YAMAHA

DT125R '88

3BN-ME1

SERVICE MANUAL

DT125R
SERVICE MANUAL
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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 GROUP
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.

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®)

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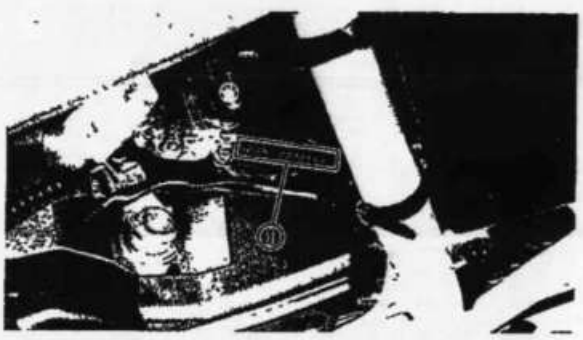
GENERAL INFORMATION



MOTORCYCLE IDENTIFICATION

FRAME SERIAL NUMBER

The frame serial number ① is stamped into the right side of the steering head pipe.



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the elevated part of the left rear section of the engine.

NOTE:

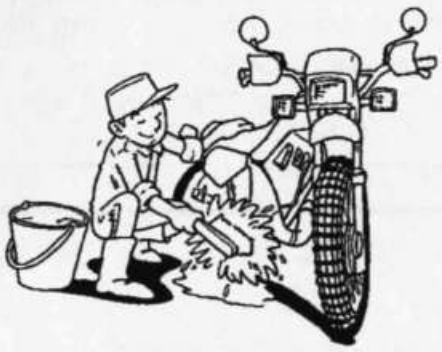
The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

	Starting Serial Number:
DT125R	3BN1. . . . .3BN-000101
	3DB1. . . . .3DB-000101
	3BP1. . . . .3BP-000101
	3DD1. . . . .3DD-000101

NOTE:

Designs and specifications are subject to change without notice.



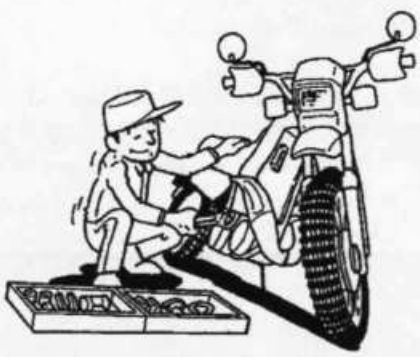


IMPORTANT INFORMATION

PREPARATION FOR REMOVAL

1. Remove all dirt, mud, dust, and foreign material before removal and disassembly.

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



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



4. During the machines 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.



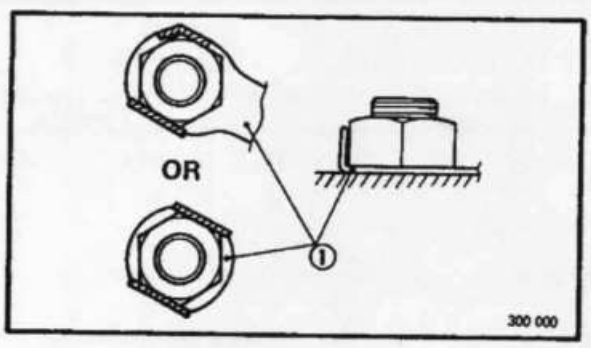
5. Keep away from fire.

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.

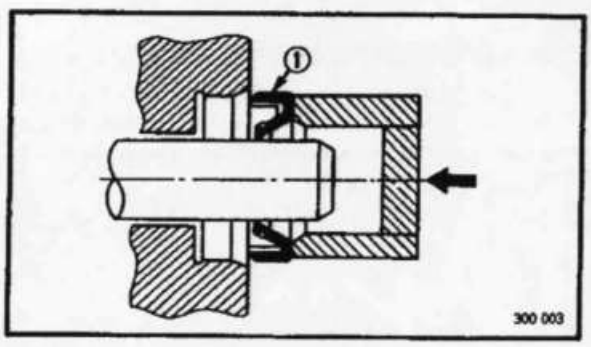
GASKETS, OIL SEALS, AND O-RINGS

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

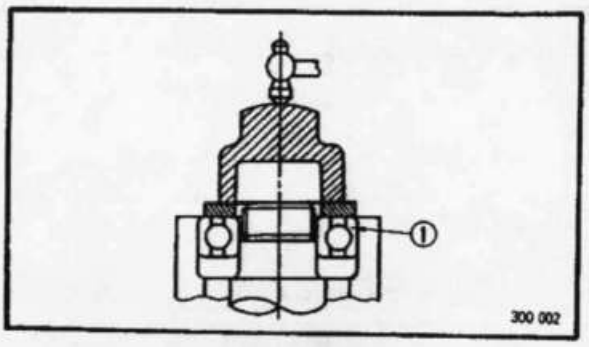
1. All lock washers/plates ① and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.



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.

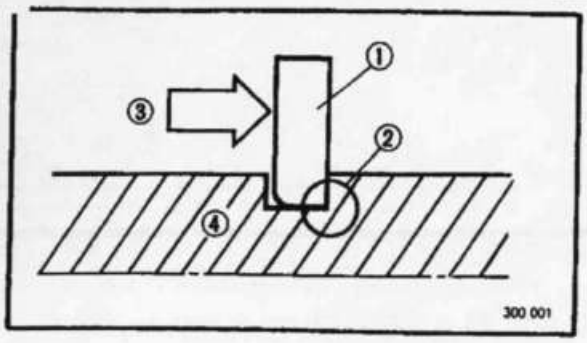
① Oil seal



CAUTION:

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

① Bearing



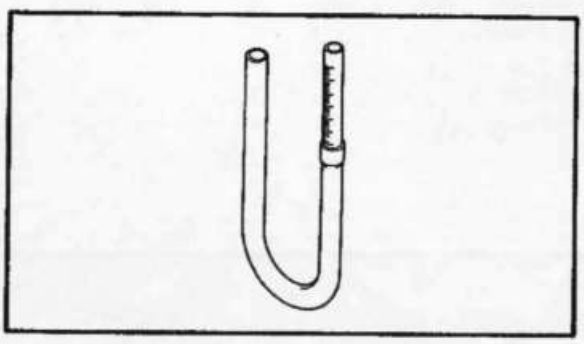
CIRCLIPS

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

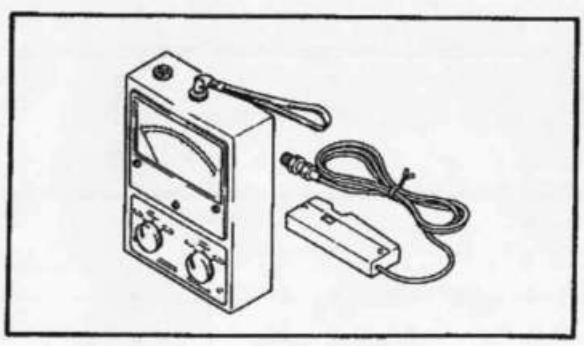
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



FOR TUNE UP

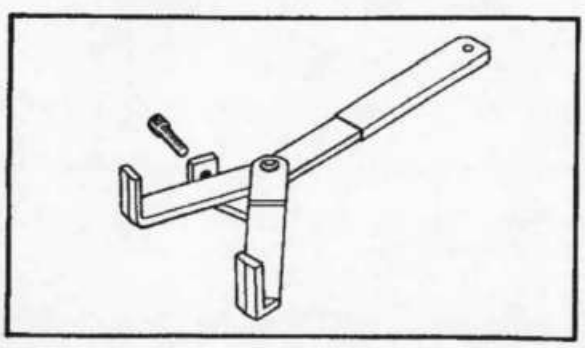
1. Fuel Level Gauge
   P/N. 90890-01312

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



2. Engine Tachometer
   P/N. 90890-03113

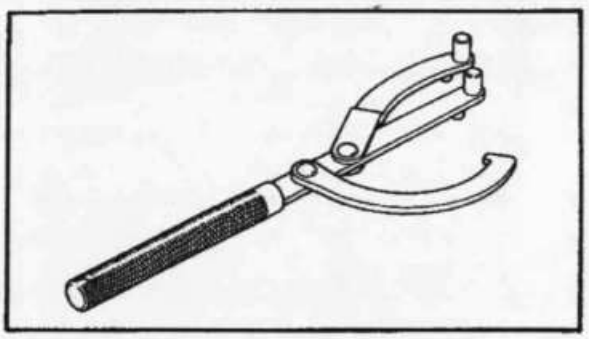
This tool is needed for detecting engine rpm.



FOR ENGINE SERVICE

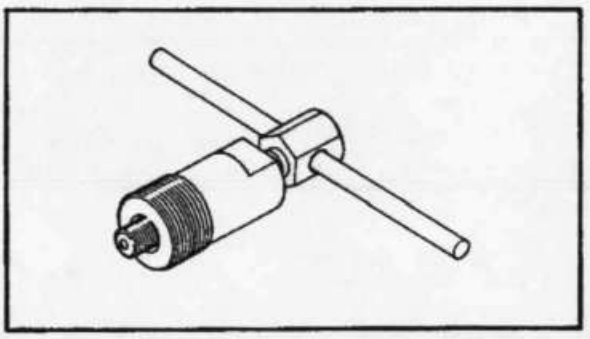
1. Universal Clutch Holder
   P/N. 90890-04086

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



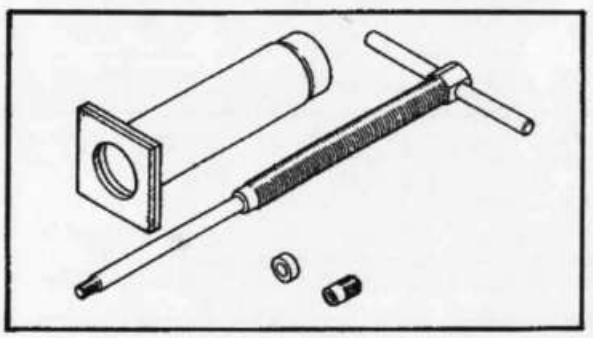
2. Universal Rotor Holder
P/N 90890-01235

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



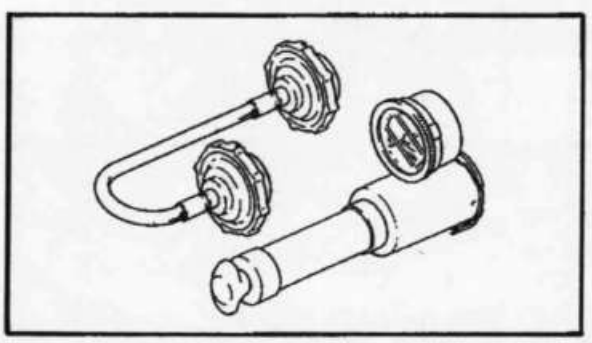
3. Flywheel Puller
P/N. 90890-01189

This tool is used for removing the flywheel.



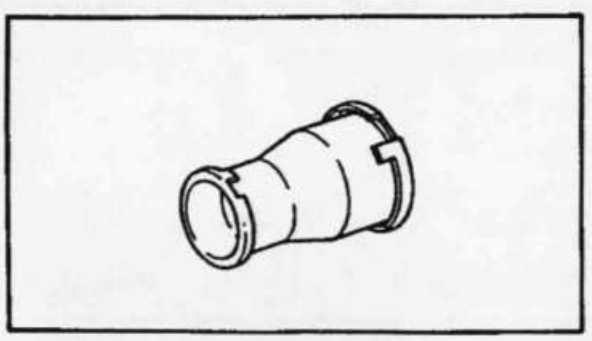
4. Piston Pin Puller
P/N. 90890-01304

This tool is used to remove the piston pin.



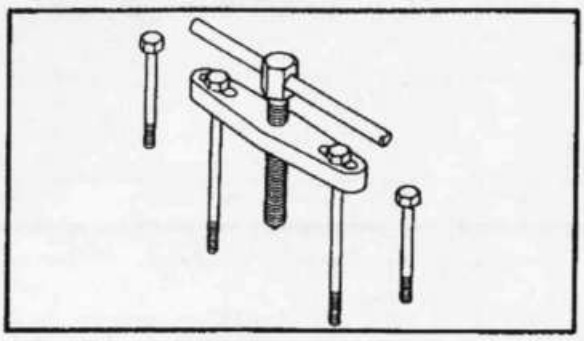
5. Cooling System Tester
P/N. 90890-01325

This tester is needed for checking the cooling system.



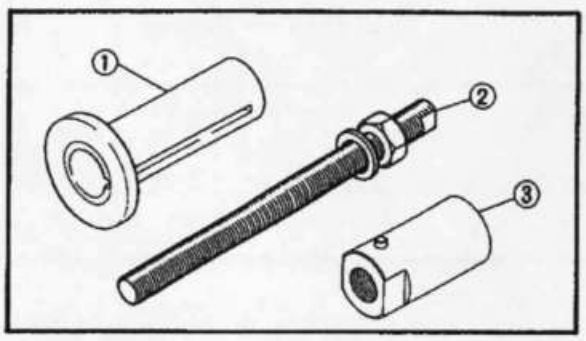
6. Adapter
P/N. 90890-01352

This tool is used for checking the radiator cap.



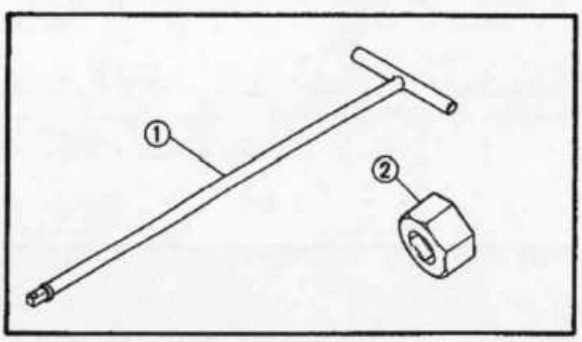
7. Crankcase Separating Tool
   P/N. 90890-01135

This tool is used to remove the crankshaft or separate the crankcase.



8. Crankshaft Installing Tool
   P/N. 90890-01274 – ①
   P/N. 90890-01275 – ②
   P/N. 90890-01278 – ③

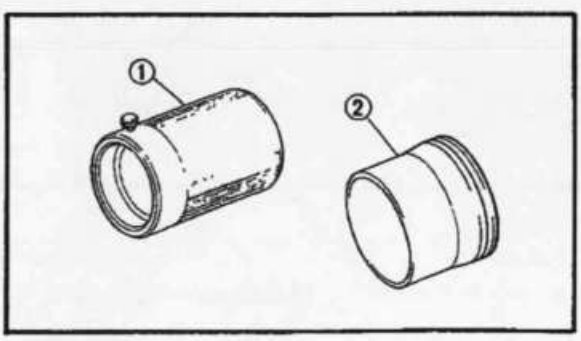
These tools are used to install the crankshaft.



FOR CHASSIS SERVICE

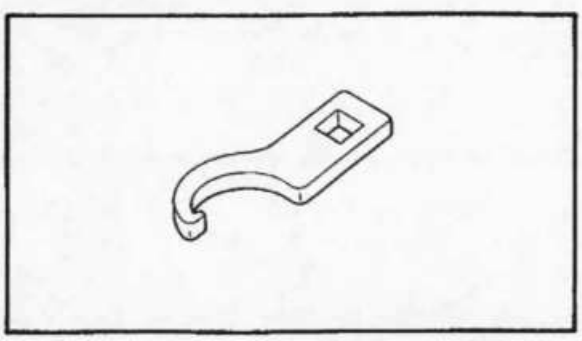
1. T-Handle – ①
   P/N. 90890-01326
   Front Fork Cylinder Holder – ②
   P/N. 90890-01388

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



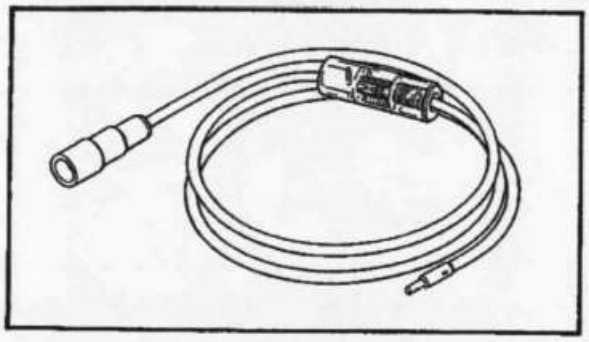
2. Front Fork Seal Driver (Weight) – ①
   P/N. 90890-01367
   Adapter – ②
   P/N. 90890-01381

These tools are used when installing the fork seal.



3. Ring Nut Wrench
   P/N. 90890-01403

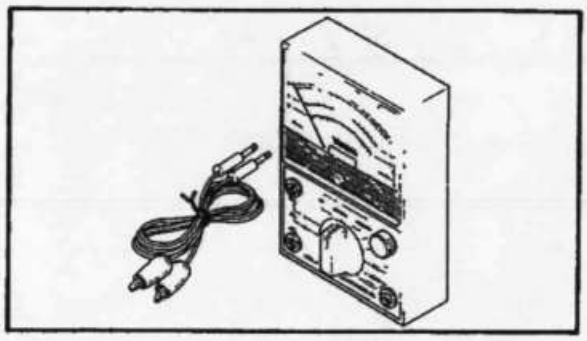
This tool is used to loosen and tighten the steering ring nut.



FOR ELECTRICAL COMPONENTS

1. Electro Tester
   P/N. 90890-03021

This tester is necessary for checking the ignition system components.



2. Pocket Tester
   P/N. 90890-03112

This tester is invaluable for checking the electrical system.

SPECIFICATIONS

GENERAL SPECIFICATIONS

(F): For France (Sw): For Sweden (E): For England
(B): For Belgium (D): For Denmark (Fi): For Finland
(NL): Netherland (CH): Switzerland (P): For Portugal

Model	DT125R			
Model Code Number	3BN1 (F) (SW) (NL) (Fi) (B) (D) (P)	3DB1 (E)	3BP1 (F)	3DD1 (CH)
Engine Starting Number	3BN-000101	3DB-000101	3BP-000101	3DD-000101
Frame Serial Number	3BN-000101	3DB-000101	3BP-000101	3DD-000101
Dimensions:				
Overall Length	2,160 mm (85.0 in) (F)(E)(B)(NL)(P) 2,250 mm (81.1 in) (SW)(D)(CH) 2,285 mm (82.4 in) (Fi)			
Overall Width	830 mm (32.7 in)			
Overall Height	1,255 mm (49.4 in)			
Seat Height	885 mm (34.8 in)			
Wheel Base	1,415 mm (55.7 in)			
Minimum Ground Clearance	315 mm (12.4 in)			
Basic Weight:				
With Oil and Full Fuel Tank	119 kg (262 lb)			
Minimum Turning Radius:	2,100 mm (82.7 in)			
Engine:				
Engine Type	Liquid cooled 2-stroke, gasoline			
Induction System	Reed valve			
Cylinder Arrangement	Single cylinder, Forward inclined			
Displacement	124 cm^3			
Bore x Stroke	56.4 x 50.0 mm (2.22 x 1.97 in)			
Compression Ratio	6.8 : 1			
Starting System	Kick starter			
Lubrication System	Separate lubrication (Yamaha Autolube)			
Engine Oil:				
Type	Yamaha oil 2T or air-cooled 2-stroke engine oil			
Capacity	1.2 L (1.1 Imp qt, 1.3 US qt)			
Transmission Oil:				
Type	SAE 10W30 type SE motor oil			
Capacity:				
Periodic Oil Change	0.75 L (0.66 Imp qt, 0.79 US qt)			
Total Amount	0.80 L (0.70 Imp qt, 0.84 US qt)			
Coolant Capacity:				
Including All Routes	0.92 L (0.81 Imp qt, 0.97 US qt)			
Air Filter:				
Type	Wet element			

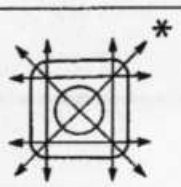
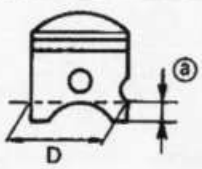
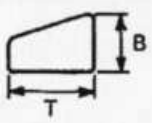
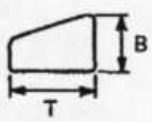
Model	DT125R	
Fuel:		
Type	Regular gasoline	
Fuel Tank Capacity:		
Full Amount	10.0 L (2.2 Imp gal, 2.6 US gal)	
Reserve Amount	1.8 L (0.40 Imp gal, 0.48 US gal)	
Carburetor:		
Type/Quantity	VM26SS/1 pc.	
Manufacturer	MIKUNI	
Spark Plug:		
Type/Quantity	BR9ES/1 pc.	
Manufacturer	NGK	
Plug Gap	0.7 ~ 0.8 mm (0.028 ~ 0.032 in)	
Clutch:		
Type	Wet, multiple disc	
Transmission:		
Type	Constant mesh 6-speed	
Primary Reduction System	Helical gear	
Primary Reduction Ratio	71/22 (3.227)	
Secondary Reduction System	Chain drive	
Secondary Reduction Ratio	55/17 (2.235), 53/17 (3.118) (CH)	
Operation	Left foot operation	
Gear Ratio:		
1st	34/12 (2.833)	
2nd	30/16 (1.875)	
3rd	24/17 (1.412)	
4th	24/21 (1.143)	
5th	22/23 (0.957)	
6th	18/22 (0.818)	
Chassis:		
Frame Type	Semi Double Cradle	
Caster Angle	27.5°	
Trail	113 mm (4.45 in)	
Tire:		
Type	With tube	
Size:		
Front	2.75-21 4PR	
Rear	4.10-18 4PR	
Maximum Load* Front:	47 kg (104 lb)	
Rear:	134 kg (295 lb)	
Cold Tire Pressure:	Front	Rear
Up to 90 kg (198 lb) Load*	130 kPa (1.3 kg/cm², 18 psi)	150 kPa (1.5 kg/cm², 22 psi)
90 kg (198 lb) ~ Maximum Load*	150 kPa (1.5 kg/cm², 22 psi)	180 kPa (1.8 kg/cm², 26 psi)
Off-road Riding	130 kPa (1.3 kg/cm², 18 psi)	150 kPa (1.5 kg/cm², 22 psi)

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

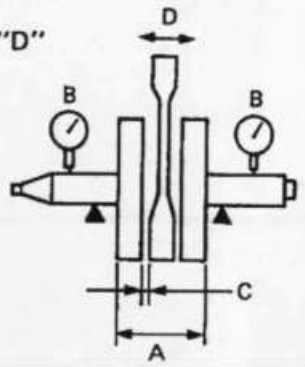
Model	DT125R
Brake:	
Front Brake Type	Single disc brake
Front Brake Operation	Right hand operation
Rear Brake Type	Single disk brake
Rear Brake Operation	Right foot operation
Suspension:	
Front Suspension Type	Telescopic fork
Rear Suspension Type	Swingarm (Monocross suspension)
Shock Absorber:	
Front Shock Absorber	Coil-air spring/Oil damper
Rear Shock Absorber	Coil and gas spring/Oil damper
Wheel Travel:	
Front Wheel Travel	270 mm (10.6 in)
Rear Wheel Travel	260 mm (10.2 in)
Electrical:	
Ignition System	CDI
Generator System	Flywheel magneto
Battery:	
Type	GM3-3B/FB3L-B
Capacity	12V 3AH
Headlight:	
Type	Bulb type
Bulb Wattage (Quantity):	
Headlight	12V 45W/40W
Tail/Brake Light	12V 5W/21W
Flasher Light	12V 21W (4 pcs.)
Auxiliary Light	12V 4W, 12V 3.4W (E) (1 pc.)
Meter Light	12V 3.4W (2 pcs.)
"NEUTRAL" Indicator Light	12V 3W (1 pc.)
"HIGH BEAM" Indicator Light	12V 3W (1 pc.)
"OIL" Indicator Light	12V 3W (1 pc.)
"TURN" Indicator Light	12V 3W (1 pc.)

MAINTENANCE SPECIFICATIONS

ENGINE

Model		DT125R
Cylinder Head: Warpage Limit		0.03 mm (0.0012 in) *Lines indicate straightedge measurement.
Cylinder: Bore Size Taper Limit Out of Round Limit		56.40 ~ 56.42 mm (2.220 ~ 2.221 in) 0.05 mm (0.002 in) 0.01 mm (0.0004 in)
Piston: Piston Size "D" Measuring Point "a"		56.34 ~ 56.40 mm (2.218 ~ 2.220 in) 10 mm (0.4 in)
Piston Off-Set Piston-to-Cylinder Clearance < Limit > Over Size: 1st 2nd		0.5 mm (0.02 in) 0.045 ~ 0.050 mm (0.0018 ~ 0.0020 in) < 0.1 mm (0.004 in) > 56.65 mm (2.23 in) 56.90 mm (2.24 in)
Piston Ring: Sectional Sketch	Top Ring  2nd Ring 	Keystone type B = 1.2 mm (0.047 in) T = 2.2 mm (0.087 in) Plain type B = 1.2 mm (0.047 in) T = 2.2 mm (0.087 in)
End Gap (Installed) Side Clearance	Top Ring 2nd Ring Top Ring 2nd Ring	0.30 ~ 0.45 mm (0.012 ~ 0.018 in) 0.30 ~ 0.45 mm (0.012 ~ 0.018 in) 0.020 ~ 0.060 mm (0.0008 ~ 0.0024 in) 0.035 ~ 0.070 mm (0.0014 ~ 0.0028 in)

Model		DT125R
Crankshaft:		
Crank Width "A"		57.90 ~ 57.95 mm (2.280 ~ 2.282 in)
Runout Limit "B"		0.02 mm (0.0008 in)
Big End Side Clearance "C"		0.20 ~ 0.70 mm (0.008 ~ 0.028 in)
< Limit >		< 1.0 mm (0.040 in) >
Small End Free Play "D"		0.8 ~ 1.0 mm (0.031 ~ 0.040 in)
Clutch:		
Friction Plate:		
Thickness		2.9 ~ 3.1 mm (0.114 ~ 0.122 in)
Quantity		7 pcs.
Wear Limit		2.7 mm (0.106 in)
Clutch Plate:		
Thickness		1.05 ~ 1.35 mm (0.041 ~ 0.053 in)
Quantity		6 pcs.
Warpage Limit		0.05 mm (0.002 in)
Clutch Spring:		
Free Length		34.5 mm (1.358 in)
Quantity		5 pcs.
Minimum Free Length		32.0 mm (1.260 in)
Clutch Release Method		Inner push, Cam push
Push Rod Bending Limit		0.15 mm (0.006 in)
Transmission:		
Main Axle Runout Limit		0.08 mm (0.003 in)
Drive Axle Runout Limit		0.08 mm (0.003 in)
Shifter:		
Type		Cam drum and guide bar
Guide Bar Bending Limit		0.03 mm (0.0012 in)
Kick Starter:		
Type		Kick and mesh type
Air Filter:		
Oil Grade		Foam-Air-Filter oil or SAE 10W30 SE
Carburetor:		
I.D. Mark		3BN00, 3DD00 (CH)
Main Jet	(M.J.)	#125
Air Jet	(A.J.)	φ0.8
Jet Needle-Position	(J.N.)	407-3, 407-2 (CH)
Needle Jet	(N.J.)	P-2
Cutaway	(C.A.)	2.0
Pilot Outlet	(P.O.)	φ0.6
Pilot Jet	(P.J.)	#25
Air Screw	(A.S.)	1-1/2, 1-3/4 (CH)
Bypass 1	(B.P. 1)	φ1.4



Model		DT125R
Valve Seat Size	(V.S.)	φ2.5
Starter Jet	(G.S.)	#25
Power Jet	(PW.J.)	#40
Fuel Level	(F.L.)	−0.5 ~ +1.5 mm (−0.02 ~ +0.06 in)
Float Height	(F.H.)	20 ~ 21 mm (0.79 ~ 0.83 in)
Idling Speed		1,300 ~ 1,400 r/min
Reed Valve:		
Valve Thickness		0.4 mm (0.02 in)
Valve Stopper Height		6.8 mm (0.27 in)
Valve Bending Limit		0.5 mm (0.02 in)
Lubrication System:		
Autolube Pump:		
Color Code		Red
Minimum Stroke		0.20 ~ 0.25 mm (0.008 ~ 0.010 in)
Maximum Stroke		1.85 ~ 2.05 mm (0.073 ~ 0.080 in)
Minimum Output		0.38 ~ 0.48 cm^3 per 200 strokes
Maximum Output		3.56 ~ 3.94 cm^3 per 200 strokes
Pulley Adjusting Mark		At idle
Cooling System:		
Radiator Core Width		110 mm (4.3 in)
Radiator Core Height		280 mm (11.0 in)
Radiator Core Thickness		32.0 mm (1.26 in)
Radiator Cap Opening Pressure		75 ~ 105 kPa (0.75 ~ 1.05 kg/cm^2, 10 ~ 14 psi)
Reservoir Tank Capacity		0.3 L (0.32 Imp qt, 0.26 US qt)
Water Pump Type		Single-suction centrifugal pump
Thermostatic Valve:		
Opening Temperature		63 ~ 67°C (146 ~ 153°F)
Full Open Temperature/Lift		80°C (176°F)/7 mm (0.28 in) or more

Tightening Torque:

Parts to be tightened	Q'ty	Thread size	Tightening torque			Remarks
			Nm	m·kg	ft·lb	
Spark Plug	1	M14 x 1.25	20	2.0	14	
Cylinder Head Nut	5	M8 x 1.25	22	2.0	16	
Cylinder Stud bolt	9	M8 x 1.25	13	1.3	9.4	LT
Nut	4	M8 x 1.25	28	2.8	20	
Power Valve Holder, Valve, Cover, Cap Seal Bolt	6	M5 x 0.8	7	0.7	5.1	
Power Valve Pully Bolt		M6 x 1.0	10	1.0	7.2	
Balancer Gear Nut	2	M12 x 1.0	55	5.5	40	
Thermostat Valve Cover Screw	3	M6 x 1.0	8	0.8	5.8	
Housing Cover Screw	2	M6 x 1.0	8	0.8	5.8	
Drain Bolt (Housing Cover)	1	M6 x 1.0	10	1.0	7.2	
Radiator Bolt	2	M6 x 1.0	8	0.8	5.8	
Warm Water Hose (Carburetor) Bolt	2	M6 x 1.0	8	0.8	5.8	
Radiator Cap Stopper Screw	1	M5 x 0.8	5	0.5	3.6	
Oil Pump Screw	2	M5 x 0.8	5	0.5	3.6	
Carburetor Joint Bolt	4	M6 x 1.0	8	0.8	5.8	
Air Filter Bolt	2	M6 x 1.0	5	0.5	3.6	
Exhaust Pipe Nut	2	M8 x 1.25	18	1.8	13	
Stud Bolt	2	M8 x 1.25	10	1.0	7.2	LT
Bolt	3	M6 x 1.0	8	0.8	5.8	
Transmission Oil Drain Bolt	1	M8 x 1.25	15	15	11	
Crankcase Cover (Left) Screw	6	M6 x 1.0	5	0.5	3.6	
Crankcase Cover (Right) Screw	6	M6 x 1.0	8	0.8	5.8	
Oil Pump Cover Screw	3	M6 x 1.0	5	0.5	3.6	
Crankcase Screw	12	M6 x 1.0	8	0.8	5.6	
Oil Seal Holder Screw	1	M8 x 1.25	16	1.6	11	

Tightening Torque:

Part to be tightened	Q'ty	Thread size	Tightening torque			Remarks
			Nm	m·kg	ft·lb	
Cover						
Screw	2	M6 x 1.0	8	0.8	5.6	
Kick Crank Bass						
Nut	1	M12 x 1.0	65	6.5	47	
Primary Drive Gear						
Nut	1	M12 x 1.0	80	8.0	58	
Clutch Boss						
Nut	1	M12 x 1.0	70	7.0	51	
Clutch Spring						
Bolt	5	M5 x 0.8	6	0.6	4.3	
Plate Cover						
Screw	2	M6 x 1.0	10	1.0	7.2	
Drive Sprocket						
Nut	1	M16 x 1.0	60	0.6	43	
Tachometer Housing						
Bolt	1	M6 x 1.0	5	0.5	3.6	
Stopper Lever						
Bolt	1	M6 x 1.0	14	1.4	10	LT
Change Pedal						
Bolt	1	M6 x 1.0	15	1.5	11	
Thermo Unit						
Rotor	1	–	15	1.5	11	
Nut	1	M12 x 1.25	80	8.0	58	

CHASSIS

Model	DT125R
Steering System:	
Bearing Type Upper	Ball bearing
Lower	Taper roller bearing
Bearing Size (Quantity):	
Upper	3/16 in (22 pcs.)
Front Suspension:	
Front Fork Travel	270 mm (10.6 in)
Fork Spring Free Length	478 mm (18.8 in)
< Limit >	< 473 mm (18.6 in) >
Spring Rate (K_1)	3.0 N/mm (0.30 kg/mm, 17 lb/in)
Stroke (K_1)	0 ~ 270 mm (0 ~ 10.6 in)
Optional Spring	No.
Oil Capacity	486 cm³ (17.1 Imp oz, 16.4 US oz)
Oil Level	175 mm (6.89 in)
	From top of inner tube fully compressed without spring.
Oil Grade	Fork oil 10W or equivalent
Rear Suspension:	
Shock Absorber Travel	93 mm (3.66 in)
Spring Free Length	245 mm (9.65 in)
< Limit >	< 243 mm (9.57 in) >
Fitting Length	230 mm (9.06 in)
Spring Rate (K_1)	70 N/mm (7 kg/mm, 392 lb/in)
Stroke (K_1)	0 ~ 93 mm (0 ~ 3.66 in)
Optional Spring	No.
Enclosed Gas Pressure	1471.0 kPa (15 kg/cm², 213 psi)
Swingarm:	
Free Play Limit (Swingarm End)	1.0 mm (0.04 in)
	Move swingarm end side to side
Front Wheel:	
Type	Spoke wheel
Rim Size	1.60 x 21
Rim Material	Steel
Rim Runout Limit:	
Vertical	2.0 mm (0.08 in)
Lateral	2.0 mm (0.08 in)
Rear Wheel:	
Type	Cast wheel
Rim Size	1.85 x 18
Rim Material	Steel
Rim Runout Limit	
Vertical	2.0 mm (0.08 in)
Lateral	2.0 mm (0.08 in)
Drive Chain:	
Type/Manufacturer	428V/DAIDO
Number of Links	133 Links + joint
Chain Free Play	25 ~ 40 mm (0.98 ~ 1.57 in)

Model	DT125R
Front Disc Brake:	
Type	Single
Disc Outside Diameter	230 mm (9.06 in)
Disc Thickness	3.5 mm (0.14 in)
Pad Thickness	6.0 mm (0.24 in)
< Wear Limit >	< 0.8 mm (0.03 in) >
Master Cylinder Inside Diameter	12.7 mm (0.5 in)
Caliper Cylinder Inside Diameter	34.9 mm (1.38 in)
Brake Fluid Type	DOT No. 4 If DOT No. 4 is not available, DOT No. 3 can be used.
Rear Disc Brake:	
Type	Single
Disc Outside Diameter	230 mm (9.06 in)
Disc Thickness	4.5 mm (0.18 in)
Pad Thickness	6 mm (0.24 in)
< Limit >	< 0.8 mm (0.03 in) >
Master Cylinder Inside Diameter	12.7 mm (0.5 in)
Caliper Cylinder Inside Diameter	30.2 mm (1.19 in)
Brake Fluid Type	DOT No. 4 If DOT No. 4 is not available, DOT No. 3 can be used.
Brake Lever and Brake Pedal:	
Brake Lever Free Play	2 ~ 5 mm (0.08 ~ 0.20 in) At end of brake lever
Brake Pedal Position	15 mm (0.59 in) Below top of footrest
Brake Pedal Free Play	Adjustment free
Clutch Lever and Throttle Grip:	
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in) At the lever pivot
Throttle Cable Free Play	2 ~ 5 mm (0.08 ~ 0.20 in) At grip flange

Tightening Torque

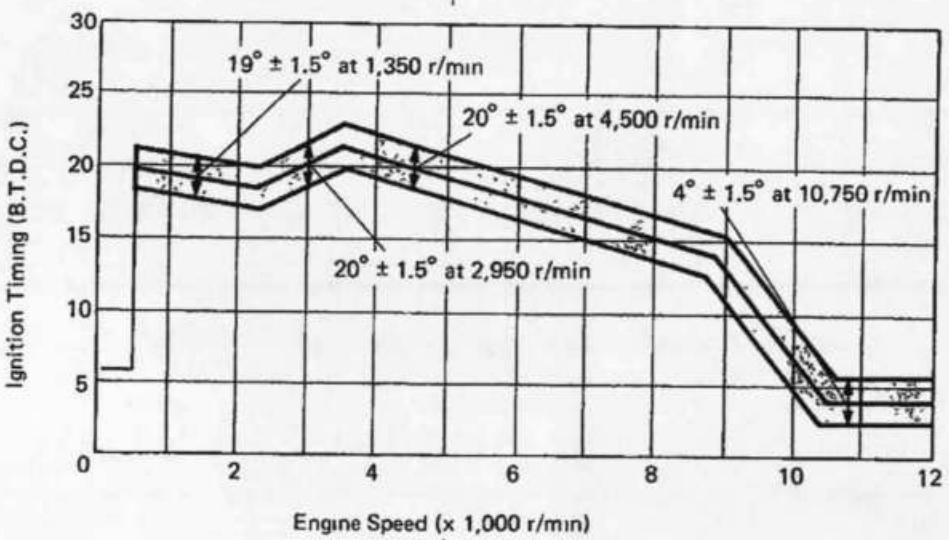
Part to be tightened	Thread size	Tightening torque			Remark
		Nm	m·kg	ft·lb	
Front Fork, Steering:					Refer to "NOTE".
Handle Crown and Inner Tube	M8 x 1.25	23	2.3	17	
Handle Crown and Steering Shaft	M22 x 1.0	90	9.0	65	
Handlebar Holder	M8 x 1.25	23	2.3	17	
Steering Shaft and Ring Nut	M25 x 1.0	6	0.6	4.3	
Brake Hose Holder	M6 x 1.0	10	1.0	7.2	
Master Cylinder Cap	M4 x 0.7	2	0.2	1.4	
Handle Crown Pinch Bolt	M8 x 1.25	23	2.3	17	
Engine Mounting:					
Engine Stay (Front) and Frame	M10 x 1.25	63	6.3	45	
Engine Stay (Top) and Frame	M8 x 1.25	33	3.3	24	
Engine and Frame	M8 x 1.25	33	3.3	24	
Swingarm, Rear Shock Absorber:					
Pivot Shaft and Frame	M16 x 1.5	90	0.9	65	
Swingarm and Connecting Rod	M14 x 1.5	58	5.8	42	
Relay Arm and Connecting Rod	M14 x 1.5	58	5.8	42	
Relay Arm and Frame	M10 x 1.25	58	5.8	42	
Rear Shock Absorber and Frame	M10 x 1.25	33	3.3	24	
Rear Arm and Rear Shock Absorber	M10 x 1.25	33	3.3	24	
Chain Cover	M6 x 1.0	4	0.4	2.9	
Swingarm End Bolt	M6 x 1.0	3	0.3	2.2	
Fuel Tank, Seat, Rear Fender.					
License Bracket and Stay	M6 x 1.0	5	0.5	3.6	
Wheels:					
Front Wheel Axle	M14 x 1.5	58	5.8	42	
Rear Wheel Axle and Nut	M18 x 1.5	90	9.0	65	
Front Wheel Axle Holder	M6 x 1.0	10	1.0	7.2	
Front Brake Caliper	M10 x 1.25	35	3.5	25	
Union Bolt (Brake Hose)	M10 x 1.25	26	2.6	19	
Wheel Sprocket and Hub	M8 x 1.25	35	3.5	25	
Footrest Brake Pedal:					
Sidestand	M10 x 1.25	40	0.4	29	
Sidestand Switch	M5 x 0.8	4	0.4	29	
Footrest (Rear and Frame)	M8 x 1.25	20	2.0	14	
Master Cylinder (Rear)	M6 x 1.0	10	1.0	7.2	
Reservoir Tank	M6 x 1.0	4	0.4	2.9	

NOTE:

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 one turn.
2. Retighten the ring nut to specification.

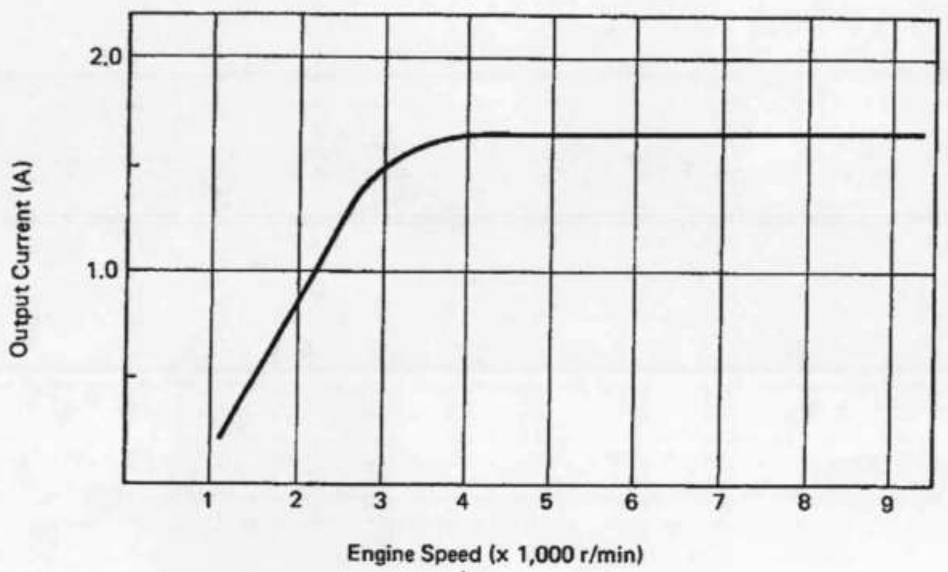
ELECTRICAL

Model	DT125R
Voltage:	12V
Ignition System: Ignition Timing (B.T.D.C.) Advancer Type	19° at 1,350 r/min Electrical type



C.D.I.: Magneto Model/Manufacturer C.D.I. Unit Model/Manufacturer Pickup Coil Resistance (Color) Source Coil Resistance (Color)	 F3BN/YAMAHA 3BN/YAMAHA 280 ~ 420Ω at 20°C (68°F) (White/Red – White/Blue) 192 ~ 288Ω at 20°C (68°F) (Black/Red – Green/White)
Ignition Coil: Model/Manufacturer Minimum Spark Gap Primary Coil Resistance Secondary Coil Resistance	 2JN/YAMAHA 6 mm (0.24 in) 0.7 ~ 1.1Ω at 20°C (68°F) 5.7 ~ 8.5kΩ at 20°C (68°F)
Spark Plug Cap: Type Plug Cap Resistance	 Rubber type 4 ~ 6kΩ at 20°C (68°F)

Model	DT125R
Charging System:	Flywheel magneto
Flywheel Magneto: Model/Manufacturer Charging Coil Resistance (Color) Standard Output	 F3BN/YAMAHA 0.3 ~ 0.5Ω at 20°C (68°F) (White – Black) 12V 1.1A at 2,500 r/min When "LIGHT" switch is turned to "OFF".
Voltage Regulator: Type	 Semi conductor – Short circuit type
Rectifier: Model/Manufacturer Capacity	 EHU01TR23/MATSUSHITA 12A
Battery: Specific Gravity	 1.280
Horn: Type Quantity Model/ Manufacturer Maximum Amperage	 Plane type 1 pc. YF–12/NIKKO 2.5A

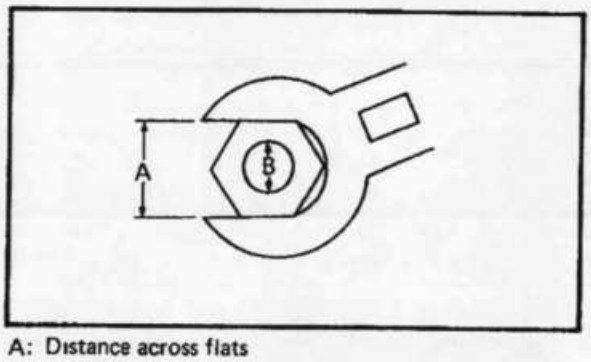


Model	DT125R
Flasher Relay:	
Type	Condenser type
Model/Manufacturer	FZ249SD/NIPPON DENSO
Self Cancelling Device	No
Flasher Frequency	60 ~ 120 cycle/min
Wattage	21W x 2 + 3.4W
Ignition Control Unit:	
Model/Manufacturer	4Y3/YAMAHA
Oil Level Switch:	
Model/Manufacturer	3BN/STANLEY
Thermo Unit:	
Model/Manufacturer	11H/NIPPON SEIKI
Circuit Breaker:	
Type	Fuse
Circuit (Fuse):	
"MAIN"	10A (1 pc.)

GENERAL TORQUE SPECIFICATIONS

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

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

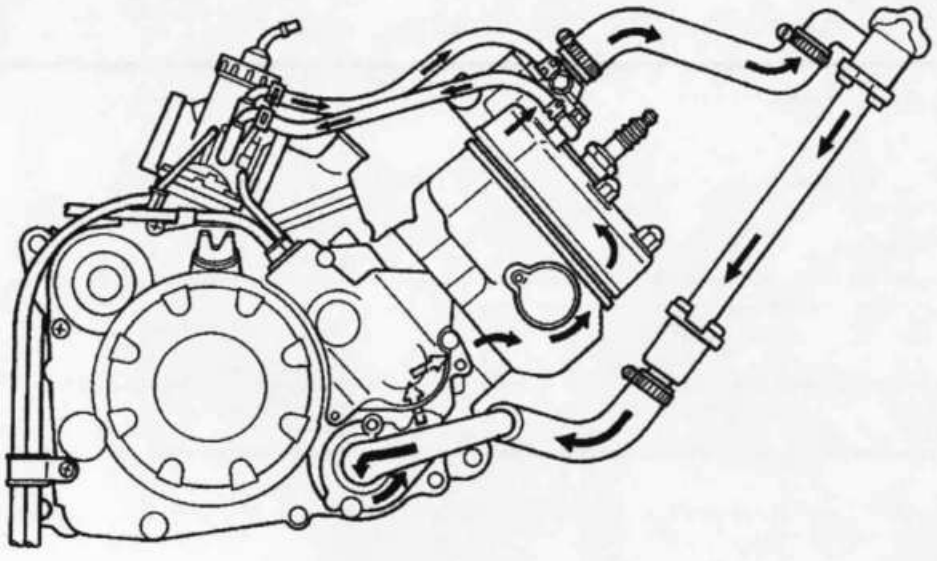


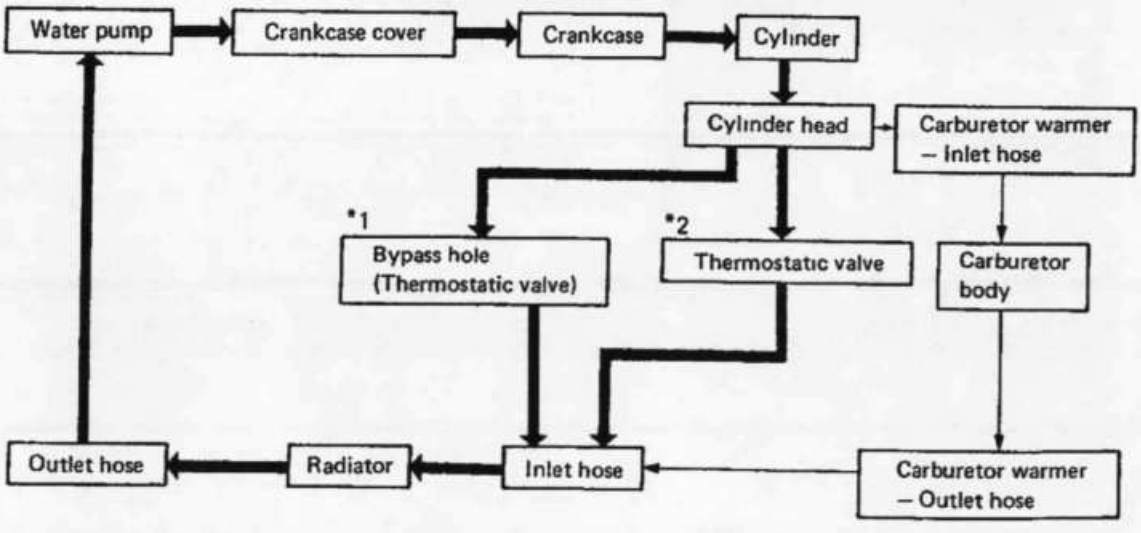
A: Distance across flats
B: Outside thread diameter

DEFINITION OF UNITS

Unit	Read	Definition	Measure
mm cm	millimeter centimeter	10^{-3} meter 10^{-2} meter	Length Length
kg	kilogram	10^{3} gram	Weight
N	Newton	1 kg x m/sec^2	Force
Nm m·kg	Newton meter Meter kilogram	N x m m x 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

COOLANT FLOW CHART





*1 Coolant is cooled (Less than 65°C (149°F)).
*2 Coolant is hot (65°C (149°F) or more).

LUBRICATION POINTS AND LUBRICANT TYPE

ENGINE

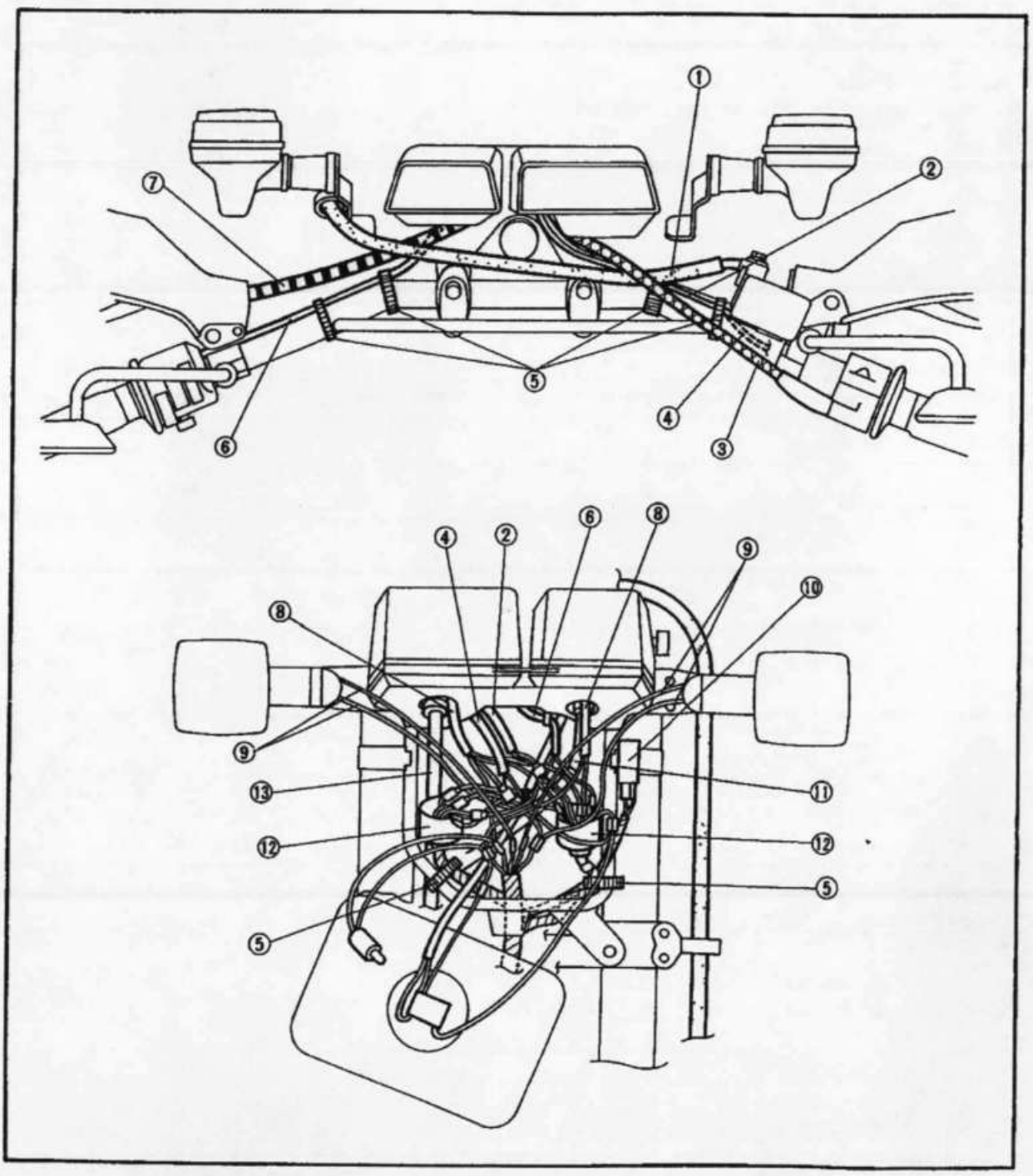
Lubrication Points (Part name)	Lubricant Type
Oil seal lips (All)	LS
O-rings (All)	LS
Bearing retainer Crankshaft bearings (Left and center) Needle bearings (Connecting rod) Main axle bearings Drive axle bearings Push lever bearing	 E E G G G
Crank pins	E
Piston rings, piston pins and pistons	E
Power valve holders	LS
Impeller shaft (Water pump)	G
Warm shaft (Autolube pump)	E
Kick idle gear	G
Kick axle	G
Primary driven gear (Clutch housing)	G
Push rod	G
Push lever axle	G
Sliding gear (Transmission)	M
Free movement gear (Transmission)	M
Guide bar (Shift forks)	G
Crankcase mating surfaces	Yamaha bond No. 4®

CHASSIS

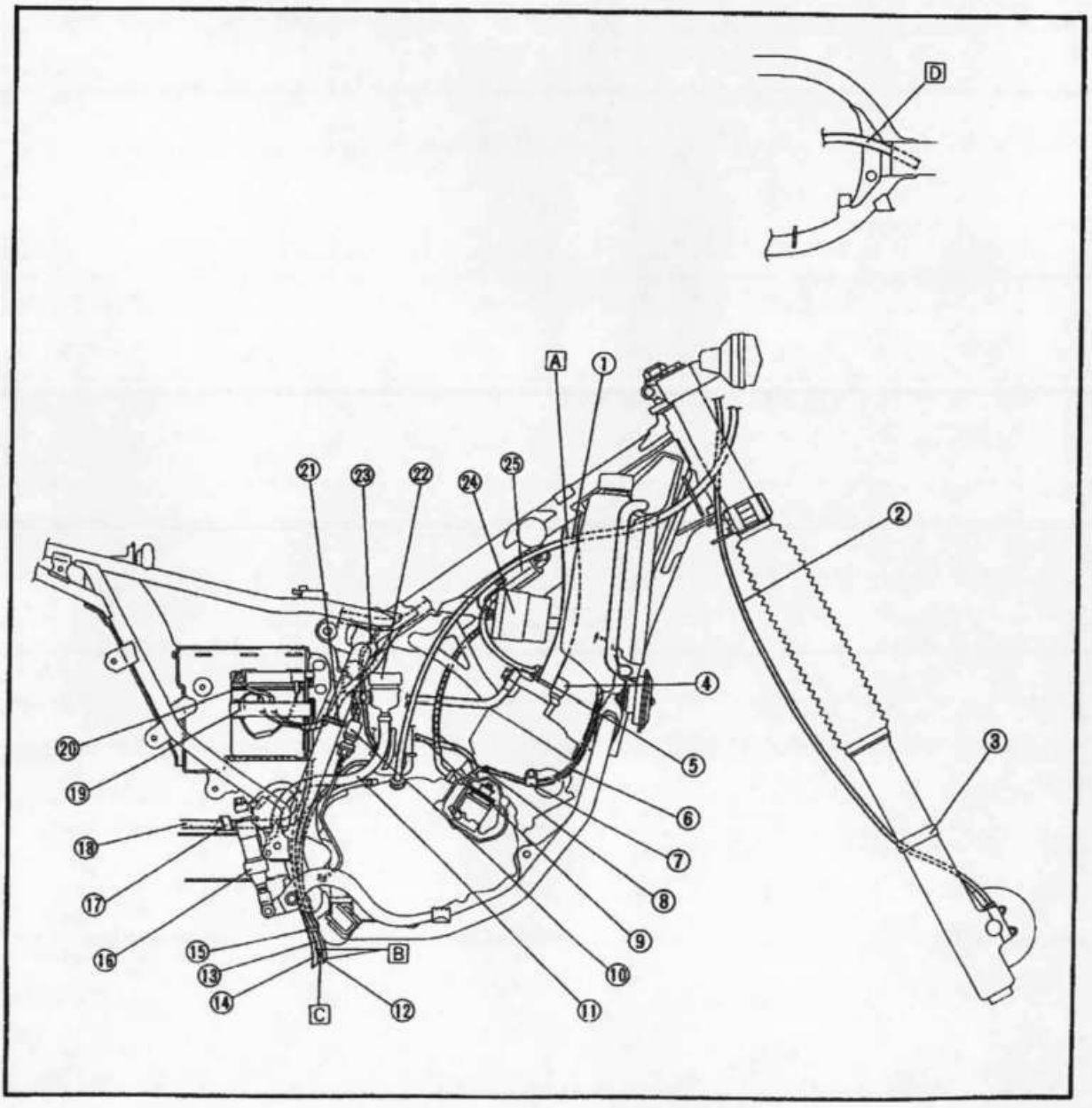
Lubrication Points (Part name)	Lubricant Type
Ball bearing (Steering shaft)	
Bearing (Steering shaft)	
Pivot shaft (Swingarm)	
Oil sela lip (Swingarm, Steering shaft, Relay arm)	
Bearing (Swingarm)	
Collar (Swingarm)	
Bush (Relay arm, Connecting rod)	
Collar (Relay arm, Connecting rod)	
Bearing (Relay arm)	
Bolt (Relay arm and frame)	
Bearing, oil seal lip (Rear shock absorber – Lower)	
Throttle grip inner surface	
Lever pivots and cable end	
Oil seal lip (Wheels)	
Speedometer gear	
Rear brake pedal boss	
Sidestand pivot	

CABLE ROUTING

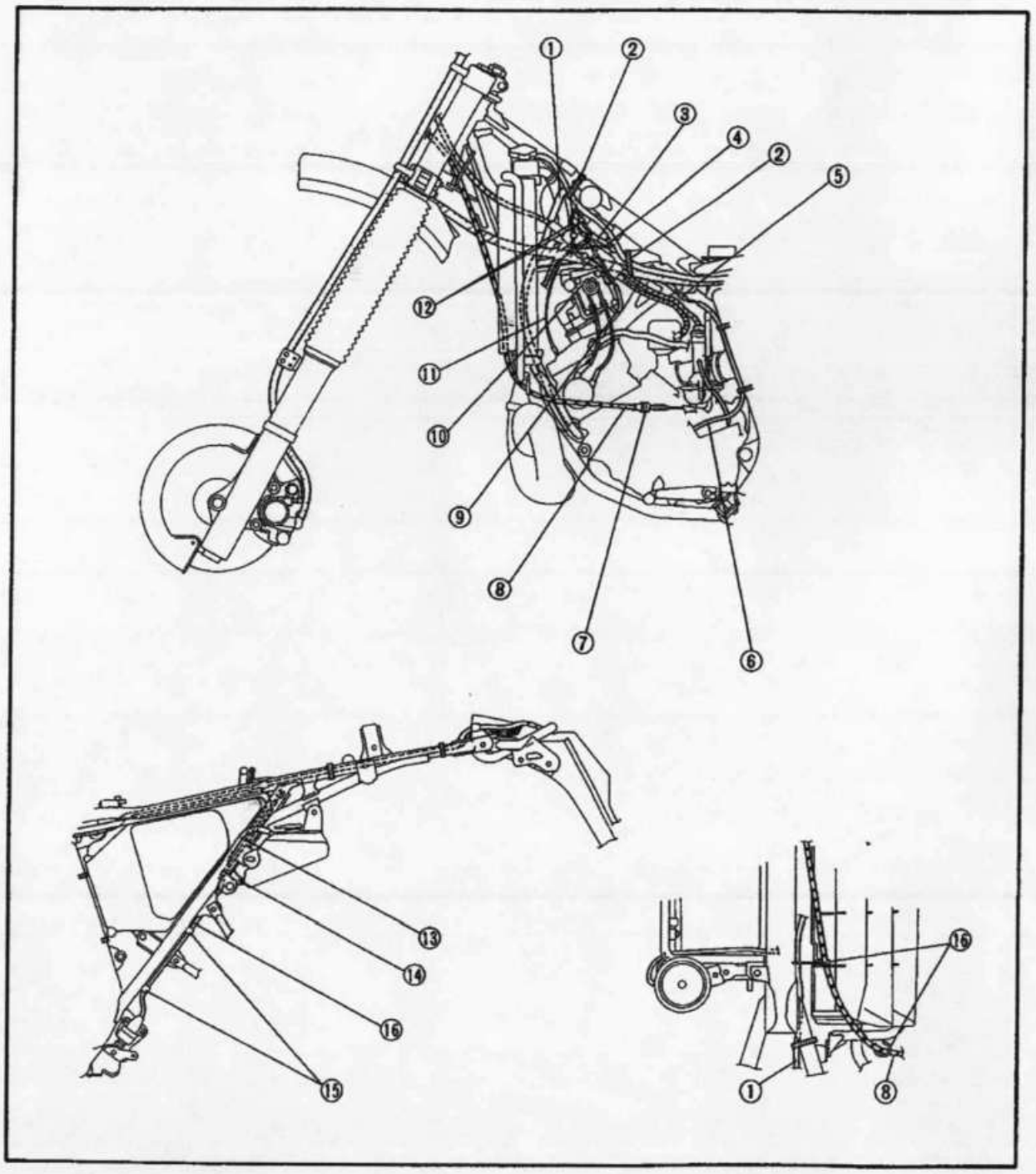
① Front brake hose
② Front brake switch lead
③ Throttle cable
④ "ENGINE STOP" switch lead
⑤ Band
⑥ Handlebar switch (Left) lead
⑦ Clutch cable
⑧ Meter light lead
⑨ Flasher light lead
⑩ Flasher relay
⑪ Speedometer cable
⑫ Rubber boot
⑬ Tachometer cable



① Tachometer cable
② Speedometer cable
③ Cable holder
④ Spark plug cap
⑤ Spark plug lead
⑥ Oil hose
⑦ Clamp
⑧ Autolube pump cable
⑨ Oil delivery hose
⑩ Rear brake switch
⑪ Reservoir tank hose
⑫ Carburetor overflow hose
⑬ Battery breather hose
⑭ Crankcase breather hose
⑮ Cable holder
⑯ Master cylinder (Rear)
⑰ Guide
⑱ Rear brake hose
⑲ Fuse holder
⑳ Battery negative lead
㉑ Band
㉒ Reservoir tank
㉓ Air bent hose
㉔ CDI unit
㉕ Ignition coil
[A] Pass the tachometer cable inside the radiator hose.
[B] Pass the hoses between the engine and swingarm (Right side).
[C] Pass the battery breather hose between the engine and swingarm (Left side).
[D] Pass the air-bent hose into the head pipe.

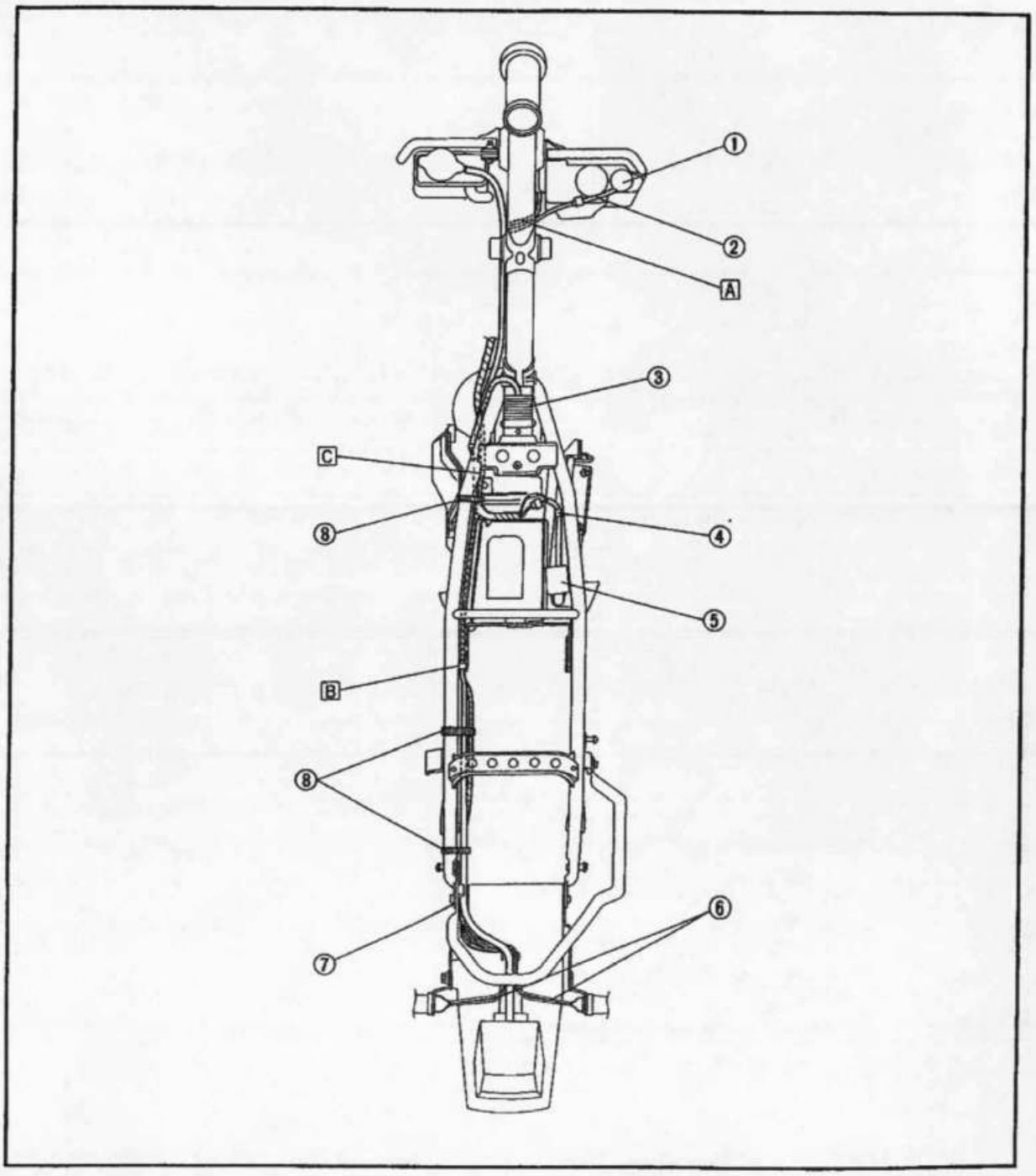


① CDI magneto lead
② Band
③ CDI unit lead
④ Earth lead
⑤ CDI magneto lead
⑥ CDI magneto lead
⑦ Holder
⑧ Clutch cable
⑨ Y.P.V.S. motor lead
⑩ Y.P.V.S. motor
⑪ Thermo unit lead
⑫ C.D.I unit lead
⑬ Reservoir tank breather hose
⑭ Reservoir tank hose
⑮ Clamp
⑯ Cable holder



(1) Oil level switch
(2) Oil level switch lead
(3) Rectifier/Regulator
(4) Clamp
(5) Ignition control unit
(6) Flasher light lead
(7) Guide
(8) Band

[A] Pass the lead under the frame (Tension pipe).
[B] Pass the wireharness between the air cleaner and frame
[C] White tape



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 serviced technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE/LUBRICATION

Unit: km (miles)

ITEM	REMARKS	BREAK-IN 1,000 (600)	EVERY 6,000 (4,000) or 6 months	EVERY 12,000 (8,000) or 12 months
Spark plug	Check condition. Clean or replace if necessary.	O	O	O
Air filter	Clean. Replace if necessary.		O	O
Carburetor*	Check idle speed/starter operation. Adjust if necessary.	O	O	O
Fuel line*	Check fuel hose for cracks or damage Replace if necessary.		O	O
Transmission oil*	Check oil level/oil leakage. Correct if necessary. Replace every 24,000 (16,000) or 24 months (Warm engine before draining.)	REPLACE	O	O
Autolube pump*	Check operation Correct if necessary. Air bleeding	O	O	O
Brake*	Check operation/fluid leakage/See NOTE. Correct if necessary.		O	O
Clutch	Check operation. Adjust if necessary.		O	O
Rear arm pivot*	Check rear arm assembly for looseness. Correct if necessary. Moderately repack.***	O	O	O
Rear suspension link pivots*	Check operation. Moderately repack.***	O	O	O
Wheels*	Check balance/damage/runout/spoke tightness. Repare necessary.		O	O
Wheel bearings*	Check bearings assembly for looseness/damage. Replace if damaged.		O	O
Steering bearing*	Check bearings assembly for looseness. Correct if necessary. Moderately repack every 24,000 (16,000) or 24 months.**	O		O
Front forks*	Check operation/oil leakage. Repair if necessary		O	O
Rear shock absorber*	Check operation/oil leakage Repair if necessary.		O	O
Cooling system	Check coolant leakage. Repair if necessary. Replace coolant every 24,000 (16,000) or 24 months.		O	O
Drive chain	Check chain slack/alignment. Adjust if necessary. Clean and lube.	EVERY 500 (300)		
Fittings/Fasteners*	Check all chassis fittings and fasteners. Correct if necessary.	O	O	O
Sidestand*	Check operation. Repair if necessary.	O	O	O
Sidestand switch*	Check operation. Clean or replace if necessary.	O	O	O
Battery*	Check specific gravity. Check breather pipe for proper operation. Correct if necessary.		O	O

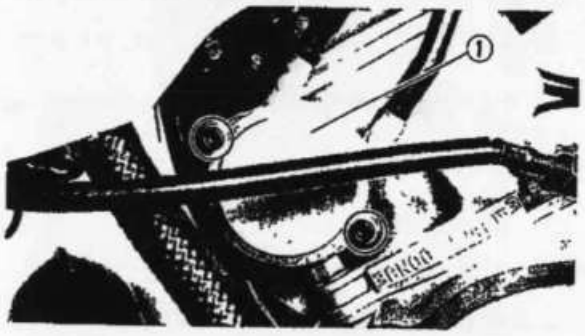
* It is recommended that these items be serviced by a Yamaha dealer.
**. Medium weight wheel bearing grease
***: Lithium soap base grease



NOTE:

Brake fluid replacement:

1. When disassembling the master cylinder or caliper cylinder, replace the brake fluid. Normally check the brake fluid level and add the fluid as required.
2. On the inner parts of the master cylinder and caliper cylinder, replace the oil seals every two years.
3. Replace the brake hoses every four years, or if cracked or damaged.



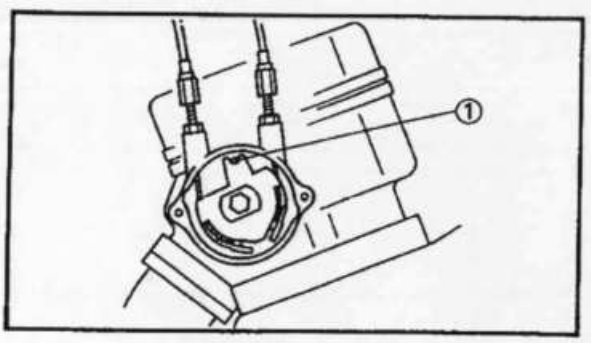
ENGINE

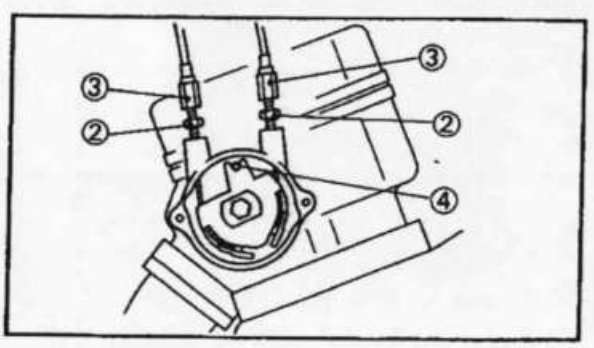
Y.P.V.S. CABLE ADJUSTMENT

1. Remove:
   - Pulley cover (Power valve) ①

2. Turn on the main switch.

NOTE:
If does not operate the Y.P.V.S. motor, refer to the "Y.P.V.S. SYSTEM" in the CHAPTER 8.



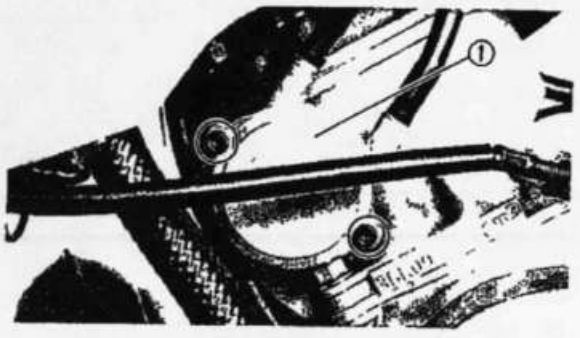


3. Check:
   - Alignment mark ①
     Not aligned → Adjust the Y.P.V.S. cables.
4. Adjust:
   - Y.P.V.S. cables

Adjustment steps:
- Loosen both locknuts ② and turn in both adjusters ③.
- Insert a pin ④ [φ4 mm (φ0.16 in)] through the aligning indent in the pulley and into the hole to lock the pulley.
- Turn both adjusters, counterclockwise so that the cable free play becomes Zero mm (Zero in) with fingers.
- Turn both adjusters 1/4 turn clockwise.
- Tighten the locknuts.

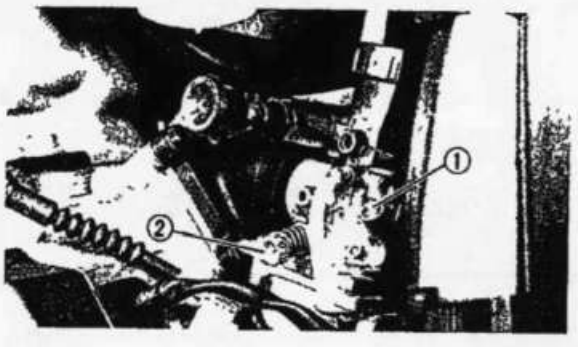
Locknuts:
8 Nm (0.8 m · kg, 5.8 ft · lb)

- Remove the pin.
- Turn on the main switch and, check that the alignment mark is aligned.
  If not, repeat the above steps.



5. Install:
   - Pulley cover (Power valve) ①

	Bolts (Pulley Cover): 7 Nm (0.7 m·kg, 5.1 ft·lb)



IDLE SPEED ADJUSTMENT

1. Adjust:
   - Engine idle speed

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

Pilot Air Screw Turns Out:
1-1/2 counterclockwise turns
For Switzerland:
1-3/4 counterclockwise turns

- Start the engine and let it warm up.
- Turn the throttle stop screw ② until the idle speed is in the specified range. Use the Inductive Tachometer.

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

Inductive Tachometer: P/N. 90890-03113

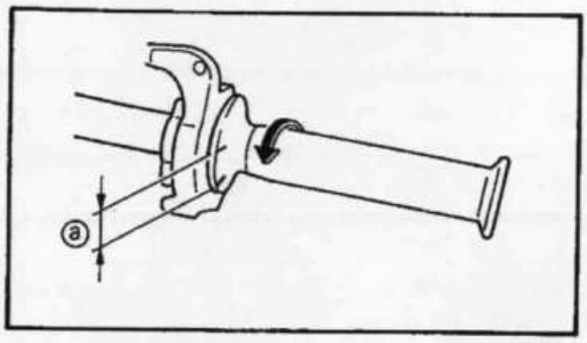
Engine Idle Speed: 1,300 ~ 1,400 r/min

- Turn the pilot air screw ① in or out 1/8-turn increments to achieve the highest speed with just the pilot air screw.
- Once again, turn the throttle stop screw ② to attain the specified Idle speed.

2. Check:
   - Throttle cable free play
     Refer to "THROTTLE CABLE FREE PLAY ADJUSTMENT" section.

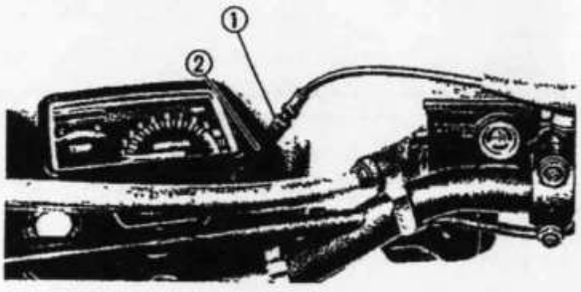
THROTTLE CABLE FREE PLAY ADJUSTMENT

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



1. Check:
   - 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

Adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② in or out until the correct free play is obtained.

Turn in	**Free play is increased.**
Turn out	**Free play is decreased.**

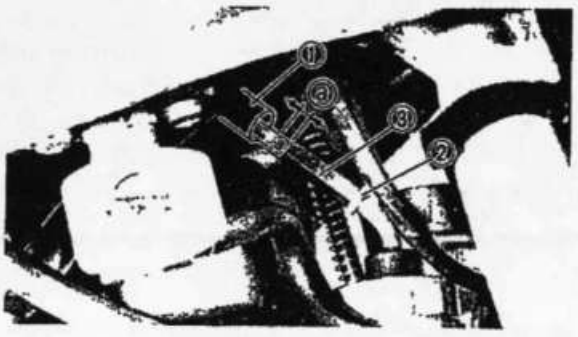
- Tighten the locknut.

CARBURETOR CABLE FREE PLAY ADJUSTMENT

NOTE:
Before adjusting carburetor cable, throttle cable free play should be adjusted.

AUTOLUBE PUMP STROKE ADJUSTMENT

INSP ADJ



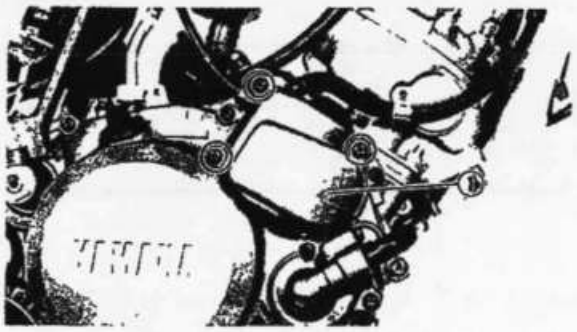
1. Pull back the adjuster cover ① .
2. Check:
   - Carburetor cable free play ⓐ
     Out of specification → Adjust.

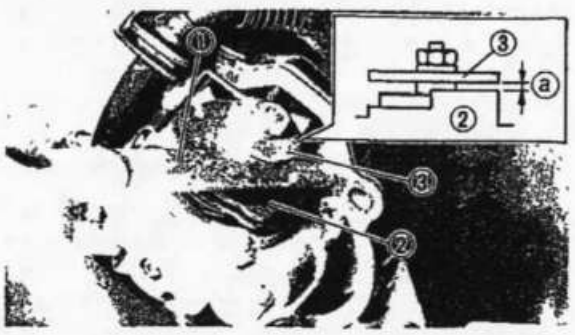
	Carburetor Cable Free Play: 1.0 mm (0.04 in)

3. Adjust:
   - Carburetor cable free play

Adjustment steps:	
• Loosen the locknut ② .	
• Turn the adjuster ③ in or out until the correct free play is obrained.	
Turn in	**Free play is increased.**
Turn out	**Free play is decreased.**
• Tighten the locknut.	

4. Push in the adjuster cover.





AUTOLUBE PUMP STROKE ADJUSTMENT

1. Remove:
   - Autolube pump cover ①
2. While running the engine at idle, observe the pump adjusting plate carefully. Stop the engine moment that the adjusting plate moves out to its limit.
3. Measure:
   - Gap ⓐ
     Out of specification → Adjust.
     Measure the gap with the thickness gauge ① between the raised boss ② on the pump adjusting pulley and the adjusting plate ③ .

	Minimum Pump Stroke: 0.20 ~ 0.25 mm (0.008 ~ 0.010 in)

NOTE:

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



4. Adjust:
   - Autolube pump minimum stroke

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

Add shim	**Pump stroke is increased.**
Remove shim	**Pump stroke is decreased.**

- Install the adjusting plate, spring washer and locknut.

Locknut:
7 Nm (0.7 m · kg, 5.1 ft · lb)

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

5. Install:
   - Autolube pump cover

Bolts (Autolube Pump Cover):
5 Nm (0.5 m · kg, 3.6 ft · lb)

AUTOLUBE PUMP AIR BLEEDING

NOTE:

The Autolube pump and delivery lines must be bled on the following occasions:
- Setting up a new motorcycle out of the crate.
- Whenever the oil tank has run dry.
- Whenever any portion of the engine oil system is disconnected.

AUTOLUBE PUMP AIR BLEEDING

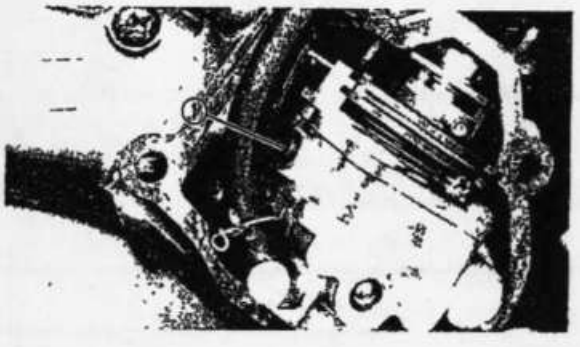
INSP ADJ



1. Remove:
   - Autolube pump cover
2. Fill:
   - Oil tank ①

Yamaha Oil 2T or Air-Cooled 2-Stroke Engine Oil

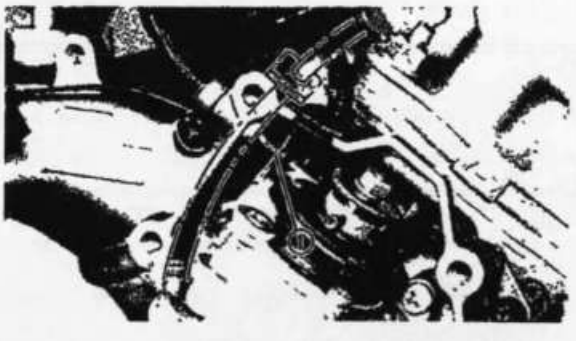
② Oil tank filler cap

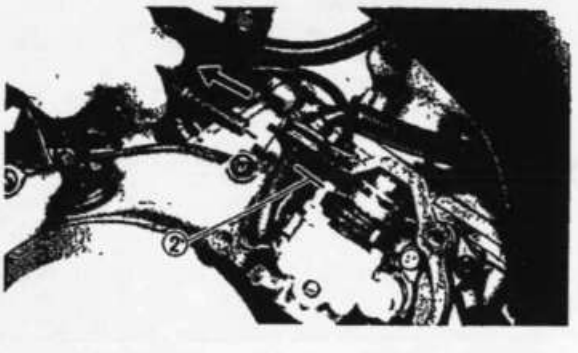


3. Air bleed:
   - Pump case and/or oil pipe

Air bleeding steps:
- Remove the bleed screw ①.
- Keep the oil running out until air bubbles disappear.
- When air bubbles are expelled completely, tighten the bleed screw.

NOTE:
- Check the bleed screw gasket, and if damaged, replace with a new one.
- Place a rag or oil pan under the autolube pump to catch oil.





4. Air bleed:
   - Pump distributor and/or delivery pipe

Air bleeding steps:
- Remove the clip ①.
- Start the engine.
- Pull the pump cable ② all the way out to set the pump stroke to a maximum.

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

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

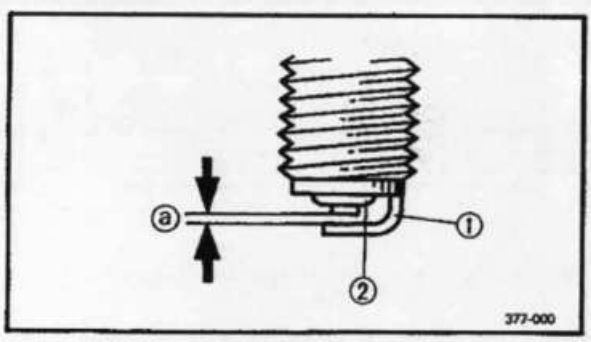
5. Install:
   • Autolube pump cover

Screw (Autolube Pump Cover): 5 Nm (0.5 m · kg, 3.6 ft · lb)

SPARK PLUG INSPECTION

1. Remove:
   • Spark plug
2. Inspect:
   • Spark plug type
   Incorrect → Replace.

Standard Spark Plug: BR9ES (NGK)



3. Inspect:
   • Electrode ①
   Wear/Damage → Replace.
   • Insulator ②
   Abnormal color → Replace.
   Normal color is a medium-to-light tan color.
4. Clean:
   • Spark plug
   Use a spark plug cleaner or wire brush.
5. Measure:
   • Plug gap ⓐ
   Use a Wire Gauge or Feeler Gauge.
   Out of specification → Regap.

Spark Plug Gap: 0.7 ~ 0.8 mm (0.028 ~ 0.031 in)

6. Tighten:
   • Spark Plug

Spark Plug: 20 Nm (2.0 m · kg, 14 ft · lb)

NOTE:
- Before installing a spark plug, clean the gasket and plug surfaces.
- Finger-tighten the spark plug before torquing to specification.

IGNITION TIMING CHECK

Adjustment free.

ENGINE OIL LEVEL INSPECTION

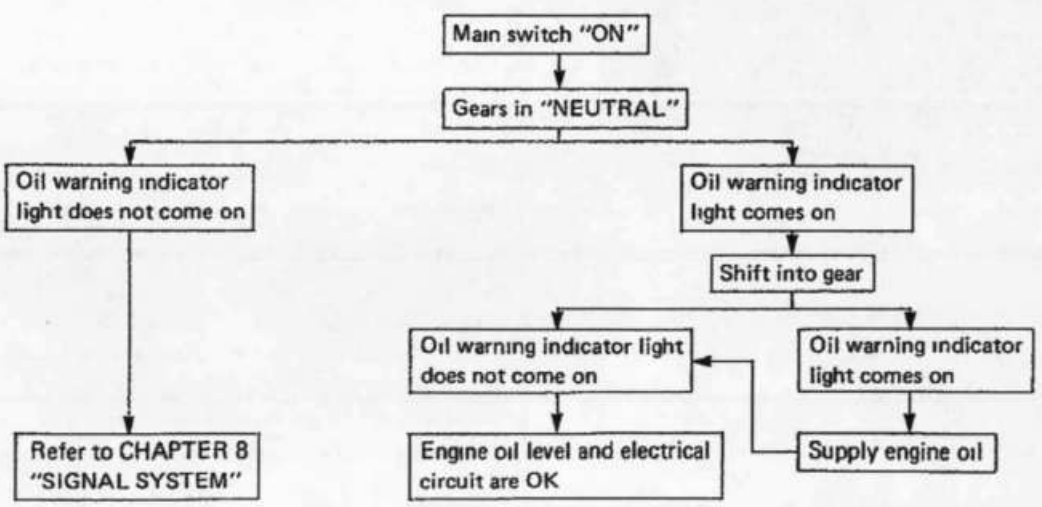
1. Check:
   - Oil level

   Oil level low → Add sufficient oil.

Recommended Oil:
Yamaha Oil 2T or Air Cooled 2 Stroke Engine Oil

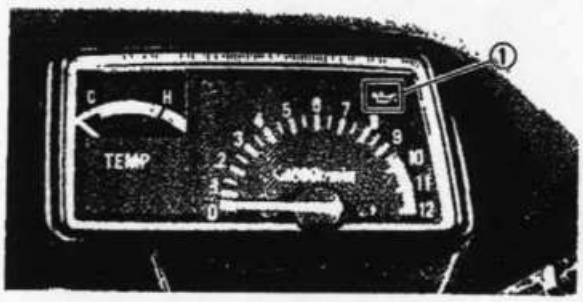
Oil Tank Capacity:
1.2 L (1.1 Imp qt, 1.3 US qt)

OIL WARNING LIGHT CHECKING METHOD



TRANSMISSION OIL LEVEL INSPECTION

INSP ADJ



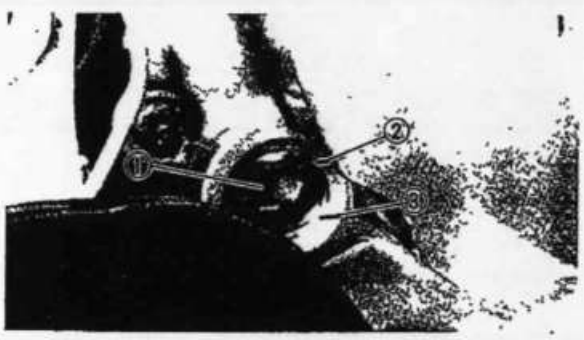
① "OIL" indicator light

TRANSMISSION OIL LEVEL INSPECTION

1. Inspect:
   - Transmission oil level
     Oil level low → Add sufficient oil

CAUTION:

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



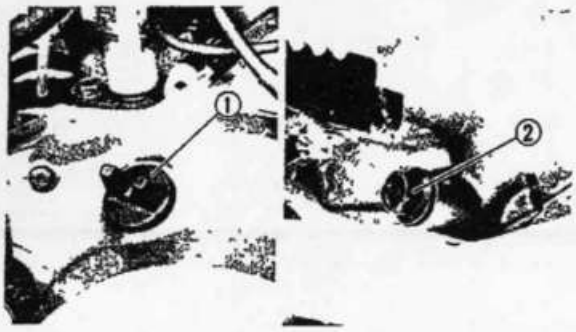
Transmission oil level inspection steps:
- Place the machine on a level place.
- Warm up the engine for several minutes, and stop it.
- Visually check the oil level through the level window ①.

NOTE:
- Check the oil level just one minute after stopping the engine.
- The oil level should be confirmed between maximum ② and minimum ③ marks.

- If the oil level is lower, add sufficient oil to raise it to the proper level.

Recommended Oil:
SAE 10W30 Type SE Motor Oil

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



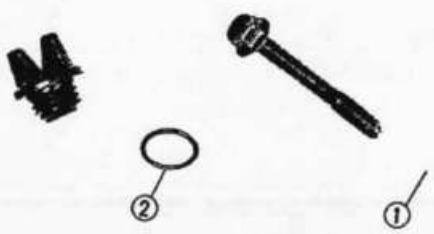
TRANSMISSION OIL REPLACEMENT

1. Warm up the engine for several minutes.
2. Place an open container under the engine.
3. Remove:
   - Oil filler cap ①
   - Drain plug ②

   Drain transmission oil.

NOTE:

Drain the transmission oil with the motorcycle slightly inclined to the right.



4. Inspect:
   - Gasket (Drain plug) ①
   - O-ring (Oil filler cap) ②

   Damage → Replace.

5. Install:
   - Drain plug

Drain Plug:
15 Nm (1.5 m · kg, 11 ft · lb)

6. Fill:
   - Crankcase

Recommended Oil:
SAE 10W30 type SE Motor Oil
Periodic Oil Change:
0.75 L (0.66 Imp qt, 0.79 US qt)

CAUTION:

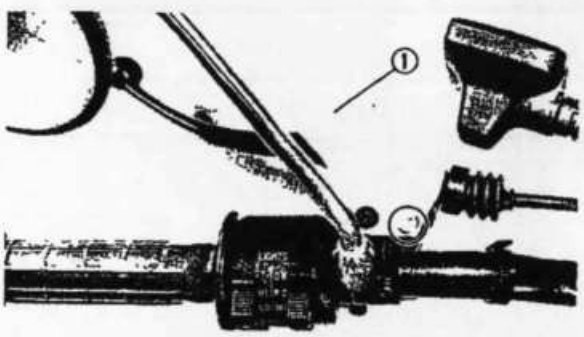
- **Do not add any chemical additives. Transmission oil also lubricates the clutch and additives could cause clutch slippage.**
- **Be sure no foreign material enters the crankcase.**

7. Install:
   - Oil fillter cap
8. Inspect:
   - Oil leaks
   - Oil level

NOTE:
Wipe off any oil spilled on the crankcase.

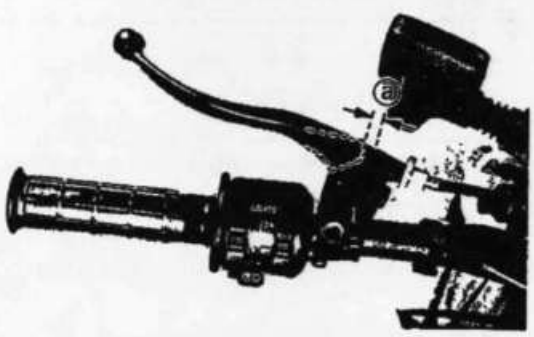
CLUTCH ADJUSTMENT

NOTE:
The clutch cable free play can be adjusted at the both ends of the clutch cable; at the crankcase or the handlebar lever. However, once the length adjuster at the crankcase end is properly set, free play adjustments are always made at the handlebar lever.



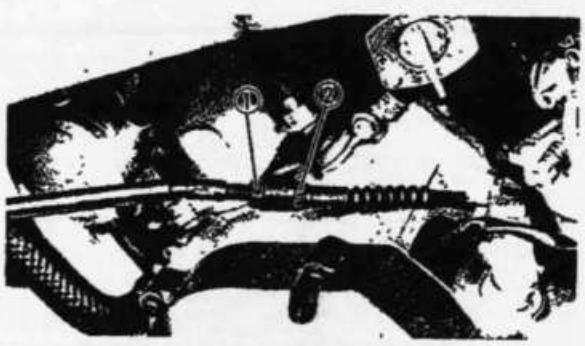
Cable Free Play Adjustment

1. Remove:
   - Brush guard ①



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

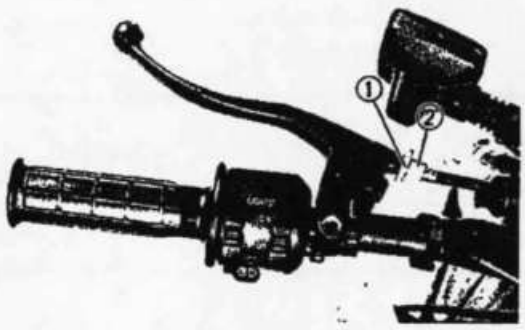
	Free Play: 2 ~ 3 mm (0.08 ~ 0.12 in)



3. Adjust:
   - Clutch cable free play

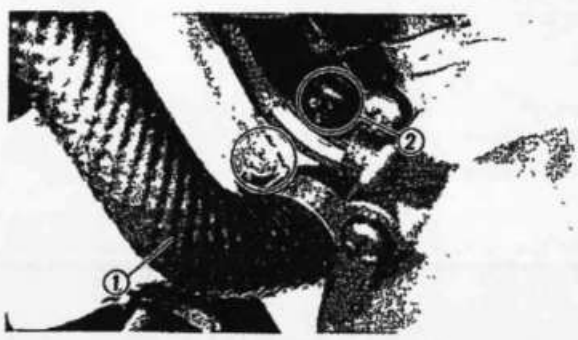
Adjustment steps:	
• Loosen the locknuts ①.	
• Turn the adjusters ② in or out until the specified free play is obtained.	
Turn in	**Free play is increased.**
Turn out	**Free play is decreased.**
• Tighten the locknut.	

4. Install:
   • Brush guard

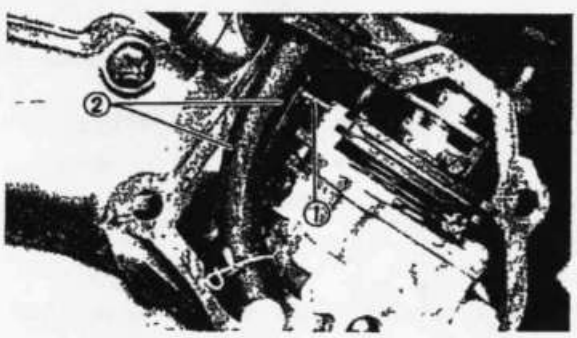


Mechanism Adjustment

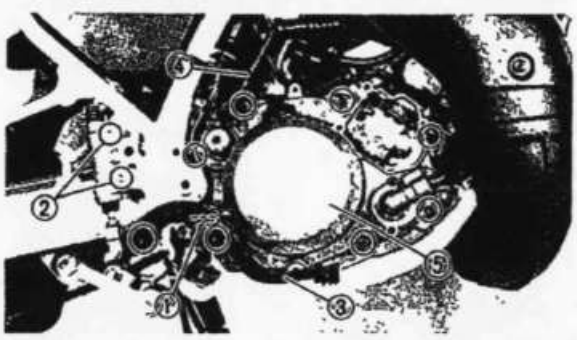
1. Remove:
   • Brush guard
2. Loosen:
   • Locknuts ①
3. Turn in the adjusters ② .



