YAMAHA

# XV700L/LC
# XV1000L/LC

# Service Manual

LIT-11616-04-13

**XV700L/LC**
**XV1000L/LC**
**SERVICE MANUAL**

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YAMAHA MOTOR CORPORATION, U.S.A.
CYPRESS, CALIFORNIA 90630

**LIT-11616-04-13**

# 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.

**OVERSEAS SERVICE**
**OVERSEAS 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 motercycle.

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

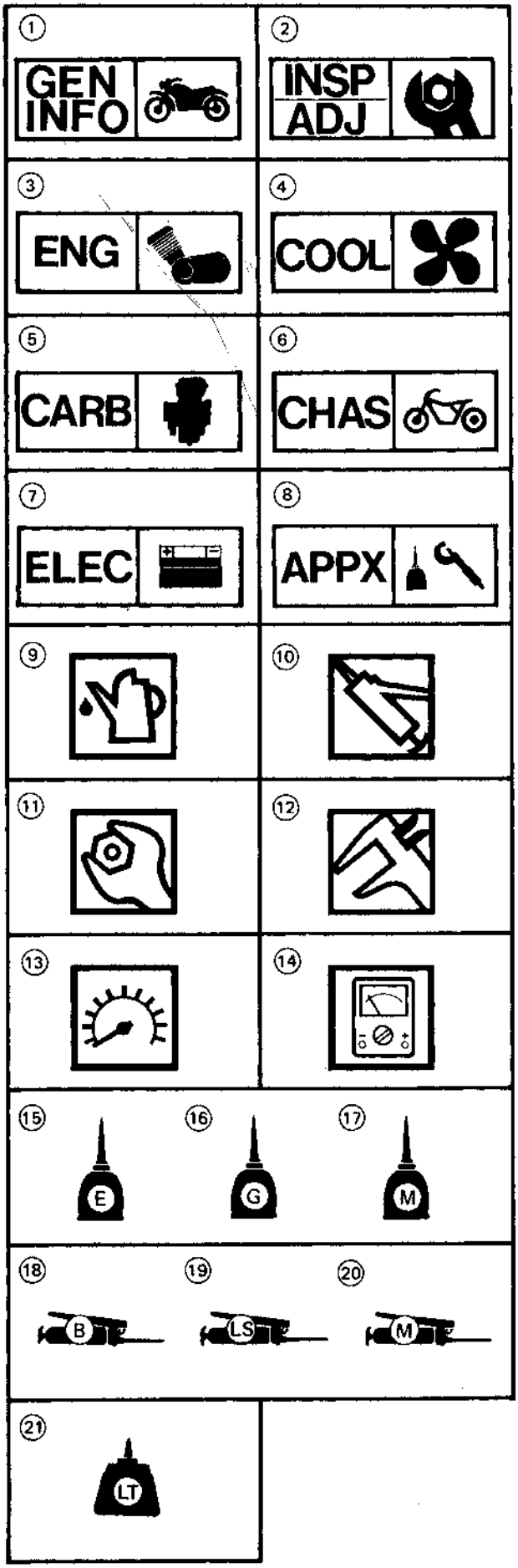
## MANUAL FORMAT

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

- Bearings
  Pitting/Damage → Replace.

## EXPLODED DIAGRAM

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




## SYMBOL MARKS
## (Refer to the illustration)

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

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

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

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

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

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

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

**gĕn·ū·ĭne**

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

GENUINE **YAMAHA** PARTS & ACCESSORIES

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

# INDEX

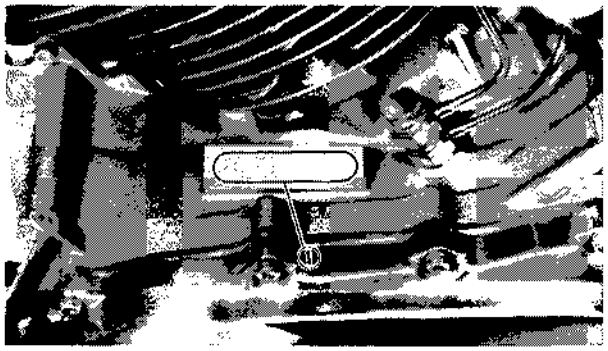

| | |
|---|---|
| GENERAL INFORMATION | GEN INFO 1 |
| PERIODIC INSPECTIONS AND ADJUSTMENTS | INSP ADJ 2 |
| ENGINE OVERHAUL | ENG 3 |
| CARBURETION | CARB 4 |
| CHASSIS | CHAS 5 |
| ELECTRICAL | ELEC 6 |
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# CHAPTER 1.
# GENERAL INFORMATION

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LOCK WASHERS/PLATES AND COTTER PINS ..... 1-2
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# GENERAL INFORMATION

## MOTORCYCLE IDENTIFICATION

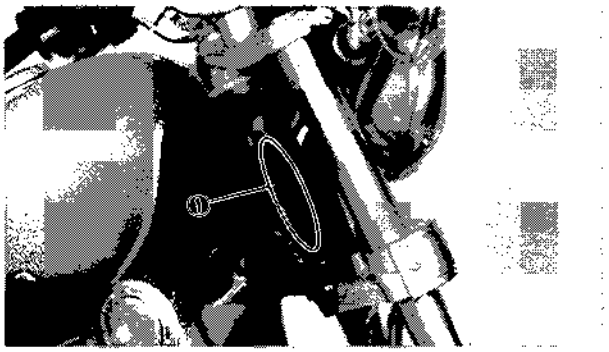
### ENGINE SERIAL NUMBER

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

NOTE:

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

| Starting Serial Number: | |
|---|---|
| XV700L | 42W-000101 |
| XV700LC | 42X-000101 |
| XV1000L | 42G-000101 |
| XV1000LC | 42H-000101 |



### VEHICLE IDENTIFICATION NUMBER

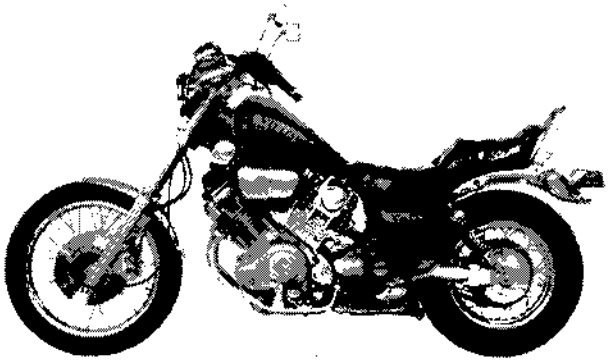
The vehicle identification number ① is on the left side of the steering head pipe.

| Starting Serial Number: | |
|---|---|
| XV700L | JYA42W00 * EA000101 |
| XV700LC | JYA42X00 * EA000101 |
| XV1000L | JYA42G00 * EA000101 |
| XV1000LC | JYA42H00 * EA000101 |

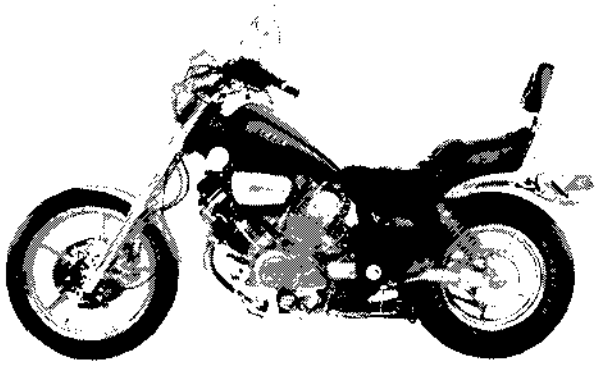
NOTE:

Designs and specifications are subject to change without notice.

XV700L/LC



XV1000L/LC



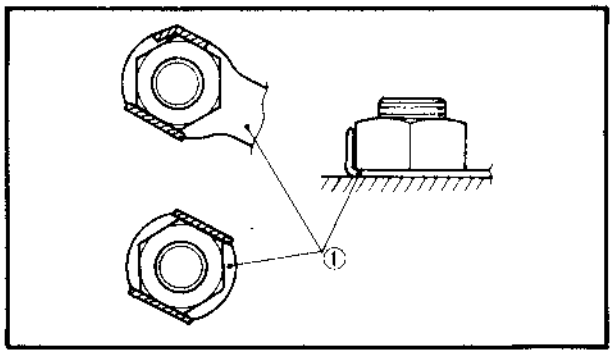
# IMPORTANT INFORMATION

## ALL REPLACEMENT PARTS

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

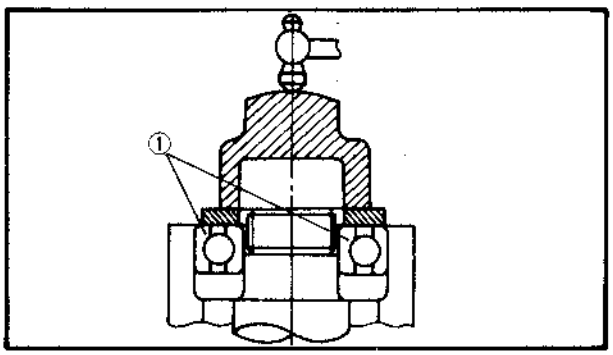
## GASKETS, OIL SEALS, AND O-RINGS

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



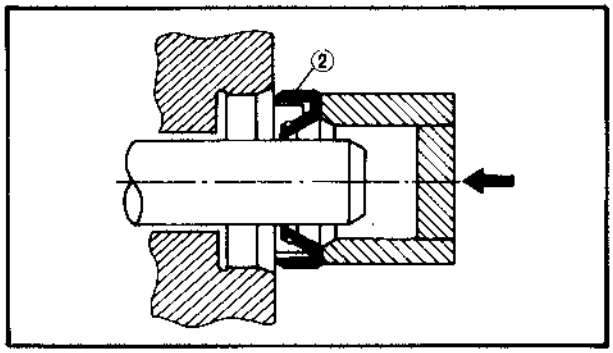

## LOCK WASHERS/PLATES AND COTTER PINS

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



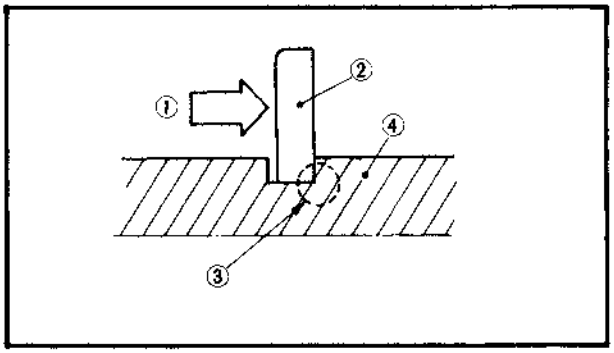

## BEARINGS AND OIL SEALS

1. Install the bearing(s) 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.**



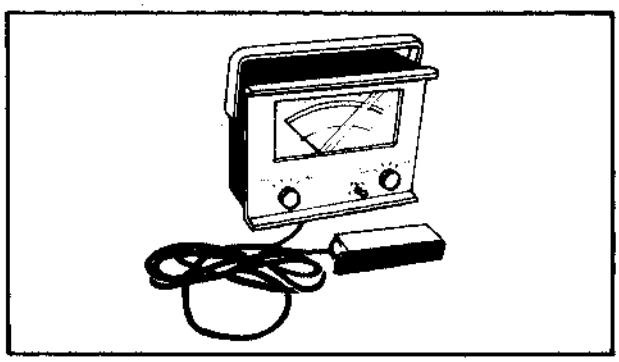

### CIRCLIPS

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

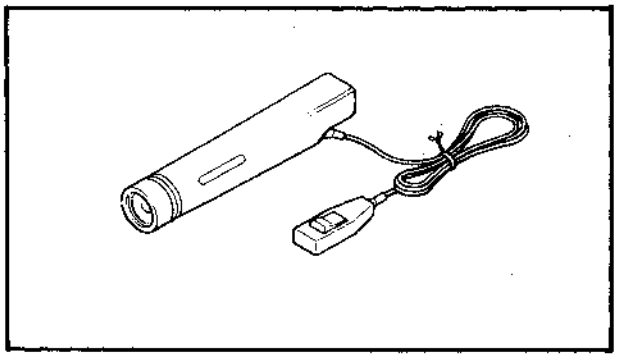
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



### FOR TUNE UP

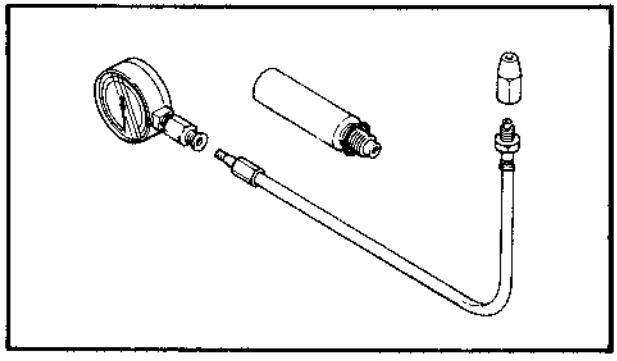
1. Tachometer
   P/N YU-08036

This tool is needed for detecting engine rpm.



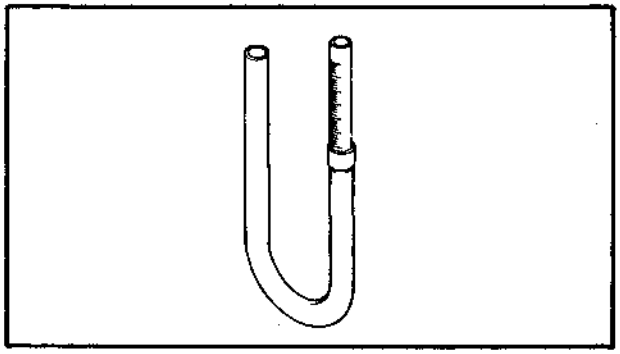
2. Timing Light
   P/N YM-33277

This tool is necessary for adjusting timing.



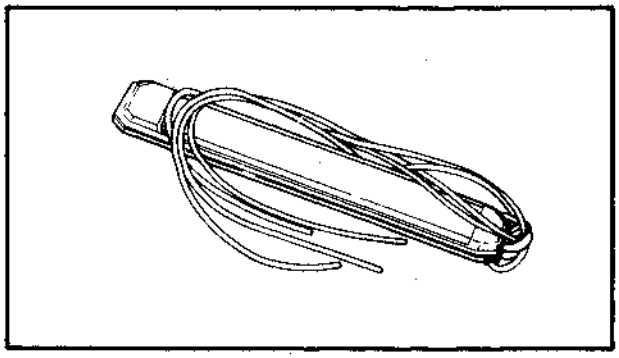
3. Compression Gauge
   P/N YU-33223

This gauge is used to measure engine compression.



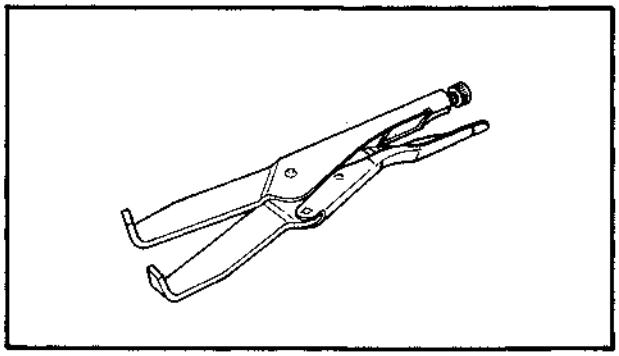
4. Fuel Level Gauge
   P/N YM-01312

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



5. Vacuum Gauge
   P/N YU-08030

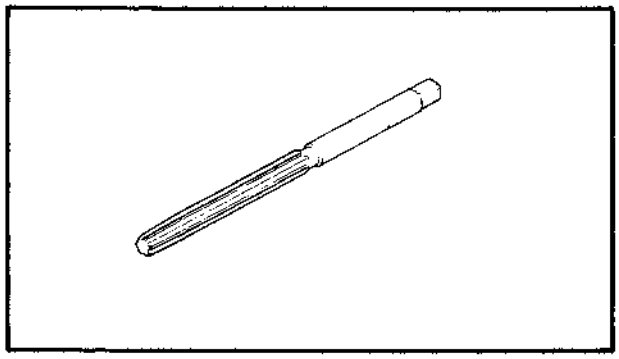
This gauge is needed for carburetor synchronization.



**FOR ENGINE SERVICE**

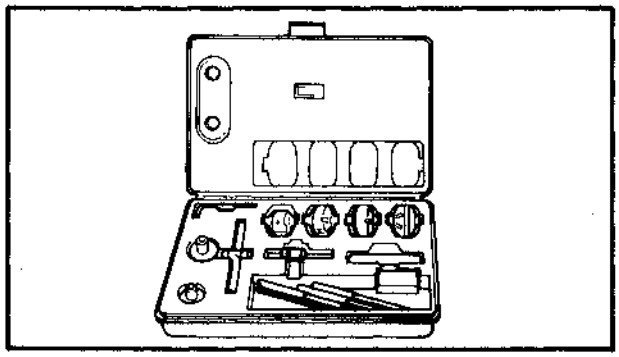
1. Clutch Hub Holder
   P/N YM-91042

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



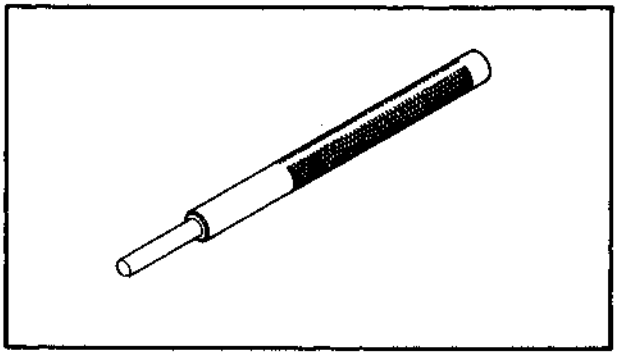
2. Valve Guide Reamer
   P/N YM-01211

This tool is used to rebore the new valve guide.



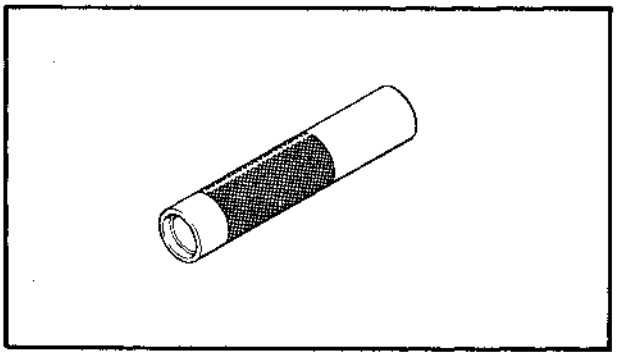
3. Valve Seat Cutter
   P/N YM-91043

This tool is needed to resurface the valve seat.



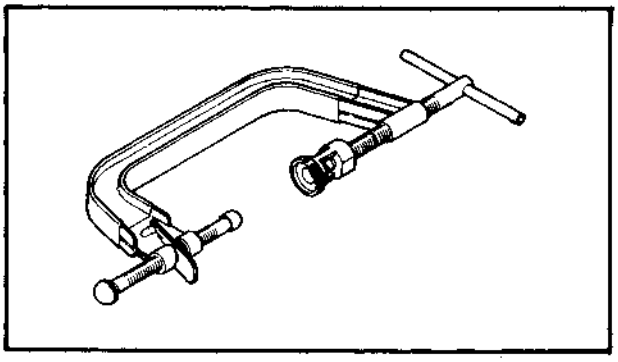
4. Valve Guide Remover
P/N YM-01200

This tool is used to remove the valve guides.



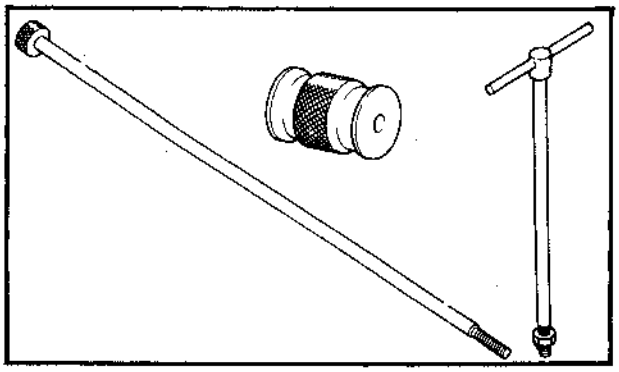
5. Valve Guide Installer
P/N YM-01201

This tool is needed to install the valve guides properly.



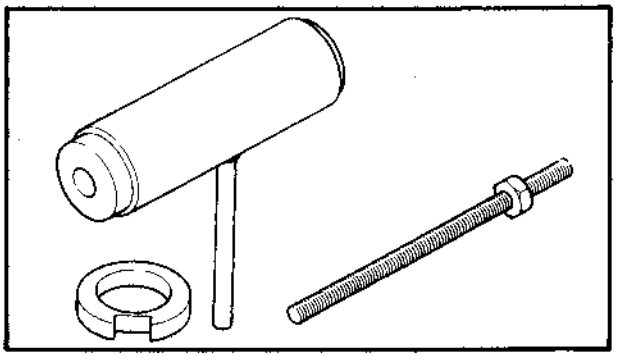
6. Valve Spring Compressor
P/N YM-04019

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



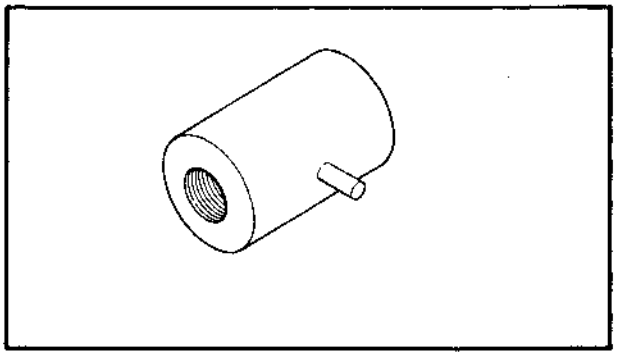
7. Slide Hammer
P/N YU-01083

These tools are used when removing the rocker arm shaft.



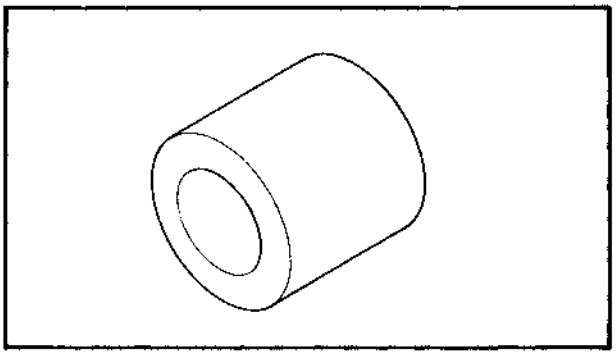
8. Crankshaft Installing Set
P/N YU-90050

Thses tool are used when installing the crankshaft and the oil pump drive sprocket, and for removing the final-gear drive pinion.



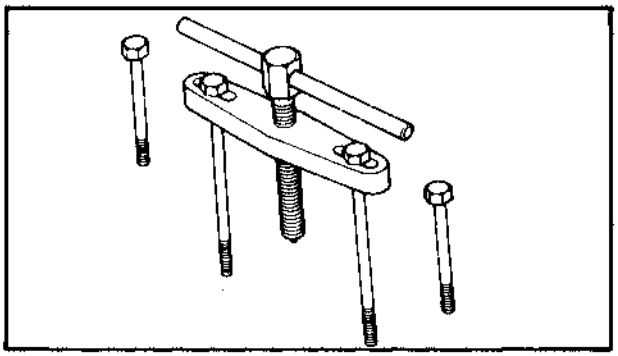
9. Crankshaft Installer Adapter
   P/N YM-90069

This tool is needed for installing the crankshaft, and removing the final gear drive pinion.



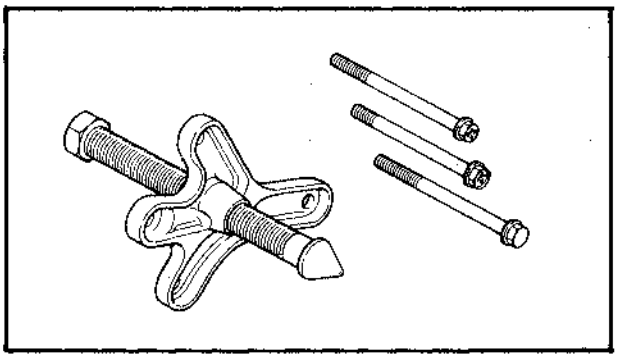
10. Crankshaft Spacer
    P/N YM-90070-A

This tool is used when installing the crankshaft.



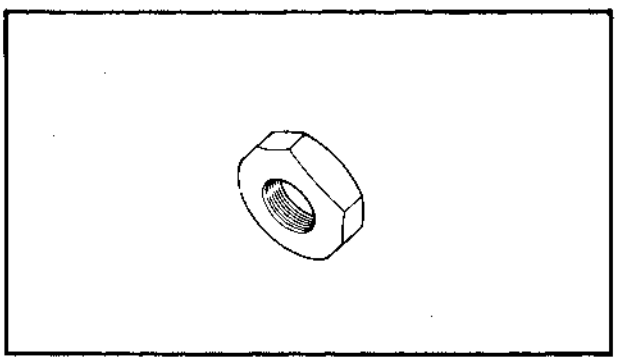
11. Crankcase Separating Tool
    P/N YU-01135

This tool is used for separating the crankcase and removing the crankshaft.



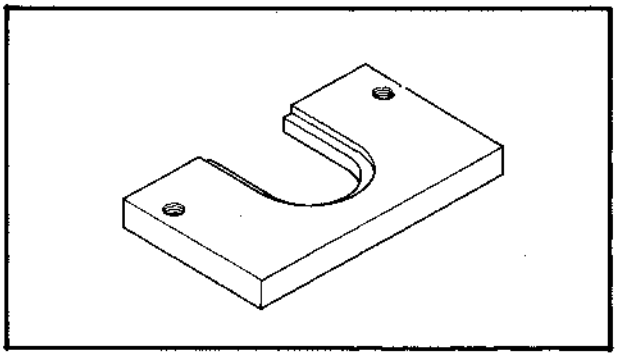
12. Heavy-Duty Universal Puller
    P/N YU-33270

This tool is used to remove the flywheel.



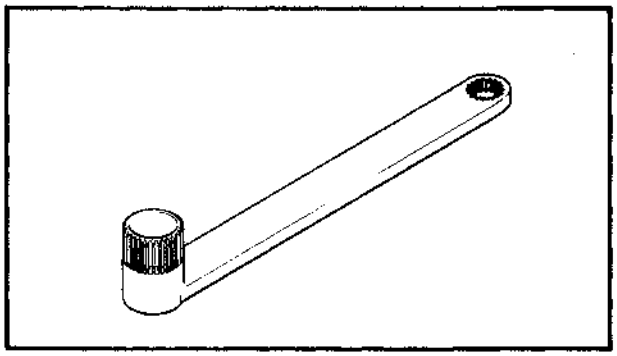
13. Crankshaft Protector
    P/N YM-04063

This tool is used to protect the threads on the crankshaft when removing the flywheel.



14. Oil Pump Drive Sprocket Puller
P/N YM-04061

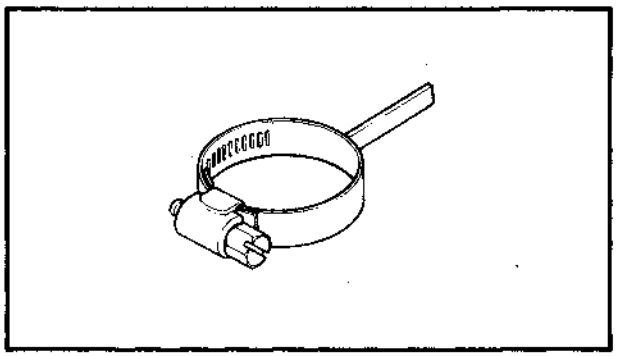
This tool is used to remove the oil pump drive sprocket.



**FOR SHAFT DRIVE SERVICE**

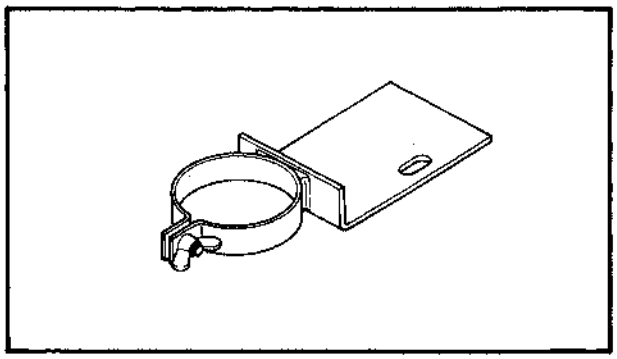
1. Middle and Final Gear Holding Tool
P/N YM-01229

This tool is used when measuring gear lash.



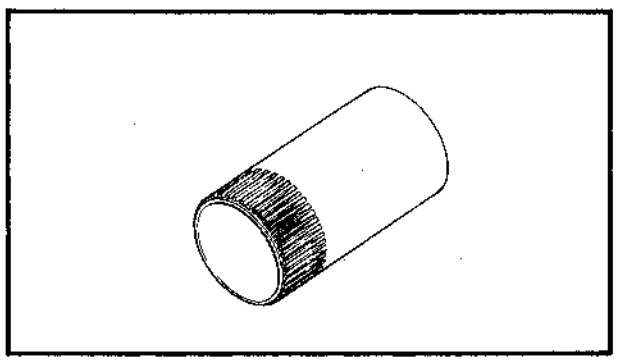
2. Final-Drive Gear Lash Measurement Tool
P/N YM-01230

This tool is used to measure gear lash.



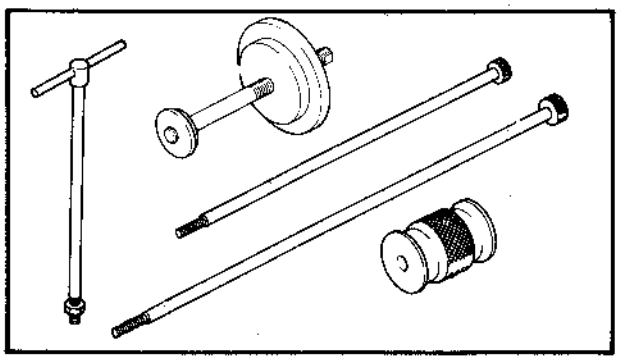
3. Middle-Drive-Shaft Retainer
P/N YM-04056

This tool is used to hold the middle gear when measuring gear lash.



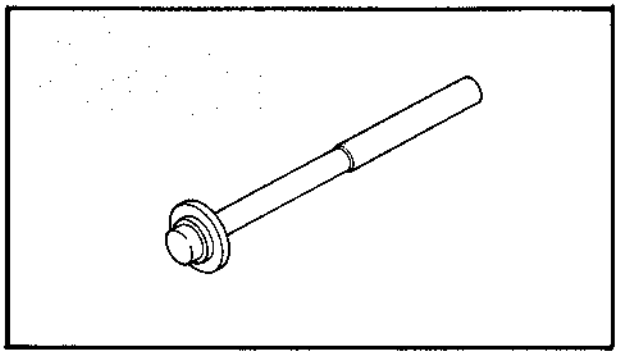
4. Middle-Drive-Shaft-Bearing-Retainer Wrench
P/N YM-04057

This tool is used to loosen or tighten the bearing retainer.



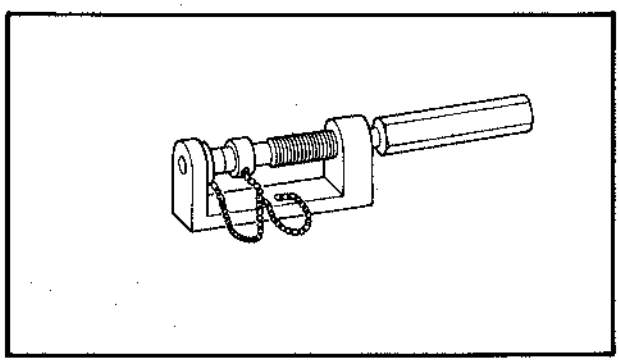
5. Middle-Driven-Shaft Bearing Remover Attachment
   P/N YM-04069
   Slide Hammer Set
   P/N YU-01047

This tool is used when removing the middle-driven-shaft bearing.



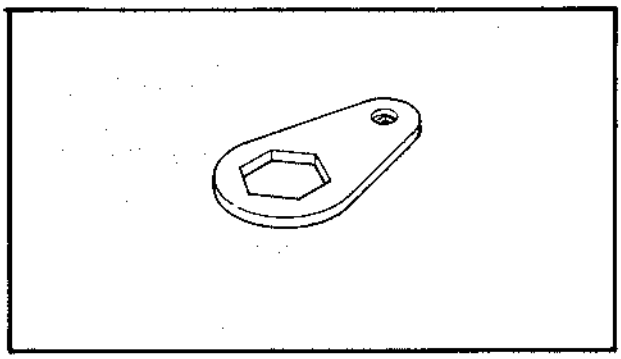
6. 40 ~ 50 mm Bearing Driver
   P/N YM-04058

This tools is used to remove the middle-drive-shaft bearing from the crankcase.



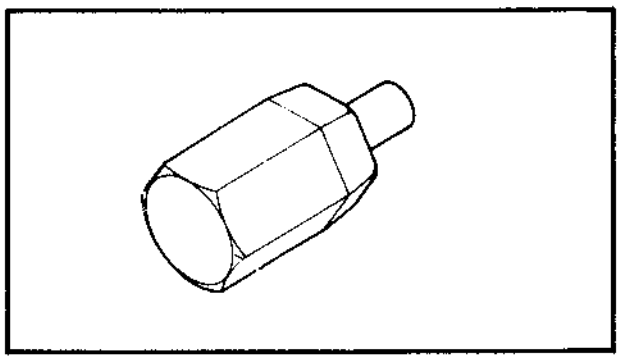
7. Universal Joint Tool
   P/N YM-04062

This tool is used when disassembling/assembling the U-joint and adjusting gear lash.



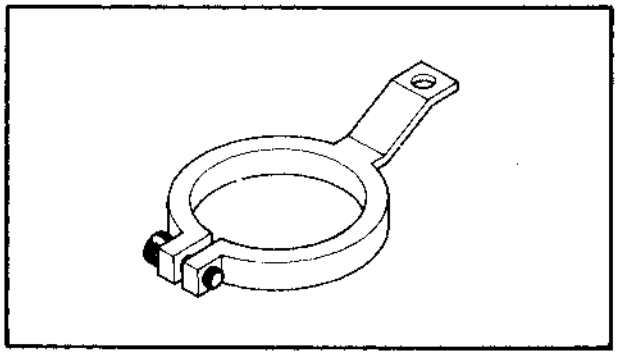
8. 55 mm Offset Wrench
   P/N YM-04054

This tool is used to loosen and tighten the drive shaft nut.



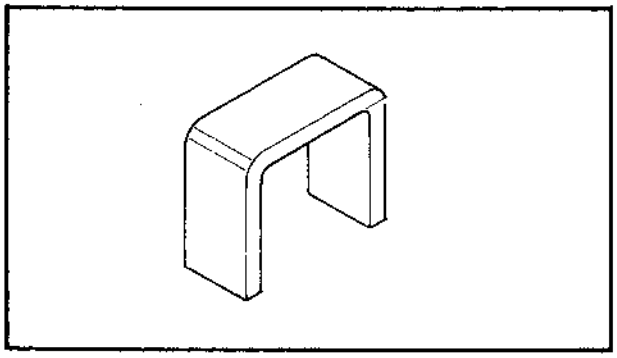
9. Middle-Drive-Shaft Holder
   P/N YM-04055

This tool is needed when loosening and tightening the drive shaft nut.



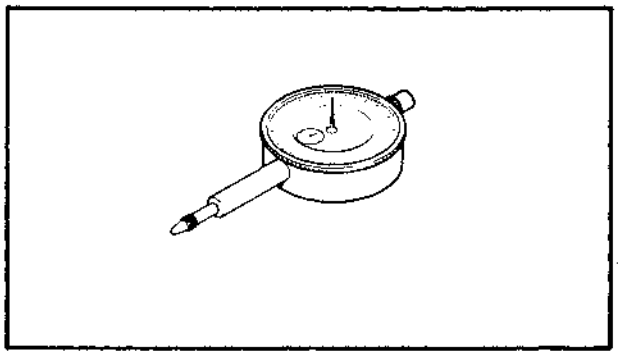
10. Ring Gear Holder
P/N YM-01254

This tool is needed when measuring gear lash.



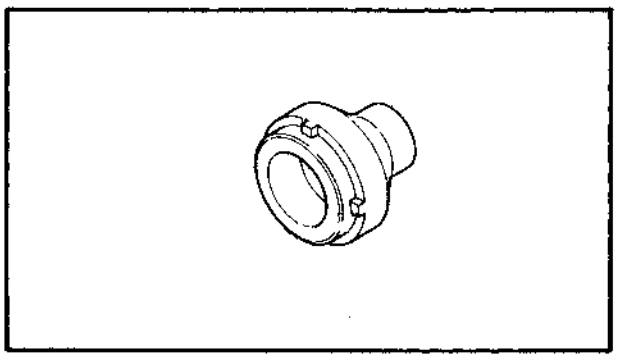
11. Damper Compressor
P/N YM-04011

This tool is needed to disassemble and reassemble the middle gear damper.



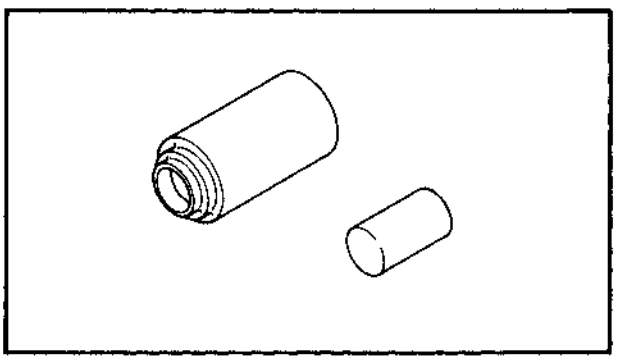
12. Dial Indicator
P/N YU-03097

This gauge is used to measure gear lash.



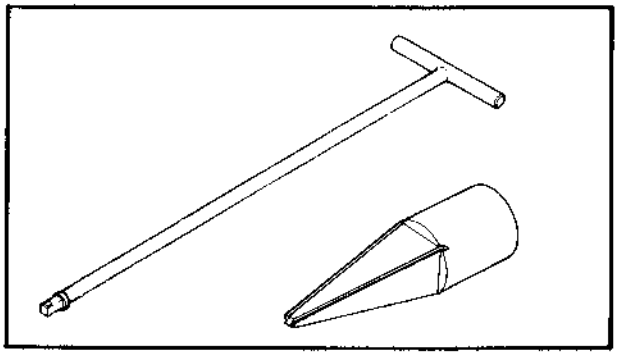
13. Pinion Bearing Retainer Wrench
P/N YM-40450

This tool is used to remove and install the bearing retainer.



14. Final Drive Collar, Bearing, and Seal Driver Set
P/N YM-01255

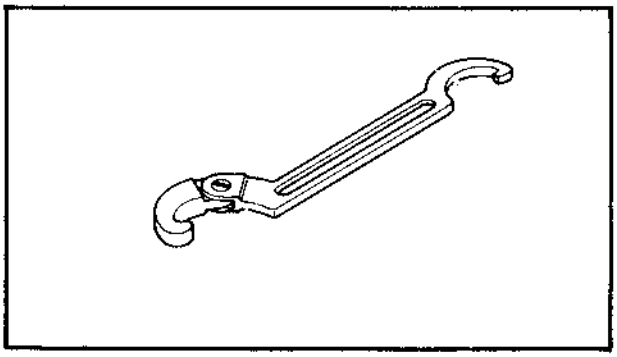
These tools are used when removing and installing the final drive collar, bearing, and seal.



## FOR CHASSIS SERVICE

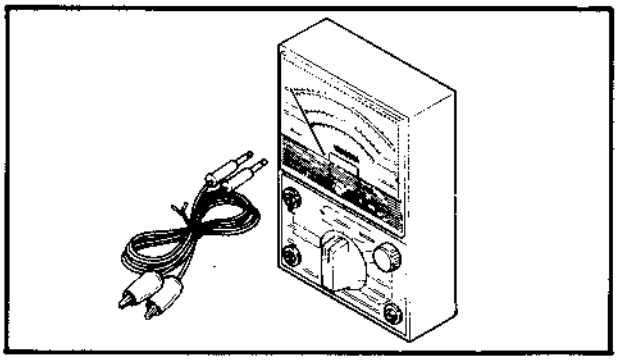
1. T-Handle
   YM-01326
   Fork Damper
   Rod Holder
   YM-01300-1

These tools are used to loosen and tighten the front fork cylinder holding bolt.



2. Ring Nut Wrench
   P/N YU-01268

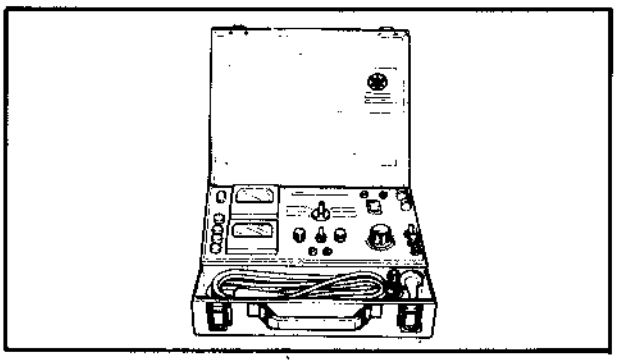
This tool is used to loosen and tighten the steering ring nut.



## FOR ELECTRICAL COMPONENTS

1. Pocket Tester
   P/N YU-03112

This instrument is invaluable for electrical system inspection and adjustment.



2. Electro Tester
   P/N YU-03021

This instrument is necessary for ignition system inspection.

# CHAPTER 2.
# PERIODIC INSPECTIONS AND ADJUSTMENT


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# PERIODIC INSPECTIONS AND ADJUSTMENTS

## INTRODUCTION

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

## PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

Unit: km (mi)

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

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

## GENERAL MAINTENANCE/LUBRICATION

Unit: km (mi)

| No. | Item | Remarks | Type | Initial | Odometer reading | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1,000 (600) or 1 month | **1 7,000 (4,400) or 7 months | **2 13,000 (8,200) or 13 months | **3 19,000 (12,000) or 19 months | **4 25,000 (15,800) or 25 months | 31,000 (19,600) or 31 months |
| 1 | Engine oil | Warmup-engine before draining | See page 21 | O | O | O | O | O | O |
| 2 | Oil filter | Replace | — | O | | O | | O | |
| 3* | Air filter | Clean with compressed air. Replace if necessary. | — | | O | O | O | O | O |
| 4* | Brake system | Adjust free play. Replace pads if necessary. (Front) Replace shoes if necessary. (Rear) | — | O | O | O | O | O | O |
| 5* | Clutch | Adjust free play. | — | O | O | O | O | O | O |
| 6 | Final gear oil | Check oil level and leakage. Replace every 24,000 km (15,000 mi) or 24 months. | SAE 80 API GL-4 hypoid gear oil | Replace | | Check | | O | |

Unit: km (mi)

| No. | Item | Remarks | Type | Initial | Odometer reading | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1,000 (600) or 1 month | **1 7,000 (4,400) or 7 months | **2 13,000 (8,200) or 13 months | **3 19,000 (12,000) or 19 months | **4 25,000 (15,800) or 25 months | 31,000 (19,600) or 31 months |
| 7 | Control and meter cable | Apply chain lube thoroughly | Yamaha chain and cable lube or SAE 10W30 motor oil. | ○ | ○ | ○ | ○ | ○ | ○ |
| 8* | Rear arm pivot bearing | Check bearing assembly for looseness. Moderately repack every 18,000 km (11,400 mi). | Medium weight wheel bearing grease. | | | | Repack | | |
| 9 | Brake/Clutch lever pivot shaft | Apply chain lube lightly. | Yamaha chain and cable lube or SAE 10W30 motor oil. | | ○ | ○ | ○ | ○ | ○ |
| 10 | Brake pedal and change pedal shaft | Lubricate. Apply chain lube lightly. | Yamaha chain and cable lube or SAE 10W30 motor oil. | | ○ | ○ | ○ | ○ | ○ |
| 11* | Center/Side-stand pivots | Check operation and lubricate. Apply chain lube lightly. | Yamaha chain and cable lube or SAE 10W30 motor oil. | | ○ | ○ | ○ | ○ | ○ |
| 12* | Front fork | Check operation and leakage. | — | | ○ | ○ | ○ | ○ | ○ |
| 13* | Steering bearings | Check bearings assembly for looseness. Moderately repack every 24,000 km (15,200 mi). | Medium weight wheel bearing grease. | | ○ | ○ | ○ | Repack | ○ |
| 14* | Wheel bearings | Check bearings for smooth rotation. | — | | ○ | ○ | ○ | ○ | ○ |
| 15 | Battery | Check specific gravity and breather pipe for proper operation. | — | | ○ | ○ | ○ | ○ | ○ |
| 16* | Sidestand switch | Check and clean or replace if necessary. | — | ○ | ○ | ○ | ○ | ○ | ○ |

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

**NOTE:**

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

**Brake fluid replacement:**

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

## ENGINE

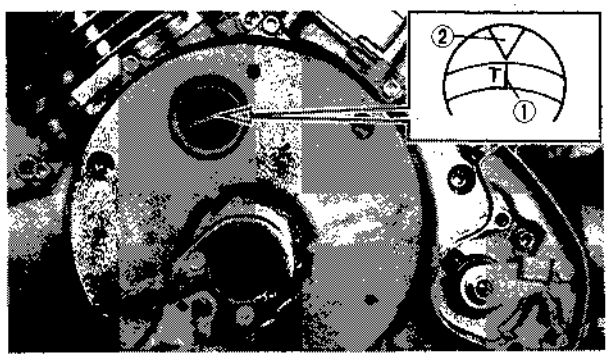
### VALVE CLEARANCE

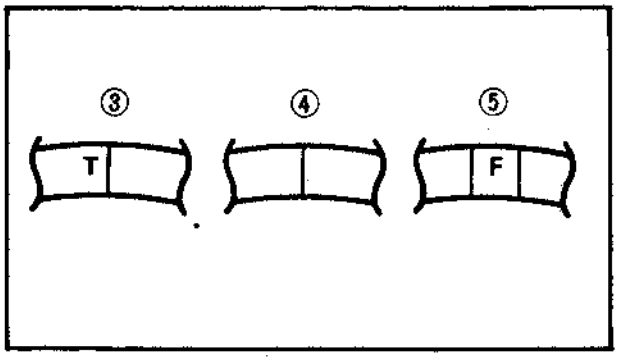
**NOTE:**
Valve clearance must be measured when the engine is cool to the touch.

**Refer to Engine Removal**

1. Remove:
   - Seat
   - Fuel tank
   - Air filter case
   - MCV case
   - Crankcase ventilation hose
   - Intake valve covers
   - Exhaust valve covers

2. Remove:
   - Generator cover
   - Crankshaft end cover
   - Spark plugs



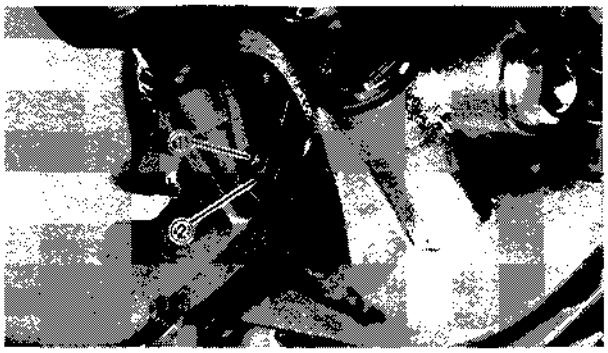




3. Align:
   - Flywheel "T" mark ①
     (with stationary pointer ② )

   When the flywheel "T" (for rear cylinder) or "I" (for front cylinder) mark is aligned with the stationary pointer, the piston is at top dead center (T D C).

**NOTE:**
- Measure and adjust valve clearance when piston is at TDC on compression stroke.
- Note marks on flywheel to obtain correct valve clearance measurements.

③ TDC for rear cylinder
④ TDC for front cylinder
⑤ Firing range for rear cylinder



4. Measure:
   - Valve clearance
     Use feeler gauge.
     Out of specification → Adjust.

**Intake Valve (Cold):**
**0.07 ~ 0.12 mm**
**(0.00276 ~ 0.00472 in)**
**Exhaust Valve (Cold):**
**0.12 ~ 0.17 mm**
**(0.00472 ~ 0.00669 in)**

① Adjuster
② Adjuster locknut

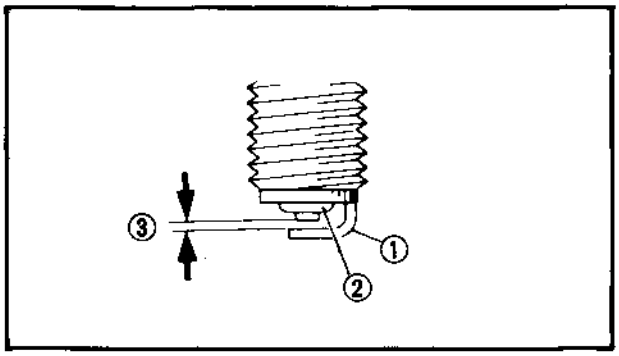
**Valve clearance adjustment steps:**

1. Loosen:
   - Adjuster locknut (On the rocker arm)
2. Rotate:
   - Adjuster
     Turn it clockwise or counterclockwise to obtain correct clearance.
3. Tighten:
   - Locknut

**Adjuster Locknut:**
**27 Nm (2.7 m·kg, 19 ft·lb)**

4. Measure:
   - Valve clearance
     Out of specification → Readjust.

5. Install:
   - Spark plugs
   - Crankshaft end cover
   - Generator cover
   - Exhaust valve covers
   - Intake valve covers
   - MCV case
   - Air filter case
   - Fuel tank
   - Seat




## SPARK PLUG

1. Inspect:
   - Electrode ①
     Damage/Wear → Replace the plug.
   - Insulator color ②
     Incorrect color (not tan) → Replace with specified plug.
   - Plug gap ③

**0.7 ~ 0.8 mm (0.028 ~ 0.031 in)**

Out of specification → Adjust.
Use a wire gauge to adjust plug gap to specification.

**Standard Spark Plug:**
**BP7ES (NGK)**
**W22EP-U (NIPPONDENSO)**

**NOTE:**
- Clean gasket surface before installing plug.
- Eliminate any surface grime from plug.

2. Install:
   - Spark plug

**20 Nm (2.0 m·kg, 14.0 ft·lb)**

**NOTE:**
Screw spark plug in finger-tight, then torque spark plug to proper specification.

## CRANKCASE VENTILATION SYSTEM

1. Inspect:
   - Ventilation pipe (From cam sprocket cover on rear cylinder to frame assembly)
     Cracks/Damage → Replace.

## FUEL LINE

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

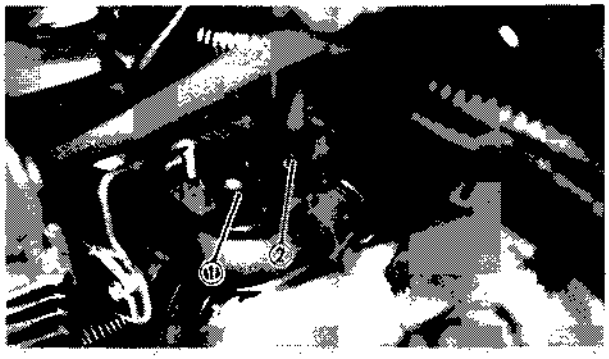
## CARBURETOR SYNCHRONIZATION

Adjust carburetors so that they open and close simultaneously.

**NOTE:**
Set valve clearance properly before synchronizing carburetors.

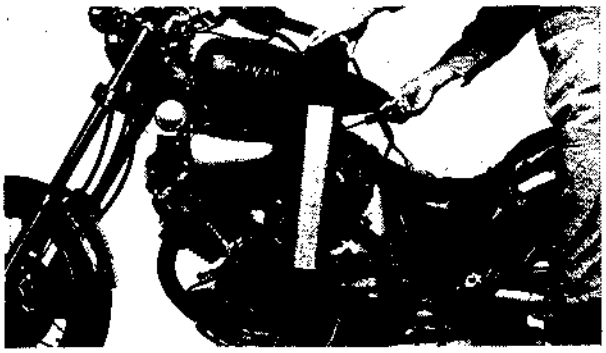
### (XV700)

1. Remove:
   - Seat
2. Disconnect:
   - Smaller diameter hose
   (from the front carburetor joint)
3. Remove:
   - Rubber cap ①
   (from the rear carburetor joint)

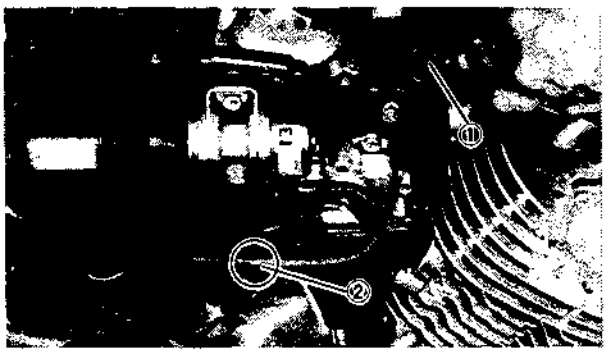


② Synchronizing screw.

4. Connect:
   - Vacuum gauge (YU-05030)
   (to front and rear carburetor joints)
5. Rotate:
   - Fuel cock
   (to "PRI" position)
6. Slightly raise the rear of the fuel tank, then warm up the engine.

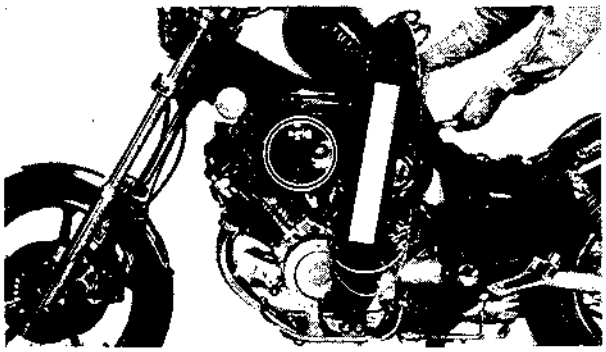


7. Observe:
   - Vacuum gauge readings
     Readings for each carburetor should be identical.
     Readout variation → Adjust synchronizing screw until readouts are identical.
8. Assemble:
   - Components
     Reverse removal steps.

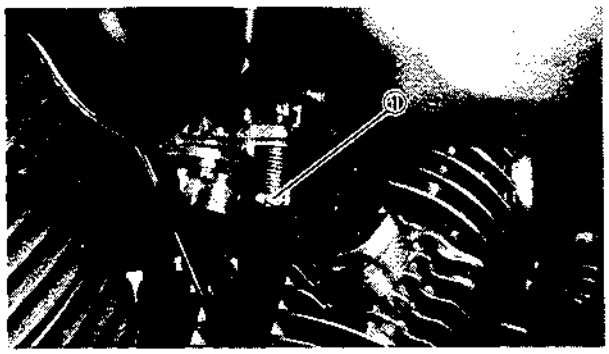


**(XV1000)**

1. Remove:
   - Seat
   - MCV case cover
   - Rubber cap ①
     (from the rear carburetor joint)
2. Disconnect:
   - AIS vacuum hose ②

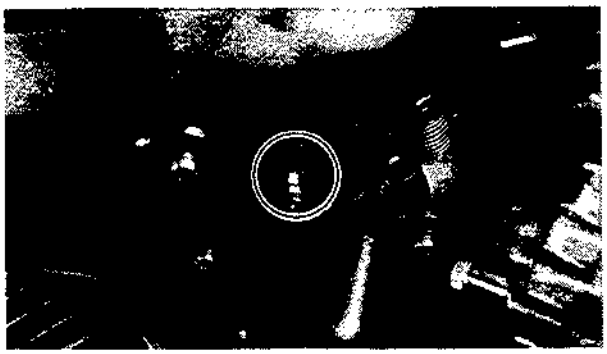


3. Connect:
   - Vacuum gauge (YU-05030)
     (to AIS vacuum joint and carburetor joint)
4. Raise front of fuel tank.
5. Repeat XV700 step 7
   Vacuum Gauge readouts.



**IDLE SPEED**

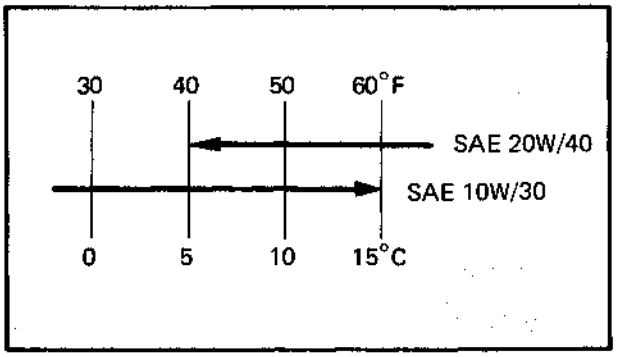
1. Warm up engine for a few minutes.
2. Adjust:
   - Idle speed
     Turn the front carburetor throttle stop screw ① clockwise to increase engine speed and counterclockwise to decrease engine speed.



| | |
|---|---|
| | **950 ~ 1,050 r/min** |

**CAUTION:**

**Never adjust throttle stop screw on rear cylinder carburetor.**




## 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

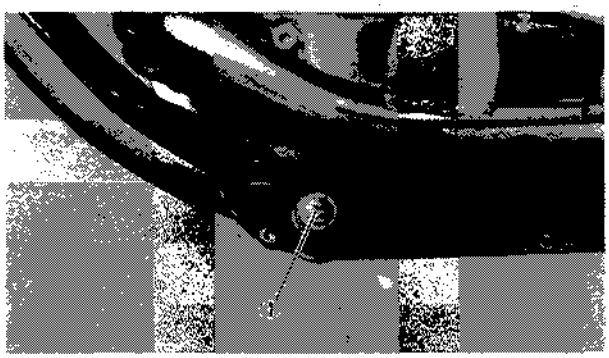
**Oil level measurement steps:**

- Place the motorcycle on its centerstand.
- 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 tilt 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

| | |
|---|---|
| | 43 Nm (4.3 m·kg, 31 ft·lb) |

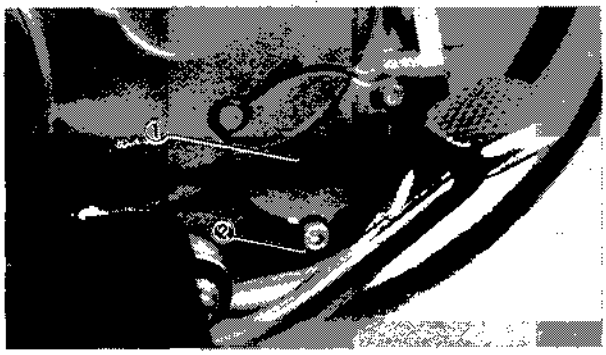
6. Fill:
   - Crankcase (With recommended oil)

| | |
|---|---|
| | 3.0 L (2.6 Imp qt, 3.2 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:
   - Oil filter cover ①
   - Clamp ②
   - Oil filter

2. Install:
   - Oil filter (New)
     Replace periodically as indicated
3. Inspect:
   - O-rings ①
     Cracks/Damage → Replace
4. Install:
   - Drain plug
   - Oil filter cover

| | |
|---|---|
| | **Drain Plug:**<br>**43 Nm (4.3 m·kg, 31 ft·lb)**<br>**Oil Filter Bolt:**<br>**10 Nm (1.0 m·kg, 7.2 ft·lb)** |

5. Fill:
   - Crankcase (With recommended engine oil)

| | |
|---|---|
|  | 3.1 L (2.7 Imp qt, 3.3 US qt) |

6. Warm up engine for a few minutes.
7. Observe:
   - Oil level
     After warm up

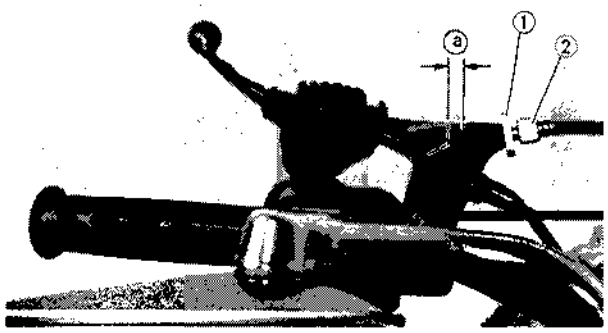
**CAUTION:**

**Check oil pressure after replacing engine oil as follows:**

- **Slightly loosen an oil line union bolt in one of the cylinders.**
- **Start the engine. Keep it idling until oil begins to seep from the loosened union bolt.**
- **Turn the engine off, and tighten the union bolt to specification.**

| | |
|---|---|
|  | Oil Line Union Bolt:<br>20 Nm (2.0 m·kg, 14 ft·lb) |

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




## 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 a :**
**2 ~ 3 mm (0.08 ~ 0.12 in)**

3. Tighten the locknut.



### Mechanism Adjustment

1. Loosen:
   - Clutch cable
2. Remove:
   - Adjuster cover
3. Loosen:
   - Locknut ①
4. Rotate:
   - Adjuster ②
     Turn it clockwise until it lightly seats against clutch push rod.

NOTE:
There is an O-ring on the screw shaft which will cause some resistance. Be sure the screw contacts push rod firmly but lightly.

5. Rotate:
   - Adjuster
     Turn it 1/4 turn counterclockwise.
6. Tighten:
   - Locknut

**CAUTION:**

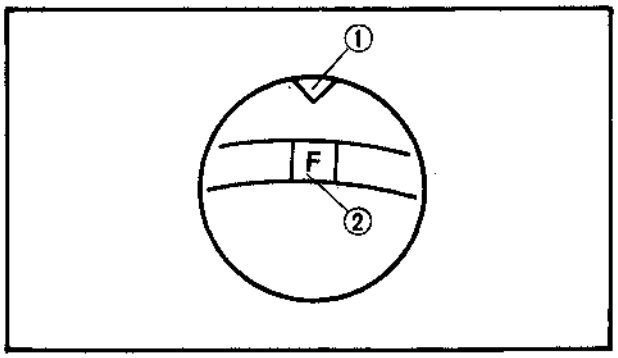
- **Do not operate the clutch lever until the clutch mechanism adjustment is complete.**
- **Reposition steel balls that are not positioned correctly in housing otherwise clutch will not disengage. Remove left side case cover to reposition balls.**

7. Adjust:
   - Clutch lever free paly.

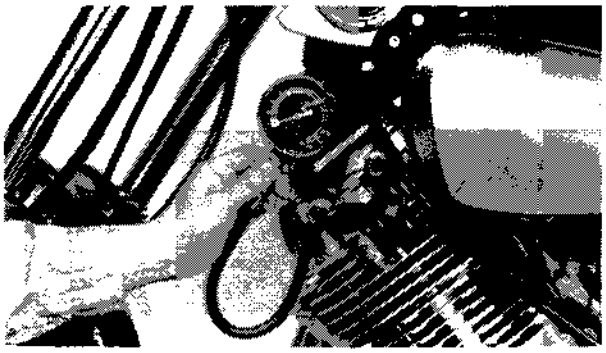
## IGNITION TIMING CHECK

1. Remove:
   - Generator cover
2. Connect:
   - Timing Light (YM-33277)
     (to rear (#1) cylinder spark plug wire)
3. Warm up the engine and allow it to idle at the specified speed. Use the tachometer.

**Engine Speed: 1000 r/min**




4. Observe:
   - Stationary pointer ①
     The pointer 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:
   - Generator cover



### 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 (YU-33223)
5. Measure:
   - Compression

**NOTE:**

Turn over engine with electric starter (be sure battery is fully charged) 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 (at sea level):**
**Standard .... 11 bar (11 kg/cm², 156 psi)**
**Minimum ... 9 bar (9 kg/cm², 128 psi)**
**Maximum ... 12 bar (12 kg/cm², 171 psi)**

6. Repeat steps 4 and 5 for the other cylinders.

**WARNING:**

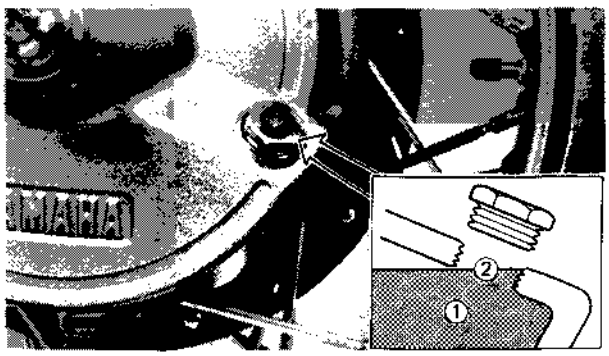
**When cranking engine, ground spark plug wires to prevent sparking.**

**Compression test steps (below minimum levels):**
- Squirt a few drops of oil into affected cylinder.
- Measure compression again.
- A higher reading than before (without oil) may indicate worn or damaged piston.
- If pressure is same after measuring with oil, one or both rings, valves, cylinder head gasket, or piston may be defective.

**Compression test steps (above minimum levels):**

- Check cylinder head, valve surfaces, or piston crown for carbon deposits.
- Check both cylinders. Compression pressure should not vary more than the specified valve from one cylinder to the other.

**Difference Between Each Cylinder:**
**Less than 1 bar (1 kg/cm², 14 psi)**




## CHASSIS

### FINAL GEAR OIL

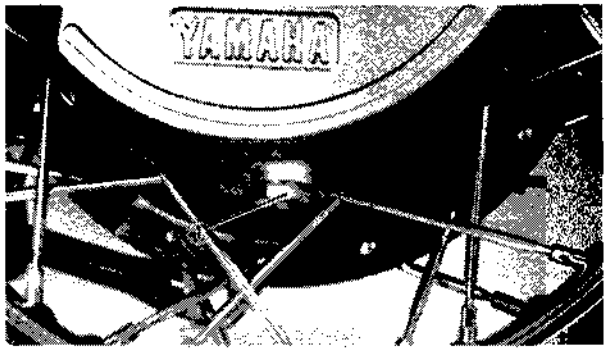
**Oil Level Measurement**

1. Place the motorcycle on a level area and place on its centerstand.
2. Remove:
   - Oil filler cap
3. Observe:
   - Oil level ②
     Low level → Add oil.

① Oil

**NOTE:**
Oil level must be up to the brim of the filler hole.

**CAUTION:**
**Be sure that no foreign material enters the final gear case.**




### Gear Oil Replacement

1. Place a receptacle under the final gear case.
2. Remove:
   - Filler cap
   - Drain plug ①

   Drain final gear oil.
3. Install:
   - Drain plug

| | |
|---|---|
| | **23 Nm (2.3 m·kg, 17 ft·lb)** |

4. Fill
   - Gear case (to specified level.)

| | |
|---|---|
| | **Final Gear Oil:**<br>**SAE 80 API "GL-4" Hypoid gear oil**<br>**Oil Capacity:**<br>**0.20 ℓ (0.18 Imp qt, 0.21 US qt)** |

**NOTE:**
If desired, an SAE 80W90 Hypoid gear oil may be used for all conditions.

5. Install:
   - Filler cap

| | |
|---|---|
| | **23 Nm (2.3 m·kg, 17 ft·lb)** |

### AIR FILTER

1. Remove:
   - Air filter case assembly
   - Screws
   - Air filter case cover
   - Air filter



2. Clean:
   - Air filter
     Use compressed air.

NOTE:
Blow compressed air from inside the filter towards the outside so that dirt will be blown out of filter element.

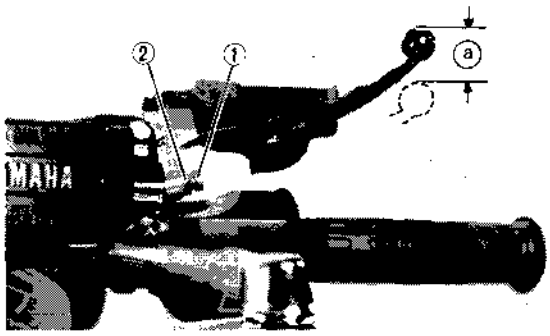
3. Install:
   - Removed parts

NOTE:
Be sure that the air filter is properly seated against the filter case.

## FRONT AND REAR BRAKE

### Front Brake Lever Free Play Adjustment

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

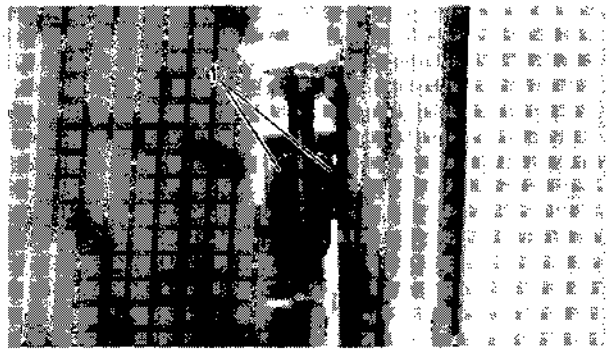



1. Loosen:
   - Adjuster locknut
2. Rotate:
   - Adjuster ①
     Turn it clockwise or counterclockwise until proper lever end free play ⓐ is attained.

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

3. Tighten:
   - Locknut ②

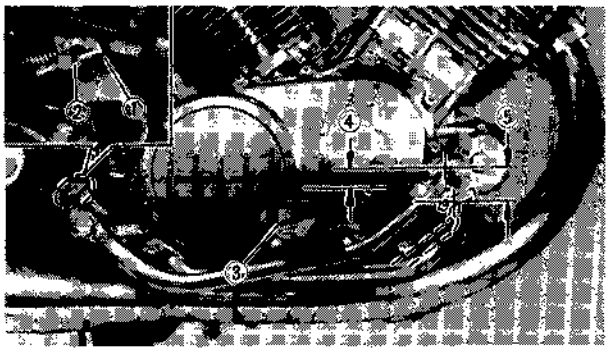
# FRONT AND REAR BRAKE



### Front Brake Pad

1. Activate brake lever
2. Inspect:
   - Wear indicator ①
     Disc plate contact (almost) → Replace both pads.

**Front Brake Pad Wear Limit: 0.5 mm (0.0197 in)**



### Rear Brake Pedal Height Adjustment

1. Loosen:
   - Locknut ②
2. Rotate:
   - Adjuster ①
     Turn it clockwise or counterclockwise until proper brake pedal height ④ is attained.

**Brake Pedal Height: 20 mm (0.8 in)**

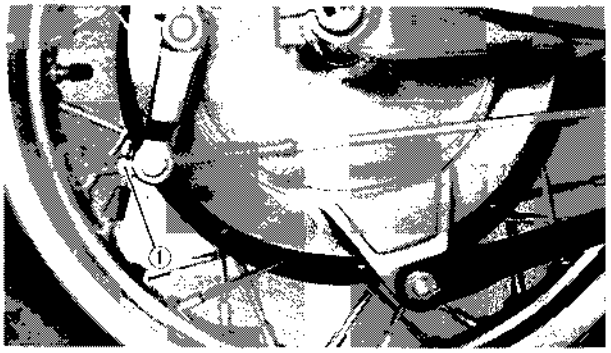
③ Footrest
⑤ Free play

3. Tighten:
   - Locknut

### Rear Brake Pedal Free Play Adjustment

**WARNING:**

**Adjust pedal height, then adjust brake pedal free play.**

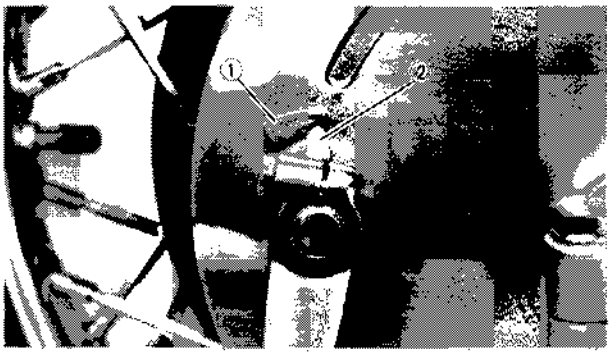



4. Rotate:
   - Adjuster nut ①
     Turn it clockwise or counterclockwise until proper brake pedal free play is attained.

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

**WARNING:**

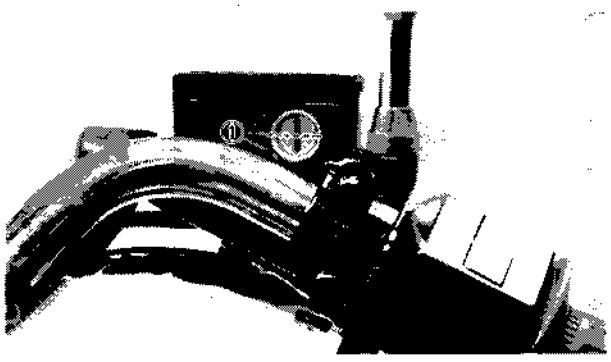
**Check to verify correct brake light operation after adjustment.**




**Rear Brake Shoe**

1. Depress brake pedal
2. Inspect:
   - Wear indicator ②
     Indicator at wear limit line → Replace brake shoes.

① Wear limit line




**Brake Fluid**

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

① Lower level

**Brake Fluid: DOT 3**

**WARNING:**

- **Use only designated qualty 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.**

## CABLE INSPECTION AND LUBRICATION

1. Apply:
   - Lubricant (several drops)
     (to cable.)
     Hold cable end high when applying.
   - All purpose grease
     (to metal surface of disassembled throttle twist grip.)

2. Inspect:
   - Cable insulation
     Damage → Replace cable
   - Cable
     Obstruction/Damage/Corrosion
     → Replace.
     Unsmooth operation → Lubricate.

| | |
|---|---|
| | **SAE 10W30 Type SE Motor Oil**<br>**Several drops** |

## BRAKE AND CHANGE PEDALS/BRAKE AND CLUTCH LEVERS

1. Lubricate:
   - Lever pivotal parts
   - Pedal pivotal parts

| | |
|---|---|
| | **SAE 10W30 Type SE Motor Oil** |

## CENTERSTAND AND SIDESTAND

1. Lubricate:
   - Centerstand pivotal points
   - Sidestand pivotal points

| | |
|---|---|
| | SAE 10W30 Type SE Motor Oil |

## FRONT FORK OIL CHANGE

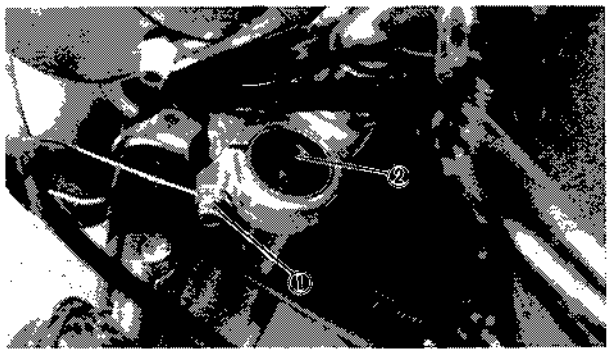
**WARNING:**

**Secure motorcycle firmly so there is no danger of it falling over.**

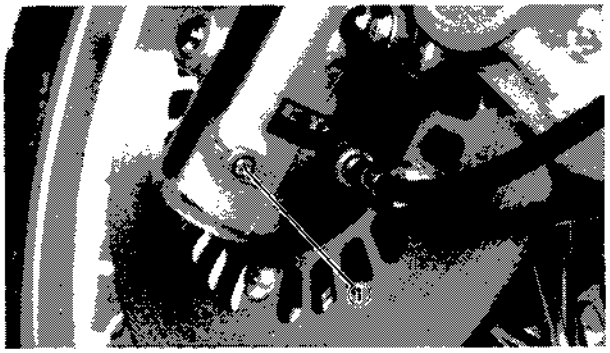


**(XV700)**

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



3. Loosen:
   - Pinch bolt ①
4. Remove:
   - Cap bolt ②
5. Place receptacle under each drain hole.



6. Remove:
   - Drain screws ①

**WARNING:**

**Danger do not allow oil to contact disc brake components. Remove any oil found on these components to avoid diminished braking capacity.**

7. After most of the oil has drained, slowly raise and lower outer tubes to pump out remaining oil.
8. Inspect:
   - Drain screw gaskets
     Damage → Replace.
9. Install:
   - Drain screws
   - Drain screw gaskets
10. Fill:
    - Fork inner tube

**Front Fork Oil Capacity (each fork):**
**389 cm³ (13.7 Imp oz, 13.2 US oz)**
**Recommended Oil:**
**Yamaha fork oil 10Wt or equivalent**

11. After filling, slowly pump the forks up and down to distribute the oil.
12. Inspect:
    - Cap bolt O-ring
      Damage → Replace.
13. Install:
    - Cap bolt

**23 Nm (2.3 m·kg, 17 ft·lb)**

14. Tighten:
    - Pinch bolt

**20 Nm (2.0 m·kg, 14 ft·lb)**

15. Install:
    - Cap

**(XV1000)**

1. Follow XV700 step 1.
2. Remove:
   - Air valve cap

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

3. Follow XV700 step 2 to 9.
4. Fill:
   - Fork inner tube

**Front Fork Oil Capacity (each fork):**
**372 cm³ (13.1 Imp oz, 12.6 US oz)**
**Recommended Oil:**
**Yamaha fork oil 10Wt or equivalent**

5. Follow XV700 step 11 to 15.
6. Fill:
   - Fork
   (with specified amount of air.)
   Refer to "Front fork and rear shock absorber adjustment".

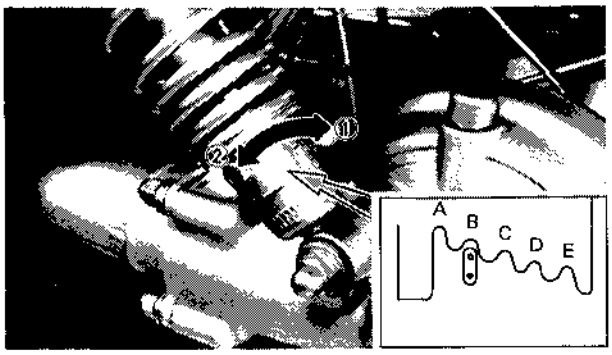
**Maximum Air Pressure:**
**118 kPa (1.2 kg/cm², 17.1 psi)**
**Do not exceed this amount.**

## FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT

**(XV700)**

**Rear Shock Absorber Adjustment**

Spring preload
If the spring seat is raised, the spring becomes stiffer, and if lowered, it becomes softer.




**Standard Position: B**
**A. – Softest ①**
**E. – Stiffest ②**

**WARNING:**

**Always adjust each shock absorber to the same setting. Uneven adjustment can cause poor handling and loss of stability.**

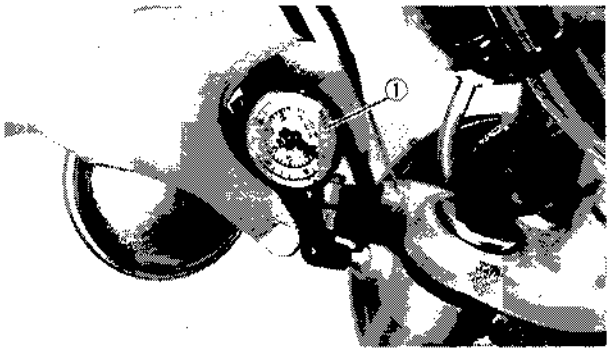
# FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT

(XV1000)

## Front Fork

1. Place motorcycle on centerstand, then elevate front wheel.

**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.

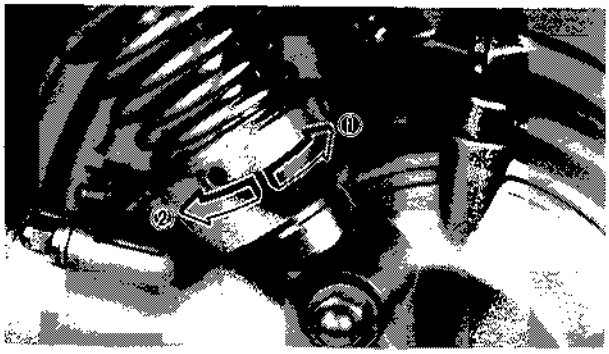
**NOTE:**
Increased air pressure causes stiffer suspension; decreased pressure causes softer suspension.

| 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:**
**39.2 kPa (0.4 kg/cm², 5.7 psi)**
**Maximum air pressure:**
**118 kPa (1.2 kg/cm², 17.1 psi)**
**Minimum air pressure: Zero**

**CAUTION:**
**Never exceed maximum pressure or oil seal damage may occur.**

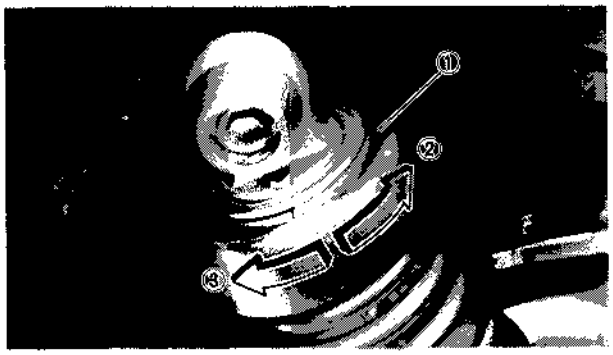
4. Install:
   - Air valve cap



**Rear Shock Absorber**

Spring preload
If the spring seat is raised, the spring becomes stiffer ① , and if lowered, it becomes softer②.

| Spring Preload Adjustment | |
|---|---|
| Position | Result |
| 1 | Softest |
| 2 | Standard |
| 5 | Stiffest |



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

| Damping Adjustment | |
|---|---|
| Position | Result |
| 1 | Standard setting |
| 1 | Minimum damping |
| 4 | Maximum damping |

**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. 4).

**WARNING:**

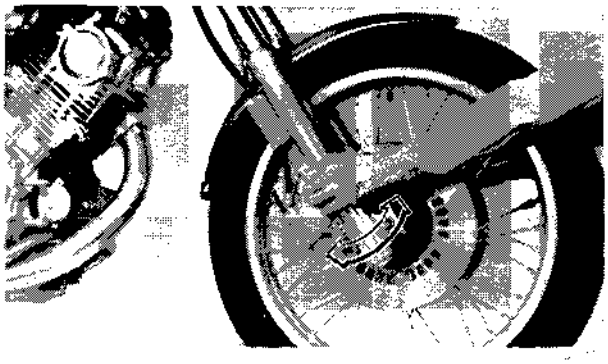
**Always adjust each shock absorber to the same setting. Uneven adjustment can cause poor handling and loss of stability.**

# FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT

## 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 seat | Damping adjuster | Solo rider | With passenger | With accessories, and equipment | With accessories, equipment, and passenger |
| 1 | 39.2 ~ 78.5 kPa (0.4 ~ 0.8 kg/cm², 5.7 ~ 11.4 psi) | 1 ~ 2 | 1 ~ 2 | ○ | | | |
| 2 | 39.2 ~ 78.5 kPa (0.4 ~ 0.8 kg/cm², 5.7 ~ 11.4 psi) | 3 ~ 5 | 2 ~ 3 | | ○ | | |
| 3 | 58.8 ~ 98.1 kPa (0.6 ~ 1.0 kg/cm², 8.5 ~ 14.2 psi) | 3 ~ 5 | 3 ~ 4 | | | ○ | |
| 4 | 78.5 ~ 117.7 kPa (0.8 ~ 1.2 kg/cm², 11.4 ~ 17.1 psi) | 5 | 4 | | | | ○ |



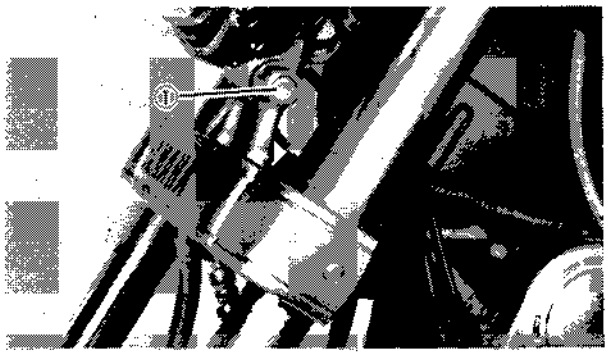
## STEERING HEAD ADJUSTMENT

**NOTE:**

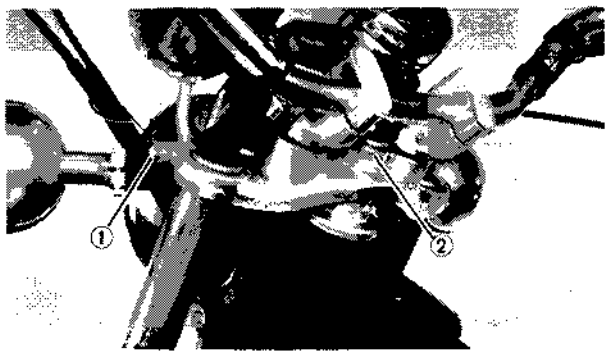
Check steering assembly periodically for looseness.

**Steering head inspection steps:**

- Raise the front end of the motorcycle so that there is no weight on the front wheel.
- Grasp the bottom of the fork and gently rock the fork assembly backward and forward, checking for looseness in the steering assembly bearings.
- Adjust the steering head if loose.




1. Remove:
   - Seat
   - Fuel tank
   - Headlight lower screw ①




2. Loosen:
   - Front fork pinch bolt ①
3. Remove:
   - Steering stem nut ②
   - Handle bar and steering crown assembly
   - Special washer
4. Tighten:
   - Lower ring nut

**1st: 50 Nm (5.0 m·kg, 36 ft·lb)**
**2nd: Loosen**
**3rd: 3 Nm (0.3 m·kg, 2.2 ft·lb)**

- Upper ring nut

**Finger tighten**

5. Align:
   - Ring nut slots
     Match upper and lower slots.
6. Install:
   - Special washer
   - Handle bar and steering crown assembly
7. Tighten:
   - Steering stem nut

| | |
|---|---|
|  | 110 Nm (11 m·kg, 80 ft·lb) |

   - Front fork pinch bolt

| | |
|---|---|
|  | 20 Nm (2.0 m·kg, 14 ft·lb) |

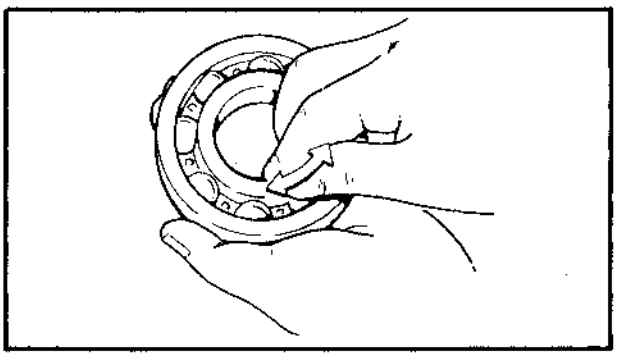
8. Reverse the disassembly steps.
9. Check:
   - Steering operation
     Move forks from lock to lock.
     Binding → Readjust.

## WHEEL BEARING

Check front and rear wheel bearings if rolling rumble noise is apparent when wheel speed increases, but diminishes when wheel speed decreases, and is absent when engine is "reved" at idle.

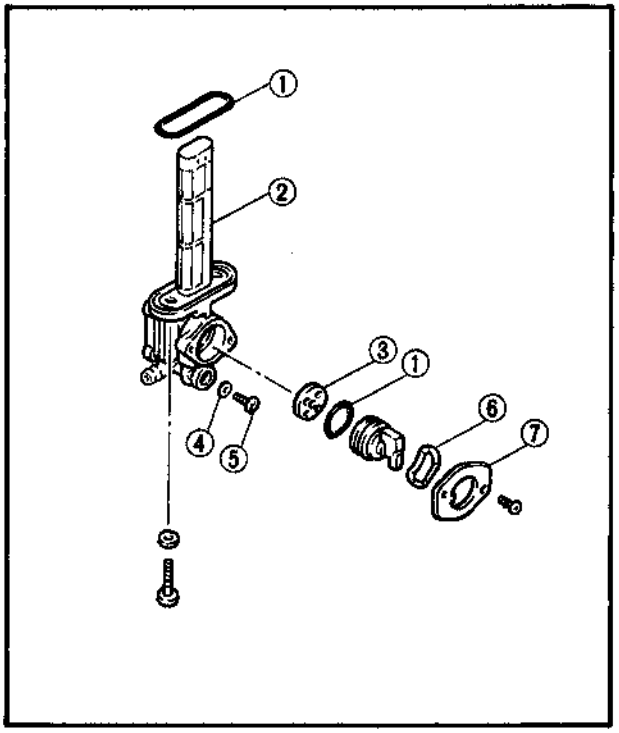
### Front Wheel

1. Raise front end of motorcycle.
2. Check:
   - Wheel bearing
     Spin the wheel by hand and touch the axle or front fender.
     Excessive vibration → Replace bearing.



### Rear Wheel

1. Remove:
   - Rear wheel
2. Check:
   - Bearing movement
     Rotate by hand.
     Roughness/Wear → Replace bearing.




## FUEL COCK

### (XV700)

① O-ring
② Filter screen
③ Fuel cock gasket
④ Gasket
⑤ Drain screw
⑥ Plate spring
⑦ Cock plate

### Removal and Inspection

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

6. Inspect:
   - Gasket surfaces
     Scratches/Corrosion → Replace cock assembly.

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

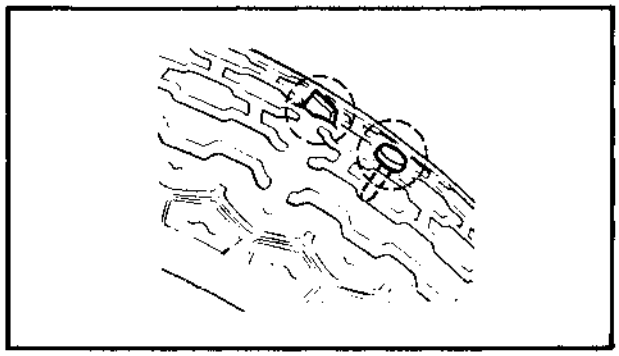
7. Assemble:
   - Fuel cock
8. Install:
   (onto fuel tank)

## TIRES AND WHEELS

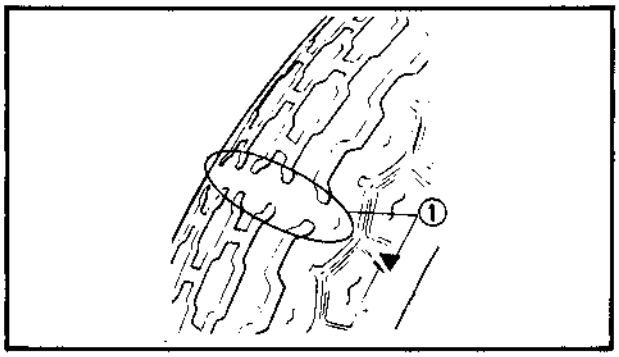
1. Measure:
   - Tire pressure
     Always follow this procedure before riding.
     Out of specification → Adjust pressure.

| | XV700 | | XV1000 | |
|---|---|---|---|---|
| Basic weight:<br>With oil and full fuel tank | 225 kg (496 lb) | | 236 kg (520 lb) | |
| Maximum load*: | 245 kg (540 lb) | | 234 kg (516 lb) | |
| Cold tire pressure: | Front | Rear | Front | Rear |
| Up to 90 kg (198 lb)* | 177 kPa (1.8 kg/cm², 26 psi) | 195 kPa (2.0 kg/cm², 28 psi) | 177 kPa (1.8 kg/cm², 26 psi) | 196 kPa (2.0 kg/cm², 28 psi) |
| 90 kg (198 lb) load ~ 160 kg (353 lb) load* | 196 kPa (2.0 kg/cm², 28 psi) | 226 kPa (2.3 kg/cm², 32 psi) | 196 kPa (2.0 kg/cm², 28 psi) | 226 kPa (2.3 kg/cm², 32 psi) |
| 160 kg (353 lb) load ~ Maximum load* | 196 kPa (2.0 kg/cm², 28 psi) | 275 kPa (2.8 kg/cm², 40 psi) | 196 kPa (2.0 kg/cm², 28 psi) | 275 kPa (2.8 kg/cm², 40 psi) |
| High speed riding | 226 kPa (2.3 kg/cm², 32 psi) | 245 kPa (2.5 kg/cm², 36 psi) | 226 kPa (2.3 kg/cm², 32 psi) | 245 kPa (2.5 kg/cm², 36 psi) |

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



2. Inspect:
   - Tire surface
     Wear/Damage/Cracks/Road hazards → Replace.
3. Check:
   - Balance (Tire and wheel, whenever one is replaced.)




