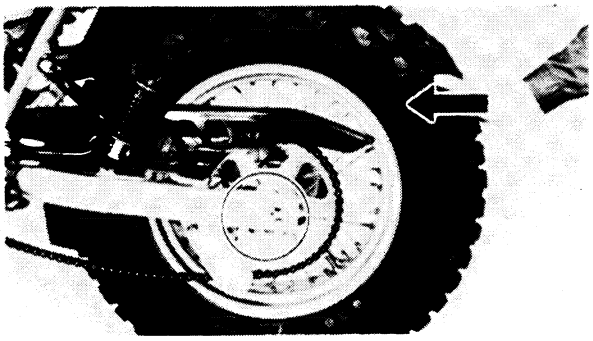


3. Remove:
   - Change pedal ①
   - Footrest (Left) ②
   - Crankcase cover (Left) ③

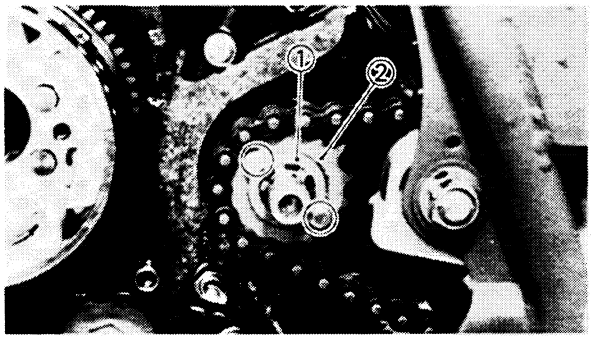


DRIVE SPROCKET

1. Remove:
   - Adjuster (Rear brake) ①
   - Pin ②
   - Spring ③
2. Unhook the spring ④.



3. Loosen:
   - Nut (Rear wheel axle)
4. Push forward the rear wheel to loosen the drive chain.

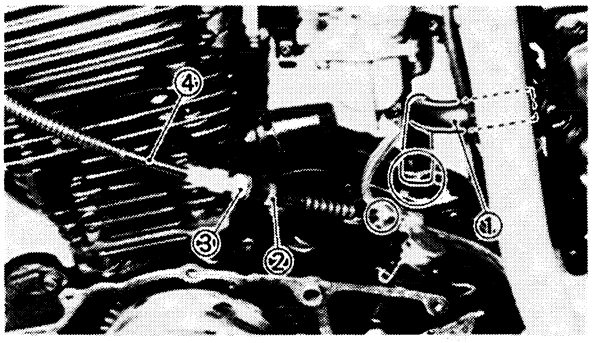


5. Remove:
   - Fitting plate ①
   - Drive sprocket ②

CARBURETOR

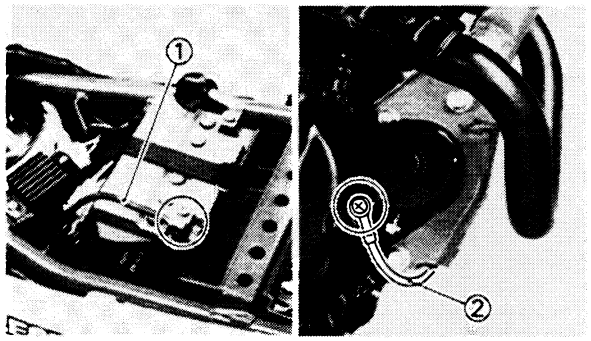
1. Remove:
   - Carburetor

   Refer to the "CARBURETOR—REMOVAL section in the CHAPTER 4".

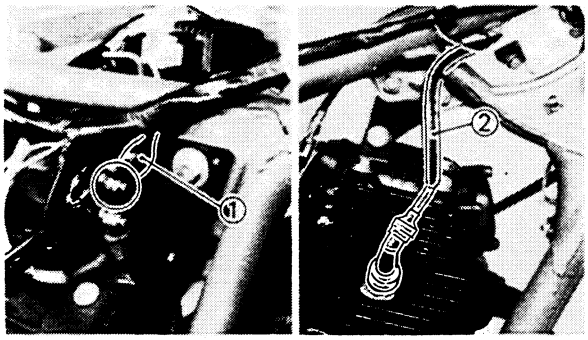


WIRING AND CABLES

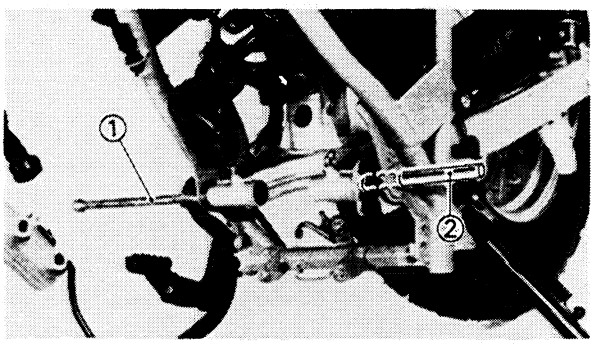
1. Remove:
   - Crankcase ventilation hose ①
2. Loosen:
   - Locknut (Clutch cable) ②
   - Adjuster (Clutch cable) ③
3. Remove:
   - Clutch cable ④

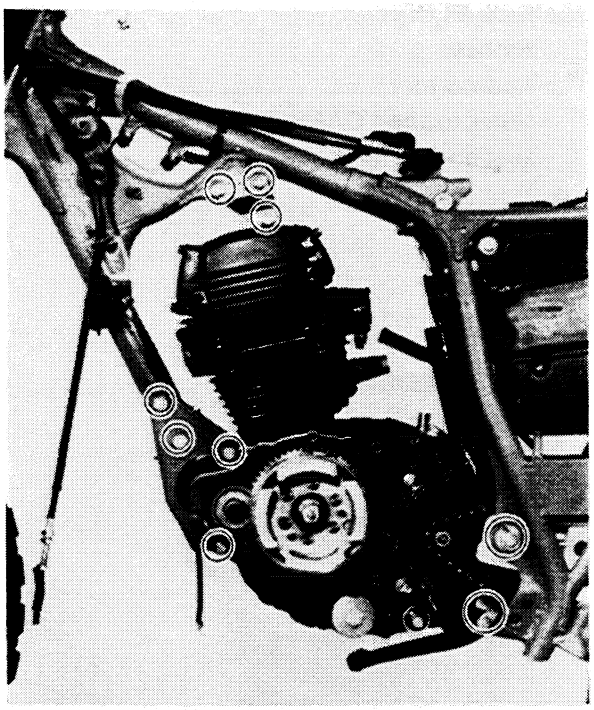


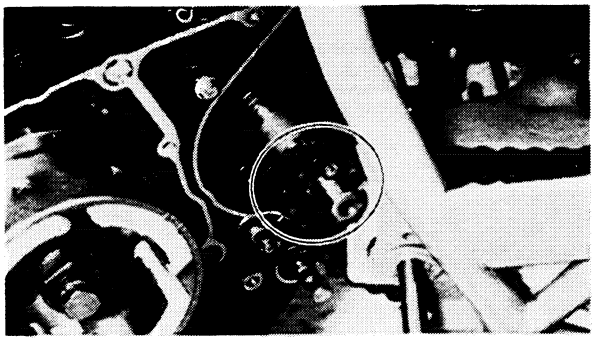
4. Disconnect:
   - Battery negative lead ①
   - Ground lead ②



5. Disconnect:
   - Starter motor lead ①
   - Spark plug lead ②







ENGINE REMOVAL

1. Remove:
   - Nut (Pivot shaft)
2. Pull the pivot shaft ① out about two-thirds of its length.

NOTE:

If the shaft is pulled all the way out, the swingarm will come loose. If possible, insert a shaft ② of similar diameter into the other side of the swingarm to support it.

3. Remove:
   - Engine assembly

   From right side of the frame.

NOTE:

When the engine removing, unhook the drive chain from the drive axle.

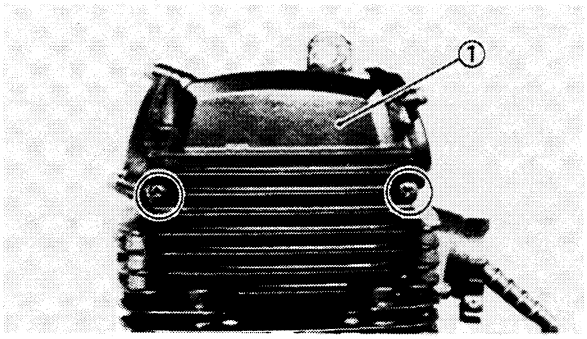
4

DISASSEMBLY

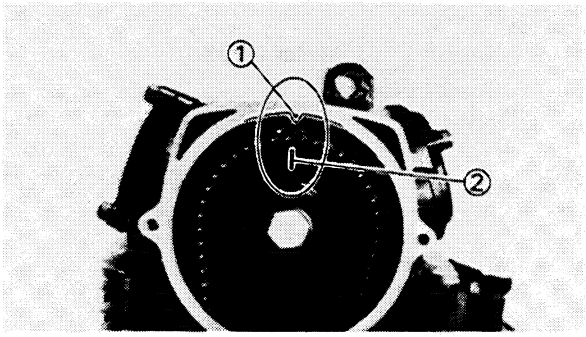
CYLINDER HEAD

NOTE:

With the engine mounted, the cylinder head can be maintained by removing the following parts.
- Seat
- Fuel tank

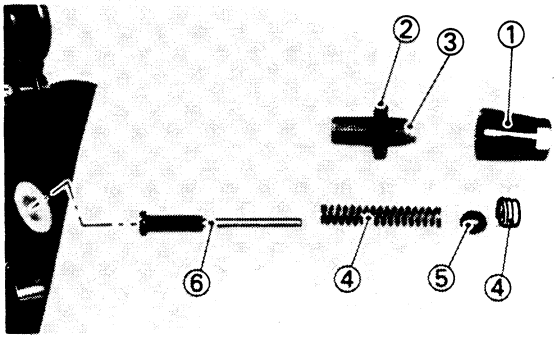


1. Remove:
   - Cam sprocket cover ①

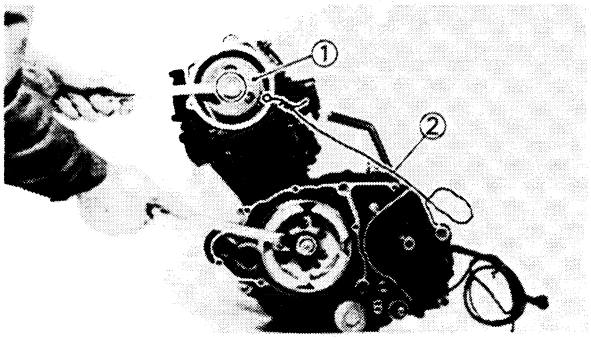


2. Align:
   - Slit mark ② (Cam sprocket)
     With the stational pointer ① on the cylinder head.

TDC alignment steps:
- Turn the crankshaft counterclockwise with wrench.
- Align the slit mark ② on the cam sprocket with the stational pointer ① on the cylinder head. When the slit mark is aligned with the stational pointer, the piston is at Top Dead Center (TDC).

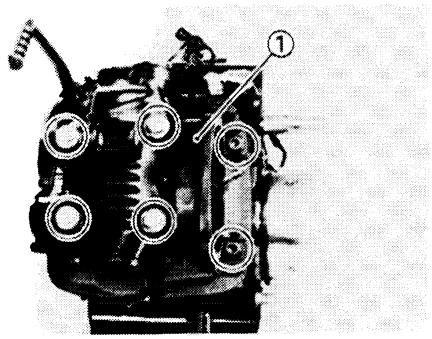


3. Remove:
   - Adjuster cap ①
   - Locknut ②
   - Cam chain adjuster ③
   - Spring ④
   - Retainer ⑤
   - Tensioner rod ⑥



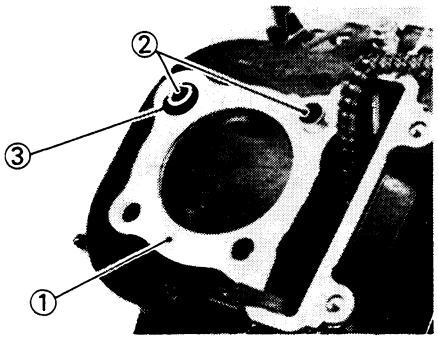
4. Remove:
   • Cam sprocket ①
     Hold the crankshaft.

NOTE:
- Fasten safety wire ② to the cam chain to prevent if from failling into the crankcase.
- When removing the cam sprocket, it is not necessary to separate the cam chain.



5. Remove:
   • Cylinder head ①

NOTE:
- Before removing the cylinder head, loosen the spark plug.
- Working in a crisscross pattern, loosen all bolt 1/4 turn each. Remove them after all are loosened.



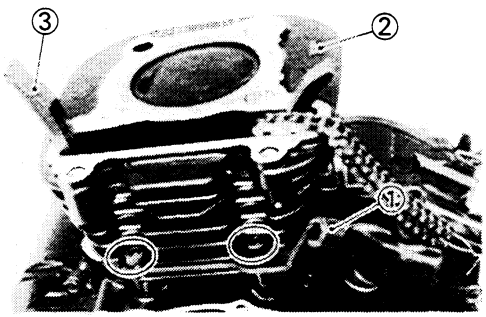
6. Remove:
   • Gasket ① (Cylinder head)
   • Dowel pins ②
   • O-ring ③

4

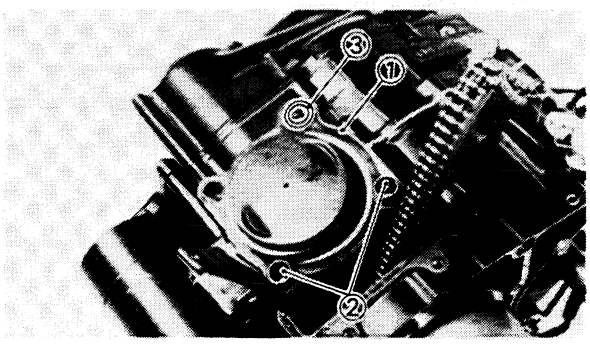
CYLINDER

NOTE:

With the engine mounted, the cylinder head can be maintained by removing the following parts.
- Seat
- Fuel tank
- Exhaust pipe
- Cylinder head



1. Remove:
   • Clutch cable holder ①
   • Cylinder ②
   • Cam chain tensioner (Exhaust) ③

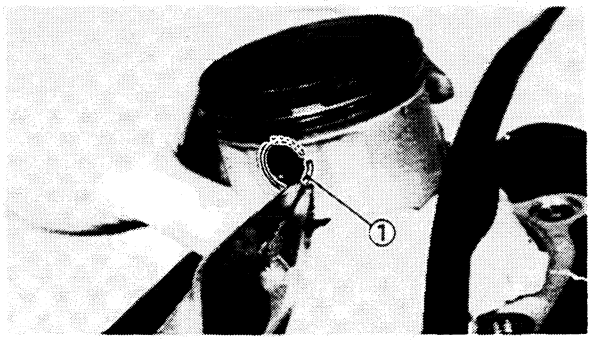


2. Remove:
   - Gasket (Cylinder) ①
   - Dowel pin ②
   - O-ring ③

PISTON

NOTE:

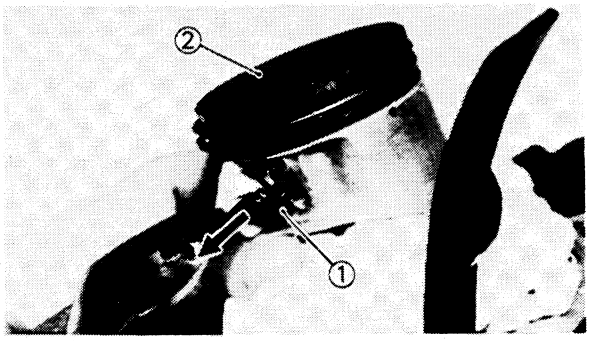
With the engine mounted, the piston can be maintained by removing the following parts.
- Seat
- Fuel tank
- Exhaust pipe
- Cylinder head
- Cylinder



1. Remove:
   - Piston pin clip ①

NOTE:

Before removing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the clip into the crankcase.



2. Remove:
   - Piston pin ①
   - Piston ②

NOTE:

Before removing the piston pin, deburr the clip groove and pin hole area. If the piston pin groove is deburred and piston pin is still difficult to remove, use Piston Pin Puller (YU-01304).

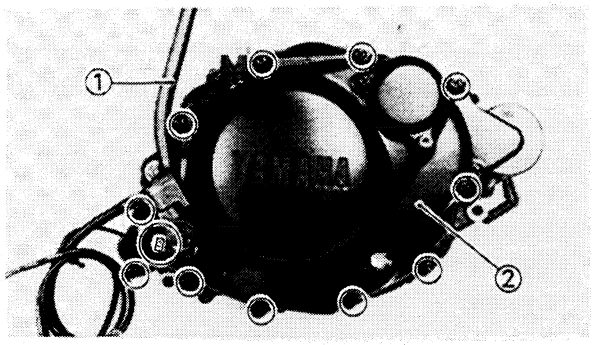
CAUTION:

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

CLUTCH

NOTE:

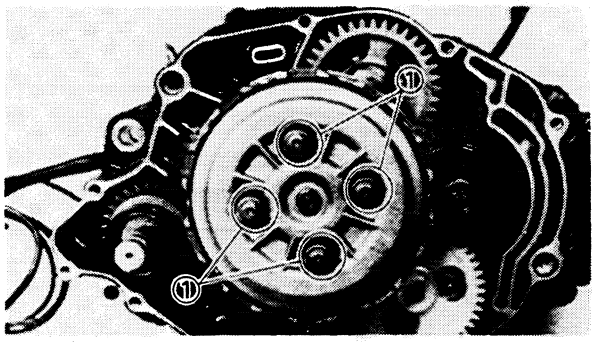
With the engine mounted, the clutch can be maintained by removing the following parts.
- Footrest (Right)
- Crankcase cover (Right)



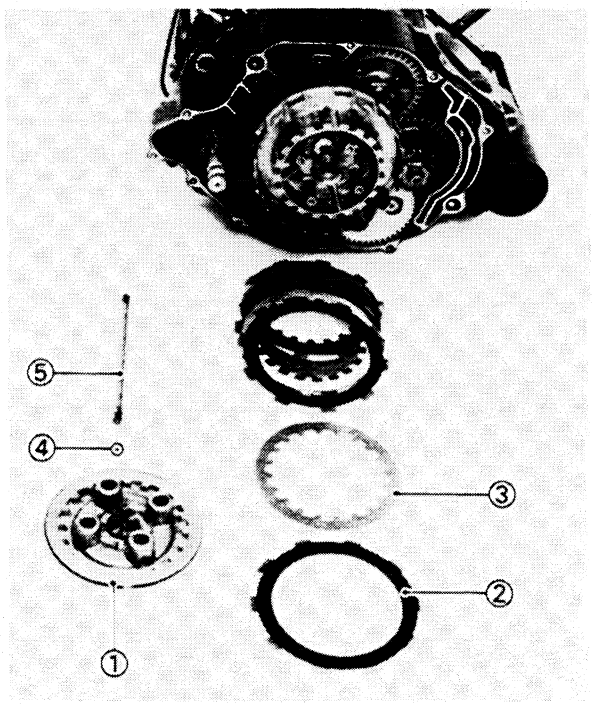
1. Remove:
   - Kick crank ①
   - Crankcase cover (Right) ②
   - Gasket
   - Dowel pins

NOTE:

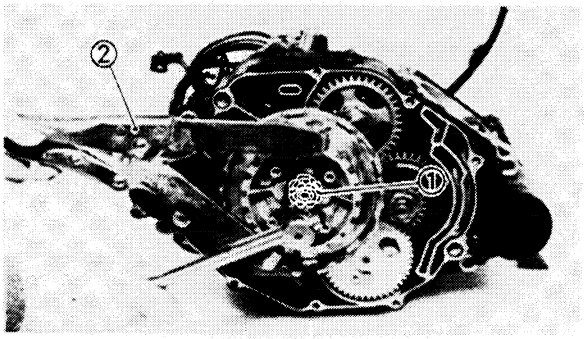
Working in a crisscross pattern, loosen all screws 1/4 turn each. Remove them after all are loosened.



2. Remove:
   - Bolts (Pressure plate) ①
   - Spring (Pressure plate)

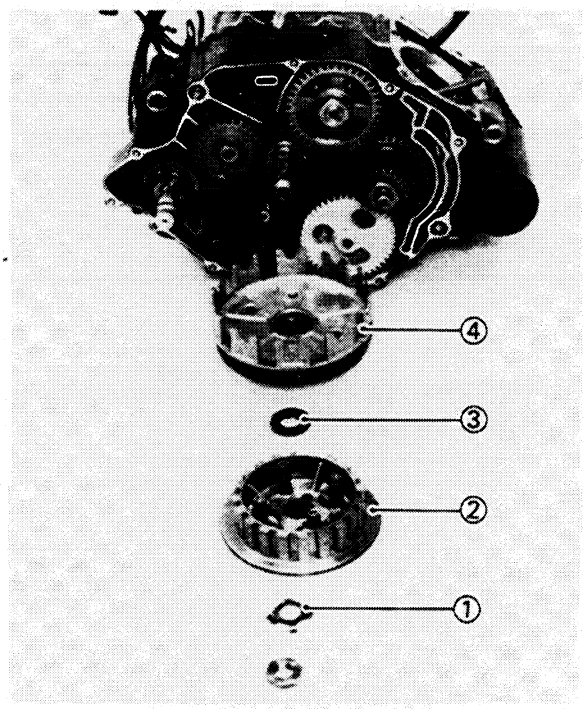


3. Remove:
   - Pressure plate ①
   - Friction plate ②
   - Clutch plate ③
   - Ball ④
   - Push rod #2 ⑤

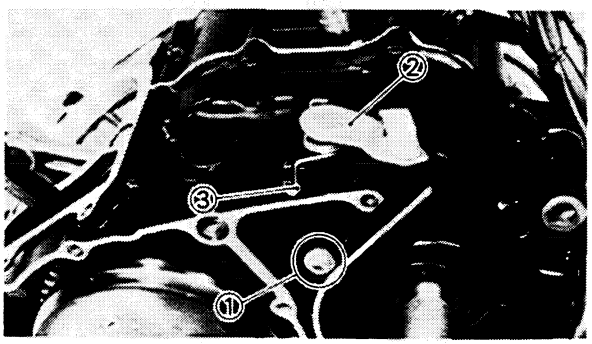


4. Straighten:
   • Lock washer tab
5. Remove:
   • Nut (Clutch boss) ①
   Use the Universal Clutch Holder ② to hold the clutch boss.

	Universal Clutch Holder: P/N YM-90142



6. Remove:
   • Lock washer ①
   • Clutch boss ②
   • Thrust washer ③
   • Clutch housing ④

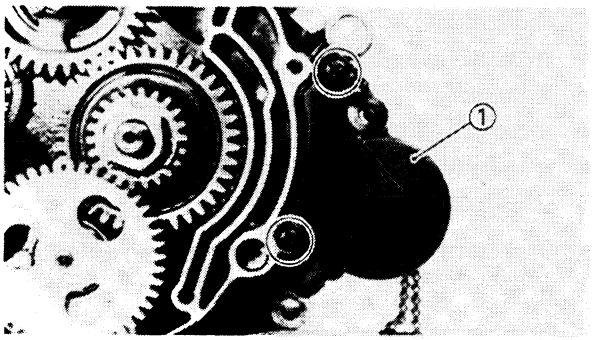


7. Remove:
   • Stopper screw ①
   • Push lever ②
   • Return spring ③

STARTER MOTOR

NOTE:

With the engine mounted, the starter motor can be maintained by removing the following parts.
• Engine stay (Front)
• Seat

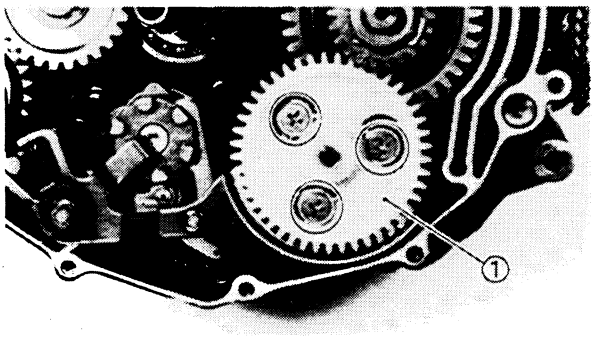


1. Remove:
   • Starter motor ①

OIL PUMP

NOTE:

With the engine mounted, the oil pump can be maintained by removing the following parts.
- Footrest (Right)
- Crankcase cover (Right)
- Clutch

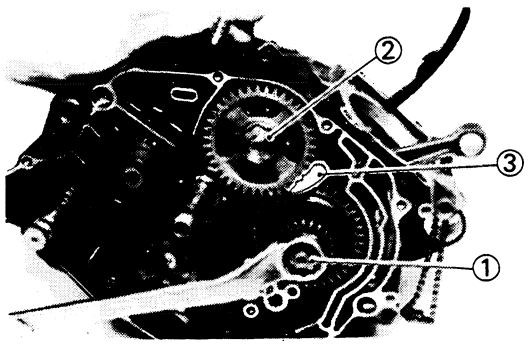


1. Remove:
   • Oil pump assembly ①

PRIMARY DRIVE GEAR AND BALANCER GEAR

NOTE:

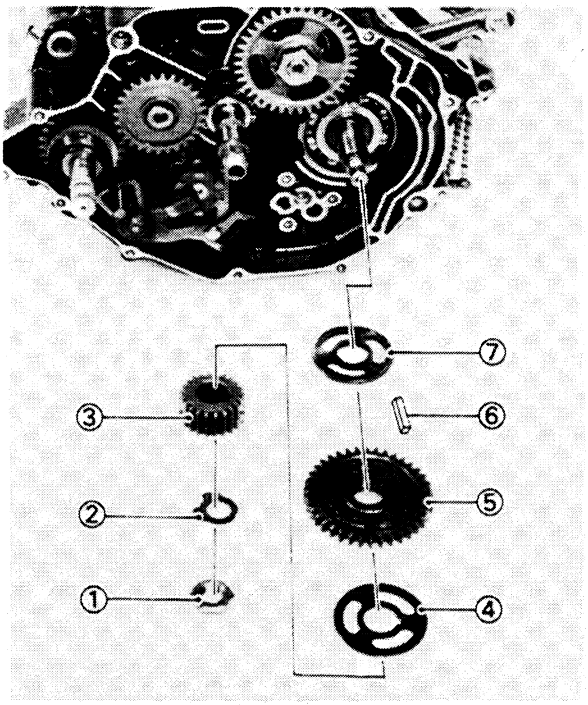
With the engine mounted, the primary drive gear and balancer gear can be maintained by removing the following parts.
- Footrest (Right)
- Crankcase cover (Right)
- Clutch
- Oil pump



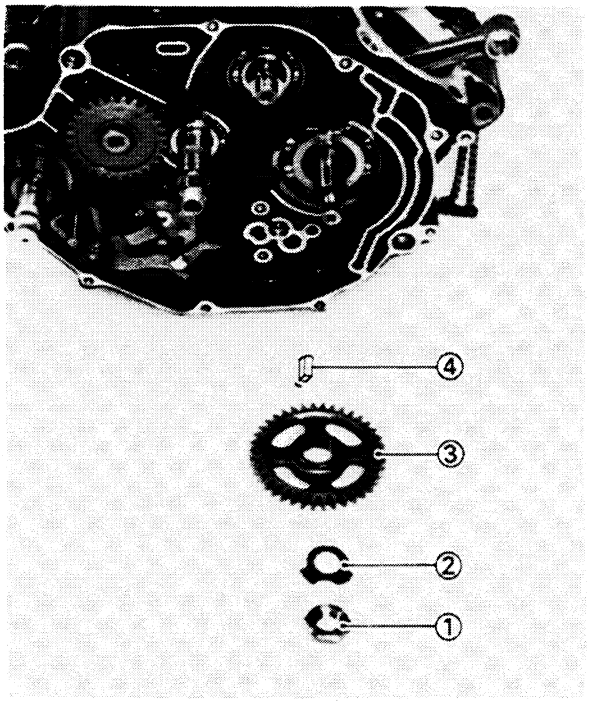
1. Straighten:
   • Lock washer tab
2. Loosen:
   • Nut (Primary drive gear) ①
   • Nut (Balancer gear) ②

NOTE:

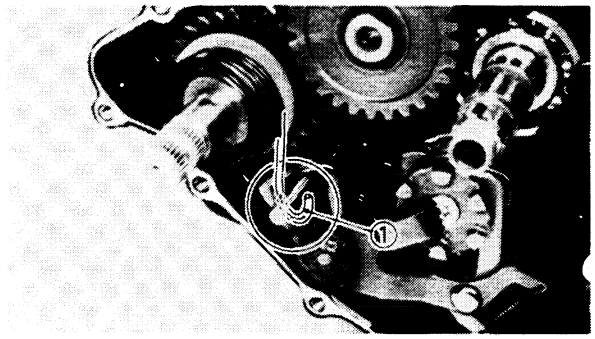
Place a folded rag ③ between the teeth of the balancer drive gear and driven gear to lock them.



3. Remove:
   - Nut ①
   - Lock washer ②
   - Primary drive gear ③
   - Special washer ④
   - Balancer drive gear ⑤
   - Straight key ⑥
   - Special washer ⑦



4. Remove:
   - Nut ①
   - Lock washer ②
   - Balancer driven gear ③
   - Straight key ④

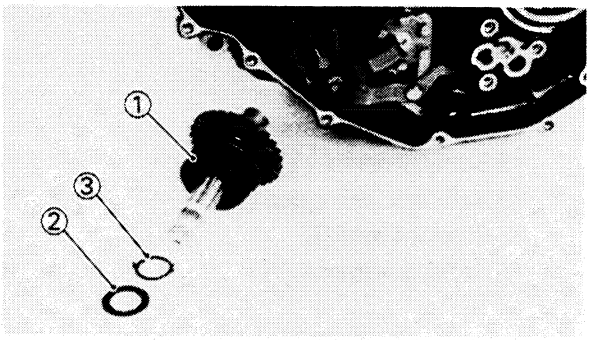


KICK AXLE

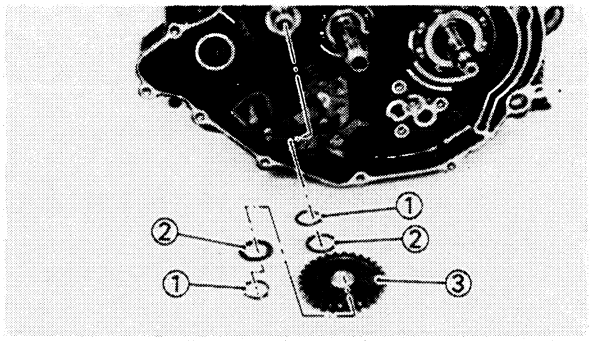
NOTE:

With the engine mounted, the kick axle can be maintained by removing the following parts.
- Footrest (Right)
- Crankcase cover (Right)

1. Unhook the spring ①.



2. Remove:
   - Kick axle assembly ①
   - Plain washer ②
   - Lock washer ③

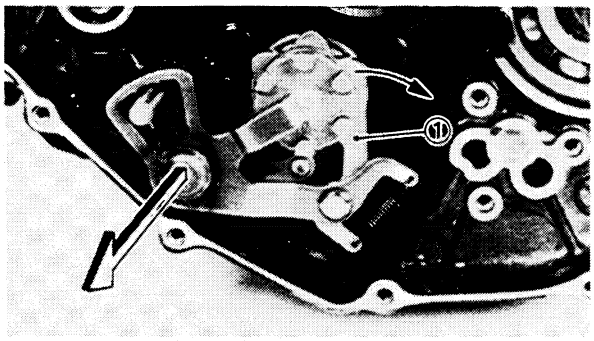


3. Remove:
   - Circlips ①
   - Plain washers ②
   - Kick idle gear ③

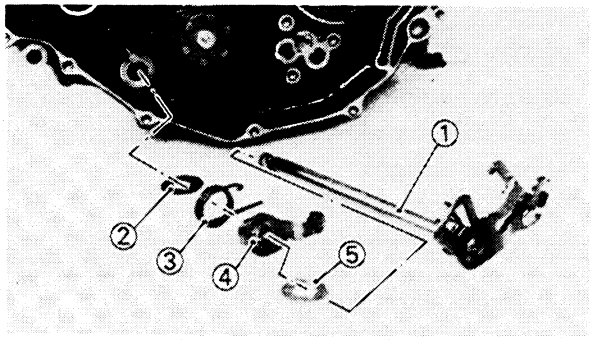
SHIFT SHAFT

NOTE:

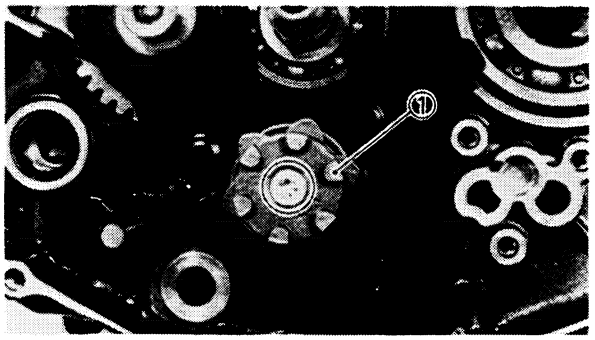
With the engine mounting, the shift shaft can be maintained by removing the following parts.
- Footrest (Right)
- Crankcase cover (Right)
- Clutch



1. Unhook:
   - Shift lever ①
2. Pull out the shift shaft.



3. Remove:
   - Shift shaft ①
   - Plain washer ②
   - Return spring ③
   - Stopper lever ④
   - Plain washer ⑤



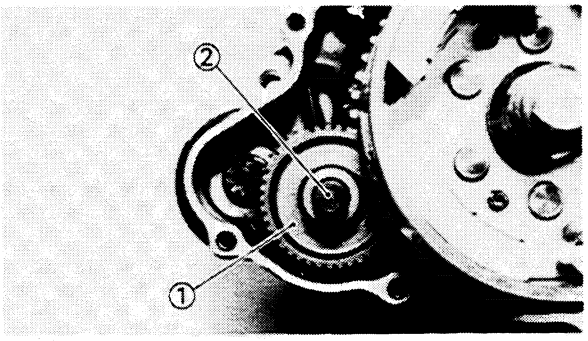
4. Remove:
   • Segment ①
   Use the Torx Wrench.

	Torx Wrench: P/N YU-29843-6

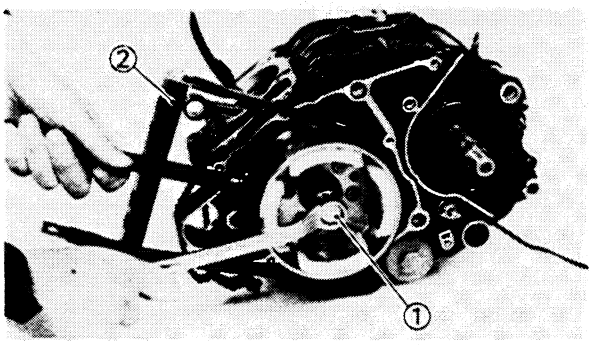
CDI MAGNETO

NOTE:

With the engine mounted, the CDI magneto is maintained by removing the following parts.
- Footrest (Left)
- Change pedal
- Crankcase cover (Left)

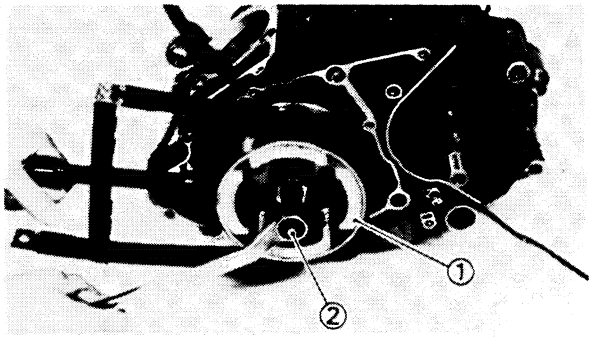


1. Remove:
   • Starter idle gear ①
   • Shaft (Idle gear) ②



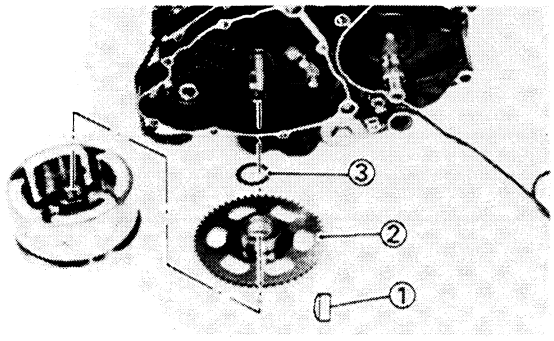
2. Remove:
   • Bolt (CDI magneto) ①
   Use the Sheave Holder ②.

	Sheave Holder: P/N YS-01880



3. Remove:
   • CDI magneto ①
   • Woodruff key
   Use the Rotor Puller ②.

	Rotor Puller: P/N YM-01080

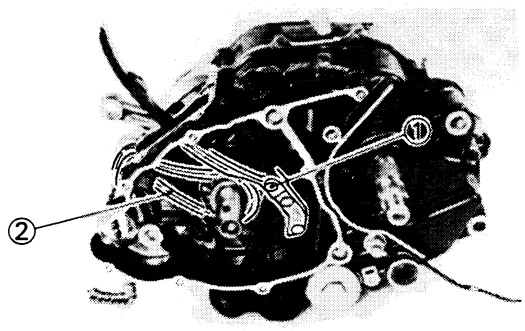


4. Remove:
   - Woodruff key ①
   - Starter wheel gear ②
   - Plain washer ③

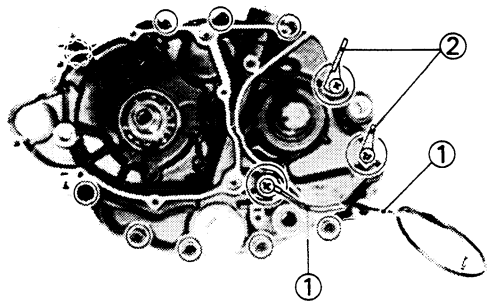
CAM CHAIN AND CAM CHAIN GUIDE (INTAKE)

NOTE:

With the engine mounted, the cam chain and cam chain guide can be maintained by removing the following parts.
- Camshaft sprocket
- Cylinder head
- CDI magneto



1. Remove:
   - Cam chain guide (Intake) ①
   - Cam chain ②

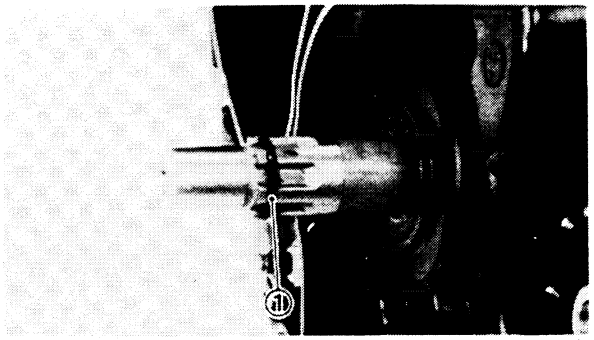


CRANKCASE (LEFT)

1. Remove:
   - Neutral switch lead ①
   - Screws (Crankcase)
   - Clamps ②

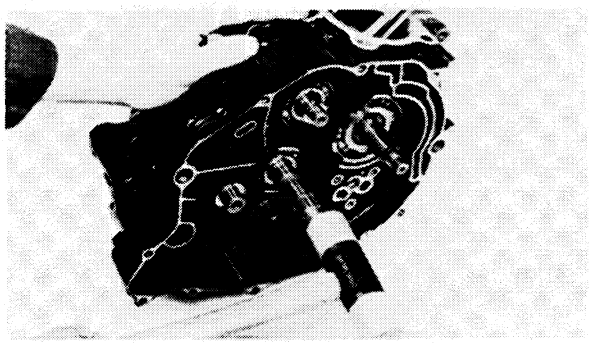
NOTE:

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



NOTE:

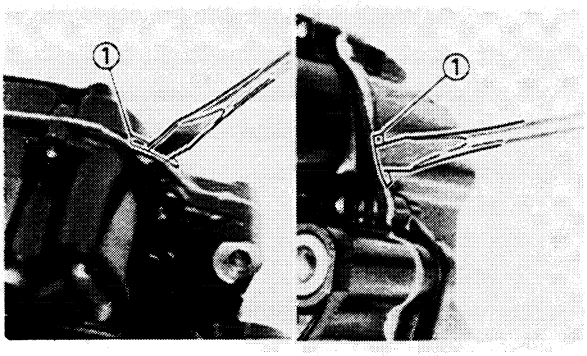
When removing the crankcase (Left), pay attention to the crankcase oil seal lip. A recommended practice is to fit the "O-ring" ① in the drive axle groove and apply grease over the fitted area before removing drive axle.



2. Remove:
   • Crankcase (Left)

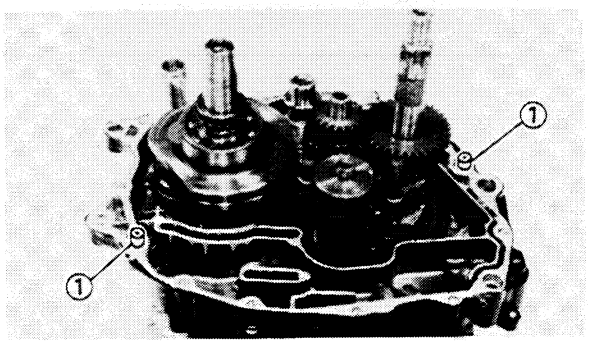
NOTE:

As pressure is applied, alternately tap on the crankshaft and main axle.

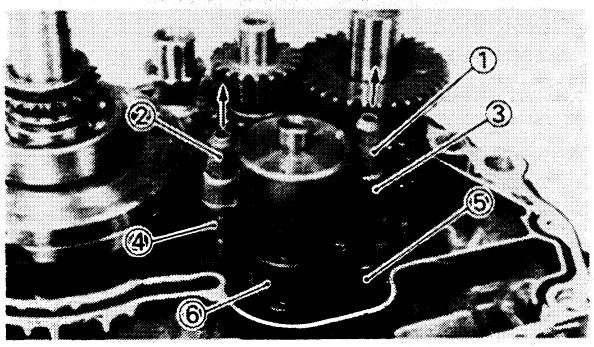


NOTE:

If the crankcase will not come off, use the lever guides ① for removal.

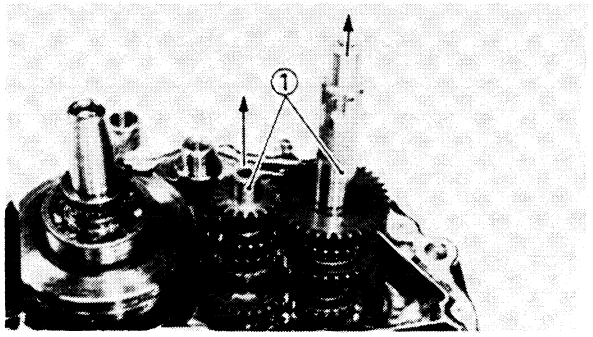


3. Remove:
   • Dowel pins ①

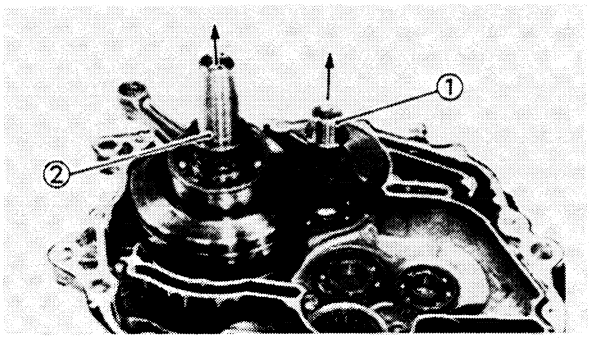


SHIFTER AND TRANSMISSION

1. Remove:
   • Guide bar (Long) ①
   • Guide bar (Short) ②
   • Shift fork #3 ③
   • Shift fork #1 ④
   • Shift fork #2 ⑤
   • Shift cam ⑥



2. Remove:
   • Transmission assembly ①



BALANCER AND CRANKSHAFT

1. Remove:
   - Balancer ①
   - Crankshaft ②

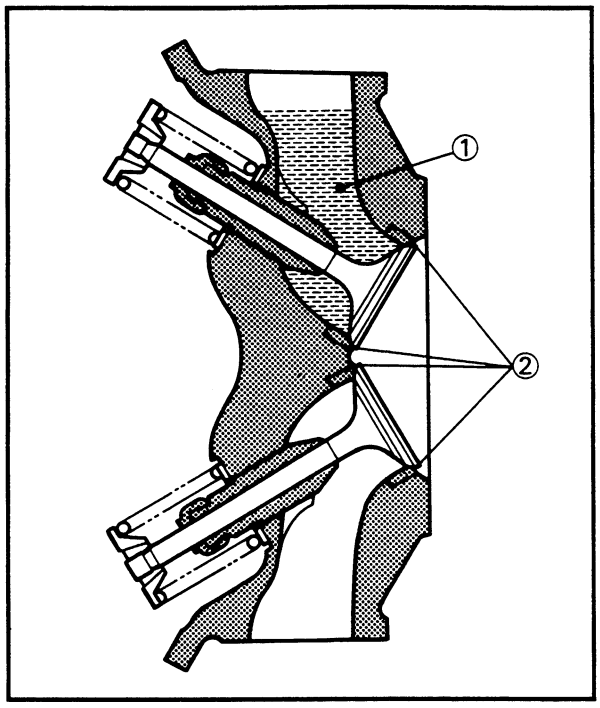
   From crankcase (Right).

VALVE, ROCKER ARM AND CAMSHAFT

NOTE:

- With the engine mounted, the valve, rocker arm and camshaft can be maintained by removing the following parts.
  - Seat
  - Fuel tank
  - Cylinder head
- Before removing the internal parts (valve, valve spring, spring seat, etc.) of the cylinder head, the valve sealing should be checked.

4

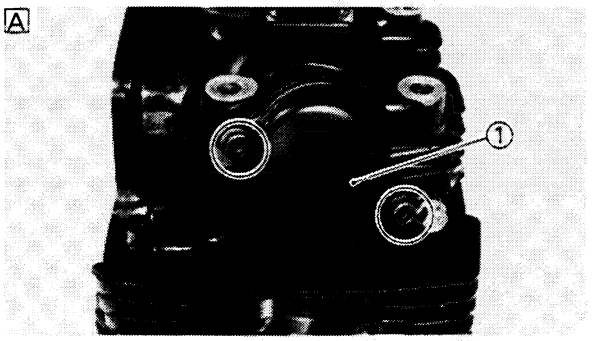


1. Check:
   - Valve sealing

   Leakage at valve seat→Inspect the valve face, valve seat and valve seat width.
   Refer to the "INSPECTION AND REPAIR—VALVE SEAT" section.

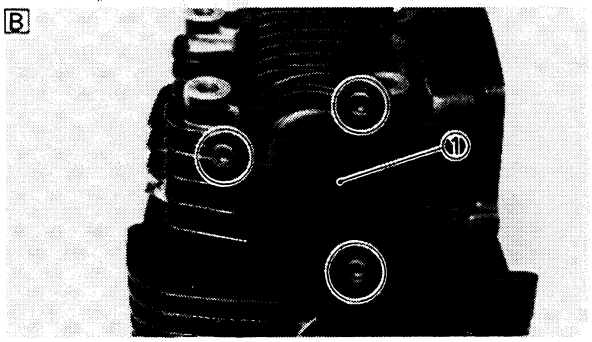
Valve seat checking steps:

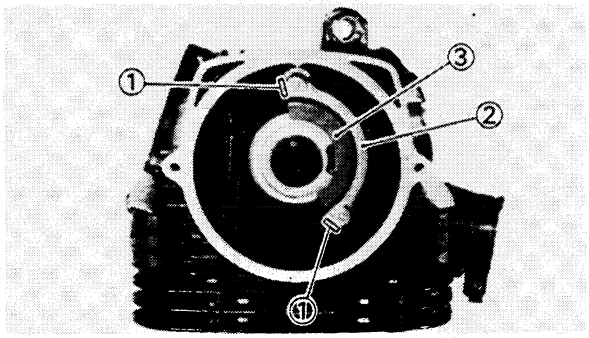
- Supply a clean solvent ① into the intake and exhaust ports.
- Check the valve sealing. There should be no leakage at the valve seats ②.



2. Remove:
   • Tappet covers ①

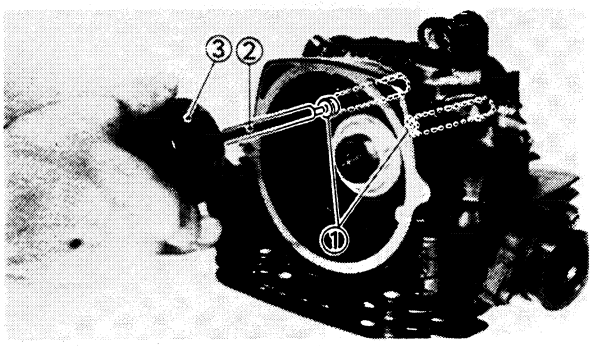
A Tappet cover (Intake)
B Tappet cover (Exhaust)





3. Straighten:
   • Lock washer tabs ①

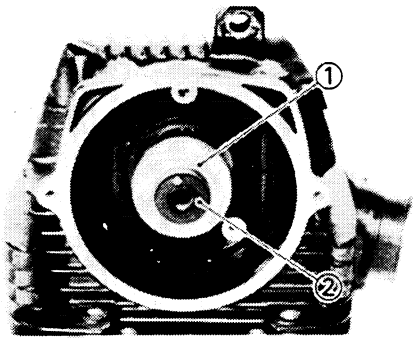
4. Remove:
   • Lock washer ②
   • Bearing holder ③



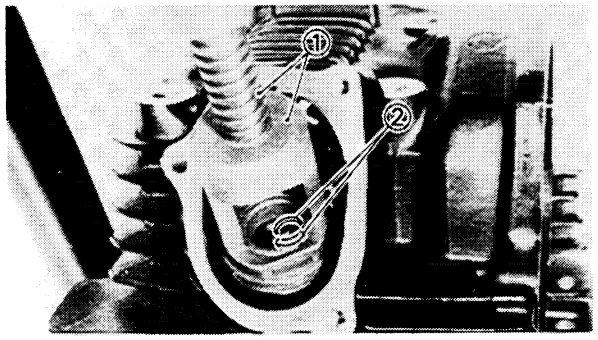
5. Remove:
   • Rocker arm shafts ①
   Use the Slide Hammer Bolt ② and Weight ③.

	Slide Hammer and Weight: P/N YU-01083

   • Rocker arms



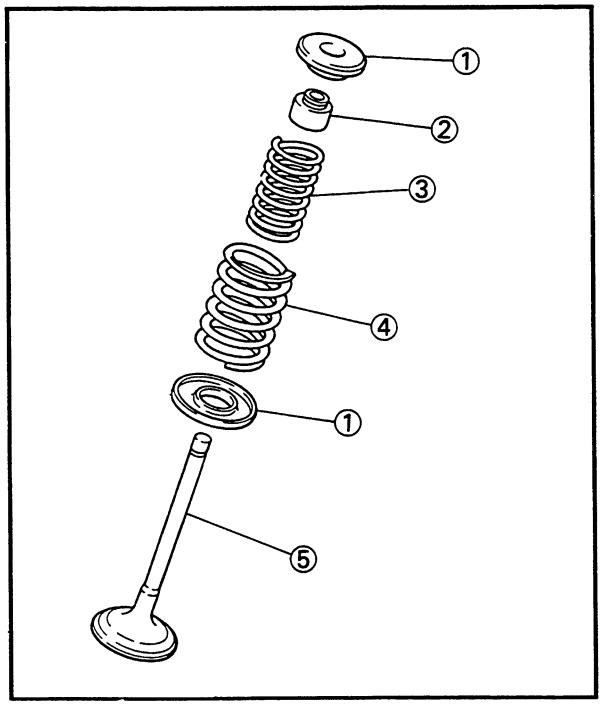
6. Remove:
   • Camshaft housing ①
   • Camshaft ②



7. Attach:
   - Valve Spring Compressor ①.

	Valve Spring Compressor: P/N YM-04019

8. Remove:
   - Valve retainers ②



9. Remove:
   - Valve spring seats ①
   - Oil seal ②
   - Valve spring (Inner) ③
   - Valve spring (Outer) ④
   - Valve ⑤

4

INSPECTION AND REPAIR

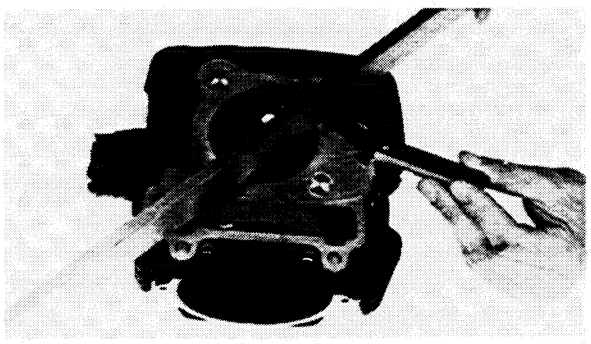
CYLINDER HEAD

1. Eliminate:
   - Carbon deposit
     (from combustion chamber)
     Use rounded scraper. ①.

NOTE:

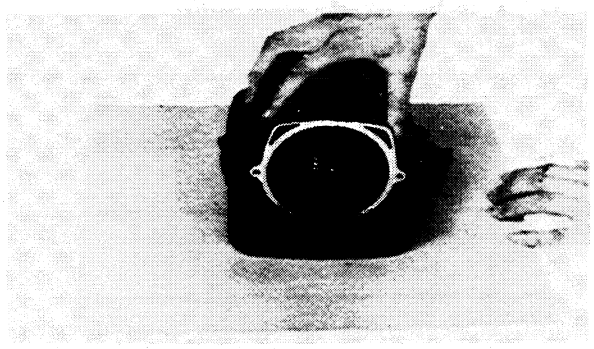
Do not use a sharp instrument and avoid damaging or scratching:
- Spark plug threads
- Valve seat

2. Inspect:
   - Cylinder head
     Scratches/Damage→Replace.



3. Measure:
   - Warpage
     Out of specification→Resurface.

Cylinder Head Warpage:
Less than 0.03 mm (0.0012 in)



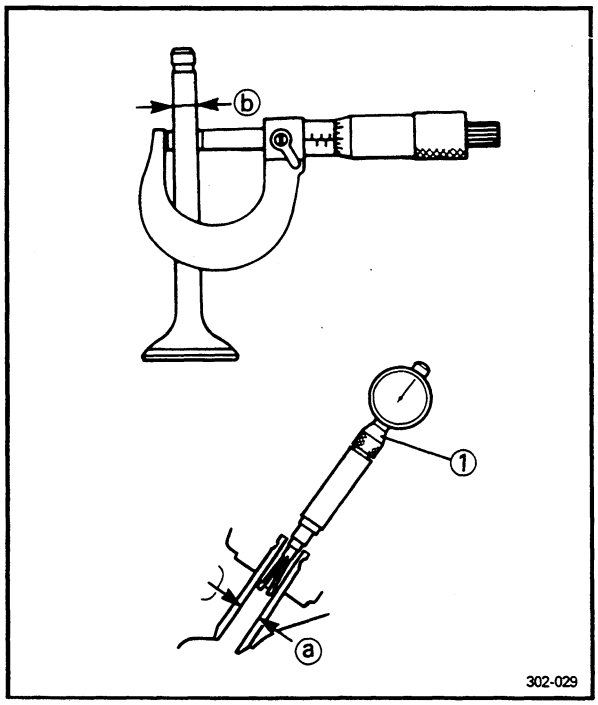
4. Resurface:
   - Cylinder head

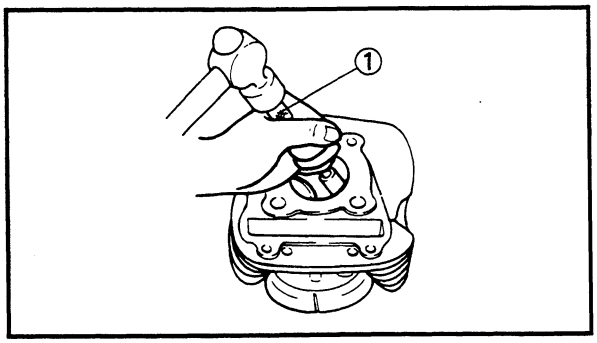
Resurfacement steps:
- Place a 400~600 grit wet sandpaper on the surface plate, and resurface the head using figure-eight sanding pattern.

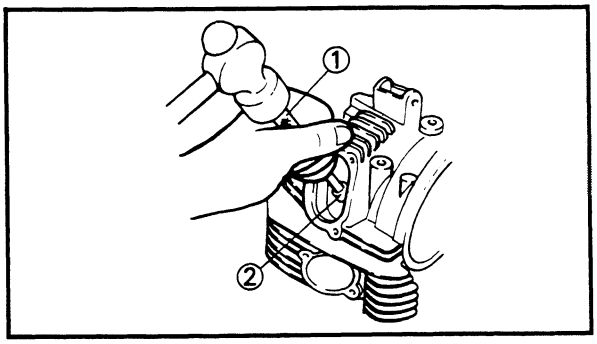
NOTE:

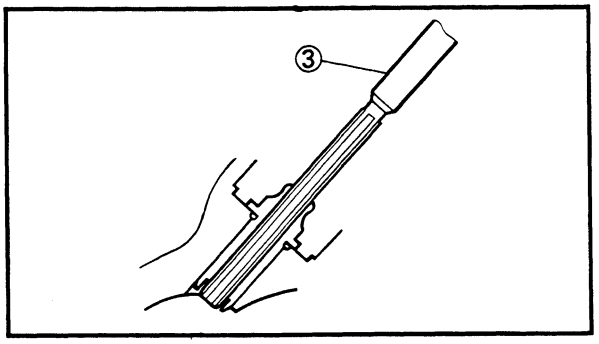
Rotate the head several times to avoid removing too much material from on side.

4









VALVE AND VALVE GUIDE

NOTE:

Always replace valve guide and oil seal if valve is removed.

1. Measure:
   - Stem-to-guide clearance

Stem-to-guide clearance =
Valve guide inside diameter ⓐ − Valve stem diameter ⓑ

Out of specification → Replace valve guide.

Stem-to-guide Clearance:	
Intake	**0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)**
Exhaust	**0.025 ~ 0.052 mm (0.001 ~ 0.002 in)**

① Bore gauge

Valve guide replacement steps:

NOTE:

Heat the cylinder head in an oven to 100°C (212°F) to ease guide removal and installation and to maintain correct interference fit.

- Remove the valve guide using the Valve Guide Remover ①.

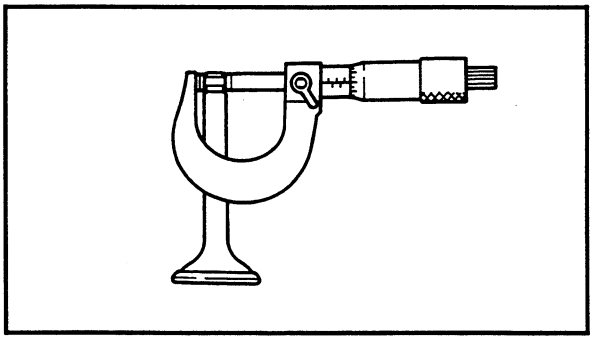
Valve Guide Remover:
P/N YM-04064-A

- Install the valve guide (New) using the Valve Guide Installer ② and Valve Guide Remover ①.

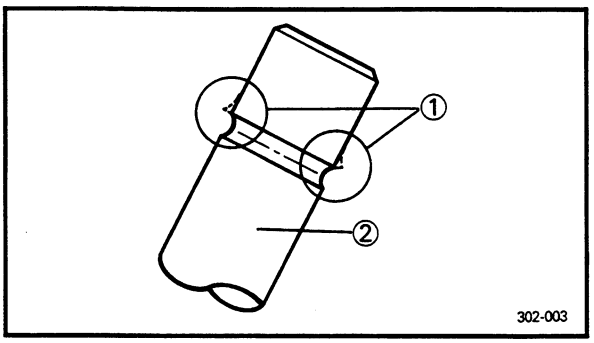
Valve Guide Installer:
P/N YM-04065-A

- After installing the valve guide, bore the valve guide using the Valve Guide Reamer ③ to obtain proper stem-to-guide clearance.

Valve Guide Reamer:
P/N YM-04066



2. Inspect:
   - Valve stem end
     Mushroom shape/Larger diameter than rest of stem→Replace valve, valve guide, and oil seal.



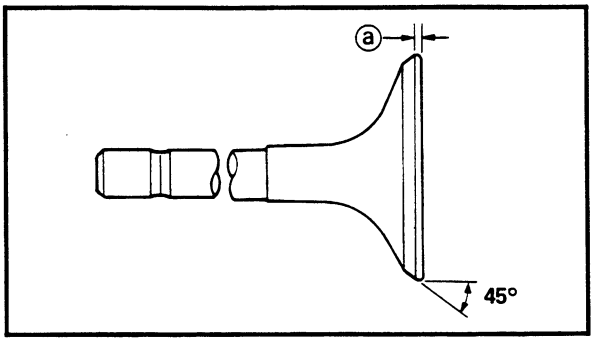
NOTE:

Deburr any deformed valve stem end. Use an stone to smooth the stem end.

① Deburr
② Valve

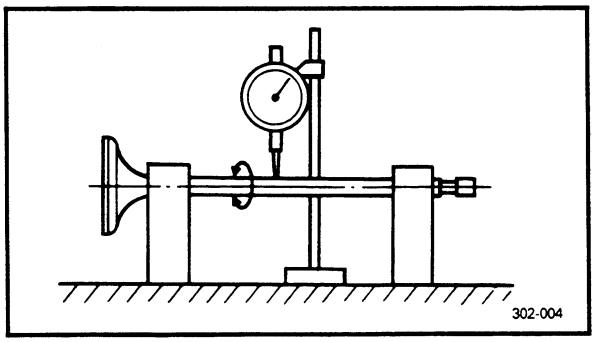
3. Clean the valve face to remove carbon deposits.

4. Inspect:
   - Valve face
     Pitting/Wear→Grind the face.



5. Measure:
   - Margin thickness ⓐ
     Out of specification→Replace.

Margin Thickness Limit:
0.7 mm (0.028 in)



6. Check:
   - Valve stem end
     Mushroom shape or diameter larger than rest or stem→Replace.
   - Runout
     Out of specification→Replace.

Maximum Valve Stem Runout:
0.01 mm (0.0004 in)

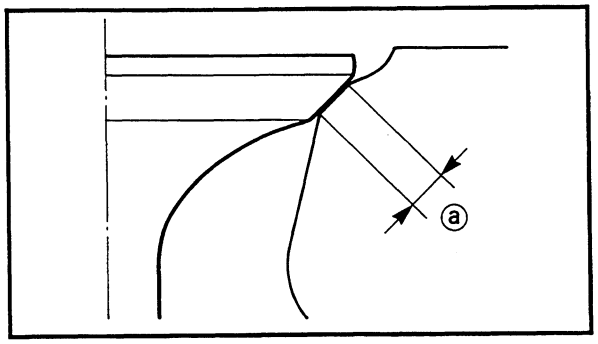
NOTE:

- Always replace the guide if the valve is replaced.
- Always replace the oil seal if the valve is removed.

VALVE SEAT

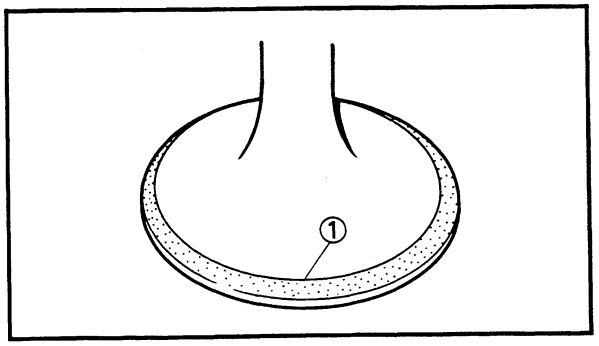
1. Clean the valve face and valve seat to remove carbon deposits.

