YAMAHA

XT250/ XT350 '85

55V-ME1

SERVICE MANUAL

XT250/350
SERVICE MANUAL

1st Edition, October 1984

NOTICE

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

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

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

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

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

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

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

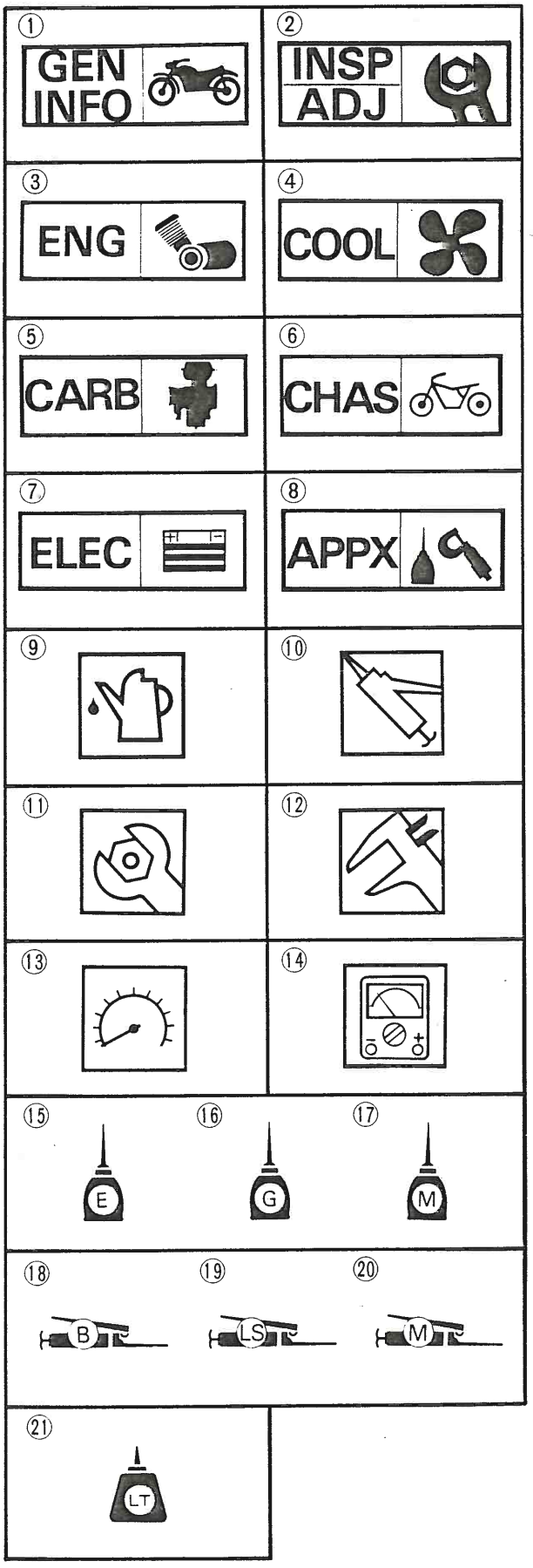
MANUAL FORMAT

All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.
In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

•Bearings
Pitting/Damage→Replace.

EXPLODED DIAGRAM

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



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to 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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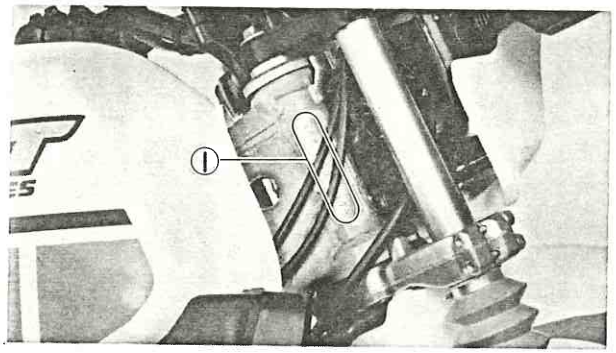
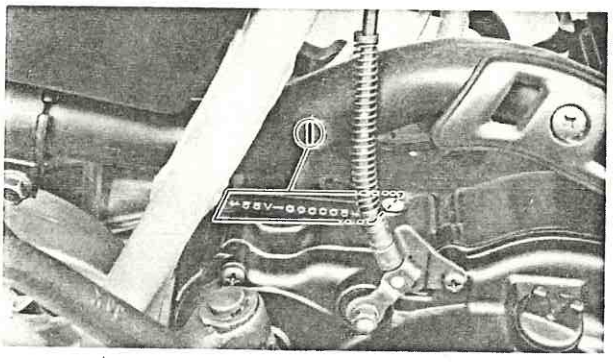
CHAPTER 1.
GENERAL INFORMATION





GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

FRAME SERIAL NUMBER

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

ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the right side of the engine.

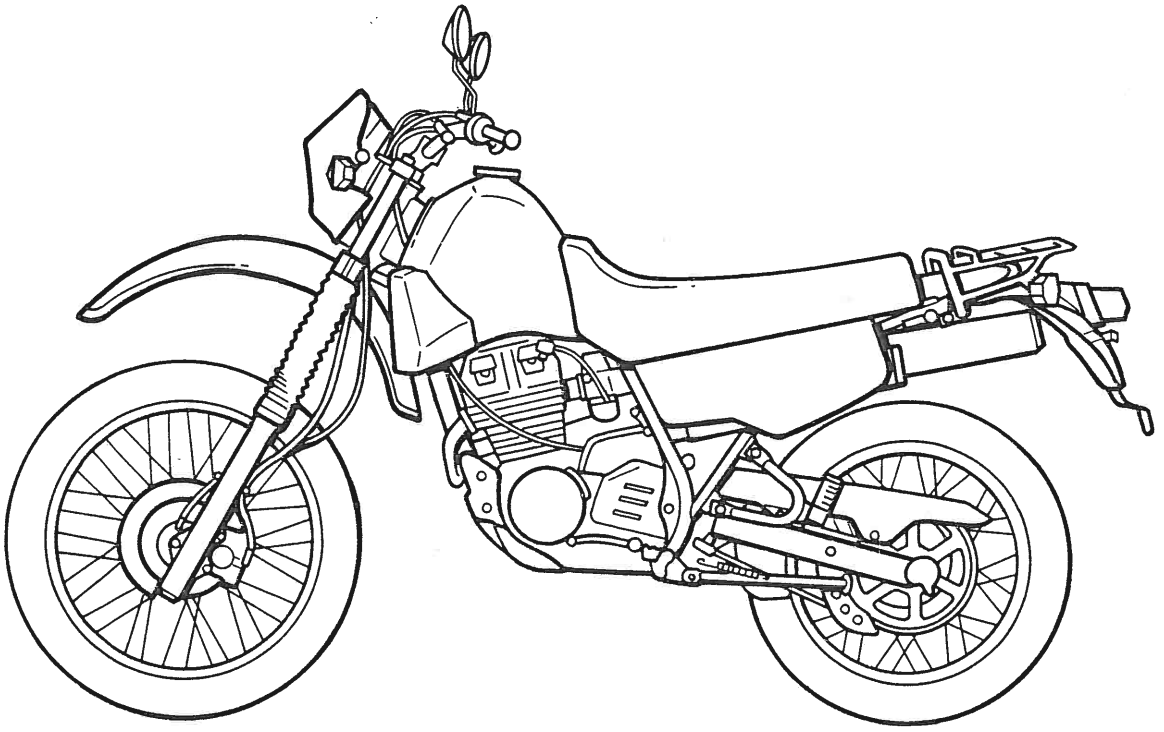
NOTE:

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

Starting Serial Number:
XT250.....1EU-000101 (For Switzerland)
XT350.....55V-000101
XT350.....55V-015101 (For Germany)

NOTE:

Designs and specifications are subject to change without notice.



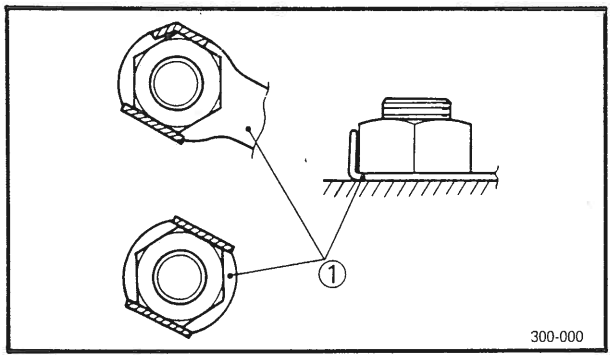
IMPORTANT INFORMATION

ALL REPLACEMENT PARTS

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

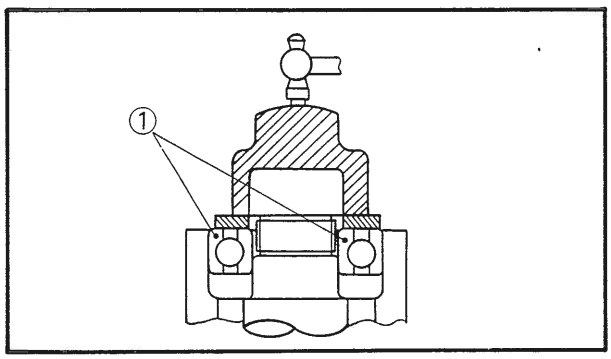
GASKETS, OIL SEALS, AND O-RINGS

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.



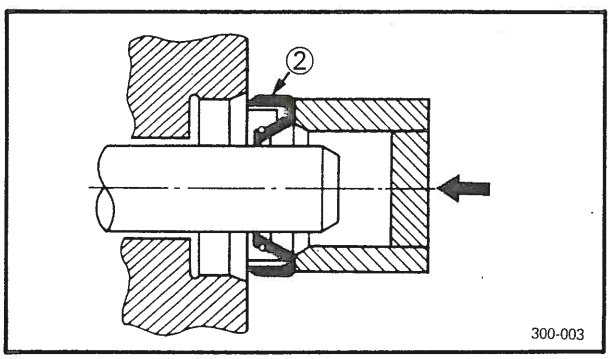
LOCK WASHERS/PLATES AND COTTER PINS

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.



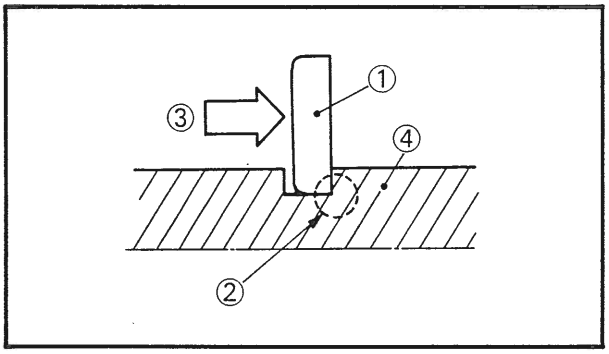
BEARINGS AND OIL SEALS

1. Install the bearing(s) ① and oil seal(s) ② 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.



CAUTION:

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



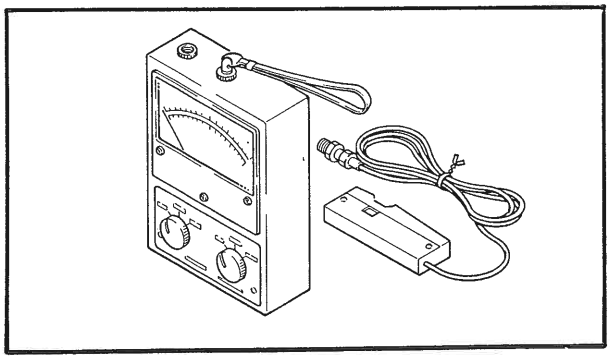
CIRCLIPS

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

④ Shaft

SPECIAL TOOLS

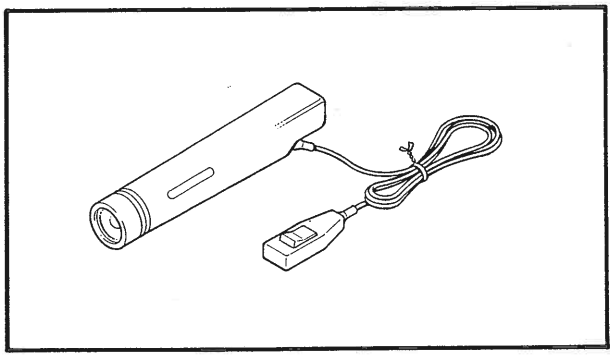
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



FOR TUNE UP

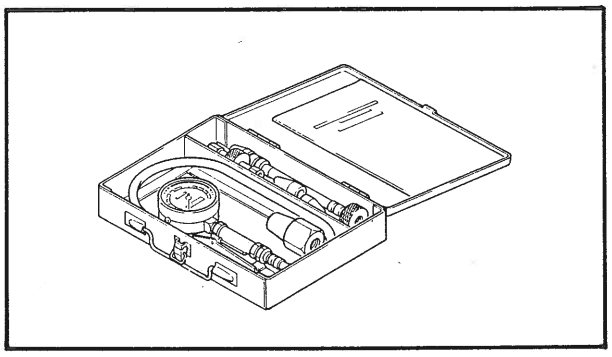
1. Inductive Tachometer
   P/N. 90890-03113

This tool is needed for detecting engine rpm.



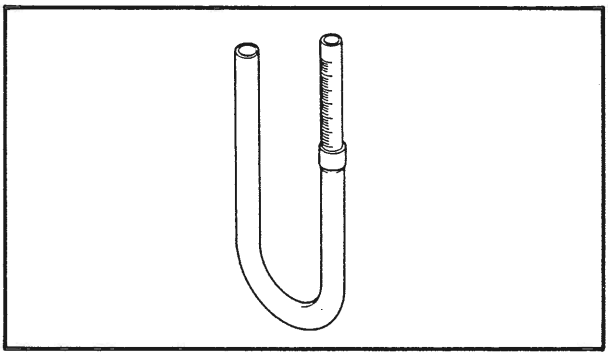
2. Inductive Timing Light
   P/N. 90890-03109

This tool is necessary for checking ignition timing.



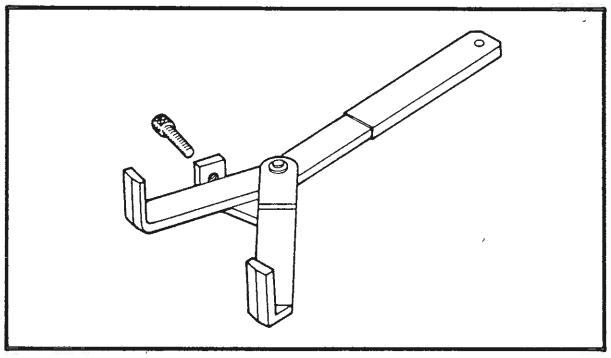
3. Compression Gauge
   P/N. 90890-03081

This gauge is used to measure the engine compression.



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

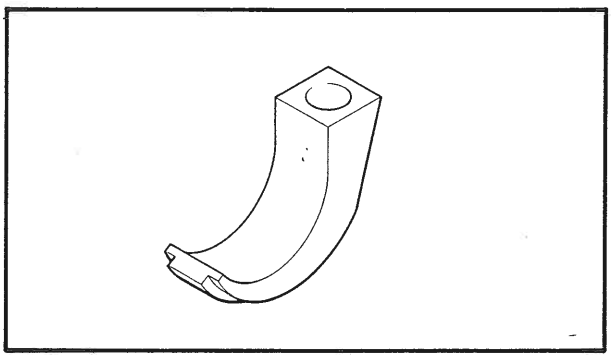
This gauge is used to measure the fuel level in the float chamber.



FOR ENGINE SERVICE

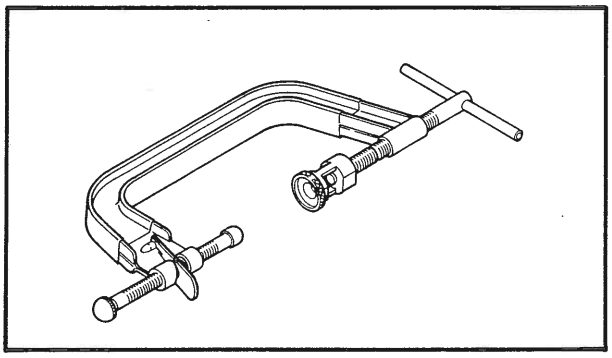
1. Universal Clutch Holder
   P/N. 90890-04086

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



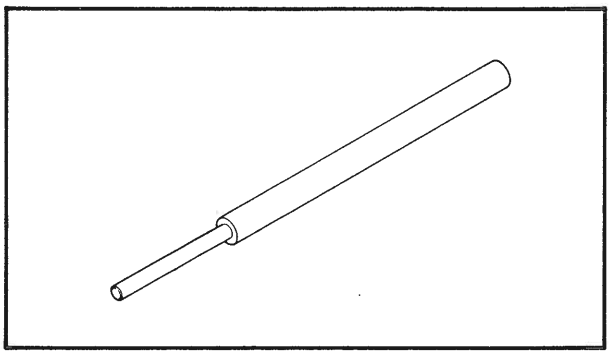
2. Tappet Adjusting Tool
   P/N. 90890-04106

This tool is necessary to replace valve adjusting pads.



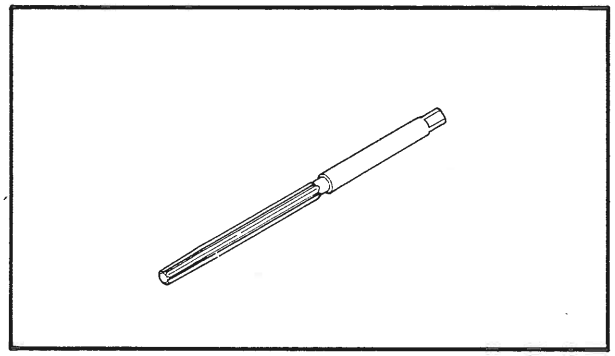
3. Valve Spring Compressor
   P/N. 90890-04019

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



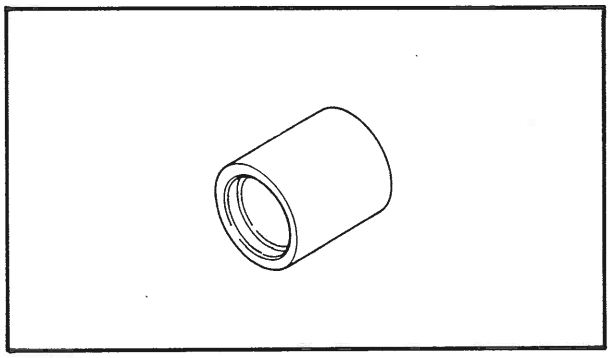
4. Valve Guide Remover (5.5 mm)
   P/N. 90890-01122

This tool is used to remove the valve guides.



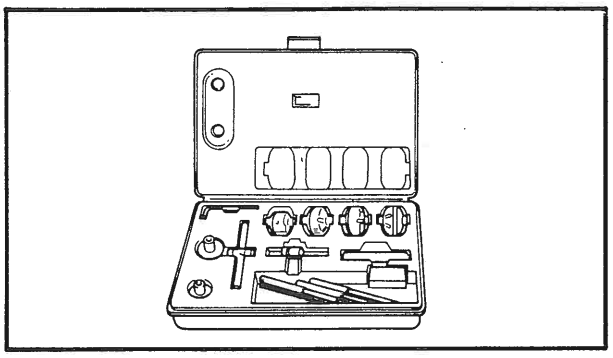
5. Valve Guide Reamer (5.5 mm)
   P/N. 90890-01196

This tool is used to rebore the new valve guide.



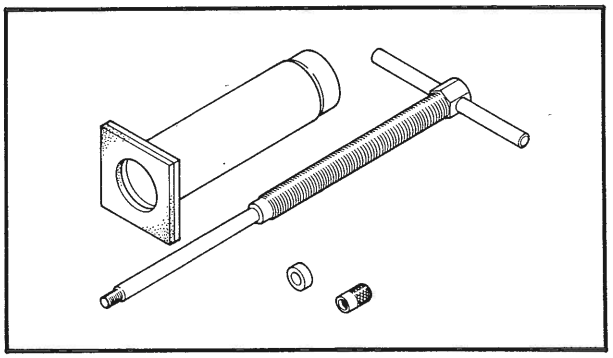
6. Valve Guide Installer
   P/N. 90890-04015

This tool is needed to install the valve guides properly.



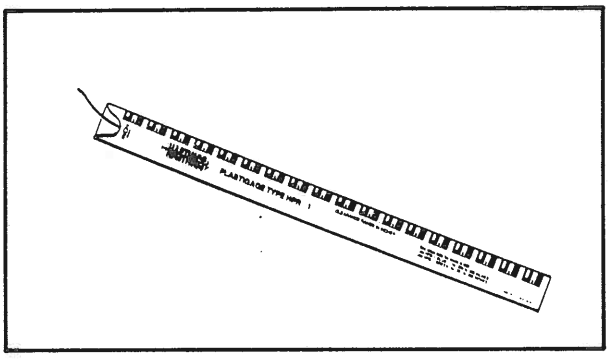
7. Valve Seat Cutter Set
   P/N. YM-91043

This tool is needed to resurface the valve seat.



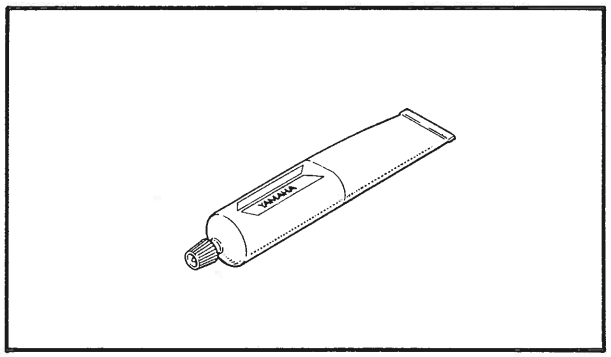
8. Piston Pin Puller
   P/N. 90890-01304

This tool is used to remove the piston pin.



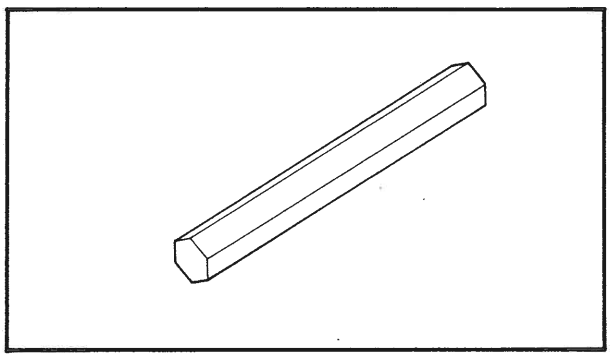
9. Plastigage® Set "Green"
   P/N. YU-33210

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



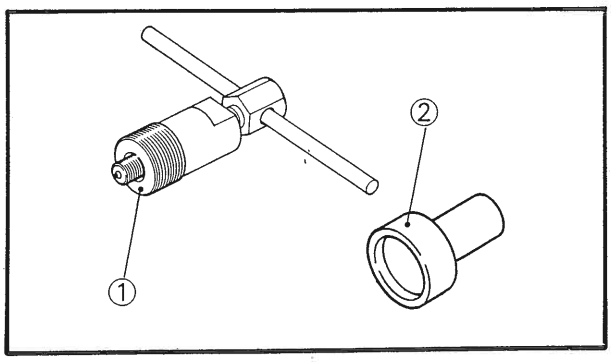
10. Yamaha Bond No. 1215
P/N. 90890-85505

This sealant (bond) is used for crankcase mating surfaces, etc.



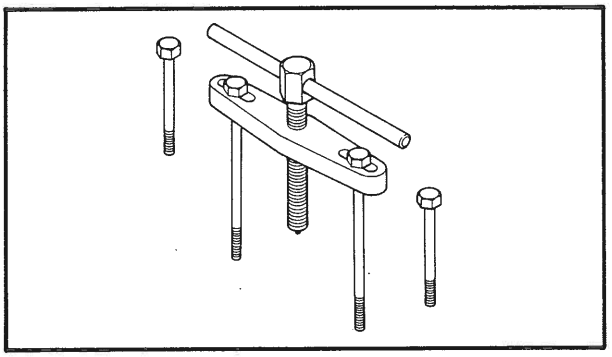
11. Wrench Adapter 8 mm (0.3 in)
P/N. 90890-04076

This tool is used to retighten the cylinder head securing bolts.



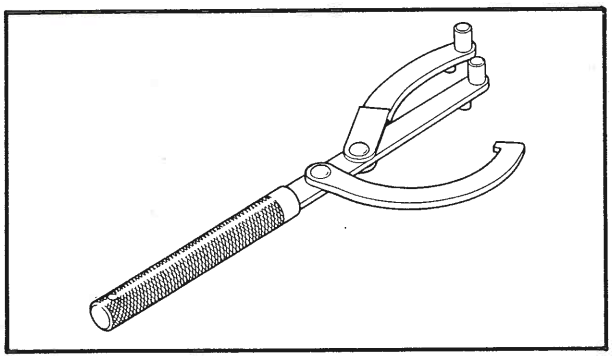
12. Flywheel Puller
P/N. 90890-01189 ..... ①
Flywheel Puller Attachment
P/N. 90890-01382 ..... ②

These tools are used for removing the flywheel.



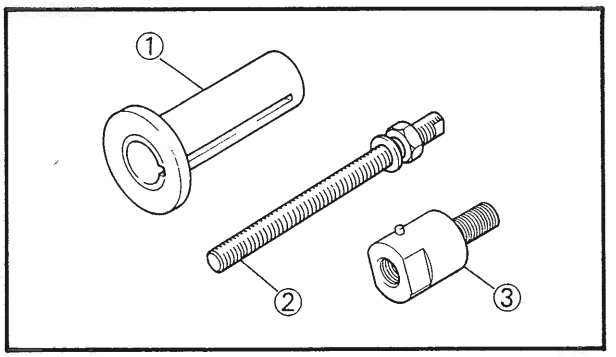
13. Crankcase-Separator
P/N. 90890-01135

This tool is used for removing the crankshaft from the crankcase.



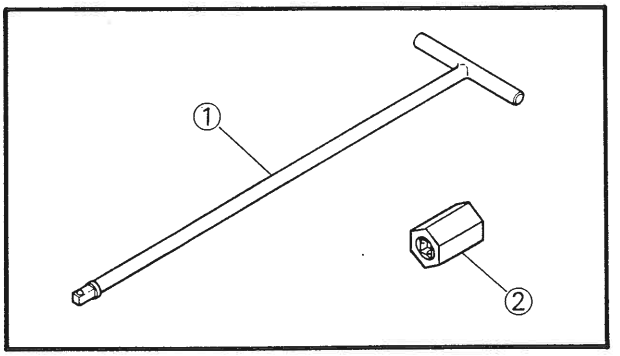
14. Universal Magneto & Rotor Holder
P/N. 90890-01235

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



15. Crankshaft Installing Set
    Pot
    P/N. 90890-01274 ..... ①
    Bolt
    P/N. 90890-01275 ..... ②
    Adapter
    P/N. 90890-01383 ..... ③

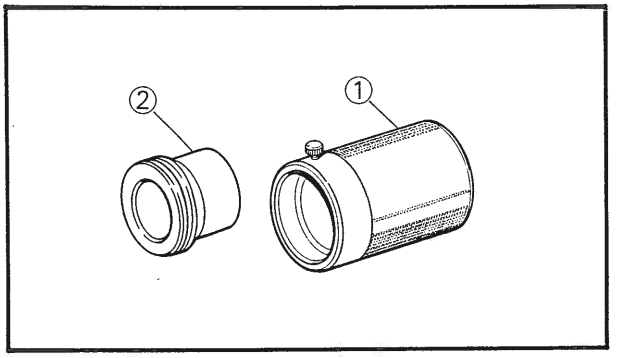
These tools are used when installing the crankshaft.



FOR CHASSIS SERVICE

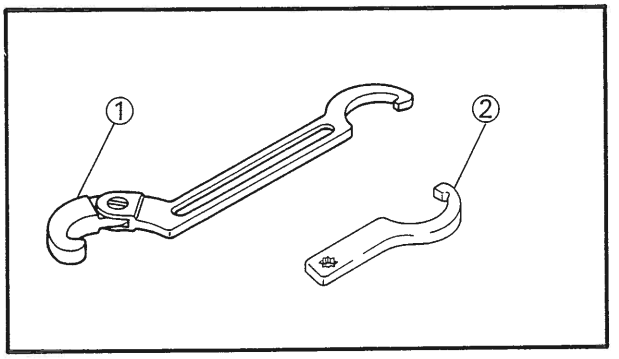
1. T-Handle
    P/N. 90890-01326 ..... ①
    Front Fork Cylinder Holder 22 mm
    P/N. 90890-01365 ..... ②

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



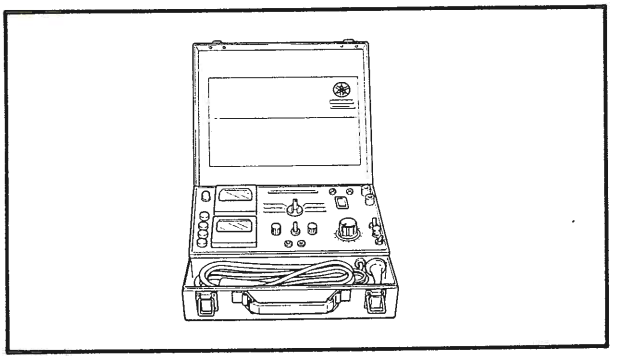
2. Front Fork Seal Driver (weight)
    P/N. 90890-01367 ..... ①
    Adapter (36 mm)
    P/N. 90890-01370 ..... ②

These tools are used when installing the fork seat.



3. Ring Nut Wrench
    P/N. 90890-01268 ..... ①
    P/N. YU-33975 ..... ②

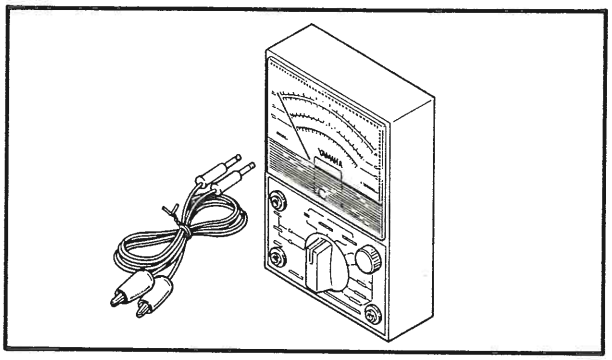
This tool is used to loosen and tighten the steering ring nut.



FOR ELECTRICAL COMPONENTS

1. Electro Tester
    P/N. 90890-03021

This instrument is necessary for checking the ignition system components.



2. Pocket Tester
   P/N. 90890-03104

This instrument is invaluable for checking the electrical system.

CHAPTER 2.
PERIODIC INSPECTIONS AND ADJUSTMENTS

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/LUBRICATION INTERVALS

Unit: km (mi)

ITEM	REMARKS	BREAK-IN 1,000 (600)	EVERY 6,000 (4,000) or 6 months	EVERY 12,000 (8,000) or 12 months
Valve(s)*	Check valve clearance. Adjust if necessary.	(○): OHC ○	(○): OHC ○	○
Cam chain*	Check chain tension. Adjust if necessary.	○	○	○
Spark plug(s)*	Check condition. Clean or replace if necessary.	○	○	○
Air filter	Clean. Replace if necessary.		○	○
Carburetor*	Check idle speed/starter operation. Adjust if necessary.	○	○	○
Fuel line*	Check fuel hose (and vacuum pipe) for cracks or damage. Replace if necessary.		○	○
Fuel filter*	Check condition. Replace if necessary.			○
Engine oil	Replace (Warm engine before draining).	○	○	○
Engine oil filter(*)	Replace.	○	(○)	○
Engine oil strainet	Clean.	○	○	○
Brake* (for disc brake)	Check operation/fluid leakage/See Note. Correct if necessary.		○	○
Brake (for drum brake)	Check operation. Adjust if necessary.		○	○
Clutch	Check operation. Adjust if necessary.		○	○
Decompression system*	Check operation. Adjust if necessary.		○	○
Rear arm pivot* (nipple)	Check rear arm assembly for looseness. Correct if necessary. Moderately repack. **(***)	○	○	○
Rear suspension link pivots* (nipple)	Check operation. Moderately repack. **(***)	○	○	○
Wheels* (for spoke wheel)	Check balance/damage/runout/spoke tightness. Repair if necessary.		○	○
Wheel bearings*	Check bearings assembly for looseness/damage. Replace if damaged.		○	○
Steering bearing*	Check bearings assembly for looseness. Correct if necessary. Moderately repack every 24,000 (16,000) or 24 months.**	○		○

Unit: km (mi)

ITEM	REMARKS	BREAK-IN 1,000 (600)	EVERY 6,000 (4,000) or 6 months	EVERY 12,000 (8,000) or 12 months
Front forks*	Check operation/oil leakage. Repair if necessary.		○	○
Rear shock absorber*	Check operation/oil leakage. Repair if necessary.		○	○
Drive chain	Check chain slack/alignment. Adjust if necessary. Clean and lube.	EVERY 500 (300)		
Fittings/Fasteners*	Check all chassis fittings and fasterners. Correct if necessary.	○	○	○
Sidestand*	Check operation. Repair if necessary.	○	○	○
Battery*	Check specific gravity. Check breather pipe for proper operation. Correct if necessary.		○	○

* It is recommended that these items be serviced by a Yamaha dealer.
** Medium weight wheel bearing grease. (bearing type)

NOTE:

Brake fluid replacement:

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

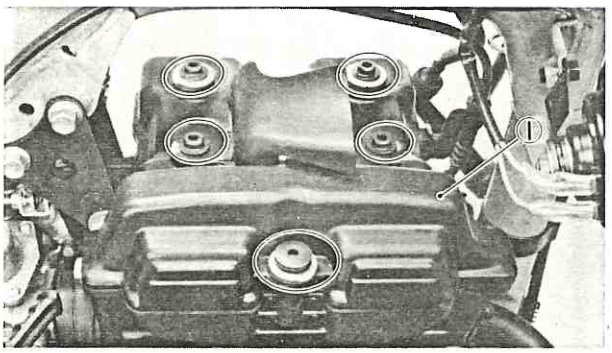
ENGINE

VALVE CLEARANCE ADJUSTMENT

Removal

1. Remove:
   - Side covers
   - Seat
   - Fuel tank
   - Engine air scoop

   (Reter to Engine Removal)



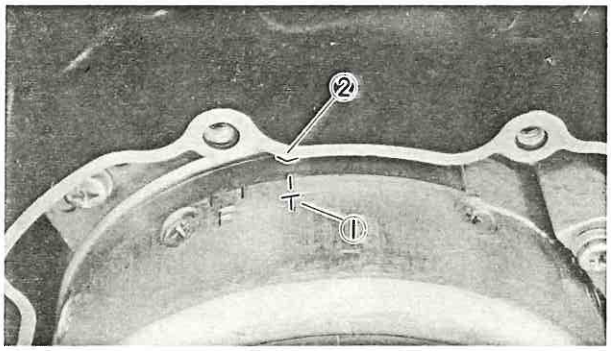
2. Disconnect:
   - Spark plug cap
3. Remove.
   - Spark plug
   - Cylinder head cover ①
4. Remove:
   - Change pedal
   - Left crankcase cover

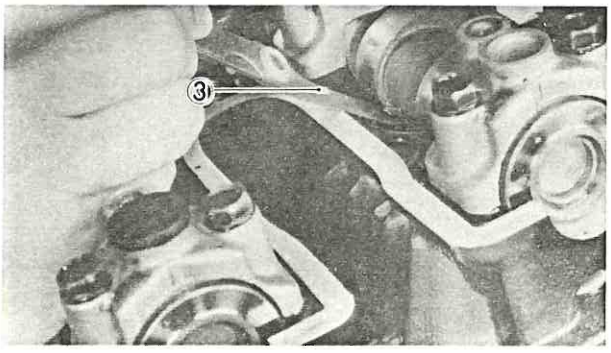
Inspection and Adjustment

1. Measure:
   - Valve clearance

NOTE:

Be sure piston is at Top Dead Center (TDC) on compression stroke when measuring clearance.





Valve clearance measurement steps:

NOTE:

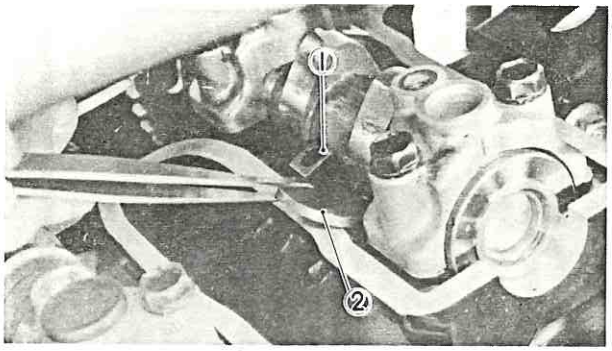
Valve clearance must be measured when the engine is cool to the touch.

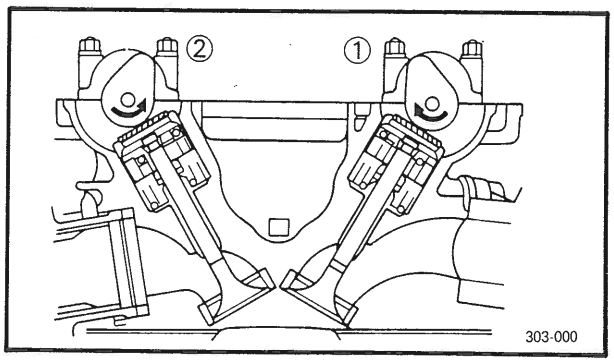
- Turn the crankshaft counterclockwise to align the "T" mark ① on the rotor with the crankcase mark ② when the piston is at TDC on the compression stroke.
- Measure the valve clearance using a Feeler Gauge ③.
- Record the measured amount if the clearance is incorrect.

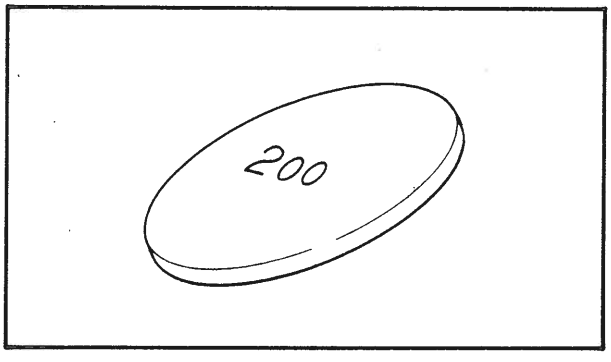
INSP ADJ

Valve Clearance (cold):	
Intake Valve	Exhaust Valve
0.08 ~ 0.12 mm (0.003 ~ 0.005 in)	0.13 ~ 0.17 mm (0.005 ~ 0.007 in)

2







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 (90890-04106) 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 ①: Carefully rotate CLOCKWISE.
Exhaust ②: Carefully rotate COUNTER-CLOCKWISE.

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

Pad range		Pad Availability: 25 increments
No. 200 ~ No. 320	2.00 mm (0.079 in) 3.20 mm (0.130 in)	Pads stepped in 0.05 mm (0.002 in) increments

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

2

- Round off the hundredths digit of the original pad number to the nearest 0.05 mm (0.002 in) 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)

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 ~ 0.02			200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310
0.03 ~ 0.07		200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315
0.08 ~ 0.12																									
0.13 ~ 0.17	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
0.18 ~ 0.22	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320		
0.23 ~ 0.27	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320			
0.28 ~ 0.32	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320				
0.33 ~ 0.37	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
0.38 ~ 0.42	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320						
0.43 ~ 0.47	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320							
0.48 ~ 0.52	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320								
0.53 ~ 0.57	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320									
0.58 ~ 0.62	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320										
0.63 ~ 0.67	255	260	265	270	275	280	285	290	295	300	305	310	315	320											
0.68 ~ 0.72	260	265	270	275	280	285	290	295	300	305	310	315	320												
0.73 ~ 0.77	265	270	275	280	285	290	295	300	305	310	315	320													
0.78 ~ 0.82	270	275	280	285	290	295	300	305	310	315	320														
0.83 ~ 0.87	275	280	285	290	295	300	305	310	315	320															
0.88 ~ 0.92	280	285	290	295	300	305	310	315	320																
0.93 ~ 1.97	285	290	295	300	305	310	315	320																	
0.98 ~ 1.02	290	295	300	305	310	315	320																		
1.03 ~ 1.07	295	300	305	310	315	320																			
1.08 ~ 1.12	300	305	310	315	320																				
1.13 ~ 1.17	305	310	315	320																					
1.18 ~ 1.22	310	315	320																						
1.23 ~ 1.27	315	320																							
1.28 ~ 1.32	320																								

VALVE CLEARANCE (engine cold) 0.08 ~ 0.12 mm (0.031 ~ 0.048 in)
Example Installed is 250
Measured clearance is 0.32 mm (0.013 in)
Replace 250 pad with 270
*Pad number: (example) Pad No. 250 = 2.50 mm (0.098 in)
Pad No. 255 = 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 ~ 0.02				200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305
0.03 ~ 0.07			200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310
0.08 ~ 0.12		200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315
0.13 ~ 0.17																									
0.18 ~ 0.22	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	
0.23 ~ 0.27	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320		
0.28 ~ 0.32	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320			
0.33 ~ 0.37	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320				
0.38 ~ 0.42	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320					
0.43 ~ 0.47	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320						
0.48 ~ 0.52	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320							
0.53 ~ 0.57	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320								
0.58 ~ 0.62	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320									
0.63 ~ 0.67	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320										
0.68 ~ 0.72	255	260	265	270	275	280	285	290	295	300	305	310	315	320											
0.73 ~ 0.77	260	265	270	275	280	285	290	295	300	305	310	315	320												
0.78 ~ 0.82	265	270	275	280	285	290	295	300	305	310	315	320													
0.83 ~ 0.87	270	275	280	285	290	295	300	305	310	315	320														
0.88 ~ 0.92	275	280	285	290	295	300	305	310	315	320															
0.93 ~ 1.97	280	285	290	295	300	305	310	315	320																
0.98 ~ 1.02	285	290	295	300	305	310	315	320																	
1.03 ~ 1.07	290	295	300	305	310	315	320																		
1.08 ~ 1.12	295	300	305	310	315	320																			
1.13 ~ 1.17	300	305	310	315	320																				
1.18 ~ 1.22	305	310	315	320																					
1.23 ~ 1.27	310	315	320																						
1.28 ~ 1.32	315	320																							
1.33 ~ 1.37	320																								

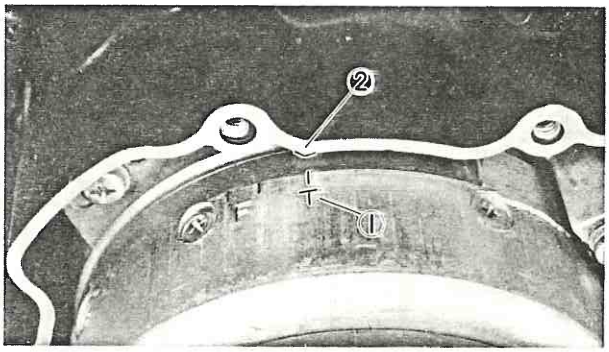
VALVE CLEARANCE (engine cold) 0.13 ~ 0.17 mm (0.052 ~ 0.068 in)
Example Installed is 250
Measured clearance is 0.32 mm (0.013 in)
Replace 250 pad with 265
*Pad number: (example) Pad No. 250 = 2.50 mm (0.098 in)
Pad No. 255 = 2.55 mm (0.100 in)
Always install pad with number down

DECOMPRESSION CABLE ADJUSTMENT/ SPARK PLUG

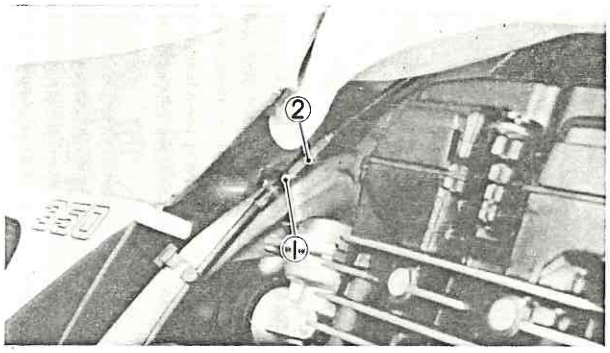
DECOMPRESSION CABLE ADJUSTMENT

NOTE:

Decomp-cable adjustment must follow the valve clearance adjustment.

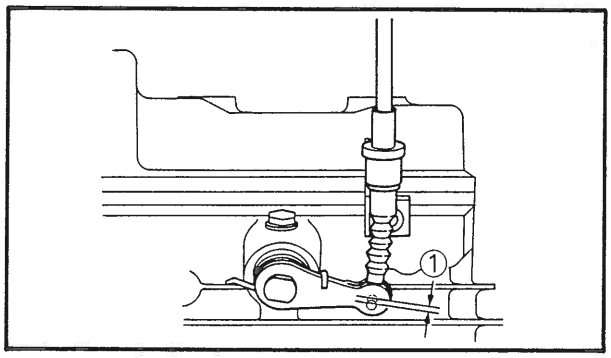


1. Remove:
   - Change pedal
   - Left crankcase cover
   - Spark plug
2. Turn the crankshaft counterclockwise to align the "T" mark ① on the rotor with the crankcase mark ② when the piston is at TDC on the compression stroke.



3. Loosen:
   - Locknut ①
4. Rotate:
   - Adjuster ②

   Turn it clockwise or counterclockwise until proper decompression lever free play is attained.



Decompression Lever Free Play ①:
2 ~ 3 mm (0.079 ~ 0.12 in)

5. Tighten:
   - Locknut

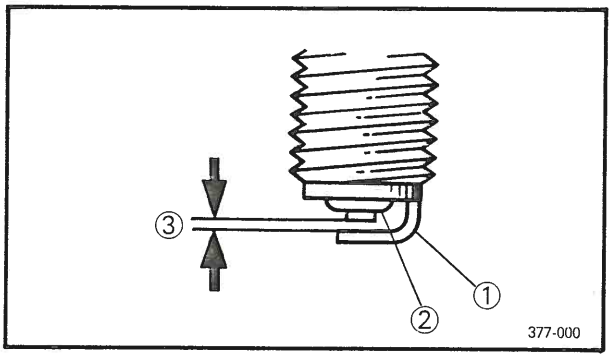
SPARK PLUG

1. Remove:
   - Spark plug
2. Inspect:
   - Electrode ①

     Wear/Damage → Replace.
   - Insulator color ②
3. Measure:
   - Plug gap ③

     Out of specification → Regap.

     Use a Wire Gauge or Feeler Gauge.



Spark Plug Gap:
0.7~0.8 mm (0.028~0.032 in)

Clean the plug with a spark plug cleaner if necessary.

Standard Spark Plug:
DR7ES (NGK)
DR8ES (NGK)
DR8ES-L (NGK)

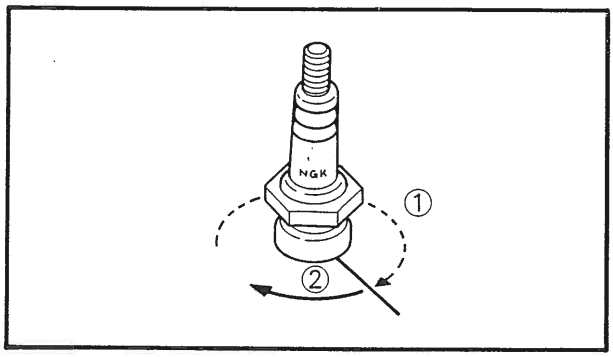
Before installing a spark plug, clean the gasket surface and plug surface.

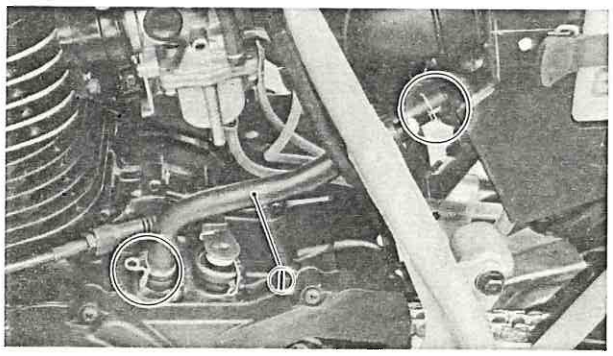
4. Tighten:
   - Spark plug(s)

Spark Plug:
17.5 Nm (1.75 m•kg, 12.5 ft•lb)

NOTE:

Finger-tighten ① the spark plug(s) before torquing ② to specification.





CRANKCASE VENTILATION SYSTEM

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

FUEL LINE

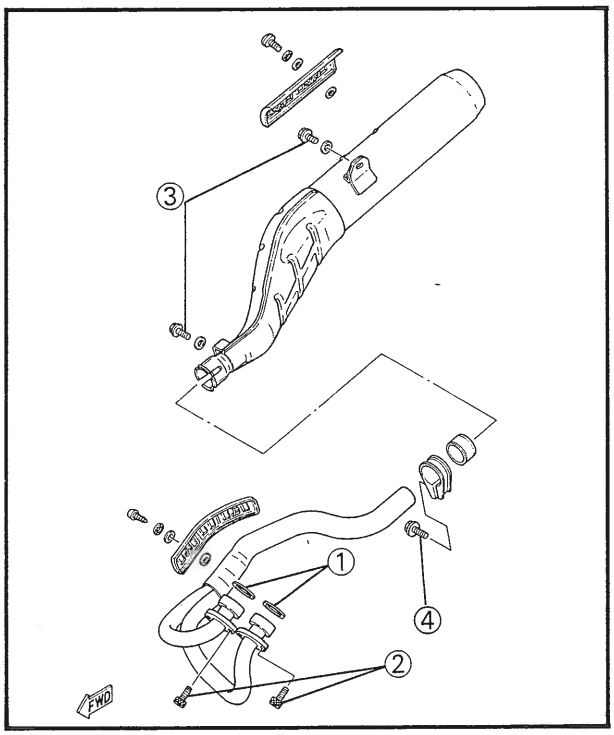
1. Inspect:
   - Fuel hoses
     Cracks/Damage→Replace.

INTAKE MANIFOLD/EXHAUST SYSTEM/ IDLE SPEED/ENGINE OIL

INTAKE MANIFOLD

1. Tighten:
   - Carburetor clamps
   - Carburetor joint bolts
2. Inspect:
   - Carburetor joint
   - Gaskets

   Cracks/Damage→Replace.



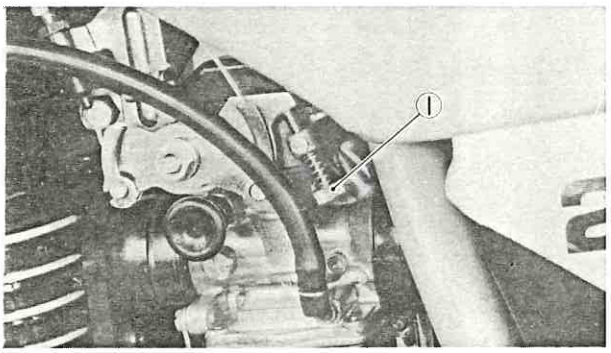
EXHAUST SYSTEM

1. Inspect:
   - Exhaust pipe gasket(s) ①

   Damage→Replace.

   Exhaust gas leakage→Repair.
2. Tighten:
   - Exhaust pipe bolts
   - Muffler bolts

Exhaust Pipe Flange Bolts ②:
12 Nm (1.2 m•kg, 8.7 ft•lb)
Muffler Mounting Bolt ③:
27 Nm (2.7 m•kg, 19 ft•lb)
Muffler Clamp Bolt ④:
20 Nm (2.0 m•kg, 14 ft•lb)

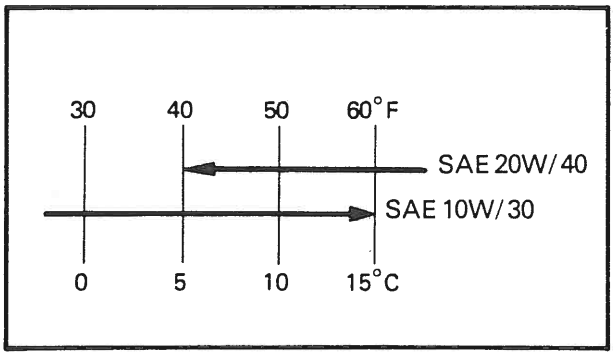


IDLE SPEED

1. Warm up engine for a few minutes.
2. Adjust:
   - Idle speed

   Turn the throttle stop screw ① clockwise to increase engine speed and counterclockwise to decrease engine speed.

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



ENGINE OIL

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

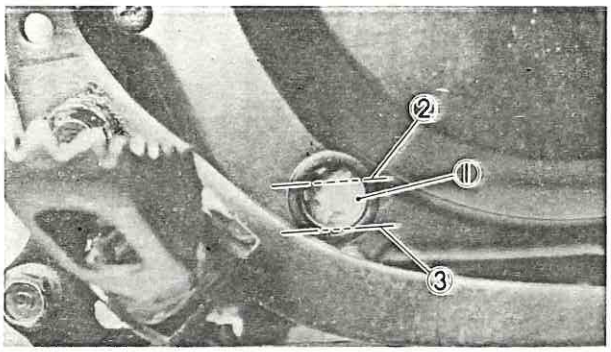
Oil Level Measurement

1. Check:
   - Oil level

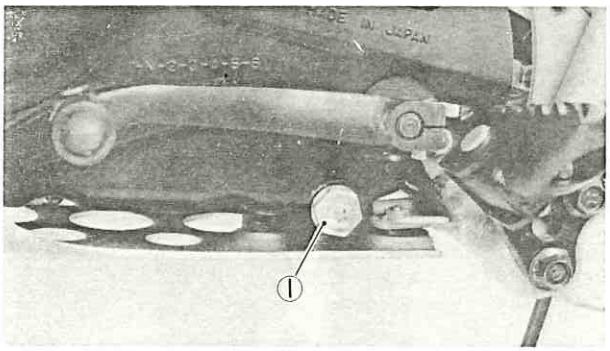
Oil level measurement steps:
- Place the motorcycle on the level place.
- Warm up the engine for a few minutes.
- Stop the engine.
- Observe the oil level through the level window located at the lower part of left side crankcase cover.

  Oil level low→Add oil to proper level.

NOTE:
- Position motorcycle straight up when checking oil level; a slight filt to the side can produce false readings.
- Wait a few minutes until level settles before checking.
- Oil level should be between maximum and minimum marks.



① Level window
② Maximum
③ Minimum



Oil Change (Without filter change)

1. Warm up engine for several minutes.
2. 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

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

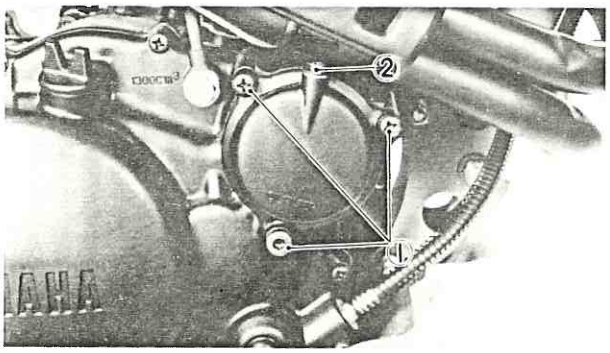
6. Fill:
   - Crankcase

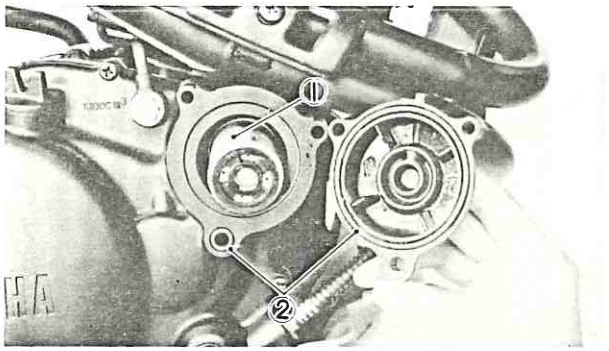
Recommended Engine Oil:
1.3 L (1.14 Imp qt, 1.37 US qt)

CAUTION:

Do not allow foreign material to enter the crankcase.

7. Install:
   - Filler cap





Oil Change (With filter change)

Follow the "Oil Change (without filter change)" steps 1~4. Then proceed as follows:

1. Remove:
   - Screws ①
   - Bolt
   - Air bleed screw ②
   - Oil filter cover
   - Oil filter
2. Install:
   - Oil filter (New) ①

   Replace periodically as indicated.
3. Inspect:
   - O-rings ②

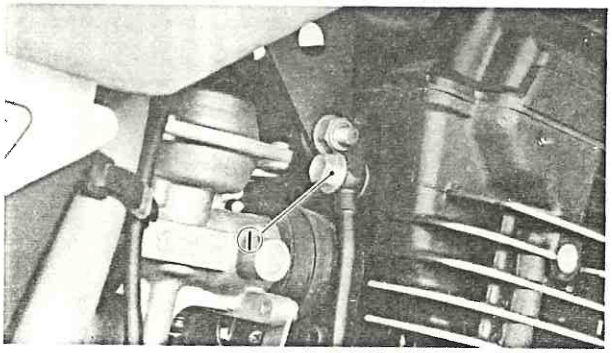
   Cracks/Damage→Replace.
4. Install:
   - Drain plug
   - Oil filter cover
   - Screw
   - Bolt
   - Air bleed screw

Drain Plug:
43 Nm (4.3 m•kg, 31 ft•lb)
Oil Filter Bolt:
10 Nm (1.0 m•kg, 7.2 ft•lb)
Oil Filter Screw:
7 Nm (0.7 m•kg, 5.1 ft•lb)
Air Bleed Screw:
5 Nm (0.5 m•kg, 3.6 ft•lb)

5. Fill:
   - Crankcase

Recommended Engine Oil:
1.3 L (1.14 Imp qt, 1.37 US qt)

6. Warm up engine for a few minutes, then stop engine.
7. Observe:
   - Oil level



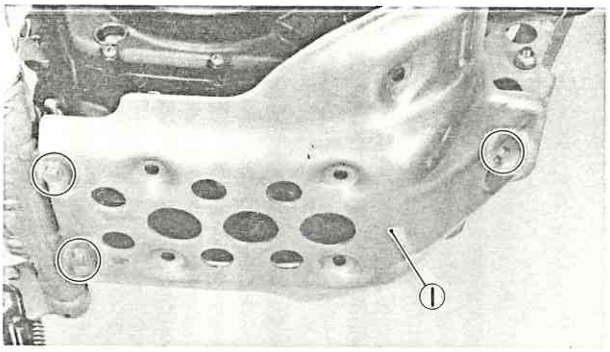
CAUTION:

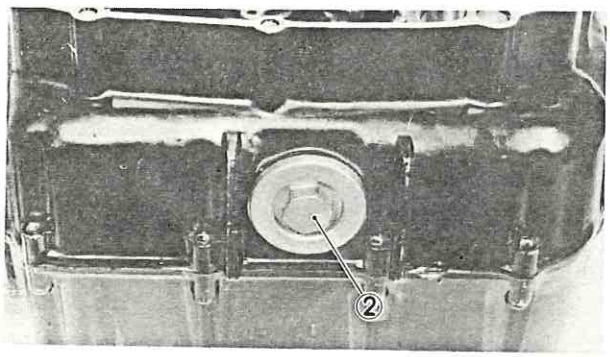
Check oil pressure after replacing engine oil as follows:

- **Slightly loosen an oil pipe union bolt ① in the cylinder head.**
- **Start the engine. Keep it idling until oil begins to seep from the loosened oil pipe union bolt.**
- **Turn the engine off, and tighten the oil pipe union bolt to specification.**

	Oil Pipe Union Bolt: 20 Nm (2.0 m•kg, 14 ft•lb)

- **Turn off engine immediately if no oil seeps from oil pipe union bolt after one minute to prevent engine seizure.**
- **Locate and resolve problem, then recheck oil pressure.**

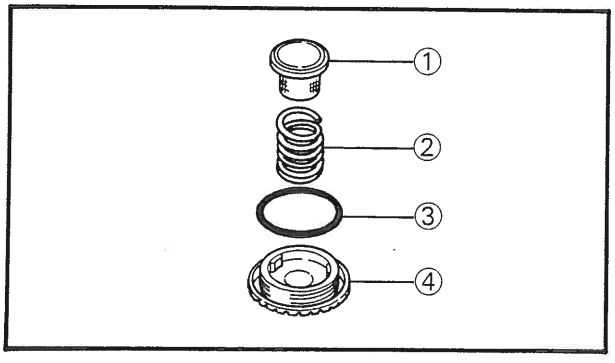




Oil Strainer Cleaning

Follow the "Oil Change (without filter change)" Steps 1~4. Then proceed as follows:

1. Remove:
   - Engine guard ①
   - Oil strainer plug ②
   - O-ring
   - Compression spring
   - Oil strainer
2. Inspect:
   - Oil strainer
     Contamination→Clean or replace.
   - O-ring
     Cracks/Damage→Replace.



3. Install:
   - Oil strainer ①
   - Compression spring ②
   - O-ring ③
   - Oil strainer plug ④

	Oil Strainer Plug: 32 Nm (3.2 m•kg, 23 ft•lb)

4. Tighten:
   • Drain plug

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

5. Fill:
   • Crankcase

	Recommended Engine Oil: **1.6 L (1.4 Imp qt, 1.7 US qt)**

CAUTION:

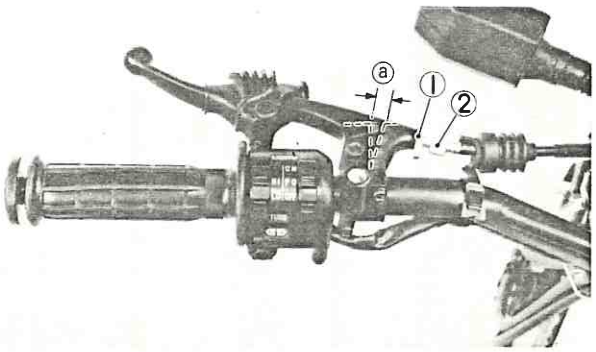
Do not allow foreign material to enter the crankcase.

6. Install:
   • Filler cap

CLUTCH ADJUSTMENT

Clutch Lever Free Play Adjustment

1. Loosen:
   • Adjuster locknut ①
2. Adjust:
   • Free play ⓐ
   Turn the adjuster ② clockwise or counterclockwise until proper lever free play is attained.

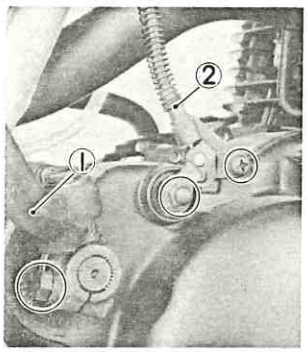


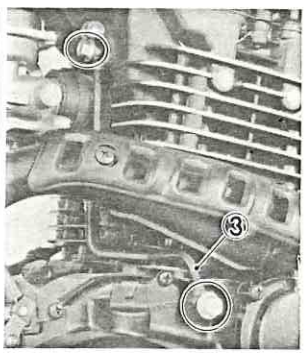
	Clutch Lever Free Play ⓐ: **2 ~ 3 mm (0.08 ~ 0.12 in)**

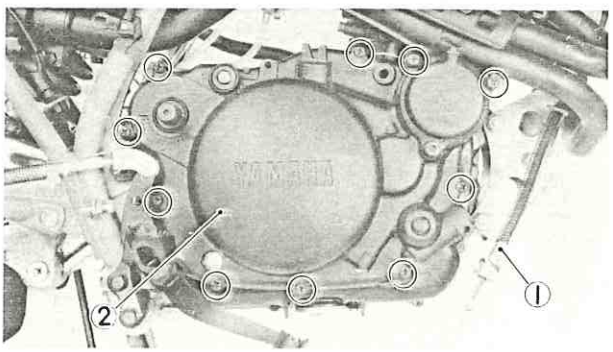
3. Tighten the locknut.

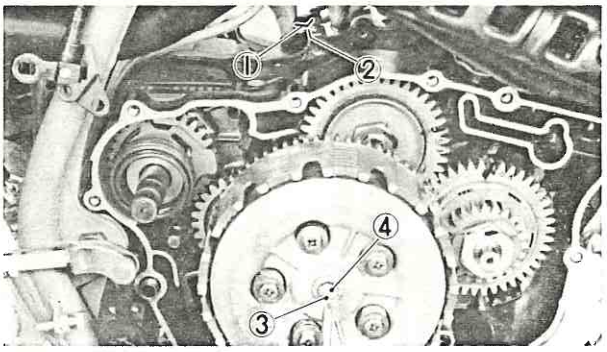
Mechanism Adjustment

1. Drain:
   • Crankcase
2. Remove:
   • Kick crank ①
   • Decompression cable ②
3. Disconnect:
   • Oil pipe ③
4. Disconnect:
   • Tachometer cable ①
   • Clutch cable
   (at push lever end)
5. Remove:
   • Right crankcase cover ②







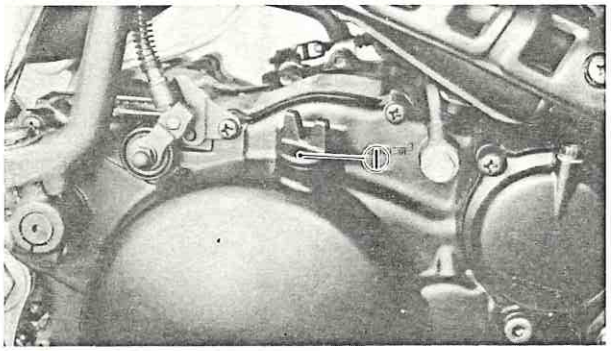


6. Loosen:
   - Short push rod locknut
7. Turn:
   - Push lever
   (to align the pointer ① of the push lever with the crankcase embossed mark ②)

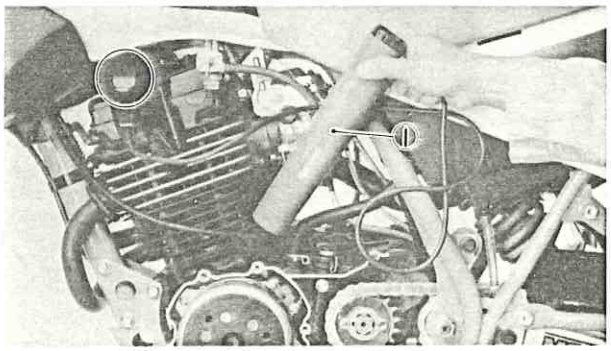
③ Short push rod
④ Locknut

8. Turn:
   - Short push rod
   (in or out until it lightly seats against a push rod ball.)
9. Tighten:
   - Locknut
10. Connect:
    - Clutch cable
11. Install:
    - Right crankcase cover
    - Kick crank
12. Connect:
    - Decompression cable
    - Tachometer cable
13. Fill
    - Crankcase

	Recommended Engine Oil: **1.6 L (1.4 Imp qt, 1.7 US qt)**



14. Install:
    - Filler cap ①
15. Adjust:
    - Clutch lever free play

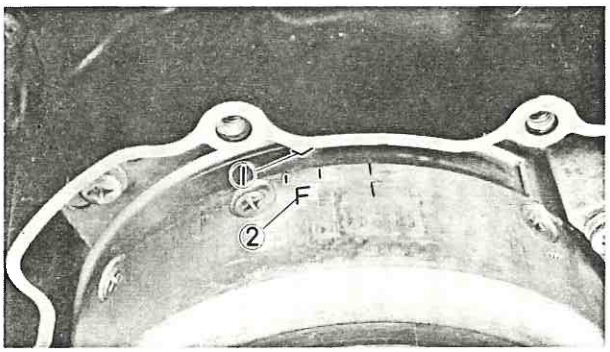


IGNITION TIMING CHECK

1. Remove:
   - Change pedal
   - Left crankcase cover
2. Connect:
   - Timing Light (90890-03109) ①
   (to the spark plug lead)

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

	Engine Idle Speed: **1,400±50 r/min**



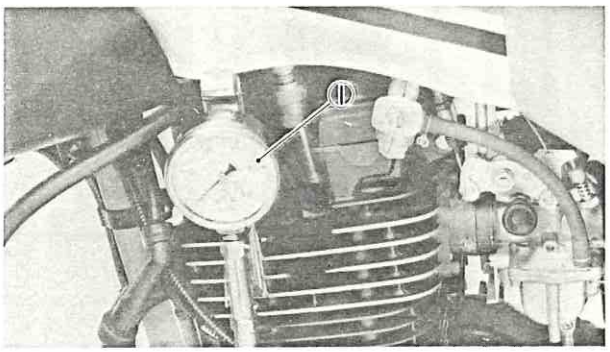
4. Observe:
   - Crankcase mark ①

   The crankcase mark should be within the "F" ② mark on the flywheel.

   Out of range/Unsteady→Check flywheel and pick up assembly for tightness and/or damage.
5. Install:
   - Left crankcase cover
   - Change pedal

COMPRESSION PRESSURE MEASUREMENT

Insufficient compression pressure will result in performance loss and may indicate leaking valves or worn or damaged piston rings.



1. Measure:
   - Valve clearance
2. Warm up engine for several minutes, then stop the engine.
3. Remove:
   - Spark plugs
4. Connect:
   - Compression Gauge (90890-03081) ①
5. Measure:
   - Compression

NOTE:

Turn over engine by kick starting with choke and throttle valve wide-open until the pressure indicated on gauge can rise no further. Compression should be within the specified levels.

COMPRESSION PRESSURE MEASUREMENT

INSP ADJ

Compression Pressure (at sea level):
Standard ....1,079 kPa (11 kg/cm^2, 156 psi)
Minimum ....883 kPa (9 kg/cm^2, 128 psi)
Maximum....1,177 kPa (12 kg/cm^2, 171 psi)

WARNING:

When cranking engine, ground spark plug wires to prevent sparking.

2

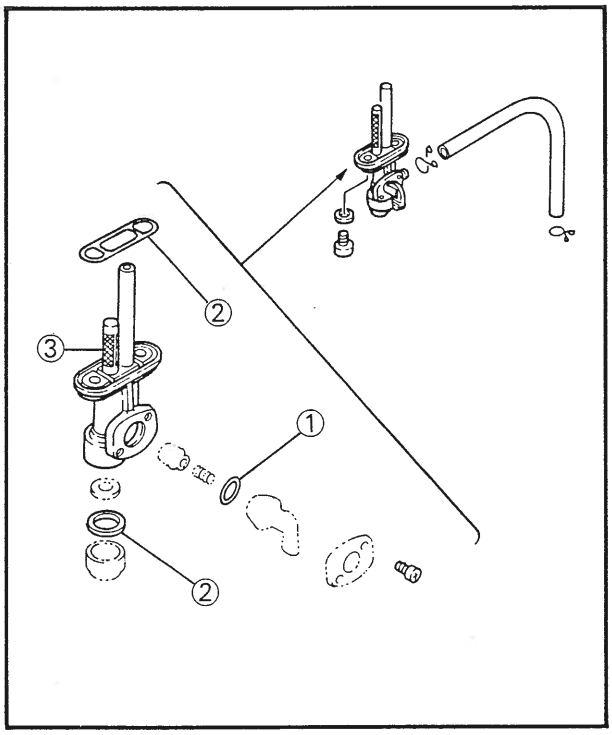
Compression test steps (below minimum levels):

- Squirt a few drops of oil into cylinder.
- Measure compression again.

Reading	Diagnosis
Higher than without oil	•Worn cylinder, piston and piston rings
Same as without oil	•Defective piston, ring(s), valve(s) and cylinder head gasket •Improper valve timing and valve clearance

Compression test steps (above maximum levels):

- Check cylinder head, valve surfaces, or piston crown for carbon deposits.