4. Measure:
   - Tire tread depth
     Out of specification → Replace.

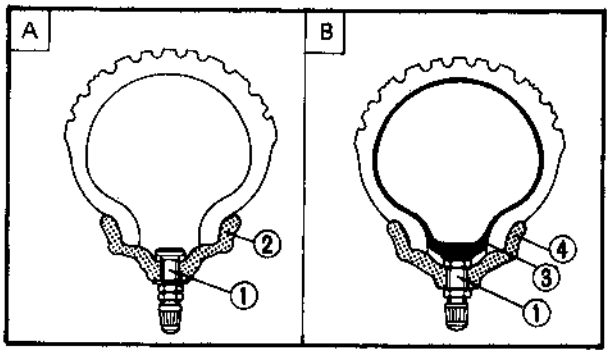
**Minimum Tire Tread Depth:**
**(Front and rear)**
**1.0 mm (0.04 in)**

① Wear indicator

**WARNING:**

**(XV1000)**

- **Always inspect aluminum wheels before a ride.**
- **Place the motorcycle on its centerstand and check for cracks, bends, or warpage of the wheels.**
- **Do not attempt any repairs to the wheel; replace any defective wheel.**
- **Do not attempt to use tubeless tires on a wheel designed for use with tube-type tire only. Tire failure and subsequent personal injury may result from sudden deflation.**
- **Be sure to install the proper tube when using tube-type tires.**




| Wheel type | Tire type |
|---|---|
| Tube-type wheel | Tube-type tires only |
| Tubeless-type wheel | Tube-type or tubeless tires |

[A] Tubeless tire
[B] Tube type tire

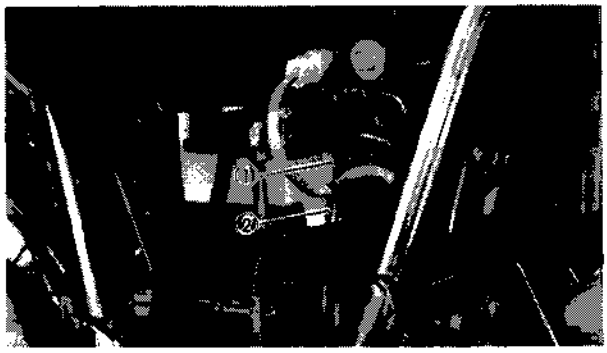
① Air valve
② Aluminum wheel (tubeless type)
③ Tube
④ Aluminum wheel (tube type)

5. Tighten:
   - Air valve stem locknut.

| | |
|---|---|
| | 15 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

**NOTE:**

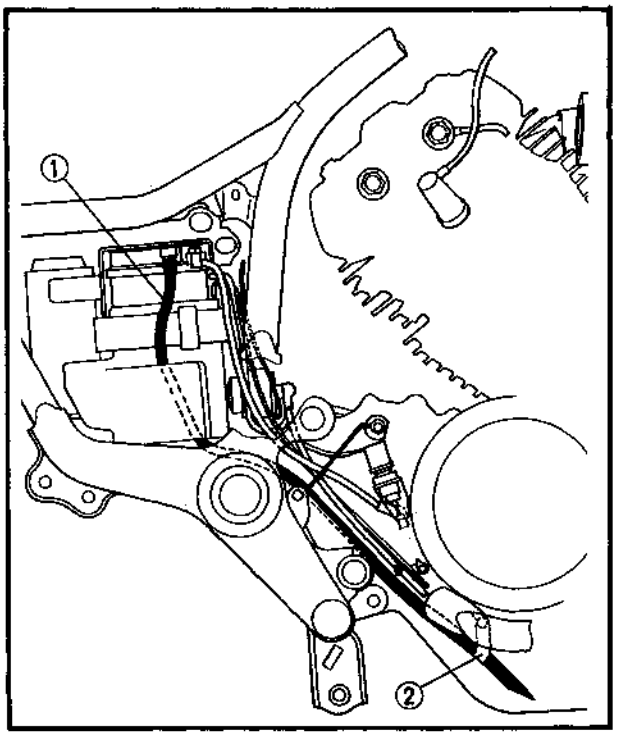
Fluid level should be between upper ① and lower level ② mark.

**CAUTION:**

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

1. Install:
   - Battery

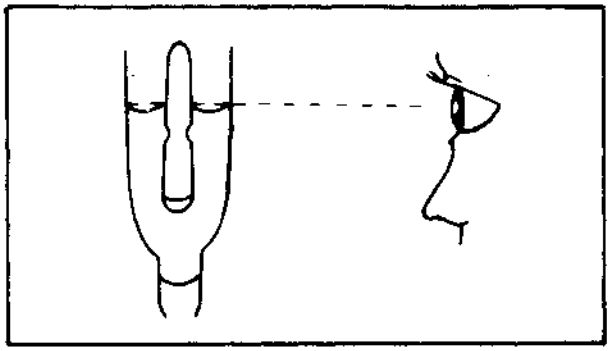
     Be sure breather hose ① is properly connected and routed and is undamaged.



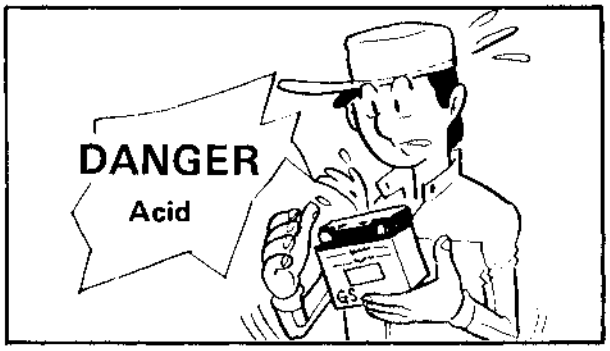

② Clamp

**CAUTION:**

- **Always charge new battery before using to ensure maximum performance.**
- **Always maintain proper electrolyte level. Failure to service as directed will result in shortened battery life.**



**Charging Current:**
**XV700: 1.6 amps/10 hrs**
**XV1000: 2.0 amps/10 hrs**
**Specific Gravity:**
**1.280 at 20°C (68°F)**




**WARNING:**

**Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.**

**Always follow these preventive measures:**

- **Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.**
- **Wear protective eye gear when handling or working near batteries.**

**Antidote (EXTERNAL):**

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

**Antidote (INTERNAL):**

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

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

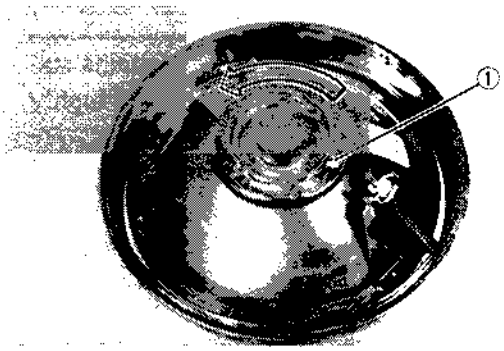
- **Charge batteries in a well-ventilated area.**
- **Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)**
- **DO NOT SMOKE when charging or handling batteries.**

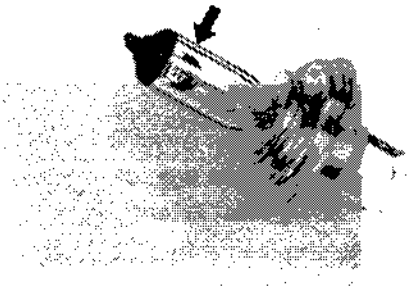
**KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.**

## HEADLIGHT

### Headlight Bulb Replacement

1. Remove:
   - Securing screws
     (from light unit assembly/headlight body.)
2. Disconnect:
   - Lead wire



3. Remove:
   - Light unit assembly
4. Rotate:
   - Bulb holder ①
     Turn it counterclockwise.
5. Remove:
   - Defective bulb

6. Install:
   - Bulb (New)
     Secure with bulb holder.

**CAUTION:**

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

**WARNING:**

**Do not touch the headlight bulb when it is on, as the bulb generates enormous heat; keep flammable objects away.**

7. Install:
   - Light unit assembly
     (to headlight body.)




### Headlight Beam Adjustment

**Horizontal adjustment:**

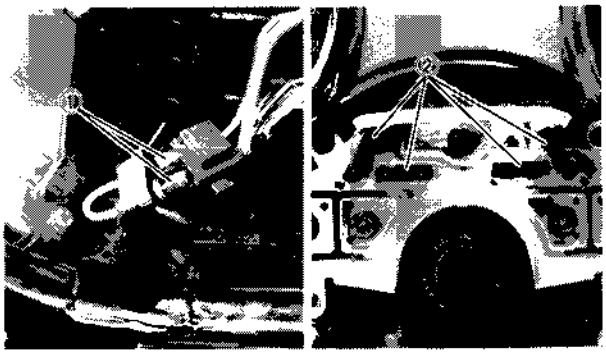
1. Rotate:
   - Horizontal adjusting screw ①

| Horizontal Adjustment of Headlight Beam | |
|---|---|
| Adjusting screw | Beam direction |
| Turn clockwise | → to Right |
| Turn counterclockwise | ← to Left |

**Vertical adjustment:**

1. Rotate:
   - Vertical adjusting screw ②

| Vertical Adjustment of Headlight Beam | |
|---|---|
| Adjusting screw | Beam direction |
| Turn clockwise | ↑ to Raise |
| Turn counterclockwise | ↓ to Lower |




### FUSE

The fuse box is under the indicator light panel. The main fuse is under the seat.

① Main fuse
② Other fuse block

**Blown fuse procedure steps.**

- Turn off ignition and the circuit.
- Install a new fuse of proper amperage.
- Turn on switches to verify operation of electrical device.
- If fuse blows immediately again, check circuit in question.

**WARNING:**

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

# CHAPTER 3.
# ENGINE OVERHAUL


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# ENGINE OVERHAUL

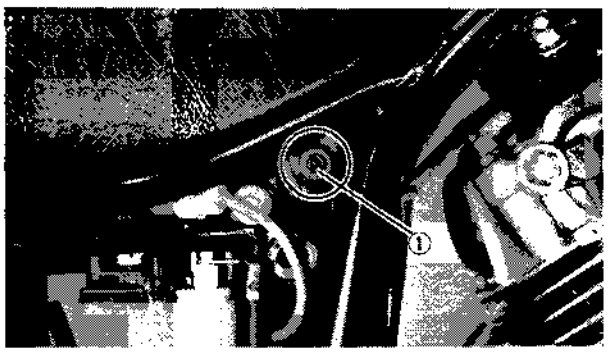
## ENGINE REMOVAL

**NOTE:**
It is not necessary to remove the engine in order to remove the following components.
- Carburetor
- AC magneto
- Clutch

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

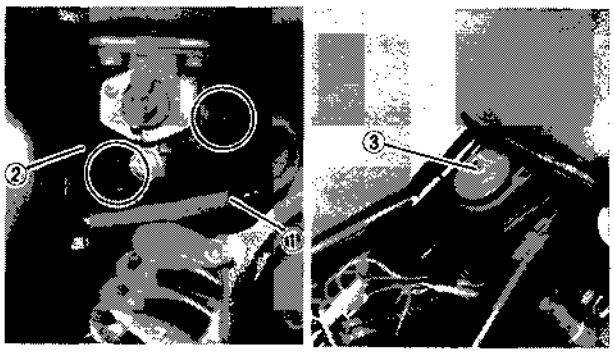
**NOTE:**
When disassembling the engine, keep mated parts together. This includes gears, cylinders, pistons, and other parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.

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




**SEAT**

1. Remove:
   - Side covers
   - Seat screw ①

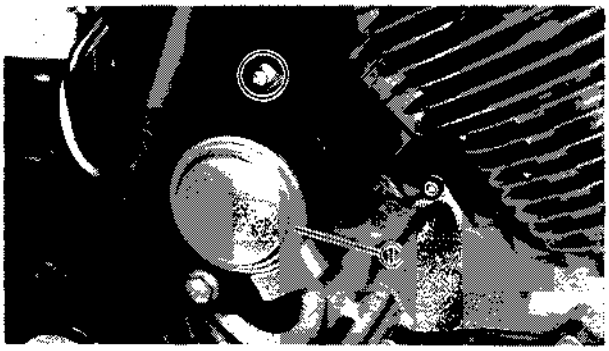



**FUEL TANK**
**(XV700)**

1. Turn fuel petcock to "ON".
2. Disconnect:
   - Fuel cock vacuum hose ①
   - Fuel cock feed hose ②
3. Remove:
   - Fuel tank bolt ③

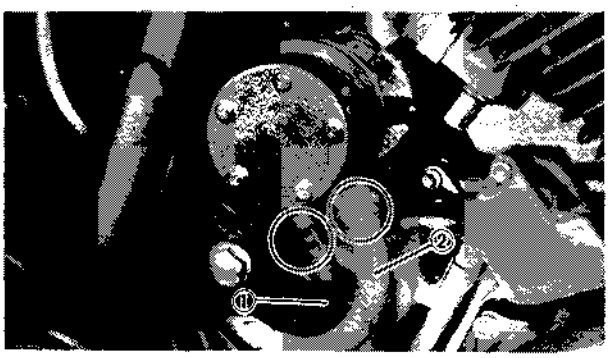


4. Remove:
   - Fuel sender unit lead

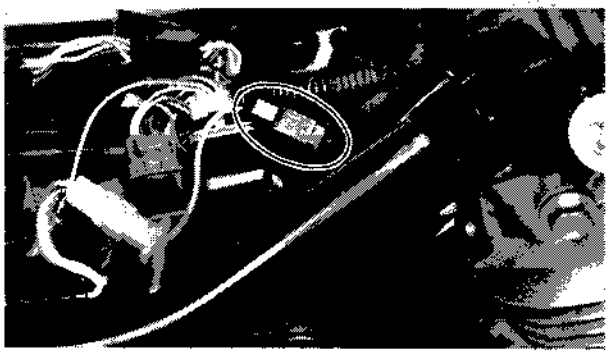


**(XV1000)**

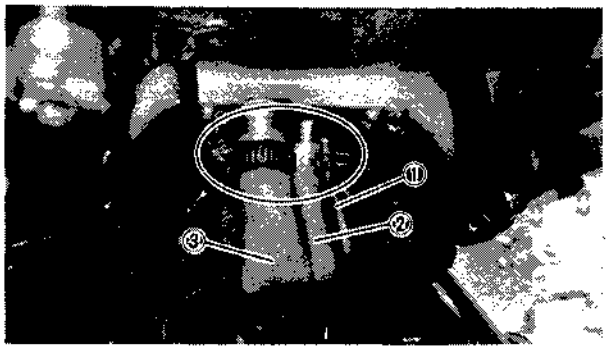
1. Remove:
   - Pump cover ①



2. Disconnect:
   - Fuel pump "IN" hose ①
3. Drain:
   - Fuel tank
4. Disconnect:
   - Fuel pump "OUT" hose ②



5. Disconnect:
   - Fuel pump lead

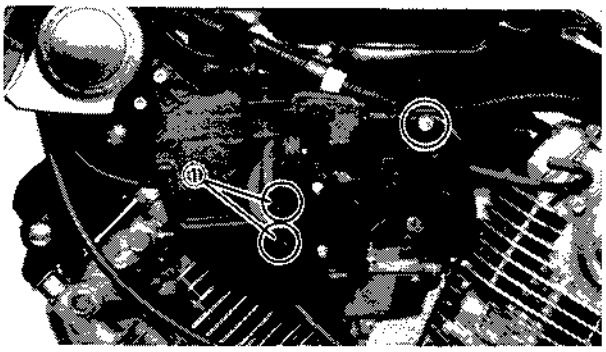



6. Remove:
   - Fuel tank bolt
7. Disconnect:
   - Vapor induction hose ① (For LC model only)
   - Fuel vent hose ②
   - Fuel feed hose ③
   - Fuel sender unit lead



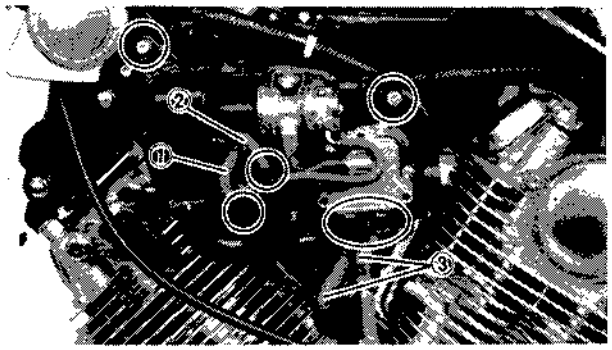
**AIR FILTER CASE**

1. Remove:
   - Air filter case assembly



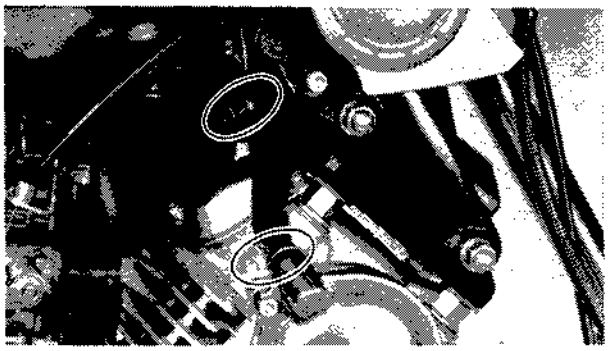

**MIXTURE CONTROL VALVE CASE (XV700)**

1. Remove:
   - MCV case cover
2. Disconnect:
   - MCV hoses ①
3. Remove:
   - MCV case assembly



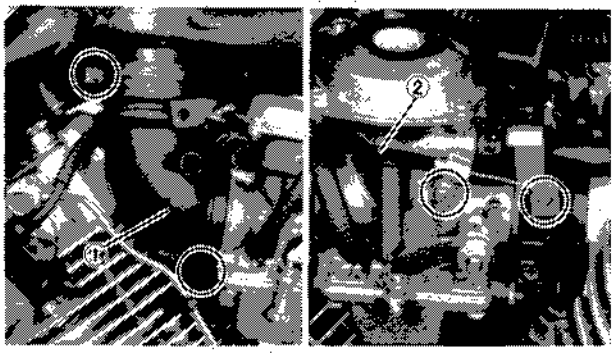

**(XV1000)**

1. Remove:
   - MCV case cover
2. Disconnect:
   - MCV hose ①
   - AIS hose ②
   - Reed valve hoses ③
3. Remove:
   - MCV case assembly



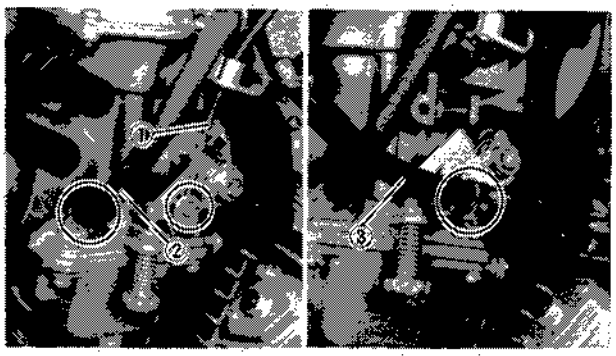
**CRANKCASE VENTILATION HOSE**

1. Remove:
   - Crankcase ventilation hose

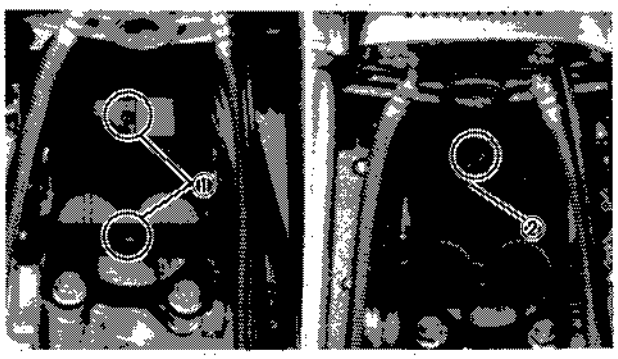


## CARBURETOR CABLE AND HOSE

1. Remove:
   - Air filter joint ①
   - Choke cable ②

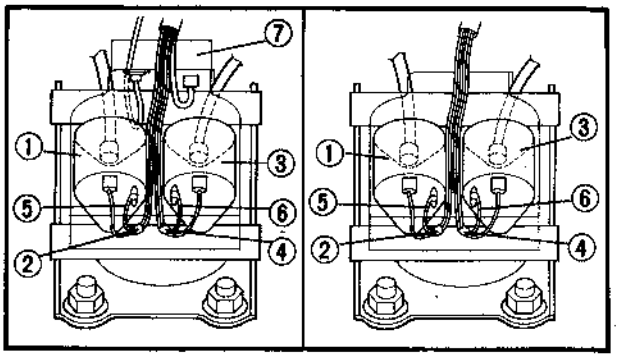


2. Remove:
   - Throttle cable ①
3. Disconnect:
   - Fuel feed hose ②
4. Remove:
   - Vacuum sensor hose ③ (For XV1000)



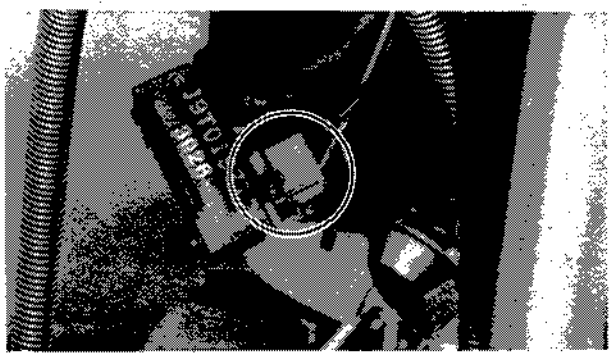
## IGNITION COIL LEAD

1. Remove:
   - Ignition coil cover screw ①
2. Disconnect:
   - Vacuum sensor hose ② (For XV1000)

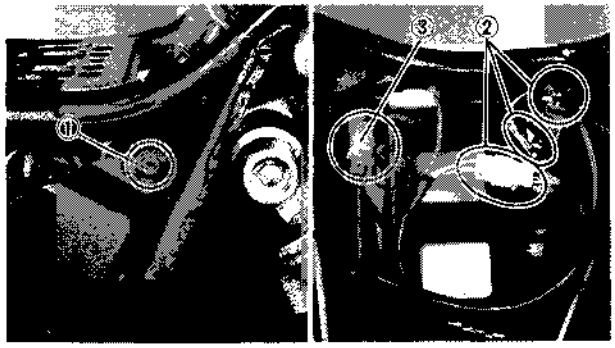


3. Disconnect:
   - Ignition coil lead

① No. 1 (Rear) Cylinder ignition coil
② Black color tape
③ No. 2 (Front) Cylinder ignition coil
④ Red color tape
⑤ Orange color lead
⑥ Gray color lead
⑦ Vacuum sensor (For XV1000)

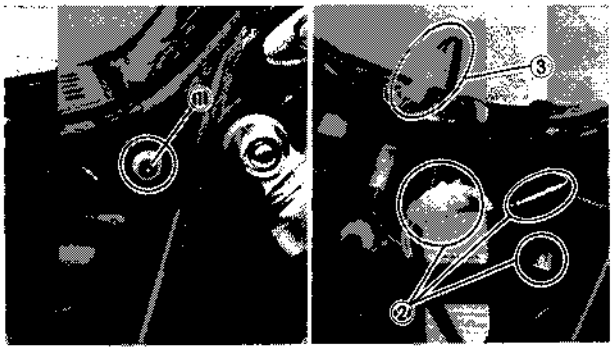


4. Disconnect:
   - Vacuum sensor lead (For XV1000)



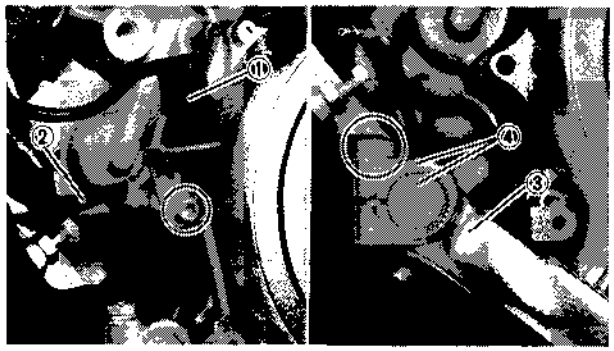
**AC GENERATOR LEAD AND SIDESTAND SWITCH LEAD**
**(XV700)**

1. Remove:
   - Cover screw ①
2. Disconnect:
   - AC Generator lead ②
   - Sidestand switch lead ③



**(XV1000)**

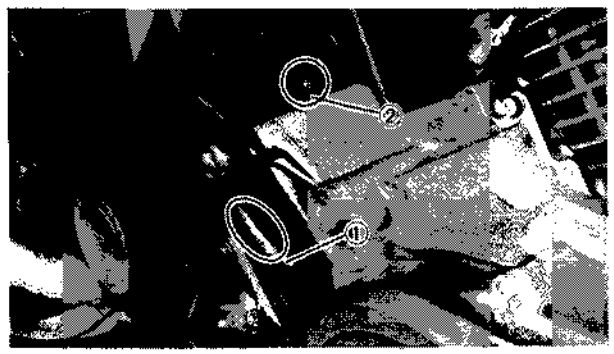
1. Remove:
   - Sub fuel tank screw ①
2. Disconnect:
   - AC Generator lead ②
   - Sidestand switch lead ③



**BRAKE SWITCH, GROUND LEAD AND BRAKE PEDAL**

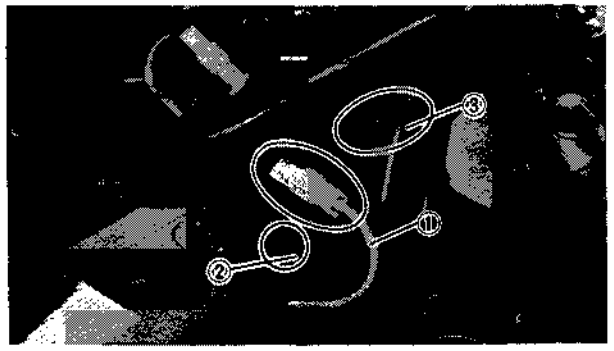
1. Remove:
   - Brake switch ①
   - Ground lead ②
   - Brake pedal ③

④ Matching mark



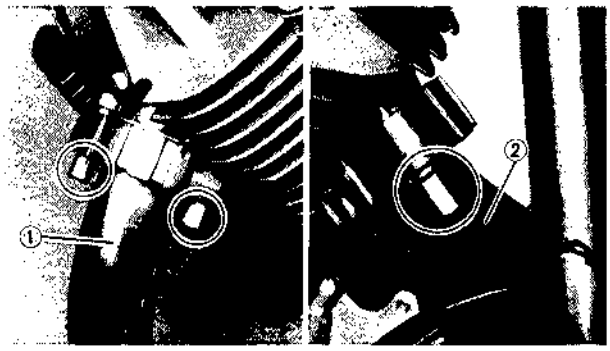
**OIL LEVEL SWITCH LEAD, STARTER MOTOR LEAD, AND SOLENOID LEAD**
**(XV700)**

1. Disconnect:
   - Oil level switch lead ①
   - Starter motor lead ②



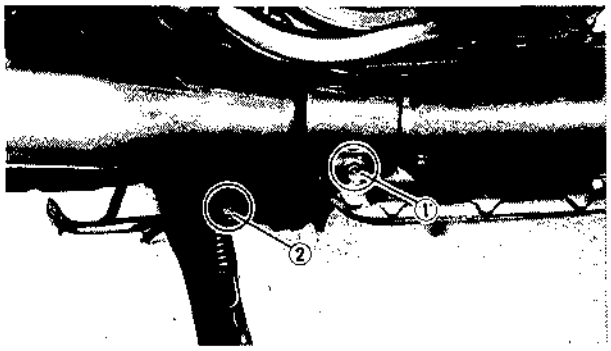
**(XV1000)**

1. Disconnect:
   - Solenoid lead ①
   - Battery plus lead ②
   - Oil level switch lead ③

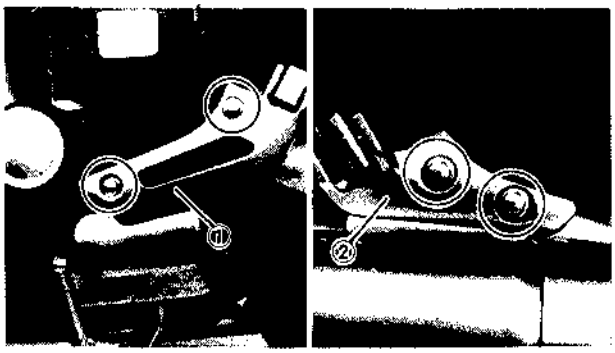



### EXHAUST PIPE AND MUFFLER

1. Remove:
   - Front exhaust pipe ①
   - Rear exhaust pipe ②




2. Loosen:
   - Front exhaust pipe clamp bolt ①
   - Rear exhaust pipe clamp bolt ②

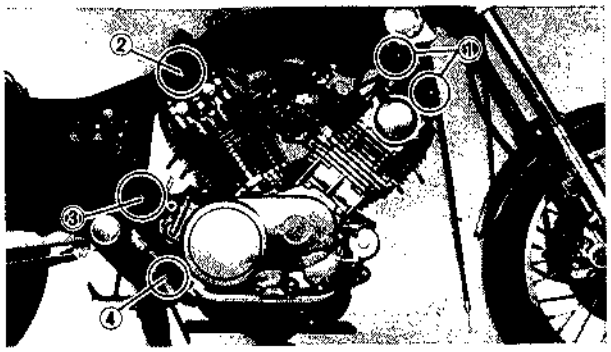



3. Remove:
   - Left footrest bracket ①
   - Right footrest bracket ②



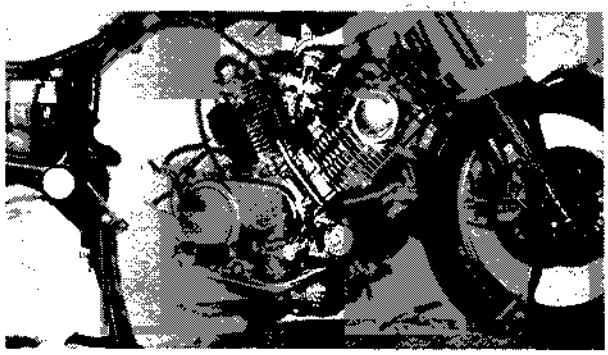

### DRIVE SHAFT RUBBER BOOT

1. Disconnect:
   - Rubber boot ①

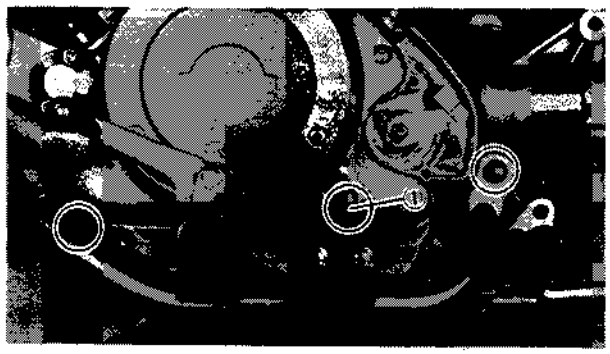



### ENGINE REMOVAL

1. Place a suitable stand under the engine.
2. Remove:
   - Front cylinder head mounting bolts ①
   - Rear cylinder head mounting bolts ②
   - Rear upper mounting bolts ③
   - Rear lower mounting bolts ④



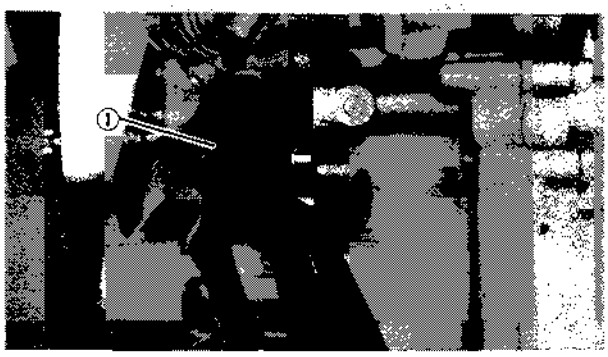
3. Remove:
   - Engine assembly
     (from chassis right side)



## ENGINE DISASSEMBLY

### ENGINE GUARD, CHANGE PEDAL AND SIDESTAND

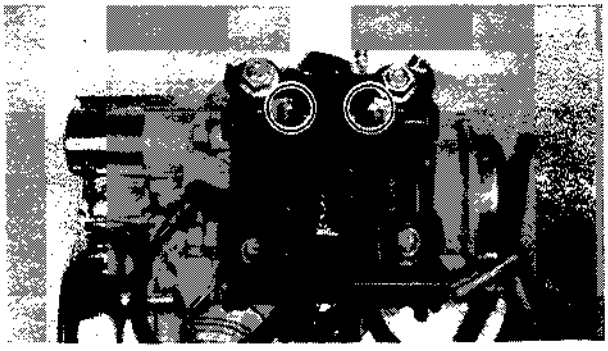
1. Remove:
   - Change pedal bolt ①
   - Engine guard/Change pedal assembly




2. Remove:
   - Wire harness clamp ①

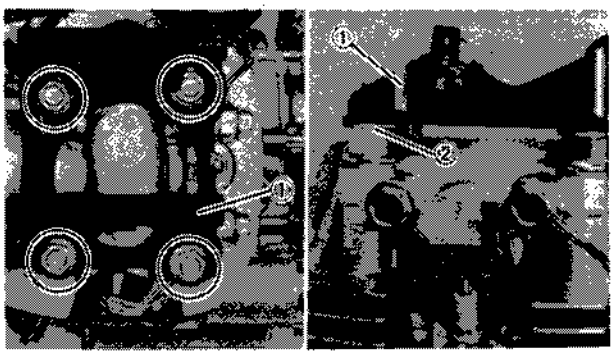


3. Remove:
   - Sidestand assembly

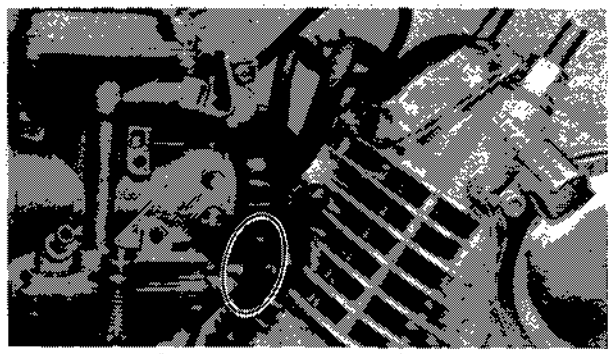


### IGNITION COIL AND ENGINE MOUNTING BRACKET

1. Remove:
   - Ignition coil

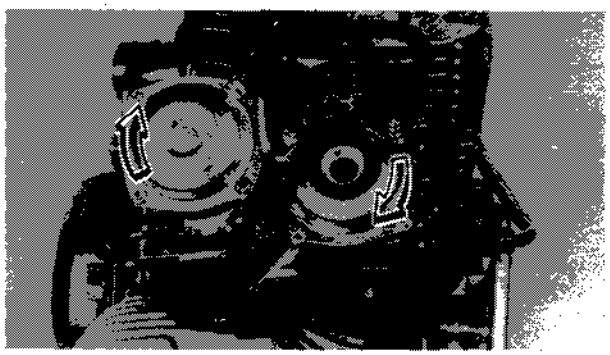



2. Remove:
   - Front engine mounting bracket ①
   - Washer ②



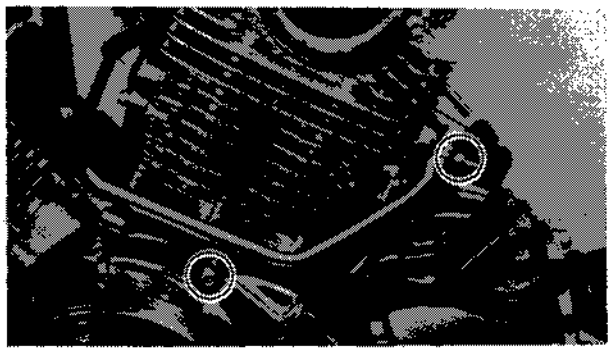
**CARBURETOR**

1. Loosen:
   - Carburetor joint clamp screws



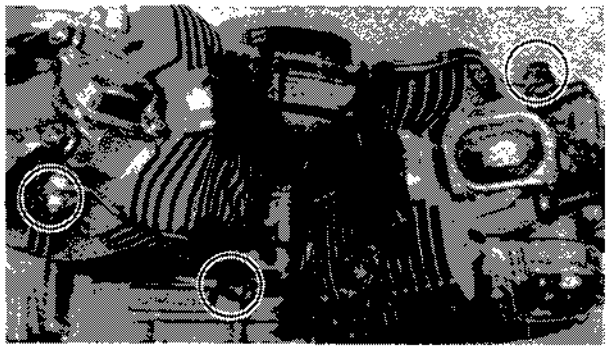
2. Rotate:
   - Carburetors

   Turn them clockwise until they are free of the carburetor joint.
3. Remove:
   - Carburetor
   - Suction hoses



**AIS PIPE AND OIL DELIVERY PIPE**

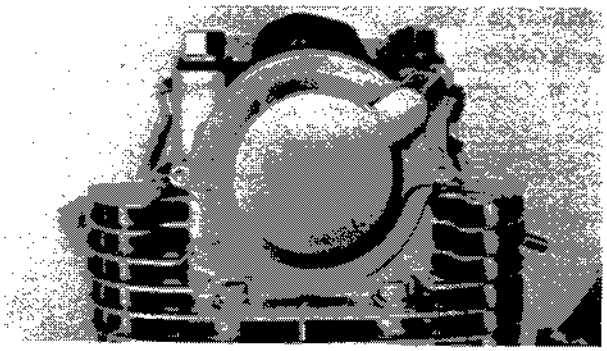
1. Remove:
   - Air Induction System pipes



2. Remove:
   - Oil delivery pipes

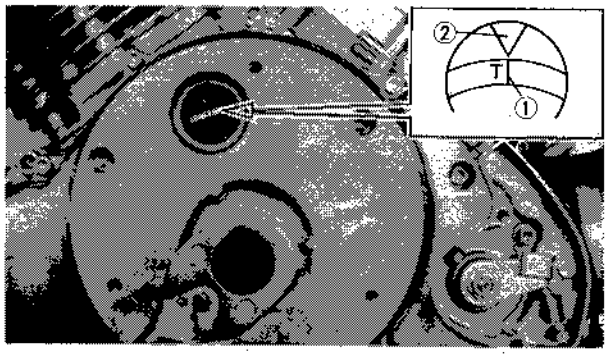
## CYLINDER HEAD AND CYLINDER

1. Remove:
   - Generator cover
   - Crankshaft end cover
   - Spark plugs

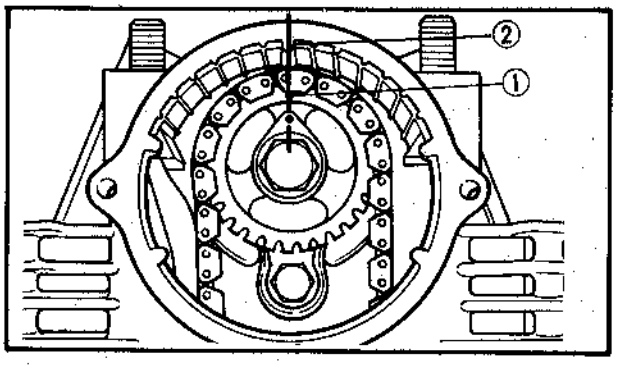


**Rear Cylinder**

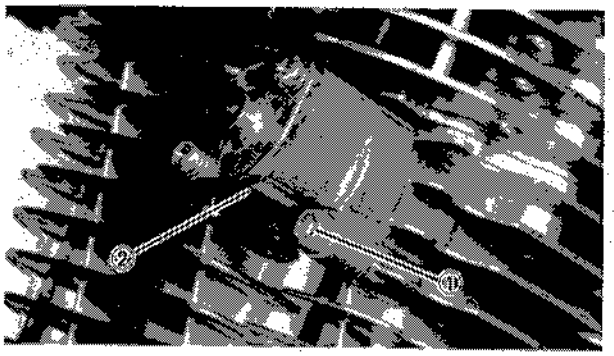
1. Remove:
   - Cam chain sprocket cover




2. Align:
   - Flywheel "T" mark ①
     (with stationary pointer ②, when piston is at TDC on compression stroke.)



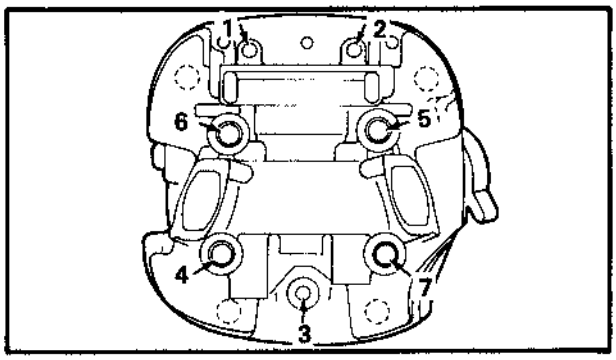

3. Align:
   - Cam chain sprocket hole ①
     (with the timing mark ② on the cylinder head.)
     This places the rear (#1) piston at TDC on compression stroke.



4. Remove:
   - Screw ①
   - Cam chain tensioner ②

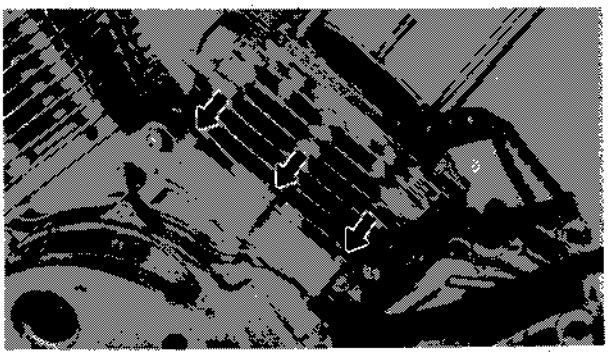
5. Remove:
   - Bolt
   - Washer
   - Cam chain sprocket

**NOTE:**
Fasten safety wire to the cam chain to prevent it from falling into the crankcase.

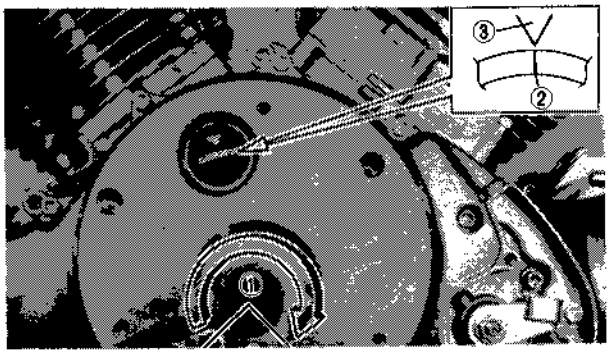



6. Remove:
   - Cylinder head

**NOTE:**
Loosen the nuts and bolts in their proper loosening sequence.

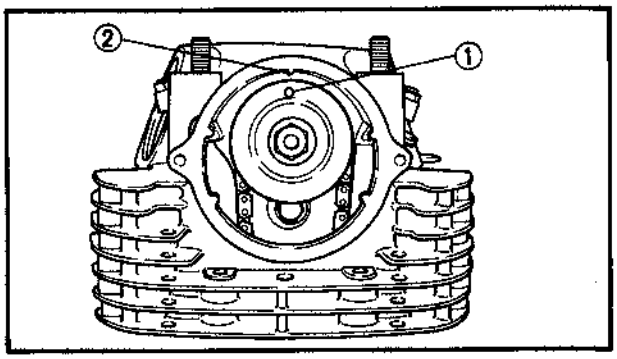


7. Remove:
   - Front cam chain guide
   - Cylinder head gasket
   - Dowels
   - Cylinder
   - Cylinder gasket

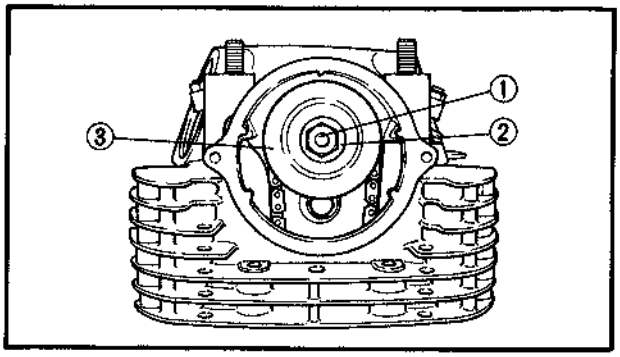



**Front Cylinder**

1. Repeat rear cylinder steps, but omit steps 2 and 4. Then see note 2 (below) for step 7.
2. Rotate:
   - Crankshaft
     Turn it clockwise 285° ① to align the "I" mark ② with the stationary pointer ③ when the piston is at TDC on the compression stroke.



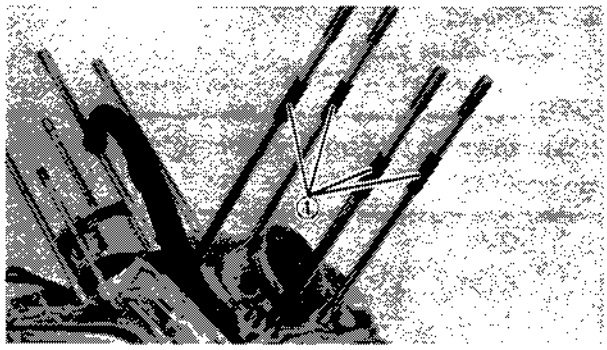

3. Align:
   - Oil baffle hole ①
     (with the timing mark ② on the cylind head)
     This places the front (#2) piston at TDC on the compression stroke.




4. Remove:
   - Bolt ①
   - Washer ②
   - Oil baffle ③
   - Cam chain sprocket

**NOTE:**

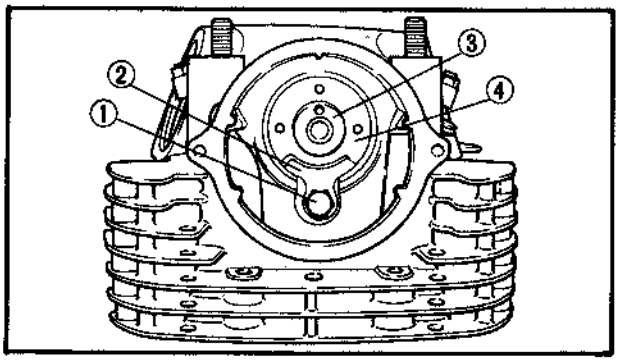
1. Fasten safety wire to the cam chain to prevent it from falling into the crankcase.
2. Do not remove rubber sleeves ① from the four cylinder studs on front cylinder.

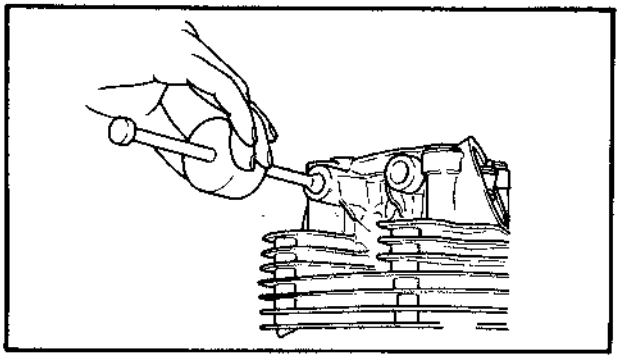



**ROCKER ARM, CAMSHAFT, VALVE, AND VALVE SPRING**

1. Remove:
   - Intake valve cover
   - Exhaust valve cover
2. Loosen:
   - Valve adjuster locknut
   - Valve adjuster
3. Remove:
   - Bolt ①
   - Stopper plate ②
   - Camshaft ③
   - Camshaft bushing ④

   Use the Slide Hammer (YU-01083).



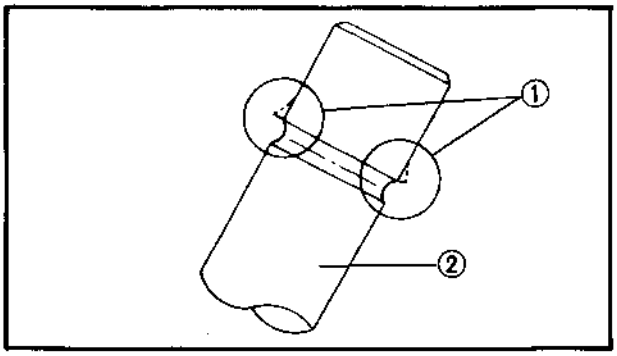
4. Remove:
   - Left side rocker arm bolt.
   - Rocker arm shaft
   - Rocker arm

   Use the Slide Hammer (YU-01083).



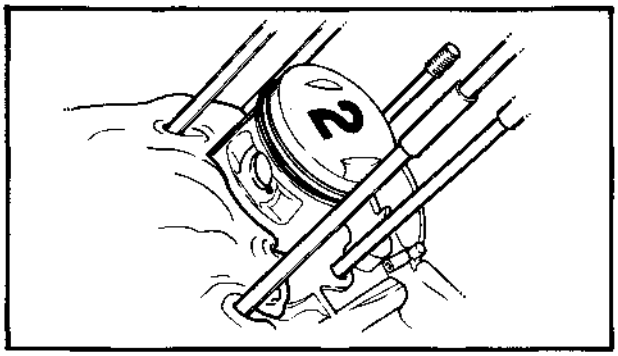
5. Remove:
   - Valve retainers
   - Valve springs
   - Valves

   Use the Valve Spring Compressor (YM-04019).




**NOTE:**
- Deburr any deformed valve stem end. Use an oil stone to smooth stem end; this will help prevent damage to valve guide during valve removal.
- Number each valve so that it can be reinstalled into same cylinder head.

**PISTON PIN AND PISTON**




1. Mark each piston to facilitate proper reinstallation.



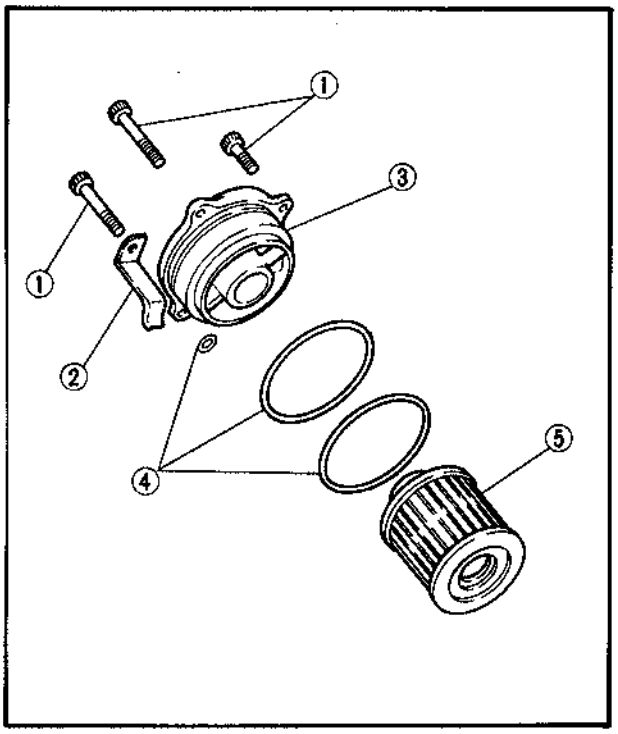
2. Remove:
   - Piston pin clip

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



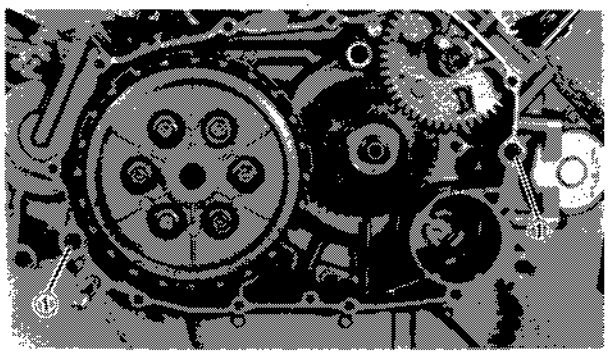
3. Remove:
   - Piston pin
   - Piston

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

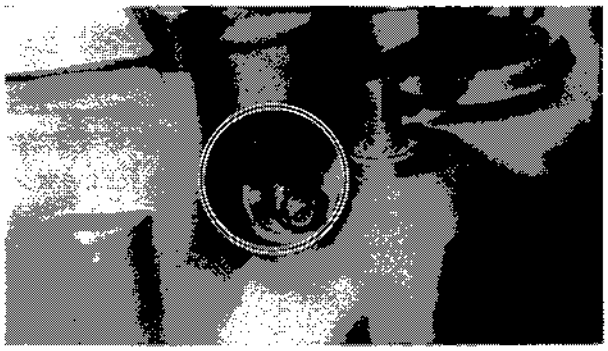



## CRANKCASE COVERS, STARTER DRIVE, AND STARTER MOTOR (XV700)

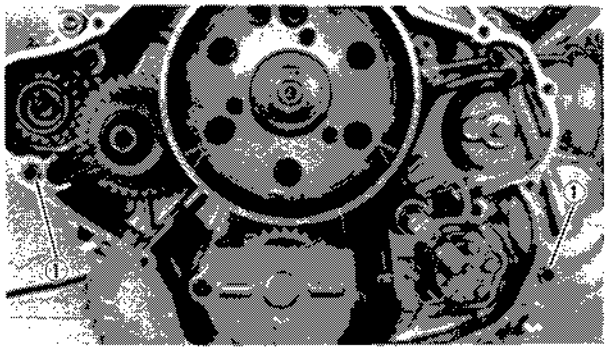
1. Remove:
   - Securing screw ①
   - Clamp ②
   - Oil filter cover ③
   - O-ring ④
   - Oil filter ⑤



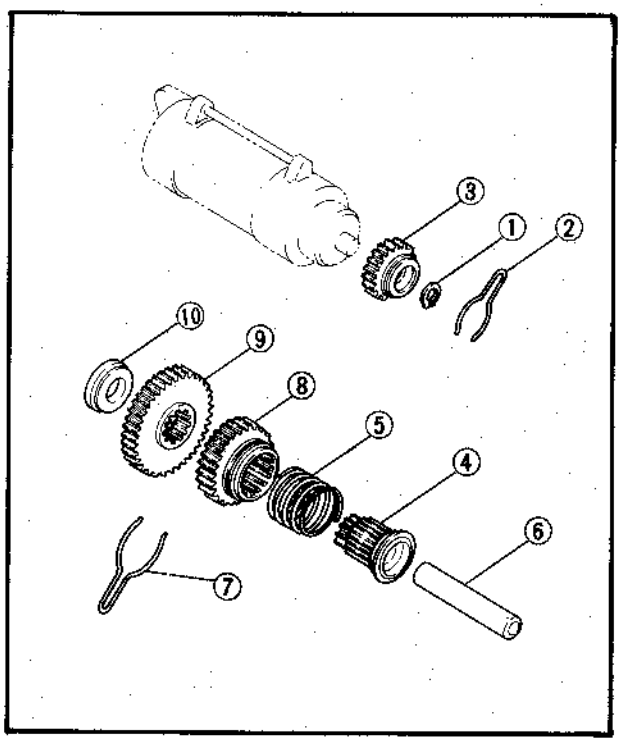
2. Remove:
   - Screw
   - Starter motor cable clamp
   - Right side crankcase cover
   - Gasket
   - Dowels ①



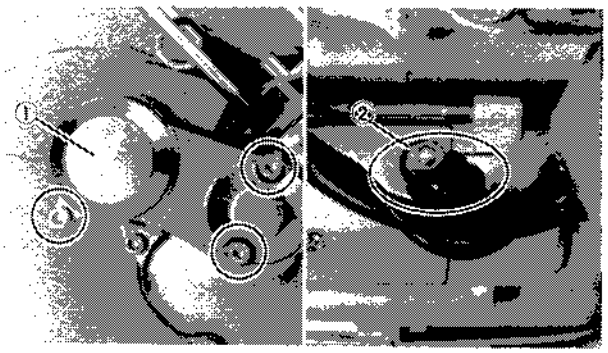
3. Disconnect:
   - Neutral switch lead



4. Remove:
   - Left side crankcase cover
   - Gasket
   - Dowels ①



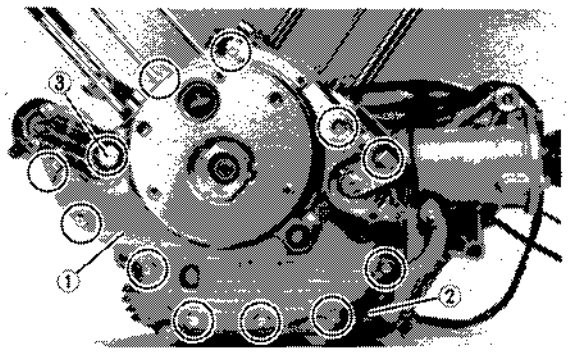

5. Remove:
   - Circlip ①
   - Spring clip ②
   - Starter motor gear ③
   - Idler wheel ④
   - Compression spring ⑤
   - Idler shaft ⑥
   - Spring clip ⑦
   - Idler gear No. 2 ⑧
   - Idler gear No. 1 ⑨
   - Washer ⑩
   - Starter motor



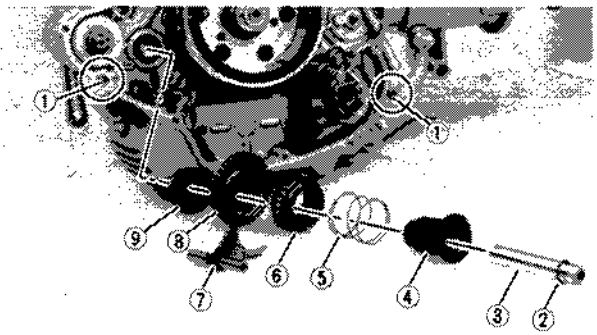

**(XV1000)**

Follow XV700 steps 1 and 2.

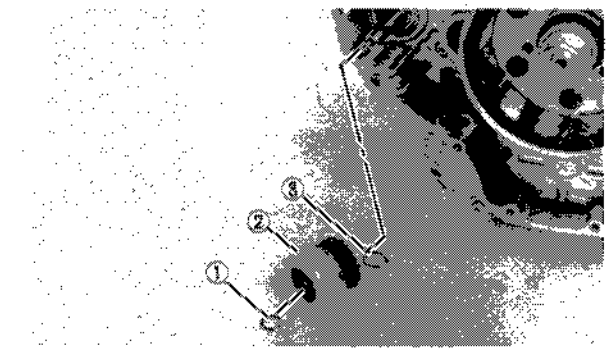
3. Remove:
   - Drive lever cover ①
   - Gasket
   - Starter motor lead ②



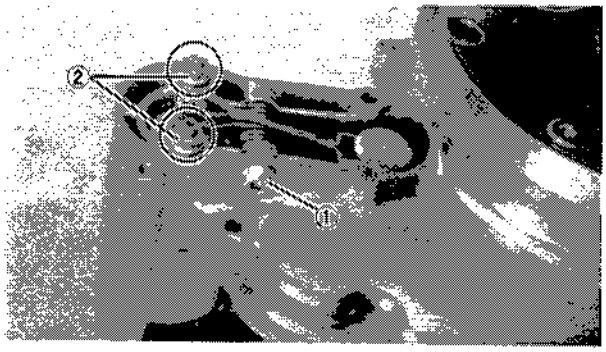

4. Remove:
   - Left side crankcase cover ①
   - Gasket
   - Neutral switch lead ②
5. Loosen
   - Drive lever collar screw ③




6. Remove:
   - Dowels ①
   - O-ring ②
   - Shaft ③
   - Starter wheel ④
   - Spring ⑤
   - Idler gear 2 ⑥
   - Drive lever shaft ⑦
   - Idler gear 1 ⑧
   - Collar ⑨



7. Remove:
   - Circlip ①
   - Starter clutch ②
   - Circlip ③



8. Remove:
   - Drive lever screw ①
   - Solenoid securing nut ②

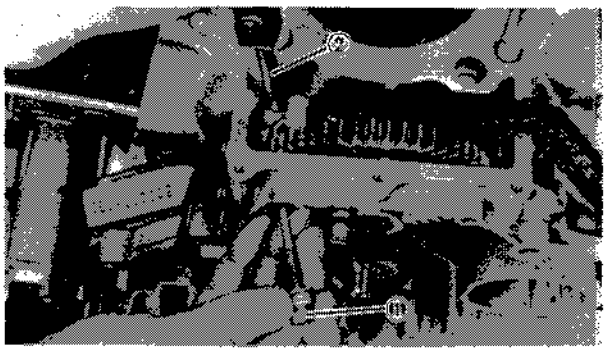


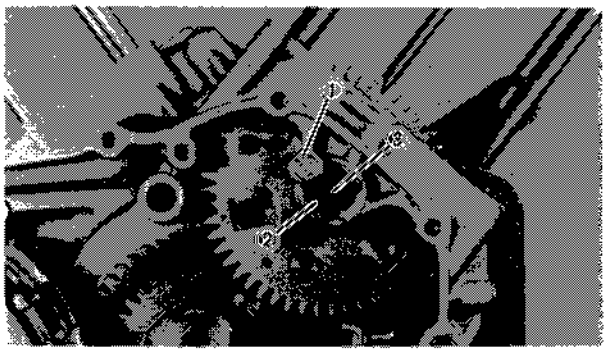
9. Remove:
   - Solenoid securing screw ①
   - Solenoid ②
   - Gasket ③
   - Drive lever ④
   - Drive lever collar ⑤
   - Spring ⑥

## TIMING GEAR

### Front Cylinder

1. Remove:
   - Securing bolt ①
   - Rear camchain guide ②



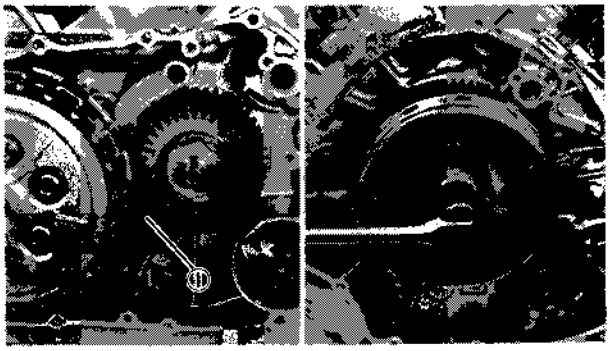


2. Remove:
   - Bolt ①
   - Stopper plate ②
   - Timing gear shaft ③
   - Timing gear



**Rear Cylinder**

1. Remove:
   - Bolt
   - Stopper plate
   - Timing gear shaft ①
   - Timing gear



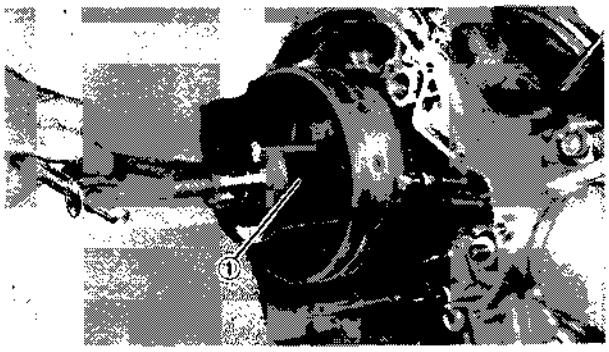
**FLYWHEEL**

1. Lock the primary drive gear.

**NOTE:**

Place a piece of rolled rug ① or lead between primary drive gears.

2. Remove:
   - Flywheel securing nut



3. Attach:
   - Flywheel Magneto Puller Attachment ① (YU-33270).
4. Remove:
   - Flywheel

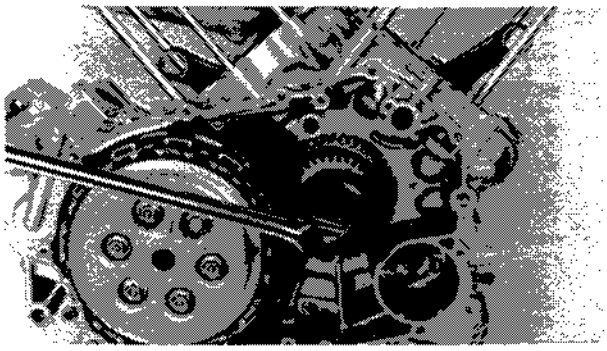
   Use the Flywheel Magneto Puller (YU-33270).

**NOTE:**

When removing flywheel, be careful not to lose the six springs and six pins that may fall from cam chain drive gear.



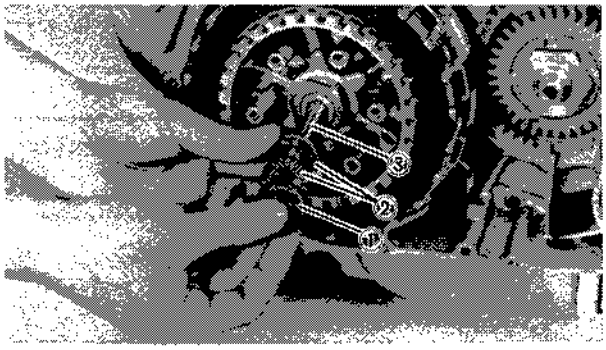
5. Remove:
   - Woodruff key
   - Cam chain drive gear
   - Securing bolt ① (Rear cylinder)
   - Rear cam chain guide ②



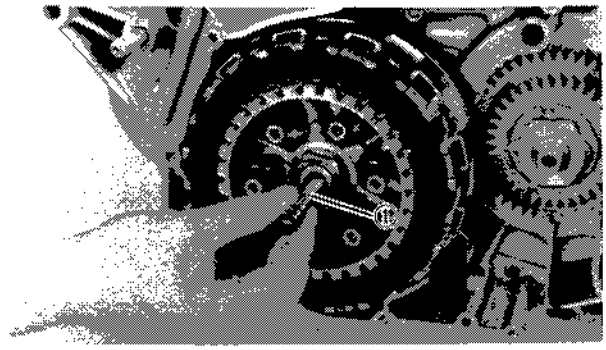
### CLUTCH AND PRIMARY GEAR

1. Flatten lock washer tab on primary drive gear securing nut.
2. Remove:
   - Primary drive securing nut
   - Lock washer
   - Washer

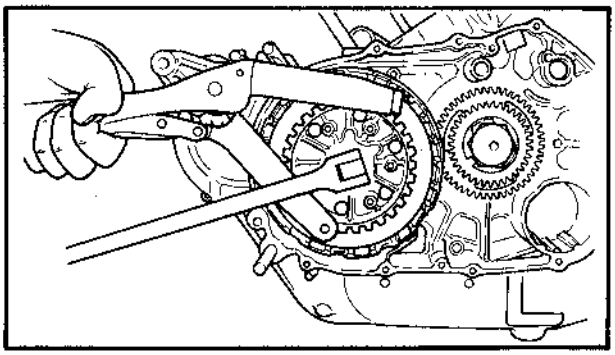
**NOTE:**
Place a piece of rolled rug or lead between primary drive gears.



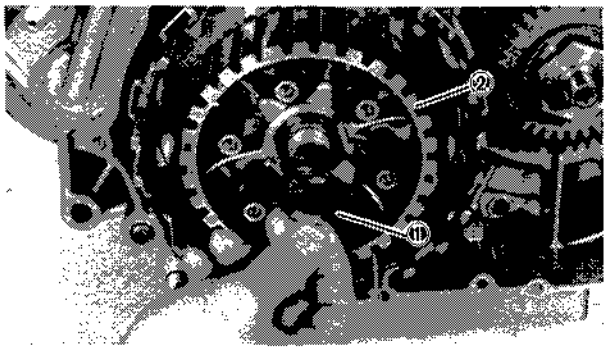
3. Remove:
   - Clutch plate securing bolts
   - Clutch springs
   - Clutch pressure plate
   - Washer ①
   - Thrust bearing ②
   - Short push rod ③



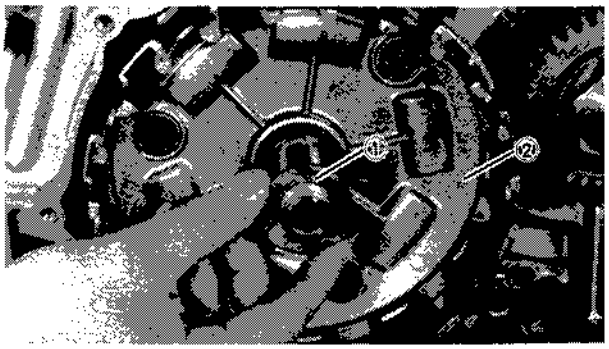
4. Remove:
   - Long push rod ①



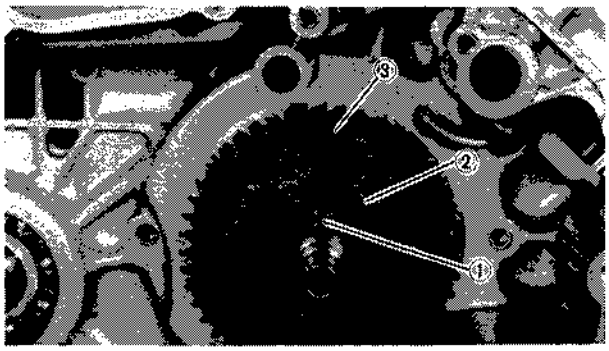
5. Flatten lock washer tab.
6. Remove:
   - Clutch boss securing nut
     Use Clutch Hub Holder (YM-91042).



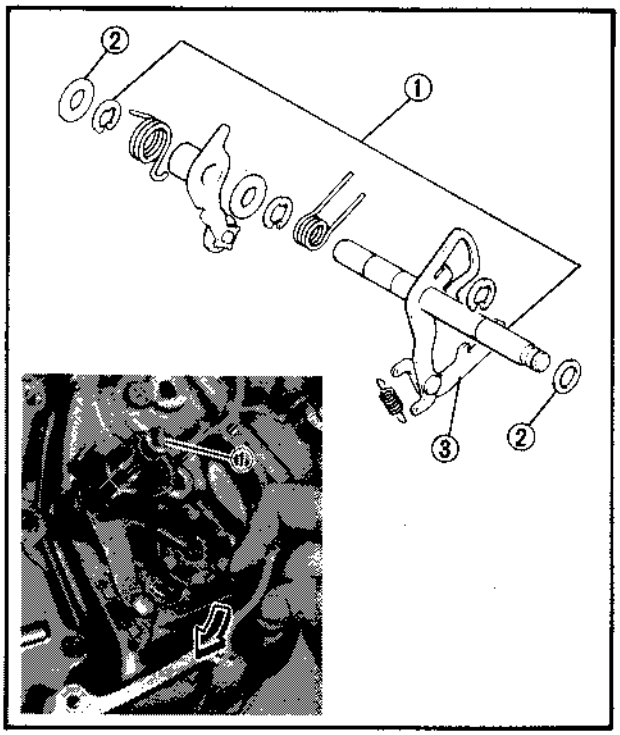
7. Remove:
   - Lock washer ①
   - Clutch boss ②



8. Remove:
   - Thrust washer ①
   - Clutch housing ②



9. Remove:
   - Key ①
   - Cam chain drive gear ②
   - Primary drive gear ③

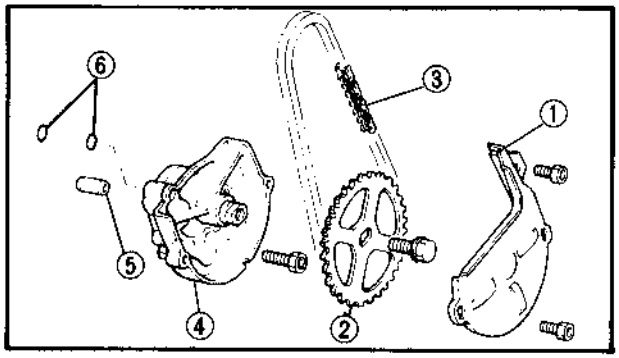


**SHIFTER**

1. Remove:
   - Shift shaft assembly ①
   - Washer ②

**NOTE:**

Disengage shift lever ③ from shift drum pins before removing the shift shaft assembly.

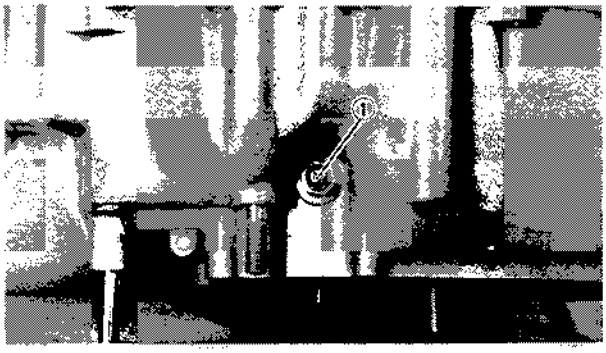


**OIL PUMP**

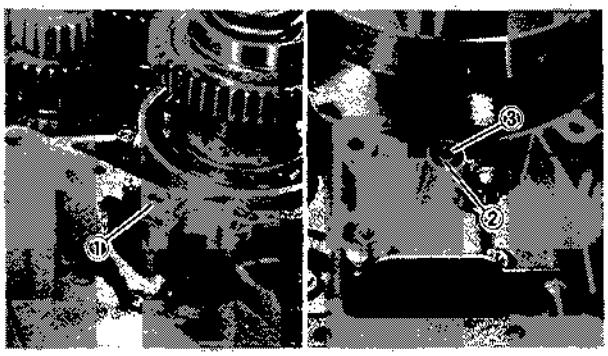
1. Remove:
   - Oil pump cover ①
   - Driven sprocket ②
   - Driven chain ③
   - Oil pump assembly ④
   - Dowel ⑤
   - O-ring ⑥

## CRANKCASE

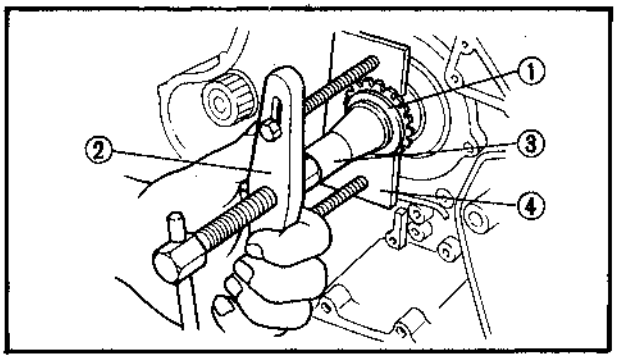
1. Remove:
   - Crankcase bolts
2. Place crankcase on its left side.
3. Remove:
   - Right side crankcase




4. Remove:
   - Neutral switch ①
     (from left side crankcase)




5. Remove:
   - O-ring (Red) ①
   - O-ring (Black) ②
   - Dowel ③
   - Transmission assembly

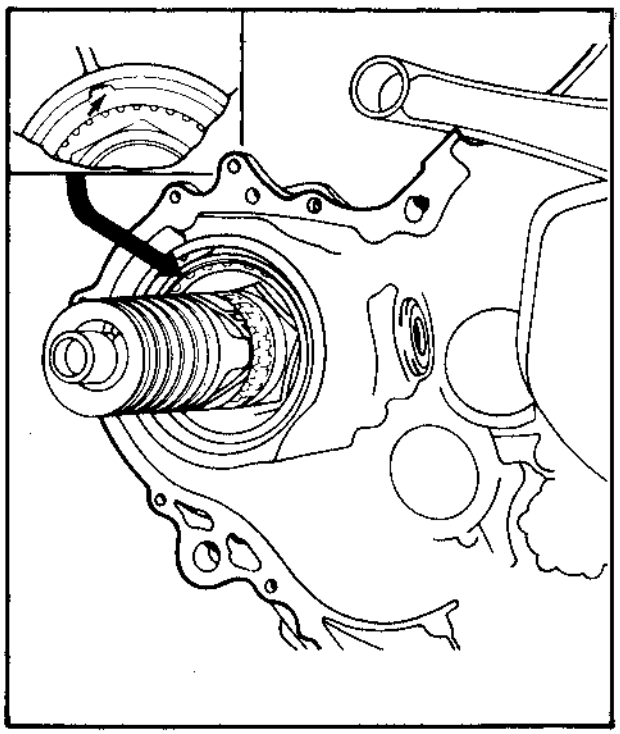



6. Remove:
   - Oil pump drive sprocket ①
     Use Crankcase Separator (YU-01135) ②, Crankshaft Protector (YM-04063) ③, and Oil Pump Drive Sprocket Puller (YM-04061) ④.

**NOTE:**
Discard removed oil pump drive sprocket.

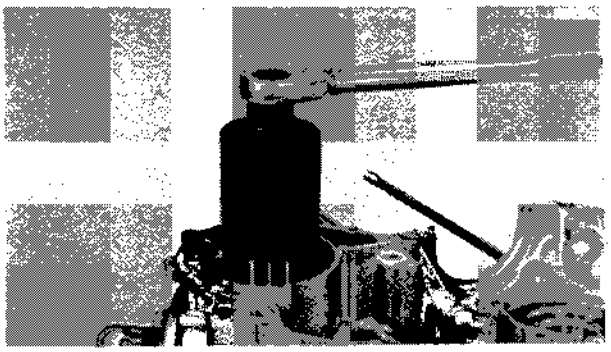



7. Remove:
   - Crankshaft
     Use Crankcase Separating Tool (YU-01135) ①, and Crankshaft Protector (YM-04063) ②.

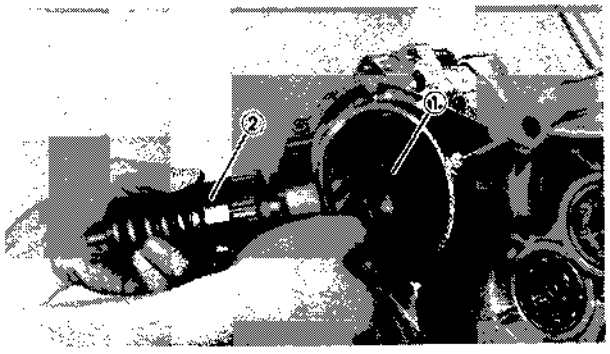


### MIDDLE GEAR

1. Flatten punched portion of middle drive shaft bearing retainer.



2. Remove:
   - Middle drive shaft bearing retainer.
     Use Middle Drive Shaft Bearing Retainer Wrench (YM-04057)




3. Remove:
   - Middle drive shaft assembly ①
   - Shim 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).

**NOTE:**

- 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

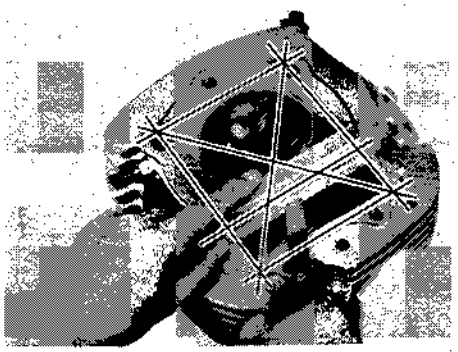
## INSPECTION AND REPAIR

### CYLINDER HEAD

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

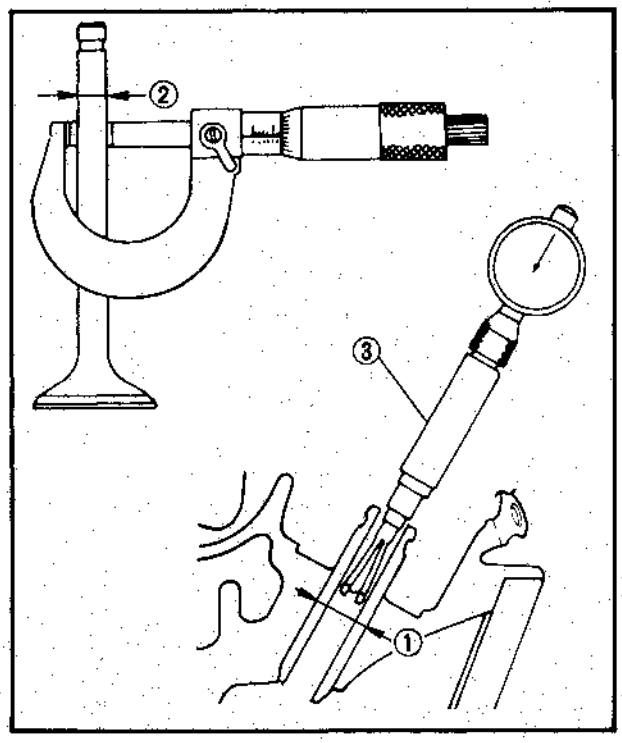
**NOTE:**

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



2. Measure:
   - Warpage
     Exceeds allowable limit → Replace.

| | |
|---|---|
| | **Cylinder Head Warpage:**<br>**Less than 0.03 mm (0.0012 in)** |




### VALVE, VALVE GUIDE, VALVE SEATS, AND VALVE SPRING

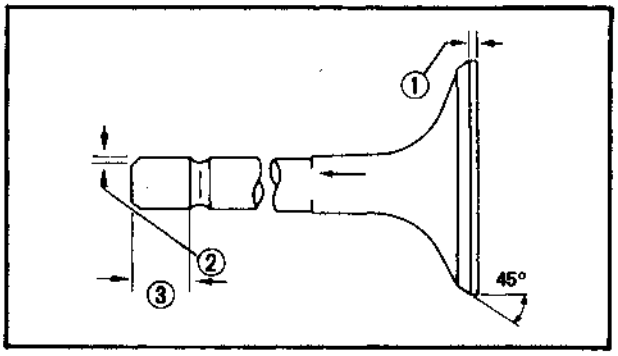
1. Measure:
   - Valve stem clearance

| |
|---|
| Valve stem clearance = |
| Valve guide inside diameter ① − Valve stem diameter ② |

Out of specification → Replace valve or guide.

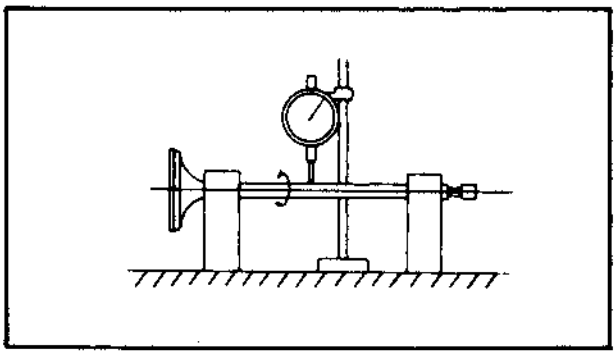
| | Valve Stem Clearance | Maximum |
|---|---|---|
| Intake | 0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in) | 0.10 mm (0.004 in) |
| Exhaust | 0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in) | 0.12 mm (0.005 in) |

③ Bore gauge



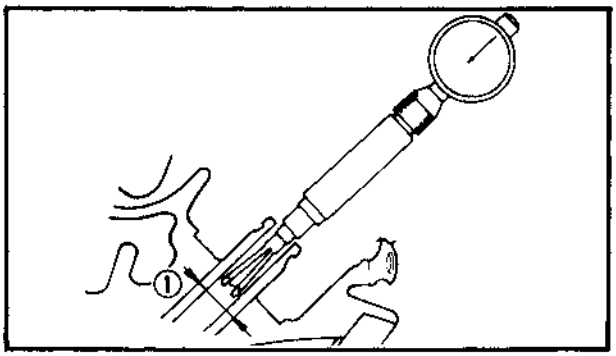

2. Measure:
   - Valve face:
     Pitting/Wear → Regrind.
     Out of specification → Replace.

Minimum Thickness (Service limit) ①:
0.7 mm (0.0276 in)
Beveled ②: 0.5 mm (0.020 in)
Minimum Length (Service limit) ③:
4.0 mm (0.157 in)



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

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




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

**Guide Inside Diameter:**
**Limit: 8.10 mm (0.319 in)**

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

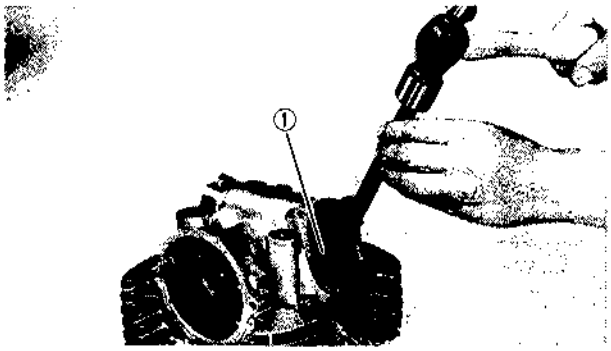
**NOTE:**
Heat the cylinder head in an oven to 100°C (212°F) to ease valve guide removal and reinstallation and to maintain correct interference fit.



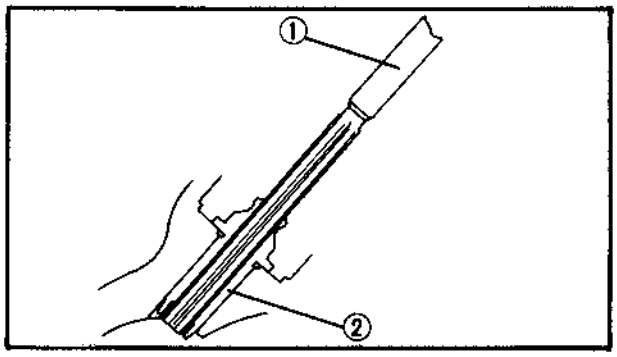

**Valve Guide Replacement**

1. Remove:
   - Valve guide
     Use Valve Guide Remover (YM-01200) ①.

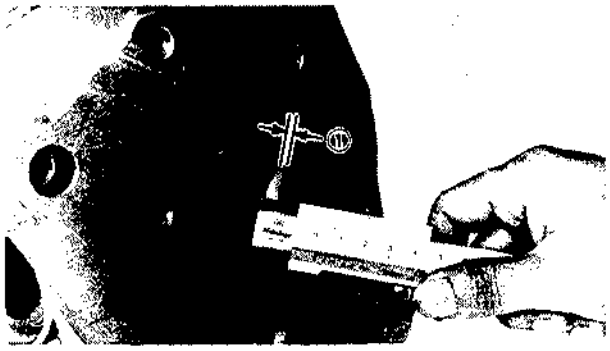
**NOTE:**
- Always replace valve guide if valve is replaced.
- Always replace oil seal if valve is removed.




2. Install:
   - Valve guide (new)
     Use Valve Guide Installer (YM-01201)①.




3. Bore valve guide ② to obtain proper valve stem clearance.
   Use 8 mm Reamer (YM-01211) ①.



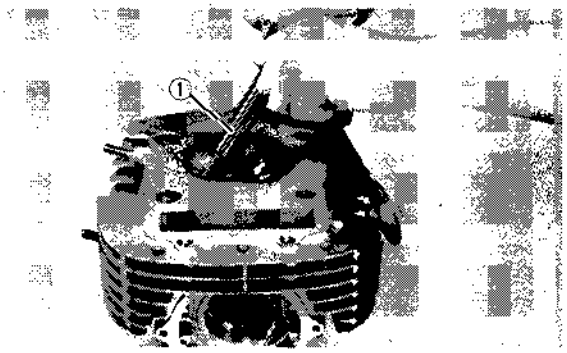
**Valve Seat**

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 | 1.3 ± 0.1 mm (0.051 ± 0.0039 in) | 2.0 mm (0.080 in) |

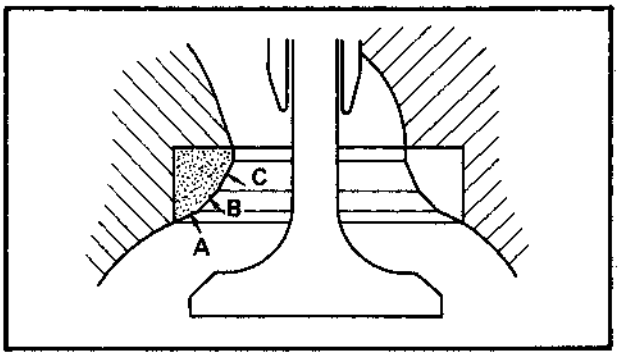
3. Apply:
   - Mechanic's bluing dye (Dykem)
     (to valve and seat)
   - Fine grinding compound (Small amount)
     (to valve face surface)
4. Position:
   - Valve
     (into cylinder head)
5. Spin it rapidly back and forth, then lift valve and clean off all grinding compound.
6. Inspect:
   - Valve seat surface
     Wherever valve seat and valve face made contact, bluing will have been removed.

7. Measure:
   - Valve seat width
     Valve seat width must be uniform in contact area.
     Out of specification → Cut.

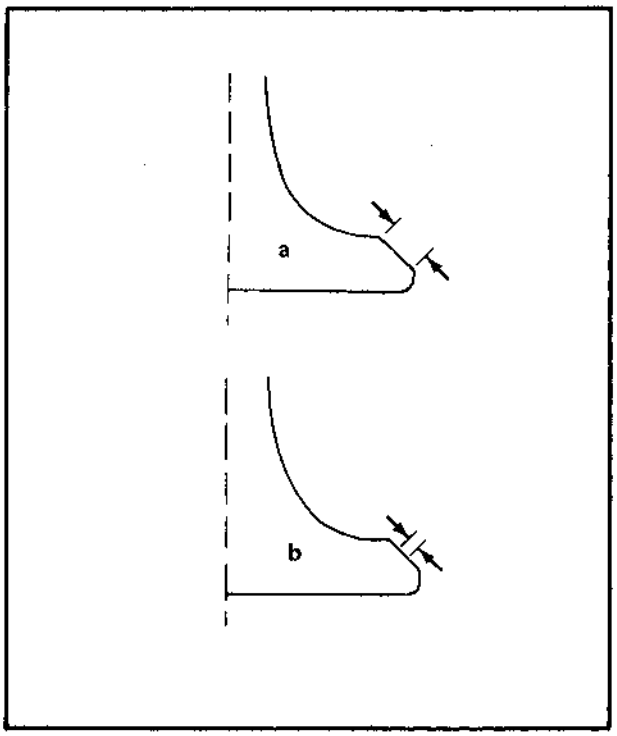



8. Cut valve seat.

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




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

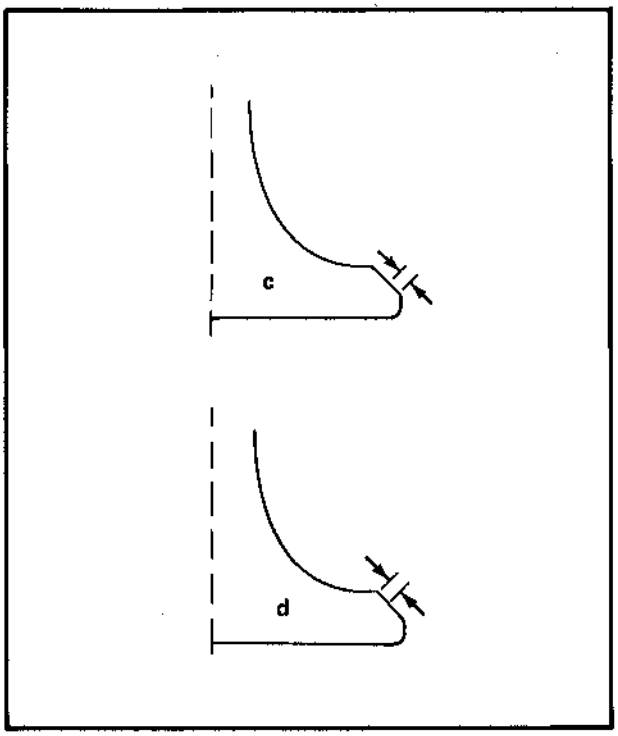



**Valve seat recutting steps are necessary if:**
- Valve seat is uniform around perimeter of valve face but too wide or too narrow or not centered on valve face.

| Cut Valve Seat As Follows: | |
|---|---|
| Section A | 20° Cutter |
| Section B | 45° Cutter |
| Section C | 60° Cutter |

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

| Valve Seat Cutter Set | | Desired Result |
|---|---|---|
| Use | 20° Cutter | to reduce valve seat width. |
| | 60° Cutter | |




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

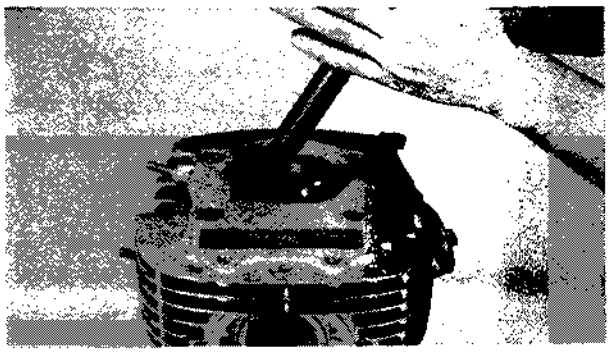
| Valve Seat Cutter Set | | Desired Result |
|---|---|---|
| Use | 45° Cutter | to achieve a uniform valve seat width (Standard specification). |

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

| Valve Seat Cutter Set | | Desired Result |
|---|---|---|
| Use | 20° Cutter, first | to obtain correct seat width. |
| | 45° Cutter | |

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

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



**NOTE:**

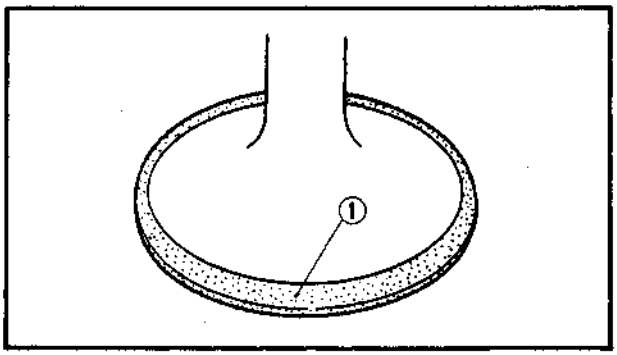
Lap valve/valve seat assembly if:

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

**Valve/Valve Seat Assembly Lapping**

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

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




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

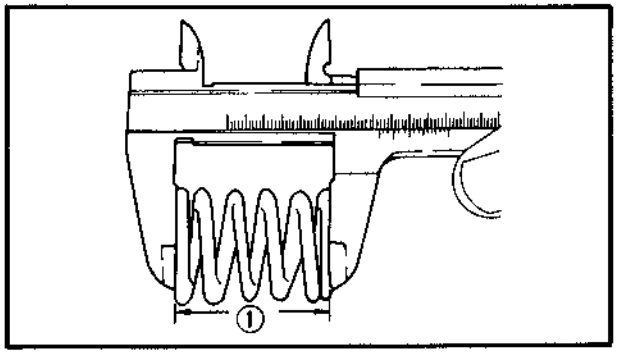
7. Rotate:
   - Valve
     Valve must make full seat contact indicated by grey surface all around valve face where bluing was removed.

8. Apply:
   - Solvent
     (into each intake and exhaust port)
     Leakage past valve seat → Replace valve until seal is complete.