2. Inspect:
   - Valve seat
     Pitting/Wear→Reface the valve seat.



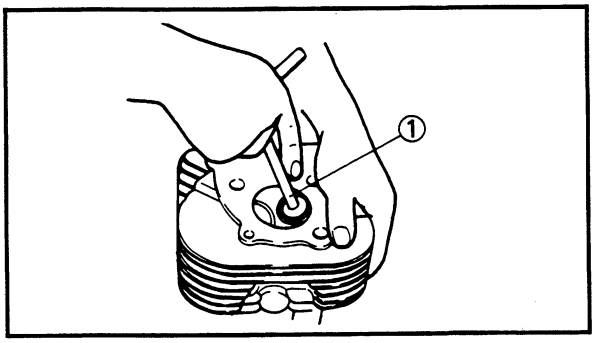
3. Measure:
   - Valve seat width ⓐ
     Out of specification→Reface valve seat.

Valve Seat Width:	
Intake	0.9~1.1 mm (0.035~0.043 in)
Exhaust	0.9~1.1 mm (0.035~0.043 in)



Measurement steps:

- Apply the Mechanic's bluing dye (Dykem) ① to the valve face.
- Install the valve into the cylinder head.
- Press the valve through the valve guide and onto the valve seat to make a clear pattern.
- Measure the valve seat width. Wherever the valve seat and valve face made contact, bluing will have been removed.
- If the valve seat width is too wide, too narrow, or seat had not centered, the valve seat must be refaced.

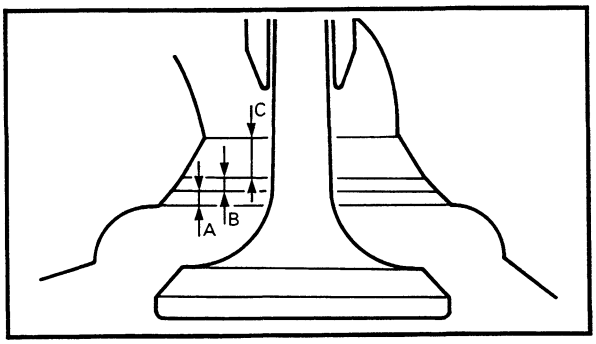


4. Reface:
   • Valve seat
   Use a 30°, 45° and 60° Valve Seat Cutter ①.

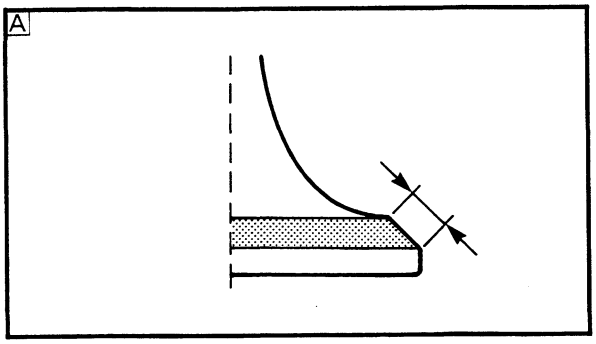
	Valve Seat Cutter: P/N YM-91043

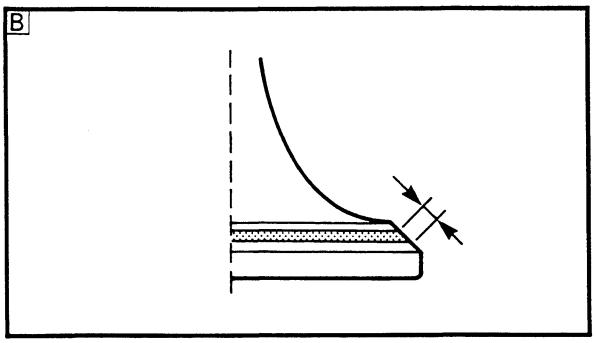
CAUTION:

When twisting cutter, keep and even downward pressure (4~5 kg) to prevent chatter marks.



Cut sections as follows	
Section	**Cutter**
A	**30°**
B	**45°**
C	**60°**





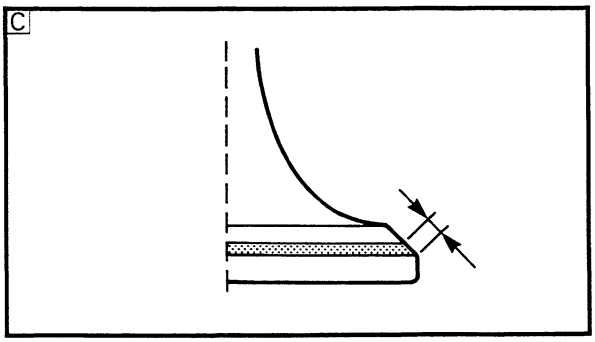
Valve seat refacing steps:

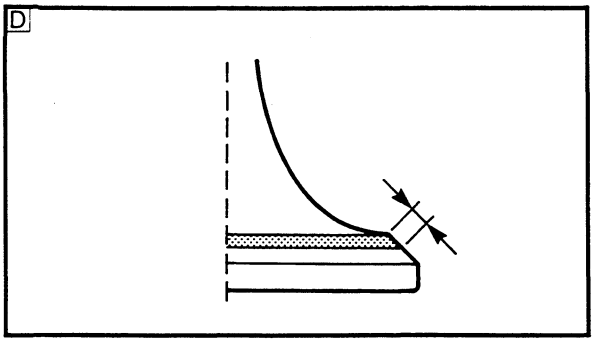
A Valve face indicates that valve seat is centered on valve face but is too wide.

Valve seat cutter set		Desired result
Use lightly	30° cutter	To reduce valve seat width to 1.0 mm (0.039 in)
	60° cutter	

B Valve seat is in the middle of the valve face but too narrow.

Valve seat cutter set		Desired result
Use	45° cutter	To achieve a uniform valve seat width of 1.0 mm (0.039 in)





C Valve seat is too narrow and right up near valve margin.

Valve seat cutter set		Desired result
Use	30° cutter, first	To center the seat and to achieve its width of 1.0 mm (0.039 in)
	45° cutter	

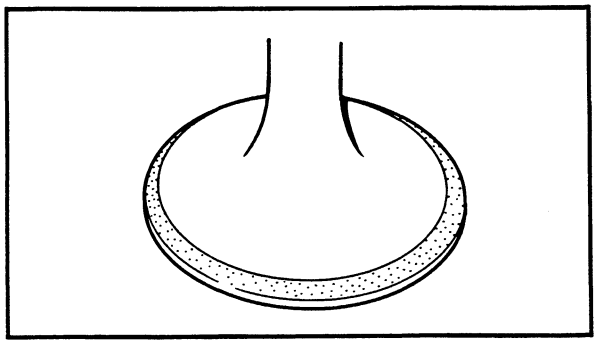
D Valve seat is too narrow and is located down near the bottom edge of the valve face.

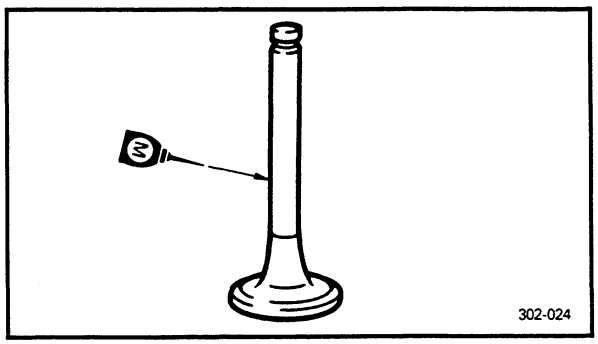
Valve seat cutter set		Desired result
Use	60° cutter, first	To center the seat and increase its width
	45° cutter	

5. Lap:
   - Valve face
   - Valve seat

NOTE:

When refacing the valve seat or replacing the valve and valve guide, the valve seat and valve face should be lapped.





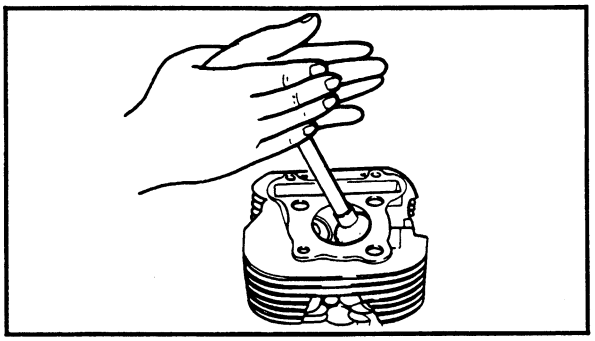
Lapping steps:

- Apply a coarse lapping compound to the valve face.

CAUTION:

Be sure no compound enters the gap between the valve stem and guide.

- Apply a molybdenum disulfide oil to the valve stem.
- Install the valve into the cylinder head.



- Turn the valve until the valve face and valve seat are evenly polished, then clean off all compound.

NOTE:

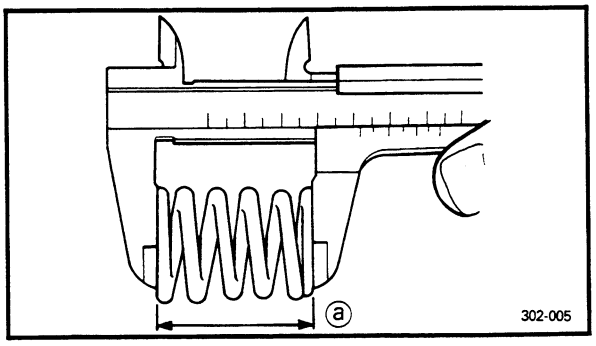
To obtain the best lapping results, lightly tap the valve seat while rotating the valve back and forth between your hands.

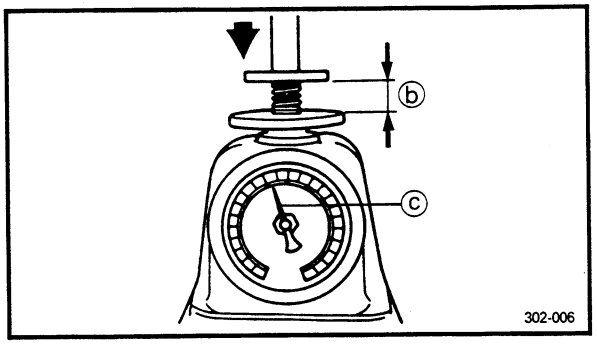
- Apply a fine lapping compound to the valve face and repeat the above steps.

NOTE:

Be sure to clean off all compound from the valve face and valve seat after every lapping operation.

- Apply the Mechanic's bluing dye (Dykem) to the valve face.
- Install the valve into the cylinder head.
- Press the valve through the valve guide and onto the valve seat to make a clear pattern.
- Measure the valve seat width again.
  If the valve seat width is out of specification, reface and lap the valve seat.





VALVE SPRING

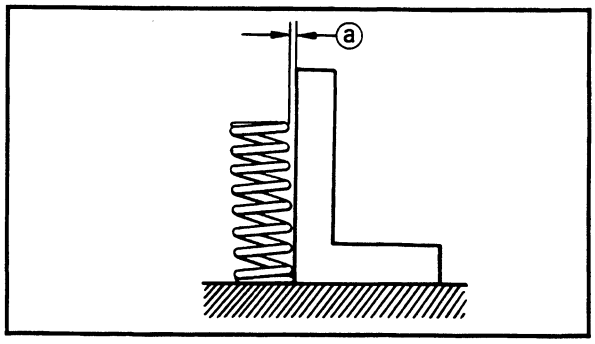
1. Measure:
   - Valve spring free length ⓐ
     Out of specification → Replace.

Valve Spring Free Length:	
Inner spring	Outer spring
36.2 mm (1.43 in)	36.6 mm (1.44 in)

2. Measure:
   - Valve spring installed force ⓒ
     Out of specification → Replace.

ⓑ Installed length

Valve Spring Installed Force:			
Inner spring		Outer spring	
ⓑ	ⓒ	ⓑ	ⓒ
30.5 mm (1.20 in)	8.3 ~ 10.3 kg (18.5 ~ 22.7 lb)	32.0 mm (1.26 in)	16.5 ~ 20.5 kg (36.4 ~ 45.2 lb)

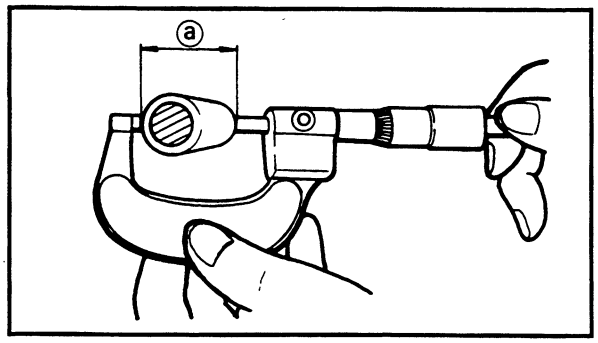


3. Measure:
   • Spring tilt ⓐ
   Out of specification → Replace.

Spring Tilt:	
Inner spring	Outer spring
Less than 1.6 mm (0.063 in)	Less than 1.6 mm (0.063 in)

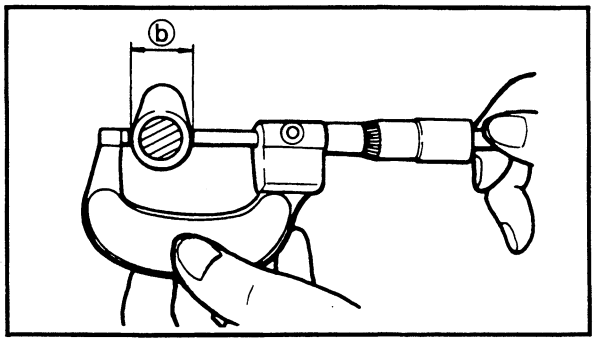
CAMSHAFT

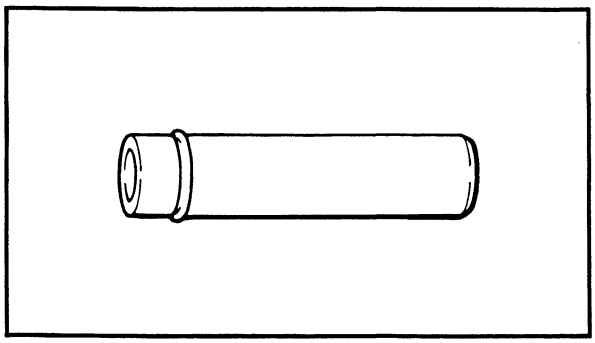
1. Inspect:
   • Cam lobes
   Pitting/Scratches/Blue discoloration → Replace.



2. Measure:
   • Cam lobes
   Out of specification → Replace.

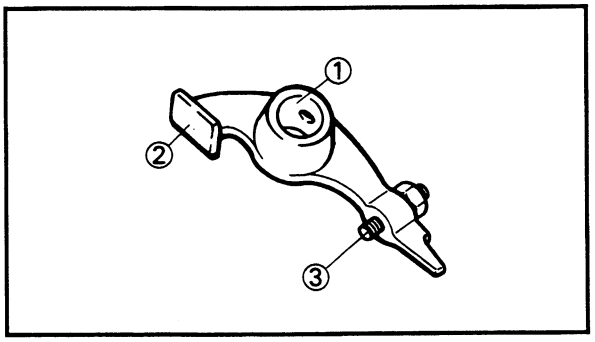
	ⓐ	ⓑ
Intake	36.54 ~ 36.64 mm (1.439 ~ 1.443 in)	30.15 ~ 30.25 mm (1.187 ~ 1.191 in)
Exhaust	36.58 ~ 36.68 mm (1.440 ~ 1.444 in)	30.27 ~ 30.37 mm (1.192 ~ 1.196 in)





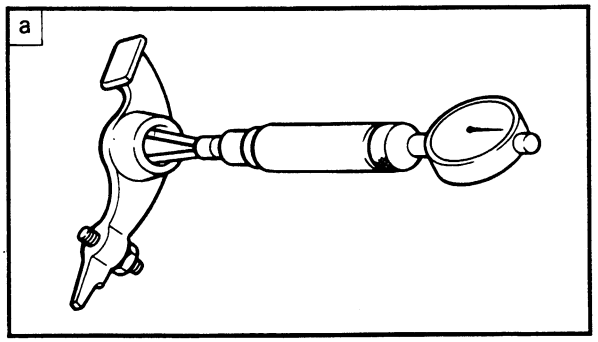
ROCKER ARM AND ROCKER ARM SHAFT

1. Inspect:
   • Rocker arm shaft
   Blue discoloration/Grooves → Replace, then inspect lubrication system.



2. Inspect:
   - Rocker arm shaft hole ①
   - Cam lobe contact surface ②
   - Adjuster surface ③

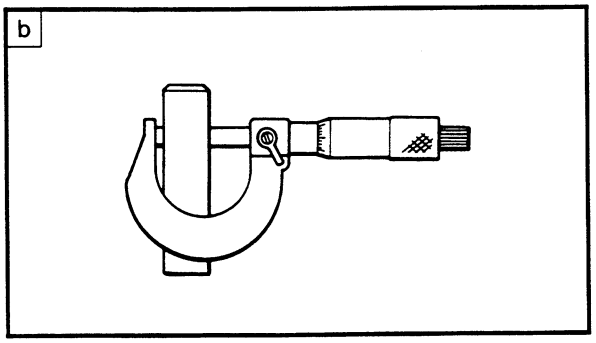
   Wear/Pitting/Scratches/Blue discoloration
   →Replace, then inspect lubrication system.



3. Measure:
   - Arm-to-shaft clearance

Arm-to-shaft-clearance =
Rocker arm inside diameter ⓐ − Rocker arm shaft outside diameter ⓑ

Out of specification→Replace as a set.

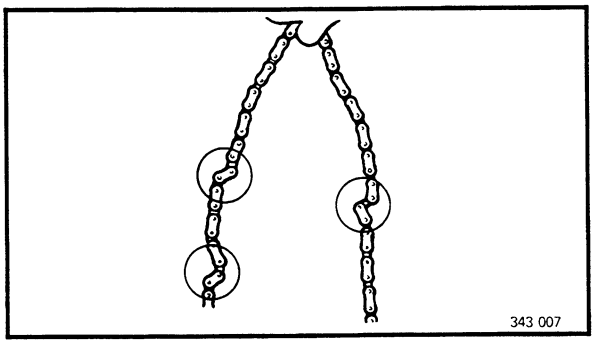


Arm-to-shaft Clearance:
0.009 ~ 0.037 mm
(0.0004 ~ 0.0015 in)
Limit: 0.1 mm (0.004 in)

CAM CHAIN AND CAM SPROCKET

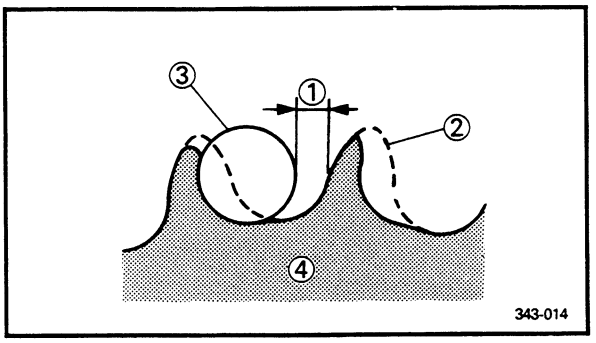
1. Inspect:
   - Cam chain

   Stiff/Cracks→Replace cam chain and cam sprocket as a set.

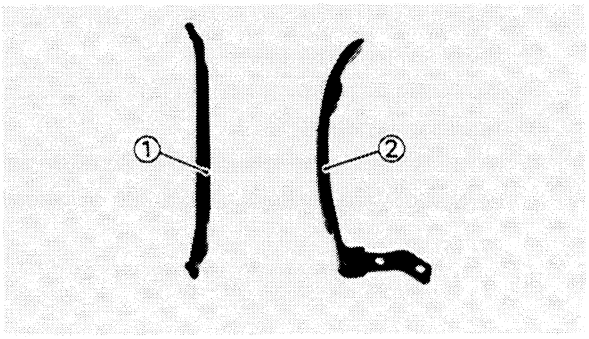


2. Inspect:
   - Cam sprocket

   Wear/Damage→Replace cam sprocket and cam chain as a set.



① 1/4 tooth
② Correct
③ Roller
④ Sprocket



CAM CHAIN GUIDE

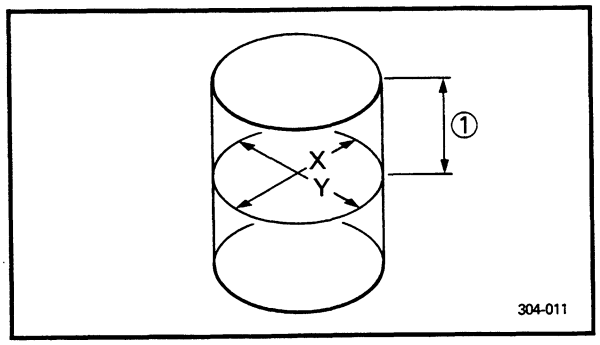
1. Inspect:
   - Chain guide (Exhaust side) ①
   - Chain guide (Intake side) ②

   Wear/Damage→Replace.

CYLINDER AND PISTON

1. Inspect:
   - Cylinder and piston walls

   Vertical scratches→Rebore or replace cylinder and piston.



2. Measure:
   - Piston-to-cylinder clearance

Piston-to-cylinder clearance measurement steps:

First steps

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

① 40 mm (1.57 in) from the cylinder top

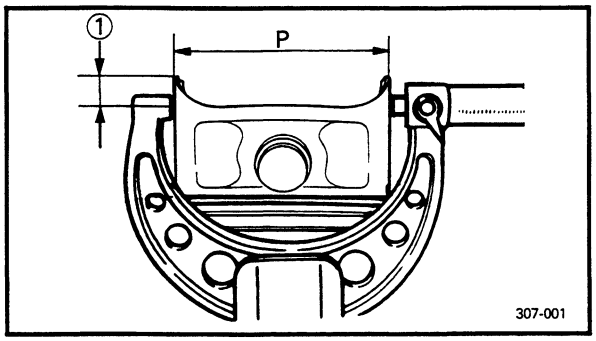
NOTE:

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

	Standard	Wear Limit
Cylinder Bore "C"	66.97~67.02 mm (2.637~2.639 in)	67.10 mm (2.642 in)

$$C = \frac{X+Y}{2}$$

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



2nd steps

- Measure the piston skirt diameter "P" with a micrometer.
  ① 7.5 mm (0.295 in) from the piston bottom edge

Piston Size P:

Standard	**66.935 ~ 66.985 mm (2.635 ~ 2.637 in)**
Oversize 2	**67.5 mm (2.66 in)**
Oversize 4	**68.0 mm (2.68 in)**

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

3rd steps

- Find the piston-to-cylinder clearance with following formula.

Piston-to-cylinder clearance =

Cylinder bore "C" –
Piston skirt diameter "P"

Piston-to-cylinder Clearance:
0.025 ~ 0.045 mm (0.001 ~ 0.002 in)
Limit:
0.1 mm (0.004 in)

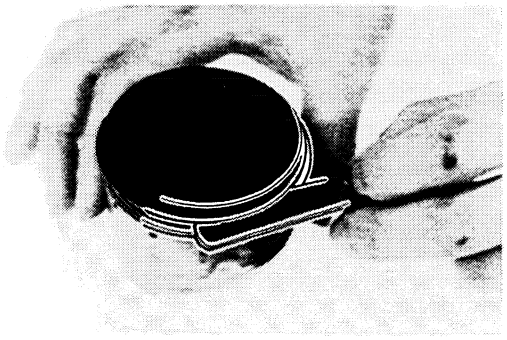
- If out of the specification, rebore or replace the cylinder, and replace the piston and piston rings as a set.

Piston ring oversize:

Oversize	Mark
2	50
4	100

NOTE:
Oversize mark is stamped on the top of the ring.

4



PISTON RING

1. Measure:
   - Ring side clearance
     Use a feeler gauge.
     Out of specification→Replace piston.

NOTE:

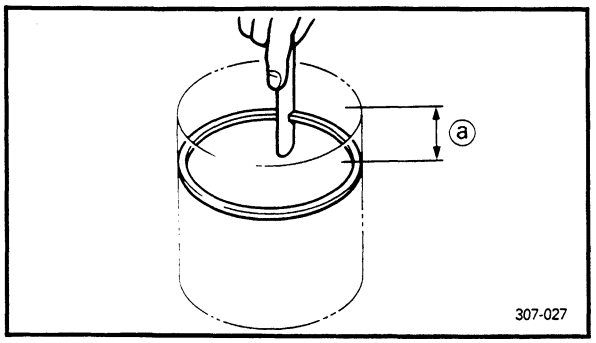
Clean carbon from piston ring grooves and rings before measuring side clearance.

Piston Ring Side Clearance:	
Top	0.03~0.07 mm (0.001~0.003 in)
2nd	0.02~0.06 mm (0.001~0.002 in)

2. Position:
   - Piston ring
     (in cylinder)

NOTE:

Insert a ring into cylinder, and push it approximately 20 mm (0.8 in) into cylinder. Push ring with piston crown so that ring will be at a right angle to cylinder bore.



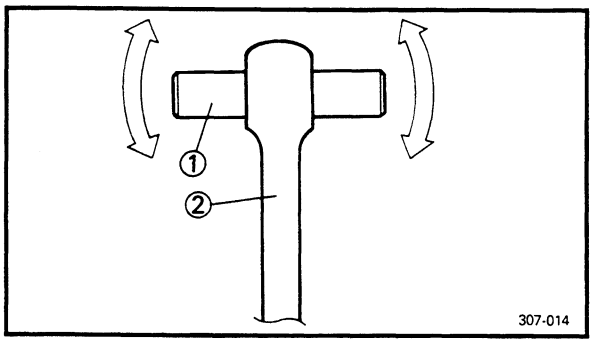
ⓐ 20 mm (0.8 in)

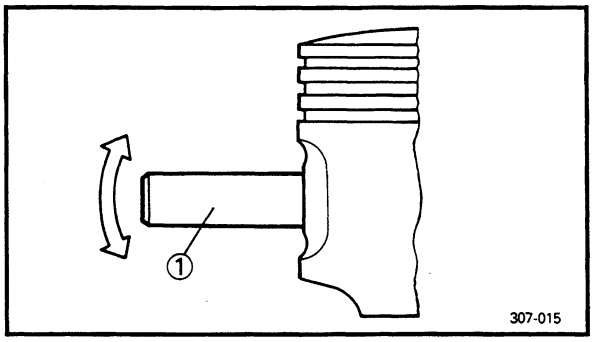
3. Measure:
   - Ring end gap
     Out of specification→Replace.

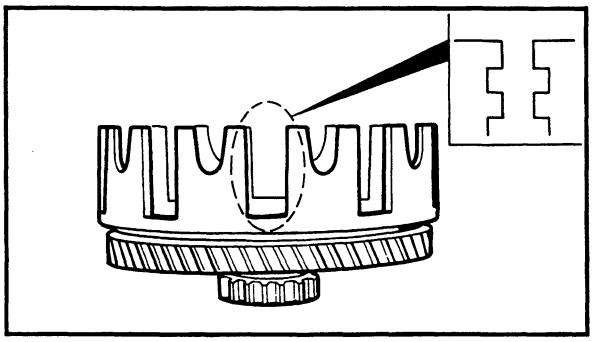
NOTE:

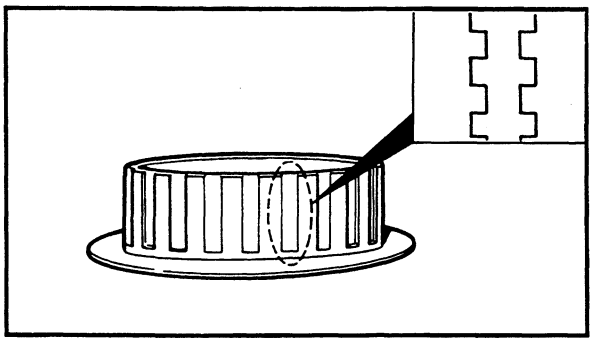
You cannot measure end gap on expander spacer of oil control ring. If oil control ring rails show excessive gap, replace all three rings.

Piston Ring End Gap (Installed):	
Top ring	0.15~0.30 mm (0.006~0.012 in)
2nd ring	0.15~0.30 mm (0.006~0.012 in)
Oil ring	0.3~0.9 mm (0.012~0.035 in)









PISTON PIN

1. Lubricate:
   - Engine oil (Lightly)
   To piston pin.
2. Install:
   - Piston pin ①
   (into small end of connecting rod ②)
3. Check:
   - Free play
   Free play→Inspect connecting rod for wear.
   Wear→Replace connecting rod and piston pin.
4. Position:
   - Piston pin ①
   (into piston)
5. Check:
   - Free play
   (into piston)
   Free play→Replace piston pin and/or piston.

CLUTCH

1. Inspect:
   - Clutch housing dogs
   Cracks/Pitting (edges):
   Moderate→Deburr.
   Severe→Replace clutch housing.

NOTE:

Pitting on friction plate dogs of clutch housing will cause erratic operation.

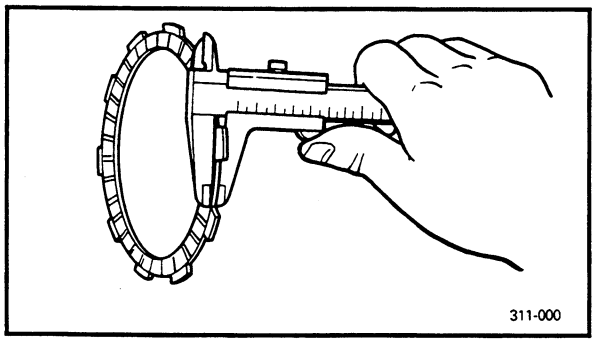
2. Inspect:
   - Clutch housing bearing.
   Damage→Replace.

3. Inspect:
   - Clutch boss spline
   Pitting:
   Moderate→Deburr.
   Severe→Replace.

NOTE:

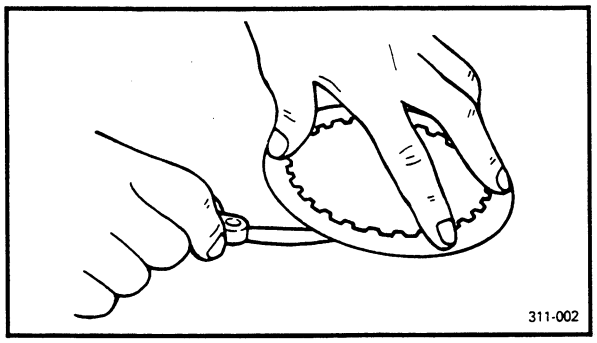
Pitting on clutch plate splines of clutch boss will cause erratic operation.

4



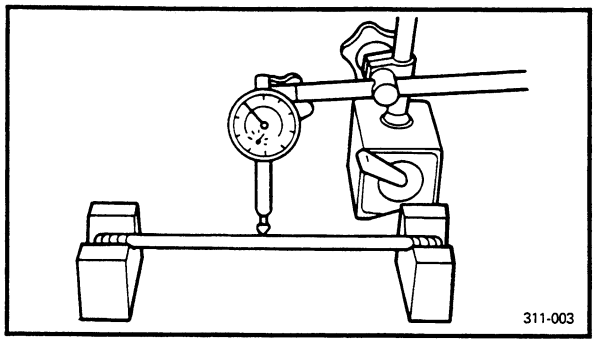
4. Measure:
   • Friction plate thickness
   Out of specification → Replace as a set.

Friction Plate Thickness:
2.9 ~ 3.1 mm (0.11 ~ 0.12 in)
Wear Limit:
2.8 mm (0.110 in)



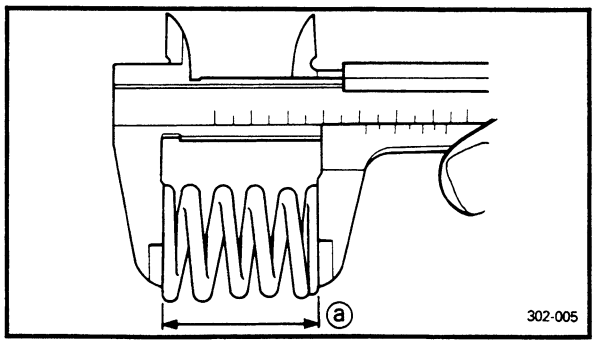
5. Measure:
   • Clutch plate warpage
   Out of specification → Replace as a set.

Clutch Plate Warpage Limit:
0.2 mm (0.008 in)



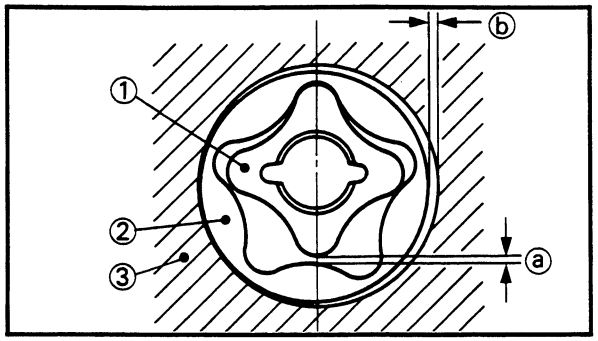
6. Measure:
   • Push rod runout
   Roll the push rod on a V-block.
   Out of specification → Replace.

Runout Limit:
0.5 mm (0.02 in)



7. Measure:
   • Clutch spring free length ⓐ
   Out of specification → Replace spring as a set.

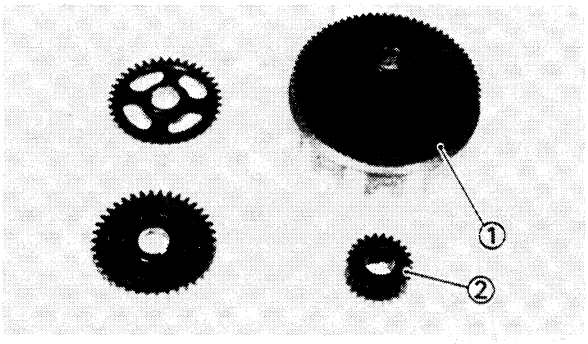
Clutch Spring Minimum Free Length ⓐ:
35.3 mm (1.39 in)



OIL PUMP

1. Measure:
   • Tip clearance ⓐ
   (between inner rotor ① and outer rotor ②)
   • Side clearance ⓑ
   (between outer rotor ② and pump housing ③)
   Out of specifications → Replace oil pump.

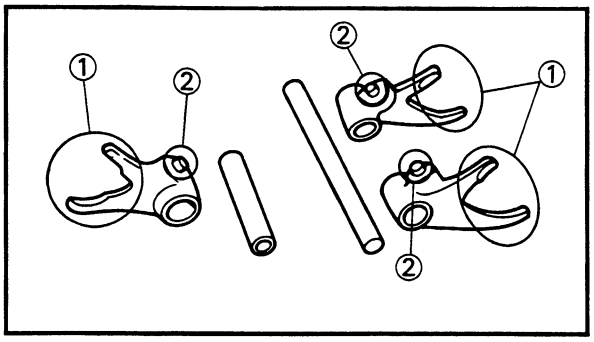
Oil Pump Clearance:	
Tip clearance	0.15 mm (0.006 in)
Side clearance	0.03~0.09 mm (0.001~0.004 in)



PRIMARY DRIVE

1. Inspect:
   - Primary drive gear teeth ①
   - Primary driven gear teeth ②

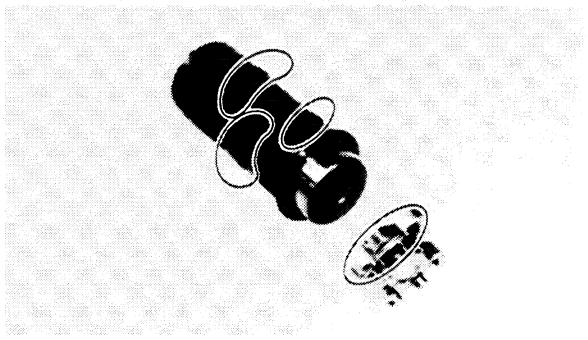
   Wear/Damage→Replace both gears.
   Excessive noises during operation→Replace both gears.



TRANSMISSION AND SHIFTER

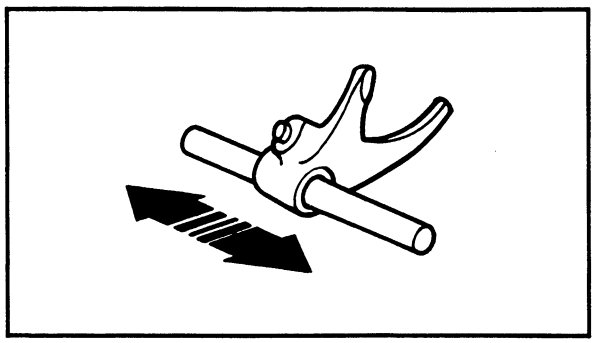
1. Inspect:
   - Shift fork cam follower ①
   - Shift fork pawl ②

   Scoring/Bends/Wear→Replace.



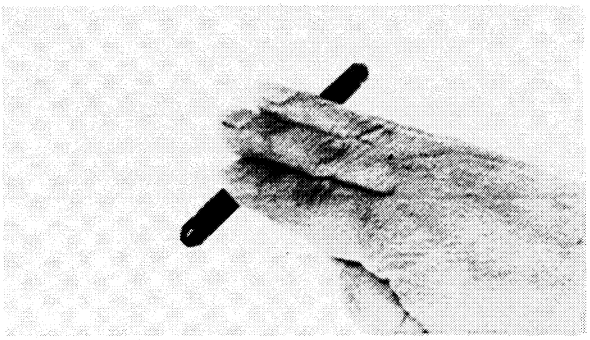
2. Inspect:
   - Shift cam groove
   - Shift cam segment

   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:

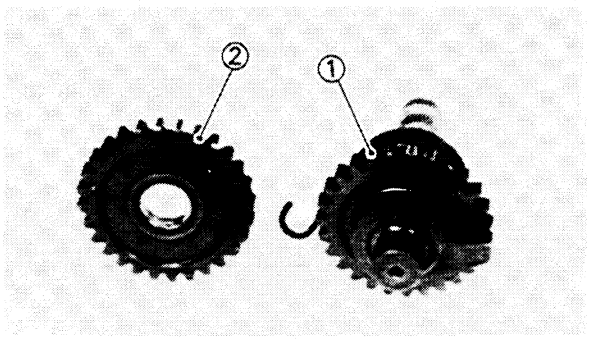
Do not attempt to straighten a bent guide bar.

5. Measure:
   • Transmission shaft runout
   Use centering device and dial gauge.
   Out of specification → Replace bent shaft.

Maximum Runout:
0.04 mm (0.001 in)

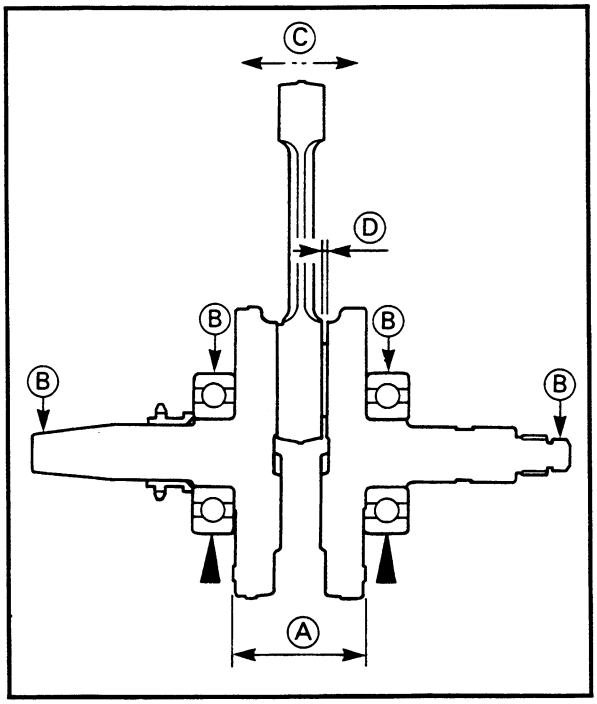
6. Inspect:
   • Gear teeth
   Blue discoloration/Pitting/Wear → Replace.
   • Mated dogs
   Rounded edges/Cracks/Missing portions → Replace.

7. Check:
   • Proper gear engagement (Each gear) (to its counter part)
   • Gear movement
   Roughness → Replace.



KICK STARTER

1. Inspect:
   • Kick gear teeth ①
   • Kick idle gear teeth ②
   Damage/Wear → Replace both gears.



CRANKSHAFT

1. Measure:
   - Crank width Ⓐ
     Out of specification→Replace crankshaft.

Crank Width:
55.95~56.00 mm (2.203~2.204 in)

   - Runout Ⓑ
     Out of specification→Replace crankshaft and/or bearing.

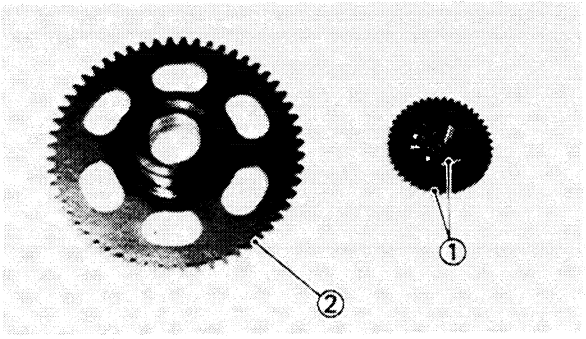
Runout Limit:
0.03 mm (0.001 in)

   - Small end free play Ⓒ
     Out of specification→Replace big end bearing, crank pin and/or connecting rod.

Small End Free Play:
STD: 0.8~1.0 mm
(0.031~0.039 in)
Limit: 2.0 mm (0.079 in)

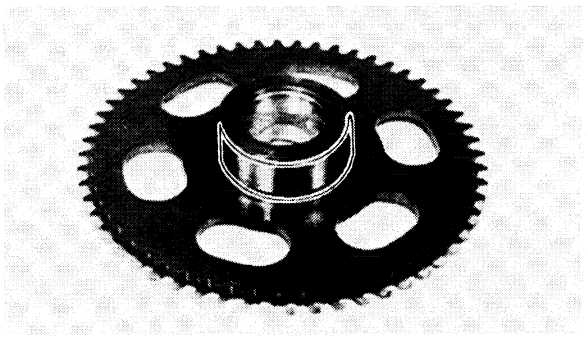
   - Side clearance Ⓓ
     Out of specification→Replace connecting rod.

Big End Side Clearance:
0.35~0.65 mm (0.014~0.026 in)

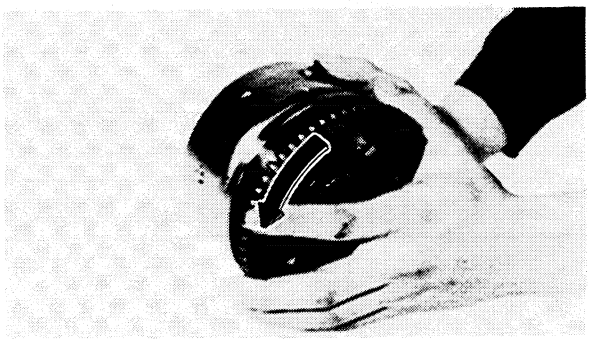


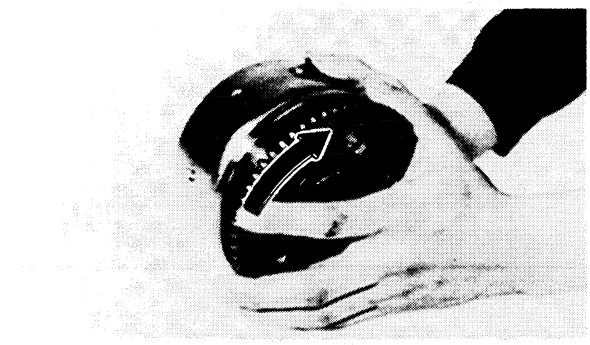
STARTER DRIVE

1. Inspect:
   - Starter motor gear teeth
   - Idle gear teeth ①
   - Starter wheel gear teeth ②
     Wear/Damage→Replace both gears.



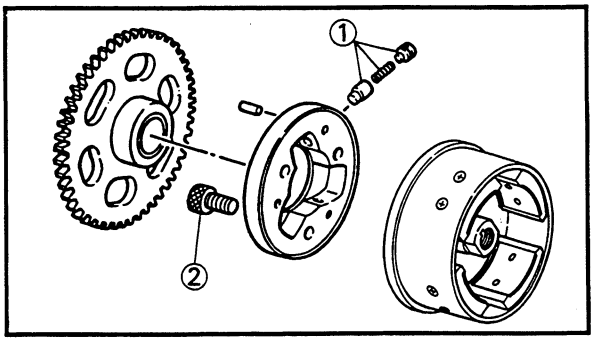
2. Inspect:
   - Contacting surfaces
     Pitting/Wear/Damage→Replace.





3. Check:
   - Starter clutch operation

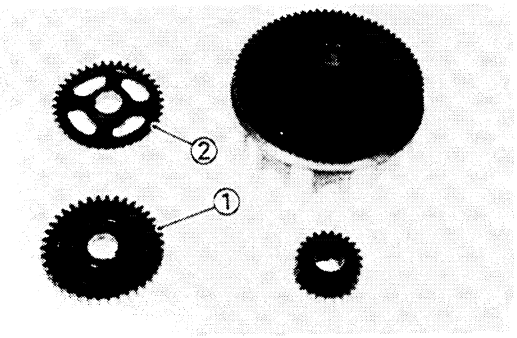
Clutch operation checking steps:
- Install the starter wheel gear to the starter clutch, and hold the starter clutch.
- When turning the wheel gear clockwise, the starter clutch and the wheel gear should be engaged.
  If not, the starter clutch is faulty. Replace it.
- When turning the wheel gear counterclockwise, the wheel gear should turn freely.
  If not, the starter clutch is faulty. Replace it.



4. Inspect:
   - Bearing ①
     Damage→Replace.
   - Bolts (Starter clutch) ②
     Loose→Replace with a new one, and clinch the end of the bolt.

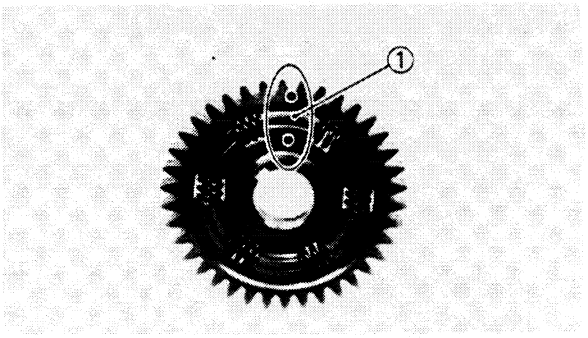
NOTE:
The arrow mark on the starter clutch must face inward, away from the CDI rotor.

Bolts (Starter Clutch):
30 Nm (3.0 m•kg, 22 ft•lb)
LOCTITE®.
After Installing the Starter Clutch, Calk the Bolt End.



BALANCER DRIVE GEAR AND BALANCER GEAR

1. Inspect:
   - Balancer drive gear teeth ①
   - Balancer driven gear teeth ②
     Wear/Damage→Replace both gears.



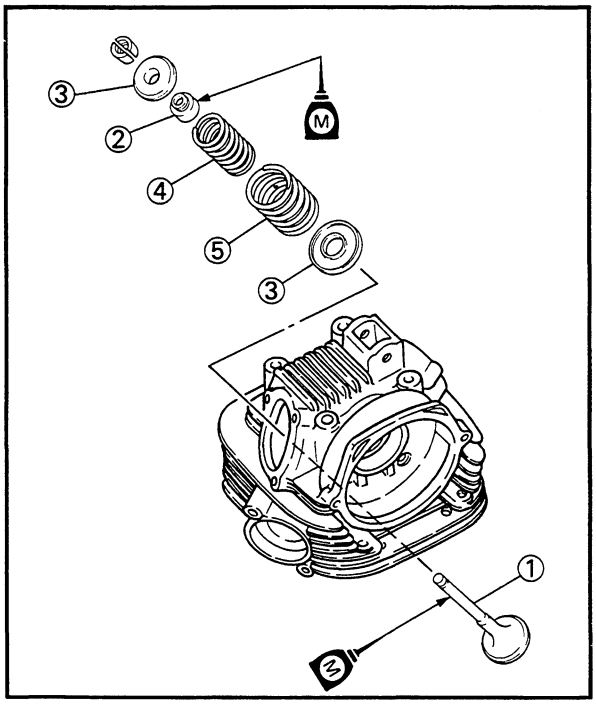
2. Check:
   • Match marks ①
   If they are not aligned → Align match marks as shown.

BEARING AND OIL SEAL

1. Inspect:
   • Bearing
   Roughness/Pitting/Damage → Replace.
   • Oil seal lip
   Damage/Wear → Replace.

CRANKCASE

1. Inspect:
   • Crank halves
   • Bearing seat
   Damage → Replace.

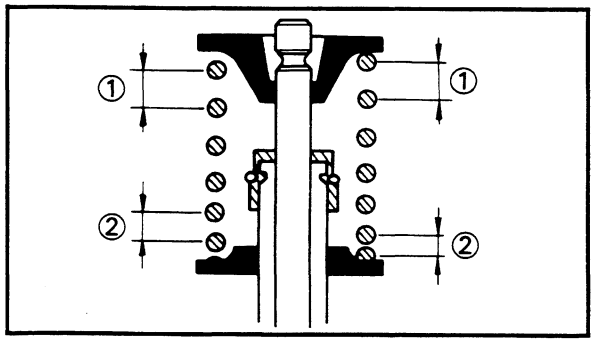


ENGINE ASSEMBLY AND ADJUSTMENT

VALVE, ROCKER ARM AND CAMSHAFT

1. Lubricate:
   - High-Quality molybdenum disulfide motor oil
   To the valve stem and oil seal.

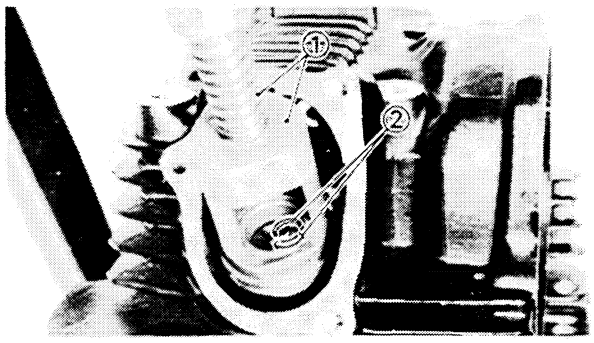
2. Install:
   - Valve ①
   - Oil seal (New) ②
   - Valve spring seats ③
   - Valve spring ④ (Inner)
   - Valve spring ⑤ (Outer)



NOTE:

Install the inner and outer springs with wider-gapped coils ① facing upwards as shown.

① Larger pitch
② Smaller pitch

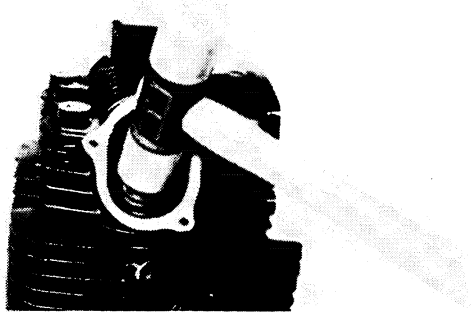


3. Attach:
   - Valve Spring Compressor ①

	Valve Spring Compressor: P/N YM-04019

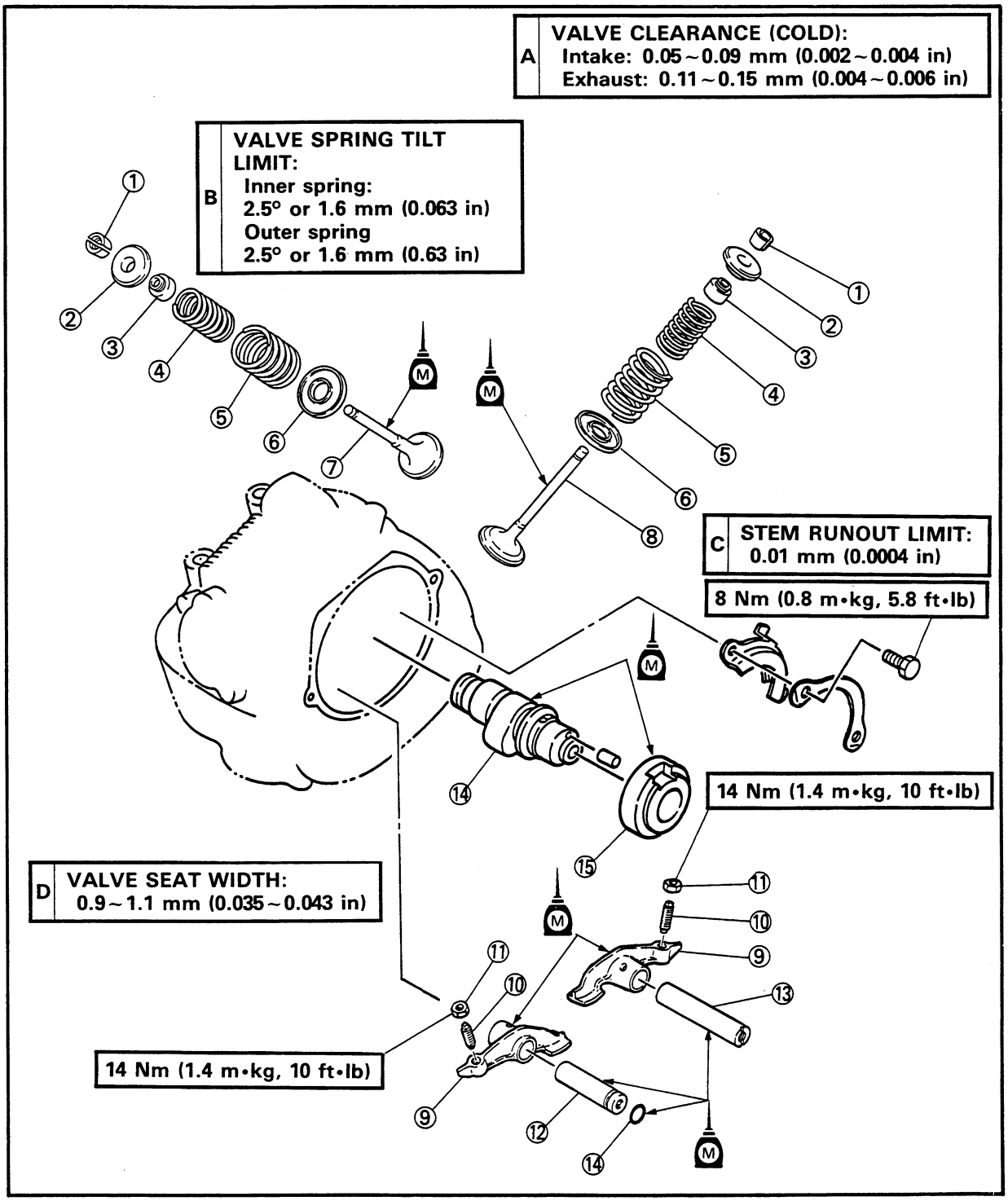
4. Install:
   - Valve retainers ②

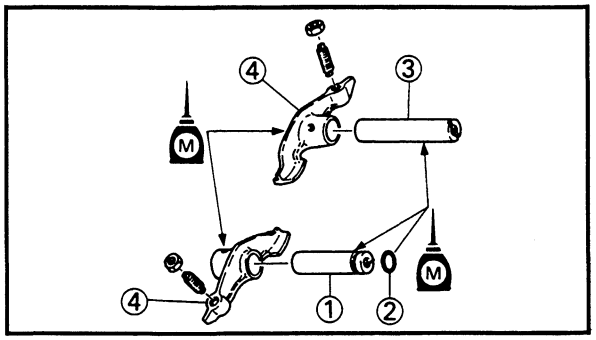
5. Tap the valve head lightly.



VALVE, ROCKER ARM AND CAMSHAFT

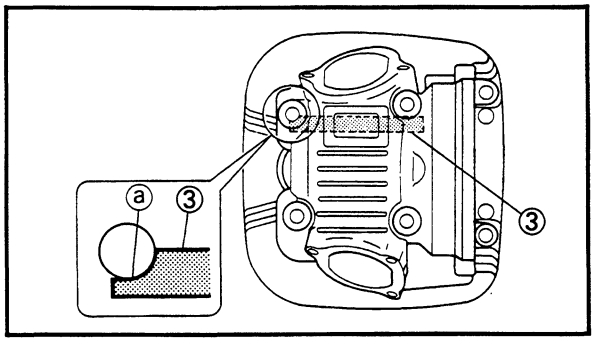
① Valve retainer
② Spring seat
③ Oil seal
④ Valve spring (Inner)
⑤ Valve spring (Outer)
⑥ Spring seat
⑦ Valve (Intake)
⑧ Valve (Exhaust)
⑨ Rocker arm
⑩ Adjuster
⑪ Locknut
⑫ Rocker arm shaft (Exhaust)
⑬ Rocker arm shaft (Intake)
⑭ Camshaft
⑮ Camshaft housing





6. Lubricate:
   - High-quality molybdenum disulfide motor oil
     To the rocker arm shaft and O-ring.

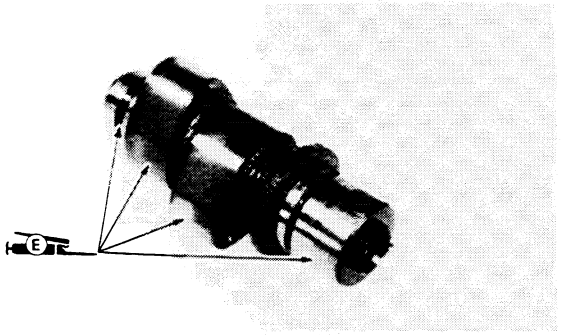
7. Install:
   - Rocker arm shaft (Exhaust) ①
   - O-ring ②
   - Rocker arm shaft (Intake) ③
   - Rocker arm ④

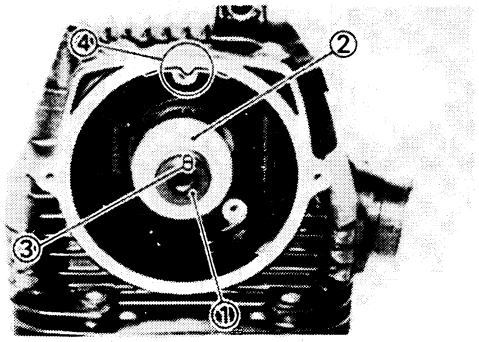


NOTE:

- Thread hole of the rocker arm shaft should be placed outside.
- Install the shorter rocker arm shaft ① (with O-ring ②) on the exhaust side and the longer shaft ③ (with cutaway ⓐ) on the intake side.
- Be sure the cutting portion ⓐ face to intake side so that the rocker arm shaft do not enter the cylinder head bolt hole.

8. Lubricate:
   - Engine oil
     To the bearings of the camshaft.

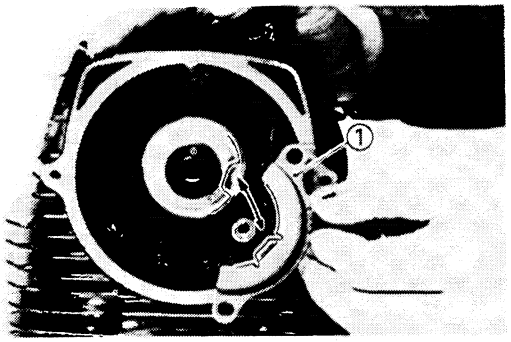




9. Install:
   - Camshaft ①
   - Camshaft housing ②

NOTE:

The pin ③ on the end of the camshaft must align with the timing mark ④ on the cylinder head.



10. Install:
    - Bearing holder ①
    - Lock washer

	Bolts (Bearing Holder): **8 Nm (0.8 m•kg, 5.8 ft•lb)**

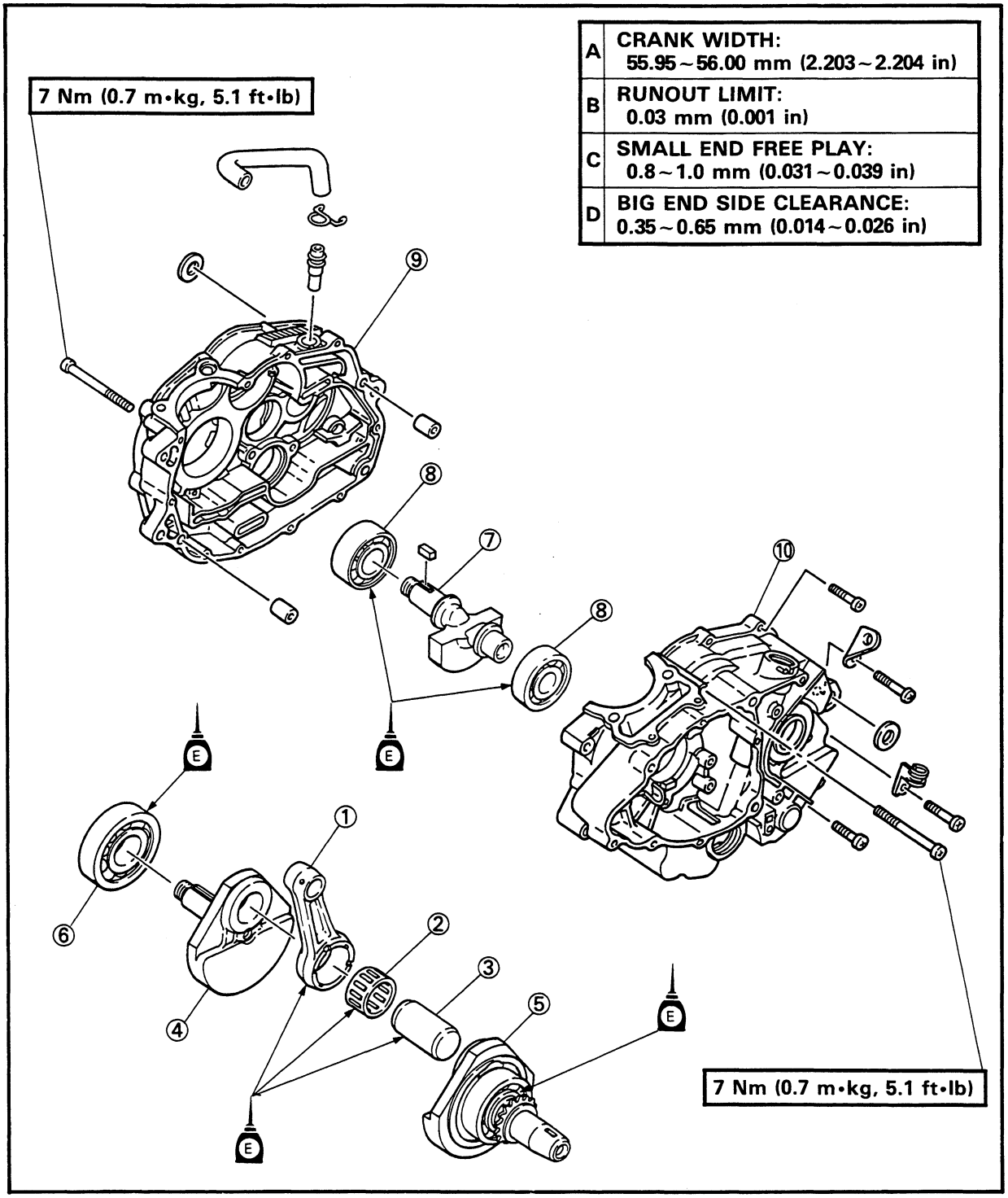
WARNING:

Use a new lock washer.

