



YAMAHA

FJ600N/NC

Service Manual



Being a Yamaha owner, you obviously prefer a quality product.

gēn·ū·īne

adj. 1. Real 2. Authentic,
not artificial 3. Yamaha.

GENUINE **YAMAHA** PARTS & ACCESSORIES

Don't compromise the quality and performance of your Yamaha with off-brand alternatives. You'll be getting exactly what you're paying for.

NOTICE

This manual has been written by Yamaha Motor Company for use by Authorized Yamaha Dealers and their qualified mechanics. In light of this purpose it has been assumed that certain basic mechanical precepts and procedures inherent to our products are already known and understood by the reader.

Without such basic knowledge, repairs or service to this model may render the motorcycle unsafe, and for this reason we must advise that all repairs and/or service be performed by an Authorized Yamaha Dealer who is in possession of the requisite basic product knowledge.

This Research, Engineering and Overseas Service Department of Yamaha are continually striving to further improve all models manufactured by the company. Modifications are therefore inevitable 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.

Particularly important information is distinguished in this manual by the following notations:

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 machine.

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

FJ 600 N/NC SERVICE MANUAL

1st Edition - November 1984 JEM
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YAMAHA MOTOR CORPORATION, U.S.A.
CYPRESS, CALIFORNIA 90630

LIT-11616-04-52

INDEX

This manual has been combined with previous service manuals to provide complete service information for **FJ 600 N/NC**.

Please read and give special consideration to the “NOTICE” on the preceding page for your safety.

FJ 600 N/NC Supplementary

N

FJ 600 L/LC Service Manual

L



FJ600N FJ600NC

Supplementary Service Manual

N

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the FJ600N/NC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

FJ600L/FJ600LC Service Manual LIT-11616-04

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.

NOTE:

This Supplementary Service Manual contains information regarding periodic maintenance to the emission control system for the FJ600N/FJ600NC. Please read this material carefully.

OVERSEAS SERVICE
OVERSEAS OPERATIONS
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

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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

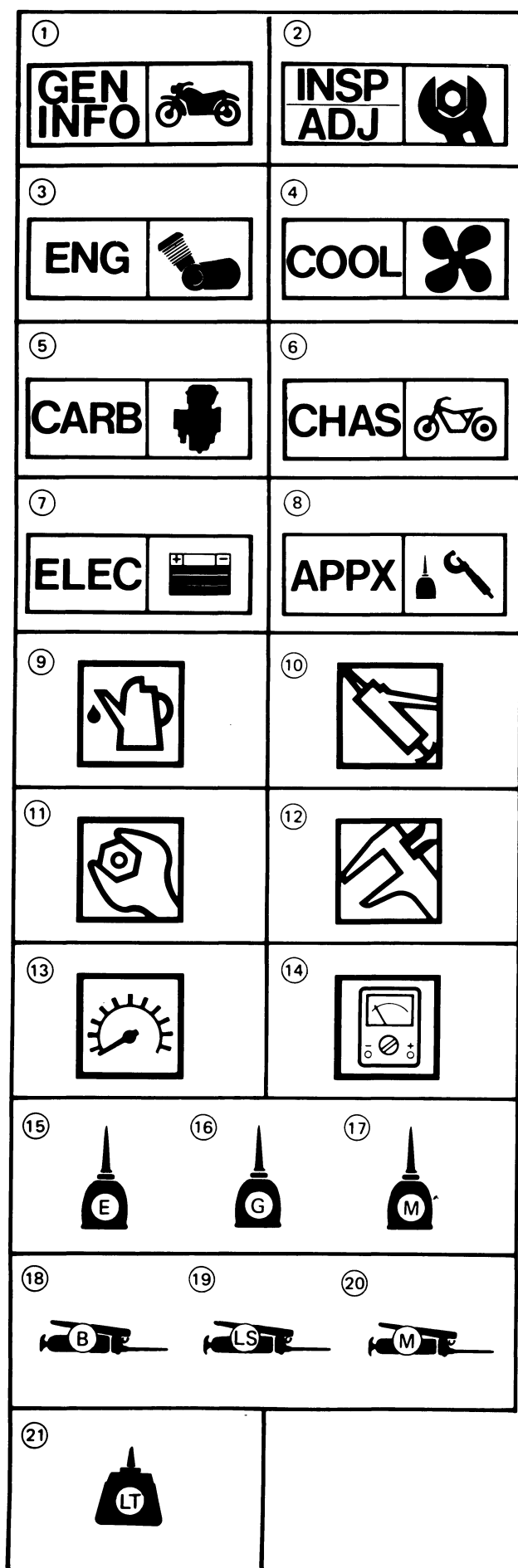
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

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 ⑧ are designed as thumb tabs to indicate the chapter's number and content.

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

Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing in the text.

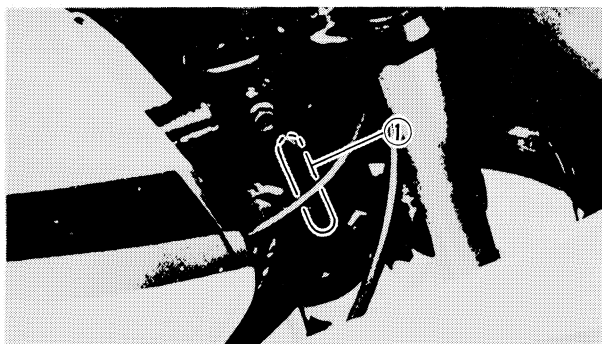
- ⑨ Filling fluid
- ⑩ Lubricant
- ⑪ Tightening
- ⑫ Wear limit, clearance
- ⑬ Engine speed
- ⑭ Ω , V, A

Illustrated symbols ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

- ⑮ Apply engine oil
- ⑯ Apply gear oil
- ⑰ Apply molybdenum disulfide oil
- ⑱ Apply wheel bearing grease
- ⑲ Apply lightweight lithium-soap base grease
- ⑳ Apply molybdenum disulfide grease
- ㉑ Apply locking agent (LOCTITE®)

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GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

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

NOTE: _____

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

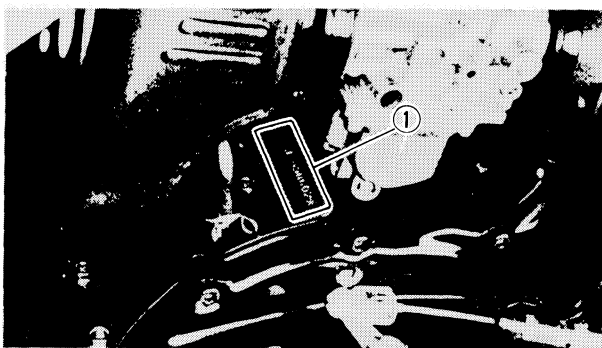
Vehicle Identification Number:

FJ600N (Except for California):

JYA49A00 * EA007101

FJ600NC (For California):

JYA51K00 * EA001101



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

FJ600N (Except for California)

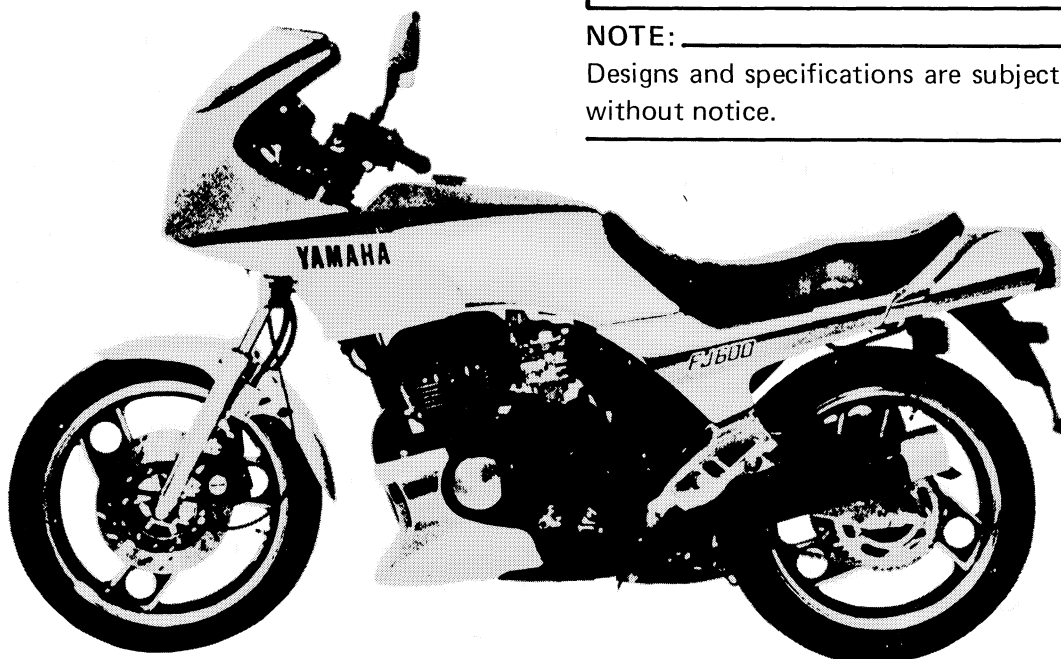
..... 49A-007101

FJ600NC (For California)

..... 51K-001101

NOTE: _____

Designs and specifications are subject to change without notice.



PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

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

MAINTENANCE INTERVALS CHARTS

Proper periodic maintenance is important. Especially important are the maintenance services related to emissions control. These controls not only function to ensure cleaner air but are also vital to proper engine operation and maximum performance. In the following maintenance tables, the services related to emissions control are grouped separately.

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

No.	Item	Remarks	Initial	Odometer reading					
			1,000 km (600 mi) or 1 month	^{**1} 7,000 km (4,400 mi) or 7 months	^{**2} 13,000 km (8,200 mi) or 13 months	19,000 km (12,000 mi) or 19 months	25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months	
1*	Cam chain	Adjust chain tension	○	○	○	○	○	○	
2*	Valve clearance	Check and adjust valve clearance when engine is cold.	○		○		○		
3*	Spark plug	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		○	Replace	○	Replace	○	
4*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		○	○	○	○	○	
5*	Fuel line	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		○	○	○	○	○	
6*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○	
7*	Carburetor synchronization	Adjust synchronization of carburetors.	○	○	○	○	○	○	
8*	Idle speed	Check and adjust engine idle speed. Adjust cable free paly.		○	○	○	○	○	

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

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi) **2: Every 12,000 km (7,600 mi) intervals.


GENERAL MAINTENANCE/LUBRICATION

No.	Item	Remarks	Type	Initial	Odometer readings					
				1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	**3 19,000 km (12,000 mi) or 19 months	**4 25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months	
1	Engine oil	Warm-up engine before draining.	See page 17	○	○	○	○	○	○	
2	Oil filter	Replace.	—	○		○		○		
3*	Air filter	Clean with compressed air. Replace if necessary.	—		○	○	○	○	○	
4*	Brake system	Adjust free play. Replace pads if necessary.	—	○	○	○	○	○	○	
5*	Clutch	Adjust free paly.	—	○	○	○	○	○	○	
6	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAF 30W-50W motor oil	Every 500 km (300 mi)						
7*	Control and meter cable	Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○	
8*	Rear arm pivot shaft	Apply until new grease shows.	Lithium soap base grease.				Repack			
9*	Rear suspension link pivots	Apply grease lightly.	Lithium soap base grease.				○			
10	Brake/Clutch lever pivot shaft.	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○	
11	Brake pedal and change pedal shaft	Lubricate Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○	
12*	Center/Side stand pivots	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○	
13*	Front fork oil	Check operation and leakage.	—		○	○	○	○	○	

MAINTENANCE INTERVALS CHARTS



No.	Item	Remarks	Type	Initial	Odometer readings					
				1,000 km (600 mi) or 1 month	**1 7,000 km (4,400 mi) or 7 months	**2 13,000 km (8,200 mi) or 13 months	**3 19,000 km (12,000 mi) or 19 months	**4 25,000 km (15,800 mi) or 25 months	31,000 km (19,600 mi) or 31 months	
14*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,000 mi)	Medium weight wheel bearing grease		○	○	○	Repack	○	
15*	Wheel bearings	Check bearings for smooth rotation.	—		○	○	○	○	○	
16	Battery	Check specific gravity and breather pipe for proper operation.	—		○	○	○	○	○	
17*	A.C. Generator	Replace generator brushes.	—			○		○		
18*	Sidestand switch	Check and clean or replace if necessary.	—	○	○	○	○	○	○	

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

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi), **3: Every 18,000 km (11,400 mi), **4: Every, 24,000 km (15,200 mi) intervals.

ENGINE

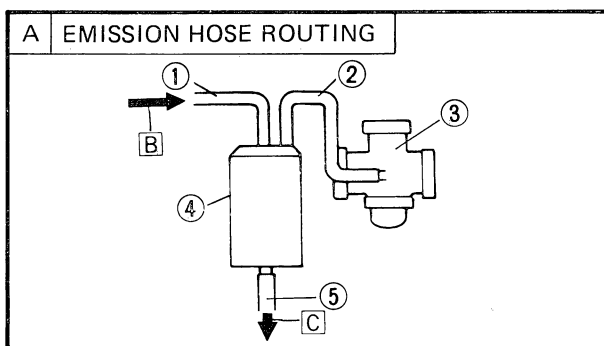
CANISTER (For California Only)

This model is equipped with a canister to prevent the discharging of fuel vapor into the atmosphere.

1. Inspect:

- Hoses ① ② ⑤
 - Cracks/Damage → Replace.
 - Clog → Clean.
- Canister ④
 - Cracks/Damage → Replace.

- ③ Carburetor
- ⓑ From fuel tank
- ⓒ To atmosphere

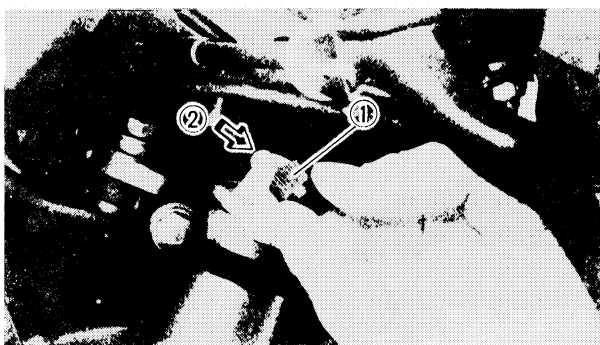
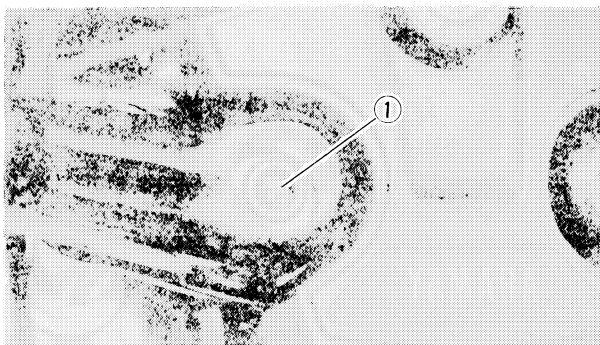


CHASSIS

FRONT FORK OIL CHANGE

WARNING:

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

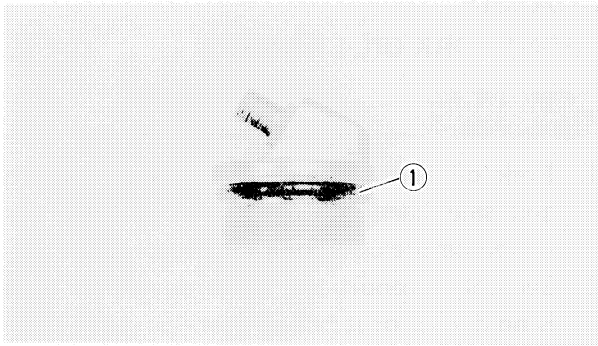
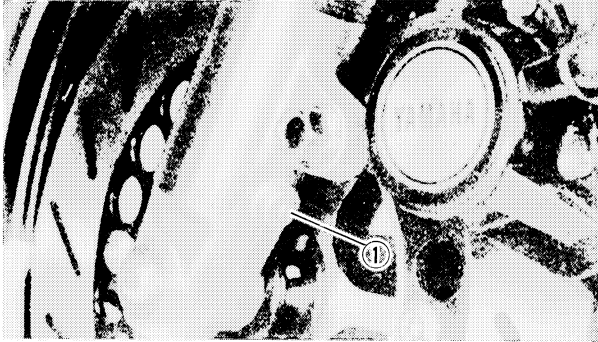
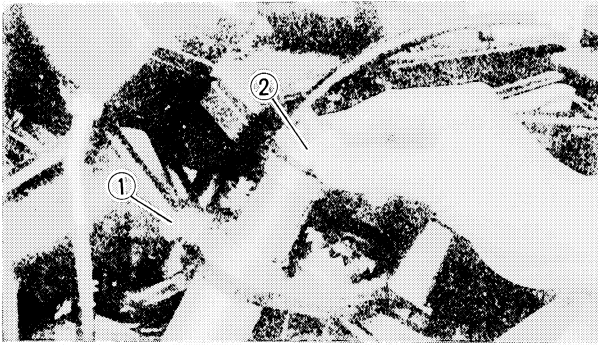


1. Place a suitable stand under the engine to raise the front wheel off the ground.
2. Remove:
 - Handlebar
- ① Handlebar installing bolt
3. Remove:
 - Air valve cap ①

NOTE:

Keep the valve open by pressing it for several seconds so that the air can be let out of the inner tube.

- ② Push



4. Loosen:
 - Pinch bolts (Steering crown) ①
5. Remove:
 - Cap bolts ②

6. Remove:
 - Drain screws ①
 Drain the fork oil.

WARNING:

Do not allow any oil to contact the disc brake components. If oil is discovered, be sure to remove it, otherwise diminished braking capacity and damage to the rubber components of the brake assembly will occur.

7. Inspect:
 - O-ring ① (Cap bolt)
 - Gasket (Drain screw)
 Wear/Damage → Replace.
8. Install:
 - Drain screws
9. Fill:
 - Front forks



Each Fork:

287 cm³ (10.1 Imp oz, 9.7 US oz)
Yamaha Fork Oil 10 wt or
Equivalent

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

10. Install:
 - Cap bolts
 - Pinch bolts (Steering crown)



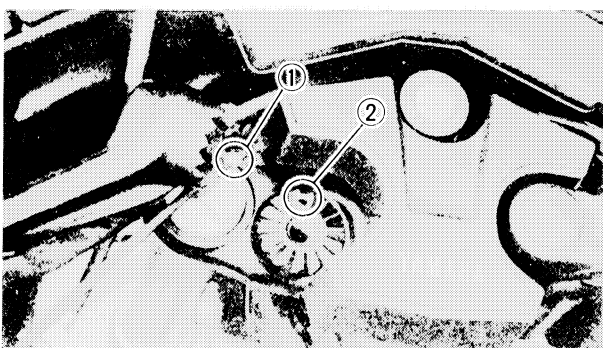
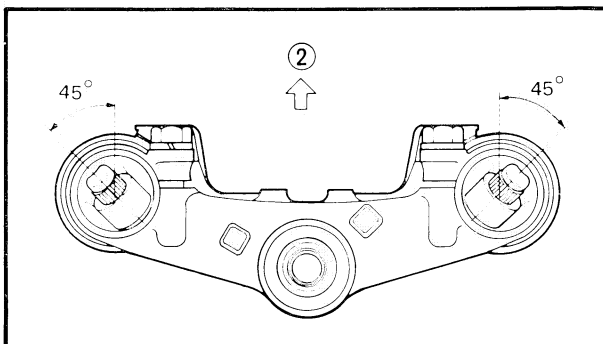
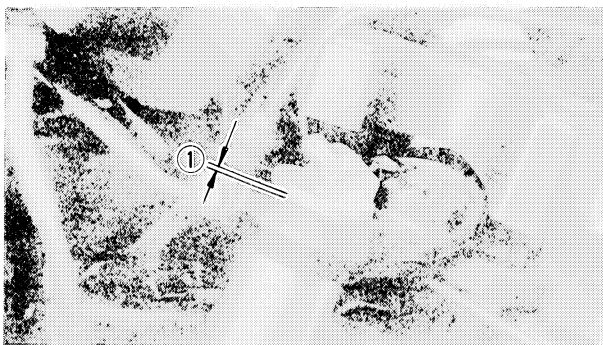
Cap Bolt:

23 Nm (2.3 m·kg, 17 ft·lb)

Pinch Bolt (Steering Crown):

20 Nm (2.0 m·kg, 14 ft·lb)

11. Adjust:
 - Air valve direction
 If the air valve does not face towards the
front, adjust the valve direction.


Air valve direction adjustment steps:

1. Loosen the pinch bolts (steering crown and underbracket).
2. Reset the forks in the following procedure:
 - a. Level the top of the inner fork tube with the top of the steering crown.

NOTE:

Holding the front fork in this position, temporarily tighten the pinch bolts with fingers.

- b. Face the air valve towards the front.
3. Tighten the pinch bolts.



Pinch Bolt (Underbracket and Steering Crown):
23 Nm (2.3 m·kg, 17 ft·lb)

- ① Flush
- ② Forward

12. Install:

- Handlebar

NOTE:

Insert the handlebar pin ① into the steering crown hole ②.



Handlebar Installation Bolt:
70 Nm (7.0 m·kg, 50 ft·lb)

13. Adjust:

- Front fork air pressure

Refer to "Front fork and rear shock absorber setting" section.

FRONT FORK ADJUSTMENT
WARNING:

Always adjust each air pressure to the same setting. Uneven adjustment can cause poor handling and loss of stability.

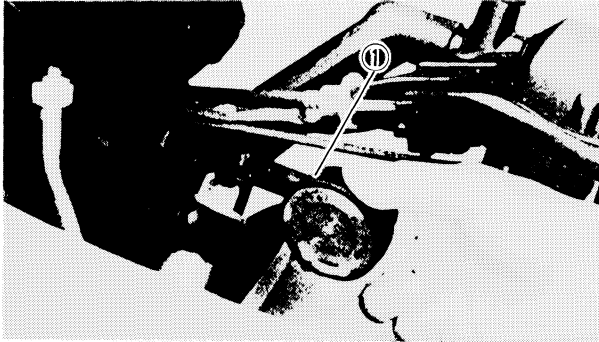
1. Elevate the front wheel by placing the motorcycle on the centerstand.

NOTE:

When checking and adjusting the air pressure, there should be no weight on the front end of the motorcycle.

2. Adjust:

- Air pressure



Air pressure adjustment steps:

1. Remove the valve caps.
2. Using the air check gauge ①, check and adjust the air pressure.

Stiffer → Increase the air pressure
(Use an air pump or pressurized air supply)

Softer → Decrease the air pressure
(Release the air by pushing the valve)

Standard Air Pressure:

39.2 kPa (0.4 kg/cm², 5.7 psi)

Maximum Air Pressure:

78.5 kPa (0.8 kg/cm², 11 psi)

Minimum Air Pressure:

Zero

CAUTION:

Never exceed the maximum pressure, or oil seal damage may occur.

WARNING:

The difference between both the left and right tubes should be 9.81 kPa (0.1 kg/cm, 1.4 psi) or less.

3. Install the valve caps securely.

FRONT FORK AND REAR SHOCK ABSORBER SETTING

Use this table as a guide for specific riding and motorcycle load conditions.

	A	C	E Loading condition			
	B Air pressure	D Spring preload adjuster	F Solo rider	G With passenger	H With accessories equipment	I With accessory equipment and passenger
1	39.2 ~ 58.9 kPa (0.4 ~ 0.6 kg/cm ² , 5.7 ~ 8.5 psi)	1 ~ 2	○			
2	39.2 ~ 58.9 kPa (0.4 ~ 0.6 kg/cm ² , 5.7 ~ 8.5 psi)	3 ~ 5		○		
3	58.9 ~ 78.5 kPa (0.6 ~ 0.8 kg/cm ² , 8.5 ~ 11 psi)	3 ~ 5			○	
4	78.5 kPa (0.8 kg/cm ² , 11psi)	5				○

CHASSIS

FRONT BRAKE CALIPER DISASSEMBLY

1. Remove:

- Cover
- Retaining clips ①
- Retaining pins ②
- Pad spring ③
- Pads
- Brake hose ④

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

• Caliper

2. Repeat previous step to remove the other caliper.

3. Remove:

- Caliper piston

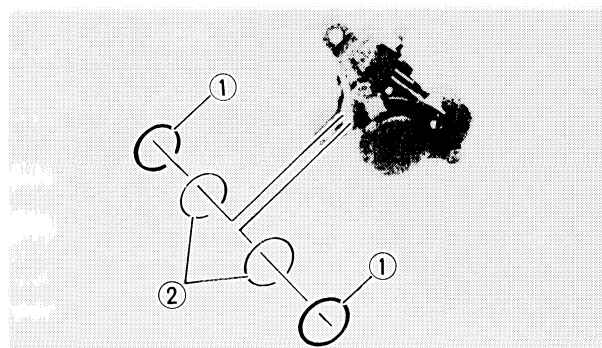
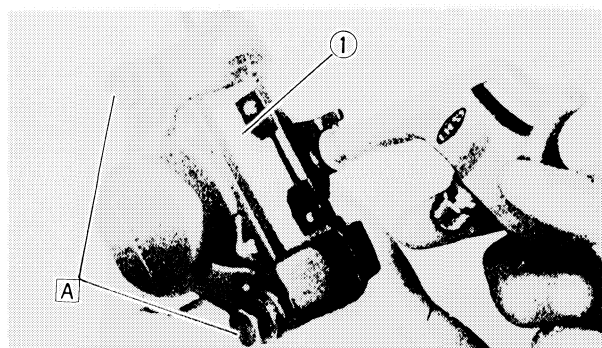
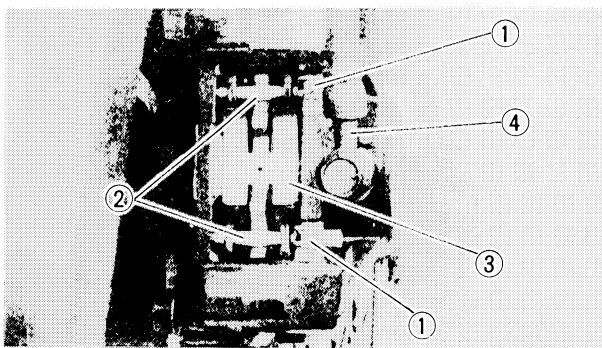
Caliper piston removal steps:

- Insert a piece of wooden board ① into the caliper to lock the right side piston.
- Blow compressed air into the hose joint opening to force out the left side piston from the caliper body.
- Repeat previous step to force out the right side piston from the caliper body.

A DO NOT LOOSEN

4. Remove:

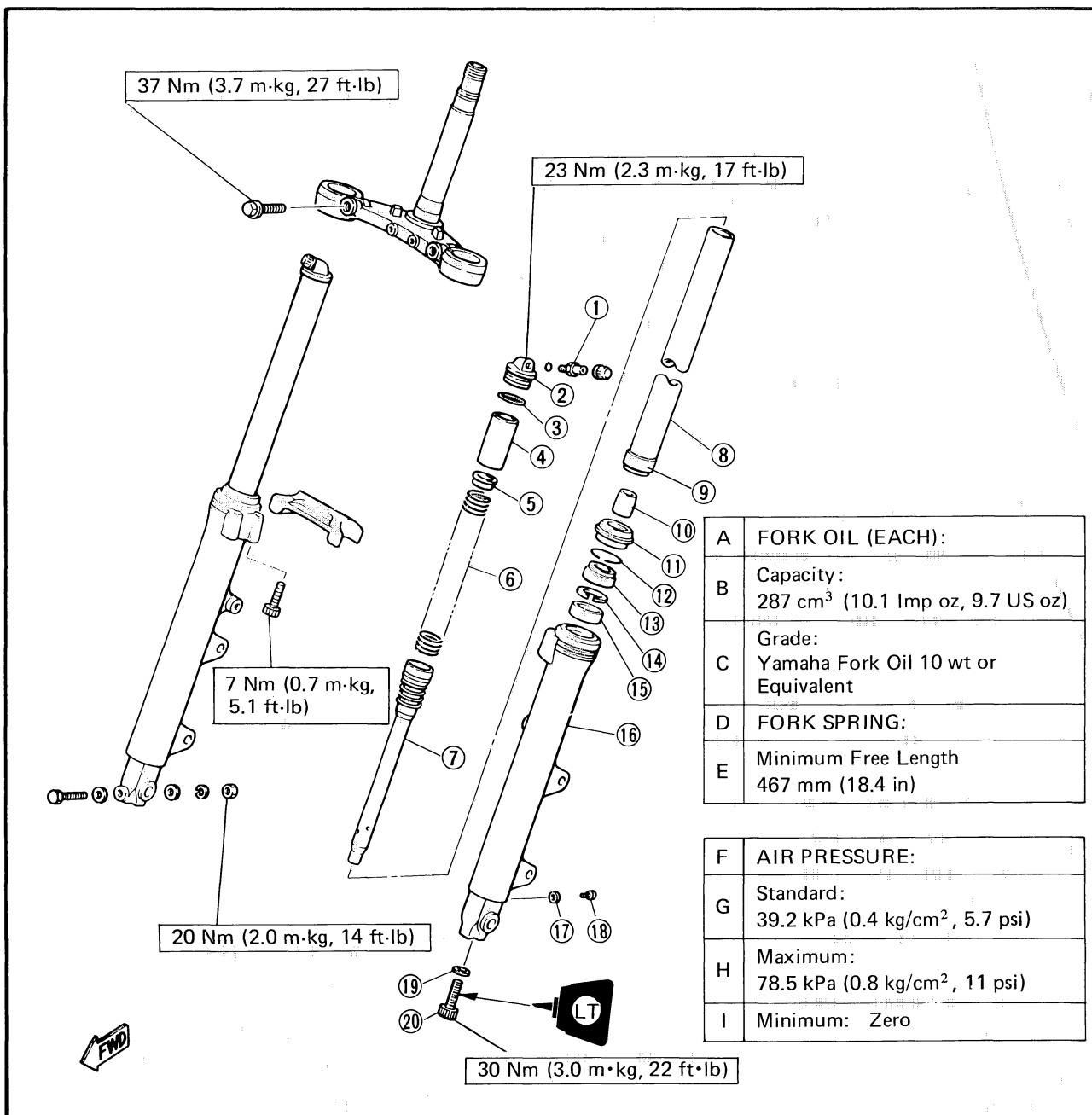
- Piston seal ①
- Dust seal ②



FRONT FORK

- ① Air valve
- ② Cap bolt
- ③ O-ring
- ④ Spacer
- ⑤ Spring seat
- ⑥ Fork spring
- ⑦ Damper rod
- ⑧ Inner fork tube
- ⑨ Slide bushing
- ⑩ Oil lock piece
- ⑪ Dust seal
- ⑫ Retaining clip
- ⑬ Oil seal
- ⑭ Plain washer
- ⑮ Guide bushing
- ⑯ Outer fork tube
- ⑰ Gasket
- ⑱ Drain screw
- ⑲ Copper washer
- ⑳ Cylinder securing bolt

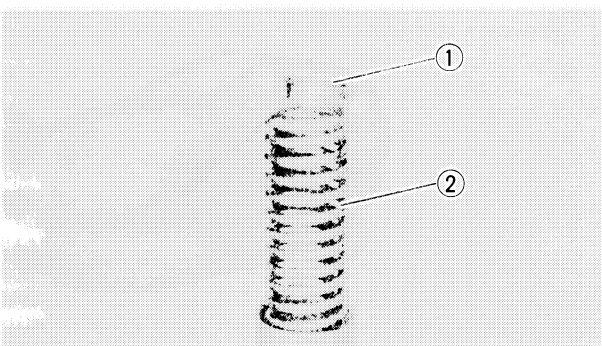
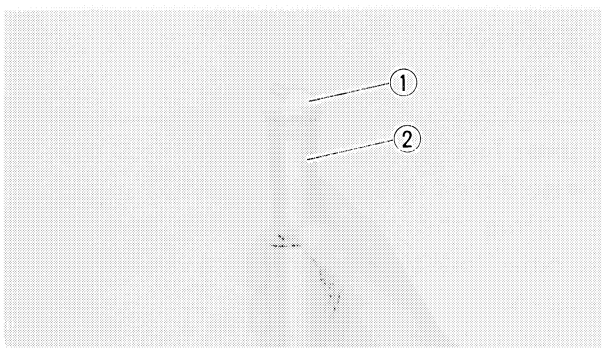
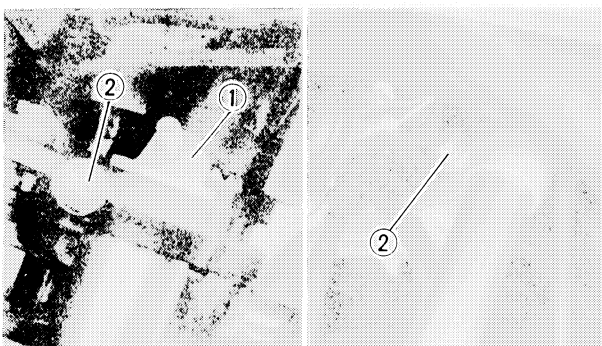
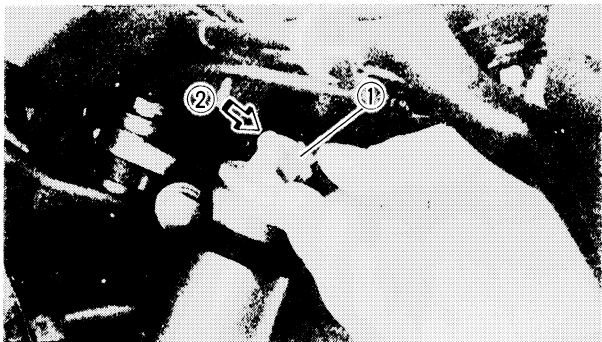
T-HANDLE:
P/N. YM-01326
DAMPER ROD HOLDER (22 mm):
P/N. YM-33298



REMOVAL

WARNING:

Securely support the motorcycle so it won't fall over when the front wheel and front forks are removed.



1. Remove:
 - Brake caliper
 - Front wheel
 - Front fender
 - Front fork brace
2. Remove:
 - Air valve cap ①

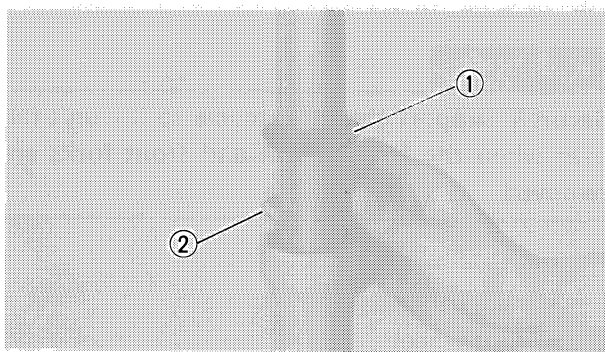
NOTE:

Keep the valve open by pressing it for several seconds so that the air can be let out of the inner tube.

- ② Push
3. Loosen:
 - Cap bolt ①
 - Pinch bolts (Steering crown and under-bracket) ②
4. Remove:
 - Front fork(s)

DISASSEMBLY

1. Remove:
 - Cap bolt ①
 - Spacer ②
2. Drain:
 - Fork oil
3. Remove:
 - Spring seat ①
 - Fork spring ②

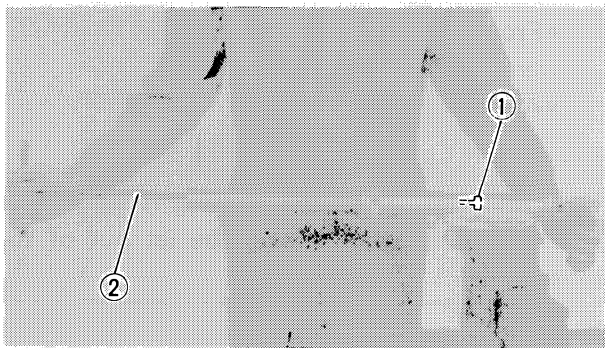


4. Remove:

- Dust seal ①
- Retaining clip ②

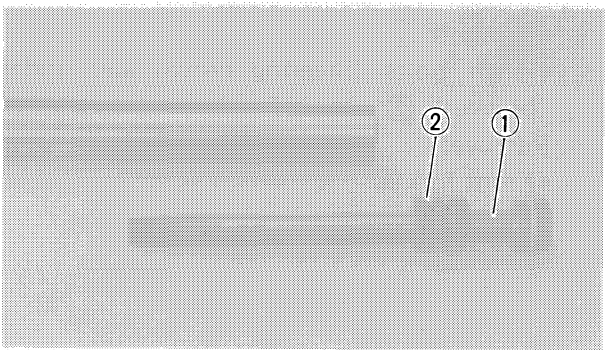
NOTE: _____

Use a thin screwdriver, and be careful not to scratch the inner fork tube.



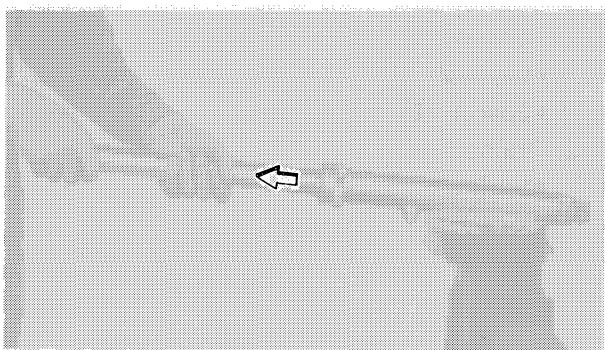
5. Remove:

- Cylinder securing bolt
- Use the Damper Rod Holder (YM-33928) ① and T-Handle (YM-01326) ② to lock the damper rod.



6. Remove:

- Damper rod ①
- Rebound spring ②



7. Remove:

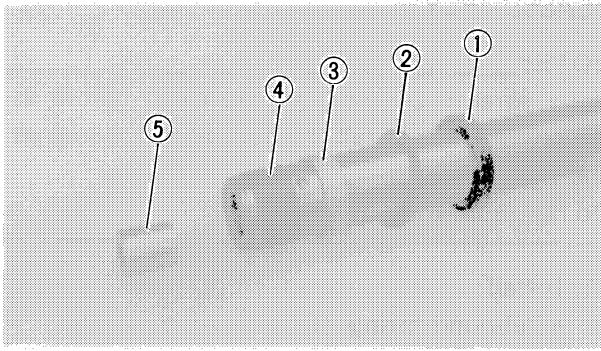
- Inner fork tube

Inner fork tube removal steps:

- Hold the fork leg horizontally.
- Clamp the caliper mounting boss of the outer fork tube securely in a vise having soft jaws.
- Pull out the inner fork tube from the outer tube by forcefully, but carefully, withdrawing the inner fork tube.

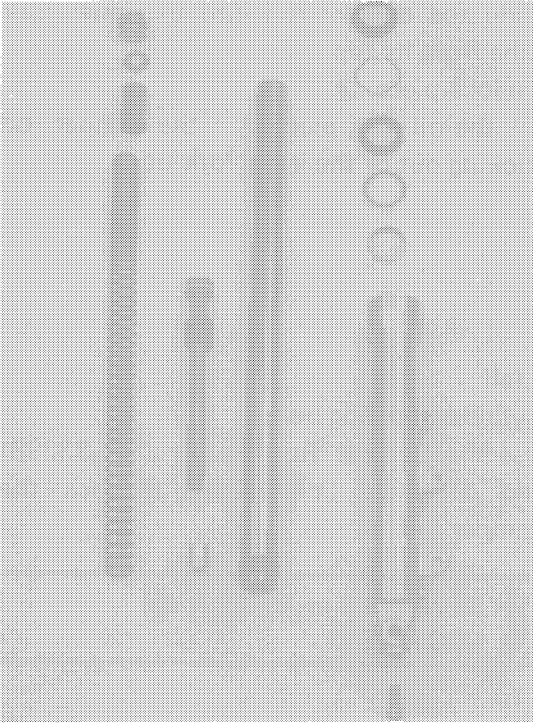
NOTE: _____

- Excessive force will damage the oil seal, plain washer and/or bushings. The oil seal and bushings must be replaced.
- Avoid bottoming the inner tube in the outer tube during the above procedure, as the oil lock piece will be damaged.



8. Remove:

- Oil seal ①
- Plain washer ②
- Guide bushing ③
- Slide bushing ④
- Oil lock piece ⑤



INSPECTION

1. Inspect:

- Inner fork tube
Scratches/Bends → Replace.

WARNING:

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

2. Inspect:

- Outer fork tube
Scratches/Bends/Damage → Replace.
- Fork spring
Out of specification → Replace.

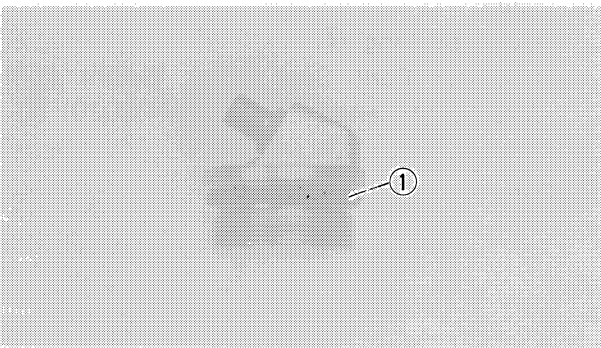


Fork Spring Free Length:

472 mm (18.6 in)

Minimum Free Length:

467 mm (18.4 in)

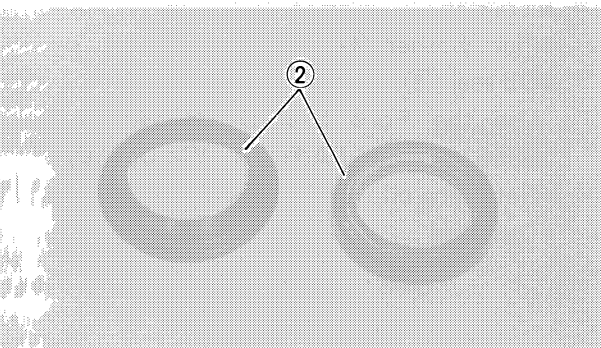


3. Inspect:

- Damper rod
Wear/Damage → Replace.

NOTE:

Blow out all oil passages with compressed air.



4. Inspect:

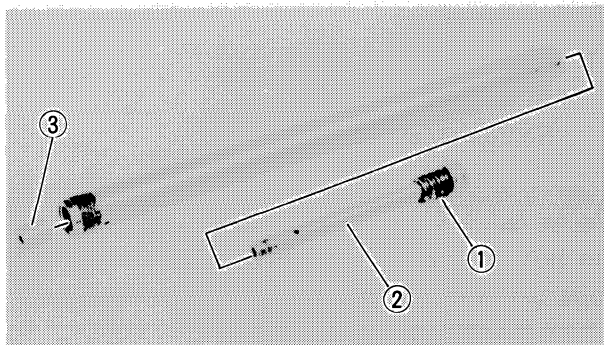
- O-ring ①
Wear/Cracks/Damage → Replace.
- Seals ②
Wear/Damage → Replace.

REASSEMBLY

NOTE:

Make sure all components are clean before assembly. Always install the new oil seal, bushings, and the dust seal.

Do not reuse them.



1. Install:

- Rebound spring ①
- Damper rod ②

Slide the damper rod into the inner fork tube from its top.

- Oil lock piece ③

Fit the oil lock piece over the damper rod sticking out of the inner fork tube.

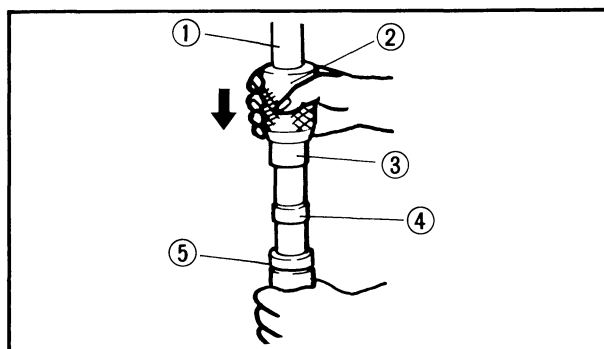
2. Install:

- Cylinder securing bolt

Use the Damper Rod Holder (YM-33298) and T-Handle (YM-01326) to lock the damper rod.



30 Nm (3.0 m·kg, 22 ft·lb)
LOCTITE®

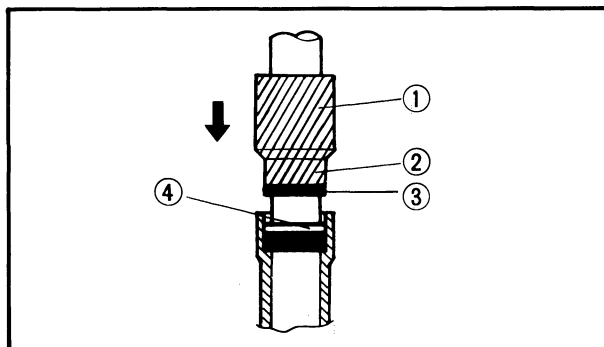


3. Install:

- Guide bushing ④

Use the Fork Seal Driver Weight (YM-33963) ② and Adapter (YM-08010) ③.

- ① Inner fork tube
- ⑤ Outer fork tube



4. Install:

- Plain washer ④
- Oil seal ③

Use the Fork Seal Driver Weight (YM-33963) ① and Adapter (YM-08010) ②.

- Retaining clip
- Dust seal



5. Fill:

- Front fork



Each Fork:

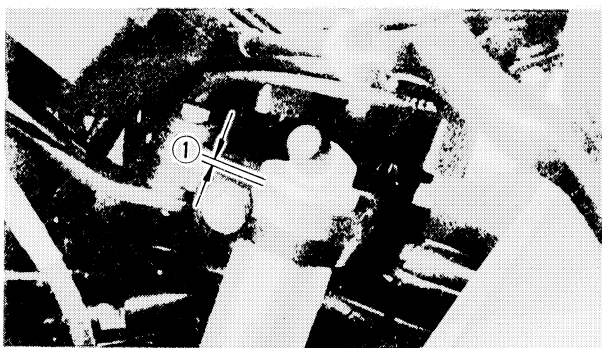
287 cm³ (10.1 Imp oz, 9.7 US oz)

Yamaha Fork Oil 10 wt or
Equivalent

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

6. Install:

- Fork spring
(with smaller pitch side up)
- Spring seat
- Spacer
- Cap bolt (Temporarily)



INSTALLATION

1. Install:

- Front fork(s)
- Temporarily tighten the pinch bolts.

NOTE: _____
Level the top of the inner tube with the top of
the steering crown.

① Flush

2. Tighten:

- Pinch bolts (Underbracket)



Pinch Bolt (Underbracket):

37 Nm (3.7 m·kg, 27 ft·lb)

NOTE: _____
Do not tighten the steering crown pinch bolt.

3. Tighten:

- Cap bolts
- Pinch bolts (Steering crown)

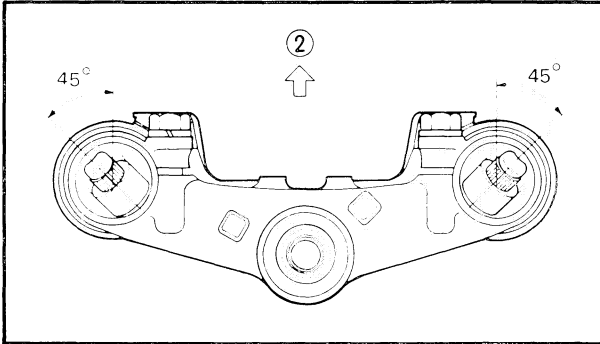
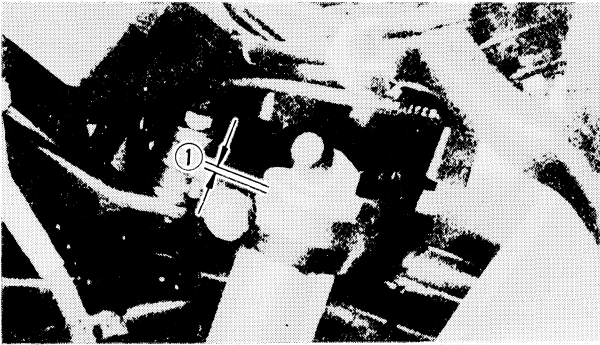


Cap Bolt:

23 Nm (2.3 m·kg, 17 ft·lb)

Pinch Bolt (Steering Crown):

20 Nm (2.0 m·kg, 14 ft·lb)



4. Adjust:

- Air valve direction

If the air valve does not face towards the front, adjust the valve direction.

Air valve direction adjustment steps:

1. Loosen the pinch bolts (steering crown and underbracket).
2. Reset the forks in the following procedure:
 - a. Level the top of the inner fork tube with the steering crown.

NOTE:

Holding the front fork in this position, temporarily tighten the pinch bolts with fingers.

- b. Face the air valve towards the front.
3. Tighten the pinch bolts.



Pinch Bolt (Underbracket and Steering Crown):

23 Nm (2.3 m·kg, 17 ft·lb)

- ① Flush ② Forward

5. Adjust:

- Front fork air pressure

Refer to "Front fork and rear shock absorber setting" section.

6. Install:

- Air valve cap
- Front fork brace
- Front fender
- Front wheel
- Brake caliper



Front Fork Brace:

7 Nm (0.7 m·kg, 5.1 ft·lb)

Front Fender:

10 Nm (1.0 m·kg, 7.2 ft·lb)

Front Wheel Axle:

105 Nm (10.5 m·kg, 75 ft·lb)

Front Axle Pinch Bolt:

20 Nm (2.0 m·kg, 14 ft·lb)

Brake Caliper:

35 Nm (3.5 m·kg, 25 ft·lb)



APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item \ Model	FJ600N/FJ600NC	
Model: Model Code Number Federal V.I.N Number Engine Starting Number	FJ600N 49A JYA49A00*EA007101 49A-007101	FJ600NC 51K JYA51K00*EA001101 51K-001101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	2,115 mm (83.3 in) 735 mm (28.9 in) 1,225 mm (48.2 in) 790 mm (31.1 in) 1,425 mm (56.1 in) 140 mm (5.5 in)	
Basic Weight: With Oil and Full Fuel Tank	213 kg (470 lb)	
Minimum Turning Radius:	2,800 mm (110.2 in)	
Engine: Engine Type Cylinder Arrangement Displacement Bore x Stroke Compression Ratio Compression Pressure Starting System	Air cooled 4-stroke, gasoline, DOHC 4-cylinder parallel 598 cm ³ 58.5 x 55.7 mm (2.30 x 2.19 in) 10.0 : 1 1078.8 kPa (11 kg/cm ² , 156.4 psi) Electric starter	
Lubrication System:	Pressure lubricated, wet sump	
Engine Oil Type or Grade: 	Yamaha 4-cycle oil or SAE 20W40 type SE motor oil (If temperature does not go below 5°C (40°F)) SAE 10W30 type SE motor oil (If temperature does not go above 15°C (60°F))	
Oil Capacity: Engine Oil: Periodic Oil Change With Oil Filter Replacement Total Amount	2.3 L (2.0 Imp qt, 2.4 US qt) 2.6 L (2.3 Imp qt, 2.7 US qt) 3.0 L (2.6 Imp qt, 3.2 US qt)	
Air Filter:	Dry type element	
Fuel: Type Tank Capacity Reserve Amount	Regular gasoline 19.0 L (4.18 Imp gal, 5.02 US gal) FJ600NC: 18.5 L (4.07 Imp gal, 4.89 US gal) 2.5 L (0.55 Imp gal, 0.66 US gal)	
Carburetor: Type/Manufacturer	BS32 x 4/MIKUNI	

GENERAL SPECIFICATIONS

APPX

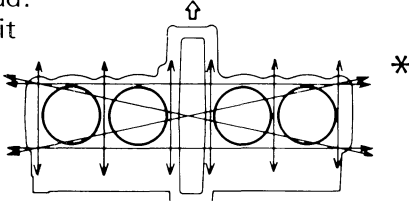


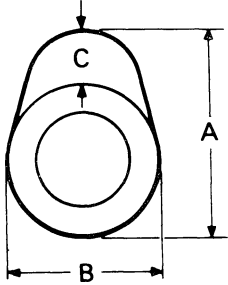
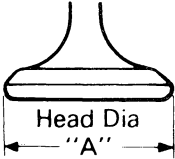
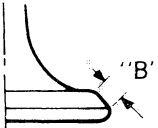
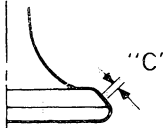
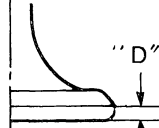
Item	Model	FJ600N/FJ600NC
Spark Plug: Type/Manufacturer Gap		D8EA/NGK or X24ES-U/NIPPONDENSO 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Clutch Type:		Wet, multiple-disc
Transmission: Primary Reduction System Primary Reduction Ratio Secondary Reduction System Secondary Reduction Ratio Transmission Type Operation Gear Ratio 1st 2nd 3rd 4th 5th 6th		Spur gear, HI-VO chain 22/21 x 65/28 (2.431) Chain drive 45/16 (2.812) Constant-mesh, 6-speed Left foot operation 41/15 (2.733) 37/19 (1.947) 34/22 (1.545) 31/25 (1.240) 29/28 (1.035) 27/30 (0.900)
Chassis: Frame Type Caster Angle Trail		Tubular steel, double cradle 26° 106 mm (4.17 in)
Tire: Type Size (Front) Size (Rear) <Wear Limit>		Tubeless 90/90-18 51H YOKOHAMA F202/DUNLOP F14 120/80-18 62H YOKOHAMA R202/DUNLOP K727 1.0 mm (0.04 in)
Tire Pressure (Cold Tire): Basic Weight: With Oil and Full Fuel Tank Maximum Load * Cold Tire Pressure Up to 90 kg (198 lb) Load * 90 kg (198 lb) ~ Maximum load * High Speed Riding * Load is the total weight of cargo, rider, passenger, and accessories.	213 kg (470 lb)	
	183 kg (403 lb)	
	Front	Rear
	177 kPa (1.8 kg/cm ² , 26 psi)	196 kPa (2.0 kg/cm ² , 28 psi)
	196 kPa (2.0 kg/cm ² , 28 psi)	226 kPa (2.3 kg/cm ² , 32 psi)
	196 kPa (2.0 kg/cm ² , 28 psi)	226 kPa (2.3 kg/cm ² , 32 psi)
Brake: Front Brake Type Operation Rear Brake Type Operation		Dual disc brake Right hand operation Single disc brake Right foot operation



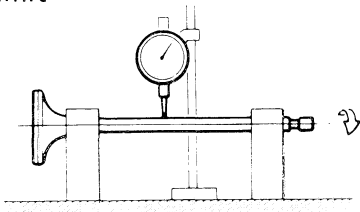
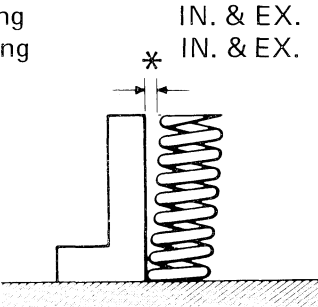
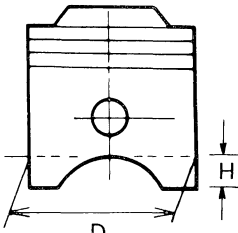
Item \ Model	FJ600N/FJ600NC
Suspension: Front Suspension Rear Suspension	Telescopic fork (Pneumatic-mechanical) Swingarm (New Monocross)
Shock Absorber: Front Shock Absorber Rear Shock Absorber	Air/coil spring, oil damper Gas/coil spring, oil damper
Wheel Travel: Front Wheel Travel Rear Wheel Travel	150 mm (5.9 in) 100 mm (3.9 in)
Electrical: Ignition System Generator System Battery Type or Model Battery Capacity	T.C.I (Full Transistor Ignition) A.C. generator 12N12A-4A 12V 12AH
Headlight Type:	Bulb (Quartz bulb)
Bulb Wattage x Quantity: Headlight Tail/Brake Light Flasher Light Meter Light	12V, 60W/55W x 1 12V, 8W/27W x 2 12V, 27W x 4 12V, 3.4W x 6
Indicator Light: Wattage x Quantity: "NEUTRAL" "HIGH BEAM" "TURN" "OIL LEVEL"	12V, 3.4W x 1 12V, 3.4W x 1 12V, 3.4W x 2 12V, 3.4W x 1

MAINTENANCE SPECIFICATIONS
Engine

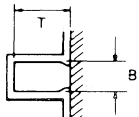
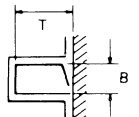
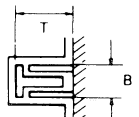
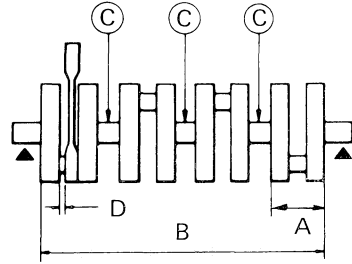
Item \ Model	FJ600N/FJ600NC
Cylinder Head: Warp Limit 	0.03 mm (0.0012 in) * Lines indicate straightedge measurement.
Cylinder: Bore Size Taper Limit Out-of-round Limit	58.51 ~ 58.55 mm (2.304 ~ 2.305 mm) 0.05 mm (0.002 in) 0.01 mm (0.0004 in)

Item	Model FJ600N/FJ600NC
<p>Camshaft:</p> <p>Drive Method</p> <p>Cam Cap Inside Diameter (Cylinder head direct support)</p> <p>Camshaft Outside Diameter</p> <p>Shaft-to-cap Clearance</p> <p>Cam Dimensions: Intake "A"</p> <p><Limit></p> <p>"B"</p> <p><Limit></p> <p>"C"</p> <p><Limit></p> <p>Exhaust "A"</p> <p><Limit></p> <p>"B"</p> <p><Limit></p> <p>"C"</p> <p><Limit></p> <p>Camshaft Runout Limit</p> 	<p>Chain drive (Center)</p> <p>25 $^{+0.021}_0$ mm (0.9843 $^{+0.0008}_0$ in)</p> <p>25 $^{-0.020}_{-0.033}$ mm (0.9843 $^{-0.0008}_{-0.0013}$ in)</p> <p>0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)</p> <p>36.25 ~ 36.35 mm (1.427 ~ 1.431 in)</p> <p>36.20 mm (1.425 in)</p> <p>28.10 ~ 28.20 mm (1.106 ~ 1.110 in)</p> <p>28.05 mm (1.104 in)</p> <p>8.30 mm (0.327 in)</p> <p>8.10 mm (0.319 in)</p> <p>35.75 ~ 35.85 mm (1.408 ~ 1.411 in)</p> <p>35.70 mm (1.406 in)</p> <p>28.05 ~ 28.15 mm (1.104 ~ 1.108 in)</p> <p>28.00 mm (1.102 in)</p> <p>7.80 mm (0.307 in)</p> <p>7.60 mm (0.299 in)</p> <p>0.03 mm (0.0012 in)</p>
<p>Cam Chain:</p> <p>Cam Chain Type/Number of Links</p> <p>Cam Chain Adjustment Method</p>	<p>Bush-chain/114</p> <p>Manual</p>
<p>Valve, Valve Seat, Valve Guide:</p> <p>Valve Clearance (Cold)</p> <p>IN.</p> <p>EX.</p>   <p>Head Dia</p> <p>"A"</p> <p>Face Width</p> <p>"B"</p>   <p>Seat Width</p> <p>"C"</p> <p>Margin Thickness</p> <p>"D"</p> <p>"A" Head Dia.</p> <p>IN.</p> <p>EX.</p> <p>"B" Face Width</p> <p>IN.</p> <p>EX.</p> <p>"C" Seat Width</p> <p>IN.</p> <p>EX.</p> <p><Limit></p> <p>IN.</p> <p>EX.</p> <p>"D" Margin Thickness Limit</p> <p>IN.</p> <p>EX.</p> <p>Stem Outside Diameter</p> <p>IN.</p> <p>EX.</p> <p><Limit></p> <p>IN.</p> <p>EX.</p> <p>Guide Inside Diameter</p> <p>IN.</p> <p>EX.</p> <p><Limit></p> <p>IN.</p> <p>EX.</p>	<p>0.11 ~ 0.15 mm (0.004 ~ 0.006 in)</p> <p>0.16 ~ 0.20 mm (0.006 ~ 0.008 in)</p> <p>31.4 ~ 31.6 mm (1.234 ~ 1.244 in)</p> <p>26.9 ~ 27.1 mm (1.059 ~ 1.067 in)</p> <p>2.26 mm (0.0890 in)</p> <p>2.26 mm (0.0890 in)</p> <p>0.9 ~ 1.1 mm (0.035 ~ 0.043 in)</p> <p>0.9 ~ 1.1 mm (0.035 ~ 0.043 in)</p> <p>2.0 mm (0.079 in)</p> <p>2.0 mm (0.079 in)</p> <p>0.8 ~ 1.2 mm (0.032 ~ 0.047 in)</p> <p>0.8 ~ 1.2 mm (0.032 ~ 0.047 in)</p> <p>5.975 ~ 5.990 mm (0.2352 ~ 0.2358 in)</p> <p>5.960 ~ 5.975 mm (0.2346 ~ 0.2352 in)</p> <p>5.945 mm (0.2341 in)</p> <p>5.920 mm (0.2331 in)</p> <p>6.000 ~ 6.012 mm (0.2362 ~ 0.2367 in)</p> <p>6.000 ~ 6.012 mm (0.2362 ~ 0.2367 in)</p> <p>6.045 mm (0.2380 in)</p> <p>6.020 mm (0.2370 in)</p>

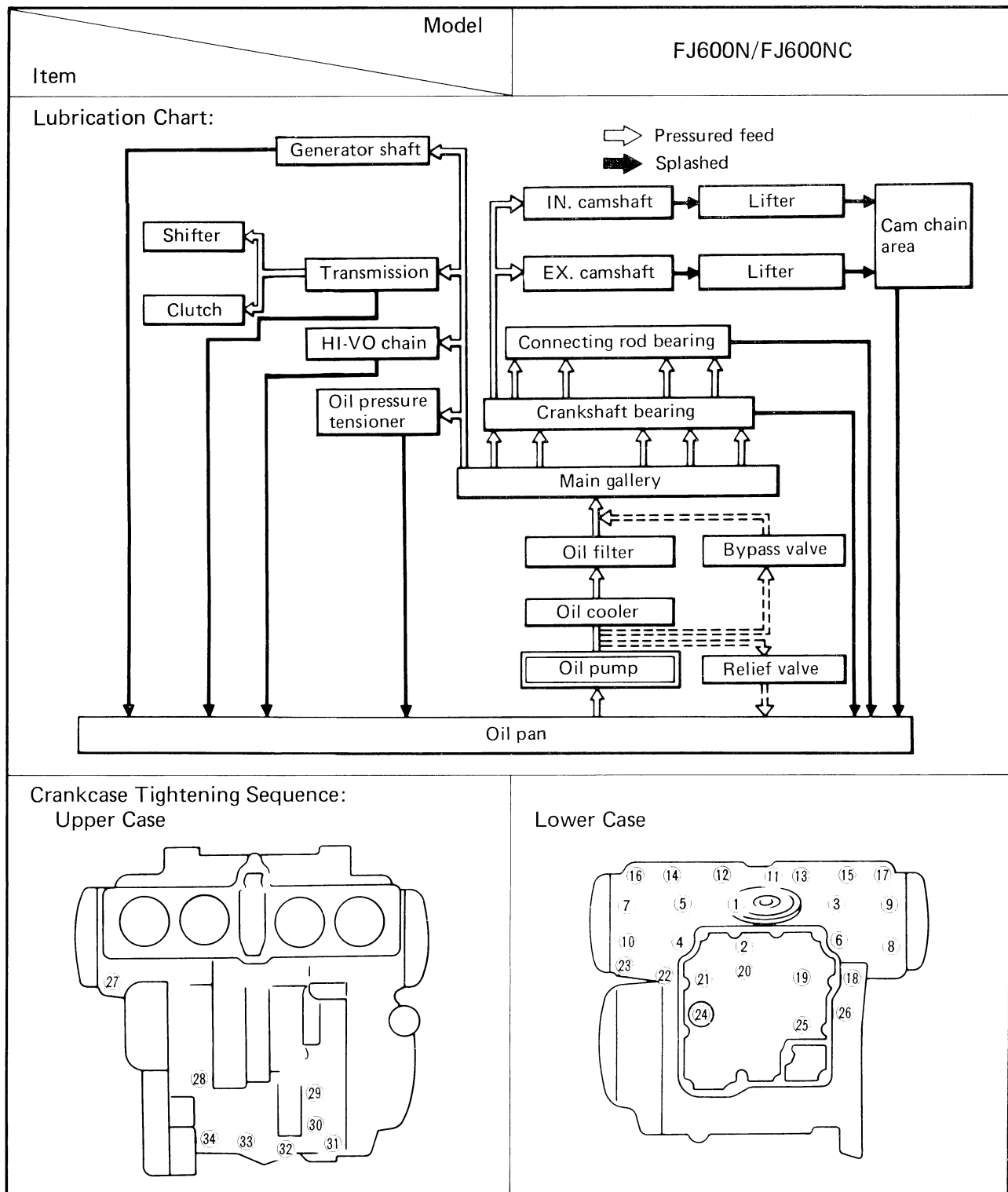


Model		FJ600N/FJ600NC
Item		
Stem-to-guide Clearance	IN. EX.	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in) 0.025 ~ 0.052 mm (0.0010 ~ 0.0021 in)
< Limit >	IN. EX.	0.1 mm (0.004 in) 0.1 mm (0.004 in)
Stem Runout Limit		0.03 mm (0.001 in)
		
Valve Spring:		
Free Length		
Inner Spring	IN. EX.	35.5 mm (1.398 in) 35.5 mm (1.398 in)
Outer Spring	IN. EX.	37.2 mm (1.465 in) 37.2 mm (1.465 in)
Installed Length (Valve Closed) 1)		
Inner Spring	IN. EX.	30.5 mm (1.201 in) 30.5 mm (1.201 in)
Outer Spring	IN. EX.	32.0 mm (1.260 in) 32.0 mm (1.260 in)
Total Limit *		
Inner Spring	IN. & EX.	2.5°/1.5 mm (0.059 in)
Outer Spring	IN. & EX.	2.5°/1.6 mm (0.063 in)
		
Direction of Winding		Inner spring
		Outer spring
		IN. EX. IN. EX.
		Left Left Right Right
Piston:		
Piston Size "D"		58.47 ~ 58.51 mm (2.302 ~ 2.304 in)
Measuring Point "H"		7.0 mm (0.28 in) (From bottom line of piston skirt)
		
Clearance Between Piston & Cylinder		0.025 ~ 0.045 mm (0.0010 ~ 0.0018 in)
Oversize:	1st 2nd 3rd 4th	— 59.00 mm (2.323 in) — 60.00 mm (2.362 in)



Item	Model
<p>Piston Ring:</p> <p>Sectional Sketch</p>  <p>Top Ring</p>  <p>2nd Ring</p>  <p>Oil Ring</p> <p>End Gap (Installed):</p> <p>Side Clearance:</p>	<p>FJ600N/FJ600NC</p> <p>Barrel B = 1.0 mm (0.039 in) T = 2.3 mm (0.091 in)</p> <p>Taper B = 1.2 mm (0.047 in) T = 2.3 mm (0.091 in)</p> <p>Expander B = 2.5 mm (0.098 in) T = 2.8 mm (0.110 in)</p> <p>Top Ring <Limit> 0.15 ~ 0.30 mm (0.006 ~ 0.012 in) 0.70 mm (0.028 in)</p> <p>2nd Ring <Limit> 0.15 ~ 0.30 mm (0.006 ~ 0.012 in) 0.70 mm (0.028 in)</p> <p>Oil Ring 0.20 ~ 0.70 mm (0.008 ~ 0.028 in)</p> <p>Top Ring <Limit> 0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in) 0.15 mm (0.0059 in)</p> <p>2nd Ring <Limit> 0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in) 0.15 mm (0.0059 in)</p> <p>Oil Ring —</p>
<p>Connecting Rod:</p> <p>Oil Clearance</p> <p>Bearing Color Code</p>	<p>0.016 ~ 0.040 mm (0.0006 ~ 0.0016 in)</p> <p>1. Blue 2. Black 3. Brown 4. Green</p>
<p>Crankshaft:</p>  <p>Crank Width "A"</p> <p>Assembly Width "B"</p> <p>Runout Limit "C"</p> <p>Big End Side Clearance "D"</p> <p>Journal Oil Clearance</p> <p>Bearing Color Code</p>	<p>49.4 mm (1.945 in)</p> <p>311.8 ~ 313.0 mm (12.28 ~ 12.32 in)</p> <p>0.03 mm (0.0012 in)</p> <p>0.160 ~ 0.262 mm (0.0063 ~ 0.0103 in)</p> <p>0.021 ~ 0.044 mm (0.0008 ~ 0.0017 in)</p> <p>1. Blue 2. Black 3. Brown 4. Green 5. Yellow</p>

	Model	FJ600N/FJ600NC
Item		
Clutch:		
Friction Plate Thickness		2.9 ~ 3.1 mm (0.11 ~ 0.12 in)
Quantity		8 pcs.
Wear Limit		2.7 mm (0.11 in)
Clutch Plate Thickness		1.5 ~ 1.7 mm (0.060 ~ 0.067 in)
Quantity		7 pcs.
Warp Limit		0.15 mm (0.0059 in)
Clutch Spring Free Length		42.8 mm (1.69 in)
Quantity		5 pcs.
Clutch Spring Minimum Length		41.8 mm (1.05 in)
Clutch Release Method		Outer Pull, Rack & Pinion Pull
Transmission:		
Main Axle Deflection Limit		0.08 mm (0.0031 in)
Drive Axle Deflection Limit		0.08 mm (0.0031 in)
Shifter:		
Shifter Type		Guide bar
Carburetor:		
Type/Manufacturer/Quantity		BS32/MIKUNI/4
I.D. Mark		49A01 (51K01 for FJ600NC)
Main Jet (M.J.) (For No.1 and No.2 Cylinder)		#105
(For No.3 and No.4 Cylinder)		#102.5
Main Air Jet (M.A.J.)		#70
Jet Needle-Clip Position		
(J.N.) (For No.1, 3, 4 Cylinder)		4CP4
(For No.2 Cylinder)		4CP6
Needle Jet (N.J.)		N-8
Pilot Jet (P.J.)		#35
Pilot Outlet Size (P.O.)		φ0.85
Pilot Air Jet (P.A.J.)		#160
Pilot Screw (P.S.)		Preset
Valve Seat Size (V.S.)		φ2.0
Starter Jet (G.S.)		#42.5 (φ0.6)
Bypass Size (B.P.)		φ0.8 x 3
Fuel Level (F.L.)		3.0 ± 1.0 mm (0.12 ± 0.04 in)
		Below from the carburetor mixing chamber body edge
Engine Idling Speed		1,200 ± 50 r/min
Vacuum Pressure at Idling Speed		23.3 ± 0.667 kPa (175 ± 5 mmHg, 6.890 ± 0.1969 inHg)
Vacuum Synchronous Difference		Below 10 kPa (75 mmHg, 0.4 inHg)
Lubrication System:		
Oil Filter Type		Paper
Oil Pump Type		Trochoid pump
Tip Clearance		0.09 ~ 0.15 mm (0.0035 ~ 0.0059 in)
<Limit>		0.20 mm (0.0079 in)
Side Clearance		0.03 ~ 0.08 mm.(0.0012 ~ 0.0031 in)
<Limit>		0.15 mm (0.0059 in)
Bypass Valve Setting Pressure		98.0 ± 20 kPa (1.0 ± 0.2 kg/cm ² , 14.2 ± 2.8 psi)
Relief Valve Operating Pressure		490 ± 49 kPa (5.0 ± 0.5 kg/cm ² , 71.1 ± 7.1 psi)




Tightening Torque (Engine):

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Cam shaft cap	Bolt	M6 P1.0	24	10	1.0	7.2	Tighten in 3-stages
Cylinder (cam chain)	Stud bolt	M6 P1.0	4	5	0.5	3.6	
Cylinder head (Exhaust pipe)	Stud bolt	M6 P1.0	8	10	1.0	7.2	
Cylinder head	Stud bolt	M6 P1.0	4	5	0.5	3.6	
Cylinder	Nut	M8 P1.25	1	20	2.0	14	
Cylinder	Nut	M6 P1.0	1	10	1.0	7.2	
Cylinder head	Cap nut	M8 P1.25	12	22	2.2	16	
Spark plug		M12 P1.25	4	17.5	1.75	13	
Cylinder head cover	Bolt	M6 P1.0	12	10	1.0	7.2	
Cylinder	Stud bolt	M8 P1.25	1	15	1.5	11	
Cylinder— crank case	Nut	M8 P1.25	1	20	2.0	14	
Connecting rod — rod cap	Nut	M7 P0.75	8	25	2.5	18	
Camshaft — sprocket	Bolt	M7 P1.0	4	24	2.4	17	
Cam chain tensioner stopper bolt	Bolt	M8 P1.0	1	8	0.8	5.7	
Cam chain tensioner case — cylinder	Bolt	M6 P1.0	1	10	1.0	7.2	
Cam chain tensioner case — cylinder	Nut	M6 P1.0	1	10	1.0	7.2	
Cam chain tensioner lock nut	Nut	M8 P1.25	1	9	0.9	6.5	
Crankcase	Plug	M10 P1.25	1	10	1.0	7.2	
Rotor housing and pump cover	Screw	M6 P1.0	1	7	0.7	5.1	
Oil pump ass'y — crankcase	Screw	M6 P1.0	3	7	0.7	5.1	
Strainer housing — crankcase	Bolt	M6 P1.0	2	10	1.0	7.2	
Strainer cover — crankcase	Bolt	M6 P1.0	12	10	1.0	7.2	
Filter cover — crankcase	Union bolt	M20 P1.5	1	15	1.5	11	
Drain bolt	Plug	M14 P1.5	1	43	4.3	31	
Carburetor joint — cylinder head	Bolt	M6 P1.0	8	10	1.0	7.2	
Air filter cover	Screw	M5 P0.8	4	5	0.5	3.6	
Air filter	Bolt	M6 P1.0	3	7	0.7	5.1	
Exhaust pipe — cylinder head	Nut	M6 P1.0	8	10	1.0	7.2	
Exhaust pipe joint	Bolt	M8 P1.25	6	20	2.0	14	
Muffler	Bolt	M10 P1.25	2	25	2.5	18	
Adaptor plate — crankcase	Union bolt	M20 P1.5	1	50	5.0	36	
Oil cooler — hose	Nut	M18 P	2	32	3.2	23	
Adaptor plate — hose	Bolt	M6 P1.0	4	12	1.2	8.6	
Oil cooler — frame	Bolt	M6 P1.0	2	10	1.0	7.2	
Hose clamp	Bolt	M6 P1.0	1	12	1.2	8.6	
Hose clamp — engine	Nut	M6 P1.0	2	10	1.0	7.2	

MAINTENANCE SPECIFICATIONS

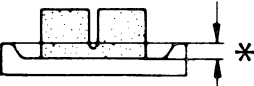
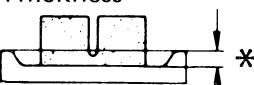


Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Crankcase	Stud bolt	M8 P1.25	12	13	1.3	9.4	
Crankcase (upper – lower)	Bolt	M8 P1.25	11	24	2.4	17	
Crankcase (upper – lower)	Bolt	M6 P1.0	23	12	1.2	8.7	
Generator cover – crankcase	Bolt	M6 P1.0	3	10	1.0	7.2	
Bearing cover plate (crankcase right)	Screw	M6 P1.0	4	8	0.8	5.7	
Bearing cover plate (crankcase left)	Screw	M6 P1.0	4	8	0.8	5.7	
Clutch cable holder	Screw	M6 P1.0	1	10	1.0	7.2	
Crankcase cover	Bolt	M6 P1.0	13	10	1.0	7.2	
Crankcase (Main gallery blind plug)	Plug	M20 P1.5	2	12	1.2	8.7	
Clutch pressure plate	Bolt	M6 P1.0	5	8	0.8	5.8	
Clutch boss	Nut	M20 P1.0	1	70	7.0	50	Use lock washer
Drive sprocket	Bolt	M6 P1.0	2	10	1.0	7.2	Use lock washer
Stopper plate	Screw	M5 P0.8	1	7	0.7	5.1	
Cam segment	Bolt	M6 P1.0	1	10	1.0	7.2	
Change pedal	Bolt	M6 P1.0	1	10	1.0	7.2	
A.C. generator	Bolt	M10 P1.25	1	35	3.5	25	
A.C. generator (brush)	Screw	M6 P1.0	2	8	0.8	5.8	
Pick up coil base	Screw	M6 P1.0	2	8	0.8	5.8	
Timing plate	Screw	M8 P1.25	1	24	2.4	17	
Starter motor	Bolt	M6 P1.0	2	10	1.0	7.2	
Neutral switch	Screw	M5 P0.8	3	3.5	0.35	2.5	
Oil level gauge switch	Bolt	M6 P1.0	2	7	0.7	5.1	
Relief valve – crankcase	–		1	20	2.0	14	
HI-VO chain tensioner	Bolt	M6 P1.0	2	10	1.0	7.2	
Primary drive gear	Nut	M16 P	1	50	5.0	36	
Bearing cover plate	Screw	M6 P1.0	2	10	1.0	7.2	
Starter clutch	Bolt	M8 P1.25	3	25	2.5	18	
Shift shaft stopper	Screw	M8 P1.25	1	22	2.2	16	
Shift cam bearing plate	Screw	M6 P1.0	1	10	1.0	7.2	


Chassis

Model		FJ600N/FJ600NC				
Item						
Steering System:						
Steering Bearing Type		Ball Bearing				
No./Size of Steel Balls:	Upper	19 pcs/1/4 in				
	Lower	19 pcs/1/4 in				
Front Suspension:						
Front Fork Travel		150 mm (5.90 in)				
Fork Spring Free Length		472 mm (18.6 in)				
<Limit>		467 mm (18.4 in)				
Spring Rate/Stroke		K ₁ = 3.53 N/mm (0.36 kg/mm, 20.2 lb/in)/ 0 ~ 80 mm (0 ~ 3.2 in)				
		K ₂ = 5.30 N/mm (0.54 kg/mm, 30.2 lb/in)/ 80 ~ 150 mm (3.2 ~ 5.9 in)				
Optional Spring		No				
Oil Capacity		287 cm ³ (10.1 Imp oz, 9.7 US oz)				
Oil Grade		Yamaha Fork Oil 10 wt or equivalent				
Enclosed Air Pressure		39.2 kPa (0.4 kg/cm ² , 5.7 psi)				
<Minimum ~ Maximum>		Zero ~ 78.5 kPa (Zero ~ 0.8 kg/cm ² , zero ~ 11 psi)				
Rear Suspension:						
Shock Absorber Travel		40 mm (1.57 in)				
Spring Free Length		184 mm (7.24 in)				
<Limit>		182 mm (7.16 in)				
Spring Rate/Stroke		K ₁ = 108 N/mm (11 kg/mm, 616 lb/in)/ 0 ~ 40 mm (0 ~ 1.57 in)				
Optional Spring		No				
Adjustment	Spring Position	<div>← Stiffer</div> <div>5 4 3 2 1</div> <div>Std. Softer</div>				
Rear Arm:						
Swingarm Free Play Limit:	End	1.0 mm (0.04 in)				
	Side	1.0 mm (0.04 in)				
Wheel:						
Front Wheel Type		Cast Wheel				
Rear Wheel Type		Cast Wheel				
Front Rim Size/Material		MT2.15 x 18/Aluminum				
Rear Rim Size/Material		MT2.50 x 18/Aluminum				
Rim Runout Limit	Radial	2.0 mm (0.08 in)				
	Lateral	2.0 mm (0.08 in)				
Drive Chain:						
Type/Manufacturer		50HDL2/DAIDO				
No. of Links		106				
Chain Free Play		20 ~ 30 mm (0.8 ~ 1.2 in)				



Model		FJ600N/FJ600NC
Item		
Front Disc Brake: Type Outside Dia. x Thickness <Limit> Pad Thickness:  Master Cylinder Inside Dia. Caliper Cylinder Inside Dia. Brake Fluid Type	Inner <Limit> * Outer <Limit> *	Dual disc 267 x 5 mm (10.5 x 0.2 in) 4 mm (0.16 in) 5.5 mm (0.22 in) 0.5 mm (0.02 in) 5.5 mm (0.22 in) 0.5 mm (0.02 in) 15.87 mm (0.625 in) 42.8 mm (1.69 in) DOT #3
Rear Disc Brake: Type Disc Outside Dia. x Thickness <Limit> Pad Thickness:  Master Cylinder Inside Dia. Caliper Cylinder Inside Dia. Brake Fluid Type	Inner <Limit> * Outer <Limit> *	Single disc 267 x 5 mm (10.5 x 0.2 in) 4 mm (0.16 in) 5.5 mm (0.22 in) 0.5 mm (0.02 in) 5.5 mm (0.22 in) 0.5 mm (0.02 in) 14 mm (0.55 in) 38.1 mm (1.50 in) DOT #3
Brake Lever & Brake Pedal: Brake Lever Free Play Brake Pedal Free Play Brake Pedal Position		5 ~ 8 mm (0.2 ~ 0.3 in) 20 ~ 30 mm (0.8 ~ 0.12 in) 30 mm (1.2 in) (Vertical height below footrest top)
Clutch Lever Free Play:		2 ~ 3 mm (0.08 ~ 0.12 in)

Recommended combinations of the front fork and the rear shock absorber settings.

Use this table as a guide for specific riding and motorcycle load conditions.

	Front fork	Rear shock absorber	Loading condition			
	Air pressure	Spring preload adjuster	Solo rider	With passenger	With accessories equipment	With accessory equipment and passenger
1	39.2 ~ 58.9 kPa (0.4 ~ 0.6 kg/cm ² , 5.7 ~ 8.5 psi)	1 ~ 2	○			
2	39.2 ~ 58.9 kPa (0.4 ~ 0.6 kg/cm ² , 5.7 ~ 8.5 psi)	3 ~ 5		○		
3	58.9 ~ 78.5 kPa (0.6 ~ 0.8 kg/cm ² , 8.5 ~ 11 psi)	3 ~ 5			○	
4	78.5 kPa (0.8 kg/cm ² , 11 psi)	5				○

Tightening Torque (Chassis):

Part to be tightened		Part name	Thread size	Q'ty	Tightening torque			Remarks
					Nm	m·kg	ft·lb	
Engine Mounting Bolt	Front, upper	Nut	M10 P1.25	1	42	4.2	30	
	Front, under	Bolt	M10 P1.25	2	42	4.2	30	
	Rear	Nut	M12 P1.25	1	90	9.0	65	
Engine Mounting Stay	Front	Bolt	M8 P1.25	4	32	3.2	14	
Steering crown — Steering shaft		Bolt	M14 P1.25	1	54	5.4	39	
Steering crown — Inner tube		Cap nut	M8 P1.25	1	20	2.0	14	
Steering crown — Handlebar		Bolt	M12 P1.25	2	70	7.0	51	
Underbracket — Inner tube		Bolt	M12 P1.25	2	37	3.7	27	
Front fork cap bolt				2	23	2.3	17	
Front wheel axle			M14 P1.5	1	105	10.5	75	
Front wheel Axle pinch bolt			M8 P1.25	1	20	2.0	14	
Pivot shaft		Nut	M14 P1.5	1	90	9.0	85	
Rear wheel axle		Castle nut	M14 P1.5	1	105	10.5	75	
Sprocket wheel		Nut	M8 P1.25	6	32	3.2	23	Use lock washer
Rear shock absorber (Upper)		Cap nut	M10 P1.25	1	40	4.0	29	
Footrest		Bolt	M10 P1.25	2	64	6.4	46	
Brake disc — Hub		Bolt	M8 P1.25	12	20	2.0	14	
Master cylinder — Brake hose (Front)		Union bolt	M10 P1.25	1	26	2.6	19	
Brake hose — Joint		Union bolt	M10 P1.25	1	26	2.6	19	
Caliper — Brake hose		Union bolt	M10 P1.25	1	26	2.6	19	
Caliper bleed screw			M8 P1.25	1	6	0.6	4.3	
Front fender		Bolt	M8 P1.25	4	10	1.0	7.2	
Master cylinder cap		Screw	M5 P0.8	2	1.8	0.18	1.3	
Muffler bracket — Frame		Bolt	M8 P1.25	2	20	2.0	14	
Master cylinder — Master cylinder bracket		Bolt	M6 P1.0	2	8.5	0.85	6.1	
Steering shaft — Ring nut		Nut	M25 P1.0	1	54	5.4	39	
Sender — Fuel tank		Bolt	M5 P0.8	4	4.3	0.43	2.4	
Relay Arm — Frame		Bolt	M14 P1.25	1	65	6.5	47	
Relay Arm — Arm 1 & 2		Bolt	M12 P1.25	1	65	6.5	47	
Arm 1 — 2		Bolt	M12 P1.25	2	20	2.0	14	
Rear Arm — Arm 1 & 2		Bolt	M10 P1.25	2	40	4.0	29	
Caliper		Bolt	M10 P1.25	2	35	3.5	25	



Electrical

Item	Model
	FJ600N/FJ600NC
Voltage:	12V
Ignition System:	
Ignition Timing (B.T.D.C.)	$10^{\circ} \pm 1^{\circ}$ at 1,200 r/min
Advanced Timing (B.T.D.C.)	$36^{\circ} \pm 2^{\circ}$ at 8,500 r/min
Advancer Type	Electrical
<p>Ignition Timing (B.T.D.C.)</p> <p>Engine Speed ($\times 10^3$ r/min)</p> <p>10° ± 1.0° at 1,200 r/min</p> <p>36° ± 2° at 8,500 r/min</p> <p>35.2° at 10,000 r/min</p> <p>30.5° ± 2° at 3,100 r/min</p> <p>2,450 ± 300 r/min at 27°</p> <p>1,700 ± 250 r/min at 12°</p>	
TCI:	
Pickup Coil Resistance (Color)	$120\Omega \pm 20\%$ at 20°C (68°F) (Black – Gray) (Black – Orange)
TCI Unit—Manufacturer	TID14-31/HITACHI
Ignition Coil:	
Model/Manufacturer	CM12-23/HITACHI
Minimum Spark Gap	6 mm (0.24 in) or more at 500 r/min
Primary Winding Resistance	$2.7\Omega \pm 10\%$ at 20°C (68°F)
Secondary Winding Resistance	$12\text{ k}\Omega \pm 20\%$ at 20°C (68°F)
Spark Plug Cap Resistance	10 k Ω
Charging System:	
Type	A.C. Generator
A.C. Generator:	
Model/Manufacturer	LD117-03/HITACHI
Nominal Output	14V, 17A \pm 5,000 r/min
<p>Output Current (A)</p> <p>Engine Speed ($\times 10^3$ r/min)</p>	
Field Coil Resistance (Color)	$3\Omega \pm 10\%$ at 20°C (68°F) (Brown – Green)
Starter Coil Resistance (Color)	$0.55\Omega \pm 10\%$ at 20°C (68°F) (White – White)



<div>Model</div> <div>Item</div>	<div>FJ600N/FJ600NC</div>
Brush — Overall Length < Limit> — Spring Force	17 mm (0.67 in) 10 mm (0.39 in) 170 ~ 380 gr (5.996 ~ 13.403 oz)
Voltage Regulator: Type Model/Manufacturer No Load Regulated Voltage	Field control SH233-12/SHINDENGEN 14.2 ~ 14.8V
Rectifier: Model/Manufacturer Capacity Withstand Voltage	SH233-12/SHINDENGEN 15A 300V
Battery: Capacity Specific Gravity	12V 12AH 1.280
Electric Starter System: Type Starter Motor: Model/Manufacturer Output Armature Coil Resistance Brush — Overall Length — < Limit> — Spring Force Commutator Dia. Wear Limit Mica Undercut Starter Relay: Model/Manufacturer Amperage Rating	Constant mesh type SM8204/MITSUBA 0.5 kW $0.012\Omega \pm 10\%$ at 20°C (68°F) 12 mm (0.47 in) 5 mm (0.20 in) 340 ~ 460 g (12.0 ~ 16.2 oz) 28 mm (1.10 in) 27 mm (1.06 in) 0.8 mm (0.031 in) 22U-00/HITACHI 100A
Horn: Type/Quantity Model/Manufacturer Maximum Amperage	Plane type x 2 CF-12/NIKKO 2.5A
Flasher Relay (Relay Assembly): Type Model/Manufacturer Self Cancelling Device Flasher Frequency Wattage	Semi transistor type FX257N/ND Yes 85 ± 10 cycle/min 27W x 2 pcs + 3.4W
Sidestand Relay: Model/Manufacturer Coil Winding Resistance Diode	4U8-01/OMRON $75\Omega \pm 10\%$ at 20°C (68°F) No
Starting Circuit Cut-off Relay (Relay Assembly): Model/Manufacturer Diode	FX275N/ND No

MAINTENANCE SPECIFICATIONS

APPX



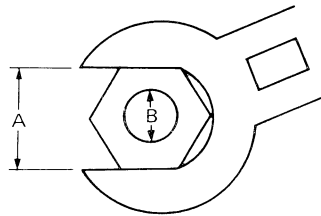
Item \ Model	FJ600N/FJ600NC
Oil Level Switch: Model/Manufacturer	4U8-00/ND
Fuel Gauge: Model/Manufacturer Sender Unit Resistance Full Empty	33M/NIPPON SEIKI 7Ω ± 5% at 20°C (68°F) 95Ω ± 7.5% at 20°C (68°F)
Circuit Breaker: Type Amperage for individual Circuit x Quantity: MAIN HEADLIGHT SIGNAL IGNITION RESERVE	Fuse 30A x 1 20A x 1 10A x 1 10A x 1 30A x 1, 20A x 1



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	millimeter	10^{-3} meter	Length
cm	Centimeter	10^{-2} meter	Length
kg	kilogram	10^3 gram	Weight
N	Newton	$1 \text{ kg} \times \text{m}/\text{sec}^2$	Force
Nm	Newton meter	$\text{N} \times \text{m}$	Torque
m·kg	Meter kilogram	$\text{m} \times \text{kg}$	Torque
Pa	Pascal	N/m^2	Pressure
N/mm	Newton per millimeter	N/mm	Spring rate
L	Liter		Volume or Capacity
cm^3	Cubic centimeter		
r/min	Rotation per minute		Engine Speed



CONVERSION TABLES

Metric to inch system		
Known	Multiplier	Result
m·kg	7.233	ft·lb
m·kg	86.80	in·lb
cm·kg	0.0723	ft·lb
cm·kg	0.8680	in·lb
kg	2.205	lb
g	0.03527	oz
km/lit	2.352	mpg
km/hr	0.6214	mph
km	0.6214	mi
m	3.281	ft
m	1.094	yd
cm	0.3937	in
mm	0.03937	in
cc (cm ³)	0.03382	oz (US liq)
cc (cm ³)	0.06102	cu in
lit (liter)	2.1134	pt (US liq)
lit (liter)	1.057	qt (US liq)
lit (liter)	0.2642	gal (US liq)
kg/mm	56.007	lb/in
kg/cm	14.2234	psi (lb/in)
centigrade (°C)	9/5 (°C) + 32	Fahrenheit (°F)

Inch to metric system		
Known	Multiplier	Result
ft·lb	0.13826	m·kg
in·lb	0.01152	m·kg
ft·lb	13.831	cm·kg
in·lb	1.1521	cm·kg
lb	0.4535	kg
oz	28.352	g
mpg	0.4252	km/lit
mph	1.609	km/hr
mi	1.609	km
ft	0.3048	m
yd	0.9141	m
in	2.54	cm
in	25.4	mm
oz (US liq)	29.57	cc (cm ³)
cu in	16.387	cc (cm ³)
pt (US liq)	0.4732	lit (liter)
qt (US liq)	0.9461	lit (liter)
gal (US liq)	3.785	lit (liter)
lb/in	0.017855	kg/mm
psi (lb/in)	0.07031	kg/cm
Fahrenheit (°F)	5/9 (°F) – 32	Centigrade (°C)



CONSUMER INFORMATION

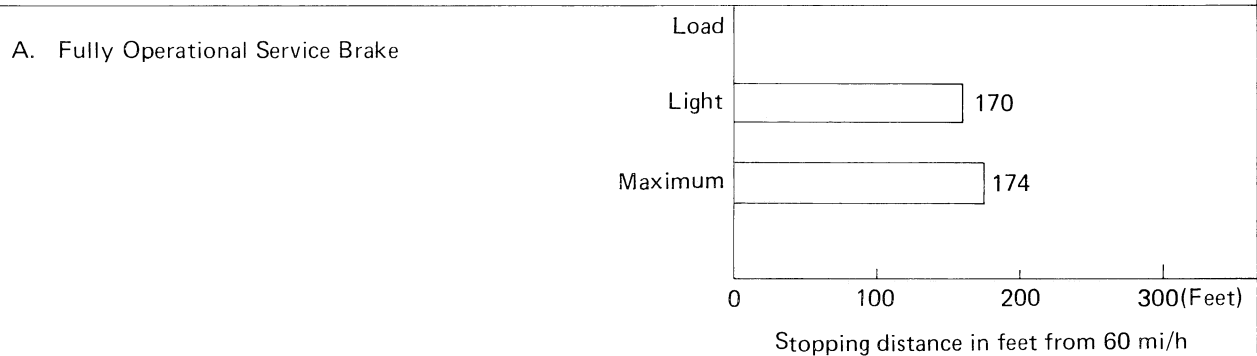
NOTICE

The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

STOPPING DISTANCE

These figures indicate braking performance that can be met or exceeded by the vehicles to which they apply, without locking the wheels, under different conditions of loading and with partial failures of the braking system. The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions and the information may not be correct under other conditions.