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

**Relapping steps:**
- Reassemble head parts.
- Repeat lapping steps using fine lapping compound.

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

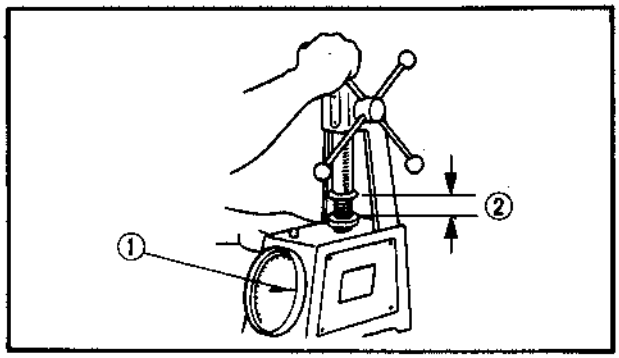



**Valve Spring Measurement**

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

**Valve Spring Free Length**

| Inner Spring | | Outer Spring | |
|---|---|---|---|
| Standard | Wear limit | Standard | Wear limit |
| 45.3 mm (1.783 in) | 43.3 mm (1.705 in) | 44.6 mm (1.756 in) | 42.4 mm (1.669 in) |




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

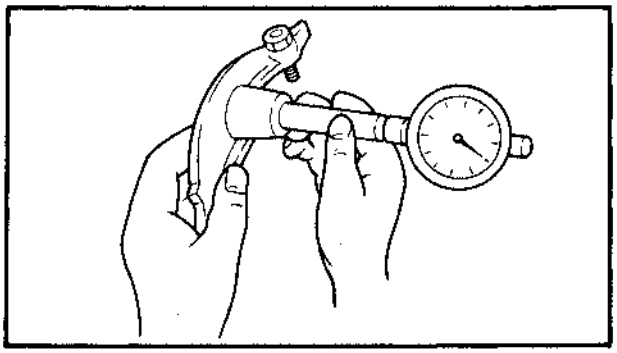
2. Installed length

**Valve Spring Installed Force**

| Inner Spring | | Outer Spring | |
|---|---|---|---|
| ② | ① | ② | ① |
| 38.0 mm (1.496 in) | 12.2 kg (26.7 lb) | 40.0 mm (1.575 in) | 16.4 kg (36.2 lb) |

## ROCKER ARM AND ROCKER ARM SHAFT

1. Inspect:
   - Cam lobe contact surface
   - Rocker arm shaft hole
   Unusual wear → Replace.



2. Measure:
   - Rocker arm inside diameter ("$D_1$")
   Out of specification → Replace.

| Maximum Inside Diameter: |
|---|
| 14.05 mm (0.553 in) |

3. Measure:
   - Rocker arm shaft outside diameter ("$D_2$")
   Out of specification → Replace.

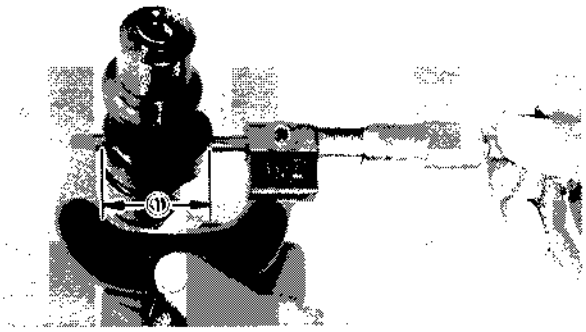
| Minimum Outisde Diameter: |
|---|
| 13.95 mm (0.549 in) |

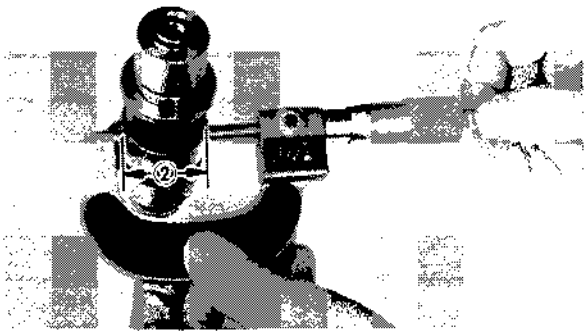
4. Inspect:
   - Rocker arm shaft
   Blue discoloration/Grooves → Replace, then inspect lubrication system.

5. Calculate:
   - Rocker arm to rocker arm shaft clearance.
   Out of specification → Replace.

| Rocker Arm/Rocker Arm Shaft Clearance: | |
|---|---|
| How to calculate | Maximum limit |
| $D_1 - D_2$ | 0.1 mm (0.004 in) |

## CAHMSHAFT, CAM CHAIN, AND CAM SPROCKET





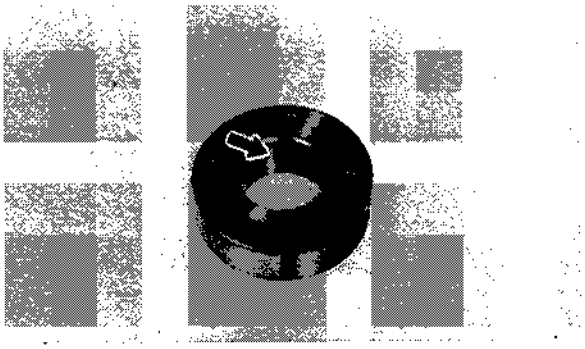
### Camshaft

1. Measure:
   - Large cam lobe length ①
   - Small cam lobe length ②

   Use a micrometer.
   Out of specification → Replace.

| | XV700 | |
|---|---|---|
| | Intake | Exhaust |
| ① | 39.17 mm (1.5421 in) | 39.20 mm (1.5433 in) |
| ② | 32.23 mm (1.2689 in) | 32.26 mm (1.2701 in) |

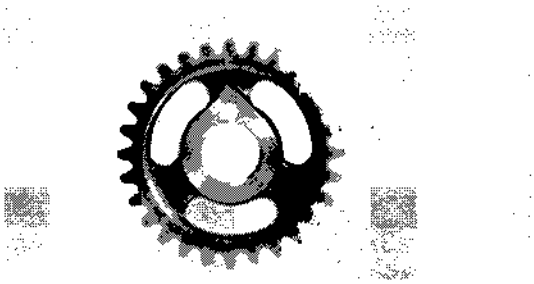
| | XV1000 | |
|---|---|---|
| | Intake | Exhaust |
| ① | 39.17 mm (1.542 in) | 39.20 mm (1.5433 in) |
| ② | 32.17 mm (1.2665 in) | 32.27 mm (1.2705 in) |



### Camshaft Bushing

1. Clean and dry bushings
2. Inspect:
   - Bushings (Inner surfaces)

   Rust spots/Pitting/Scoring → Replace.



### Cam Chain Sprocket

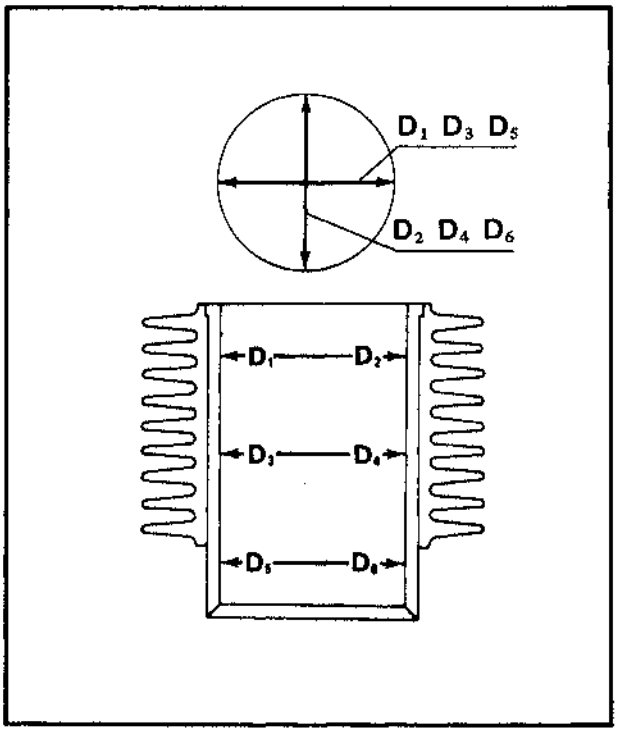
1. Inspect:
   - Cam chain sprockets

   Wear/Damage → Replace.

## CYLINDER

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

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




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

| | XV700 | |
|---|---|---|
| | Standard | Wear limit |
| Cylinder Bore: C | 80.2 mm (3.157 in) | 80.3 mm (3.161 in) |
| Cylinder Taper: T | – | 0.05 mm (0.002 in) |

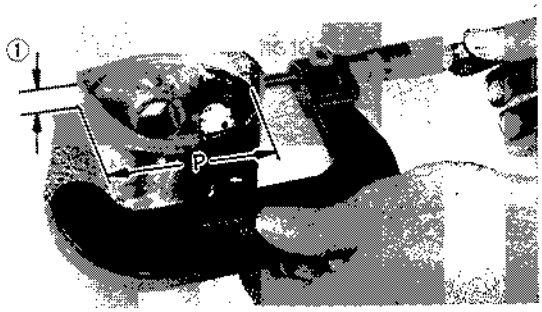
| | XV1000 | |
|---|---|---|
| | Standard | Wear limit |
| Cylinder Bore: C | 95.0 mm (3.740 in) | 95.1 mm (3.744 in) |
| Cylinder Taper: T | – | 0.05 mm (0.002 in) |

C = Maximum D
T = Maximum $D_1$, $D_2$ – Minimum $D_5$, $D_6$

## PISTON, PISTON RING, AND PISTON PIN

### Piston

1. Measure:
   - Piston skirt diameter "P"




**NOTE:**
Measure the piston skirt diameter where the distance 9.0 mm (0.354 in) ① for XV700 and 14.6 mm (0.575 in) for XV1000 from the piston bottom edge.

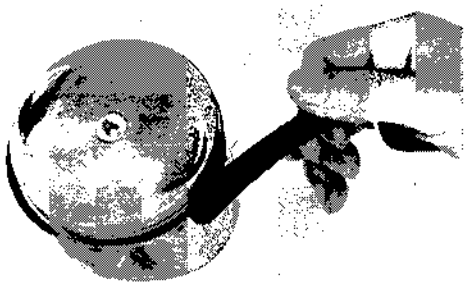
| | Piston size A | |
|---|---|---|
| | XV700 | XV1000 |
| Standard | 80.00 mm (3.1496 in) | 95.00 mm (3.7402 in) |
| Oversize 2 | 80.50 mm (3.1693 in) | 95.50 mm (3.7598 in) |
| Oversize 4 | 81.00 mm (3.1890 in) | 96.00 mm (3.7796 in) |

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: | |
|---|---|---|
| | XV700 | XV1000 |
| | 0.040 ~ 0.060 mm (0.00157 ~ 0.00236 in) | 0.045 ~ 0.065 mm (0.0018 ~ 0.0026 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: | |
|---|---|---|
| | XV700 | XV1000 |
| Top | 0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in) | ← |
| 2nd | 0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in) | ← |



2. Position:
   - Piston ring
     (in cylinder)

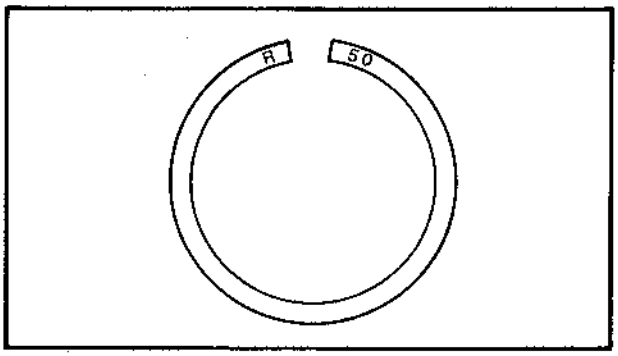
**NOTE:**
Insert a ring into cylinder, and push it approximarely 20 mm (0.8 in) into cylinder. Push ring with piston crown so that ring will be at a right angle to cylinder bore.

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.

| | XV700 | |
|---|---|---|
| | Standard | Limit |
| Top ring | 0.2 ~ 0.4 mm (0.008 ~ 0.016 in) | 0.80 mm (0.0315 in) |
| 2nd ring | 0.2 ~ 0.4 mm (0.008 ~ 0.016 in) | 0.80 mm (0.0315 in) |
| Oil control (Rails) | 0.2 ~ 0.7 mm (0.008 ~ 0.028 in) | – |

| | XV1000 | |
|---|---|---|
| | Standard | Limit |
| Tor ring | 0.3 ~ 0.5 mm (0.012 ~ 0.020 in) | 0.80 mm (0.0315 in) |
| 2nd ring | 0.2 ~ 0.4 mm (0.008 ~ 0.016 in) | 0.80 mm (0.0315 in) |
| Oil control (Rails) | 0.3 ~ 0.9 mm (0.012 ~ 0.035 in) | – |

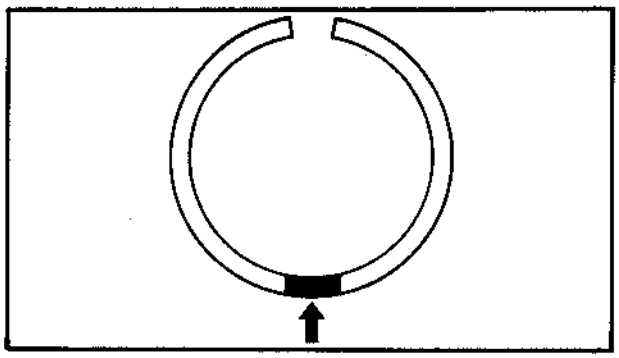



**Piston Ring Oversize**

- Top and 2nd piston ring

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

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

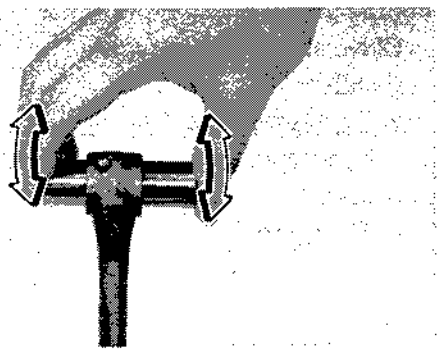


- Oil control ring

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

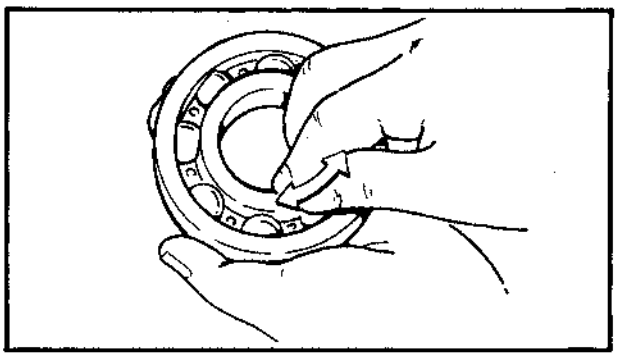
| Size | Color |
|---|---|
| Oversize 2 | Blue |
| Oversize 4 | Yellow |

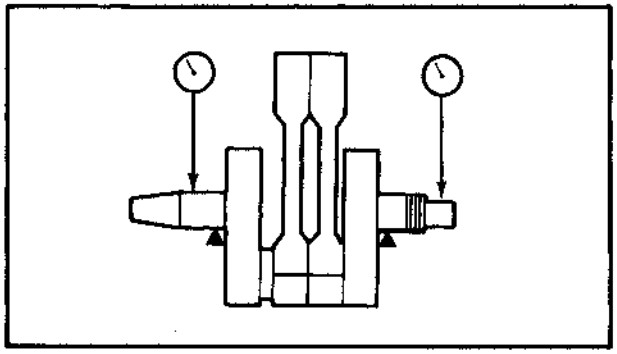




**Piston Pin**

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





## CRANKSHAFT AND CONNECTING ROD

### Crankshaft 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 (YU-03097).

**Maximum Crankshaft Runout:**
**0.02 mm (0.0007 in)**

### Connecting Rod Bearings

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

### Connecting Rod Bearing Clearance

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

5. Apply:
   - Molybdenum disulfide grease (to bolt threads)

   Torque both ends of rod cap evenly.

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

CAUTION:
**Tighten to full torque specification without pausing. Apply continuous torque between 4.3 and 4.8 m·kg. Once you reach 4.3 m·kg DO NOT STOP TIGHTENING unitl final torque is reached. If tightening is interrupted between 4.3 and 4.8 m·kg, loosen nut to less than 4.3 m·kg and start again.**

| | |
|---|---|
| | **48 Nm (4.8 m·kg, 35 ft·lb)** |

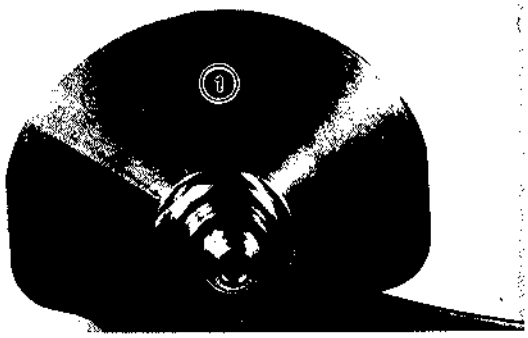


6. Remove:
   - Connecting rod cap

   Remove carefully.
7. Measure:
   - Plastigage width

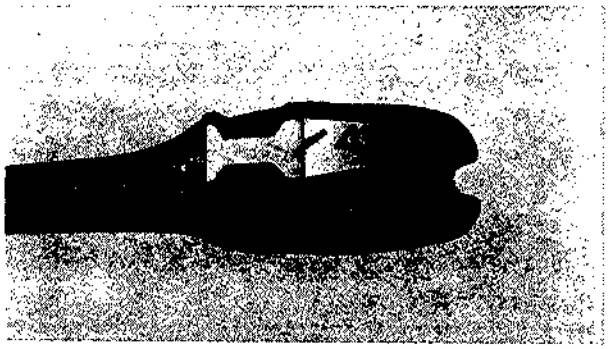
   Out of specification → Replace connecting rod bearing.

| | |
|---|---|
| | **Connecting Rod Bearing Clearance: 0.030 ~ 0.054 mm (0.0012 ~ 0.0021 in)** |

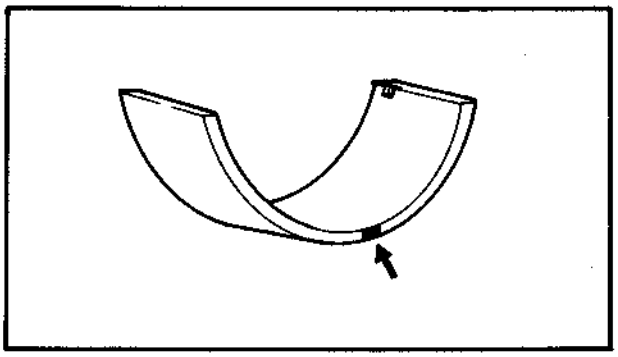


**Connecting Rod Bearing Selection**

Numbers used to indicate crankpin size are stamped on LH crank web.



Connecting rods are numbered "4" or "5"; numbers are stamped in ink, on the rod.



1. Subtract crankpin number from rod size number to select proper bearing number.
2. Use color code as shown in diagram to choose proper bearing.

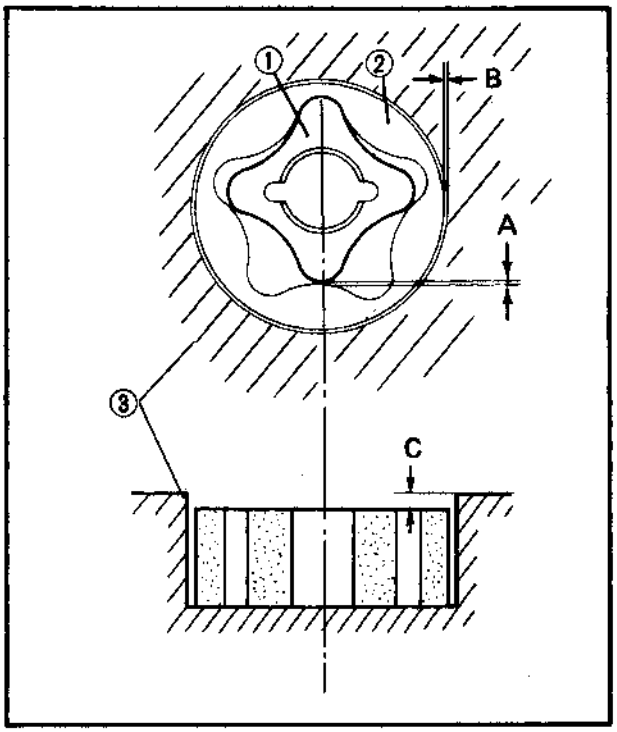
Example:

Rod No. – Crankpin No. = Bearing No.

4 – 1 = 3

No. 3 bearing is brown. Use brown bearing inserts.

| Bearing color code | |
|---|---|
| No. 1 | Blue |
| No. 2 | Black |
| No. 3 | Brown |
| No. 4 | Green |
| No. 5 | Yellow |



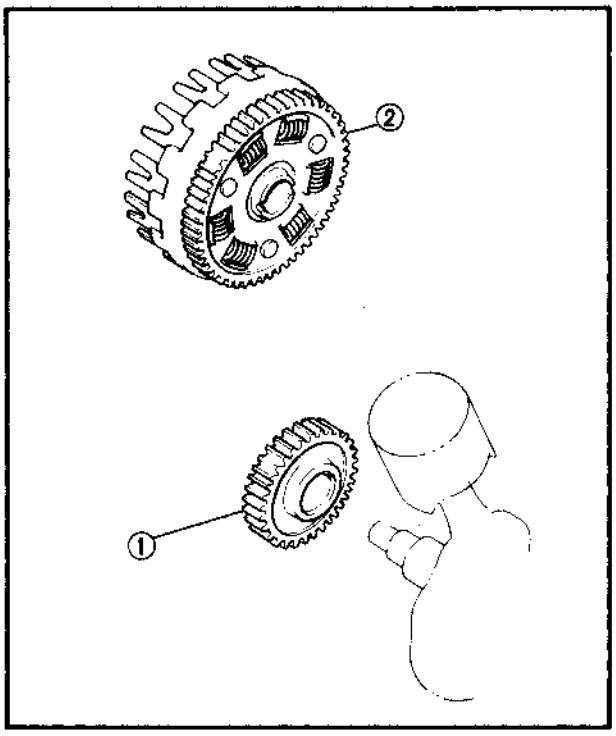

## OIL PUMP

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

   Out of specification → Replace oil pump.

**Oil Pump Clearance:**

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




## 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 | |
| 47 | 78 | 1.660 |

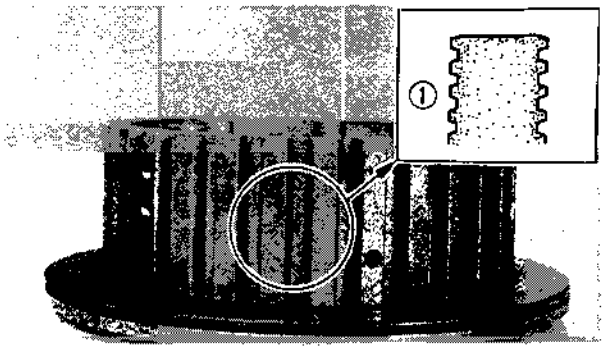



## CLUTCH

1. Inspect:
   - Clutch housing dogs ①

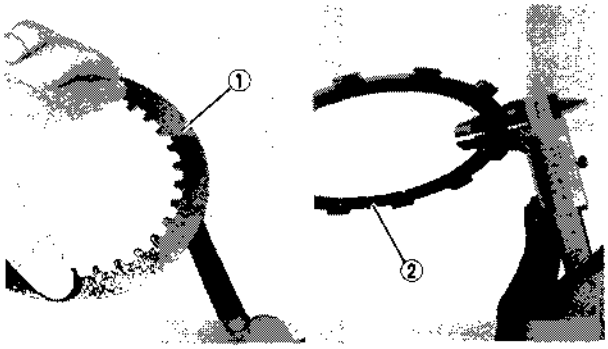
   Cracks/Pitting (edges):
   Moderate → Deburr.
   Severe → Replace clutch housing.

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



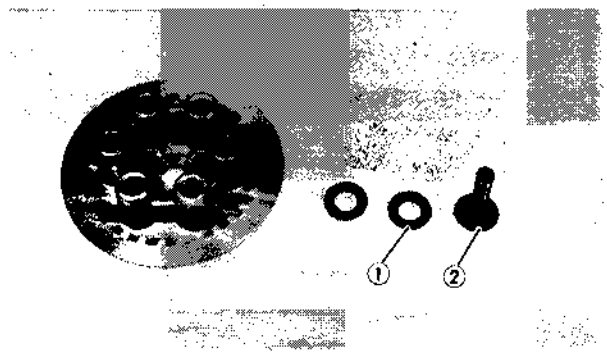

2. Inspect:
   - Clutch housing bearing
     Damage → Replace.
3. Inspect:
   - Clutch boss spline ①
     Pitting:
     Moderate → Deburr .
     Severe → Replace.

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

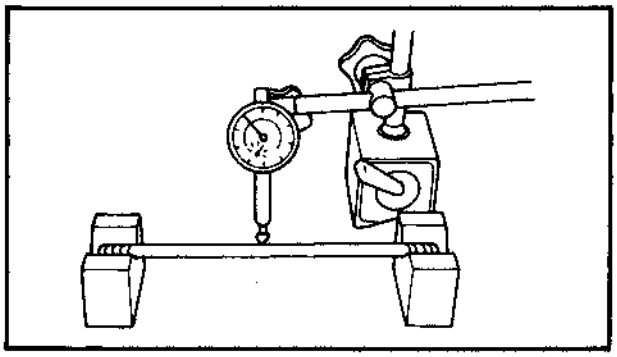



4. Measure:
   - Clutch plate warpage ①
   - Friction plate thickness ②
     Out of specification → Replace.
     Clutch or friction plate as a set.

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

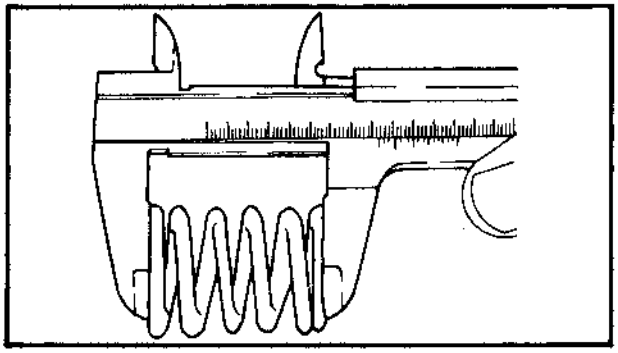



5. Inspect:
   - Short push rod thrust bearing ①
   - Short push rod ②
     Damage → Replace.



6. Measure:
   - Long push rod
     Roll on V-block.
     Exceeds bending limit → Replace.

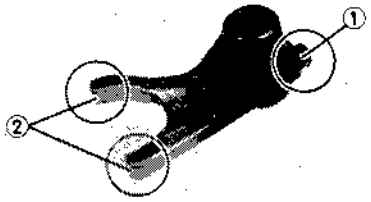
**Bend Limit: 0.5 mm (0.02 in)**



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

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

## TRANSMISSION




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

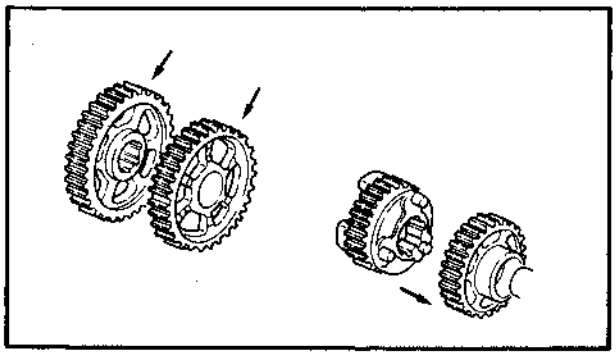


2. Inspect:
   - Shift cam groove
   - Shift cam dowel and side plate
   - Shift cam stopper plate, circlip and stopper.
     Wear/Damage → Replace.

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.

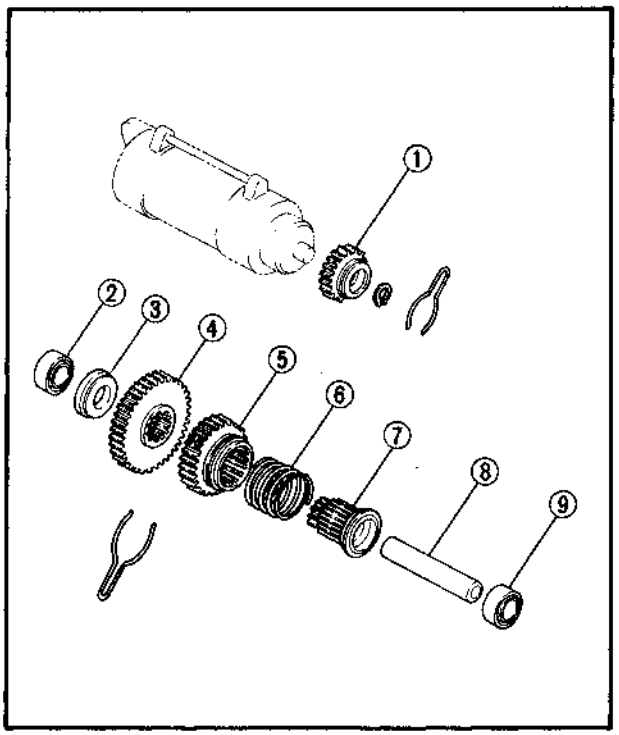
| Maximum Runout: |
| --- |
| 0.08 mm (0.0031 in) |



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

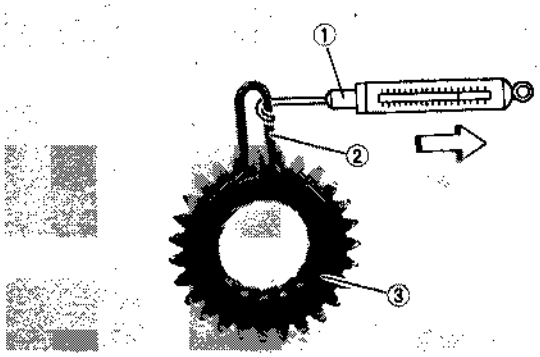


6. Check:
   - Proper gear engagement (Each gear) (to its counter part)
     Incorrect → Reassemble
   - Gear movement
     Roughness → Replace.



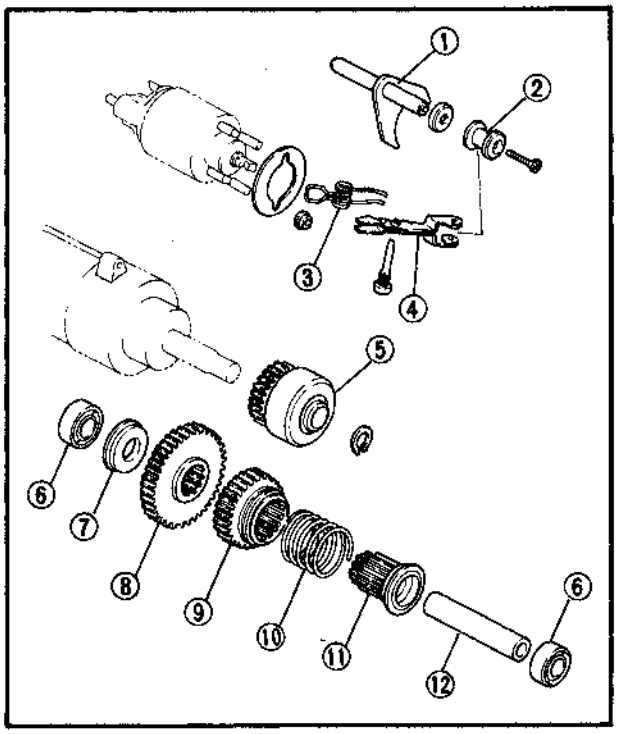

**STARTER DRIVE**
**(XV700)**

1. Inspect:
   - Starter gear ①
   - Idle gear ④⑤
   - Starter wheel ⑦
     Pitting/Damage → Replace.
2. Inspect:
   - Rubber bushing ②
   - Damper washer ③
   - Idler shaft ⑧
   - Compression spring ⑥
     Damage/Wear/Fatigue → Replace.




3. Measure:
   - Tension of spring clips ②
     Use a spring gauge ①.
     Out of specification → Replace.

**Spring Clip Tension:**
**Idler Gear**
**2.2 ~ 2.5 kg (4.9 ~ 5.5 lb)**
**Starter Gear:**
**2.0 ~ 2.3 kg (4.4 ~ 5.1 lb)**




**(XV1000)**

1. Inspect:
   - Starter clutch ⑤
   - Idler gear ⑧ ⑨
   - Starter wheel ⑪
     Pitting/Damage → Replace.
2. Inspect:
   - Drive lever shaft ①
   - Drive lever collar ②
   - Spring ③
   - Drive lever ④
   - Rubber bushing ⑥
   - Damper washer ⑦
   - Compression spring ⑩
   - Idler shaft ⑫
     Damage/Wear/Fatigue → Replace.

## CRANKCASE

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

## BEARINGS AND OIL SEALS

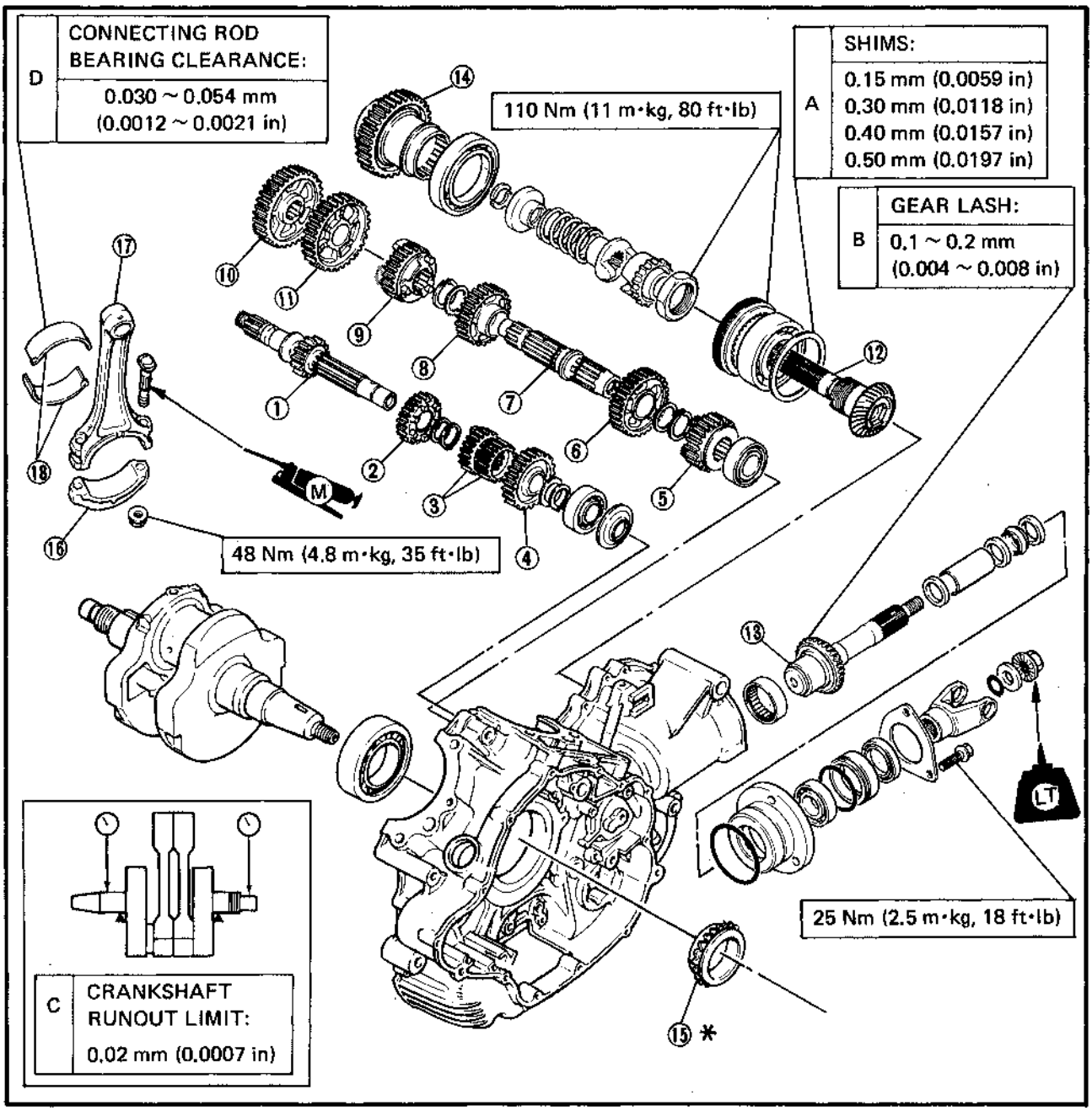
1. Inspect:
   - Bearing
     Clean and lubricate, then rotate inner race with finger.
     Roughness → Replace bearing (see Removal).
2. Inspect:
   - Oil seals
     Damage/Wear → Replace (see Removal).

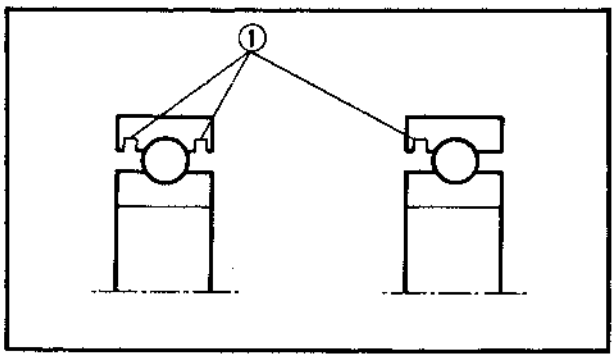
# ENGINE ASSEMBLY AND ADJUSTMENT

## LEFT SIDE CRANKCASE

1 Main shaft
2 4th pinion gear
3 2nd/3rd pinion gear
4 5th pinion gear
5 5th wheel gear
6 2nd wheel gear
7 Drive axle
8 3rd wheel gear
9 4th wheel gear
10 Middle drive gear
11 1st wheel gear
12 Middle drive shaft
13 Middle driven shaft
14 Middle driven gear
15 Oil-pump drive sprocket (Press fit)
16 Connecting rod cap
17 Connecting rod
18 Connecting rod bearing

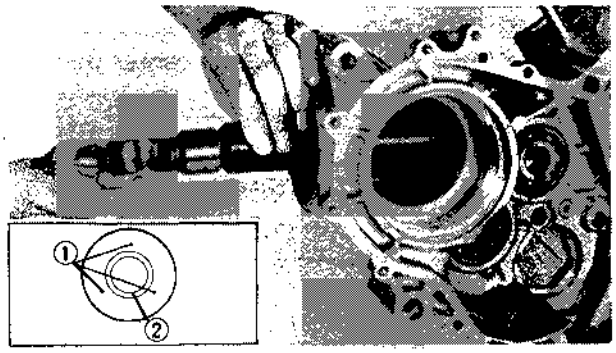
* Discard removed oil pump drive sprocket



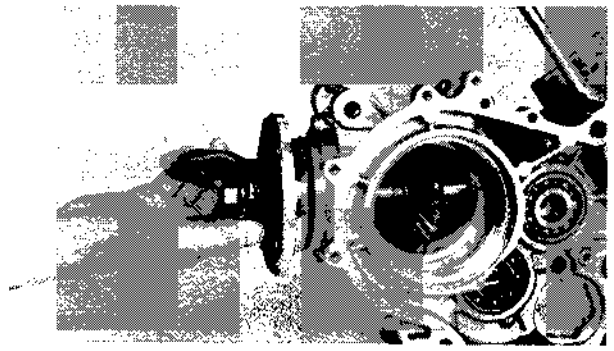



1. Lubricate:
   - Crankshaft bearing
   - Transmission bearing

**NOTE:**
- Be sure the bearing ID mark faces towards the inside of the crankcase.
- The left side crankcase bearing has a groove(s) ① in the outer race, the right side bearing does not.

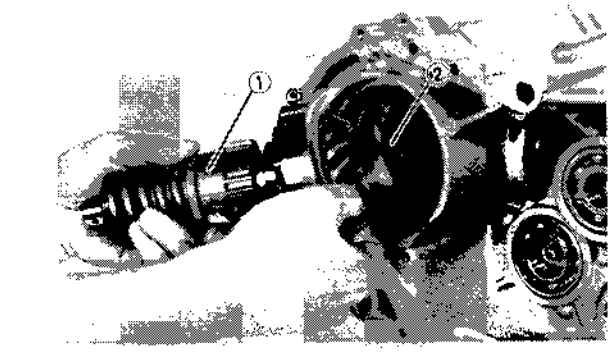



2. Install:
   - Middle driven shaft bearing
     Use 40 ~ 50 mm Middle-Driven Shaft-Bearing Driver (YM-04058) with the alignment ring.
3. Lock bearing ② into place by lightly punching crankcase at three points ① around bearing.



4. Install:
   - Middle driven shaft assembly.
     Use new O-ring when installing the middle driven shaft assembly.
   - Bolts

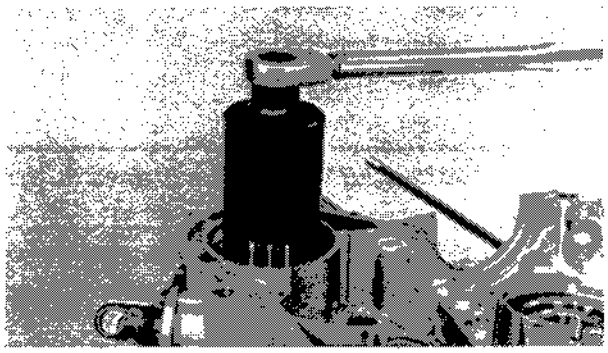
| | |
|---|---|
| | 25 Nm (2.5 m·kg, 18 ft·lb) |




5. Install:
   - Proper shim ①
   - Middle drive shaft assembly ②

**NOTE:**
Be sure that bearing lower race is properly seated against crankcase.

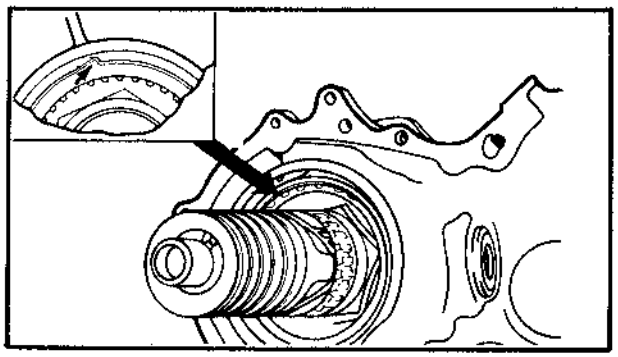
**CAUTION:**
**The middle drive shaft bearing is a slip fit. If bearing cocks during installation, remove the middle drive shaft assembly and start again. Bearing must go in smoothly.**



6. Install:
   - Middle-driven-shaft-bearing retainer

| | |
|---|---|
| | **110 Nm (11 m·kg, 80 ft·lb)** |

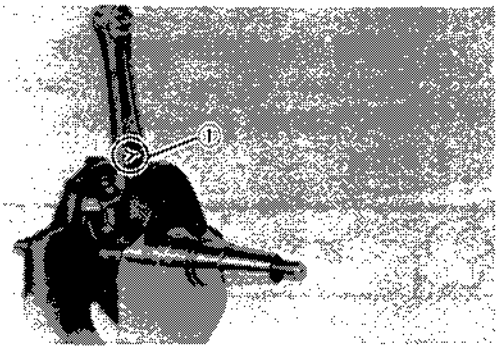
Use Middle-Drive-Shaft-Bearing-Retainer Wrench (YM-04057)



7. Bend the retainer lock collar into the slot in the crankcase using a center punch.

**CAUTION:**

**Be sure gear lash is properly adjusted before locking middle drive shaft bearing retainer.**

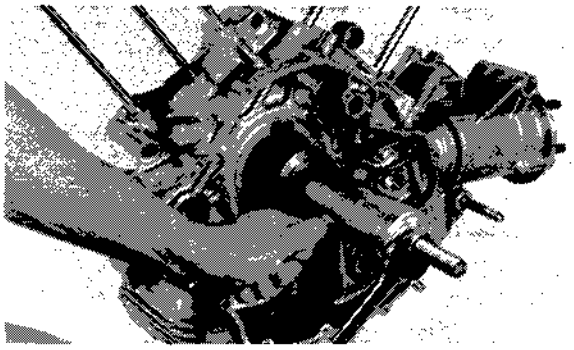


8. Install:
   - Connecting rod bearing
   - Connecting rod
9. Position:
   - Connecting rod "Y" mark ①
     (toward tapered end of crankshaft)
10. Align:
    - Rod location marks
      (with corresponding marks on rod caps)

| | |
|---|---|
| | **Connecting Rod Cap Bolt:**<br>**48 Nm (4.8 m·kg, 35 ft·lb)**<br>**Molybdenum disulfide grease** |

**CAUTION:**

**Tighten to full torque specification without pausing. Apply continuous torque between 4.3 and 4.8 m·kg. Once you reach 4.3 m·kg DO NOT STOP TIGHTENING until final torque is reached. If tightening is interrupted between 4.3 and 4.8 m·kg, loosen nut to less than 4.3 m·kg and start again.**

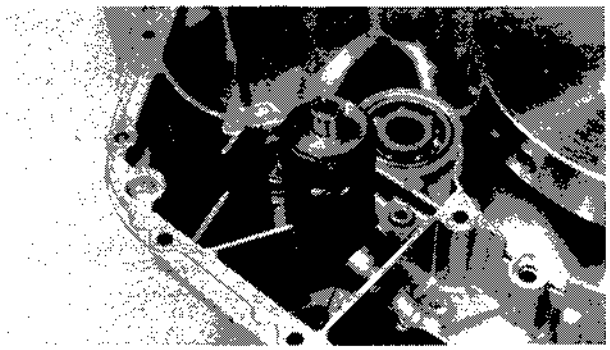


11. Install:
    - Crankshaft
      Use Crankshaft Installing Set and Adapter (YM-90050/90069)
12. Align:
    - Left connecting rod
      (with rear cylinder sleeve hole)

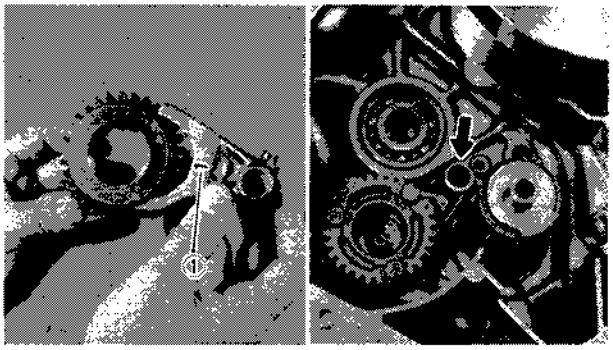
**NOTE:**
Rod must be in rear cylinder sleeve hole when the crankshaft is installed.



13. Install:
    - Oil pump drive sprocket (New)
14. Position:
    - Flange side of sprocket (Outward, away from main bearing)
      Use Crankshaft Installing Tool (YM-90050).

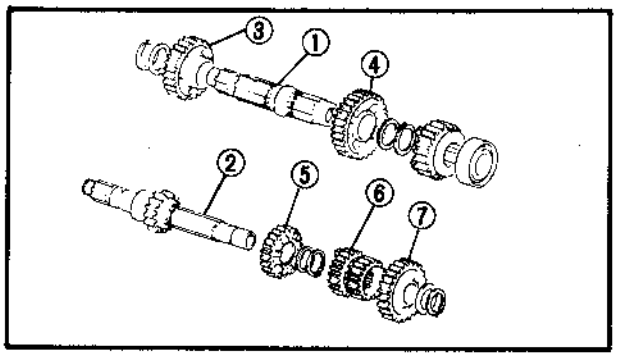


15. Install:
    - Shift drum



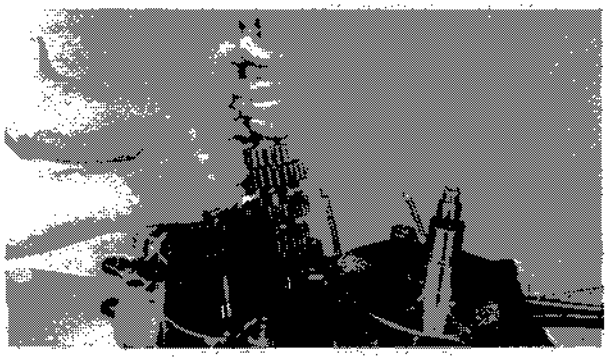
16. Install:
    - Shift fork # 1
      (onto fifth wheel gear)
17. Position:
    - Fifth wheel gear
      (so it is centered over drive axle bearing)

**NOTE:**
The number ① forged on shift fork must always face towards the left side crankcase. Be sure that shift fork guide pin is properly seated in shift drum groove.

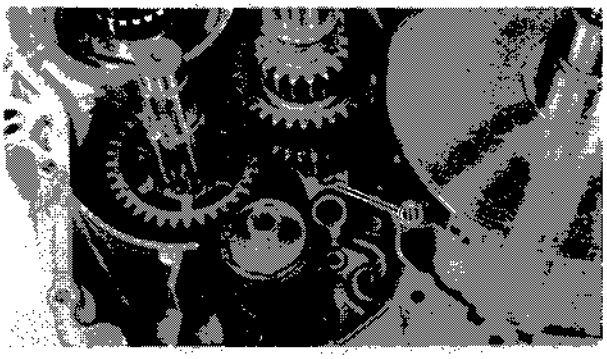



18. Assemble:
    - Drive axle ①
    - Main axle ②

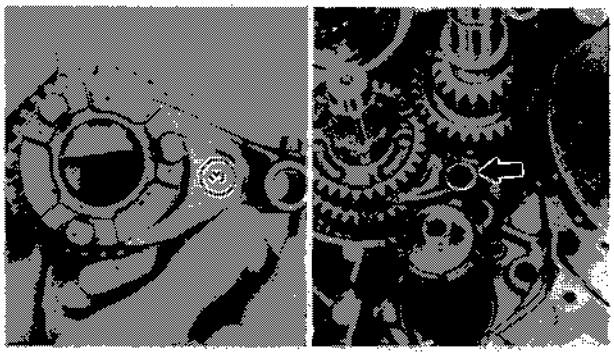
③ 3rd wheel gear
④ 2nd wheel gear
⑤ 4th pinion gear
⑥ 2nd/3rd pinion gear
⑦ 5th pinion gear



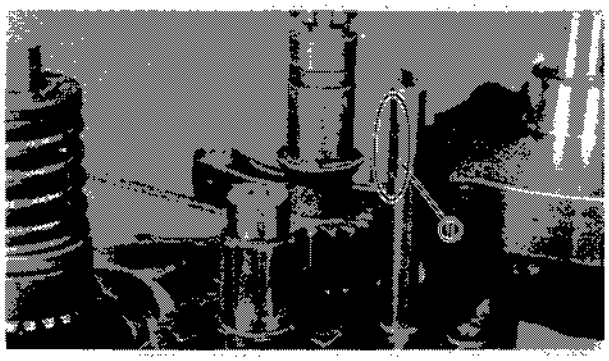
19. Install:
    - Drive axle
    - Main axle



20. Install:
    - Shift fork # 2 ①
      (onto 2nd/3rd pinion gear)



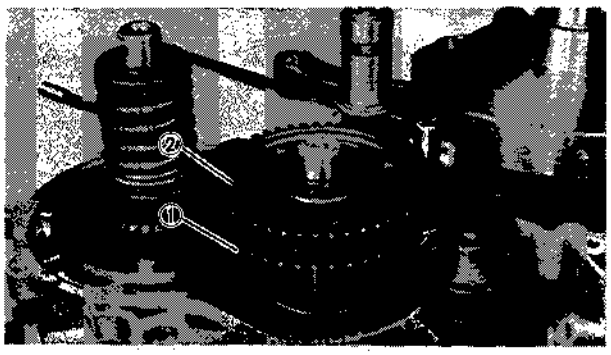
21. Install:
    - Shift fork # 3
      (onto 4th wheel gear)
    - 4th wheel gear
      (onto drive axle)



22. Install:
    - Shift fork guide bar

**NOTE:**
Be sure guide bar passes through all shift forks and engages guide bar boss in crankcase.

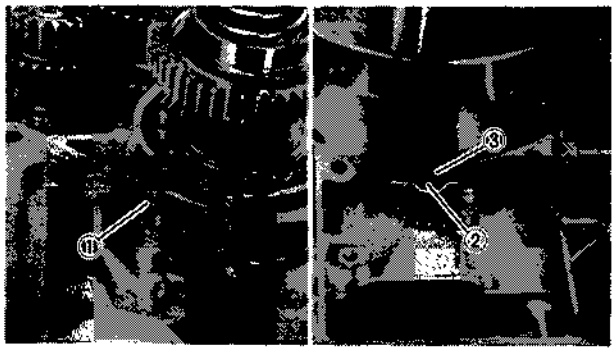
① Flat cutting



23. Install:
    - 1st wheel gear ①
    - Middle drive gear ②



24. Install:
    - Middle driven gear
      (onto middle drive shaft)



25. Install:
    - O-ring (Red) ①
    - O-ring (Black) ②
    - Dowel ③



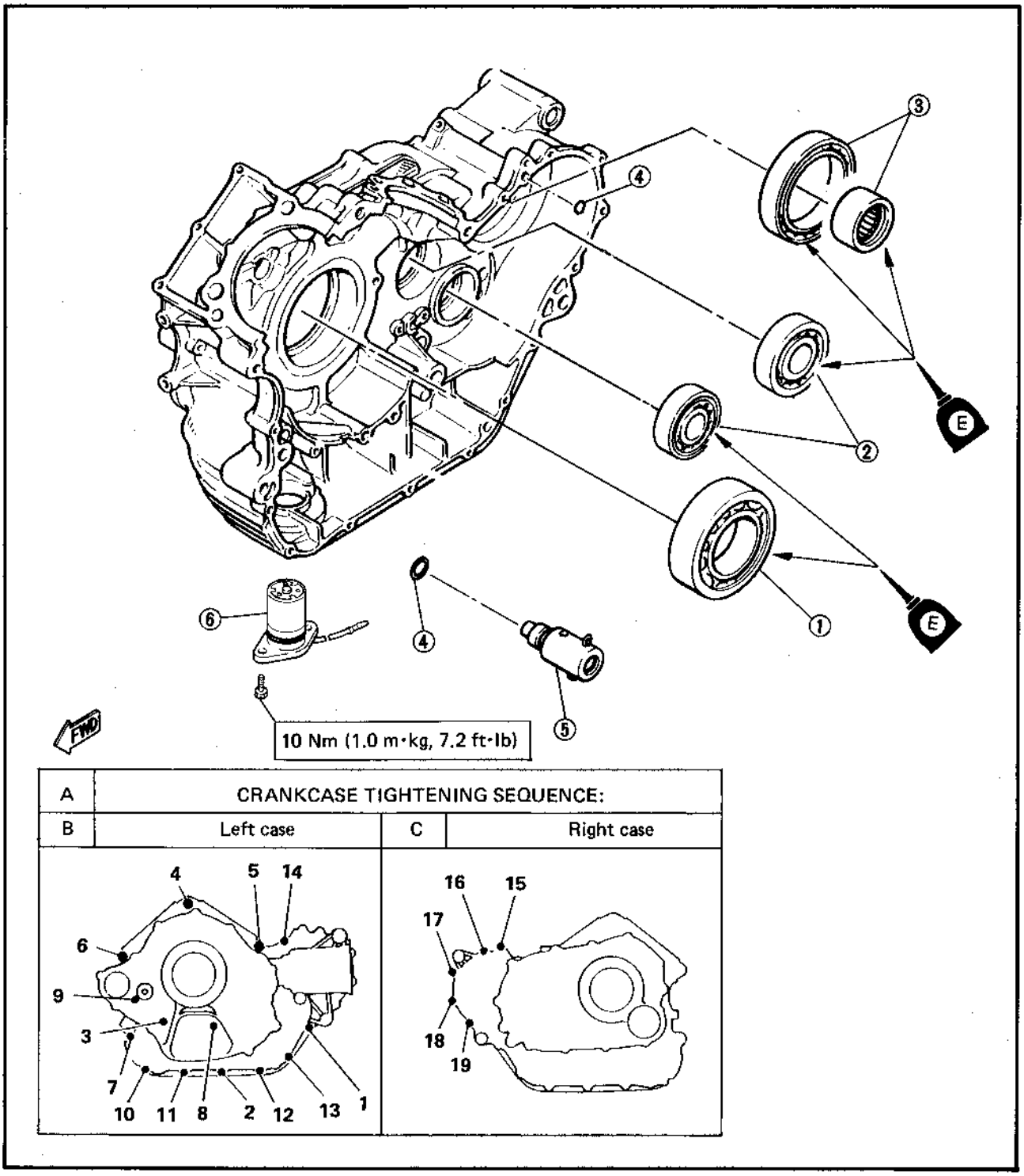
26. Install:
    - Neutral switch ①

**NOTE:**
Use copper washer.

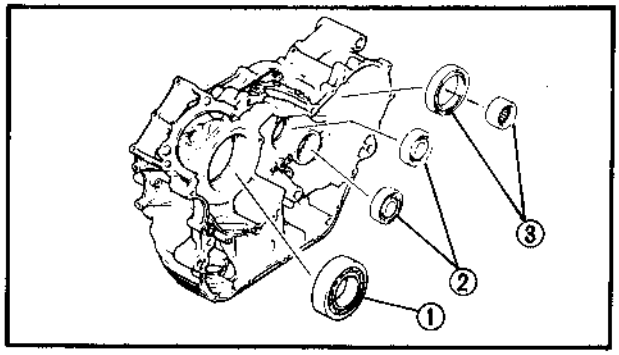
| | |
|---|---|
| | 20 Nm (2.0 m·kg, 14 ft·lb) |

## RIGHT SIDE CRANKCASE

1 Crankshaft bearing
2 Transmission bearings
3 Middle gear bearings
4 O-ring
5 Oil pressure relief valve
6 Oil level switch




| A | CRANKCASE TIGHTENING SEQUENCE: | | |
|---|---|---|---|
| B | Left case | C | Right case |



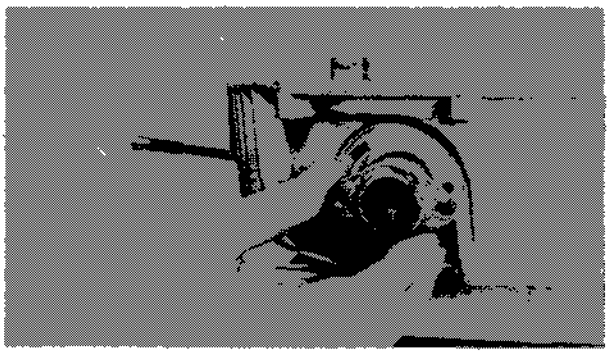

1. Install:
   - Crankshaft bearing ①
   - Transmission bearing ②
   - Middle gear bearing ③

**NOTE:**
- Oil liberally before installation.
- Push outer bearing race, not inner race.
- Crankshaft bearings are not interchangeable. Left side crankcase bearing has groove in outer race, right side does not.



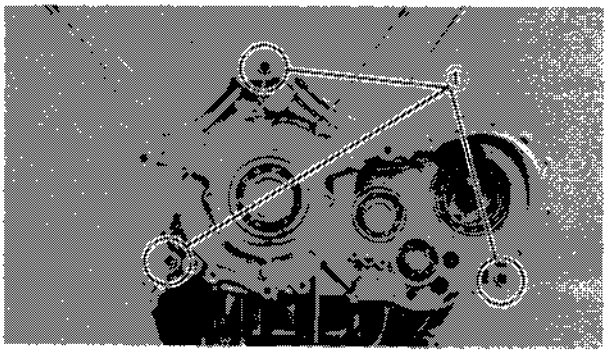

2. Install:
   - O-ring
   - Oil pressure relief valve ①

**NOTE:**
Rotate the valve so that the cotter pin does not contact the crankcase mating surface.

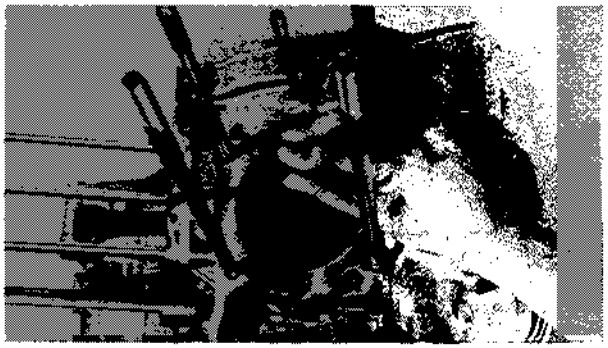


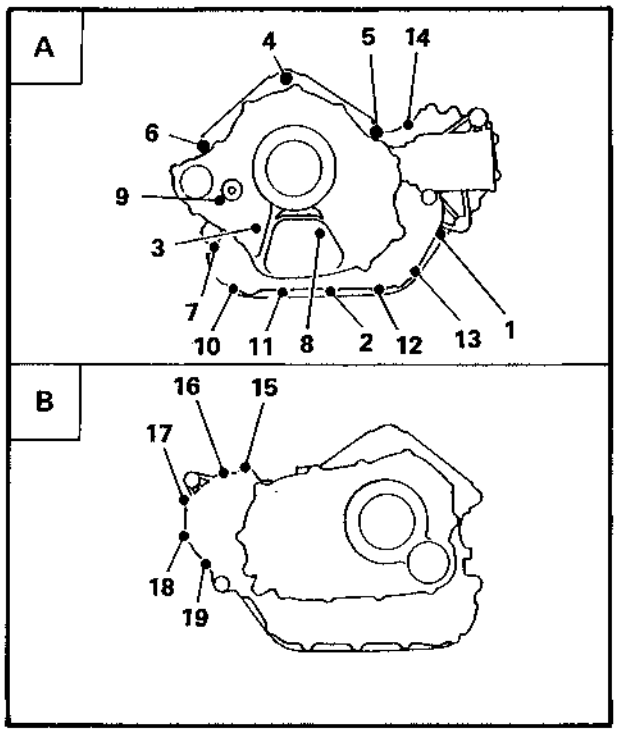
3. Install:
   - Oil level switch
   - Oil level switch cover

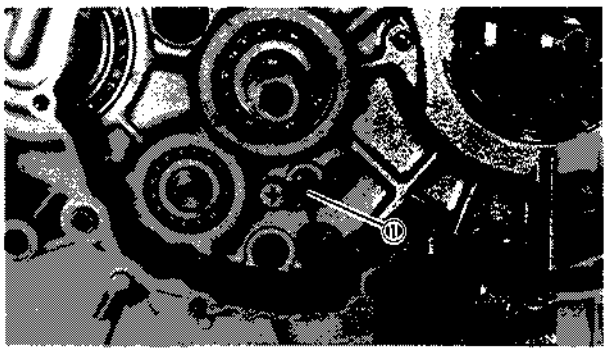
**Oil Level Switch Bolt:**
**10 Nm (1.0 m·kg, 7.2 ft·lb)**



4. Install:
   - Dowels ①
     (into right side crankcase)





5. Apply:
   - Yamabond No. 5
     (to the cases)
6. Install:
   - Right side crankcase
     (onto left side crankcase)

**NOTE:**
Be sure front cylinder connecting rod is in front of cylinder sleeve hole.

7. Install:
   - Crankcase bolts

**NOTE:**
- Tighten in sequence as shown in illustration.

**Nos. 4, 5, and 6:**
**39 Nm (3.9 m·kg, 28 ft·lb)**
**Others:**
**10 Nm (1.0 m·kg, 7.2 ft·lb)**

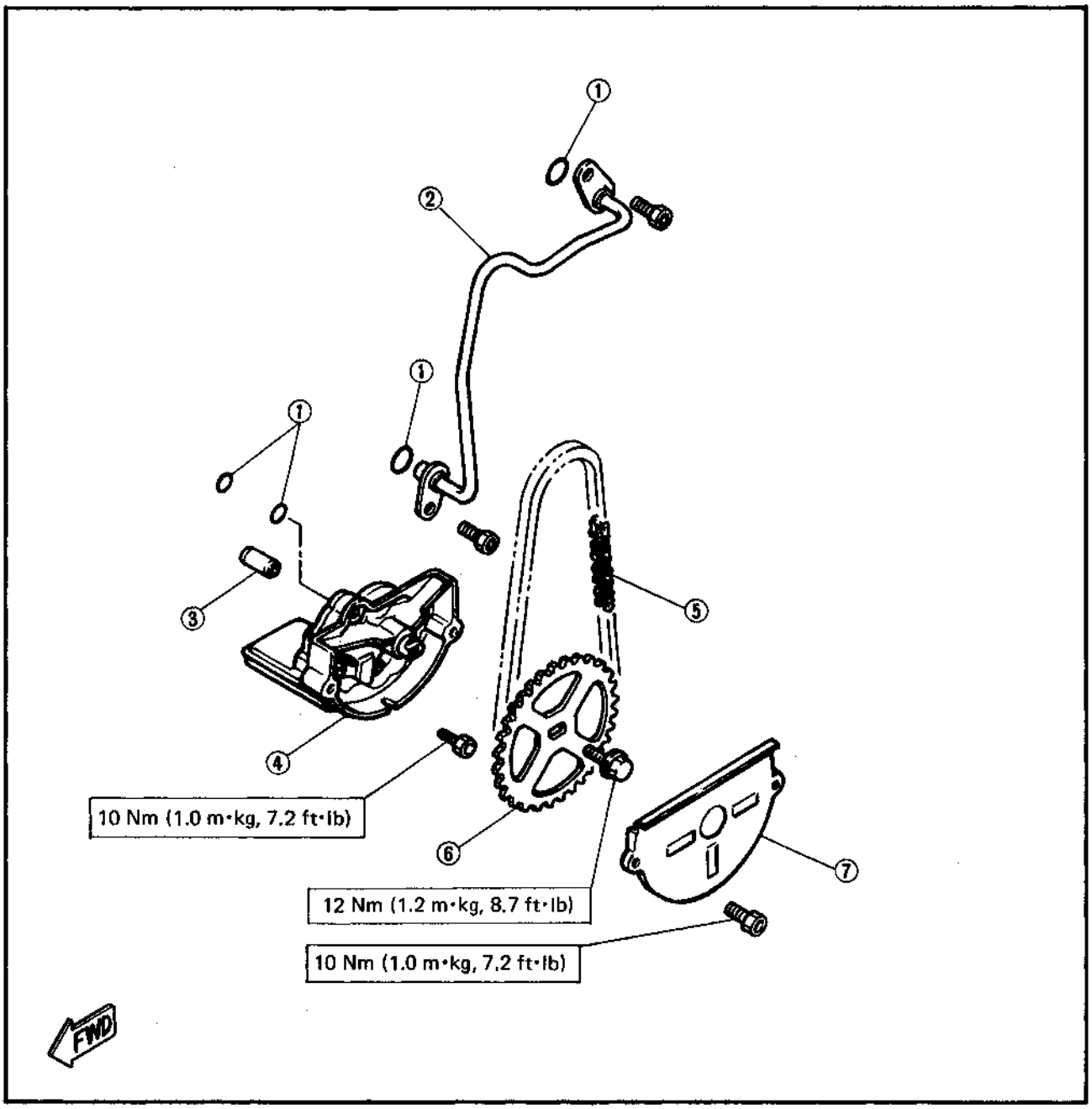
[A] Left
[B] Right

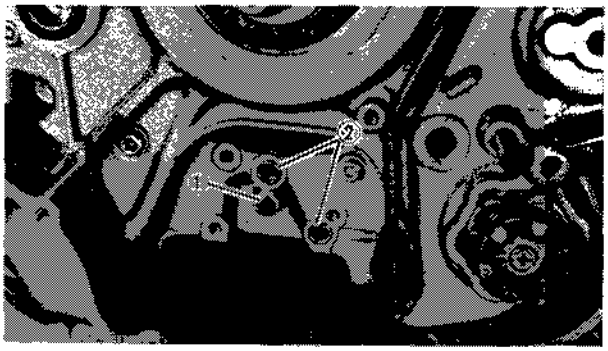
8. Install:
   - Shift fork guide bar stopper plate screw①

**7 Nm (0.7 m·kg, 5.1 ft·lb)**
**LOCTITE® Stud N'Bearing Mount (red)**

## OIL PUMP

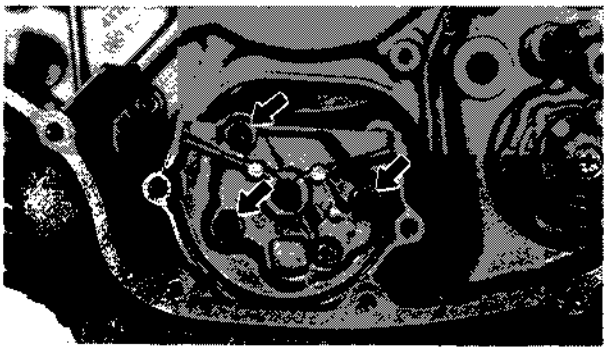
1 O-ring
2 Delivery pipe
3 Dowel
4 Oil pump assembly
5 Chain
6 Driven sprocket
7 Pump gear cover





1. Assemble:
   - Oil pump
2. Install:
   - Dowel ①
   - O-ring ②

   Install both into left side crankcase.



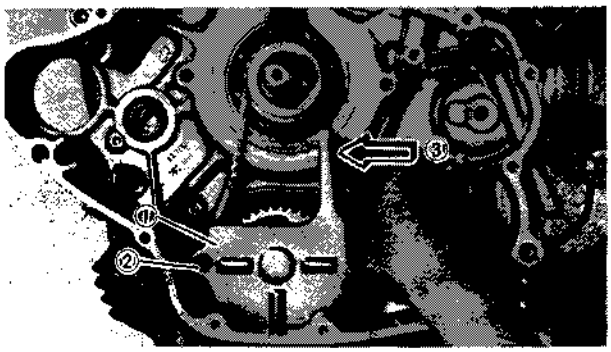
3. Install:
   - Oil pump assembly

| Oil Pump Installing Bolt: 10 Nm (1.0 m·kg, 7.2 ft·lb) |
|---|



4. Install:
   - Oil pump drive chain
   - Oil pump driven sprocket

| Oil Pump Driven Sprocket Bolt: 12 Nm (1.2 m·kg, 8.7 ft·lb) |
|---|



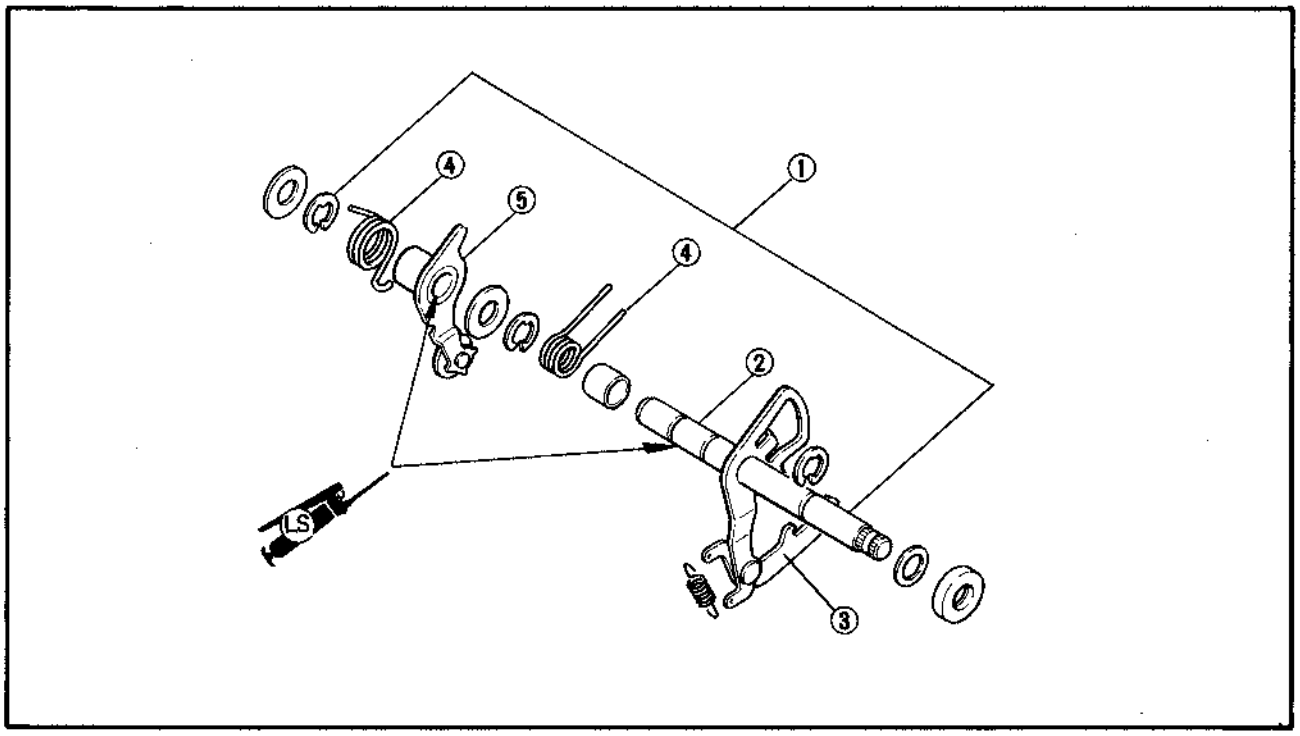

5. Install:
   - Oil pump cover ①
   - Screws ②

| 10 Nm (1.0 m·kg, 7.2 ft·lb) |
|---|

**NOTE:**
While tightening the securing bolts, push ③ the chain guide towards the front of the engine to take up any slack.

## SHIFTER

1 Shift shaft assembly
2 Shift shaft
3 Shift lever
4 Spring
5 Lever assy stopper



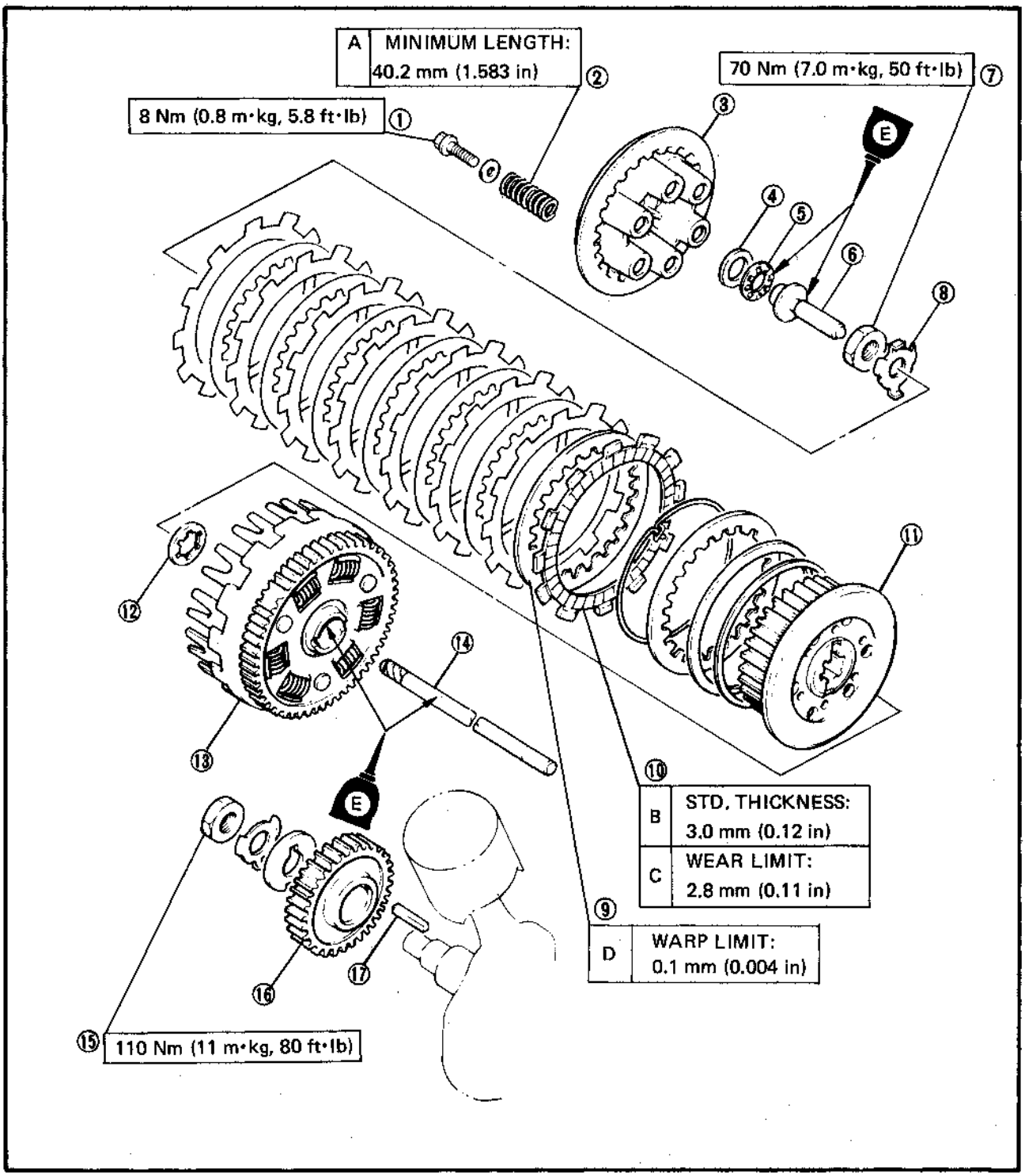


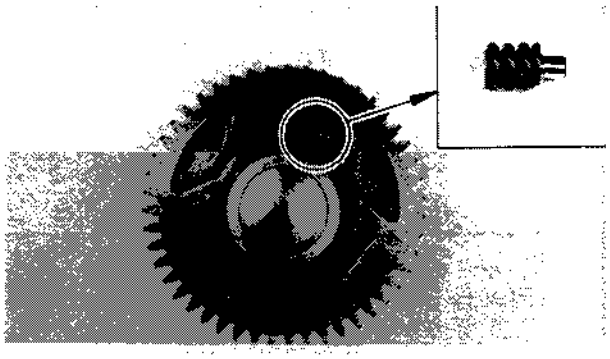

1. Install:
   - Washer
   - Shift shaft assembly
   Install both into left side crankcase.
2. Position:
   - Shift lever
   (so that it engages shift drum pins properly)
3. Hook:
   - Cam stopper spring
   (under crankcase projection)

**NOTE:**
Open shift lever and shift drum stopper so they can clear shift drum during installation.

## PRIMARY GEARS AND CLUTCH

1 Flange bolt
2 Clutch spring
3 Clutch pressure plate
4 Washer
5 Thrust bearing
6 Push rod No. 1
7 Clutch boss securing nut
8 Lock tab
9 Clutch plate
10 Friction plate
11 Clutch boss
12 Thrust washer
13 Clutch housing
14 Push rod No. 2
15 Primary drive gear securing nut
16 Primary drive gear
17 Key

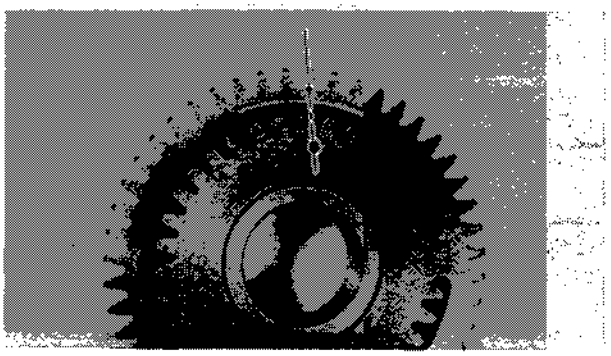




1. Install:
   - Spring
   - Pin

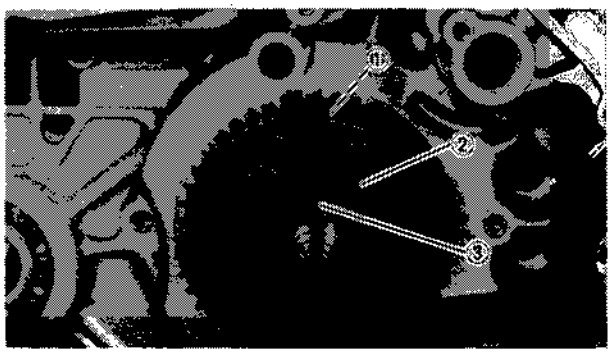
   Install both into the primary drive gear.

**NOTE:**
Separate springs from each other as far as possible to allow clearance for dogs when installing cam chain drive gear.



2. Install:
   - Right side cam chain drive gear (onto primary drive gear)
3. Position:
   - Cam chain drive gear dogs (to fall between springs in each primary gear slot)
4. Align:
   - Cam chain drive gear punch mark (with primary drive gear punch mark)

**NOTE:**
Right and left cam chain drive gears are not interchangeable. Only one will fit into primary drive gear.




5. Install:
   - Primary drive gear ① /Cam chain drive gear ② assembly
   - Key ③

   (into key way)
6. Position
   - Primary drive gear

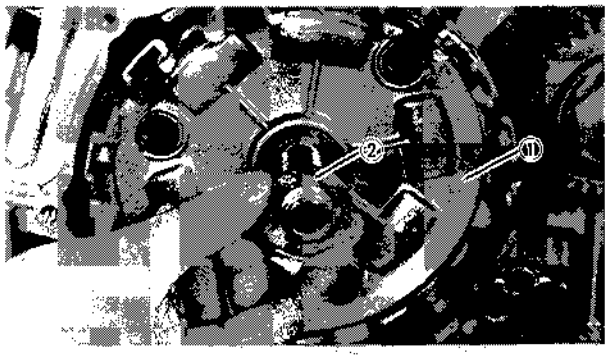
   (so it faces towards the engine)



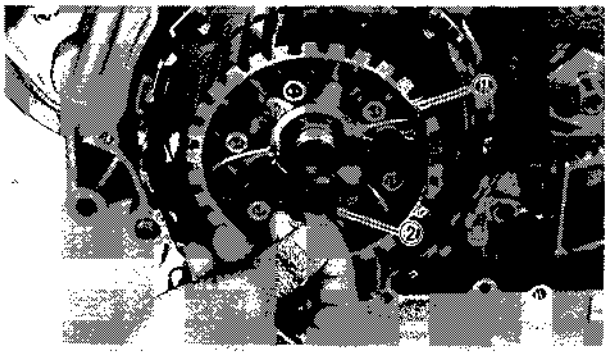
7. Install:
   - Washer
   - Lock washer
   - Securing nut

   Finger-tighten securing nut.

**NOTE:**
Be sure inside slot of washer engages primary drive gear key; lock washer tab must engage outer slot of washer.

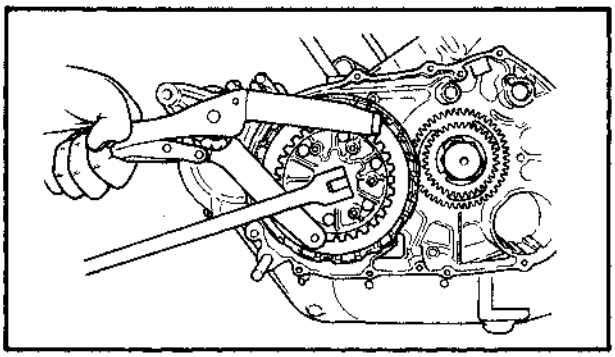


8. Install:
   - Clutch housing ①
   - Thrust washer ②



9. Install:
   - Clutch boss ①
   - Lock washer ②

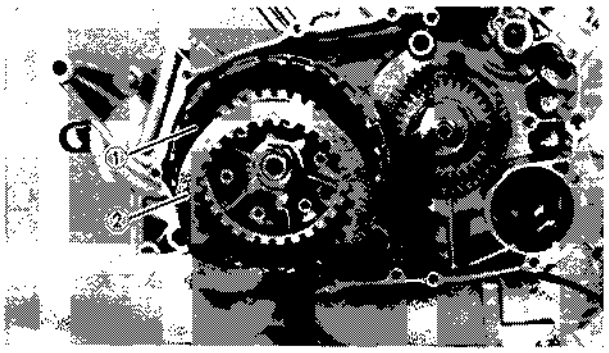
NOTE:
Be sure washer tab engages slots in clutch boss.



10. Install:
    - Clutch boss securing nut
      Use Clutch Hub Holder (YM-91042)

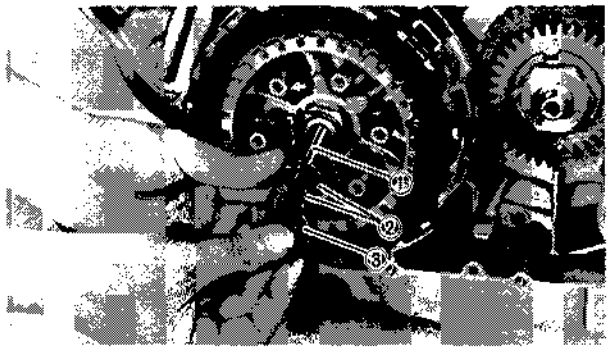
| | |
|---|---|
| | 70 Nm (7.0 m·kg, 50 ft·lb) |

Bend lock tab against nut flat.

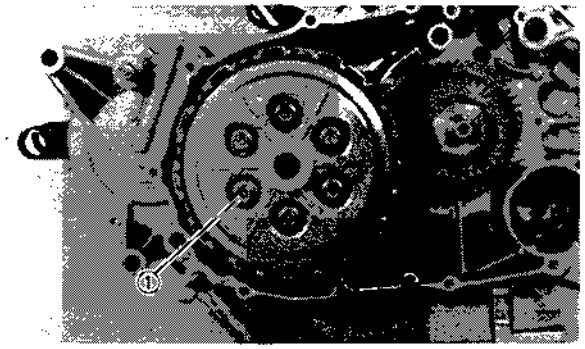


11. Install:
    - Friction plates ①
    - Clutch plates ②

NOTE:
Start with friction plate. Alternate clutch and friction plates until all are in clutch boss.

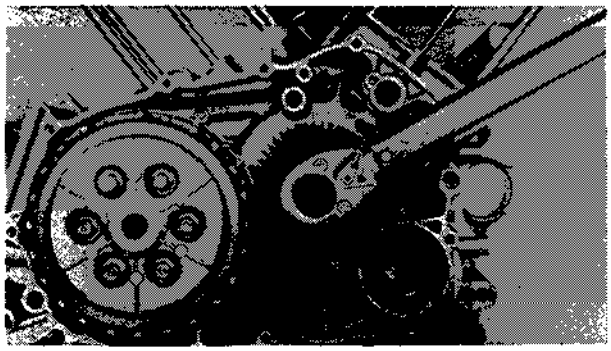


12. Install:
    - Long push rod
    - Short push rod ①
    - Thrust bearing ②
    - Washer ③




13. Install:
    - Clutch pressure plate
    - Clutch springs
    - Bolts ①

| 8 Nm (0.8 m·kg, 5.8 ft·lb) |
|---|

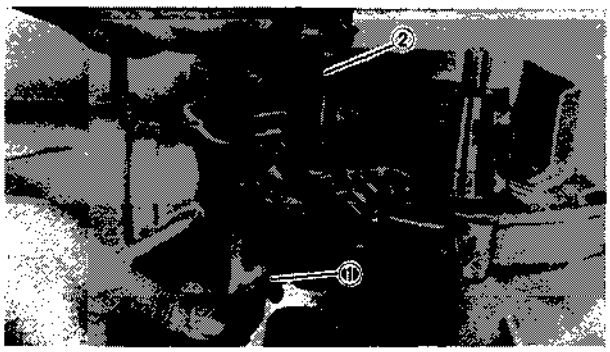


14. Tighten:
    - Primary drive securing nut

**NOTE:**
Place a piece of rolled rug or lead between primary drive gears.

| 110 Nm (11.0 m·kg, 80 ft·lb) |
|---|

Bend lock tab against nut flat.

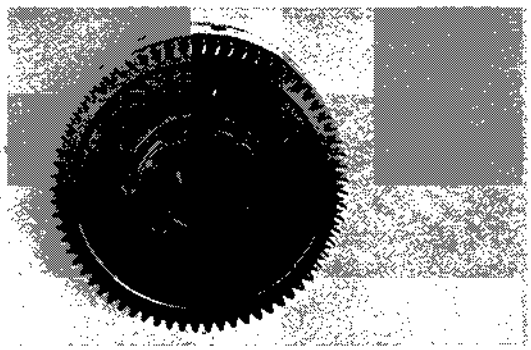



**FLYWHEEL**

1. Install:
    - Rear cam chain guide ①
    - Securing bolt ②

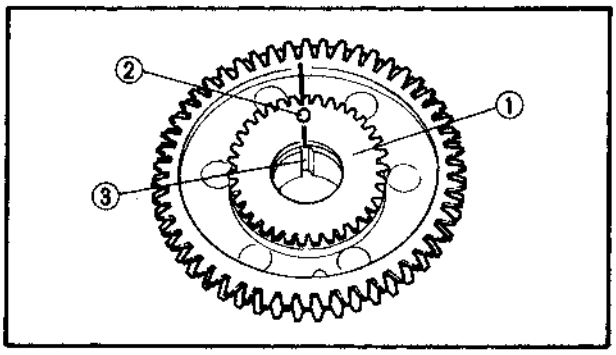
| Securing Bolt:<br>8 Nm (0.8 m·kg, 5.8 ft·lb)<br>Locknut:<br>12 Nm (1.2 m·kg, 8.7 ft·lb) |
|---|

**NOTE:**
Drilled portion of the holding pin must face outside of the engine.



2. Install:
    - Springs
    - Pins
      (into the flywheel)

**NOTE:**
Separate each spring as far as possible from the other to allow clearance for the dogs when installing the cam chain drive gear.




3. Install:
   - Left side cam chain drive gear ①
4. Align:
   - Drive gear punch mark ②
     (with keyway ③ in flywheel)

5. Position:
   - Dogs
     (on drive gear)
     Dogs must be inserted between springs in flywheel slots to engage flywheel.
6. Install:
   - Woodruff key
   - Flywheel assembly
     Install both onto crankshaft.

NOTE:
Be sure crankshaft key engages flywheel keyway.



7. Install:
   - Washer
   - Flywheel securing nut

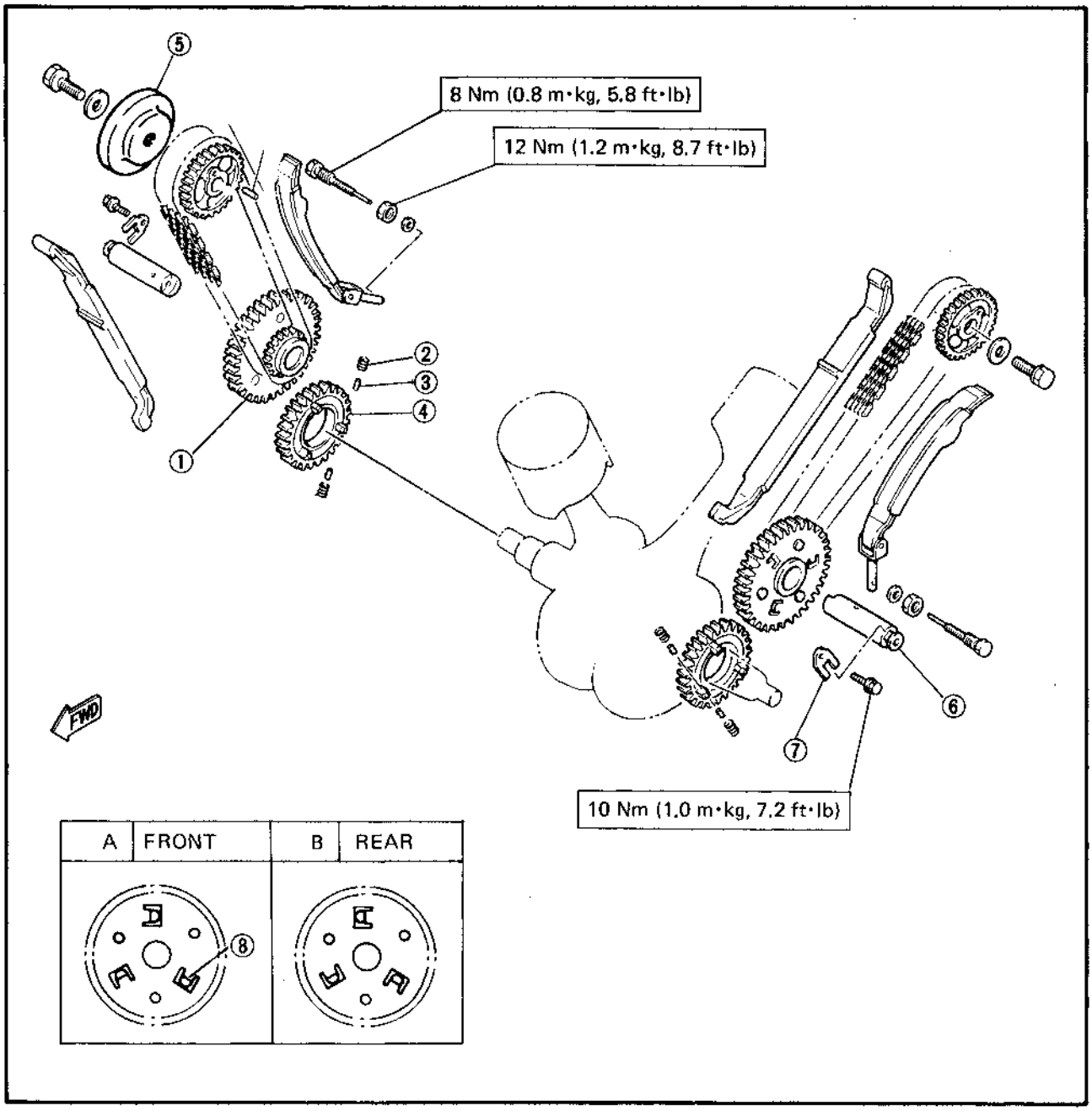
| | |
|---|---|
| | **175 Nm (17.5 m·kg, 125 ft·lb)** |

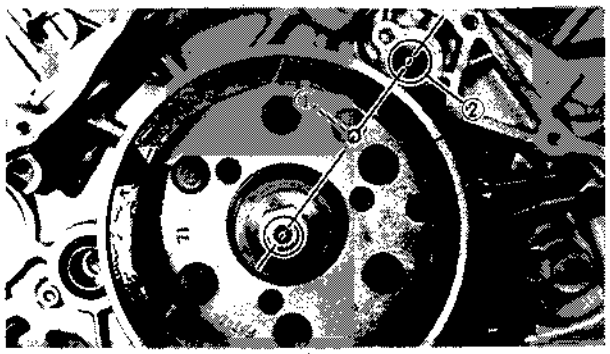
NOTE:
Place a piece of rolled rug or lead between the primary gears.