CHASSIS

FUEL COCK

① O-ring
② Gasket
③ Filter screen

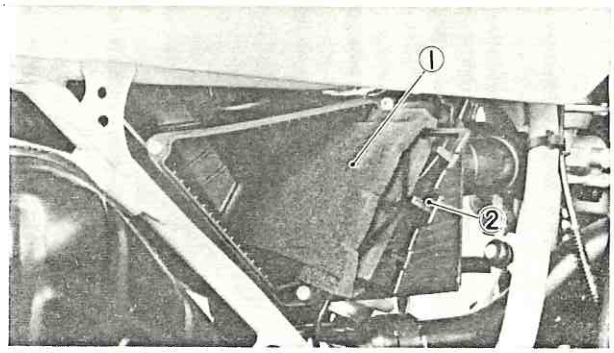
Removal and Inspection

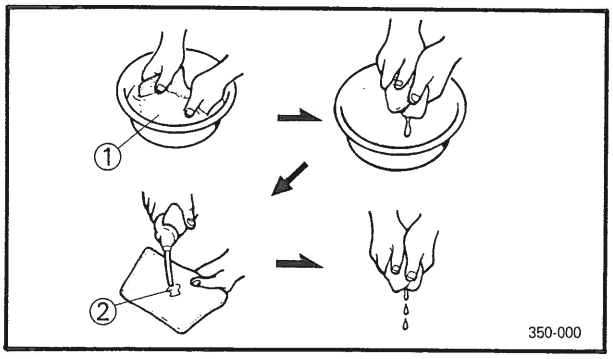
1. Inspect:
   - Fuel cock operation
     Leakage/Contamination→Disassemble.
2. Remove:
   - Seat
   - Fuel tank
     Position tank so that fuel will not spill when cock is removed.
   - Fuel cock
3. Inspect:
   - Filter screen
     Contamination→Replace fuel cock.
4. Remove:
   - Screws
   - Cock plate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

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:
   - Right side cover
   - Air filter case cover
   - Air filter element ①
   - Air filter guide ②

CAUTION:

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

2. Inspect:
   - Element
     Contamination → Clean element with solvent ①.

NOTE:

After cleaning, remove the remaining solvent by squeezing the element.

3. Apply:
   - SAE 10W30 motor oil ②
     (to the element)

NOTE:

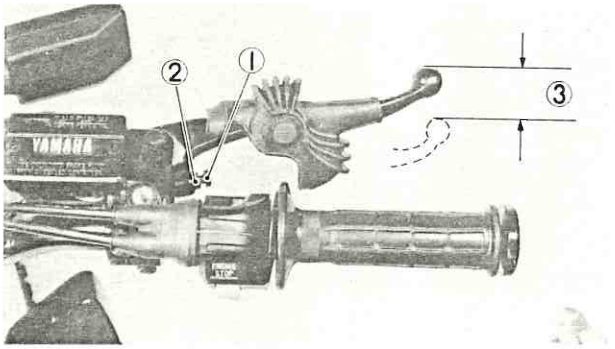
Sqeeze out the excess oil. Element should be wet but not dripping.

FRONT AND REAR BRAKE

Front Brake Lever Free Play Adjustment

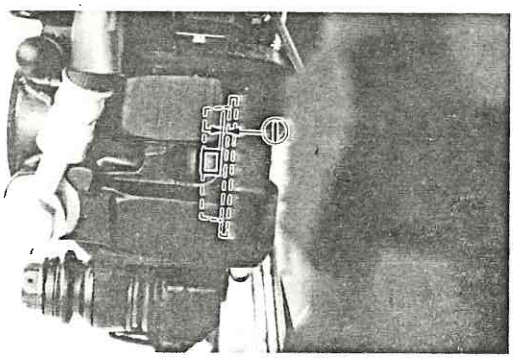
CAUTION:

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



1. Loosen:
   - Adjuster locknut ②
2. Rotate:
   - Adjuster ①
     Turn it clockwise or counterclockwise until proper lever end free play ③ is attained.

Front Brake Lever Free Play:
5 ~ 8 mm (0.2 ~ 0.3 in)

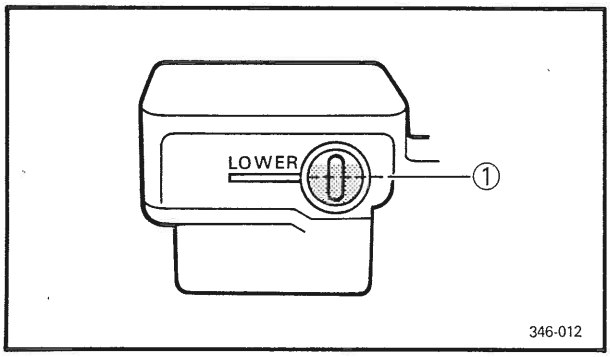


3. Tighten:
   • Locknut

Front Brake Pad

1. Remove:
   • Rubber plug
2. Inspect:
   • Brake pad
   Over wear limit ① → Replace as a set.

Front Brake Pad Wear Limit:
0.8 mm (0.03 in)



Brake Fluid

1. Observe:
   • Brake fluid level
   Fluid at lower level → Replenish.

① Lower level

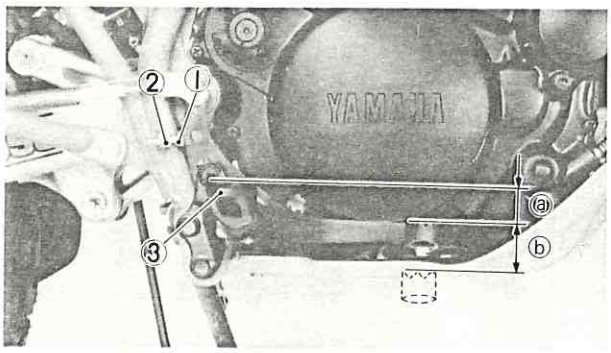
Brake Fluid:
DOT #3

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.**

Rear Brake Pedal Height Adjustment

1. Loosen:
   • Locknut ②
2. Rotate:
   • Adjuster ①
   Turn it clockwise or counterclockwise until proper brake pedal height ⓐ is attained.



Brake Pedal Height ⓐ:
15 mm (0.6 in)

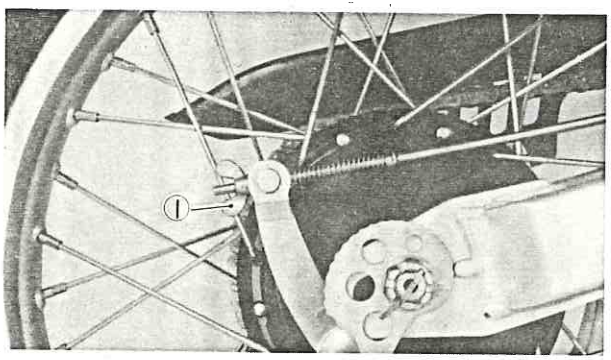
③ Footrest
ⓑ Free play

3. Tighten:
   • Locknut

Rear Brake Pedal Free Play Adjustment

WARNING:

Adjust pedal height, then adjust brake pedal free play.

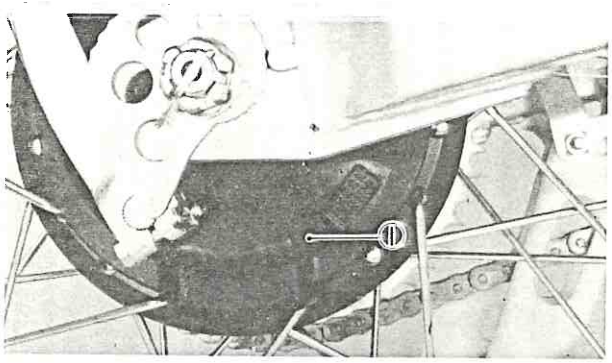


1. Rotate:
   • Adjuster ①
   Turn it clockwise or counterclockwise until proper brake pedal free play is attained.

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

WARNING:

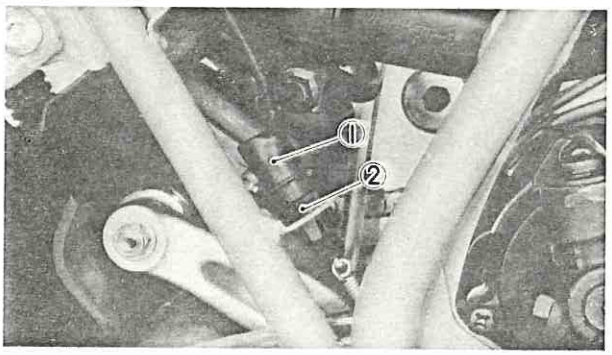
Check to verify correct brake light operation after adjustment.



Rear Brake Shoe

1. Remove:
   • Rubber plug ①
2. Inspect:
   • Brake lining thickness
   Worn lining limit → Replace brake shoes.

Brake Lining Wear Limit:
2 mm (0.08 in)



Rear Brake Light Switch Adjustment

1. Hold the switch body ① with your hand so it does not rotate and turn the adjusting nut ②.

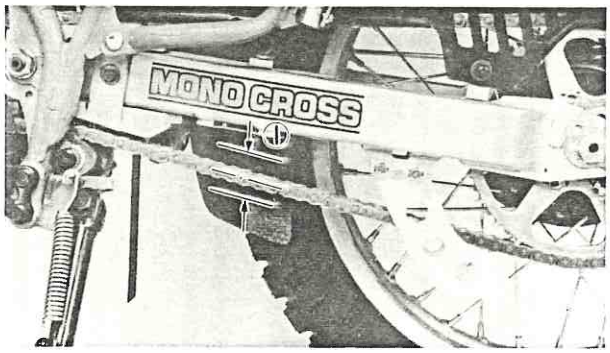
DRIVE CHAIN

Drive Chain Slack Check

NOTE:

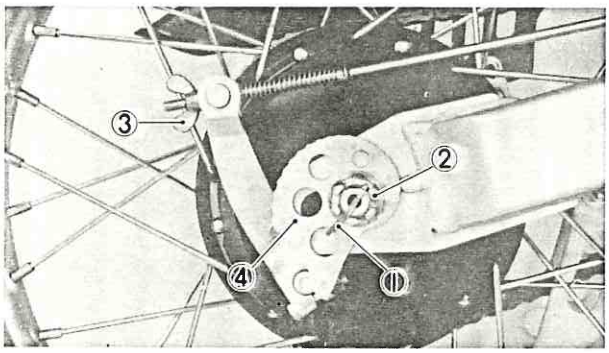
Before checking and/or adjusting, rotate the rear wheel through several revolutions and check the tension several times to find the tightest point. Check and/or adjust chain slack with rear wheel in this "tight chain" position.

DRIVE CHAIN



1. Ride on the seat.
2. Measure:
   - Chain deflection ①
   (at the position shown in the photograph.)
   Out of specification→Adjust chain.

Chain Deflection:
30~40 mm (1.18~1.57 in)



Drive Chain Slack Adjustment

1. Remove:
   - Cotter pin ①
2. Loosen:
   - Axle nut ②
   - Rear brake adjuster ③
3. Adjust:
   - Chain slack
   (by turning adjuster ④ clockwise or counterclockwise)

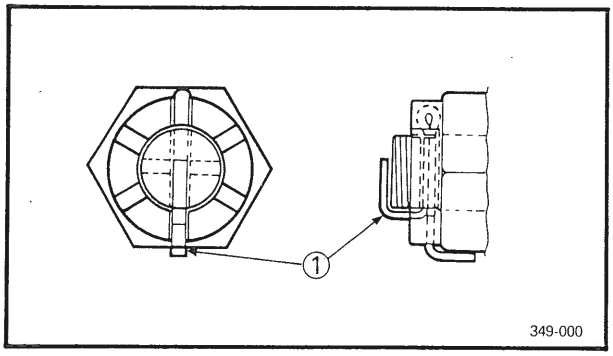
Adjuster	Chain slack
Turn clockwise	Tighten
Turn counterclockwise	Loosen

NOTE:

There are slot number on each side of adjuster; use same slot number for proper alignment.

4. Tighten:
   - Axle nut

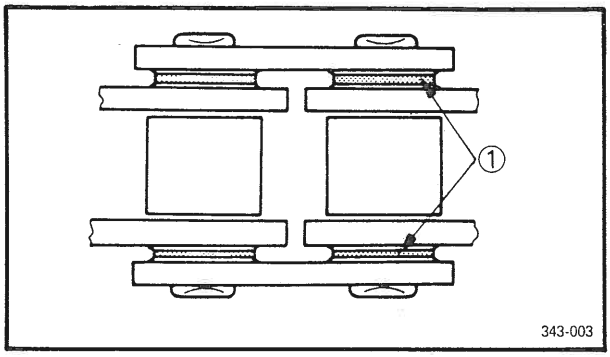
Axle Nut:
107 Nm (10.7 m•kg, 77.4 ft•lb)



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.

5. Install:
   - Cotter pin ① (new)
6. Adjust:
   - Brake pedal free play



Drive Chain Cleaning and Lubrication

1. Drive chain cleaner

Drive Chain Cleaner:
Kerosene

CAUTION:

Do not use steam cleaning, high-pressure washes, and certain solvent of O-ring ① damage may occur.

2. Drive chain lubricant

Drive Chain Lubricant:
SAE 30~50 Motor oil or chain lubricants for "O-ring" chains

CAUTION:

Do not use any other lubricants or O-rings damage may occur.

2

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.

SAE 10W30 Motor Oil

BRAKE AND CHANGE PEDALS/BRAKE AND CLUTCH LEVERS/CENTERSTAND AND SIDESTAND/ FRONT FORK OIL CHANGE

BRAKE AND CHANGE PEDALS/ BRAKE AND CLUTCH LEVERS

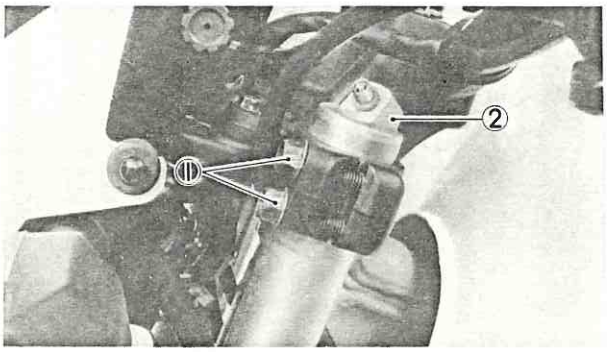
Lubricate pivoting parts of each lever and pedal.

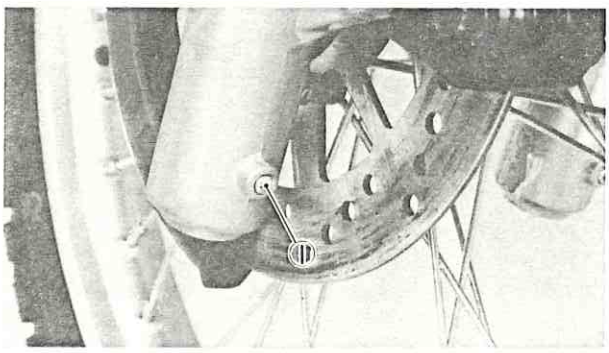
	SAE 10W30 Motor Oil

CENTERSTAND AND SIDESTAND

Lubricate centerstand and sidestand at their pivot points.

	SAE 10W30 Motor Oil





FRONT FORK OIL CHANGE

WARNING:

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

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Remove:
   - Air valve cap ①

NOTE:

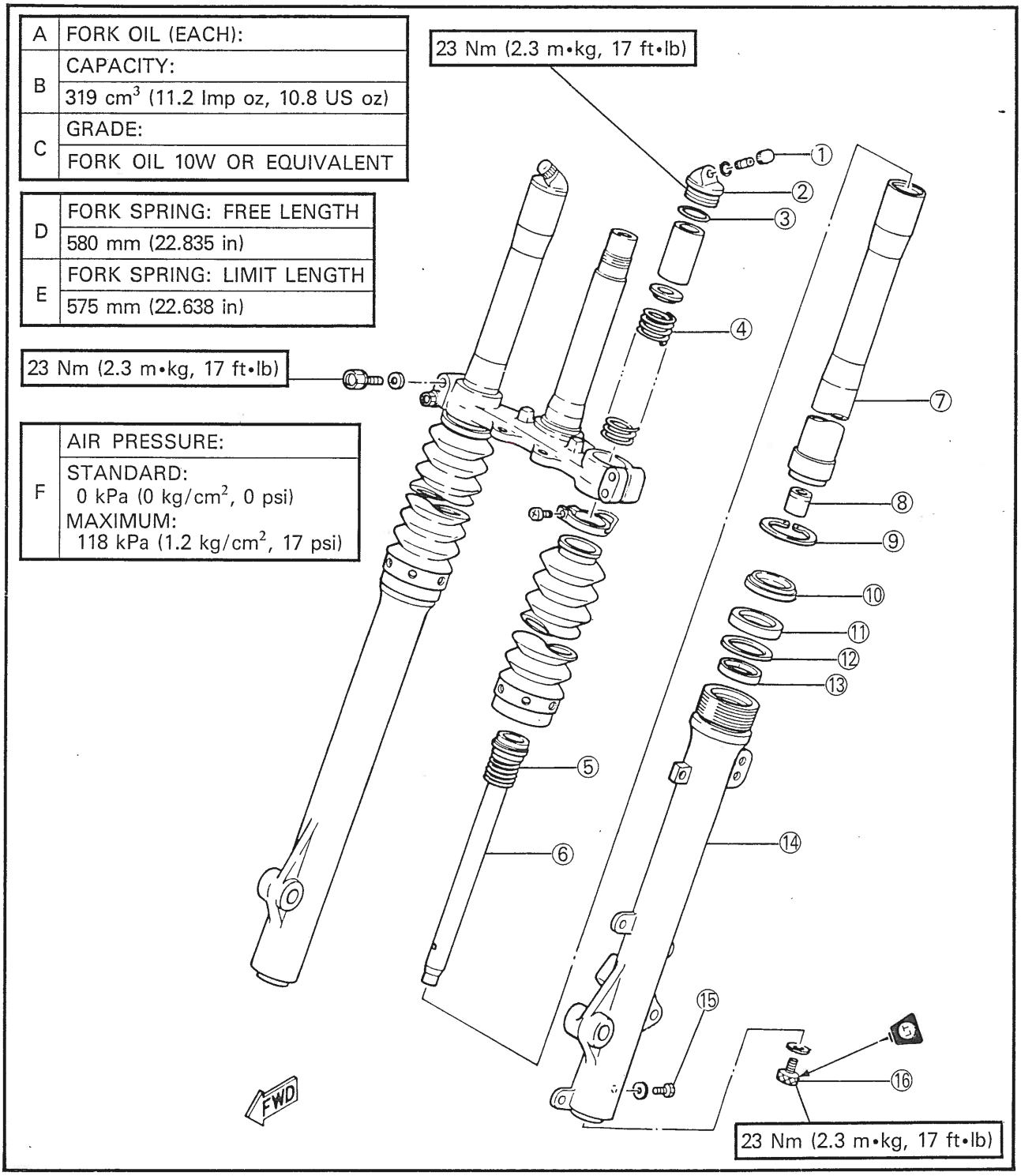
Keep the valve open by pressing it for several seconds so that the air can be let out of the inner tube.

3. Loosen:
   - Front fork upper pinch bolt ①
4. Remove:
   - Fork cap bolts ②
5. Place receptacle under each drain hole.
6. Remove:
   - Drain screws ①

   Drain the fork oil.

FRONT FORK OIL CHANGE

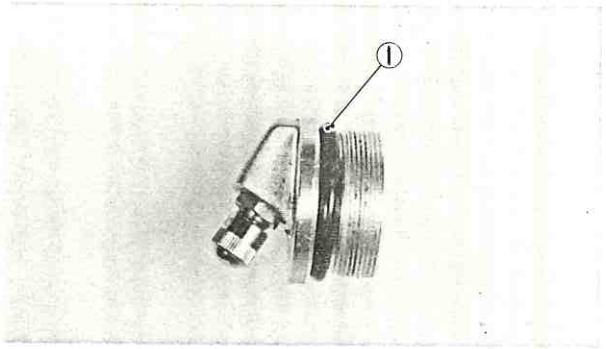
① Air valve cap
② Cap bolt
③ O-ring
④ Fork spring
⑤ Damper rod spring
⑥ Damper rod
⑦ Inner fork tube
⑧ Taper spindle
⑨ Retaining clip
⑩ Dust seal
⑪ Oil seal
⑫ Plate washer
⑬ Guide bushing
⑭ Outer fork tube
⑮ Drain bolt
⑯ Damper rod securing bolt



FRONT FORK OIL CHANGE

WARNING:

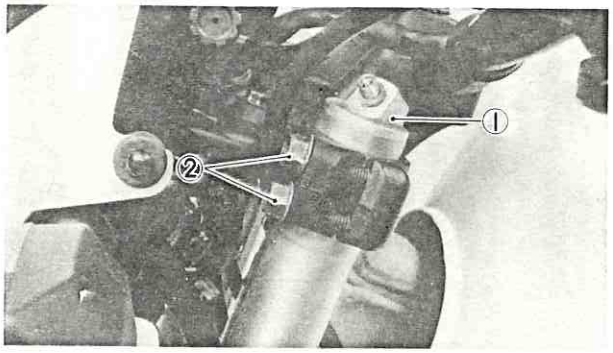
Do not allow any oil to contact the disc brake components. If oil is discovered, be sure to remove it, otherwise diminished braking capacity and damage to the rubber components of the brake assembly will occur.



7. After most of the oil has drained, slowly raise and lower outer tubes to pump out remaining oil.
8. Inspect:
   - Cap bolt O-ring ①
   - Drain screw gaskets

   Wear/Damage→Replace.
9. Install:
   - Drain screws
10. Fill:
    - Front forks

Front Fork Oil Capacity (each fork):
319 cm³ (11.2 Imp oz, 10.8 US oz)
Recommended Oil:
Fork oil 10W or equivalent



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

11. Tighten:
    - Cap bolts ①
    - Pinch bolts ②

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

12. Fill:
    - Front forks

    (with specified amount of air.)
    Refer to "Front fork and rear shock absorber adjustment".

Maximum Air Pressure:
118 kPa (1.2 kg/cm^2, 17.1 psi)
Do not exceed this amount.

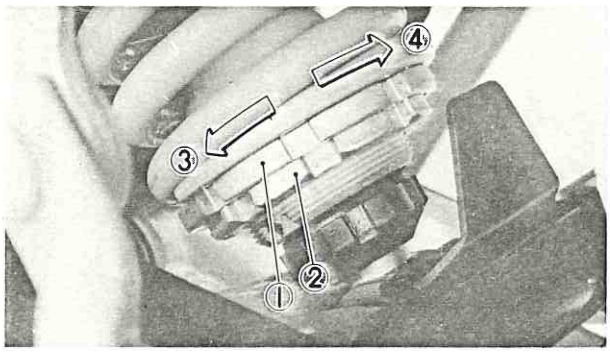
FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT

Rear Shock Absorber Adjustment

WARNING:

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

- **Do not tamper with or attempt to open the cylinder assembly.**
- **Do not subject shock absorber to an open flame or other high heat source. This may cause the unit to explode due to excessive gas pressure.**
- **Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.**



Preload

1. Loosen:
   - Locknut ②
2. Adjust:
   - Spring set length

   Turn the adjuster ① to increase or decrease the spring preload.
   Use a Special Wrench.

③ Increase spring preload
④ Decrease spring preload

FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT

Standard Spring Length
(Installed):
226 mm (8.9 in)
Minimum Length
(Installed):
213 mm (8.4 in)
Maximum Length
(Installed):
234 mm (9.2 in)

NOTE:

One complete turn of the adjuster will change the preload 1 mm (0.04 in). Make changes in increments of 2 mm (0.08 in) at a time.

CAUTION:

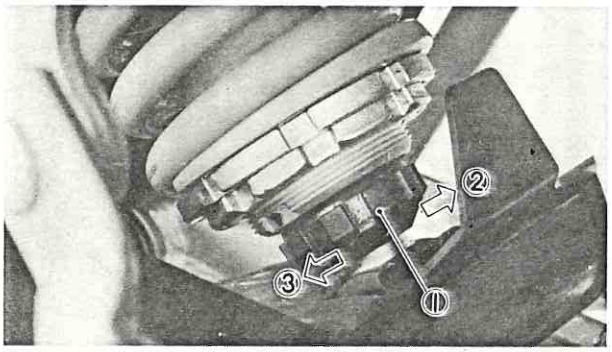
Never attempt to turn the adjuster beyond the maximum or minimum setting.

3. Tighten:
   - Locknut

Locknut:
55 Nm (5.5 m•kg, 40 ft•lb)

CAUTION:

Always tighten the locknut against the spring adjuster and torque the locknut to specification.



Damping

1. Adjust:
   - Damping

   Turn the adjuster ① to increase ② or decrease ③ the damping.

Rear shock absorber damping					
	← Stifter			Std	Softer →
Adjusting position	5	4	3	2	1

NOTE:

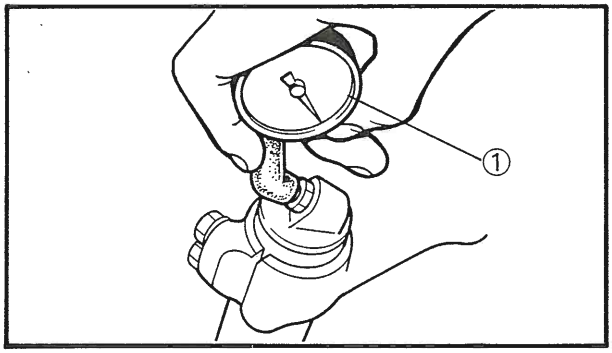
When adjusting the damping, the adjuster should be placed in the clicked position. If not, the damping will be set to the maximum (No. 5).

Front Fork Air Ajdustment

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

NOTE:

Be sure there is no weight on the front end of the motorcycle and the fork tube is at room temperature when air pressure is checked and adjusted.



2. Remove:
   - Air valve cap
3. Measure:
   - Air pressure

   Use an air gauge (1) and adjust as needed.

NOTE:

Increased air pressure causes stiffer suspension; decreased pressure causes softer suspension.

Air pressure adjustment	
To increase air pressure	Use manual air pump or pressurized air supply.
To decrease air pressure	Release air by pushing valve pin.

Standard Air Pressure:
0 kPa (0 kg/cm^2, 0 psi)
Maximum Air Pressure:
118 kPa (1.2 kg/cm^2, 17.1 psi)

CAUTION:

Never exceed maximum pressure or oil seal damage may occur.

4. Install:
   - Air valve cap (1)

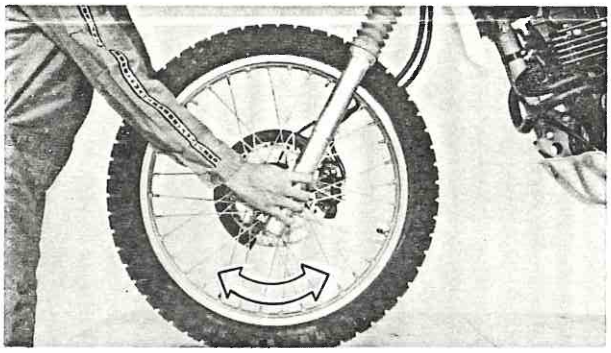
INSP ADJ FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT/STEERING HEAD

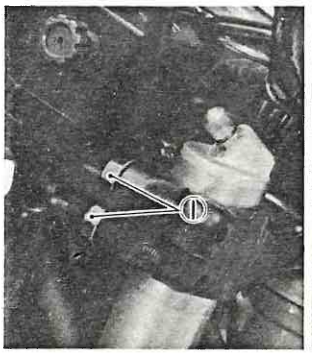
Recommended Combinations of Front Fork and Rear Shock Absorber

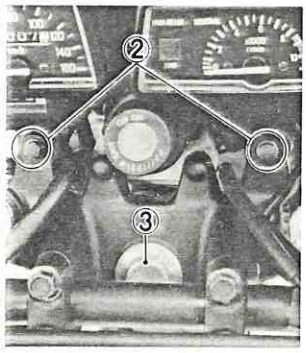
The following table indicates the recommended combination of front fork and rear shock absorber settings for various riding and motorcycle load conditions.

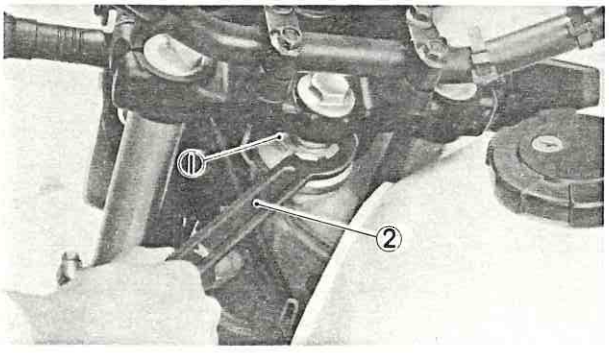
Front fork	Rear shock absorber		Loading condition			
Air pressure	Spring set length	Damping adjuster	Solo rider	With passenger	With accessories and equipment	With accessories, equipment, and passenger
0 kPa (0 kg/cm^2, 0 psi)	228~224 mm (8.98~8.82 in)	2~3	○		○	
0~19.6 kPa (0~0.2 kg/cm^2, 2.8 psi)	226~221 mm (8.90~8.7 in)	3~5		○		○

2









STEERING HEAD

Steering Head Inspection

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Check:
   - Steering assembly bearings
     Grasp the bottom of the forks and gently rock the fork assembly back and forth.
     Looseness→Adjust steering head.

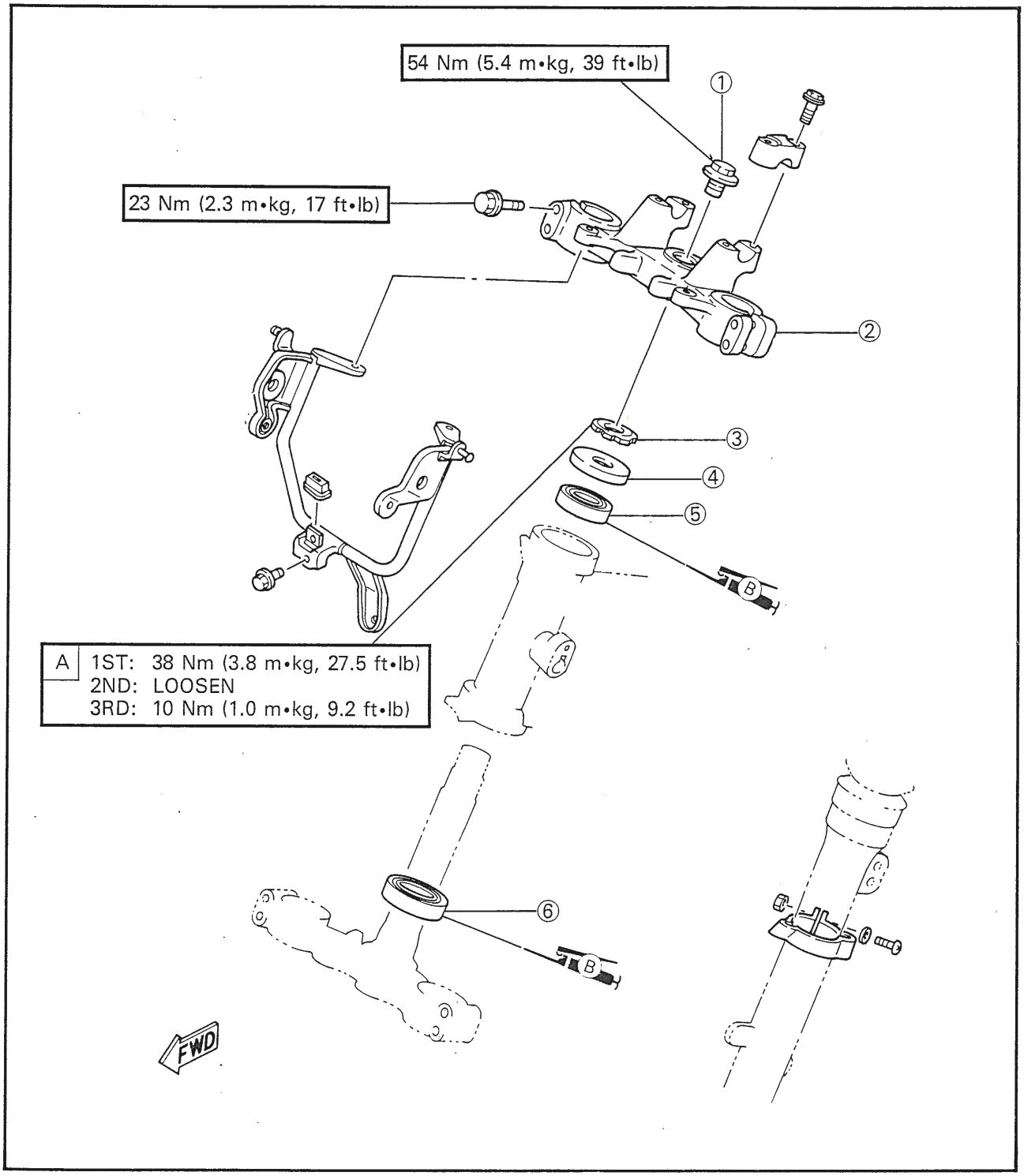
Steering Head Adjustment

1. Loosen:
   - Upper front fork pinch bolt ①
2. Remove:
   - Upper headlight stay bolts ②
3. Loosen:
   - Steering stem bolt ③
4. Lift the handle crown and handlebar assembly.
5. Tighten:
   - Ring nut ①
     Use the Ring Nut Wrench ② (90890-01268)

Ring Nut:
1st: 38 Nm (3.8 m•kg, 27.5 ft•lb)
2nd: Loosen
3rd: 10 Nm (1.0 m•kg, 7.2 ft•lb)

STEERING HEAD

① Steering stem bolt
② Handle crown
③ Ring nut
④ Bearing cover
⑤ Bearing (Upper)
⑥ Bearing (Lower)

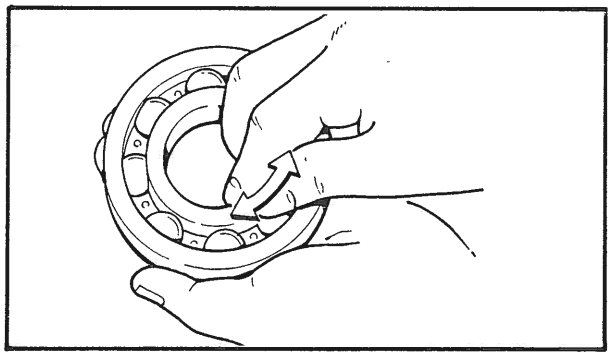


6. Install:
   - Handle crown/Handlebar assembly
   - Upper headlight stay bolts
7. Tighten:
   - Steering stem bolt

	Steering Stem Bolt: 54 Nm (5.4 m•kg, 39 ft•lb)

- Upper front fork pinch bolt

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



WHEEL BEARINGS

Front Wheel Bearings

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

Rear Wheel Bearings

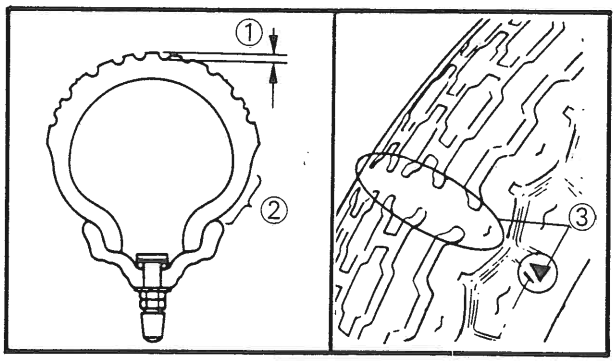
1. Remove:
   - Rear wheel
2. Check:
   - Bearing movement
     Roughness→Replace bearings.

TIRE AND SPOKE WHEELS

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

Basic weight: With oil and full fuel tank	130 kg (287 lb)	
Maximum load*	158 kg (348 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	127 kPa (1.3 kg/cm^2, 18 psi)	147 kPa (1.5 kg/cm^2, 22 psi)
90 kg (198 lb) ~ Maximum load*	147 kPa (1.5 kg/cm^2, 22 psi)	177 kPa (1.8 kg/cm^2, 26 psi)
High speed rinding	147 kPa (1.5 kg/cm^2, 22 psi)	177 kPa (1.8 kg/cm^2, 26 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)
1.0 mm (0.04 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:

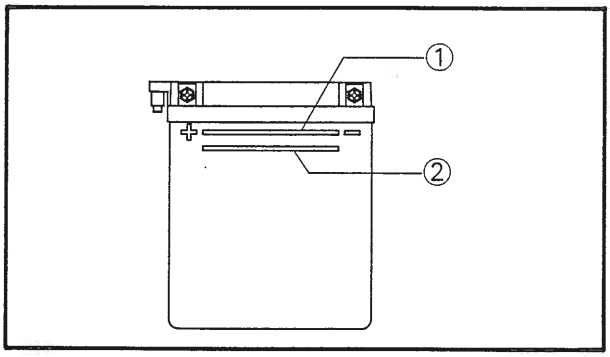
Always balance the wheel when a tire or wheel has been changed or replaced.

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

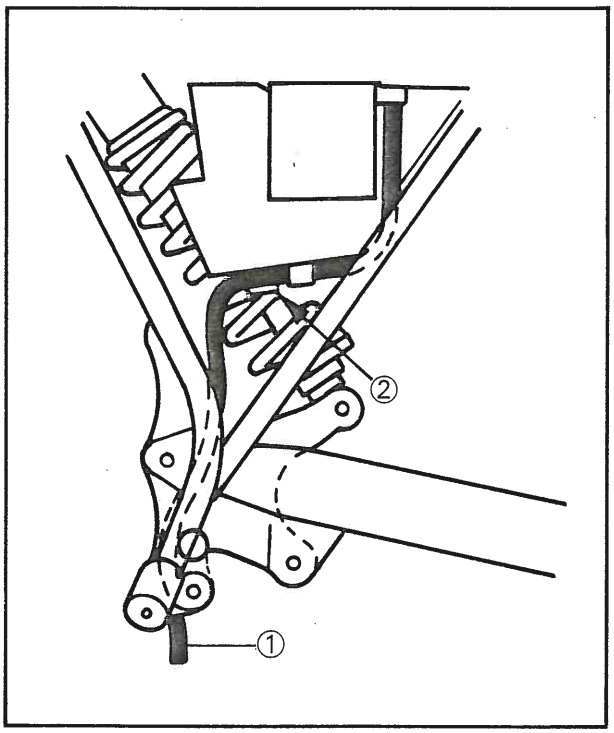
BATTERY

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

① Upper level
② Lower level

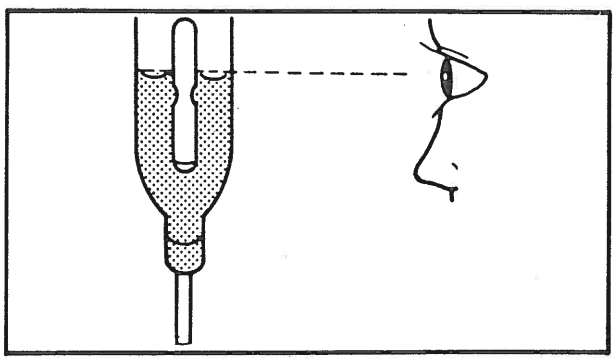
CAUTION:

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.

② Pass through guide



CAUTION:

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

Charging Current:
0.3 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 bruns or permanent eye injury.
- Wear protective eye gear when handling or working near batteires.

Antidote (EXTERNAL):

- SKIN-Flush with water.
- EYES-Flush with water for 15 minutes and get immediate medical attention.

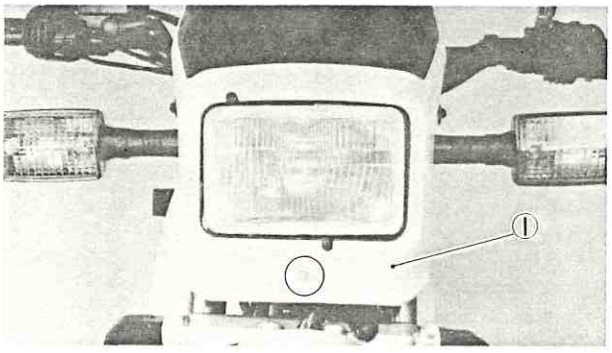
Antidote (INTERNAL):

- 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.

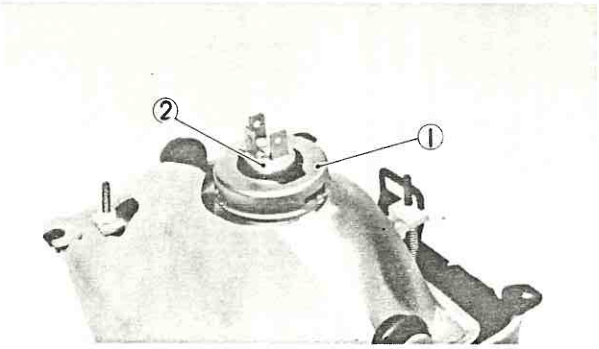


HEADLIGHT

Headlight Bulb Replacement

1. Remove:
   - Cowling ①
   - Headlight unit assembly
2. Disconnect:
   - Headlight coupler

HEADLIGHT



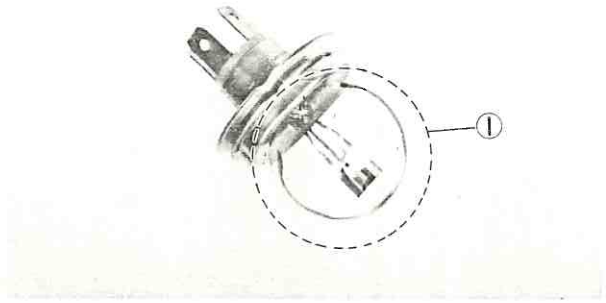
3. Remove:
   - Bulb holder ①
     Turn the bulb holder counterclockwise to release bulb.
   - Headlight bulb ②
4. Install:
   - Bulb (New)

WARNING:

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

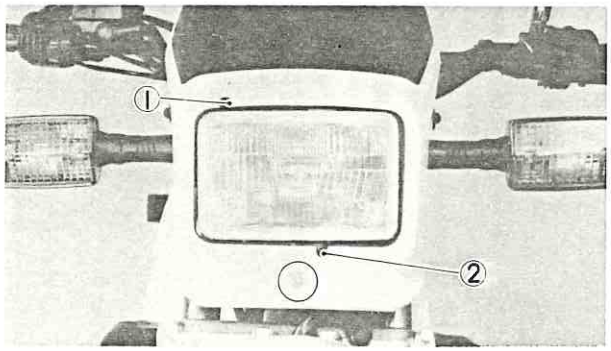
CAUTION:

Avoid touching glass part of bulb. Also keep it free form 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.



① Don't touch

5. Install:
   - Bulb holder
   - Cover
6. Connect:
   - Headlight coupler
7. Install:
   - Headlight unit assembly
   - Cowling



Headlight Adjustment

Horizontal adjustment

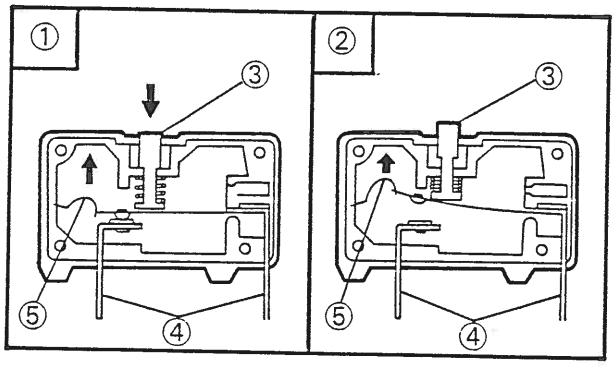
1. Rotate:
   - Horizontal adjusting screw ①

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



CIRCUIT BREAKER

The circuit breaker is located under the seat.

1. Inspect:
   - Circuit breaker
     Defective → Replace.

① Switch "ON"
② Switch "OFF"
③ Breaker knob
④ Terminal
⑤ Spring

NOTE:

Install new circuit breaker of proper amperage.

Description	Amperage	Quantity
Main	10A	1

Switch on procedure steps:

CAUTION:

Wait 30 seconds before resetting the circuit breaker.

- Turn off ignition.
- Push in the circuit breaker.
- Turn on ignition switches to verify operation of electrical device.
- If circuit breaker switches off immediately again, check circuit in question.

WARNING:

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

2

CHAPTER 3.
ENGINE OVERHAUL

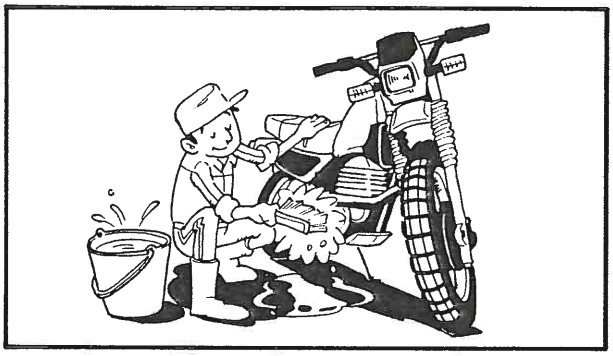
ENGINE OVERHAUL

ENGINE REMOVAL

NOTE:

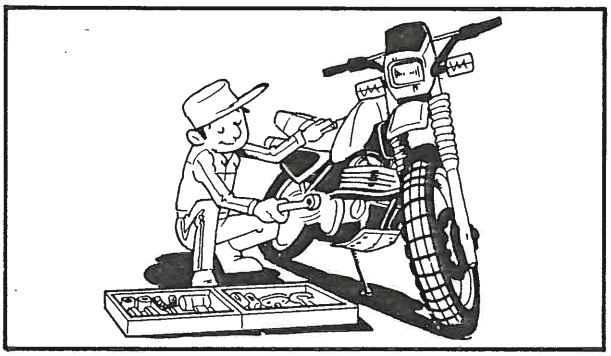
It is not necessary to remove the engine in order to remove the following components:

- Piston
- Clutch
- Carburetor
- AC magneto



PREPARATION FOR REMOVAL

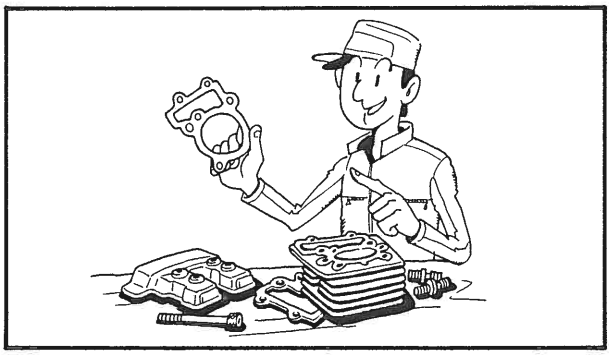
1. Remove all dirt, mud, dust, and foreign material before removal and disassembly.



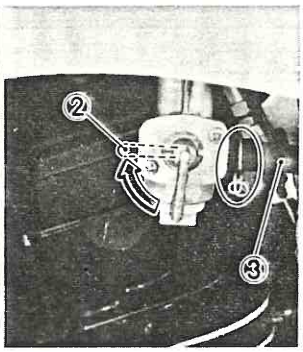
2. Use proper tools and cleaning equipment. Refer to CHAPTER 1, "SPECIAL TOOL."

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.

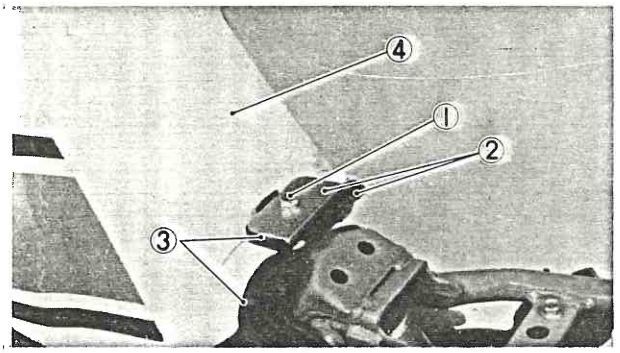


3. During the engine disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled in the engine.
4. Drain engine oil completely.

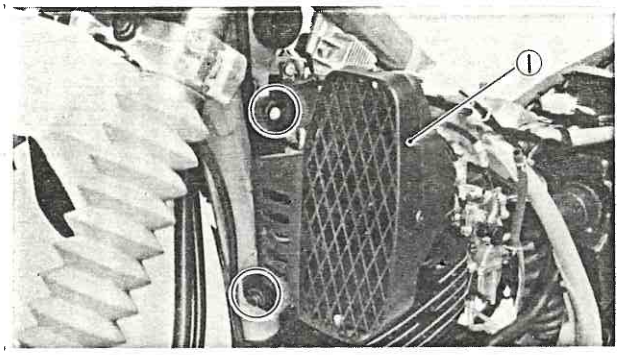


SEAT AND FUEL TANK

1. Remove:
   - Side covers (Left/Right)
   - Seat ①
2. Turn the fuel cock to the "OFF" ② position.
3. Disconnect:
   - Fuel pipe ③

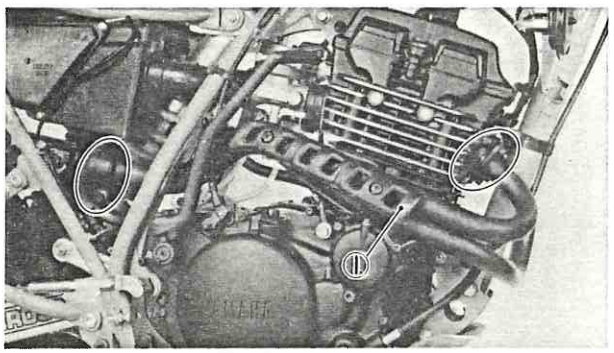


4. Remove:
   - Holding bolt ①
   - Holding plates ②
   - Rubbers ③
   - Fuel tank ④



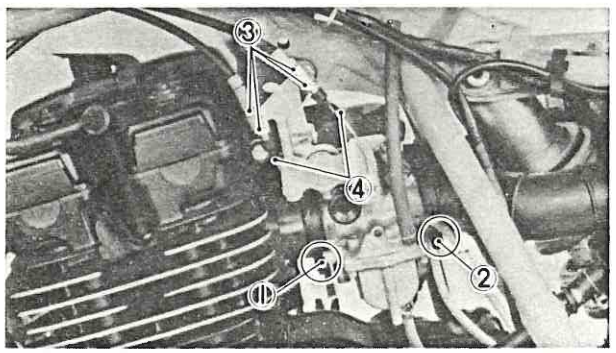
ENGINE AIR SCOOP

1. Remove:
   - Engine air scoop ①



EXHAUST PIPE

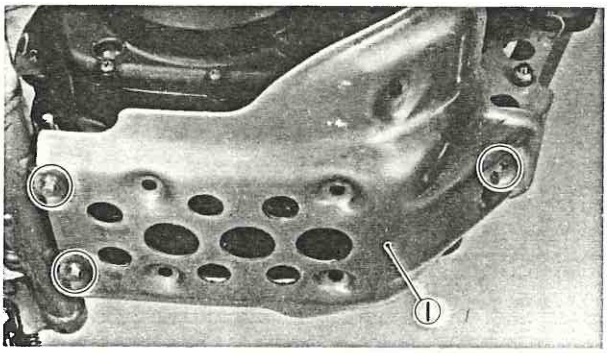
1. Remove:
   - Exhaust pipe ①



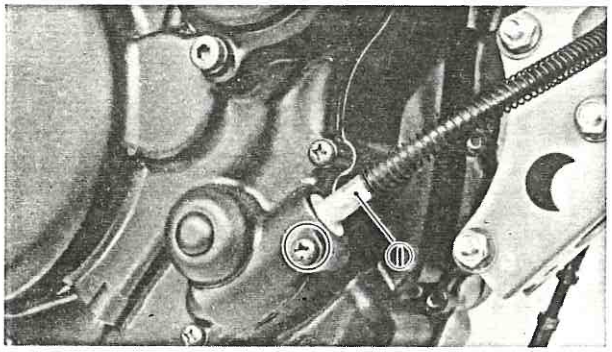
CARBURETOR AND CABLE

1. Loosen:
   - Carburetor joint clamp screw ①
   - Air cleaner joint clamp screw ②
   - Throttle cable locknut ③
2. Remove:
   - Throttle cables ④
   - Carburetor

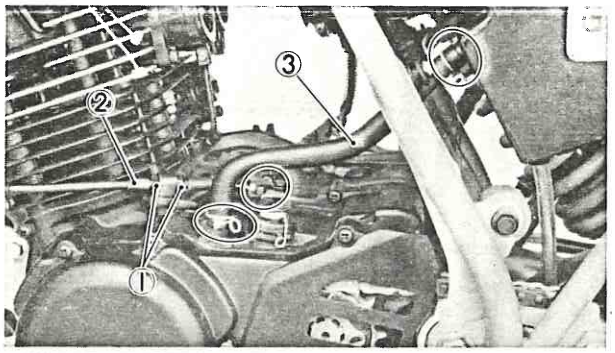
ENGINE REMOVAL



3. Remove:
   - Engine guard ①



4. Disconnect:
   - Tachometer cable ①

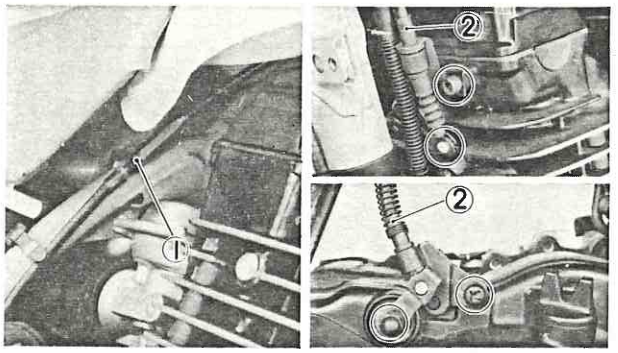


5. Loosen:
   - Locknut ①
6. Disconnect:
   - Clutch cable ②

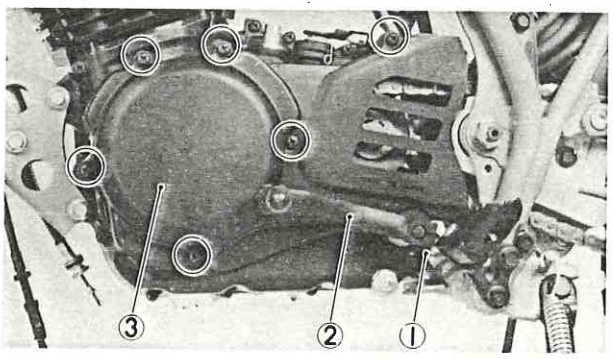
NOTE:

Loosen the clutch lever side adjuster.

- Crankcase ventilation hose ③

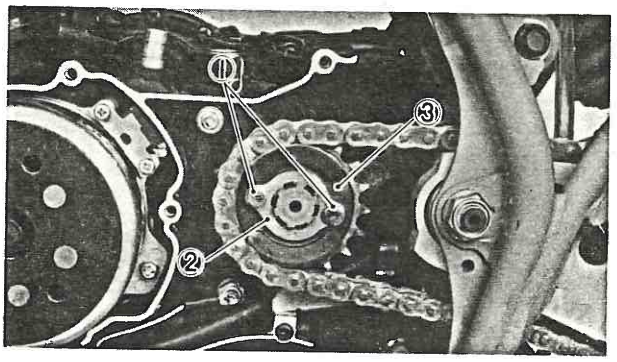


7. Loosen:
   - Adjuster locknut ①
8. Disconnect:
   - Decompression cable ②
     (at both sides)

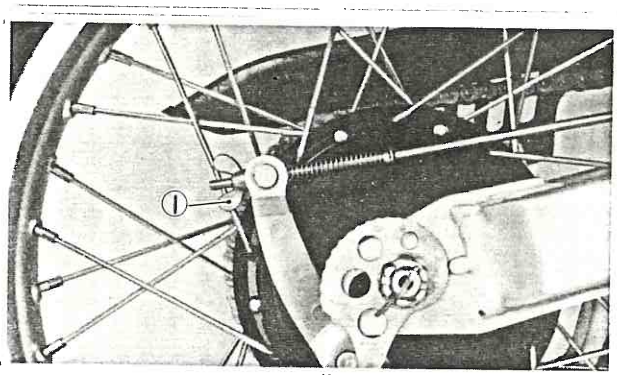


DRIVE CHAIN SPROCKET

1. Remove:
   - Bolt ①
   - Change pedal ②
   - Left crankcase cover ③
2. Loosen:
   - Rear axle nut
   - Adjuster
   - Drive chain

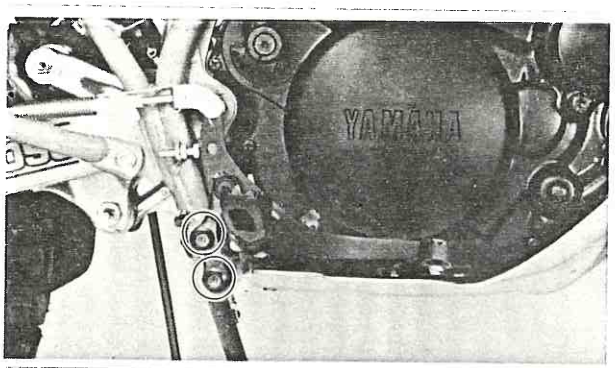


3. Remove:
   - Bolts ①
   - Stopper ②
   - Drive chain sprocket ③

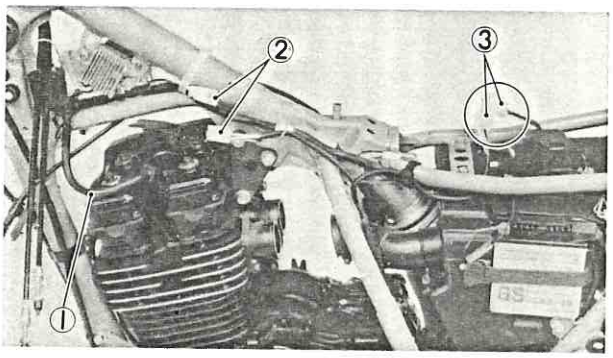


FOOTREST

1. Remove:
   - Adjuster ①
2. Disconnect:
   - Brake rod

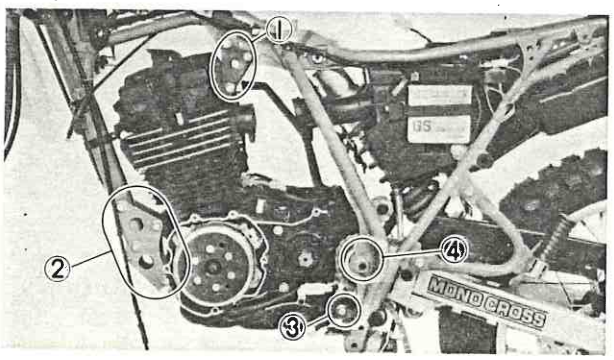


3. Remove:
   - Right footrest and brake pedal assembly
   - Left footrest



LEADS

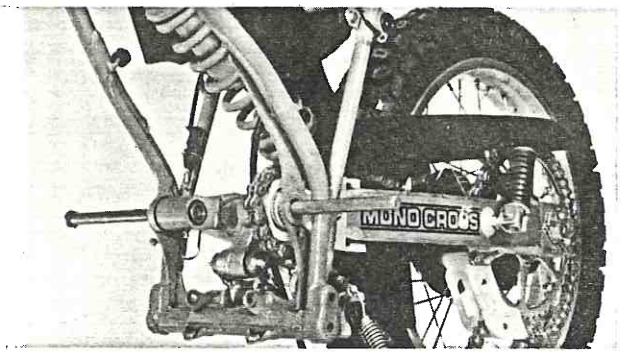
1. Disconnect:
   - Spark plug lead ①
   - Charge/Lighting coil coupler ②
   - Source/Pick up coil coupler ③



ENGINE REMOVAL

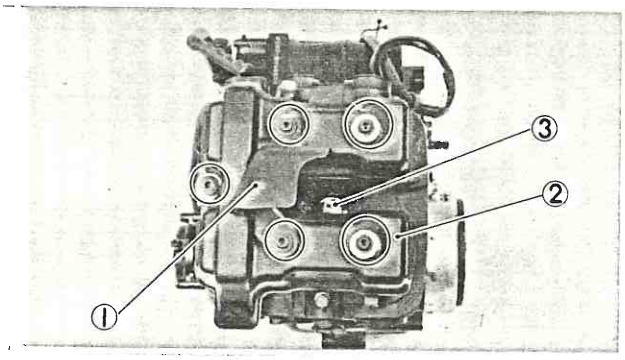
1. Place a suitable stand under the engine.
2. Remove:
   - Upper mounting bolts ①
   - Front mounting bolts ②
   - Rear mounting bolt ③
   - Rear arm pivot shaft ④
   - Engine assembly

ENGINE REMOVAL



NOTE:

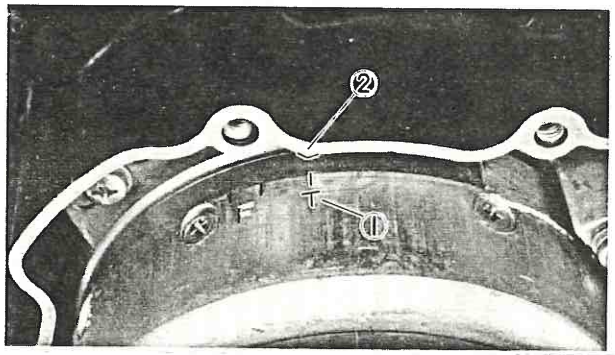
The engine and rear arm are installed using the same pivot shaft. Therefore, take care so that the pivot shaft is pulled, not entirely out, but far enough to set the engine free.



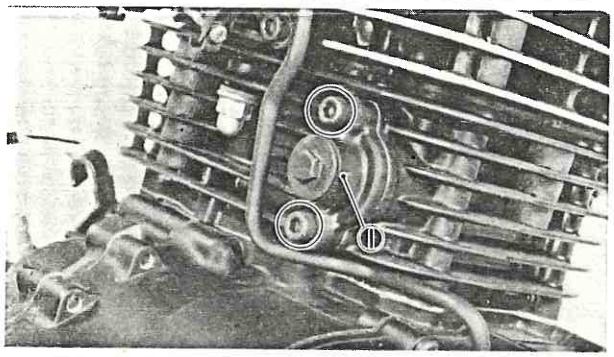
ENGINE DISASSEMBLY

CAMSHAFT, CYLINDER HEAD AND CYLINDER

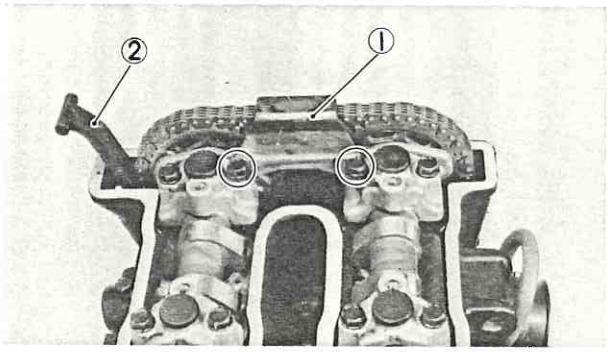
1. Remove:
   - Air baffle plate ①
   - Cylinder head cover ②
   - Spark plug ③



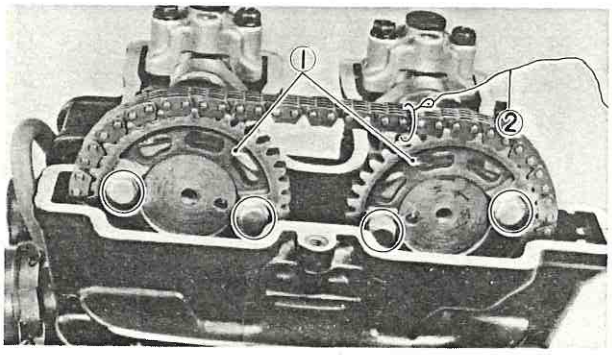
2. Turn:
   - Crankshaft
     (Counterclockwise)
3. Align:
   - Flywheel "T" mark ①
     (with the crankcase mark ②)



4. Remove:
   - Tensioner assembly ①



5. Remove:
   - Upper chain guide ①
   - Exhaust side chain guide ②

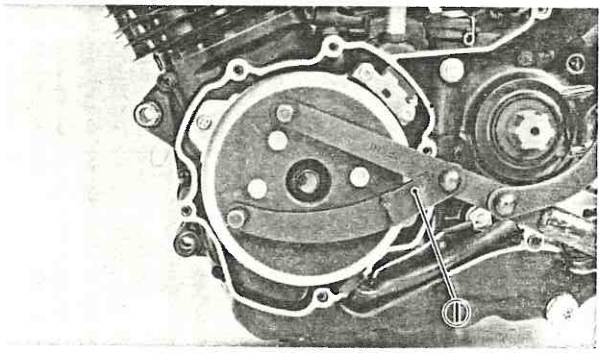


6. Remove:
   - Sprocket bolts
   - Sprockets ①

NOTE:

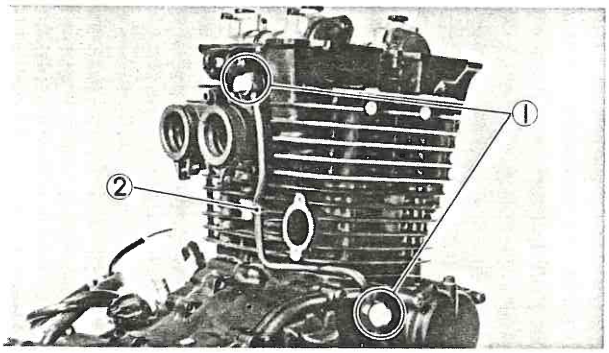
Fasten safety wire ② to the cam chain to prevent it from falling into the crankcase.

ENGINE DISASSEMBLY

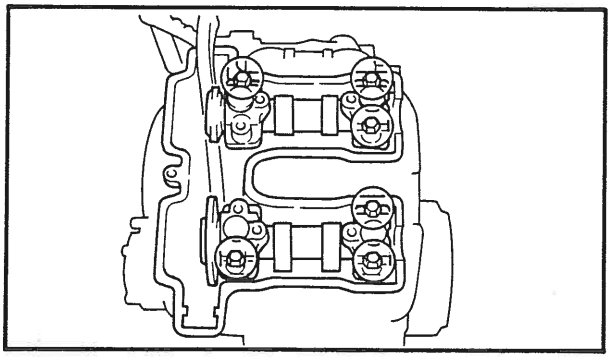


NOTE:

If difficult to loosen the cam sprocket securing bolts; hold the flywheel magneto with the rotor holding tool ①.



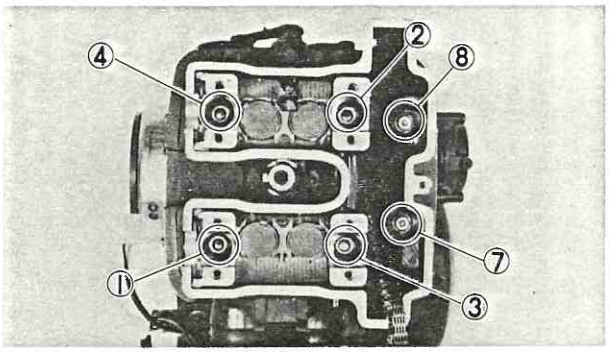
7. Remove:
   - Oil pipe union bolts ①
   - Oil pipe ②



8. Remove:
   - Cam caps
   - Camshafts

CAUTION:

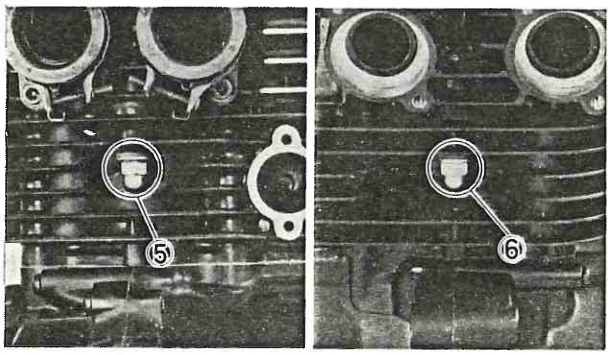
Do not rotate the camshaft or valve damage may occur.

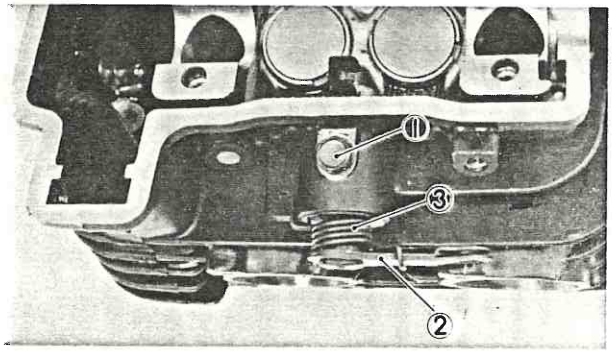


9. Remove:
   - Cylinder head

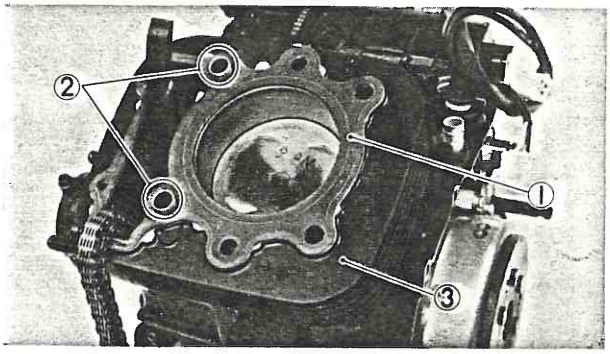
NOTE:

Loosen the bolts and nuts in their proper loosening sequence.

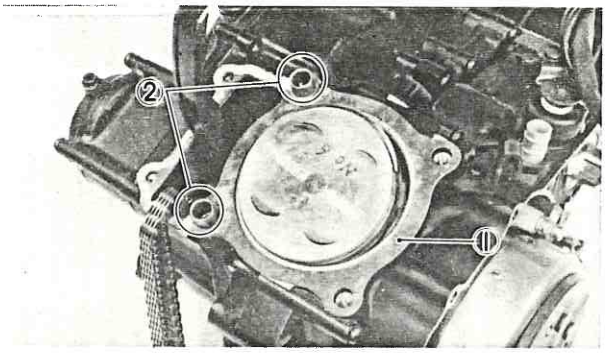




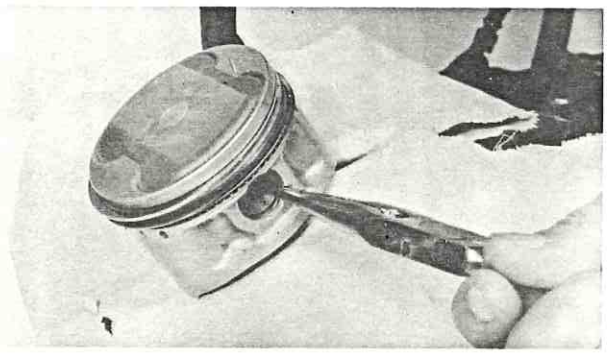
10. Remove:
    - Bolt ①
    - Decompression cam ②
    - Spring ③



11. Remove:
    - Cylinder head gasket ①
    - Dowels ②
    - Cylinder ③



12. Remove:
    - Cylinder gasket ①
    - Dowels ②



PISTON

1. Remove:
    - Piston pin circlips

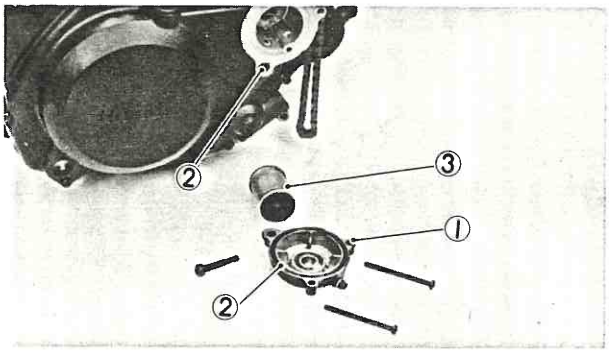
NOTE:

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

2. Remove:
    - Piston pins
    - Pistons

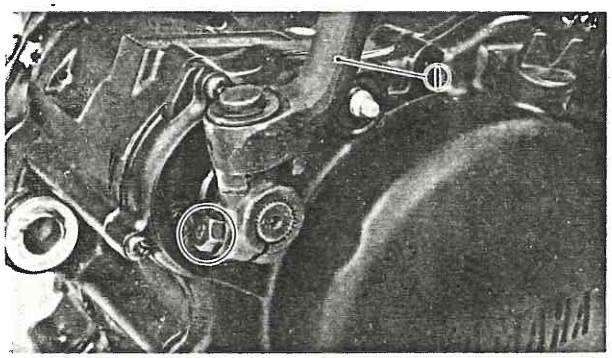
    Push piston pin from the opposite side, then pull it out.