Description of vehicles to which this table applies: Yamaha motorcycle FJ600N/FJ600NS



NOTE: _____

The statement above is required by U.S. Federal law.

"Partial failures" of the braking system do not apply to this chart.



YAMAHA MOTOR CO.,LTD.

IWATA, JAPAN

PRINTED IN U.S.A.



YAMAHA

FJ600L FJ600LC

Service Manual

Being a Yamaha owner, you obviously prefer a quality product.

gēn·ū·īne

adj. 1. Real 2. Authentic,
not artificial 3. Yamaha.

GENUINE **YAMAHA** PARTS & ACCESSORIES

Don't compromise the quality and performance of your Yamaha with off-brand alternatives. You'll be getting exactly what you're paying for.

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.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

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.

**OVERSEAS SERVICE
OVERSEAS OPERATIONS
YAMAHA MOTO 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

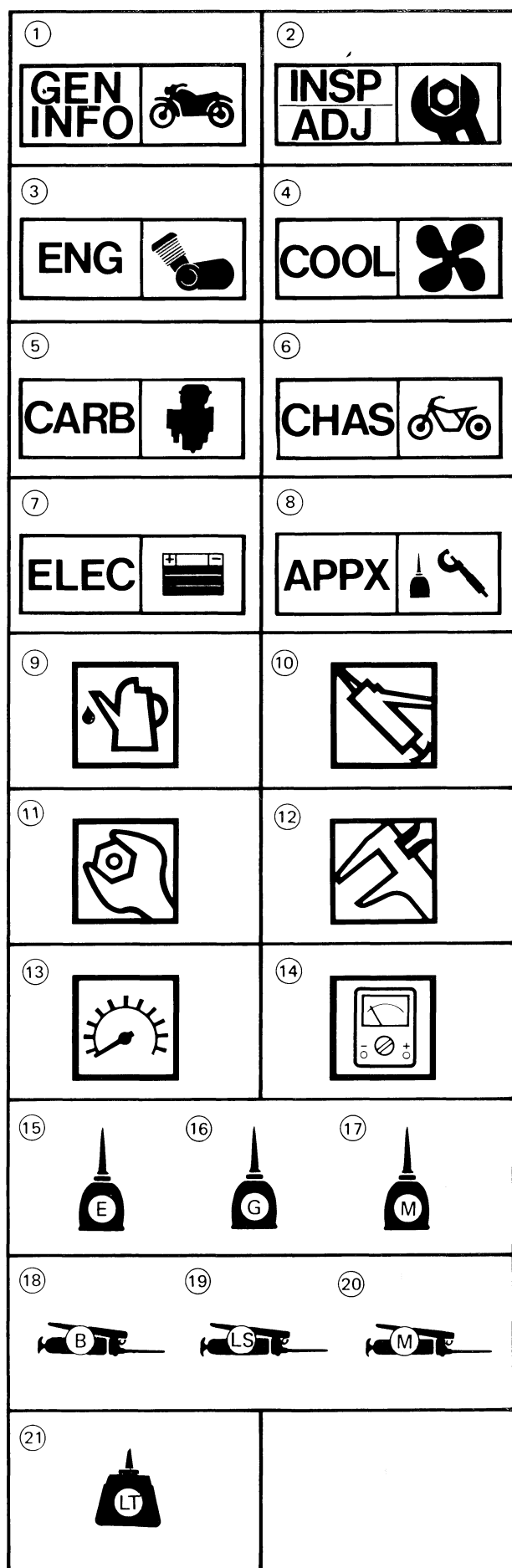
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

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.



SYMBOL MARKS (Refer to the illustration)

Symbol marks ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.

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








Symbol marks ⑨ to ⑭ are used to identify the specifications appearing in the text.

- ⑨ Filling fluid
- ⑩ Lubricant
- ⑪ Tightening
- ⑫ Wear limit, clearance
- ⑬ Engine speed
- ⑭ Ω , V, A

Symbol marks ⑮ to ㉑ in the exploded diagram indicate grade of lubricant and location of lubrication point.

- ⑮ Apply engine oil
- ⑯ Apply gear oil
- ⑰ Apply molybdenum disulfide oil
- ⑱ Apply wheel bearing grease
- ⑲ Apply lightweight lithium-soap base grease
- ㉑ Apply molybdenum disulfide grease
- ㉑ Apply locking agent (LOCTITE[®])

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CHAPTER 1. GENERAL INFORMATION

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GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

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

Vehicle Identification Number:

FJ600L JYA 49A00 * EA000101

FJ600LC ... JYA 51K00 * EA000101

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.

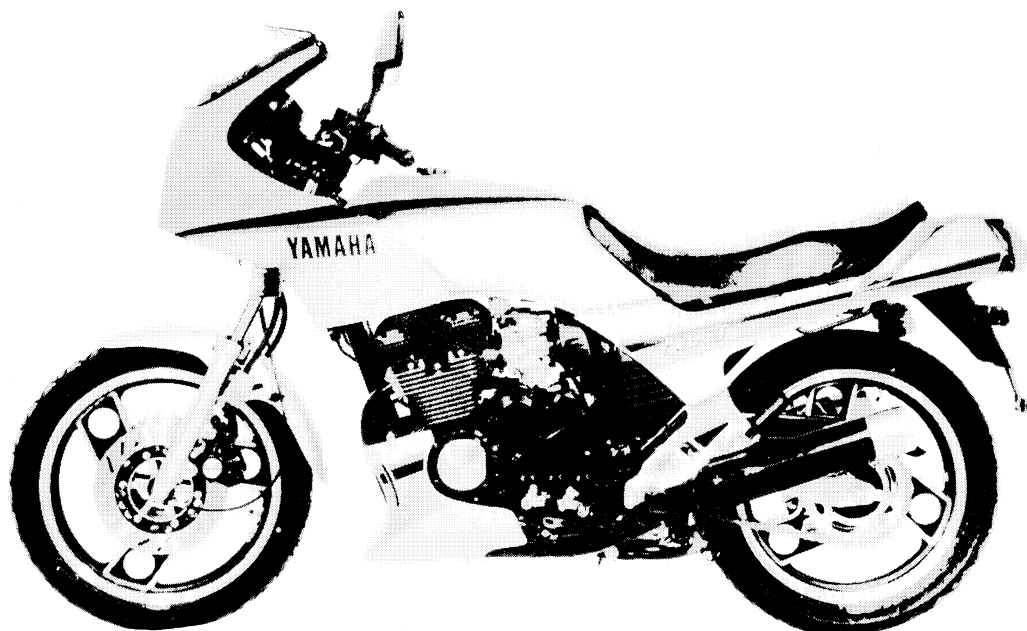
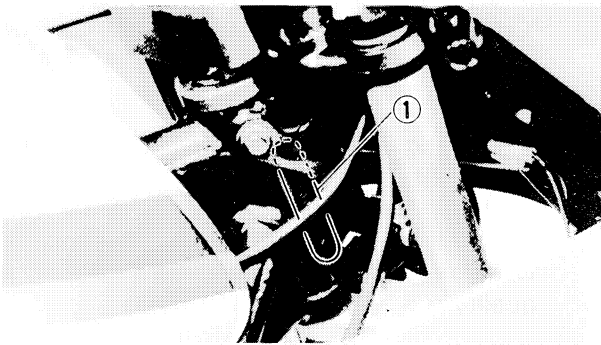
Stating Serial Number:

FJ600L 49A-000101

FJ600LC 51K-000101

NOTE:

Designs and specifications are subject to change without notice.



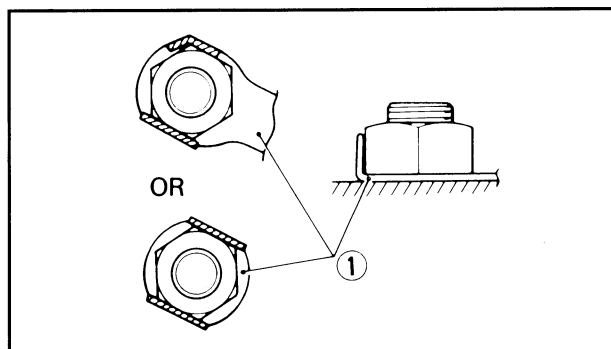
IMPORTANT INFORMATION

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.

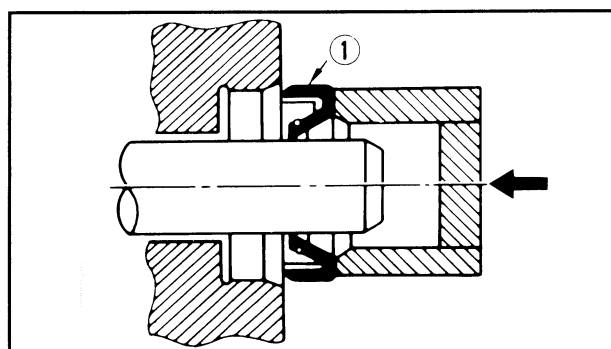
GASKETS, OIL SEALS, AND O-RINGS

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.



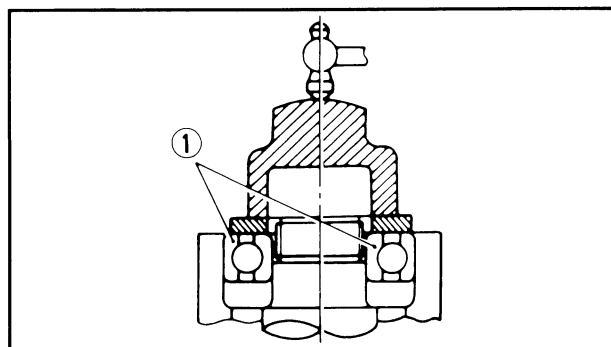
BEARINGS AND OIL SEALS

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:

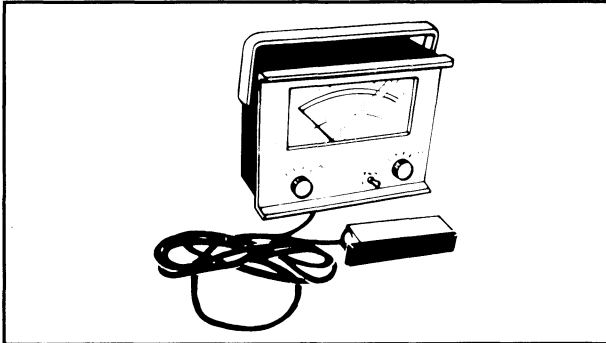
Do not use compressed air to spin the bearings dry. This causes damage to the bearing surfaces.



① Bearing

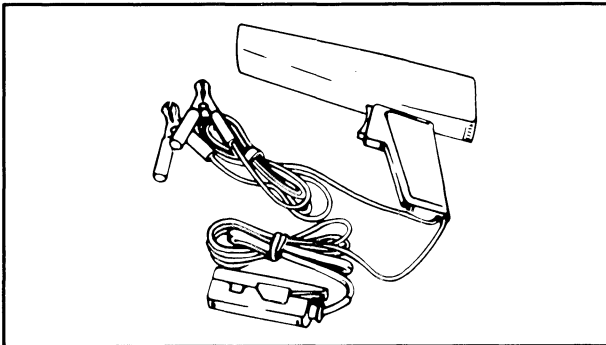
SPECIAL TOOLS

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

**FOR TUNE UP**

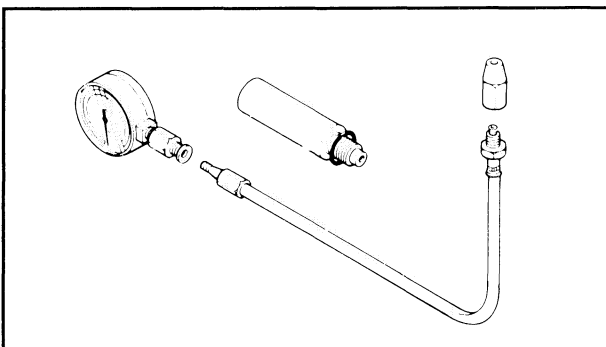
1. Inductive Tachometer
P/N YU-08036

This tool is needed for detecting engine rpm.



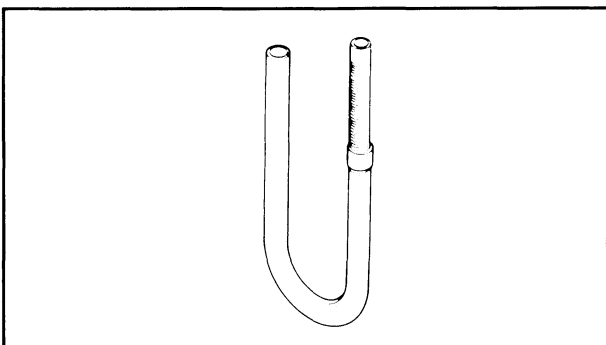
2. Inductive Timing Light
P/N YU-08037

This tool is necessary for adjusting timing.



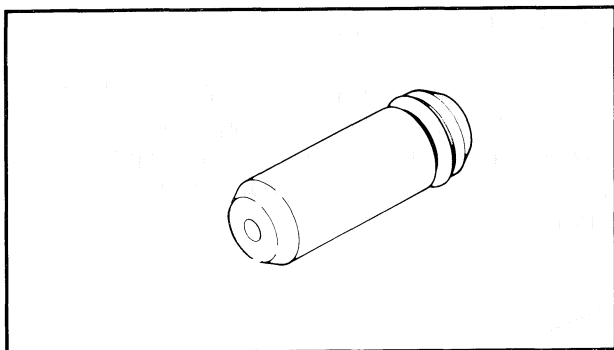
3. Compression Gauge
P/N YU-33223

This gauge is used to measure the engine compression.



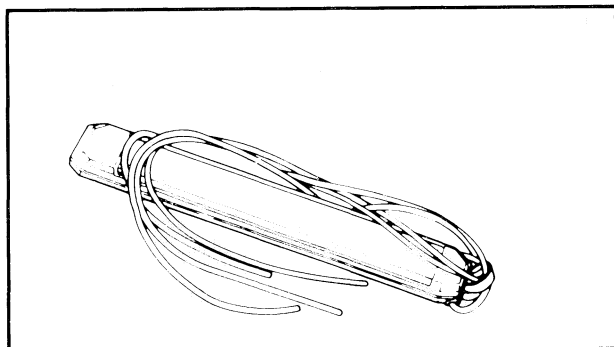
4. Fuel Level Gauge
P/N YM-01312

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



5. Fuel Level Gauge Adapter
P/N YM-01329

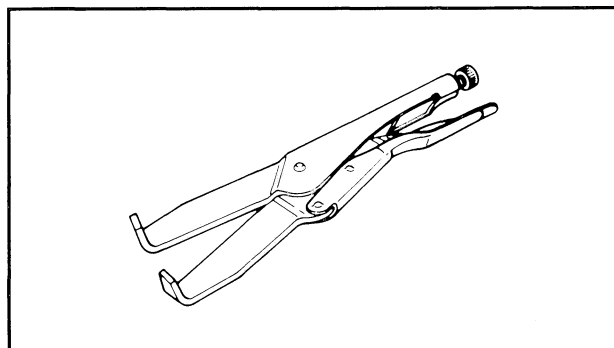
This tool is needed when measuring the carburetor fuel level together with fuel level gauge.



6. Vacuum Gauge
P/N YU-08030

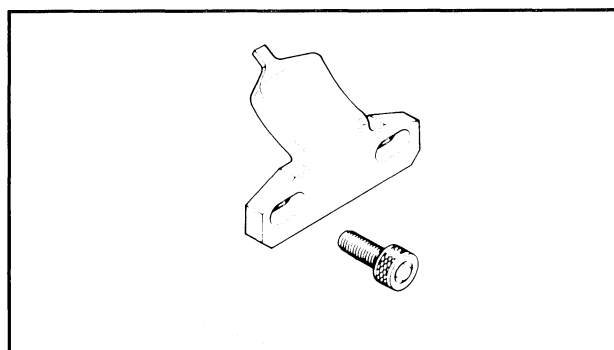
This gauge is needed for carburetor synchronization.

FOR ENGINE SERVICE



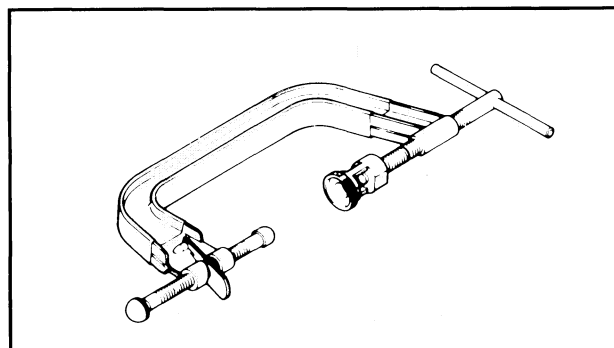
1. Universal Clutch Holder
P/N YM-91042

This tool is used to hold the clutch when removing or installing the clutch boss locknut.



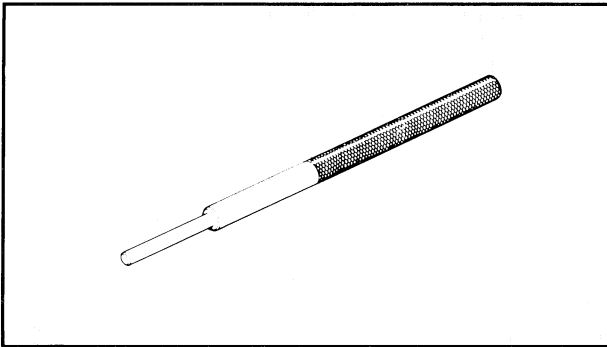
2. Tappet Adjusting Tool
P/N YM-01245

This tool is necessary to replace valve adjusting pads.



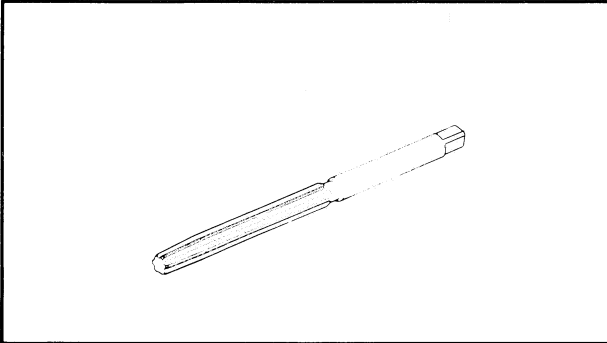
3. Valve Spring Compressor
P/N YM-04019

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



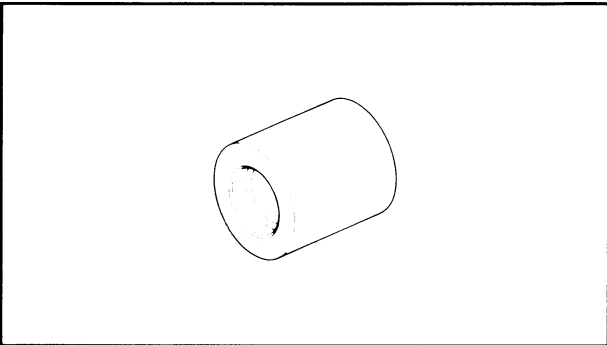
4. Valve Guide Remover
P/N YM-04064

This tool is used to remove the valve guides.



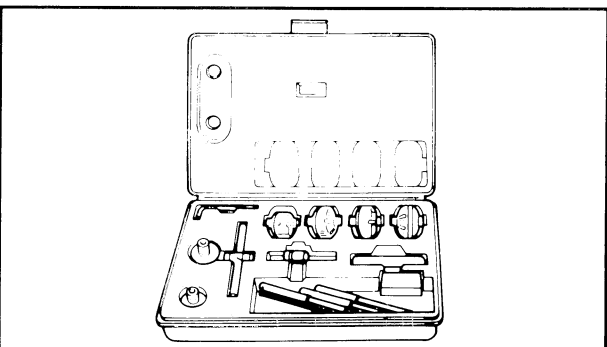
5. Valve Guide Reamer
P/N YM-04066

This tool is used to rebores the new valve guide.



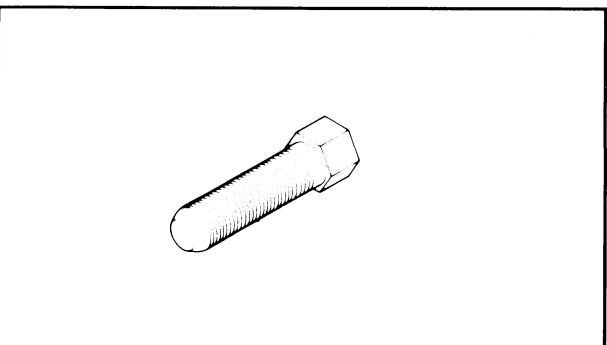
6. Valve Guide Installer
P/N YM-04065

This tool is needed to install the valve guides properly.



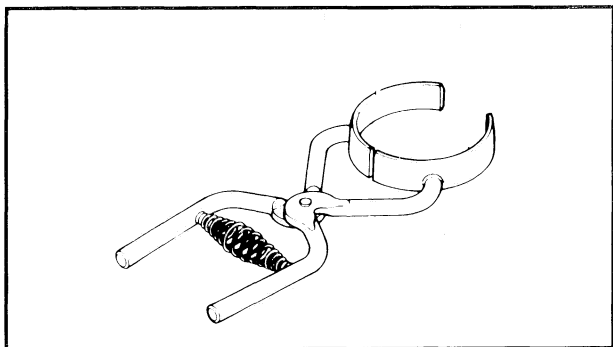
7. Valve Seat Cutter Set
P/N YM-91043

This tool is needed to resurface the valve seat.



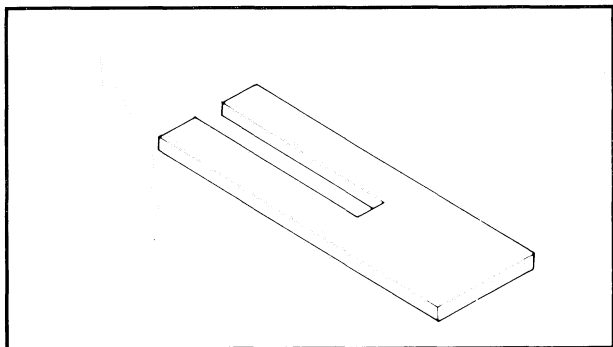
8. Rotor Puller
P/N YM-01080

This tool is needed to remove the A.C. Generator rotor.



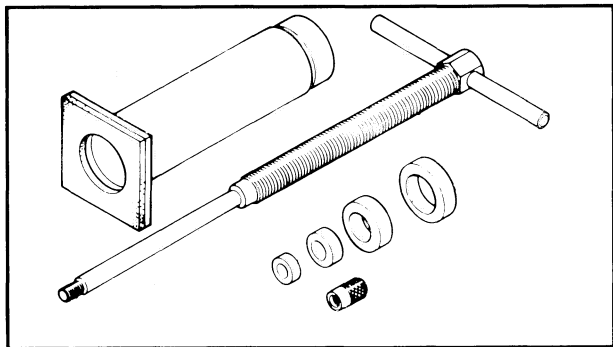
9. Piston Ring Compressor
P/N YM-04047

This tool is used when installing the piston into the cylinder.



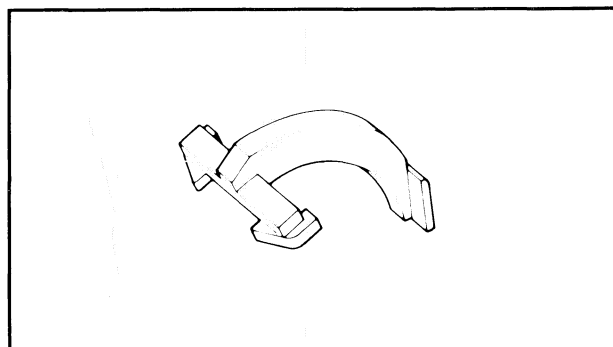
10. Piston Base
P/N YM-01067

Use 4 of these to hold the pistons during cylinder installation.



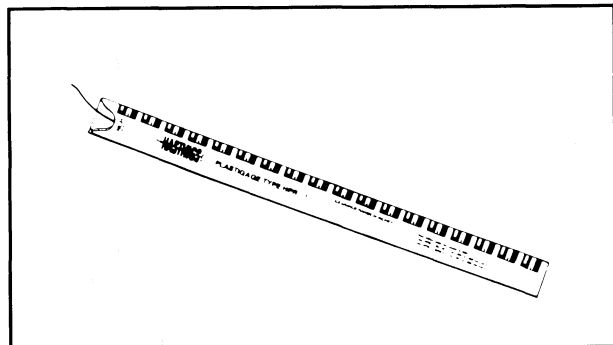
11. Piston Pin Puller
P/N YU-01304

This tool is used to remove the piston pin.



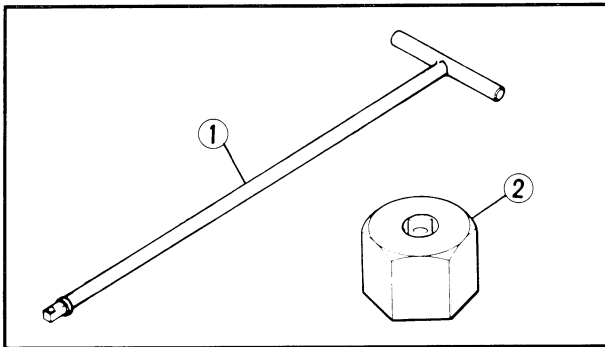
12. Rotor Holding Tool
P/N YM-04067

This tool is used to hold the A.C. Generator rotor during removal and installation.



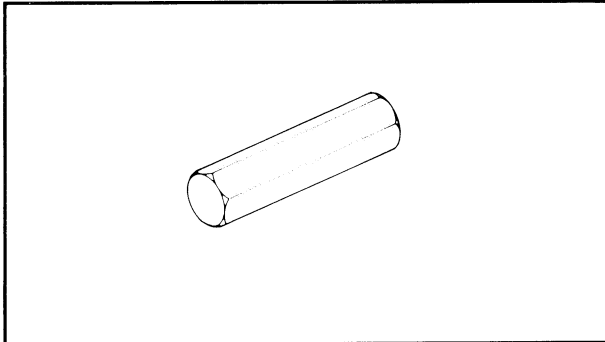
13. Plastigage® Set "Green"
P/N YU-33210

This gauge is needed to measure the clearance for the connecting rod bearing.

**FOR CHASSIS SERVICE**

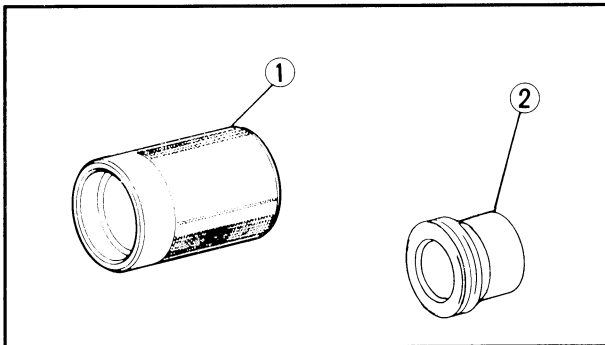
1. T-Handle
P/N YM-01326 ①
Front Fork Cylinder Holder
P/N YM-33298 ②

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



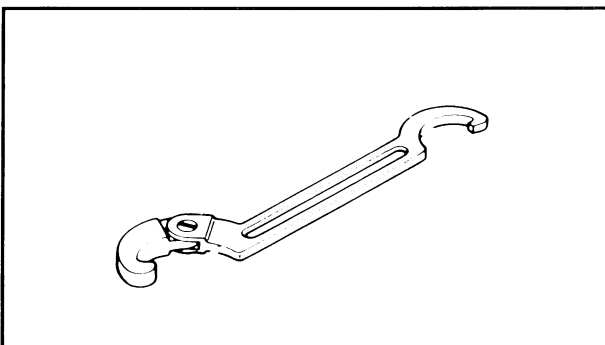
2. Front Fork Cap Socket (17 mm)
P/N YM-01104

This tool is needed when loosening and tightening the front fork cap bolt.



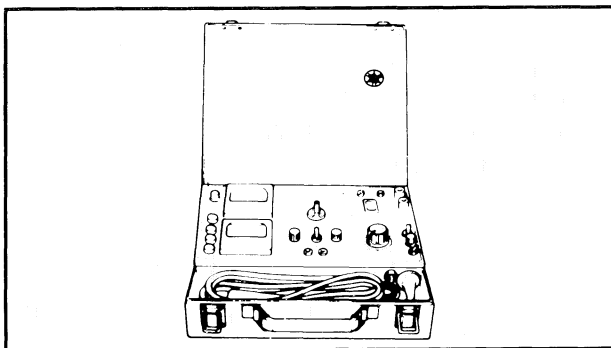
3. Front Fork Seal Driver (Weight)
P/N YM-01367 ①
Adapter
P/N YM-01370 ②

These tools are used when installing the fork seal.



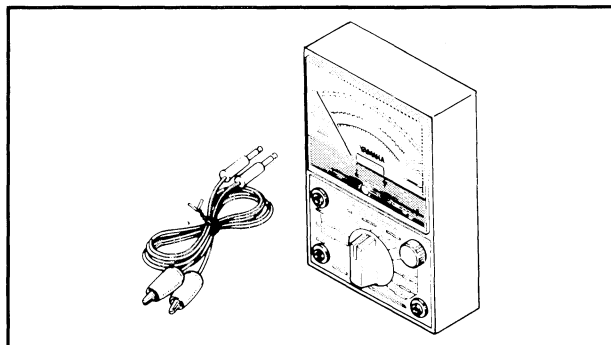
4. Ring Nut Wrench
P/N YU-01268

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

**FOR ELECTRICAL COMPONENTS**

1. Electro Tester
P/N YU-03021

This instrument is necessary for checking the ignition system components.



2. Pocket Tester
P/N YU-03112

This instrument is invaluable for checking the electrical system.

CHAPTER 2. PERIODIC INSPECTIONS AND ADJUSTMENTS

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PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

This chapter includes all information necessary to perform recommended inspections and adjustments. These preventive maintenance procedures, if followed, will ensure more reliable vehicle operation and a longer service life. The

need for costly overhaul work will be greatly reduced. This information applies to vehicles already in service as well as new vehicles that are being prepared for sale. All service technicians should be familiar with this entire chapter.

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

NO.	ITEM	REMARKS	INITIAL	ODOMETER READING					
			1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)	
1*	Cam chain	Adjust chain tension	○	○	○	○	○	○	
2*	Valve clearance	Check and adjust valve clearance when engine is cold.	○		○		○		
3.	Spark plug	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or months).		○	Replace	○	Replace	○	
4*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		○	○	○	○	○	
5*	Fuel line	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		○	○	○	○	○	
6*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○	
7*	Carburetor synchronization	Adjust synchronization of carburetors.	○	○	○	○	○	○	
8*	Idle speed	Check and adjust engine idle Speed. Adjust cable free play.		○	○	○	○	○	

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

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi) **2: Every 12,000 km (7,600 mi) intervals.

GENERAL MAINTENANCE/LUBRICATION

NO.	ITEM	REMARKS	TYPE	INITIAL	ODOMETER READINGS					
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	**3 19,000 km or 19 months (12,000 mi)	25,000 km or 25 months (15,800 mi)	**4 31,000 km or 31 months (19,600 mi)	
1	Engine oil	Warm up engine before draining	Refer to page 2-13	○	○	○	○	○	○	
2	Oil filter	Replace	—	○		○		○		
3*	Air filter	Clean with compressed air. Replace if necessary.	—		○	○	○	○	○	
4*	Brake system	Adjust free play. Replace pads if necessary.	—	○	○	○	○	○	○	
5*	Clutch	Adjust free play.	—	○	○	○	○	○	○	
6	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE 30W-50W motor oil.	Every 500 km (300 mi)						
7*	Control and meter cable	Apply chain lube throughly.	Yamaha chain and cable lube or SAE 10W30 motor oil	○	○	○	○	○	○	
8*	Rear arm pivot shaft	Apply untill new grease shows.	Lithium soap base grease.				Repack			
9*	Rear suspension link pivots	Apply grease lightly.	Lithium soap base grease.				○			
10	Brake/ Clutch lever pivot shaft	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○	
11	Brake pedal and change pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil		○	○	○	○	○	
12*	Center/ side stand pivots	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○	
13*	Front fork oil	Check operation and leakage.	—		○	○	○	○	○	
14*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,000 mi)	Medium weight wheel bearing grease.		○	○	○	Repack	○	
15	Wheel bearings	Check bearings for smooth rotation.	—		○	○	○	○	○	
16	Battery	Check specific gravity and breather pipe for proper operation.	—		○	○	○	○	○	
17*	A.C. Generator	Replace generator brushes.	—			○		○		
18*	Sidestand switch	Check and clean or replace if necessary.	—	○	○	○	○	○	○	

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

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi) **2: Every 12,000 km (7,600 mi), **3: Every 18,000 km (11,400 mi) and **4: Every 24,000 km (15,200 mi) intervals.

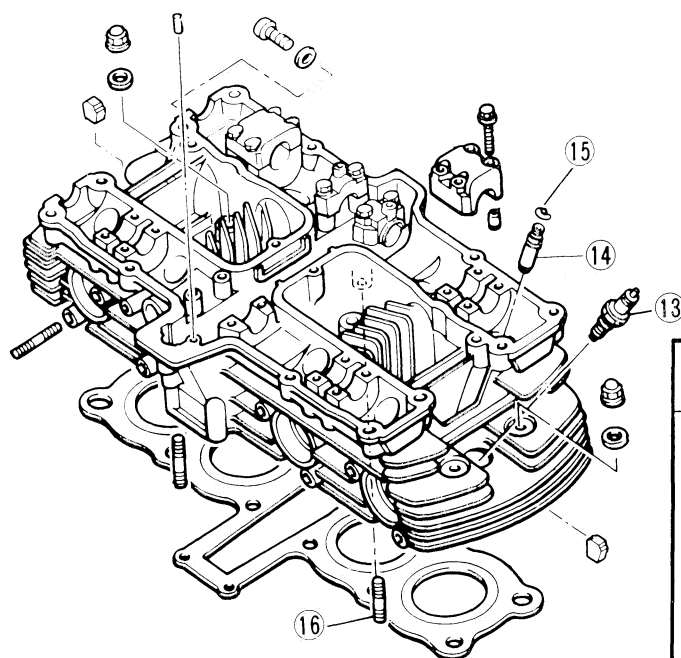
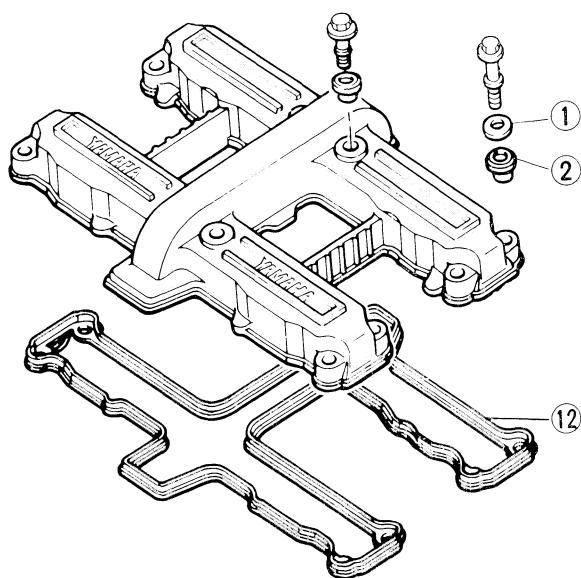
Brake fluid replacement.

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

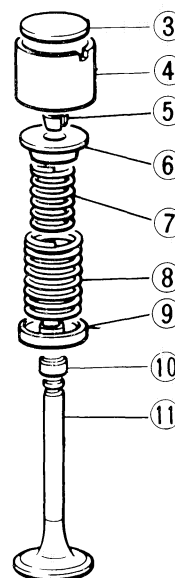
ENGINE

VALVE CLEARANCE ADJUSTMENT

- | | |
|-------------------|-----------------|
| 1. Washer | 9. Spring seat |
| 2. Rubber washer | 10. Oil seal |
| 3. Pad | 11. Valve |
| 4. Valve lifter | 12. Gasket |
| 5. Valve retainer | 13. Spark plug |
| 6. Spring seat | 14. Valve guide |
| 7. Inner spring | 15. Circlip |
| 8. Outer spring | 16. Stud bolt |

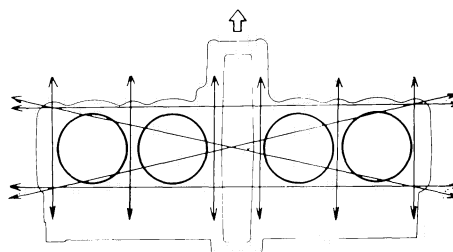


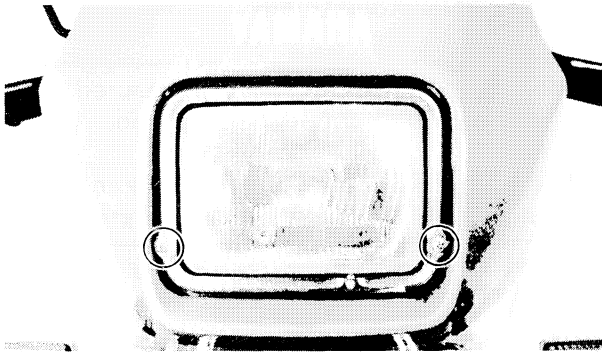
A VALVE CLEARANCE (COLD):		
B Intake:	0.11 ~ 0.15 mm (0.004 ~ 0.006 in)	
C Exhaust:	0.16 ~ 0.20 mm (0.006 ~ 0.008 in)	



D	TYPE/GAP:
	D8EA/NGK X24ES-U/NIPPONDENSO
	0.6 ~ 0.7 mm (0.024 ~ 0.028 in)

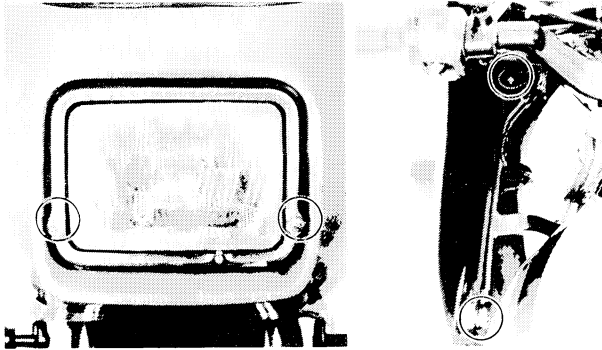
E	CYLINDER HEAD WARP LIMIT: 0.03 mm (0.0012 in)
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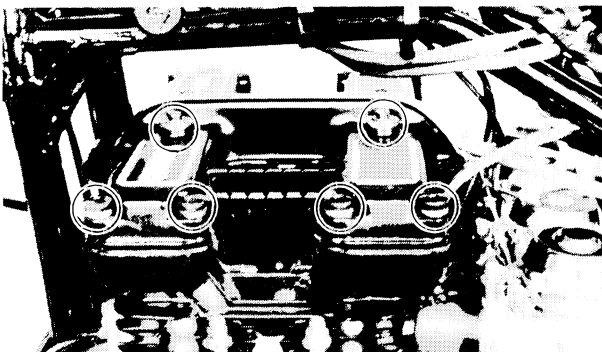
Removal

1. Remove:
 - Headlight unit assembly

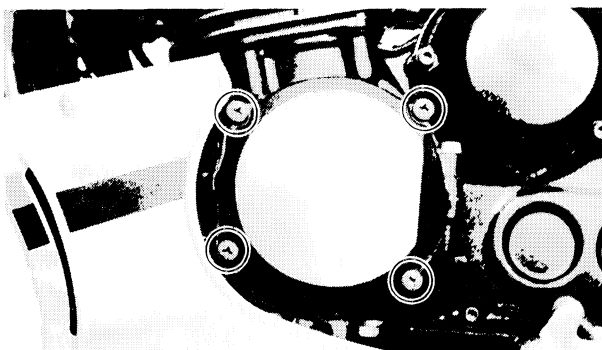


2. Remove:
 - Cowling

3. Remove:
 - Side cover
 - Seat
 - Fuel tank
 - Relay assembly
 - Sidestand relay
 - Spark plug



4. Remove:
 - Cylinder head cover



5. Remove:
 - Left crankcase cover

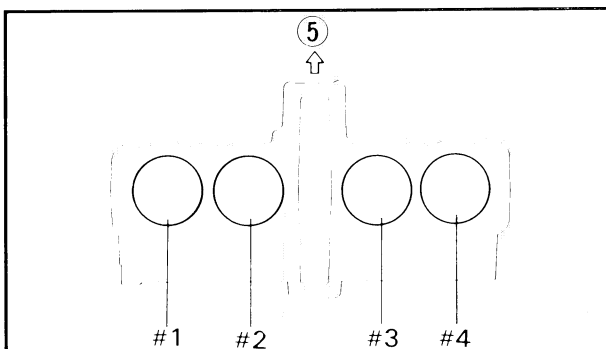
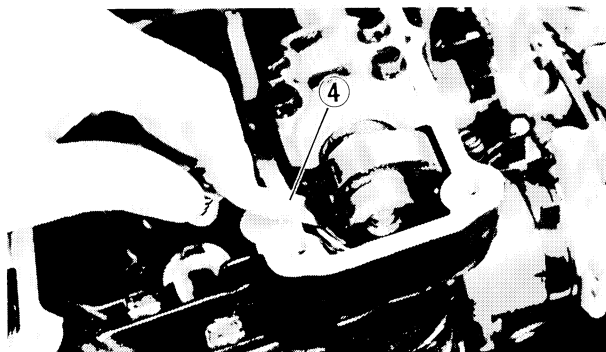
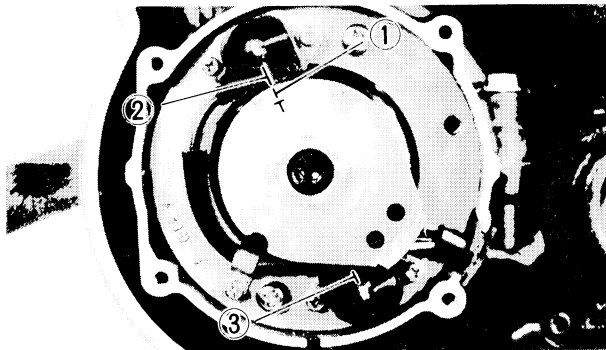
Inspection and Adjustment

NOTE:

- Valve clearance must be measured and adjusted when the engine is cool to the touch.
- Measure and adjust valve clearance when piston is at TDC on compression stroke.

1. Measure:

- Valve clearance



		0°	180°	360°	540°	720°
A						
B	No. 1	⑥				
	No. 2		⑥			
	No. 3				⑥	
	No. 4			⑥		

Valve Clearance Measurement Steps:

- Turn the crankshaft counterclockwise.
- Align the "T" mark ① on the timing plate with the upper pickup coil mark ② when #1 piston is at TDC on compression stroke.
- ③ Lower pickup coil mark.
- Measure the valve clearance using feeler gauge ④.
- Record the measured amount if the clearance is incorrect.



Intake Valve (cold):

0.11 ~ 0.15 mm
(0.004 ~ 0.006 in)

Exhaust Valve (cold):

0.16 ~ 0.20 mm
(0.006 ~ 0.008 in)

- Measure valve clearance, in sequence, for No. 2, 4, and No. 3 cylinders.
Out of specification → Adjust clearance.

Firing Sequence:

1 - 2 - 4 - 3

⑤ Front

No. 2 and 3 cylinders

- Align "T" mark with the lower pickup coil mark.

[A] Crankshaft counterclockwise turning angle.

[B] Cylinder

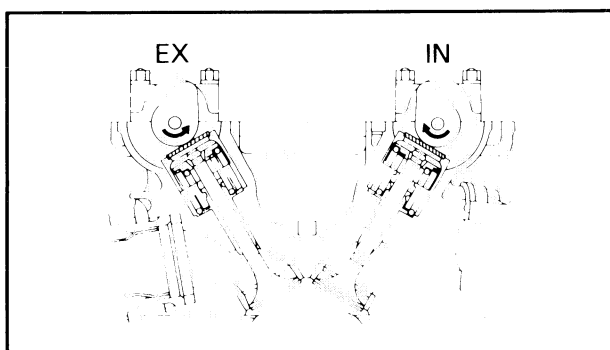
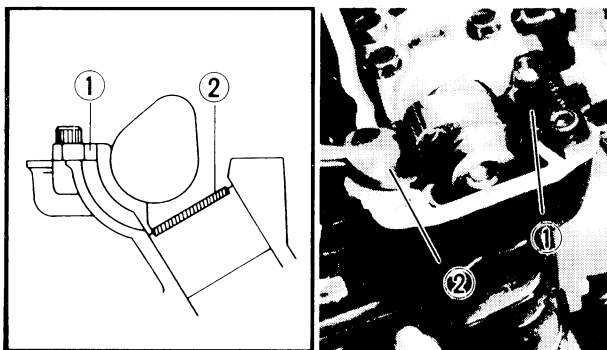
⑥ Combustion

No. 4 cylinder

- Align "T" mark with upper pickup coil mark

2. Adjust:

- Valve clearance



Valve Clearance Adjustment Steps:

- Position the valve lifter slots (intake and exhaust side) facing each other.
- Depress the valve lifter and install the Tappet Adjusting Tool (YM-01245) onto the cylinder head.
- Turn the camshaft until the lobe of the Tappet Adjusting Tool ① depresses the valve lifter.
- Remove the pads ② from the lifter. Use a small screwdriver and a magnetic rod for removal. Note pad numbers.

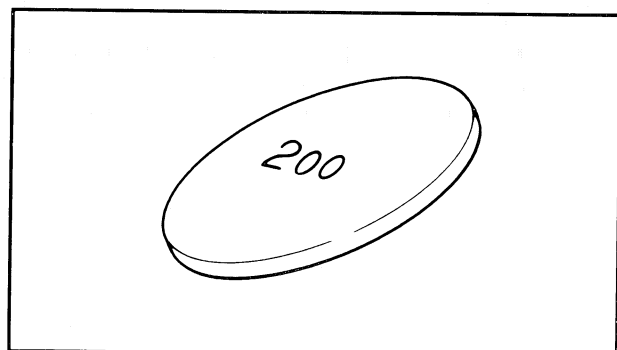
CAUTION:

Turn the camshaft as follows:

(view from left side of the motorcycle)

Intake: Carefully rotate **CLOCKWISE**.

Exhaust: Carefully rotate **COUNTER-CLOCKWISE**.



- Select the proper valve adjusting pad from the chart below:

Pad range		Pad Availability: 25 increments
No. 200 ~	200 mm (0.079 in)	Pads stepped in 0.05 mm (0.002 in) increments
No. 320	320 mm (0.130 in)	

NOTE:

The thickness of each pads is marked on the pad face that contacts the valve lifter (not the cam)

- Round off the hundredths digit of the original pad number to the nearest 0.05 mm increment.

Hundredths digit	Rounded valve
0 or 2	0
5	(NOT ROUNDED OFF)
8	10

EXAMPLE:

Original pad number = 258 (2.58 mm)

Rounded off digit = 260

NOTE:

Pads can only be selected in 0.05 mm (0.002 in) increments.

- Locate the "Installed Pad Number" on the chart, and then find the measured valve clearance. The point where these coordinates intersect is the new pad number.

NOTE:

Use the new pad number as a guide only as the number must be verified.

Pad Number Verification Steps:

- Install the new pad with the number down.
- Remove the adjusting tool.
- Recheck the valve clearance.
- If the clearance is incorrect, repeat all of the clearance adjustment steps until the proper clearance is obtained.

3. Assembly

Reverse removal steps.

Note the Following Assembly Step:

- Install head cover


Head Cover Bolt:

10 Nm (1.0 m·kg, 7.2 ft·lb)

VALVE CLEARANCE ADJUSTMENT



INTAKE

[B] MEASURED CLEARANCE	[A] INSTALLED PAD NUMBER																											
	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320			
0.00 ~ 0.05			200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
0.06 ~ 0.10		200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320		
0.11 ~ 0.15																												
0.16 ~ 0.20	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320				
0.21 ~ 0.25	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
0.26 ~ 0.30	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320						
0.31 ~ 0.35	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320							
0.36 ~ 0.40	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320								
0.41 ~ 0.45	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320									
0.46 ~ 0.50	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320										
0.51 ~ 0.55	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320											
0.56 ~ 0.60	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320												
0.61 ~ 0.65	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320													
0.66 ~ 0.70	255	260	265	270	275	280	285	290	295	300	305	310	315	320														
0.71 ~ 0.75	260	265	270	275	280	285	290	295	300	305	310	315	320															
0.76 ~ 0.80	265	270	275	280	285	290	295	300	305	310	315	320																
0.81 ~ 0.85	270	275	280	285	290	295	300	305	310	315	320																	
0.86 ~ 0.90	275	280	285	290	295	300	305	310	315	320																		
0.91 ~ 0.95	280	285	290	295	300	305	310	315	320																			
0.96 ~ 1.00	285	290	295	300	305	310	315	320																				
1.10 ~ 1.05	290	295	300	305	310	315	320																					
1.06 ~ 1.10	295	300	305	310	315	320																						
1.11 ~ 1.15	300	305	310	315	320																							
1.16 ~ 1.20	305	310	315	320																								
1.21 ~ 1.25	310	315	320																									
1.26 ~ 1.30	315	320																										
1.31 ~ 1.35	320																											

VALVE CLEARANCE (cold):
0.11 ~ 0.15 mm (0.004 ~ 0.006 in)
Example: Installed is 250
Measured clearance is 0.32 mm (0.013 in)
Replace 250 pad with 270 pad
*Pad number : (example)
Pad No. 250 = 2.50 mm (0.098 in)
Pad No. 225 = 2.55 mm (0.100 in)
Always install pad with number down.

VALVE CLEARANCE (cold):

0.11 ~ 0.15 mm (0.004 ~ 0.006 in)

Example: Installed is 250

Measured clearance is 0.32 mm
(0.013 in)

Replace 250 pad with 270 pad

*Pad number : (example)

Pad No. 250 = 2.50 mm (0.098 in)

Pad No. 225 = 2.55 mm (0.100 in)

Always install pad with number down.

EXHAUST

[B] MEASURED CLEARANCE	[A] INSTALLED PAD NUMBER																											
	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320			
0.00 ~ 0.05				200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320
0.06 ~ 0.10			200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
0.11 ~ 0.15		200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320		
0.16 ~ 0.20																												
0.21 ~ 0.25	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320				
0.26 ~ 0.30	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
0.31 ~ 0.35	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320						
0.36 ~ 0.40	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320							
0.41 ~ 0.45	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320								
0.46 ~ 0.50	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320									
0.51 ~ 0.55	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320										
0.56 ~ 0.60	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320											
0.61 ~ 0.65	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320												
0.66 ~ 0.70	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320													
0.71 ~ 0.75	255	260	265	270	275	280	285	290	295	300	305	310	315	320														
0.76 ~ 0.80	260	265	270	275	280	285	290	295	300	305	310	315	320															
0.81 ~ 0.85	265	270	275	280	285	290	295	300	305	310	315	320																
0.86 ~ 0.90	270	275	280	285	290	295	300	305	310	315	320																	
0.91 ~ 0.95	275	280	285	290	295	300	305	310	315	320																		
0.96 ~ 1.00	280	285	290	295	300	305	310	315	320																			
1.10 ~ 1.05	285	290	295	300	305	310	315	320																				
1.06 ~ 1.10	290	295	300	305	310	315	320																					
1.11 ~ 1.15	295	300	305	310	315	320																						
1.16 ~ 1.20	300	305	310	315	320																							
1.21 ~ 1.25	305	310	315	320																								
1.26 ~ 1.30	310	315	320																									
1.31 ~ 1.35	315	320																										
1.36 ~ 1.40	320																											

VALVE CLEARANCE (cold):

0.16 ~ 0.20 mm (0.006 ~ 0.008 in)

Example: Installed is 250

Measured clearance is 0.32 mm
(0.013 in)

Replace 250 pad with 265 pad

*Pad number : (example)

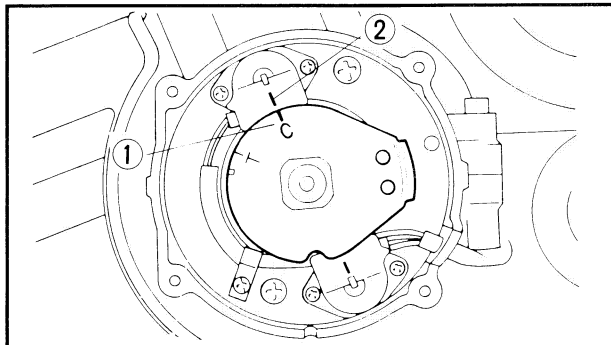
Pad No. 250 = 2.50 mm (0.098 in)

Pad No. 225 = 2.55 mm (0.100 in)

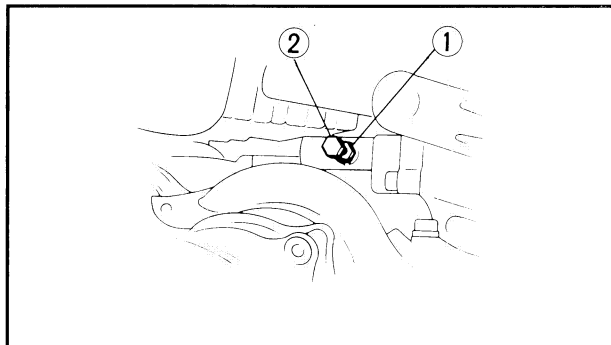
Always install pad with number down.

CAM CHAIN ADJUSTMENT

1. Remove:
 - Left crankcase cover
2. Turn:
 - Crankshaft
(Counterclockwise)



3. Align:
 - Timing plate "C" mark (1)
(with the upper pickup coil mark (2))



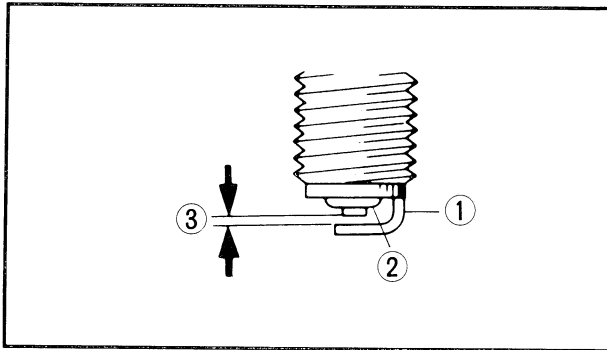
4. Loosen:
 - Tensioner locknut (1)
 - Tensioner stopper bolt (2)

5. Tighten:
 - Tensioner stopper bolt
 - Tensioner locknut




Stopper Bolt:
 6 Nm (0.6 m·kg, 4.3 ft·lb)
Locknut:
 9 Nm (0.9 m·kg, 6.5 ft·lb)

6. Install:
 - Left crankcase cover



SPARK PLUG

1. Inspect:
 - Electrode ①
Wear/Damage → Replace.
 - Insulator color ②
2. Measure:
 - Plug gap ③
Out of specification → Regap.
Use a wire gauge.




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

Clean the plug with a spark plug cleaner if necessary.

Standard Spark Plug:
D8EA/NGK
X24ES-U/NIPPONDENSO

Before installing a spark plug, clean the gasket surface and plug surface.

3. Tighten:
 - Spark plug(s)



17.5 Nm (1.75 m·kg, 12.5 ft·lb)

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

CRANKCASE VENTILATION SYSTEM

1. Inspect:
 - Crankcase ventilation hose
Cracks/Damage → Replace.
(Refer to chapter 4, "CARBURETION".)

FUEL LINE

1. Inspect:
 - Fuel hoses
 - Vacuum lines
 - Cracks/Damage → Replace.

INTAKE MANIFOLD

1. Tighten:
 - Carburetor clamps
 - Carburetor joint bolts
 - Carburetor joint nuts
2. Inspect:
 - Carburetor joint
 - Gaskets
 - Cracks/Damage → Replace.

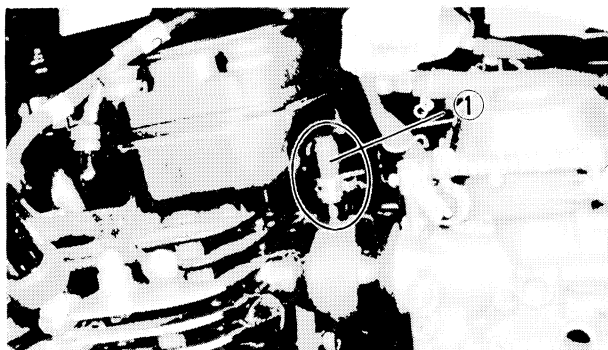
EXHAUST SYSTEM

1. Inspect:
 - Exhaust pipe
 - Muffler clamp gasket(s)
 - Damage → Replace.

2. Tighten:
 - Exhaust pipe bolts
 - Muffler bolts



Exhaust Pipe Joint:
 20 Nm (2.0 m·kg, 14 ft·lb)
Exhaust Pipe Flange:
 10 Nm (1.0 m·kg, 7.2ft·lb)
Muffler:
 25 Nm (2.5 m·kg, 18ft·lb)



CARBURETOR SYNCHRONIZATION

Carburetors must be adjusted to open and close simultaneously.

NOTE:

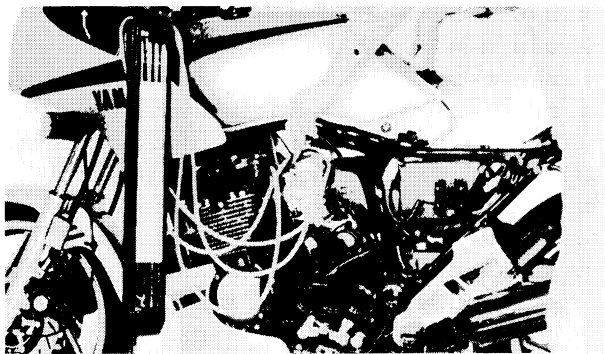
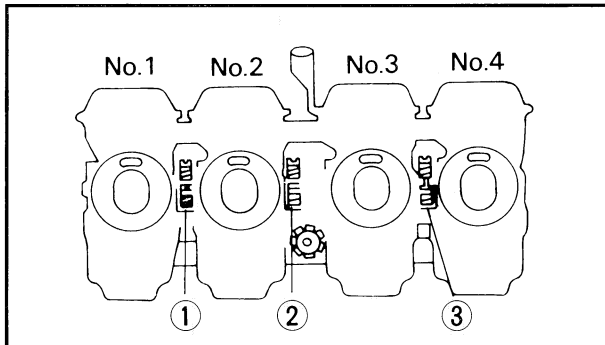
Valve clearance must be set properly before synchronizing the carburetors.

1. Remove:
 - Vacuum plugs ①

2. Remove:
 - Side cover
 - Seat
 - Fuel tank mounting bolt
3. Install:
 - Vacuum Gauge (YU-08030)
4. Start the engine and let it warm up.
5. Adjust:
 - Idle speed
Turn throttle stop screw to adjust.



1,200 ± 50 r/min



6. Adjust:
 - Carburetors

Carburetor Adjustment Steps:

- Lift up the rear of fuel tank
- Synchronize carburetor No. 1 to carburetor No. 2 by turning synchronizing screw ① until both gauges read the same.
- Rev the engine for a fraction of a second, two or three times, and check the synchronization again.

Vacuum Pressure at Idle Speed:

23.33 ± 0.6 kPa

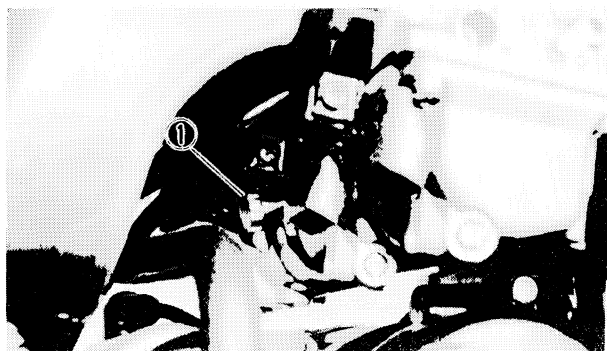
(175 ± 5 mm Hg, 6.89 ± 0.2 in Hg)

Vacuum Synchronous Difference:

1.33 kPa (10 mm Hg, 0.4 in Hg)

- Repeat the above steps to synchronize carburetor No. 4 to carburetor No. 3 by turning synchronizing screw ③ until both gauges read the same.
- Repeat the same steps to synchronize No. 2 carburetor to No. 3 carburetor by turning synchronizing screw ② until both gauges read the same.

7. Adjust
 - Idle speed
8. Install
 - Fuel tank mounting bolt
 - Seat
 - Side cover
 - Vacuum plugs

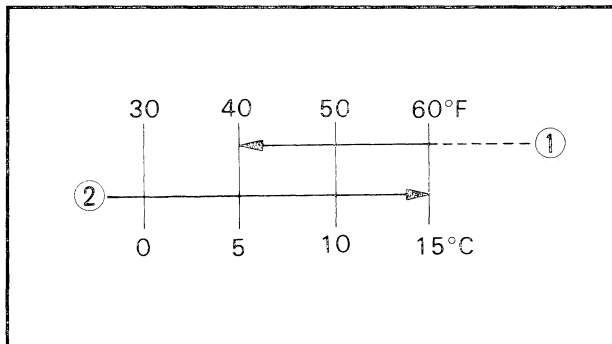


IDLE SPEED

- Adjust:
 - Idle speed
Warm up engine and turn throttle stop screw ① to adjust.



1,200 ± 50 r/min



ENGINE OIL



At 5°C (40°F) or Higher:
SAE 20W40 Type SE Motor Oil ①
At 15°C (60°F) or Lower:
SAE 10W30 Type SE Motor Oil ②

Oil Level Measurement

- Check
 - Oil level
Oil level low → Add sufficient oil.

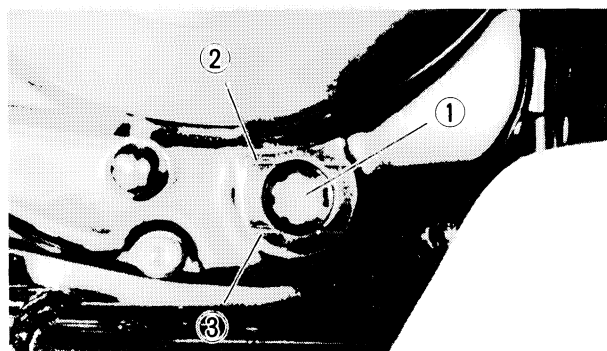
Oil Level Visual Inspection Steps:

- Place the motorcycle on its centerstand and warm up the engine for several minutes.

NOTE:

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

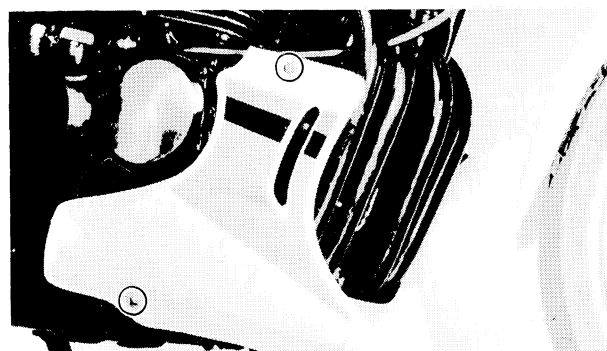
- Stop the engine and visually check the oil level through the level window ①.

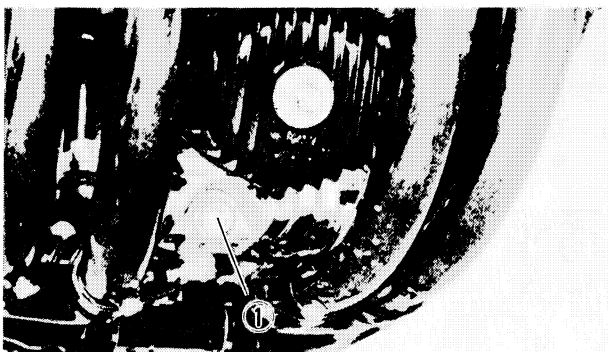


- ② Maximum
- ③ Minimum

Oil Change (Without filter)

- Remove:
 - Lower cowl
- Warm up the engine for several minutes, then place a receptacle under the engine.

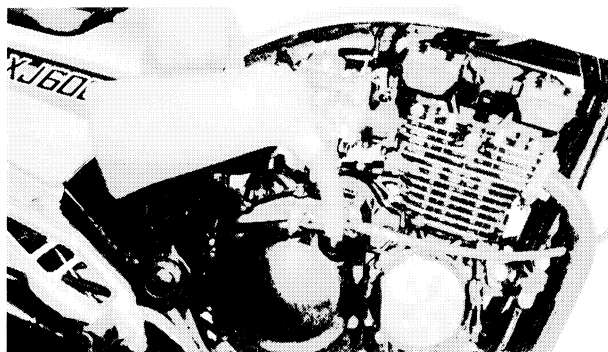




3. Remove:
 - Oil filler cap
4. Remove:
 - Drain plug (1)
 Drain the engine oil.
5. Tighten:
 - Drain plug (1)



43 Nm (4.3 m·kg, 31 ft·lb)



6. Fill:
 - Crankcase



2.3 L (2.0 Imp qt, 2.4 US qt)

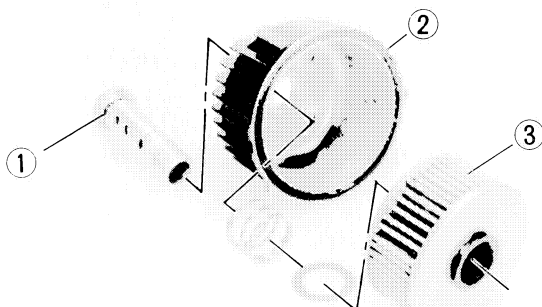
CAUTION:

Do not allow foreign material to enter the crankcase.

7. Install:
 - Filler cap
 - Lower cowl

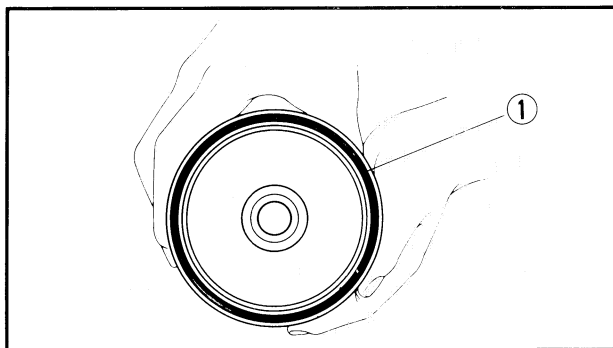
Oil and Filter Change (Refer to "Oil Change")

1. Warm up the engine and place a receptacle underneath.
2. Remove:
 - Lower cowl
 - Oil filler cap
 - Drain plug
 Drain the engine oil.
3. Remove:
 - Oil filter bolt (1)
 - Filter cover (2)
 - Oil filter (3)
4. Install:
 - Drain plug



Drain Plug:
43 Nm (4.3 m·kg, 31 ft·lb)

- Oil filter (New) (3)
- Oil filter cover (2)



NOTE:

Be sure the O-ring ① is positioned properly.

5. Tighten:
 - Oil filter bolt



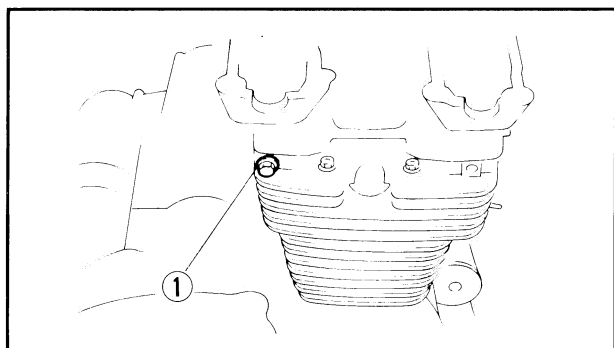
15 Nm (1.5 m·kg, 11 ft·lb)

6. Fill:
 - Crankcase



2.6 L (2.3 Imp qt, 2.7 US qt)

7. Install:
 - Oil filler cap
 - Lower cowl
8. Warm up engine and check for oil leaks.
Stop engine instantly if leaking occurs.
Leaks → Check cause.
9. Check:
 - Oil level
Level low → Add sufficient oil.



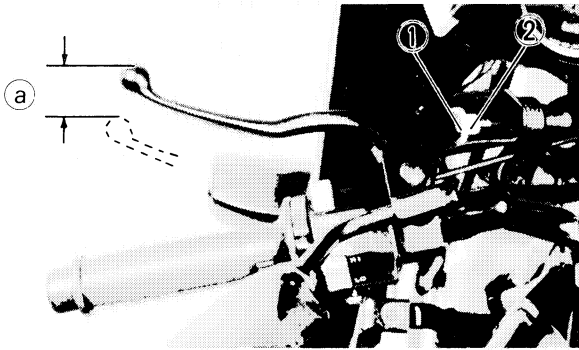
CAUTION:

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

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



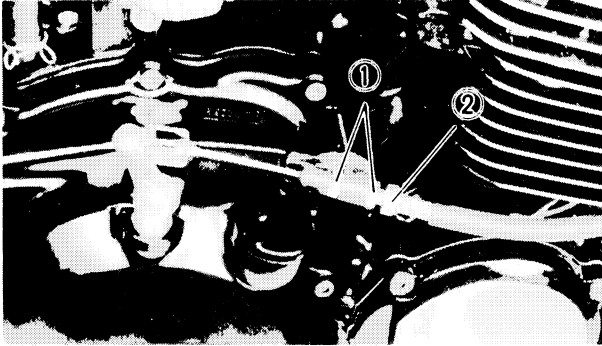
Oil Gallery Bolt:
7 Nm (0.7 m·kg, 5.1 ft·lb)

**CLUTCH ADJUSTMENT**

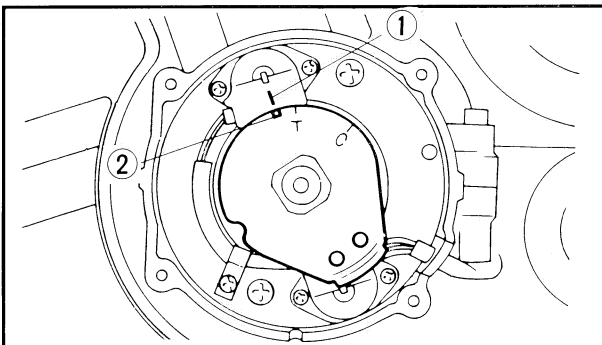
1. Loosen:
 - Adjuster locknut ①
2. Adjust:
 - Clutch lever free play ①a
(by turning adjuster ② in or out)



Free play:
 10 ~ 15 mm (0.4 ~ 0.6 in)



3. If free play can not be adjusted, adjust by clutch cable length adjuster.
4. Loosen:
 - Adjuster locknut ①
5. Adjust:
 - Clutch lever free play
(by turning clutch cable length adjuster ② .)

**IGNITION TIMING CHECK**

1. Check:
 - Ignition timing

Ignition Timing Check Steps:

- Remove the left crankcase cover.
- Connect the Timing Light (YU-0837) to No. 1 or No. 4 cylinder spark plug cord.
- Warm up the engine and let it idle at the standard idle speed.
- Visually check the upper pickup coil mark ① is within the firing range ② indicated on timing plate.

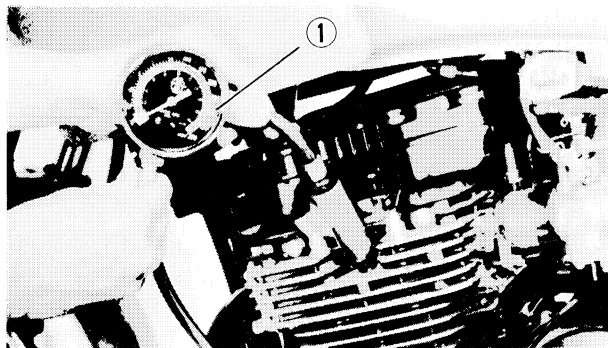
Incorrect firing range → Check flywheel and/or pickup assembly (tightness damage)
 Refer to Chapter 6, "ELECTRICAL" for further information.

COMPRESSION PRESSURE MEASUREMENT

NOTE:

Insufficient compression pressure will result in performance loss.

1. Measure:
 - Valve clearance
Out of specification → Adjust.
 - Warm up the engine.
2. Remove:
 - Spark plugs



Compression Pressure Measurement Steps:

- Install the Compression Gauge (YU-33223) ① using an adapter.
- Crank over the engine with the electric starter (be sure the battery is fully charged) with the throttle wide open until the compression reading on the gauge stabilizes.
- Check readings with specified levels (See chart).

Compression Pressure (at sea level):

Standard:

1,079 kPa (11 kg/cm², 156 psi)

Minimum:

980 kPa (10 kg/cm², 142 psi)

Maximum:

1,128 kPa (11.5 kg/cm², 164 psi)

WARNING:

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

- Repeat the previous steps for the other cylinders.
- If pressure falls below the minimum level:
 1. Squirt a few drops of oil into the affected cylinder.
 2. Measure the compression again.

Compression Pressure (with oil introduced into cylinder)

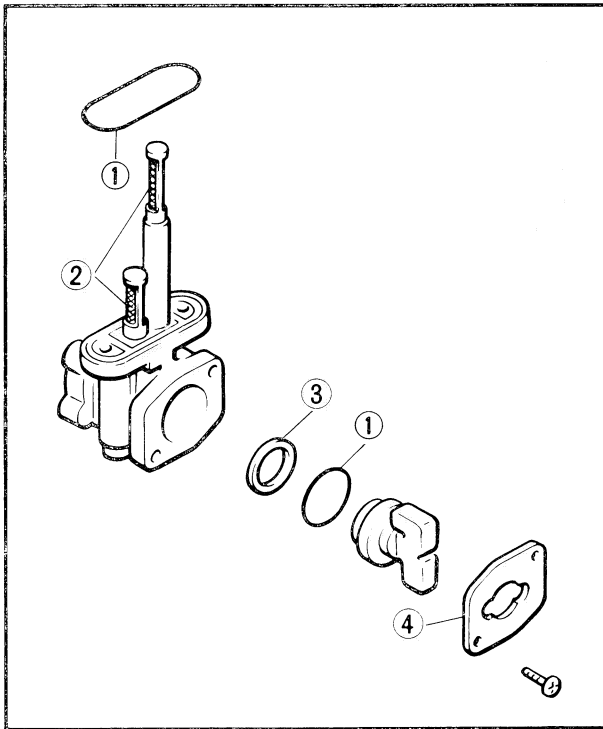
Reading	Diagnosis
Higher than without oil	Worn or damaged pistons
Same as without oil	Defective ring(s), valves, cylinder head gasket or piston is possible.
Above maximum level	Inspect cylinder head, valve surfaces, or piston crown for carbon deposits.

NOTE:

The difference between the highest and lowest cylinder compression readings must not vary more than the specified value.

Difference Between Each Cylinder:

Less than 98 kPa (1 kg/cm², 14 psi)



CHASSIS

FUEL COCK

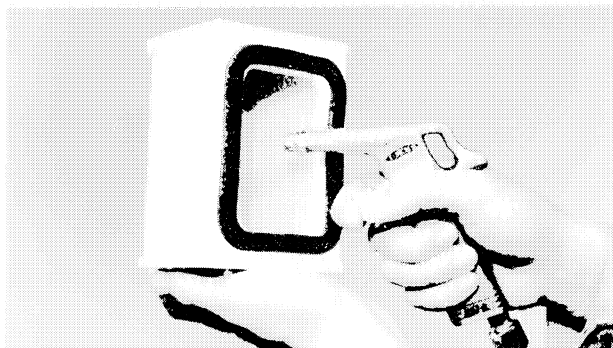
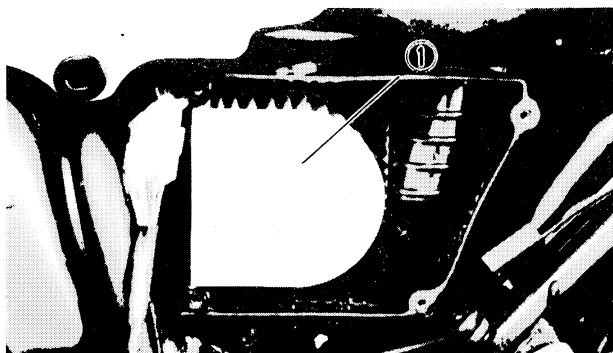
- ① O-ring
- ② Filter screen
- ③ Gasket
- ④ Cock plate

Removal and Inspection

1. Inspect:
 - Fuel cock operation
 - Leakage/Contamination → Disassemble
2. Remove:
 - Seat
 - Fuel tank
 - Position tank so that fuel will not spill when cock is removed.
 - Fuel cock
3. Inspect:
 - Filter screen
 - Contamination → Replace screen.
4. Remove:
 - Screws
 - Cock plate
 - O-ring
 - Gasket
5. Inspect:
 - Fuel cock components (all)
 - Damage → Replace.
 - Diaphragm
 - Damage → Replace cock assembly.
6. Inspect:
 - Gasket surfaces
 - Scratches/Corrosion → Replace cock assembly.

NOTE: _____
 Drain and flush fuel tank if abrasive damage to any components is evident.

7. Assemble:
 - Fuel cock
8. Install:
 - Fuel cock
 - (On to fuel tank)



AIR FILTER

1. Remove:
 - Left side cover
 - Air filter case cover
 - Air filter element ①

CAUTION:

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

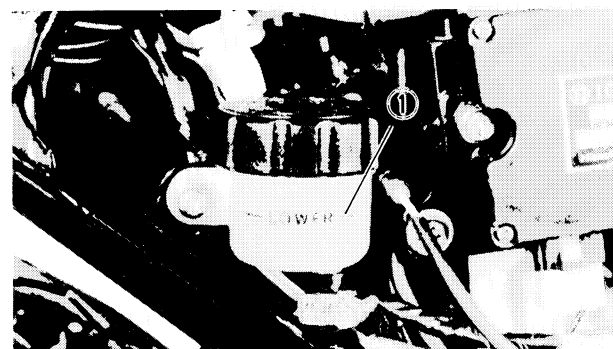
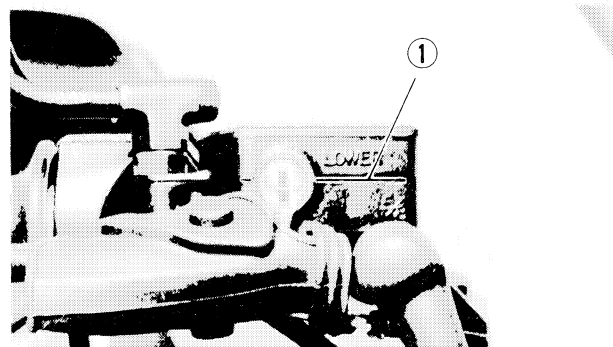
2. Blow out dust in the element from the inner surface. Use compressed air.
3. Inspect:
 - Element
 - Damage → Replace.
4. Install:
 - Element
 - Air filter case cover
 - Left side cover

FRONT AND REAR BRAKE

Brake Fluid Inspection

- ① Check:
 - Brake fluid level

Fluid at lower level → Replenish.
- ① Front brake fluid lower level

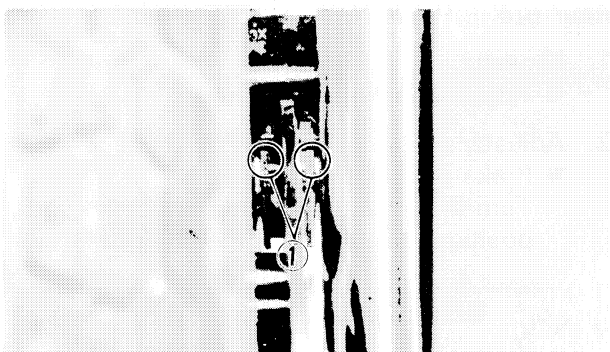


Brake Fluid: DOT #3

WARNING:

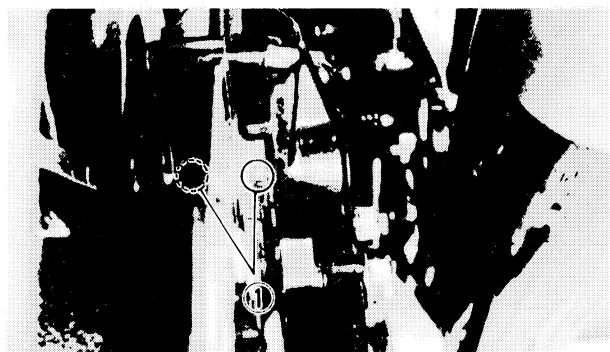
- Use only designated quality brake fluid to avoid poor brake performance.
- Refill with same type and brand of brake fluid; mixing fluids could result in poor brake performance.
- Be sure that water or other contaminants do not enter master cylinder when refilling.
- Clean up spilled fluid immediately to avoid erosion of painted surfaces or plastic parts.

- ① Rear brake fluid lower level

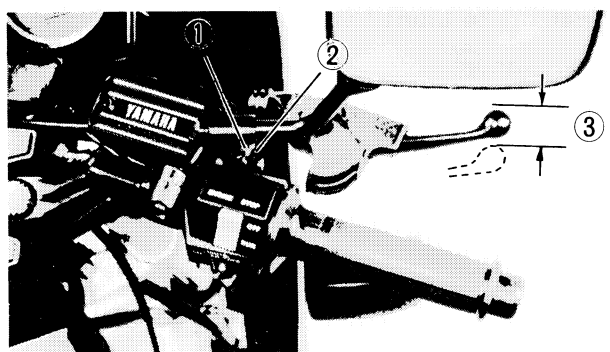


Brake Pad Inspection

1. Depress the brake lever.
 2. Inspect:
 - Wear indicator
Indicator almost contacts disc → Replace pads.
(Refer to Chapter 5 "CHASSIS")
- ① Front brake pad wear indicator



① Rear brake pad wear indicator



Front Brake Lever Free Play Adjustment

1. Loosen:
 - Adjuster locknut ①
2. Adjust:
 - Free play
Turn the adjuster ② until the free play ③ is within the specified limits.

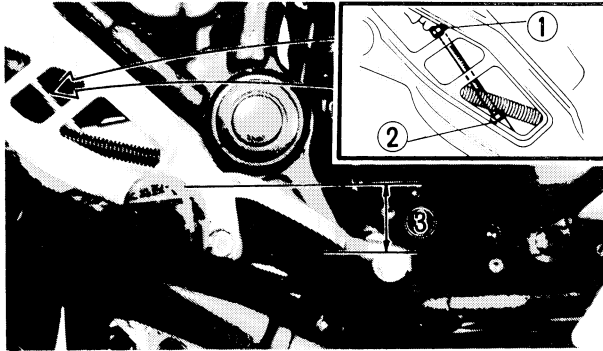


5 ~ 8 mm (0.2 ~ 0.3 in)

CAUTION:

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

3. Tighten:
 - Adjuster locknut



Rear Brake Pedal Height Adjustment

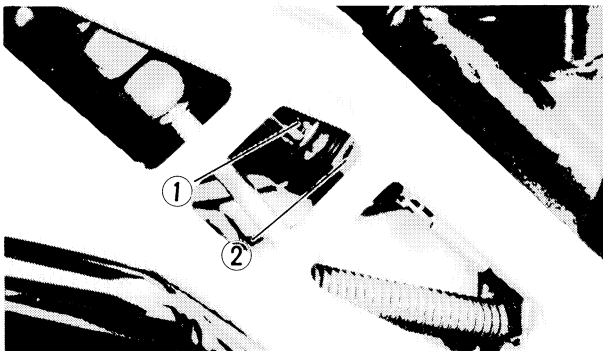
1. Loosen:
 - Adjuster locknuts ①
2. Adjust:
 - Brake pedal height.
 Turn the adjuster ② until the brake pedal position is at the specified height.



Brake Pedal Height ③ :
 30 mm (1.2 in)
 Below the Top of the Footrest

WARNING:

After adjusting the brake pedal height, visually check the adjuster end through the hole of the joint holder. The adjuster end must appear within this hole.



Rear Brake Light Switch Adjustment

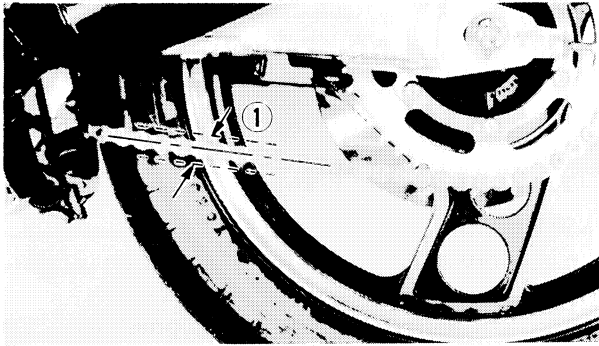
1. Remove:
 - Right side cover
2. Hold the switch body ① with your hand so it does not rotate and turn the adjusting nut ②

DRIVE CHAIN

Drive Chain Tension Check

NOTE:

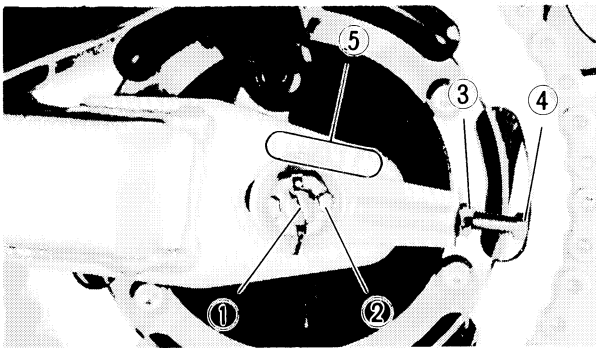
Before checking and/or adjusting, rotate the rear wheel through several revolutions and check the tension several times to find the tightest point. Check and/or adjust chain tension with rear wheel in this "tight chain" position.



1. Lift the rear wheel by apling centerstand.
2. Measure:
 - Chain deflection ①
(at the position shown in the photograph.)
Out of specification → Adjust chain



Chain Deflection:
20 ~ 30 mm (0.8 ~ 1.2 in)



Drive Chain Tension Adjustment

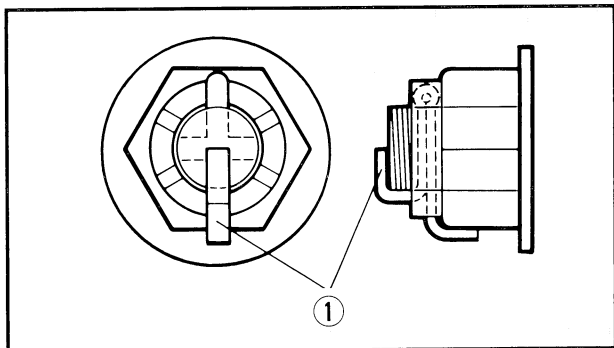
1. Remove:
 - Cotter pin ①
2. Loosen:
 - Axle nut ②
 - Chain puller locknut ③
- ④ Adjusting bolt
- ⑤ Mark for alignment
3. Adjust:
 - Chain tension
(by turningpg adjusting bolt in or out)

Adjusting bolt	Chain tension
Turn in	Tighten
Turn out	Loosen

NOTE:

There are marks on each side of rear arm and on each chain puller; use them to check for proper alignment.

4. Tighten:
 - Locknut
 - Axle nut



Axle Nut:
105 Nm (10.5 m·kg, 75 ft-lb)

5. Install:
 - Cotter pin ① (new)

NOTE:

Do not loosen the axle nut after torque tightening.

If the axle nut groove is not aligned with the wheel shaft cotter pin hole, align groove to hole by tightening up on the axle nut.

CABLE INSPECTION AND LUBRICATION

Cable Inspection and Lubrication Steps:

- Remove the two grip end that secure throttle to handlebar.
- Hold cable end high and apply several drops of lubricant to cable.
- Coat metal surface of disassembled throttle twist grip with suitable all-purpose grease to minimize friction.
- Check for damage to cable insulation. Replace any corroded or obstructed cables.
- Lubricate any cables that do not operate smoothly.



Yamaha Chain and Cable Lube or
SAE 10W30 Motor Oil

BRAKE AND CHANGE PEDALS BRAKE AND CLUTCH LEVERS



BRAKE AND CHANGE PEDALS/ BRAKE AND CLUTCH LEVERS

Lubricate pivoting parts of each lever and pedal.



**Yamaha Chain and Cable Lube or
SAE 10W30 Motor Oil**

CENTERSTAND AND SIDESTAND

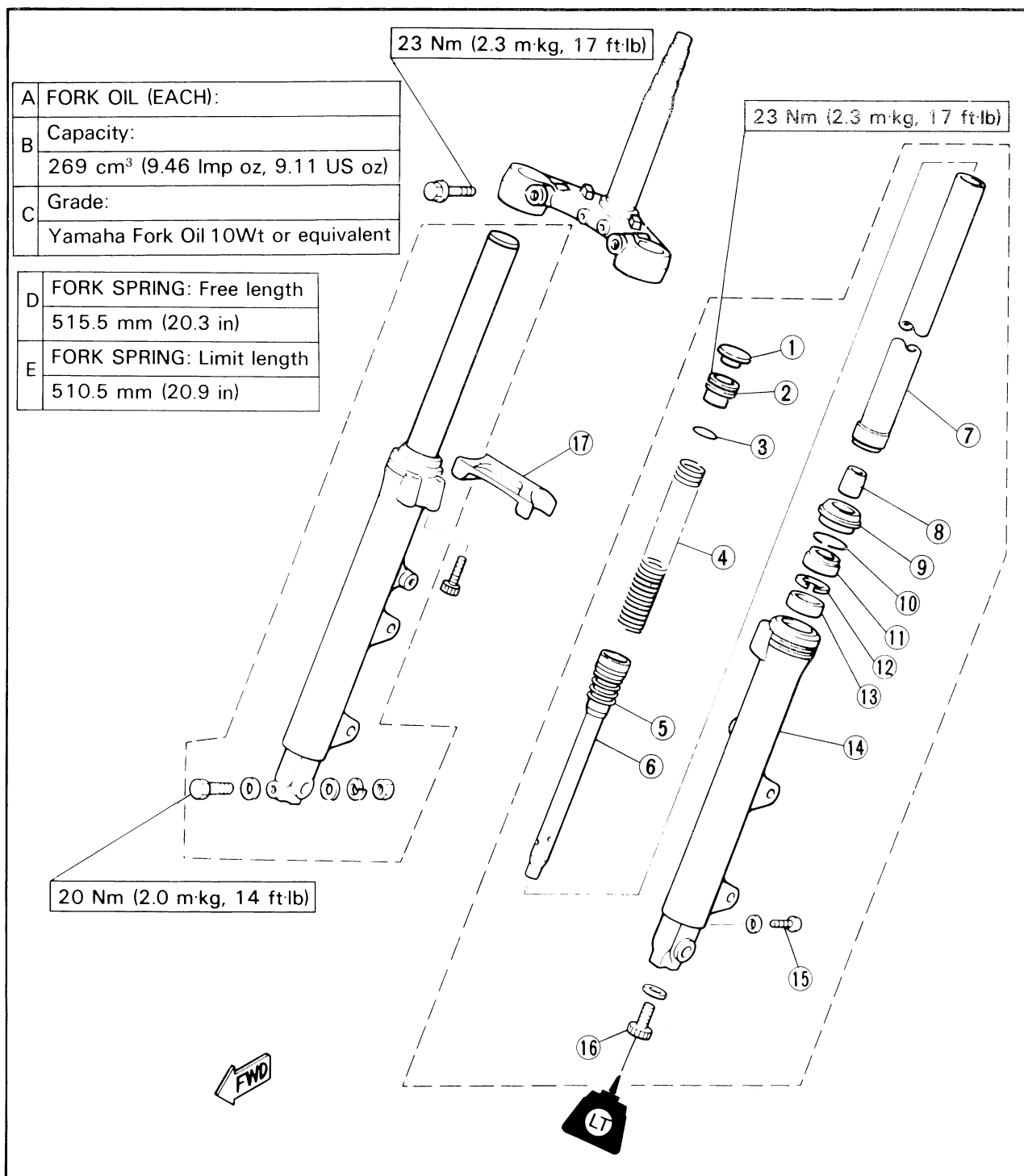
Lubricate centerstand and sidestand at their pivot points.