11. Bend the end of lock washer.

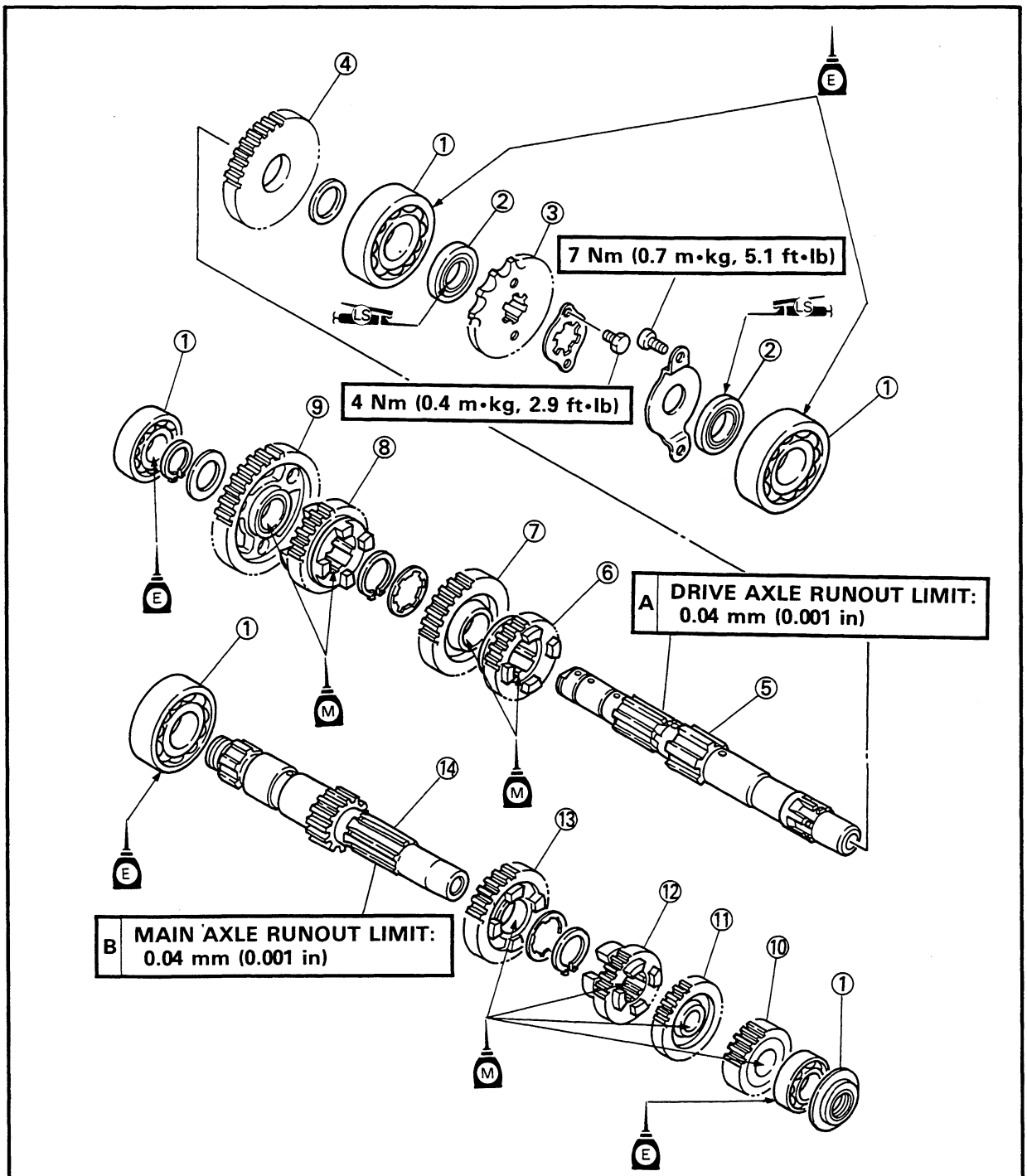
CRANKSHAFT, BALANCER AND CRANKCASE

① Connecting rod
② Bearing (Big end)
③ Crank pin
④ Crank (Right)
⑤ Crank (Left)
⑥ Bearing
⑦ Balancer
⑧ Bearing
⑨ Crankcase (Right)
⑩ Crankcase (Left)



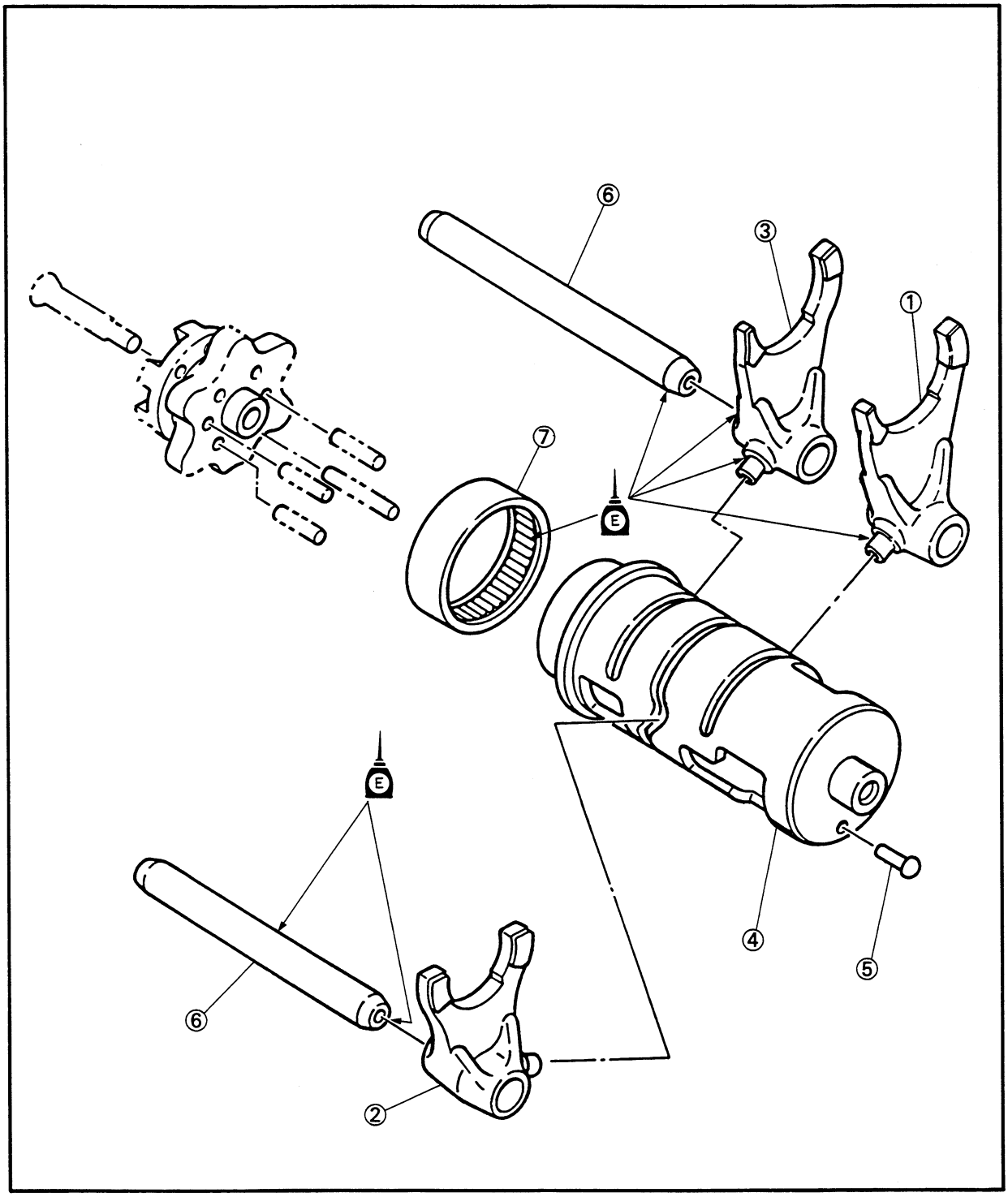
TRANSMISSION

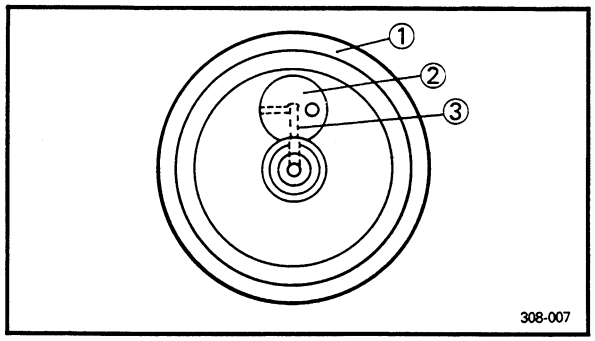
① Bearing
② Oil seal
③ Drive sprocket
④ 2nd wheel gear
⑤ Drive axle
⑥ 4th wheel gear
⑦ 3rd wheel gear
⑧ 5th wheel gear
⑨ 1st wheel gear
⑩ 2nd pinion gear
⑪ 4th pinion gear
⑫ 3rd pinion gear
⑬ 5th pinion gear
⑭ Main axle



SHIFTER

① Shift fork #2
② Shift fork #1
③ Shift fork #3
④ Shift cam
⑤ Dowel pin
⑥ Guide bar
⑦ Bearing





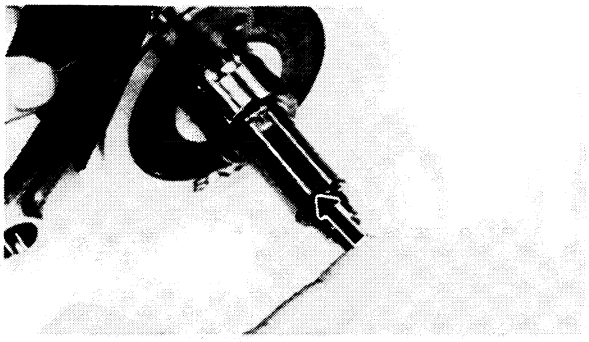
BALANCER AND CRANKSHAFT

1. To disassemble and reassemble the crank, follow the illustration.

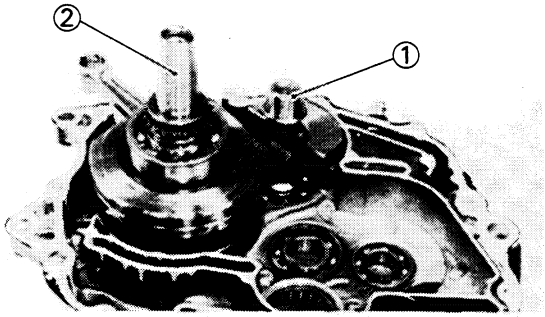
NOTE:

Make sure the oil passages of the crank and crank pin and lined up during assembly.

① Crank assembly
② Crank pin
③ Oil passage



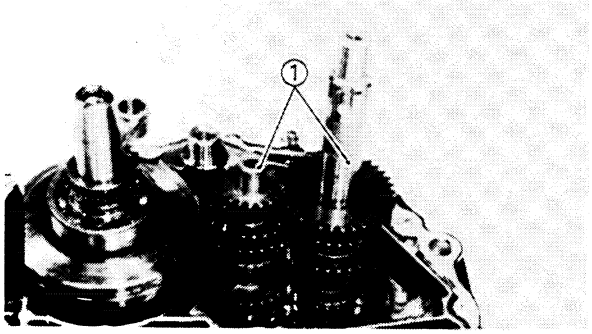
2. Check:
   - Plunger operation
     Unsmooth operation→Repair or replace.



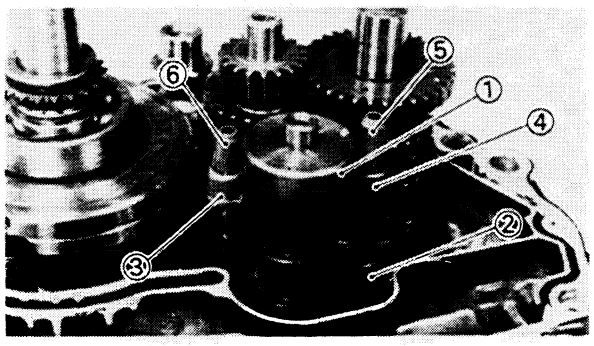
3. Install:
   - Balancer ①
   - Crankshaft ②
     To the crankcase.

TRANSMISSION AND SHIFTER

1. Lubricate:
   - Lithium soap base grease
     To the oil seal lips.
   - Engine oil
     To the bearing.



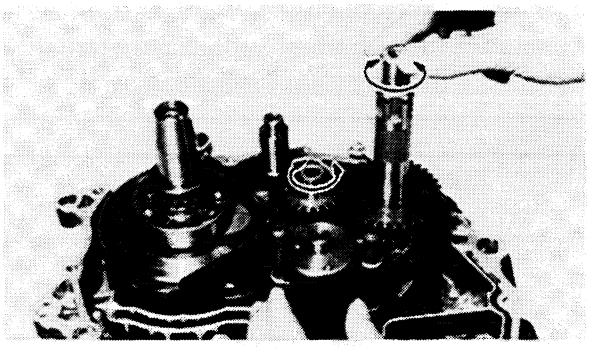
2. Install:
   - Transmission assembly ①



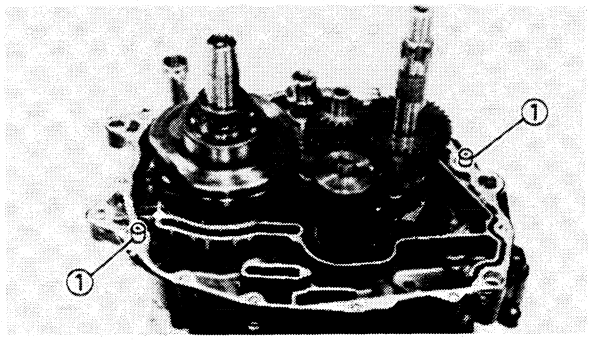
3. Install:
   - Shift cam ①
   - Shift fork #2 ②
   - Shift fork #1 ③
   - Shift fork #3 ④
   - Guide bar (Longer) ⑤
   - Guide bar (Shorter) ⑥

NOTE:

Guide bar (Longer)→For shift fork #2 and #3
Guide bar (Shorter)→For shift fork #1

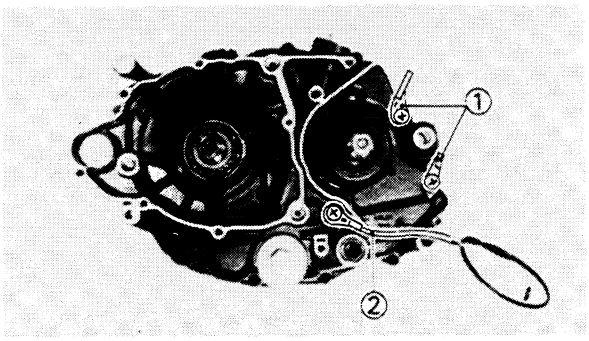


4. Check:
   - Shifter and transmission operation
     Unsmooth operation→Repair.



CRANKCASE (LEFT)

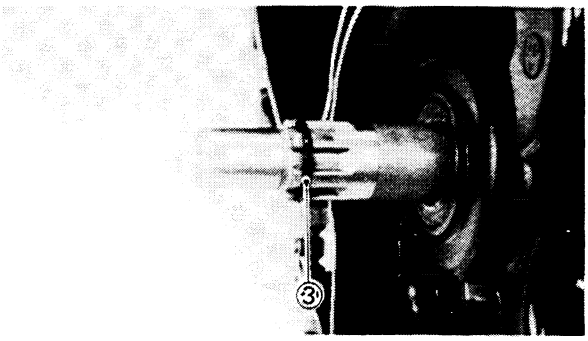
1. Clean:
   - All matching surface
     With a solvent.
2. Apply:
   - Quick Gasket® (ACC-11001-05-01)
     To crankcase matching surface.
3. Install:
   - Dowel pins ①

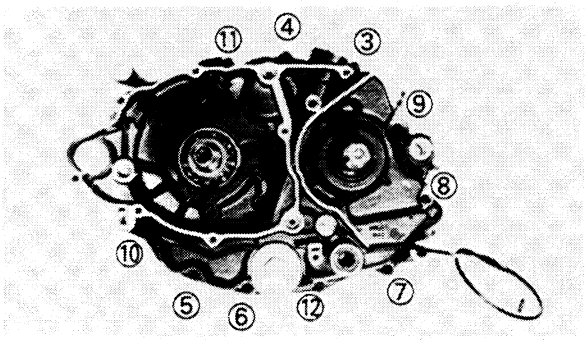


4. Install:
   - Crankcase (Left)
   - Clamps ①
   - Neutral switch lead ②

NOTE:

When installing the crankcase, pay attention to the crankcase oil seal lip. A recommended practice is to fit the "O-ring" ③ in the drive axle groove and apply grease over the fitted area before installing the drive axle.





5. Tighten:
   • Screws (Crankcase)

NOTE:

The numbers in the photo designate the crankcase tightening sequence.

CAUTION:

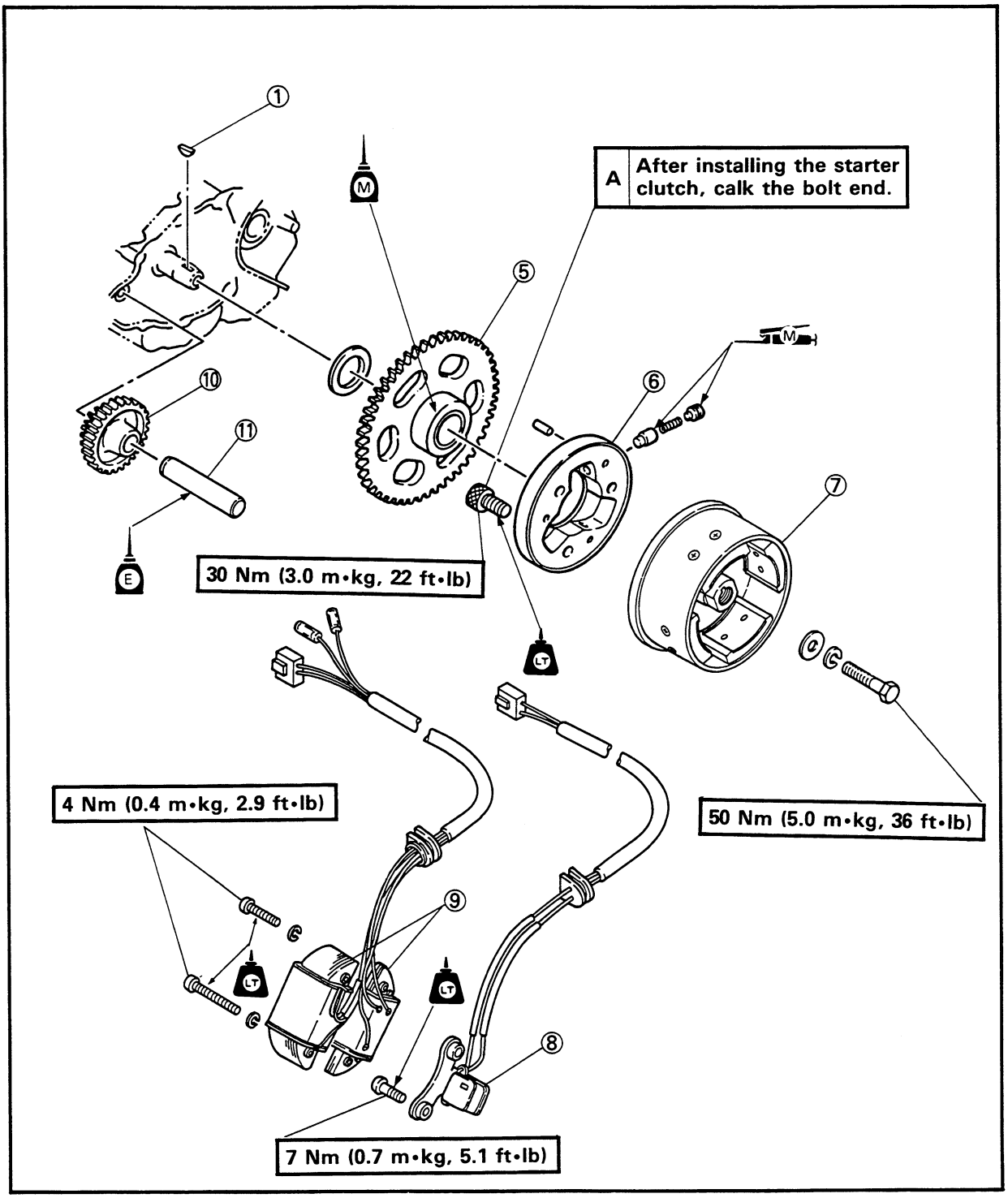
Before tightening the crankcase holding screws, be sure to check whether the transmission is functioning properly by manually rotating the shift cam either way.

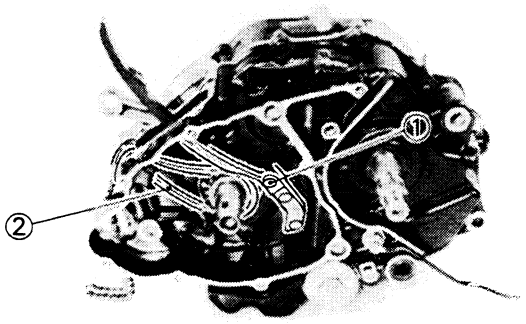
	Screws (Crankcase): **7 Nm (0.7 m•kg, 5.1 ft•lb)**

4

CDI MAGNETO

① Woodruff key
② Cam chain
③ Cam chain guide (Exhaust)
④ Cam chain guide (Intake)
⑤ Starter wheel gear
⑥ Starter clutch
⑦ CDI magneto
⑧ Pick up coil
⑨ Stator coil
⑩ Starter idle gear
⑪ Shaft (Idle gear)

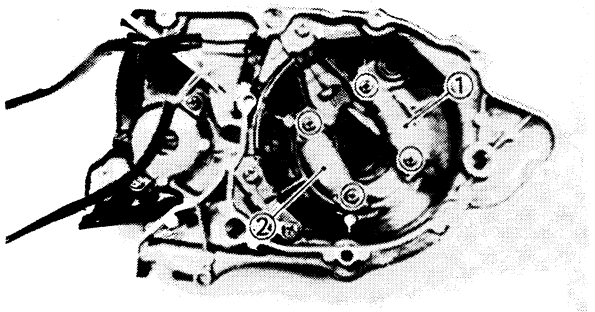




CAM CHAIN AND CAM CHAIN GUIDE

1. Install:
   - Cam chain guides ①
   - Cam chain ②

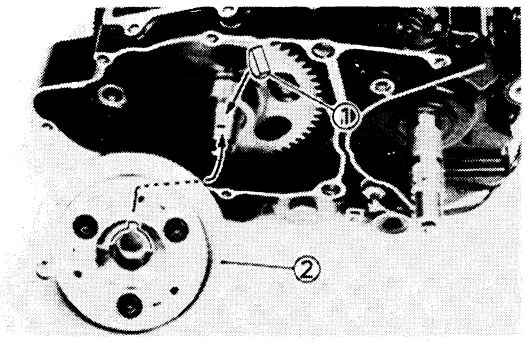
	Bolt (Cam Chain Guide): **8 Nm (0.8 m•kg, 5.8 ft•lb)**



CDI MAGNETO

1. Install:
   - Pick up coil ①
   - Stator coil ②

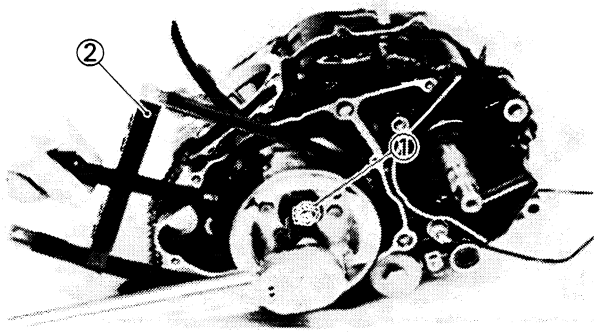
	Screw (Pick up Coil): **7 Nm (0.7 m•kg, 5.1 ft•lb)** **Screw (Stator Coil):** **4 Nm (0.4 m•kg, 2.9 ft•lb)** **Use LOCTITE®.**



2. Install:
   - Plain washer
   - Starter wheel gear
   - Woodruff key ①
   - CDI magneto ②

NOTE:

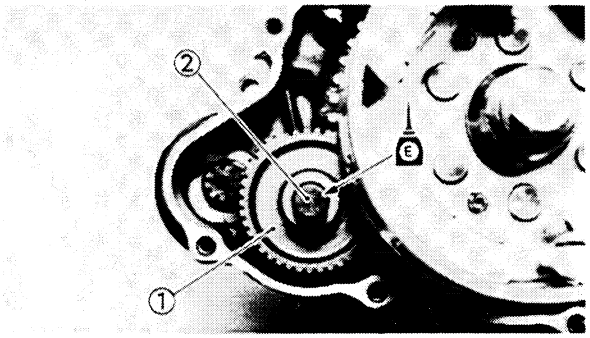
- Clean the tapered portion of the crankshaft end with a cloth.
- When installing the CDI magneto, make-sure the woodruff key is properly seated in the key way of the crankshaft. Apply a light coating of lithium soap base grease to the tapered portion of the crankshaft end.



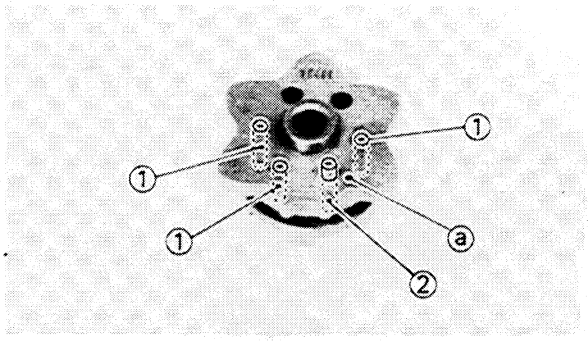
3. Tighten:
   - Bolt (CDI magneto) ①

   Use the Sheave Holder ② to hold the CDI magneto.

	Bolt (CDI Magneto): **50 Nm (5.0 m•kg, 36 ft•lb)**
	Sheave Holder: **P/N YS-01880**



4. Install:
   - Starter idle gear ①
   - Shaft (Idle gear) ②



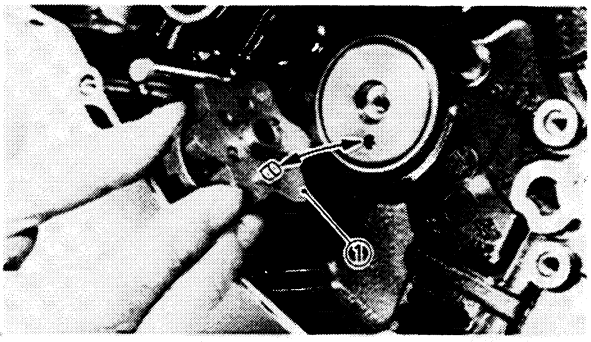
SHIFT SHAFT

1. Install:
   - Dowel pin (Short) ①
   - Dowel pins (Long) ②

   To the segment.

NOTE:

Install the dowel pin (Longer) on the punch mark ⓐ position.

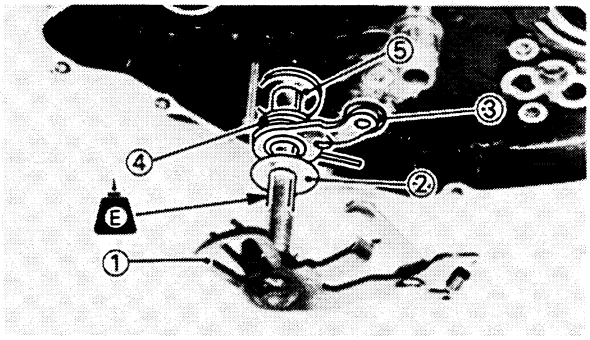


2. Install:
   - Segment ①

NOTE:

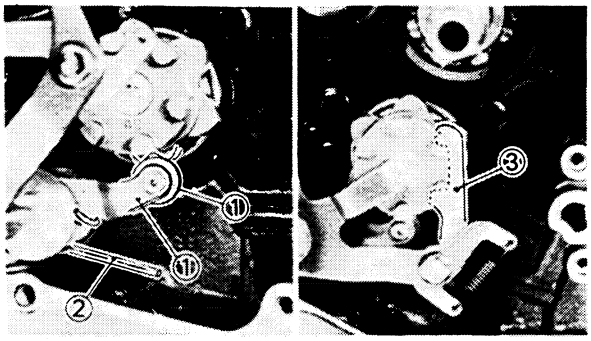
Insert the dowel pin (Longer) into the hole on the segment.

	Screw (Segment): **12 Nm (1.2 m•kg, 8.7 ft•lb)** **Use LOCTITE®.**



3. Lubricate:
   - Engine oil

   To the shift shaft.
4. Install:
   - Shift shaft ①
   - Plain washer ②
   - Stopper lever ③
   - Return spring ④
   - Plain washer ⑤

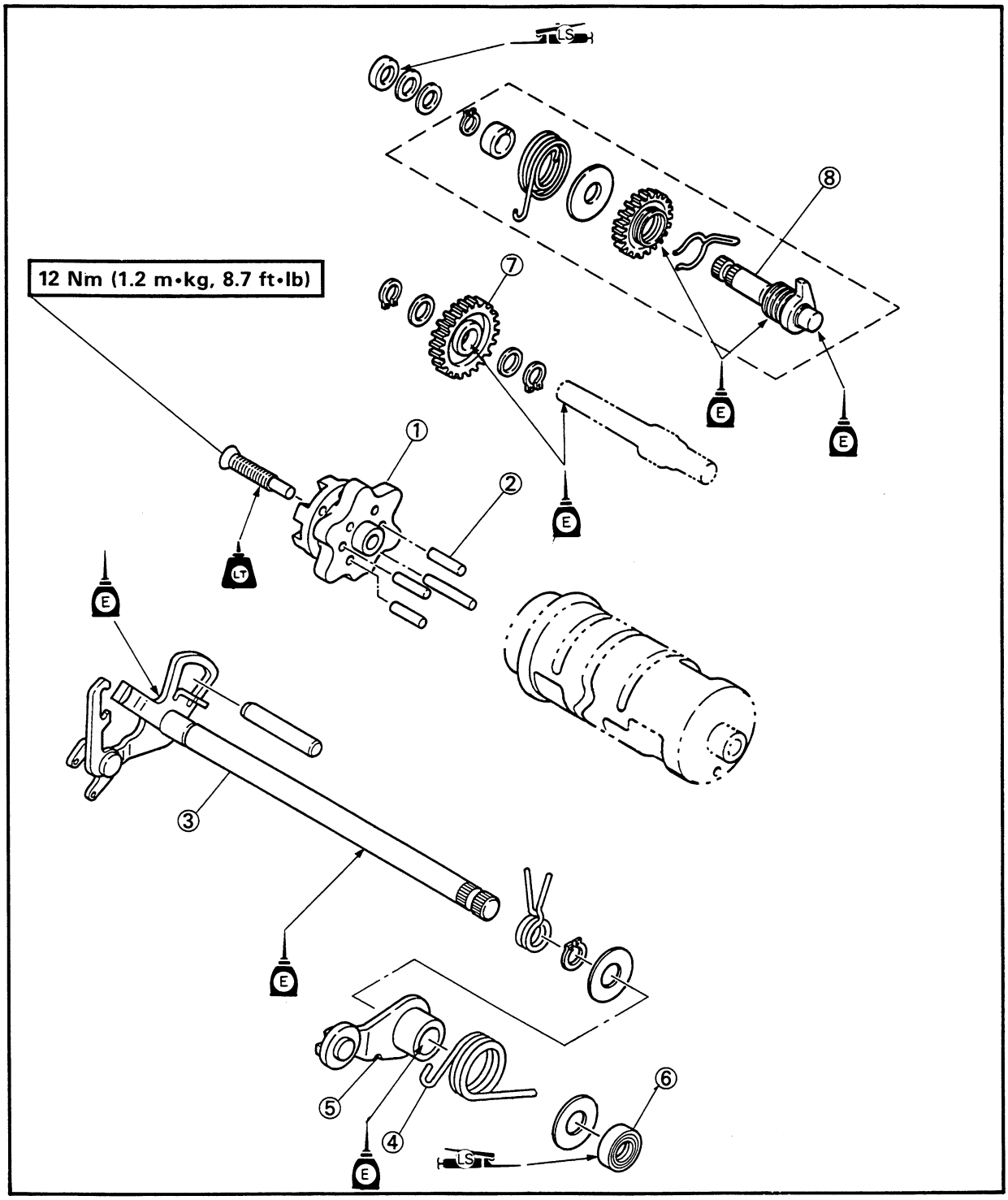


NOTE:

- Be sure the stopper lever ① and shift lever ③ correctly engages the shift cam.
- Hook the spring ② as show.

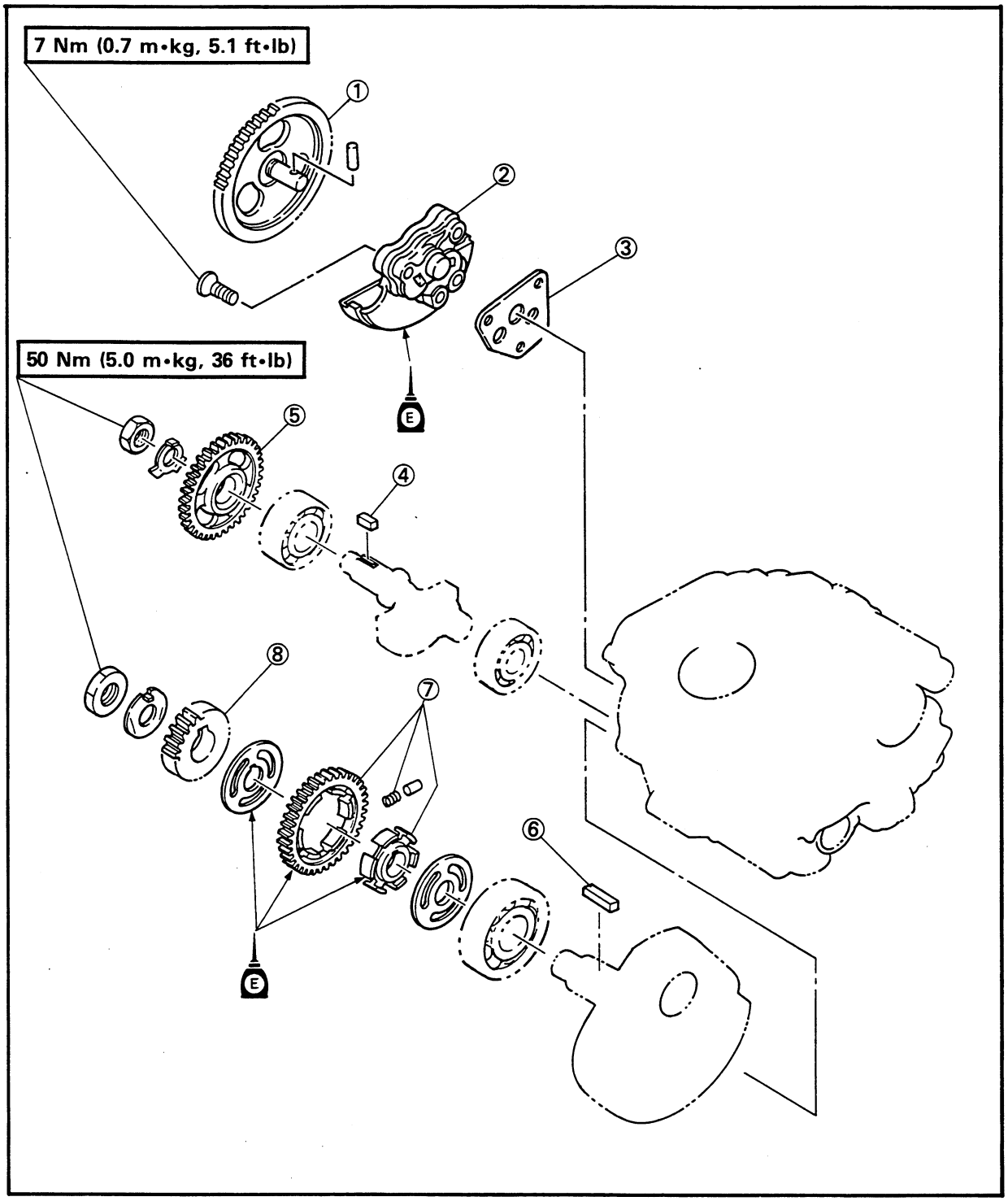
SHIFT SHAFT AND KICK AXLE

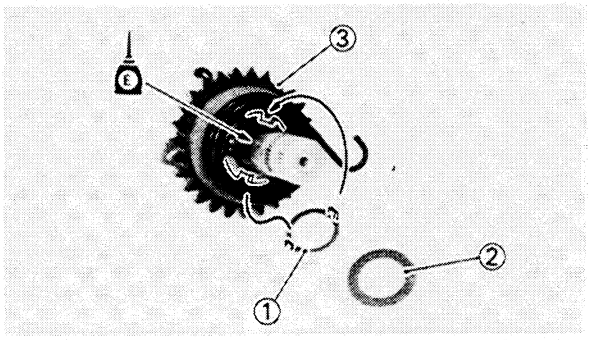
① Segment
② Dowel pin
③ Shift shaft
④ Return spring
⑤ Stopper lever
⑥ Oil seal
⑦ Kick idle gear
⑧ Kick axle



PRIMARY DRIVE GEAR, BALANCER GEAR AND OIL PUMP

① Balancer driven gear
② Oil pump
③ Gasket (Oil pump)
④ Straight key
⑤ Balancer driven gear
⑥ Straight key
⑦ Balancer drive gear
⑧ Primary drive gear



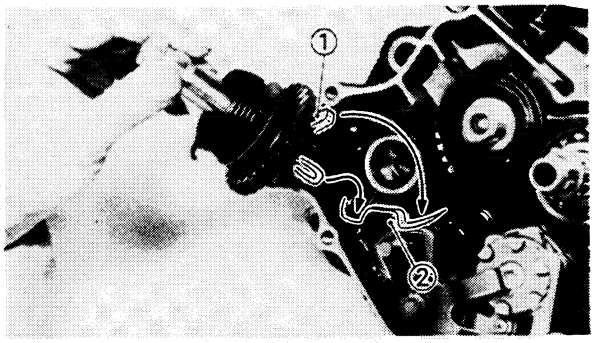


KICK AXLE

1. Lubricate:
   - Engine oil

   To kick axle.
2. Install:
   - Special washer ①
   - Plain washer ②

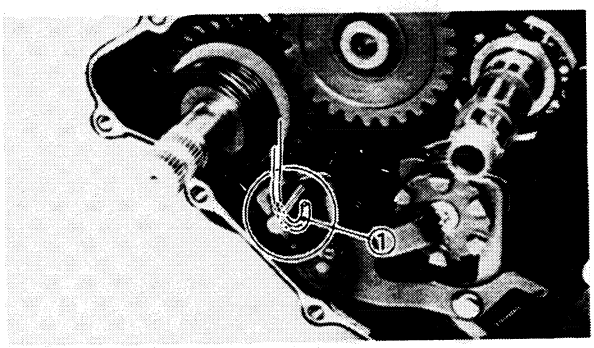
   To kick axle assembly ③.



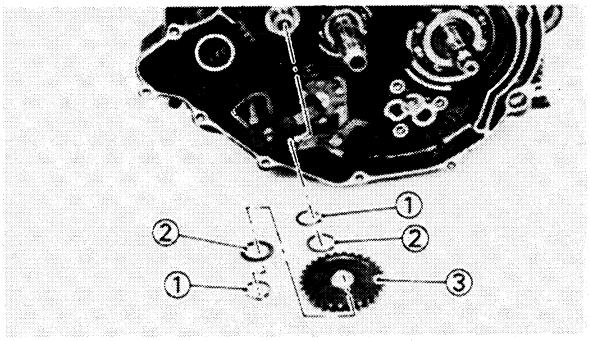
3. Install:
   - Kick axle assembly

NOTE:

Make sure that ratchet wheel pawl ① is stopped at the ratchet wheel stopper ②.

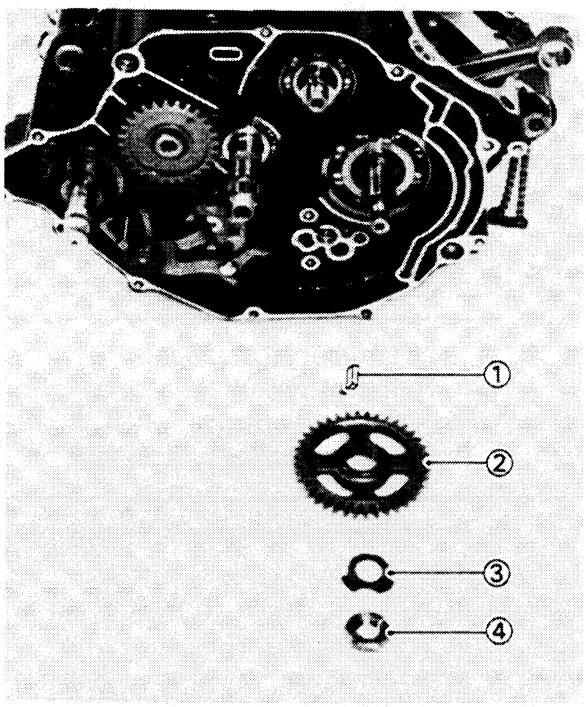


4. Hook the spring ① onto the spring stopper.



5. Install:
   - Circlips ①
   - Kick idle gear ③
   - Plain washers ②

4

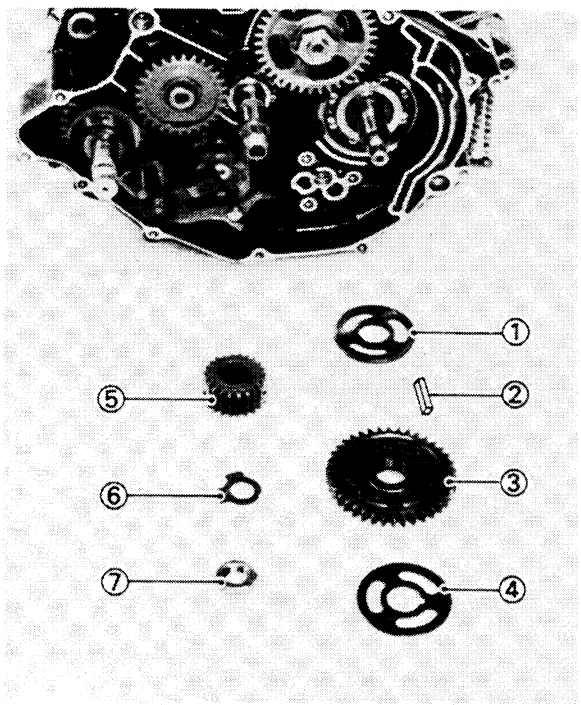


PRIMARY DRIVE GEAR AND BALANCER GEAR

1. Install:
   - Straight key ①
   - Balancer driven gear ②
   - Lock washer ③
   - Nut ④

WARNING:

Always use a new lock washer.



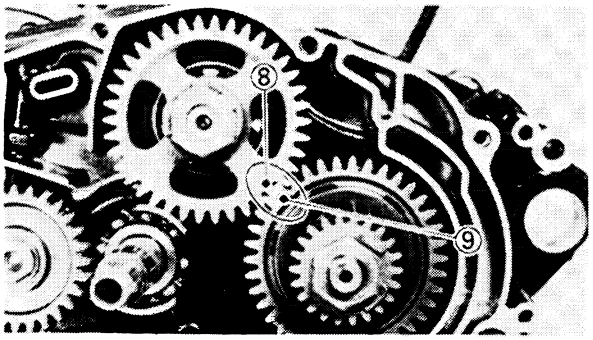
2. Install:
   - Special washer ①
   - Straight key ②
   - Balancer drive gear ③
   - Special washer ④
   - Primary drive gear ⑤
   - Lock washer ⑥
   - Nut ⑦

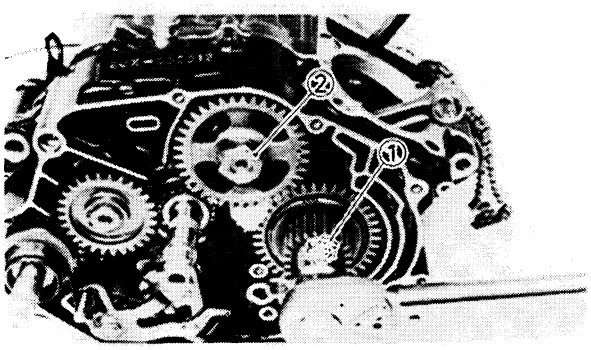
CAUTION:

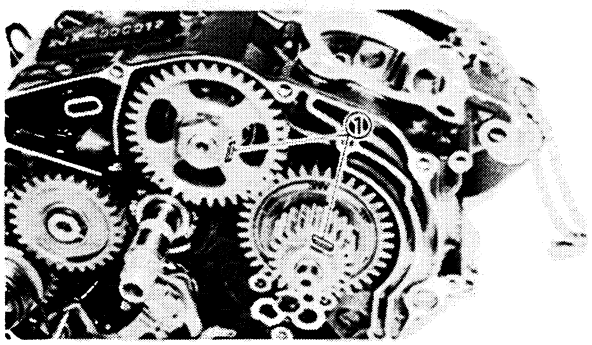
Align the balancer driven gear mark ⑧ with the balancer drive gear mark ⑨.

WARNING:

Always use a new lock washer.







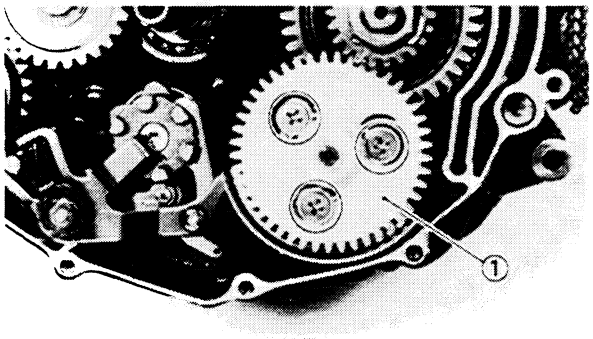
3. Tighten:
   - Nut ① (Primary drive gear)
   - Nut ② (Balancer gear)

NOTE:

Place a folded rag between the teeth of the balancer drive gear and driven gear to lock them.

	Nut (Primary Drive Gear): **50 Nm (5.0 m•kg, 36 ft•lb)** **Nut (Balancer Gear):** **50 Nm (5.0 m•kg, 36 ft•lb)**

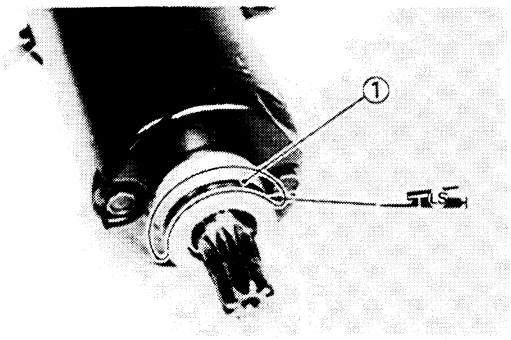
4. Bend both lock washer tabs ① along both nut flats.



OIL PUMP

1. Install:
   - Gasket (New)
   - Oil pump ①

	Screws (Oil Pump): **7 Nm (0.7 m•kg, 5.1 ft•lb)**



STARTER MOTOR

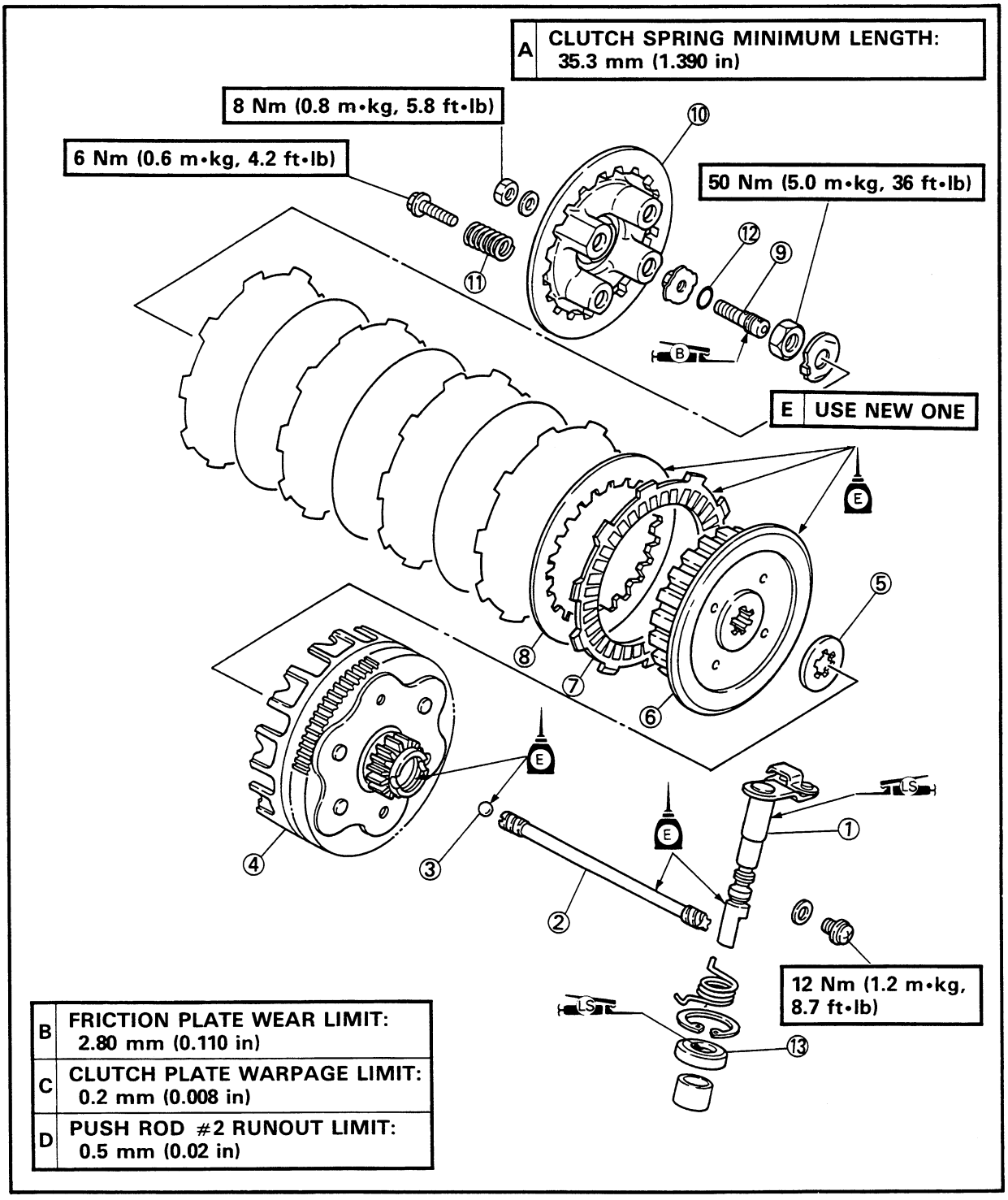
1. Lubricate:
   - Lithium soap base grease
     Onto the O-ring ① (Starter motor).

2. Install:
   - Starter motor

	Bolts (Starter Motor): **10 Nm (1.0 m•kg, 7.2 ft•lb)**

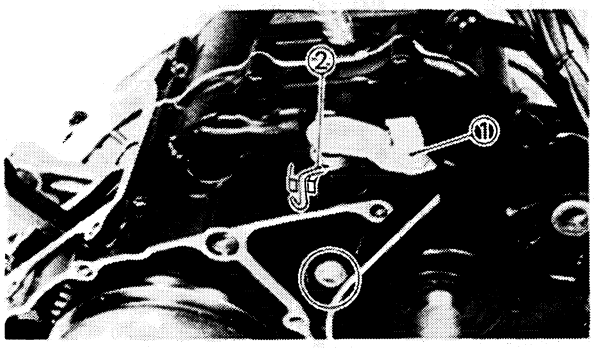
CLUTCH

① Push lever
② Push rod #2
③ Ball
④ Clutch housing
⑤ Thrust washer
⑥ Clutch boss
⑦ Friction plate
⑧ Clutch plate
⑨ Push rod #1
⑩ Pressure plate
⑪ Clutch spring
⑫ O-ring
⑬ Oil seal

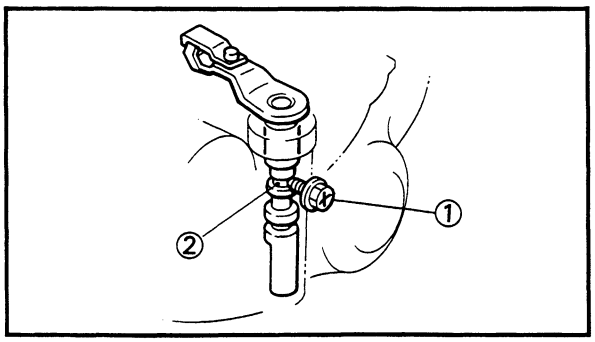


CLUTCH

1. Lubricate:
   - Engine oil
     To the push levers.
   - Lithium soap base grease
     To the oil seal lips.



2. Install:
   - Push lever ①
3. Hook the return spring ②.

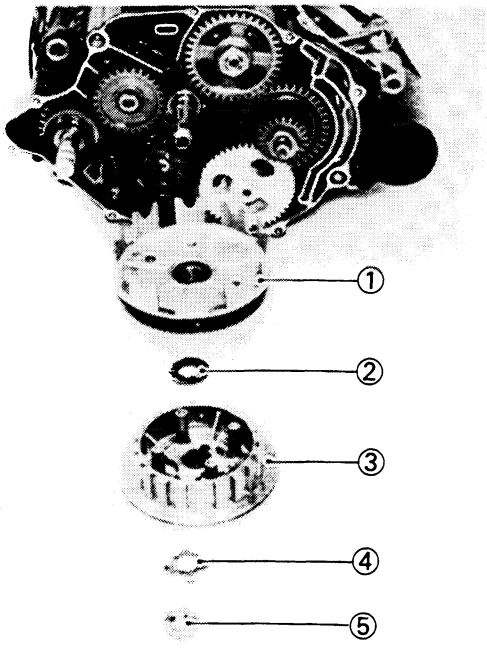


4. Install:
   - Stopper screw ①

	Stopper Screw: **12 Nm (1.2 m•kg, 8.7 ft•lb)**

NOTE:

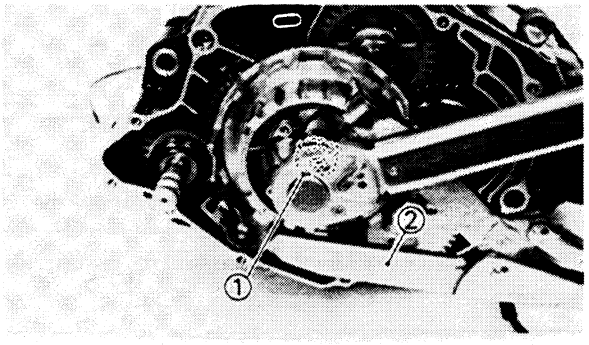
The stopper screw should lock the top groove ② of the push lever.



5. Install:
   - Clutch housing ①
   - Thrust washer ②
   - Clutch boss ③
   - Lock washer ④
   - Nut (Clutch boss) ⑤

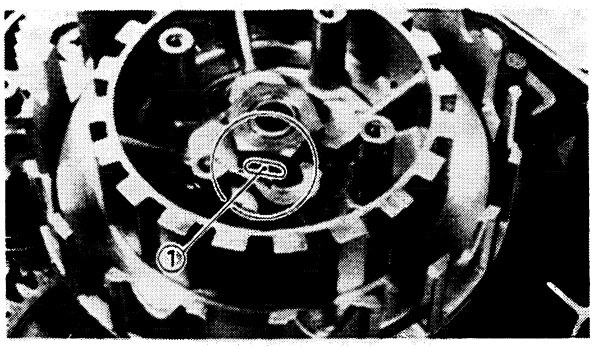
WARNING:

Always use a new lock washer.

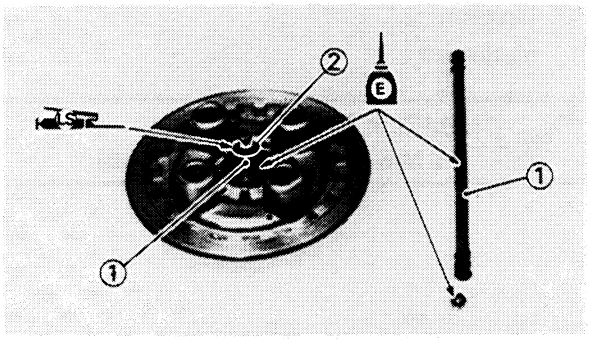


6. Tighten:
   - Nut ① (Clutch boss)
     Use the Universal Clutch Holder ②.

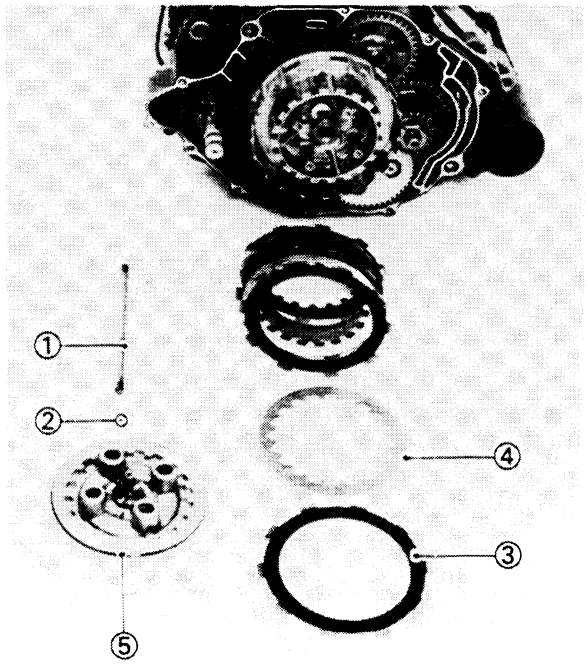
	Universal Clutch Holder: P/N YM-91042
	Nut (Clutch Boss): 50 Nm (5.0 m•kg, 36 ft•lb)



7. Bend the lock washer tab ① along the nut flats.

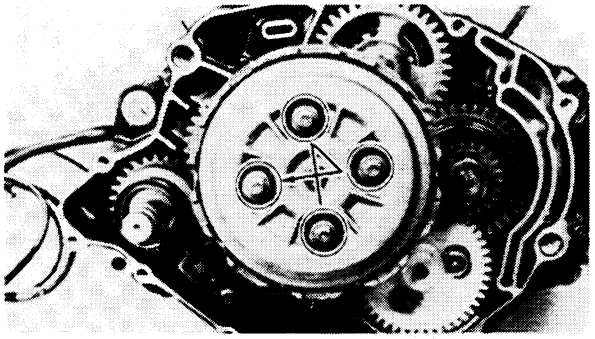


8. Lubricate:
   - Engine oil
     To the push rod #1 and #2 ①.
   - Lithium soap base grease
     To the O-ring ② on the push rod #1.



9. Install:
   - Push rod #2 ①
   - Ball ②
   - Friction plates ③
   - Clutch plates ④
   - Pressure plate ⑤

NOTE:
- Apply the transmission oil onto the friction plate ③.
- Install the clutch plates and friction plate alternately on the clutch boss, starting with a friction plate and ending with a friction plate.

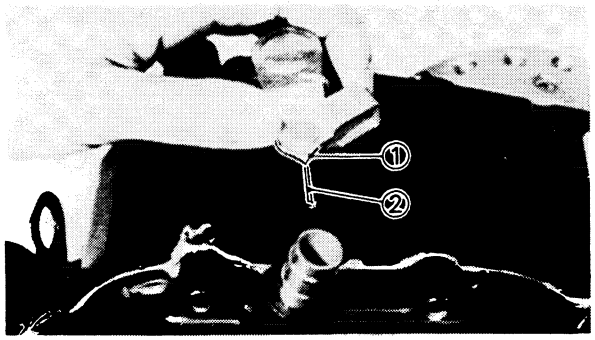


10. Install:
    - Springs (Pressure plate)
    - Bolts (Pressure plate)

	Bolts (Pressure Plate): **6 Nm (0.6 m•kg, 4.2 ft•lb)**

NOTE:

Tighten the bolts in stage, using a crisscross pattern.

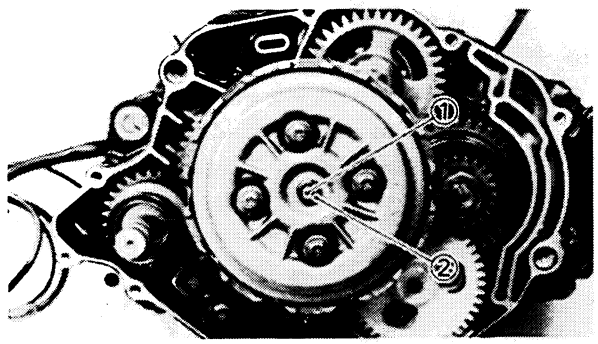


11. Turn:
    - Push lever

    To align the push lever pointer ① with the crankcase embossed mark ②.

12. Turn:
    - Push rod #1

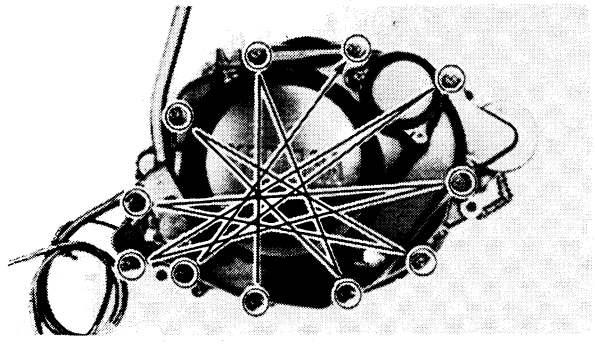
    In or out until it lightly seats against a push rod ball.



13. Tighten:
    - Locknut

	Locknut (Push Rod): **8 Nm (0.8 m•kg, 5.8 ft•lb)**

① Locknut
② Push rod #1



14. Install:
    - Dowel pins
    - Gasket (Crankcase cover)
    - Crankcase cover (Right)
    - Kick crank

	Bolt (Kick Crank): **20 Nm (2.0 m•kg, 14 ft•lb)**

NOTE:

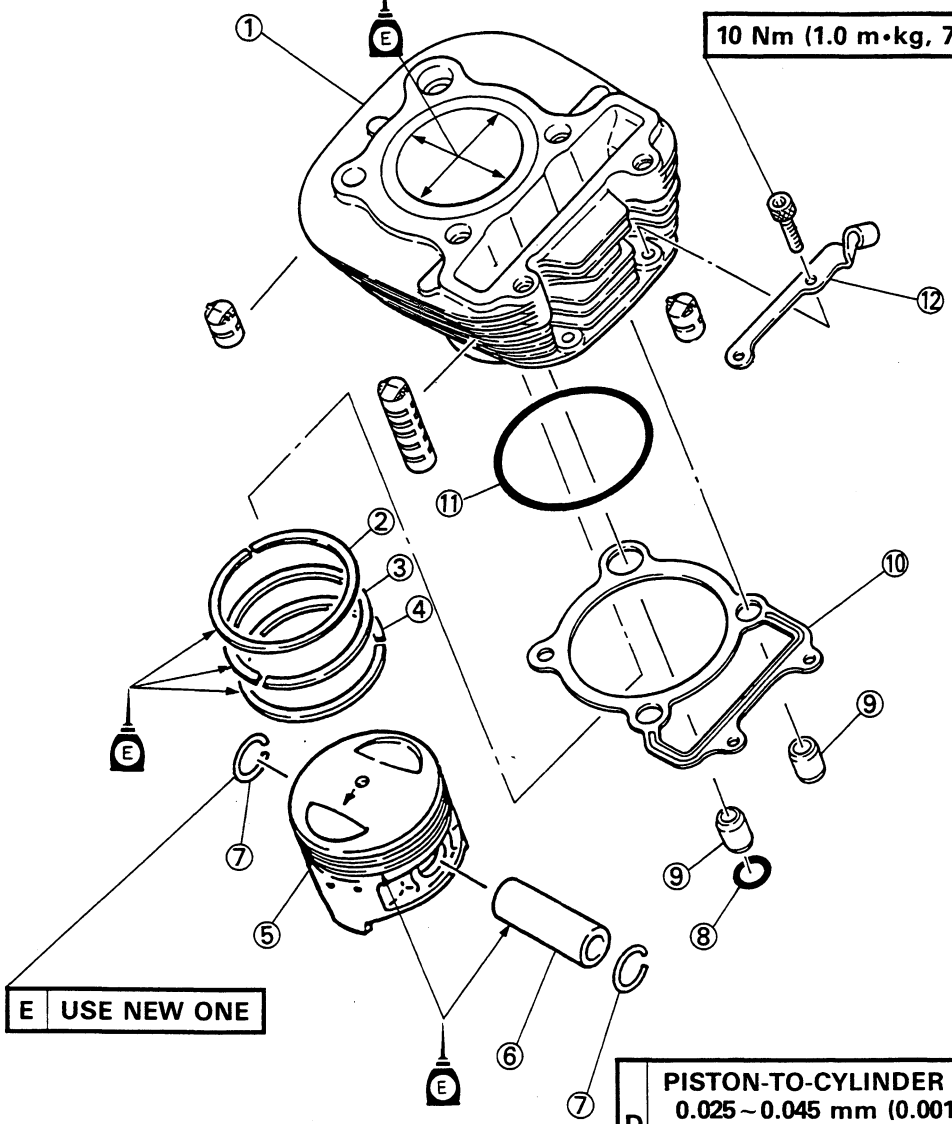
Tighten the screws (crankcase cover—right) in stage, using a crisscross pattern.