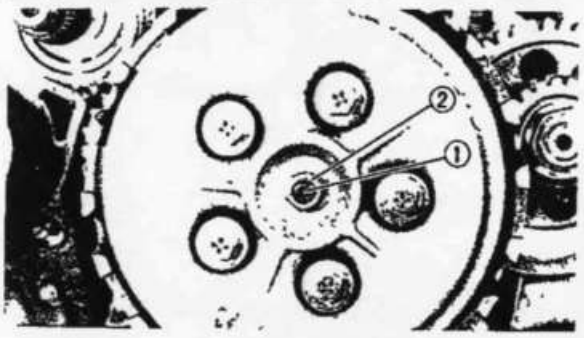
4. Drain:
   • Coolant
   Refer to the "COOLANT REPLACEMENT" section.
5. Disconnect:
   • Outlet hose (Radiator) ①
6. Remove:
   • Screw (Water outlet pipe) ②

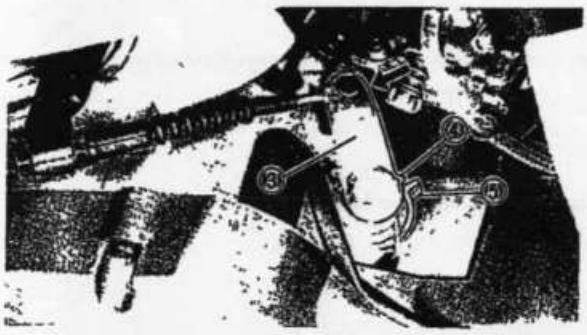


7. Disconnect:
   • Autolube pump cable ①
   • Autolube pump hoses ②
   Refer to the "AUTOLUBE PUMP CABLE AND HOSE" section in the CHAPTER 4.



8. Drain
   • Transmission oil
   Refer to the "TRANSMISSION OIL REPLACEMENT" section.
9. Remove:
   • Return spring ①
   • Bolt (Master cylinder) ②
   • Brake pedal ③
   • Kick crank ④
   • Crankcase cover (Right) ⑤

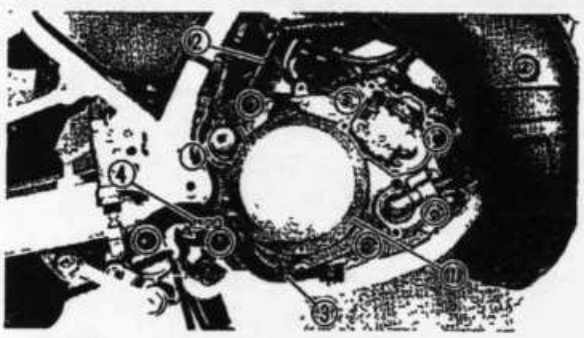




10. Adjust:
- Adjuster (Push rod #1) ①

Adjustment steps:
- Loosen the locknut ②.
- Move the push lever ③ toward the front with your finger until it stops
- With the push lever in this position, turn the adjuster ① to align the mark ④ on the end of the push lever with the mark ⑤ (protuberance) on the crankcase.
- Tighten the locknut ②.

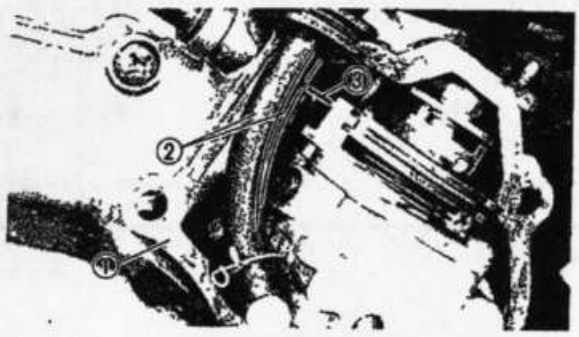
Locknut:
8 Nm (0.8 m · kg, 5.8 ft · lb)



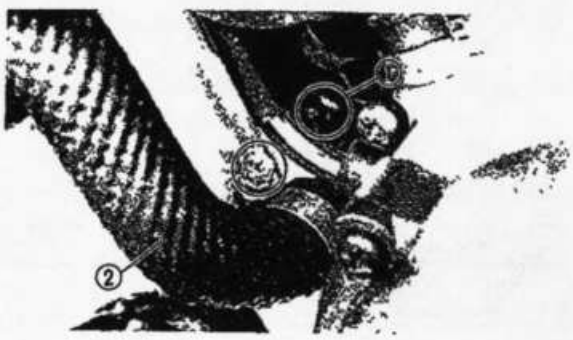
11. Install:
- Crankcase cover (Right) ①
- Kick crank ②
- Brake pedal ③
- Return spring ④

Screw (Crankcase Cover):
8 Nm (0.8 m · kg, 5.8 ft · lb)
Drain Plug (Oil):
15 Nm (1.5 m · kg, 11 ft · lb)
Drain Plug (Coolant):
10 Nm (1.0 m · kg, 7.2 ft · lb)
Nut (Kick Crank):
65 Nm (6.5 m · kg, 47 ft · lb)
Screw (Brake Pedal):
20 Nm (2.0 m · kg, 14 ft · lb)

NOTE:
- When installing the crankcase cover, engage the autolube pump drive gear with its driven gear as slowly turn the autolube pump shaft ④.
- Tighten the screws (Crankcase cover) in stage, using a crisscross pattern.
- Install the kick crank so that it does not contact the case.
- Before installing the brake pedal, apply the lithium soap base grease to the brake pedal pivot shaft.



12. Install:
    - Gasket (Autolube pump cover) ①
13. Connect:
    - Autolube pump hoses ②
    - Autolube pump cable ③

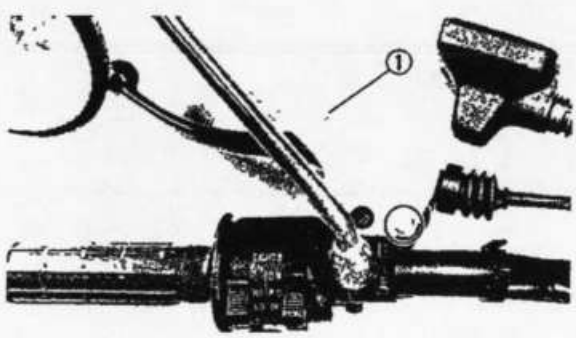


14. Install:
    - Screw (Water outlet pipe) ①

Screw (Water Outlet Pipe):
8 Nm (0.8 m · kg, 5.8 ft · lb)

15. Connect:
    - Outlet hose (Radiator) ②

16. Adjust:
    - Clutch cable free play
      Refer to the "Cable Free Play Adjustment" section.



17. Install:
    - Brush guard ①

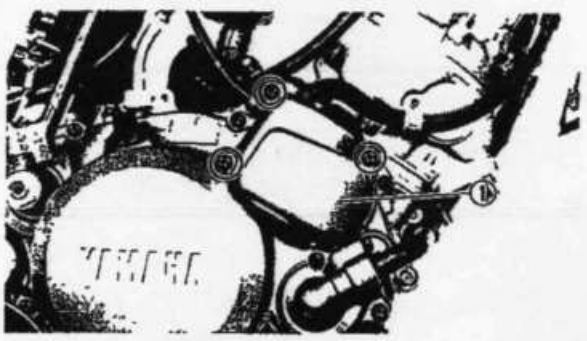
18. Fill:
    - Crankcase
      Refer to the "TRANSMISSION OIL REPLACEMENT" section.

Recommended Oil:
SAE 10W30 type SE Motor Oil
Periodic Oil Change:
0.75 L (0.66 Imp qt, 0.79 US qt)

19. Fill:
- Radiator
- Reservoir tank (Radiator)

Refer to the "COOLANT REPLACEMENT" section.

	Total Amount: 0.92 L (0.81 Imp qt, 0.97 US qt)



20. Air bleeding:
- Autolube pump

Refer to the "AUTOLUBE PUMP AIR BLEEDING" section.

21. Install:
- Autolube pump cover ①

	Screw (Autolube Pump Cover): 5 Nm (0.5 m · kg, 3.6 ft · lb)



AIR FILTER CLEANING

NOTE:

There is a check hose ① at the bottom of the air filter case. If dust and/or water collects in this hose, clean the air filter element and air filter case.



1. Remove:
- Side cover (Left)
- Filter case cover ①



2. Remove:
- Air filter assembly ①

Slide out guide together with element.

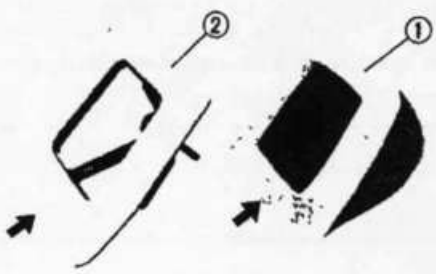
CAUTION:

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

3. Remove:
   • Element holder ①



4. Inspect:
   • Air filter element ①
   • Element guide ②
     Damage → Replace.



5. Clean:
   • Air filter element

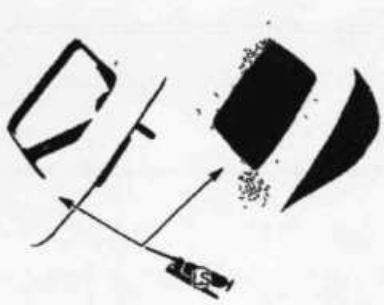
Cleaning steps:
- Wash the element with solvent.
- Remove the remaining solvent by squeezing the element.
- Apply the SAE 10W30 motor oil to the entire surface of the element.
- Wrap the element with a clean rag, and squeeze out the excess oil.

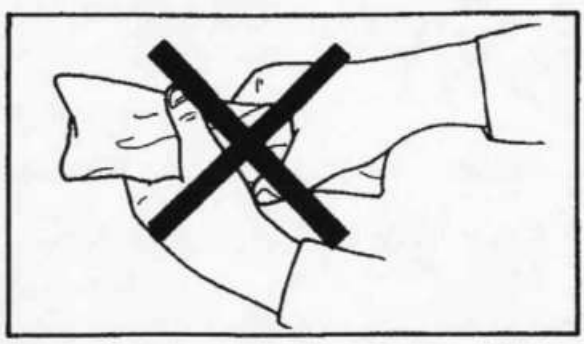
NOTE:
The element should be wet but not dripping.

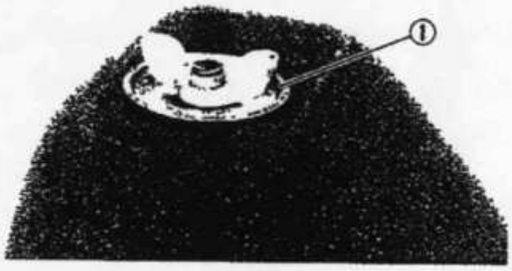
- Apply the Lithium soap base grease to the element seat and element guide seat.

⚠ CAUTION:
Do not twist the filter element when squeezing the filter element.

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







6. Clean the inside of the air filter case and the case cover, using a cloth dampened with solvent.
7. Install:
   - Air filter element (to element guide)

NOTE:
Install the washer ① with its bent fringe upward as shown.

CAUTION:
Make sure the element edge fits into the corresponding element holder.

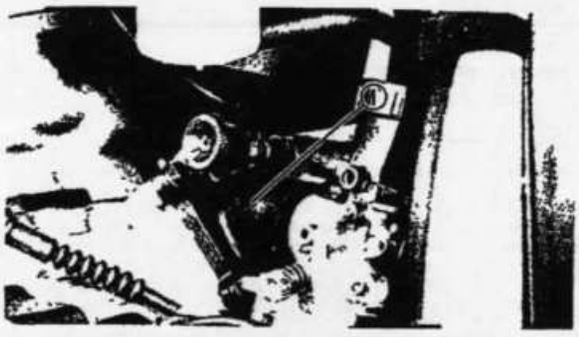


8. Install:
   - Air filter assembly ①
     Slide in guide to air filter case.

CAUTION:
Be sure to insert the element guide into the filter case with its handle ② located close to you, and also pay attention to the seal sponge for damage.



9. Install:
   - Filter case cover ①
   - Side cover (Left)



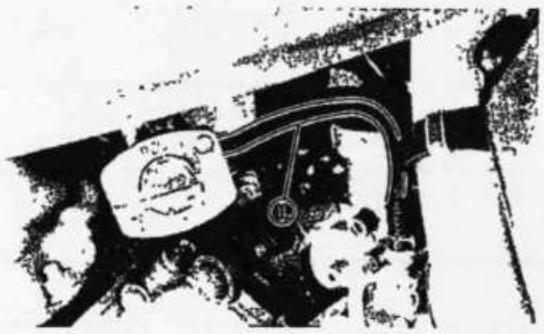
CARBURETOR JOINT INSPECTION

1. Inspect:
   - Carburetor joint ①
     Cracks/Damage → Replace.
     Refer to the "REED VALVE" section in the CHAPTER 6 for replacement.
2. Check the tightening torque of the carburetor joint securing bolts.

FUEL LINE INSPECTION/ CRANKCASE VENTILATION HOSE INSPECTION/ EXHAUST SYSTEM INSPECTION

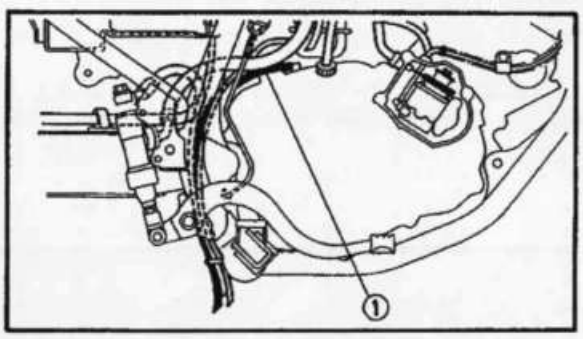
INSP ADJ

	Bolt (Carburetor Joint): 8 Nm (0.8 m · kg, 5.8 ft · lb).



FUEL LINE INSPECTION

1. Inspect:
   - Fuel hose ①
     Cracks/Damage → Replace.
     Loose connection → Connect properly.

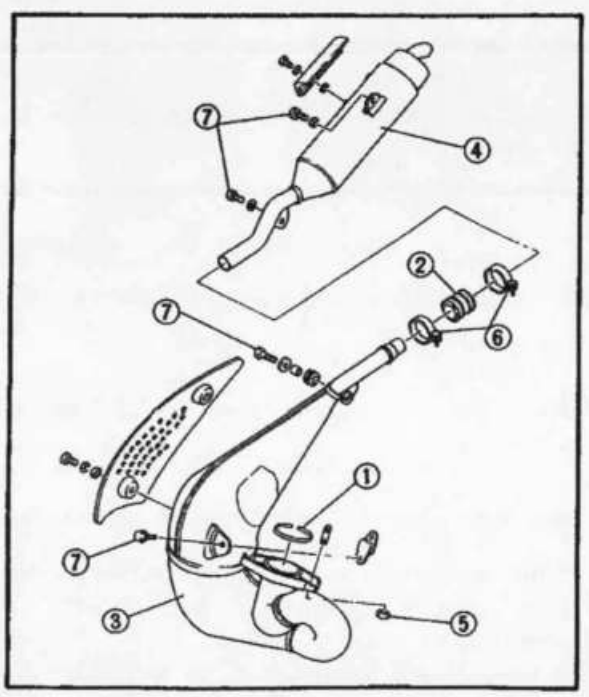


CRANKCASE VENTILATION HOSE INSPECTION

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

⚠ CAUTION:

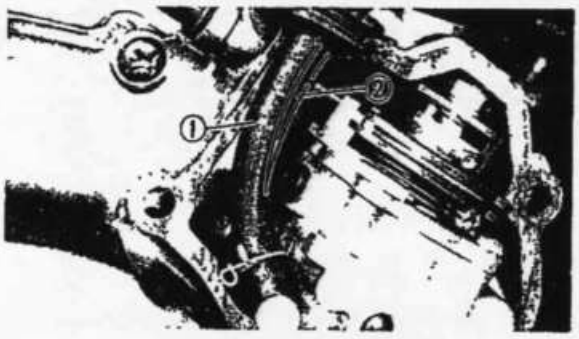
Make sure the crankcase ventilation hose is routed correctly.



EXHAUST SYSTEM INSPECTION

1. Inspect:
   - Gasket (Exhaust pipe) ①
   - Joint (Silencer) ②
     Damage → Replace.
     Exhaust gas leakage → Repair.
   - Exhaust pipe ③
   - Silencer ④
     Cracked/Dent/Damage → Repair or replace.
2. Tighten:
   - Exhaust pipe
   - Muffler

	Nut ⑤ (Exhaust Pipe): 18 Nm (1.8 m · kg, 13 ft · lb) **Screw ⑥ (Muffler Joint): 10 Nm (1.0 m · kg, 7.2 ft · lb)** **Bolts ⑦ : 10 Nm (1.0 m · kg, 7.2 ft · lb)**



ENGINE OIL LINE INSPECTION

1. Remove:
   - Autolube pump cover
2. Inspect:
   - Oil hose ①
   - Oil delivery hose ②

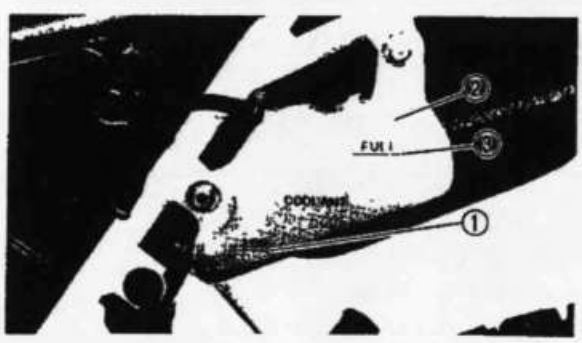
   Cracks/Damage → Replace.
   Loose connection → Connect properly.

3. Install:
   - Autolube pump cover

	Screw (Autolube Pump Cover) **7 Nm (0.7 m · kg, 5.1 ft · lb)**

COOLANT LEVEL INSPECTION

1. Place the machine on a level place.
2. Remove:
   - Side cover (Left)



3. Inspect:
   - Coolant level

   Coolant level is under "Low" level line ① → Add soft water (tap water).

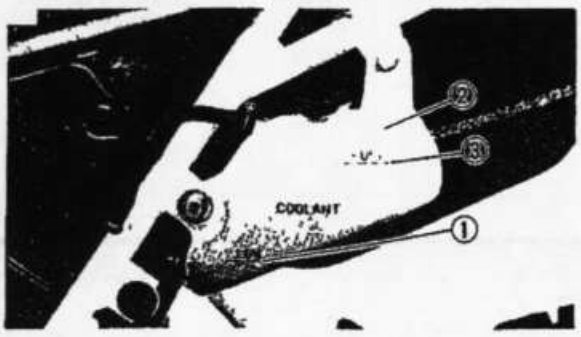
② Coolant reservoir tank

⚠ WARNING:

Do not remove the radiator cap when the engine is hot.

⚠ CAUTION:

Hard water or salt water is harmful to the engine parts; use boiled or distilled water if you can't get soft water.



4. Add:
   - Soft water (Tap water)

   Until the coolant level reaches "FULL" Level line ③.

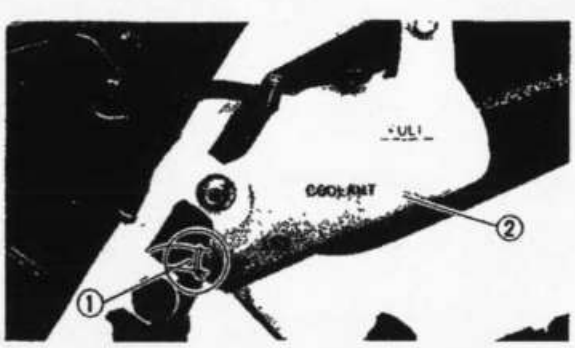
Reservoir Tank Capacity:
Total:
0.30 L (0.26 Imp qt, 0.32 US qt)
From LOW to FULL Level:
0.24 L (0.21 Imp qt, 0.25 US qt)

5. Install:
   - Side cover (Left)

COOLANT REPLACEMENT

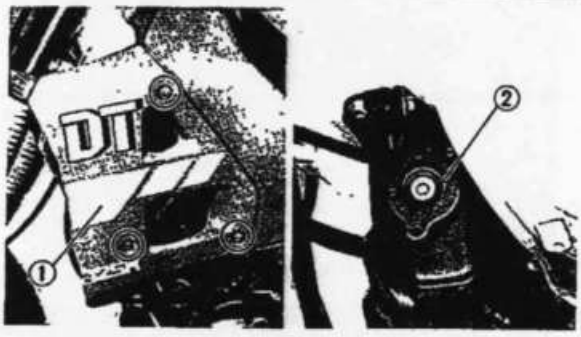
⚠ WARNING:

Do not remove the radiator cap when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, open the radiator cap by the following procedure: Place a thick rag, like a towel, over the radiator cap, slowly rotate the cap counterclockwise to the detent. This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it.

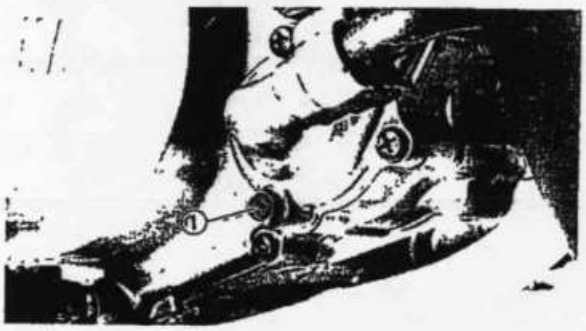


1. Remove:
   - Side covers (Left and right)
   - Exhaust pipe
2. Disconnect:
   - Breather hose ①

   Drain coolant from reservoir tank ②.



3. Remove:
   - Radiator cover ①
   - Radiator cap ②



4. Place a drain pan under the drain hole.
5. Remove:
   - Drain plug (Coolant) ①

   Drain coolant completely.

NOTE:

Drain the coolant with the motorcycle slightly inclined to the right.

6. Thoroughly flush the cooling system with clean soft water (tap water).

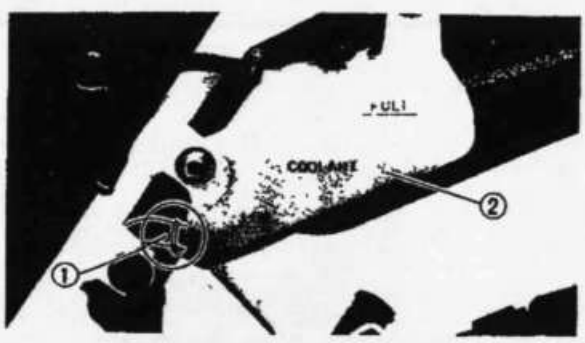


7. Install:
   - Gasket (Drain plug) ①
   - Drain plug (Coolant) ②

	Drain Plug: **10 Nm (1.0 m · kg, 7.2 ft · lb)**

⚠ CAUTION:

Always use a new gasket.



8. Connect:
   - Breather hose ①

   (to reservoir tank ②)

9. Fill:
   - Cooling system

Recommended Coolant:
High Quality Ethylene Glycol Anti-freeze Containing Anti-corrosion for Aluminum Engine Inhibitors

Coolant and Water Mixed Ratio:
50%/50%

Total Amount:
0.92 L (0.81 Imp qt, 0.97 US qt)

Reservoir Tank Capacity:
0.30 L (0.26 Imp qt, 0,32 US qt)

From "LOW" to "FULL" Level:
0.24 L (0.21 Imp qt, 0.25 US qt)

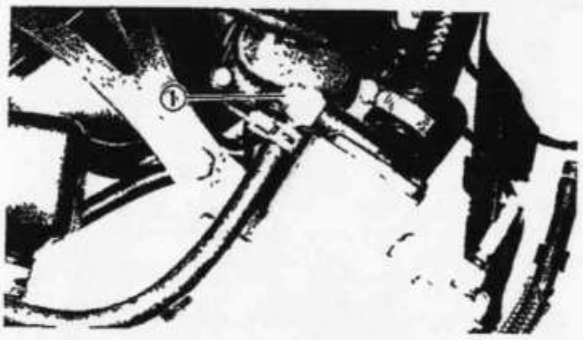
Handling notes of coolant:
The coolant is harmful so it should be handled with special care.

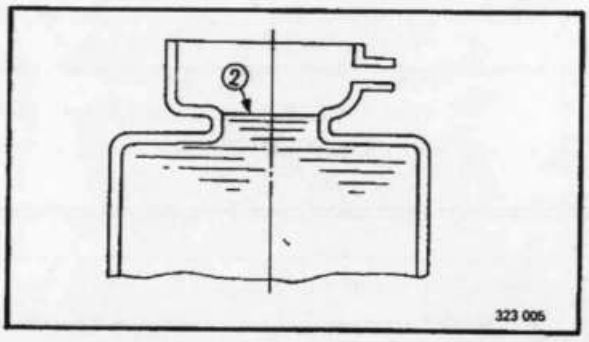
⚠ WARNING:

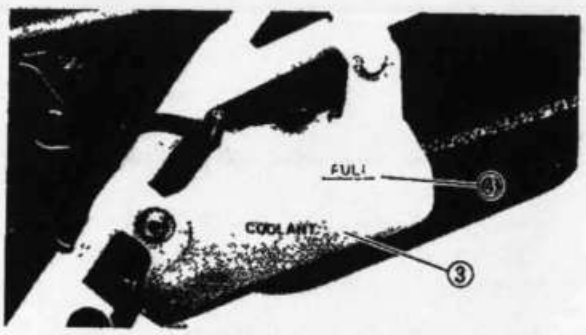
- **When coolant splashes to your eye.**
  Thoroughly wash your eye with water and see your doctor.
- **When coolant splashes to your clothes.**
  Quickly wash it away with water and then with soap.
- **When coolant is swallowed.**
  Quickly make him vomit and take him to a doctor.

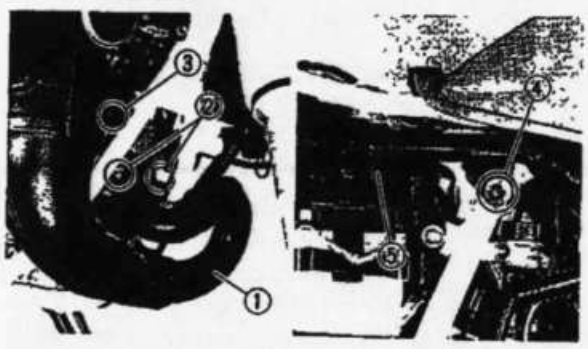
⚠ CAUTION:

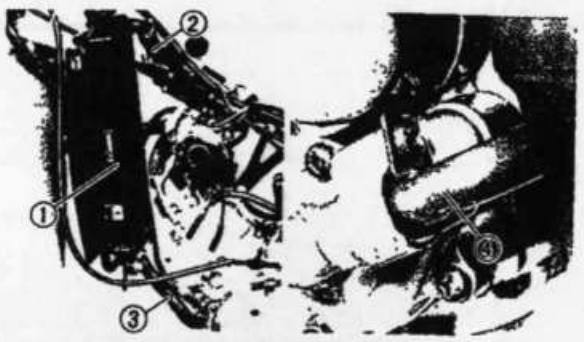
- **Hard water or salt water is harmful to the engine parts; use boiled or distilled water if your can't get soft water.**
- **Do not use water containing impurities or oil.**
- **Take care so that coolant does not splash to painted surfaces. If splashes, wash it away with water.**











Coolant filling steps:
- Loosen the union bolt ① on the termostat cover.
- Fill the coolant into the radiator.
- Keep the coolant running out until air bubbles disappear.
- Tighten the union bolt.

Union Bolt:
8 Nm (0.8 m·kg, 5.8 ft·lb)

- Fill the coolant into the radiator to specified level ②.
- Start the engine.

⚠ CAUTION:

Always check coolant level, and check for coolant leakage before starting engine.

- Add the coolant while engine is running.
- Stop the engine when coolant level stabilizes.
- Add the coolant again to specified level.
- Install the radiator cap.
- Fill the reservoir tank ③ with coolant up to "FULL" level ④.
- Install the reservoir tank cap.

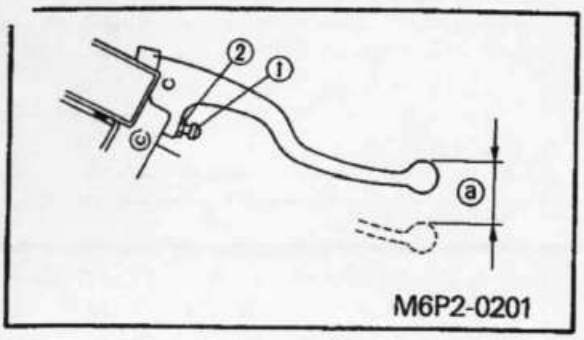
10. Install:
- Exhaust pipe ①
- Radiator cover
- Side covers (Left and right)

Nut ② (Exhaust Pipe):
18 Nm (1.8 m·kg, 13 ft·lb)
Bolt ③ (Stay):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Bolt ④ (Frame Mount):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Screw ⑤ (Muffler Joint):
10 Nm (1.0 m·kg, 7.2 ft·lb)

COOLING SYSTEM INSPECTION

1. Inspect:
- Radiator ①
- Inlet hose ②
- Outlet hose ③

Water outlet pipe ④
Cracks/Damage → Replace.
Refer to the "COOLING SYSTEM" section in the CHAPTER 5.



CHASSIS

FRONT BRAKE ADJUSTMENT

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

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

2. Adjust:
   - Brake lever free play

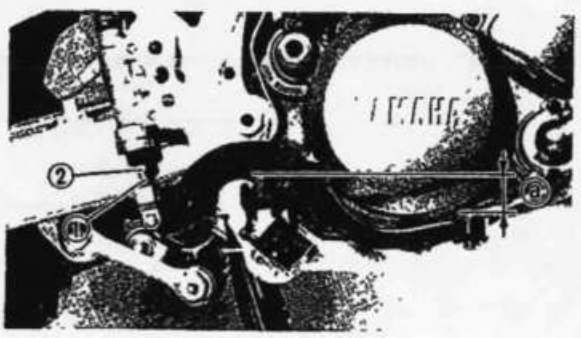
Adjustment steps:
- Loosen the locknut ②.
- Turn the adjuster ① in or out until the specified free play is obtained.

Turn in	**Free play is decreased.**
Turn out	**Free play is increased.**

- Tighten the locknut.

CAUTION:

Proper lever free play is essential to avoid excessive brake drag.



REAR BRAKE ADJUSTMENT

Rear Brake Pedal Height Adjustment

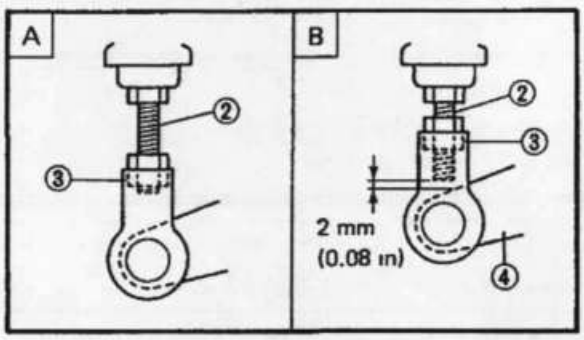
1. Check:
   - Brake pedal height ⓐ
     Out of specification → Adjust.

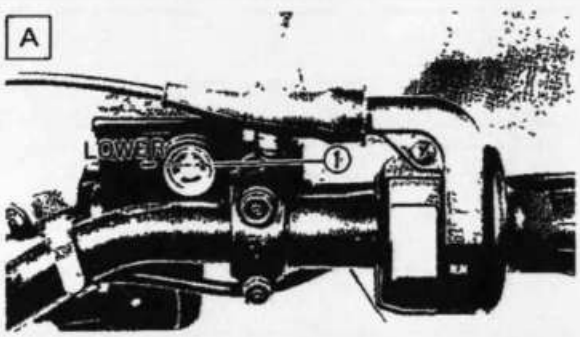
Brake Pedal Height:
15 mm (0.6 in)
Below Top of Footrest.

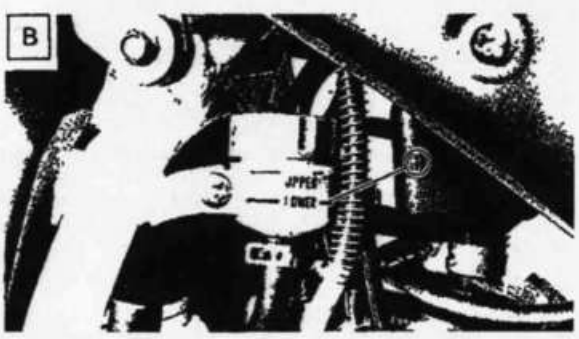
2. Adjust:
   - Brake pedal height

Adjustment steps:
- Loosen the locknut ①.
- Turn the adjuster ② in or out until the specified pedal height is obtained.









Turn in	Pedal height is increased.
Turn out	Pedal height is decreased.

⚠ WARNING:

- **Adjust the pedal height between the Maximum [A] and the Minimum [B] as shown. (In this adjustment the bolt ② end should protrude out of the lower adjusting nut ③ but not be less than 2 mm (0.08 in) away from the brake pedal ④).**
- **After the pedal height adjustment, make sure that the rear brake does not drag.**

- Tighten the locknut.

3. Adjust:
   - Brake light switch
     Refer to the "BRAKE LIGHT SWITCH ADJUSTMENT" section.

BRAKE FLUID INSPECTION

1. Place the motorcycle on a level surface.
2. Inspect:
   - Brake fluid level
     Fluid level is under "LOWER" level line ① → Replenish.

[A] Front
[B] Rear

Recommended Brake Fluid:
DOT #4
If DOT #4 is not available, #3 can be used.

NOTE:

- Position the motorcycle straight up when inspecting the brake fluid level.
- When inspecting the front brake fluid level, make sure the master cylinder top is horizontal by turning the handlebars.

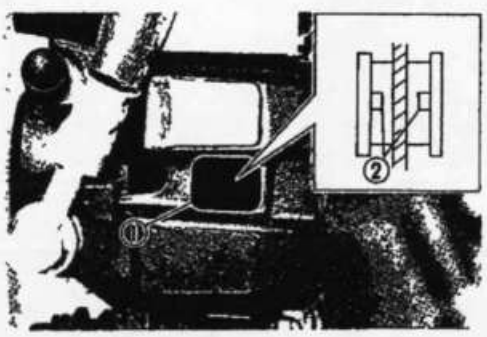
⚠ CAUTION:

Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

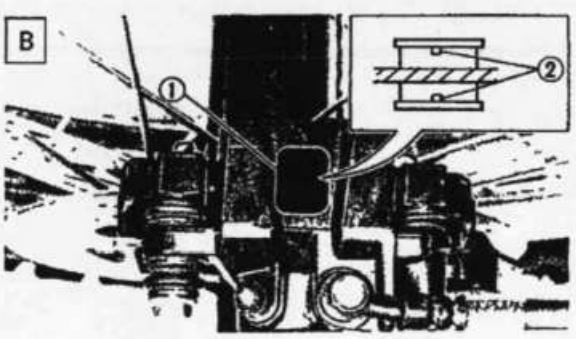
⚠WARNING:

- **Use only the designated quality brake fluid: otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid; mixing fluids may result in a harmful chemical reaction and lead to poor performance.**
- **Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.**

A



B



BRAKE PAD INSPECTION

1. Remove:
   - Rubber plug ①

[A] Front
[B] Rear

2. Activate the brake lever, or brake pedal.
3. Inspect:
   - Brake pad

   Wear indicator ② almost contacts brake disc → Replace brake pad as a set.

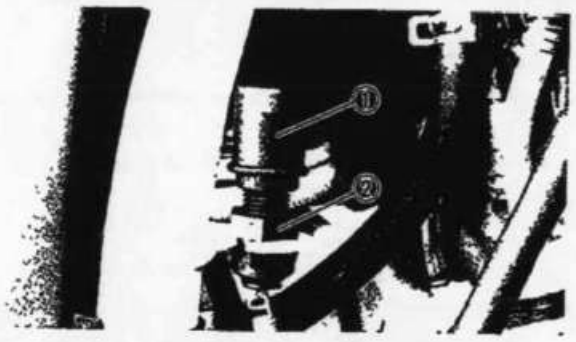
   Refer to the "BRAKE PAD REPLACEMENT" section in the CHAPTER 7.
4. Install:
   - Rubber plug

BRAKE LIGHT SWITCH ADJUSTMENT

NOTE:

The brake light switch is operated by movement of the brake pedal.

Proper adjustment is achieved when the brake light comes on just before the brake begins to take effect.



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 in or out ② until the operating timing is correct.

A



B



A Front
B Rear

BRAKE HOSE INSPECTION

1. Inspect:
   - Brake hoses ①
     Cracks/Wear/Damage → Replace.

DRIVE CHAIN SLACK ADJUSTMENT

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

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.

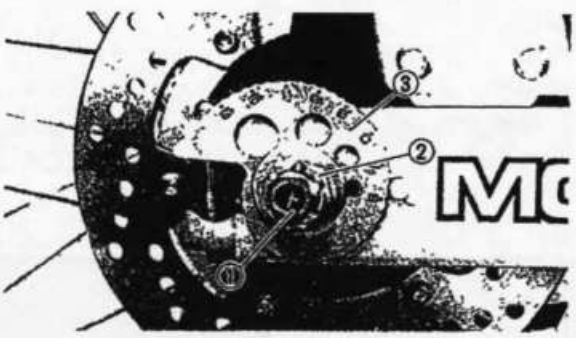
	Drive Chain Slack: **25 ~ 40 mm (0.98 ~ 1.57 in)**

3. Adjust:
   - Drive chain slack

Adjustment steps:

⚠ CAUTION:

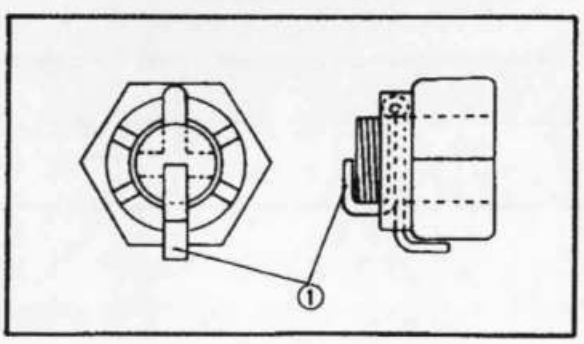
Too small chain slack will overload the engine and over vital parts; keep the slack within the specified limits.



- Remove the cotter pin ①.
- Loosen the axle nut ②.
- Turn the both chain puller (Left and right) ③ clockwise or counterclockwise until the specified slack is obtained.

NOTE:

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



- Tighten the axle nut to specification, while pushing up or down the chain to be tight.

	Axle Nut: **90 Nm (9.0 m · kg, 65 ft · lb)**

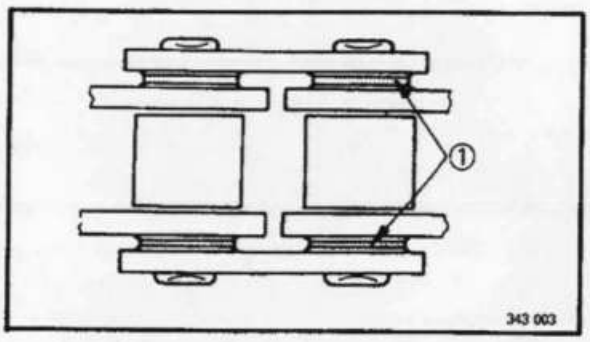
- Install the cotter pin

⚠ CAUTION:

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

⚠ WARNING:

Always use a new cotter pin.



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.

This machine has a drive chain with small rubber O-rings between the chain plates. Steam cleaning, high-pressure washes, and certain solvents can damage these O-rings. Use only kerosene to clean the drive chain. Wipe it dry, and thoroughly lubricate it with SAE 30 ~ 50W motor oil. Do not use any other lubricants on the drive chain. They may contain solvents that could damage the O-rings.

① O-ring

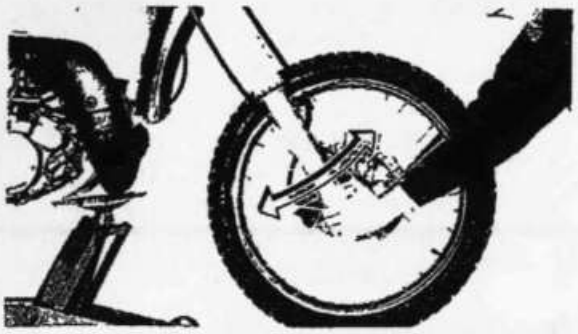
Recommended Lubricant:
SAE 30 ~ 50 Motor Oil

STEERING HEAD ADJUSTMENT

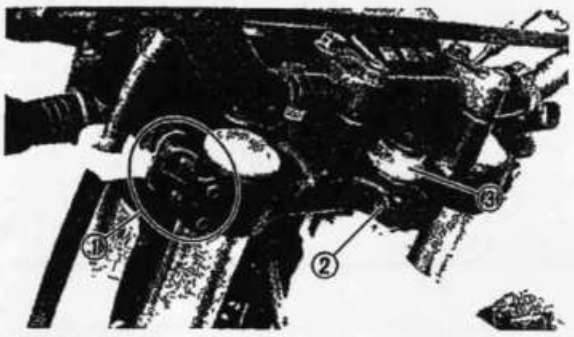
⚠ WARNING:

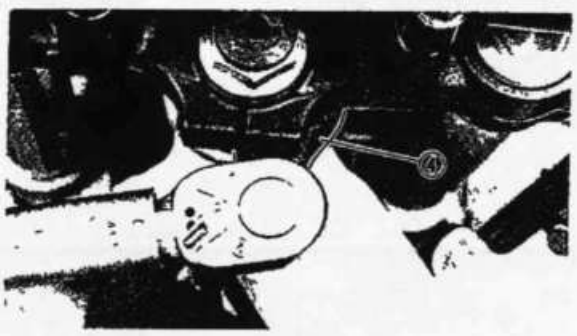
Securely support the motorcycle so there is no danger of it falling over.

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 side covers, seat, radiatorcover, oil tank cover and fuel tank.
- Loosen the pinch bolts (handle crown) ①, pinch bolt (steering stem) ② and flange nut (steering stem) ③.
- Tighten the ring nut using the Ring Nut Wrench ④.

Ring Nut Wrench:
90890-01403

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)

NOTE:
Recheck the steering head by turning the steering from lock to lock, after adjusting steering head.
If steering is binded, loosen the ring nut so that there is no free play on bearing.
If steering is loosened, repeat the adjustment steps.

- Tighten the flange nut (steering stem) ③, pinch bolt (steering stem) ② and pinch bolts (handle crown) ①.

Flange Nut (Steering Stem):
90 Nm (9.0 m·kg, 6.5 ft·lb)
Pinch Bolt (Steering Stem):
23 Nm (2.3 m·kg, 17 ft·lb)
Pinch Bolt (Handle Crown):
23 Nm (2.3 m·kg, 17 ft·lb)

- Install the fuel tank, oil tank cover, radiator cover, seat and side covers.

FRONT FORK INSPECTION

⚠ WARNING:

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

1. Place the motorcycle on a level place.



2. Check:
   - Inner tube ①
     Scratch/Damage → Replace.
   - Oil seal ②
     Excessive oil leakage → Replace.
3. Hold the motorcycle on upright position and apply the front brake.



4. Check:
   - Operation
     Pump the front fork up and down for several times.
     Unsmooth operation → Repair.

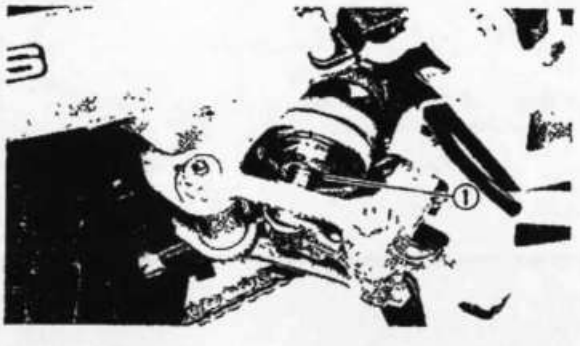
REAR SHOCK ABSORBER ADJUSTMENT

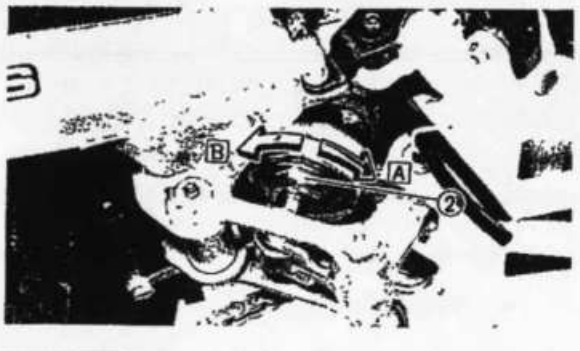
⚠ WARNING:

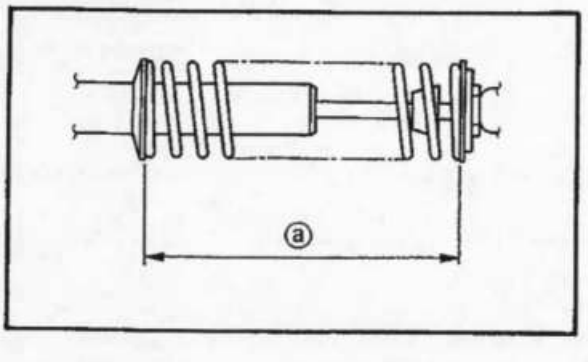
This shock absorber contains highly pressurized nitrogen gas. Read and understand the following information before handling the shock absorber. The manufacture cannot be held responsible for property damage or personal injury that may result from improper handling.

- **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.**

1. Adjust:
   - Spring preload







Adjustment steps:
- Elevate the rear wheels by placing the suitable stand.
- Loosen the locknut ①.
- Adjust the spring preload.

NOTE:
The length of the spring (Installed) changes 1.0 mm (0.04 in) per turn of the adjuster.

Turn adjuster ② clockwise A.	**Increase the spring preload.**
Turn adjuster ② counterclockwise B	**Decrease the spring preload.**

Standard Spring Length (Installed):
230 mm (9.1 in)
Minimum Length (Installed):
220 mm (8.7 in)
Maximum Length (Installed):
235 mm (9.3 in)

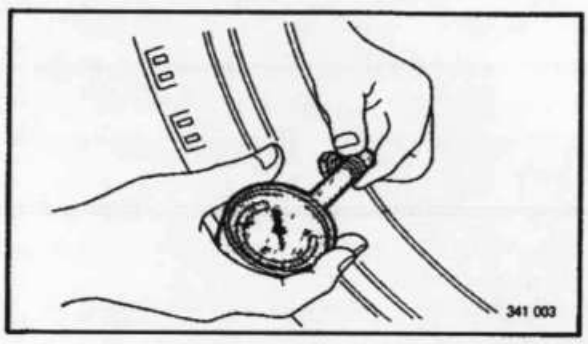
ⓐ Spring length (Installed)

⚠ CAUTION:

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

- Tighten the locknuts.

Locknut:
55 Nm (5.5 m · kg, 40 ft · lb)



TIRE INSPECTION

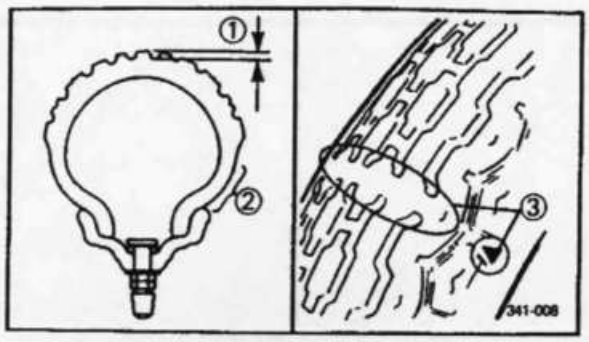
1. Measure:
   - Air pressure
     Out of specification → Adjust.

Basic weight With oil and full fuel tank	119 kg (262 lb)	
Maximum load*	Front	Rear
	47 kg (104 lb)	134 kg (295 lb)
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	130 kPa (1.3 kg/cm², 18 psi)	150 kPa (1.5 kg/cm², 22 psi)
90 kg (198 lb) ~ Maximum load*	150 kPa (1.5 kg/cm², 22 psi)	180 kPa (1.8 kg/cm², 26 psi)
Off-road riding	130 kPa (1.3 kg/cm², 18 psi)	150 kPa (1.5 kg/cm², 22 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

⚠ WARNING:

- **It is dangerous to ride with a worn-out tire. When a tire tread begins to show lines, replace the tire immediately.**
- **Patching a punctured tube is not recommended. If it is absolutely necessary to do so, use great care and replace the tube as soon as possible with a good quality replacement.**

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.

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.

Cable

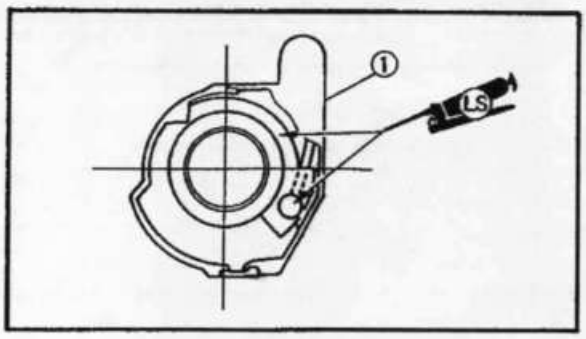
1. Inspect:
   - Cable sheath
   - Cable end

   Damage → Replace.
2. Check:
   - Cable operation

   Unsmooth operation → Lubricate.

Recommended Lubricant:
SAE 10W30 Motor Oil

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



3. Apply the grease to the throttle cable end and cable guide groove at inside of throttle housing ①.

Lithium Soap Base Grease

Brake And Clutch Levers

1. Lubricate the pivoting parts of each lever.

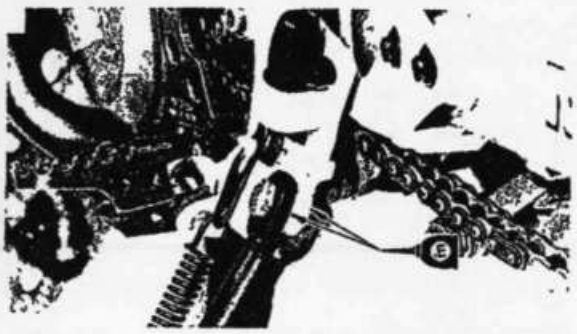
Recommended Lubricant:
SAE 10W30 Motor Oil



Brake Pedal

1. Lubricate the pivoting parts.

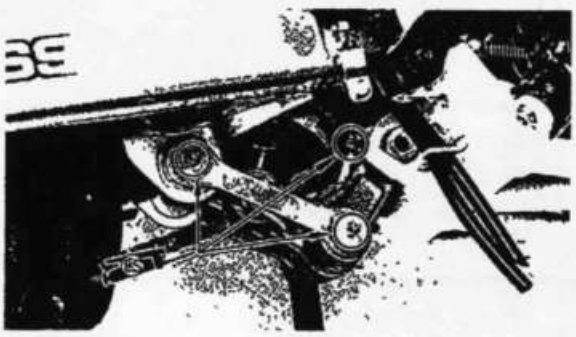
Recommended Lubricant:
SAE 10W30 Motor Oil



Sidestand

1. Lubricate the pivoting parts.

Recommended Lubricant: SAE 10W30 Motor Oil



Swingarm And Relay Arm

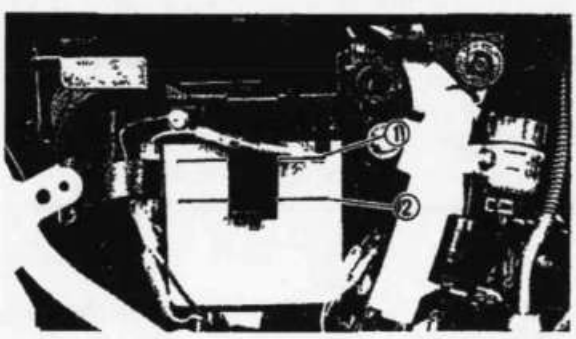
1. Inject grease from the Nipples ① using a grease gun.

Lithium Soap Base Grease

ELECTRICAL

BATTERY INSPECTION

1. Remove:
   - Side cover (Right)



2. Inspect:
   Fluid level should be between upper ① and lower ② level marks.
   Incorrect → Refill.

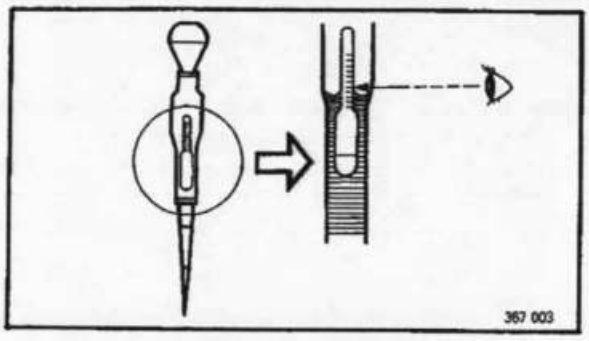
CAUTION:

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

Charging Current:
0.3 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.**



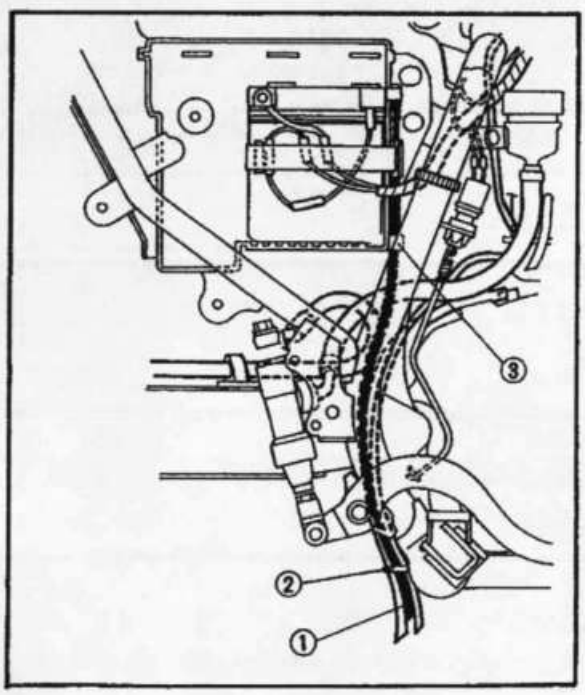
Antidote (INTERNAL):

- **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.



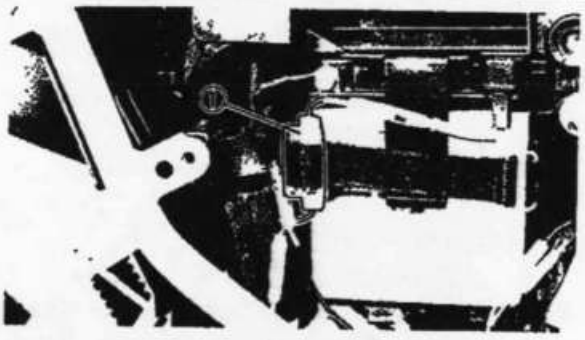
5. Inspect:
   - Breather hose ①
     Obstruction → Remove.
     Damage → Replace.
6. Connect:
   - Breather hose ①
     Be sure the hose is properly attached and routed.

CAUTION:

When inspecting the battery, be sure the breather hose is routed correctly. If the breather hose 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 motorcycle can occur.

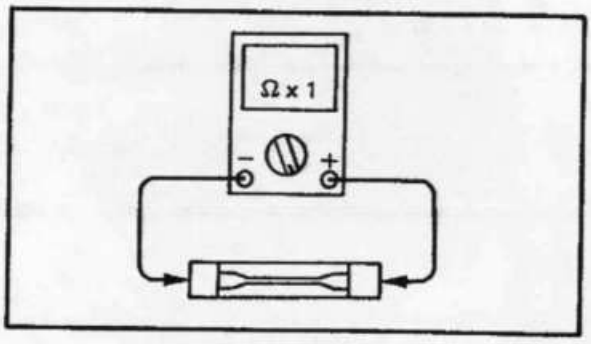
② Hose guide
③ Hose holder

7. Install:
   - Side cover (Right)



FUSE INSPECTION

1. Remove:
   - Side cover (Right)
2. Remove:
   - Fuse ①



3. Inspect:
   - Fuse

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

NOTE:
Set the tester tselector to "Ω x 1" position.

Pocket Tester:
90890-03112

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

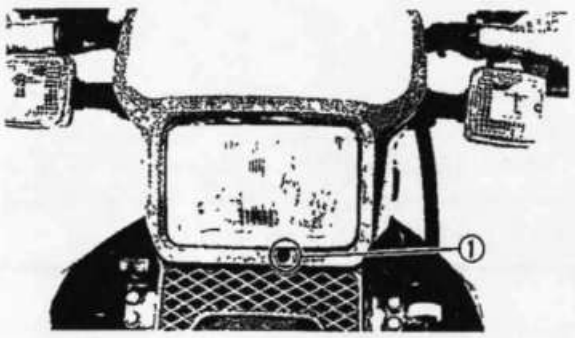
4. Replace:
   - Blown fuse

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

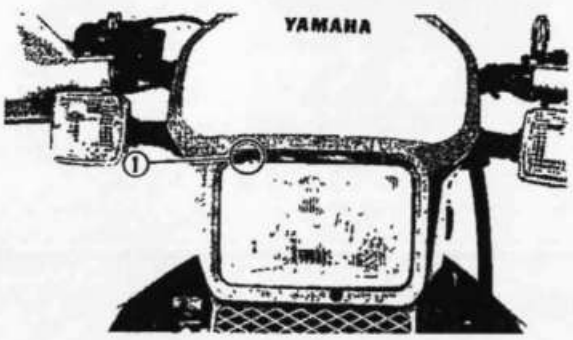
5. Install:
   • Side cover (Right)



HEADLIGHT BEAM ADJUSTMENT

1. Adjust:
   • Headlight beam (Vertical)

To raise the beam	Turn the adjuster ① clockwise.
To lower the beam	Turn the adjuster ① counterclockwise.



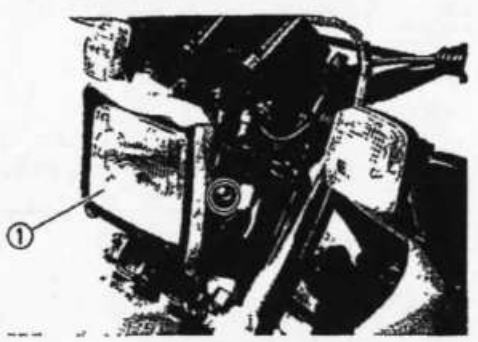
2. Adjust
   • Headlight beam (Horizontal)

To raise the beam	Turn the adjuster ① counterclockwise.
To left the beam	Turn the adjuster ① clockwise.

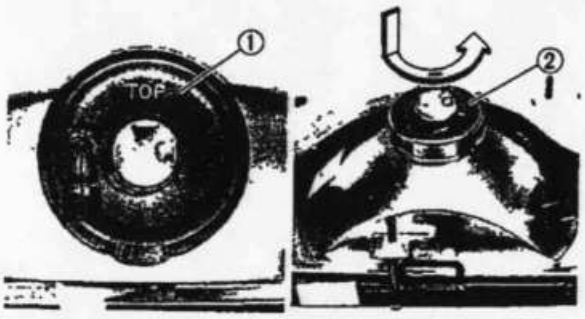


HEADLIGHT BULB REPLACEMENT

1. Remove:
   • Headlight cover ①

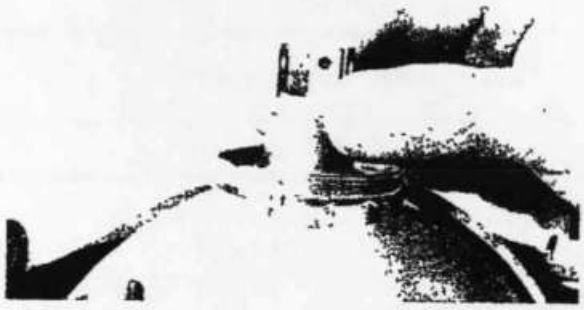


2. Remove:
   • Headlight lens unit ①
3. Disconnect:
   • Headlight lead
   • Auxiliary light lead



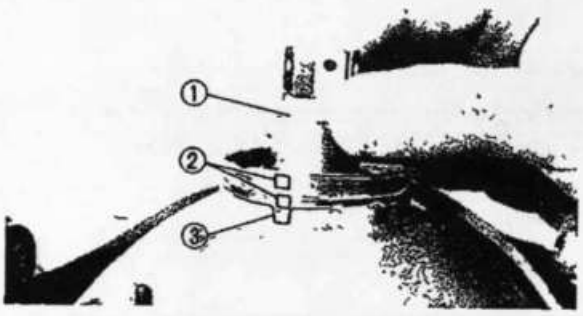
4. Remove:
   - Bulb holder cover ①
   - Bulb holder ②

NOTE:
While pushing the bulb holder ② , turn it counterclockwise.



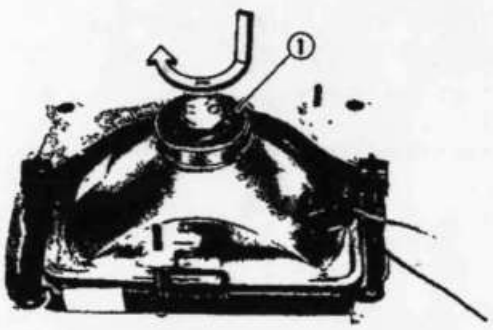
5. Remove:
   - Bulb (Defective)

⚠ 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.



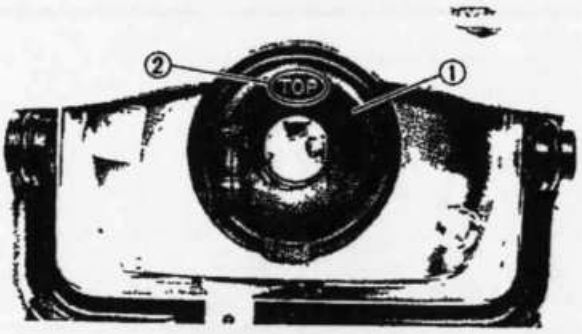
6. Install:
   - Bulb (New) ①

NOTE:
Make sure the projection ② on the bulb are meshed with the slot ③ on the light case.



7. Install:
   - Bulb holder ①

NOTE:
While pushing the bulb holder ① , turn it clockwise.



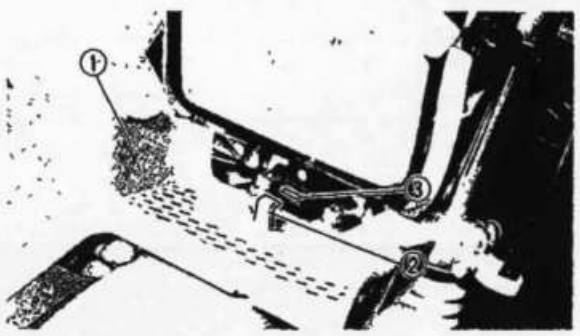
8. Install:
   - Bulb holder cover ①

NOTE:
Install the bulb holder cover so that the "TOP" mark ② upward.



9. Connect:
   - Auxiliary light lead
   - Headlight lead
10. Install:
    - Headlight lens unit ①

NOTE:
Install the headlight lens unit onto the headlight stay by fitting the guide rubber ② properly in the guide hole ③ of the headlight unit.



11. Install:
    - Headlight cover ①

NOTE:
When installing the headlight cover, insert the hook ② on the cover to the guide hole ③ on the headlight stay.

12. Adjust:
    - Headlight beam
      Refer to the "HEADLIGHT BEAM ADJUSTMENT" section.

ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:

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

- Cylinder head
- Cylinder
- Piston and piston ring
- Power valve
- Clutch
- Primary drive gear
- Kick axle
- Shift shaft
- Magneto rotor
- Stator
- Autolube pump

SIDE COVERS

1. Remove:
   - Side cover (Right)
   - Side cover (Left)
   - Seat



2. Remove:
   - Radiator cover ①
   - Oil tank cover ②

COOLANT

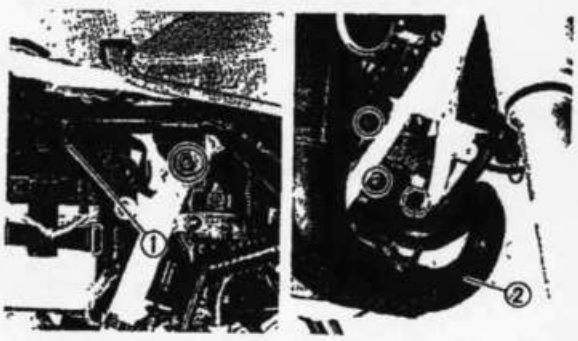
1. Drain:
   - Coolant

   Refer to the "COOLANT REPLACEMENT" section in the CHAPTER 3.

TRANSMISSION OIL

1. Drain:
   - Transmission oil

   Refer to the "TRANSMISSION OIL REPLACEMENT" section in the CHAPTER 3.



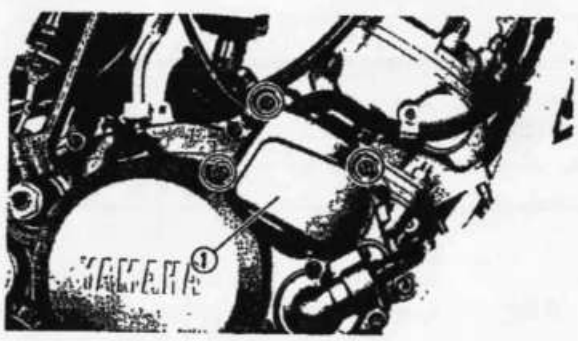
EXHAUST PIPE

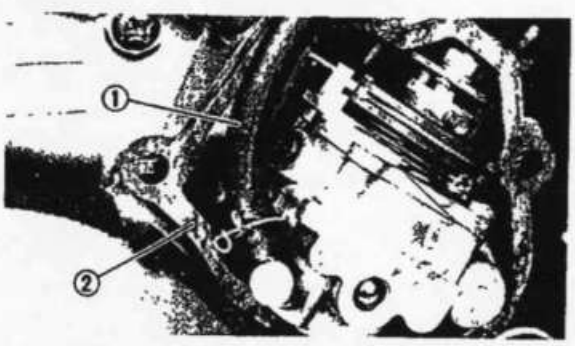
1. Loosen:
   - Screw (Muffler joint) ①
2. Remove:
   - Gasket (Exhaust pipe)
   - Exhaust pipe ②

CARBURETOR

1. Remove:
   - Fuel tank
   - Carburetor

   Refer to the "CARBURETOR – REMOVAL" section in the CHAPTER 6.





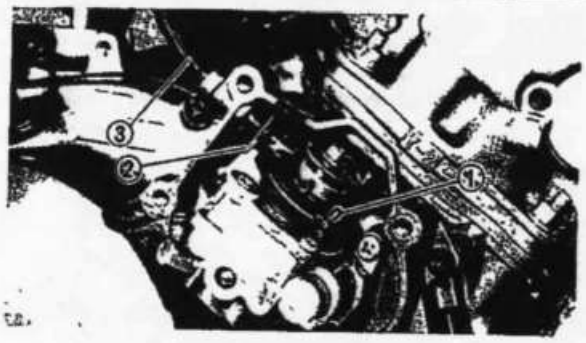
AUTOLUBE PUMP CABLE AND HOSE

1. Remove:
   - Autolube pump cover ①
2. Disconnect:
   - Oil hose ①

     (from autolube pump and hose guide)
   - Gasket (Autolube pump cover) ②

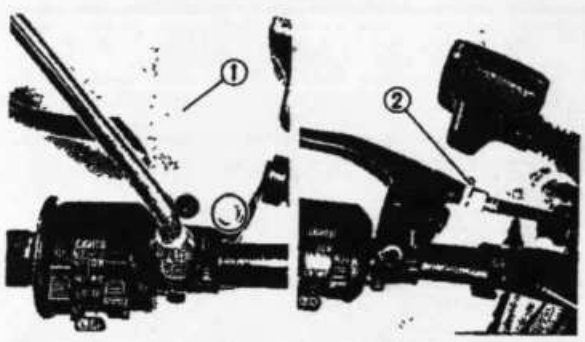
NOTE:

Plug the oil hose so that oil will not run out of the oil tank.



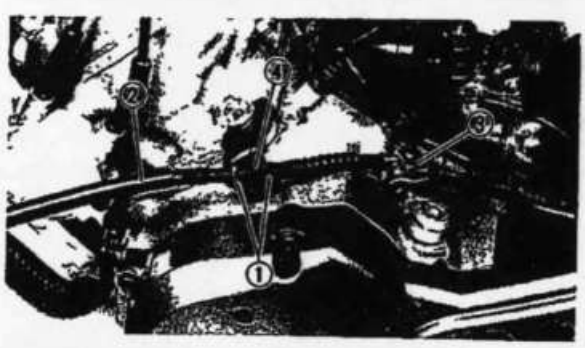
3. Remove:
   - Stopper clip (Pump cable) ①
   - Clip (Pump cable outer) ②
4. Disconnect:
   - Autolube pump cable ③

NOTE:
Turn the pump pulley counterclockwise by finger to make the pump cable loose enough for its end to be removed from the pulley.

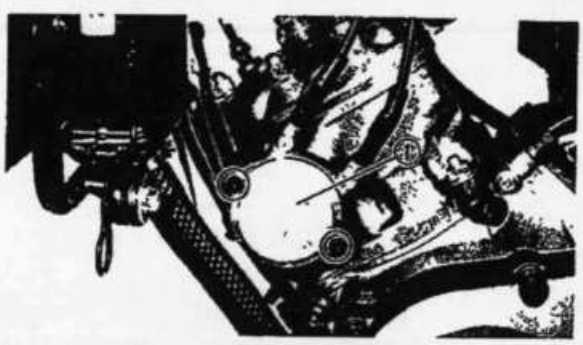


CLUTCH CABLE

1. Remove:
   - Brush guard ①
2. Loosen:
   - Adjuster (Clutch cable) ②

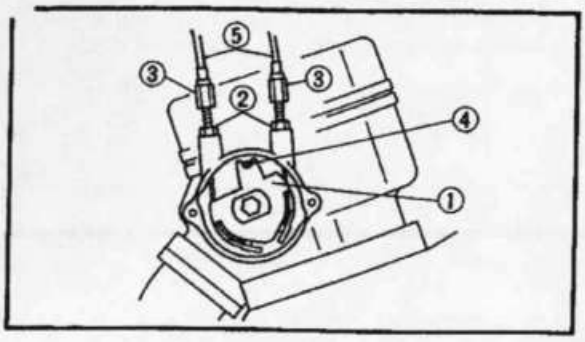


3. Loosen:
   - Adjuster locknuts (Clutch cable) ①
4. Disconnect:
   - Clutch cable ②
     (from clutch push lever ③ and cable guide ④)



Y.P.V.S. CABLES

1. Remove:
   - Pulley cover (Power valve) ①

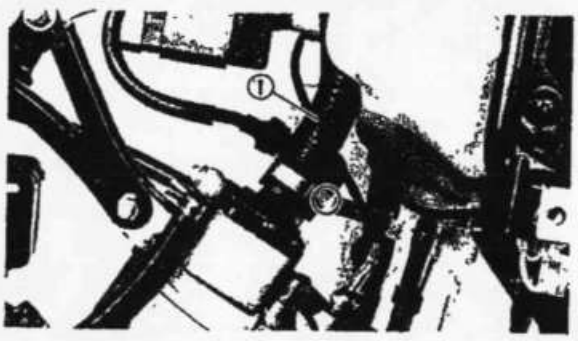


2. Remove:
   - Pulley (Power valve) ①

Removal steps:
- Loosen both locknuts ② and turn in both adjusters ③.
- Insert a pin ④ [ϕ4 mm (ϕ0.16 in)] through the aligning indent in the pulley ① and into the hole to lock the pulley.
- Remove the pulley ① from the power valve and then disconnect the Y.P.V.S. cables ⑤ from the pulley.
- Remove the pin ④.

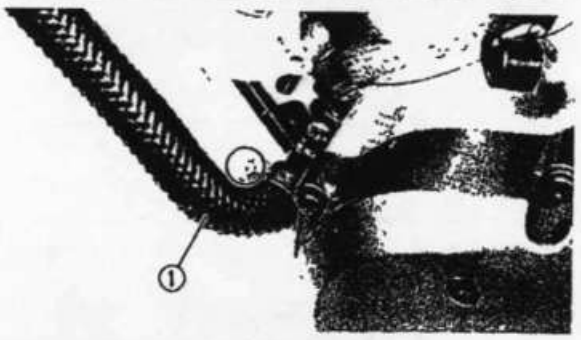


3. Disconnect:
   - Servomotor unit leads ①
4. Remove:
   - Servomotor unit ②
   - Adjuster (Y.P.V.S. cable) ③
   - Pulley housing ④

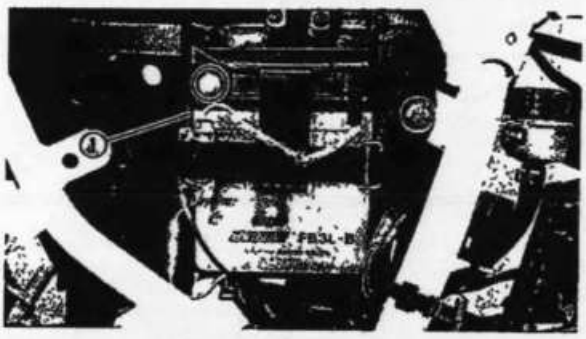


RADIATOR HOSES

1. Disconnect:
   - Radiator hose (Inlet) ①

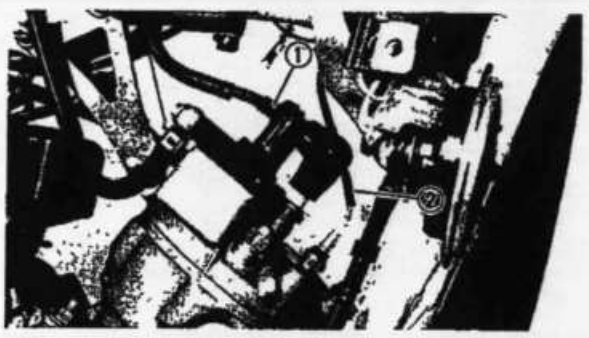


2. Disconnect:
   • Radiator hose (Outlet) ①

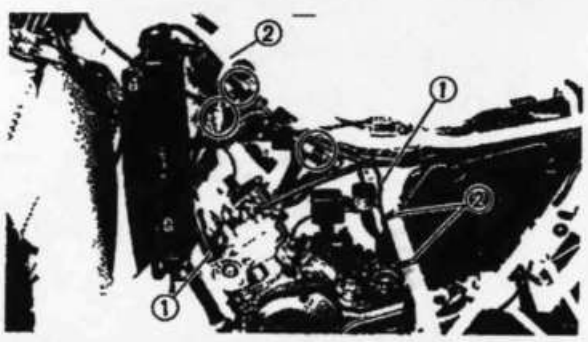


LEADS

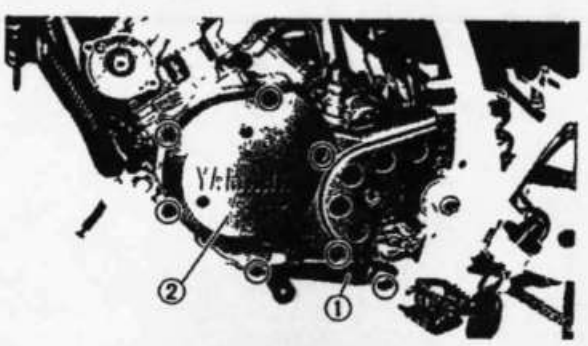
1. Disconnect:
   • Battery lead (Negative) ①



2. Disconnect:
   • Spark plug lead ①
   • Thermo unit lead ②

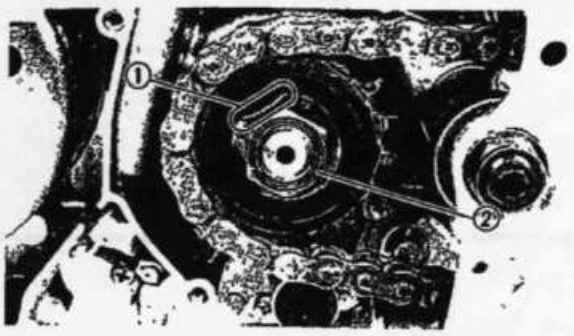


3. Disconnect:
   • CDI magneto leads ①
4. Remove:
   • Bands ②



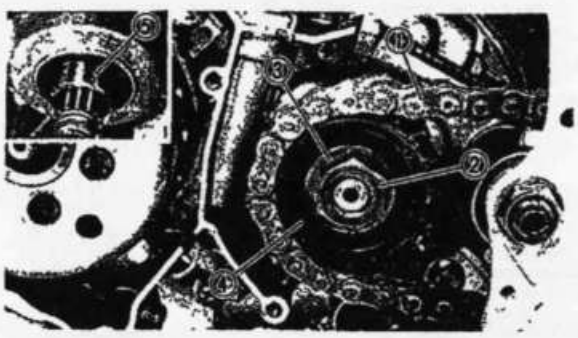
DRIVE CHAIN

1. Remove:
   • Change pedal ①
   • Crankcase cover (Left) ②
   • Gasket (Crankcase cover)



2. Straighten:
   - Lock washer tab ①
3. Loosen:
   - Nut (Drive sprocket) ②

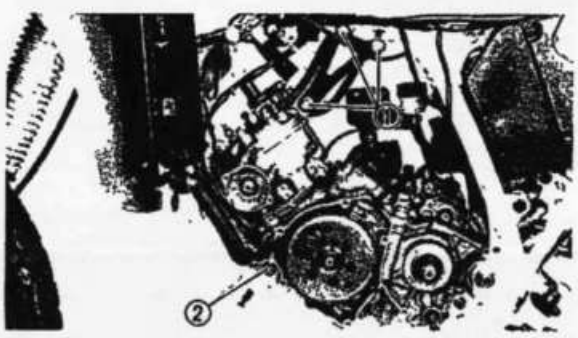
NOTE:
When loosening the nut (Drive sprocket), apply the rear brake pedal and transmission gear to the 6th position.

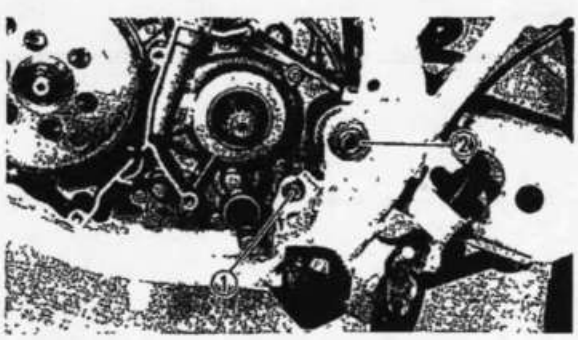


4. Remove:
   - Drive chain ①
   - Nut (Drive sprocket) ②
   - Lock washer ③
   - Drive sprocket ④
   - Spacer collar ⑤

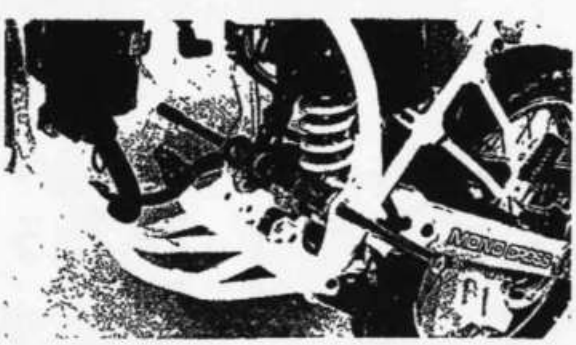
ENGINE REMOVAL

1. Remove:
   - Bolts (Engine stay – Upper) ①
   - Bolts (Engine mount – Front) ②





2. Remove:
   - Bolt (Engine mount – Rear lower) ①
   - Pivot shaft ②



NOTE:
The engine and swingarm are installed using the same pivot shaft. There fore, take care so that the pivot shaft is pulled, not entirely out, but for enough to set the engine free.



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

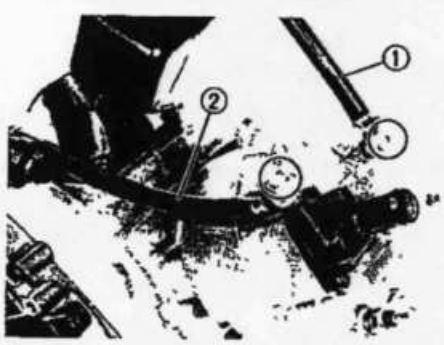
ENGINE DISASSEMBLY

CYLINDER HEAD, CYLINDER AND PISTON

NOTE:

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

- Side covers (Right and left)
- Seat
- Radiator cover
- Oil tank cover
- Fuel tank
- Radiator hose (Inlet)
- Servomotor unit (Y.P.V.S.)
- Engine stay (Upper)
- Exhaust pipe



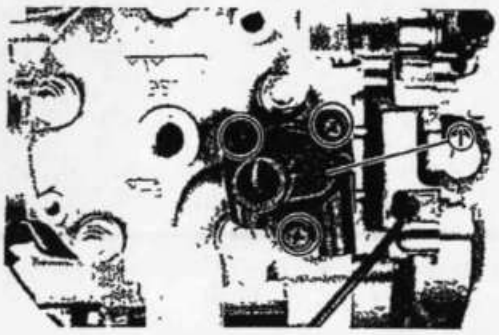
1. Remove:
   - Hoses (Inlet ① and outlet ②)



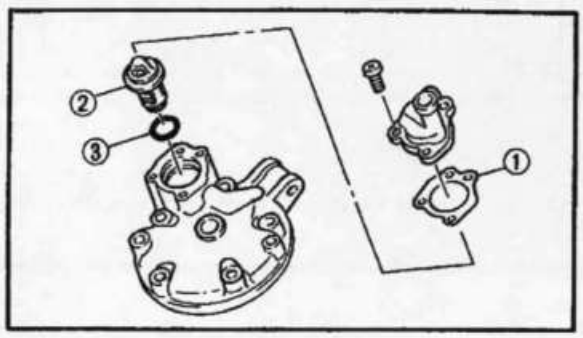
2. Remove:
   - Spark plug ①
   - Thermo unit ②

⚠ WARNING:

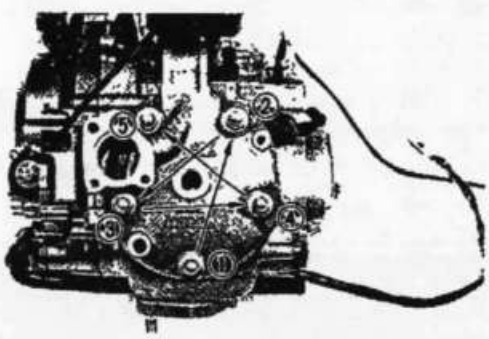
Handle the thermo unit with special care. Never subject it to strong or allow it to be dropped. Should it be dropped, it must be replaced.



3. Remove:
   - Cover (Thermostatic valve) ①

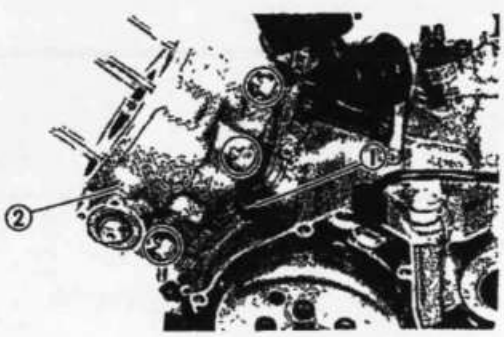


4. Remove:
   - Gasket ①
   - Thermostatic valve ②
   - O-ring ③



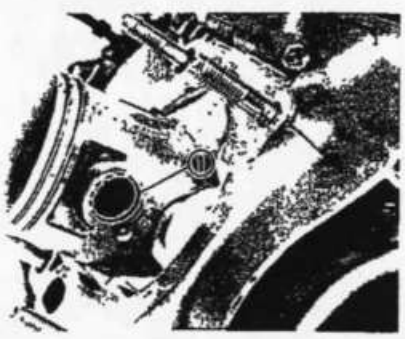
5. Remove:
   - Cylinder head
   - Gasket (Cylinder head)

NOTE:
- Loosen the nuts starting with the highest numbered one.
- Loosen each nut 1/4 turn, and remove them after all nuts are loosened.



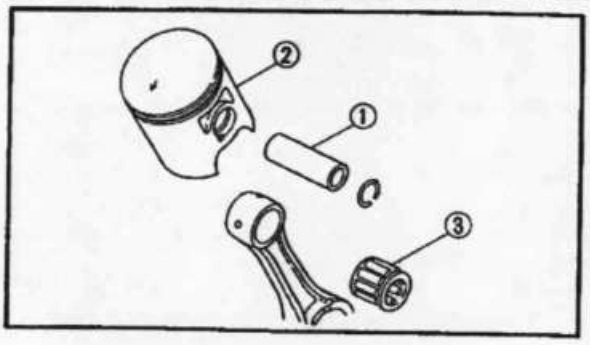
6. Remove:
   - Clutch cable guide ①
   - Cylinder ②
   - Gasket (Cylinder)
   - Dowel pins

NOTE:
Loosen each nut 1/4 turn, and remove them after all nuts are loosened.



7. Remove:
   - Piston pin clip ①

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



8. Remove:
   - Piston pin ①
   - Piston ②
   - Small end bearing ③

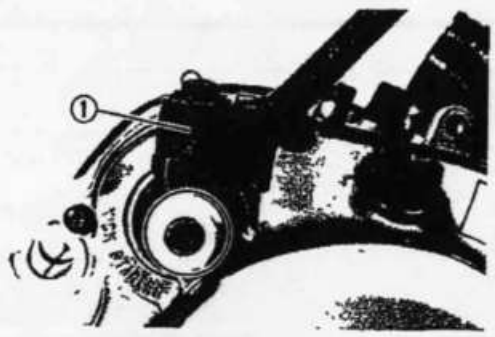
NOTE:
Before removing the piston pin, deburr the clip groove and pin hole area. If the piston pin groove is deburred and piston pin is still difficult to remove, use Piston Pin Puller.

	Piston Pin Puller: 90890-01304

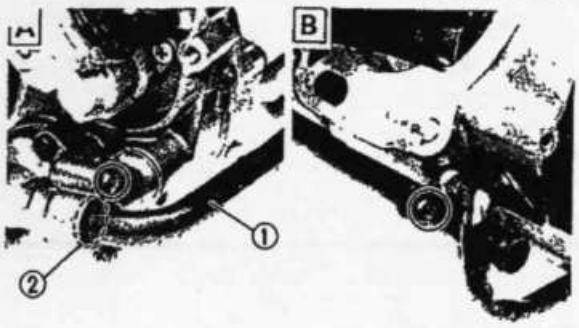
CAUTION:
Do not use a hammer to drive the piston pin out.

CLUTCH, PRIMARY DRIVE GEAR AND BALANCER GERAR

NOTE:
With the engine mounted, the clutch, primary drive gear and balancer gear can be maintained by removing the following parts.
- Brake pedal
- Radiator hose (Outlet)
- Autolube pump cable and hoses
- Kick crank
- Crankcase cover (Right)

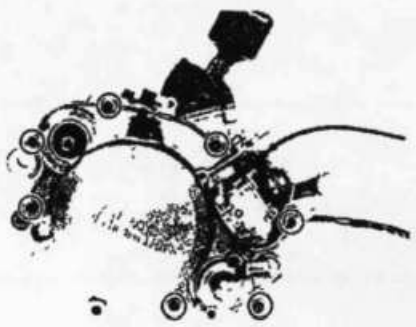


1. Remove:
   - Kick crank ①

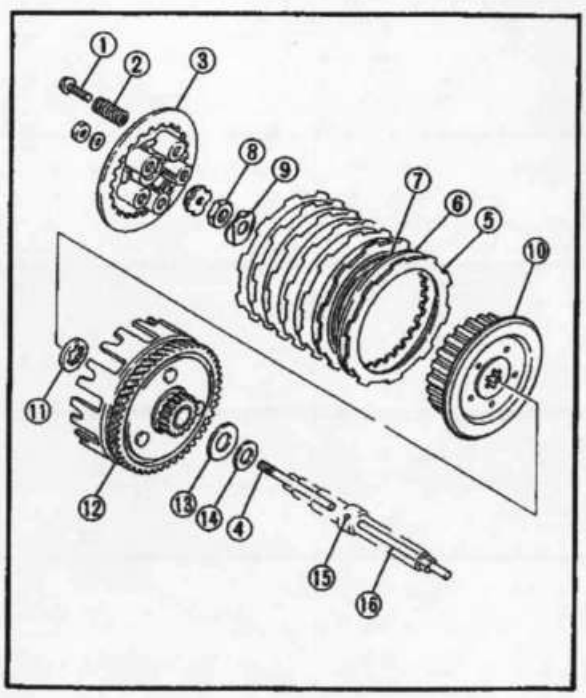


2. Remove:
   - Water outlet pipe ①
   - O-ring ②
     (from water outlet pipe)

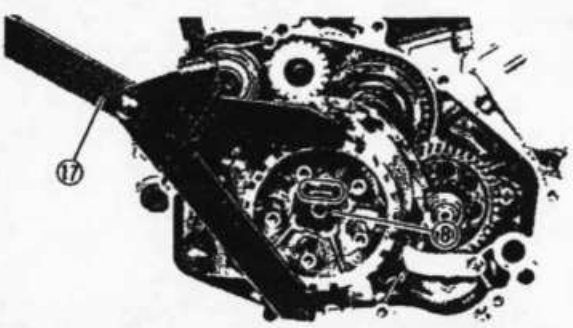
A Right side
B Left side



3. Remove:
   - Crankcase cover (Right)
   - Dowel pins
   - Gasket (Crankcase cover)

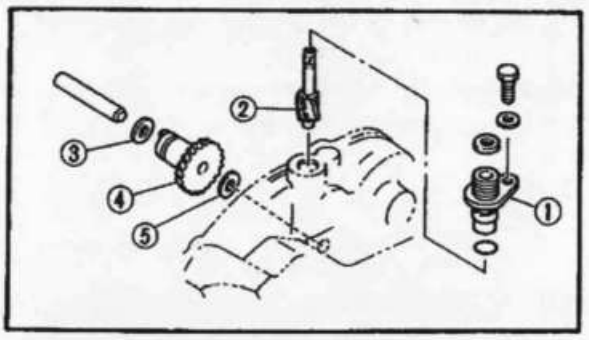


4. Remove:
   - Bolts ①
   - Clutch springs ②
   - Pressure plate ③
   - Push rod #1 ④
   - Friction plates ⑤
   - Clutch plates ⑥
   - Clutch dumper ⑦
   - Nut (Clutch boss) ⑧
   - Lock washer ⑨
   - Clutch boss ⑩
   - Thrust washer ⑪
   - Clutch housing ⑫
   - Thrust plate ⑬
   - Conical spring washer ⑭
   - Boll ⑮
   - Push rod #2 ⑯

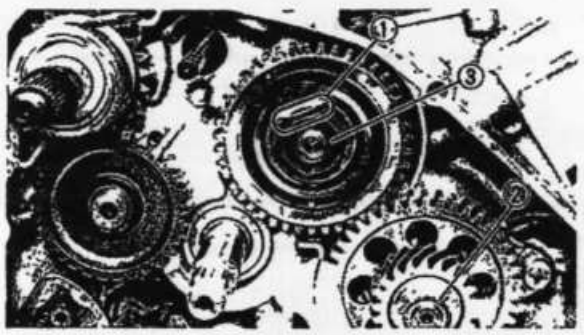


NOTE:
- Before loosening the nut (Clutch boss) ⑧, straighten the lock washer tab.
- Hold the clutch boss to loosen the nut (Clutch boss) by the Universal Clutch Holder ⑰.

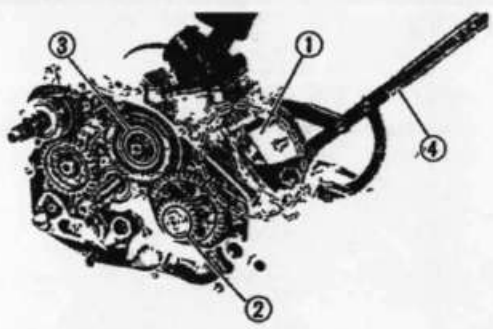
	Universal Clutch Holder: P/N. 90890-04086



5. Remove:
   - Stopper plate (Tachometer driven gear) ①
   - Driven gear (Tachometer cable) ②
   - Washer ③
   - Drive gear (Tachometer cable) ④
   - Washer ⑤

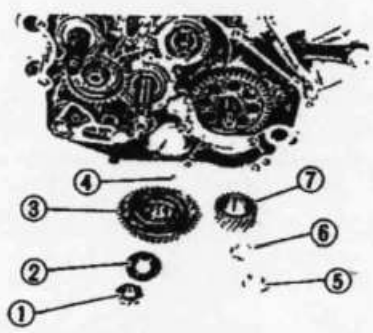


6. Straighten:
   - Lock washer tab ①
7. Loosen:
   - Nut (Primary drive gear) ②
   - Nut (Balancer gear) ③

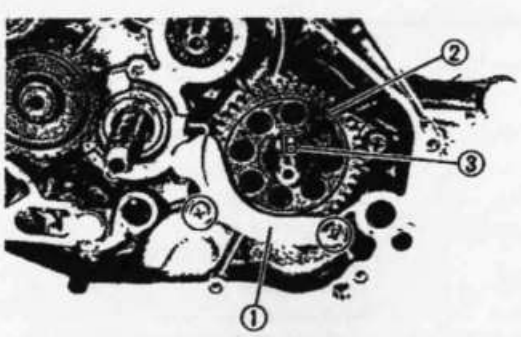


NOTE:
Hold the magneto rotor ① to loosen the nut (Primary drive gear) ② and nut (Balancer driven gear) ③ by the Universal Rotor Holder ④.