**Yamaha Chain and Cable Lube or
SAE 10W30 Motor Oil**

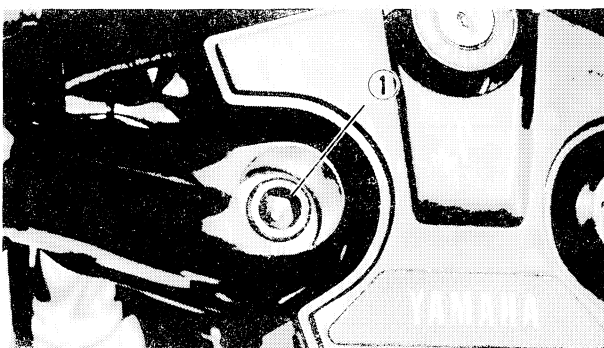
FRONT FORK OIL CHANGE

- | | |
|----------------------|------------------------------|
| 1. Rubber cap | 10. Retaining clip |
| 2. Cap bolt | 11. Oil seal |
| 3. O-ring | 12. Washer |
| 4. Fork spring | 13. Bushing |
| 5. Damper rod spring | 14. Outer fork tube |
| 6. Damper rod | 15. Drain bolt |
| 7. Inner fork tube | 16. Damper rod securing bolt |
| 8. Taper spindle | 17. Front fork brace |
| 9. Dust cover | |



FRONT FORK OIL CHANGE

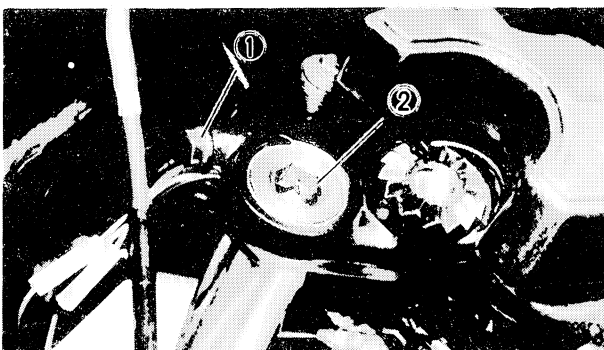
INSP
ADJ



WARNING:

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

1. Remove:
 - Handlebar installing bolt ①
 - Handlebar
2. Loosen:
 - Upper front fork pinch bolt ①
3. Remove:
 - Fork cap bolts ②
 - Use Front Fork Cap Socket (YM-01104)
 - Place a receptacle under the drain hole.

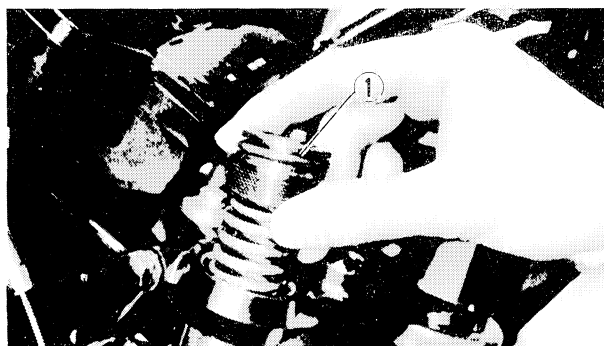


4. Remove:
 - Drain screws ①
 - Drain the fork oil.



WARNING:

Do not allow any oil to contact the disc brake components. If oil is discovered, be sure to remove it, otherwise diminished braking capacity and damage to the rubber components of the brake assembly will occur.



5. Inspect:
 - Cap bolt O-ring ①
 - Drain screw gaskets
 - Wear/Damage → Replace.
6. Install:
 - Drain screws
7. Fill:
 - Front forks



Each Fork:
269 cm³ (9.46 Imp oz, 9.1 US oz)
Yamaha Fork oil 10 wt or equivalent

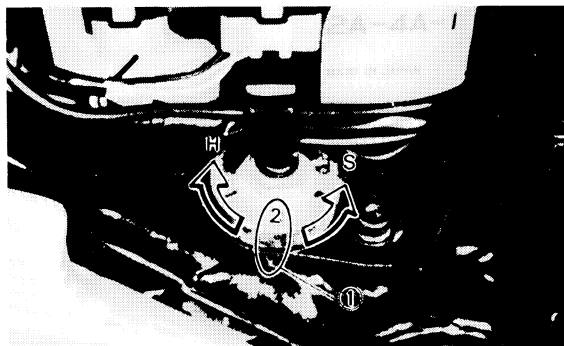
After filling pump the forks slowly up and down to distribute the oil.

8. Tighten:
 - Cap bolts
 - Pinch bolts



Cap Bolt:
23 Nm (2.3 m·kg, 17 ft·lb)
Pinch Bolt:
23 Nm (2.3 m·kg, 17 ft·lb)

9. Install:
 - Handles



SHOCK ABSORBER ADJUSTMENT

1. Remove:
 - Right side cover
2. Adjust
 - Shock absorber preload

	← Stiffer			Std.	Softer
Adjusting position	5	4	3	2	1

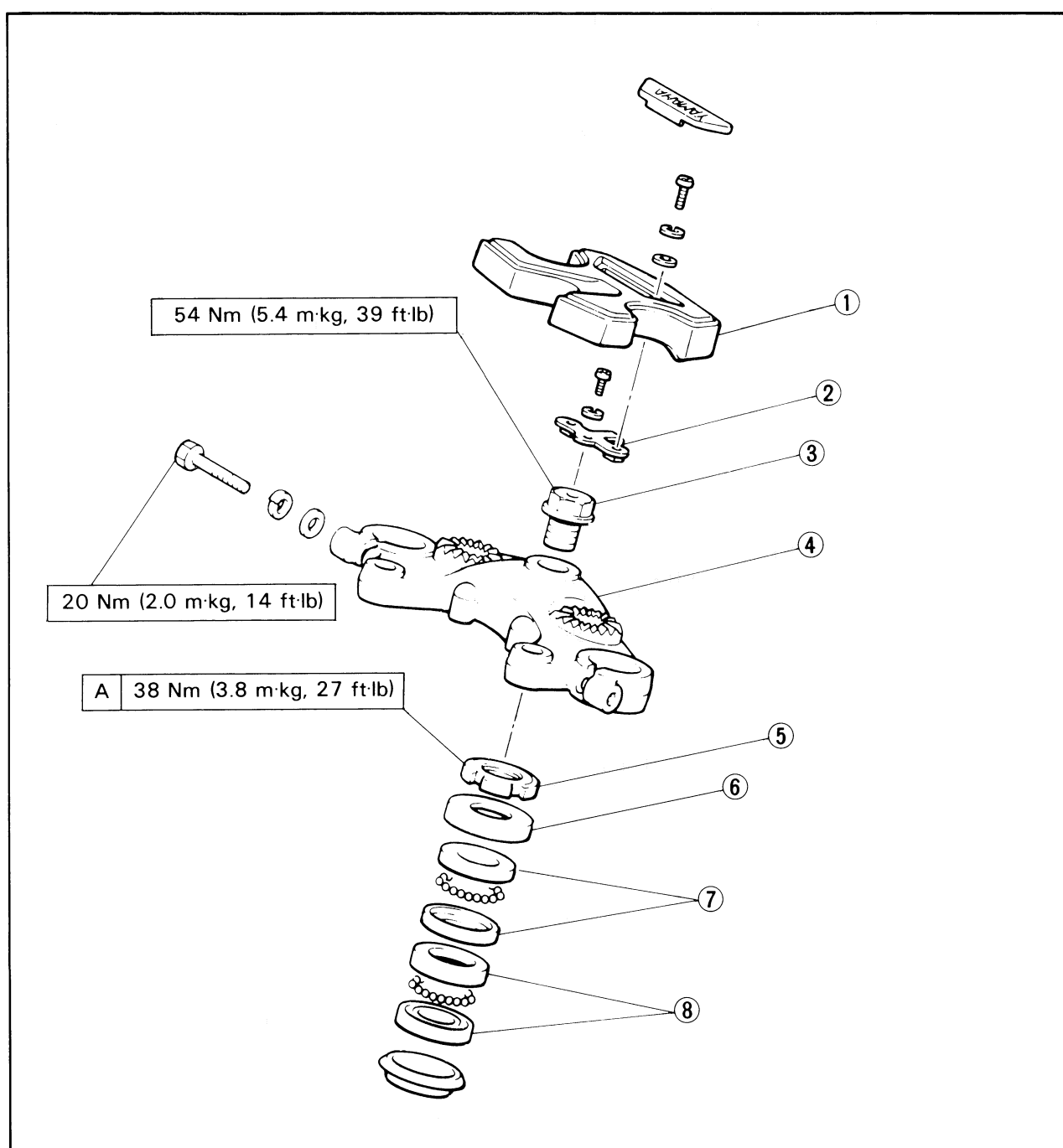
① Macth mark

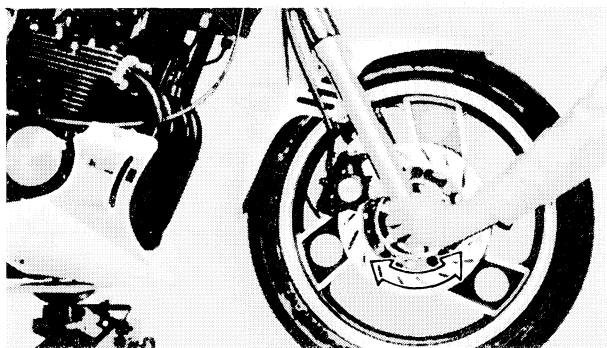
STEERING HEAD

- | | |
|-----------------------|------------------------|
| 1. Handle cover | 6. Bearing cover |
| 2. Washer | 7. Upper bearing races |
| 3. Steering stem bolt | 8. Lower bearing races |
| 4. Handle crown | 9. Bearing (Upper) |
| 5. Ring nut | 10. Bearing (Lower) |

A

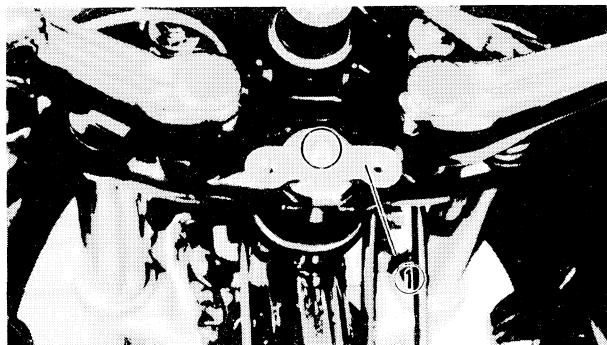
- Tight specified torque.
- If steering is binded loosen the ring nut so that there is no free play on bearing.





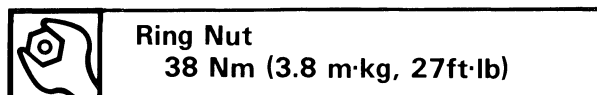
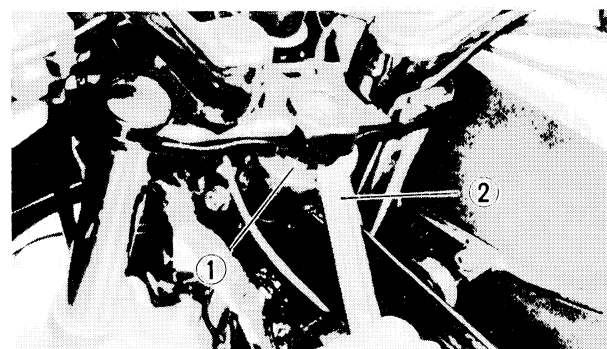
Steering Head Inspection

1. Place the motorcycle on its centerstand, then elevate the front wheel.
2. Check:
 - Steering assembly bearings
Grasp the bottom of the forks and gently rock the fork assembly back and forth.
Looseness → Adjust steering head.



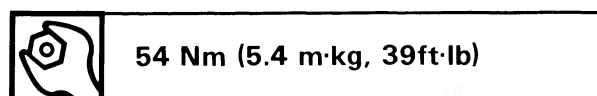
Steering Head Adjustment

1. Remove:
 - Handle cover
 - Washer ①
2. Loosen:
 - Upper front fork pinch bolts
3. Remove:
 - Steering stem bolt
4. Lift the handle crown and handlebar assembly.
5. Tighten:
 - Ring nut ①
Use the Ring Nut Wrench ② (YU-01268)



NOTE: _____
If steering is binded, loosen the ring nut so that there is no free play on bearing.

6. Install:
 - Handle crown/Handlebar assembly
 - Steeringf stem bolt



STEERING HEAD



7. Tighten:

- Upper front fork pinch bolts



20 Nm (2.0 m·kg, 14 ft·lb)

8. Install:

- Washer
- ⊗ Handle cover

WHEEL BEARINGS

Front Wheel

1. Front axle

2. Collar

3. Oil seal

4. Bearing

5. Spacer

6. Spacer flange

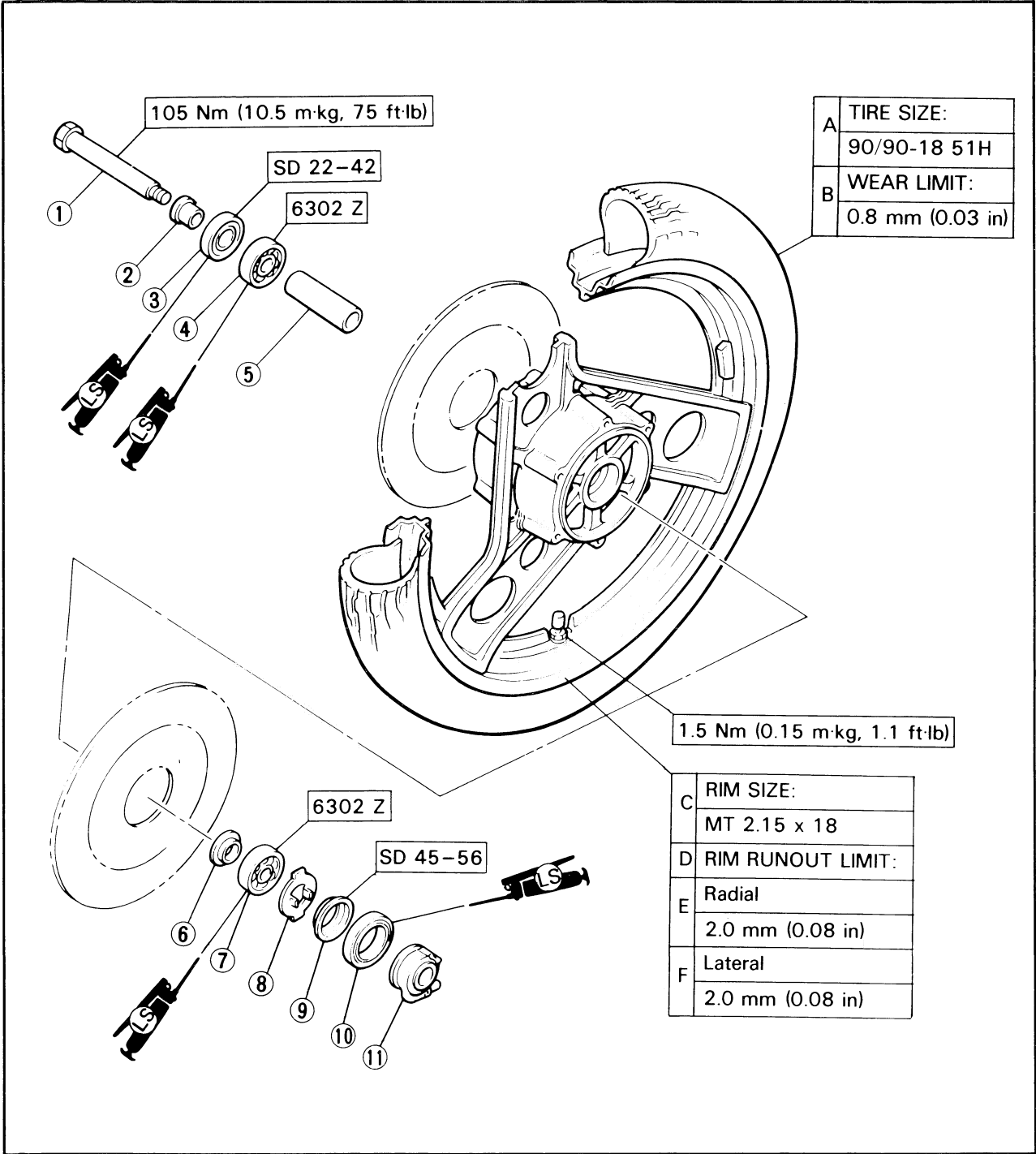
7. Bearing

8. Meter clutch

9. Clutch retainer

10. Oil seal

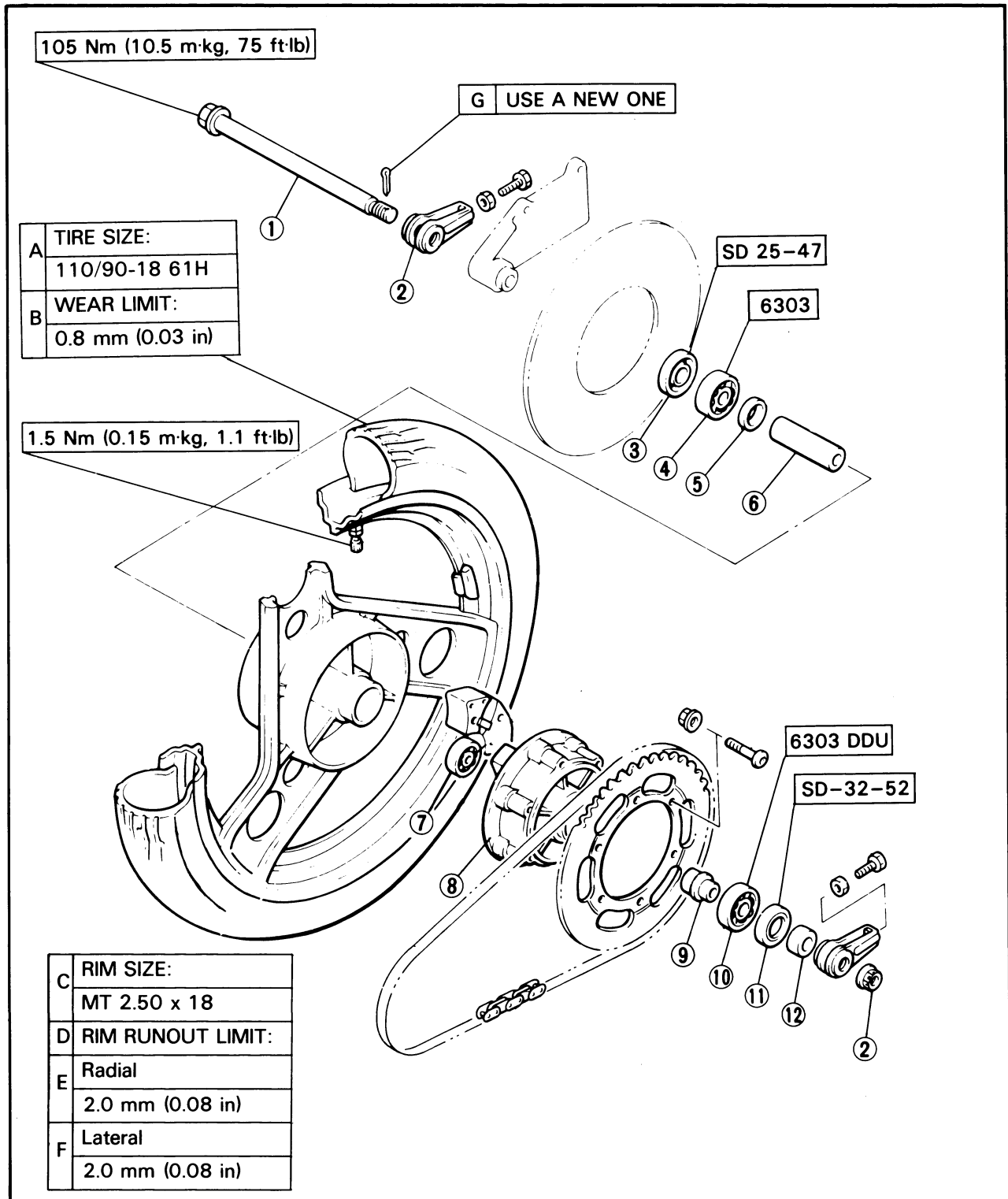
11. Gear unit assembly

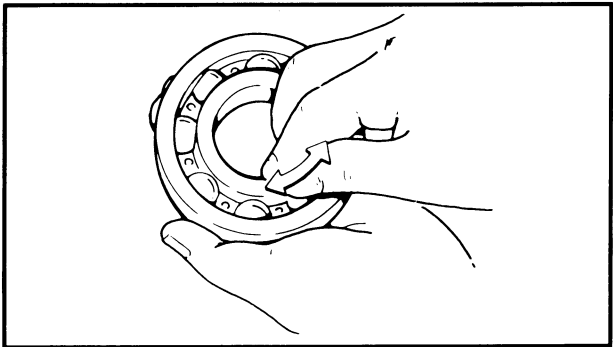




Rear Wheel

- | | |
|------------------|---------------|
| 1. Rear axle | 7. Bearing |
| 2. Chain puller | 8. Clutch hub |
| 3. Oil seal | 9. Collar |
| 4. Bearing | 10. Bearing |
| 5. Spacer flange | 11. Oil seal |
| 6. Spacer | 12. Collar |





Front Wheel Bearings

1. Raise the front end of the motorcycle, and spin the wheel by hand. Touch the axle or front fender while spinning the wheel.
Excessive vibration → Replace bearings.

Rear Wheel Bearings

1. Remove:
 - Rear wheel
2. Check:
 - Bearing movement
With the fingers.
Roughness/Wear → Replace.

TUBELESS TIRES AND ALUMINUM WHEELS

WARNING:

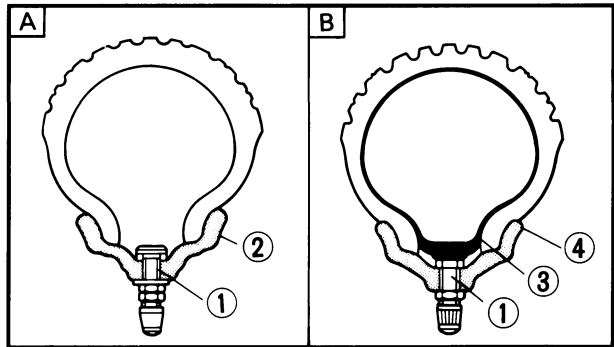
Do not attempt to use tubeless tires on a wheel designed for tube type tires only. Tire failure and personal injury may result from sudden deflation.

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

Be sure to install the correct tube when using tube type tires.

Always perform the following steps to ensure safe operation, maximum tire performance, and long service.

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

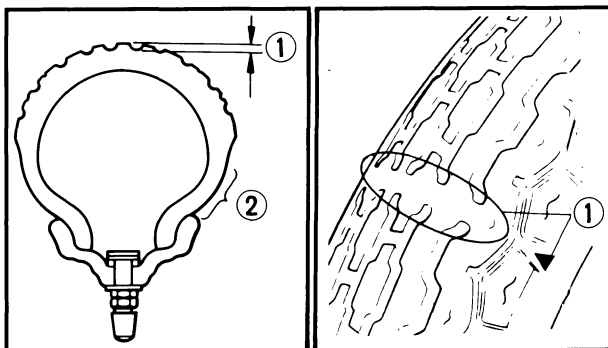


- A** Tubeless tire
- B** Tube type tire

- ① Air valve
- ② Aluminum wheel (tubeless type)
- ③ Tube
- ④ Aluminum wheel (tube type)

Basic weight: With oil and full fuel tank	208 kg (459 lb)	
Maximum load*	188 kg (414 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	177 kPa (1.8 kg/cm ² , 26 psi)	196 kPa (2.0 kg/cm ² , 28 psi)
90 kg (198 lb) ~ Maximum load*	196 kPa (2.0 kg/cm ² , 28 psi)	226 kPa (2.3 kg/cm ² , 32 psi)
High speed riding	196 kPa 2.0 kg/cm ² , 28 psi)	226 kPa 2.3 kg/cm ² , 32 psi)

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



2. Inspect:

- Tire surfaces
Wear/Damage → Replace.



Minimum Tire Tread Depth:
(Front and Rear)
0.8 mm (0.03 in)

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

3. Inspect:

- Aluminum wheels
Damage/Bends → Replace.
Never attempt even small repairs to the wheel.

NOTE:

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

4. 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.



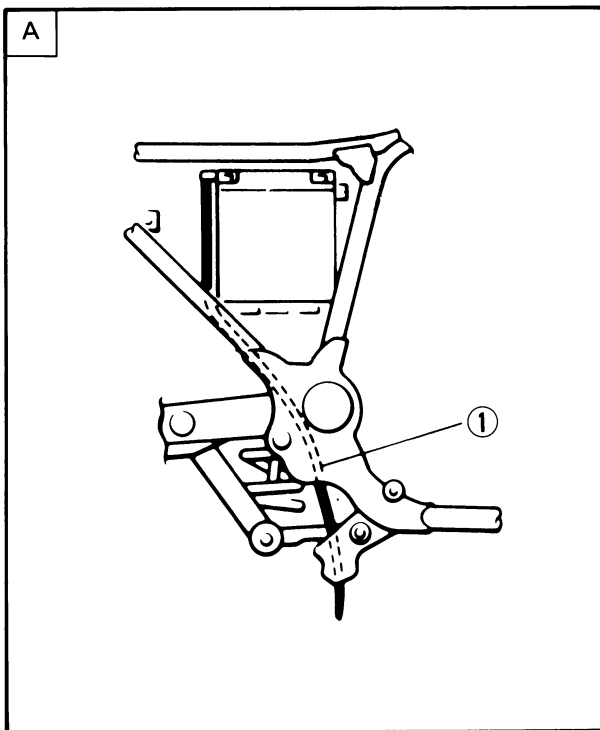
ELECTRICAL

BATTERY

1. Check:
 - Fluid level
Incorrect → Refill
Fluid level should be between upper and lower level marks.
- ① Upper level
- ② Lower level

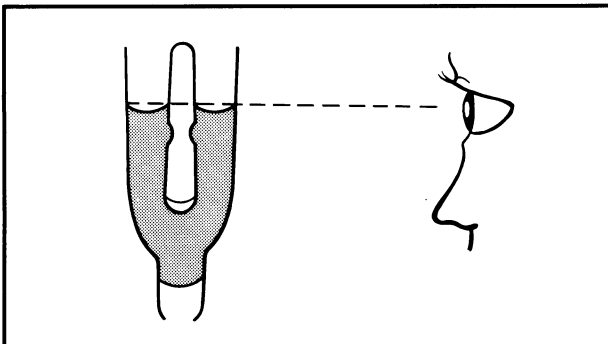
CAUTION:

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



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

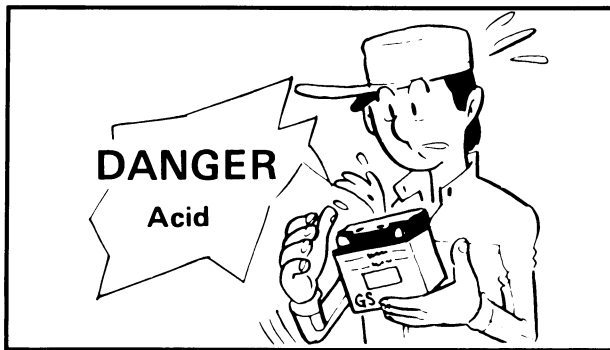
A HOW TO LAY OUT BATTERY BREATHER PIPE.



CAUTION:

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

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

**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.

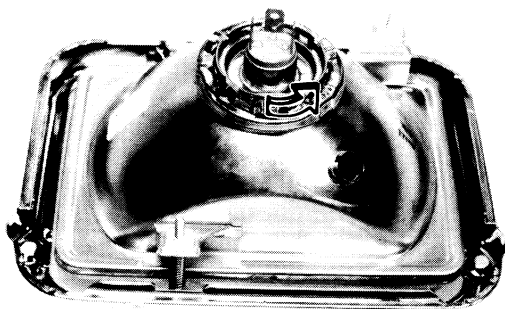
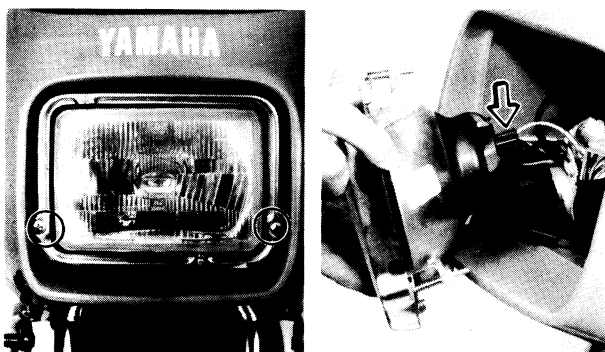
Antidote (INTERNAL):

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

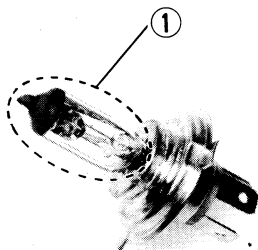
Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:

- 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.

**HEADLIGHT****Headlight Bulb Replacement**

1. Remove:
 - Headlight holding screws
2. Disconnect:
 - Headlight leads
3. Remove:
 - BulbTurn the bulb holder counterclockwise to release bulb.
4. Install:
 - Bulb (new)Secure the new bulb with the bulb holder.



WARNING:

Do not touch headlight bulb when it is on as bulb generates enormous heat; keep flammable abjects away.

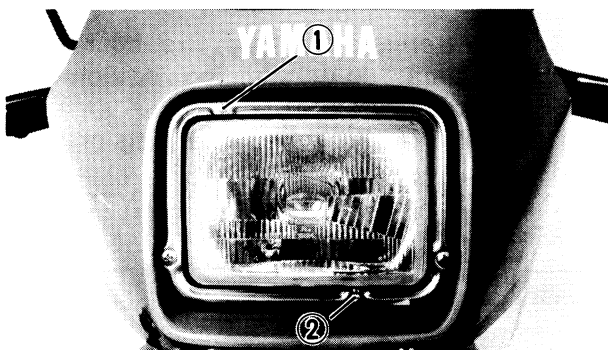
CAUTION:

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

- Don't touch

5. Install:

- Light until assembly



HEADLIGHT ADJUSTMENT

Horizontal Adjustment

1. Rotate:

- Horizontal adjusting screw ①

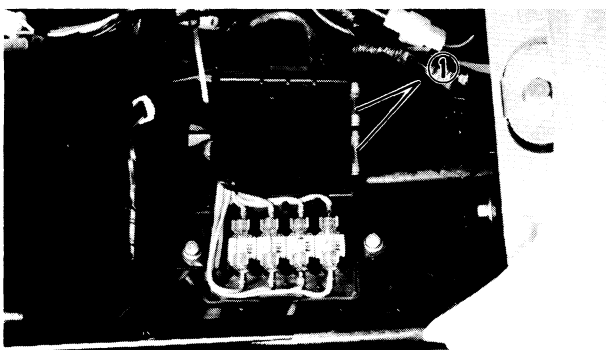
Horizontal adjustment of headlight beam	
Adjusting screw	Beam direction
Turn clockwise	→ Right
Turn counterclockwise	← Left

Vertical Adjustment

1. Rotate:

- Vertical adjusting screw ②

Vertical adjustment of headlight beam	
Adjusting screw	Beam direction
Turn clockwise	↑ To raise
Turn counterclockwise	↓ To lower



FUSE

The fuse panel is located under the seat.

1. Inspect:

- Fuses
 - Defective → Replace.
 - Blown fuse (new) → Inspect circuit.

NOTE:

Install new fuses of proper amperage.

① Spare fuses

Description	Amperage	Quantity
Main	30A	1
Headlight	20A	1
Signal	10A	1
Ignition	10A	1
Reserve	30A 20A	1 1

Blown fuse procedure 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.



CHAPTER 3. ENGINE OVERHAUL

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ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:

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

- Carburetor ● Clutch
 - AC magneto
-

Preparation steps:

- Remove all dirt, mud, dust, and foreign material before removal and disassembly.
- Use proper tools and cleaning equipment.

NOTE:

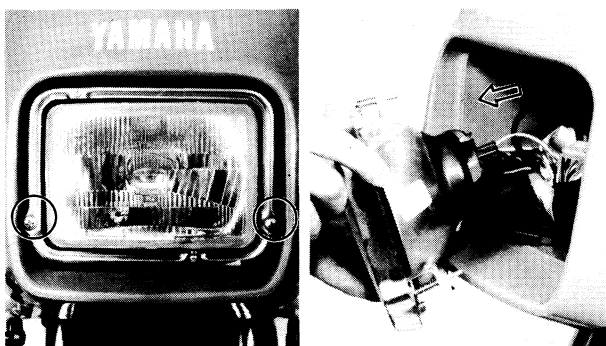
When disassembling the engine, keep mated parts together. This includes gears, cylinders, pistons, and other parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.

- During engine 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 in the engine.
- Drain engine oil completely.

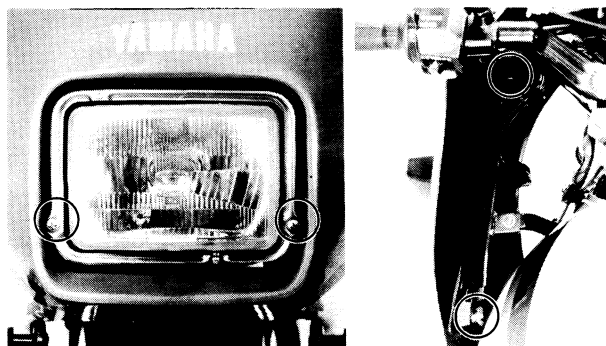


COWLING AND LOWER COWL

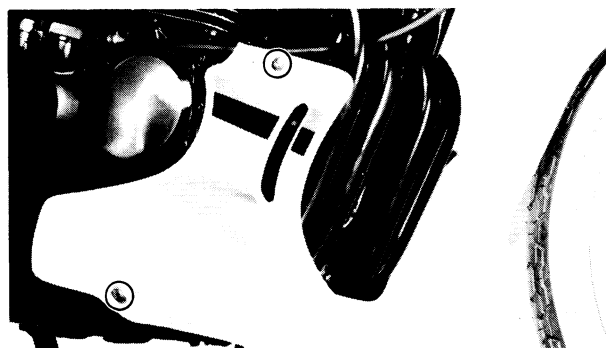
1. Remove:
 - Headlight unit assembly



2. Remove:
 - Cowling



3. Remove:
 - Lower cowl

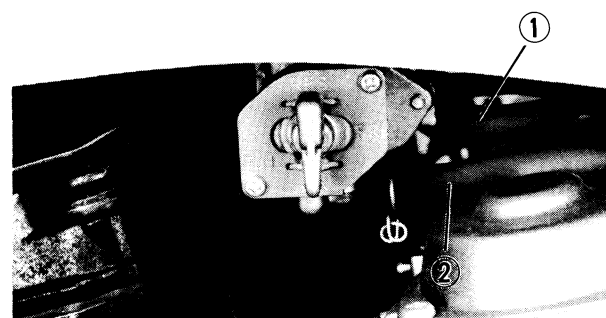


SEAT AND FUEL TANK

1. Remove:
 - Side cover
 - Seat
2. Turn fuel cock to "ON"

3. Disconnect
 - Fuel cock vacuum hose ①
 - Fuel feed hose ②

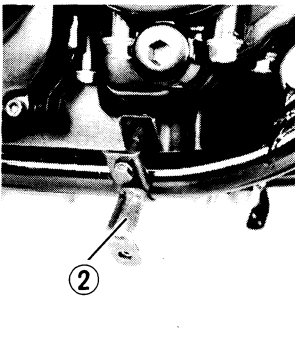
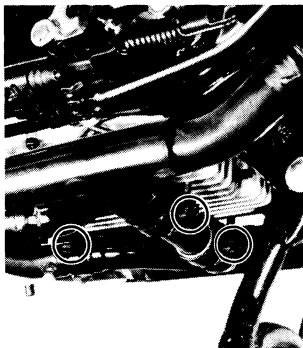
4. Remove:
 - Fuel tank bolt
 - Fuel sender unit lead
 - Fuel tank





EXHAUST PIPE AND MUFFLER

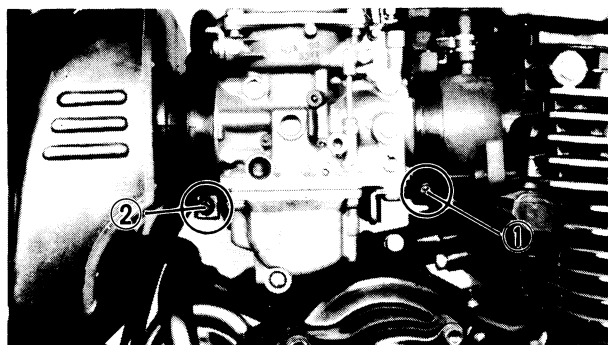
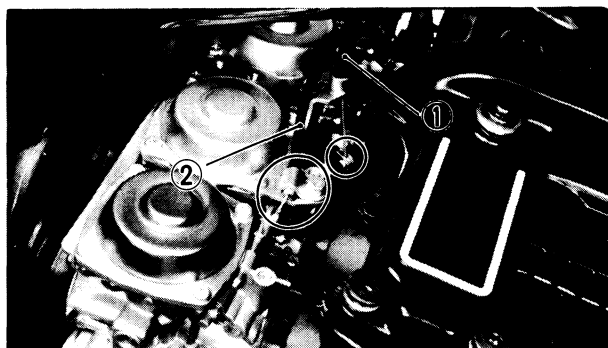
1. Remove:
 - Exhaust pipe
2. Loosen:
 - Exhaust pipe clamp

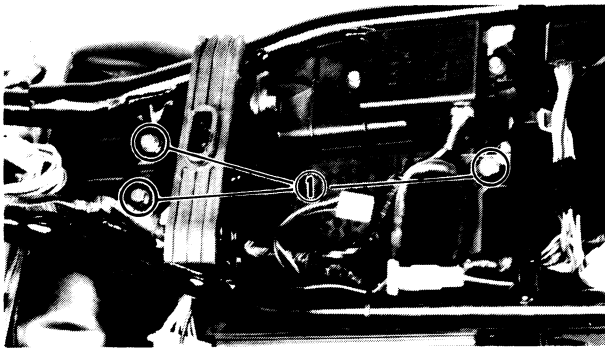


3. Remove:
 - Footrest bracket bolt ①
 - Lower cowl clamp ②

CARBURETOR AND CABLE

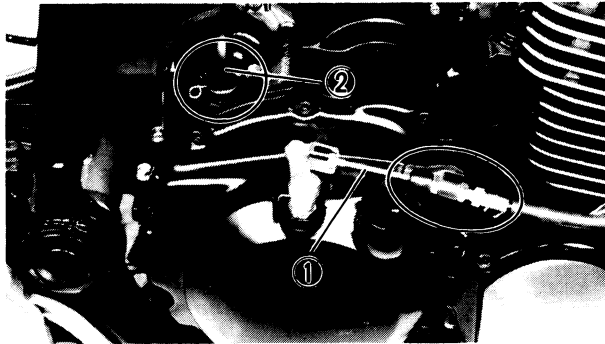
1. Remove:
 - Throttle cable ①
 - Starter cable ②
2. Loosen:
 - Carburetor joint clamp screw ①
 - Air cleaner joint clamp screw ②



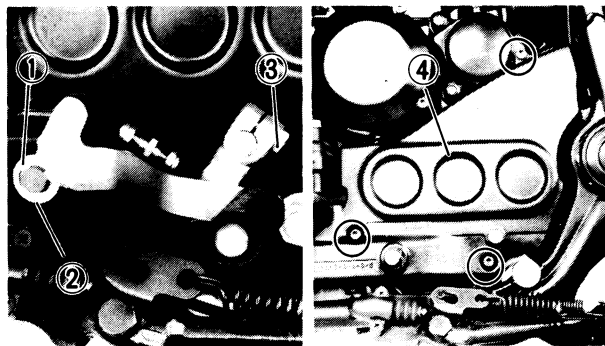


3. Loosen:
 - Air cleaner bolt ①

4. Remove:
 - Carburetor



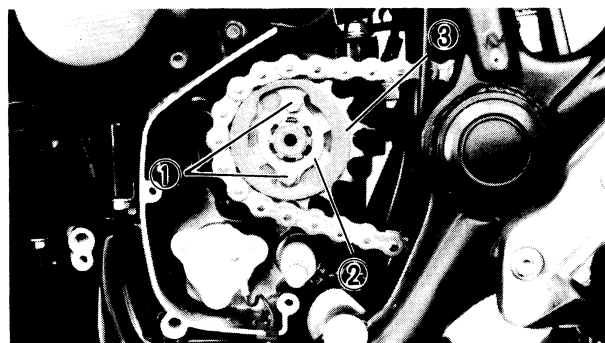
5. Disconnect:
 - Clutch cable ①
 - Crankcase ventilation hose ②



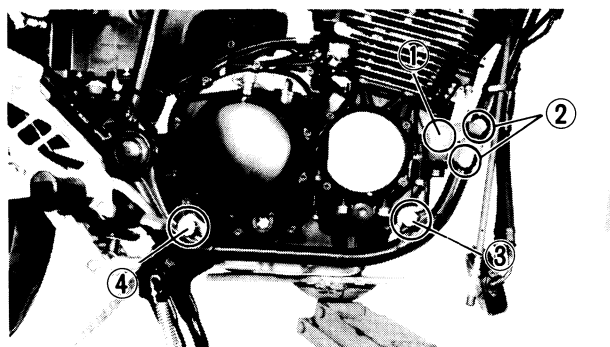
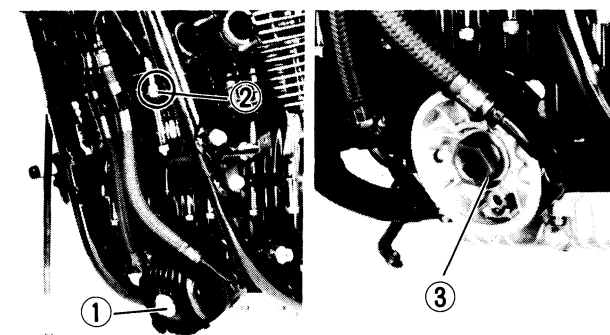
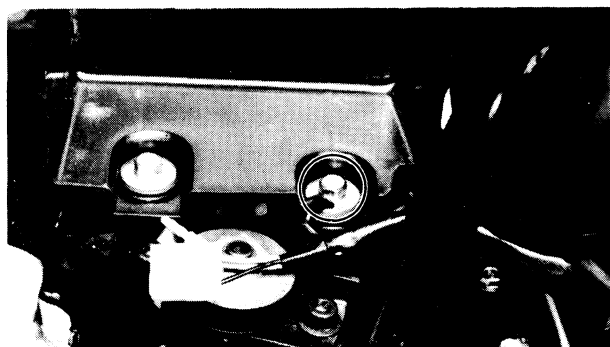
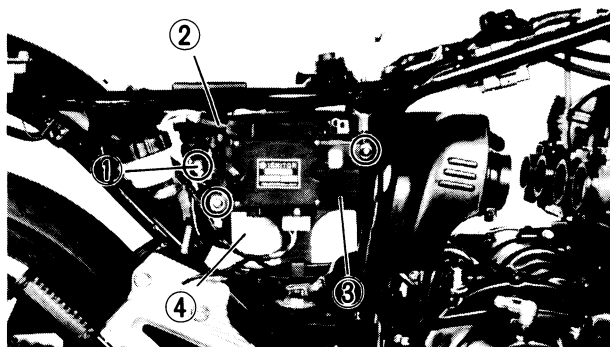
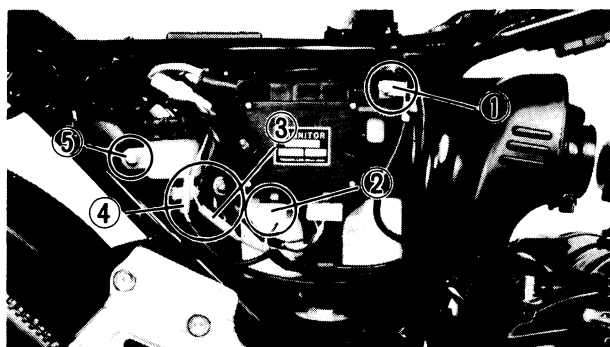
CHANGE PEDAL AND DRIVE CHAIN

1. Remove:
 - E-clip ①
 - Washer ②
 - Bolt ③
 - Change pedal assembly
 - Crankcase cover ④

2. Loosen:
 - Rear axle nut
 - Adjusting bolt
 - Drive chain



3. Remove:
 - Bolts ①
 - Stopper ②
 - Drive chain sprocket ③



BATTERY AND WIRING

1. Disconnect:
 - Battery minus lead ①
 - Pulser coil lead ②
 - Oil level switch lead ③
 - Neutral switch lead ④
2. Remove:
 - Brake fluid tank screw ⑤
3. Disconnect:
 - Stator motor lead ①
 - Battery plus lead ②
4. Remove:
 - Battery cover ③
 - Battery ④
5. Disconnect:
 - Ground lead

OIL COOLER

1. Remove:
 - Oil filter bolt ①
 - Oil filter clamp nuts ②
 - Spacer nut ③

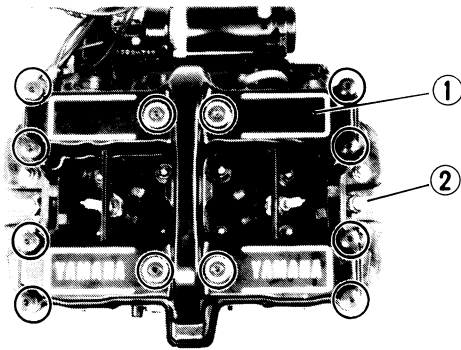
ENGINE REMOVAL

1. Place a suitable stand under the engine
2. Remove:
 - Front upper mounting bolt ①
 - Bracket bolt ②
 - Front lower mounting bolt ③
 - Rear mounting bolt ④
 - Engine assembly (from right chassis.)

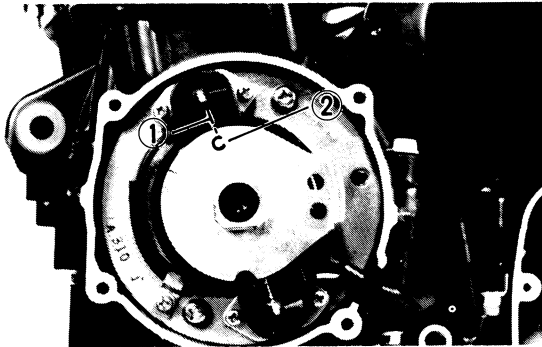


ENGINE DISASSEMBLY

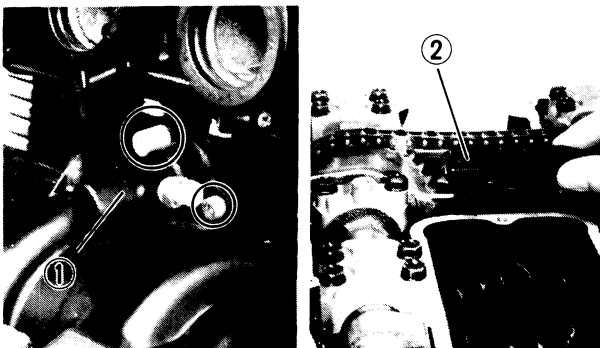
CYLINDER HEAD AND CAMSHAFT



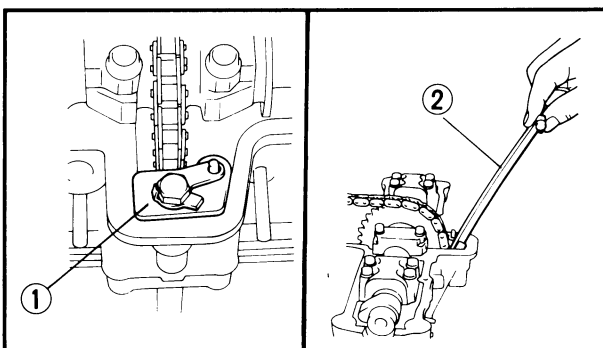
1. Remove:
 - Cylinder head cover ①
 - Spark plug ②
 - Left crankcase cover



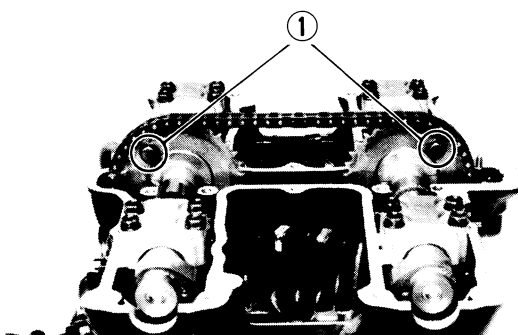
2. Turn:
 - Crankshaft
(Counterclockwise)
3. Align:
 - Timing plate "C" mark ①
(with the upper pick up coil mark ②)



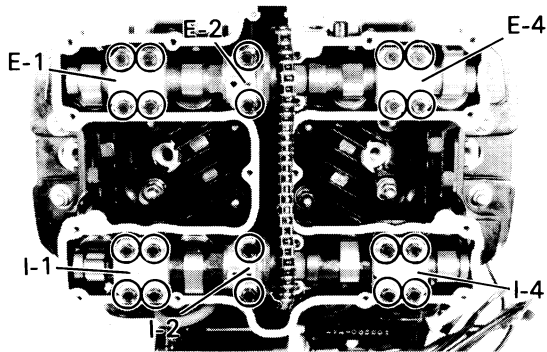
4. Remove:
 - Tensioner assembly ①
 - Upper chain guide ②



5. Remove:
 - Chain guide stopper ①
 - Exhaust side chain guide ②
 - No. 3 intake cam cap
 - No. 3 exhaust cam cap



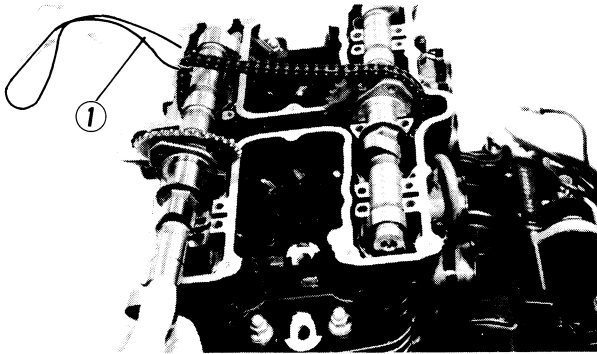
6. Remove:
 - Sprocket bolts ①
7. Dismount the sprockets from the camshaft sprocket seats



8. Remove:
- Cam caps

CAUTION:

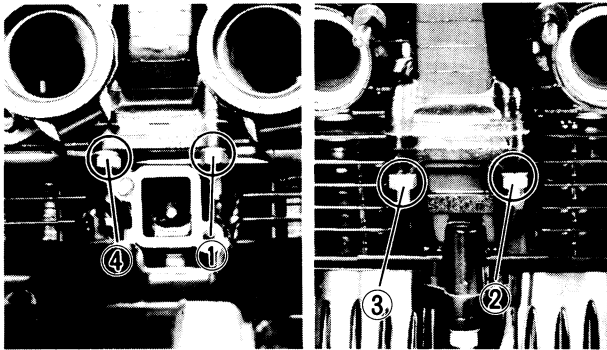
Do not rotate the camshaft or valve damage may occur.



9. Remove:
- Camshafts

NOTE:

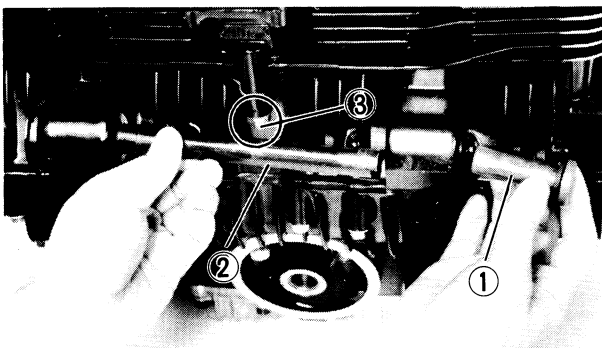
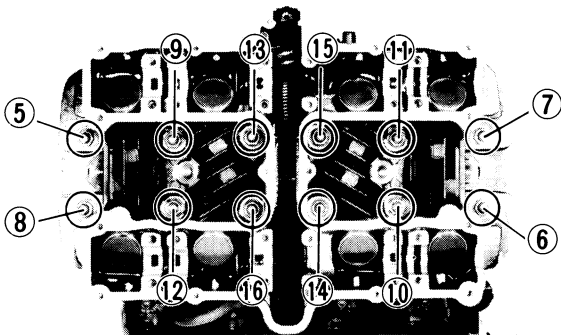
Fasten safety wire (1) to the cam chain to prevent it from falling into the crankcase.



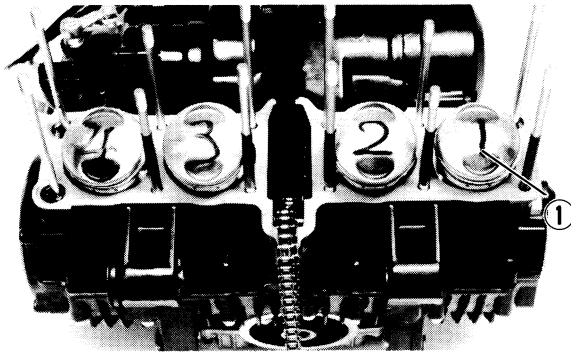
10. Remove:
- Cylinder head

NOTE:

Loosen the nuts in their proper loosening sequence.

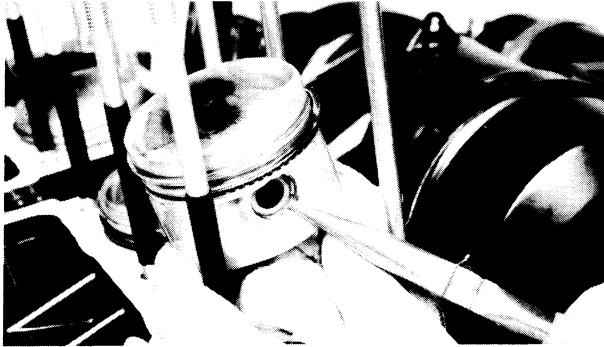


11. Remove:
- Damper (1)
 - Front engine mount spacer (2)
 - Nut (3)
 - Cylinder



PISTON AND INTAKE SIDE CAM CHAIN GUIDE

1. Mark:
 - Pistons
(with piston number ① designations as shown)

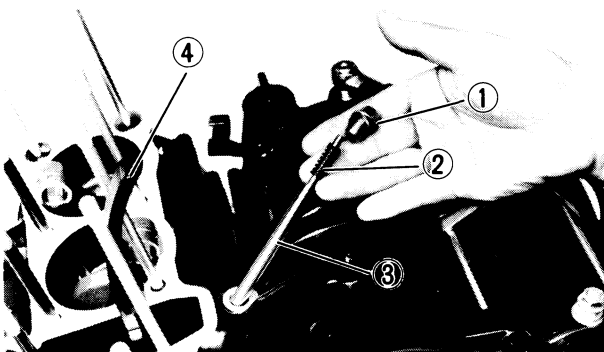


2. Remove:
 - Piston pin circlips

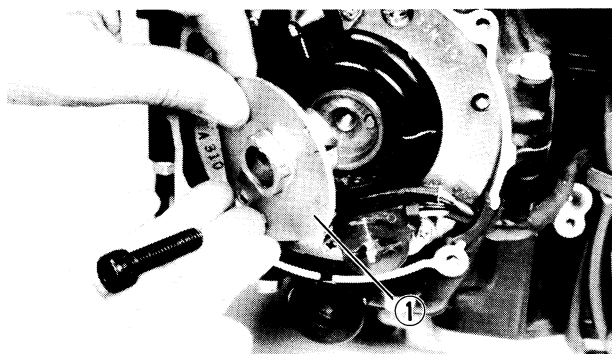
NOTE:

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

3. Remove:
 - Piston pins
 - PistonsPush piston pin from the opposite side, then pull it out.



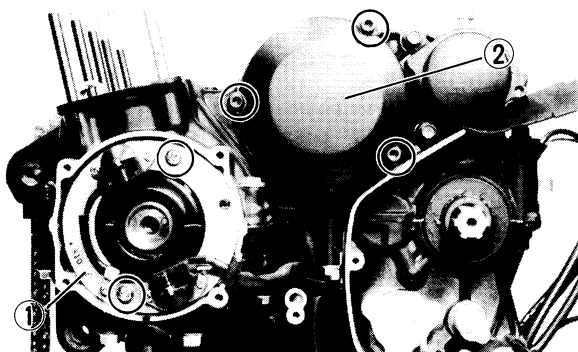
4. Remove:
 - Bolt ①
 - Plate washer
 - Spring ②
 - Stopper shaft ③
 - Intake side cam chain guide ④



PICK UP COIL, GENERATOR AND STARTER MOTOR

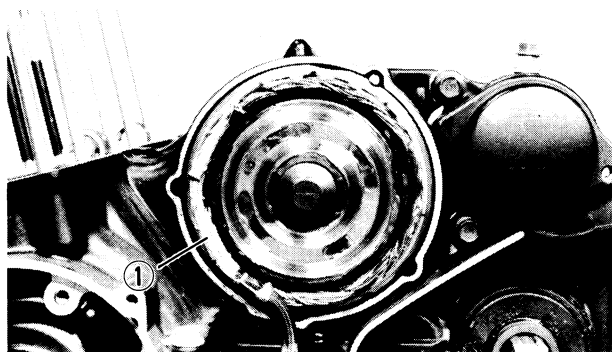
1. Remove:

- Screw
- Timing plate ①



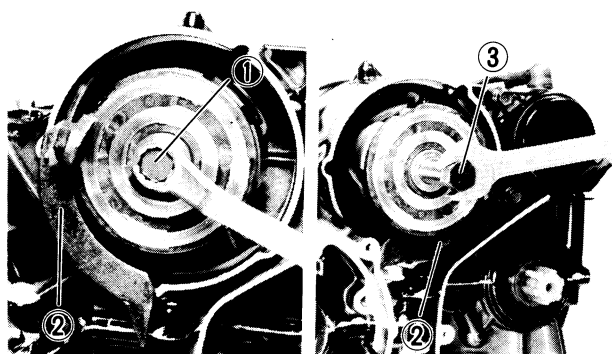
2. Remove:

- Pick up coil assembly ①
- Generator cover ②



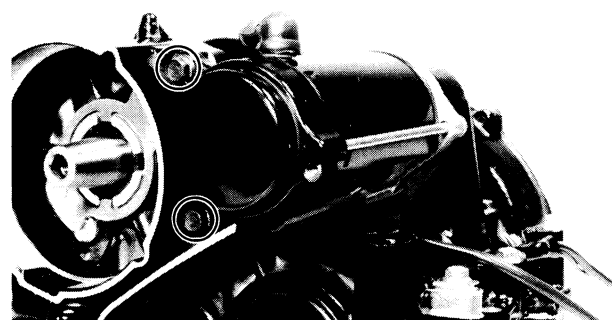
3. Remove:

- Stator coil ①



4. Remove:

- Rotor securing bolt ①
 - Rotor
- Use Rotor Holding Tool ② (YM-04067) and Rotor Puller ③ (YM-01080).



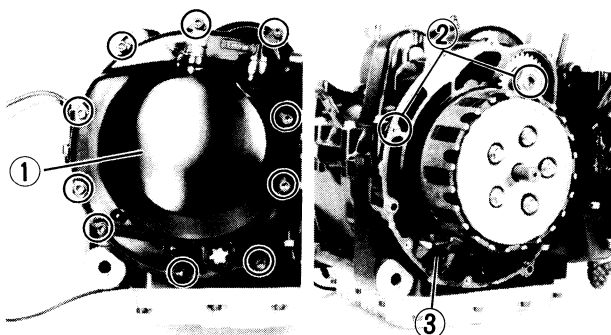
5. Remove:

- Starter motor

**CLUTCH**

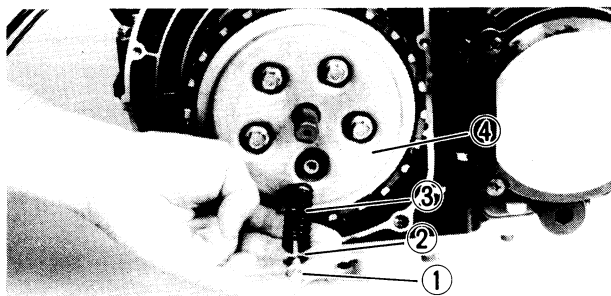
1. Remove:

- Right crankcase cover ①
- Dowels ②
- Gasket ③



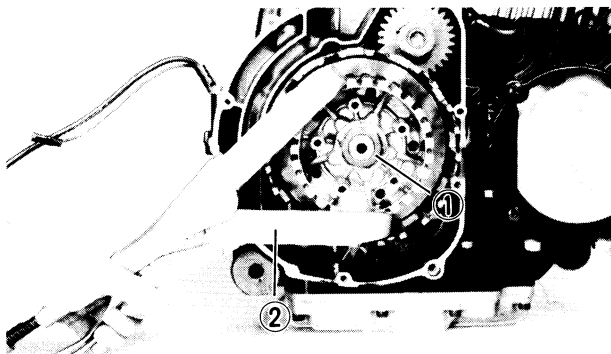
2. Remove:

- Bolts ①
- Plate washers ②
- Springs ③
- Pressure plate ④
- Friction plates
- Clutch plates

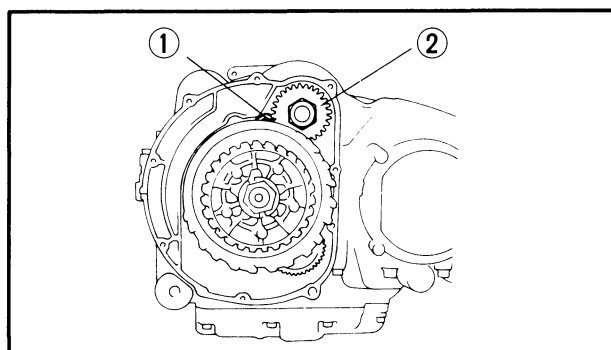


3. Loosen:

- Nut ①
- Use Universal Clutch Holder ②
(YM-91042)

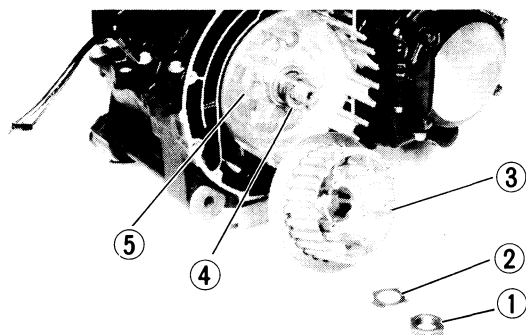
**NOTE:**

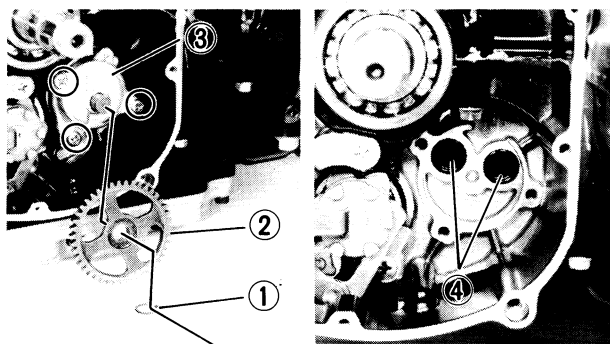
If you need to remove the primary drive gear at this stage, place a piece of rolled rug ① or lead between the primary drive gears. Then loosen the drive gear nut ②.



4. Remove:

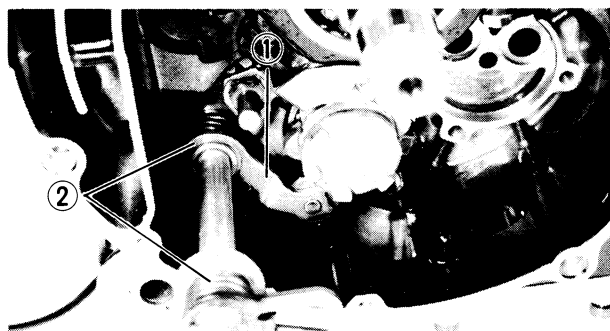
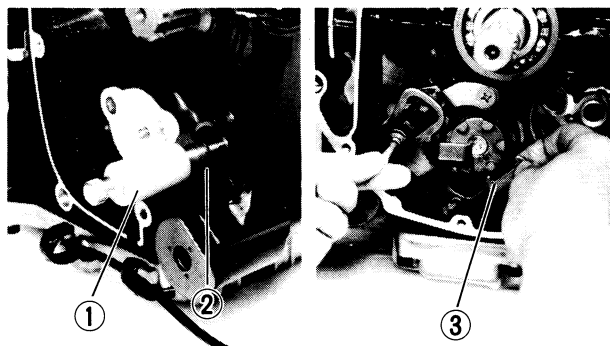
- Nut ①
- Lock washer ②
- Clutch boss ③
- Thrust washer ④
- Clutch housing ⑤





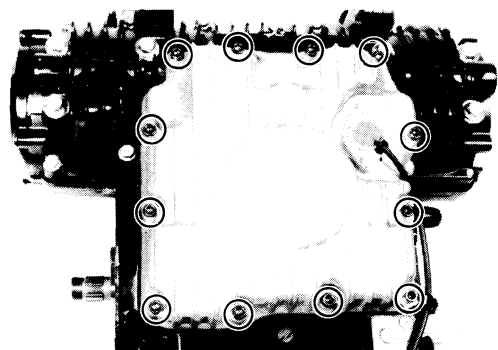
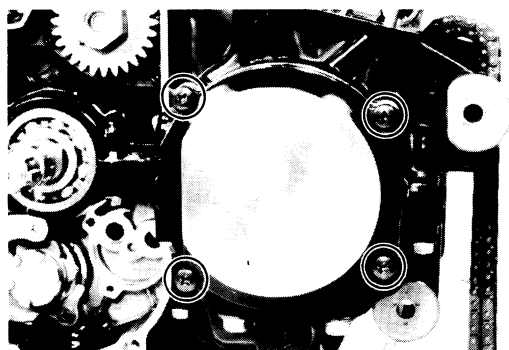
OIL PUMP AND SHIFT SHAFT

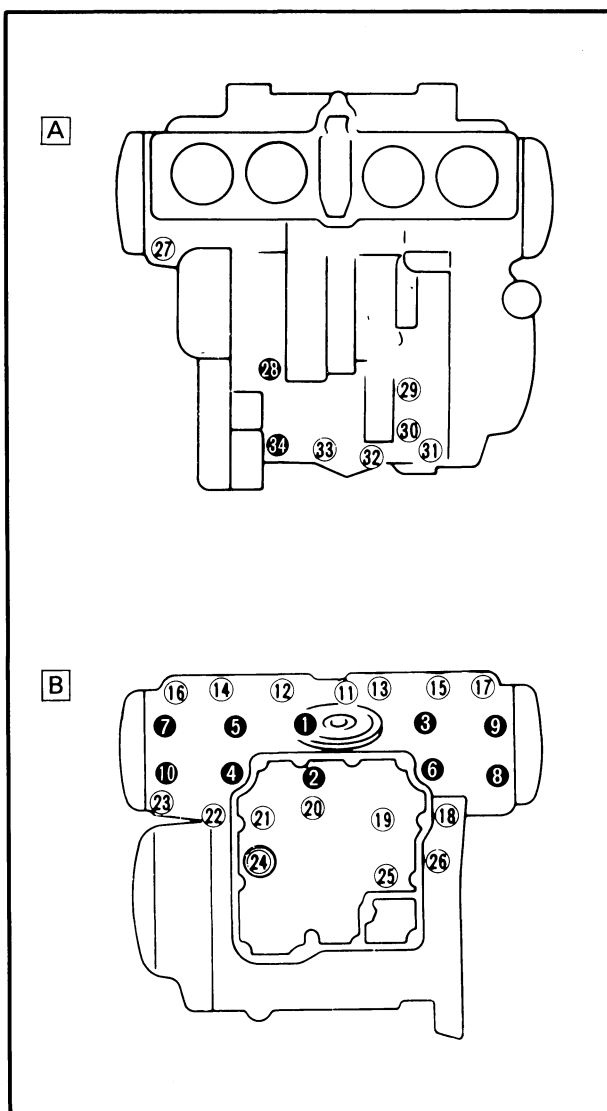
1. Remove:
 - Circlip ①
 - Oil pump driven gear ②
 - Oil pump assembly ③
 - O-rings ④
2. Remove:
 - Collar ①
 - Plate washer ②
(from left side shift shaft.)
3. Unhook the shift lever 2 ③ and pull the shift shaft.
4. Unhook the stopper lever ①
5. Remove:
 - Shift shaft assembly ②



CRANKCASE DISASSEMBLY

1. Remove:
 - Right-front crankcase cover
2. Remove:
 - Oil pan





3. Remove:

- Upper crankcase bolts **A**
- Lower crankcase bolts **B**

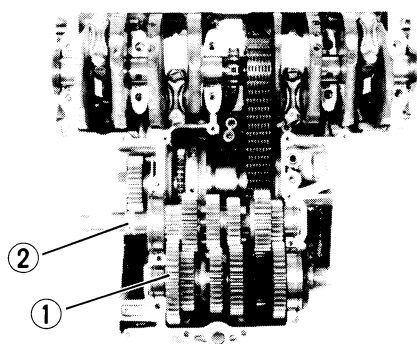
NOTE:

- Remove the bolts starting with the highest numbered one.
- The embossed numbers in the crankcase designate the crankcase tightening sequence.

4. Remove:

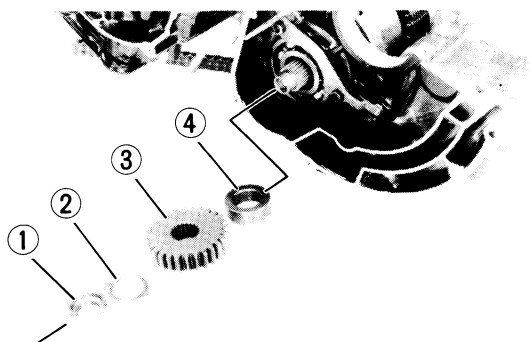
- Lower crankcase
Use a rubber hammer

- 6 mm bolts
- 8 mm bolts

**UPPER CRANKCASE**

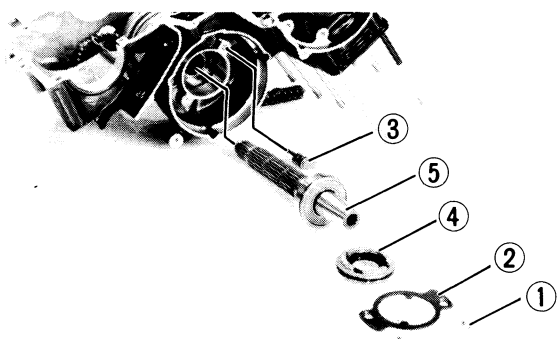
1. Remove:

- Drive axle assembly **①**
- Main axle assembly **②**

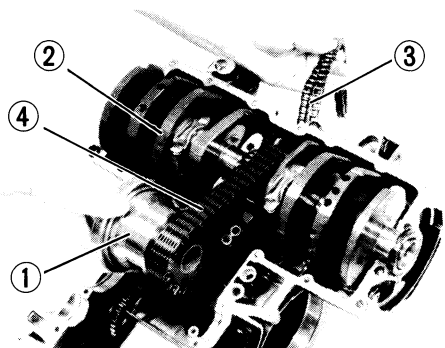


2. Remove:

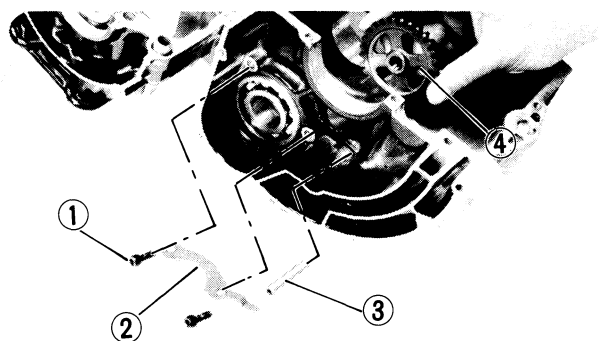
- Nut **①**
- Lock washer **②**
- Primary drive gear **③**
- Collar **④**



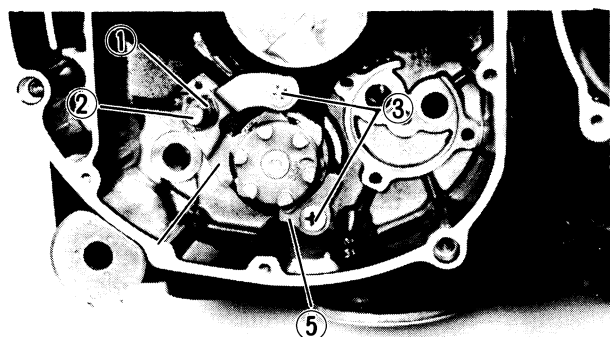
3. Remove:
- Screw ①
 - Cover plate ②
 - Oil spray nozzle ③
 - Bearing housing ④
 - A.C.G. shaft ⑤



4. Remove:
- Starter clutch damper assembly ①
 - Crankshaft assembly ②
 - Cam chain ③
 - HY-VO chain ④

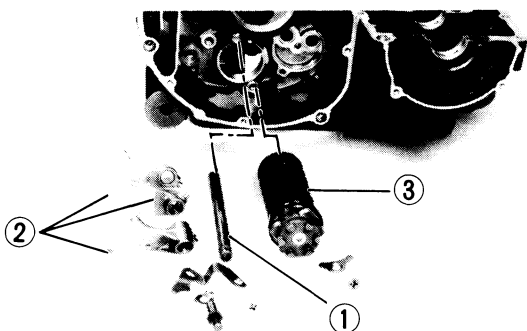


5. Remove:
- Screws ①
 - Bearing stopper ②
 - Shaft ③
 - Starter idler gear ④

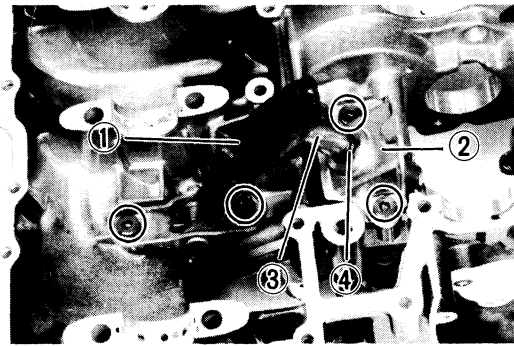


LOWER CRANKCASE

1. Remove:
- Lock washer ①
 - Stopper screw ②
 - Screws ③
 - Guide bar stopper ④
 - Bearing stopper ⑤

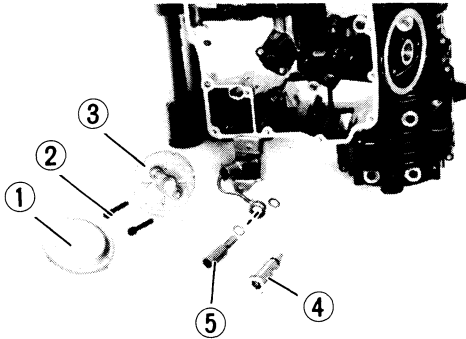


2. Remove:
- Guide bar ①
 - Shift forks ②
 - Shift cam assembly ③



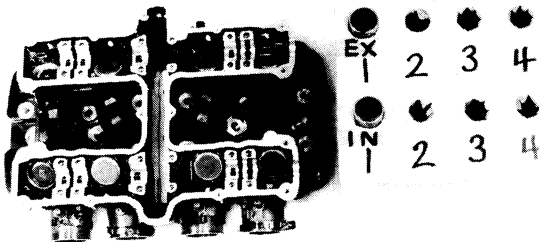
3. Remove:

- HY-VO chain guide ①
- HY-VO chain tensioner ②
- Tensioner plunger ③
- Spring ④



4. Remove:

- Oil strainer ①
- Screw ②
- Strainer housing ③
- Relief valve ④
- Tensioner side relief valve ⑤



INSPECTION AND REPAIR

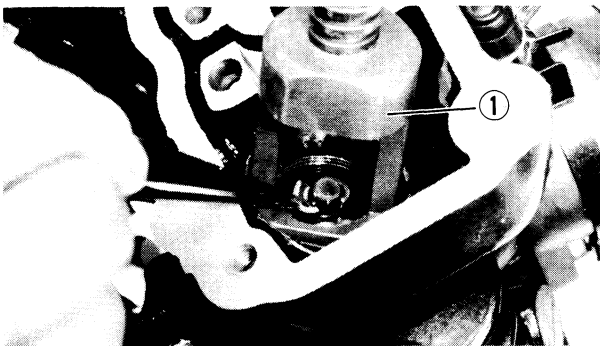
CYLINDER HEAD

1. Remove:

- Valve pads
- Lifters
- Spark plugs

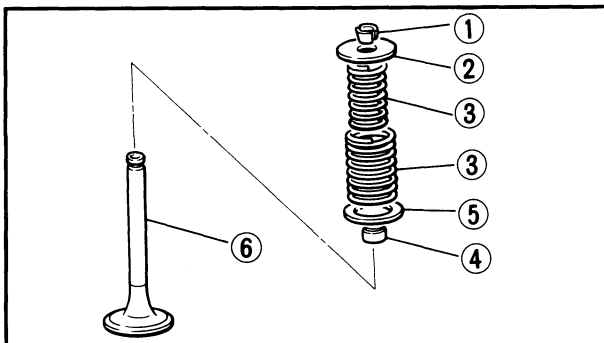
NOTE:

Identify each lifter and pad position very carefully so that it can be reinstalled in its original place.



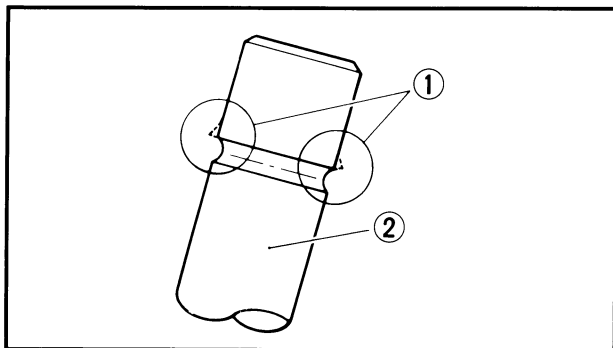
2. Attach:

- Valve Spring Compressor (YM-04019) ①



3. Remove:

- Valve retainers ①
- Valve spring seat ②
- Valve springs ③
- Oil seal ④
- Valve spring seat ⑤
- Valve ⑥

**NOTE:**

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

- ① Deburr
- ② Valve stem

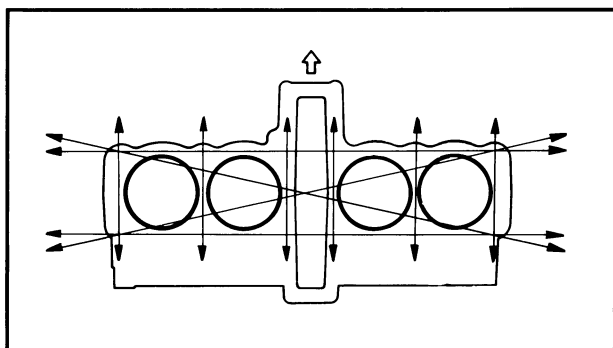
4. Eliminate:

- Carbon deposit
(from combustion chamber)
- Use rounded scraper

NOTE:

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

- Spark plug threads
- Valve seat
- Aluminum



5. Measure:

- Warpage
- Exceeds allowable limit → Resurface.



Cylinder Head Warpage:
Less than 0.03 mm (0.0012 in)
Allowable Limit:
0.25 mm (0.010 in)

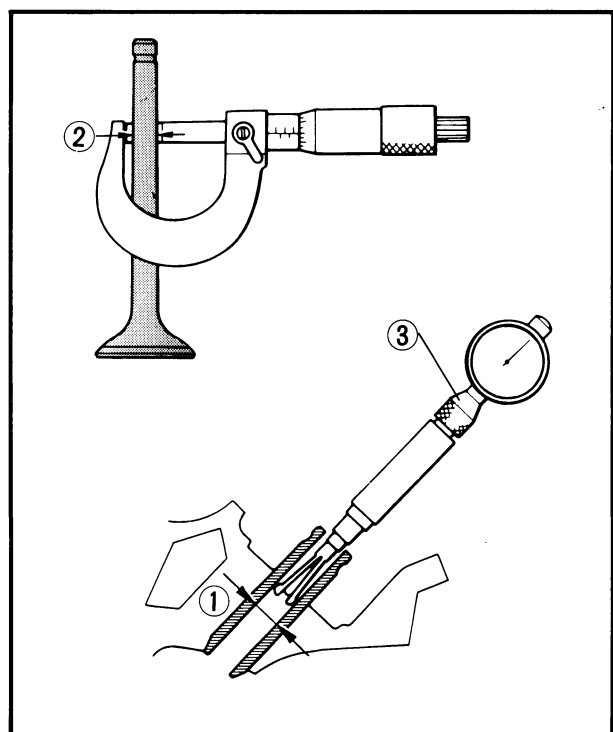
VALVE, VALVE GUIDE, VALVE SEATS, AND VALVE SPRING

1. Measure:

- Valve stem clearance

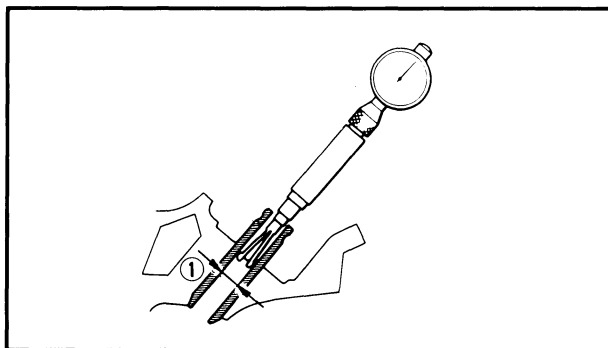
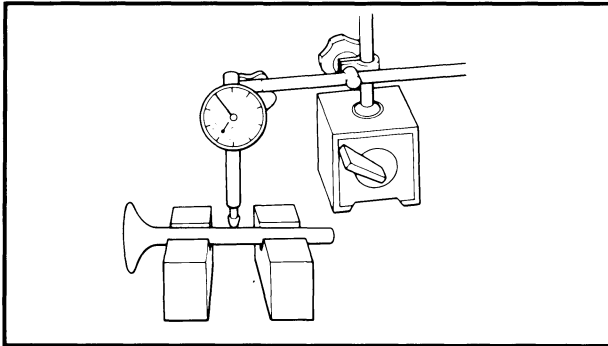
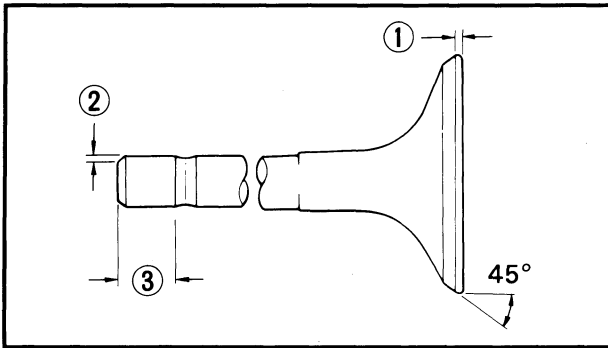
Valve stem clearance =
Valve guide inside diameter ①
– Valve stem diameter ②

Out of specification → Replace valve or guide.



Valve Stem Clearance		Maximum
Intake	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.10 mm (0.004 in)
Exhaust	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)	0.12 mm (0.005 in)

- ③ Bore gauge



2. Measure:

- Valve face
Pitting/Wear → Re grind.
Out of specification → Replace.

**Minimum Thickness
(Service limit) ① :**

0.7 mm (0.0276 in)

Beveled ② : 0.5 mm (0.020 in)**Minimum Length****(Service limit) ③ :**

4.0 mm (0.157 in)

3. Check

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

**Maximum Valve Stem Runout:**
0.03 mm (0.0012 in)

4. Measure:

- Valve guide (inside diameter) ①
Out of specification → Replace.

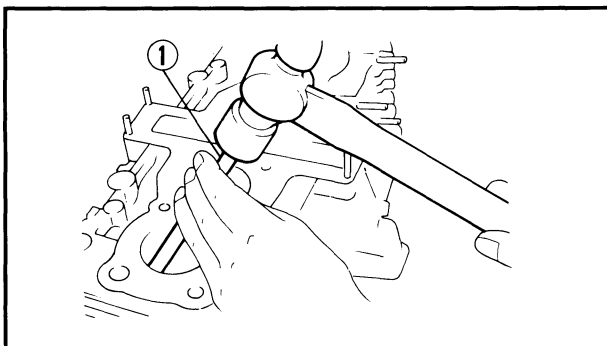
**Guide Inside Diameter:****Limit: 6.10 mm (0.240 in)**

5. Inspect:

- Valve guide
Wear/Oil leakage → Replace.

NOTE:

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

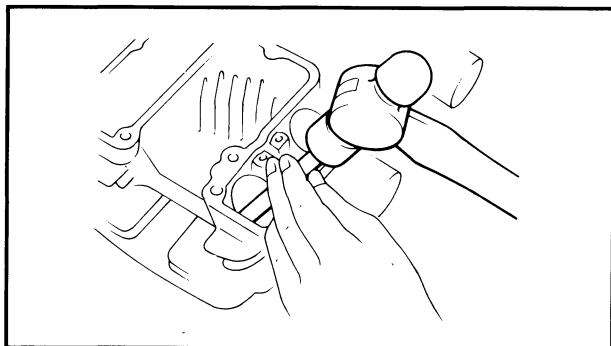
**Valve Guide Replacement**

1. Remove:

- Valve guide
Use Valve Guide Remover (YM-04064) ①.

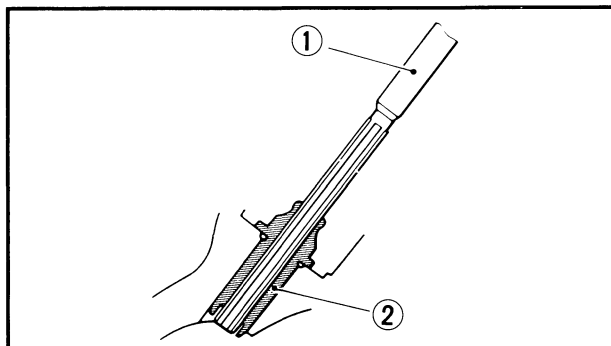
NOTE:

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



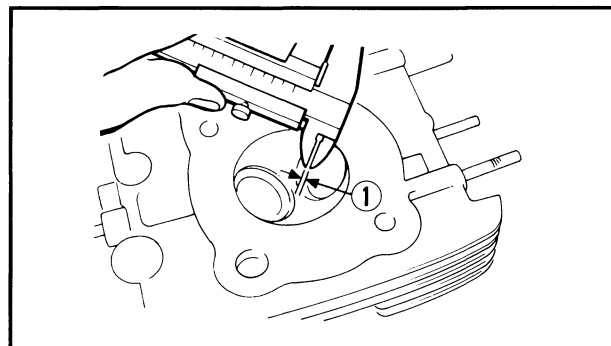
2. Install:

- Valve guide (new)
Use Valve Guide Installer (YM-04065)
and Valve Guide Remover (YM-04064).



3. Bore valve guide ② to obtain proper valve stem clearance.

Use 6 mm Reamer (YM-04066) ① .


**Valve Seat**

1. Inspect:

- Valve seat
Pitting/Wear → Cut.

2. Measure:

- Valve seat width ①
Out of specification → Follow next steps.

	Standard Width	Wear Limit
Valve Seat Width	1.0 ± 0.1 mm (0.039 ± 0.0039 in)	1.7 mm (0.067 in)

3. Apply:

- Mechanic's bluing dye (Dykem)
(to valve and seat)
- Fine grinding compound (Small amount)
(to valve face surface)

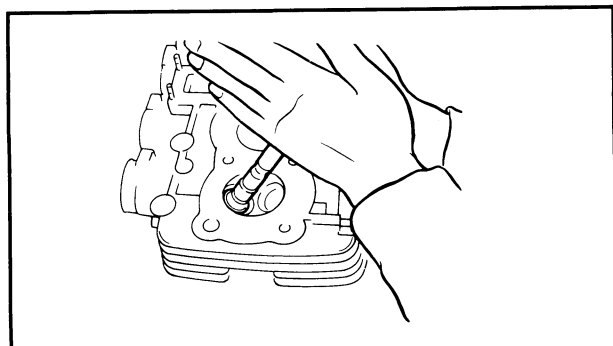
4. Position:

- Valve
(into cylinder head)

5. Spin it rapidly back and forth, then lift valve and clean off all grinding compound.

6. Inspect:

- Valve seat surface
Wherever valve seat and valve face made contact, bluing will have been removed.



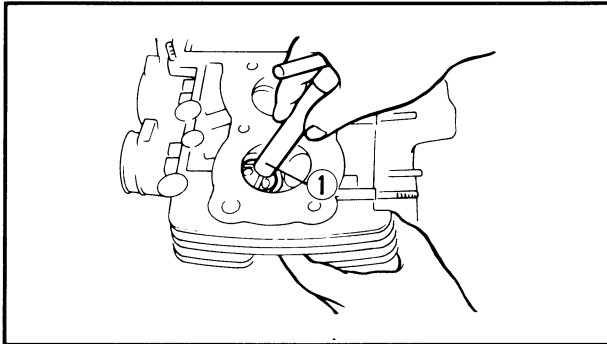


7. Measure:

- Valve seat width

Valve seat width must be uniform in contact area.

Out of specification → Cut.



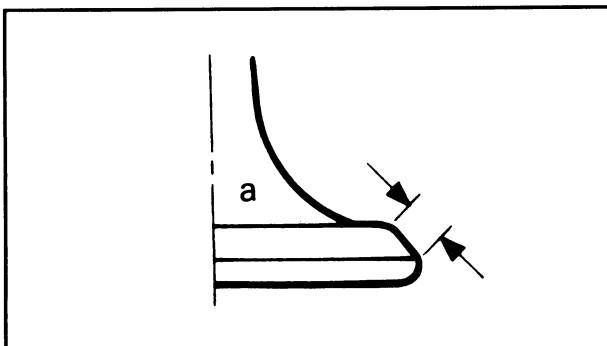
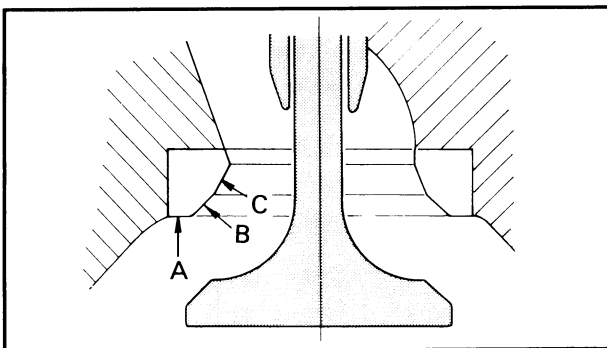
8. Cut valve seat.

NOTE:

Cut valve seat using valve seat cutter ① if valve seat width exceeds limit or if valve seat is pitted or worn.

CAUTION:

When twisting cutter, keep an even downward pressure to prevent chatter marks.



Valve seat recutting steps are necessary if:

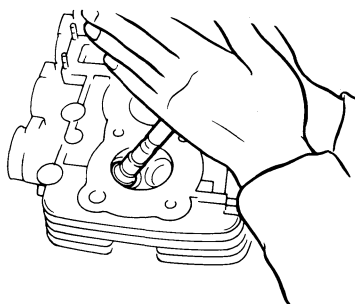
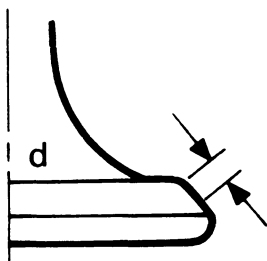
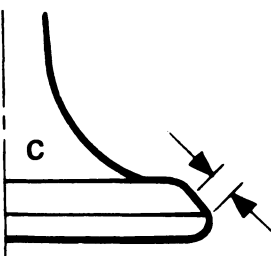
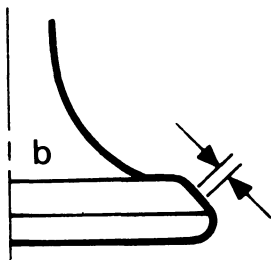
- Valve seat is uniform around perimeter of valve face but too wide or too narrow or not centered on valve face.