## TIMING GEAR

1 Timing gear (Zero-lash gear)
2 Spring
3 Pin
4 Cam chain drive gear
5 Oil baffle (Front cylinder head only)
6 Timing gear shaft
7 Stopper plate
8 Spring stopper

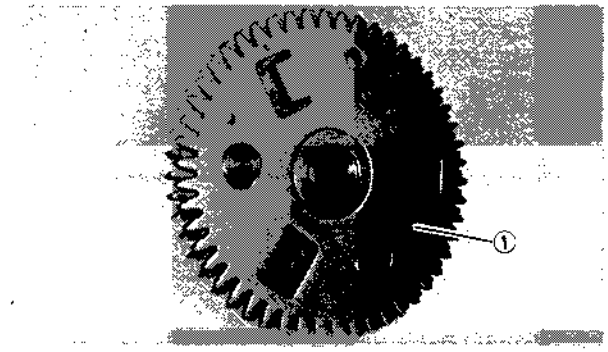
**NOTE:**
Front and rear cylinder timing gears are not identical. Gears can be identified by direction in which spring stopper faces on side of gears.






**Rear Cylinder Timing Gear**

1. Align:
   - Flywheel timing hole ①
     (with timing gear shaft hole ②)




2. Check:
   - Spring loaded gear teeth ①
     (on rear timing gear)
     The spring loaded gear teeth should move relative to its other set of gear teeth.

3. Install:
   - Cam chain
     (onto timing gear sprocket)

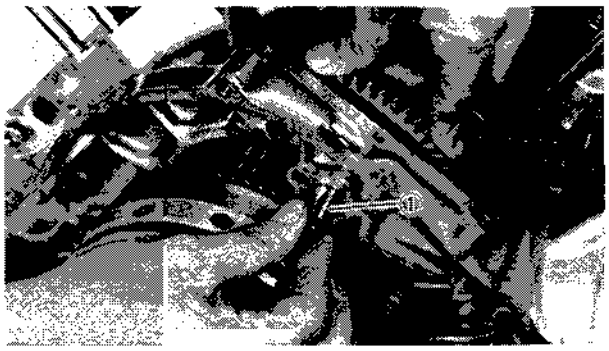
**NOTE:**
Attach a length of wire to cam chain.



4. Align:
   - Both sets of teeth
     (on timing gear)

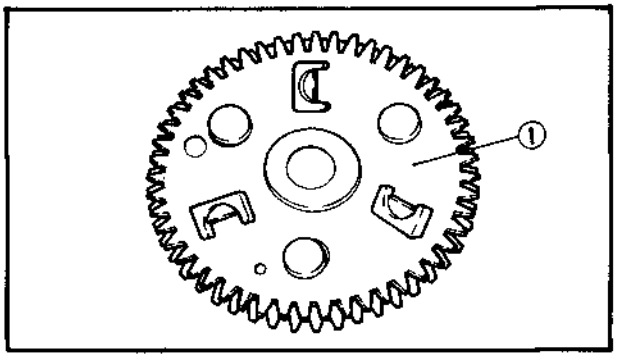
**NOTE:**
Insert appropriately sized punch into gear alignment hole on timing gear. Apply prying motion to punch and rotate gears until both sets of teeth on timing gear align with each other.

5. Install:
   - Timing gear on cam chain drive gear
6. Align:
   - Timing gear hole
     (with flyweel timing hole)



6. Install:
   - Timing gear shaft ①
   - Stopper plate
   - Bolt

| | |
|---|---|
| | 10 Nm (1.0 m·kg, 7.2 ft·lb) |



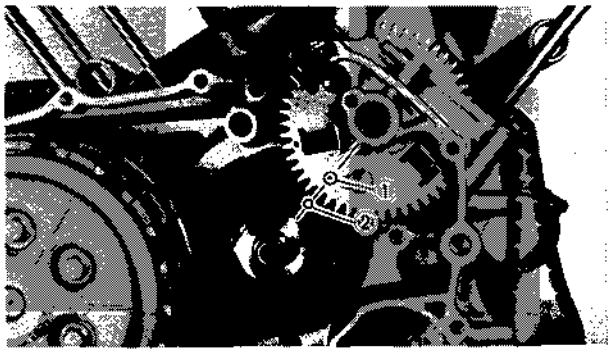
**Front Cylinder Timing Gear**

1. Align:
   - Drive gear timing mark
     (with timing gear shaft hole)
2. Check:
   - Spring loaded gear teeth ①
     (on front timing gear)
     The spring loaded gear teeth should move relative to its other set of gear teeth.
3. Install:
   - Cam chain
     (onto timing gear sprocket)

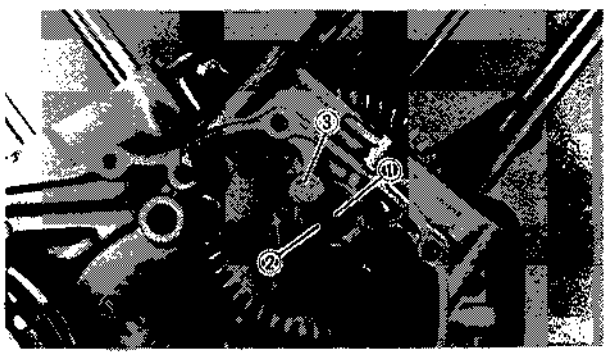
**NOTE:**
Attach a length of wire to cam chain.

4. Align:
   - Both sets of teeth
     (on timing gear)

**NOTE:**
Insert appropriately sized punch into gear alignment hole on timing gear. Apply prying motion to punch and rotate gears until both sets of teeth on timing gear align with each other.

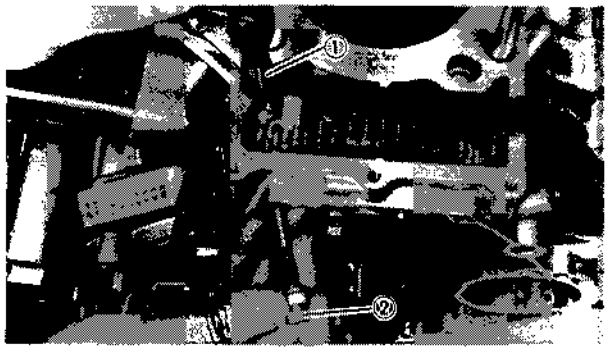


5. Install:
   - Timing gear
     (onto cam chain drive gear)
6. Align:
   - Timing gear timing hole ①
     (with drive gear timing mark ②)




6. Install:
   - Timing gear shaft ①
   - Stopper plate ②
   - Bolt ③

**10 Nm (1.0 m·kg, 7.2 ft·lb)**



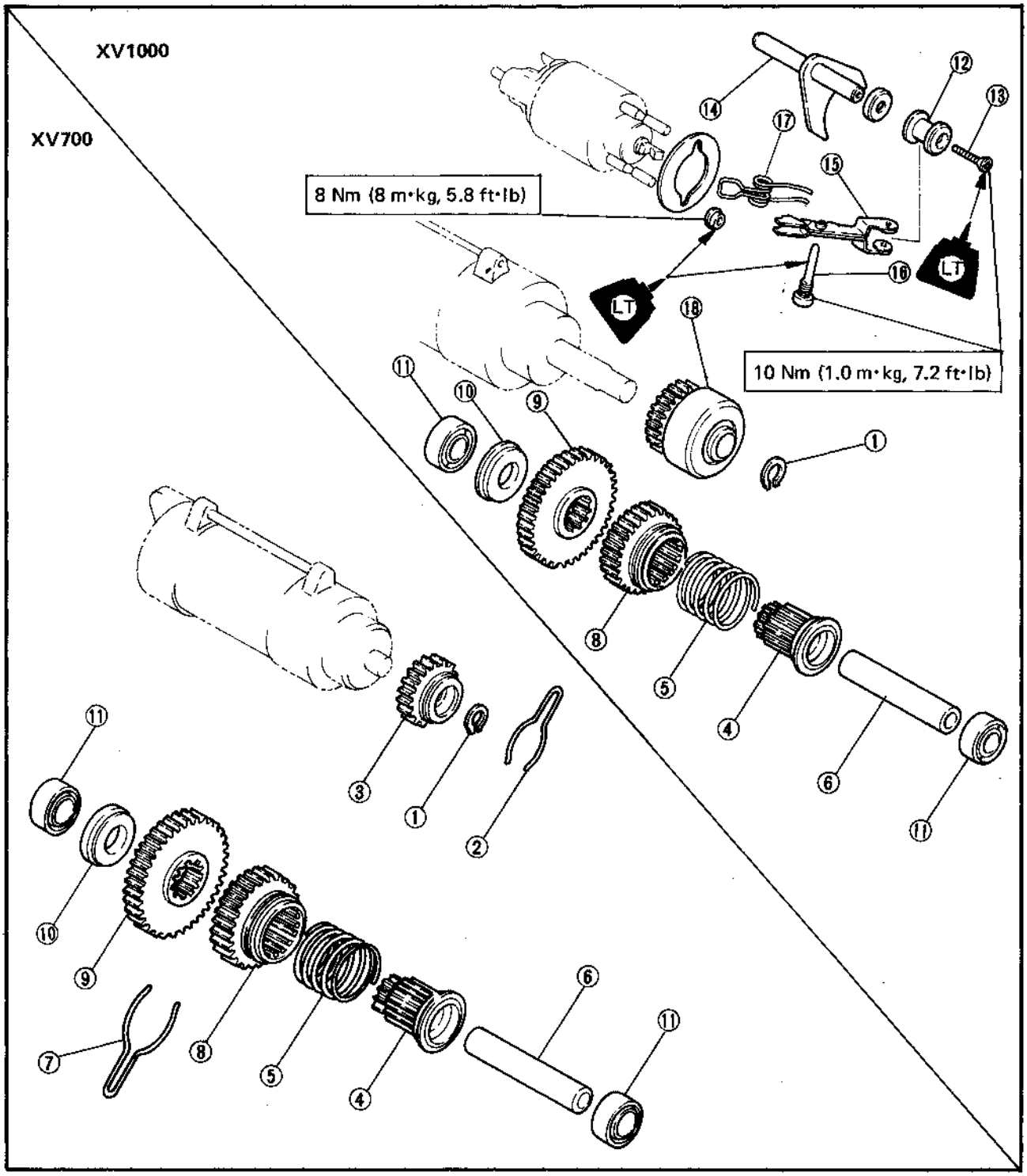

7. Install:
   - Rear cam chain guide ①
   - Securing bolt ②

**Securing Bolt:**
**8 Nm (0.8 m·kg, 5.8 ft·lb)**
**Locknut:**
**12 Nm (1.2 m·kg, 8.7 ft·lb)**

**NOTE:**
Drilled portion of the holding pin must face outside of the engine.

## STARTER MOTOR, STARTER DRIVE, AND CRANKCASE COVER

1 Circlip
2 Clip
3 Starter motor gear
4 Idler wheel
5 Compression spring
6 Idler shaft
7 Clip
8 Idler gear # 2
9 Idler gear # 1
10 Washer
11 Rubber bushing
12 Drive lever collar
13 Drive lever collar screw
14 Drive lever shaft
15 Drive lever
16 Drive lever screw
17 Spring
18 Starter clutch



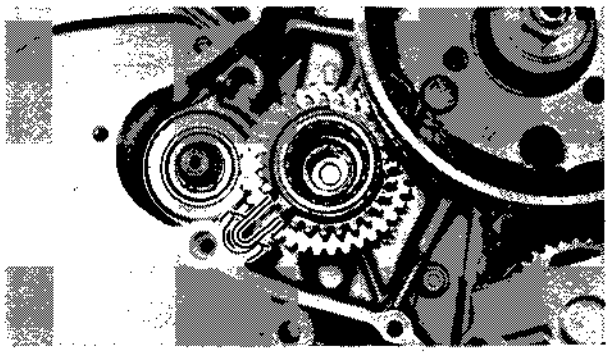


(XV700)

1. Apply:
   - Grease
     (to O-ring, before installation)
2. Install:
   - Starter motor
3. Install:
   - Securing bolts

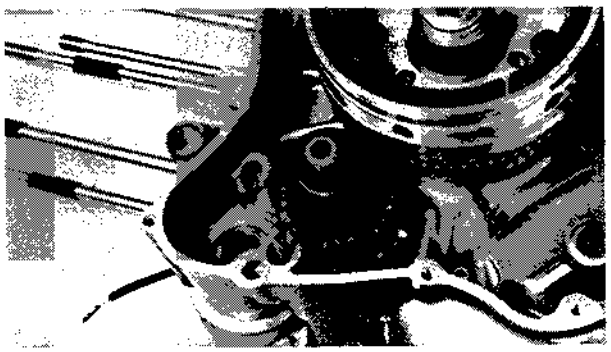
| | |
|---|---|
| | **10 Nm (1.0 m·kg, 7.2 ft·lb)** |

4. Install:
   - Washer
   - Idle gear # 1
   - Idle gear #2 (With spring clip)
     These components must be centered over the idler shaft bushing.

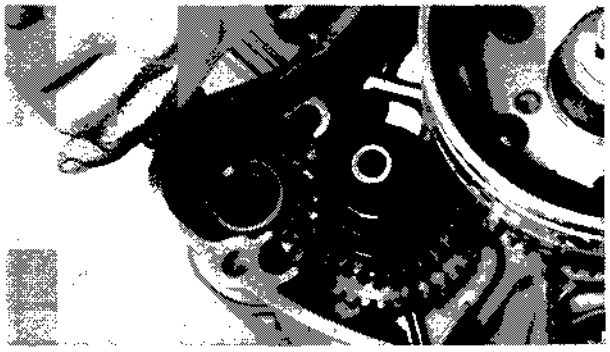


5. Position:
   - Spring clip tang
     (into channel of crankcase)

**NOTE:**
Spring clip side of idler gear # 2 must face out.

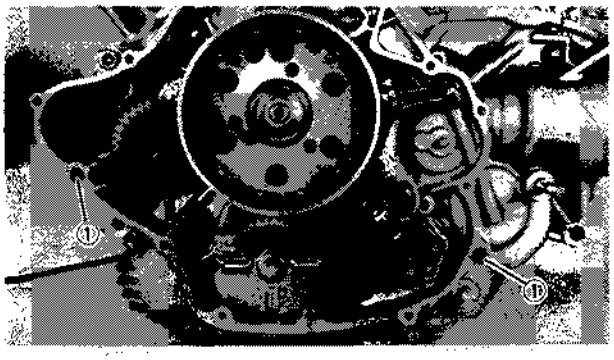


6. Install:
   - Idler shaft
     (into idler shaft bushing)
     Insert shaft through idler gears first.
   - Spring
   - Idler wheel

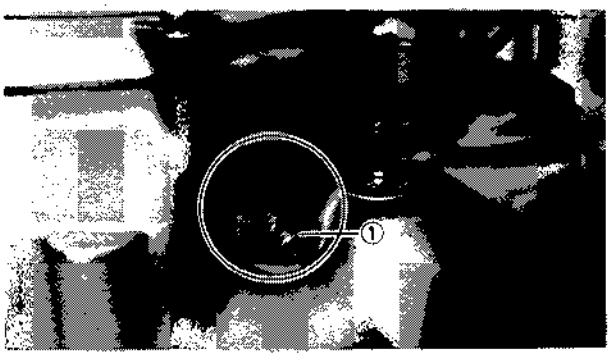


7. Install:
   - Starter motor gear
   - Clip
   - Circlip
8. Position:
   - Spring clip tang
     (into channel of crankcase)

**NOTE:**
Spring clip side of gear must face out.



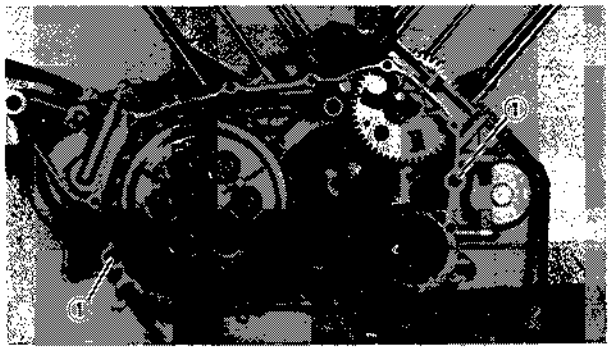

9. Install:
   - Dowels ①
     (into left crankcase)




10. Install:
    - New crankcase cover gasket
    - Left side crankcase cover
    - Securing bolts

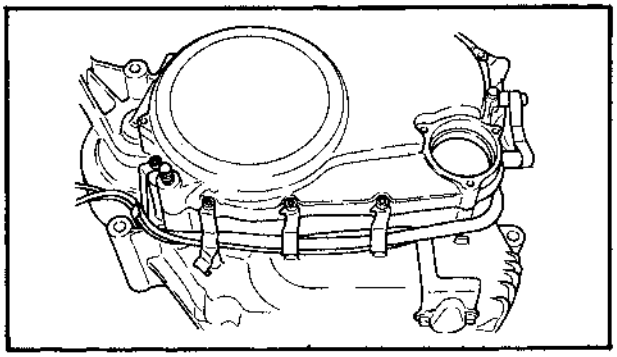
| | |
|---|---|
| | **10 Nm (1.0 m·kg, 7.2 ft·lb)** |

11. Install:
    - Neutral switch lead ①

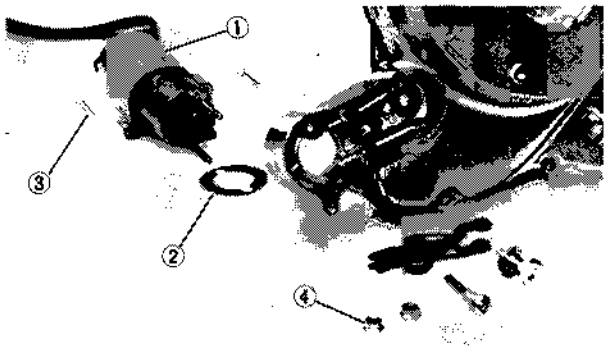



**NOTE:**
Install screws with clamp as shown.

12. Install:
    - Dowels ①
      (into right crankcase)



13. Install:
    - New crankcase cover gasket
    - Right side crankcase cover
    - Starter motor cable clamps
    - Securing bolts
14. Position:
    - Clamp
      (to rest on crankcase projections)
15. Install:
    - Securing bolt
      Install bolt with clamp.

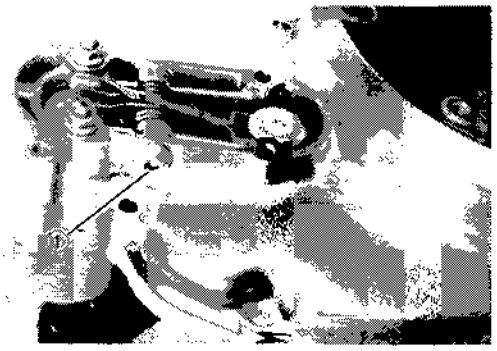



(XV1000)

1. Install:
   - Solenoid ①
   - Gasket ②
   - Securing screws ③
   - Securing nuts ④

   (into left crankcase cover)

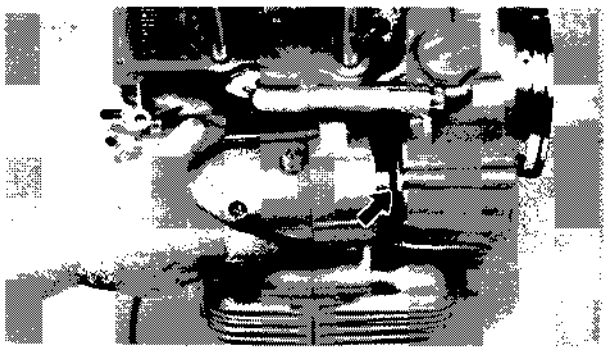
**Securing Nut:**
**8 Nm (0.8 m·kg, 5.8 ft·lb)**




2. Install:
   - Drive lever collar
   - Spring
   - Drive lever
   - Drive lever bolts ①

   (into left crankcase cover)

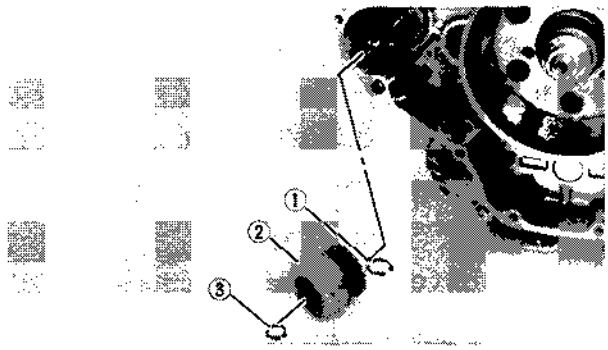
**10 Nm (1.0 m·kg, 7.2 ft·lb)**
**LOCTITE®**



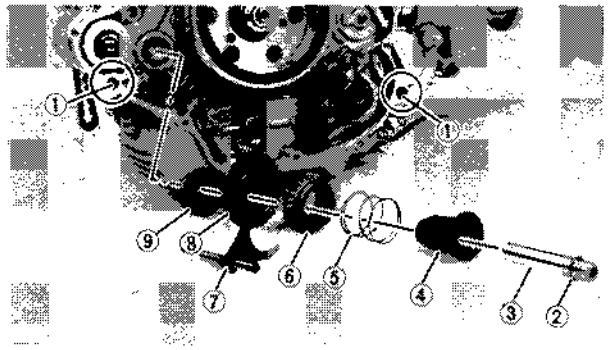
3. Apply:
   - Grease

   (to O-ring on starter motor)
4. Install:
   - Starter motor
5. Install
   - Securing bolt

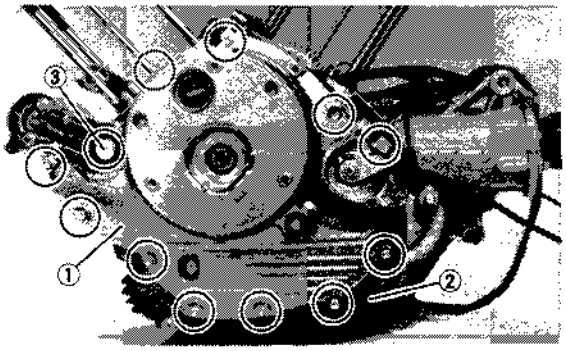
**10 Nm (1.0 m·kg, 7.2 ft·lb)**

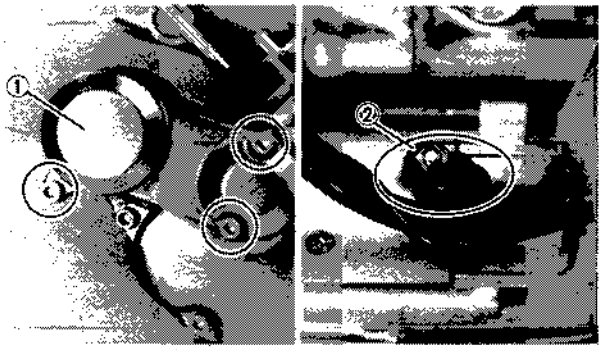



6. Install:
   - Circlip ①
   - Starter clutch ②
   - Circlip ③




7. Install:
   - Collar ⑨
   - Idler gear 1 ⑧
   - Drive lever shaft ⑦
   - Idler gear 2 ⑥
   - Spring ⑤
   - Starter wheel ④
   - Shaft ③
   - O-ring ②
   - Dowels ①



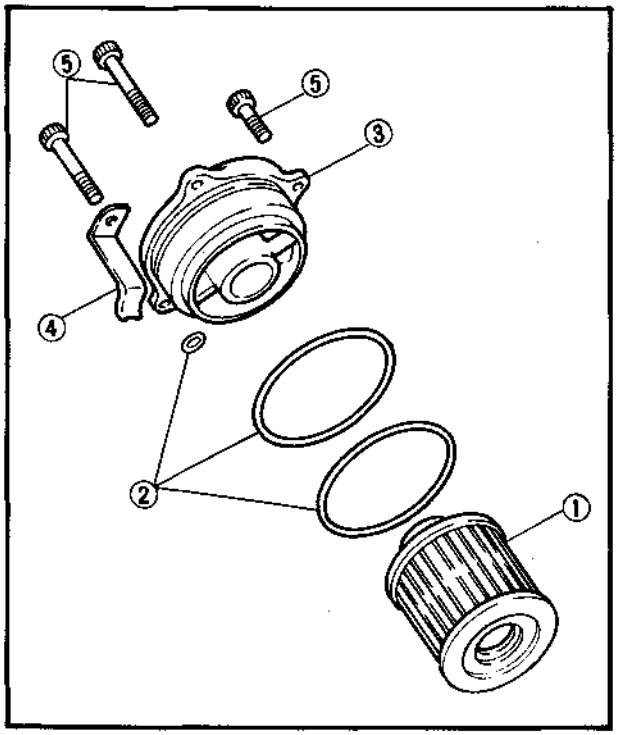

8. Install:
   - New gasket
   - Left crankcase cover ①
   - Neutral switch lead ②
   - Bolts
   - Drive lever collar bolt ③

**Drive Lever Collar Bolt:**
**10 Nm (1.0 m·kg, 7.2 ft·lb)**
**LOCTITE®**

9. Install:
   - Gasket
   - Drive lever cover ①
   - Bolt
   - Starter motor lead ②

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

10. Repeat XV700 steps 12 to 15:




**OIL FILTER**

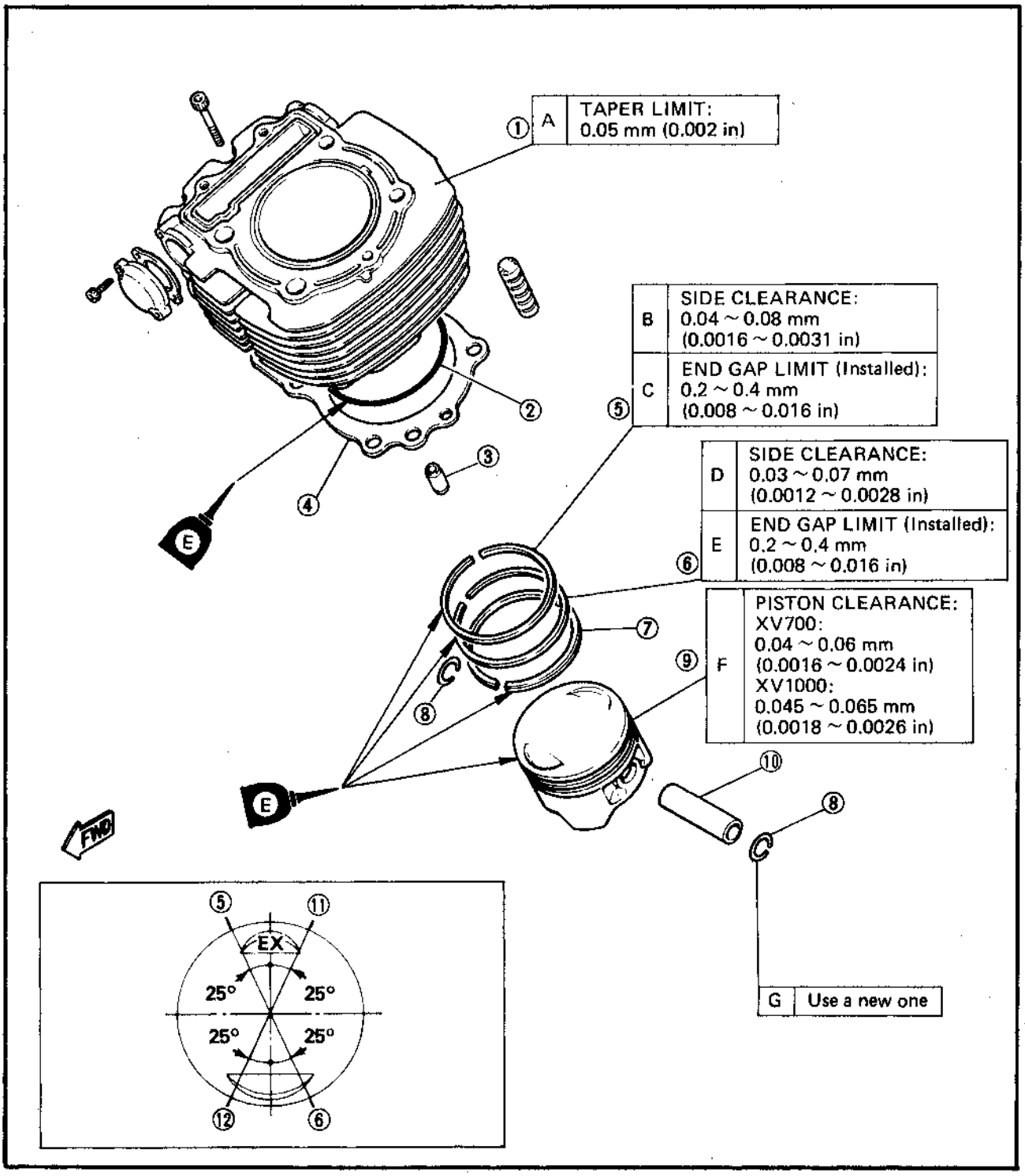
1. Install:
   - Oil filter ①
   - O-rings ②
   - Oil filter cover ③
   - Clamp ④
   - Securing bolts ⑤

**10 Nm (1.0 m·kg, 7.2 ft·lb)**

**NOTE:**
Install oil filter with open end facing out.

## PISTON, CAM CHAIN GUIDES, AND CYLINDER

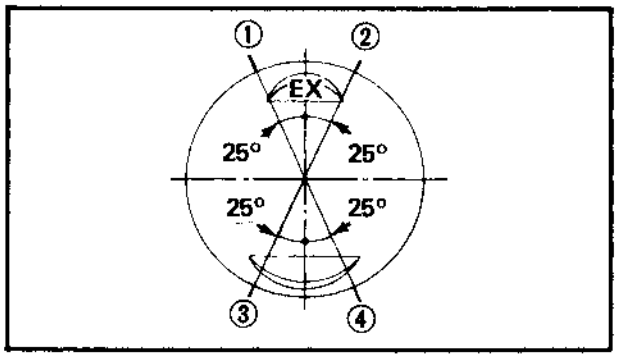
1 Cylinder
2 O-ring (New)
3 Dowel
4 Base gasket (New)
5 Top ring
6 2nd ring
7 Oil ring
8 Piston pin clip (New)
9 Piston
10 Piston pin
11 Oil ring (Lower rail)
12 Oir ring (Upper rail)





1. Install:
   - Pistons
   - Piston pins
   - Piston pin clips (New)
2. Position:
   - Pistons
     The "EX" marks on the front piston must face toward the front of engine: The "EX" marks on rear piston must face towards rear.

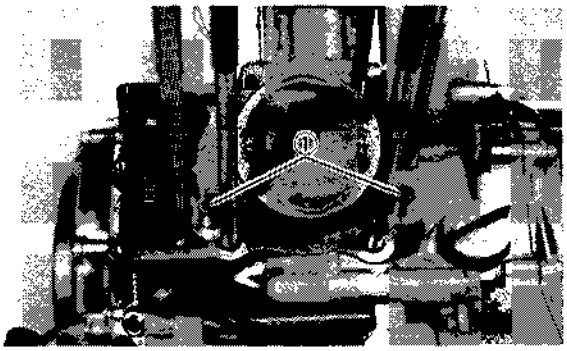
**NOTE:**
Cover crankcase with clean rag before installing piston pin clips to prevent clips from falling into crankcase cavity.



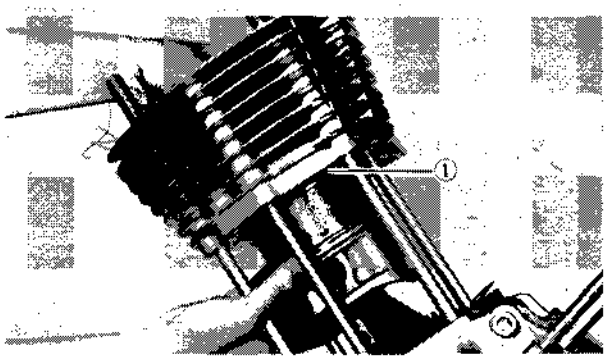

3. Align:
   - Top ring ①
   - Oil ring (Lower rail) ②
   - Oil ring (Upper rail) ③
   - 2nd ring ④
     Align the above components as shown.

**CAUTION:**
**Be sure ends of oil ring expanders do not overlap.**

**NOTE:**
Manufacturer's marks or numbers stamped on rings should face upwards.

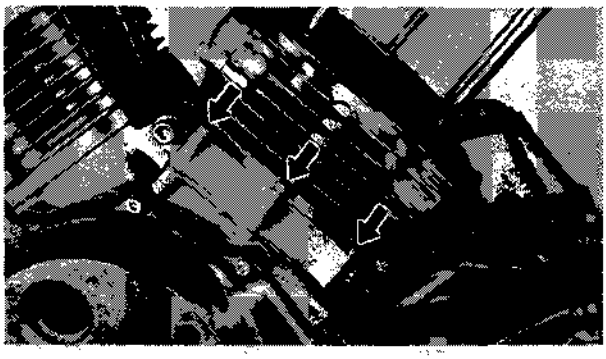


4. Install:
   - Dowels ①
   - Cylinder base gasket (New)
5. Lubricate:
   - Piston
   - Piston rings
     Use engine oil.



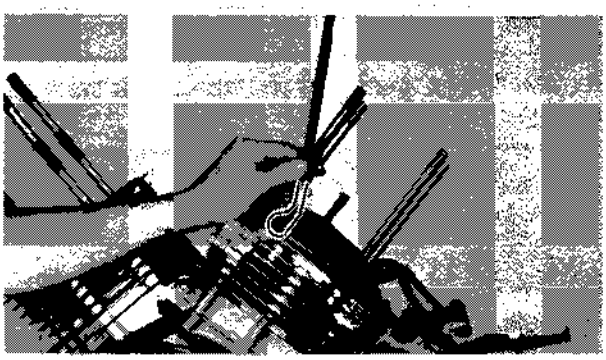

6. Install:
   - Cylinder
     Compress piston rings with fingers while installing.
   - O-ring ①

**NOTE:**
- Route cam chain and cam chain guide through cam chain cavity in each cylinder.
- If used pistons are reinstalled, assemble only mated parts together, e.g., No. 1 piston with No. 1 (rear) cylinder.



7. Install:
   - Cylinder base bolts

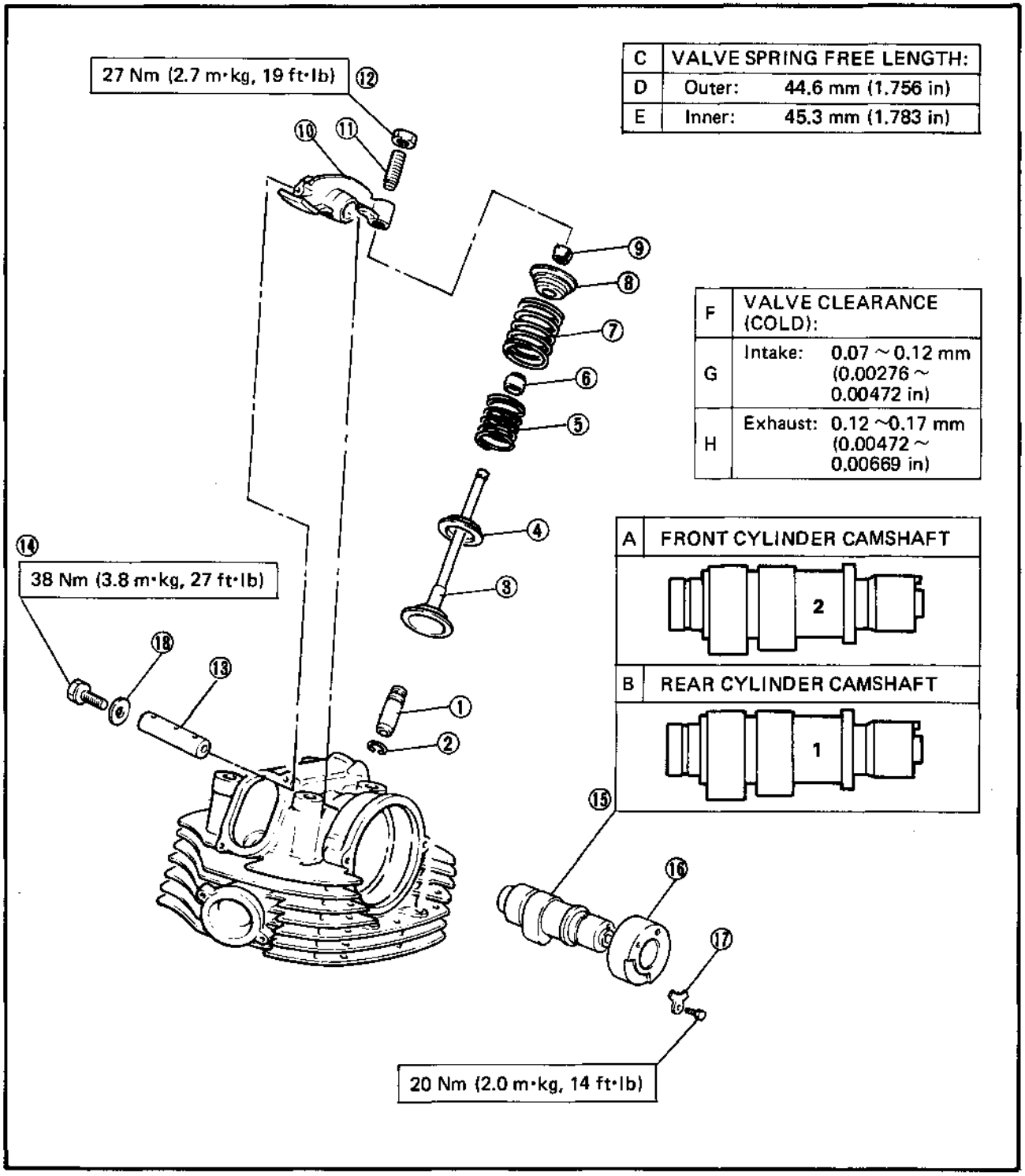
**10 Nm (1.0 m·kg, 7.2 ft·lb)**



8. Install:
   - Front cam chain guide
9. Position:
   - Guides
     Lower end of each guide must rest in the crankcase slots.

## ROCKER ARM, CAMSHAFT, VALVE, AND VALVE SPRING

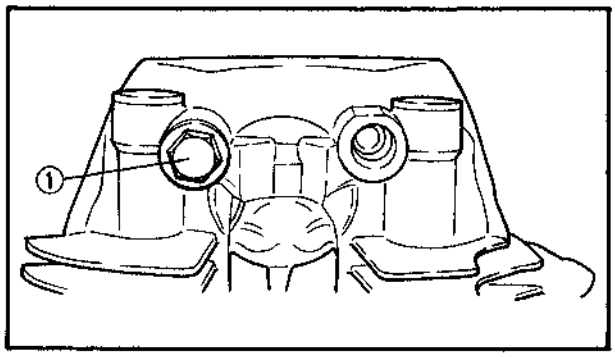
1 Valve guide
2 Circlip
3 Valve
4 Spring seat
5 Inner spring
6 Oil seal
7 Outer spring
8 Spring seat
9 Valve retainer
10 Rocker arm
11 Adjuster
12 Locknut
13 Rocker arm shaft
14 Left side rocker arm bolt
15 Camshaft
16 Camshaft bushing
17 Stopper plate
18 Copper washer





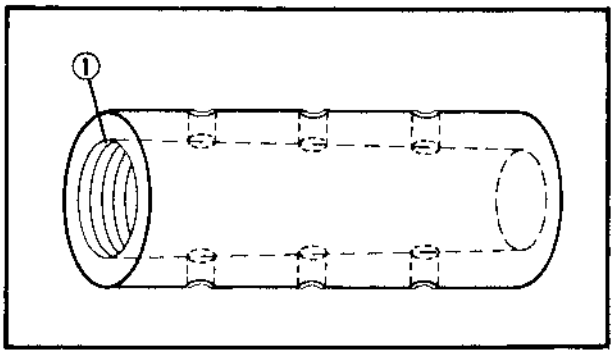
1. Install:
   - Valve
   - Valve spring
   - Valve retainer

   Use Valve Spring Compressor (YM-04069).

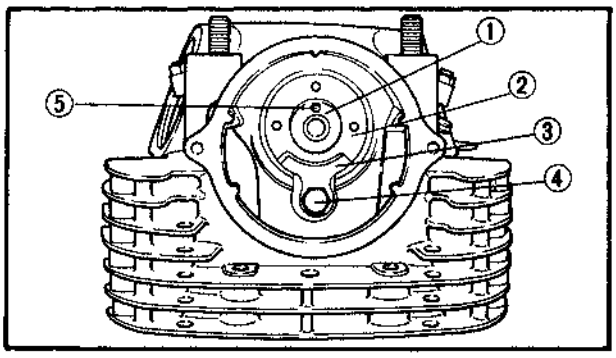



2. Install:
   - Rocker arm
   - Rocker arm shaft
   - Copper washer
   - Left side rocker arm bolt ①

| | |
|---|---|
| | **38 Nm (3.8 m·kg, 27 ft·lb)** |



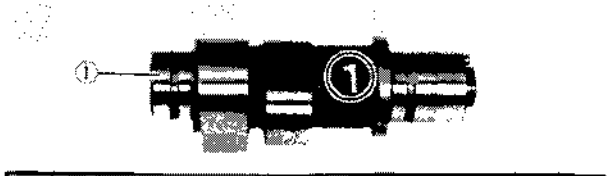

NOTE:
- Insert rocker arm through cam chain cavity.
- Rocker arm shaft end with inside thread ① must face outward from cylinder head.

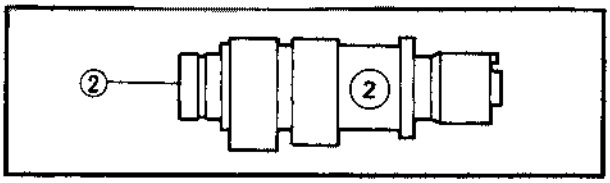



3. Install:
   - Camshaft ①
   - Camshaft bushing ②
   - Stopper plate ③
   - Bolt ④

| | |
|---|---|
| | **20 Nm (2.0 m·kg, 14 ft·lb)** |

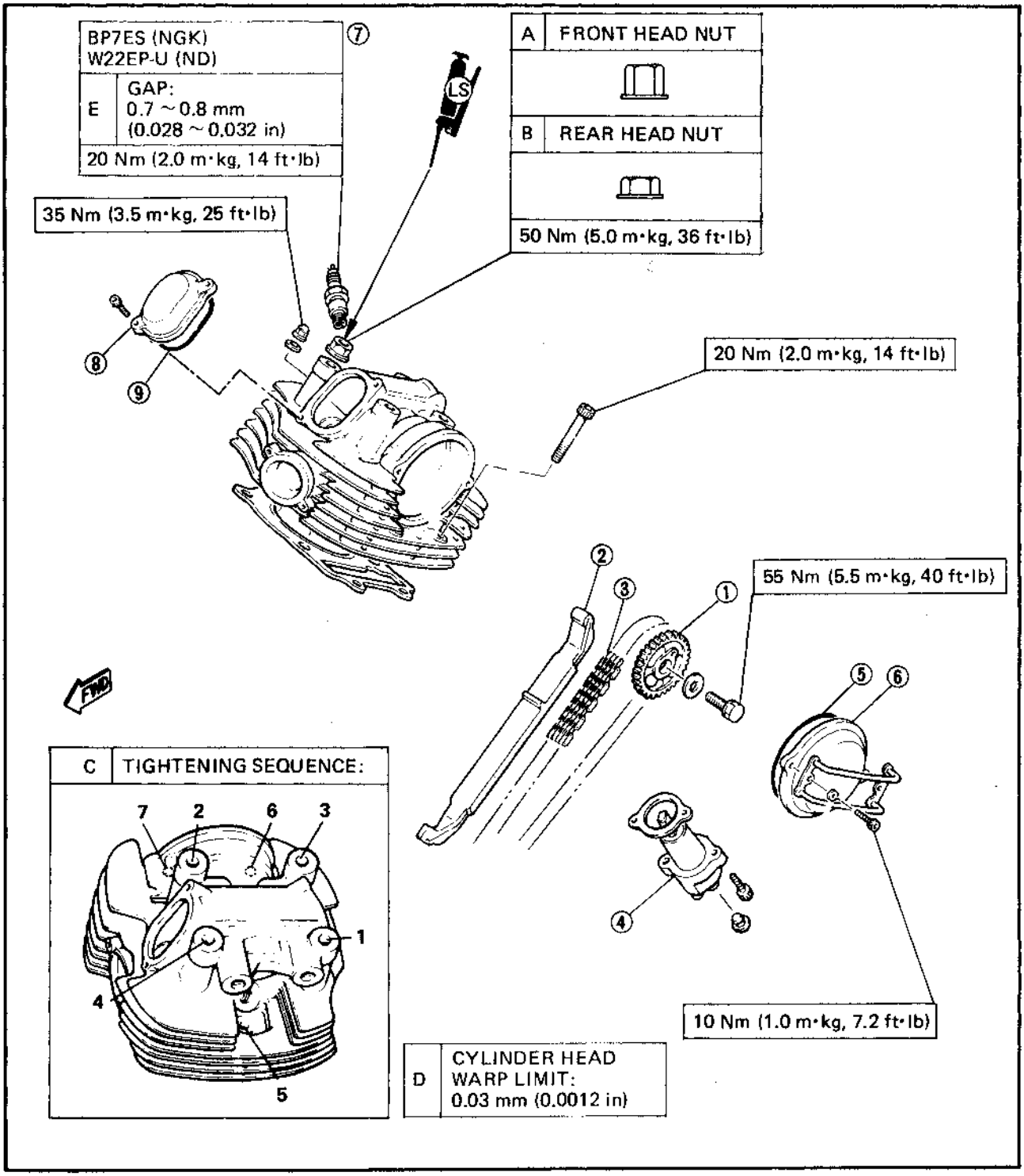
NOTE:
- Be sure camshaft pin ⑤ faces upward.
- Be sure that the No. 1 camshaft ① is installed in the rear cylinder head and the No. 2 camshaft ② in the front cylinder head.

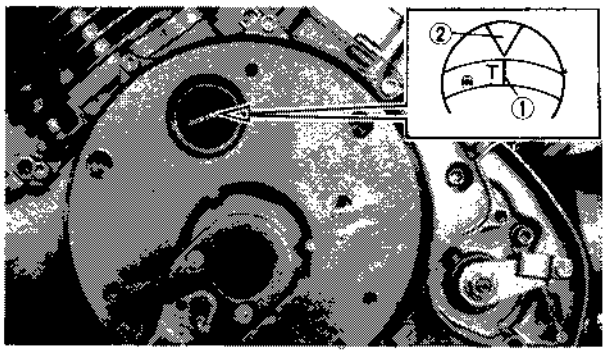


## CYLINDER HEAD AND CAMSHAFT SPROCKET

1 Cam chain sprocket
2 Front cam chain guide
3 Cam chain
4 Cam chain tensioner
5 O-ring
6 Cam sprocket cover
7 Spark plug
8 Valve cover
9 O-ring

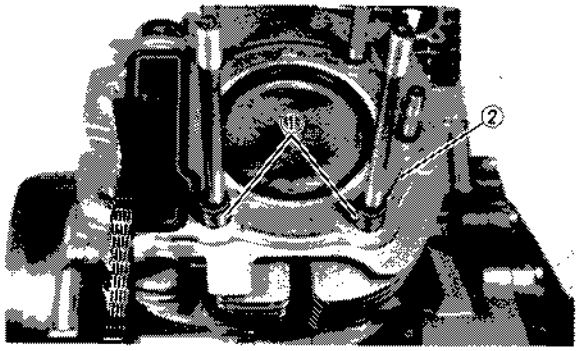




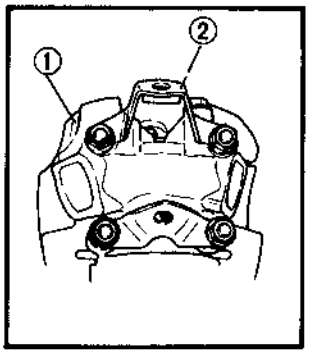

**Rear Cylinder Head**

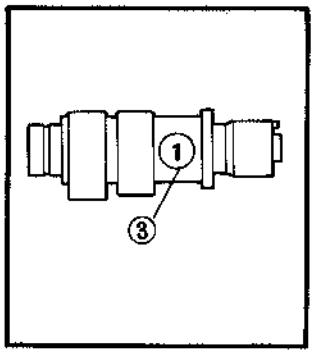
1. Align:
   - Flywheel "T" mark ①
     (with stationary pointer ②)

**NOTE:**
Be sure to keep cam chain taut while turning crankshaft.



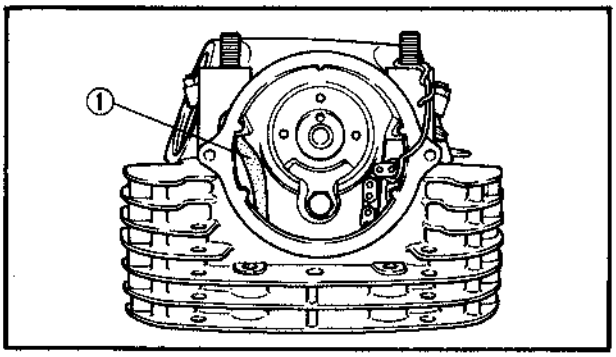

2. Install:
   - Dowels ①
   - Cylinder head gasket ②




3. Install:
   - Rear cylinder head assembly ①
   - Rear engine mounting bracket ②
   - Nut
   - Bolts

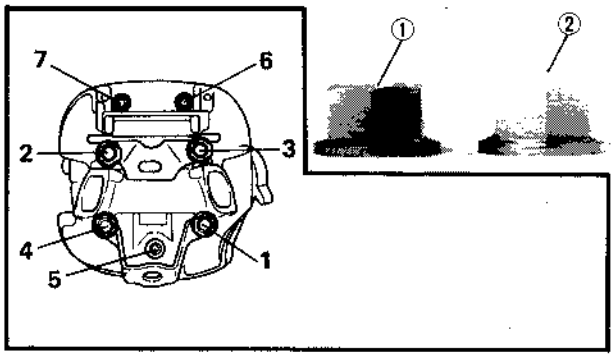
**NOTE:**
- Rear cylinder head is installed with the No. 1 camshaft ③.



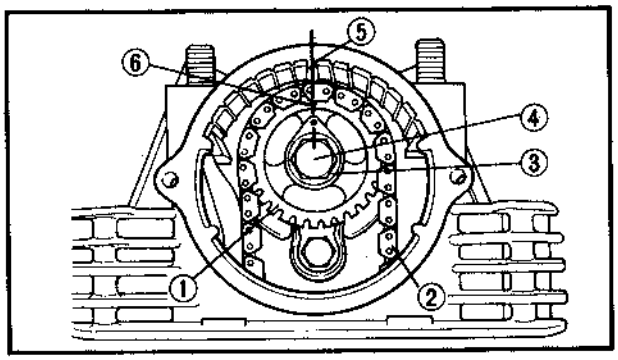

- Route cam chain through cam chain cavity in head.
- Secure front cam chain guide ① into cam chain guide slot in head.

4. Tighten:
   - Nuts and bolts

**Cylinder Nuts: (No. 1 ~ No. 4)**
**50 Nm (5.0 m·kg, 36 ft·lb)**
**Cylinder Head Bolts: (No. 6, No. 7)**
**20 Nm (2.0 m·kg, 14 ft·lb)**
**Cylinder Head Nut: (No. 5)**
**35 Nm (3.5 m·kg, 25 ft·lb)**



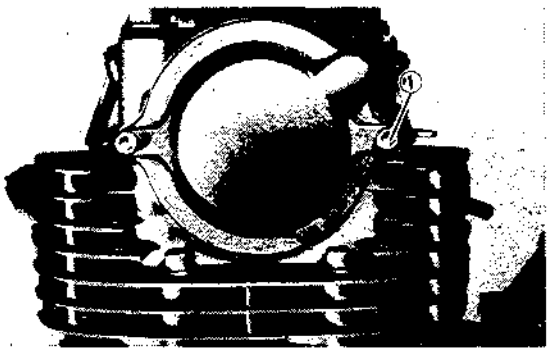

**NOTE:**
- Number means tightening sequence.
- There are two different cylinder nuts (# 1 ~ # 4). Install shorter nuts ① on rear cylinder and taller ones ② on front cylinder.




5. Install:
   - Cam chain sprocket ①
   - Cam chain ②
   - Washer ③
   - Bolt ④

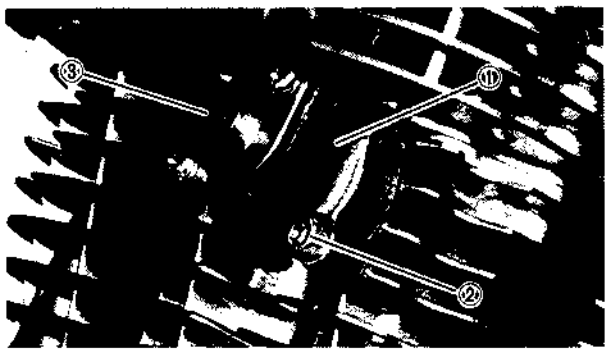
**55 Nm (5.5 m·kg, 40 ft·lb)**

6. Align:
   - Sprocket timing mark ⑥ (with cylinder head timing mark ⑤)
     Remove any slack from front side of cam chain.




7. Install:
   - O-ring
   - Cam sprocket cover
   - Bolt ①

**10 Nm (1.0 m·kg, 7.2 ft·lb)**

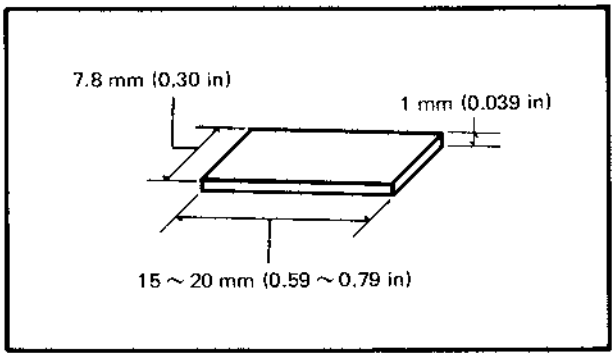


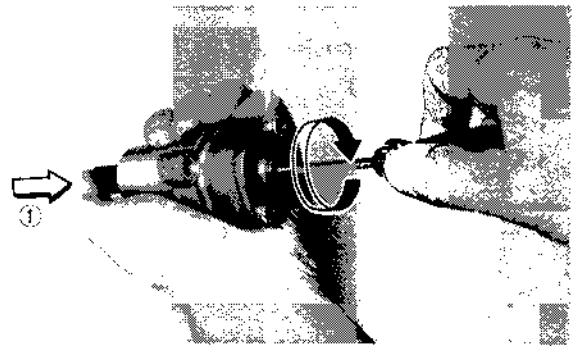

8. Install:
   - Cam chain tensioner ①
   - Gasket
   - Screw ②
   - Plug ③

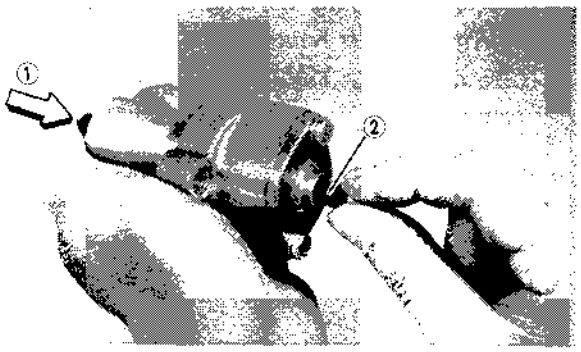
**10 Nm (1.0 m·kg, 7.2 ft·lb)**

**Cam chain tensioner preparation and installation steps:**

- Cut a tensioner plate from a sheet of steel 1 mm (0.039 in) thick as shown.






- Remove the rubber plug from the cam chain tensioner, and insert a small screwdriver.
- Tighten spring by turning screwdriver and pushing ① tension rod into cam chain tensioner.

- Keep tightening spring until completely tight.
- Remove screwdrive while maintaining pressure ① on tension rod.
- Insert tensioner plate ② into cam chain tensioner.
- Attach cam chain tensioner to the rear cylinder.
- Remove tension plate from cam chain tensioner, and reinstall rubber plug.

9. Measure:
   - Valve clearance
   Adjust if necessary.

**Intake Valve:**
**0.07 ~ 0.12 mm**
**(0.00276 ~ 0.00472 in)**
**Exhaust Valve:**
**0.12 ~ 0.17 mm**
**(0.00472 ~ 0.00669 in)**

10. Tighten:
    - Adjuster locknut

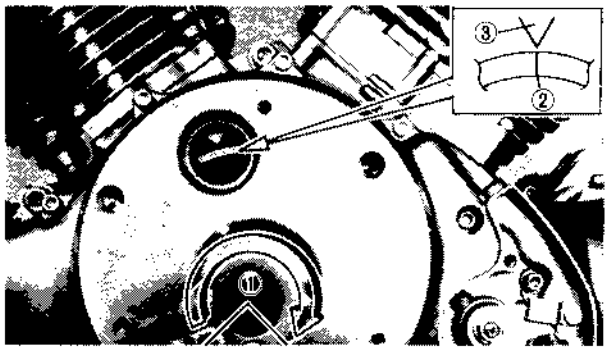
**27 Nm (2.7 m·kg, 19 ft·lb)**

11. Install:
    - O-ring
    - Valve cover
    - Screw

**10 Nm (1.0 m·kg, 7.2 ft·lb)**

12. Install:
    - Spark plug

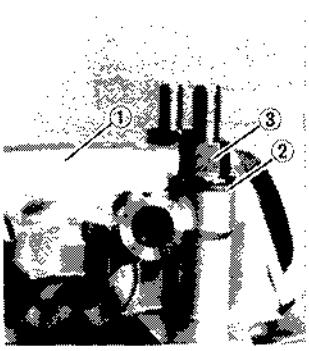
**20 Nm (2.0 m·kg, 14 ft·lb)**

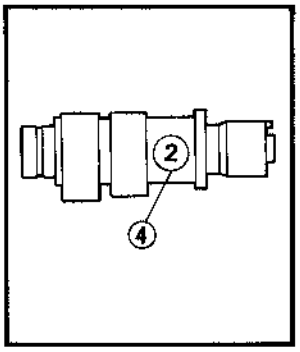



**Front Cylinder Head**

1. Rotate:
   - Crankshaft 285 degrees clockwise ①
2. Align:
   - Flywheel "I" mark ②
     (with stationary pointer ③)

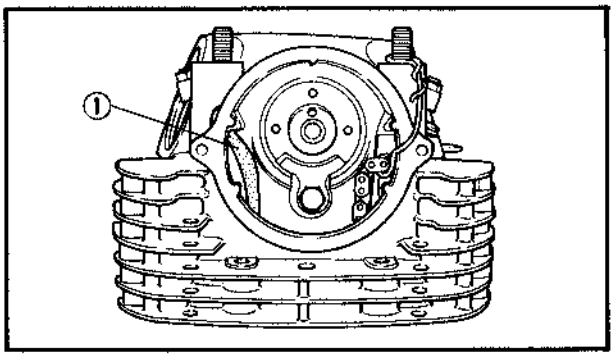
**NOTE:**
Be sure to keep cam chain taut while turning crankshaft.



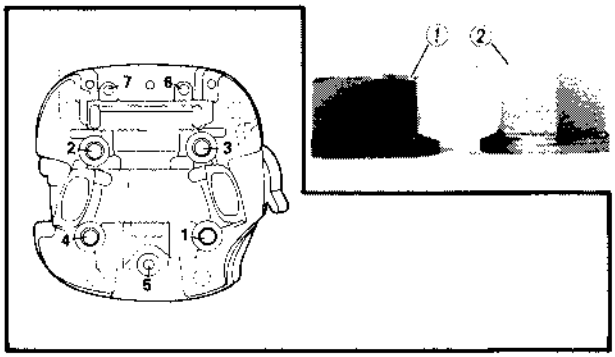

3. Repeat step 2 (Rear cylinder head)
4. Install:
   - Front cylinder head assembly ①
   - Washer ②
   - Nut ③
   - Screw

**NOTE:**
- No. 2 camshaft ④ is installed into front cylinder.
- Route cam chain through cam chain cavity in cylinder head.
- Secure front cam chain guide ① into cam chain guide slot in cylinder head.

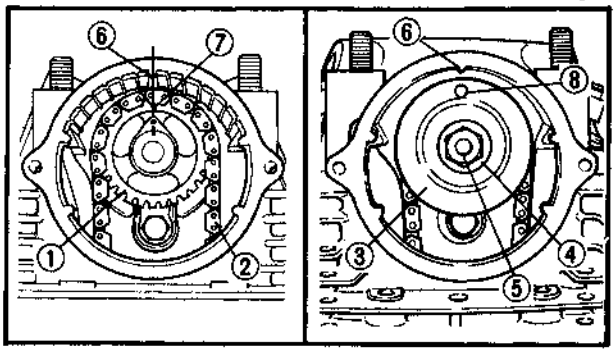



5. Tighten:
   - Nuts and bolts.

**Cylinder Nuts: (No. 1 ~ No. 4)**
**50 Nm (5.0 m·kg, 36 ft·lb)**
**Cylinder Head Bolts: (No. 6, No. 7)**
**20 Nm (2.0 m·kg, 14 ft·lb)**
**Cylinder Head Nut: (No. 5)**
**35 Nm (3.5 m·kg, 25 ft·lb)**



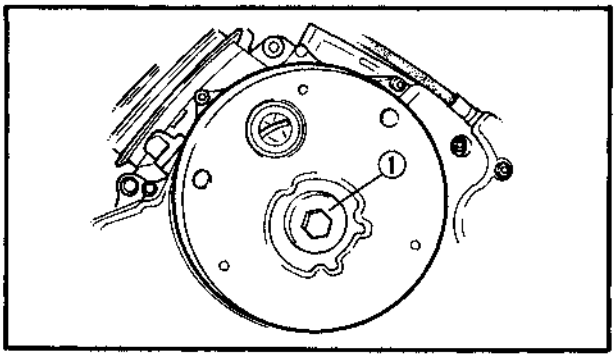

**NOTE:**
- Nut and bolt numbers tightening sequence.
- There are two different cylinder nuts (# 1 ~ # 4). Install taller nuts ② on front cylinder and shorter ones ① on rear cylinder.




6. Install:
   - Cam chain sprocket ①
   - Cam chain ②
   - Oil baffle ③
   - Washer ④
   - Bolt ⑤

**55 Nm (5.5 m·kg, 40 ft·lb)**

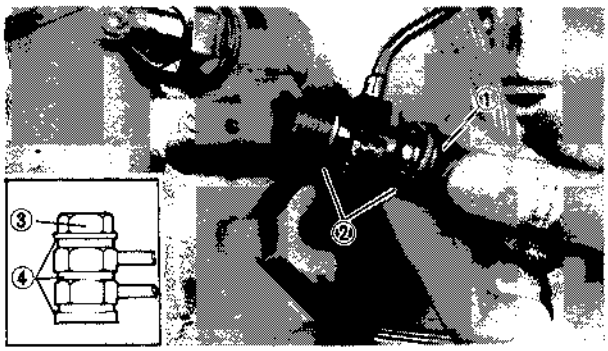
7. Align:
   - Sprocket timing mark ⑦
     (with cylinder head timing mark ⑥)
     Remove any slack from front side of cam chain.
   - Oil baffle hole ⑧
     (with cylinder head timing mark ⑥)




8. Repeat steps 7 to 12 (Rear cylinder head).
9. Install:
   - Crankshaft end cover ①

**10 Nm (1.0 m·kg, 7.2 ft·lb)**

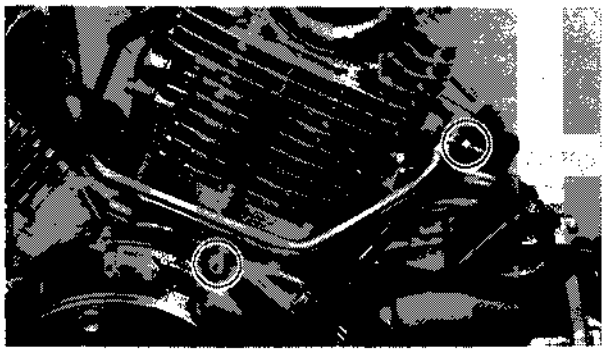
10. Install:
    - Generator cover




**AIS PIPE AND OIL DELIVERY PIPE**

1. Install:
   - Upper union bolt ①
   - Copper washer ②
   - Lower union bolt ③
   - Copper washer ④

**20 Nm (2.0 m·kg, 14 ft·lb)**



2. Install:
   - Air Induction System pipes
   - Screw

Reverse the applicable removal steps for following items.

**CARBURETOR**

**IGNITION COIL AND ENGINE MOUNTING BRACKET.**

**ENGINE GUARD, CHANGE PEDAL, AND SIDESTAND.**

**REMOUNTING ENGINE**

1. Install:
   - Front engine mounting bracket

**64 Nm (6.4 m·kg, 46 ft·lb)**

   - Sidestand

**55 Nm (5.5 m·kg, 40 ft·lb)**

   - Engine guard

**55 Nm (5.5 m·kg, 40 ft·lb)**

   - Change pedal bolt

**10 Nm (1.0 m·kg, 7.2 ft·lb)**

   - Engine mounting bolt

**Front Cylinder Head:**
**Rear Cylinder Head:**
**Rear Upper:**
**Rear Lower:**
**55 Nm (5.5 m·kg, 40 ft·lb)**

- Exhaust pipe and Muffler

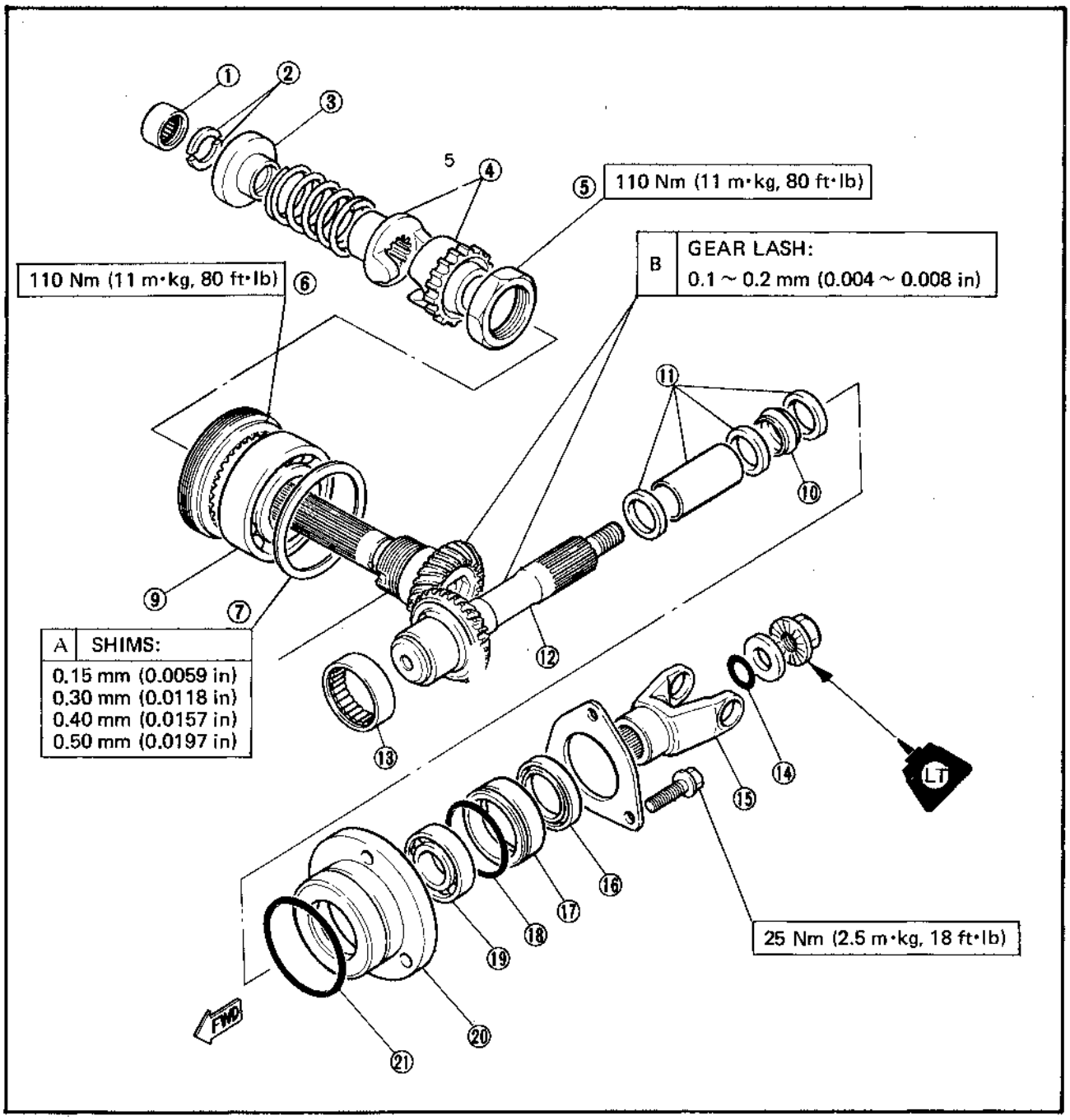
**Front Exhaust Pipe Clamp Botl:**
**10 Nm (1.0 m·kg, 7.2 ft·lb)**
**Rear Exhaust Pipe Clamp Bolt:**
**20 Nm (2.0 m·kg, 14 ft·lb)**
**Exhaust Pipe Nut:**
**20 Nm (2.0 m·kg, 14 ft·lb)**

2. Fill:
   - Crankcase

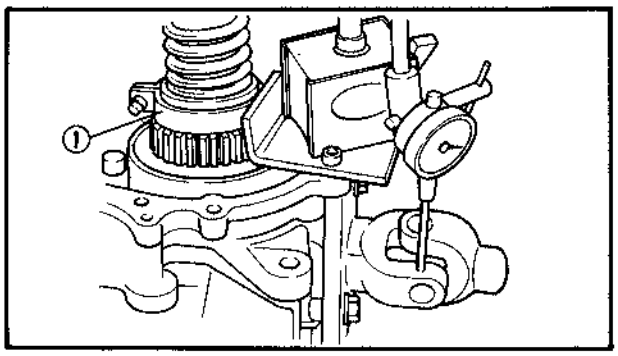
**Engine Oil:**
**3.6 liters (3.17 Imp qt, 3.81 US qt)**

# MIDDLE GEAR SERVICE

1 Bearing (Needle 20 x 26 x 12)
2 Spring retainers
3 Spring seat
4 Damper cams
5 Middle drive shaft nut
6 Middle-drive-shaft-bearing retainer
7 Middle drive gear shim
8 Middle drive shaft
9 Bearing (B6209RSH2C2)
10 Collapsible collar (Always use a new one)
11 Spacers
12 Middle driven shaft
13 Bearing (Needle 40 x 50 x 15)
14 O-ring
15 Universal joint
16 Oil seal (35 x 50 x 6)
17 Bearing retainer
18 O-ring (52 x 56 x 1.9)
19 Bearing (B6205 RC2)
20 Bearing housing
21 O-ring (71 x 77 x 3)



# MIDDLE GEAR SERVICE




## GEAR LASH MEASUREMENT

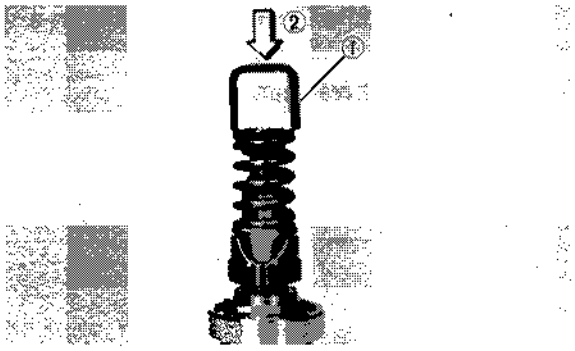
1. Install:
   - Middle-Drive-Shaft Retainer (YM-04056) ①
     (onto the middle drive shaft)
2. Attach:
   - Dial gauge at the bearing end of yoke.
3. Loosen:
   - Wing nut
     (on middle drive shaft retainer)
4. Measure:
   - Middle gear lash
     Rotate the yoke gently back and forth.

**0.1 ~ 0.2 mm (0.004 ~ 0.008 in)**

5. Rotate:
   - Yoke
     (90 degrees each time)
6. Measure:
   - Gear lash
     (at each 90° rotation to obtain four measurements)
     Out of specification (any rotation point)
     → Remove yoke and readjust gear lash.

## REMOVAL

Refer to "ENGINE DISASSEMBLY, Middle Gear".




## DISASSEMBLY

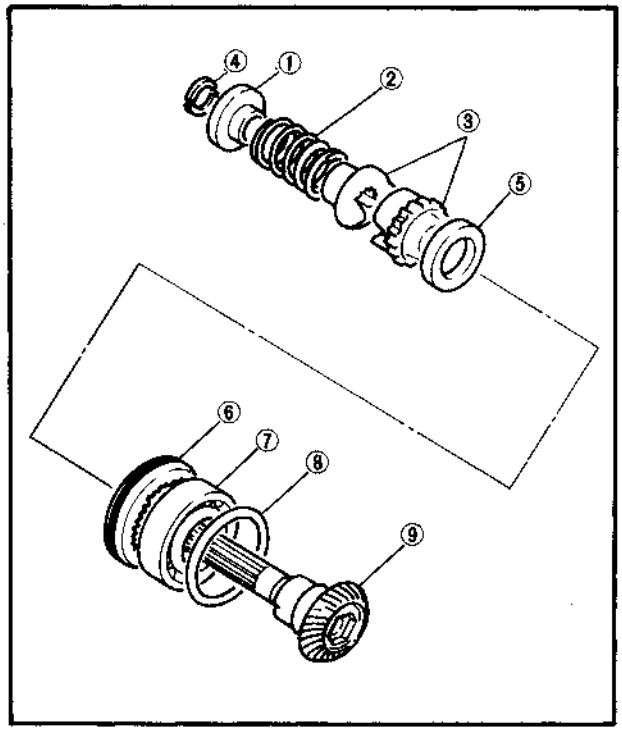
### Middle Drive Shaft

1. Remove:
   - Spring retainer
     Use Damper Compressor ① (YM-04011) with hydraulic press ②.

**WARNING:**

**Measure the inside distance between the legs of the damper compressor. This distance must not exceed 37 mm (1.4 in).**

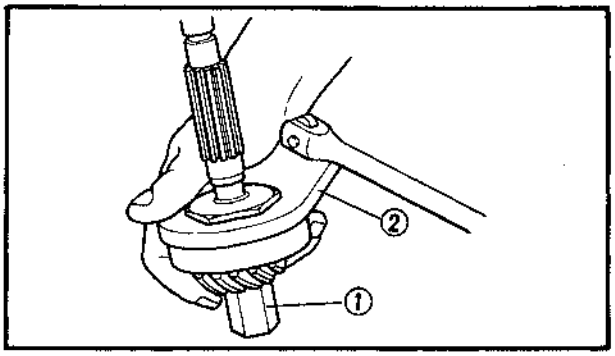
2. Remove:
   - Spring seat ①
   - Spring ②
   - Damper cam ③




④ Spring retainer
⑤ Middle drive shaft nut
⑥ Middle-drive-shaft-bearing retainer
⑦ Middle-drive-shaft bearing
⑧ Shim(s)
⑨ Middle drive shaft

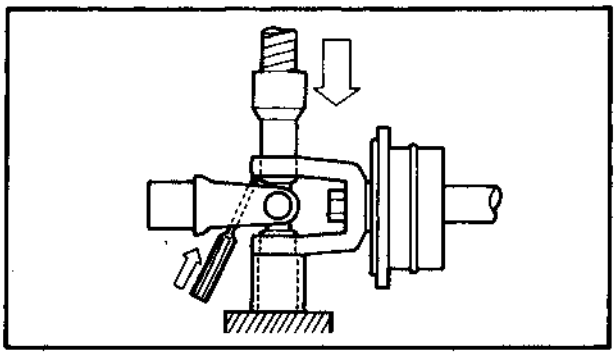
**NOTE:**

Perform following steps only if middle-drive-shaft bearing or middle-drive-shaft gear must be replaced.




3. Flatten the lock collar of the middle-drive-shaft nut with a suitable center punch.
4. Attach:
   - Middle Drive Shaft Holder (YM-04055) ①
   - 55 mm Offset Wrench (YM-04054) ② (onto middle drive shaft)

5. Secure Middle-Drive-Shaft Holder in a Vise.
6. Remove:
   - Middle-drive-shaft nut
   - Bearing
   - Middle drive shaft

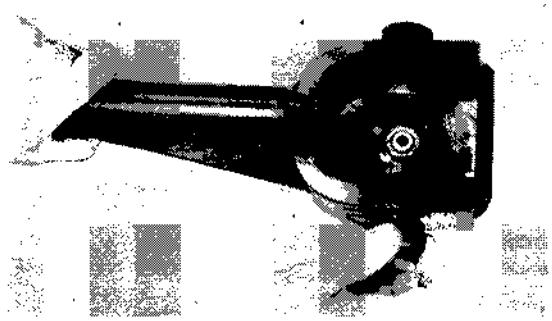


**Middle Driven Shaft**

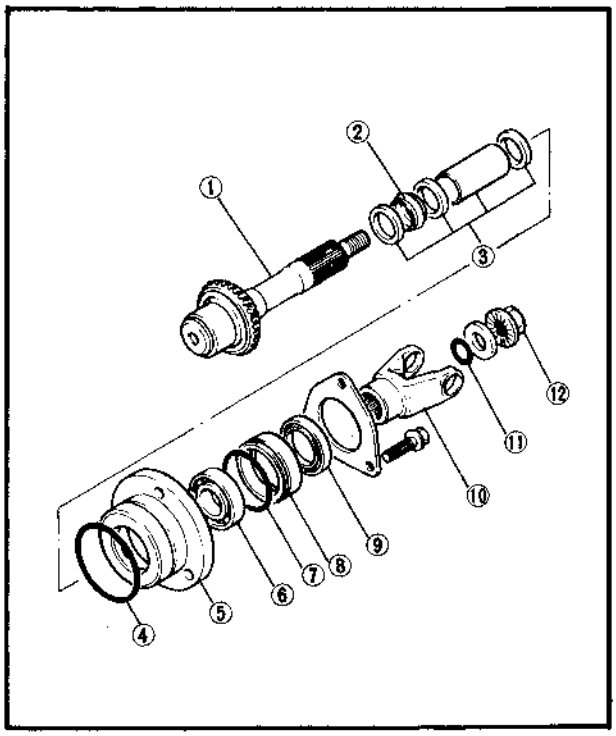
1. Remove:
   - Clip
   - Bearing
   - Yoke

**NOTE:**

- Place U-joint in a press. With a suitable diameter pipe beneath yoke, press bearing into pipe.
- It may be necessary to lightly tap yoke with a punch.



2. Remove:
   - Driven shaft nut
     Use Universal Joint Holder (YM-04062).



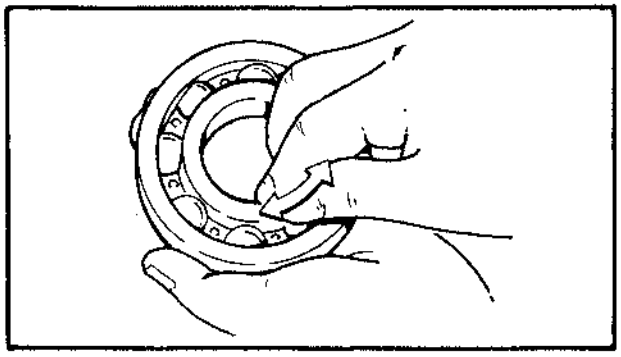

3. Remove:
   - Middle driven shaft ①
   - Collapsible collar ②
   - Spacers ③
   - O-ring (71 x 77 x 3) ④
   - Bearing housing ⑤
   - Bearing (B6205RC2) ⑥
   - O-ring (52 x 56 x 1.9) ⑦
   - Bearing retainer ⑧
   - Oil seal (35 x 50 x 6) ⑨
   - Universal joint ⑩
   - O-ring ⑪
   - Securing nut ⑫

**CAUTION:**

**Always replace collapsible collar whenever middle gear is disassembled.**

## INSPECTION

1. Check:
   - Teeth of middle gear
     Discoloration/Pitting/Wear → Replace all middle gears as set.



2. Check:
   - Bearing movement
     Rotate the race by hand.
     Roughness → Replace.

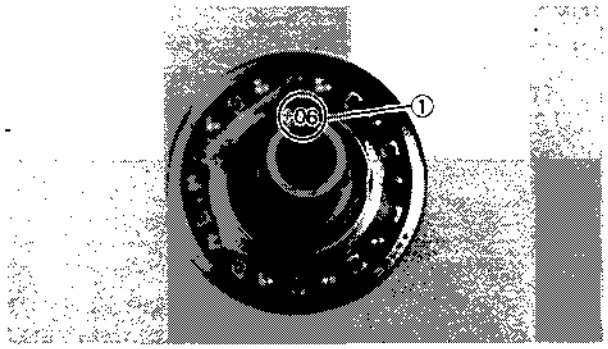
3. Install:
   - Bearings
     (onto yoke)
4. Check:
   - Yoke bearing free play
     Free play → Replace U-joint assembly.

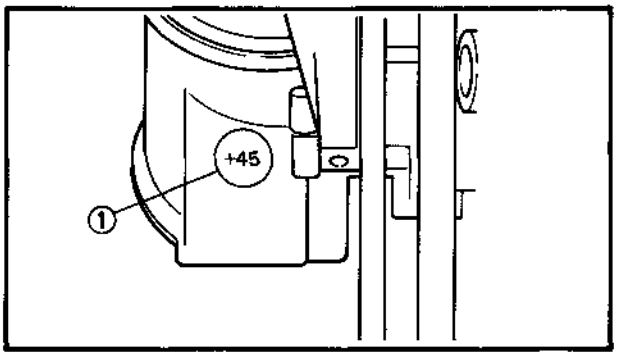
## ASSEMBLY AND ADJUSTMENT

1. Select proper middle-drive-gear shim.

**NOTE:**
Select proper middle-drive-gear shim whenever crankcase and/or middle gears are replaced.

| **Shim thickness calculation:**<br>• Calculate shim thickness using formula below: |
|---|
| Shim thickness (A) = a – b |
| a = 43 plus or minus the number printed on end of middle drive shaft.<br>b = 42 plus the number found on left side crankcase. |




- For example:
  If middle drive shaft is marked "+ 06"①.

a = 43 + 0.06
a = 43.06

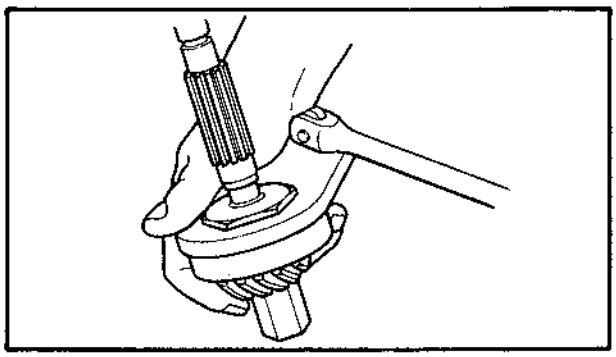
If left side crankcase is stamped "45" ①.
b = 42 + 0.45
b = 42.45
A = a − b
A = 43.06 − 42.45
A = 0.61
Calculated shim thickness is 0.61 mm.

| Shim thicknesses: |
|---|
| 0.15 mm, 0.30 mm, 0.40 mm, 0.50 mm |

Because shims can only be selected in 0.05 mm increments, use following chart to round off the hundredths digit of calculated thickness, and select appropriate shim.

| Hundredths digit | Rounded value |
|---|---|
| 0, 1, 2 | 0 |
| 3, 4, 5, 6 | 5 |
| 7, 8, 9 | 10 |

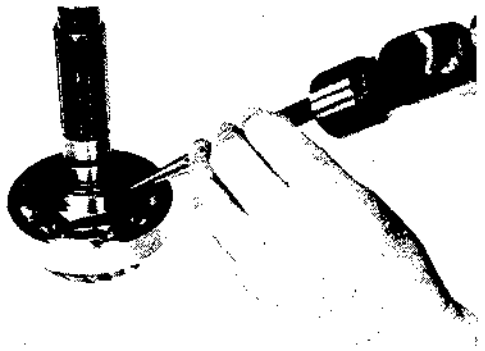
In above example, calculated shim thickness is 0.61 mm. The chart instructs you, however, to round off the 1 to 0. Thus you should use two 0.30 mm shims.



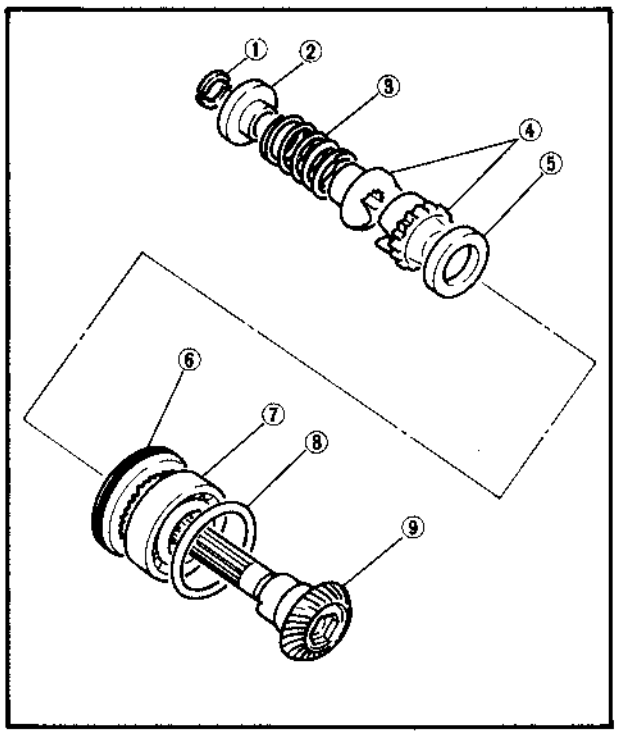
2. Install:
   - Middle-drive-shaft bearing
   - Nut

| | |
|---|---|
| | **110 Nm (11 m·kg, 79.5 ft·lb)** |

Use Middle-Drive-Shaft Holder (YM-04055) and Offset Wrench (YM-04054).



3. Bend lock collar of nut into middle drive shaft slot using a center punch.




4. Assemble:
   - Damper cam ④
   - Spring ③
   - Spring seat ②

   Install onto middle drive shaft ⑨.

① Spring retainer
⑤ Nut
⑥ Middle-drive-shaft-bearing retainer
⑦ Bearing
⑧ Shim(s)

5. Install:
   - Spring retainer

   Use a Press and Damper Compressor (YM-04011).

6. Assemble:
   - Middle driven shaft

**NOTE:**
Finger-tighten securing nut.

7. Install:
   - Middle-driven-shaft assembly
   - Bolt
   (both into left side crankcase)

**25 Nm (2.5 m·kg, 18.0 ft·lb)**

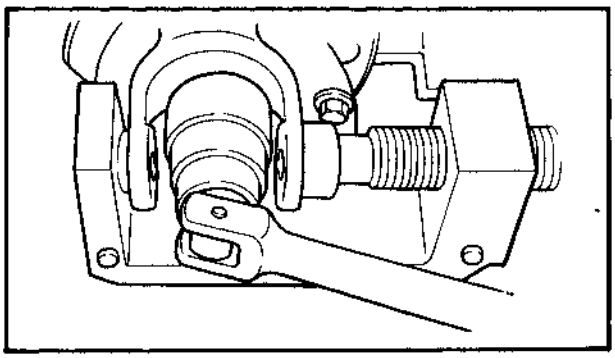
8. Install:
   - Middle-drive-shaft assembly
   - Proper middle-drive-gear shim
   (both into left side crankcase)

9. Install:
   - Middle-drive-shaft-bearing retainer
   Use Middle-Drive-Shaft-Bearing-Retainer Wrench (YM-04057)

**110 Nm (11 m·kg, 80 ft·lb)**

**NOTE:**
- Be sure middle-drive-shaft bearing is properly seated in crankcase before installing bearing retainer.

10. Remove:
    - Securing nut
11. Apply:
    - Loctite Stud N' Bearing Mount
    (to threads)



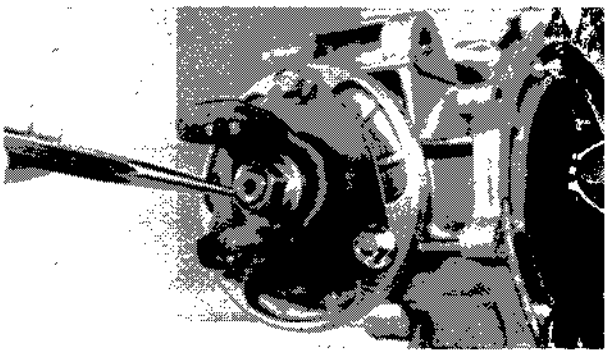
12. Tighten:
    - Securing nut
    (a little)
    Use Universal Joint Tool (YM-04062).

13. Measure:
    - Middle gear lash
14. Repeat steps 11 and 12 until gear lash measurement is within specification.

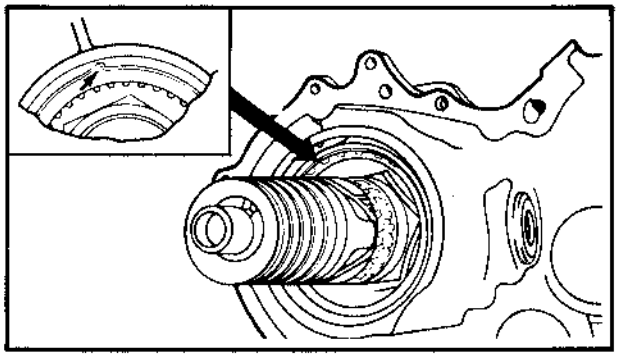
**Middle Gear Lash:**
**0.1 ~ 0.2 mm (0.004 ~ 0.008 in)**

**NOTE:**
Disassemble middle driven shaft and replace collapsible collar if gear lash is less than 0.1 mm.

**CAUTION:**
- **Proceed slowly with gear lash steps to avoid damage to collapsible collar.**
- **Never loosen securing nut when adjusting gear lash or there will be insufficient pressure on collapsible collar.**
- **Complete gear lash adjustment within five minutes or Loctite will harden and inhibit gear lash adjustment.**



15. Lock the threads on the securing nut with a center punch.

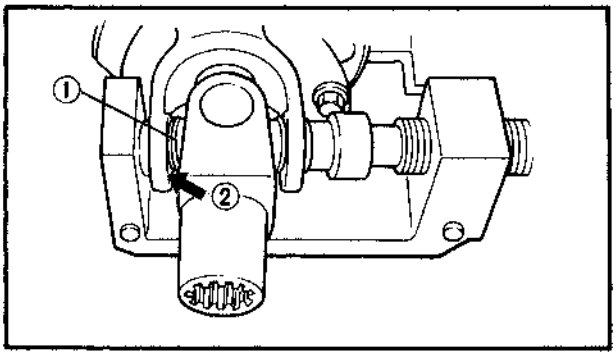


16. Bend the lock collar on middle-drive-shaft bearing retainer into crankcase slot.

17. Lubricate:
    - Bearings
      (with grease)
18. Install:
    - Yoke
    - Bearing

**CAUTION:**

**Slide yoke back and forth to check proper placement of needles. Yoke will not go all the way into bearing if needle is out of place.**




19. Install:
    - Bearing
    - Clip ①
      Use Universal Joint Tool (YM-04062).

**NOTE:**

It may help to tap ② U-joint using drift punch.