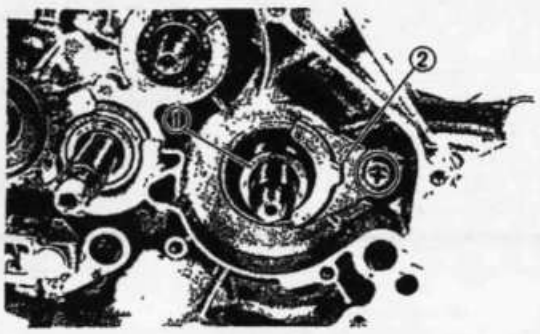
	Universal Rotor Holder: 90890-01235



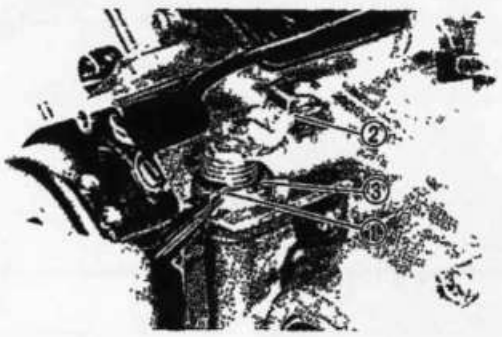
8. Remove:
   - Nut (Balancer driven gear) ①
   - Lock washer ②
   - Driven gear (Balancer weight) ③
   - Straight key ④
   - Nut (Primary drive gear) ⑤
   - Plain washer ⑥
   - Primary drive gear ⑦



9. Remove:
   - Baffle plate ①
   - Drive gear (Balancer weight) ②
   - Straight key ③



10. Remove:
    - Spacer collar ①
    - Oil seal retainer ②



CLUTCH PUSH LEVER

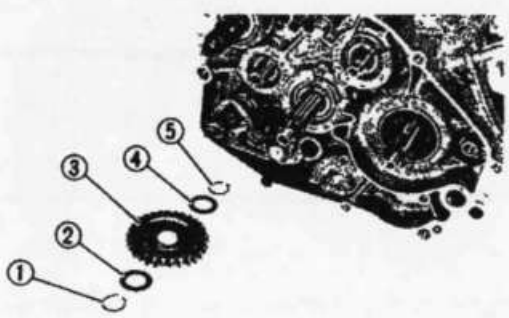
1. Unhook:
    - Return spring (Push lever) ①
2. Remove:
    - Push lever (Clutch) ②
    - Return spring ①
    - Washer ③

KICK AXLE AND KICK IDLE GEAR

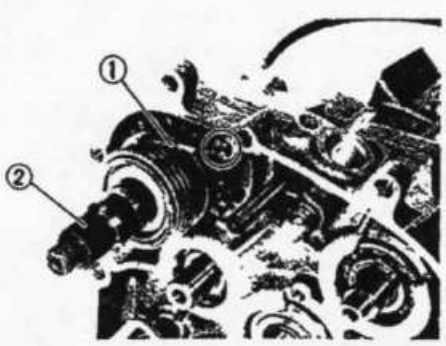
NOTE:

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

- Brake pedal
- Radiator hose (Outlet)
- Autolube pump cable and hoses
- Kick crank
- Crankcase cover (Right)
- Clutch



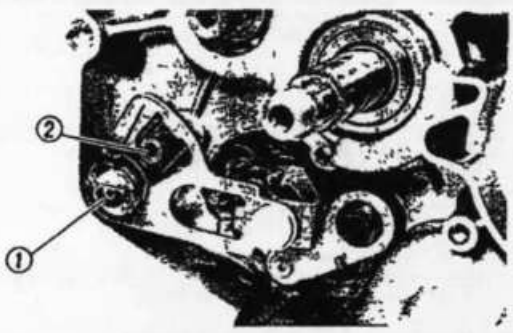
1. Remove:
    - Circlip ①
    - Washer ②
    - Kick idle gear ③
    - Washer ④
    - Circlip ⑤



2. Unhook·
    - Return spring (Kick axle) ①
3. Remove:
    - Kick axle ②

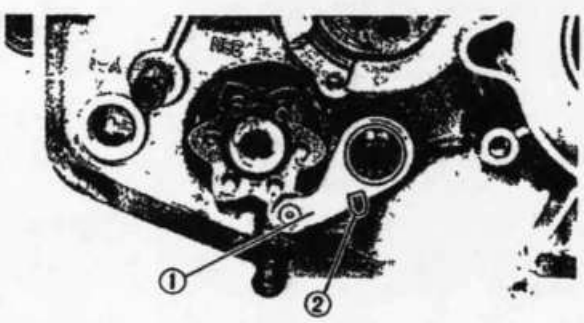
SHIFT SHAFT AND STOPPER LEVER

NOTE:
With the engine mounted, the shift shaft can be maintained by removing the following parts.
- Brake pedal
- Radiator hose (Outlet)
- Autolube pump cable and hoses
- Kick crank
- Crankcase cover (Right)
- Clutch



1. Remove:
   - Shift shaft ①

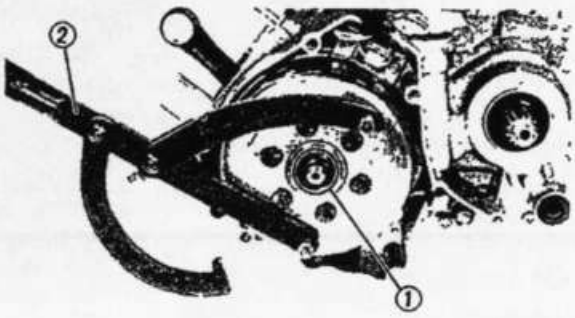
CAUTION:
When removing the shift shaft, hold the guide bar (Shift fork) ② in place. Otherwise, the guide bar will come loose with the shift shaft, leaving the shift fork out of order in the crankcase.



2. Remove:
   - Stopper lever ①
   - Return spring ②

ROTOR

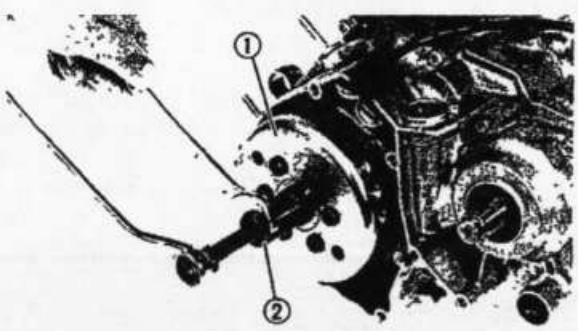
NOTE:
With the engine mounted, the rotor can be maintained by removing the following parts.
- Crankcase cover (Left)



1. Remove:
   - Nut (Rotor) ①
   - Plain washer

NOTE:
Hold the rotor to loosen the nut (Rotor) by the Universal Rotor Holder ②.

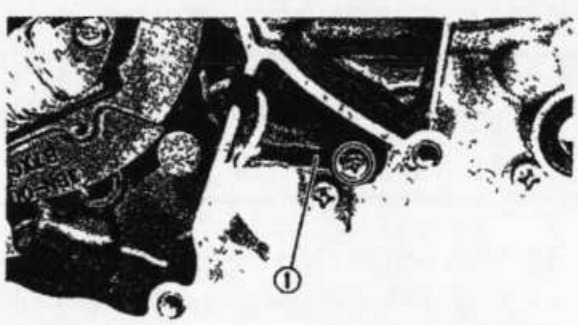
	Universal Rotor Holder: 90890-01235



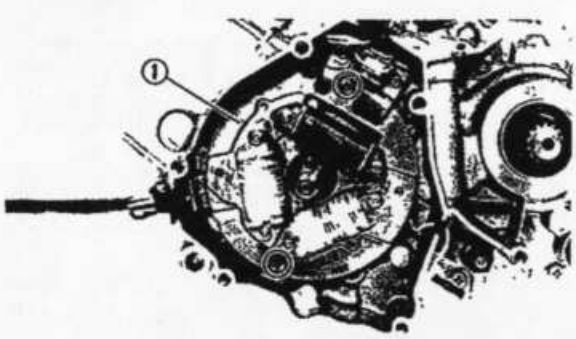
2. Remove:
   - Rotor ①
   - Woodruff key

NOTE:
When removing the rotor, use the Rotor Puller ②.

	Rotor Puller: 90890-01189



3. Disconnect:
   - Neutral switch lead ①



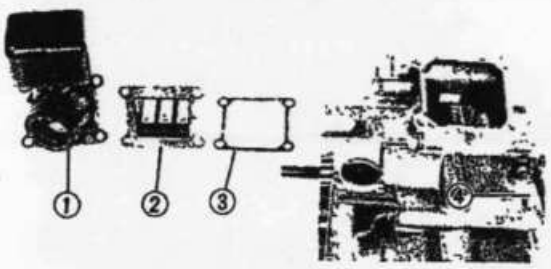
4. Remove:
   - Stator ①

REED VALVE

NOTE:

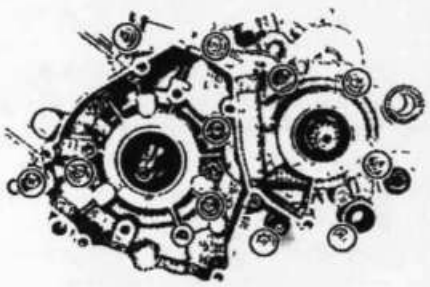
With the engine mounted, the reed valve can be maintained by removing the following parts.

- Side covers (Right and left)
- Seat
- Radiator cover
- Oil tank cover
- Fuel tank
- Carburetor



1. Remove:
   - Carburetor joint ①
   - Reed valve assembly ②
   - Gasket ③
   - Breather hose (Crankcase) ④

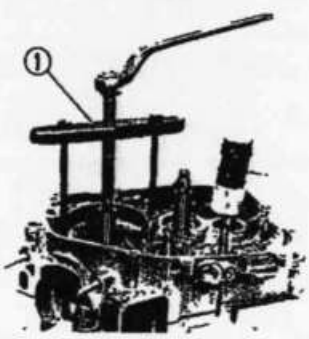
CRANKCASE (RIGHT)



1. Remove:
   - Crankcase (Right)

NOTE:

- Loosen the bolts starting with the highest numbered one.
- Loosen each bolt 1/4 turn, and remove them after all bolts are loosened.



Removal steps:

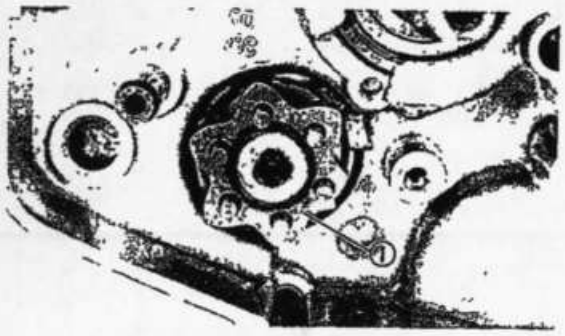
- Attach the Crankcase Separating Tool ①.

Crankcase Separating Tool:
P/N. 90890-01135

NOTE:

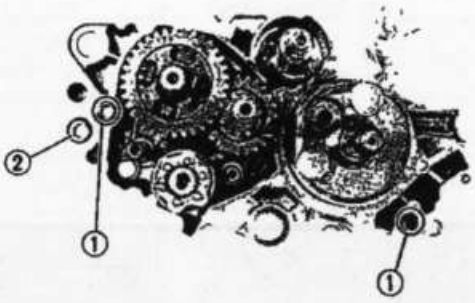
Fully tighten the tool holding bolts, but make sure the tool body is parallel with the case. If necessary, one screw may be backed out slightly to level tool body.

- As pressure is applied, alternately tap on the front engine mounting boss, transmission shafts and shift cam.
  Then, remove the crankcase (Right).

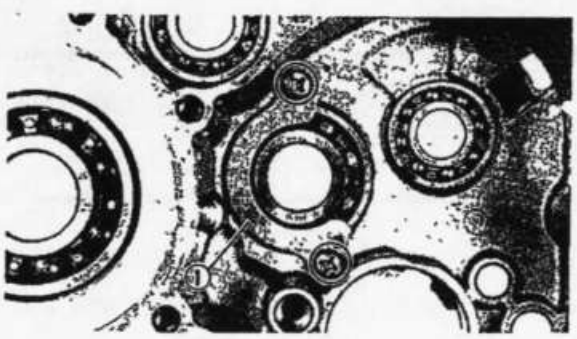


NOTE:
Turn the shift cam ① to the position shown in the figure so that it does not contact the crankcase when separating the crankcase.

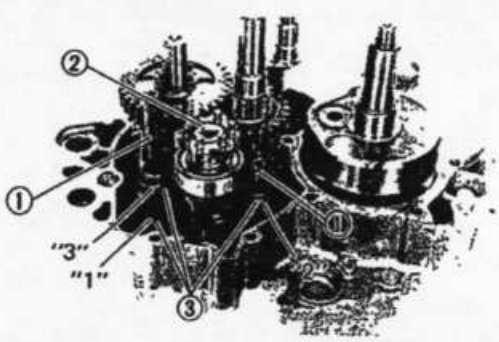
CAUTION:
- **Use soft hammer to tap on the case half.**
- **Tap only on reinforced portions of case.**
- **Do not tap on gasket mating surface.**
- **Work slowly and carefully.**
- **Make sure the case halves separate evenly. If one end "hangs up", take pressure off the push screw, realign, and start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



2. Remove:
   - Dowel pins ①
   - Damper collar ②



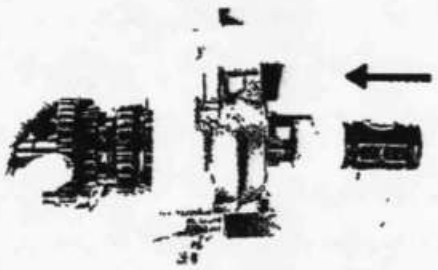
3. Remove:
   - Bearing retainer ①



SHIFTER, TRANSMISSION AND BARANCER WEIGHT

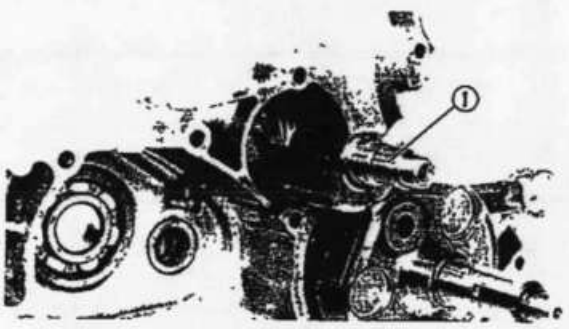
1. Remove:
   - Guide bars ①
   - Shift cam ②
   - Shift forks ③

NOTE:
Note the position of each part. Pay particular attention to the location and direction of shift forks.



2. Remove:
   - Transmission assembly

   Tap lightly on the transmission drive axle with a soft hammer.



3. Remove:
   - Balancer weight ①



CRANKSHAFT

1. Remove:
   - Crankshaft ①

NOTE:

- Remove the crankshaft by the Crankcase Separating Tool ②.

	Crankcase Separating Tool: P/N. 90890-01135

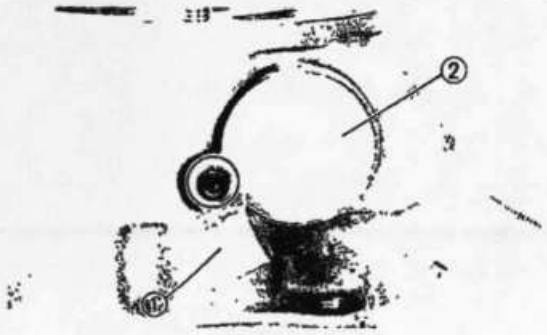
- Fully tighten the tool holding bolts, but make sure the tool body is parallel with the case. If necessary, one screw may be backed out slightly to level tool body.

POWER VALVE

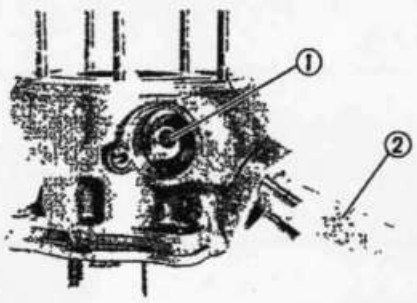
NOTE:

With the engine mounted, the power valve can be maintained by removing the following parts.

- Side covers (Right and left)
- Seat
- Radiator cover
- Cover (Engine oil tank) oil tank cover
- Fuel tank
- Servomotor unit

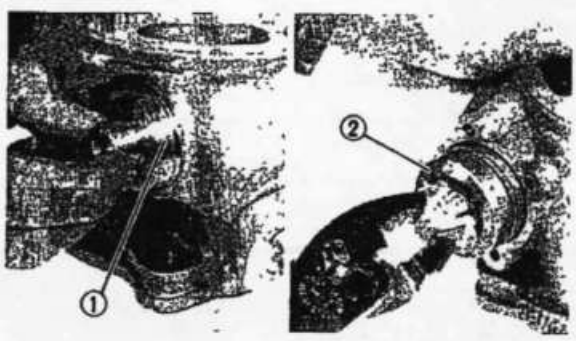


1. Remove:
   - Hose guide ①
   - Power valve holder (Right) ②



2. Remove:
   - Bolt (Power valve) ①

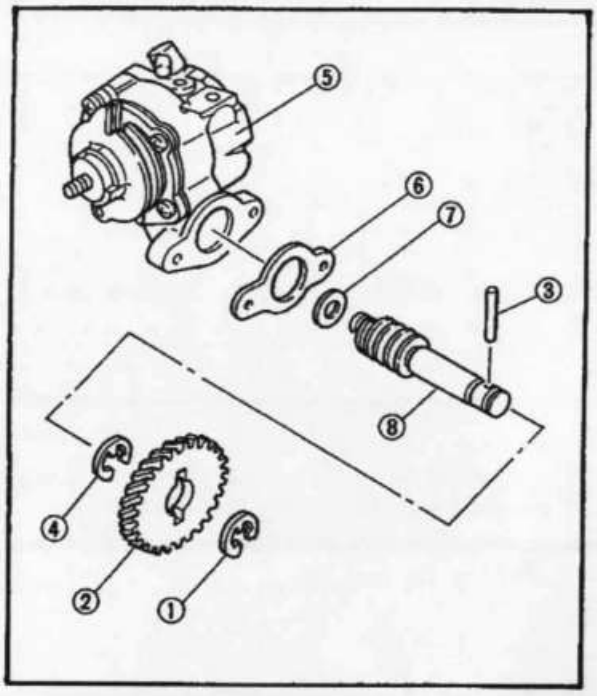
NOTE:
When loosening the power valve connecting bolt ① , lock the valve by inserting a wooden pice ② into the exhaust port.



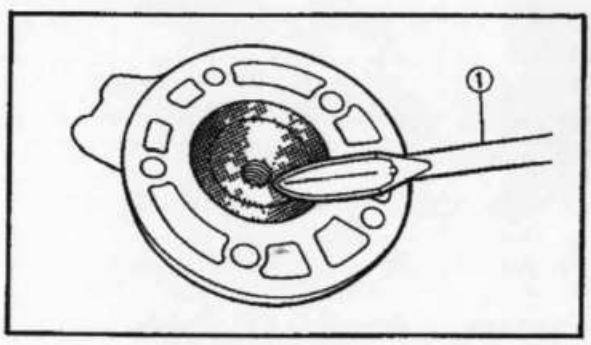
3. Remove:
   - Power valve (Right) ①
   - Power valve (Left) ②
   - Dowel pins
   - Holder (Power valve)
   - Gasket seal

AUTOLUBE POMP ASSEMBLY

NOTE:
With the engine mounted, the autolube pomp assembly can be maintained by removing the following parts.
- Brake pedal
- Radiator hose (Outlet)
- Autolube pump cable and hoses
- Kick crank
- Crankcase cover (Right)



1. Remove:
   - Circlip ①
   - Drive gear (Autolube pump) ②
   - Pin ③
   - Circlip ④
   - Autolube pump ⑤
   - Gasket ⑥
   - Washer ⑦
   - Drive shaft (Autolube pump) ⑧



INSPECTION AND REPAIR

CYLINDER HEAD

1. Eliminate:
   - Carbon deposits

   Use a rounded scraper ①.

NOTE:

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

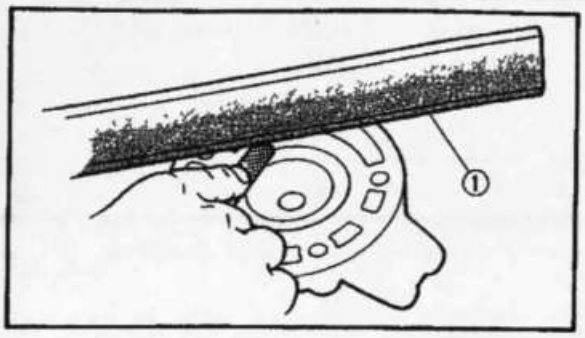
2. Inspect:
   - Cylinder head water jacket

   Crust of minerals/Rust → Eliminate.

3. Measure:
   - Cylinder head warpage

   Out of specification → Resurface.

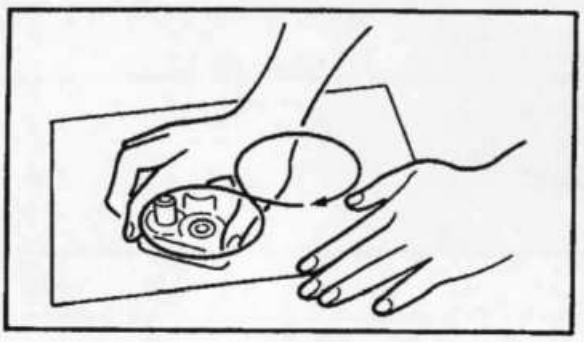
Warpage Limit:
0.03 mm (0.0012 in)

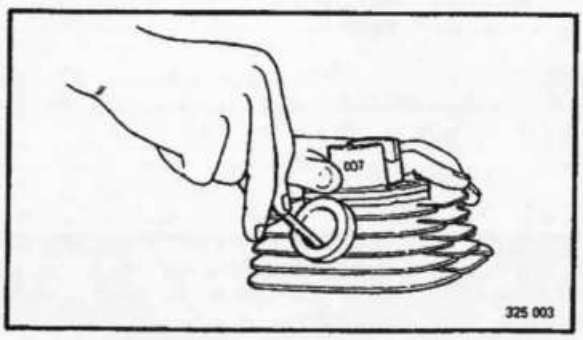


Warpage measurement and resurfacement steps:

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

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



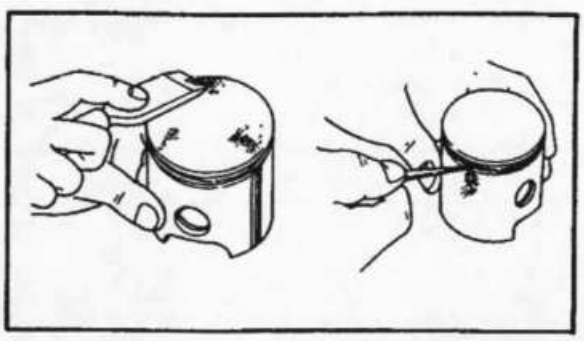


CYLINDER AND PISTON

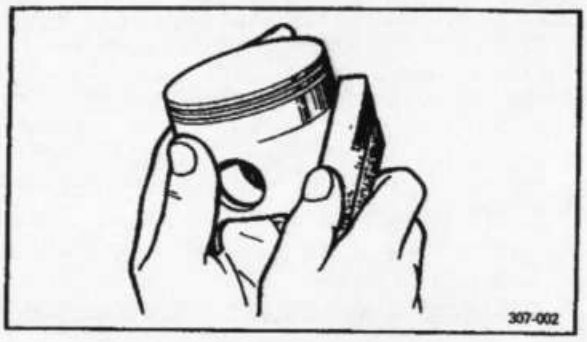
1. Eliminate:
   - Carbon deposits
     Use a rounded scraper

NOTE:
Do not use a sharp instrument and avoid damaging or scratching.

2. Inspect:
   - Cylinder water jacket
     Crust of minerals/Rust → Eliminate.
   - Cylinder wall
     Wear/Scratches → Rebore or replace.



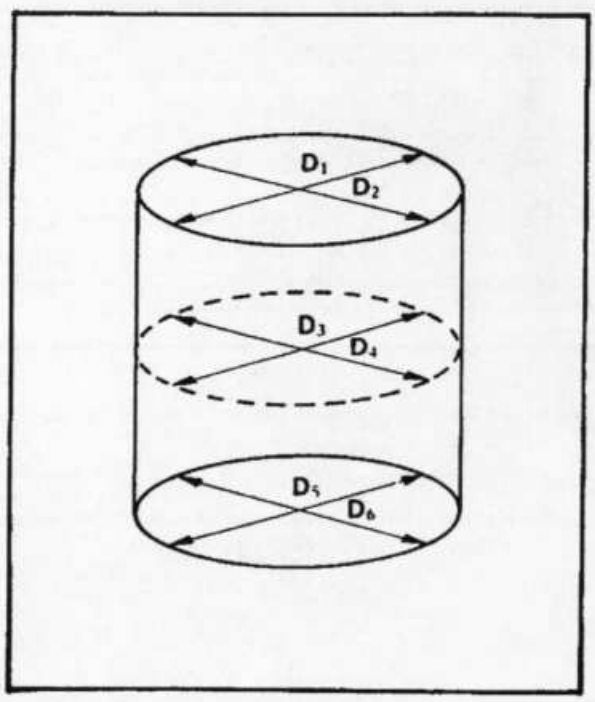
3. Eliminate:
   - Carbon deposits
     (from piston crown and ring grooves)
4. Inspect:
   - Piston crown
     Burrs/Nicks/Damage → Replace.



5. Eliminate:
   - Score marks and lacquer deposits (from piston wall)
     Use a 600 ~ 800 grit wet sandpaper.

NOTE:
Sand in a crisscross pattern. Do not sand excessively.

6. Inspect:
   - Piston wall
     Wear/Scratches/Damage → Replace.



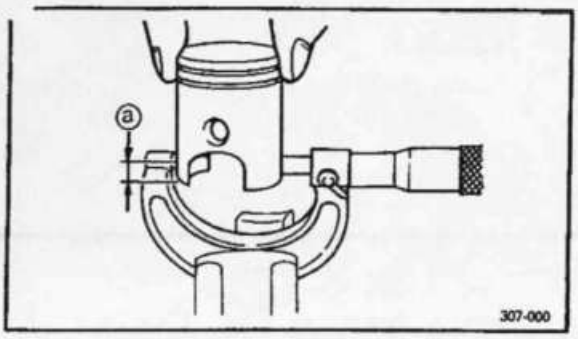
7. Measure:
   - Piston-to-cylinder clearance

Measurement steps:
First step:
- Measure the cylinder bore "C" with a Cylinder Bore Gauge.

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

	Standard	War Limit
Cylinder Bore "C"	56.40 ~ 56.42 mm (2.220 ~ 2.221 in)	56.5 mm (2.224 in)
Taper "T"	—	0.05 mm (0.0019 in)
Out of Round "R"	—	0.01 mm (0.0004 in)

C = Maximum D
T = (Maximum D_1 or D_2) – (Maximum D_5 or D_6)
R = (Maximum D_1, D_3 or D_5) – (Minimum D_2, D_4 or D_6)



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

2nd step:

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

ⓐ 10.0 mm (0.40 in) from the piston bottom edge

Piston Size P	
Standard	56.34 ~ 56.40 mm (2.218 ~ 2.220 in)
Oversize 1	56.65 mm (2.23 in)
Oversize 2	56.90 mm (2.24 in)

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

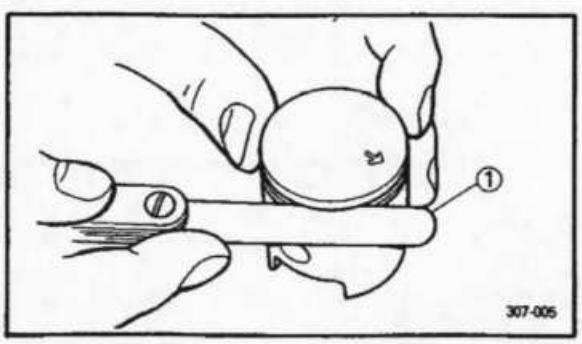
3rd step:

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

Piston-to-cylinder Clearance =
Cylinder Bore "C" —
Piston Skirt Diameter "P"

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

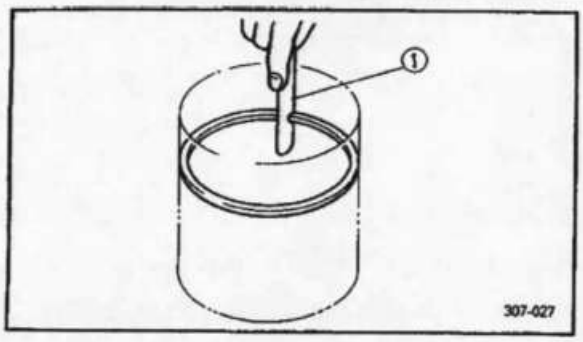
Piston-to-cylinder Clearance:
0.045 ~ 0.050 mm
(0.0018 ~ 0.0020 in)
Limit: 0.1 mm (0.004 in)



PISTON RINGS

1. Measure:
   - Side clearance
     Out of specification → Replace piston and/or rings.
     Use a Feeler Gauge ①.

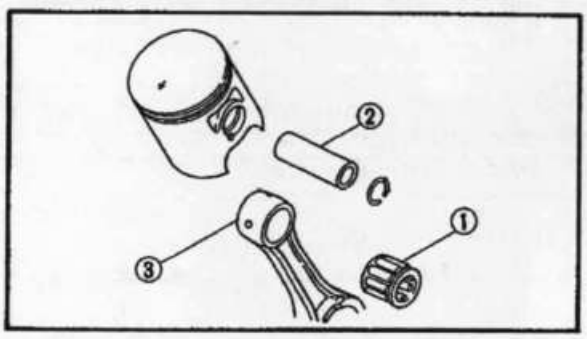
Side Clearance	Top	0.020 ~ 0.060 mm (0.0008 ~ 0.0024 in)
	2nd	0.035 ~ 0.070 mm (0.0014 ~ 0.0028 in)



2. Install:
   - Piston ring
     (into cylinder)
     Push the ring with the piston crown.
3. Measure:
   - End gap
     Out of specification → Replace rings as a set.
     Use a Feeler Gauge ① .

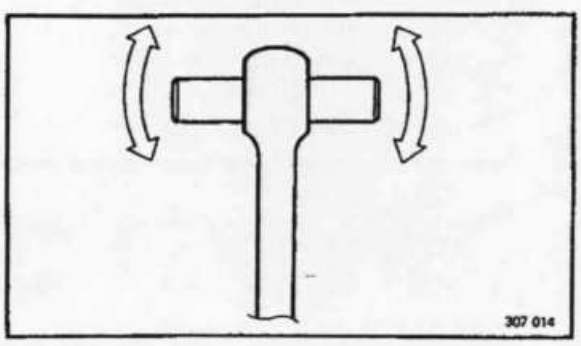
End Gap	Top	0.30 ~ 0.45 mm (0.012 ~ 0.018 in)
	2nd	0.30 ~ 0.45 mm (0.012 ~ 0.018 in)

Oversize Piston Ring	
Oversize 1	25
Oversize 2	50

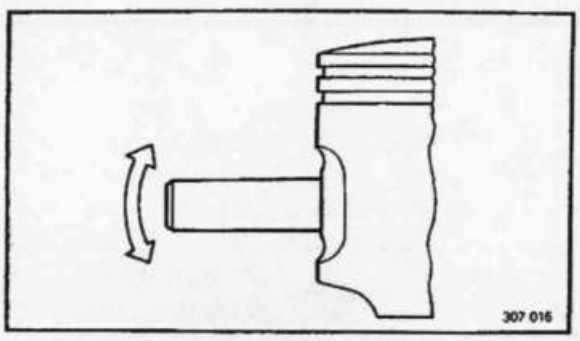


PISTON PIN AND BEARING

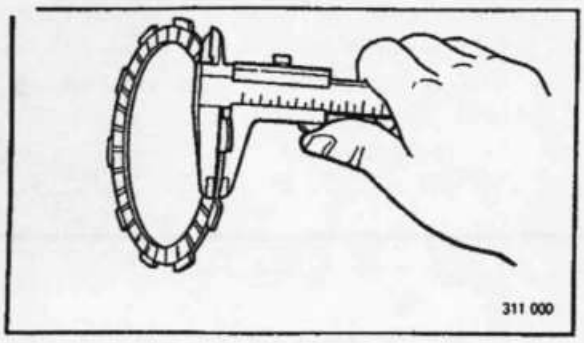
1. Lubricate:
   - Small end bearing ①
   - Piston pin ②
     (Lightly)
2. Install:
   - Small end bearing ①
   - Piston pin ②
     (into small end ③ of connecting rod)



3. Check:
   - Free play
     There should be no noticeable for the play.
     Free play exists → Inspect the connecting rod for wear/Replace the pin and/or connecting rod as required.
4. Install:
   - Piston pin
     (into piston pin hole)



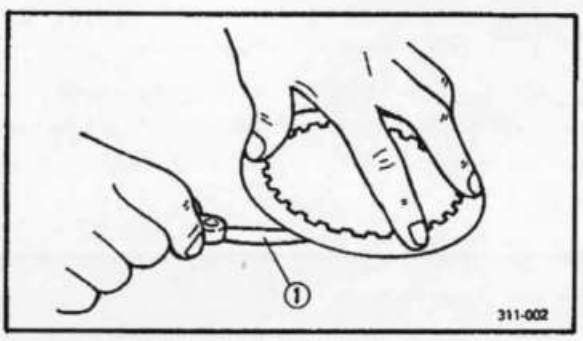
5. Check:
   - Free play (when the piston pin is in place in the piston)
     There should be no noticeable for the play.
     Free play exists → Replace piston pin and/or piston.
6. Inspect:
   - Piston pin and bearing
     Signs of heat discoloration → Replace.



CLUTCH

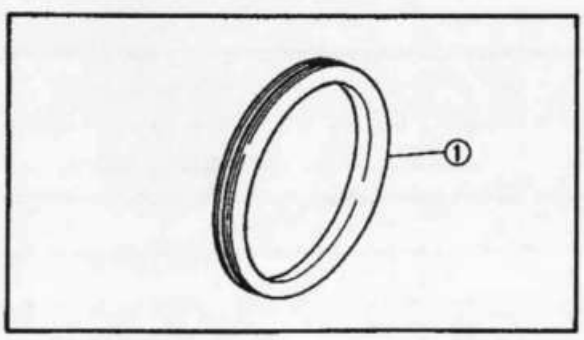
1. Inspect:
   - Friction plate
     Damage/Wear → Replace friction plate as a set.
2. Measure:
   - Friction plate thickness
     Out of specification → Replace friction plate as a set.
     Measure at all four point.

Wear Limit: 2.7 mm (0.106 in)

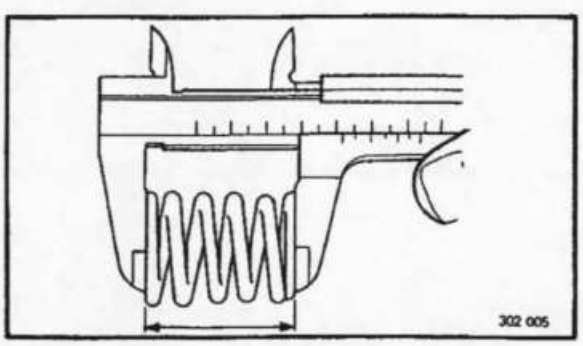


3. Inspect:
   - Clutch plate
     Damage → Replace clutch plate as a set.
4. Measure:
   - Clutch plate warpage
     Out of specification → Replace clutch plate as a set.
     Use a surface plate and Feeler Gauge ①.

Warp Limit: 0.05 mm (0.002 in)

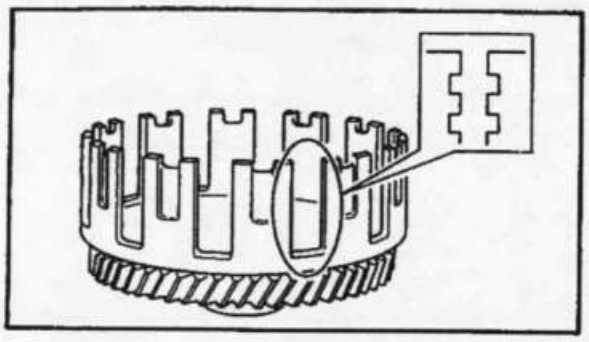


5. Inspect:
   - Clutch damper ①
     Wear/Damage → Replace.



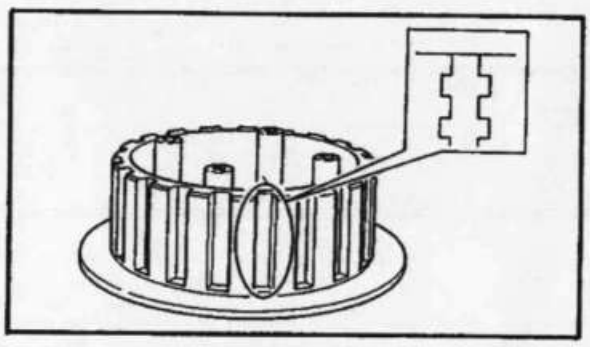
6. Measure:
   - Clutch spring free length
     Out of specification → Replace spring as a set.

Clutch Spring Minimum Length: 32.0 mm (1.260 in)



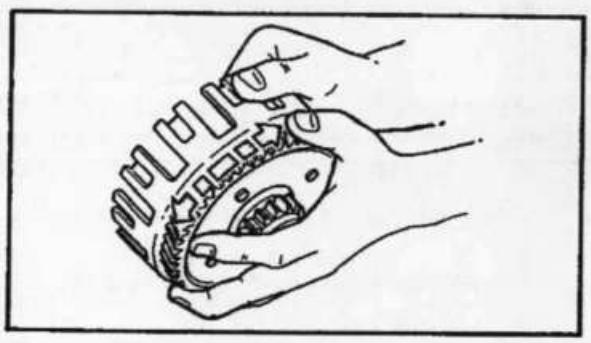
7. Inspect:
   - Dogs on the clutch housing
     Cracks/Wear/Damage → Deburr or replace.
   - Clutch housing bearing
     Scoring/Wear/Damage → Replace clutch housing.

NOTE:
Scoring on the clutch housing dogs will cause eratic operation.

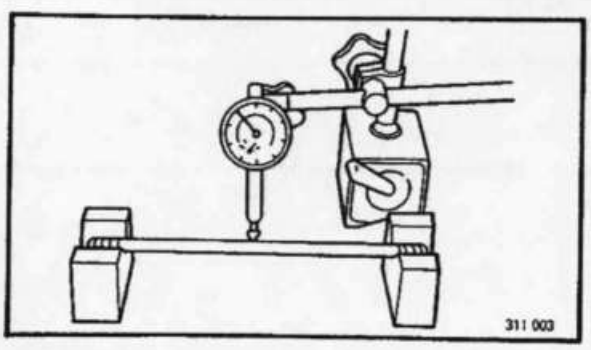


8. Inspect:
   - Clutch boss splines
     Scoring/Wear/Damage → Replace clutch boss.

NOTE:
Scoring on the clutch boss splines will cause erratic operation.

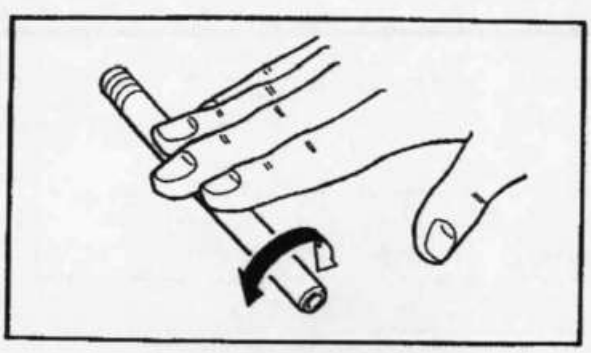


9. Check:
   - Circumferential play
     Free play exists → Replace clutch housing assembly.

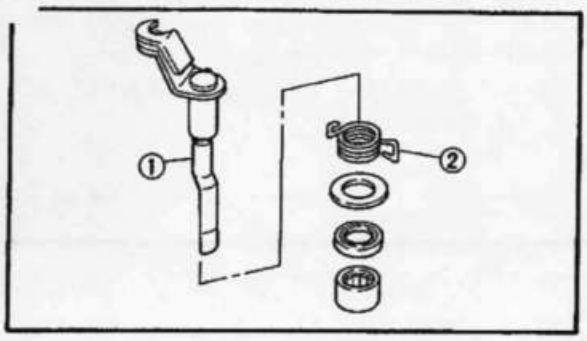


10. Measure:
    - Push rod #2 runout
      Out of specification → Replace.
      Use a V-Blocks and Digal Gauge.

Runout Limit:
0.15 mm (0.0059 in)

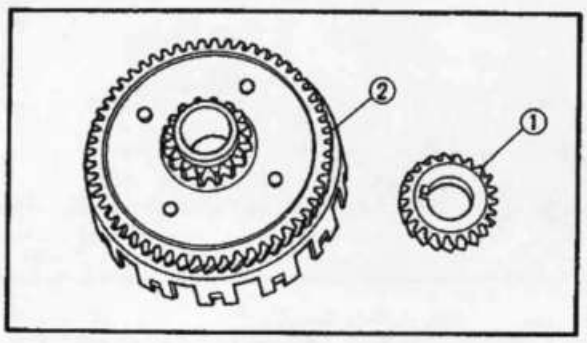


11. Inspect:
    - Push rod #1 runout
      Roll the guide bar on a flat surface.
      Bends → Replace.



12. Inspect:
- Push lever ①
- Return spring ②

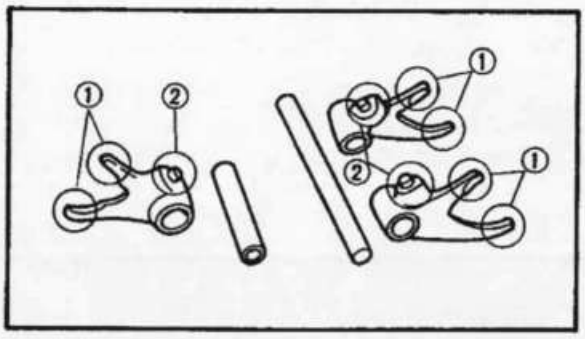
Wear/Damage → Replace.



PRIMARY DRIVE

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

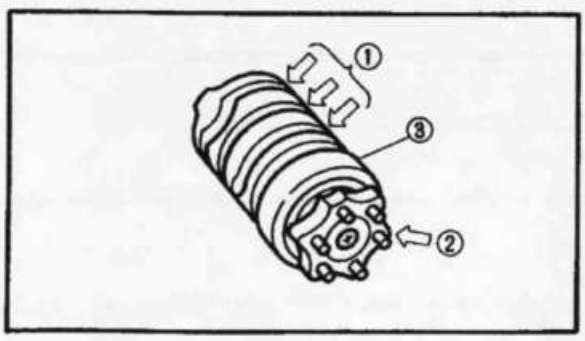
Wear/Damage → Replace both gears.
Excessive noises during operation → Replace both gears.



TRANSMISSION AND SHIFTER

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

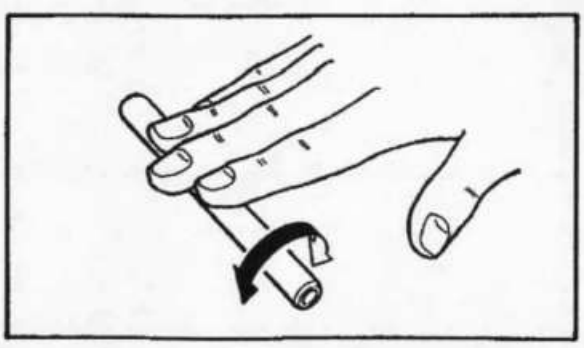
Scoring/Bends/Wear → Replace.



2. Inspect:
- Shift cam groove ①
- Shift cam segment ②

Wear/Damage → Replace shift cam assembly.
- Shift cam bearing ③

Bearing turns roughly → Replace shift cam assembly.

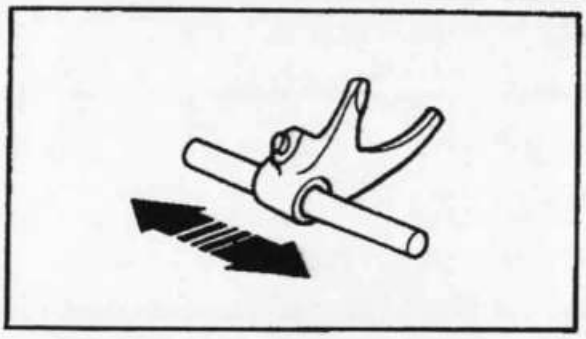


3. Inspect:
- Guide bar

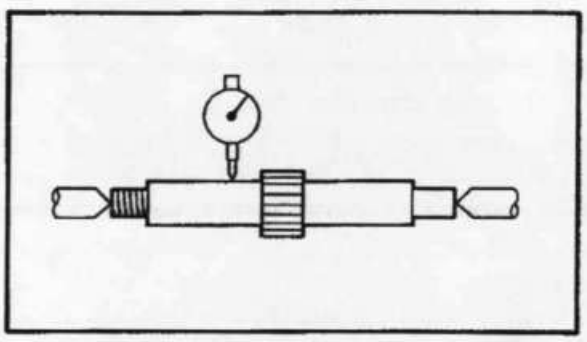
Roll the guide bar on a flat surface.
Bends → Replace.

⚠ WARNING:

Do not attempt to straighten a bent guide bar.

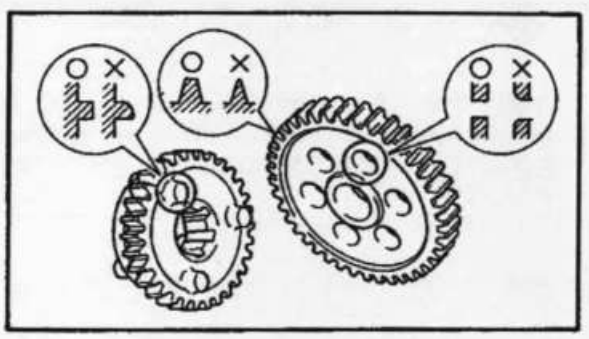


4. Check:
   - Shift fork movement
     Unsmooth operation → Replace shift fork and/or guide bar.

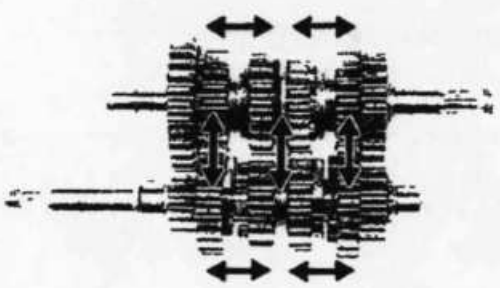


5. Measure:
   - Axle runout (Main and Drive)
     Use centering device and dial gauge.
     Out of specification → Replace bent axle.

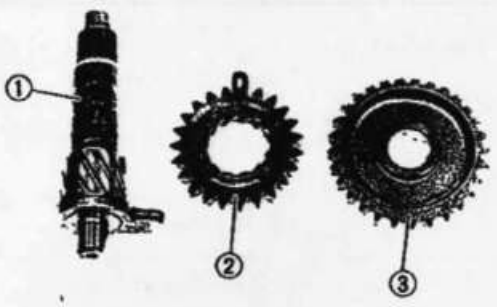
	Dial Gauge & Stand Set: P/N. 90890-01252
	Runout Limit: 0.08 mm (0.003 in)



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)
     Incorrect → Reassemble.
   - Gear movement
     Roughness → Replace.
8. Inspect:
   - Circlips
     Damage/Looseness/Bends → Replace.

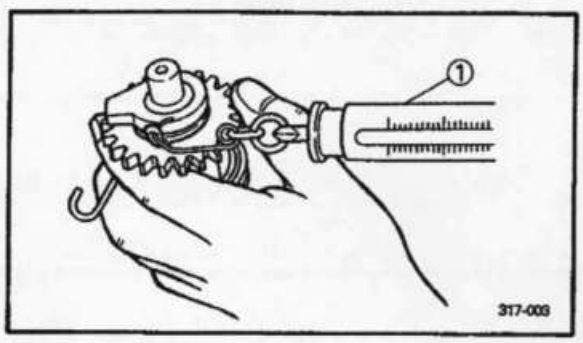


KICK STARTER

1. Inspect:
   - Kick axle ①
   - Kick gear teeth ②
   - Kick idle gear teeth ③
     Damage/Wear → Replace both gears.

2. Inspect:
   • Return spring (Kick axle)
   Wear/Damage → Replace.

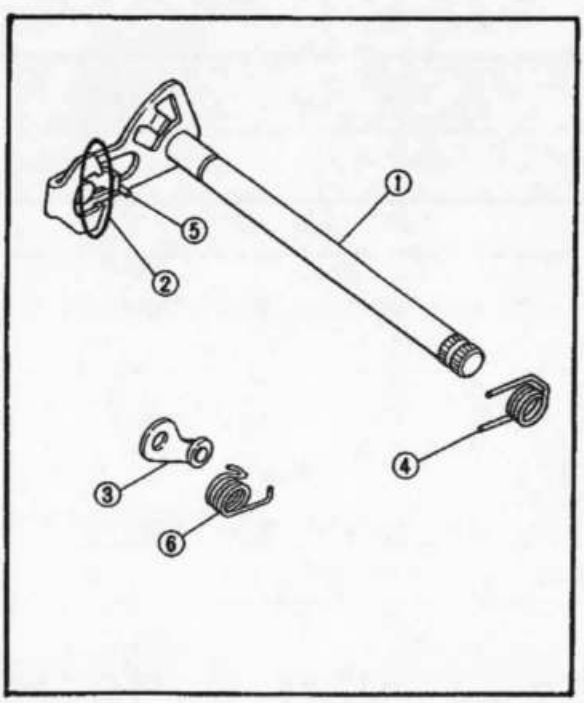




3. Measure:
   • Kick clip tension
   Out of specification → Replace.
   Use a spring balance ①.

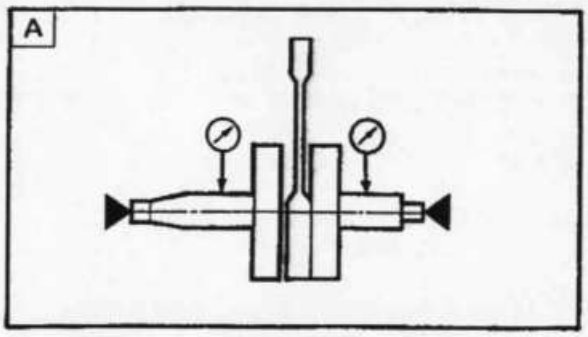
Kick Clip Tension:
0.8 ~ 1.2 kg (1.76 ~ 2.65 lb)

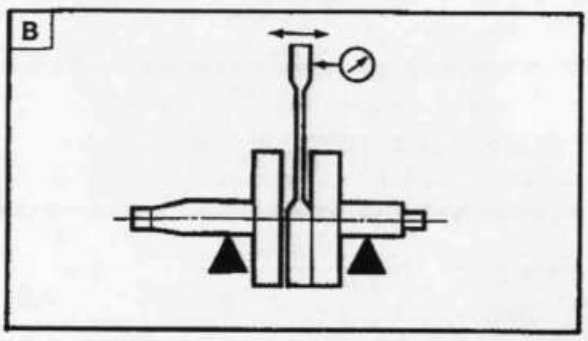
CAUTION:
Do not try to bend the clip.

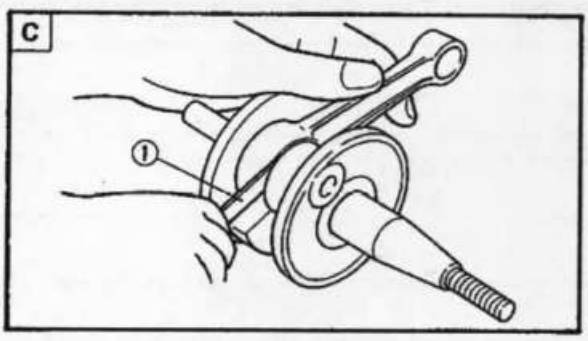


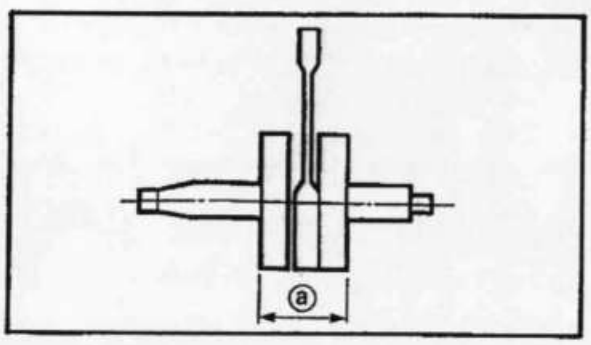
SHIFT SHAFT AND STOPPER LEVER

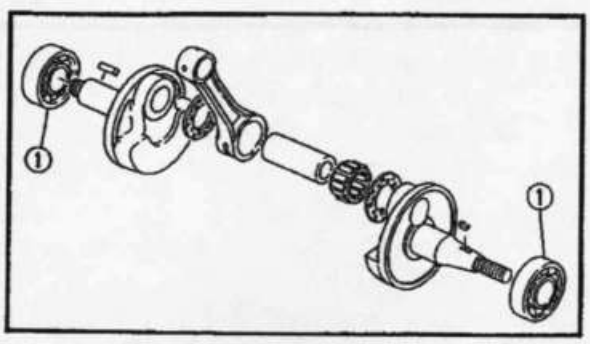
1. Inspect:
   • Shift shaft ①
   • Shift pawls ②
   Bend/Wear/Damage → Replace.
2. Inspect:
   • Stopper lever ③
   Roller turns roughly → Replace.
   Bend/Damage → Replace.
3. Inspect:
   • Return spring (Shift shaft) ④
   • Return spring (Shift pawls) ⑤
   • Return spring (Stopper lever) ⑥
   Wear/Damage → Replace.











CRANKSHAFT

1. Measure:
   - Runout [A]
     Use a centering device and Dial Gauge.
     Out of specification → Replace or repair.

Dial Gauge & Stand Set:
P/N. 90890-01252

Runout Limit:
0.02 mm (0.0008 in)

2. Measure:
   - Small end free play [B]
     Use a Dial Gauge.
     Out of specification → Replace the defective parts.

Small End Free Play:
0.8 ~ 1.0 mm (0.031 ~ 0.040 in)

3. Measure:
   - Big end side clearance [C]
     Use a Feeler Gauge ①.
     Out of specification → Replace the defective parts.

Big End Side Clearance:
0.20 ~ 0.70 mm (0.008 ~ 0.028 in)
< Limit >:
< 1.0 mm (0.040 in) >

4. Measure:
   - Crank wide ⓐ
     Out of specification → Replace or repair.

Crank Wide:
57.90 ~ 57.95 mm
(2.280 ~ 2.282 in)

5. Inspect:
   - Crankshaft bearings ①
     Pitting/Damage → Replace.

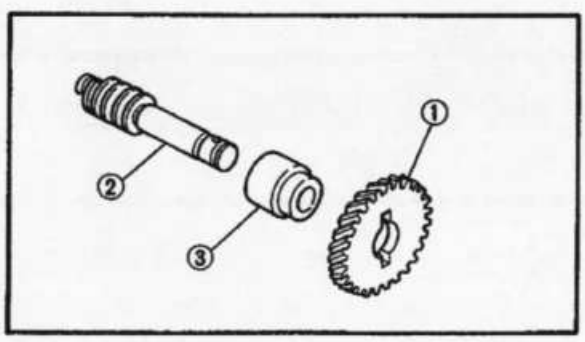
NOTE:
Lubricate the bearing immediately after examining them to prevent rust.

AUTOLUBE PUMP

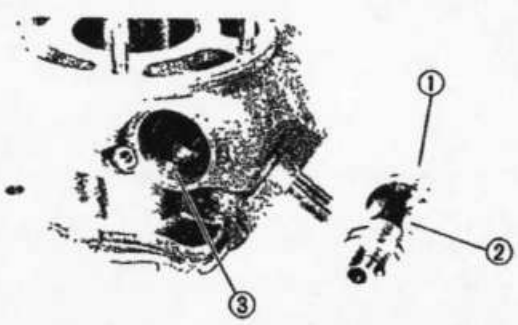
Wear or an internal malfunction may cause pump output to vary from the factory setting. This situation is, however, extremely rare. If improper output is suspected, inspect the following:

1. Inspect:
   - Delivery line
     Obstructions → Blow out.
   - Pump body seal/Crankcase cover seal
     Wear/Damage → Replace.
2. Inspect:
   - Allowing air
     Air exists → Air bleed.
     Refer to the "AUTOLUBE PUMP AIR BLEEDING" section in the CHAPTER 3.
3. Check:
   - Pump output
     Out of specification → Adjust.

Minimum Output/200 Stroke:
0.38 ~ 0.48 cm³ (0.013 ~ 0.017 Imp oz, 0.013 ~ 0.016 US oz)
Maximum Output/200 Stroke:
3.56 ~ 3.94 cm³ (0.125 ~ 0.139 Imp oz, 0.120 ~ 0.133 US oz)

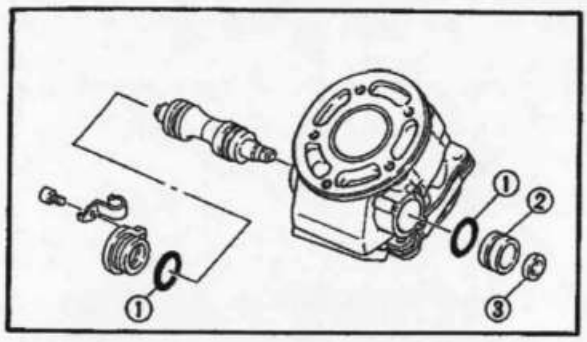


4. Inspect:
   - Drive gear (Autolube pump) ①
   - Drive shaft (Autolube pump) ②
   - Pivot collar (Drive shaft) ③
     Wear/Damage → Replace.



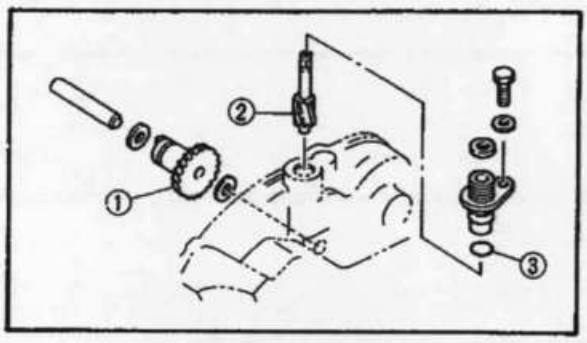
POWER VALVE

1. Eliminate:
   - Score marks and lacquer deposits
   - Carbon deposits
     (from power valve ①, especially in cleaning groove ② surface, and its contact surface ③ of cylinder block).



2. Inspect:
   - O-rings ①
   - Bushes ②
   - Gasket seal ③

   Wear/Damage → Replace.

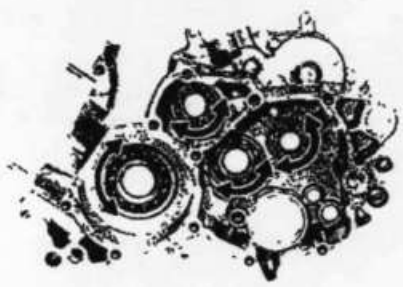


TACHOMETER GEAR

1. Inspect:
   - Drive gear ①
   - Driven gear ②
   - O-ring ③

   Damage/Wear → Replace.
2. Check:
   - Gear movement

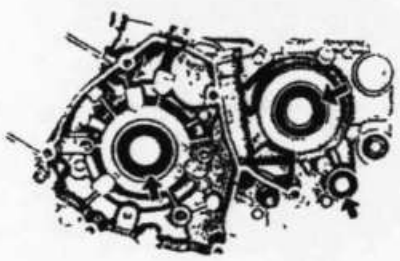
   Unsmooth operation → Replace.



BEARINGS AND OIL SEALS

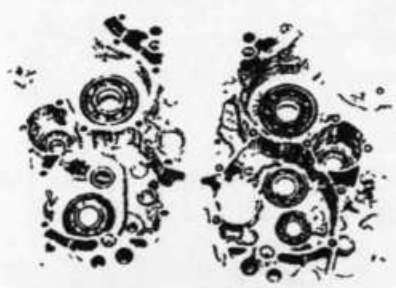
1. Inspect:
   - Bearings

   Pitting/Damage → Replace.



2. Inspect:
   - Oil seals

   Damage/Wear → Replace.



CRANKCASE

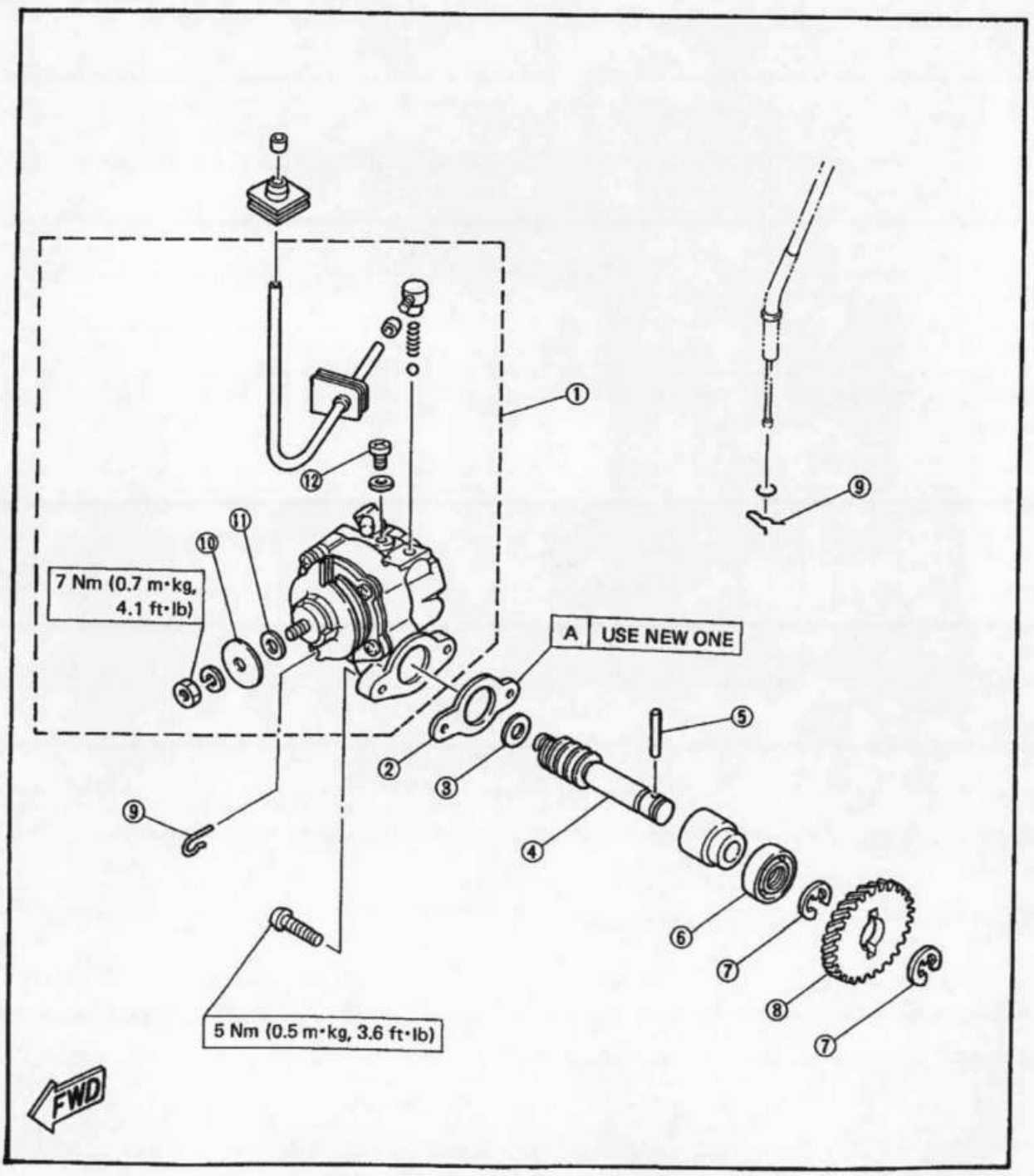
1. Thoroughly wash the case halves in mild solvent.
2. Clean all the gasket mating surfaces and crankcase mating surfaces thoroughly.
3. Inspect:
   - Crankcase

   Cracks/Damage → Replace.
   - Oil delivery passages

   Clog → Blow out with compressed air.

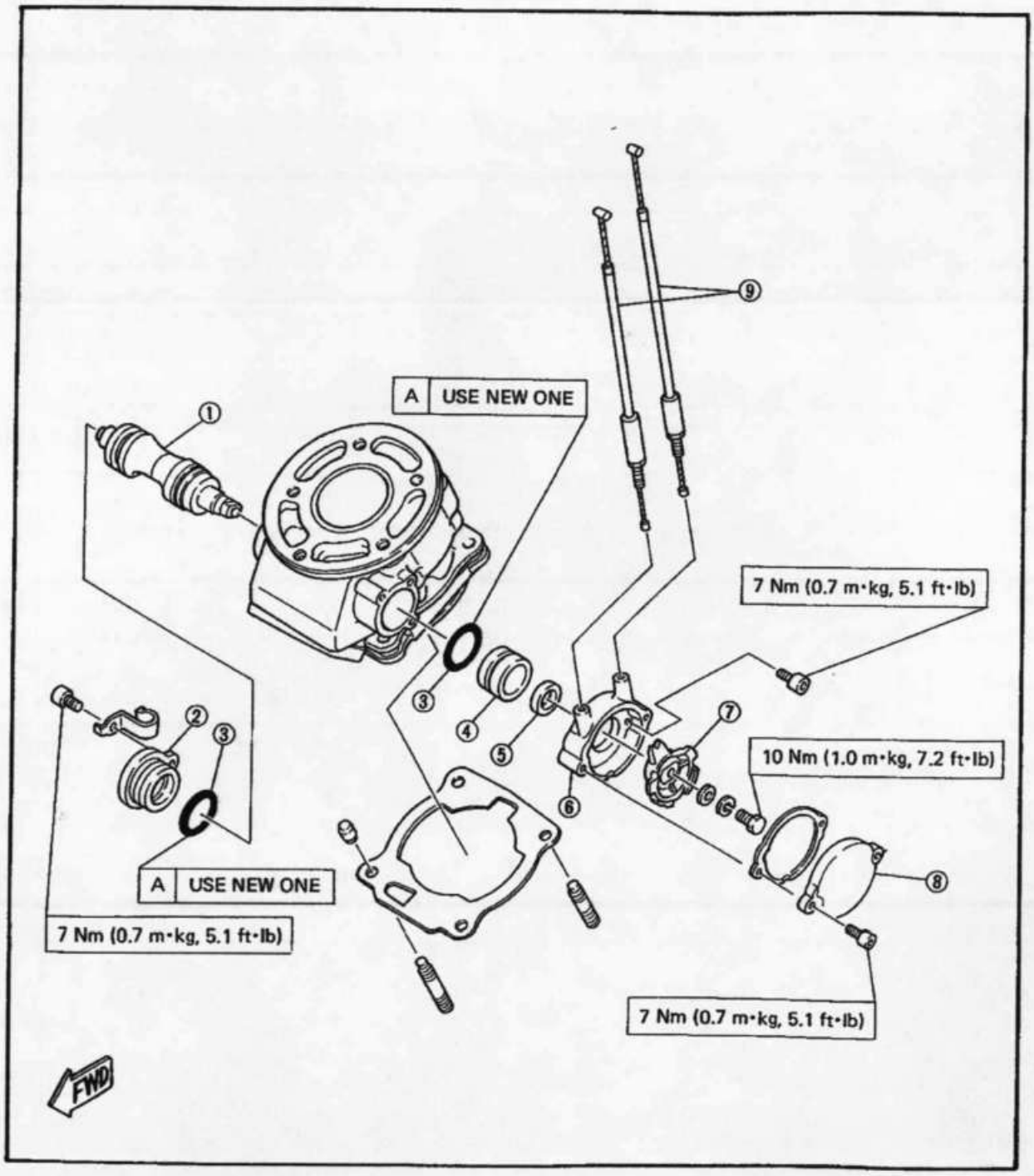
AUTOLUBE PUMP

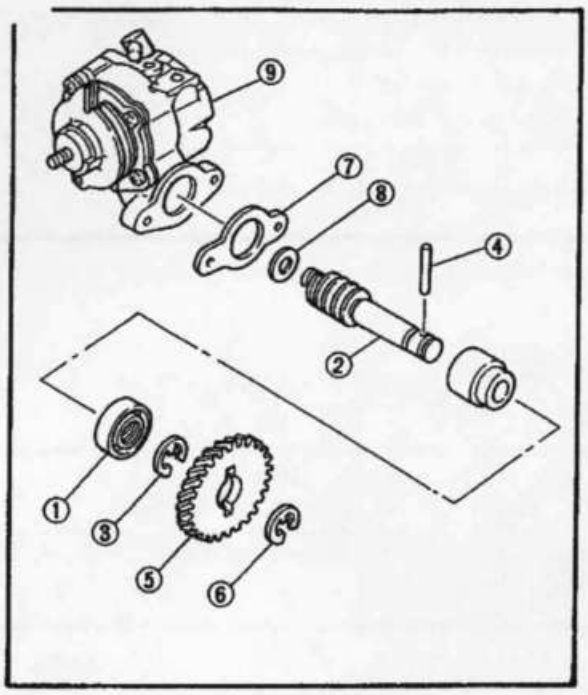
① Autolube pump
② Gasket
③ Washer
④ Drive shaft
⑤ Pin
⑥ Oil seal
⑦ Circlip
⑧ Autolube pump gear
⑨ Clip
⑩ Adjusting plate
⑪ Shim
⑫ Bleed screw



POWER VALVE

① Power valve
② Power valve holder (Right)
③ O-ring
④ Power valve holder (Left)
⑤ Gasket seal
⑥ Pulley housing
⑦ Pulley
⑧ Pulley cover
⑨ Y.P.V.S. cable





ENGINE ASSEMBLY AND ADJUSTMENT

AUTOLUBE PUMP

1. Lubricate:
   - Oil seal lips ①

Lightweight Lithium-soap Base Grease

2. Install:
   - Drive shaft (Autolube pump) ②
   - Circlip ③
   - Pin ④
   - Drive gear (Autolube pump) ⑤
   - Circlip ⑥
   - Gasket ⑦
   - Washer ⑧
   - Autolube pump ⑨

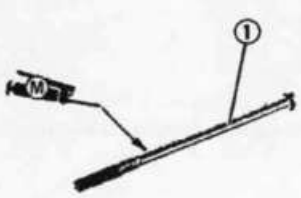
Screw (Autolube Pump): 5 Nm (0.5 m·kg, 3.6 ft·lb)

⚠WARNING:

- **Always use a new circlip.**
- **Always use a new gasket.**

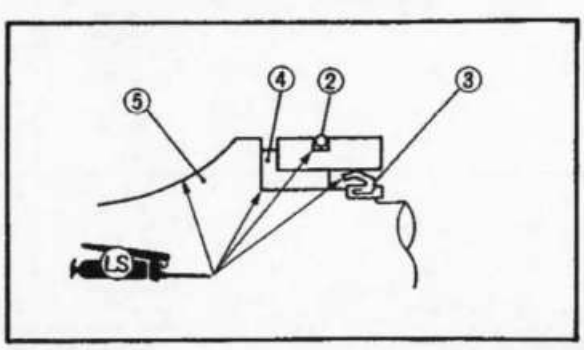
POWER VALVE

1. Lubricate:
   - Power valve connecting bolt ①

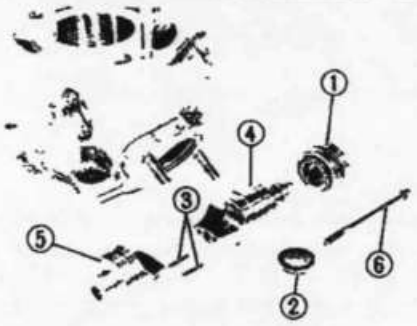


Molybdenum Disulfide Grease

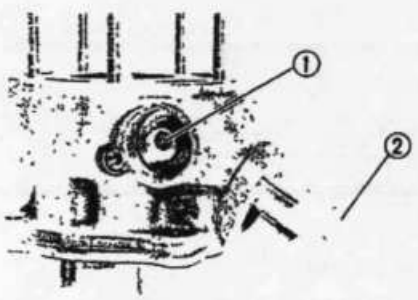
- O-rings ②
- Gasket seal ③
- Bushes ④
  (Power valve shaft contact surface)
- Power valve surface ⑤
  (Thinly)



Lithium Soap Base Grease



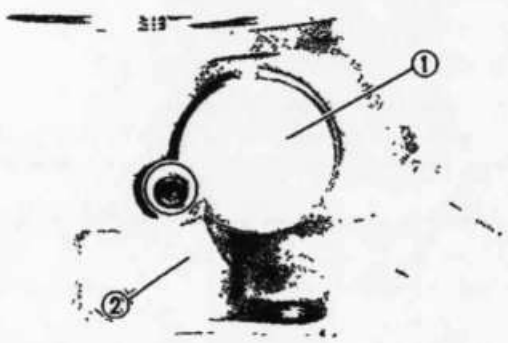
2. Install:
   - Power valve holder (Left) ①
   - Gasket seal ②
     (to left power valve)
   - Dowel pins ③
   - Power valve (Left ④ and right ⑤)
     (to cylinder block)
   - Bolt (Power valve) ⑥



3. Tighten:
   - Bolt (Power valve) ①

	Bolt (Power Valve): **7 Nm (0.7 m·kg, 5.1 ft·lb)**

NOTE:
When tightening the power valve connecting bolt ① , lock the valve by inserting a wooden pice ② into the exhaust port.



4. Install:
   - Power valve holder ①
   - Hose guide ②

	Bolt (Power Valve Holder): **7 Nm (0.7 m·kg, 5.1 ft·lb)**

5. Check:
   - Power valve operation
     Unsmooth operation → Repair.

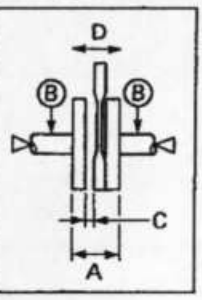
CRANKSHAFT/PISTON/BALANCER

① Balancer gear
② Bearing
③ Straight key
④ Balancer weight
⑤ Bearing
⑥ Drive gear
⑦ Oil seal
⑧ Collar
⑨ Bearing
⑩ Piston ring set
⑪ Piston
⑫ Piston pin
⑬ Piston pin clip
⑭ Small end bearing
⑮ Straight key
⑯ Crank (Right)
⑰ Thrust bearing
⑱ Connecting rod
⑲ Crank pin
⑳ Big end bearing
㉑ Crank (Left)
㉒ Woodruff key
㉓ Bearing
㉔ Oil seal

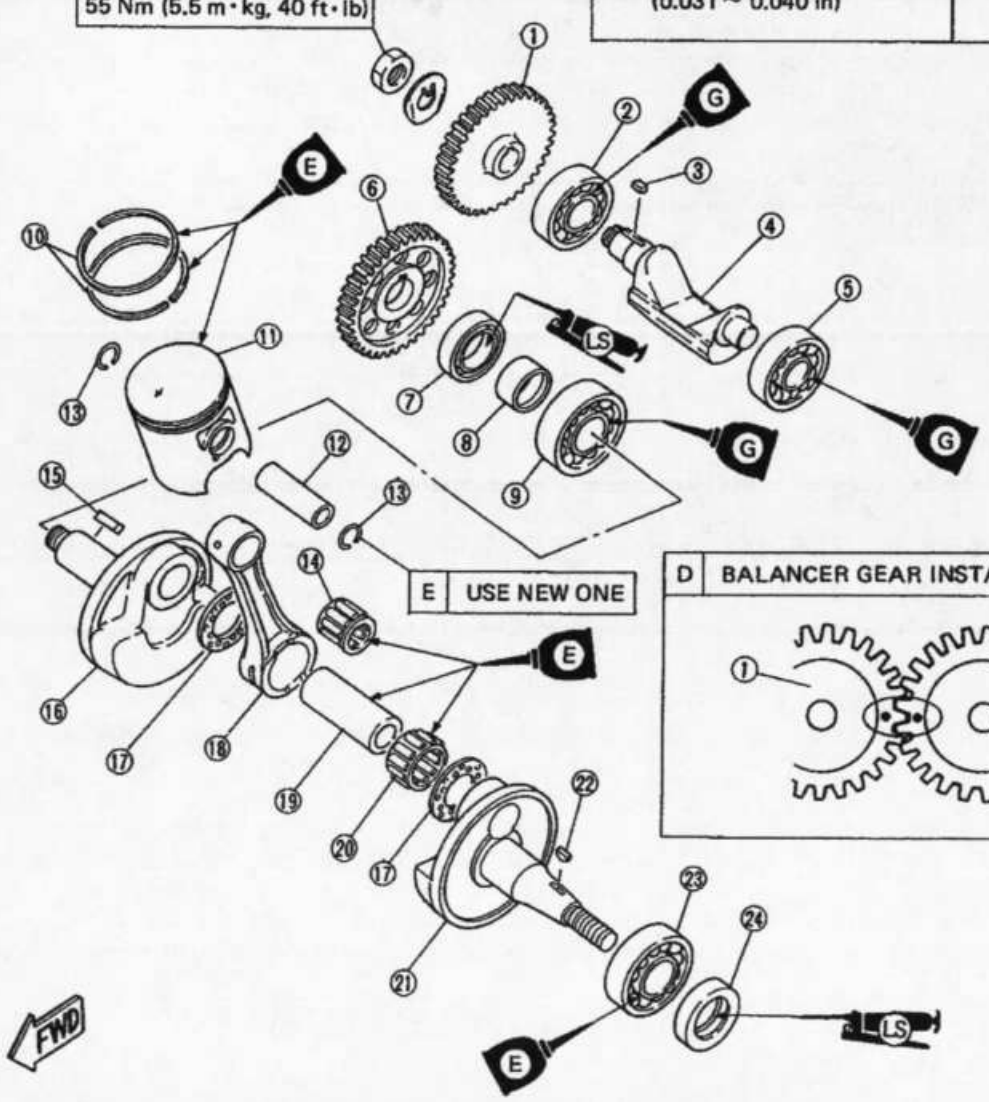
A	PISTON TO CYLINDER CLEARANCE: 0.045 ~ 0.050 mm (0.0018 ~ 0.0020 in)
B	END GAP (INSTALLED): Top ring 0.30 ~ 0.45 mm (0.012 ~ 0.018 in) 2nd ring 0.30 ~ 0.45 mm (0.012 ~ 0.018 in)

C	CRANKSHAFT:

A: 57.90 ~ 57.95 mm (2.280 ~ 2.282 in)
B: 0.02 mm (0.0008 in)
C: 0.20 ~ 0.70 mm (0.008 ~ 0.028 in)
< Limit > 1.0 mm (0.04 in)
D: 0.8 ~ 1.0 mm (0.031 ~ 0.040 in)



55 Nm (5.5 m·kg, 40 ft·lb)

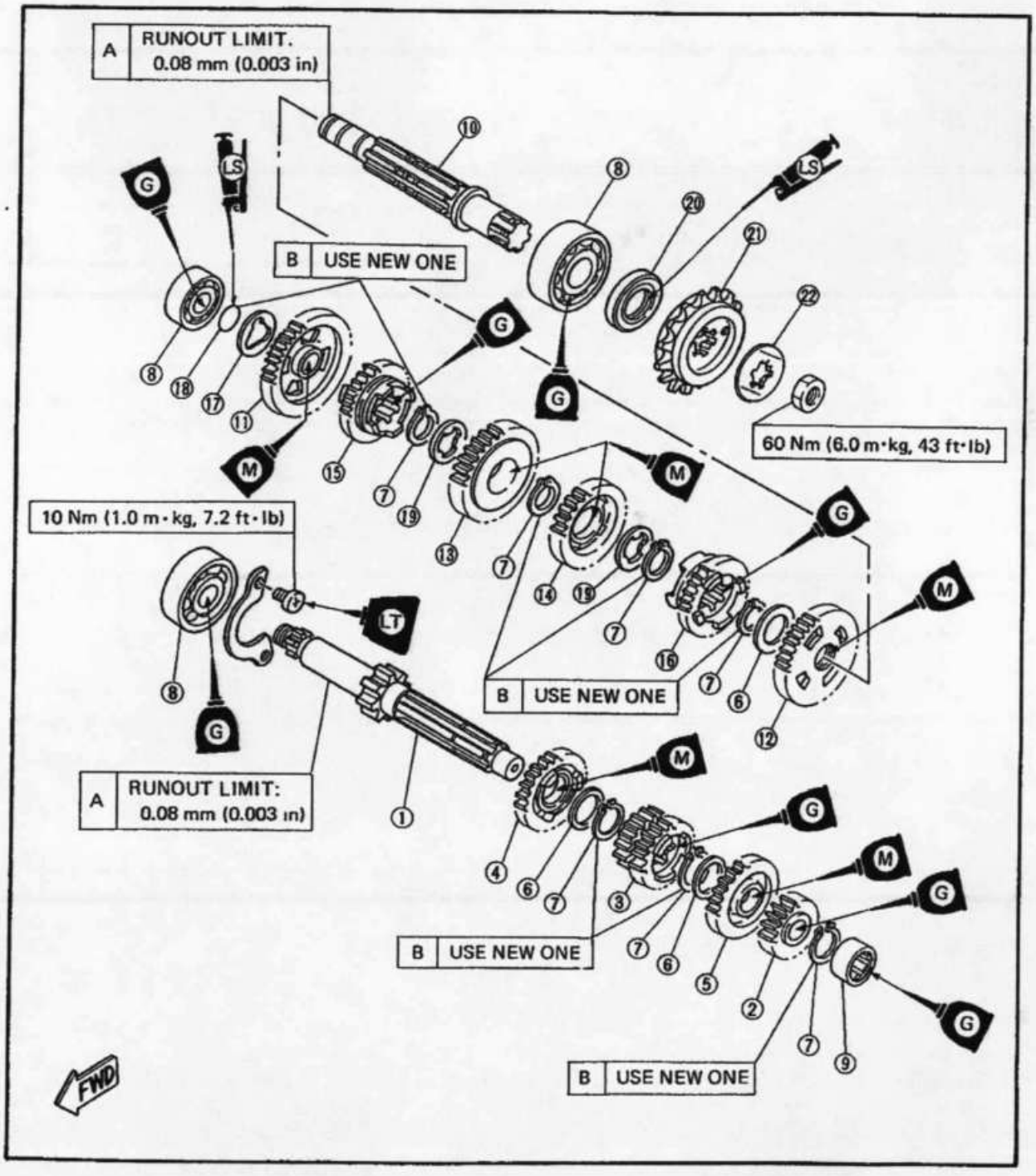


E	USE NEW ONE

D	BALANCER GEAR INSTALLATION

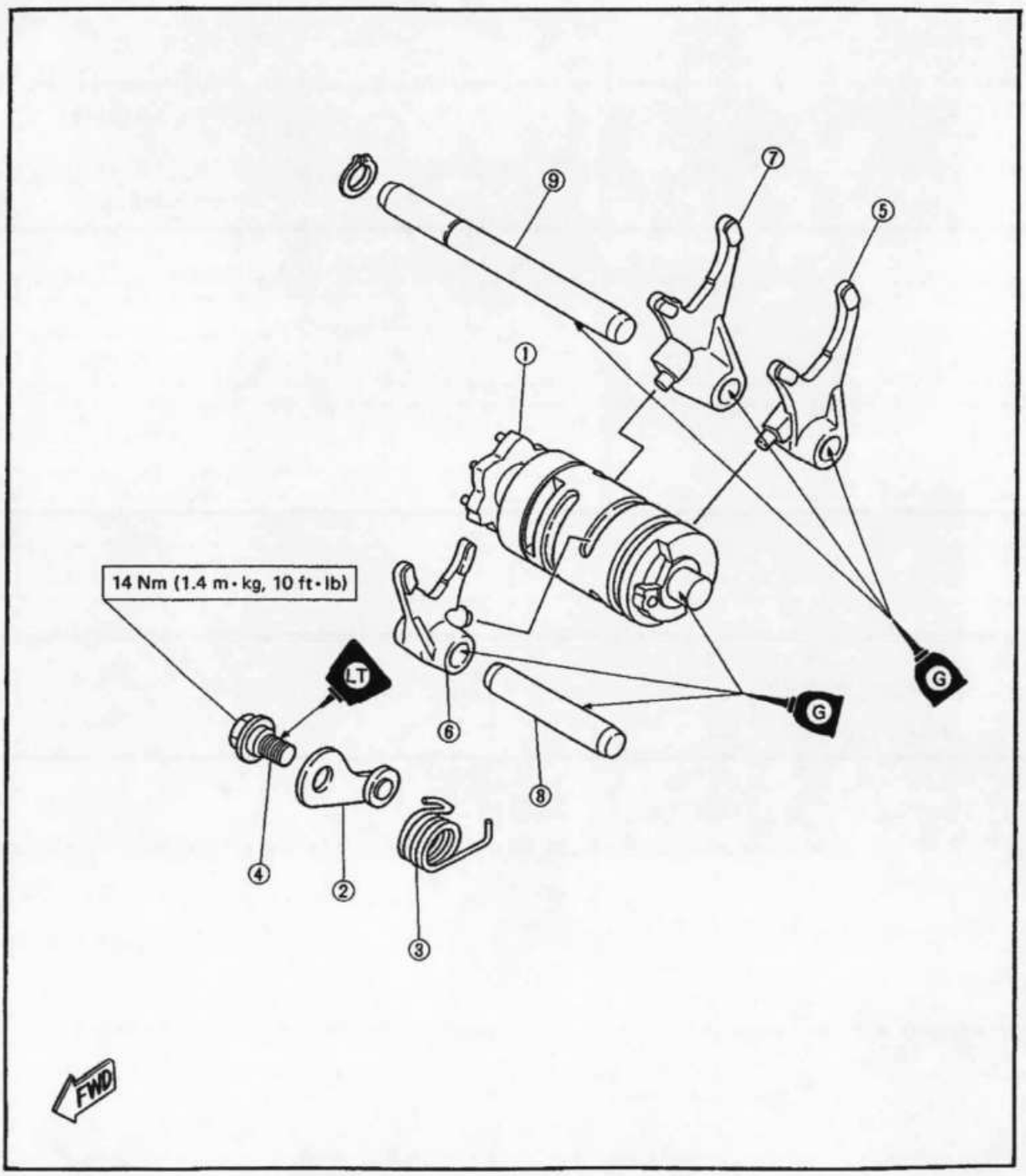
TRANSMISSION

① Main axle
② 2nd pinion gear
③ 3rd/4th pinion gear
④ 5th pinion gear
⑤ 6th pinion gear
⑥ Plain washer
⑦ Circlip
⑧ Bearing
⑨ Cylindrical bearing
⑩ Drive axle
⑪ 1st wheel gear
⑫ 2nd wheel gear
⑬ 3rd wheel gear
⑭ 4th wheel gear
⑮ 5th wheel gear
⑯ 6th wheel gear
⑰ Special washer
⑱ O-ring
⑲ Special washer
⑳ Oil seal
㉑ Drive sprocket
㉒ Lock washer



SHIFTER

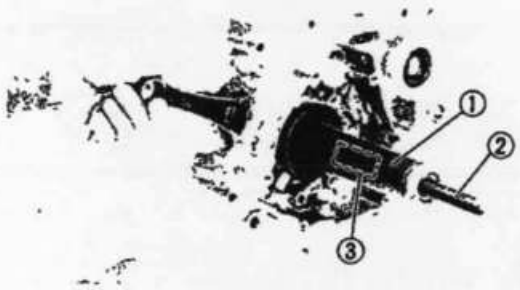
① Shift cam
② Stopper lever
③ Return spring
④ Securing bolt
⑤ Shift fork #1
⑥ Shift fork #2
⑦ Shift fork #3
⑧ Guide bar #1
⑨ Guide bar #2



CRANKSHAFT AND BALANCER

CAUTION:

To protect the crankshaft against scratches or to facilitate the operation of the installation, apply the grease to the oil seal lips, and apply the engine oil to each bearing.



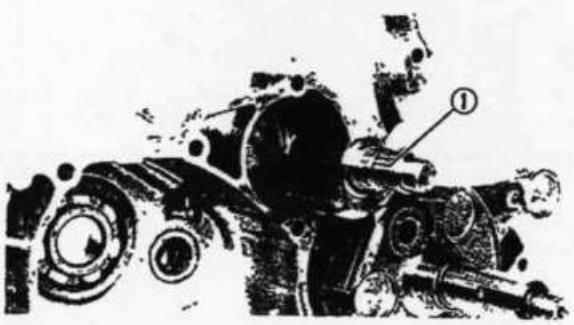
1. Install:
   - Crankshaft

NOTE:

- Attach the Crankshaft Installing Tool to install the crankshaft.

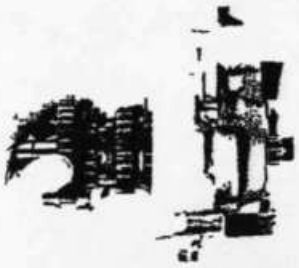
Crankshaft Installing Tool:
P/N 90890-01274 ①
P/N 90890-01275 ②
P/N 90890-01278 ③

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

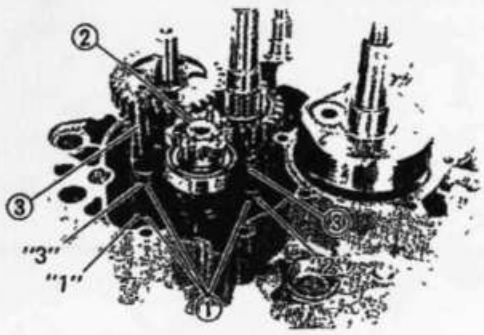


2. Install:
   - Balancer weight ①

TRANSMISSION AND SHIFTER

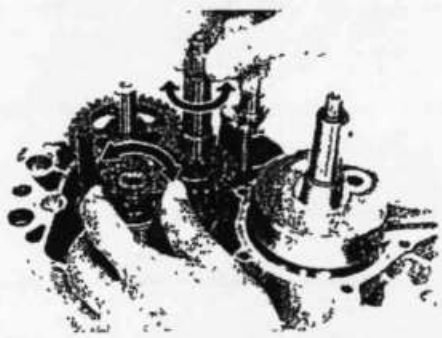


1. Install:
   - Transmission assembly



2. Install:
   - Shift forks ①
   - Shift cam ②
   - Guide bars ③

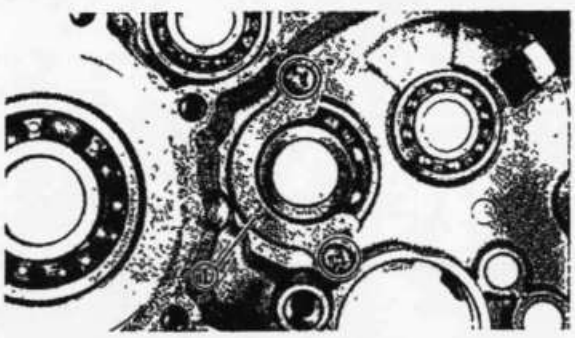
NOTE:
Each shift fork is identified by a number cast on its side. All the number should face the left side.



3. Lubricate:
   - Transmission component parts

	SAE 10W30 type SE motor oil

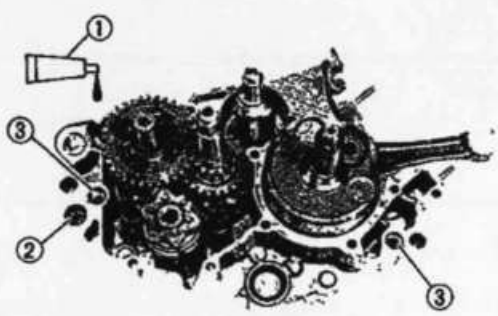
4. Check:
   - Shifter operation
     Unsmooth operation → Repair.



CRANKCASE (RIGHT)

1. Install:
   - Bearing retainer ①

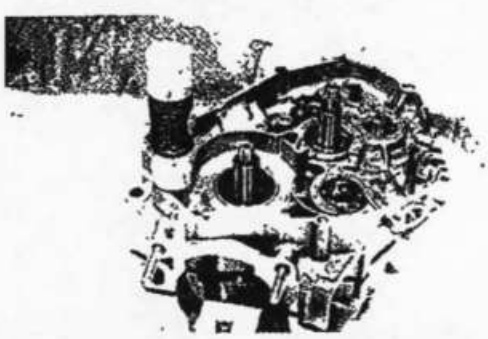
	Screw (Bearing Retainer): **10 Nm (1.0 m · kg, 7.2 ft · lb)** **Use LOCTITE®**



2. Apply:
   - Yamaha Bond No. 4 ①
     (to mating surface of both crankcase halves)

	Yamaha Bond No. 4: **90890-05143**

3. Install:
   - Damper collar ②
   - Dowel pins ③

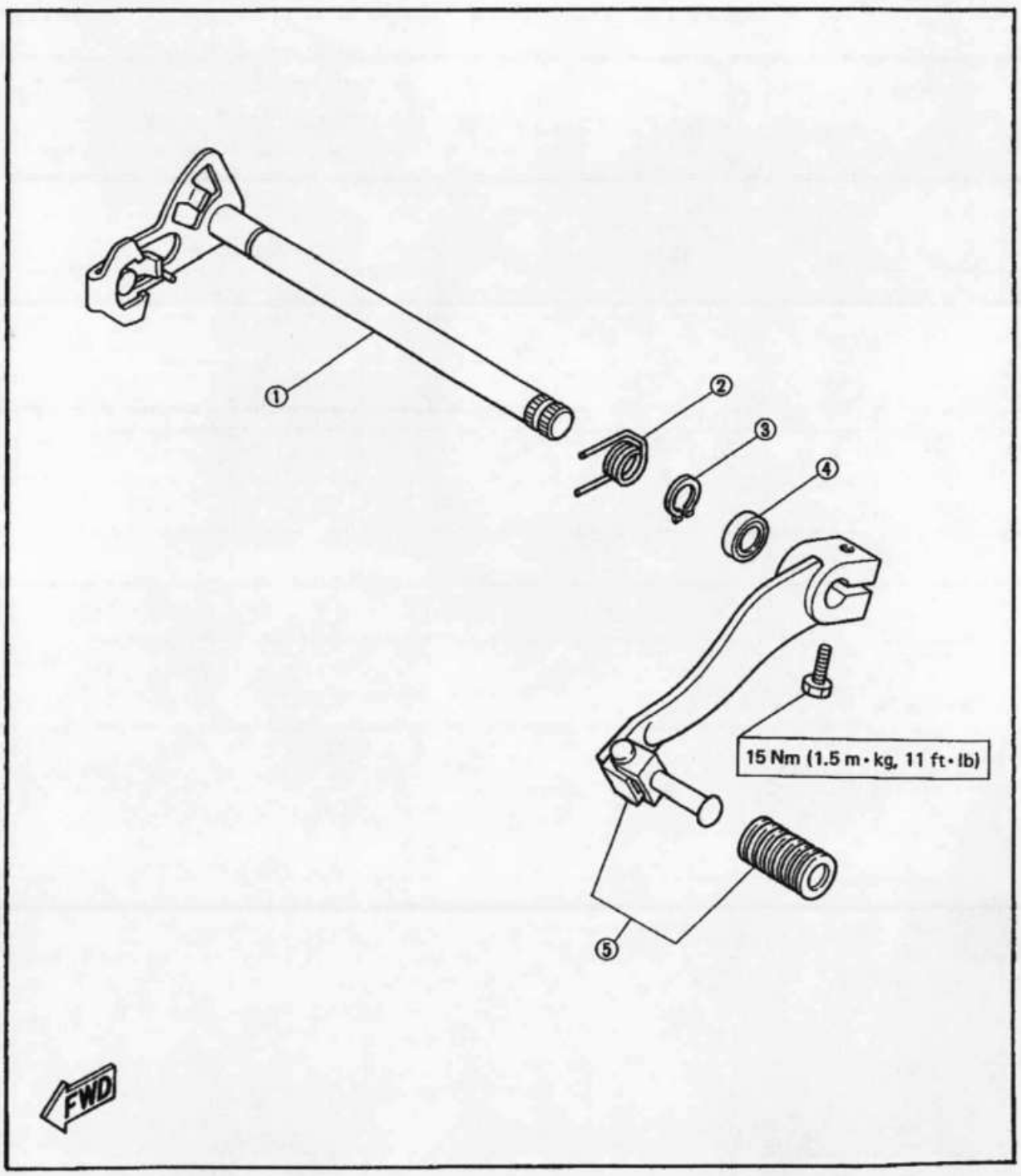


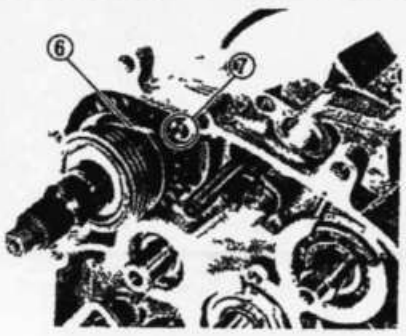
4. Install:
   - Crankcase (Right)

Installation step:
- Apply the lithium soap base grease to the oil seal lips.
- Fit the right crankcase onto the left case. Tap lightly on the case with a soft hammer.