Cut Valve Seat As Follows:

Section A	0° Cutter
Section B	45° Cutter
Section C	60° Cutter

- Valve face indicates that valve seat is centered on valve face but is wide (See "a" diagram).

Valve Seat Cutter Set		Desired Result
Use	0° Cutter	to reduce valve seat width.
	60° Cutter	



- Valve seat is in the middle of the valve face but too narrow (See "b" diagram).

Valve Seat Cutter Set		Desired Result
Use	45° Cutter	to achieve a uniform valve seat width (Standard specification).

- Valve seat is too narrow and right up near valve margin (See "c" diagram).

Valve Seat Cutter Set		Desired Result
Use	0° Cutter, first	to obtain correct seat width.
	45° Cutter	

- Valve seat is too narrow and is located down near the bottom edge of the valve face (See "d" diagram).

Valve Seat Cutter Set		Desired Result
Use	60° Cutter, first	to obtain correct seat width.
	45° Cutter	

NOTE:

Lap valve/valve seat assembly if:

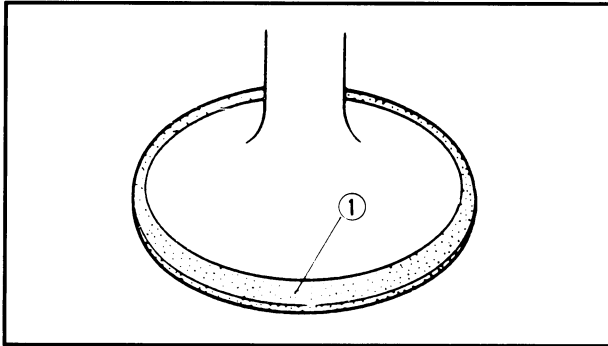
- Valve face/valve seat are used or severely worn.
- Valve and valve guide has been replaced.
- Valve seat has been cut.

Valve/Valve Seat Assembly Lapping

1. Apply:
 - Coarse lapping compound (Small amount) (to valve face)
2. Position
 - Valve (in cylinder head)



3. Rotate:
 - Valve
Turn until valve and valve seat are evenly polished, then clean off compound.
4. Repeat above steps with fine compound and continue lapping until valve face shows a completely smooth surface uniformly.



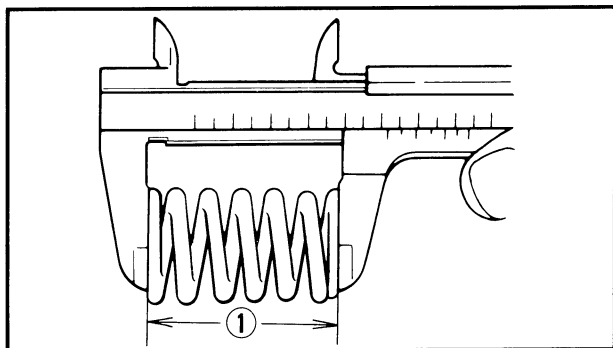
5. Eliminate:
 - Compound
(from valve face)
6. Apply:
 - Mechanic's bluing dye (Dykem) ①
(to valve face and seat)
7. Rotate:
 - Valve
Valve must make full seat contact indicated by grey surface all around valve face where bluing was removed.
8. Apply:
 - Solvent
(into each intake and exhaust port)
Leakage past valve seat → Replace valve until seal is complete.

NOTE:

Pour solvent into intake and exhaust ports only after completion of all valve work and assembly of head parts.

Relapping steps:

- Reassemble head parts.
- Repeat lapping steps using fine lapping compound.
- Clean all parts thoroughly.
- Reassemble and check for leakage again using solvent.
- Repeat steps as often as necessary to effect a satisfactory seal.

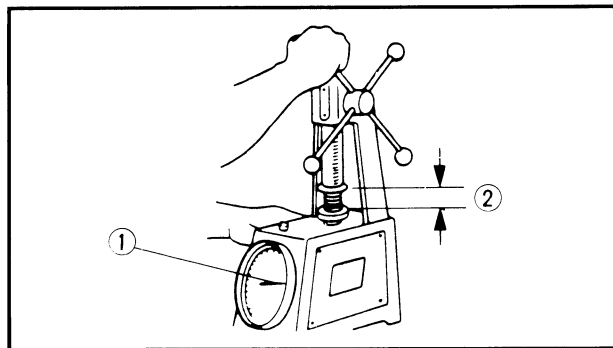
**Valve Spring Measurement**

1. Measure:

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

**Valve Spring Free Length**

Inner Spring		Outer Spring	
Standard	Wear limit	Standard	Wear limit
35.5 mm (1.398 in)	33.5 mm (1.319 in)	37.2 mm (1.465 in)	35.2 mm (1.386 in)



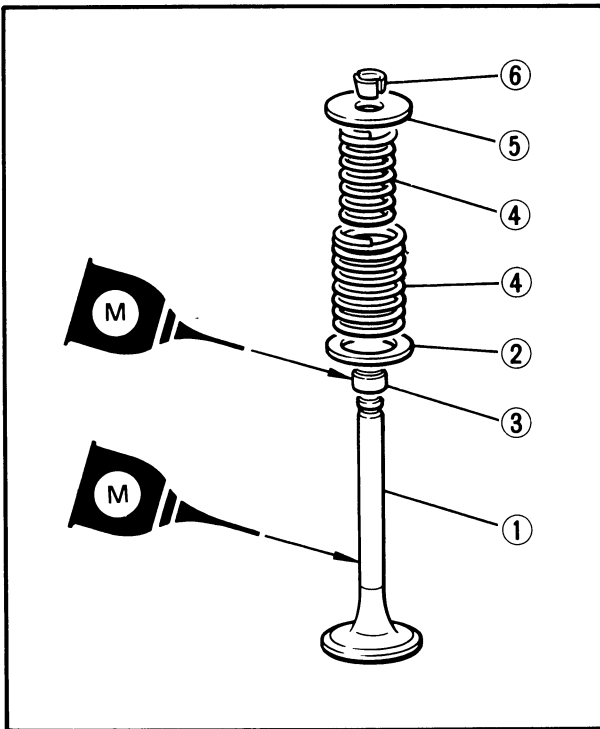
2. Measure:

- Valve spring installed force ①
Out of specification → Replace.

**Valve Spring Installed Force**

Inner Spring		Outer Spring	
②	①	②	①
30.5 mm (1.20 in)	9.3 kg (20.5 lb)	32.0 mm (1.26 in)	18.5 kg (40.8 lb)

② Installed length

**Valve Installation****1. Lubricate**

- Valve stem
- Oil seal



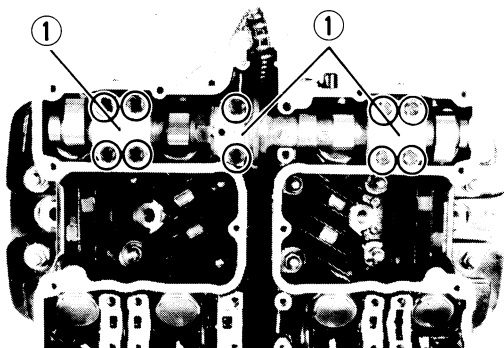
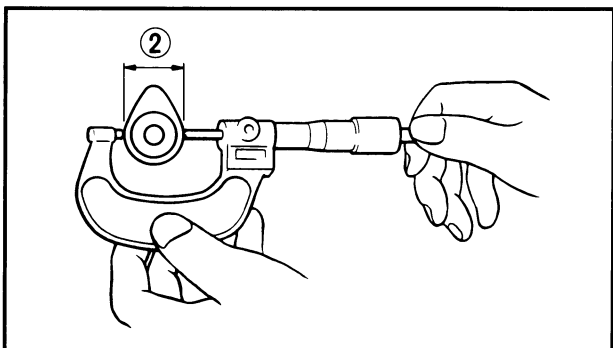
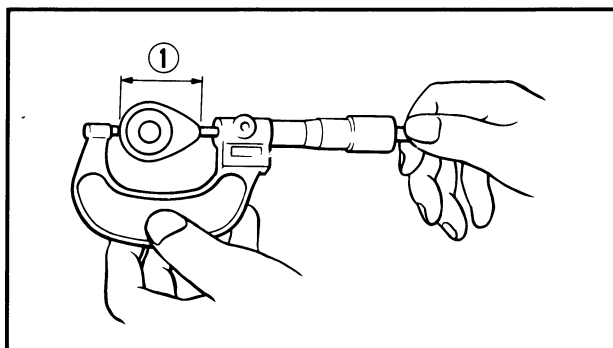
High-Quality Molybdenum Disulfide Motor Oil or Molybdenum Disulfide Grease.

2. Install:

- Valve ①
- Valve spring seat ②
- Oil seal ③
- Valve springs ④
- Valve spring seat ⑤
- Valve retainers ⑥

NOTE:

Install all springs with wider-gapped coils facing upwards as shown.



CAMSHAFT, CAM CHAIN, AND CAM SPROCKET

Camshaft

1. Measure:

- Large cam lobe length ①
- Small cam lobe length ②

Use a micrometer.

Out of specification → Replace.

	Intake	Exhaust
①	36.25~36.35 mm (1.427~1.431 in)	35.75~35.85 mm (1.408~1.411 in)
②	28.10~28.20 mm (1.106 ~ 1.110 in)	28.05~28.15 mm (1.104~1.108 in)

Camshaft/Cap Clearance Measurement

1. Install

- Camshaft

2. Position:

- Strip of Plastigage® (YU-33210)
(onto camshaft.)

3. Install:

- Camshaft caps ①



10 Nm (1.0 m·kg, 7.2 ft·lb)

NOTE:

Do not turn the camshaft when measuring clearance with plastigage.

4. Remove:

- Camshaft caps

5. Measure:

- Width of Plastigage® ①

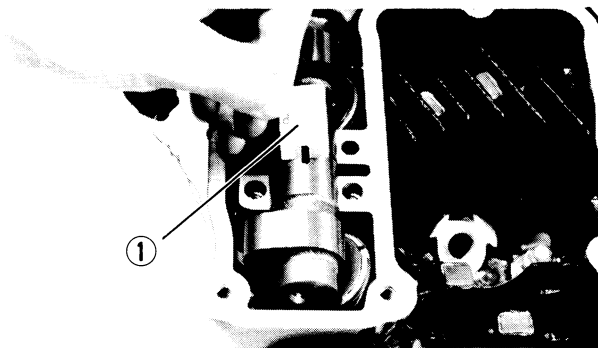
Out of specification → Follow step 6.



Camshaft-to-cap Clearance:

Standard: 0.020 ~ 0.054 mm
(0.0008 ~ 0.0021 in)

Maximum: 0.160 mm (0.006 in)





6. Measure:

- Camshaft bearing surface diameter
Use micrometer.
Out of specification → Replace camshaft.
Within specification → Replace cylinder head.

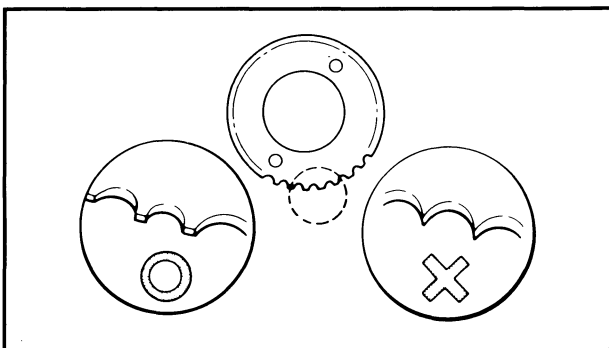
**Bearing Surface Diameter:**

Standard: 24.967~24.980 mm
(0.9830~0.9835 in)

Cam Chain

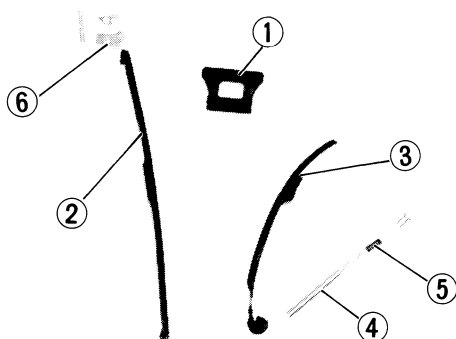
1. Inspect:

- Cam chain
Chain stretch/Cracks → Replace.

**Cam Sprockets**

1. Inspect:

- Cam sprockets
Wear/Damage → Replace.

**Cam Chain Dampers**

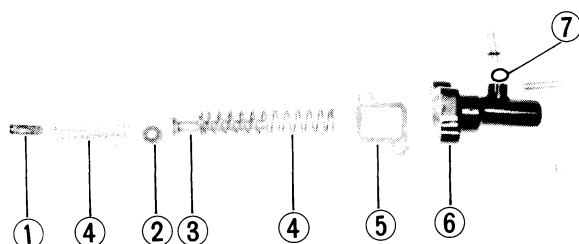
1. Inspect:

- Upper damper ①
 - Exhaust side chain guide ②
 - Intake side chain guide ③
 - Chain guide stopper ④
 - Spring ⑤
 - Guide stopper plate ⑥
- Wear/Damage → Replace

Cam Chain Tensioner

1. Inspect:

- All parts
Damage/Wear → Replace.



- ① Tensioner rod (Small)
- ② Damper
- ③ Tensioner rod (Large)
- ④ Spring
- ⑤ Gasket
- ⑥ Tensioner body
- ⑦ O-ring



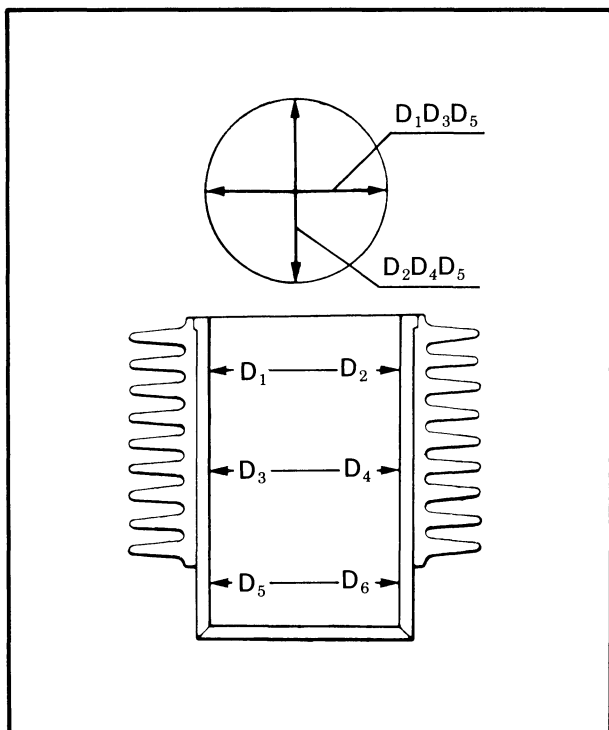
CYLINDER

1. Inspect:
 - Cylinder walls
Vertical scratches → Rebore or Replace cylinder.
2. Measure:
 - Cylinder inside diameter

NOTE:

Obtain measurements at three depths by placing measuring instrument parallel to and at right angles to crankshaft.

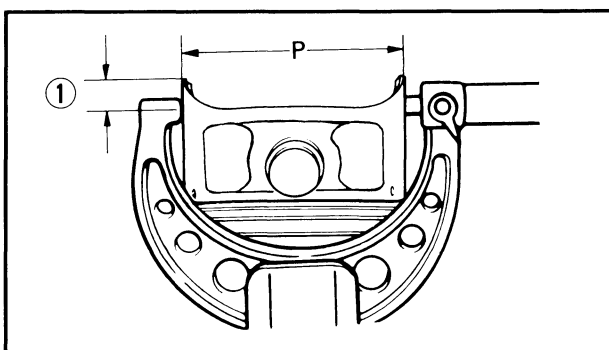
Out of specification → Rebore cylinder, and replace piston and piston rings.



	Standard	Wear limit
Cylinder Bore: C	58.5 mm (2.303 in)	58.6 mm (2.307 in)
Cylinder Taper: T	—	0.05 mm (0.002 in)

C = Maximum D

T = Maximum D_1, D_2 — Minimum D_5, D_6



PISTON, PISTON RING, AND PISTON PIN

Piston

1. Measure:
 - Piston skirt diameter "P"

NOTE:

Measure the piston skirt diameter where the distance 7.0 mm (0.276 in) ① from the piston bottom edge.

	Piston size
Standard	58.50 mm (2.303 in)
Oversize 2	59.00 mm (2.323 in)
Oversize 4	60.00 mm (2.362 in)



2. Measure:

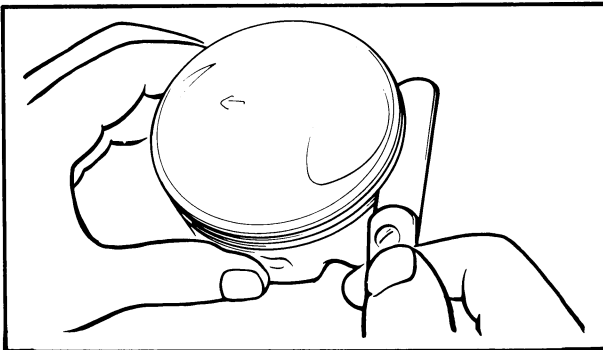
- Piston clearance

Out of specification → Rebore cylinder or replace piston.



Piston Clearance = C – P:
0.025 ~ 0.045 mm
(0.0010 ~ 0.0019 in)

C: Cylinder bore P: Piston outside diameter

**Piston Ring**

1. Measure:

- Ring side clearance

Use a feeler gauge.

Out of specification → Replace piston.

NOTE:

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

**Piston Ring Side Clearance:**

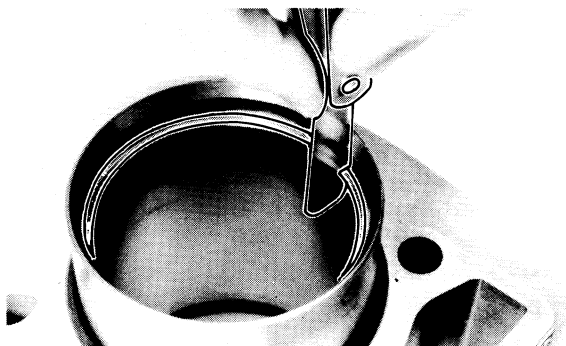
Top	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
2nd	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)

2. Position:

- Piston ring
(in cylinder)

NOTE:

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




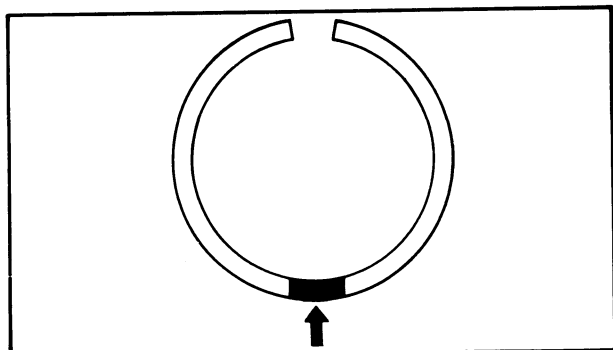
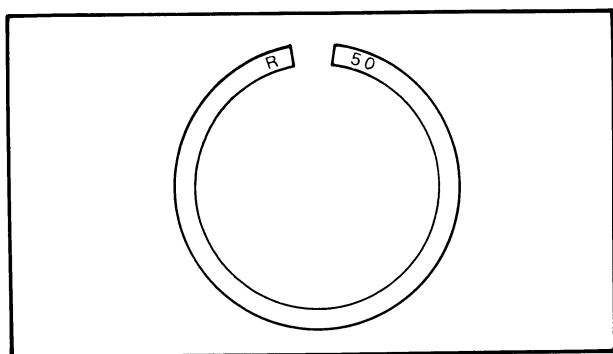
3. Measure:

- Ring end gap
Out of specification → Replace.

NOTE:

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

	Standard	Limit
Top ring	0.15~0.30 mm (0.0059~0.0118 in)	0.70 mm (0.0276 in)
2nd ring	0.15~0.30 mm (0.0059~0.0118 in)	0.70 mm (0.0276 in)
Oil control (Rails)	0.2~0.7 mm (0.008~0.028 in)	—

**Piston Ring Oversize**

- Top and 2nd piston ring

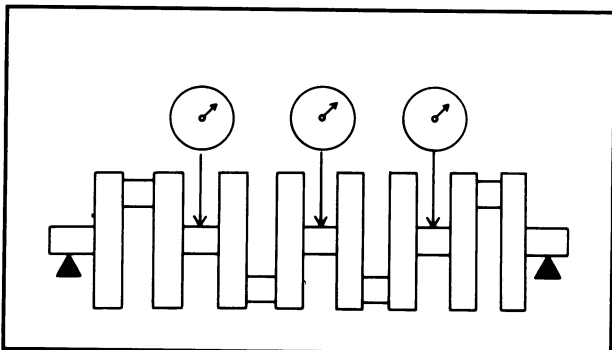
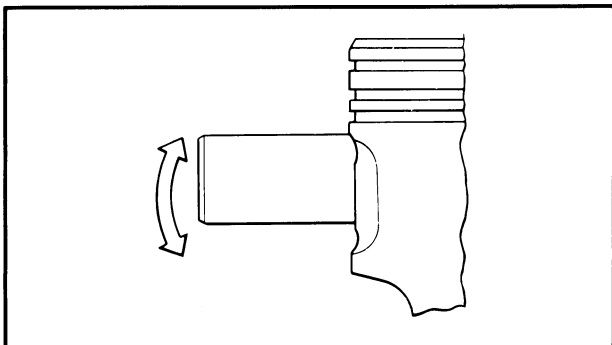
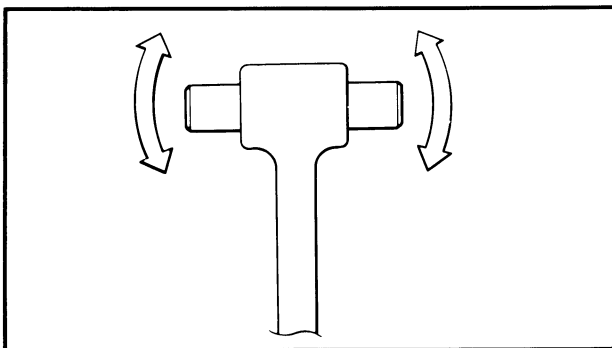
Oversize top and middle ring sizes are stamped on top of ring.

Oversize 2	0.50 mm (0.0197 in)
Oversize 4	1.00 mm (0.0394 in)

- Oil control ring

Expander spacer of bottom ring (oil control ring) is color-coded to identify sizes.

Size	Color
Oversize 2	Blue
Oversize 4	Yellow



Piston Pin

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

CRANKSHAFT AND CONNECTING ROD

Crankshaft Runout

1. Place both ends of crankshaft on V-blocks.
2. Rotate:
 - Crankshaft
3. Measure:
 - Crankshaft runout
(at main journal bearings)
Use a Dial Gauge (YU-03097).



Maximum Crankshaft Runout:
0.03 mm (0.0012 in)

Connecting Rod Bearings

1. Inspect:
 - Bearings
Burns/Flaking/Roughness/Scratches → Replace.

Connecting Rod Bearing Clearance

1. Clean all parts thoroughly.
2. Install:
 - Connecting rod bearings
(into connecting rod and cap)
3. Attach:
 - Plastigage®
(onto crankpin)
4. Position:
 - Connecting rod
(onto crankshaft)
 - Connecting rod cap



5. Apply:

- Molybdenum disulfide grease
(to bolt threads)

Torque both ends of rod cap evenly.

NOTE:

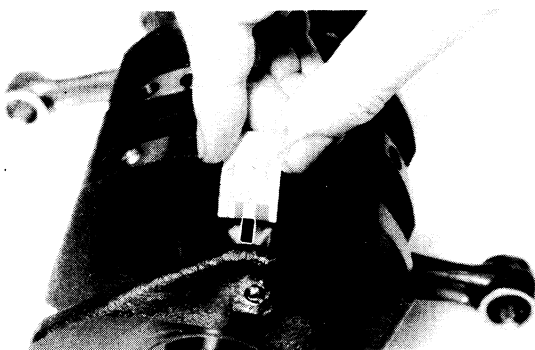
Do not move connecting rod until a clearance measurement has been completed.

CAUTION:

Tighten to full torque specification without pausing. Apply continuous torque between 2.0 and 2.5 m·kg. Once you reach 2.0 m·kg DO NOT STOP TIGHTENING until final torque is reached. If tightening is interrupted between 2.0 and 2.5 m·kg, loosen nut to less than 2.0 m·kg and start again.



25 Nm (2.5 m·kg, 18 ft·lb)



6. Remove:

- Connecting rod cap
Remove carefully.

7. Measure:

- Plastigage width
Out of specification → Replace connecting rod bearing.



Connecting Rod Bearing Clearance:

0.016 ~ 0.040 mm

(0.0006 ~ 0.0016 in)



Crankshaft Main Bearing Clearance Measurement

1. Clean all parts.
2. Position:
 - Upper crankcase half
Place on a bench in an upside down position.
3. Install:
 - Bearings
(into the upper crankcase)
 - Crankshaft
4. Attach:
 - Plastigage® (YU-33210)
(onto the crankshaft journal surface)

NOTE:

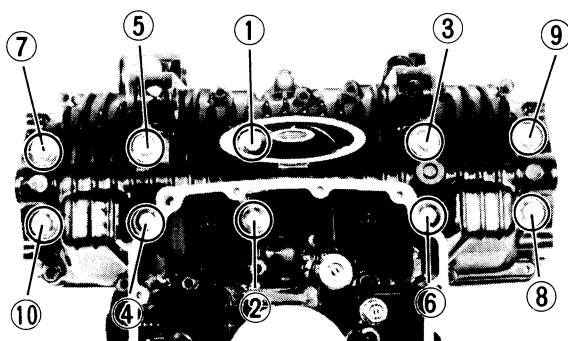
Do not move crankshaft until clearance measurement has been completed)

5. Install:
 - Bearings
(into lower crankcase)
 - Lower crankcase

6. Tighten:
 - Bolts

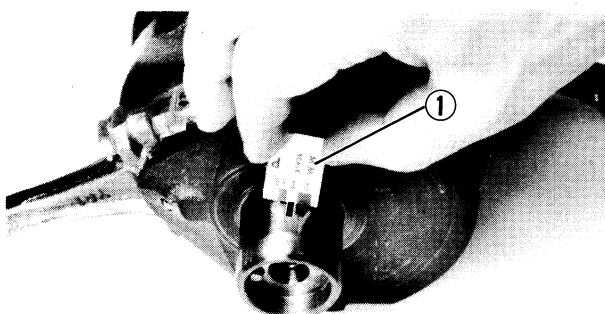
CAUTION:

Tighten to full torque in torque sequence cast on the crankcase.



8 mm (0.3 in) Bolt:
24 Nm (2.4 m·kg, 17 ft·lb)

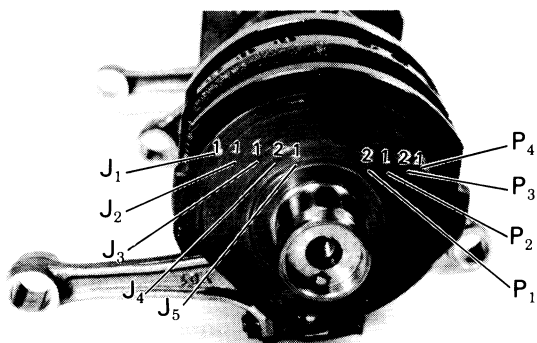
7. Remove:
 - Bolts
Reverse assembly order
 - Lower crankcase
Use care in removing.



8. Measure:
 - Plastigage width® ① (YU-33210)
Out of specification → Replace bearings;
replace crankshaft if necessary.

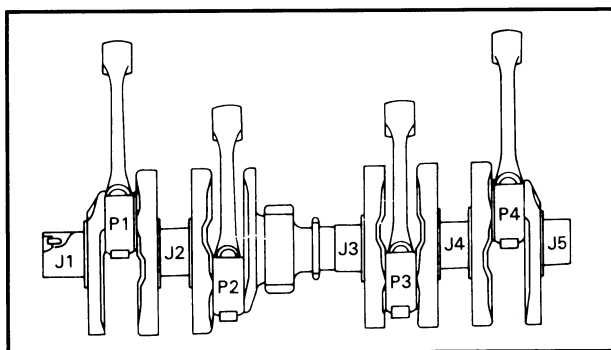
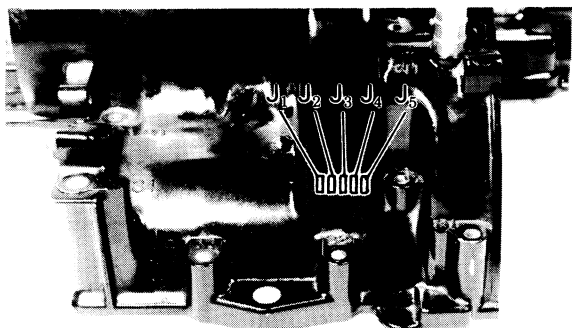


Main Bearing Oil Clearance:
0.021 ~ 0.044 mm
(0.0008 ~ 0.0017 in)

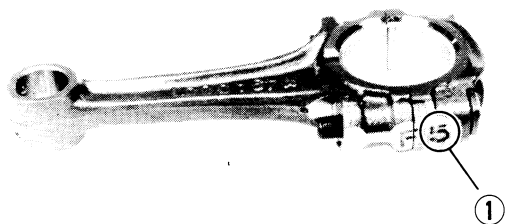


Crankshaft Main and Connecting Rod Bearing Selection

- Numbers used to indicate crankshaft journal sizes are stamped on the LH crankweb. The first five (5) are main bearing journal numbers, starting with the left journal. The four (4) rod bearing journal numbers follow in the same sequence.
- The upper crankcase half is numbered J1, J2, J3, J4, and J5 on the rear right bosse as shown.



- The connecting rods are numbered 4 or 5. The numbers are stamped in ink on the rod cap ①.



BEARING COLOR CODE

BEARING COLOR CODE	
No. 1	Blue
No. 2	Black
No. 3	Brown
No. 4	Green
* No. 5	Yellow

* No. 5 applies only to the crankshaft main bearing selection.

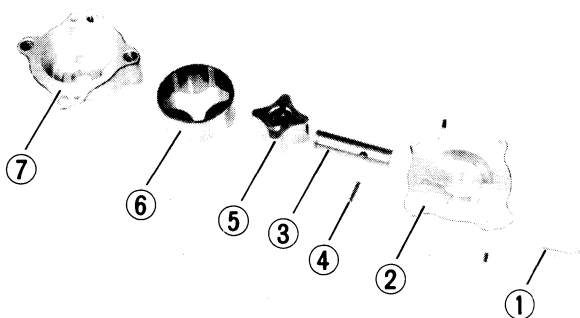


Example 1: Selection of the crankshaft main bearing; If the crankcase J1 and crankshaft J1 sizes are No. 4 and No. 1, respectively, the bearing size No. is:

$$\begin{aligned} \text{Bearing size No.} &= \\ \text{Crankcase No.} - \text{Crankshaft No.} &= \\ 4 - 1 &= 3 \text{ (Brown)} \end{aligned}$$

Example 2: Selection of the connecting rod bearing; If the connecting rod P1 and crankshaft P1 sizes are No. 4. and No. 1, respectively, the bearing size No. is:

$$\begin{aligned} \text{Bearing size No.} &= \\ \text{Connecting rod No.} - \text{crankshaft No.} &= \\ 4 - 1 &= 3 \text{ (Brown)} \end{aligned}$$



OIL PUMP

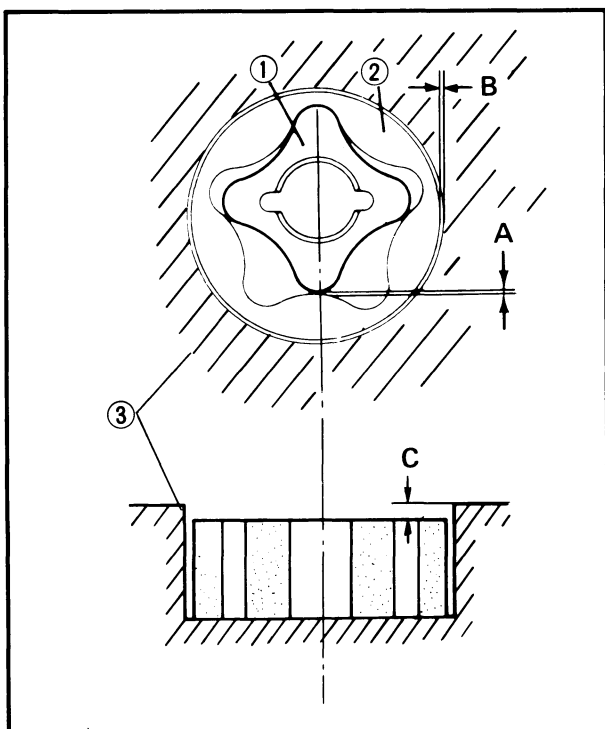
1. Remove:

- Screw ①
- Pump cover ②
- Shaft ③
- Pin ④
- Inner rotor ⑤
- Outer rotor ⑥
- Pump housing ⑦

2. Measure:

- Clearance "A"
(between inner rotor ① and outer rotor ②)
- Clearance "B"
(between outer rotor ② and pump housing ③)
- Clearance "C"
(between pump housing ③ and rotors ①, ②)

Out of specification → Replace oil pump.



Oil Pump Clearance:

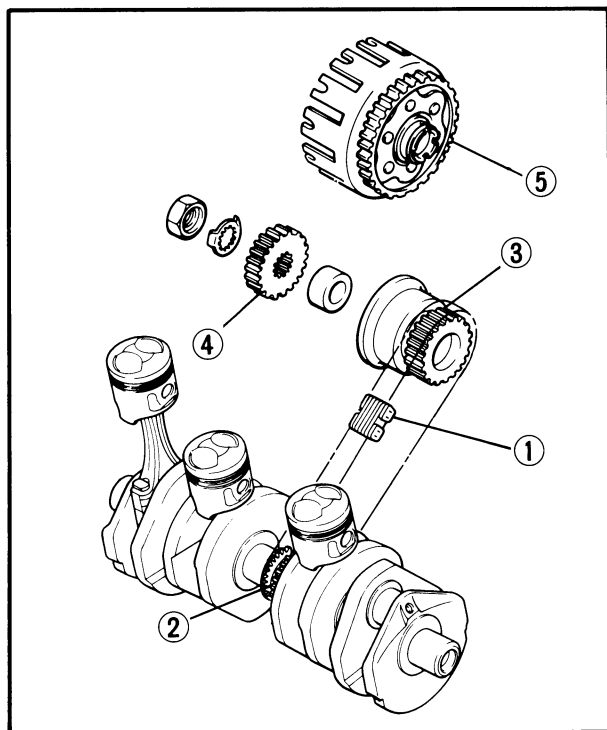
Clearance "A"	0.03~0.09 mm (0.0012~0.0035 in)
Clearance "B"	0.03~0.08 mm (0.0012~0.0031 in)
Clearance "C"	0.03~0.09 mm (0.0012~0.0035 in)



3. Install:
 - Oil pump parts.
4. Tighten:
 - Screw



7 Nm (0.7 m·kg, 5.1 ft·lb)



PRIMARY DRIVE

1. Inspect:
 - HY-VO chain ①
 - Crankshaft drive sprocket ②
 - Clutch damper driven sprocket ③
 - Primary drive gear ④
 - Primary driven gear ⑤

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

Primary Reduction Ratio:

No. of teeth		Ratio
③ / ②	⑤ / ④	
22/21	65/25	2.432

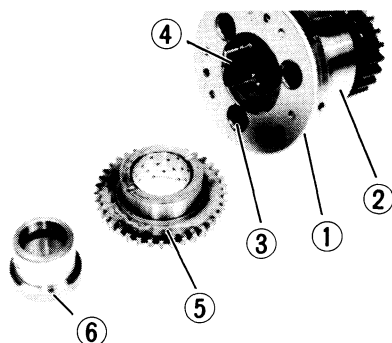
STARTER DRIVES

Electric Starter Clutch

1. Check:
 - Ball operation
 - Spring operation
 - Spring cap operation

Unsmooth operation → Replace one-way clutch.
2. Inspect:
 - Surface of the idle gear

Pitting/Wear/Damage → Replace.



3. Installation

a. Install:

- Cover ①
- Outer starter clutch ②

b. Tighten:

- Bolts ③



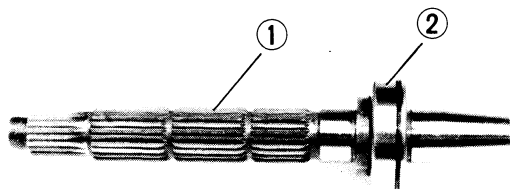
24 Nm (2.4 m·kg, 17 ft·lb)

LOCTITE®

Stake Over the End of the Bolt

c. Install:

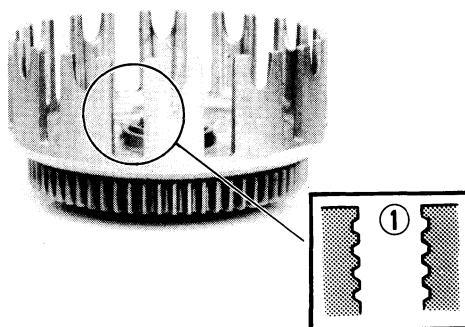
- Spring
- Spring cap
- Ball ④
- Idler gear ⑤
- Collar ⑥



Starter Clutch Shaft

1. Check:

- Shaft ①
Wear/Damage → Replace
- Bearing ②
Unsmooth operation → Replace



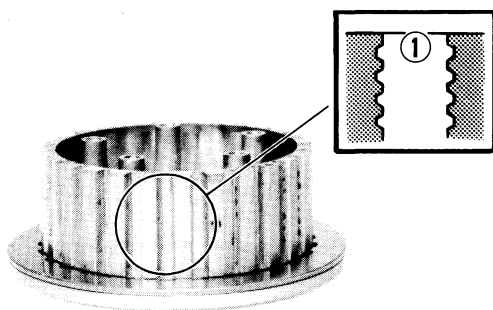
CLUTCH

1. Inspect:

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

NOTE:

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

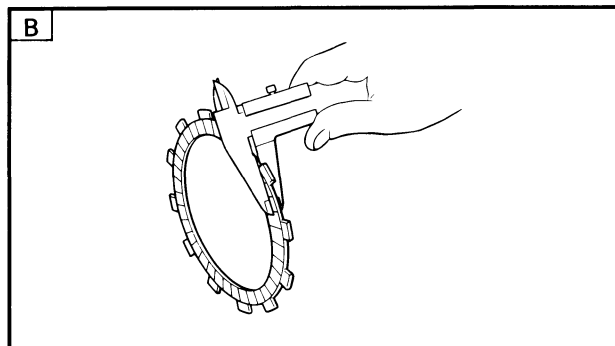
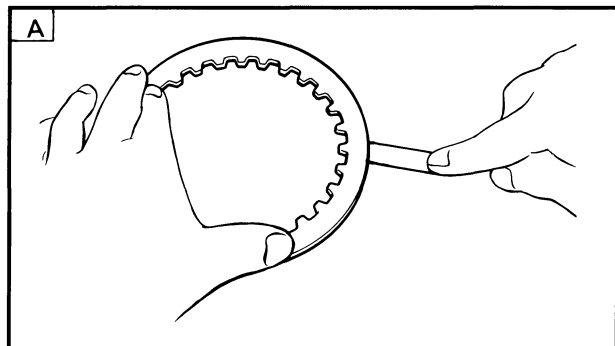


2. Inspect:
- Clutch housing bearing
Damage → Replace.

3. Inspect:
- Clutch boss spline ①
Pitting:
Moderate → Deburr.
Severe → Replace.

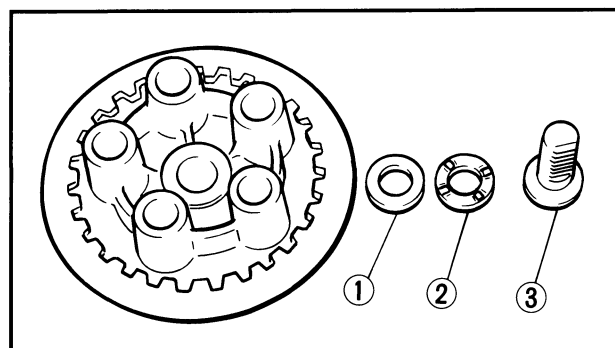
NOTE:

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

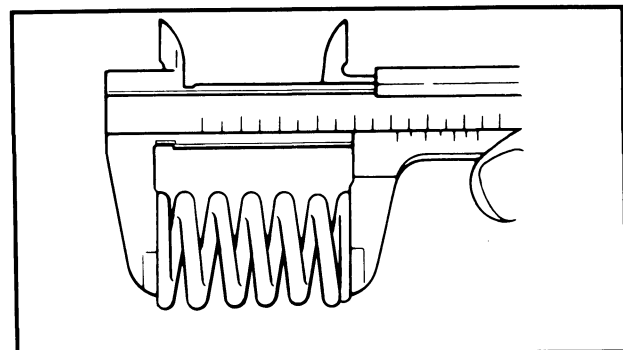


4. Measure:
- Clutch plate warpage **A**
 - Friction plate thickness **B**
Out of specification → Replace.
Clutch or friction plate as a set.

	Standard	Wear limit
Friction Plate Thickness	3.0 mm (0.12 in)	2.8 mm (0.11 in)
Clutch Plate Warp Limit	—	0.1 (0.004 in)



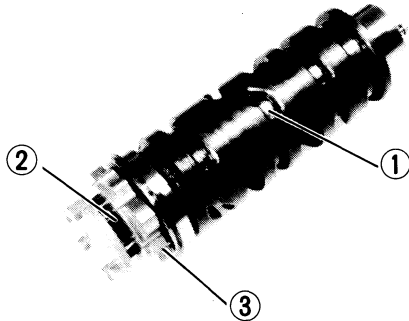
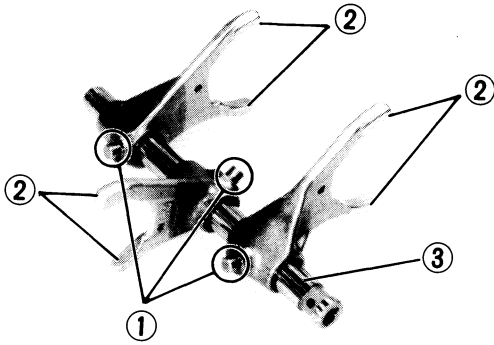
5. Inspect:
- Washer ①
 - Thrust bearing ②
 - Pull rod ③
Damage → Replace.



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



**Clutch Spring Minimum Free Length:
40.2 mm (1.583 in)**

**TRANSMISSION****1. Inspect:**

- Shift fork cam follower ①
 - Shift fork pawl ②
- Scoring/Bends/Wear → Replace.

2. Check:

- Guide bar ③
- Roll across a surface plate.
Bends → Replace

3. Inspect:

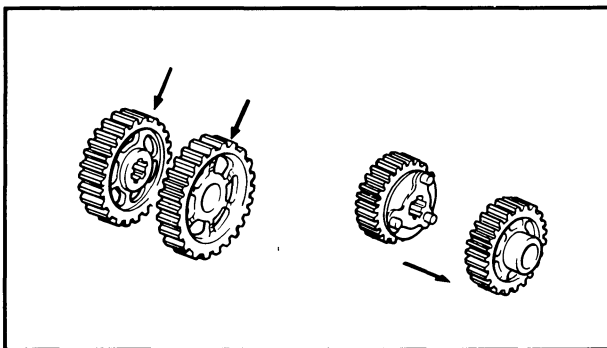
- Shift cam groove ①
 - Shift cam dowel ② and side plate
 - Shift cam stopper plate ③ circlip and stopper.
- Wear/Damage → Replace.

4. Measure:

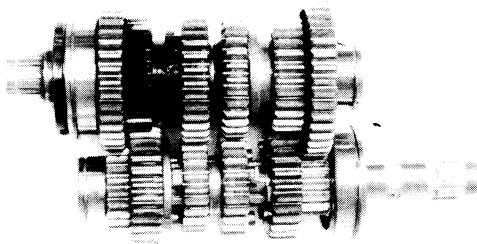
- Transmission shaft runout
- Use centering device and dial gauge.
Out of specification → Replace bent shaft.



Maximum Runout:
0.08 mm (0.0031 in)

**5. Inspect:**

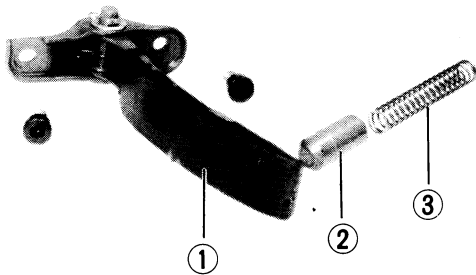
- Gear teeth
- Blue discoloration/Pitting/Wear
→ Replace.
- Mated dogs
- Rounded edges/Cracks/Missing portions
→ Replace.

**6. Check:**

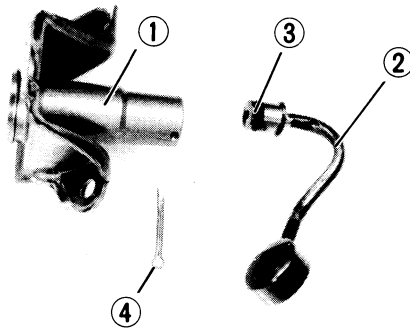
- Proper gear engagement (Each gear)
(to its counter part)
- Incorrect → Resemble
- Gear movement
- Roughness → Replace.



HY-VO CHAIN GUIDE AND TENSIONER

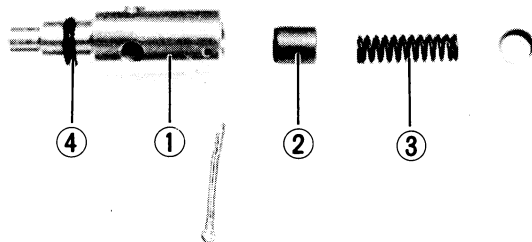


1. Check:
 - HY-VO chain guide ①
 - Tensioner plunger ②
 - Spring ③
 Damage/Wear → Replace

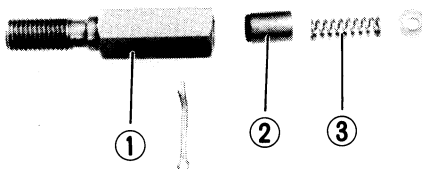


2. Check:
 - HY-VO chain tensioner ①
 - Oil delivery pipe ②
 - O-ring ③
 - Cotter pin ④
 Damage → Replace

RELIEF VALVES



1. Check:
 - Relief valve body ①
 - Plunger ②
 - Spring ③
 - O-ring ④
 Damage/Wear → Replace



2. Check:
 - Tensioner side relief valve body ①
 - Plunger ②
 - Spring ③
 Damage/Wear → Replace

CRANKCASE

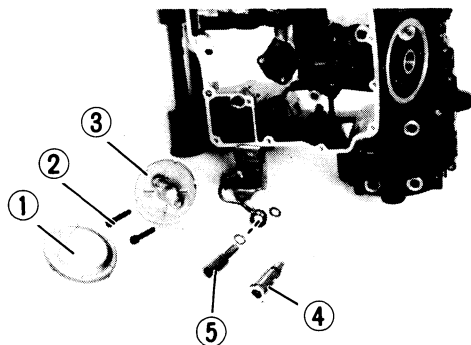
1. Inspect:
 - Case halves
 - Bearing seat
 - Fitting
 Damage → Replace.

**BEARINGS AND OIL SEALS**

1. Inspect:
 - Bearing
Clean and lubricate, then rotate inner race with finger.
Roughness → Replace bearing (see Removal).
2. Inspect:
 - Oil seals
Damage/Wear → Replace (see Removal).

CIRCLIPS AND WASHERS

1. Inspect:
 - Circlips
 - Washers
Damage/Looseness/Bends → Replace.

**ENGINE ASSEMBLY AND
ADJUSTMENT****LOWER CRANK CASE**

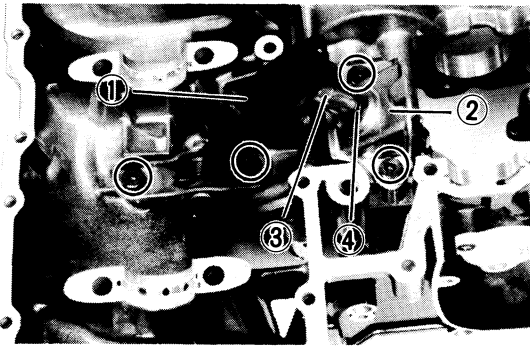
1. Install:
 - Tensioner side relief valve (5)

**20 Nm (2.0 m·kg, 14 ft·lb)**

- Relief valve (4)
- Strainer housing (3)
- Screws (2)

**10 Nm (1.0 m·kg, 7.2 ft·lb)**

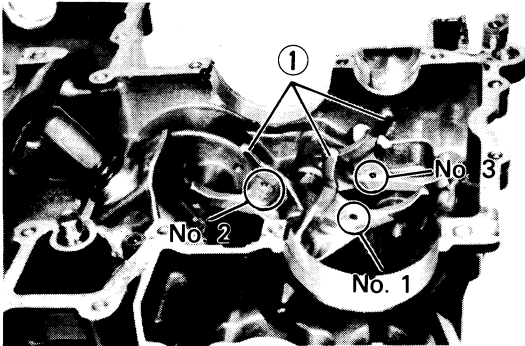
- Oil strainer (1)


2. Install:

- HY-VO chain tensioner ②


Screw:
10 Nm (1.0 m·kg, 7.2 ft·lb)
Apply LOCTITE®

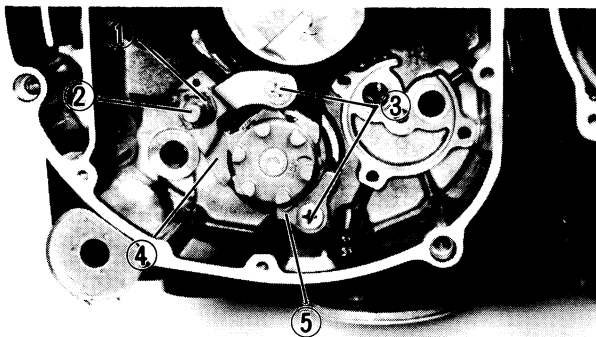
- HV-VO chain guide ①
- Spring ④
- Tensioner plunger ③


3. Install:

- Shift cam assembly
- Shift forks ①
- Guide bar

NOTE:

All shift fork numbers should face the right side and be in sequence (1,2,3) beginning from the right.


4. Install:

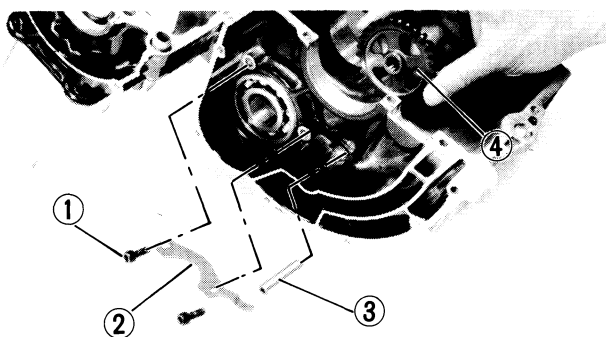
- Bearing stopper ⑤
- Guide bar stopper ④
- Screws ③


10 Nm (1.0 m·kg, 7.2 ft·lb)

- Stopper screw ②


22 Nm (2.2 m·kg, 16 ft·lb)

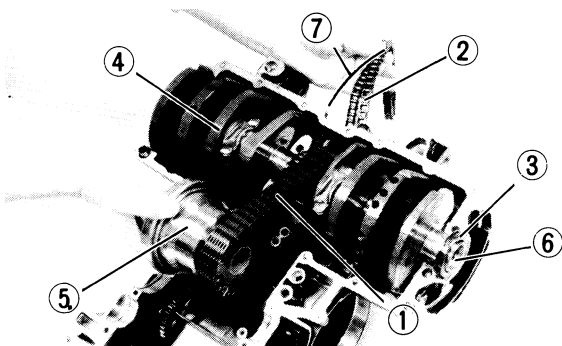
- Lock washer ①



UPPER CRANKCASE

1. Install:

- Starter idler gear (4)
- Shaft (3)
- Bearing stopper (2)
- Screws (1)

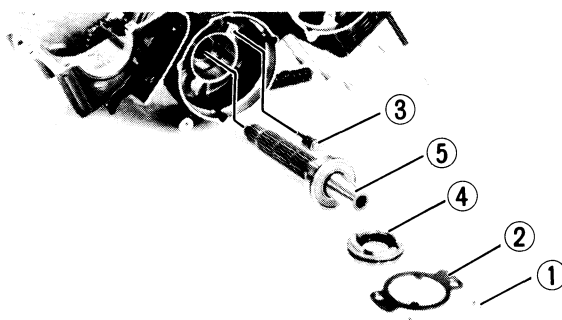


2. Install:

- HY-VO chain (1)
- Cam chain (2)
- Oil seal (3)
- Plug
(onto crankshaft)
- Crankshaft assembly (4)
- Starter clutch damper assembly (5)

NOTE:

- The crankshaft pin (6) (timing plate stopper pin) should face to the left.
- Pass the cam chain through the cam chain cavity. Be sure to attach a retaining wire (7) to the cam chain.

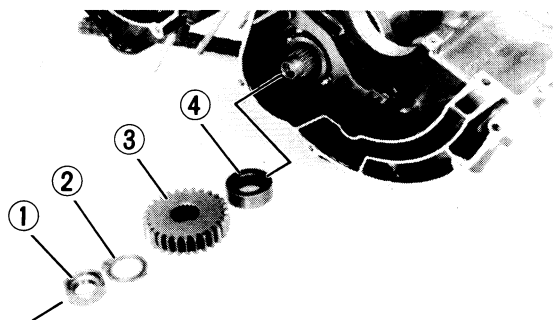


3. Install:

- A.C.G shaft (5)
- Bearing housing (4)
- Oil sprag nozzle (3)
- Cover plate (2)
- Screw (1)



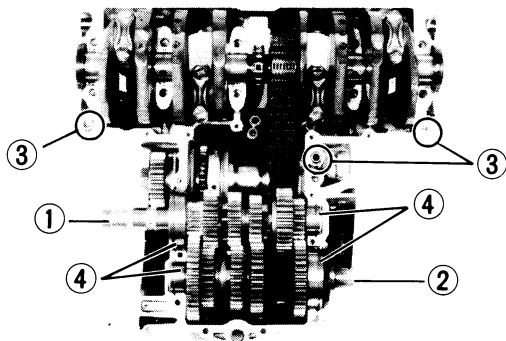
10 Nm (1.0 m·kg, 7.2 ft·lb)
Apply LOCTITE®



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



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



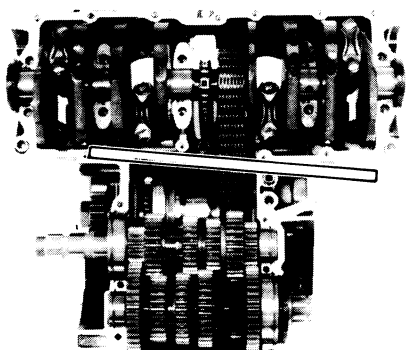
5. Install:
- Main axle assembly (1)
 - Drive axle assembly (2)
 - Dowels (3)
 - Circlip (4)
- Insert bearing circlips completely into upper crankcase positioning grooves.

CRANKCASE ASSEMBLY

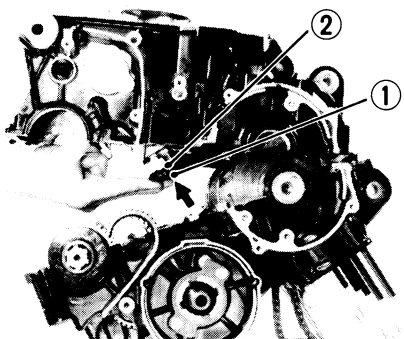
1. Apply Yamaha bond No. 5 to crankcase matching surfaces.

NOTE:

DO NOT ALLOW any sealant to come in contact with the oil gallery O-ring, or crankshaft bearings. Do not apply sealant to within 2 ~ 3 mm (0.08 ~ 0.12 in) of the bearings.



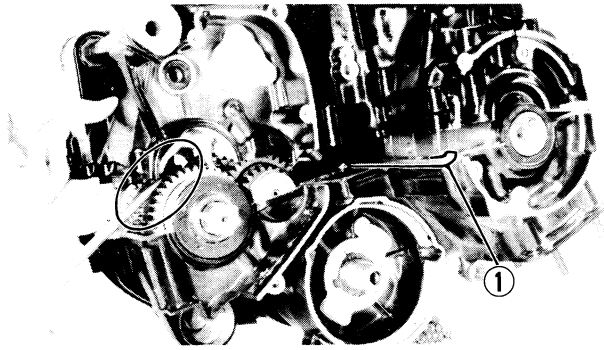
2. Set shift cam and transmission gears in NEUTRAL position.
3. Place suitable bar on the upper crankcase.



4. Place lower crankcase assembly on the upper crankcase assembly.

NOTE:

Push HY-VO chain damper (1) to prevent tensioner plunger (2) from falling into crankcase cavity.



5. Install:

- Lower crankcase
Carefully guide shift forks so that they mesh smoothly with transmission gears.

CAUTION:

Before tightening the crankcase bolts, check the following points:

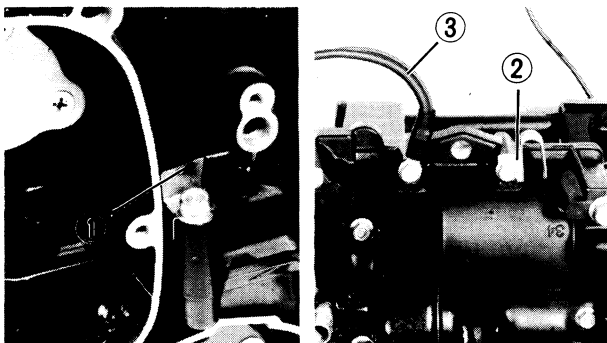
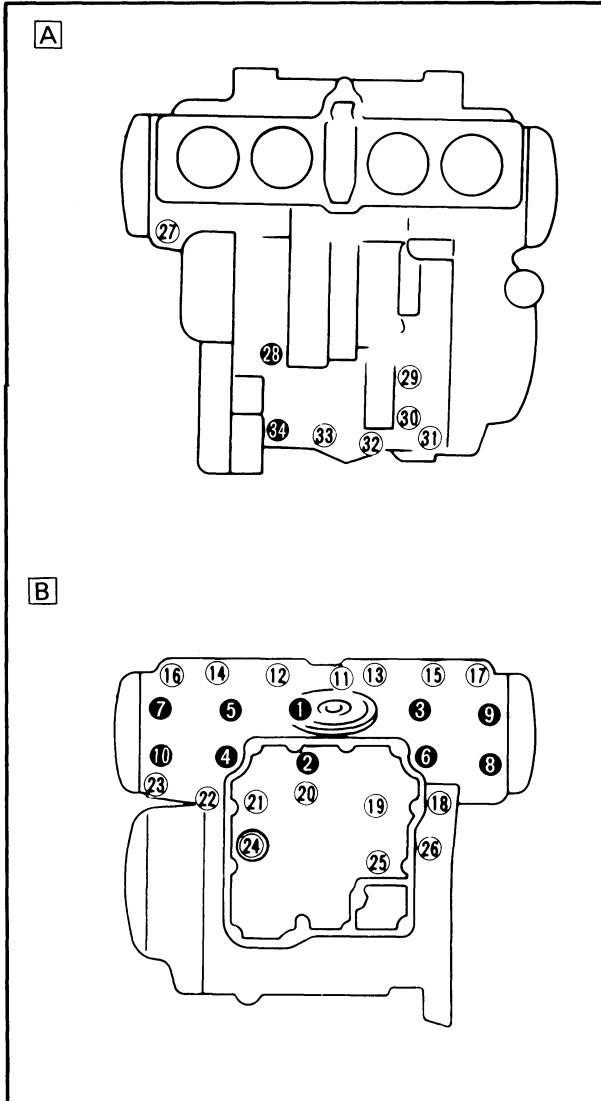
- Remove bar ① after shift fork meshed.
- Be sure the gear shifts correctly while hand-turning the shift cam.

6. Tighten:

- Lower crankcase bolt **B**
- Upper crankcase bolt **A**
(Follow proper tightening sequence.)

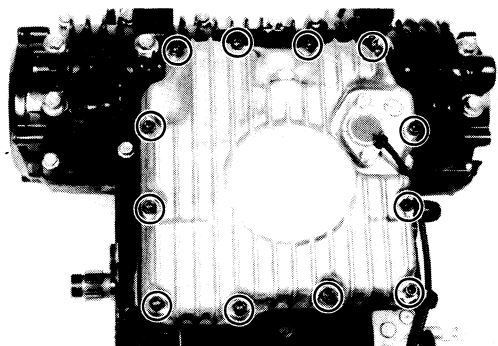


- 6 mm (0.24 in):
12 Nm (1.2 m·kg, 8.7 ft·lb)
- 8 mm (0.31 in):
24 Nm (2.4 m·kg, 17 ft·lb)



NOTE:

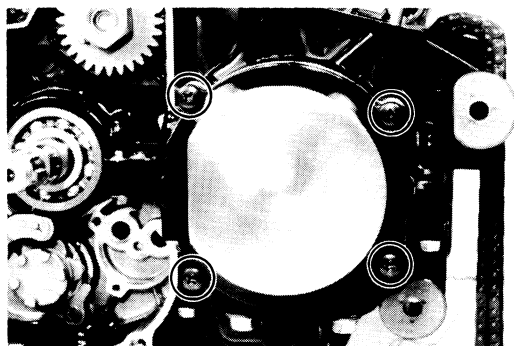
- Install the clamp ① on Bolt No. 26
- Install the clamp ② on Bolt No. 33 and ground lead ③ on Bolt No. 32.



7. Install:
- Oil pan



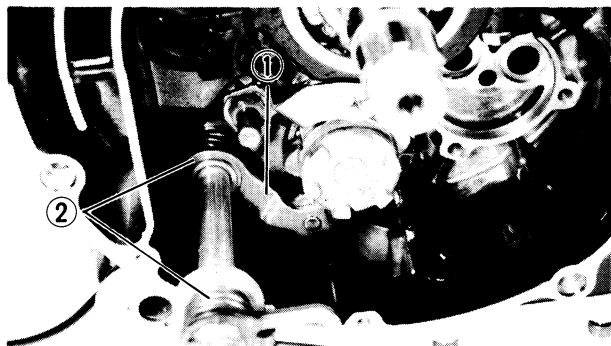
10 Nm (1.0 m·kg, 7.2 ft·lb)



8. Install:
- Right-front crankcase cover

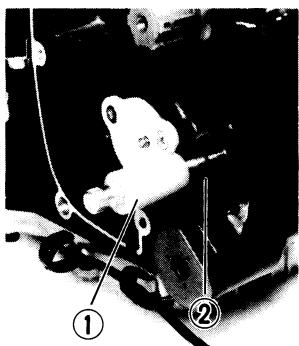
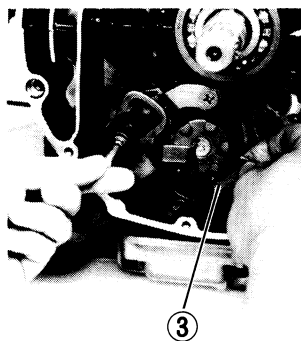


10 Nm (1.0 m·kg, 7.2 ft·lb)



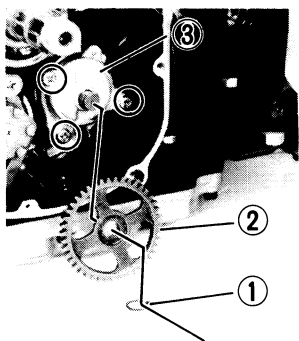
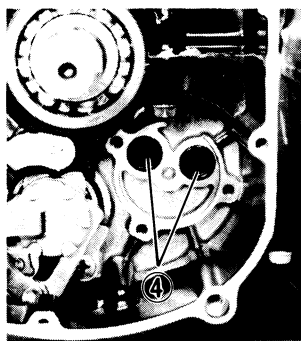
OIL PUMP AND SHIFT SHAFT

1. Install:
 - Shift shaft assembly ②
2. Mesh the stopper lever ① with shift cam stopper



3. Pull the shift lever 2 ③ and push shift shaft assembly

4. Install:
 - Plate washer ②
 - Collar ① (on left side shift shaft)



5. Install:
 - O-rings ④
 - Oil pump assembly ③



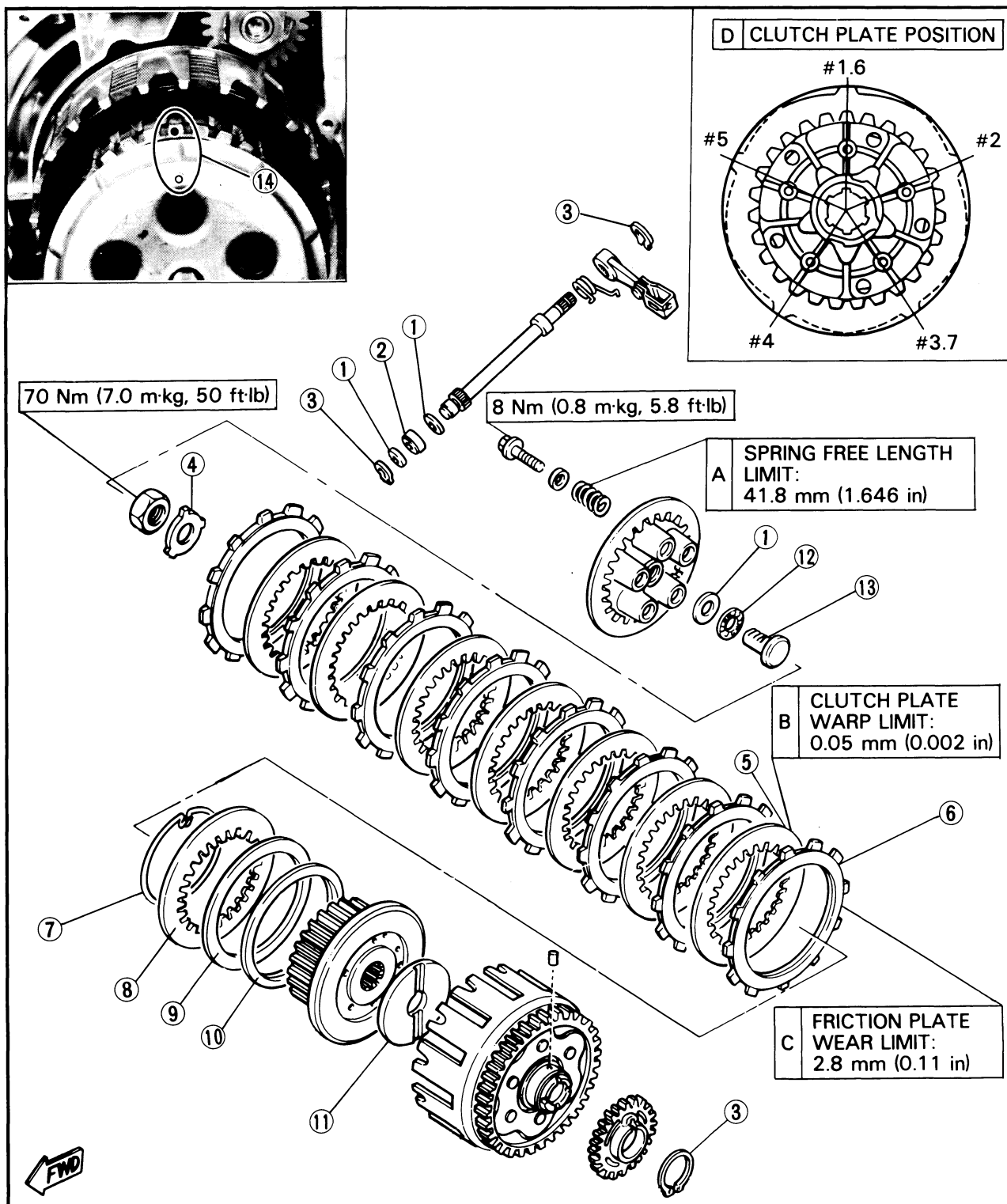
7 Nm (0.7 m·kg, 5.1 ft·lb)

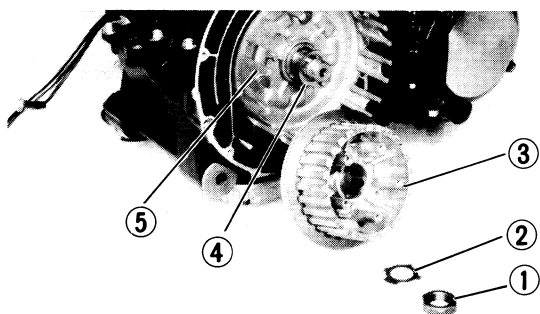
- Oil pump driven gear ②
- Circlip ①



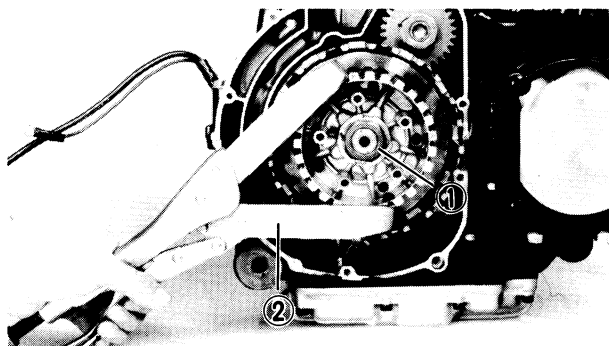
CLUTCH

- | | |
|------------------------|-----------------------|
| 1. Plate washer | 8. Clutch plate |
| 2. Oil seal | 9. Clutch boss spring |
| 3. Circlip | 10. Spring seat |
| 4. Lock washer | 11. Thrust plate |
| 5. Clutch plate (#1) | 12. Bearing |
| 6. Friction plate (#1) | 13. Pull rod |
| 7. Wire clip | 14. Match mark |





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

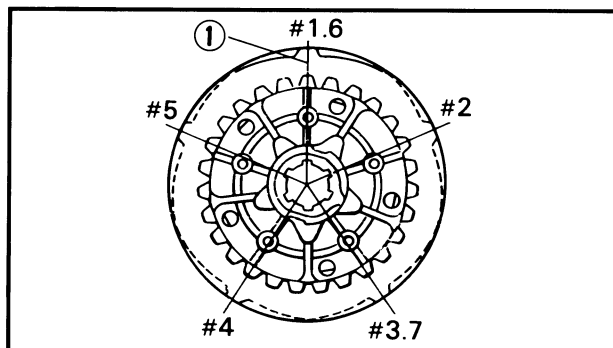


2. Tighten:
 - Nut ①
 Use Universal Clutch Holder ②
(YM-91042)



70 Nm (7.0 m·kg, 50 ft·lb)

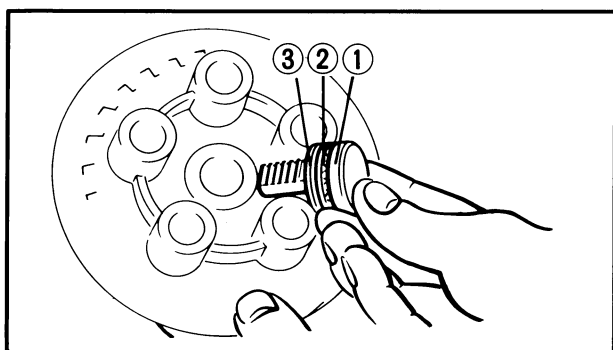
Bend lock washer tab against nut flat.



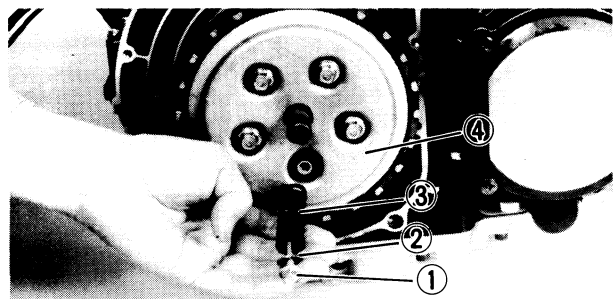
3. Install:
 - Friction plates
 - Clutch plates

NOTE:

- Mount friction and clutch plates alternately.
- Align the clutch plate mark ① as shown.



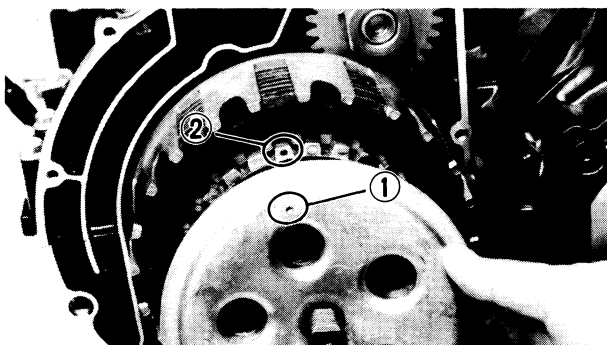
4. Install:
 - Thrust bearing ②
 - Plate washer ③
(on the pull rod)
 - Pull rod ①
(into the pressure plate)



5. Install:
 - Pressure plate ④
 - Spring ③
 - Plate washer ②
 - Bolt ①

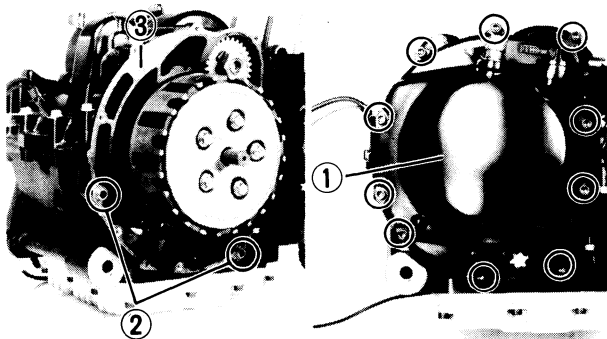


8 Nm (0.8 m·kg, 5.8 ft·lb)



NOTE:

Align the pressure plate mark ① with the clutch boss mark ②.



6. Install:

- Gasket ③
- Dowels ②
- Right crankcase cover ①

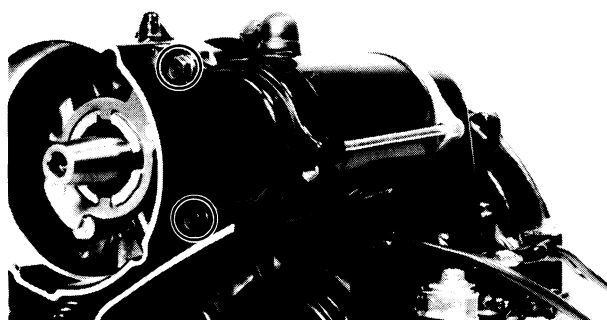
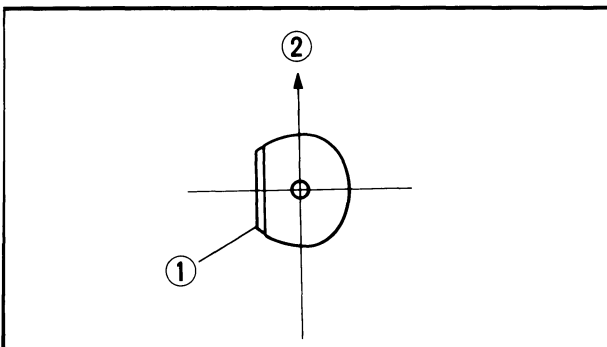


10 Nm (1.0 m·kg, 7.2 ft·lb)

NOTE:

Be sure the pull rod gear ① face to rear of engine.

② upper



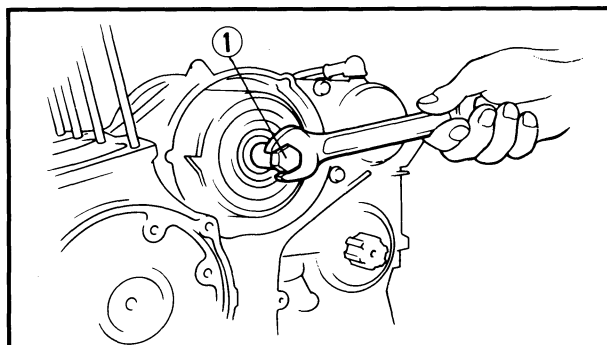
PICK UP COIL, GENERATOR AND STARTER MOTOR

1. Install:

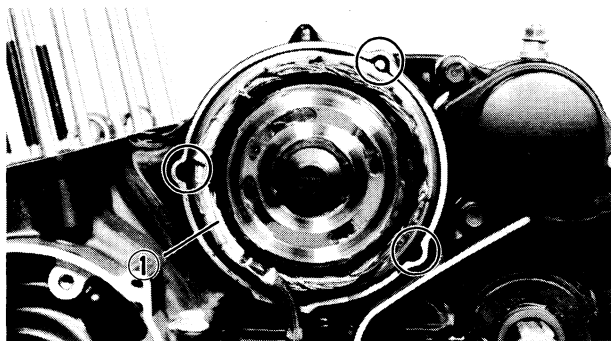
- Starter motor

2. Install:

- Rotor
- Bolt ①
- Use Rotor Holding Tool (YM-04067) ②



35 Nm (3.5 m·kg, 25 ft·lb)

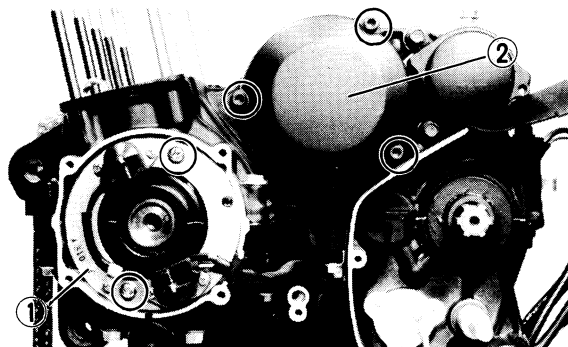


3. Install:

- Stator coil ①

NOTE:

Align the stator core grooves with the bolt holes.



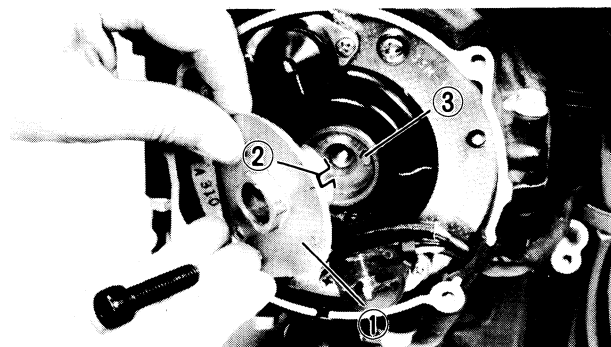
4. Install:

- Generator cover ②
- Pick up coil assembly ①



Coil screw:

8 Nm (0.8 m·kg, 5.8 ft·lb)



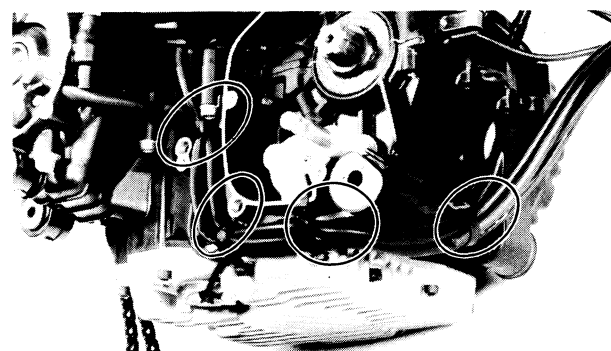
5. Install:

- Timing plate ①
- Screw

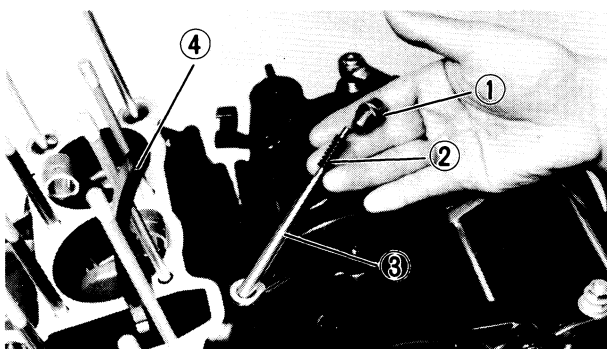


24 Nm (2.4 m·kg, 17 ft·lb)

Mesh the timing plate groove ② with the crankshaft pin ③.



6. Clamp the A.C.G. leads and pick up leads.



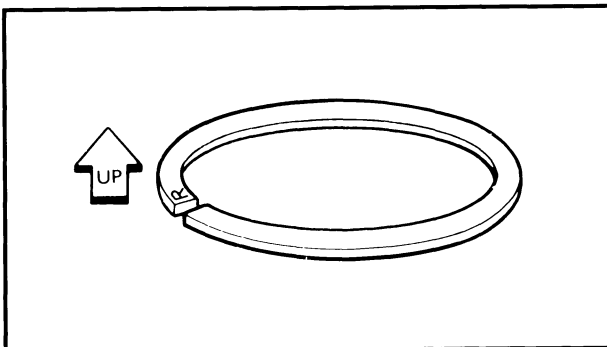
PISTON AND INTAKE SIDE CAM CHAIN GUIDE

1. Install:

- Intake side cam chain guide (4)
- Stopper shaft (3)
- Spring (2)
- Plate washer
- Bolt (1)

NOTE:

The lower end of chain guide must rest in the cam chain guide slot in the crankcase.

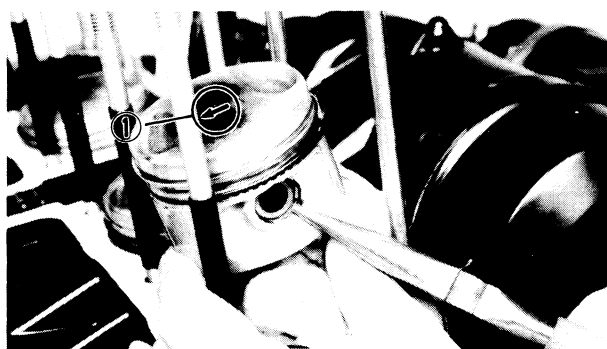


2. Install:

- Piston rings

NOTE:

Be sure to install rings so that Manufacturer's marks or numbers are located on the top side of the rings. Oil the pistons and rings liberally.

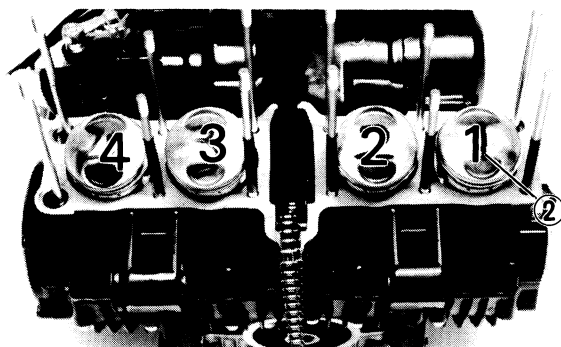


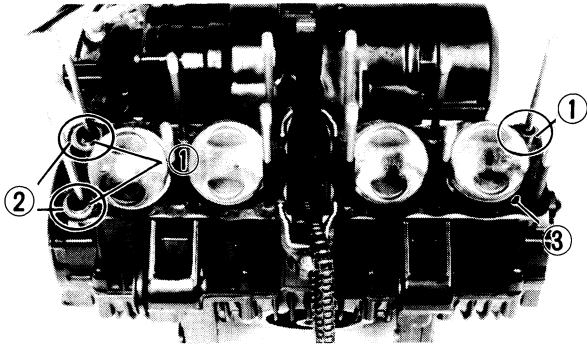
3. Install:

- Piston pin
- Piston
- Piston pin Circlip (New)

NOTE:

- Be sure the piston arrow mark (1) face to exhaust side.
- Before installing piston pin circlip, cover crankcase with a clean rag to prevent circlip from falling into crankcase cavity.
- Be sure the marked piston numbers (2) should be in sequence (1,2,3,4) beginning from the left.

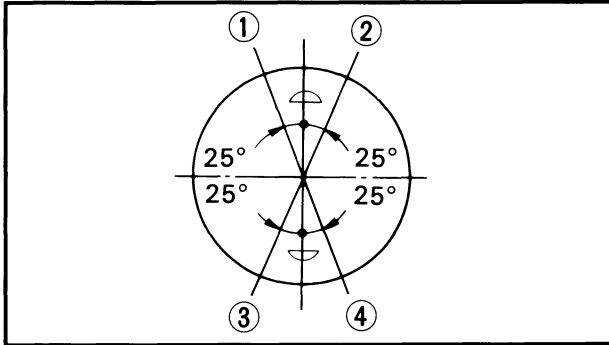




CYLINDER

1. Install:

- Dowels ①
- O-rings ②
- Cylinder gasket ③

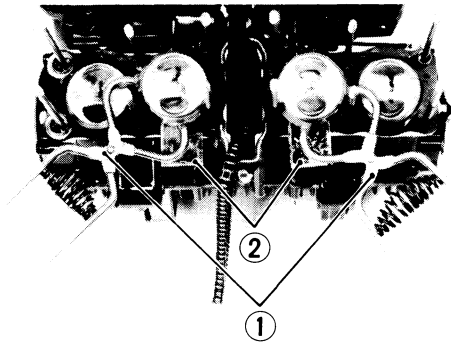


2. Oil liberally:

- Piston
- Rings
- Cylinders

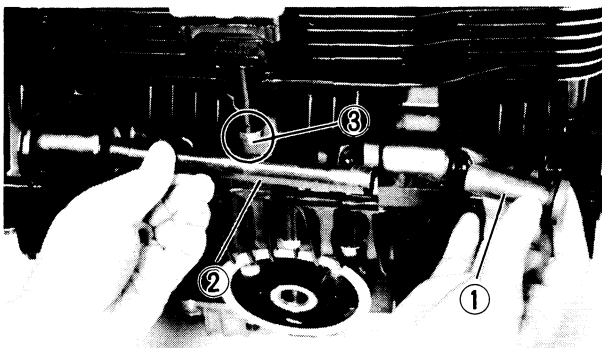
3. Set:

- Top ring end ①
- Oil ring end (Lower) ②
- Oil ring end (Upper) ③
- 2nd ring end ④



4. Install:

- Cylinder
- Use Piston Ring Compressor ① (YM-04047) and Piston Base ② (YM-01067)
Pass the cam chain and exhaust side cam chain guide through cam chain cavity.



5. Tighten:

- Cylinder nut ③



20 Nm (2.0 m·kg, 14 ft·lb)

6. Install:

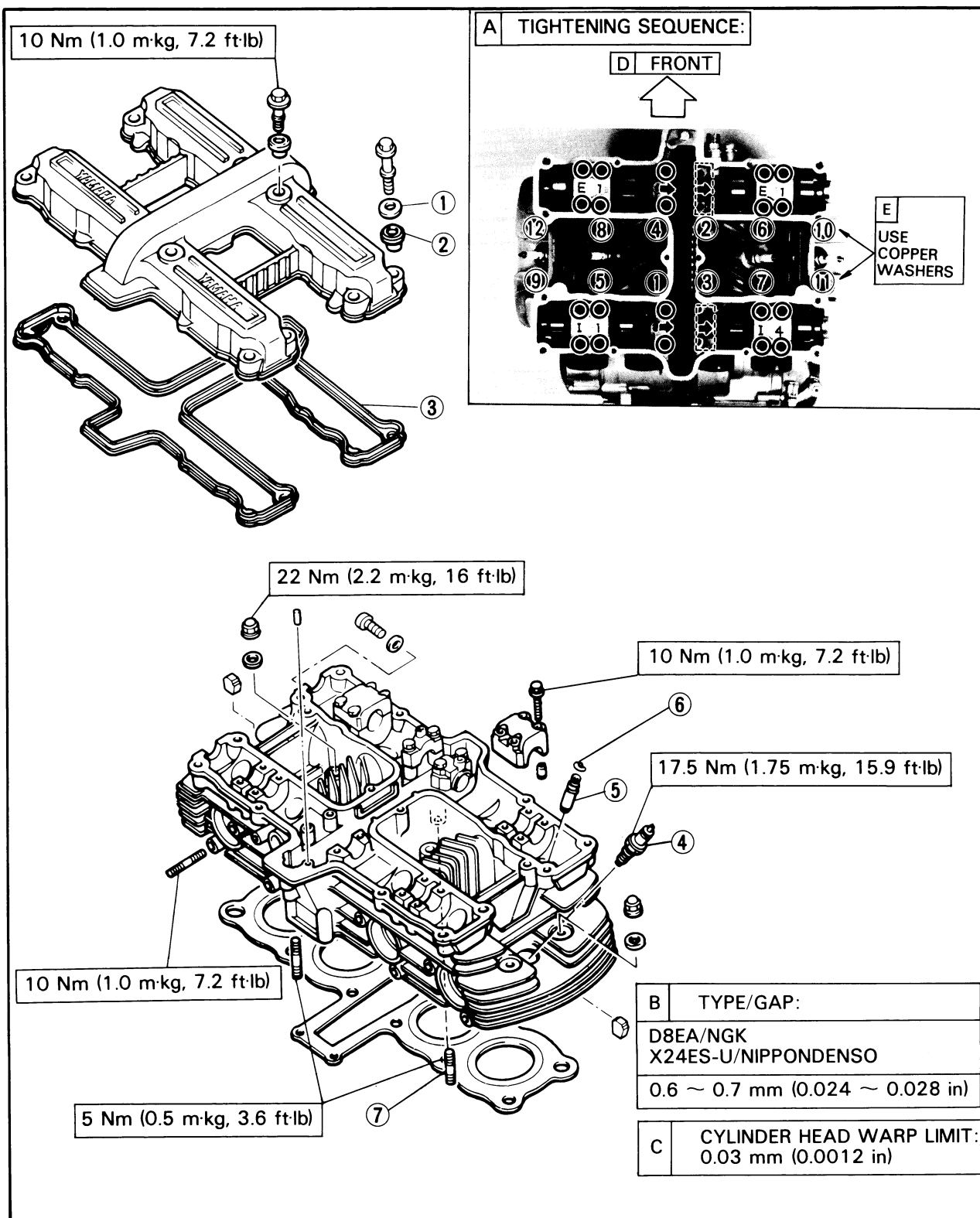
- Front engine mount spacer ②
- Damper ①

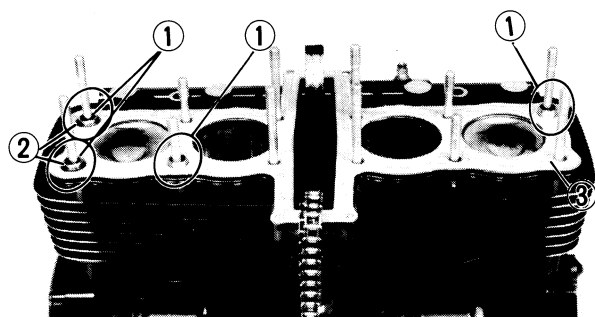


CYLINDER HEAD AND CAMSHAFT

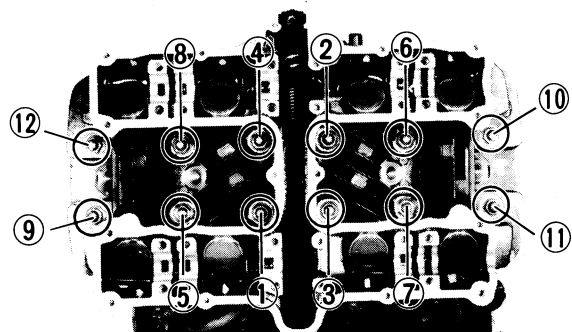
CYLINDER HEAD

- | | |
|------------------|----------------|
| 1. Washer | 5. Valve guide |
| 2. Rubber washer | 6. Circlip |
| 3. Gasket | 7. Stud bolt |
| 4. Spark plug | |



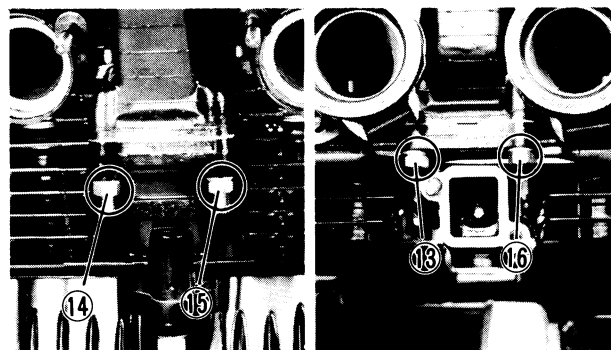

1. Install:

- Dowels ①
- O-rings ②
- Head gasket ③ (New)
- Cylinder head


2. Tighten:

- Cylinder head nuts

In sequence as shown and torque nuts in two stages.