ENGINE DISASSEMBLY



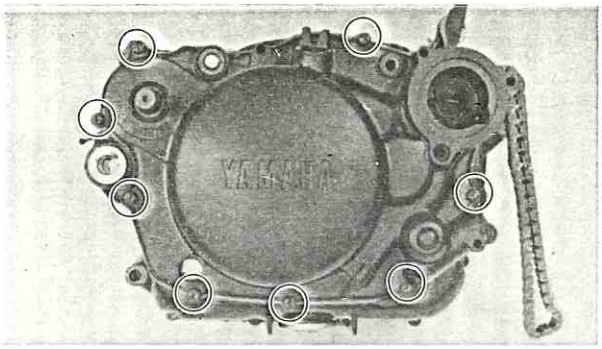
OIL FILTER

1. Remove:
   - Oil filter cover ①
   - O-ring ②
   - Oil filter ③

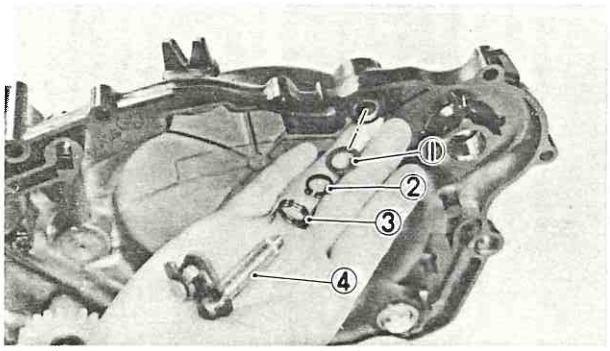


RIGHT CRANKCASE COVER

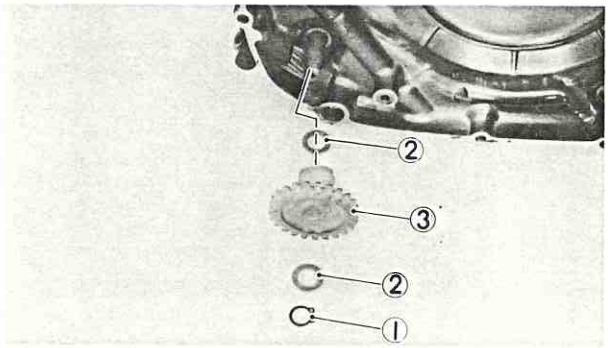
1. Remove:
   - Bolt
   - Kick crank assembly ①



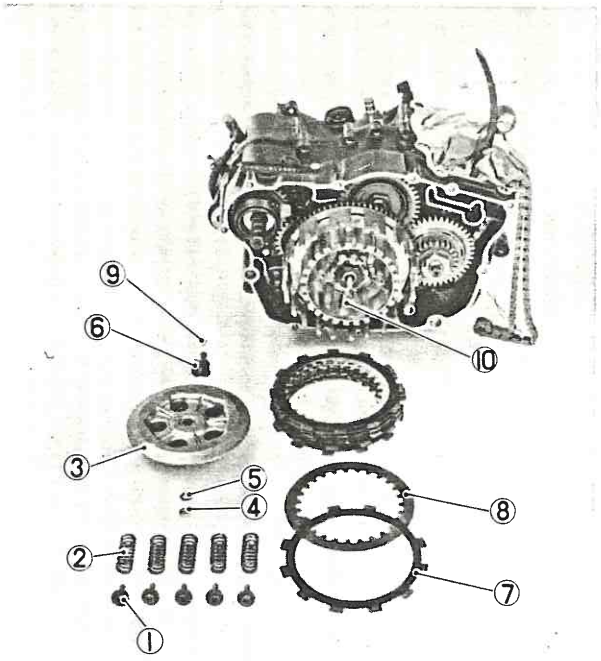
2. Remove:
   - Right crankcase cover
   - Gasket
   - Dowels



3. Remove:
   - Washer ①
   - Circlip ②
   - Torsion spring ③
   - Decompression lever ④

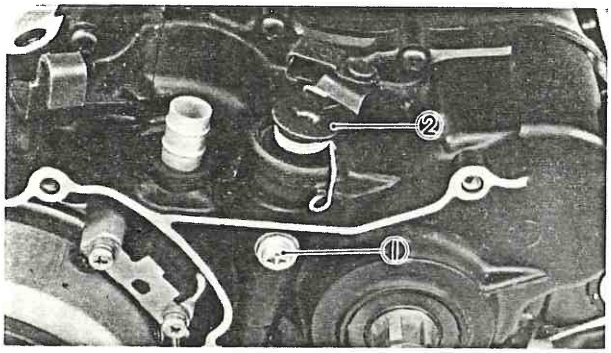


4. Remove:
   - Circlip ①
   - Washer ②
   - Tachometer driven gear ③
     (from the right crankcase cover)

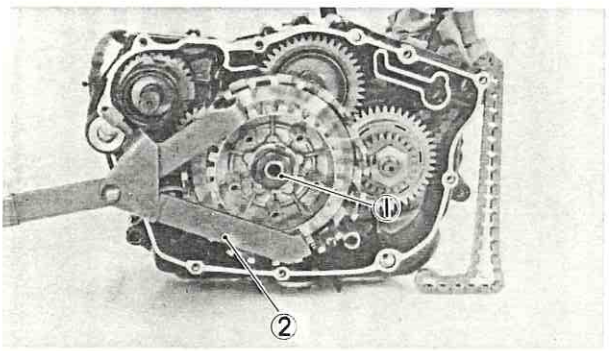


CLUTCH

1. Remove:
   - Clutch spring holding screws ①
   - Clutch springs ②
   - Pressure plate ③
   - Nut ④
   - Washer ⑤
   - Push rod #1 ⑥
   - Friction plates ⑦
   - Clutch plates ⑧
   - Push rod ball ⑨
   - Push rod #2 ⑩

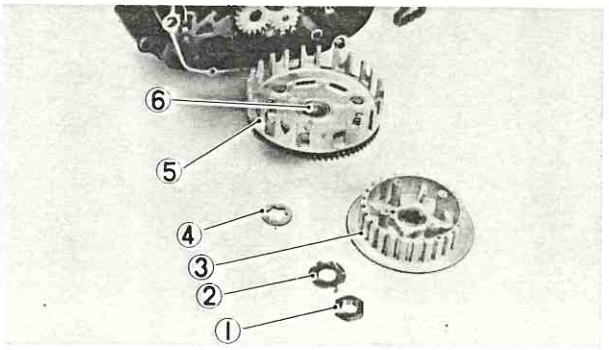


2. Remove:
   - Screw ①
   - Clutch push lever axle assembly ②

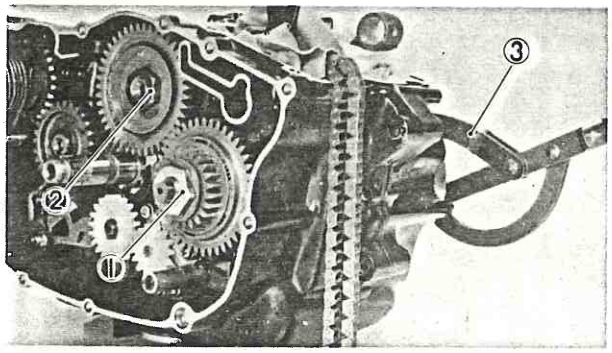


3. Loosen:
   - Clutch boss securing nut ①

   Use Universal Clutch Holder ② (90890-04086).



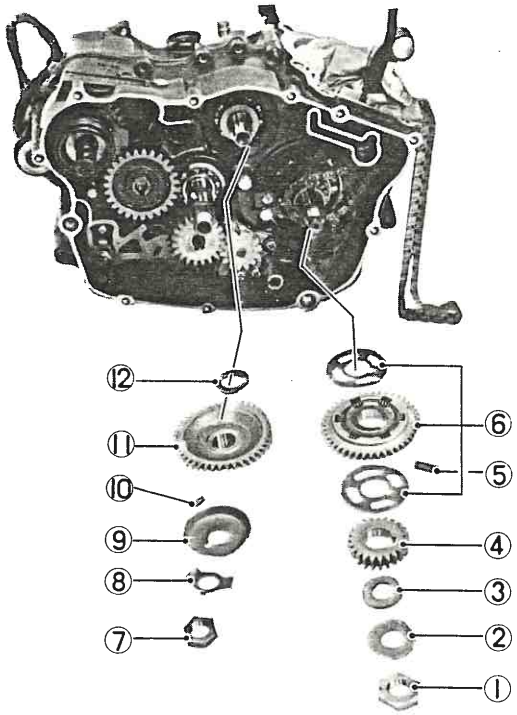
4. Remove:
   - Clutch boss securing nut ①
   - Lock washer ②
   - Clutch boss ③
   - Washer ④
   - Primary driven gear ⑤
   - Bearing ⑥



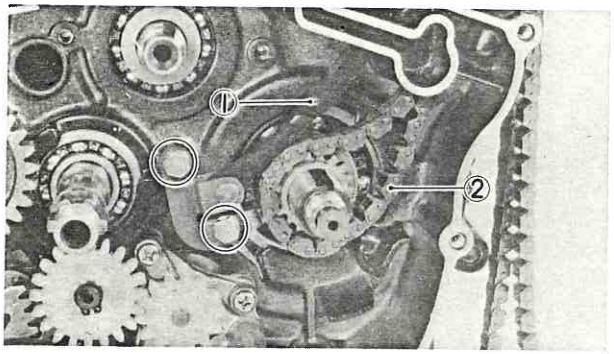
PRIMARY DRIVE GEAR AND BALANCER DRIVEN GEAR

1. Loosen:
   - Primary drive gear securing nut ①
   - Balancer driven gear securing nut ②

   Use Rotor Holding Tool (90890-01235) ③.

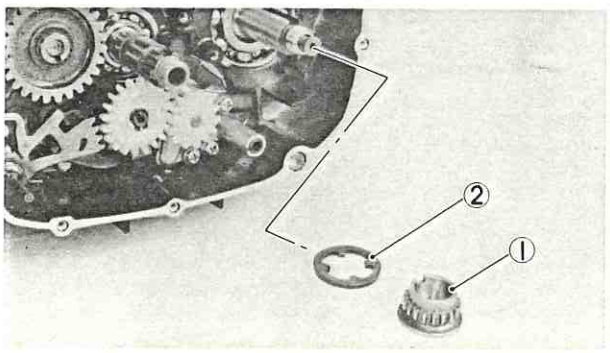


2. Remove:
   - Nut ①
   - Lock washer ②
   - Washer ③
   - Primary drive gear ④
   - Key ⑤
   - Balancer drive gear assembly ⑥
   - Nut ⑦
   - Lock washer ⑧
   - Breather plate ⑨
   - Key ⑩
   - Balancer driven gear ⑪
   - Washer ⑫

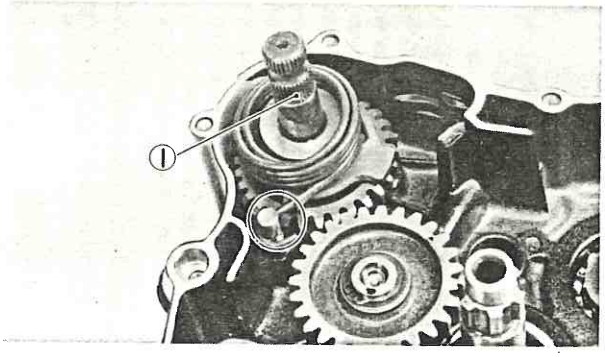


INTAKE SIDE CHAIN GUIDE AND CAM CHAIN

1. Remove:
   - Intake side chain guide ①
   - Cam chain ②

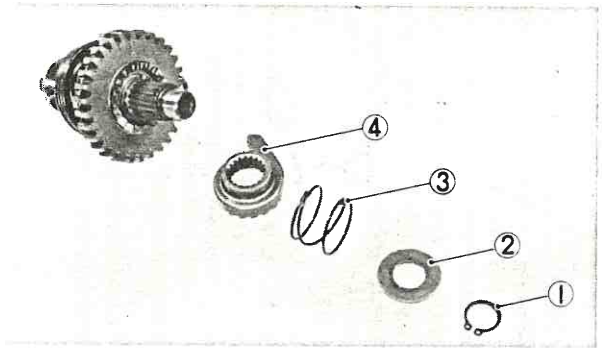


2. Remove:
   - Chain drive gear ①
   - Washer ②

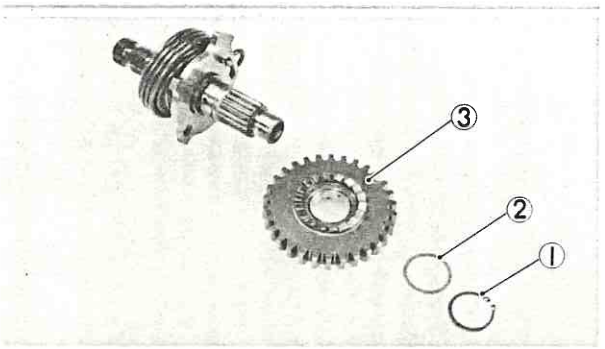


KICK AXLE AND IDLE GEAR

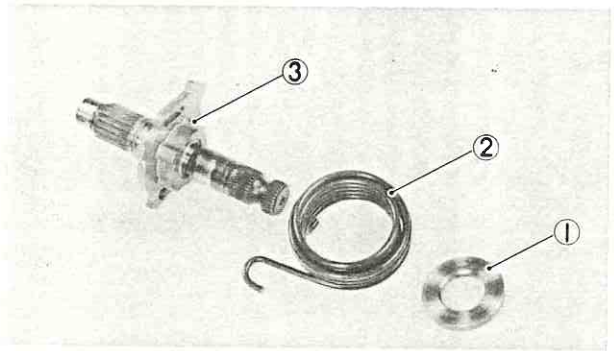
1. Unhook the kick spring from its position.
2. Remove:
   - Kick axle assembly ①
     Rotate the shaft counterclockwise.
   - Plane washer



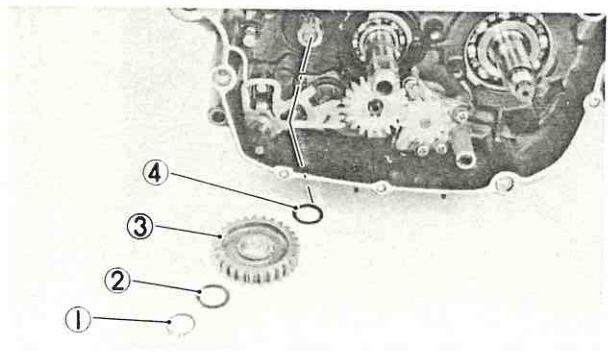
3. Remove:
   - Circlip ①
   - Washer ②
   - Ratchet wheel spring ③
   - Ratchet wheel ④



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

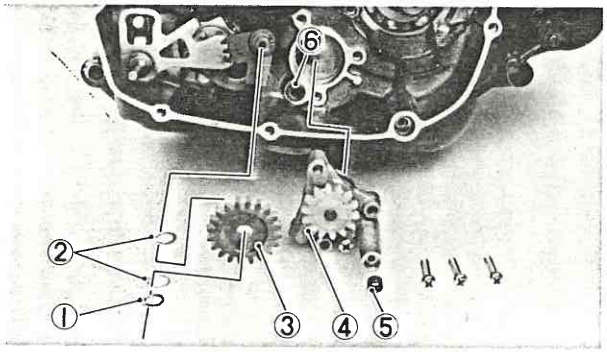


5. Remove:
   - Washer ①
   - Kick spring ②
   - Kick axle ③



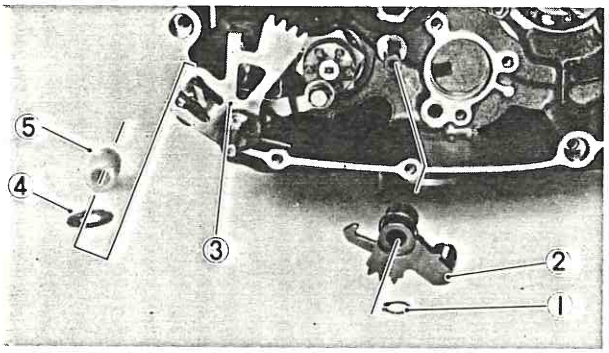
6. Remove:
   - Circlip ①
   - Washer ②
   - Kick idle gear ③
   - Washer ④

ENGINE DISASSEMBLY



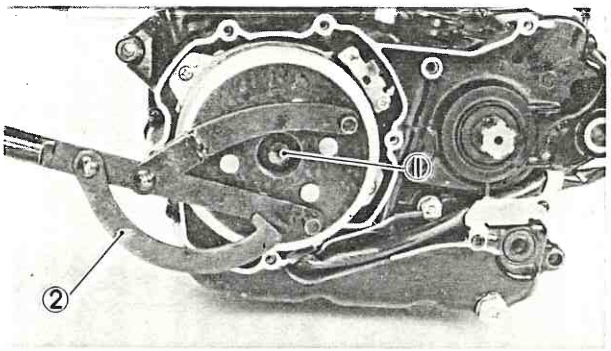
OIL PUMP

1. Remove:
   - Circlip ①
   - Washer ②
   - Oil pump idle gear ③
   - Oil pump assembly ④
   - Oil seal ⑤
   - O-ring ⑥



CHANGE LEVER

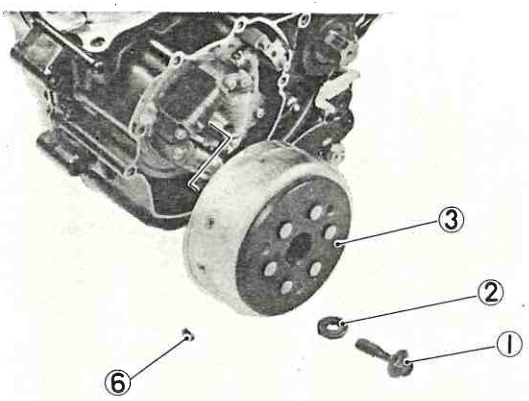
1. Remove:
   - Circlip ①
   - Change lever 2 ②
   - Change lever assembly ③
   - Washer ④
   - Spacer ⑤



CDI MAGNETO

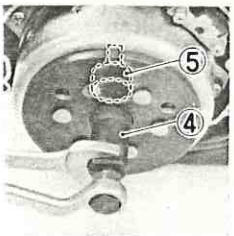
1. Loosen:
   - Bolt ①

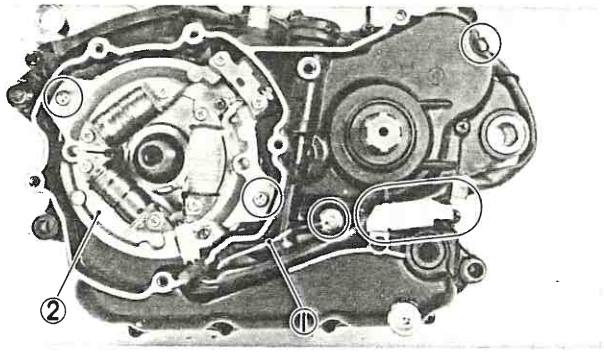
   Use Rotor Holding Tool ② (90890-01235).



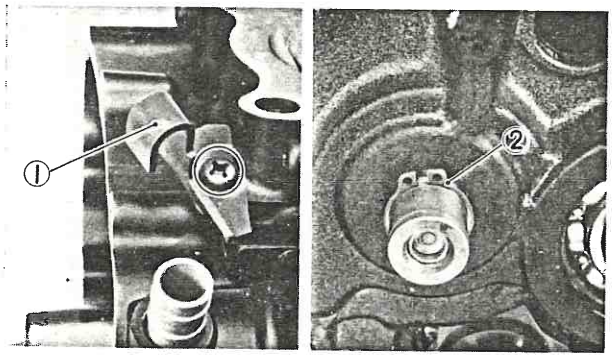
2. Remove:
   - Bolt ①
   - Plate washer ②
   - CDI Rotor ③

   Use Flywheel Puller ④ (90890-01189) and Attachment ⑤ (90890-01382).
   - Key ⑥



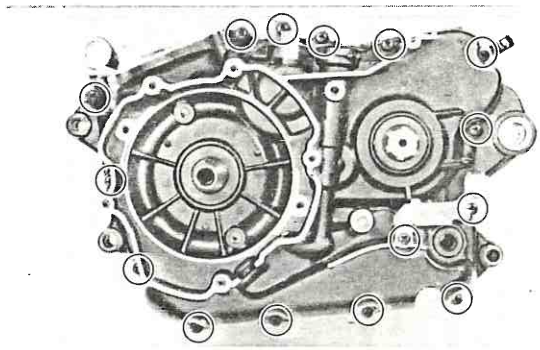


3. Disconnect:
   - Neutral switch lead ①
4. Remove:
   - CDI Base plate assembly ②



CRANKCASE

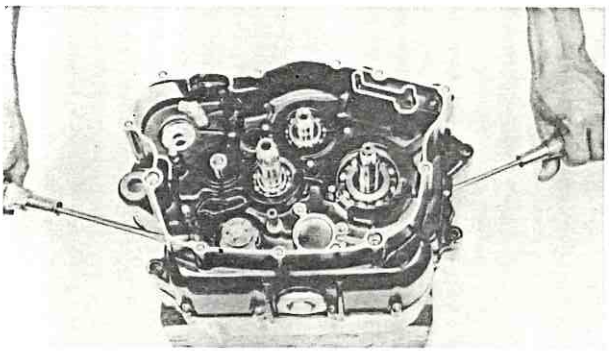
1. Remove:
   - Clutch cable bracket ①
     (from left crankcase)
   - Circlip ②
     (from drive axle)



2. Remove:
   - Crankcase holding screws

NOTE:

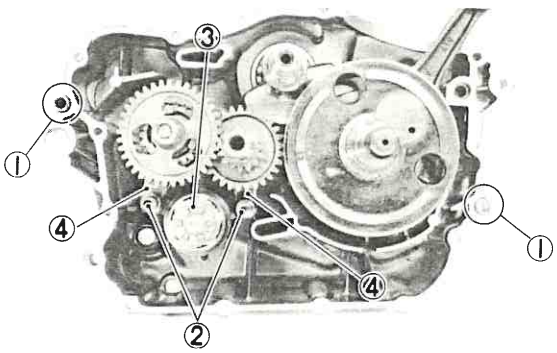
Loosen each screw 1/4 turn, and remove them after all are loosened.



3. Remove:
   - Right crankcase
     (using two screw drivers)

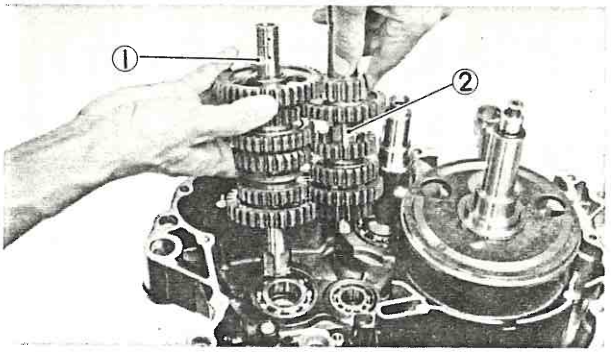
NOTE:

As pressure is applied, alternately tap on the balancer shaft, transmission shafts, and shift cam.

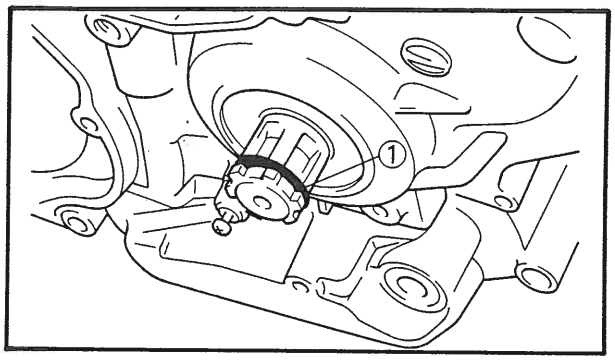


4. Remove:
   - Dowels ①
   - Shift shafts ②
   - Shift cam ③
   - Shift forks ④

ENGINE DISASSEMBLY

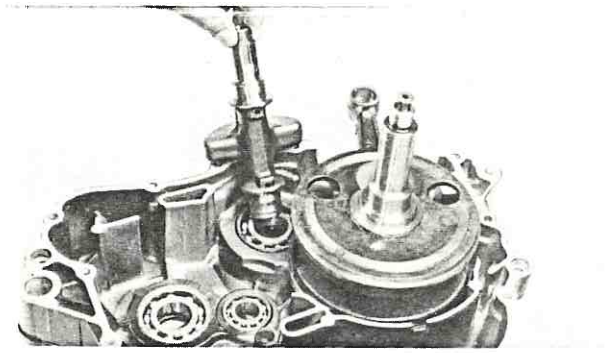


5. Remove:
   • Drive axle ① and main axle ② assembly

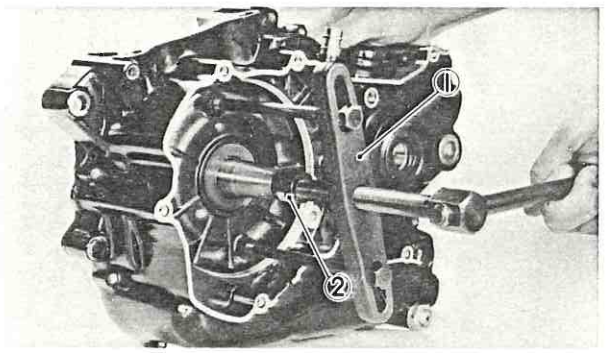


NOTE:

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



6. Remove:
   • Balancer shaft



7. Remove:
   • Crankshaft
   Use Crankcase Separator ① (90890-01135) and Flywheel Puller Attachment (90890-01382) ②.

BEARINGS AND OIL SEALS

NOTE:

- It is not necessary to remove bearings and oil seals unless damaged. See Bearings and oil seals (INSPECTION AND REPAIR.)

• To facilitate bearing removal and installation, first heat the cases to approximately 95° ~ 125°C (205° ~ 257°F) using an oven. Bring the case up to proper temperature slowly.

1. Remove
   • Oil seals

CAUTION:

• Use a screwdriver to pry out the seal.
• Place a piece of wood under the screwdriver to prevent damage to the case.

2. Remove:
   • Bearings

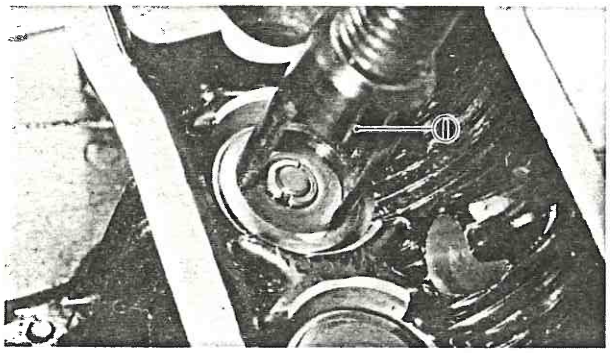
INSPECTION AND REPAIR

CYLINDER HEAD

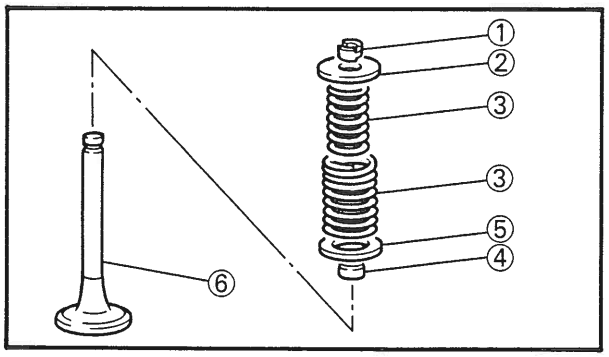
1. Remove
   - Valve pads
   - Lifters

NOTE:

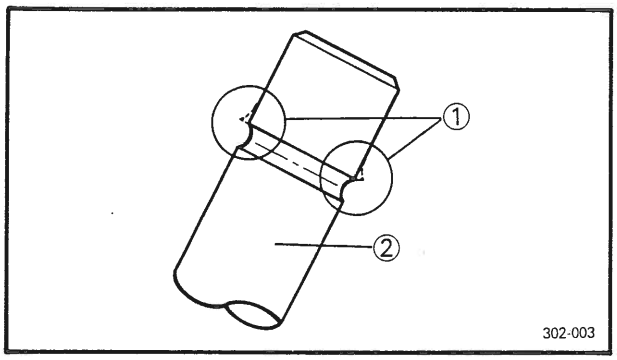
Identify each lifter and pad position very carefuly so that it can be reinstalled in its original place.



2. Attach:
   - Valve Spring Compressor (90890-04019) ①



3. Remove:
   - Valve retainers ①
   - Valve spring seat ②
   - Valve springs ③
   - Oil seal ④
   - Valve spring seat ⑤
   - Vlave ⑥



NOTE:

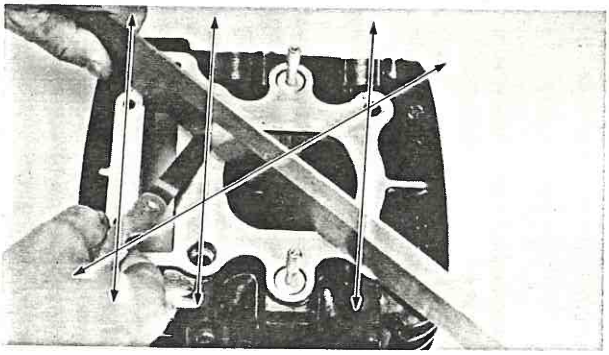
Deburr any deformed valve stem end. Use an oil stone to smooth the stem end.

① Deburr
② Valve stem

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

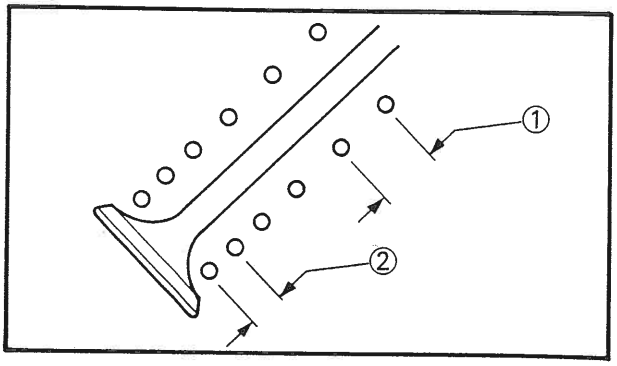
NOTE:

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)

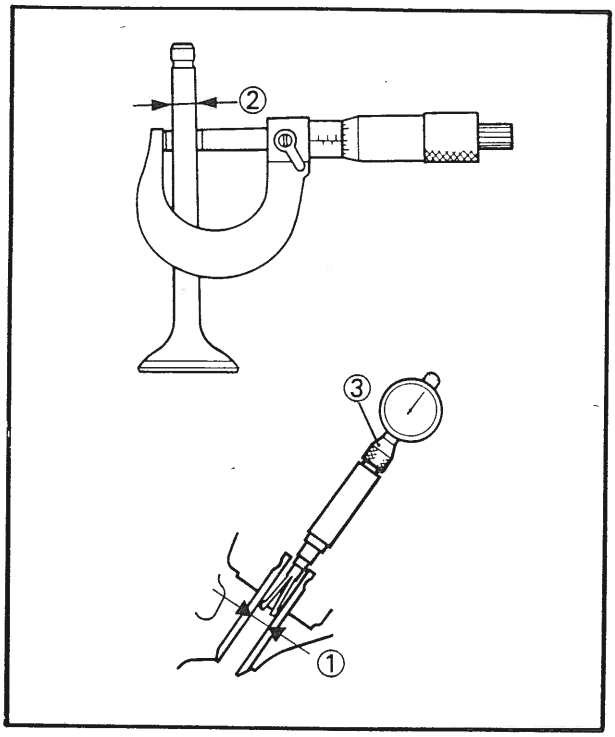


6. Install:
   • Valve springs

② Smaller pitch

NOTE:

All valve springs must be installed with the larger pitch ① upward as shown.



VALVE, VALVE GUIDE, VALVE SEATS AND VALVE SPRING

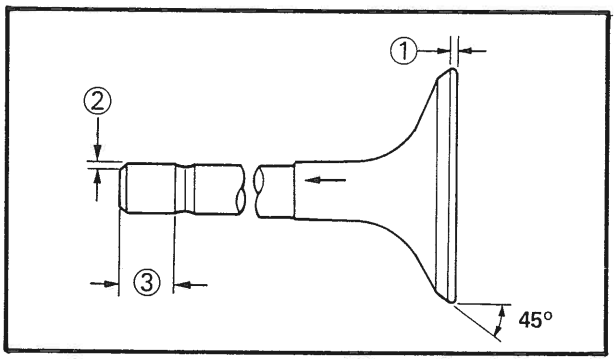
1. Measure:
   • Valve stem clearance

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

Out of specification → Replace valve or guide.

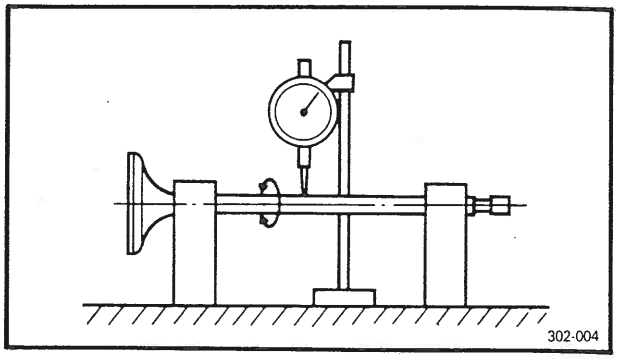
	Valve stem clearance
Intake	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)
Exhaust	0.025 ~ 0.040 mm (0.00098 ~ 0.0016 in)

③ Bore gauge



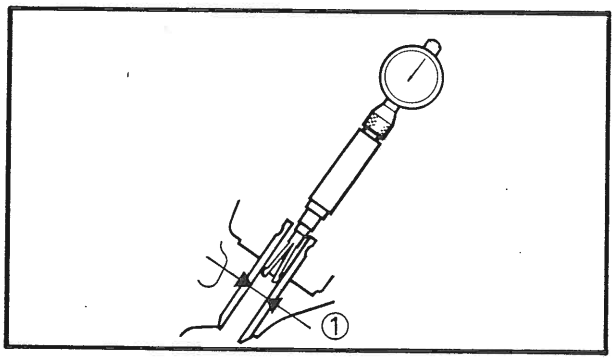
4. Measure:
   • Valve face:
   Pitting/Wear → Regrind.
   Out of specification → Raplace.

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 or stem→Replace.
   - Runout
     Out of specification→Replace.

Maximum Valve Stem Runout:
0.01 mm (0.0004 in)



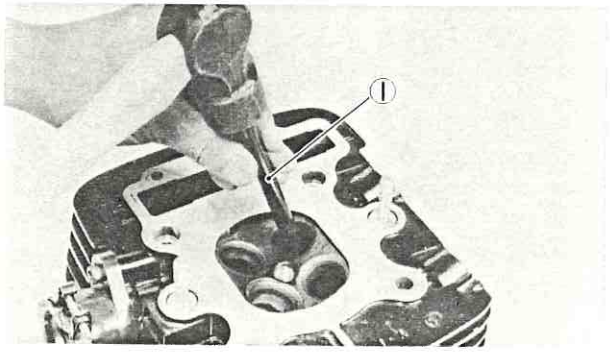
4. Measure:
   - Valve guide (inside diameter) ①
     Out of specification→Replace.

Valve Guide Inside Diameter:
5.500 ~ 5.512 mm
(0.2165 ~ 0.2170 in)

5. Inspect:
   - Valve guide
     Wear/Oil leakage→Replace.

NOTE:

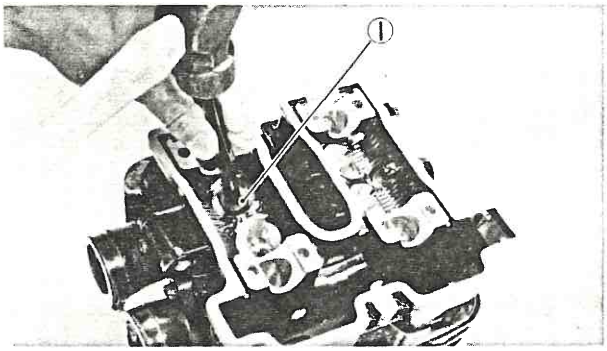
Heat the cylinder head in an oven to 100°C (212°F) to ease valve guide removal and reinstallation and to maintain correct interference fit.



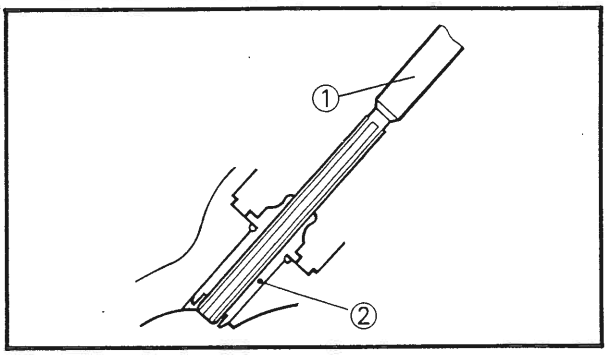
Valve Guide Replacement

1. Remove:
   - Valve guide
     Use Valve Guide remover (90890-01122) ①.

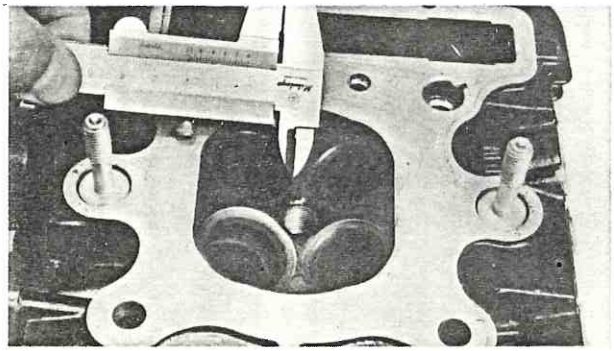
NOTE:
- Always replace valve guide if valve is replaced.
- Always replace oil seal if valve is removed.



2. Install:
   - Valve guide (new)
     Use Valve Guide Installer (90890-04015) ①.



3. Bore valve guide ② to obtain proper valve stem clearance.
   Use 5.5 mm Reamer (90890-01196) ①.

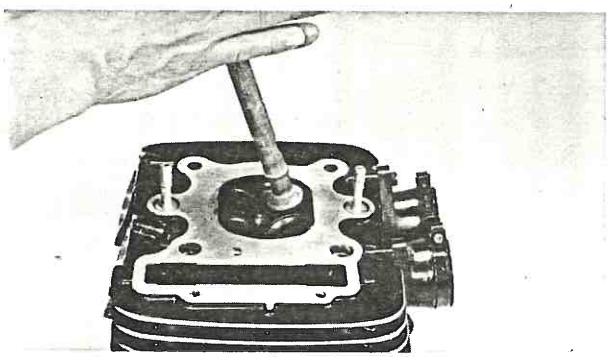


Valve Seat

1. Inspect:
   - Valve seat
     Pitting/Wear→Cut.
2. Measure:
   - Valve seat width ①
     Out of specification→Follow next steps.

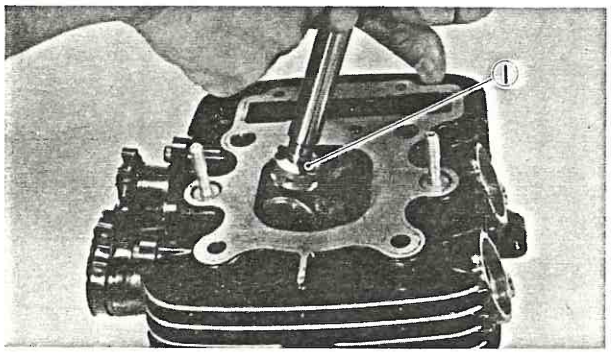
	Standard width	Wear limit
Valve seat width	1.0±0.1 mm (0.039±0.004 in)	1.8 mm (0.07 in)

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.

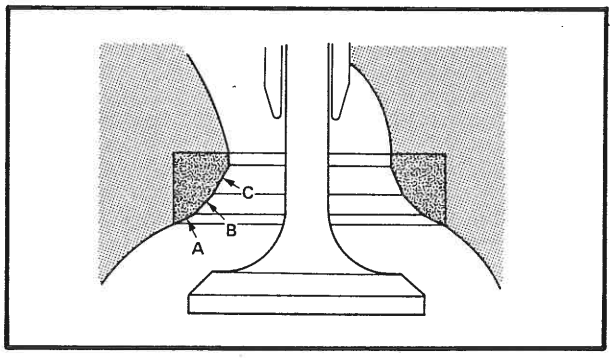
   Out of specification → Cut.
8. Cut valve seat.

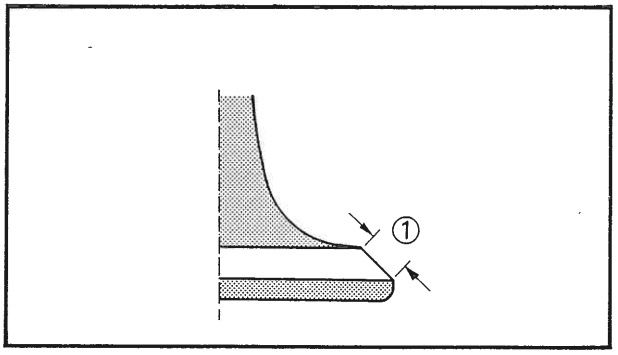
NOTE:

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.

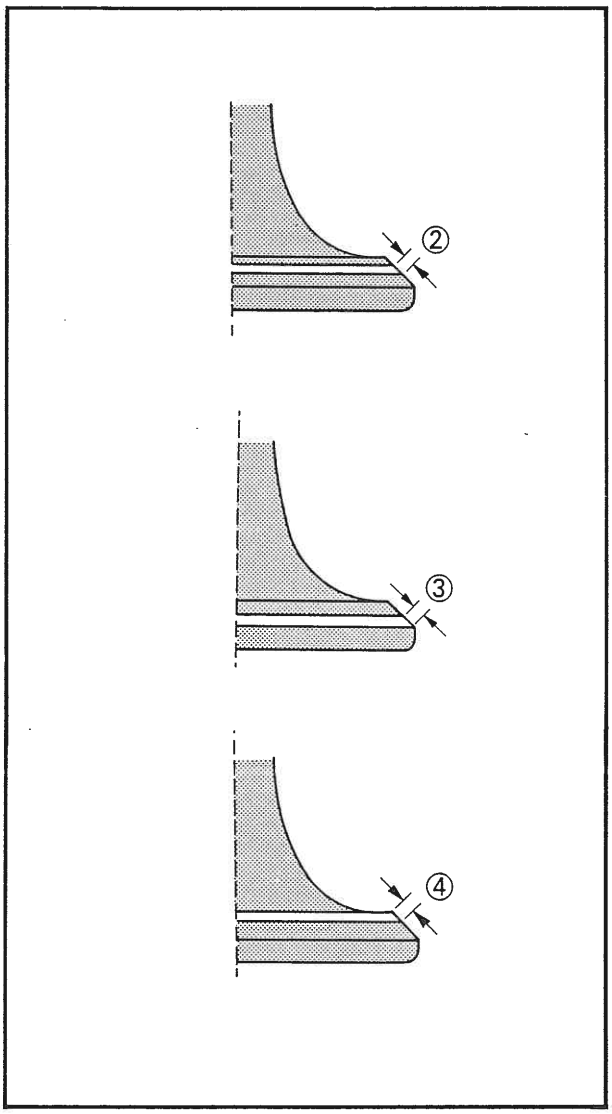




Valve seat recutting steps are necessary if:
- Valve seat is uniform around perimeter of valve face but too wide or too narrow or not desired position on valve face.

Cut valve seat as follows:	
Section A	20° Cutter
Section B	45° Cutter
Section C	60° Cutter

- Valve face indicates that valve seat is desired position but too wide ①.



Valve seat cutter set		Desired result
Use	20° Cutter	to reduce valve seat width.
	60° Cutter	

- Valve seat is desired position but too narrow ②.

Valve seat cutter set		Desired result
Use	45° Cutter	to achieve a uniform valve seat width (Standard specifications).

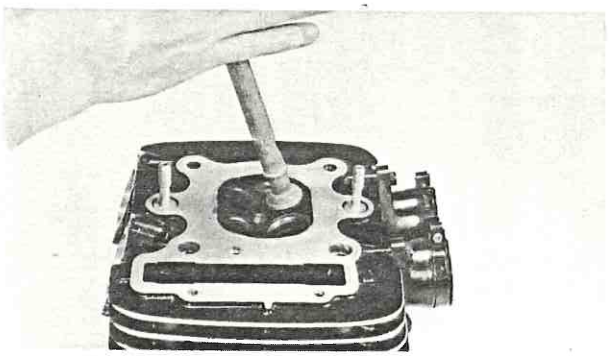
- Valve seat is too narrow and touching the valve margin ③.

Valve seat cutter set		Desired result
Use	20° Cutter, first	to obtain correct seat width.
	45° Cutter	

- Valve seat is too narrow and touching the bottom edge of the valve face ④.

Valve seat cutter set		Desired result
Use	60° Cutter, first	to obtain correct seat width.
	45° Cutter	

3



NOTE:

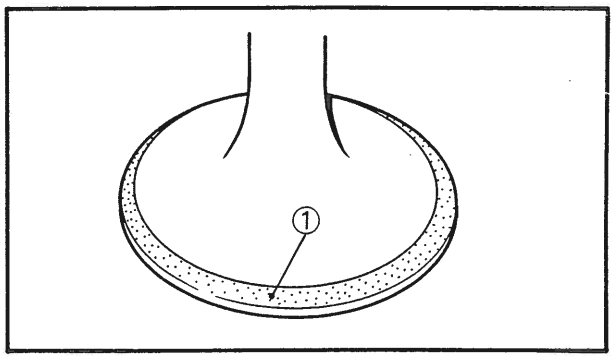
Lap valve/valve seat assembly if:
- Valve face/valve seat are used or severely worn.
- Valve and valve guide has been replaced.
- Valve seat has been cut.

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.

3



5. Eliminate:
   - Compound (from valve face)
6. Apply:
   - Mechanic's bluing dye (Dykem) ① (to valve face and seat)

7. Rotate:
   - Valve

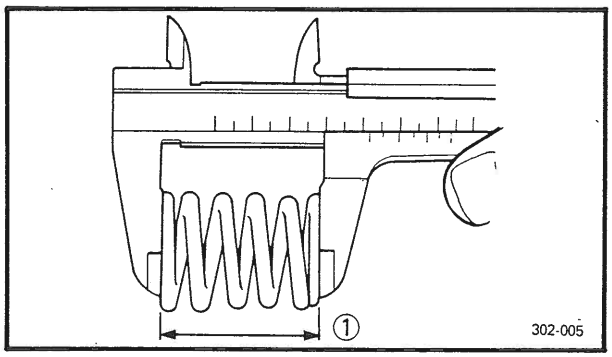
   Valve must make full seat contact indicated by grey surface all around valve face where bluing was removed.
8. Apply:
   - Solvent (into each intake and exhaust port)

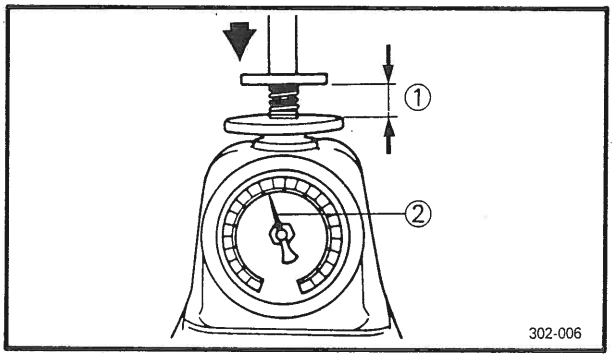
   Leakage past valve seat→Replace valve until seal is complete.

NOTE:

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

Relapping steps:
- Reasselmble 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

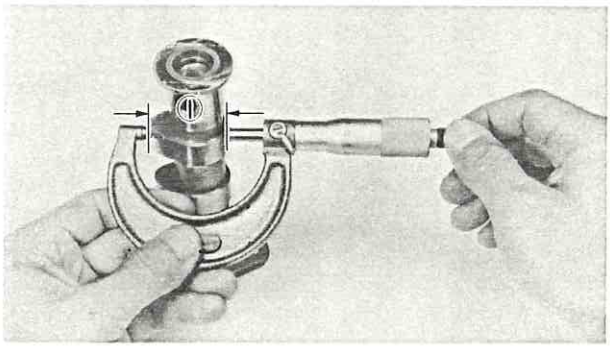
Inner spring		Outer spring	
Standard	Wear limit	Standard	Wear limit
38.1 mm (1.500 in)	36.1 mm (1.421 in)	41.2 mm (1.622 in)	39.2 limit (1.543 in)

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

① Installed length

Valve spring installed force

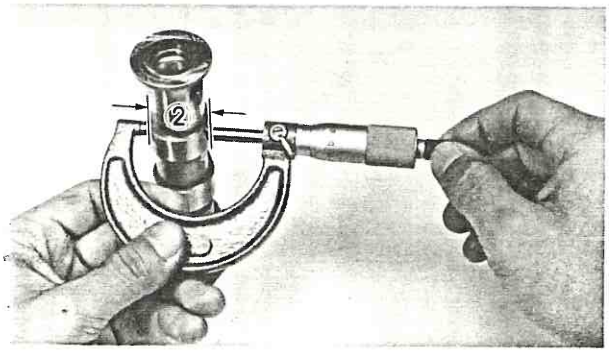
Inner spring		Outer spring	
①	②	①	②
31.8 mm (1.252 in)	6.43 kg (14.18 in)	33.8 mm (1.331 in)	13.6 kg (29.98 lb)



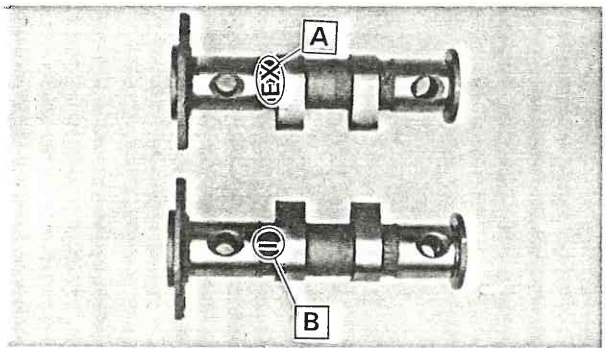
CAMSHAFT, CAM CHAIN AND CAM SPROCKET

Camshaft

1. Measure:
   - Large cam lobe length ①
   - Small cam lobe length ②
   Use a micrometer.
   Out of specification→Replace.



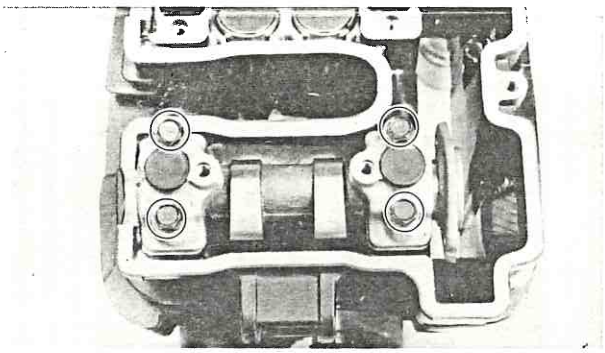
	Intake and Exhaust	
	XT250	XT350
①	36.25 ~ 36.35 mm (1.427 ~ 1.431 in)	35.75 ~ 35.85 mm (1.407 ~ 1.411 in)
②	28.269 ~ 28.369 mm (1.113 ~ 1.117 in)	27.998 ~ 28.098 mm (1.102 ~ 1.106 in)



Camshaft/Cap Clearance Measurement

1. Install:
   - Camshaft
2. Position:
   - Strip of Plastigage® (YU-33210) (onto camshaft)

A For Exhaust
B For Intake

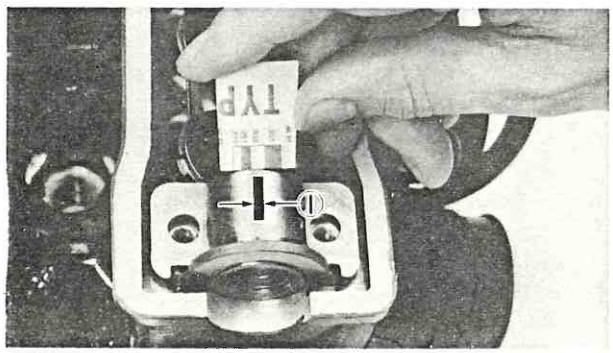


3. Install:
   - Camshaft caps
4. Tighten:
   - Camshaft cap bolts ①

Camshaft Cap Bolt:
10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE:

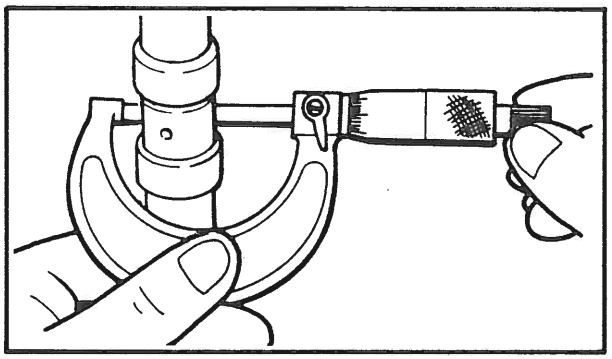
Do not turn the camshaft when measuring clearance with Plastigage.



5. Remove:
   - Camshaft caps
6. Measure:
   - Width of Plastigage® ①

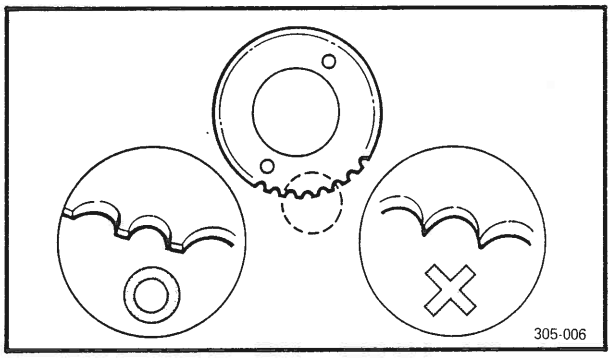
   Out of specification → Follow step 7.

Camshaft-to-cap Clearance:
Standard: 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in)
Maximum: 0.150 mm (0.006 in)



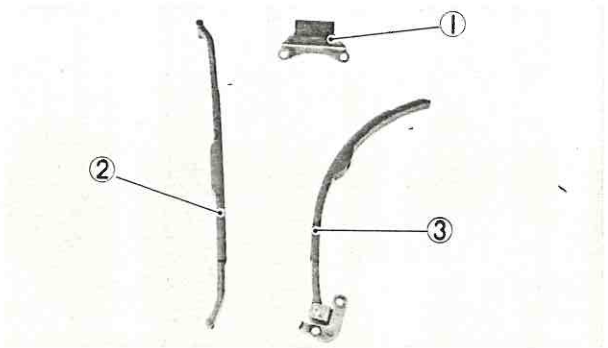
7. Measure
   - Camshaft bearing surface diameter
     Use a micrometer.
     Out of specification→Replace camshaft.
     Within specification→Replace cylinder head.

Camshaft Bearing Surface Diameter:
Standard: 24.967~24.980 mm (0.9830~0.9835 in)
Cam Cap Inside Diameter:
Standard: 25.00~25.021 mm (0.9843~0.9851 in



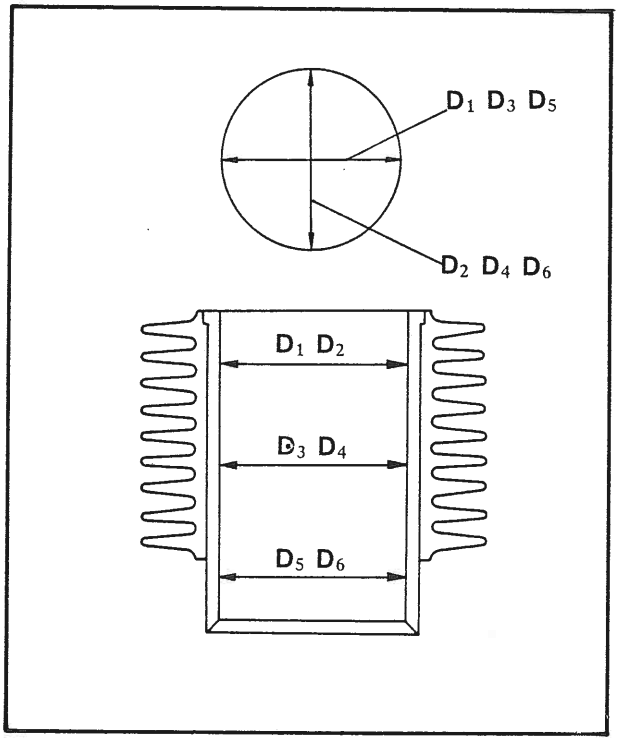
Cam Chain
1. Inspect:
   - Cam chain
     Chain stretch/Cracks→Replace.

Cam Sprockets
1. Inspect:
   - Cam sprockets
     Wear/Damage→Replace.



Chain Guide
1. Inspect:
   - Upper chain guide ①
   - Exhaust side chain guide ②
   - Intake side chain guide ③
     Wear→Replace.

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



NOTE:

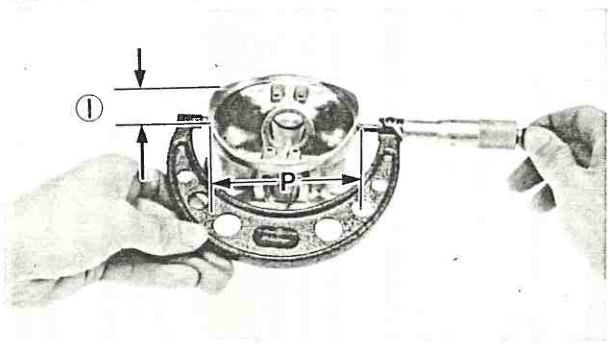
Obtain measurements at three depths by placing measurig instrument parallel to and at right angles to crankshaft.

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

	XT250		XT350	
	Stand-ard	Wear limit	Stand-ard	Wear limit
Cylinder bore: C	73.0 mm (2.874 in)	73.1 mm (2.878 in)	86.0 mm (3.386 in)	86.1 mm (3.390 in)
Cylinder taper: T	—	0.08 mm (0.003 in)	—	0.08 mm (0.003 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 diamter where the distance 1.0 mm (0.0394 in) ① from the piston bottom edge.

	Piston size P	
	XT250	XT350
Standard	73.0 mm (2.874 in)	86.0 mm (3.386 in)
Oversize 2	73.50 mm (2.894 in)	86.50 mm (3.406 in)
Oversize 4	74.00 mm (2.913 in)	87.00 mm (3.425 in)

2. Measure:
   - Piston clearance

Piston Clearance =
Cylinder inside diameter "C" — Piston skirt diameter "P"

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

	Piston Clearance: **0.040~0.060 mm** **(0.00157~0.00246 in)**

Piston Ring

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

NOTE:

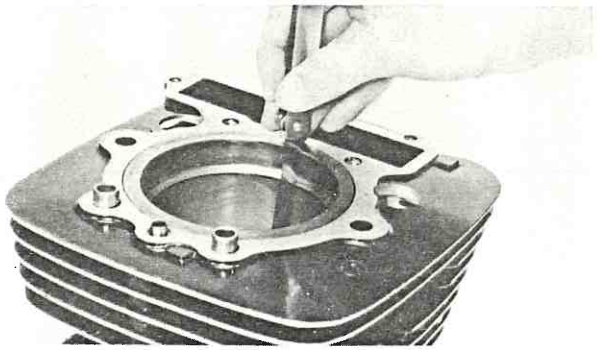
Clean carbon from piston ring grooves and rings before measuring side clearance.

	Piston ring side clearance:
Top	0.04~0.08 mm (0.0016~0.0031 in)
2nd	0.03~0.07 mm (0.0012~0.0028 in)
Oil	0.02~0.06 mm (0.0008~0.0024 in)

2. Postion:
   - Piston ring
     (in cylinder)

NOTE:

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

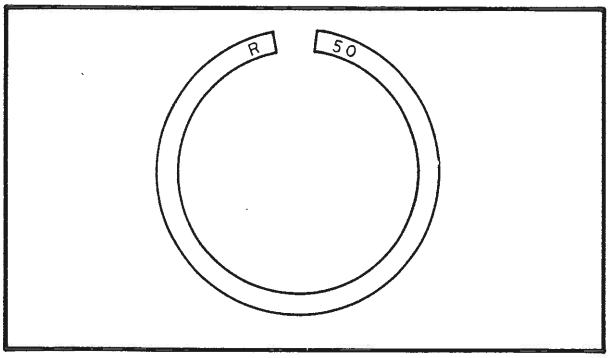


3. Measure:
   - Ring end gap
     Out of specification→Replace.

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.

	Piston ring end gap (Installed)	
	XT250	XT350
Top ring	0.2 ~ 0.35 mm (0.008 ~ 0.014 in)	0.25 ~ 0.40 mm (0.0098 ~ 0.0157 in)
2nd ring	0.2 ~ 0.35 mm (0.008 ~ 0.014 in)	0.25 ~ 0.40 mm (0.0098 ~ 0.0157 in)
Oil ring	0.30 ~ 0.90 mm (0.012 ~ 0.035 in)	0.20 ~ 0.70 mm (0.0079 ~ 0.0276 in)

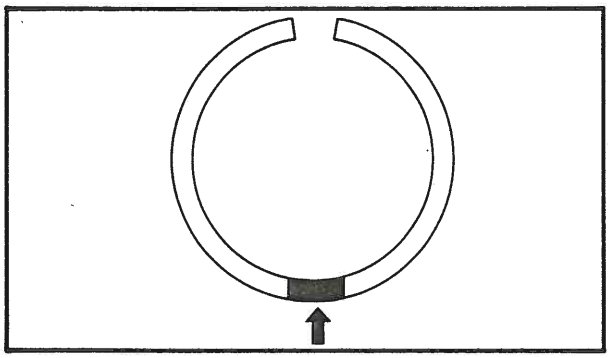


Piston Ring Oversize

- Top and 2nd piston ring

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

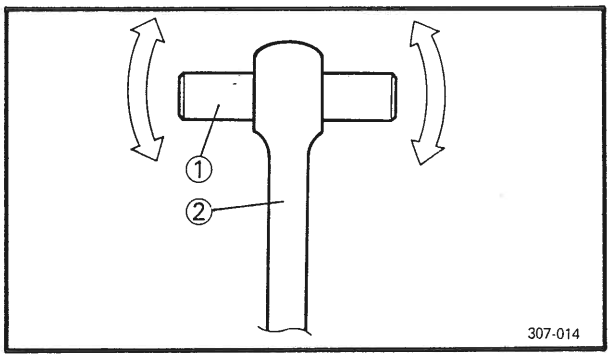
Oversize 2	0.50 mm (0.0197 in)
Oversize 4	1.00 mm (0.0394 in)



- 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

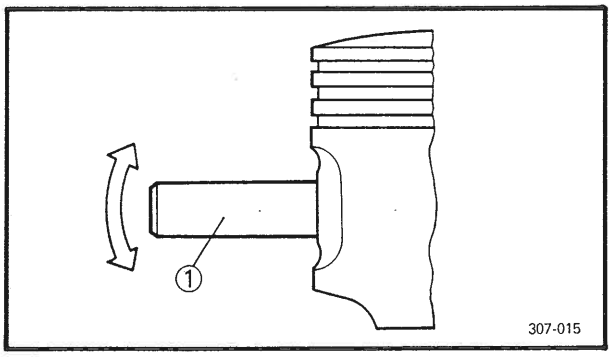


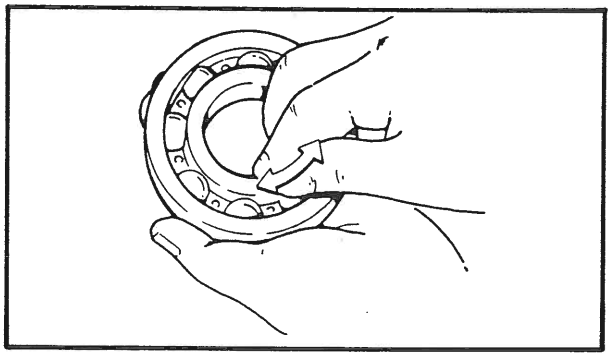
Piston Pin

1. Lubricate:
   - Piston pin (Lightly)
2. Install:
   - Piston pin ①
   (into small end of connecting rod ②)
3. Check:
   - Free play

   Free play → Inspect connecting rod for wear.
   Wear → Replace connecting rod and piston pin.
4. Position:
   - Piston pin ①
   (into piston)
5. Check:
   - Free play
   (into piston)

   Free play → Replace piston pin and/or piston.





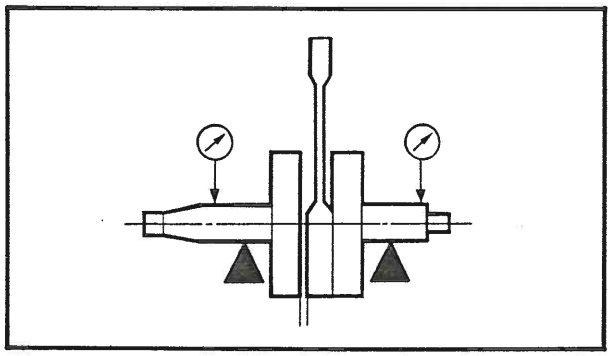
CRANKSHAFT AND CONNECTING ROD

Crankshaft Bearings

1. Inspect
   - Bearing races
     Pitting, rust, scoring→Replace.

NOTE:

- Clean and dry bearing before checking.
- Lubricate bearings immediately after examining them to prevent rust.

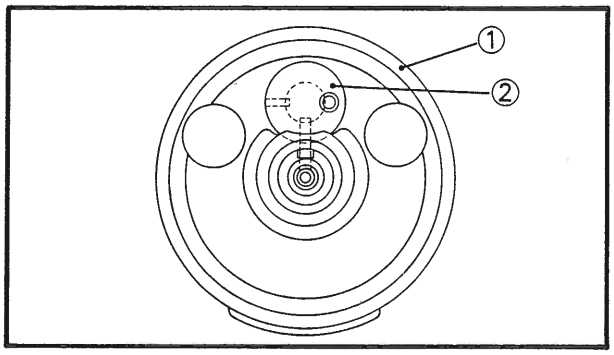


Crankshaft Runout

1. Place both ends of crankshaft on V-blocks.
2. Rotate:
   - Crankshaft
3. Measure:
   - Crankshaft runout
     (at main journal bearings)
     Use a Dial Gauge (90890-03097).

Maximum Crankshaft Runout:
0.03 mm (0.001 in)

3



Crankshaft Assembly

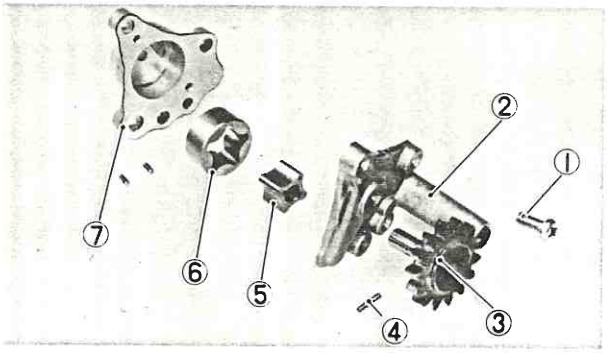
1. Install:
   - Crank web ①
   - Crank pin ②

NOTE:

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

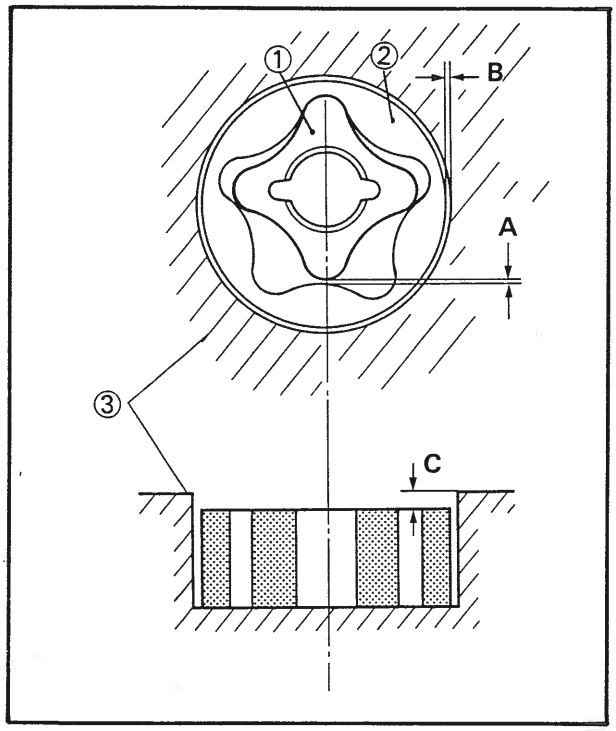
CAUTION:

The crankshaft oil passage and the crank pin oil passage MUST be properly alined. The deviation of one center line from the other must be LESS THAN 1 mm (0.04 in).



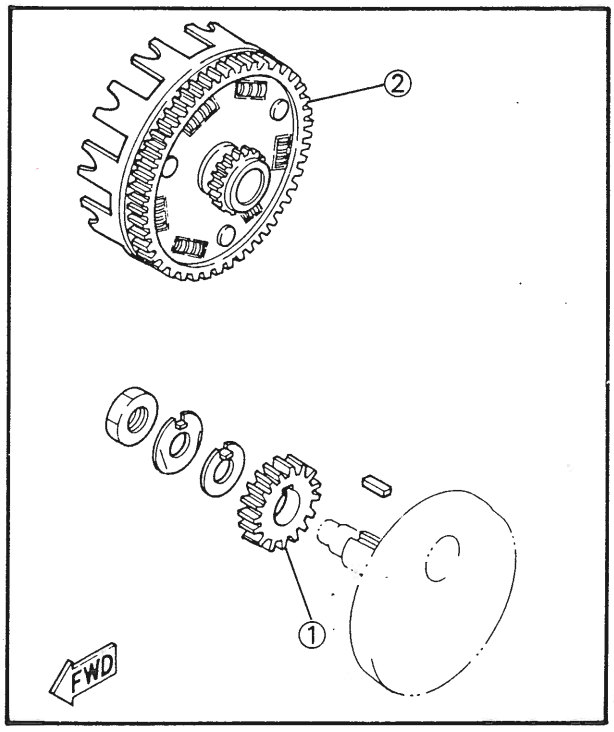
OIL PUMP

1. Remove:
   - Screw ①
   - Pump cover ②
   - Pump 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)
   - Cearance "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.