PISTON AND CYLINDER

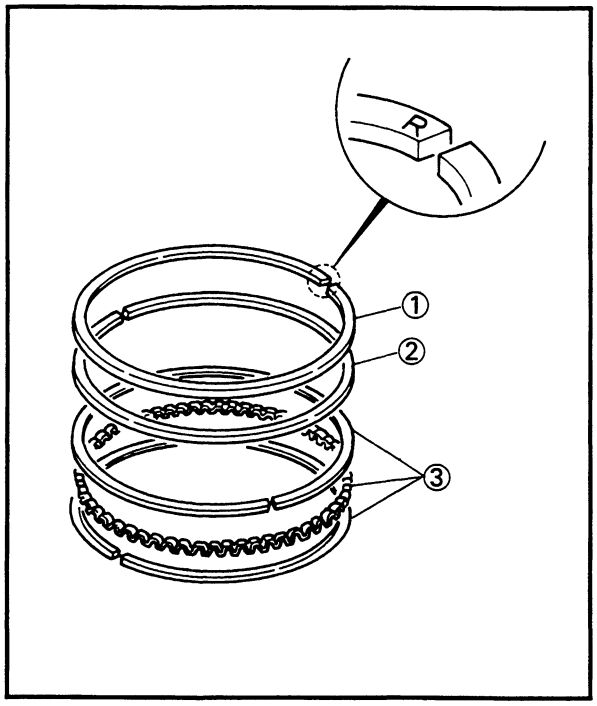
① Cylinder
② Piston ring (Top)
③ Piston ring (2nd)
④ Oil ring
⑤ Piston
⑥ Piston pin
⑦ Piston pin clip
⑧ O-ring
⑨ Dowel pin
⑩ Gasket (Cylinder)
⑪ O-ring (Cylinder)
⑫ Clutch cable holder

A	PISTON RING END GAP: Top: 0.15~0.30 mm (0.006~0.012 in) 2nd: 0.15~0.30 mm (0.006~0.012 in) Oil: 0.3~0.9 mm (0.012~0.035 in)
B	PISTON RING SIDE CLEARANCE: Top: 0.03~0.07 mm (0.001~0.003 in) 2nd: 0.02~0.06 mm (0.001~0.002 in)

C	CYLINDER BORE SIZE/ MESURING POINT: 66.97~67.02 mm (2.637~2.639 in)/ 40 mm (1.6 in) <LIMIT>: <67.1 mm (2.642 in)>



D	PISTON-TO-CYLINDER CLEARANCE: 0.025~0.045 mm (0.001~0.002 in) <LIMIT>: <0.1 mm (0.004 in)>



PISTON

1. Install:
   - Piston ring (Top) ①
   - Piston ring (2nd) ②
   - Oil ring ③

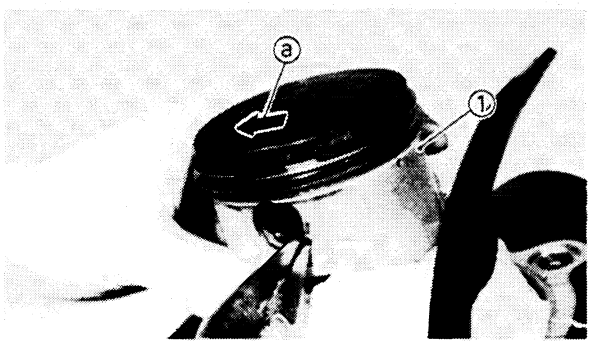
   To the piston.

NOTE:

Face the punched mark upward.

2. Apply:
   - Engine oil

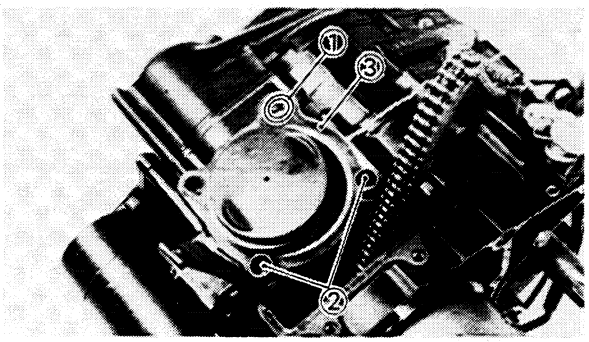
   To the piston pin, piston ring grooves and piston skirt areas.



3. Install:
   - Piston ①
   - Piston pin
   - Piston pin clip

NOTE:

- The arrow ⓐ on the piston must point to the front of the engine.
- 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.
- Always use a new piston pin clip.



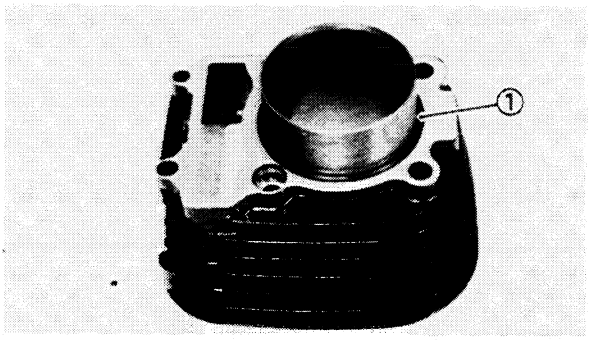
4. Install:
   - O-ring ①
   - Dowel pins ②
   - Gasket (Cylinder—New) ③

CAUTION:

If O-ring is damaged, replace it.

5. Lubricate:
   - Engine oil

   To the piston rings.

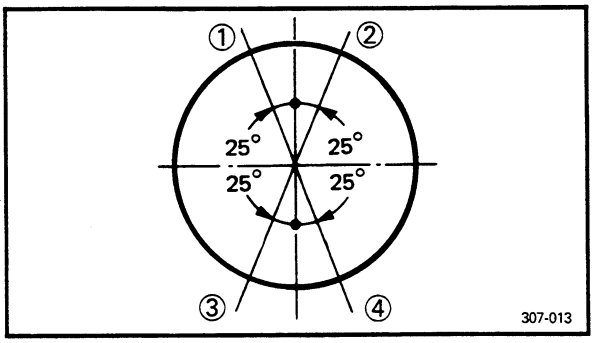


6. Install:
   - O-ring (Cylinder) ①

   To the cylinder.

CAUTION:

If O-ring is damaged, replace it.

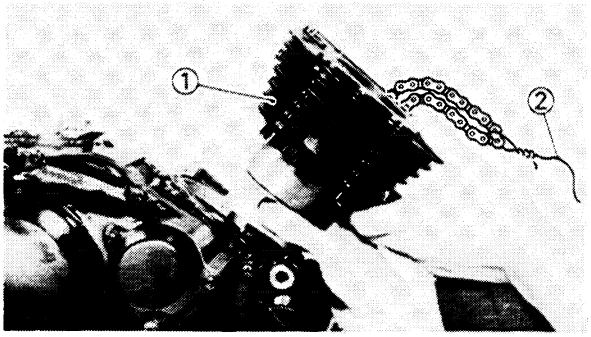


7. Offset the piston ring end gaps as shown.

NOTE:

Be sure to check the manufacturer's marks or numbers stamped on the rings are on the top side of the rings.

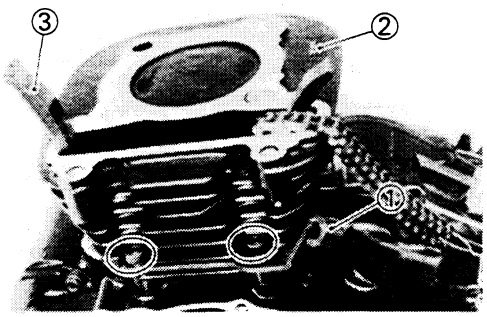
① Top ring end
② Oil ring end (lower rail)
③ Oil ring end (upper rail)
④ 2nd ring end



8. Install:
   - Cylinder ①

NOTE:

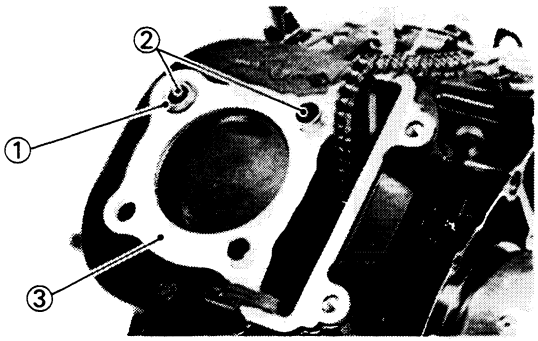
- Install the cylinder with one hand while compressing the piston rings with the other hand.
- Tie the cam chain with a piece of mechanics wire ②, and feed it through the chain opening.



9. Install:
   - Clutch cable holder ①
   - Bolt (Cylinder) ②
   - Cam chain guide (Exhaust) ③

NOTE:

Temporarily tighten the bolt in this point.

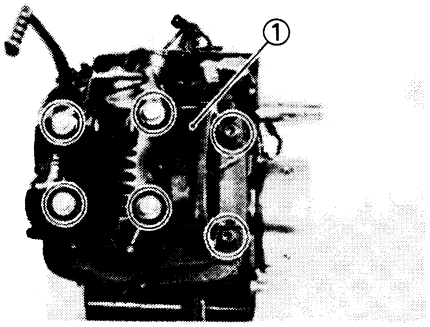


CYLINDER HEAD

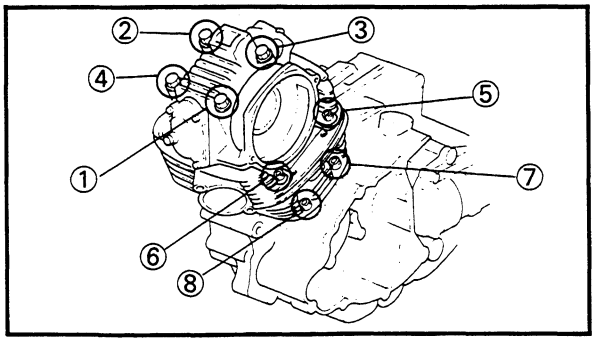
1. Install:
   - O-ring ①
   - Dowel pins ②
   - Gasket ③ (Cylinder head—New)

CAUTION:

If O-ring is damaged, replace it.



2. Install:
   - Cylinder head ①
   - Spark plug
3. Tighten:
   - Bolts (Cylinder head)
   - Bolts (Cylinder)



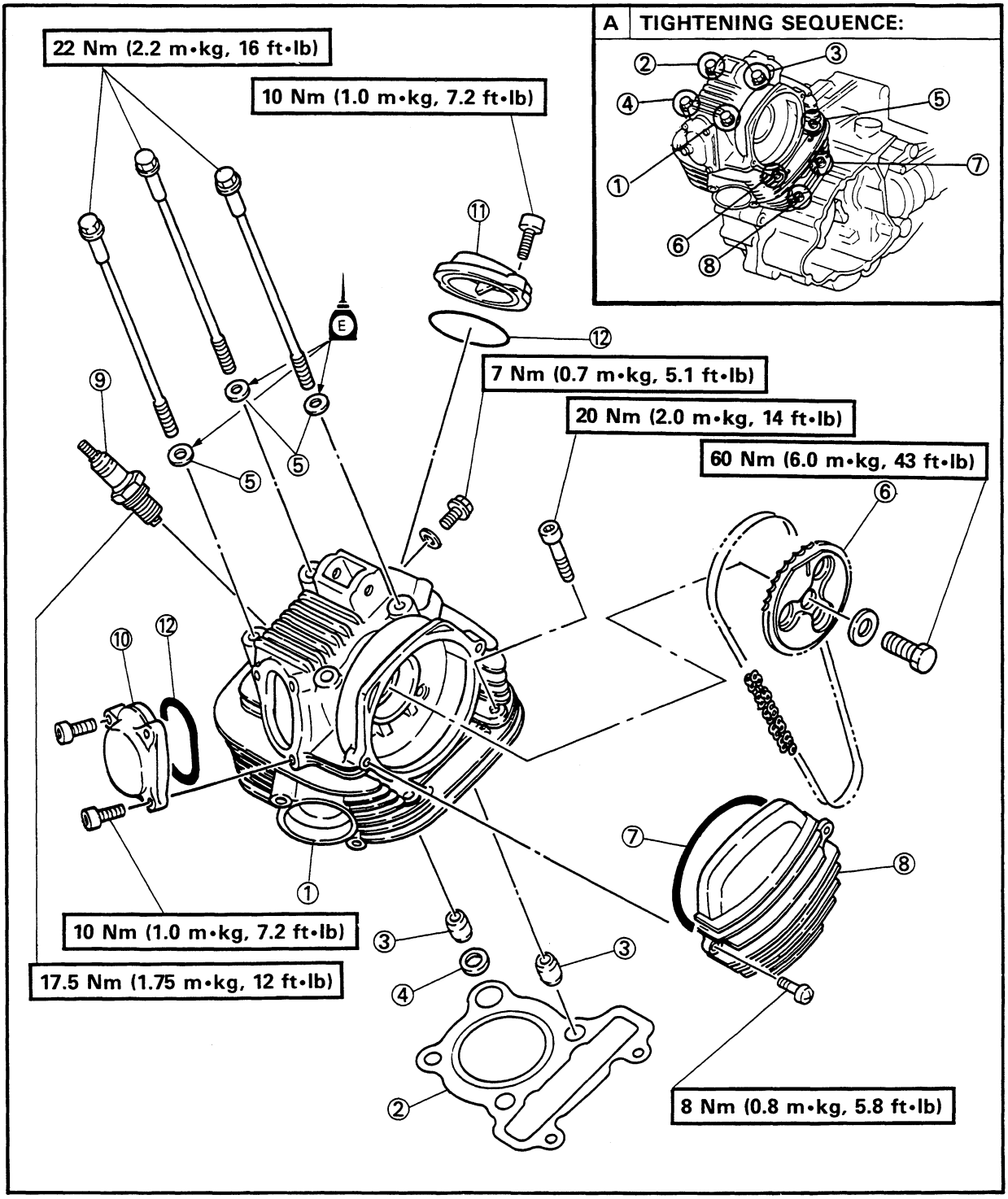
Bolts (Cylinder Head):
(Flange Bolt ① ~ ④)
22 Nm (2.2 m•kg, 16 ft•lb)
Socket Head Bolts (Cylinder Head) ⑤, ⑥:
20 Nm (2.0 m•kg, 14 ft•lb)
Bolts (Cylinder) ⑦, ⑧:
10 Nm (1.0 m•kg, 7.2 ft•lb)

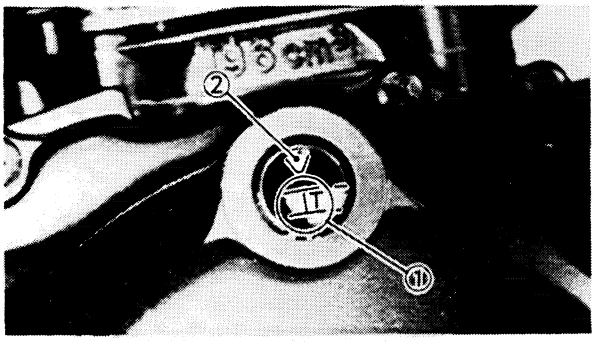
NOTE:

The numbers in the photo designate the cylinder head tightening sequence.

CYLINDER HEAD

① Cylinder head
② Gasket (Cylinder head)
③ Dowel pin
④ O-ring
⑤ Copper washer
⑥ Cam sprocket
⑦ O-ring
⑧ Cam sprocket cover
⑨ Spark plug
⑩ Tappet cover (Exhaust)
⑪ Tappet cover (Intake)
⑫ O-ring

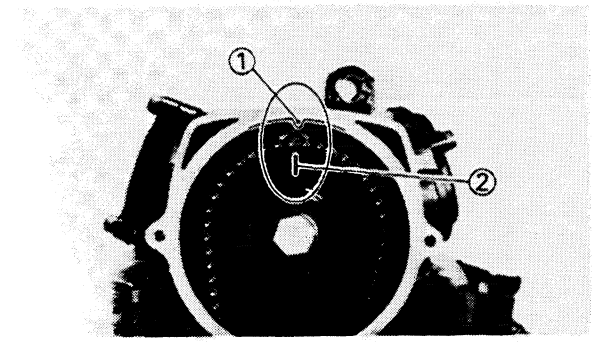


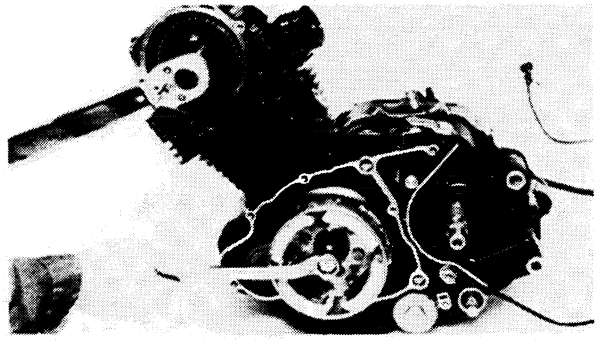


4. Install:
   • Cam sprocket

Cam sprocket installation steps:
- Install the dowel pins (Crankcase cover—Left) and crank case cover (Left).
- Turn the crankshaft counterclockwise to align the "T" mark ① on the rotor with the crankcase cover mark ② when the piston is at TDC on the compression stroke.
- Install the cam sprocket.

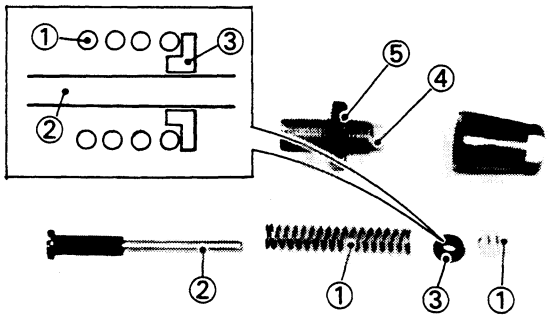
NOTE:
Align the sprocket timing mark ② with the cylinder head timing mark ①.



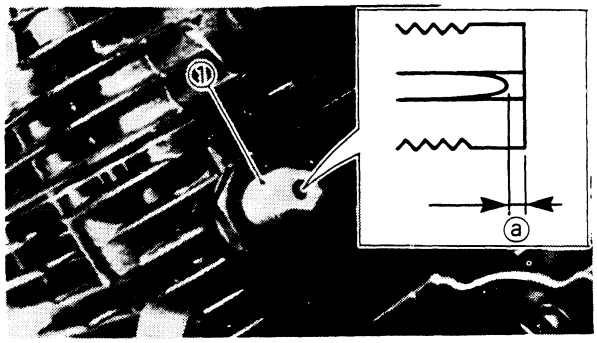


- Remove the crankcase cover (Left) and dowel pins.
- Tighten the bolt (Cam sprocket) while holding the crankshaft.

	Bolt (Cam Sprocket): **60 Nm (6.0 m•kg, 43 ft•lb)**



5. Install:
   • Springs ①
   • Tensioner rod ②
   • Spring retainer ③
   • Cam chain adjuster ④
   • Locknut ⑤



6. Turn in the cam chain adjuster ① until specified tensioner rod position ⓐ is obtained.

	Tentioner Rod Position: **0~0.5 mm (0~0.02 in)**

7. Install:
   - Locknut
   - Adjuster cap

	Locknut: **30 Nm (3.0 m•kg, 22 ft•lb)** **Adjuster Cap:** **5 Nm (0.5 m•kg, 3.6 ft•lb)**

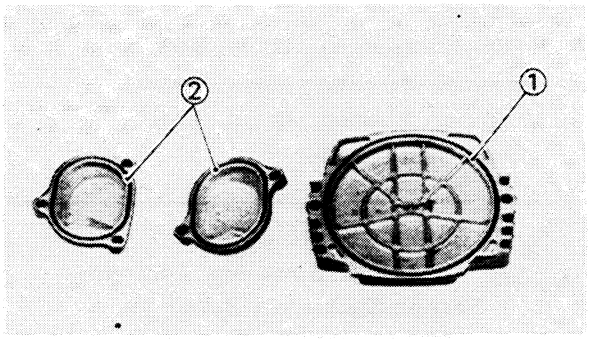
CAUTION:

Adjuster cap is made of the plastic. Do not overtighten.

8. Adjust:
   - Valve clearance

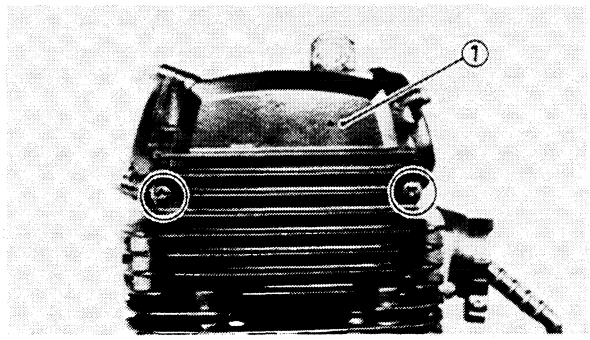
   Refer to the "VALVE CLEARANCE ADJUSTMENT" section in the "CHAPTER 3."

	Valve Clearance (Cold): **Intake** **0.05~0.09 mm (0.002~0.004 in)** **Exhaust** **0.11~0.15 mm (0.004~0.006 in)**



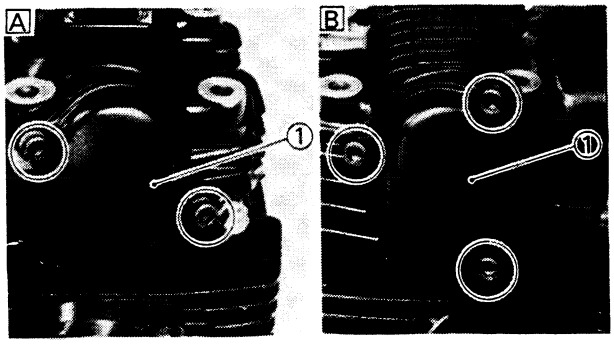
9. Inspect:
   - O-ring (Cam sprocket cover) ①
   - O-rings (Valve cover) ②

   Damage→Replace.



10. Install:
    - Cam sprocket cover ①

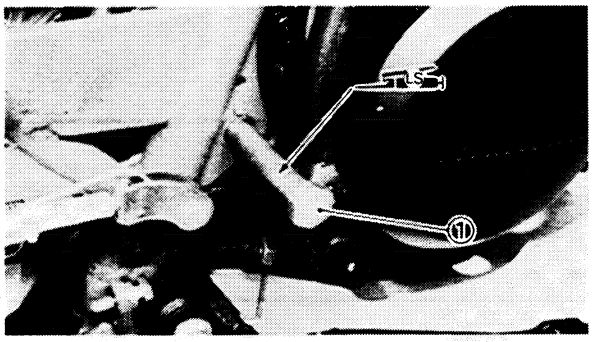
	Bolts (Cam Sprocket Cover): **8 Nm (0.8 m•kg, 5.8 ft•lb)**

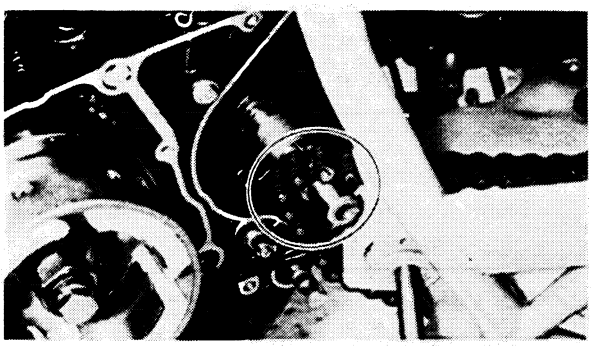


11. Install:
    - Tappet covers ①

A Tappet cover (Intake)
B Tappet cover (Exhaust)

	Bolts (Tappet Cover): **10 Nm (1.0 m•kg, 7.2 ft•lb)**





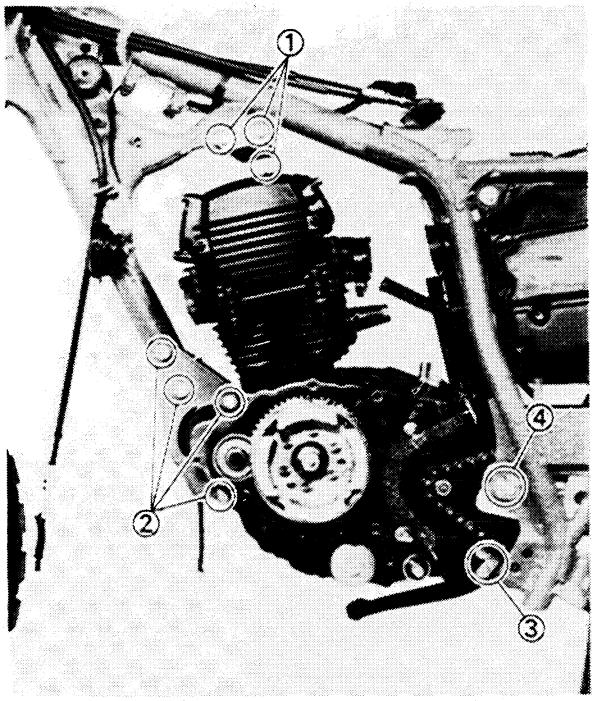
REMOUNTING ENGINE

When remounting the engine, reverse the removal procedure. Note the following points.

1. Install:
   - Engine
   - Pivot shaft ①

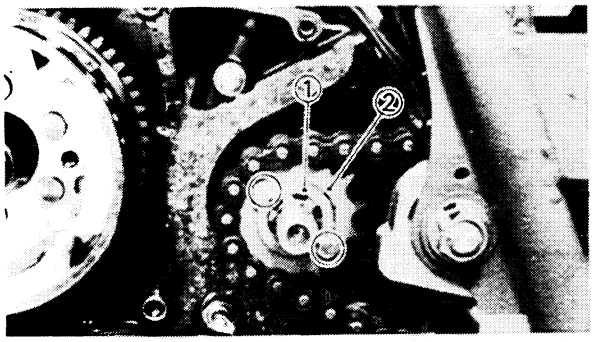
NOTE:

- Apply the grease to the pivot shaft.
- When installing the engine, hook the drive chain to the drive axle.



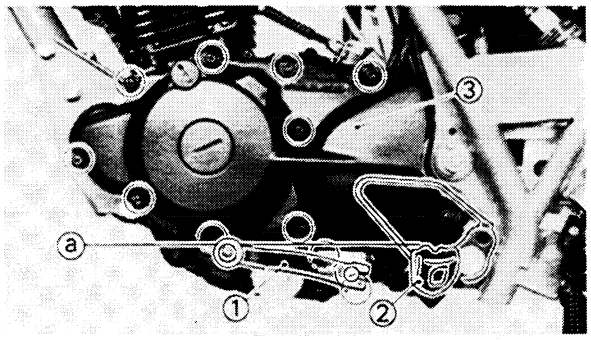
2. Install:
   - Engine mounting bolt (Rear)
   - Engine mounting stays (Upper)
   - Engine mounting stays (Front)
   - Nut (Pivot shaft)

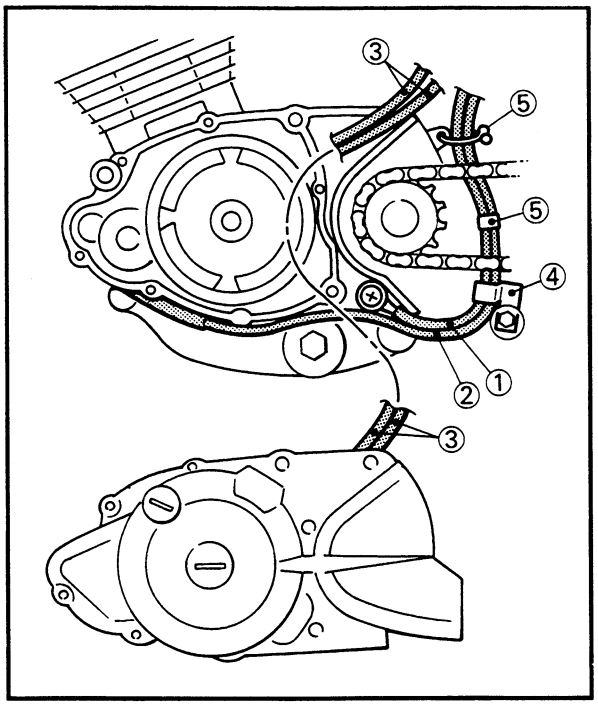
Upper Mounting Bolts ①:
33 Nm (3.3 m•kg, 24 ft•lb)
Front Mounting Bolts ②:
33 Nm (3.3 m•kg, 24 ft•lb)
Rear Mounting Bolts ③:
33 Nm (3.3 m•kg, 24 ft•lb)
Nut (Pivot Shaft) ④:
80 Nm (8.0 m•kg, 58 ft•lb)



3. Install:
   - Fitting plate ①
   - Drive sprocket ②

Bolt (Drive Sprocket):
10 Nm (1.0 m•kg, 7.2 ft•lb)





4. Install:
   - Dowel pins
   - Gasket (New)
   - Crankcase cover (Left) ③
   - Change pedal ①
   - Footrest (Left) ②
   - Clamp ④

Screws (Crankcase Cover):
7 Nm (0.7 m•kg, 5.1 ft•lb)
Bolt (Change Pedal):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Bolt (Footrest):
60 Nm (6.0 m•kg, 43 ft•lb)

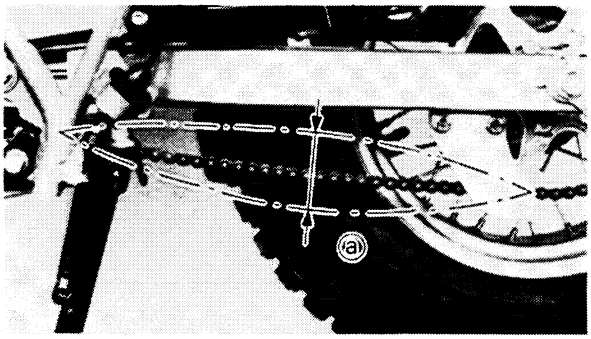
NOTE:
Install the change pedal so that its top height ⓐ is same as footrest.

CAUTION:
- **Before installing the crankcase cover (Left), route the neutral lead ① and starter motor lead ② under the drive axle.**
- **Pass the CDI magneto leads ③ in front of the drive axle as shown.**
- **Take care not to pinch the above leads with crankcase cover (Left).**
  Refer to "CHAPTER 3—CABLE ROUTING" section.

⑤ Clamp

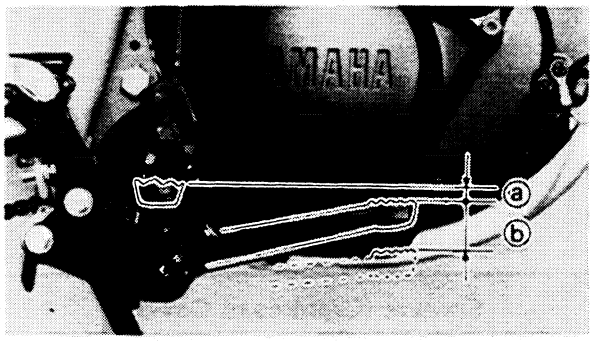
5. Install:
   Exhaust pipe

Exhaust Pipe Mounting Bolts:
10 Nm (1.0 m•kg, 7.2 ft•lb)
Bolt (Exhaust Pipe-Muffler):
27 Nm (2.7 m•kg, 19 ft•lb)



6. Adjust:
   - Drive chain slack ⓐ
     Refer to "CHAPTER 3—DRIVE CHAIN ADJUSTMENT" section.

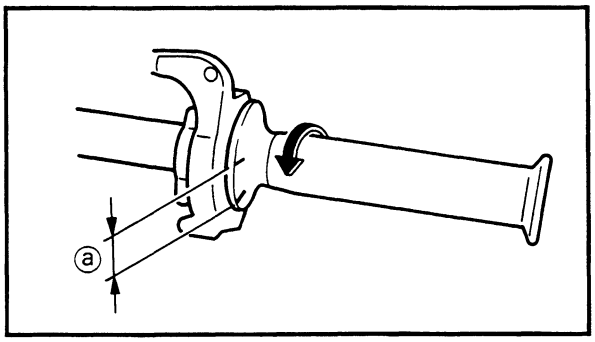
Drive Chain Slack:
30~40 mm (1.2~1.6 in)



7. Adjust:
   - Rear brake pedal position ⓐ
   - Rear brake free play ⓑ

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

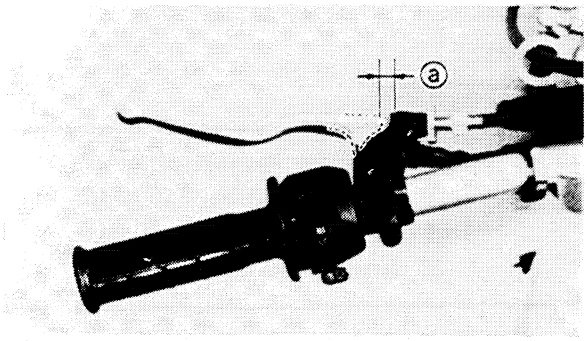
Rear Brake Pedal Position:
10 mm (0.4 in)
Rear Brake Free Play:
20~30 mm (0.79~1.18 in)



8. Adjust:
   - Throttle cable free play ⓐ

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

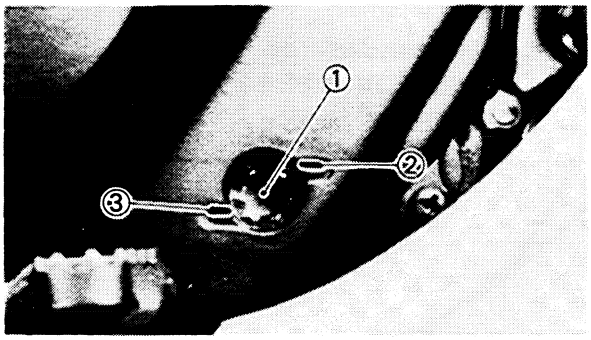
Throttle Cable Free Play:
2~5 mm (0.08~0.20 in)



9. Adjust:
   - Clutch free play ⓐ

   Refer to "CHAPTER 3—CLUTCH ADJUSTMENT" section.

Clutch Free Play:
2~3 mm (0.08~0.12 in)



10. Fill:
    - Crankcase

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

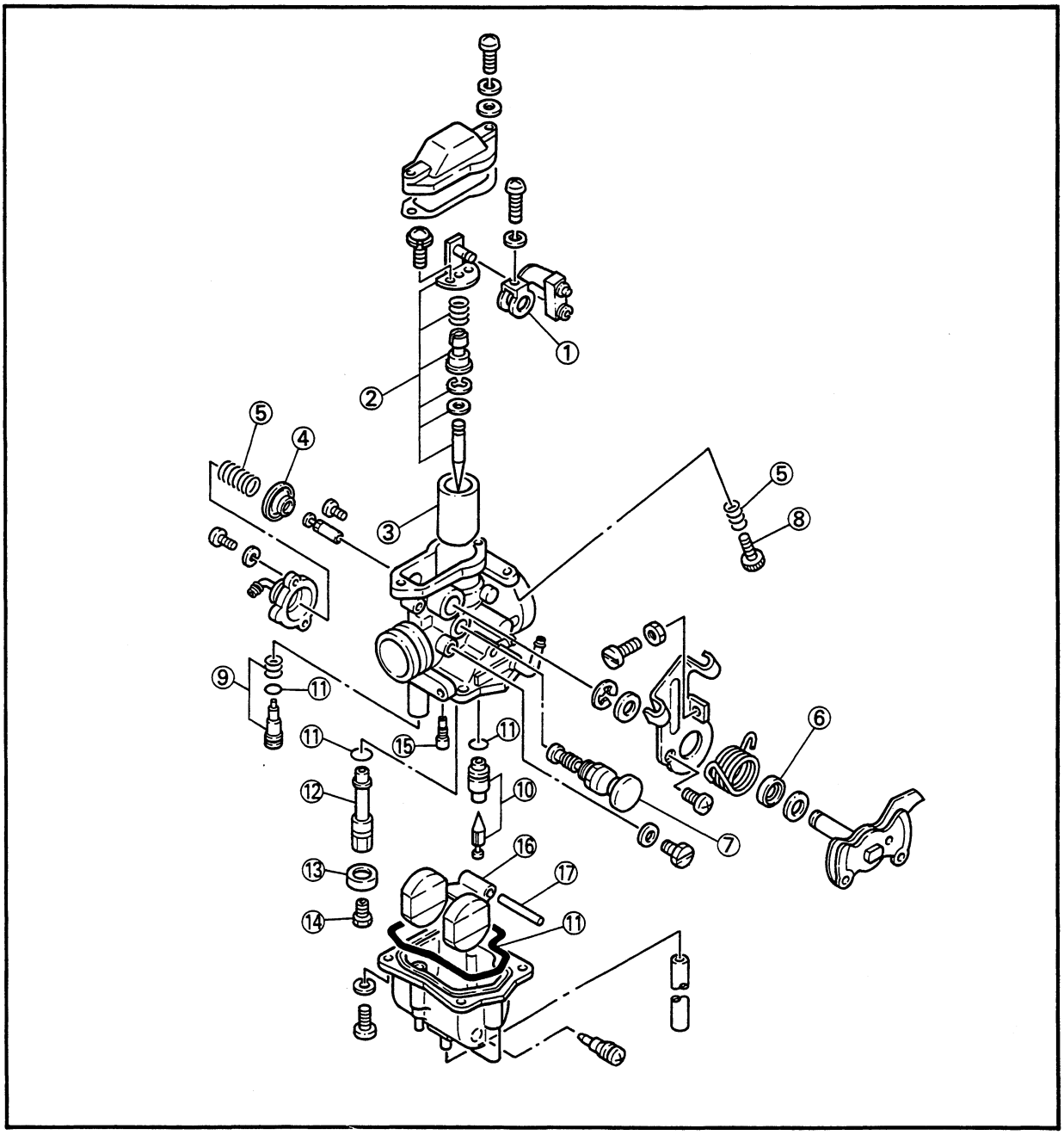
① Level window
② Maximum level
③ Minimum level

CARBURETION

CARBURETOR

① Throttle valve arm
② Jet needle set
③ Throttle valve
④ Diaphragm
⑤ Spring
⑥ Oil seal
⑦ Starter plunger
⑧ Throttle stop screw
⑨ Pilot screw set
⑩ Valve seat set
⑪ O-ring
⑫ Main nozzle
⑬ Main jet cover
⑭ Main jet
⑮ Pilot jet
⑯ Float
⑰ Pin (Float)

SPECIFICATIONS	
MAIN JET	#114
JET NEEDLE	5C74-1/1
NEEDLE JET	2.610
PILOT JET	#40
PILOT SCREW	1•1/2 ~ 2•1/2 TURNS OUT
STARTER JET	#52
VALVE SEAT	ϕ2.0
FLOAT HEIGHT	26 ~ 28 mm (1.02 ~ 1.10 in)
FUEL LEVEL	7.5 ~ 8.5 mm (0.30 ~ 0.33 in)



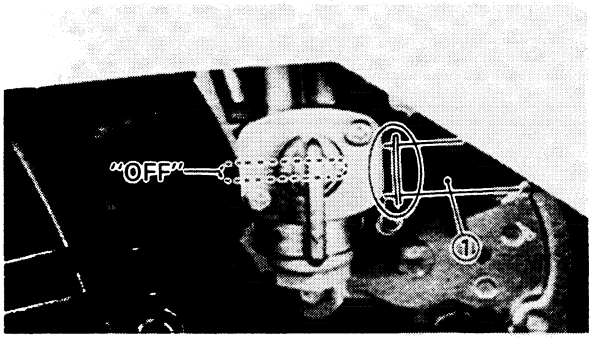
5

REMOVAL

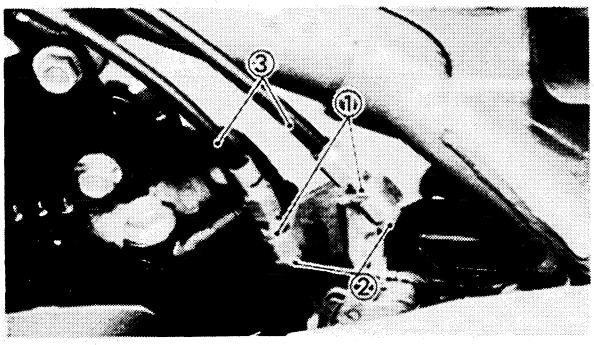
NOTE:

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

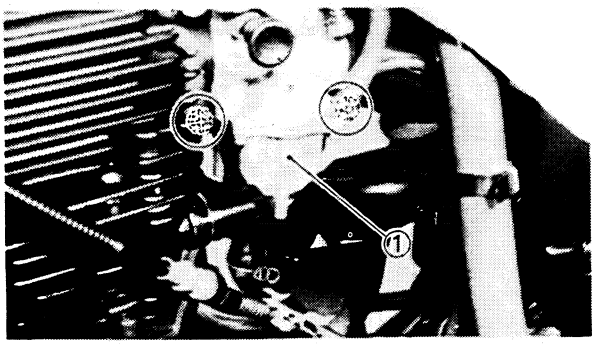
- Starter plunger
- Diaphragm (Coasting enricher)
- Float
- Valve seat
- Main jet
- Pilot jet
- Pilot screw



1. Remove:
   - Side covers (Left and right)
2. Turn the fuel cock to "OFF" position and disconnect the fuel hose ①.

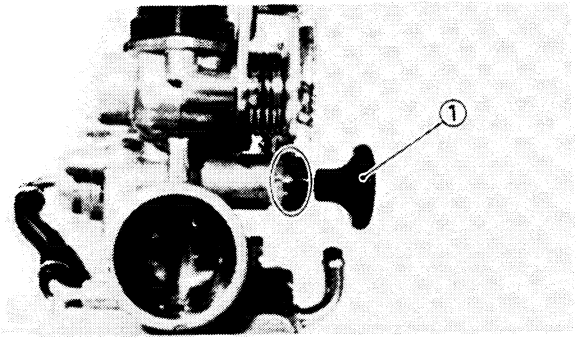


3. Loosen:
   - Locknuts ①
   - Adjusters ②
4. Remove:
   - Throttle cables ③

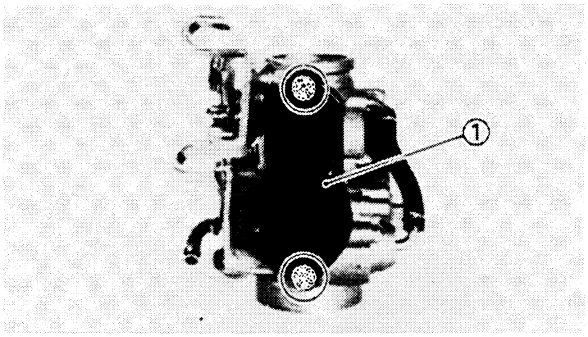


5. Loosen:
   - Screws (Carburetor joint)
6. Remove:
   - Carburetor assembly ①

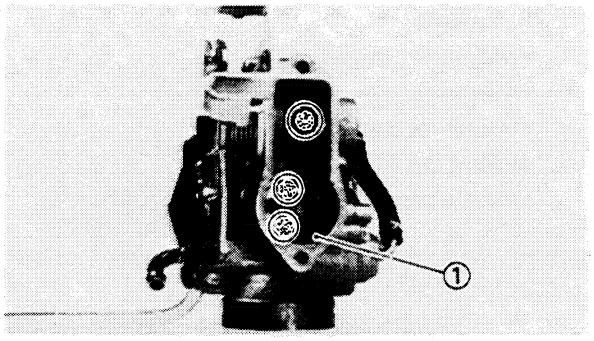
DISASSEMBLY



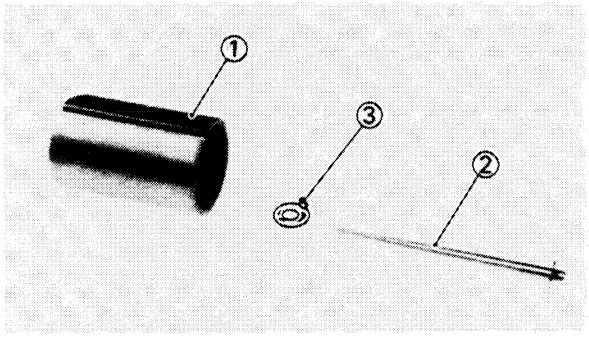
1. Remove:
   - Starter plunger ①



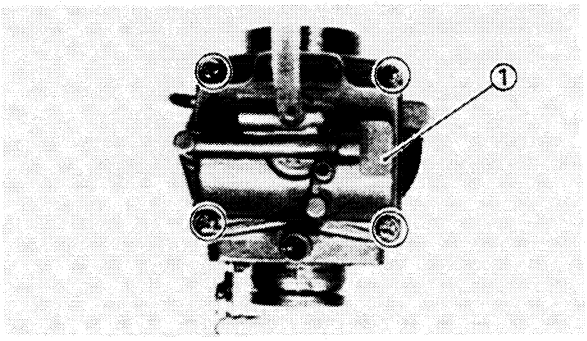
2. Remove:
   • Top cover ①



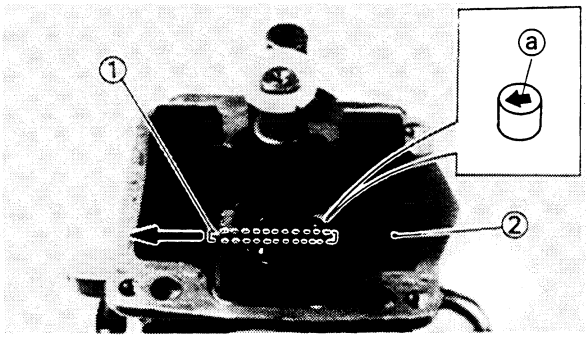
3. Remove:
   • Throttle valve assembly ①



4. Remove:
   • Throttle valve ①
   • Jet needle ②
   • Plate ③



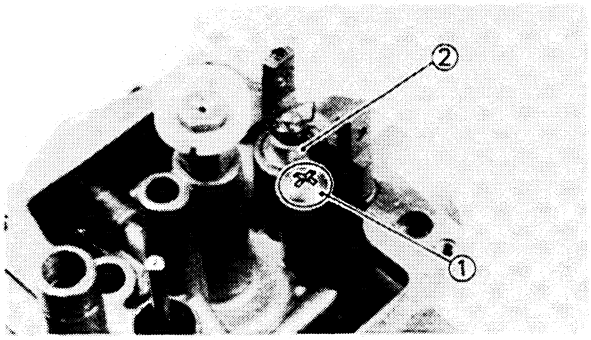
5. Remove:
   • Float chamber ①



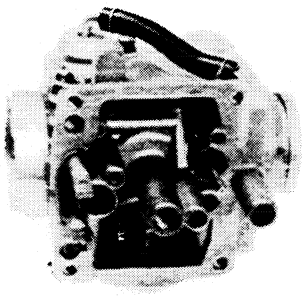
6. Remove:
   • Float pin ①
   • Float ②

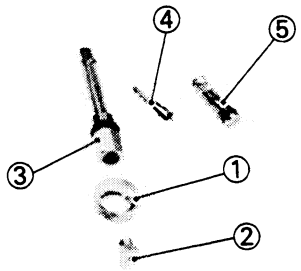
NOTE:

Pull out the float pin in the direction of arrow mark ⓐ.

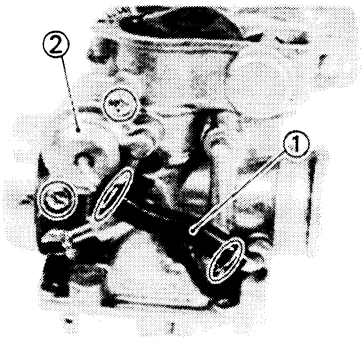


7. Remove:
   - Screw ① (Valve seat)
   - Valve seat assembly ②

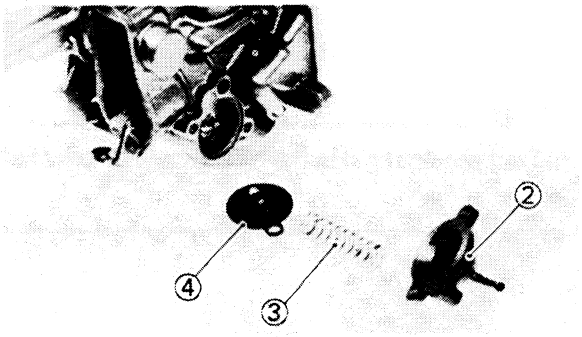


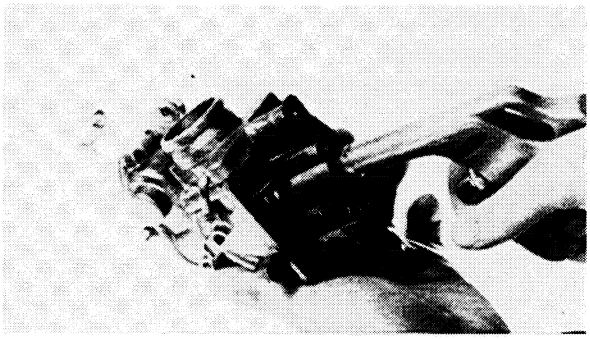


8. Remove:
   - Main jet cover ①
   - Main jet ②
   - Main nozzle ③
   - Pilot jet ④
   - Pilot screw ⑤



9. Remove:
   - Hose ① (Coasting enricher)
   - Cover ② (Coasting enricher)
   - Spring ③ (Coasting enricher)
   - Diaphragm ④ (Coasting enricher)

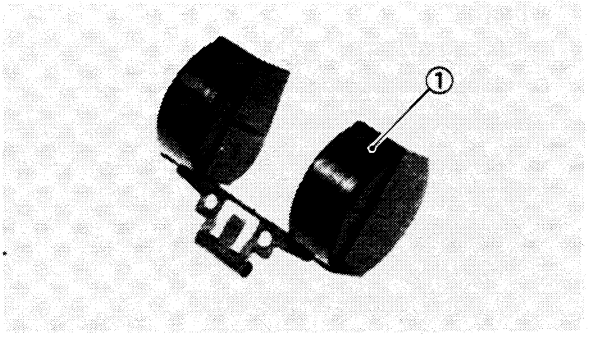




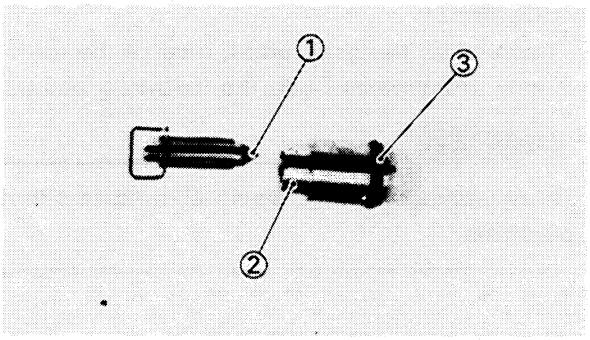
INSPECTION

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

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

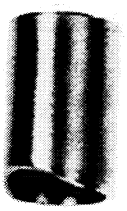


2. Inspect:
   - Floats ①
   Damage→Replace.
   - Gasket/O-ring
   Damage→Replace.

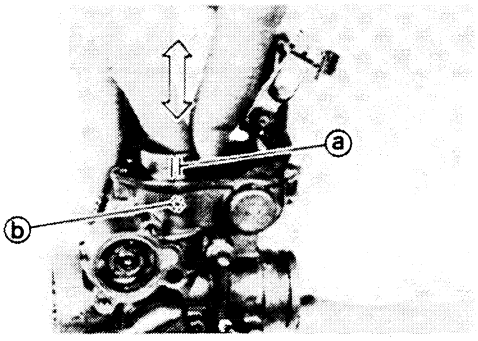


3. Inspect:
   - Float needle valve ①
   - Seat ②
   - O-ring ③
   Damage/Wear/Contamination→Replace.

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

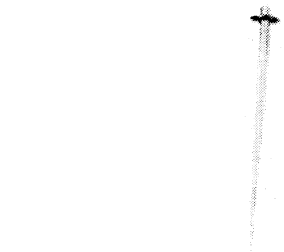


4. Inspect:
   - Throttle valve
   Wear/Damage→Replace.

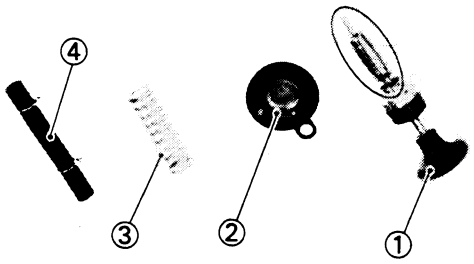


5. Check:
   - Free movement
   Stick→Replace.
   Insert the throttle valve into the carburetor body, and check for free movement.

NOTE:
Align the groove ⓐ of the throttle valve with the projection ⓑ of the carburetor body.



6. Inspect:
   • Jet needle
   Bends/Wear→Replace.



7. Inspect:
   • Starter plunger ①
   Wear/Damage→Replace.
   • Diaphragm (Coasting enricher) ②
   Damage→Replace.
   • Spring (Coasting enricher) ③
   Fatigue/Damage→Replace.
   • Hose (Coasting enricher) ④
   Crack/Damage→Replace.

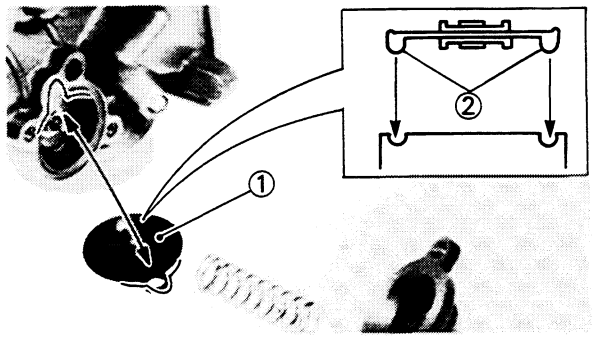
ASSEMBLY

To assemble the carburetors, reverse the disassembly procedures. Note the following points.

CAUTION:

Before reassembling, wash all parts in clean gasoline.

5



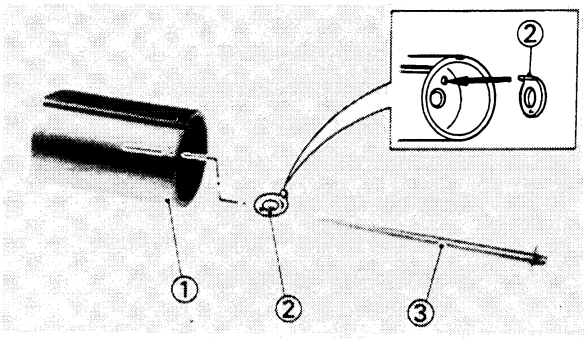
1. Install:
   • Diaphragm ①

NOTE:

Match the tab on the diaphragm to the matching recess in the coasting enricher.
• The round lip ② side face to carburetor body.

2. Tighten:
   • Screws (Coasting enricher cover)

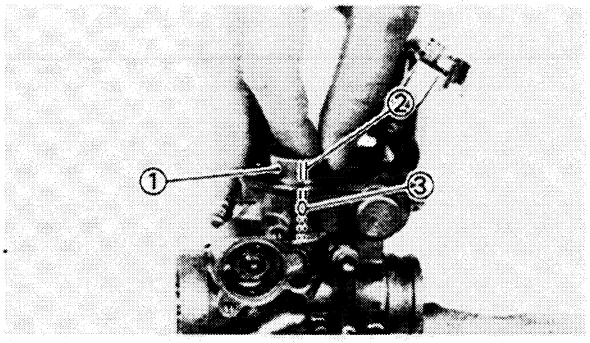
	Screws: **2 Nm (0.2 m•kg, 1.4 ft•lb)**



3. Install:
   - Throttle valve ①
   - Plate ②
   - Jet needle assembly ③

NOTE:

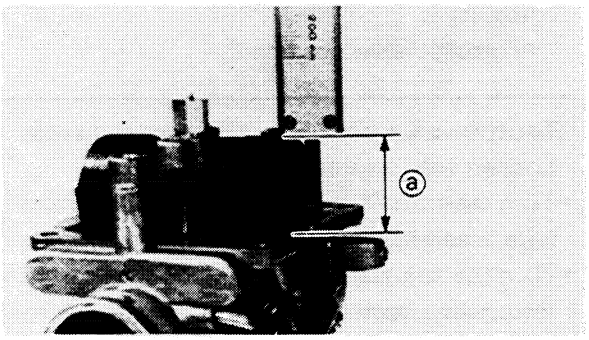
Make installation with the projection of plate ② in the throttle valve hole.



4. Install:
   - Throttle valve assembly ①

NOTE:

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



5. Adjust:
   - Float height ⓐ

   Out of specification→Adjust.
   By the following steps.

Float Height ⓐ:
26 ~ 28 mm (1.02 ~ 1.10 in)

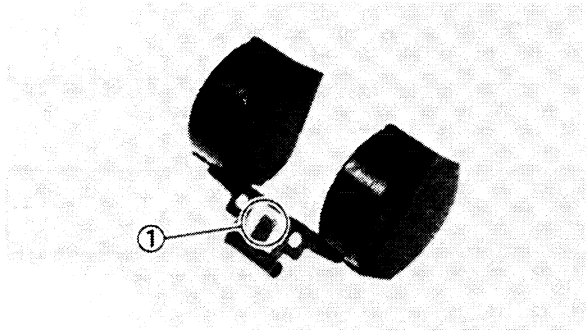
Float height measurement and adjustment steps:

- 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:

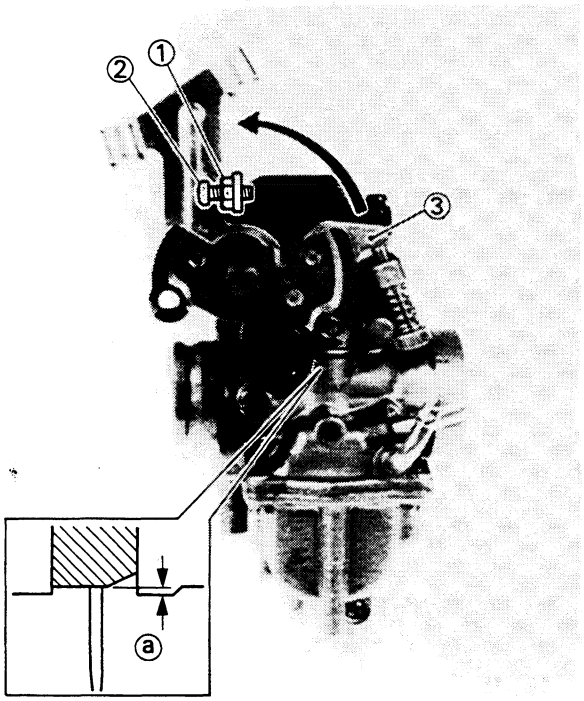
The float arm should be resting on the needle valve, but not compressing the needle valve.

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



6. Tighten:
   - Screws (Float chamber)
   - Screw (Connecting arm)
   - Screws (Top cover)

	Screws (Float Chamber): **2 Nm (0.2 m•kg, 1.4 ft•lb)** **Screw (Connecting Arm):** **2 Nm (0.2 m•kg, 1.4 ft•lb)** **Screws (Top Cover):** **2 Nm (0.2 m•kg, 1.4 ft•lb)**



7. Adjust:
   - Throttle valve position

Throttle valve position adjustment steps:
- Loosen the locknut ①.
- Turn the throttle drum ③ to move the drum wire assembly to the full-throttle position.
- Turn the adjuster ② in or out so that carburetor valve bottom is positioned within the limits as specified.

	Throttle Valve Position ⓐ: **0~1.0 mm (0~0.04 in)**

- Tighten the locknut.

INSTALLATION

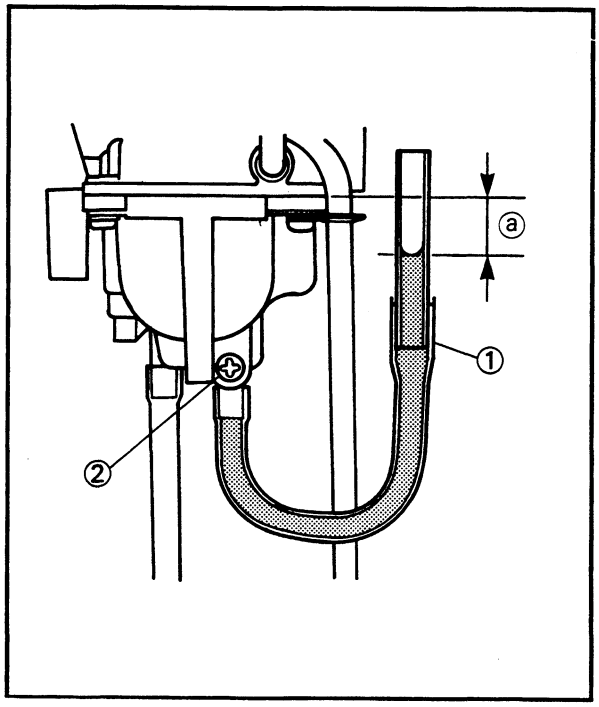
Reverse the removal procedures.
Note the following points.

1. Adjust:
   - Idle speed
     Refer to the "IDLE SPEED ADJUSTMENT" section in the "CHAPTER 3".

	Engine Idle Speed: **1,350~1,450 r/min**

2. Adjust:
   • Throttle cable free play
   Refer to the "THROTTLE CABLE FREE PLAY ADJUSTMENT" section in the "CHAPTER 3".

Throttle Cable Free Play:
2~5 mm (0.08~0.20 in)



FUEL LEVEL ADJUSTMENT

NOTE:

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

1. Place the motorcycle 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.

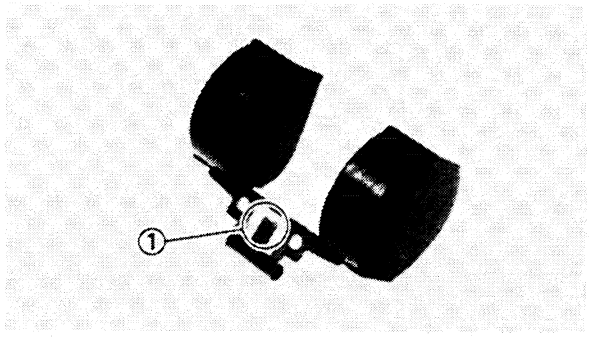
Fuel Level Gauge:
P/N YM-01312

4. Loosen the drain screw ②, and warm up the engine for several minutes.
5. Measure:
   • Fuel level ⓐ
   Out of specification→Adjust.