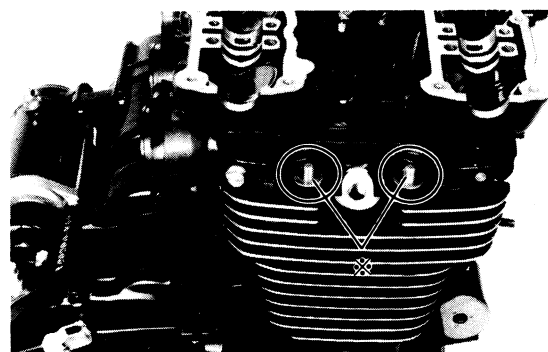


Nut No. ① ~ ⑫:

22 Nm (2.2 m·kg, 16 ft·lb)

Nut No. ⑬ ~ ⑯:

10 Nm (1.0 m·kg, 7.2 ft·lb)


NOTE:

※ Use copper washers.

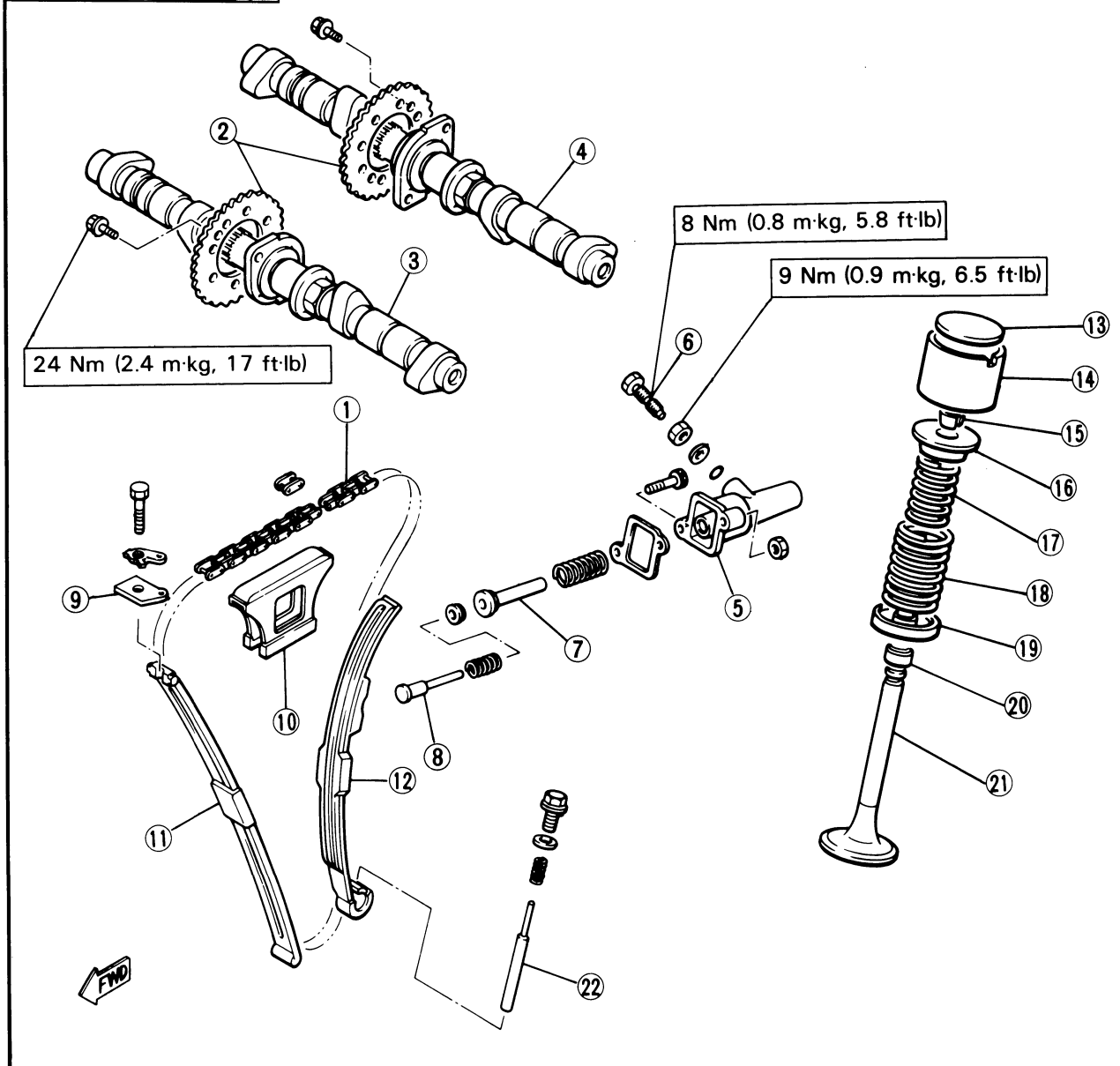


CAMSHAFT

- | | | |
|--------------------------|------------------------------|-------------------------|
| 1. Cam chain | 9. Guide stopper plate | 17. Inner spring |
| 2. Cam sprocket | 10. Upper chain guide | 18. Outer spring |
| 3. Camshaft (Exhaust) | 11. Exhaust side chain guide | 19. Spring seat |
| 4. Camshaft (Intake) | 12. Intake side chain guide | 20. Oil seal |
| 5. Chain tensioner body | 13. Adjusting pad | 21. Valve |
| 6. Tensioner lock bolt | 14. Valve lifter | 22. Chain guide stopper |
| 7. Tensioner rod (Large) | 15. Valve retainer | 23. Match mark |
| 8. Tensioner rod (Small) | 16. Spring seat | |

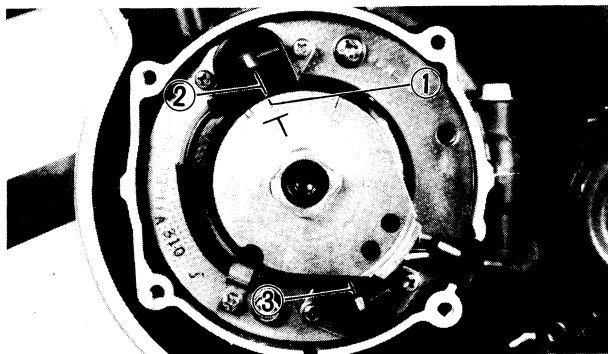


A VALVE CLEARANCE (COLD):		
B	Intake	0.11 ~ 0.15 mm (0.004 ~ 0.006 in)
C	Exhaust	0.16 ~ 0.20 mm (0.006 ~ 0.008 in)



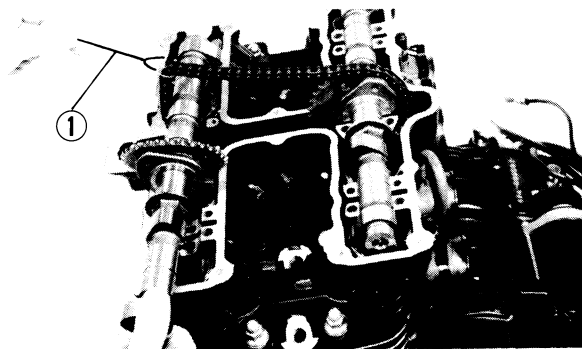


1. Rotate:
 - Crankshaft
 - Counter clockwise.



2. Align:
 - "T" mark (1)
 On the timing plate with the upper pick up coil mark (2) when No. 1 piston is at TDC on compression stroke.

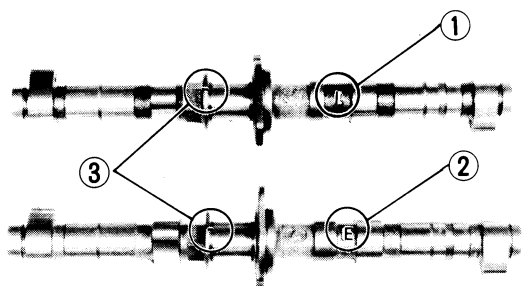
(3) Lower pickup coil mark



3. Install:
 - Cam chain sprockets (on the camshafts)
 - "I" and "E" camshafts
 Apply engine oil to camshaft bearing surfaces before installing camshafts.
4. Remove:
 - Retaining wire (1)

NOTE:

- "I" mark (1) for intake camshaft
- "E" mark (2) for exhaust camshaft
- Make sure the timing mark (3) on the camshaft faces upward.



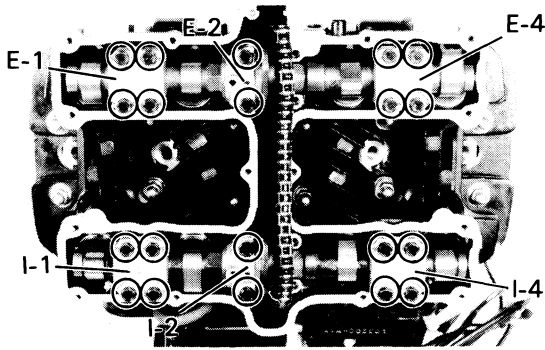
5. Install:
 - Cam caps



10 Nm (1.0 m·kg, 7.2 ft·lb)

NOTE:

Do not install No. 3 intake (I-3) and No. 3 exhaust (E-3) cam caps at in this stage.

**CAUTION:**

The cam caps must be tightened evenly or damage to the cylinder head, cam caps and cam will result. The spaces between the caps and cylinder head should be equal.

Cam Chain

1. Rotate:
 - Exhaust camshaft
2. Align:
 - Exhaust camshaft timing mark
(with the "E-2" cam cap arrow mark)

CAUTION:

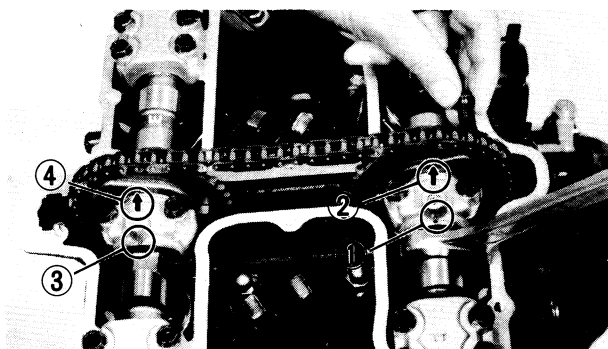
Do not rotate the camshaft over 1/2 turn or damage to the piston and valve will result.

3. Position:
 - Cam chain
(onto sprockets)
4. Install:
 - Sprockets
(onto camshafts)
5. Force the exhaust sprocket clockwise (viewing from left side engine) to remove all cam chain slack.
6. Align:
 - Sprocket, hole
(with the exhaust camshaft thread hole)

NOTE:

If the sprocket hole do not align with the camshaft hole, Adjust chain links between crankshaft and exhaust camshaft.

7. Install:
 - Exhaust sprocket bolt
(temporarily tighten)



8. Rotate:
 - Intake camshaft
9. Align:
 - Intake camshaft timing mark ①
(with the "I-2" cam cap arrow mark ②)

- ③ Exhaust camshaft timing mark
- ④ "E-2" cam cap arrow mark

CAUTION:

Do not rotate the camshaft over 1/2 turn or damage to the piston and valve will result.

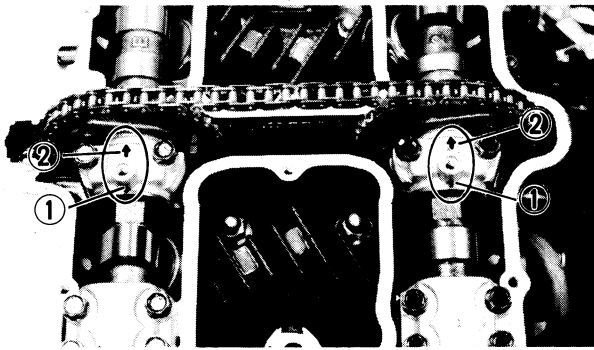
10. Force the intake sprocket clockwise (viewing from left side engine) to remove all cam chain slack.

11. Align:
 - Intake sprocket hole
(with the intake camshaft thread hole)

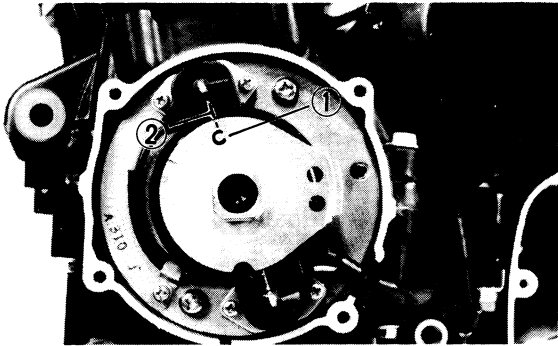
NOTE:

If the sprocket hole do not align with the camshaft thread hole, Adjust chain links between exhaust and intake camshafts.

12. Install:
 - Intake sprocket bolt
(temporarily tighten)

**NOTE:**

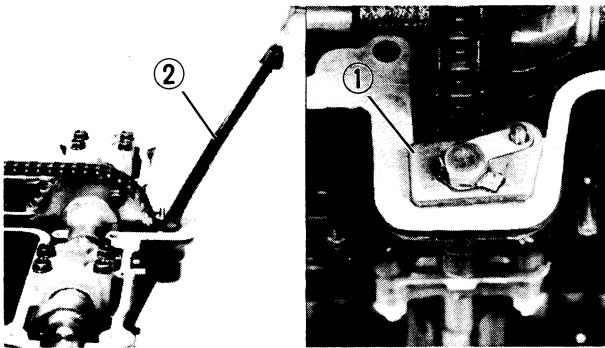
- Be sure the camshaft timing marks ① align with the cam cap arrow mark ②
- Be sure the "T" mark on the timing plate align with the upper pick up coil mark.

**13. Rotate:**

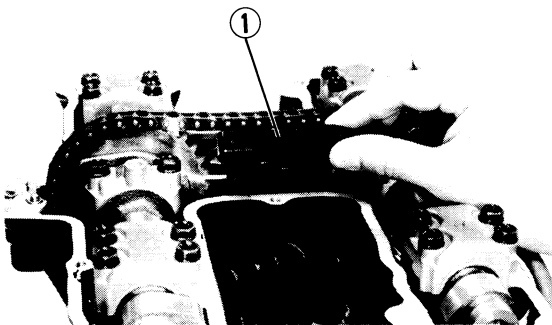
- Crankshaft
Counterclockwise

14. Align:

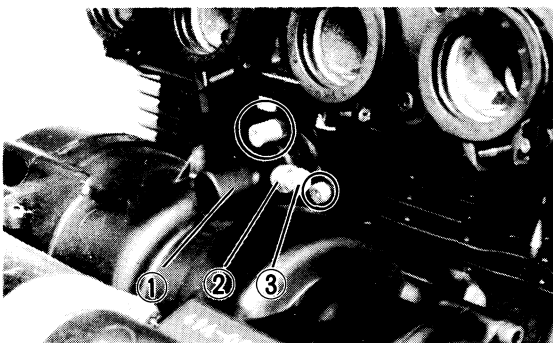
- Timing plate "C" mark ①
(with the upper pickup coil mark ②)

**15. Install:**

- Exhaust side chain guide ②
- Chain guide stopper ①
- Bolt
- Lock washer

16. Bend the lock washer tab against bolt flat.**17. Install:**

- Upper chain guide ①

**18. Install:**

- Cam chain tensioner ①



10 Nm (1.0 m·kg, 7.2 ft·lb)

19. Loosen

- Locknut ②
- Tensioner lock bolt ③



20. Tighten:

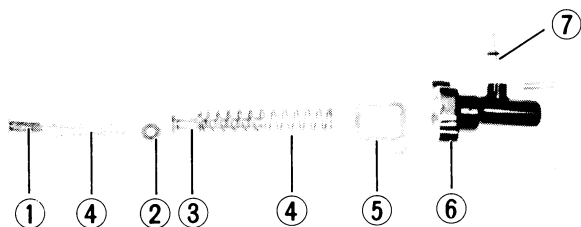
- Tensioner lock bolt
- Locknut

**Bolt:**

8 Nm (0.8 m·kg, 5.8 ft·lb)

Locknut:

9 Nm (0.9 m·kg, 6.5 ft·lb)

**Cam Chain Tensioner Installation Steps:**

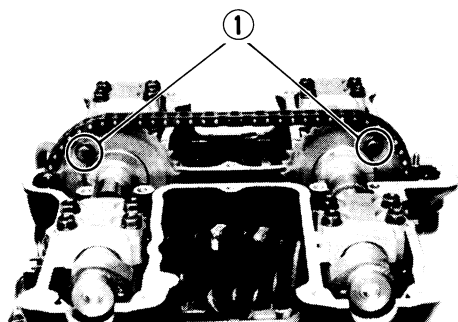
- Install the spring ④, large tensioner rod ③, Damper ②, Small spring ④, and small tensioner rod ① into the tensioner body ⑥.
- Push the tensioner rod assembly into the body

NOTE:

Face the large rod flat surface to the lock bolt 7.

- Tighten lock bolt.
- Lock the locknut.

5. Gasket



21. Rotate:

- Crankshaft
Counterclockwise

22. Install:

- Sprocket bolts ① (all)



24 Nm (2.4 m·kg, 18 ft·lb)



23. Install:

- No. 3 intake cam cap
- No. 3 exhaust cam cap



Cam Bolt:
10 Nm (1.0 m·kg, 7.2 ft·lb)

24. Install:

- Left crankcase cover



Screw:
10 Nm (1.0 m·kg, 7.2 ft·lb)

25. Install:

- Spark plug ②

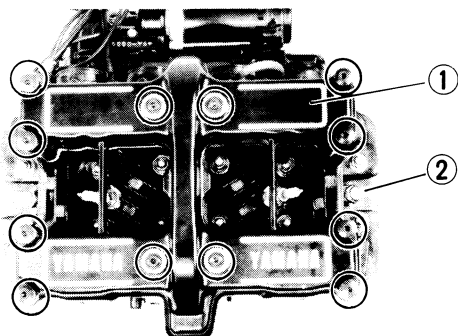


17.5 Nm (1.75 m·kg, 12.7 ft·lb)

- Head cover gasket
- Head cover ①



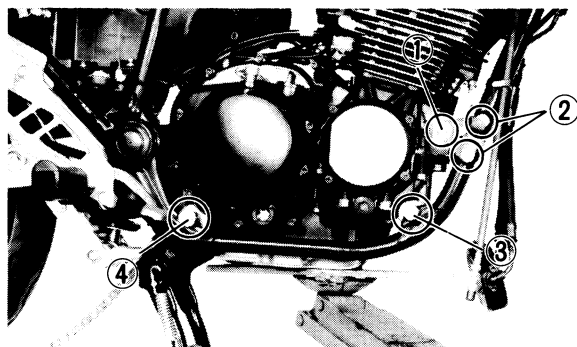
Bolt:
10 Nm (1.0 m·kg, 7.2 ft·lb)





REMountING ENGINE

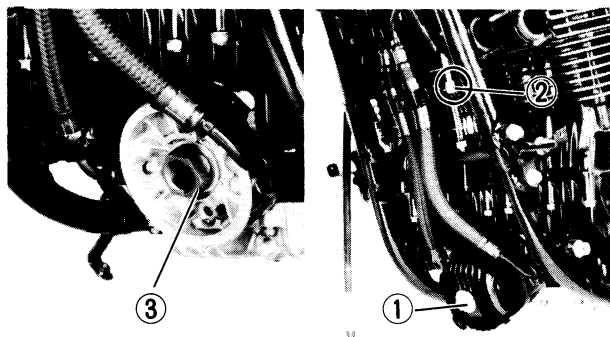
1. Refer to engine removal. Reverse those removal steps that apply.



2. Tighten:
 - Engine mounting bolts



Front Upper Bolts ① :
 42 Nm (4.2 m·kg, 30 ft·lb)
Front Bracket Bolt ② :
 32 Nm (3.2 m·kg, 23 ft·lb)
Front Lower Bolts ③ :
 42 Nm (4.2 m·kg, 30 ft·lb)
Rear Bolts ④ :
 90 Nm (9.0 m·kg, 65 ft·lb)



3. Tighten:



Spacer Nut ③ :
 50 Nm (5.0 m·kg, 36 ft·lb)
Oil Filter Clamp Nut ② :
 10 Nm (1.0 m·kg, 7.2 ft·lb)
Oil Filter Bolt ① :
 15 Nm (1.5 m·kg, 11 ft·lb)

4. Tighten:

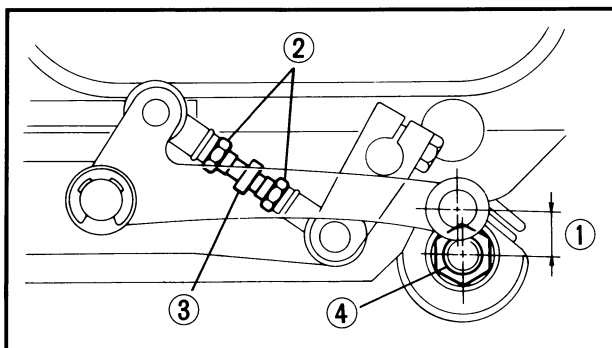


Drive Chain Sprocket Bolt:
 10 Nm (1.0 m·kg, 7.2 ft·lb)

5. Tighten:



Footrest Bracket Bolt:
 25 Nm (2.5 m·kg, 18 ft·lb)
Exhaust Pipe Clamp Bolt:
 20 Nm (2.0 m·kg, 14 ft·lb)
Exhaust Pipe Nut:
 10 Nm (1.0 m·kg, 7.2 ft·lb)



6. Measure:

- Change pedal height ①



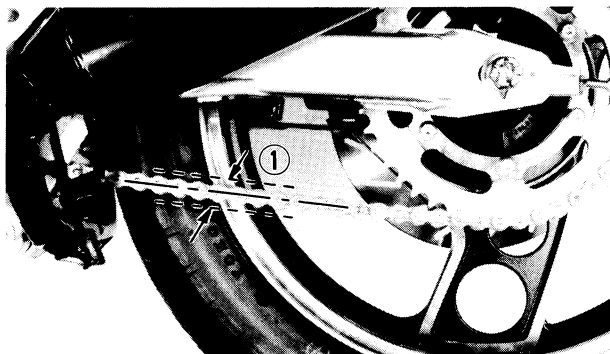
Standard Change Pedal Height:
15 mm (0.6 in)
from the rear engine mounting
bolt ④.

Adjustment steps:

- Loosen the locknut ② and turn the rod ③ in or out until proper pedal height is achieved.
- Lock the locknut



Locknut:
10 Nm (1.0 m·kg, 7.2 ft·lb)



7. Adjust:

- Drive chain deflection



Standard Drive Chain Deflection ① :
20 ~ 30 mm (0.8 ~ 1.2 in)

8. Tighten:



Rear Axle Nut:
105 Nm (10.5 m·kg, 75 ft·lb)

9. Fill:

- Crankcase



Engine Oil:
3.0 L (2.6 Imp qt, 3.2 US qt)



CHAPTER 4. CARBURETION

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SECTION VIEW	4-2
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INSPECTION	4-4
ASSEMBLY	4-5
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 AIR CLEANER AND CRANKCASE VENTILATIONS SYSTEM	 4-6



CARBURETOR

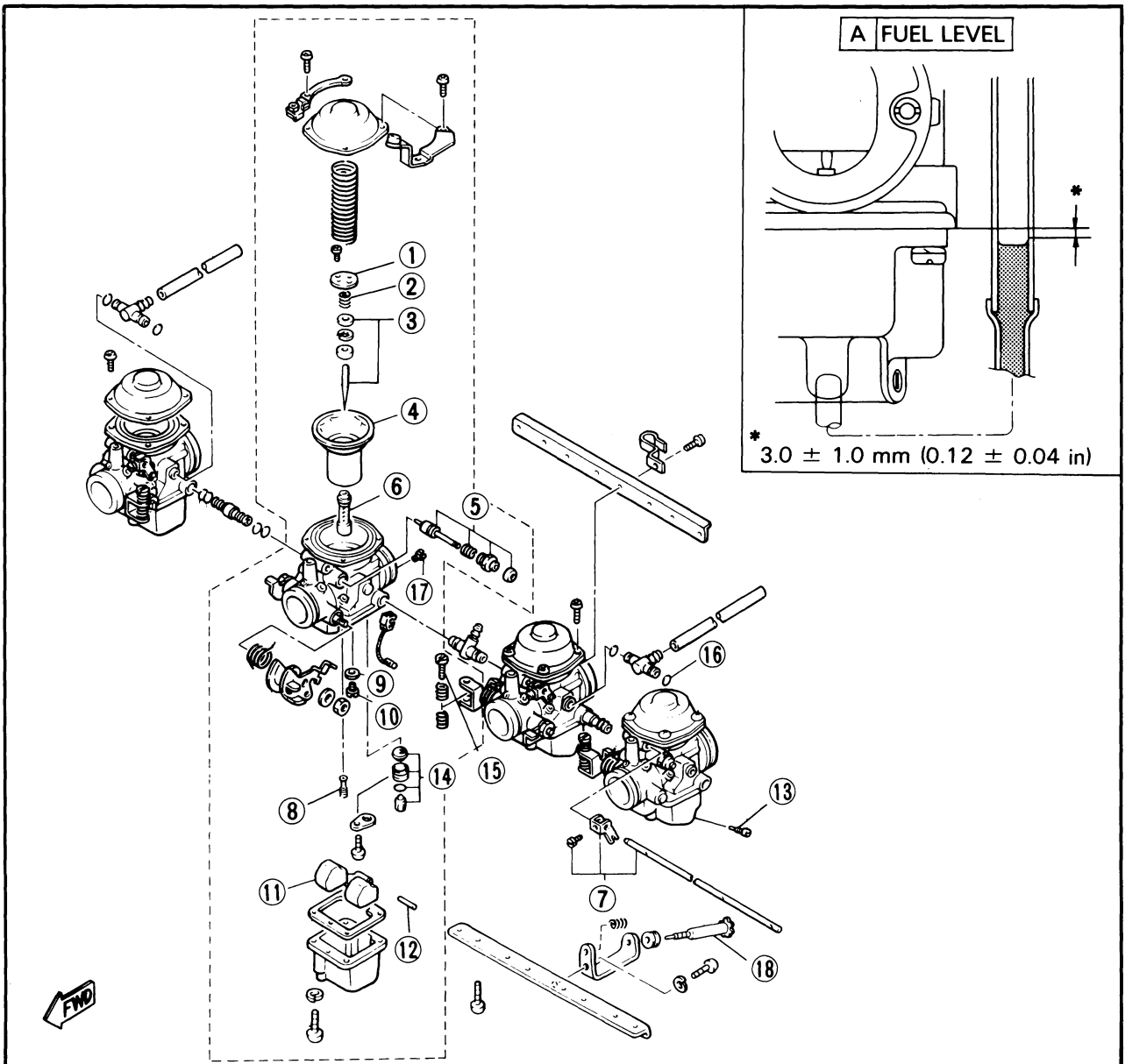
- | | |
|---------------------|-------------------------|
| 1. Jet needle cover | 10. Main jet |
| 2. Set spring | 11. Float |
| 3. Jet needle | 12. Float plin |
| 4. Piston valve | 13. Drain screw |
| 5. Starter plunger | 14. Float valve |
| 6. Main nozzle | 15. Synchronizing screw |
| 7. Starter lever | 16. O-ring |
| 8. Pilot jet | 17. Pilot air jet |
| 9. Main jet washer | 18. Throttle stop screw |

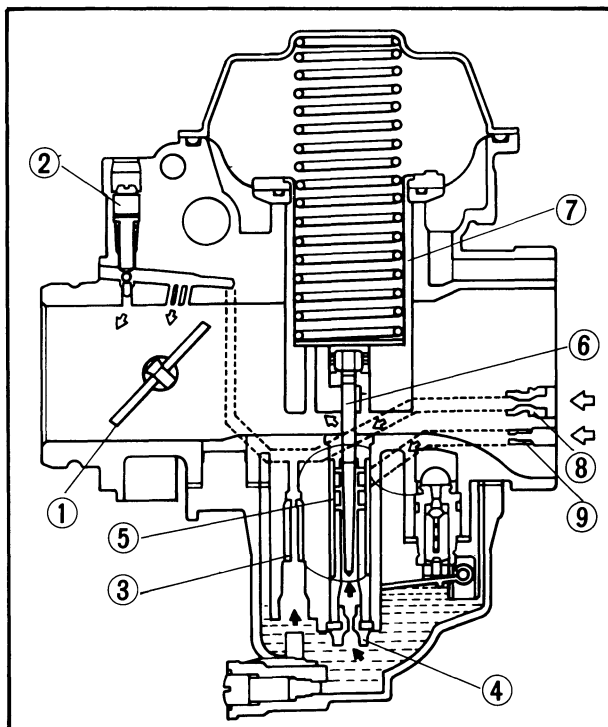
CAUTION:

The pilot screw settings are adjusted for maximum performance at the factory. Any attempt to change these settings will decrease engine performance.

SPECIFICATIONS

Main jet	
For No. 1 and No. 2 Cylinder	# 105
For No. 3 and No. 4 Cylinder	# 102.5
Jet needle	
No. 1, 3 and 4 Cylinder	4CP4
No. 2 Cylinder	4CP6
Needle jet	
	N-8
Starter jet	
	# 42.5
Fuel level	
	3.0 ± 1.0 mm (0.12 ± 0.04 in)
Pilot screw	
	Preset
Float valve seat	
	φ2.0
Engine idle speed	
	1200 ± 50 r/min





SECTION VIEW

- ① Throttle valve
- ② Pilot screw
- ③ Pilot jet
- ④ Main jet
- ⑤ Main nozzle
- ⑥ Jet needle
- ⑦ Vacuum piston
- ⑧ Pilot air jet
- ⑨ Main air jet

Removal

1. Remove:
 - Carburetor assembly
 Refer to engine removal section.

DISASSEMBLY

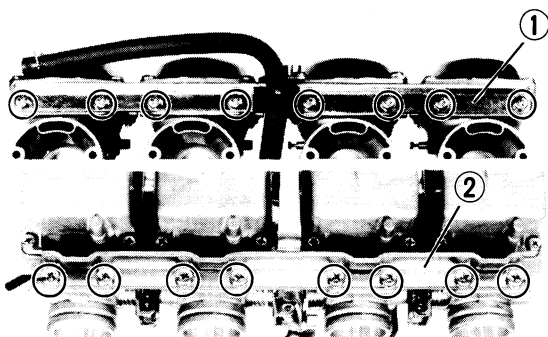
NOTE:

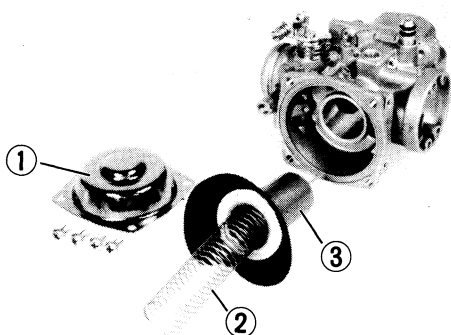
The following parts can be cleaned and inspected without carburetor separation.

- Piston valve
- Starter plunger
- Float chamber components

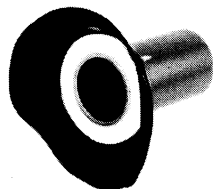
1. Remove:
 - Starter lever shaft

2. Remove:
 - Upper bracket ①
 - Lower bracket ②

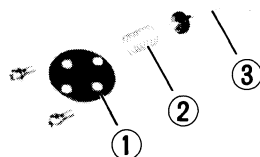




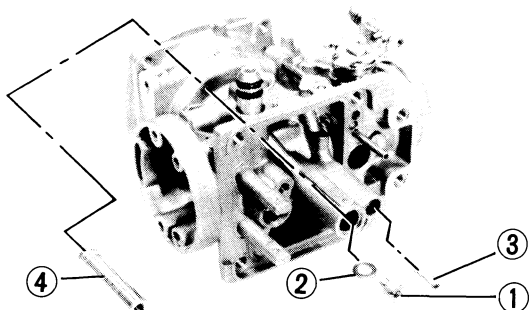
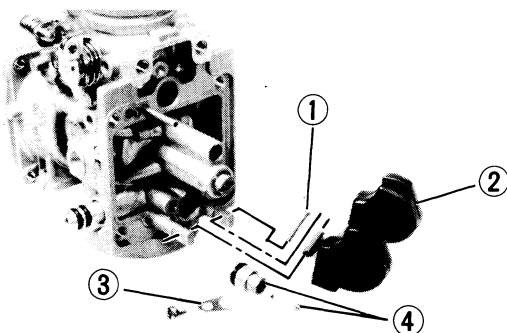
3. Remove:
- Vacuum chamber cover ①
 - Spring ②
 - Vacuum piston assembly ③



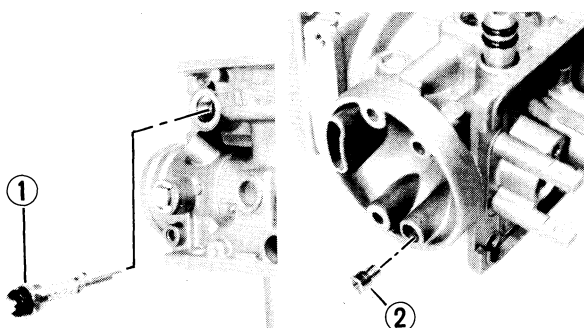
4. Remove:
- Jet needle cover ①
 - Jet spring ②
 - Jet needle ③



5. Remove:
- Float chamber cover
 - Gasket
 - Float pin ①
 - Float ②
 - Valve seat plate ③
 - Valve seat assembly ④



6. Remove:
- Main jet ①
 - Washer ②
 - Pilot jet ③
 - Main nozzle ④



7. Remove:
- Starter plunger ①
 - Pilot air jet ②

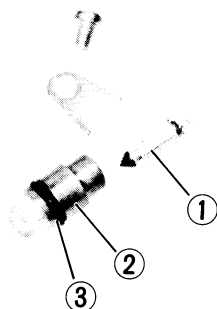
INSPECTION

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

Carburetor cleaning steps:

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

2. Inspect:
 - Floats
 Damage → Replace.



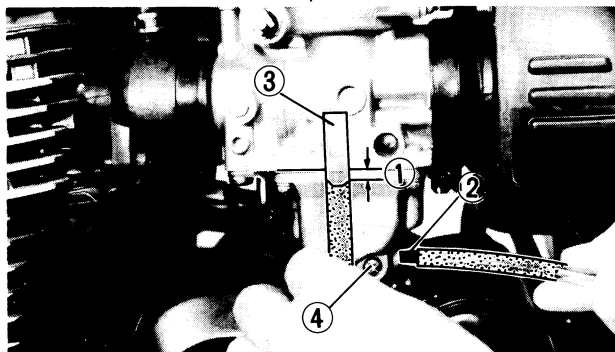
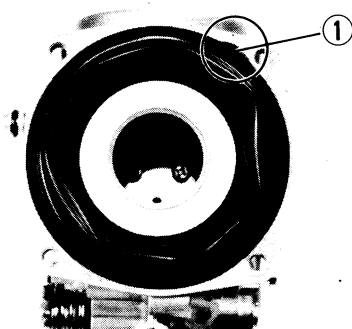
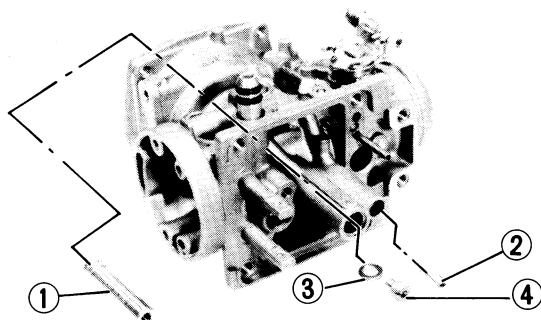
3. Inspect:
 - Float needle valve ①
 - Seat ②
 - O-ring ③
 Damage/Wear/Contamination → Replace as a set
 - Vacuum piston
 - Rubber diaphragm
 Scratches (piston)/Tears (diaphragm) → Replace.

4. Inspect:
 - Jet needle
 Bends/Wear → Replace.



5. Inspect:
 - Starter plunger
 Wear/Damage → Replace.





ASSEMBLY

Reverse disassembly steps. Pay close attention to installation of vacuum piston diaphragm and location of each jet.

1. Install:

- Main nozzle ④
- Pilot jet ③
- Washer ②
- Main jet ①

2. Install:

- Vacuum piston

NOTE:

Note position of tab ① on diaphragm. This tab must be placed in the cavity of the carburetor body during reassembly.

FUEL LEVEL ADJUSTMENT

1. Measure:

- Fuel level ①

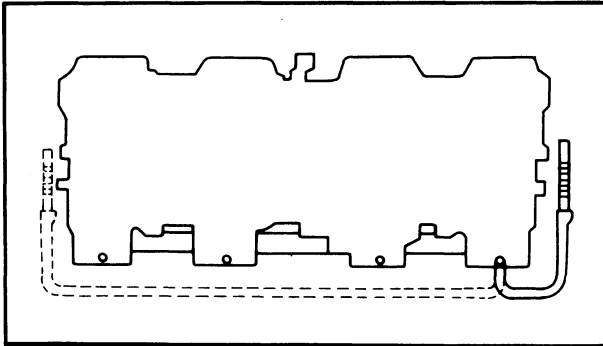
Fuel level inspection steps:

- Install Fuel Level Gauge Adapter ② (YM-01329).
- Connect Fuel Level Gauge ③ (YM-01312) or vinyl tube, 6 mm (0.24 in) inside diameter, to Adapter.
- Place tube vertically next to the center of the mating line of the mixing body and float chamber cover.
- Set fuel cock to "ON".
- Loosen the drain screw ④.
- Warm up the engine, then shut it off after a few minutes.
- Check the fuel level. It should be within the specified range.

Fuel Level:

$3.0 \pm 1.0 \text{ mm}$ ($0.12 \pm 0.04 \text{ in}$)
above the carburetor body.

Out of range → Follow next steps.


NOTE:

Fuel level readings of both side of carburetor line should be equal.

2. Remove:

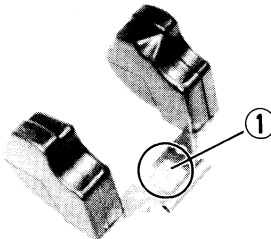
- Carburetors

3. Inspect:

- Float valve assembly
- Float

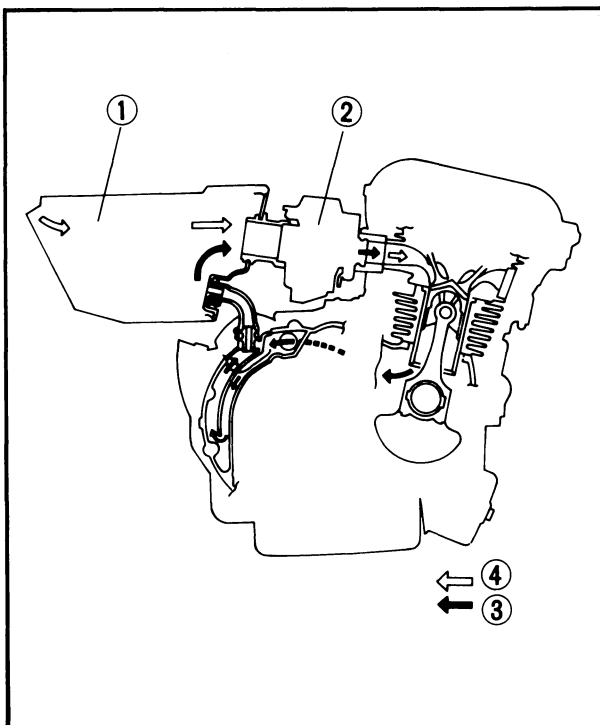
Damage → Replace.

Components OK → Adjust float height by bending float arm tang ① slightly.


4. Observe:

- Fuel level

Level should be within specified range.

5. Repeat these steps for the other carburetor.

AIR CLEANER AND CRANKCASE VENTILATION SYSTEM

REFER TO "CHAPTER 2, Air Cleaner Maintenance."

- ① Carburetor
- ② Air cleaner
- ③ Blow-by gas
- ④ Fresh air

CHAPTER 5. CHASSIS

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CHASIS

FRONT WHEEL

1. Front axle

2. Collar

3. Oil seal

4. Bearing

5. Spacer

6. Spacer flange
7. Bearing

8. Meter clutch

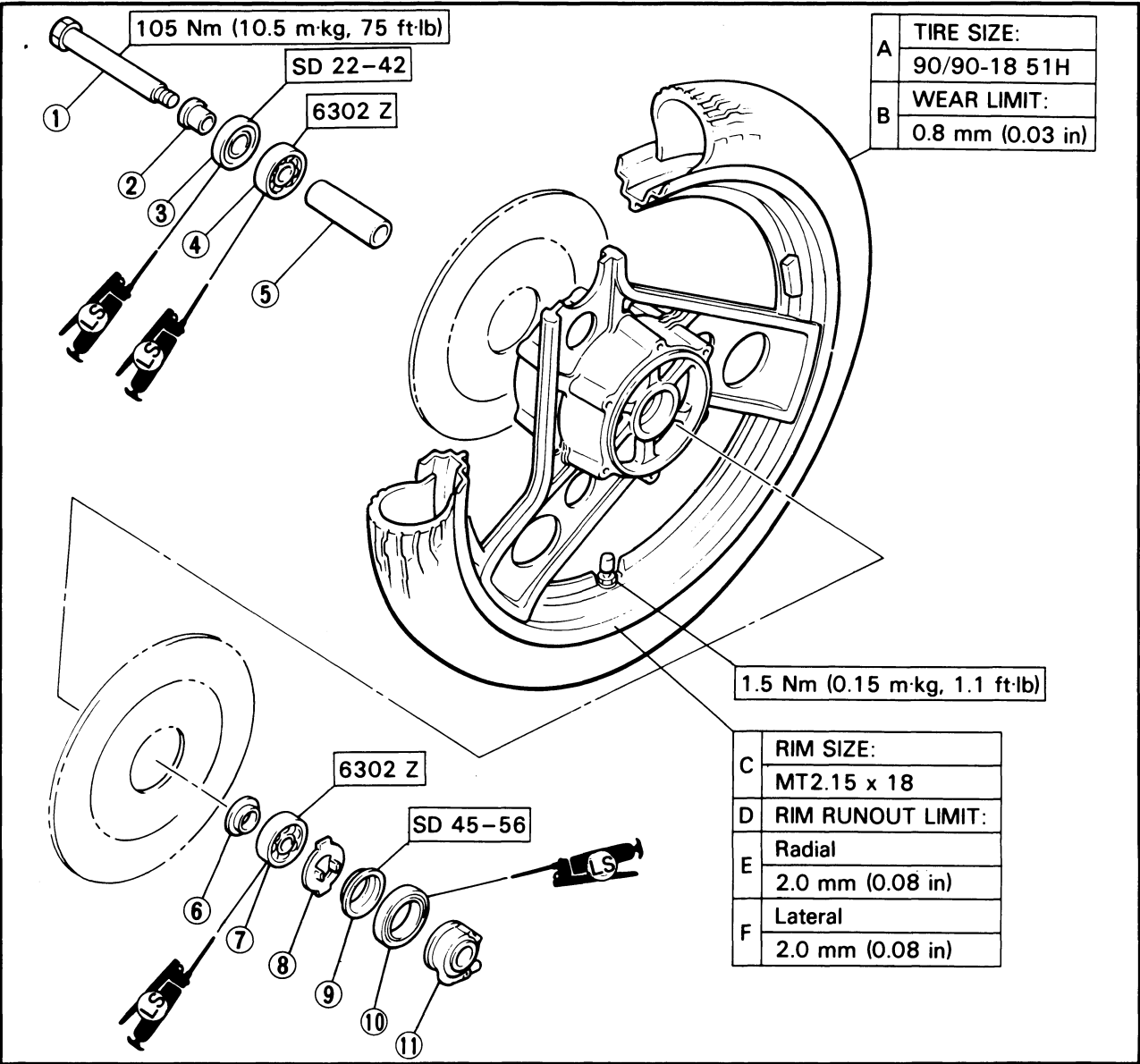
9. Clutch retainer

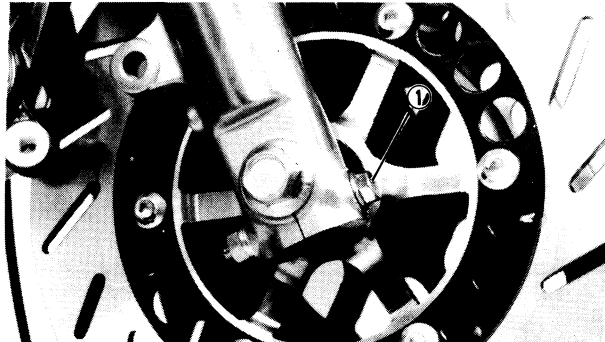
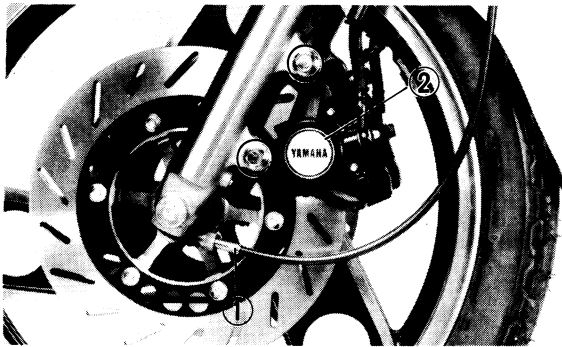
10. Oil seal

11. Gear unit assembly

TIRE AIR PRESSURE (COLD):		
Basic weight: With oil and full fuel tank	208 kg (459 lb)	
Maximum load*	188 kg (414 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	177 kPa (1.8 kg/cm ² 26 psi)	196 kPa (2.0 kg/cm ² 28 psi)
90 kg (198 lb) ~ Maximum load*	196 kPa (2.0 kg/cm ² 28 psi)	226 kPa (2.3 kg/cm ² 32 psi)
High speed riding	196 kPa (2.0 kg/cm ² 28 psi)	226 kPa (2.3 kg/cm ² 32 psi)

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





REMOVAL

1. Place the motorcycle on its centerstand.
2. Remove:
 - Speedometer cable ①
 - Brake caliper ②

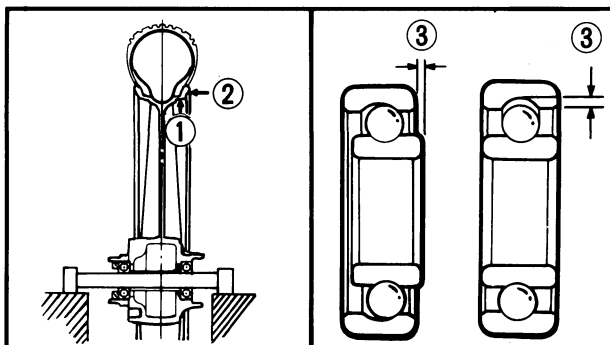
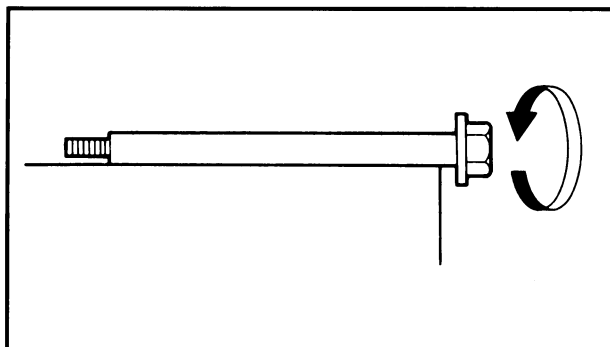
3. Loosen:
 - Pinch bolt ①
4. Remove:
 - Axle
 - Front wheel

CAUTION:

Make sure the motorcycle is properly supported.

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 axle

Roll the axle on a Flat Surface.
Bends → Replace.

WARNING:

Do not attempt to straighten a dent axle.

3. Inspect:
 - Wheel

Cracks/Bends/Warpage → Replace.
4. Measure:
 - Wheel runout

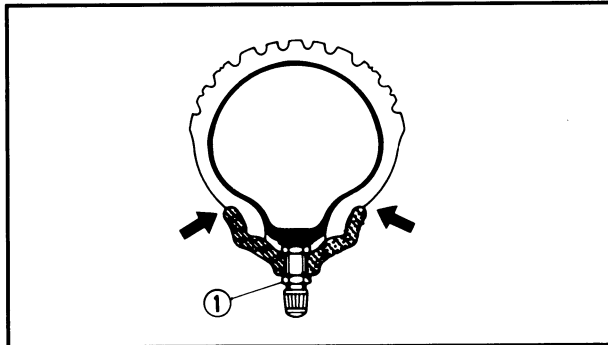
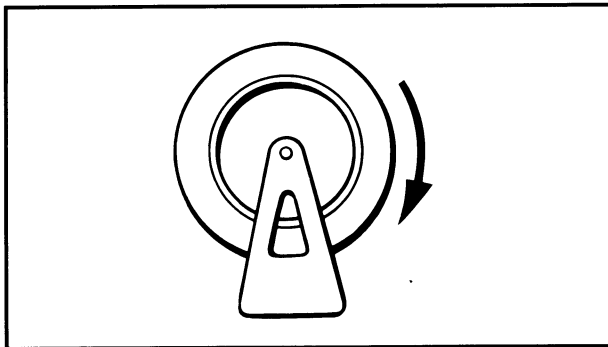
Over specified limit → Replace, wheel or check bearing play ③.



Rim Runout Limits:

Radial ① : 2.0 mm (0.08 in)

Lateral ② : 2.0 mm (0.08 in)



5. 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.

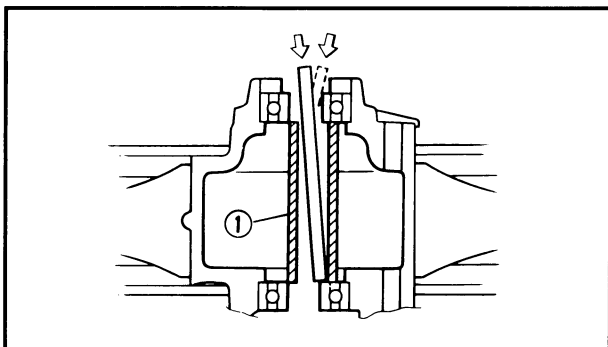


Valve-Stem Locknut:
1.5 Nm (0.15 m·kg, 1.1 ft·lb)

WHEEL BEARING REPLACEMENT

1. Inspect:

- Wheel bearings
Wheel hub play/Wheel turns roughly → Replace.



Wheel bearing replacement steps:

- Clean wheel hub exterior.
- Drive bearing out by pushing spacer aside and tapping around perimeter of bearing inner race. Use soft metal drift punch and hammer. The spacer ① “floats” between bearings. Remove both bearings as described.

WARNING:

Eye protection is recommended when using striking tools.

- To install the wheel bearing, reverse the above sequence. Use a socket that matches outside diameter of bearing outer race to drive in bearing.

CAUTION:

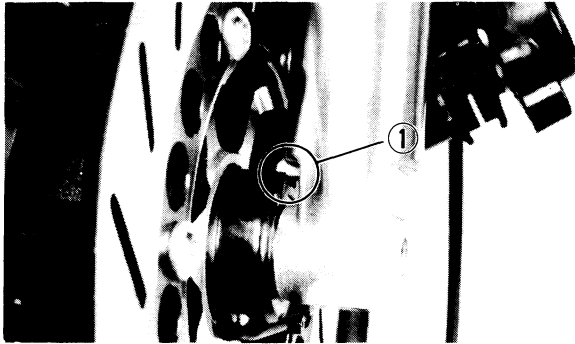
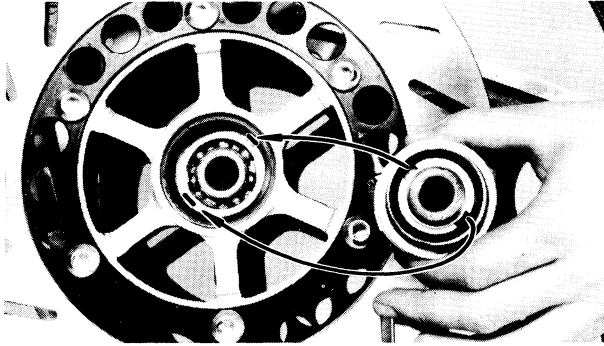
Do not strike the center race or balls of bearing. Contact should be made only with the outer race.



INSTALLATION

1. Install

- Front wheel
Reverse removal procedure.

**Front wheel installation points:**

- Lightly grease lips of front wheel oil seals and gear teeth of speedometer drive and driven gears.
- Install speedometer cable holder securing bolt.
- Be sure the two projections inside the wheel hub are meshed with the two slots in the speedometer housing.
- Be sure that the projecting portion (torque stopper ①) of the speedometer housing is positioned correctly.
- Tighten the axle.

**Axle:****105 Nm (10.5 m·kg, 75 ft·lb)**

- Tighten the axle pinch bolt.

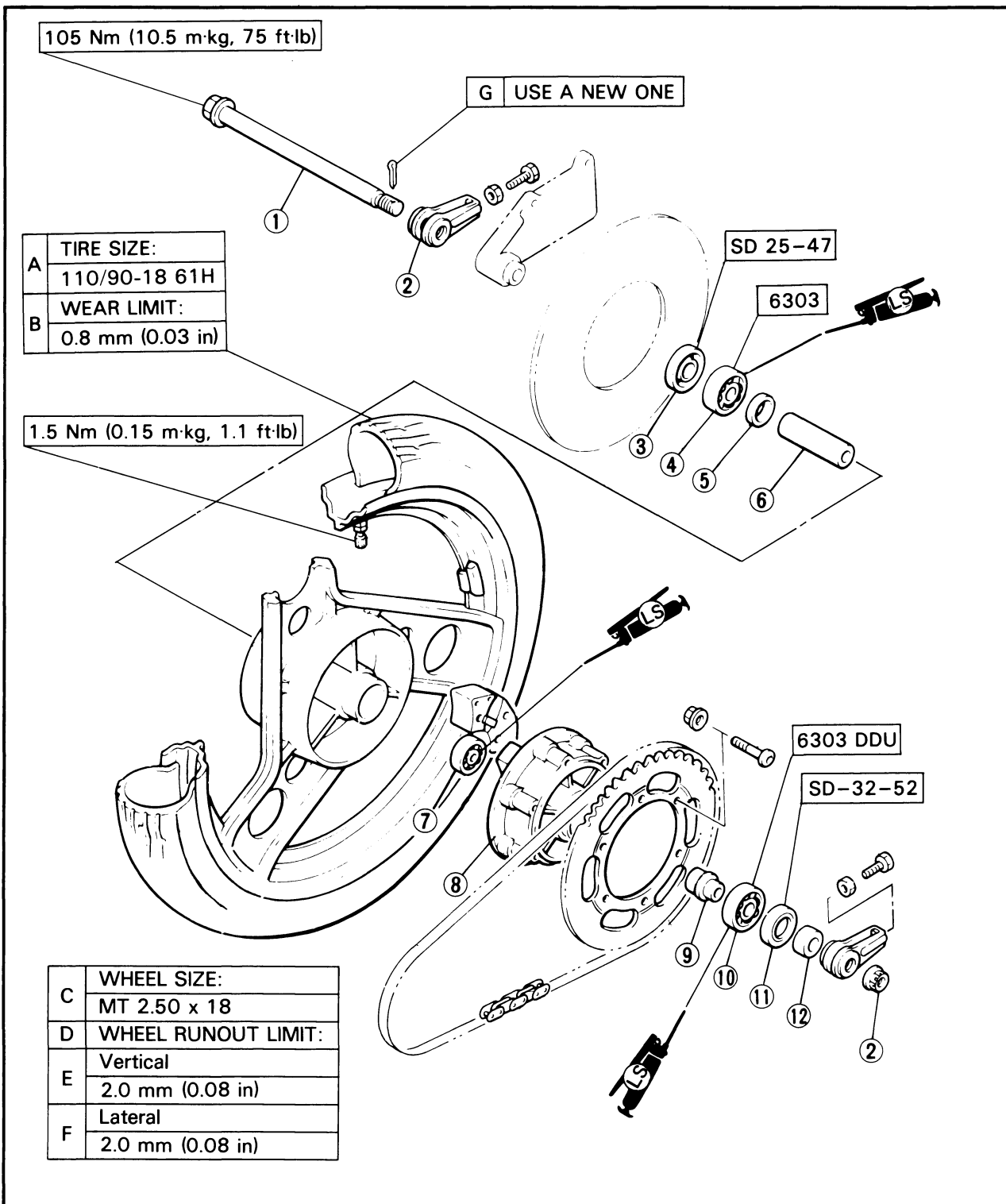
**Axle Pinch Bolt:****20 Nm (2.0 m·kg, 14 ft·lb)**

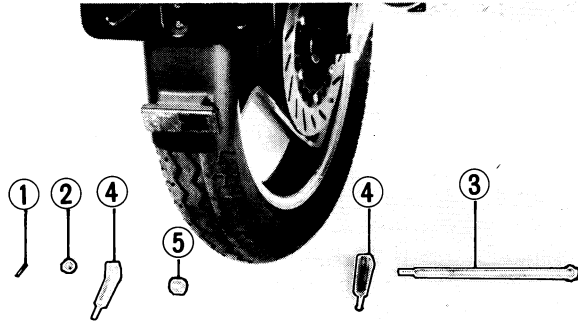
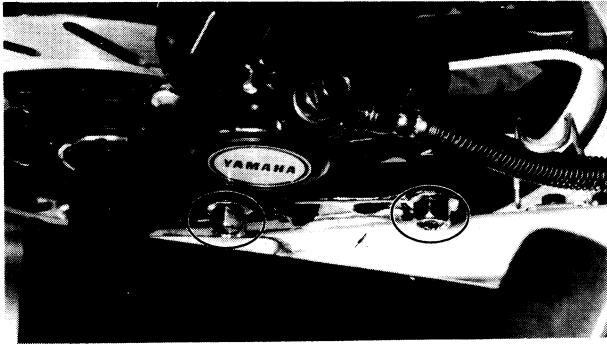
- Tighten the brake caliper bolt.

**Brake Caliper Bolt:****35 Nm (3.5 m·kg, 25 ft·lb)**

REAR WHEEL

- | | |
|------------------|---------------|
| 1. Axle | 7. Bearing |
| 2. Chain puller | 8. Clutch hub |
| 3. Oil seal | 9. Collar |
| 4. Bearing | 10. Bearing |
| 5. Spacer flange | 11. Oil seal |
| 6. Spacer | 12. Collar |





REMOVAL

1. Place the motorcycle on its centerstand.
2. Remove:
 - Brake caliper

3. Remove:
 - Cotter pin ①
 - Axle nut ②
 - Axle ③
 - Chain puller ④
 - Collar ⑤
 - Drive chain
 - Rear wheel

INSPECTION

1. Rear Axle
Refer to "Front Axle Inspection"
2. Wheel Runout
Refer to "Front Wheel Runout"
3. Wheel Balance
Refer to "Front Wheel Balance"
4. Wheel Bearing Replacement
Refer to "Front Wheel Bearing Replacement"

INSTALLATION

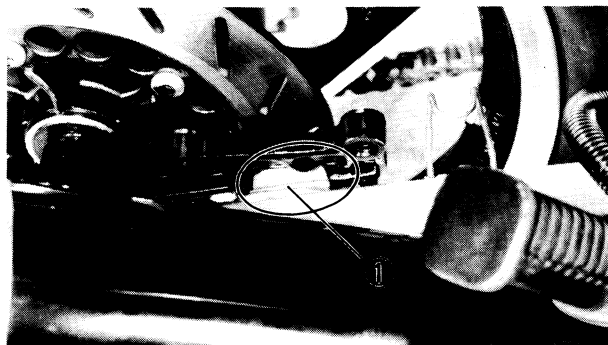
1. Install:
 - Rear wheelReverse removal procedure.

Rear wheel installation points:

- Lightly grease lips of rear wheel oil seals and bearings.
- Be sure that the projecting portion (torque stopper ①) of rear arm is meshed with caliper bracket.
- Adjust drive chain.
- Tighten

**Axle:****105 Nm (10.5 m·kg, 75 ft·lb)****Brake Caliper Bolts:****35 Nm (3.5 m·kg, 25 ft·lb)**

- Always use a new cotter pin on the axle nut.

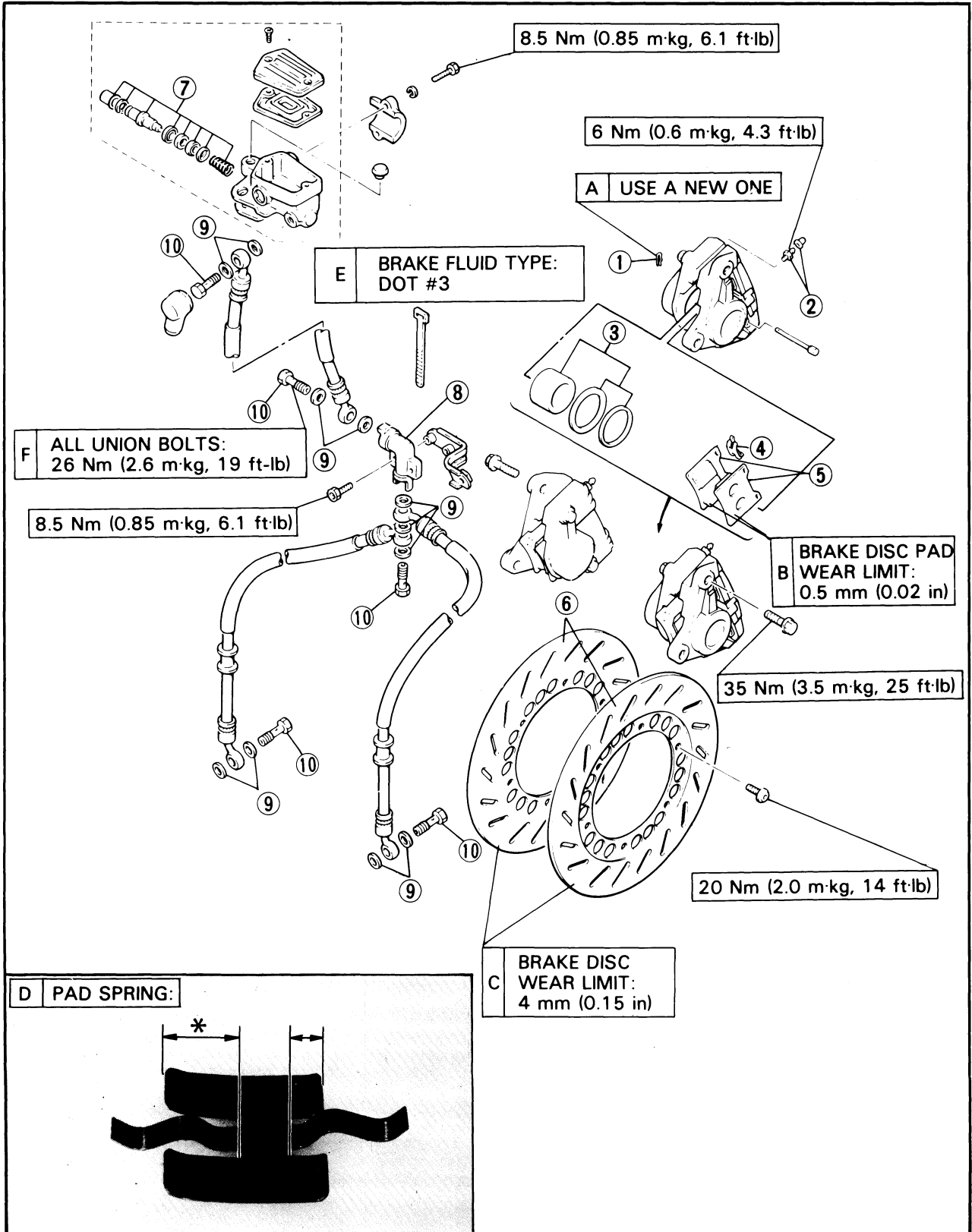




FRONT BRAKE

- | | |
|----------------------------|------------------------|
| 1. Retaining clips | 6. Brake disc |
| 2. Air bleed screw | 7. Master cylinder kit |
| 3. Caliper piston assembly | 8. Joint |
| 4. Pad spring | 9. Copper washer |
| 5. Brake pad | 10. Union bolt |

* Install the pad spring with its longer tangs in the disc rotation direction.



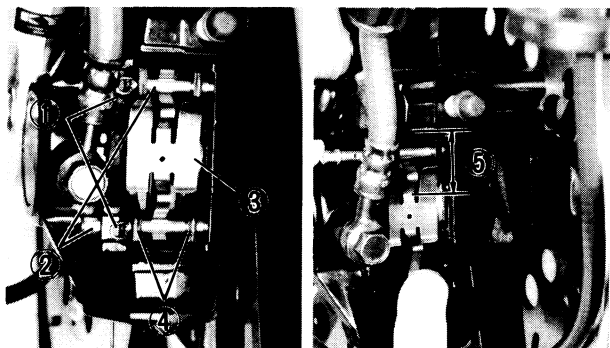
CAUTION:

Disc brake components rarely require disassembly. **DO NOT:**

- Disassemble 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 injury 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.
-

NOTE:

Drain the brake fluid before removing brake hose.

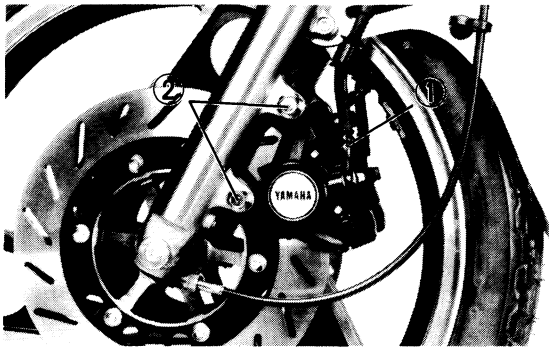

CALIPER PAD REPLACEMENT

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

1. Remove:
 - Cover
 - Retaining clips ①
 - Retaining pins ②
 - Pad spring ③
 - Pads ④
2. Install:
 - Pads
 Reverse removal steps.

NOTE:

- Install the pad spring with its longer tangs ⑤ facing upwards.
 - Replace pads as a set if either is found to be worn to the wear limit.
-



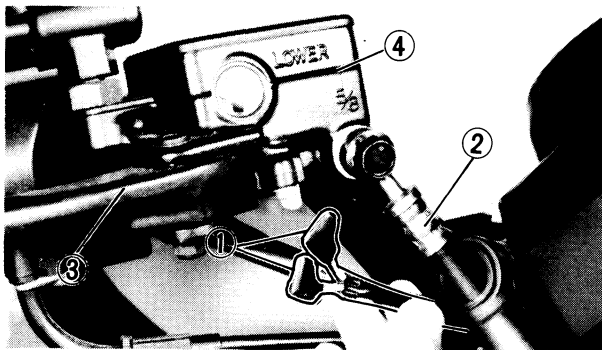
CALIPER DISASSEMBLY

1. Remove:
 - Brake hose ①
 - Caliper securing bolts ②
 - Brake pads
2. Remove:
 - Caliper piston assembly

Use compressed air and procede carefully.

WARNING:

- Cover piston with rag and use extreme caution when expelling piston from cylinder.
- Never attempt to pry out piston.



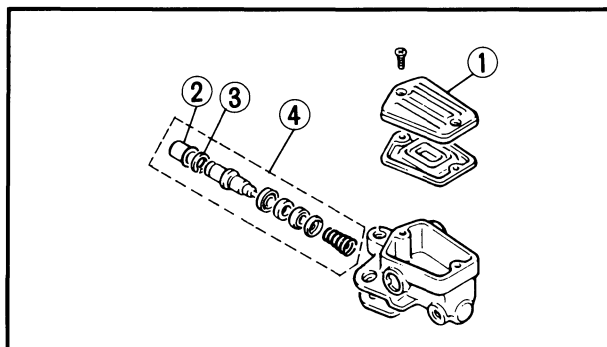
MASTER CYLINDER DISASSEMBLY

1. Remove:
 - Brake light leads ①
 - Brake hose ②
 - Brake lever ③ and spring
 - Master cylinder assembly ④
2. Remove:
 - Cap ①
 - Drain remaining fluid
 - Master cylinder dust boot ②
 - Circlip ③
 - Master cylinder cup assembly.

NOTE:

Be sure to reinstall the larger diameter lips of the cylinder cups first.


- ④ Master cylinder kit



INSPECTION AND REPAIR

Recommended Brake Component Replacement Schedule	
Brake pads	As required
Piston seal, dust seal	Every 2 years
Brake hoses	Every 4 years
Brake fluid	Replace only when brakes disassembled

1. Inspect:
- Caliper piston assembly
Damage/Scratches → Replace.
 - Brake pad
Over wear limit ① → Replace as a set.




Brake Pad Wear Limit:
0.5 mm (0.02 in)

② Wear indicator

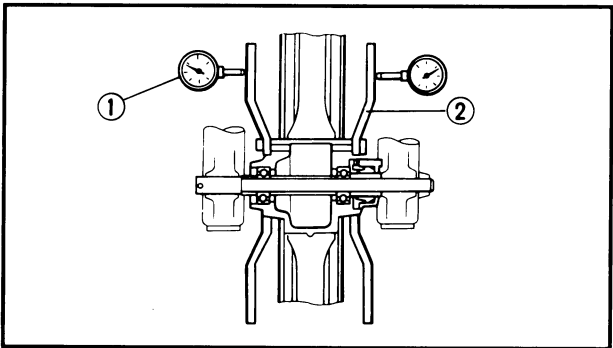
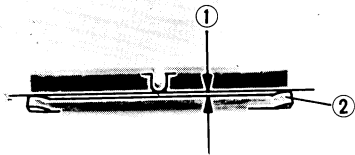
2. Inspect:
- Master cylinder body
Scratches → Replace.
Clean all passages with new brake fluid.
 - Brake hoses
Cracks/Frayed/Damage → Replace.

3. Inspect:
- Brake disc ②
Wear deflection out of specification → Replace.



Maximum Deflection:
0.15 mm (0.006 in)
Minimum Disc Thickness:
4.0 mm (0.16 in)

① Dial gauge





ASSEMBLY

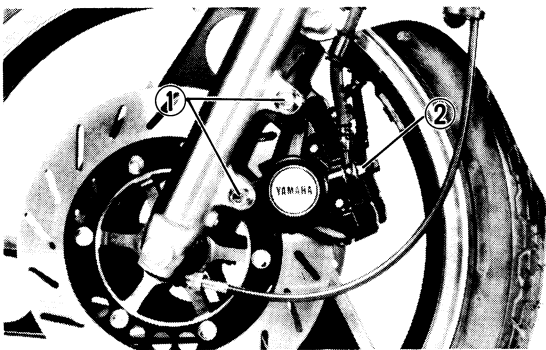
Caliper

NOTE:

- All internal parts should be cleaned in new brake fluid only.
- Internal parts should be lubricated with brake fluid when installed.
- Replace the piston and dust seals whenever the caliper is disassembled.

1. Install:

- Caliper piston assembly
- Brake pads
- Caliper assembly



2. Tighten:

- Caliper securing bolts ①



35 Nm (3.5 m·kg, 25 ft·lb)

- Brake hose ② union bolts



26 Nm (2.6 m·kg, 19 ft·lb)

Master Cylinder

1. Assemble:

- Master cylinder

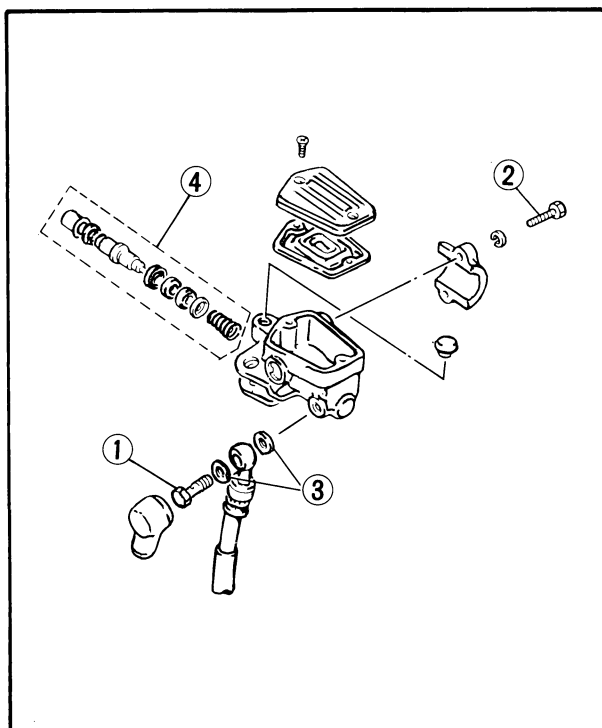


Union Bolt ① :

26 Nm (2.6 m·kg, 19 ft·lb)

Master Cylinder Holding Bolt ② :

8.5 Nm (0.85 m·kg, 6.1 ft·lb)



③ Copper washer

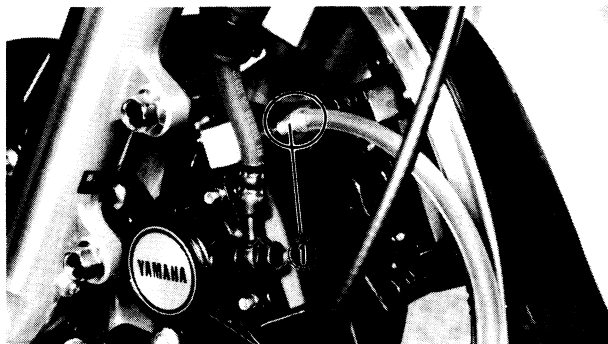
④ Master cylinder kit

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.

**Air bleeding steps:**

- a. Add proper brake fluid to the reservoir.
- b. Install diaphragm.
Be careful not to spill any fluid or allow the reservoir to over flow.
- c. Connect the clear plastic tube (4.5 mm, 3/16 in inside dia.) tightly to the caliper bleed screw ①.
- 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 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.
- i. Repeat steps (e) to (h) until of the air bubbles have been removed from the system.

NOTE:

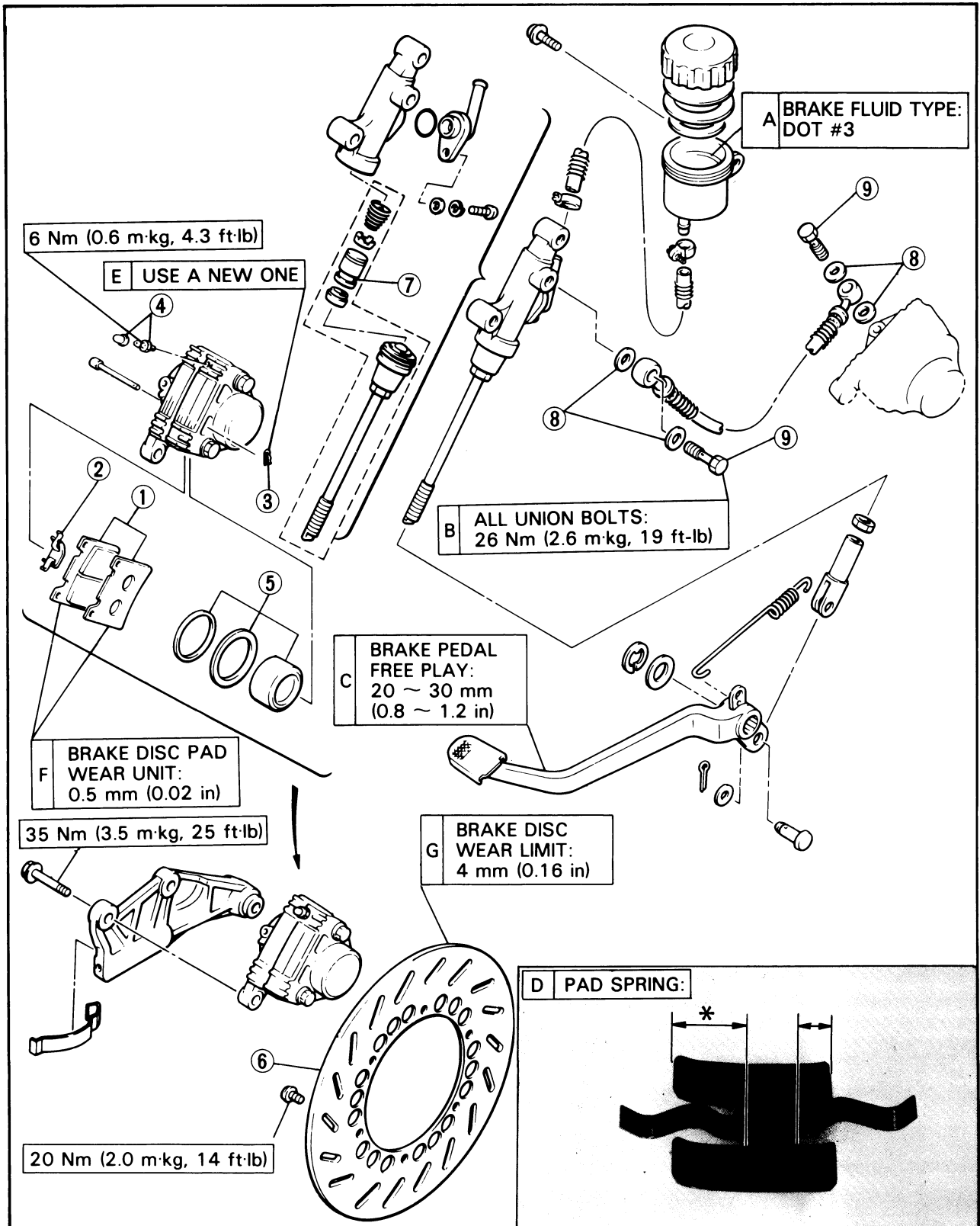
If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in system have disappeared.

REAR BRAKE

1. Brake pad
2. Pad spring
3. Retaining clips
4. Bleed screw
5. Caliper piston assembly
6. Brake disc

7. Master cylinder kit
8. Copper washer
9. Union bolt

* Install the pad spring with its longer tangs in the disc rotation direction.



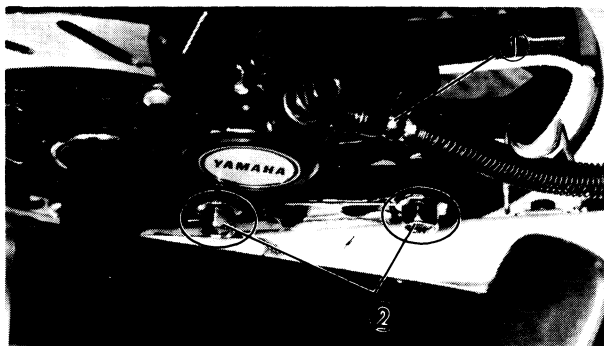
CAUTION:

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 injury 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.

NOTE:

Drain the brake fluid before removing brake hose.



CALIPER PAD REPLACEMENT

Refer to "Front Brake Pad Replacement"

CALIPER DISASSEMBLY

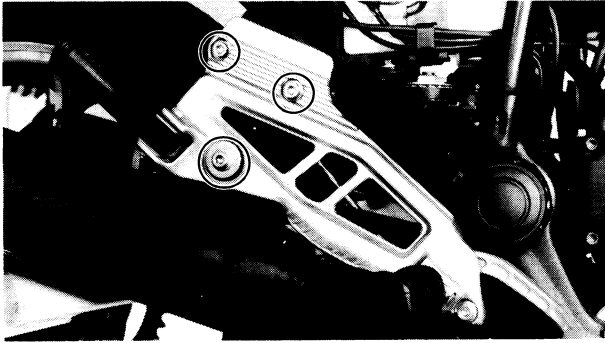
Refer to "Front Caliper Disassembly"

1. Remove:
 - Brake hose ①
 - Caliper securing bolts ②
 - Brake pads
2. Remove:
 - Caliper piston assembly

Use compressed air and procede carefully.

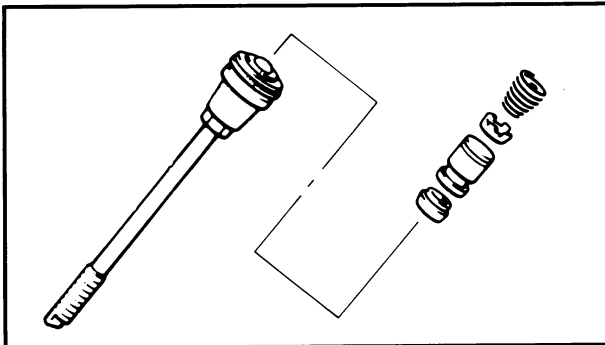
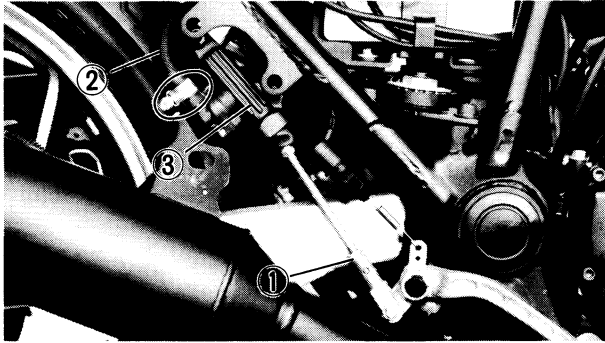
WARNING:

- Cover piston with rag and use extreme caution when expelling piston from cylinder.
- Never attempt to pry out piston.



MASTER CYLINDER DISASSEMBLY

1. Remove:
 - Footrest bracket
2. Loosen:
 - Locknut ①
3. Remove
 - Brake hose ②
 - Master cylinder assembly ③
4. Remove:
 - Master cylinder kit (from master cylinder body)



INSPECTION AND REPAIR

Refer to "Front Brake Inspection and Repair".

ASSEMBLY

Caliper

Refer to "Front Brake Caliper Assembly".

Master Cylinder

1. Assemble:
 - Master cylinder



Master Cylinder Bolt:
20 Nm (2.0 m·kg, 14 ft·lb)

AIR BLEEDING

Refer to "Front Brake Air Bleeding"

1. Rubber cap
2. Cap bolt
3. O-ring
4. Fork spring
5. Damper rod spring
6. Damper rod
7. Inner fork tube
8. Taper spindle
9. Dust cover
10. Retaining clip
11. Oil seal
12. Washer
13. Bushing
14. Outer fork tube
15. Drain bolt
16. Damper rod securing bolt
17. Front fork brace

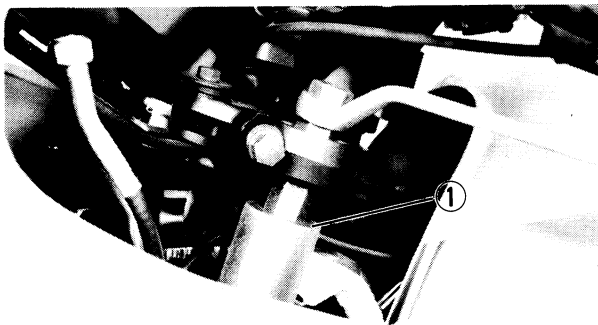
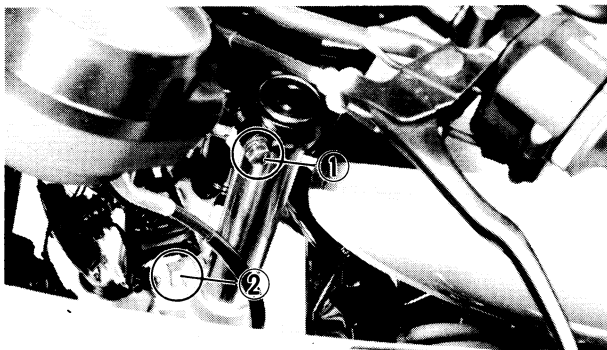




REMOVAL AND DISASSEMBLY

WARNING:

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

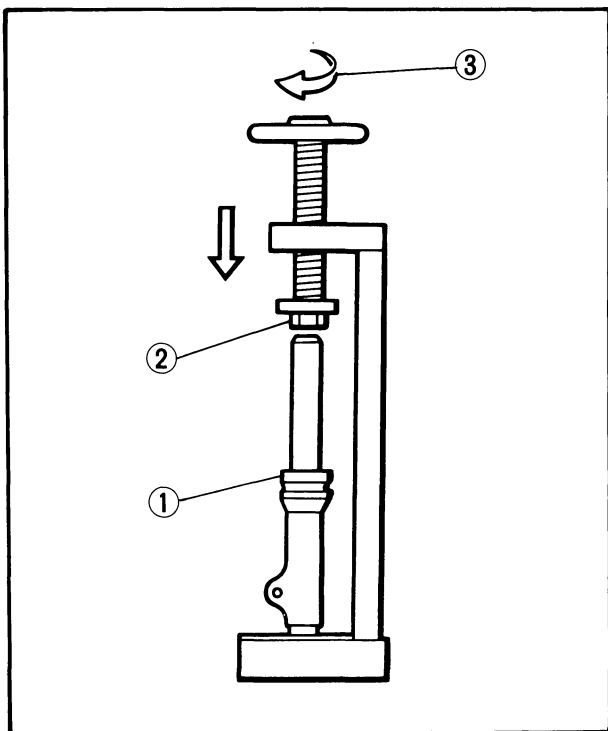


1. Remove:
 - Brake caliper
 - Front wheel
2. Remove:
 - Front fender
 - Front fork brace
 - Rubber cap
3. Loosen:
 - Upper front fork pinch bolts ①
 - Lower front pinch bolts ②

CAUTION:

Support the fork before loosening the pinch bolts.

4. Remove:
 - Front fork
(from steering crown)
5. Tighten
 - Lower front fork pinch bolt
6. Loosen:
 - Cap bolt ①
Use Front Fork Cap Socket (YM-01104).
 - Lower front fork pinch bolt
7. Remove:
 - Front fork assembly
(from the underbracket)
8. Remove:
 - Cap bolt
 - Fork spring
 - Dust cover
 - Retaining clip
9. Fill:
 - Fork inner tube
(with fork oil)
Stretch the inner tube before filling.
10. Install:
 - Cap bolt



11. Remove:

- Oil seal
(from outer tube.)
Press the inner tube to facilitate removal.

CAUTION:

- If air enters the inner tube or it is compressed abruptly oil may spurt out or the oil seal may be ejected.
- Never touch the inner tube during a disassembly operation.
- Be sure to warp the oil seal with a rag for safety.

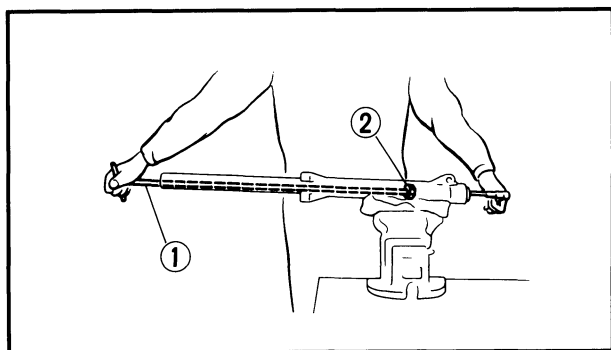
- ① Wrap with rag
- ② Spacer
- ③ Turn slowly

12. Remove:

- Oil seal
- Washer
- Cap bolt

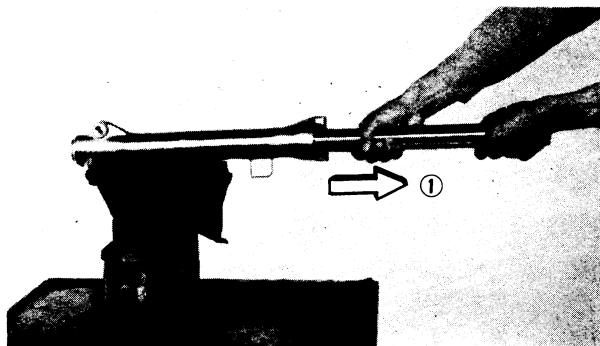
13. Drain:

- Fork



14. Remove:

- Damper rod securing bolt
Use T-handle ① (YM-01326) and Front Fork Cylinder Holder (YM-01300) ② to lock the damper rod.



15. Remove:

- Damper rod
- Damper rod spring
- Inner fork tube
- Guide bushing
(from outer tube)
- Taper spindle

- ① Pull inner tube from outer tube.

INSPECTION

1. Inspect:

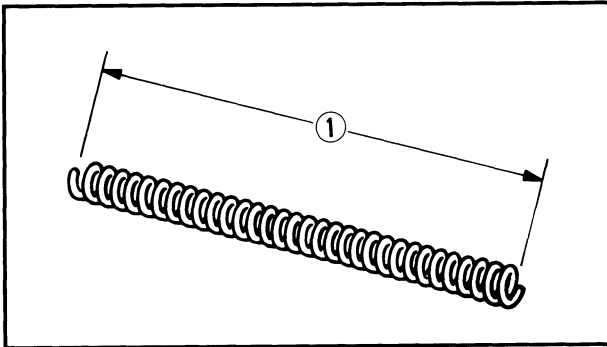
- Inner fork tube
Severe scratches/Bends → Replace.
Damaged oil lock valve → Replace.

WARNING:

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

2. Inspect:

- Outer fork tube
Bends → Replace.
Damaged fork seal seat → Replace.
- Fork oil seal
Lip damage → Replace.
Outer surface damage → Replace.

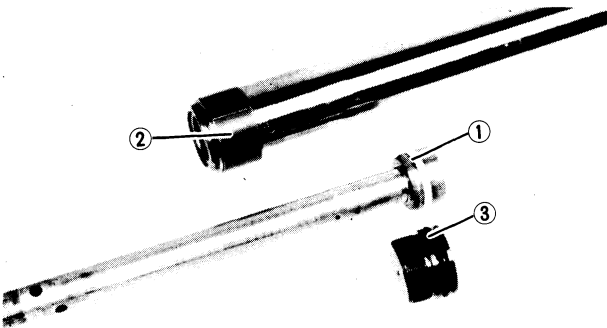


3. Inspect:

- Fork spring ①
Over specified limit → Replace.



**Fork Spring Free Length Limit:
510.5 mm (20.1 in)**



4. Inspect:

- Damper rod
Worn damper rod seal ① → Replace.
Contamination → Wash and blow out all passages.
- Inner fork tube
Worn inner fork slide bushing ② → Replace.
- Cap bolt O-ring ③
Damage → Replace.

ASSEMBLY

NOTE:

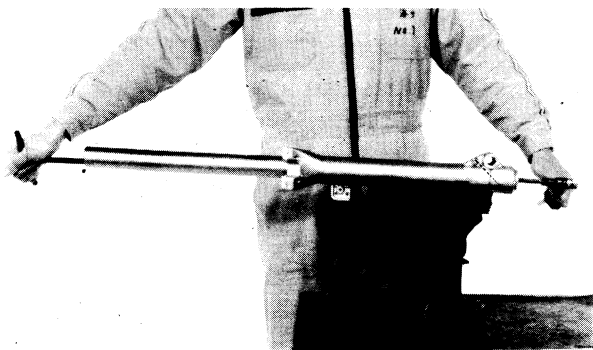
Be sure all components are clean before assembly.

1. Install:

- Damper rod spring
- Damper rod

Allow rod to slide slowly down the inner fork tube until it protrudes from the bottom.

- Taper spindle
- Inner fork tube



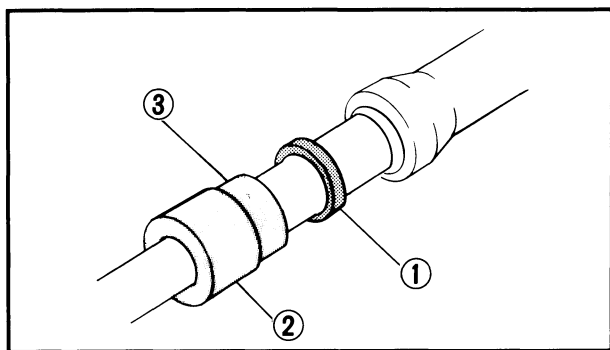
2. Install:

- Damper rod securing bolt

Hold damper rod with Front Fork Cylinder Holder (YM-01300) and T-handle (YM-01326).