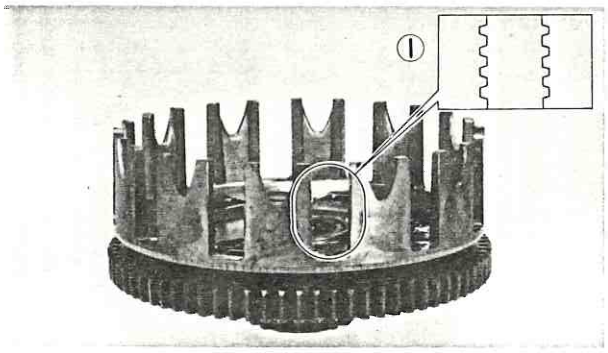
	Oil pump clearance:
Clearance A	0.15 mm (0.00591 in)
Clearance B	0.03~0.09 mm (0.0012~0.0035 in)
Clearance C	0.03~0.09 mm (0.0012~0.0035 in)

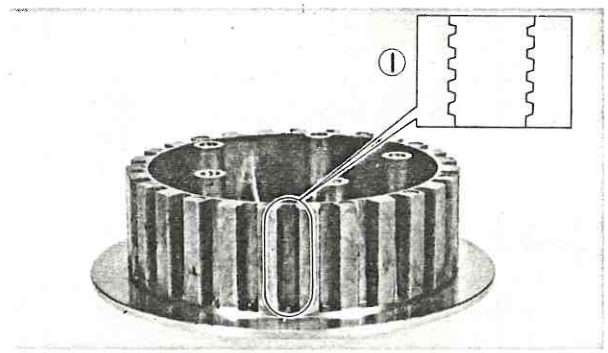


PRIMARY DRIVE

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

Primary reduction ratio:		
No. of teeth		Ratio
Drive	Driven	
23	72	3.130





CLUTCH

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

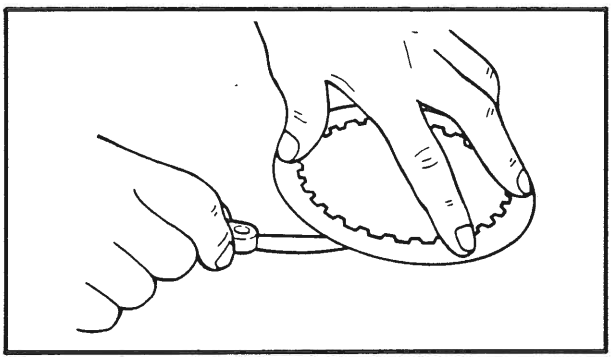
NOTE:

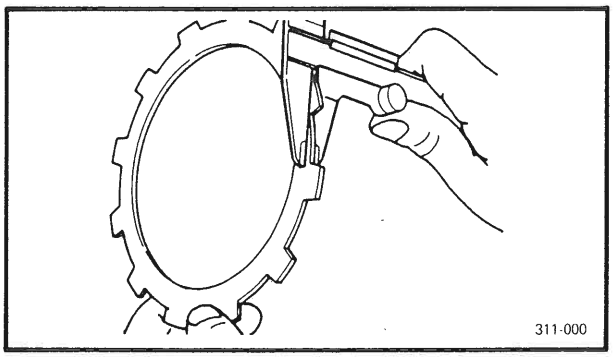
Pitting on friction plate dogs of clutch housing will cause erratic operation.

2. Inspect:
   - Clutch housing bearing
     Damage→Replace.
3. Inspect:
   - Clutch boss spline ①
     Pitting:
     Moderate→Deburr.
     Severe→Replace.

NOTE:

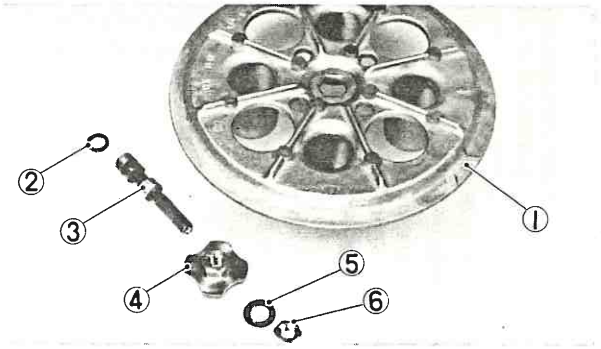
Pitting on clutch plate splines of clutch boss will cause erratic operation.





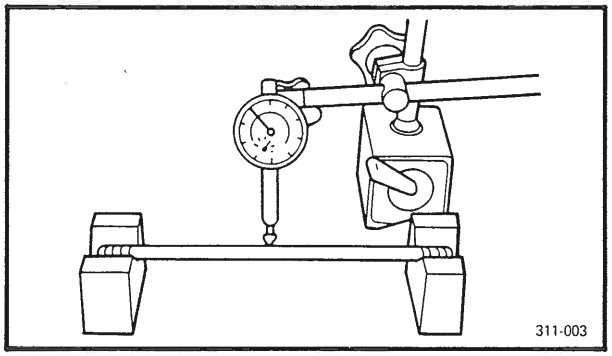
4. Measure:
   - Clutch plate warpage
   - Friction plate thickness
     Out of specification→Replace clutch or friction plate as a set.

	Standard	Wear limit
Friction plate thickness	2.9~3.1 mm (0.114~0.122 in)	2.5 mm (0.098 in)
Clutch plate warp limit	—	0.05 mm (0.002 in)



5. Inspect:
   - Pressure plate ①
   - O-ring ②
   - Short push rod ③
   - Push plate ④
   - Plain washer ⑤
   - Locknut ⑥

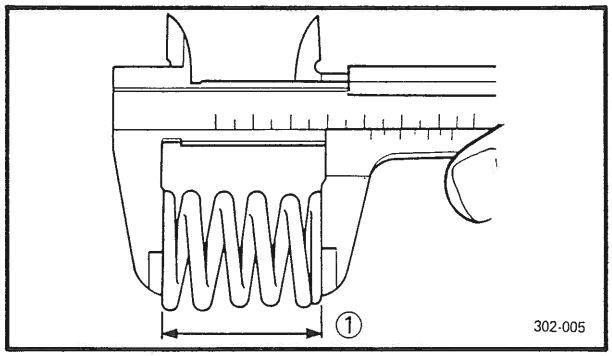
   Damage→Replace.



6. Measure:
   - Long push rod

   Roll on V-block.
   Exceeds bending limit→Replace.

	Bend Limit: 0.5 mm (0.02 in)

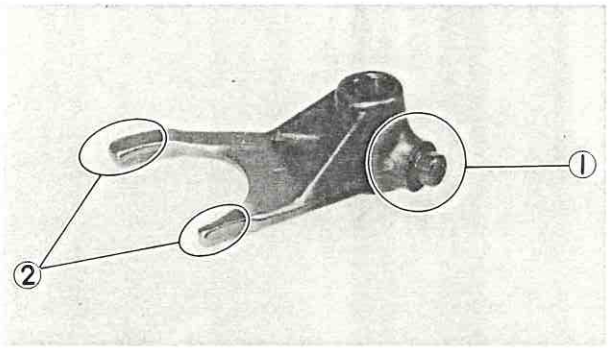


7. Measure:
   - Clutch spring free play

   Out of specification→Replace spring as a set.

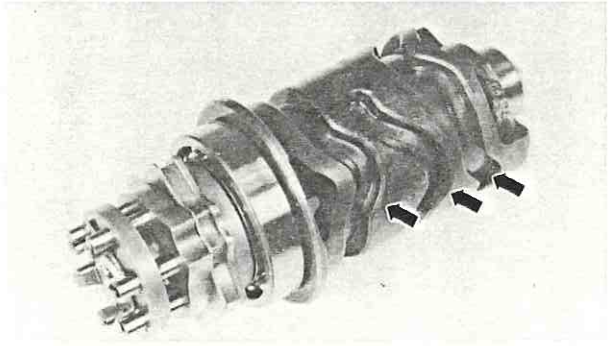
Clutch spring minimum free length ①:	
XT250	**XT350**
34.0 mm (1.339 in)	**40.3 mm (1.587 in)**

TRANSMISSION



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

   Scoring/Bends/Wear→Replace.



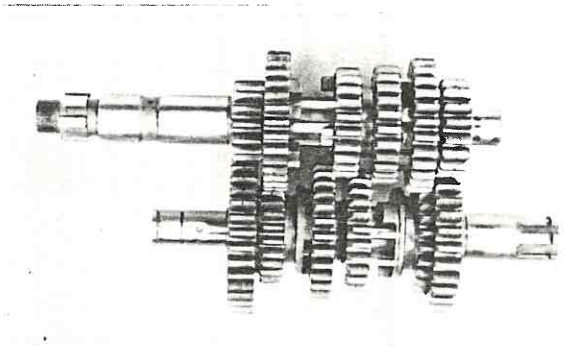
2. Inspect:
   - Shift cam groove
   - Shift cam dowel and side plate
   - Shift cam stopper plate, circlip and stopper

   Wear/Damage→Replace.

3. Check:
   • Guide bar
   Roll across a surface plate.
   Bends → 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)

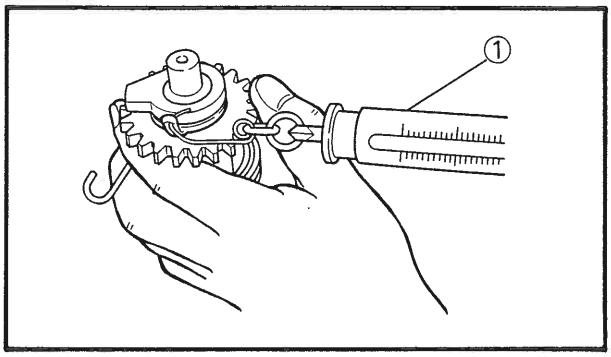
5. Inspect:
   • Gear teeth
   Blue discoloration/Pitting/Wear → Replace.
   • Mated dogs
   Rounded edges/Cracks/Missing portions → Replace.



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

SHIFTER

1. Inspect:
   • Shift return spring
   Damage → Replace.
   • Change shaft
   Damage/Bends/Wear → Replace.



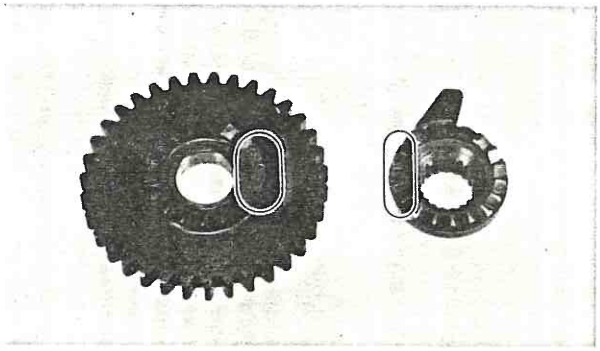
KICK STARTER

1. Inspect:
   • Kick axle
   Damage/Wear → Replace.
2. Measure:
   • Kick spring tension
   Out of specification → Replace.
   Use a spring balance ① .

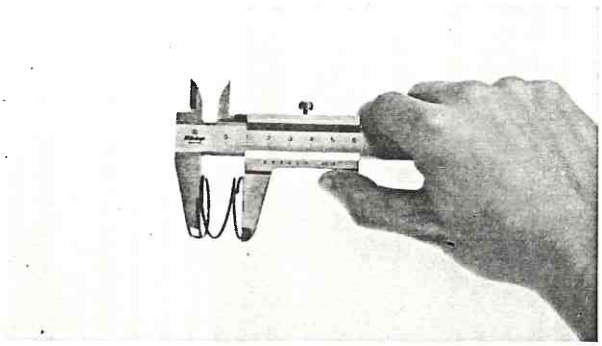
Standard Tension: 1.0 kg (2.2 lb)

CAUTION:

Do not try to bend the clip.



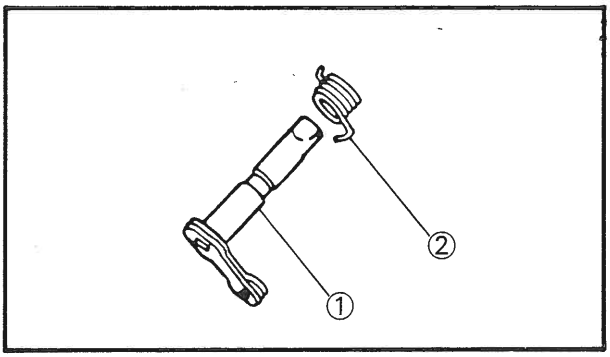
3. Check:
   - Ratchet teeth
     Damage/Wear → Replace as a set.



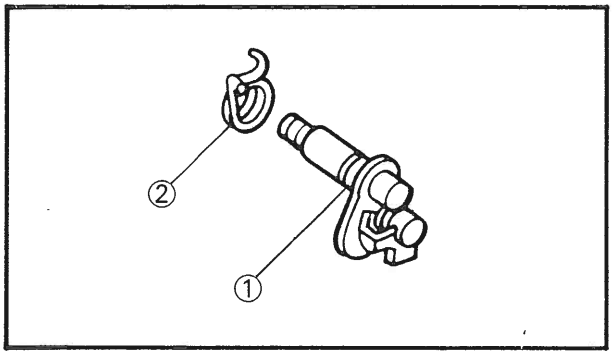
4. Measure:
   - Ratchet wheel spring
     Out of specification → Replace.

Ratchet wheel spring free length	
Standard	Wear limit
17.2 mm (0.677 in)	15.0 mm (0.591 in)

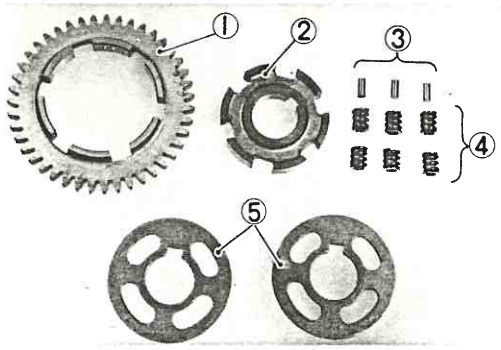
DECOMPRESSION CAM AND LEVER



1. Check:
   - Decompression cam ①
   - Spring ②
     Damage/Wear → Replace.



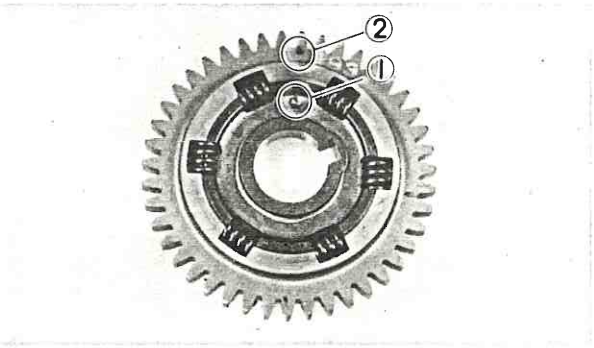
2. Check:
   - Decompression lever ①
   - Spring ②
     Damage/Wear → Replace.



BALANCER DRIVE GEAR

1. Inspect:
   - Balancer drive gear ①
   - Boss ②
   - Pin ③
   - Spring ④
   - Washer ⑤

   Damage/Wear/Fatigue→Replace.



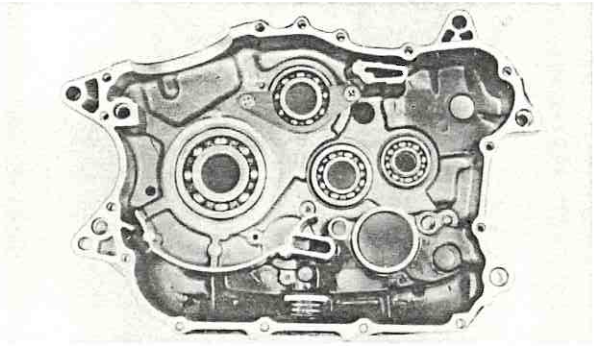
2. Align:
   - Boss match mark ①

   (with the drive gear mark ②)

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).

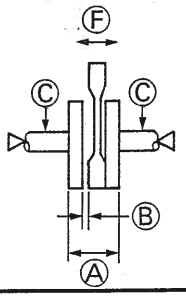
ENGINE ASSEMBLY AND ADJUSTMENT

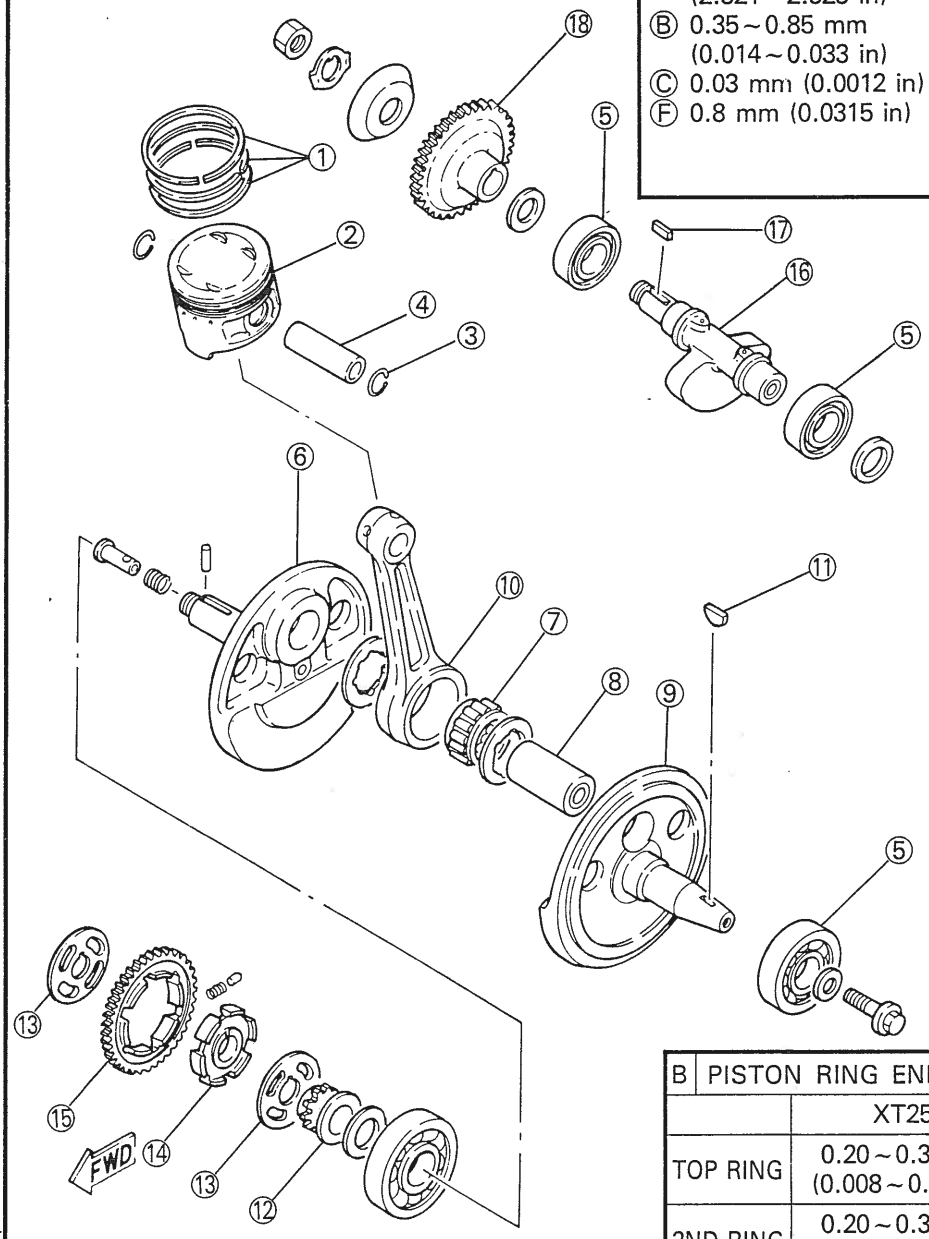
CRANKSHAFT AND BALANCER SHAFT

① Piston ring set
② Piston
③ Piston pin clip
④ Piston pin
⑤ Bearing
⑥ Crank :Right:
⑦ Big-end bearing
⑧ Crank pin
⑨ Crank :Left:
⑩ Connecting rod
⑪ Woodruff key
⑫ Cam chain drive gear
⑬ Washer
⑭ Boss
⑮ Balancer drive gear
⑯ Balancer shaft
⑰ Straight key
⑱ Balancer driven gear

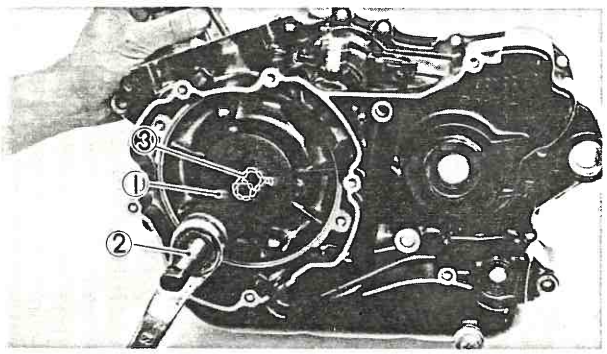
A	PISTON TO CYLINDER CLEARANCE: 0.040 ~ 0.060 mm (0.00157 ~ 0.00236 in)

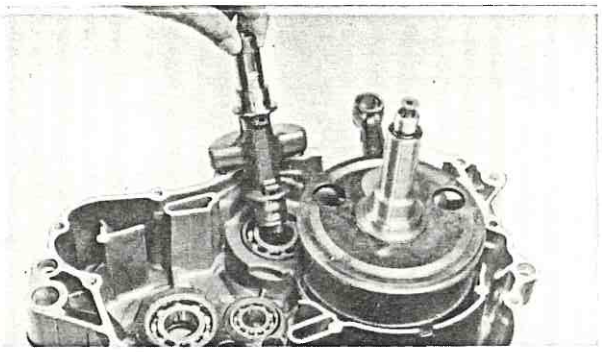
C	CRANKSHAFT RUNOUT:
Ⓐ	58.95 ~ 59.00 mm (2.321 ~ 2.323 in)
Ⓑ	0.35 ~ 0.85 mm (0.014 ~ 0.033 in)
Ⓒ	0.03 mm (0.0012 in)
Ⓕ	0.8 mm (0.0315 in)





B	PISTON RING END GAP (INSTALLED):	
	XT250	XT350
TOP RING	0.20 ~ 0.35 mm (0.008 ~ 0.014 in)	0.25 ~ 0.40 mm (0.0098 ~ 0.0157 in)
2ND RING	0.20 ~ 0.35 mm (0.008 ~ 0.014 in)	0.25 ~ 0.40 mm (0.0098 ~ 0.0157 in)
OIL RING	0.30 ~ 0.90 mm (0.012 ~ 0.035 in)	0.20 ~ 0.70 mm (0.0079 ~ 0.0276 in)





CAUTION:

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

1. Attach:
   - Crankshaft Installing Tool (90890-01274 ①, 90890-01275 ② and 90890-01383 ③)
2. Install:
   - Crankshaft

NOTE:

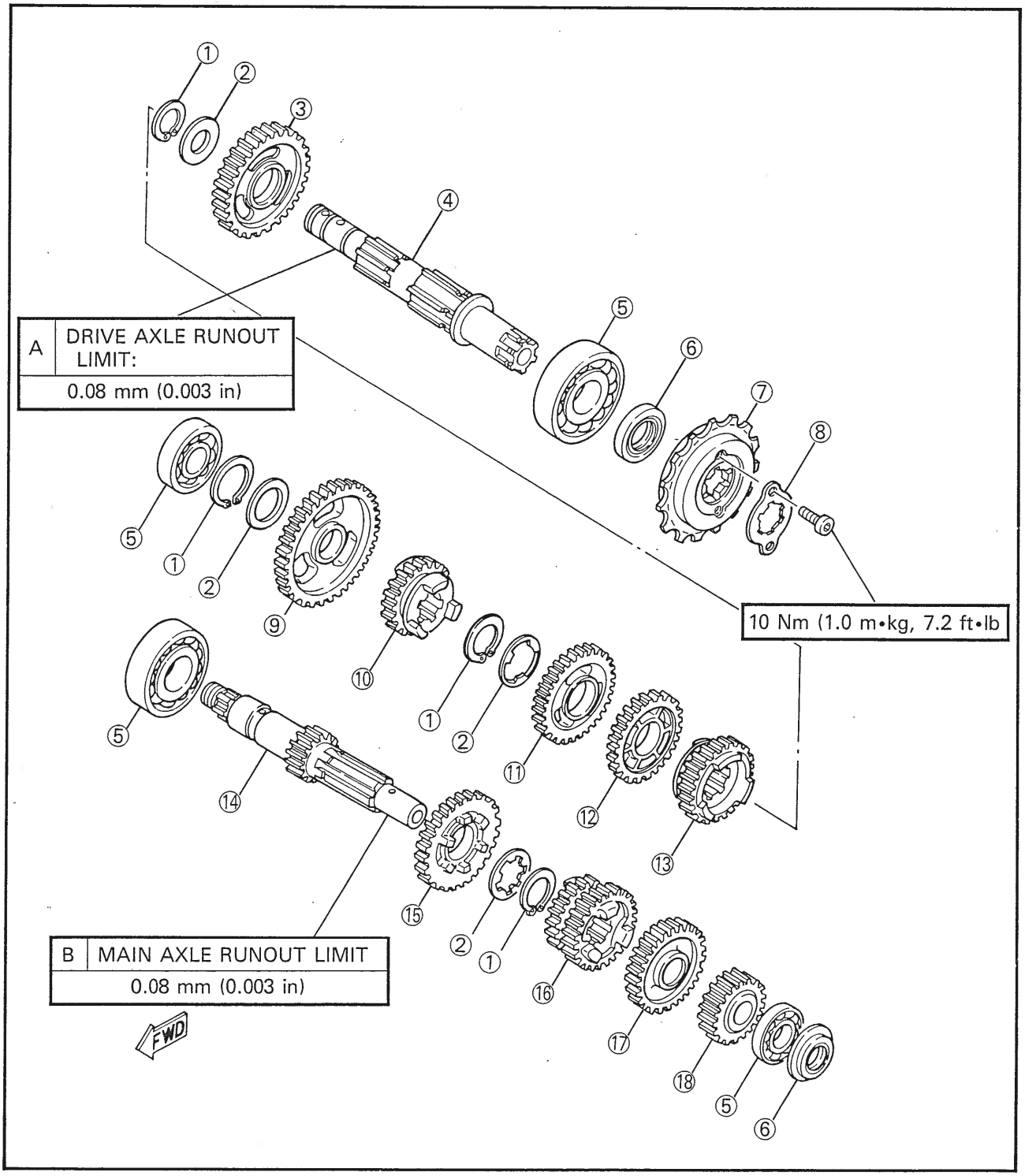
Hold the connecting rod at top dead center with one hand while turning the nut of the Installing Tool with the other. Operate the Installing Tool until the crankshaft bottoms against the bearing.

3. Install:
   - Balancer shaft

TRANSMISSION AND SHIFTER

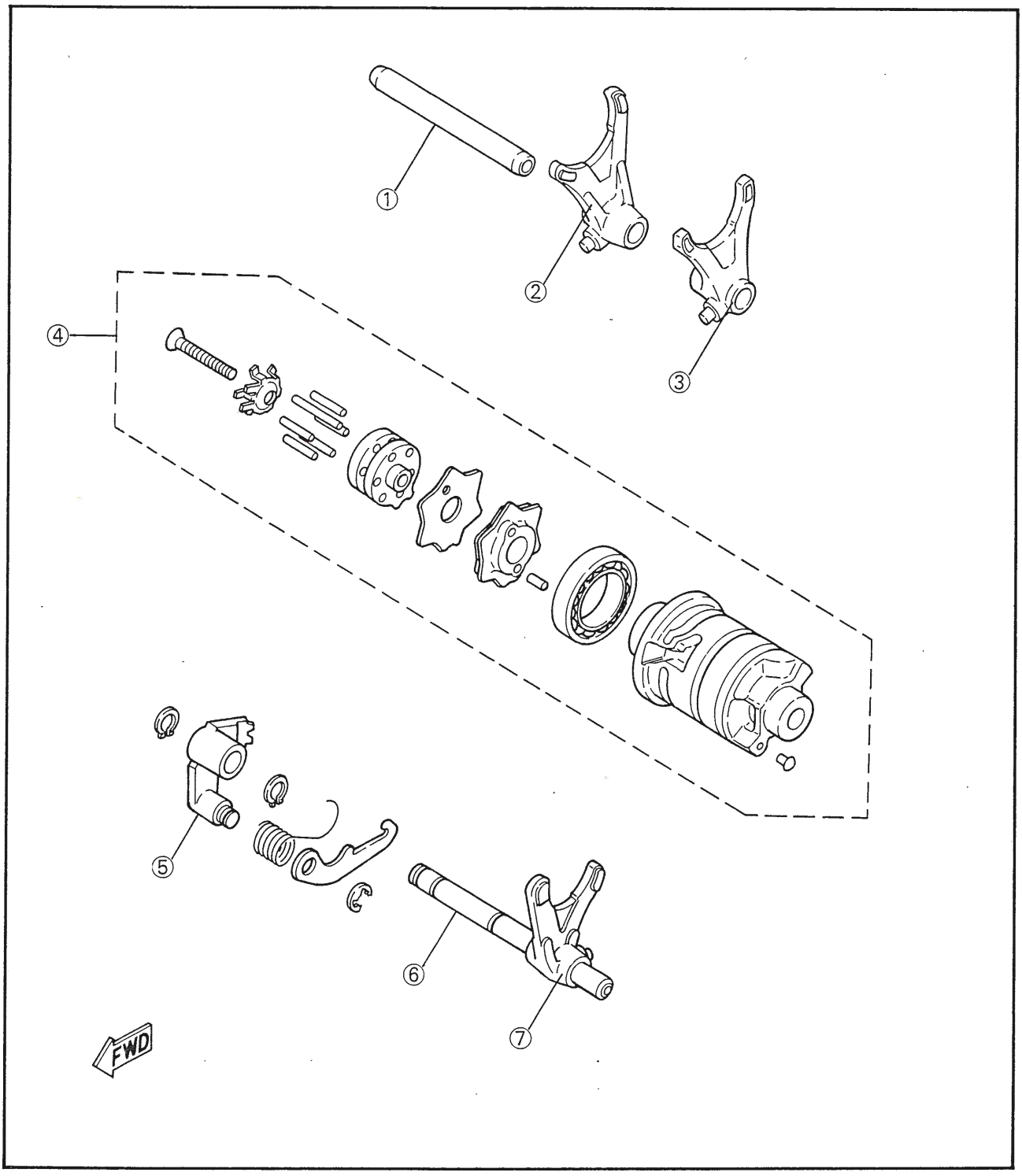
Transmission

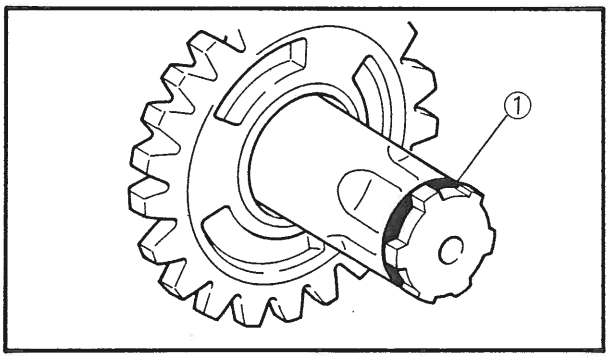
① Circlip
② Plain washer
③ 2nd wheel gear (29T)
④ Drive axle
⑤ Bearing
⑥ Oil seal
⑦ Drive sprocket
⑧ Holding plate
⑨ 1st wheel gear (37T)
⑩ 6th wheel gear (XT250:25T, XT350:22T)
⑪ 3rd wheel gear (30T)
⑫ 4th wheel gear (27T)
⑬ 5th wheel gear (24T)
⑭ Main axle
⑮ 6th pinion gear (XT250:32T, XT350:29T)
⑯ 3rd/4th pinion gear (22T/25T)
⑰ 5th pinion gear (27T)
⑱ 2nd pinion gear (16T)



Shifter

① Guide bar 1
② Shift fork (#3)
③ Shift fork (#1)
④ Shift cam assembly
⑤ Change lever 2
⑥ Guide bar 2
⑦ Shift fork (#2)

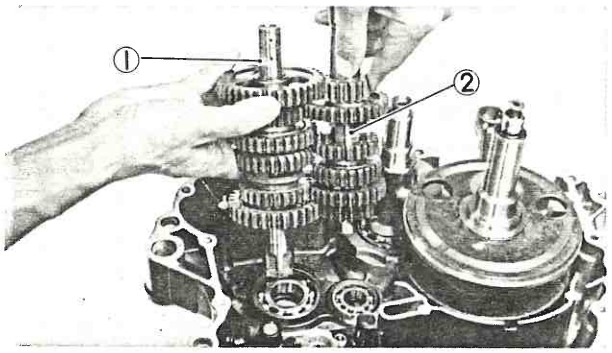




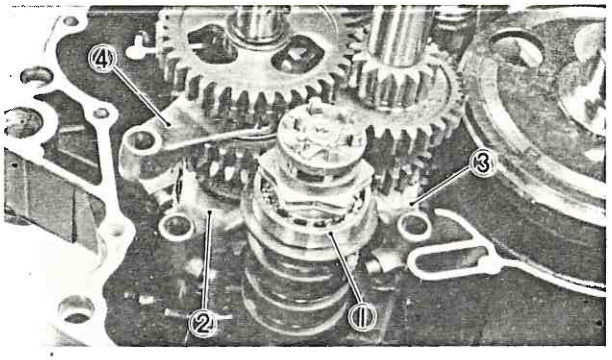
1. Install:
   - O-ring ①

NOTE:

When install the drive axle into the crankcase, pay careful attention to the crankcase oil seal lip. It is recommended to set a suitable O-ring into the drive axle groove.



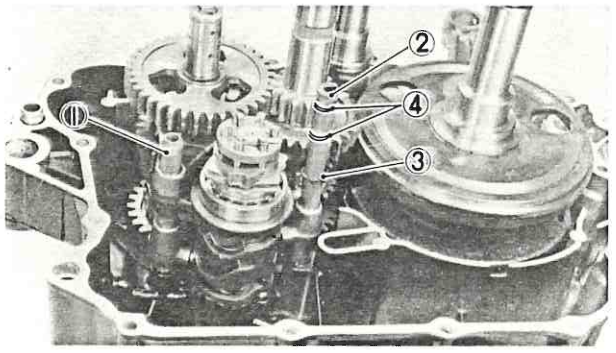
2. Install:
   - Drive axle ① and main axle ② assembly



3. Install:
   - Shift cam assembly ①
   - Shift fork #1 ②
   - Shift fork #2 ③
   - Shift fork #3 ④

NOTE:

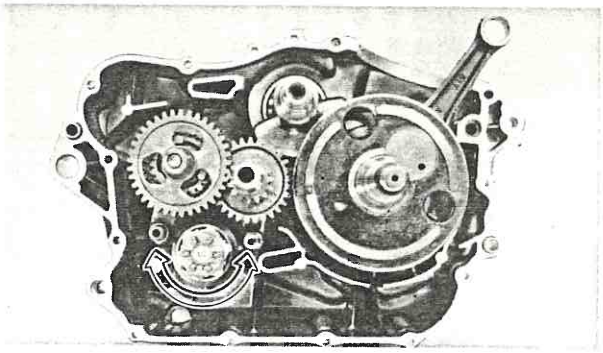
- Mesh the shift fork #1 with the 6th wheel gear and #3 with the 5th wheel gear on the drive axle.
- Mesh the shift fork #2 with the 3rd/4th pinion gear on the main axle.
- Install the shift forks with the embossed number should face downward.



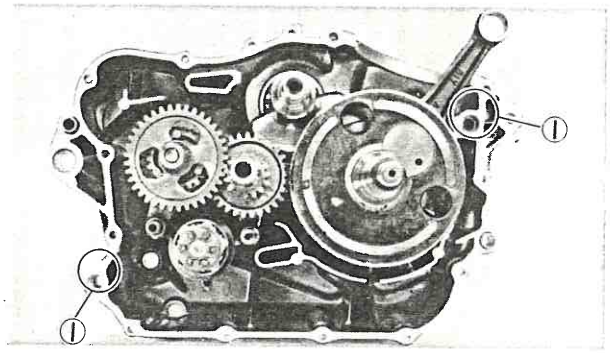
4. Install:
   - Guide bar 1 ①
   - Guide bar 2 ②
   - Circlip ③

NOTE:

Install the guide bar ② with the circlip grooves ④ should face upward.



5. Check:
   • Shifter operation
   Unsmooth operation → Repair.

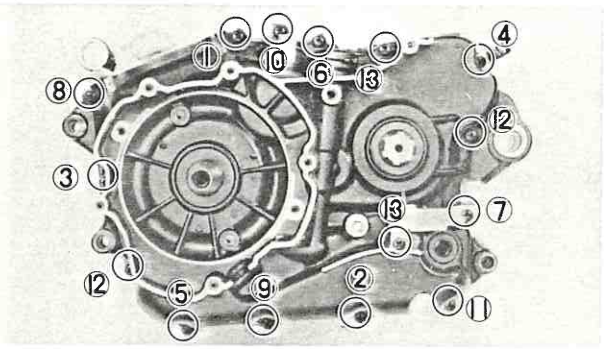


CRANKCASE

1. Install:
   • Dowels ①
2. Apply:
   • Yamaha Bond No. 1215 (90890-85505)
   (To crankcase matching surfaces.)
3. Install:
   • Right crankcase
   (onto the left crankcase)

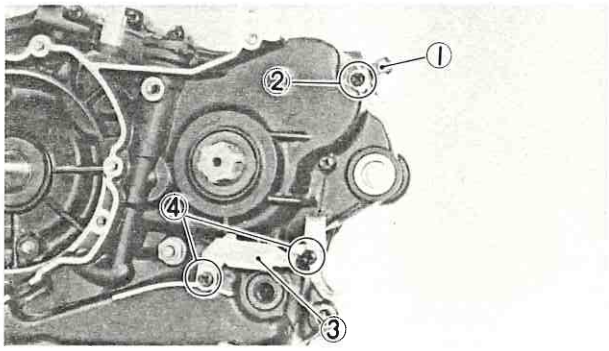
CAUTION:

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



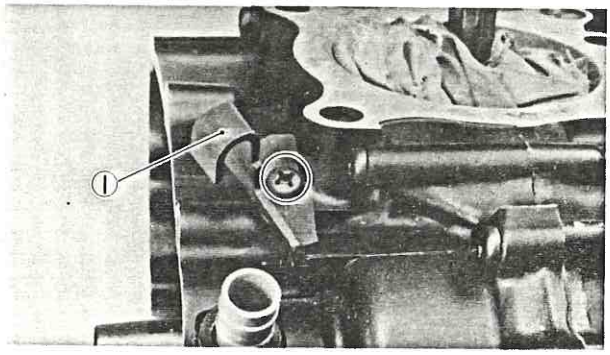
4. Tighten:
   • Crankcase holding screws
   (Follow proper sequence)

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

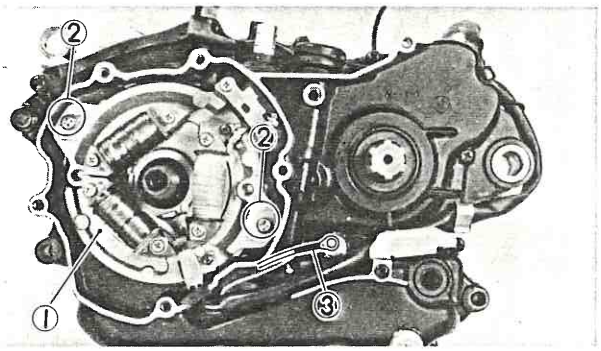


NOTE:

- Install the lead wire clamp ① on screw No.4 ②.
- Install the lead wire bracket ③ on screw No. 7 and 13 ④.



5. Install:
   - Clutch cable brakcet ①

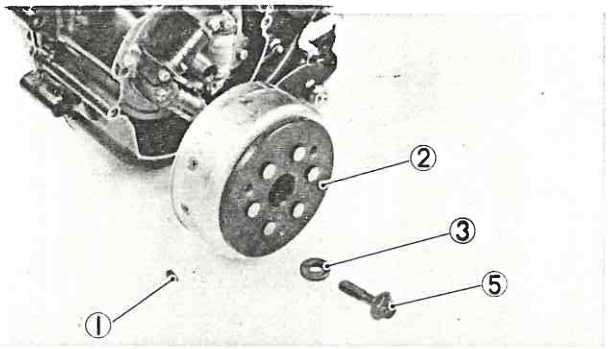


CDI MAGNETO

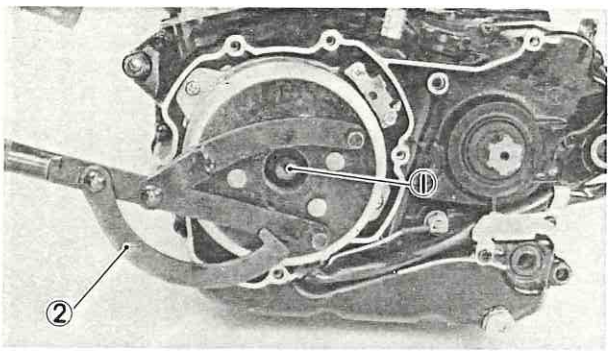
1. Install:
   - CDI Base plate assembly ①
   - Base plate holding screws ②

	Base Plate Holding Screw: 7 Nm (0.7 m•kg, 5.1 ft•lb)

2. Connect:
   - Neutral switch lead ③



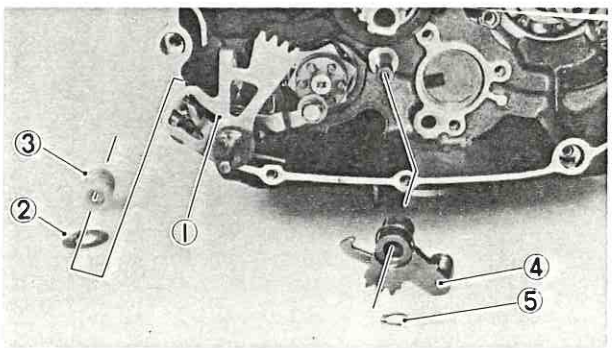
3. Install
   - Key ①
   - CDI Rotor ②
   - Plate washer ③
   - Bolt ⑤



4. Tighten:
   - Bolt ①

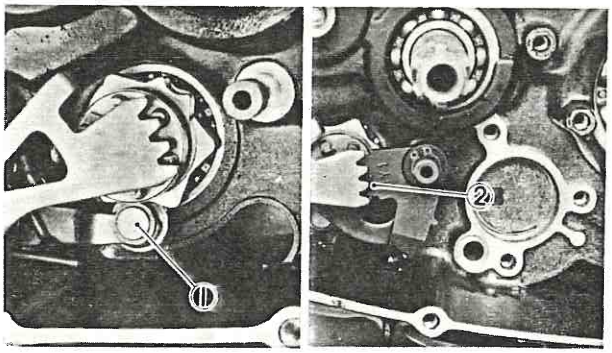
   Use Rotor Holding Tool ② (90890-01235).

	CDI Rotor Holding Bolt: 60 Nm (6.0 m•kg, 43 ft•lb)



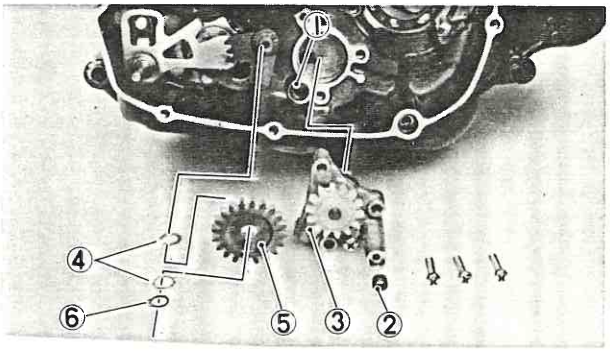
CHANGE LEVER

1. Install:
   - Change lever assembly ①
   - Washer ②
   - Spacer ③
   - Change lever 2 ④
   - Circlip ⑤



NOTE:

- Mesh the stopper lever ① with the shift cam.
- Mesh the change lever 2 mark ② with change lever pawl center.

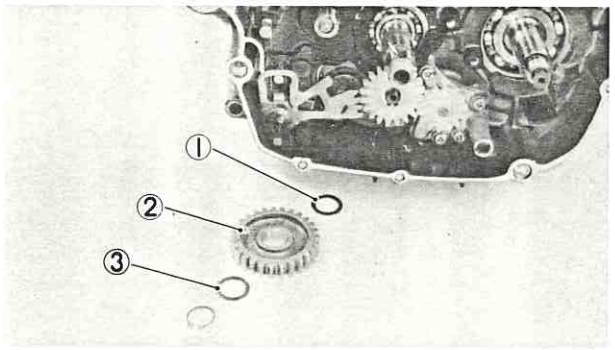


OIL PUMP

1. Install:
   - O-ring ①
   - Oil seal ②
   - Oil pump assembly ③

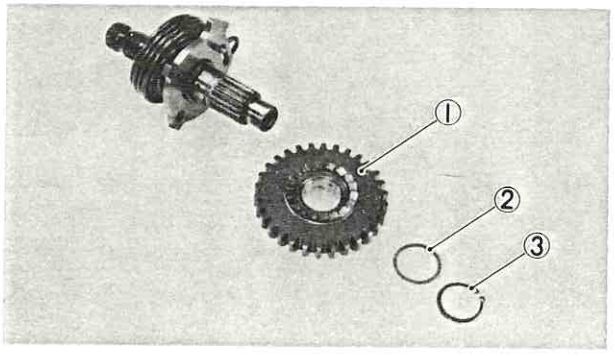
Oil Pump Securing Screw:
7 Nm (0.7 m•kg, 5.1 ft•lb)

   - Washer ④
   - Oil pump idle gear ⑤
   - Washer ④
   - Circlip ⑥



KICK STARTER AND IDLE GEAR

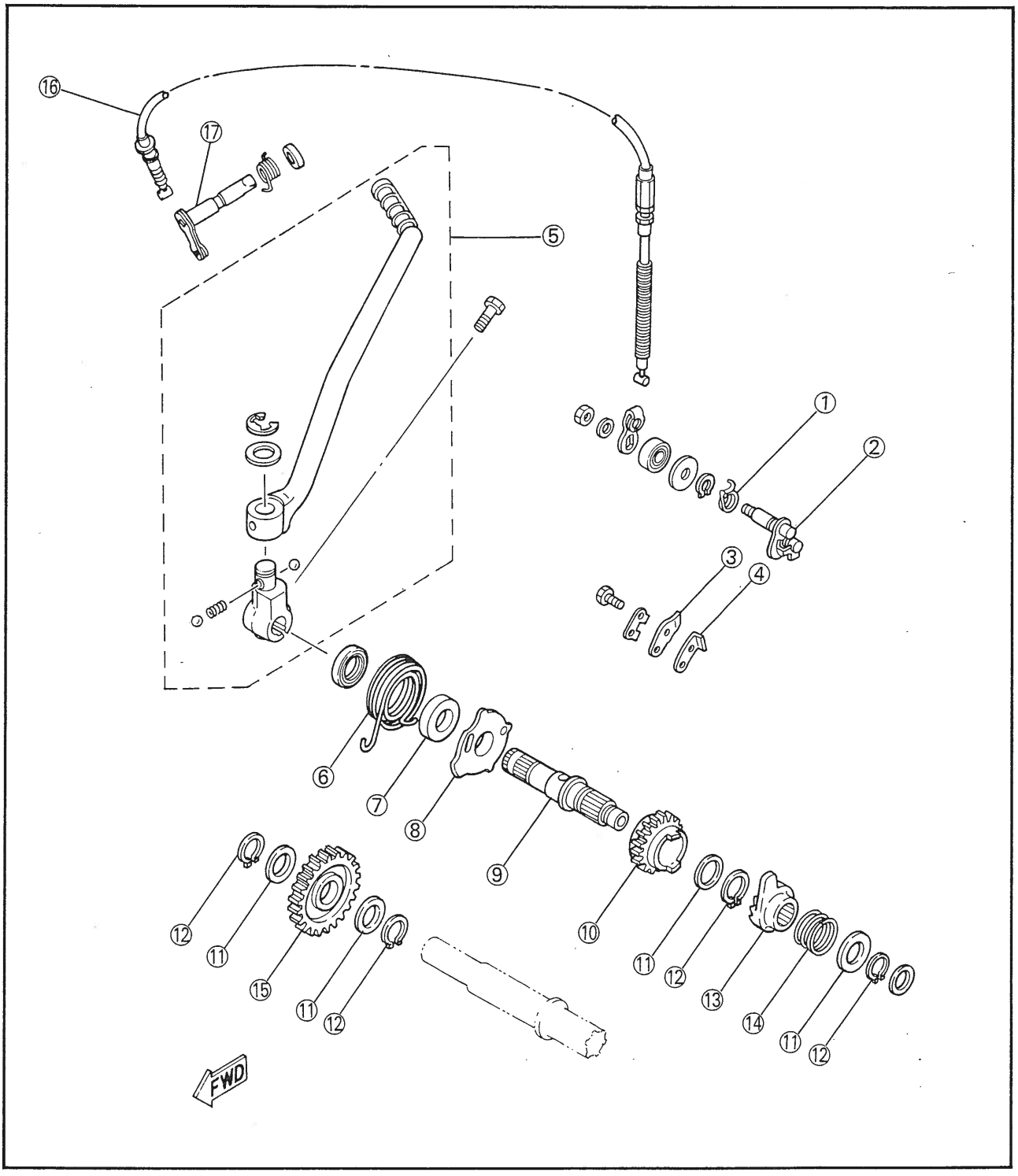
1. Install:
   - Washer ①
   - Kick idle gear ②
   - Washer ③
   - Circlip

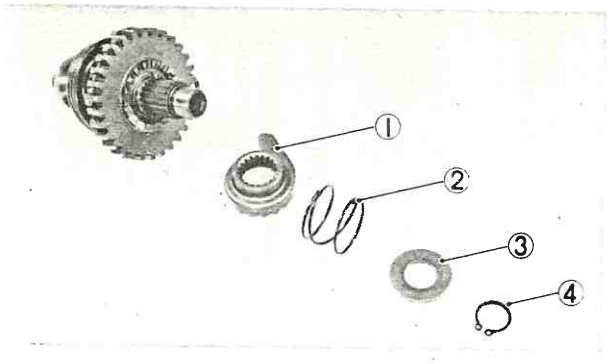


2. Install:
   - Kick gear ①
   - Washer ②
   - Circlip ③
     (onto the kick axle)

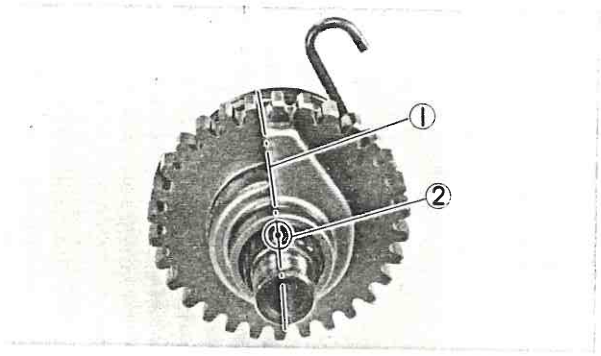
Kick Starter

① Torsion spring
② Decompression lever
③ Ratchet wheel stopper
④ Ratchet wheel guide
⑤ Kick crank assembly
⑥ Kick spring
⑦ Spring guide
⑧ Decompression cam
⑨ Kick axle
⑩ Kick gear
⑪ Washer
⑫ Circlip
⑬ Ratchet wheel
⑭ Ratchet wheel spring
⑮ Kick idle gear
⑯ Decompression cable
⑰ Decompression cam



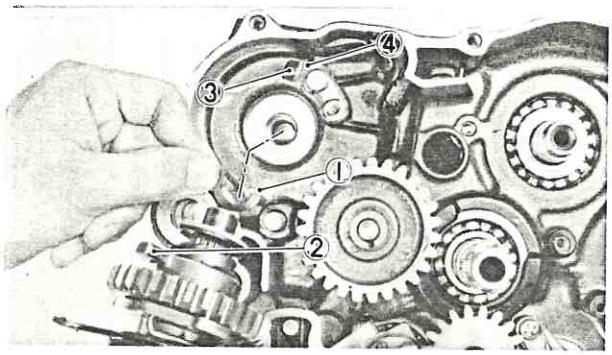


3. Install:
   - Ratchet wheel ①
   - Ratchet wheel spring ②
   - Washer ③
   - Circlip ④



NOTE:

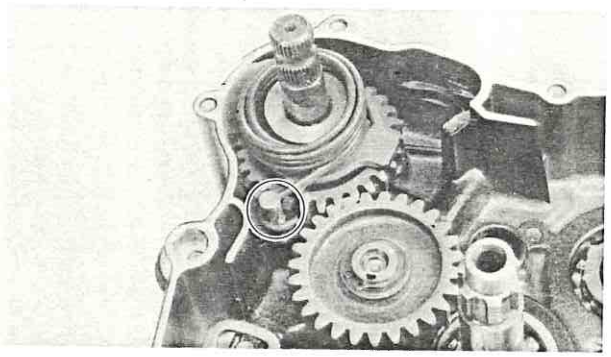
Align the straight surface of the ratchet wheel pawl ① with the kick axle mark ②.



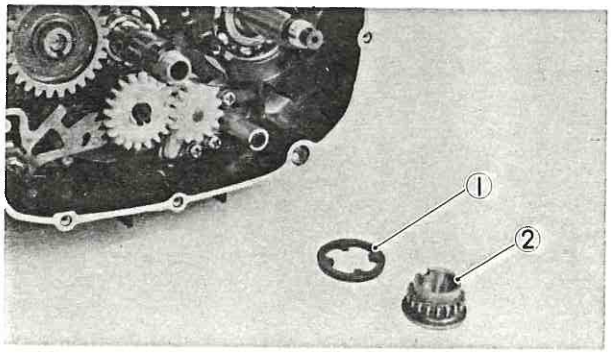
4. Install:
   - Plane washer ①
   - Kick starter assembly

NOTE:

Make sure that ratchet wheel pawl ② is installed between the ratchet wheel guide ③ and ratchet wheel stopper ④ so that its limit of travel will stop at the ratchet wheel stopper.

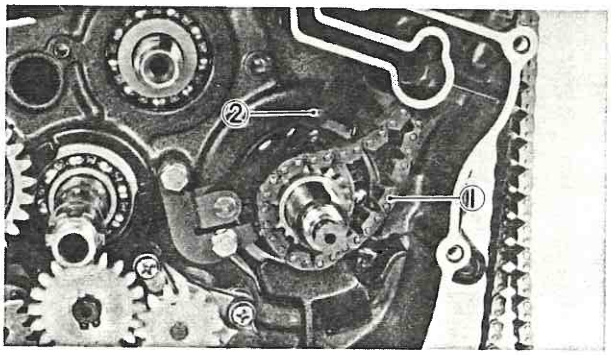


5. Install:
   - Kick spring
     (onto spring stopper)



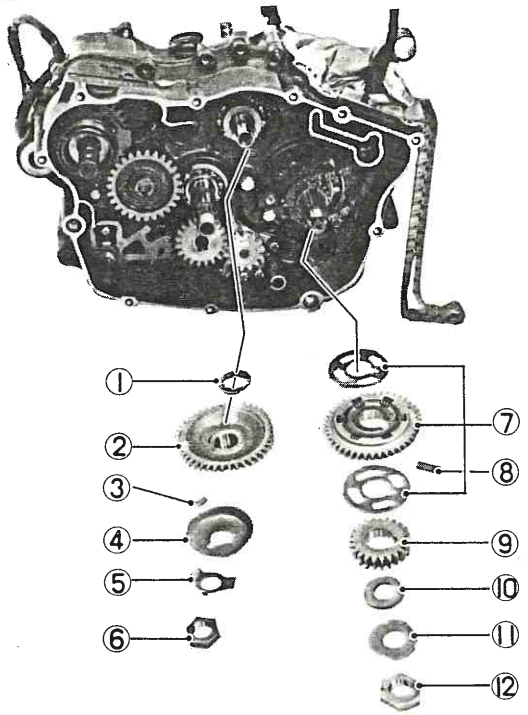
CAM CHAIN AND INTAKE SIDE CHAIN GUIDE

1. Install:
   - Washer ①
   - Chain drive gear ②



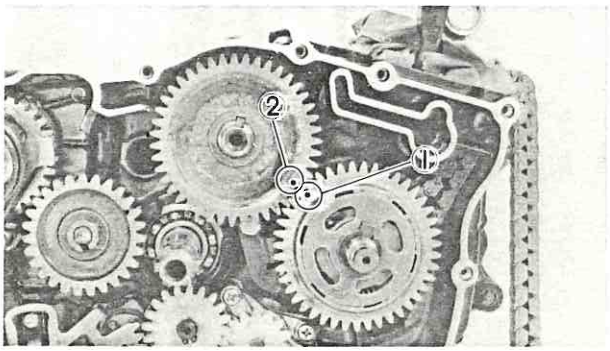
2. Install:
   - Cam chain ①
   - Intake side chain guide ②

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

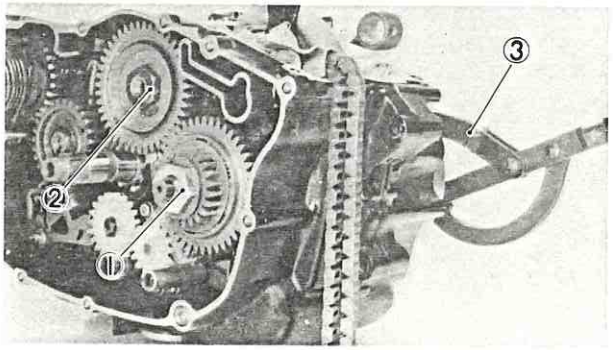


BALANCER DRIVEN GEAR AND PRIMARY DRIVE GEAR

1. Install:
   - Washer ①
   - Balancer driven gear ②
   - Key ③
   - Breather plate ④
   - Lock washer ⑤
   - Nut ⑥
   - Balancer drive gear assembly ⑦
   - Key ⑧
   - Primary drive gear ⑨
   - Washer ⑩
   - Lock washer ⑪
   - Nut ⑫



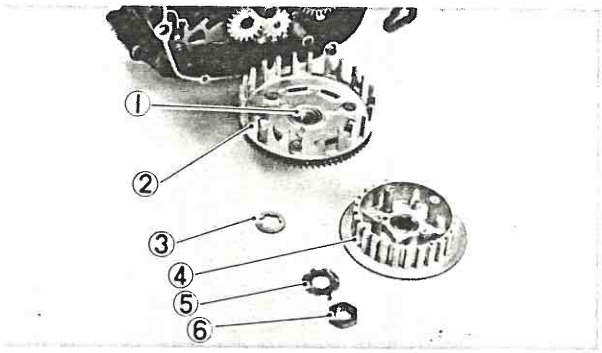
NOTE:
Align the balancer drive gear mark ① with the balancer driven gear mark ②.



2. Tighten:
   - Primary drive gear securing nut ①
   - Balancer driven gear securing nut ②

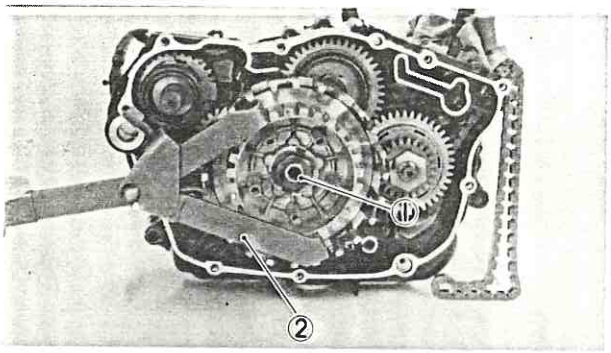
   Use Rotor Holding Tool ③ (90890-01235).

Primary Drive Gear Nut:
80 Nm (8.0 m•kg, 58 ft•lb)
Balancer Driven Gear Nut:
60 Nm (6.0 m•kg, 43 ft•lb)



CLUTCH

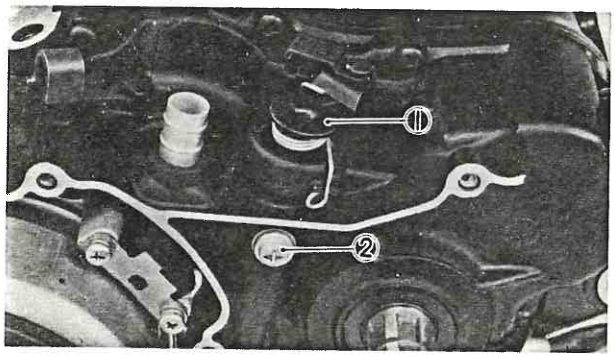
1. Install:
   - Bearing ①
   - Primary driven gear ②
   - Washer ③
   - Clutch boss ④
   - Lock washer ⑤
   - Clutch boss securing nut ⑥



2. Tighten:
   - Clutch boss securing nut ①

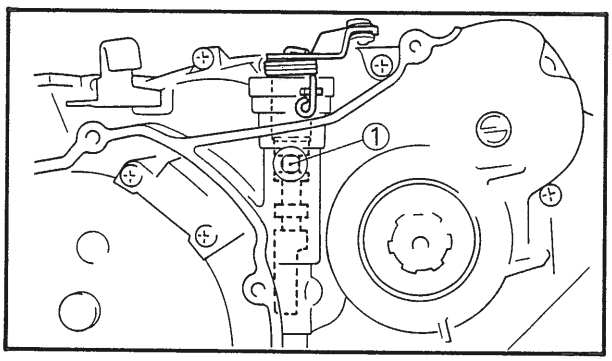
   Use Universal Clutch Holder ② (90890-04086).

Clutch Boss Nut:
60 Nm (6.0 m•kg, 43 ft•lb)



3. Install:
   - Push lever axle assembly ①
   - Screw ②

Push Lever Axle Screw:
12 Nm (1.2 m•kg, 8.7 ft•lb)

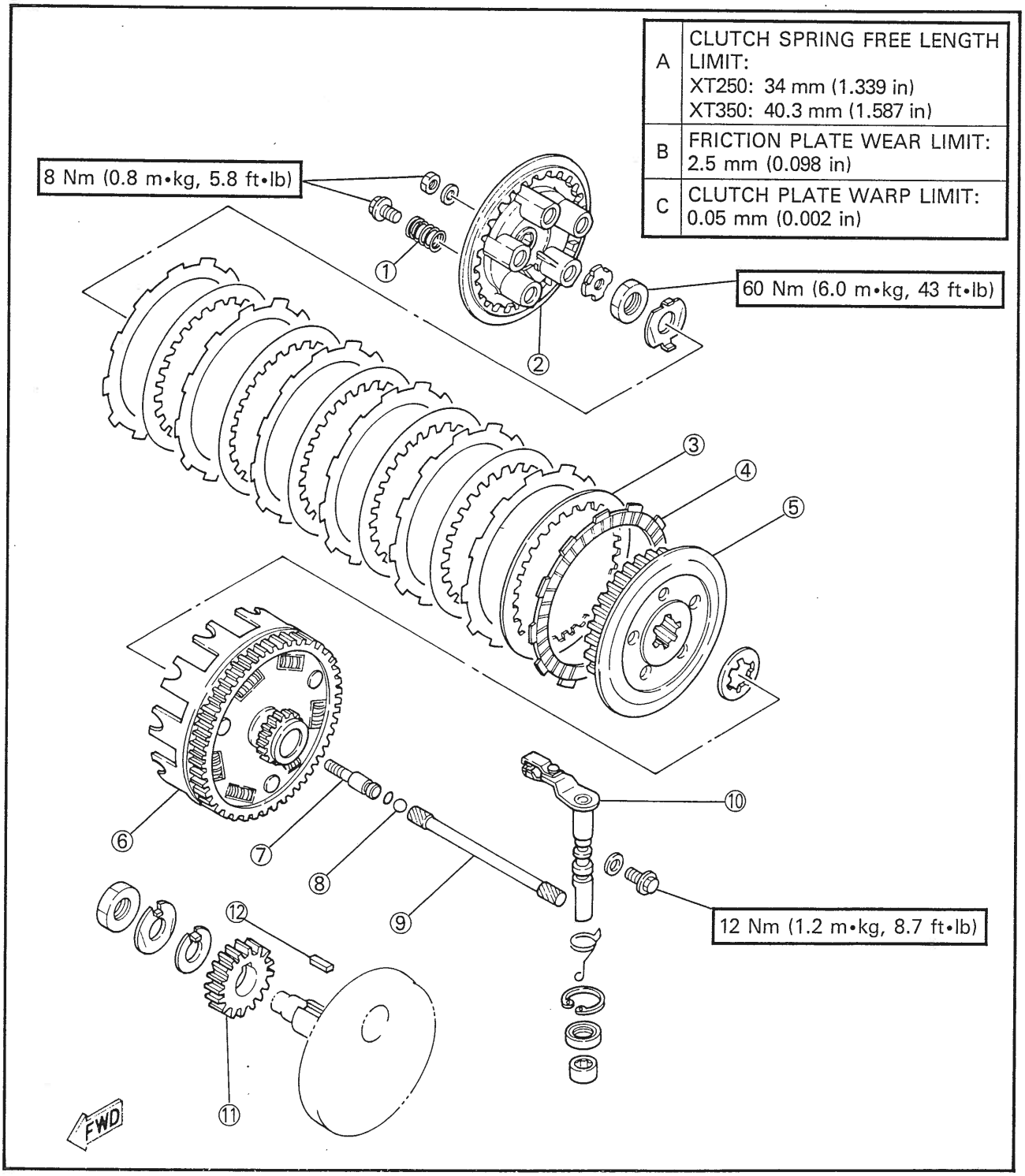


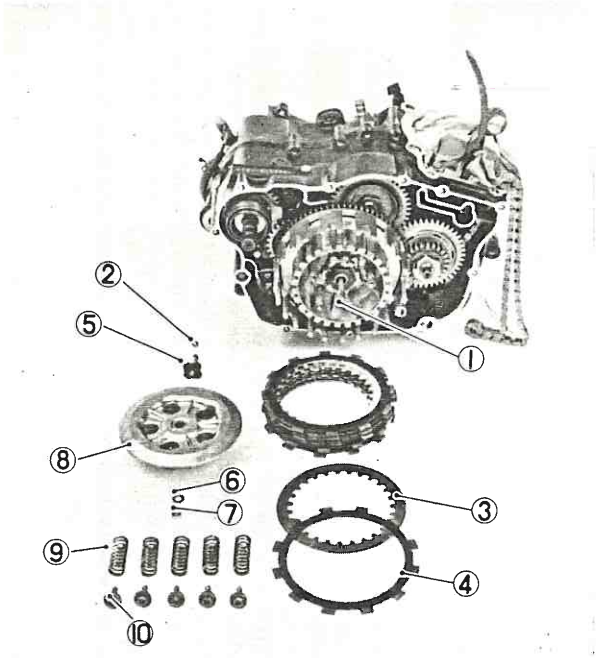
NOTE:

The push lever axle screw should lock the top groove ① of the push lever axle.