Fuel Level ⓐ:
7.5~8.5 mm (0.30~0.33 in)
Below the Carburetor Body Edge

6. Adjust:
   • Fuel level

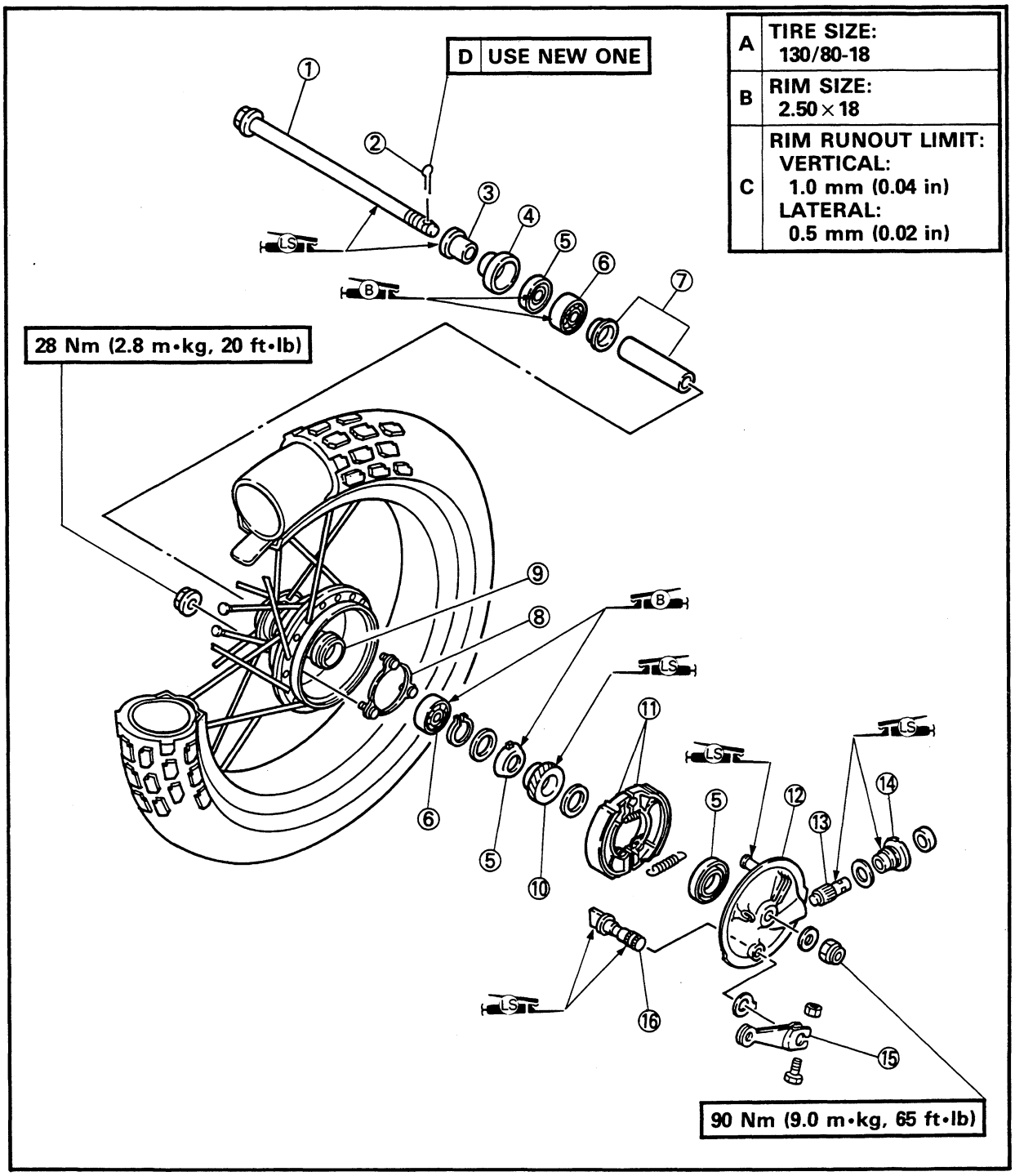
Adjustment steps:
- Remove the carburetor.
- Inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float tang ① on the float.
- Recheck the fuel level.



CHASSIS

FRONT WHEEL

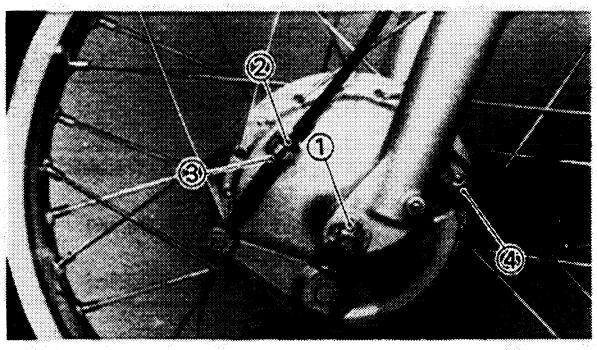
① Front wheel axle
② Cotter pin
③ Collar
④ Dust cover
⑤ Oil seal
⑥ Bearing
⑦ Spacer
⑧ Ring
⑨ Drum
⑩ Speedometer driven gear
⑪ Brake shoes
⑫ Brake shoe plate
⑬ Speedometer driven gear
⑭ Housing
⑮ Brake cam lever
⑯ Brake cam shaft

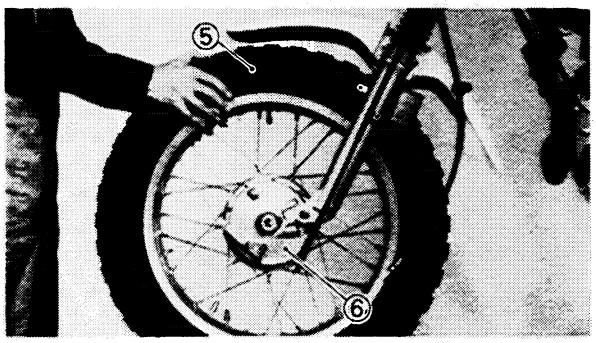


REMOVAL

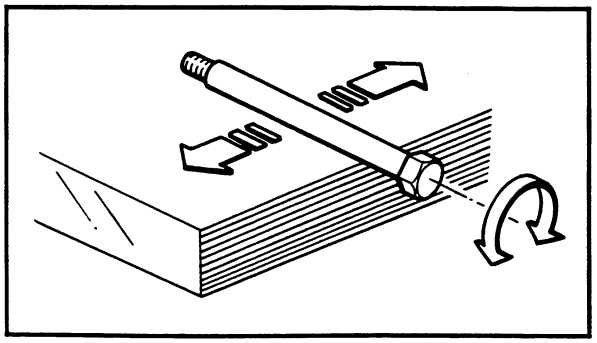
WARNING:

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





1. Remove:
   - Cotter pin
2. Loosen:
   - Nut (Front wheel axle) ①
   - Locknuts ②
   - Adjuster ③
3. Elevate the front wheel by placing the suitable stand under the engine.
4. Remove:
   - Brake cable
   - Clip (Speedometer cable)
   - Speedometer cable ④
   - Nut (Front wheel axle)
   - Front wheel axle
   - Front wheel assembly ⑤
   - Collar
   - Brake shoe plate ⑥



INSPECTION

1. Inspect:
   - Axle shaft

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

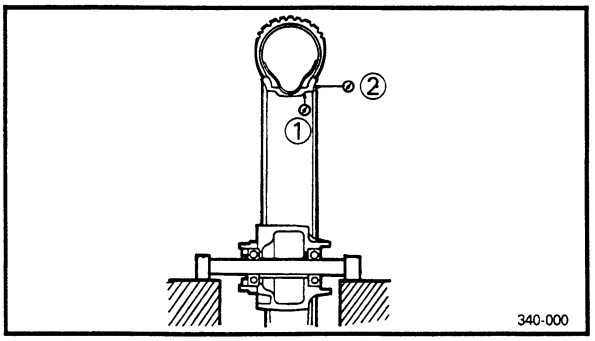
WARNING:

Do not attempt to straighten a bent axle shaft.

2. Inspect:
   - Wheel

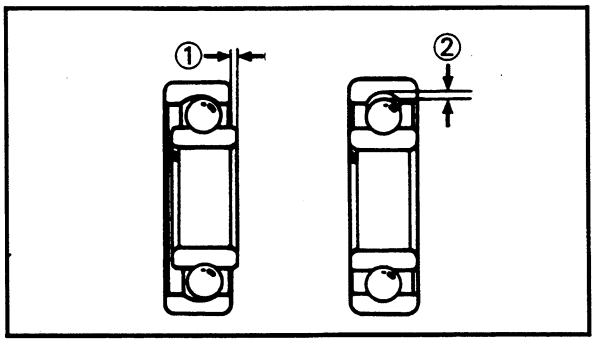
   Cracks/Bends/Warpage→Replace.

6



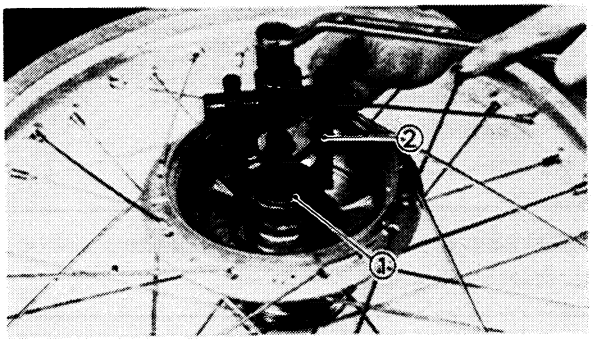
3. Measure:
   • Wheel runout
   Out of specification → Inspect the wheel and bearing play.

Rim Runout Limits:
Radial ①: 1.0 mm (0.04 in)
Lateral ②: 0.5 mm (0.02 in)



4. Inspect:
   • Wheel bearings
   Bearings allow play in the wheel hub or wheel turns roughly → Replace.

① Lateral free play
② Radial free play

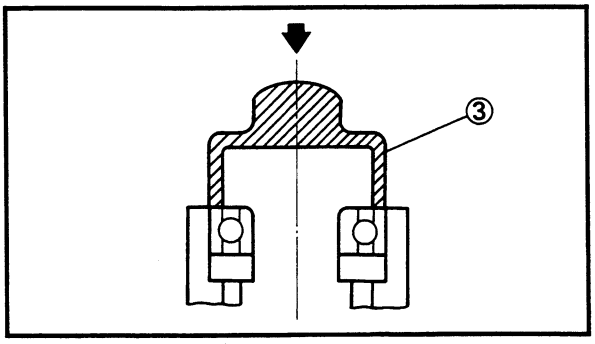


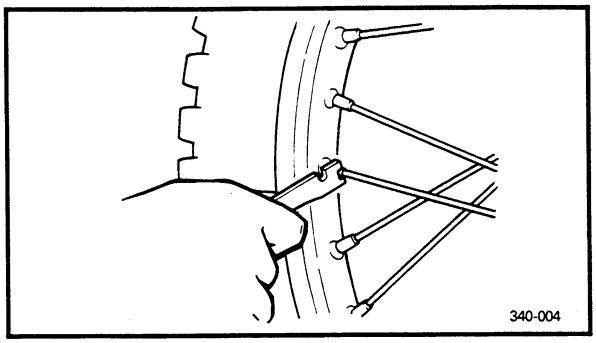
Wheel bearing replacement steps:
- Remove the dust seal.
- Clean the out side of the wheel hub.
- Remove the bearing ① using a general bearing puller ②.
- Install the new bearing.

NOTE:
Use a socket ③ that matches the outside diameter of the race of the bearing.

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

- Install the dust seal.





5. Check:
   • Loose spokes
   Turn the wheel and tap the spokes with a screwdriver.

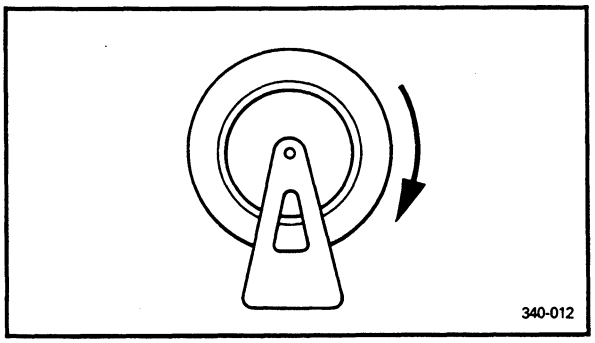
NOTE:
A tight spoke will emit a clear, ringing tone, a loose spoke will sound flat.

6

6. Tighten:
   • Loose spokes

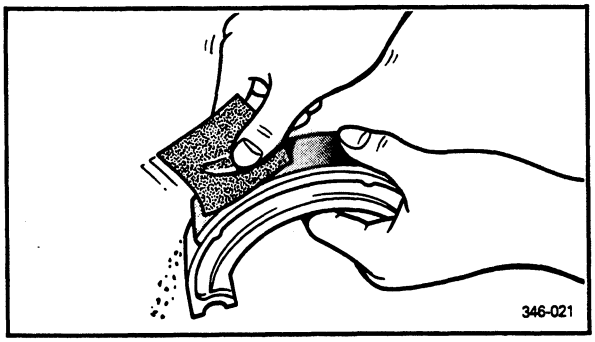
	Spoke: **6 Nm (0.6 m•kg, 4.3 ft•lb)**

NOTE:
Check the wheel runout after tightening spoke.



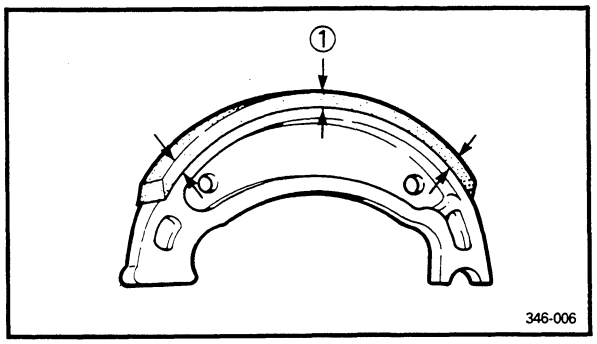
7. Check:
   • Wheel balance
   Wheel is not statically balanced if it comes to rest at the same point after several light rotations.
   Out of balance → Install appropriate balance weight at lightest point (on top).

NOTE:
Balance wheels with the brake shoe plate installed.



8. 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.



9. Measure:
   • Brake lining thickness
   Out of specification → Replace.

① Measuring points

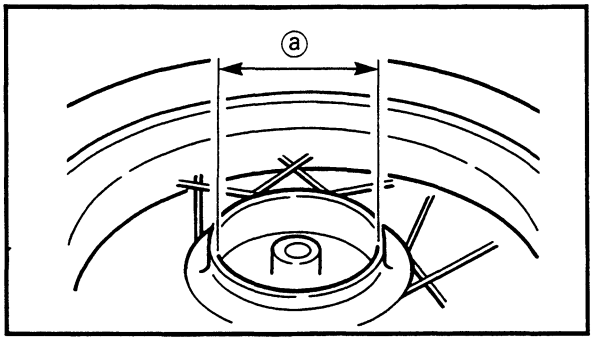
	Brake Lining Thickness: **4 mm (0.16 in)** **Wear Limit:** **2 mm (0.08 in)**

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

6

10. Inspect:
    - Brake drum inner surface
      Rust/Oil/Scratches→Remove.

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



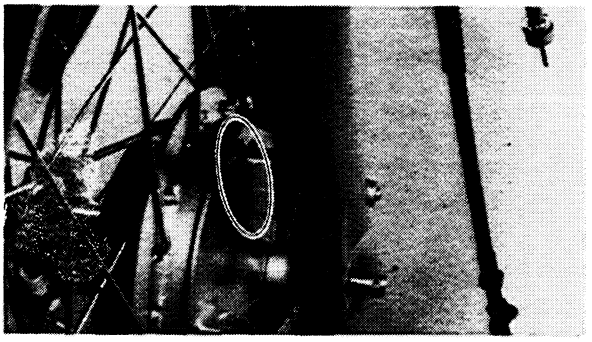
11. Measure:
    - Brake drum inside diameter ⓐ
      Out of specification→Replace.

Brake Drum Wear Limit:
131 mm (5.16 in)

INSTALLATION

Reverse the removal procedure.
Note the following points.

1. Apply:
    - Lithium soap base grease
      To the oil seal lips and axle shaft.
    - Wheel bearing grease
      To the wheel bearing.



2. Install:
    - Brake shoe plate

NOTE:

Check for proper engagement of the boss on the outer fork tube with the locating slot on the brake shoe plate.

3. Tighten:
    - Nut (Front wheel axle)

Axle Nut:
90 Nm (9.0 m•kg, 65 ft•lb)

4. Adjust:
    - Front brake
      Refer to the "FRONT BRAKE ADJUSTMENT" section in the "CHAPTER 3".

5. Install:
   • Cotter pin

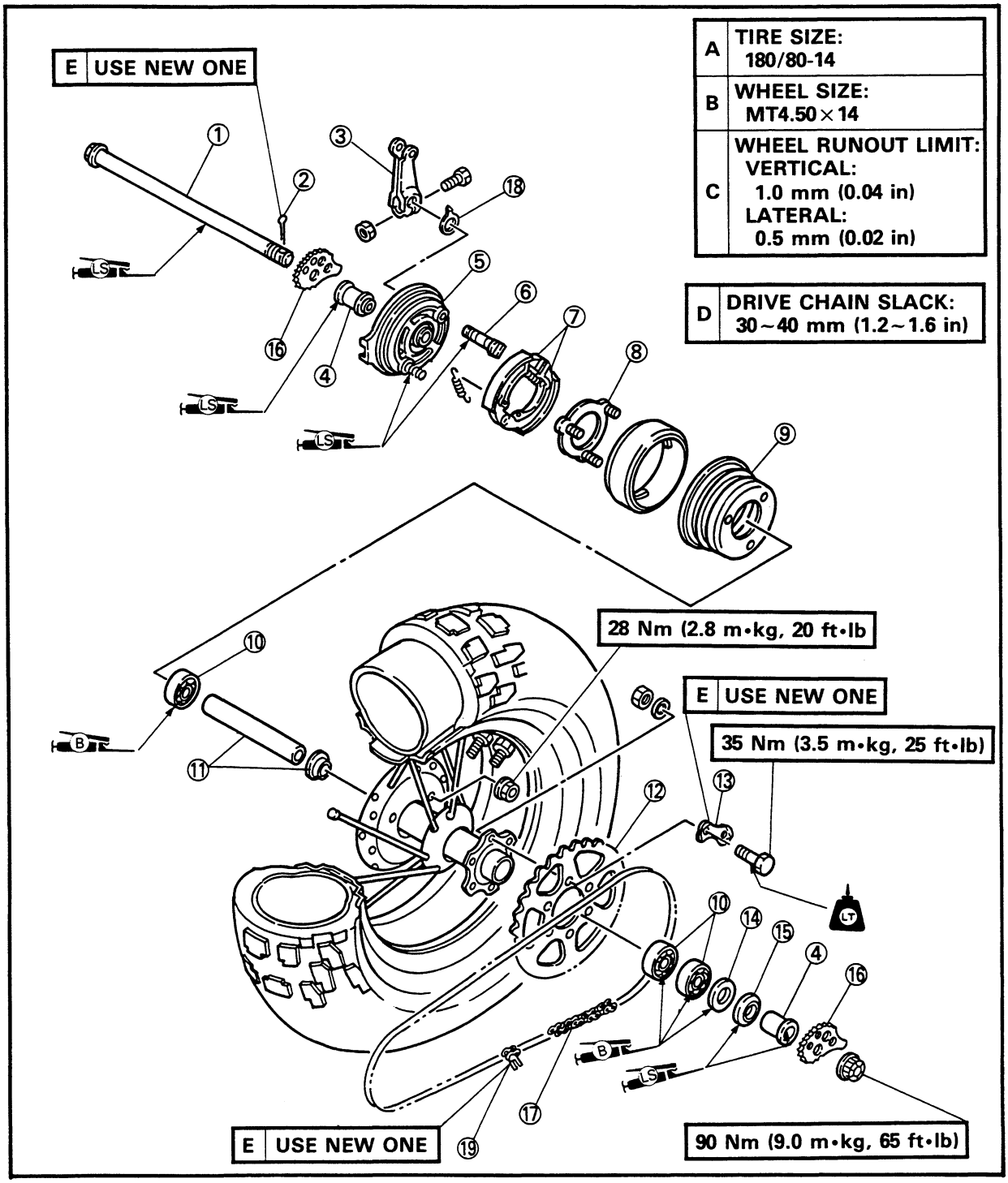
WARNING:

Always use a new cotter pin.

6. Bend the ends of the cotter pin.

REAR WHEEL

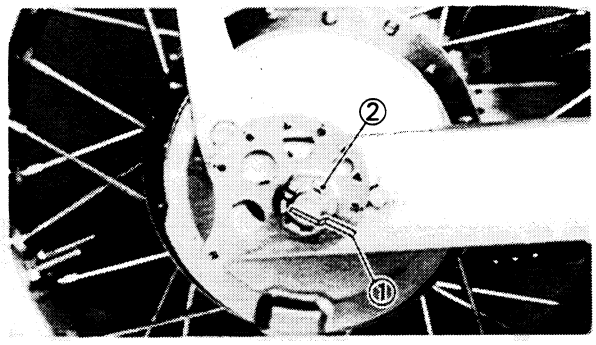
① Rear wheel axle
② Cotter pin
③ Brake cam lever
④ Collar
⑤ Brake shoe plate
⑥ Brake cam shaft
⑦ Brake shoe
⑧ Ring
⑨ Brake drum
⑩ Bearing
⑪ Spacer
⑫ Driven sprocket
⑬ Lock washer
⑭ Oil seal
⑮ Dust seal
⑯ Chain puller
⑰ Drive chain
⑱ Wear indicator
⑲ Joint



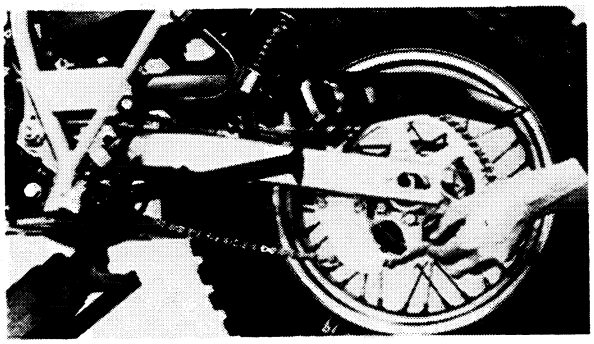
REMOVAL

WARNING:

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



1. Remove:
   - Cotter pin ①
2. Loosen:
   - Nut (Rear wheel axle) ②
3. Elevate the rear wheel by placing a suitable stand under the engine.



4. Push the wheel forward and remove the drive chain.
5. Remove:
   - Nut (Rear wheel axle)
   - Rear wheel axle
   - Adjusters
   - Rear wheel assembly
   - Brake shoe plate

INSPECTION

1. Inspect:
   - Axle shaft

   Refer to "FRONT WHEEL—INSPECTION" section.
2. Inspect:
   - Wheel

   Refer to "FRONT WHEEL—INSPECTION" section.
3. Measure:
   - Wheel runout

   Refer to "FRONT WHEEL—INSPECTION" section.

Rim Runout Limits:
Radial: 2.0 mm (0.08 in)
Lateral: 2.0 mm (0.08 in)

6

4. Check:
   - Wheel balance
   Refer to "FRONT WHEEL—INSPECTION" section.
5. Check:
   - Wheel bearings
   Refer to "FRONT WHEEL—INSPECTION" section.
6. Inspect:
   - Brake lining surface
   Refer to "FRONT WHEEL—INSPECTION" section.
7. Measure:
   - Brake lining thickness
   Refer to "FRONT WHEEL—INSPECTION" section.

Brake Lining Thickness:
4 mm (0.16 in)
Wear Limit:
2 mm (0.08 in)

8. Inspect:
   - Brake drum inner surface
   Refer to "FRONT WHEEL—INSPECTION" section.
9. Measure:
   - Brake drum inside diameter
   Refer to "FRONT WHEEL—INSPECTION" section.

Brake Drum Wear Limit:
111 mm (4.37 in)

INSTALLATION

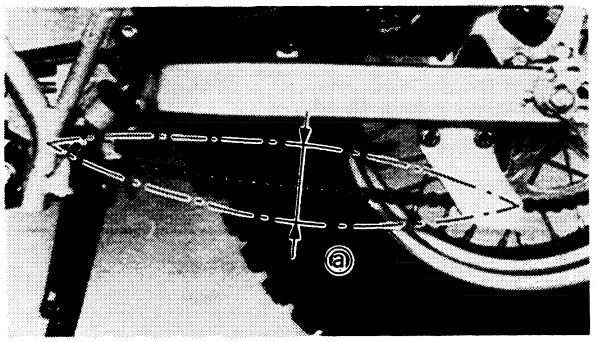
Reverse the removal procedure.
Note the following points.

1. Apply:
   - Lithium soap base grease
   To the axle shaft and brake camshaft.
   - Wheel bearing grease
   To the bearings.

2. Install:
   - Rear wheel assembly
   - Brake shoe plate

NOTE:

Be sure the swingarm boss correctly engages the locating slot on the brake shoe plate.



3. Adjust:
   - Drive chain slack ⓐ

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

Drive Chain Slack:
30~40 mm (1.2~1.6 in)

4. Adjust:
   - Rear brake

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

Pedal Height:
10 mm (0.39 in)
Pedal Free Play:
20~30 mm (0.8~1.2 in)

5. Tighten:
   - Axle nut

Axle Nut:
90 Nm (9.0 m•kg, 65 ft•lb)

6. Install:
   - Cotter pin

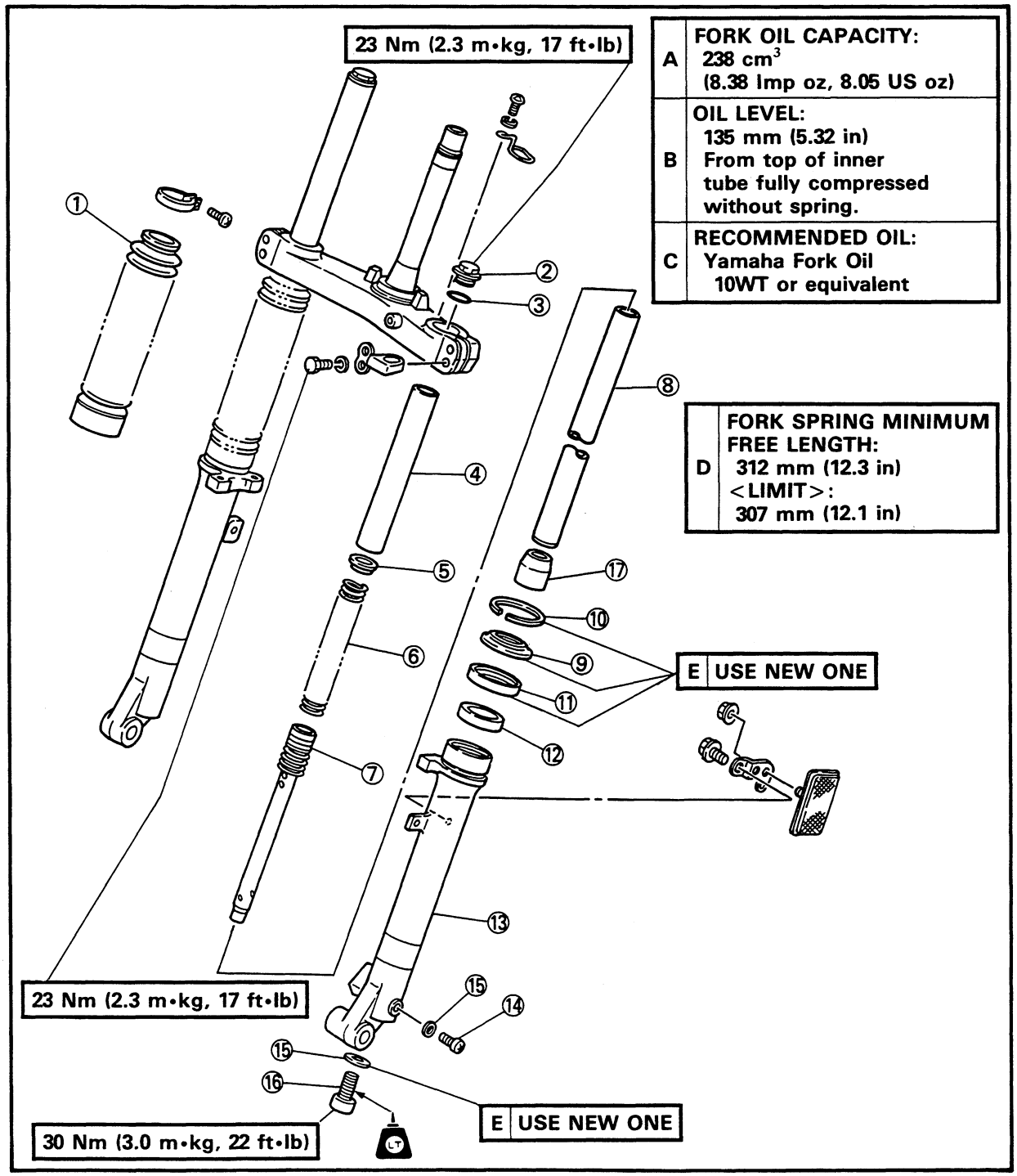
   Bend the ends of the cotter pin.

WARNING:

Always use a new cotter pin.

FRONT FORK

① Fork boot
② Cap bolt
③ O-ring
④ Collar
⑤ Retainer
⑥ Fork spring
⑦ Damper rod
⑧ Inner tube
⑨ Dust seal
⑩ Clip
⑪ Oil seal
⑫ Slide metal
⑬ Outer tube
⑭ Drain screw
⑮ Copper washer
⑯ Bolt (Damper rod)
⑰ Oil lock piece

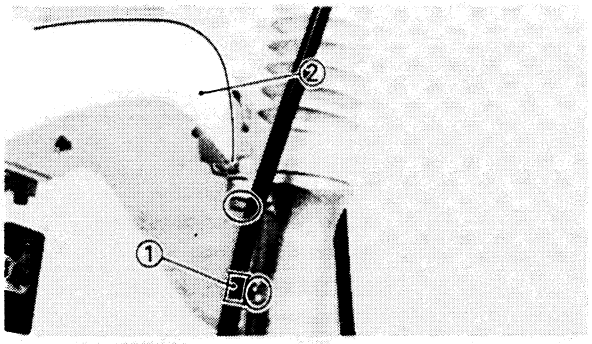


6

REMOVAL

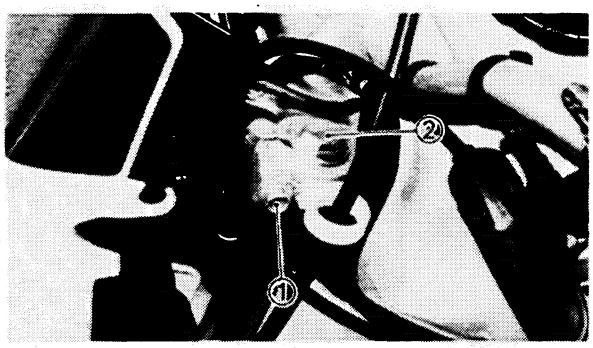
WARNING:

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

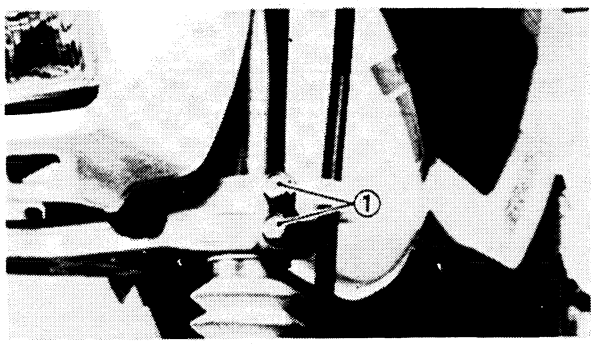


1. Remove:
   - Front wheel
     Refer to the "FRONT WHEEL—REMOVAL" section.

2. Remove:
   - Cable holder ①
   - Front fender ②



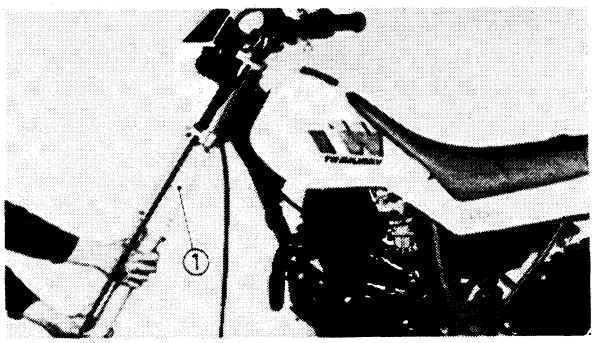
3. Loosen:
   - Pinch bolt ① (Handle crown)
   - Cap bolt ②



4. Loosen:
   - Pinch bolts ① (Under bracket)

CAUTION:

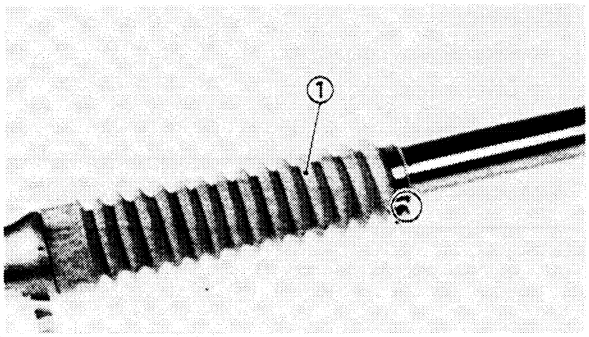
Support the front fork before loosening the pinch bolts.



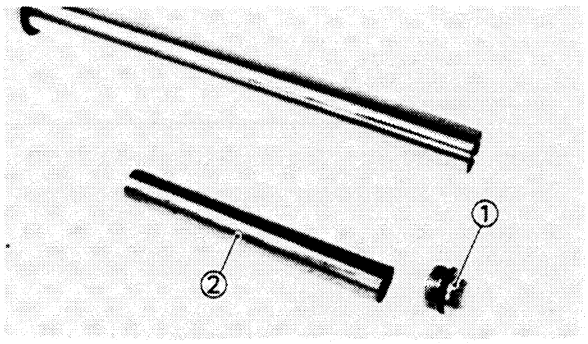
5. Remove:
   - Front fork ①

6

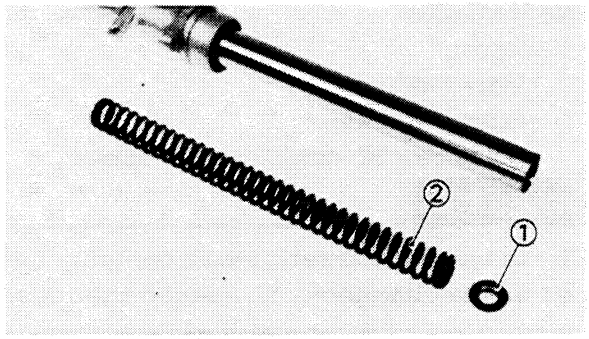
DISASSEMBLY



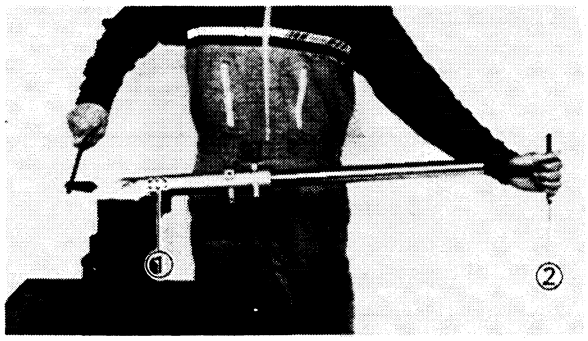
1. Remove:
   - Fork boot ①



2. Remove:
   - Cap bolt ①
   - Collar ②
3. Compress the inner fork tube slowly.



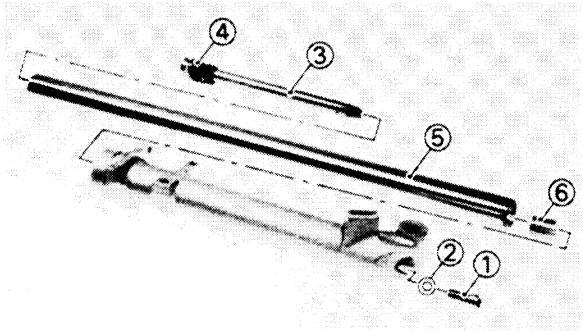
4. Remove:
   - Spring seat ①
   - Fork spring ②
5. Drain:
   - Fork oil



6. Loosen:
   - Bolt (Damper rod)

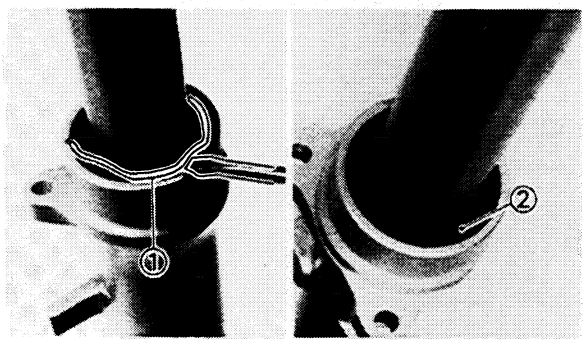
   Use the Damper Rod Holder ① and T-Handle ② to lock the damper rod.

Damper Rod Holder:
P/N YM-33256
T-Handle:
P/N YM-01326



7. Remove:
   - Bolt (Damper rod) ①
   - Copper washer (New) ②
   - Damper rod ③
   - Rebound spring ④
   - Inner tube ⑤
   - Oil lock piece ⑥

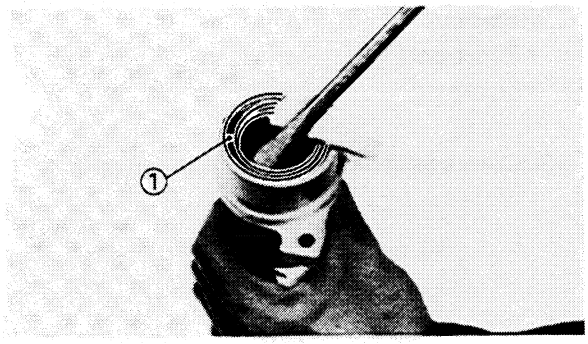
6



8. Remove:
   - Retaining clip ①
   - Dust seal ②

CAUTION:

Take care not to scratch the inner tube.



9. Remove:
   - Oil seal ①

CAUTION:

- **When removing the oil seal, place a rag on the outer tube to prevent damaging the outer tube.**
- **Always replace the oil seal when disassembling the front fork.**

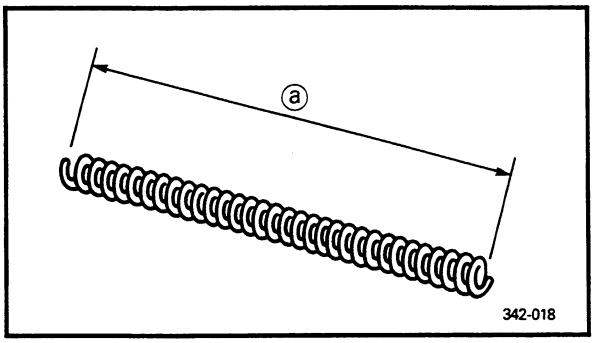
INSPECTION

1. Inspect:
   - Inner fork tube
   - Outer fork tube

   Scratches/Bends/Damage→Replace.

WARNING:

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

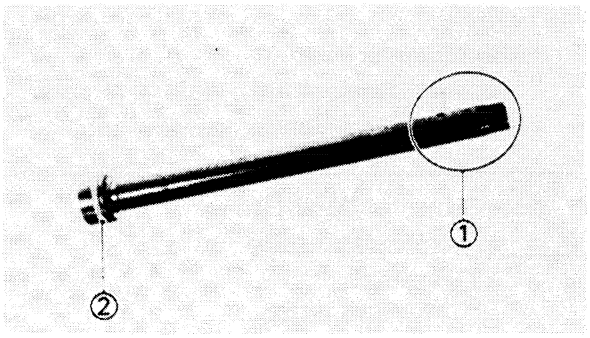


2. Measure:
   - Fork spring free length ⓐ

   Out of specification→Replace.

Fork Spring Free Length:
312 mm (12.3 in)
<Limit>:
307 mm (12.1 in)

6

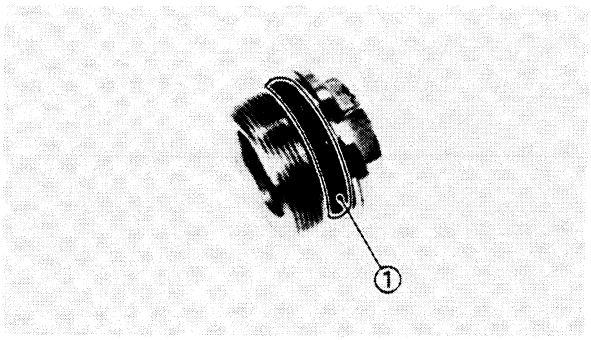


3. Inspect:
   - Damper rod ①
   - Piston ring ②
   - Oil lock piece

   Wear/Damage→Replace.

NOTE:

Blow out all oil passages with compressed air.



4. Inspect:
   - O-ring ① (Cap bolt)

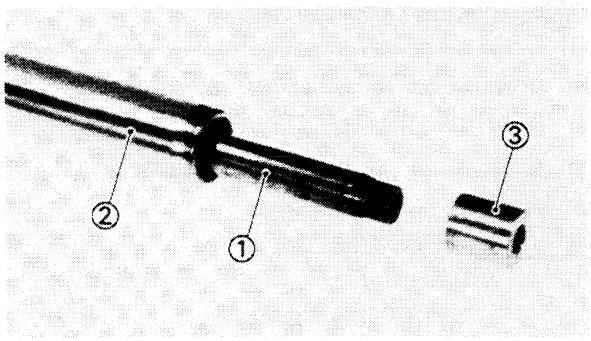
   Damage→Replace.

ASSEMBLY

Reverse the disassembly procedure.
Note the following points.

NOTE:

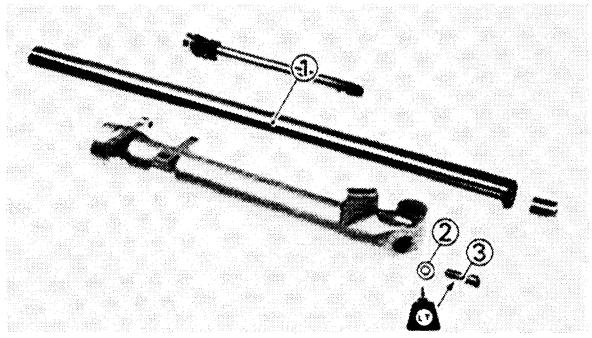
Be sure all components are clean before assembly.



1. Install:
   - Damper rod ①
   - Rebound spring

   To inner tube ②.
2. Install:
   - Oil lock piece ③

   To damper rod.



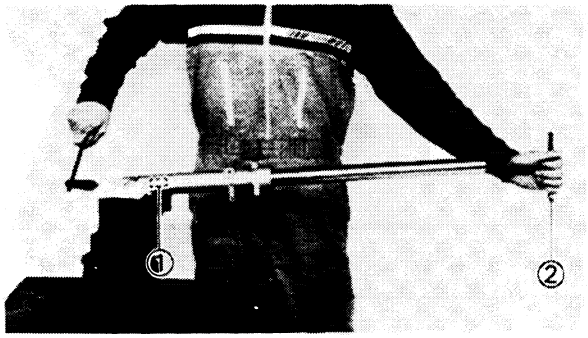
3. Install:
   - Inner tube ①
   - Copper washer ②
   - Bolt (Damper rod) ③

   To outer tube.

NOTE:

Apply the LOCTITE® onto the bolt (Damper rod) ③.

6

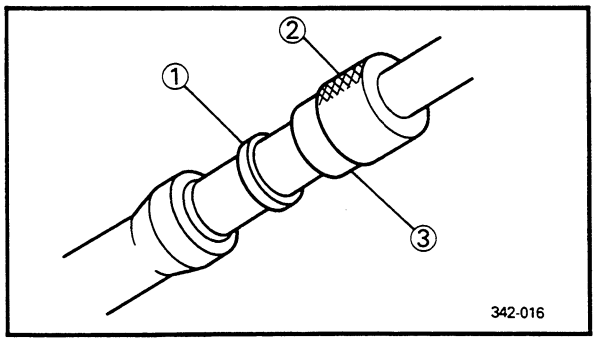


4. Tighten:
   - Bolt (Damper rod)

   Use the Damper Rod Holder ① and T-Handle ② to lock the damper rod.

Damper Rod Holder:
P/N YM-33256
T-Handle:
P/N YM-01326

Bolt (Damper Rod):
30 Nm (3.0 m•kg, 22 ft•lb)
Use LOCTITE®.



5. Install:
   - Oil seal (New) ①

NOTE:

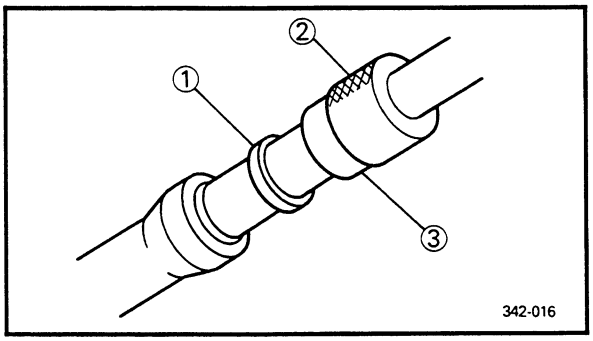
- Apply the lithium soap base grease onto the oil seal lip before installing the oil seal.
- Be sure oil seal numbered side face upward.

CAUTION:

- **Take care not to damage the oil seal lip.**
- **Always use new oil seal.**

6. Press the fork oil seal into the inner tube with Fork Seal Driver ② and Adapter ③.

Fork Seal Driver:
P/N YM-1368
Adapter:
P/N YM-33963



7. Install:
   • Dust seal ①
   Press the dust seal into inner tube with Fork Seal Driver ② and Adapter ③.

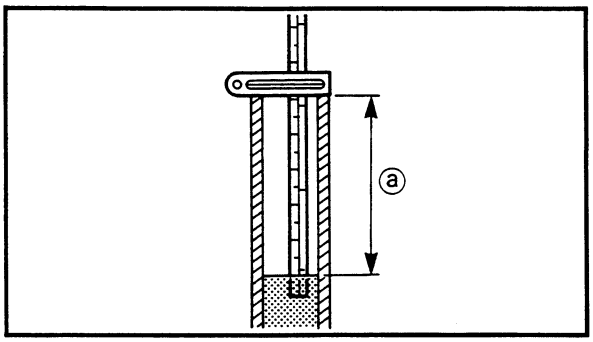
Fork Seal Driver:
P/N YM-1368
Adapter:
P/N YM-33963

NOTE:
Before installing the dust seal, apply the lithium soap base grease onto the dust seal lip.

8. Fill:
   • Fork Oil

Fork Oil Capacity:
238 cm³ (8.38 Imp oz, 8.05 US oz)
Recommended Oil:
Yamaha Fork Oil 10WT or equivalent

NOTE:
After supplying the fork oil, pump the front fork up and down to distribute the oil.



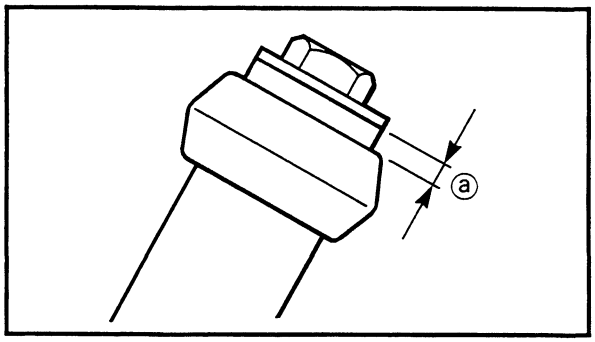
9. Measure:
   • Oil level ⓐ
   Out of specification→Add or reduce oil.

Oil Level:
135 mm (5.32 in)
From the top of the inner fork tube fully compressed without spring.

NOTE:
Place the front fork on upright position.

10. Install:
    • Cap bolt

NOTE:
Temporary tighten the cap bolt at this point.



INSTALLATION

Reverse the removal procedure.
Note the following points.

1. Install:
   - Front fork

   Temporary tighten the pinch bolts.

NOTE:

Hold the inner tube with its top 6 mm (0.24 in) ⓐ above the top of the steering crown.

2. Tighten:
   - Pinch bolts (Under bracket)

	**Pinch Bolts (Under Bracket):** **23 Nm (2.3 m•kg, 17 ft•lb)**

NOTE:

Do not tighten the pinch bolt (Handle crown) at this point.

3. Tighten:
   - Cap bolt
   - Pinch bolt (Handle crown)

	**Cap Bolt:** **23 Nm (2.3 m•kg, 17 ft•lb)** **Pinch Bolt (Handle Crown):** **23 Nm (2.3 m•kg, 17 ft•lb)**

4. Install:
   - Front wheel

   Refer to the "FRONT WHEEL—INSTALLATION" section.
5. Adjust:
   - Front brake lever free play

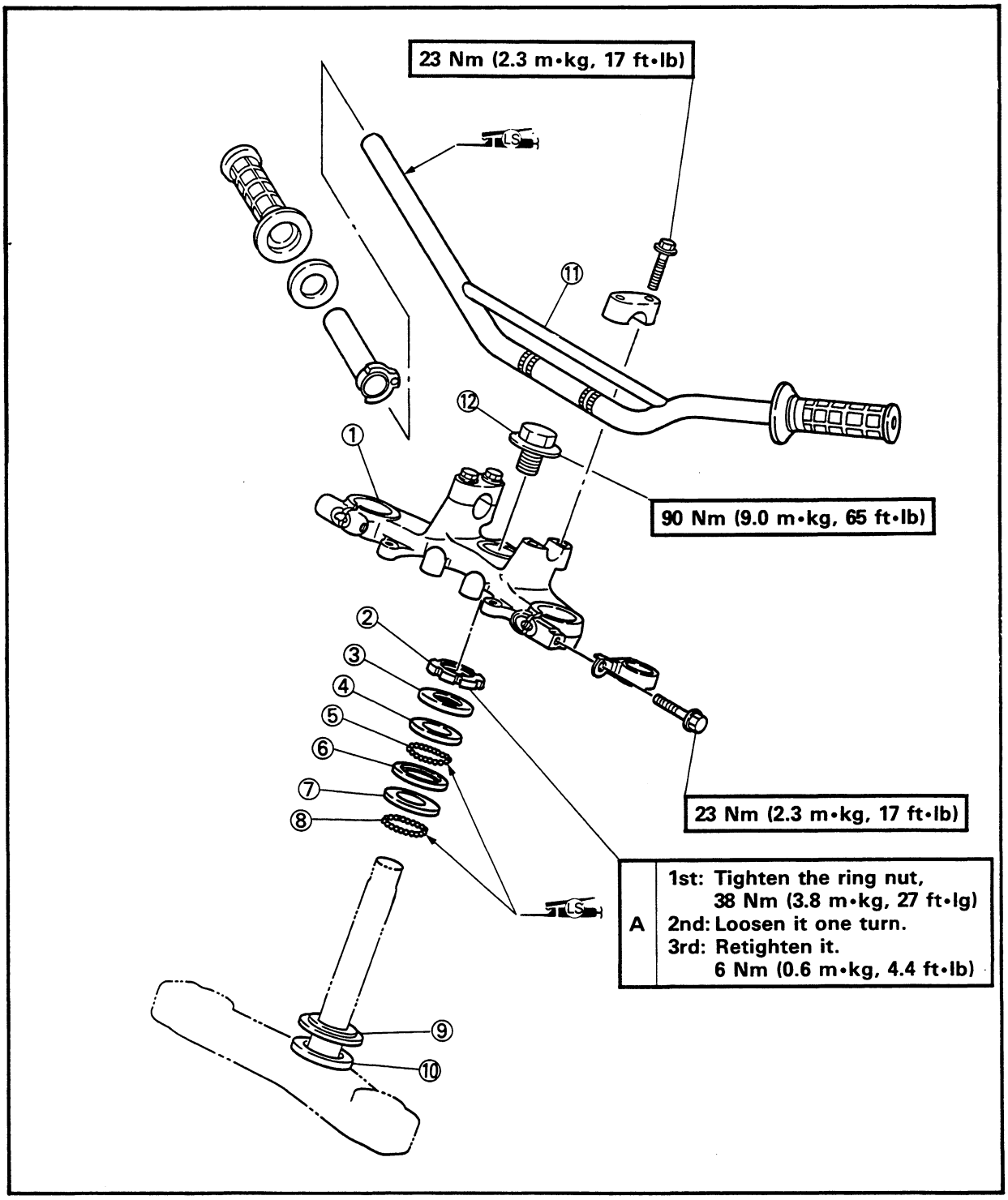
   Refer to the "FRONT BRAKE ADJUSTMENT" section in the "CHAPTER 3".

	**Front Brake Lever Free Play:** **10~20 mm (0.4~0.8 in)**

6

STEERING AND HANDLEBAR

① Handle crown
② Ring nut
③ Bearing race cover
④ Bearing race (Upper-Upper)
⑤ Upper balls (3/16 in-22 pcs.)
⑥ Bearing race (Upper-Lower)
⑦ Bearing race (Lower-Upper)
⑧ Lower balls (1/4 in-19 pcs.)
⑨ Bearing race (Lower-Lower)
⑩ Oil seal
⑪ Handlebar
⑫ Steering stem bolt



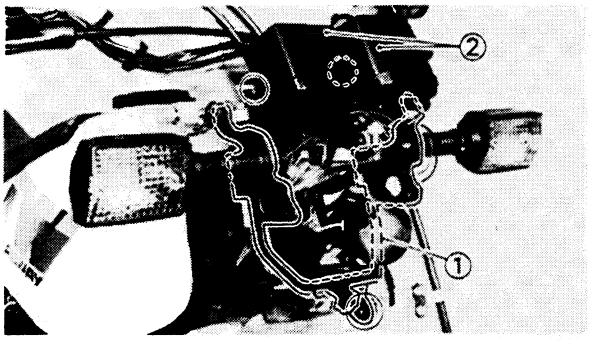
6

REMOVAL

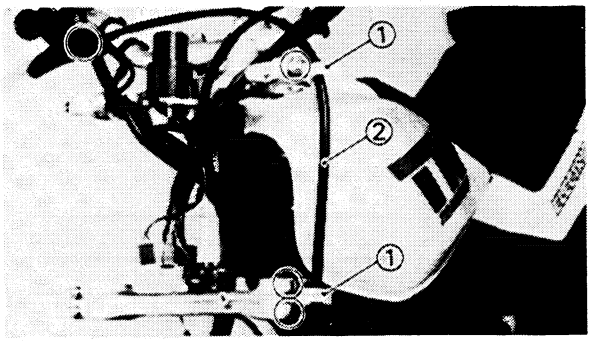
WARNING:

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

1. Remove:
   - Front wheel
     Refer to "FRONT WHEEL—REMOVAL" section.
   - Front fender
   - Front fork
     Refer to "FRONT FORK—REMOVAL" section.
   - Headlight cowl
   - Headlight

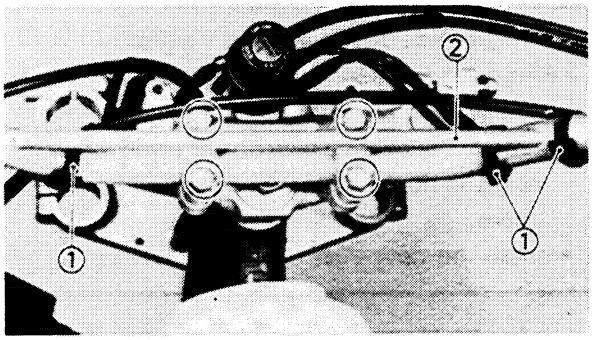


2. Disconnect:
   - Speedometer cable
   - Leads
3. Remove:
   - Headlight stay assembly ①
   - Meter assembly ②

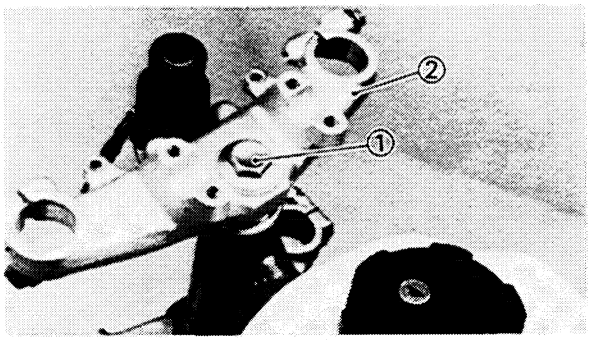


4. Remove:
   - Brake cable holder ①
   - Brake cable ②

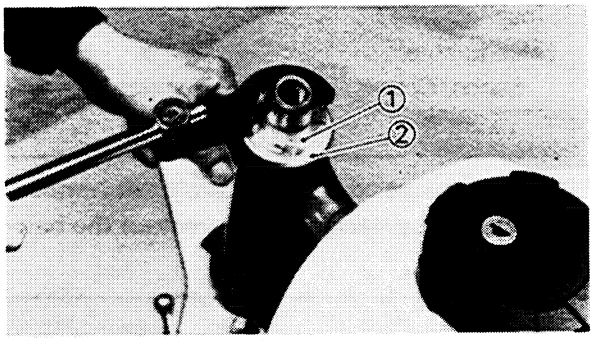
5. Remove:
   - Handlebar switch (Left)
   - Clutch cable

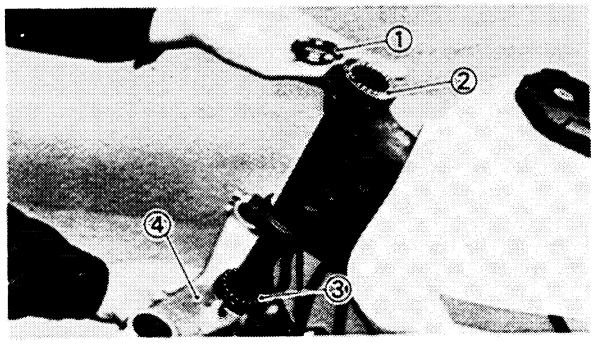


6. Loosen:
   - Screws (Handlebar switch—Right)
7. Remove:
   - Bands ①
   - Handlebar ②



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





9. Remove:
   - Ring nut ①
   - Ball race cover ②

   Use a Ring Nut Wrench.

	Ring Nut Wrench: P/N YU-33975

WARNING:

Support the under bracket so that it may not fall down.

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

NOTE:

Take care not to loose the balls.

INSPECTION

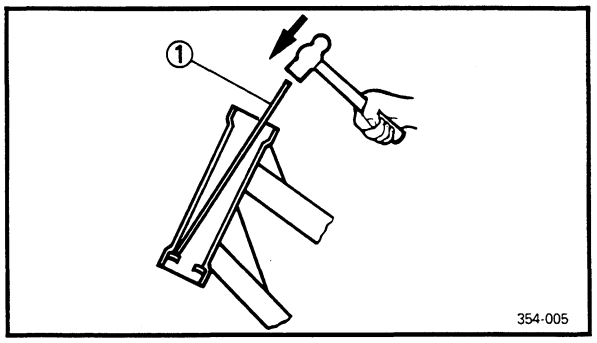
1. Wash the balls and bearing race with solvent.
2. Inspect:
   - Balls
   - Bearing races

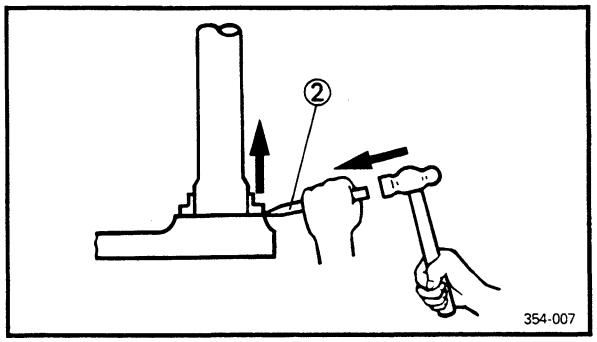
   Pitting/Damage→Replace.

NOTE:

Always replace the balls and bearings as a set.

6



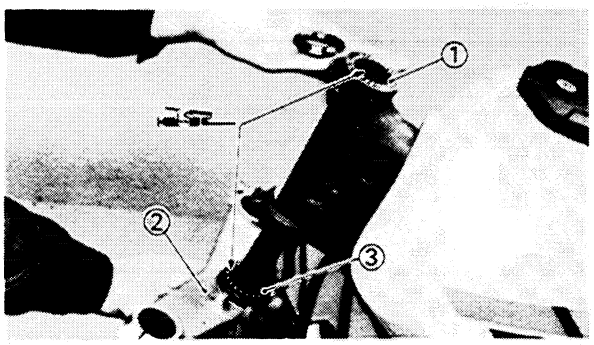


Bearing race replacement steps:
- Remove the bearing races on the head pipe using long rod ① and the hammer as shown.
- Remove the bearing race on the under bracket using the floor chisel ② and the hammer as shown.
- Install the new dust seal and races.

3. Inspect:
   - Handlebar
     Bends/Cracks/Damage→Replace.

WARNING:

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

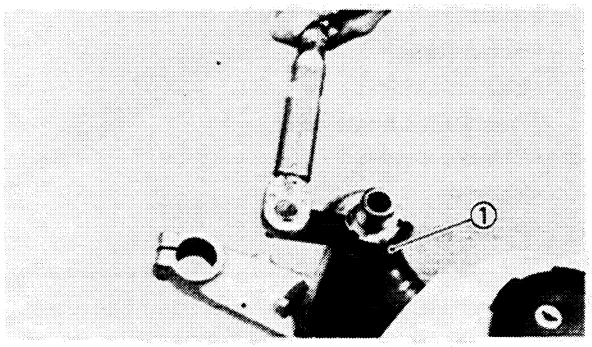


INSTALLATION

Reverse the removal procedure.
Note the following points.

1. Apply:
   - Lithium soap base grease
     To bearing race.
2. Install:
   - Upper balls ①
   - Under bracket ②
   - Lower balls ③
     Arrange the balls around race, and apply more grease.

Ball Quantity/Size
Upper 22 pcs./3/14 in
Lower 19 pcs./1/4 in



3. Tighten:
   • Ring nut

Ring nut tightening steps:
• Tighten the ring nut using the Ring Nut Wrench ①.

Ring Nut Wrench:
P/N YU-33975

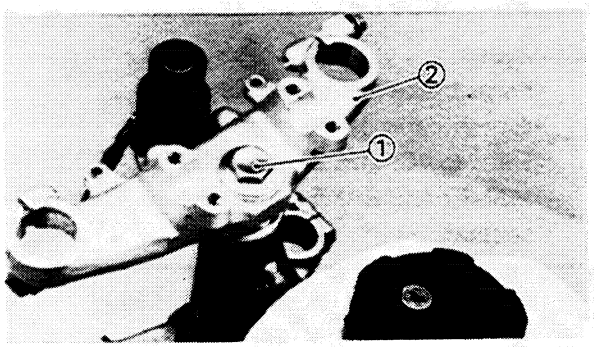
NOTE:
Set the torque wrench to the ring nut wrench so that they form a right angle.

Ring Nut (Initial Tightening):
38 Nm (3.8 m•kg, 27 ft•lb)

• Loosen the ring nut one turn.
• Retighten the ring nut using the Ring Nut Wrench.

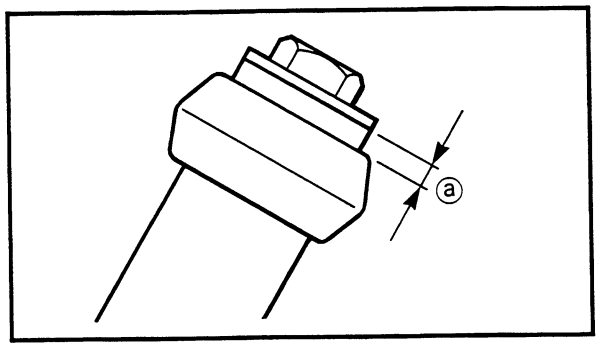
WARNING:
Avoid over-tightening.

Ring Nut (Final Tightening):
6 Nm (0.6 m•kg, 4.4 ft•lb)



4. Install:
   • Handle crown ②
   • Steering stem bolt ①

NOTE:
Temporary tighten the steering fitting bolt.



5. Install:
   • Front fork
   Refer to the "FRONT FORK—INSTALLATION" section.

ⓐ 6 mm (0.24 in)

Pinch Bolt (Under Bracket):
23 Nm (2.3 m•kg, 17 ft•lb)
Pinch Bolt (Handle Crown):
23 Nm (2.3 m•kg, 17 ft•lb)

6

6. Install:
   - Handlebar
   - Clutch cable
   - Handlebar switches
   - Brake cable
   - Bands
   - Front fender

NOTE:

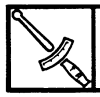
- Apply the light coat of lithium soap base grease onto the right side handlebar end.
- Apply the lithium soap base grease onto the cable end.

CAUTION:

Proper cable and lead routing is essential to insure safe motorcycle operation.
Refer to "CHAPTER 2—CABLE ROUTING" section.