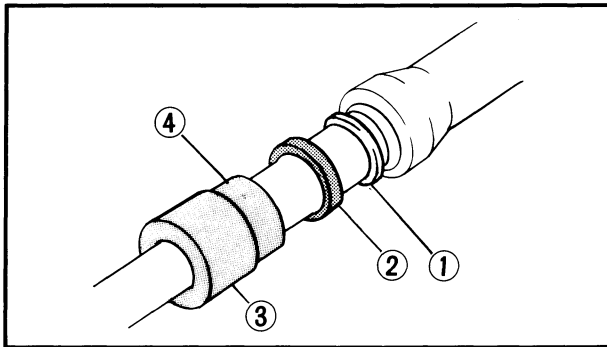
23 Nm (2.3 m·kg, 17 ft·lb)
LOCTITE®



3. Install:

- Guide bushing ①

Press guide bushing into the outer fork tube with Fork Seal Driver ② (YM-01367) and Adapter (YM-01370) ③.



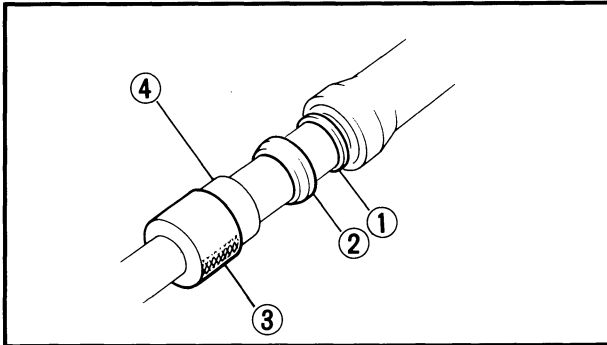
4. Install:

- Washer ①
- Fork oil seal ②

Press fork oil seal into the outer fork tube with Fork Seal Driver ③ (YM-01367) and Adapter (YM-01370) ④ .

CAUTION:

Be sure oil seal numbered side face upward.



5. Install:

- Circlip ①
- Dust seal ②

Use Fork Seal Driver (YM-01367) and Adapter (YM-01370).

6. Fill:

- Inner tube (with fork oil)



Capacity (each):

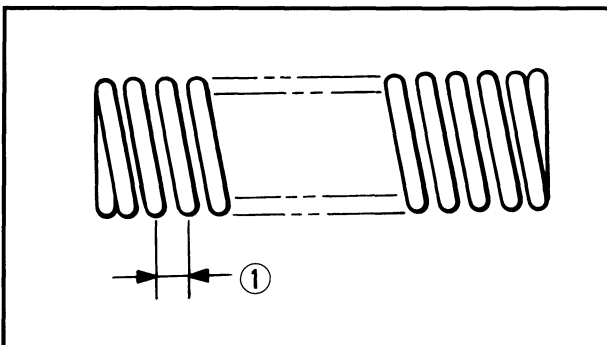
269 cm³ (9.46 Imp oz,
9.11 US oz)

Type:

Yamaha Fork Oil 10WT

NOTE:

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



7. Install:

- Fork spring

NOTE:

Be sure the short pitch ① side face upward.

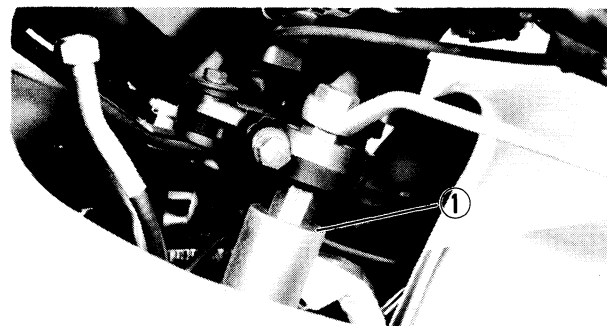
- Cap bolt (into the inner fork tube)

8. Install:

- Front fork assembly (into the underbracket)

9. Tighten:

- Lower front fork pinch bolts
- Cap bolt ①

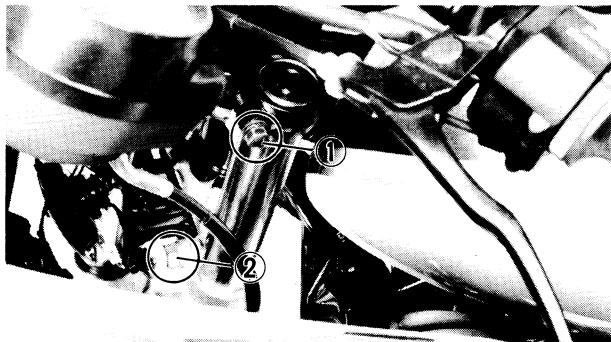


Cap Bolt:

23 Nm (2.3 m·kg, 17 ft·lb)

10. Loosen:

- Lower front fork pinch bolt


11. Install:

- Front fork
(into the steering crown.)

NOTE:

Be sure the inner fork tube end is flush with the top of the steering crown.

12. Tighten:

- Upper front fork pinch bolt ①
- Lower front fork pinch bolts ②


Upper Pinch Bolt:

20 Nm (2.0 m·kg, 14 ft·lb)

Lower Pinch Bolts:

23 Nm (2.3 m·kg, 17 ft·lb)

13. Continue assembly by reversing of Removal and Disassembly sequence.

Install and torque tighten each component as specified.


Disc Brake Caliper:

35 Nm (3.5 m·kg, 25 ft·lb)

Front Wheel Axle:

105 Nm (10.5 m·kg, 75 ft·lb)

Wheel Axle Pinch Bolt:

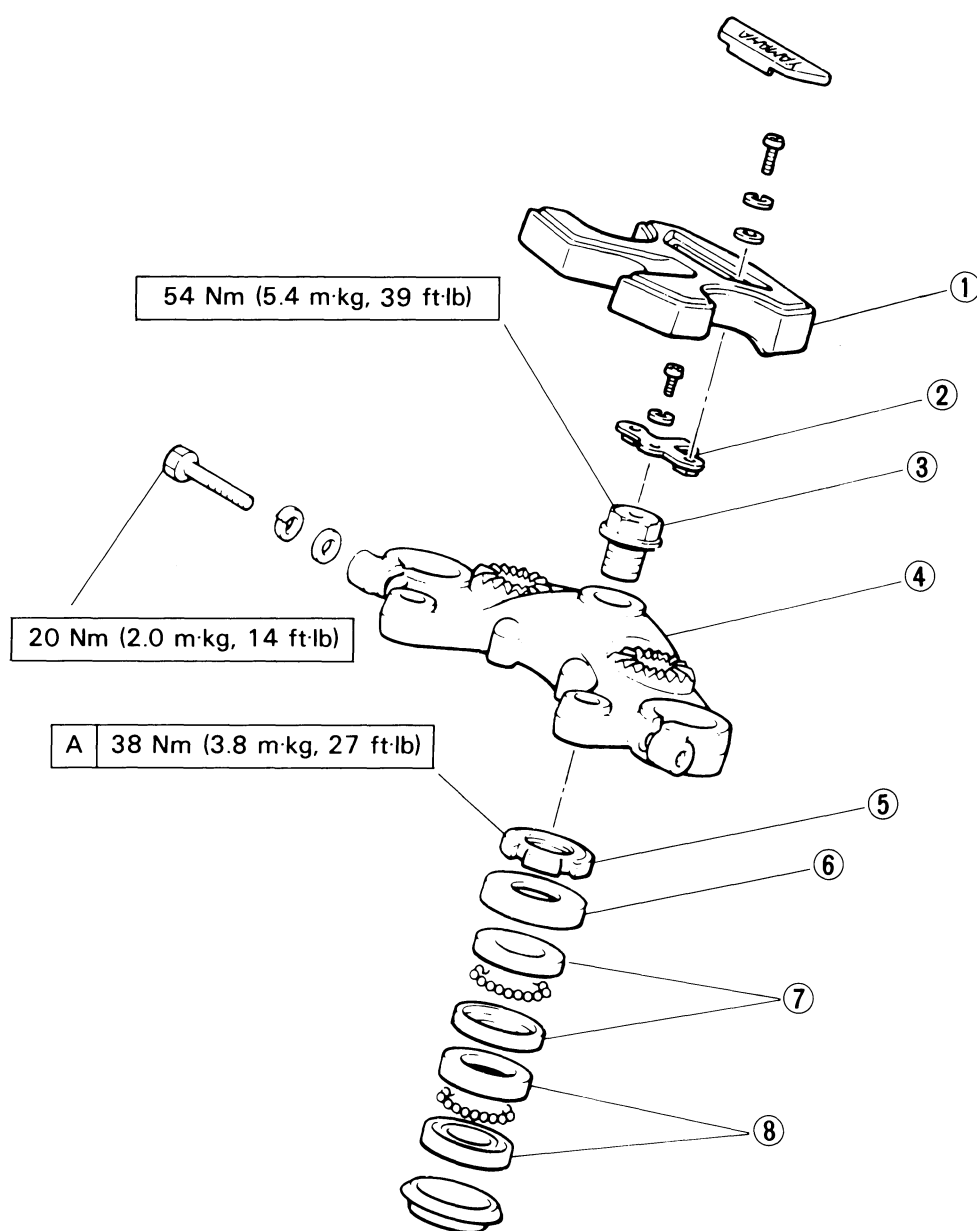
20 Nm (2.0 m·kg, 14 ft·lb)

STEERING HEAD

- | | |
|-----------------------|------------------------|
| 1. Handle cover | 6. Bearing cover |
| 2. Washer | 7. Upper bearing races |
| 3. Steering stem bolt | 8. Lower bearing races |
| 4. Handle crown | 9. Bearing (Upper) |
| 5. Ring nut | 10. Bearing (Lower) |

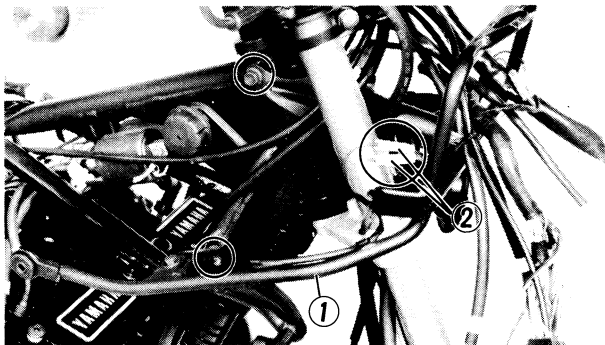
A

- Tighten to specified torque.
- If steering is binded, loosen the ring nut so that there is no free play on bearing.



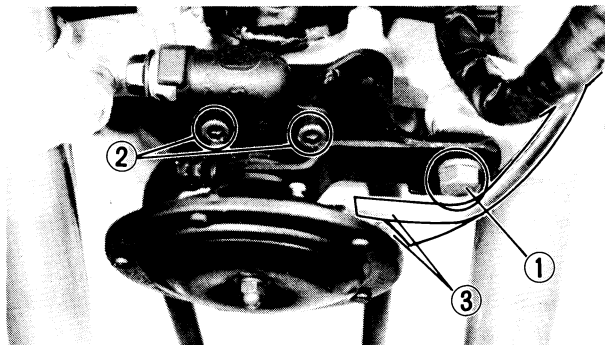
ADJUSTMENT

Refer to Chapter 2. "STEERING HEAD ADJUSTMENT".

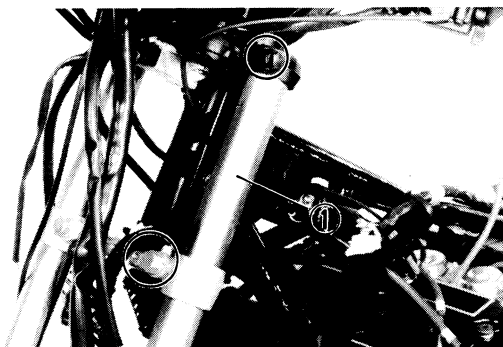


REMOVAL

1. Remove:
 - Headlight
 - Cowling
 - Cowling stay ①
2. Disconnect:
 - Flasher light leads ②



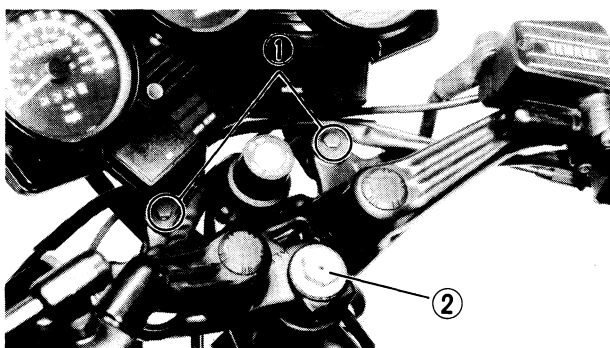
3. Remove:
 - Horn securing bolt ①
 - Brake hose joint securing bolt ②
4. Disconnect:
 - Horn leads ③



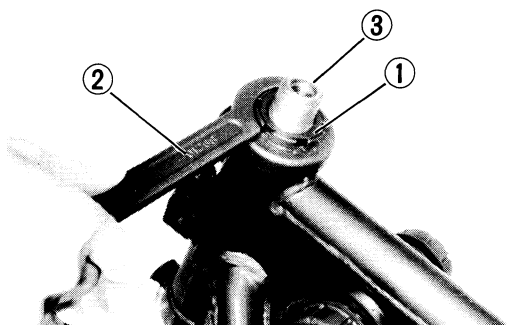
5. Remove:
 - Front wheel
 - Fender
 - Front fork brace
 - Front fork ①

Refer to "FRONT FORK".

6. Disconnect:
 - Throttle cable
 - Starter cable
 - Clutch cable



7. Remove:
- Meter panel securing bolts ①
 - Steering stem bolt ②
 - Handlebar and steering crown assembly



8. Remove:
- Ring nut ①
 - Use Ring Nut Wrench ② (YU-01268)
 - Bearing cover
 - Bearing
 - Steering stem ③

INSPECTION

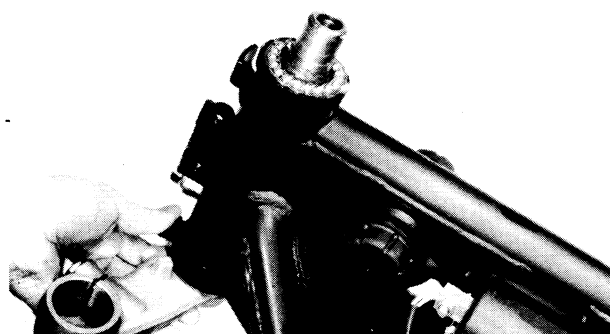
1. Check:
- Bearing
 - Pitting/Damage → Replace races and bearing.

ASSEMBLY

1. Lubricate:
- Bearings

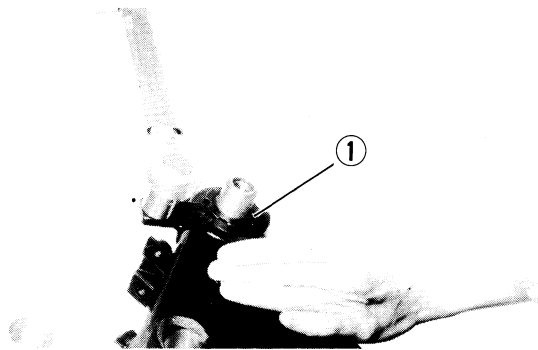


Wheel Bearing Grease



2. Install:
- Lower bearing (onto steering stem)
 - Steering stem
 - Upper bearing

Lower & Upper Bearing
19 P.C.S/¼ in

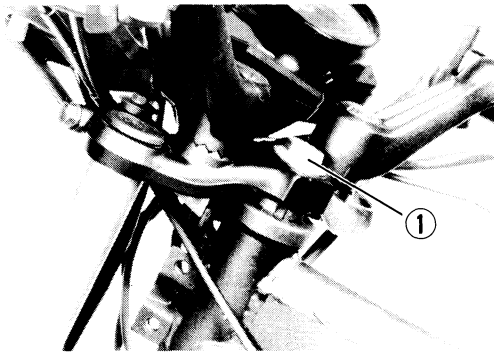


3. Install:
 - Bearing cover
 - Ring nut
4. Tighten:
 - Ring nut ①



38 Nm (3.8 m·kg, 27 ft·lb)

5. Install:
 - Steering crown
 - Handlebar assembly
 - Steering stem bolt
 - Meter panel assembly
6. Position:
 - Front fork
(into steering crown)
This will facilitate alignment of under bracket holes with steering crown holes.



7. Tighten:
 - Steering stem nut ①



54 Nm (5.4 m·kg, 39 ft·lb)

8. Continue assembly by reversing removal sequence.
9. Check:
 - Steering head operation
Turn it from lock to lock.
Looseness/Binding → Readjust tightness of steering stem.

REAR SHOCK ABSORBER/REAR ARMS

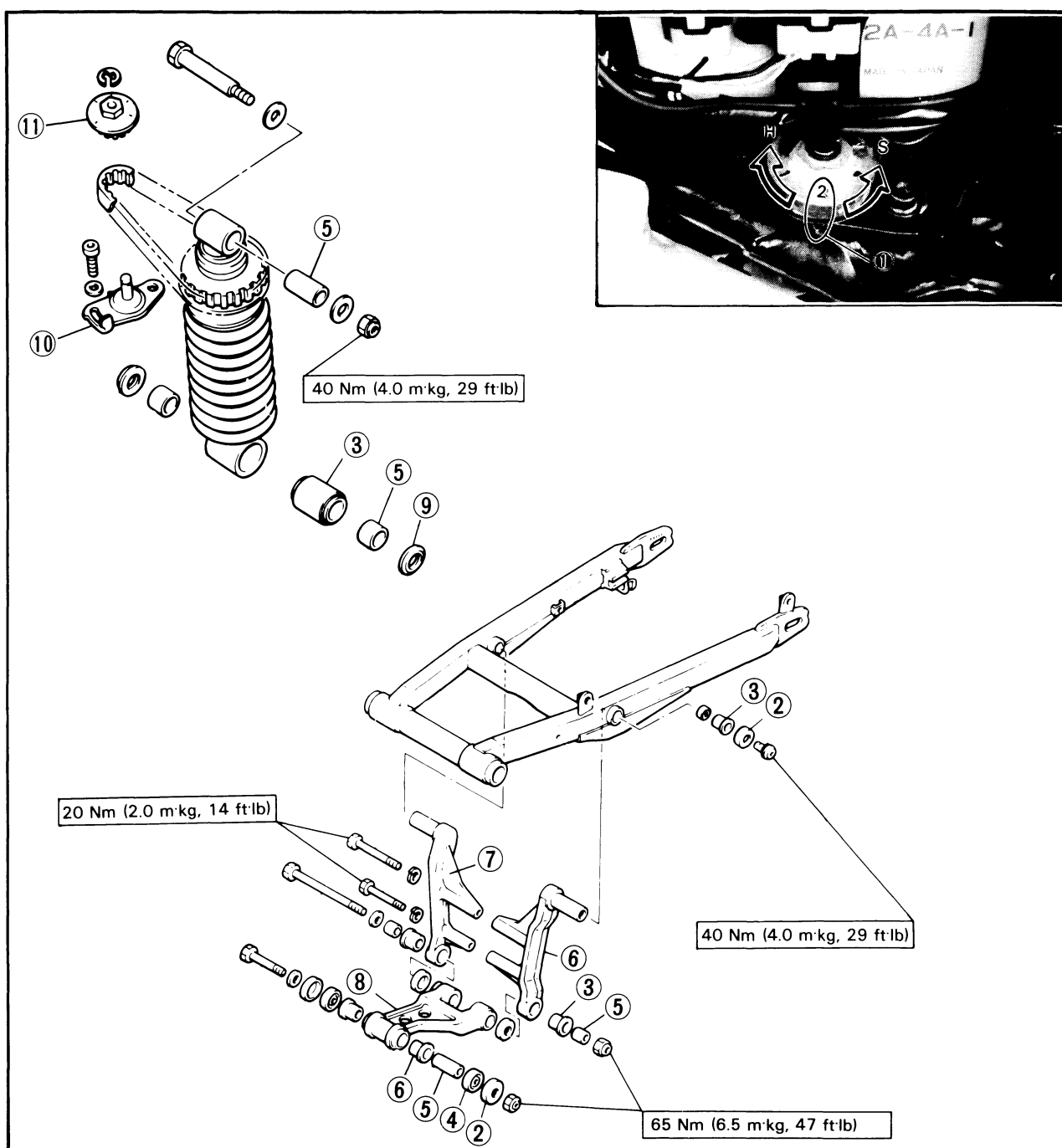
- | | |
|------------------------------|--------------------|
| 1. Spring preload match mark | 7. Arm 2 |
| 2. Thrust cover | 8. Relay arm |
| 3. Bushing | 9. Dust cover |
| 4. Oil seal | 10. Pulley bracket |
| 5. Collar | 11. Pulley |
| 6. Arm 1 | |

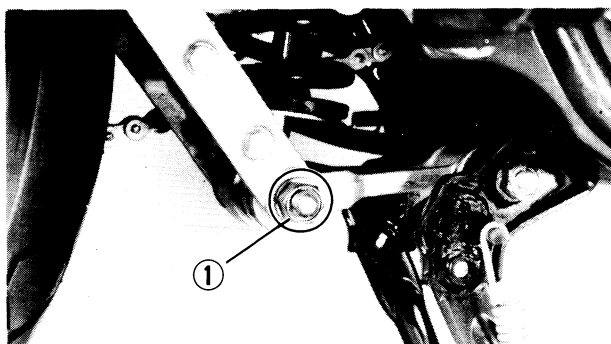
SPRING PRELOAD ADJUSTMENT:

	H			STD	S
Adjusting position	5	4	3	2	1

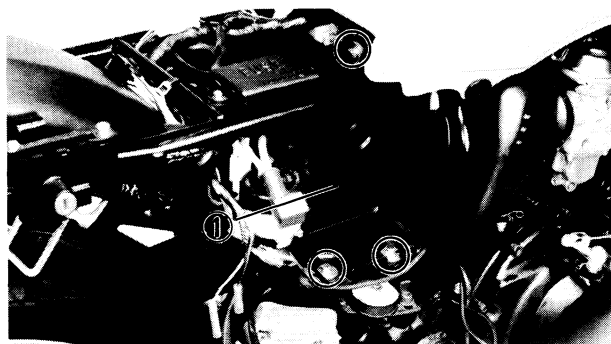
NOTE:

Coat the bushings, thrustwashers, dust seals, and bolts with a liberal amount of molybdenum disulfide grease before installing. After installing, thoroughly wipe off excess grease.




REMOVAL

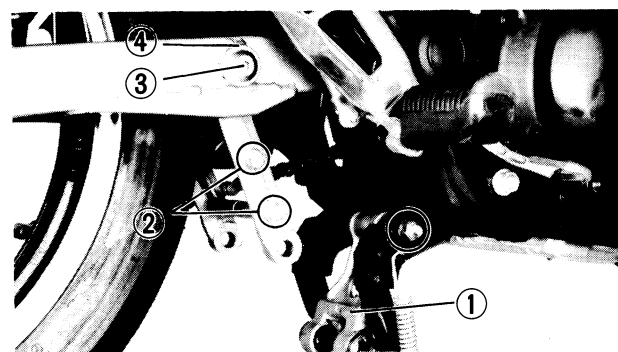
1. Remove:
 - Mufflers (Left and right)
2. Remove:
 - Shock absorber lower securing bolt ①
 - Thrust covers
 - Collars



3. Remove:
 - Battery
(Refer to "ENGINE REMOVAL")
 - Seat
 - Battery case ①



4. Remove:
 - Pulley bracket ①
 - Shock absorber upper securing bolt ②
 - Shock absorber
 - Adjusting belt ③



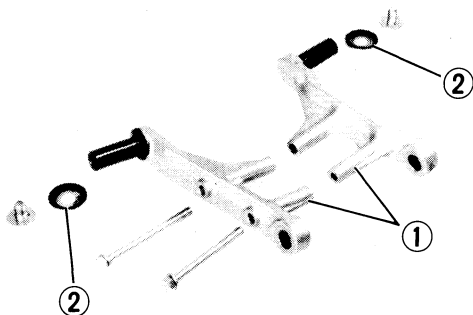
5. Remove:
 - Relay arm ①
 - Thrust covers
 - Collar
6. Remove:
 - Arm securing bolt ②
 - Screws ③
 - Thrust covers ④



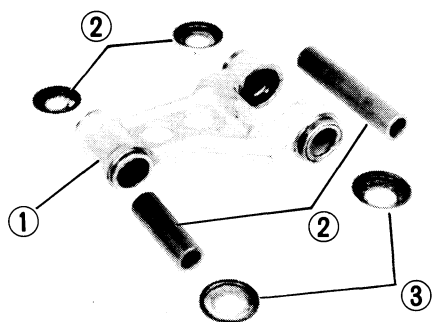
INSPECTION



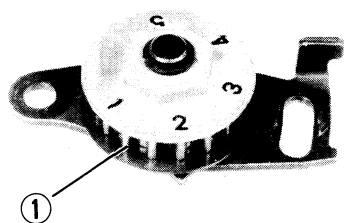
1. Inspect:
 - Rear shock absorber
Oil leaks/Damage → Replace.
 - Dust cover ①
Damage → Replace.



2. Inspect:
 - Arm ①
 - Thrust cover ②
Damage/Wear → Replace



3. Inspect:
 - Relay arm ①
 - Collar ②
 - Thrust cover ③
Damage/Wear → Replace.



4. Inspect:
 - Adjusting belt
 - Adjusting belt pulley ①
Wear/Damage → Replace

INSTALLATION

Reverse removal steps.

- Grease the bushing and dust seals.



Molybdenum Grease

- Install:
 - Relay arm



Relay Arm/Frame:
65 Nm (6.5 m·kg, 47 ft·lb)

NOTE:

The relay arm should be installed so that the "UP" mark ① on the arm faces upward.

- Install:
 - Arms
(on swingarm)



Arm Screw:
40 Nm (4.0 m·kg, 29 ft·lb)

- Arm securing bolts



20 Nm (2.0 m·kg, 14 ft·lb)

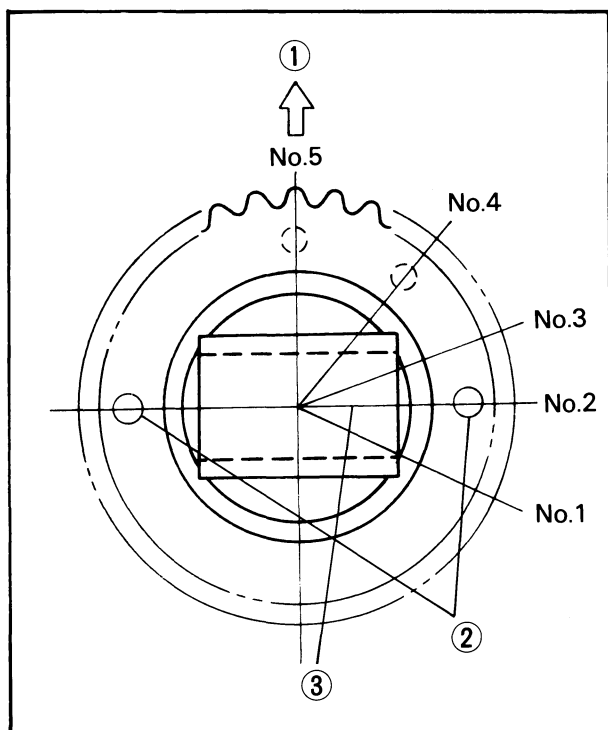
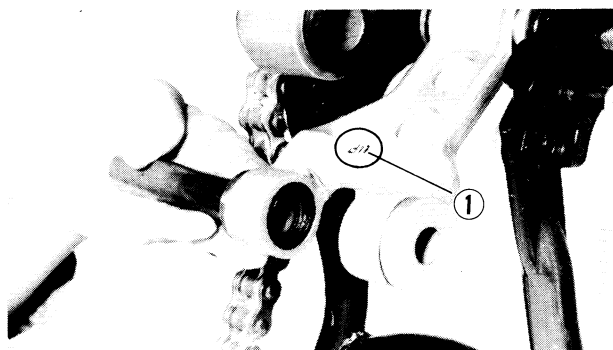
- Install:
 - Rear shock absorber assembly



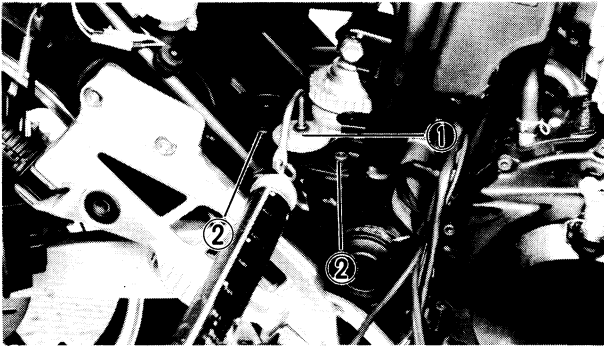
Upper: 40 Nm (4.0 m·kg, 29 ft·lb)
Lower: 65 Nm (6.5 m·kg, 47 ft·lb)

NOTE:

Be sure the "YAMAHA" mark ② faces shock absorber upper boss center ③.



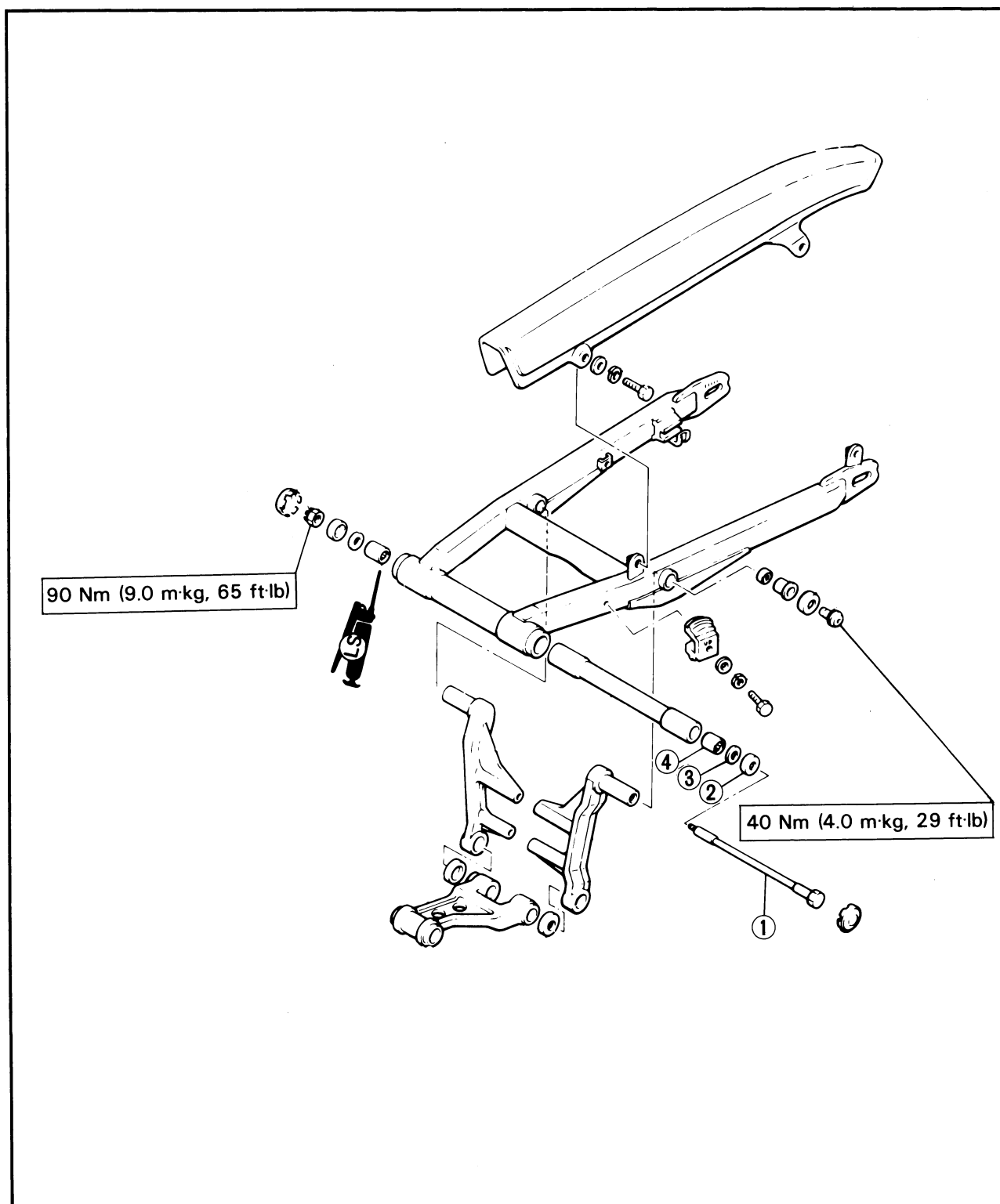
① Front

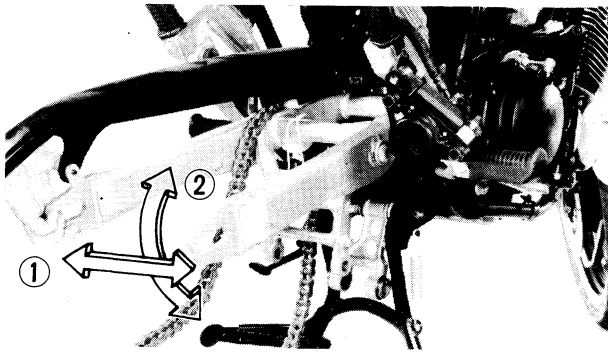


5. Pull the pulley ① by a force of 20 kg (44 lb) using a spring scale.
6. Tighten:
 - Pulley bracket bolt ②

SWINGARM AND DRIVE CHAIN

1. Pivot shaft
2. Thrust cover
3. Shim
4. Bearing





FREE PLAY INSPECTION

1. Check:

- Swingarm side play ①
Side play → Adjust shim thickness.
- Swingarm up and down movement ②
Tightness/Binding/Rough spots → Replace bearings.

Free Play Inspection Step:

- Remove the rear wheel.
- Remove the shock absorber lower securing bolt.
- Inspect swingarm side play by moving it frame side to side. (There should be no noticeable side play)
- Inspect swingarm up and down movement by moving it up and down.

2. Select the proper shim ① thickness to obtain standard swingarm side play (A+B).



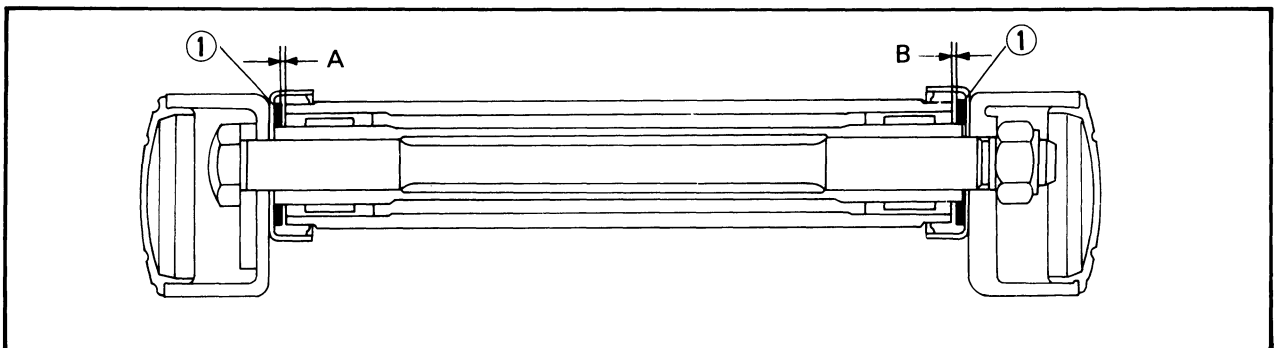
Standard Side Play (A+B):

0.2 ~ 0.4 mm
(0.008 ~ 0.016 in)



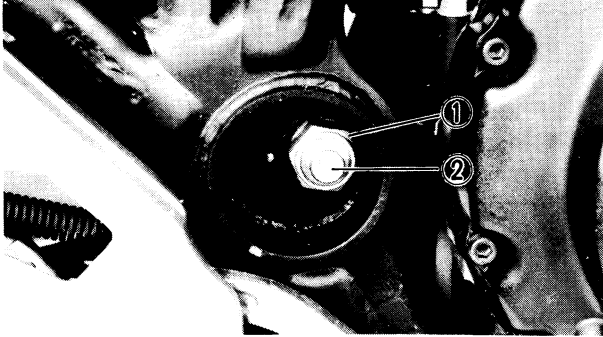
Available Shim Thickness:

1.95 mm (0.75 in), 2.05 mm
(0.0815 in), 2.15 mm (0.084 in)



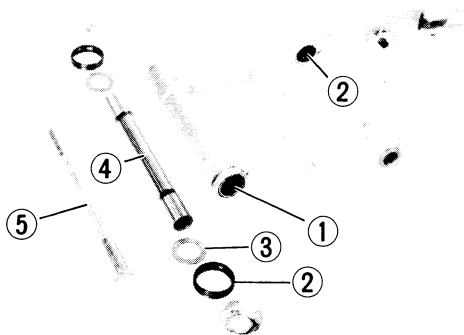
REMOVAL

1. Remove:
 - Rear wheel
 - Shock absorber lower securing bolt
 - Pivot shaft caps



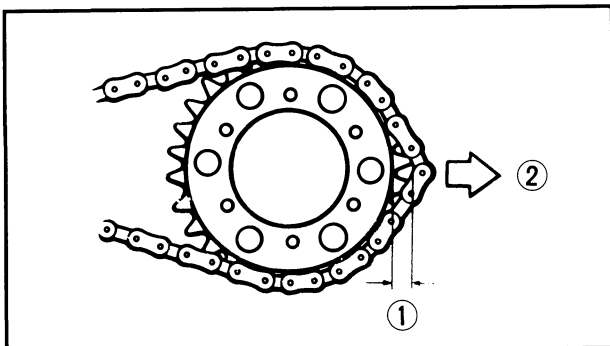
2. Remove:
 - Pivot shaft nut ①
 - Pivot shaft ②
 - Swingarm assembly
 - Arm 1 and 2

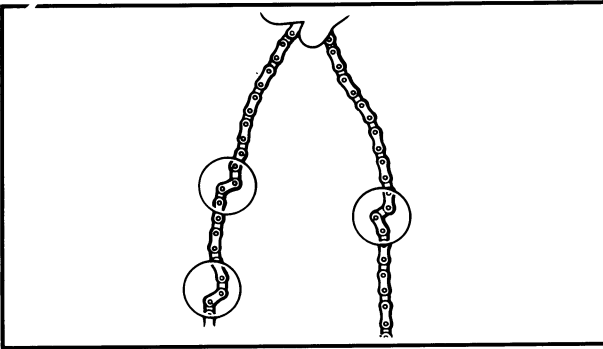
3. Remove:
 - Change pedal assembly
 - Crankcase cover
 - Refer to ENGINE REMOVAL.
 - Drive chain



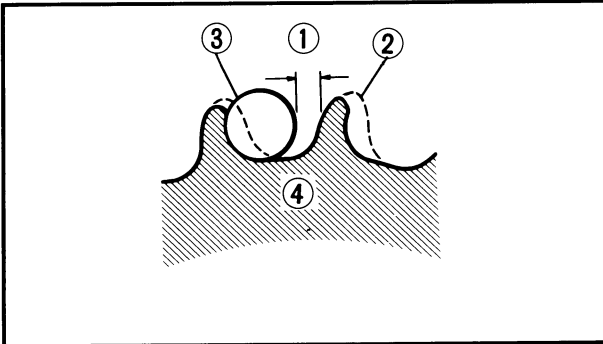
INSPECTION

1. Wash the bearings in a solvent.
2. Inspect:
 - Bearings ① (Race/Balls)
Pitting/Damage → Replace.
 - Oil seal ②
Damage → Replace.
 - Collar ④
 - Pivot shaft ⑤
Damage → Replace
- ③ Shim
3. Check:
 - Drive chain wear
Pull ② the chain away from the driven sprocket.
Distance chain/sprocket higher than 1/2 tooth ① → Replace drive chain

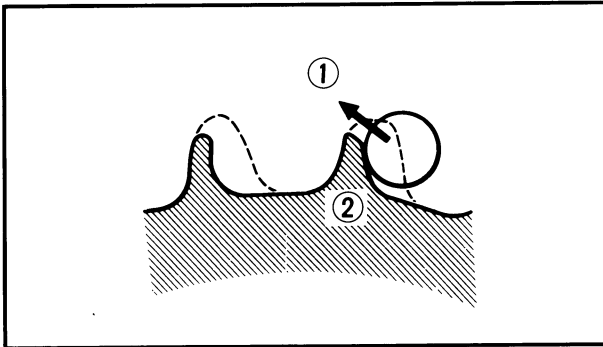




4. Check:
- Drive chain stiffness
Clean and oil the chain and hold as illustrated
Stiff → Replace drive chain



5. Inspect:
- Drive sprocket
More than 1/4 teeth ① wear → Replace Sprocket.
- ② Correct
③ Roller
④ Sprocket



6. Inspect:
- Drive Sprocket
Bent teeth ② → Replace sprocket
- ① Slip off

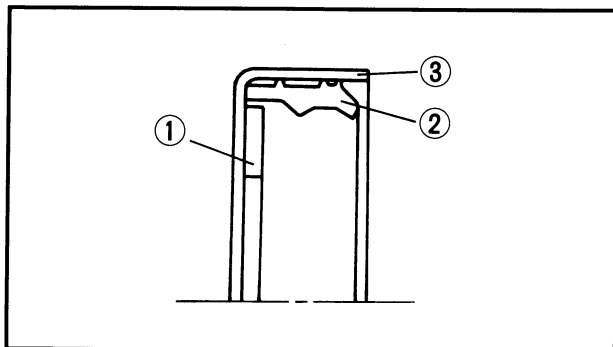
INSTALLATION

Reverse removal steps

1. Grease the bearings oil seal and collar.



**Lithium Base Waterproof Wheel
Bearing Grease**



2. Install:
 - Shim ①
 - Oil seal ②
 - (into the cover ③ as illustrated)

3. Install:
 - Drive chain
 - Swing arm assembly



Swingarm Pivot Shaft:
90 Nm (9.0 m·kg, 65 ft·lb)

4. Install:
 - Arms
 - (On swingarm)



Arm Screw:
40 Nm (4.0 m·kg, 29 ft·lb)

- Arm securing bolts

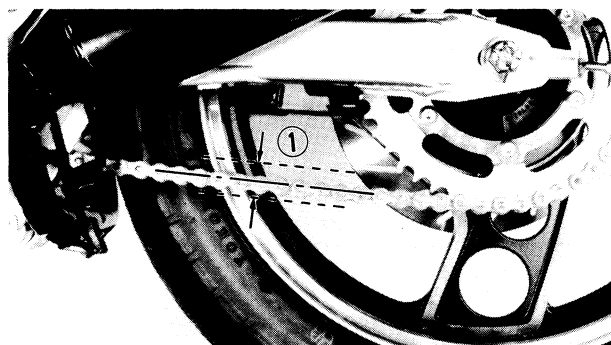


20 Nm (2.0 m·kg, 14 ft·lb)

5. Install:
 - Shock absorber lower securing bolt



65 Nm (6.5 m·kg, 47 ft·lb)



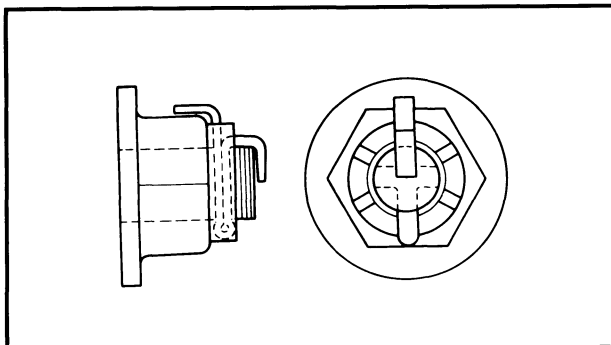
6. Install:
 - Rear wheel
7. Adjust:
 - Drive chain tension



Chain Deflection ① :
20 ~ 30 mm (0.8 ~ 1.2 in)

8. Tighten:

- Axle nut
- Brake caliper bolts

**Axle Nut:****105 Nm (10.5 m·kg, 75 ft·lb)****Brake Caliper Bolts:****35 Nm (3.5 m·kg, 25 ft·lb)**

9. Install:

- Cotter pin (New)

NOTE:

Do not loosen the axle nut after torque tightening.

If the axle nut groove is not aligned with the wheel shaft cotter pin hole, align groove to hole by tightening up on the axle nut.

CABLES AND FITTINGS

CABLE MAINTENANCE

NOTE: _____

See "Maintenance and Lubrication" intervals charts. Cable maintenance is primarily concerned with preventing deterioration and providing proper lubrication to allow the cable to move freely within its housing. Cable removal is straightforward and uncomplicated. Removal is not discussed within this section.

WARNING: _____

Cable routing is very important. For details of cable routing, see cable routing diagrams at end of this manual. Improperly routed or adjusted cables may make motorcycle operation unsafe.

1. Remove:
 - Cable
2. Check:
 - Cable free movement
 - Obstruction → Inspect for Wear/Damage.
 - Kinking/Frayed strands/Damage → Replace.
3. Lubricate the cable.

Cable Lubrication Steps:

- Hold the cable in a vertical position.
- Apply lubricant to the uppermost end of the cable.
- Leave in a vertical position until the lubricant appears at the bottom.
- Allow excess to drain, then reinstall the cable.

NOTE: _____

Choice of lubricant depends upon conditions and preferences; however, a semi-drying chain and cable lubricant will perform adequately under most conditions.

THROTTLE MAINTENANCE

1. Remove:
 - Philips head screws
(from throttle housing assembly)
Separate the housing halves.
2. Disconnect:
 - Cable
(from throttle grip assembly)
3. Remove:
 - Throttle grip assembly
4. Clean:
 - All parts
Use mild solvent.
 - Right-hand end of handlebar
5. Inspect:
 - Contact surfaces
Burrs/Damage → Deburr or replace.
 - Right-hand end of handlebar
6. Lubricate all contact surfaces with a light coat of lithium-soap base grease and reassemble.

NOTE:

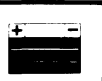
Tighten the housing screws evenly to maintain an even gap between housing halves.

7. Check:
 - Throttle (For smooth operation)
Un smooth operation → Lubricate
 - Spring (For quick return)
Sluggish operation → Replace
 - Housing (For tightness)
Looseness → Replace

CHAPTER 6. ELECTRICAL

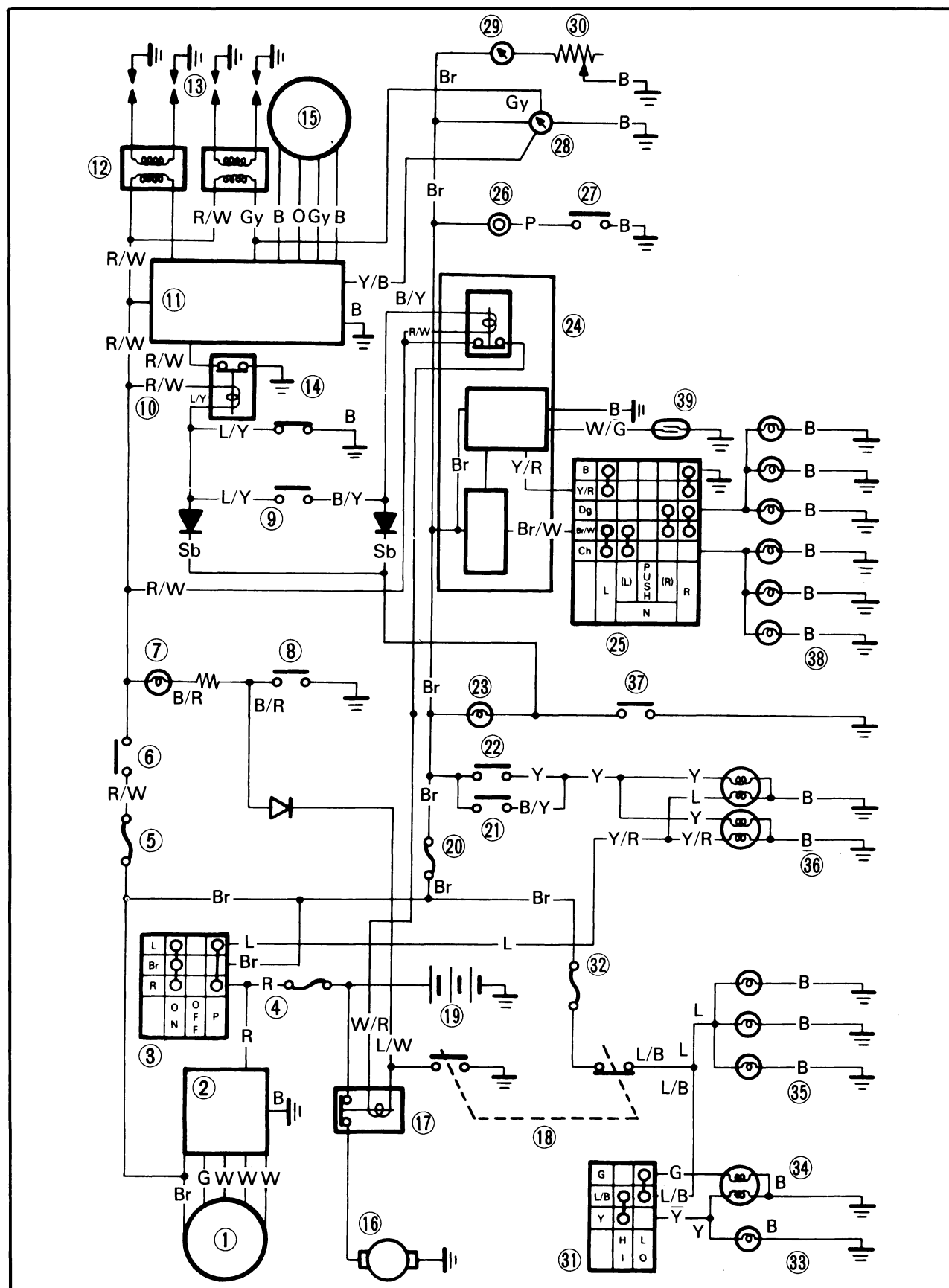
FJ600L/LC CIRCUIT DIAGRAM	6-1
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CIRCUIT DIAGRAM	6-5
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BATTERY.....	6-9
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CLUTCH SWITCH	6-14
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OIL LEVEL INDICATOR LIGHT	6-30
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FUEL SENDER UNIT	6-31
NEUTRAL INDICATOR LIGHT	6-32
HORN	6-32
BRAKE LIGHT	6-33
SWITCHES	6-33



ELECTRICAL

FJ600L/LC CIRCUIT DIAGRAM





1. AC Magneto
2. Rectifier/Regulator
3. Main switch
4. Main fuse
5. Ignition fuse
6. "ENGINE STOP" switch
7. "OIL LEVEL" indicator light
8. Oil level switch
9. Clutch switch
10. Sidestand relay
11. Ignitor unit
12. Ignition coil
13. Spark plug
14. Sidestand switch
15. Pickup coil
16. Starter motor
17. Starter relay
18. "START" switch
19. Battery
20. Signal fuse

21. Front brake switch
22. Rear brake switch
23. "NEUTRAL" indicator light
24. Relay assembly
25. "TURN" switch
26. Horn
27. "HORN" switch
28. Tachometer
29. Fuel meter
30. Fuel sender
31. "LIGHTS" (Dimmer) switch
32. Head fuse
33. "HIGH BEAM" indicator light
34. Headlight
35. Meter illumination light
36. Brake/Tail light
37. Neutral switch
38. Flasher/Indicator light
39. Reed switch

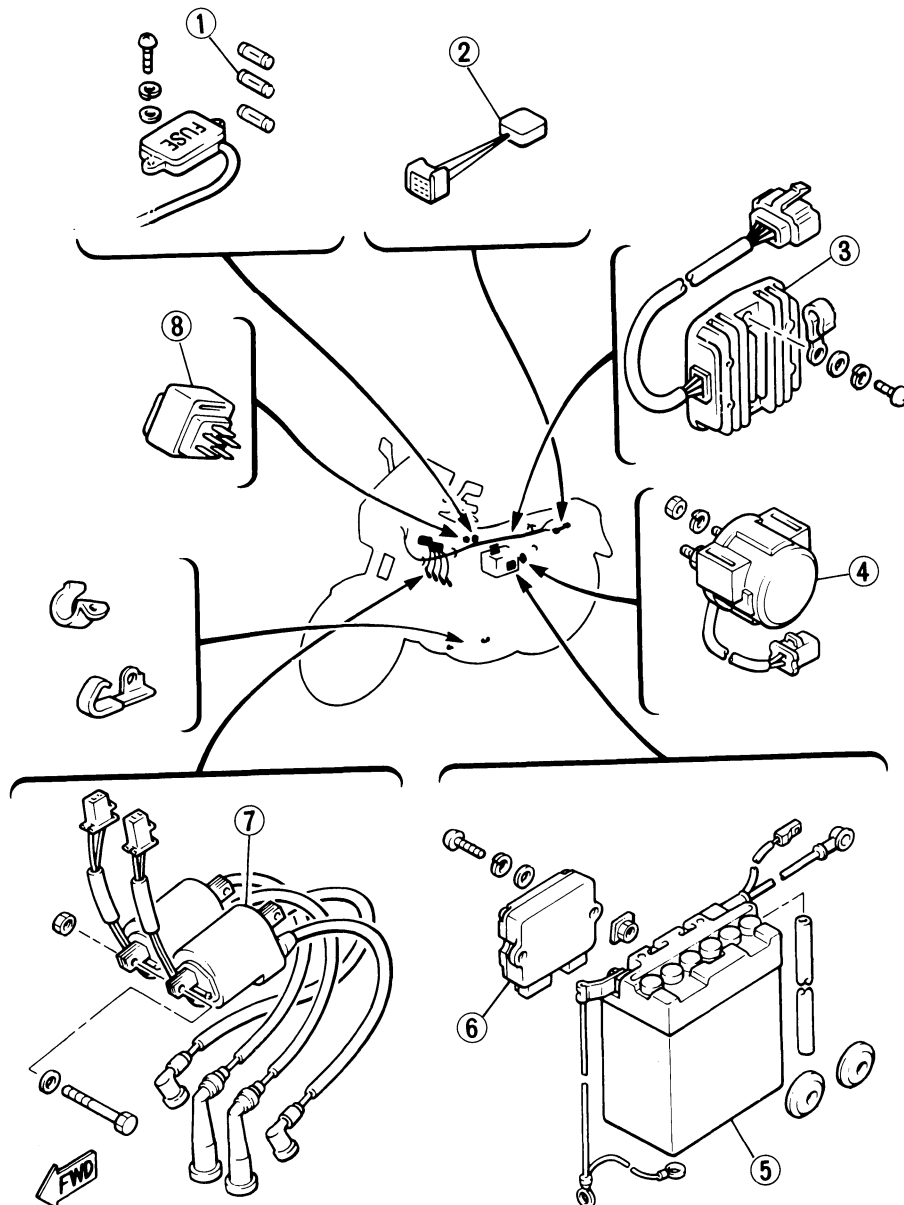
COLOR CODE

O	Orange	Lg	Light green	B/Y	Black/Yellow
R	Red	Y/G	Yellow/Green	L/W	Blue/White
L	Blue	Y/R	Yellow/Red	L/G	Blue/Green
Br	Brown	Y/B	Yellow/Black	L/R	Blue/Red
B	Black	Y/L	Yellow/Blue	L/B	Blue/Black
Y	Yellow	Br/W	Brown/White	G/L	Green/Blue
W	White	R/B	Red/Black	G/R	Green/Red
G	Green	R/L	Red/Blue	G/Y	Green/Yellow
P	Pink	R/W	Red/White	G/W	Green/White
Dg	Dark green	R/Y	Red/Yellow	W/R	White/Red
Ch	Chocolate	B/R	Black/Red	W/B	White/Black
Gy	Gray	B/W	Black/White	W/G	White/Green
Sb	Sky blue				


ELECTRICAL COMPONENTS 1

1. Fuse
2. Diode
3. Rectifier/Regulator
4. Starter relay
5. Battery
6. Ignitor unit
7. Ignition coil assembly
8. Sidestand relay

SPECIFICATIONS:	RESISTANCE:
Pickup coil:	$120\Omega \pm 20\%$
Ignition coil: (Primary)	$2.7\Omega \pm 10\%$
(Secondary)	$12\text{ k}\Omega \pm 20\%$
Stator coil:	$0.55\Omega \pm 10\%$

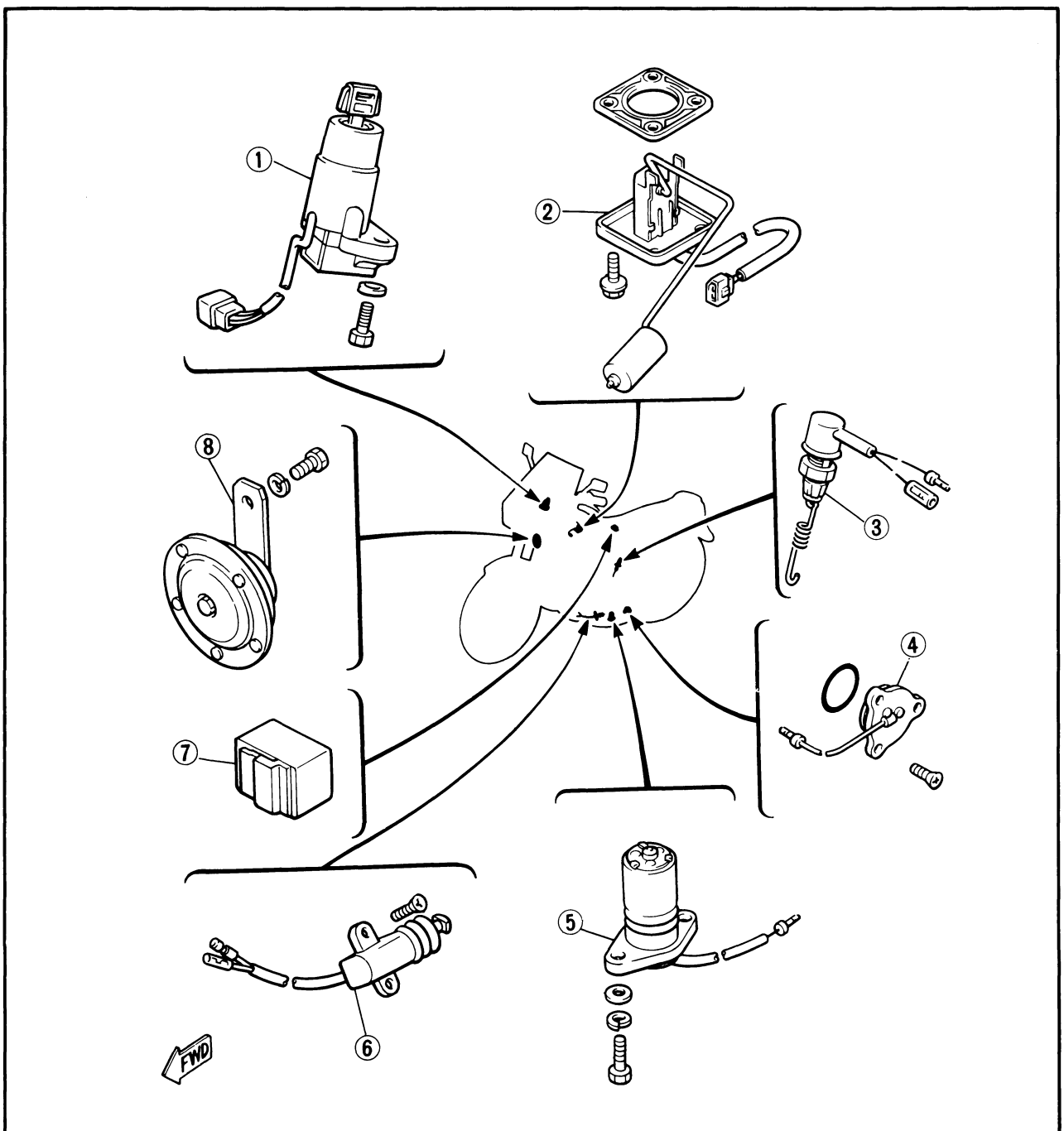




ELECTRICAL COMPONENTS 2

1. Main switch
2. Fuel sender
3. Rear brake switch
4. Neutral switch
5. Oil level switch
6. Sidestand switch
7. Relay assembly
8. Horn

SPECIFICATIONS:	RESISTANCE:
Fuel gauge: (Full)	$7\Omega \pm 5\%$
(Empty)	$95\Omega \pm 7.5\%$
Starter switch:	$3.5\Omega \pm 10\%$



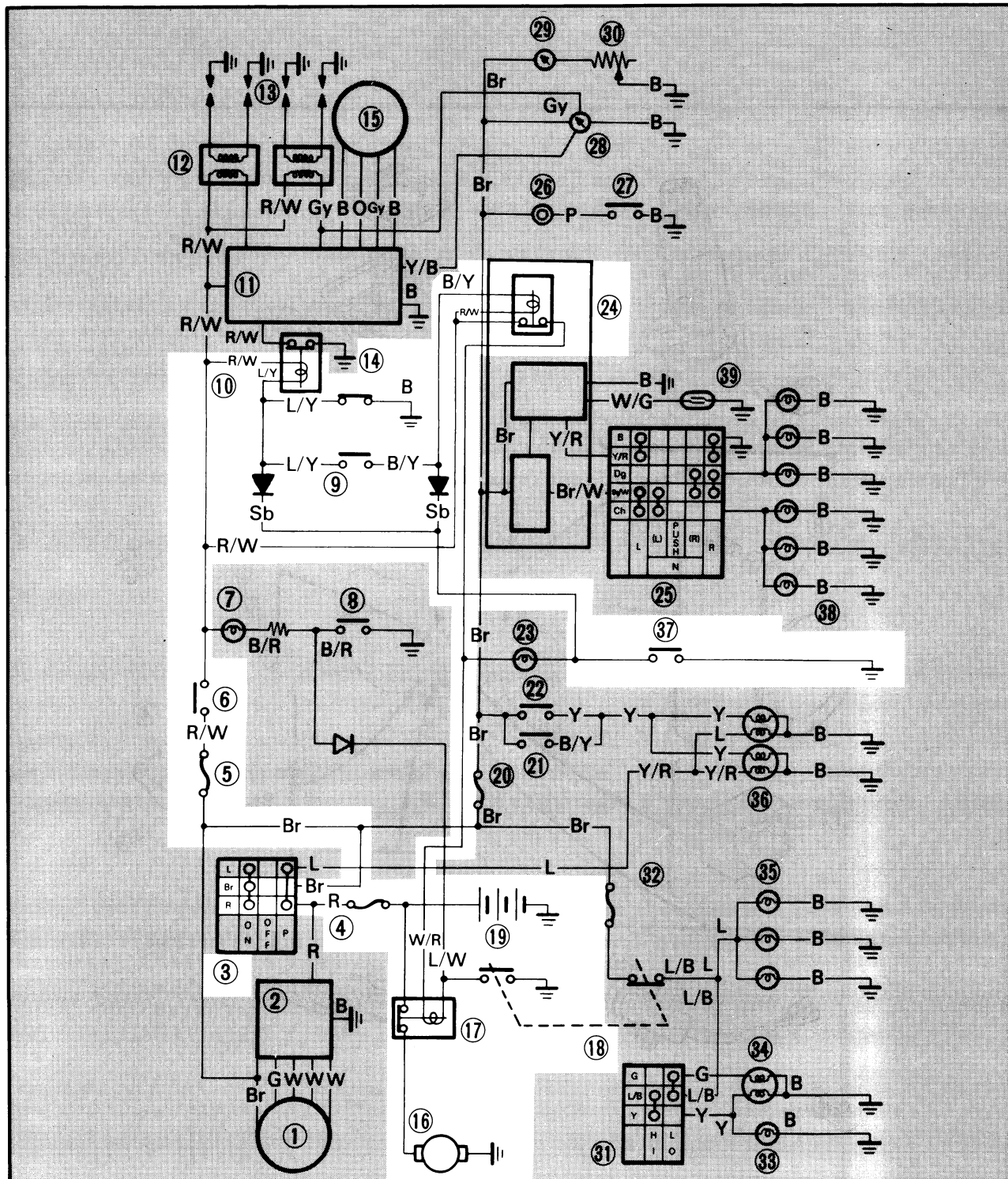


ELECTRIC STARTING SYSTEM

CIRCUIT DIAGRAM

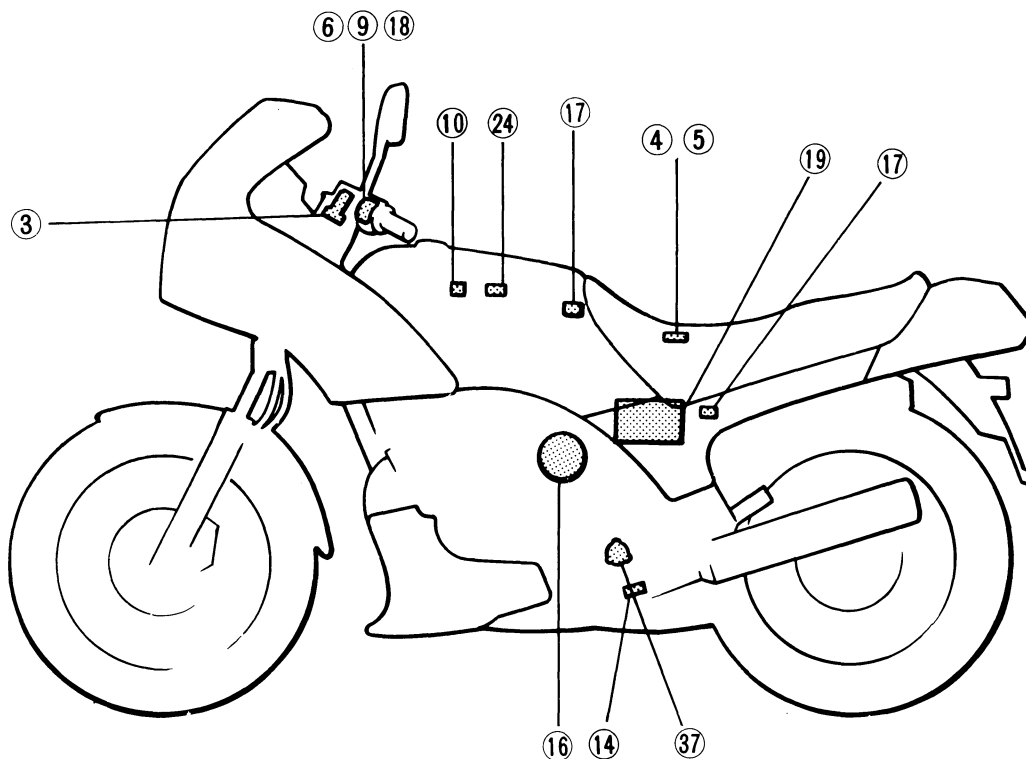
Below circuit diagram shows starter circuit in wiring diagram.

NOTE: _____
For the encircled numbers and color cords, see page 6-2.





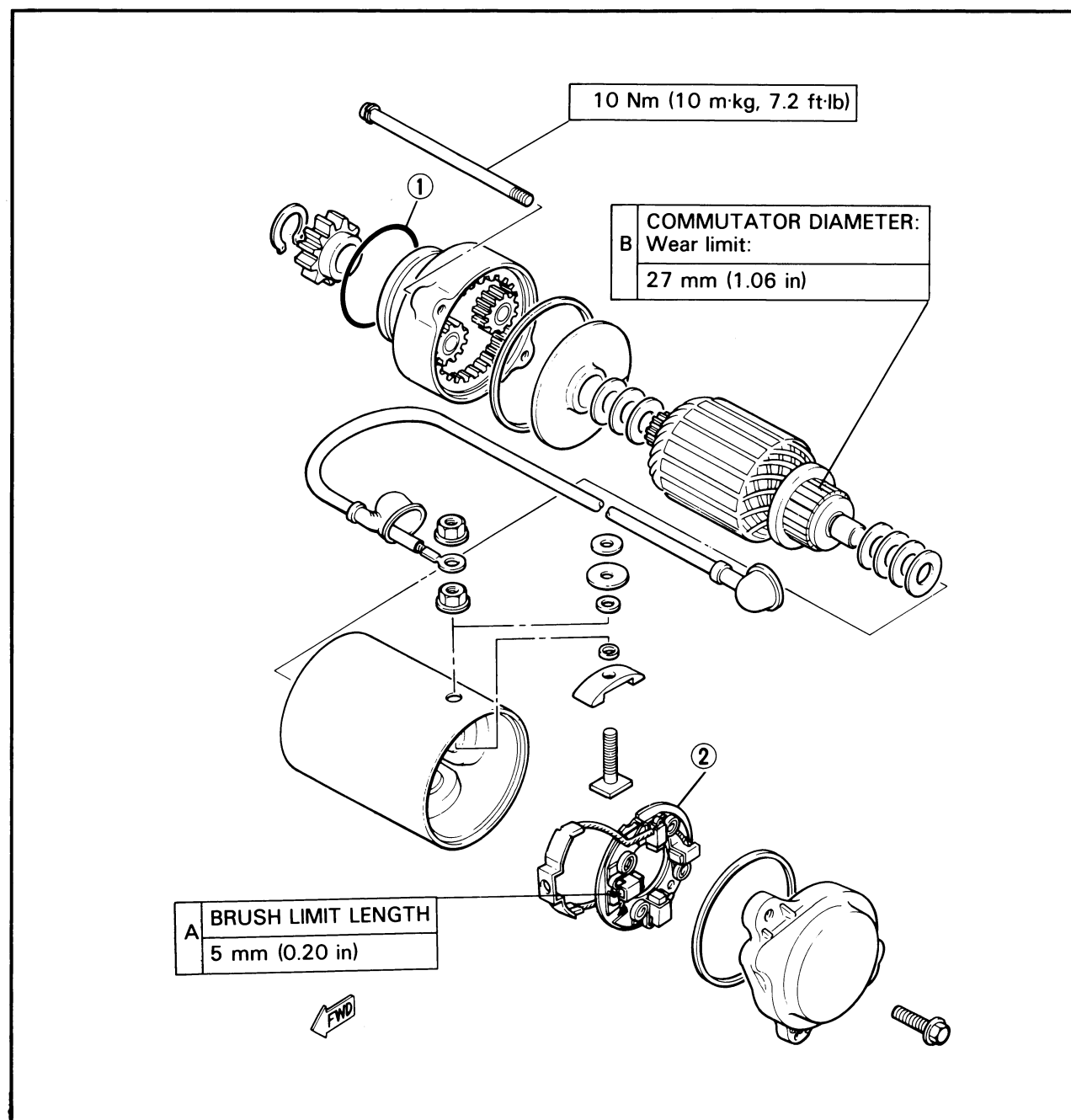
- 3. Main switch
- 4. Main fuse
- 5. Ignition fuse
- 6. "ENGINE STOP" switch
- 9. Clutch switch
- 10. Sidestand relay
- 14. Sidestand switch
- 16. Starter motor
- 17. Starter relay
- 18. "START" switch
- 19. Battery
- 24. Relay assembly
- 37. Neutral switch





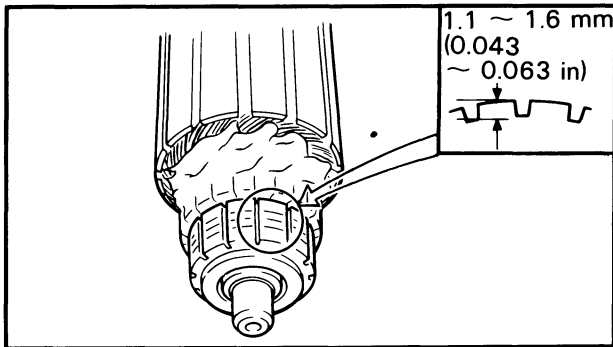
STARTER MOTOR

1. O-ring
2. Brush holder assembly



Removal

Refer to Chapter 3. "ENGINE DISASSEMBLY."

**Inspection and Repair**

1. Inspect:

- Commutator (Outer surface)
Dirty → Clean with #600 grit sandpaper.

2. Inspect:

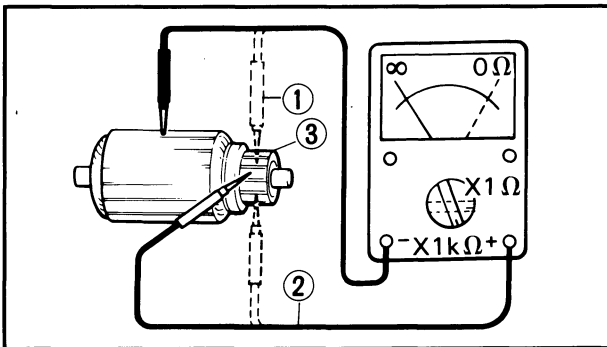
- Mica insulation
(between commutator segments)
Out of specification → Scrape mica to proper.
Use a hacksaw blade that is ground to fit.

**Depth of Insulator:**

1.1 ~ 1.6 mm (0.043 ~ 0.063 in)

NOTE:

The mica insulation of the commutator must be undercut to ensure proper operation of the commutator.



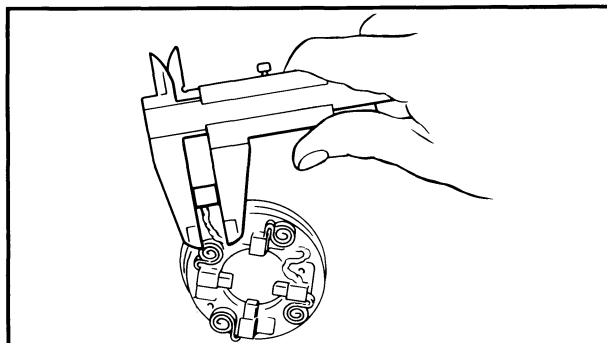
3. Measure:

- Armature coil (3) resistance/insulation
Defect(s) → Replace starter motor.

**Resistance (1) :**0.012 Ω at 20°C (68°F)Insulation (2) : $\infty \Omega$

4. Inspect:

- Commutator brushes
Damage → Replace.



5. Measure:

- Brush length (Each)
Out of specification → Replace.

**Minimum Brush Length:**

5.0 mm (0.02 in)

6. Inspect

- Brush springs
Compare with new spring.
Wear/Damage → Replace.



BATTERY

CAUTION:

To insure maximum battery performance be sure to:

- Charge a new battery before use.
- Maintain proper electrolyte level.
- Charge at proper current; 1.2 amps/10hrs. or until the specific gravity reaches 1.280 at 20°C (68°F).

Failure to observe these points will result in a shortened battery life.

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.
- Drink large quantities of water or milk and 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:

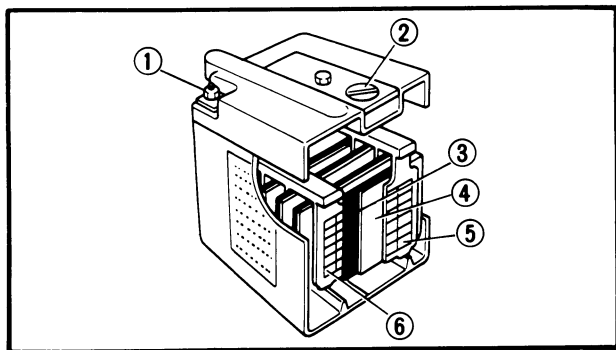
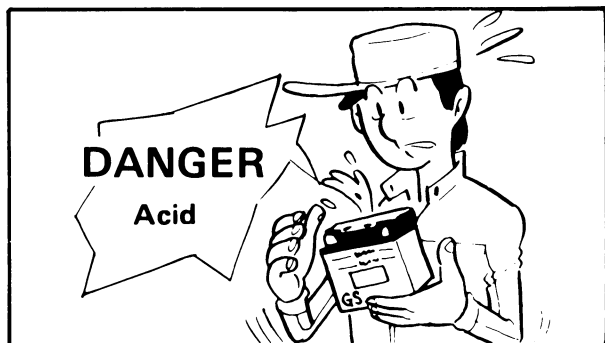
- Charge batteries in a well-ventilated area.
- Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)
- DO NOT SMOKE when charging or handling batteries.

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.

Battery Inspection

1. Remove:
 - Battery
 Disconnect negative lead first.
2. Inspect:
 - Battery fluid level
 Less than lower level → Add distilled water.

- ① Terminal
- ② Cap
- ③ Insulator
- ④ Separation plate
- ⑤ Negative electrode
- ⑥ Positive electrode



**NOTE:**

Replace the battery if:

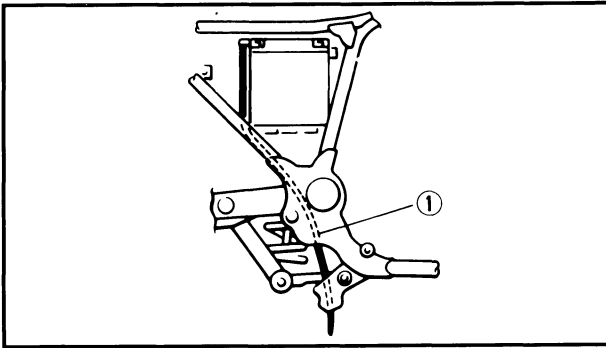
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long,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

3. Measure:

- Specific Gravity:
Less than 1.280 → Recharge battery.

4. Install:

- Battery
Connect positive lead first.



5. Check:

- Breather pipe ①
Improper routing → Correct.
Obstruction/Damage → Replace.

Battery Storage

The battery should be stored if the motorcycle is not to be used for a long period.

1. Remove:

- Battery

Battery Storage and Maintenance Tips:

- Recharge the battery periodically.
- Store the battery in a cool, dry place.
- Recharge the battery before reinstalling.

Battery	12N12A-4A
Electrolyte	Specific gravity: 1.280
Initial charging rate	1.2 amp for 10 hours (new battery)
Recharging rate	10 hours (or until specific gravity reaches 1.280)
Refill fluid	Distilled water (to maximum level line)
Refill period	Check once per month (or more often as required)



Replenishing Battery Fluid

1. Remove:
 - Right side cover



2. Check:
 - Fluid level
Level should be between the upper (1) and lower level (2) marks.

CAUTION:

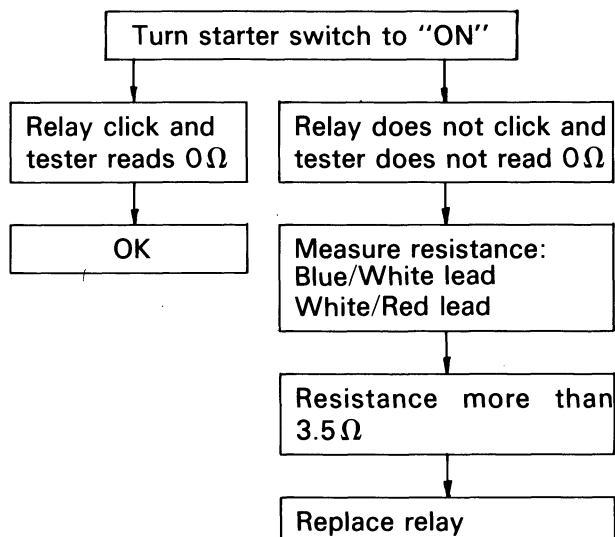
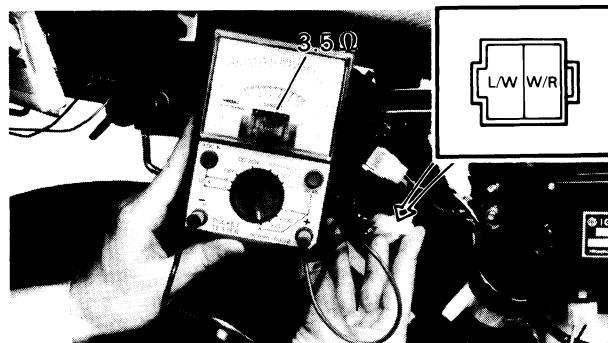
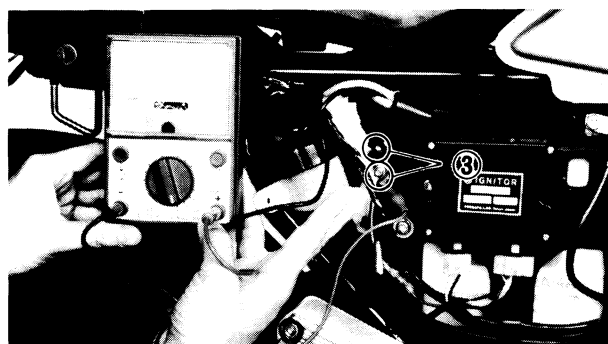
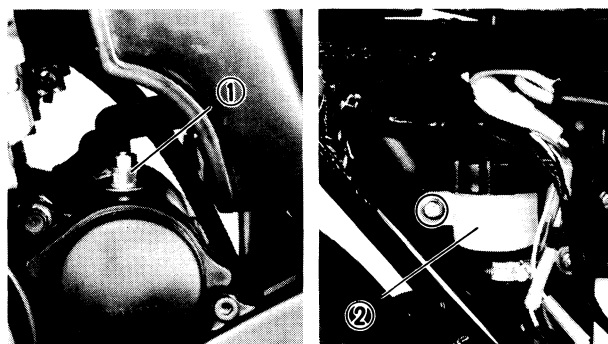
Use only distilled water for the battery, never tap water.

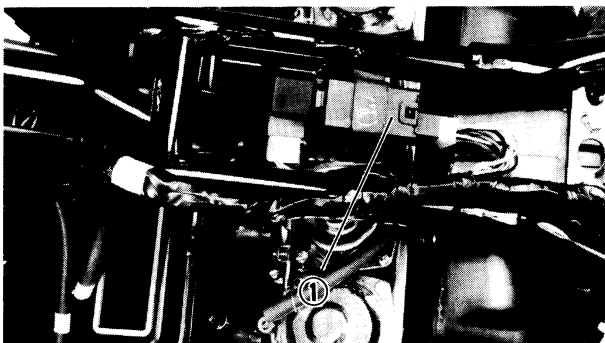
3. Install:
 - Right side cover

STARTER RELAY INSPECTION

Preparation steps:

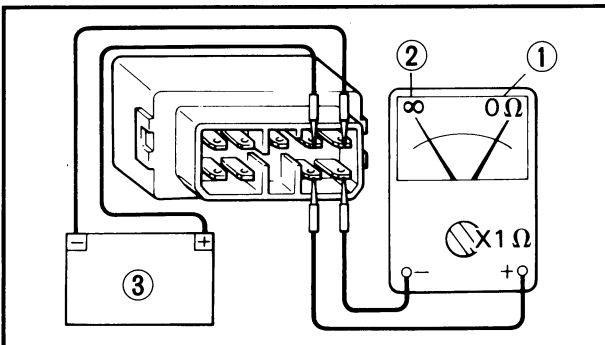
- Disconnect starter motor lead (1).
- Remove right side cover and rear brake fluid tank (2).
- Turn ignition switch to "ON".
- Turn engine stop switch to "RUN".
- Move change pedal to "NEUTRAL".
- Connect Pocket Tester leads (3).



**RELAY ASSEMBLY**

1. Remove:

- Seat
- Fuel tank
- Relay assembly ①

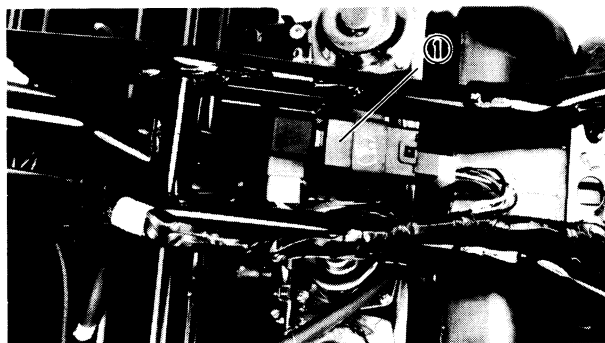


2. Check:

- Relay contacts
- Use 12V battery ③ and Pocket Tester
Out of specification → Replace relay.

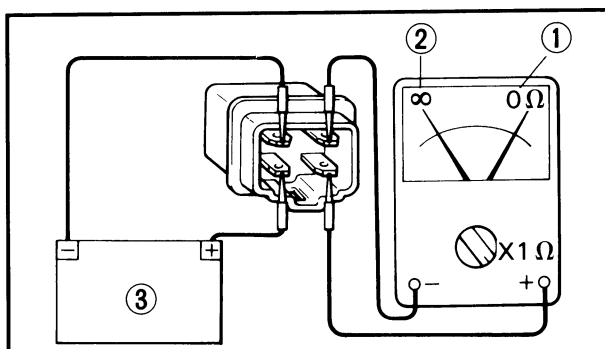


Battery Connected: 0Ω ①
Battery Disconnected: ∞ ②

**SIDESTAND RELAY**

1. Remove:

- Seat
- Sidestand relay ①

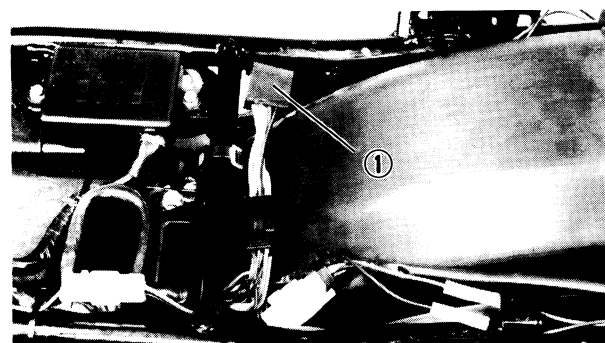


2. Check:

- Relay contacts
- Use 12V battery ③ and Pocket Tester
Out of specification → Replace relay.

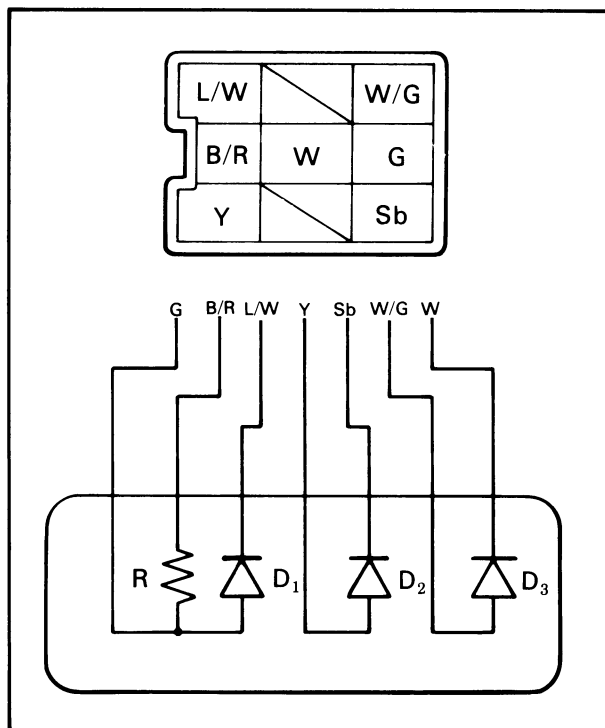


Battery Connected: 0Ω ①
Battery Disconnected: ∞ ②

**DIODE**

1. Remove:

- Seat
- Diode ①



2. Check:

● Diode continuity/discontinuity

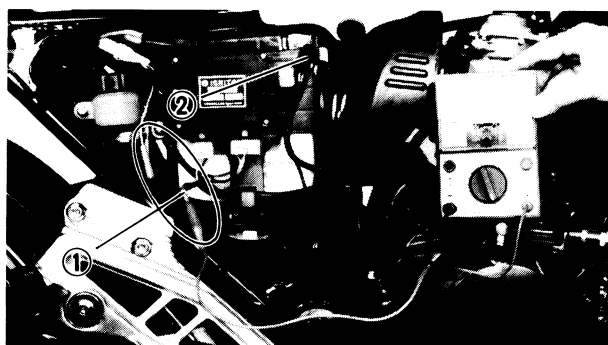
Checking element	Pocket tester connecting point		Good	Replace (element shorted)	Replace (element opened)
	(+) (red)	(-) (black)			
D ₁	G	L/W	○	○	x
	L/W	G	x	○	x
D ₂	Y	Sb	○	○	x
	Sb	Y	x	○	x
D ₃	W/G	W	○	○	x
	W	W/G	x	○	x
R	G	B/R	8.2 Ω	Out of specification	

○ : Continuity (0 Ω)

x : Discontinuity (∞)

NOTE:

The results "O" or "X" should be reversed according to the Pocket Tester polarity.



NEUTRAL SWITCH

1. Remove:

- Right side cover

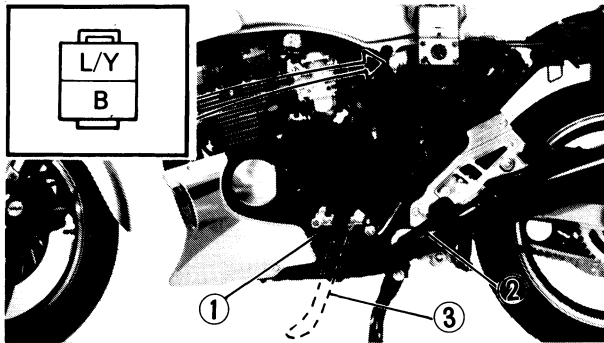
2. Check:

- Neutral switch contact
- Out of specification
→ Replace switch.

Change pedal	In neutral	In Gear
Tester	0 Ω	∞ Ω

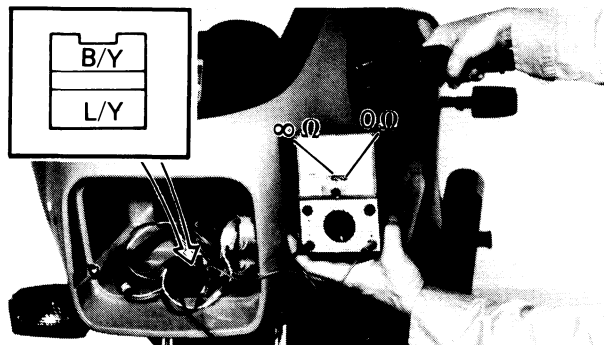
① Sb lead

② Ground

**SIDESTAND SWITCH**

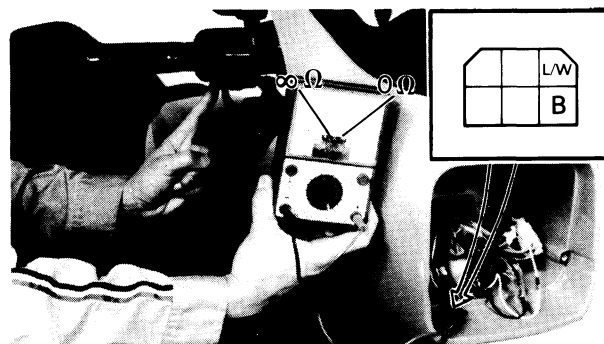
1. Remove:
 - Left side cover
 - Seat
2. Check
 - Sidestand switch ① contact
Out of specification → Replace switch.