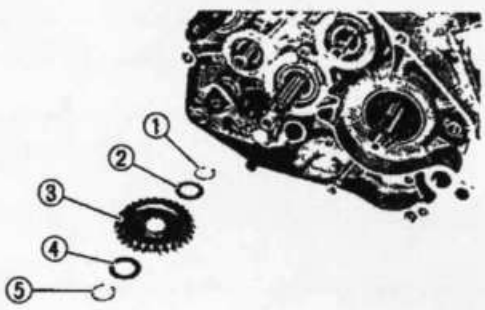
HIFT SHAFT

① Shift tank
② Spring
③ Circlip
④ Oil seal
⑤ Change pedal



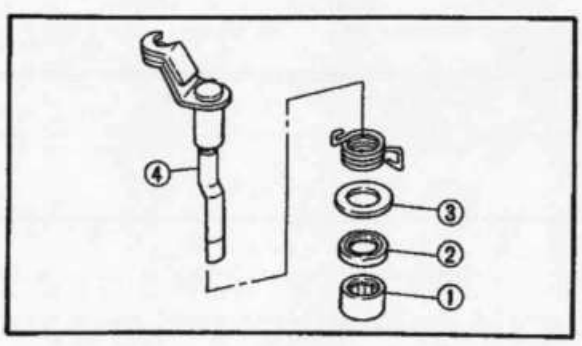


2. Set the kick spring ⑥ to the spring hook ⑦.



3. Install:
   - Circlip ①
   - Washer ②
   - Kick idle gear ③
   - Washer ④
   - Circlip ⑤

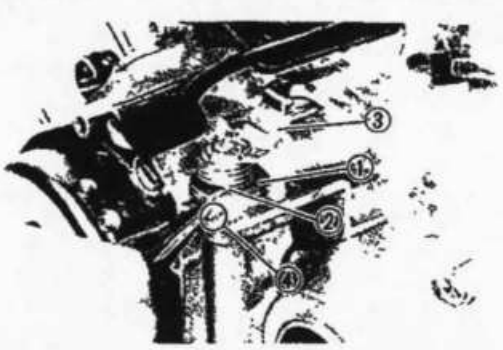
4. Check:
   - Kick axle operation
     Use the kick crank.
     Unsmooth operation → Repair.



CLUTCH PUSH LEVER

1. Lubricate:
   - Bearing ①
   - Oil seal (Lip) ②
   - Washer ③
   - Push lever axle ④

	Lithium Soap Base Grease

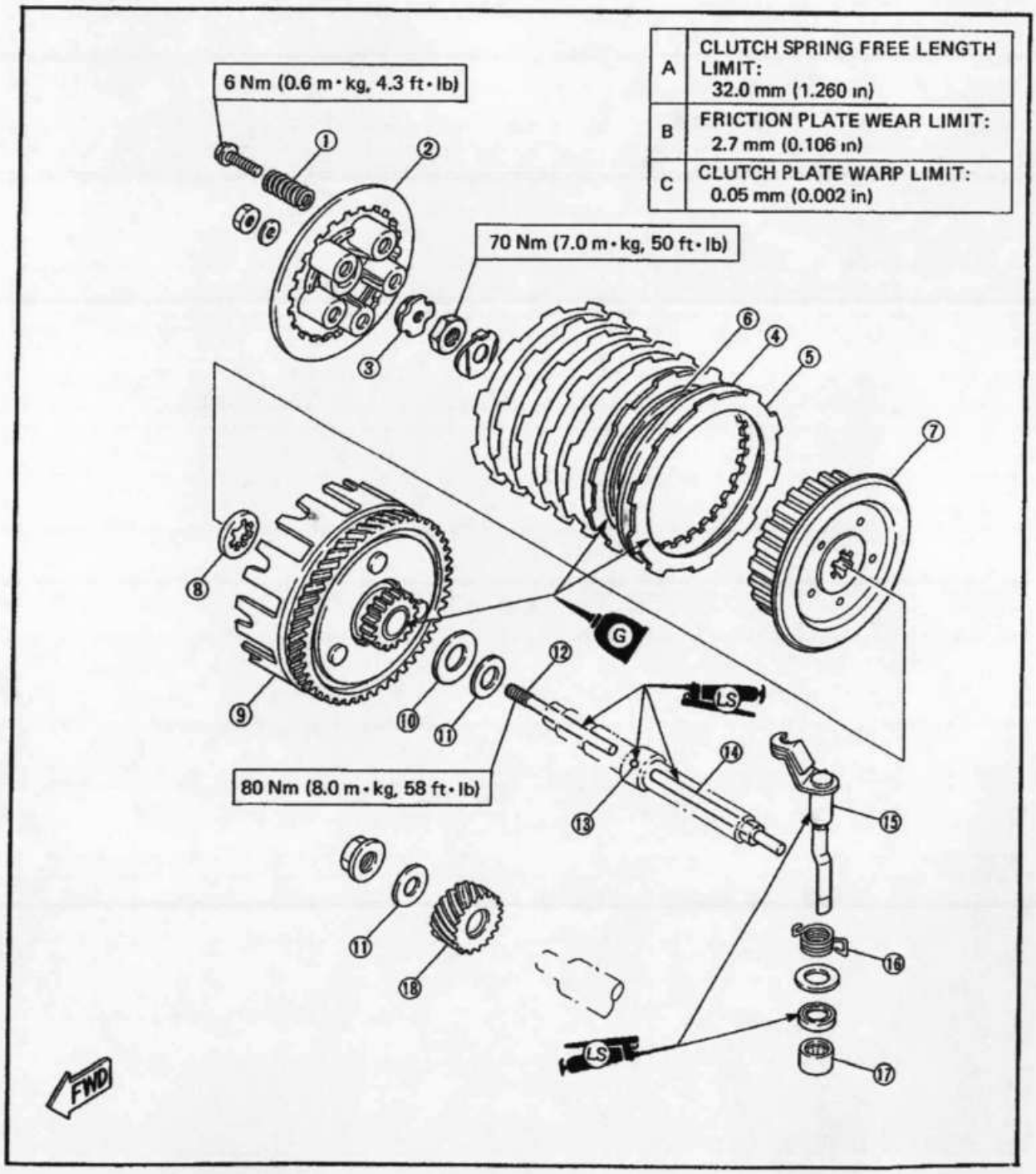


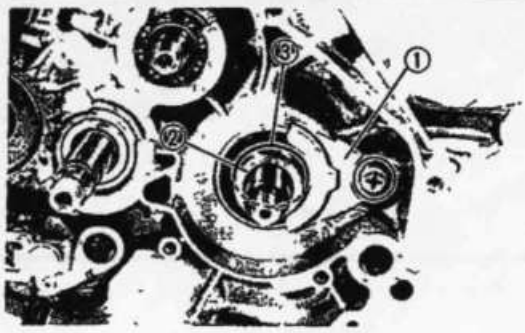
2. Install:
   - Washer ①
   - Return spring ②
   - Push lever ③

3. Set the return spring ② to the spring hook ④.

UTCH AND PRIMARY DRIVE GEAR

① Clutch spring
② Pressure plate
③ Push plate
④ Clutch plate
⑤ Friction plate
⑥ Clutch damper
⑦ Clutch boss
⑧ Thrust washer
⑨ Clutch housing
⑩ Thrust plate
⑪ Conical spring washer
⑫ Push rod #1
⑬ Ball
⑭ Push rod #2
⑮ Push lever axle
⑯ Return spring
⑰ Bearing
⑱ Primary drive gear



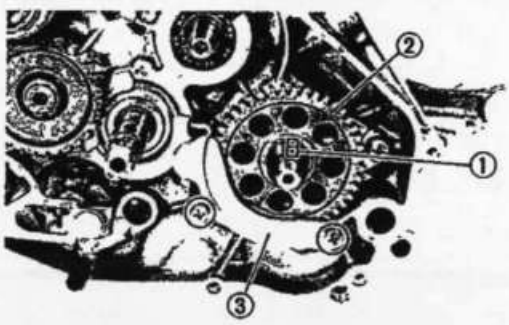


BALANCER GEAR, PRIMARY DRIVE GEAR AND CLUTCH

1. Install:
   - Oil seal retainer ①
   - Spacer collar ②

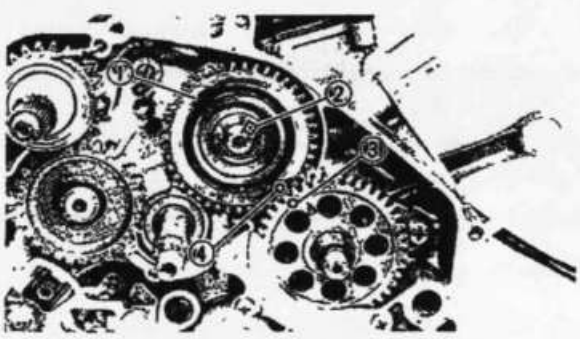
	Oil Seal Retainer: 16 Nm (1.6 m·kg, 11 ft·lb)

NOTE:
Bore installing the spacer collar ② , grease the oil seal lip ③ .



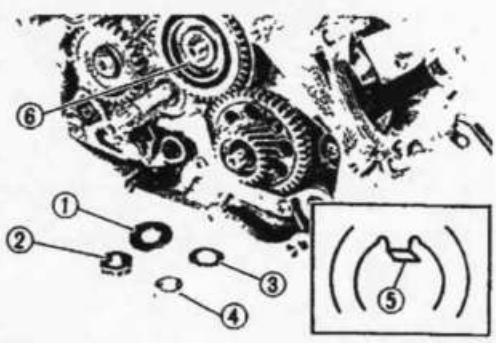
2. Install:
   - Straight key ①
   - Drive gear (Balancer weight) ②
   - Baffle plate ③

	Screw (Baffle Plate): 8 Nm (0.8 m·kg, 5.8 ft·lb) Use LOCTITE®



3. Install:
   - Driven gear (Balancer weight) ①
   - Straight key ②

CAUTION:
Align the balancer drive gear mark ③ with the balancer driven gear mark ④ .

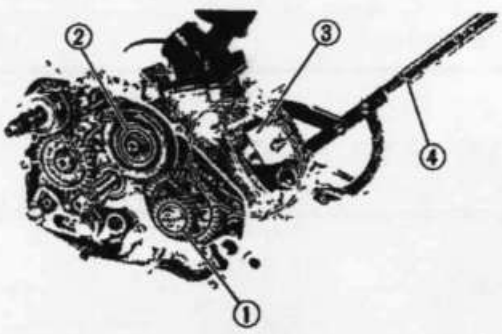


4. Install:
   - Lock washer ①
   - Nut (Balancer driven gear) ②
   - Plain washer ③
   - Nut (Primary drive gear) ④

NOTE:
Install the lock washer tab ⑤ into the key way of the balancer driven gear ⑥ .

⚠ WARNING:

Always use a new lock washer.

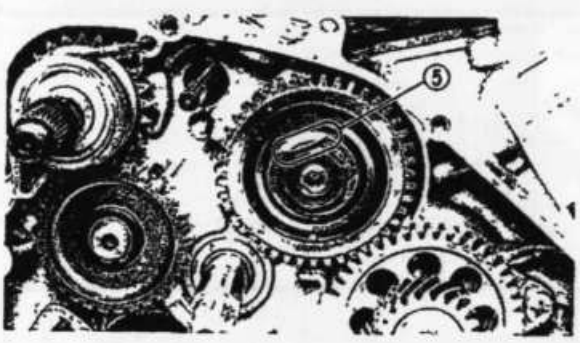


5. Tighten:
   - Nut (Primary drive gear) ①
   - Nut (Balancer driven gear) ②

Nut (Primary Drive Gear):
80 Nm (8.0 m·kg, 58 ft·lb)
Nut (Balancer Driven Gear):
55 Nm (5.5 m·kg, 40 ft·lb)

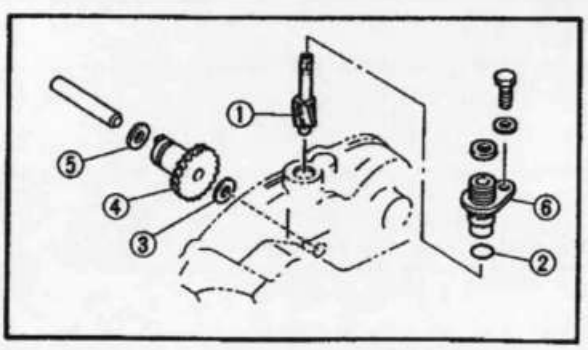
NOTE:

Hold the rotor ③ to tighten the nut (Primary drive gear) ① and nut (Balancer driven gear) ② by the Universal Rotor Holder ④.



Universal Rotor Holder:
90890-01235

6. Bend the lock washer tab ⑤ along the nut flats.

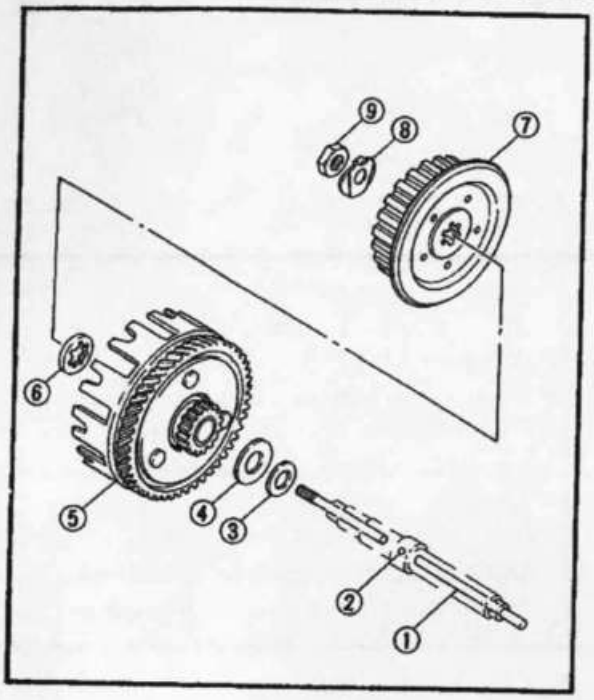


7. Lubricate:
   - Driven gear ① shaft
   - O-ring ②

Lithium Soap Base Grease

8. Install:
   - Washer ③
   - Drive gear (Tachometer cable) ④
   - Washer ⑤
   - Driven gear (Tachometer cable) ①
   - Stopper plate (Tachometer driven gear) ⑥

Bolt (Stopper Plate):
5 Nm (0.5 m·kg, 3.6 ft·lb)



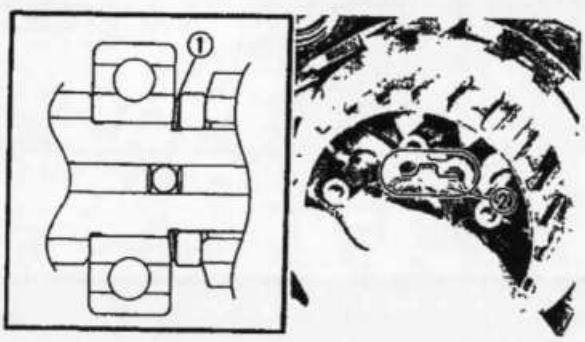
9. Lubricate:
   - Push rod #2 ①
   - Ball ②

	Lithium Soap Base Grease

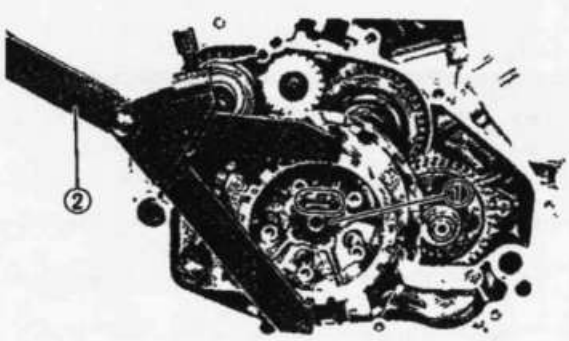
10. Install:
    - Push rod #2 ①
    - Ball ②
    - Conical spring washer ③
    - Thrust plate ④
    - Clutch housing ⑤
    - Thrust washer ⑥
    - Clutch boss ⑦
    - Lock washer ⑧
    - Nut (Clutch boss) ⑨

⚠ WARNING:

Always use a new lock washer.



NOTE:
- Be careful to install the conical spring washer ① in proper position as shown.
- Install the lock washer tab ② onto the indentation of the clutch boss.



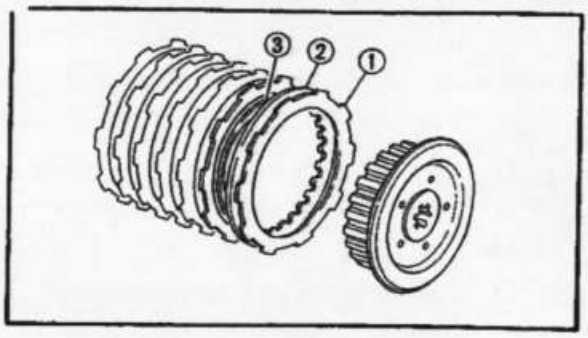
11. Tighten:
    - Nut (Clutch boss) ①

	Nut (Clutch Boss): **70 Nm (7.0 m · kg, 50 ft · lb)**

NOTE:
Hold the clutch boss to tighten the nut ① (clutch boss) by the Universal Clutch Holder ②.

	Universal Clutch Holder: **90890-04086**

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

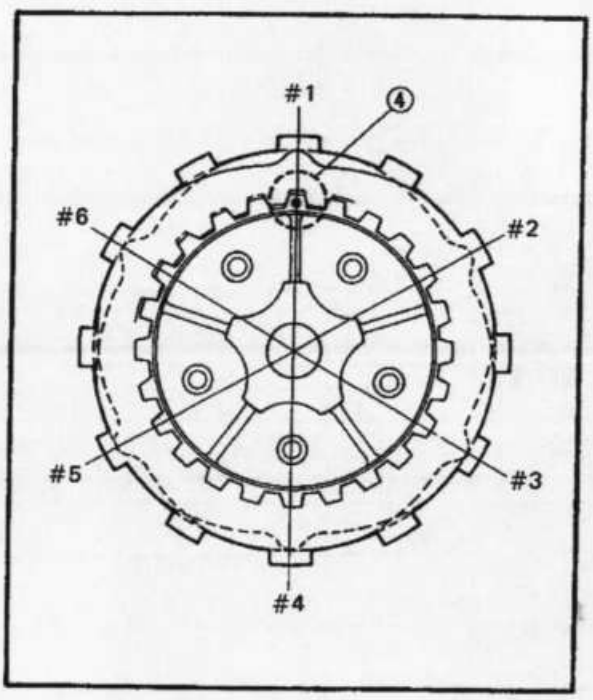


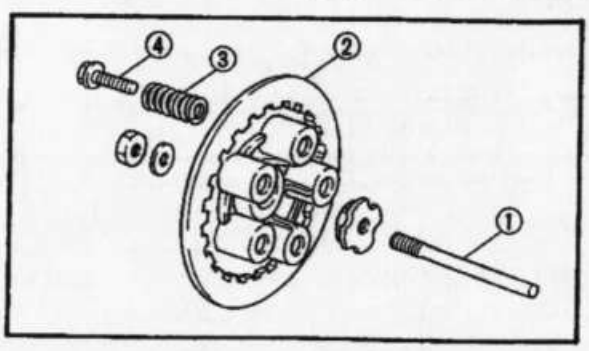
13. Install:
- Friction plates ①
- Clutch plates ②
- Clutch damper ③

Installation steps:
- Install the friction plate onto the clutch boss.
- Install the clutch plate so as to locate the projection ④ at #1.
- Install the friction plate with the larger inside diameter onto the clutch boss.
- Install the clutch dumper onto the clutch plate.
- Next install the remaining clutch plates and friction plates alternately on the clutch boss.
- Be sure to install a clutch plate with projection offset approximately 60° from previous plate projection.

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

NOTE:
Before installing a friction and clutch plates, apply sufficient coating of transmission oil to to each plate.





14. Install:
- Push rod #1 ①
- Pressure plate ②
- Clutch springs ③
- Bolts (Pressure plate) ④

NOTE:
Align the punched mark ⑤ on the clutch boss with the punched mark ⑥ on the clutch pressure plate.

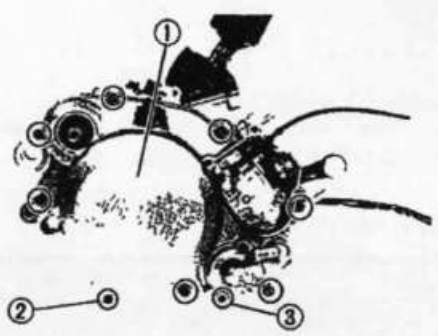


15. Tighten:
    - Bolts (Pressure plate)

	Bolt (Pressure Plate): **6 Nm (0.6 m · kg, 4.3 ft · lb)**

NOTE:
Tighten the bolts (Pressure plate) in stage, using a crisscross pattern.

16. Adjust:
    - Clutch mechanism free play
      Refer to the "CLUTCH MECHANISM ADJUSTMENT" section in the CHAPTER 3.

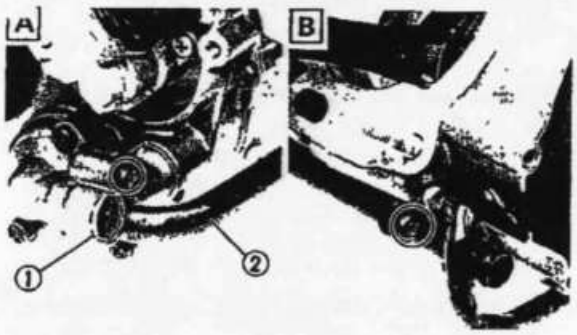


17. Install:
    - Gasket (Crankcase cover)
    - Dowel pins
    - Crankcase cover (Right) ①
    - Drain plug (Transmission oil) ②
    - Drain plug (Coolant) ③

NOTE:
Tighten the screws (Crankcase cover) in stage, using a crisscross pattern.

⚠ WARNING:
Always use a new gasket.

	Screw (Crankcase Cover): **8 Nm (0.8 m · kg, 5.8 ft · lb)**
	Drain Plug (Transmission Oil): **15 Nm (1.5 m · kg, 11 ft · lb)**
	Drain Plug (Coolant): **10 Nm (1.0 m · kg, 7.2 ft · lb)**



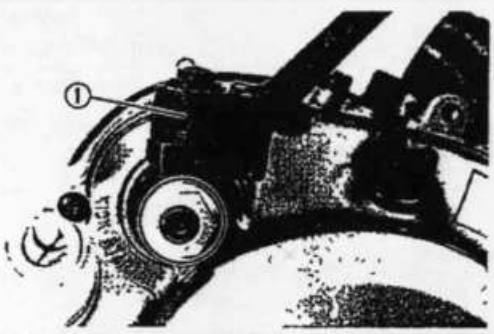
18. Apply the grease to the O-ring ①.
19. Install:
    - O-ring ①
      (to water outlet pipe ②)
    - Water outlet pipe ②

⚠ WARNING:

Always use a new O-ring.

	Screw (Water Outlet Pipe): 8 Nm (0.8 m · kg, 5.8 ft · lb)

A Right side B Left side

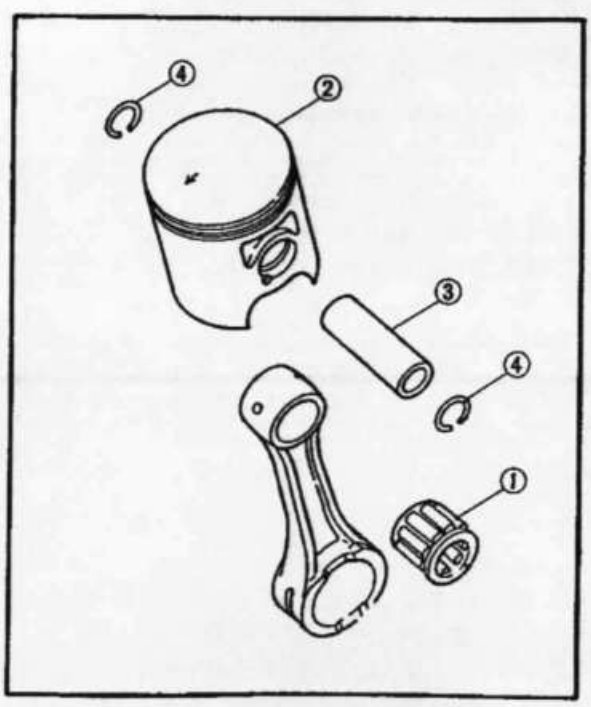


20. Install:
    - Kick crank ①

⚠ CAUTION:

Be sure to install the kick crank in such a way that it does not make contact with the crank case cover.

	Nut (Kick Crank): 65 Nm (6.5 m · kg, 47 ft · lb)



PISTON, CYLINDER AND CYLINDER HEAD

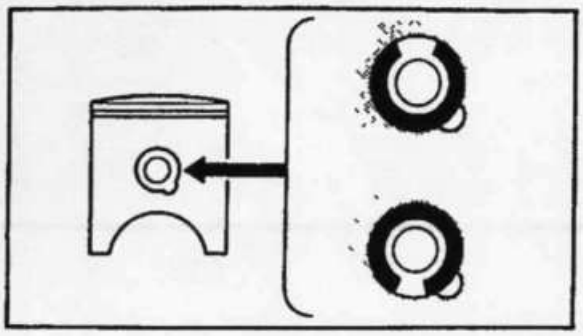
1. Install:
    - Bearing ①
    - Piston ②
    - Piston pin ③
    - Piston pin clips ④

NOTE:

- Apply 2-stroke engine oil to the piston pin, bearing, piston pins and piston skirt areas.
- 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.

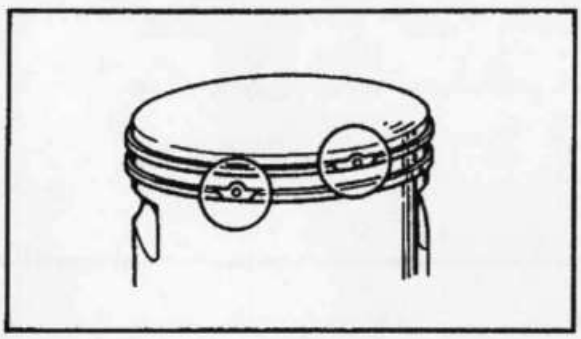
⚠ WARNING:

Always use a new piston pin clip.



⚠ CAUTION:

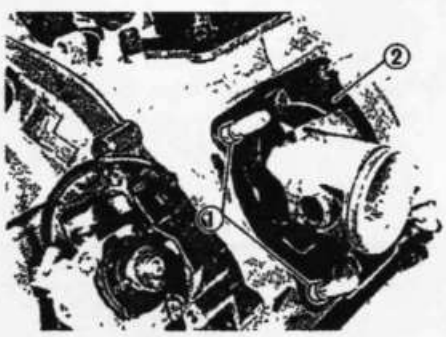
Do not allow the clip open ends to meet the piston pin slot.



2. Check:
   - Piston ring position

⚠ CAUTION:

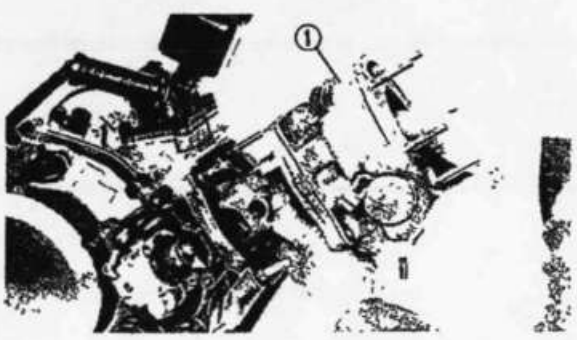
- **Make sure ring ends are properly fitted around ring locating pins in piston grooves.**
- **Be sure to check the manufacture's marks or numbers stamped on the rings are on the top side of the rings.**



3. Install:
   - Dowel pins ①
   - Gasket (Cylinder) ②

⚠ WARNING:

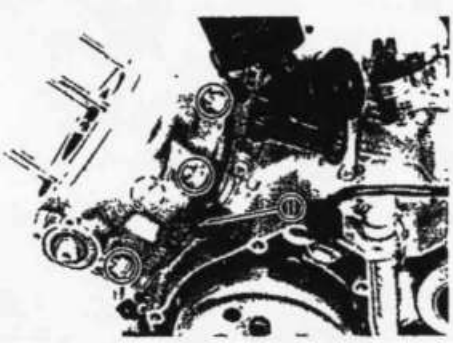
Always use a new gasket.



4. Install:
   - Cylinder ①
   - Clutch cable guide

NOTE:

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



5. Tighten:
   - Nuts (Cylinder)

	Nut (Cylinder): **28 Nm (2.8 m · kg, 20 ft · lb)**

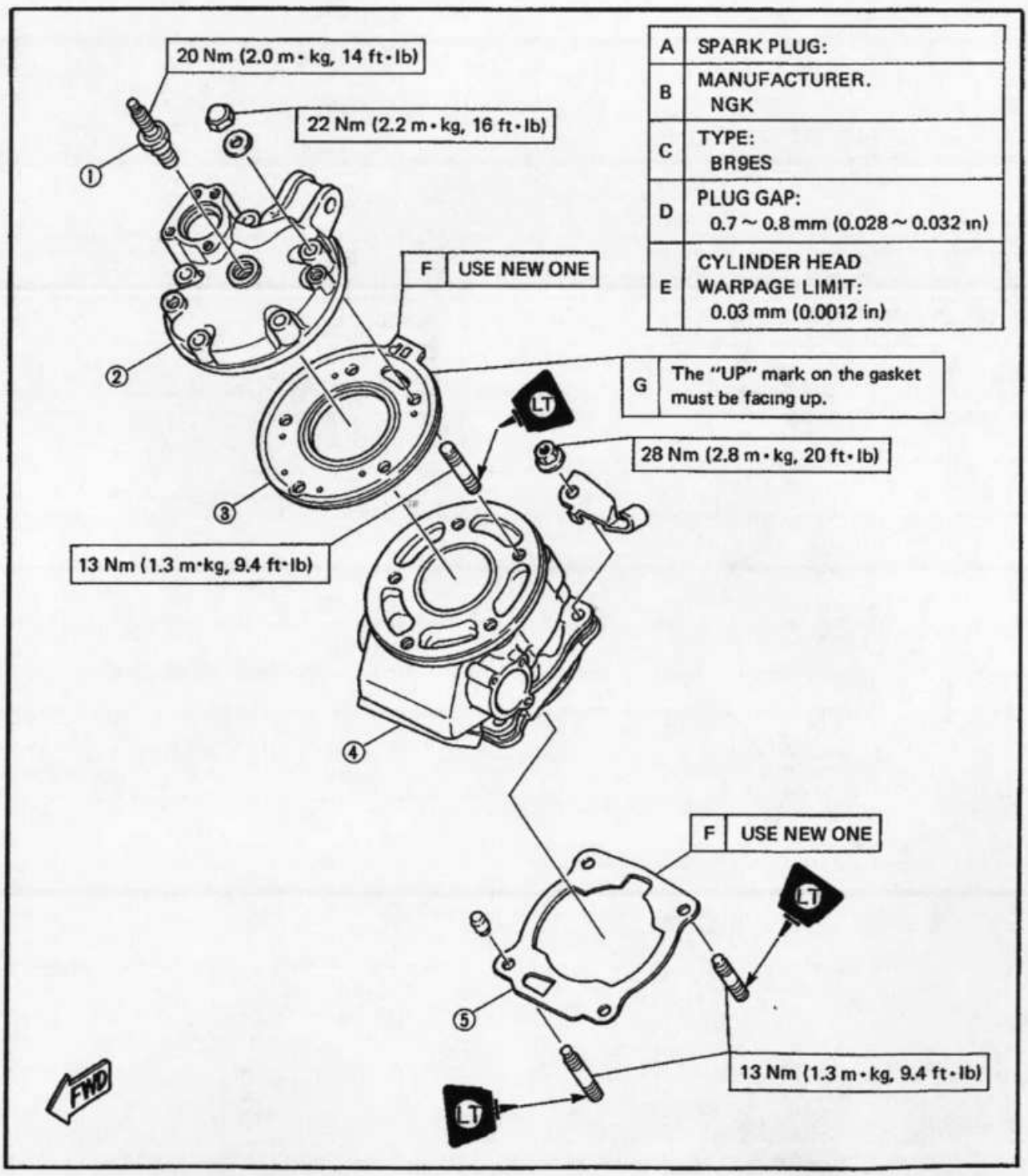
NOTE:

Tighten the nuts in stage, using a crisscross pattern.

① Clutch cable guide

CYLINDER HEAD AND CYLINDER

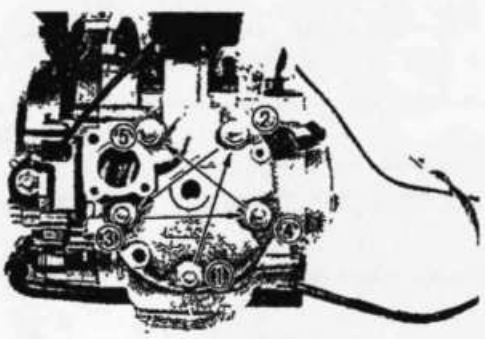
① Spark plug
② Cylinder head
③ Cylinder head gasket
④ Cylinder
⑤ Cylinder gasket



6. Install:
   - Gasket (Cylinder head)
   - Cylinder head

⚠ WARNING:
Always use a new gasket.

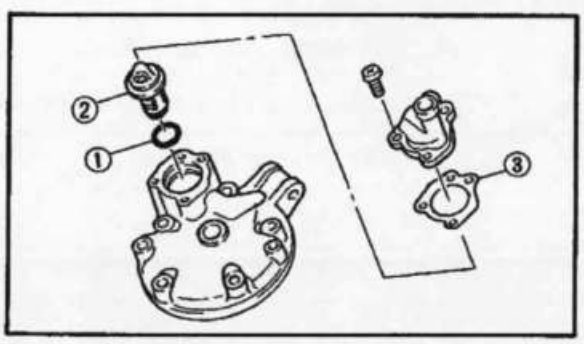
NOTE:
The "UP" mark on the gasket must be facing up.



7. Tighten:
   - Nuts (Cylinder head)

	Nut (Cylinder Head): **22 Nm (2.2 m · kg, 16 ft · lb)**

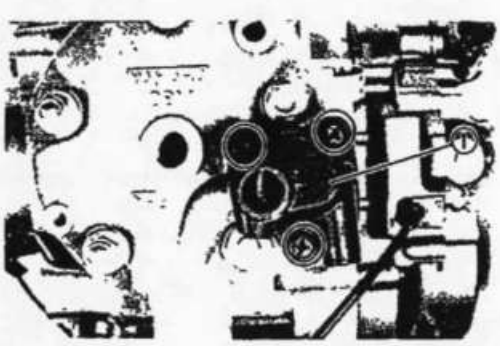
NOTE:
Tighten the nuts in stage, using a crisscross pattern.



8. Install:
   - O-ring ①
   - Thermostatic valve ②
   - Gasket ③

NOTE:
Apply the lithium soap base grease to the O-ring.

⚠ WARNING:
- **Always use a new O-ring.**
- **Always use a new gasket.**



9. Install:
   - Cover (Thermostatic valve) ①

	Screw (Thermostatic Valve Cover): **8 Nm (0.8 m · kg, 5.8 ft · lb)**

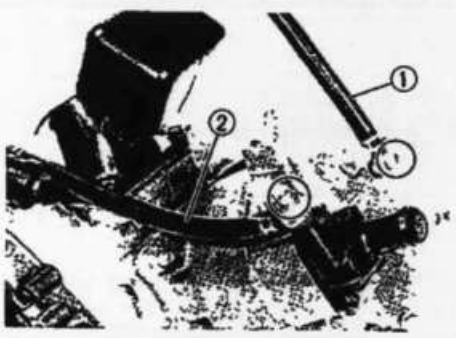


10. Install:
- Spark plug ①
- Thermo unit ②

	Spark Plug: 20 Nm (2.0 m · kg, 14 ft · lb) **Thermo Unit:** 15 Nm (1.5 m · kg, 11 ft · lb) Use Water Resistant Sealant.

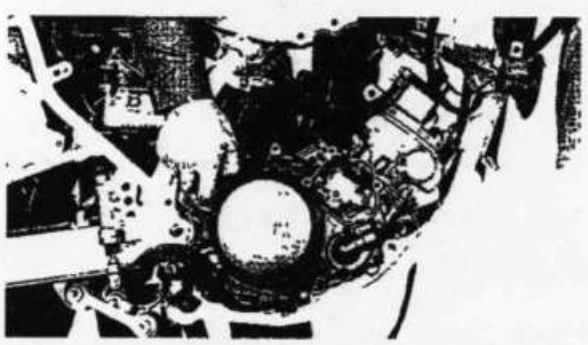
⚠ WARNING:

Handle the thermo unit with special care. Never subject it to strong or allow it to be dropped. Should it be dropped, it must be replaced.



11. Install:
- Hoses (Inlet ① and outlet ②)

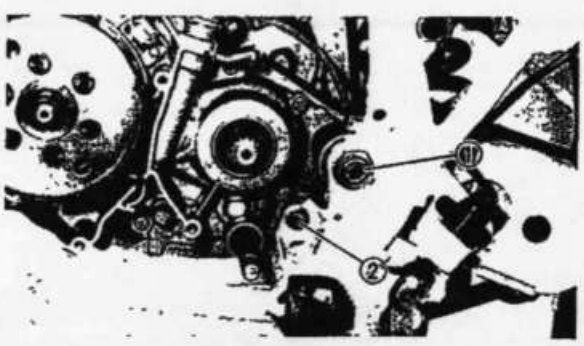
	Union Bolt: 8 Nm (0.8 m · kg, 5.8 ft · lb)



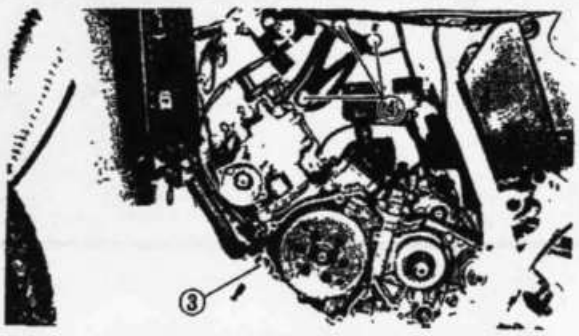
REMOUNTING ENGINE

Reverse the "ENGINE REMOVAL" procedure. Note the following points.

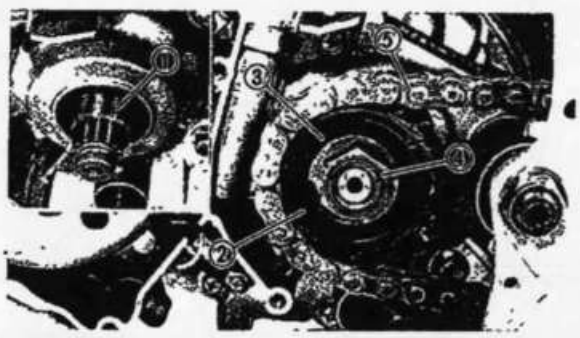
1. Install:
- Engine assembly (to right side)
- Mounting bolts



	Mounting Bolts: **Pivot Shaft ①:** 90 Nm (9.0 m · kg, 65 ft · lb) **Bolt ② (Rear – Lower):** 33 Nm (3.3 m · kg, 24 ft · lb) **Bolt ③ (Front):** 58 Nm (5.8 m · kg, 42 ft · lb) **Bolt ④ (Engine Stay – Upper):** 33 Nm (3.3 m · kg, 24 ft · lb)

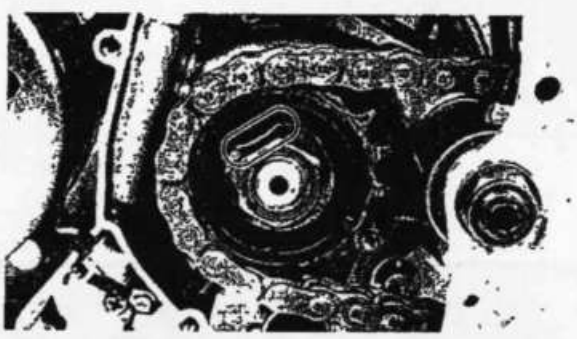


NOTE:
- Apply lithium soap base grease to the pivot shaft.
- Temporary tighten the bolts before tightening them to specification.



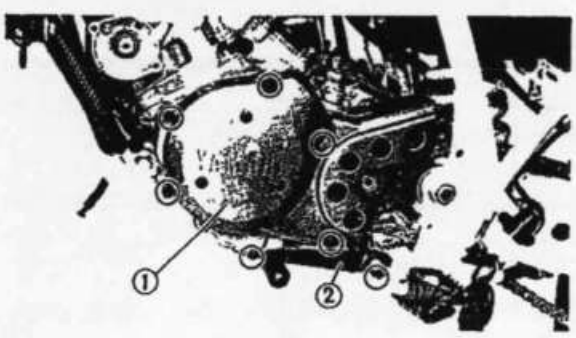
2. Install:
   - Spacer collar ①
   - Drive sprocket ②
   - Lock washer ③
   - Nut (Drive sprocket) ④
   - Drive chain ⑤

NOTE:
Before installing the spacer collar ① , grease the oil seal lip.



	Nut (Drive Sprocket): **60 Nm (6.0 m · kg, 43 ft · lb)**

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



4. Install:
   - Gasket (Crankcase cover)
   - Crankcase cover (Left) ①
   - Change pedal ②

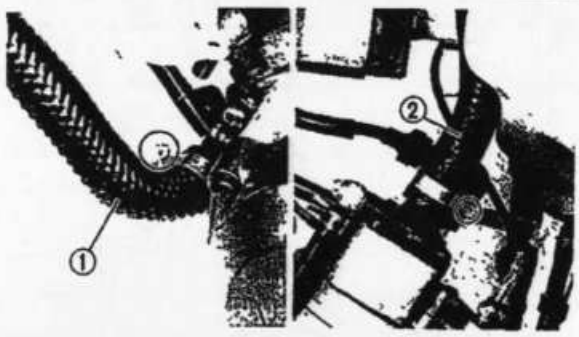
NOTE:
Tighten the screws (Crankcase cover) in stage, using a crisscross pattern.

	Screw (Crankcase Cover): **8 Nm (0.8 m · kg, 5.8 ft · lb)** **Bolt (Change Pedal):** **15 Nm (1.5 m · kg, 11 ft · lb)**

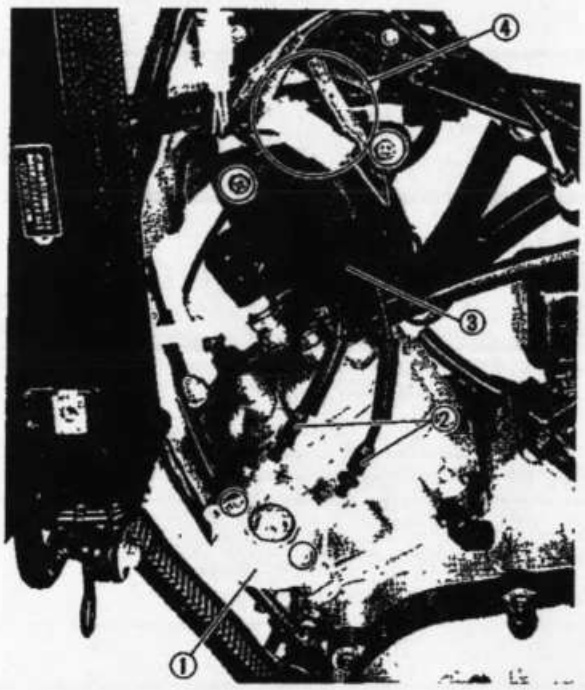
5. Adjust:
   - Drive chain slack

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

	Drive Chain Slack: **25 ~ 40 mm (1.0 ~ 1.6 in)**



6. Connect:
   - Radiator hose (Outlet) ①
   - Radiator hose (Inlet) ②



7. Install:
   - Pulley housing ①
   - Adjusters (Y.P.V.S. cable) ②
   - Servomotor unit ③

	Bolt (Pulley Housing): **8 Nm (0.8 m · kg, 5.8 ft · lb)**
	Screw (Servomotor Unit): **7 Nm (0.7 m · kg, 5.1 ft · lb)**

8. Connect:
   - Servomotor unit lead ④
   - Cables (Y.P.V.S.) (to power valve pulley)

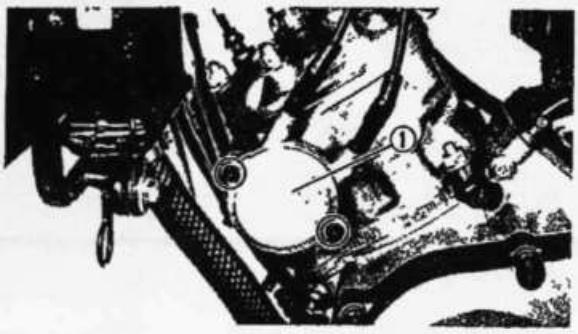


9. Install:
   - Pulley (Power valve) ①

	Bolt (Power Valve Pulley): **10 Nm (1.0 m · kg, 7.2 ft · lb)**

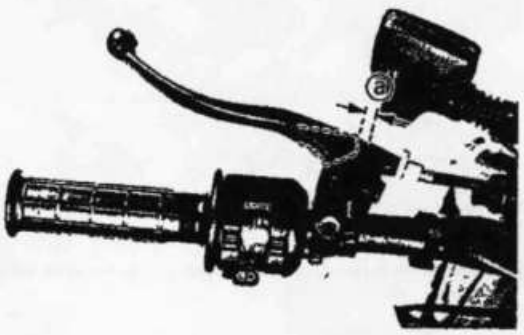
10. Adjust:
    - Y.P.V.S. cables
      Refer to the "Y.P.V.S. CABLE ADJUSTMENT" section in the CHAPTER 3.

NOTE:
Before adjusting the Y.P.V.S. cables, turn the main switch to "ON" and operate the Y.P.V.S. motor.



11. Install:
- Pulley cover (Power valve) ①

	Bolt (Pulley Cover): **7 Nm (0.7 m·kg, 5.1 ft·lb)**



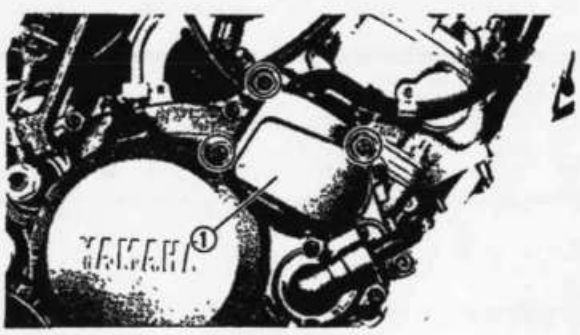
12. Adjust:
- Clutch cable free play ⓐ

  Refer to the "CLUTCH ADJUSTMENT" section in the CHAPTER 3.

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

13. Air bleeding:
- Autolube pump

  Refer to the "AUTOLUBE PUMP AIR BLEEDING" section in the CHAPTER 3.



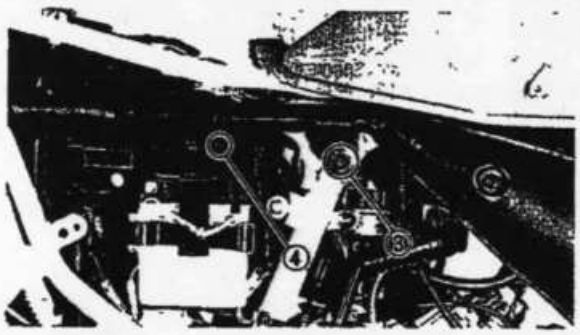
14. Install:
- Autolube pump cover ①

	Bolt (Autolube Pump Cover): **5 Nm (0.5 m·kg, 3.6 ft·lb)**



15. Install:
- Gasket (Exhaust pipe)
- Exhaust pipe

	Nut ① (Exhaust Pipe): **18 Nm (1.8 m·kg, 13 ft·lb)** **Bolt ② (Stay):** **10 Nm (1.0 m·kg, 7.2 ft·lb)** **Bolt ③ (Frame Mount):** **10 Nm (1.0 m·kg, 7.2 ft·lb)** **Screw ④ (Muffler Joint):** **10 Nm (1.0 m·kg, 7.2 ft·lb)**



⚠ WARNING:

Always use a new gasket.

16. Fill:
    - Radiator
    - Reservoir tank (Radiator)

    Refer to the "COOLANT REPLACEMENT" section in the CHAPTER 3.

Total Amount:
0.92 L (0.81 Imp qt, 0.97 US qt)

17. Fill:
    - Crankcase

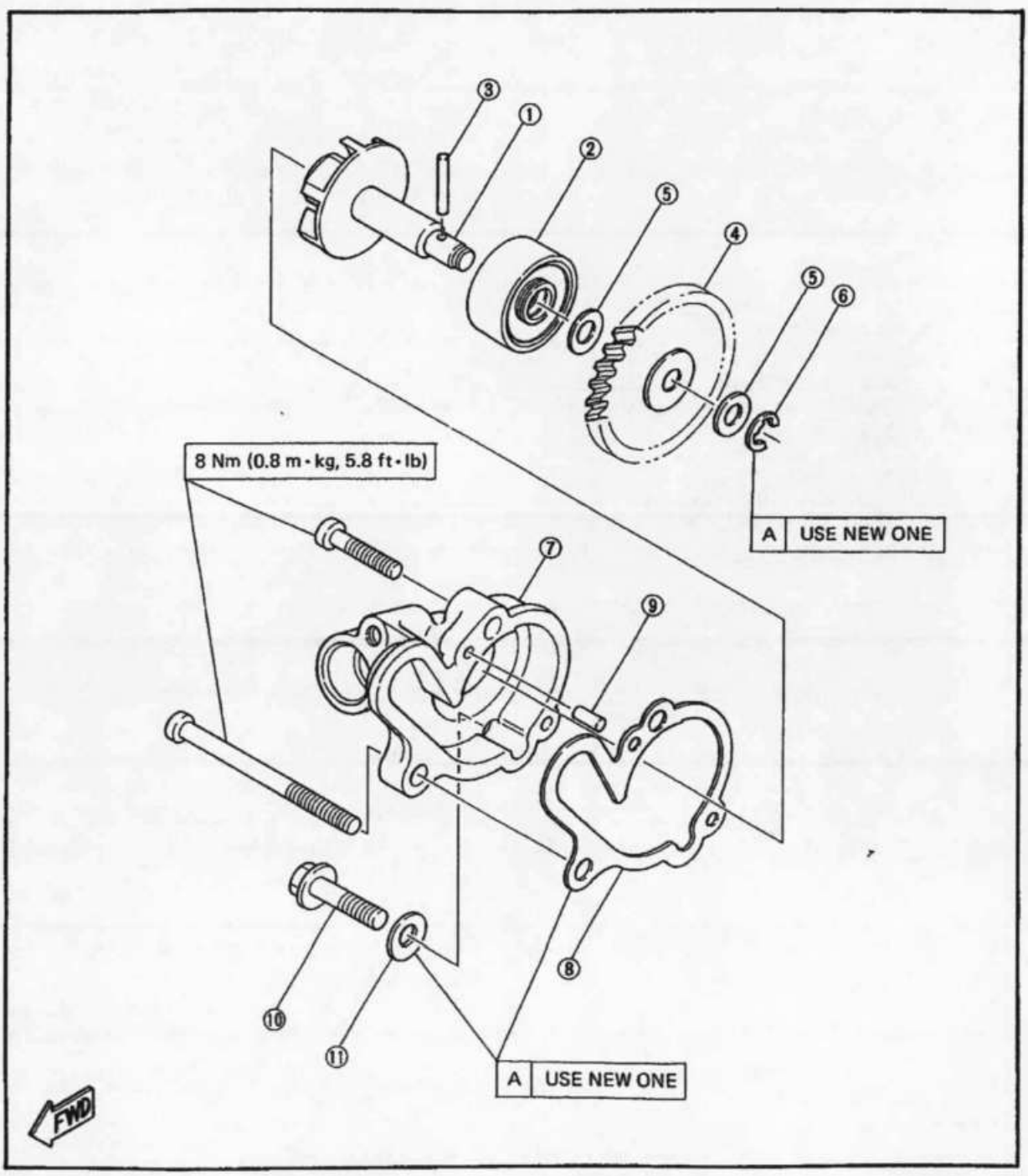
    Refer to the "TRANSMISSION OIL REPLACEMENT" section in the CHAPTER 3.

Total Amount:
0.8 L (0.7 Imp qt, 0.84 US qt)

COOLING SYSTEM

WATER PUMP

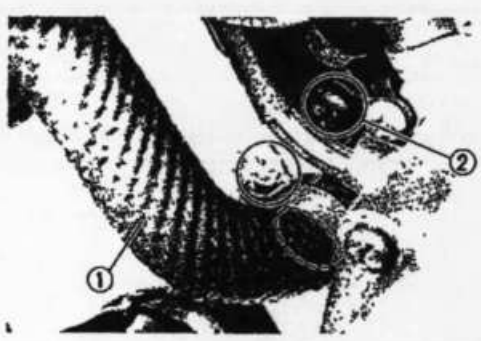
① Impeller shaft
② Oil seal
③ Pin
④ Impeller shaft gear
⑤ Plain washer
⑥ Circlip
⑦ Water pump housing cover
⑧ Gasket
⑨ Dowel pin
⑩ Drain bolt
⑪ Gasket



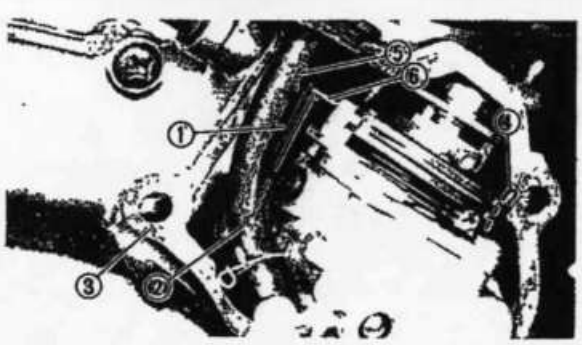
REMOVAL

NOTE:
It is necessary to disassemble the water pump, unless there is no abnormality such as excessive change in coolant temperature and/or level, discoloration of coolant, or milky transmission oil.

1. Drain:
   - Transmission oil
     Refer to the "TRANSMISSION OIL REPLACEMENT" section in the CHAPTER 3.
   - Coolant
     Refer to the "COOLANT REPLACEMENT" section in the CHAPTER 3.

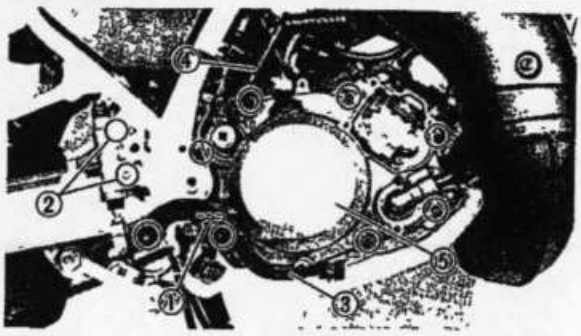


2. Disconnect:
   - Outlet hose (Radiator) ①
3. Remove:
   - Screw (Water outlet pipe) ②

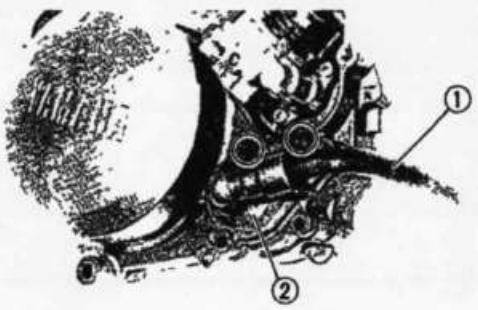


4. Remove:
   - Autolube pump cover
5. Disconnect:
   - Oil delivery hose ①
   - Oil hose ②
6. Remove:
   - Gasket (Autolube pump cover) ③
   - Stopper clip (Pump cable) ④
   - Clip (Pump cable outer) ⑤
   - Autolube pump cable ⑥

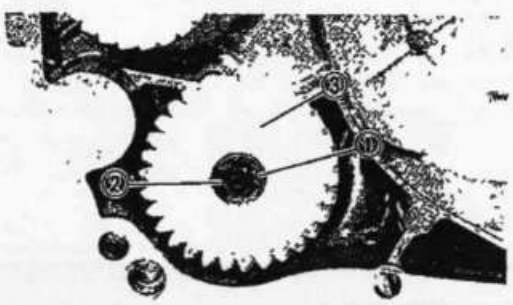
NOTE:
- Plug the oil hose so that oil will not run out of the oil tank.
- Turn the pump pulley counterclockwise by finger to make the pump cable loose enough for its end to be removed from the pulley.



7. Remove:
   - Return spring ①
   - Bolt (Master cylinder) ②
   - Brake pedal ③
   - Kick crank ④
   - Crankcase cover (Right) ⑤



8. Remove:
   - Water outlet pipe ①
   - Housing cover (Water pump) ②
   - Gasket
   - Dowel pins



9. Remove:
   - Circlip ①
   - Plain washer ②
   - Impeller shaft gear ③

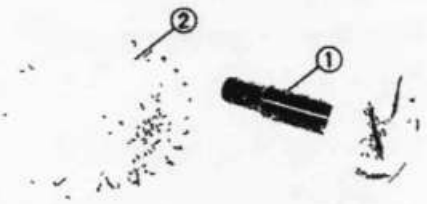


10. Remove:
    - Pin ①
    - Plain washer ②



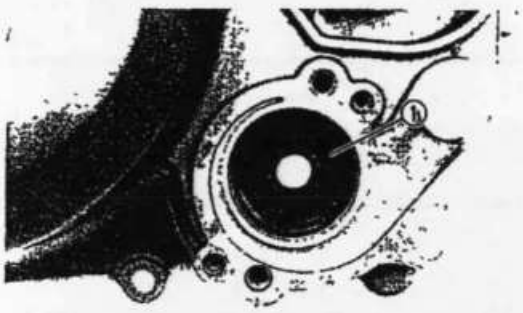
11. Remove:
    - Impeller shaft ①
12. Eliminate deposits from the impeller and water pump housing.

INSPECTION



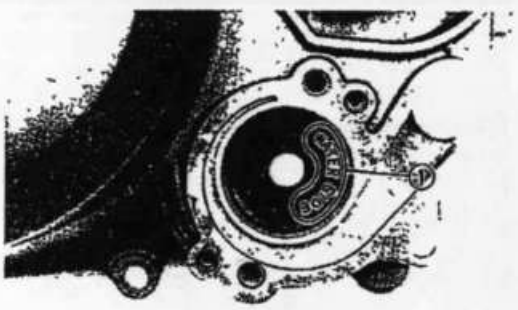
1. Inspect:
   - Impeller ①
   - Impeller shaft gear ②

   Cracks/Wear/Damage → Replace.



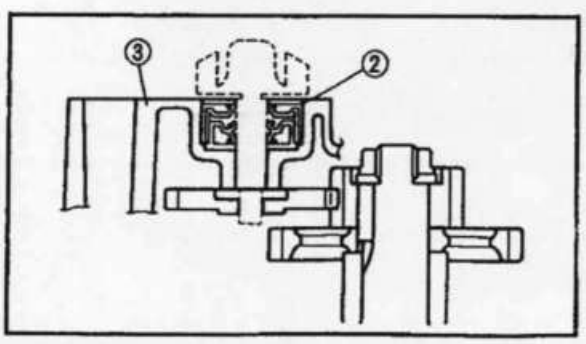
2. Inspect:
   - Oil seal ①

   Wear/Damage → Replace.



Oil seal replacement steps:
- Remove the oil seal from the crankcase cover by tapping its toward the outside.
- Install the new oil seal with the "WATER SIDE" mark ① on the outside.

NOTE:
- Apply the lightweight lithium base grease to oil seal outside.
- Press-fit the oil seal until its contact the bottom.



② Oil seal
③ Crankcase cover (Right)

INSTALLATION

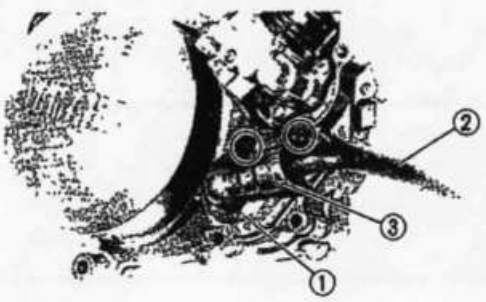
Reverse the "REMOVAL" procedure.
Note the following points.

1. Apply.
   - Lightweight lithium base grease (to oil seal lips and impeller shaft)



2. Install:
   • Impeller shaft ①
   Install the shaft while turning it.

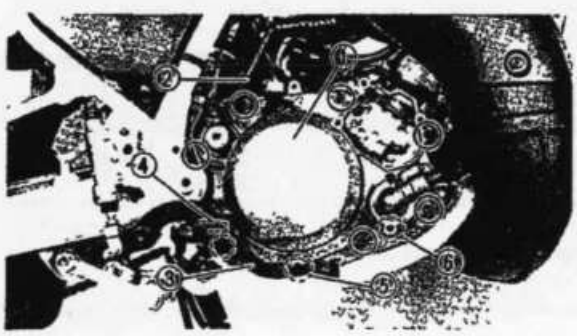
NOTE:
Take care so that the oil seal lip is not damaged or the spring does not slip off its position.



3. Install:
   • Housing cover (Water pump) ①
   • Water outlet pipe ②

Screw (Housing Cover):
8 Nm (0.8 m · kg, 5.8 ft · lb)
Screw (Water Outlet Pipe):
8 Nm (0.8 m · kg, 5.8 ft · lb)

CAUTION:
- **Always use new gaskets.**
- **Always use a new O-ring ③.**



4. Install:
   • Crankcase cover (Right) ①
   • Kick crank ②
   • Brake pedal ③
   • Return spring ④
   • Drain plug (Transmission oil) ⑤
   • Drain plug (Coolant) ⑥

Screw (Crankcase Cover):
8 Nm (0.8 m · kg, 5.8 ft · lb)
Nut (Kick Crank):
65 Nm (6.5 m · kg, 47 ft · lb)
Screw (Brake Pedal):
20 Nm (2.0 m · kg, 14 ft · lb)
Drain Plug (Transmission Oil):
15 Nm (1.5 m · kg, 11 ft · lb)
Drain Plug (Coolant):
10 Nm (1.0 m · kg, 7.2 ft · lb)

NOTE:
Before installing the brake pedal, apply the lithium soap base grease to the brake pedal pivot shaft.

⚠ WARNING:
Always use new cotter pin ⑦ and gasket ⑧ .



5. Install:
   • Screw (Water outlet pipe) ①

	Screw (Water Outlet Pipe): **8 Nm (0.8 m · kg, 5.8 ft · lb)**

6. Fill:
   • Crankcase
   Refer to the "TRANSMISSION OIL REPLACEMENT" section in the CHAPTER 3.

	Recommended Oil: **SAE 10W30 type SE Motor Oil** **Periodic Oil Change:** **0.75 L (0.66 Imp qt, 0.79 US qt)**

7. Fill:
   • Radiator
   • Reservoir tank (Radiator)
   Refert to the "COOLANT REPLACEMENT" section.

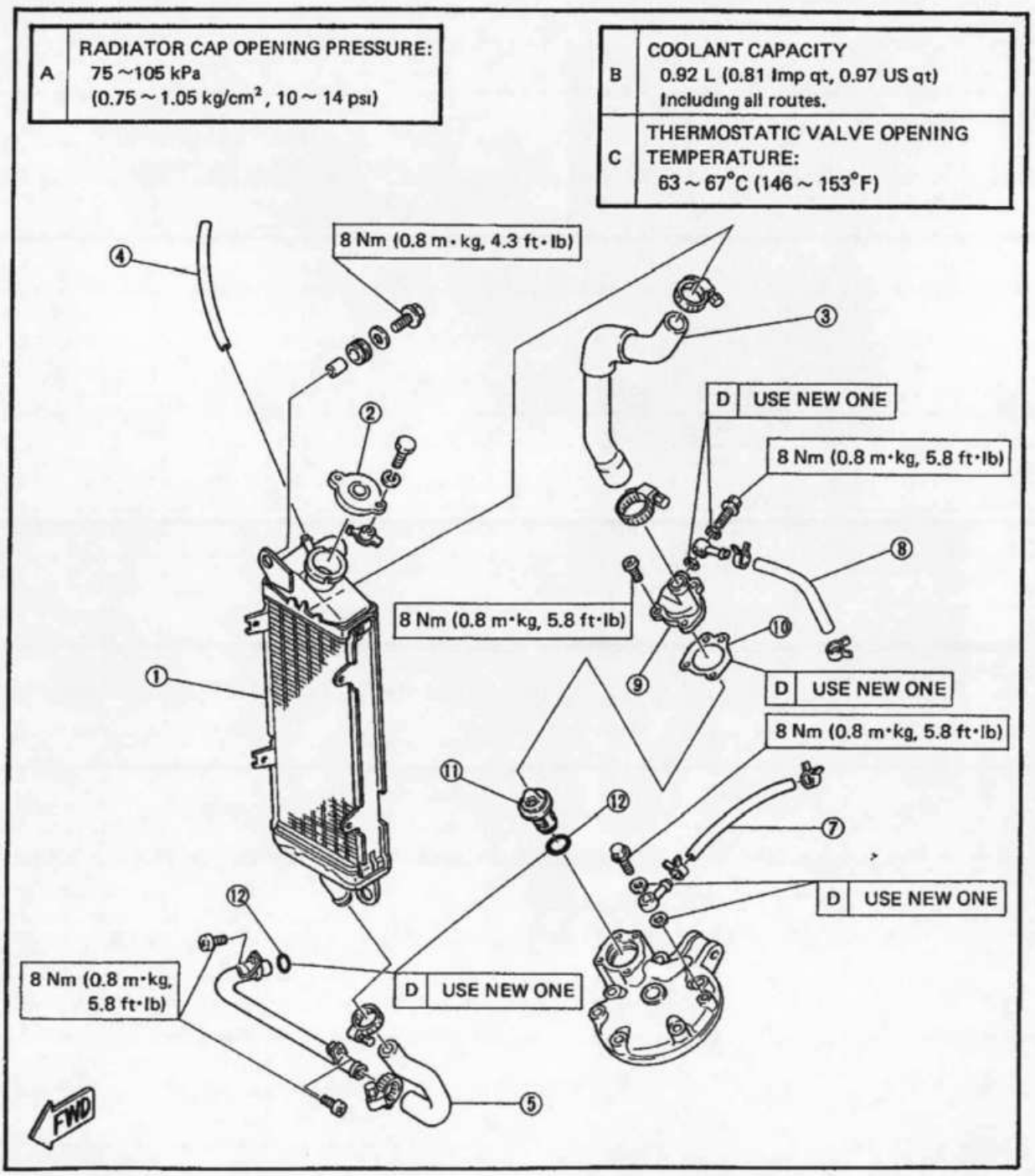
	Total Amount: **0.92 L (0.81 Imp qt, 0.97 US qt)**

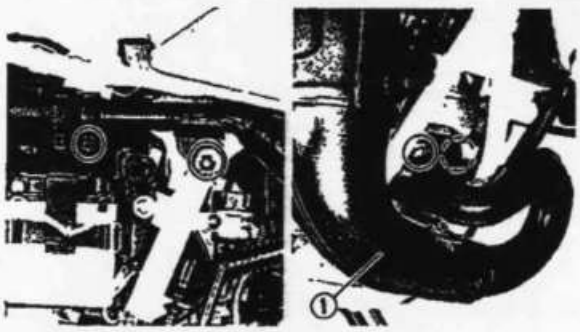
8. Air bleeding:
   • Autolube pump
   Refer to the "AUTOLUBE PUMP AIR BLEEDING" section.
9. Install:
   • Autolube pump cover

	Screw (Autolube Pump Cover): **5 Nm (0.5 m · kg, 3.6 ft · lb)**

THERMOSTATIC VALVE AND RADIATOR

① Radiator assembly
② Radiator cap
③ Inlet hose
④ Coolant breather hose
⑤ Outlet hose
⑥ Gasket
⑦ Hose (Carburetor warmer – Inlet)
⑧ Hose (Carburetor warmer – Outlet)
⑨ Thermostatic valve cover
⑩ Gasket
⑪ Thermostatic valve
⑫ O-ring





REMOVAL

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

2. Remove:
   - Radiator cover
   - Oil tank cover
   - Fuel tank

   Refer to the "CARBURETOR – REMOVAL" section in the CHAPTER 6.

3. Drain:
   - Cooling system

   Refer to the "COOLANT REPLACEMENT" section in the CHAPTER 3.

NOTE:

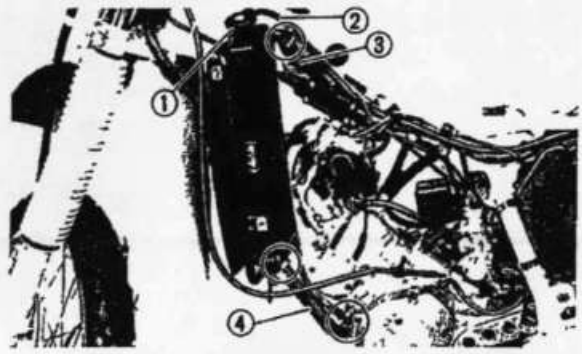
Thoroughly flush the cooling system with clean tap water.

⚠ CAUTION:

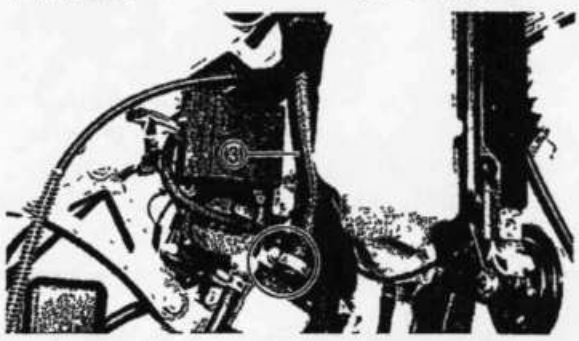
Take care so that coolant does not splash to painted surfaces. If splashes, wash it away with water.

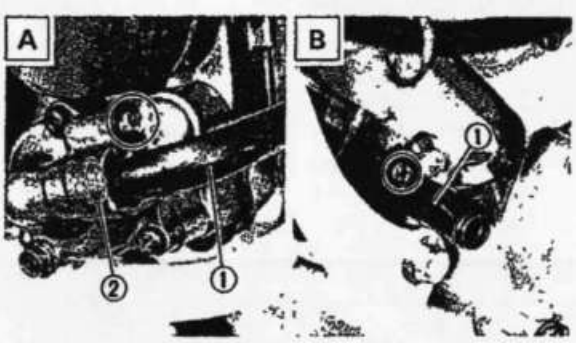
⚠ WARNING:

Do not remove the radiator cap, drain bolts and hoses especially when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, place a thick rag like a towel over the radiator cap, slowly rotate the cap counterclockwise to the detent. This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it.



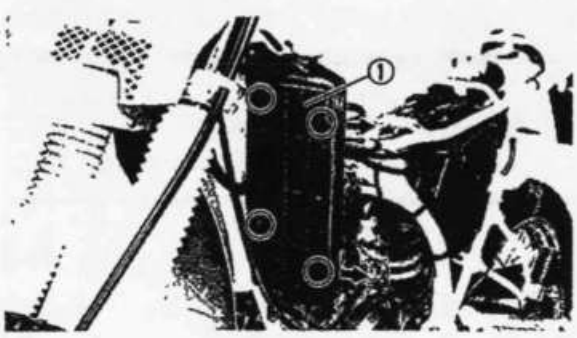
4. Remove:
   - Radiator cap ①
5. Disconnect:
   - Breather hose (Radiator ②)
6. Remove:
   - Inlet hose (Radiator) ③
   - Outlet hose (Radiator) ④



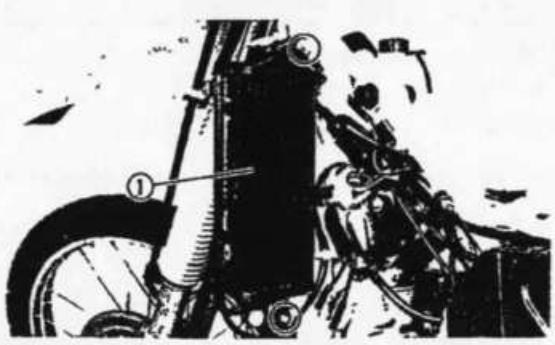


7. Remove:
   - Water outlet pipe ①
   - O-ring ②

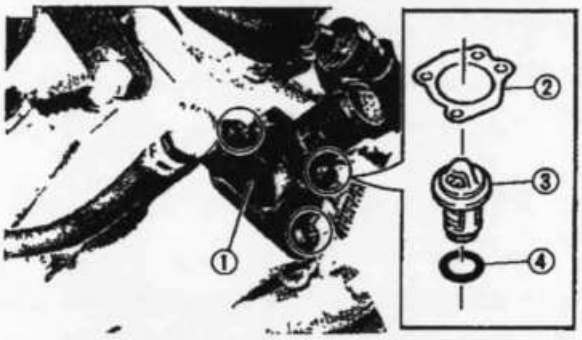
[A] Right
[B] Left



8. Remove:
   - Radiator fin ①

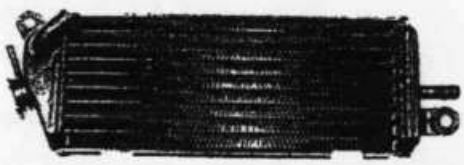


9. Remove:
   - Radiator ①

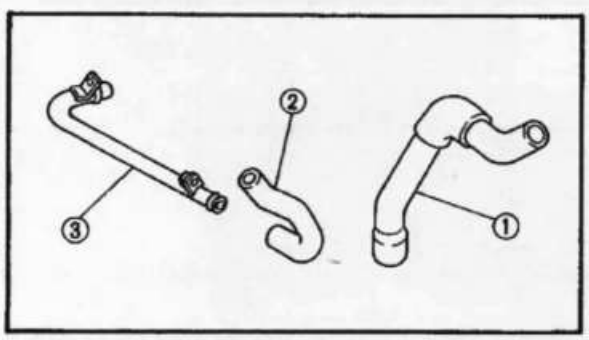


10. Remove:
- Thermostatic valve cover ①
- Gasket ②
- Thermostatic valve ③
- O-ring ④

INSPECTION



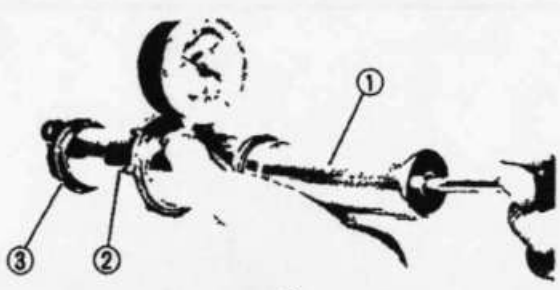
1. Inspect:
- Radiator core
  Obstruction → Blow out with compressed air through rear of the radiator.
  Flattened fin → Repair/replace.



2. Inspect:
- Inlet hose ①
- Outlet hose ②
- Water outlet pipe ③
  Cracks/Damage → Replace.

3. Measure:
- Radiator cap opening pressure
  Radiator cap opens at pressure below the specified pressure → Replace.

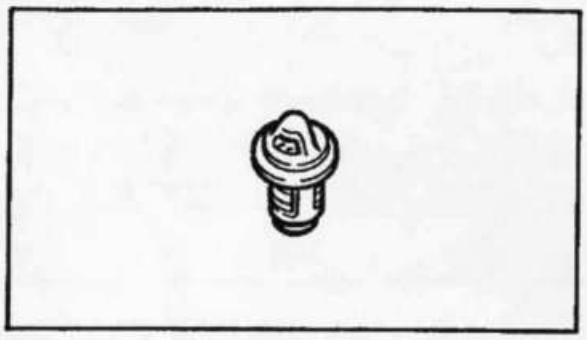
Radiator Cap Opening Pressure:
75 ~ 105 kPa
(0.75 ~ 1.05 kg/cm², 10 ~ 14 psi)



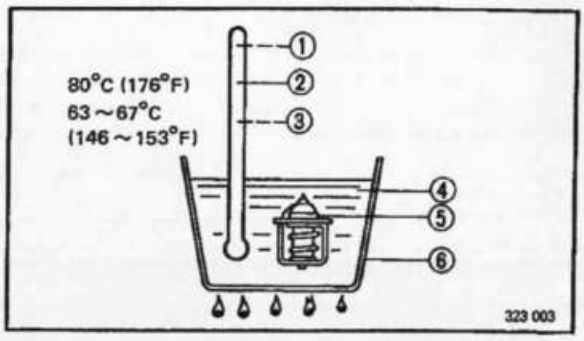
Measurement steps:
- Attach the Cooling System Tester ① and Adapter ② to the radiator cap ③.

Cooling System Tester:
90890-01325
Adapter:
90890-01352

- Apply the specified pressure for 10 seconds, and make sure there is no pressure drop.

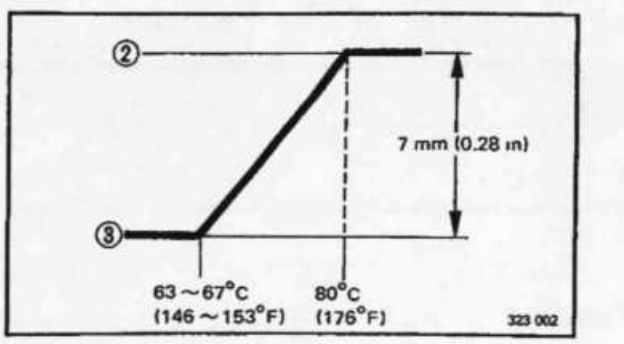


4. Inspect:
   - Thermostatic valve
     Valve does not open at 63 ~ 67°C (146 ~ 153°F) → Replace.

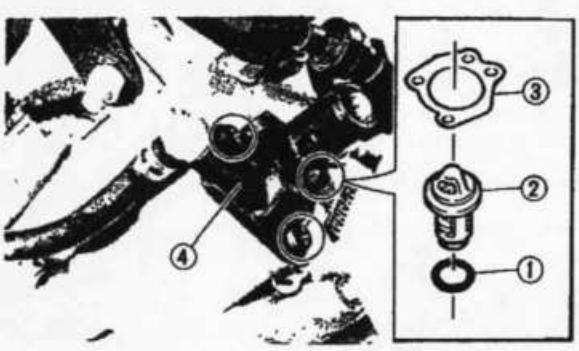


Inspection Steps:
- Suspend thermostatic valve in a vessel.
- Place reliable thermometer in a water.
- Heat water slowly.
- Observe thermometer, while stirring water continually.

① Thermometer
② Full open
③ Opening sequence begins
④ Water
⑤ Thermostatic valve
⑥ Vessel
[A] OPEN
[B] CLOSE



NOTE:
Thermostatic valve is sealed and its setting is specialized work. If its accuracy is in doubt, replace it. A faulty unit could cause serious overheating or overcooling.

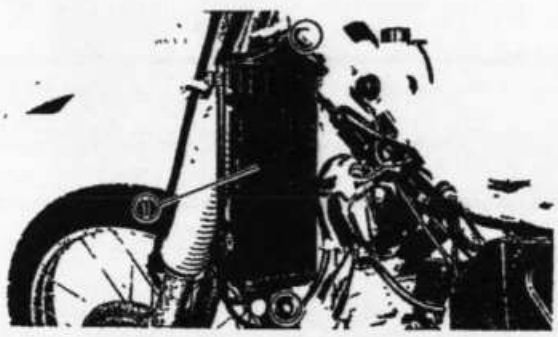


INSTALLATION
Reverse the "REMOVAL" procedure.
Note the following points.
1. Install:
   - O-ring ①
   - Thermostatic valve ②
   - Gasket ③
   - Thermostatic valve cover ④

⚠ WARNING:

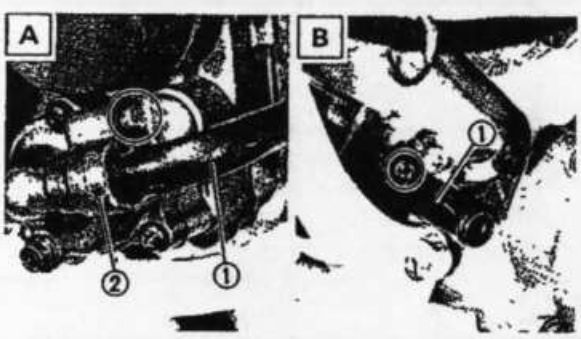
Always use new O-ring and gasket.

Screw (Thermostatic Valve Cover): 8 Nm (0.8 m·kg, 5.8 ft·lb)



2. Install:
   - Radiator ①

Bolt (Radiator): 8 Nm (0.8 m·kg, 5.8 ft·lb)



3. Apply the grease to the O-ring ①.
4. Install:
   - O-ring ①
   - Water outlet pipe ②

⚠ WARNING:

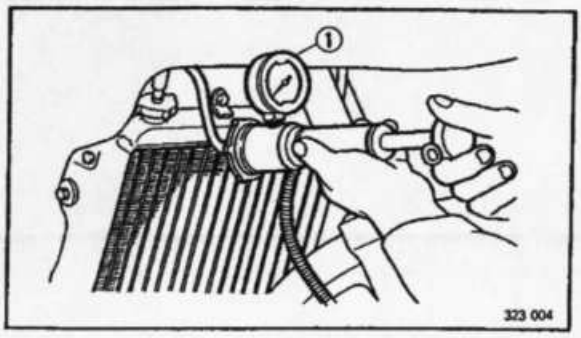
Always use a new O-ring.

Screw (Water Outlet Pipe): 8 Nm (0.8 m·kg, 5.8 ft·lb)

Ⓐ Right
Ⓑ Left

5. Fill:
   - Radiator
   - Reservoir tank (Radiator)

   Refer to the "COOLANT REPLACEMENT" section in the CHAPTER 3.



6. Inspect:
   - Cooling system
     Decrease of pressure (leaks) → Repair as required.

Inspection steps:
- Attach the Cooling System Tester ① to the radiator.

Cooling System Tester:
90890-01325

- Apply 100 kPa (1.0 kg/cm², 14 psi) pressure.
- Measure the indicated pressure with the gauge.

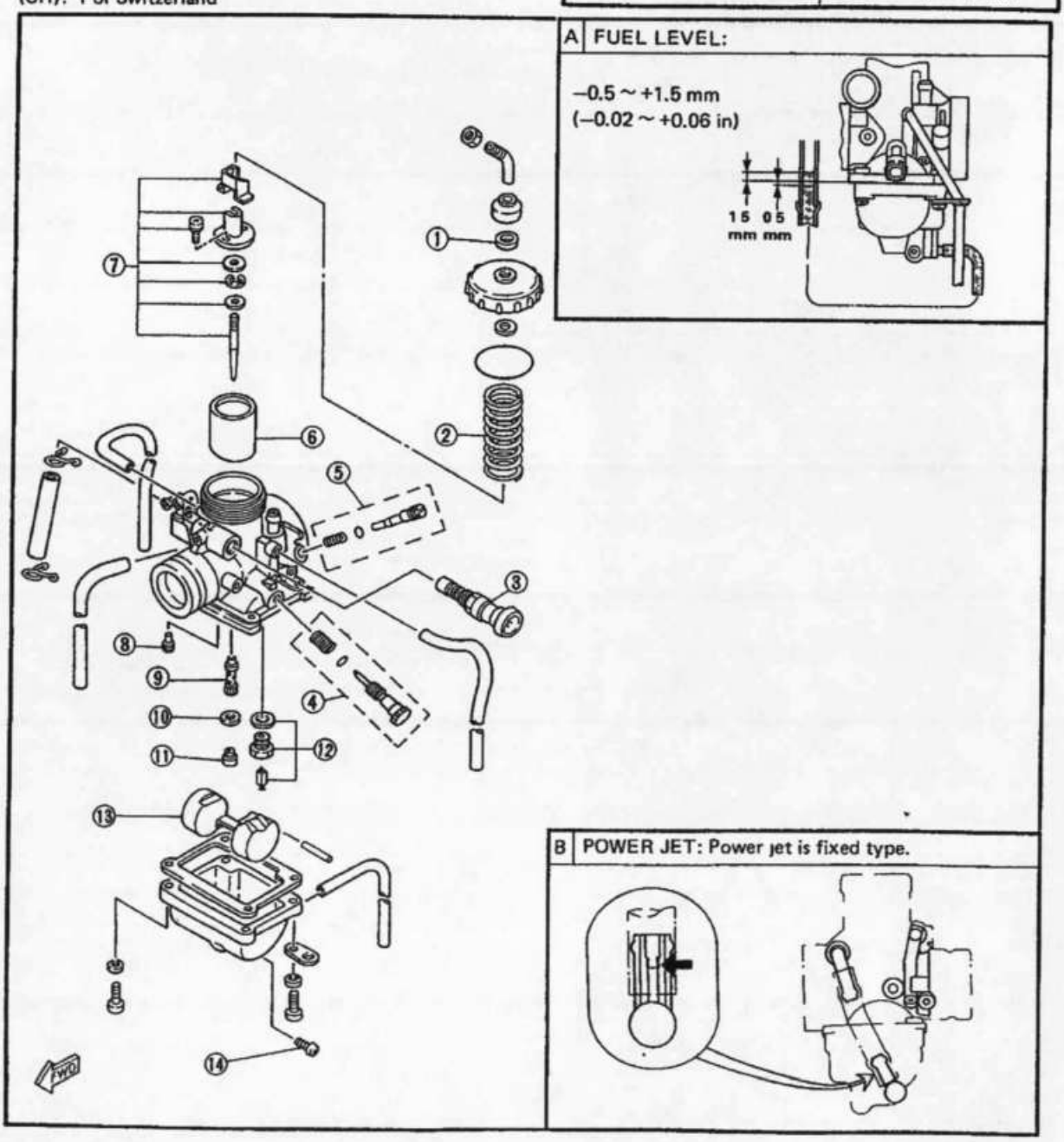
CARBURETION

CARBURETOR

① Cap
② Throttle valve spring
③ Starter plunger
④ Throttle stop screw
⑤ Pilot air screw
⑥ Throttle valve
⑦ Needle set
⑧ Pilot jet
⑨ Needle jet
⑩ Gasket
⑪ Main jet
⑫ Needle valve assembly
⑬ Float
⑭ Drain screw

(CH): For Switzerland

SPECIFICATIONS	
MAIN JET (M.J.)	#125
MAIN AIR JET (M.A.J.)	φ0.8
JET NEEDLE (J.N.)	407-3 407-2 (CH)
NEEDLE JET (N.J.)	P-2
PILOT JET (P.J.)	#25
POWER JET (PW.J.)	#40
PILOT AIR SCREW (P.A.S.)	1-½ 1-¾ (CH)
FLOAT HEIGHT (F.H.)	20 ~ 21 mm (0.79 ~ 0.83 in)
ENGINE IDLING SPEED	1,300 ~ 1,400 r/min



A FUEL LEVEL:

−0.5 ~ +1.5 mm
(−0.02 ~ +0.06 in)

B POWER JET: Power jet is fixed type.

REMOVAL

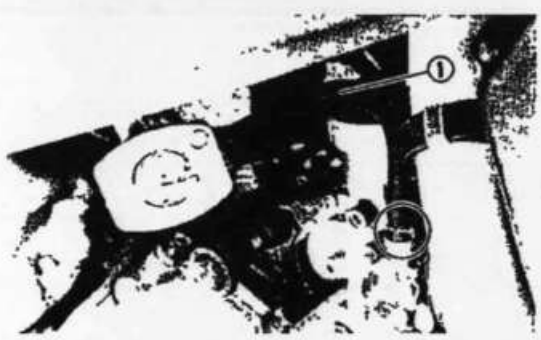
NOTE:

The following parts can be cleaned and inspected without disassembly.

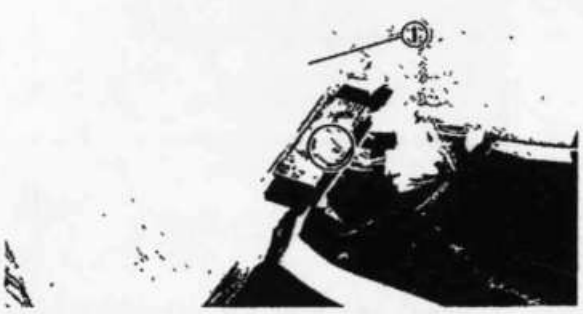
- Throttle valve
- Starter plunger
- Throttle stop screw



1. Remove:
   - Side cover (Left and right)
   - Seat
   - Radiator cover ①
   - Oil tank cover ②



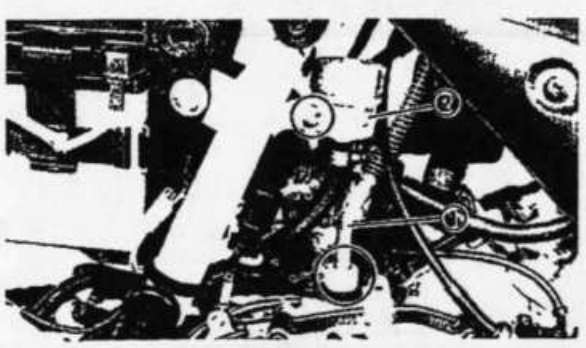
2. Turn the fuel cock to "OFF" position.
3. Disconnect:
   - Fuel hose ①
     (from carburetor side)



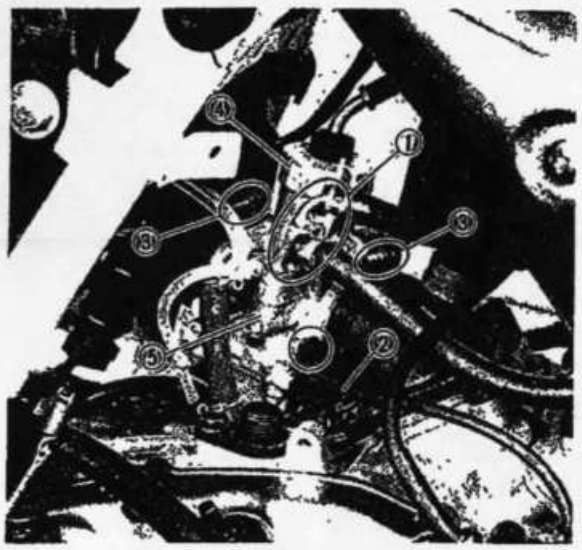
4. Remove:
   - Fuel tank ①

⚠ WARNING:

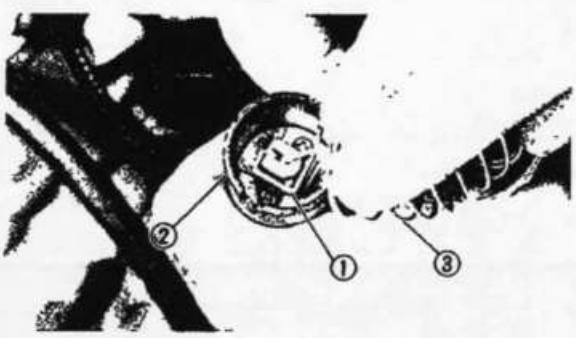
Gasoline is highly flammable. Avoid spilling fuel on the hot engine.



5. Disconnect:
   - Tachometer cable ①
   - Reservoir tank (Rear brake) ②



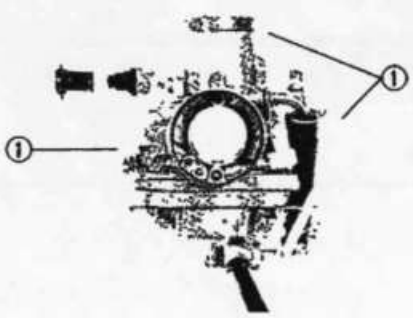
6. Disconnect:
   - Hoses ①
   - Oil delivery hose ②
7. Loosen:
   - Screws (Carburetor damp) ③
8. Remove:
   - Carburetor top ④
   - Carburetor ⑤



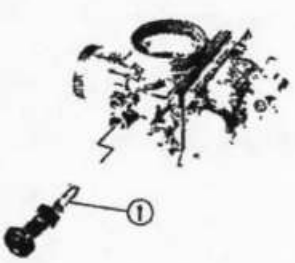
9. Remove:
   - Cable holder ①
   - Throttle valve ②
   - Return spring ③

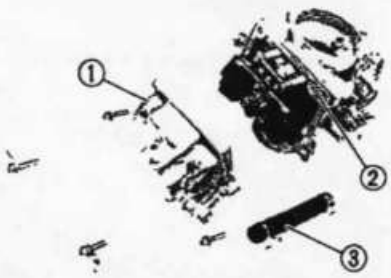
DISASSEMBLY

1. Remove:
   - Hoses ①

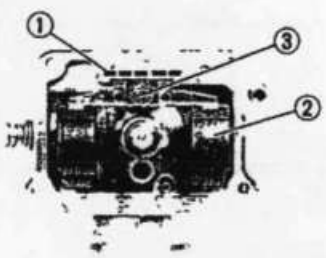


2. Remove:
   - Starter plunger assembly ①

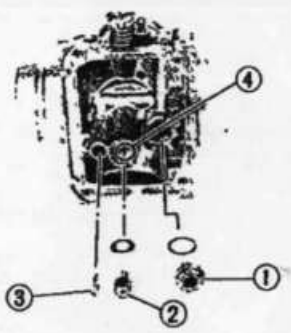




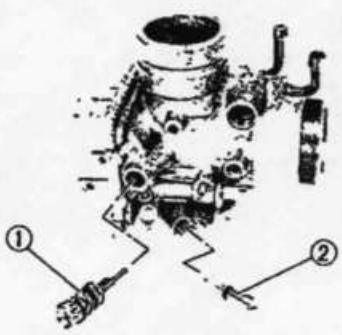
3. Remove:
   - Float chamber ①
   - Gasket (Float chamber) ②
   - Hose ③



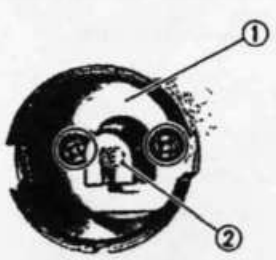
4. Remove:
   - Float pin ①
   - Float ②
   - Needle valve ③



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



6. Remove:
   - Throttle stop screw ①
   - Pilot air screw ②



7. Remove:
   - Jet needle holder ①
   - Jet needle ②

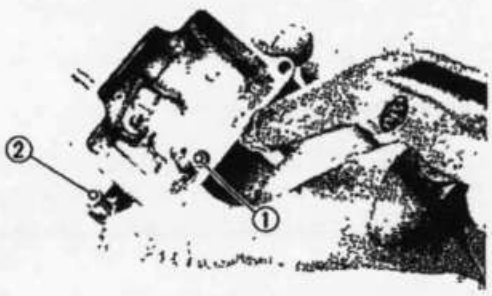
INSPECTION

1. Inspect:
   - Carburetor mixing chamber body
     Contamination → Clean.



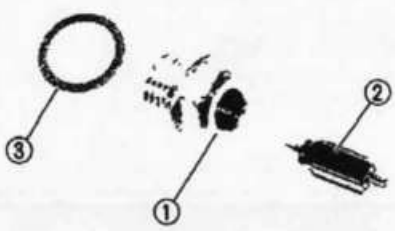
NOTE:
Use a petroleum based solvent for cleaning. Blow out all passages and jets with compressed air.

2. Inspect:
   - Carburetor float chamber body
     Contamination → Clean



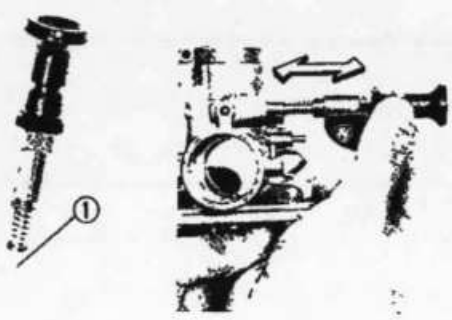
NOTE:
Starter jet ① and power jet ② are fixed type.

3. Inspect:
   - Valve seat ①
   - Needle valve ②
   - Gasket ③
     Wear/Damage/Contamination → Replace as a set.

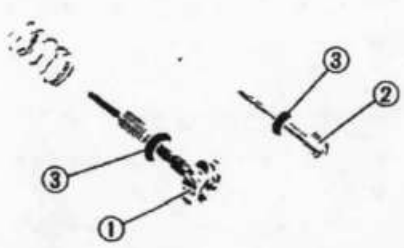


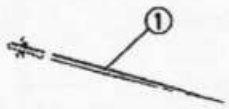
NOTE:
Always replace the needle valve and valve seat as a set.

4. Inspect:
   - Starter plunger ①
     Wear/Contamination → Replace.
5. Check:
   - Free movement
     Stick → Replace.
     Insert the throttle valve into the carburetor body, and check for free movement.