Bolt (Handlebar):
23 Nm (2.3 m•kg, 17 ft•lb)

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



Front Wheel Axle:
90 Nm (9.0 m•kg, 65 ft•lb)

8. Adjust:
   - Front brake lever free play
   - Clutch cable free play
     Refer to "CHAPTER 3—CLUTCH ADJUSTMENT and BRAKE CABLE ADJUSTMENT" section.

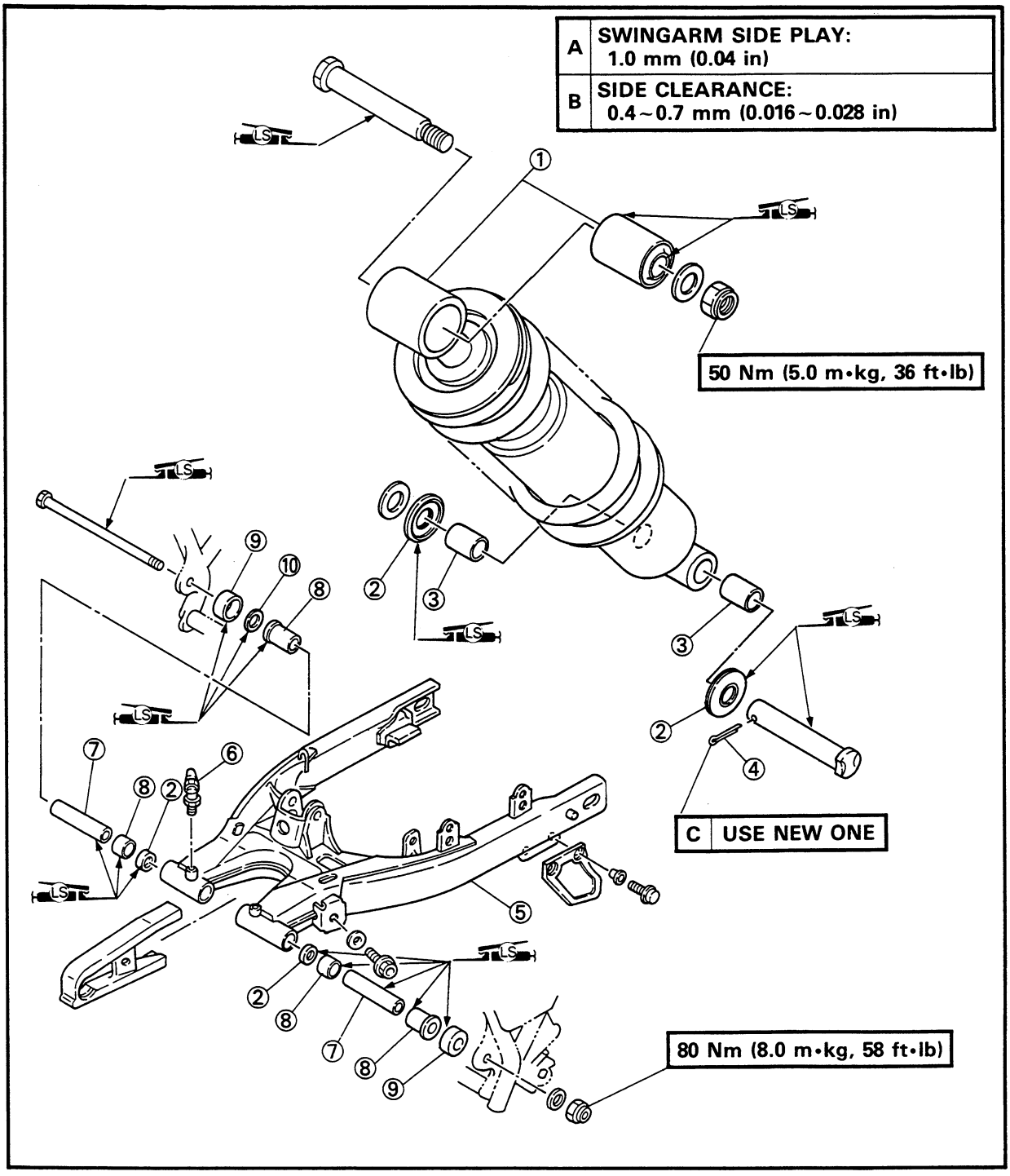
Front Brake Lever Free Play:
10~20 mm (0.4~0.8 in)
Clutch Lever Free Play:
2~3 mm (0.08~0.12 in)

6

REAR SHOCK ABSORBER AND SWINGARM

(MONOCROSS SUSPENSION "DE CARBON" SYSTEM)

① Rear shock absorber
② Oil seal
③ Bush
④ Cotter pin
⑤ Swingarm
⑥ Grease nipple
⑦ Bush
⑧ Collar
⑨ Thrust cover
⑩ Shim

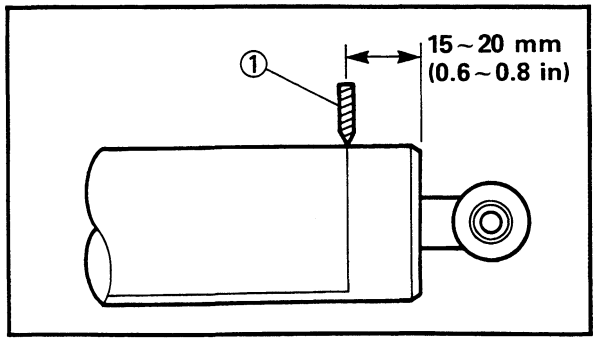


HANDLING NOTES

WARNING:

This shock absorber contains highly pressurized nitrogen gas. Read and understand the following information before handling the shock absorber. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling.

- **Do not tamper with or attempt to open the cylinder assembly.**
- **Do not subject shock absorber to an open flame or other high heat source. This may cause the unit to explode due to excessive gas pressure.**
- **Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.**
- **Take care not to scratch the contact surface of the piston rod with the cylinder; or oil could leak out.**
- **When scrapping the shock absorber, follow the instructions on disposal.**



NOTES ON DISPOSAL

Shock absorber disposal steps:

Gas pressure must be released before disposing of shock absorber. To do so, drill ① a 2~3 mm (0.08~0.12 in) hole through the cylinder wall at a point 15~20 mm (0.6~0.8 in) from the bottom end of the gas chamber.

CAUTION:

Wear eye protection to prevent eye damage from escaping gas and/or metal chips.

6

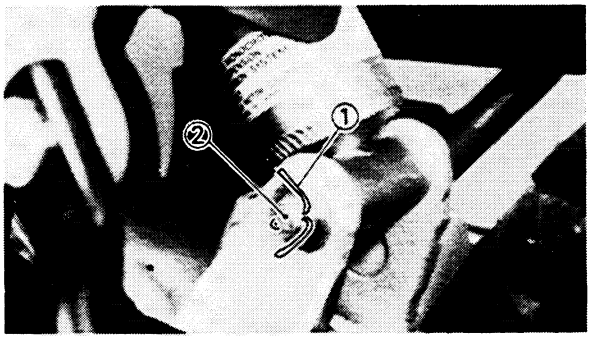
REMOVAL

WARNING:

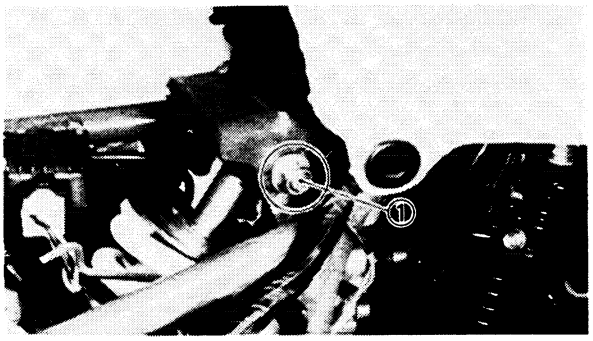
Securely support the motorcycle so there is no danger of it falling over.

Rear Shock Absorber

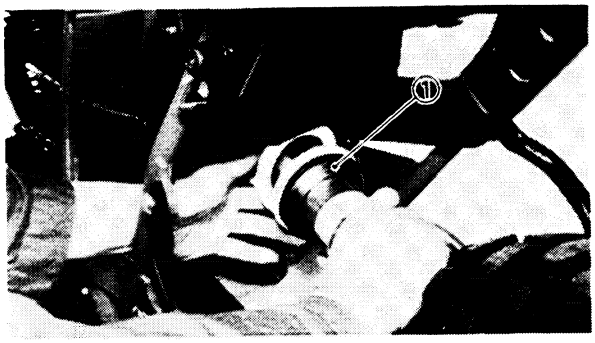
1. Remove:
   - Seat
   - Side covers (Left and right)
2. Place a jack under the engine and elevate the motorcycle.



3. Remove:
   - Cotter pin ①
   - Plain washer
   - Pin (Rear shock absorber—Lower) ②



4. Remove:
   - Bolt (Fuel tank)
5. Lift up the rear side of the fuel tank.
6. Remove:
   - Bolt (Rear shock absorber—Upper) ①

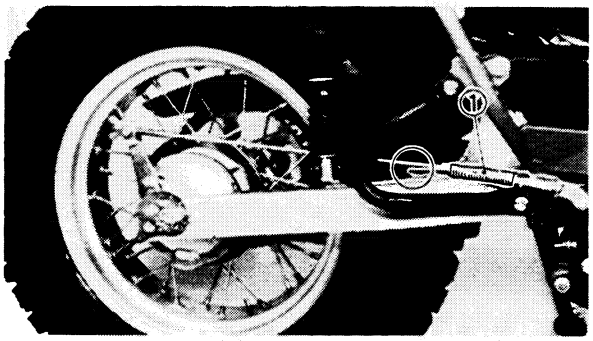


7. Remove:
   - Rear shock absorber ①

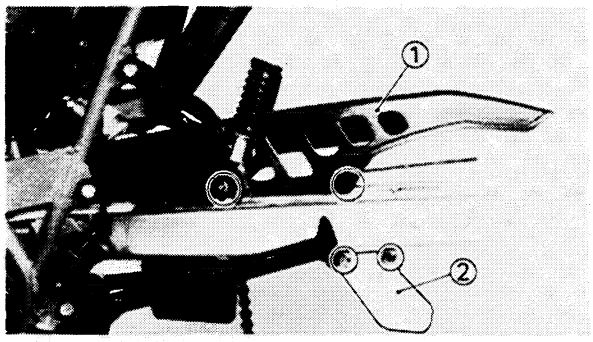
Swingarm

WARNING:

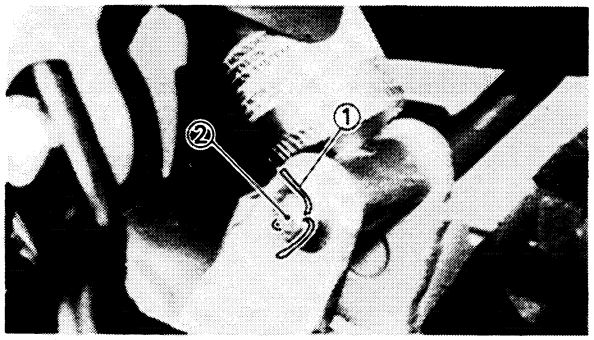
Securely support the motorcycle so there is no danger of it falling over.



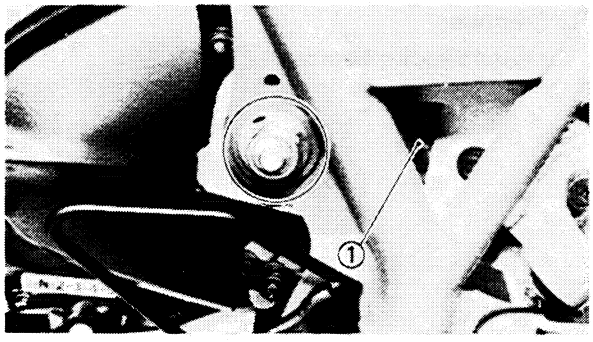
1. Unhook the return spring ①.
2. Remove:
   - Rear wheel
     Refer to "REAR WHEEL—REMOVAL" section.



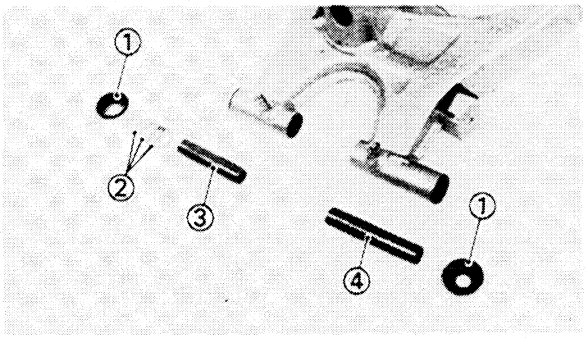
3. Remove:
   - Chain cover ①
   - Chain guide ②



4. Remove:
   - Cotter pin ①
   - Pin (Rear shock absorber—Lower) ②

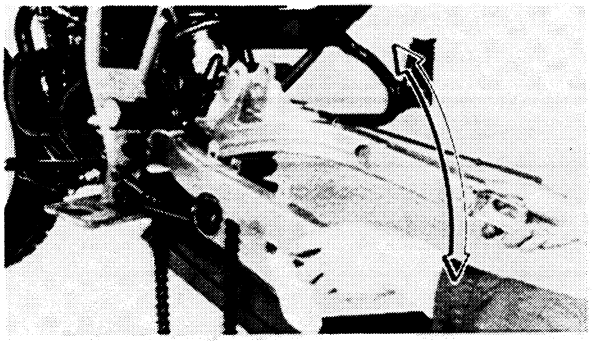


5. Remove:
   - Swingarm ①



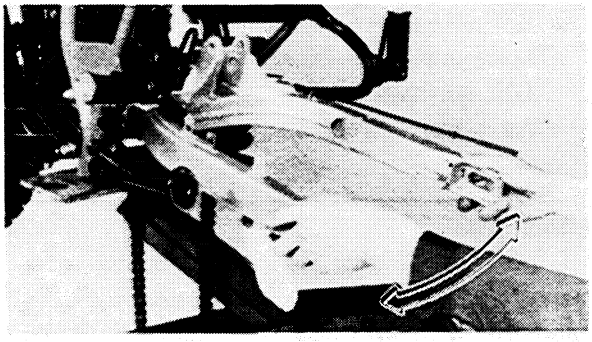
DISASSEMBLY

1. Remove:
   - Thrust covers ①
   - Shim ②
   - Bush (Right) ③
   - Bush (Left) ④



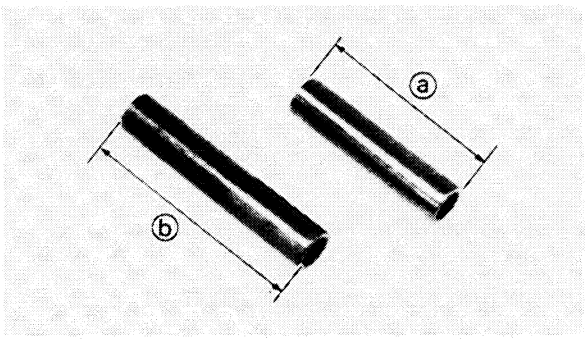
INSPECTION

1. Check:
   - Swingarm (Vertical movement)
     Move swingarm up and down.
     Tightness/Binding/Rough sports→Inspect/Grease the swingarm pivot.

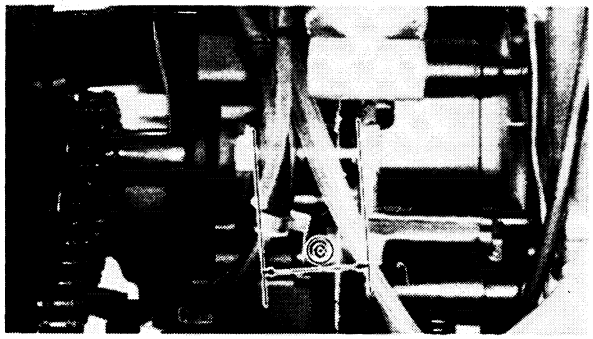


2. Check:
   - Swingarm (side play)
     Over specified limit→Replace bush or adjust side clearance.
     Move swingarm from side to side.

Side Play (At End of Swingarm):
1.0 mm (0.04 in)

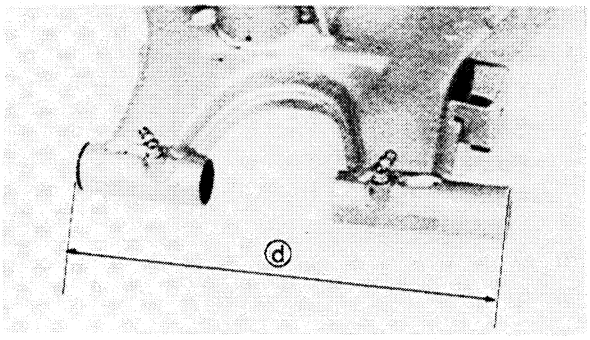


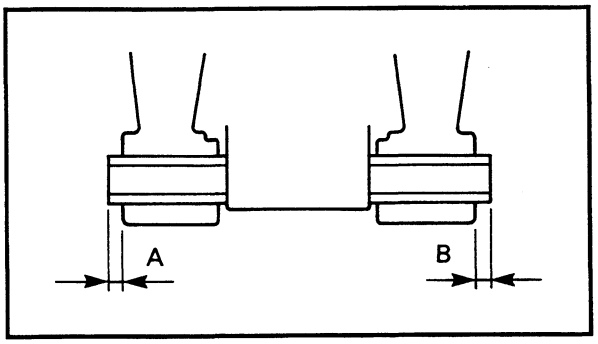
Side clearance adjustment steps:
- Remove the swingarm, thrust covers, shim(s) and bushes. Refer to "REMOVAL" and "DISASSEMBLY" section.
- Wash them in a solvent.
- Measure the bush (Right) length ⓐ and bush (Left) length ⓑ.



- Measure the engine mounting boss width ⓒ.

6





• Mesure the swingarm head pipe length ⓓ.

• Calculate the side clearance "A + B" by using formula given below.

"A + B" = (ⓐ + ⓑ + ⓒ) − ⓓ

If the side clearance is out of specification, adjust it to specification by installing the shim(s).

Side Clearance ("A + B"):
0.4 ~ 0.7 mm (0.016 ~ 0.028 in)

NOTE:

- The adjust shim is available only in the 0.3 mm (0.012 in)-thick type.
- When shim(s) is required, install it on the right side.

Example:

If the bush (Right) length ⓐ, bush (Left) length ⓑ, the engine mounting boss width ⓒ and the swingarm head pipe length ⓓ are below:

ⓐ ..... 73.6 mm (2.90 in)
ⓑ ..... 93.6 mm (3.69 in)
ⓒ ..... 67.3 mm (2.65 in)
ⓓ ..... 233.0 mm (9.17 in)

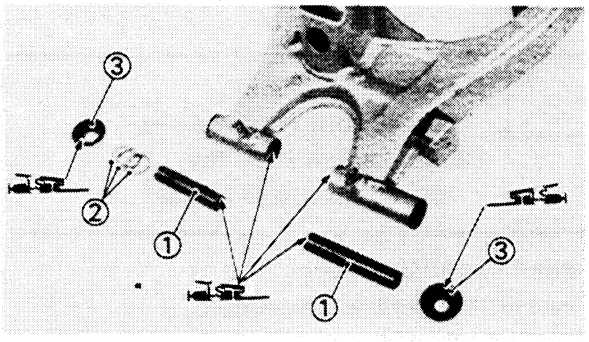
Side clearance "A + B"
= (ⓐ + ⓑ + ⓒ) − ⓓ
= (73.6 + 93.6 + 67.3) − 233.0
= 1.5 mm (0.60 in)

Then, install three shims on right side swingarm pivot.

(After installing the shims, the clearance should be 0.6 mm (0.020 in).)

6

3. Wash the bushes, the swingarm pivot, shims and thrust covers in a solvent.
4. Inspect:
   • Rear shock absorber
   Oil leaks/Damage → Replase.
5. Inspect:
   • Swingarm
   Bends/Cracks/Damage → Replace.
6. Inspect:
   • Bushes
   Wear/Damage → Replace.
7. Inspect:
   • Oil seal (Thrust cover)
   • Oil seal (Swingarm pivot)
   Damage → Replace.



ASSEMBLY

1. Install:
   • Bush (Left and right) ①
   • Shim(s) ②
   • Thrust cover ③
   To swingarm.

NOTE:

Apply the lithium soap base grease onto the bushes, thrust covers, oil seals and swingarm pivot.

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): **80 Nm (8.0 m•kg, 58 ft•lb)**

2. Install:
   - Pin (Rear shock absorber—Lower)
   - Plain washer
   - Cotter pin

WARNING:

Always use a new cotter pin.

3. Install:
   - Rear wheel

   Refer to "REAR WHEEL—INSTALLATION" section.

Nut (Rear Wheel Axle):
90 Nm (9.0 m•kg, 65 ft•lb)

4. Adjust:
   - Brake pedal free play
   - Drive chain slack

   Refer to "CHAPTER 3—REAR BRAKE ADJUSTMENT and DRIVE CHAIN ADJUSTMENT" section.

Drive Chain Slack:
30~40 mm (1.2~1.6 in)
Brake Pedal Free Play:
20~30 mm (0.8•1.2 in)

Rear Shock Absorber

Reverse the removal procedure.
Note the following points.

1. Install:
   - Rear shock absorber

Bolt (Rear Shock Absorber—Upper):
50 Nm (5.0 m•kg, 36 ft•lb)

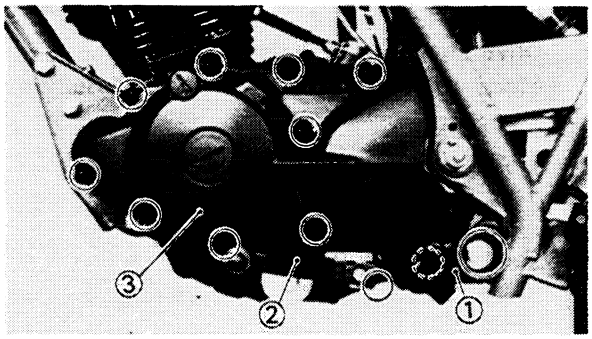
2. Install:
   - Pin
   - Plain washer
   - Cotter pin

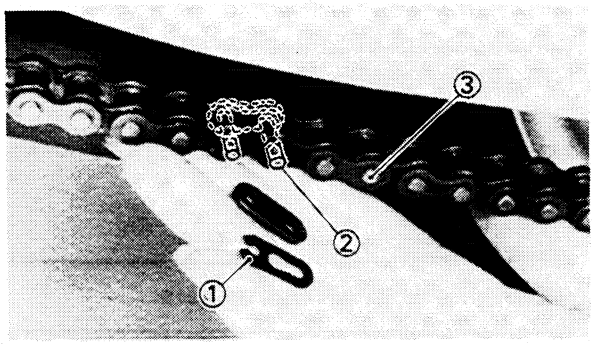
NOTE:

Apply the lithuim soap base grease onto the pin, bolt and oil seal lip.

WARNING:

Always use a new cotter pin.





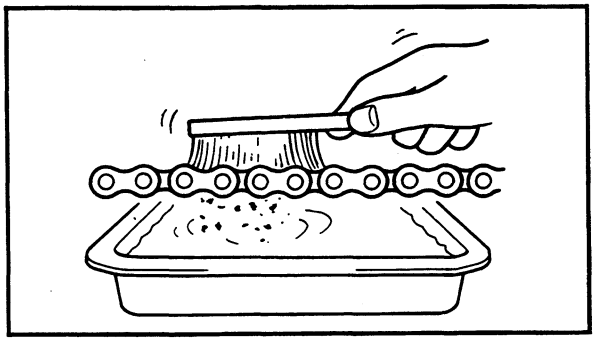
DRIVE CHAIN AND SPROCKETS

REMOVAL

1. Drain:
   - Engine oil

   Refer to "CHAPTER 3—ENGINE OIL REPLACEMENT" section.
2. Remove:
   - Footrest (Left) ①
   - Change pedal ②
   - Crankcase cover (Left) ③
3. Remove:
   - Clip (Drive chain) ①
   - Joint (Drive chain) ②
   - Drive chain ③
4. Remove:
   - Rear wheel

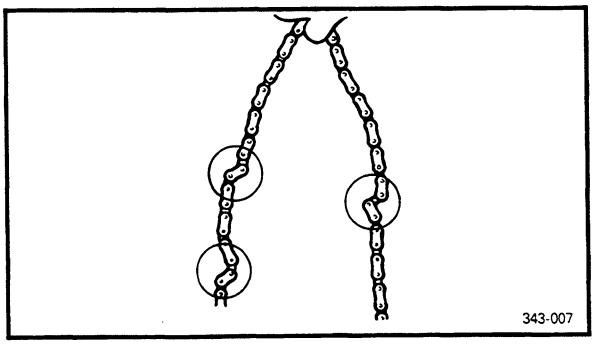
   Refer to "REAR WHEEL—REMOVAL" section.



INSPECTION

1. Clean:
   - Drive chain

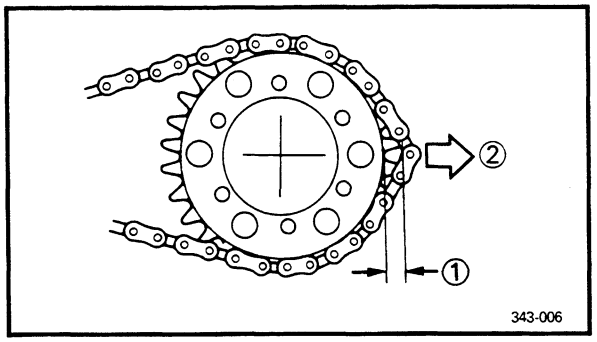
   Place it in solvent, and brush off as much dirt as possible. Then remove the chain from the solvent and dry the chain.



2. Check:
   - Drive chain stiffness

   Clean and oil the chain and hold as illustrated.

   Stiff→Replace drive chain.

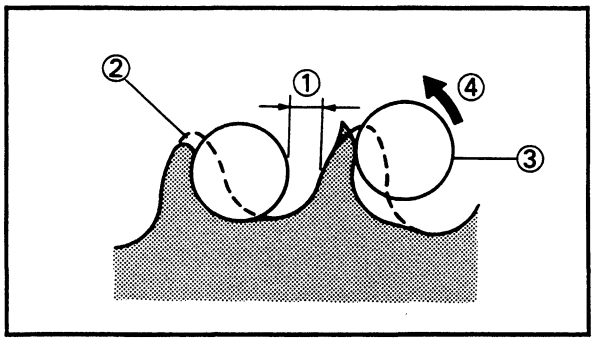


3. Check:
   - Drive chain wear

   Pull ② the chain away from the driven sprocket.

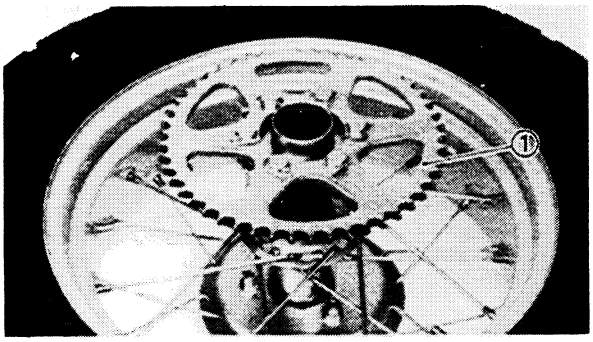
   Distance chain/sprocket higher than 1/2 tooth ①→Replace drive chain.

6



4. Inspect:
   Drive sprocket/Driven sprocket
   More than 1/4 teeth ① wear→Replace sprocket.
   Bent teeth→Replace sprocket.

② Correct
③ Roller
④ Slip off



Driven sprocket replacement steps:
- Straighten the lock washer tabs and remove the driven sprocket ①.
- Install a new driven sprocket and lock washers.

WARNING:

Always use new lock washers.

Nut (Driven Sprocket):
35 Nm (3.5 m•kg, 25 ft•lb)
Use LOCTITE®.

- Bend the lock washer tabs along the nut flats.

INSTALLATION

Reverse the removal steps.
Note the following points.

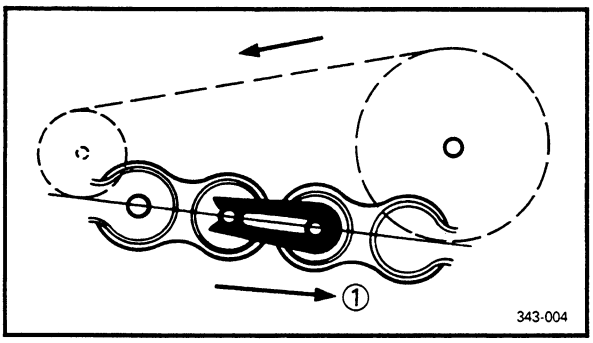
1. Install:
   - Rear wheel
     Refer to "CHAPTER 3—REAR WHEEL INSTALLATION" section.

Nut (Rear Wheel):
90 Nm (9.0 m•kg, 65 ft•lb)

2. Install:
   - Drive sprocket
   - Fitting plate

Bolt (Drive Sprocket):
4 Nm (0.4 m•kg, 2.9 ft•lb)

6



3. Install:
   - Drive chain
   - Joint (Drive chain-New)
   - Clip (Drive chain)

NOTE:

During reassembly, the master link clip must be installed with the rounded end facing the direction of travel.

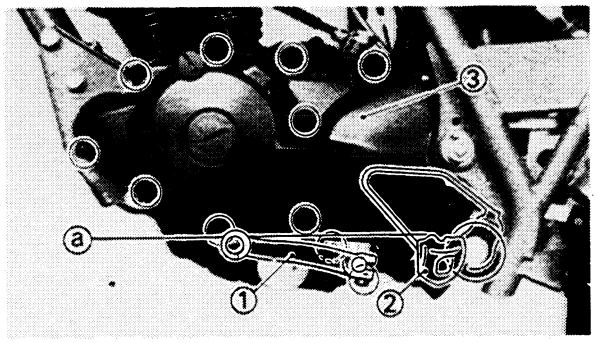
WARNING:

Alway use a new Joint.

① Turning direction

4. Lubricate:
   - Drive chain

Chain Lube:
Yamaha Chain Lube or Equivalent



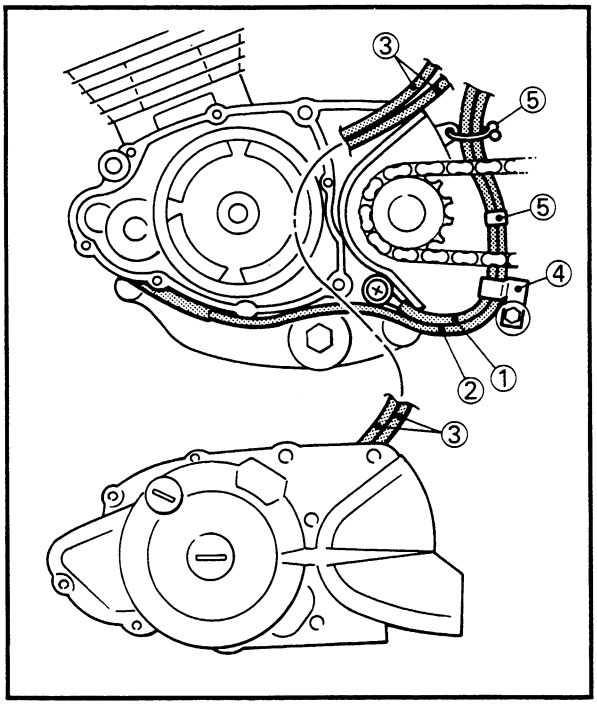
5. Install:
   - Dowel pins
   - Gasket (New)
   - Crankcase cover (Left) ③
   - Change pedal ①
   - Footrest (Left) ②
   - Clamp ④

Screws (Crankcase Cover):
7 Nm (0.7 m•kg, 5.1 ft•lb)
Bolt (Change Pedal):
10 Nm (1.0 m•kg, 7.2 ft•lb)
Bolt (Footrest):
60 Nm (6.0 m•kg, 43 ft•lb)

NOTE:

Install the change pedal so that its top height ⓐ is same as footrest.

6



CAUTION:

- **Before installing the crankcase cover (Left), route the neutral lead ① and starter motor lead ② under the drive axle.**
- **Pass the CDI magneto leads ③ in front of the drive axle as shown.**
- **Take care not to pinch the above leads with crankcase cover (Left).**

Refer to "CHAPTER 3—CABLE ROUTING" section.

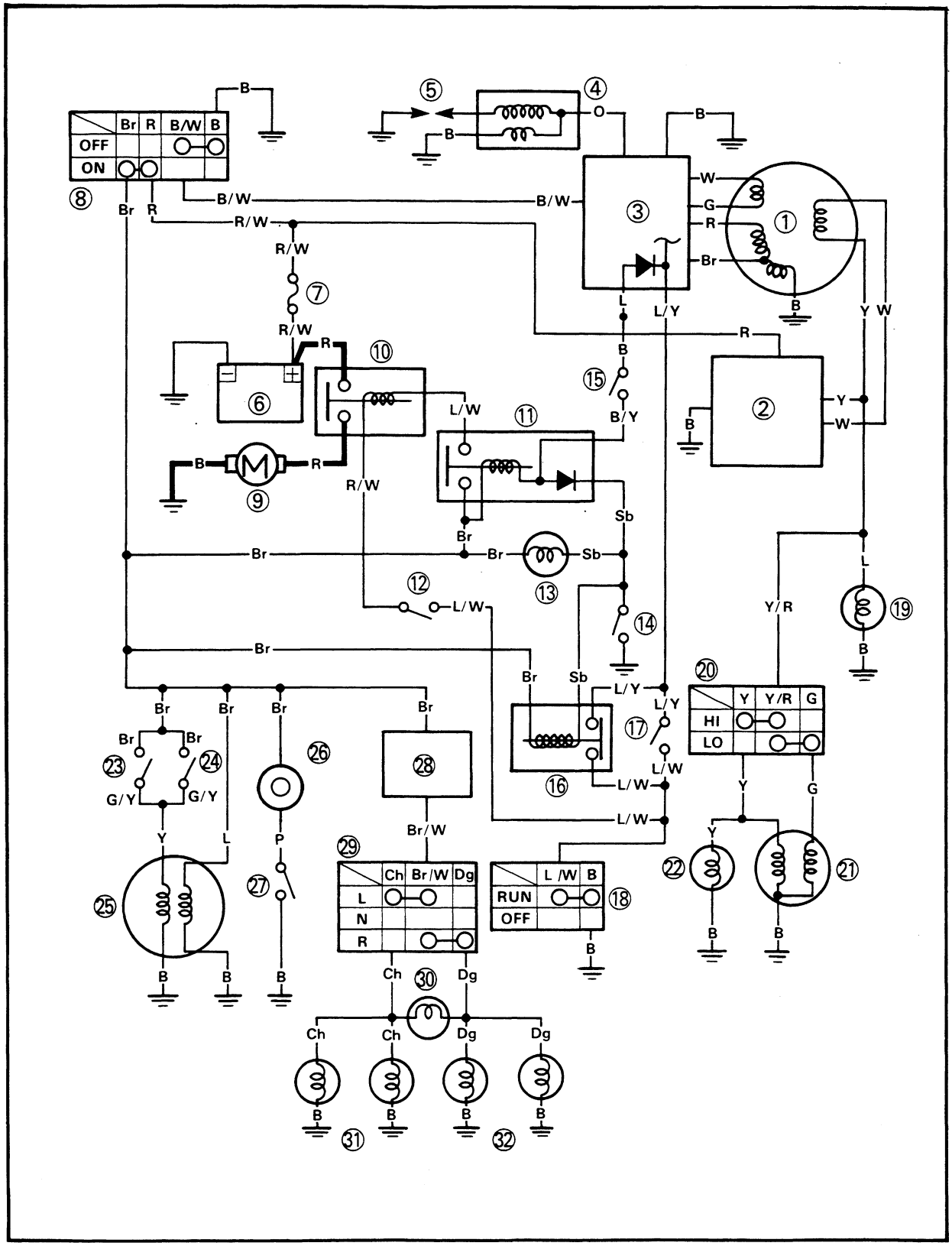
6. Fill:
   - Crankcase

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

⑤ Clamp

ELECTRICAL

TW200T/TC CIRCUIT DIAGRAM



① CDI magneto
② Rectifier/Regulator
③ CDI unit
④ Ignition coil
⑤ Spark plug
⑥ Battery
⑦ Fuse
⑧ Main switch
⑨ Starter motor
⑩ Starter relay
⑪ Starting circuit cut-off relay
⑫ "START" switch
⑬ "NEUTRAL" indicator light
⑭ Neutral switch
⑮ Clutch switch
⑯ Ignition circuit cut-off relay
⑰ Sidestand switch
⑱ "ENGINE STOP" switch
⑲ Meter light
⑳ "LIGHTS" (Dimmer) switch
㉑ Headlight
㉒ "HIGH BEAM" indicator light
㉓ Front brake switch
㉔ Rear brake switch
㉕ Tail/Brake light
㉖ Horn
㉗ "HORN" switch
㉘ Flasher relay
㉙ "TURN" switch
㉚ "TURN" indicator light
㉛ Flasher light (Left)
㉜ Flasher light (Right)

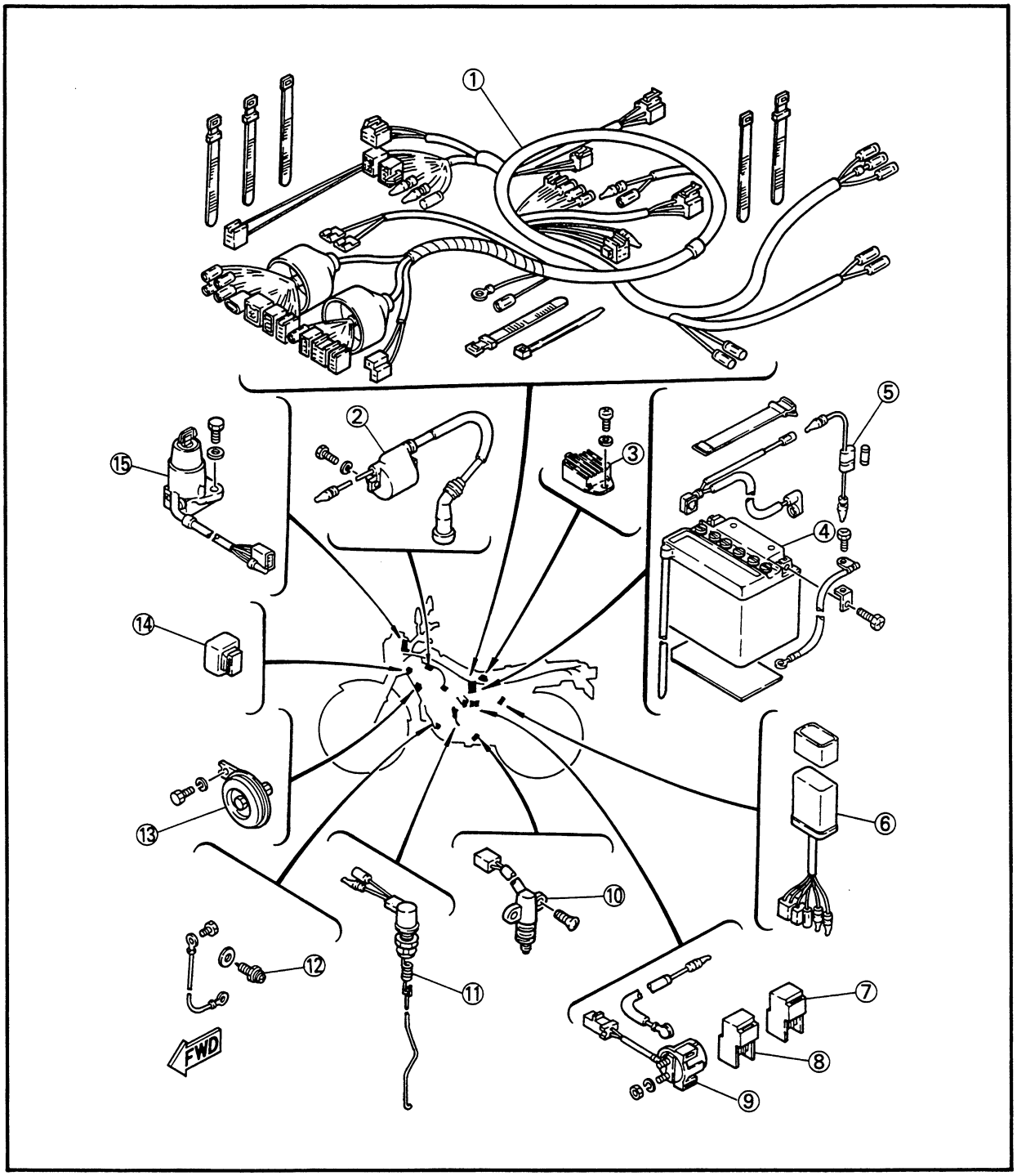
COLOR CODE

L	Blue
R	Red
G	Green
B	Black
Y	Yellow
P	Pink
W	White
O	Orange
Dg	Dark green
Br	Brown
Ch	Chocolate
Sb	Sky blue
R/W	Red/White
L/W	Blue/White
L/Y	Blue/Yellow
Y/R	Yellow/Red
B/Y	Black/Yellow
B/W	Black/White
G/Y	Green/Yellow
Br/W	Brown/White

ELECTRICAL COMPONENTS

① Wireharness
② Ignition coil
③ Rectifier/Regulator
④ Battery
⑤ Fuse
⑥ CDI unit
⑦ Starting circuit cut-off relay
⑧ Ignition circuit cut-off relay
⑨ Ignition coil
⑩ Sidestand switch
⑪ Rear brake switch
⑫ Neutral switch
⑬ Horn
⑭ Flasher relay
⑮ Main switch

SPECIFICATIONS	RESISTANCE
IGNITION COIL:	
PRIMARY	1.3 ~ 1.9Ω at 20°C (68°F)
SECONDARY	5.3 ~ 7.9kΩ at 20°C (68°F)
PICK-UP COIL	650 ~ 790Ω at 20°C (68°F)
SOURCE COIL	400 ~ 450Ω at 20°C (68°F)
CHARGING COIL	0.3 ~ 0.5Ω at 20°C (68°F)

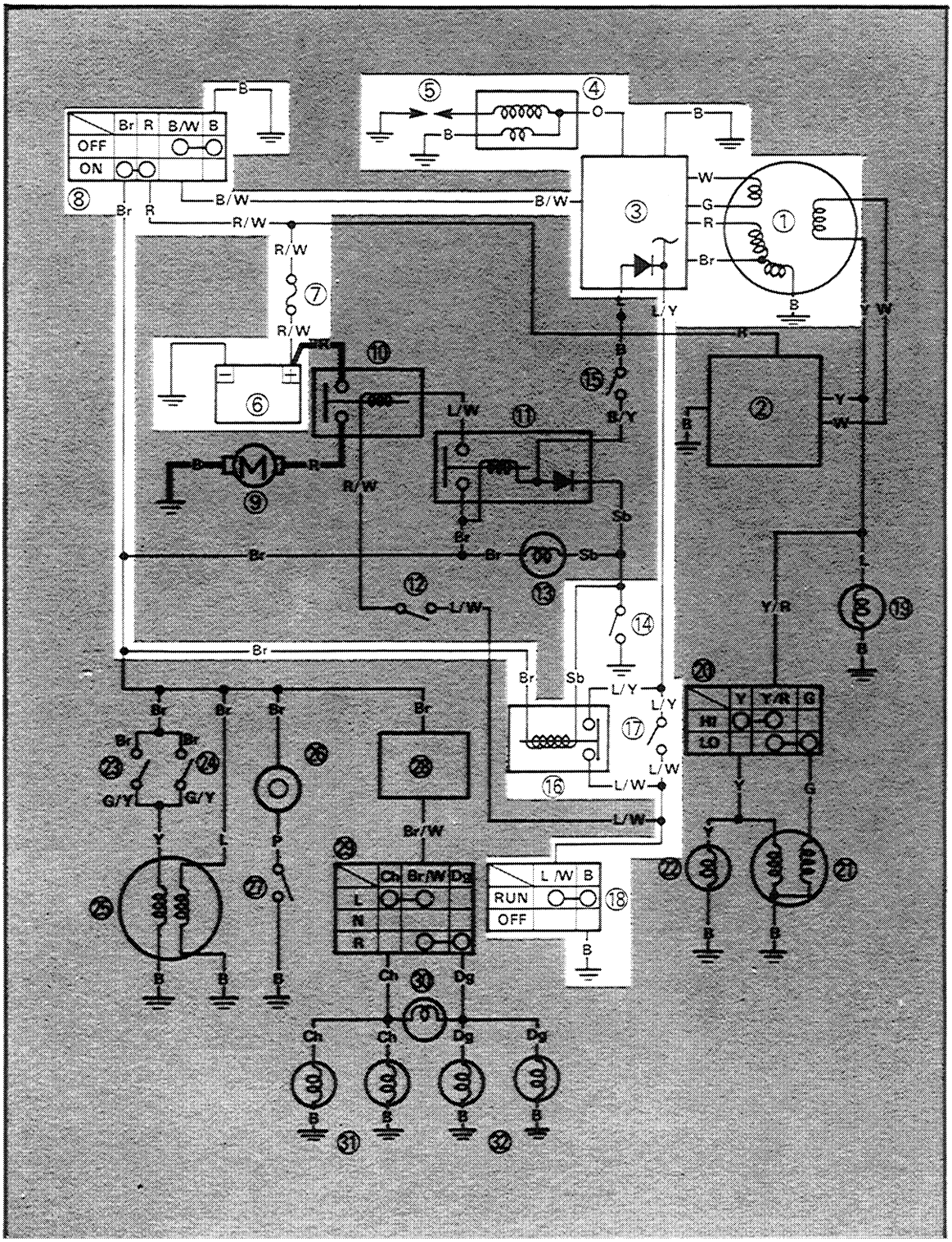


7

IGNITION SYSTEM

CIRCUIT DIAGRAM

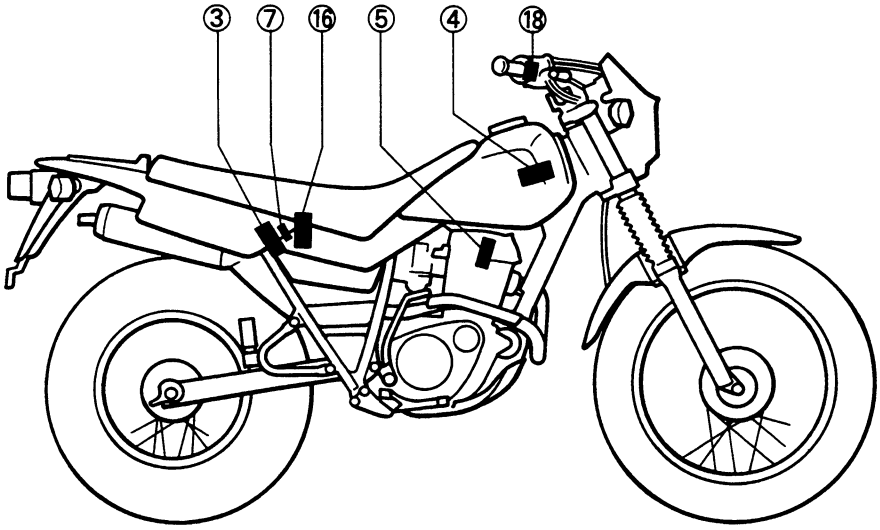
Below circuit diagram shows ignition circuit.

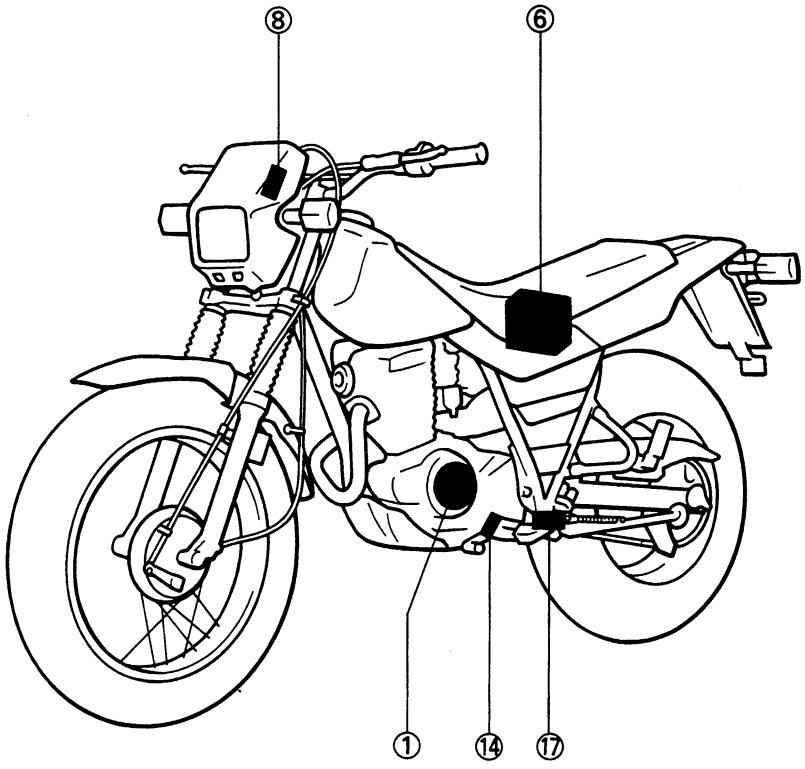


NOTE:

For the encircled numbers and color codes, see 7-2.

① CDI magneto
③ CDI unit
④ Ignition coil
⑤ Spark plug
⑥ Battery
⑦ Fuse
⑧ Main switch
⑭ Neutral switch
⑯ Ignition circuit cut-off relay
⑰ Sidestand switch
⑱ "ENGINE STOP" switch





TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the seat, side covers and fuel tank.

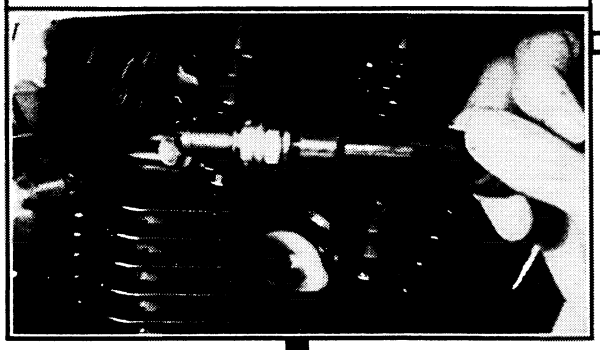
IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE (NO SPARK OR INTERMITTENT SPARK).

1. Spark plug inspection:
   Check the spark plug condition. Refer to "CHAPTER 3. SPARK PLUG INSPECTION" section.

FAULTY → Replace or regap spark plug.

OK ↓

2. Ignition spark test (With spark plug):
   - Install the spark plug to the plug cap.
   - Ground the spark plug to the cylinder head.
   - Turn the main switch to "ON" and "ENGINE STOP" switch to "RUN", then, shift the gear in neutral.
   - Push the "START" switch.
   - Check the ignition spark condition.



SPARK → Ignition circuit is good.

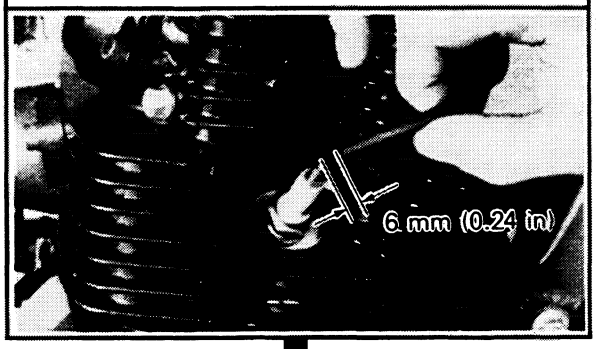
NO SPARK ↓

*

*

3. Ignition spark gap test (Without spark plug and cap):
   - Remove the spark plug and plug cap.
   - Hold the spark plug lead 6 mm (0.24 in) from the cylinder head.
   - Repeat the aforementioned test.
   - Check the ignition spark condition.

SPARK → Spark plug and/or plug cap is faulty. Replace faulty part(s).



NO SPARK

4. "ENGINE STOP" and main switches conduct check:
   Check the "ENGINE STOP" and main switch for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → "ENGINE STOP" and/or main switches is faulty. Replace faulty part(s).

OK

*

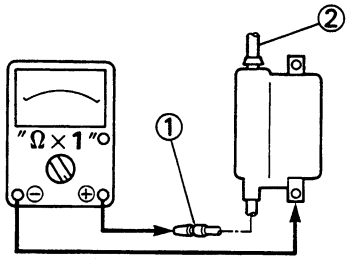
5. Ignition coil resistance test:
   - Disconnect the ignition coil lead (Orange ①) and spark plug lead ②.
   - Connect the Pocket Tester (YU-03112) as shown.
   - Measure the primary and secondary coil resistances.

Primary Coil Resistance A :
1.3~1.9Ω at 20°C (68°F)
Secondary Coil Resistance B :
5.3~7.9kΩ at 20°C (68°F)

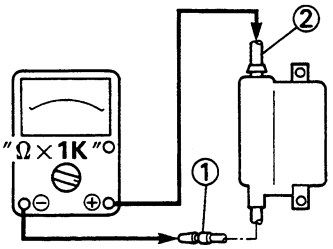
OUT OF SPECIFICATION

Ignition coil is faulty.
Replace it.

A



B



BOTH RESISTANCES
MEET SPECIFICATIONS

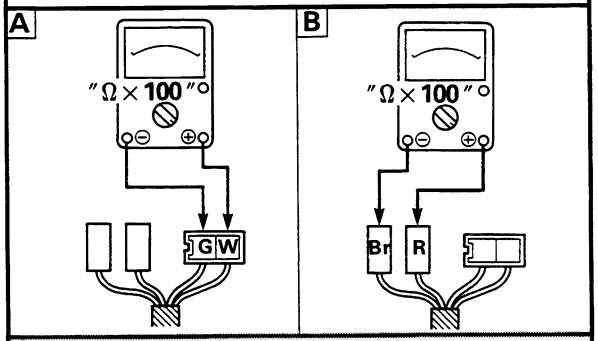
*

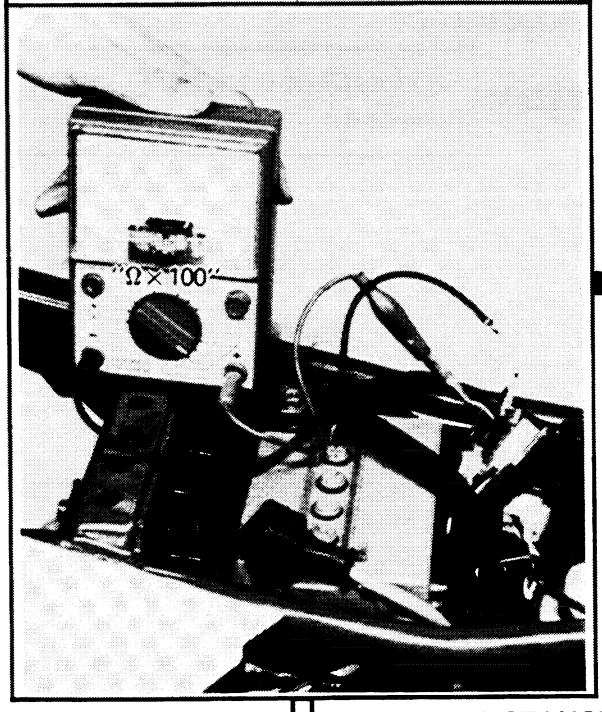
7

*

6. Source coil resistance test:
   - Disconnect the Pick-up coil leads (Green—White) and source coil leads (Brown—Red) from the wireharness.
   - Connect the Pocket Tester (YU-03112) as shown.
   - Measure the pick-up coil and source coil resistance.

Pick-up Coil Resistance (Green—White) A :
650~790Ω at 20°C (68°F)
Source Coil Resistance (Brown—Red) B :
400~450Ω at 20°C (68°F)





OUT OF SPECIFICATION

Pick-up coil and/or source coil is faulty.
Replace faulty coil(s).

BOTH RESISTANCES MEET SPECIFICATIONS

*

*

7. Battery inspection:
Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.

FAULTY → Battery is faulty. Replace it.

OK

8. Fuse inspection:
Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

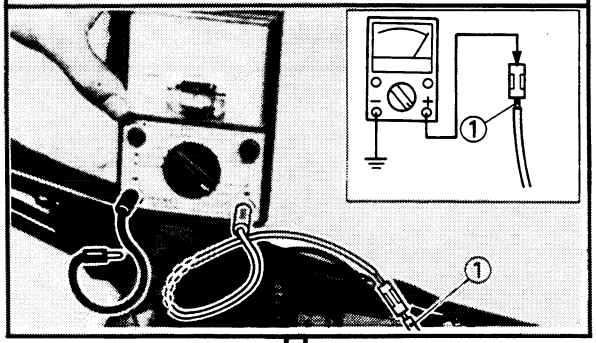
OK

9. Neutral switch inspection:
- Disconnect the neutral switch lead ① (Sky blue) from wireharness.
- Connect the positive lead of the Pocket Tester (YU-03112) to the neutral switch lead.
- Ground the negative lead of the Pocket Tester.
- Shift in neutral, and check the neutral switch for continuity.

BAD CONDITION → Neutral switch is faulty. Replace it.

Transmission Position	Good Condition	Bad Condition		
In neutral	○	○	×	×
In gear	×	○	×	○

○: Continuity ×: Discontinuity



GOOD CONDITION

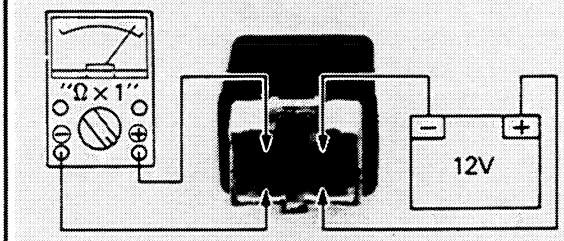
*

7

*

10. Ignition circuit cut-off relay inspection:
    - Disconnect the ignition circuit cut-off relay coupler (Blue/Yellow, Sky blue Blue/White, Brown) lead.
    - Remove the ignition circuit cut-off relay.
    - Connect the Pocket Tester (YU-03112) and Battery (12V) as shown.
    - Check the relay for continuity.

Battery Connected:
About ZeroΩ
Battery Disconnected: ∞



FAULTY → Ignition circuit cut-off relay is faulty. Replace it.

OK

*

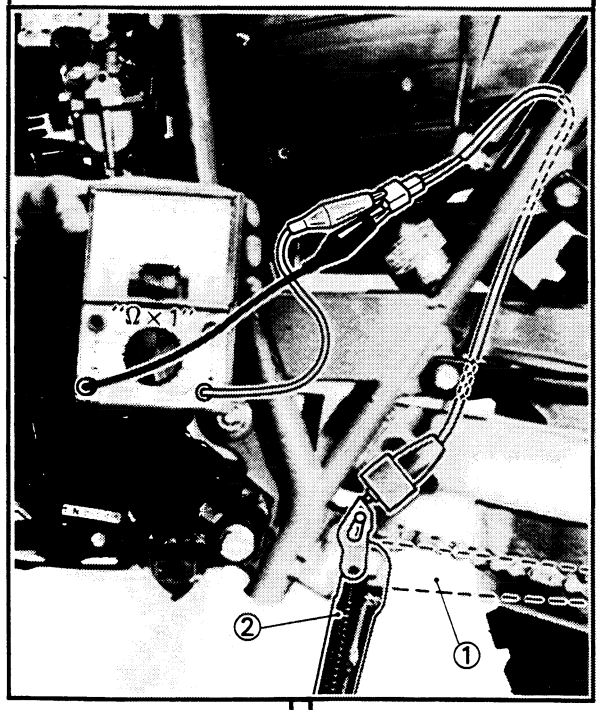
*

11. Sidestand switch conduct check:
- Disconnect the sidestand switch lead coupler (Blue/Yellow, Blue/White) from wire-harness.
- Connect the Pocket Tester (YU-03112) to the sidestand switch leads.
- Move the sidestand up or down, and check the sidestand switch for continuity.

Sidestand Position	Good Condition	Bad Condition		
Up ①	○	○	×	×
Down ②	×	○	×	○

○: Continuity ×: Discontinuity

BAD CONDITION → Sidestand switch is faulty. Replace it.



GOOD CONDITION

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

POOR CONNECTION → Correct.

OK

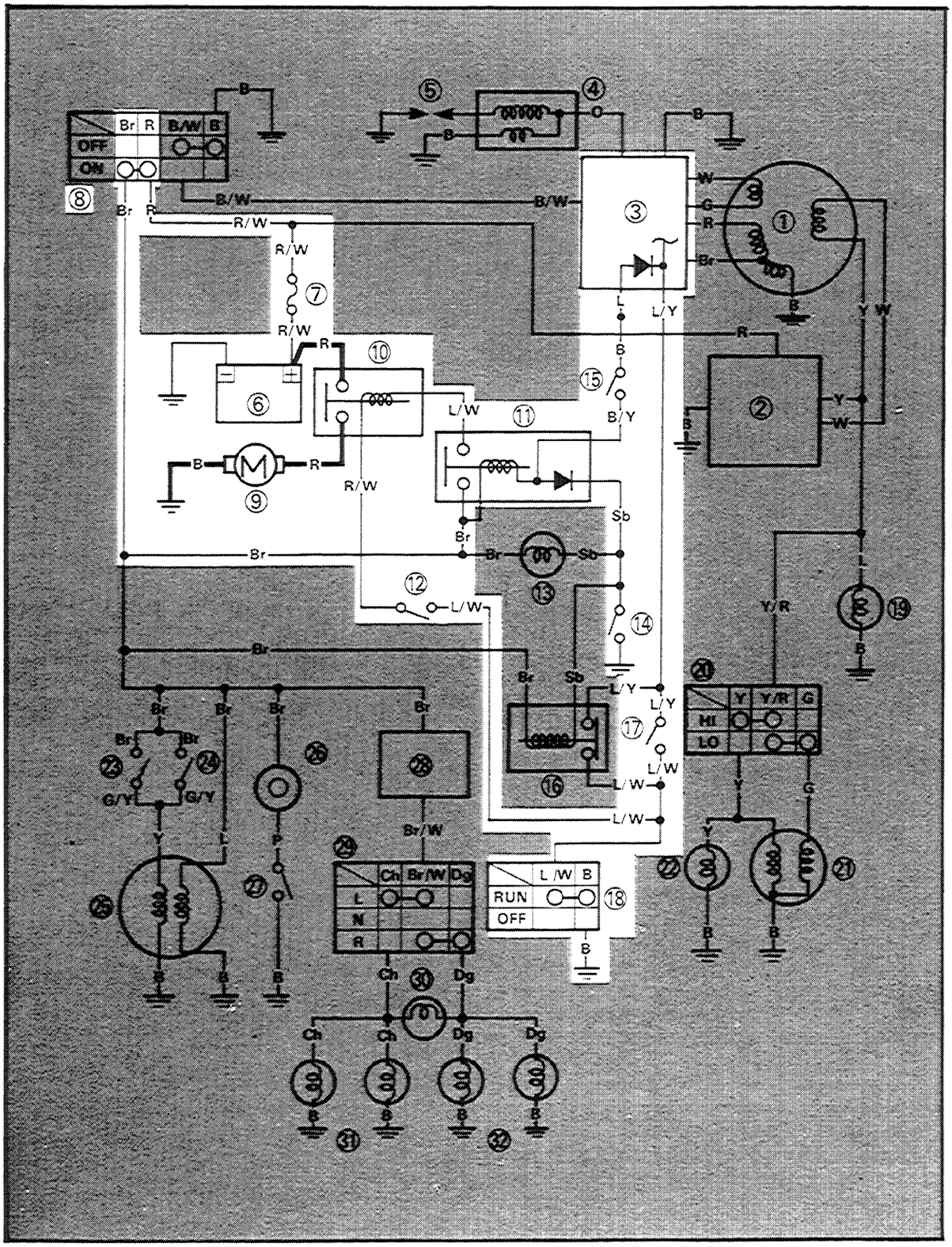
CDI unit is faulty. Replace it.