Clutch

① Clutch spring
② Pressure plate
③ Clutch plate
④ Friction plate
⑤ Clutch boss
⑥ Primary driven gear
⑦ Push rod #1
⑧ Push rod ball
⑨ Push rod #2
⑩ Push lever axle
⑪ Primary drive gear
⑫ Key

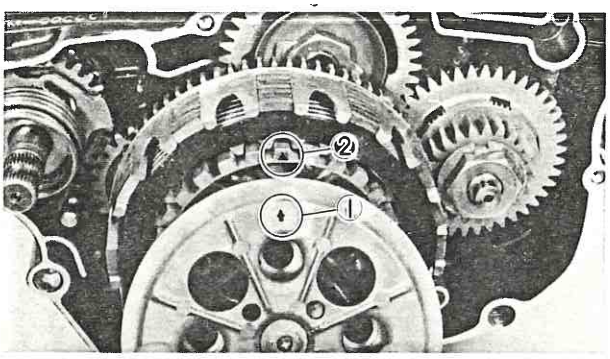




4. Install:
   - Push rod #2 ①
   - Push rod ball ②
   - Clutch plates ③
   - Friction plates ④
   - Push rod #1 ⑤
   - Washer ⑥
   - Nut ⑦
   - Pressure plate ⑧
   - Clutch springs ⑨
   - Clutch spring holding screws ⑩

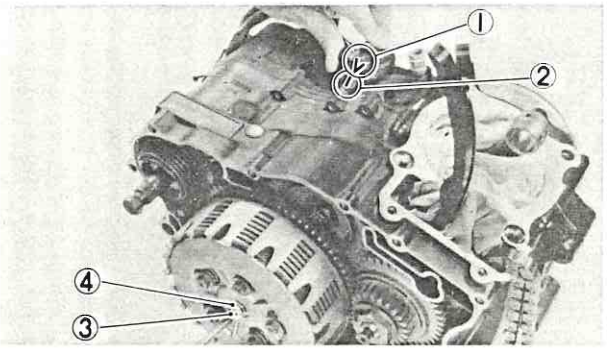
	Clutch Spring Screw: **8 Nm (0.8 m•kg, 5.8 ft•lb)**

3



NOTE:

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



5. Turn:
   - Push lever

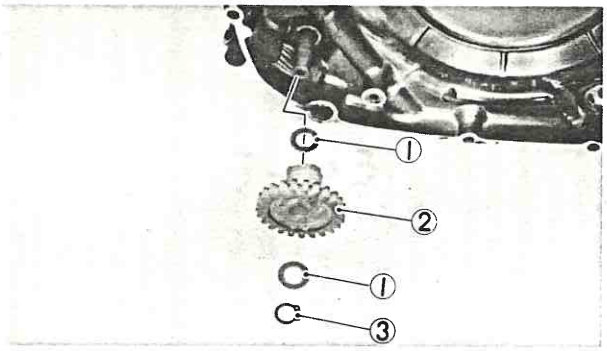
   (To align the push lever pointer ① with the crankcase embossed mark ②)
6. Turn:
   - Push rod #1

   (in or out until it lightly seats against a push rod ball)

③ Push rod #1
④ Locknut

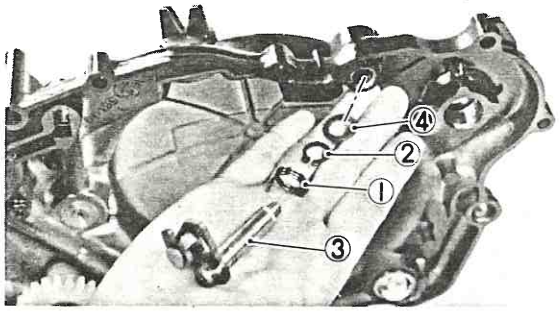
7. Tighten:
   - Locknut

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

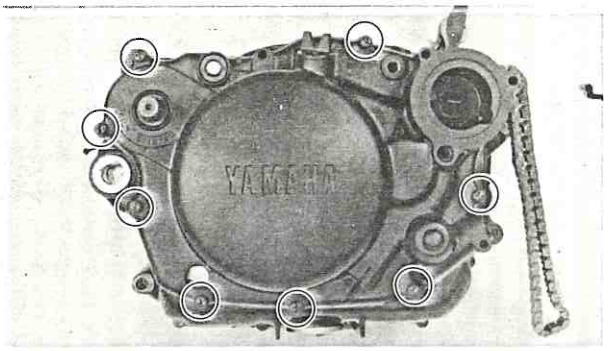


RIGHT CRANKCASE COVER

1. Install:
   - Washer ①
   - Tachometer driven gear ②
   - Circlip ③

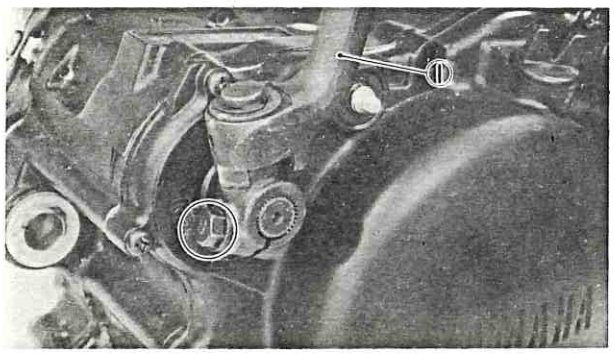


2. Install:
   - Torsion spring ①
   - Circlip ②
     (onto decompression lever ③
   - Washer ④
   - Decompression lever assembly

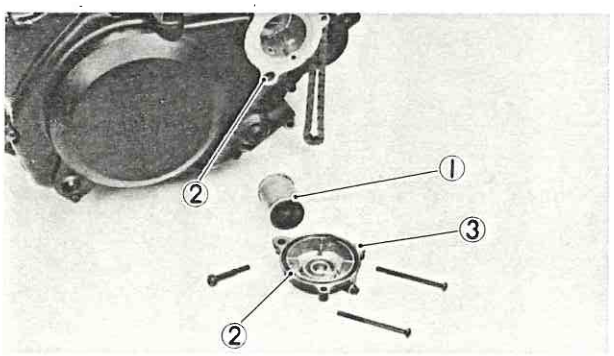


3. Install:
   - Dowels
   - Gasket
   - Right crankcase cover

	Right Crankcase Cover Screw: 7 Nm (0.7 m•kg, 5.1 ft•lb)



4. Install:
   - Kick crank assembly ①
   - Bolt



OIL FILTER

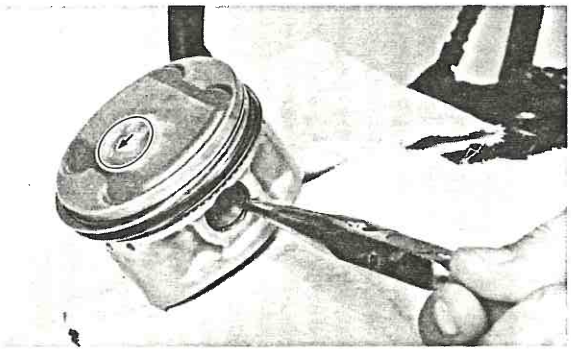
1. Install:
   - Oil filter ①
   - O-ring ②
   - Oil filter cover ③

	Oil Filter Cover Screw: 7 Nm (0.7 m•kg, 5.1 ft•lb)

PISTON

1. Apply:
   - Engine oil

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



2. Install:
   - Piston
   - Piston pin
   - Piston pin clip

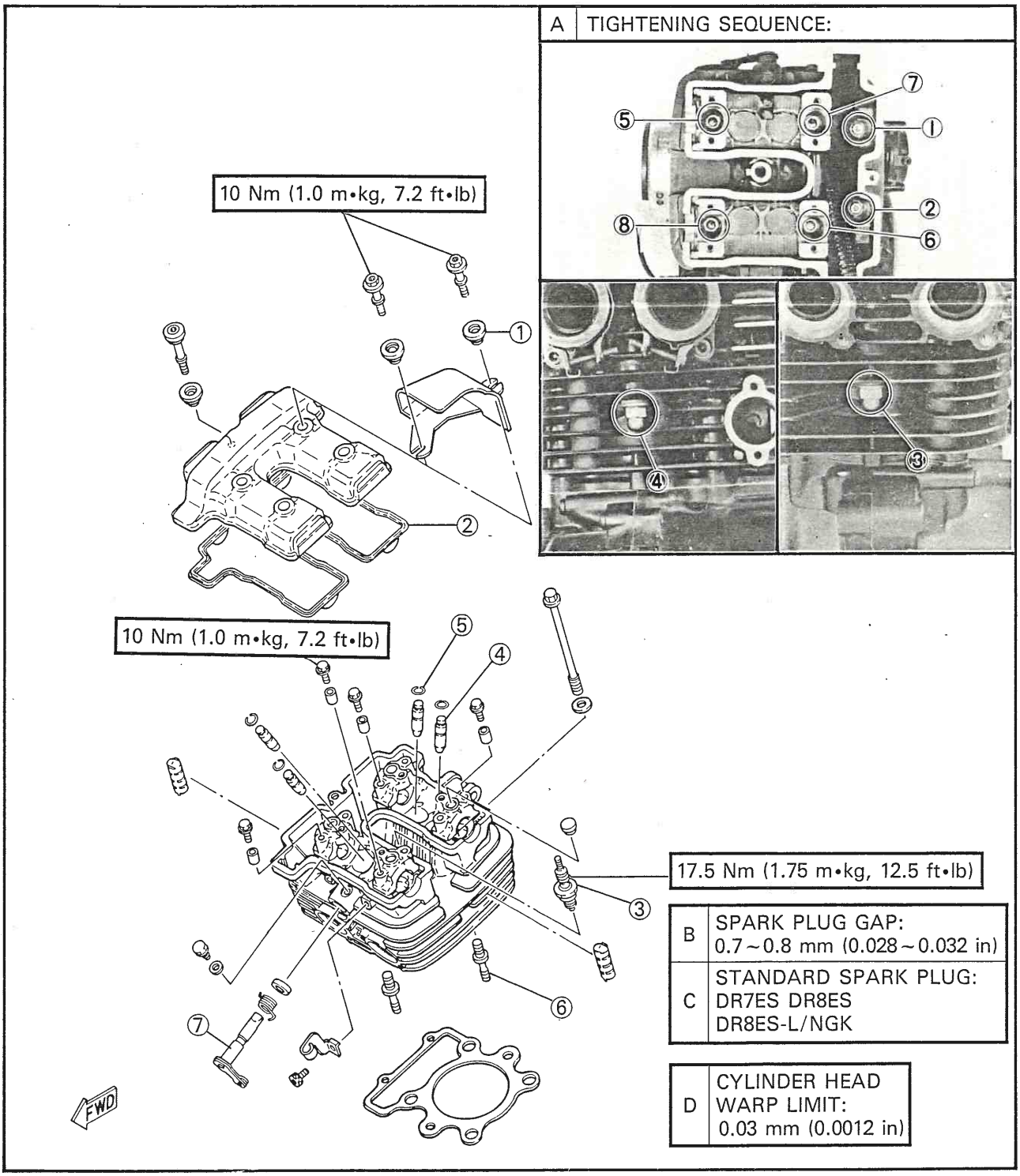
NOTE:

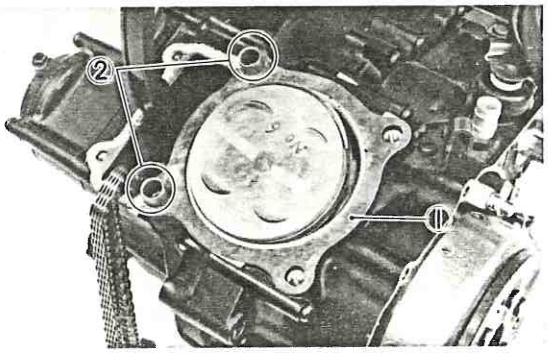
- The arrow on the piston must point to the front of the engine.
- Before installing the piston pin clip, cover the crankcase with a clean towel or rag so you will not accidentally drop the pin clip and material into the crankcase.
- Always use a new piston pin clip.

CYLINDER, CYLINDER HEAD AND CAMSHAFT

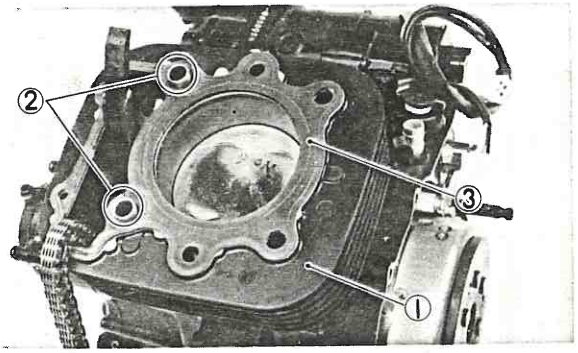
Cylinder and Cylinder Head

① Rubber washer
② Gasket
③ Spark plug
④ Valve guide
⑤ Circlip
⑥ Stud bolt
⑦ Decompression cam

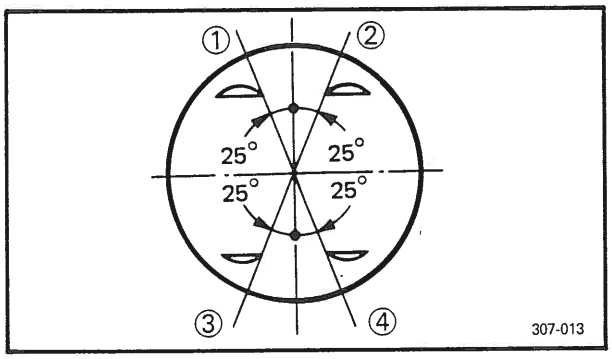




1. Install:
   - Cylinder ①
   - Dowels ②



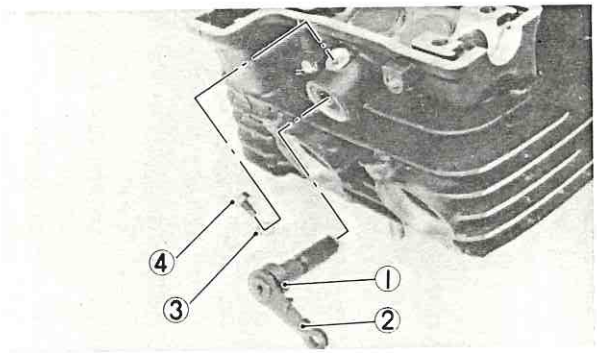
2. Install:
   - Cylinder ①
   - Dowels ②
   - Cylinder head gasket ③



NOTE:

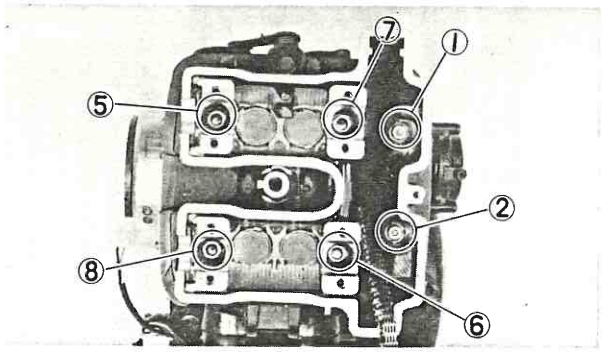
Set the piston ring ends to the positions as shown.

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



3. Install:
   - Spring ①
   - Decompression cam ②
   - Washer ③
   - Bolt ④
4. Tighten:
   - Bolt

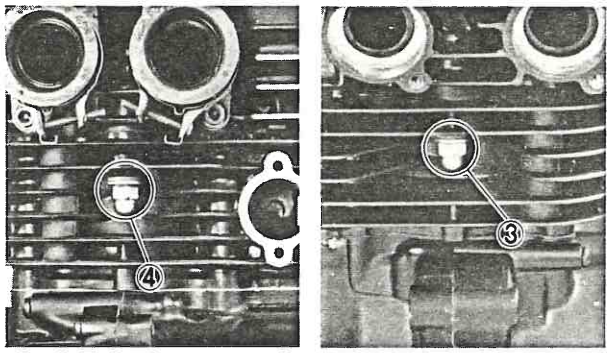
	Decompression Cam Stopper Bolt: **8 Nm (0.8 m•kg, 5.8 ft•lb)**



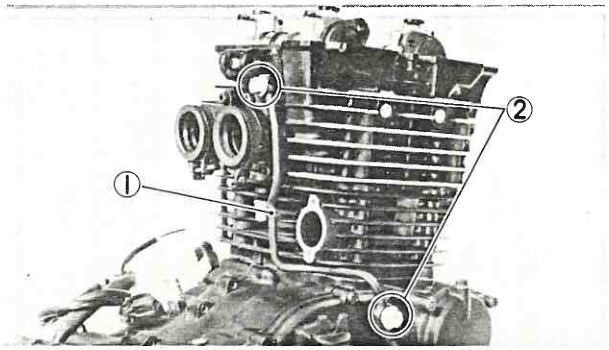
5. Install:
   - Cylinder head

NOTE:

Tighten the bolts and nuts in their proper tightening sequence.



Cylinder Head Bolt (10 mm):
40 Nm (4.0 m•kg, 29 ft•lb)
Cylinder Head Bolt (6 mm)
10 Nm (1.0 m•kg, 7.2 ft•lb)
Cylinder Head Nut:
20 Nm (2.0 m•kg, 14 ft•lb)

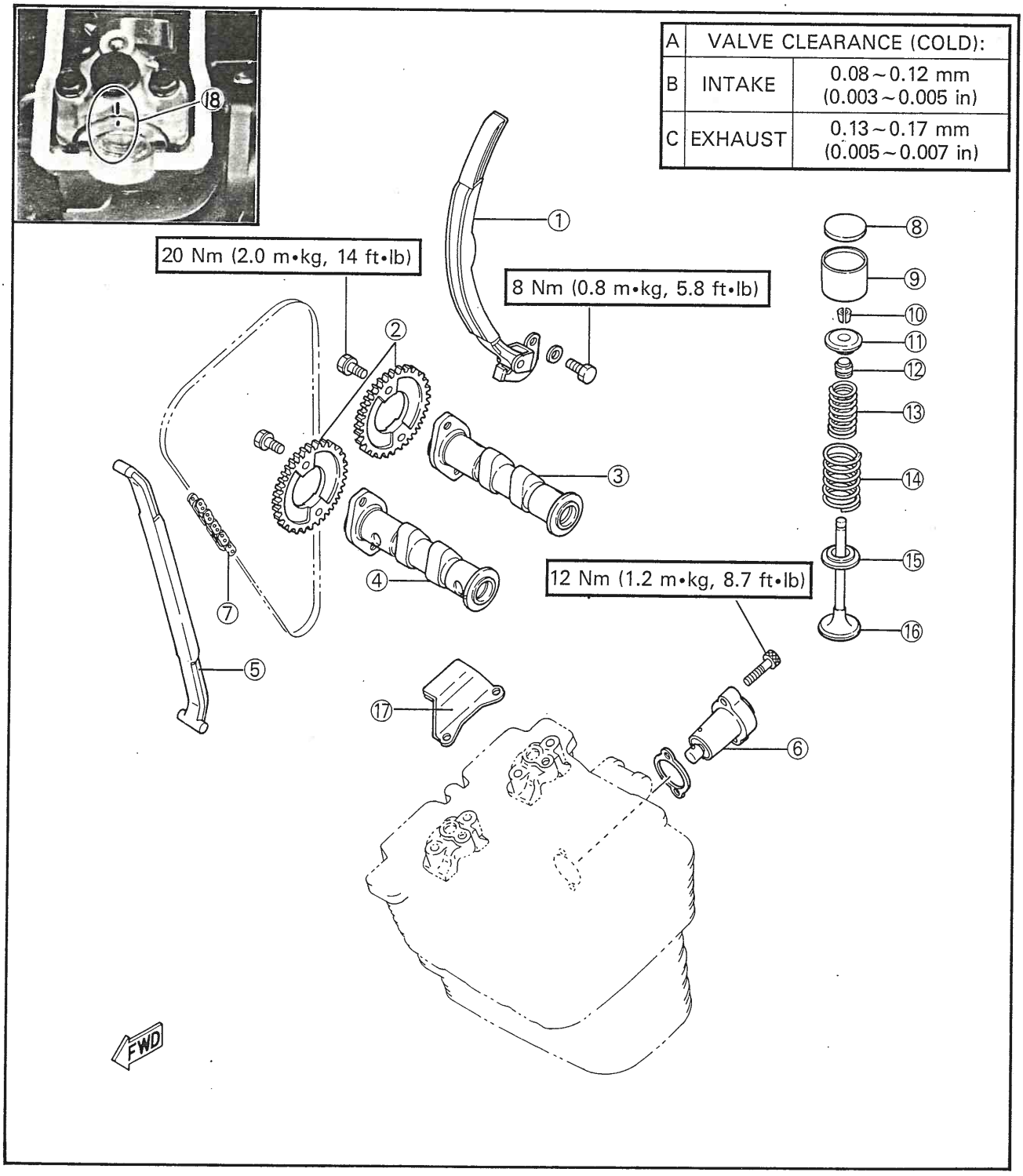


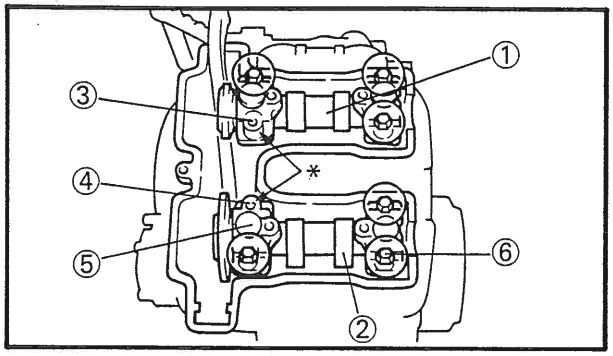
6. Install:
   - Washers
   - Oil pipe ①
   - Washers
   - Oil pipe union bolts ②

Oil Pipe Union Bolt:
20 Nm (2.0 m•kg, 14 ft•lb)

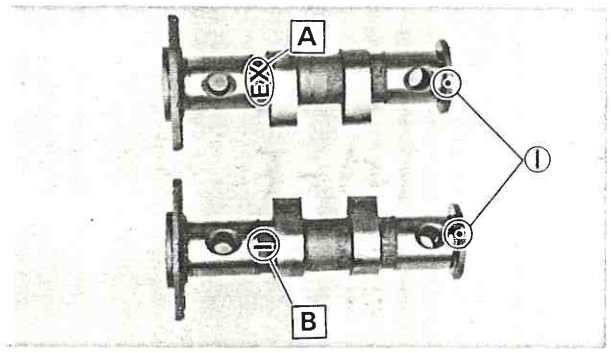
Camshaft

① Intake side chain guide
② Cam sprocket
③ Camshaft (Intake)
④ Camshaft (Exhaust)
⑤ Exhaust side chain guide
⑥ Chain tensioner body
⑦ Cam chain
⑧ Adjusting pad
⑨ Valve lifter
⑩ Valve retainer
⑪ Spring seat
⑫ Oil seal
⑬ Inner spring
⑭ Outer spring
⑮ Spring seat
⑯ Valve
⑰ Upper chain guide
⑱ Match mark



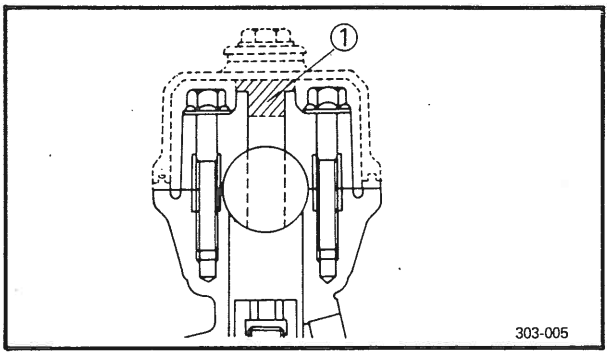


1. Install:
   - Intake camshaft ①
   - Exhaust camshaft ②
   - Intake cam caps ③
   - Exhaust cam caps ④
   - Oil plugs ⑤
   - Bolts ⑥



NOTE:

- "I" mark [B] for intake camshaft
- "EX" mark [A] for exhaust camshaft
- Make sure the timing mark ① on the camshaft faces upward.
- Apply engine oil to camshaft bearing surfaces before installing camshafts.
- Do not install the bolts at * marked places in this stoge.



CAUTION:

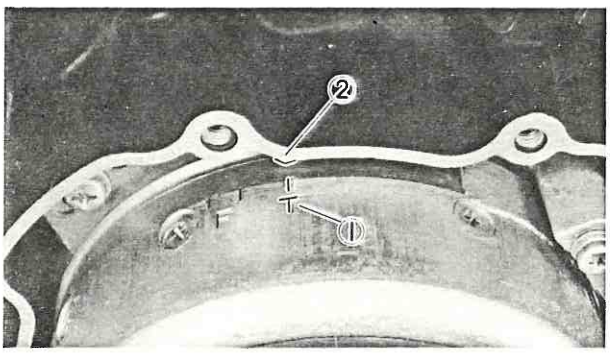
The oil plugs ① must be installed in each camshaft hole to ensure that an adequate supply of oil will be distributed along the camshafts.

2. Tighten:
   - Cap bolts

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

Cam Chain

1. Rotate:
   - Crankshaft
     Counter clockwise.
2. Align:
   - Flywheel "T" mark ①
     (with the crankcase mark ②)
3. Rotate:
   - Exhaust camshaft
4. Align:
   - Exhaust camshaft timing mark
     (with the left side exhaust cam cap mark)



CAUTION:

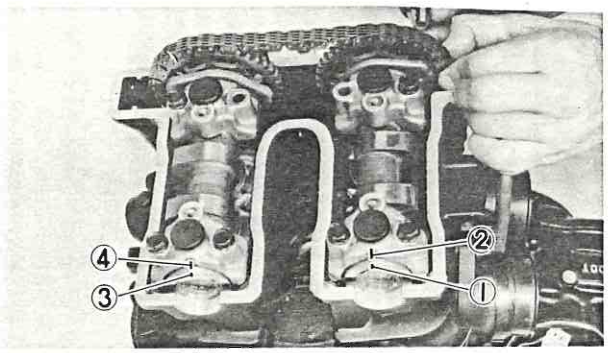
Do not rotate the camshaft over 1/2 turn or damage to the piston and valve will result.

5. Position:
   • Cam chain
   (onto sprockets)
6. Install:
   • Sprockets
   (onto exhaust camshafts)
7. Force the exhaust sprocket clockwise (viewing from left side engine) to remove all cam chain slack.
8. 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.

9. Install:
   • Exhaust sprocket bolt
   (temporarily tighten)
10. Rotate:
    • Intake camshaft
11. Align:
    • Intake camshaft timing mark ①
    (with the left side intake cam cap mark ②)



③ Exhaust camshaft timing mark
④ Left side exhaust cam cap mark

CAUTION:

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

12. Force the intake sprocket clockwise (viewing from left side engine) to remove all cam chain slack.
13. Align:
    - Intake sprocket hole
      (with the intake camshaft thread hole)

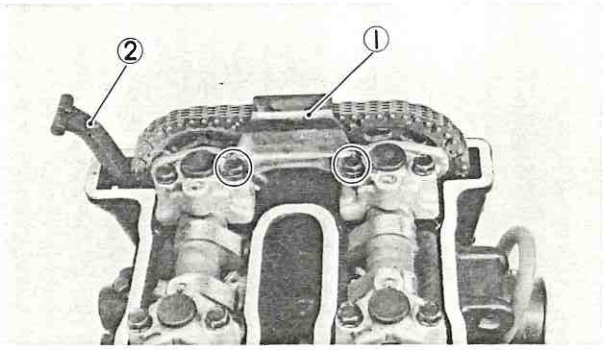
NOTE:

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

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

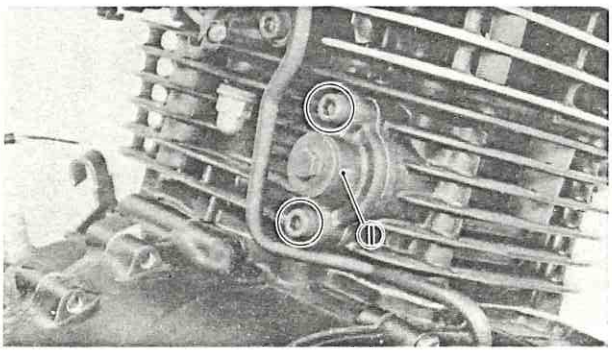
NOTE:

- Be sure the camshaft timing marks align with the cam cap arrow mark.
- Be sure the "I" mark on the rotor align with the stationary pointer.



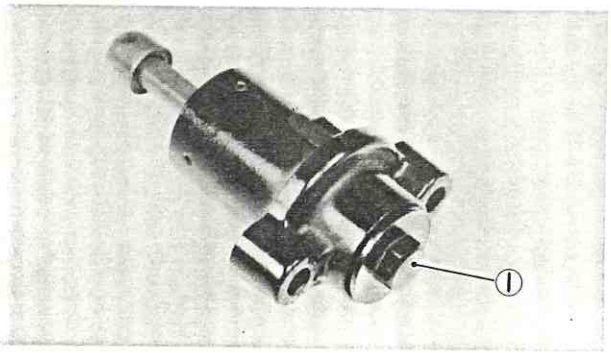
15. Install:
    - Exhaust side chain guide ②
    - Upper chain guide ①

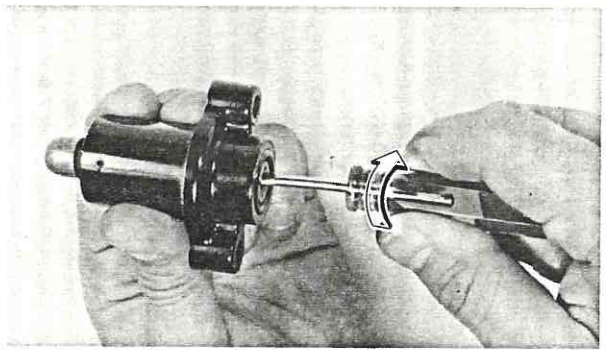
	Upper Chain Guide Bolt: **10 Nm (1.0 m•kg, 7.2 ft•lb)**



16. Install:
    - Tensioner assembly ①

	Tensioner Screw: **12 Nm (1.2 m•kg, 5.8 ft•lb)**



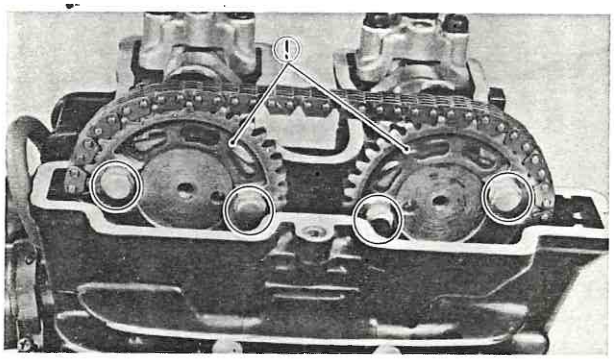


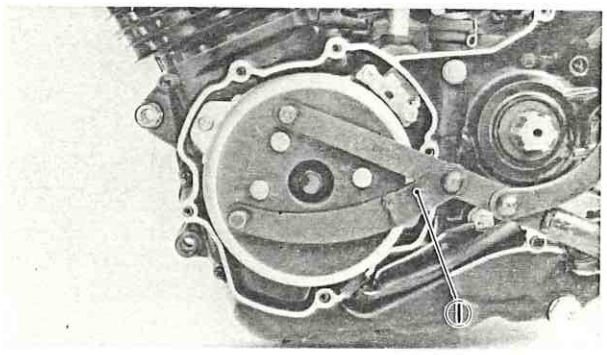
Cam chain tensioner installation steps:
- Remove the blind bolt ① from the tensioner body.
- Insert the small screw driver into the blind bolt hole.
- Turn the screw driver clockwise until it stops completely; then, keep the screw driver at this position.
- Install the tensioner with a new gasket onto the cylinder. Torque the bolts to specification.

Tensioner Body:
12 Nm (1.2 m•kg, 8.7 ft•lb)

- Release the tension rod by pulling out the screw driver. Torque the blind bolts to specification.

Blind Bolt:
6 Nm (0.6 m•kg, 4.3 ft•lb)

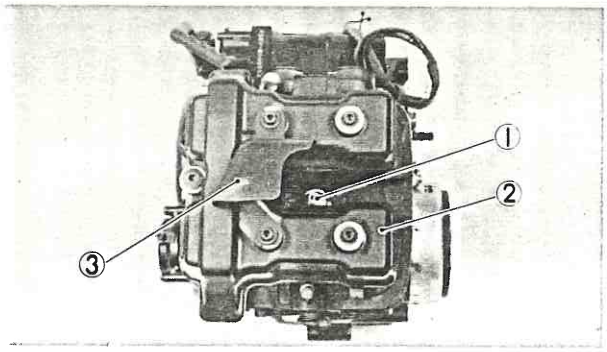




17. Rotate:
    - Crankshaft
      Counterclockwise
18. Install:
    - Sprocket bolts ① (all)

Sprocket Bolts:
20 Nm (2.0 m•kg, 14 ft•lb)

NOTE:
If difficult to tighten the cam sprocket securing bolts; hold the flywheel magneto with the rotor holding tool ①.



19. Install:
    - Spark plug ①

	Spark Plug: **17.5 Nm (1.75 m•kg, 12.5 ft•lb)**

- Cylinder head cover gasket
- Cylinder head cover ②

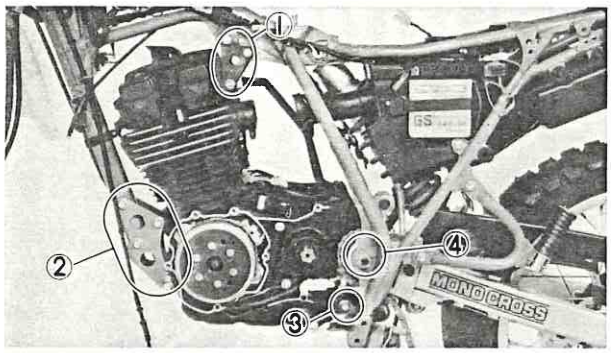
	Cylinder Head Cover Bolt: **10 Nm (1.0 m•kg, 7.2 ft•lb)**

- Air baffle plate ③

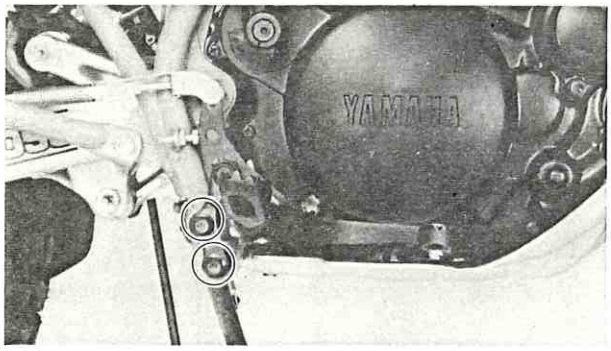
3

REMOUNTING ENGINE

1. Reverse engine removal steps. Pay close attention to installation of following steps.
2. Tighten:
    - Engine mounting bolts.

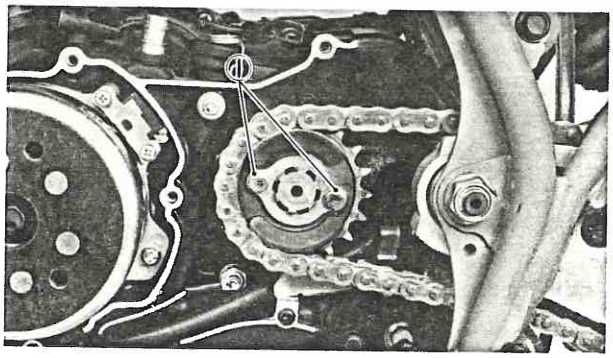


	Upper Mounting Bolts ①: **33 Nm (3.3 m•kg, 24 ft•lb)** **Front Mounting Bolts ②:** **33 Nm (3.3 m•kg, 24 ft•lb)** **Rear Mounting Bolts ③:** **38 Nm (3.8 m•kg, 27 ft•lb)** **Rear Arm Pivot Shaft ④:** **85 Nm (8.5 m•kg, 61 ft•lb)**



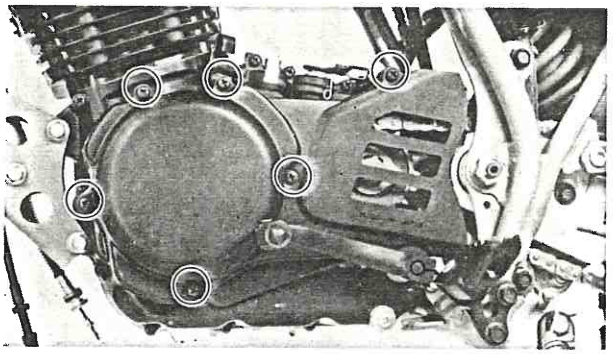
3. Tighten:

	Footrest Mounting Bolts: **26 Nm (2.6 m•kg, 19 ft•lb)**



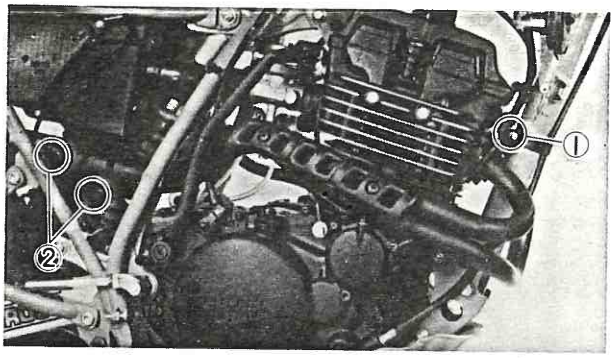
4. Tighten:

Drive Chain Sprocket Bolt ①: 10 Nm (1.0 m•kg, 7.2 ft•lb)



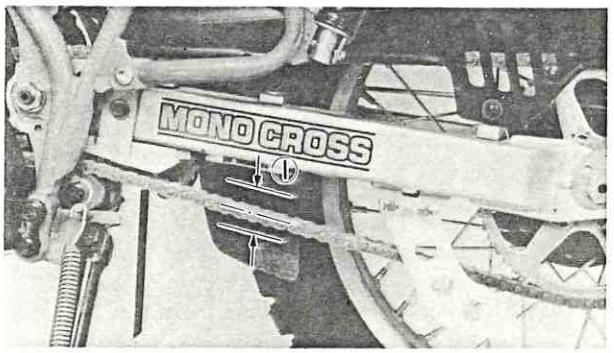
5. Tighten:

Left Crankcase Cover Screw: 7 Nm (0.7 m•kg, 5.1 ft•lb)



6. Tighten:

Exhaust Pipe Flange Bolts ①: 12 Nm (1.2 m•kg, 8.7 ft•lb) Muffler Clamp Bolts ②: 20 Nm (2.0 m•kg, 14 ft•lb)



7. Adjust:
   • Drive chain deflection

Standard Drive Chain Deflection ①: 30 ~ 40 mm (1.18 ~ 1.57 in)

8. Tighten:

Rear Axle Nut: 107 Nm (10.7 m•kg, 79 ft•lb)

9. Fill:
   • Crankcase

Engine Oil: 1.6 L (1.4 Imp qt, 1.7 US qt)

CHAPTER 4.
CARBURETION

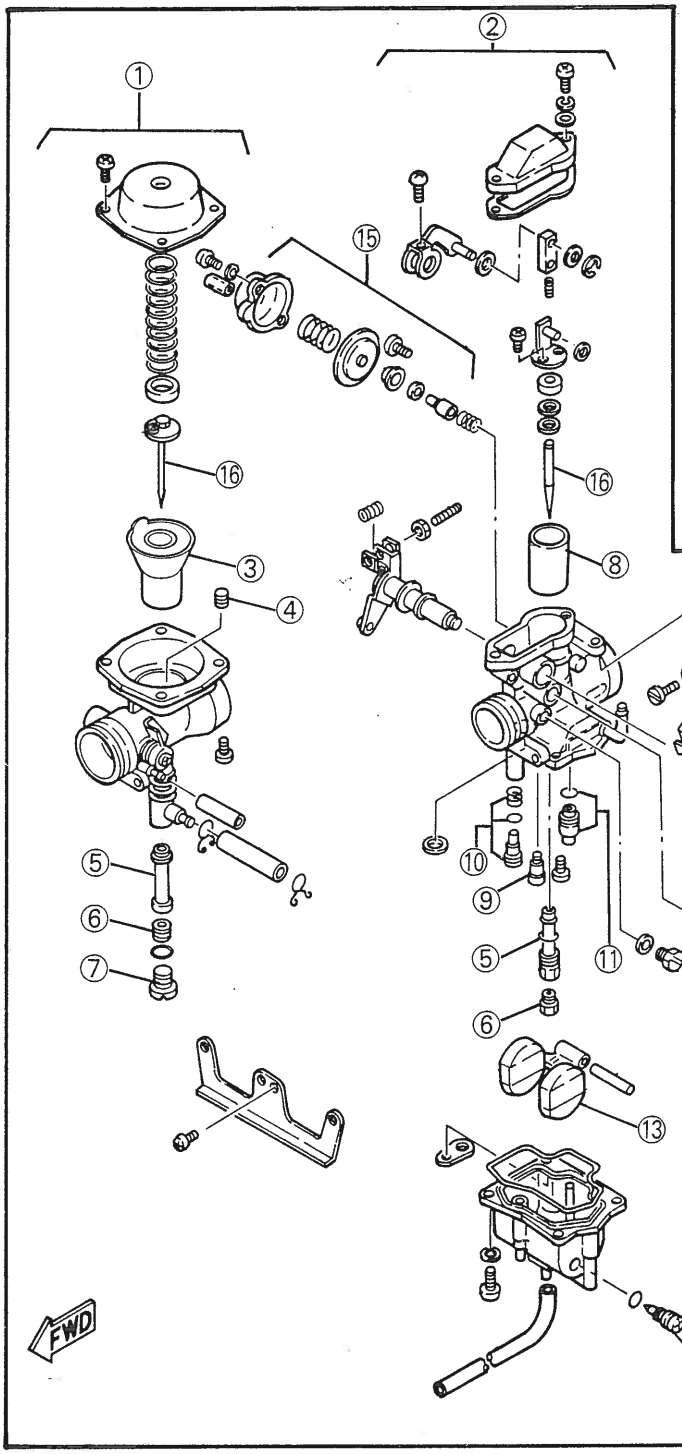
CARBURETION

CARBURETOR

① Secondary carburetor
② Primary carburetor
③ Vacuum piston
④ Main air jet
⑤ Main nozzle
⑥ Main jet
⑦ Blind plug
⑧ Piston valve
⑨ Pilot jet
⑩ Pilot screw
⑪ Valve seat assembly
⑫ Starter plunger assembly
⑬ Float
⑭ Drain screw
⑮ Coasting enricher assembly
⑯ Jet needle

Specifications

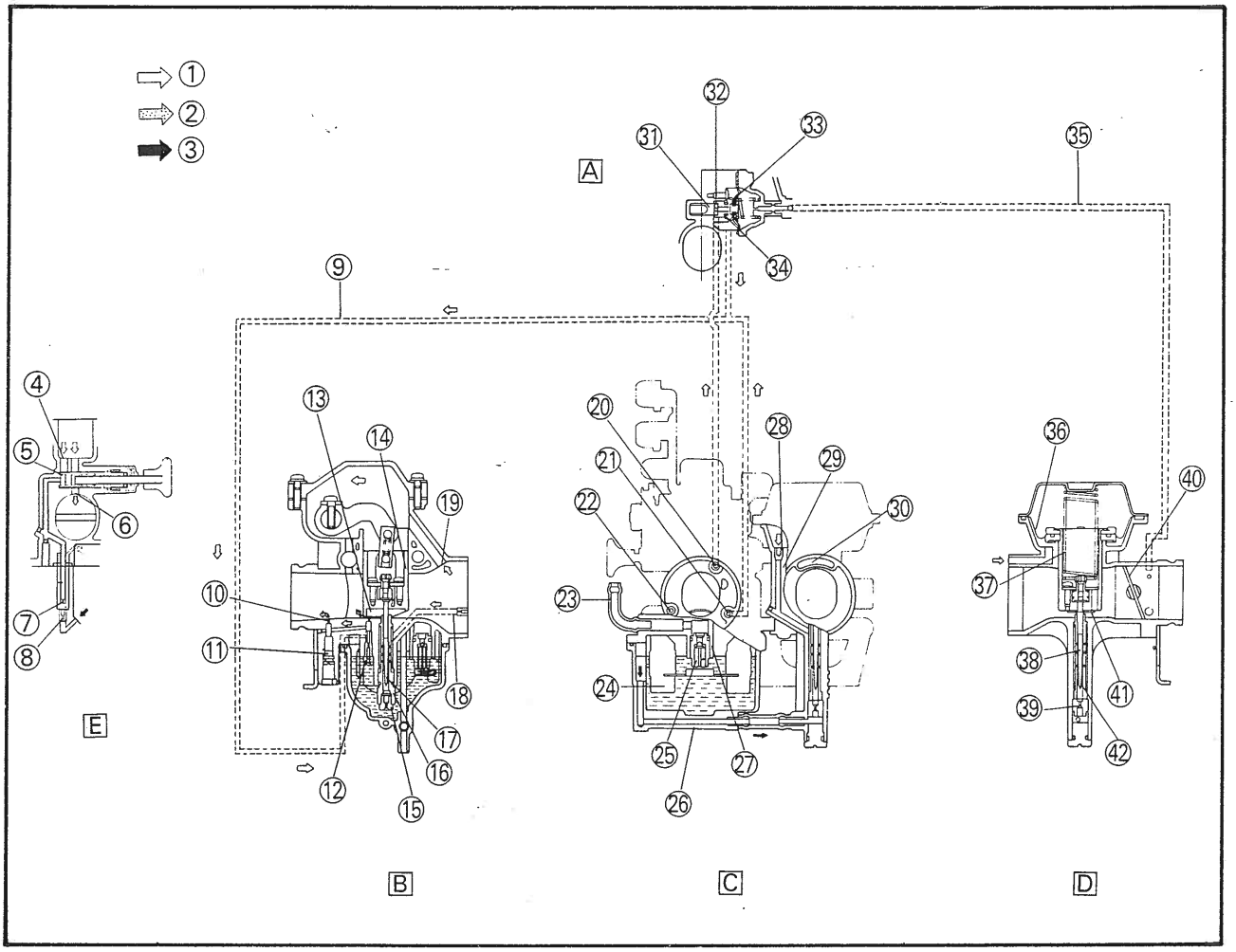
	PRIMARY CARB		SECONDARY CARB	
	XT250	XT350	XT250	XT350
MAIN JET (M.J.)	#120	←	#110	#102
MAIN AIR JET (M.A.J.)	φ1.6	φ0.6	φ0.8	φ1.4
JET NEEDLE (J.N.)	5C93-3/5	5C3A-2/5	4A70-3/5	←
PILOT JET (P.J.)	#38	#42	—	—
PILOT AIR JET (P.A.J.)	φ1.0	←	—	—
PILOT SCREW	2±1/2	3±1/2	—	—
FLOAT VALVE SEAT	φ2.5	←	—	—
ENGINE IDLE SPEED	1,400±50 r/min			



SECTION VIEW

① Air
② Fuel
③ Mixture
④ Air inlet
⑤ Starter valve
⑥ Mixture outlet
⑦ Starter jet #1
⑧ Starter jet #2
⑨ Pilot air circuit
⑩ Pilot outlet
⑪ Pilot screw
⑫ Pilot jet
⑬ Bypass hole
⑭ Throttle valve
⑮ Main air jet
⑯ Main nozzle
⑰ Jet needle
⑱ Primary main air circuit
⑲ Air inlet for starter
⑳ Enricher air jet
㉑ Pilot air jet
㉒ Main air jet
㉓ Fuel joint
㉔ Float
㉕ Needle valve
㉖ Secondary fuel circuit
㉗ Valve seat
㉘ Main air jet
㉙ Secondary main air circuit
㉚ Air inlet
㉛ Rod
㉜ Valve
㉝ Diaphragm assembly
㉞ Valve seat
㉟ Vacuum circuit
㊱ Diaphragm
㊲ Vacuum piston
㊳ Main nozzle
㊴ Main jet
㊵ Throttle valve
㊶ Vacuum hole
㊷ Jet needle

[A] COASTING ENRICHER SYSTEM
[B] PRIMARY SYSTEM
[C] FUEL SYSTEM
[D] SECONDARY SYSTEM
[E] STARTER SYSTEM

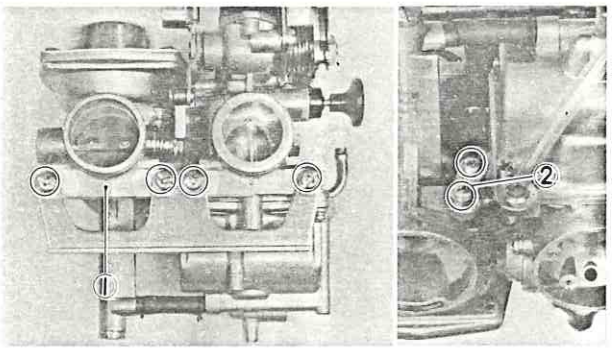


DISASSEMBLY

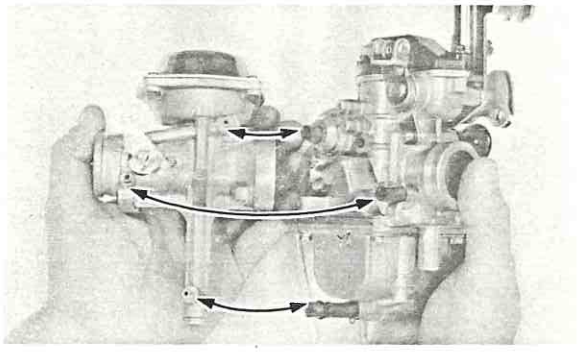
NOTE:

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

- Piston valve
- Vacuum piston
- Starter plunger
- Float chamber components
- Coasting enricher

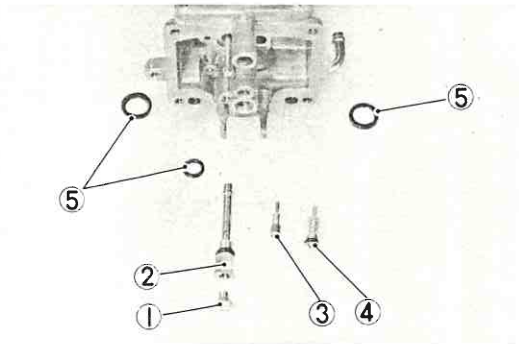


1. Remove:
   - Front bracket ①
   - Rear bracket ②

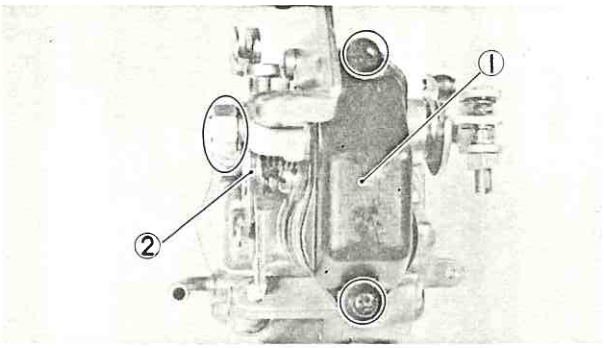


2. Disconnect:
   - Primary carburetor
   - Secondary carburetor

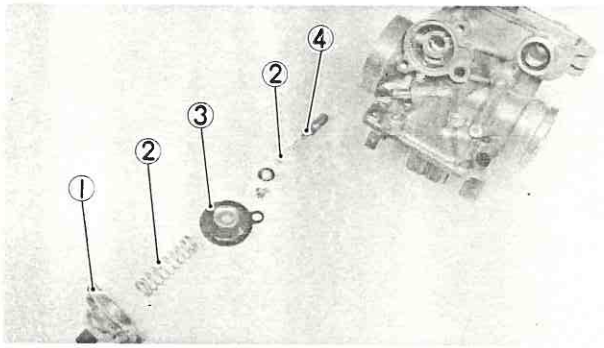
3. Remove:
   - Float chamber
   - Float pin
   - Float
   - Screw
   - Valve seat assembly



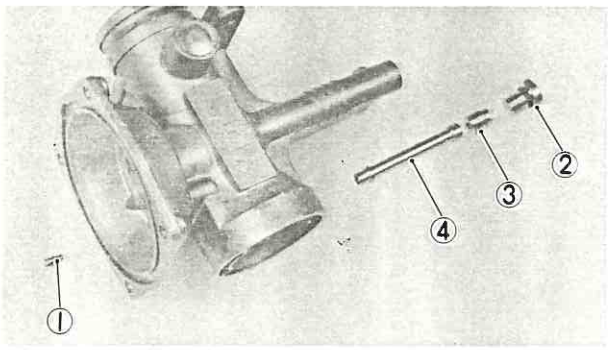
4. Remove:
   - Main jet ①
   - Main nozzle ②
   - Pilot jet ③
   - Pilot screw ④
   - O-rings ⑤



5. Remove:
   - Primary carburetor cap ①
   - Throttle lever assembly ②
   - Piston valve
   - Jet needle



6. Remove:
   - Coasting enricher cover ①
   - Spring ②
   - Diaphragm ③
   - Valve seat ④



7. Remove:
   - Vacuum piston cover
   - Vacuum piston
   - Main air jet ①
   - Blind plug ②
   - Main jet ③
   - Main nozzle ④

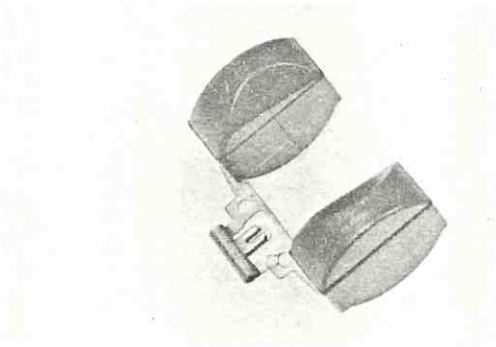
4

INSPECTION

1. Inspect:
   - Carburetor body
   - Fuel passage

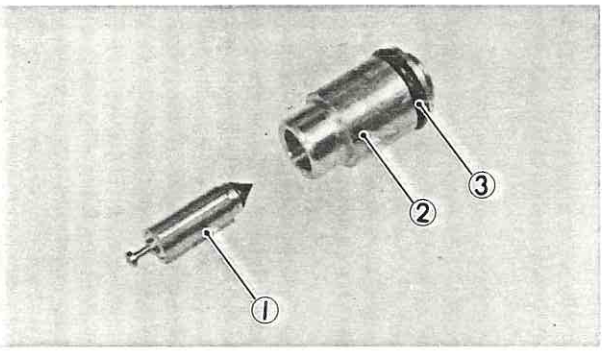
   Contamination → Clean as indicated.

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.

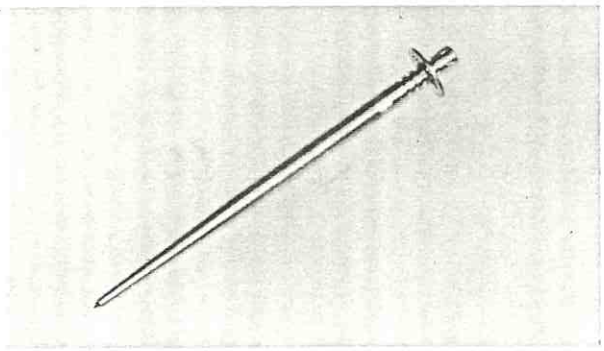


2. Inspect:
   - Floats

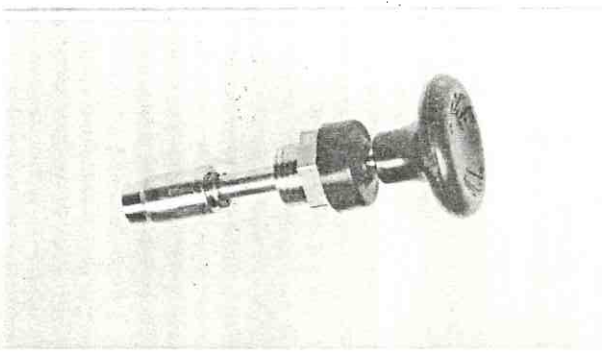
   Damage → Replace.



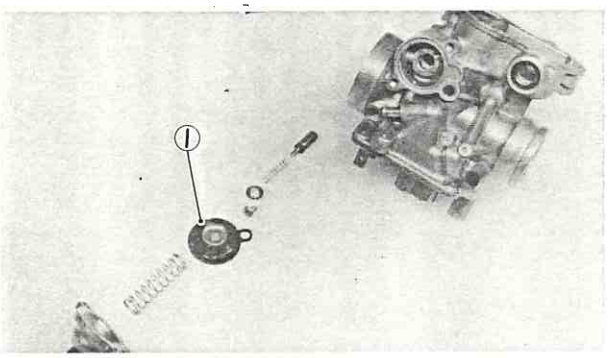
3. Inspect:
   - Float needle valve ①
   - Seat ②
   - O-ring ③
     Damage/Wear/Contamination→Replace as a set.
   - Vacuum piston
   - Rubber diaphragm
     Scratches (piston)/Tears (diaphragm)→ Replace.



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



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



6. Inspect:
   - Coasting enricher rubber diaphragm ①

ASSEMBLY

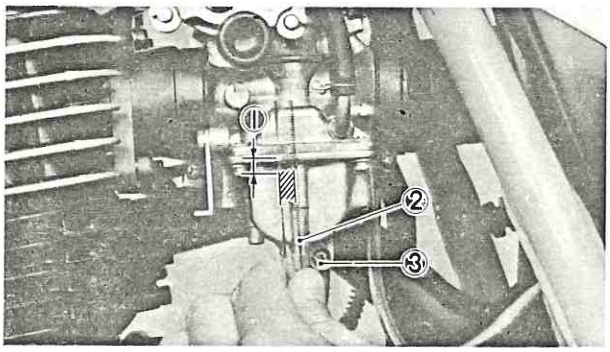
Reverse disassembly steps. Pay close attention to installation of vacuum piston diaphragm and location of each jet.

FUEL LEVEL ADJUSTMENT

NOTE:

Place motorcycle on level surface before checking fuel level.

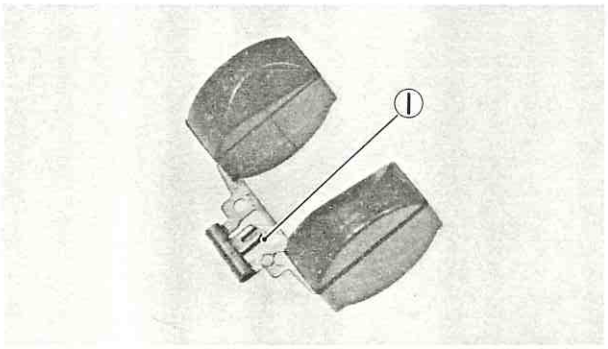
1. Measure:
   - Fuel level ①



Fuel level inspection steps:
- Connect Fuel Level Gauge ② (90890-01312) or vinyl tube, 6 mm (0.24 in) inside diameter, to float bowl nozzle.
- 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 ③
- 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:
6 ± 1.0 mm (0.24 ± 0.04 in)

Out of range→Follow next steps.



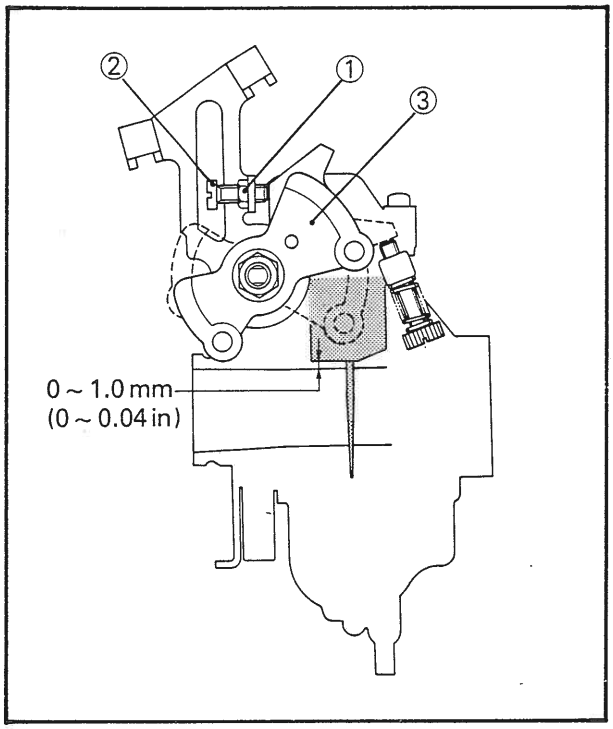
2. Remove:
   - Carburetors
3. Inspect:
   - Float valve assembly
   - Float

   Damage→Replace.

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

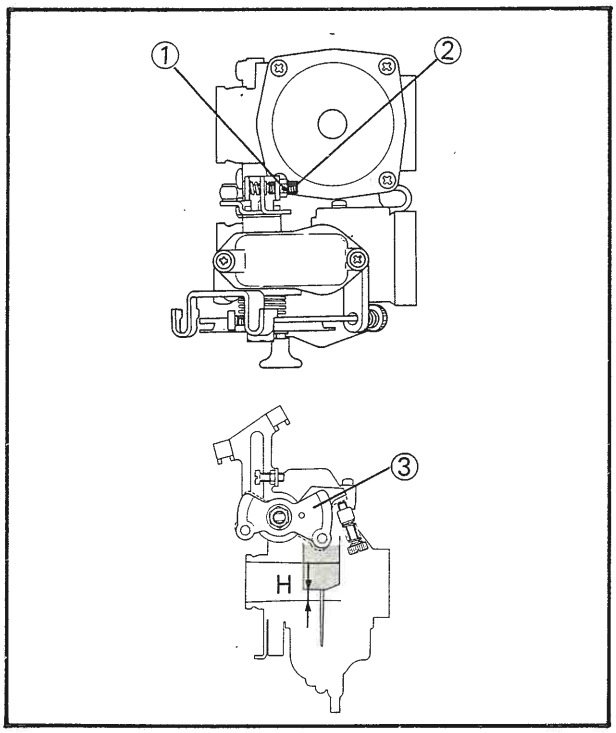
4. Observe:
   - Fuel level

   Level should be within specified range.



FULL THROTTLE ADJUSTMENT

1. Loosen:
   • Locknut ①
2. Turn the throttle lever ③ to the full-throttle position.
3. Turn the full-throttle adjusting screw ② in or out so that piston valve is positioned as shown.
4. Tighten:
   • Locknut

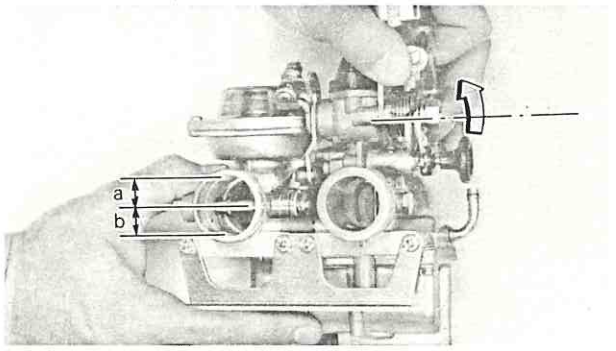


CARBURETOR SYNCHRONIZATION

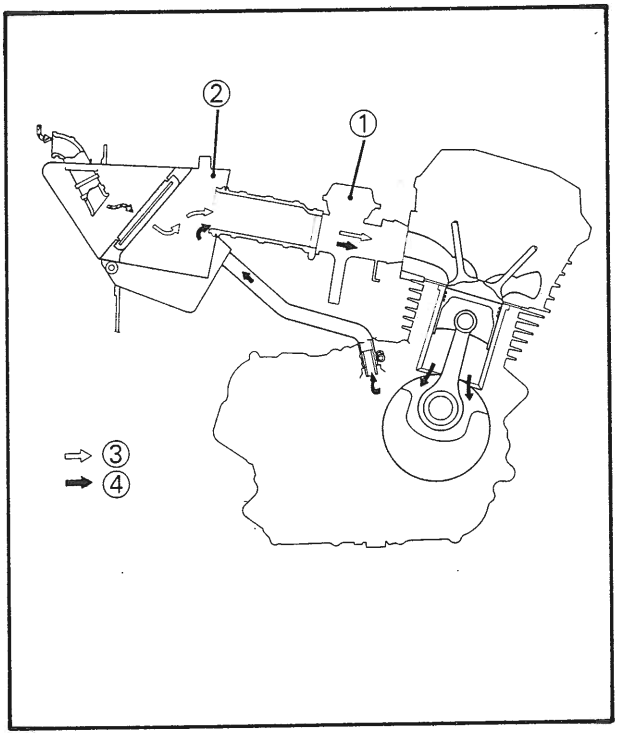
1. Loosen:
   • Locknut ①
2. Turn the throttle lever ③ to raise the primary piston valve "H" as shown.

	XT250	XT350
H	4.0 mm (0.16 in)	2.5 mm (0.10 in)

3. Turn the synchronizing screw ② in or out so that secondary throttle valve is begun to open.
4. Tighten:
   • Locknut



5. Check:
   • Throttle valve full open
   (a = b)
   Turn the throttle lever to the full-throttle position.



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

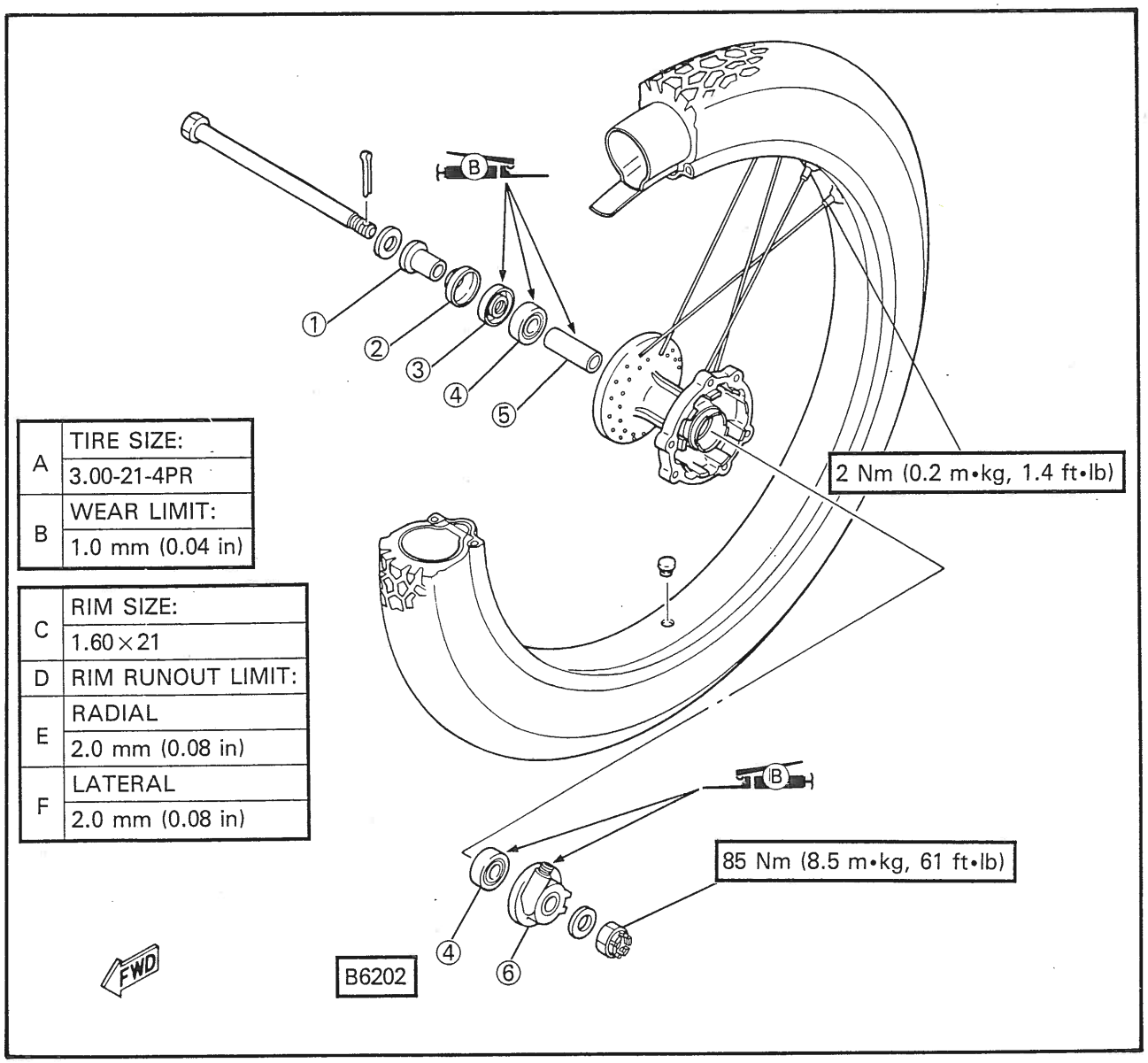
CHASSIS

FRONT WHEEL

① Collar
② Dust cover
③ Oil seal
④ Bearing
⑤ Spacer
⑥ Speedometer housing

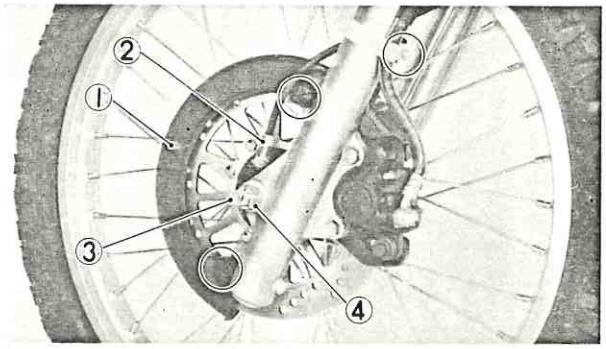
TIRE AIR PRESSURE (COLD):		
BASIC WEIGHT: WITH OIL AND FULL FUEL TANK	130 kg (287 lb)	
MAXIMUM LOAD*	158 kg (348 lb)	
COLD TIRE PRESSURE	FRONT	REAR
UP TO 90 kg (198 lb) LOAD*	127 kPa (1.3 kg/cm², (18 psi)	147 kPa (1.5 kg/cm², 22 psi)
90 kg (198 lb) ~ MAXIMUM LOAD*	147 kPa (1.5 kg/cm², 22 psi)	177 kPa (1.8 kg/cm², 26 psi)
HIGH SPEED RIDING	147 kPa (1.5 kg/cm², 22 psi)	177 kPa (1.8 kg/cm², 26 psi)

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



A	TIRE SIZE:
	3.00-21-4PR
B	WEAR LIMIT:
	1.0 mm (0.04 in)

C	RIM SIZE:
	1.60×21
D	RIM RUNOUT LIMIT:
E	RADIAL
	2.0 mm (0.08 in)
F	LATERAL
	2.0 mm (0.08 in)



REMOVAL

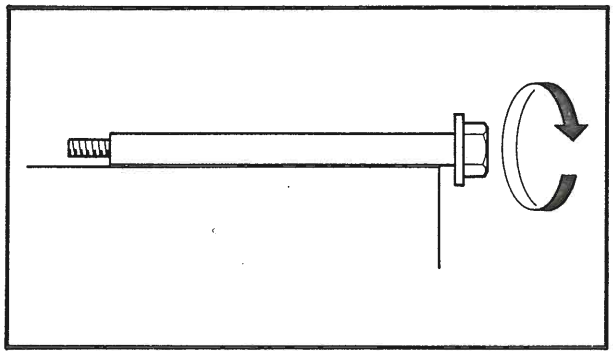
1. Place the motorcycle on a level place.
2. Remove:
   - Disc cover ①
3. Disconnect:
   - Speedometer cable ②
4. Remove:
   - Cotter pin ③
5. Loosen:
   - Axle nut ④
6. Elevate the front wheel by placing a suitable stand under the engine.
7. Remove:
   - Axle nut
   - Front axle shaft
   - Front wheel

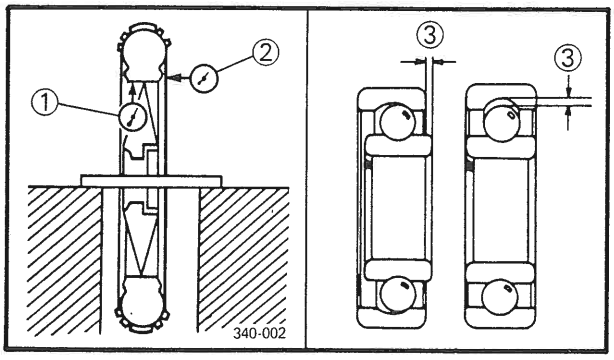
CAUTION:

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

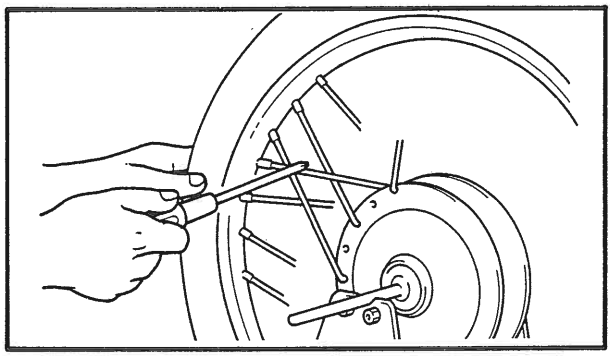
1. Eliminate any corrosion from parts.
2. Inspect:
   - Front axle
     Roll the axle on a flat surface.
     Bends→Replace.

WARNING:

Do not attempt to straighten a bent axle.

3. Inspect:
   - Wheel
     Cranks/Bends/Warpage→Replace.
4. Measure:
   - Wheel runout

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



Over specified limit→Adjust spoke or check bearing play ③

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

NOTE:

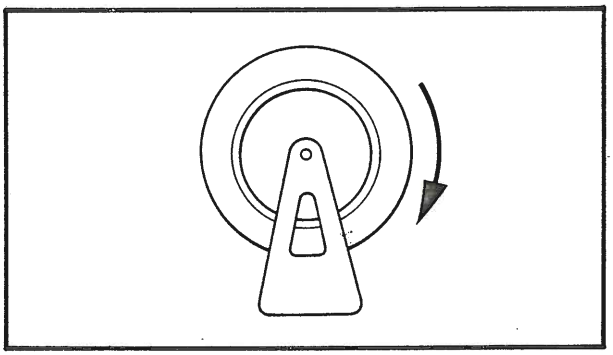
A tight spoke will emit a clear, ringing tone; a loose spoke will sound flat.

6. Tighten:
   • Loose spokes

	Spoke: 2 Nm (0.2 m•kg, 1.4 ft•lb)

NOTE:

Check the wheel runout after tightening spoke.

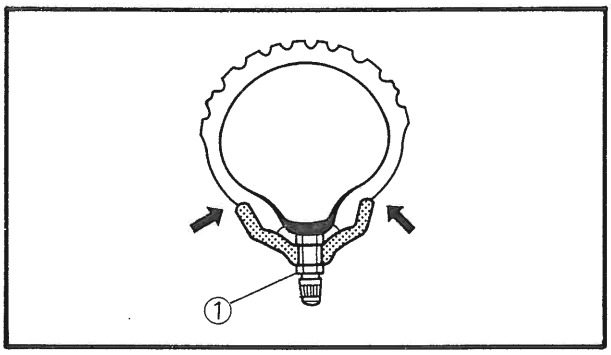


7. Check:
   • Wheel balance
   Wheel is not statically balanced if it comes to rest at the same point after several light rotations.
   Out of balance→Install appropriate balance weight at lightest point (on top).

NOTE:

Balance wheel with brake disc installed.

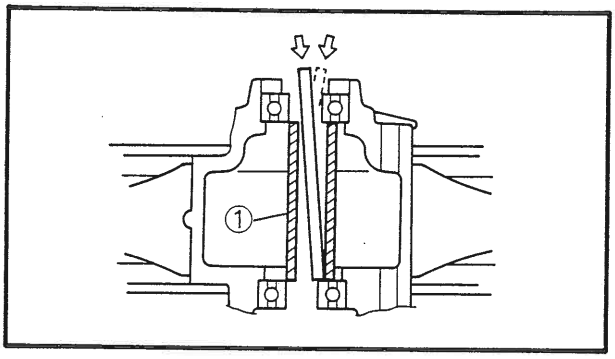
5



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.