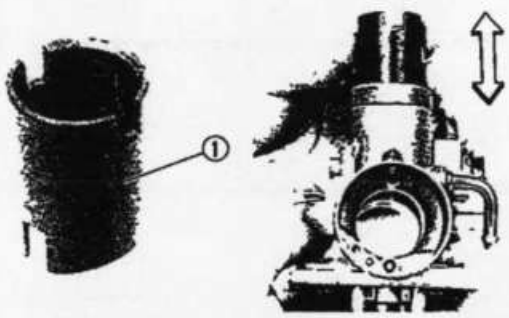


6. Inspect:
   - Throttle stop screw ①
   - Pilot air screw ②
   - O-ring ③
     Wear/Damage → Replace.

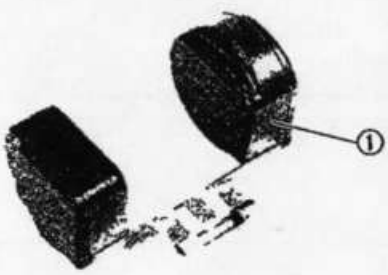




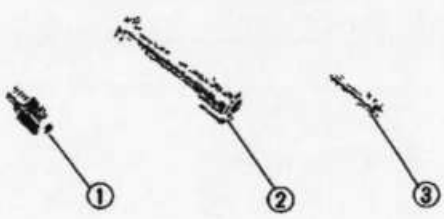
7. Inspect:
   • Jet needle ①
   Bends/Wear → Replace.



8. Inspect:
   • Throttle valve ①
   Wear/Damage → Replace.
9. Check:
   • Free movement
   Stick → Replace.
   Insert the throttle valve into the carburetor body, and check for free movement.



10. Inspect:
    • Float ①
    Damage → Replace.

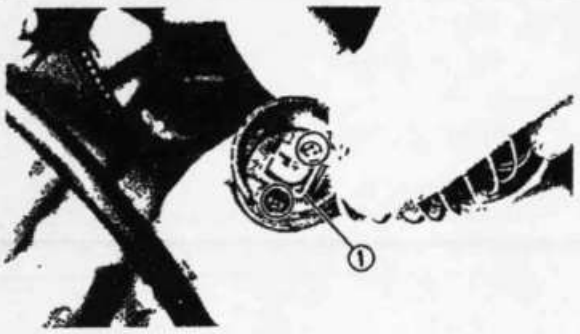


11. Inspect:
    • Main jet ①
    • Needle jet ②
    • Pilot jet ③
    Contamination → Clean.

NOTE:
Blow out the jets with compressed air.

ASSEMBLY
Reverse the "DISASSEMBLY" procedures. Note the following points.

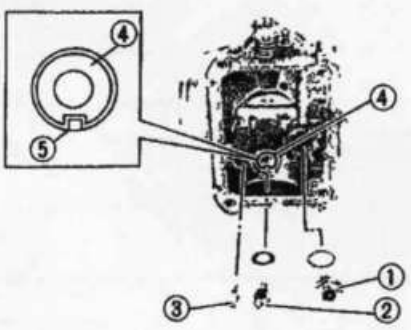
CAUTION:
Before reassembling, wash the all parts with a clean gasoline.



1. Tighten:
   - Screws (Jet needle holder ①)

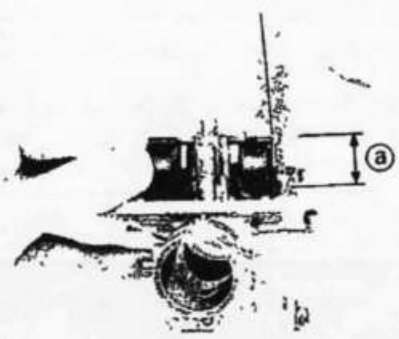
Screw (Jet Needle Holder): 1 Nm (0.1 m · kg, 0.7 ft · lb)

2. Connect:
   - Throttle cable



3. Install:
   - Valve seat ①
   - Main jet ②
   - Pilot jet ③
   - Needle jet ④

NOTE:
Align the knock pin ⑤ with the pin slot in the needle jet.



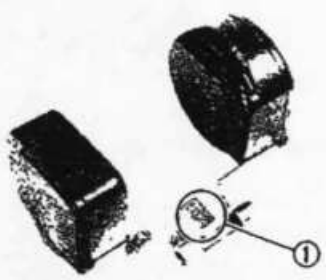
4. Measure:
   - Float height ⓐ
     Out of specification → Adjust.

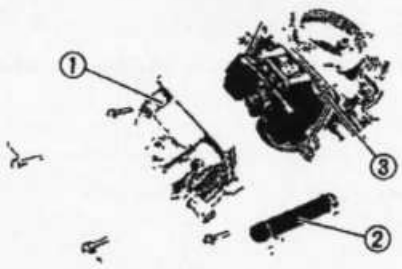
Float Height (F.H.): 20 ~ 21 mm (0.79 ~ 0.83 in)

Measurement and adjustment steps:
- Hold the carburetor in an upside down position.
- Measure the distance from the mating surface of the float chamber (gasket removed) to the top of the float.

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.





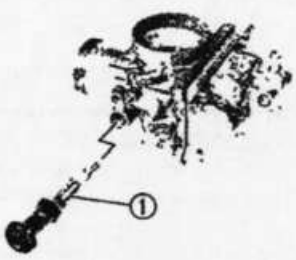
5. Install:
   - Float chamber ①
   - Hose ②
   - Gasket (Float chamber) ③

⚠ WARNING:

Always use a new gasket.

6. Tighten:
   - Screws (Float chamber)

	Screw (Float Chamber): 2 Nm (0.2 m · kg, 1.4 ft · lb)



7. Install:
   - Starter plunger ①

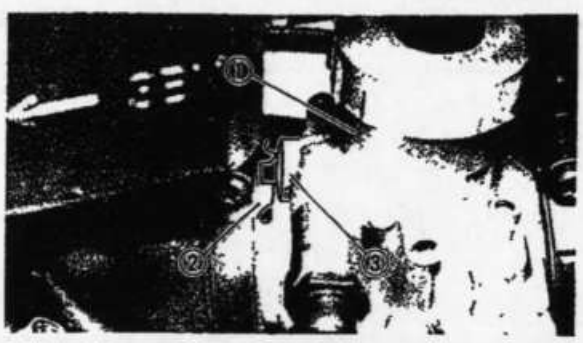
	Nut (Starter Plunger): 3 Nm (0.3 m · kg, 2.2 ft · lb)



8. Install:
   - Throttle valve

NOTE:

Align the groove ① of the throttle valve with the projection of the carburetor body.



INSTALLATION

Reverse the "REMOVAL" procedures.
Note the following points.

1. Install:
   - Carburetor assembly ①

NOTE:

Align the groove ② of the carburetor joint with the projection ③ of the carburetor body.

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

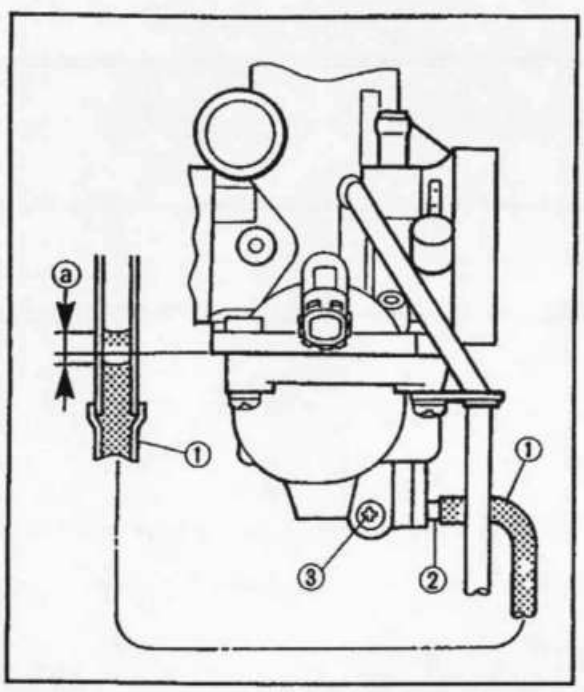
Engine Idle Speed:
1,300 ~ 1,400 r/min

3. 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)

4. Adjust:
   • Carburetor cable free play
   Refer to the "CARBURETOR CABLE FREE PLAY ADJUSTMENT" section in the CHAPTER 3.

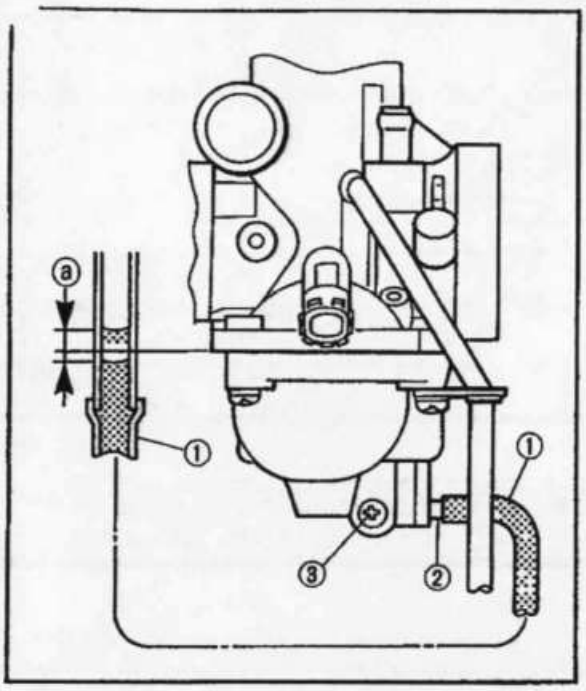
Carburetor Cable Free Play:
1.0 mm (0.04 in)



ADJUSTMENT
Fuel Level Adjustment
1. Measure:
   • Fuel level ⓐ
   Out of specification → Adjust.

Fuel Level ⓐ :
–0.5~ + 1.5 mm
(–0.02~ + 0.06 in)
In the Middle of the Float Chamber Below the Carburetor Body Edge.

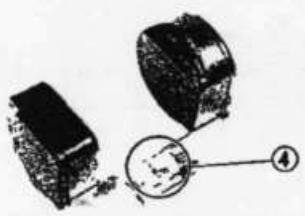
Fuel level measurement and adjustment steps:
- Place the motorcycle on a level surface.
- Use a garage jack under the engine to ensure that the carburetor is positioned vertically.



- Connect the Fuel Level Gauge ① to the drain pipe ②.

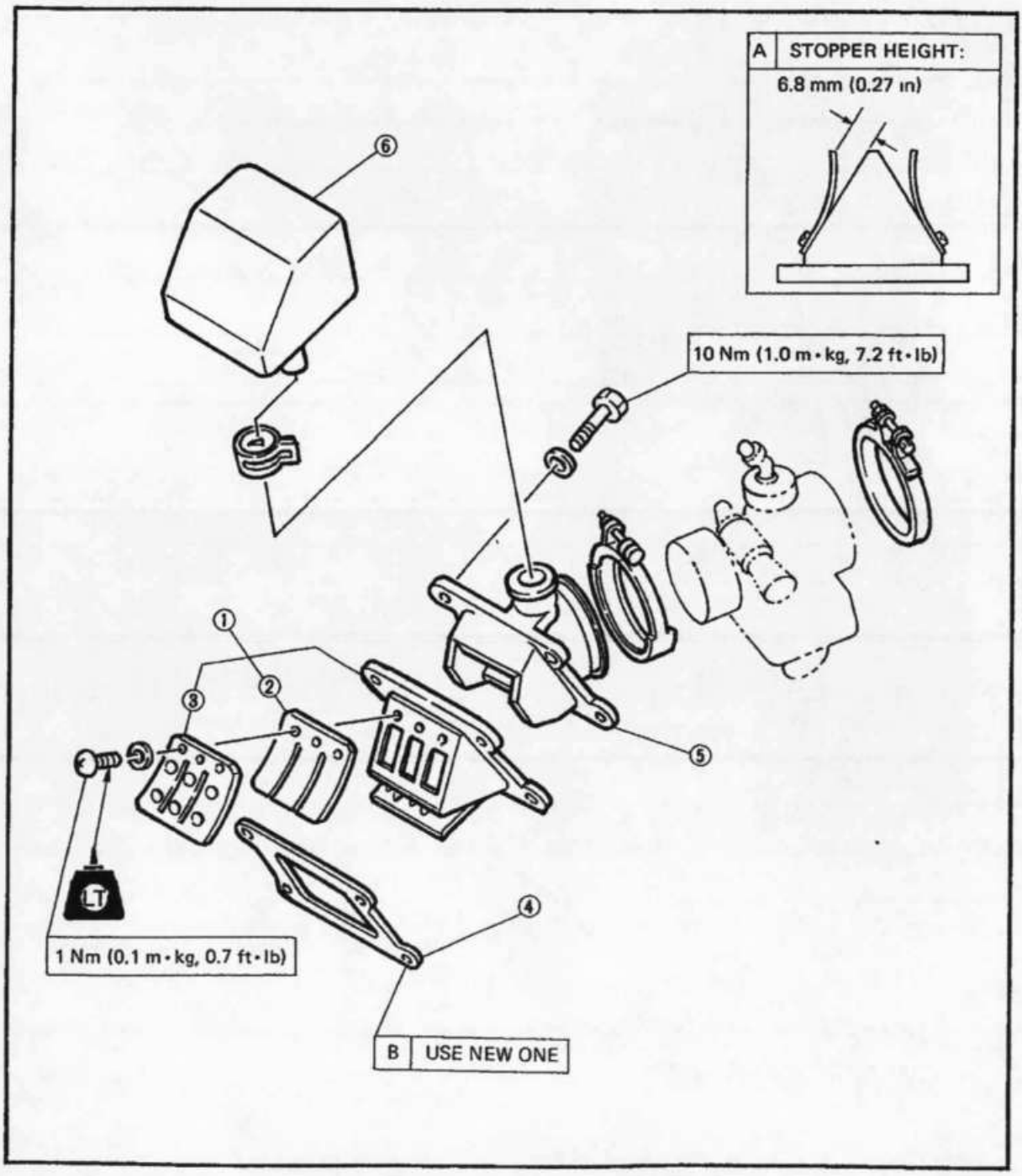
Fuel Level Gauge:
90890-01312

- Loosen the drain screw ③ and warm up the engine for several minutes.
- Measure the fuel level a with the gauge.
- If the fuel level is incorrect, adjust the fuel level.
- Remove the carburetor.
- Inspect the valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust float level by bending the float tang ④ slightly.
- Install the carburetor.
- Recheck the fuel level.



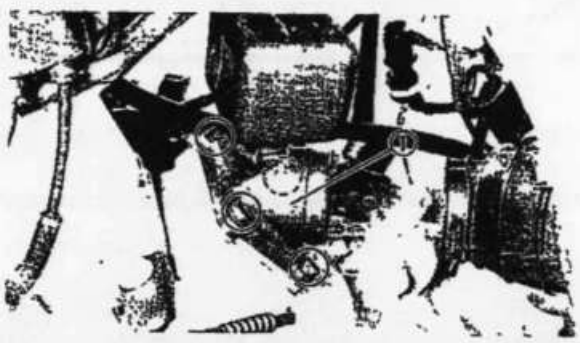
REED VALVE

① Reed valve assembly
② Reed valve
③ Stopper plate
④ Gasket
⑤ Carburetor joint
⑥ Y.E.I.S. chamber

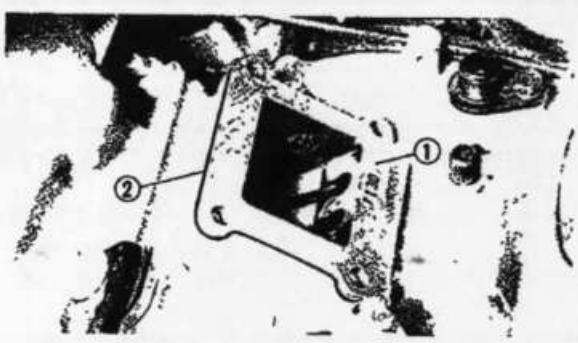


REMOVAL

1. Remove:
   - Carburetor
     Refer to the "CARBURETOR–REMOVAL" section.

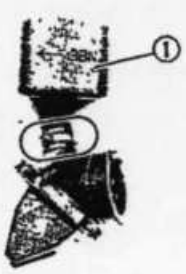


2. Remove:
   - Carburetor joint ①

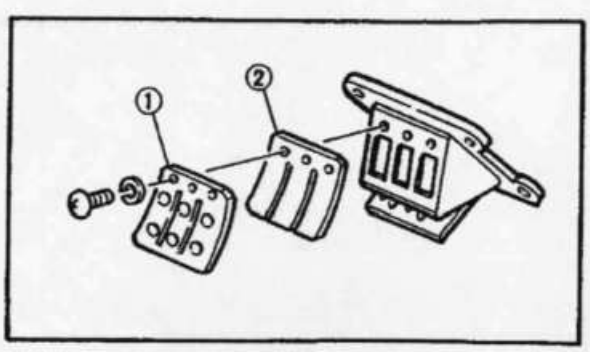


3. Remove:
   - Reed valve assembly ①
   - Gasket ②

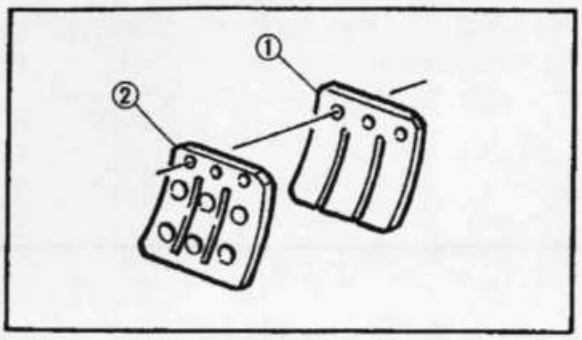
DISASSEMBLY



1. Remove:
   - Y.E.I.S. chamber ①



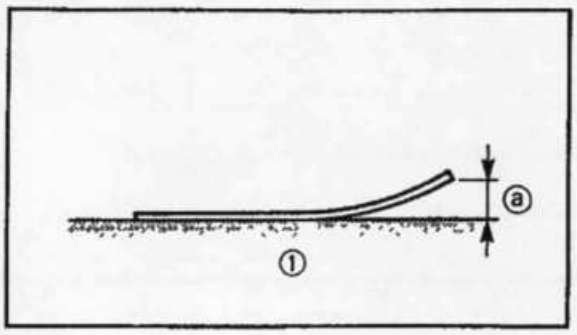
2. Remove:
   - Reed valve stopper ①
   - Reed valve ②



INSPECTION

1. Inspect:
   - Reed valve ①
   - Reed valve stopper ②

   Cracks/Damage → Replace.

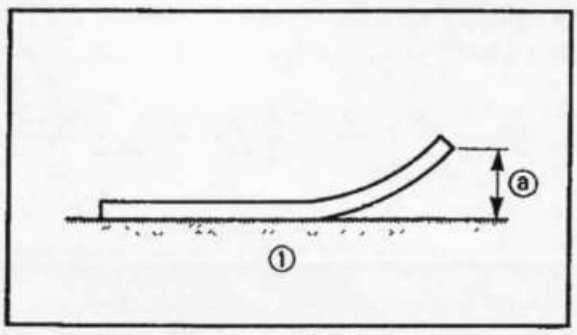


2. Measure:
   - Reed valve bending limit ⓐ

   Out of specification → Replace.

Reed Valve Bending Limit:
0.5 mm (0.02 in)

① Surface plate

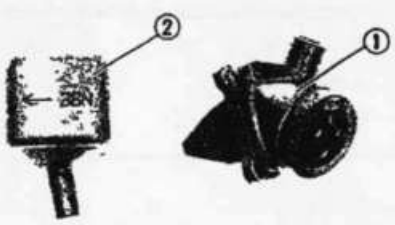


3. Measure:
   - Reed valve stopper height ⓐ

   Out of specification → Replace.

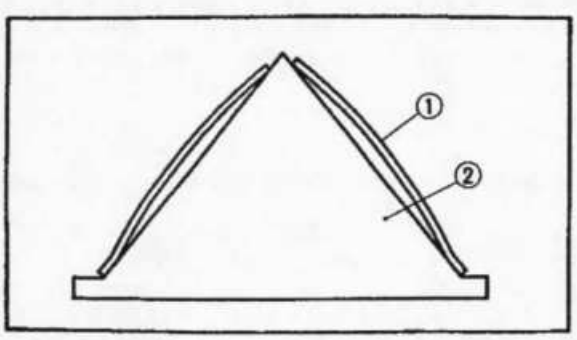
Reed Valve Stopper Height:
6.8 mm (0.27 in)

① Surface plate



4. Inspect:
   - Carburetor Joint ①
   - Y.E.I.S. chamber ②

   Cracks/Damage → Replace.



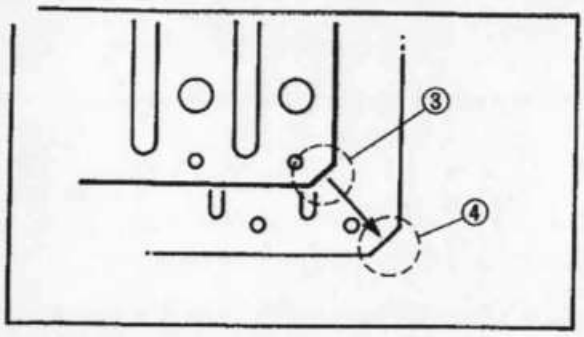
ASSEMBLY

Reverse the "DISASSEMBLY" procedure.
Note the following points.

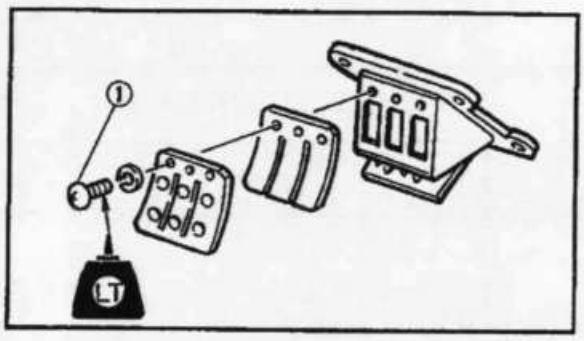
1. Install:
   - Reed valves
   - Reed valve stoppers

NOTE:

- Place the reed valve ① with its concave facing the reed valve seat ②.



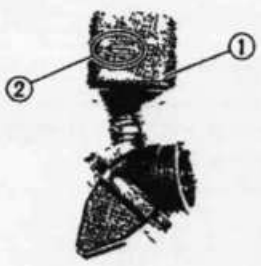
• Fit the reed valve stopper cut ③ with the corresponding cut ④ on the reed valve.



2. Tighten:
   • Screws (Reed valve) ①

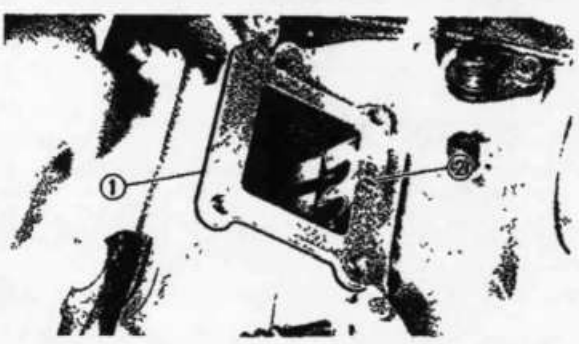
	Screws (Reed Valve): **1 Nm (0.1 m · kg, 0,7 ft · lb)** **Use LOCTITE ® .**

NOTE:
Tighten each screw gradually to avoid warping.



3. Install:
   • Y.E.I.S. chamber ①

NOTE:
The arrow ② on the Y.E.I.S. chamber must point forward.



INSTALLATION
Reverse the "REMOVAL" procedure.
Note the following points.

1. Install:
   • Gasket (New) ①
   • Reed valve assembly ②

⚠ WARNING:
A damaged gasket may cause the engine revs to accelerate. Always use a new gasket.



2. Install:
   - Carburetor joint ①

	Bolt (Carburetor Joint): **10 Nm (1.0 m · kg, 7.2 ft · lb)**

CHASSIS

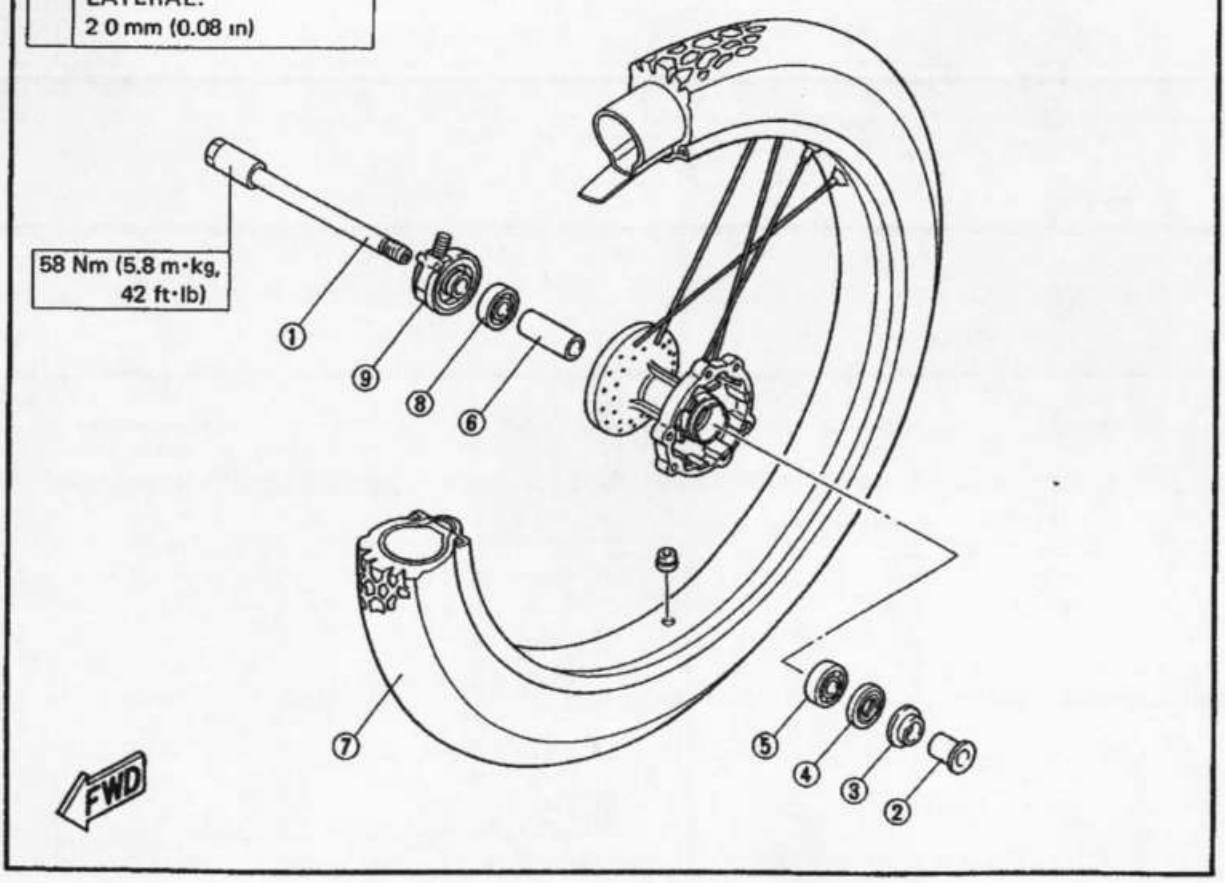
FRONT WHEEL

① Wheel axle
② Collar
③ Dust cover
④ Oil seal
⑤ Bearing
⑥ Collar
⑦ Front wheel
⑧ Bearing
⑨ Gear unit (Speedometer)

Basic weight: With oil and full fuel fank	119 kg (262 lb)	
Maximum load*	Front	Rear
	47 kg (104 lb)	134 kg (295 lb)
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	130 kPa (1.3 kg/cm², 18 psi)	150 kPa (1.5 kg/cm², 22 psi)
90 kg (198 lb) ~ Maximum load*	150 kPa (1.5 kg/cm², 22 psi)	180 kPa (1.8 kg/cm², 26 psi)
Off-road riding	130 kPa (1.3 kg/cm², 18 psi)	150 kPa (1.5 kg/cm², 22 psi)

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

A	TIRE SIZE: 7.25-21 4PR
B	RIM SIZE: 1.60 x 21
C	RIM RUNOUT LIMIT: VERTICAL: 2.0 mm (0.08 in) LATERAL: 2.0 mm (0.08 in)

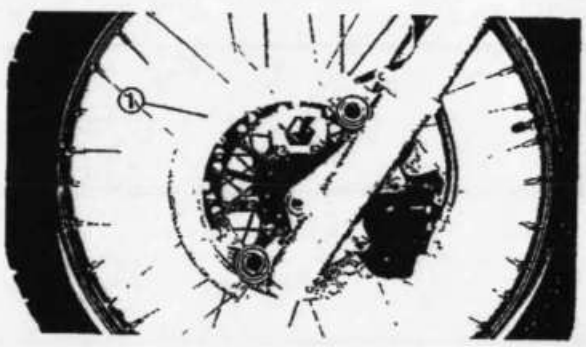


REMOVAL

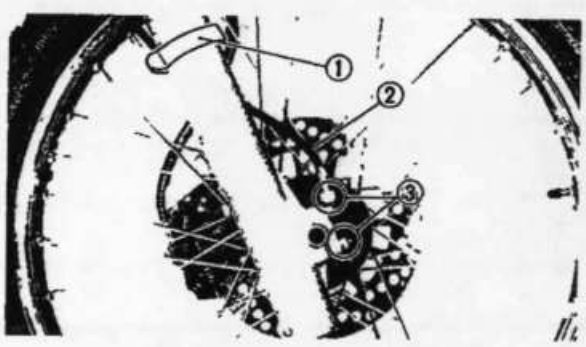
1. Elevate the front wheel by placing a suitable stand under the engine.

⚠ WARNING:

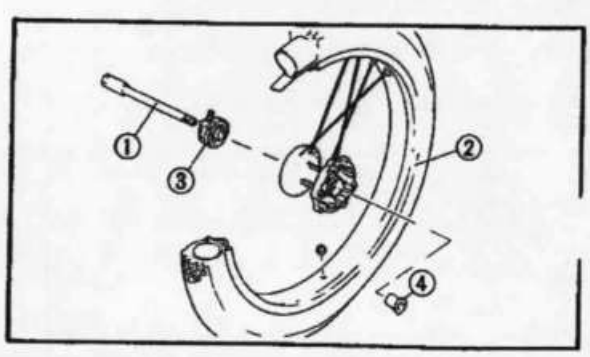
Support the motorcycle securely so there is no danger of it falling over.



2. Remove:
   - Disc cover (Front – Half) ①



3. Remove:
   - Cable holder (Speedometer) ①
4. Disconnect:
   - Speedometer cable ②
5. Loosen:
   - Nuts (Axle holder) ③



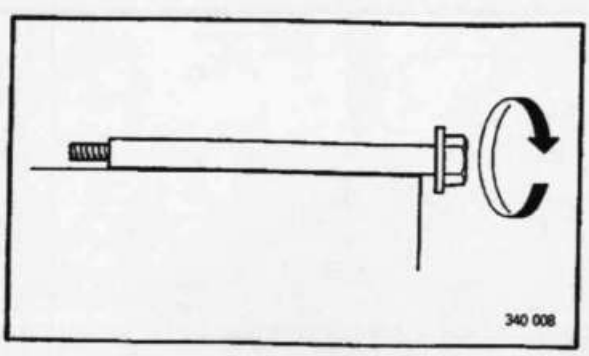
6. Remove:
   - Front wheel axle ①
   - Front wheel ②
   - Gear unit (Speedometer) ③
   - Spacer collar ④

NOTE:

Do not depress the brake lever when the wheel is off the motorcycle otherwise the brake pads will be forced shut.

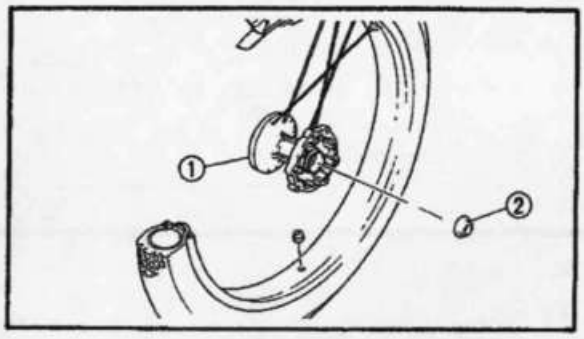
INSPECTION

1. Eliminate any corrosion from parts.
2. Inspect:
   - Front wheel axle
     Roll the axle on a flat surface.
     Bends → Replace.

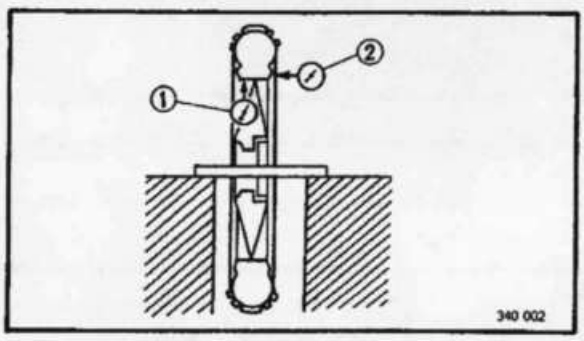


⚠ WARNING:

Do not attempt to straighten a bent axle.

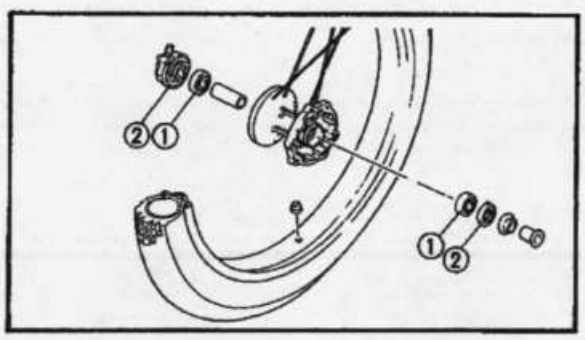


3. Inspect:
- Wheel hub ①
- Dust cover (Bearing) ②
  Wear/Cracks/Damage → Replace.
- Wheel
  Refer to the "WHEEL INSPECTION" section in the CHAPTER 3.

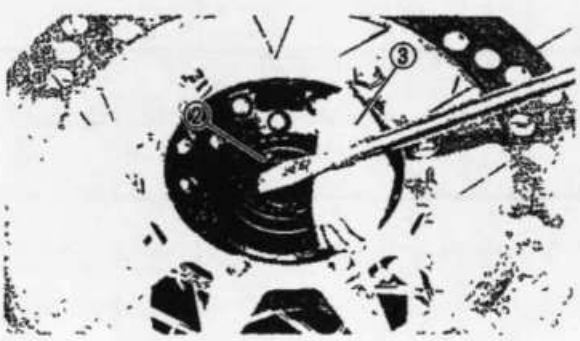


4. Measure:
- Wheel runout
  Out of specification → Check the wheel and bearing play.

Rim Runout Limits:
Vertical ① : 2.0 mm (0.08 in)
Lateral ② : 2.0 mm (0.08 in)



5. Check:
- Wheel bearings ①
  Bearings allow play in the wheel hub or wheel turns roughly → Replace.
- Oil seals ②
  Wear/Damage → Replace.

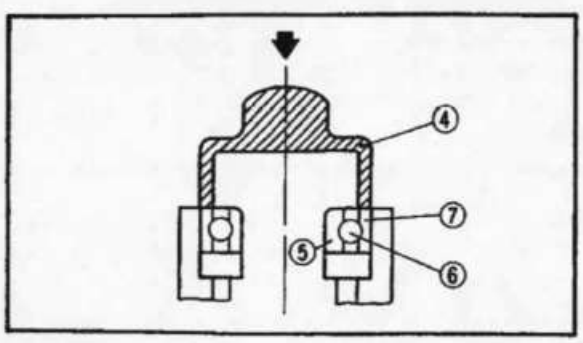


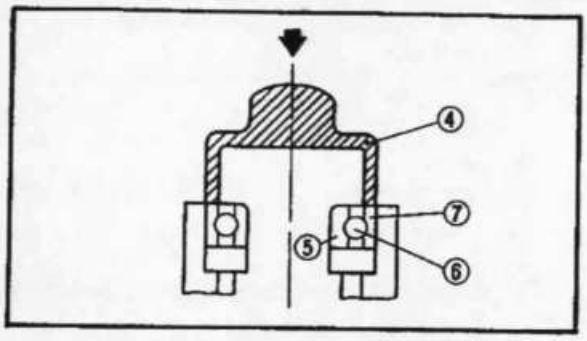
Wheel bearing and oil seal replacement steps:
- Clean the outside of the wheel hub.
- Remove the oil seals ② use a flat-head screw driver.

NOTE:
Place a rag ③ against the outer edge to protect this edge.

- Remove the bearings ① using a general bearing puller.
- Install the new bearings and oil seals by reversing the previous steps.

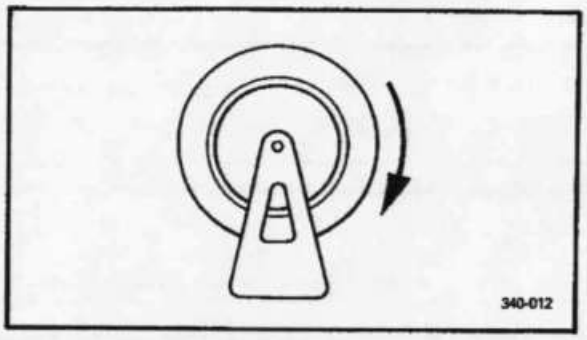
NOTE:
Use a socket ④ that matches the outside diameter of the race of the bearing and oil seal.





CAUTION:

Do not strike the center race ⑤ or balls ⑥ of the bearing. Contact should be made only with the outer race ⑦.



6. Check:
   - Wheel balance

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

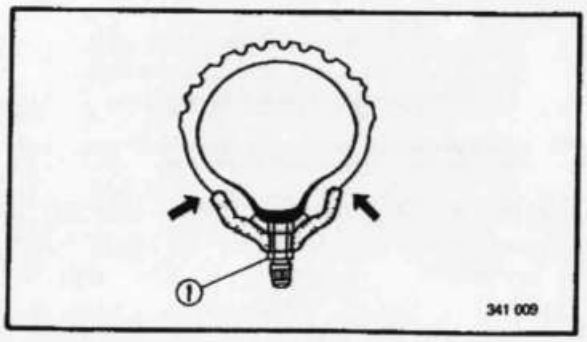
   Out of balance → Install appropriate balance weight at lightest point (on top).

NOTE:

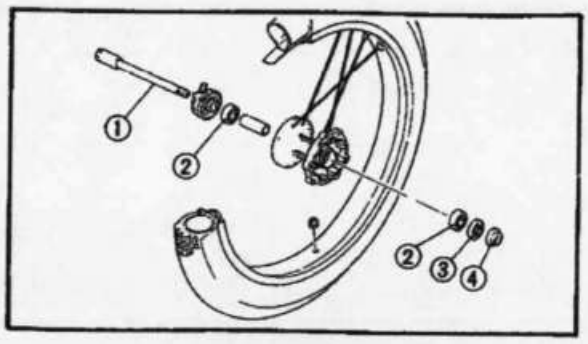
Balance wheel with brake disc installed.

⚠ WARNING:

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



Valve Stem Locknut:
1.5 Nm (0.15 m·kg, 1.1 ft·lb)

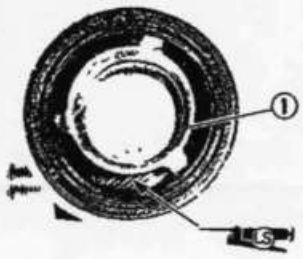


INSTALLATION

Reverse the removal procedure.

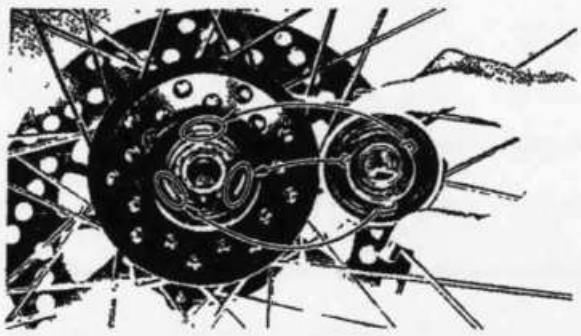
Note the following points.

1. Lubricate:
   - Front wheel axle ①
   - Bearings ②
   - Oil seals (Lip) ③
   - Dust cover (Inside) ④



2. Lubricate:
   • Gear unit (Speedometer) ①

	Lithium Soap Base Grease



3. Install:
   • Gear unit assembly

NOTE:
Make sure the projections on the meter clutch are meshed with the flats in the wheel hub.



4. Install:
   • Front wheel assembly

NOTE:
Be sure the boss on the outer fork tube is pressed against the projection on the gear unit housing.



5. Tighten:
   • Front wheel axle ①
   • Nuts (Axle holder) ②

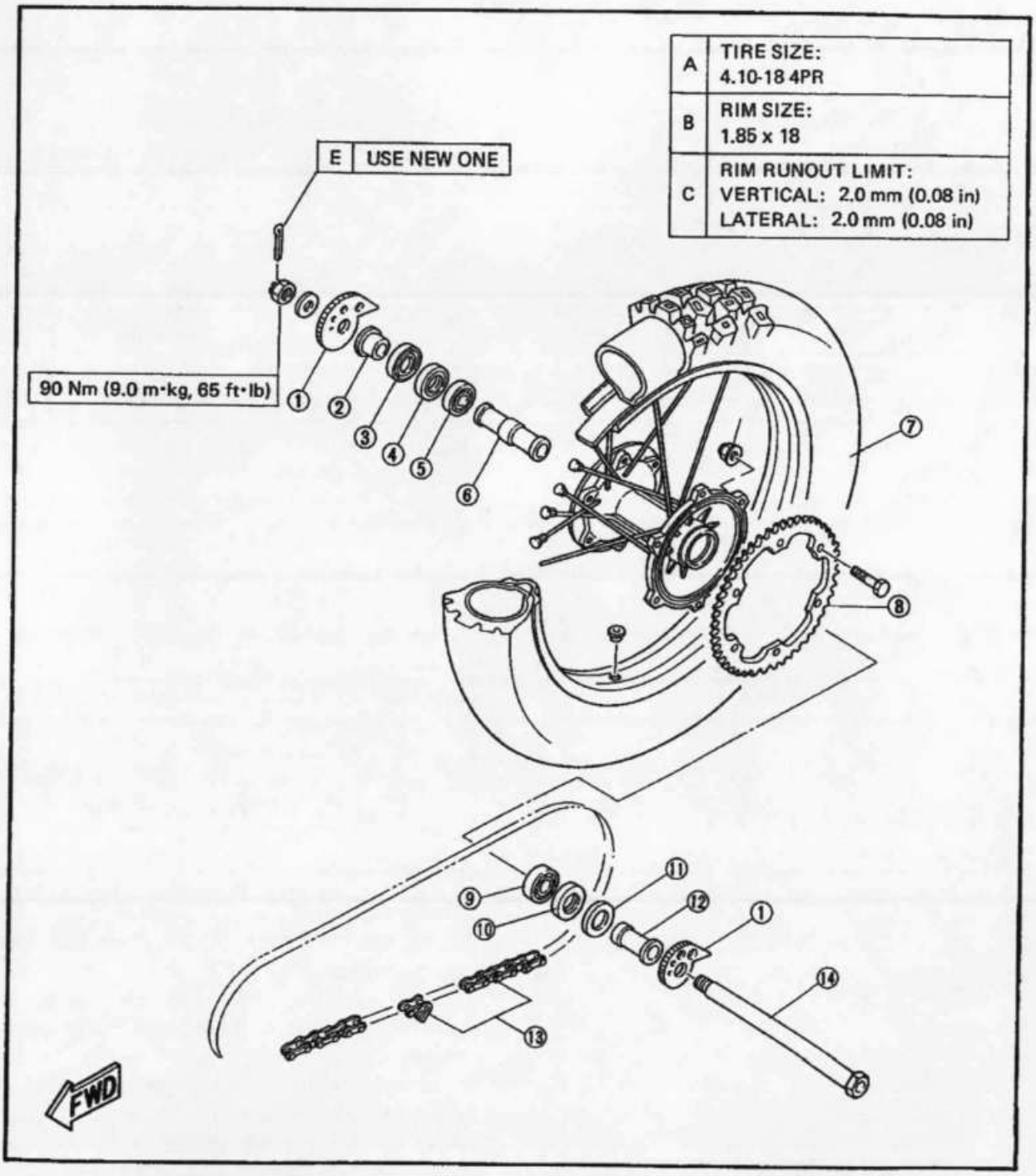
	Wheel Axle (Front): **58 Nm (5.8 m·kg, 42 ft·lb)** **Nut (Axle Holder):** **10 Nm (1.0 m·kg, 7.2 ft·lb)**

⚠ CAUTION:

- **Before tightening the nuts (Axle holder), compress the front forks several times to allow proper fork setting.**
- **First tighten the upper nuts and then lower nuts of the wheel axle holder to the specified torque.**
  Note that there will be a gap ⓐ between the holder and bracket.

..EAR WHEEL

① Chain puler
② Collar
③ Dust cover
④ Oil seal
⑤ Bearing
⑥ Collar
⑦ Rear wheel
⑧ Driven sprocket
⑨ Bearing
⑩ Oil seal
⑪ Dust cover
⑫ Collar
⑬ Drive chain
⑭ Wheel axle

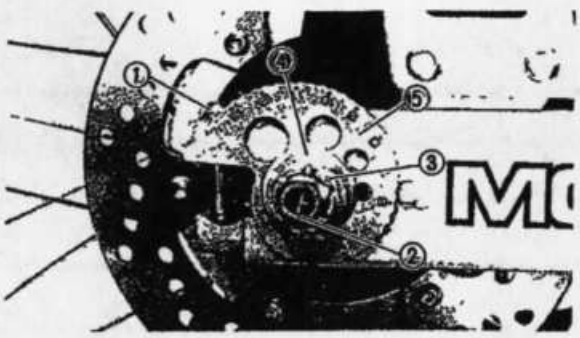


REMOVAL

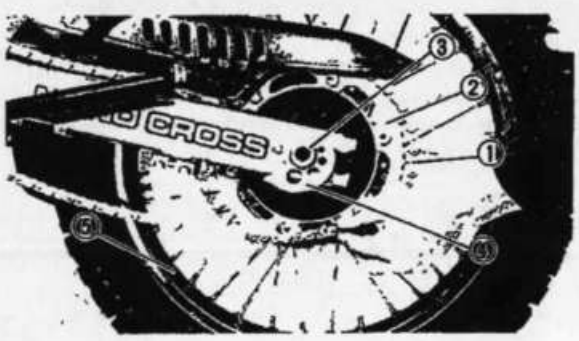
1. Elevate the rear wheel by placing a suitable stand under the engine.

⚠ WARNING:

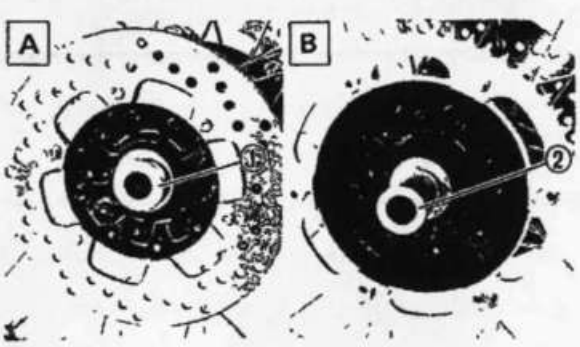
Support the motorcycle securely so there is no danger of it falling over.



2. Remove:
   - Bolts (Swingarm end) ①
   - Cotter pin ②
   - Nut (Rear wheel axle) ③
   - Washer ④
   - Chain puller (Right) ⑤



3. Push the rear wheel forward and disconnect the drive chain ① from the driven sprocket ② .
4. Remove:
   - Rear wheel axle ③
   - Chain puller (Left) ④
   - Rear wheel ⑤



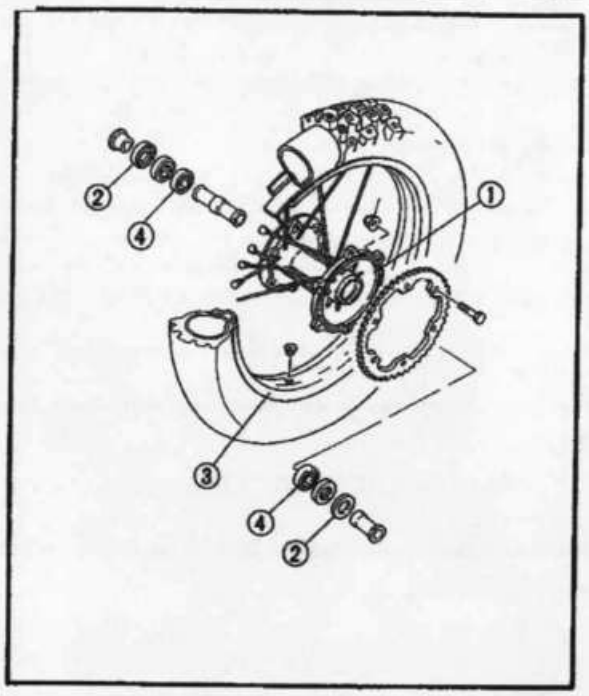
5. Remove:
   - Spacer collar ①
   - Spacer collar ②

[A] Right
[B] Left

INSPECTION

1. Inspect:
   - Rear wheel axle

   Refer to the "FRONT WHEEL – INSPECTION" section.



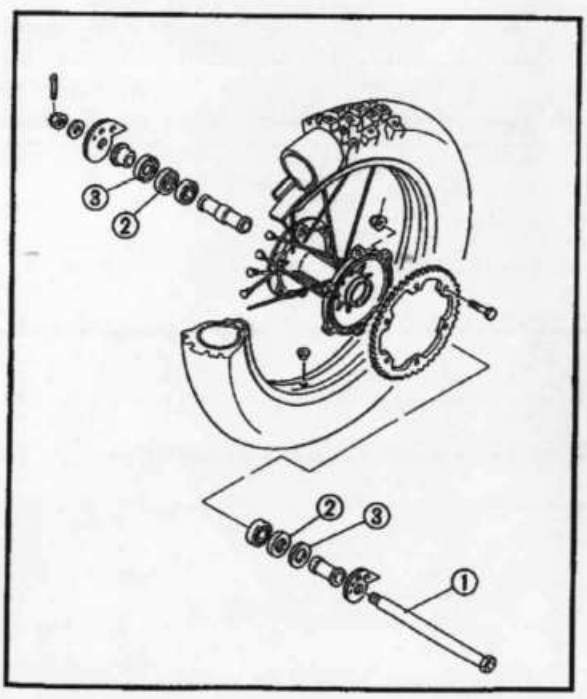
2. Inspect:
   - Wheel hub ①
   - Dust covers (Bearing) ②
   - Wheel ③

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

   Refer to the "FRONT WHEEL – INSPECTION" section.
4. Check:
   - Wheel bearings ④

   Refer to the "FRONT WHEEL – INSPECTION" section.
5. Check:
   - Wheel balance

   Refer to the "FRONT WHEEL – INSPECTION" section.



INSTALLATION

When installing the rear wheel, reverse the removal procedure. Note the following points.

1. Lubricate:
   - Rear wheel axle ①
   - Oil seals (Lip) ②
   - Dust covers (Inside) ③

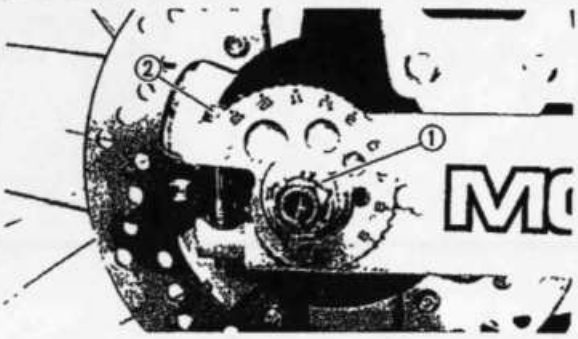
	Lithium Soap Base Grease

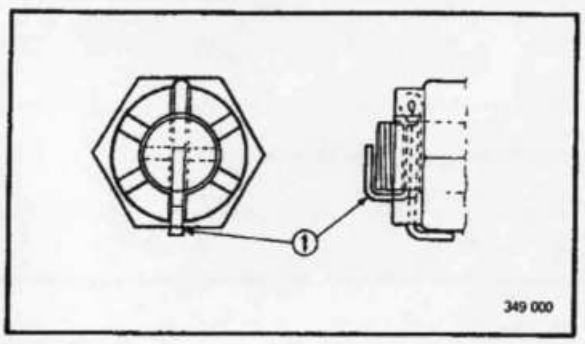


2. Adjust:
   - Drive chain slack ⓐ

	Drive Chain Slack: **25 ~ 40 mm (0.98 ~ 1.57 in)**

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





3. Tighten:
   - Nut (Rear wheel axle) ①
   - Bolts (Swingarm end) ②

Nut (Rear Wheel Axle):
90 Nm (9.0 m·kg, 65 ft·lb)
Bolt (Swingarm End):
3 Nm (0.3 m·kg, 2.2 ft·lb)

4. Install:
   - Cotter pin ①

⚠ CAUTION:

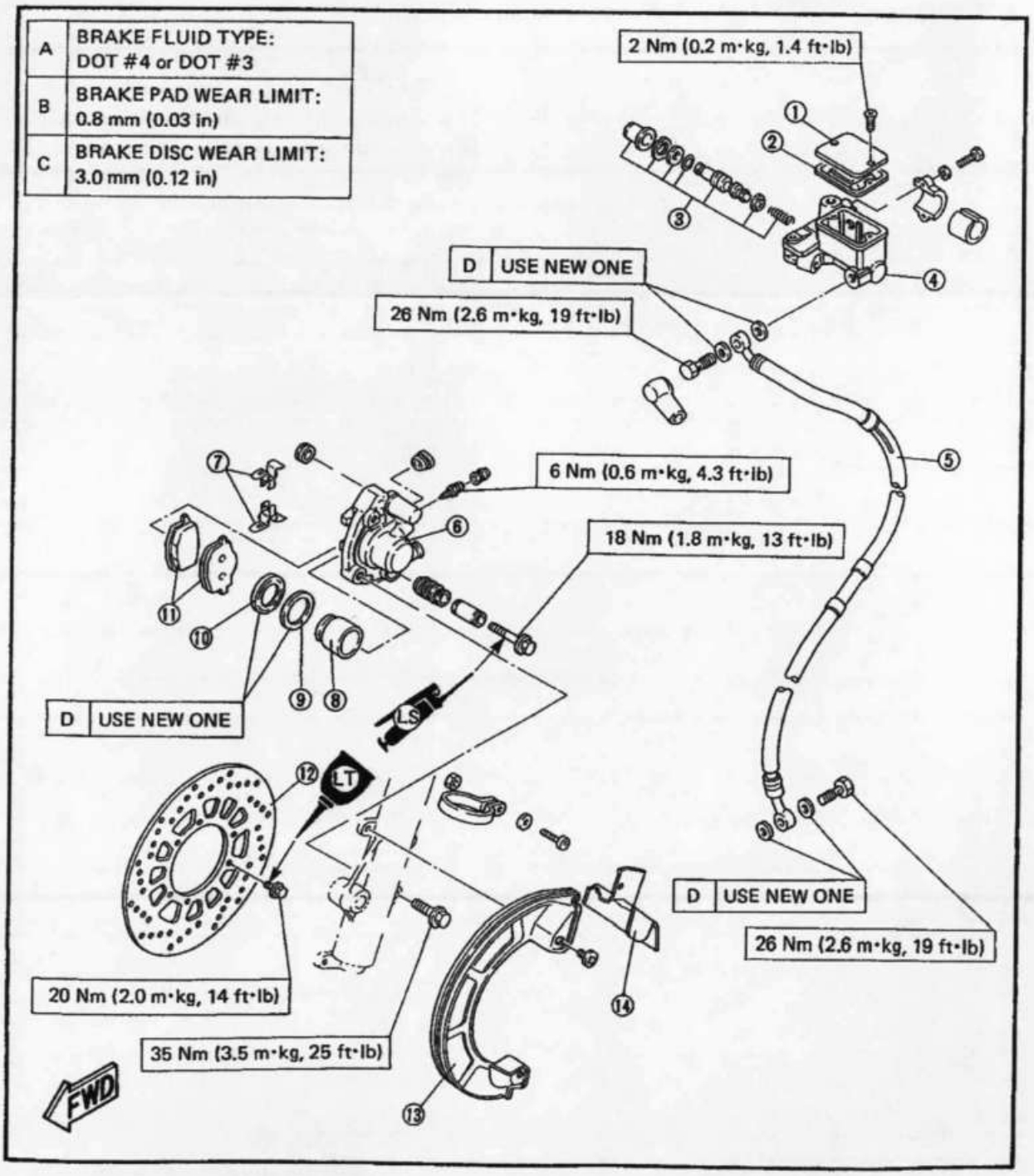
Do not loosen the axle nut after torque tightening. If the axle nut groove is not aligned with the cotter pin hole, align groove with the hole by tightening up on the axle nut.

⚠ WARNING:

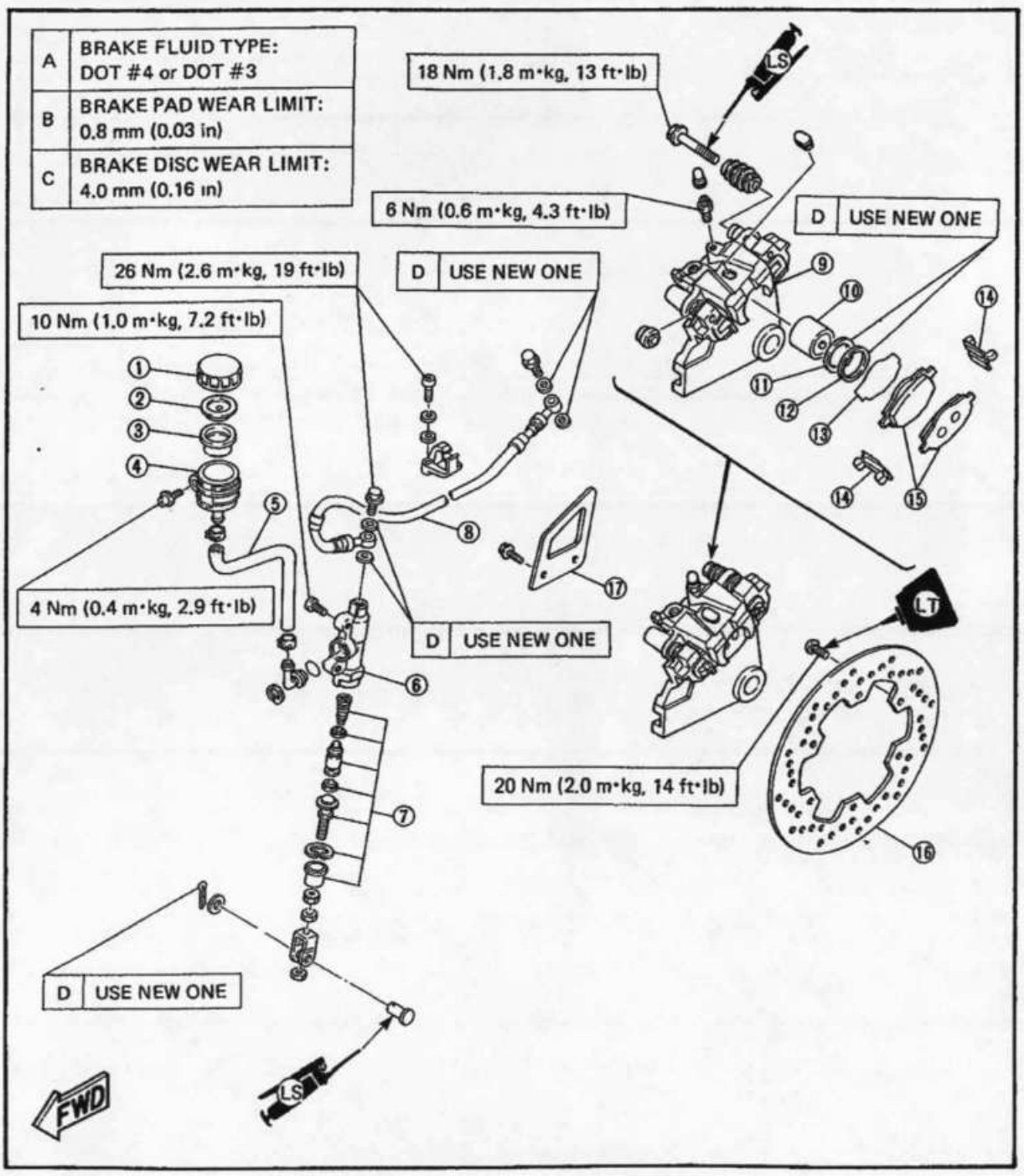
Always use a new cotter pin.

FRONT AND REAR BRAKE

① Master cylinder cap
② Diaphragm
③ Master cylinder kit
④ Master cylinder
⑤ Brake hose
⑥ Brake caliper
⑦ Pad spring
⑧ Piston
⑨ Piston seal
⑩ Dust seal
⑪ Brake pad
⑫ Brake disc
⑬ Disc cover
⑭ Caliper cover



① Reservoir tank cap
② Inner cap
③ Diaphragm
④ Reservoir tank
⑤ Reservoir hose
⑥ Master cylinder
⑦ Master cylinder kit
⑧ Brake hose
⑨ Brake caliper
⑩ Piston
⑪ Piston seal
⑫ Dust seal
⑬ Shim
⑭ Pad spring
⑮ Brake pads
⑯ Brake disc
⑰ Caliper protecter



⚠ CAUTION:

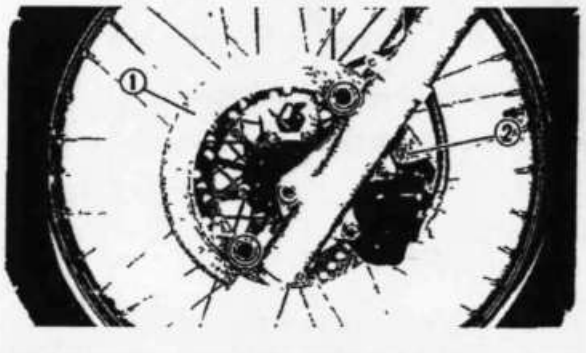
Disc brake components rarely require disassembly. DO NOT:

- **Disassembly components unless absolutely necessary.**
- **Use solvents on internal brake component.**
- **Use contaminated brake fluid for cleaning.**
- **Use only clean brake fluid.**
- **Allow brake fluid to come in contact with the eyes otherwise eye inury may occur.**
- **Allow brake fluid to contact painted surfaces or plastic parts otherwise damage may occur.**
- **Disconnect any hydraulic connection otherwise the entire system must be disassembled, drained, cleaned, and then properly filled and bled after reassembly.**

BRAKE PAD REPLACEMENT

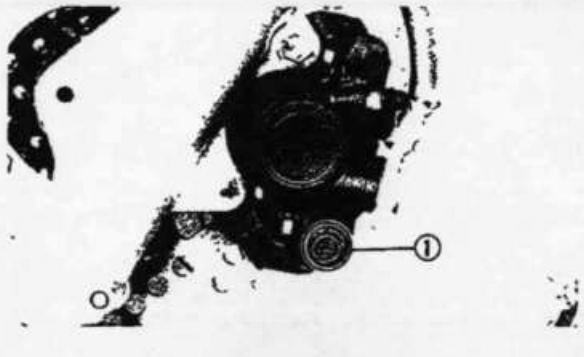
NOTE:

It is not necessary to disassemble the brake caliper and brake hose to replace the brake pads.

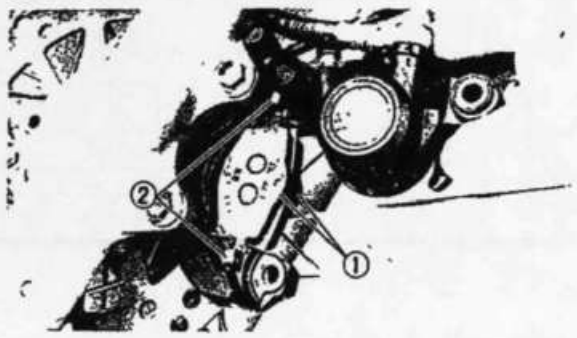


Front Brake

1. Remove:
   - Disc cover ①
   - Caliper cover ②



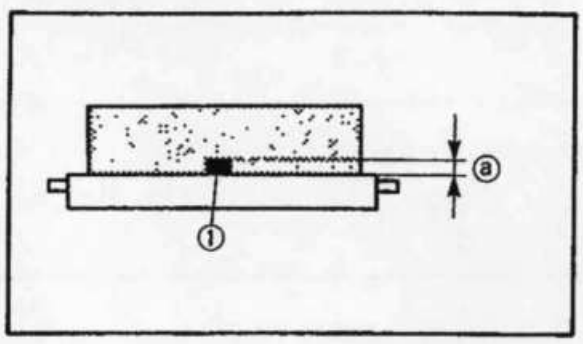
2. Remove:
   - Retaining bolt (Caliper body) ①
3. Turn the caliper body counterclockwise.



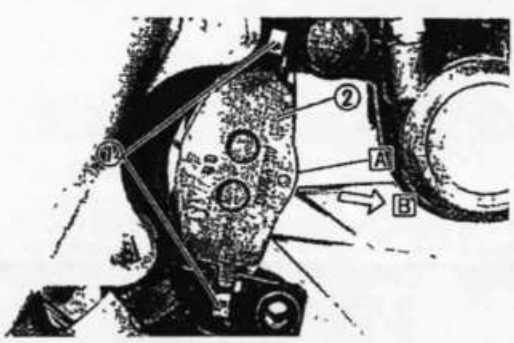
4. Remove:
   - Brake pads ①
   - Pad springs ②

NOTE:
- Replace the pad springs as a set if pad replacement is required.
- Replace the pads as a set if either is found to be worn to the wear limit ⓐ.

Wear Limit:
0.8 mm (0.031 in)



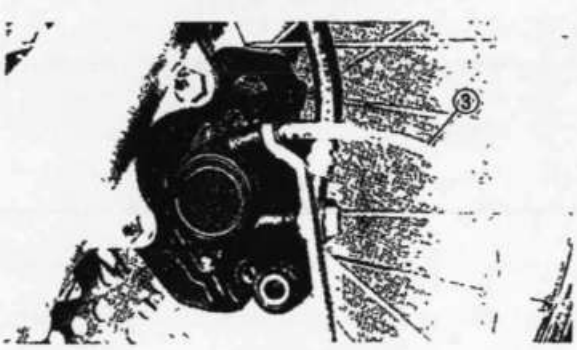
① Wear indicator



5. Install:
   - Pad springs ①
   - Brake pads ②

Installation steps:
- Be careful to install the pad springs ① in proper position as shown.
- Install the brake pads ②.

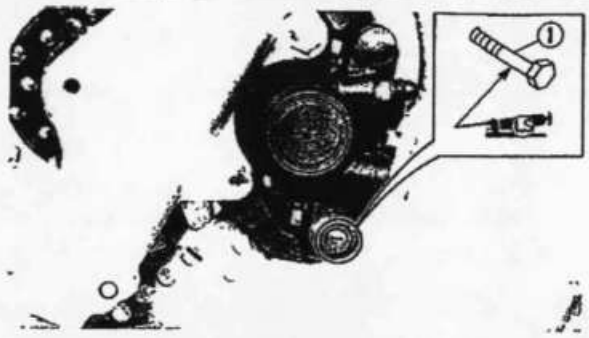
NOTE:
Be sure to position the pad so that its round side [A] is backward [B].



- Connect a suitable hose ③ tightly to the caliper bleed screw. Then, place the other end of this hose into an open container.
- Loosen the caliper bleed screw and push the piston into the caliper by your finger.
- Tighten the caliper bleed screw.

Caliper Bleed Screw:
6 Nm (0.6 m·kg, 4.3 ft·lb)



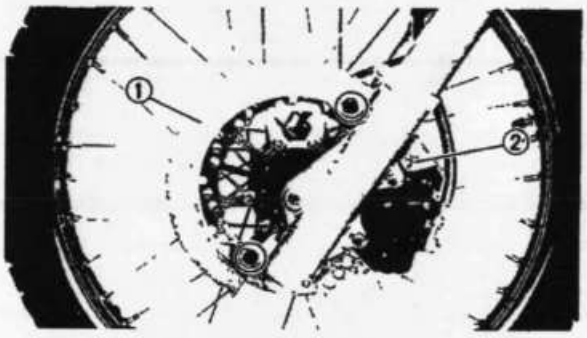


6. Lubricate:
   • Retaining bolt (Caliper body) ①

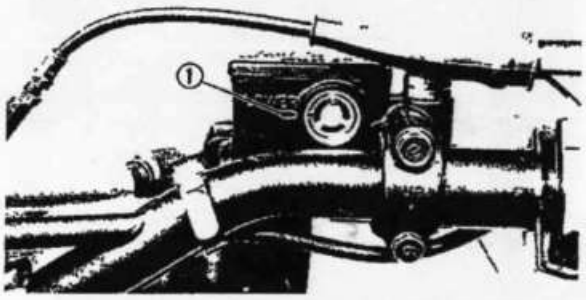
	Lithium Soap Base Grease

7. Tighten:
   • Retaining bolt (Caliper body) ①

	Retaining Bolt (Caliper Body): 18 Nm (1.8 m·kg, 13 ft·lb)



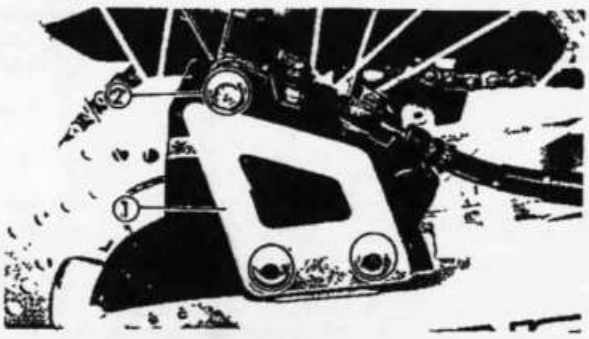
8. Install:
   • Disc cover ①
   • Caliper cover ②



9. Inspect:
   • Brake fluid level
   Refer to the "BRAKE FLUID INSPECTION" section in the CHAPTER 3.

①"LOWER" level line

10. Check:
   • Brake lever operation
   A softy or spongy filling → Bleed brake system.
   Refer to the "AIR BLEEDING" section.



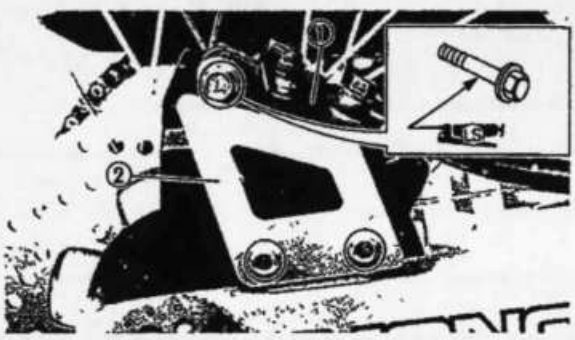
Rear Brake

1. Remove:
   • Protector (Caliper body) ①
   • Retaining bolt (Caliper body) ②
2. Turn the caliper body clockwise.

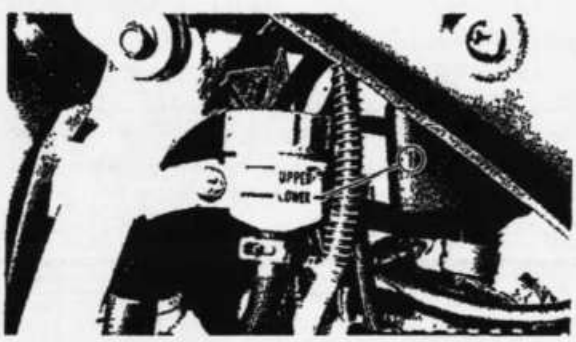


3. Remove:
   - Brake pads ①
   - Pad springs ②
   - Shim (Brake pad) ③
     (from caliper piston side only)
4. Replace:
   - Brake pad
     Refer to the steps 4 and 5 of the "Front Brake" section.

NOTE:
Be sure install the brake pad shim on the caliper piston side only.



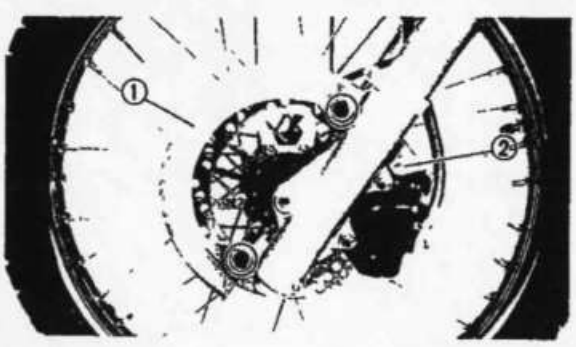
5. Install:
   - Caliper body ①
     Refer to the steps 6 and 7 of the "Front Brake" section.
   - Protector (Caliper body) ②



6. Inspect:
   - Brake fluid level
     Refer to the "BRAKE FLUID INSPECTION" section in the CHAPTER 3.

①"LOWER" level line

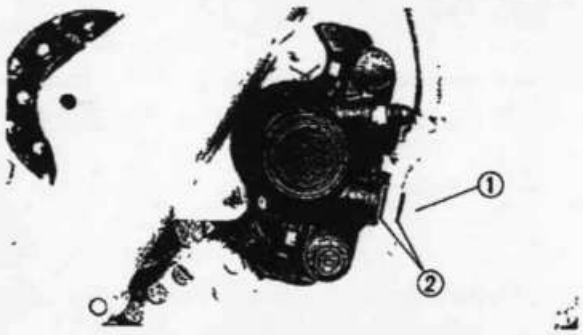
7. Check:
   - Brake pedal operation
     A softy or spongly filling → Bleed brake system.
     Refer to "AIR BLEEDING" section.



CALIPER DISASSEMBLY

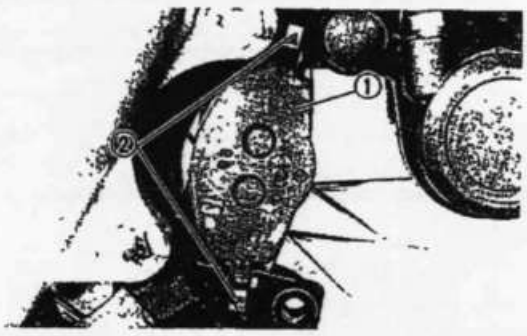
Front Brake

1. Remove:
   - Disc cover ①
   - Caliper cover ②



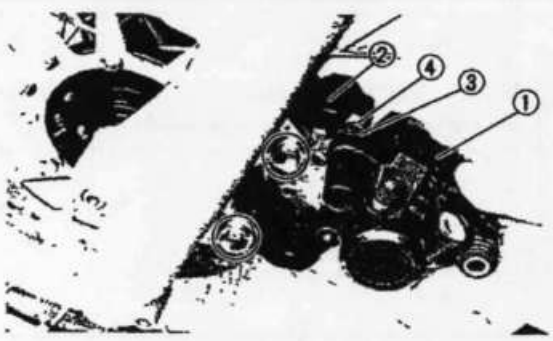
2. Remove:
   - Union bolt ①
   - Copper washers ②

NOTE:
Place the open hose end into a container and pump the oil fluid out carefully.



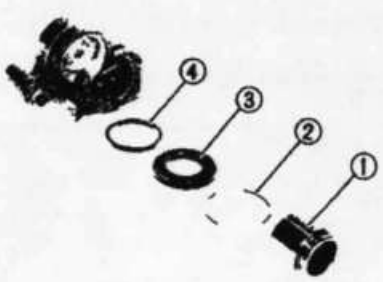
3. Remove:
   - Retaining bolt (Caliper body)
   - Brake pads ①
   - Pad springs ②

   Refer to the "BRAKE PAD REPLACEMENT" section.



4. Remove:
   - Caliper body ①
   - Caliper bracket ②

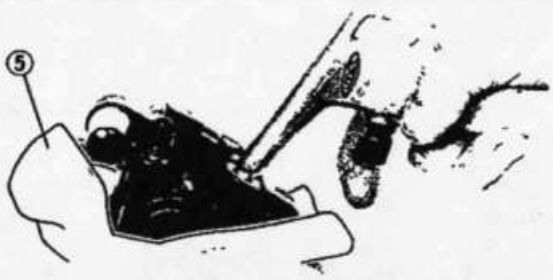
NOTE:
Before removing the caliper body from the bracket, disconnect the dust boot ③ from the guide shaft ④ on the bracket.

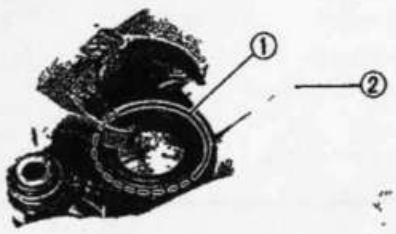


5. Remove:
   - Caliper piston ①
   - Clip ②
   - Dust seal ③
   - Piston seal ④

Removal steps:
- Blow moderately compressed air into the hose joint opening to force out the caliper piston from the caliper body.

⚠ WARNING:
- **Never try to pry out the caliper piston.**
- **Cover the piston with a rag ⑤ . Use care so that piston does not cause injury as it is expelled from the cylinder.**



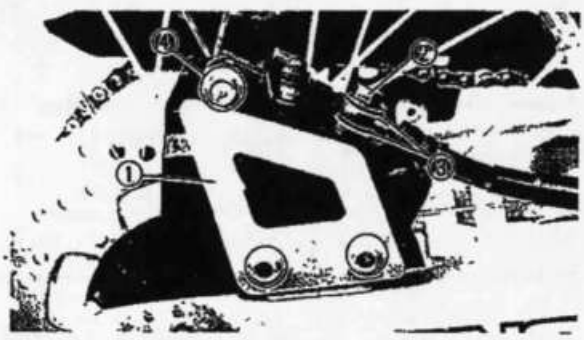


- Remove the clip ①, using a thin screw driver ②

CAUTION:

When removing the clip, take care not to damage the dust seal and caliper body.

- Remove the dust seal and piston seal.

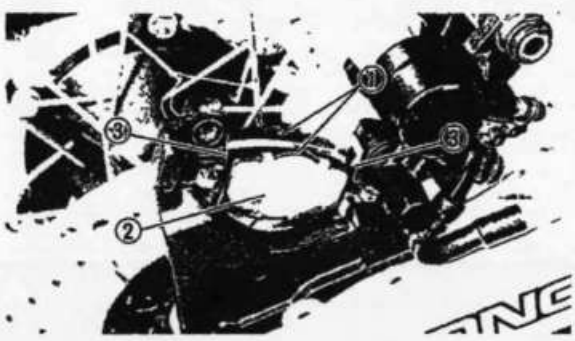


Rear Brake

1. Remove:
   - Protector (Caliper body) ①
   - Union bolt ②
   - Copper washers ③
   - Retaining bolt (Caliper body) ④

NOTE:

Place the open hose end into a container and pump the old fluid out carefully.



2. Remove:
   - Brake pads ①
   - Shim (Brake pad) ②
   - Pad springs ③

   Refer to the "BRAKE PAD REPLACEMENT" section.

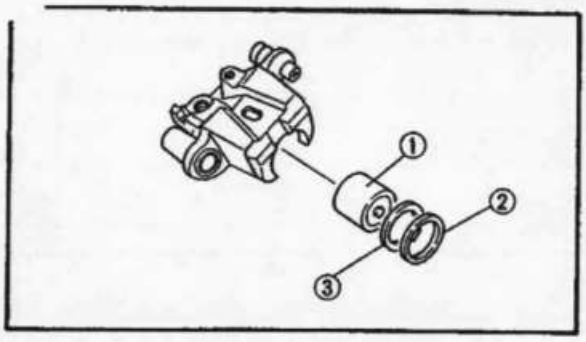


3. Disconnect the dust boot ① and then pull out the caliper body from the guide shaft ② on the caliper bracket ③.



4. Remove:
   - Rear wheel

   Refer to the "REAR WHEEL" section.
   - Caliper bracket ①

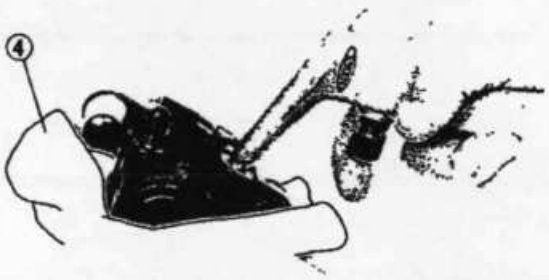


5. Remove:
   - Caliper piston ①
   - Dust seal ②
   - Piston seal ③

Removal steps:
- Blow moderately compressed air into the hose joint opening to force out the caliper piston from the caliper body.

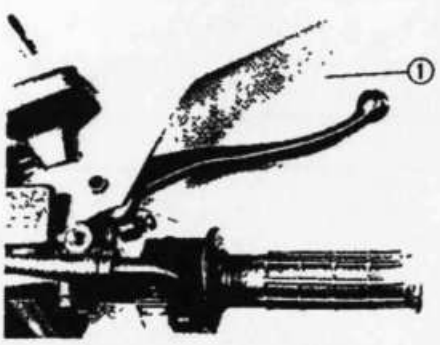
⚠ WARNING:
- **Never try to pry out the caliper piston.**
- **Cover the piston with a rag ④ . Use care so that piston does not cause injury as it is expelled from the cylinder**

- Remove the dust seal and piston seal.



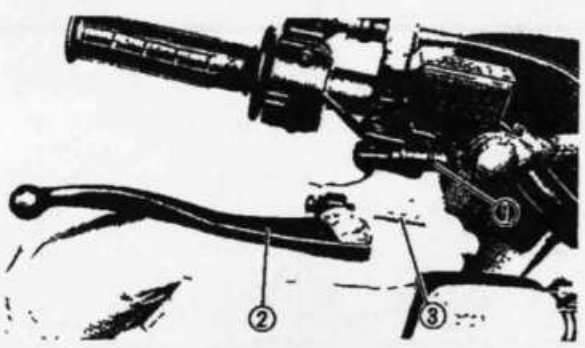
MASTER CYLINDER DISASSEMBLY

NOTE:
Before removing the front or rear brake master cylinders, drain the brake system of the brake fluid.



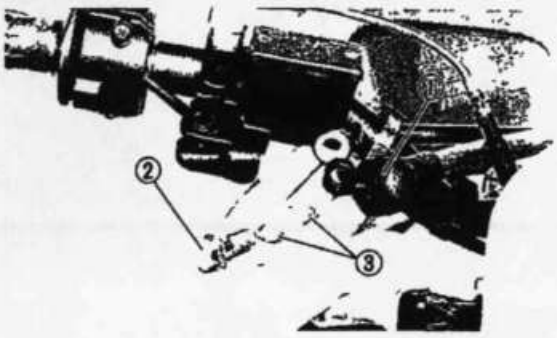
Front Brake

1. Remove:
   - Brush guard ①

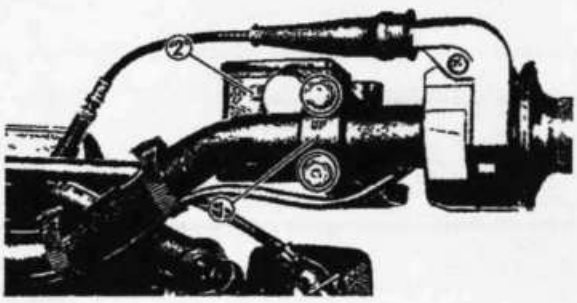


2. Remove:
   - Brake switch ①
   - Brake lever ②
   - Return spring (Brake lever) ③

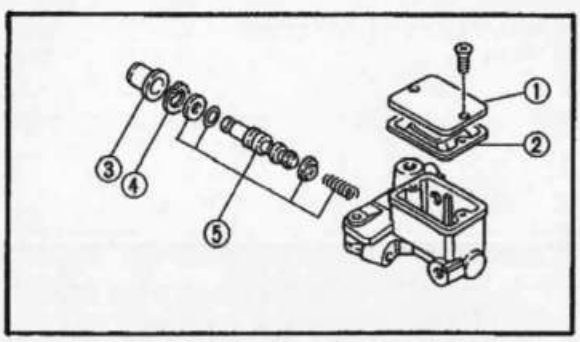
NOTE:
When removing the brake switch, push the switch hook using a suitable rod, then pull it out.



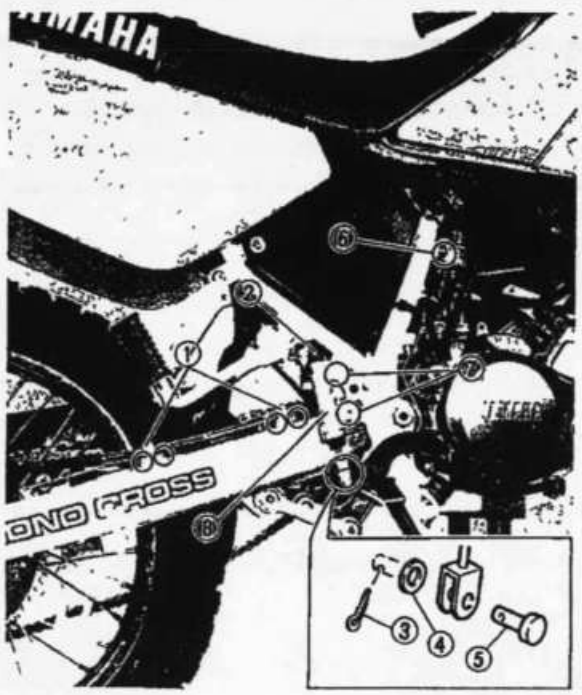
3. Pull back the brake hose cover ① from the master cylinder.
4. Remove:
   - Union bolt ②
   - Copper washers ③



5. Remove:
   - Bracket (Master cylinder) ①
   - Master cylinder ②

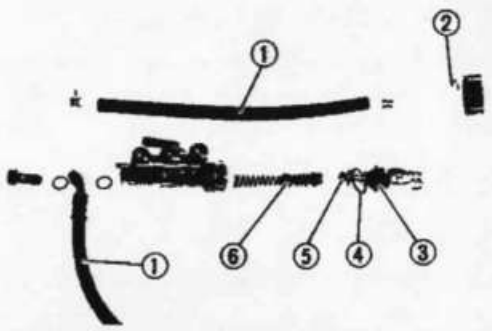


6. Remove:
   - Cap (Master cylinder) ①
   - Diaphragm ②
   - Dust boot ③
   - Circlip ④
   - Master cylinder kit ⑤

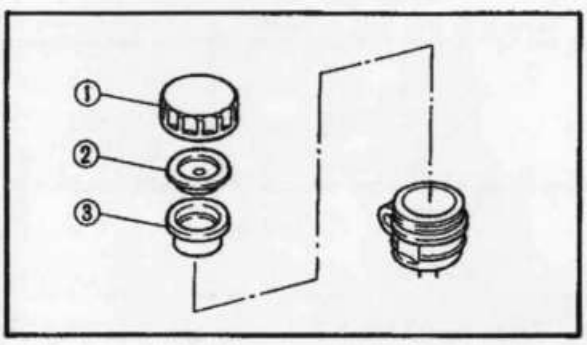


Rear Brake

1. Remove:
   - Brake hose guides ①
2. Loosen:
   - Union bolt ②
3. Remove:
   - Cotter pin ③
   - Washer ④
   - Cotter pin ⑤
   - Screw (Reservoir tank) ⑥
   - Bolts (Master cylinder) ⑦
   - Master cylinder ⑧
     (with brake hose and reservoir tank)



4. Remove:
   - Brake hoses ①
   - Reservoir tank ②
   - Dust boot ③
   - Circlip ④
   - Push rod ⑤
   - Master cylinder kit ⑥



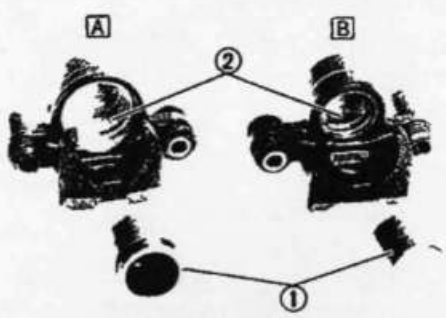
5. Remove:
   - Cap (Reservoir tank) ①
   - Inner cap (Reservoir tank) ②
   - Diaphragm ③

INSPECTION AND REPAIR

Recommended brake component replacement schedule:	
Brake pads	As required
Piston seal, dust seal	Every two years
Brake hoses	Every four years
Brake fluid	Replace only when brakes are disassembled

⚠ WARNING:

All internal parts should be cleaned in new brake fluid only. Do not use solvents will cause seals to swell and distort.



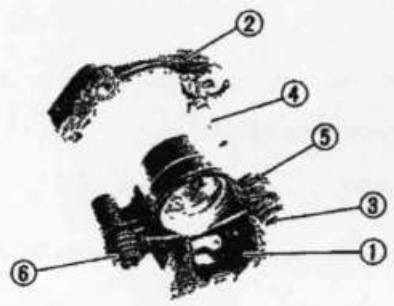
1. Inspect:
   - Caliper piston ①
     Scratches/Rust/Wear → Replace caliper assembly.
   - Caliper cylinder ②
     Wear/Scratches → Replace caliper assembly.

A Front
B Rear

⚠ WARNING:

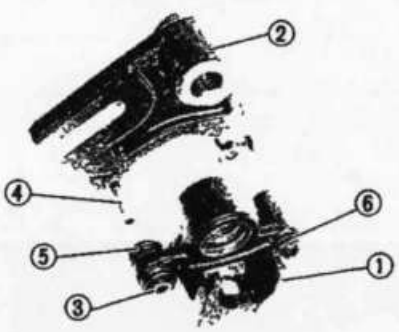
Replace the piston seal and dust seal whenever a caliper is disassembled.

A



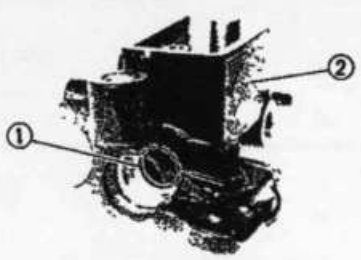
2. Inspect:
   - Caliper body ①
   - Caliper bracket ②
     Cracks/Damage → Replace.
   - Oil delivery passage (Caliper body)
     Blow out with compressed air.
   - Slide collar (Caliper body) ③
   - Guide shaft (Caliper bracket) ④
     Rust/Wear/Damage → Replace.
   - Slider boot (Caliper body) ⑤
   - Dust boot (Guide pin – Bracket) ⑥
     Wear/Damage → Replace.

B



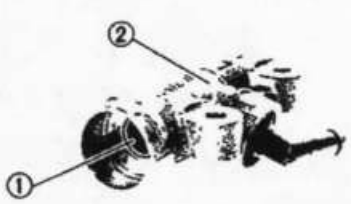
A Front
B Rear

A

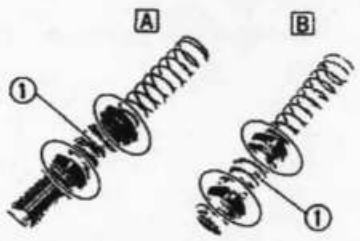


3. Inspect:
   - Master cylinder ①
     Wear/Scratches → Replace the caliper assembly.
   - Master cylinder body ②
     Cracks/Damage → Replace.
   - Oil delivery passage (Caliper body)
     Blow out with compressed air.

B

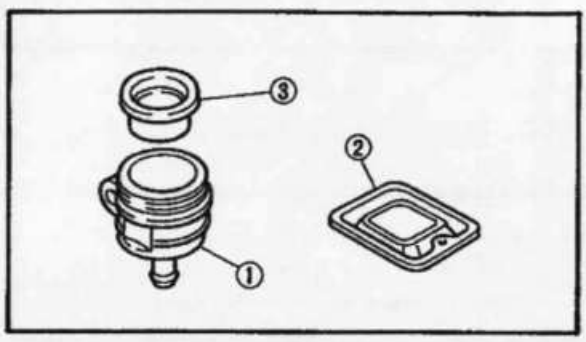


A Front
B Rear

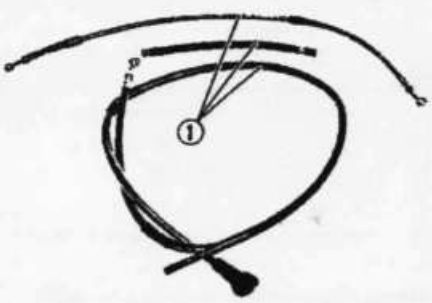


4. Inspect:
   Master cylinder kit ①
   Scratches/Wear/Damage → Replace.

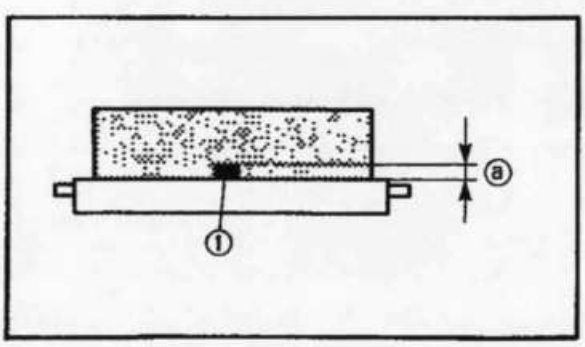
A Front
B Rear



5. Inspect:
   • Reservoir tank ①
   Cracks/Damage → Replace.
   • Diaphragm (Front) ②
   • Diaphragm (Rear) ③
   Wear/Damage → Replace.



6. Inspect:
   • Brake hoses ①
   Cracks/Wear/Damage → Replace.

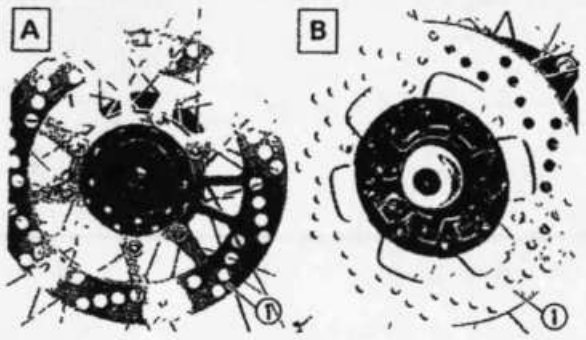


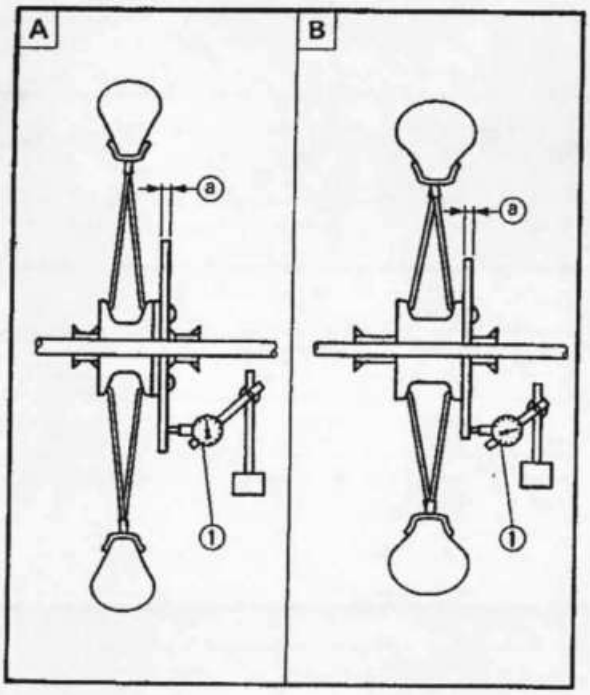
7. Measure:
   • Brake pads (Thickness) ⓐ
   Out of specification → Replace.

Wear Limit:
0.8 mm (0.031 in)

① Wear indicator

NOTE:
- Replace the pad spring as a set if pad replacement is required.
- Replace the pads as a set if either if found to be worn to the wear limit.





8. Inspect:
   - Brake disc ①
     Galling/Damage → Replace.
9. Measure:
   - Brake disc deflection
     Out of specification → Inspect wheel runout.
     If wheel runout is in good condition, replace.

Maximum Deflection:
0.15 mm (0.006 in)

- Brake disc thickness ⓐ
  Out of specification → Replace.

Minimum Thickness:
Front: 3.0 mm (0.12 in)
Rear: 4.0 mm (0.16 in)

① Dial gauge
Ⓐ Front
Ⓑ Rear

NOTE:
Tighten the bolts (Brake disk) in stage, using a crisscross pattern.