7

ELECTRICAL STARTING SYSTEM

CIRCUIT DIAGRAM

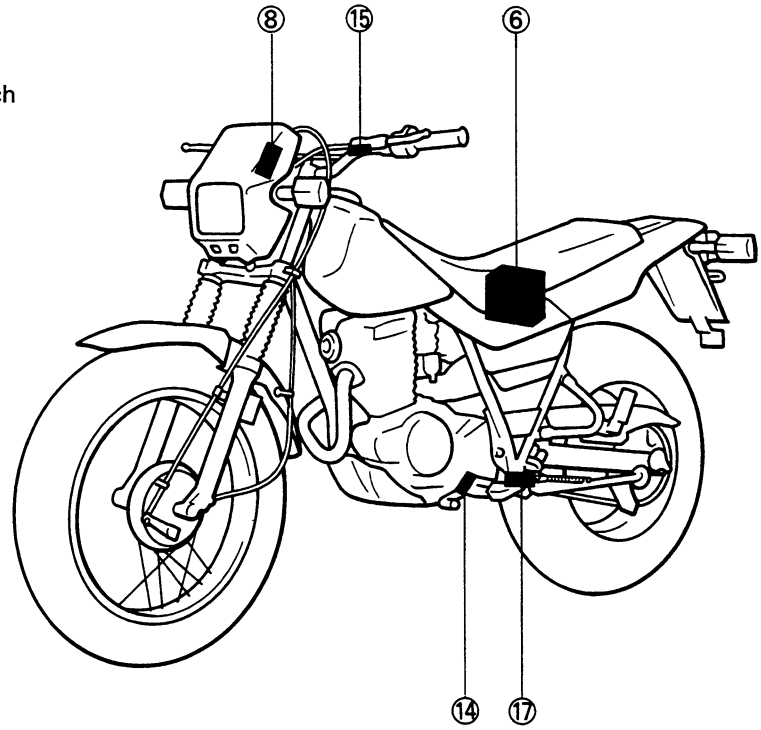
Below circuit diagram shows electrical starting circuit.

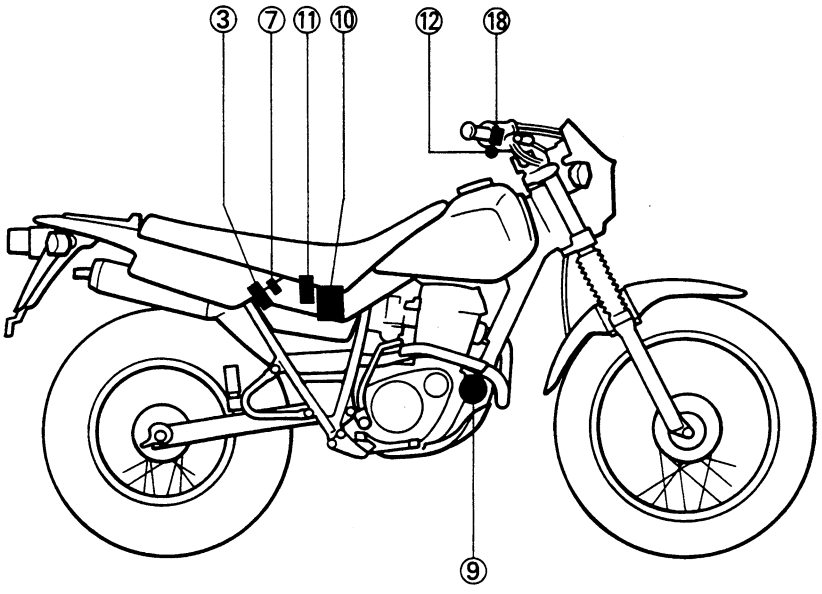


TE:

the encircled numbers and color codes, see 7-2.

CDI unit
Battery
Fuse
⑧ Main switch
⑨ Starter motor
⑩ Starter relay
⑪ Starting circuit cut-off relay
⑫ "START" switch
⑭ Neutral switch
⑮ Clutch switch
⑰ Sidestand switch
⑱ "ENGINE STOP" switch





TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the side covers and seat.

Troubleshooting Chart

THE STARTER MOTOR DOES NOT OPERATE.

⇩

1. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

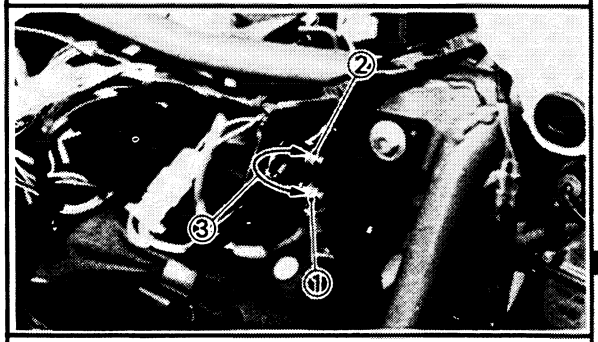
⇩ OK

2. Battery inspection:
   Check the battery inspection. Refer to "CHAPTER 3. BATTERY INSPECTION" section.

FAULTY → Battery is faulty.
Recharge or replace battery.

⇩ OK

3. Starter motor test:
   - Connect the battery positive terminal ① and starter motor cable ② using the jumper lead ③ *.
   - Check the starter motor operation.



- If the starter motor is operated, go to the next steps. If not, repair and/or replace the starter motor.

FAULTY → Starter motor is faulty. Repair or replace starter motor. Refer to "STARTER MOTOR" section.

⇩ OK

*

WARNING:

- **A wire for the jumper lead must have the equivalent capacity as that of the battery lead or more, otherwise it may cause the jumper lead to be burned.**
- **This check is likely to produce sparks, so be sure that no flammable gas or fluid is in the vicinity.**

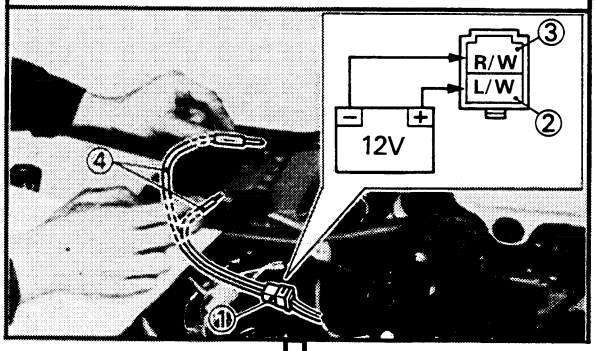
7

*

STARTER MOTOR DOES NOT MOVE.

4. Starter relay test:
   - Disconnect the starter relay coupler ① (Blue/White and Red/White) from the starter relay.
   - Connect the Blue/White lead ② to Battery (+) terminal, and Red/White lead ③ to Battery (−) terminal (Starter relay side); Use jumper leads ④.

→ Starter relay is faulty. Replace it.



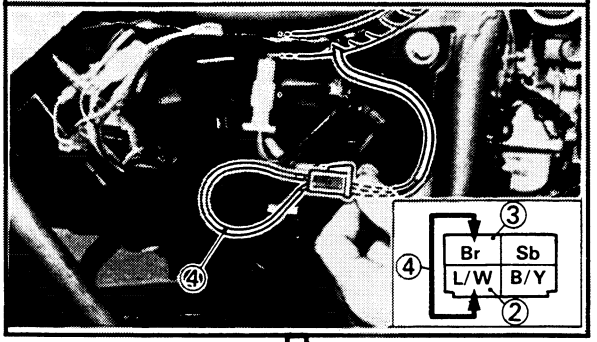
STARTER MOTOR MOVES.

5. Starter relay circuit test:
   - Connect the starter relay coupler to the wireharness.
   - Turn the "ENGINE STOP" switch to "RUN" and main switch to "ON".
   - Disconnect starting circuit cut-off relay coupler (Blue/White, Black/Yellow, Sky blue, Brown lead).
   - Connect the starting circuit cut-off relay coupler terminals. (Blue/White ② and Brown ③ lead—wireharness side); Use the jumper lead ④.
   - Push the "START" switch in.

STARTER MOTOR DOES NOT MOVE. →

The following part(s) is faulty.
- Main switch
- "ENGINE STOP" switch
- "START" switch

Replace faulty part(s).
Refer to "SIGNAL SYSTEM" section.



STARTER MOTOR MOVES.

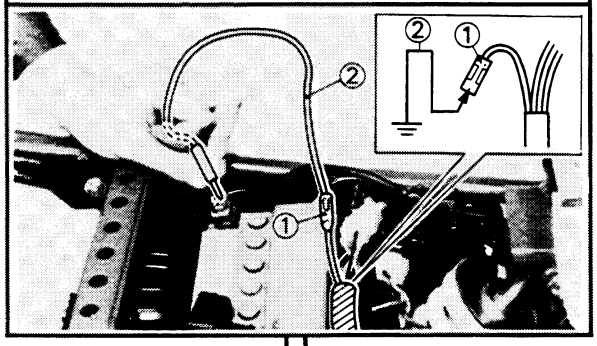
7

*

6. Starting circuit cut-off relay test:
   - Connect the starting circuit cut-off relay coupler to the wireharness.
   - Disconnect the neutral switch coupler ①.
   - Connect sky blue lead (wireharness side) to the Battery (–) terminal; Use jumper lead ②.
   - Push the "START" switch in.

STARTER MOTOR DOES NOT MOVE.

Starting circuit cut-off relay is faulty. Replace it.



STARTER MOTOR MOVES.

7. Neutral switch test:
   - Connect the neutral switch coupler to the wireharness.
   - Shift in neutral.
   - Push the "START" switch in.

STARTER MOTOR DOES NOT MOVE.

Neutral switch faulty. Replace it.

STARTER MOTOR MOVES.

8. Sidestand and clutch switch test:
   - Shift in gear.
   - "Pull in the clutch lever". And "retract the sidestand".
   - Push the "START" switch in.

STARTER MOTOR DOES NOT MOVE.

The following part(s) is faulty.
- Clutch switch
- Sidestand switch
- CDI unit

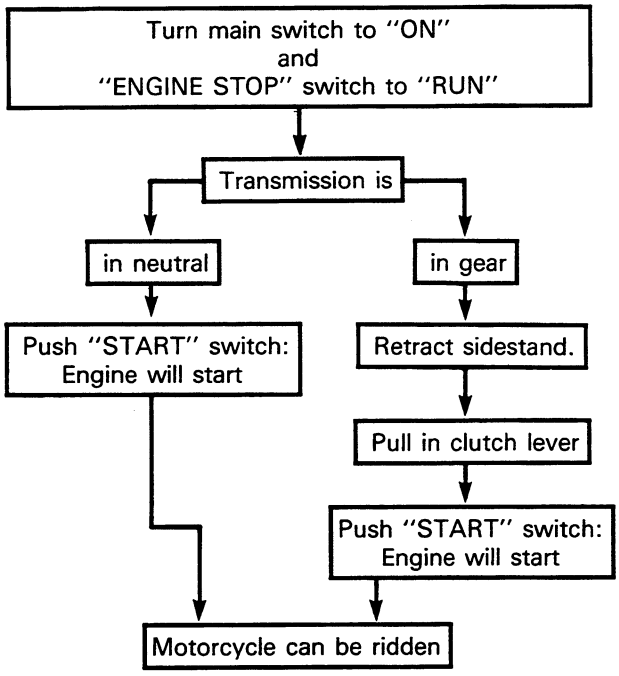
Replace faulty part(s).
Refer to "SWITCHES INSPECTION" section.

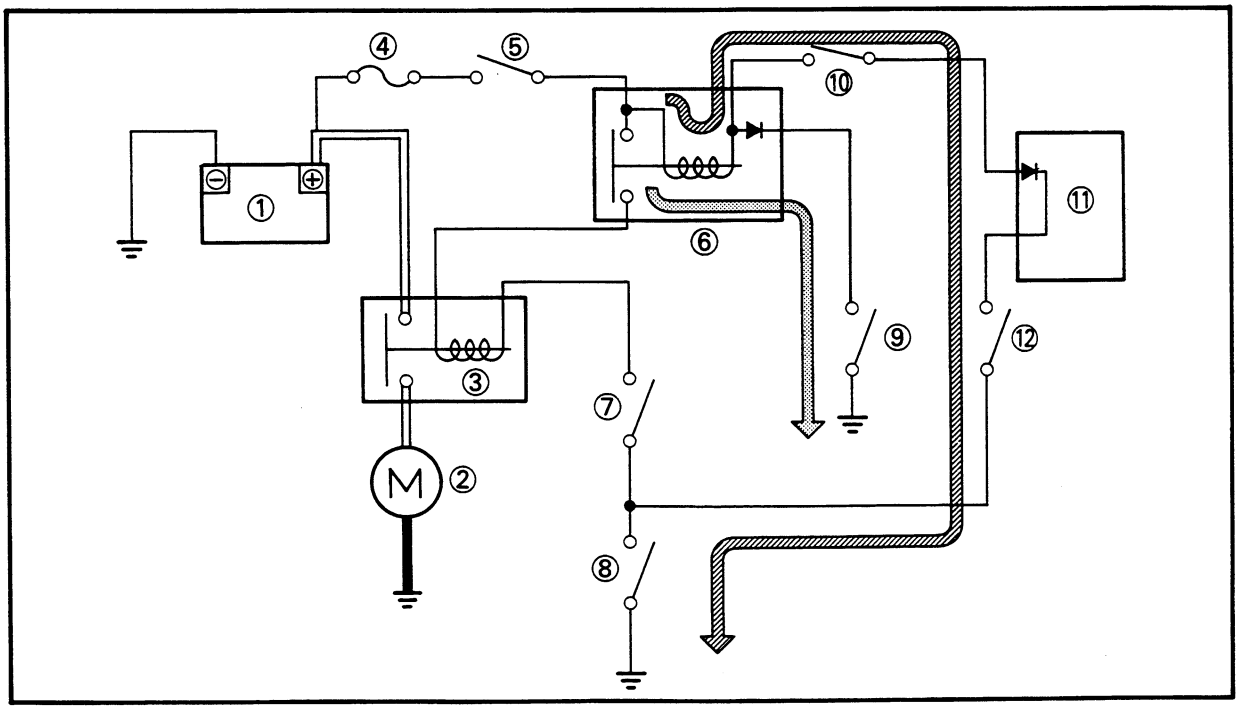
7

STARTING CIRCUIT OPERATION

The starting circuit on this model consists of the starter motor, starter relay and starting circuit cut-off relay. If the "ENGINE STOP" switch and the main switch are both on, the starter motor can operate only if:

- The transmission is in neutral (the neutral switch is on).
- The clutch lever is pulled in (clutch switch is on) and sidestand is up (Sidestand switch is on).





① Battery
② Starter motor
③ Starter relay
④ Fuse
⑤ Main switch
⑥ Starting circuit cut-off relay
⑦ "START" switch
⑧ "ENGINE STOP" switch
⑨ Neutral switch
⑩ Clutch switch
⑪ CDI unit
⑫ Sidestand switch

⇦ WHEN THE TRANSMISSION IS IN NEUTRAL.

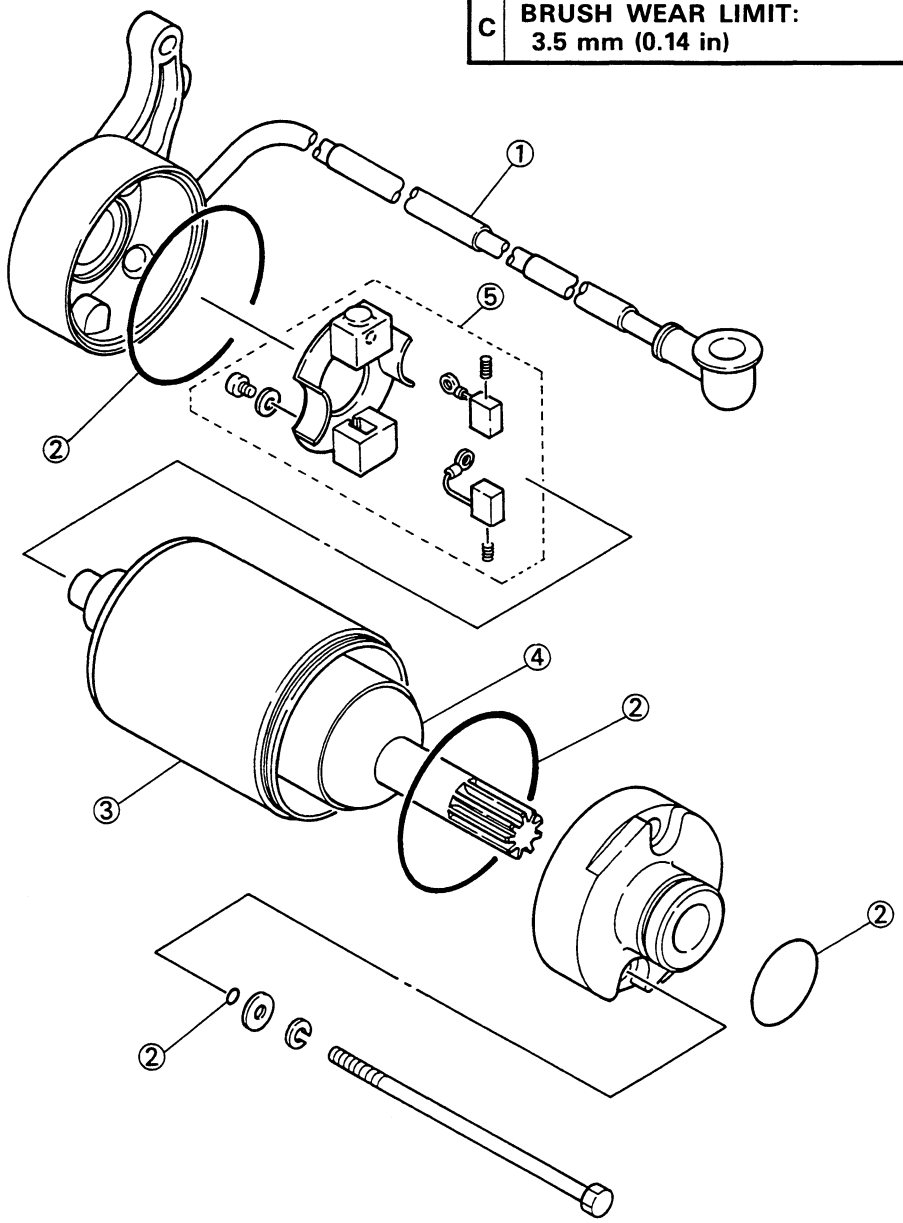
⇦ WHEN THE CLUTCH LEVER IS PULLED IN AND SIDESTAND IS UP.

7

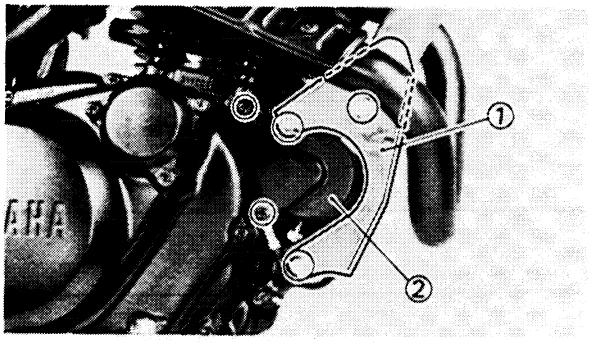
STARTER MOTOR

① Starter motor lead
② O-ring
③ Yoke assembly
④ Armature coil assembly
⑤ Brush assembly

A	COMMUTATOR UNDER CUT: 1.5 mm (0.06 in)
B	COMMUTATOR DIAMETER WEAR LIMIT: 21 mm (0.83 in)
C	BRUSH WEAR LIMIT: 3.5 mm (0.14 in)

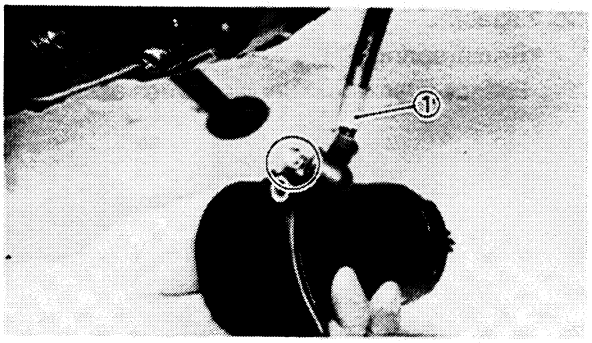


7

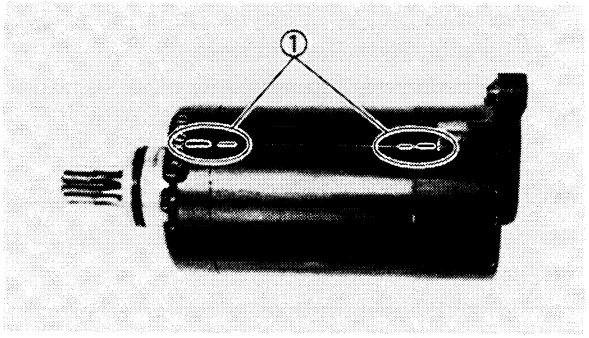


Removal

1. Remove:
   - Engine stay (Front) ①
   - Starter motor ②



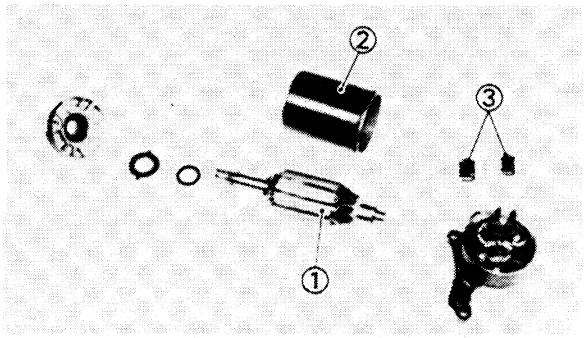
2. Remove:
   - Starter motor lead ①



Disassembly

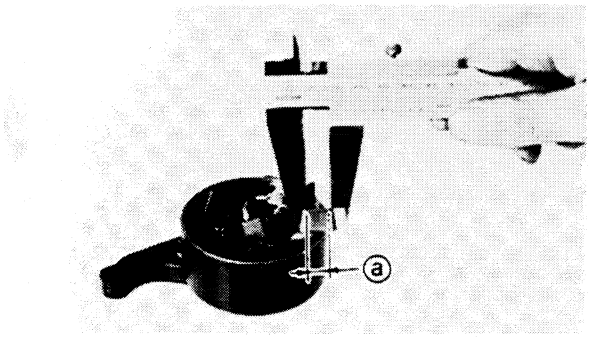
NOTE:

For reassembly, put identifying ①, as shown.



1. Remove:
   - Armature coil assembly ①
   - Yoke assembly ②
   - Brush spring ③

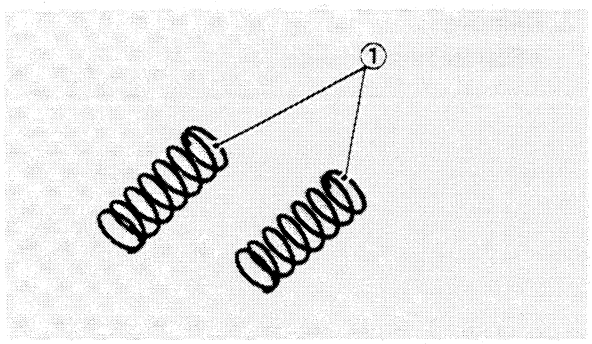
7



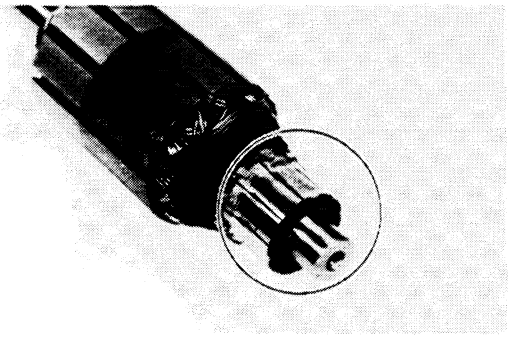
Inspection and repair

1. Measure:
   - Brush length (Each) ⓐ
     Out of specification→Replace brush assembly.

Minimum Brush Length: 3.5 mm (0.14 in)



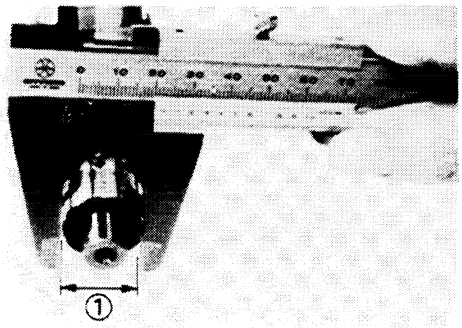
2. Inspect:
   - Brush spring ①
     Fatigue/Damage→Replace brush assembly.



3. Inspect:
   - Commutator (Outer surface)
     Grooved wear/Burning/Scratches→Smooth out using a sandpaper (#500~600).

NOTE:

Sand the commutator outer surface lightly and evenly.



4. Measure:
   - Commutator diameter ①
     Out of specification→Replace.

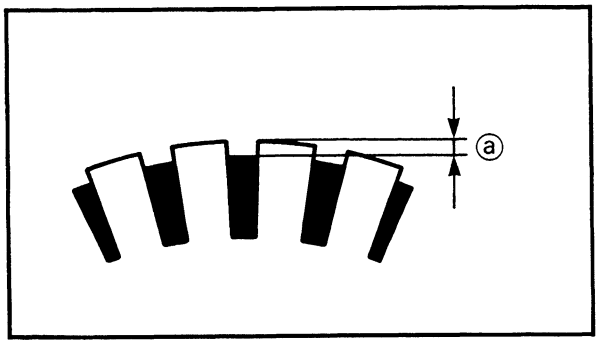
Outside Diameter Limit: 21 mm (0.83 in)

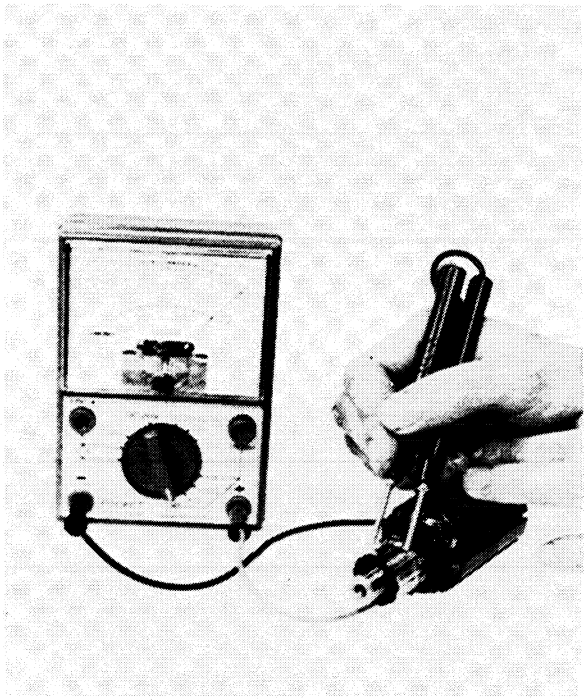
5. Measure:
   - Mica undercut ⓐ
     Out of specification→Scrape mica using a hacksaw blade.

Mica Undercut ⓐ: 1.5 mm (0.06 in)

NOTE:

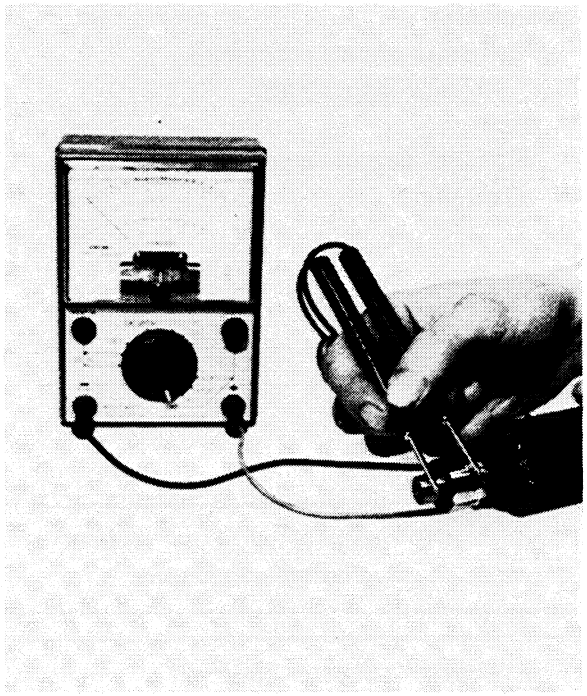
The mica insulation of the commutator must be undercut to ensure proper operation of the commutator.



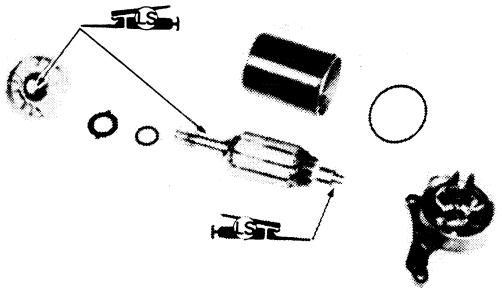


6. Measure:
   • Armature coil resistance
   Out of specification → Replace.

	Armature Coil Resistance: **0.02Ω at 20°C (68°F)**



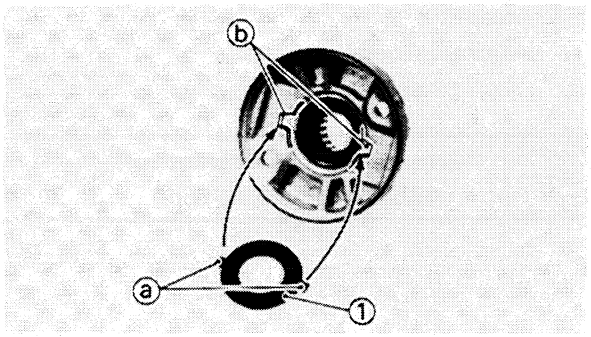
7. Check:
   • Armature coil insulation
   Set the pocket tester selector to "Ω × 1K" position.
   Continuity → Replace.



Assembly

Reverse the disassembly procedure.
Note the following points.

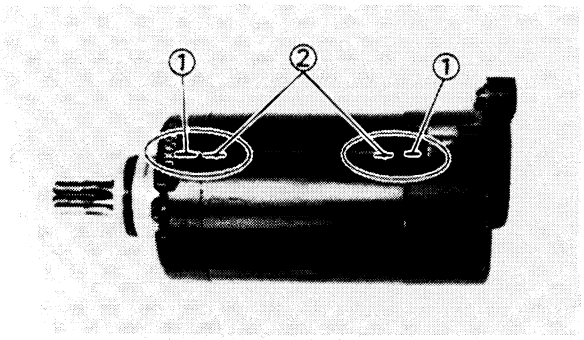
1. Apply:
   • Lithium soap base grease
   To oil seal and bearing.



2. Install:
   - Special washer ①
   - Shim(s)

NOTE:

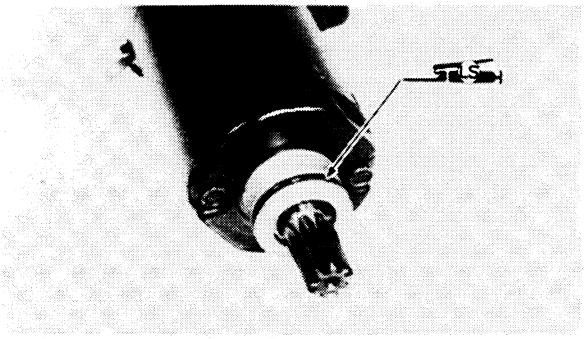
Align the projection ⓐ on special washer plate with the slot ⓑ on cover.



3. Install:
   - Yoke assembly

NOTE:

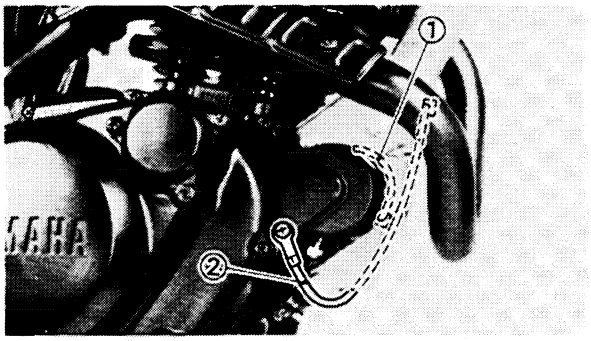
Align the match marks ① on the bracket with the match marks ② on the housing.



Installation

Reverse the removal procedure.
Note the following points.

1. Apply:
   - Lithium soap base grease
     To O-ring.



2. Install:
   - Starter motor
   - Engine stay

NOTE:

Pass the starter motor lead ① and ground lead ② inside the engine stay as shown.

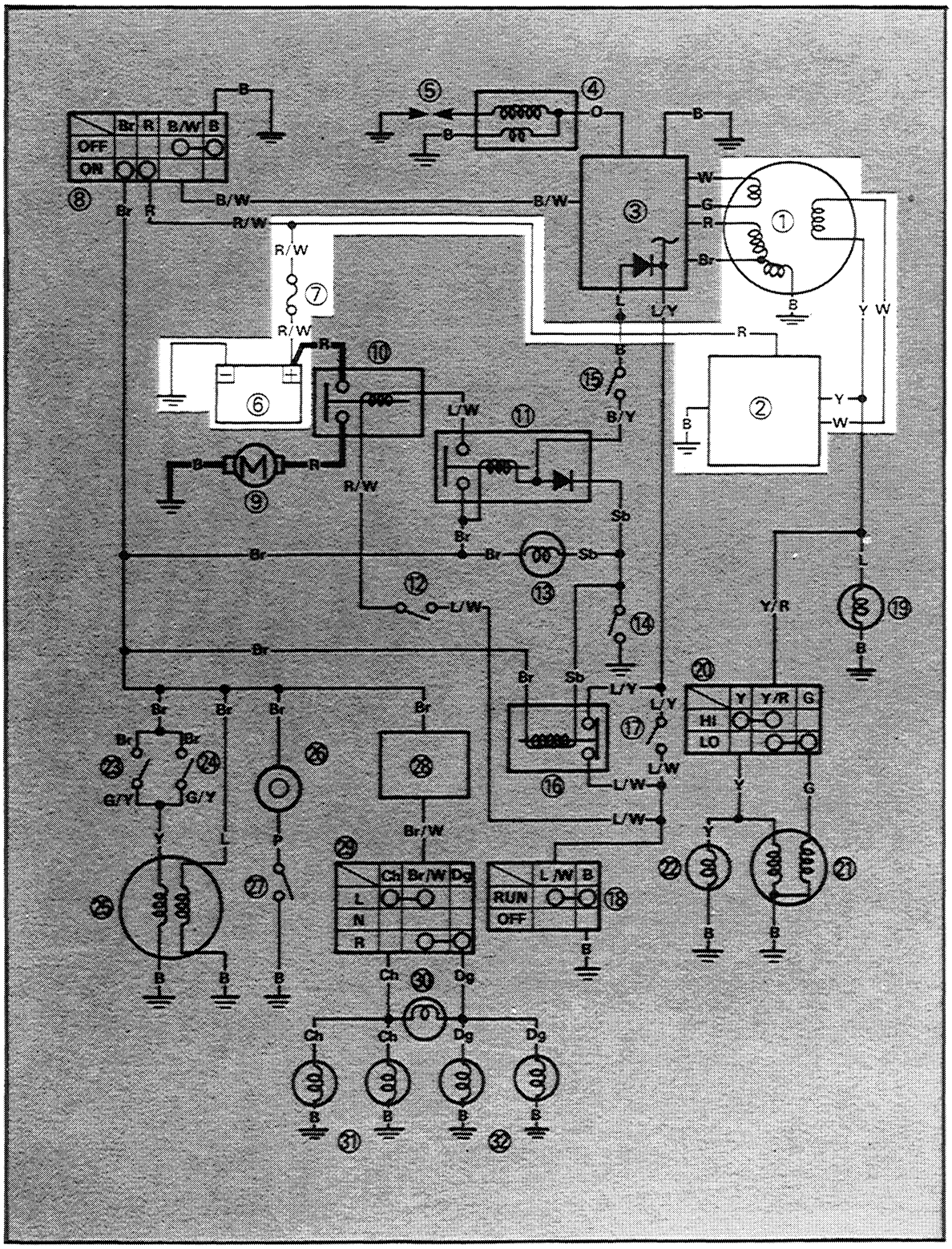
	Screw (Starter Motor): **7 Nm (0.7 m•kg, 5.1 ft•lb)** **Bolt (Engine Stay):** **33 Nm (3.3 m•kg, 24 ft•lb)**

7

CHARGING SYSTEM

CIRCUIT DIAGRAM

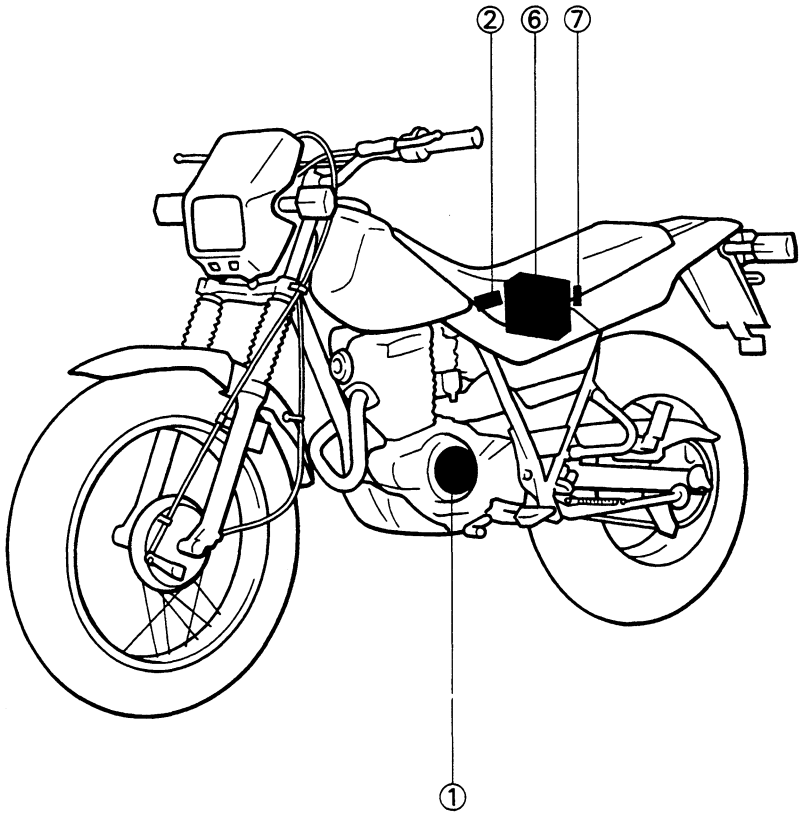
Below circuit diagram shows charging circuit.



NOTE:

For the encircled numbers and color codes, see 7-2.

① CDI magneto
② Rectifier/Regulator
⑥ Battery
⑦ Fuse



TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the side covers and seat.

THE BATTERY IS NOT CHARGED.

1. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.

FAULTY → Fuse is faulty.
Replace it.

OK ↓

2. Battery inspection:
   Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.

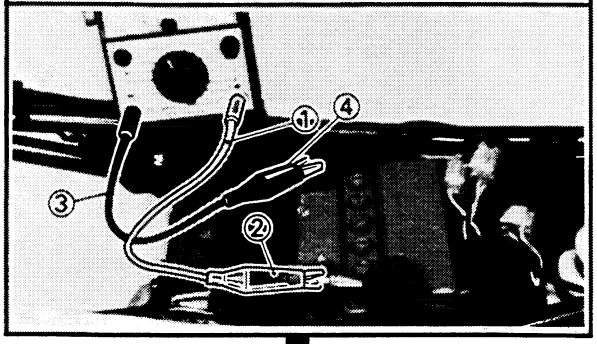
FAULTY → Battery is faulty.
Recharge or replace it.

OK ↓

3. Charging voltage test:
   - Connect the Pocket Tester (YU-03112) to the battery.
   - Start the engine and accelerate to about 5,000 r/min.
   - Measure the charging voltage.

Charging Voltage:
14 ~ 15V at 5,000 r/min

① Positive lead (Pocket Tester)
② Positive terminal (Battery)
③ Negative lead (Pocket Tester)
④ Negative terminal (Battery)



CHARGING VOLTAGE MEETS SPECIFICATION → Charging system is good.

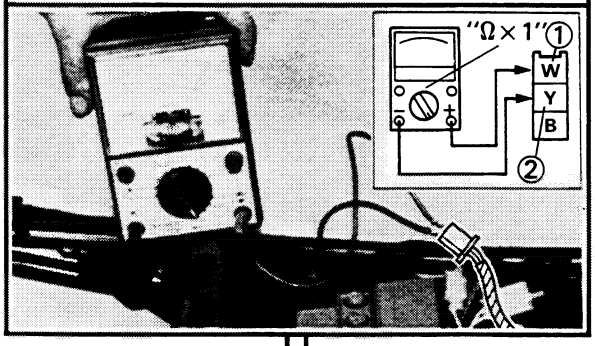
OUT OF SPECIFICATION ↓

*

*

4. Charging coil resistance test:
   - Disconnect the CDI magneto leads (White ① and Yellow ②) from the wireharness.
   - Connect the Pocket Tester (YU-03112) to the CDI magneto leads.
   - Measure the charging coil resistance.

Charging Coil Resistance
(White ① – Yellow ②):
0.3~0.5Ω at 20°C (68°F)



OUT OF SPECIFICATION → Charging coil is faulty. Replace stator assembly.

RESISTANCE MEETS SPECIFICATION

5. Check entire charging system for connections:
   Refer to "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

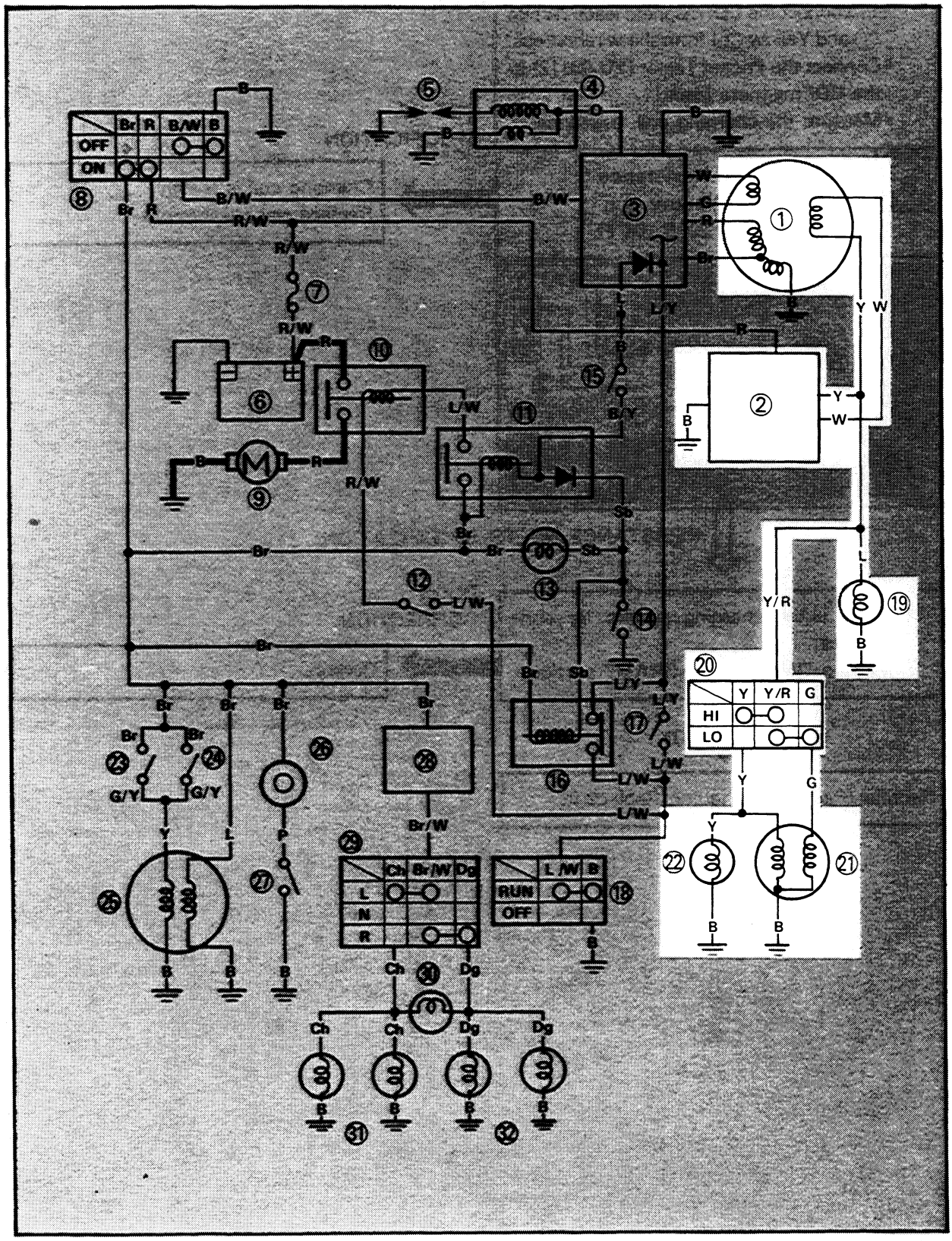
OK

Rectifier/Regulator is faulty. Replace it.

LIGHTING SYSTEM

CIRCUIT DIAGRAM

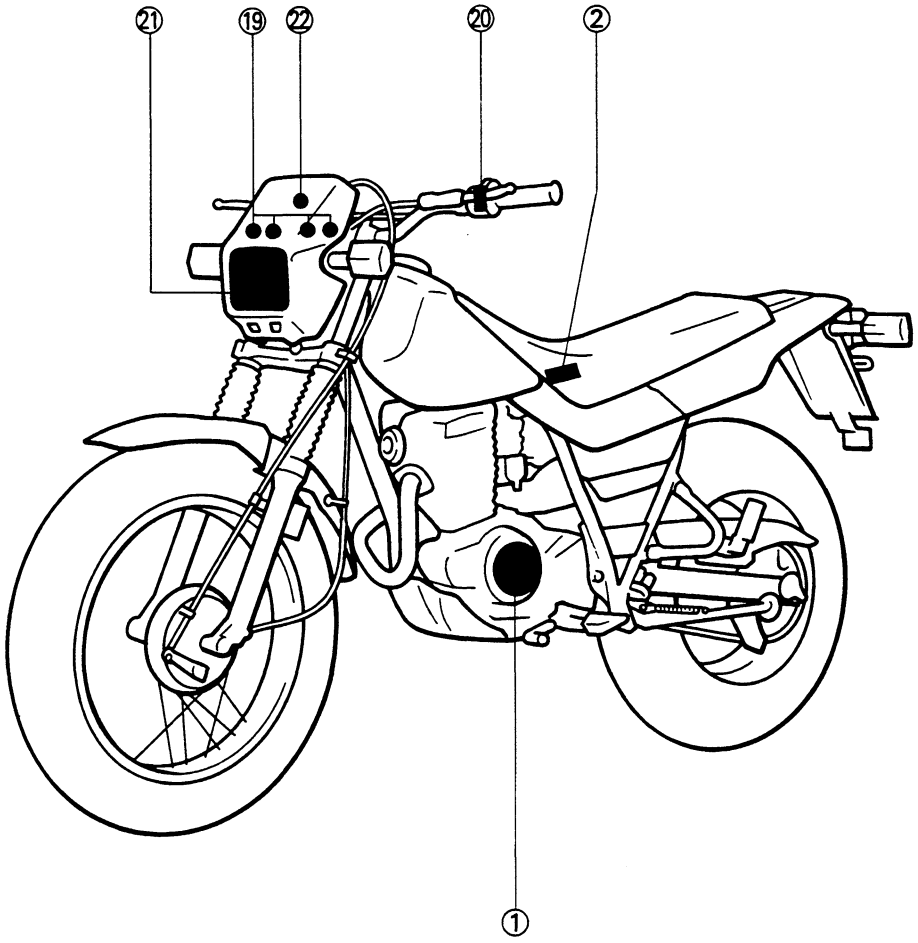
Below circuit diagram shows lighting circuit.



NOTE:

For the encircled numbers and color codes, see 7-2.

① CDI magneto
② Rectifier/Regulator
⑲ Meter light
⑳ "LIGHTS" (Dimmer) switch
㉑ Headlight
㉒ "HIGH BEAM" indicator light



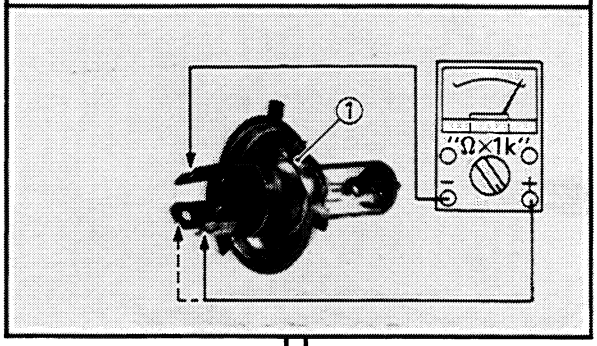
TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the side covers and seat.

HEADLIGHT DOES NOT COME ON.

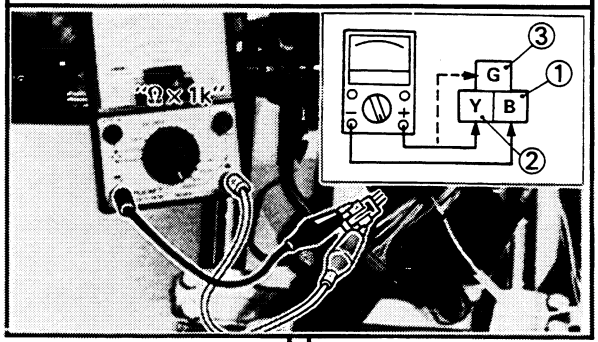
1. Headlight bulb conduct check:
   - Remove the headlight bulb ①. Refer to "CHAPTER 3. HEADLIGHT BULB REPLACEMENT" section.
   - Connect the Pocket Tester (YU-03112) to the bulb terminals as shown, and check the bulb for continuity.



CONTINUITY DOES NOT EXIST ON ONE CIRCUIT → Bulb is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

2. Headlight bulb socket conduct check:
   - Install the bulb to the headlight socket.
   - Connect the Pocket Tester (YU-03112) to the headlight leads (Black ①, Yellow ② and Green ③), and check it for continuity.



CONTINUITY DOES NOT EXIST ON ONE CIRCUIT → Bulb socket is faulty. Replace it.

CONTINUITY EXISTS ON BOTH CIRCUIT

3. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

OK

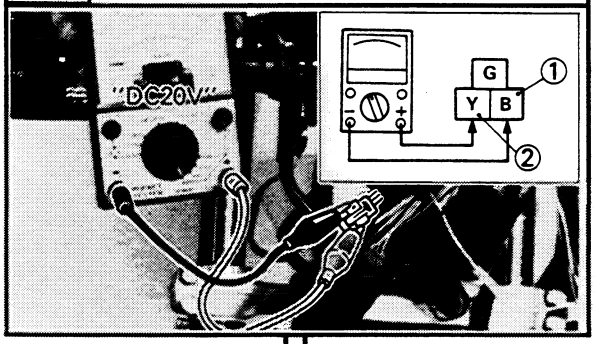
*

7

*

4. Lighting voltage test:
   - Connect the Pocket Tester (YU-03112) to the headlight leads (Black ① and Yellow ②).
   - Turn the "LIGHTS" (Dimmer) switch to "LO" position.
   - Start the engine and accelerate to about 5,000 r/min.
   - Measure the lighting voltage.

Lighting Voltage:
14 ~ 15V at 5,000 r/min



LIGHTING VOLTAGE MEETS SPECIFICATION → Lighting system (Headlight) is good.

OUT OF SPECIFICATION

5. "LIGHTS" (Dimmer) switch conduct check:
   Check the "LIGHTS" (Dimmer) switch for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → "LIGHTS" (Dimmer) switch is faulty. Replace faulty part(s).

6. Main switch conduct check:
   Check the main switch for continuity. Refer to "SIGNAL SYSTEM" section.

FAULTY → Main switch is faulty. Replace it.

OK

7. Check entire lighting system for connections:
   Refer to "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

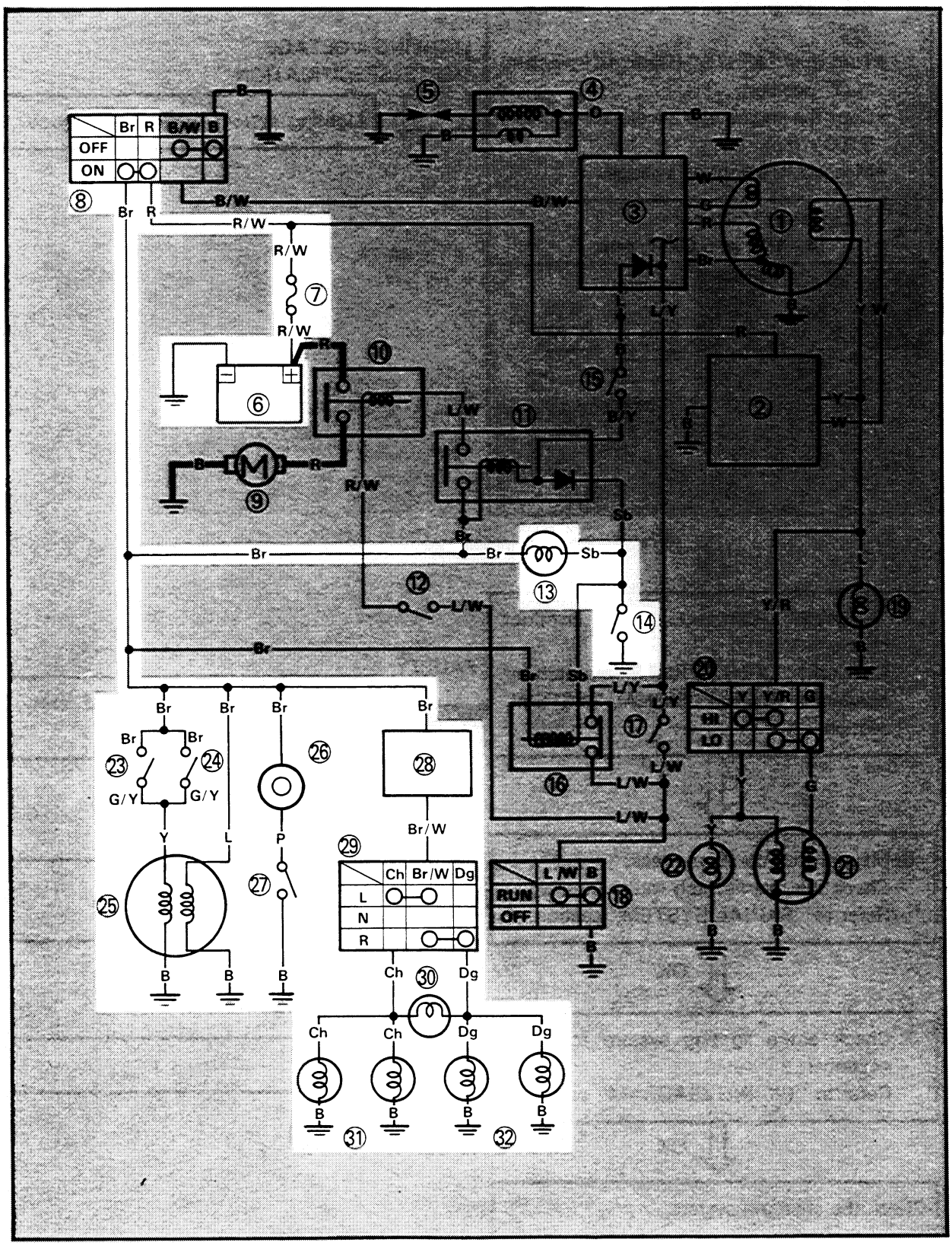
OK

Check the charging system.

SIGNAL SYSTEM

CIRCUIT DIAGRAM

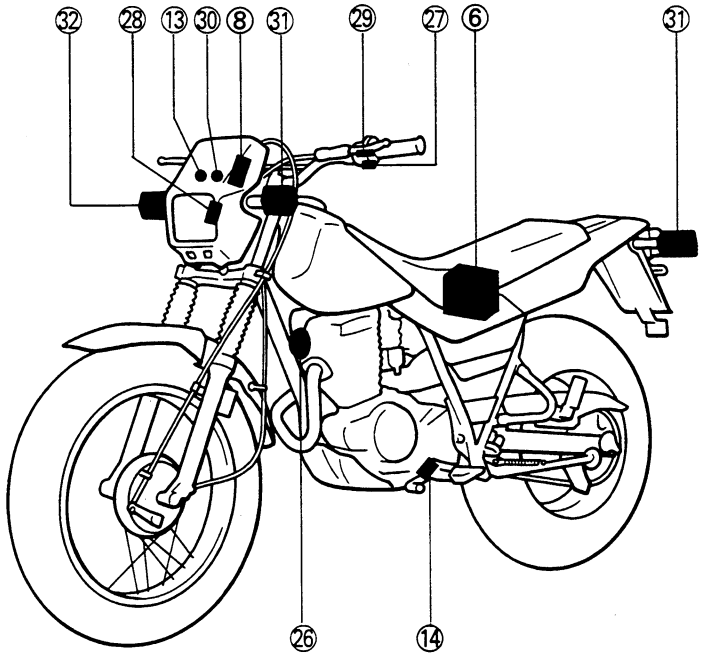
Below circuit diagram shows signal circuit.

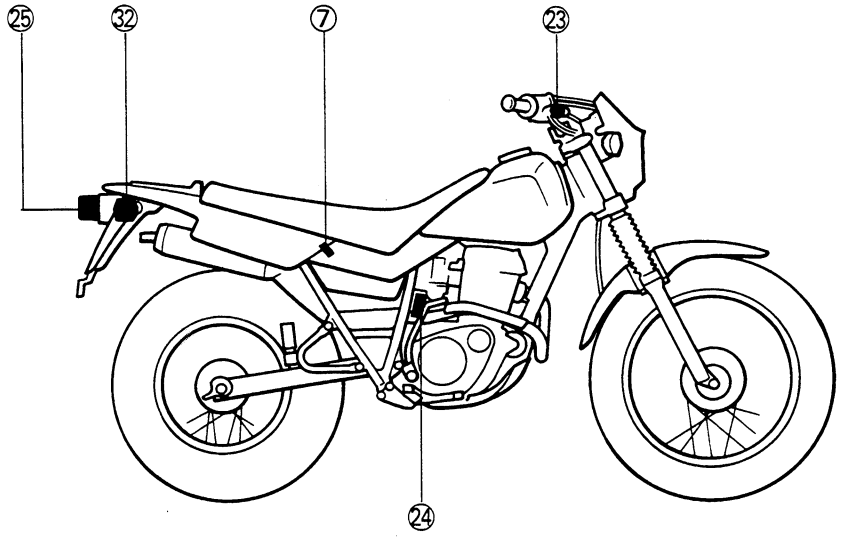


NOTE:

For the encircled numbers and color codes, see 7-2.

⑥ Battery
⑦ Fuse
⑧ Main switch
⑬ "NEUTRAL" indicator light
⑭ Neutral switch
㉓ Front brake switch
㉔ Rear brake switch
㉕ Tail/Brake light
㉖ Horn
㉗ "HORN" switch
㉘ Flasher relay
㉙ "TURN" switch
㉚ "TURN" indicator light
㉛ Flasher light (Left)
㉜ Flasher light (Right)





TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the side covers, seat and fuel tank.

THE FLASHER LIGHT AND INDICATOR LIGHT DO NOT COME ON.

1. Battery inspection:
   Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.
   - FAULTY → Battery is faulty. Recharge or replace battery.
   - OK ↓

2. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.
   - FAULTY → Fuse is faulty. Replace it.
   - OK ↓

3. Flasher light and indicator bulbs conduct check:
   Check the flasher light and indicator bulbs condition. Refer to "LIGHTING SYSTEM" section.
   - FAULTY → Flasher light and/or indicator bulb(s) is faulty. Replace faulty part(s).
   - OK ↓

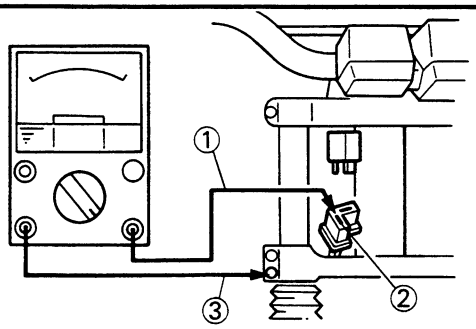
4. Flasher light and indicator bulb sockets conduct check:
   Check the flasher light and indicator bulb sockets condition. Refer to "LIGHTING SYSTEM" section.
   - FAULTY → Flasher light and/or indicator bulb socket(s) is faulty. Replace faulty part(s).
   - OK ↓

*

*

5. Battery voltage test:
   - Disconnect the flasher relay coupler.
   - Connect the positive lead ① of the Pocket Tester (YU-03112) to the flasher relay lead (Brown ② — wireharness side).
   - Ground the negative lead ③ of the Pocket Tester to the frame.
   - Turn the main switch to "ON", and measure the battery voltage.

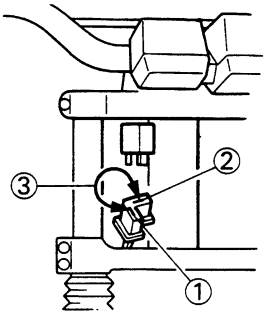
LESS THAN 12V → Check main switch.



MORE THAN 12V

6. Flasher relay test:
   - Connect the flasher relay coupler terminals (Brown ① and Brown/White ②) with the jumper lead ③.
   - Turn the main switch to "ON", and turn the "TURN" switch to "L" or "R".
   - Check the flasher light condition.

FLASHER LIGHTS DO NOT COME ON. → Check "TURN" switch.



FLASHER LIGHTS COME ON.

7. Check entire signal system for connections: Refer to "WIRING DIAGRAM" section.

FAULTY → Correct.

LIGHTS

Replace flasher relay.

7

THE BRAKE LIGHT DOES NOT COME ON.

1. Battery inspection:
   Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.
   → FAULTY → Battery is faulty. Recharge or replace battery.
   ⇩ OK

2. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.
   → FAULTY → Fuse is faulty. Replace it.
   ⇩ OK

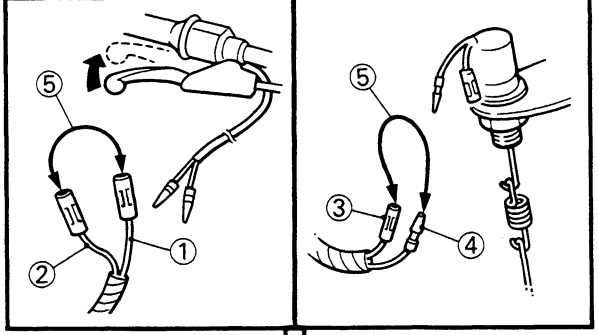
3. Brake light bulb conduct check:
   - Remove the taillight lens and bulb.
   - Check the brake light bulb condition. Refer to "LIGHTING SYSTEM" section.

   → FAULTY → Brake light bulb is faulty. Replace it.
   ⇩ OK

4. Brake light bulb socket conduct check:
   Check the brake light bulb socket condition. Refer to "LIGHTING SYSTEM" section.
   → FAULTY → Brake light bulb socket is faulty. Replace it.
   ⇩ OK

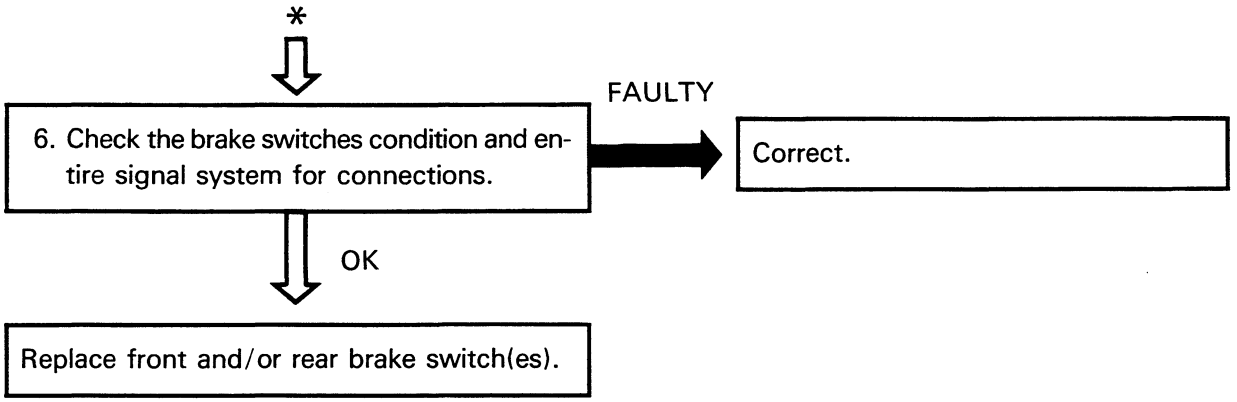
5. Front and rear brake switches test:
   - Disconnect the front and rear brake switch couplers.
   - Connect the front brake switch terminals (Brown ① and Green/Yellow ②) and rear brake switch terminals (Brown ③ and Yellow ④) with the jumper leads ⑤.
   - Turn the main switch to "ON", and check the brake light condition.