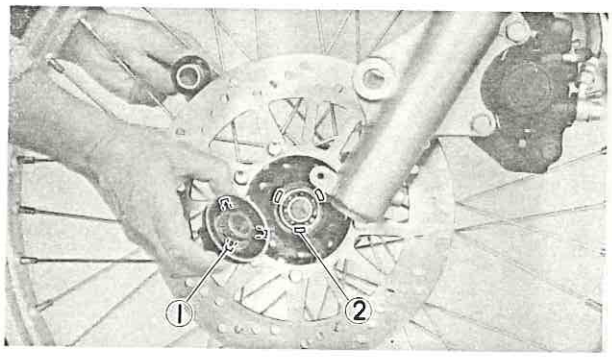
WARNING:

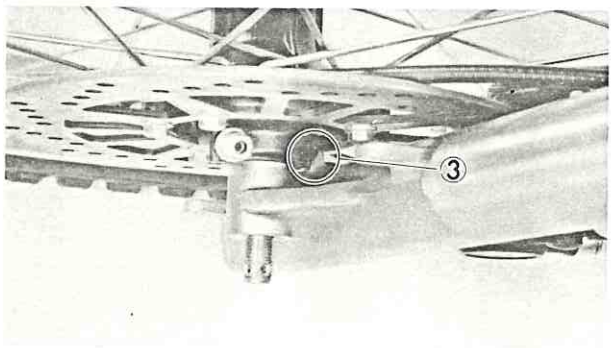
Eye protection is recommended when using striking tools.

- 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.



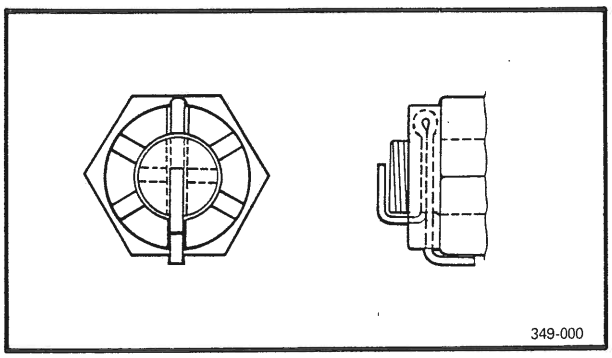


INSTALLATION

1. Install
   - Front wheel
     Reverse removal procedure.

Front wheel installation points:
- Be sure the projections ① inside the wheel hub are meshed with the slots ② in the speedometer housing.
- Lightly grease lips of front wheel oil seals and gear teeth of speedometer drive and driven gears.
- Be sure that the projection (torque stopper ③) of the front fork is meshed with the slot in the speedometer housing.

5



• Tighten the axle.

Front Axle:
107 Nm (10.7 m•kg, 77.4 ft•lb)

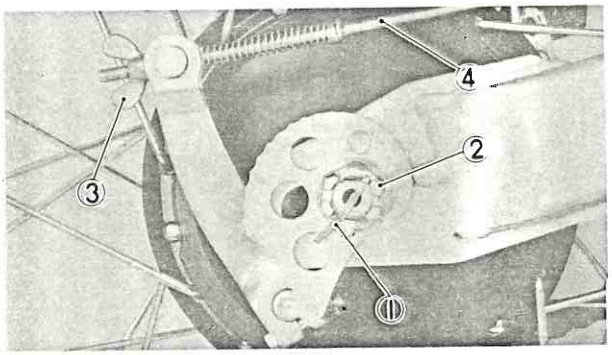
NOTE:

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.

• Install the cotter pin.

WARNING:

Always use a new cotter pin on the axle nut.



REAR WHEEL

REMOVAL

1. Elevate the rear wheel by placing a suitable stand under the engine.
2. Remove:
   • Cotter pin ①
   • Axle nut ②
   • Brake rod adjuster ③
   • Brake rod ④
   • Drive chain

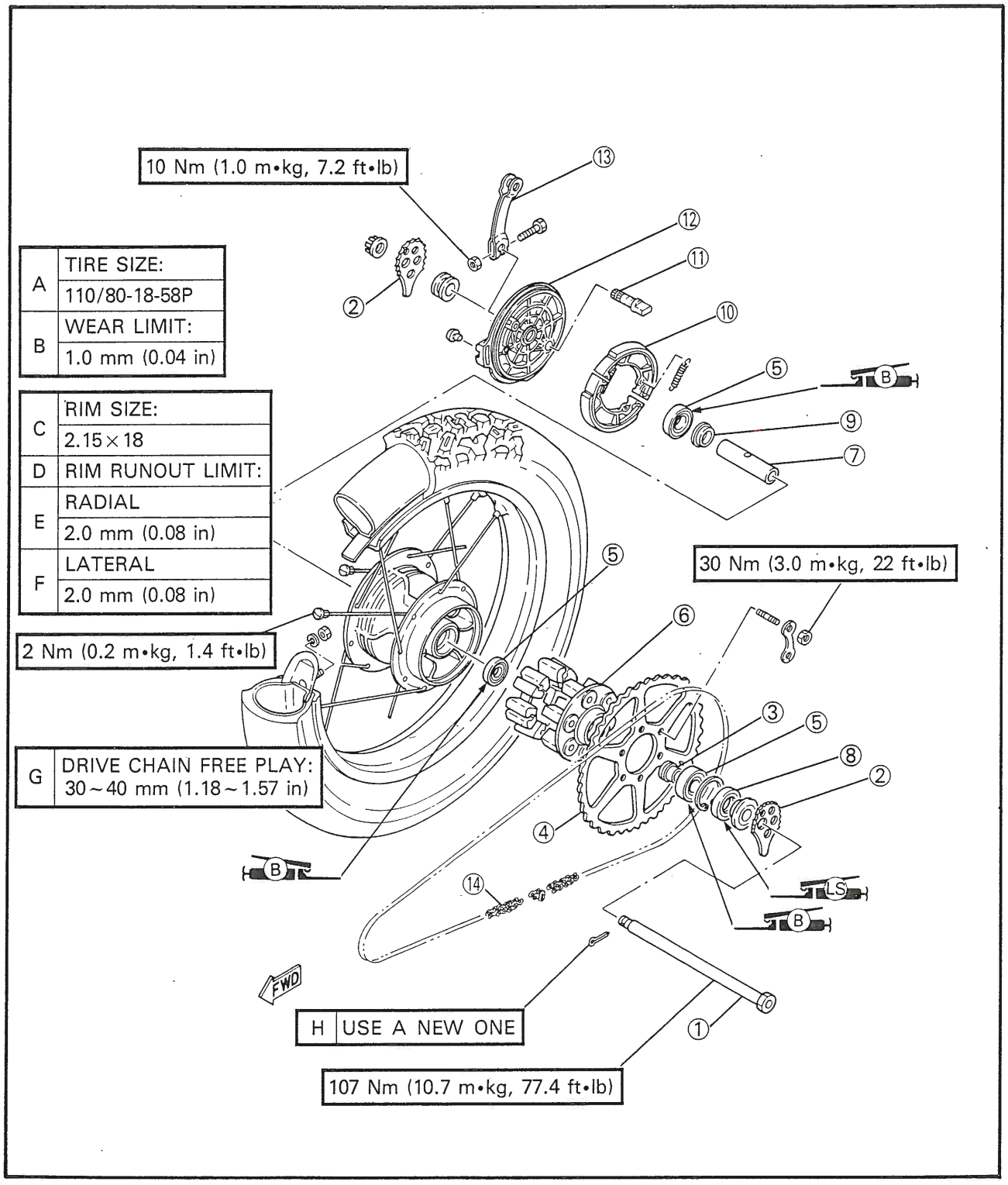
NOTE:

Before removing the drive chain, push the wheel forward.

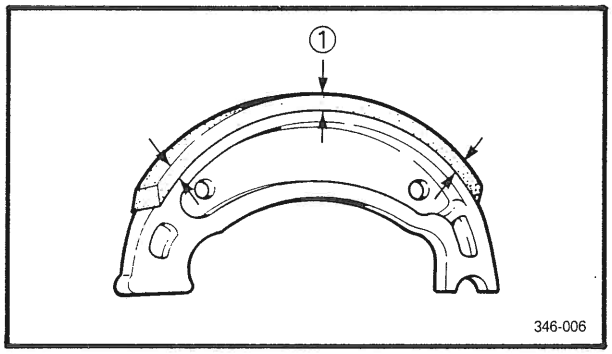
3. Remove:
   • Rear axle
   • Chain puller
   • Collar
   • Rear wheel assembly

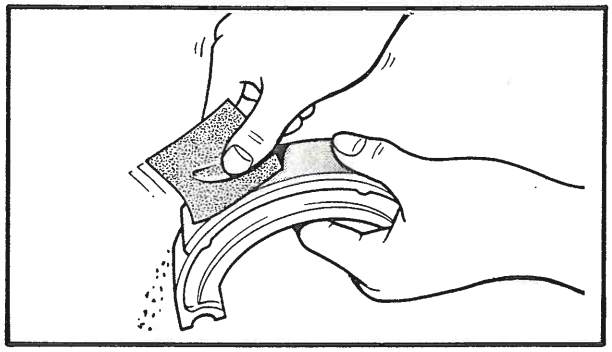
REAR WHEEL

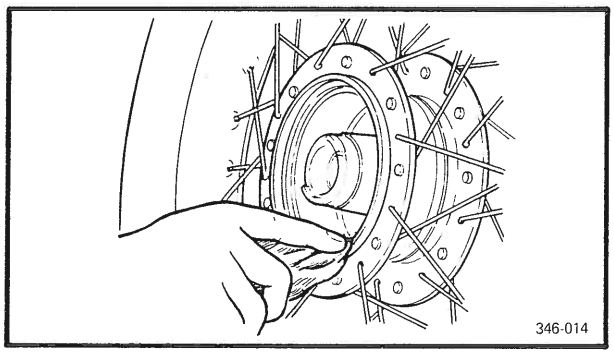
① Rear axle
② Chain puller
③ Collar
④ Spacer
⑤ Bearing
⑥ Clutch hub
⑦ Wheel collar
⑧ Oil seal
⑨ Spacer flange
⑩ Brake shoe
⑪ Brake camshaft
⑫ Brake shoe plate
⑬ Brake lever
⑭ Drive chain



REAR WHEEL







INSPECTION

Brake Shoe

1. Measure:
   - Brake shoes (Thickness)
     Use slide calipers.
     Out of specification→Replace.

① Measuring point

Brake Shoe Thickness:
4 mm (0.16 in)
Replacement Limit:
2 mm (0.08 in)

2. Inspect:
   - Brake shoes
     Glazed parts→Sand with coarse sandpaper.

Brake Drum

1. Inspect:
   - Brake drum (Inner surface)
     Oil→Wipe off brake drum with rag soaked in lacquer thinner or solvent.
     Scratches→Polish brake drum lightly and evenly with emery cloth.

Brake Shoe Plate

1. Remove:
   - Camshaft
2. Inspect:
   - Cam face
     Wear→Replace camshaft.
     Condition OK→Grease camshaft.

Rear Axle

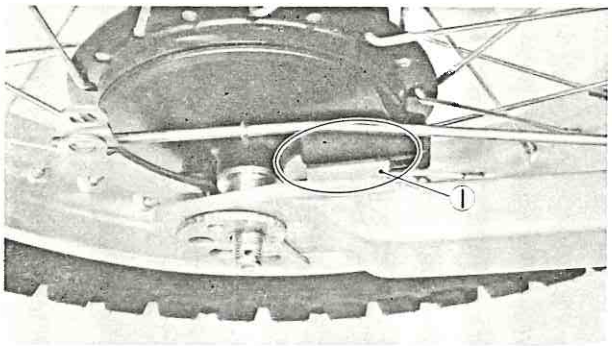
Wheel Bearing Replacement

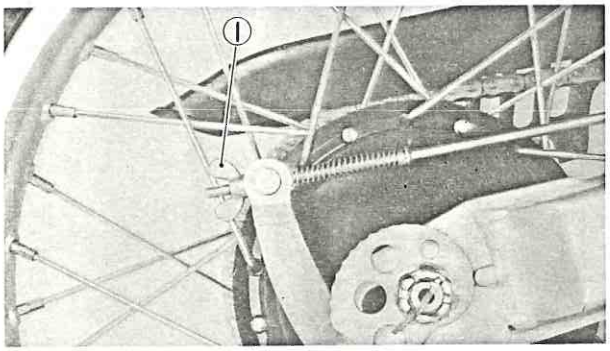
Rear Wheel

Refer to "Front Wheel Inspection."

INSTALLATION

1. Install:
   - Rear wheel
     Reverse 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 brake shoe plate.
- Adjust drive chain.
- Tighten

Axle:
107 Nm (10.7 m•kg, 79 ft•lb)

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

2. Adjust:
   - Rear brake free play.
     Turn adjuster ① as needed.

Adjuster	Rear brake free play
Turn clockwise	to reduce
Turn counterclockwise	to increase

FRONT BRAKE

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.**

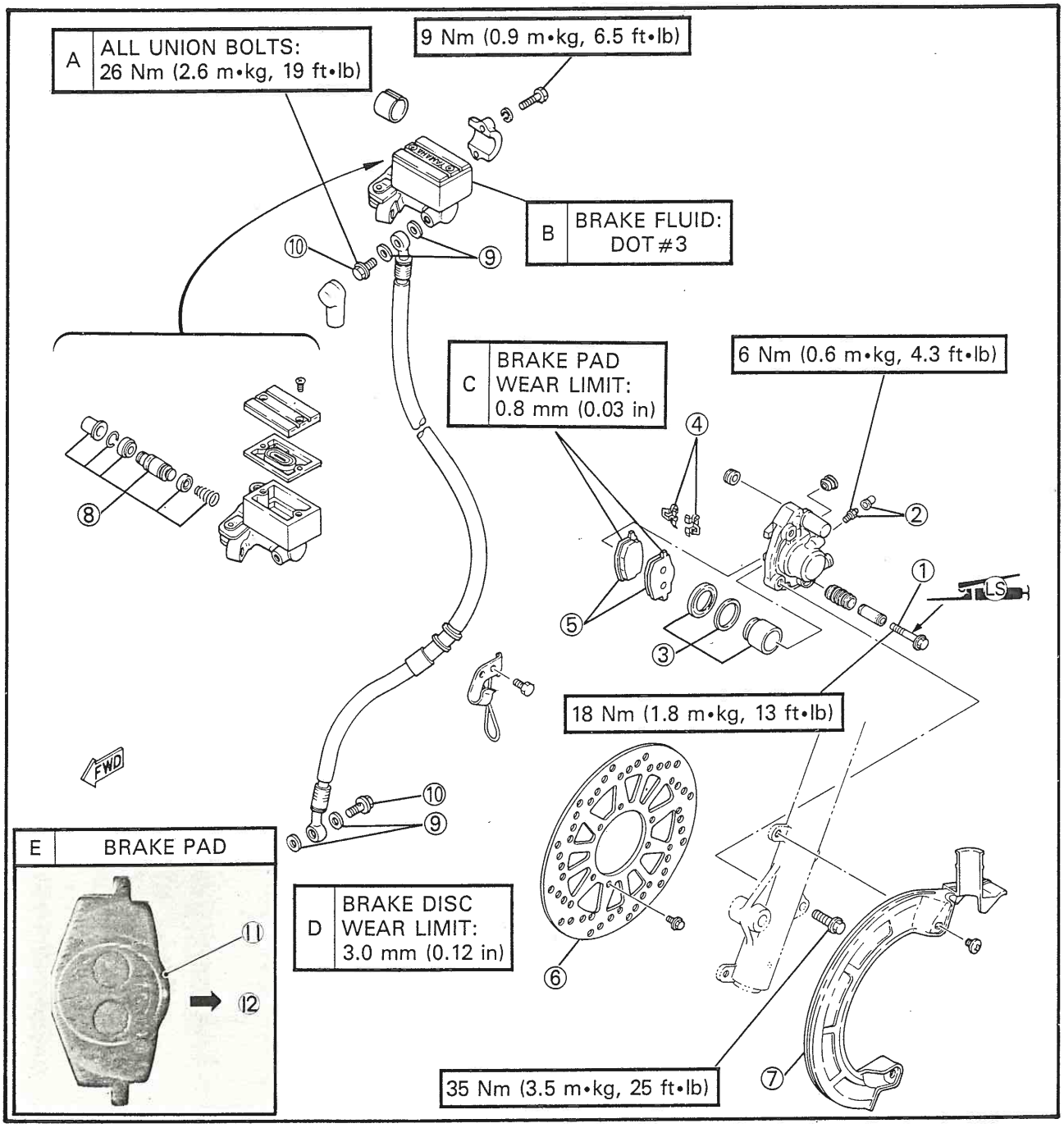
5

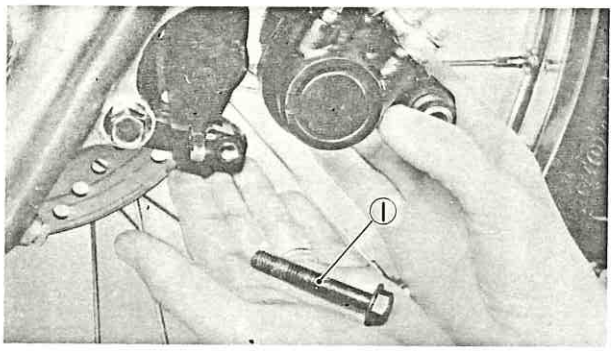
FRONT BRAKE

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

NOTE:

- Be sure to position the pad so that its round side ⑪ is backward ⑫.
- Drain the brake fluid before removing the master cylinder.



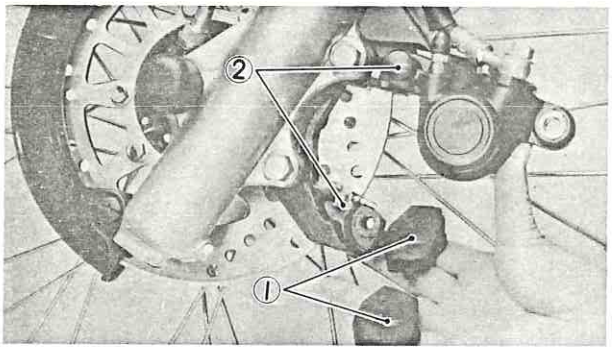


NOTE:

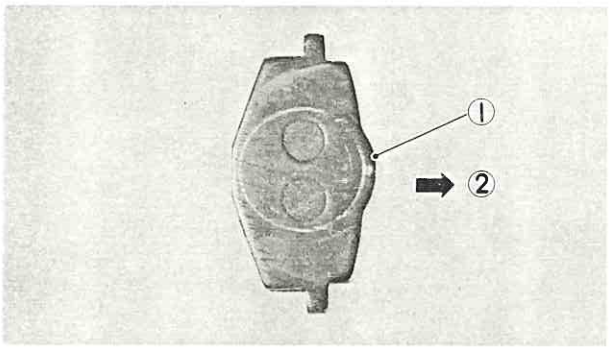
Drain the brake fluid before removing brake hose.

BRAKE PAD REPLACEMENT

1. Remove:
   - Retaining bolts ①
2. Turn the caliper body counterclockwise.



3. Remove:
   - Pads ①
   - Pad springs ②



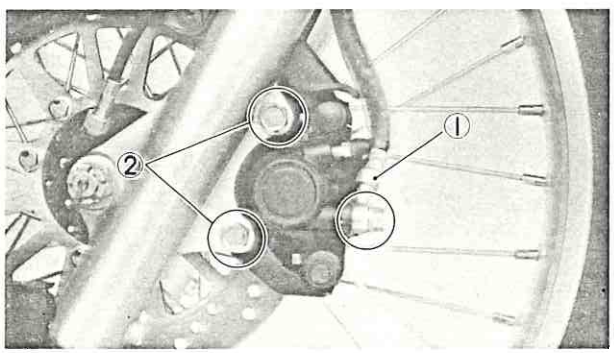
4. Install:
   - Pad springs (New)
   - Pads (New)

NOTE:

- Be sure to position the pad so that its round side ① is backward ②.
- Replace pads as a set if either is found to be worn to the wear limit.

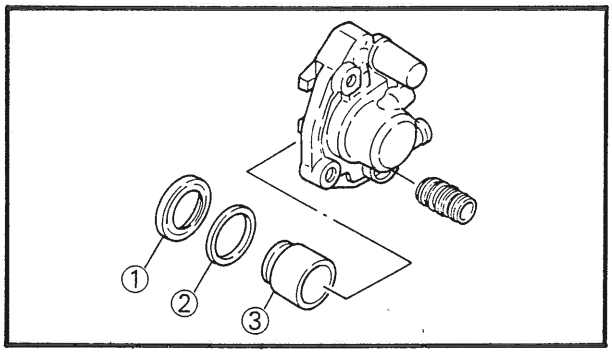
5. Apply:
   - Lithium base grease (Lightly) (to retaining bolt)
6. Set the caliper body at the original position.
7. Install:
   - Retaining bolt

	Retaining Bolt: **18 Nm (1.8 m•kg, 13 ft•lb)**



CALIPER DISASSEMBLY

1. Remove:
   - Brake hose ①
   - Caliper securing bolts ②
   - Brake pads
   - Pad spring

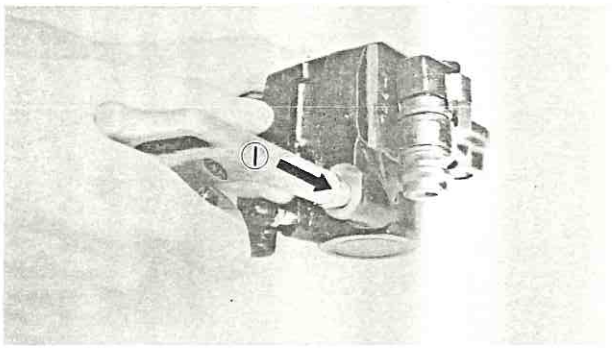


3. Remove:
   - Dust seal ①
   - Piston seal ②
   - Piston ③

Use compressed air and procede carefully.

WARNING:

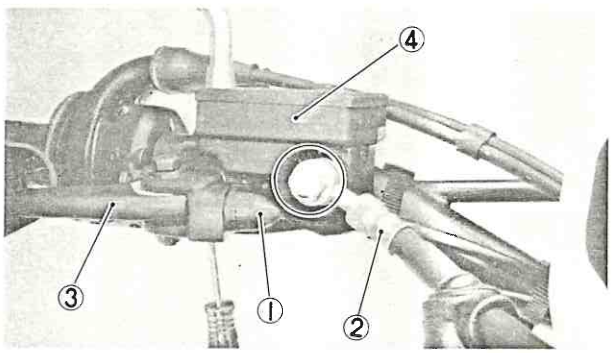
- **Cover piston with rag and use extreme caution when expelling piston from cylinder.**
- **Never attempt to pry out piston.**



Caliper piston removal steps:

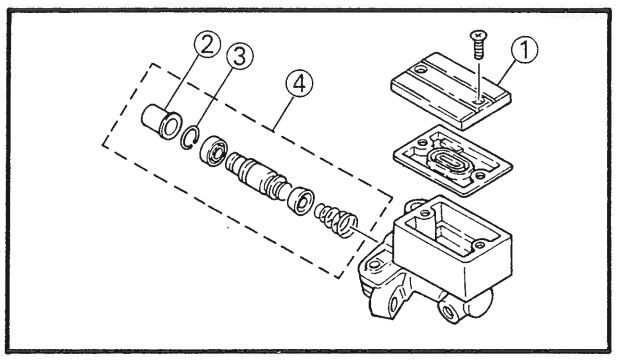
- Insert a piece of wooden board ① into the caliper to lock the piston.
- Blow compressed air into the hose joint opening to force out the piston from the caliper body.

5



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

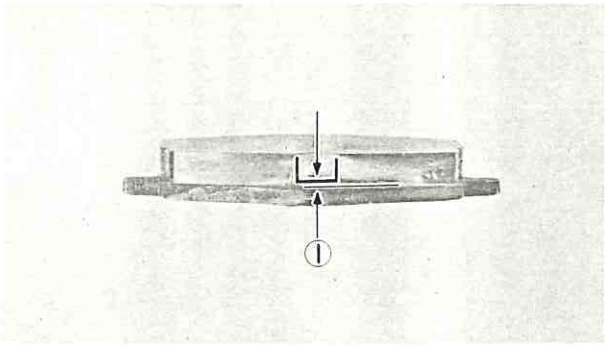
   Drain remaining fluid
   - Master cylinder dust boot ②
   - Circlip ③
   - Master cylinder kit ④

NOTE:

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

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

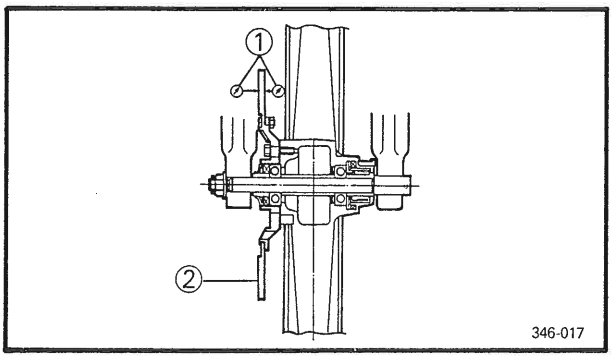


1. Inspect:
   - Caliper piston assembly
     Damage/Scratches→Replace.
   - Brake pad
     Over wear limit ①→Replace as a set.

Brake Pad Wear Limit:
0.8 mm (0.03 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:
3.0 mm (0.12 in)

① Dial gauge

ASSEMBLY

Caliper

NOTE:

- All internal parts should be cleaned in new brake fluid only.

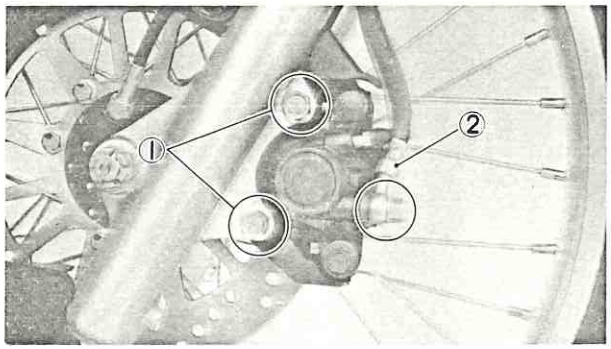
- Internal parts should be lubricated with brake fluid when installed.
- Replace the piston and dust seals whenever the caliper is disassembled.

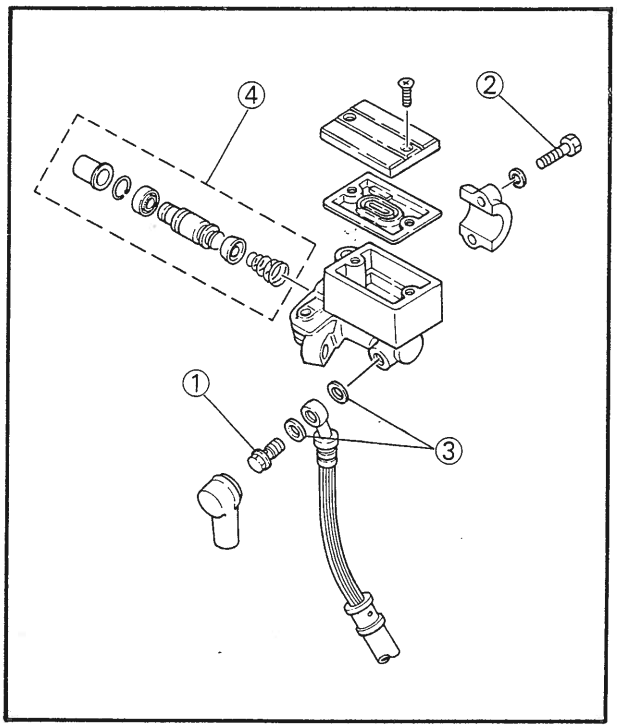
1. Install:
   - Caliper piston assembly
   - Pad spring
   - Brake pads
   - Caliper assembly
2. Tighten:
   - Caliper securing bolts ①

	35 Nm (3.5 m•kg, 25 ft•lb)

- Brake hose union bolts ②

	26 Nm (2.6 m•kg, 19 ft•lb)



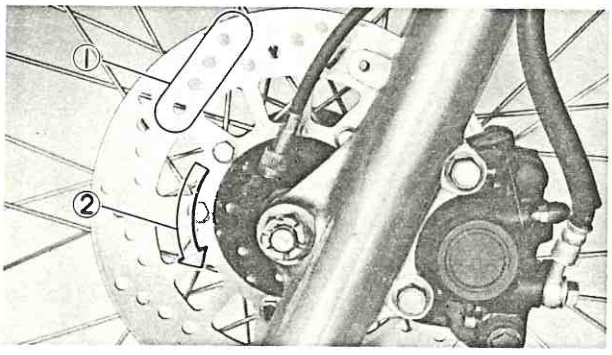


Master Cylinder

1. Assemble:
   - Master cylinder

	Union Bolt ①: **26 Nm (2.6 m•kg, 19 ft•lb)** **Master Cylinder Holding Bolt ②:** **9 Nm (0.9 m•kg, 6.5 ft•lb)**

③ Copper washer
④ Master cylinder kit



Brake Disc

1. Install:
   - Brake disc

NOTE:

When installing the brake disc, the slots on the disc should be positioned as shown.

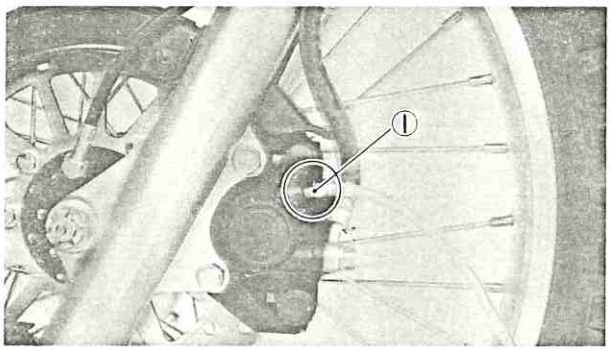
① Slot
② Rotating direction

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 overflow.
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 several times.
f. Pull the lever in. Hold the lever in position.
g. Loosen the bleed screw and allow the lever to travel towards its limit.
h. Tighten the bleed screw when the lever limit has been reached; then release the lever.
i. Repeat steps (e) to (h) until all of the air bubbles have been removed from the system.

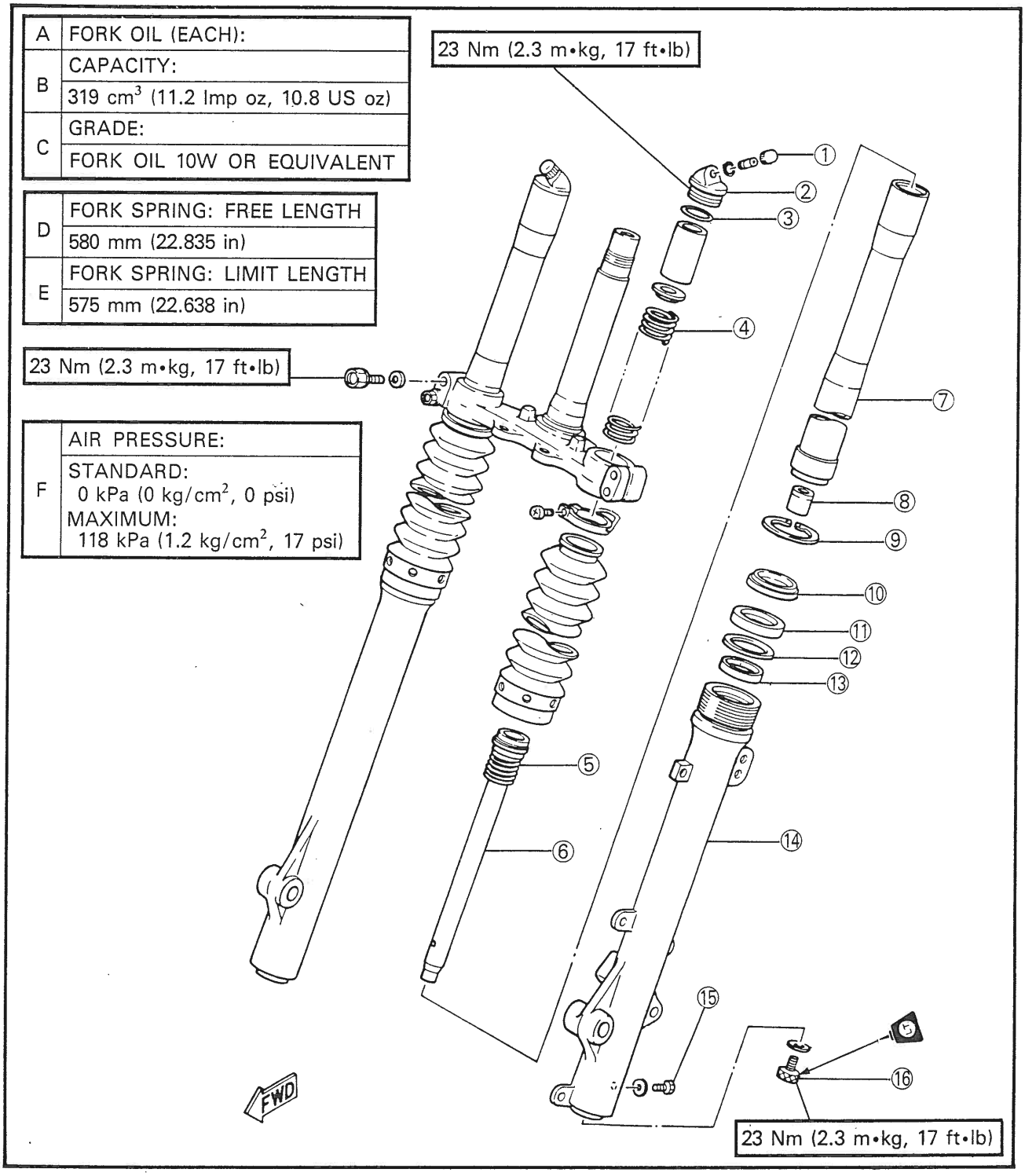
NOTE:

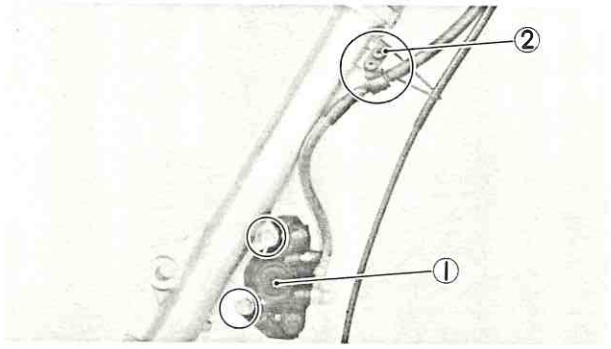
If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in system have disappeared.

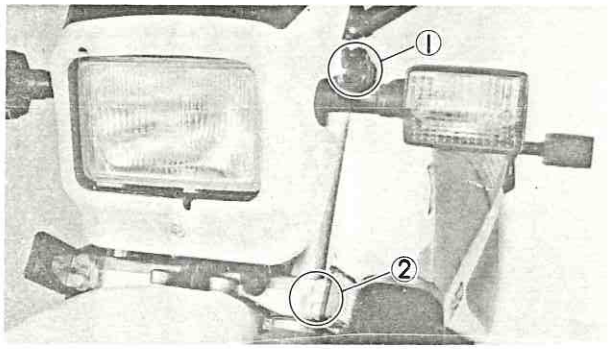
FRONT FORK

FRONT FORK OIL CHANGE

① Air valve 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 Retaining clip
⑩ Dust seal
⑪ Oil seal
⑫ Plate washer
⑬ Guide bushing
⑭ Outer fork tube
⑮ Drain bolt
⑯ Damper rod securing bolt







REMOVAL AND DISASSEMBLY

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Remove:
   - Front wheel
   - Brake caliper ①
   - Brake hose bracket ②

WARNING:

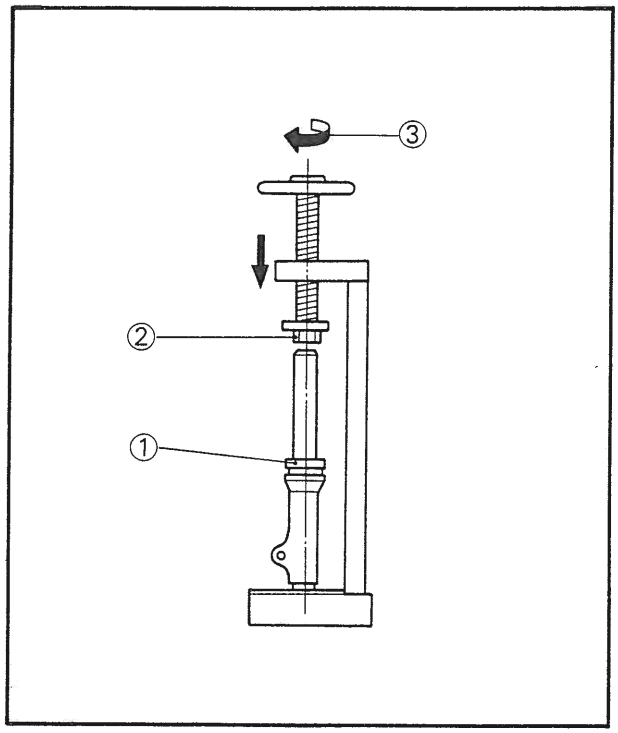
Support the motorcycle securely so there is no danger of it falling over.

3. Loosen:
   - Cap bolt
   - Upper front fork pinch bolt ①
   - Lower front fork pinch bolt ②

CAUTION:

Support the fork before loosening the pinch bolts.

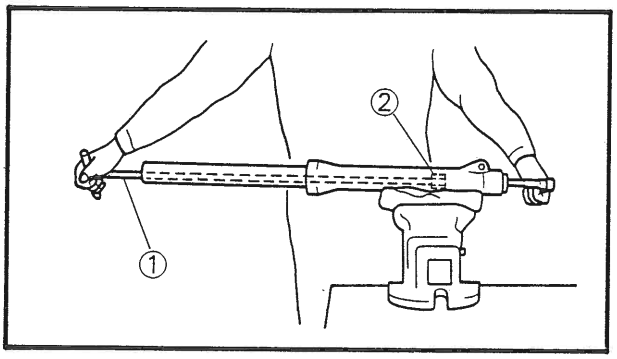
4. Remove:
   - Front fork assembly
     (from the under bracket)
5. Remove:
   - Cap bolt
   - Collar
   - Spring seat
   - Fork spring
   - Boot
   - Dust seal
   - Retaining clip
6. Fill:
   - Fork inner tube
     (with fork oil)
     Stretch the inner tube before filling.
7. Install:
   - Cap bolt
8. Remove:
   - Oil seal
     (from outer tube.)
     Press the inner tube to facilitate removal.



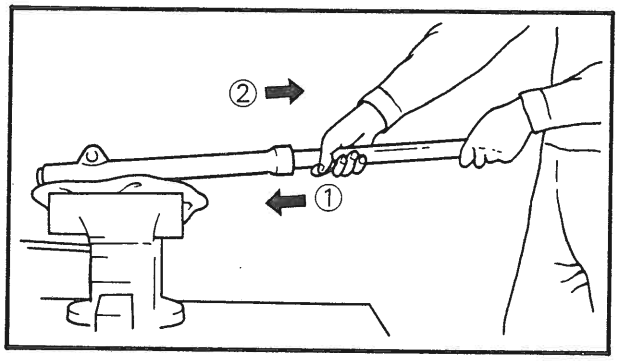
① Wrap with rag
② Spacer
③ Turn slowly

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 wrap the oil seal with a rag for safety.



9. Remove:
   • Oil seal
   • Cap bolt
10. Drain:
   • Fork
11. Remove:
   • Damper rod securing bolt
   Use T-handle ① (90890-01326) and Front Fork Cylinder Holder (90890-01365) ② to lock the damper rod.
12. Remove:
   • Damper rod
   • Damper rod spring
   • Guide bushing



Guide bushing removal steps:
• Hold fork leg in a vise horizontally.
• Put in slowly ① the inner fork tube just before it bottoms out and then pull it back quickly ②.
• Repeat this step until the inner fork tube can be pulled out from the outer fork tube (usual 2 or 3 times).

CAUTION:

Don't bottom out the inner fork tube in the above step, or the oil lock piece will be damaged.

13. Remove:
   • Inner fork tube
   • Taper spindle

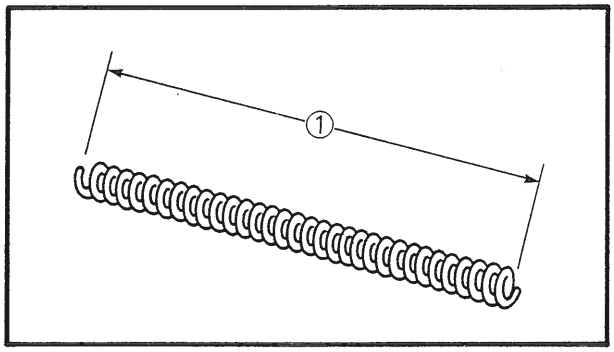
INSPECTION

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

WARNING:

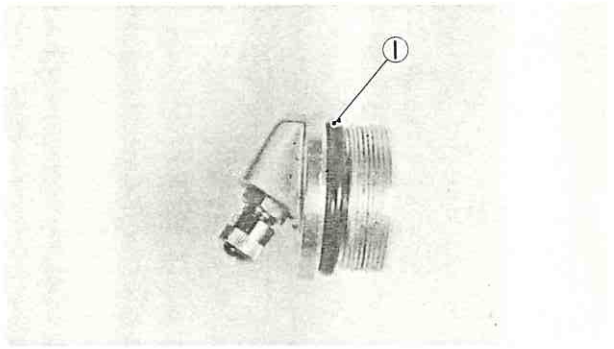
Do not attempt to straighten a bent fork tube as this may dangerously weaken the tube.

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:
580 mm (22.835 in)



4. Inspect:
   - Damper rod
     Worn damper rod seal→Replace.
     Contamination→Wash and blow out all passages.
   - Cap bolt O-ring ①
     Damage→Replace.

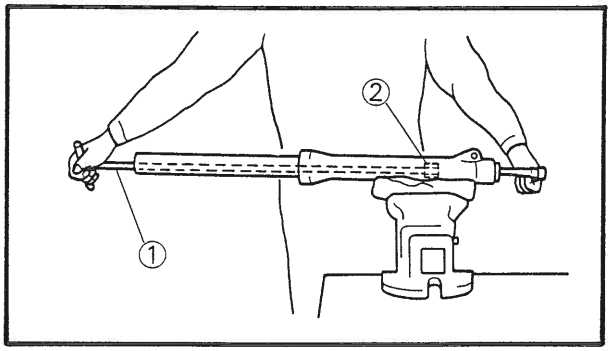
5

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.

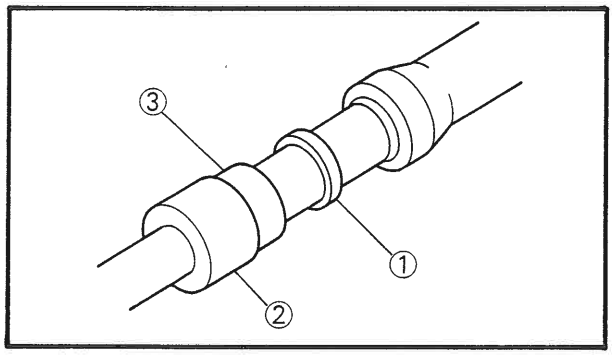


- Taper spindle
- Inner fork tube

2. Install:
   - Damper rod securing bolt

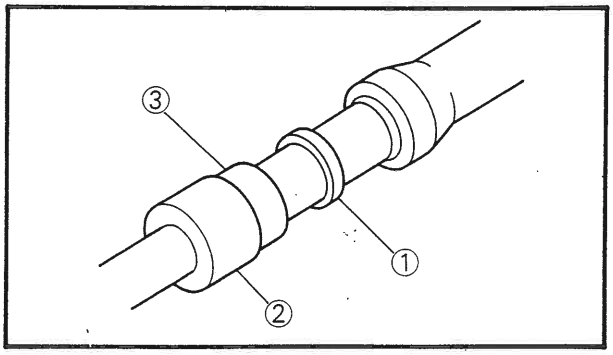
   Hold damper rod with Front Fork Cylinder Holder ② (90890-01365) and T-handle ① (90890-01326).

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 (90890-01367) and Adapter (90890-01370) ③.

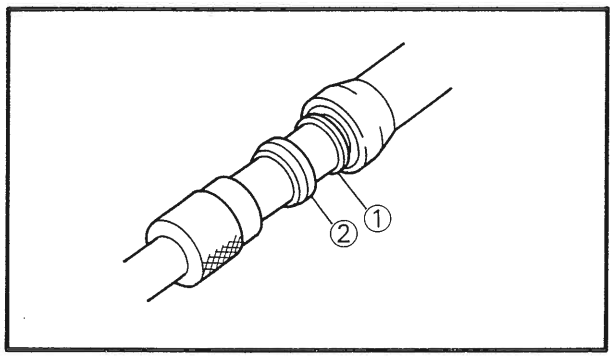


4. Install:
   - Fork oil seal ①

   Press fork oil seal into the outer fork tube with Fork Seal Drive ② (90890-01367) and Adapter (90890-01370) ③.

CAUTION:

Be sure oil seal numbered side face upward.



5. Install:
   - Retaining clip ①
   - Dust seal ②

   Use Fork Seal Driver (90890-01367) and Adapter (90890-01365).
   - Boot

6. Fill:
   - Inner tube

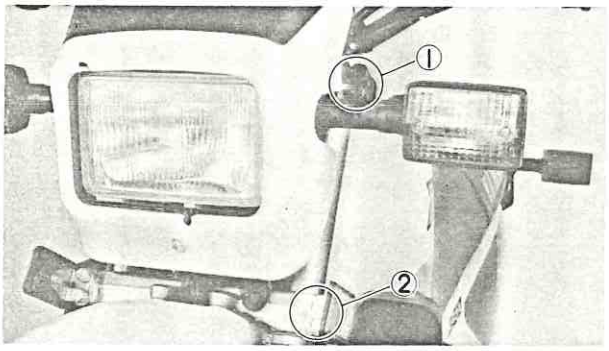
   (with fork oil)

Capacity (each):
319 cm³ (11.2 Imp oz, 10.8 US oz)
Type:
Fork oil 10W or equivalent

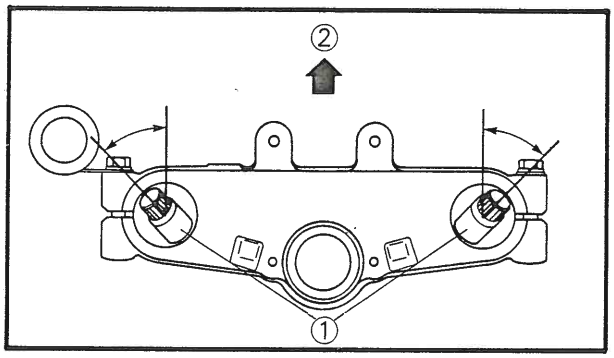
NOTE:

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

7. Install:
   - Fork spring
   - Spring seat
   - Collar
   - Cap bolt
     (into the inner fork tube)
8. Install:
   - Front fork assembly
     (into the underbracket, handle crown, and handlebar)
9. Tighten:
   - Upper front fork pinch bolts ①
   - Lower front fork pinch bolts ②
   - Cap bolt



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



NOTE:

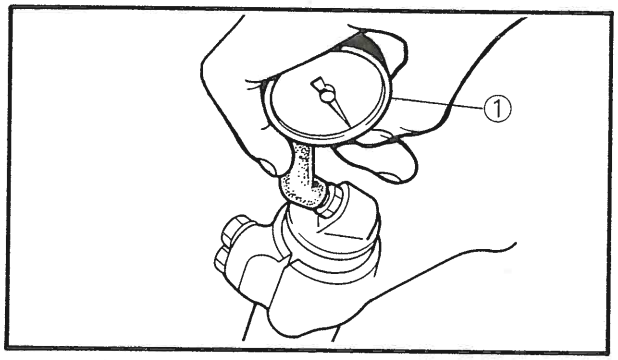
- Be sure the inner fork tube end is flush with the top of the handlebar.
- Be sure the air valve ① face to forward ② as shown.

10. 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:
107 Nm (10.7 m•kg, 77.4 ft•lb)

11. Fill:
    - Front fork
      (with air)

Maximum Air Pressure:
118 kPa (1.2 kg/cm^2, 17.1 psi)

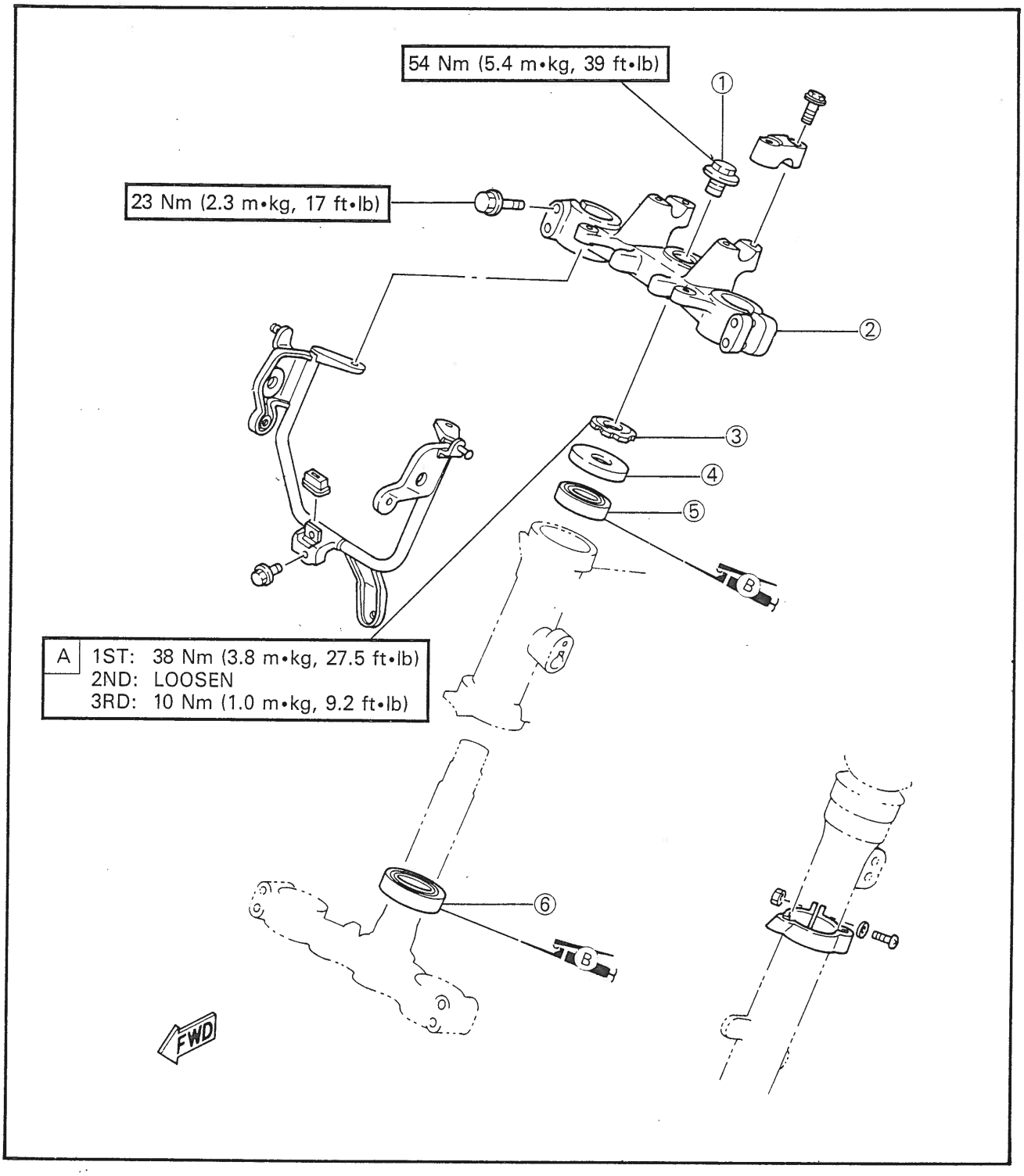


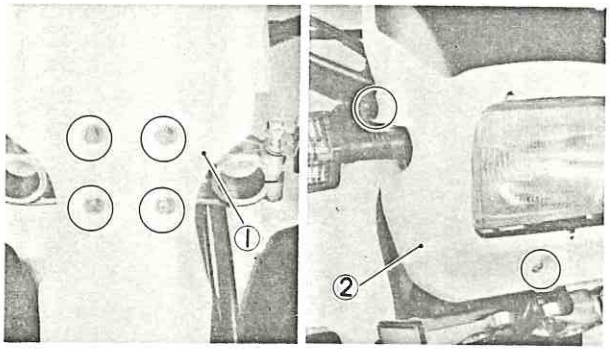
① Air check gauge

12. Install:
    - Air valve cap

STEERING HEAD

① Steering stem bolt
② Handle crown
③ Ring nut
④ Bearing cover
⑤ Bearing (Upper)
⑥ Bearing (Lower)



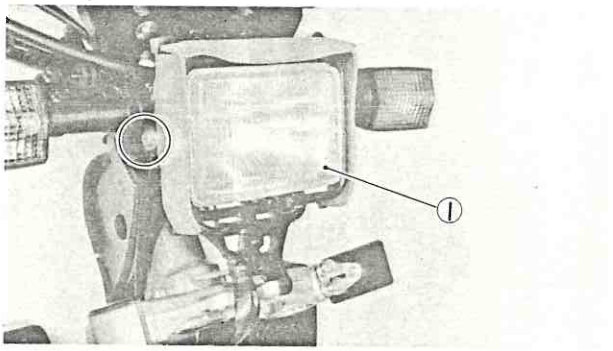


ADJUSTMENT

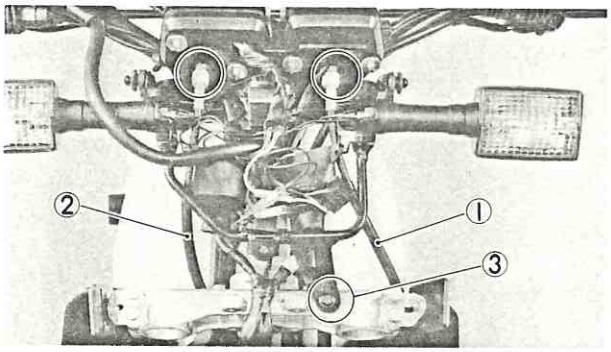
Refer to Chapter 2. "STEERING HEAD ADJUSTMENT".

REMOVAL

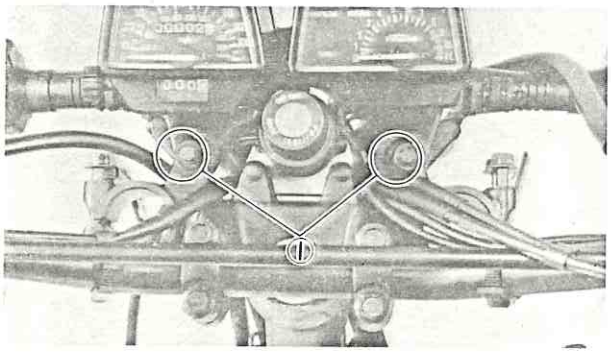
1. Remove:
   - Front wheel
   - Front forks
   - Front fender ①
   - Cowling ②



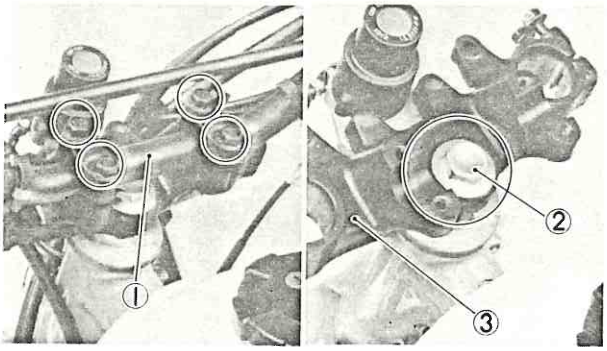
2. Remove:
   - Headlight assembly ①



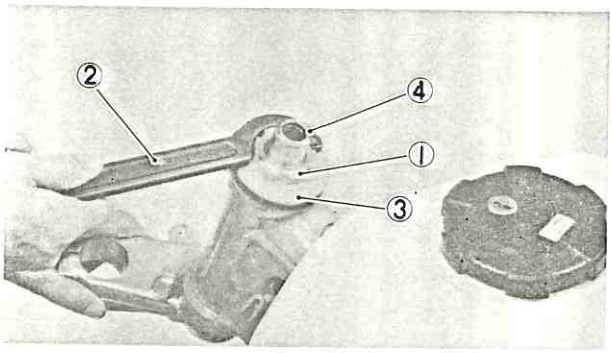
3. Disconnect:
   - Speedometer cable ①
   - Tachometer cable ②
4. Remove:
   - Headlight stay lower bolt ③

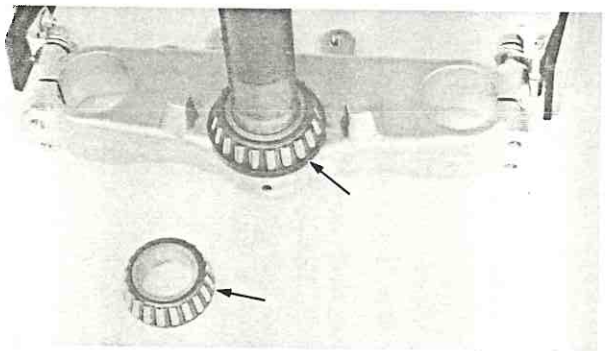


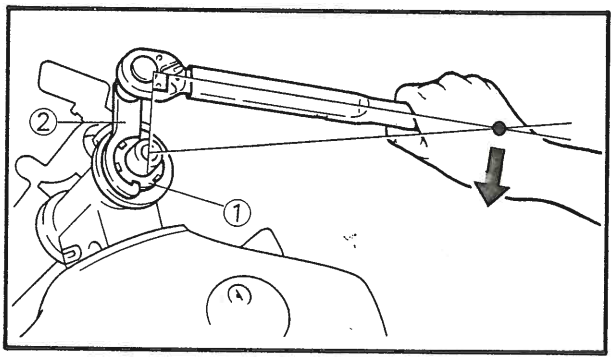
5. Remove:
   - Headlight stay upper bolts ①
   - Headlight stay



6. Remove:
   - Handlebar assembly ①
   - Steering stem bolt ②
   - Handle crown ③







7. Remove:
   - Ring nut ①
     Use Ring Nut Wrench ② (90890-01268)
   - Bearing covers ③
   - Bearings
   - Steering stem ④

INSPECTION

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

ASSEMBLY

1. Lubricate:
   - Bearings

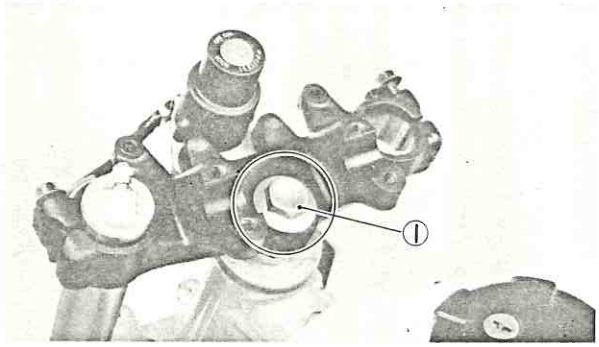
	Wheel Bearing Grease

2. Install:
   - Lower bearing
     (onto steering stem)
   - Steering stem
   - Upper bearing
   - Bearing cover
   - Ring nut
3. Tighten:
   - Ring nut ①

	Ring Nut: **1st: 38 Nm (3.8 m•kg, 27.5 ft•lb)** **2nd: Loosen** **3rd: 10 Nm (1.0 m•kg, 7.2 ft•lb)**

Use Steering Nut Wrench ② (YU-33975)

4. Install:
   - Handle crown
5. Position:
   - Front fork
     (into handle crown)
     This will facilitate alignment of under bracket holes with handle crown holes.



6. Tighten:
   - Steering stem bolt ①

	Steering Stem Bolt: **54 Nm (5.4 m•kg, 39 ft•lb)**

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

REAR SHOCK ABSORBER/ REAR ARMS

HANDLING NOTES

WARNING:

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

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

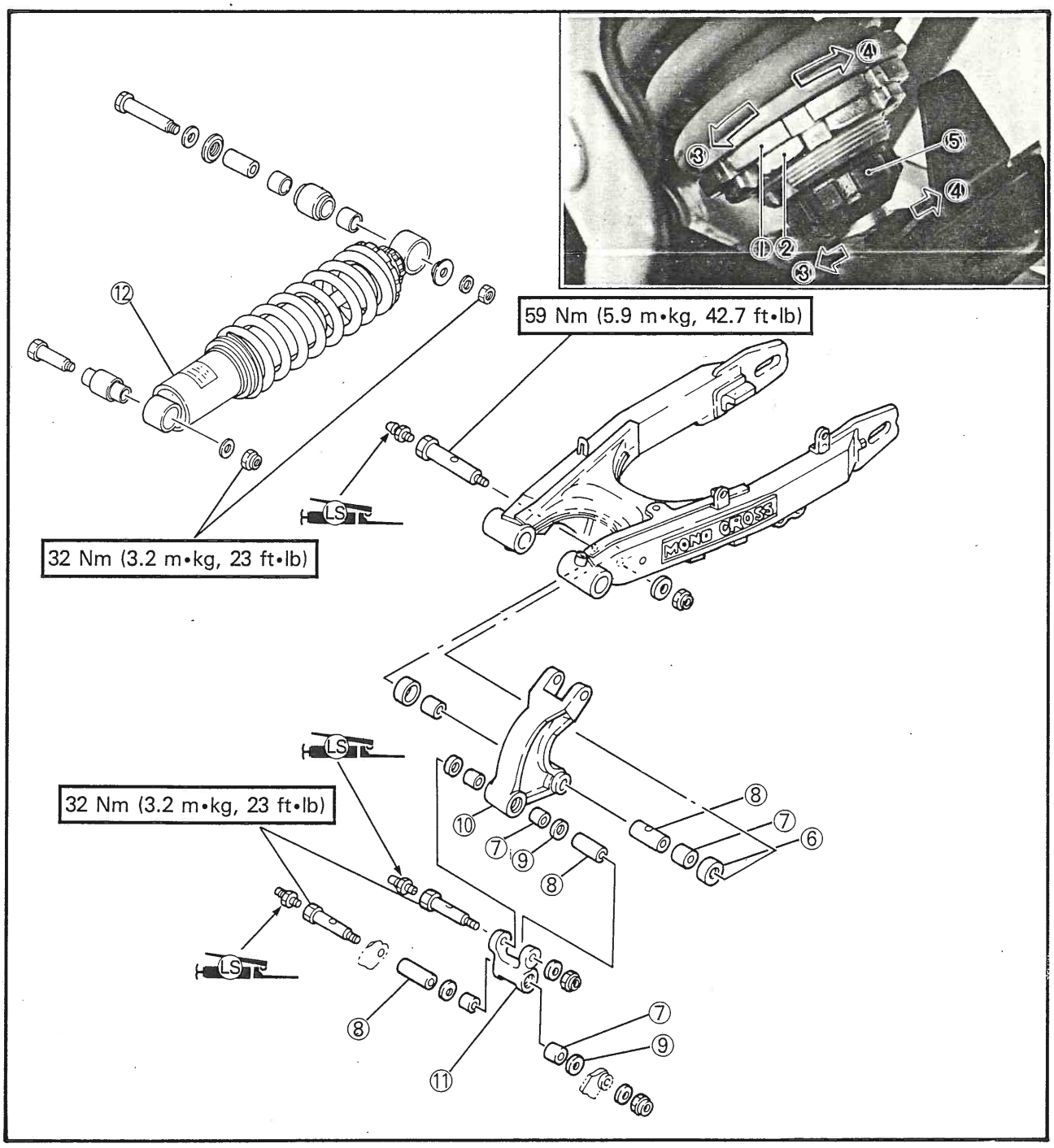
5

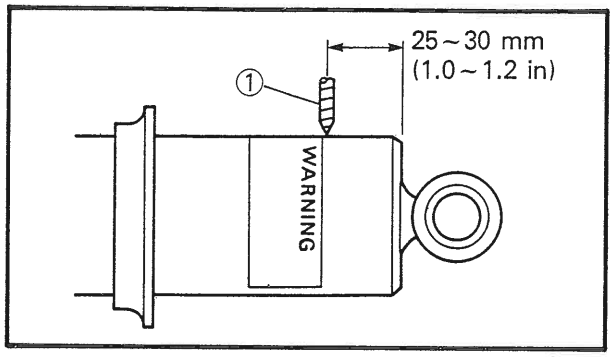
REAR SHOCK ABSORBER/ REAR ARMS

① Adjuster
② Locknut
③ Soft
④ Hard
⑤ Damping adjuster
⑥ Thrust cover
⑦ Bushing
⑧ Collar
⑨ Oil seal
⑩ Relay arm
⑪ Connecting rod
⑫ Rear shock absorber assembly

SPRING PRELOAD: (INSTALLED LENGTH)	
S.T.D. LENGTH	226 mm (8.90 in)
MIN. LENGTH	213 mm (8.39 in)
MAX. LENGTH	234 mm (9.23 in)

DAMPING ADJUSTMENT:					
	Hard ④			STD	Soft ③
ADJUSTING POSITION	5	4	3	2	1

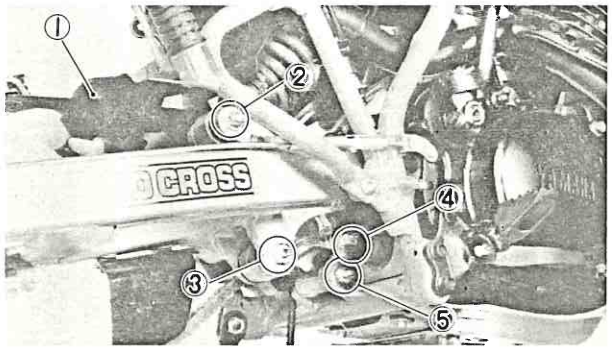


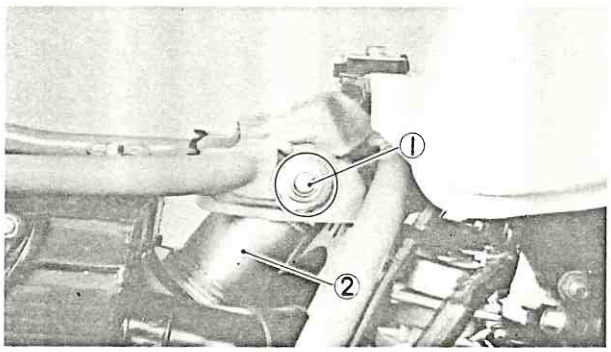


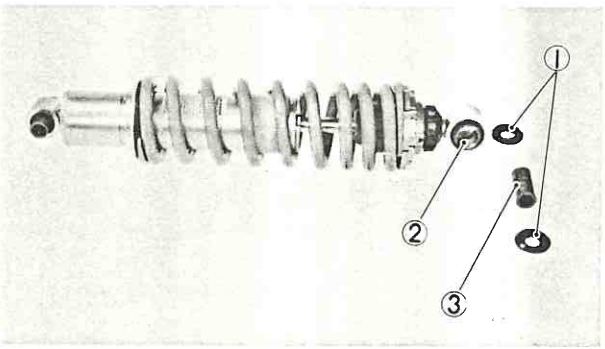
Shock absorber disposal steps:
Gas pressure must be released before disposing of shock absorber. To do so, drill ① a 2 ~ 3 mm (0.08 ~ 0.12 in) hole through the cylinder wall at a point 25 ~ 30 mm (1.0 ~ 1.2 in) from the bottom end of the tank.

CAUTION:

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







REMOVAL

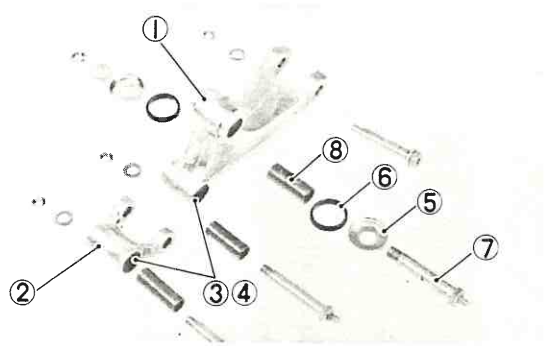
1. Remove:
   - Rear wheel
2. Remove:
   - Cover ①
   - Shock absorber lower securing bolt ②
   - Relay arm and swingarm securing bolt ③
   - Relay arm and connecting rod securing bolt ④
   - Connecting rod securing bolt ⑤
   - Nuts
   - Washers
   - Relay arm
   - Connecting rod
   - Thrust covers
   - Collars
3. Remove:
   - Shock absorber upper securing bolt ①
   - Shock absorber ②
   - Nut
   - Washer

INSPECTION

1. Inspect:
   - Rear shock absorber
     Oil leaks/Damage → Replace.
   - Dust cover ①
   - Bushing ②
     Damage/Wear → Replace.
   - Collar ③

5

REAR SHOCK ABSORBER/REAR ARMS



2. Inspect:
   - •Relay arm ①
   - •Connecting rod ②
   - •Bushings ③
   - •Oil seals ④
     Damage/Wear→Replace.
   - •Cover ⑤
   - •Dust seal ⑥
   - •Bolt ⑦
   - •Collar ⑧
     Damage/Wear→Replace.

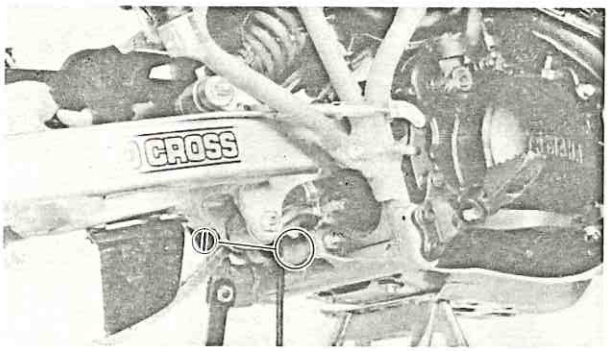
INSTALLATION

Reverse removal steps.

1. Grease the bushing and dust seals.

	Molybdenum Grease

2. Install:
   - •Connecting rod



	Connecting Rod/Frame: **32 Nm (3.2 m•kg, 23 ft•lb)**

NOTE:

The connecting rod should be installed so that the "Rear" mark ① on the rod faces backward.