# CHAPTER 4.
# CARBURETION

**CARBURETOR** . . . . . 4-1
SECTION VIEW . . . . . 4-2
DISASSEMBLY . . . . . 4-2
INSPECTION . . . . . 4-3
ASSEMBLY . . . . . 4-4
FUEL LEVEL ADJUSTMENT . . . . . 4-4

**AIR CLEANER AND CRANKCASE VENTILATIONS SYSTEM.** . . . . . 4-5

**MIXTURE CONTROL VALVE AND AIR INDUCTION SYSTEM.** . . . . . 4-6
VACUUM LINE ROUTING . . . . . 4-6
INSPECTION . . . . . 4-6

# CARBURETION

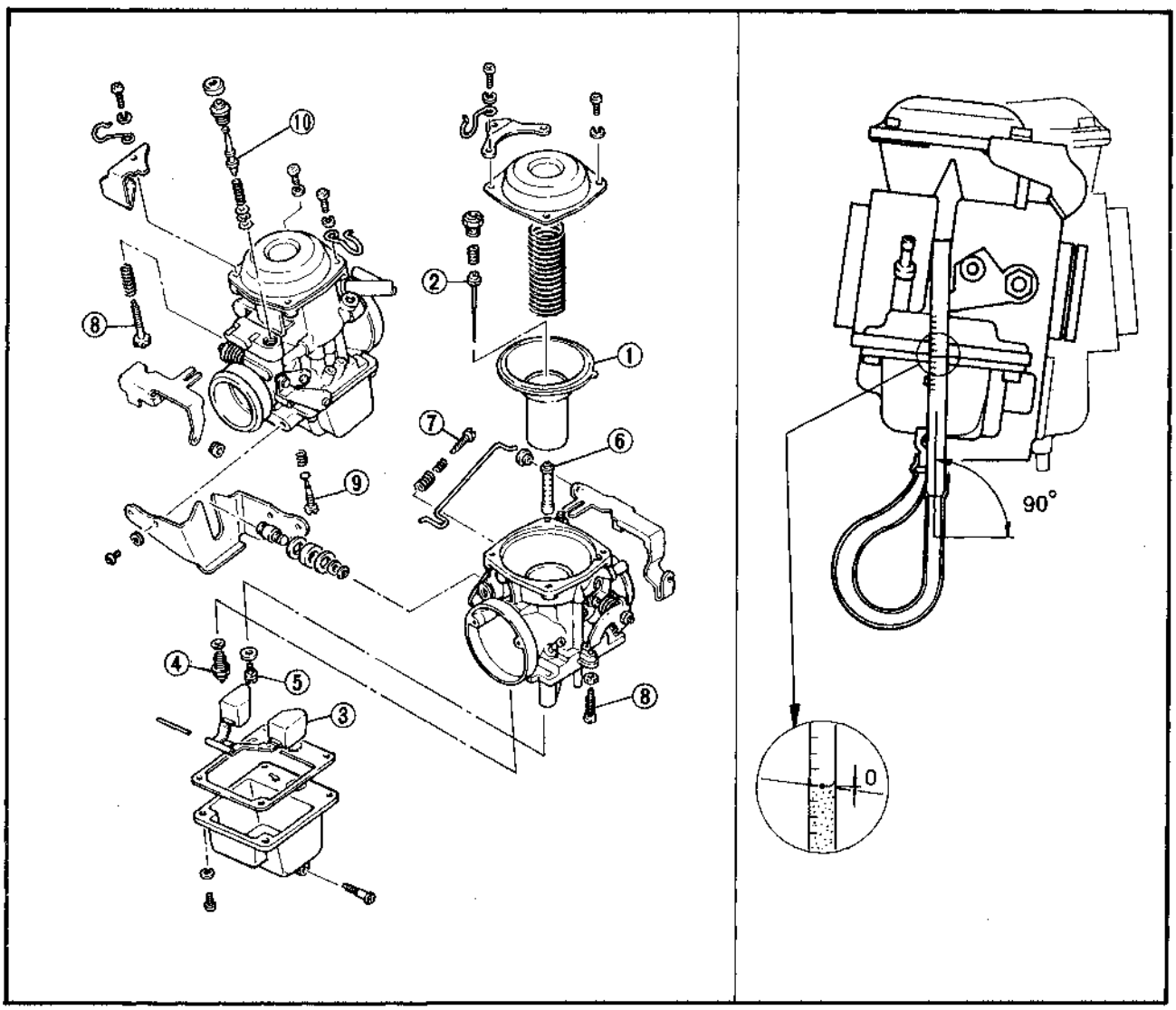
## CARBURETOR

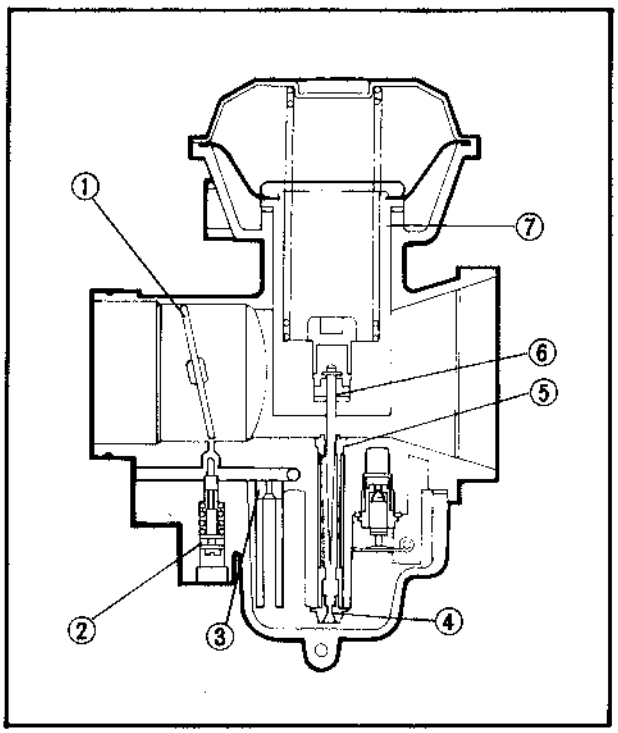
1. Vaccum piston
2. Jet needle
3. Float
4. Float valve
5. Main jet
6. Main nozzle
7. Synchronizing screw
8. Throttle stop screw
9. Pilot screw
10. Starter plunger

**CAUTION:**

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

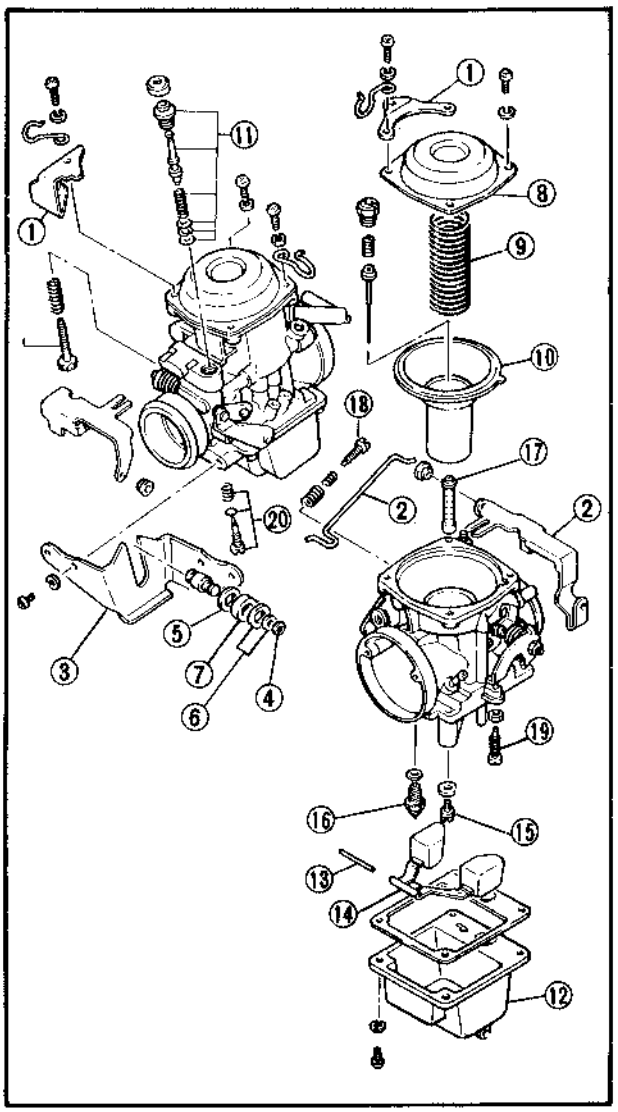
| SPECIFICATIONS | | |
|---|---|---|
| | XV700 | XV1000 |
| Main jet: | | |
| #1 Carburetor | #128 | #124 |
| #2 Carburetor | #132 | ← |
| Jet needle: | | |
| #1 Carburetor | Y-32 | Y-34 |
| #2 Carburetor | Y-32 | Y-33 |
| Pilot jet: | #42 | #40 |
| Starter jet | #40 | ← |
| Fuel level | 0 ± 1.0 mm (0 ± 0.04 in) | ← |
| Pilot screw | Preset | ← |
| Float valve seat | φ 2.0 | ← |
| Engine idle speed | 1,000 ± 50 r/min | ← |






## SECTION VIEW

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




## DISASSEMBLY

1. Remove:
   - Upper bracket ①
   - Starter link ②
   - Lower bracket ③
   - E clip ④
   - Connecting link ⑤

2. Remove:
   - Washer ⑥
   - Collar ⑦
   - Vacuum chamber cover ⑧
   - Spring ⑨
   - Vacuum piston ⑩
   - Starter plunger ⑪

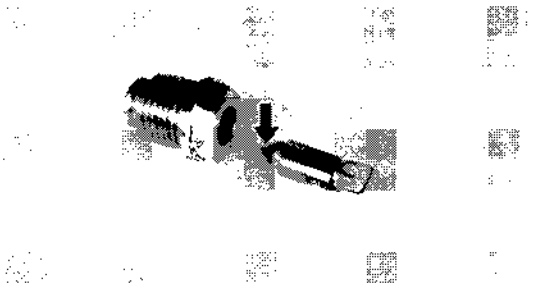
3. Remove:
   - Float chamber cover ⑫
   - Float pin ⑬
   - Float ⑭
   - Main jet ⑮
   - Float valve ⑯
   - Main nozzle ⑰
   - Synchronizing screw ⑱
   - Throttle stop screw ⑲
   - Pilot screw ⑳

## INSPECTION

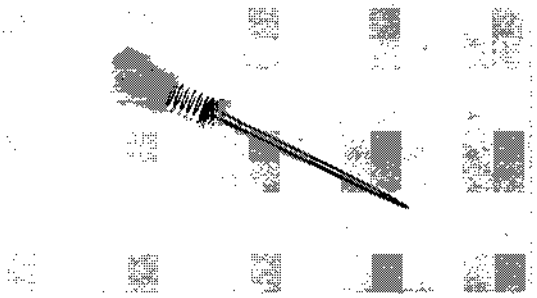
1. Inspect:
   - Carburetor body
   - Fuel passage
   Contamination → Clean as indicated.

**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.

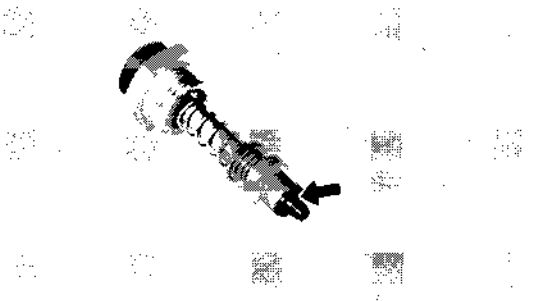
2. Inspect:
   - Floats
   Damage → Replace.



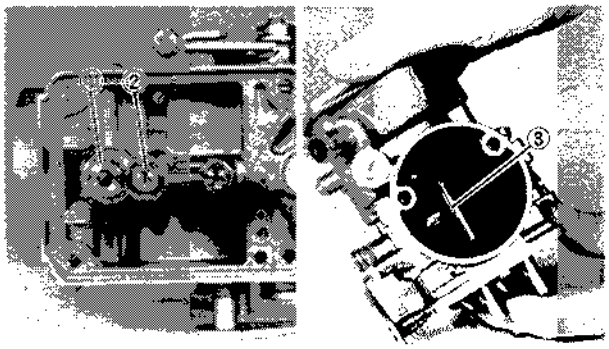
3. Inspect:
   - Float needle valve
   - Seat
   Wear/Contamination → Replace as a set.
   - Vacuum piston
   - Rubber diaphragm
   Scratches (piston)/Tears (diaphragm) → Replace.

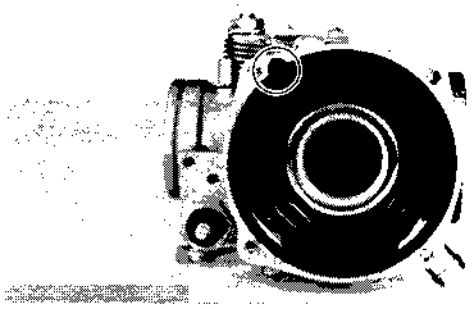


4. Inspect:
   - Jet needle
   Bends/Wear → Replace.



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





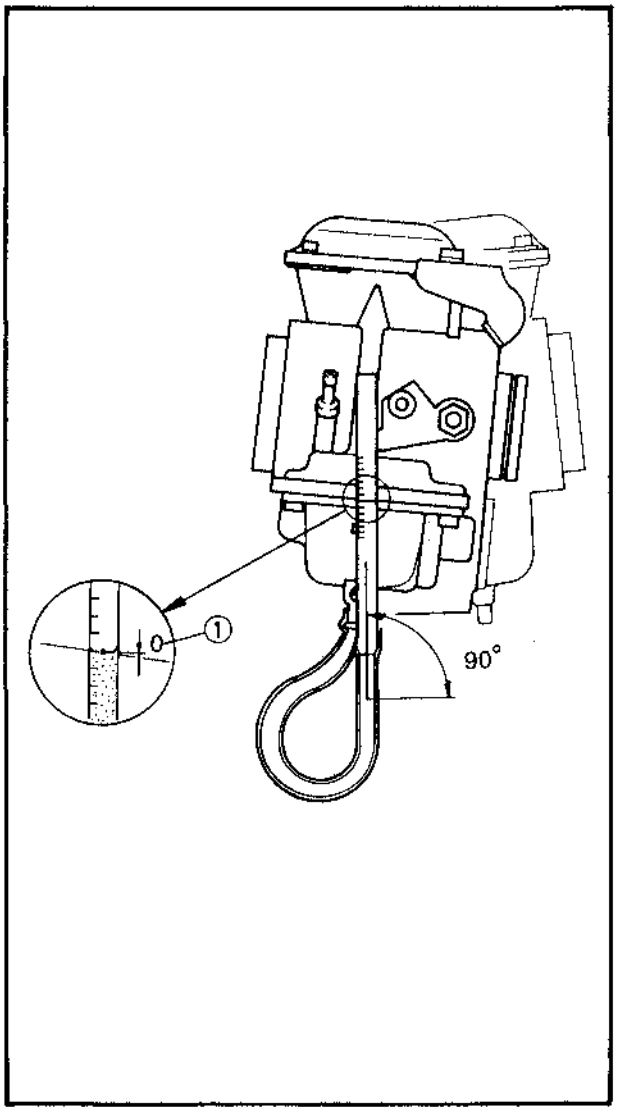
## ASSEMBLY

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

1. Install:
   - Float valve seat ①
   - Main jet ②
   - Main nozzle ③
2. Install:
   - Vacuum piston

**NOTE:**

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




## FUEL LEVEL ADJUSTMENT

**NOTE:**

Place motorcycle on level surface before checking fuel level.

1. Measure:
   - Fuel level

**Fuel level inspection steps:**

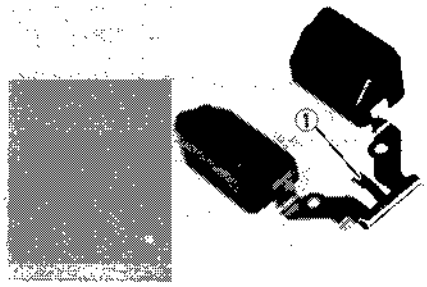
- Connect fuel level gauge or vinyl tube, 6 mm (0.24 in) inside diameter, to float bowl nozzle on carburetor.
- Place tube next to throttle stop screw.
- Set fuel cock to "ON" (For XV700)
- Warm up the engine, then shut it off after a few minutes.
- Check the fuel level. It should be within the specified range.

Out of range → Follow next steps.

① Fulel level

**Fuel Level:**
**0 ± 1.0 mm (0 ± 0.04 in)**
**above the carburetor body.**

2. Remove:
   - Carburetors

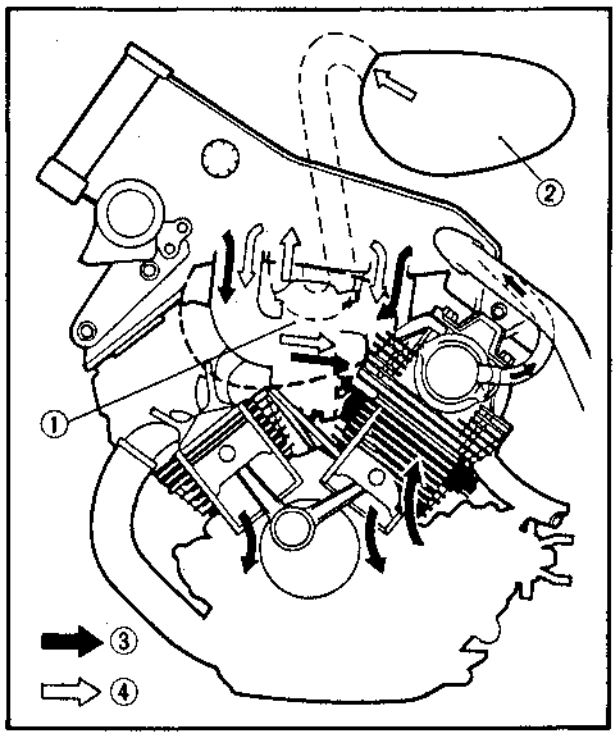



3. Inspect:
   - Float valve assembly
   - Float

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

4. Observe:
   - Fuel level

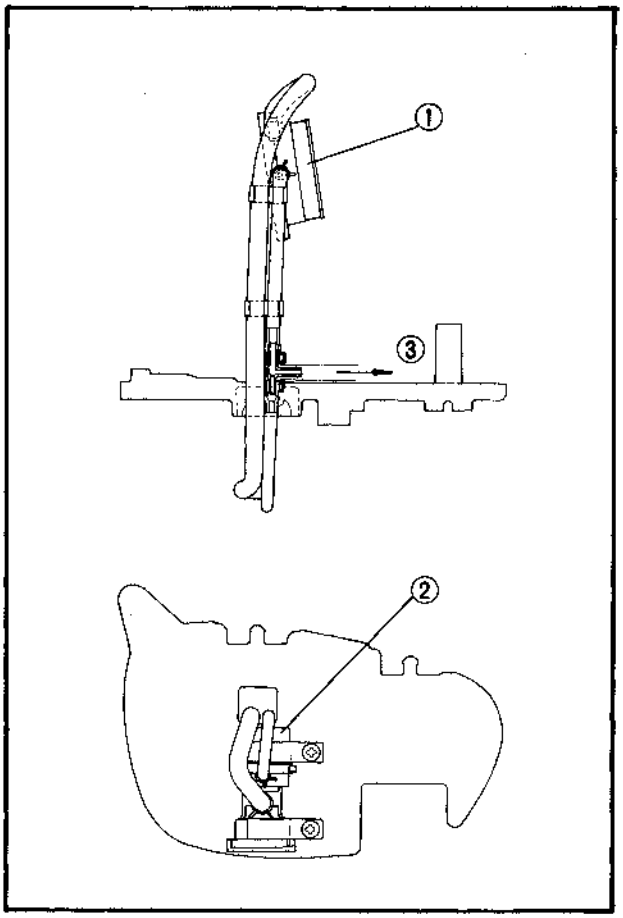
   Level should be within specified range.
5. Repeat these steps for the other carburetor.




## AIR CLEANER AND CRANKCASE VENTILATION SYSTEM

REFER TO "CHAPTER 2, Air Cleaner Maintenance."

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

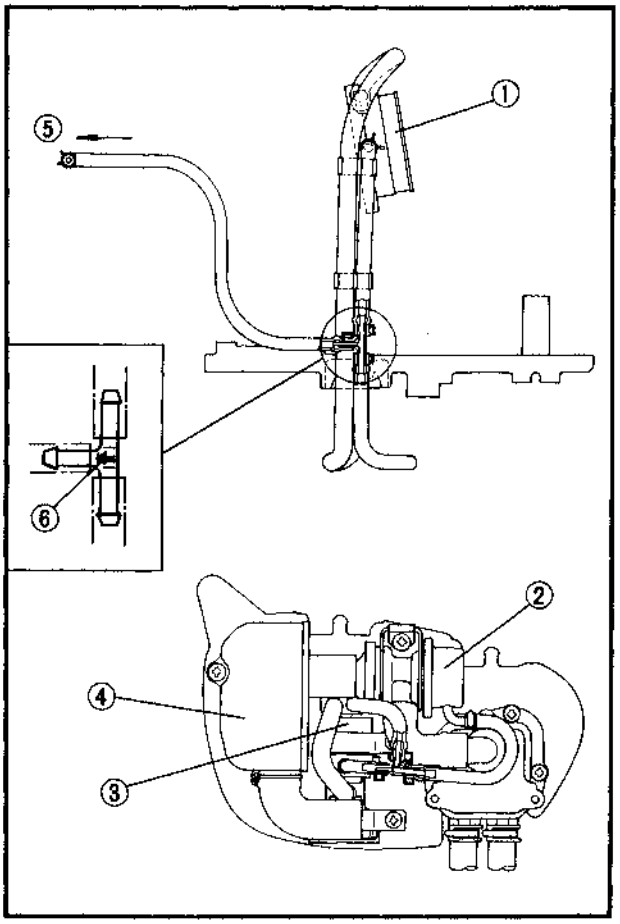



# MIXTURE CONTROL VALVE AND AIR INDUCTION SYSTEM

## VACUUM LINE ROUTING

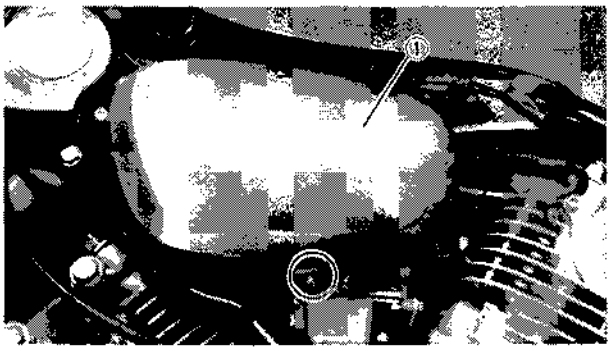
### MCV Vacuum Line Routing (XV700)

① Carburetor joint
② Mixture control valve
③ To fuel cock




### MCV and AIS Vacuum Line Routing (XV1000)

① Carburetor joint
② Air cutoff valve
③ Mixture control valve
④ Air filter case
⑤ To pressure sensor
⑥ Face arrow mark to pressure sensor.

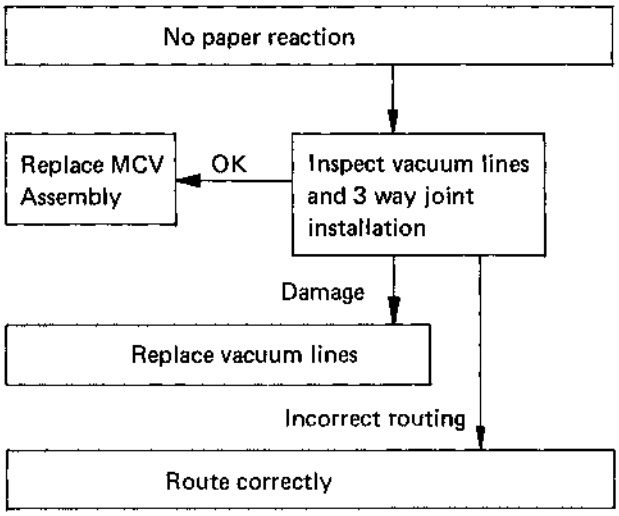




## INSPECTION

### MCV Vacuum Inspection (XV700)

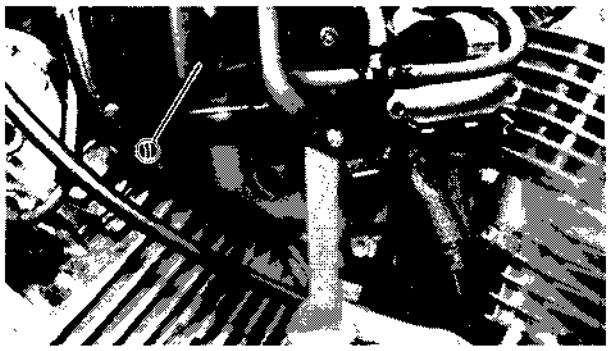
**MCV Vacuum inspection steps:**
- Remove MCV case cover ①
- Start the engine.
- Place a piece of paper on intake side of the mixture control valve.
- Rev the engine to 5,000 rpm, The paper should be drawn towards mixture control valve ②




**NOTE:**
The narrow nozzle in the joint must be connected to the small vacuum line coming from mixture control valve.

### (XV1000)

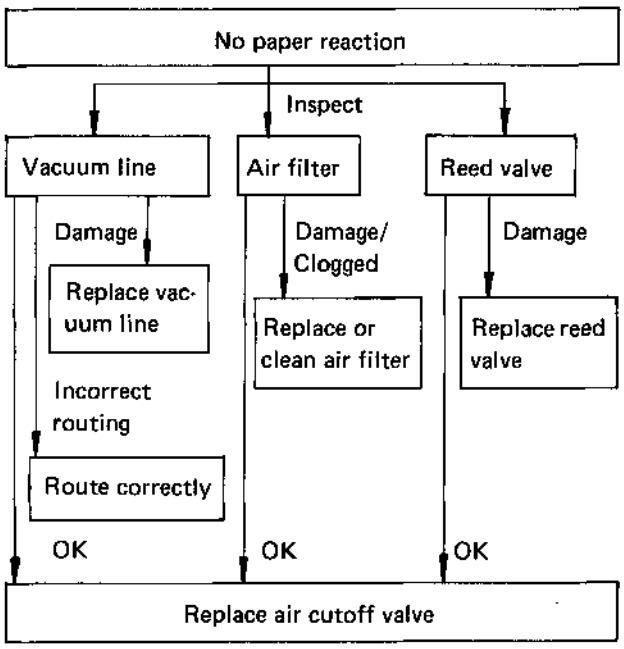
Follow the XV700 MCV Vacuum inspection steps



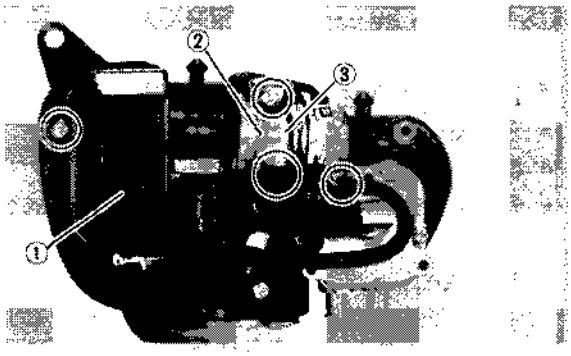
### AIS Vacuum Inspection (XV1000)

**AIS Vacuum inspection steps:**
- Remove MCV case cover.
- Start the engine.
- Place a piece of paper on intake side of the AIS air filter ①
- Rev engine to 5,000 rpm, then quickly snap throttle grip back to closed (idle) position to allow AIS air cutoff valve to open.
- Repeat last step two or three times. The paper should be drawn toward the AIS air filter.

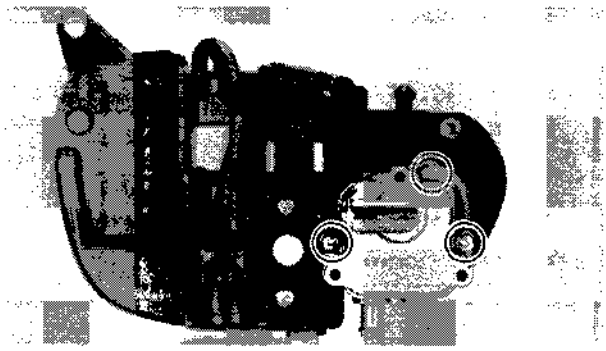
**NOTE:**
The throttle must be closed quickly to create a paper reaction.




Disassembly
1. Disconnect:
   - MCV vacuum hoses
2. Remove:
   - MCV and AIS assembly



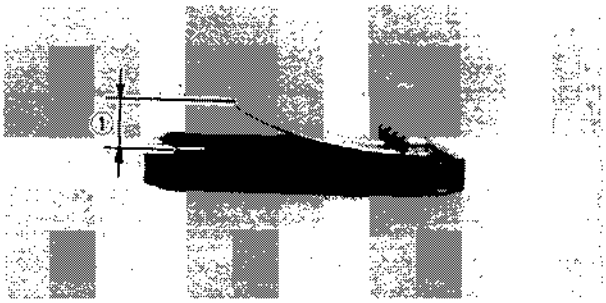

3. Remove:
   - Air filter ①
   - Clamp ②
   - Air cutoff valve ③



4. Remove:
   - Reed valve assembly




5. Remove:
   - Reed valve case ①
   - Reed valve ②
   - Bracket ③
   - Gasket ④




**Inspection**

1. Measure:
   - Reed valve height ①

| Reed Valve Height: 7.7 mm (0.3 in) |
|---|

2. Clean:
   - Air filter

**NOTE:**
Blow out dirt and dust from the air filter using compressed air.

# CHAPTER 5.
# CHASSIS


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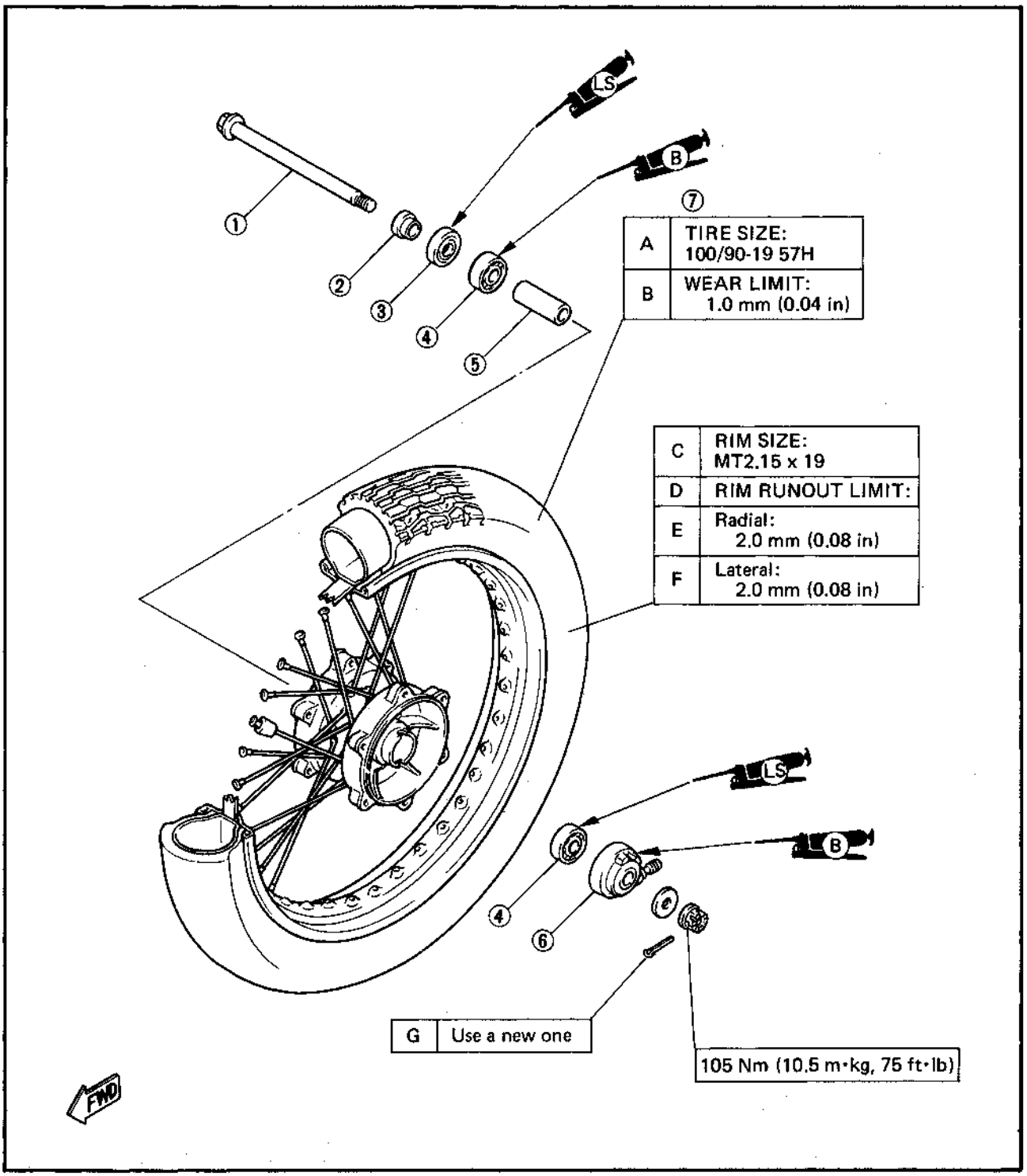
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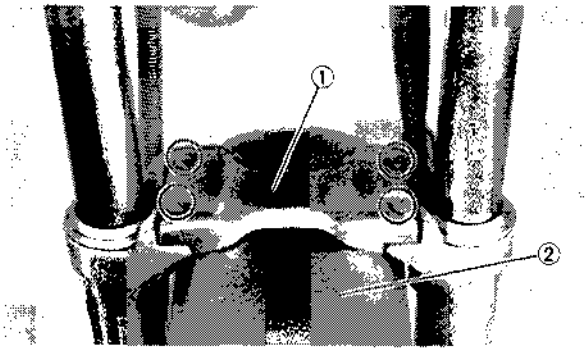
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# CHASSIS

## FRONT WHEEL

1. Wheel axle
2. Collar
3. Oil seal
4. Bearing
5. Spacer
6. Speedometer gear unit
7. Tire









## REMOVAL

1. Place the motorcycle on its centerstand.
2. Remove:
   - Speedometer cable
   - Front fork brace ①
   - Front fender ②
3. Loosen:
   - Pinch bolt ①
4. Remove:
   - Axle ②
   - 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.

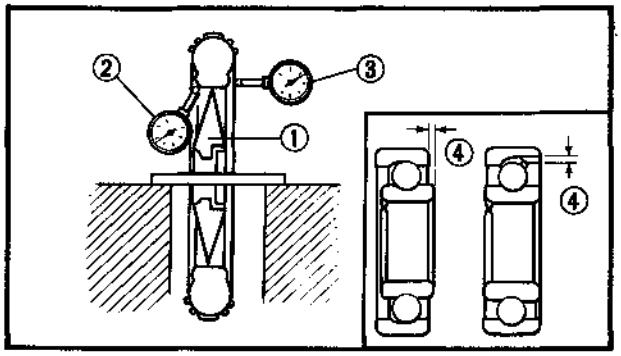
## INSPECTION

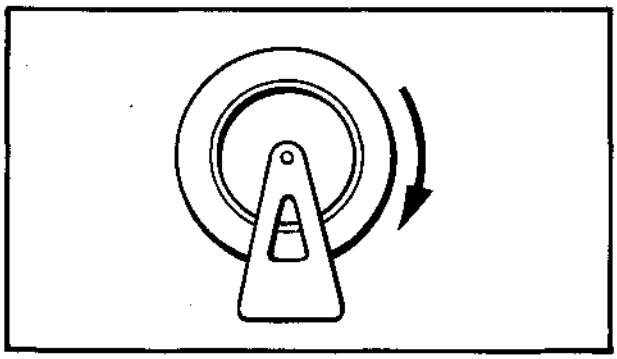
1. Eliminate any corrosion from parts.
2. Inspect:
   - Front axle ①
     Bends → Replace.

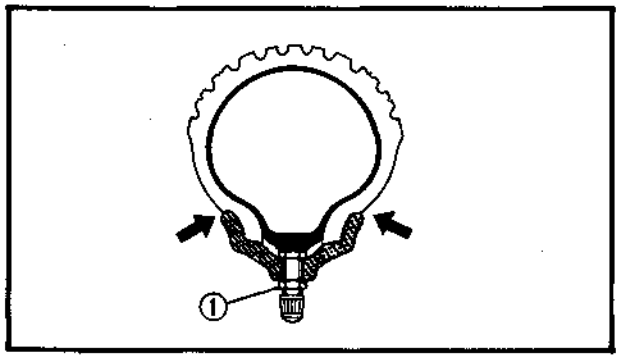
**WARNING:**

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

3. Inspect:
   - Front wheel ①
     Cracks/Bends/Warpage → Replace.






4. Measure:
   - Wheel ① runout
     Out of specification → Replace wheel or check bearings.

**Rim Run-Out Limits:**
**Radial ② : 2 mm (0.079 in)**
**Lateral ③ : 2 mm (0.079 in)**

④ Bearing play

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

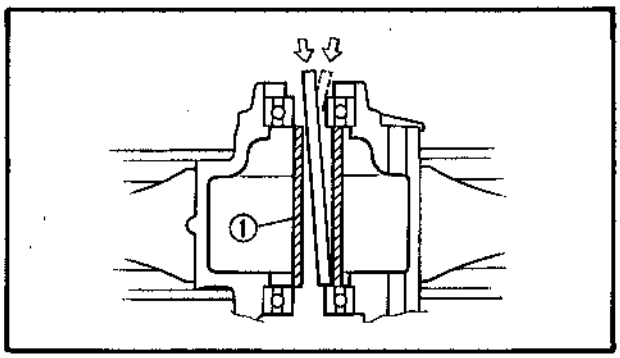
NOTE:
- Balance wheel with brake disc installed.

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

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

## WHEEL BEARING REPLACEMENT

1. Inspect:
   - Wheel bearings
     Wheel hub play/Wheel turns roughly → Replace.




**Wheel bearing replacement steps:**

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

WARNING:

**Eye protection is recommended when using striking tools.**

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

CAUTION:

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

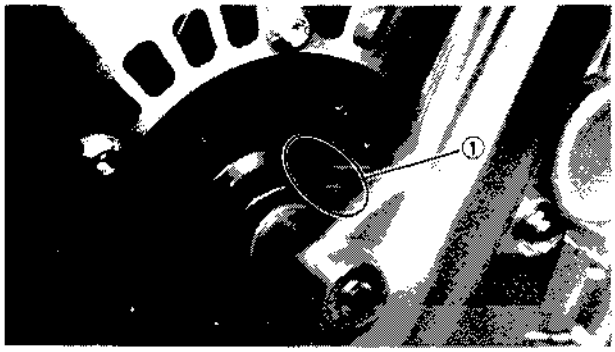
## INSTALLATION

1. Install
   - Front wheel

   Reverse removal procedure.

**Front wheel installation points:**

- Lightly grease lips of front wheel oil seals and gear teeth of speedometer drive and driven gears.
- Install speedometer cable holder securing bolt.
- Be sure that the projecting portion (torque stopper ① ) of the speedometer housing is positioned correctly.



- Tighten the axle.



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

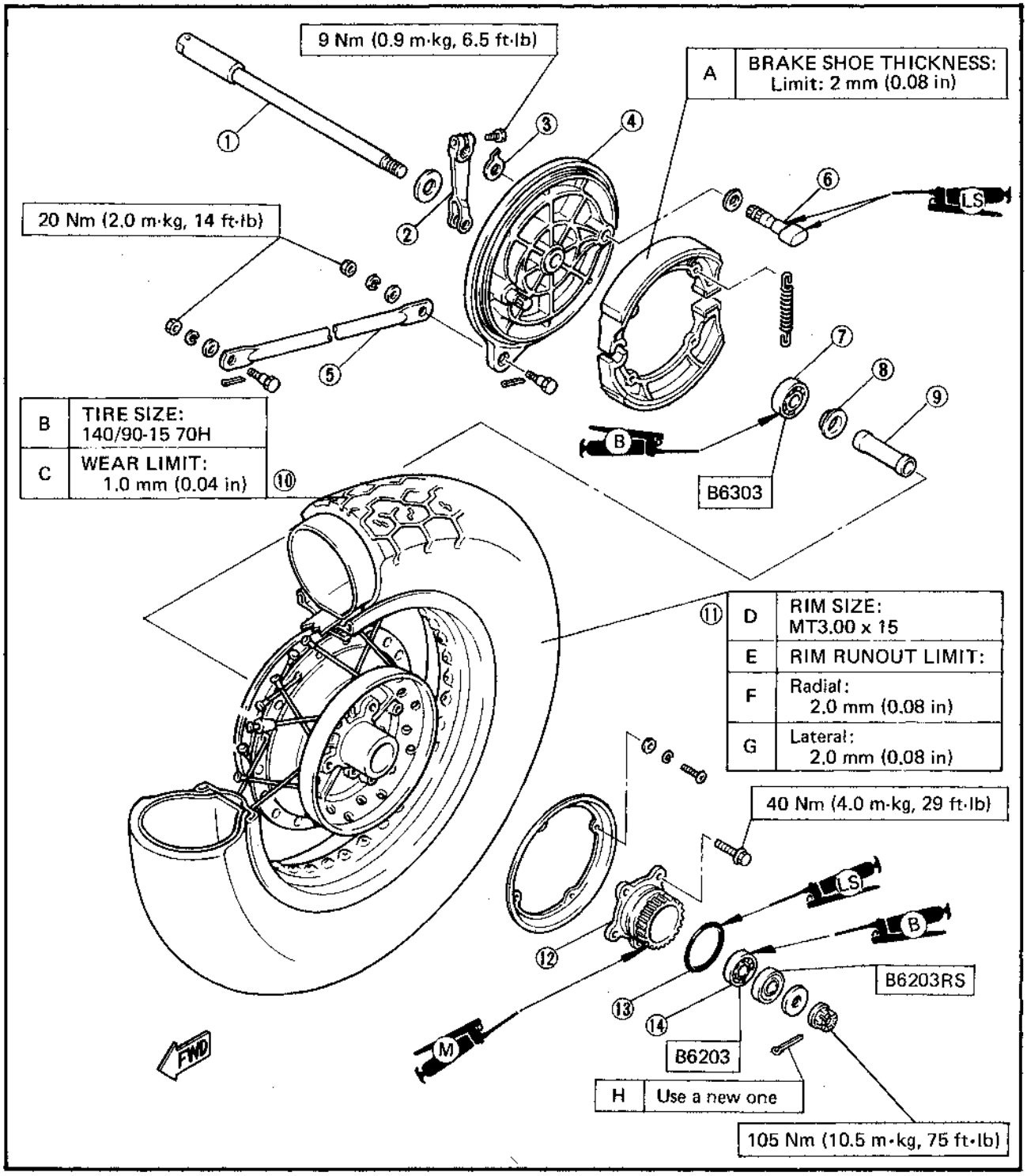
- Tighten the axle pinch bolt.

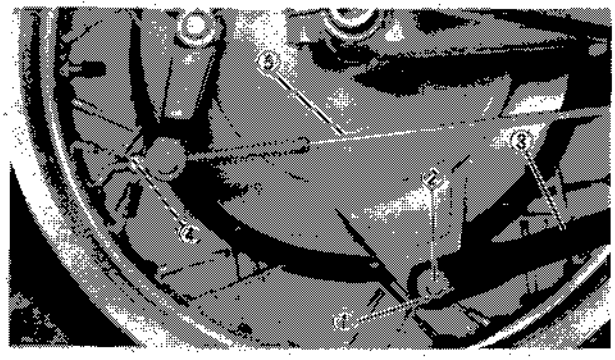


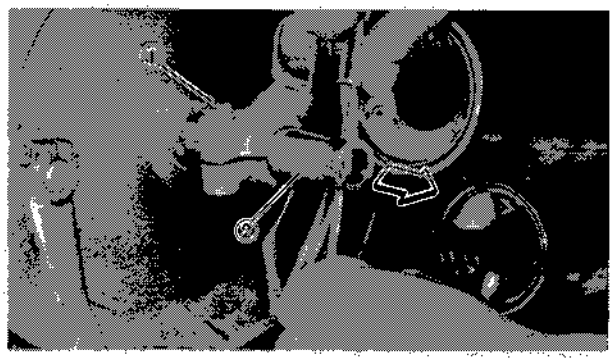
**Axle Pinch Bolt:**
**20 Nm (2.0 m·kg, 14 ft·lb)**

## REAR WHEEL

1. Axle
2. Rear brake camshaft lever
3. Wear indicator
4. Brake plate
5. Tension bar
6. Rear brake camshaft
7. Bearing (B6303RS)
8. Spacer flange
9. Spacer
10. Tire
11. Wheel
12. Clutch hub
13. O-ring
14. Bearing
15. Bearing

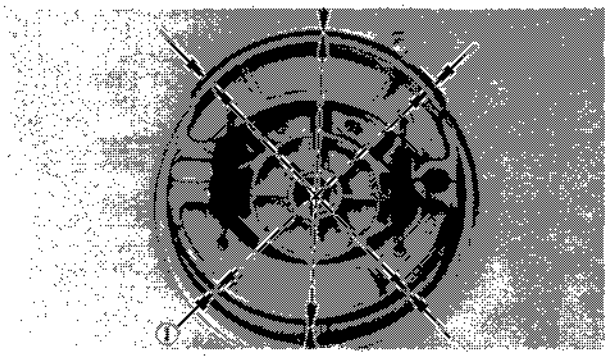






## REMOVAL

1. Place the motorcycle on its centerstand.
2. Remove:
   - Cotter pin ①
   - Nut ②
   - Tension bar ③
   - Brake rod adjuster ④
   - Brake rod ⑤
3. Remove:
   - Cotter pin
   - Axle nut
4. Loosen:
   - Rear axle pinch bolt ①
5. Remove:
   - Rear axle ②
   - Rear wheel
     Move the wheel towards the right side to separate it from final gear case.



## INSPECTION

### Brake Shoe

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

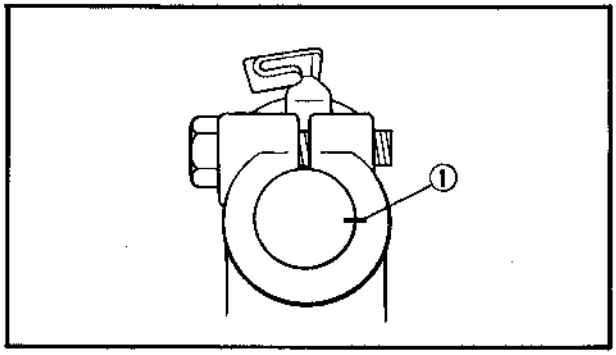
① Measuring point

**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.

**NOTE:**
Place alignment marks ① on the cam lever and camshaft when assembly.

### Rear Axle

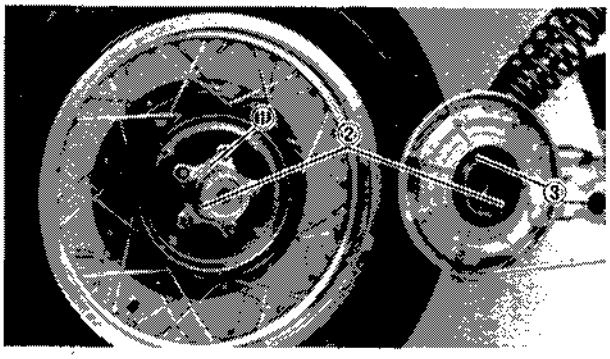
Refer to "Front Axle Inspection.

### Rear Wheel

Refer to "Front Wheel Inspection.

### Wheel Bearing Replacement

Follow front wheel bearing replacement steps.




## INSTALLATION

1. Install:
   - Rear wheel
     Reverse removal steps.

**Rear wheel installation points:**

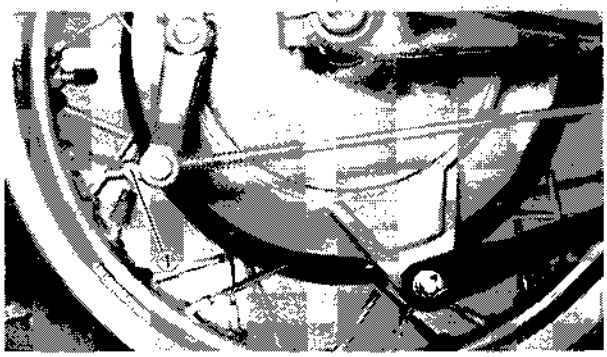
- Lightly grease O-ring ① , hub splines ② , and oil seal lips ③ .

- Install wheel assembly and axle.

NOTE:
When installing the rear wheel, be sure that the splines on the wheel hub fit into the final gear case.

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

**Axle Nut:**
**105 Nm (10.5 m·kg, 75 ft·lb)**
**Axle Pinch Bolt:**
**6 Nm (0.6 m·kg, 4.3 ft·lb)**



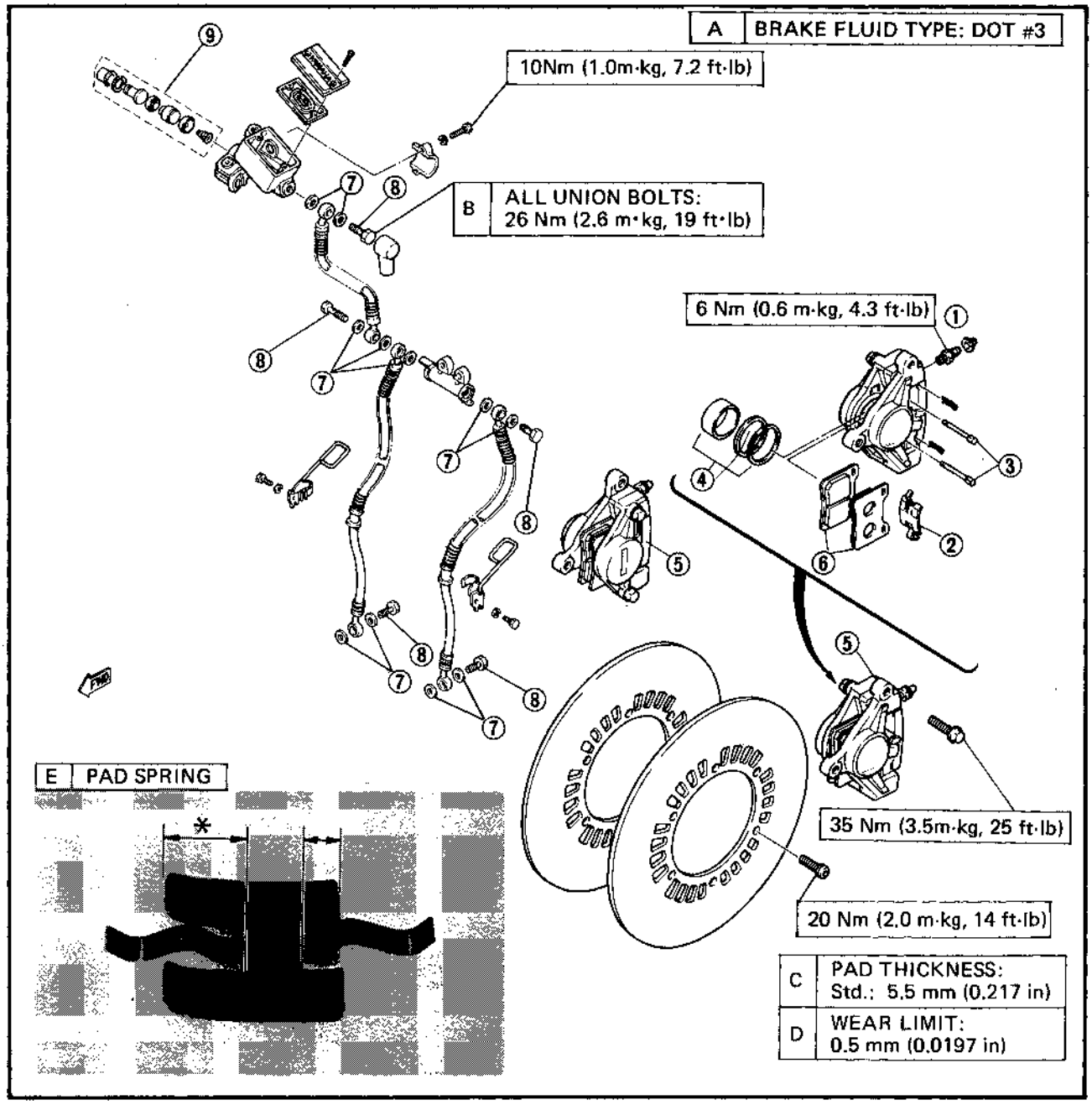
2. Adjust:
   - Rear brake free play.
     Turn adjuster ① as needed.

| Adjuster | Rear Brake Free Play |
|---|---|
| Turn clockwise | to reduce |
| Turn counterclockwise | to increase |

# FRONT BRAKE

1. Bleed screw
2. Pad spring
3. Pad retaining pin
4. Caliper piston assembly (Replace as a set)
5. Caliper
6. Brake pads (Replace as a set)
7. Copper washer
8. Union bolt
9. Master cylinder kit (Replace as a set)

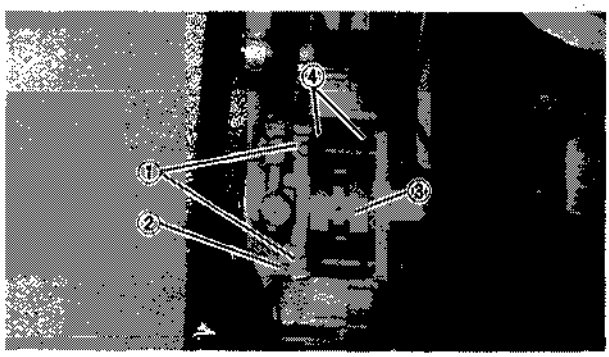
* Install the pad spring with its longer tangs facing upwards.

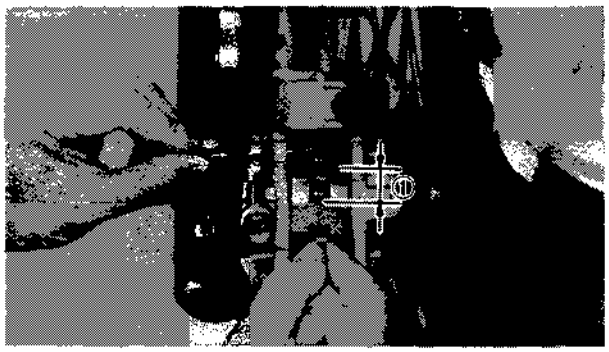


**CAUTION:**

**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.**




## BRAKE PAD REPLACEMENT

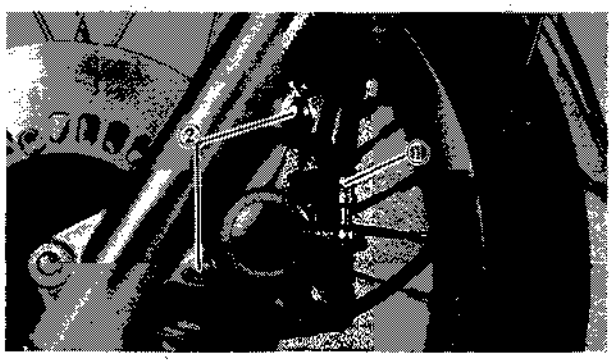
It is not necessary to disassemble brake caliper and brake hose to replace brake pads.

1. Remove:
   - Cover
   - Circlip ①
   - Pad retaining pin ②
   - Pad spring ③
   - Pad ④
2. Install:
   - Pads

   Reverse removal steps.

**NOTE:**

- Install the pad spring with its longer tangs ① facing upwards.
- Replace pads as a set if either is found to be worn to the wear limit.

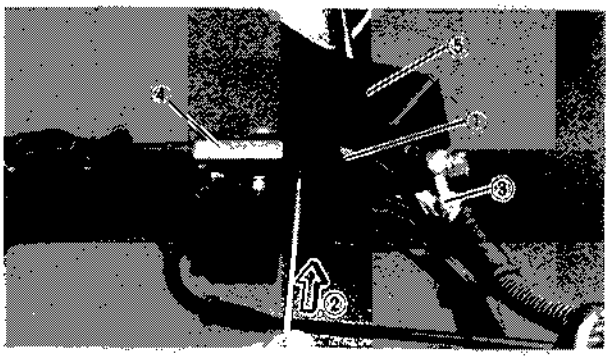


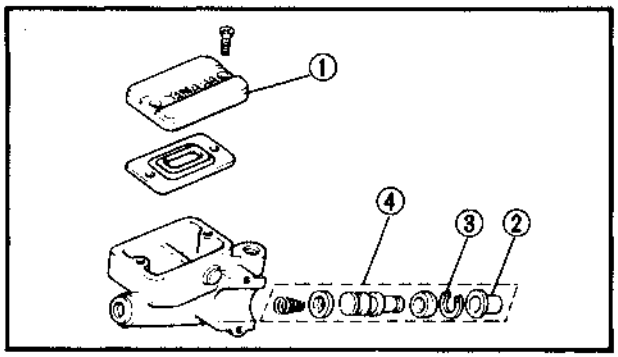
## CALIPER DISASSEMBLY

1. Remove:
   - Brake hose ①
   - Caliper securing bolts ②
   - Brake pads
2. Remove:
   - Caliper piston assembly
     Use compressed air and procede carefully.

**WARNING:**

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





## MASTER CYLINDER DISASSEMBLY

1. Remove:
   - Brake light switch ①
     Push ② the brake light switch stopper.
   - Brake hose ③.
   - Brake lever ④ and spring
   - Master cylinder assembly ⑤
2. Remove:
   - Cap ①
     Drain remaining fluid
   - Master cylinder dust boot ②
   - Circlip ③
   - Master cylinder cup assembly.

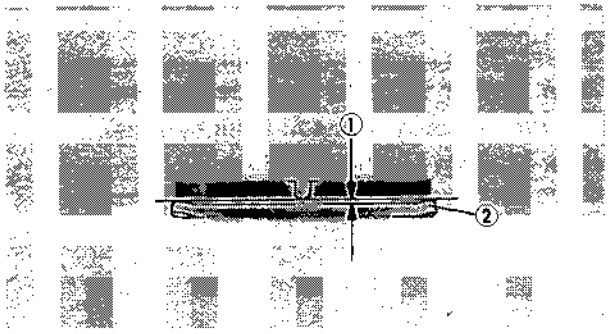
**NOTE:**

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

④ Master cylinder kit

## INSPECTION AND REPAIR

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

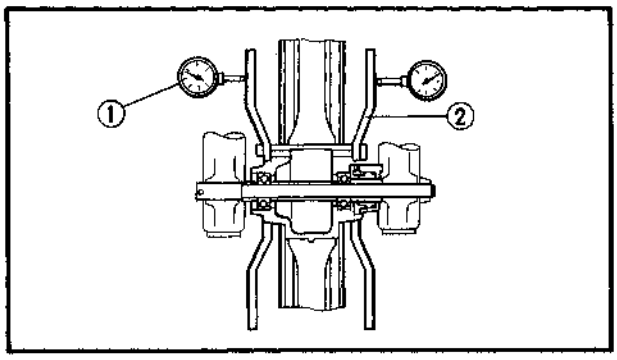



1. Inspect:
   - Caliper piston assembly
     Damage/Scratches → Replace.
   - Brake pad
     Over wear limit ① → Replace as a set.

**Brake Pad Wear Limit:**
**0.5 mm (0.0197 in)**

② Wear indicator

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




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

**Maximum Deflection:**
**0.15 mm (0.006 in)**
**Minimum Disc Thickness:**
**4.5 mm (0.2 in)**

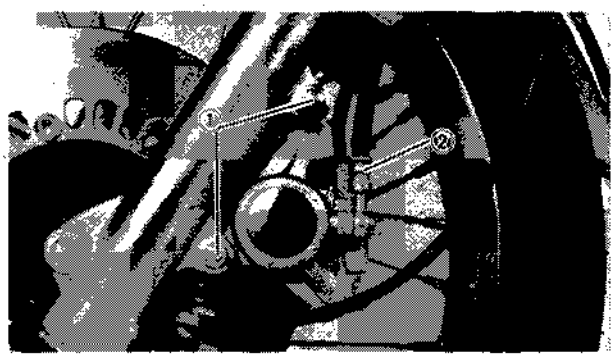
① Dial gauge

## ASSEMBLY

### Caliper

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

1. Install:
   - Caliper piston assembly
   - Brake pads
   - Caliper assembly



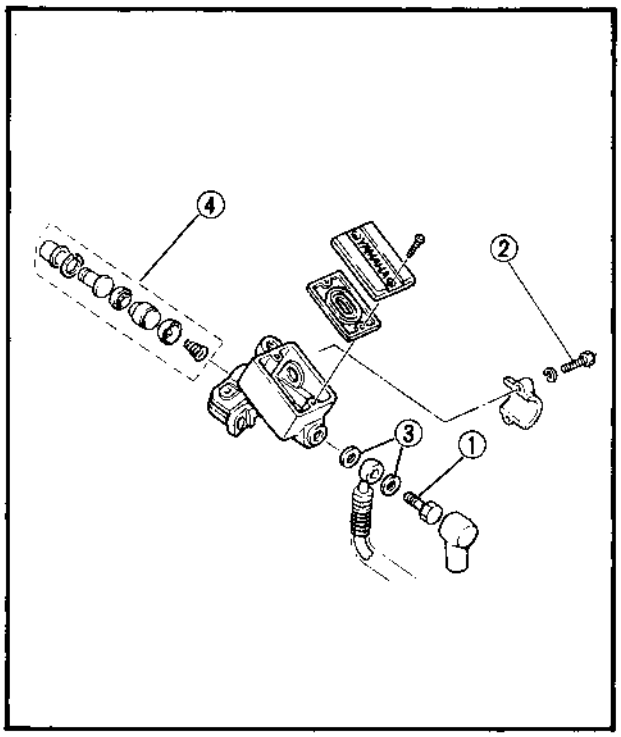
2. Tighten:
   - Caliper securing bolts ①

| | |
|---|---|
| | 35 Nm (3.5 m·kg, 25 ft·lb) |

   - Brake hose union bolts

| | |
|---|---|
| | 26 Nm (2.6 m·kg, 19 ft·lb) |

② Brake hose




### Master Cylinder

1. Assemble:
   - Master cylinder

| | |
|---|---|
| | Union Bolt ① :<br>26 Nm (2.6 m·kg, 19 ft·lb)<br>Master Cylinder Holding Bolt ② :<br>10 Nm (1.0 m·kg, 7.2 ft·lb) |

③ Copper washer
④ Master cylinder kit

## AIR BLEEDING

**WARNING:**

**Bleed the brake system if:**

- **The system has been disassembled.**
- **A brake hose has been loosened or removed.**
- **The brake fluid is very low.**
- **The brake operation is faulty.**

**A dangerous loss of braking performance may occur if the brake system is not properly bled.**



**Air bleeding steps:**

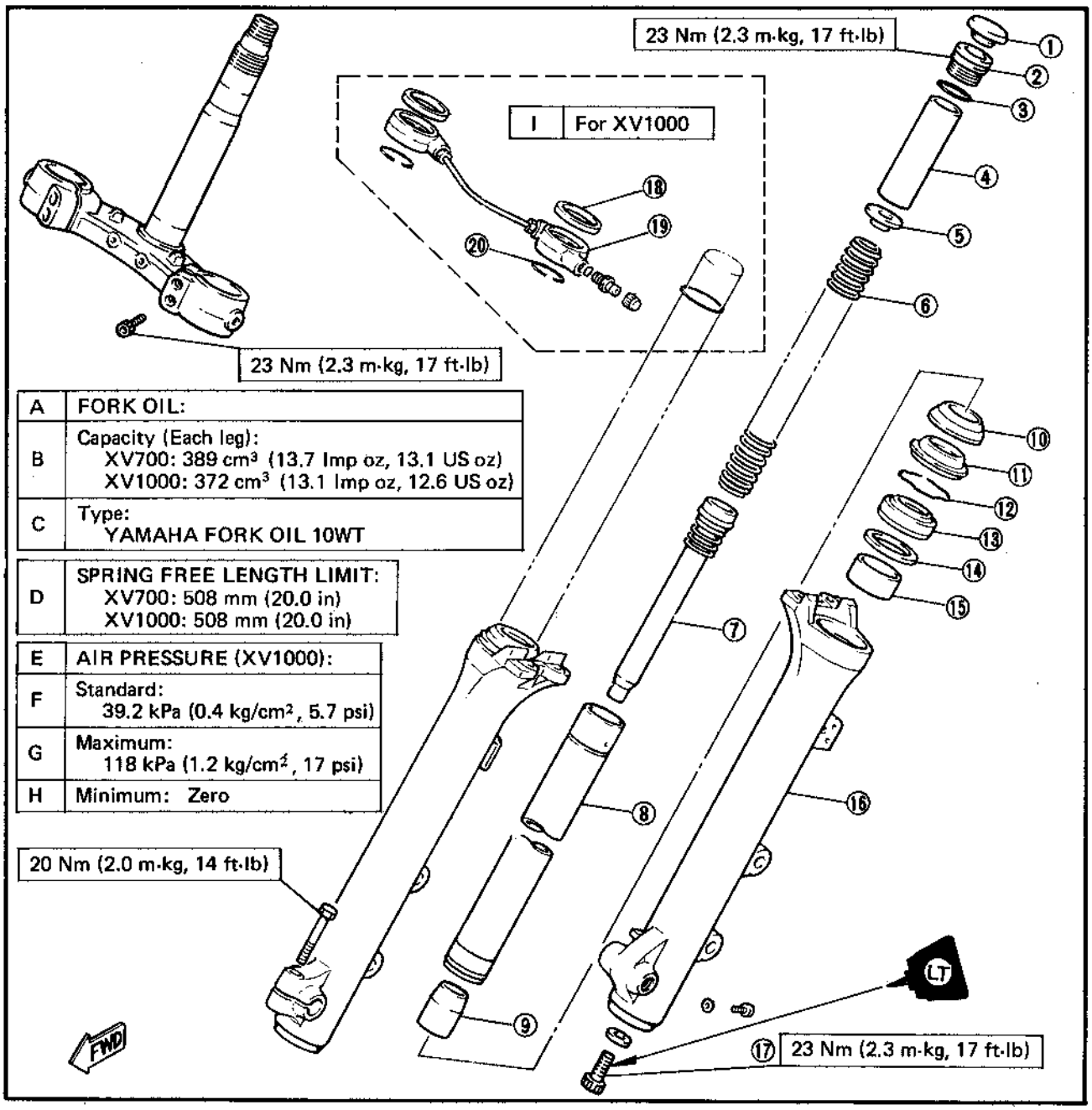
a. Add proper brake fluid to the reservoir.
b. Install diaphragm.
   Be careful not to spill any fluid or allow the reservoir to over flow.
c. Connect the clear plastic tube (4.5 mm, 3/16 in inside dia.) tightly to the caliper bleed screw ① .
d. Place the other end of the tube into a container.
e. Slowly apply the brake lever or pedal several times.
f. Pull the lever in or push down on the pedal. Hold the lever or pedal in position.
g. Loosen the bleed screw and allow the lever or pedal to travel towards its limit.
h. Tighten the bleed screw when the lever or pedal limit has been reached; then release the lever or pedal.
i. Repeat steps (e) to (h) until of the air bubbles have been removed from the system.

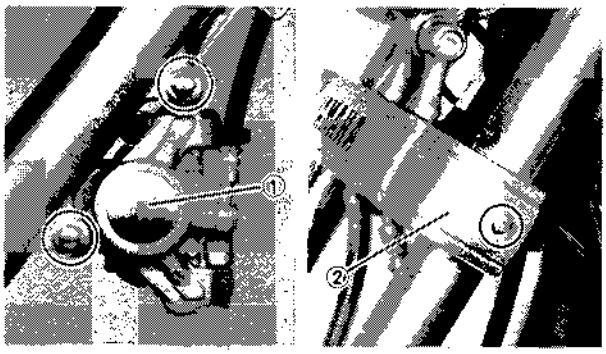
**NOTE:**

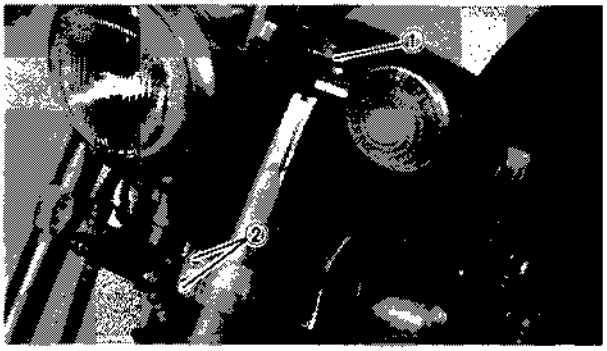
If bleeding is difficult, it may be necessary to let the brake fluid system stabilize for a few hours. Repeat the bleeding procedure when the tiny bubbles in system have disappeared.

## FRONT FORK

1. Cap
2. Cap bolt
3. O-ring
4. Spacer
5. Spring seat
6. Fork spring
7. Damper rod
8. Inner fork tube
9. Taper spindle
10. Dust seal cover
11. Dust seal
12. Circlip
13. Fork seal
14. Washer
15. Guide bushing
16. Outer fork tube
17. Damper rod securing screw
18. Rubber spacer
19. Air joint bracket
20. Stopper ring







## REMOVAL AND DISASSEMBLY

**WARNING:**

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

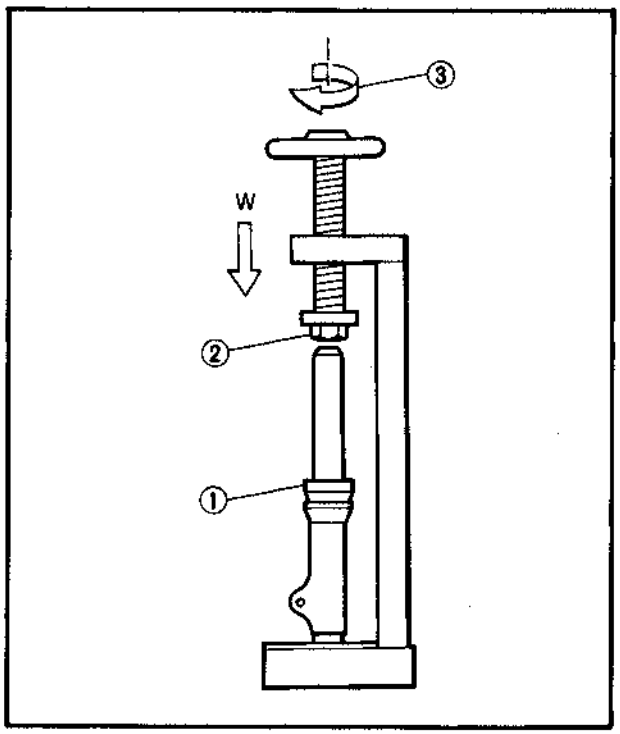
1. Remove:
   - Front wheel
   - Brake caliper ①
   - Cap
   - Fork cover ②
2. Loosen:
   - Cap bolt
   - Upper front fork pinch bolt ①
   - Lower front fork pinch bolts ②

**CAUTION:**

**Support the fork before loosening the pinch bolts.**

3. Remove:
   - Stopper rings (XV1000)
   - Front fork assembly
     (from the underbracket)
   - Cap bolt
   - Spacer

4. Remove:
   - Spring seat
   - Fork spring
   - Dust seal cover
   - Dust seal
   - Circlip
5. Fill:
   - Fork inner tube
     (with fork oil.)
     Stretch the inner tube before filling.
6. Install:
   - Cap bolt




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

**CAUTION:**

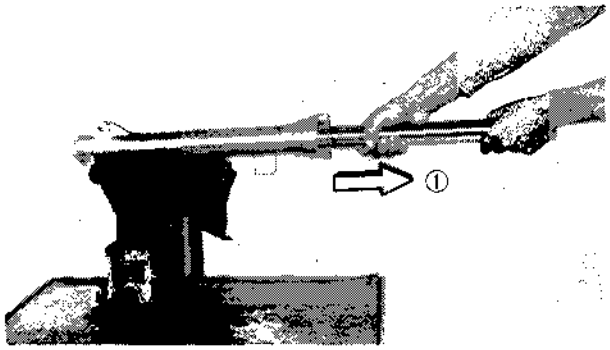
- **If air enters the inner tube or it is compressed abruptly oil may spurt out or the oil seal may be ejected.**
- **Never touch the inner tube during a disassembly operation.**
- **Be sure to wrap the oil seal with a rag for safety.**

① Wrap with rag
② Spacer
③ Turn slowly

8. Remove:
   - Oil seal
   - Washer
   - Cap bolt
9. Drain:
   - Fork



10. Remove:
    - Damper rod securing bolt
      Use T-handle (YM-01326) and Damper Rod Holder (YM-01300-1) to lock the damper rod.




11. Remove:
    - Damper rod
    - Damper rod spring
    - Inner fork tube
    - Guide bushing
      (from outer tube)
    - Taper spindle

① Pull inner tube from outer tube.

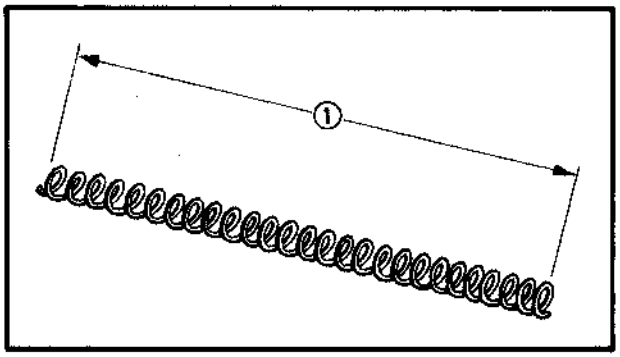
## INSPECTION

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

**WARNING:**

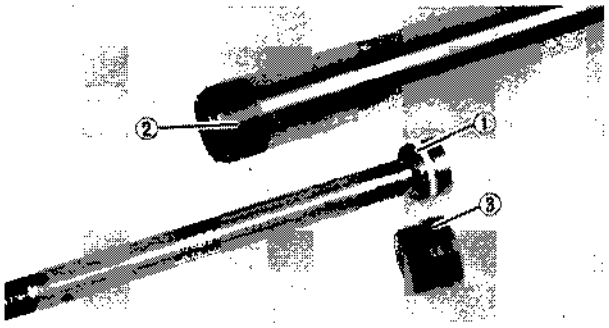
**Do not attempt to straighten a bent fork tube as this may dangerously weaken the tube.**

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

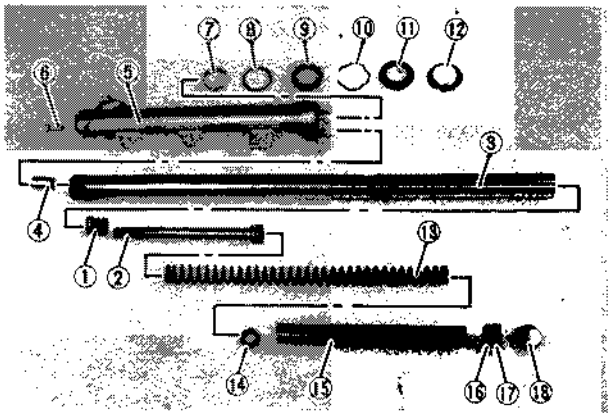



3. Inspect:
   - Spring (free length) ①
     Out of specification → Replace.

**Fork Spring Free Length Limit:**
**508 mm (20.0 in)**




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



## ASSEMBLY

NOTE:
Be sure all components are clean before assembly.

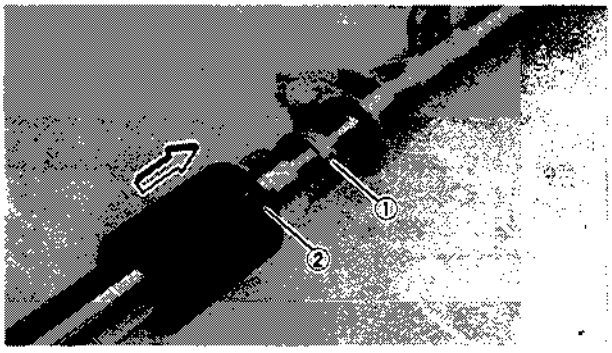
① Damper rod spring
② Damper rod
③ Inner fork tube
④ Taper spindle
⑤ Outer fork tube
⑥ Damper rod securing bolt
⑦ Guide bushing
⑧ Washer
⑨ Fork oil seal
⑩ Circlip
⑪ Dust seal
⑫ Dust seal cover
⑬ Fork spring
⑭ Spring seat
⑮ Spacer
⑯ Cap bolt
⑰ O-ring
⑱ Cap

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

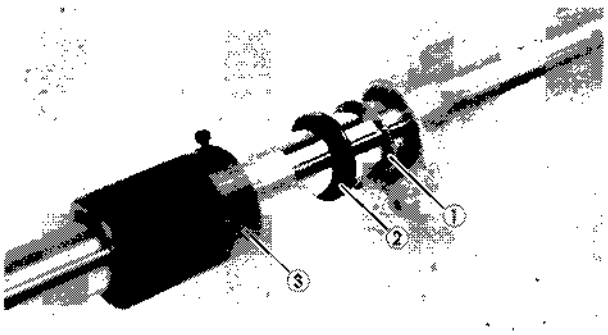


2. Install:
   - Damper rod securing bolt
     Hold damper rod with Damper Rod Holder (YM-01300-1) and T-handle (YM-01326).

**Damper Rod Securing Bolt:**
**23 Nm (2.3 m·kg, 17 ft·lb)**
**LOCTITE® Stud N'Bearing Mount (red)**

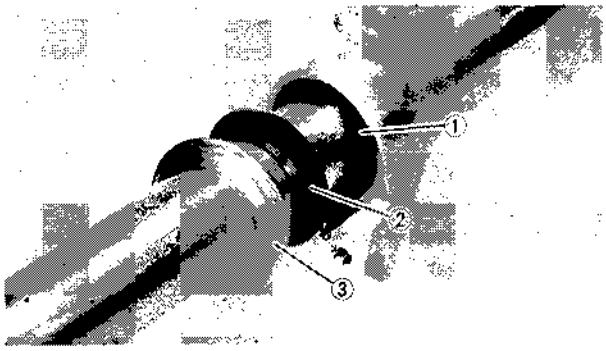



3. Install:
   - Guide bushing ①
     Press guide bushing into the outer fork tube with Fork Seal Driver ② (YM-33963) and Adapter (YM-33964).




4. Install:
   - Washer ①
   - Fork oil seal ②

   Press fork oil seal into the outer fork tube with Fork Seal Driver ③ (YM-33963) and Adapter (YM-33964).




5. Install:
   - Circlip ①
   - Dust seal ②
   - Dust cover ③

6. Fill:
   - Inner tube
     (with fork oil)

**Capacity:**
**XV700: 389 cm³ (13.7 Imp oz, 13.1 US oz)**
**XV1000: 372 cm³ (13.1 Imp oz, 12.6 US oz)**
**Type:**
**Yamaha Fork Oil 10WT**

7. Install:
   - Fork spring
   - Spring seat
   - Spacer
   - Cap bolt
     (into the inner fork)
8. Install:
   - Front fork assembly
     (into the underbracket)
9. Tighten:
   - Lower front fork pinch bolts
   - Cap bolt

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

10. Loosen:
    - Lower front fork pinch screws
11. Install:
    - Cover
    - Stopper ring (XV1000)
    - Air joint bracket (XV1000)
    - Rubber spacer (XV1000)
      (onto the inner fork.)

**CAUTION:**

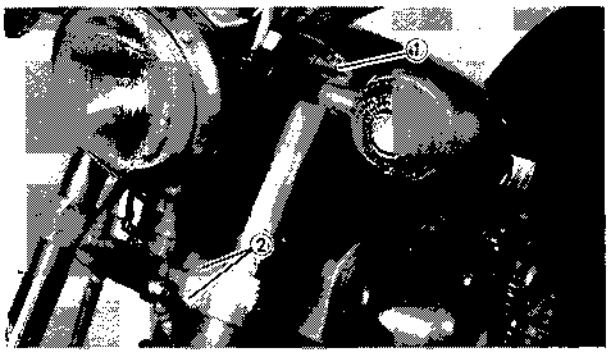
**Always use a new stopper ring (spring wire circlip).**

12. Install:
    - Front fork
      (into the steering crown.)

**NOTE:**

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

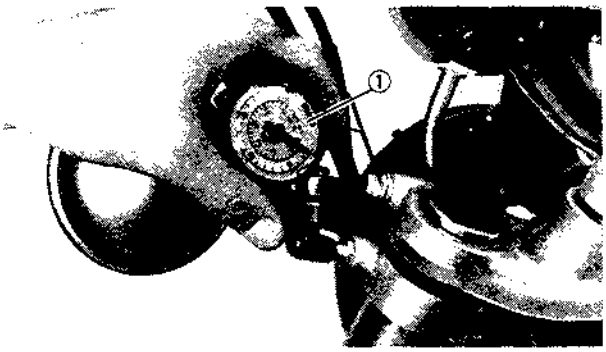
13. Tighten:
    - Upper front fork pinch bolt ①
    - Lower front fork pinch bolts ②




**Upper Pinch Bolt:**
**20 Nm (2.0 m·kg, 14 ft·lb)**
**Lower Pinch Bolts:**
**23 Nm (2.3 m·kg, 17 ft·lb)**

14. Continue assembly by reversing of Removal and Disassembly sequence.
    Install and torque tighten each component as specified.

**Disc Brake Caliper:**
**35 Nm (3.5 m·kg, 25 ft·lb)**
**Front Wheel Axle:**
**105 Nm (10.5 m·kg, 75 ft·lb)**
**Wheel Axle Pinch Bolt:**
**20 Nm (2.0 m·kg, 14 ft·lb)**




15. Fill:
    - Front fork (XV1000) (with air)

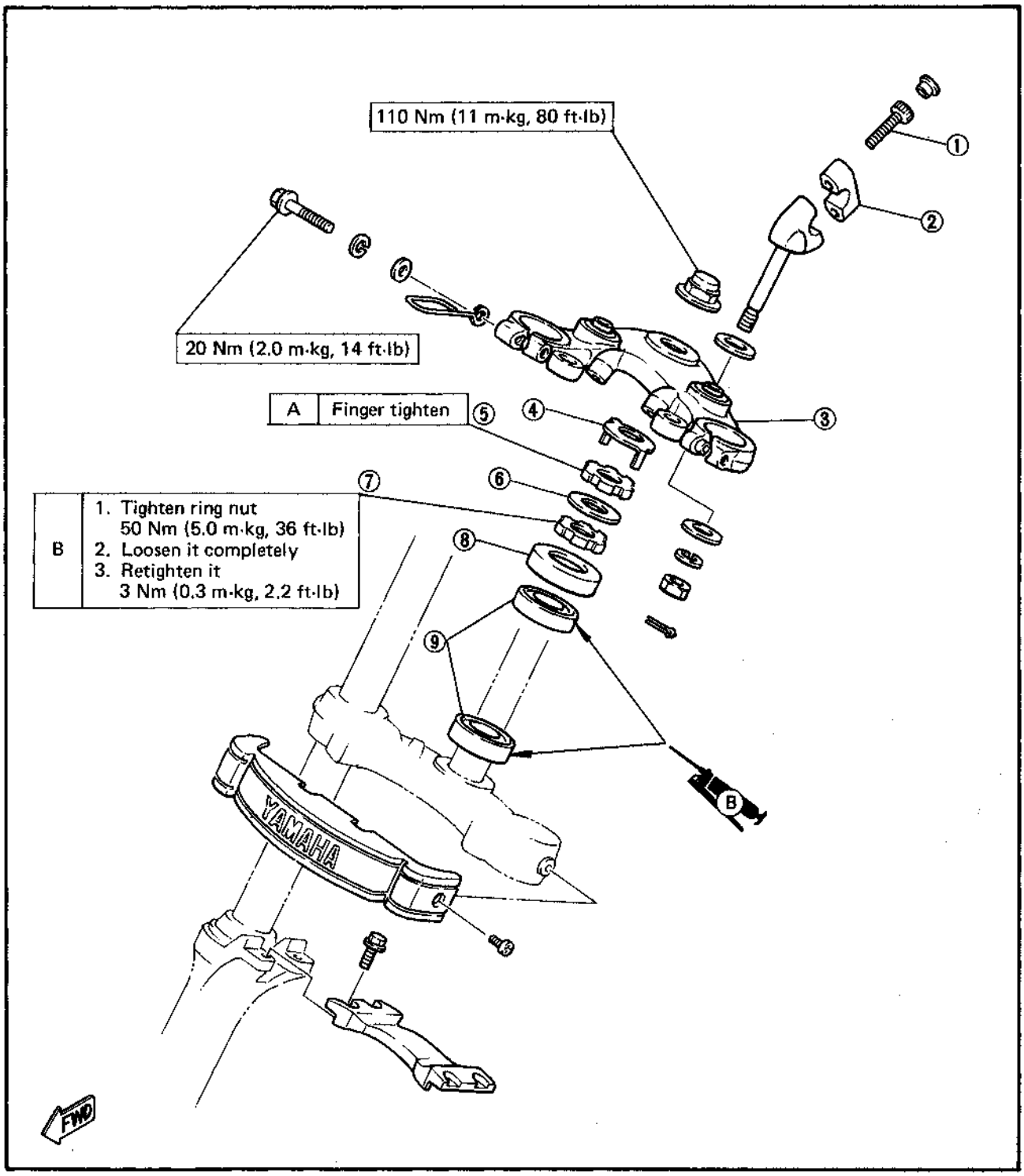
**Maximum Air Pressure:**
**118 kPa (1.2 kg/cm², 17.1 psi)**

① Air check gauge

16. Install:
    - Air valve cap

## STEERING HEAD

1. Handlebar bolt
2. Handlebar upper bracket
3. Steering crown
4. Special washer
5. Upper ring nut
6. Washer
7. Lower ring
8. Bearing cover
9. Bearing



## ADJUSTMENT

Refer to Chapter 2. "STEERING HEAD ADJUSTMENT".

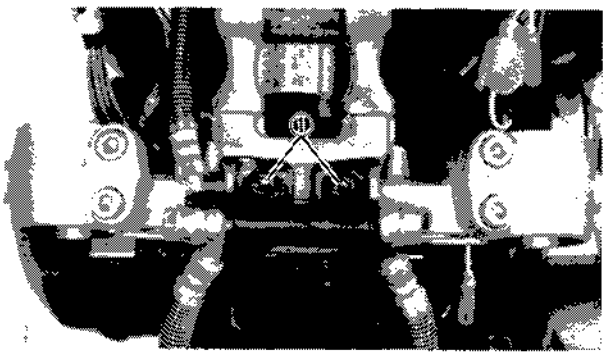
## REMOVAL

1. Remove:
   - Front wheel
   - Front forks
2. Remove:
   - Headlight lens unit
3. Disconnect:
   - Wire connectors (in the headlight shell)





4. Remove:
   - Headlight shell securing bolt ①

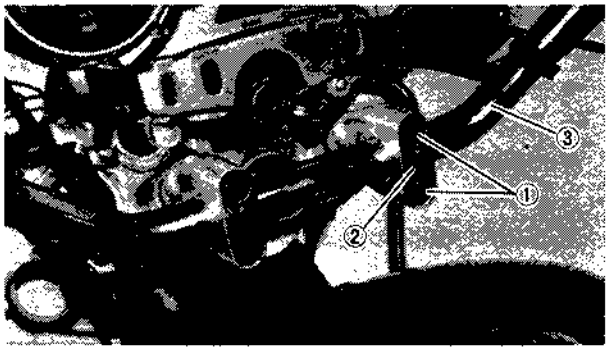


5. Remove:
   - Brake hose joint securing bolts ①
   - Headlight shell

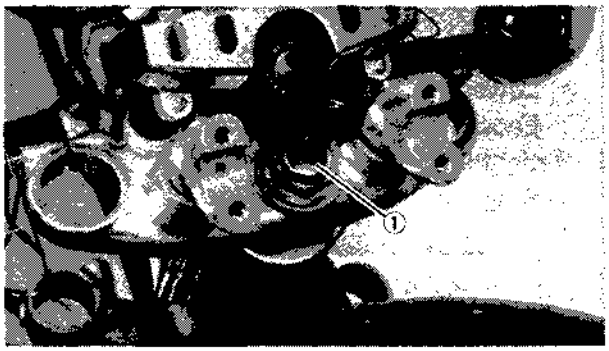


6. Remove:
   - Meter panel wiring connectors

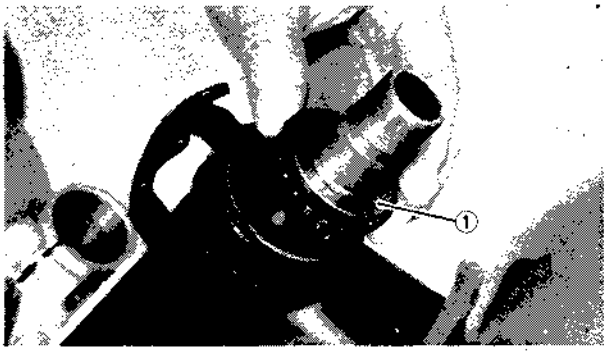
7. Remove:
   - Air cleaner assembly
   - MCV case assembly
8. Disconnect:
   - Throttle cable
   - Choke cable
   - Brake cable
   - Clutch cable



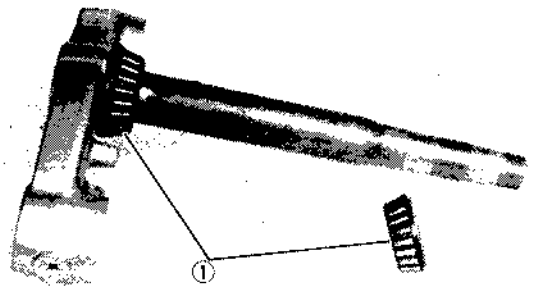

9. Remove:
   - Covers
   - Handlebar bolts ①
   - Handlebar upper brackets ②
   - Handlebar assembly ③



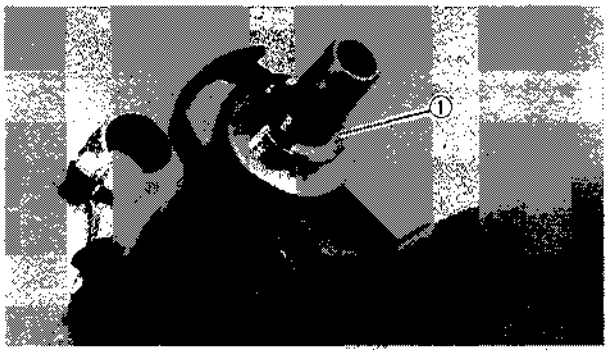

10. Remove:
    - Steering stem nut ①
    - Steering crown and meter panel assembly.
11. Remove:
    - Special washer
12. Loosen:
    - Upper and lower ring nut
      Use Steering Ring Nut Wrench (YU-01268).
13. Remove:
    - Upper ring nut
    - Washer
    - Lower ring nut
    - Bearing cover
    - Bearing ①
    - Steering stem




## INSPECTION




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




## ASSEMBLY

1. Lubricate:
   - Bearings

**Wheel Bearing Grease**

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

**50 Nm (5.0 m·kg, 36 ft·lb)**

4. Loosen:
   - Lower ring nut
     Loosen completely.
5. Retighten:
   - Ring nut

**3 Nm (0.3 m·kg, 2.2 ft·lb)**

6. Install:
   - Washer
   - Upper ring nut
7. Tighten:
   - Upper ring nut (with finger)
8. Install:
   - Special washer

9. Install:
   - Steering crown and meter panel assembly.
   - Steering stem nut

10. Position:
    - Front fork
      (into steering crown)
      This will facilitate alignment of under-bracket holes with steering crown holes.



11. Tighten:
    - Steering stem nut

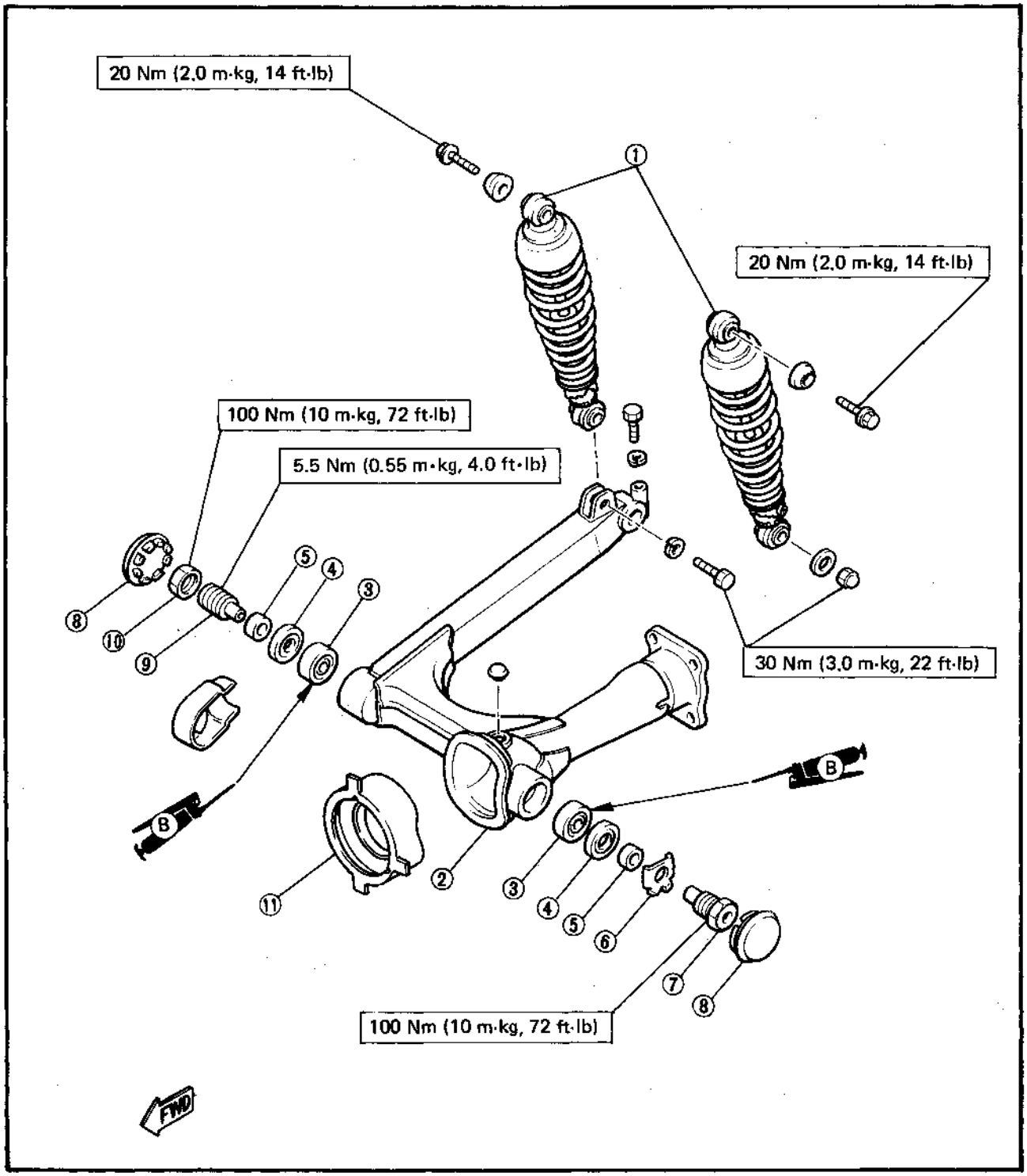
| | |
|---|---|
| | **110 Nm (11 m·kg, 80 ft·lb)** |

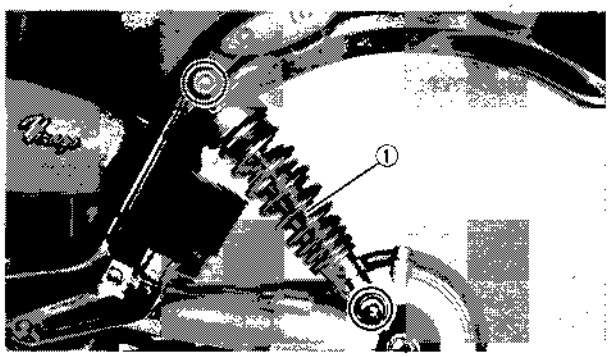
12. Continue assembly by reversing removal sequence.

13. Check:
    - Steering head operation
      Turn it from lock to lock.
      Looseness/Binding → Readjust tightness of steering stem.