Bolt (Brake Disk):
20 Nm (2.0 m·kg, 14 ft·lb)
Use LOCTITE®

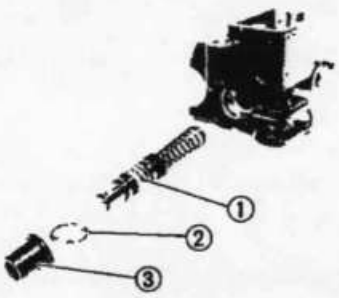
ASSEMBLY

⚠ WARNING:

- **All internal parts should be cleaned in new brake fluid only.**
- **Internal parts should be lubricated with brake fluid when installed.**

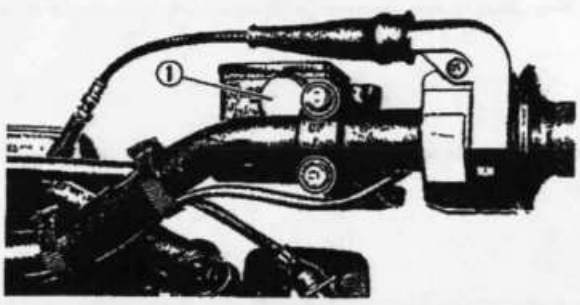
Recommended Brake Fluid:
DOT #4
If DOT #4 is not available, #3 can be used.

- **Replace the piston seal and dust seal whenever a caliper is disassembled.**



Front Brake

1. Install:
   - Master cylinder kit ①
   - Circlip ②
   - Dust boot ③

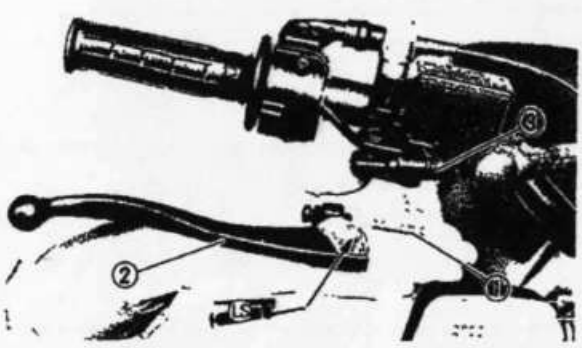


2. Install:
   - Master cylinder ①

NOTE:

- Install the master cylinder bracket with the "UP" mark facing upward.
- Tighten first the upper bolt, then the lower bolt.

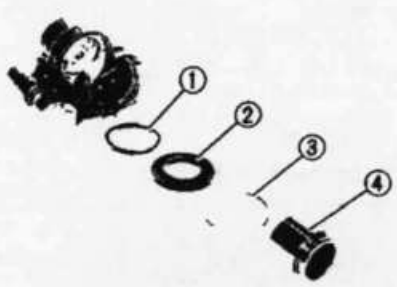
	Bolts (Master Cylinder Bracket): 9 Nm (0.9 m·kg, 6.5 ft·lb)



3. Install:
   - Return spring (Brake lever) ①
   - Brake lever ②
   - Brake switch ③

NOTE:

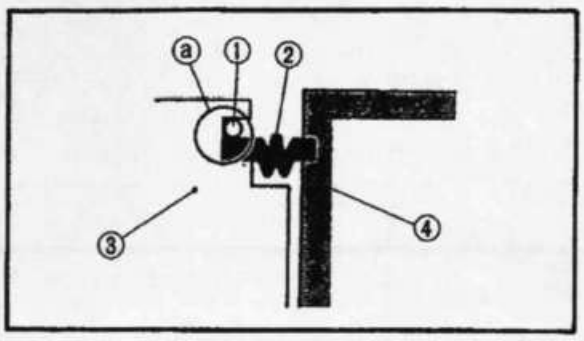
Apply lithium soap base grease to the brake lever pivot.



4. Install:
   - Piston seal ①
   - Dust seal ②
   - Clip ③
   - Caliper piston ④

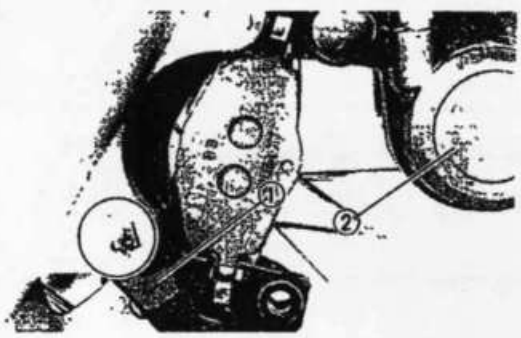
⚠ WARNING:

Always use new piston seal and dust seal.



CAUTION:
Install the clip ① into the slot ⓐ on the caliper body correctly.

② Dust seal
③ Caliper body
④ Caliper piston



5. Install:
   - Caliper bracket ①

	Caliper Bracket: 35 Nm (3.5 m·kg, 25 ft·lb)

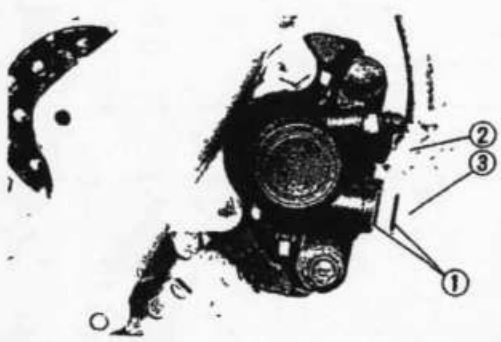
6. Install:
   - Pad springs
   - Brake pads

   Refer to the "BRAKE PAD REPLACEMENT" section.
7. Install:
   - Caliper body ②

NOTE:
Apply the lithium-soap base grease onto the caliper guide shaft and retaining bolt.

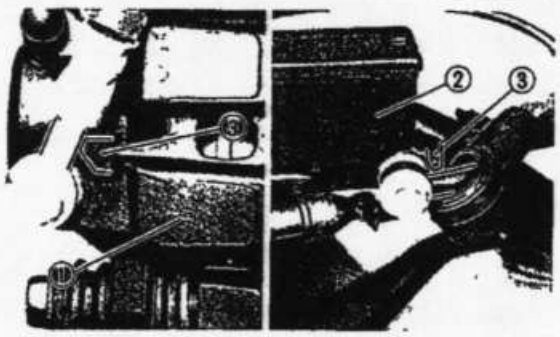
CAUTION:
- **Take care not to allow the brake pads to be smeared by grease.**
- **Wipe off any unnecessary grease that comes out of place.**

	Retaining Bolt (Caliper Body): 18 Nm (1.8 m·kg, 13 ft·lb)



8. Install:
   - Copper washers ①
   - Brake hose ②
   - Union bolt ③

	Union Bolt: 26 Nm (2.6 m·kg, 19 ft·lb)

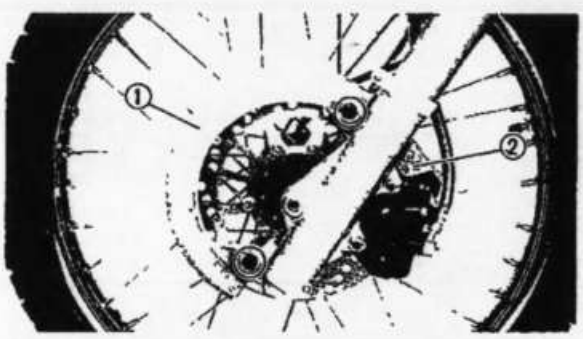


CAUTION:

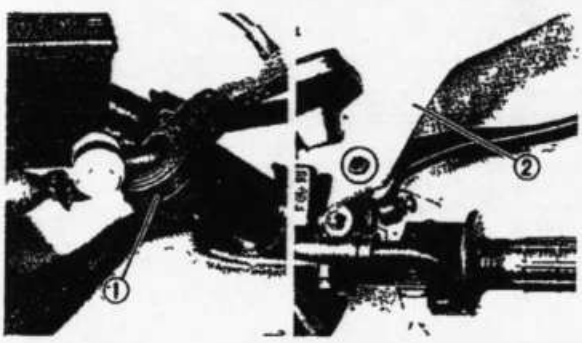
When installing the brake hoses to the caliper ① and master cylinder ② , lightly touch the brake pipe with the projections ③ on them.

⚠ WARNING:

- **Proper hose routing is essential to insure safe machine operation. Refer to "CABLE ROUTING".**
- **Always use new copper washers.**



9. Install:
   - Disc cover ①
   - Caliper cover ②



10. Cover the brake hose connecting point on the master cylinder with the brake hose cover ① .
11. Install:
    Brush guard ②

12. Fill:
    - Master cylinder tank

Recommended Brake Fluid:
DOT #4
If DOT #4 is not available, #3 can be used.

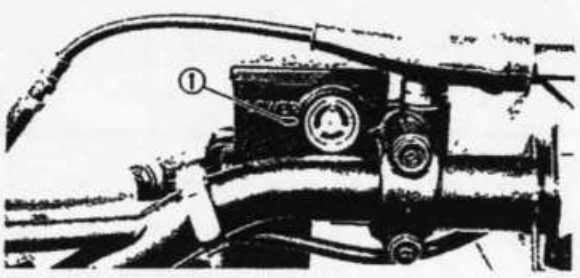
⚠ CAUTION:

Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

⚠ WARNING:

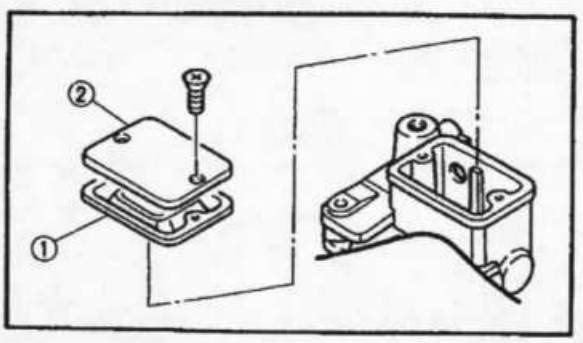
- **Use only the designated quality brake fluid: otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid; mixing fluids may result in a harmful chemical reaction and lead to poor performance.**
- **Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.**

13. Bleed the air completely from the brake system.
    Refer to the "AIR BLEEDING" section.



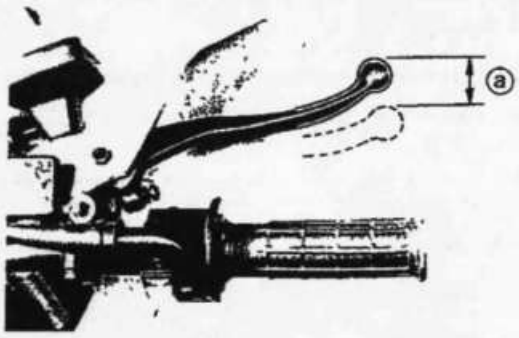
14. Inspect:
    - Brake fluid level
      Refer to the "BRAKE FLUID INSPECTION" section in the CHAPTER 3.

①"LOWER" level line



15. Install:
    - Diaphragm ①
    - Cap (Master cylinder) ②

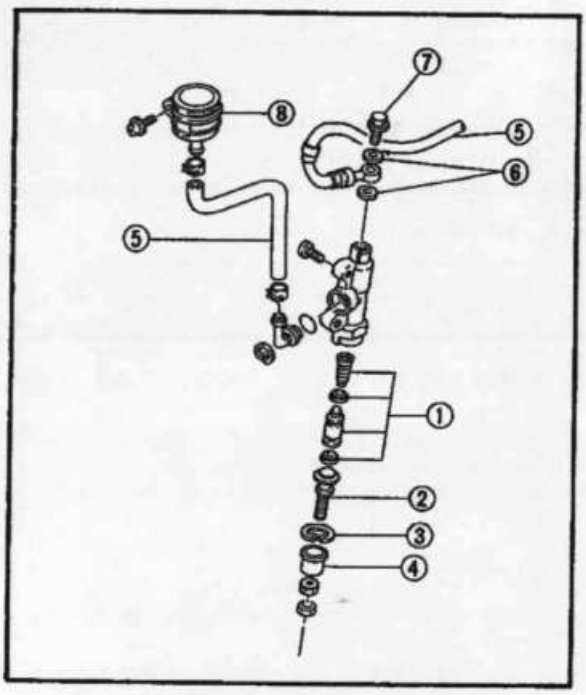
	Screw (Master Cylinder): 2 Nm (0.2 m·kg, 1.4 ft·lb)



16. Adjust:
    - Front brake lever free play ⓐ

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

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

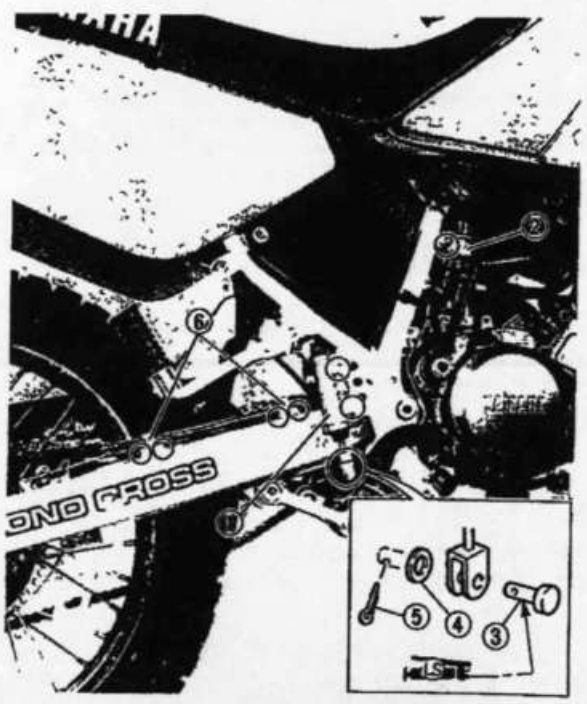


Rear Brake

1. Install:
    - Master cylinder kit ①
    - Push rod ②
    - Circlip ③
    - Dust boot ④
    - Brake hoses ⑤
    - Copper washers ⑥
    - Union bolt ⑦
    - Reservoir tank ⑧

NOTE:
At this time, temporarily tighten the union bolt.

⚠ WARNING:
Always use a new copper washer.

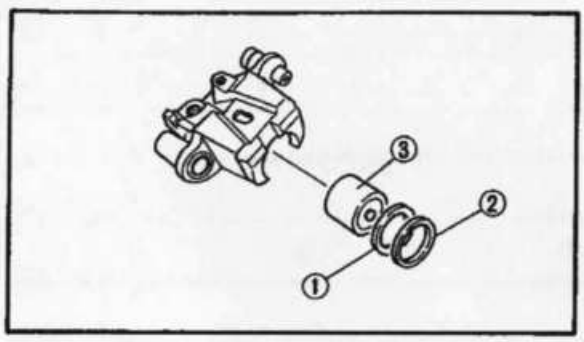


2. Install:
    - Master cylinder ①
    - Reservoir tank ②
    - Pin ③
    - Washer ④
    - Cotter pin ⑤
    - Brake hose guides ⑥

NOTE:
Apply the lithium-soap base grease to the pin.

⚠ WARNING:
Always use a new cotter pin.

Bolt (Master Cylinder):
10 Nm (1.0 m·kg, 7.2 ft·lb)
Screw (Reservoir Tank):
4 Nm (0.4 m·kg, 2.9 ft·lb)



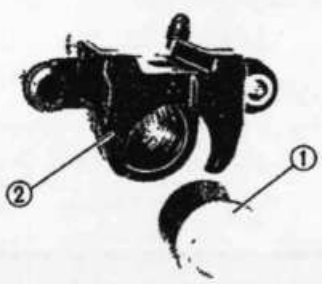
3. Install:
   - Piston seal ①
   - Dust seal ②
   - Caliper piston ③

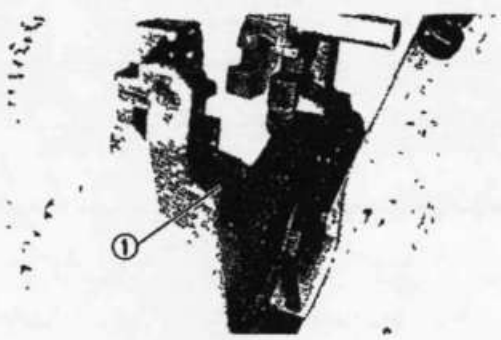
⚠ WARNING:

Always use new piston seal and dust seal.

NOTE:

When installing the caliper piston ① , be sure to have it's open end facing the caliper cylinder ② .

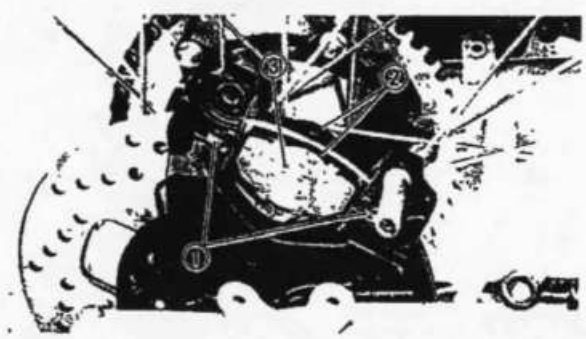




4. Install:
   - Caliper bracket ①
   - Rear wheel
     Refer to the "REAR WHEEL – INSTALLATION" section.

NOTE:

Be sure the boss on the swingarm correctly engages with the locating slot on the caliper bracket.



5. Install:
   - Pad springs ①
   - Brake pads ②
   - Shim ③
     Refer to the "BRAKE PAD REPLACEMENT" section.

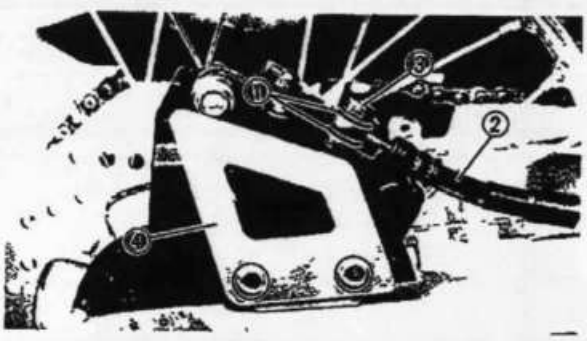


6. Install:
   - Caliper body ①

	Retaining Bolt (Caliper Body): 18 Nm (1.8 m·kg, 13 ft·lb)

NOTE:
Apply the lithium-soap base grease onto the caliper guide shaft and retaining bolt.

⚠ CAUTION:
- Take care not to allow the brake pads to be smeared by grease.
- Wipe off any unnecessary grease that comes out of place.





7. Install:
   - Copper washers ①
   - Brake hose ②
   - Union bolt ③
   - Protector (Caliper body) ④

	Union Bolt: 26 Nm (2.6 m·kg, 19 ft·lb)

⚠ CAUTION:
When installing the brake hoses to the caliper ⑤ and master cylinder ⑥ , lightly touch the brake pipe with the projections ⑦ on them.

⚠ WARNING:
- Proper hose routing is essential to insure safe machine operation. Refer to "CABLE ROUTING".
- Always use new copper washers.

8. Fill:
   - Reservoir tank

Recommended Brake Fluid:
DOT #4
If DOT #4 is not available, #3 can be used.

⚠CAUTION:

Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

⚠WARNING:

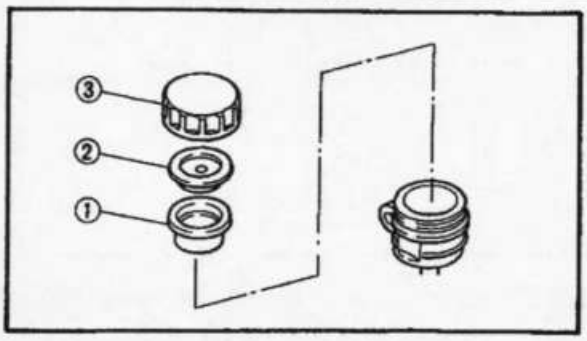
- **Use only the designated quality brake fluid: otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.**
- **Refill with the same type of brake fluid; mixing fluids may result in a harmful chemical reaction and lead to poor performance.**
- **Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.**

9. Bleed the air completely from the brake system.
   Refer to the "AIR BLEEDING" section.

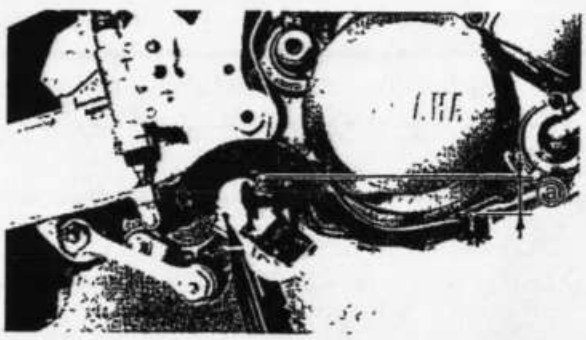


10. Inspect:
    - Brake fluid level
      Refer to the "BRAKE FLUID INSPECTION" section in the CHAPTER 3.

① "LOWER" level line



11. Install:
- Diaphragm ①
- Inner cap (Reservoir tank) ②
- Cap (Reservoir tank) ③



12. Adjust:
- Rear brake pedal height ⓐ

Pedal Height:
15 mm (0.59 in)
Below top of footrest.

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



13. Adjust:
- Drive chain slack ⓐ

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

Drive Chain Slack:
25 ~ 40 mm (0.98 ~ 1.57 in)

AIR BLEEDING

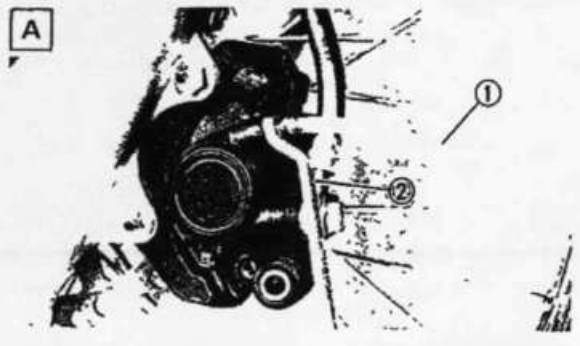
⚠ WARNING:

Bleed the brake system if:
- **The system has been disassembled.**
- **A brake hose has been loosened or removed.**
- **The brake fluid is very low.**
- **The brake operation is faulty.**

A dangerous loss of braking performance may occur if the brake system is not properly bled.

1. Bleed:
- Brake system

Air bleeding steps:
a. Add proper brake fluid to the reservoir.
b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.





c. Connect the clear plastic tube ① tightly to the caliper bleed screw.

[A] Front
[B] Rear

d. Place the other end of the tube into a container.
e. Slowly apply the brake lever or pedal several times.
f. Pull the lever in or push down on the pedal. Hold the lever or pedal in position.
g. Loosen the bleed screw ② and allow the lever or pedal to travel towards its limit.
h. Tighten the bleed screw when the lever or pedal limit has been reached; then release the lever or pedal.

Bleed Screw:
6 Nm (0.6 m·kg, 4.3 ft·lb)

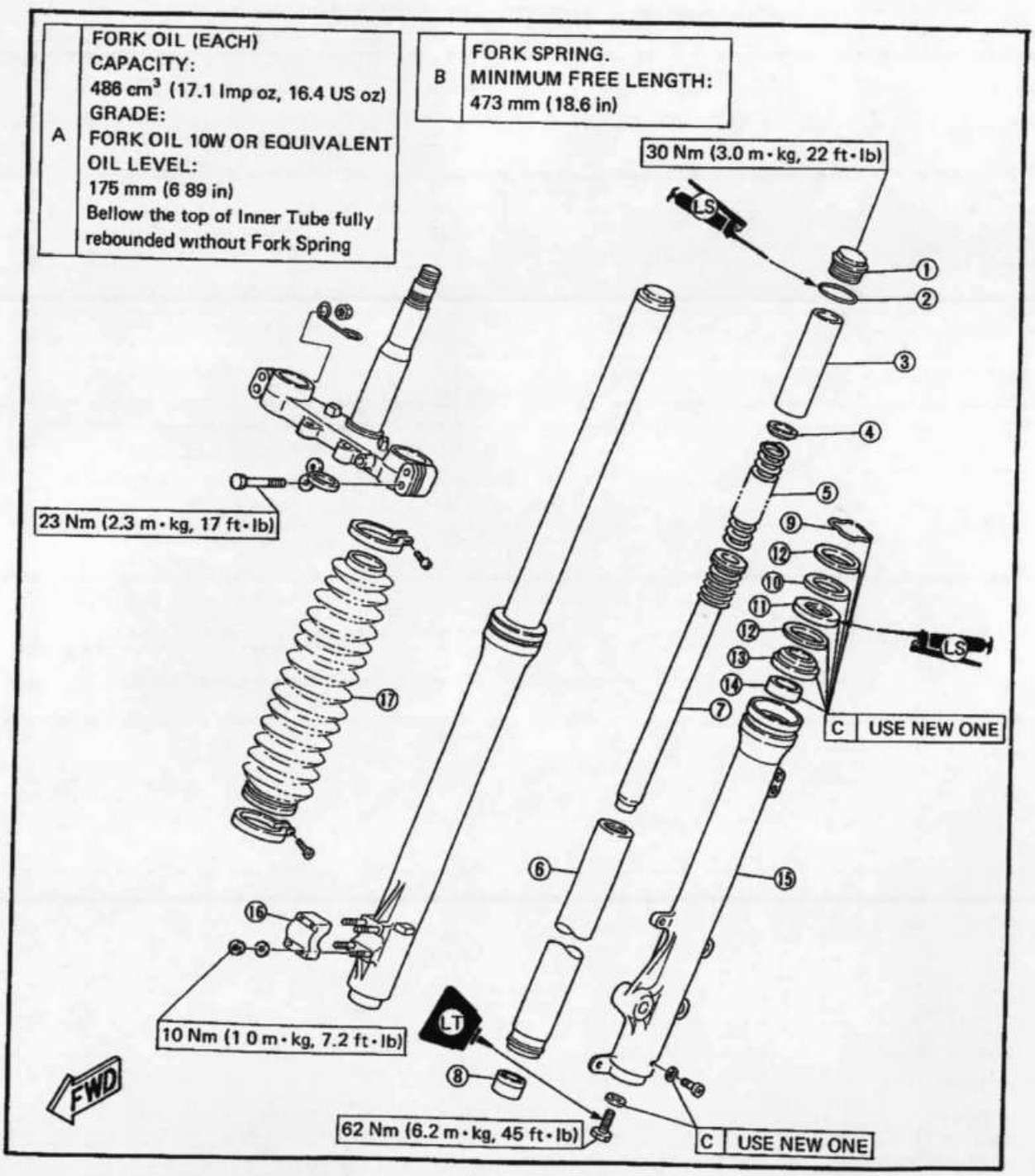
i. Repeat steps(e) to (h) until of the air bubbles have been removed from the system.

NOTE:
If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in the system have disappered.

j. Add brake fluid to the level line on the reservoir.

FRONT FORK

① Cap bolt
② O-ring
③ Spacer
④ Spring seat
⑤ Fork spring
⑥ Inner fork tube
⑦ Damper rod
⑧ Oil lock pieces
⑨ Circlip
⑩ Dust seal
⑪ Oil seal
⑫ Washer
⑬ Guide bush
⑭ Slide bush
⑮ Outer fork tube
⑯ Axle holder
⑰ Fork boot



REMOVAL

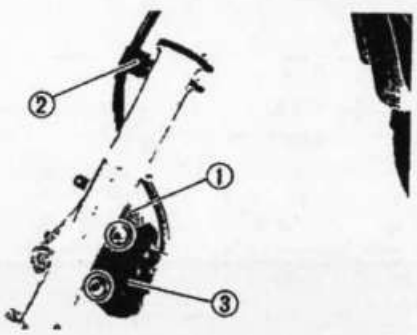
⚠ WARNING:

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

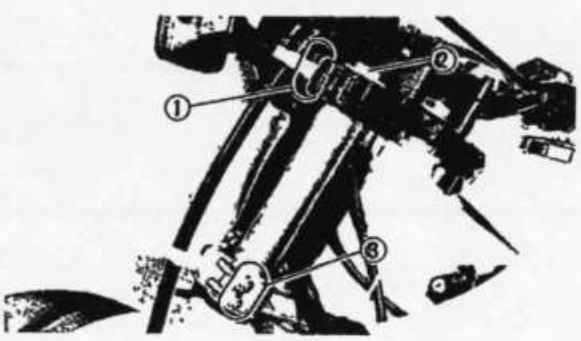
1. Elevate the front wheel by placing a suitable stand under the engine.

2. Remove:
   - Front wheel

   Refer to the "FRONT WHEEL – REMOVAL" section.



3. Remove:
   - Disc cover (Rear-half) ①
   - Holder (Brake hose) ②
   - Brake caliper assembly ③



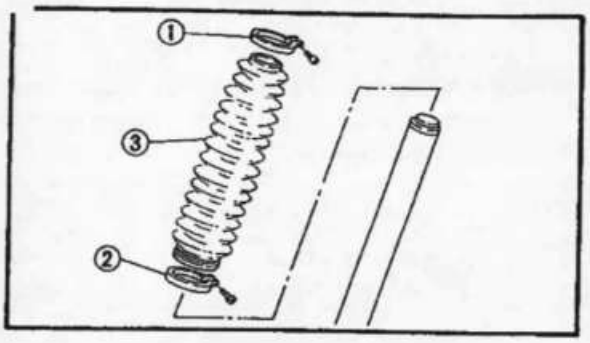
4. Loosen:
   - Pinch bolts (Handle crown) ①
   - Cap bolt ②
   - Pinch bolts (Under bracket) ③

⚠ WARNING:

Support the fork before loosening the pinch bolts.

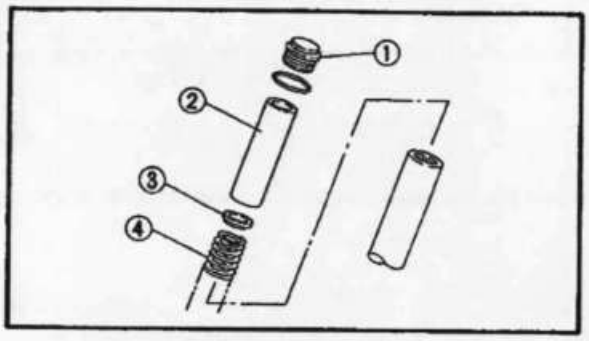


5. Remove:
   - Front fork

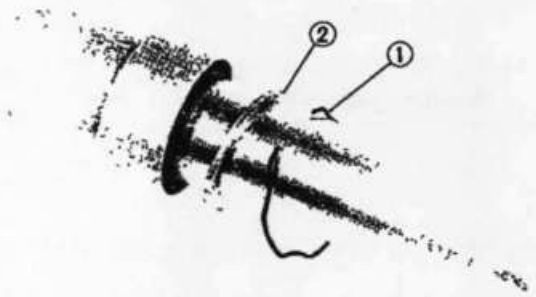


DISASSEMBLY

1. Remove:
   - Clamps (Upper ① and Lower ②)
   - Fork boot ③



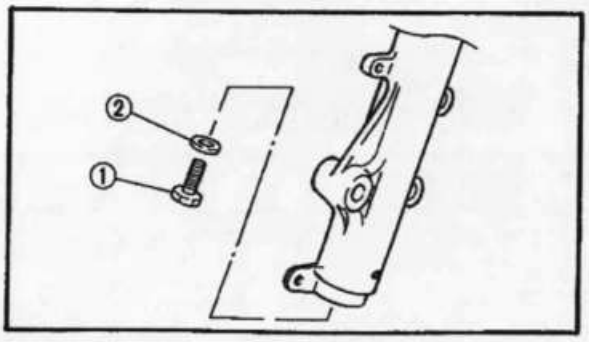
2. Remove:
   - Cap bolt ①
   - Spacer ②
   - Spring seat ③
   - Fork spring ④



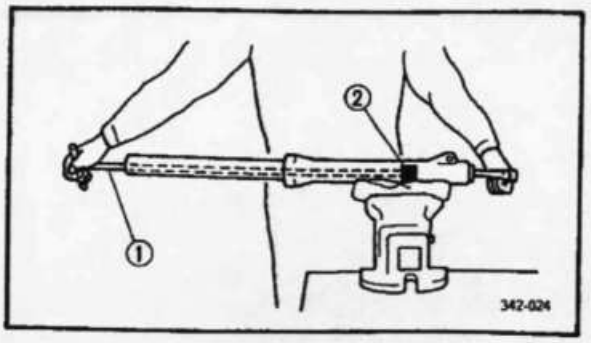
3. Drain:
   - Fork oil
4. Remove:
   - Retaining clip ①
     Use a thin slotted-head screwdriver.
   - Washer ②

CAUTION:

Take care not to scratch the inner tube.



5. Remove:
   - Bolt (Damper rod) ①
   - Copper washer ②

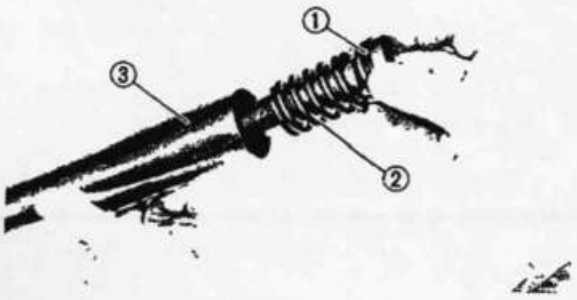


NOTE:

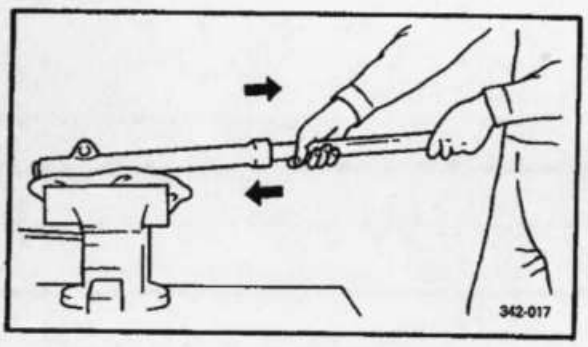
Hold the damper rod to loosen the bolt (Damper rod) by the T-Handle ① and Holder ② .



T-Handle:
90890-01326
Holder:
90890-01388



6. Remove:
   - Damper rod ①
   - Rebound spring ②
     (Out of inner fork tube ③)

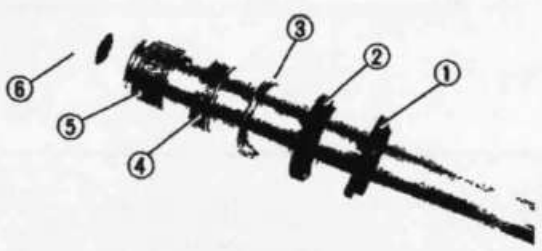


7. Remove:
   - Inner fork tube

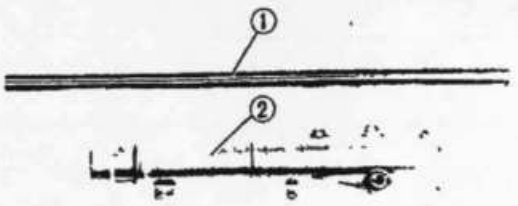
Removal steps:
- Hold the fork leg horizontally.
- Pull out the inner fork tube from the outer tube by forcefully, but carefully, withdrawing the inner fork tube.

⚠ CAUTION:

Avoid bottoming the inner tube in the outer tube during the above procedure, as the oil lock piece will be damaged.



8. Remove:
   - Dust seal ①
   - Oil seal ②
   - Washer ③
   - Guide bush ④
   - Slide bush ⑤
   - Oil lock piece ⑥

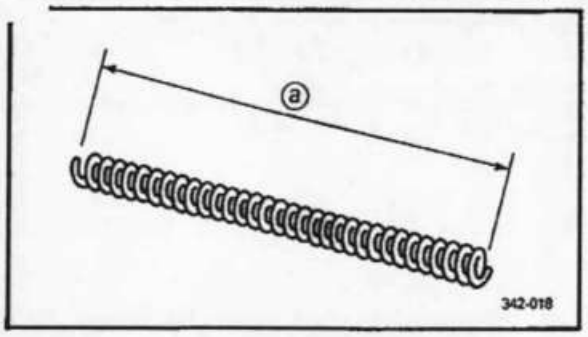


INSPECTION

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

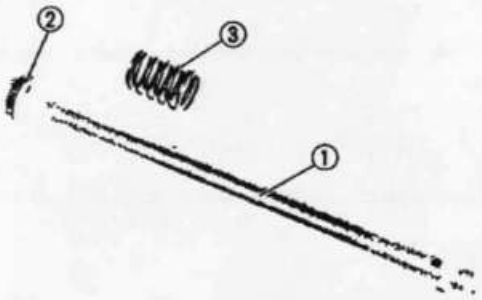
⚠ WARNING:

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

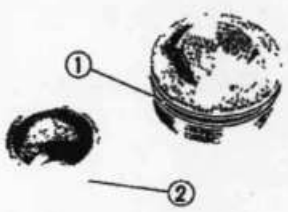


2. Measure:
   - Fork spring free length ⓐ
     Out of specification → Replace.

Minimum Free Length:
473 mm (18.6 in)



3. Inspect:
   - Damper rod ①
     Wear/Damage → Replace.
     Contamination → Blow out all oil passages with compressed air.
   - Piston ring ②
   - Rebound spring ③
     Wear/Damage → Replace.



4. Inspect:
   - O-ring (Cap bolt) ①
   - Oil lock piece ②
     Damage → Replace.

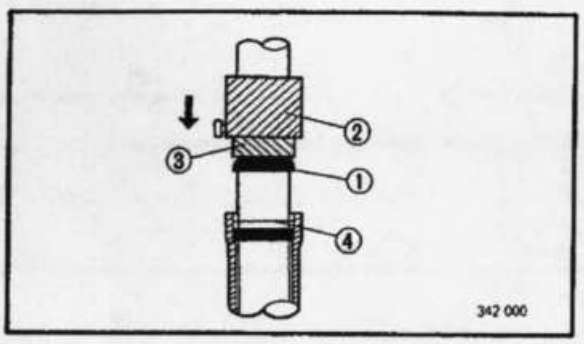
ASSEMBLY

Reverse the "DISASSEMBLY" procedure.
Note the following points.

NOTE:

- In front fork reassembly, be sure to use following new parts.
  - * Guide bush
  - * Slide bush
  - * Oil seal
  - * Dust seal
- Make sure all components are clean before reassembly.

Fork Seal Driver Weight:
90890-01367
Adapter:
90890-01381



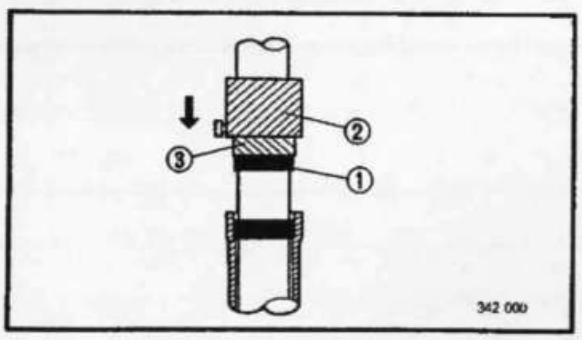
6. Install:
   • Oil seal ①
   Use the Fork Seal Driver Weight ② and Adapter ③.

Fork Seal Driver Weight:
90890-01367
Adapter:
90890-01381

④ Washer

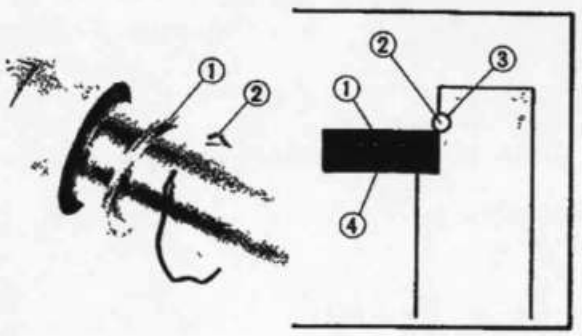
CAUTION:
Be sure oil seal numbered side face upward.

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



7. Install:
   • Dust seal ①
   Use the Fork Seal Driver Weight ② and Adapter ③.

Fork Seal Driver Weight:
90890-01367
Adapter:
90890-01381



8. Install:
   • Washer ①
   • Retaining clip ②

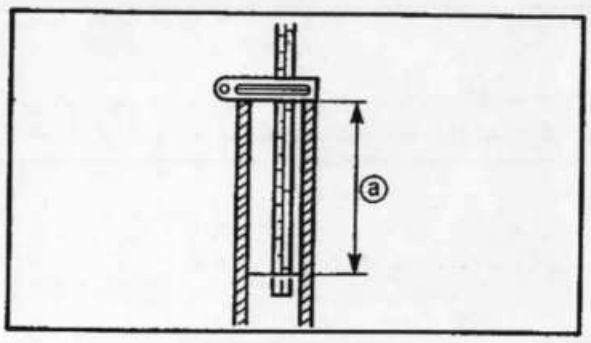
NOTE:
Fit the retaining clip ② correctly in the groove ③ in the outer tube.

④ Dust seal



9. Fill:
   - Front fork

Oil Capacity:
486 cm³ (17.1 Imp oz, 16.4 US oz)
Recommended Oil:
Fork Oil 10WT or equivalent
After filling, slowly pump the fork up and down to distribute oil.



10. Measure:
    - Oil level ⓐ

    Out of specification → Add or reduce oil.

Fork Oil Level:
175 mm (6.89 in)
Bellow the top of inner tube fully rebounded without fork spring.

NOTE:
Place the front fork on upright position.

11. Before installing the front fork temporary tighten the cap bolt.

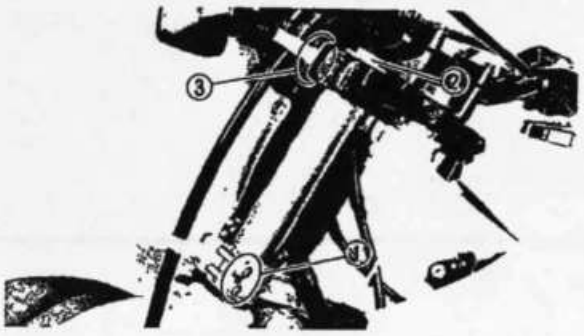


INSTALLATION
Reverse the "REMOVAL" procedure.
Note the following points.

1. Install:
   - Front fork

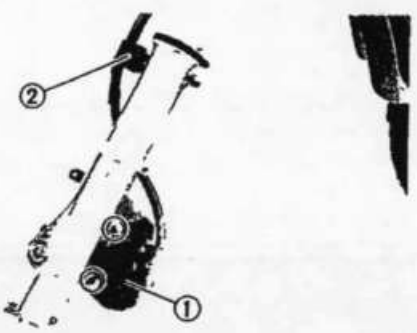
   Temporary tighten the pinch bolts.

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



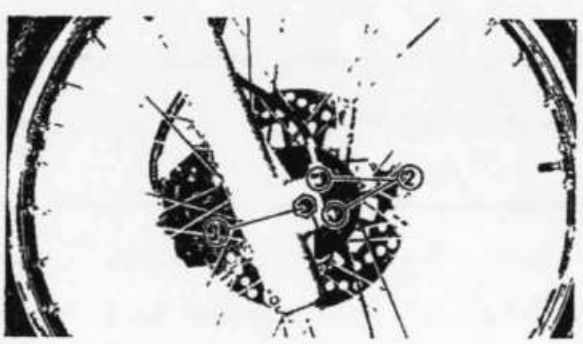
2. Tighten:
   - Pinch bolts ① (Under bracket)
   - Cap bolt ②
   - Pinch bolts ③ (Handle crown)

Pinch Bolt (Under Bracket):	23 Nm (2.3 m·kg, 17 ft·lb)
Cap Bolt:	30 Nm (3.0 m·kg, 22 ft·lb)
Pinch Bolt (Handle Crown):	23 Nm (2.3 m·kg, 17 ft·lb)



3. Install:
   - Brake caliper assembly ①
   - Holder (Brake hose) ②

Bolt (Caliper Bracket):	35 Nm (3.5 m·kg, 25 ft·lb)
Bolt (Brake Hose Holder):	10 Nm (1.0 m·kg, 7.2 ft·lb)



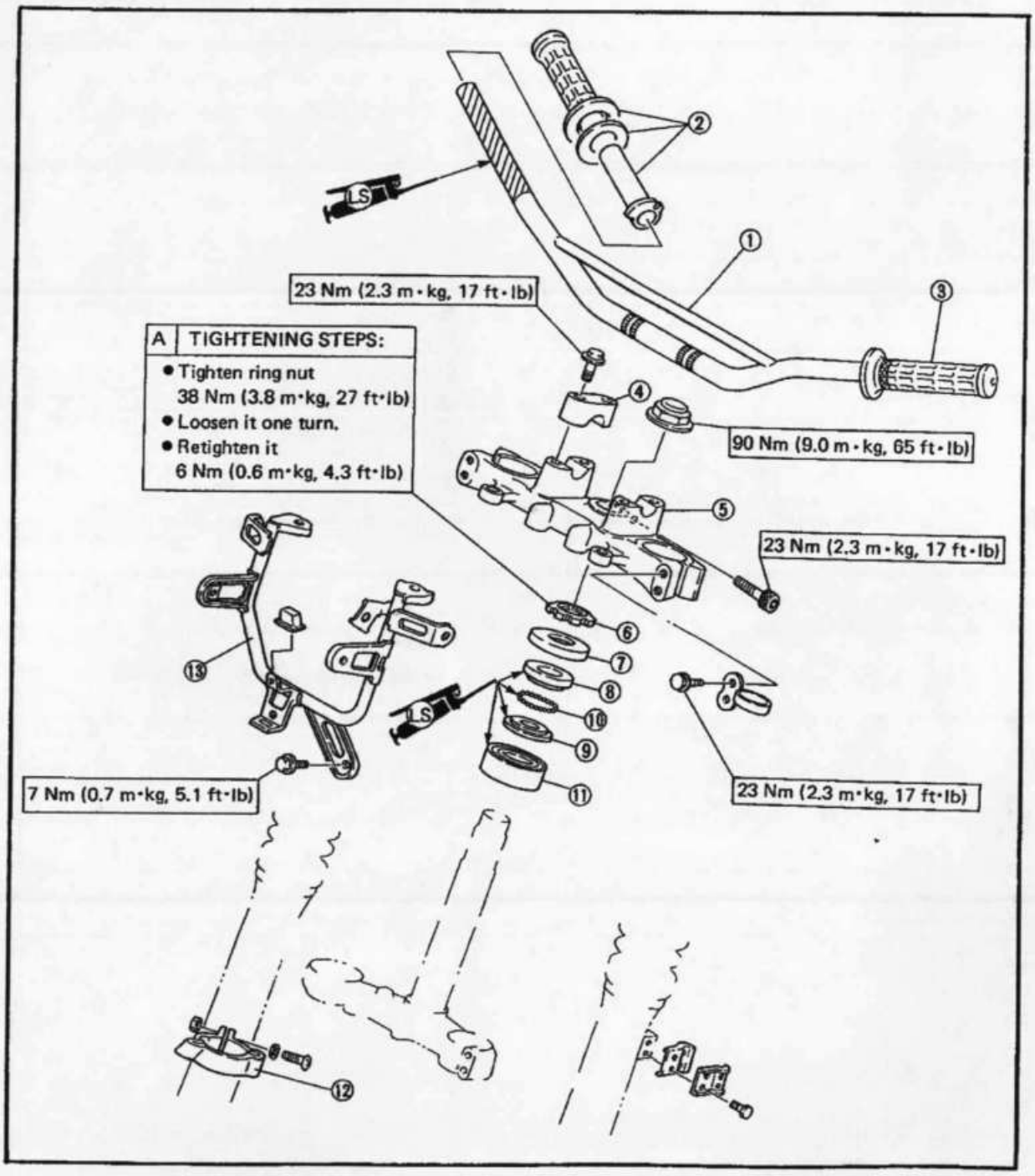
4. Install:
   - Front wheel

   Refer to the "FRONT WHEEL – INSTALLATION" section.

Wheel Axle (Front) ① :	58 Nm (5.8 m·kg, 42 ft·lb)
Nut (Axle Holder) ② :	10 Nm (1.0 m·kg, 7.2 ft·lb)

STEERING HEAD AND HANDLEBARS

① Handlebar
② Handlebar grip (Right)
③ Handlebar grip (Left)
④ Handlebar holder (Upper)
⑤ Handle crown
⑥ Ring nut
⑦ Cover
⑧ Bearing race (Upper)
⑨ Bearing race (Lower)
⑩ Ball
⑪ Bearing (Lower)
⑫ Cable holder (Speedometer cable)
⑬ Headlight stay



REMOVAL

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

⚠ WARNING:

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

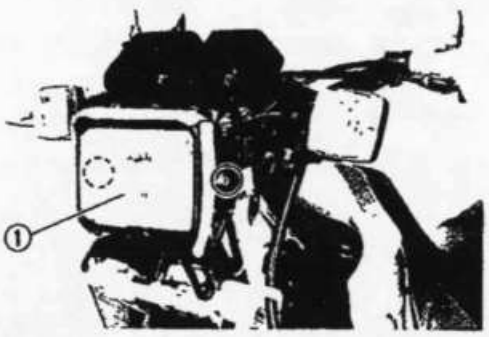
2. Remove:
   - Front wheel
     Refer to the "FRONT WHEEL – REMOVAL" section.
   - Front fork
     Refer to the "FRONT FORK – REMOVAL" section.



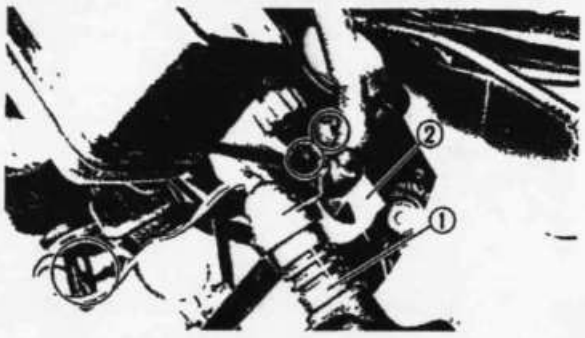
3. Remove:
   - Bolts ① (Front fender)
   - Front fender ②
   - Washers ③



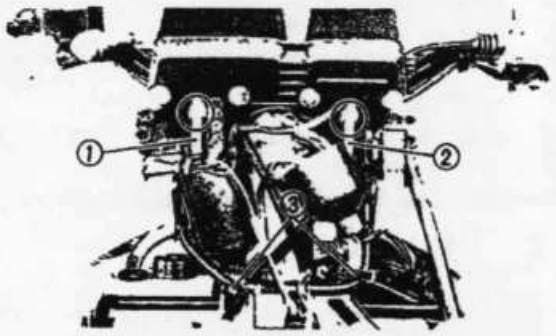
4. Remove:
   - Headlight cover ①



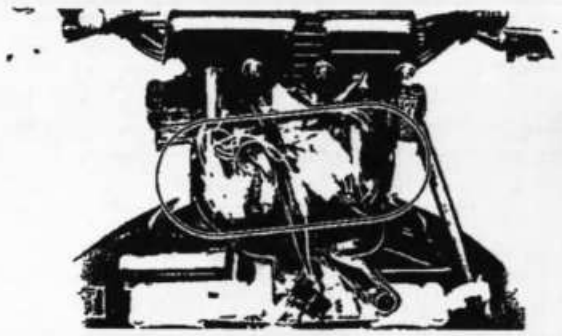
5. Remove:
   - Headlight lens unit ①
6. Disconnect:
   - Headlight lead
   - Auxiliary light lead



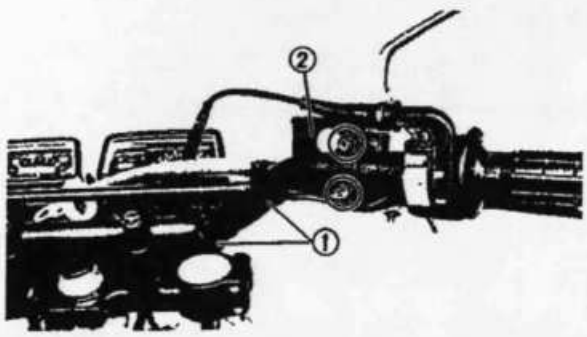
7. Disconnect:
   - Flasher light leads
8. Remove:
   - Flasher lights (Left and right) ①
   - Brake hose guide ②
     (from left side only)



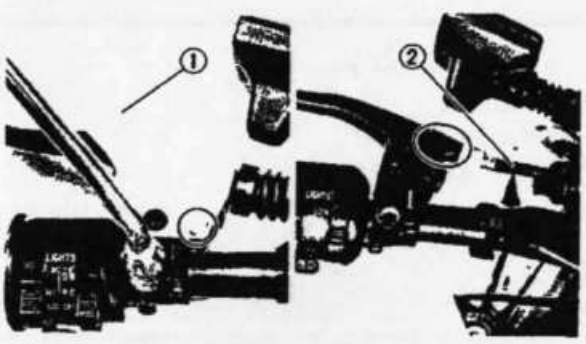
9. Disconnect:
   - Tachometer cable ①
   - Speedometer cable ②
10. Remove:
    - Bands ③



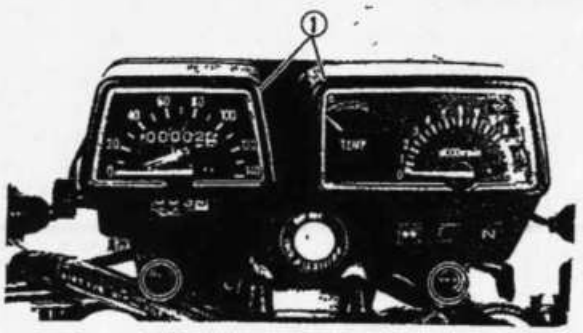
11. Disconnect:
    - Meter leads
    - Handlebar switch leads
    - Main switch leads
    - Flasher relay leads



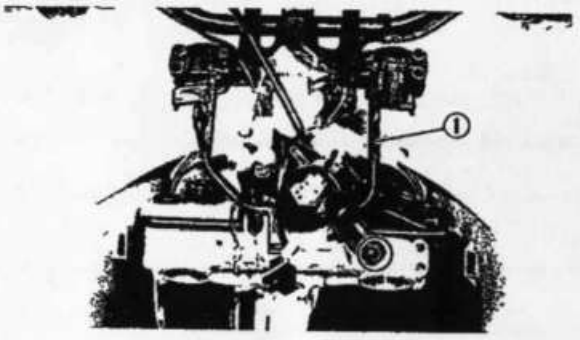
12. Remove:
    - Bands ①
    - Master cylinder assembly ②



13. Remove:
    - Brush guard ①
14. Disconnect:
    - Clutch cable ②
      (from clutch cable pivot)

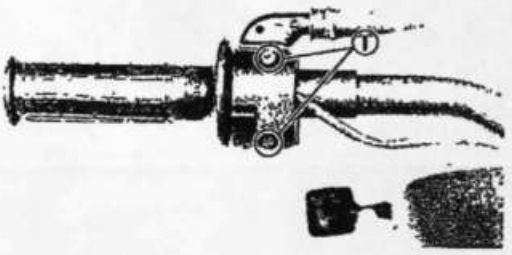


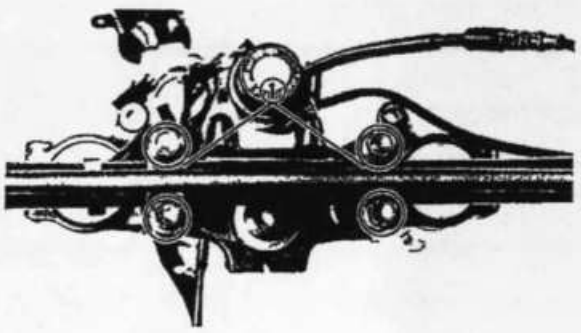
15. Remove:
- Meter assembly ①



16. Remove:
- Headlight stay ①

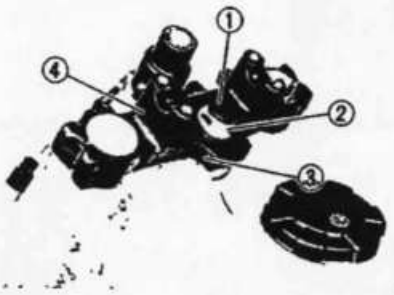
17. Loosen:
- Screws (Throttle cable housing) ①





18. Remove:
- Handlebar holders ①
- Handlebar

NOTE:
For complete removal of the handlebar, be sure to clear the throttle cable housing.



19. Remove:
- Rubber cap ①
- Flange nut (Steering stem) ②
- Pinch bolt (Steering stem) ③
- Handlebar crown ④

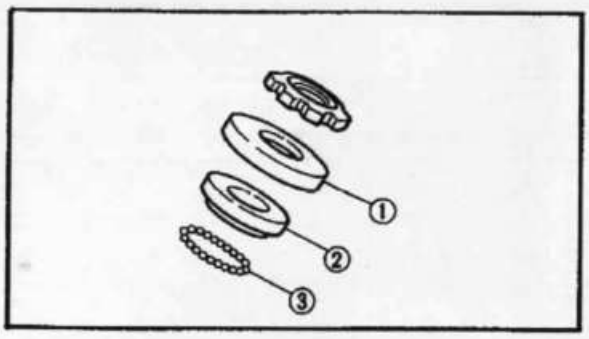


20. Remove:
- Ring nut ①
- Under bracket ②
- Bearing ③ (Lower)

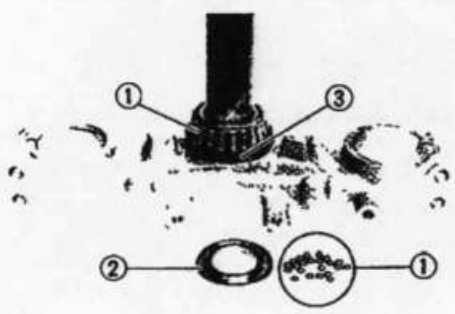
NOTE:
When removing the ring nut, using the Ring Nut Wrench ④.

	Ring Nut Wrench: **90890-01403**

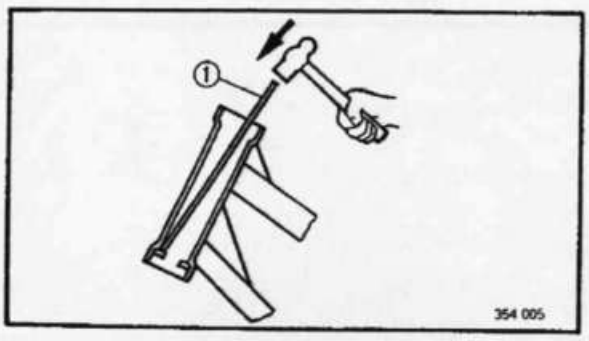
⚠ WARNING:
Support the lower bracket so that it may not fall down.



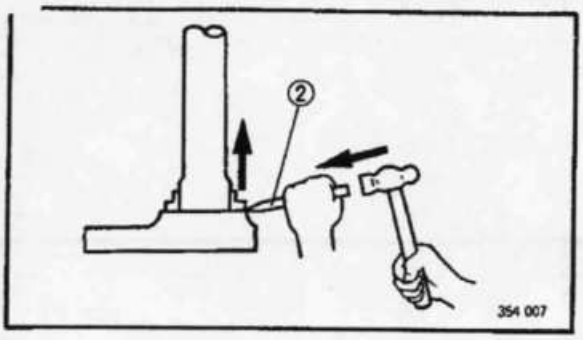
21. Remove:
- Bearing cover ①
- Ball race (Top – Upper) ②
- Ball bearing ③ (22 pcs)



INSPECTION
1. Wash the bearing in a solvent.
2. Inspect:
- Bearings ①
- Bearing races ②
  Pitting/Damage → Replace.
- Dust seal ③
  Wear/Damage → Replace.



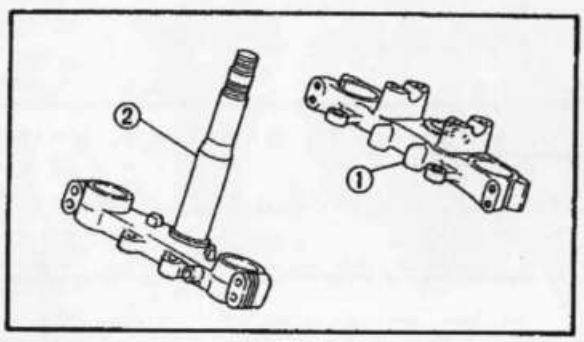
Bearing race remplacement steps:
- Remove the bearing races on the head pipe using long rod ① and the hammer as shown.
- Remove the bearing race on the steering stem using the floor chisel ② and the hammer as shown.
- Install the new dust seal and races.



NOTE:
- Always replace bearings and races as a set.
- Replace the dust seal whenever a steering head disassembled.

⚠ CAUTION:

If the bearing race is fitted not squarely, the head pipe could be damaged.



3. Inspect:
   - Handlebar crown ①
   - Under bracket ②
     (with steering stem)
     Cracks/Bends/Damage → Replace.



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

⚠ WARNING:

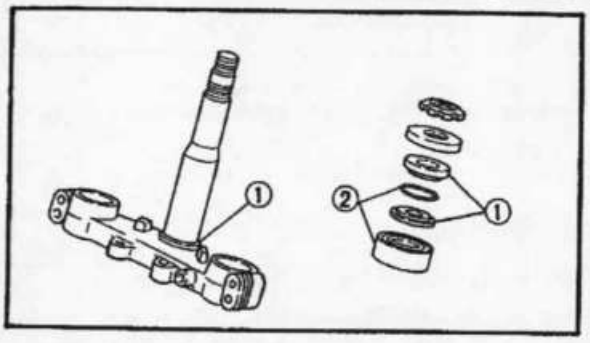
Do not attempt to straighten a bent handlebar as this may dangerously weaken the handlebar.

Handlebar replacement steps:
- Remove the handlebar grip, and handlebar switch (Left) and lever holder.
- Install the lever holder and handlebar switch (Left) to a new handlebar.
- Apply a light coat of an adhesive for rubber on the left handlebar end.
- Install the handlebar grip.

NOTE:
Wipe off excess adhesive with a clean rag.

⚠ WARNING:

Leave the handlebar intact until the adhesive becomes dry enough to make the grip and handlebar stuck securely.



INSTALLATION

Revers the "REMOVAL" procedures.
Note the following points.

1. Lubricate:
   - Bearing races ①
   - Bearings ②

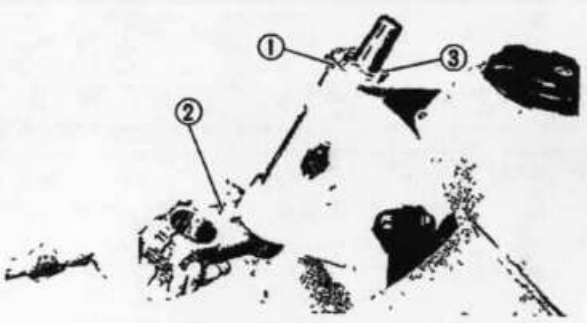
	Lithium-soap Base Grease

2. Install:
   - Ball bearings

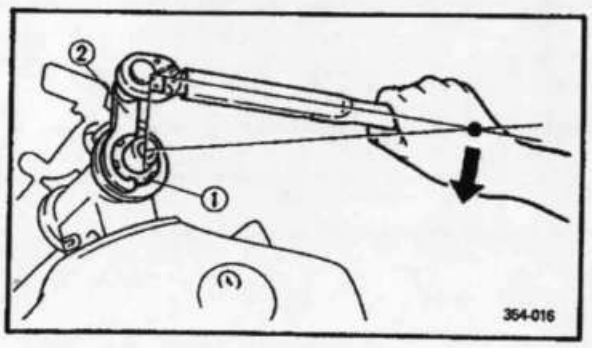
NOTE:
Make sure the balls are of the same size and the quantity is correct.
Ball size. . . . . .3/16 in
Quantity . . . . . .22 pcs



3. Install:
   - Boll race (Top – Upper)
   - Bearing cover ①
   - Under bracket ②
   - Ring nut ③



⚠WARNING:
Hold the under bracket until it is secured.



4. Tighten:
   Ring nut ①

Tightening steps:
- Tighten the ring nut using the Ring Nut Wrench ② .

	Ring Nut Wrench: **90890-01403**

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)**

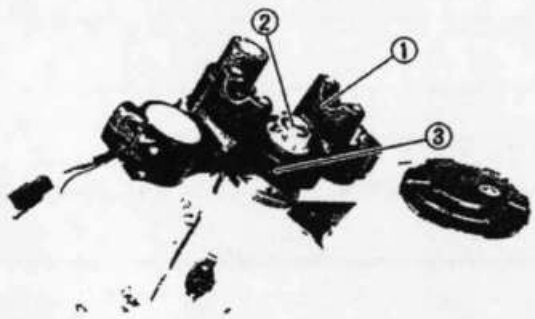
- Loosen the ring nut one turn.

• Retighten the ring nut using the Ring Nut Wrench.

⚠ WARNING:

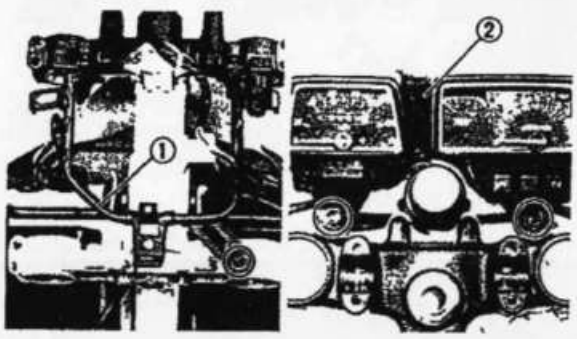
Avoid over-tightening.

Ring Nut (Final Tightening):
6 Nm (0.6 m·kg, 4.3 ft·lb)



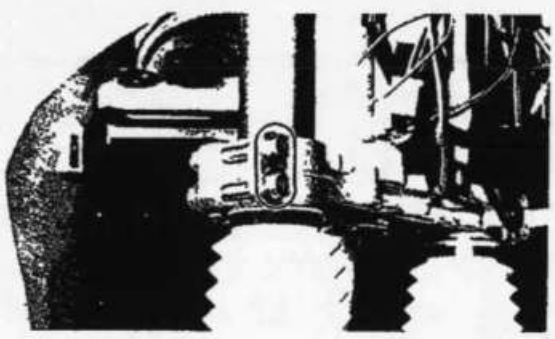
5. Install:
   • Handlebar crown ①
   • Flange nut (Steering stem) ②
   • Pinch bolt (Steering stem) ③

NOTE:
Temporarily tighten the flange bolt and pinch bolt.



6. Install:
   • Headlight stay ①
   • Meter assembly ②

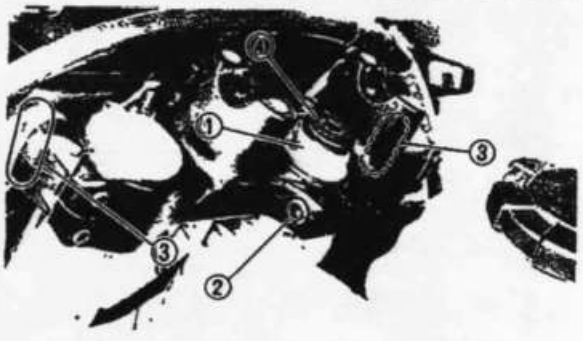
Bolt (Headlight Stay):
7 Nm (0.7 m·kg, 5.1 ft·lb)
Bolt (Meter Assembly):
7 Nm (0.7 m·kg, 5.1 ft·lb)



7. Install:
   • Front fork
   Refer to the "FRONT FORK – INSTALLATION" section.

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

NOTE:
In this stage, temporarily tighten the pinch bolts (Handlebar crown).

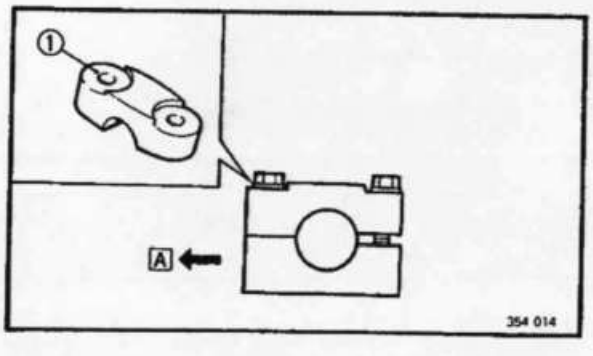


8. Tighten:
   - Flange nut (Steering stem) ①
   - Pinch bolt (Steering stem) ②
   - Pinch bolts (Handlebar crown) ③

	Flange Nut (Steering Stem): **90 Nm (9.0 m·kg, 65 ft·lb)** **Pinch Bolt (Steering Stem):** **23 Nm (2.3 m·kg, 17 ft·lb)** **Pinch Bolt (Handlebar Crown):** **23 Nm (2.3 m·kg, 17 ft·lb)**

9. Install:
   - Rubber cap ④

NOTE:
- Install the brake hose guide to the left side only.
- On the left side, install the flasher light having a chocolate color lead. Next, install the other flasher light with a dark green color lead.

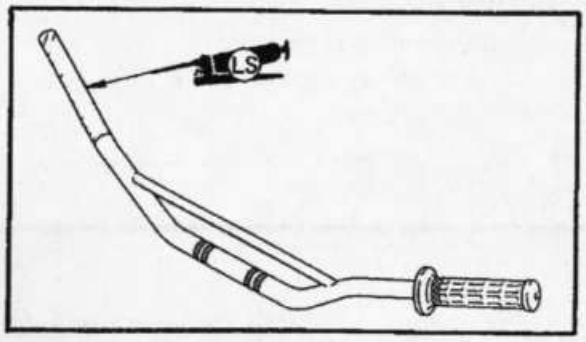


10. Install:
    - Handlebar
    - Handlebar holders

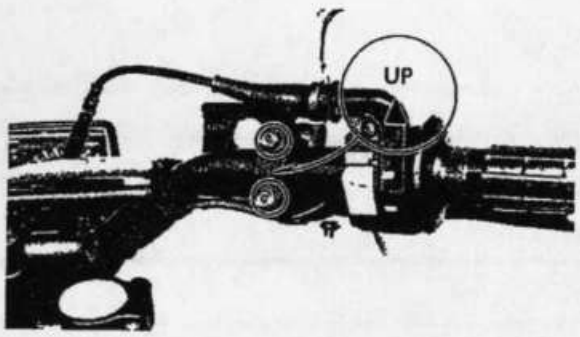
	Bolt (Handlebar Holder): **23 Nm (2.3 m·kg, 17 ft·lb)**

NOTE:
The upper handlebar holder should be installed with the punched mark ① forward A .

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



NOTE:
Before installing the handlebar onto the handlebar crown, apply a light coat of lithium soap base grease onto the handlebar end and install the throttle housing to the handlebar.



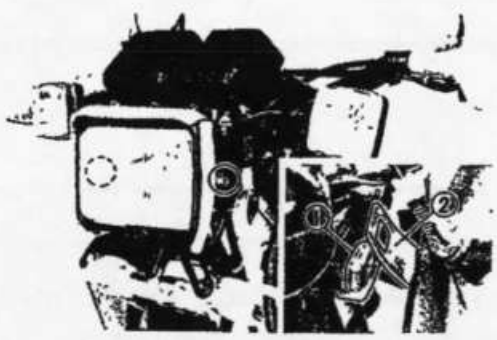
11. Install:
    - Brake master cylinder

NOTE:
- Install the master cylinder bracket with the "UP" mark facing upward.
- Tighten first the upper bolt, then the lower bolt.

	Bolts (Master Cylinder Bracket): 9 Nm (0.9 m·kg, 6.5 ft·lb)

12. Install:
    - Clutch cable

NOTE:
Apply a light coat of lithium soap base grease onto the clutch cable end.



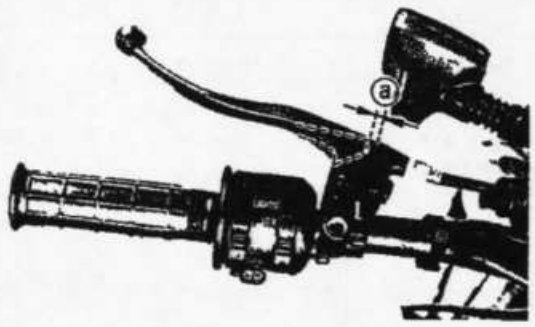
13. Install:
    - Headlight lens unit

NOTE:
Install the headlight unit onto the headlight stay by fitting the guide rubber ① properly in the guide hole ② of the headlight unit.

14. Install:
    - Front wheel

    Refer to the "FRONT WHEEL – INSTALLATION" section.

	Front Wheel Axle: 58 Nm (5.8 m·kg, 42 ft·lb) **Nut (Axle Holder): 10 Nm (1.0 m·kg, 7.2 ft·lb)**



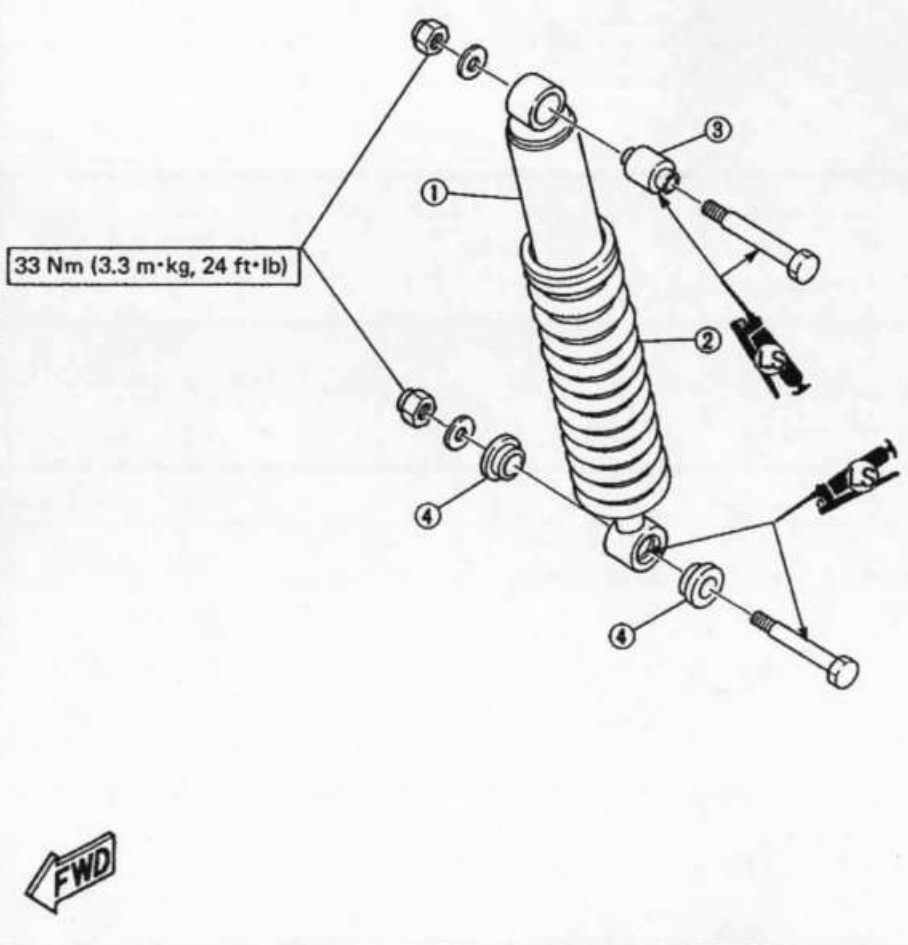
15. Adjust:
- Clutch cable free play ⓐ
  Refer to the "CLUTCH ADJUSTMENT" section in the CHAPTER 3.

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

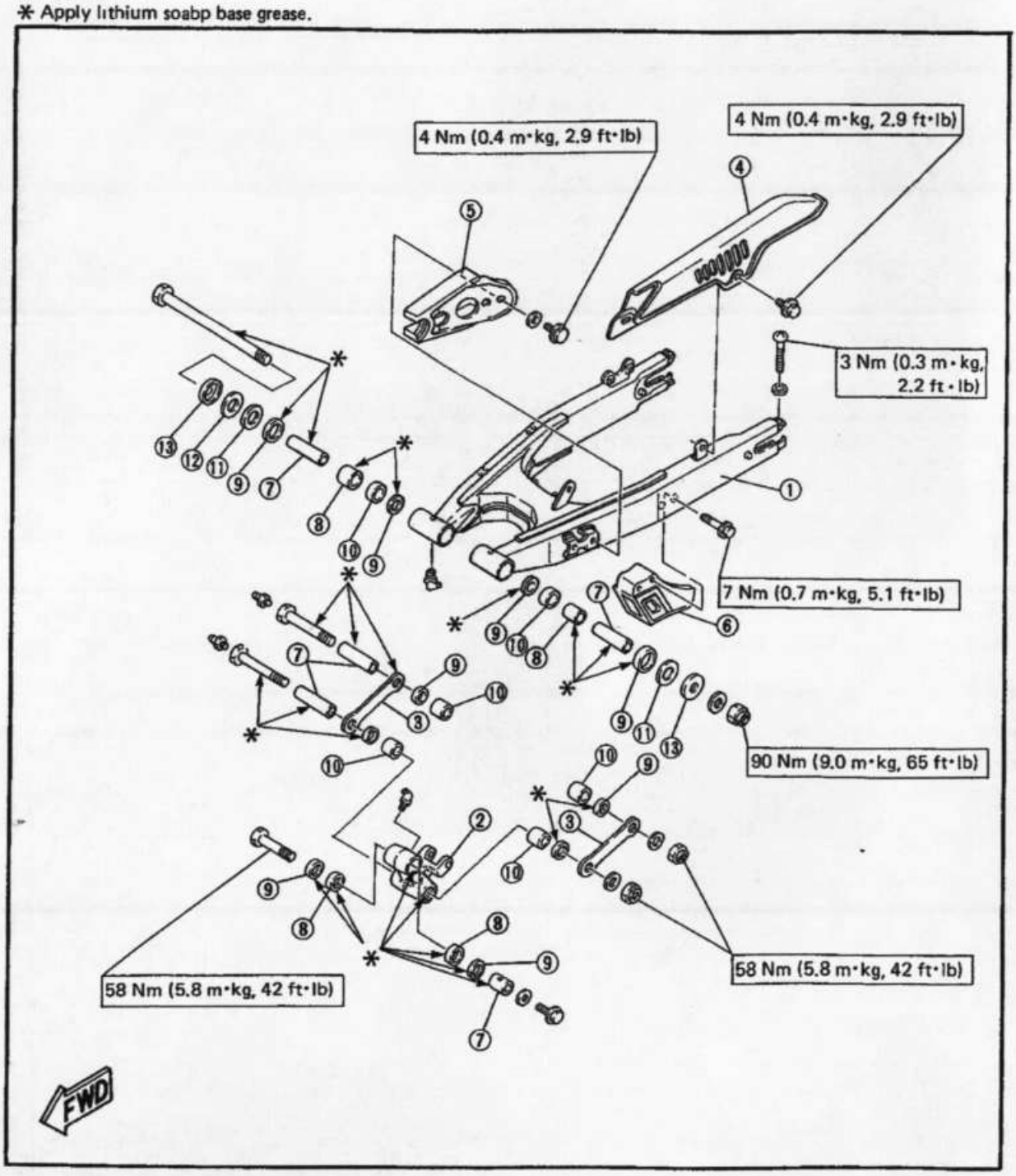
REAR SHOCK ABSORBER AND SWINGARM

① Rear shock absorber assembly
② Spring
③ Bush
④ Collar

A	SPRING PRELOAD (INSTALLED): STANDARD LENGTH: 230 mm (9.1 in) MINIMUM LENGTH: 220 mm (8.7 in) MAXIMUM LENGTH: 235 mm (9.3 in)



① Swingarm
② Relay arm
③ Connecting arm
④ Chain case
⑤ Chain guard
⑥ Chain guide
⑦ Collar
⑧ Bearing
⑨ Oil seal
⑩ Bush
⑪ Plain washer
⑫ Shim (Refer to "SIDE CLEARANCE ADJUSTMENT" section.)
⑬ Thrust cover
* Apply lithium soabp base grease.

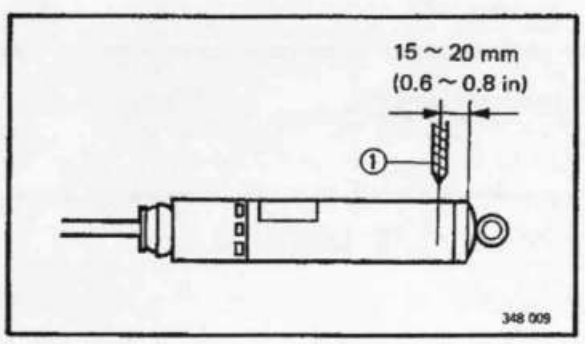


HANDLING NOTES

⚠ 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, refer to the "NOTES ON DISPOSAL" section.**



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 end of the gas chamber.

⚠ WARNING:

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

REMOVAL

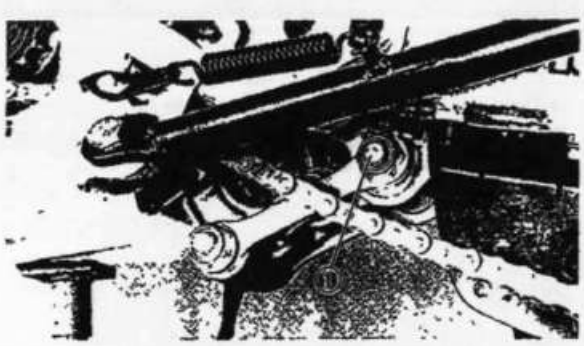
Rear Shock Absorber

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

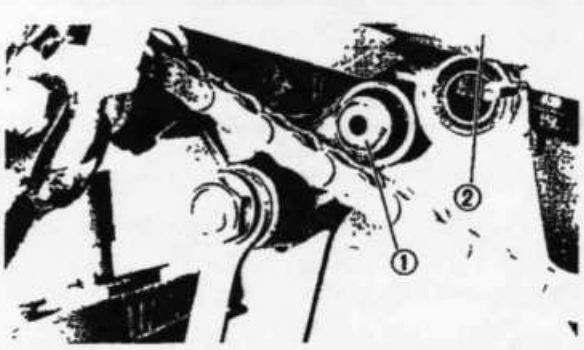
2. Elevate the rear wheel by placing a suitable stand under the engine.

⚠ WARNING:

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



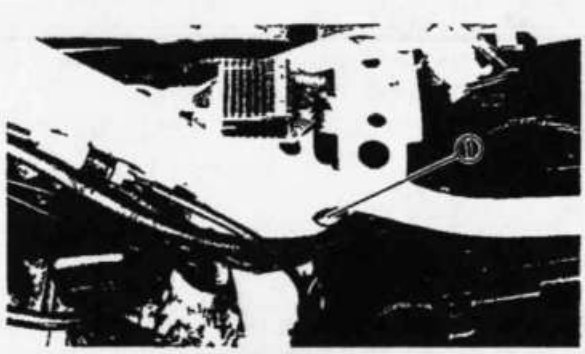
3. Remove:
   - Bolt (Connecting arm-swingarm) ①
     (from swingarm side)



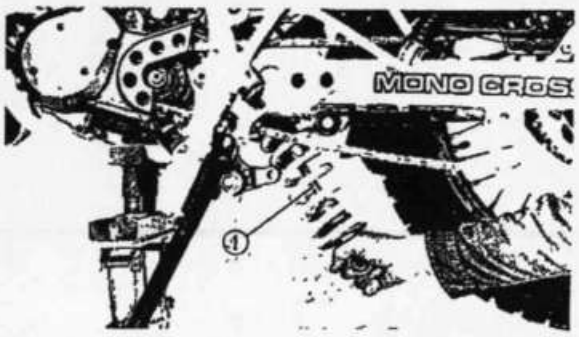
4. Remove:
   - Bolt (Shock absorber – Lower) ①

⚠ WARNING:

When removing the lower bolt ① , hold the swingarm ② so that it does not drop downwards when the lower bolt removed.



5. Remove:
   - Bolt (Shock absorber – Upper) ①



6. Remove:
   - Rear shock absorber ①

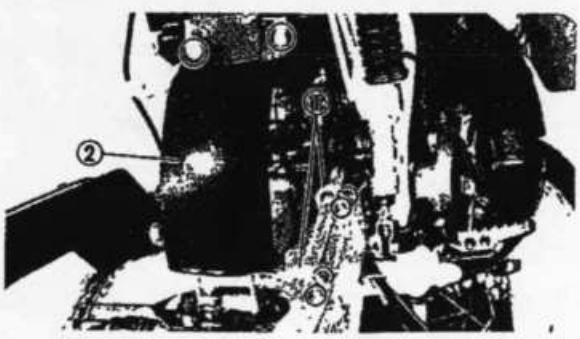
NOTE:
Pull up the swingarm, then remove the rear shock absorber, through between the swingarm and relay arm.

Swingarm

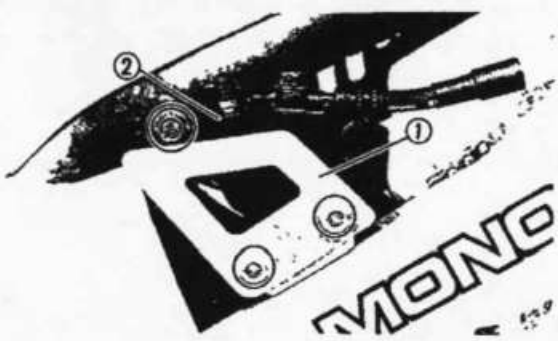
⚠ WARNING:
Securely support the motorcycle so there is no danger of it falling over.

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

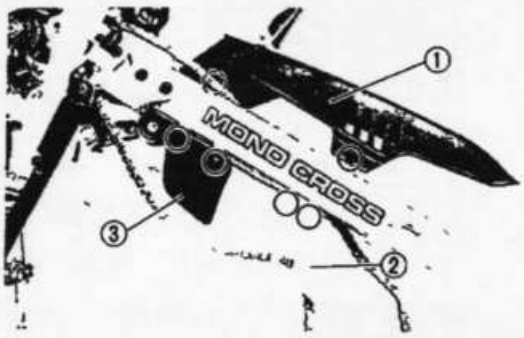
2. Remove:
   - Rear shock absorber
     Refer to the "Rear Shock Absorber" section.
3. Remove:
   - Rear wheel
     Refer to the "REAR WHEEL – REMOVAL" section.



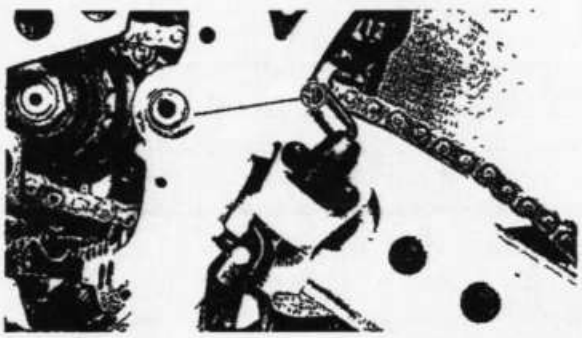
4. Remove:
   - Brake hose guides ①
   - Mud guard ②



5. Remove:
   - Protector (Brake caliper) ①
   - Brake caliper assembly ②



6. Remove:
   - Chain case ①
   - Chain guide ②
   - Chain guard ③



7. Check:
   - Swingarm free play

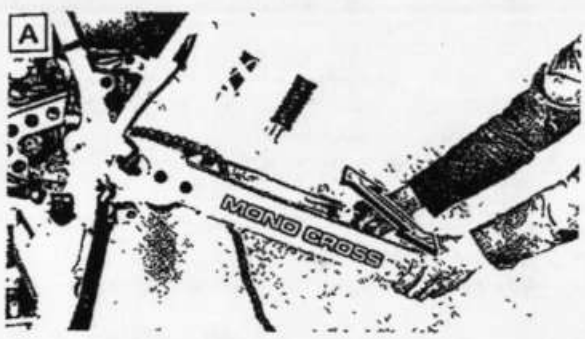
Inspection steps:
- Check the tightening torque of the pivot shaft (swing arm) securing nut ①.

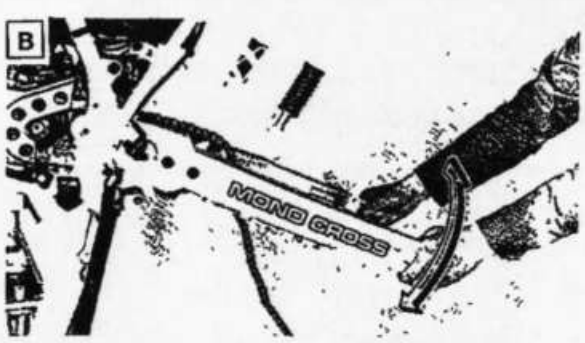
Nut (Swingarm-Pivot Shaft):
90 Nm (9.0 m·kg, 65 ft·lb)

- Check the swingarm side play [A] by moving it from side to side.
  If side play noticeable, check the inner collar, bearing, bushing and thrust cover, or adjust the shim.

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

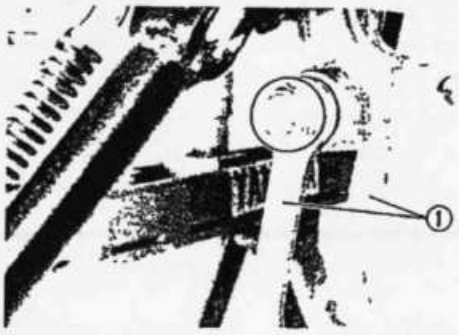
- Check the swingarm vertical movement [B] by moving it up and down.
  If vertical movement is tight, binding or rough, check the inner collar, bearing, bushing and thrust cover, or adjust the shim.



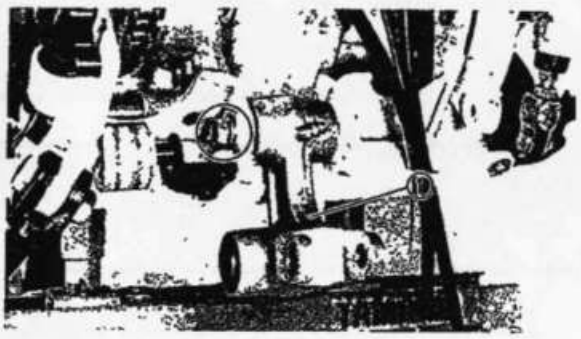




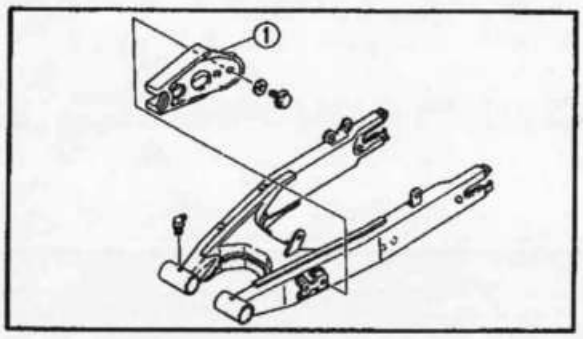
8. Remove:
   - Pivot shaft ①
   - Swingarm ②



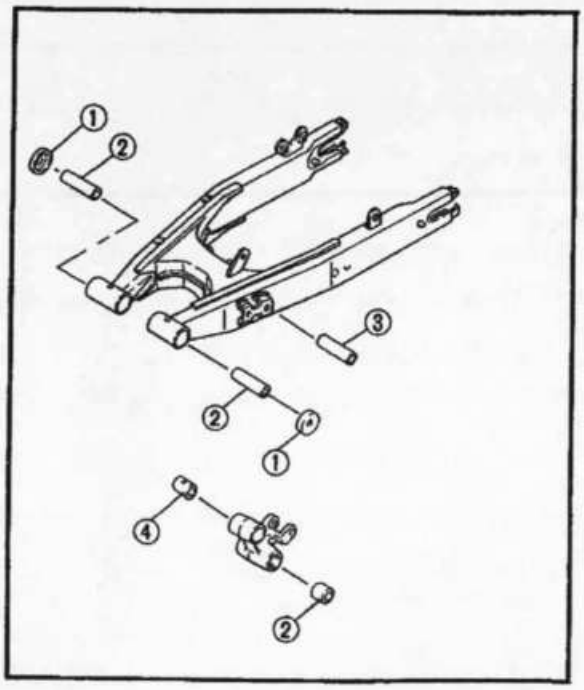
9. Remove:
   - Connecting arms ①



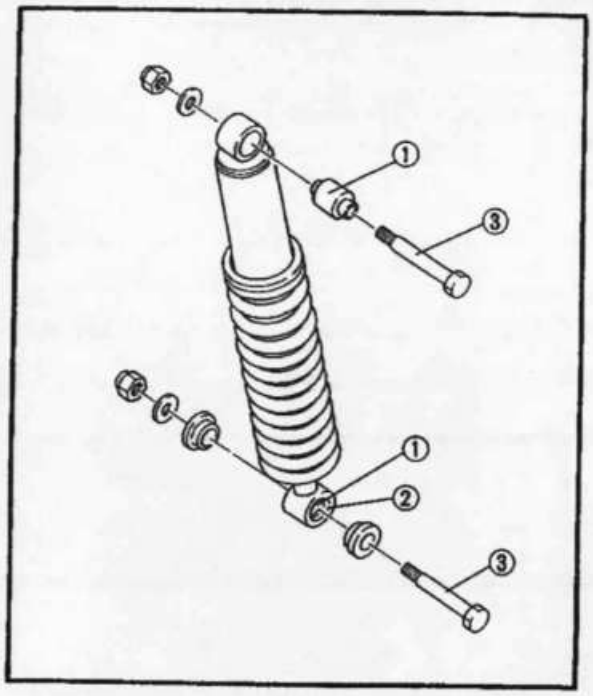
10. Remove:
    - Relay arm ①



11. Remove:
    - Chain protector ①



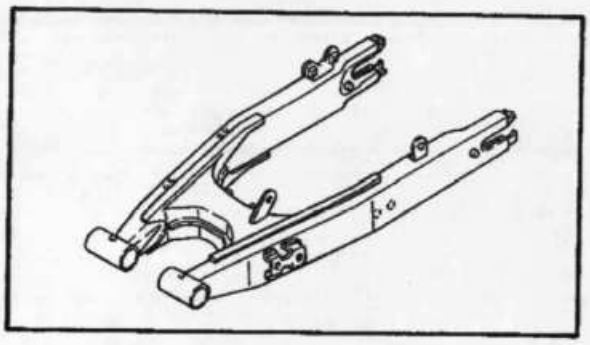
12. Remove:
    - Thrust covers ①
    - Inner collars (Swing arm) ②
    - Inner collars (Connecting arm) ③
    - Inner collar (Relay arm) ④



INSPECTION

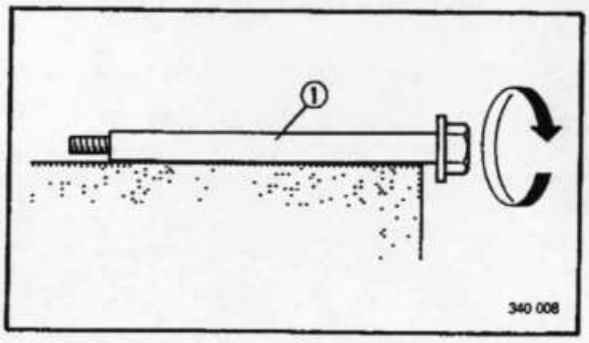
Shock Absorber

1. Inspect:
   - Shock absorber rod
     Bends/Damage → Replace the shock absorber assembly.
   - Shock absorber
     Oil leaks/Gas leaks → Replace the shock absorber assembly.
   - Spring
     Wear/Damage → Replace the shock absorber assembly.
   - Bushings ①
   - Dust seals ②
     Wear/Damage → Replace.
   - Bolts ③
     Wear/Bends/Damage → Replace.



Swingarm

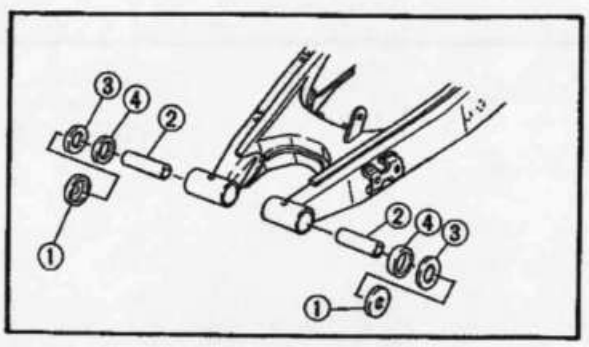
1. Inspect:
   - Swingarm
     Crack/Bend/Damage → Replace.