3. Install:
   - •Relay arm

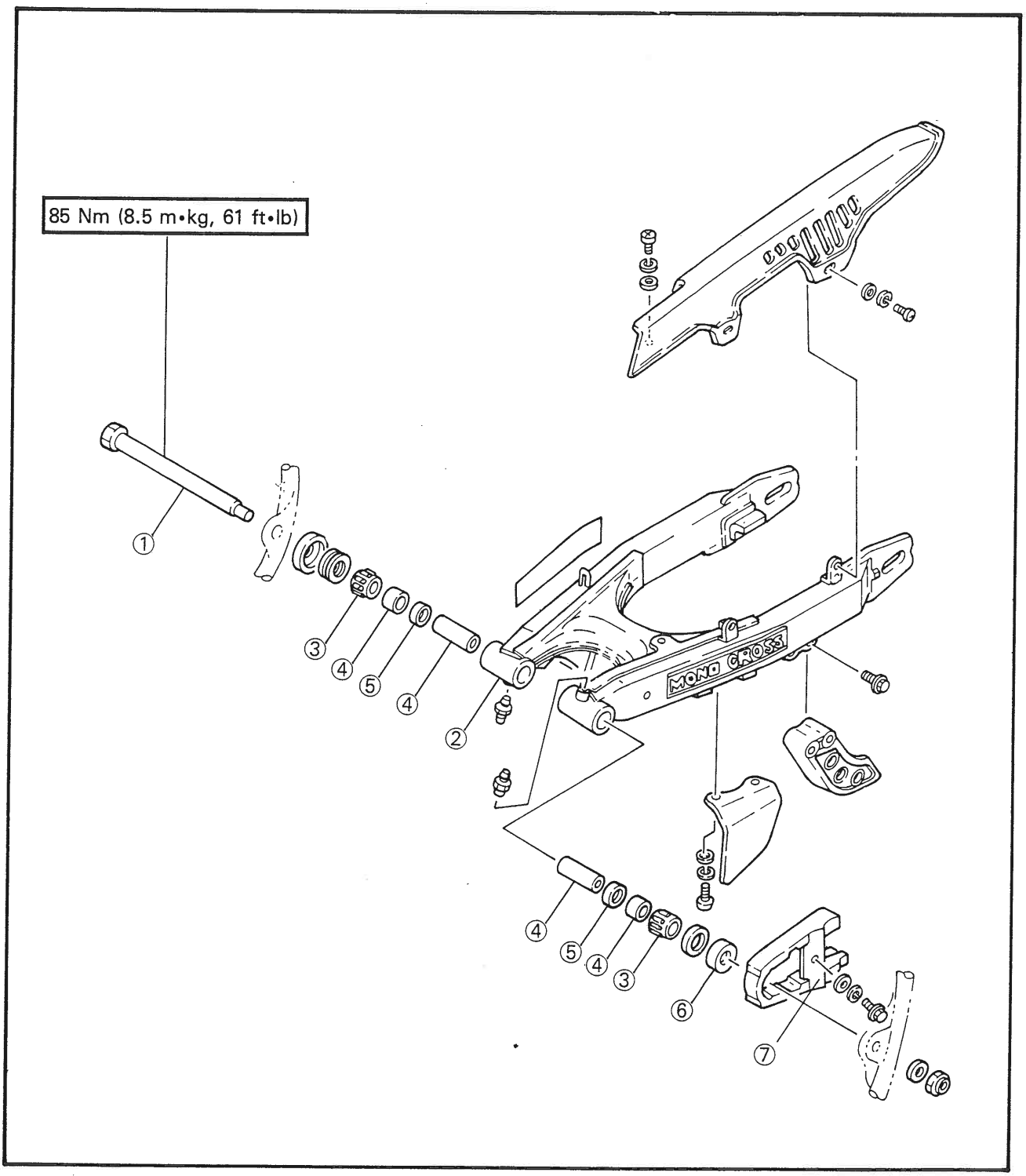
	Relay Arm/Swingarm: **59 Nm (5.9 m•kg, 42.7 ft•lb)** **Relay Arm/Connecting Rod** **32 Nm (3.2 m•kg, 23 ft•lb)**

4. Install:
   - •Rear shock absorber assembly

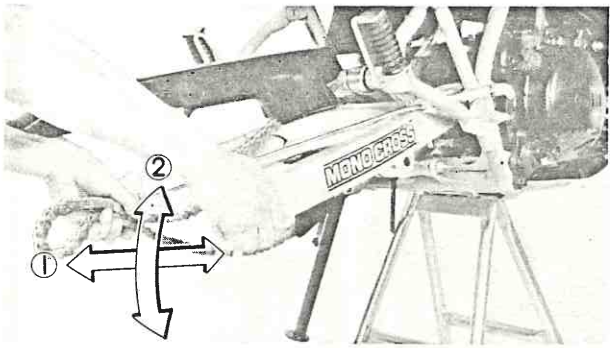
	Upper and Lower: **32 Nm (3,2 m•kg, 23 ft•lb)**

SWINGARM AND DRIVE CHAIN

① Pivot shaft
② Swingarm
③ Bearing
④ Bushing
⑤ Oil seal
⑥ Thrust cover
⑦ Guard seal



SWINGARM AND DRIVE CHAIN



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.

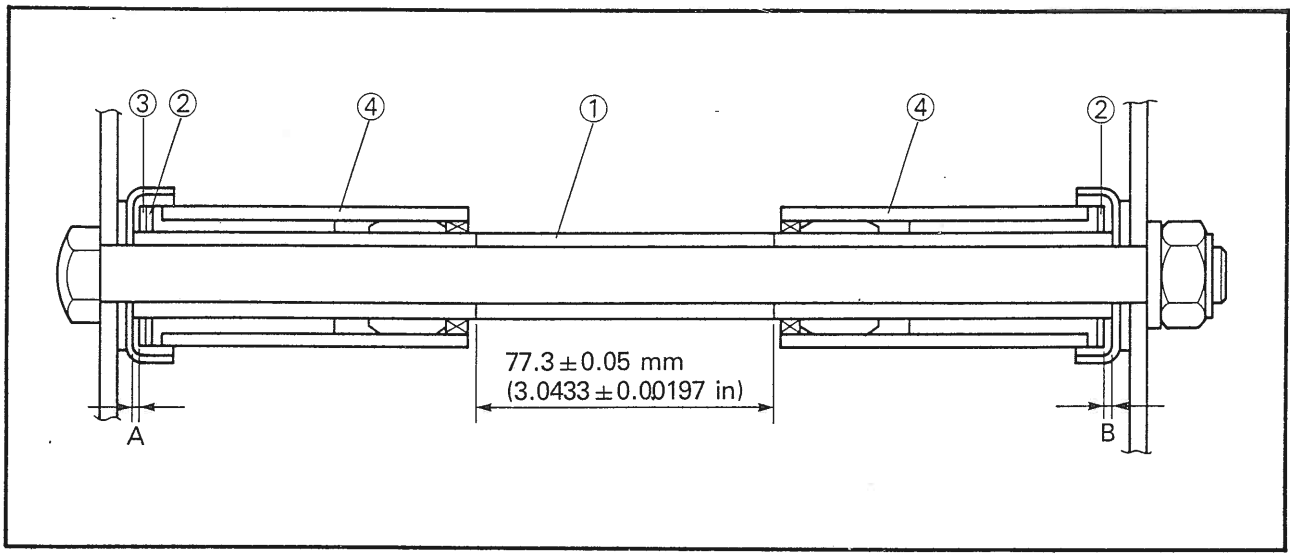
Free play inspection step:
- Remove the rear wheel.
- Remove the relay arm and swingarm securing bolt.
- Inspect swingarm side play by moving it from side to side. (There should be on noticeable side play)
- Inspect swingarm up and down movement by moving it up and down.

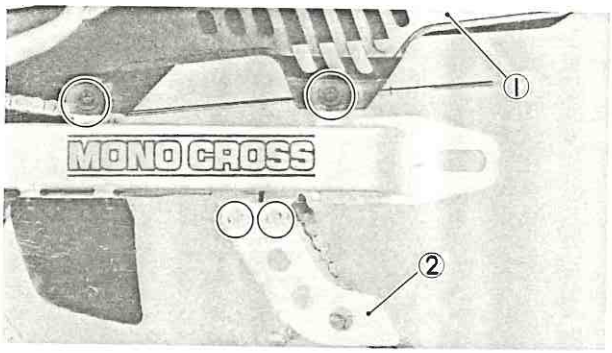
2. Select the proper shim ① thickness to obtain standard swingarm side play (A + B).

Standard Side Play (A + B):
0.4 ~ 0.7 mm
(0.016 ~ 0.025 in)

Available Shim Thickness:
0.3 mm (0.012 in)

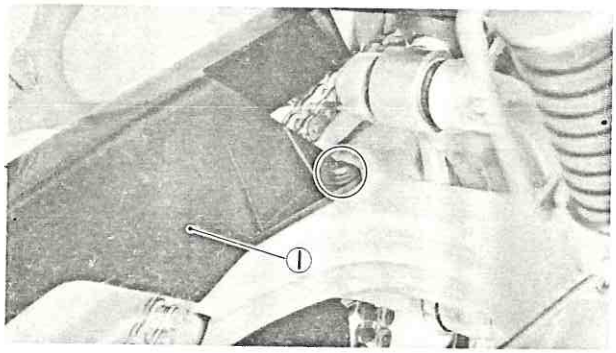
① Jig
② Washer
③ Shim
④ Swingarm

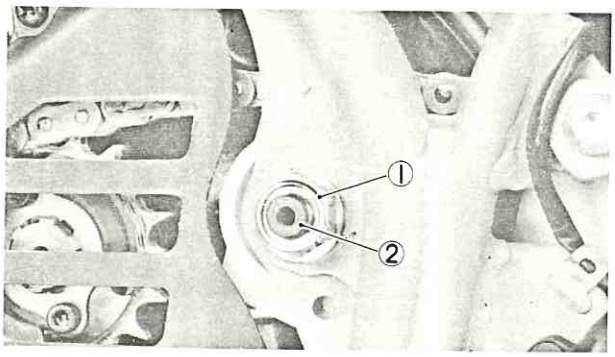




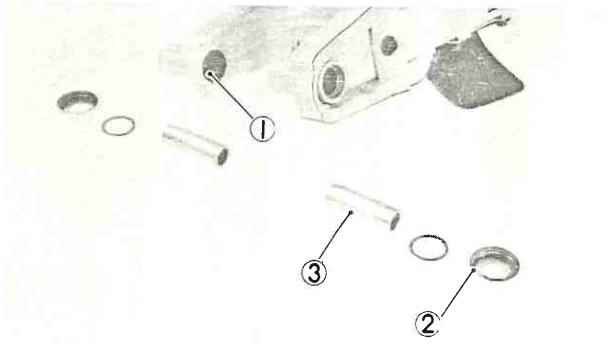
REMOVAL

1. Remove:
   - Rear wheel
   - Relay arm and swingarm securing bolt
   - Drive chain cover ①
   - Drive chain guide ②



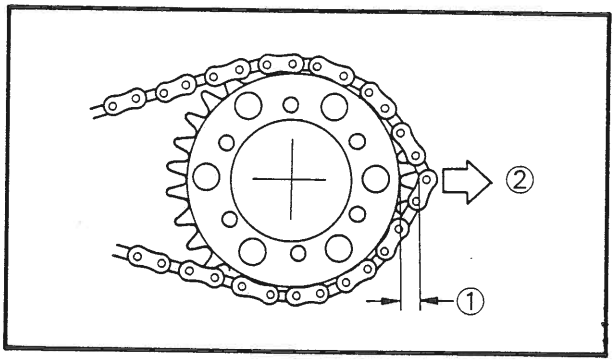


2. Remove:
   - Pivot shaft nut ①
   - Pivot shaft ②
   - Swingarm assembly
   - Change pedal
   - Left crankcase cover
   - Drive chain



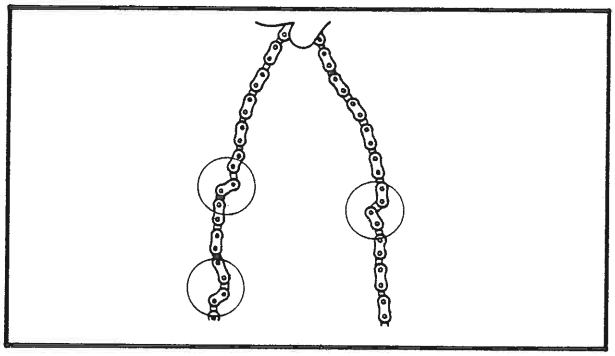
INSPECTION

1. Wash the bearings in a solvent.
2. Inspect:
   - Bearings ① (Race/Balls)
     Pitting/Damage→Replace.
   - Thrust cover ②
     Damage→Replace.
   - Collar ③
     Damage→Replace.

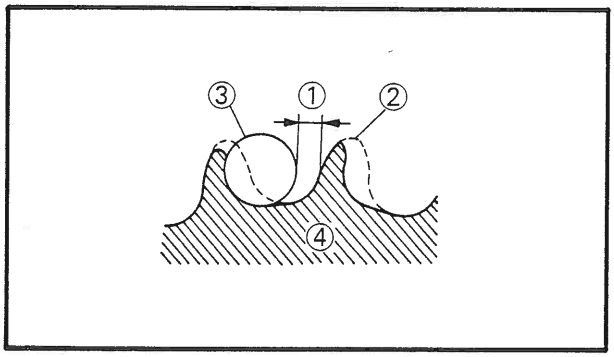


3. Check:
   - Drive chain wear
     Pull ② the chain away from the driven sprocket.
     Distance chain/sprocket higher than 1/2 tooth ①→Replace drive chain.

SWINGARM AND DRIVE CHAIN

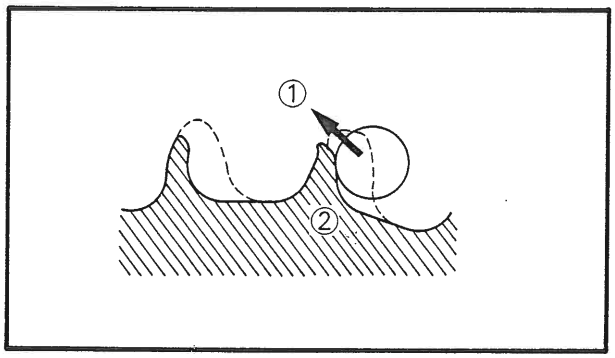


4. Check:
   • Drive chain stiffness
   Clean and oil the chain and hold as illustrated
   Stiff → Replace drive chain.



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.

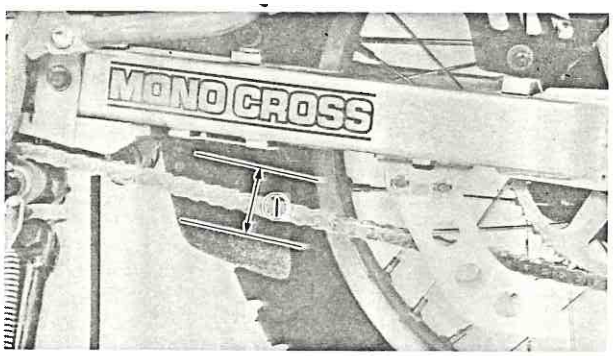
Lithium Base Waterproof Wheel Bearing Grease

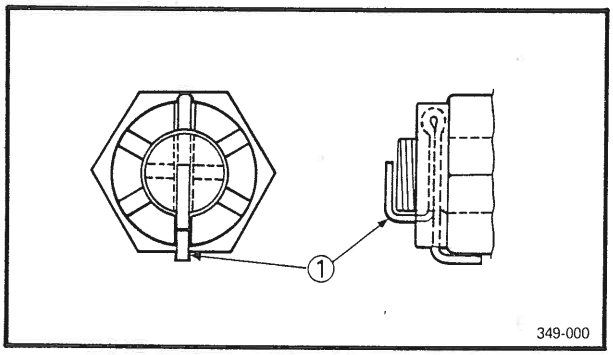
2. Install:
   • Drive chain
   • Swingarm assembly

Swingarm Pivot Shaft:
85 Nm (8.5 m•kg, 61 ft•lb)

3. Install:
   • Relay arm and swingarm securing bolt

Relay Arm/Swingarm Securing Bolt:
59 Nm (5.9 m•kg, 42.7 ft•lb)





4. Install:
   - Rear wheel
5. Adjust:
   - Drive chain slack

Chain Deflection ①:
30 ~ 40 mm (1.18 ~ 1.57 in)

6. Tighten:
   - Axle nut

Axle Nut:
107 Nm (10.7 m•kg, 77.4 ft•lb)

7. 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.

CABLES AND FITTINGS

5

CABLES MAINTENANCE

NOTE:

See "MAINTENANCE AND LUBRICATION" interval 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 the "CABLE ROUTING" at the end of this manual. Improperly routed

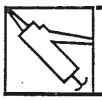
or adjusted cables may make the motorcycle unsafe for operation.

1. Remove:
   - Throttle cables
   - Tachometer cable
   - Speedometer 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.
- Maintain its vertical position until the oil flows to the bottom.
- Allow excess oil to drain, then reinstall the cable.

NOTE:

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



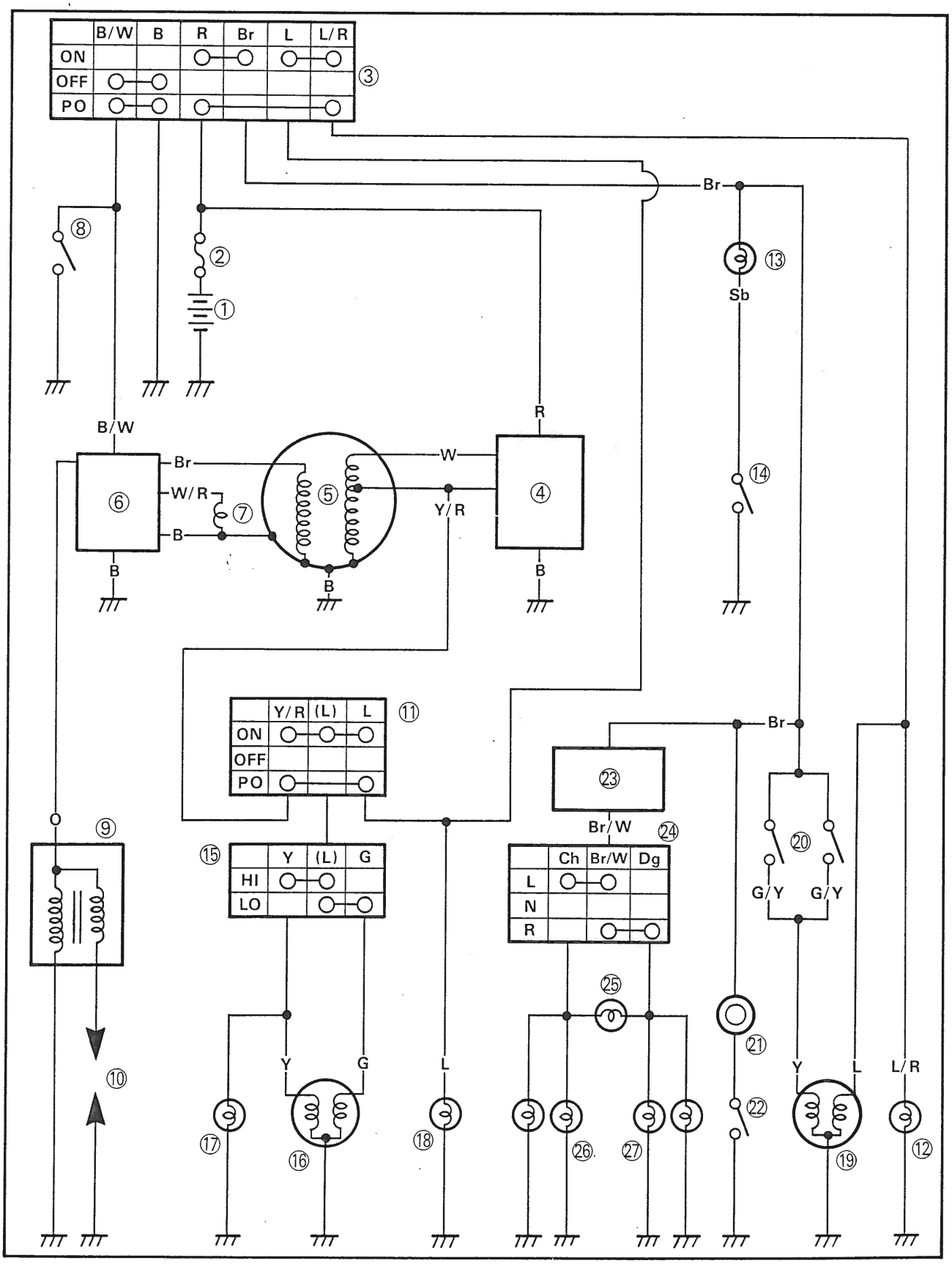
Recommended Lubricant:
SAE 10W30 motor oil

4. Install:
   - Cables
     Reverse the removal procedure.

CHAPTER 6
ELECTRICAL

ELECTRICAL

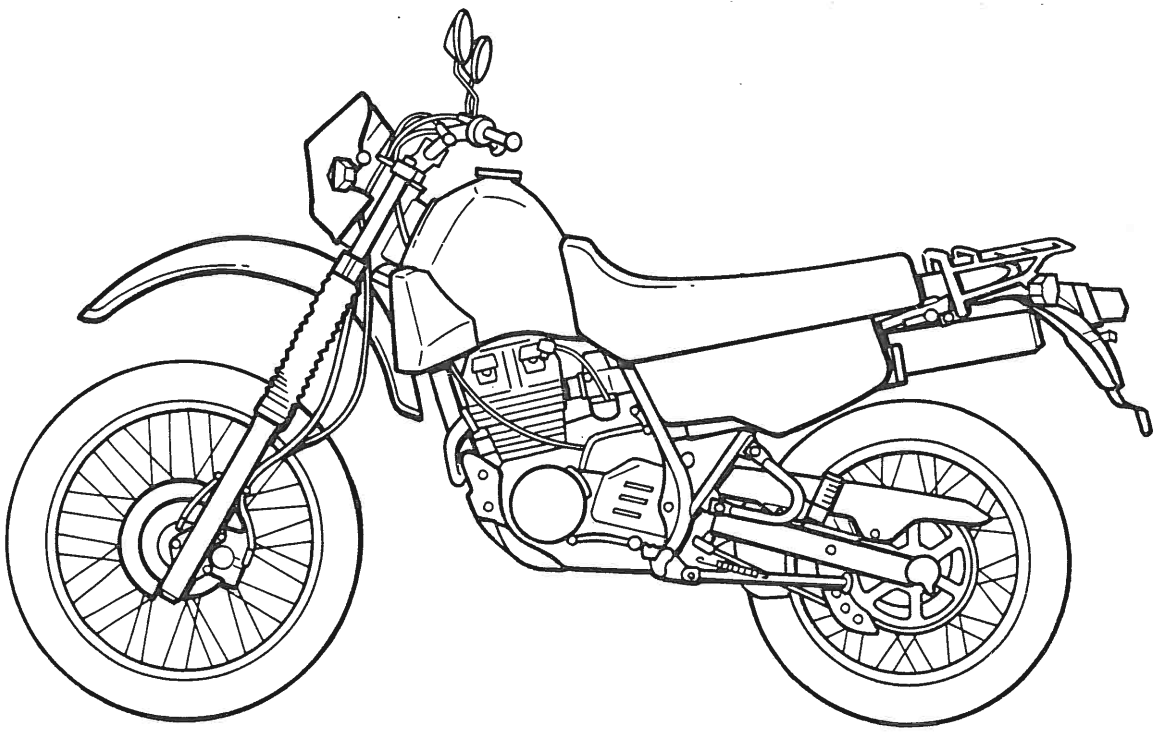
XT250/XT350 CIRCUIT DIAGRAM



① Battery
② Main fuse
③ Main switch
④ Rectifier/Regulator
⑤ CDI Magneto
⑥ CDI unit
⑦ Pick up coil
⑧ Engine stop switch
⑨ Ignition coil
⑩ Spark plug
⑪ "LIGHT" switch
⑫ Auxiliary light
⑬ Neutral indicator
⑭ Neutral switch
⑮ Dimmer switch
⑯ Headlight
⑰ High beam indicator
⑱ Meter lights
⑲ Tail/brake light
⑳ Front/Rear brake switch
㉑ Horn
㉒ Horn switch
㉓ Flasher relay
㉔ "TURN" switch
㉕ Flasher indicator light
㉖ Left flasher lights
㉗ Right flasher lights

COLOR CODE

B	Black
Br	Brown
Ch	Chocolate
Dg	Dark green
G	Green
L	Blue
O	Orange
R	Red
Sb	Skyblue
W	White
Y	Yellow
B/W	Black/White
Br/W	Brown/White
G/Y	Green/Yellow
L/R	Blue/Red
W/R	White/Red
Y/R	Yellow/Red

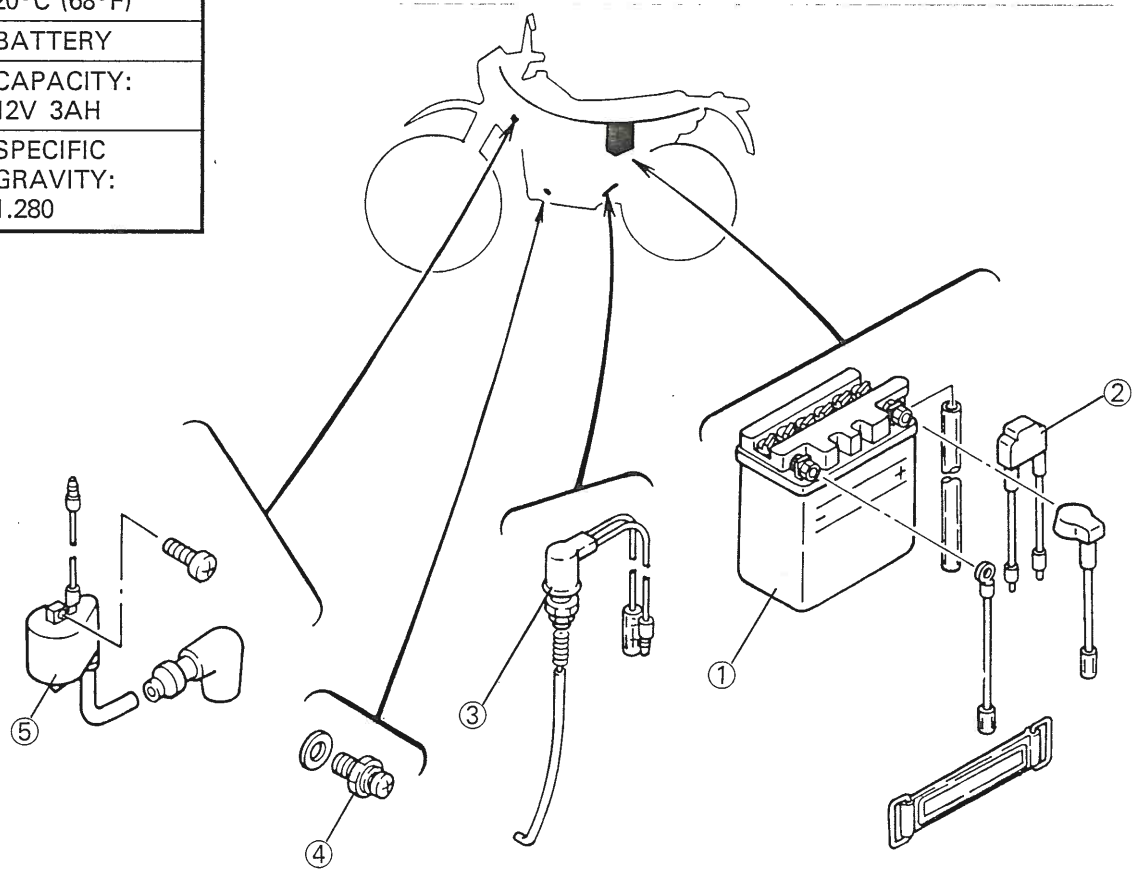


6

ELECTRICAL COMPONENTS 1

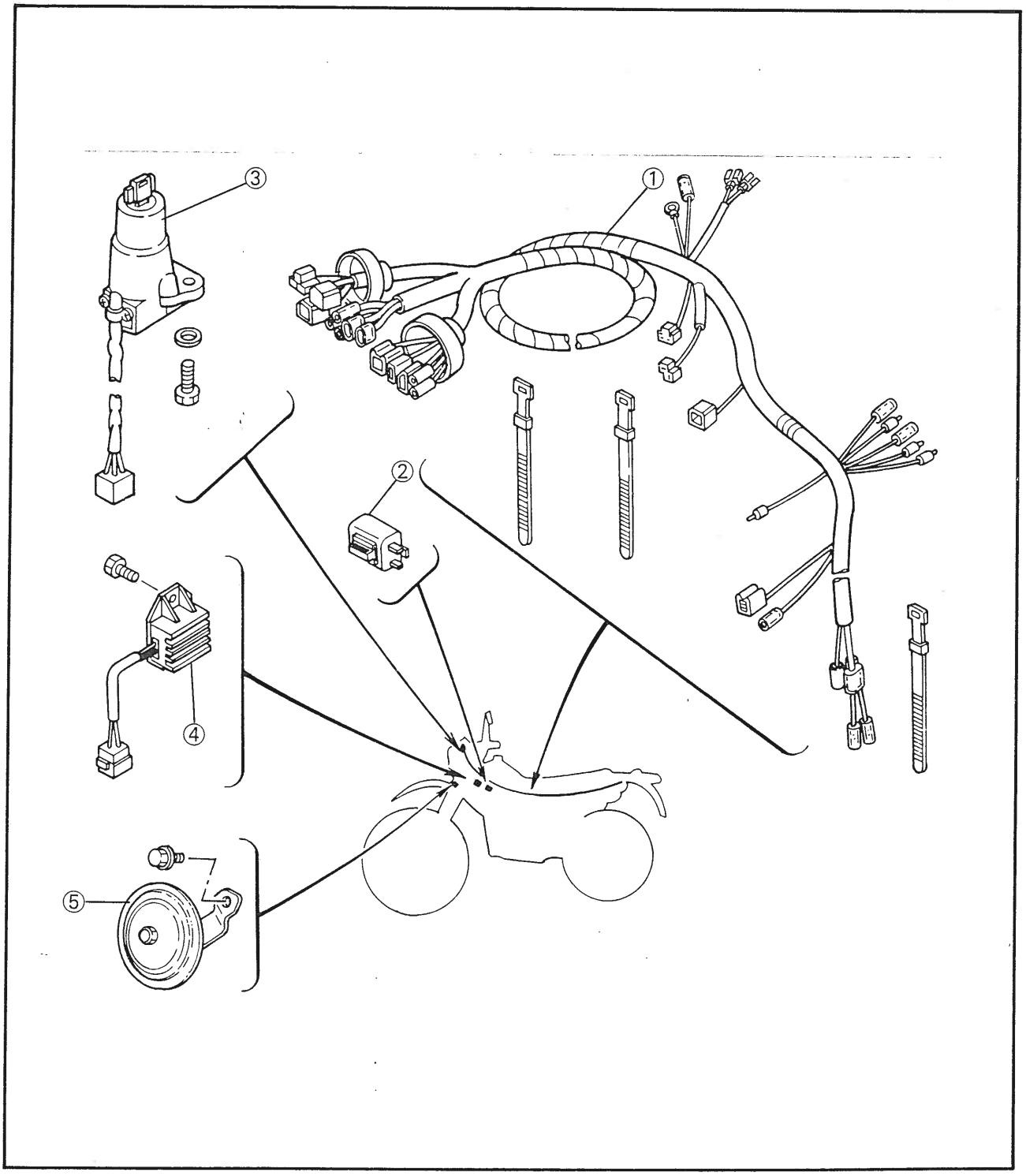
① Battery
② Main fuse
③ Rear brake switch
④ Neutral switch
⑤ Ignition coil

A	IGNITION COIL:
B	PRIMARY WINDING RESISTANCE: 0.79Ω ± 15% at 20°C (68°F)
C	SECONDARY WINDING RESISTANCE: 5.9KΩ ± 15% at 20°C (68°F)
D	BATTERY
E	CAPACITY: 12V 3AH
F	SPECIFIC GRAVITY: 1.280



ELECTRICAL COMPONENTS 2

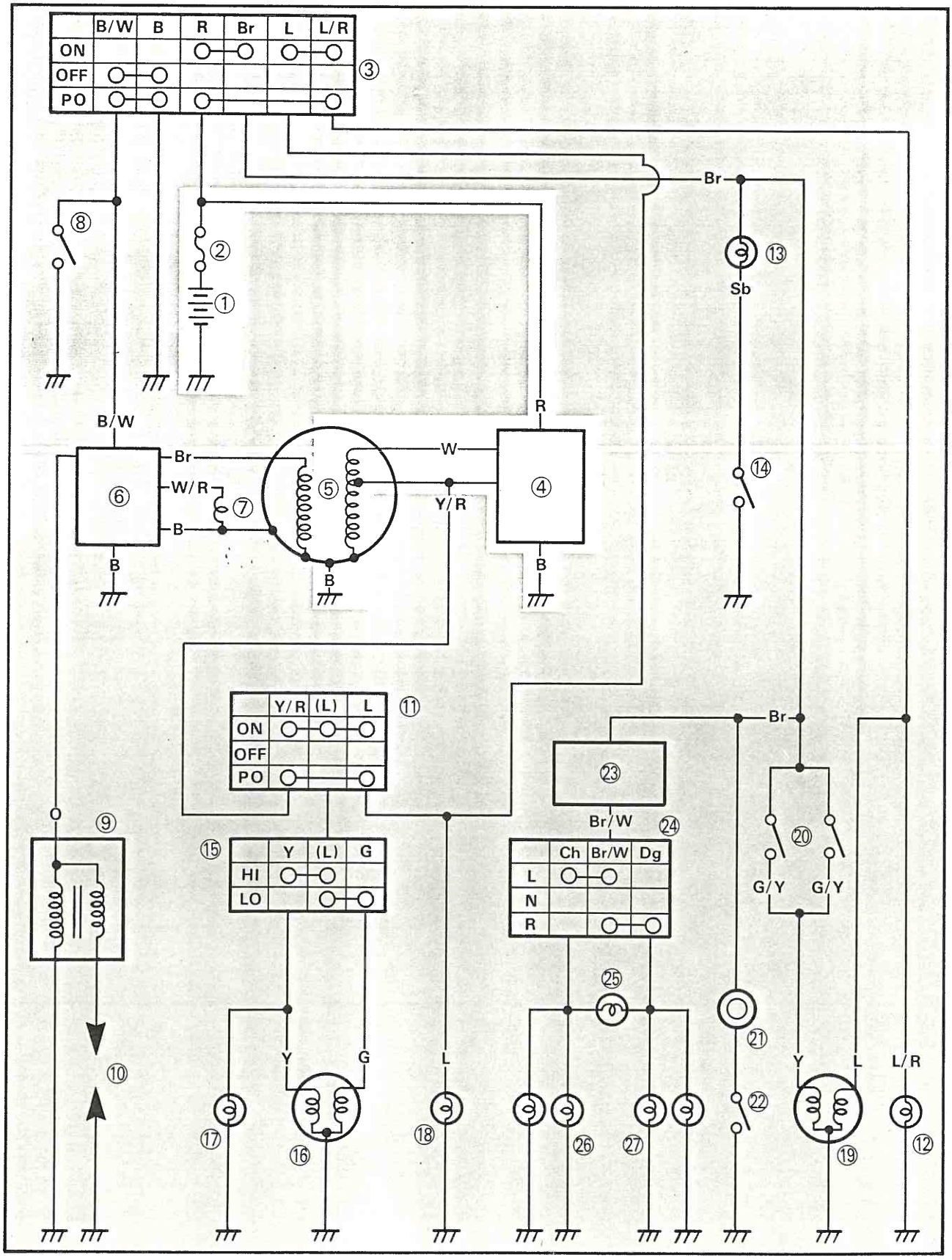
① Wire harness
② Flasher relay
③ Main switch
④ Rectifier/Regulator
⑤ Horn



CHARGING SYSTEM

Circuit Diagram

Below circuit diagram shows charging circuit.



① **Battery**
② **Main fuse**
③ Main switch
④ **Rectifier/Regulator**
⑤ **CDI Magneto**
⑥ CDI unit
⑦ Pick up coil
⑧ Engine stop switch
⑨ Ignition coil
⑩ Spark plug
⑪ "LIGHT" switch
⑫ Auxiliary light
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⑮ Dimmer switch
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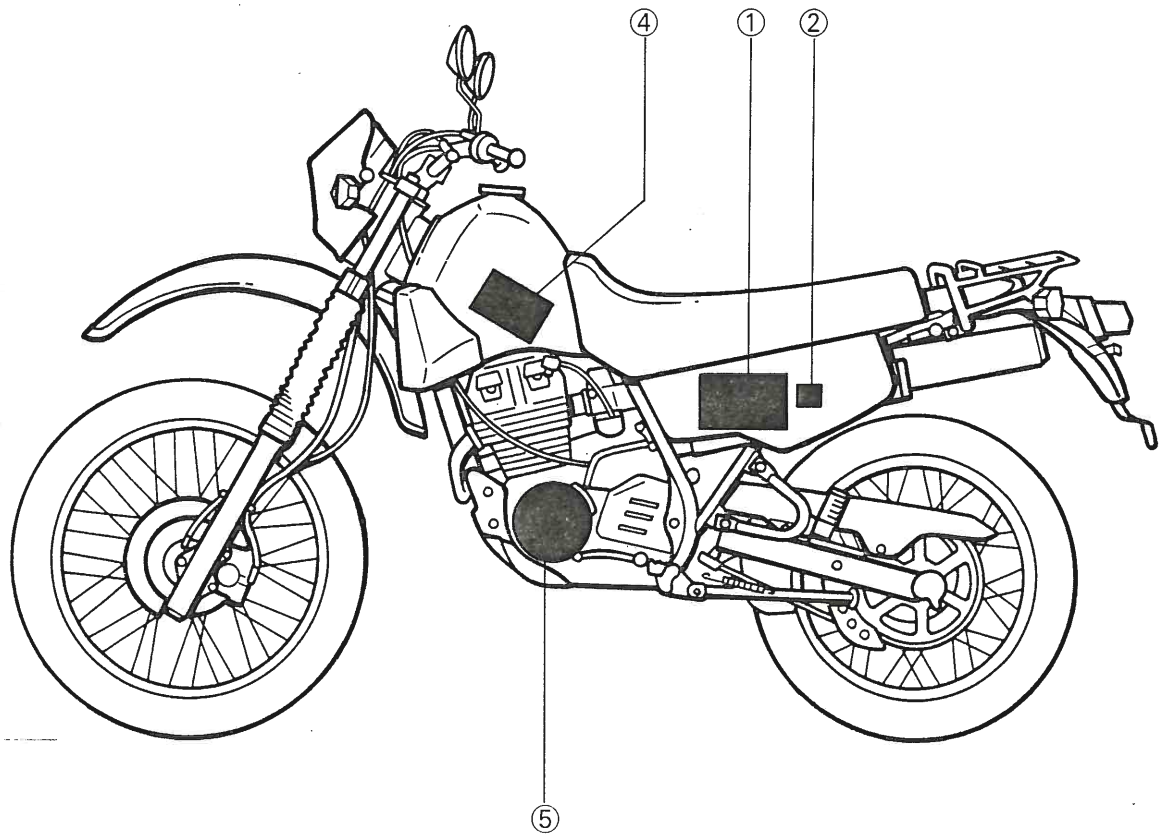


TROUBLESHOOTING CHART

THE BATTERY IS NOT CHARGED

A

1. Remove:
   - Left side cover
2. Connect:
   - Pocket Tester (to the battery terminals)
3. Measure:
   - Battery voltage
   - Fluid gravity

Battery Voltage: 12V
Battery Gravity: 1.280

Out of specification

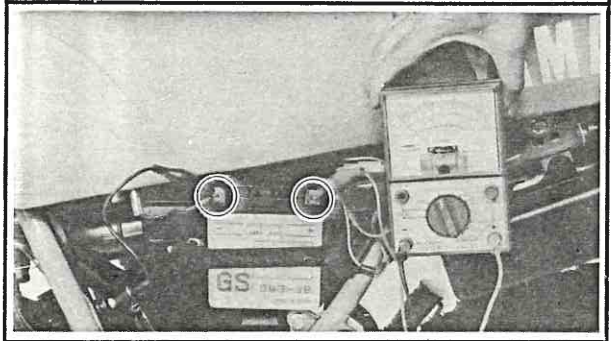
- Check the battery.
- Replace and/or charge battery.

OK

B

1. Start the engine and accelerate to 5,000 r/min
2. Measure:
   - Generator charging voltage

Generator Charging Voltage: 14~15V/5,000 r/min



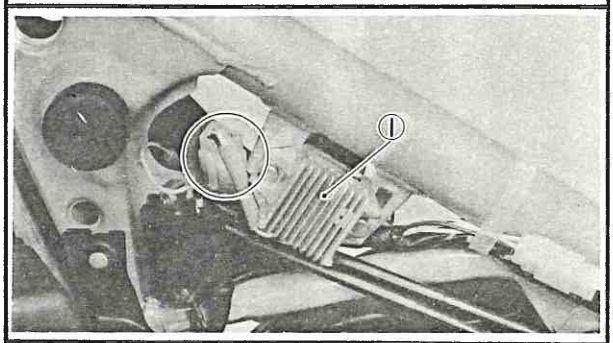
CAUTION:

Never disconnect battery cables while generator is operating or rectifier/regulator will be damaged.

Less than 14V

More than 15V

1. Remove:
   - Seat
   - Fuel tank
2. Check:
   - Rectifier/regulator ① connection



Defects

Correct connections

OK

Replace rectifier/regulator

6

C

1. Check:
   • Main fuse

Faulty → Replace

OK ↓

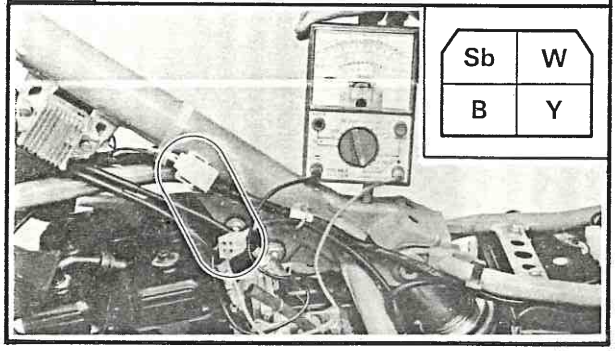
D

1. Remove:
   • Seat
   • Fuel tank
2. Disconnect:
   • Lighting/Charging coil coupler
3. Measure:
   • Charging coil resistance

Charging Coil Resistance:
0.46Ω ± 10% (White — Black)

Out of specification → Replace charging coil (lighting coil).

OK → Correct connection.



BATTERY

CAUTION:

To insure maximum battery performance be sure to:
- **Charge a new battery before use.**
- **Maintain proper electrolyte level.**
- **Charge at proper current; 0.3 amps/10 hrs. 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:

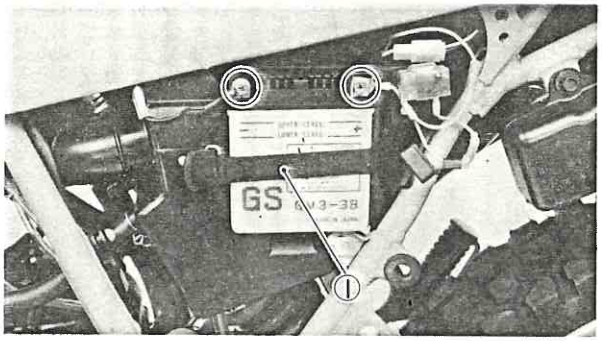
Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.
Always follow these preventive measures:
- **Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.**
- **Wear protective eye gear when handling or working near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

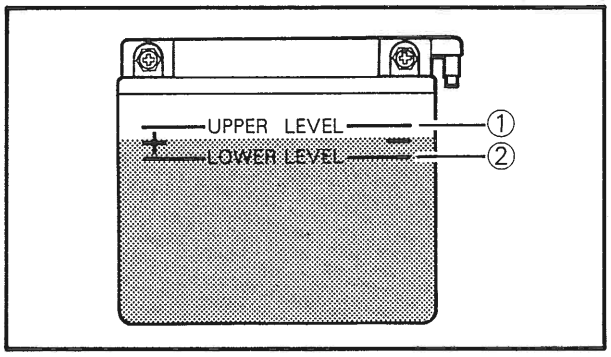
KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN:



Inspection

1. Remove:
   - Left side cover
   - Battery band ①
   - Battery

   Disconnect negative lead first.



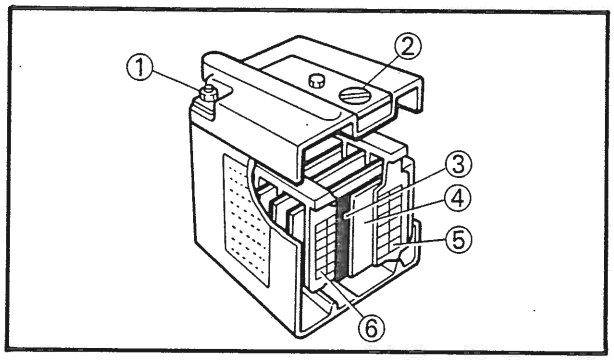
2. Inspect:
   - Battery fluid level

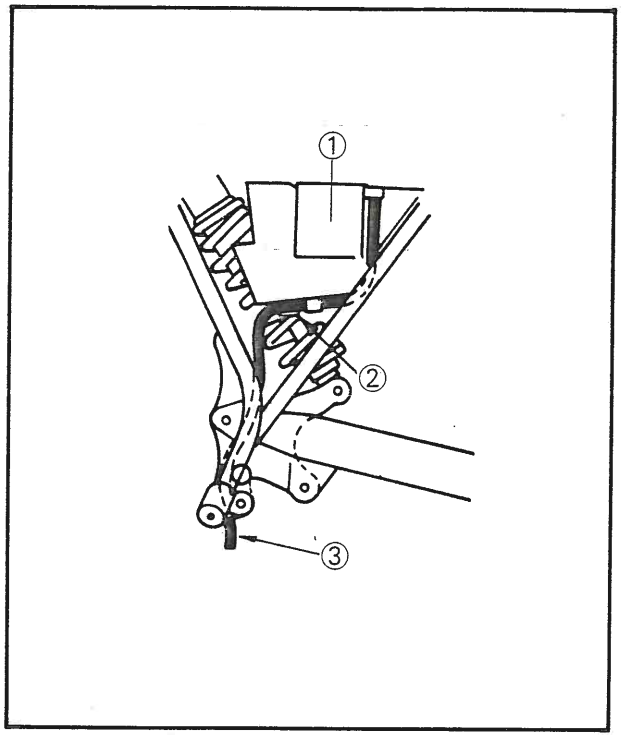
   Below lower level→Add distilled water.

① Upper level
② Lower level

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.

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

3. Measure:
   - Specific gravity:
     Less than 1.280→Recharge battery.
4. Install:
   - Battery
     Connect positive lead first.
5. Check:
   - Breather hose
     Improper routing→Correct.
     Obstruction/Damage→Replace.

① Battery
② Through the guide
③ Battery breather pipe

Battery Storage

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

1. Remove:
   - Battery

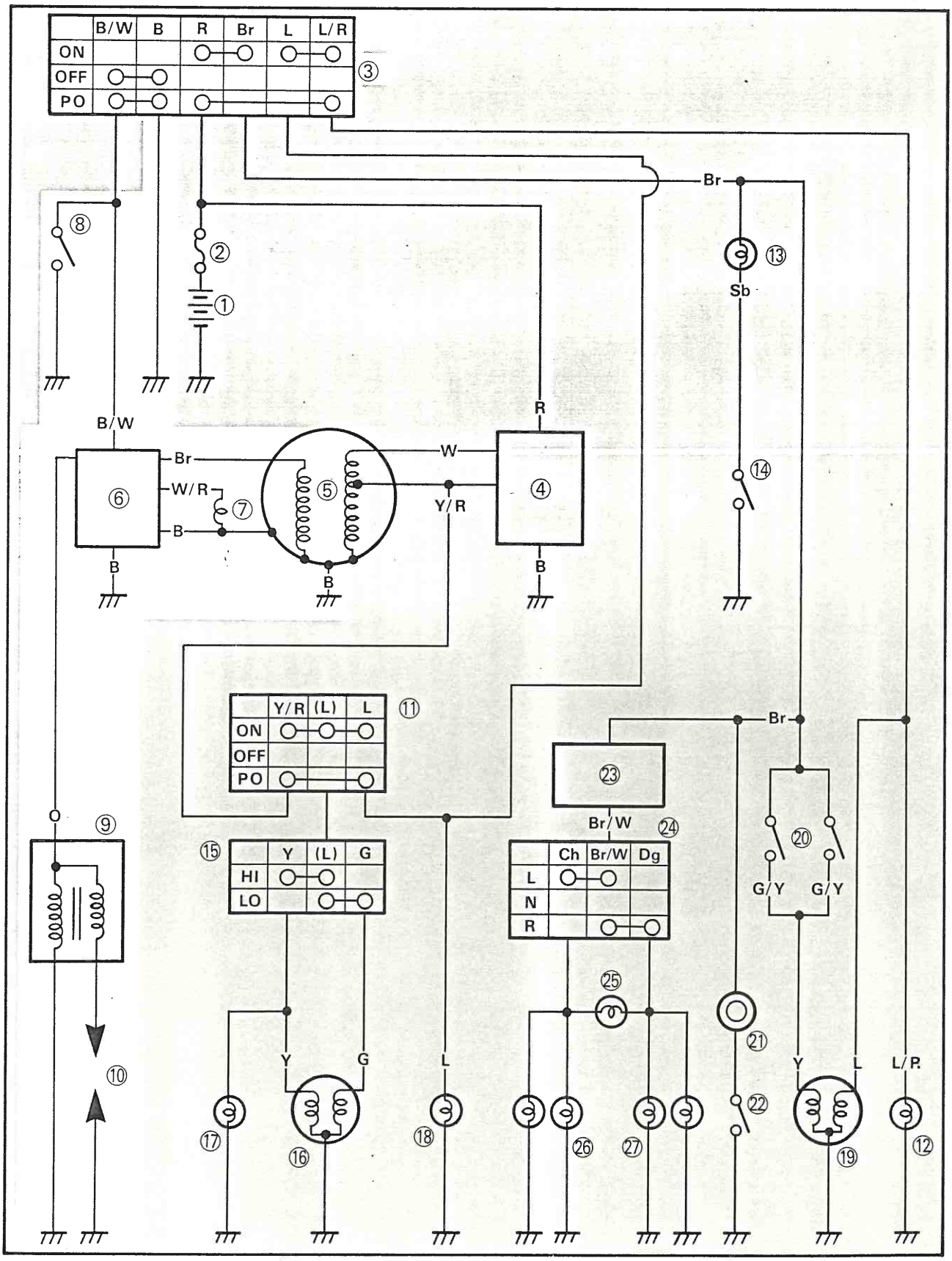
Battery storage and maintenance tips:
- Recharge the battery periodically.
- Store the battery in a cool, dry place.
- Recharge the battery before reinstalling.

Battery	GM3-3B/FB3L-B
Electrolyte	Specific gravity: 1.280
Initial charging rate	0.3Amp 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)

IGNITION SYSTEM

Circuit Diagram

Below circuit diagram shows ignition circuit.



① Battery
② Main fuse
③ **Main switch**
④ Rectifier/Regulator
⑤ **CDI Magneto**
⑥ **CDI unit**
⑦ **Pick up coil**
⑧ **Engine stop switch**
⑨ **Ignition coil**
⑩ **Spark plug**
⑪ "LIGHT" switch
⑫ Auxiliary light
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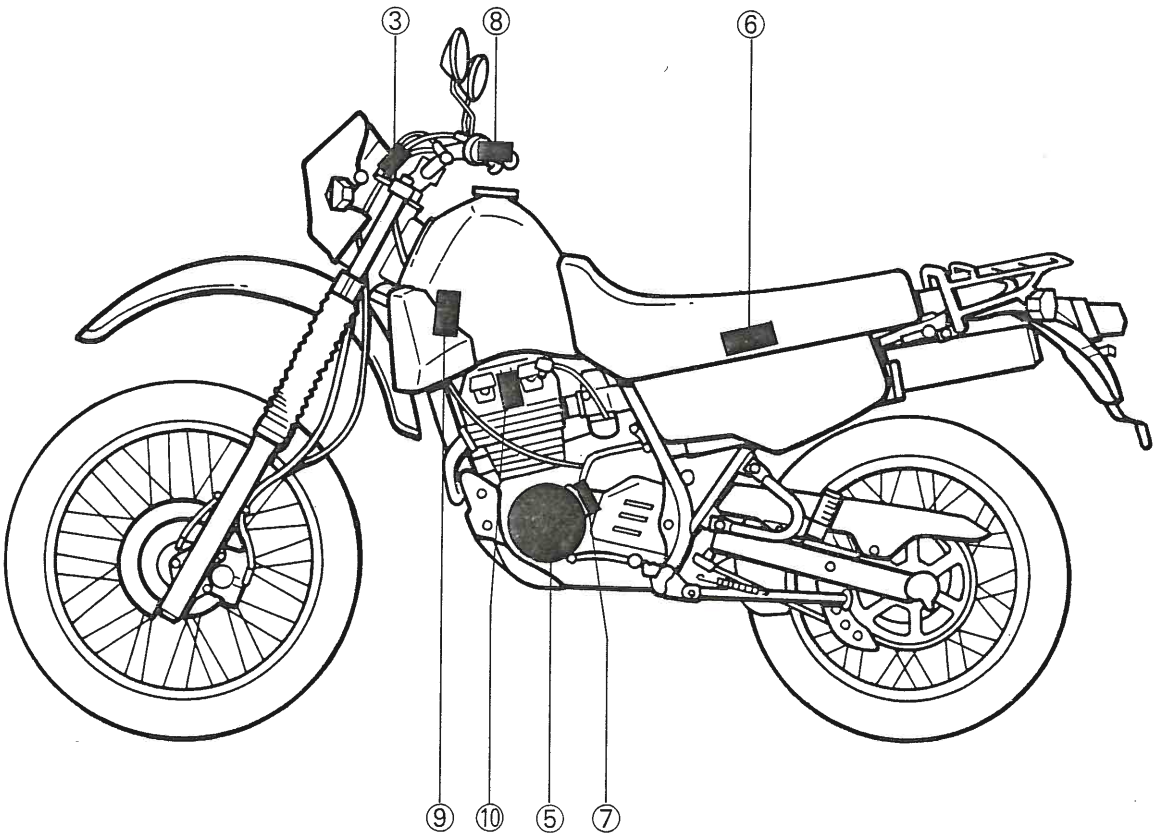


TROUBLESHOOTING CHART

NO SPARK OR WEAK SPARK.

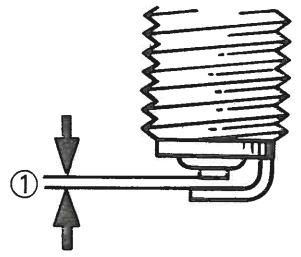
A

1. Remove:
   - Spark plug
2. Check:
   - Spark plug type

Standard Spark Plug:
DR7ES, DR8ES
DR8ES-L /(NGK)

3. Measure:
   - Electrode gap

Spark Plug Electrode Gap ①:
0.7~0.8 mm (0.028~0.032 in)



Out of specification → Clear off carbon/Regap/Replace spark plug.

OK

B

1. Remove:
   - Spark plug cap
2. Measure:
   - Spark plug cap resistance

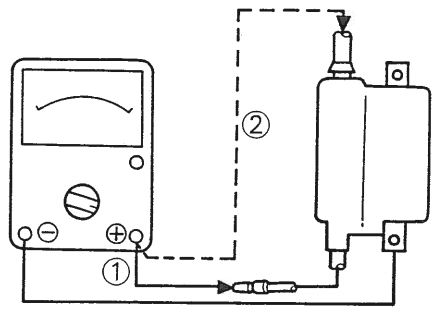
Spark Plug Cap Resistance:
10kΩ±25% at 20°C (68°F)

Out of specification → Replace spark plug cap

OK

C

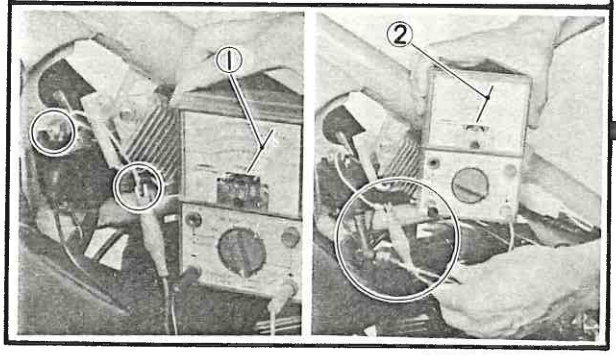
1. Remove:
   - Seat
   - Fuel tank
2. Connect:
   - Pocket Tester
     (to ignition coil side connector)



① Primary
② Secondary

3. Measure:
   - Primary coil resistance
   - Secondary coil resistance

Ignition Coil Resistance:
Primary ①: 0.79Ω ± 15%
Secondary ②: 5.9kΩ ± 15%



Out of specification → Replace ignition coil.

OK ↓

D

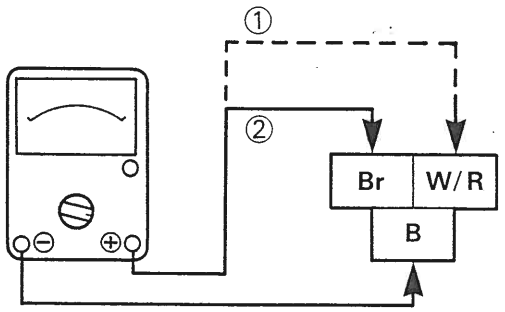
1. Check:
   - Main switch (Black/White — Black)
   - Engine stop switch

Faulty → Replace faulty parts.

OK ↓

E

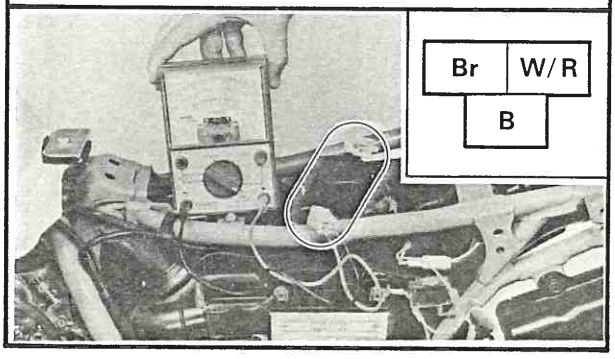
1. Remove:
   - Seat
2. Disconnect:
   - Source/Pick up coil coupler
3. Connect:
   - Pocket Tester
     (to CDI coupler)



① Pickup coil
② Source coil

4. Measure:
   - Pick-up coil resistance
   - Source coil resistance

Pickup Coil Resistance:
221Ω ± 10% at 20°C (68°F)
(White/Red — Black)
Source Coil Resistance:
444Ω ± 10% at 20°C (68°F)
(Brown — Black)



Out of specification

Replace faulty parts.

OK

Check all connections.

Defects

Correct connections.

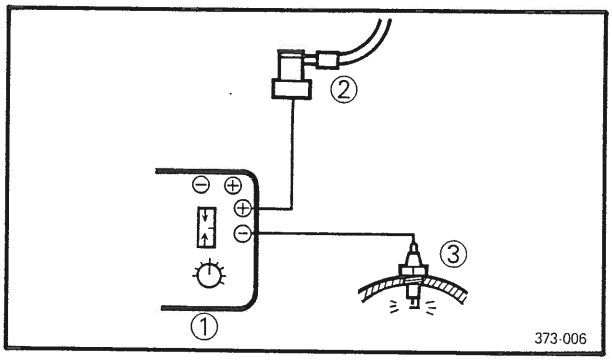
OK

Replace CDI unit.

ENTIRE IGNITION SYSTEM CHECK

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 electrial components are at operating temperature.



2. Connect:
   - Electro Tester (90890-03104) 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 wire
③ Spark plug

CAUTION:

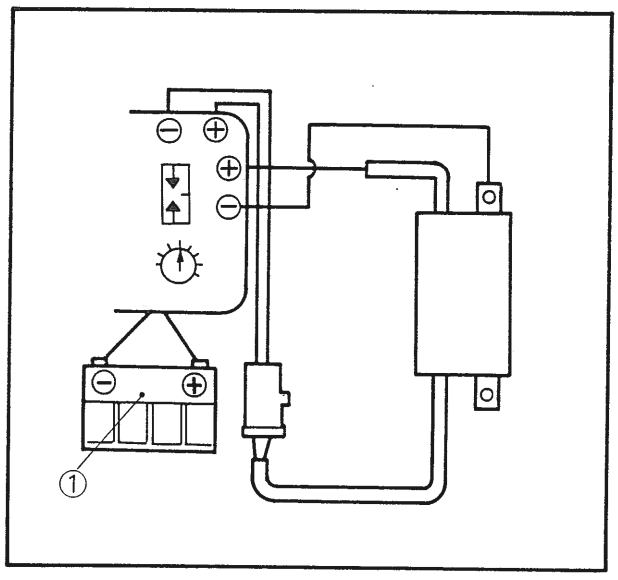
Do not run the engine in neutral above 6,000 r/min for more than 1 or 2 seconds.

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.

IGNITION COIL SPARK GAP

1. Remove:
   - Seat
   - Fuel tank
2. Disconnect:
   - Ignition coil leads
   - Spark plug leads
3. Connect:
   - Electro Tester (90890-03104)



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.

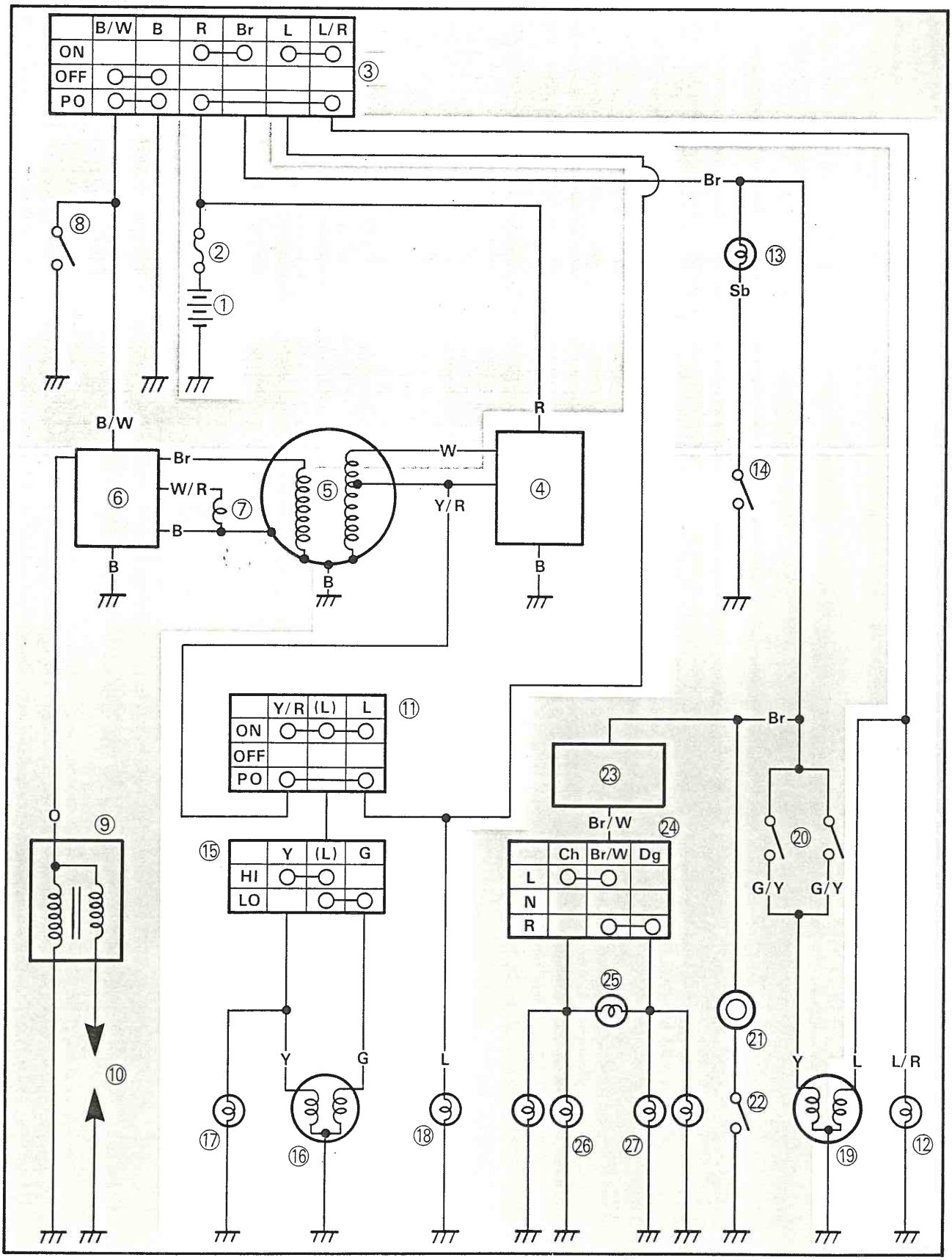
Minimum Spark Gap:
6 mm (0.24 in)

① Battery (12V)

LIGHTING SYSTEM

Circuit Diagram

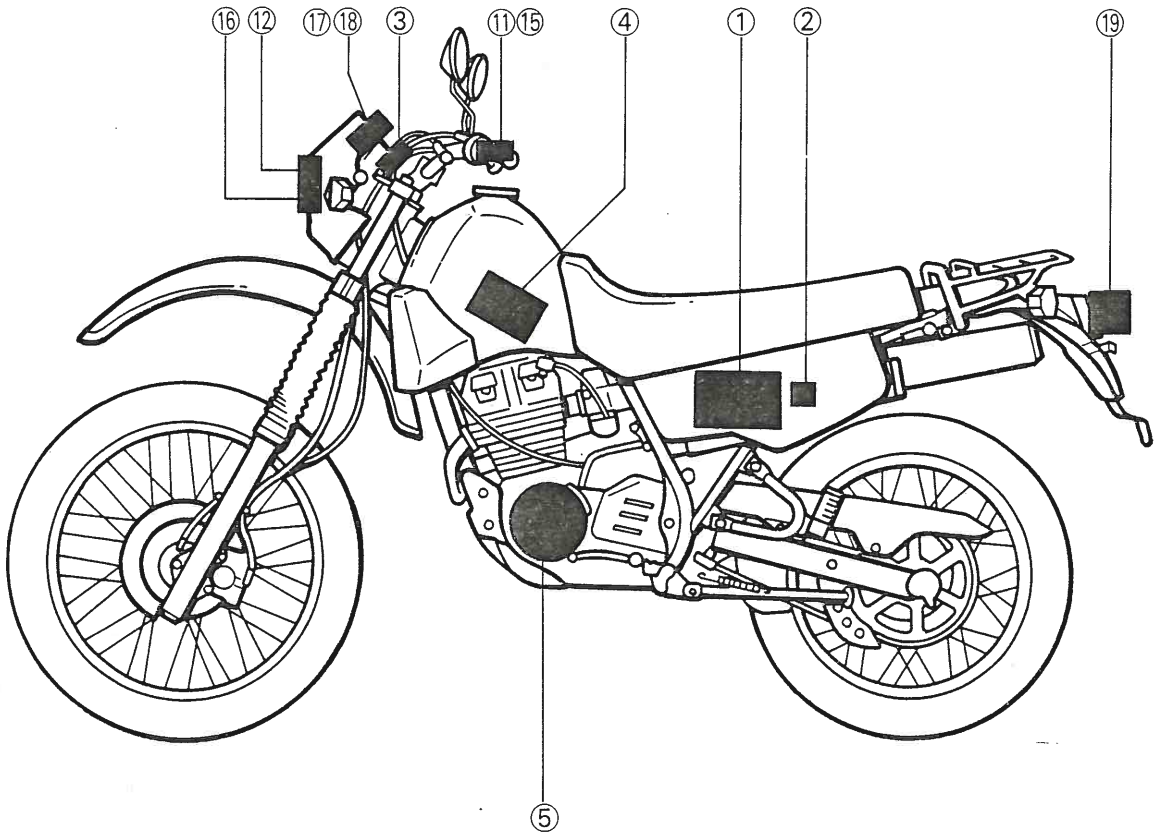
Below circuit diagram shows lighting circuit



① **Battery**
② **Main fuse**
③ **Main switch**
④ **Rectifier/Regulator**
⑤ **CDI Magneto**
⑥ CDI unit
⑦ Pick up coil
⑧ Engine stop switch
⑨ Ignition coil
⑩ Spark plug
⑪ **"LIGHT" switch**
⑫ **Auxiliary light**
⑬ Neutral indicator
⑭ Neutral switch
⑮ **Dimmer switch**
⑯ **Headlight**
⑰ **High beam indicator**
⑱ **Meter lights**
⑲ **Tail/brake light**
⑳ Front/Rear brake switch
㉑ Horn
㉒ Horn switch
㉓ Flasher relay
㉔ "TURN" switch
㉕ Flasher indicator light
㉖ Left flasher lights
㉗ Right flasher lights

COLOR CODE

B	Black
Br	Brown
Ch	Chocolate
Dg	Dark green
G	Green
L	Blue
O	Orange
R	Red
Sb	Skyblue
W	White
Y	Yellow
B/W	Black/White
Br/W	Brown/White
G/Y	Green/Yellow
L/R	Blue/Red
W/R	White/Red
Y/R	Yellow/Red



TROUBLESHOOTING CHART (1)

THE HEADLIGHT AND HIGH BEAM INDICATOR LIGHT DO NOT COME ON

A

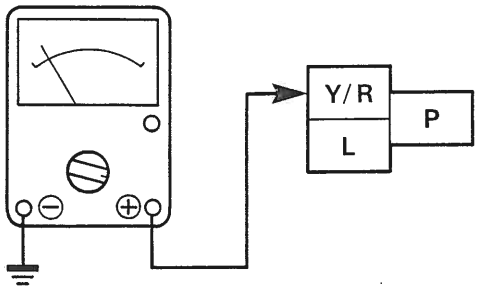
1. Remove:
   - Cowling
   - Headlight unit assembly
   - Headlight bulb
2. Disconnect:
   - Tachometer cable
3. Remove:
   - Tachometer assembly
   - High beam indicator light bulb
4. Check
   - Bulbs

Faulty → Replace bulbs.

OK ↓

B

1. Disconnect:
   - "LIGHT" switch coupler
2. Connect:
   - Pocket Tester
     (to wire harness side coupler)



3. Measure:
   - Generator voltage
     Start the engine and accelerate to 5,000 r/min.

Generator Lighting Voltage:
13 ~ 14V/5,000 r/min

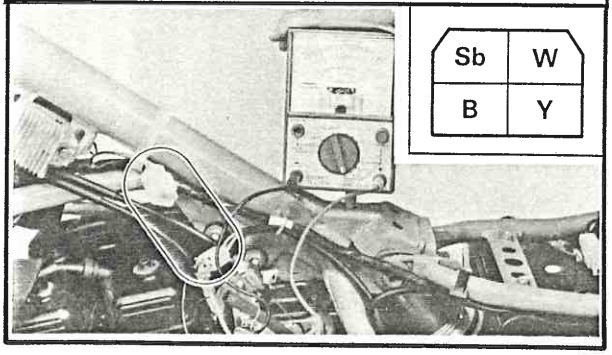
More than 14V → Replace rectifier/regulator.

Less than 13V →

C

1. Remove
   - Seat
   - Fuel tank
2. Disconnect:
   - Lighting/Charging coil coupler
3. Measure:
   - Lighting coil resistance

Lighting Coil Resistance:
0.39 ± 10% (Yellow — Black)



OK ↓

Check dimmer switch and main switch.

OK → Correct connection.

Faulty → Replace faulty parts.

Out of specification → Replace lighting/charging coil.

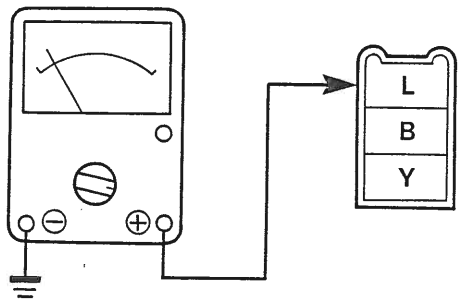
Correct connection.