## SWINGARM AND REAR SHOCK ABSORBER

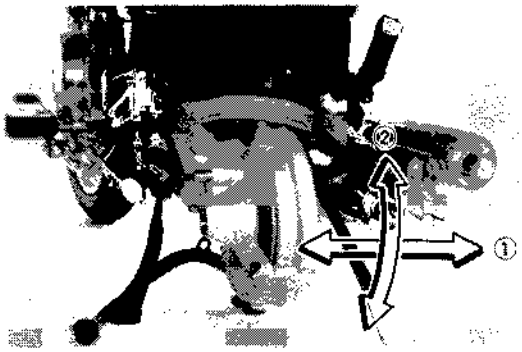
1. Rear shock absorber
2. Swingarm
3. Bearing
4. Oil seal
5. Collar
6. Lock washer
7. Left pivot shaft
8. Pivot cover
9. Right pivot shaft
10. Nut
11. Rubber boot






## SWINGARM FREE PLAY INSPECTION

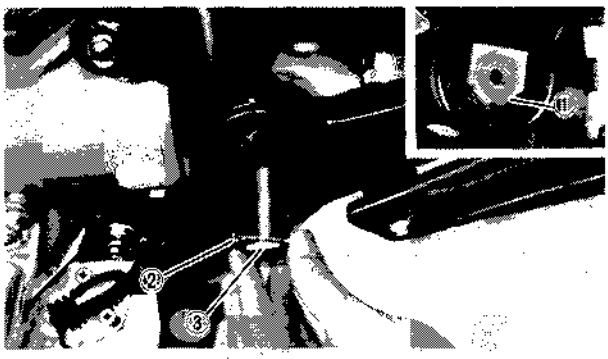
1. Remove:
   - Rear wheel
   - Rear shock absorbers ①



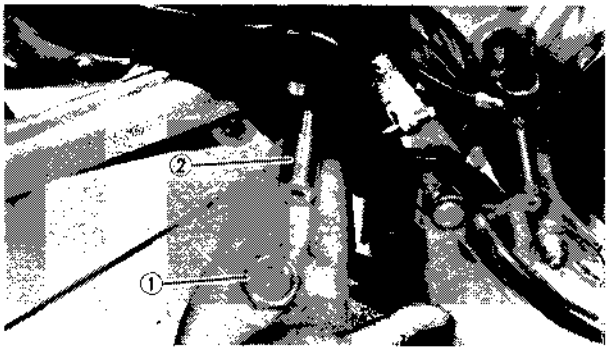

2. Check:
   - Swingarm side play ①
     Grasp and move from side to side.
     Side play → Check and adjust bearing.
   - Swingarm vertical movement ②
     Tightness/Binding/Rough spots → Check and adjust bearing.
     Damage → Replace bearing.

## REMOVAL

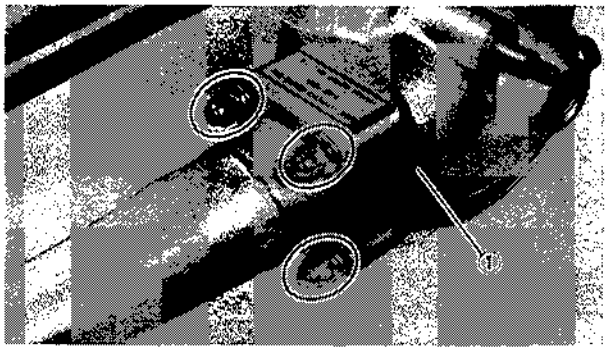
1. Remove:
   - Rear wheel
   - Rear shock absorbers
   - Front exhaust pipe
   - Rear muffler
   - Pivot covers



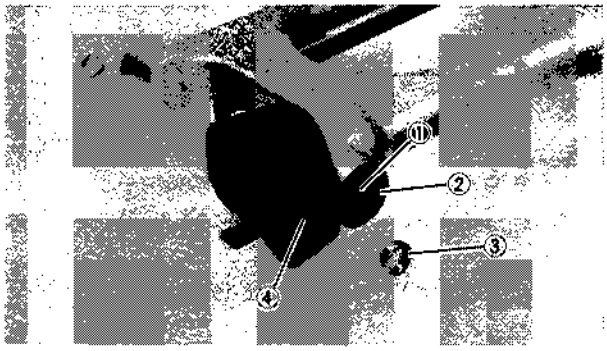

2. Flatten the lock washer tab ① on the left pivot shaft.
3. Remove:
   - Lock washer ②
   - Left pivot shaft ③




4. Remove:
   - Nut ①
   - Right pivot shaft ②




5. Disconnect
   - Rubber boot
6. Remove:
   - Swingarm assembly
   - Final gear case assembly ①




## INSPECTION AND LUBRICATION

1. Inspect
   - Bearings ①
   - Oil seals ②
   - Collars ③
   - Rubber boot ④

   Damage → Replace.
2. Lubricate:
   - Bearings and oil seal

**Waterproof Wheel Bearing Grease**

## ASSEMBLY

1. Install:
   - Final gear case assembly

**Final Gear Case Securing Nuts:**
**43 Nm (4.3 m·kg, 31 ft·lb)**

2. Install:
   - Swingarm assembly
   - Lock washer
   - Left pivot shaft
   - Right pivot shaft

3. Tighten:
   - Left pivot shaft

| | |
|---|---|
| | 100 Nm (10 m·kg, 72 ft·lb) |

4. Bend lock washer tab.

5. Tighten:
   - Right pivot shaft

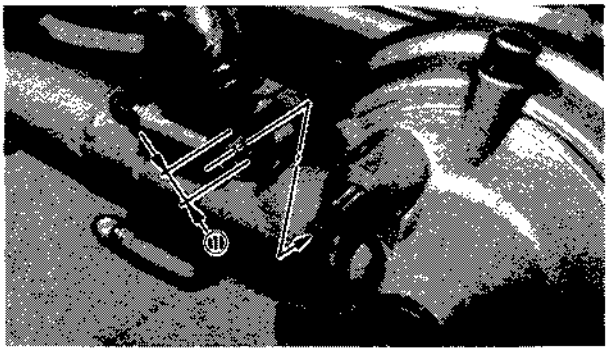
| | |
|---|---|
| | 5.5 Nm (0.55 m·kg, 4.0 ft·lb) |

6. Tighten:
   - Right pivot shaft nut

| | |
|---|---|
| | 100 Nm (10 m·kg, 72 ft·lb) |

7. Install:
   - Pivot cover
8. Continue assembly by reversing of removal sequence.

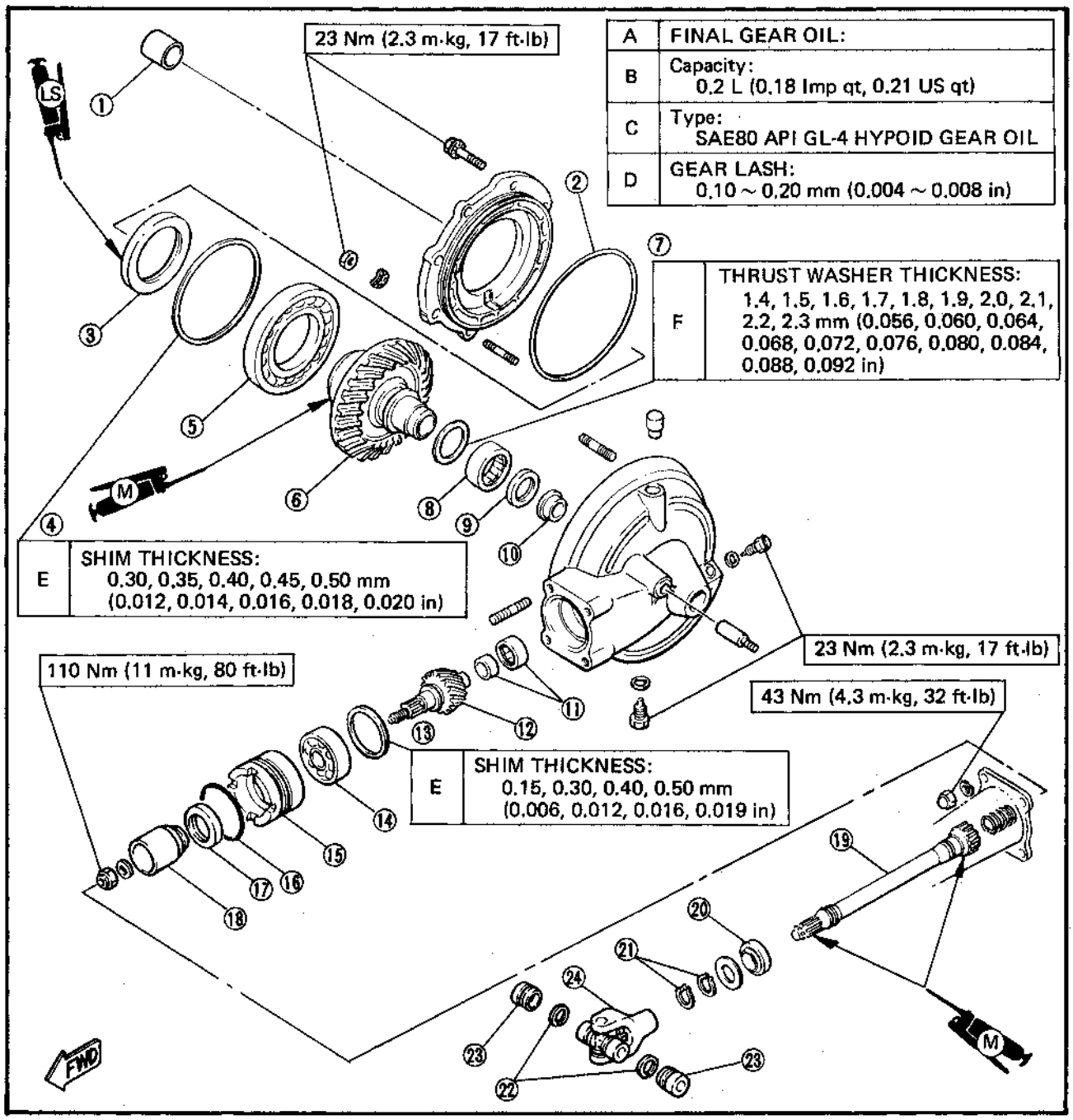
| | |
|---|---|
| | Rear Shock Absorber<br>Upper: 20 Nm (2.0 m·kg, 14 ft·lb)<br>Lower: 30 Nm (3.0 m·kg, 22 ft·lb) |




NOTE:
Install the shock absorber using the lower bigger pivot shaft hole ① to attach the shock onto final gear case.

## SHAFT DRIVE

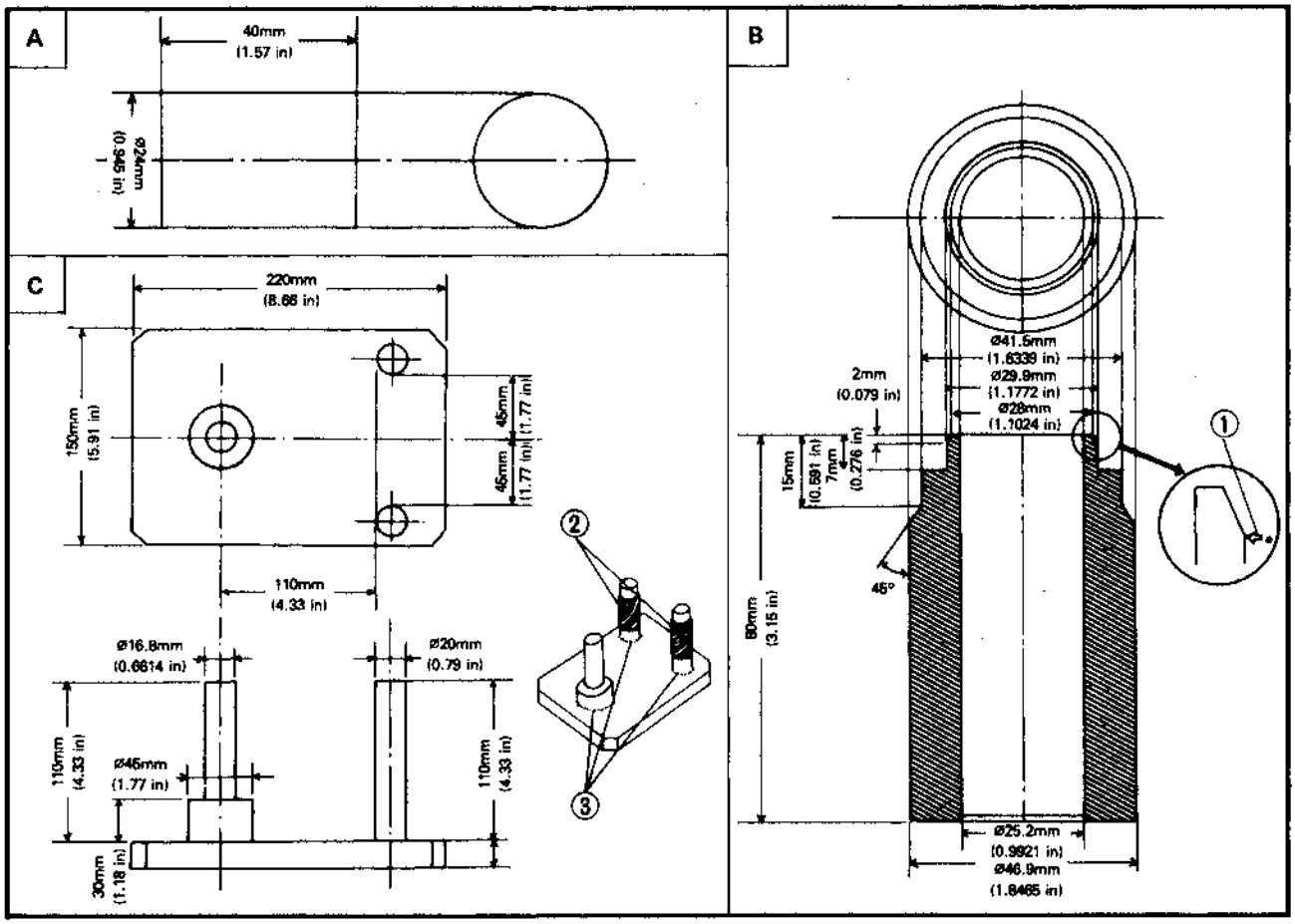
1. Collar
2. O-ring
3. Oil seal
4. Shim(s)
5. Bearing ($B16014C_2$)
6. Ring gear
7. Thrust washer
8. Bearing (Needle NQ37/20D)
9. Oil seal
10. Guide collar
11. Bearing (Needle 22BTM3018)
12. Final drive shaft
13. Shim(s)
14. Bearing (B6305RBI special)
15. Bearing retainer
16. O-ring
17. Oil seal
18. Gear coupling
19. Drive shaft
20. Oil seal
21. Circlip (New)
22. Circlip (New)
23. Bearing
24. Universal joint



Refer to "Chapter 3." for middle gear service. The following special tools are not available but can be constructed for final gear disassembly and assembly:

Ⓐ PRESS TOOL No. 1
Ⓑ PRESS TOOL No. 2
Ⓒ GEAR CASE HOLDING TOOL

① Should be free of burrs.
② Tape vinyl tubes to prevent housing damage.
③ Welded or screw secured.




## TROUBLESHOOTING

The following conditions may indicate damaged shaft drive components:

| Symptoms | Diagnosis |
|---|---|
| 1. A pronounced hesitation or "jerky" movement during acceleration, deceleration, or sustained speed. (This must not be confused with engine surging or transmission characteristics). | A. Bearing damage<br>B. Improper gear lash<br>C. Gear tooth damage |
| 2. A "rolling rumble" noticeable at low speed; a high-pitched whine; a "clunk" coming from the shaft drive area. | |
| 3. A locked-up condition of the shaft drive mechanism; no power transmitted from engine to rear wheel. | D. Broken drive-shaft<br>E. Broken gear teeth<br>F. Seizure due to lack of lubrication<br>G. A small foreign object may be lodged between the moving parts. |

**NOTE:**

Damage areas A, B, and C above may be extremely difficult to diagnose. The symptoms are quite subtle and difficult to distinguish from the normal motorcycle operating noise. If there is reason to believe these components are damaged, remove the components for specific inspection.

**Inspection Notes**

1. Investigate any unusual noises.

**The following "noises" may indicate a mechanical defect:**

1. A "rolling rumble" noise during coasting, acceleration, or deceleration. The noise increases with rear wheel speed, but it does not increase with higher engine or transmission speeds.
   Diagnosis: Possible wheel bearing damage.
2. A "whining" noise that varies with acceleration.
   Diagnosis: Possible incorrect reassembly, too-little gear lash.

CAUTION:

**Too-little gear lash is extremely destructive to the gear teeth. If a test ride following reassembly indicates this condition stop riding immediately to minimize gear damage.**

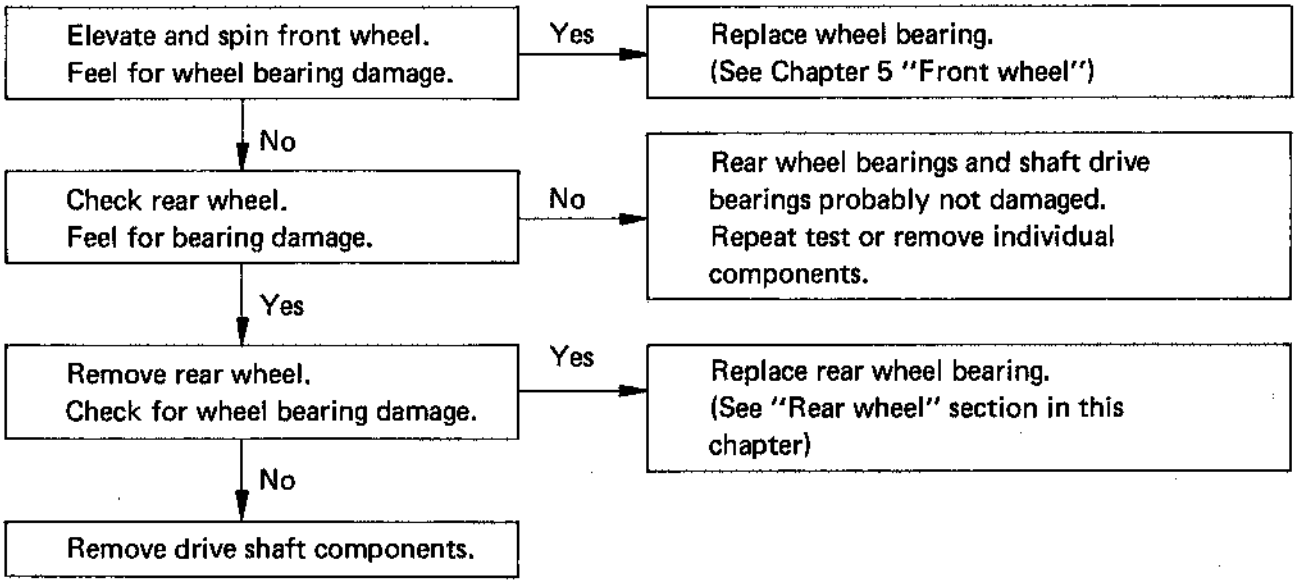
3. A slight "thunk" evident at low speed operation. This noises must be distinguished from normal motorcycle operation.
   Diagnosis: Possible broken gear teeth.

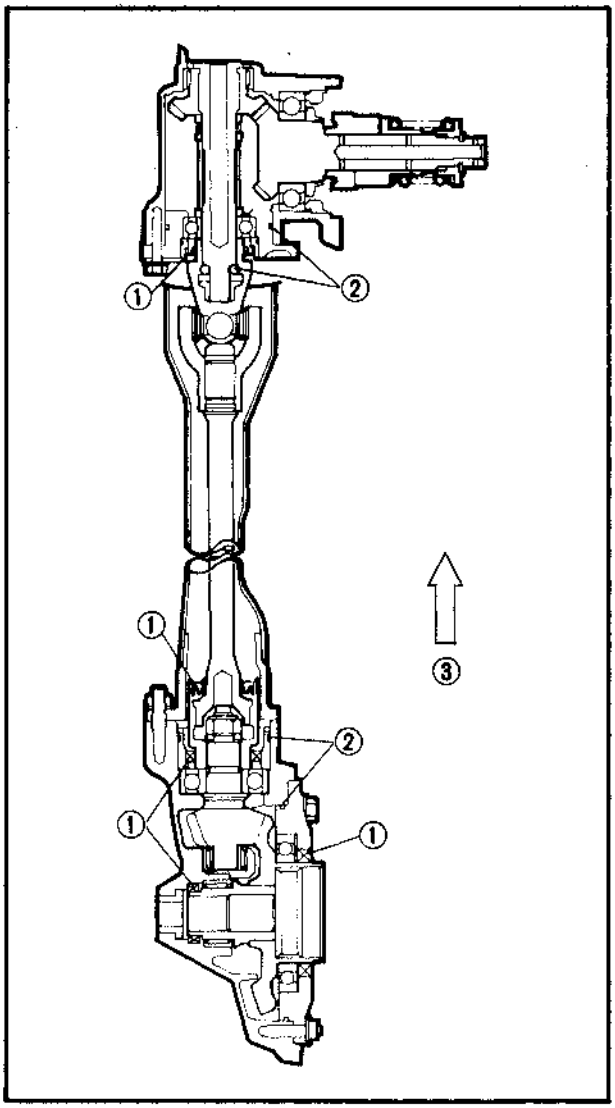
WARNING:

**Stop riding immediately if broken gear teeth are suspected. This condition could resultin a locking-up of the shaft drive assembly, causing loss of control of the bike and possible injury to the rider.**

**Troubleshooting chart**

Where basic conditions "1" and "2" above exist, refer to the following chart:






① Oil seal
② O-ring
③ Forward

2. Inspect:
   - Shaft drive (leakage)

**Oil leak inspection steps:**

- Clean the entire motorcycle thoroughly, then dry it.
- Apply a leak-localizing compound or dry powder spray to the shaft drive.
- Road test the motorcycle for the distance necessary to locate the leak.

Leakage → Inspect component housing, gasket, and/or seal for damage.
Damage → Replace component.

**NOTE:**
- An apparent oil leak on a new or nearly new motorcycle may be the result of a rust-preventative coating or excessive seal lubrication.
- Always clean the motorcycle and recheck the suspected location of an apparent leakage.

3. Inspect:
   - Drained oil
     Metal particles on drain plug or in oil → Check for bearing seizure or other problem in middle or final gear assemblies.

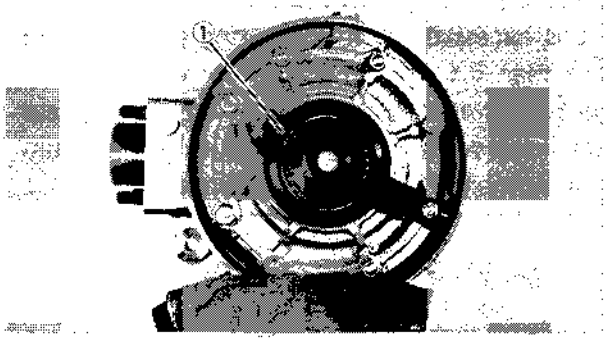
**NOTE:**
Small amount of metal particles in oil is normal.

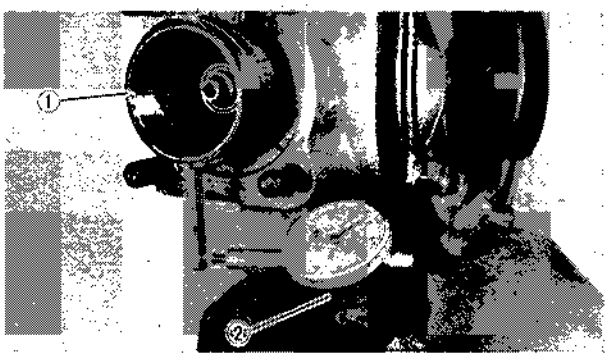



## FINAL GEAR REMOVAL

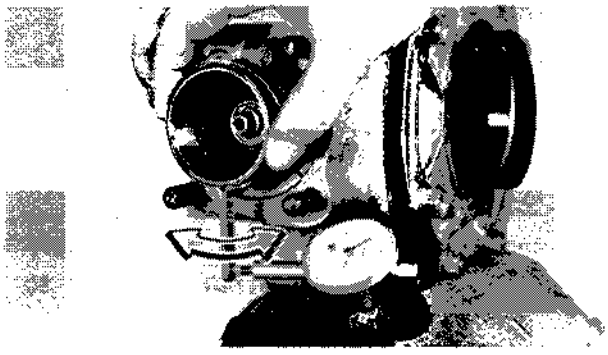
1. Remove:
   - Rear axle
   - Rear wheel
   - Left shock absorber
   - Nuts ①
   - Final gear assembly ②

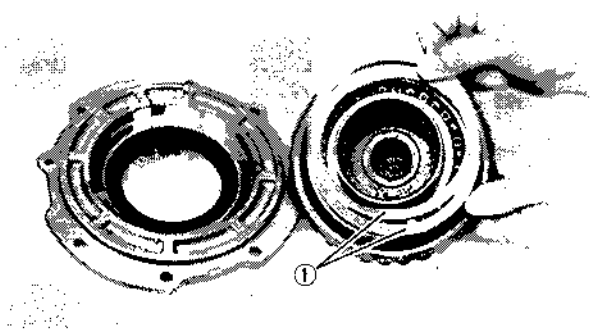
## GEAR LASH CHECK AND ADJUSTMENT




1. Secure gear case in vise or other support.
2. Remove:
   - Final gear case stud nut
     (from final gear case)
3. Attach:
   - Final Gear Holding Tool (YM-01254) ①
     (Over ring gear surface and stud) Tighten holding tool stud nut.
4. Attach:
   - Final Gear Lash Measurement Tool (YM-01230) ①
     (onto gear coupling)
   - Dial Gauge ②
     (against lash measurement tool)
     Position gauge rod at scribed mark (60 mm (2.36 in) from center of shaft).





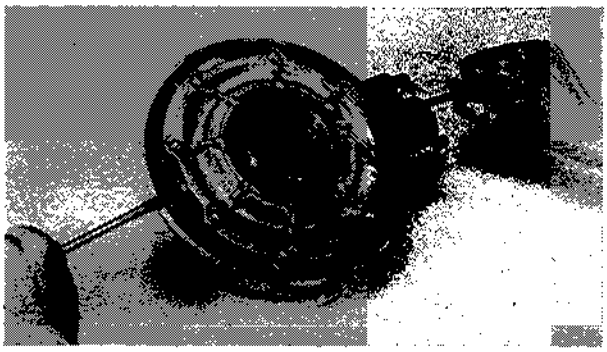

5. Rotate:
   - Gear coupling
     Turn gently back and forth.
     Note lash measurement on the dial gauge.

**Final Gear Lash:**
**0.25 ~ 0.50 mm**
**(0.010 ~ 0.020 in):**
**When using the measurement tool.**
**0.1 ~ 0.2 mm (0.004 ~ 0.008 in):**
**Actual gear lash on the final gear teeth.**

Out of specification → Adjust.

| Gear Lash | Ring Gear Shim ① |
|---|---|
| to reduce | Increase |
| to increase | Reduce |

**NOTE:**
If it is necessary to increase ring gear shim by more than 0.1 mm, reduce thrust washer thickness by 0.1 mm for each 0.1 mm of ring gear shim increase. If it is necessary to reduce shim by more than 0.1 mm, reverse above step.

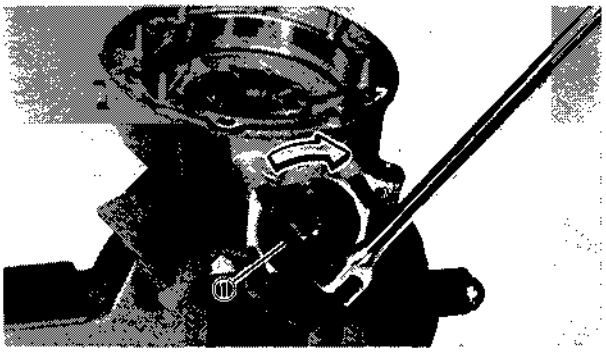


## FINAL GEAR DISASSEMBLY

1. Remove:
   - Nuts and bolts
     (from Bearing housing)
   - Ring gear assembly
     (from Final gear case)
   - Thrust washer
     (from Final gear case)

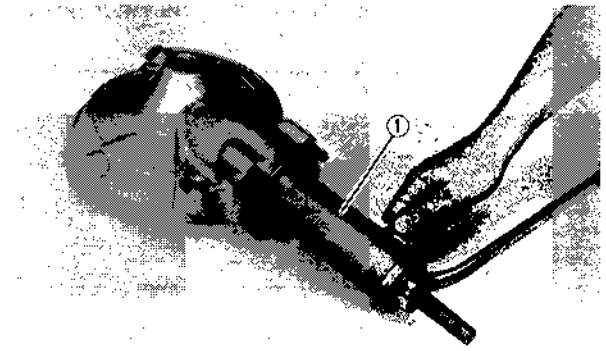


2. Remove:
   - Self-locking nut
     (from Final drive shaft)
     Use Middle and Final Gear Holding Tool (YM-01229), ① .
   - Coupling



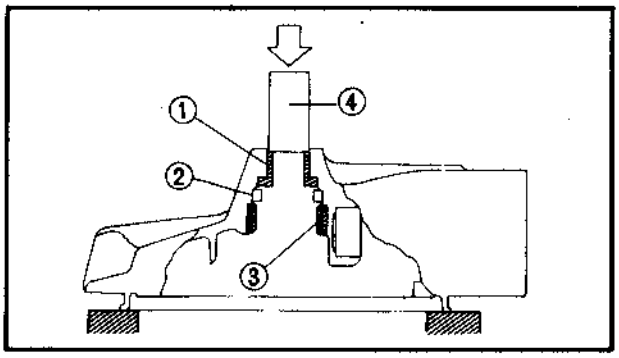
3. Remove:
   - Final drive shaft bearing retainer
     Use Pinion Bearing Retainer Wrench (YM-04050) ① .

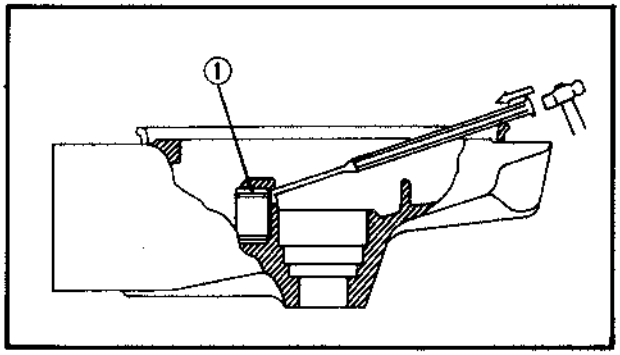
**CAUTION:**
**Final-drive-shaft-bearing-retainer nut has left-hand threads. Turn retainer nut clockwise to loosen it.**



4. Remove:
   - Final drive shaft
     Use Adapter and Crankshaft Installing Set (YU-90050), ① .

**CAUTION:**
**Final drive shaft removal should be performed only if gearing replacement is necessary. Do not reuse bearings or races after removal.**



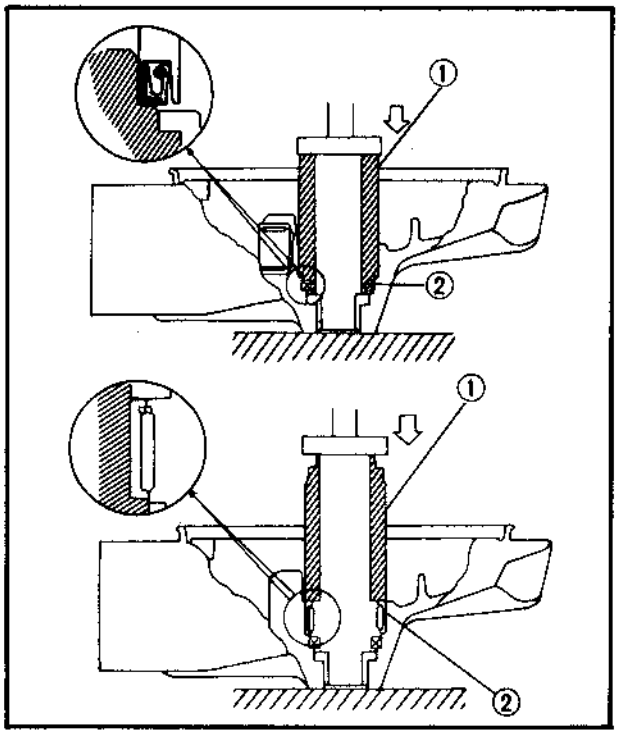




5. Remove:
   - Guide collar ①
   - Oil seal ②
     Do not reuse the oil seal.
   - Roller bearing ③
     Use Press tool No. 1 ④ and an appropriate support for the main housing.
6. Inspect:
   - Roller bearing
     Damage → Replace.
7. Remove:
   - Final drive shaft roller bearing

**Final drive shaft roller bearing removal steps:**

- Heat the bare housing to 150°C (302°F).
- Remove the roller bearing outer race ① with an appropriately shaped punch.
- Remove the inner race from the final drive shaft.

**NOTE:**
The removal of the final drive shaft roller bearing is difficult and seldom necessary.




## FINAL GEAR ASSEMBLY

1. Assembly of final drive shaft roller bearing is as follows:
   - Install a new final drive shaft roller bearing.
   - Heat bare housing to 150°C (302°F)
   - Install roller bearing outer race using an appropriate adapter.
   - Install inner race onto final drive shaft.
2. Install in sequence:
   - Guide collar ②
   - Oil seal (New) ③
   - Roller bearing ④
     Use Press tool No. 2 ① and a press.

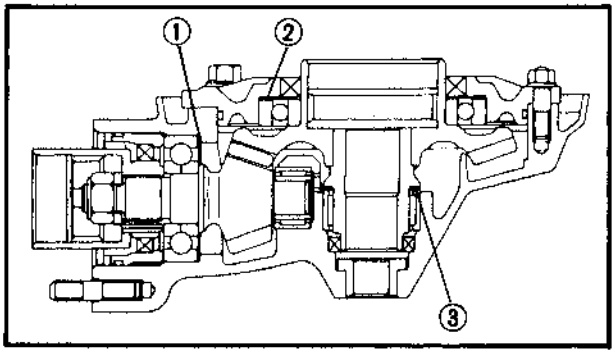
**NOTE:**
We recommend that any removed roller bearing be replaced with a new one.

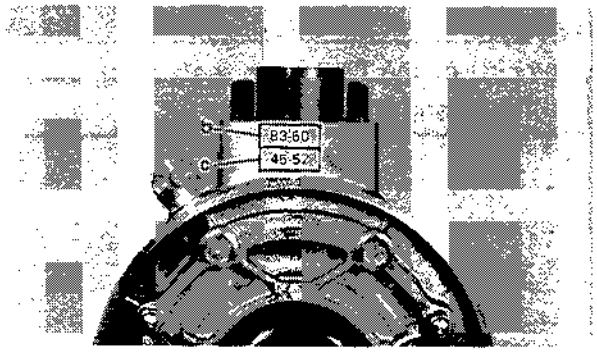
### Final Drive/Ring Gear Positioning

**NOTE:**

Gear positioning is necessary when any of the following parts are replaced:

- Final gear case
- Ring gear bearing housing
- Bearing(s)







**Final drive/ring gear shim selection formulas:**

- Position final drive shaft gear and ring gear by using shims ① and ② with their respective thicknesses calculated from information marked on final gear case and drive gear end.

① Shim thickness "A"
② Shim thickness "B"
③ Thrust washer

- To find shim thickness "A" use following formula:

  A = a – b

  Where:

  a = a numeral (usually a decimal number) on the gear is either added to or subtracted from "84".

  b = a numeral on the gear case (i.e. 83.50).

Example:

1. If final drive shaft gear is marked "+01" . . . "a" is 84.01.
2. If the gear case is marked "83.05" . . . "b" is 83.50.

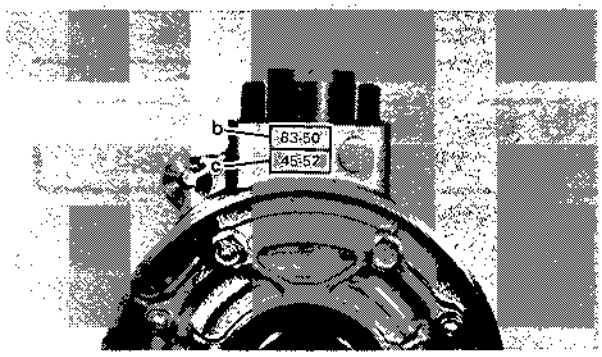
   A = 84.01 – 83.50
   A = 0.51

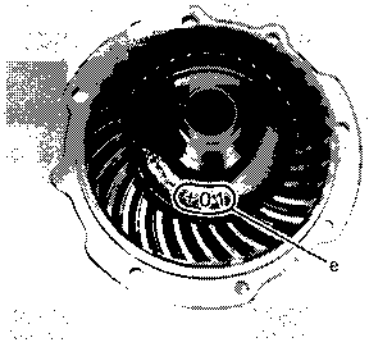
3. Therefore, shim thickness is 0.51 mm. Shim sizes are supplied in following thicknesses:
   0.15 mm, 0.30 mm, 0.40 mm, 0.50 mm, 0.60 mm

Because shims can only be selected in 0.05 mm increments, round off hundredths digit and select appropriate shim (s).

| Hundredths | Round value |
|---|---|
| 0, 1, 2 | 0 |
| 3, 4, 5, 6, 7 | 5 |
| 8, 9 | 10 |

In the example above, the calculated shim thickness is 0.51 mm. The chart instructs you, however, to round off the 1 to 0. Thus you should use a 0.50 mm shim.




- To find shim thickness "B", use following formula:
  B = c + d — (e + f)

  Where:
  c = numeral on gear case (i.e. 45.52)
  d = numeral (usually a decimal number) on outside of ring gear bearing housing and added to 3.
  e = numeral (usually a decimal number) on inside of ring gear either added to or subtracted from 35.40.
  f = bearing thickness (considered constant).

Bearing Thickness "f" = 13.00 mm

Example:

1. If gear case is marked "45.52" . . . "c" is 45.52.
2. If ring gear bearing housing is marked "35" . . . "d" is 0.35 + 3 = 3.35.
3. If ring gear is marked "+01" . . . "e" is 35.40 + 0.01 = 35.41.

4. Therefore, "f" is 13.00.
   B = c + d – (e + f)
   B = 45.52 + 3.35 – (35.41 + 13.00)
   B = 48.87 – (48.41)
   B = 0.46
5. Therefore shim thickness is 0.46 mm.

**NOTE:**
Use chart for final-drive-shaft shim to select ring gear shim size.



3. Install:
   - Shims (Proper size as calculated)
   - Final drive shaft gear
   - Bearing retainer nut
     Use Pinion Bearing Retainer Wrench (YM-04045).

**NOTE:**
The bearing retainer nut has left-hand threads; turn nut counterclockwise to tighten it.

**Bearing Retainer Nut:**
**110 Nm (11 m·kg, 80 ft·lb)**

4. Install:
   - Ring gear assembly
     (without thrust washer)
5. Adjust:
   - Gear lash
     Refer to "Gear Lash Check and Adjustment"
6. Place four pieces of Plastigage® between originally fitted thrust washer and ring gear.

7. Install:
   - Gear case
     (from ring gear assembly)
   - Bolts and nuts

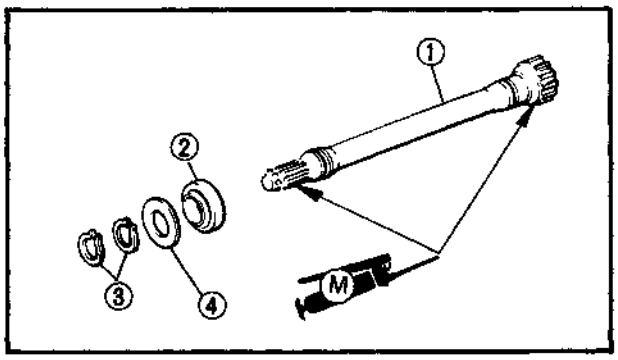
**Bolt/Nut:**
**23 Nm (2.3 m·kg, 17 ft·lb)**



**NOTE:**
Do not turn drive pinion/ring gear when measuring clearance with Plastigage®.

8. Remove:
   - Ring gear assembly
9. Measure:
   - Ring gear thrust clearance
     Calculate width of flattened Plastigage® ① .
     Out of specification → Replace thrust washer to obtain correct clearance.

**Ring Gear Thrust Clearance:**
**0.1 ~ 0.2 mm (0.004 ~ 0.008 in)**

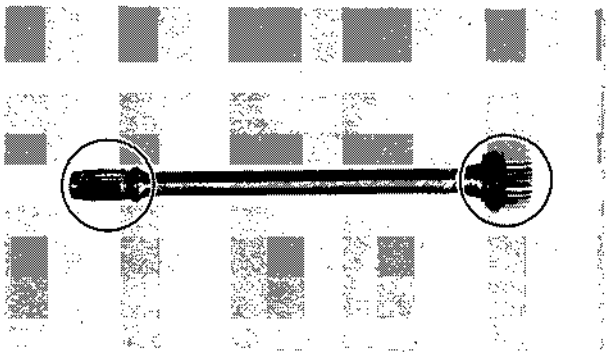



## DRIVE SHAFT

① Drive shaft
② Oil seal
③ Circlip (New)
④ Washer

### Removal

1. Remove:
   - Rear wheel
     Refer to "REAR WHEEL" in this chapter.
   - Final gear case assembly
     Refer to "SHAFT DRIVE" in this chapter.
   - Drive shaft
     Refer to "SWINGARM" in this chapter.



### Inspection

1. Inspect:
   - Drive shaft (Splines)
     Excessive wear or damage → Replace.

**NOTE:**
When installing drive shaft, lubricate splines with molybdenum disulfide grease.

### Installation

When installing drive shaft, reverse removal steps.

**NOTE:**
- Lubricate shaft splines with molybdenum disulfide grease.
- Torque final gear case nuts and blots to specification.



**Bolts/Nuts:**
**43 Nm (4.3 m·kg, 31 ft·lb)**

## CABLES AND FITTINGS

### CABLE MAINTENANCE

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

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

1. Remove:
   - Cable
     Obstructed movement → Inspect for kinking and/or frayed strands.
     Damage → Replace.

**Cable Lubrication Steps:**

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

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

## THROTTLE MAINTENANCE

1. Remove:
   - Phillips head screws
     (from throttle housing assembly)
     Separate the housing halves.
2. Disconnect:
   - Cable
     (from throttle grip assembly)
3. Remove:
   - Throttle grip assembly
4. Clean:
   - All parts
     Use mild solvent.
   - Right-hand end of handlebar
5. Inspect:
   - Contact surfaces
     Burrs/Damage → Deburr or replace.
   - Right-hand end of handlebar

6. Lubricate all contact surfaces with a light coat of lithium-soap base grease and reassemble.

**NOTE;**

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

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

# CHAPTER 6.
# ELECTRICAL


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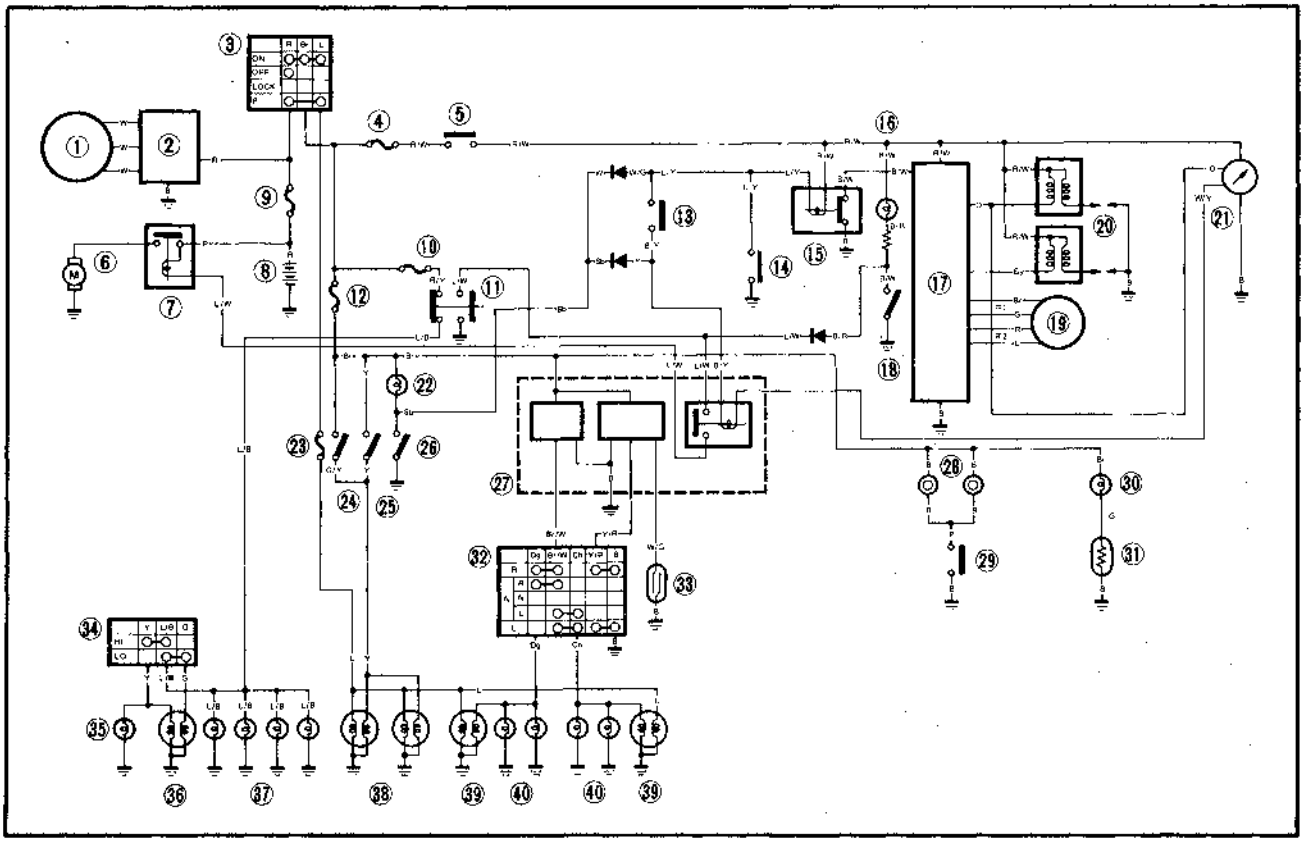
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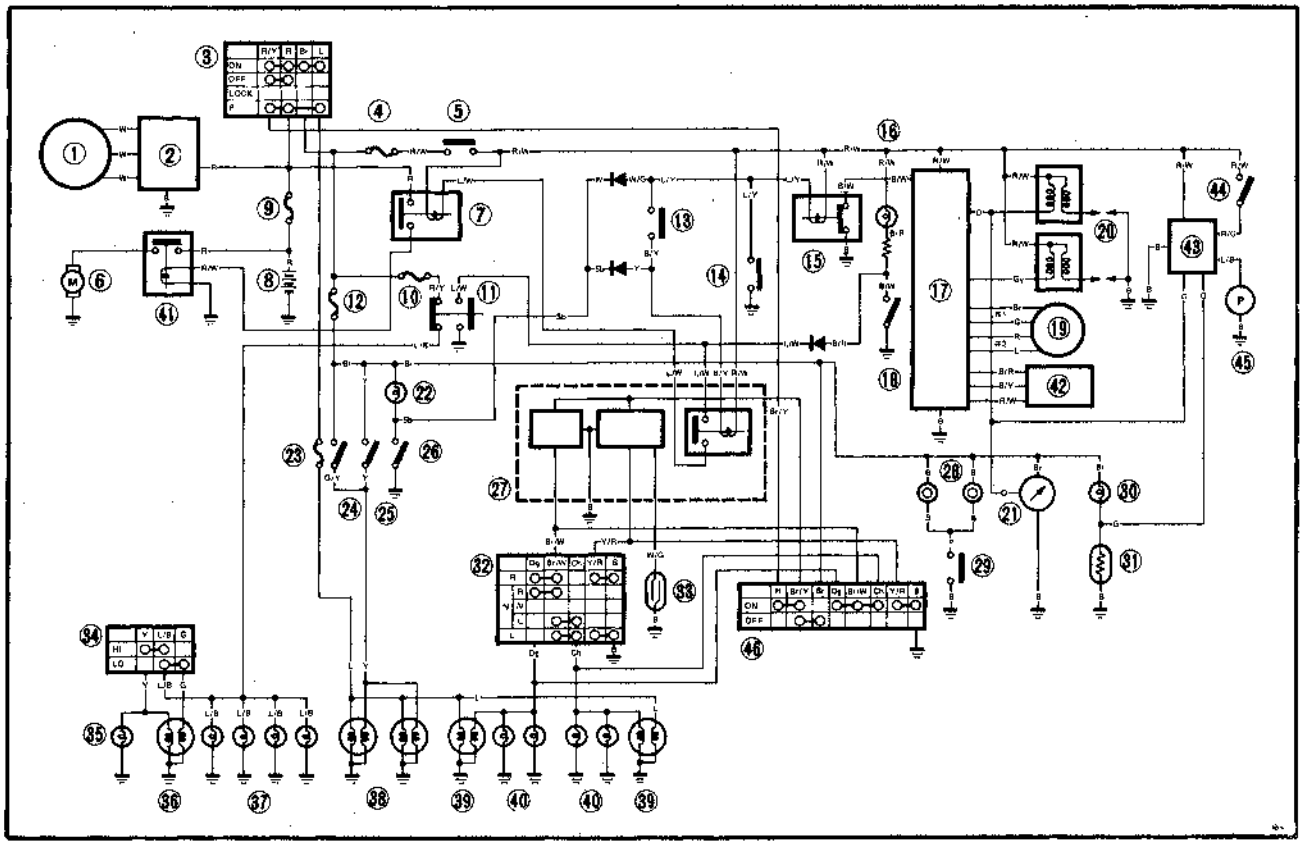
# ELECTRICAL

## XV700L/LC WIRING DIAGRAM



1. AC Magneto
2. Rectifier/Regulator
3. Main switch
4. Ignition fuse
5. Engine stop switch
6. Starter motor
7. Starter relay
8. Battery
9. Main fuse
10. Head fuse
11. Starter switch
12. Signal fuse
13. Clutch switch
14. Sidestand switch
15. Sidestand relay
16. Oil level indicator light
17. Ignitor unit
18. Oil level switch
19. Pick up coil
20. Ignition coil
21. Tachometer
22. Neutral indicator light
23. Tail fuse
24. Front brake switch
25. Rear brake switch
26. Neutral switch
27. Relay assembly
28. Horn
29. Horn switch
30. Fuel warning indicator light
31. Fuel sender
32. Flasher switch
33. Reed switch
34. Dimmer switch
35. High beam indicator light
36. Headlight
37. Meter illumination light
38. Tail/Brake light
39. Flasher indicator light
40. Flasher light

## XV1000L/LC WIRING DIAGRAM



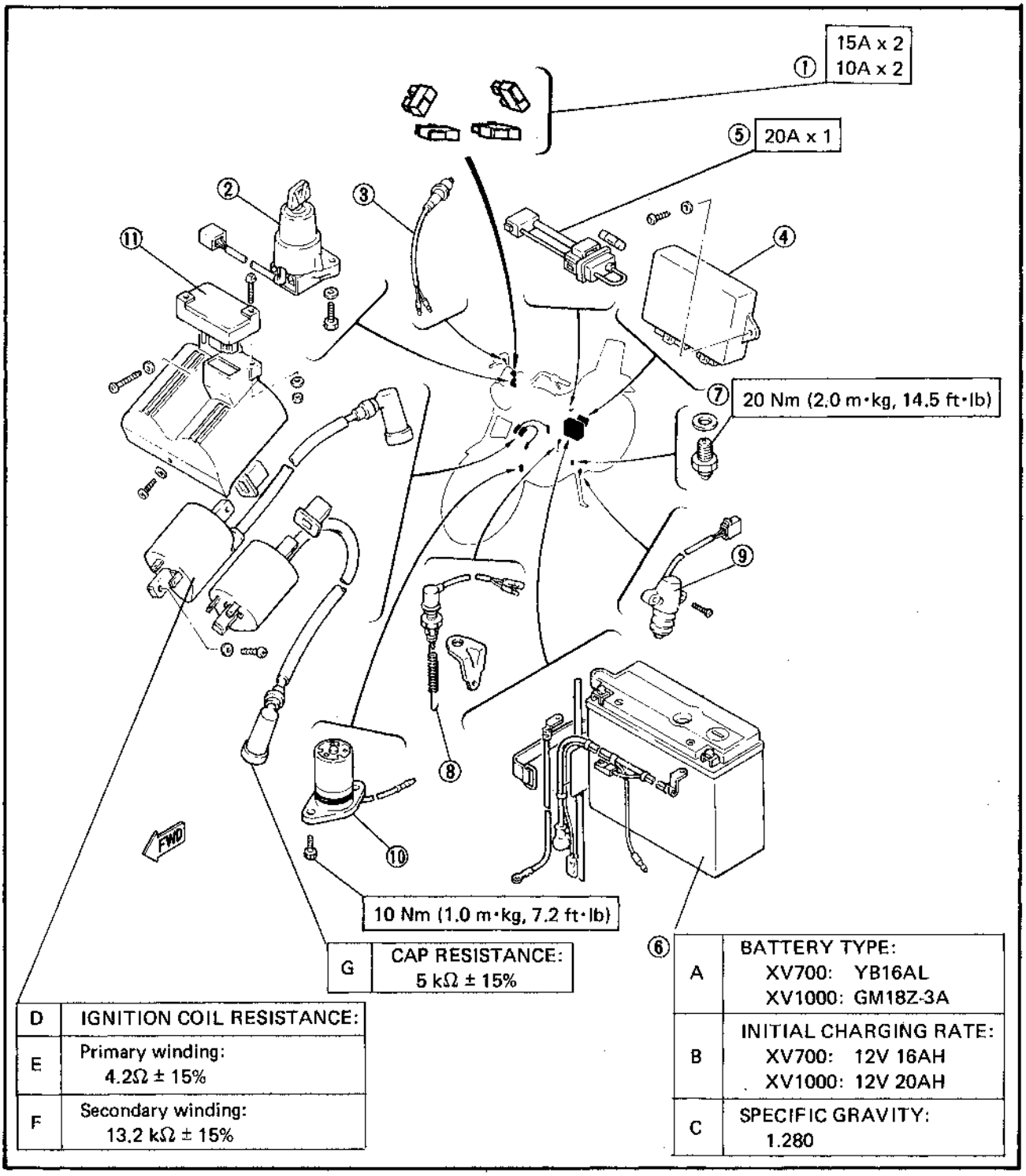
41. Solenoid switch (XV1000)
42. Pressure sensor (XV1000)
43. Fuel pump controller (XV1000)
44. Reserve switch (XV1000)
45. Fuel pump (XV1000)
46. Hazard switch (XV1000)

### COLOR CODE

| | | | |
|---|---|---|---|
| Gy | Gray | R/W | Red/White |
| L | Blue | L/R | Blue/Red |
| R | Red | R/Y | Red/Yellow |
| G | Green | Br/W | Brown/White |
| Br | Brown | W/G | White/Green |
| B | Black | Y/R | Yellow/Red |
| Ch | Chocolate | L/W | Blue/White |
| Y | Yellow | B/R | Black/Red |
| P | Pink | L/B | Blue/Black |
| W | White | Y/G | Yellow/Green |
| O | Orange | W/Y | White/Yellow |

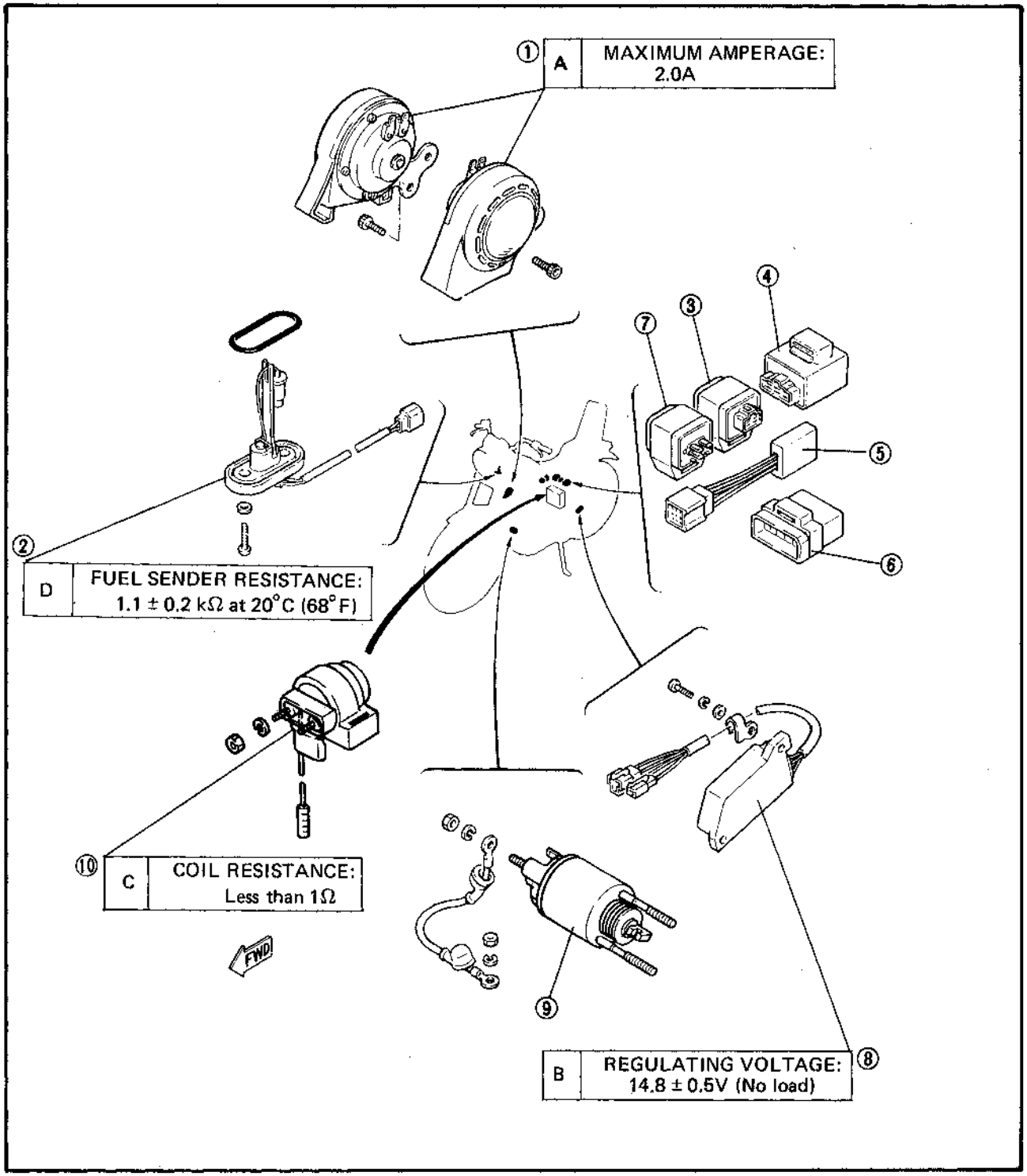
## ELECTRICAL COMPONENTS

1. Fuse
2. Main switch
3. Front brake switch
4. TCI unit
5. Main fuse
6. Battery
7. Neutral switch
8. Rear brake switch
9. Sidestand switch
10. Oil level switch
11. Pressure sensor (XV1000)



# ELECTRICAL COMPONENTS

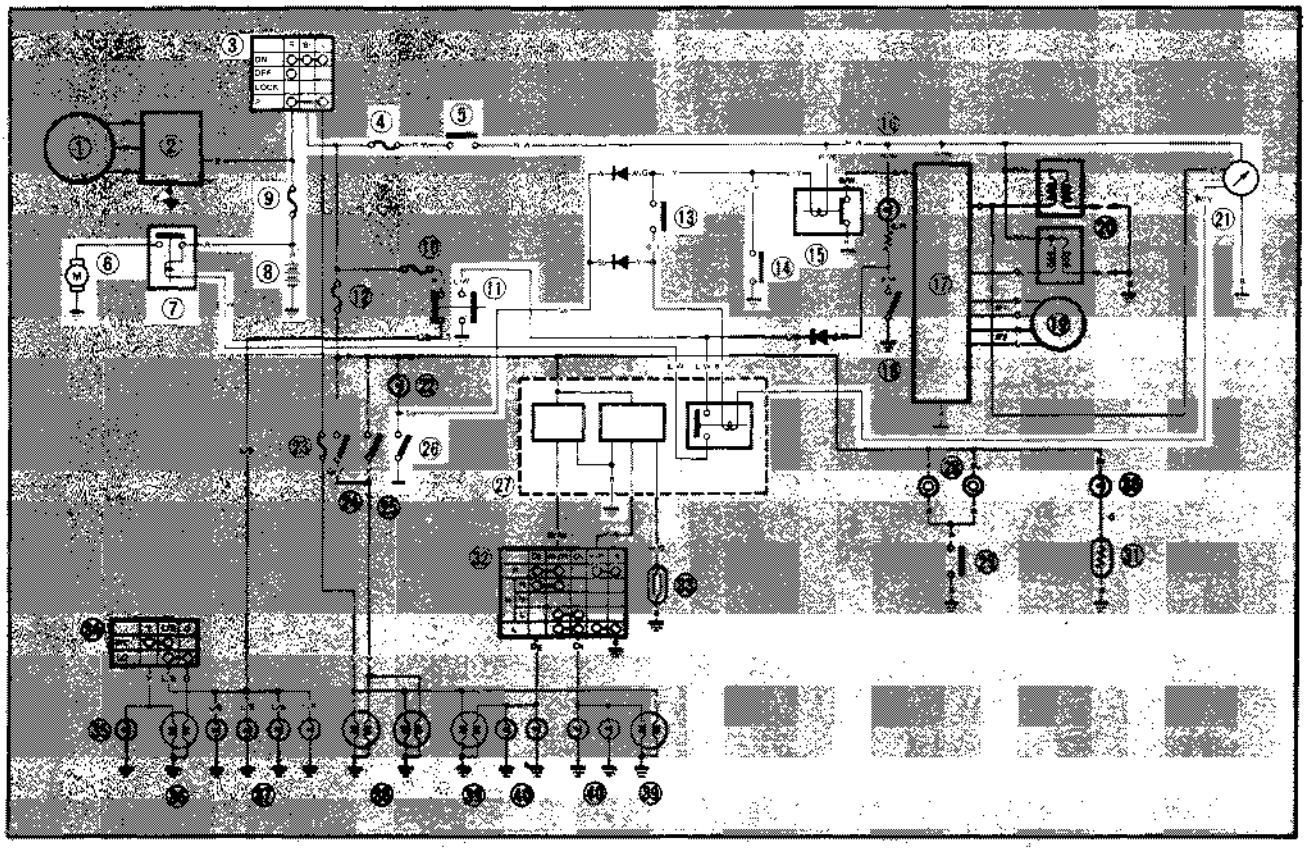
1. Horn
2. Fuel sender
3. Sidestand relay
4. Fuel pump timer (XV1000)
5. Diode block
6. Relay assembly
7. Starter relay (XV1000)
8. Rectifier/Regurator
9. Solenoid switch (XV1000)
10. Starter relay (XV700)



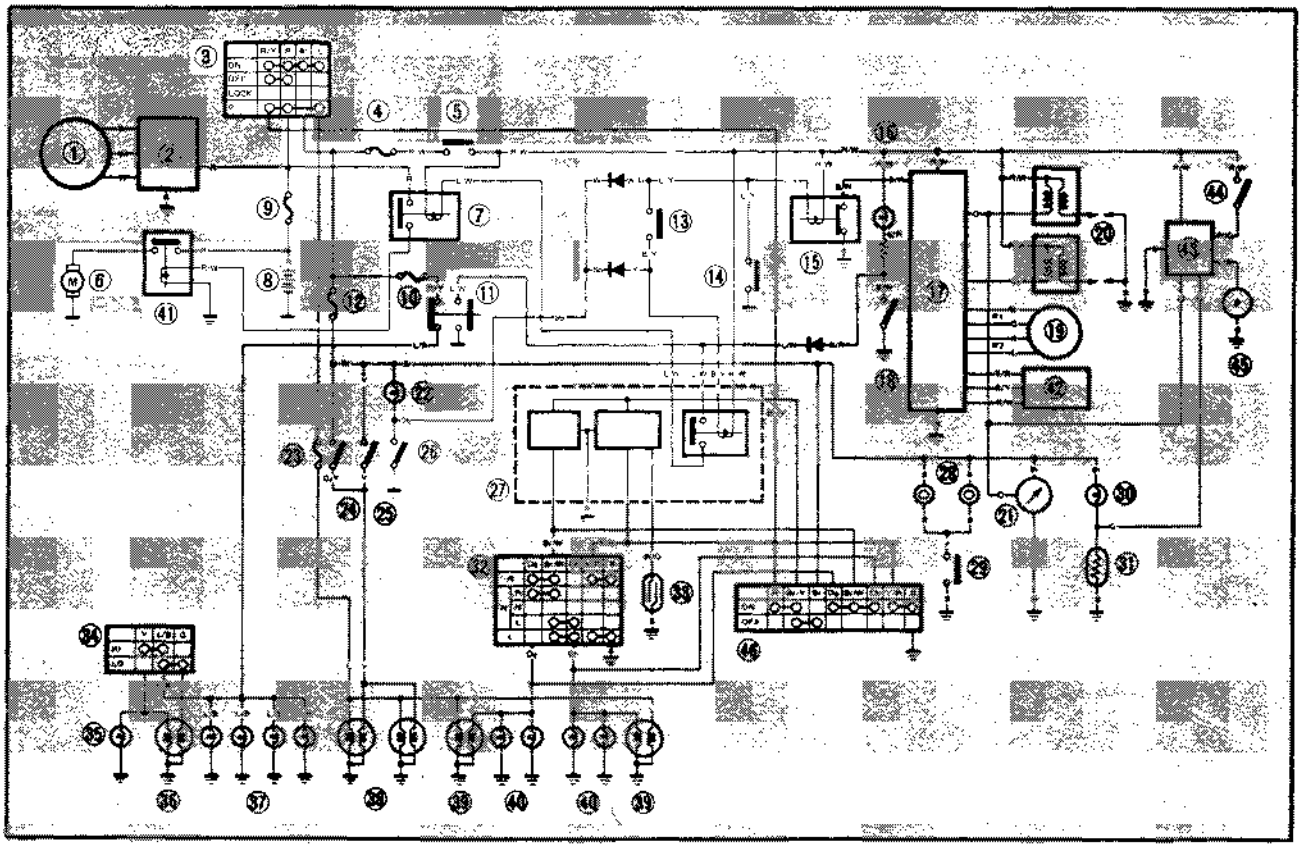
# ELECTRIC STARTING SYSTEM

## Circuit Diagram

### XV700L/LC



### XV1000L/LC

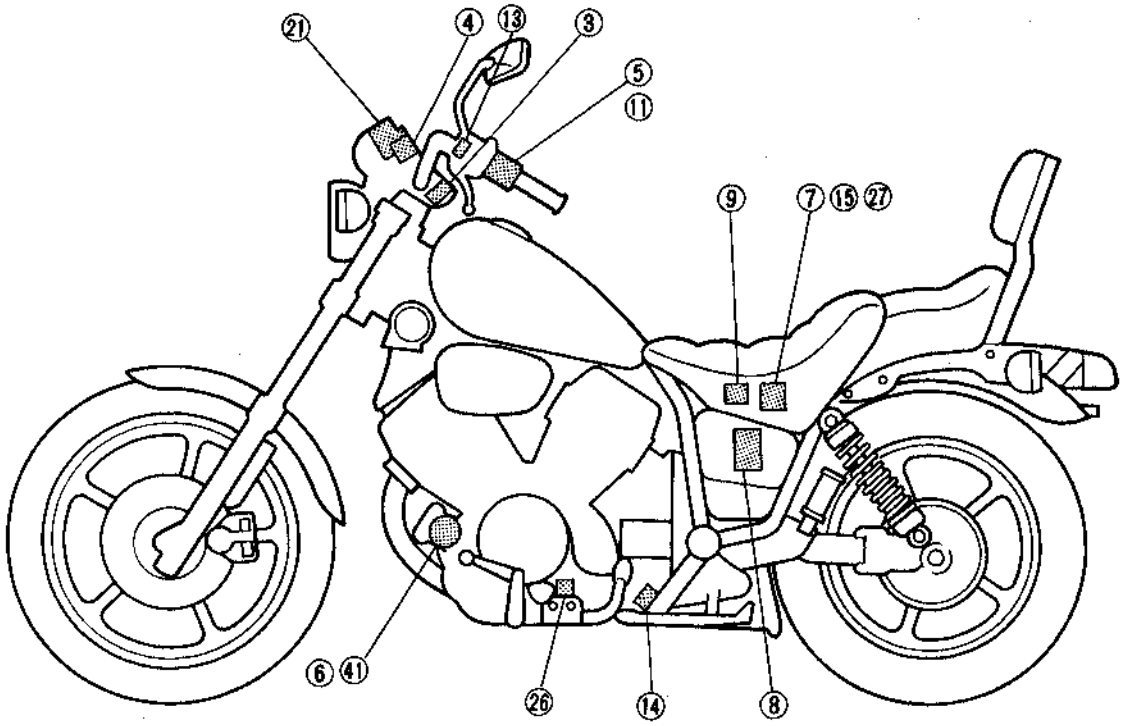


Above circuit diagrams show starter circuit in wiring diagram.

1. AC Magneto
2. Rectifier/Regulator
3. **Main switch**
4. **Ignition fuse**
5. **Engine stop switch**
6. **Starter motor**
7. **Starter relay**
8. **Battery**
9. **Main fuse**
10. Head fuse
11. **Starter switch**
12. Signal fuse
13. **Clutch switch**
14. **Sidestand switch**
15. **Sidestand relay**
16. Oil level indicator light
17. Ignitor unit
18. Oil level switch
19. Pick up coil
20. Ignition coil
21. **Tachometer**
22. Neutral indicator light
23. Tail fuse
24. Front brake switch
25. Rear brake switch
26. **Neutral switch**
27. **Relay assembly**
28. Horn
29. Horn switch
30. Fuel warning indicator light
31. Fuel sender
32. Flasher switch
33. Reed switch
34. Dimmer switch
35. High beam indicator light
36. Headlight
37. Meter illumination light
38. Tail/Brake light
39. Flasher indicator light
40. Flasher light
41. **Solenoid switch (XV1000)**
42. Pressure sensor (XV1000)
43. Fuel pump controller (XV1000)
44. Reserve switch (XV1000)
45. Fuel pump (XV1000)
46. Hazard switch (XV1000)

**COLOR CODE**

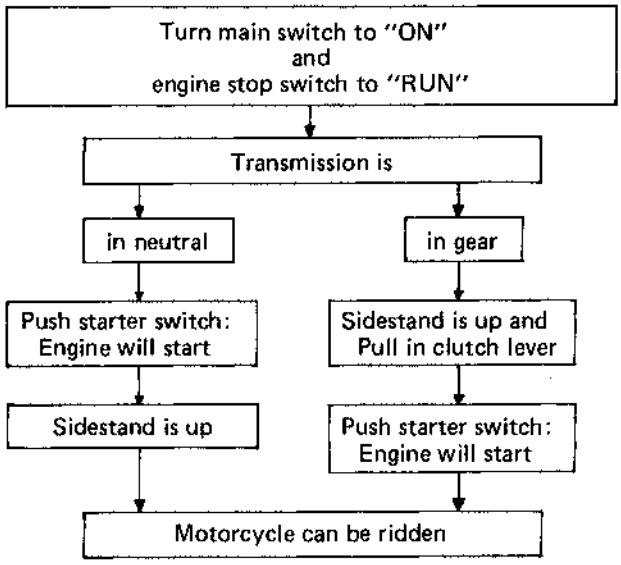
| | |
|---|---|
| Gy | Gray |
| L | Blue |
| R | Red |
| G | Green |
| Br | Brown |
| B | Black |
| Ch | Chocolate |
| Y | Yellow |
| P | Pink |
| W | White |
| O | Orange |
| R/W | Red/White |
| L/R | Blue/Red |
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| Y/R | Yellow/Red |
| L/W | Blue/White |
| B/R | Black/Red |
| L/B | Blue/Black |
| Y/G | Yellow/Green |
| W/Y | White/Yellow |



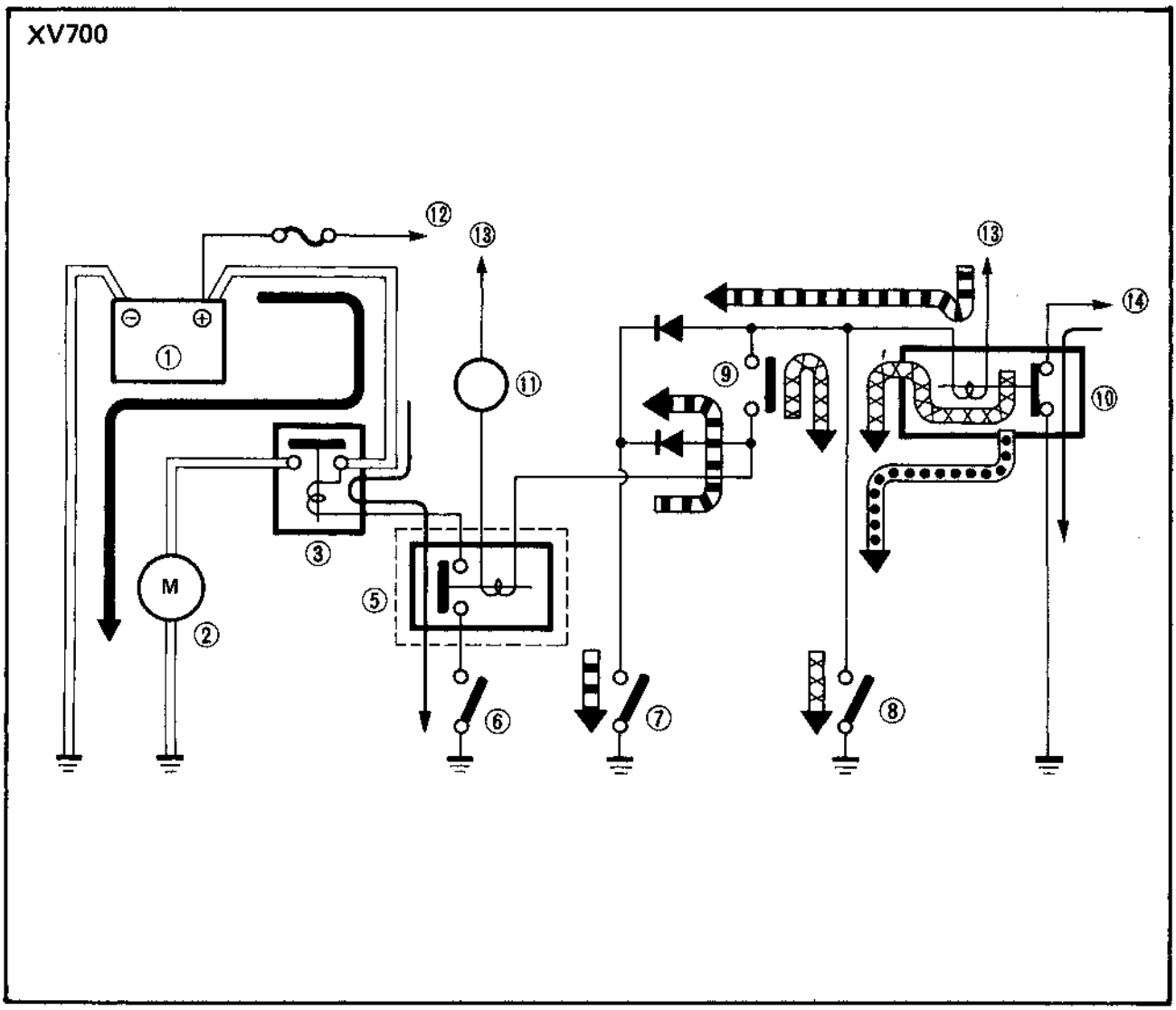
## STARTING CIRCUIT OPERATION

The starting circuit on this model consists of the starter motor, starter relay, starter safety unit, solenoid switch (XV1000) and sidestand relay. If the engine stop switch and the main switch are both on, the starter motor can operate only if:

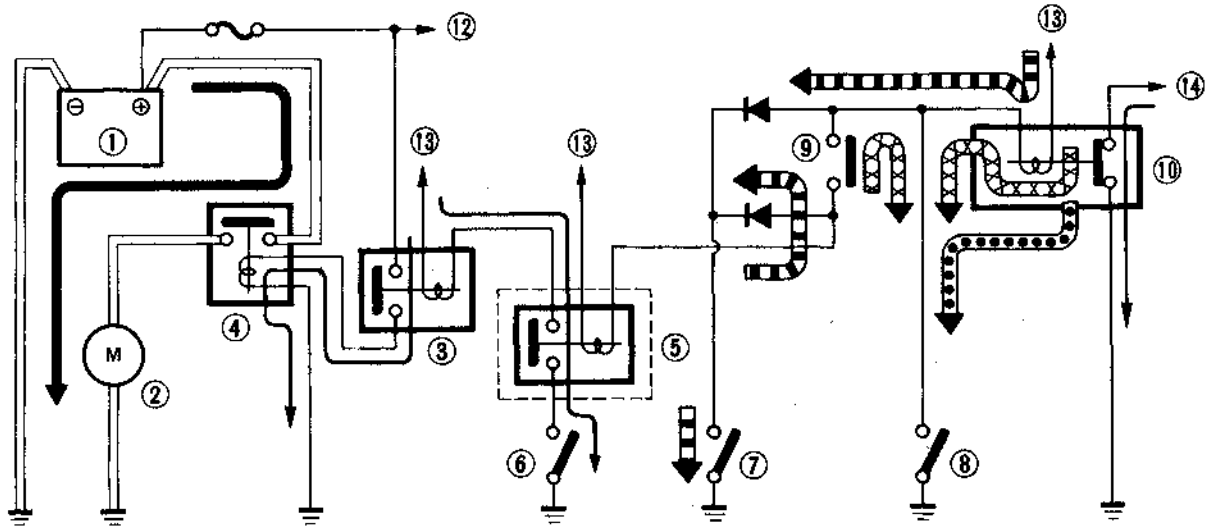
- The transmission is in neutral (the neutral switch is on).
- The sidestand is up (the sidestand switch is on) and the clutch lever is pulled in (clutch switch is on).




XV700



XV1000




1. Battery
2. Starter motor
3. Starter relay
4. Solenoid switch
5. Starter safety unit (Relay assembly)
6. Starter switch
7. Neutral switch
8. Sidestand switch
9. Clutch switch
10. Sidestand relay
11. Tachometer
12. To main switch
13. To engine stop switch
14. To ignitor unit

When the transmission is in neutral.

When the sidestand is up and the clutch lever is pulled in.

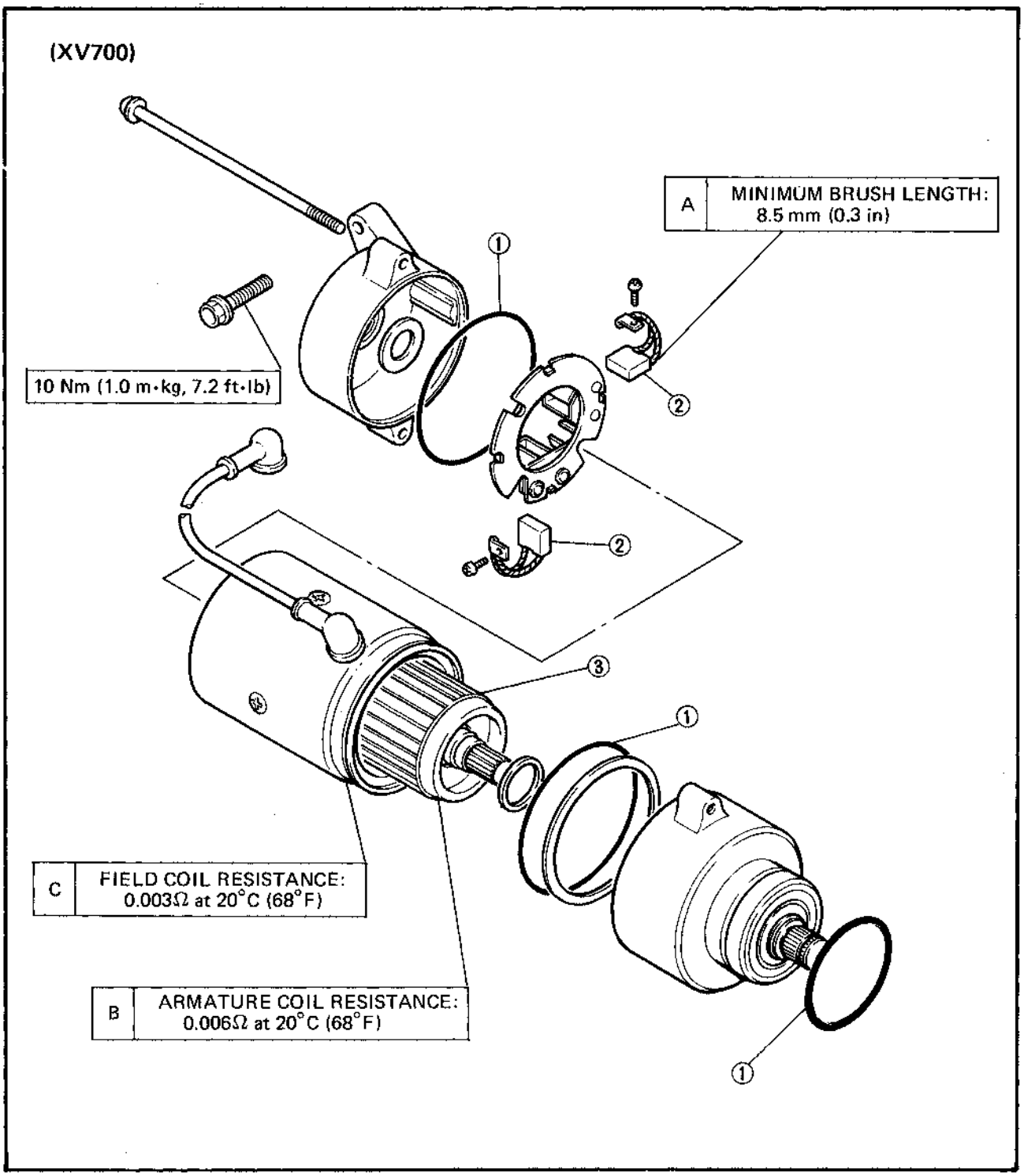
When the engine is running.

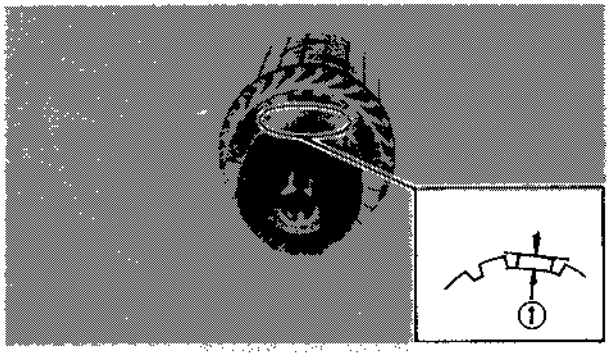
## STARTER MOTOR

1. O-ring
2. Brush
3. Armature

**Removal**

Refer Chapter 3, "ENGINE DISASSEMBLY".



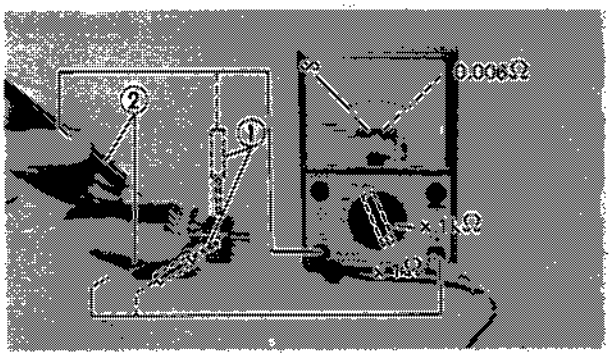



**Inspection**

1. Inspect:
   - Commutator (outer surface)
     Dirty → Clean with #600 grit sandpaper.
   - Mica insulation
     (between commutator segments)
     Out of specification → Scrape mica to proper limits.
     Use a hacksaw blade that is ground to fit.

**Depth of Insulator ① :**
**0.4 ~ 0.8 mm (0.02 ~ 0.03 in)**

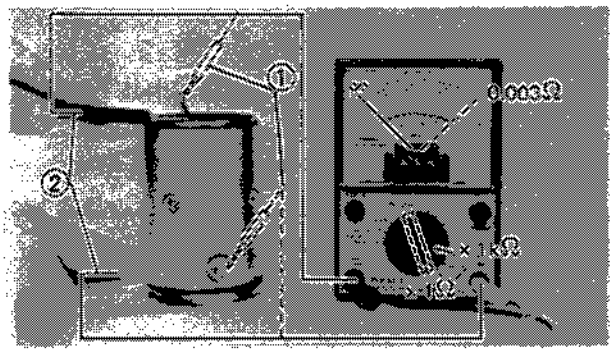
**NOTE:**
The mica insulation of commutator must be under-cut to ensure proper operation of commutator.




2. Measure:
   - Armature coil continuity ①
     No continuity → Replace starter motor.

**Armature Coil:**
**0.006Ω at 20°C (68°F)**

   - Armature coil insulation ②
     Short circuit → Replace starter motor.




3. Measure:
   - Field coil continuity ①
     No continuity → Replace.

**Field Coil:**
**0.003Ω at 20°C (68°F)**

   - Field coil insulation ②
     Short circuit → Replace.



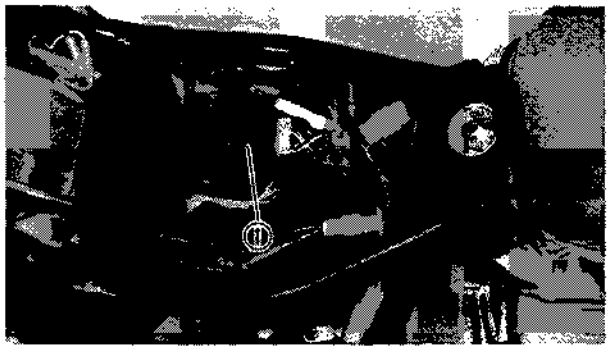

4. Inspect
   - Front cover bearing ①
   - Rear cover bearing ②
     Damage → Replace.




5. Measure:
   - Brush length (each) ①
     Out of specification → Replace.

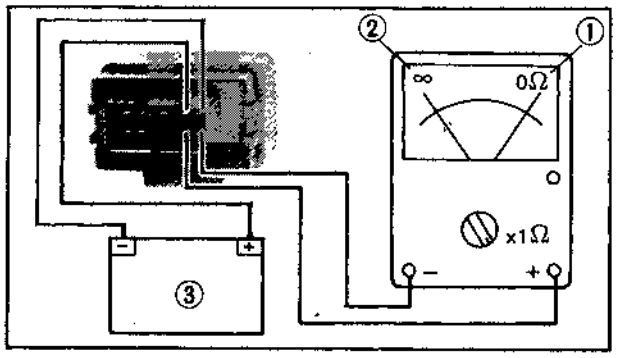
| Minimum Brush Length: 8.5 mm (0.33 in) |
|---|

6. Check:
   - Brush spring pressure
     Compare with new spring.
     Weak pressure → Replace spring.



### STARTER SAFETY UNIT (Relay Assembly)

1. Remove:
   - Seat
   - Relay assembly ①



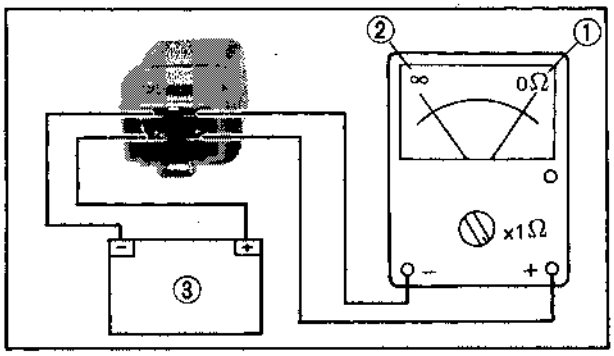

2. Check:
   - Relay contacts
     Use 12V battery ③ and Pocket Tester (YU-03112)
     Out of specification → Replace relay.

| Battery Connected: 0Ω ①<br>Battery disconnected: ∞ ② |
|---|



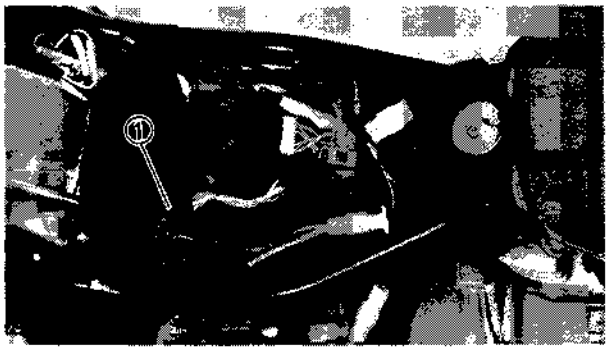
### SIDESTAND RELAY

1. Remove:
   - Seat
   - Sidestand relay ①



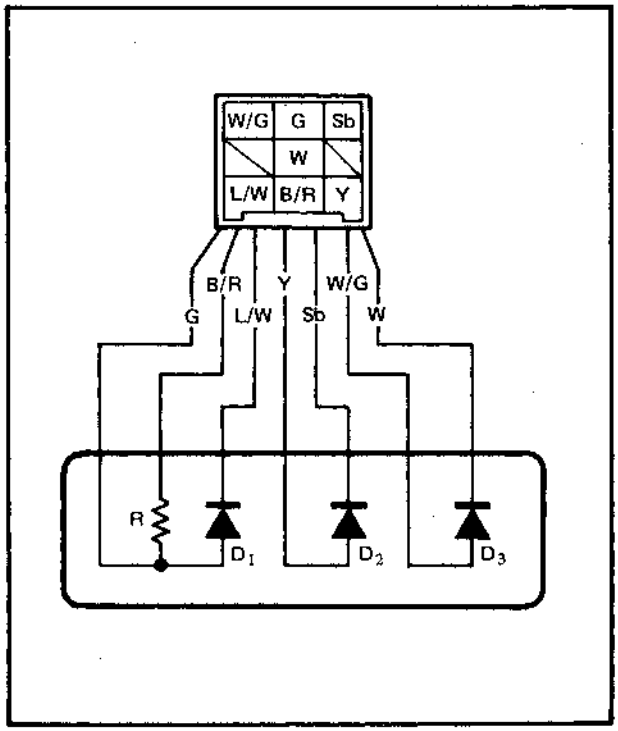

2. Check:
   - Relay contacts
     Use 12V battery ③ and Pocket Tester (YU-03112).
     Out of specification → Replace relay.

**Battery Connected: ∞ ②**
**Battery disconnected: 0Ω ①**




**DIODE**

1. Remove:
   - Seat
   - Diode ①




2. Check:
   - Diode continuity/discontinuity
     Defective element(s) → Replace the unit.

| Checking element | Pocket tester connecting point | | Good |
|---|---|---|---|
| | (+) (red) | (–) (black) | |
| $D_1$ | G | L/W | ○ |
| | L/W | G | X |
| $D_2$ | Y | Sb | ○ |
| | Sb | Y | X |
| $D_3$ | W/G | W | ○ |
| | W | W/G | X |
| R | G | B/R | 8.2Ω |

○: Continuity (0Ω) (Scale Ω x 1000)
X: Discontinuity (∞) (Scale Ω x 1)

**NOTE:**
The results "○" or "X" should be reversed according to the pocket tester polarity.

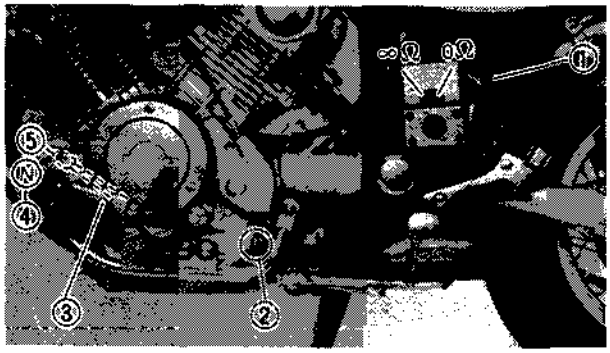
### NEUTRAL SWITCH

1. Remove:
   - Seat
   - Left side cover
   - Luggage box (XV700)
   - Sub-fuel tank (XV1000)

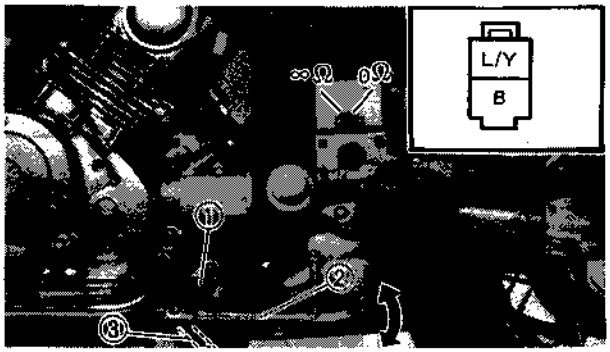
**NOTE:**
It is not necessary to remove sub-fuel tank hoses.

2. Check:
   - Neutral switch contact
     Out of specification → Replace switch.

| Change pedal ③ | In neutral ④ | In gear ⑤ |
|---|---|---|
| Tester | 0Ω | ∞ |



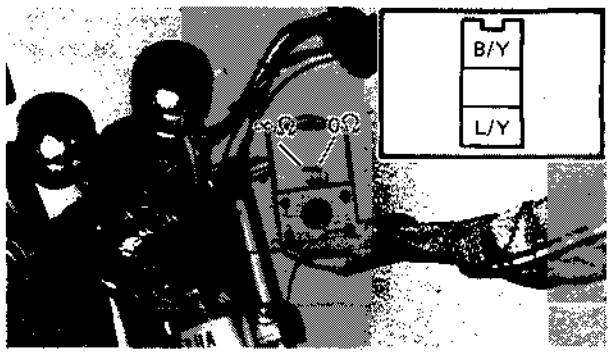

① Blue wire
② Ground




### SIDESTAND SWITCH

1. Refer to neutral switch removal steps.
2. Check:
   - Sidestand switch ① contact
     Out of specification → Replace switch.