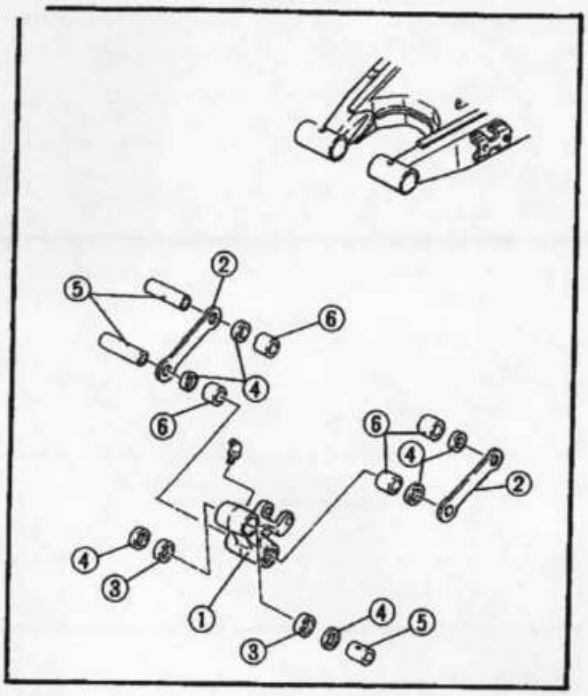
2. Inspect:
   - Pivot shaft ①
     Roll the axle on a flat surface.
     Bends → Replace.

⚠ WARNING:

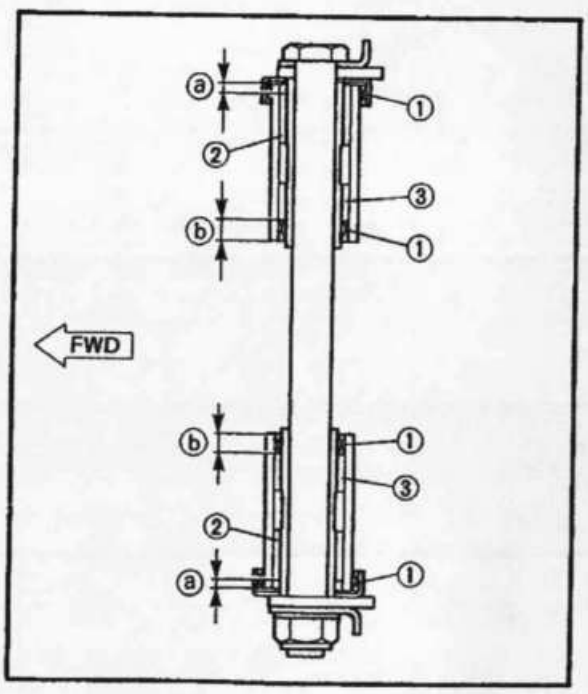
Do not attempt to straighten a bent axle.



3. Wash the swingarm pivoting parts in a solvent.
4. Inspect:
   - Thrust cover ①
   - Inner collar ②
   - Washer ③
   - Oil seal ④
     Wear/Damage → Replace.



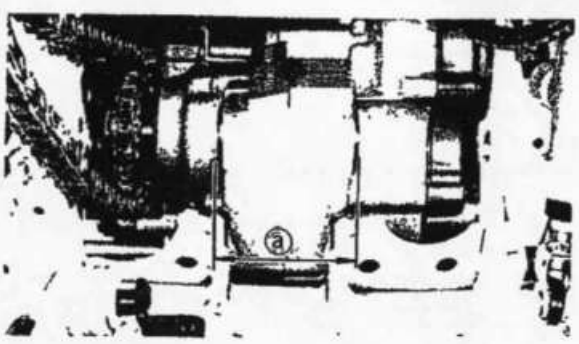
5. Inspect:
   - Relay arm ①
   - Connecting arm ②
     Bends/Cracks/Damage → Replace.
   - Bearing ③
   - Oil seal ④
     Wear/Damage → Replace.
   - Inner collars ⑤ (Relay arm and connecting arm)
   - Bushes ⑥
     Wear/Pitting/Damage → Replace.



6. Inspect:
   - Oil seal ①
     Wear/Damage → Replace.
   - Bearing ②
     Pitting/Damage → Replace.
   - Bushes ③
     Scratches/Damage → Replace.

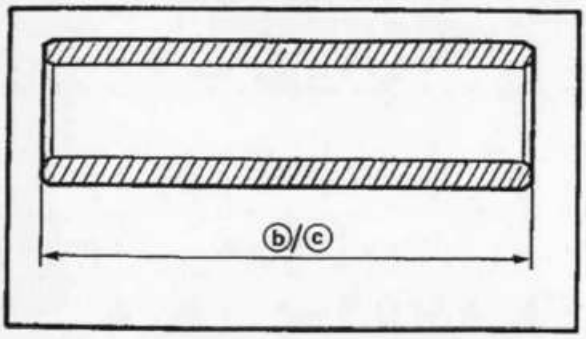
NOTE:
When replacing the bearing and bush of swingarm pivot, install new bearing ② and bush ③ as shown.

ⓐ: 4 mm (0.16 in)
ⓑ: 8 mm (0.32 in)



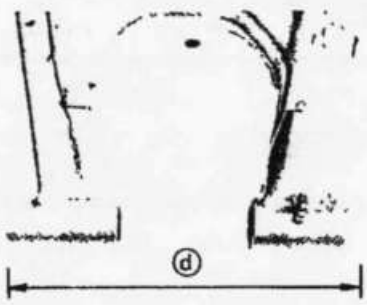
SIDE CLEARANCE ADJUSTMENT

1. Measure:
   - Engine mounting boss width ⓐ

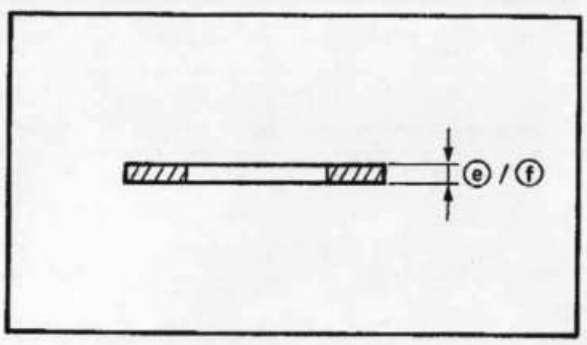


2. Measure:
   • Inner collar length (Left ⓑ and right ⓒ)
   Out of specification → Replace.

Inner Collar Length:
66.45 ~ 66.75 mm
(2.616 ~ 2.628 in)



3. Measure:
   • Pivot width (Swingarm) ⓓ



4. Measure:
   • Washer thickness (Left ⓔ and right ⓕ)
   Out of specification → Replace.

Washer Thickness:
0.7 ~ 0.9 mm (0.028 ~ 0.035 in)

5. Calculate:
   • Swingarm side clearance
   Out of specification → Adjust side clearance using shim.
   By using formula given below.

Side Clearance:
= (ⓐ + ⓑ + ⓒ) − (ⓓ + ⓔ + ⓕ)

Side Clearance:
0.4 ~ 0.7 mm (0.016 ~ 0.028 in)

Example:
a. If the engine mounting boss width ⓐ, inner collar length ⓑ and ⓒ are below.
   ⓐ = 71.32 mm (2.808 in)
   ⓑ = 66.50 mm (2.618 in)
   ⓒ = 66.56 mm (2.620 in)

b. If the pivot width ⓓ and washer thickness ⓔ are below.
ⓓ = 201.92 mm (7.950 in)
ⓔ = 0.8 mm (0.031 in)
ⓕ = 0.8 mm (0.031 in)
Side clearance
= (71.32 + 66.50 + 66.56) – (201.92 + 0.8 + 0.8)
= 0.86 mm (0.034 in)
Then, install the one shim.

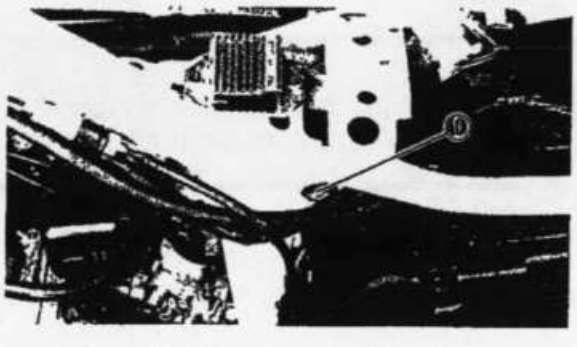
NOTE:
When installing the shim on the right side only.

Shim Thickness:
0.3 mm (0.012 in)

INSTALLATION

Rear Shock Absorber
Reverse the "REMOVAL" procedure.
Note the following points.

1. Apply:
   - Lithium soap base grease
     To bearing, dust seal and mounting bolts.



2. Tighten:
   - Nut (Shock absorber – Upper) ①

Nut (Shock Absorber – Upper):
33 Nm (3.3 m·kg, 24 ft·lb)



3. Tighten:
   - Nut (Shock absorber – Lower) ①

Nut (Shock Absorber – Lower):
33 Nm (3.3 m·kg, 24 ft·lb)



4. Tighten:
   - Nut (Connecting arm – Swing arm) ①

	Nut (Connecting Arm – Swingarm): 58 Nm (5.8 m·kg, 42 ft·lb)

5. Adjust:
   - Rear shock absorber

   Refer to the "REAR SHOCK ABSORBER ADJUSTMENT" section in the CHAPTER 3.

Swingarm

Reverse the "REMOVAL" procedure.
Note the following points.

1. Apply:
   - Lithium soap base grease

   To oil seals, bearings, bushes, pivotting shafts, inner collars, washers and inside of thrust cover.



2. Tighten:
   - Nut (Relay arm – Frame) ①

	Nut (Relay Arm – Frame): 58 Nm (5.8 m·kg, 42 ft·lb)



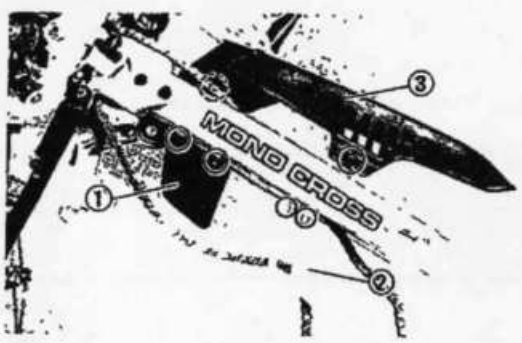
3. Tighten:
   - Nut (Relay arm – Connecting arm) ①

	Nut (Relay Arm – Connecting Arm): 58 Nm (5.8 m·kg, 42 ft·lb)



4. Tighten:
   - Nut (Pivot shaft) ①

	Nut ① (Pivot Shaft): **90 Nm (9.0 m·kg, 65 ft·lb)**



5. Tighten:
   - Bolts (Chain guard) ①
   - Bolts (Chain guide) ②
   - Bolts (Chain case) ③

	Bolt (Chain Guard): **4 Nm (0.4 m·kg, 2.9 ft·lb)** **Bolt (Chain Guide):** **7 Nm (0.7 m·kg, 5.1 ft·lb)** **Bolt (Chain Case):** **4 Nm (0.4 m·kg, 2.9 ft·lb)**

6. Install:
   - Rear wheel

   Refer to "REAR WHEEL – INSTALLATION" section.

	Nut (Rear Wheel Axle): **90 Nm (9.0 m·kg, 65 ft·lb)** **Bolt (Swingarm End):** **3 Nm (0.3 m·kg, 2.2 ft·lb)**



7. Install:
   - Rear shock absorber

   Refer to the "Rear Shock Absorber" section.
8. Adjust:
   - Drive chain slack ⓐ

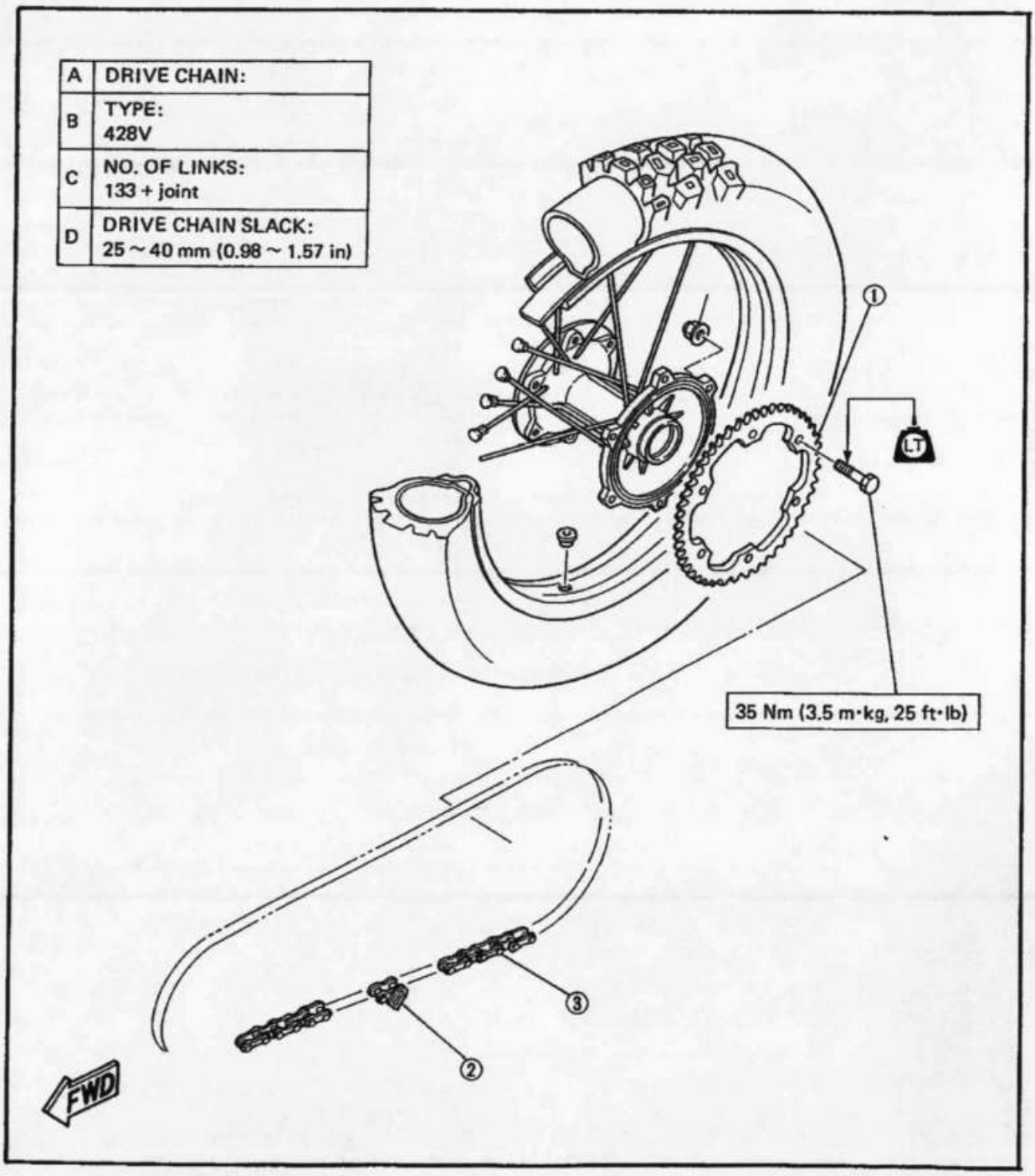
   Refer to the "DRIVE CHAIN SLACK ADJUSTMENT" section in the CHAPTER 3.

	Drive Chain Slack: **25 ~ 40 mm (0.98 ~ 1.57 in)**

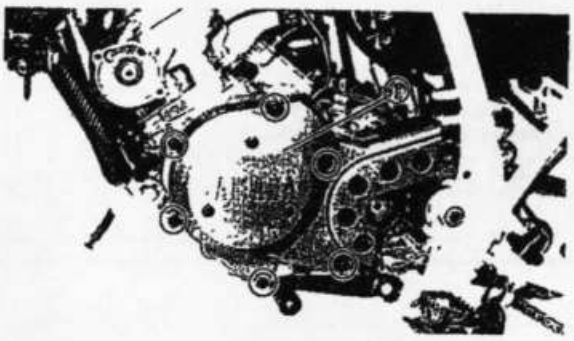
DRIVE CHAIN AND SPROCKETS

① Drive sprocket
② Chain joint
③ Drive chain

A	DRIVE CHAIN:
B	TYPE: 428V
C	NO. OF LINKS: 133 + joint
D	DRIVE CHAIN SLACK: 25 ~ 40 mm (0.98 ~ 1.57 in)

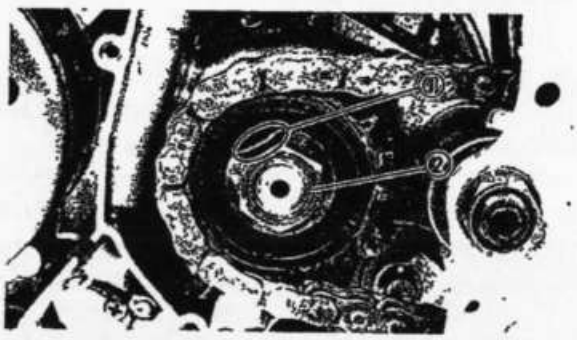


NOTE:
Before removing the drive chain and sprockets, drive chain slack and 10-link length of drive chain should be measured.



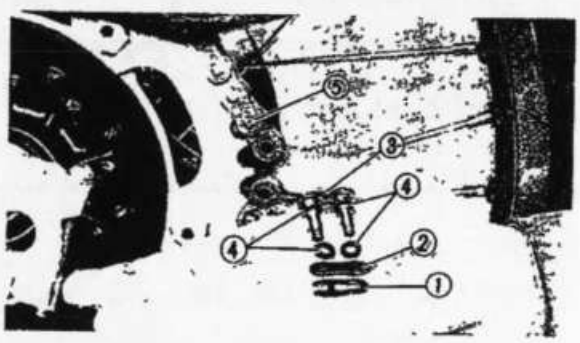
REMOVAL

1. Remove:
   - Crankcase cover (Left) ①



2. Straighten:
   - Lock washer tab ①
3. Loosen:
   - Nut (Drive sprocket) ②

NOTE:
When loosening the drive sprocket nut, apply the rear brake pedal and transmission gear to the 6th position.



4. Remove:
   - Clip (Master link) ①
   - Plate (Master link) ②
   - Master link ③
   - O-rings ④
   - Drive chain ⑤

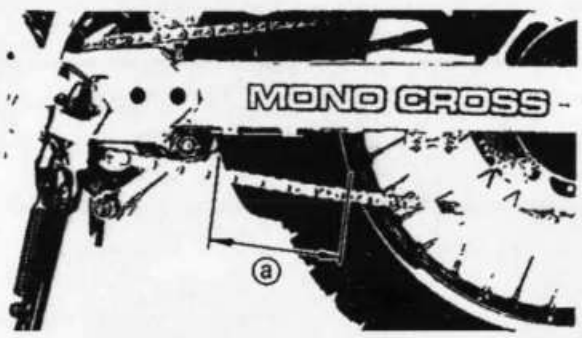


5. Remove:
   - Chain guide ①
   - Drive sprocket
6. Remove:
   - Rear wheel

   Refer to the "REAR WHEEL – REMOVAL" section.



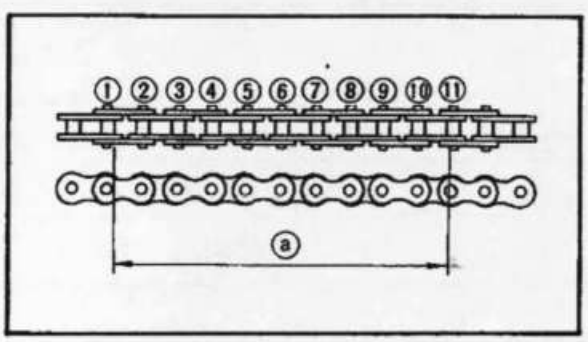
7. Remove:
   • Chain guide rollers (Upper [A] and lower [B])



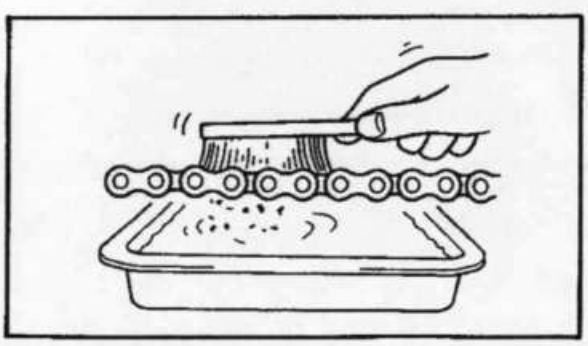
INSPECTION

1. Measure:
   • 10-link length ⓐ (Drive chain)
   Out of specification → Replace drive chain.

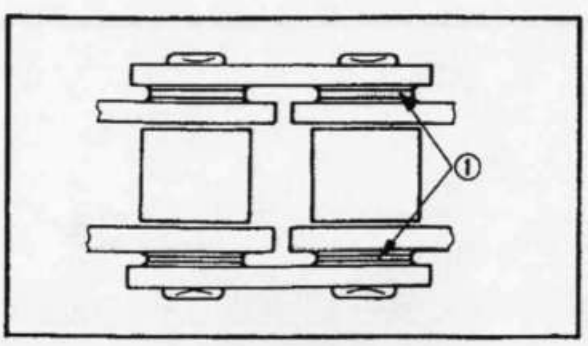
10-Link Length Limit:
120.0 mm (4.72 in)



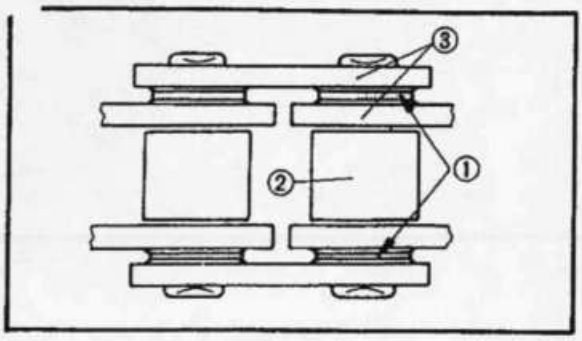
NOTE:
- For measurement make the chain tense by finger.
- 10-link length is a measurement between the insides of the ① and ⑪ rollers as shown.
- Two or three different 10-link lengths should be measured.



2. Clean:
   • Drive chain
   Place it in kerosene, and brush off as much dirt as possible. Then remove the chain from the kerosene and dry the chain.



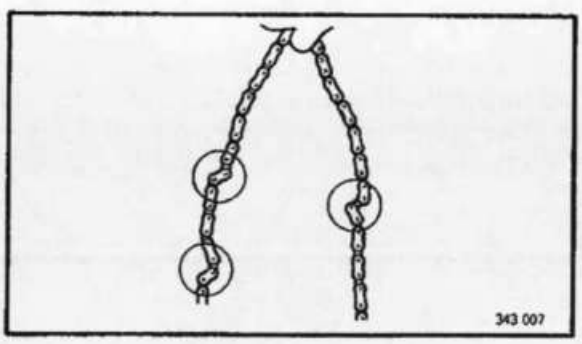
CAUTION:
This machine has a drive chain with small rubber O-rings ① between the chain plates. Steam cleaning, high-pressure washes, and certain solvent can damage these O-rings. Use only kerosene to clean the drive chain.



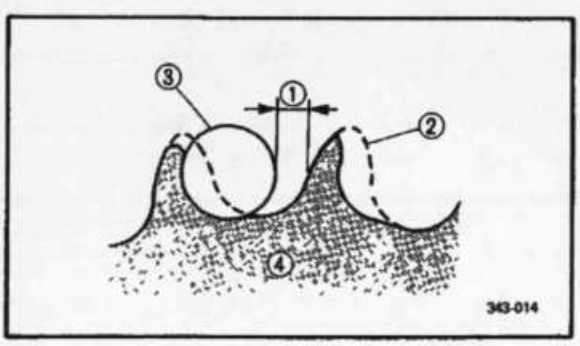
3. Inspect:
   - O-rings ① (Drive chain)
     Damage → Replace drive chain.
   - Rollers ②
   - Side plates ③
     Damage/Wear → Replace drive chain.

4. Lubricate:
   - Drive chain

Drive Chain Lubricant:
SAE 30 ~ 50 Motor oil

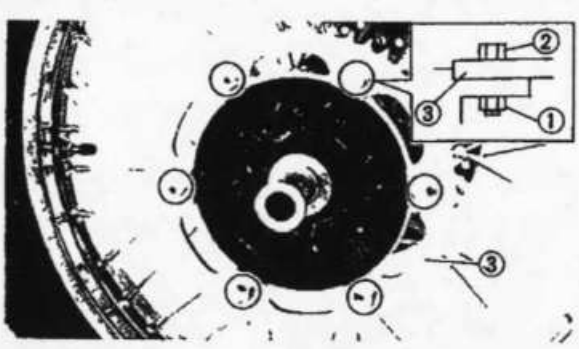


5. Inspect:
   - Drive chain stiffness
     Stiff → Clean and lubricate or replace.



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

②Correct
③Roller
④Sprocket



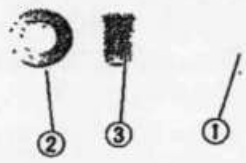
Driven sprocket replacement steps:
- Remove the self-locknuts ① , bolts ② and driven sprocket ③ .
- Clean the hub, especially on the surfaces in contact with the sprocket, using clean cloth.

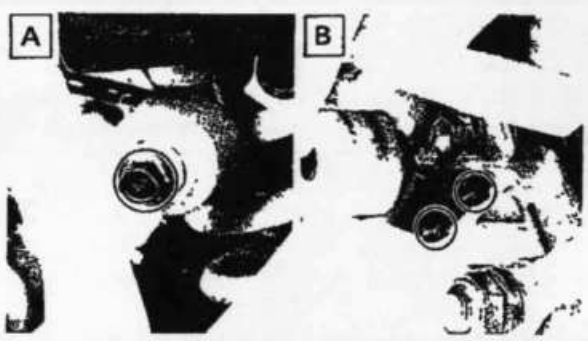
• Place the new driven sprocket and insert the bolts from above, with their self-locknuts coming from underneath.

NOTE:
Tighten the bolts in stage, using a crisscross pattern.

	Bolt (Driven Sprocket): 35 Nm (3.5 m·kg, 25 ft·lb)

7. Inspect:
   • Chain guide ①
   • Chain guide rollers ②
   • Collars ③ (Guide roller)
   Wear/Damage → Replace.





INSTALLATION

Reverse the "REMOVAL" procedure.
Note the following points.

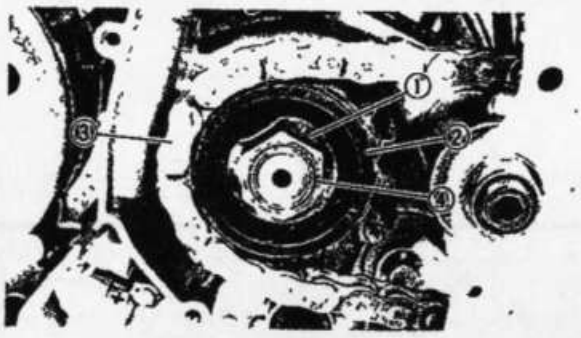
1. Install:
   • Chain guide rollers (Upper [A] and lower [B])

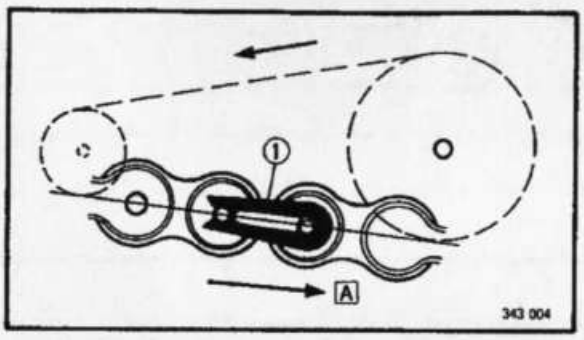
	Nut (Guide Roller – Upper): 10 Nm (1.0 m·kg, 7.2 ft·lb) **Bolt (Guide Roller Bracket): 8 Nm (0.8 m·kg, 5.8 ft·lb)** **Bolt (Guide Roller – Lower): 10 Nm (1.0 m·kg, 7.2 ft·lb)**

NOTE:
Apply the lithium soap base grease to the guide roller pivot shafts.

2. Install:
   • Rear wheel
   Refer to the "REAR WHEEL – INSTALLATION" section.

	Nut (Rear Wheel Axle): 90 Nm (9.0 m·kg, 65 ft·lb) **Bolt (Swingarm End): 3 Nm (0.3 m·kg, 2.2 ft·lb)**







3. Install:
   - Lock washer ①
   - Drive sprocket ②
   - Drive chain ③
4. Tighten:
   - Nut (Drive sprocket) ④

	Nut (Drive Sprocket): **60 Nm (6.0 m·kg, 43 ft·lb)**

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

⚠ WARNING:

- **Always use a new lock washer (Drive sprocket).**
- **Make sure that the clip ① is installed in the correct direction. Otherwise, the drive chain will be separated.**

[A] Turning direction

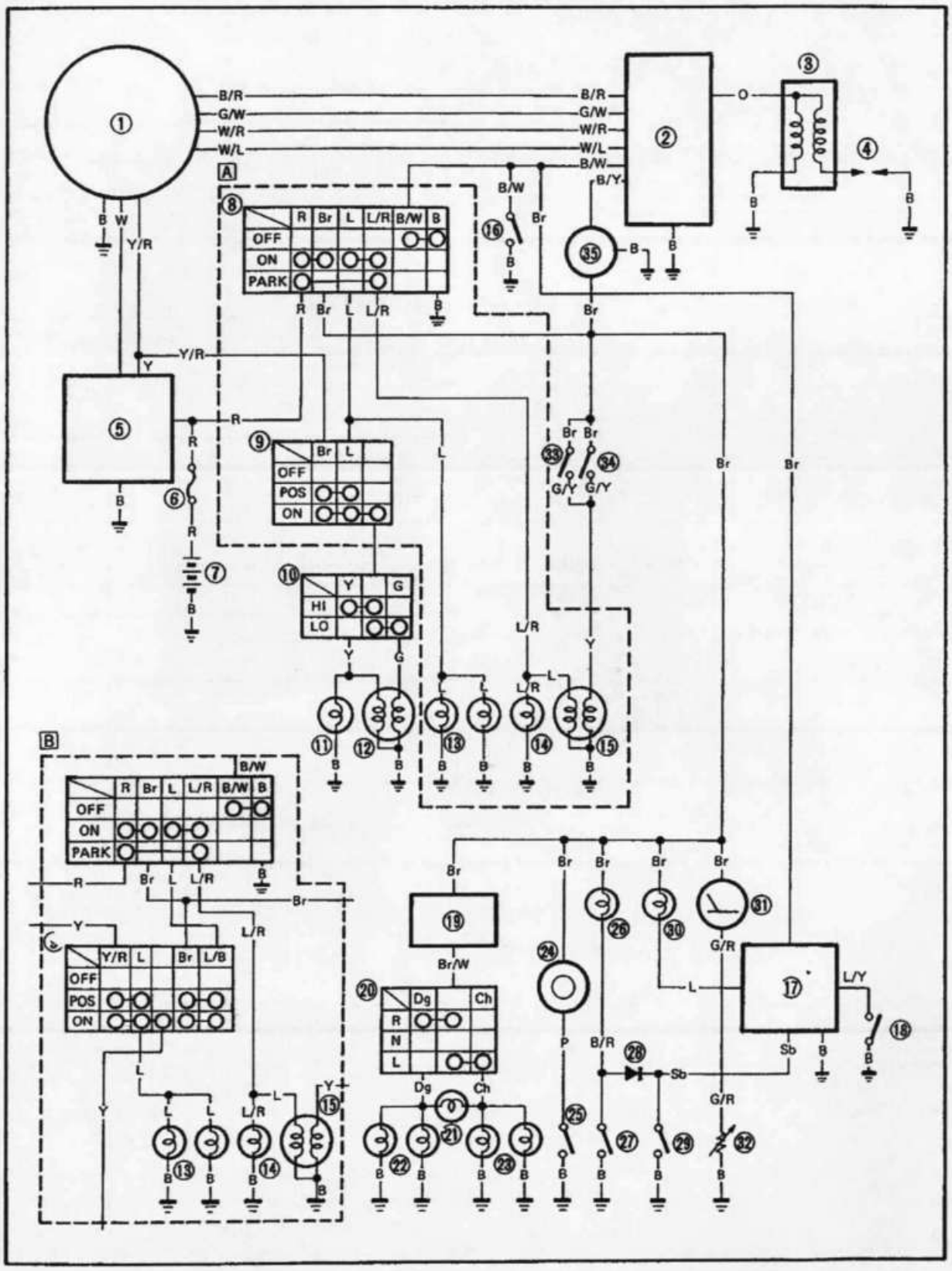
6. Adjust:
   - Drive chain slack ⓐ

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

	Drive Chain Slack: **25 ~ 40 mm (0.98 ~ 1.57 in)**

ELECTRICAL

DT125R CIRCUIT DIAGRAM



CDI magneto
(2) CDI unit
(3) Ignition coil
(4) Spark plug
(5) Rectifier/Regulator
(6) Fuse
(7) Battery
(8) Main switch
(9) "LIGHTS" switch
(10) "LIGHTS" (Dimmer) switch
(11) "HIGH BEAM" indicator light
(12) Headlight
(13) Meter light
(14) Auxiliary light
(15) Tail/Brake light
(16) "ENGINE STOP" switch
(17) Ignition control unit
(18) Sidestand switch
[A] Except for GB
[B] For GB
(19) Flasher relay
(20) "TURN" switch
(21) "TURN" indicator light
(22) Flasher light (Right)
(23) Flasher light (Left)
(24) Horn
(25) "HORN" switch
(26) "OIL" indicator light
(27) Oil level switch
(28) Diode
(29) Neutral switch
(30) "NEUTRAL" indicator light
(31) Temperature gauge
(32) Thermo unit
(33) Front brake switch
(34) Rear brake switch
(35) Servomotor (Except for GB)

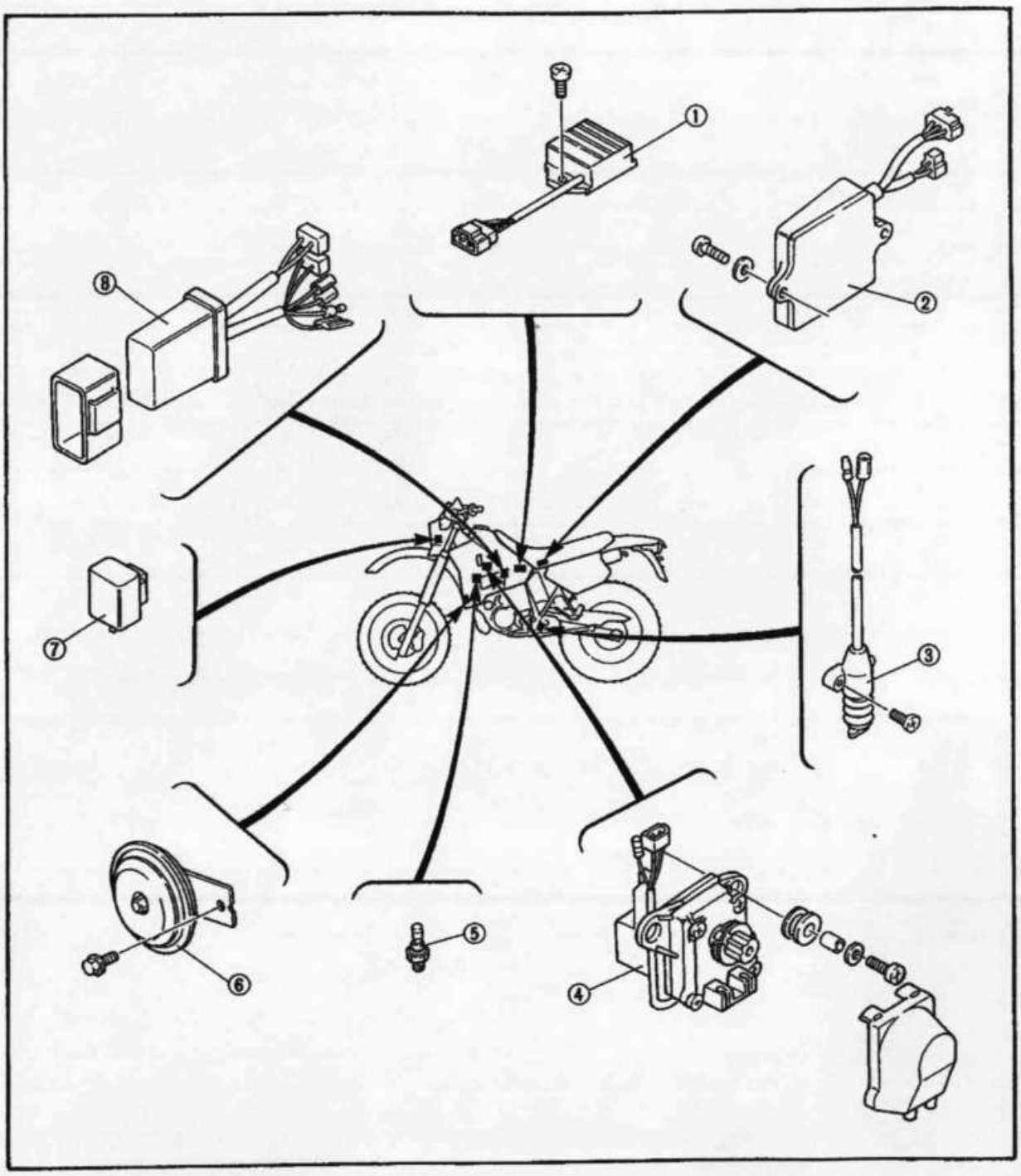
COLOR CODE

B	Black	Ch	Chocolate	W/R	White/Red
R	Red	Dg	Dark green	W/L	White/Blue
O	Orange	Sb	Sky blue	Y/R	Yellow/Red
L	Blue	Br	Brown	G/R	Green/Red
P	Pink	L/Y	Blue/Yellow	G/Y	Green/Yellow
Y	Yellow	B/Y	Black/Yellow	G/W	Green/White
G	Green	B/W	Black/White	Br/W	Brown/White
W	White	B/R	Black/Red	L/R	Blue/Red

ELECTRICAL COMPONENTS (1)

① Rectifier/Regulator
② Control unit
③ Sidestand switch
④ Servomotor (Except for GB)
⑤ Thermo unit
⑥ Horn
⑦ Flasher relay
⑧ CDI unit

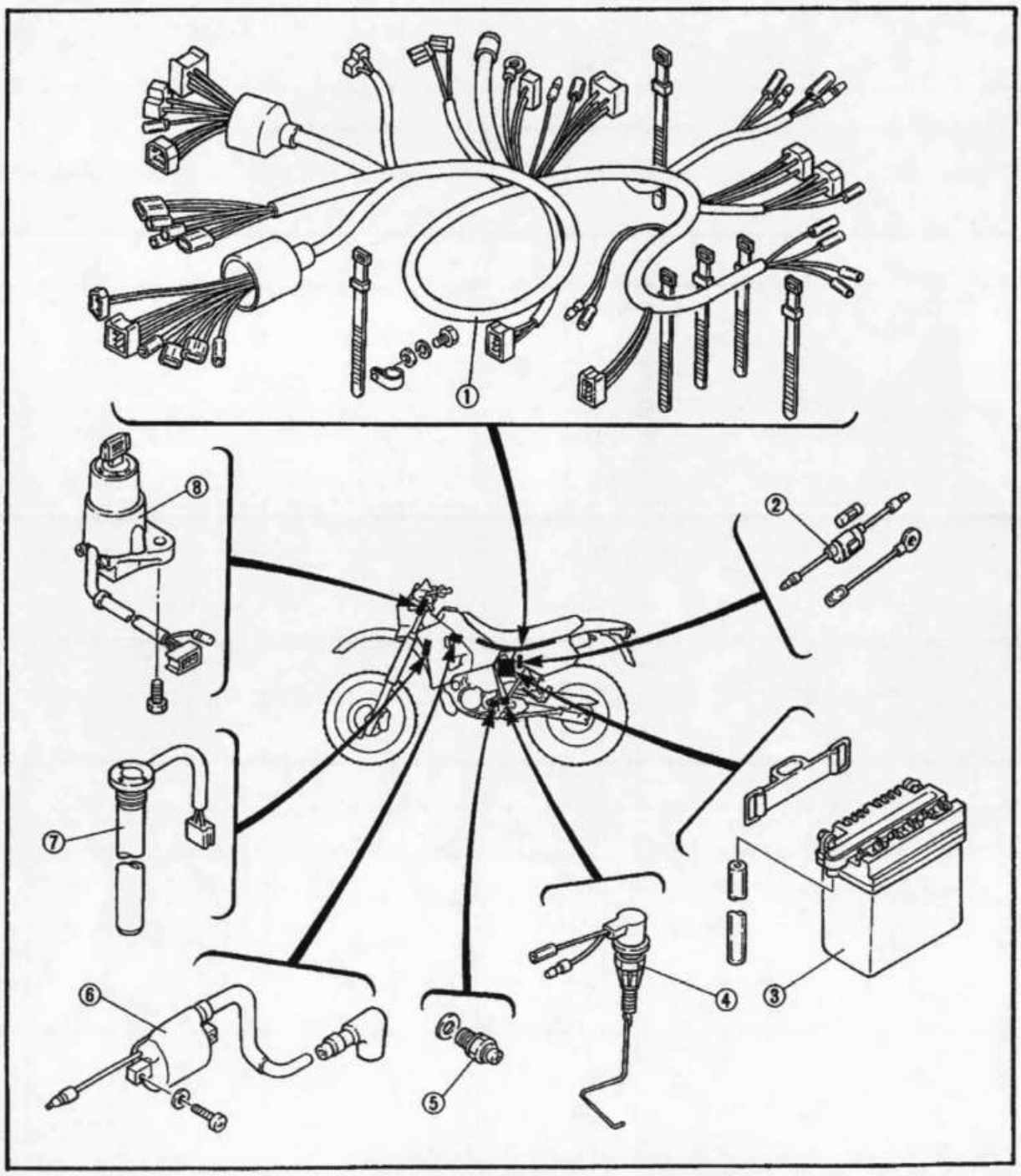
IGNITION COIL:
PRIMARY COIL RESISTANCE:
0.7 ~ 1.1Ω at 20°C (68°F)
SECONDARY COIL RESISTANCE:
5.7 ~ 8.5 kΩ at 20°C (68°F)



ELECTRICAL COMPONENTS (2)

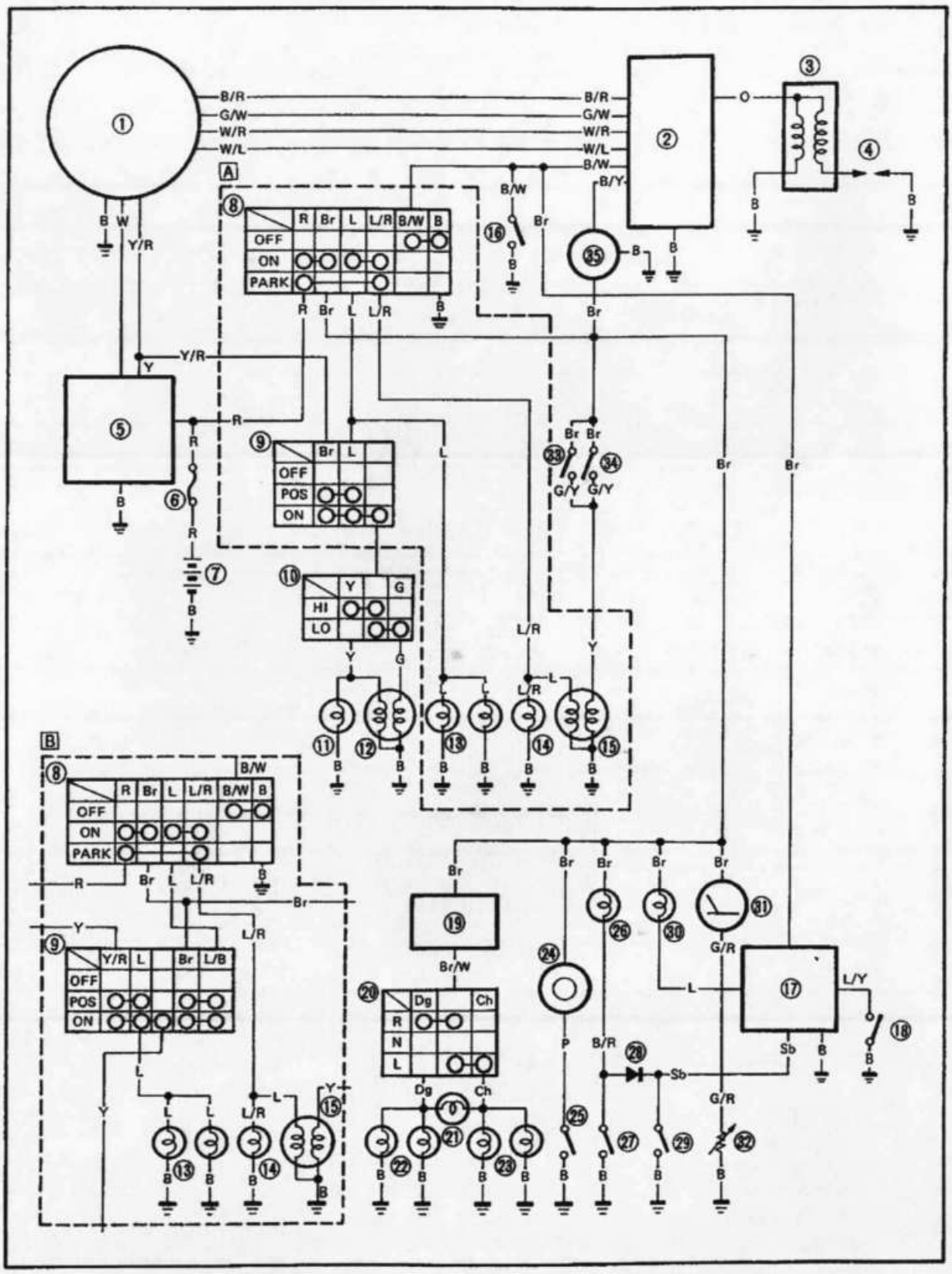
① Wireharness
② Fuse
③ Battery
④ Brake switch
⑤ Neutral switch
⑥ Ignition coil
⑦ Oil level switch
⑧ Main switch

BATTERY:
CAPACITY:
12V 3AH
SPECIFIC GRAVITY:
1.280 at 20°C (68°F)



IGNITION SYSTEM

CIRCUIT DIAGRAM

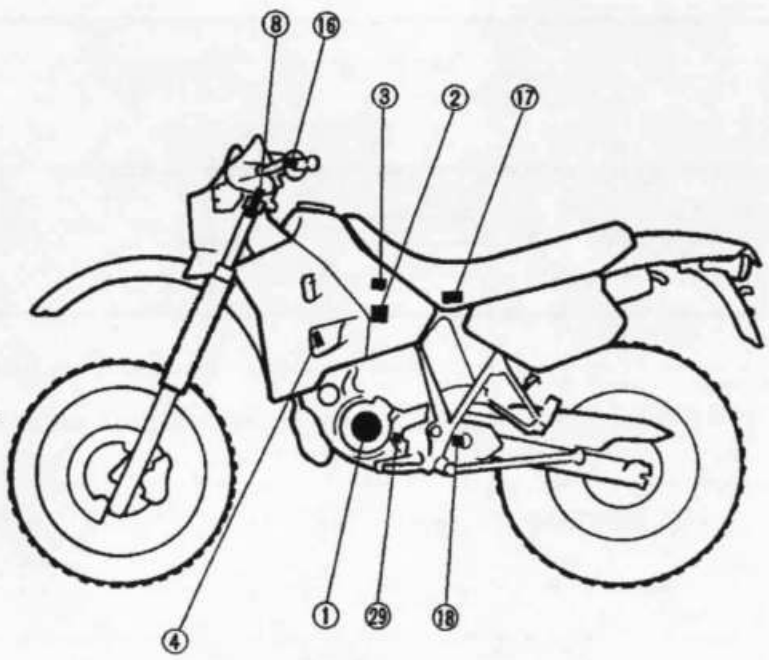


Aforementioned circuit diagram shows ignition circuit in circuit diagram.

NOTE:

For the color codes, see page 8-2.

① CDI magneto
② CDI unit
③ Ignition coil
④ Spark plug
⑧ Main switch
⑯ "ENGINE STOP" switch
⑰ Ignition control unit
⑱ Sidestand switch
㉙ Neutral switch

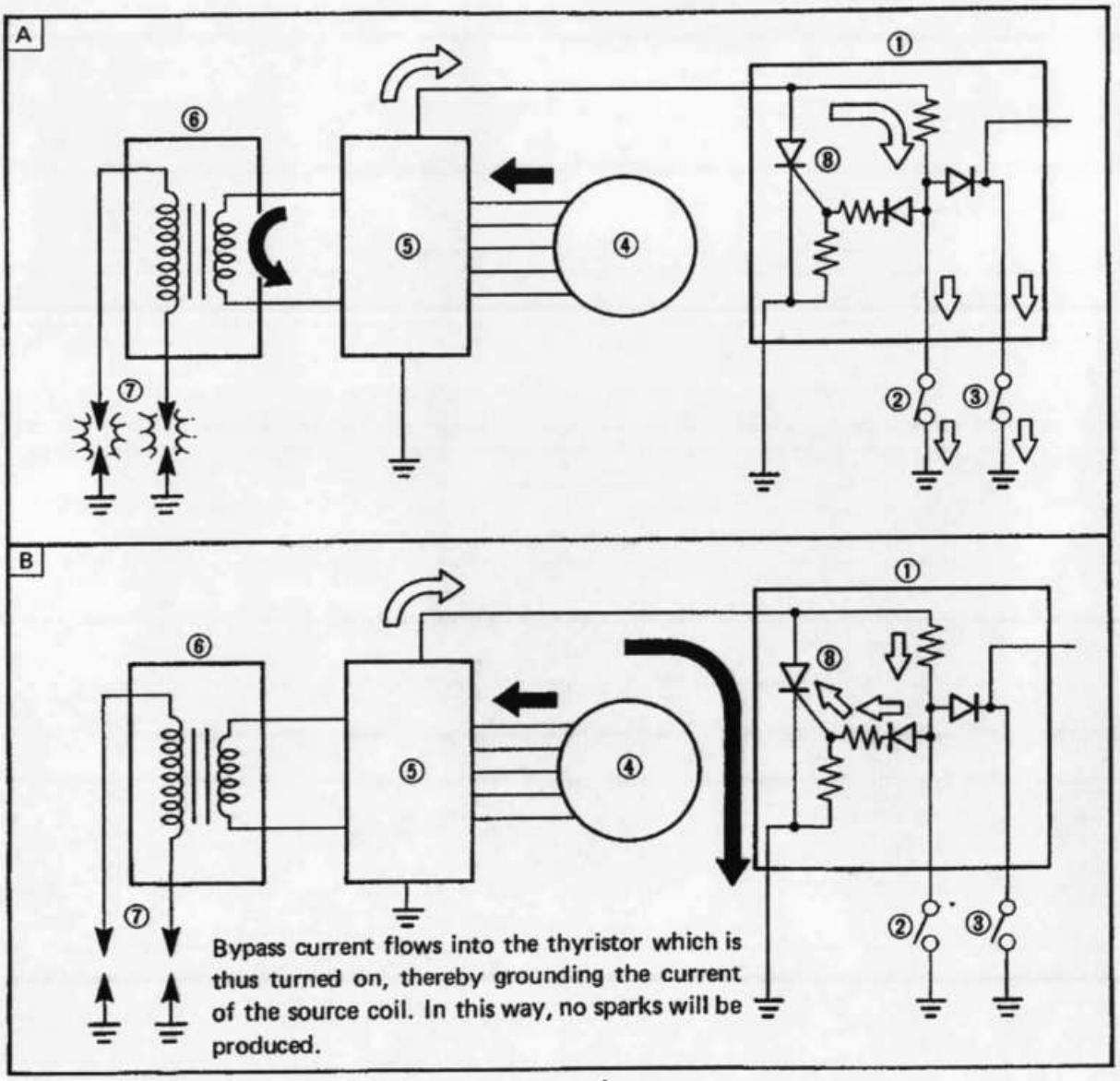


IGNITION CONTROL CIRCUIT OPERATION

The ignition control circuit on this model consists of the ignition control unit, neutral switch, neutral indicator light, and the sidestand switch. If the engine stop switch and the main switch are both on, the ignition spark can produce only if:

1. The transmission is in neutral (the neutral switch is on).
2. The sidestand is up (the sidestand switch is on).

	Transmission (Neutral switch)	Sidestand (Sidestand switch)	Spark plug
A	Neutral (close)	Up (close)	Spark
A	Neutral (close)	Down (open)	Spark
A	IN gear (open)	Up (close)	Spark
B	IN gear (open)	Down (open)	No spark



① Ignition control unit
② Sidestand switch
③ Neutral switch
④ CDI magneto
⑤ CDI unit
⑥ Ignition coil
⑦ Spark plug
⑧ Thyristor

⇦ Bypass current
⬅ Current of source coil

TROUBLESHOOTING

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

Procedure

Check;

1. Spark plug
2. Ignition spark gap
3. Spark plug cap resistance
4. Ignition circuit
5. Ignition coil resistance
6. Main switch
7. "ENGINE STOP" switch
8. Source coil resistance
9. Pickup coil resistance
10. Wiring connection (Entire ignition system)

NOTE:

- Remove the following parts before troubleshooting.

1) Side cover (Left)
2) Side cover (Right)
3) Seat
4) Radiator cover
5) Oil tank cover
6) Fuel tank
7) Headlight cover
8) Headlight unit

- Use the following special tools in this troubleshooting.

Pocket Tester: 90890-03112	Dynamic Coil Tester: 90890-03144

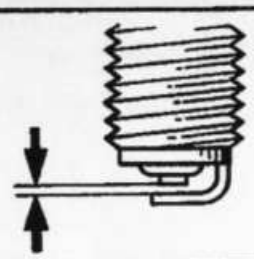
1. Spark plug

- Check the spark plug condition
- Check the spark plug condition.
- Check the spark plug gap.

Refer to the "SPARK PLUG INSPECTION" section in the CHAPTER 3.

Standard Spark Plug: BR9ES (N.G.K.)

Spark Plug Gap: 0.7 ~ 0.8 mm (0.028 ~ 0.031 in)



INCORRECT → Repair or replace spark plug.

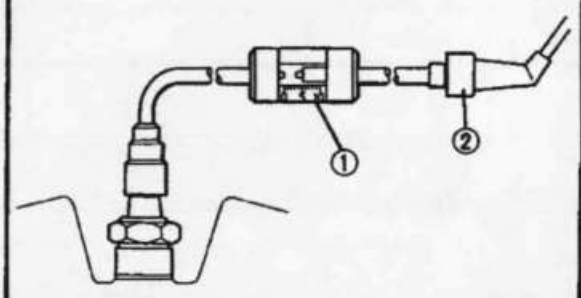
CORRECT ↓

*

*

2. Ignition spark gap

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



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

Minimum Spark Gap:
6 mm (0.24 in)

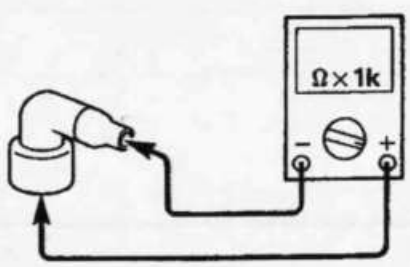
SPARK

Ignition circuit is good.

OUT OF SPECIFICATION

3. Spark plug cap resistance

- Remove the spark plug cap.
- Connect the Pocket Tester (Ω x 1k) to the spark plug cap.



- Check the spark plug cap for specificated resistance.

Spark Plug Cap Resistance:
4 ~ 6 kΩ at 20°C (68°F)

OUT OF SPECIFICATION

Replace spark plug cap.

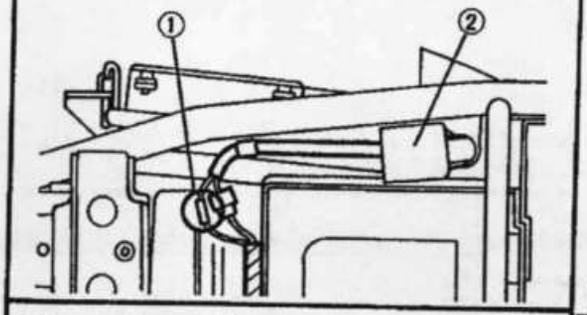
MEETS SPECIFICATION

*

*

4. Ignition circuit

- Disconnect the lead ① (Brown) of the ignition control unit ②.



- Turn the main switch to "ON" and "ENGINE STOP" switch to "RUN" then, shift the gear in neutral.
- Kick the kick crank.
- Check and start the engine.

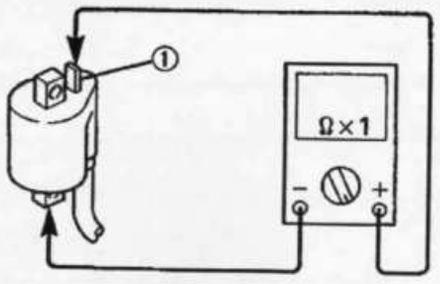
ENGINE STARTS (SPARK) → Starting circuit is faulty, go to "Procedure (2)".

ENGINE DOES NOT START ↓

5. Ignition coil resistance

- Disconnect the ignition coil lead (Orange) from the wireharness.
- Connect the Pocket Tester (Ω x 1) to the ignition coil.

Tester (+) Lead → Orange ① Terminal
Tester (–) Lead → Ignition Coil Base

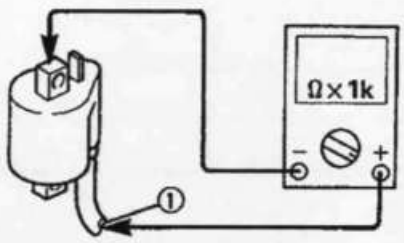


- Measure the primary coil resistance.

Primary Coil Resistance:
0.7 ~ 1.1Ω at 20°C (68°F)

- Connect the Pocket Tester (Ω x 1) to the ignition coil.

Tester (+) Lead → Spark Plug Lead ①
Tester (–) Lead → Ignition Coil Base



- Measure the Secondary coil resistance.

Secondary Coil Resistance:
5.7 ~ 8.5 kΩ at 20°C (68°F)

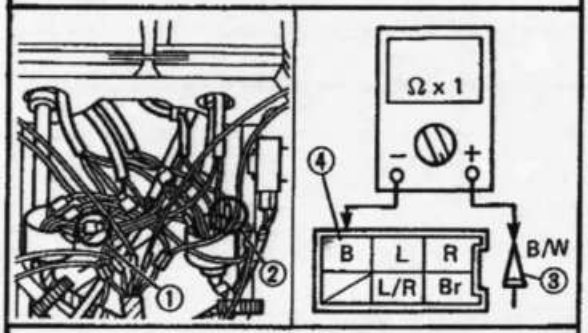
OUT OF SPECIFICATION → Replace ignition coil.

BOTH MEET SPECIFICATIONS ↓

6. Main switch

- Disconnect the main switch coupler ① and lead ② from the wireharness.
- Connect the Pocket Tester (Ω x 1) to the main switch.

Tester (+) Lead → Black/White ③ Lead
Tester (–) Lead → Black ④ Terminal



- Turn the main switch to "ON" and "OFF".
- Check the main switch for continuity.

Switch position	Good condition	Bad condition		
OFF	O	X	X	O
ON	X	O	X	O
PARK	X	O	X	O

O: Continuity X: Nocontinuity

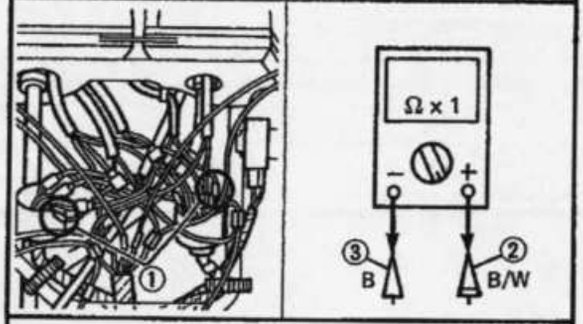
BAD CONDITION → Replace main switch.

GOOD CONDITION

7. "ENGINE STOP" switch

- Disconnect the "ENGINE STOP" switch leads ① from the wireharness.
- Connect the Pocket Tester (Ω x 1) to the "ENGINE STOP" switch.

Tester (+) Lead → Black/White ② Lead
Tester (–) Lead → Black ③ Lead



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

Switch position	Good condition	Bad condition		
RUN	X	O	X	O
OFF	O	X	X	O

O: Continuity X: Nocontinuity

BAD CONDITION → Replace handlebar switch.

GOOD CONDITION

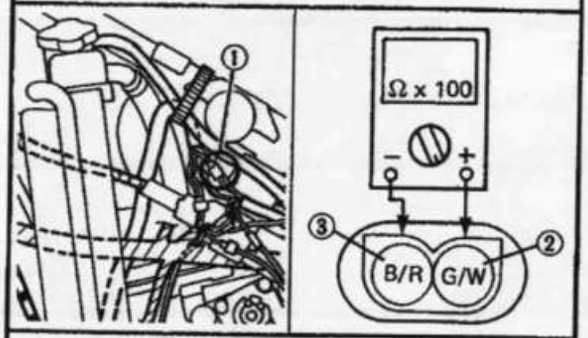
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8. Source coil resistance

- Disconnect the CDI magneto coupler ① from the wireharness.
- Connect the Pocket Tester (Ω x 100) to the source coil.

Tester (+) Lead → Green/White ② Terminal
Tester (–) Lead → Black/Red ③ Terminal



- Measure the source coil resistance.

Source Coil Resistance:
192 ~ 288Ω at 20°C (68°F)

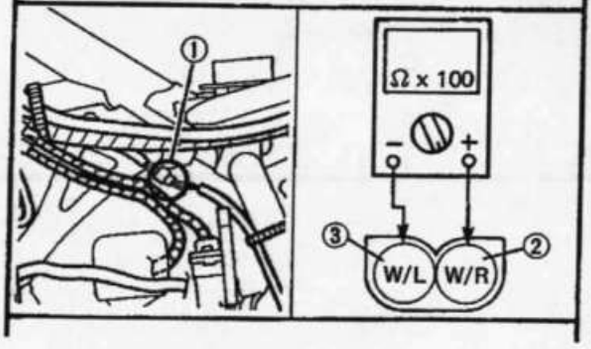
OUT OF SPECIFICATION → Replace source coil.

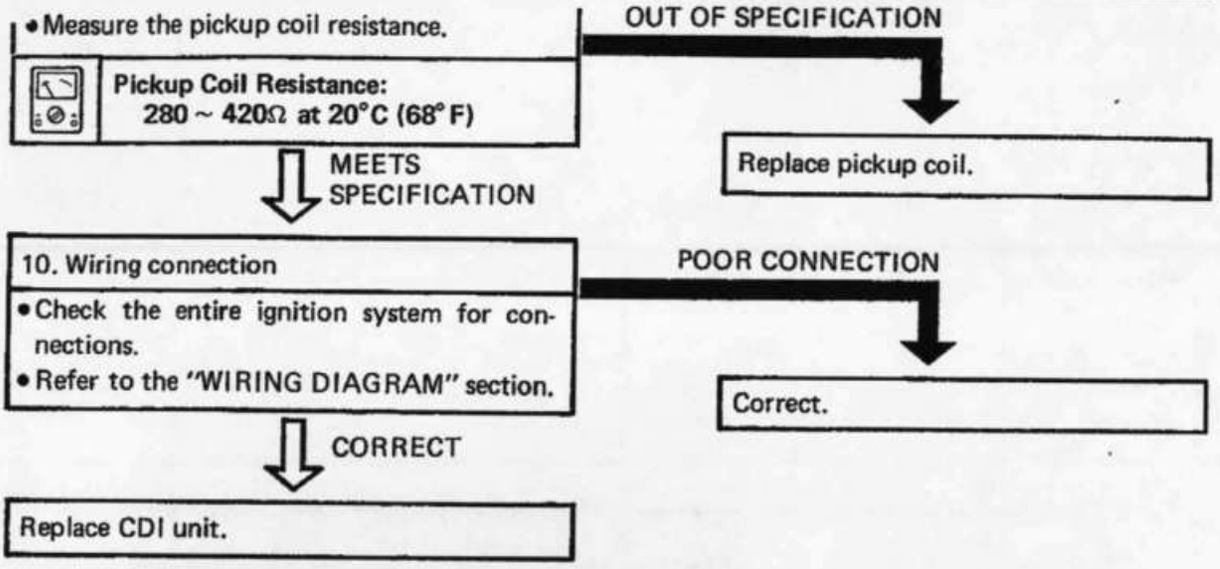
MEETS SPECIFICATION

9. Pickup coil resistance

- Disconnect the CDI magneto coupler ① from the wireharness.
- Connect the Pocket Tester (Ω x 100) to the pickup coil.

Tester (+) Lead → White/Blue ② Terminal
Tester (–) Lead → White/Red ③ Terminal




• Measure the pickup coil resistance.
Pickup Coil Resistance:
280 ~ 420Ω at 20°C (68°F)
OUT OF SPECIFICATION
Replace pickup coil.
MEETS SPECIFICATION
10. Wiring connection
• Check the entire ignition system for connections.
• Refer to the "WIRING DIAGRAM" section.
POOR CONNECTION
Correct.
CORRECT
Replace CDI unit.

Procedure (2)

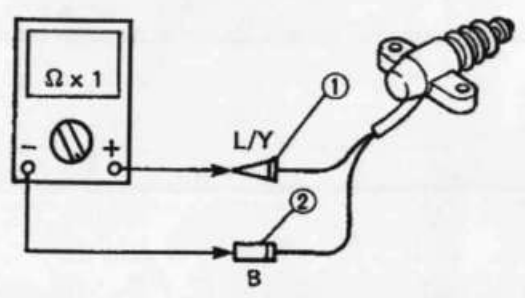
Check;

1. Sidestand switch
2. Neutral switch
3. Wiring connection (Ignition system)

1. Sidestand switch

- Disconnect the sidestand switch leads from the wireharness.
- Connect the Pocket Tester (Ω x 1) to the sidestand switch.

Tester (+) Lead → Blue/Yellow ① Terminal
Tester (—) Lead → Black ② Terminal



- Move the sidestand to up position and down position.
- Check the sidestand switch for continuity.

Sidestand position	Good condition	Bad condition		
Up	○	X	X	○
Down	X	○	X	○

○: Continuity X: Nocontinuity

BAD CONDITION → Replace "SIDESTAND" switch.

GOOD CONDITION

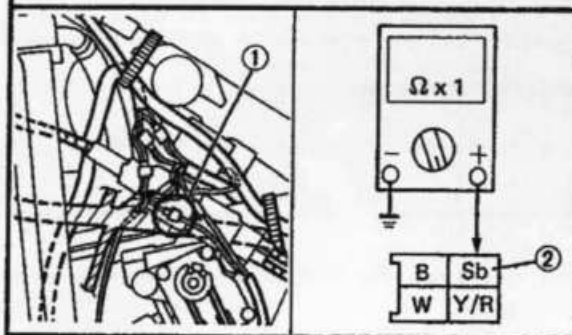
*

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2. Neutral switch

- Disconnect the CDI magneto coupler ① from the wireharness.
- Connect the Pocket Tester (Ω x 1) to the neutral switch lead.

Tester (+) Lead → Sky blue ② lead
Tester (—) Lead → Frame Ground



- Shift the transmission in neutral and gear.
- Check the neutral switch for continuity.

Transmission position	Good condition	Bad condition		
Neutral	○	X	X	○
Gear	X	○	X	○

○: Continuity X: Nocontinuity

BAD CONDITION → Replace neutral switch.

GOOD CONDITION

3. Wiring connection

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

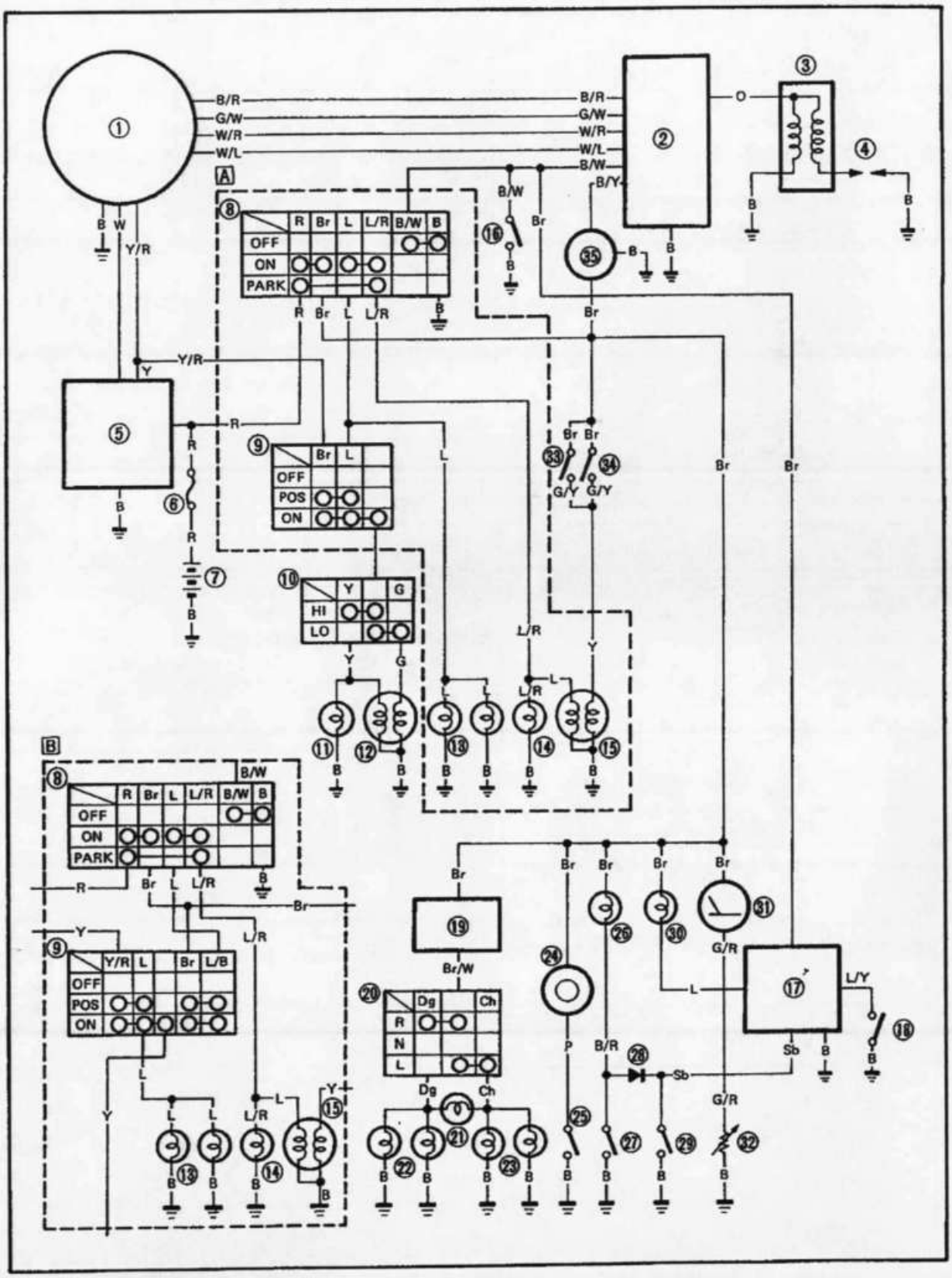
POOR CONNECTION → Correct.

CORRECT

Replace ignition control unit.

CHARGING SYSTEM

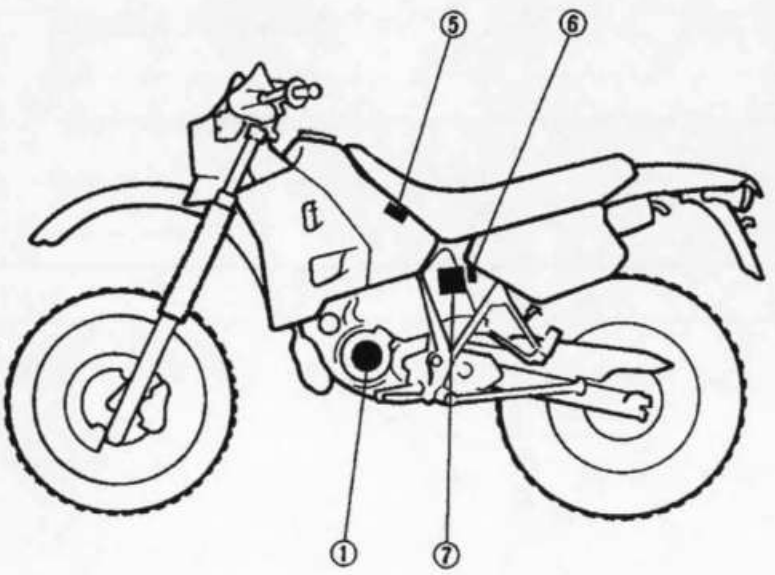
CIRCUIT DIAGRAM



oremention circuit diagram shows charging circuit in circuit diagram.

NOTE:
For the color codes, see page 8-2.

① CDI magneto
⑤ Rectifier/Regulator
⑥ Fuse
⑦ Battery



TROUBLESHOOTING

THE BATTERY IS NOT CHARGED

Procedure

Check;

1. Fuse
2. Battery
3. Charging voltage
4. Charging coil resistance
5. Wiring connection (Charging system)

NOTE:

- Remove the following parts before troubleshooting.
  1) Side cover (Left)
  2) Side cover (Right)
  3) Seat
  4) Radiator cover
  5) Oil tank cover
  6) Fuel tank
- Use the following special tools in this troubleshooting



Pocket Tester:
90890-03112



Engine Tachometer:
90890-03113

1. Fuse

- Remove the fuse.
- Connect the Pocket Tester (Ω x 1) to the fuse.
- Check the fuse for continuity.

NOCONTINUITY → Replace fuse.

CONTINUITY ↓

2. Battery

- Check the battery condition. Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

Specific Gravity:
1.280 at 20°C (68°F)

INCORRECT →

- Refill battery fluid.
- Clean battery terminals.
- Recharge or replace battery.

CORRECT ↓

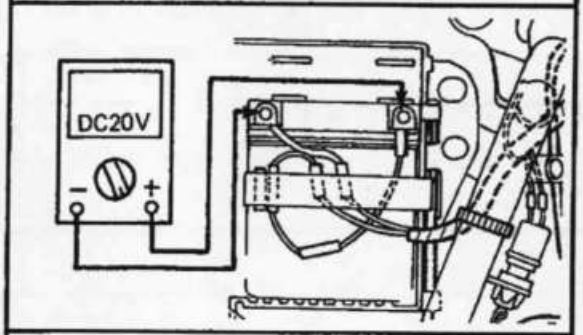
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3. Charging voltage

- Connect the Engine Tachometer to spark plug lead.
- Connect the Pocket Tester (DC20V) to the battery.

Tester (+) Lead → Battery (+) Terminal
Tester (–) Lead → Battery (–) Terminal



- Start the engine and accelerate to about 3,000 r/min.
- Measure the charging voltage.

Charging Voltage:
13.3 ~ 15.3V at 3,000 r/min

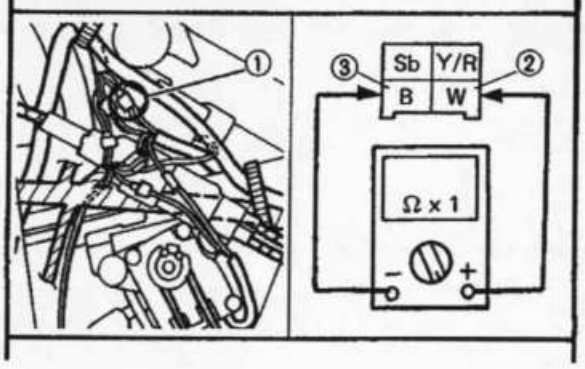
MEETS SPECIFICATION → Replace battery.

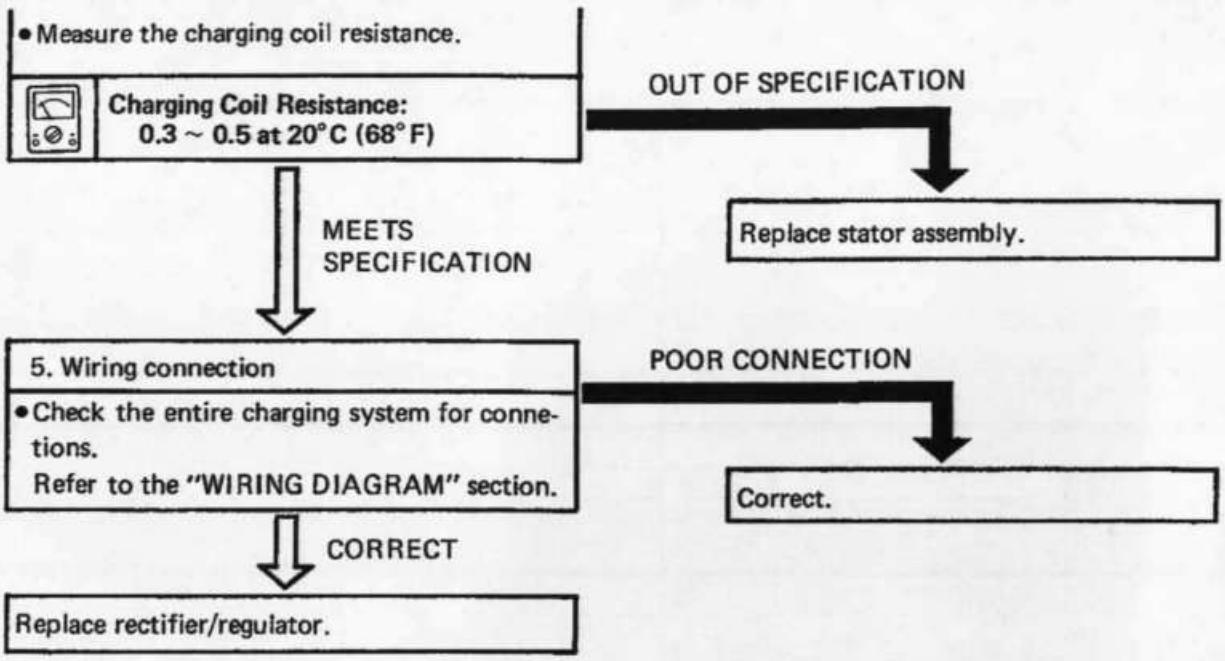
OUT OF SPECIFICATION

4. Charging coil resistance

- Disconnect the CDI magneto coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the charging coil.

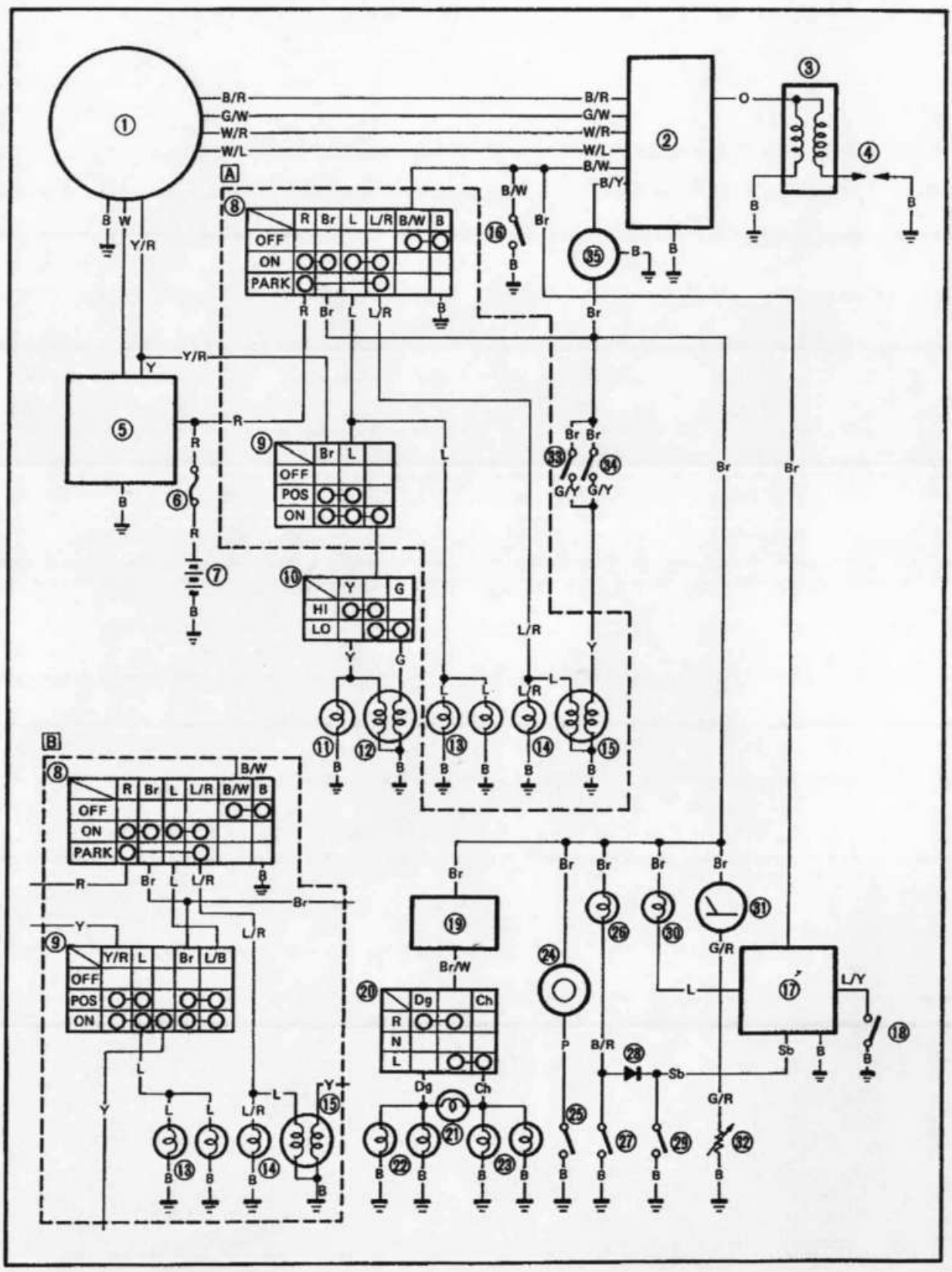
Tester (+) Lead → White ② Lead
Tester (–) Lead → Black ③ Lead




• Measure the charging coil resistance.
Charging Coil Resistance:
0.3 ~ 0.5 at 20°C (68°F)
OUT OF SPECIFICATION
Replace stator assembly.
MEETS SPECIFICATION
5. Wiring connection
• Check the entire charging system for connections.
Refer to the "WIRING DIAGRAM" section.
POOR CONNECTION
Correct.
CORRECT
Replace rectifier/regulator.

LIGHTING SYSTEM

CIRCUIT DIAGRAM

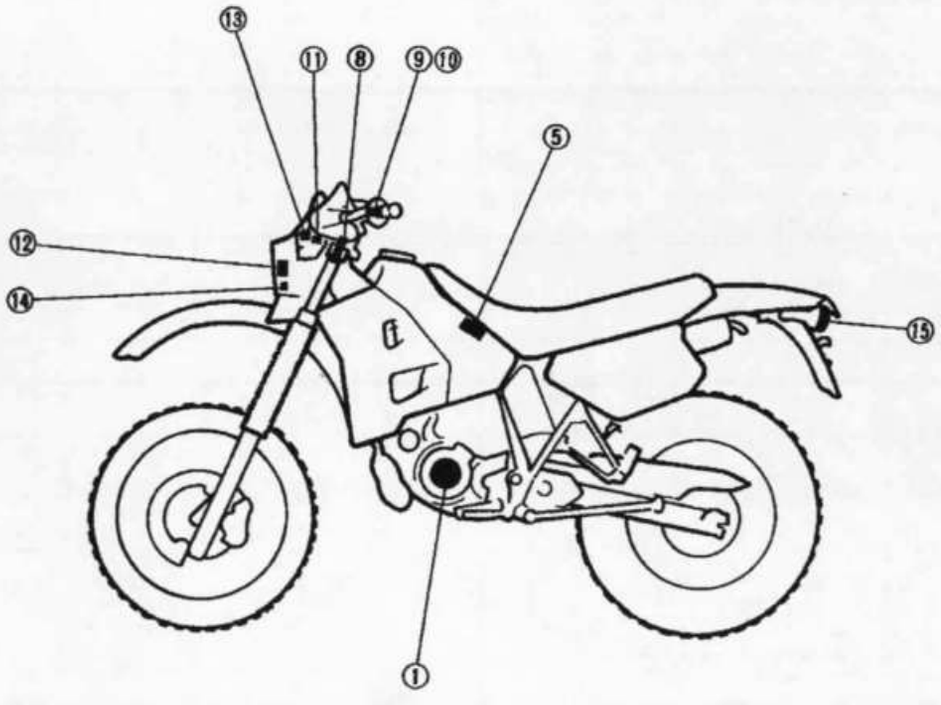


orementioned circuit diagram shows lighting circuit in circuit diagram.

NOTE:

For the color codes, see page 8-2.

① CDI magneto
⑤ Rectifier/Regulator
⑧ Main switch
⑨ "LIGHTS" switch
⑩ "LIGHTS" (Dimmer) switch
⑪ "HI BEAM" indicator light
⑫ Headlight
⑬ Meter light
⑭ Auxiliary light
⑮ Tail/Brake light
[A] Except for GB
[B] For GB



TROUBLESHOOTING

HEADLIGHT/"HIGH BEAM" INDICATOR LIGHT DO NOT COME ON

Procedure

Check;

1. Headlight bulb/"HI BEAM" indicator light bulb
2. Headlight bulb socket/"HI BEAM" indicator light bulb socket
3. "LIGHTS" (Dimmer) switch
4. "LIGHTS" switch
5. Lighting voltage
6. Lighting coil resistance
7. Wiring connection

NOTE:

- Remove the following parts before troubleshooting.
  1) Sidecover (Left and right)
  2) Seat
  3) Radiator cover
  4) Oil tank cover
  5) Fuel tank
  6) Headlight cover
  7) Headlight unit
- Use the following special tool in this troubleshooting.

Pocket Tester: 90890-03112	Inductive Tachometer: 90890-03113

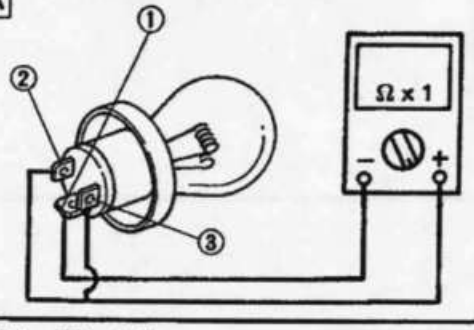
1. Bulb

- Remove the bulb.
  Refer to the "HEADLIGHT BULB REPLACEMENT" section in the CHAPTER 3.
- Connect the Pocket Tester (Ω x 1) to the bulb terminals.

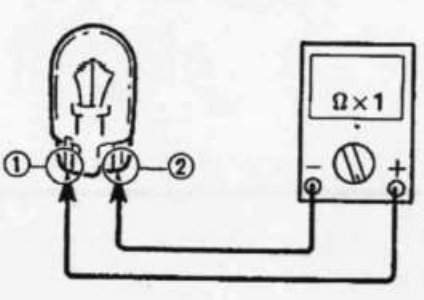
Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ②

Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ③

A



B



A Headlight bulb
B "HI BEAM" indicator light bulb

- Check the bulb for continuity.

NOCONTINUITY

Replace bulb.

*

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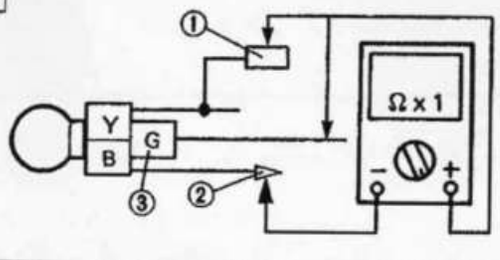
2. Bulb socket

- Disconnect the bulb socket leads from the wire harness.
- Install the bulb to the bulb socket.
- Connect the Pocket Tester (Ω x 1) to the bulb socket leads.

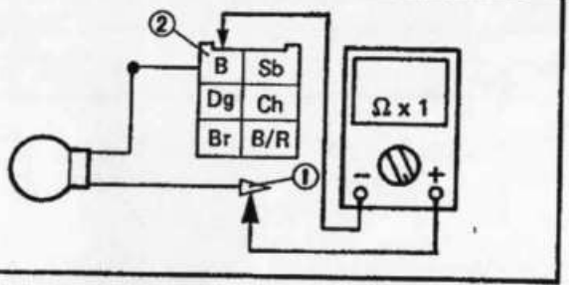
Tester (+) Lead → Yellow ① Lead
Tester (–) Lead → Black ② Lead

Tester (+) Lead → Green ③ Lead
Tester (–) Lead → Black ② Lead

A



B



A Headlight bulb socket
B "HI BEAM" indicator light bulb socket

- Check the bulb socket for continuity.

NOCONTINUITY

Replace bulb socket.

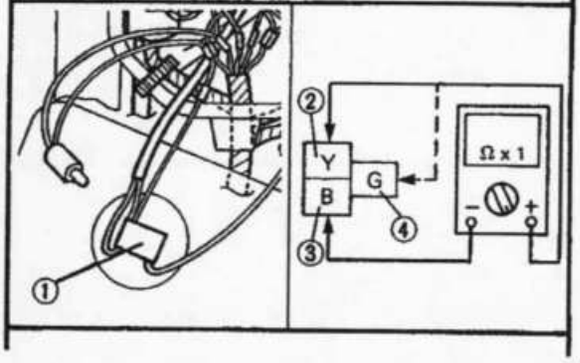
CONTINUITY

3. "LIGHTS" (Dimmer) switch

- Connect the Pocket Tester (Ω x 1) to the headlight bulb socket ① .

When turning "LIGHTS" (Dimmer) switch to "HI":
Tester (+) Lead → Yellow ② Terminal
Tester (–) Lead → Black ③ Terminal

When turning "LIGHTS" (Dimmer) switch to "LO":
Tester (+) Lead → Green ④ Terminal
Tester (–) Lead → Black ③ Terminal



- Turn the "LIGHTS" (Dimmer) switch to the "HI" and "LO".
- Check the "LIGHTS" (Dimmer) switch for continuity.

Switch position	Good condition	Bad condition		
HI	○	X	○	X
LO	○	○	X	X

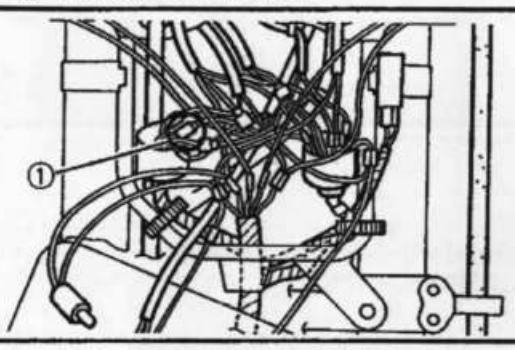
○: Continuity X: Nocontinuity

BAD CONDITION → Replace handlebar switch (Left)

GOOD CONDITION

4. "LIGHTS" switch

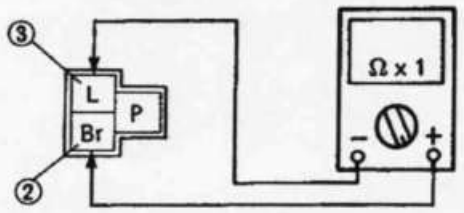
- Disconnect handlebar switch (Left) coupler ① from the wire hanress.



- Connect the Pocket Tester (Ω x 1) to the handlebar switch (Left) coupler.

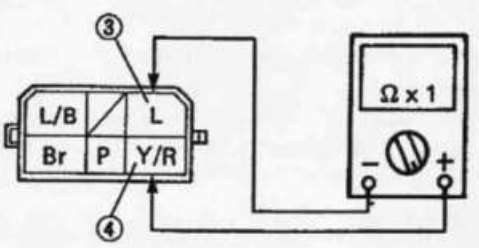
A

Tester (+) Lead → Brown ② Terminal
Tester (–) Lead → Blue ③ Terminal



B

Tester (+) Lead → Yellow/Red ④ Terminal
Tester (–) Lead → Blue ③ Terminal



A Except for GB B For GB

- Turn the "LIGHTS" switch to "ON", "PO" and "OFF".
- Check the "LIGHTS" switch for continuity.

Switch position	Good condition	Bad condition		
ON	○	X	X	○
PO				
OFF	X	○	X	○

○: Continuity X: Nocontinuity

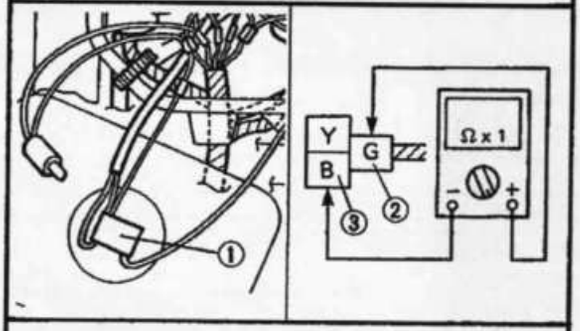
BAD CONDITION → Replace handlebar switch (Left)

GOOD CONDITION ↓

5. Lighting voltage

- Turn the "LIGHTS" switch to "ON" and "LIGHTS" (Dimmer) switch to "LO".
- Connect the Pocket Tester (AC V-20) to the headlight coupler ① .

Tester (+) Lead → Green ② Terminal
Tester (—) Lead → Black ③ Terminal



- Connect the Inductive Tachometer to the spark plug lead.
- Start the engine and check the lighting voltage.

CAUTION:

Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

Lighting Voltage:
11,5 ~ 13,0V at 2,500 r/min

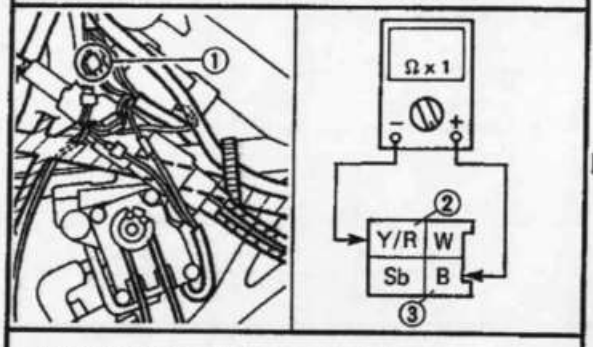
MEETS SPECIFICATION → Lighting system is good.

OUT OF SPECIFICATION ↓

6. Lighting coil resistance

- Disconnect the CDI magneto coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the lighting coil coupler.

Tester (+) Lead → Yellow/Red ② Terminal
Tester (—) Lead → Black ③ Terminal



• Measure the lighting coil resistance.

Lighting Coil Resistance:
0.24 ~ 0.36 at 20°C (68°F)

OUT OF SPECIFICATION → Replace stator assembly.

MEETS SPECIFICATION ↓

7. Wiring connection

• Check the entire lighting system for connections.
Refer to the "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

CORRECT ↓

Rectifier/Regulator is faulty, replace it.

METER LIGHT DOES NOT COME ON

Procedure

Check;

1. Meter light bulb
2. Meter light bulb socket
3. "LIGHT" switch
4. Lighting voltage
5. Lighting coil resistance
6. Wiring connection

NOTE:

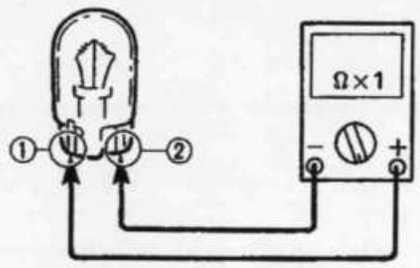
- Remove the following parts before troubleshooting.
  1) Sidecover (Left and right)
  2) Seat
  3) Radiator cover
  4) Oil tank cover
  5) Fuel tank
  6) Headlight cover
  7) Headlight unit
- Use the following special tool in this troubleshooting.

Pocket Tester: 90890-03112	Inductive Tachometer: 90890-03113

1. Bulb

- Remove the bulb
  Refer to the "METER ASSEMBLY" section.
- Connect the Pocket Tester (Ω x 1) to the bulb terminals.