TROUBLESHOOTING CHART (2)

THE TAIL LIGHT AND AUXILIARY LIGHT DO NOT COME ON

A

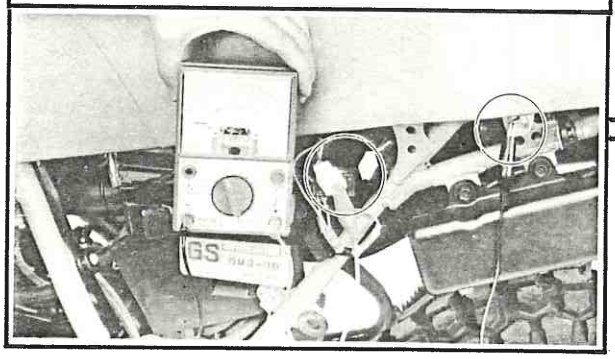
1. Remove:
   - Left side cover
2. Disconnect:
   - Taillight coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)



Less than 12V →

- Check the main switch, main fuse, and battery.
- Replace faulty parts and/or charge battery.

4. Measure:
   - Battery voltage
     (on the "L" leads)
     Turn main switch to "PARK".



12V →

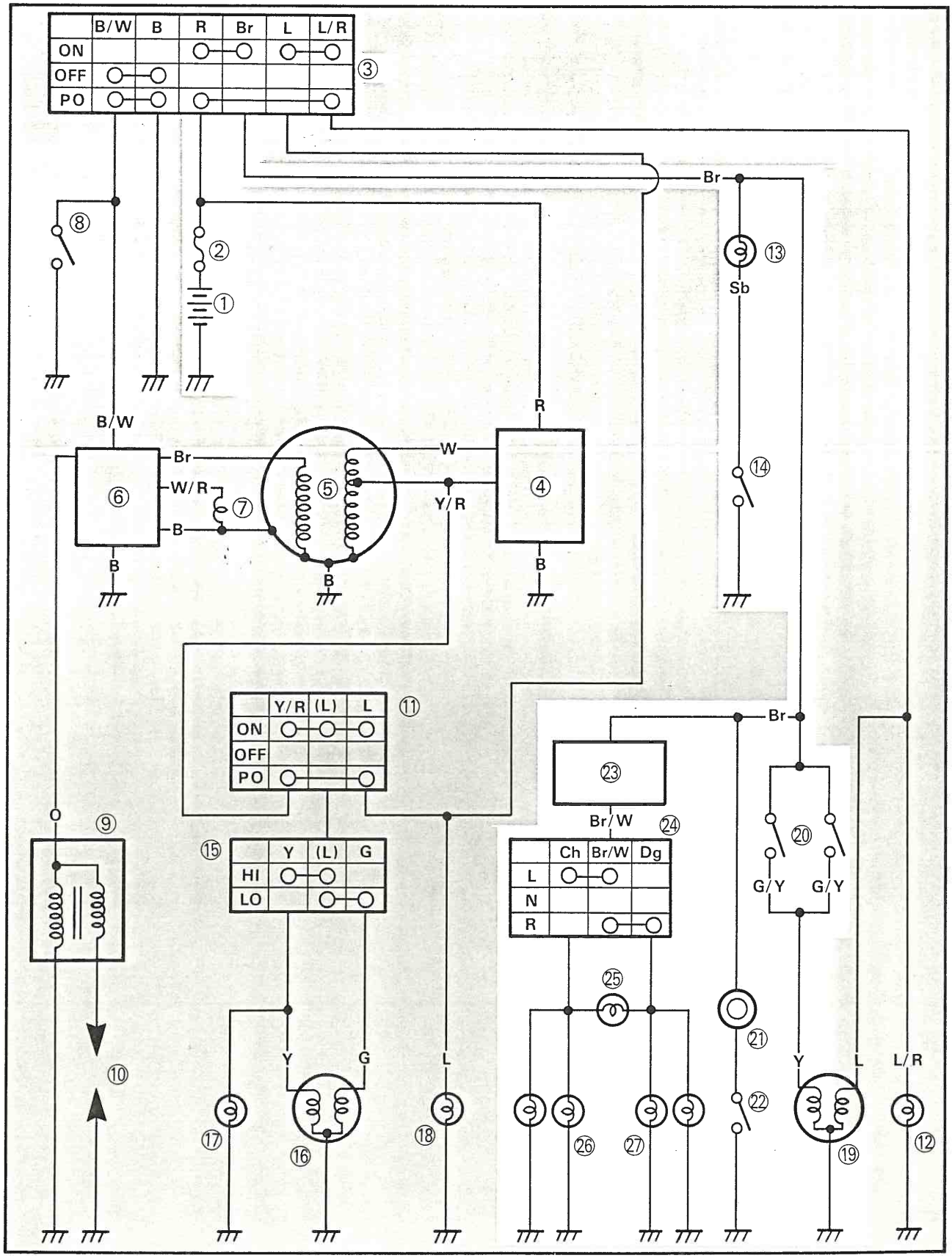
Replace bulb and/or correct connection.

6

SIGNAL SYSTEM

Circuit Diagram

Below circuit diagram shows signal circuit



① **Battery**
② **Main fuse**
③ **Main switch**
④ Rectifier/Regulator
⑤ CDI Magneto
⑥ CDI unit
⑦ Pick up coil
⑧ Engine stop switch
⑨ Ignition coil
⑩ Spark plug
⑪ "LIGHT" switch
⑫ Auxiliary lights
⑬ **Neutral indicator**
⑭ **Neutral switch**
⑮ Dimmer switch
⑯ Headlight
⑰ High beam indicator
⑱ Meter lights
⑲ **Tail/brake light**
⑳ **Front/Rear brake switch**
㉑ **Horn**
㉒ **Horn switch**
㉓ **Flasher relay**
㉔ **"TURN" switch**
㉕ **Flasher indicator light**
㉖ **Left flasher light**
㉗ **Right flasher lights**

COLOR CODE

B	Black
Br	Brown
Ch	Chocolate
Dg	Dark green
G	Green
L	Blue
O	Orange
R	Red
Sb	Skyblue
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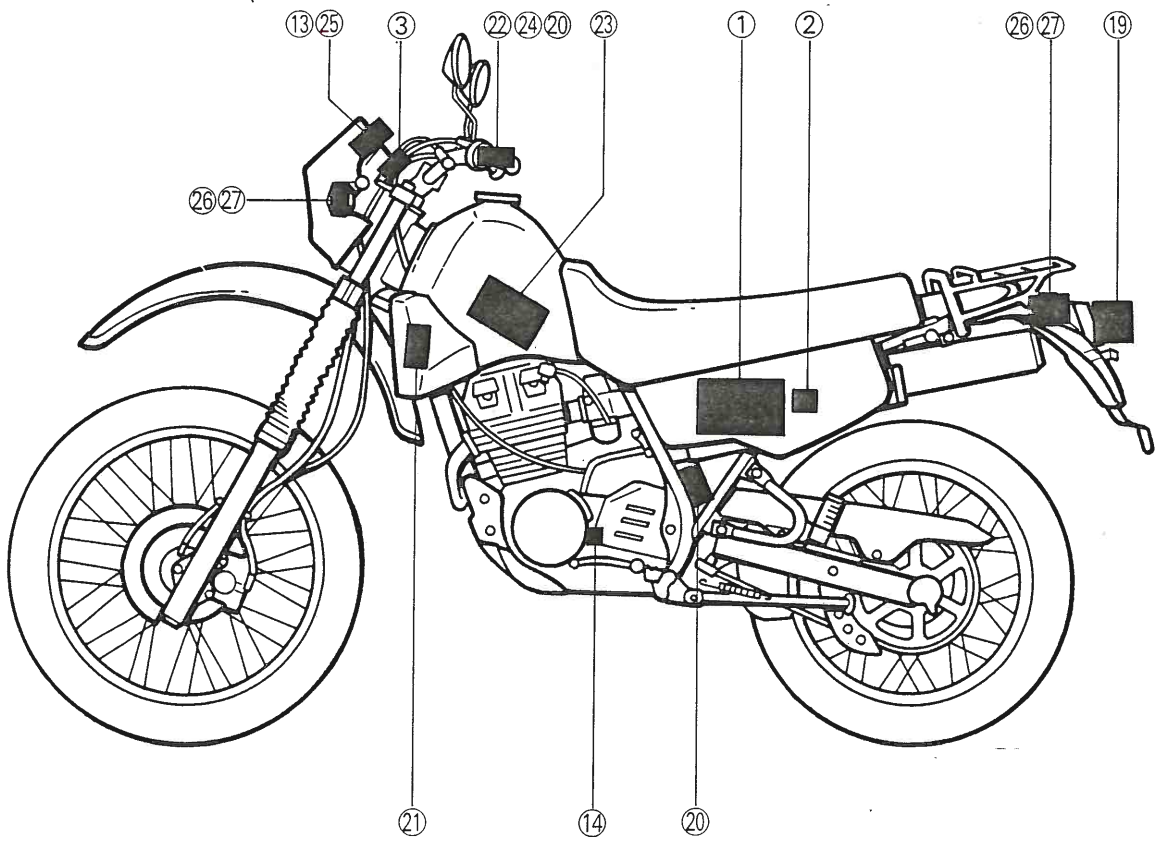
G/Y	Green/Yellow
L/R	Blue/Red
W/R	White/Red
Y/R	Yellow/Red



6

TROUBLESHOOTING CHART (1)

THE FLASHER LIGHT AND INDICATOR LIGHT DO NOT COME ON

A

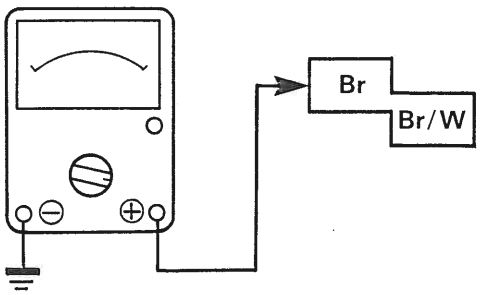
1. Remove:
   - Flasher light cover
   - Flasher light bulb
   - Cowling
2. Disconnect:
   - Tachometer cable
3. Remove:
   - Tachometer assembly
   - Flasher indicator light bulb
4. Check:
   - Bulbs

Faulty → Replace bulb.

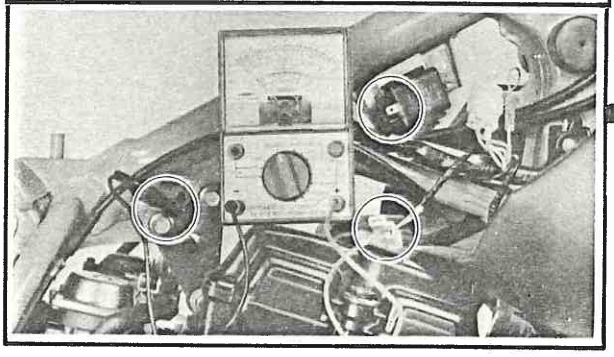
OK

B

1. Disconnect:
   - Flasher relay coupler
2. Connect:
   - Pocket Tester
     (to wire harness side coupler)



3. Measure:
   - Battery voltage
     (on the "Br" lead)
     Turn main switch to "ON."



Less than 12V →

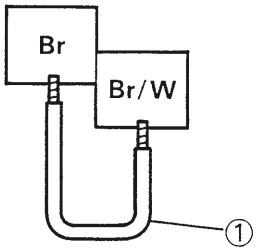
- Check the main switch, main fuse, and battery.
- Replace faulty parts and/or charge battery.

6

12V

C

1. Connect:
   • Flasher relay coupler terminals.



① Jumper lead

2. Check:
   • Flasher light condition
   Turn main switch to "ON."
   Turn "TURN" switch to "L" or "R".

Does not light → Replace "TURN" switch.

Lights

Check all connections.

Faulty → Correct connection.

OK

Replace flasher relay.

6

TROUBLESHOOTING CHART (2)

THE BRAKE LIGHT DOES NOT COME ON

↓

A

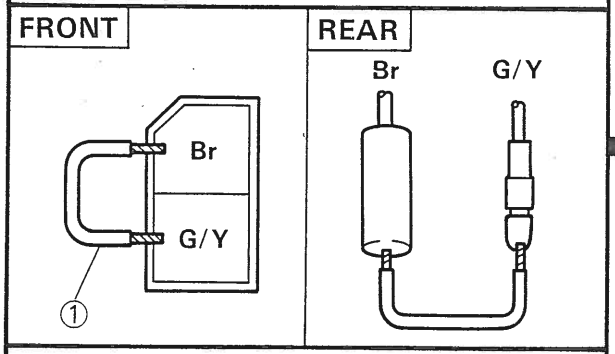
1. Remove:
   - Brake light cover
   - Brake light bulb
2. Check:
   - Bulbs

Faulty → Replace bulbs.

↓ OK

B

1. Disconnect:
   - Brake switch coupler
2. Connect:
   - Wire harness side coupler terminals



① Jumper Lead

3. Check:
   - Brake light condition
     Turn main switch to "ON".

Does not light →
- Check the main switch, main fuse, and battery.
- Replace faulty parts and/or charge battery.

↓ Lights

Check all connections.

Faulty → Correct connection.

↓ OK

Replace brake switch.

TROUBLESHOOTING CHART (3)

THE NEUTRAL INDICATOR LIGHT DOES NOT COME ON

A

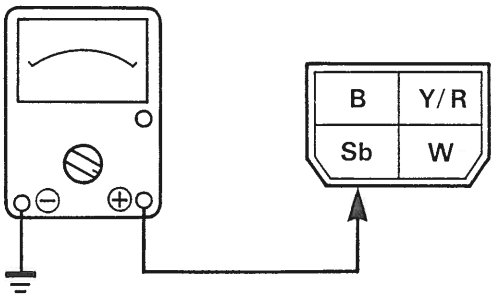
1. Remove:
   - Cowling
2. Disconnect:
   - Tachometer cable
3. Remove:
   - Tachometer assembly
   - Neutral light bulb
4. Check:
   - Bulb

Faulty → Replace bulb.

OK

B

1. Remove:
   - Seat
   - Fuel tank
2. Disconnect:
   - Lighting/Charging coil coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)



4. Measure:
   - Battery voltage
     (on the "Sb" lead)
     Turn main switch to "ON."

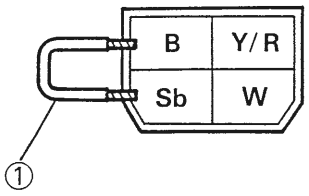
Less than 12V →
- Check the main switch, main fuse, and battery.
- Replace faulty parts and/or charge battery.

12V

6

C

1. Connect:
   • Lighting/Charging coil coupler



① Jumper lead

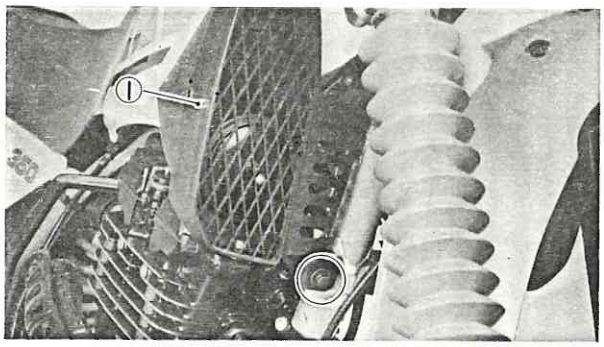
2. Check:
   • Neutral indicator light condition
   Turn main switch to "ON."

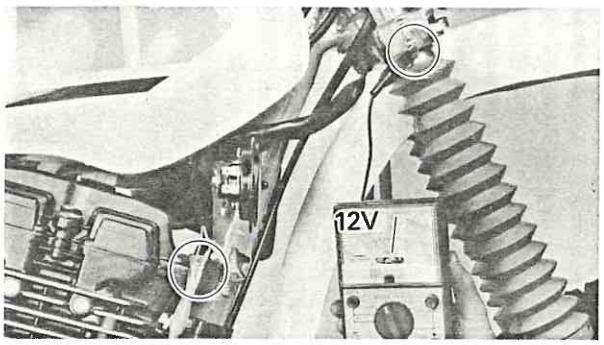
Lights

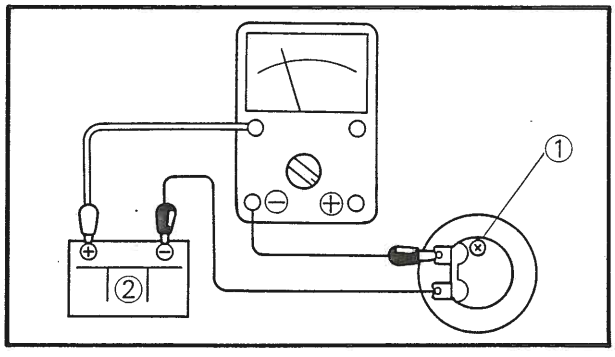
Replace neutral switch.

Does not light

Correct connection.







HORN

Check for:	Horn inoperative
	12V on brown wire to horn
	Good ground (horn/pink wire) When horn button is pressed

Defective components→Replace.

1. Remove:
   • Engine air scoop ①
2. Disconnect:
   • Horn lead
3. Measure:
   • Horn resistance
   Out of specification→Replace.

Tester's lead wire		Standard resistance	Tester's range
Red lead	Black lead		
Brown lead	Pink lead	1.23~1.25Ω	R×1

4. Adjust:
   • Volume
   Turn the adjuster ① in and out so that the volume is maximum at the maximum amperage.

Horn Maximum Amperage: 2.5 A

② Battery (12V)

6

SWITCHES

Switches may be checked for continuity with the Pocket Tester on the "ohm × 1" position.

A	Main switch					
Switch position	Wire color					
	B/W	B	R	Br	L/R	L
P	○	○	○		○	
OFF	○	○				
ON			○	○	○	○

B	"ENGINE STOP" switch	
Switch position	Wire color	
	B/W	B
OFF	○	○
RUN		

C	"BRAKE" switch	
Brake lever/ (pedal position)	Wire color	
	Br	G/Y
FREE		
DEPRESS	○	○

D	"DIMMER" switch		
Switch position	Wire color		
	Y	(L)	G
HI	○	○	
LO		○	○

E	"TURN" switch		
Switch position	Wire color		
	Ch	Br/W	Dg
L	○	○	
N			
R		○	○

F	"HORN" switch	
Button position	Wire color	
	P	B
PUSH	○	○
OFF		

G	"LIGHT" switch		
Switch position	Wire color		
	Y/R	(L)	L
OFF			
P	○		○
ON	○	○	○

6

CHAPTER 7.
APPENDICES

CHAPTER 7
APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

(G) For Germany
(F) For France

Model	XT250	XT350	
Model Code Number	1EU	55V	59Y(G)
Frame Starting Number	1EU-100101	55V-000101	55V-015101
Engine Starting Number	1EU-100101	55V-000101	55V-015101
Dimensions:			
Overall Length	2,250 mm (88.6 in)	2,225 mm (87.6 in) (F): 2,210 mm (87.0 in)	
Overall Width	850 mm (33.5 in)	865 mm (34.1 in)	
Overall Height	1,210 mm (47.6 in)	←	
Seat Height	855 mm (33.7 in)	←	
Wheelbase	1,420 mm (55.9 in)	←	
Minimum Ground Clearance	275 mm (10.8 in)	←	
Basic Weight:			
With Oil and Full Fuel Tank	130 kg (287 lb)	←	
Minimum Turning Radius	2,100 mm (82.7 in)	←	
Engine:			
Engine Type	4-stroke, gasoline, DOHC, 4-valve	←	
Cylinder Arrangement	Single cylinder	←	
Displacement	249 cm^3 (15.19 cu.in)	346 cm^3 (21.1 cu.in)	
Bore × Stroke	73.0 × 59.6 mm (2.87 × 2.35 in)	86.0 × 59.6 mm (3.39 × 2.35 in)	
Compression Ratio	9.54 : 1	9.0 : 1	
Compression Pressure	1,079 kPa (11 kg/cm^2, 156 psi)	←	
Starting System	Kick starter	←	
Lubrication System	Wet sump	←	
Oil Type or Grade Engine Oil	SAE 20W40 type SE motor oil or SAE 10W30 type SE motor oil	←	
Oil Capacity:			
Engine Oil			
Periodic Oil Change	1,3 L (1,14 Imp qt, 1,37 US qt)	←	
With Oil Filter Replacement	1,3 L (1,14 Imp qt, 1,37 US qt)	←	
Total Amount	1.6 L (1.4 Imp qt, 1.7 US qt)	←	
Air Filter	Wet type element	←	

Model	XT250		XT350
Fuel:			
Type	Regular gasoline		←
Tank Capacity	12.0 L (2.6 Imp gal, 3.2 US gal)		←
Reserve Amount	2 L (0.4 Imp gal, 0.5 US gal)		←
Carburetor:			
Type/Manufacturer	Y22PV/TK-KIKAKI		Y24PV/TK-KIKAKI
Spark Plug:	DR7ES (NGK) DR8ES		←
Type/Manufacturer	DR8ES-L (NGK)		←
Gap	0.7 ~ 0.8 mm (0.028 ~ 0.032 in)		←
Clutch Type	Wet, multiple-disc		←
Transmission:			
Primary Reduction System	Spar gear		←
Primary Reduction Ratio	72/23 (3.130)		←
Secondary Reduction System	Chain drive		←
Secondary Reduction Ratio	52/19 (2.736)		←
Transmission Type	Constant mesh, 6-speed		←
Operation	Left foot operation		←
Gear Ratio 1st	37/15 (2.466)		←
2nd	29/16 (1.812)		←
3rd	30/22 (1.364)		←
4th	27/25 (1.080)		←
5th	24/27 (0.889)		←
6th	25/32 (0.781)		22/29 (0.759)
Chassis:			
Frame Type	Diamond		←
Caster Angle	27°10′		←
Trail	107 mm (4.6 in)		←
Tire:			
Type	With tube		←
Size (F)	3.00-21-4PR		←
Size (R)	110/80-18-58P		←
Basic Weight:			
With Oil and Full Fuel Tank	130 kg (287 lb)		←
Maximum Load*	158 kg (348 lb)		←
Cold Tire Pressure	Front	Rear	←
0 to 90 kg (198 lb) Load*	127 kPa (1.3 kg/cm², 18 psi)	147 kPa (1.5 kg/cm², 22 psi)	←
90 kg (198 lb) Load ~ ~Maximum Load	147 kPa (1.5 kg/cm², 22 psi)	177 kPa (1.8 kg/cm², 26 psi	←

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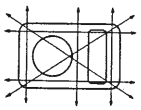
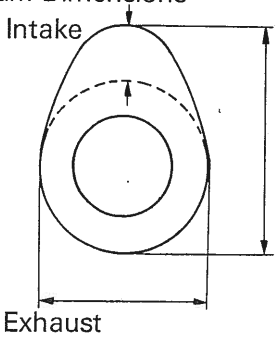
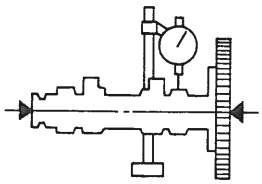
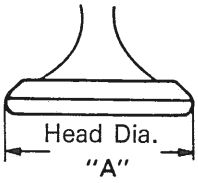
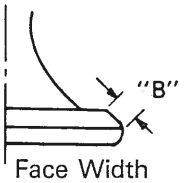
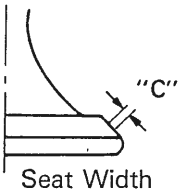
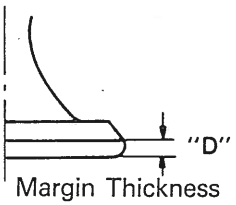
SPECIFICATIONS

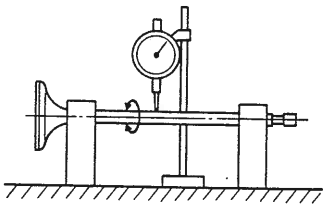
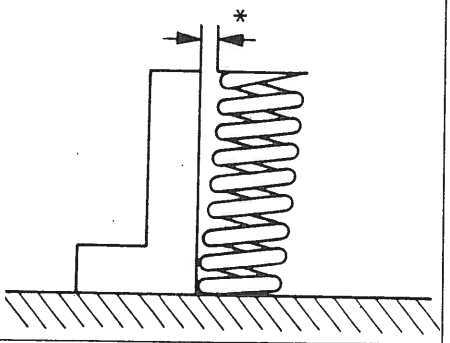
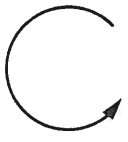
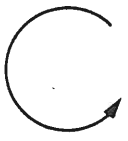
Model	XT250		XT350
High Speed Riding	147 kPa (1.5 kg/cm², 22 psi)	177 kPa (1.8 kg/cm², 26 psi)	←
*Total weight of accessories, etc. excepting motorcycle.			←
Brake:			
Front Brake Type	Single disc brake		←
Operation	Right hand operation		←
Rear Brake Type	Drum brake		←
Operation	Right foot operation		←
Suspension:			
Front Suspension	Telescopic fork		←
Rear Suspension	Swingarm (New Yamaha Monocross Suspension)		←
Shock Absorber:			
Front Shock Absorber	Coil spring and Air/Oil damper		←
Rear Shock Absorber	Coil spring, Gas/Oil damper		←
Wheel Travel:			
Front Wheel Travel	255 mm (10.0 in)		←
Rear Wheel Travel	220 mm (8.7 in)		←
Electrical:			
Ignition System	C.D.I. Magneto		←
Generator System	Flywheel magneto		←
Battery Type or Model	GM3-3B/FB3L-B		←
Battery Capacity	12V 3AH		←
Headlight Type	Bulb Type		←
Bulb Wattage/Quantity:			
Headlight	45W/40W × 1		←
Auxiliary Light	4W × 1		←
Tail/Brake Light	5W/21W × 1		←
Flasher Light	21W × 4		←
Licence Light	5W × 1		←
Indicator Light Wattage/Quantity:			
"METER LIGHT"	3.4W × 2		←
"NEUTRAL"	3.4W × 1		←
"HIGH BEAM"	3.4W × 1		←
"TURN"	3.4W × 1		←

MAINTENANCE SPECIFICATIONS
ENGINE

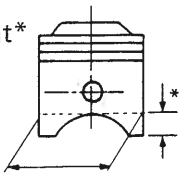
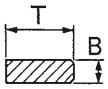
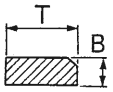
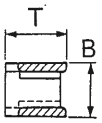
Model	XT250	XT350
Cylinder Head:		
Warp Limit 	<0.03 mm (0.0012 in)> *Lines indicate straightedge measurement	←
Cylinder:		
Bore Size	72.97 ~ 73.02 mm (2.871 ~ 2.875 in)	85.97 ~ 86.02 mm (3.385 ~ 3.387 in)
Taper Limit	<0.08 mm (0.003 in)>	←
Camshaft:		
Drive Method	Chain (Right)	←
Cam Cap Inside Diameter	25.000 ~ 25.021 mm (0.984 ~ 0.985 in)	←
Camshaft Outside Diameter	24.967 ~ 24.980 mm (0.9830 ~ 0.9835 in)	←
Cap Clearance	0.020 ~ 0.054 mm (0.0008 ~ 0.002 in)	←
Cam Dimensions		
Intake  "A"	36.25 ~ 36.35 mm (1.427 ~ 1.431 in)	35.75 ~ 35.85 mm (1.407 ~ 1.411 in)
"B"	28.269 ~ 28.369 mm (1.113 ~ 1.117 in)	27.998 ~ 28.098 mm (1.102 ~ 1.106 in)
"C"	8.30 mm (0.327 in)	7.8 mm (0.307 in)
Exhaust "A"	36.25 ~ 36.35 mm (1.427 ~ 1.431 in)	35.75 ~ 35.85 mm (1.407 ~ 1.411 in)
"B"	28.269 ~ 28.369 mm (1.113 ~ 1.117 in)	27.998 ~ 28.098 mm (1.102 ~ 1.106 in)
"C"	8.30 mm (0.327 in)	7.8 mm (0.307 in)
Camshaft Runout Limit 	<0.03 mm (0.001 in)>	←
Cam Chain Type/ Number of Links	79-010/ 136 Links	←
Cam Chain Adjustment Method	Automatic	←

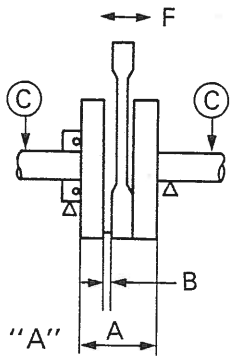
SPECIFICATIONS

Model		XT250	XT350
Valve, Valve Seat, Valve Guide:			
Valve Clearance (Cold)	IN.	0.08 ~ 0.12 mm (0.003 ~ 0.005 in)	←
	EX.	0.13 ~ 0.17 mm (0.005 ~ 0.007 in)	←
Valve Dimensions:			
   			
"A" Head Dia.	IN.	27.90 ~ 28.10 mm (1.098 ~ 1.106 in)	←
	EX.	24.90 ~ 25.10 mm (0.980 ~ 0.988 in)	←
"B" Face Width	IN.	2.26 mm (0.09 in)	←
	EX.	2.26 mm (0.09 in)	←
"C" Seat Width	IN.	1.0 ± 0.1 mm (0.039 ± 0.004 in)	←
	EX.	1.0 ± 0.1 mm (0.039 ± 0.004 in)	←
<Limit>	IN.	1.8 mm (0.07 in)	←
	EX.	1.8 mm (0.07 in)	←
"D" Margin Thickness Limit			
	IN.	0.6 ~ 1.0 mm (0.024 ~ 0.039 in)	←
	EX.	0.8 ~ 1.2 mm (0.032 ~ 0.047 in)	←
Stem Outside Diameter	IN.	5.475 ~ 5.490 mm (0.2156 ~ 0.2161 in)	←
	EX.	5.460 ~ 5.475 mm (0.2150 ~ 0.2156 in)	←
Guide Inside Diameter	IN.	5.500 ~ 5.512 mm (0.2165 ~ 0.2170 in)	←
<Limit>		<5.6 mm (0.22 in)>	←
	EX.	5.500 ~ 5.512 mm (0.2165 ~ 0.2170 in)	←
		<5.6 mm (0.22 in)>	←
Stem-to-guide Clearance	IN.	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	←
	EX.	0.025 ~ 0.040 mm (0.00098 ~ 0.0016 in)	←
<Limit>	IN.	0.1 mm (0.004 in)	←
	EX.	0.1 mm (0.004 in)	←

Model		XT250	XT350
Stem Runout Limit		<0.01 mm (0.0004 in)>	
			
Valve Seat Width Standard			
	IN.EX.	1.0 ± 0.1 mm (0.04 ± 0.004 in)	←
Valve Spring:			
Free Length			
Inner Spring	IN.	38.1 mm (1.500 in)	←
	EX.	38.1 mm (1.500 in)	←
Outer Spring	IN.	41.2 mm (1.622 in)	←
	EX.	41.2 mm (1.622 in)	←
Set Length (Valve Closed)			
Inner Spring	IN.	31.8 mm (1.252 in)	←
	EX.	31.8 mm (1.252 in)	←
Outer Spring	IN.	33.8 mm (1.331 in)	←
	EX.	33.8 mm (1.331 in)	←
Tilt Limit*			
Inner Spring	IN. & EX.	2.5° or 1.7 mm (0.067 in)	←
Outer Spring	IN. & EX.	2.5° or 1.7 mm (0.067 in)	←
			
Direction of Winding (Top view)		Inner Spring / Left	Outer Spring / Left ←
			

SPECIFICATIONS

Model	XT250	XT350
Piston:		
Piston Size/ Measuring Point* 	72.920 ~ 72.970 mm (2.871 ~ 2.873 in)/ *3 mm (0.120 in) (From bottom line of piston skirts)	85.92 ~ 85.97 mm (3.383 ~ 3.385 in)/ *3 mm (0.120 in) ←
Piston Clearance	0.040 ~ 0.060 mm (0.0015 ~ 0.0024 in)	←
Oversize 2nd	73.50 mm (2.894 in)	86.50 mm (3.406 in)
4th	74.00 mm (2.913 in)	87.00 mm (3.425 in)
Piston Ring:		
Sectional Sketch		
Top Ring 	Barrel	←
B	1.2 mm (0.047 in)	←
T	3.1 mm (0.122 in)	3.5 mm (0.138 in)
2nd Ring 	Taper	←
B	1.2 mm (0.047 in)	←
T	3.1 mm (0.122 in)	3.5 mm (0.138 in)
Oil Ring 	2.5 mm (0.098 in)	←
T	3.1 mm (0.122 in)	3.4 mm (0.134 in)
End Gap (Installed)		
Top Ring	0.20 ~ 0.35 mm (0.008 ~ 0.014 in)	0.25 ~ 0.40 mm (0.0098 ~ 0.0157 in)
<Limit>	0.8 mm (0.032 in)	←
2nd Ring	0.20 ~ 0.35 mm (0.008 ~ 0.014 in)	0.25 ~ 0.40 mm (0.0098 ~ 0.0157 in)
<Limit>	0.8 mm (0.032 in)	←
Oil Ring	0.30 ~ 0.90 mm (0.012 ~ 0.035 in)	0.20 ~ 0.70 mm (0.0079 ~ 0.0276 in)
Side Clearance Top Ring	0.04 ~ 0.08 mm (0.002 ~ 0.003 in)	←
<Limit>	0.15 mm (0.006 in)	←
2nd Ring	0.03 ~ 0.07 mm (0.001 ~ 0.003 in)	←
<Limit>	0.15 mm (0.006 in)	←
Oil Ring	0.02 ~ 0.06 mm (0.0008 ~ 0.0024 in)	←

Model	XT250	XT350
Crankshaft: 		
Crank Width "A"	58.95 ~ 59.00 mm (2.321 ~ 2.323 in)	←
Big End Side Clearance "B"	0.35 ~ 0.85 mm (0.014 ~ 0.033 in)	←
Runout Limit "C"	<0.03 mm (0.001 in)>	←
Small End Free Play Limit "F"	2.0 mm (0.079 in)	←
Balancer Drive Method	Gear	←
Clutch:		
Friction Plate Thickness/ Quantity	2.90 ~ 3.10 mm (0.114 ~ 0.122 in)/5	2.90 ~ 3.10 mm (0.114 ~ 0.122 in)/7
Wear Limit	<2.5 mm (0.098 in)>	←
Clutch Plate Thickness/ Quantity	2.0 mm (0.078 in)/4	1.6 mm (0.063 in)/5 2.0 mm (0.078 in)/1
Warp Limit	<0.05 mm (0.002 in)>	←
Clutch Spring Free Length/ Quantity	34.9 mm (1.374 in)/4	41.2 mm (1.622 in)/5
Clutch Spring Minimum Free Length	34.0 mm (1.339 in)	40.3 mm (1.587 in)
Clutch Housing Thrust Clearance	0.08 ~ 0.33 mm (0.003 ~ 0.013 in)	←
Clutch Release Method	Inner push (Cam push)	←
Push Rod Bending Limit	<0.5 mm (0.02 in)>	←
Kick Starter:		
Kick Starter Type	Ratchet	←
Decompression Device:		
Type	Kick synchronous	←
Cable Free Play	3 ~ 5 mm (0.12 ~ 0.20 in)	←
Air Filter Oil Grade (Oiled Filter)	Foam-Air-Filter Oil or SAE 10W30 SE motor oil	←

SPECIFICATIONS

Model		XT250		XT350	
Carburetor:					
Type/Manufacturer/Quantity		Y22PV/TK-KIKAKI/1		Y24PV/TK-KIKATI/1	
I.D. Mark		1EU00		55V00	
		Primary carb.	Secondary carb.	Primmary carb.	Secondary carb.
Main Jet	(M.J.)	#120	#110	#120	#102
Main Air Jet	(M.A.J.)	φ1.6	φ0.8	φ0.6	φ1.4
Jet Needle-clip Position	(J.N.)	5C93-3/5	4A70-3/5	5C3A-2/5	4A70-3/5
Main Nozzle	(M.N.)	φ2.595	φ2.600	φ2.610	φ2.600
Pilot Jet	(P.J.)	#38	—	#42	—
Pilot Air Jet	(P.A.J.)	φ1.0	—	φ1.0	—
Pilot Screw (turns out)	(P.S.)	2±1/2	—	3±1/2	—
Valve Seat	(V.S.)	φ2.5	—	φ2.5	—
Starter Jet	($G.S._1$)	#72	—	#72	—
	($G.S._2$)	#78	—	#80	—
Fuel Level	(F.L.)	6.0±1 mm (0.024±0.04 in)		←	
Engine Idling Speed		1,400±50 r/min		←	
Vacuum Pressure at Idling Speed		22.7 kPa (170 mmHg, 6.7 inHg)		29.3 kPa (220 mmHg, 8.7 inHg)	
Lubrication System:					
Oil Filter Type		Wire mesh		←	
Oil Pump Type		Trochoid pump		←	
Tip Clearance		0.15 mm (0.006 in)		←	
Housing and Outer Rotor Clearance		0.03~0.09 mm (0.001~0.004 in)		←	
Side Clearance		0.03~0.09 mm (0.001~0.004 in)		←	
Bypass Valve Setting Pressure		98.07±19.6 kPa (1.0±0.2 kg/cm², (14.22±2.84 psi)		← ←	
Relief Valve Operating Pressure		98.07±19.6 kPa (1.0±0.2 kg/cm², 14.22±2.84 psi)		←	

ENGINE

Tightening torque:		Thread Size	Q'ty	Nm	m•kg	ft•lb	Remarks
Cylinder head	Flange bolt	M10×1.25	4	40	4.0	29	
Cylinder head	Bolt	M 6×1.0	2	10	1.0	7.2	
Cylinder head	Nut	M 8×1.25	2	20	2.0	14	
Spark plug	—	M12×1.25	1	17.5	1.75	12.5	
Camshaft cap	Flange bolt	M 6×1.0	8	10	1.0	7.2	
Cylinder head cover	Bolt	M 6×1.0	5	10	1.0	7.2	
Primary drive gear	Nut	M16×1.0	1	80	8.0	58	Use lock washer
Balancer shaft driven gear	Nut	M16×1.0	1	60	6.0	43	Use lock washer
Flywheel magneto	Bolt	M10×1.25	1	60	6.0	43	
Cam sprocket	Bolt	M 7×1.0	4	20	2.0	14	
Cam chain tensioner	Bolt	M 6×1.0	2	12	1.2	8.7	
Rear cam chain guide	Bolt	M 6×1.0	2	8	0.8	5.8	
Oil pump assembly	Screw	M 6×1.0	3	7	0.7	5.1	
Oil pump cover	Screw	M 6×1.0	1	7	0.7	5.1	
Oil strainer plug	—	M35×1.5	1	32	3.2	23	
Oil filter cover	Bolt	M 6×1.0	1	10	1.0	7.2	
Oil filter cover	Screw	M 6×1.0	2	7	0.7	5.1	
Oil filter cover air bleed	Screw	M 5×0.8	1	5	0.5	3.6	
Drain plug	Bolt	M14×1.25	1	43	4.3	31	
Carburetor joint	Bolt	M 6×1.0	4	12	1.2	8.7	
Air filter body	Bolt	M 6×1.0	4	8	0.8	5.8	
Exhaust pipe flange	Bolt	M 6×1.0	4	12	1.2	8.7	
Exhaust pipe protector	Screw	M 6×1.0	2	10	1.0	7.2	Apply LOCTITE
Muffler protector	Screw	M 6×1.0	2	7	0.7	5.1	Apply LOCTITE
Muffler clamp	Flange bolt	M 8×1.25	1	20	2.0	14	
Muffler mount	Bolt	M 8×1.25	2	27	2.7	19	
Crankcase	Screw	M 6×1.0	14	7	0.7	5.1	
Left crankcase cover	Screw	M 6×1.0	6	7	0.7	5.1	
Right crankcase cover	Screw	M 6×1.0	9	7	0.7	5.1	
Clutch cable bracket	Screw	M 6×1.0	1	7	0.7	5.1	
Balancer bearing retainer	Screw	M 6×1.0	2	7	0.7	5.1	Apply LOCTITE
Kick crank	Bolt	M 8×1.25	1	2	2.0	14	
Clutch spring	Screw with washer	M 6×1.0	4	8	0.8	5.8	
Clutch boss	Nut	M16×1.0	1	60	6.0	43	
Push lever stopper	Screw	M 8×1.25	1	12	1.2	8.7	

SPECIFICATIONS

Tightening torque:		Thread Size	Q'ty	Nm	m•kg	ft•lb	Remarks
Clutch adjuster lock	Nut	M 6×1.0	1	8	0.8	5.8	
Drive chain sprocket (Front)	Bolt	M 6×1.0	2	10	1.0	7.2	
Shift cam segment	Torx	M 6×1.0	1	12	1.2	8.7	Apply LOCITIE
Change pedal	Bolt	M 6×1.0	1	8	0.8	5.8	
CDI magneto base	Screw	M 6×1.0	2	7	0.7	5.1	
Neutral switch	—	M10×1.25	1	20	2.0	14	
Decompression lever stopper	Bolt	M 6×1.0	1	8	0.8	5.8	
Tensioner cap	Flange bolt	M 6×1.0	1	6	0.6	4.3	
Oil pipe	Union bolt	M10×1.25	2	20	2.0	14	
Decompression bracket	Bolt	M 6×1.0	1	8	0.8	5.8	
Decompression lever	Nut	M 6×1.0	1	8	0.8	5.8	

CHASSIS

Model	XT250	XT350
Steering System:		
Steering Bearing Type	Taper roller bearing	←
Front Suspension:		
Front Fork Travel	255 mm (10.04 in)	←
Front Spring Free Length	580 mm (22.835 in)	←
<Limit>	<575 mm (22.638 in)>	←
Collar Length	50 mm (1.969 in)	←
Spring Rate/Stroke	K_1 = 3.4 N/mm (0.35 kg/mm, 19.6 lb/in) 0 ~ 272 mm (0 ~ 10.7 in)	←
Oil Capacity or	319 cm^3 (11.2 Imp oz, 10.8 US oz)	←
Oil Grade	Fork oil 10W or equivalent	←
Enclosed Air Pressure		
(Standard)	0 kPa (0 kg/cm^2, 0 psi)	←
(Maximum)	118 kPa (1.2 kg/cm^2, 17 psi)	←
Rear Suspension:		
Shock Absorber Travel	73 mm (2.874 in)	←
Spring Free Length	238.5 mm (9.390 in)	←
Fitting Length	225.5 mm (8.878 in)	←
Spring Rate/Stroke taper coil	K_1 = 63.7 N/mm (6.5 kg/mm, 364 lb/in)/ 0 ~ 63 mm (0 ~ 2.508 in)	←
	K_2 = 83.3 N/mm (8.5 kg/mm, 476 lb/in)/ 63 ~ 86 mm (2.508 ~ 3.386 in)	←
Enclosed Gas Pressure	1.961 kPa (20 kg/cm^2, 284.4 psi)	←
Rear Arm:		
Swing Arm Free Play Limit		
End	<1.0 mm (0.04 in)>	←
Side	<1.0 mm (0.04 in)>	←
Wheel:		
Front Wheel Type	Spoke wheel	←
Rear Wheel Type	Spoke wheel	←
Front Rim Size/Material	1.60 × 21/ Aluminum	←
Rear Rim Size/Material	2.15 × 18/ Aluminum	←
Rim Runout Limit:		
Vertical Front and Rear	<2.0 mm (0.08 in)>	←
Lateral Front and Rear	<2.0 mm (0.08 in)>	←
Drive Chain:		
Type/Manufacturer	428VS/DAIDO	←
Number of links	128 links	←
Chain Free Play	30 ~ 40 mm (1.18 ~ 1.57 in)	←

SPECIFICATIONS

Model	XT250	XT350
Front Brake:		
Type	Single disc	←
Disc Outside Dia. × Thickness	245 × 3.5 mm (9.65 × 0.14 in)	←
<Limit>	<3.0 mm (0.12 in)>	←
Pad Thickness	6.8 mm (0.27 in)	←
<Limit>	<0.8 mm (0.03 in)>	←
Master Cylinder Inside Dia.	11.0 mm (0.4 in)	←
Caliper Cylinder Inside Dia.	34.9 mm (1.37 in)	←
Brake Fluid Type	DOT #3	←
Rear Brake:		
Type	Drum (Leading, Trailing)	←
Drum Inside Dia.	130 mm (5.12 in)	←
<Limit>	<131 mm (5.16 in)>	←
Lining Thickness	4 mm (0.16 in)	←
<Limit>	<2 mm (0.08 in)>	←
Shoe Spring Free Length	36.5 mm (1.44 in)	←
Brake Lever & Brake Pedal:		
Brake Lever Free Play	5 ~ 8 mm (0.2 ~ 0.3 in)/ at lever end	←
Brake Pedal Free Play	20 ~ 30 mm (0.8 ~ 1.2 in)	←
Brake Pedal Position	15 mm (0.6 in) (Vertical height below footrest top.)	←
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in)/ at lever pivot	←

CHASSIS

Tightening torque:	Thread Size	Nm	m • kg	ft • lb	Remarks
Front axle	M14 × 1.5	107	10.7	77.4	Use cotter pin
Steering crown & Inner tube	M 8 × 1.25	23	2.3	17	
Steering stem	M14 × 1.25	54	5.4	39	
Handlebar upper holder	M 8 × 1.25	20	2.0	14	
Steering stem ring nut	M25 × 1.0	10	1.0	7.2	Refer to NOTE
Steering lock & Steering stem	M 6 × 1.0	7	0.7	5.1	
Under bracket & Inner tube	M 8 × 1.25	23	2.3	17	
Front engine bracket & Frame	M 8 × 1.25	33	3.3	24	
Front engine bracket & Engine	M 8 × 1.25	33	3.3	24	
Upper engine stay & Frame	M 8 × 1.25	33	3.3	24	
Upper engine stay & Engine	M 8 × 1.25	33	3.3	24	
Engine rear mounting	M 8 × 1.25	38	3.8	27	
Pivot shaft	M14 × 1.5	85	8.5	61	Apply grease
Rear shock absorber & Frame	M10 × 1.25	32	3.2	23	
Rear shock absorber & Relay arm	M10 × 1.25	32	3.2	23	Apply grease
Connecting rod & Relay arm	M10 × 1.25	32	3.2	23	Apply grease
Relay arm & Swingarm	M12 × 1.25	59	5.9	42.7	Apply grease
Connecting rod & Frame	M10 × 1.25	32	3.2	23	Apply grease
Rear axle	M16 × 1.5	107	10.7	77.4	Use cotter pin
Brake lever & Camshaft	M 6 × 1.0	10	1.0	7.2	(Front and rear brake)
Rear driven sprocket	M 8 × 1.25	30	3.0	22	Use lock washer
Spoke	—	2	0.2	1.4	Front and rear wheels
Footrest	M 8 × 1.25	26	2.6	19	

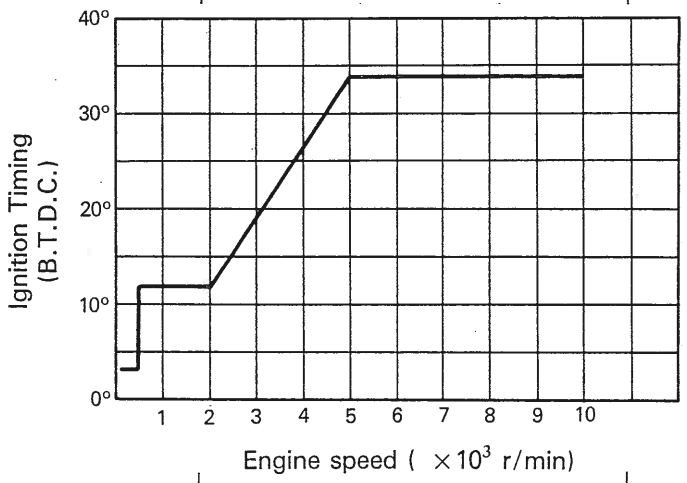
NOTE:

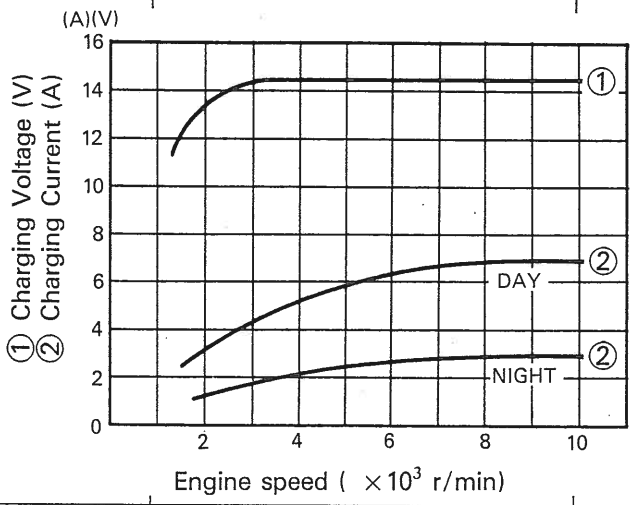
1. First, tighten the ring nut 38 Nm (3.8 m•kg, 27.5 ft•lb) by using the torque wrench, then loosen the ring nut one turn.
2. Retighten the ring nut to specification.

SPECIFICATIONS

ELECTRICAL

Model	XT250	XT350
Voltage	12V	←
Ignition System:		
Ignition Timing (B.T.D.C.)	12 ± 2° at 1,200 r/min	←
Advanced Timing (B.T.D.C.)	34 ± 2° at 5,000 r/min	←
Advancer Type	Electrical	←
C.D.I.:		
Magneto-Model/ Manufacturer	F3T371/ MITSUBISHI	←
Pickup Coil Resistance	221Ω ± 10% at 20°C (68°F)	←
(Color)	(B — W/R)	←
Source Coil Resistance	444Ω ± 10% at 20°C (68°F)	←
(Color)	(Br — B)	←
C.D.I. Unit-Model/ Manufacturer	F8T075/ MITSUBISHI	←
Ignition Coil:		
-Model/ Manufacturer	F6T510/ MITSUBISHI	←
Minimum Spark Gap	6 mm (0.236 in)	←
Primary Winding Resistance	0.79Ω ± 15% at 20°C (68°F)	←
Secondary Winding Resistance	5.9KΩ ± 15% at 20°C (68°F)	←
Spark Plug Cap:		
Type	Resin type	←
Resistance	10KΩ	←
Charging System/ Type	Flywheel magneto	←
F.W. Magneto:		
Charging Current -Day	1.6A or more at 3,000 r/min	←
-Night	3.9A or more at 3,000 r/min	←
Charging Coil Resistance	0.46Ω ± 10% at 20°C (68°F)	←
(Color)	(B — W)	←
Lighting Voltage	12V or more at 1,600 r/min	←



Model	XT250	XT350
Lighting Coil Resistance (Color)	0.39Ω ± 10% at 20°C (68°F) (B — Y)	←
		
Voltage Regulator:		
-Type	Semi conductor	←
-Model/Manufacturer	SU231Y/STANLEY	←
-No Load Regulated Voltage		
(Battery Side)	14.5V	←
(Light Side)	13.5V	←
Rectifier:		
-Model/Manufacturer	SU231Y/STANLEY	←
Battery:		
Capacity	12V 3AH	←
Specific Gravity	1.280	←
Horn:		
Type/Quantity	Plain type × 1	←
Model/Manufacturer	MF-12/NIKKO	←
Maximum Amperage	2.5A	←
Flasher Relay:		
Type	Condenser type	←
Model/Manufacturer	FZ249SD/NIPPONDENSO	←
Flasher Frequency	85 ± 10 cycle/min	←
Wattage	21W × 2 + 3.4W	←
Circuit Breaker:		
Type	Non fuse breaker	←
Amperage for Individual Circuit/Quantity		
Main	10A × 1	←

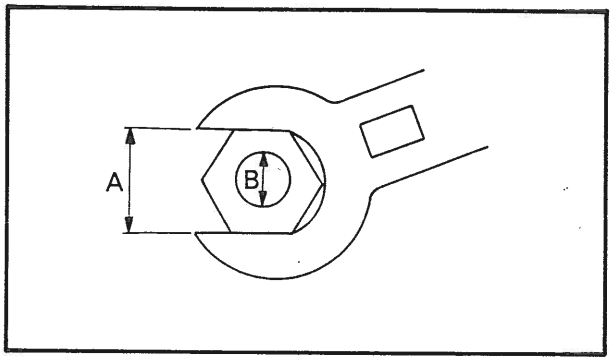
7

GENERAL TORQUE SPECIFICATION DEFINITION OF UNITS

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 multifastener 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

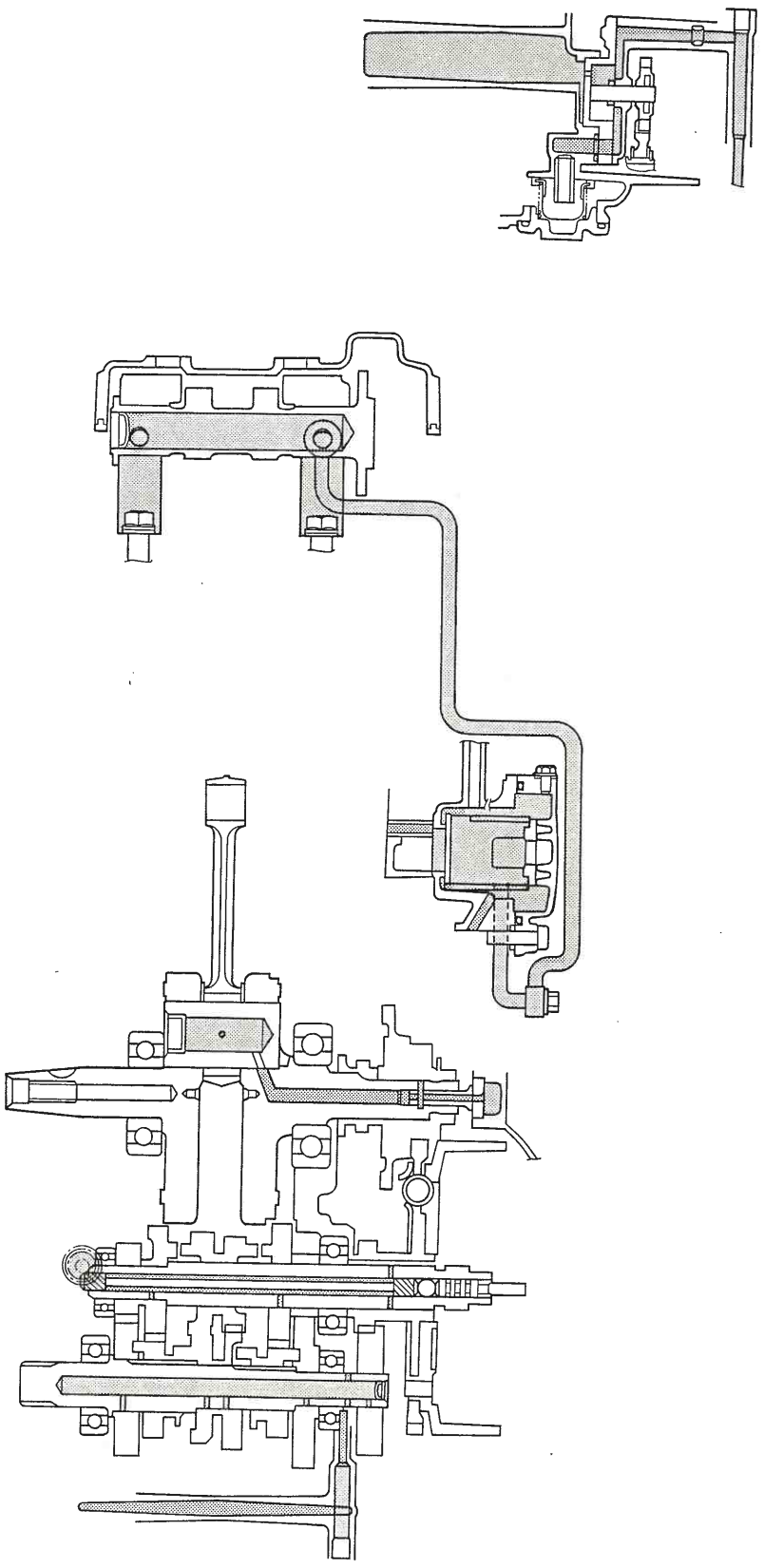


A: Distance cross flats
B: Outside thread diameter

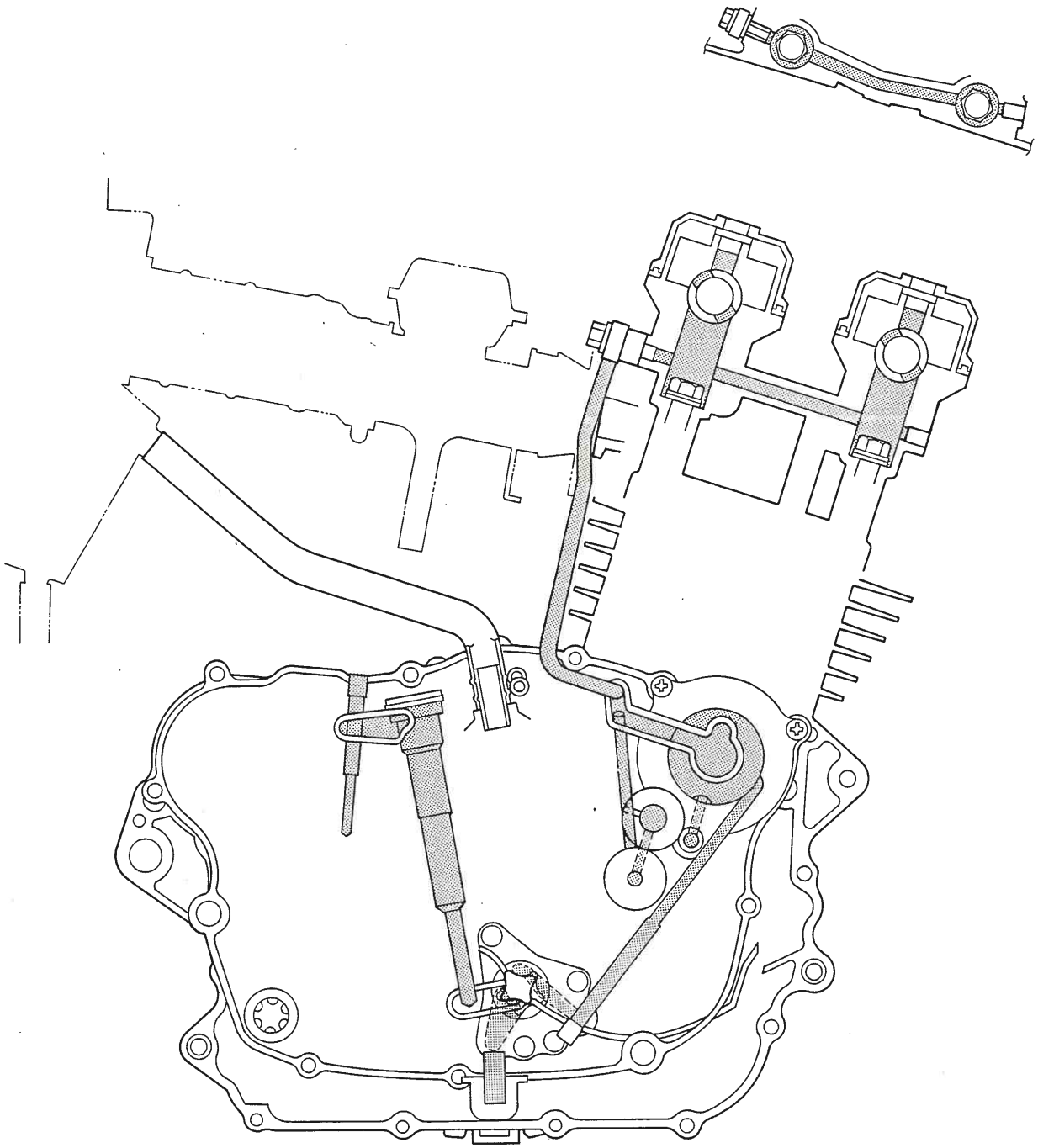
DEFINITION OF UNITS

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

LUBRICATION DIAGRAM

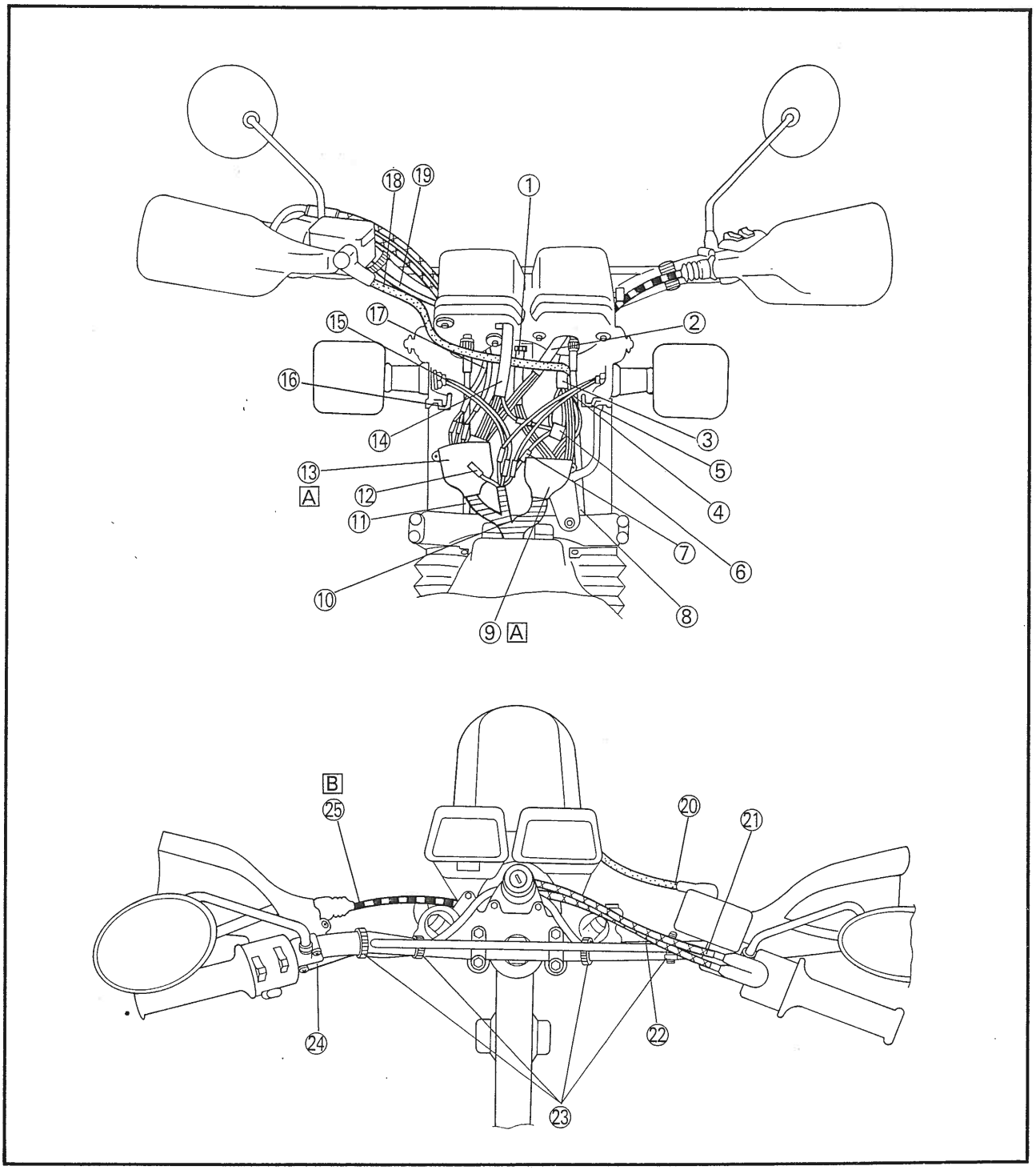


LUBRICATION DIAGRAM



CABLE ROUTING

① Main switch lead
② Speedometer lead
③ Handlebar switch lead
④ Flasher (L) lead
⑤ Clamp
⑥ Socket head lamp
⑦ Auxiliary light ground lead
⑧ Speedometer cable
⑨ Connecter cover (L)
⑩ Wire harness
⑪ Tachometer cable
⑫ Auxiliary light lead
⑬ Connecter cover (R)
⑭ Tachometer lead
⑮ Flasher (R) lead
⑯ Clamp
⑰ Engine stop switch lead
⑱ Brake hose
⑲ Front brake switch lead
⑳ Brake hose
㉑ Throttle cable 2
㉒ Engine stop switch lead
㉓ Band
㉔ Handlebar switch lead
㉕ Clutch cable
[A] After connecting the leads, hook them onto the clamp.
(The lead with the white tape its the left side.)
Pass the lead through the spiral clamp.
[B] Route the lead outside the handle crown.



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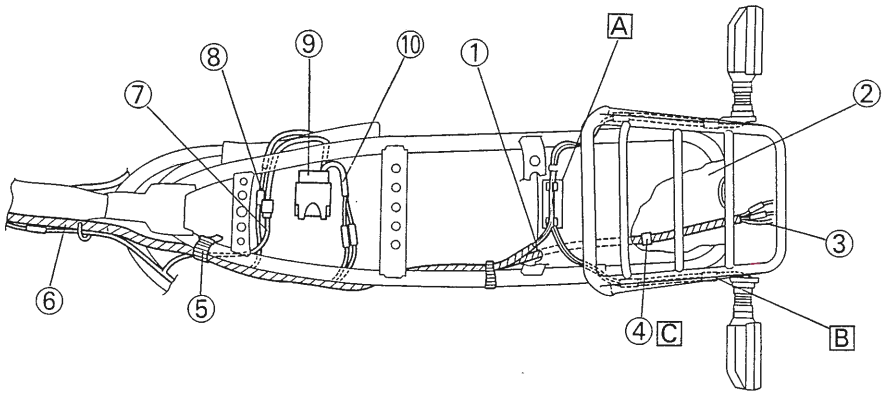
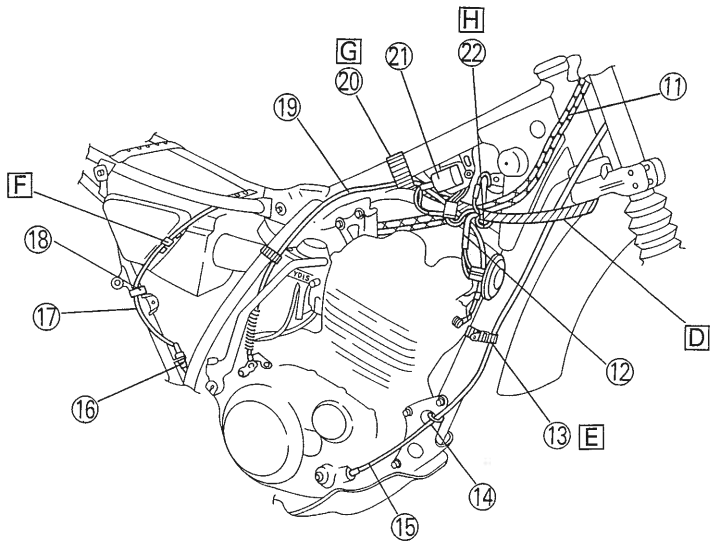
CABLE ROUTING

① Flasher light lead
② License plate bracket
③ Taillight lead
④ Clamp
⑤ Band
⑥ Wire harness
⑦ Flywheel magneto lead
⑧ Rear brake switch lead
⑨ C.D.I. unit
⑩ C.D.I. unit lead
⑪ Throttle cable ass'y 2
⑫ Horn lead
⑬ Band
⑭ Cable guide
⑮ Tachometer cable
⑯ Rear brake switch
⑰ Rear brake switch lead
⑱ Clamp
⑲ Decomp. cable
⑳ Band
㉑ Flasher relay
㉒ Ground lead

[A] After connecting the lead, put it into the recess in the rear fender.
[B] Hold the lead with four clamps.
[C] Only when the model is the 55V.
[D] Pass the tachometer cable inside of the wire harness.
[E] Clamp the tachometer cable toward the front.
[F] Clamp the lead out on the air filter.
[G] Clamp the wire harness and the de-compresion cable.
[H] Secure the ground lead to the ignition coil.

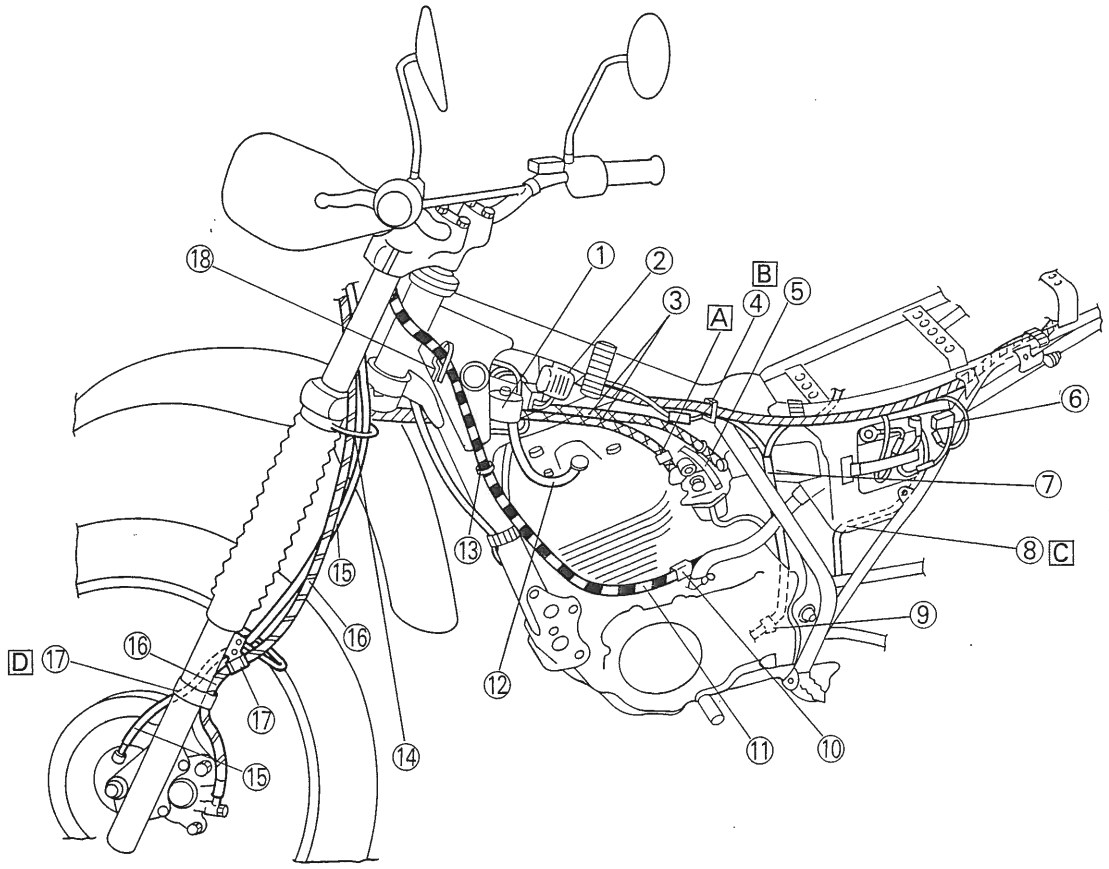




CABLE ROUTING

① Ignition coil
② Rectifier/regulator
③ Throttle cable ass'y 2
④ Cable guide
⑤ Fuel pipe
⑥ Non-fuse breaker
⑦ Flywheel magneto lead
⑧ Battery breather hose
⑨ Clamp
⑩ Holder
⑪ Clutch cable
⑫ High tension cord
⑬ Cable guide
⑭ Boots band
⑮ Speedometer cable
⑯ Brake hose
⑰ Cable holder
⑱ Cable guide

[A] The cable with the grey tape is the pull-back cable.
[B] Align the wire harness white tape with the wire guide.
[C] Pass the battery breather hose through the clamp and let it hang to the left side of the relay arm.
[D] Clamp the brake hose and speedometer cable and secure it, together with the cover (disk).



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