Sidestand	Up ②	Down ③
Tester	0 Ω	∞ Ω

**CLUTCH SWITCH**

1. Remove:
 - Headlight unit
2. Check:
 - Clutch switch contact
Out of specification → Replace switch

Clutch lever	Pull in	Not pull in
Tester	0 Ω	∞ Ω

**STARTER SWITCH**

1. Remove:
 - Headlight unit
2. Check:
 - Starter switch contact
Out of specification → Replace switch

Starter switch	ON	OFF
Tester	0 Ω	∞ Ω

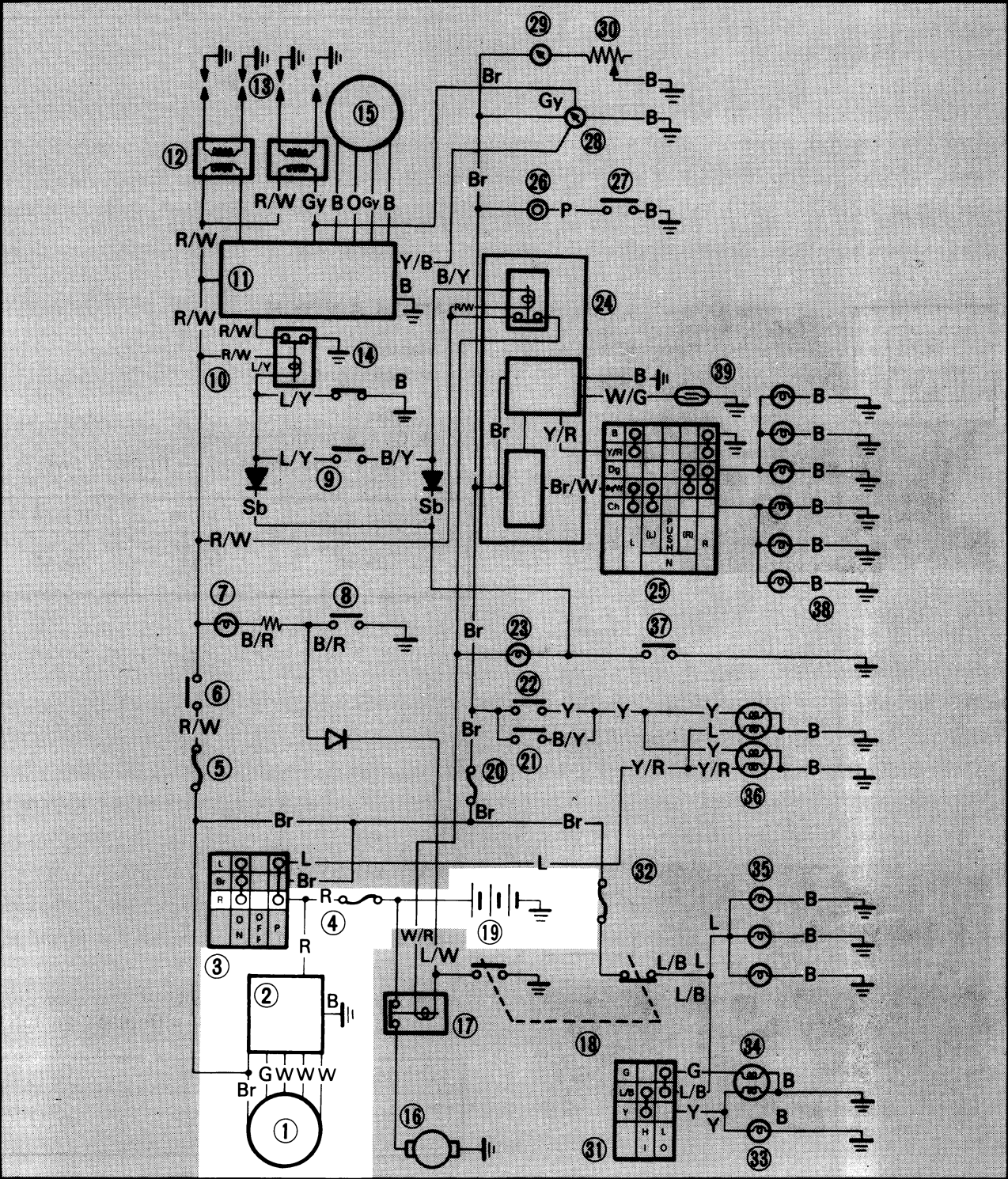
CHARGING SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows charging circuit in wiring diagram.

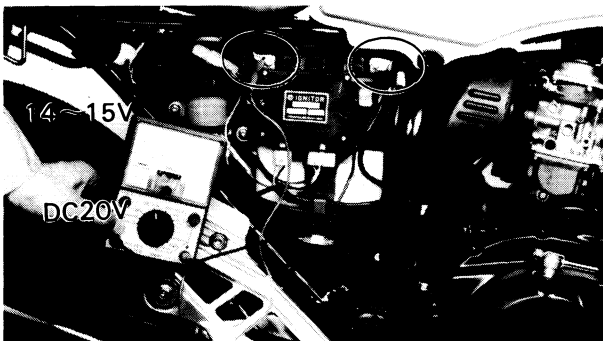
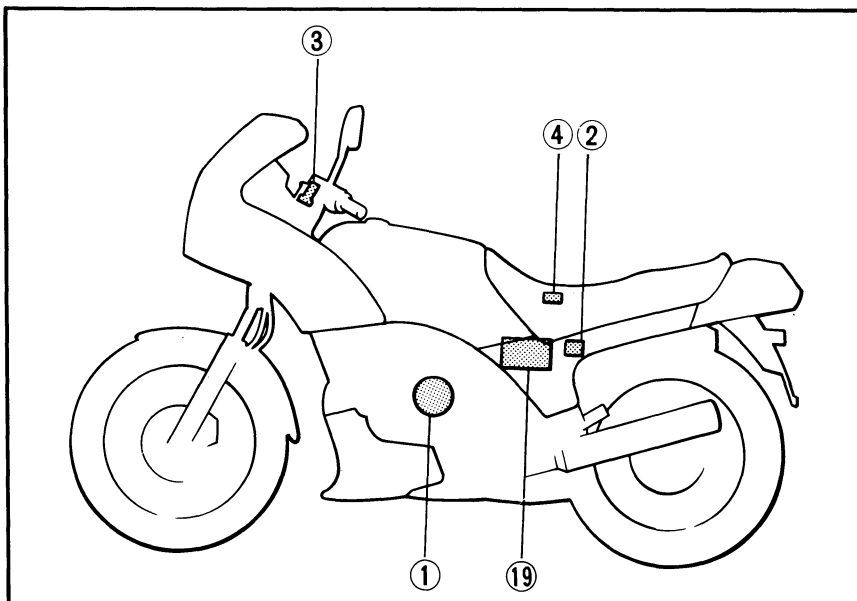
NOTE:

For the encircled numbers and color cords, see page 6-2.





1. AC Magneto
2. Rectifier/Regulator
3. Main switch
4. Main fuse
19. Battery



GENERATOR VOLTAGE INSPECTION

1. Remove:
 - Right side cover
2. Connect:
 - Pocket tester
(to battery terminals)
3. Start the engine and accelerate to about 2,000 rpm or more.
4. Measure:
 - Generator voltage



Generator Voltage: $14.5 \pm 0.5V$

Out of specification → Check battery, stator coil, and rectifier/Regulator.

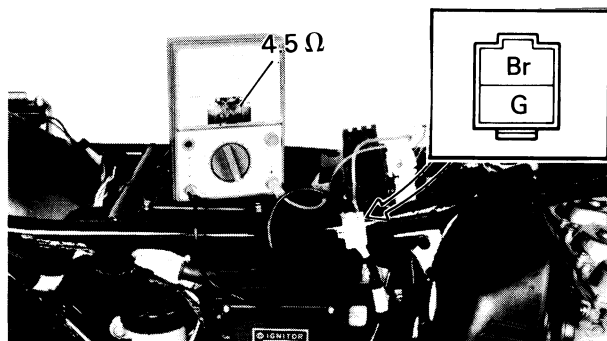
CAUTION:


Never disconnect the leads from the battery while the generator is operating, otherwise the voltage across the generator terminals will increase and damage the semiconductors.

STATOR AND FIELD COIL INSPECTION

1. Remove:
 - Right side cover
 - Seat
 - Fuel tank
2. Disconnect
 - Stator coil lead
 - Field coil lead
3. Connect:
 - Pocket tester
4. Measure:
 - Field coil resistance

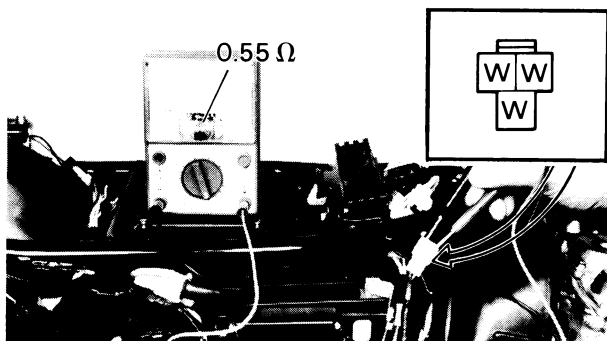
Out of specification → Replace rotor






Field Coil Resistance:

$4.5 \Omega \pm 10\%$ at 20°C (68°F)



5. Measure
 - Coil resistance

Out of specification → Replace stator coils.



Stator Coil Resistance:

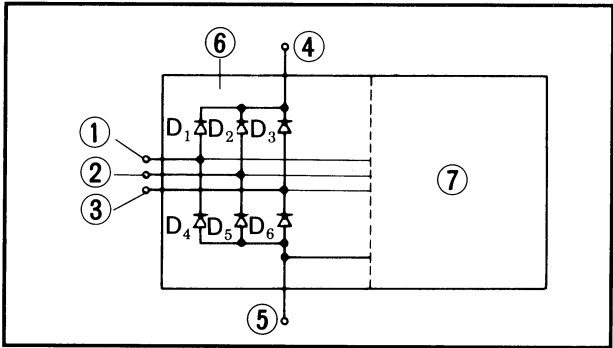
$0.55 \Omega \pm 10\%$ of 20°C (68°F)

RECTIFIER/REGULATOR

1. Remove:
- Left side cover
2. Check:
- Rectifier/Regulator diode
- Refer to the following table.

Checking element	Pocket tester connecting point		Good	Replace (element shorted)	Replace (element opened)
	(+) (red)	(-) (black)			
D ₁	④	①	○	○	x
	①	④	x	○	x
D ₂	④	②	○	○	x
	②	④	x	○	x
D ₃	④	③	○	○	x
	③	④	x	○	x
D ₄	①	⑤	○	○	x
	⑤	①	x	○	x
D ₅	②	⑤	○	○	x
	⑤	②	x	○	x
D ₆	③	⑤	○	○	x
	⑤	③	x	○	x

○ : Continuity (0Ω) x : Discontinuity (∞)



- White lead ①
- White lead ②
- White lead ③
- Red lead ④
- Black lead ⑤
- Rectifier ⑥
- Regulator ⑦

Defective element → Replace rectifier.

CAUTION:

Do not overcharge rectifier or damage may result.

Avoid:

- A short circuit
- Inverting + and – battery leads
- Direct connection of rectifier to battery

NOTE:

The results "O" or "X" should be reversed according to the Pocket Tester polarity.

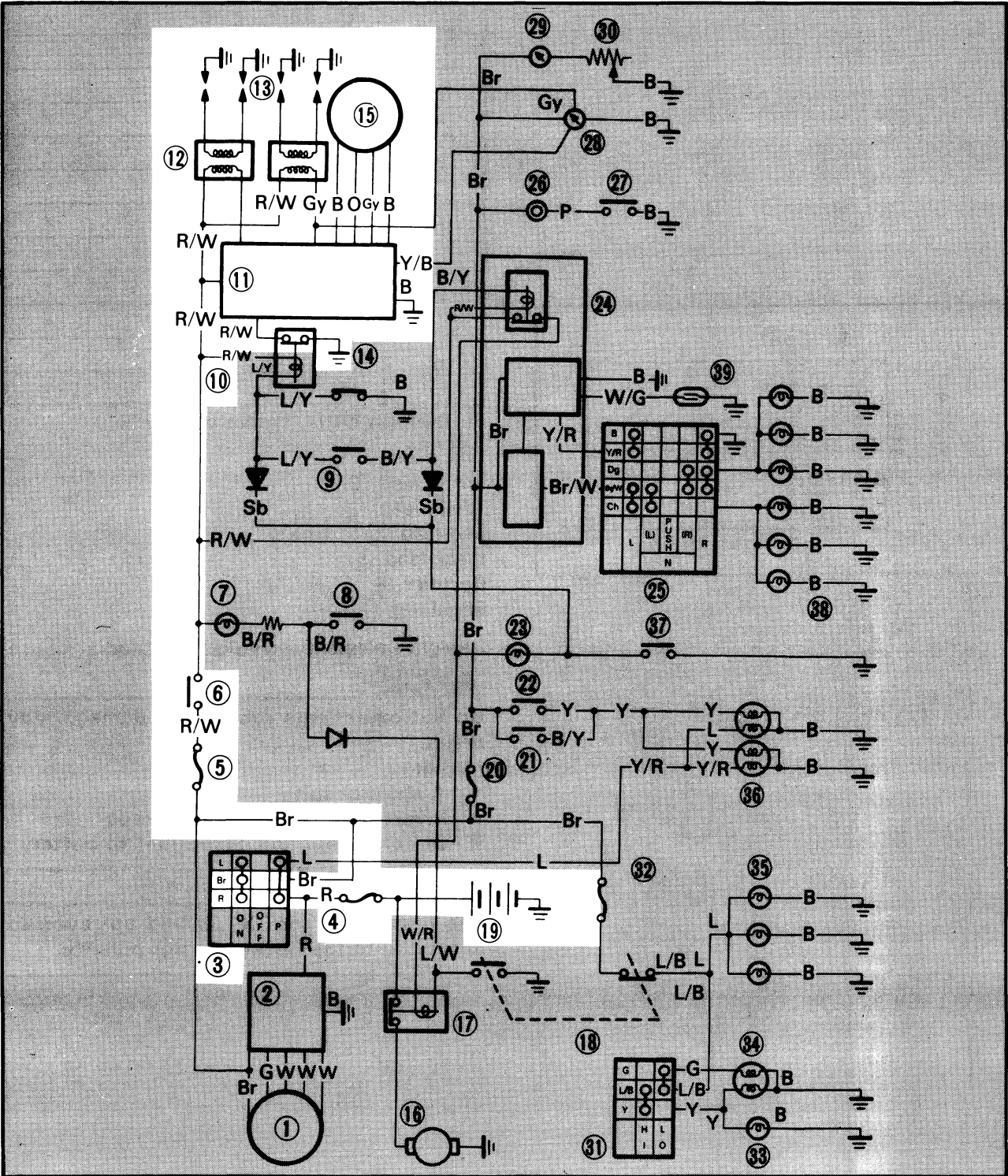
IGNITION SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows ignition circuit in wiring diagram.

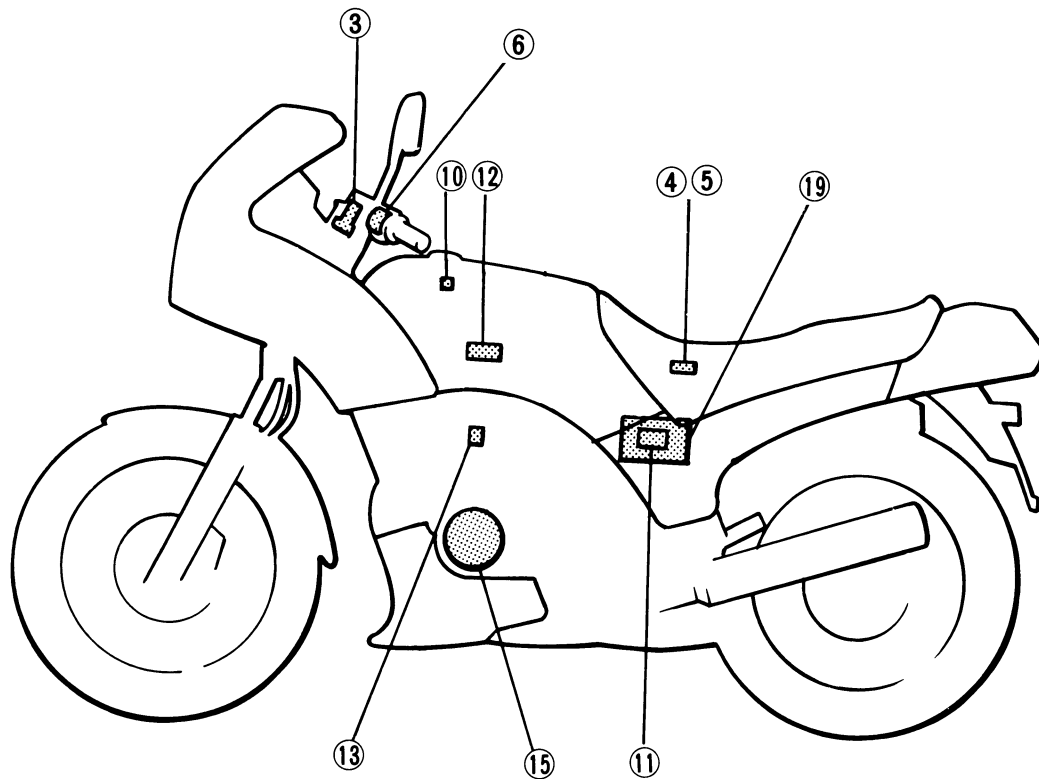
NOTE:

For the encircled numbers and color cords, see page 6-2.





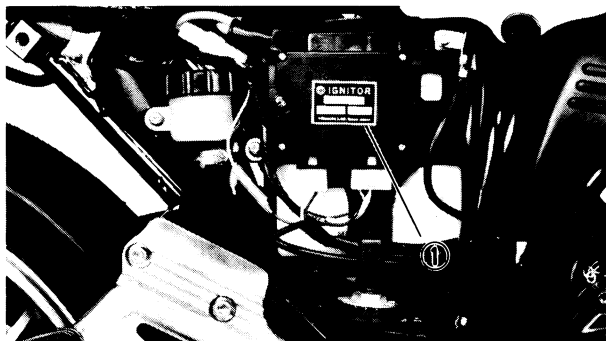
- 3. Main switch
- 4. Main fuse
- 5. Ignition fuse
- 6. "ENGINE STOP" switch
- 10. Sidestand relay
- 11. Ignitor unit
- 12. Ignition coil
- 13. Spark plug
- 15. Pickup coil
- 19. Battery





DESCRIPTION

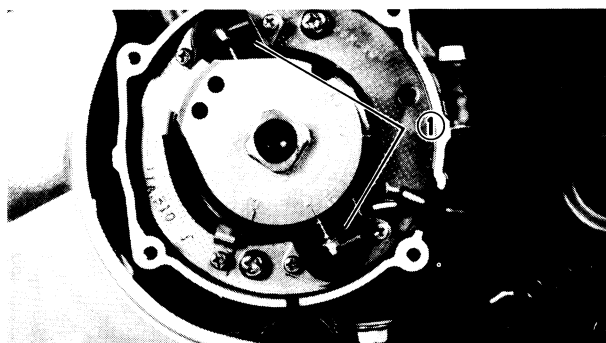
This model is equipped with a battery operated, fully transistorized, breakerless ignition system. By using magnetic pickup coils, the need for contact breaker points is eliminated. This adds to the dependability of the system by eliminating frequent cleaning and adjustment of points and ignition timing. The TCI (Transistor Control Ignition) unit incorporates an automatic advance circuit controlled by signals generated by the pickup coil. This adds to the dependability of the system by eliminating the mechanical advancer. This TCI system consists of two units; a pickup unit and an ignitor unit.



OPERATION

The TCI functions on the same principle as a conventional DC ignition system with the exception of using magnetic pickup coils and a transistor control box (TCI) in place of contact breaker points.

① TCI unit



PICKUP UNIT

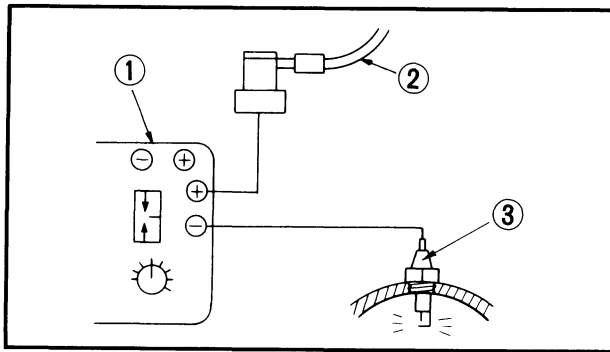
The pickup unit consists of two pickup coils ① and a flywheel mounted onto the crankshaft. When the projection on the flywheel passes a pickup coil, a signal is generated and transmitted to the ignitor unit. The width of the projection on the flywheel determines the ignition advance.

The pickup coils are located in the right crankcase cover.

IGNITION SYSTEM INSPECTION

The entire ignition system can be checked for misfire and weak spark by using the Electro Tester.

1. Warm up the engine so that all of the electrical components are at operating temperature.



2. Connect:

- Electro Tester (YU-03021) ①

3. Start the engine, and increase the spark gap until misfire occurs. (Test at various r/min between idle and red line.)

② Spark plug lead

③ Spark plug

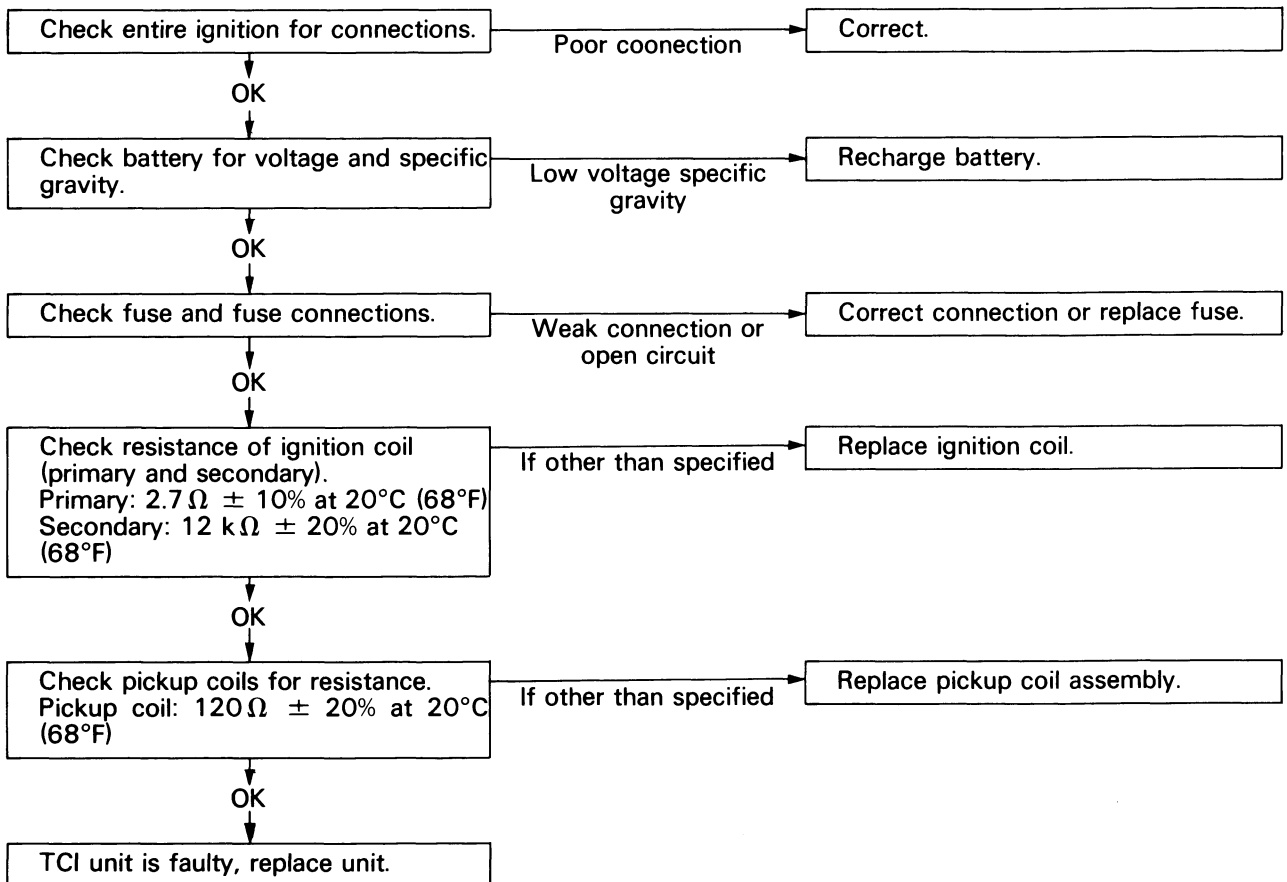
CAUTION:

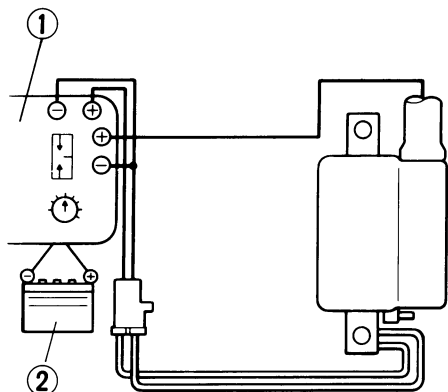
Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

Minimum Spark Gap: 6 mm (0.24 in)

Faulty ignition system operation (at the minimum spark gap or smaller) → Follow the troubleshooting chart until the source of the problem is located.

TROUBLESHOOTING





IGNITION COIL

Ignition Coil Spark Gap

1. Remove:
 - Seat
 - Fuel tank
2. Disconnect:
 - Ignition coil leads
 - Spark plug leads
3. Connect:
 - Electro Tester (YU-03021) ①

NOTE:

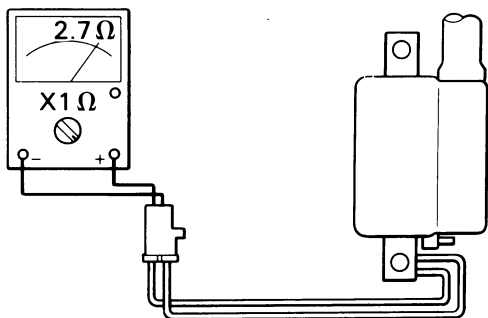
Be sure to use a fully charged battery.

4. Turn the spark plug gap adjuster and increase the gap to the maximum limit unless misfire occurs first.

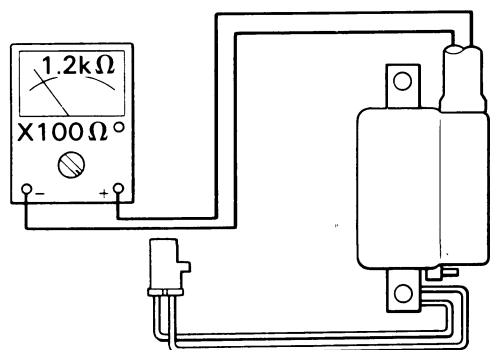
Minimum Spark Gap: 6 mm (0.24 in)

② Battery (12V)

A



B



Ignition Coil Resistance

1. Connect:
 - Pocket Tester (YU-03112)
 2. Measure:
 - Primary coil resistance **A**
 - Secondary coil resistance **B**
- Out of specification → Replace.



Primary Coil Resistance:

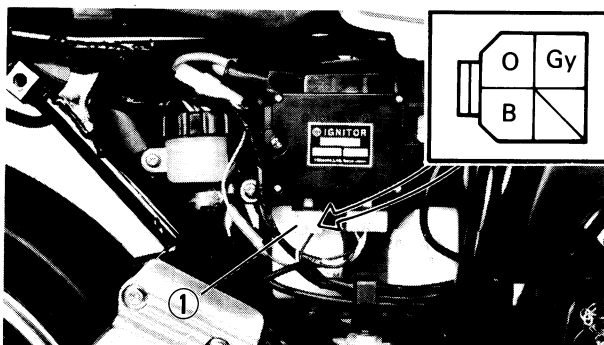
$2.7 \Omega \pm 10\%$ at 20°C (68°F)

Secondary Coil Resistance:

$12 \text{ k}\Omega \pm 20\%$ at 20°C (68°F)

Spark Plug Cap:

$10 \text{ k}\Omega \pm 10\%$



PICKUP COIL RESISTANCE

1. Remove:
 - Right side panel
2. Disconnect:
 - Pickup coil connector ①
3. Measure:
 - Pickup coil resistance

Use a Pocket Tester. (YU-03112)
Out of specification → Replace.

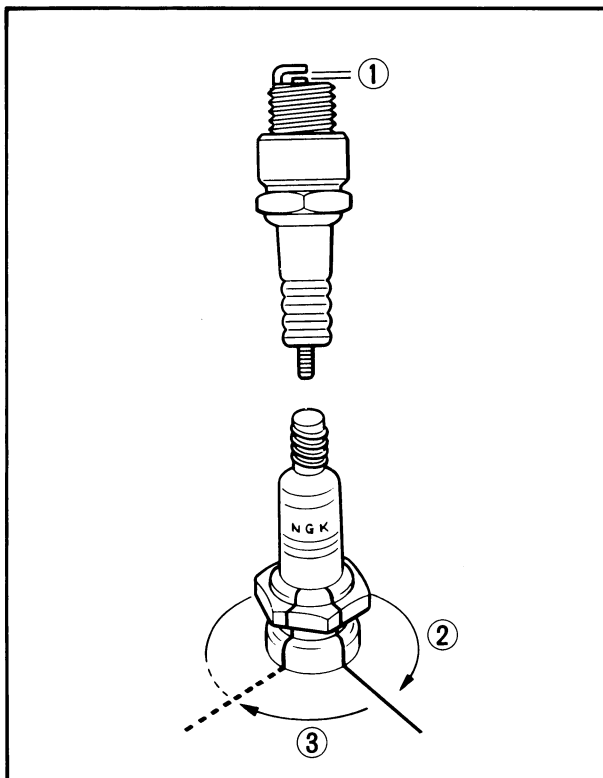


Pickup Coil Resistance:

$120\Omega \pm 10\%$ at 20°C (68°F)

No.1 and No.4 cylinder (O-B)

No.2 and No.3 cylinder (Gy-B)



SPARK PLUG

1. Inspect:
 - Plug

Burns/Fouling/Wear → Replace.
2. Measure:
 - Electrode gap

Out of specification → Clean off carbon and regap.

Type:

**D8EA (NGK) or
X24ES-U (ND)**



Electrode Gap ① :

$0.6 \sim 0.7 \text{ mm}$ ($0.024 \sim 0.028 \text{ in}$)



17.5 Nm (1.75 m·kg, 12.5 ft·lb)

② Finger tighten

③ Plug wrench



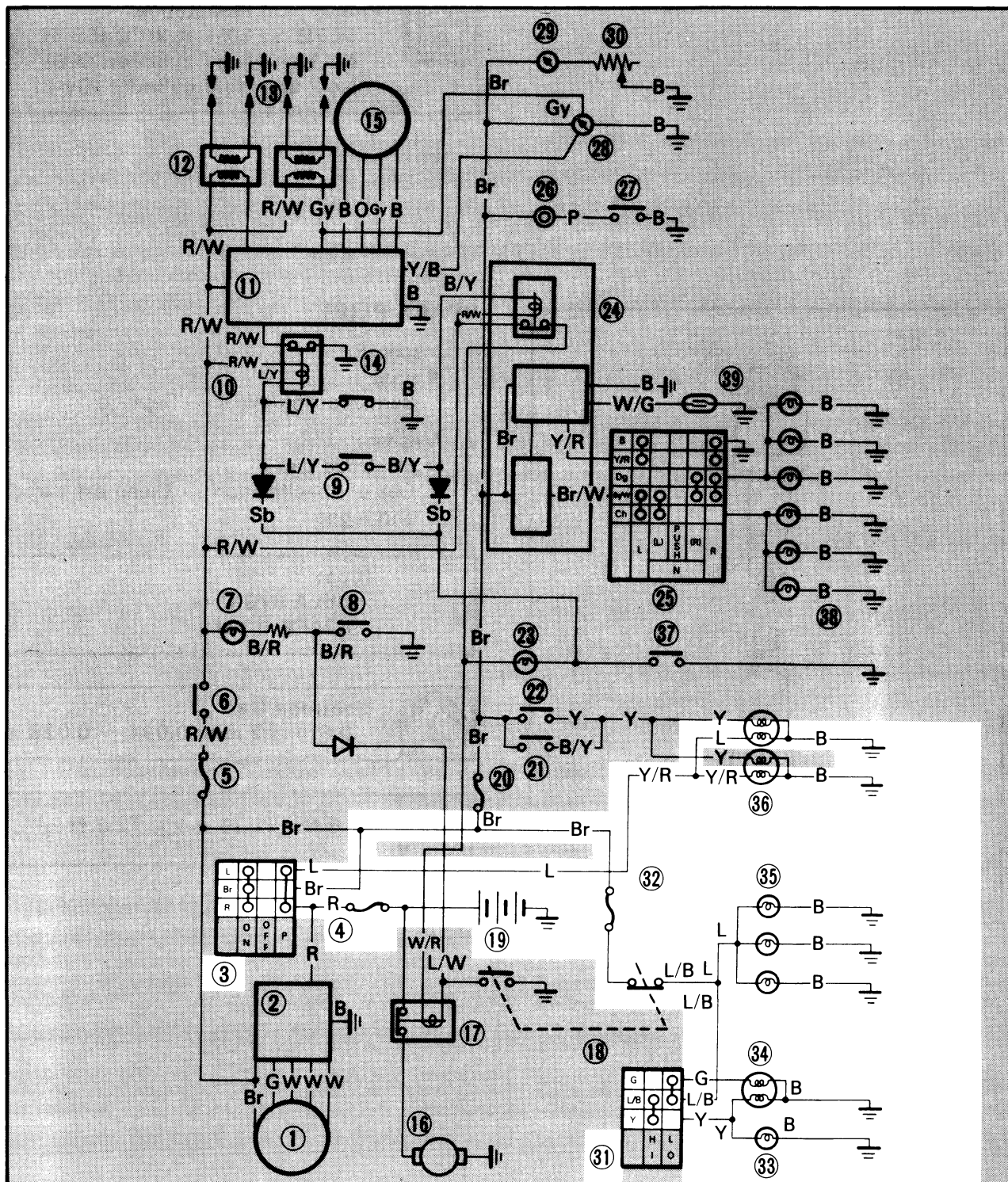
LIGHTING SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows lighting circuit in wiring diagram.

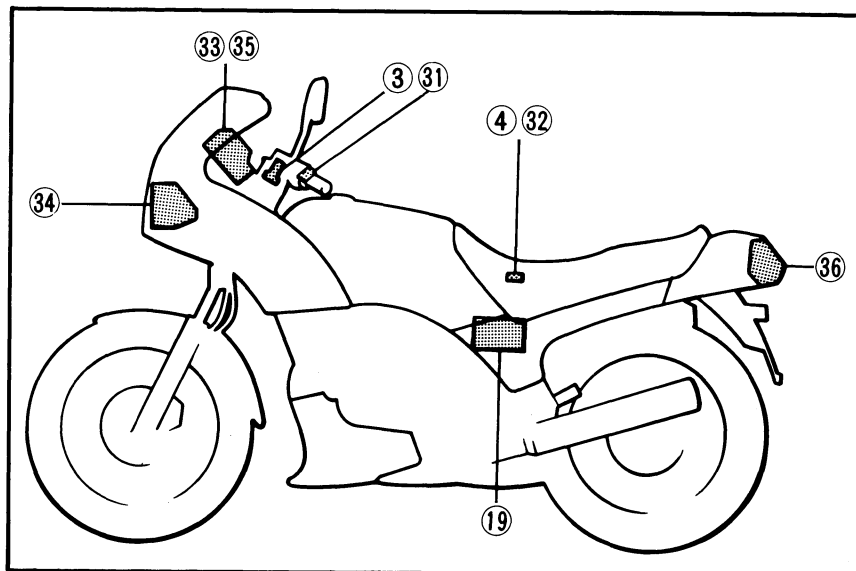
NOTE:

For the encircled numbers and color cords, see page 6-2.





- 3. Main switch
- 4. Main fuse
- 19. Battery
- 31. "LIGHTS" (Dimmer) switch
- 32. Head fuse
- 33. "HIGH BEAM" indicator light
- 34. Headlight
- 35. Meter illumination light
- 36. Brake/Tail light



LIGHTING TESTS AND CHECK

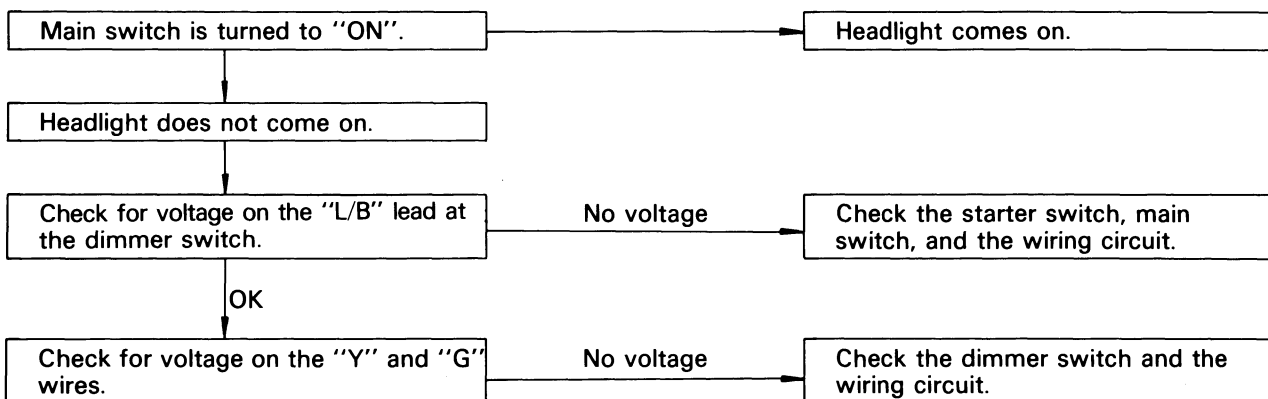
The battery provides power for operation of the headlight, taillight, and meter lights. If none of the above fail to operate proceed further. Low battery voltage indicates either a faulty battery, low battery fluid level, or a defective charging system.

Also check fuse condition. Replace any "open" fuses. There are individual fuses for various circuits (see complete Circuit Diagram).

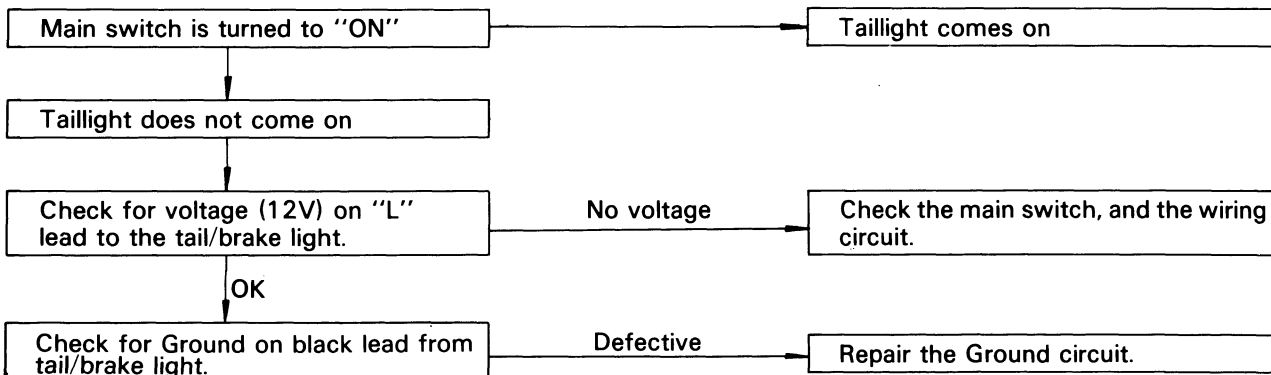
NOTE:

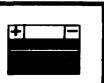
Check each bulb first before performing the following check.

Headlight and High beam light Check



Taillight Check





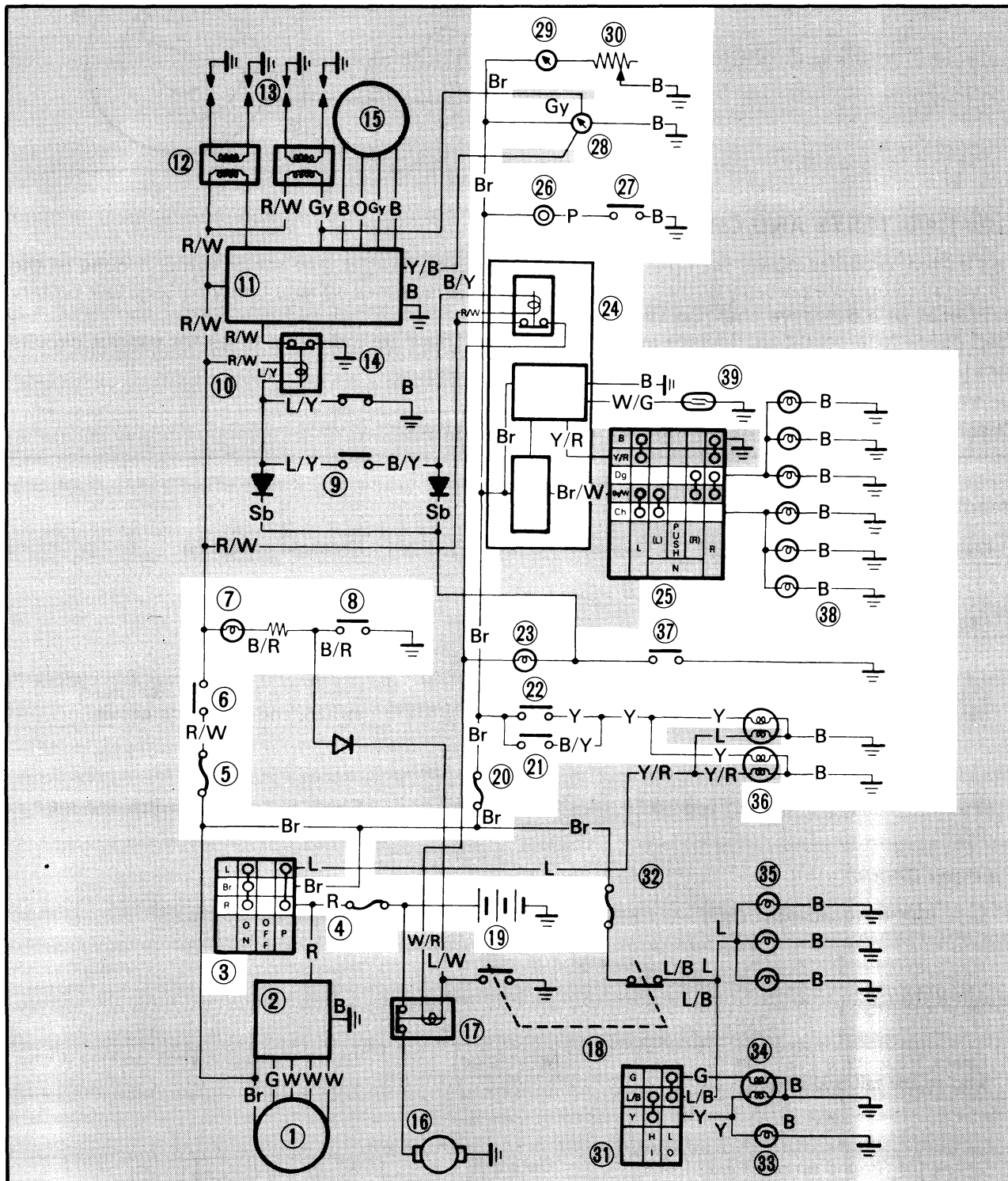
SIGNAL SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows signal circuit in wiring diagram.

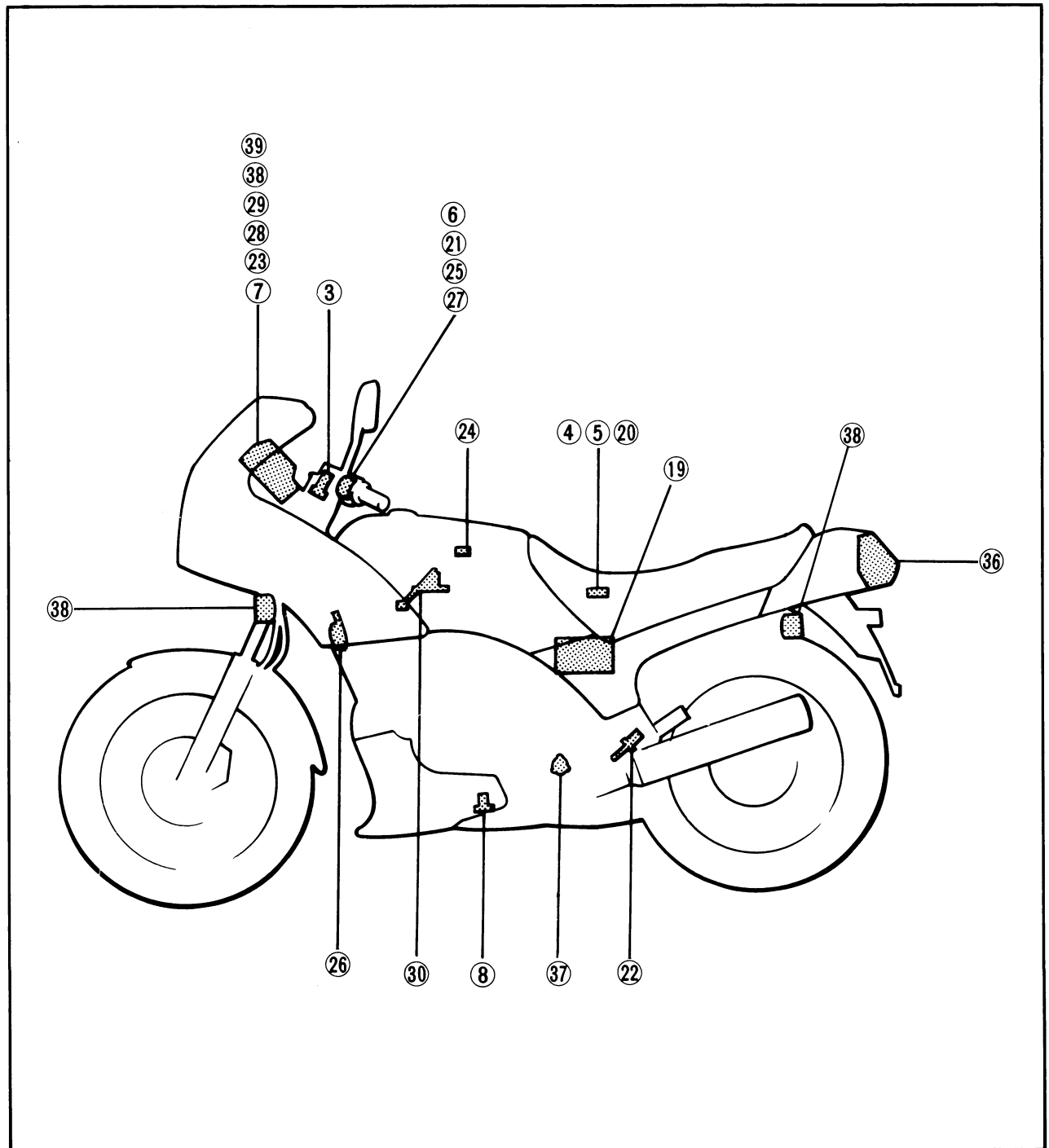
NOTE:

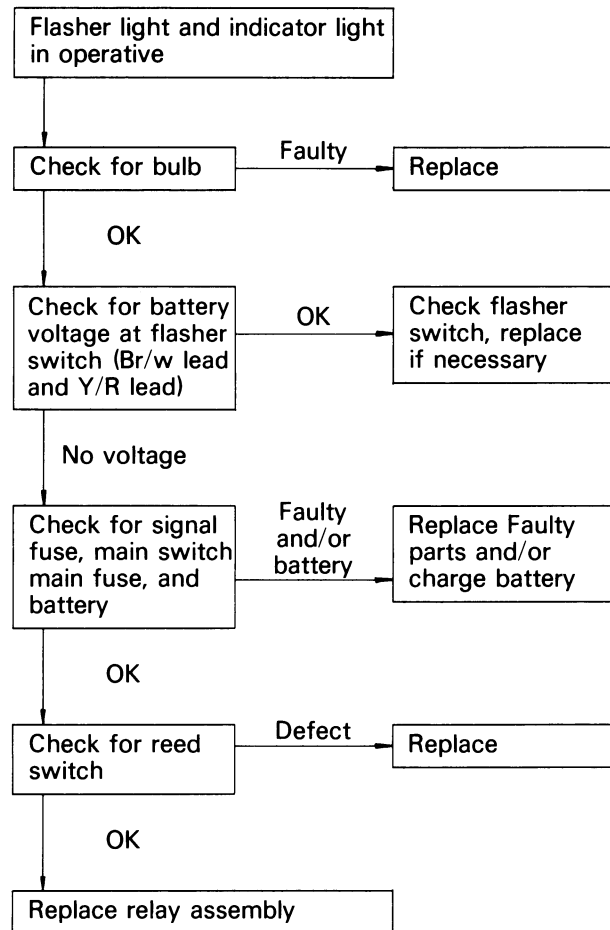
For the encircled numbers and color cords, see page 6-2.





- | | |
|--------------------------------|-----------------------------|
| 3. Main switch | 24. Relay assembly |
| 4. Main fuse | 25. "TURN" switch |
| 5. Ignition fuse | 26. Horn |
| 6. "ENGINE STOP" switch | 27. "HORN" switch |
| 7. "OIL LEVEL" indicator light | 28. Tachometer |
| 8. Oil level switch | 29. Fuel meter |
| 19. Battery | 30. Fuel sender |
| 20. Signal fuse | 36. Brake/Tail light |
| 21. Front brake switch | 37. Neutral switch |
| 22. Rear brake switch | 38. Flasher/Indicator light |
| 23. "NEUTRAL" indicator light | 39. Reed switch |



**FLASHER LIGHT****Troubleshooting****RELAY ASSEMBLY**

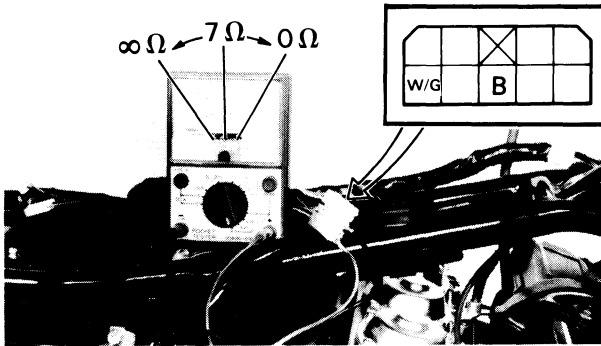
The relay assembly turns off the flashers. Generally, the signal will cancel after either 10 seconds of operation or after the motorcycle has traveled 150 meters (490 feet), whichever is greater. At low speed, the cancelling is a function of distance; at high speeds, it's a function of both time and distance.

The flasher switch has three positions: L (left), OFF, and R (right). The switch lever will return to the "OFF" position after being pushed to L or R, but the signal will function. By pushing the lever in, the signal may be cancelled manually.



REED SWITCH

1. Remove:
 - Seat
 - Fuel tank
2. Disconnect:
 - Relay assembly coupler
3. Connect:
 - Pocket tester
 - Reed switch lead
4. Lift the front wheel and rotate the wheel by hand
5. Measure:
 - Reed switch resistance to relay assembly
 Out of specification → Replace



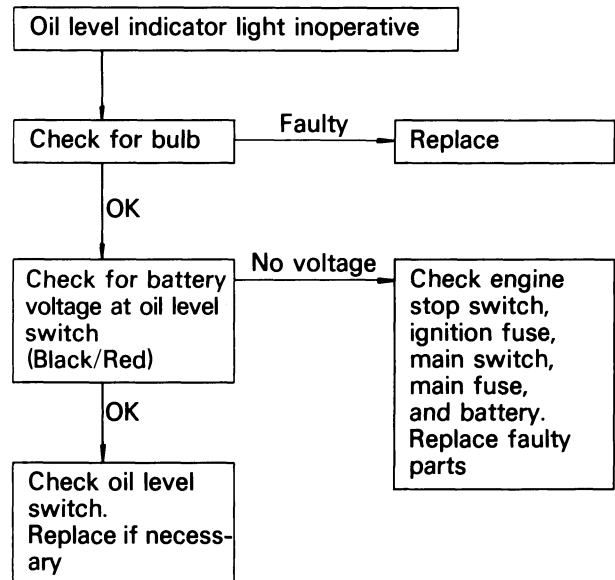
Reed Switch Resistance:

About 7 Ω

Then return back 0 Ω or ∞ Ω
when wheel is stopped

OIL LEVEL INDICATOR LIGHT

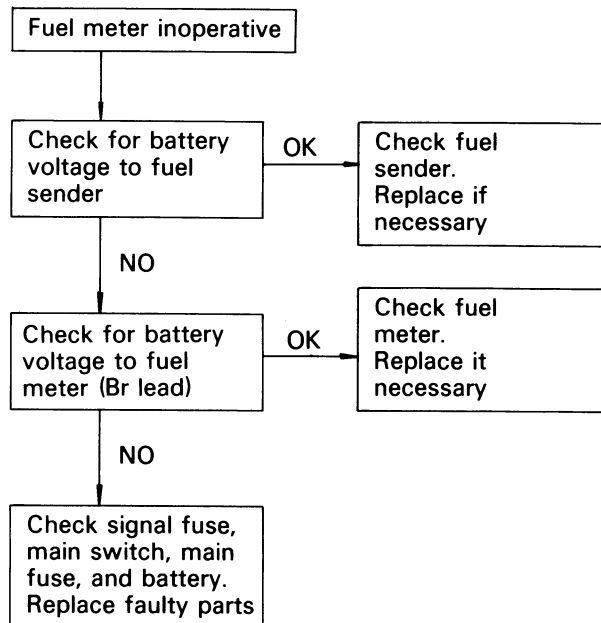
1. Troubleshooting





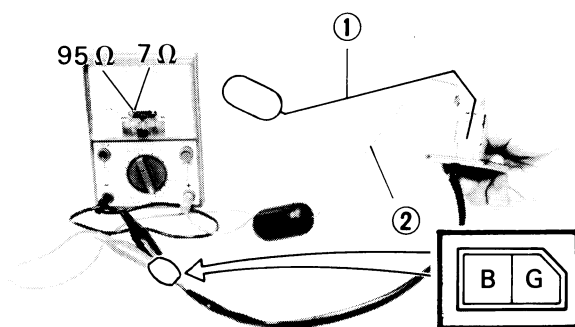
FUEL METER

Troubleshooting



FUEL SENDER UNIT

1. Remove:
 - Seat
 - Fuel tank
 - Fuel sender unit
2. Measure:
 - Fuel sender unit resistance.
Out of specification → Replace

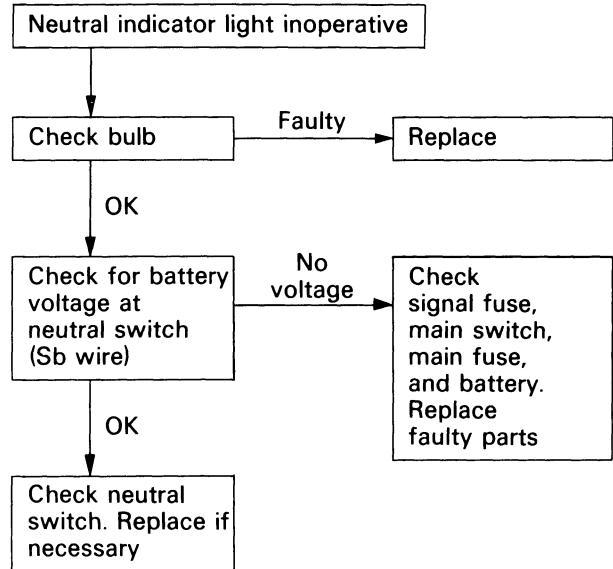


Fuel Sender Unit Resistance:
(Black – Green)
 “Full” Position ① :
 $7\Omega \pm 5\%$ at 20°C (68°F)
 “Empty” Position ② :
 $95\Omega \pm 7.5\%$ at 20°C (68°F)



NEUTRAL INDICATOR LIGHT

Troubleshooting



HORN

Horn inoperative	
Check for:	12V on brown lead to horn
	Good ground (horn/pink lead) when horn button is pressed
	Faulty fuse

Defective components → Replace.

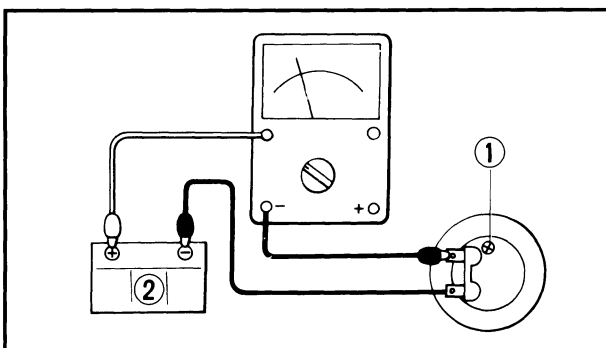
There are individual fuses for various circuits (See Complete Circuit Diagram)

2. Measure:

- Horn resistance

Out of specification → Replace

Tester's lead		Standard resistance	Tester's range
Red lead	Black lead		
Brown lead	Pink lead	$1.05\Omega \pm 10\%$	R x 1



3. Adjust:

- Volume

Turn the adjuster ① in and out so that the volume is maximum at the maximum amperage.

② Battery (12V)

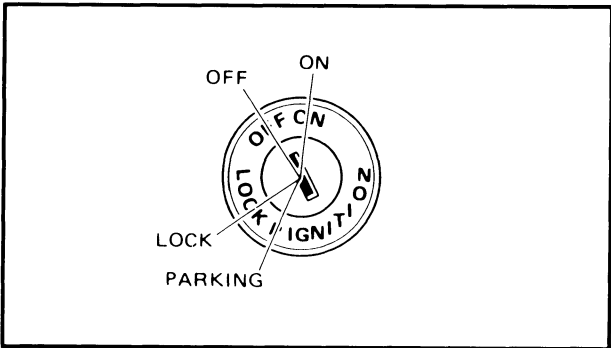
Tester's lead		Maximum Amperage	Tester's range
Red lead	Black lead		
Battery (+) lead	Horn lead and Battery (-) lead	2.5A	DC 5A

BRAKE LIGHT

Brake light inoperative	
Check for:	Defective bulb
	12V on yellow lead to brake light
	12V on brown lead to each brake light switch (Front and rear brake switch)

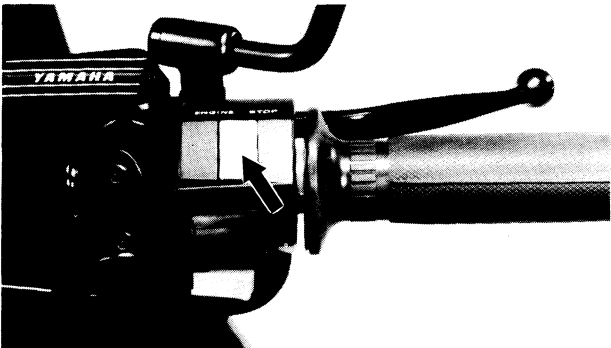
SWITCHES

- Check:
- Switches (all)
Use pocket tester on "Ohm x 1" scale.
Infinite resistance/Short circuit → Replace.



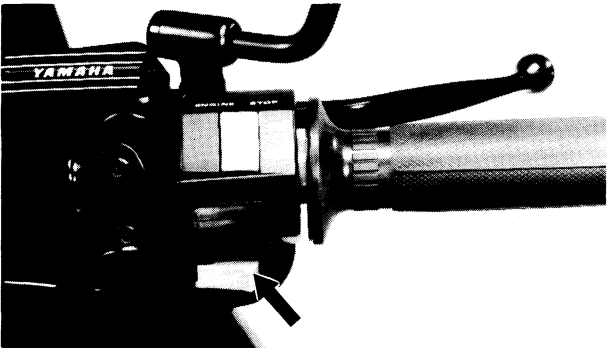
Main switch

Switch position	Lead color		
	R	Br	L
ON			
OFF			
P			



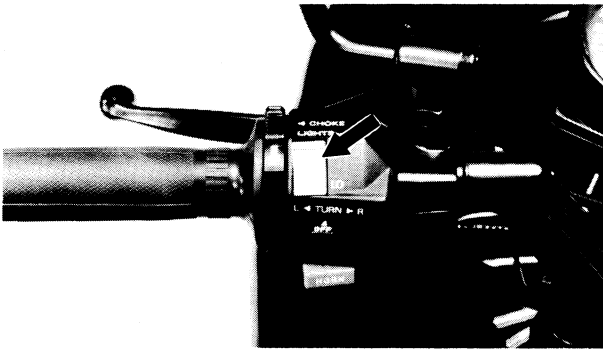
"ENGINE STOP" switch

Switch position	Lead color	
	R/W	R/W
RUN		
OFF		



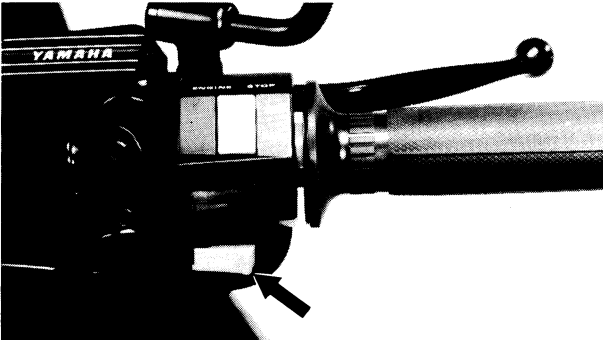
"START" switch

Switch position	Lead color			
	L/W	B	R/Y	L/B
OFF				
ON				



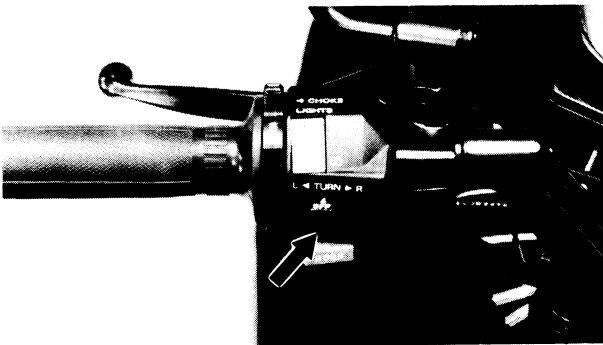
“LIGHTS” (Dimmer) switch

Switch position	Lead color		
	Y	L/B	G
HI	○	○	
LO		○	○



“HORN” switch

Switch position	Lead color	
	P	Ground or B
ON	○	○
OFF		



“TURN” switch

Switch position	Lead color				
	Dg	Br/w	Ch	Y/R	B
R	○	○		○	○
N	○	○			
		○	○		
L		○	○	○	○

Oil level switch

Switch position	Lead color	
	B/R	Ground
ON	○	○
OFF		

Front brake switch

Switch position	Lead color	
	Br	G/Y
ON	○	○
OFF		

Rear brake switch

Switch position	Lead color	
	Y	Br
ON	○	○
OFF		

CHAPTER 7 APPENDICES

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FJ600L/FJ600LC WIRING DIAGRAM	



GENERAL SPECIFICATIONS

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Model	FJ600L/LC	
Model:		FJ600L	FJ600LC
Code Number	49A	51K	
Federal V.I.N Number	JYA49A00*EA000101	JYA51K00*EA000101	
Engine Starting Number	49A-000101	51K-000101	
Dimensions:			
Overall Length	2,115 mm (83.4 in)		
Overall Width	735 mm (28.9 in)		
Overall Height	1,225 mm (48.2 in)		
Seat Height	790 mm (31.1 in)		
Wheelbase	1,425 mm (5.61 in)		
Minimum Ground Clearance	140 mm (5.51 in)		
Basic Weight:			
With Oil and Full Fuel Tank	208 kg (459 lb)		
Minimum Turning Radius:	2,800 mm (110.2 in)		
Engine:			
Engine Type	Air cooled 4-stroke, gasoline, DOHC		
Cylinder Arrangement	4-cylinder parallel		
Displacement	598 cm ³		
Bore x Stroke	58.5 x 55.7 mm (2.3 x 2.19 in)		
Compression Ratio	10.0 : 1		
Compression Pressure	1078.8 kPa (11 k/cm ² , 156.4 psi)		
Starting System	Electric starter		
Lubrication System:	Pressure lubricated, wet sump		
Engine Oil Type or Grade	<div><div><div>30405060°F</div><div>051015°C</div></div><div><div></div><div></div><div></div><div></div></div></div>		
		SAE 20W40 type SE motor oil	
		SAE 10W30 type SE motor oil	
Engine Oil Capacity:			
Engine Oil:			
Periodic Oil Change:	2.3 L (2.0 Imp qt, 2.4 US qt)		
With Oil Filter Replacement	2.6 L (2.3 Imp qt, 2.7 US qt)		
Total Amount	3.0 L (2.6 Imp qt, 3.2 US qt)		
Air Filter	Dry type element		
Fuel:			
Type	Regular gasoline		
Tank Capacity	19.0 L (4.18 Imp gal, 5.02 US gal)		
Reserve Amount	2.5 L (0.55 Imp gal, 0.66 US gal)		
Carburetor:			
Type	BS32X4, Constant velocity		
Manufacturer	MIKUNI		

GENERAL SPECIFICATIONS

APPX



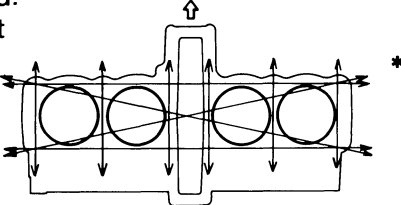
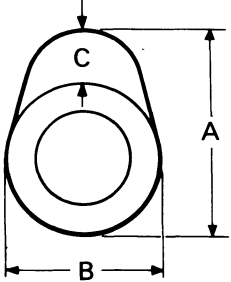
Item	Model	FJ600L/LC
Spark plug: Type/Manufacture Gap		D8EA/NGK or X24ES-U/NIPPONDENSO 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Clutch Type:		Wet, multiple-disc
Transmission: Primary Reduction System Primary Reduction Ratio Secondary Reduction System Secondary Reduction Ratio Transmission Type Operation Gear Ratio 1st 2nd 3rd 4th 5th 6th		Spur gear, HY-VO chain 22/21 x 65/28 = 2.432 Chain drive 45/16 (2.813) Constant-mesh, 6-speed Left foot operation 41/15 (2.733) 37/19 (1.947) 34/22 (1.545) 31/25 (1.240) 29/28 (1.036) 27/30 (0.900)
Chassis: Frame Type Caster Angle Trail		Tubular steel, double cradle 26° 106 mm (4.17 in)
Tire: Type Size (Front) Size (Rear) Wear limit		Tubeless 90/90-18 51H YOKOHAMA F202 DUNLOP F14 110/90-18 61H YOKOHAMA R202 DUNLOP K727 0.8 mm (0.03 in)
Tire Pressure (Cold tire): Front Tire Pressure Rear Tire Pressure		177 kPa (1.8 kg/cm ² , 26 psi) 196 kPa (2.0 kg/cm ² 28 psi)
Brake: Front Brake Type Operation Rear Brake Type Operation		Dual disc brake Right hand operation Single disc operation Right foot operation
Suspension: Front Suspension Rear Suspension		Telescopic fork Swingarm (New Monocross)
Shock Absorber: Front Shock Absorber Rear Shock Absorber		Coil spring, oil damper Coil spring, oil damper
Wheel Travel: Front Wheel Travel Rear Wheel Travel		150 mm (5.91 in) 100 mm (3.94 in)
Electrical: Ignition System Generator System Battery Type or Model Battery Capacity		T.C.I (Full Transistor ignition) A.C. generator 12N12A-4A 12V 12AH



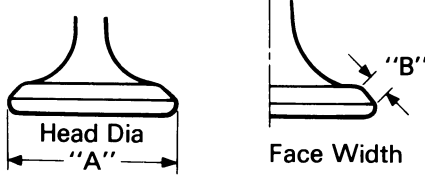
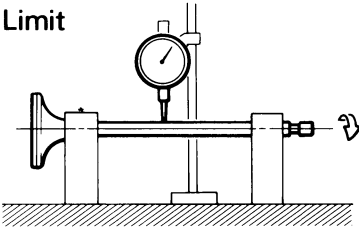
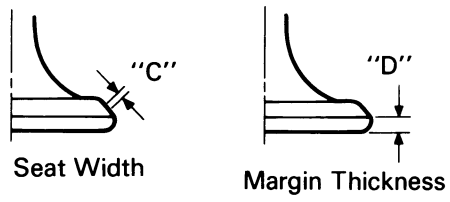
Model	FJ600L/LC
Item	
Headlight Type:	Bulb (Quartz bulb)
Bulb Wattage/Quantity:	
Headlight	60W/55W
Tail/Brake Light	8W/27W x 2
Flasher Light	27W x 4
License Light	8W x 2
Meter Light	3.4W x 6
Indicator Light:	
Wattage/Quantity: "NEUTRAL"	3.4W x 1
"HIGH BEAM"	3.4W x 1
"TURN"	3.4W x 2
"OIL LEVEL"	3.4W x 1

MAINTENANCE SPECIFICATIONS

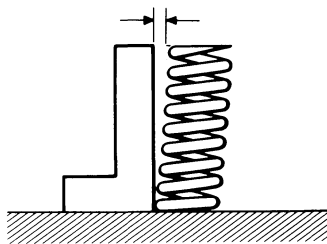
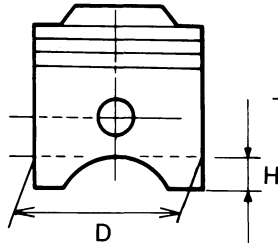
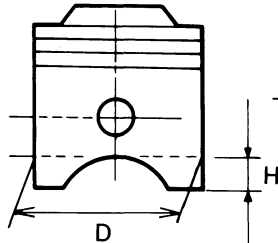
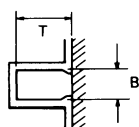
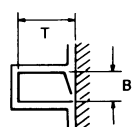
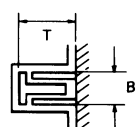
Engine

Item	Model	FJ600L/LC
Cylinder Head: Warp Limit 		0.03 mm (0.001 in) *Lines indicate straightedge measurement.
Cylinder: Bore Size Taper Limit Out-of-round Limit		58.50 mm (2.303 in) 0.05 mm (0.002 in) 0.01 mm (0.0004 in)
Camshaft: Drive Method Cam Cap Inside Diameter (Cylinder head direct support) Camshaft Outside Diameter Shaft-to-cap Clearance Cam Dimensions: Intake "A" <Limit> "B" <Limit> "C"  Exhaust "A" <Limit> "B" <Limit> "C" <Limit>		Chain drive (Center) 25 $+^{+0.021}_0$ mm (0.9449 $+^{+0.0008}_0$ in) 25 $-^{-0.020}_{-0.033}$ mm (0.9448 $-^{-0.0008}_{-0.0013}$ in) 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in) 36.25 ~ 36.35 mm (1.427 ~ 1.431 in) 36.2 mm (1.43 in) 28.1 ~ 28.2 mm (1.106 ~ 1.11 in) 28.05 mm (1.1 in) 8.3 mm (0.327 in) 35.75 ~ 35.85 mm (1.408 ~ 1.411 in) 35.7 mm (1.41 in) 28.05 ~ 28.15 mm (1.104 ~ 1.108 in) 28 mm (1.1 in) 7.8 mm (0.307 in) 7.6 mm (0.299 in)

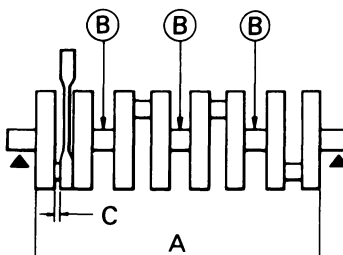


Item	Model FJ600L/LC
Camshaft Runout Limit Cam Chain Type/Number of Links Cam Chain Adjustment Method	0.03 mm (0.0012 in) Bush-chain/114 Manual
Valve, Valve Seat, Valve Guide: Valve Clearance (Cold) IN. EX.  "A" Head Dia. IN. EX. "B" Face Width IN. EX. "C" Seat Limit Width IN. EX. "D" Margin Thickness Limit IN. EX. Stem Outside Diameter IN. EX. Guide Inside Diameter IN. EX. Stem-to-guide Clearance IN. EX. Stem Runout Limit 	0.11 ~ 0.15 mm (0.004 ~ 0.006 in) 0.16 ~ 0.20 mm (0.006 ~ 0.008 in)  Seat Width Margin Thickness 31 ± 0.6 mm (1.220 ± 0.0236 in) 27 ± 0.1 mm (1.063 ± 0.004 in) 2.26 mm (0.0889 in) 2.26 mm (0.0889 in) 1.0 ± 0.1 mm (0.0394 ± 0.004 in) 1.0 ± 0.1 mm (0.0394 ± 0.004 in) 1.0 ± 0.2 mm (0.0394 ± 0.008 in) 1.0 ± 0.2 mm (0.0394 ± 0.008 in) 5.975 ~ 5.990 mm (2.2352 ~ 0.2358 in) 5.960 ~ 5.975 mm (0.2346 ~ 0.2352 in) 6.0 ~ 6.012 mm (0.2362 ~ 0.2367 in) 6.0 ~ 6.012 mm (0.2362 ~ 0.2367 in) 0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in) 0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in) 0.03 mm (0.001 in)
Valve Spring: Free Length Inner Spring IN. EX. Outer Spring IN. EX. Installed Length (Valve Closed) Inner Spring IN. EX. Outer Spring IN. EX.	35.5 mm (1.398 in) 35.5 mm (1.398 in) 37.2 mm (1.465 in) 37.2 mm (1.465 in) 30.5 mm (1.201 in) 30.5 mm (1.201 in) 32.0 mm (1.260 in) 32.0 mm (1.260 in)

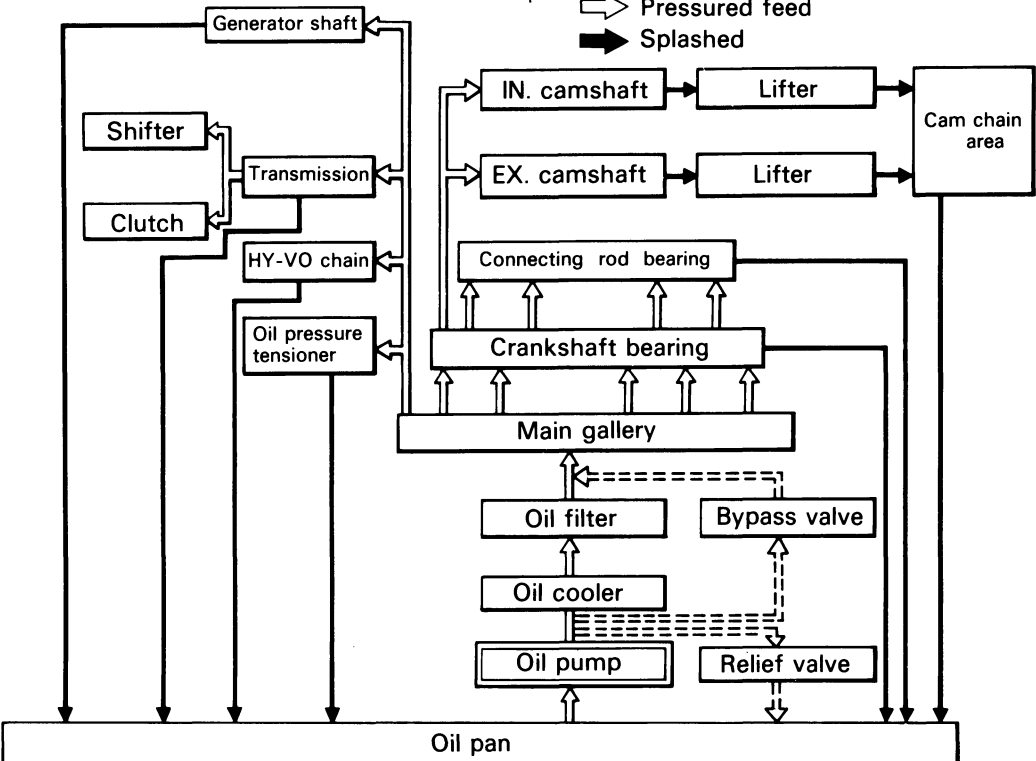
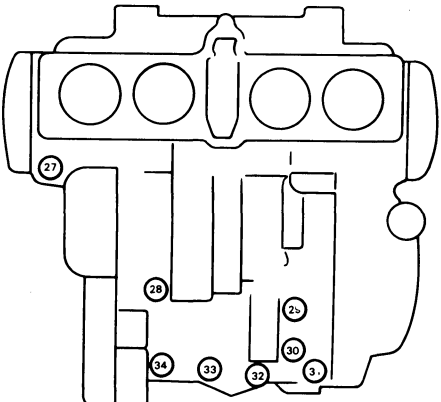
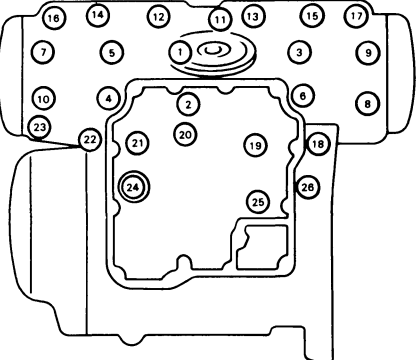


Model		FJ600L/LC			
Item					
Tilt Limit Inner Spring Outer Spring  Direction of Winding 	IN. & EX.	2.5°/1.5 mm (0.063 in)			
	IN. & EX.	2.5°/1.6 mm (0.063 in)			
		Inner spring		Outer Spring	
		IN	EX	IN	EX
	Left	Left	Right	Right	
Piston: Piston Size "D" Measuring Point "H"			58.50 mm (2.30 in) 7.0 mm (0.276 in) (From bottom line of piston skirt)		
Clearance Between Piston & Cylinder Oversize:	1st 2nd 3rd 4th	0.025 ~ 0.045 mm (0.0010 ~ 0.0018 in) — 59.00 mm (2.32 in) — 60.00 mm (2.36 in)			
Piston Ring: Sectional Sketch	Top Ring				Barrel B = 1.0 mm (0.039 in) T = 2.3 mm (0.090 in)
	2nd Ring				Taper B = 1.2 mm (0.047 in) T = 2.3 mm (0.090 in)
	Oil Ring				Expander B = 2.5 mm (0.10 in) T = 2.8 mm (0.11 in)
End Gap (Installed):	Top Ring <Limit> 2nd Ring <Limit> Oil Ring	0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in) 0.7 mm (0.0276 in) 0.15 ~ 0.30 mm (0.0059 ~ 0.0118 in) 0.7 mm (0.0276 in) 0.2 ~ 0.7 mm (0.0079 ~ 0.0276 in)			
Side Clearance:	Top Ring <Limit> 2nd Ring <Limit> Oil Ring	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in) 0.15 mm (0.0059 in) 0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in) 0.15 mm (0.0059 in) —			



Item	Model	FJ600L/LC
Connecting Rod: Oil Clearance Color code (Corresponding Size) 1. Blue 2. Black 3. Brown 4. Green		0.016 ~ 0.040 mm (0.0006 ~ 0.0016 in) 1.5 $^{+0.004}_0$ mm (0.0591 $^{+0.00016}_0$ in) 1.5 $^{-0.004}_0$ mm (0.0591 $^{-0.00016}_0$ in) 1.5 $^{-0.004}_{-0.008}$ mm (0.0591 $^{-0.00016}_{-0.00031}$ in) 1.5 $^{-0.008}_{-0.012}$ mm (0.0591 $^{-0.00031}_{-0.00047}$ in)
Crankshaft:  Crank Width "A" Runout Limit "B" Big End Side Clearance "C" Crank journal oil clearance Con-rod oil clearance		312.4 ± 0.6 mm (12.30 ± 0.024 in) 0.03 mm (0.0012 in) 0.16 ~ 0.262 mm (0.006 ~ 0.010 in) 0.021 ~ 0.044 mm (0.0008 ~ 0.0017) 0.016 ~ 0.040 mm (0.0006 ~ 0.0016 in)
Clutch: Friction Plate Thickness/Quantity Wear Limit Clutch Plate Thickness/Quantity Warp Limit Clutch Spring Free Length/Quantity Clutch Spring Minimum Length Clutch Release Method		3.0 ± 0.1 mm (0.12 ± 0.0039 in)/8 2.7 mm (0.106 in) 1.6 mm (0.063 in)/7 0.15 mm (0.0059 in) 42.8 mm (1.690 in)/5 41.8 mm (1.646 in) Outer Pull, Rack & Pinion Pull
Transmission: Main Axle Deflection Limit Drive Axle Deflection Limit		0.08 mm (0.0031 in) 0.08 mm (0.0031 in)
Shifter: Shifter Type		Guide bar
Carburetor: Type/Manufact/Quantity I.D.Mark Main Jet (M.J.) (For No.1 and No.2 Cylinder) Main Air Jet (M.A.J.) Jet Needle-clip Position (J.N) (For No.1, 3,4 Cylinder) Needle Jet (N.J.) Pilot Jet (P.J.) Pilot Outlet Size (P.O.) Pilot Air Jet (P.A.J.) Pilot Screw (P.S.) Valve Seat Size (V.S.) Starter Jet (G.S.) Bypath Size (B.P.) Fuel Level (F.L.)		BS32/MIKUNI/4 49A01 (51K-01 For LC model) #105 #102.5 #70 4CP4 4CP6 N-8 #35 φ0.85 #160 Preset φ2.0 #42.5 (φ0.6) φ0.8 x 3 3.0 ± 1.0 mm (0.12 ± 0.04 in) Below from the carburetor mixing chamber body edge



Item	Model FJ600L/LC
<p>Engine Idling speed</p> <p>Vacuum Pressure at Idling Speed</p> <p>Vacuum Synchronous Difference</p> <p>Lubrication System:</p> <p>Oil Filter Type</p> <p>Oil Pump Type</p> <p>Tip Clearance <Limit></p> <p>Side Clearance <Limit></p> <p>Bypass Valve Setting Pressure</p> <p>Relief Valve Operating Pressure</p>	<p>1,200 ± 50 r/min</p> <p>23.3 ± 0.667 kPa (175 ± 5 mmHg, 6.890 ± 0.1969 inHg)</p> <p>Below 10 kPa (10 mmHg, 0.4 inHg)</p> <p>Paper</p> <p>Trochoid pump</p> <p>0.03 ~ 0.09 mm (0.0012 ~ 0.0035 in)</p> <p>0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)</p> <p>98.0 ± 20 kPa (1.0 ± 0.2 kg/cm², 14.2 ± 2.8 psi)</p> <p>490 ± 49 kPa (5.0 ± 0.5 kg/cm², 71.1 ± 7.1 psi)</p>
<p>Lubrication Chart</p>  <p>Generator shaft</p> <p>Shifter</p> <p>Transmission</p> <p>Clutch</p> <p>HY-VO chain</p> <p>Oil pressure tensioner</p> <p>IN. camshaft</p> <p>EX. camshaft</p> <p>Lifter</p> <p>Cam chain area</p> <p>Connecting rod bearing</p> <p>Crankshaft bearing</p> <p>Main gallery</p> <p>Oil filter</p> <p>Bypass valve</p> <p>Oil cooler</p> <p>Oil pump</p> <p>Relief valve</p> <p>Oil pan</p> <p>➡ Pressured feed</p> <p>➡ Splashed</p>	
<p>Crankcase Tightening Sequence:</p> <p>Upper case</p> 	<p>Lower case</p> 

Tightening torque ENGINE:

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m.kg	ft.lb	
Cam shaft cap	Bolt	M6 P1.0	24	10	1.0	7.2	Tighten in 3-stages
Cylinder (cam chain)	Stud bolt	M6 P1.0	4	5	0.5	3.6	Apply oil
Cylinder head (Exhaust pipe)	Stud bolt	M6 P1.0	8	10	1.0	7.2	Apply oil
Cylinder head	Stud bolt	M6 P1.0	4	5	0.5	3.6	Apply oil
Cylinder	Nut	M8 P1.25	1	20	2.0	14	
Cylinder	Nut	M6 P1.0	1	10	1.0	7.2	
Cylinder head	Cap nut	M8 P1.25	12	22	2.2	16	Apply oil
Spark plug		M12 P1.25	4	17.5	1.75	13	
Cylinder head cover	Bolt	M6 P1.0	12	10	1.0	7.2	
Cylinder	Stud bolt	M8 P1.25	1	15	1.5	11	Apply oil
Cylinder and crank case	Nut	M8 P1.25	1	20	2.0	14	
Connecting rod and rod cap	Nut	M7 P0.75	8	25	2.5	18	
Camshaft and sprocket	Bolt	M7 P1.0	4	24	2.4	17	
Cam chain tensioner stopper bolt	Bolt	M8 P1.0	1	8	0.8	5.7	
Cam chain tensioner case and cylinder	Bolt	M6 P1.0	1	10	1.0	7.2	
Cam chain tensioner case and cylinder	Nut	M6 P1.0	1	10	1.0	7.2	
Cam chain tensioner lock nut	Nut	M8 P1.25	1	9	0.9	6.5	
Crankcase	Plug	M10 P1.25	1	10	1.0	7.2	
Rotor housing and pump cover	Screw	M6 P1.0	1	7	0.7	5.1	
Oil pump ass'y and crankcase	Screw	M6 P1.0	3	7	0.7	5.1	
Strainer housing and crankcase	Bolt	M6 P1.0	2	10	1.0	7.2	
Strainer cover and crankcase	Bolt	M6 P1.0	12	10	1.0	7.2	
Filter cover and crankcase	Union bolt	M20 P1.5	1	15	1.5	11	
Drain bolt	Plug	M14 P1.5	1	43	4.3	31	
Carburetor joint and Cylinder head	Bolt	M6 P1.0	8	10	1.0	7.2	
Air filter cover	Screw	M5 P0.8	4	5	0.5	3.6	
Air filter	Bolt	M6 P1.0	3	7	0.7	5.1	
Exhaust pipe and cylinder head	Nut	M6 P1.0	8	10	1.0	7.2	
Exhaust pipe joint	Bolt	M8 P1.25	6	20	2.0	14	
Muffler	Bolt	M10 P1.25	2	25	2.5	18	
Adaptor plate and crankcase	Union bolt	M20 P1.5	1	50	5.0	36	
Oil cooler and hose	Nut	M18 P	2	32	3.2	23	
Adaptor plate and hose	Bolt	M6 P1.0	4	12	1.2	8.6	
Oil cooler and frame	Bolt	M6 P1.0	2	10	1.0	7.2	
Hose clamp	Bolt	M6 P1.0	1	12	1.2	8.6	
Hose clamp and engine	Nut	M6 P1.0	2	10	1.0	7.2	

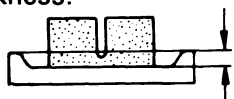


Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m·kg	ft·lb	
Crankcase	Stud bolt	M8 P1.25	12	13	1.3	9.4	Apply oil
Crankcase (upper and lower)	Bolt	M8 P1.25	11	24	2.4	17	Apply oil
Crankcase (upper and lower)	Bolt	M6 P1.0	23	12	1.2	8.7	Apply oil
Generator cover and crankcase	Bolt	M6 P1.0	3	10	1.0	7.2	
Bearing cover plate (crankcase right)	Screw	M6 P1.0	4	8	0.8	5.7	
Bearing cover plate (crankcase left)	Screw	M6 P1.0	4	8	0.8	5.7	Use LOCKTITE
Clutch cable holder	Screw	M6 P1.0	1	10	1.0	7.2	
Crankcase cover	Bolt	M6 P1.0	13	10	1.0	7.2	
Crankcase (Main gallery blind plug)	Plug	M20 P1.5	2	12	1.2	8.7	Apply oil
Clutch pressure plate	Bolt	M6 P1.0	5	8	0.8	5.8	
Clutch boss	Nut	M20 P1.0	1	70	7.0	50	
Drive sprocket	Bolt	M6 P1.0	2	10	1.0	7.2	
Stopper plate	Screw	M5 P0.8	1	7	0.7	5.1	Use LOCKTITE
Cam segment	Bolt	M6 P1.0	1	10	1.0	7.2	Use LOCKTITE
Change pedal	Bolt	M6 P1.0	1	10	1.0	7.2	
A.C. Generator	Bolt	M10 P1.25	1	35	3.5	25	
A.C. Generator (brush)	Screw	M6 P1.0	2	8	0.8	5.8	
Pick up coil base	Screw	M6 P1.0	2	8	0.8	5.8	
Timing plate	Screw	M8 P1.25	1	24	2.4	17	
Starter motor	Bolt	M6 P1.0	2	10	1.0	7.2	
Neutral switch	Screw	M5 P0.8	3	3.5	0.35	2.5	Use LOCKTITE
Oil level gauge switch	Bolt	M6 P1.0	2	7	0.7	5.1	
Relief valve and crankcase	—		1	20	2.0	14	
Hivo chain tensioner	Bolt	M6 P1.0	2	10	1.0	7.2	Use LOCKTITE
Primary drive gear	Nut	M16 P	1	50	5.0	36	
Bearing cover plate	Screw	M6 P1.0	2	10	1.0	7.2	Use LOCKTITE
Starter clutch	Bolt	M8 P1.25	3	25	2.5	18	Use LOCKTITE
Shift shaft stopper	Screw	M8 P1.25	1	22	2.2	16	
Shift cam bearing plate	Screw	M6 P1.0	1	10	1.0	7.2	

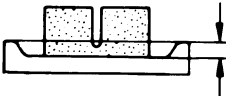


Chassis

Model		FJ600L/LC				
Item						
Steering System:						
Steering Bearing Type		Ball Bearing				
No./Size of Steel Balls:	Upper	19 pcs/1/4 in				
	Lower	19 pcs/1/4 in				
Front Suspension:						
Front Fork Travel		150 mm (5.9 in)				
Fork Spring Free Length		515.5 mm (20.29 in)				
Spring Rate/Stroke		$K_1 = 40 \text{ N/mm (0.4 kg/mm, 22.4 lb/in)}$ 0 ~ 80 mm (0 ~ 3.14 in)				
		$K_2 = 57.5 \text{ N/mm (0.575 kg/mm, 32.2 lb/in)}$ 80 ~ 150 mm (3.14 ~ 5.91 in)				
Optional Spring		No				
Oil Capacity		269 cm ³ (9.47 Imp oz, 9.03 US oz)				
Oil Grade		Yamaha Fork Oil 10 wt or equivalent				
Rear Suspension:						
Shock Absorber Travel		40 mm (1.5 in)				
Spring Free Length		184 mm (7.24 in)				
Spring Rate/Stroke		$K_1 = 110 \text{ N/mm (11 kg/mm, 616 lb/in)}$ 0 ~ 40 mm (0 ~ 1.57 in)				
Optional Spring		No				
Adjustment	Spring Position	<div style="display: flex; justify-content: space-around; align-items: center;"> ← Stiffer Std. </div>				
		5	4	3	2	1
Rear Arm:						
Swingarm Free Play Limit:	End	1.0 mm (0.039 in)				
	Side	1.0 mm (0.039 in)				
Wheel:						
Front Wheel Type		Cast Wheel				
Rear Wheel Type		Cast Wheel				
Front Rim Size/Material		MT2.15 x 18/Aluminum				
Rear Rim Size/Material		MT2.50 x 18/Aluminum				
Rim Runout Limit	Vertical	2.0 mm (0.08 in)				
	Lateral	2.0 mm (0.08 in)				
Drive Chain:						
Type/Manufacturer		50HDL2/DAIDO				
No. of Links		106				
Chain Free Play		20 ~ 30 mm (0.78 ~ 1.18 in)				
Front Disc Brake:						
Type		Dual disc				
Outside Dia. x Thickness		267 x 5 mm (10.5 x 0.2 in)				
Pad Thickness:	Inner	5.5 mm (0.21 in)				
	<Limit> *	0.5 mm (0.019 in)				
	* Outer	5.5 mm (0.21 in)				
	<Limit> *	0.5 mm (0.019 in)				
Master Cylinder Inside Dia.		15.87 mm (0.62 in)				
Caliper Cylinder Inside Dia.		42.8 mm (1.50 in)				
Brake Fluid Type		DOT #3				



Chassis

Item	Model	FJ600L/LC
<div>Rear Disc Brake:</div> <div>Type</div> <div>Disc Outside Dia. x Thickness</div> <div>Pad Thickness</div> <div>  <div> <div>Inner</div> <div><Limit> *</div> <div>Outer</div> <div><Limit> *</div> </div> </div> <div>Master Cylinder Inside Dia.</div> <div>Caliper Cylinder Inside Dia.</div> <div>Brake Fluid Type</div>		<div>Dual disc</div> <div>267 mm (10.6 in) x 5 mm (0.19 in)</div> <div>5.5 mm (0.21 in)</div> <div>0.5 mm (0.019 in)</div> <div>5.5 mm (0.21 in)</div> <div>0.5 mm (0.019 in)</div> <div>14 mm (0.55 in)</div> <div>38.1 mm (1.49 in)</div> <div>DOT #3</div>
<div>Brake Lever & Brake Pedal:</div> <div>Brake Lever Free Play</div> <div>Brake Pedal Free Play</div> <div>Brake Pedal Position</div>		<div>5 ~ 8 mm (0.02 ~ 0.03 in)</div> <div>20 ~ 30 mm (0.8 ~ 0.12 in)</div> <div>30 mm (1.2 in)</div> <div>(Vertical height below footrest top)</div>
Clutch Lever Free Play:		2 ~ 3 mm (0.08 ~ 0.12 in)

Tightening torque

CHASSIS:

Part to be tightened		Part name	Thread size	Q'ty	Tightening torque			Remarks
					Nm	m·kg	ft·lb	
Engine Mounting Bolt	Front, upper	Nut	M10 P1.25	1	42	4.2	30	
	Front, under	Bolt	M10 P1.25	2	42	4.2	30	
	Rear	Nut	M12 P1.25	1	90	9.0	65	
Engine Mounting Stay	Front	Bolt	M8 P1.25	4	32	3.2	14	
Handle crown & Steering shaft		Bolt	M14 P1.25	1	54	5.4	39	
Handle crown & Inner tube		Nut cap	M8 P1.25	1	20	2.0	14	
Handle crown & Handlebar		Bolt	M12 P1.25	2	70	7.0	51	
Under bracket & Inner tube		Bolt	M12 P1.25	2	20	2.0	14	
Front wheel shaft			M14 P1.5	1	105	10.5	75	
Front wheel Axle pinch bolt			M8 P1.25	1	20	2.0	14	
Pivot shaft		Nut	M14 P1.5	1	90	9.0	85	
Rear Wheel shaft		Nut castle	M14 P1.5	1	105	10.5	75	
Sprocket wheel		Nut	M8 P1.25	6	32	3.2	23	
Rear shock absorber (Upper)		Nut cap	M10 P1.25	1	40	4.0	29	
Footrest		Bolt	M10 P1.25	2	64	6.4	46	
Brake disc & Hub		Bolt	M8 P1.25	12	20	2.0	14	
Master cylinder & Brake hose (Front)		Bolt union	M10 P1.25	1	26	2.6	19	
Brake hose & Joint		Bolt Union	M10 P1.25	1	26	2.6	19	
Caliper & Brake hose		Bolt union	M10 P1.25	1	26	2.6	19	
Caliper bleed screw			M8 P1.25	1	6	0.6	4.3	
Front fender		Bolt	M8 P1.25	4	10	1.0	7.2	
Master cylinder cap		Screw	M5 P0.8	2	1.8	0.18	1.3	
Muffler bracket & Frame		Bolt	M8 P1.25	2	20	2.0	14	
Master cylinder & Master cylinder bracket		Bolt	M6 P1.0	2	8.5	0.85	6.1	
Steering shaft & Ring nut		Nut	M25 P1.0	1	54	5.4	39	
Sender & Fuel tank		Bolt	M5 P0.8	4	4.3	0.43	2.4	
Relay Arm and Frame		Bolt	M14 P1.25	1	65	6.5	47	
Relay Arm and Arm 1 & 2		Bolt	M12 P1.25	1	65	6.5	47	
Arm 1 and 2		Bolt	M12 P1.25	2	20	2.0	14	
Rear Arm and Arm 1 & 2		Bolt	M10 P1.25	2	40	4.0	29	
Caliper		Bolt	M10 P1.25	2	35	3.5	25	



Electrical

Item	Model	FJ600L/LC
Voltage Ignition System: Ignition Timing (B.T.D.C.) Advanced Timing (B.T.D.C.) Advancer Type		12V 10° ± 1° at 1,200 r/min 36° ± 2° at 8,500 r/min Electrical
T.C.I.: Pickup Coil Resistance (Color) T.C.I. Unit—Manufacturer		120Ω ± 20% at 20°C (68°F) (Black – Gray) (Black – Orange) TID14-31/HITACHI
Ignition Coil. Model/Manufacturer Minimum Spark Gap Primary Winding Resistance Secondary Winding Resistance Spark Plug Cap Resistance		CM12-23/HITACHI 6 mm (0.24 in) or more at 500 r/min 2.7Ω ± 10% at 20°C (68°F) 12 kΩ ± 20% at 20°C (68°F) 10KΩ
Charging System: Type		A.C. Generator
A.C. Generator: Model/Manufacturer Nominal Output		LD117-03/HITACHI 14V, 17A at 5,000 r/min
Field Coil Resistance Starter Coil Resistance		4.5Ω ± 10% at 20°C (68°F) (Br – G) 0.55Ω ± 10% at 20°C (68°F) (W – W)



Item	Model	FJ600L/LC
Brush – Overall Length <Limit> – Spring Force		17 mm (0.669 in) 10 mm (0.394 in) 170 ~ 380 gr (5.996 ~ 13.403 oz)
Voltage Regulator: Type Model/Manufacturer No Load Regulated Voltage Rectifier: Model/Manufacturer Capacity Withstand Voltage		Field control SH233-12/SHINDENGEN 14.2 ~ 14.8V SH233-12/SHINDENGEN 15A 300V
Battery: Capacity Specific Gravity		12V 12AH 1.280
Electroc Starter System: Type Starter Motor: Model/Manufacturer Output Armature Coil Resistance Brush – Overall Length – <Limit> – Spring Force Commutator Dia. Wear Limit Mic Undercut Starter Relay: Model/Manufacturer Amperage Rating		Constant mesh type SM8204/MITSUBA 0.5 kw 0.012 Ω \pm 10% at 20°C (68°F) 12 mm (0.47 in) 5 mm (0.20 in) 340 ~ 460 g (12.0 ~ 16.2 oz) 28 mm (1.10 in) 27 mm (1.06 in) 0.8 mm (0.031 in) 22U-00/HITACHI 100A
Horn: Type/Quantity Model/Manufacturer Maximum Amperage		Plane type x 2 CF-12./NIKKO 2.5 A
Flasher Relay (Relay Assembly): Type Model/Manufacturer Self Cancelling Device Flasher Frequency Wattage		Semi transistor type FX257N/ND Yes 85 \pm 10 cycle/min 27W x 2 pcs + 3.4W
Sidestand Relay: Model/Manufacturer Coil winding Resistance Diode		4U8-01/OMRON 75 Ω \pm 10% at 20°C (68°F) No
Safty relay (Relay Assembly): Model/Manufacturer Diode		FX257N/ND No
Oil Level Switch: Model/Manufacturer		4U8-00/ND
Fuel Gauge: Model/Manufacturer Sender Unit Resistance Full Empty		33M/NIPPON SEIKI 7 Ω \pm 5% at 20°C (68°F) 95 Ω \pm 7.5% at 20°C (68°F)

Item	Model	FJ600L/LC
Circuit Breaker: Type Amperage for individual Circuit x Quantity: MAIN HEADLIGHT SIGNAL IGNITION RESERVE		Fuse 30A x 1 20A x 1 10A x 1 10A x 1 30A x 1, 20A x 1

CONSUMER INFORMATION

NOTICE

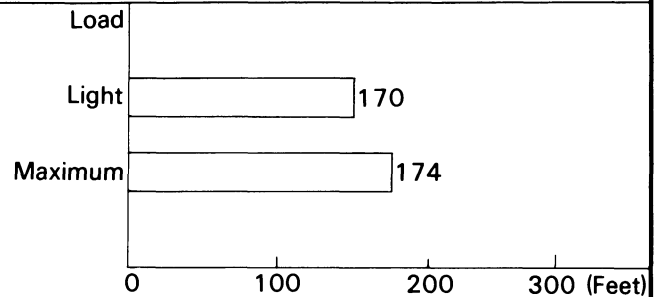
The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

Stopping distance

These figures indicate braking performance that can be met or exceeded by the vehicles to which they apply, without locking the wheels, under different conditions of loading and with partial failures of the braking system. The information presented represents results obtainable by skilled drivers under controlled road and vehicle conditions and the information may not be correct under other conditions.