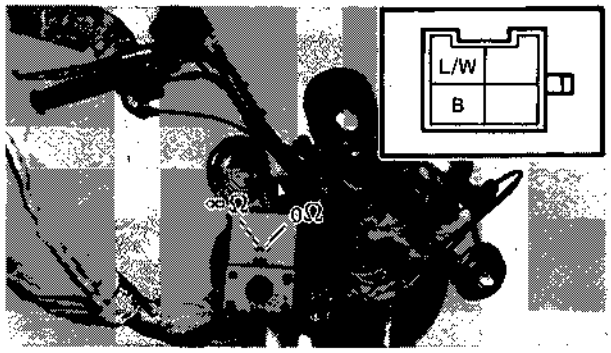
| Sidestand | Up ② | Down ③ |
|---|---|---|
| Tester | 0Ω | ∞ |




### CLUTCH SWITCH

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

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



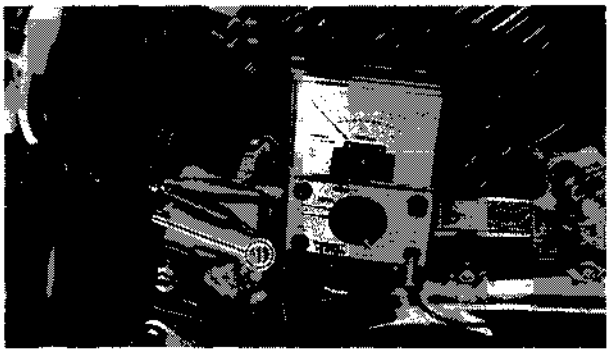

## STARTER SWITCH

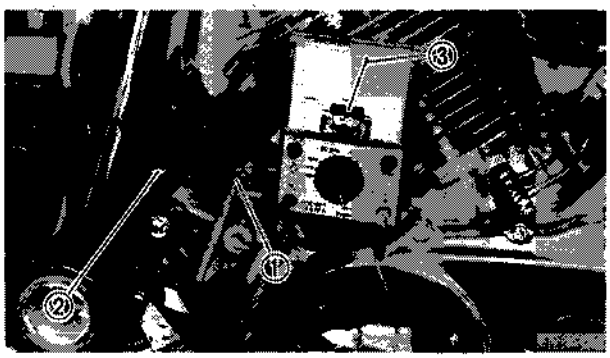
1. Remove:
   - Headlight unit
2. Check:
   - Starter switch contact
     Out of specification → Replace switch.

| Starter switch | ON | OFF |
|---|---|---|
| Tester | 0Ω | ∞ |

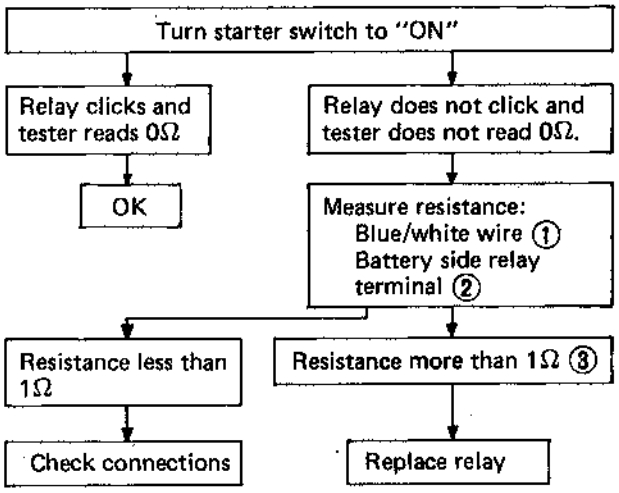
## STARTER RELAY

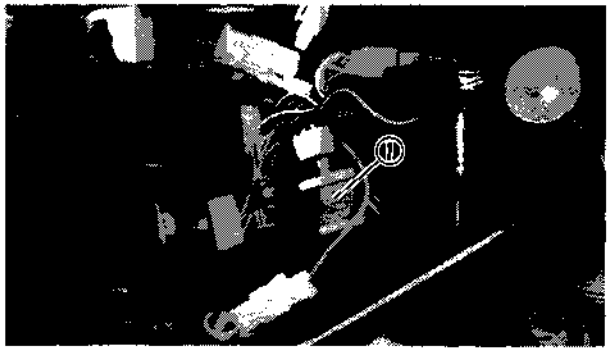
**(XV700)**
**Inspection**





**Preparation steps:**
- Remove relay securing bolts.
- Disconnect starter motor lead. ①
- Connect Pocket Tester leads to relay terminals.
- Turn main switch to "ON".
- Turn engine stop switch to "RUN".
- Move change pedal to "NEUTRAL".

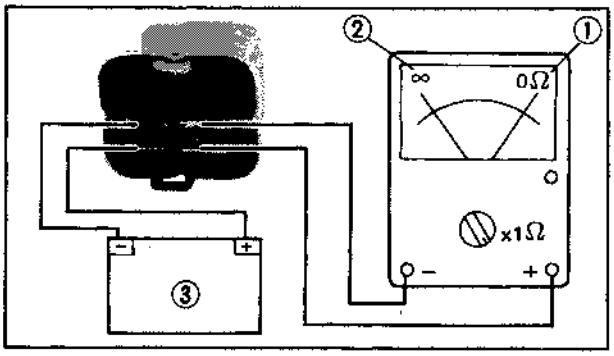





**(XV1000)**

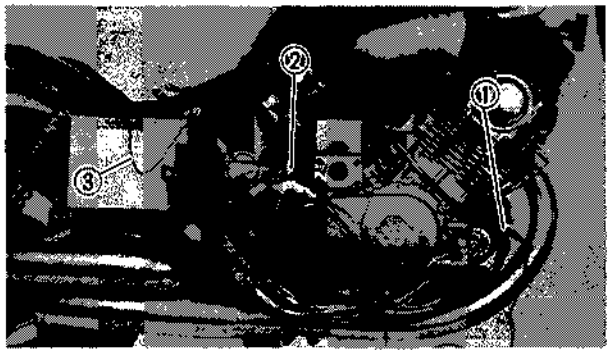
Refer to XV700 steps excluding the starter relay and solenoid switch.

1. Remove:
   - Seat
   - Starter relay ①




2. Check:
   - Relay contacts
     Use 12V battery ③ and Pocket Tester (YU-03112).
     Out of specification → Replace relay.

| | |
|---|---|
| | **Battery Connected: 0Ω ①**<br>**Battery disconnected: ∞ ②** |

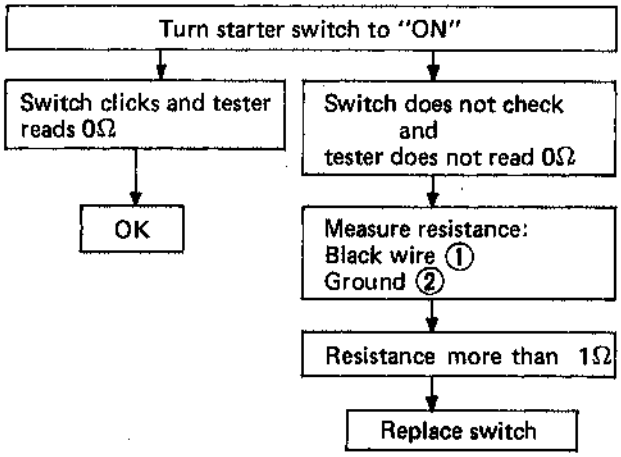



**SOLENOID SWITCH (XV1000)**

**Inspection**

**Preparation steps:**
- Remove seat, right side cover, and battery.
- Disconnect starter motor lead ① and positive battery lead ②.
- Connect Pocket tester leads to starter motor lead and positive battery lead.
- Connect jumper lead ③ between positive battery terminal and red lead connecter to main fuse.
- Turn main switch to "ON".
- Turn engine stop switch to "RUN".
- Turn change pedal to "NEUTRAL".

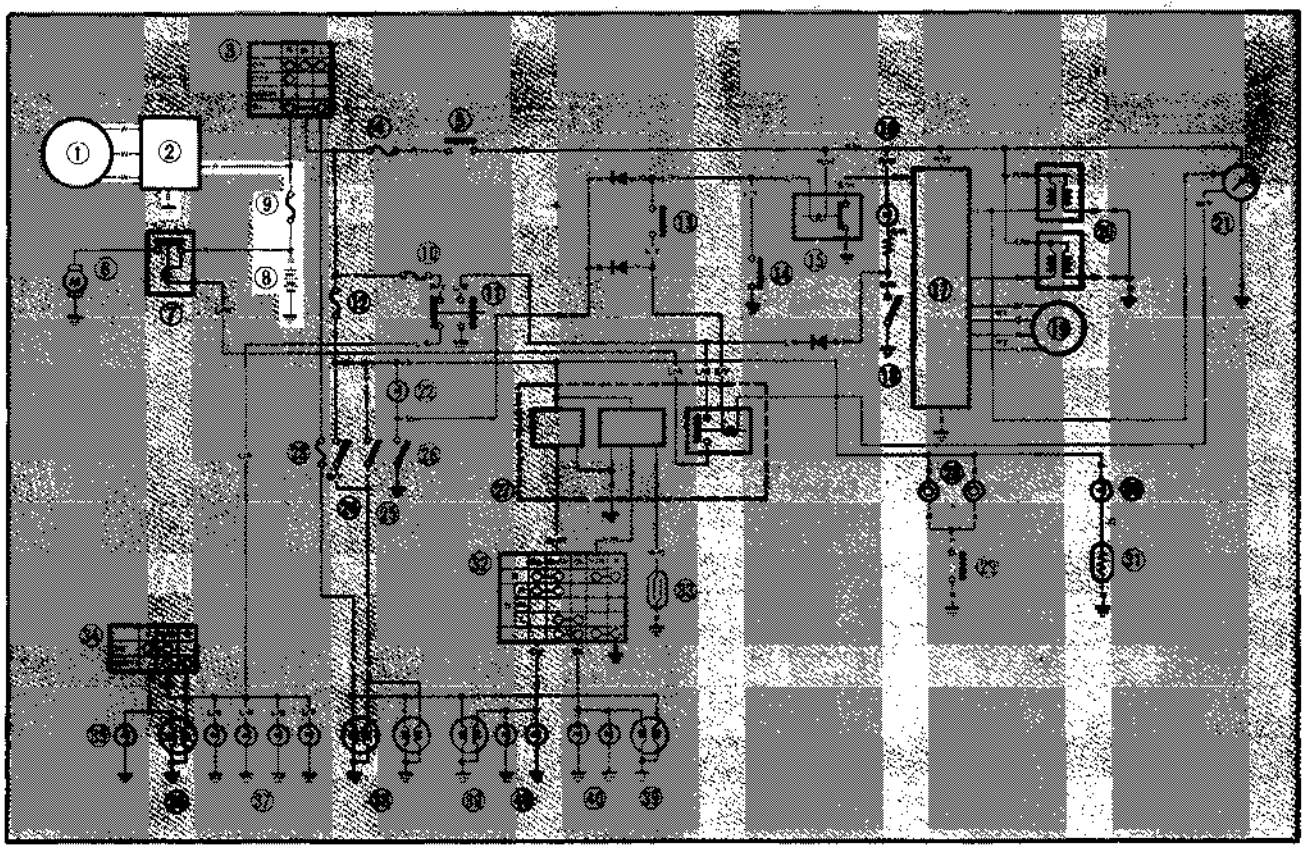

①
②


Turn starter switch to "ON"
Switch clicks and tester reads 0Ω
Switch does not check and tester does not read 0Ω
OK
Measure resistance:
Black wire ①
Ground ②
Resistance more than 1Ω
Replace switch

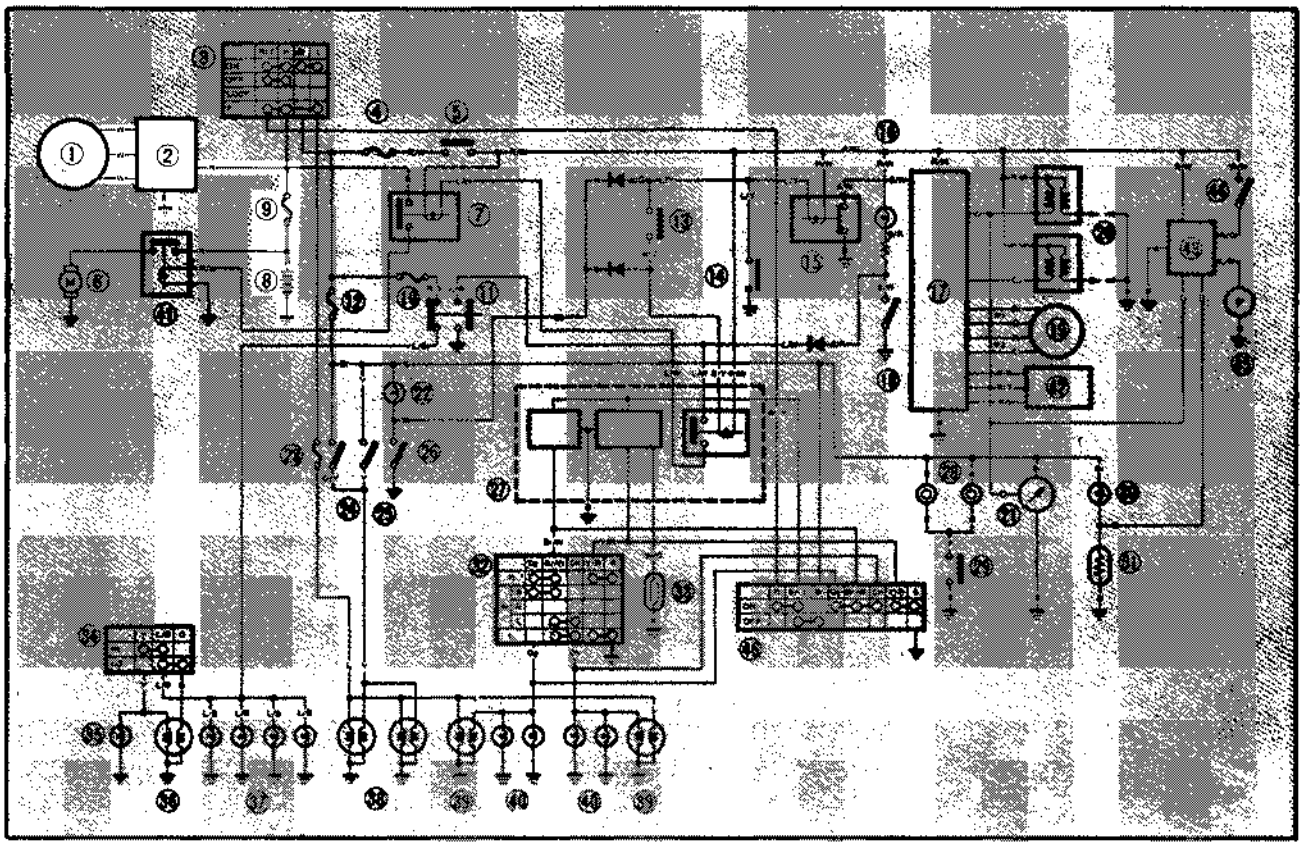
# CHARGING SYSTEM

## Circuit Diagram

### XV700L/LC



### XV1000L/LC

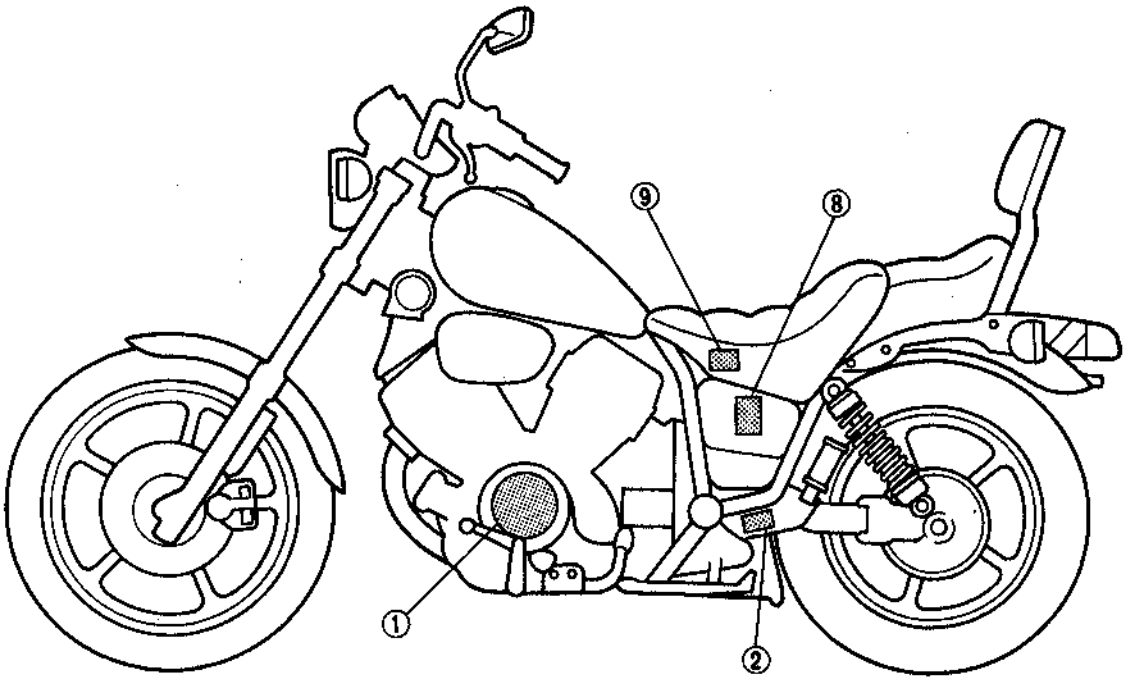


Above circuit diagrams show chargning circuit in wiring diagram.

1. **AC Magneto**
2. **Rectifier/Regulator**
3. Main switch
4. Ignition fuse
5. Engine stop switch
6. Starter motor
7. Starter relay
8. **Battery**
9. **Main fuse**
10. Head fuse
11. Starter switch
12. Signal fuse
13. Clutch switch
14. Sidestand switch
15. Sidestand relay
16. Oil level indicator light
17. Ignitor unit
18. Oil level switch
19. Pick up coil
20. Ignition coil
21. Tachometer
22. Neutral indicator light
23. Tail fuse
24. Front brake switch
25. Rear brake switch
26. Neutral switch
27. Relay assembly
28. Horn
29. Horn switch
30. Fuel warning indicator light
31. Fuel sender
32. Flasher switch
33. Reed switch
34. Dimmer switch
35. High beam indicator light
36. Headlight
37. Meter illumination light
38. Tail/Brake light
39. Flasher indicator light
40. Flasher light
41. Solenoid switch (XV1000)
42. Pressure sensor (XV1000)
43. Fuel pump controller (XV1000)
44. Reserve switch (XV1000)
45. Fuel pump (XV1000)
46. Hazard switch (XV1000)

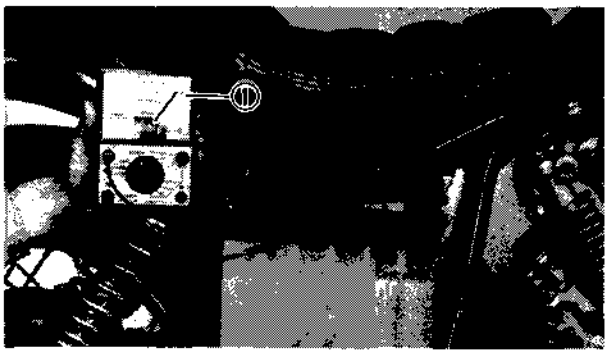
**COLOR CODE**

| | |
|---|---|
| Gy | Gray |
| L | Blue |
| R | Red |
| G | Green |
| Br | Brown |
| B | Black |
| Ch | Chocolate |
| Y | Yellow |
| P | Pink |
| W | White |
| O | Orange |
| R/W | Red/White |
| L/R | Blue/Red |
| R/Y | Red/Yellow |
| Br/W | Brown/White |
| W/G | White/Green |
| Y/R | Yellow/Red |
| L/W | Blue/White |
| B/R | Black/Red |
| L/B | Blue/Black |
| Y/G | Yellow/Green |
| W/Y | White/Yellow |



## CHARGING VOLTAGE INSPECTION

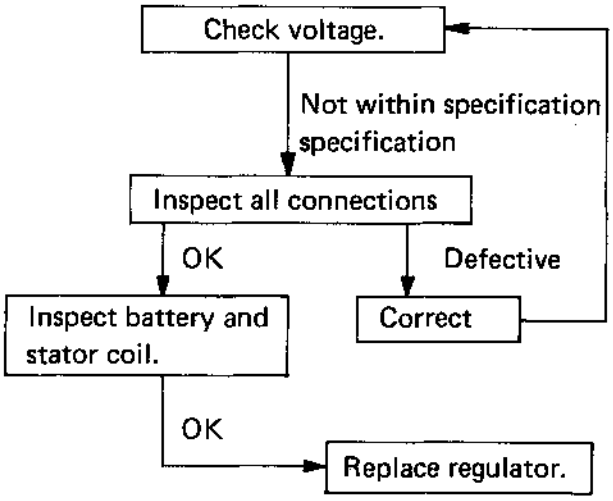
1. Remove:
   - Right side cover
   - Battery case cover
2. Disconnect:
   - Negative battery lead
3. Remove:
   - Battery
     (from the battery case)
4. Connect:
   - Negative battery lead
     (to negative battery terminal)
   - Pocket Tester leads
     (to each battery terminal)



5. Start the engine.
6. Measure:
   - Charging voltage
     Rev engine to approximately 2,000 r/min or more.
     Out of specification → See troubleshooting chart below.

| | |
|---|---|
| | **Charging Voltage:**<br>**14.3 ~ 15.3V ①** |

## TROUBLESHOOTING



**CAUTION:**

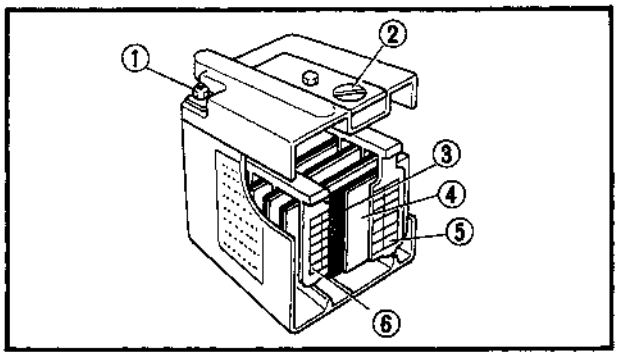
**Never disconnect battery cables while generator is operating or regulator/rectifier will be damaged.**

## BATTERY

**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 accumolation 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

1. Inspect:
   - Battery terminals
   - Battery couplers

   Looseness → Tighten.
2. Measure:
   - Specific gravity of battery fluid

   Less than 1.280 → Remove and recharge battery.

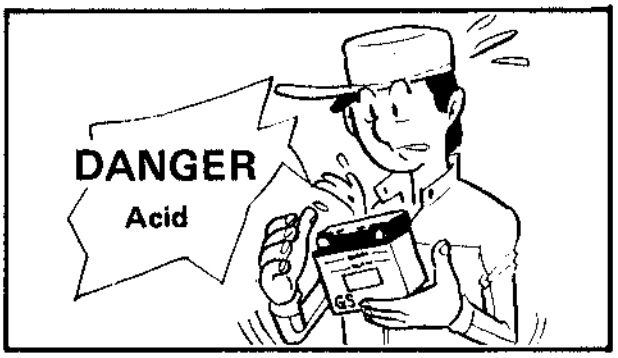
**CAUTION:**

**To insure maximum battery performance be sure to:**

- **Charge a new battery before use.**

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

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




WARNING:

Battery electrolyte is dangerous; it contain
sulfuric acid and therefore is poisonous an
highly caustic.

Always follow these preventive measures:

- Avoid bodily contact with electrolyte as i
  can cause severe burns or permanent ey
  injuty.
- Wear protective eye gear when handling o
  working near batteries.

Antidote (EXTERNAL):

- SKIN – Flush with water.
- EYES – Flush with water for 15 minutes an
  get immediate medical attention.
- Drink large quantities of water or milk an
  follow with milk of magnesia, beaten egg
  or vegetable oil. Get immediate medica
  attention.

Batteries also generate explosive hydroge
gas, therefore you should always follow thes
preventive measures:

- Charge batteries in a well-ventilated area
- Keep batteries away from fire, sparks, o
  open flames (e.g., welding equipment, lighte
  cigarettes, etc.)
- DO NOT SMOKE when charging or handlin
  batteries. KEEP BATTERIES AND ELEC
  TROLYTE OUT OF REACH OF CHILDRE

### Battery Service Life

The service life of a battery is usually two to three years. Battery life may be shortened by poor maintenance.

**Preparation steps:**
- Keep battery topped off with distilled water.
- Keep battery charged.
- Do not overcharge battery.
- Do not allow battery freeze.
- Do not fill with tap water or sulfuric acid containing impurities.
- Do not charge new battery using improper voltage or current.

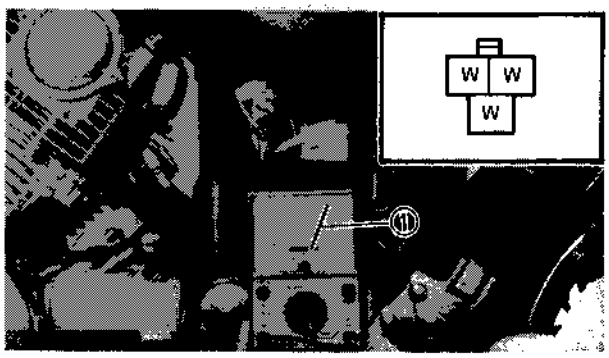
### Battery Storage

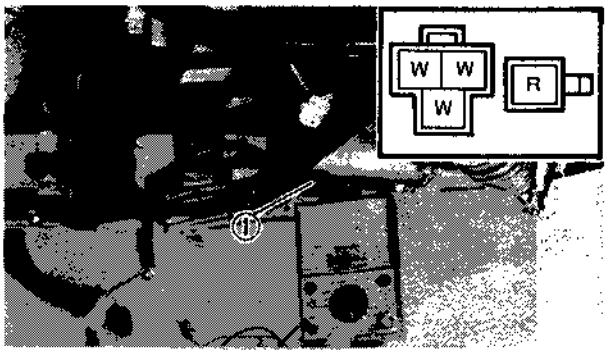
The battery should be stored if the motorcycle is not to be used for a long period.

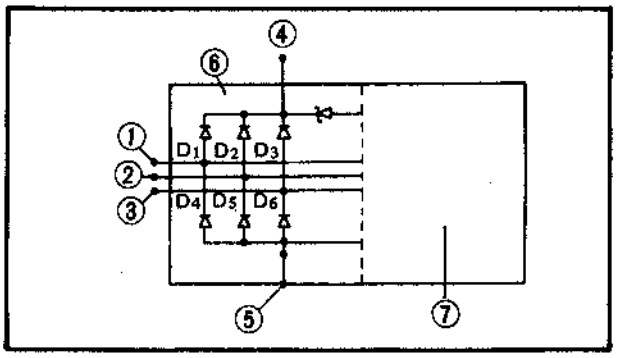
1. Remove:
   - Battery

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

| | XV700 | XV1000 |
|---|---|---|
| Battery | YB16AL | GM18Z-3A |
| Electrolyte | Specific gravity: 1.280 | ← |
| Initial charing rate (new battery) | 1.6 amp for 10 hours | 2.0 amp for 10 hours |
| 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) | ← |




## STATOR COIL

1. Remove:
   - Left side cover
   - Luggage box
2. Measure:
   - Stator coil resistance
     Out of specification → Replace.

| | |
|---|---|
| | **Stator Coil Resistance:** 0,5Ω ① |

## RECTIFIER/REGULATOR

1. Remove:
   - Left side cover
   - Luggage boy
2. Check:
   - Rectifier/Regulator ① diodes.
     Refer to the following table.
     Defective element → Replace rectifier.

| Checking element | Pocket tester connecting point (+) (red) | Pocket tester connecting point (–) (black) | Good |
|---|---|---|---|
| $D_1$ | ④ | ① | ○ |
| | ① | ④ | X |
| $D_2$ | ④ | ② | ○ |
| | ② | ④ | X |
| $D_3$ | ④ | ③ | ○ |
| | ③ | ④ | X |
| $D_4$ | ① | ⑤ | ○ |
| | ⑤ | ① | X |
| $D_5$ | ② | ⑤ | ○ |
| | ⑤ | ② | X |
| $D_6$ | ③ | ⑤ | ○ |
| | ⑤ | ③ | X |

○: Continuity X: Discontinuity (∞)

① White wire
② White wire
③ White wire
④ Red wire
⑤ Ground
⑥ Rectifier
⑦ Regulator

**CAUTION:**

**Do not overcharge rectifier or damage may result.**

**Avoid:**

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

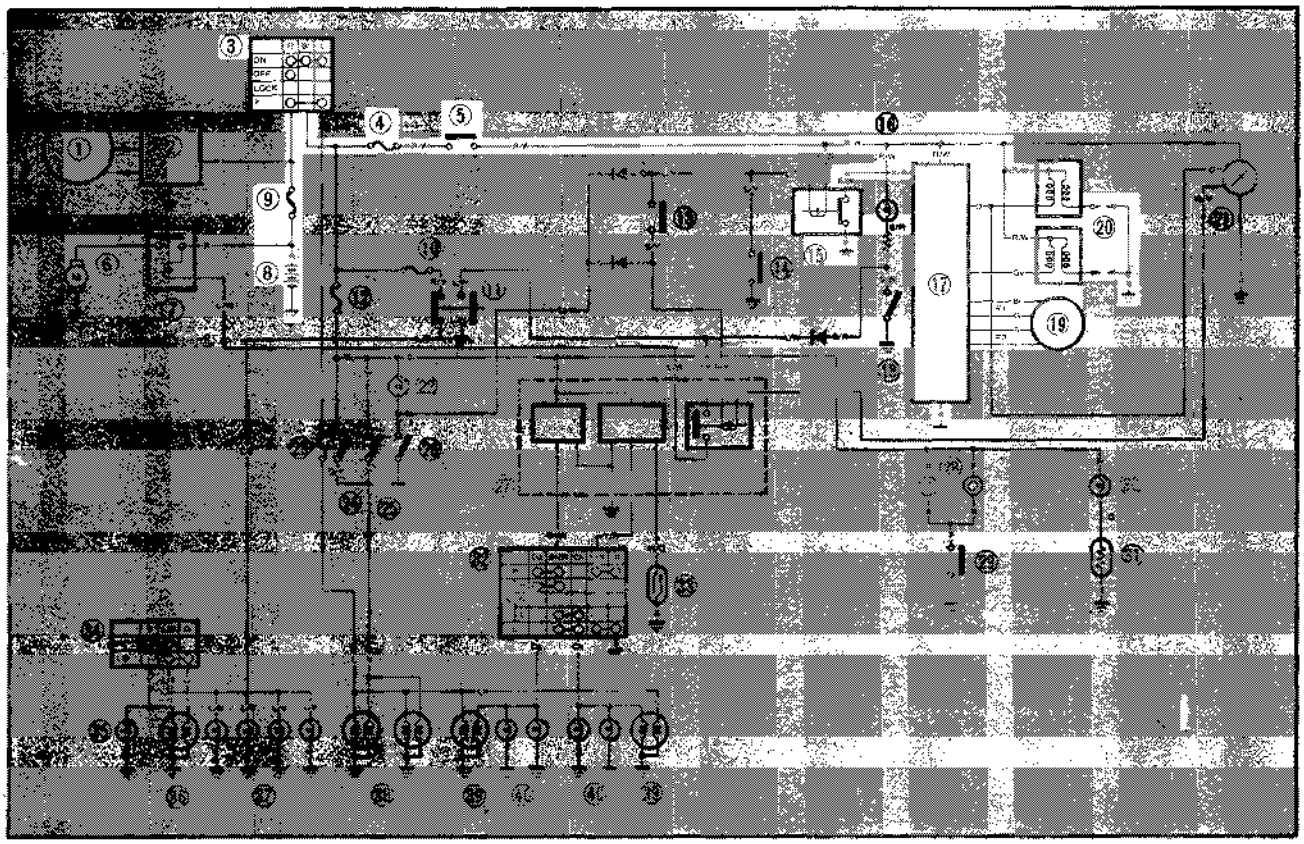
**NOTE:**

The results "O" or "X" should be reversed according to the pocket tester polarity.

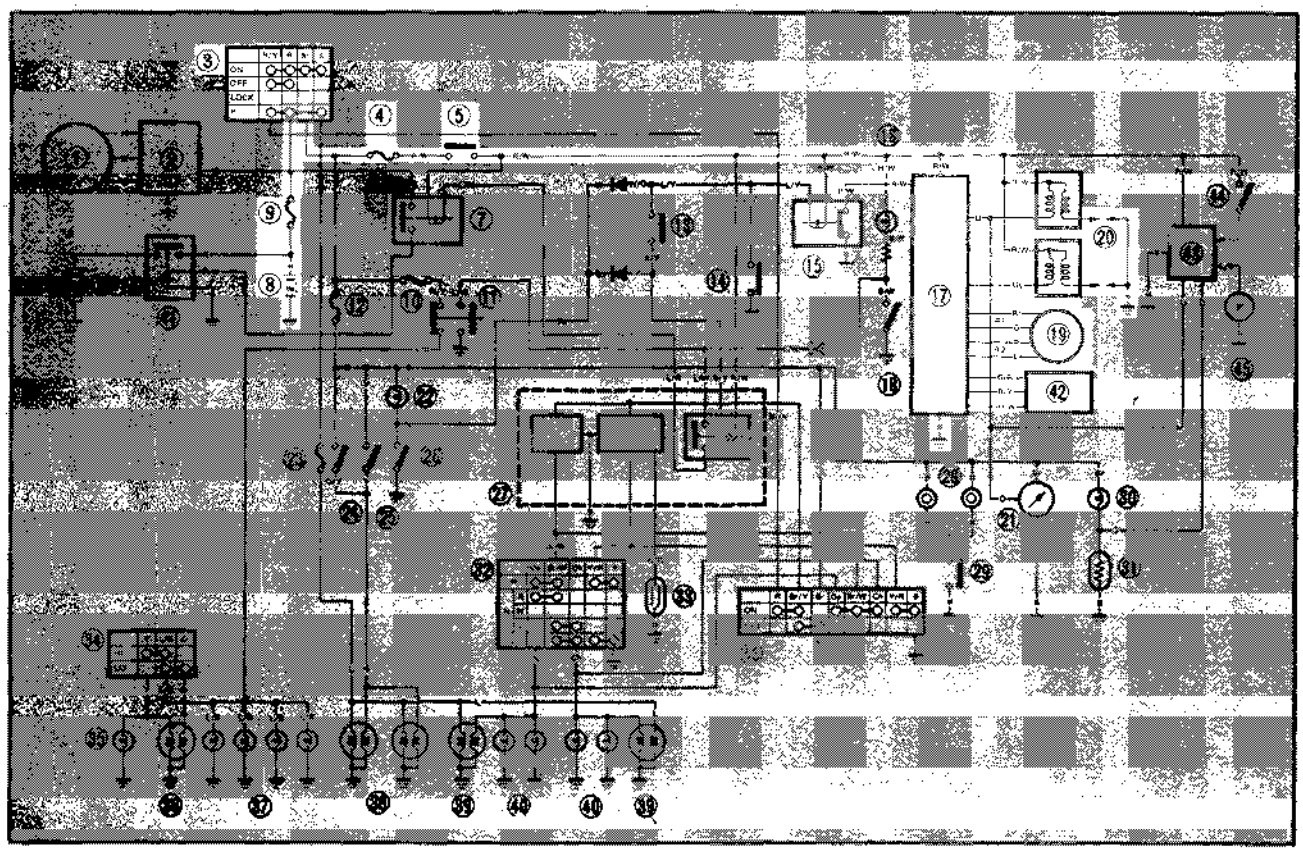
# IGNITION SYSTEM

## Circuit Diagram

### XV700L/LC



### XV1000L/LC

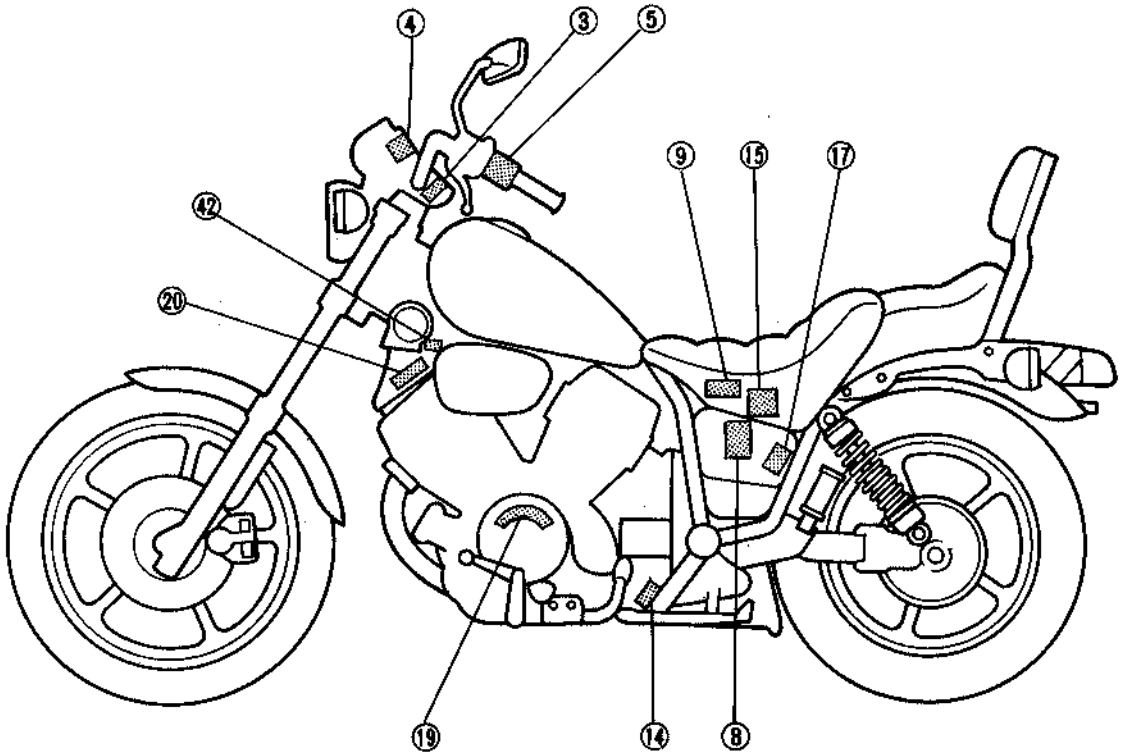


Above circuit diagrams show ignition circuit in wiring diagram.

1. AC Magneto
2. Rectifier/Regulator
3. **Main switch**
4. **Ignition fuse**
5. **Engine stop switch**
6. Starter motor
7. Starter relay
8. **Battery**
9. **Main fuse**
10. Head fuse
11. Starter switch
12. Signal fuse
13. Clutch switch
14. Sidestand switch
15. **Sidestand relay**
16. Oil level indicator light
17. **Ignitor unit**
18. Oil level switch
19. **Pick up coil**
20. **Ignition coil**
21. Tachometer
22. Neutral indicator light
23. Tail fuse
24. Front brake switch
25. Rear brake switch
26. Neutral switch
27. Relay assembly
28. Horn
29. Horn switch
30. Fuel warning indicator light
31. Fuel sender
32. Flasher switch
33. Reed switch
34. Dimmer switch
35. High beam indicator light
36. Headlight
37. Meter illumination light
38. Tail/Brake light
39. Flasher indicator light
40. Flasher light
41. Solenoid switch (XV1000)
42. **Pressure sensor (XV1000)**
43. Fuel pump controller (XV1000)
44. Reserve switch (XV1000)
45. Fuel pump (XV1000)
46. Hazard switch (XV1000)

**COLOR CODE**

| | |
|---|---|
| Gy | Gray |
| L | Blue |
| R | Red |
| G | Green |
| Br | Brown |
| B | Black |
| Ch | Chocolate |
| Y | Yellow |
| P | Pink |
| W | White |
| O | Orange |
| R/W | Red/White |
| L/R | Blue/Red |
| R/Y | Red/Yellow |
| Br/W | Brown/White |
| W/G | White/Green |
| Y/R | Yellow/Red |
| L/W | Blue/White |
| B/R | Black/Red |
| L/B | Blue/Black |
| Y/G | Yellow/Green |
| W/Y | White/Yellow |

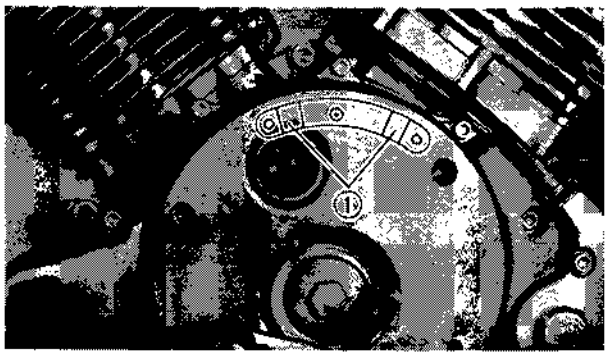


## DESCRIPTION

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

## OPERATION

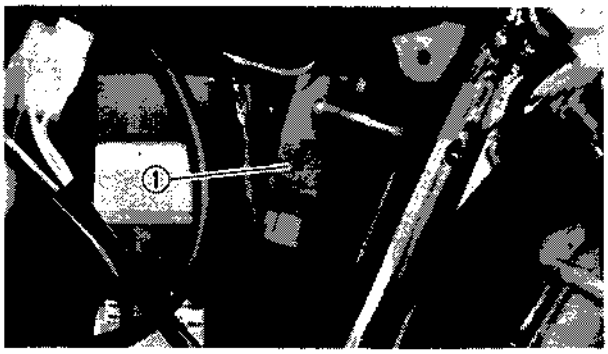
The TCI functions on the same principle as a conventional DC ignition system with the exception of using magnetic pickup coils and a transistor control box (TCI) in place of contact breaker points.



### Pickup Unit

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

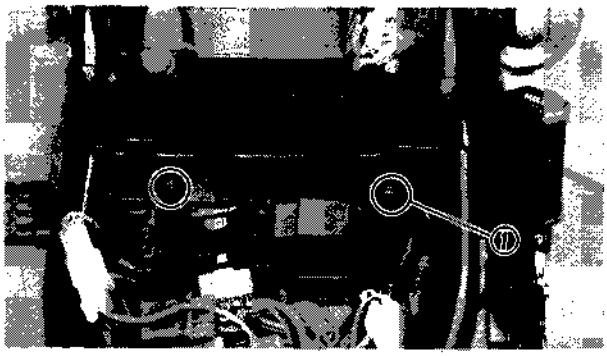
① Pickup coil




**Ignitor Unit**

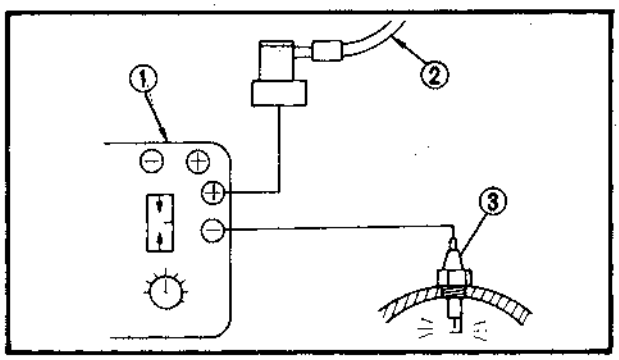
This unit controls wave form, duty control, switching, electronic ignition advance, etc. The duty control circuit reduces electrical consumption by controlling the duration of the primary ignition current.

The ignitor unit ① also has a protective circuit for the ignition coil. If the ignition switch is on and the crankshaft is not turning, the protective circuit interrupts the current flow to the primary coil after a few seconds. When the crankshaft is turning, however, the ignitor unit sends current to the primary coil.




**(XV1000)**

1. Remove:
   - Seat
   - Left side cover
   - Sub fuel tank
   - Right side cover
   - Ignitor unit securing screws ①
   - Ignitor unit




**TROUBLESHOOTING**

1. Start engine and warm-up awhile, then trun it off.
2. Connect:
   - Electro Tester ① (YU-03021)

② Spark plug wire
③ Spark plug

3. Start engine and increase spark gap until misfire occurs (Test at various rpm between idle and red line).

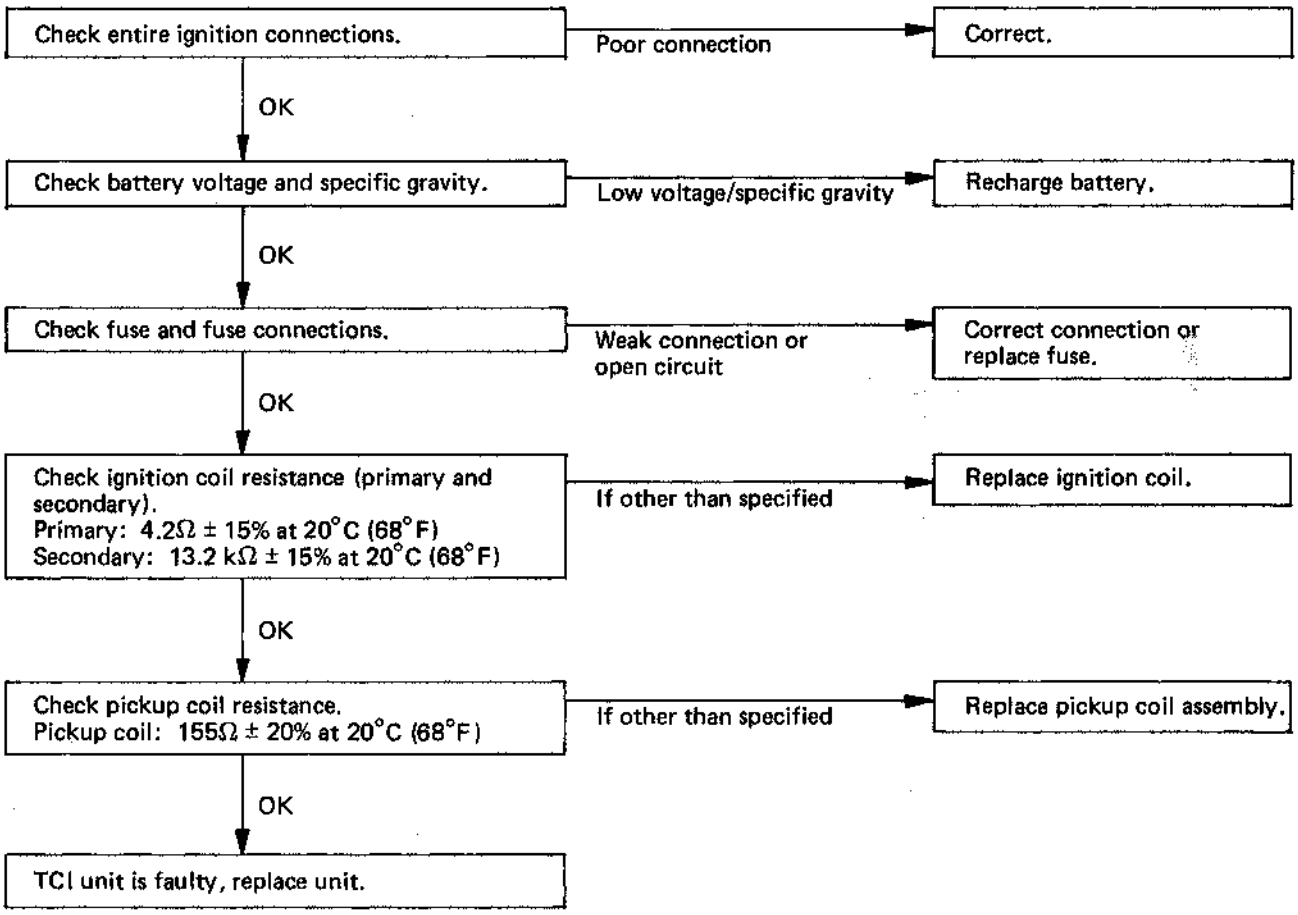
**CAUTION:**

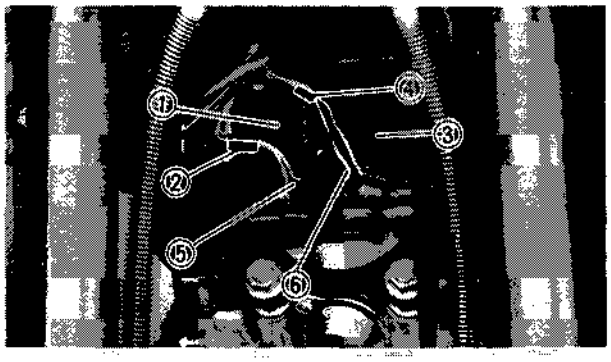
**Do not run the engine in neutral above 6,000 rpm for more than 1 or 2 seconds.**

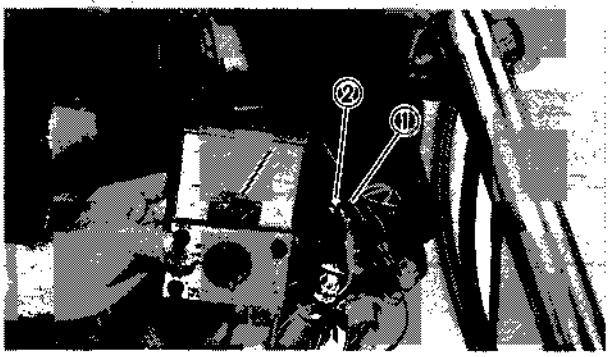
| Minimum Spark Gap: |
| --- |
| 6 mm (0.24 in) |

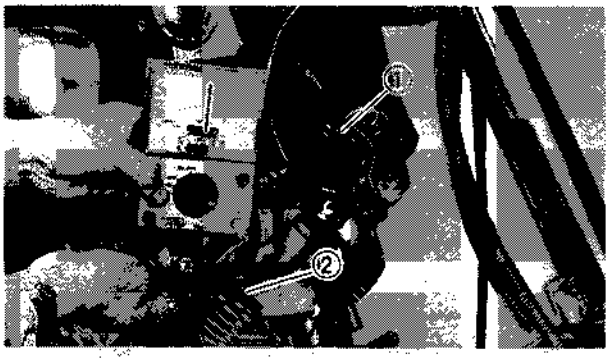
4. If ignition system becomes inoperative or engine misfires see the troubleshooting chart below:

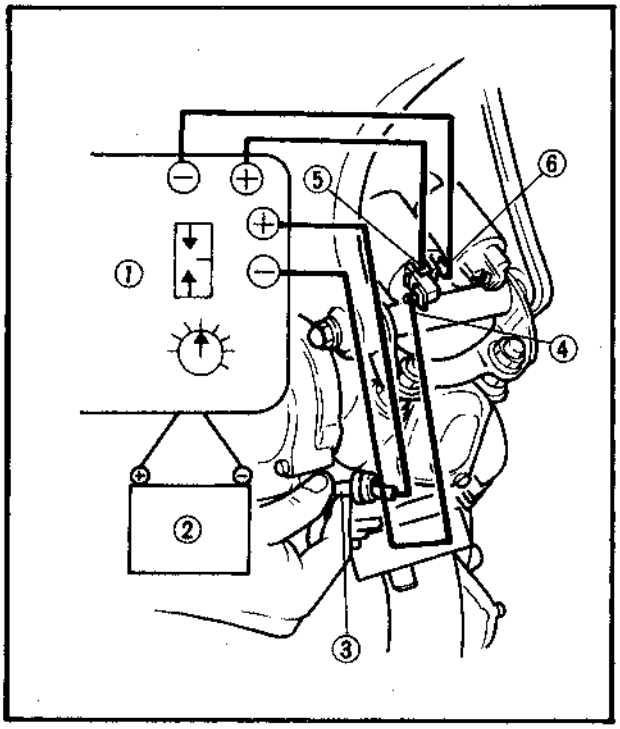
**Troubleshooting Chart**











## IGNITION COIL

1. Remove:
   - Ignition coil cover
2. Disconnect:
   - Ignition coil lead

① No. 1 (Rear) cylinder ignition coil
② Black color tape
③ No. 2 (Front) cylinder ignition coil
④ Red color tape
⑤ Orange color lead
⑥ Grey color lead

3. Measure:
   - Primary coil resistance
     Out of specification → Replace.

**Primary Coil Resistance:**
**O ① — R/W ② lead connector**
**Gy — R/W lead connector**
**4.2Ω ± 15% at 20°C (68°F)**

4. Measure:
   - Secondary coil resistance
     Out of specification → Replace.

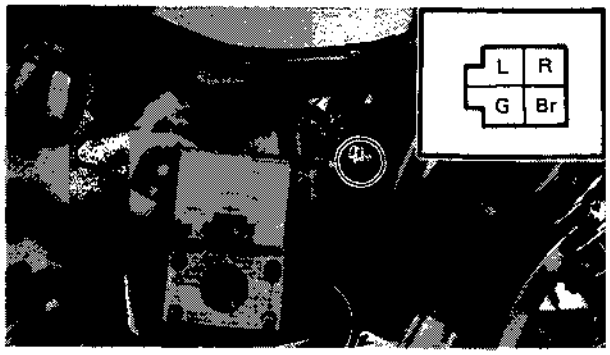
**Secondary Coil Resistance:**
**R/W lead connector ①—**
**No. 1 cylinder high tension cord ②**
**13.2 kΩ ± 15% at 20°C (68°F)**

5. Connect:
   - Electro tester ①
   - Fully charged battery ②
     (to ignition coil leads)

③ No. 1 (Rear) cylinder high tension cord
④ Ground
⑤ R/W lead connector
⑥ O lead connector

6. Measure:
   - Ignition coil minimum spark gap
     Turn the spark gap adjuster and increase the gap to the maximum limit unless misfire occurs first.
     Out of specification → Replace.

**Minimum Spark Gap:**
**6 mm (0.24 in)**




## PICKUP COIL

1. Remove:
   - Seat
   - Left side cover
   - Luggage box
2. Disconnect:
   - Pickup coil wires (from TCI unit wires)
3. Measure:
   - Pickup coil resistance
     Use pocket tester.
     Out of specification → Replace pickup coil.

**Pickup Coil Resistance:**
**No. 1 (Rear) Cylinder (Br – G):**
**No. 2 (Front) Cylinder (R – L):**
**155Ω**

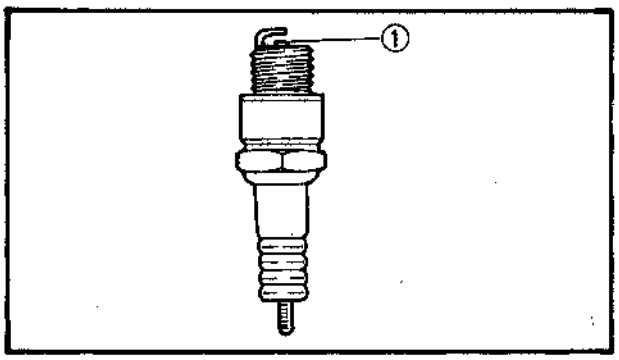
## SPARK PLUG

1. Check:
   - Condition
     Burned/Fouled → Replace.
   - Electrode gap
     Out of specification → Clean off carbon and regap.

**NOTE:**
Clean and inspect spark plugs every 3,000 km (2,000 mi).

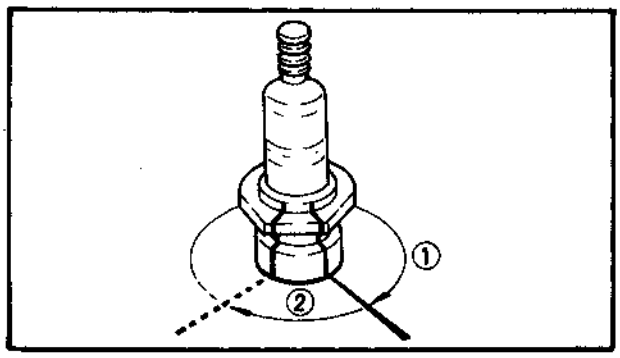
**CAUTION:**
**Be sure to use plugs of:**
- Proper type

**BP7ES (NGK)**
**W22EP-U (NIPPONDENSO)**




- Proper gap

**Electrode Gap ①:**
**0.7 ~ 0.8 mm (0.028 ~ 0.031 in)**



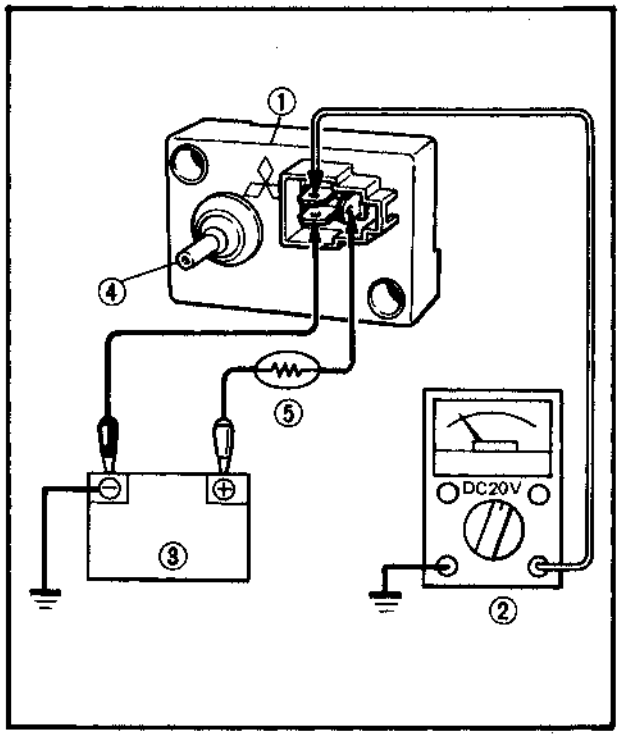

2. Install:
   - Spark plug

| | |
|---|---|
| | 20 Nm (2.0 m·kg, 14 ft·lb) |

① Finger tighten
② Plug wrench tighten

**PRESSURE SENSOR (XV1000)**

This pressure sensor unit consists of a semi-conductor strain gauge and an amplifying circuit. Pressure to the carb manifold (venturi portion) is sensed by the strain gauge and amplified in the circuit connected with this gauge. The amplified pressure signals are then transmitted to the ignition system for the control of ignition timing advance.




**Inspection**

1. Remove:
   - Ignition coil cover
   - Pressure sensor ①
2. Connect:
   - Pocket tester ②
   - Battery (8V) ③
3. Measure:
   - Pressure sensor voltage output.
     Out of specification → Replace.

**NOTE:**

Be sure that the pressure intake tube ④ is free of abstructions when measuring voltage output.

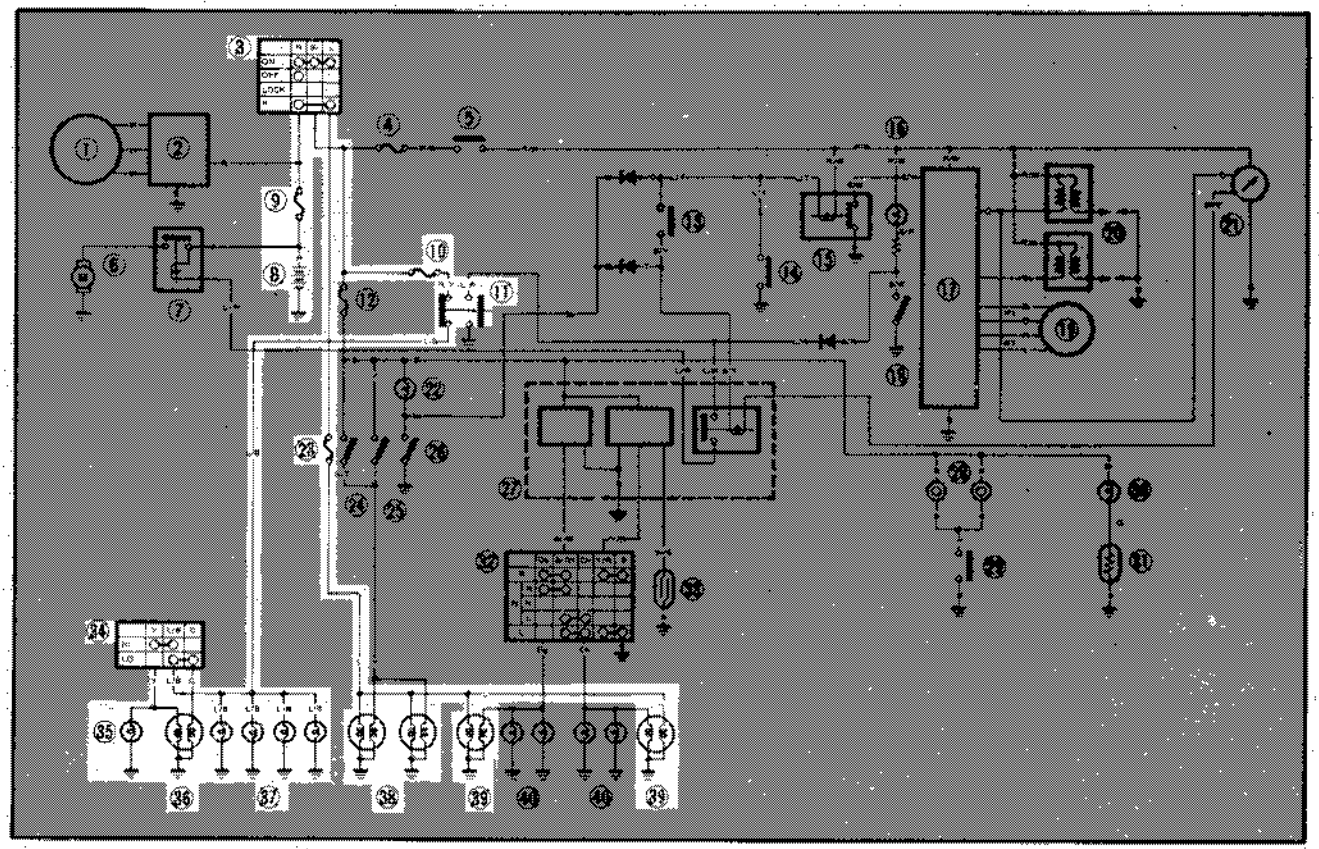
| | |
|---|---|
| | **Output Voltage:**<br>**3.00 ± 0.05V** |

⑤ 180Ω

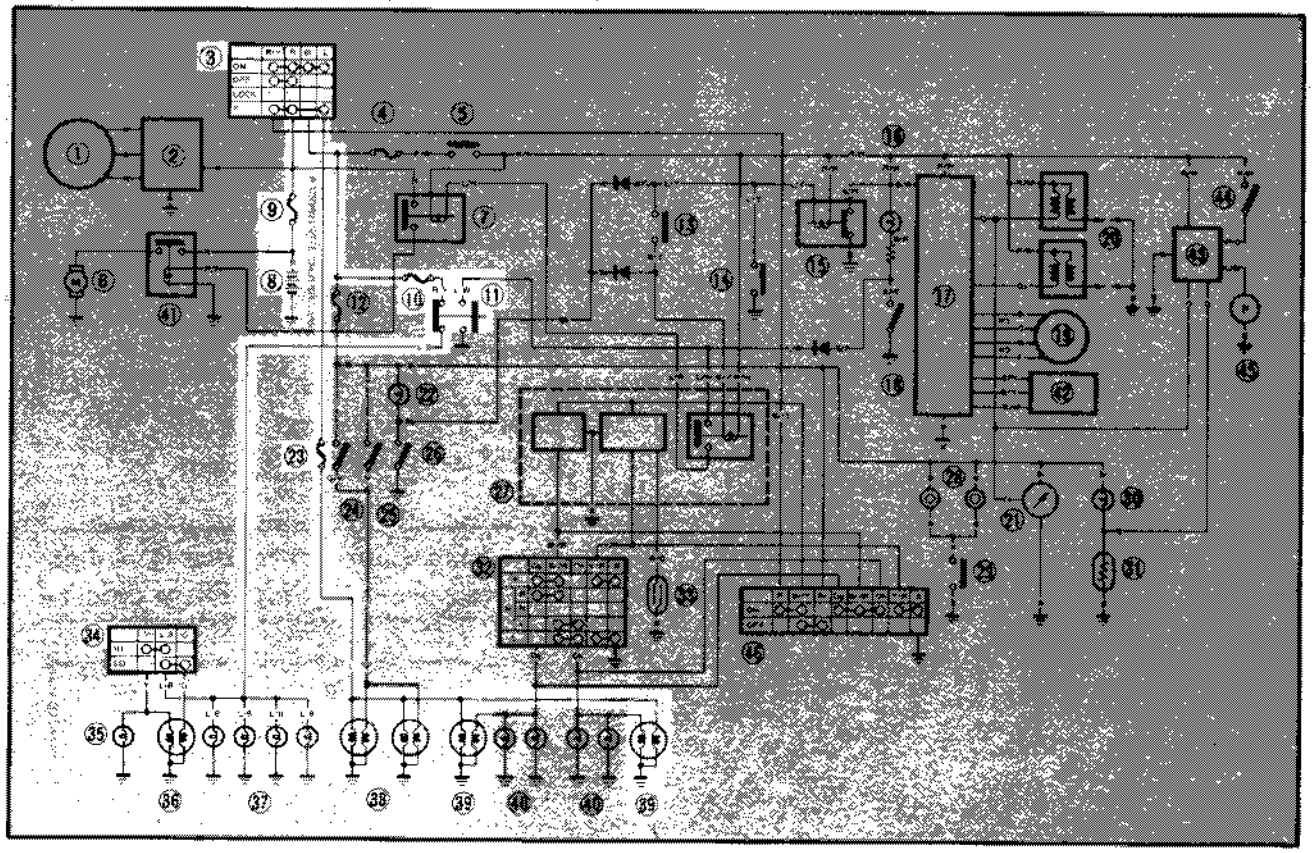
# LIGHTING SYSTEM

## Circuit Diagram

### XV700L/LC



### XV1000L/LC

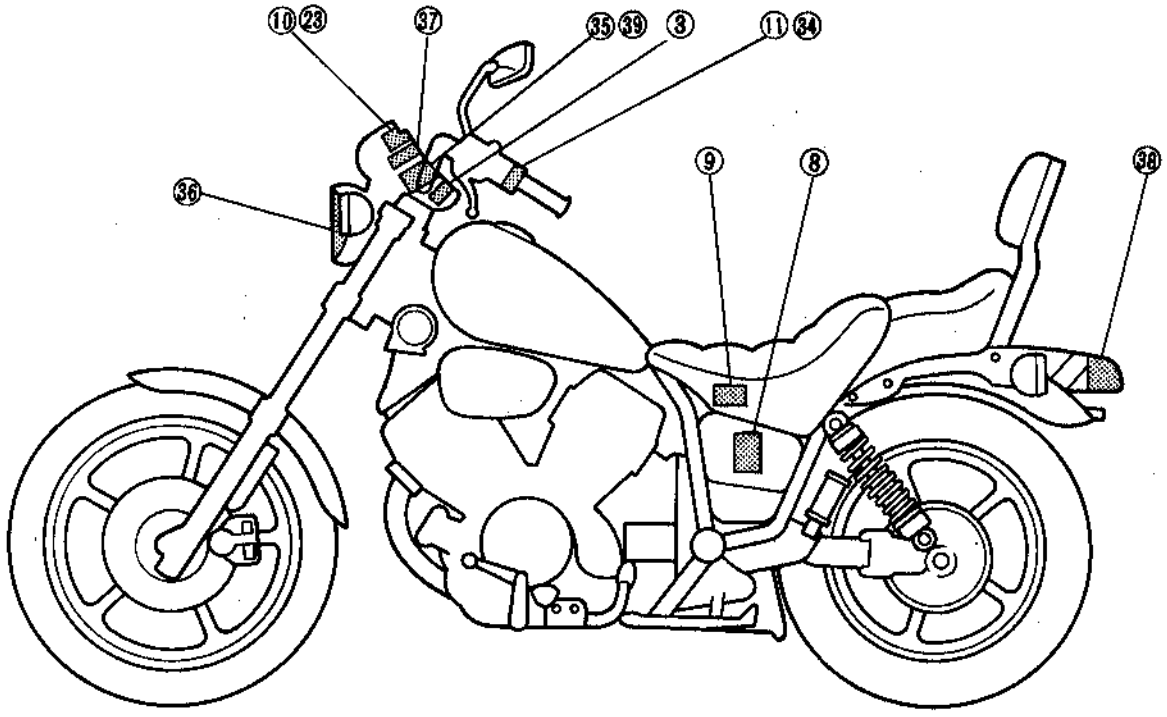


Above circuit diagrams show lighting circuit in wiring diagram.

1. AC Magneto
2. Rectifier/Regulator
3. **Main switch**
4. Ignition fuse
5. Engine stop switch
6. Starter motor
7. Starter relay
8. **Battery**
9. **Main fuse**
10. **Head fuse**
11. **Starter switch**
12. Signal fuse
13. Clutch switch
14. Sidestand switch
15. Sidestand relay
16. Oil level indicator light
17. Ignitor unit
18. Oil level switch
19. Pick up coil
20. Ignition coil
21. Tachometer
22. Neutral indicator light
23. **Tail fuse**
24. Front brake switch
25. Rear brake switch
26. Neutral switch
27. Relay assembly
28. Horn
29. Horn switch
30. Fuel warning indicator light
31. Fuel sender
32. Flasher switch
33. Reed switch
34. **Dimmer switch**
35. **High beam indicator light**
36. **Headlight**
37. **Meter illumination light**
38. **Tail/Brake light**
39. **Flasher indicator light**
40. Flasher light
41. Solenoid switch (XV1000)
42. Pressure sensor (XV1000)
43. Fuel pump controller (XV1000)
44. Reserve switch (XV1000)
45. Fuel pump (XV1000)
46. Hazard switch (XV1000)

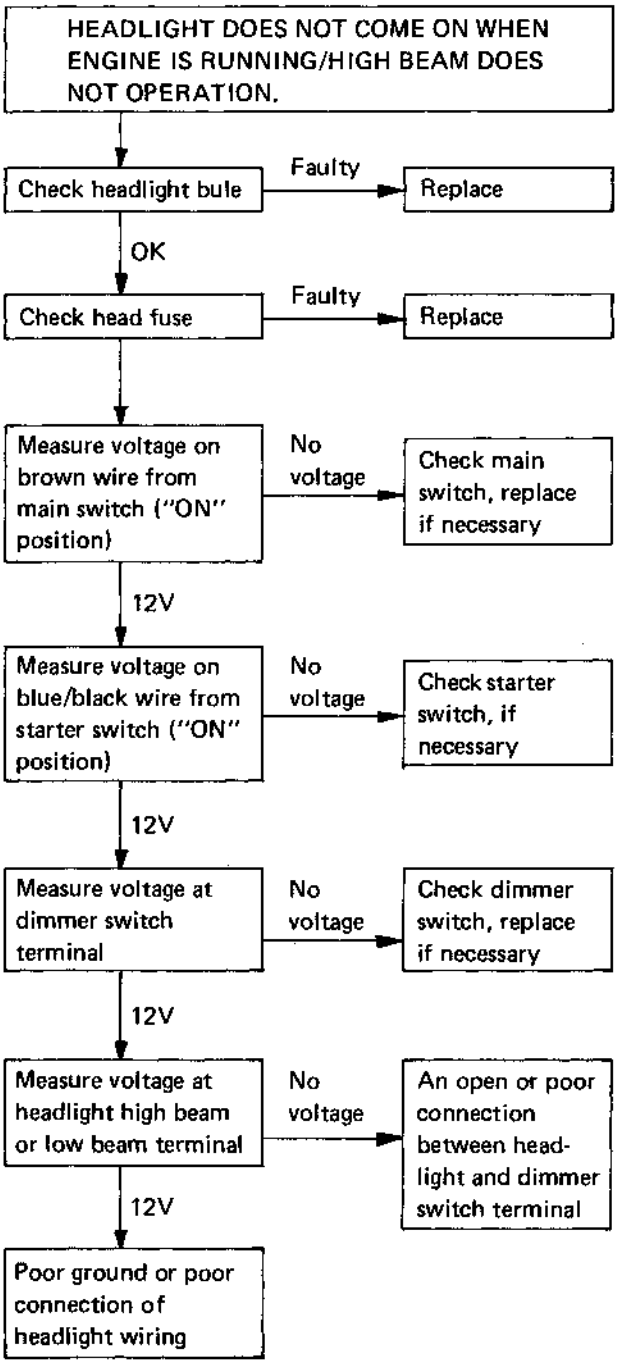
**COLOR CODE**

| | |
|---|---|
| Gy | Gray |
| L | Blue |
| R | Red |
| G | Green |
| Br | Brown |
| B | Black |
| Ch | Chocolate |
| Y | Yellow |
| P | Pink |
| W | White |
| O | Orange |
| R/W | Red/White |
| L/R | Blue/Red |
| R/Y | Red/Yellow |
| Br/W | Brown/White |
| W/G | White/Green |
| Y/R | Yellow/Red |
| L/W | Blue/White |
| B/R | Black/Red |
| L/B | Blue/Black |
| Y/G | Yellow/Green |
| W/Y | White/Yellow |

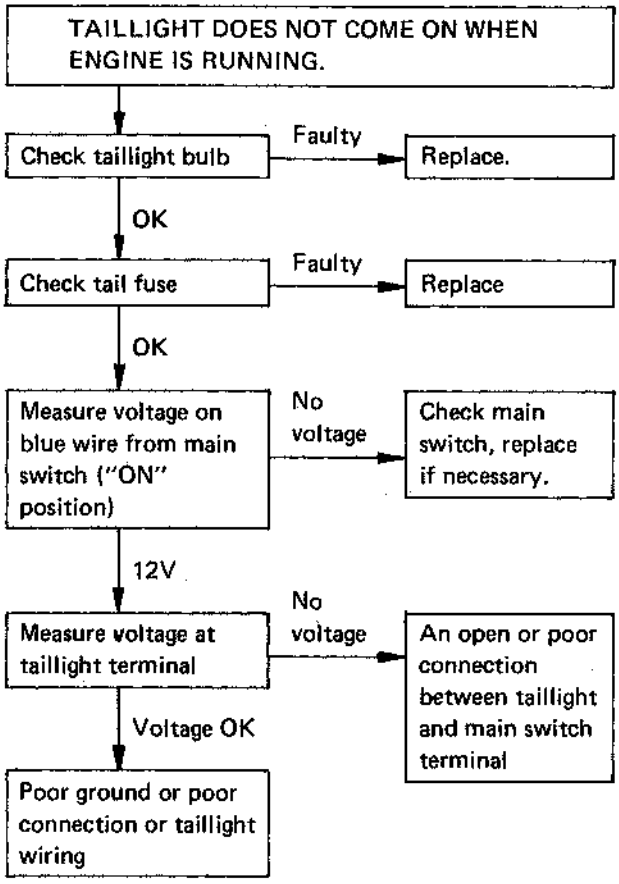


## TESTS AND CHECKS

### Headlight Troubleshooting



### Taillight Troubleshooting



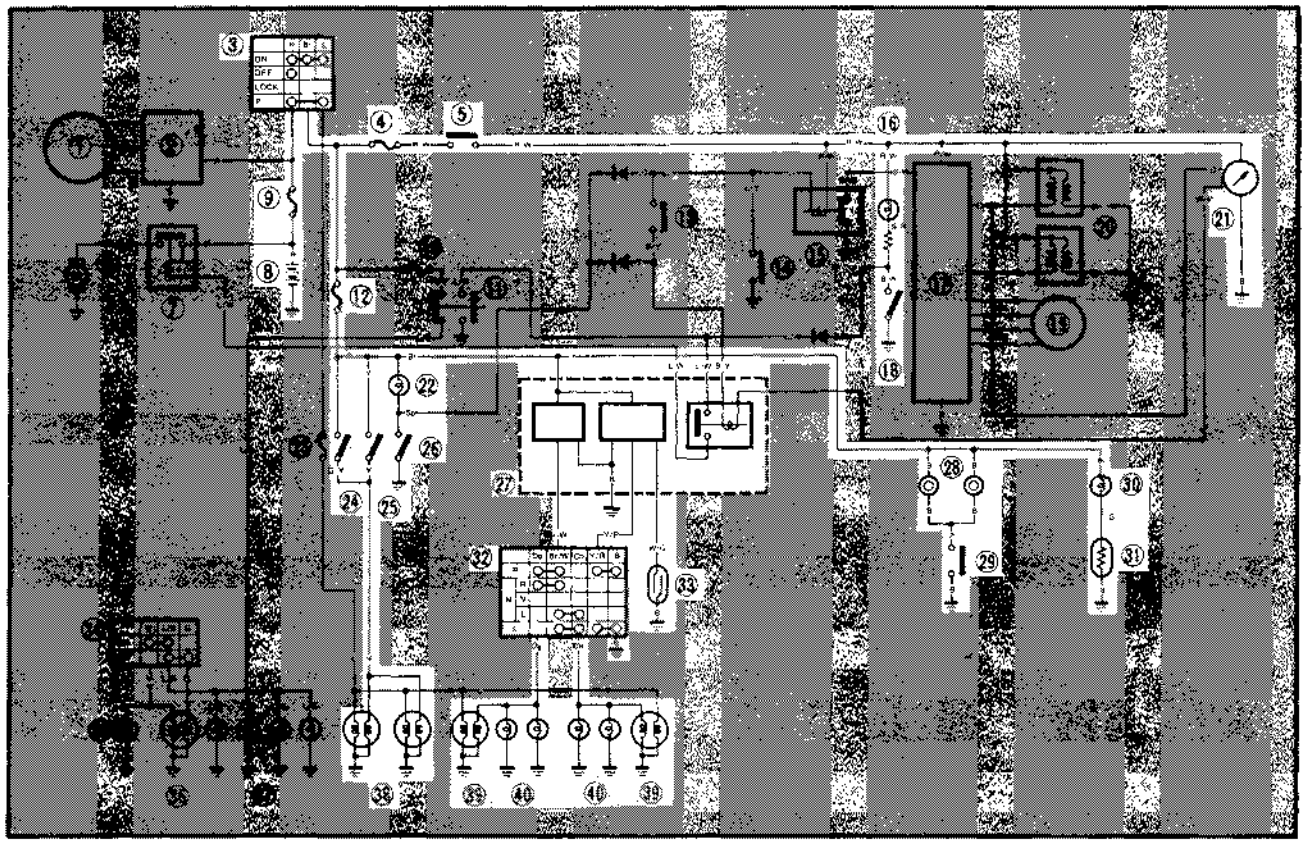

### Meter Light and High Beam Indicator Light

1. Check:
   - Bulb
     Faulty → Replace.
   - Headlight fuse
     Faulty → Replace.

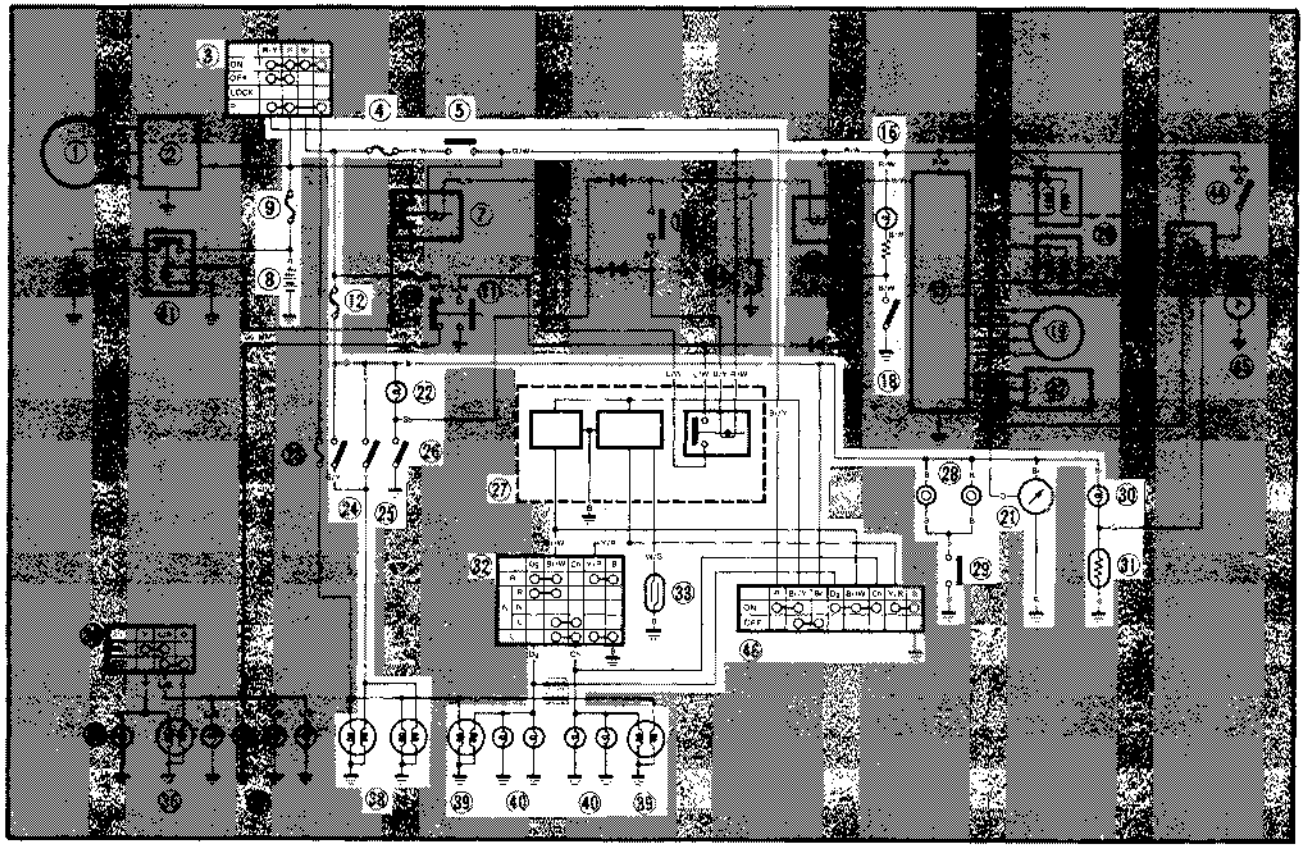
# SIGNAL SYSTEM

## Circuit Diagram

### XV700L/LC



### XV1000L/LC

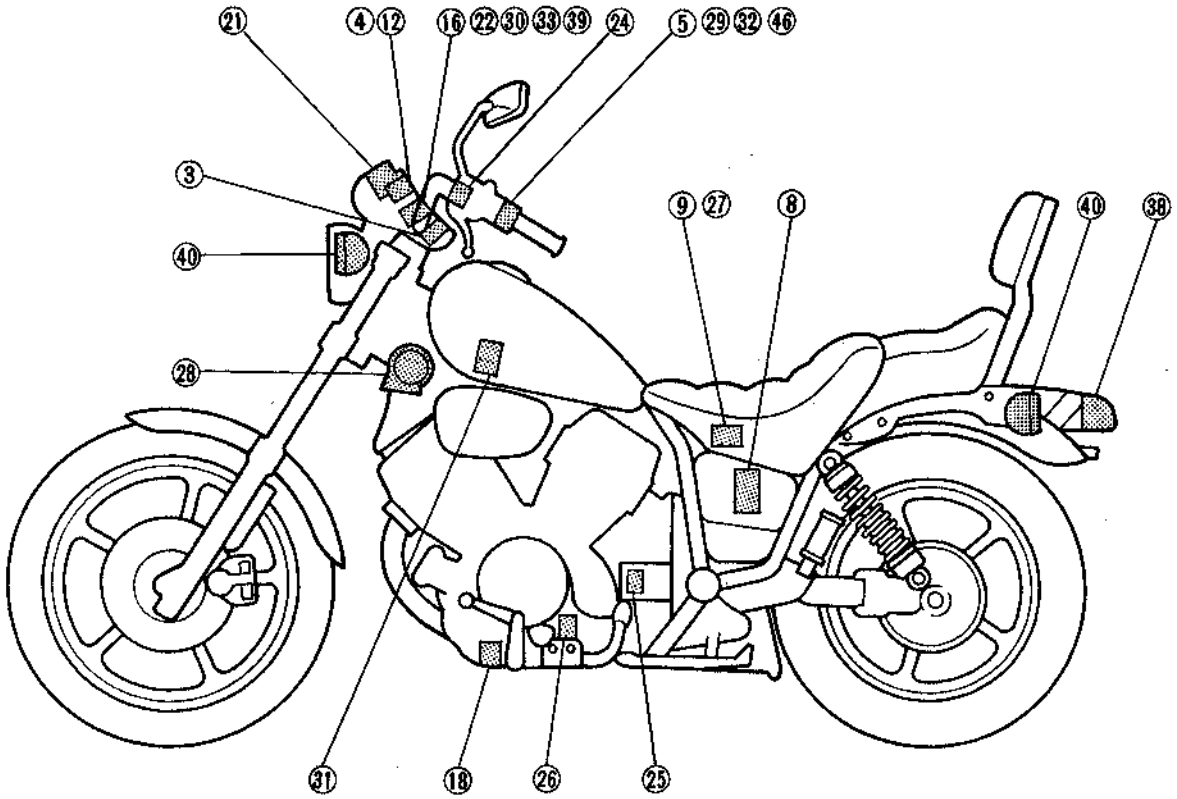


Above circuit diagrams show signal circuit in wiring diagram.

1. AC Magneto
2. Rectifier/Regulator
3. **Main switch**
4. **Ignition fuse**
5. **Engine stop switch**
6. Starter motor
7. Starter relay
8. **Battery**
9. **Main fuse**
10. Head fuse
11. Starter switch
12. **Signal fuse**
13. Clutch switch
14. Sidestand switch
15. Sidestand relay
16. **Oil level indicator light**
17. Ignitor unit
18. **Oil level switch**
19. Pick up coil
20. Ignition coil
21. **Tachometer**
22. **Neutral indicator light**
23. Tail fuse
24. **Front brake switch**
25. **Rear brake switch**
26. **Neutral switch**
27. **Relay assembly**
28. **Horn**
29. **Horn switch**
30. **Fuel warning indicator light**
31. **Fuel sender**
32. **Flasher switch**
33. **Reed switch**
34. Dimmer switch
35. High beam indicator light
36. Headlight
37. Meter illumination light
38. **Tail/Brake light**
39. **Flasher indicator light**
40. **Flasher light**
41. Solenoid switch (XV1000)
42. Pressure sensor (XV1000)
43. Fuel pump controller (XV1000)
44. Reserve switch (XV1000)
45. Fuel pump (XV1000)
46. **Hazard switch (XV1000)**

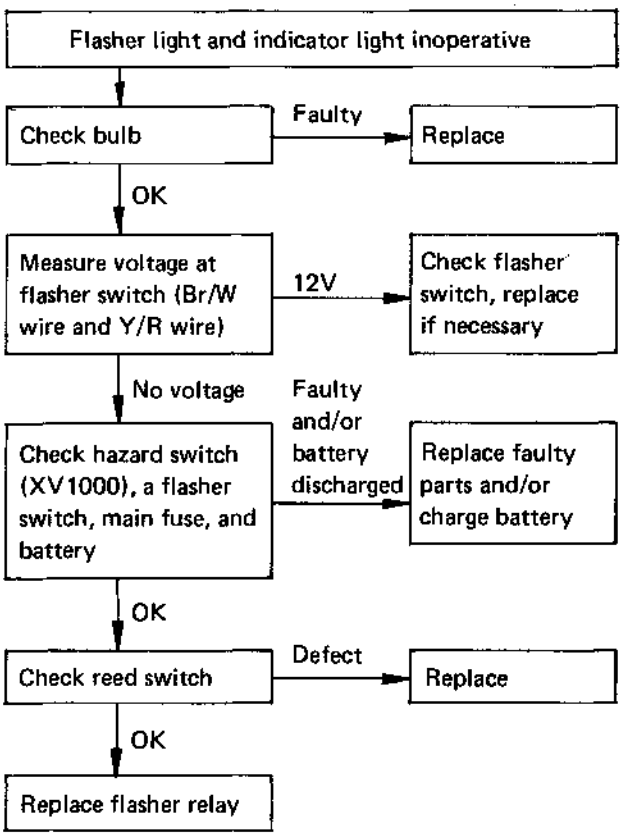
COLOR CODE

| | |
|---|---|
| Gy | Gray |
| L | Blue |
| R | Red |
| G | Green |
| Br | Brown |
| B | Black |
| Ch | Chocolate |
| Y | Yellow |
| P | Pink |
| W | White |
| O | Orange |
| R/W | Red/White |
| L/R | Blue/Red |
| R/Y | Red/Yellow |
| Br/W | Brown/White |
| W/G | White/Green |
| Y/R | Yellow/Red |
| L/W | Blue/White |
| B/R | Black/Red |
| L/B | Blue/Black |
| Y/G | Yellow/Green |
| W/Y | White/Yellow |



## FLASHER LIGHT

### Troubleshooting




### FLASHER RELAY (Relay Assembly)

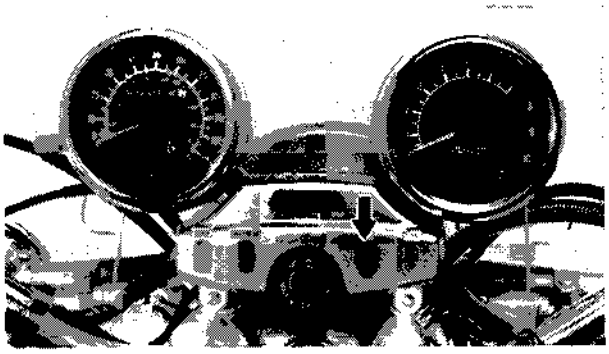
The flasher relay turns off the flashers. Generally the signal will cancel after either 10 seconds of operation or after the motorcycle has traveled 150 meters (490 feet), whichever is greater. At low speed, the cancelling is a function of distance; at high speeds, it's a function of both time and distance.

The flasher switch has three positions: L (left), OFF, and R (right). The switch lever will return to the "OFF" position after being pushed to L or R, but the signal will function. By pushing the lever in, the signal may be cancelled manually.

### REED SWITCH

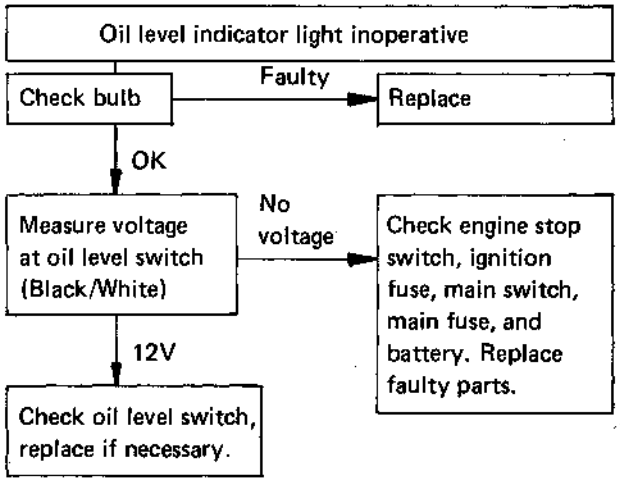
1. Remove:
   - Seat
2. Disconnect:
   - Relay assembly coupler
3. Connect:
   - Pocket tester
   - Reed switch lead
4. Lift the front wheel and rotate the wheel by hand.
5. Measure:
   - Reed switch resistance
     Out of specification → Replace.

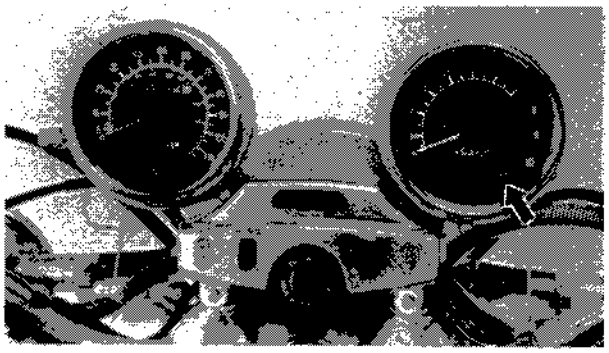
**Reed Switch Resistance:**
**About 7Ω**
**Then return back 0Ω or ∞Ω**
**when wheel is stopped**



### OIL LEVEL INDICATOR LIGHT

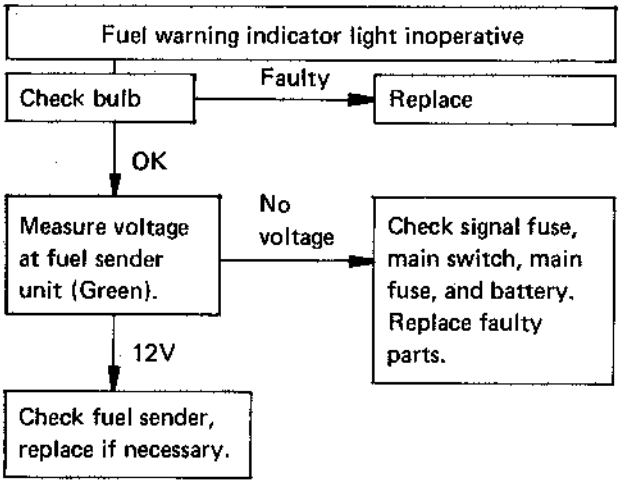
1. Troubleshooting





## FUEL WARNING INDICATOR LIGHT

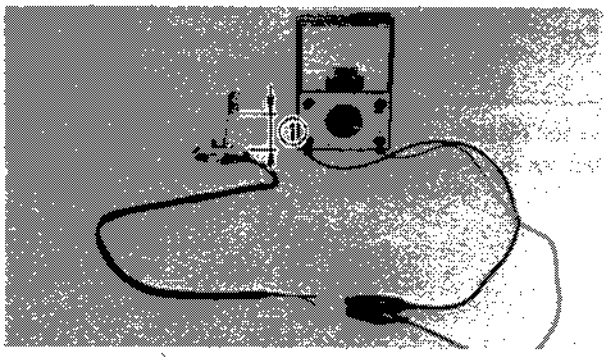
1. Troubleshooting

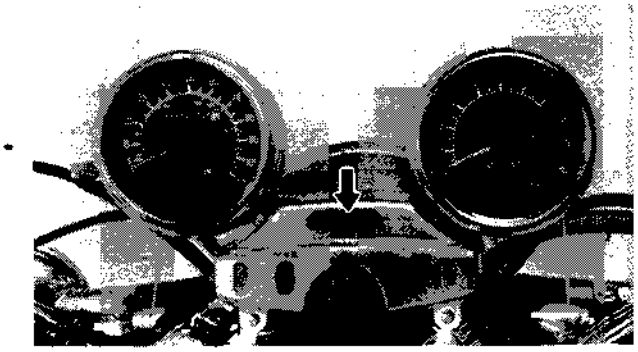



## FUEL SENDER UNIT

1. Remove:
   - Seat
   - Fuel tank
   - Fuel sender unit
2. Measure:
   - Fuel sender unit resistance.
     Out of specification → Replace.