   → TAILLIGHT DOES NOT COME ON. → Check the main switch.



⇩ TAILLIGHT COMES ON.

*


*
6. Check the brake switches condition and entire signal system for connections.
FAULTY
Correct.
OK
Replace front and/or rear brake switch(es).

THE "NEUTRAL" INDICATOR LIGHT DOES NOT COME ON.

1. Battery inspection:
   Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.
   - FAULTY → Battery is faulty. Recharge or replace battery.
   - OK ↓

2. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3, FUSE INSPECTION" section.
   - FAULTY → Fuse is faulty. Replace it.
   - OK ↓

3. "NEUTRAL" indicator light bulb conduct check:
   Check the "NEUTRAL" indicator light bulb condition. Refer to "LIGHTING SYSTEM" section.
   - FAULTY → "NEUTRAL" indicator light bulb is faulty. Replace it.
   - OK ↓

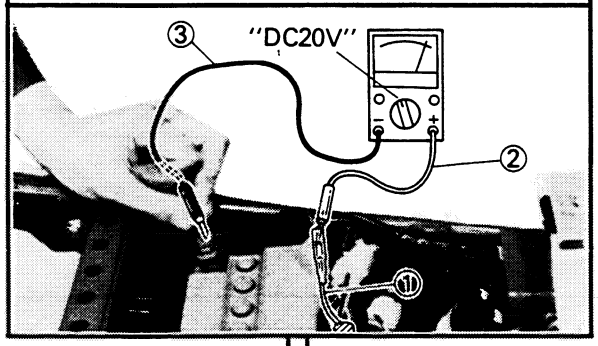
4. "NEUTRAL" indicator light bulb socket conduct check:
   Check the "NEUTRAL" indicator light bulb socket condition. Refer to "LIGHTING SYSTEM" section.
   - FAULTY → "NEUTRAL" indicator light bulb socket is faulty. Replace it.
   - OK ↓

*

*

5. Battery voltage test:
   - Disconnect the neutral switch lead (Sky blue ① — wireharness side).
   - Connect the positive lead ② of the Pocket Tester (YU-03112) to the neutral switch lead (Sky blue — wireharness side).
   - Ground the negative lead ③ of the Pocket Tester to the battery (−) terminal.
   - Turn the main switch to "ON", and measure the battery voltage.

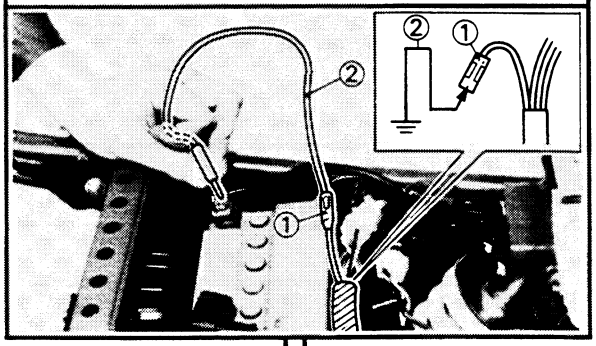
LESS THAN 12V → Check main switch.



MORE THAN 12V

6. Neutral switch test:
   - Ground the neutral switch lead (Sky blue ① — wireharness side) to the battery (−) terminal with the jumper lead ②.
   - Shift the gear in neutral.
   - Turn the main switch to "ON", and check the "NEUTRAL" indicator light condition.

LIGHTS → Neutral switch is faulty. Replace it.



DOES NOT LIGHT

7. Check entire signal system for connection: Refer to "WIRING DIAGRAM" section.

FAULTY → Correct.

7

SWITCHES TEST

Switches may be checked for continuity with a Pocket Tester (YU-03112) on the "Ohm × 1" position.

Main Switch

Switch Position	Lead Color			
	Br	R	B/W	B
OFF			○—○	
ON	○—○			

"LIGHTS" (Dimmer) Switch

Switch Position	Lead Color		
	Y	G	L/B
HI	○—		—○
LO		○—	—○

"TURN" Switch

Switch Position	Lead Color		
	Dg	Br/W	Ch
R	○—	—○	
N			
L		○—	—○

"HORN" Switch

Switch Position	Lead Color	
	P	B
FREE		
PUSH	○—	—○

"ENGINE STOP" Switch

Switch Position	Lead Color	
	B	B/W
OFF		
RUN	○—	—○

7

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 of parts.

STARTING FAILURE/HARD STARTING

FUEL SYSTEM	PROBABLE CAUSE
Fuel tank	• Empty • Clogged fuel filter • Clogged fuel tank cap • Deteriorated fuel or fuel containing water or foreign material
Fuel cock	• Clogged fuel hose
Carburetor	• Deteriorated fuel, fuel containing water or foreign material • Clogged pilot jet • Clogged pilot air passage • Cracked carburetor joint • Improper tightened screw (Carburetor joint) • Sucked-in air • Deformed float • Groove-worn needle valve • Improperly sealed valve seat • Improperly adjusted fuel level • Improperly set pilot jet • Clogged starter jet • Starter plunger malfunction
Air cleaner	• Clogged air filter

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 CDI unit • Faulty source coil • Faulty pick-up coil • Broken woodruff key
Switches and wiring	• Faulty main switch • Faulty engine stop switch • Broken or shorted wiring • Faulty neutral switch • Faulty sidestand switch • Faulty ingnition cut-off relay

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 sealed valve • Improperly valve clearance • Improperly contacted valve and valve seat • Improper valve timing • Broken valve spring • Broken rocker arm • Seized crankshaft • Improperly seated crankcase

POOR IDLE SPEED PERFORMANCE

POOR IDLE SPEED PERFORMANCE	PROBABLE CAUSE
Carburetor	• Improperly returned starter plunger • Clogged or loose pilot jet • Clogged pilot air jet • Improperly adjusted idle speed (Throttle stop screw) • Improper throttle cable free play • Flooded carburetor • Cracked carburetor joint • Improper tightened screw (Carburetor joint)
Electrical system	• Faulty battery • Faulty spark plug • Faulty CDI unit • Faulty pick-up coil/sorse coil • Faulty ignition coil
Valve train	• Improperly adjusted valve clearance

POOR MEDIUM AND HIGH SPEED PERFORMANCE

POOR MEDIUM AND HIGH SPEED PERFORMANCE

Refer to "Starting failure/Hard starting." (Fuel system, electrical system, compression system and valve train)

	PROBABLE CAUSE
Carburetor	• Diaphragm malfunction • Improperly adjusted fuel level • Clogged or loose main jet
Air cleaner	• Clogged air filter

FAULTY GEAR SHIFTING

HARD SHIFTING

	PROBABLE CAUSE
Clutch	• Improperly adjusted clutch cable • Improperly adjusted push lever position • Improper engagement of push lever and push rod • Seized bush at primary driven gear • Warped clutch plate • Seized friction plate • Broken friction plate
Engine oil	• High oil level • Improper quality (High viscosity) • Deterioration

CHANGE PEDAL DOES NOT MOVE

	PROBABLE CAUSE
Shift shaft	• Fatigue/Damaged return spring (Shift shaft) • Bent shift shaft • Improperly shift lever position
Shift cam and shift fork	• Groove jammed with impurities • Seized shift fork • Bent shift fork guide bar • Damaged shift cam groove
Transmission	• Seized transmission gear • Jammed impurities • Incorrectly assembled transmission

JUMP-OUT GEAR

	PROBABLE CAUSE
Shift shaft	• Improperly adjusted stopper lever position • Fatigue/Damaged return spring (Stopper lever)
Shift fork	• Worn shift fork
Shift cam	• Improper thrust play • Worn shift cam groove
Transmission	• Worn gear dog

CLUTCH SLIPPING/DRAGGING

CLUTCH SLIPPING

	PROBABLE CAUSE
Clutch	• Improperly adjusted clutch cable • Loose clutch spring • Fatigued clutch spring • Worn/Swollen friction plate • Worn clutch plate
Engine oil	• Low oil level • Improper quality (Low viscosity) • Deterioration

CLUTCH DRAGGING

	PROBABLE CAUSE
Clutch	• Improperly adjusted clutch cable • Improperly adjusted push lever position • Improper engagement of push lever and push rod • Seized bush at primary driven gear • Warped clutch plate • Seized friction plate • Broken clutch boss
Engine oil	• High oil level • Improper quality (High viscosity) • Deterioration

IMPROPER KICKING

SLIPPING

	PROBABLE CAUSE
Kick axle assembly	• Fatigue/Damaged kick spring • Worn kick axle • Worn or damaged kick idle gear • Worn or damaged kick gear • Kick spring coming off • Damaged kick spring stopper
Transmission oil	• Improper quality (Low viscosity) • Deterioration

HARD KICKING

	PROBABLE CAUSE
Kick axle assembly	• High tension of kick spring • Seized kick gear • Seized kick idle gear
Transmission oil	• Improper quality (High viscosity) • Deterioration
Cylinder, piston and piston ring	• Damaged or seized cylinder • Damaged or seized piston • Damaged or seized piston ring
Crankcase and crankshaft	• Improperly seated crankcase • Improperly seated crankshaft • Damaged or seized crankshaft • Damaged or seized crankshaft bearing

KICK CRANK NOT RETURNING

	PROBABLE CAUSE
Kick axle assembly	• Damaged kick return spring • Kick return spring coming off • Kick spring coming off • Damaged kick return spring stopper

FAULTY BRAKE

POOR BRAKING EFFECT

PROBABLE CAUSE

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

FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION

OIL LEAKAGE

PROBABLE CAUSE

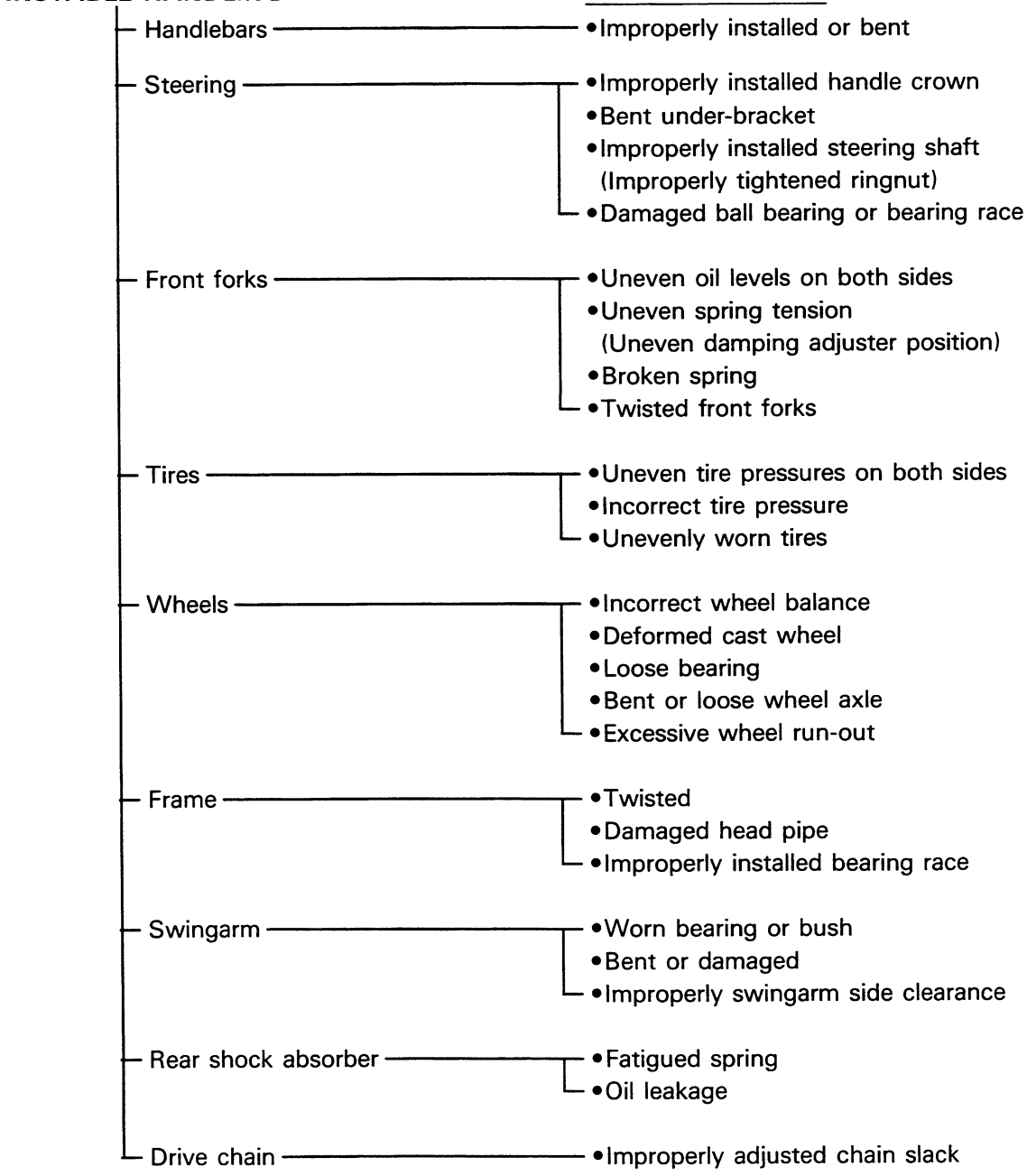
- Bent, damaged or rusty inner tube
- Damaged or cracked outer tube
- Damaged oil seal lip
- Improperly installed oil seal
- Improper oil level (too much)
- Loose damper rod holding bolt
- Broken cap bolt O-ring
- Loose drain bolt
- Damaged drain bolt gasket

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



FAULTY SIGNAL AND LIGHTING SYSTEM

HEADLIGHT DARK

PROBABLE CAUSE

- Improper bulb
- Too many electric accessories
- Poor charging (Broken charging coil and/or faulty rectifier/regulator)
- Incorrect connection
- Improperly grounded
- Poor contacts (main or light switch)
- Bulb life expired

BULB BURNT OUT

PROBABLE CAUSE

- Improper bulb
- Faulty battery
- Faulty rectifier/regulator
- Improperly grounded
- Faulty main and/or light switch
- Bulb life expired

FLASHER DOES NOT LIGHT

PROBABLE CAUSE

- Improper bulb
- Improper grounded
- Discharged battery
- Faulty flasher switch
- Faulty flasher relay
- Broken wireharness
- Loosenly connected coupler
- Bulb burnt out

FLASHER KEEPS ON

PROBABLE CAUSE

- Improper bulb
- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Bulb burnt out

FAULTY SIGNAL AND LIGHTING SYSTEM

FLASHER WINKS SLOWER

PROBABLE CAUSE

- Improper bulb
- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Improper bulb
- Faulty main and/or flasher switch

FLASHER WINKS QUICKER

PROBABLE CAUSE

- Improper bulb
- Faulty flasher relay

HORN IS INOPERATIVE

PROBABLE CAUSE

- Faulty battery
- Faulty main and/or horn switch
- Improperly adjusted horn
- Faulty horn
- Broken wireharness

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the TW200EU/EUC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

TW200T/TC Service Manual: LIT-11616-05-93

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

TW200EU/EUC
SUPPLEMENTARY SERVICE MANUAL

1st Edition, September 1987

Printed in U.S.A.
P/No. LIT-11616-06-26

NOTICE

This manual was written by the Yamaha Motor Company primarily 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 persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted 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, where applicable, appear in future editions of this manual.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLE OPERATIONS
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

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

CAUTION: A CAUTION indicates special procedures that must be followed to avoid damage to the motorcycle.

WARNING: A WARNING indicates special procedures that must be followed to avoid injury to a motorcycle operator or person inspecting or repairing the motorcycle.

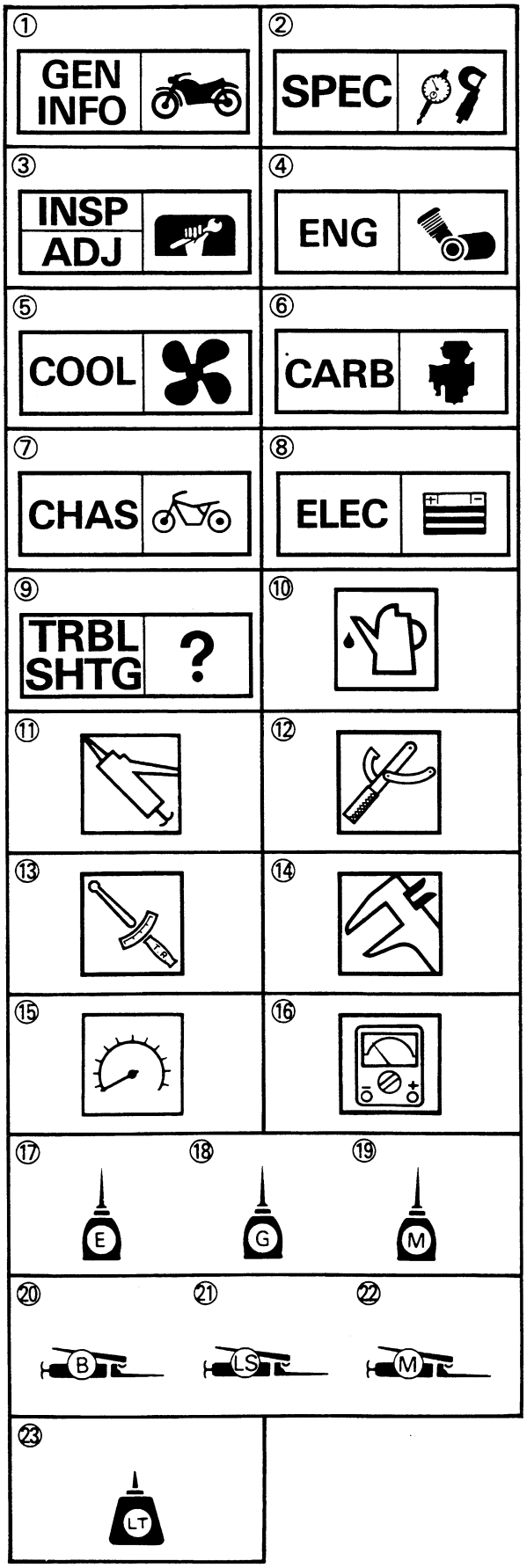
MANUAL FORMAT

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 inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage→Replace.

EXPLODED DIAGRAM

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



ILLUSTRATED SYMBOLS (Refer to the illustration)

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

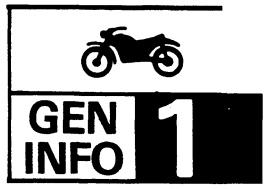
① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Cooling system
⑥ Carburetion
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

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

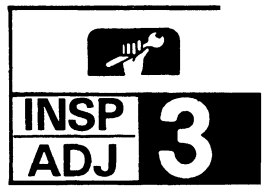
⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

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

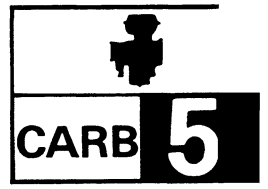
⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)

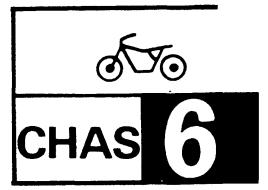

GEN
INFO
1

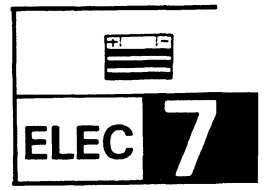

SPEC
2

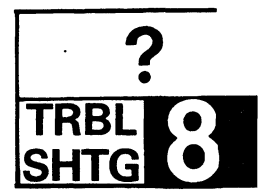

INSP
ADJ
3


ENG
4

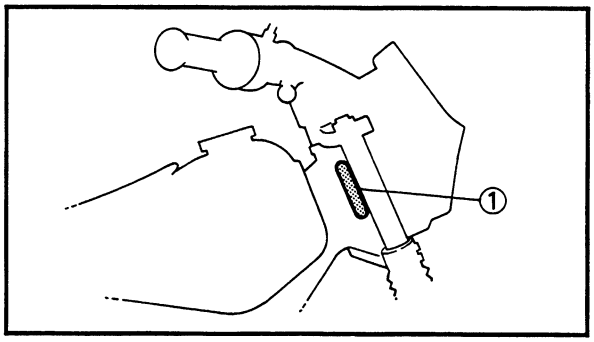

CARB
5


CHAS
6


ELEC
7


?
TRBL
SHTG
8

CONTENTS



GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

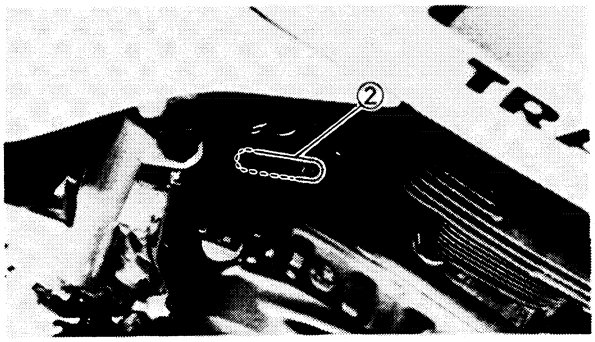
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is on the right side of the steering head pipe.

Starting Serial Number:
TW200EU .....JYA 2YGE0✱JC000101
TW200EUC...JYA 3AWC0✱JC000101

NOTE:

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



ENGINE SERIAL NUMBER

The engine serial number ② is stamped into the elevated part of the right rear section of the engine.

Starting Serial Number:
TW200EU 2YG-000101
TW200EUC 3AW-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.

SPECIFICATIONS

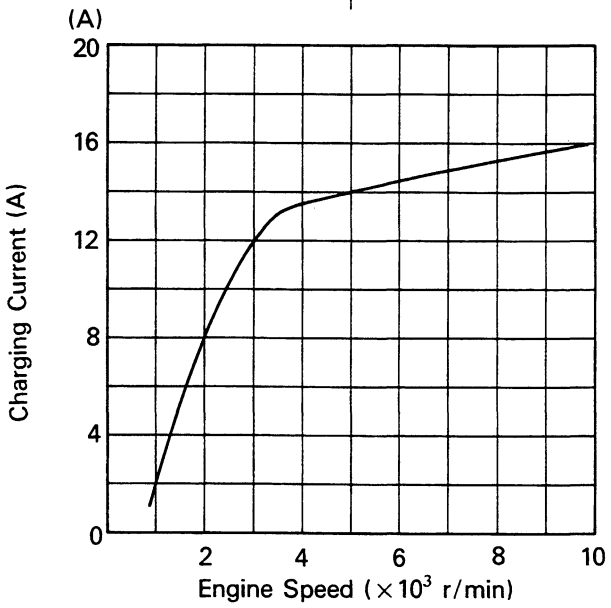
GENERAL SPECIFICATIONS

Model	TW200EU/EUC
Model Code Number:	TW200EU: 2YG TW200EUC: 3AW
Vehicle Identification Number:	TW200EU: JYA2YGE0*JC000101 TW200EUC: JYA3AWC0*JC000101
Engine Starting Number:	TW200EU: 2YG-000101 TW200EUC: 3AW-000101
Dimensions:	
Overall Length	2,090 mm (82.3 in)
Overall Width	815 mm (32.1 in)
Overall Height	1,115 mm (43.9 in)
Seat Height	790 mm (31.1 in)
Wheelbase	1,325 mm (52.2 in)
Minimum Ground Clearance	250 mm (9.8 in)
Electrical:	
Ignition System	CDI
Generator System	A.C. magneto generator
Battery Type	GM7CZ-3D
Battery Capacity	12V, 7AH
Bulb Wattage/Quantity:	
Headlight	12V, 35W/35W×1
Tail/Brake Light	12V, 8W/27W×2
Flasher Light	12V, 27W/8W×2, 27W×2
Meter Light	12V, 3.4W×1

MAINTENANCE SPECIFICATIONS

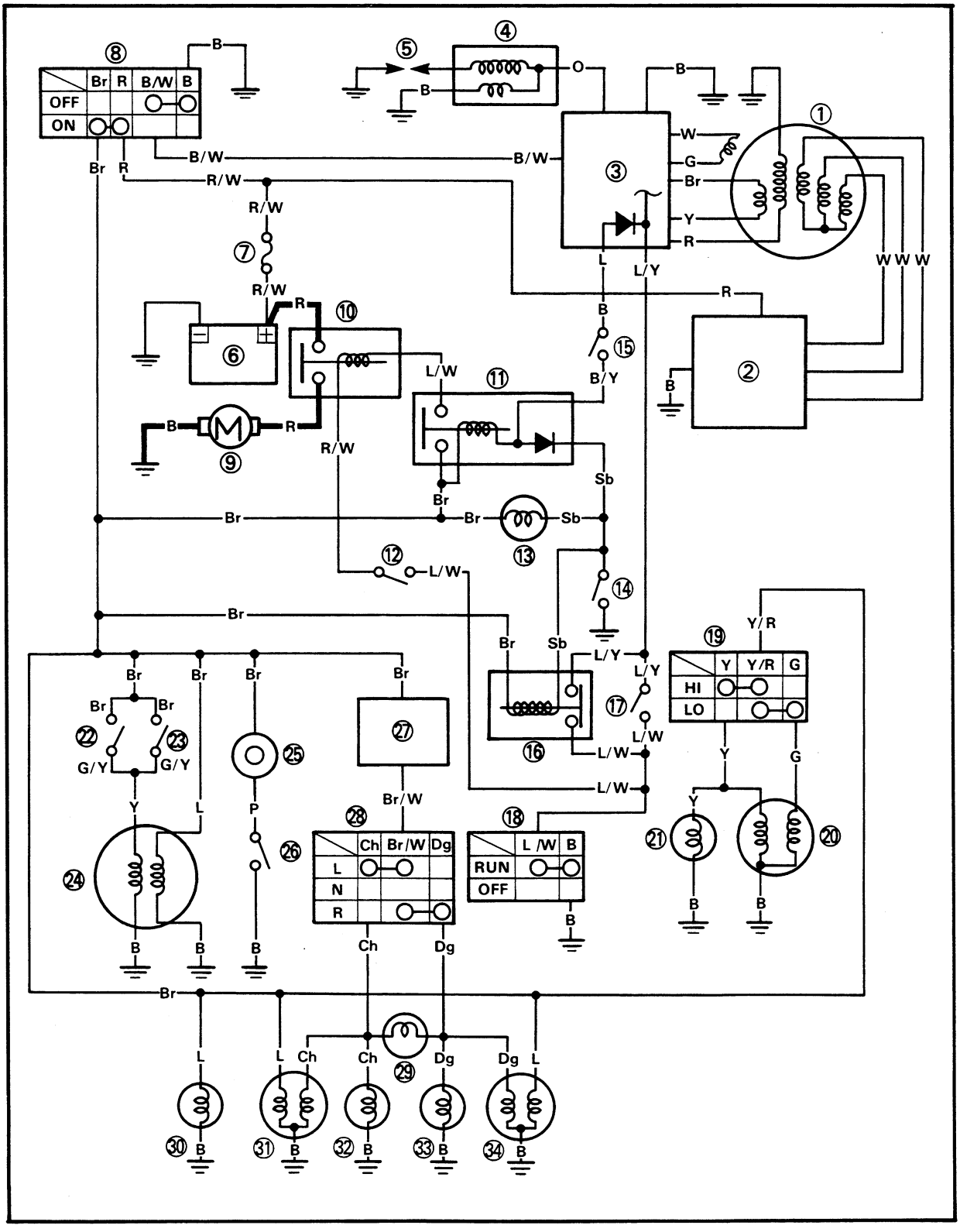
ELECTRICAL

Model	TW200EU/EUC
C.D.I.:	
Magneto Model/Manufacturer	2YG/YAMAHA
Pickup Coil Resistance (Color)	650~790Ω at 20°C (68°F) (G—W)
Source Coil Resistance (Color)	590~720Ω at 20°C (68°F) (B—R)
C.D.I. Unit-Model/Manufacturer	2YG/YAMAHA
Charging System:	
Type	A.C. magneto generator
Model/Manufacturer	2YG/YAMAHA
Output	1.5A or less at 1,500 r/min 11A or more at 5,000 r/min 20A or less at 8,000 r/min
Charging Coil Resistance (Color)	0.32~0.39Ω at 20°C (68°F) (W—W)
Voltage Regulator:	
Type	Semi conductor type
Model/Manufacturer	SH569/SHINDENGEN
Rectifier:	
Model/Manufacturer	SH569/SHINDENGEN
Capacity	25A
Withstand Voltage	200V
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit	
Main	15A



ELECTRICAL

TW200EU/EUC CIRCUIT DIAGRAM



① CDI magneto
② Rectifier/Regulator
③ CDI unit
④ Ignition coil
⑤ Spark plug
⑥ Battery
⑦ Fuse
⑧ Main switch
⑨ Starter motor
⑩ Starter relay
⑪ Starting circuit cut-off relay
⑫ "START" switch
⑬ "NEUTRAL" indicator light
⑭ Neutral switch
⑮ Clutch switch
⑯ Ignition circuit cut-off relay
⑰ Sidestand switch
⑱ "ENGINE STOP" switch
⑲ "LIGHTS" (Dimmer) switch
⑳ Headlight
㉑ "HIGH BEAM" indicator light
㉒ Front brake switch
㉓ Rear brake switch
㉔ Tail/Brake light
㉕ Horn
㉖ "HORN" switch
㉗ Flasher relay
㉘ "TURN" switch
㉙ "TURN" indicator light
㉚ Meter light
㉛ Flasher light (Front, Left)/Position light (Left)
㉜ Flasher light (Rear Left)
㉝ Flasher light (Rear Right)
㉞ Flasher light (Front Right)/Position light (Right)

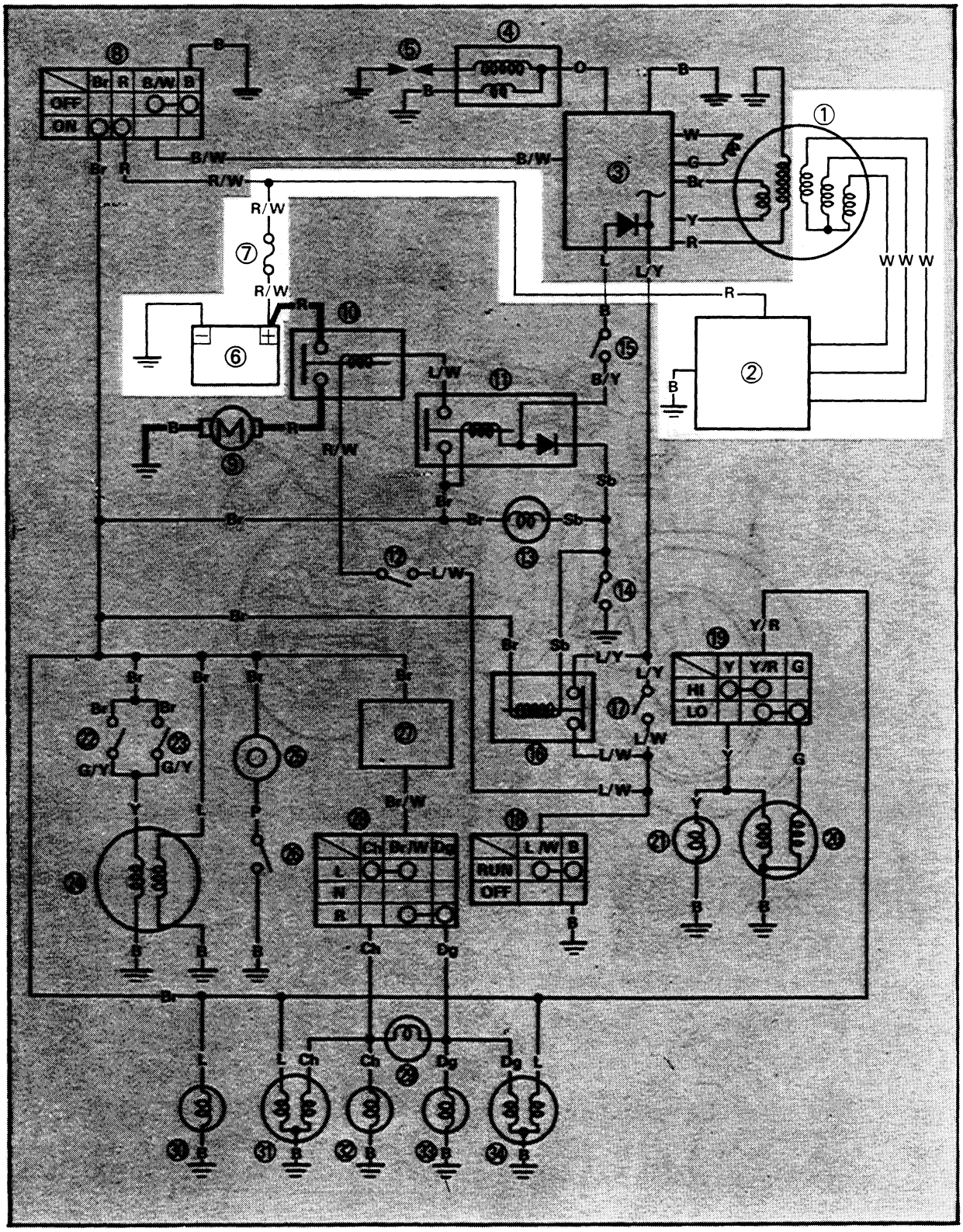
COLOR CODE

L	Blue
R	Red
G	Green
B	Black
Y	Yellow
P	Pink
W	White
O	Orange
Dg	Dark green
Br	Brown
Ch	Chocolate
Sb	Sky blue
R/W	Red/White
L/W	Blue/White
L/Y	Blue/Yellow
Y/R	Yellow/Red
B/Y	Black/Yellow
B/W	Black/White
G/Y	Green/Yellow
Br/W	Brown/White

CHARGING SYSTEM

CIRCUIT DIAGRAM

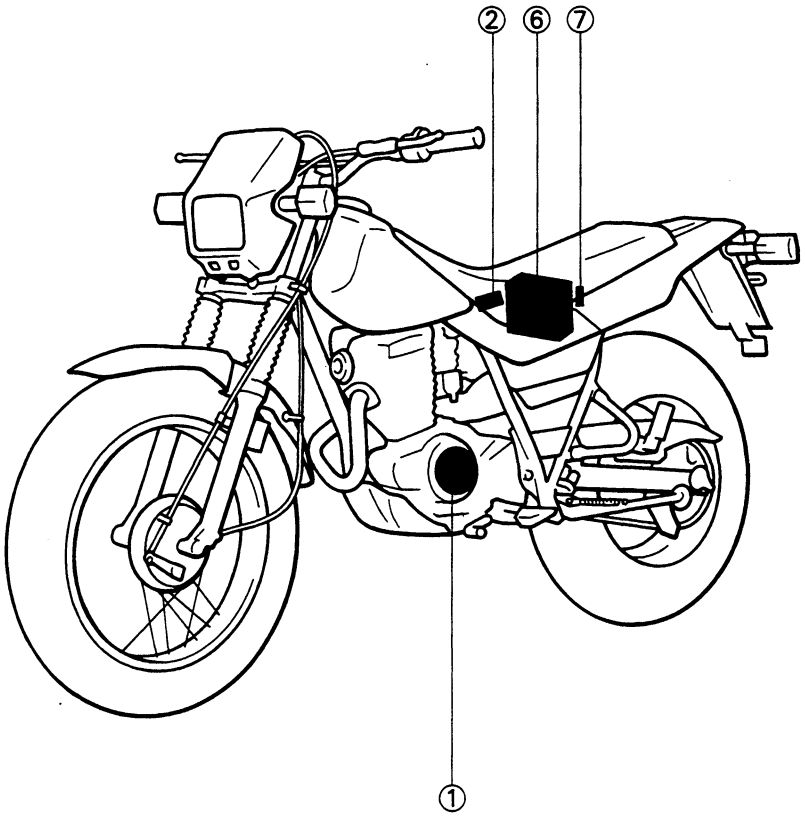
Below circuit diagram shows charging circuit.



NOTE:

For the encircled numbers and color codes, see page 6.

① CDI magneto
② Rectifier/Regulator
⑥ Battery
⑦ Fuse



TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the side covers and seat.

THE BATTERY IS NOT CHARGED.

1. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.

FAULTY → Fuse is faulty.
Replace it.

OK ↓

2. Battery inspection:
   Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.

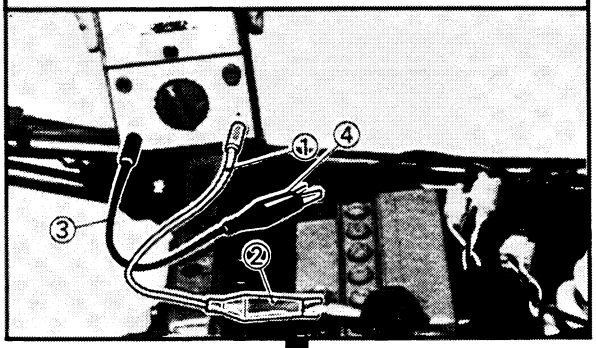
FAULTY → Battery is faulty.
Recharge or replace it.

OK ↓

3. Charging voltage test:
   - Connect the Pocket Tester (YU-03112) to the battery.
   - Start the engine and accelerate to about 5,000 r/min.
   - Measure the charging voltage.

Charging Voltage:
14 ~ 15V at 5,000 r/min

① Positive lead (Pocket Tester)
② Positive terminal (Battery)
③ Negative lead (Pocket Tester)
④ Negative terminal (Battery)



CHARGING VOLTAGE MEETS SPECIFICATION → Charging system is good.

OUT OF SPECIFICATION ↓

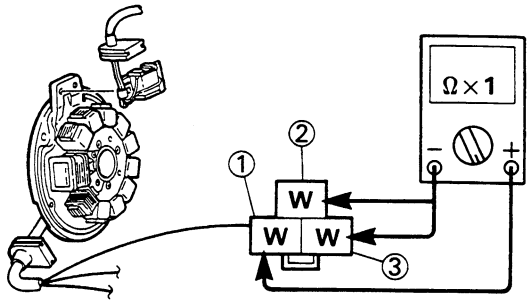
*

*

4. Charging coil resistance test:
   - Disconnect the CDI magneto coupler (White, white and white) from the wire-harness.
   - Connect the Pocket Tester (YU-03112) to the CDI magneto coupler.
   - Measure the charging coil resistance.

Charge Coil Resistance
Check 1:
0.32~0.39Ω at 20°C (68°F)
(White ① – White ②)
Check 2:
0.32~0.39Ω at 20°C (68°F)
(White ① – White ③)
Check 3:
0.32~0.39Ω at 20°C (68°F)
(White ② – White ③)

OUT OF SPECIFICATION → Charging coil is faulty. Replace stator assembly.



RESISTANCE MEETS SPECIFICATION

5. Check entire charging system for connections:
   Refer to "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

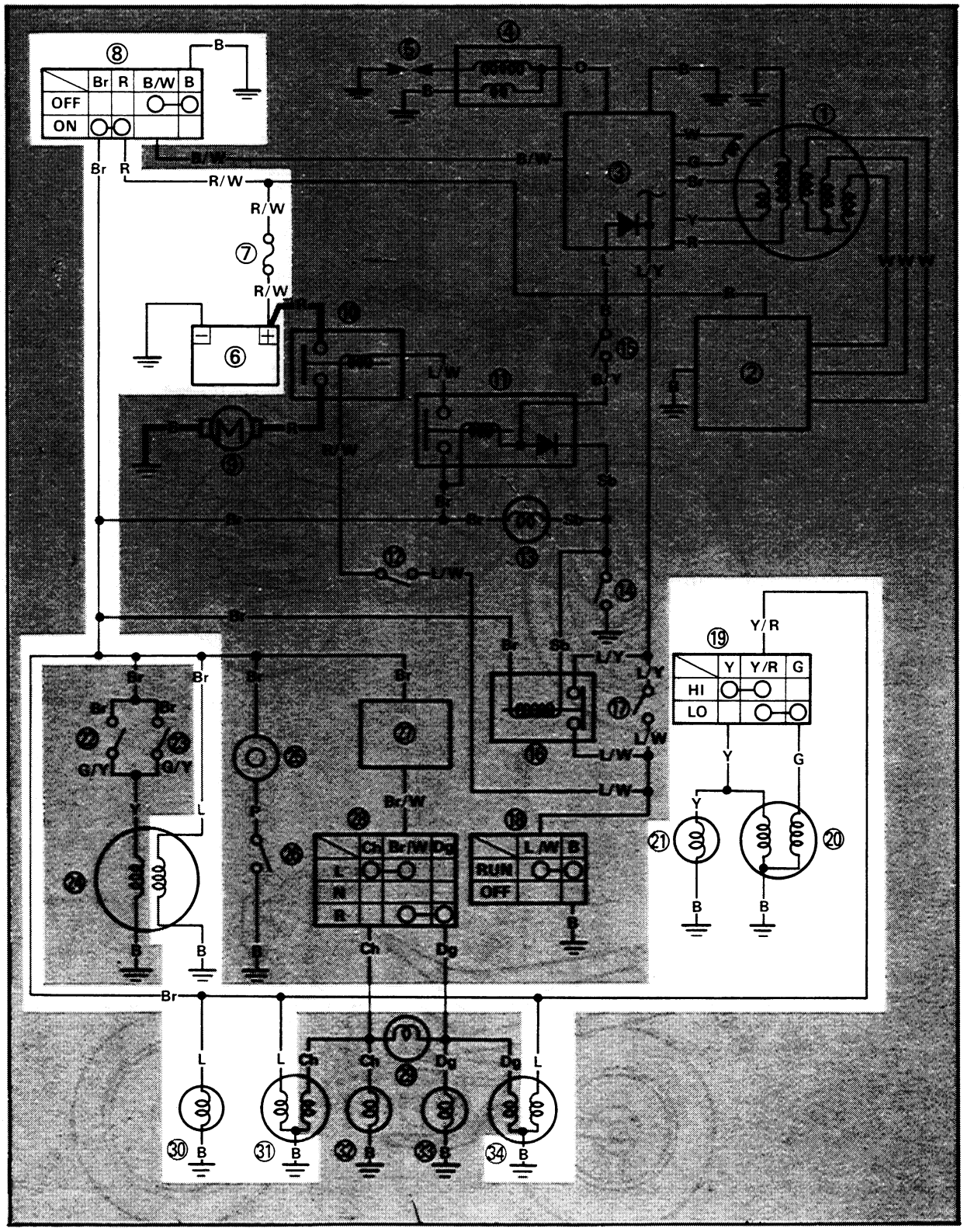
OK

Rectifier/Regulator is faulty. Replace it.

LIGHTING SYSTEM

CIRCUIT DIAGRAM

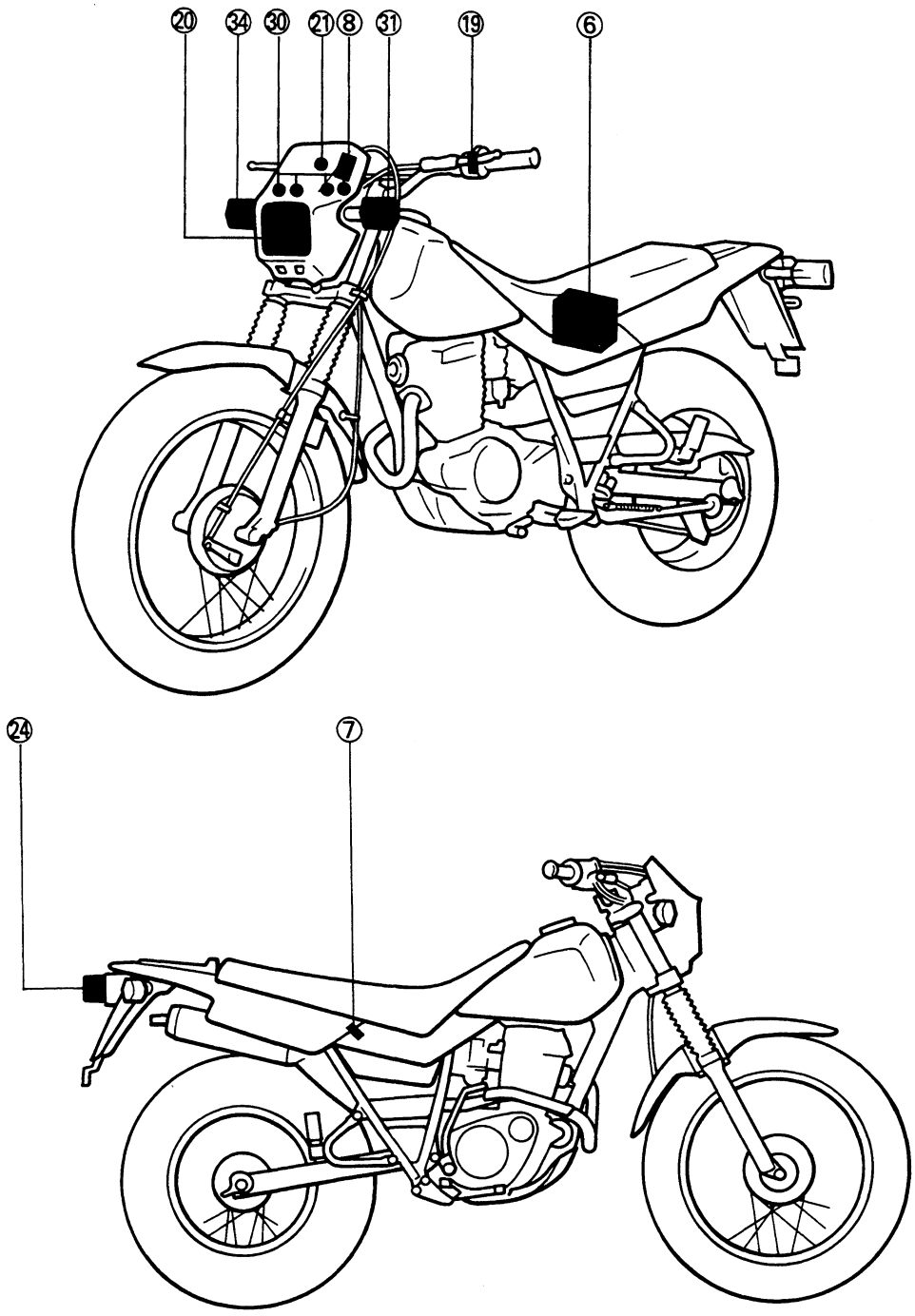
Below circuit diagram shows lighting circuit.



NOTE:

For the encircled numbers and color codes, see page 6.

⑥ Battery
⑦ Fuse
⑧ Main switch
⑲ "LIGHTS" (Dimmer) switch
⑳ Headlight
㉑ "HIGH BEAM" indicator light
㉔ Taillight
㉚ Meter light
㉛ Position light (Left)
㉞ Position light (Right)



TROUBLESHOOTING

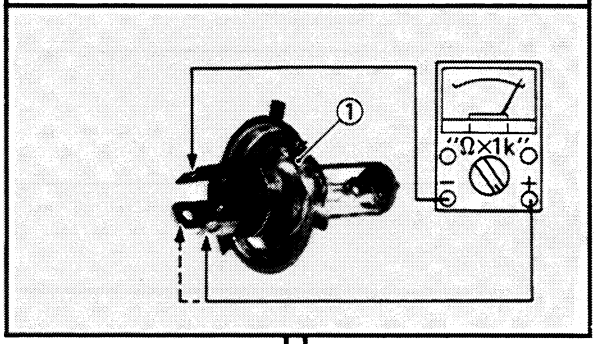
NOTE:

Before this troubleshooting, remove the side covers and seat.

HEADLIGHT DOES NOT COME ON.

1. Headlight bulb conduct check:
   - Remove the headlight bulb ①. Refer to "CHAPTER 3. HEADLIGHT BULB REPLACEMENT" section.
   - Connect the Pocket Tester (YU-03112) to the bulb terminals as shown, and check the bulb for continuity.

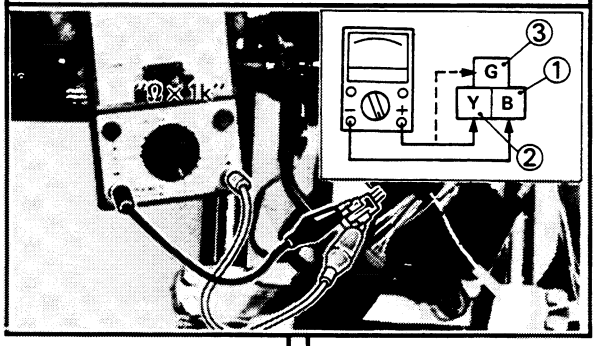
CONTINUITY DOES NOT EXIST ON ONE CIRCUIT → Bulb is faulty. Replace it.



CONTINUITY EXISTS ON BOTH CIRCUIT

2. Headlight bulb socket conduct check:
   - Install the bulb to the headlight socket.
   - Connect the Pocket Tester (YU-03112) to the headlight leads (Black ①, Yellow ② and Green ③), and check it for continuity.

CONTINUITY DOES NOT EXIST ON ONE CIRCUIT → Bulb socket is faulty. Replace it.



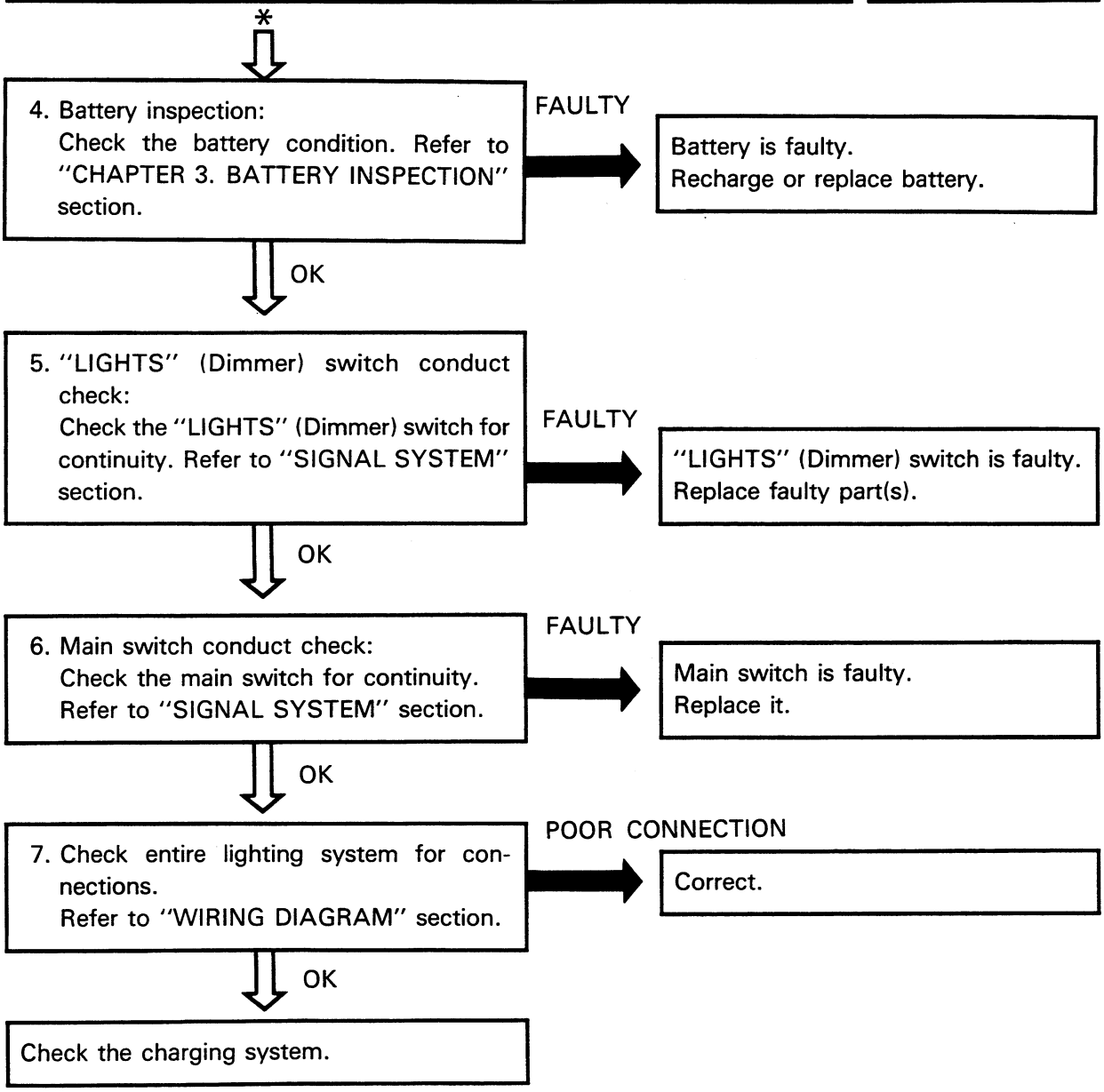
CONTINUITY EXISTS ON BOTH CIRCUIT

3. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.

FAULTY → Fuse is faulty. Replace it.

OK

*


*
4. Battery inspection:
Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.
FAULTY
Battery is faulty.
Recharge or replace battery.
OK
5. "LIGHTS" (Dimmer) switch conduct check:
Check the "LIGHTS" (Dimmer) switch for continuity. Refer to "SIGNAL SYSTEM" section.
FAULTY
"LIGHTS" (Dimmer) switch is faulty.
Replace faulty part(s).
OK
6. Main switch conduct check:
Check the main switch for continuity.
Refer to "SIGNAL SYSTEM" section.
FAULTY
Main switch is faulty.
Replace it.
OK
7. Check entire lighting system for connections.
Refer to "WIRING DIAGRAM" section.
POOR CONNECTION
Correct.
OK
Check the charging system.

TROUBLESHOOTING

NOTE:

Before this troubleshooting, remove the side covers and seat.

THE POSITION LIGHT, METER LIGHT OR TAILLIGHT DO NOT COME ON.

1. Bulbs conduct check:
   Check the flasher light, meter light or tail/brake light bulb(s) condition.
   - FAULTY → Flasher light, meter light or tail/brake light bulb(s) is faulty. Replace faulty part(s).
   - OK ↓

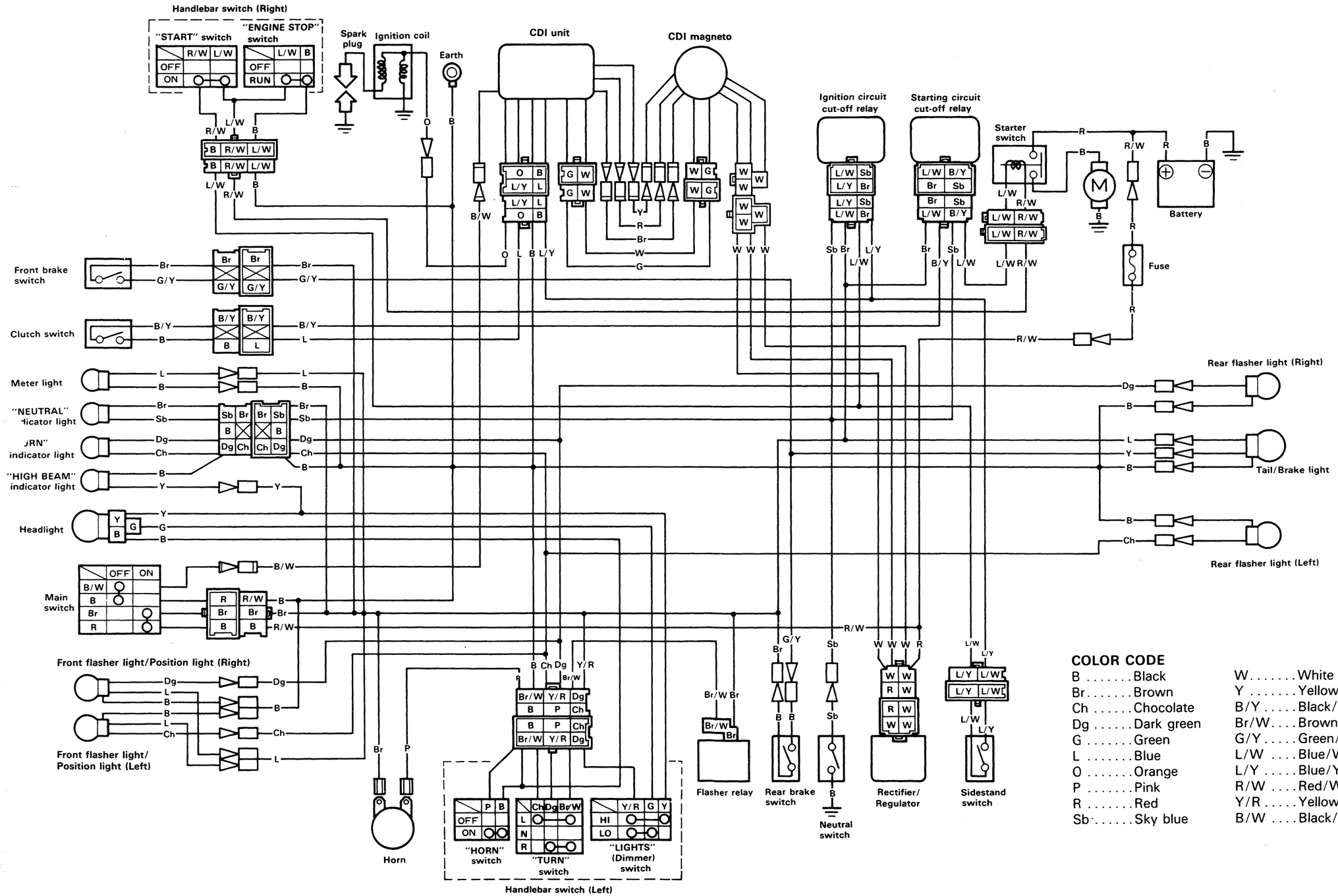
2. Fuse inspection:
   Check the fuse condition. Refer to "CHAPTER 3. FUSE INSPECTION" section.
   - FAULTY → Fuse is faulty. Replace it.
   - OK ↓

3. Battery inspection:
   Check the battery condition. Refer to "CHAPTER 3. BATTERY INSPECTION" section.
   - FAULTY → Battery is faulty. Recharge or replace battery.
   - OK ↓

4. Main switch conduct check:
   Check the main switch for continuity. Refer to "SIGNAL SYSTEM" section.
   - FAULTY → Main switch is faulty. Replace it.
   - OK ↓

5. Check entire lighting system for connections.
   Refer to "WIRING DIAGRAM" section.
   - POOR CONNECTION → Correct.

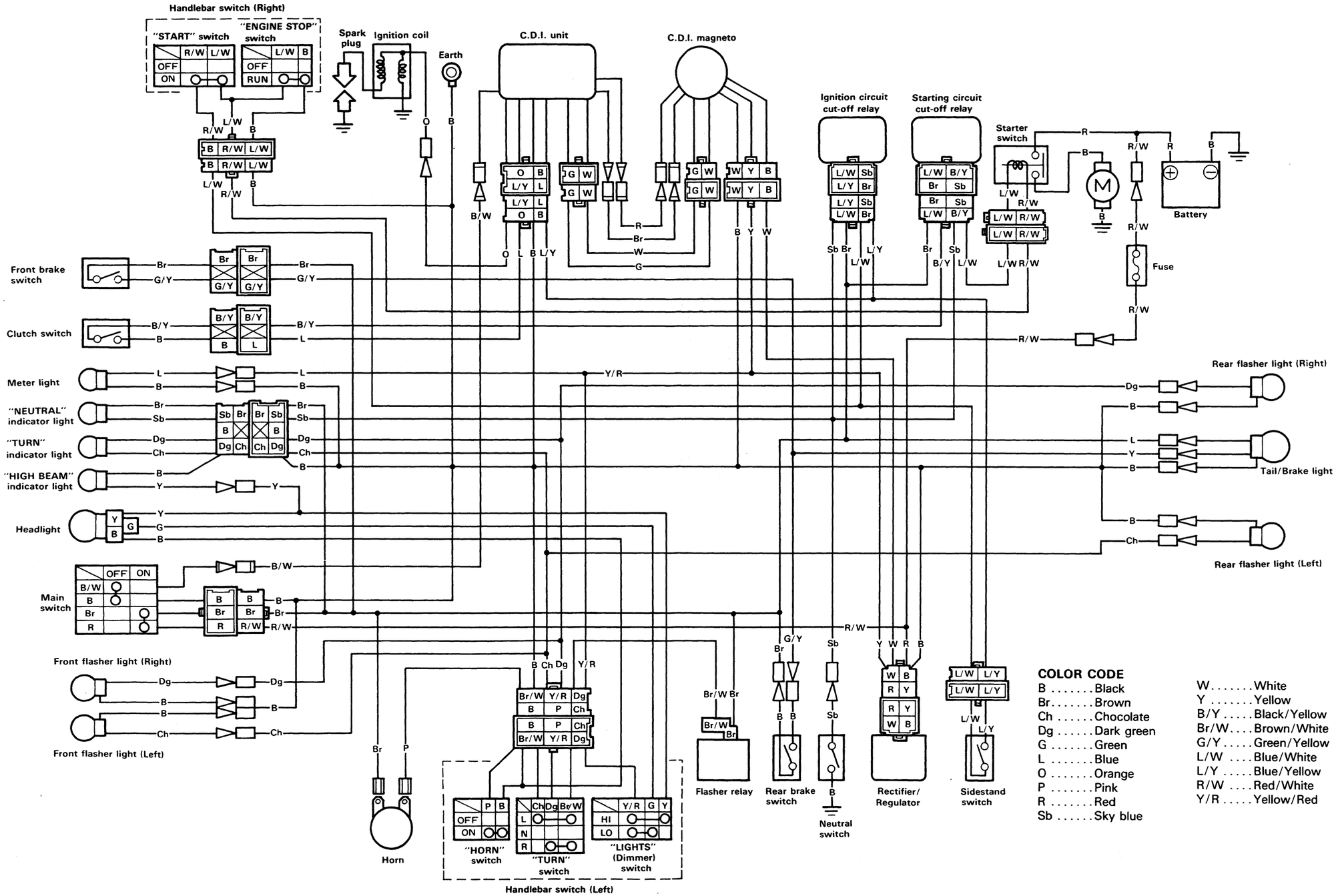
TW200EU/TW200EUC WIRING DIAGRAM



COLOR CODE

B .....Black	W.....White
Br.....Brown	Y .....Yellow
Ch .....Chocolate	B/Y .....Black/Yellow
Dg .....Dark green	Br/W....Brown/White
G .....Green	G/Y .....Green/Yellow
L .....Blue	L/W ....Blue/White
O .....Orange	L/Y .....Blue/Yellow
P .....Pink	R/W ....Red/White
R .....Red	Y/R .....Yellow/Red
Sb.....Sky blue	B/W ....Black/White

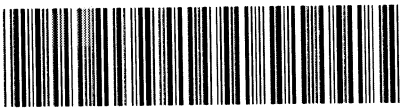
TW200T/TC WIRING DIAGRAM



COLOR CODE

B	Black
Br	Brown
Ch	Chocolate
Dg	Dark green
G	Green
L	Blue
O	Orange
P	Pink
R	Red
Sb	Sky blue
W	White
Y	Yellow
B/Y	Black/Yellow
Br/W	Brown/White
G/Y	Green/Yellow
L/W	Blue/White
L/Y	Blue/Yellow
R/W	Red/White
Y/R	Yellow/Red

PROTECT YOUR INVESTMENT
Use Genuine YAMAHA Parts And Accessories



LIT-11616-06-26

YAMAHA MOTOR CORPORATION, U.S.A.
PRINTED IN U.S.A.