Description of vehicles to which this table applies: Yamaha motorcycle FJ600L/FJ600LC

A. Fully Operational Service Brake



NOTE:

The statement above is required by U.S. Federal law.

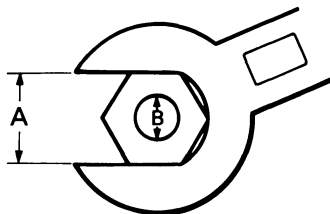
"Partial failures" of the braking system do not apply to this chart.

Stopping distance in feet from 60 mi/h

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	millimeter	10^{-3} meter	Length
cm	centimeter	10^{-2} meter	Length
kg	kilogram	10^3 gram	Weight
N	Newton	$1 \text{ kg} \times \text{m}/\text{sec}^2$	Force
Nm	Newton meter	$\text{N} \times \text{m}$	Torque
m·kg	Meter kilogram	$\text{m} \times \text{kg}$	Torque
Pa	Pascal	N/m^2	Pressure
N/mm	Newton per millimeter	N/mm	Spring rate
L	Liter		Volume
cm ³	Cubic centimeter		or Capacity
r/min	Rotation per minute		Engine Speed

CONVERSION TABLES

Metric to inch system		
Known	Multiplier	Result
m·kg	7.233	ft·lb
m·kg	86.80	in·lb
cm·kg	0.0723	ft·lb
cm·kg	0.8680	in·lb
kg	2.205	lb
g	0.03527	oz
km/lit	2.352	mpg
km/hr	0.6214	mph
km	0.6214	mi
m	3.281	ft
m	1.094	yd
cm	0.3937	in
mm	0.03937	in
cc (cm ³)	0.03382	oz (US liq)
cc (cm ³)	0.06102	cu in
lit (liter)	2.1134	pt (US liq)
lit (liter)	1.057	qt (US liq)
lit (liter)	0.2642	gal (US liq)
kg/mm	56.007	lb/in
kg/cm	14.2234	psi (lb/in)
centigrade (°C)	$9/5 (°\text{C}) + 32$	Fahrenheit (°F)

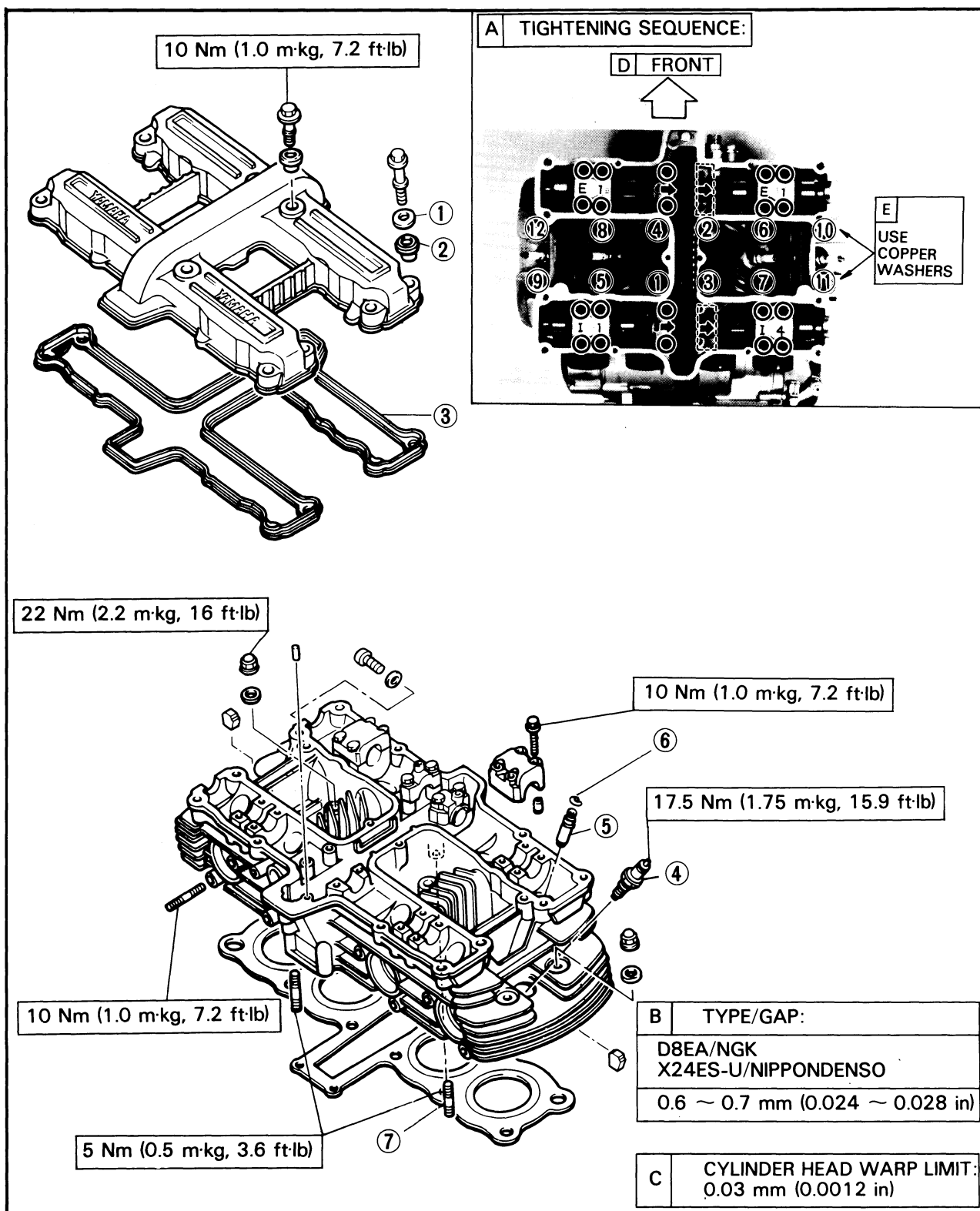
Inch to metric system		
Known	Multiplier	Result
ft·lb	0.13826	m·kg
in·lb	0.01152	m·kg
ft·lb	13.831	cm·kg
in·lb	1.1521	cm·kg
lb	0.4535	kg
oz	28.352	g
mpg	0.4252	km/lit
mph	1.609	km/hr
mi	1.609	km
ft	0.3048	m
yd	0.9141	m
in	2.54	cm
in	25.4	mm
oz (US liq)	29.57	cc (cm ³)
cu in	16.387	cc (cm ³)
pt (US liq)	0.4732	lit (liter)
qt (US liq)	0.9461	lit (liter)
gal (US liq)	3.785	lit (liter)
lb/in	0.017855	kg/mm
psi (lb/in)	0.07031	kg/cm
Fahrenheit (°C)	$5/9 (°\text{F} - 32)$	Centigrade (°F)



EXPLODED DIAGRAMS

CYLINDER HEAD

- | | |
|------------------|----------------|
| 1. Washer | 5. Valve guide |
| 2. Rubber washer | 6. Circlip |
| 3. Gasket | 7. Stud bolt |
| 4. Spark plug | |



VALVE/CAM CHAIN

1. Cam chain

2. Cam sprocket

3. Camshaft (Exhaust)

4. Camshaft (Intake)

5. Chain tensioner body

6. Tensioner lock bolt

7. Tensioner rod (Large)

8. Tensioner rod (Small)

9. Guide stopper plate

10. Upper chain guide

11. Exhaust side chain guide

12. Intake side chain guide

13. Adjusting pad

14. Valve lifter

15. Valve retainer

16. Spring seat

17. Inner spring

18. Outer spring

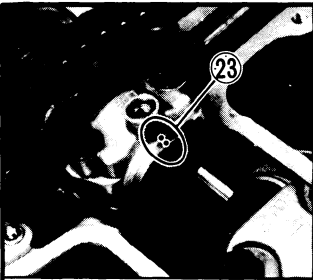
19. Spring seat

20. Oil seal

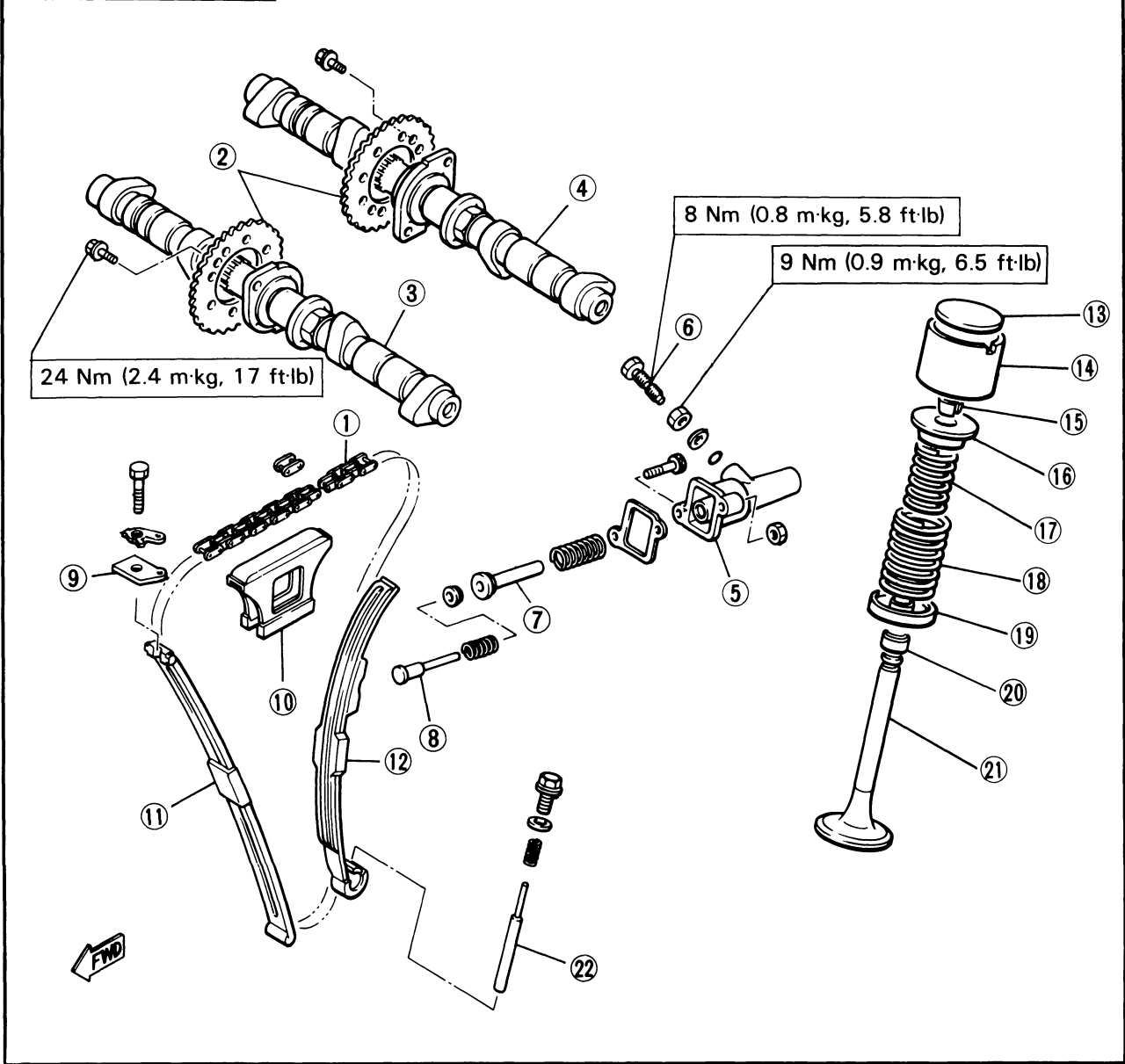
21. Valve

22. Chain guide stopper

23. Match mark



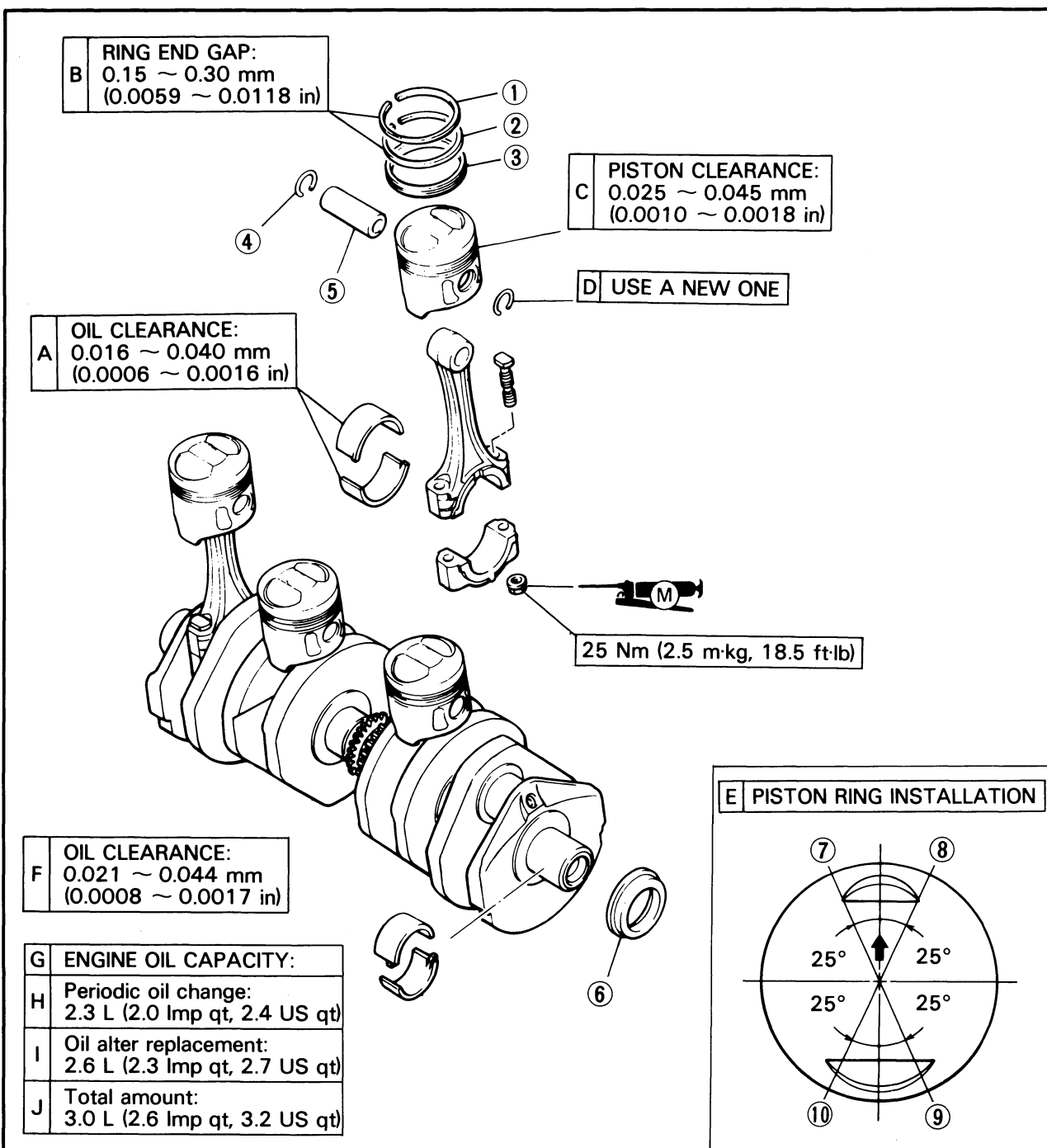
A VALVE CLEARANCE (COLD):		
B	Intake	0.11 ~ 0.15 mm (0.004 ~ 0.006 in)
	Exhaust	0.16 ~ 0.20 mm (0.006 ~ 0.008 in)





CRANKSHAFT/PISTON

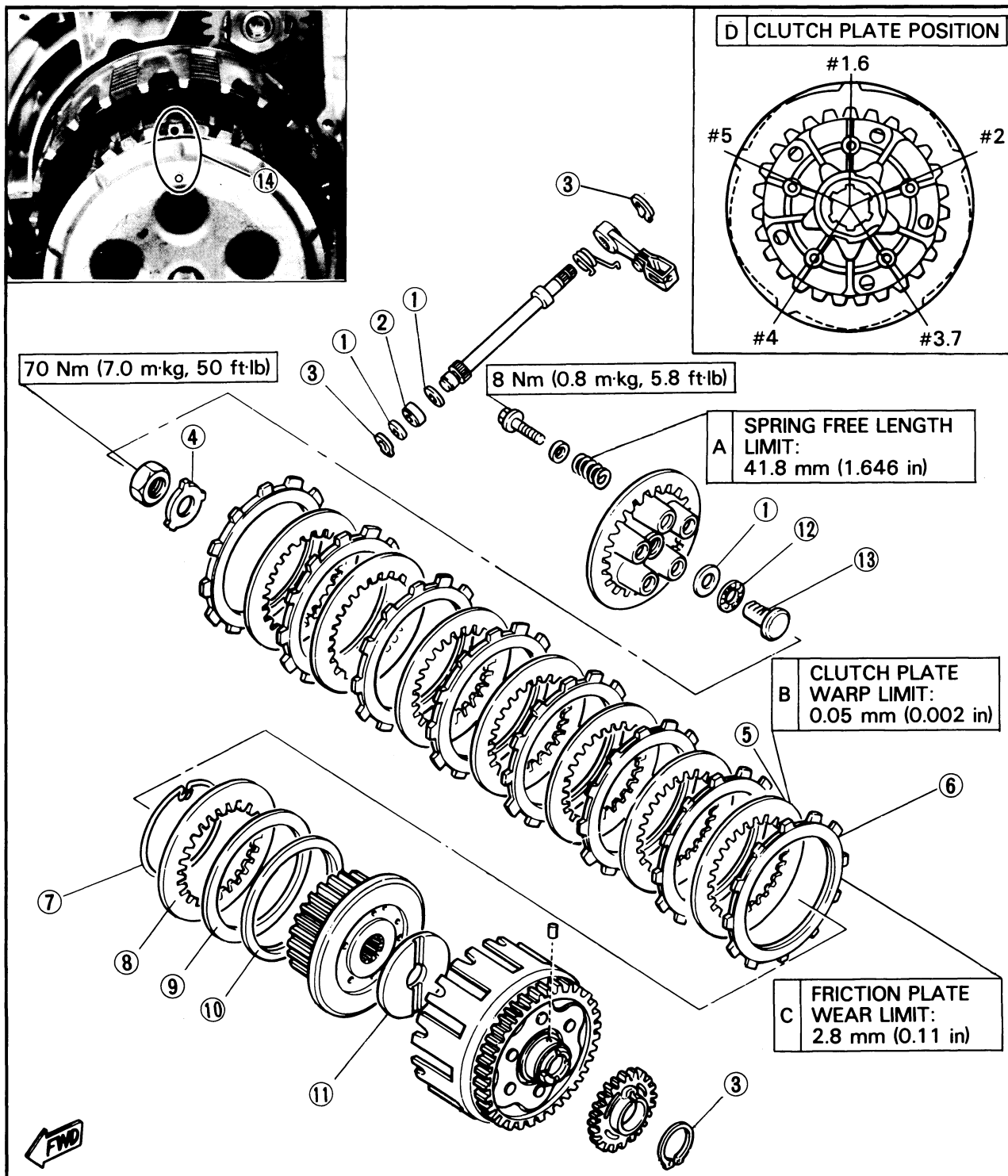
1. Top ring
2. Second ring
3. Oil ring
4. Circlip
5. Piston pin
6. Oil seal
7. Top ring
8. Oil ring (Lower rail)
9. Second ring
10. Oil ring (Upper rail)





CLUTCH

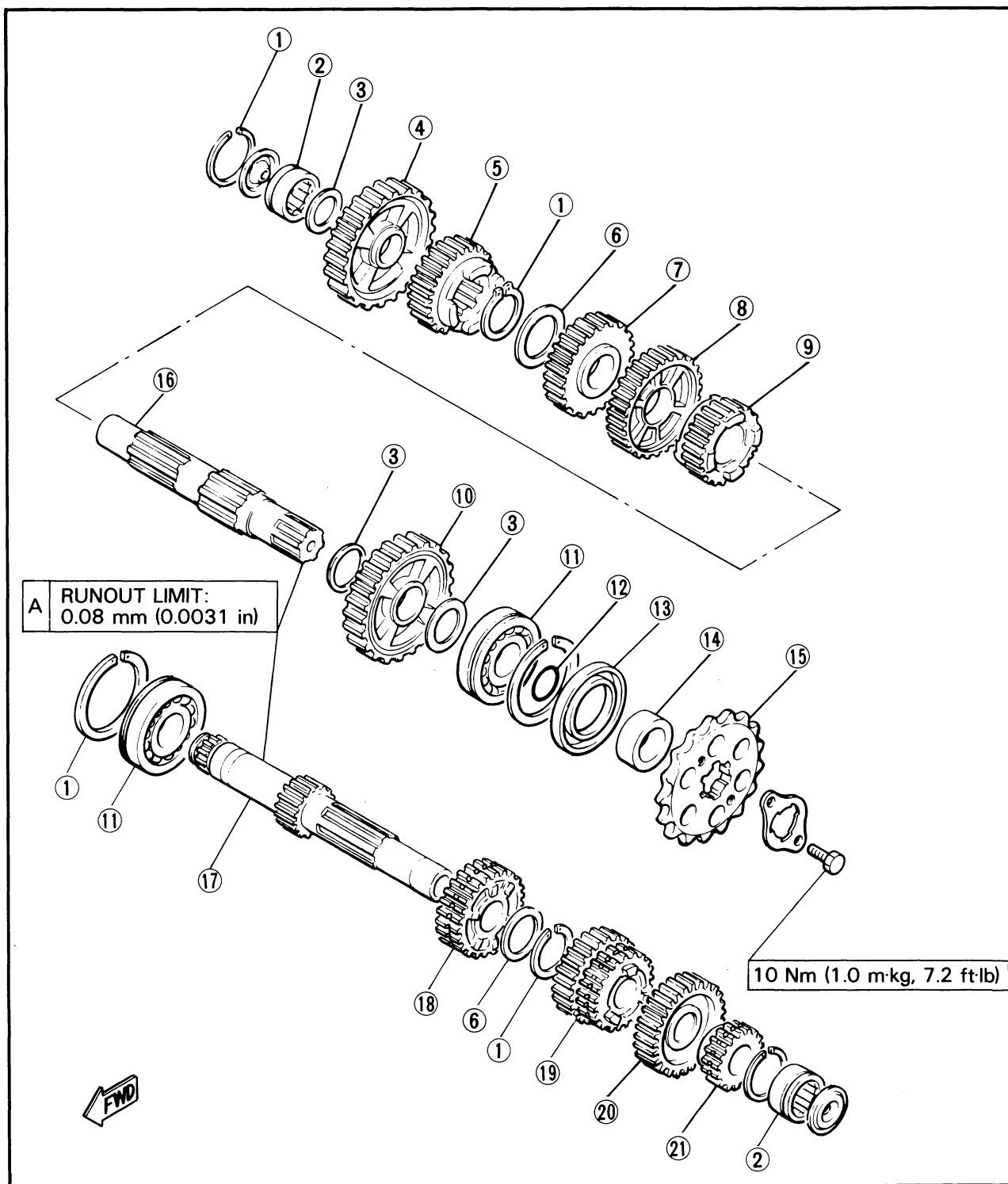
- | | |
|------------------------|-----------------------|
| 1. Plate washer | 8. Clutch plate |
| 2. Oil seal | 9. Clutch boss spring |
| 3. Circlip | 10. Spring seat |
| 4. Lock washer | 11. Thrust plate |
| 5. Clutch plate (#1) | 12. Bearing |
| 6. Friction plate (#1) | 13. Pull rod |
| 7. Wire clip | 14. Match mark |





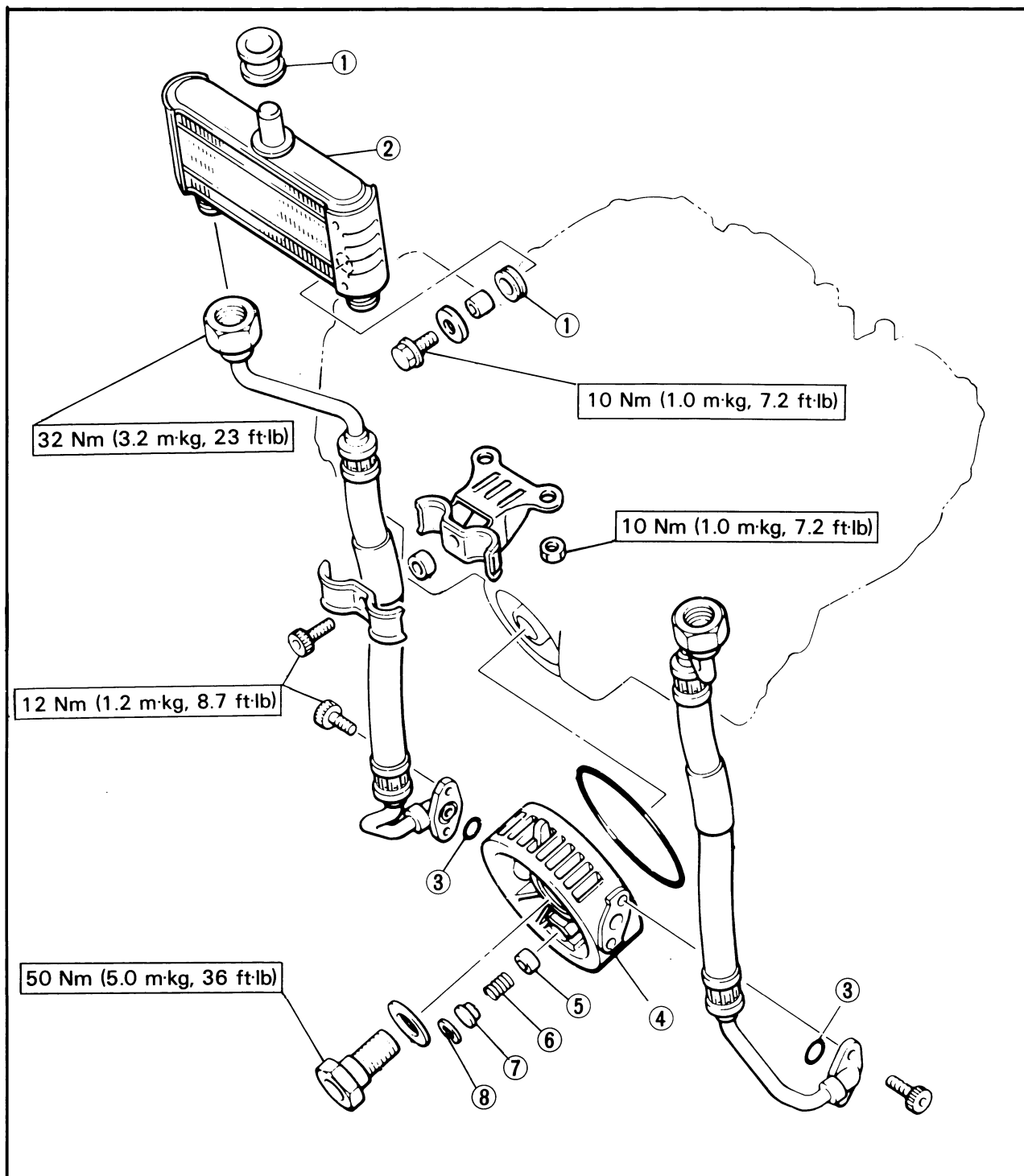
TRANSMISSION

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



OIL COOLER

1. Grommet
2. Oil cooler assembly
3. O-ring
4. Spacer
5. Plunger
6. Spring
7. Washer
8. Circlip



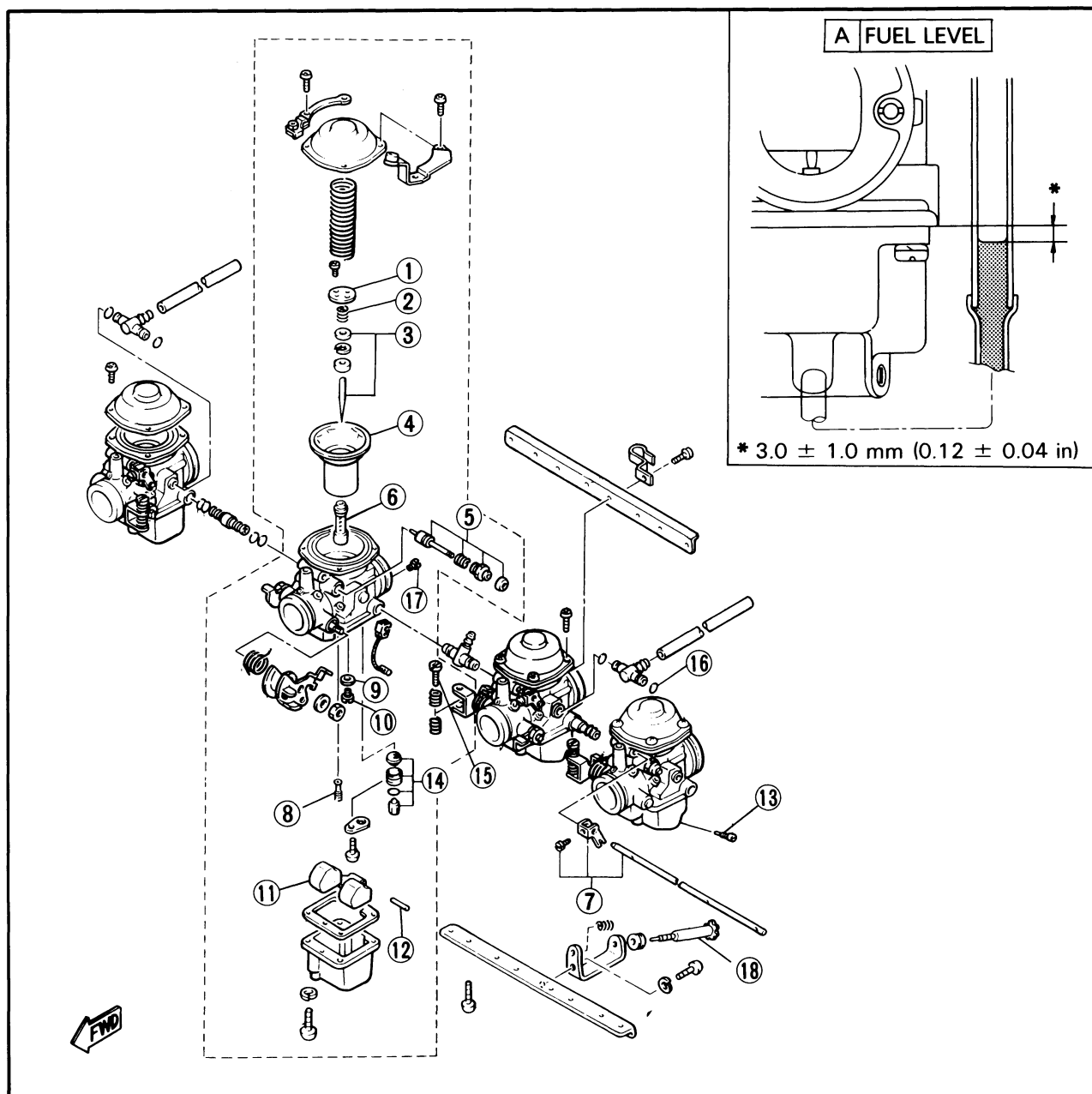


CARBURETOR

- | | |
|---------------------|-------------------------|
| 1. Jet needle cover | 9. Main jet washer |
| 2. Set spring | 10. Main jet |
| 3. Jet needle | 11. Float |
| 4. Piston valve | 12. Float pin |
| 5. Starter plunger | 13. Drain screw |
| 6. Main nozzle | 14. Float valve |
| 7. Starter lever | 15. Synchronizing screw |
| 8. Pilot jet | 16. O-ring |
| | 17. Pilot air jet |
| | 18. Throttle stop screw |

SPECIFICATIONS

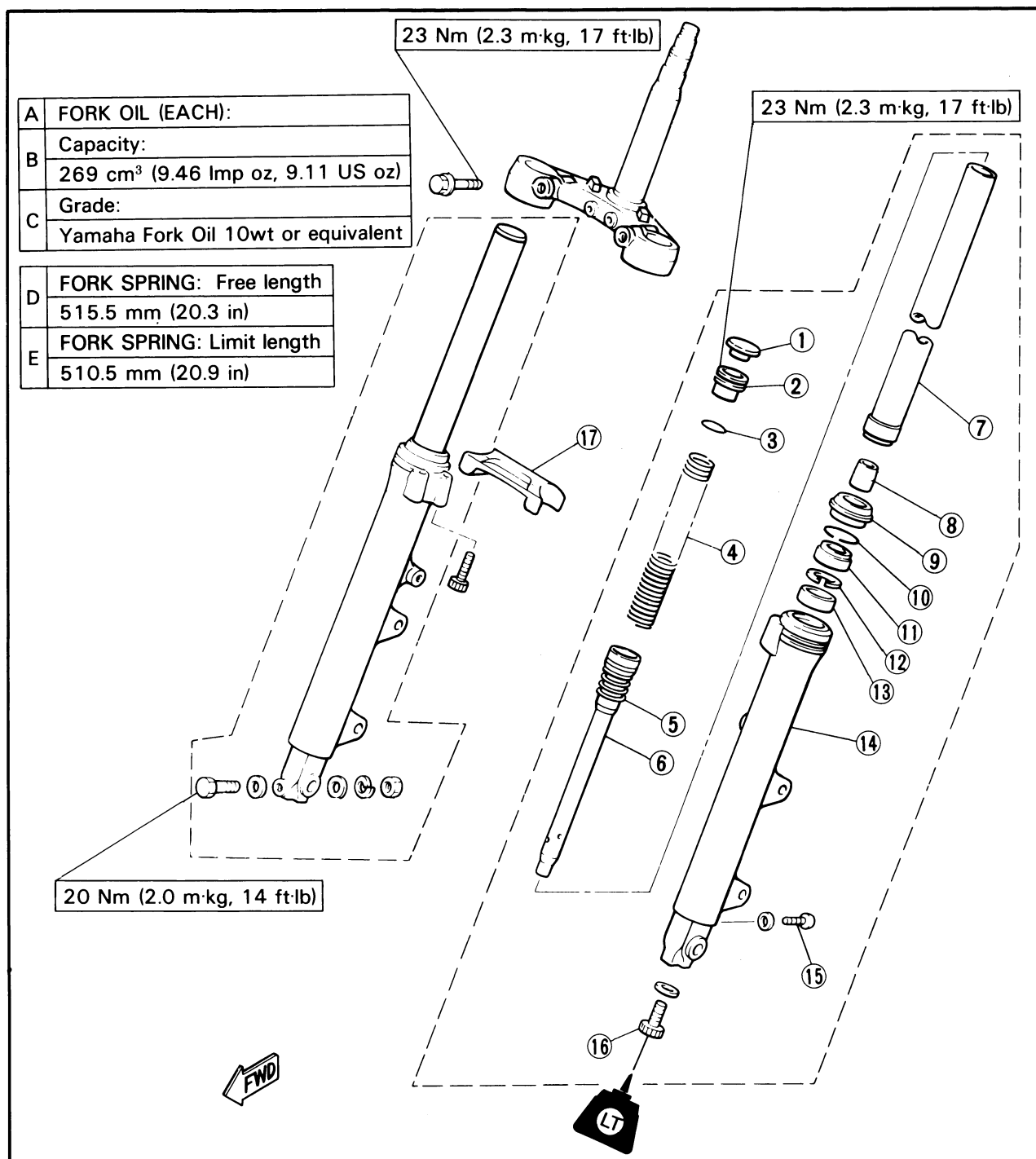
Main jet	
For No.1 and No.2 cylinder	#105
For No.3 and No.4 cylinder	#102.5
Jet needle	
No.1, 3 and 4 cylinder	4CP4
No.2 cylinder	4CP6
Needle jet	
	N-8
Starter jet	
	#42.5
Fuel level	
	3.0 ± 1.0 mm (0.12 ± 0.4 in)
Pilot screw	
	Preset
Float valve seat	
	φ2.0
Engine idle speed	
	1200 ± 50r/min





FRONT FORK

- | | |
|----------------------|------------------------------|
| 1. Rubber cap | 10. Retaining clip |
| 2. Cap bolt | 11. Oil seal |
| 3. O-ring | 12. Washer |
| 4. Fork spring | 13. Bushing |
| 5. Damper rod spring | 14. Outer fork tube |
| 6. Damper rod | 15. Drain bolt |
| 7. Inner fork tube | 16. Damper rod securing bolt |
| 8. Taper spindle | 17. Front fork brace |
| 9. Dust cover | |

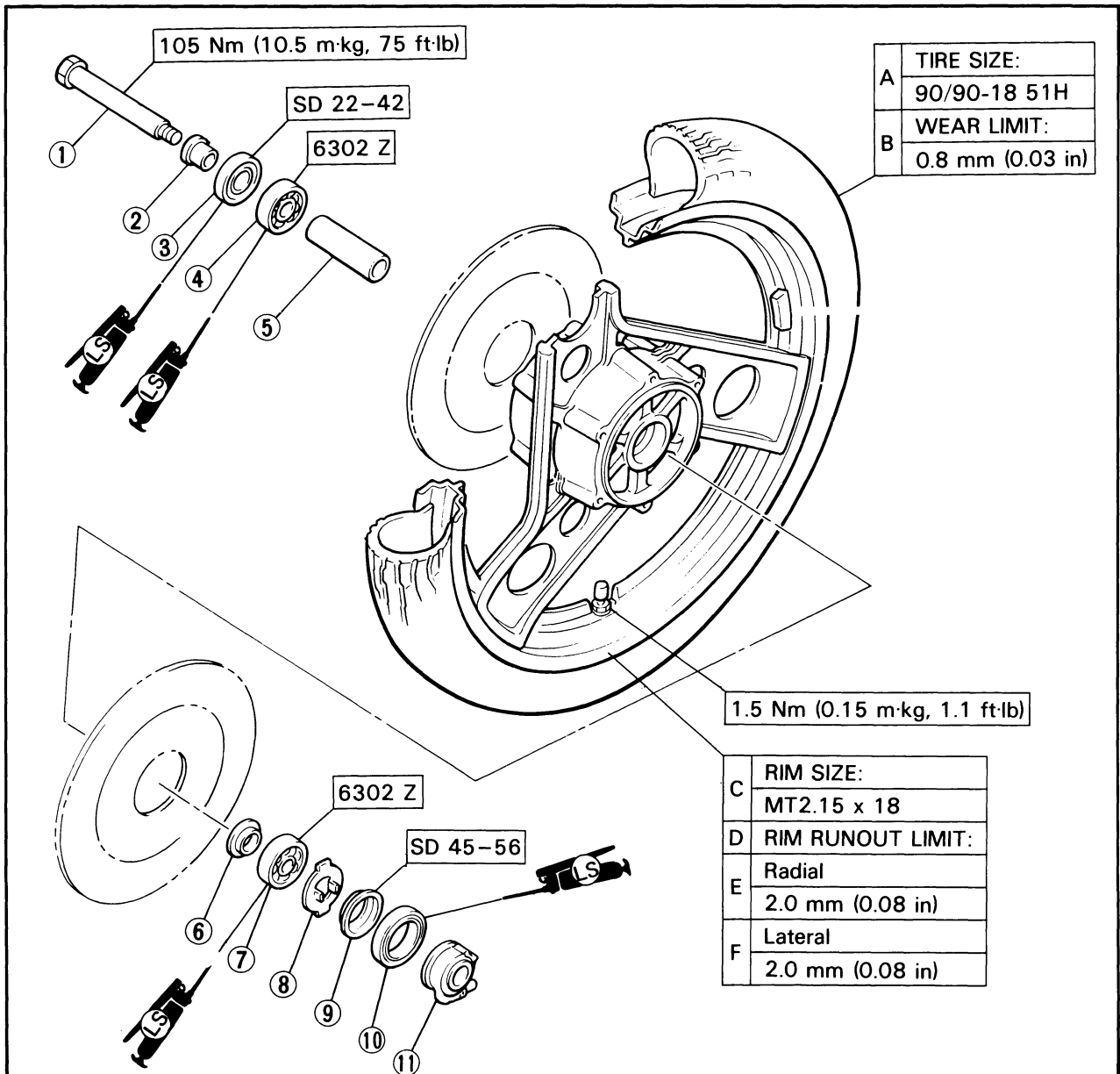


FRONT WHEEL

- | | |
|------------------|------------------------|
| 1. Front axle | 7. Bearing |
| 2. Collar | 8. Meter clutch |
| 3. Oil seal | 9. Clutch retainer |
| 4. Bearing | 10. Oil seal |
| 5. Spacer | 11. Gear unit assembly |
| 6. Spacer flange | |

TIRE AIR PRESSURE (COLD):		
Basic weight: With oil and full fuel tank	208 kg (459 lb)	
Maximum load*	188 kg (414 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	177 kPa (1.8 kg/cm ² , 26 psi)	196 kPa 2.0 kg/cm ² 28 psi)
90 kg (198 lb)~ Maximum load*	196 kPa (2.0 kg/cm ² , 28 psi)	226 kPa (2.3 kg/cm ² , 32 psi)
High speed riding	196 kPa (2.0 kg/cm ² , 28 psi)	226 kPa (2.3 kg/cm ² , 32 psi)

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



REAR WHEEL

1. Rear axle

2. Chain puller

3. Oil seal

4. Bearing

5. Spacer flange

6. Spacer

7. Bearing

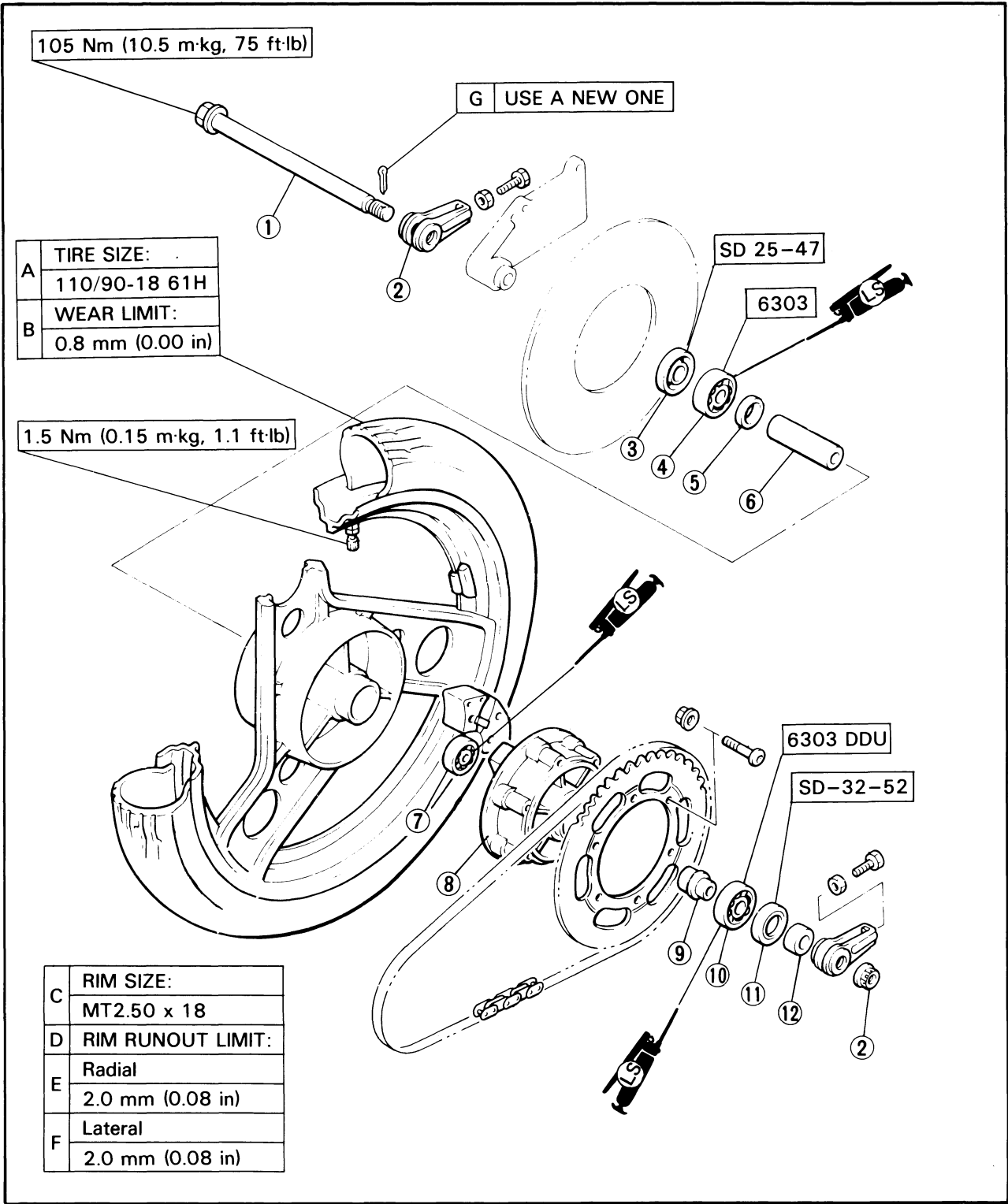
8. Clutch hub

9. Collar

10. Bearing

11. Oil seal

12. Collar

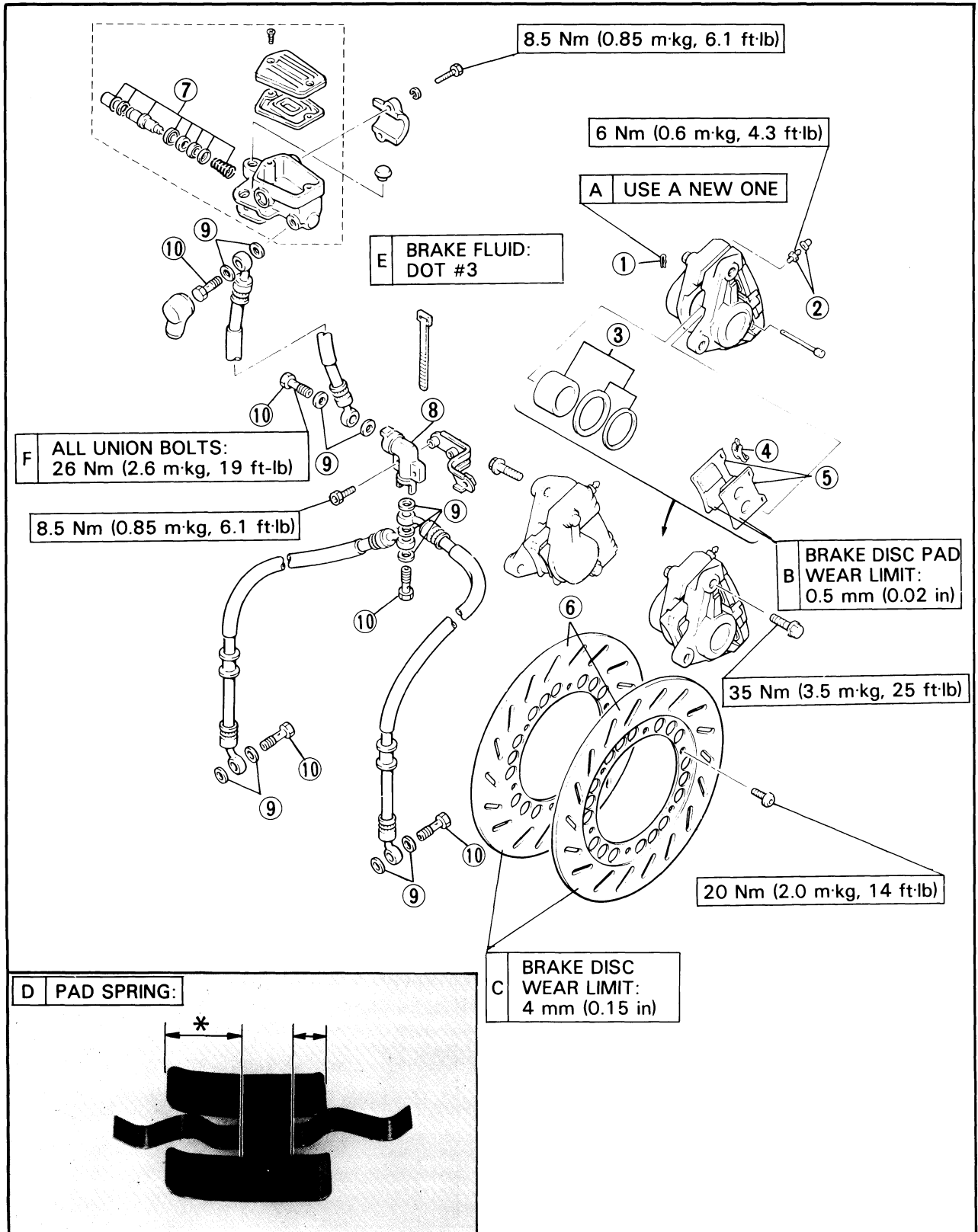




FRONT BRAKE

- | | |
|----------------------------|------------------------|
| 1. Circlip | 6. Brake disc |
| 2. Bleed screw | 7. Master cylinder kit |
| 3. Caliper piston assembly | 8. Brake joint |
| 4. Pad spring | 9. Copper washer |
| 5. Front brake pad | 10. Union bolt |

* Install the pad spring with its longer tangs in the disc rotation direction.



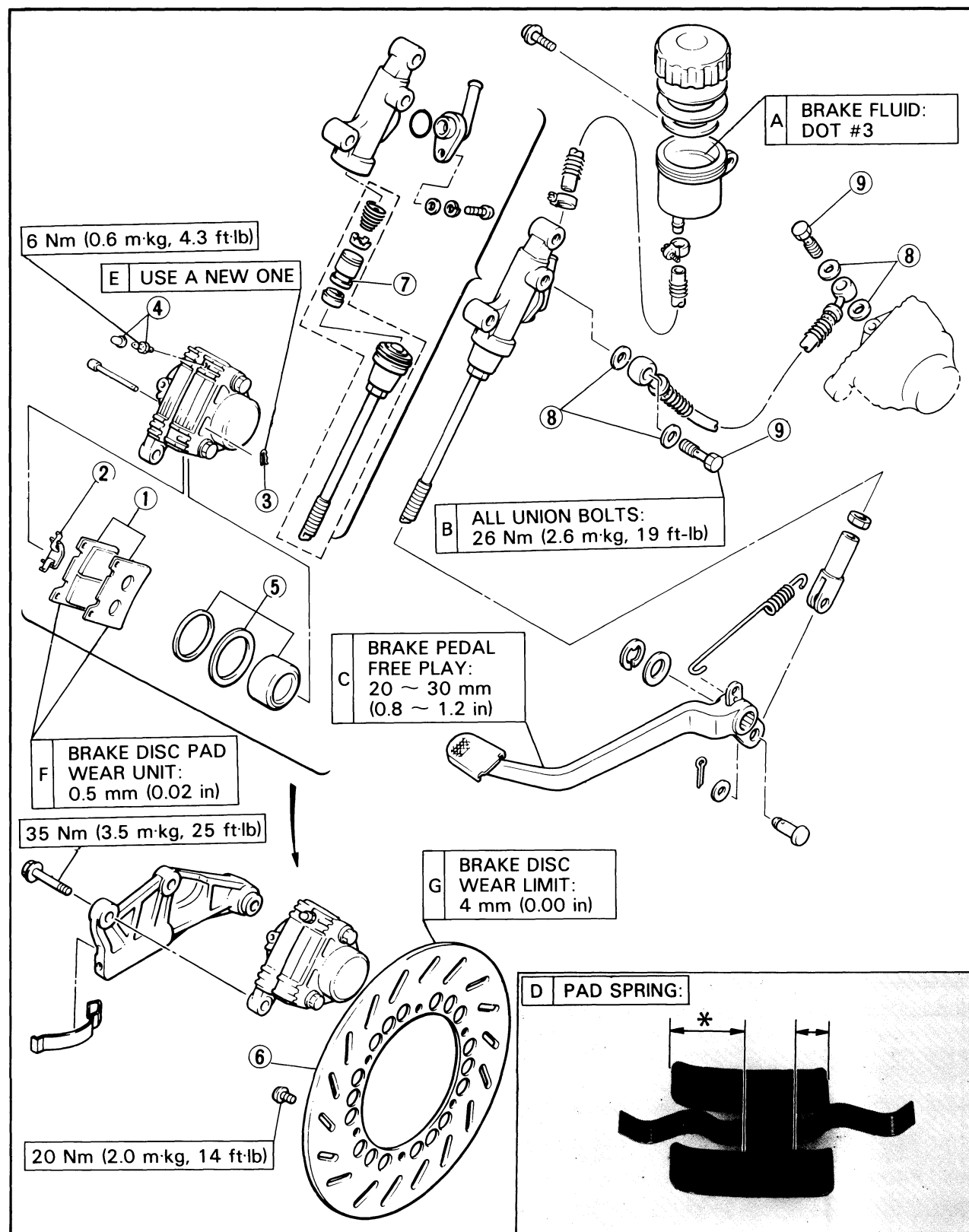


REAR BRAKE

1. Rear brake pad
2. Pad spring
3. Circlip
4. Bleed screw
5. Caliper piston assembly

6. Brake disc
7. Master cylinder kit
8. Copper washer
9. Union bolt

* Install the pad spring with its longer tangs in the disc rotation direction.



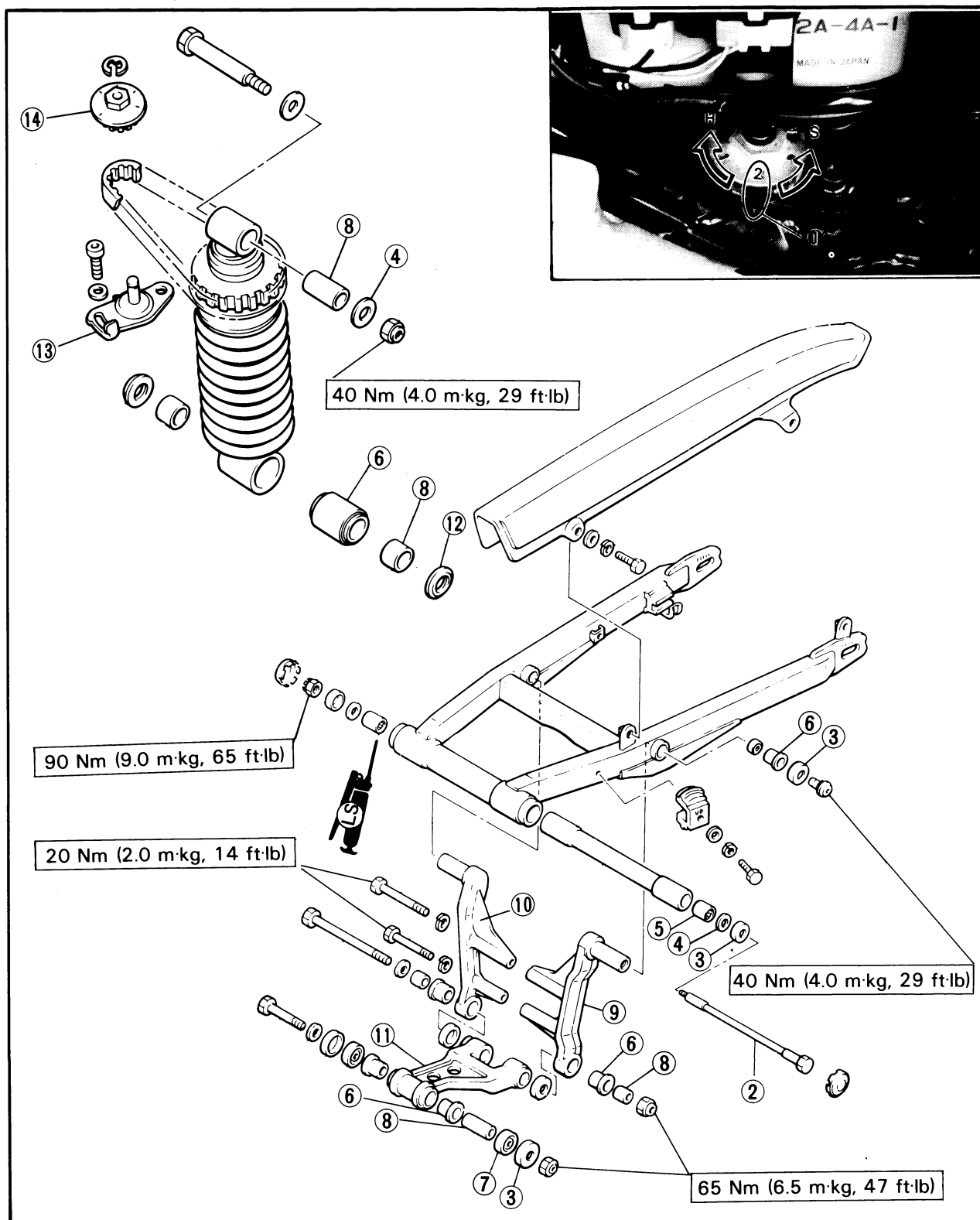


SWINGARM/REAR SHOCK ABSORBER

- | | |
|------------------------------|--------------------|
| 1. Spring preload match mark | 8. Collar |
| 2. Pivot shaft | 9. Arm 1 |
| 3. Thrust cover | 10. Arm 2 |
| 4. Plate washer | 11. Relay arm |
| 5. Bearing | 12. Dust cover |
| 6. Bushing | 13. Pulley bracket |
| 7. Oil seal | 14. Pulley |

SPRING PRELOAD ADJUSTMENT:

	H			STD	S
Adjusting position	5	4	3	2	1



ELECTRICAL COMPONENTS 1

1. Fuse

2. Diode

3. Rectifier/Regulator

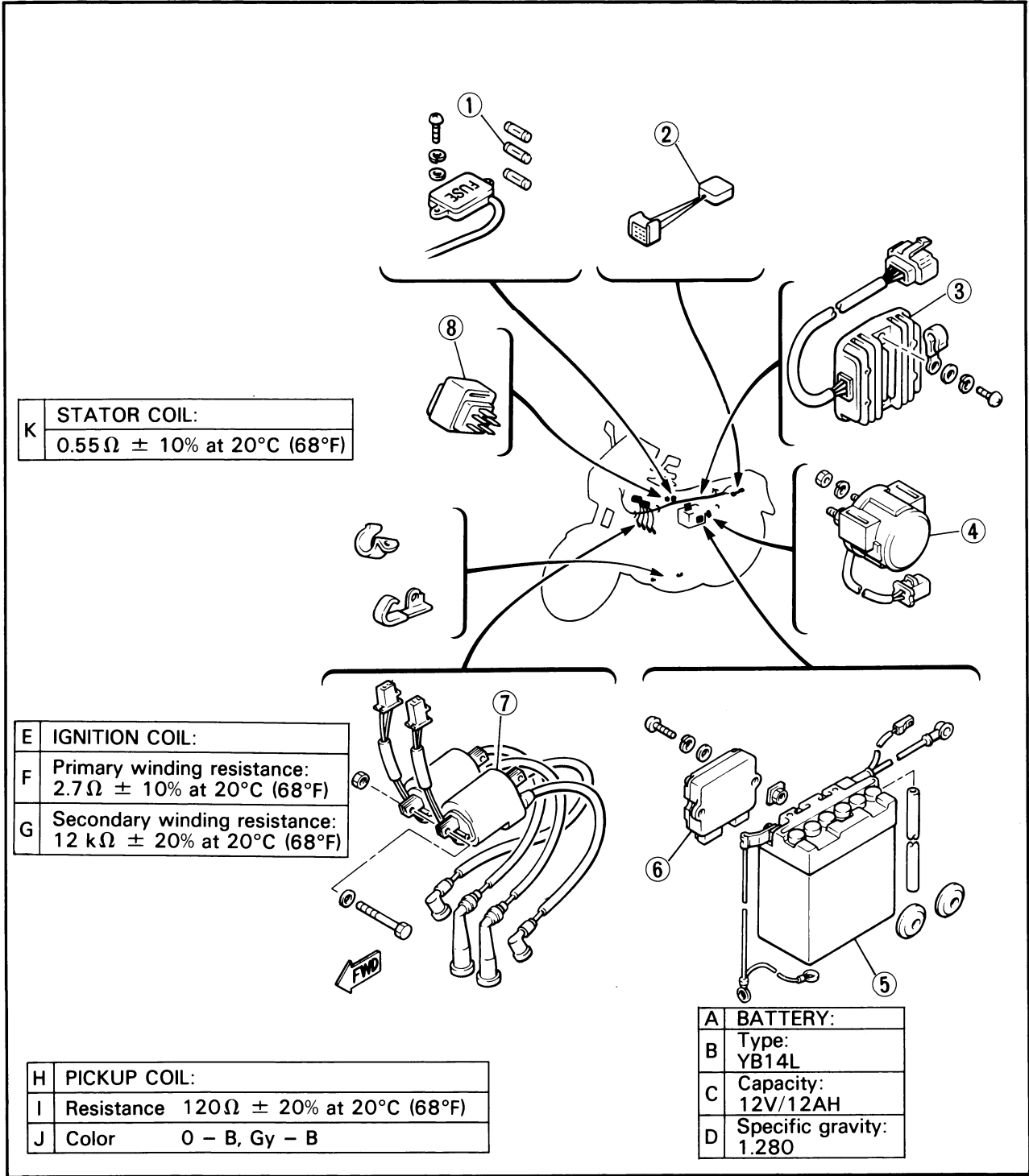
4. Starter relay

5. Battery

6. Igniter unit

7. Ignition coil assembly

8. Sidestand relay

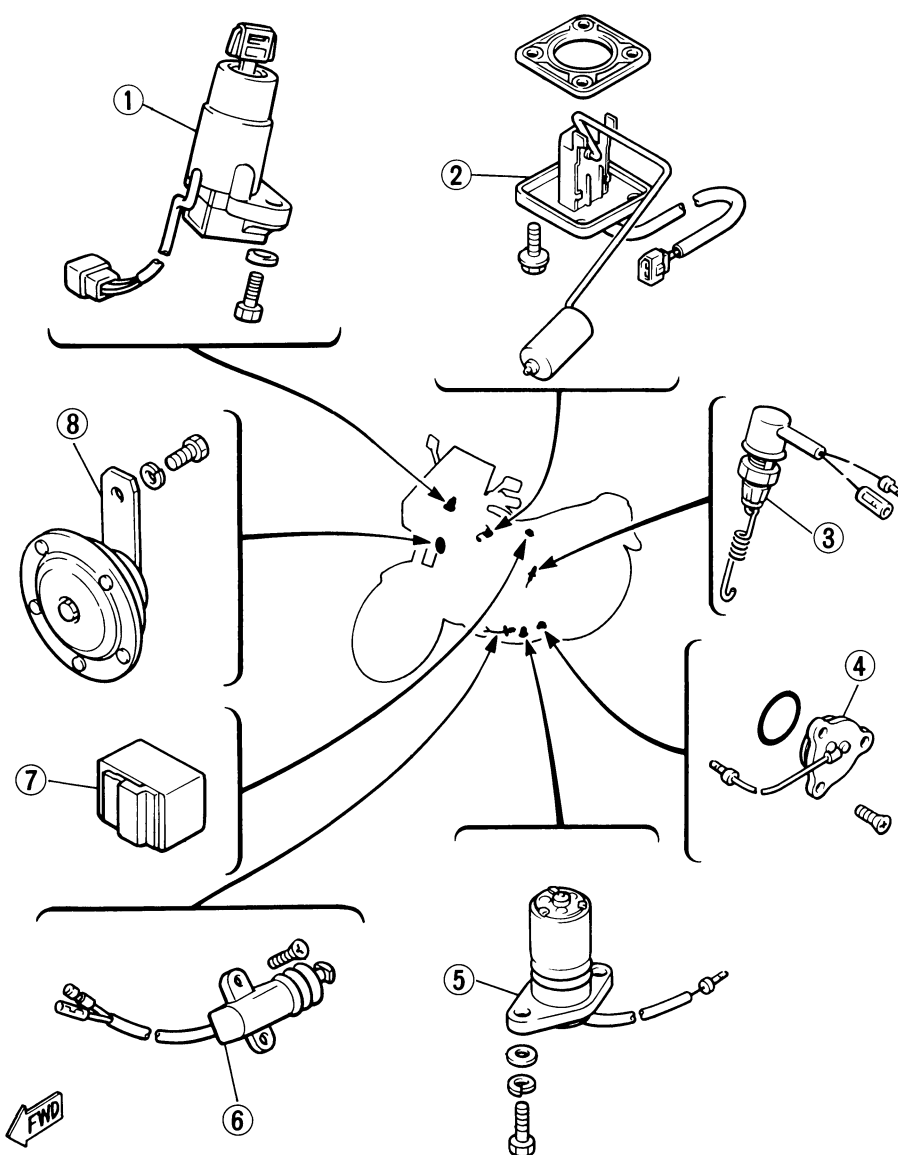




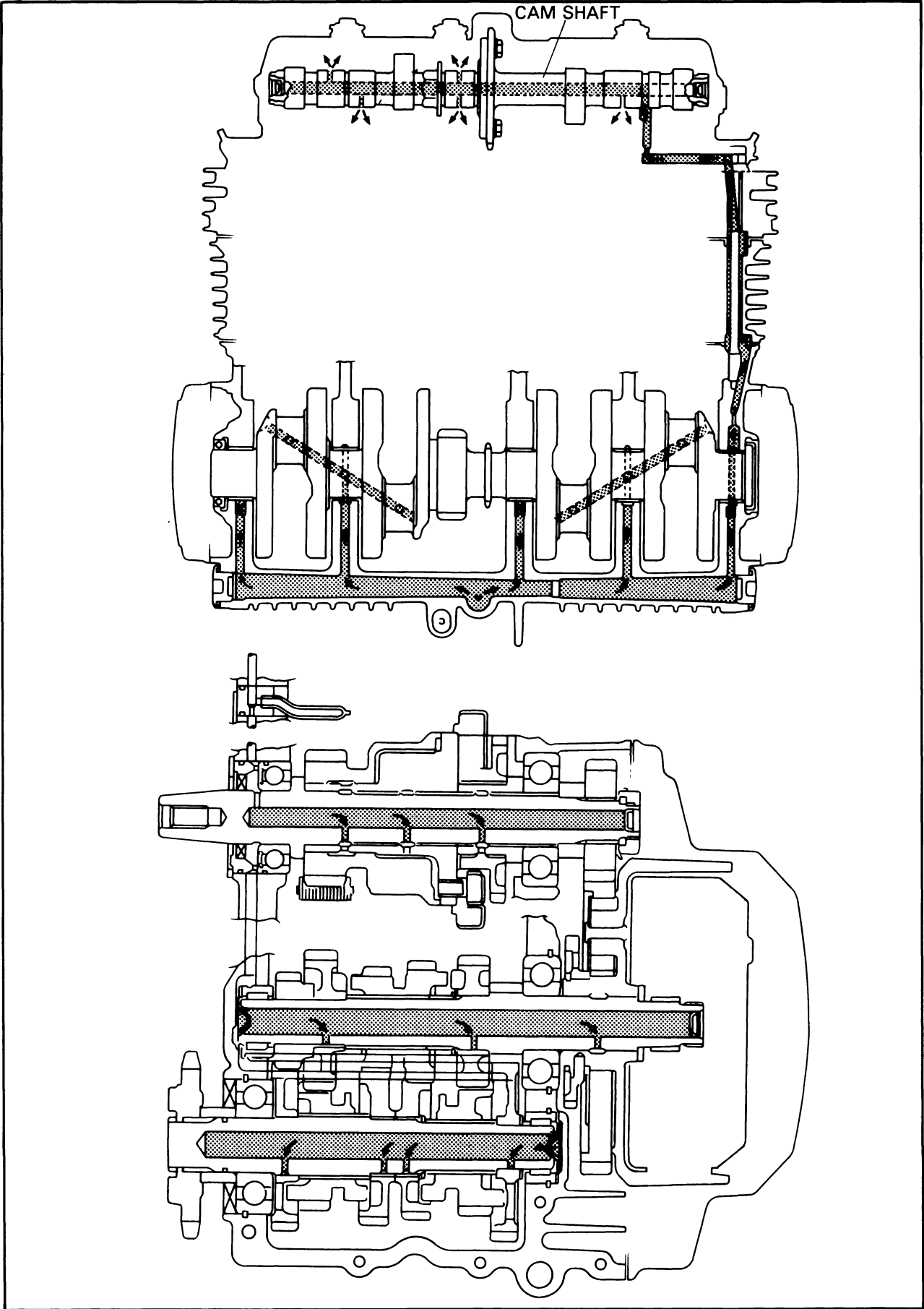
ELECTRICAL COMPONENTS 2

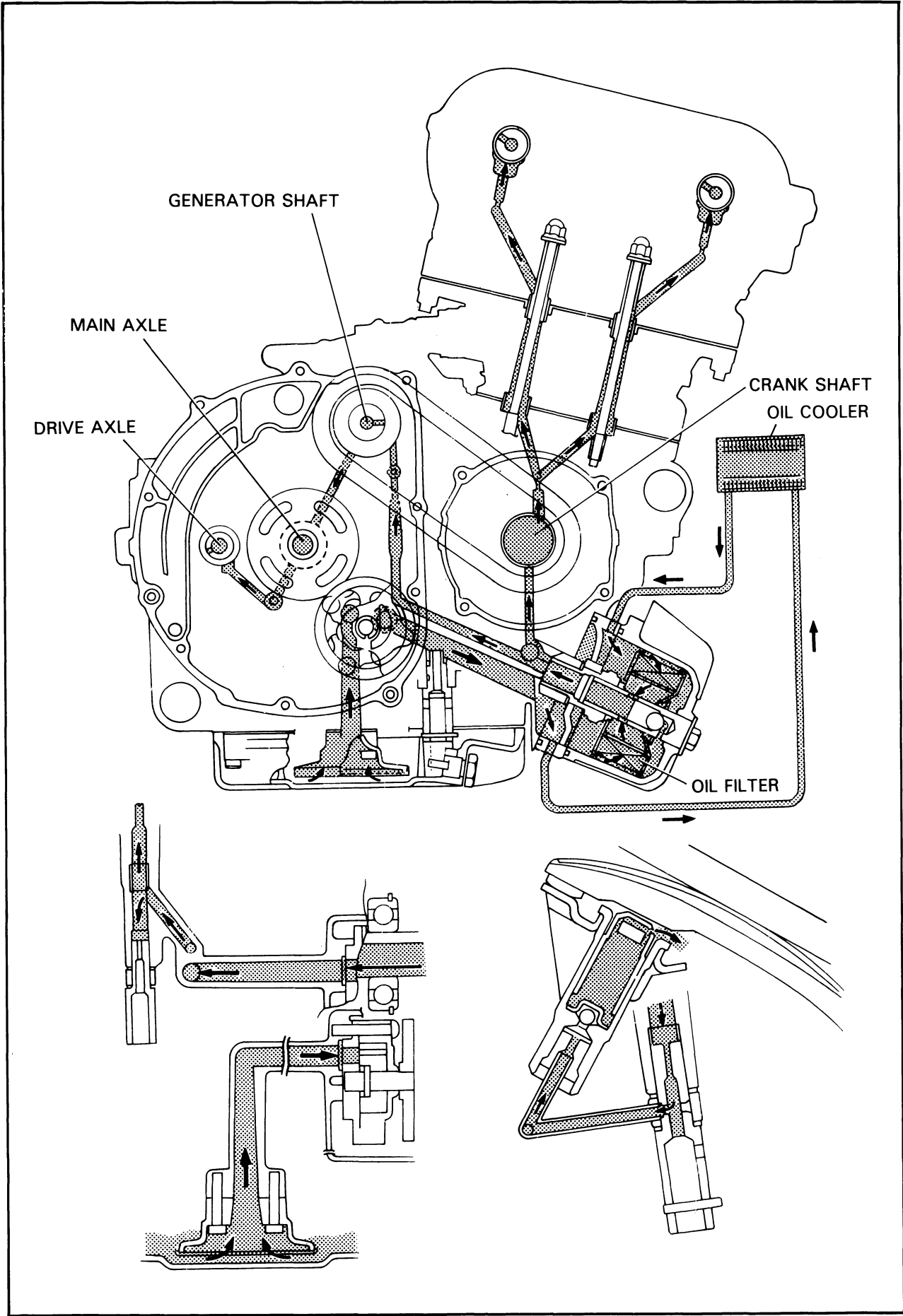
1. Main switch
2. Fuel sensor
3. Rear brake switch
4. Neutral switch
5. Oil level switch
6. Sidestand switch
7. Relay assembly
8. Horn

SPECIFICATIONS:	RESISTANCE:
Fuel gauge: (Full)	$7\ \Omega \pm 5\%$
(Empty)	$95\ \Omega \pm 7.5\%$
Starter switch:	$9.5\ \Omega \pm 10\%$



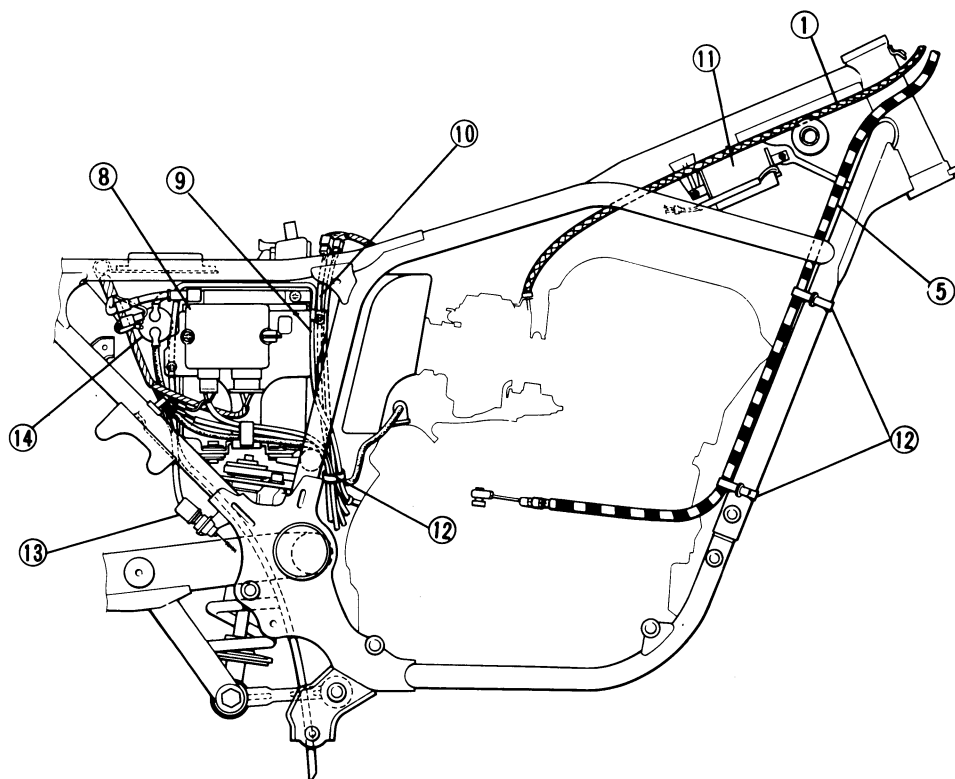
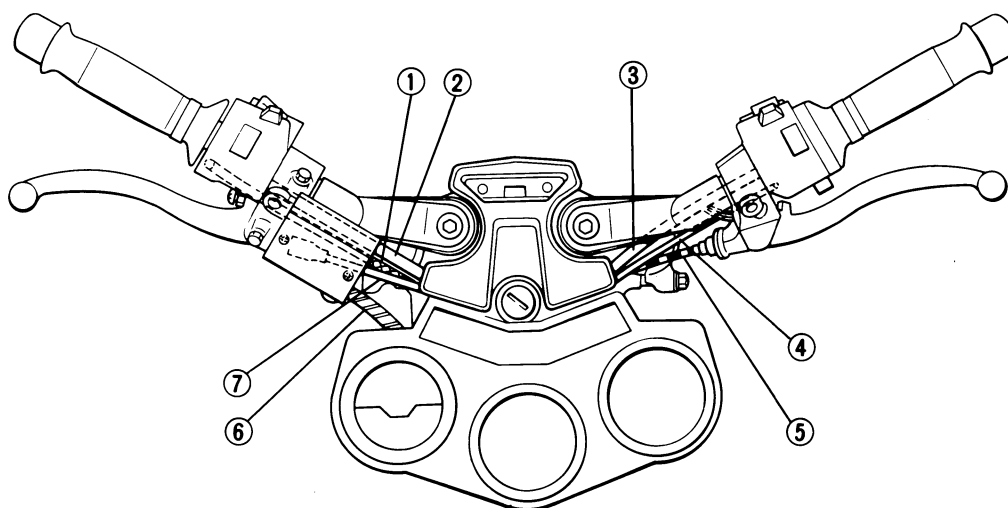
LUBRICATION DIAGRAM





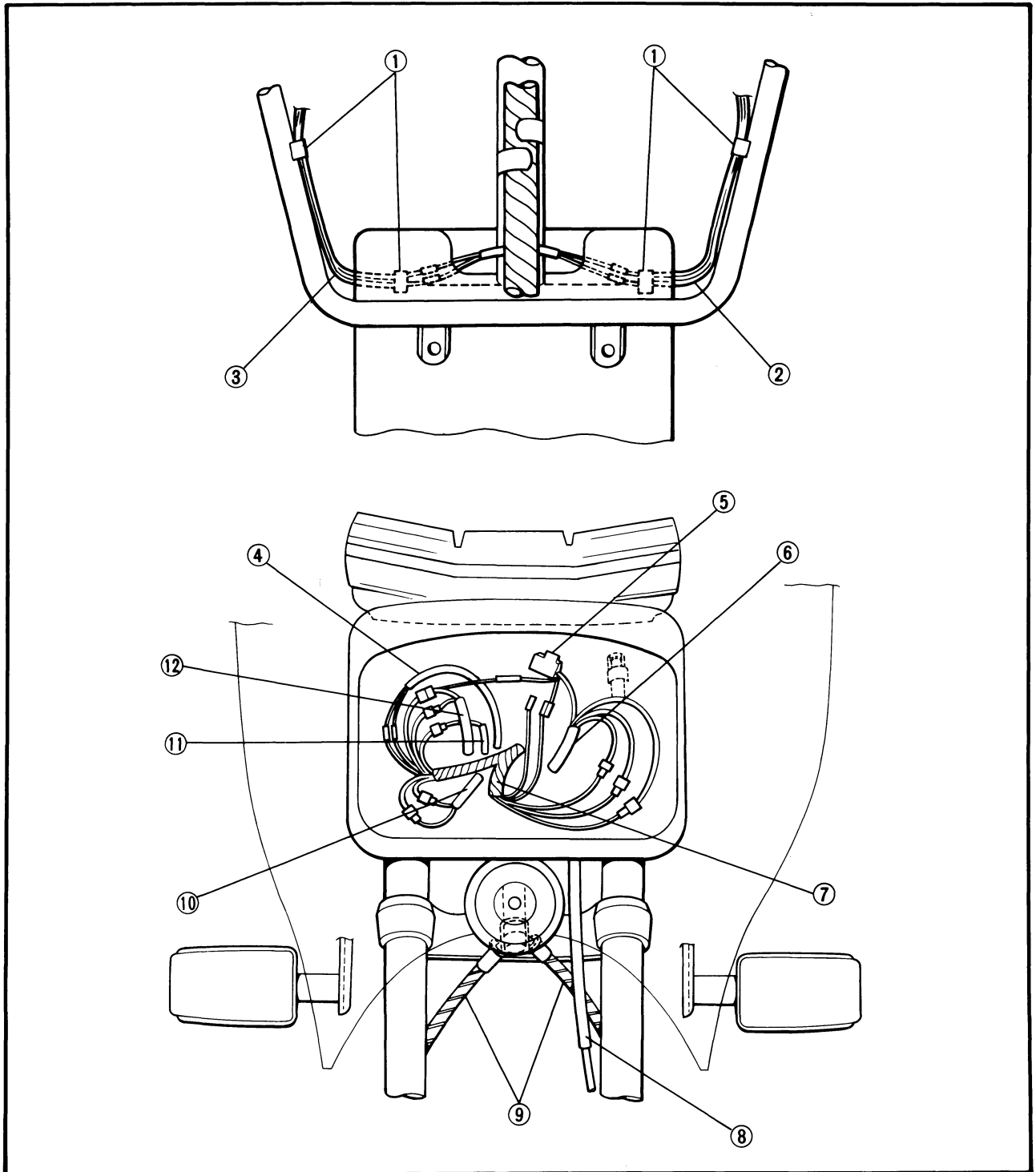
CABLE ROUTING (1)

- | | |
|----------------------------------|--|
| 1. Throttle cable | 10. A.C.G. lead: |
| 2. Handlebar switch lead (Right) | Pass through the A.C.G. lead between the |
| 3. Handlebar switch lead (Left) | battery box and the air cleaner case. |
| 4. Starter cable | 11. Ignition coil (Right) |
| 5. Clutch cable | 12. Band |
| 6. Front brake hose | 13. Stop switch |
| 7. Front brake stop switch lead | 14. Starter switch |
| 8. Ignitor unit | |
| 9. Earth lead | |



CABLE ROUTING (2)

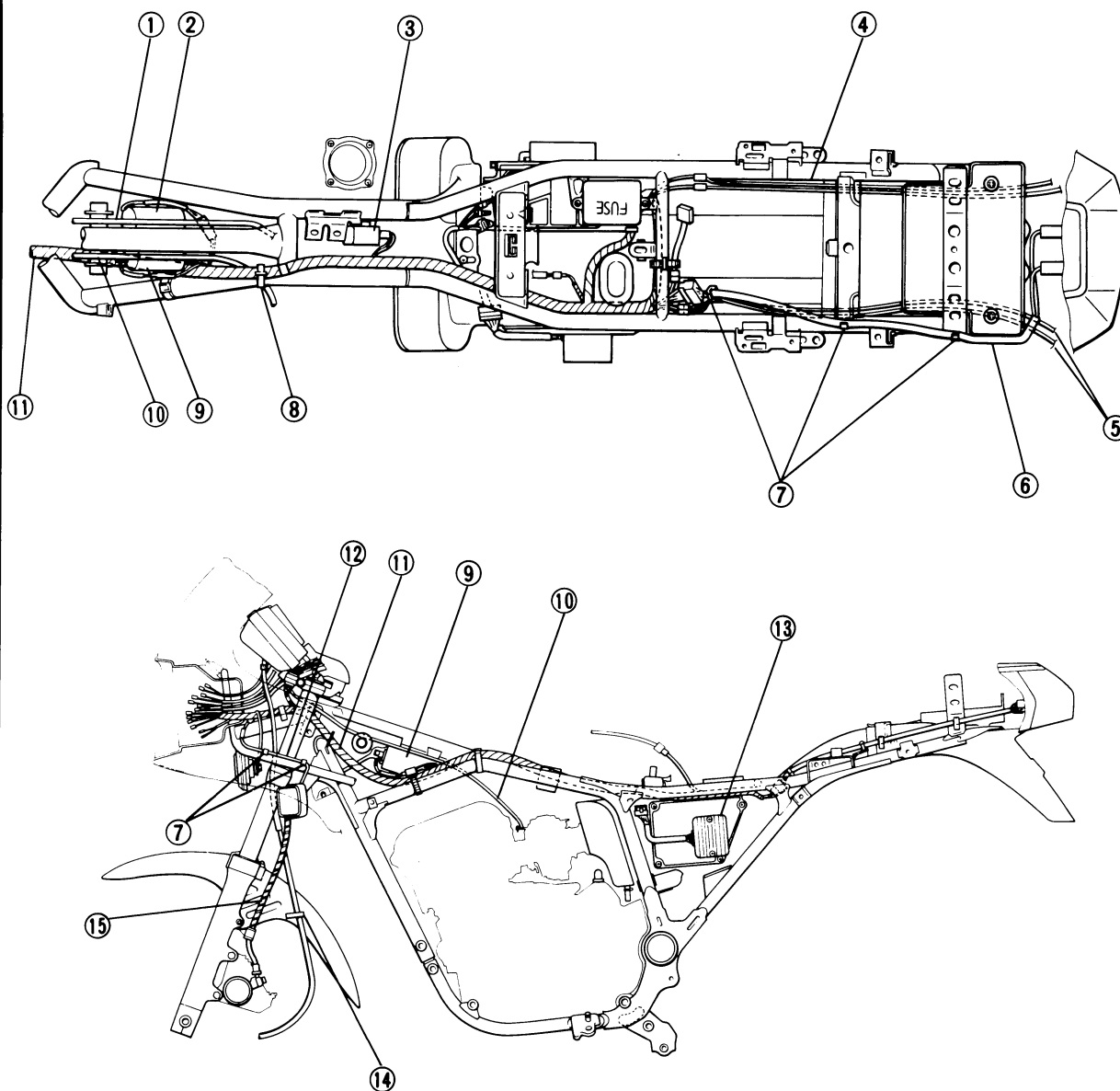
1. Clamp
2. Front flasher light lead (Left)
3. Front flasher light lead (Right)
4. Front brake stop switch lead
5. To headlight lens unit
6. Handlebar switch lead (Left)
7. Wireharness
8. Speedometer cable
9. Front brake hose
10. Handlebar switch lead (Right)
11. Main switch lead
12. Meter lead





CABLE ROUTING (3)

- | | |
|--|---|
| 1. Throttle cable | 9. Ignition coil (Left) |
| 2. Ignition coil (Right) | 10. Starter cable |
| 3. Flasher light relay | 11. Wireharness |
| 4. Rear flasher light lead (Right) | 12. Front flasher light lead (Left) |
| 5. Rear flasher light lead (Left) | 13. Rectifier with regulator |
| 6. Taillight lead | 14. Pass the speedometer cable through the cable guide. |
| 7. Clamp | 15. Front brake hose |
| 8. Clamp the wireharness only with the band. | |



CABLE ROUTING (4)

1. Battery breather pipe
2. Battery
3. Pass the battery breather pipe through the front hole on the relay arm.