Tester (+) Lead → Terminal ①
Tester (—) Lead → Terminal ②



- Check the bulb for continuity.

NOCONTINUITY → Replace bulb.

CONTINUITY

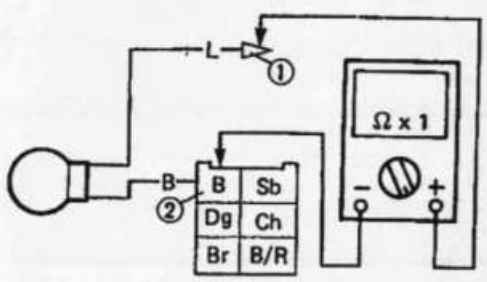
*

*

2. Bulb socket

- Disconnect the bulb socket lead and coupler from the wire harness.
- Install the bulb to the bulb socket.
- Connect the Pocket Tester (Ω x 1) to the bulb socket lead and coupler.

Tester (+) Lead → Blue ① Lead
Tester (–) Lead → Black ② Terminal



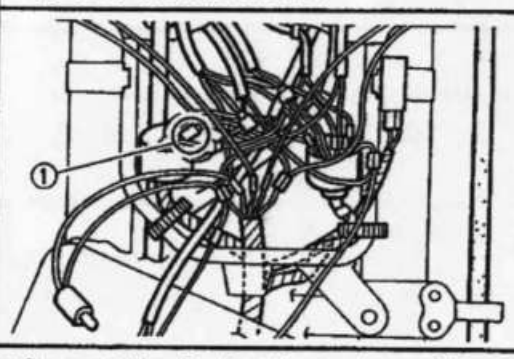
- Check the bulb socket for continuity.

NOCONTINUITY → Replace bulb socket.

CONTINUITY

3. "LIGHTS" switch

- Disconnect handlebar switch (Left) coupler ① from the wire harness.



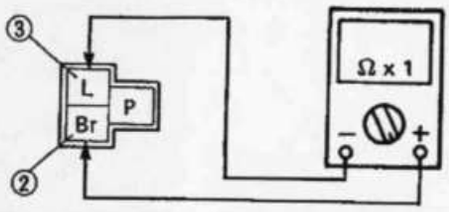
- Connect the Pocket Tester (Ω x 1) to the handlebar switch (Left) coupler.

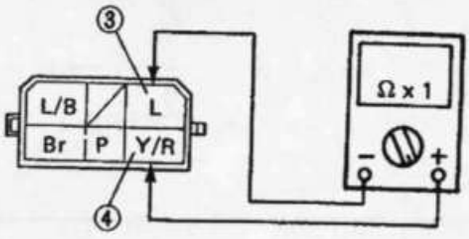
A

Tester (+) Lead → Brown ② Terminal
Tester (–) Lead → Blue ③ Terminal

B

Tester (+) Lead → Yellow/Red ④ Terminal
Tester (–) Lead → Blue ③ Terminal





Ⓐ Except for GB Ⓑ For GB

- Turn the "LIGHTS" switch to "ON", "PO" and "OFF".
- Check the "LIGHTS" switch for continuity.

Switch position	Good condition	Bad condition		
ON	○	X	X	○
PO				
OFF	X	○	X	○

○: Continuity X: Nocontinuity

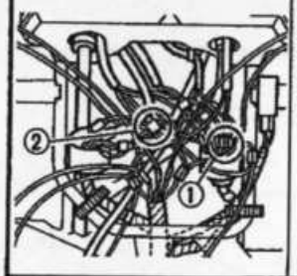
BAD CONDITION → Replace handlebar switch (Left).

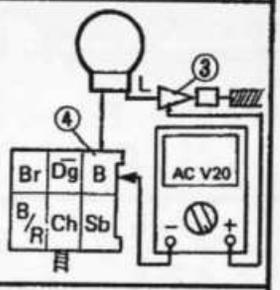
GOOD CONDITION

4. Lighting voltage

- Connect the Pocket Tester (AC V-20) to the meter light bulb socket lead ① and coupler ② .

Tester (+) Lead → Blue ③ lead
Tester (–) Lead → Black ④ Terminal





- Connect the Inductive Tachometer to the spark plug lead.
- Start the engine and check the lighting voltage.

CAUTION:
Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

MEETS SPECIFICATION → Lighting system is good.

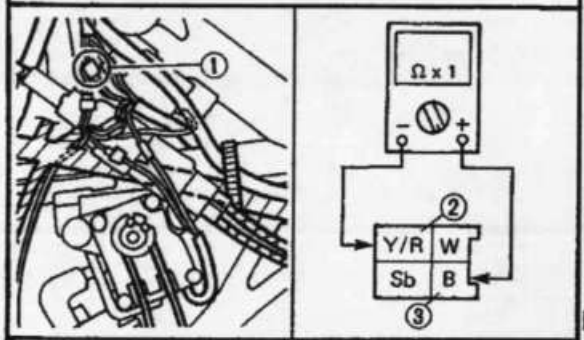
Lighting Voltage:
11,5 ~ 13,0V at 2,500 r/min

OUT OF SPECIFICATION

5. Lighting coil resistance

- Disconnect the CDI magneto coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the lighting coil coupler.

Tester (+) Lead → Yellow/Red ② Terminal
Tester (—) Lead → Black ③ Terminal



- Measure the lighting coil resistance.

Lighting Coil Resistance:
0.24 ~ 0.36 at 20°C (68°F)

OUT OF SPECIFICATION → Replace stator assembly.

MEETS SPECIFICATION

7. Wiring connection

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

POOR CONNECTION → Correct.

CORRECT

Rectifier/Regulator is faulty, replace it.

TAILLIGHT/AUXILIARY LIGHT DO NOT COME ON

Procedure

Check;

1. Tail/Brake light bulb/Auxiliary light bulb
2. Taillight bulb socket/Auxiliary light bulb socket
3. Main switch
4. "LIGHTS" switch
5. Lighting voltage
6. Lighting coil resistance
7. Wiring connection

NOTE:

- Remove the following parts before troubleshooting.
  1) Sidecover (Left and right)
  2) Seat
  3) Radiator cover
  4) Oil tank cover
  5) Fuel tank
  6) Headlight cover
  7) Headlight unit
- Use the following special tool in this troubleshooting.

Pocket Tester: 90890-03112	Inductive Tachometer: 90890-03113

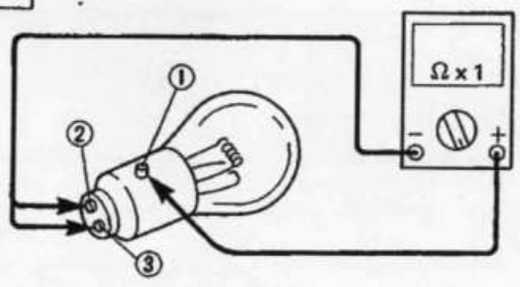
1. Bulb

- Remove the bulb.
- Connect the Pocket Tester (Ω x 1) to the bulb Terminals.

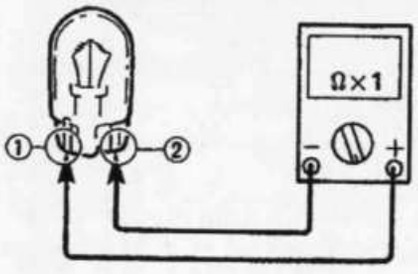
Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ②

Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ③

A



B



[A] Tail/Brake light bulb
[B] Auxiliary light bulb

- Check the bulb for continuity.

NOCONTINUITY → Replace bulb.

CONTINUITY → *

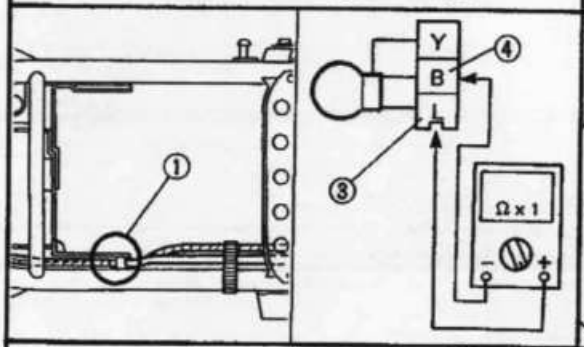
*

2. Bulb socket

- Disconnect the bulb socket coupler ① and leads ② from the wire harness.
- Install the bulb to the bulb socket.
- Connect the Pocket Tester (Ω x 1) to the bulb socket leads or coupler.

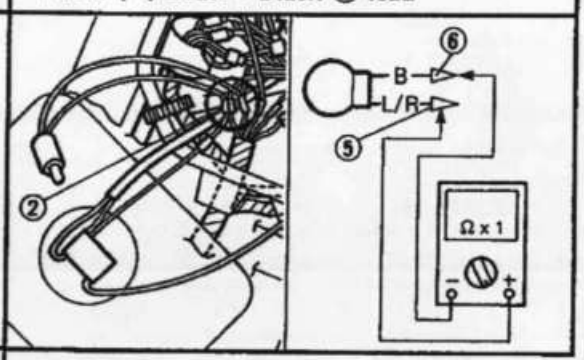
A

Tester (+) Lead → Blue ③ Terminal
Tester (–) Lead → Black ④ Terminal



B

Tester (+) Lead → Blue/Red ⑤ lead
Tester (–) Lead → Black ⑥ lead



A Tail/Brake light bulb socket
B Auxiliary light bulb socket

- Check the bulb socket for continuity.

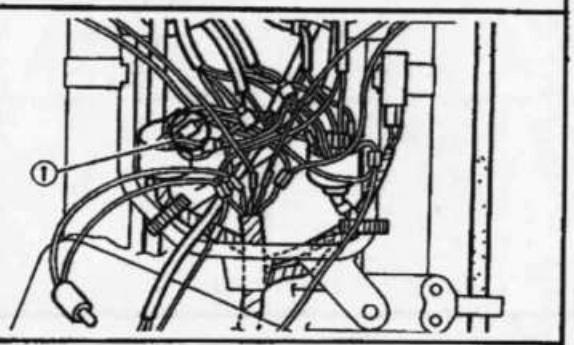
NOCONTINUITY

Replace bulb socket.

CONTINUITY

3. Main switch

- Disconnect the main switch coupler ① from the wire harness.



- Connect the Pocket Tester (Ω x 1) to the main switch.

• Check the main switch for continuity.

A

Tester (+) Lead → Red ① Lead
Tester (–) Lead → Brown ② Lead

Switch position	Good condition	Bad condition		
ON	○	X	X	○
OFF	X	○	X	○

B

Tester (+) Lead → Blue ③ Lead
Tester (–) Lead → Blue/Red ④ Lead

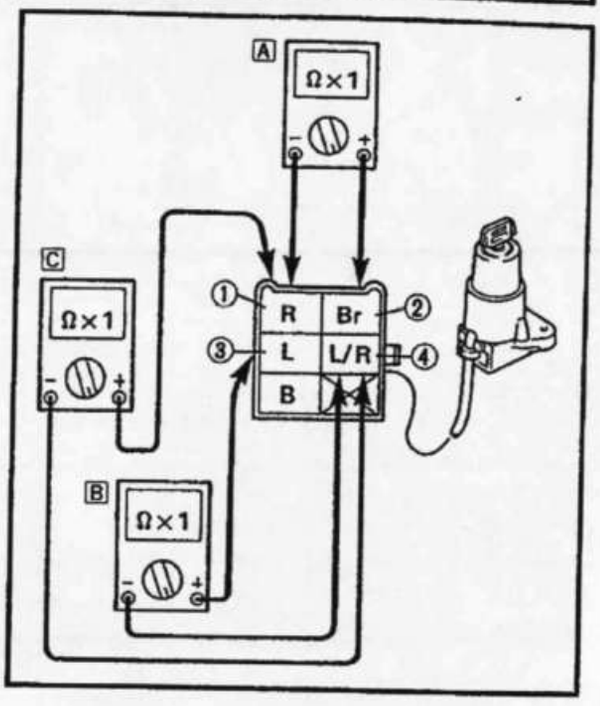
Switch position	Good condition	Bad condition		
ON	○	X	X	○
OFF	X	○	X	○

C

Tester (+) Lead → Red ① Lead
Tester (–) Lead → Blue/Red ④ Lead

Switch position	Good condition	Bad condition		
P	○	X	X	○
OFF	X	○	X	○

○: Continuity X: Nocontinuity

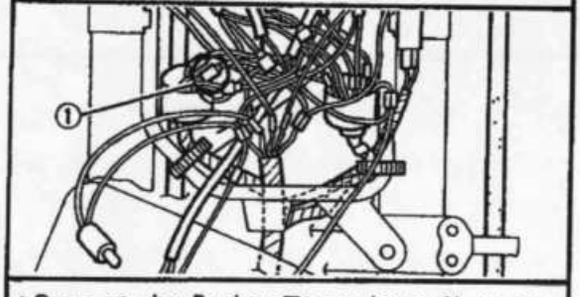


BAD CONDITION → Replace main switch.

GOOD CONDITION

4. "LIGHTS" switch

• Disconnect the handlebar switch (Left) coupler ① from the wire harness.



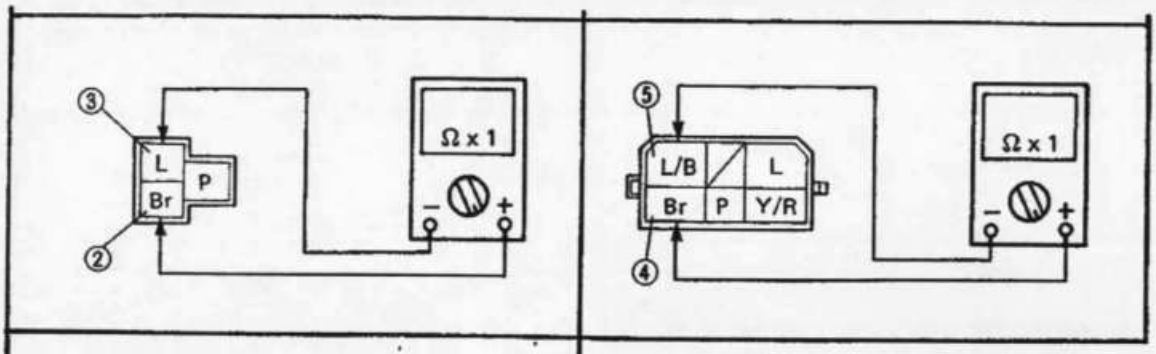
• Connect the Pocket Tester (Ω x 1) to the handlebar switch (Left) coupler.

A

Tester (+) Lead → Brown ② Terminal
Tester (–) Lead → Blue ③ Terminal

B

Tester (+) Lead → Brown ④ Terminal
Tester (–) Lead → Blue/Black ⑤ Terminal



A Except for GB
B For GB

- Turn the "LIGHTS" switch to "ON", "PO" and "OFF".
- Check the "LIGHTS" switch for continuity.

Switch position	Good condition	Bad condition		
ON	○	X	X	○
PO				
OFF	X	○	X	○

○: Continuity X: Nocontinuity

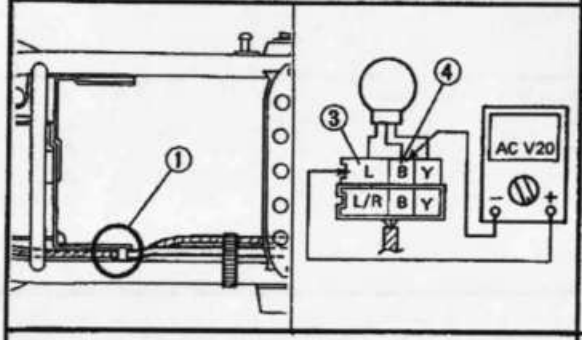
BAD CONDITION → Replace handlebar switch (Left).

GOOD CONDITION

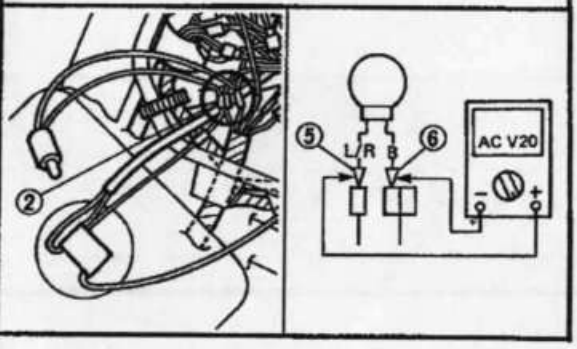
5. Lighting voltage

- Connect the Pocket Tester (AC V-20) to the bulb socket coupler ① and leads ②.

A
Tester (+) Lead → Blue ③ Terminal
Tester (–) Lead → Black ④ Terminal



B
Tester (+) Lead → Blue/Red ⑤ Lead
Tester (–) Lead → Black ⑥ Lead



A Except for GB
B For GB

- Connect the Inductive Tachometer to the spark plug lead.
- Start the engine and check the lighting voltage.

CAUTION:
Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

Lighting Voltage:
11.5 ~ 13.0V at 2,500 r/min

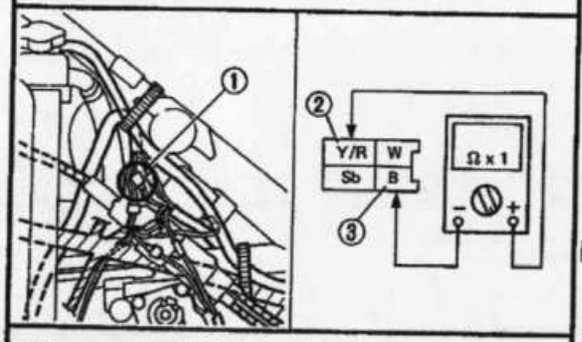
MEETS SPECIFICATION → Lighting system is good.

OUT OF SPECIFICATION ↓

6. Lighting coil resistance

- Disconnect the CDI magneto coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the lighting coil coupler.

Tester (+) Lead → Yellow/Red ② Terminal
Tester (–) Lead → Black ③ Terminal



- Measure the lighting coil resistance.

Lighting Coil Resistance:
0.24 ~ 0.36 at 20°C (68°F)

OUT OF SPECIFICATION → Replace stator assembly.

MEETS SPECIFICATION ↓

7. Wiring connection

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

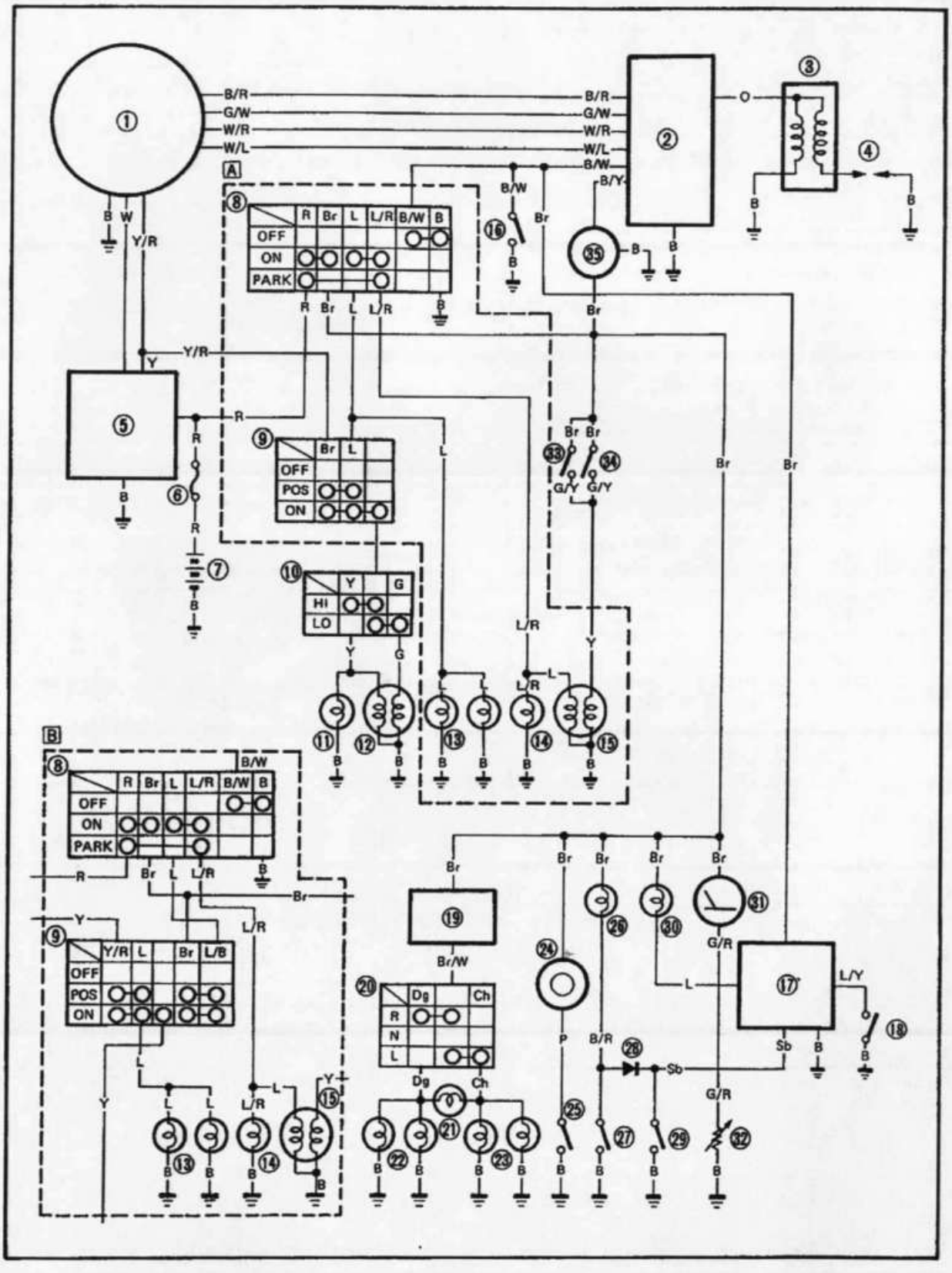
POOR CONNECTION → Correct.

CORRECT ↓

Rectifier/Regulator is faulty, replace it.

SIGNAL SYSTEM

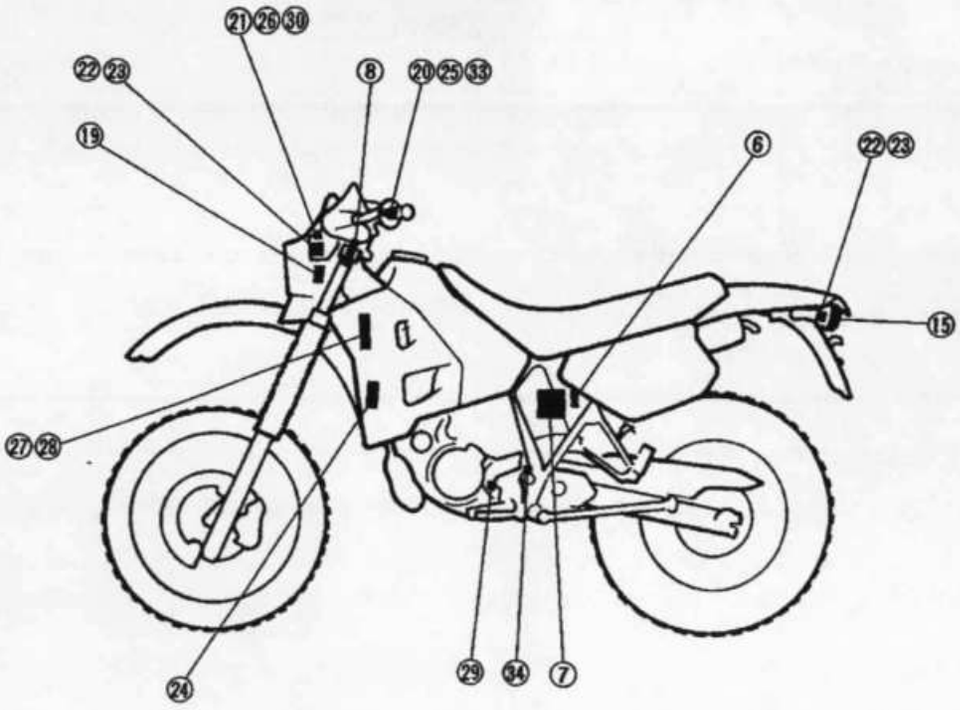
CIRCUIT DIAGRAM



orementioned circuit diagram shows signal circuit in circuit diagram.

NOTE:
For the color codes, see page 8-2.

⑥ Fuse
⑦ Battery
⑧ Main switch
⑮ Tail/Brake light
⑲ Flasher relay
⑳ "TURN" switch
㉑ "TURN" indicator light
㉒ Flasher light (Right)
㉓ Flasher light (Left)
㉔ Horn
㉕ "HORN" switch
㉖ "OIL" indicator light
㉗ Oil level switch
㉘ Diode
㉙ Neutral switch
㉚ "NEUTRAL" indicator light
㉝ Front brake switch
㉞ Rear brake switch



TROUBLESHOOTING

FLASHER LIGHT, BRAKE LIGHT, "NEUTRAL" INDICATOR LIGHT, "TURN" INDICATOR LIGHT AND "OIL" INDICATOR LIGHT DO NOT COME ON AND HORN DOES NOT OPERATE.

Procedure

Check;

1. Fuse
2. Battery
3. Main switch
4. Wiring connection (Signal system)

NOTE:

- Remove the following parts before troubleshooting.
  1) Side covers (Left and right)
  2) Seat
  3) Radiator cover
  4) Oil tank cover
  5) Fuel tank
  6) Headlight cover
  7) Headlight unit
- Use the following special tool in this troubleshooting.



Pocket Tester:
90890-03112

1. Fuse

- Remove the fuse.
- Connect the Pocket Tester (Ω x 1) to the fuse.
- Check the fuse for continuity.

NOCONTINUITY → Replace fuse.

CONTINUITY ↓

2. Battery

- Check the battery condition.
  Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

Specific Gravity:
1.280 at 20°C (68°F)

INCORRECT →

- Refill battery fluid.
- Clean battery terminals.
- Recharge or replace battery.

CORRECT ↓

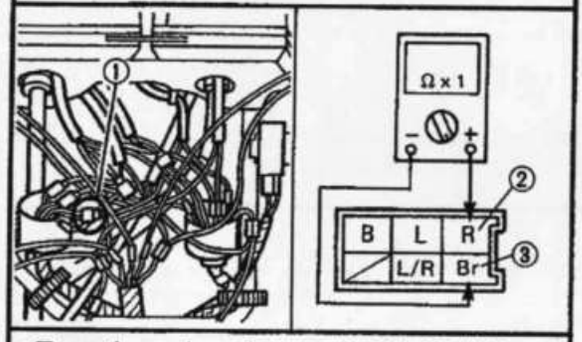
*

*

3. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the main switch.

Tester (+) Lead → Red ② Lead
Tester (–) Lead → Brown ③ Terminal



- Turn the main switch to "ON", "OFF" and "PARK".
- Check the main switch for continuity.

Switch position	Good condition	Bad condition		
ON	○	X	X	○
OFF	X	○	X	○
PARK	X	○	X	○

○: Continuity X: Nocontinuity

BAD CONDITION → Replace main switch.

GOOD CONDITION

4. Wiring connection

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

POOR CONNECTION → Correct.

CORRECT

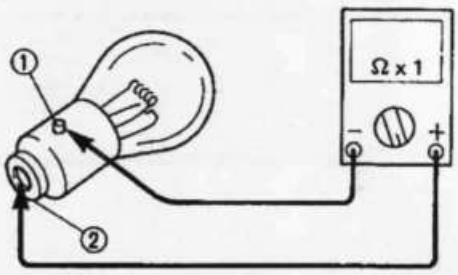
Go to the "SIGNAL SYSTEM TEST AND CHECK" section.

FLASHER LIGHT DOES NOT BRINK.

1. Bulb

- Remove the bulb.
- Connect the Pocket Tester (Ω x 1) to the bulb.

Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ②



- Check the bulb for continuity.

NOCONTINUITY → Replace bulb.

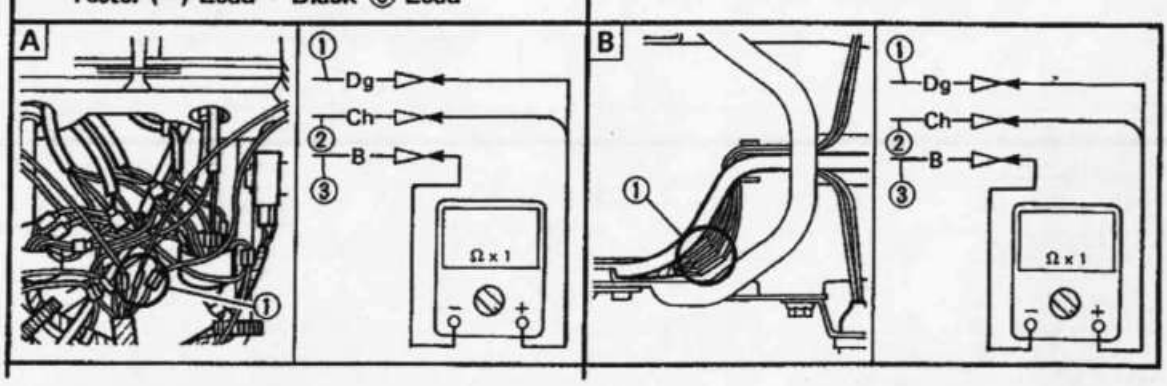
CONTINUITY

2. Bulb socket

- Install the bulb to the socket.
- Disconnect the flasher light leads ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the flasher light leads.

When checking right flasher light:
Tester (+) Lead → Dark green ① Lead
Tester (–) Lead → Black ③ Lead

When checking left flasher light:
Tester (+) Lead → Chocolate ② Lead
Tester (–) Lead → Black ③ Lead



[A] Front
[B] Rear

- Check the flasher light bulb socket for continuity.

NOCONTINUITY → Replace flasher light bulb socket.

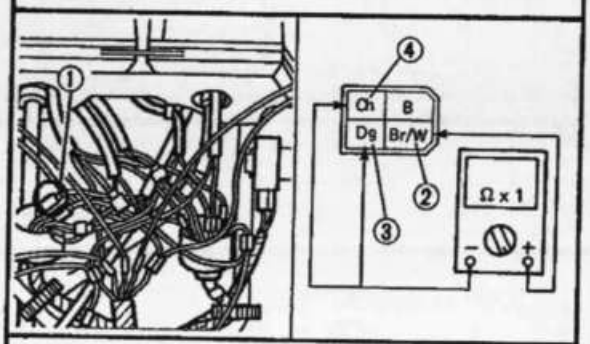
CONTINUITY ↓

3. "TURN" switch

- Disconnect the "TURN" switch (Left handlebar switch) coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the "TURN" switch

When turning "TURN" switch to "R":
Tester (+) Lead → Brown/White ② Lead
Tester (—) Lead → Dark green ③ Lead

When turning "TURN" switch to "L":
Tester (+) Lead → Brown/White ② Lead
Tester (—) Lead → Chocolate ④ Lead



- Turn the "TURN" switch to the "R" and "L".
- Check the "TURN" switch for continuity.

Switch position	Good condition	Bad condition		
R	○	X	○	X
L	○	○	X	X

○: Continuity X: No continuity

BAD CONDITION → Replace handlebar switch (Left).

GOOD CONDITION ↓

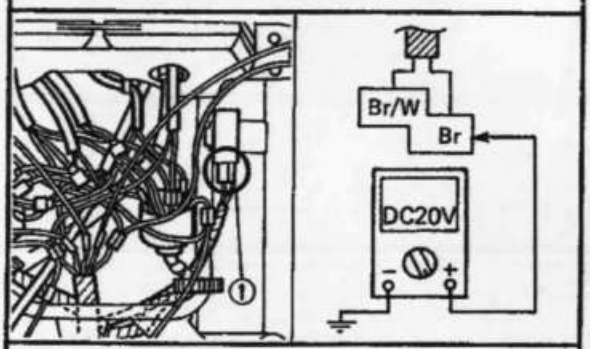
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4. Voltage

- Disconnect the flasher relay ① coupler from the wire harness.
- Turn the main switch to "ON".
- Turn the "TURN" switch to the "R" or "L".
- Connect the Pocket Tester (DC20V) to the flasher relay coupler.

Tester (+) Lead → Brown ② Terminal
Tester (–) Lead → Frame Ground



- Check the flasher voltage.

Flasher Voltage:
12.0V

OUT OF SPECIFICATION

5. Wiring connection

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

MEET SPECIFICATION

Replace flasher relay.

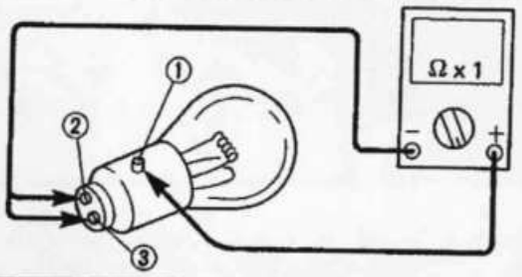
BRAKE LIGHT DOES NOT COME ON.

1. Bulb

- Remove the bulb.
- Connect the Pocket Tester (Ω x 1) to the bulb.

Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ②

Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ③



- Check the bulb for continuity.

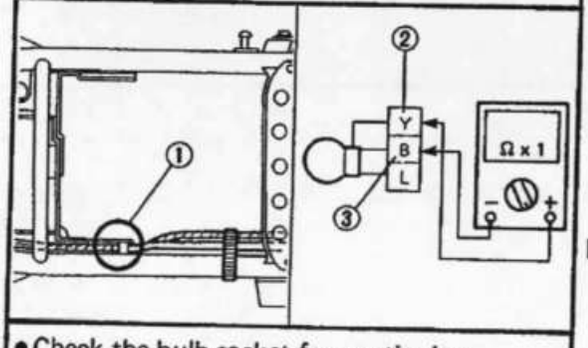
NOCONTINUITY → Replace bulb.

CONTINUITY ↓

2. Bulb socket

- Disconnect the bulb socket coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the bulb socket leads.

Tester (+) Lead → Yellow ② Terminal
Tester (–) Lead → Black ③ Terminal



- Check the bulb socket for continuity.

NOCONTINUITY → Replace bulb socket.

CONTINUITY ↓

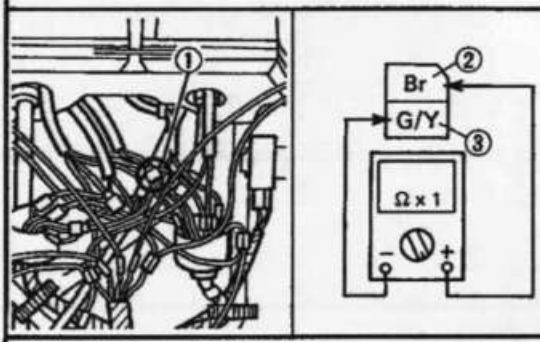
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3. Front brake switch

- Disconnect the front brake switch coupler ① from the wireharness.
- Connect the Pocket Tester (Ω x 1) to the brake switch coupler.

Tester (+) Lead → Brown ② Terminal
Tester (–) Lead → Green/Yellow ③ Terminal



- Check the brake switch for continuity.

Switch position	Good condition	Bad condition		
Front brake is applied.	○	X	X	○
Front brake is not applied.	X	○	X	○

○: Continuity X: Nocontinuity

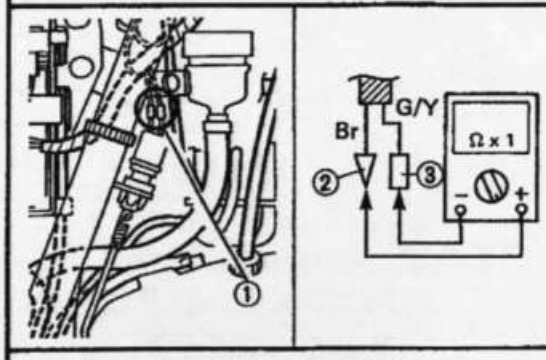
BAD CONDITION → Replace front brake switch.

GOOD CONDITION

4. Rear brake switch

- Disconnect the rear brake switch leads ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the brake switch leads.

Tester (+) Lead → Brown ② Lead
Tester (–) Lead → Green/Yellow ③ Lead



- Check the brake switch for continuity.

Switch position	Good condition	Bad condition		
Rear brake is applied.	○	×	×	○
Rear brake is not applied.	×	○	×	○

○: Continuity ×: Nocontinuity

BAD CONDITION

Replace rear brake switch.

GOOD CONDITION

5. Wiring connection

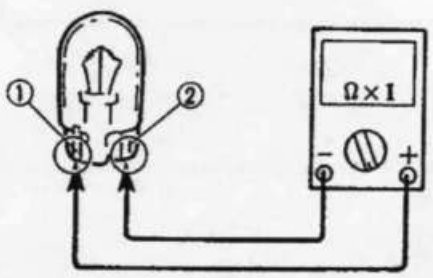
- Check the entire signal system for connections.
  Refer to the "WIRING DIAGRAM" section.

"NEUTRAL" INDICATOR LIGHT DOES NOT COME ON.

1. Bulb

- Remove the bulb.
  Refer to the "METER ASSEMBLY" section.
- Connect the Pocket Tester (Ω x 1) to the

Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ②



- Check the bulb for continuity.

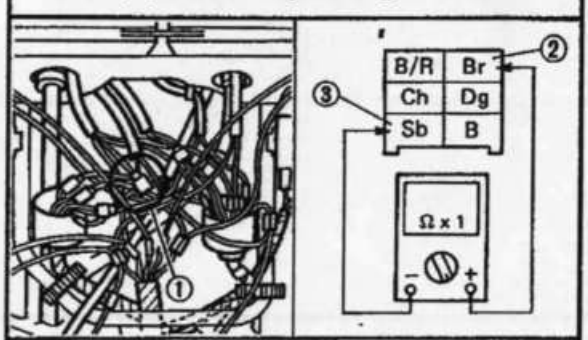
NOCONTINUITY → Replace bulb.

CONTINUITY ⇩

2. Bulb socket

- Disconnect the indicator lights coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the coupler.

Tester (+) Lead → Brown ② Terminal
Tester (–) Lead → Sky blue ③ Terminal



- Check the bulb socket for continuity.

NOCONTINUITY → Replace bulb socket.

CONTINUITY ⇩

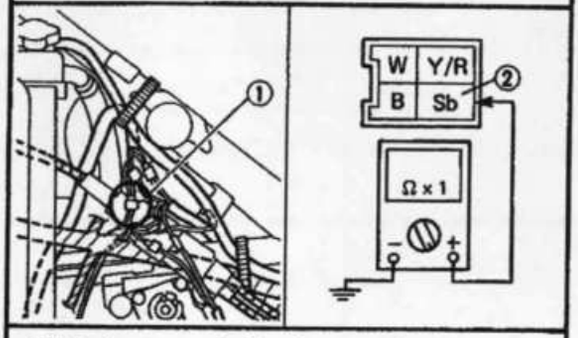
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3. Neutral switch

- Disconnect the CDI magneto coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the neutral switch.

Tester (+) Lead → Sky blue ② Terminal
Tester (–) Lead → Frame Ground



- Shift the transmission in neutral and gear.
- Check the neutral switch for continuity.

Transmission position	Good condition	Bad condition		
Neutral	○	X	X	○
Gear	X	○	X	○

○: Continuity X: Nocontinuity

BAD CONDITION → Replace neutral switch.

GOOD CONDITION

4. Wiring connection

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

POOR CONNECTION → Correct.

CORRECT

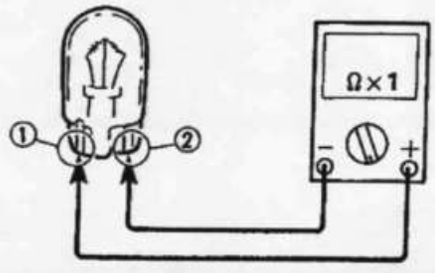
Replace ignition control unit.

"OIL" INDICATOR LIGHT DOES NOT COME ON.

1. Bulb

- Remove the bulb.
  Refer to the "METER ASSEMBLY" section.
- Connect the Pocket Tester (Ω x 1) to the bulb.

Tester (+) Lead → Terminal ①
Tester (–) Lead → Terminal ②



- Check the bulb for continuity.

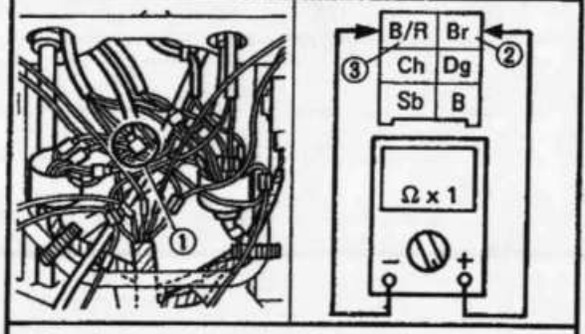
NOCONTINUITY → Replace bulb.

CONTINUITY ↓

2. Bulb socket

- Disconnect the indicator lights coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the coupler.

Tester (+) Lead → Brown ② Terminal
Tester (–) Lead → Black/Red ③ Terminal



- Check the bulb socket for continuity.

NOCONTINUITY → Replace bulb socket.

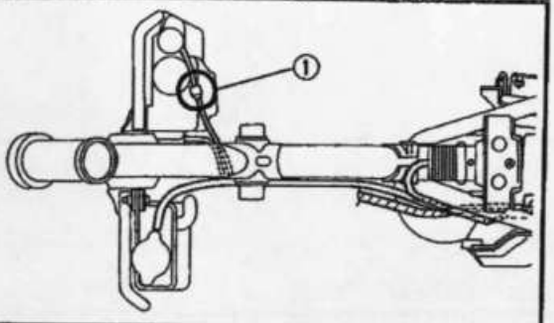
CONTINUITY ↓

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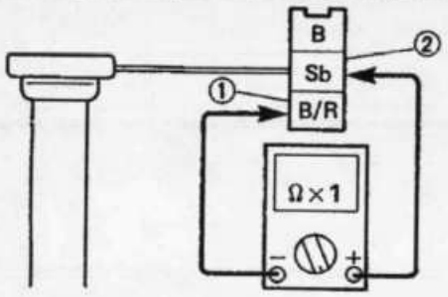
3. Oil level switch (Diode)

- Remove the oil level switch from the oil tank.
- Disconnect the oil level switch coupler ① from the wire harness.



- Connect the Pocket Tester (Ω x 1) to the oil level switch.

Tester (+) Lead → Black/Red ① Terminal
Tester (–) Lead → Sky blue ② Terminal



- Check the oil level switch for continuity.

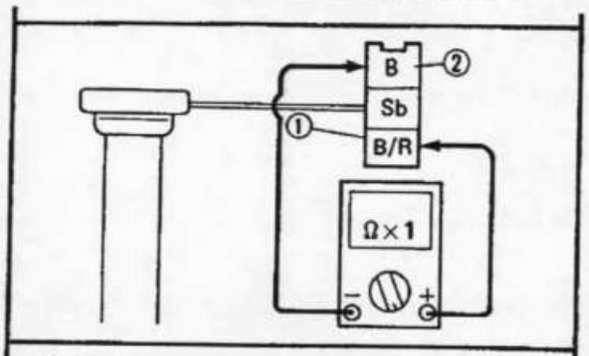
NOCONTINUITY → Replace oil level switch.

CONTINUITY

4. Oil level switch

- Connect the Pocket Tester (Ω x 1) to the oil level switch.

Tester (+) Lead → Black/Red ① Terminal
Tester (–) Lead → Black ② Terminal



- Hold the oil level switch in an upright and upside down position.
- Check the oil level switch for continuity.

Switch position	Good condition	Bad condition		
Upright position	○	×	×	○
Up side down position	×	○	×	○

○: Continuity ×: Nocontinuity

BAD CONDITION → Replace oil level switch.

GOOD CONDITION ↓

5. Wiring connection

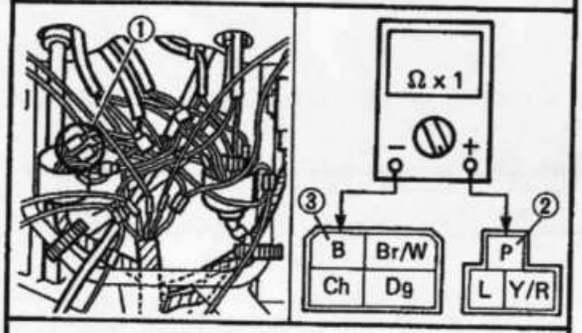
- Check the entire signal system for connections.
  Refer to the "WIRING DIAGRAM" section.

HONE DOES NOT SOUND, WHEN PUSHING "HORN" SWITCH.

1. "HORN" switch

- Disconnect the "HORN" switch (Left handlebar switch) couplers ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the "HORN" switch.

Tester (+) Lead → Pink ② Terminal
Tester (–) Lead → Black ③ Terminal



- Check the "HORN" switch for continuity.

Switch position	Good condition	Bad condition		
"HORN" switch is pushed	○	×	×	○
"HORN" switch is not pushed.	×	○	×	○

○: Continuity X: Nocontinuity

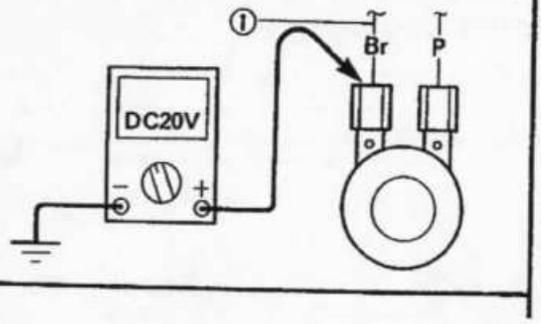
BAD CONDITION → Replace handlebar switch (Left).

GOOD CONDITION

2. Voltage

- Connect the Pocket Tester (DC20V) to the horn terminal.

Tester (+) Lead → Brown ① Terminal
Tester (–) Lead → Frame Ground



- Turn the main switch to "ON".
- Check the horn voltage.

Horn Voltage: 12.0V

OUT OF SPECIFICATION

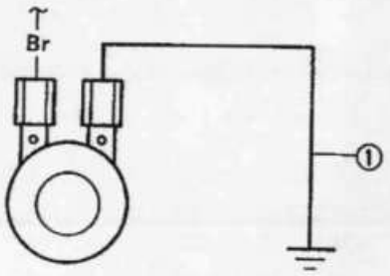
3. Wiring connection

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

MEETS SPECIFICATION

4. Horn

- Disconnect the "Pink" lead at the horn terminal.
- Connect a jumper lead ① to the horn terminal and ground the jumper lead.



HORN IS SOUND

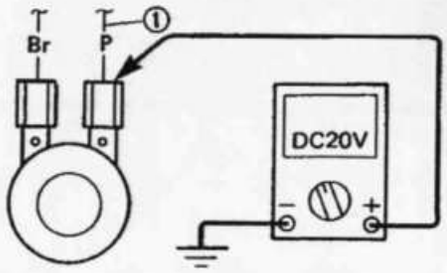
Horn is good.

HORN IS NOT SOUNDED

5. Voltage

- Connect the Pocket Tester (DC20V) to the horn at the Pink terminal.

Tester (+) Lead → Pink ① Terminal
Tester (–) Lead → Frame Ground



- Check the "Pink" terminal voltage.

"Pink" Terminal Voltage: 12.0V

OUT OF SPECIFICATION

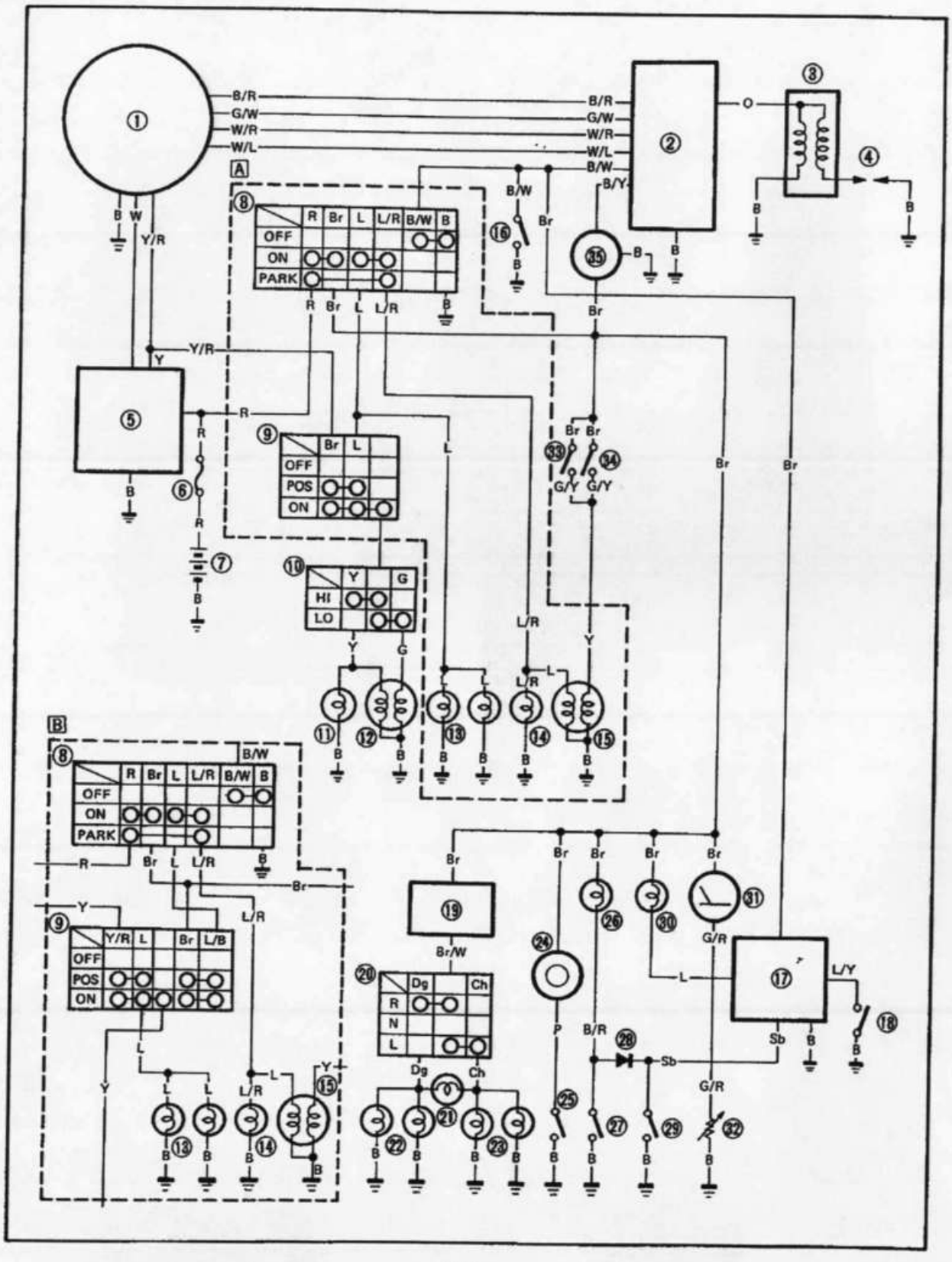
Replace horn.

MEETS SPECIFICATION

Adjust or replace horn.

COOLING SYSTEM

CIRCUIT DIAGRAM

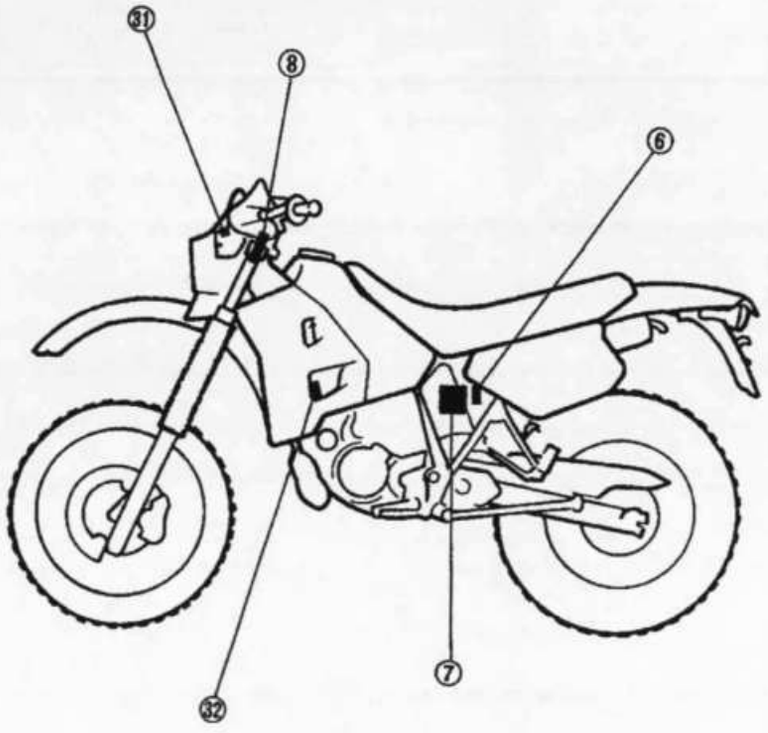


aforementioned circuit diagram shows cooling circuit in circuit diagram.

NOTE:

For the color codes, see page 8-2.

⑥ Fuse
⑦ Battery
⑧ Main switch
㉛ Temperature gauge
㉜ Thermo unit



TROUBLESHOOTING

WHEN ENGINE IS HOT, TEMPERATURE GAUGE DOES NOT MOVE

Procedure

Check;

1. Fuse
2. Battery
3. Main switch
4. Temperature gauge
5. Thermo unit
6. Wiring connection (Cooling system)

NOTE:

- Remove the following parts before troubleshooting.
  1) Side covers (Left and right)
  2) Seat
  3) Radiator cover
  4) Oil tank cover
  5) Fuel tank
  6) Headlight cover
  7) Headlight unit
- Use the following special tool in this troubleshooting.



Pocket Tester:
90890-03112

1. Fuse

- Remove the fuse.
- Connect the Pocket Tester (Ω x 1) to the fuse.
- Check the fuse for continuity.

NOCONTINUITY → Replace fuse.

CONTINUITY ↓

2. Battery

- Check the battery condition. Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

Specific Gravity:
1.280 at 20°C (68°F)

INCORRECT →
- Refill battery fluid.
- Clean battery terminals.
- Recharge or replace battery.

CORRECT ↓

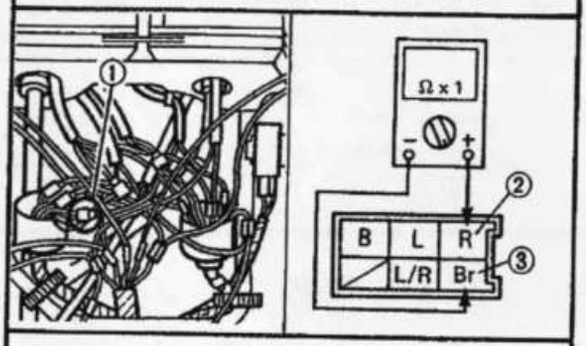
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3. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the main switch.

Tester (+) Lead → Red ② Lead
Tester (–) Lead → Brown ③ Terminal



- Turn the main switch to "ON", "OFF" and "PARK".
- Check the main switch for continuity.

Switch position	Good condition	Bad condition		
ON	○	X	X	○
OFF	X	○	X	○
PARK	X	○	X	○

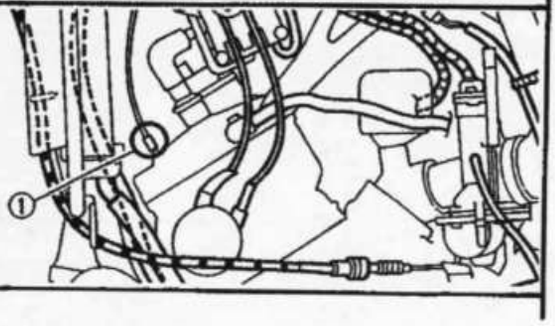
○: Continuity X: Nocontinuity

BAD CONDITION → Replace main switch.

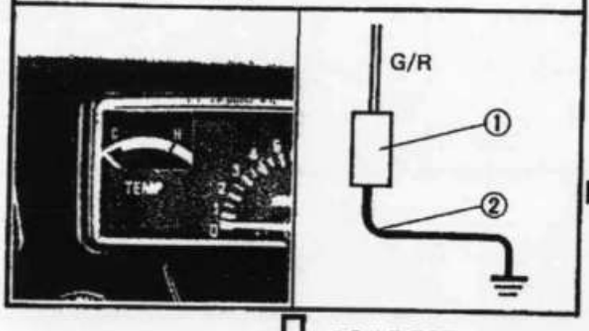
GOOD CONDITION

4. Temperature gauge

- Disconnect the thermo unit lead ① from the thermo unit.



- Check that the temperature gauge stays put at "C".
- Connect a jumper lead ② to the thermo unit lead ① and ground the jumper lead.
- Turn the main switch to "ON".
- Check that the temperature gauge hand moves up to "H".



⚠ CAUTION:
As soon as the gauge hand get in the "Red" zone, turn the main switch to "OFF" to avoid damage to the temperature gauge.

INCORRECT → Replace temperature gauge.

CORRECT

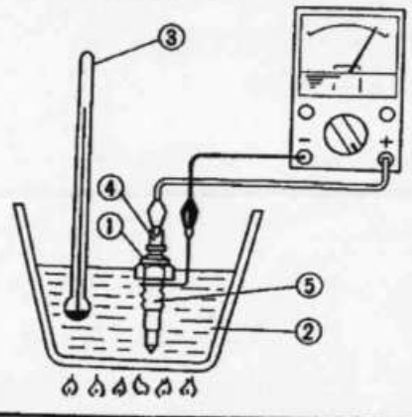
5. Thermo unit

- Remove the thermo unit from the cylinder head.
- Connect the Pocket Tester (Ω x 1) to the thermo unit ①.
- Immerse the thermo unit in the water ②.
- Measure the resistances.
  Note temperatures while heating the water with the temperature gauge ③.

⚠ WARNING:
Handle the thermo unit with special care. Never subject it to strong shock or allow it to be dropped. Should it be dropped, it must be replaced.

Tester (+) Lead → Terminal ④
Tester (–) Lead → Body Ground ⑤

Water Temperature	50°C (122°F)	80°C (176°F)	100°C (212°F)
Resistance	153.9Ω	47.5 ~ 56.8Ω	26.2 ~ 29.3Ω



OUT OF SPECIFICATION → Replace thermo unit.

⚠ CAUTION:
After replacing the thermo unit, check the coolant level in the radiator and also check for any leakage.

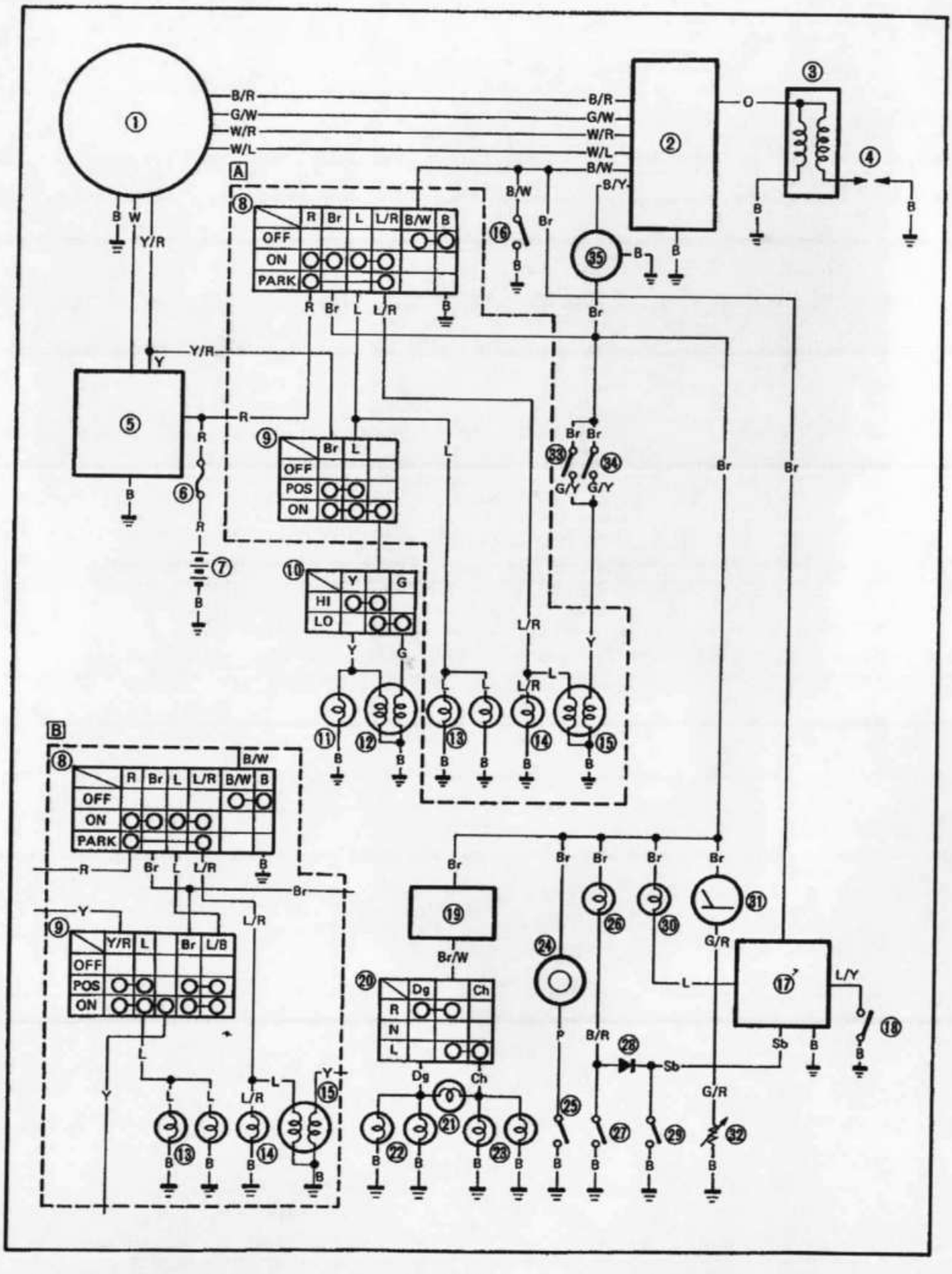
MEETS SPECIFICATION
*



6. Wiring connection
• Check the entire cooling system for connections. Refer to the "WIRING DIAGRAM" section.

YAMAHA POWER VALVE SYSTEM (Except for GB)

CIRCUIT DIAGRAM

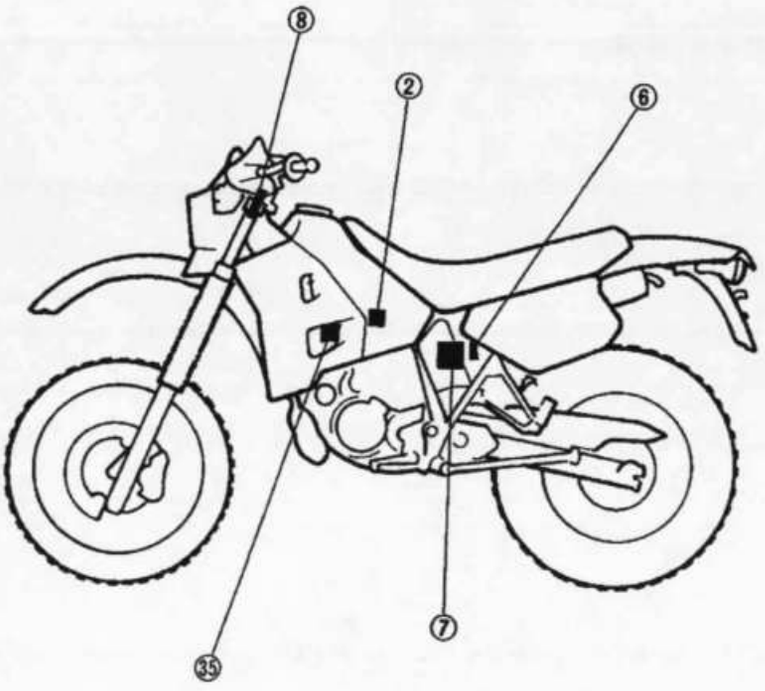


oremention ed circuit diagram shows YAMAHA power valve circuit in circuit diagram.

NOTE:

For the color codes, see page 8-2.

② CDI unit
⑥ Fuse
⑦ Battery
⑧ Main switch
㉟ Servomotor



TROUBLESHOOTING

SERVOMOTOR DOES NOT MOVE

Procedure

Check;

1. Fuse
2. Battery
3. Main switch
4. Servomotor operation
5. Wiring connection (Yamaha power valve system)
6. Servomotor and tachometer operation

NOTE:

- Remove the following parts before troubleshooting.
  1) Side covers (Left and right)
  2) Seat
  3) Radiator cover
  4) Oil tank cover
  5) Fuel tank
  6) Headlight cover
  7) Headlight unit
- Use the following special tool in this troubleshooting.



Pocket Tester:
90890-03112

1. Fuse

- Remove the fuse.
- Connect the Pocket Tester (Ω x 1) to the fuse.
- Check the fuse for continuity.

NOCONTINUITY → Replace fuse.

CONTINUITY ↓

2. Battery

- Check the battery condition.
  Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

Specific Gravity:
1.280 at 20°C (68°F)

INCORRECT →

- Refill battery fluid.
- Clean battery terminals.
- Recharge or replace battery.

CORRECT ↓

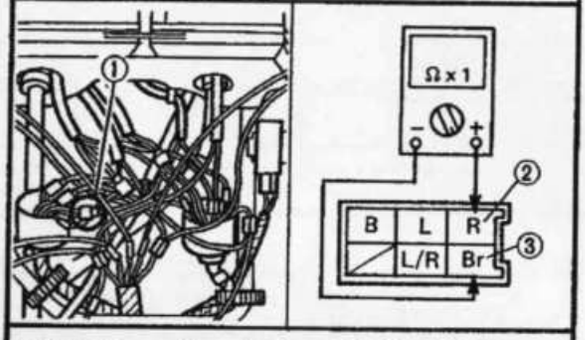
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3. Main switch

- Disconnect the main switch coupler ① from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the main switch.

Tester (+) Lead → Red ② Lead
Tester (–) Lead → Brown ③ Terminal



- Turn the main switch to "ON", "OFF" and "PARK".
- Check the main switch for continuity.

Switch position	Good condition	Bad condition		
ON	○	X	X	○
OFF	X	○	X	○
PARK	X	○	X	○

○: Continuity X: Nocontinuity

BAD CONDITION →

Replace main switch.

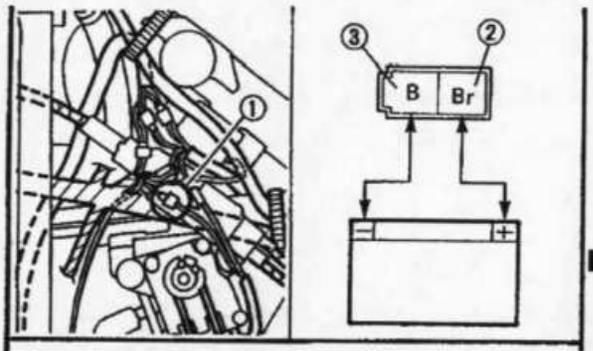
GOOD CONDITION ↓

4. Servomotor operation

- Disconnect servomotor coupler ① from the wire harness.
- Connect the battery leads to the servomotor.

Battery (+) Lead → Brown ② Terminal
Battery (–) Lead → Black ③ Terminal

CAUTION:
This test should be performed within a few seconds to prevent further damage.



- Check the servomotor for operation.

DOES NOT MOVE → Replace servomotor.

MOVES ↓

5. Wiring connection

- Check the entire Yamaha power valve system for connections.
  Refer to the "WIRING DIAGRAM" section.

POOR CONNECTION → Correct.

CORRECT ↓

6. Servomotor and tachometer operation

Start engine and increase revolution to about 7,000 r/min.

- Check servomotor and tachometer for operation.

TACHOMETER MOVES BUT SERVOMOTOR DOES NOT MOVE ↓

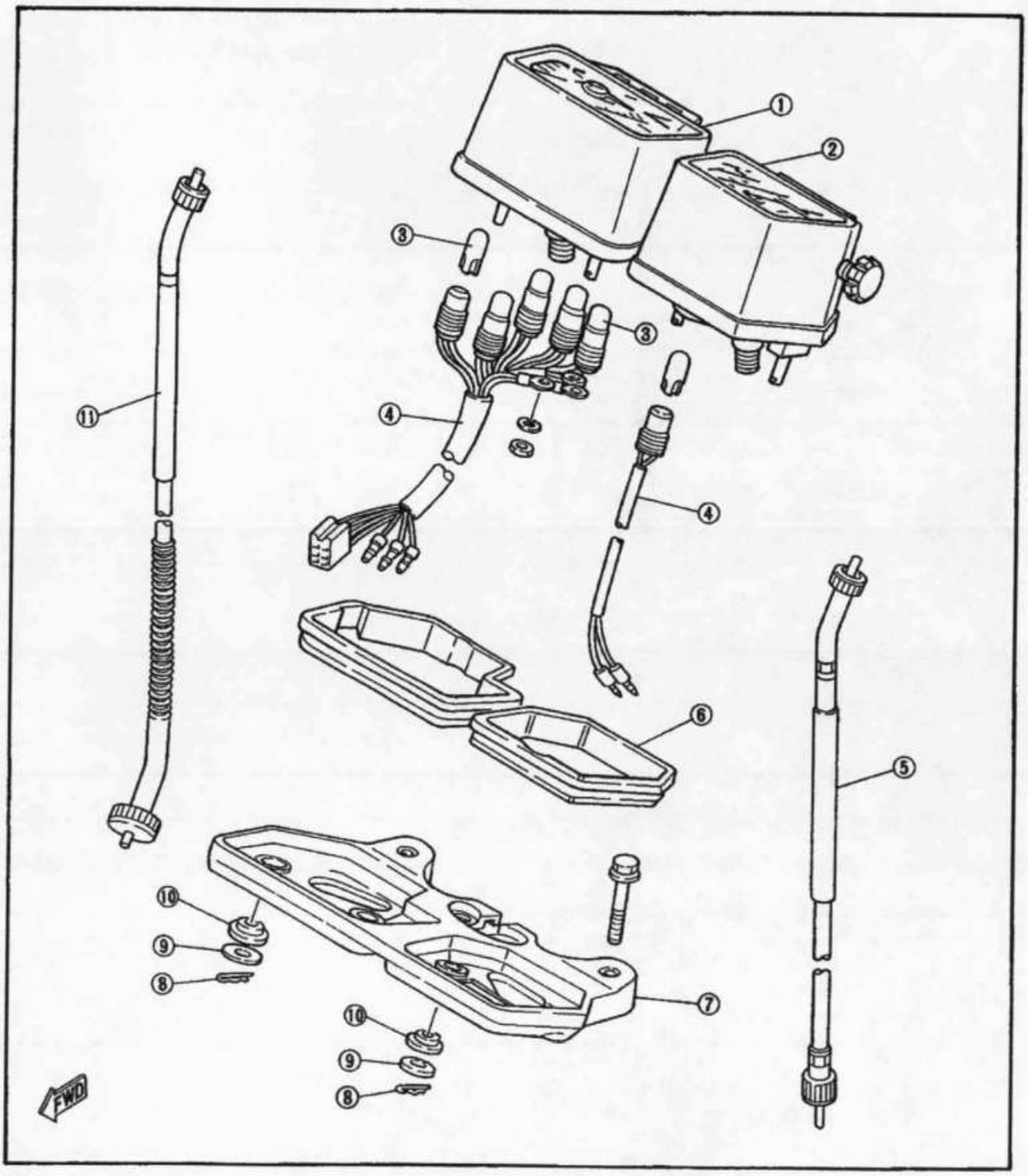
Replace CDI unit.

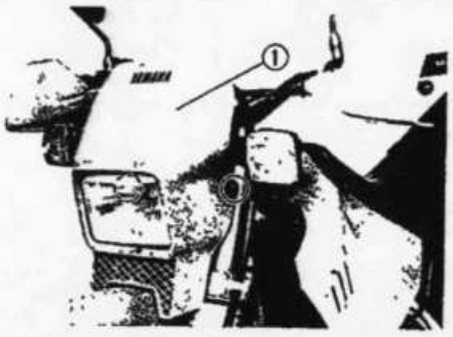
CAUTION:

This test should be performed within a few seconds to prevent further damage.

:TER ASSEMBLY

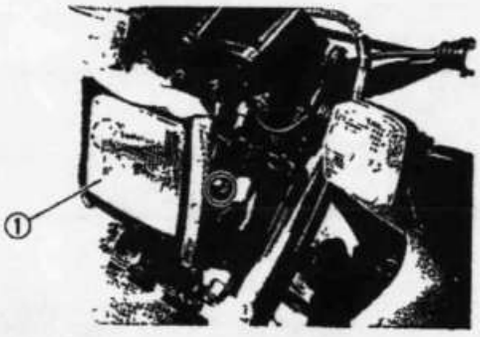
① Tachometer
② Speedometer
③ Bulb
④ Bulb socket
⑤ Speedometer cable
⑥ Meter cushion
⑦ Meter bracket
⑧ Stopper clip
⑨ Washer
⑩ Damper collar
⑪ Tachometer cable



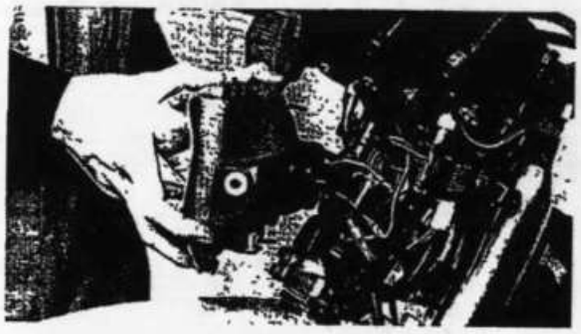


REMOVAL

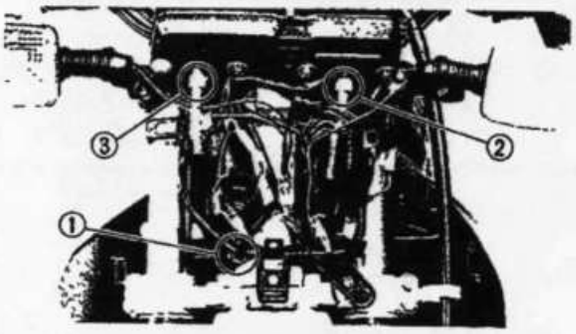
1. Remove:
   - Headlight cover ①



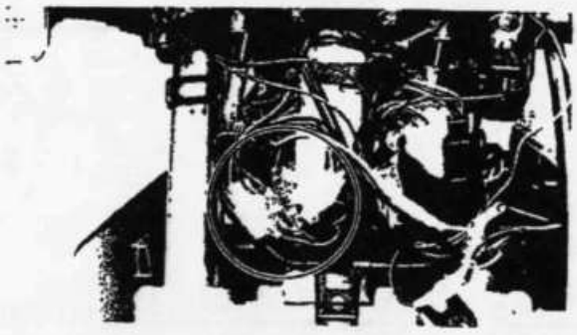
2. Remove:
   - Headlight lens unit ①



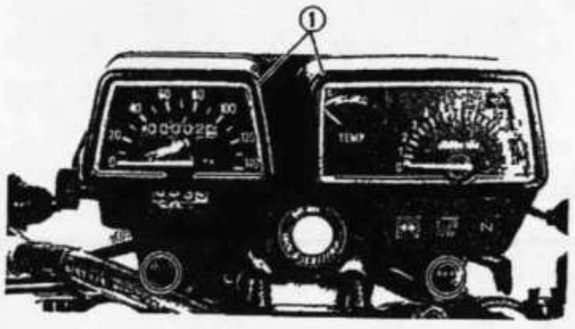
3. Disconnect:
   - Headlight leads
   - Auxiliary light leads



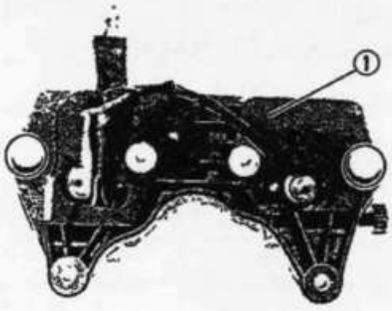
4. Remove:
   - Band ①
5. Disconnect:
   - Speedometer cable ②
   - Tachometer cable ③



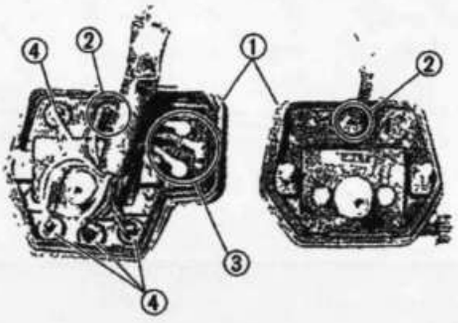
6. Disconnect:
   - Meter leads



7. Remove:
   • Meter assembly ①



8. Remove:
   • Meter bracket ①



9. Remove:
   • Meter cushion ①
   • Meter lights ②
   • Leads ③
   • Indicator lights ④

CAUTION:

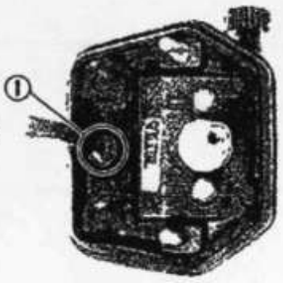
Do not remove the indicator bulbs sockets by pulling the leads.

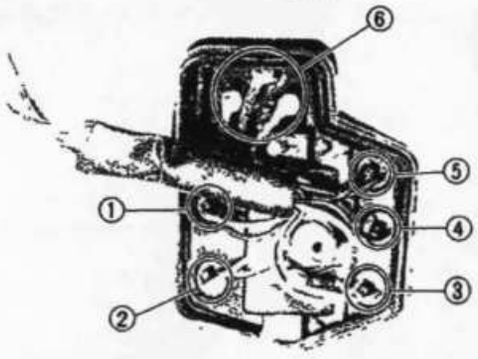
INSTALLATION

Reverse the "REMOVAL" procedure.

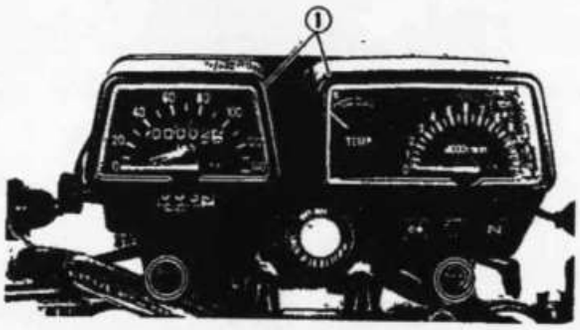
Note the following points.

1. Install the meter lights, indicator lights and leads as shown.



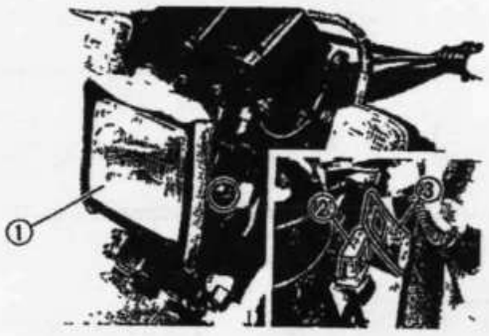


① Meter lights leads (Blue and Black)
② "OIL" indicator light (Brown and Black/Red)
③ "NEUTRAL" indicator light (Sky blue and Brown)
④ "HIGH BEAM" indicator light (Yellow and Black)
⑤ "TURN" indicator light (Chocolate and Dark green)
⑥ Temperature gauge leads (Brown, Black, Green/Red)



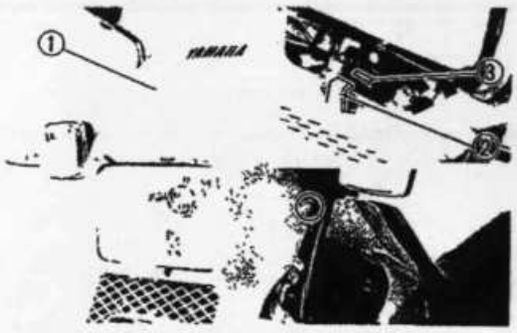
2. Install:
   • Meter assembly ①

	Bolt (Meter Assembly): **7 Nm (0.7 m·kg, 5.1 ft·lb)**



3. Install:
   • Headlight lens unit ①

NOTE:
Install the headlight lens unit onto the headlight stay by fitting the guide rubber ② properly in the guide hole ③ of the headlight unit.



4. Install:
   • Headlight cover ①

NOTE:
When installing the headlight cover, insert the hook ② on the cover to the guide hole ③ on the headlight stay.

5. Adjust:
   • Headlight beam
   Refer to the "HEADLIGHT BEAM ADJUSTMENT" section.

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 • 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 • Improperly adjusted starter cable
Air cleaner	• Clogged air filter

STARTING FAILURE/HARD STARTING

TRBL SHTG ?

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
CDI 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 ignition control unit

POOR IDLE SPEED PERFORMANCE

TRBL SHTG ?

COMPRESSION SYSTEM

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

POOR IDLE SPEED PERFORMANCE

POOR IDLE SPEED PERFORMANCE

	PROBABLE CAUSE
Carburetor	• Improperly returned starter plunger • Clogged or loose pilot jet • Clogged pilot air passage • Improperly adjusted idle speed (Throttle stop screw) • Improper throttle cable play • Faulty pick up coil

POOR MEDIUM AND HIGH SPEED PERFORMANCE

FUEL SYSTEM

	PROBABLE CAUSE
Fuel tank	•Clogged fuel filter •Deteriorated fuel or fuel containing water or foreign material •Clogged fuel breather hose
Fuel cock	•Clogged fuel hose
Carburetor	•Deteriorated fuel, fuel containing water or foreign material •Sucked-in air •Deformed float •Groove-worn needle valve •Improperly sealed valve seat •Improperly set clip position of jet needle •Improperly adjusted fuel level •Clogged or loose main jet •Clogged or loose needle jet
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
CDI unit system	•Faulty CDI unit •Faulty source coil •Faulty pickup coil

POOR MEDIUM AND HIGH SPEED PERFORMANCE

TRBL SHTG ?

COMPRESSION SYSTEM

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

Y.P.V.S. (Except for GB)

	PROBABLE CAUSE
Power valve	•Seized or damaged power valve •Carbon build-up
Control cable	•Improperly adjusted cable •Seized or discontinuous cable
Electrical parts	•Faulty battery (Improperly charged battery) •Faulty main switch •Faulty servomotor •Faulty GDI unit •Faulty Y.P.V.S. control unit •Broken or shorted wiring

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 • Warped clutch plate • Swollen friction plate • Broken clutch plate
Transmission oil	• High oil level • Improper quality (High viscosity) • Deterioration

CHANGE PEDAL DOES NOT MOVE

	PROBABLE CAUSE
Shift shaft	• Bent shift shaft
Shift cam and shift fork	• Groove jammed with impurities • Seized shift fork • Bent shift fork guide bar
Transmission	• Seized transmission gear • Jammed impurities • Incorrectly assembled transmission

JUMP-OUT GEAR

	PROBABLE CAUSE
Shift shaft	• Improperly adjusted shift lever position • Improperly returned 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 friction plate •Worn clutch plate
Transmission 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 •Warped clutch plate •Swollen friction plate •Broken clutch boss
Transmission oil	•High oil level •Improper quality (High viscosity) •Deterioration

.....PROPER KICKING

SLIPPING

	PROBABLE CAUSE
Kick axle assembly	•Low tension of kick clip •Worn kick axle •Worn or damaged kick idle gear •Worn or damaged kick gear •Damaged kick clip •Kick clip coming off •Damaged kick clip stopper
Transmission oil	•Improper quality (Low viscosity) •Deterioration

HARD KICKING

	PROBABLE CAUSE
Kick axle assembly	•High tension of kick clip •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 clip coming off •Damaged kick return spring stopper

FAULTY BRAKE/FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION

TRBL SHTG ?

FAULTY BRAKE

POOR BRAKING EFFECT

└ Disc brake

PROBABLE CAUSE

- Worn brake pad
- Worn brake disc
- Air in brake fluid
- Leaking brake fluid
- Faulty cylinder kit cup
- Faulty caliper kit seal
- Loose union bolt
- Broken brake hose
- Oily or greasy brake disc
- Oily or greasy brake pad
- Improper brake fluid level

FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION

OIL LEAKAGE

PROBABLE CAUSE

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

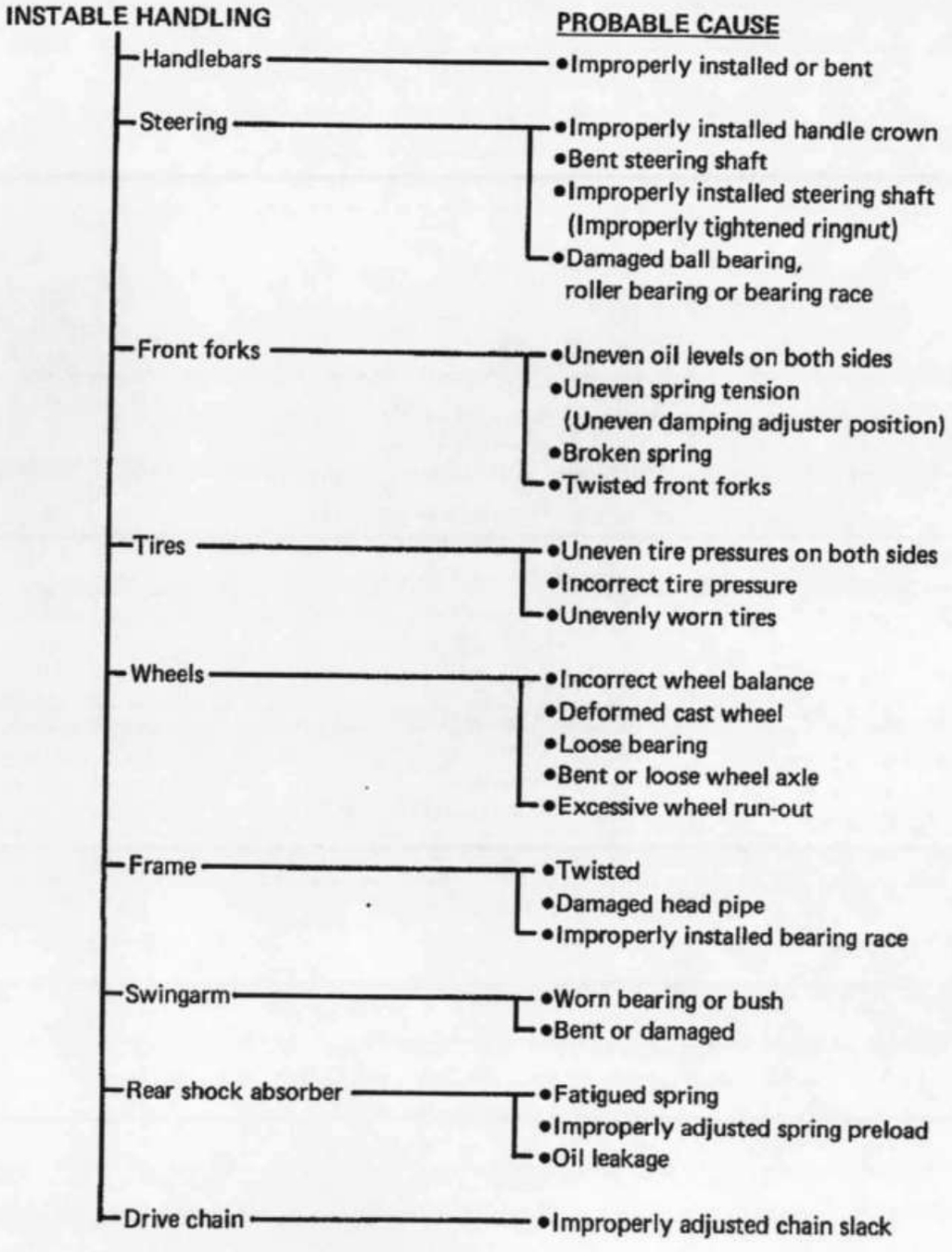
MALFUNCTION

PROBABLE CAUSE

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

INSTABLE HANDLING

INSTABLE HANDLING



FAULTY SIGNAL AND LIGHTING SYSTEM

HEADLIGHT DARK

PROBABLE CAUSE

- Improper bulb
- Too many electric accessories
- Hard charging (Broken charging coil and/or faulty rectifier/regulator)
- Incorrect connection
- Improperly grounded
- Poor contacts (main or "LIGHTS" 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

- Improperly grounded
- Discharged battery
- Faulty "TURN" switch
- Faulty flasher relay
- Broken wireharness
- Loosely connected coupler
- Bulb burnt out

FLASHER KEEPS ON

PROBABLE CAUSE

- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Bulb burnt out

FAULTY Y.P.V.S. TRBL SHTG ?

FLASHER WINKS SLOWER

PROBABLE CAUSE

- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Improper bulb
- Faulty main and/or "TURN" 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

FAULTY Y.P.V.S.

FAULTY Y.P.V.S.

	PROBABLE CAUSE
Power valve	• Seized or damaged power valve • Carbon build-up
Control cable	• Improperly adjusted cable • Seized or discontinuous cable
Electrical parts	• Insufficient battery capacity (Improperly charged battery) • Faulty main switch • Faulty servomotor • Faulty CDI unit • Faulty Y.P.V.S. control unit • Broken or shorted wiring

OVERHEATING OR OVER-COOLING

OVERHEATING

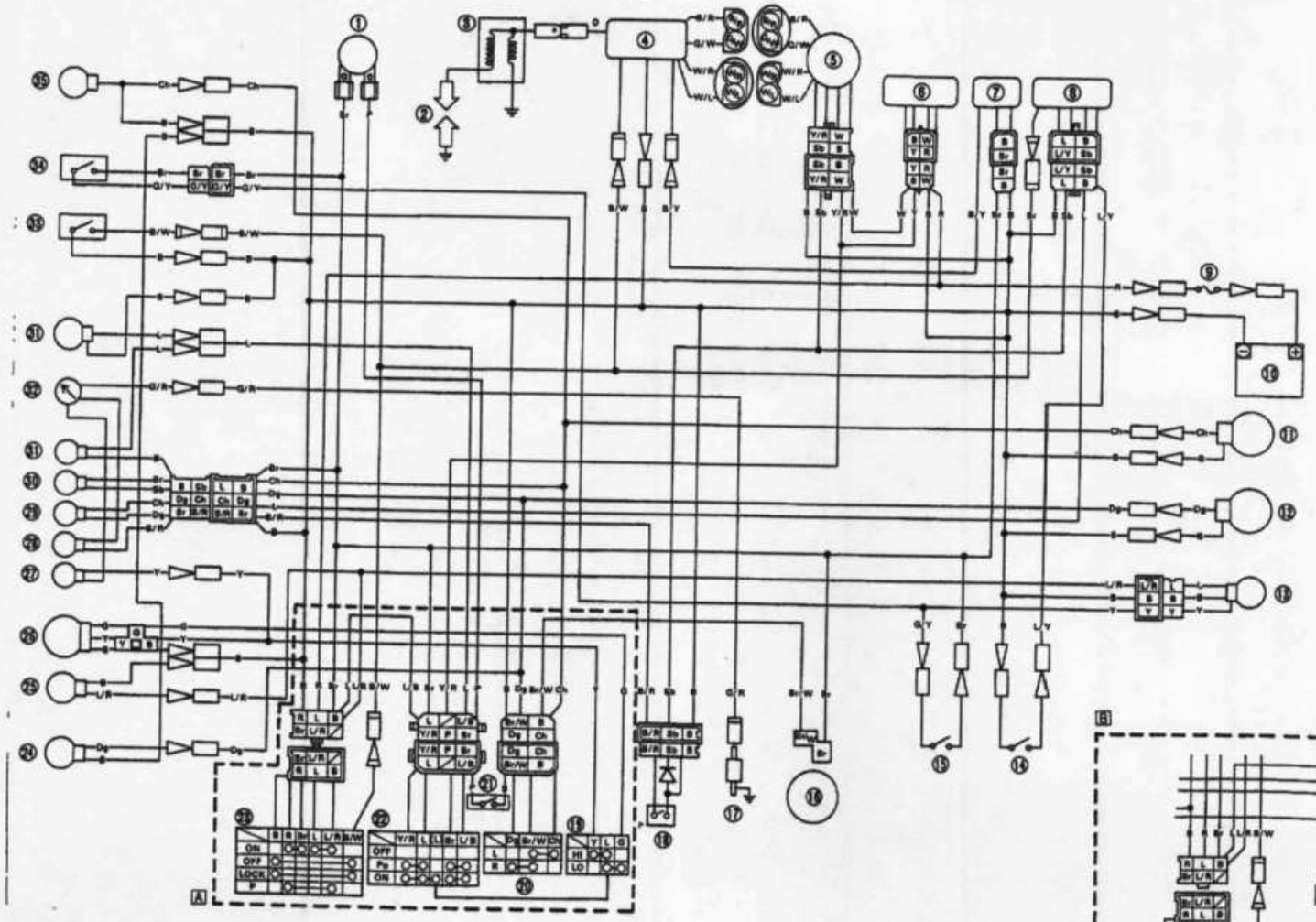
	PROBABLE CAUSE
Ignition system	• Improper spark plug gap • Improper spark plug heat range • Faulty CDI unit
Fuel system	• Improper carburetor main jet (Improper setting) • Improperly adjusted fuel height • Clogged air cleaner element • Lean mixture (Faulty Autolube pump settings)
Compression system	• Heavy carbon build-up
Transmission oil	• Incorrect oil level • Improper oil viscosity • Inferior oil quality
Brake	• Dragging brake
Cooling system	• Faulty water temperature gauge • Faulty thermo-unit • Incorrect coolant level • Faulty thermostat valve • Clogged or damaged radiator • Faulty radiator cap • Seized impeller shaft

OVER-COOLING

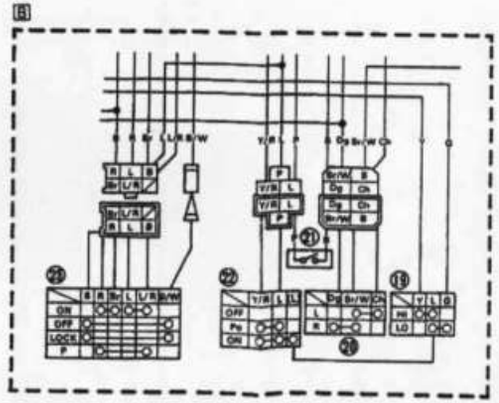
	PROBABLE CAUSE
Cooling system	• Faulty water temperature gauge • Faulty thermo-unit • Faulty thermostat valve

TRBL SHTG ?

DT125R WIRING DIAGRAM



① Horn
②
③ Ignition coil
④ CDI unit
⑤ CDI magneto
⑥ Rectifier/Regulator
⑦ Servomotor (Except for GB)
⑧ Ignition control unit
⑨
⑩ Battery
⑪ Rear flasher light (L)
⑫ Rear flasher light (R)
⑬ Tail/Brake light
⑭ Sidestand switch
⑮ Rear brake switch
⑯ Flasher relay
⑰ Thermo switch
⑱ Oil level switch
⑲ "LIGHTS" (Dimmer) switch
⑳ "TURN" switch
㉑ "HORN" switch
㉒ "LIGHTS" switch
㉓ Main switch
㉔ Front flasher light (R)
㉕ Auxiliary light
㉖ Headlight
㉗ "HIGH BEAM" indicator light
㉘ "OIL" indicator light
㉙ "TURN" indicator light
㉚ "NEUTRAL" indicator light
㉛ Meter light
㉜ Temperature gauge
㉝ "ENGINE STOP" switch
㉞ Front brake switch
㉟ Front flasher light (L)



COLOR CODE

B .....Black	O .....Orange	G/W .....Green/White	G/R .....Green/Red
Br.....Brown	P .....Pink	W/L .....White/Blue	G/Y .....Green/Yellow
Ch .....Chocolate	R .....Red	B/R .....Black/Red	L/R .....Blue/Red
Dg .....Dark green	Sb .....Sky blue	B/W .....Black/White	L/Y .....Blue/Yellow
G .....Green	W .....White	B/Y .....Black/Yellow	W/R .....White/Red
L .....Blue	Y .....Yellow	Br/W.....Brown/White	Y/R .....Yellow/Red