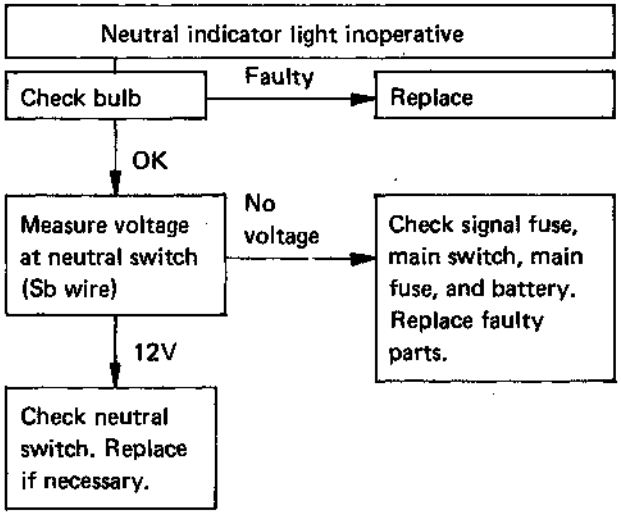
**Fuel Sender Unit Resistance:**
**1.1 ± 0.2 kΩ at 20°C (68°F)**
**Fuel Sender Unit Height ①**
**XV700: 42 mm (1.65 in)**
**XV1000: 22 mm (0.86 in)**





## NEUTRAL INDICATOR LIGHT

1. Troubleshooting




## HORN

| | |
|---|---|
| Check for: | Horn inoperative |
| | 12V on brown wire to horn |
| | Good ground (horn/pink wire) when horn button is pressed |
| | Faulty fuse |

Defective components → Replace.

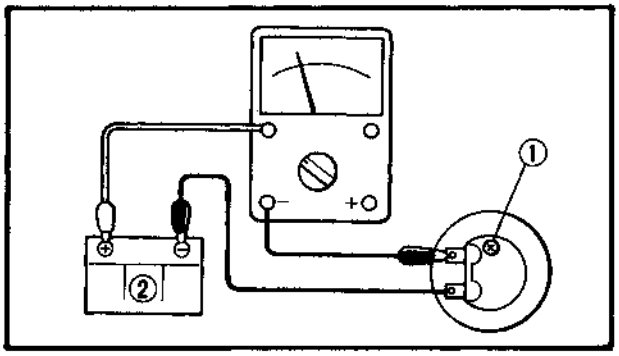
**NOTE:**

There are individual fuses for various circuits (See Complete Circuit Diagram)

2. Mesure:
   - Horn resistance

   Out of specification → Replace.

| Tester's lead wire | | Standard resistance | Tester's range |
|---|---|---|---|
| Red lead | Black lead | | |
| Brown lead | Pink lead | 1.05Ω ± 10% | R x 1 |




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

② Battery (12V)

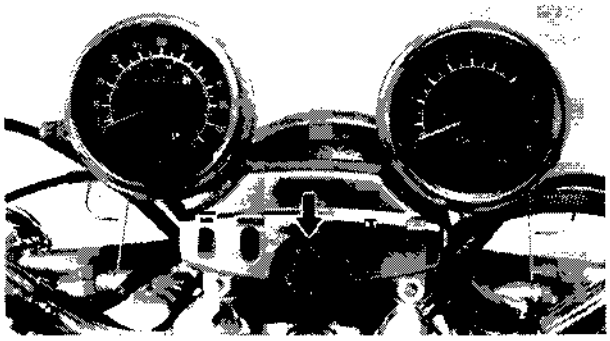
| Tester's lead wire | | Maximum Amperage | Tester's range |
|---|---|---|---|
| Red lead | Black lead | | |
| Battery (+) lead | Horn lead and Battery (–) lead | 2.0A | DC 5A |

## BRAKE LIGHT

| | |
|---|---|
| Check for: | Brake light inoperative |
| | Defective bulb |
| | 12V on yellow wire to brake light |
| | 12V on brown wire to each brake light switch (Front and rear brake switch) |

## SWITCHES

Use Pocket Tester (YU-03112) on "Ohm x 1" scale to check the switches.
Replace any "shorted" or opened element.



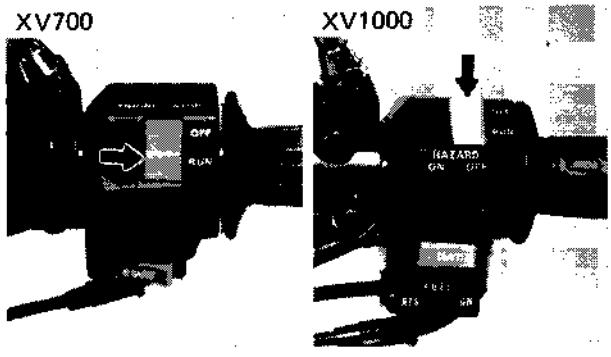
### Main Switch (XV700)

| Switch position | Wire color | | |
|---|---|---|---|
| | R | Br | L |
| ON | ○ | ○ | ○ |
| OFF | ○ | | |
| P | ○ | | ○ |

### (XV1000)

| Switch position | Wire color | | | |
|---|---|---|---|---|
| | R/Y | R | Br | L |
| ON | ○ | ○ | ○ | ○ |
| OFF | ○ | ○ | | |
| P | ○ | ○ | | ○ |

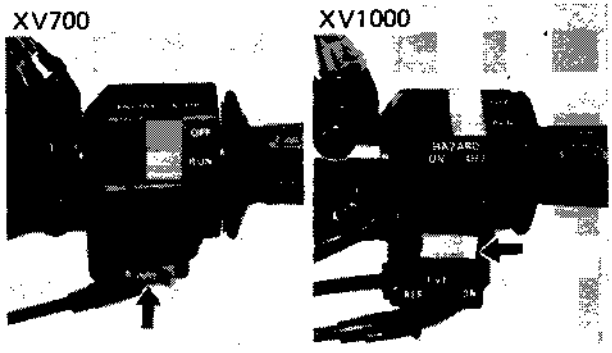
XV700 XV1000



### Engine Stop Switch

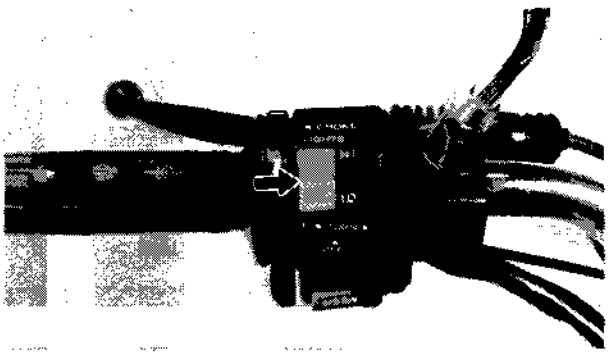
| Switch position | Wire color | |
|---|---|---|
| | R/W | R/W |
| RUN | ○ | ○ |
| OFF | | |

XV700 XV1000



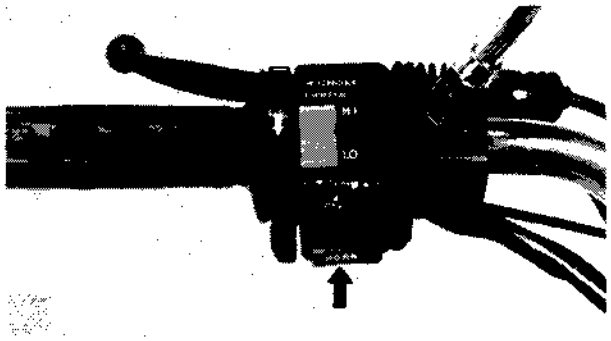
### Starter Switch

| Switch position | Wire color | | | |
|---|---|---|---|---|
| | L/W | B | R/Y | L/B |
| OFF | | | ○ | ○ |
| ON | ○ | ○ | | |



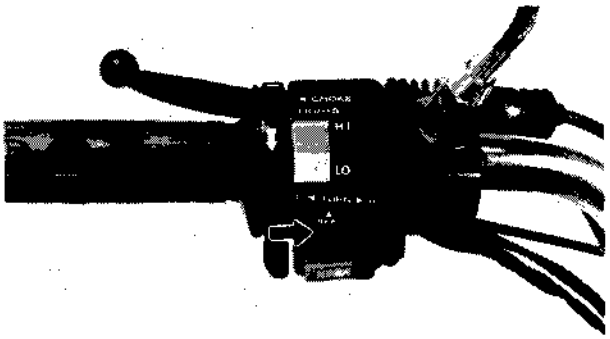
### Headlight (dimmer) Switch

| Switch position | Wire color | | |
|---|---|---|---|
| | Y | L/B | G |
| HI | ○—— | ——○ | |
| LO | | ○—— | ——○ |



### Horn Switch

| Button position | Wire color | |
|---|---|---|
| | P | Ground or B |
| PUSH | ○—— | ——○ |
| OFF | | |



### Flasher Switch

| Switch position | | Wire color | | | | |
|---|---|---|---|---|---|---|
| | | Dg | Br/W | Ch | Y/R | B |
| R | | ○—— | ——○ | | ○—— | ——○ |
| N | R | ○—— | ——○ | | | |
| | N | | | | | |
| | L | | ○—— | ——○ | | |
| L | | | ○—— | ——○ | ○—— | ——○ |

### Oil Level Switch

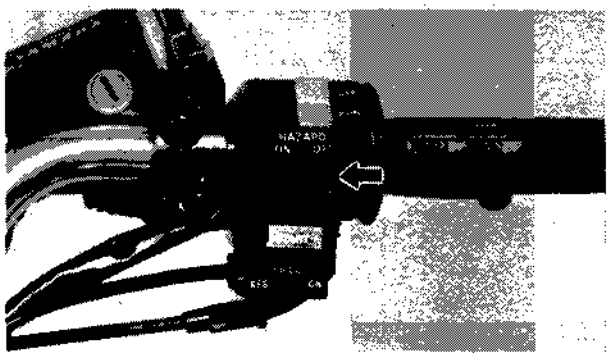
| Switch position | Wire color | |
|---|---|---|
| | B/W | Ground |
| ON | ○—— | ——○ |
| OFF | | |

### Front Brake Switch

| Switch position | Wire color | |
|---|---|---|
| | Br | G/Y |
| ON | ○—— | ——○ |
| OFF | | |

### Rear Brake Switch

| Switch position | Wire color | |
|---|---|---|
| | Y | Y |
| ON | ○——— | ———○ |
| OFF | | |

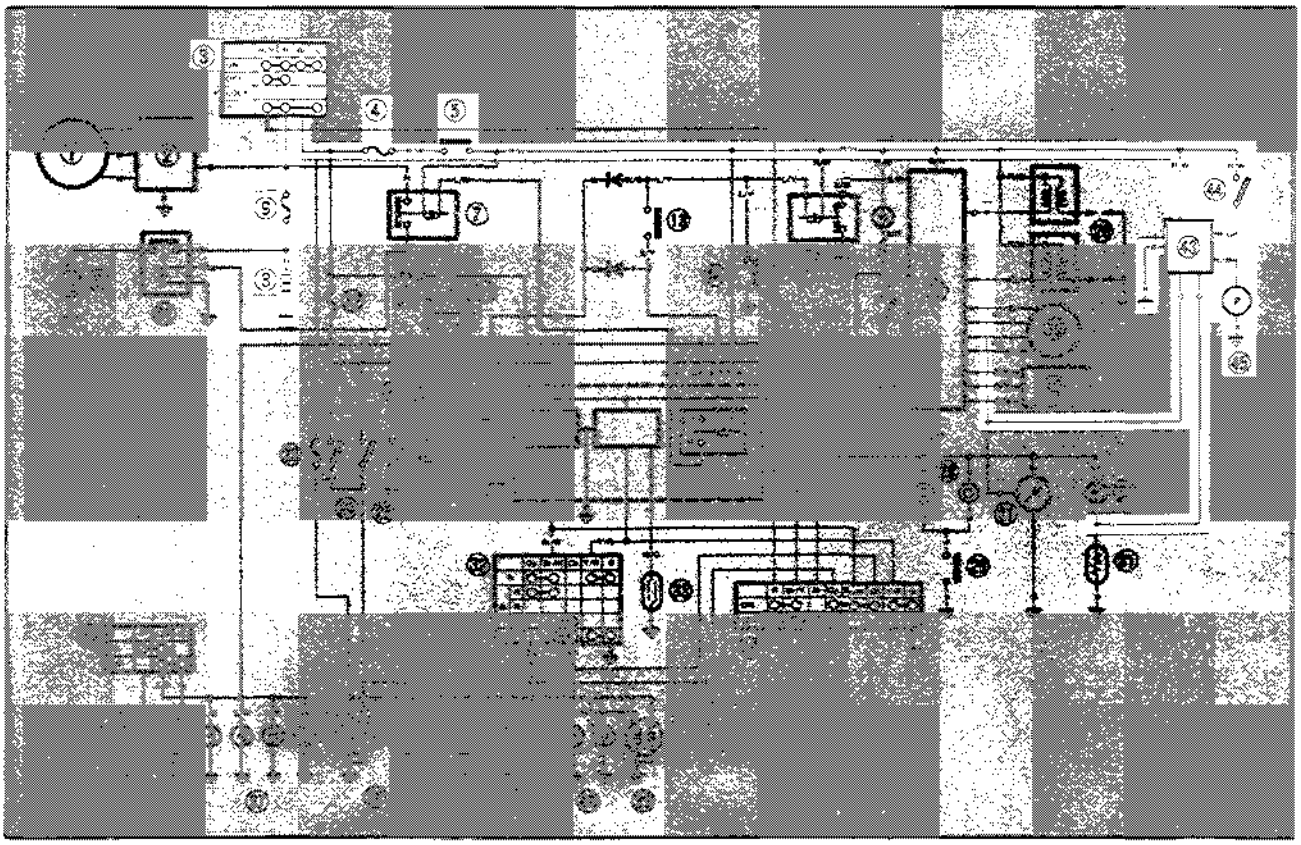


### Hazard Switch (XV1000)

| Switch position | Wire color | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | R | Br/Y | Br | Dg | Br/W | Ch | Y/R | B |
| ON | ○— | —○ | | ○— | —○— | —○ | ○— | —○ |
| OFF | | ○— | —○ | | | | | |

# FUEL PUMP SYSTEM

## Circuit Diagram
### XV1000L/LC

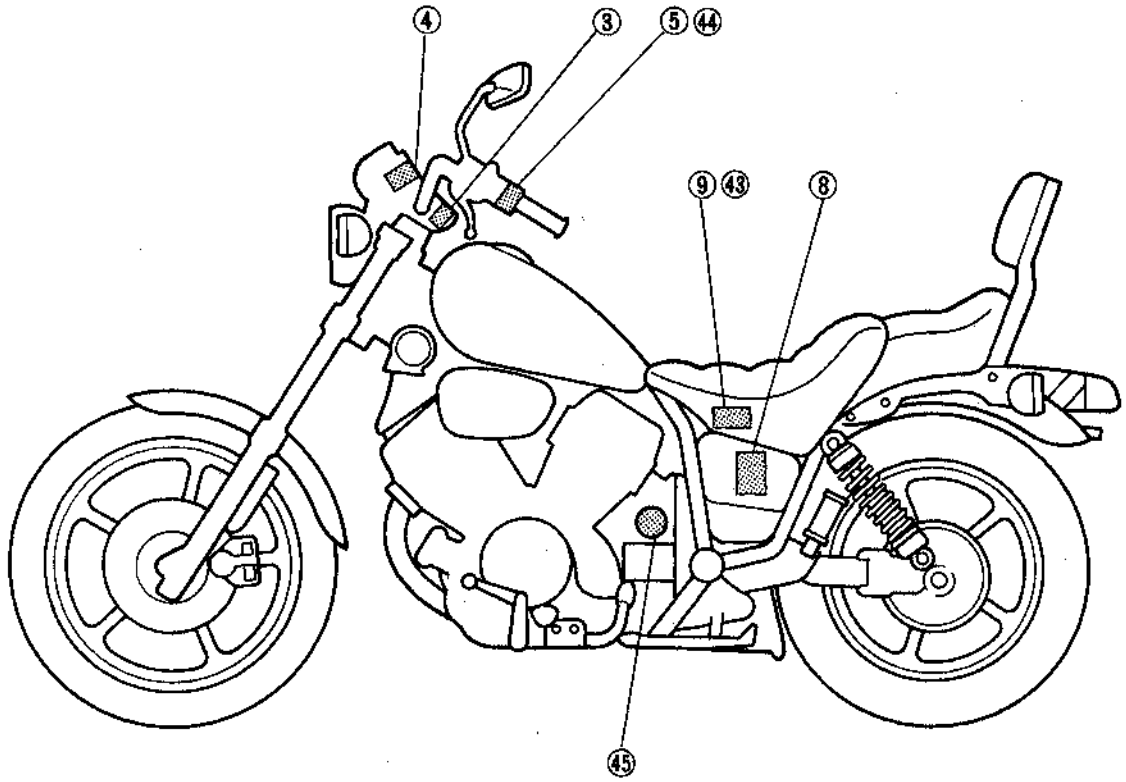


Above circuit diagram shows fuel pump circuit in wiring diagram.

1. AC Magneto
2. Rectifier/Regulator
3. **Main switch**
4. **Ignition fuse**
5. **Engine stop switch**
6. Starter motor
7. Starter relay
8. **Battery**
9. **Main fuse**
10. Head fuse
11. Starter switch
12. Signal fuse
13. Clutch switch
14. Sidestand switch
15. Sidestand relay
16. Oil level indicator light
17. Ignitor unit
18. Oil level switch
19. Pick up coil
20. Ignition coil
21. Tachometer
22. Neutral indicator light
23. Tail fuse
24. Front brake switch
25. Rear brake switch
26. Neutral switch
27. Relay assembly
28. Horn
29. Horn switch
30. Fuel warning indicator light
31. Fuel sender
32. Flasher switch
33. Reed switch
34. Dimmer switch
35. High beam indicator light
36. Headlight
37. Meter illumination light
38. Tail/Brake light
39. Flasher indicator light
40. Flasher light
41. Solenoid switch (XV1000)
42. Pressure sensor (XV1000)
43. **Fuel pump controller (XV1000)**
44. **Reserve switch (XV1000)**
45. **Fuel pump (XV1000)**
46. Hazard switch (XV1000)

**COLOR CODE**

| | |
|---|---|
| Gy | Gray |
| L | Blue |
| R | Red |
| G | Green |
| Br | Brown |
| B | Black |
| Ch | Chocolate |
| Y | Yellow |
| P | Pink |
| W | White |
| O | Orange |
| R/W | Red/White |
| L/R | Blue/Red |
| R/Y | Red/Yellow |
| Br/W | Brown/White |
| W/G | White/Green |
| Y/R | Yellow/Red |
| L/W | Blue/White |
| B/R | Black/Red |
| L/B | Blue/Black |
| Y/G | Yellow/Green |
| W/Y | White/Yellow |

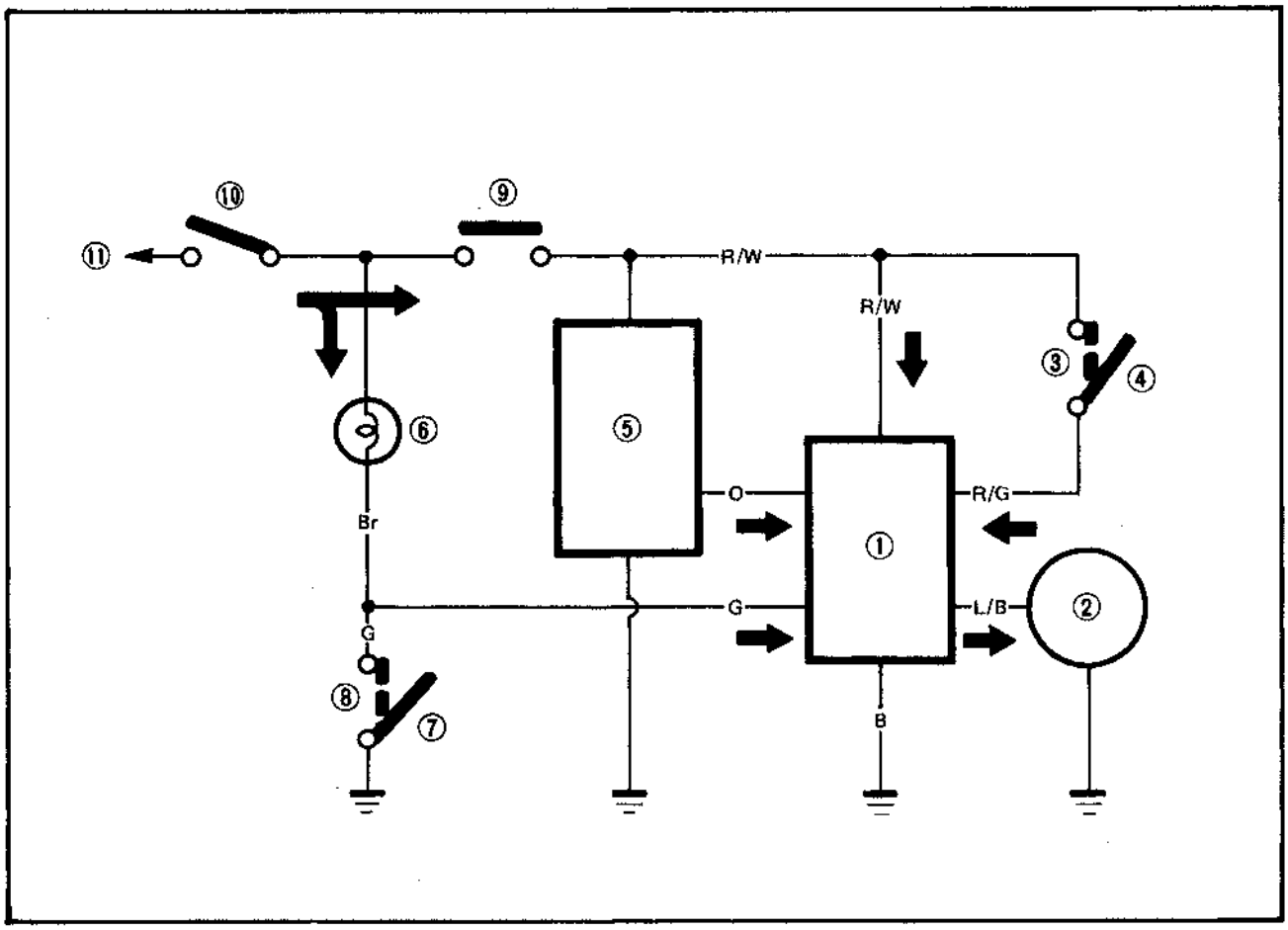


# FUEL PUMP SYSTEM

## FUEL PUMP CIRCUIT OPERATION

The fuel pump circuit consists of the fuel pump controller, fuel pump, and fuel reserve switch. The fuel pump starts and stops as indicated in the chart below.

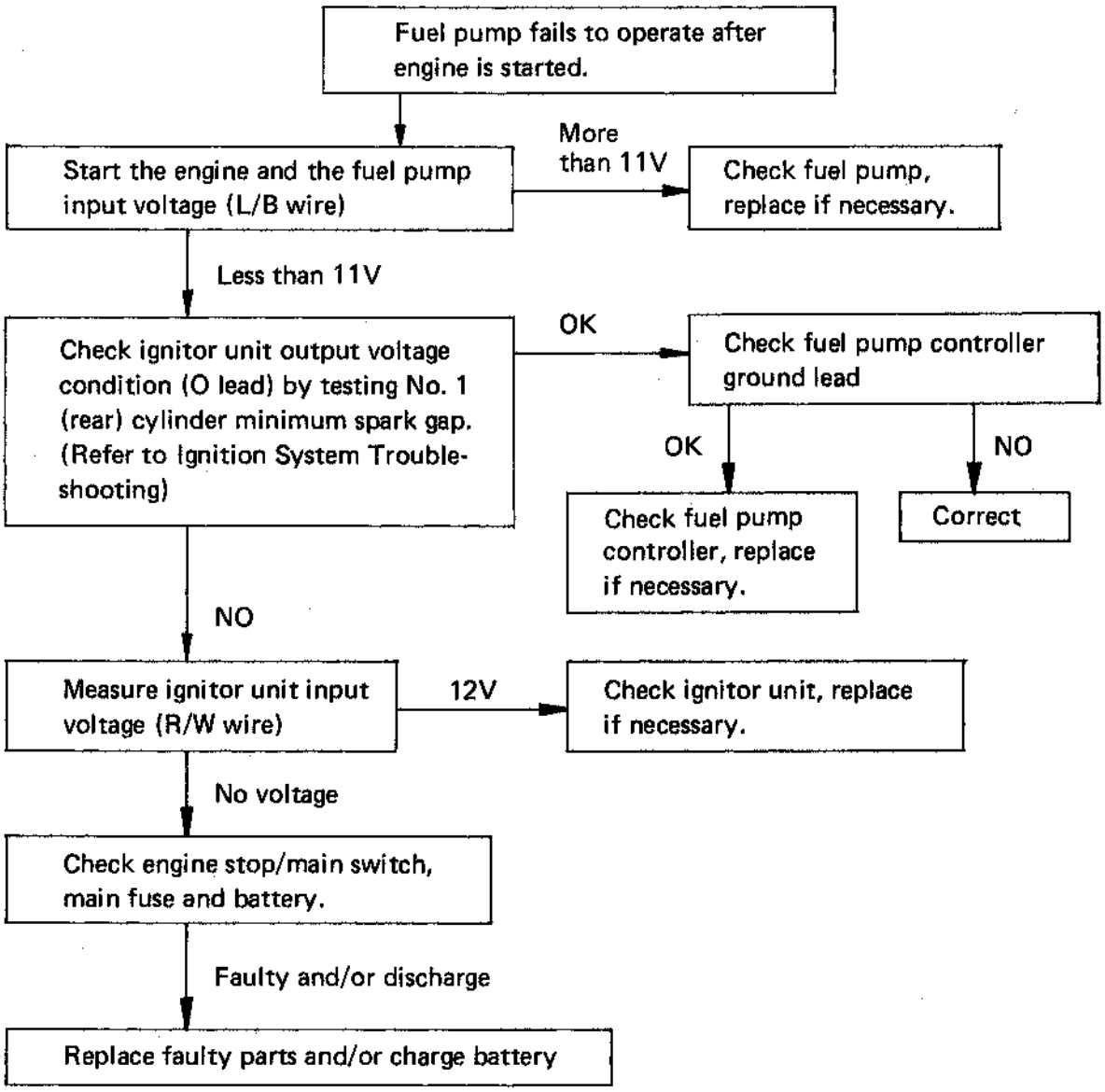
1. Fuel pump controller
2. Fuel pump
3. Fuel reserve switch in "RES" position
4. Fuel reserve switch in "ON" position
5. Ignitor unit
6. Fuel warning indicator light
7. Fuel sender in "FULL" position
8. Fuel sender in "EMPTY" position
9. Engine stop switch
10. Main switch
11. To main fuse and battery




| FUEL PUMP | | | |
|---|---|---|---|
| START | | STOP | |
| • Main/Engine stop switch turned to "ON"<br>• Fuel reserve switch turned to "RES" | • Engine turned on | • Fuel warning indicator light comes on | • Engine turned off |
| For about 5 seconds when carburetor fuel level is low | After about 0.1 second | After about 30 seconds | After about 5 seconds |

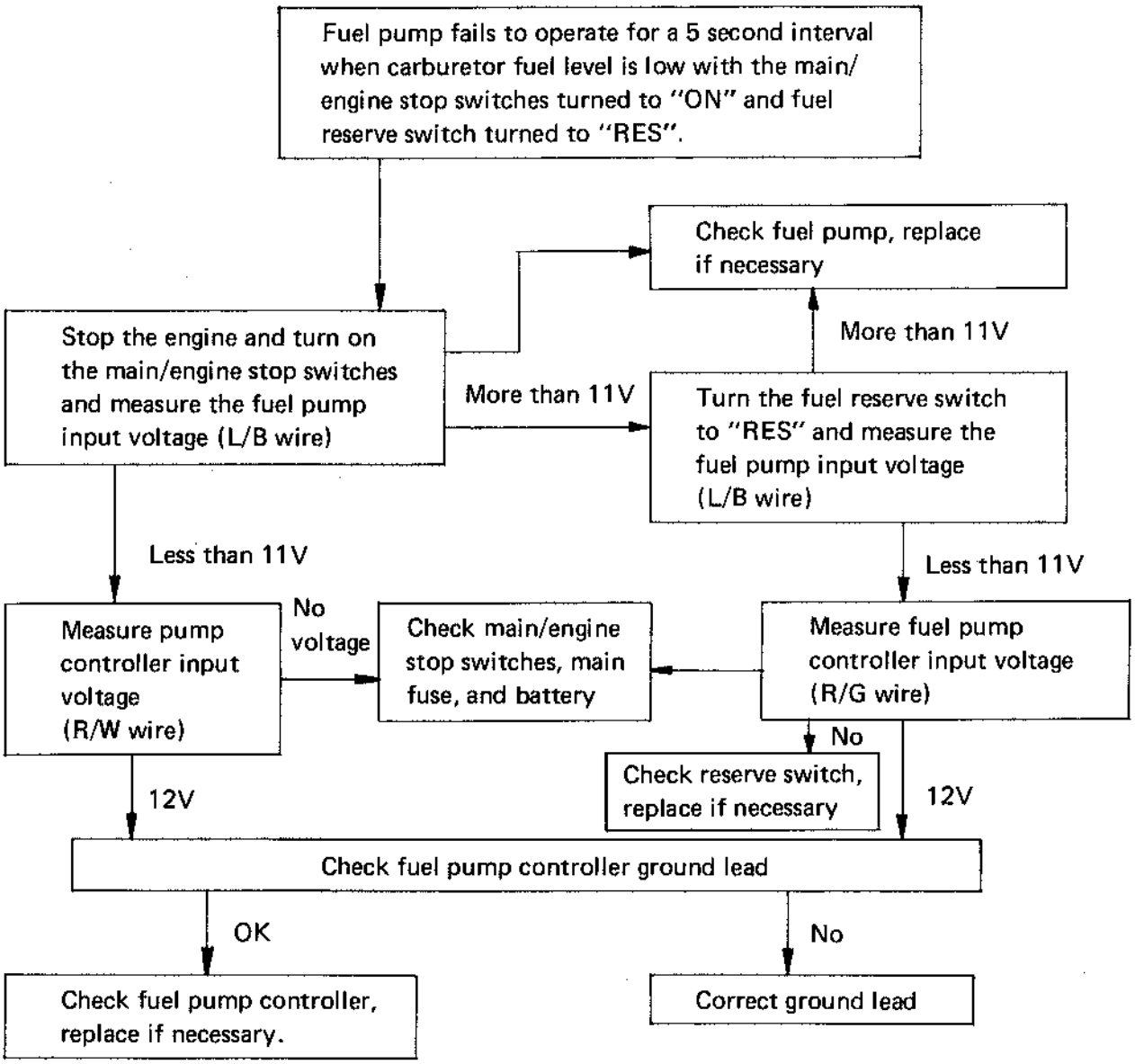
## TROUBLESHOOTING

1. O wire circuit



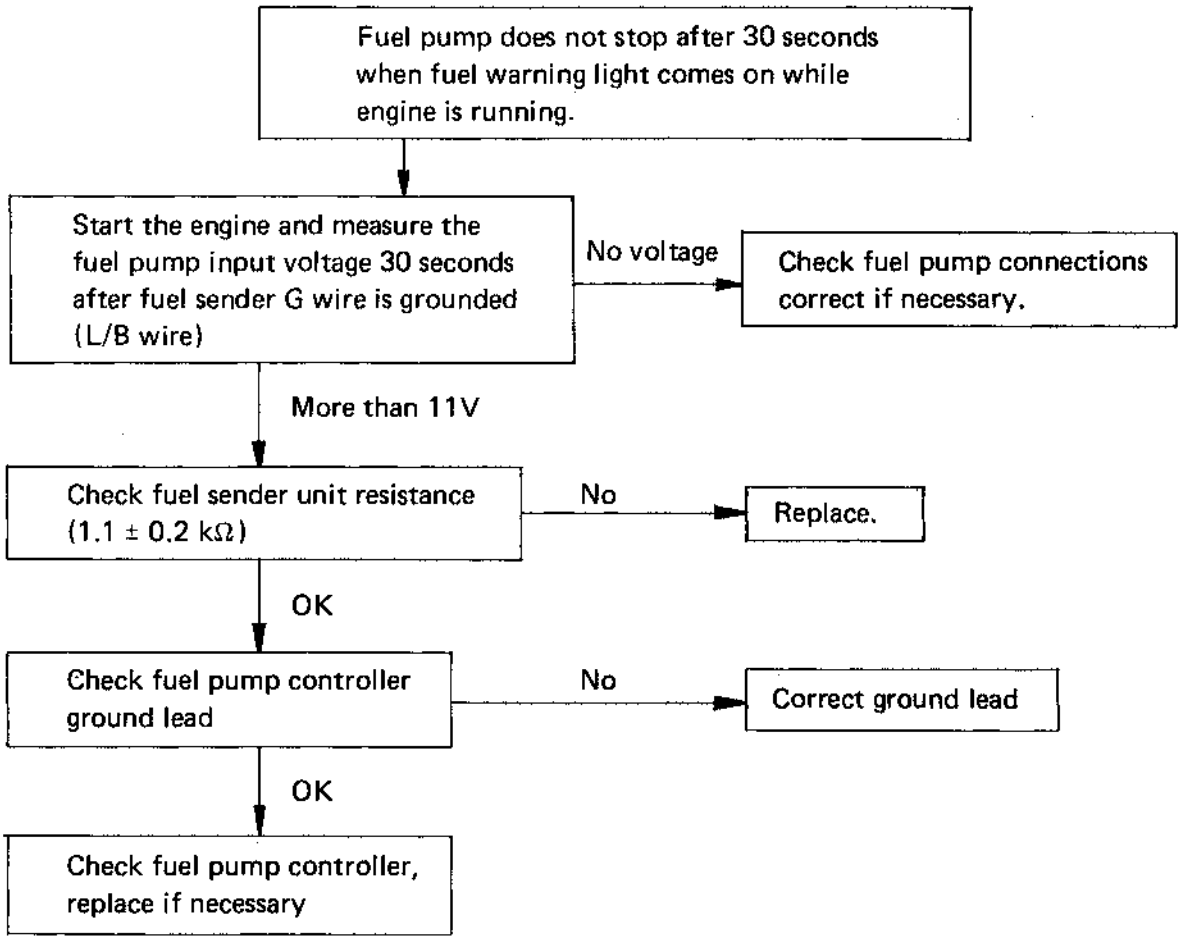

O . . . . . .Orange
R/W . . . . .Red/White
L/B. . . . . .Blue/Black

2. R/W and R/G wire circuit.




R/G . . . . .Red/Green
L/B. . . . . .Blue/Black
R/W . . . . .Red/White

3. G wire circuit




L/B. . . . . .Blue/Black



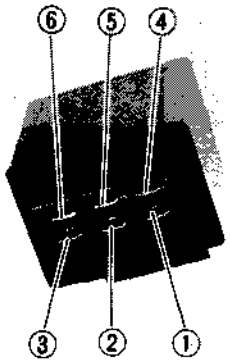

## FUEL RESERVE SWITCH

1. Remove:
   - Headlight unit
2. Measure:
   - Fuel reserve switch resistance
     Out of specification → Replace.

| Tester's lead wire | | Switch position | | Tester's range |
|---|---|---|---|---|
| Red lead | Black lead | RES | ON | |
| R/W | R/G | 0Ω | ∞ | R x 1 |

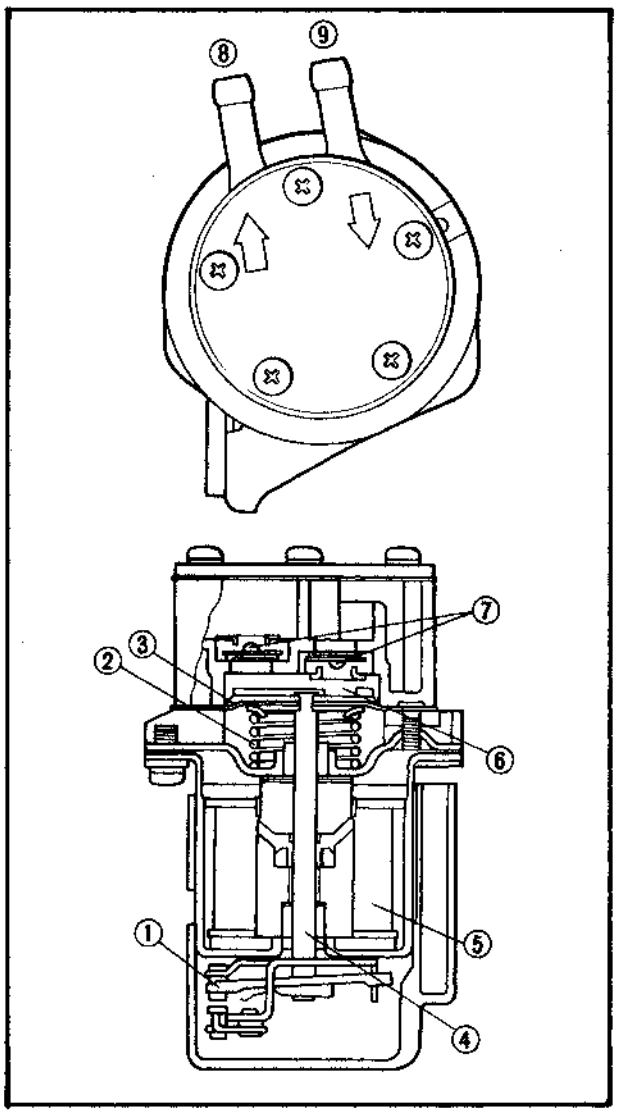
## FUEL PUMP CONTROLLER

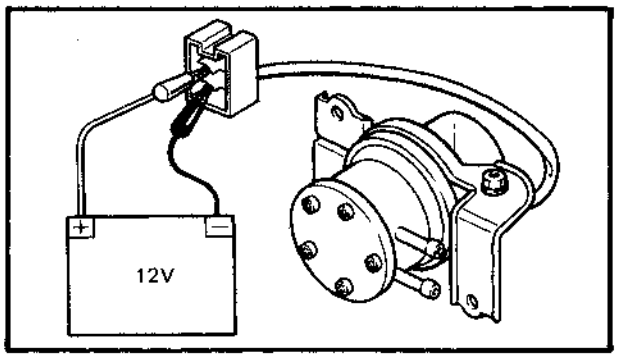
1. Remove:
   - Seat
   - Fuel pump controller
2. Measure:
   - Fuel pump controller resistances
     Out of specification → Replace.




| Tester minus lead (Black) side | Tester plus lead (Red) side ① | ② | ③ | ④ | ⑤ | ⑥ |
|---|---|---|---|---|---|---|
| ① | | ∞ | ∞ | ∞ | ∞ | ∞ |
| ② | 300kΩ* | | ∞ | ∞ | 18kΩ | ∞ |
| ③ | 1MΩ | ∞ | | ∞ | 300kΩ* | ∞ |
| ④ | ∞ | ∞ | ∞ | | ∞ | ∞ |
| ⑤ | 150kΩ* | ∞ | ∞ | ∞ | | ∞ |
| ⑥ | 2MΩ | ∞ | ∞ | ∞ | 500kΩ | |

* Read the static tester valve a few seconds after the tester leads are connected to each terminal.




## FUEL PUMP

### Operation

The diaphragm is pulled left by the plunger allowing fuel to be sucked into the fuel chamber. Fuel is pushed out from the pump until carb float chamber is filled with fuel, and then the cut-off switch cuts off the circuit.

When the spring pushes the diaphragm further to the end, the cut-off switch turns on and the solenoid coil pulls the plunger with the diaphragm forcing fuel into the fuel chamber.

① Cut-out switch
② Spring
③ Diaphragm
④ Plunger
⑤ Solenoid coil
⑥ Fuel chamber
⑦ Valve
⑧ Outlet
⑨ Inlet

### Inspection

1. Connect:
   - Battery
2. Check:
   - Fuel pump
     Faulty operation → Replace.
3. Inspect:
   - Fuel pump operation
     Cracks/Damage → Replace.

# CHAPTER 7.
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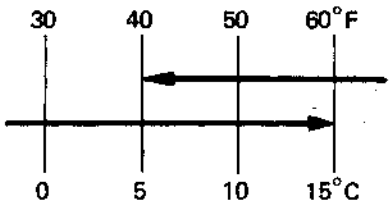
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**XV700L/XV700LC WIRING DIAGRAM**

**XV1000L/XV1000LC WIRING DIAGRAM**

# SPECIFICATIONS

## GENERAL SPECIFICATIONS

| Item \ Model | XV700 | | XV1000 | |
|---|---|---|---|---|
| Model: | XV700LC | XV700L | XV1000LC | XV1000L |
| IBM Number | 42X | 42W | 42H | 42G |
| Vehicle I.d Number | JAY42X00 * EA000101 | JAY42W00 * EA000101 | JAY42H00 * EA000101 | JAY42G00 * EA000101 |
| Engine Starting number | 42X-000101 | 42W-000101 | 42H-000101 | 42G-000101 |
| Dimensions: | | | | |
| Overall length | 2,235 mm (88.0 in) | | ← | |
| Overall width | 840 mm (33.1 in) | | ← | |
| Overall height | 1,170 mm (46.1 in) | | ← | |
| Seat height | 715 mm (28.1 in) | | ← | |
| Wheelbase | 1,525 mm (49.3 in) | | ← | |
| Minimum ground clearance | 145 mm ( 5.7 in) | | ← | |
| Basic weight: | | | | |
| With oil and full fuel tank | 225 kg (496 lb) | | 236 kg (520 lb) | |
| Minimum turning radius: | 2,740 mm (107.9 in) | | ← | |
| Engine: | | | | |
| Engine type | Air cooled 4-stroke, gasoline, SOHC | | ← | |
| Cylinder arrangement | V-2 cylinder | | ← | |
| Displacement | 699 $cm^3$ | | 981 $cm^3$ | |
| Bore x Stroke | 80.2 x 69.2 mm (3.16 x 2.72 in) | | 95.0 x 69.2 mm (3.74 x 2.72 in) | |
| Compression ratio | 9.0 : 1 | | 8.3 : 1 | |
| Compression pressure | 1,079 kPa (11 kg/$cm^2$, 156 psi) at 300 r/min | | ← | |
| Starting system | Electric starter | | ← | |
| Lubrication system: | Wet sump | | ← | |
| Oil type or grade: | | | | |
| Engine oil |   Yamalube 4-cycle oil or SAE 20W40 type SE motor oil (If temperature does not go below 5°C (40°F).) SAE 10W30 type SE motor oil (If temperature does not go above 15°C (60°F).) | | ← | |
| Final gear oil | SAE 80API "GL-4" Hypoid gear oil | | ← | |
| Oil capacity: | | | | |
| Engine oil: | | | | |
| Periodic oil change | 3.0 L (2.6 Imp qt, 3.2 US qt) | | ← | |
| With oil filter replacement | 3.1 L (2.7 Imp qt, 3.3 US qt) | | ← | |
| Total amount | 3.6 L (3.2 Imp qt, 3.8 US qt) | | ← | |
| Final gear case oil amount | 0.2 L (0.18 Imp qt, 0.21 US qt) | | ← | |
| Air filter: | Dry type element | | ← | |
| Fuel: | | | | |
| Type | Regular gasoline | | ← | |
| Tank capacity | 12.5 L (2.7 Imp gal, 3.3 US gal) | | 14.5 L (3.2 Imp gal, 3.8 US gal) | |
| Reserve amount | 2.5 L (0.5 Imp gal, 0.6 US gal) | | 3.0 L (0.66 Imp gal, 0.79 US gal) | |

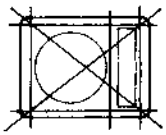
| Item \ Model | XV700 | XV1000 |
|---|---|---|
| Carburetor: | | |
| Type | HSC40 x 2 | ← |
| Manufacturer | HITACHI | ← |
| Spark plug: | | |
| Type | BP7ES W22EP-U | ← |
| Manufacturer | NGK ND | ← |
| Gap | 0.7 ~ 0.8 mm (0.028 ~ 0.031 in) | ← |
| Clutch type: | Wet, multiple-disc | ← |
| Transmission: | | |
| Primary reduction system | Spar gear | ← |
| Primary reduction ratio | 78/47 (1.659) | ← |
| Secondary reduction system | Shaft drive | ← |
| Secondary reduction ratio | 49/44 x 19/18 x 32/11 (3.420) | 45/46 x 19/18 x 32/11 (3.003) |
| Transmission type | Constant-mesh, 5-speed | ← |
| Operation | Left foot operation | ← |
| Gear ratio 1st | 40/17 (2.352) | ← |
| 2nd | 40/24 (1.666) | ← |
| 3rd | 36/28 (1.285) | ← |
| 4th | 32/31 (1.032) | ← |
| 5th | 29/34 (0.852) | ← |
| Chassis: | | |
| Frame type | Pressed backbone | ← |
| Caster angle | 32° | ← |
| Trail | 129 mm (5.1 in) | ← |
| Tire: | | |
| Type | With tube | Tubeless |
| Size (F) | 100/90-19 57H | ← |
| Size (R) | 140/90-15 70H | ← |
| Tire pressure (Cold tire): | FRONT REAR | |
| WEIGHT with oil and full fuel tank | 225 kg (496 lb) | 236 kg (520 lb) |
| Standard tire | Bridgestone/ Dunlop 100/90-19 57H / Bridgestone/ Dunlop 140/90-15 70H | ← |
| Cold tire pressure: | | |
| Up to 90 kg (198 lb) load * | 177 kPa (1.8 kg/cm², 26 psi) / 196 kPa (2.0 kg/cm², 28 psi) | ← |
| 90 kg (198 lb) load ~ 160 kg (353 lb) load * (Maximum load) | 196 kPa (2.0 kg/cm², 28 psi) / 226 kPa (2.3 kg/cm², 33 psi) | ← |
| 160 kg (353 lb) load * | 196 kPa (2.0 kg/cm², 28 psi) / 275 kPa (2.8 kg/cm², 40 psi) | ← |
| High speed riding | 225 kPa (2.3 kg/cm², 32 psi) / 245 kPa (2.5 kg/cm², 36 psi) | ← |

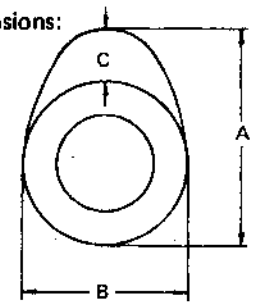
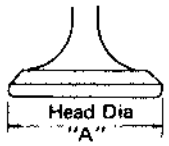
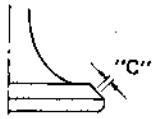
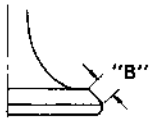
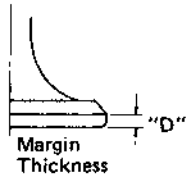
| Item \ Model | XV700 | XV1000 |
|---|---|---|
| Minimum tire tread depth | 1.0 mm (0.04 in) 1.0 mm (0.04 in)<br>*Load is the total weight of cargo, rider, passenger, and accessories. | ← |
| Brake: | | |
| Front brake type | Dual disc brake | ← |
| Operation | Right hand operation | ← |
| Rear brake type | Drum brake | ← |
| Operation | Right foot operation | ← |
| Suspension: | | |
| Front suspension | Telescopic fork | ← |
| Rear suspension | Swingarm (Conventional) | ← |
| Shock Absorber: | | |
| Front shock absorber | Coil spring, oil damper | Air coil spring, oil damper |
| Rear shock absorber | Gas, coil spring, oil damper | Gas, coil spring, oil damper |
| Wheel travel: | | |
| Front wheel travel | 150 mm (5.9 in) | ← |
| Rear wheel travel | 97 mm (3.8 in) | ← |
| Electrical: | | |
| Ignition system | T.C.I. | ← |
| Generator system | A.C. Generator | ← |
| Battery type or model | YB16AL | GM18Z-3A |
| Battery capacity | 12V 16AH | 12V 20AH |
| Headlight type: | Bulb type | ← |
| Bulb wattage/Quantity: | | |
| Headlight | 60W/55W | ← |
| Tail/Brake light | 8W/27W x 2 | ← |
| Flasher/Running light | 27W x 4 | ← |
| Indicator light: | | |
| Meter light | 4W x 4 | ← |
| Wattage/Quantity: "NEUTRAL" | 4W x 1 | ← |
| "HIGH BEAM" | 4W x 1 | ← |
| "TURN" | 4W x 2 | ← |
| "FUEL" | 4W x 1 | ← |
| "OIL LEVEL" | 4W x 1 | ← |

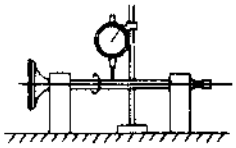
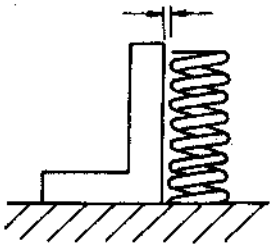
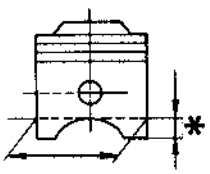
## MAINTENANCE SPECIFICATIONS

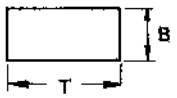
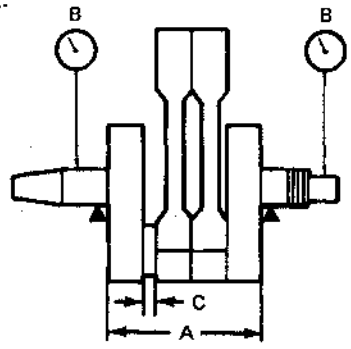
### ENGINE

| Item \ Model | XV700 | XV1000 |
|---|---|---|
| Cylinder head: | | |
| Warp limit | 0.03 mm (0.001 in)<br>*Lines indicate straightedge measurement. | ← |



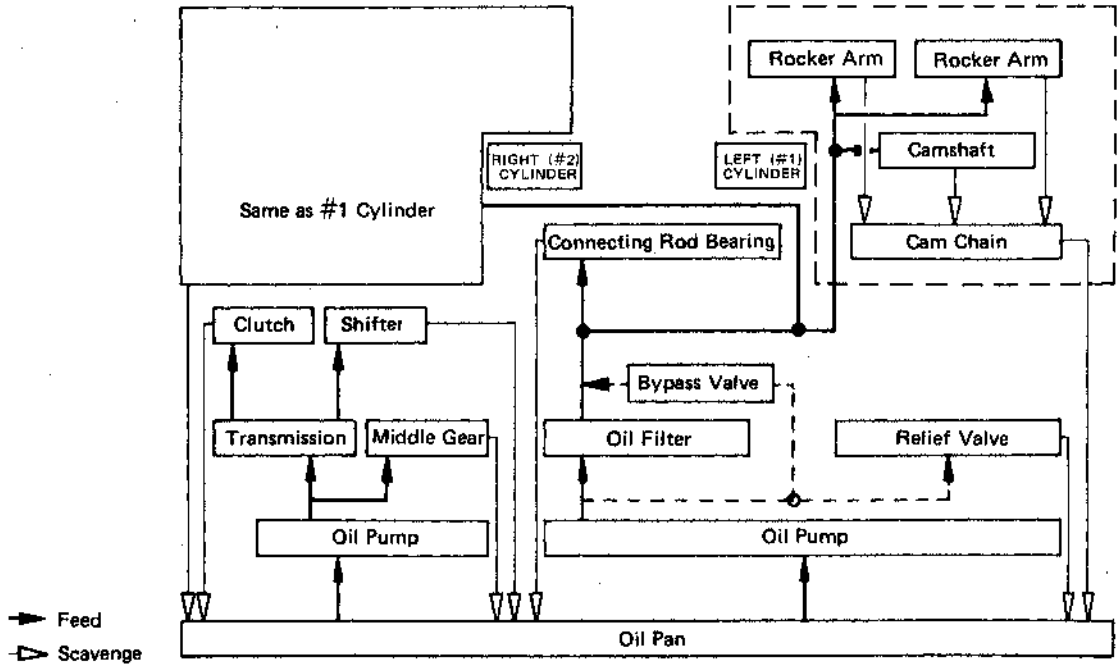
| Item \ Model | | XV700 | XV1000 |
|---|---|---|---|
| Cylinder: | | | |
| Bore size | | 80.2 mm (3.157 in) | 95 mm (3.74 in) |
| Taper limit | | 0.05 mm (0.002 in) | ← |
| Out-of-round limit | | 0.01 mm (0.0004 in) | ← |
| Camshaft: | | | |
| Drive method | | Chain drive (left, right) | ← |
| Cam cap inside diameter | | $25^{+0.021}_{0}$ mm ($0.9448^{+0.0008}_{0}$ in) | ← |
| Camshaft outside diameter | | $25^{-0.020}_{-0.040}$ mm ($0.9448^{-0.0008}_{-0.0016}$ in) | ← |
| Shaft-to-cap clearance | | 0.020 ~ 0.061 mm (0.0008 ~ 0.0024 in) | ← |
| Cam dimensions: | | | |
|   Intake | "A" | 39.17 mm (1.5421 in) | ← |
| | "B" | 32.23 mm (1.2689 in) | 32.17 mm (1.2665 in) |
| | "C" | 6.94 mm (0.2732 in) | 7.00 mm (0.2756 in) |
| Exhaust | "A" | 39.20 mm (1.5433 in) | ← |
| | "B" | 32.26 mm (1.2701 in) | 32.27 mm (1.2705 in) |
| | "C" | 6.94 mm (0.2732 in) | 6.93 mm (0.2728 in) |
| Camshaft runout limit: | | 0.03 mm (0.001 in) | ← |
| Cam chain type/Number of links | | SILENT CHAIN/98 | ← |
| Cam chain adjustment method | | Automatic | ← |
| Rocker arm/Rocker arm shaft: | | | |
| Bearing inside diameter | | $14^{+0.018}_{0}$ mm ($0.551^{+0.0007}_{0}$ in) | ← |
| Shaft outside diameter | | $14^{-0.009}_{-0.015}$ mm ($0.551^{-0.00035}_{-0.00059}$ in) | ← |
| Arm-to-shaft clearance | | 0.009 ~ 0.033 mm (0.00035 ~ 0.00130 in) | ← |
| Valve, valve seat, valve guide: | | | |
| Valve clearance (cold) | IN. | 0.07 ~ 0.12 mm (0.00276 ~ 0.00472) | ← |
| | EX. | 0.12 ~ 0.17 mm (0.00472 ~ 0.00669 in) | ← |
| Valve dimensions | | | |
|         | | | |
| "A" Head dia. | IN. | $43^{+0.2}_{0}$ mm ($1.69^{+0.008}_{0}$ in) | $47^{+0.2}_{0}$ mm ($1.85^{+0.008}_{0}$ in) |
| | EX. | $37^{+0.2}_{0}$ mm ($1.46^{+0.008}_{0}$ in) | $39^{+0.2}_{0}$ mm ($1.54^{+0.008}_{0}$ in) |
| "B" Face width | IN. | 2.1 mm (0.083 in) | ← |
| | EX. | 2.1 mm (0.083 in) | ← |
| "C" Seat limit width | IN. | 1.3 ± 0.1 mm (0.051 ± 0.004 in) | ← |
| | EX. | 1.3 ± 0.1 mm (0.051 ± 0.004 in) | ← |
| "D" Margin thickness limit | IN. | 1.3 ± 0.2 mm (0.051 ± 0.008 in) | ← |
| | EX. | 1.3 ± 0.2 mm (0.051 ± 0.008 in) | ← |

| Item | Model | XV700 | XV1000 |
|---|---|---|---|
| Stem outside diameter | IN. | 8 $^{-0.010}_{-0.025}$ mm (0.315 $^{-0.0004}_{-0.0010}$ in) | ← |
| | EX. | 8 $^{-0.025}_{-0.040}$ mm (0.315 $^{-0.0010}_{-0.0016}$ in) | ← |
| Guide inside diameter | IN. | 8 $^{+0.012}_{0}$ mm (0.315 $^{+0.0005}_{0}$ in) | ← |
| | EX. | 8 $^{+0.012}_{0}$ mm (0.315 $^{+0.0005}_{0}$ in) | ← |
| Stem-to-guide clearance | IN. | 0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in) | ← |
| | EX. | 0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in) | ← |
| Stem runout limit | | 0.03 mm (0.001 in) | |
|  | | | |
| Valve spring: | | | |
| Free length | | | |
| Inner spring | IN. | 45.3 mm (1.783 in) | ← |
| | EX. | 45.3 mm (1.873 in) | ← |
| Outer spring | IN. | 44.6 mm (1.756 in) | ← |
| | EX. | 44.6 mm (1.756 in) | ← |
| Installed length (Valve closed) | | | |
| Inner spring | IN. | 38.0 mm (1.496 in) | ← |
| | EX. | 38.0 mm (1.496 in) | ← |
| Outer spring | IN. | 40.0 mm (1.575 in) | ← |
| | EX. | 40.0 mm (1.575 in) | ← |
| Tilt limit | | | |
| Inner spring | IN. & EX. | 2.5°/2.0 mm (0.0787 in) | ← |
| Outer spring | IN. & EX. | 2.5°/2.0 mm (0.0787 in) | ← |
|  | | | |
| Direction of winding (Top view) | | Inner spring: IN — Left; EX — Left. Outer spring: IN — Right; EX — Right | ← |
| Piston: | | | |
| Piston size/ Measuring point * | | 80.135 ~ 80.185 mm (3.155 ~ 3.157 in)/ 9.0 mm (0.354 in) (From bottom line of piston skirt) | 94.965 ~ 94.945 mm (3.739 ~ 3.738 in)/ 14.6 mm (0.575 in) ← |
|  | | | |

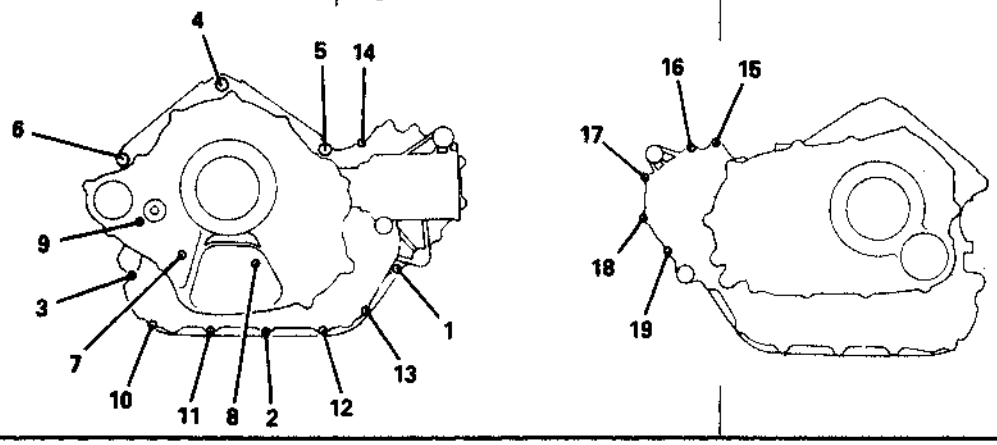
| Item \ Model | | XV700 | XV1000 |
|---|---|---|---|
| Clearance between piston & cylinder | | 0.040 ~ 0.060 mm (0.00157 ~ 0.00236 in) | 0.045 ~ 0.065 mm (0.0018 ~ 0.0026 in) |
| Oversize: | 2nd | 80.50 mm (3.17 in) | 95.50 mm (3.76 in) |
| | 4th | 81.00 mm (3.19 in) | 96.00 mm (3.78 in) |
| Piston ring: | | | |
| Sectional sketch | | | |
|  | Top ring | Plain | ← |
| | B | 1.2 mm (0.0472 in) | 1.5 mm (0.06 in) |
| | T | 3.2 mm (0.126 in) | 3.8 mm (0.15 in) |
|  | 2nd ring | Taper | ← |
| | B | 1.2 mm (0.0472 in) | 2.0 mm (0.08 in) |
| | T | 3.6 mm (0.142 in) | 4.0 mm (0.16 in) |
|  | Oil ring | | |
| | B | 2.5 mm (0.0984 in) | 4.0 mm (0.16 in) |
| | T | 2.8 mm (0.110 in) | 3.9 mm (0.15 in) |
| End gap (Installed): | Top ring | 0.2 ~ 0.4 mm (0.008 ~ 0.016 in) | 0.3 ~ 0.5 mm (0.012 ~ 0.020 in) |
| | 2nd ring | 0.2 ~ 0.4 mm (0.008 ~ 0.016 in) | ← |
| | Oil ring | 0.2 ~ 0.7 mm (0.00787 ~ 0.0276 in) | 0.3 ~ 0.9 mm (0.012 ~ 0.035 in) |
| Side clearance: | Top ring | 0.04 ~ 0.08 mm (0.0016 ~ 0.0031 in) | ← |
| | 2nd ring | 0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in) | ← |
| | Oil ring | 0 ~ 0.04 mm (0 ~ 0.00157 in) | 0 mm |
| Connecting rod: | | | |
| Oil clearance | | 0.030 ~ 0.054 mm (0.0012 ~ 0.0021 in) | ← |
| Color code (Corresponding size) | | 1. Blue ($1.5\ ^{+0.001}_{-0.003}$) 2. Black ($1.5\ ^{-0.003}_{-0.007}$) 3. Brown ($1.5\ ^{-0.007}_{-0.007}$) 4. Green ($1.5\ ^{-0.011}_{-0.015}$) 5. Yellow ($1.5\ ^{-0.015}_{-0.019}$) | ← |
| Crankshaft: | | | |
|  | | | |
| Crank width "A" | | $102\ ^{0}_{-0.05}$ mm ($4.02\ ^{0}_{-0.002}$ in) | ← |
| Runout limit "B" | | 0.02 mm (0.0008 in) | ← |
| Big end side clearance "C" | | 0.370 ~ 0.474 mm (0.0146 ~ 0.0187 in) | ← |

| Item \ Model | XV700 | | XV1000 | |
|---|---|---|---|---|
| Clutch: | | | | |
| Friction plate thickness/Quantity | 3.0 ± 0.1 mm (0.12 ± 0.004 in) x 8 | | ← | |
| Wear limit | 2.8 mm (0.11 in) | | ← | |
| Clutch plate thickness/Quantity | 1.6 ± 0.1 mm (0.063 ± 0.004 in) x 7 | | ← | |
| Warp limit | 0.1 mm (0.004 in) | | ← | |
| Clutch spring free length/Quantity | 41.2 mm (1.622 in) x 6 | | ← | |
| Clutch spring minimum length | 40.2 mm (1.582 in) | | ← | |
| Clutch release method | Inner push, screw push | | ← | |
| Push rod bending limit | 0.5 mm (0.02 in) | | ← | |
| Transmission: | | | | |
| Main axle deflection limit | 0.08 mm (0.0031 in) | | ← | |
| Drive axle deflection limit | 0.08 mm (0.0031 in) | | ← | |
| Shifter: | | | | |
| Shifter type | Guide bar | | ← | |
| Starter: | | | | |
| Starter type | Bendix type | | ← | |
| Spring clip friction weight | | | — | |
| < Min. ~ Max. > Idle gear #2 | P = 2.2 ~ 2.5 kg (4.9 ~ 5.5 lb) | | — | |
|   Starter gear | P = 2.0 ~ 2.3 kg (4.4 ~ 5.1 lb) | | — | |
| Carburetor: | | | | |
| Type/Manufacturer/Quantity | HSC40/ HITACHI/2 | ← | ← | ← |
| I.D. Mark | 42X-00 | 42W-00 | 42H-00 | 42G-00 |
| Main jet (M.J.) | #128 Left (#1) Carburetor | ← | #124 | ← |
| | #132 Right (#2) Carburetor | ← | #132 | ← |
| Main air jet (M.A.J.) | #50 | ← | ← | ← |
| Jet needle-clip position (J.N.) | Y-32 Left (#1) Carburetor | ← | Y-34 | ← |
| | Y-32 Right (#2) Carburetor | ← | Y-33 | ← |
| Needle jet (N.J.) | φ3.2 | ← | ← | ← |
| Throttle valve (Th.V.) | 12.5° | ← | ← | ← |
| Pilot jet (P.J.) | #42 | ← | #40 | ← |
| Pilot outlet size (P.O.) | φ0.9 | ← | ← | ← |
| Pilot air jet (P.A.J.) | #190 | ← | ← | ← |
| Pilot screw (P.S.) | Preset | ← | ← | ← |
| Valve seat size (V.S.) | φ2.0 | ← | ← | ← |
| Starter jet (G.S.) | #40 | ← | ← | ← |
| Fuel level (F.L.) | 0 ± 1.0 mm (0 ± 0.04 in) | ← | ← | ← |
| Engine idling speed | 1,000±50 r/min | ← | ← | ← |
| Vacuum presure at idling speed | 24 ± 1.3 kPa (180±10 mmHg, 7.09±10 mmHg, | ← | ← | ← |

| Item \ Model | XV700 | | XV1000 | |
|---|---|---|---|---|
| Vacuum synchronous difference | Below 10 kPa (10 mmHg, 0.4 inHg) | ← | ← | ← |
| Lubrication system: | | | | |
| Oil filter type | Paper | | ← | |
| Oil pump type | Trochoid pump | | ← | |
| Tip clearance < Limit > | 0.03 ~ 0.09 mm (0.001 ~ 0.004 in) | | ← | |
| Side clearance < Limit > | 0.03 ~ 0.08 mm (0.001 ~ 0.003 in) | | ← | |
| Bypass valve setting pressure | 980 ± 20 kPa (1.0 ± 0.2 kg/cm$^2$, 14.2 ± 2.8 psi) | | ← | |
| Relief valve operating pressure | 490 ± 49 kPa (5.0 ± 0.5 kg/cm$^2$, 71 ± 7.1 psi) | | ← | |
| Lubrication chart | | | | |




| | | | | |
|---|---|---|---|---|
| Middle gear backlash: | 0.1 ~ 0.2 mm (0.004 ~ 0.008 in) | | ← | |
| Final gear backlash: | 0.1 ~ 0.2 mm (0.004 ~ 0.008 in) | | ← | |
| Crankcase tightening sequence: | | | | |
| Left crankcase | Right crankcase | | ← | |



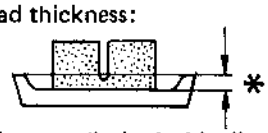
## Tightening Torque

✱ For XV1000 only

| Part to be tightened | Part name | Thread size | Q'ty | Tightening torque | | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | | Nm | m·kg | ft·lb | |
| ENGINE: | | | | | | | |
| Cylinder nut | Nut | M12 x P1.25 | 8 | 50 | 5.0 | 36 | Apply oil |
| Cylinder head nut | Nut | M10 x P1.25 | 2 | 35 | 3.5 | 25 | |
| Cylinder head bolt | Bolt | M8 x P1.25 | 4 | 20 | 2.0 | 14 | |
| Spark plug | — | — | 2 | 20 | 2.0 | 14 | |
| Cam sprocket cover | Bolt | M6 x P1.0 | 4 | 10 | 1.0 | 7.2 | |
| Cam sprocket | Bolt | M10 x P1.25 | 2 | 55 | 5.5 | 40 | |
| Camshaft bushing | Bolt | M8 x P1.25 | 2 | 20 | 2.0 | 14 | |
| Rocker arm cover | Bolt | M6 x P1.0 | 8 | 10 | 1.0 | 7.2 | |
| Rocker arm shaft | Union bolt | M16 x P1.5 | 2 | 38 | 3.8 | 27 | |
| Rocker armshaft/ oil delivery pipe | Union bolt | M16 x P1.5 | 2 | 20 | 2.0 | 14 | |
| Oil delivery pipe | Union bolt | M10 x P1.25 | 1 | 20 | 2.0 | 14 | |
| Valve adjuster lock nut | Nut | M8 x P1.25 | 4 | 27 | 2.7 | 19 | |
| Cam chain tensioner | Bolt | M6 x P1.0 | 4 | 10 | 1.0 | 7.2 | |
| Cylinder | Bolt | M6 x P1.0 | 6 | 10 | 1.0 | 7.2 | |
| Cam chain guide (rear) | Bolt | M8 x P1.25 | 2 | 8 | 0.8 | 5.8 | |
| Cam chain guide (rear) | Nut | M8 x P1.25 | 2 | 12 | 1.2 | 8.7 | |
| Starter motor | Flange bolt | M8 x P1.0 | 2 | 10 | 1.0 | 7.2 | |
| Timing gear shaft stopper plage | Bolt | M6 x P1.0 | 2 | 10 | 1.0 | 7.2 | |
| Flywheel | Nut | M16 x P1.5 | 1 | 175 | 17.5 | 125 | |
| Primary drive gear | Nut | M20 x P1.5 | 1 | 110 | 11.0 | 80 | Use lock washer |
| Clutch boss | Nut | M20 x P1.5 | 1 | 70 | 7.0 | 50 | Use lock washer |
| Crankshaft end cover | Bolt | M32 x P1.5 | 1 | 12 | 1.2 | 8.7 | |
| Oil pump cover | Bolt | M6 x P1.5 | 3 | 10 | 1.0 | 7.2 | |
| Oil pump sprocket | Bolt | M6 x P1.0 | 1 | 12 | 1.2 | 8.7 | |
| Oil pump | Bolt | M6 x P1.0 | 3 | 10 | 1.0 | 7.2 | |
| Neutral switch | — | M10 x P1.25 | 1 | 20 | 2.0 | 14 | |
| Shift fork guide bar stopper | Flat head screw | M6 x P1.0 | 2 | 7 | 0.7 | 5.1 | Use Loctite® |
| Crankcase | Bolt | M10 x P1.25 | 3 | 39 | 3.9 | 28 | Apply oil |
| Crankcase | Bolt | M6 x P1.0 | 16 | 10 | 1.0 | 7.2 | |
| Middle drive bearing retainer | Nut | M88 x P1.5 | 1 | 110 | 11.0 | 80 | Stake |
| Middle drive shaft nut | Nut | M44 x P1.5 | 1 | 110 | 11.0 | 80 | Stake |
| Connecting rod | Nut | M9 x P1.25 | 4 | 48 | 4.8 | 35 | Apply molybde-num disulfide grease |
| Drain plug | Bolt | M14 x P1.5 | 1 | 43 | 4.3 | 31 | |
| Middle driven gear bearing housing | Flange bolt | M8 x P1.25 | 3 | 25 | 2.5 | 18 | |
| Clutch push screw lock nut | Nut | M8 x P1.25 | 1 | 12 | 1.2 | 8.7 | |
| Exhaust pipe | Nut | M8 x P1.25 | 4 | 20 | 2.0 | 14 | |
| Exhaust pipe joint | Bolt | M8 x P1.25 | 2 | 20 | 2.0 | 14 | |
| Carburetor joint | Bolt | M6 x P1.0 | 4 | 10 | 1.0 | 7.2 | |
| Change pedal | Bolt | M6 x P1.0 | 1 | 10 | 1.0 | 7.2 | |
| Oil level switch | Bolt | M6 x P1.0 | 2 | 10 | 1.0 | 7.2 | |

| | Part to be tightened | Part name | Thread size | Q'ty | Tightening torque | | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | | Nm | m·kg | ft·lb | |
| | Generator cover | Screw | M6 x P1.0 | 3 | 7 | 0.7 | 5.1 | |
| | Clutch pressure plate | Flange bolt | M6 x P1.0 | 6 | 8 | 0.8 | 5.8 | |
| | Change pedal | Bolt | M6 x P1.0 | 1 | 10 | 1.0 | 7.2 | |
| | Exhaust pipe | Bolt | M6 x P1.0 | 2 | 10 | 1.0 | 7.2 | |
| | Change pedal adjuster | Nut | M6 x P1.0 | 2 | 10 | 1.0 | 7.2 | |
| | Middle gear housing | Bolt | M8 x P1.25 | 3 | 25 | 2.5 | 18 | |
| | Cylinder | Stud bolt | M10 x P1.25 | 2 | 20 | 2.0 | 14 | |
| | Cylinder | Stud bolt | M12 x P1.25 | 4 | 24 | 2.4 | 17 | |
| | Left cover | Screw | M5 x P0.8 | 1 | 2 | 0.2 | 1.4 | |
| | Air cleaner case | Bolt | M6 x P1.0 | 2 | 10 | 1.0 | 7.2 | |
| | Left cover | Screw | M6 x P1.0 | 2 | 7 | 0.7 | 5.1 | |
| | Muffler bracket | Stud bolt | M6 x P1.25 | 2 | 20 | 2.0 | 14 | |
| | Side stand | Stud bolt | M10 x P1.25 | 1 | 20 | 2.0 | 14 | |
| | Footrest | Stud bolt | M10 x P1.25 | 1 | 20 | 2.0 | 14 | |
| * | Solenoid | Nut | M6 x P1.0 | 2 | 8 | 0.8 | 5.8 | Use Loctite® |
| * | Solenoid cover | Bolt | M6 x P1.0 | 3 | 10 | 1.0 | 7.2 | |
| * | Collar | Screw | M6 x P1.0 | 1 | 10 | 1.0 | 7.2 | Use Loctite® |
| * | Drive lever | Screw | M6 x P1.0 | 1 | 10 | 1.0 | 7.2 | Use Loctite® |
| * | Solenoid | Screw | M6 x P1.0 | 2 | 7 | 0.7 | 5.1 | |

## CHASSIS

| Item \ Model | | XV700 | XV1000 |
|---|---|---|---|
| Steering system: | | | |
| Steering bearing type | | Taper roller bearing | ← |
| Front suspension: | | | |
| Front fork travel | | 150 mm (5.9 in) | ← |
| Fork spring free length | | 513 mm (20.2 in) | ← |
| Spring rate/Stroke | | $K_1$ = 6.3 N/mm<br>(0.64 kg/mm, 35.8 lb/in)<br>0 ~ 150 mm (0 ~ 5.9 in) | ←<br><br>← |
| Optional spring | | No | ← |
| Oil capacity or oil level | | 389 $cm^3$<br>(13.7 Imp oz, 13.1 US oz)<br>155 mm (6.1 in)<br>(From top of inner tube fully compressed without spring.) | 372 $cm^3$<br>(13.1 Imp oz, 12.6 US oz)<br>179 mm (7.0 in)<br>← |
| Oil grade | | Yamaha fork oil 10wt | ← |
| Enclosed air pressure | | — | 0 ~ 118 kPa<br>(0 ~ 1.2 $kg/cm^2$, 0 ~ 17 psi) |
| Rear suspension: | | | |
| Shock absorber travel | | 70 mm (2.8 in) | ← |
| Spring free length | | 223 mm (8.8 in) | ← |
| Spring rate/Stroke | | $K_1$ = 36.3 N/mm<br>(3.7 kg/mm, 207 lb/in)<br>0 ~ 45 mm (0 ~ 1.8 in)<br>$K_2$ = 52.9 N/mm<br>(5.4 kg/mm, 302 lb/in)<br>45 ~ 70 mm (1.8 ~ 2.8 in) | ←<br><br>←<br>←<br><br>← |
| Optional spring | | No | ← |
| Rear arm: | | | |
| Swingarm free play limit: | End | 1.0 mm (0.04 in) | ← |
| | Side | 1.0 mm (0.04 in) | ← |
| Wheel: | | | |
| Front wheel type | | Spoke wheel | Cast wheel |
| Rear wheel type | | Spoke wheel | Cast wheel |
| Front rim size/Material | | MT2.15 x 19/Aluminum | ← |
| Rear rim size/Material | | MT3.00 x 15/Aluminum | ← |
| Rim runout limit: | Vertical | 2.0 mm (0.08 in) | ← |
| | Lateral | 2.0 mm (0.08 in) | ← |
| Disc brake: | | | |
| Type | Front | Dual disc | ← |
| Outside dia. x Thickness | | 267 x 5 mm (10.7 x 0.2 in) | ← |
| Pad thickness: | Inner | 5.5 mm (0.217 in) | ← |
|  | *< Limit > | 0.5 mm (0.0197 in) | ← |
| | Outer | 5.5 mm (0.217 in) | ← |
| | *< Limit > | 0.5 mm (0.0197 in) | ← |
| Master cylinder inside dia. | | 14 mm (0.63 in) | ← |
| Caliper cylinder inside dia. | | 38.18 mm (1.50 in) | ← |
| Brake fluid type | | DOT #3 | ← |

| Item / Model | | XV700 | XV1000 |
|---|---|---|---|
| Drum brake: | | | |
| Type | Rear | Leading trailing | ← |
| Drum inside dia. | | 200 mm (7.87 in) | ← |
| | < Limit > | 201 mm (7.91 in) | ← |
| Lining thickness | | 4 mm (0.16 in) | ← |
| | < Limit > | 2 mm (0.08 in) | ← |
| Shoe spring free length | | 68 mm (2.7 in) | ← |
| Brake lever & Brake pedal: | | | |
| Brake lever free play | | 5 ~ 8 mm (0.2 ~ 0.3 in) | ← |
| Brake pedal position | | 20 mm (0.8 in) | ← |
| | | upper from footrest top end | ← |
| Brake pedal free play | | 20 ~ 30 mm (0.8 ~ 1.2 in) | ← |
| Clutch lever free play: | | 2 ~ 3 mm (0.08 ~ 0.12 in) | ← |

**Recommended combinations of the front fork and rear shock absorber. (For XV1000)**
Use this table as guidance to meet specific riding condition and motorcycle load.

| Front fork | Rear shock absorber | Loading condition | | | |
|---|---|---|---|---|---|
| Air pressure | Damping adjuster | Solo rider | With passenger | With accessories | With accessories and passenger |
| 39.2 ~ 78.5 kPa (0.4 ~ 0.8 kg/cm$^2$, 5.7 ~ 11 psi) | 1 | ○ | | | |
| | 2 | | ○ | | |
| | 3 | | | ○ | |
| 78.5 ~ 118 kPa (0.8 ~ 1.2 kg/cm$^2$, 11 ~ 17 psi) | 4 | | | | ○ |

**Tightening Torque**

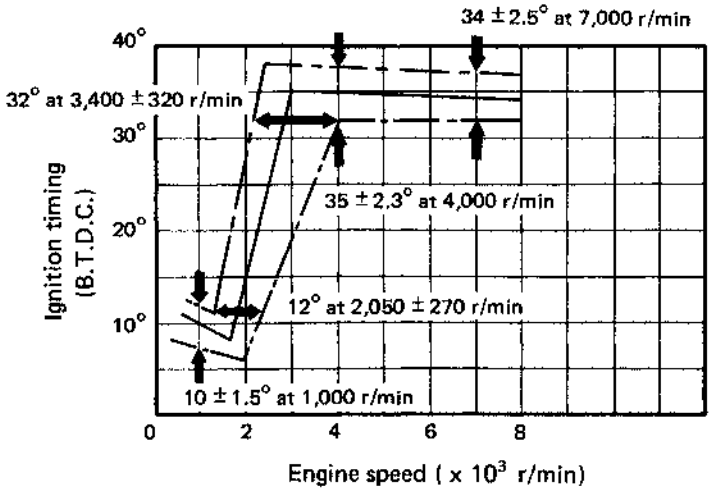
| Part to be tightened | Part name | Thread size | Q'ty | Tightening torque | | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | | Nm | m·kg | ft·lb | |
| CHASSIS: | | | | | | | |
| Engine: | | | | | | | |
| Bracket (Front) | Nut | M12 x P1.25 | 4 | 64 | 6.4 | 46 | |
| Bolt (Front) | Bolt/Nut | M10 x P1.25 | 2/2 | 55 | 5.5 | 40 | |
| Bolt (Rear) | Bolt | M10 x P1.25 | 2 | 55 | 5.5 | 40 | |
| Mounting: | | | | | | | |
| Bolt (Rear, upper) | Bolt | M10 x P1.25 | 2 | 55 | 5.5 | 40 | |
| Bolt (Rear, under) | Bolt/Nut | M10 x P1.25 | 1/2 | 55 | 5.5 | 40 | |
| Steering crown & Steering stem | Nut | M22 x P1.0 | 1 | 110 | 11 | 80 | |
| Steering crown & Front forks | Bolt/Nut | M8 x P1.25 | 2/2 | 20 | 2.0 | 14 | |
| Under bracket & Front forks | Bolt | M8 x P1.25 | 4 | 23 | 2.3 | 17 | |
| Front wheel axle | Bolt | M14 x P1.5 | 1 | 105 | 10.5 | 75 | |
| Front wheel axle pinch bolt | Bolt/Nut | M8 x P1.25 | 1/1 | 20 | 2.0 | 14 | |
| Rear arm pivot shaft (Left) | Bolt | M22 x P1.5 | 1 | 100 | 10.0 | 72 | Use lock washer |
| Rear arm pivot shaft (Right) | Bolt | M22 x P1.5 | 1 | 5.5 | 0.55 | 4.0 | |
| Rear arm pivot shaft (Right) | Nut | M22 x P1.5 | 1 | 100 | 10.0 | 72 | |

| Part to be tightened | Part name | Thread size | Q'ty | Tightening torque | | | Remarks |
|---|---|---|---|---|---|---|---|
| | | | | Nm | m·kg | ft·lb | |
| Rear wheel axle | Nut | M14 x P1.5 | 1 | 105 | 10.5 | 75 | |
| Rear shock absorber (Frame) | Bolt | M8 x P1.25 | 2 | 20 | 2.0 | 14 | |
| Rear shock absorber (Rear arm) | Bolt | M10 x P1.25 | 2 | 30 | 3.0 | 22 | |
| Foot peg (Front) | Nut | M10 x P1.25 | 4 | 55 | 5.5 | 40 | |
| Foot peg (Rear) | Bolt/Nut | M10 x P1.25 | | 55 | 5.5 | 40 | |
| Tension bar & Brake plate | Bolt/Nut | M8 x P1.25 | 1/1 | 20 | 2.0 | 14 | |
| Tension bar & Rear arm | Bolt/Nut | M8 x P1.25 | 1/1 | 20 | 2.0 | 14 | |
| Rear brake camshaft lever & Brake camshaft | Bolt | M6 x P1.0 | 1 | 9 | 0.9 | 6.5 | |
| Brake disc & Hub | Bolt | M8 x P1.25 | 6 | 20 | 2.0 | 14 | Use lock plate |
| Brake master cylinder & Brake hose | Union bolt | M10 x P1.25 | 1 | 26 | 2.6 | 19 | |
| Caliper cylinder & Brake hose | Union bolt | M10 x P1.25 | 1 | 26 | 2.6 | 19 | |
| Caliper cylinder & Front fork | Bolt | M10 x P1.25 | 4 | 35 | 3.5 | 25 | |
| Caliper cylinder bleed screw | — | M8 x P1.25 | 1 | 6 | 0.6 | 4.3 | |
| Front fender | Bolt | M6 x P1.00 | 4 | 9 | 0.9 | 6.5 | |
| Final gear & Rear arm | Nut | M10 x P1.25 | 4 | 43 | 4.3 | 31 | |
| Sidestand bracket & Engine | Nut | M10 x P1.25 | 1 | 55 | 5.5 | 40 | |
| Final gear: | | | | | | | |
| Bearing housing | Flange bolt | M10 x P1.25 | 2 | 23 | 2.3 | 17 | |
| Bearing housing | Nut | M8 x P1.25 | 6 | 23 | 2.3 | 17 | |
| Oil filler cap | Bolt | M14 x P1.5 | 1 | 23 | 2.3 | 17 | |
| Drain plug | Bolt | M14 x P1.5 | 1 | 23 | 2.3 | 17 | |
| Bearing retainer | Nut | M65 x P1.5 | 1 | 110 | 11.0 | 80 | Left-hand threads |
| Drive shaft | Nut | M14 x P1.5 | 1 | 110 | 11.0 | 80 | |
| Front fender & Fork brace | | M6 x P1.00 | | 9 | 0.9 | 6.5 | |
| Headlight stay & Under bracket | | M6 x P1.00 | | 9 | 0.9 | 6.5 | |
| Headlight stay & Headlight | | M8 x P1.25 | | 20 | 2.0 | 14 | |
| Master cylinder cap | | M5 x P0.8 | | 2 | 0.2 | 1.4 | |
| Master cylinder & Bracket | | M6 x P1.00 | | 9 | 0.9 | 6.5 | |
| Muffler bracket & Frame | | M8 x P1.25 | | 23 | 2.3 | 17 | |
| Wheel hub & Clutch hub | | M10 x P1.25 | | 69 | 6.9 | 50 | |
| Rear fender (Front) & Frame | | M10 x P1.25 | | 30 | 3.0 | 22 | |
| Rear fender (Rear) & Frame | | M8 x P1.25 | | 23 | 2.3 | 17 | |
| Handle & Handle holder upper | | M8 x P1.25 | | 20 | 2.0 | 14 | |
| Clutch hub & Damper | | M10 x P1.25 | | 62 | 6.2 | 45 | |
| Steering stem & Lower ring nut | Nut | M25 x P1.0 | 1 | 1st tighten: | | | |
| | | | | 50 | 5.0 | 36 | |
| | | | | Loosen then Final tighten | | | |
| | | | | 3 | 0.3 | 2.2 | |
| Steering stem & Upper ring nut | Nut | M25 x P1.0 | 1 | Finger tighten | | | |

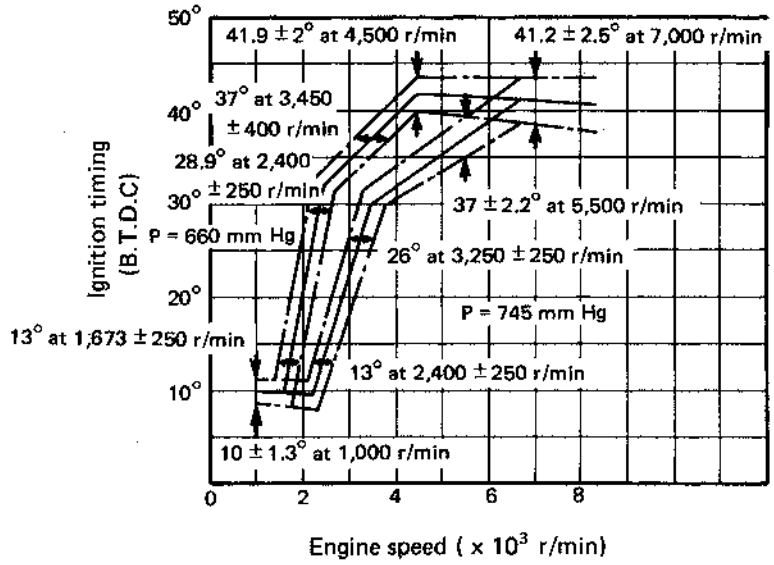
## ELECTRICAL

| Item \ Model | XV700 | XV1000 |
|---|---|---|
| Voltage: | 12V | ← |
| Ignition system: | | |
| Ignition timing (B.T.D.C.) | 10° at 1,000 r/min | ← |
| Advanced timing (B.T.D.C.) | 35° at 3,600 r/min | 41.9° at 4,500 r/min |
| Advancer type | Electrical | Vacuum and electrical |

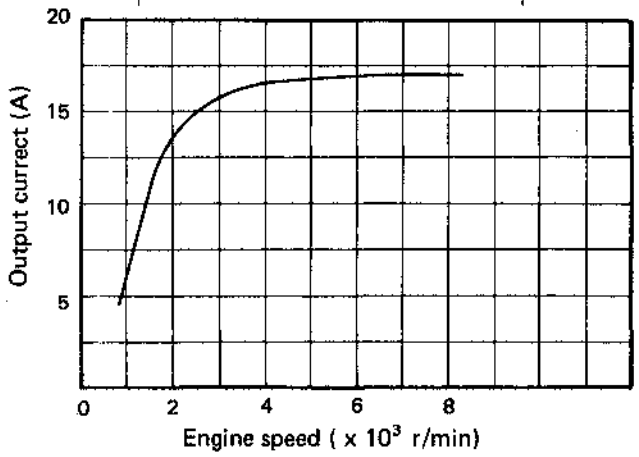
**XV700**




**XV1000**




| | | |
|---|---|---|
| T.C.I.: | | |
| Pickup coil resistance (Color) | 155Ω ± 20% at 20°C (68°F) (Brown — Green), (Blue — Red) | ← |
| T.C.I. unit — Manufacturer | J4T00871/MITSUBISHI | J4T01171/MITSUBISHI |
| Ignition coil: | | |
| Model/Manufacturer | F6T507/MITSUBISHI | ← |
| Minimum spark gap | 6 mm (0.236 in) | ← |
| Primary winding resistance | 4.2Ω ± 15% at 20°C (68°F) | ← |
| Secondary winding resistance | 13.2 kΩ ± 15% at 20°C (68°F) | ← |
| Charging system: | | |
| Type | A.C. magneto | |

| Item \ Model | XV700 | XV1000 |
|---|---|---|
| A.C. generator: | | |
| Model/Manufacturer | F3T414-73/MITSUBISHI | F3T414-74/MITSUBISHI |
| Nominal output | 14V, 16A at 5,000 r/min | ← |
| |  | |
| Stator coil resistance | 0.5Ω ± 10% at 20°C (68°F) | ← |
| Voltage regulator: | | |
| Type | I.C. type, short control | ← |
| Model/Manufacturer | SH569/SHINDENGEN | ← |
| No load regulated voltage | 14.8 ± 0.5V | ← |
| Rectifier: | | |
| Model/Manufacturer | SH569/SHINDENGEN | ← |
| Capacity | 16A | ← |
| Battery: | | |
| Capacity | 12V 16AH | 12V 20AH |
| Specific gravity | 1.280 | ← |
| Electric starter system: | | |
| Type | Constant-mesh type | Electro magnetic shift type |
| Starter motor: | | |
| Model/Manufacturer | SM-224/MITSUBA | ← |
| Output | 0.6 kW | ← |
| Armature coil resistance | 0.006Ω ± 10% at 20°C (68°F) | ← |
| Field coil resistance | 0.003Ω ± 10% at 20°C (68°F) | ← |
| Brush: | | |
| Overall length | 12.5 ± 0.5 mm (0.492 ± 0.020 in) | ← |
| < Limit > | 5.5 mm (0.217 in) | ← |
| Spring pressure | 620 ± 60 g (21.82 ± 2 oz) | ← |
| Commutator dia. | 28 mm (1.10 in) | ← |
| Wear limit | 27 mm (1.06 in) | ← |
| Mica undercut | 0.5 mm (0.02 in) | ← |
| Starter switch: | | |
| Model/Manufacturer | A104-133/HITACHI | 5A8/OMRON |
| Amperage rating | 100A | 15A |
| Horn: | | |
| Type/Quantity | Eddy type x 2 | ← |
| Model/Manufacturer | YPH-12, YPL-12/NIKKO | ← |
| Maximum amperage | 2A | ← |

| Item \ Model | XV700 | XV1000 |
|---|---|---|
| Flasher relay: | | |
| Type | Semi transistor | ← |
| Model/Manufacturer | FX257N/N.D. | ← |
| Self cancelling device | Yes | ← |
| Flasher frequency | 85 ± 10 cycle/min | ← |
| Wattage | 27W x 2 pcs + 3.4W | ← |
| Hazard flasher relay: | | |
| Type | – | Semi transistor type |
| Model/Manufacturer | – | FX257N/N.D. |
| Flasher frequency | – | 90 ± 30 cycle/min |
| Wattage | – | 27W x 4 pcs + 3.4W |
| Self cancelling unit: | | |
| Model/Manufacturer | FX257N/N.D. | ← |
| Oil level switch: | | |
| Model/Manufacturer | – | 4X7/N.D. |
| Starter relay: | Yes | ← |
| Model/Manufacturer | FX257N/N.D. | ← |
| Side stand relay: | Yes | ← |
| Model/Manufacturer | 4U8/OMRON | ← |
| Coil winding resistance | 100Ω ± 10% at 20°C (68°F) | ← |
| Color code | Blue | ← |
| Circuit breaker: | | |
| Type | Fuse | ← |
| Amperage for individual circuit/Quantity: | | |
| Main | 20A x 1 | ← |
| Headlight | 15A x 1 | ← |
| Signal | 15A x 1 | ← |
| Ignition | 10A x 1 | ← |
| Tail | 10A x 1 | ← |
| Reserve | 20A x 1 | 30A x 1 |
| | 15A x 1 | ← |
| | 10A x 1 | ← |

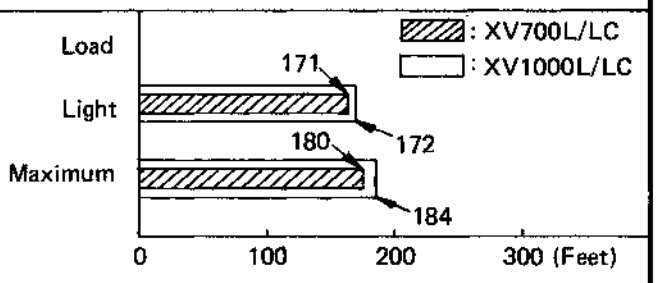
## CONSUMER INFORMATION

### Stopping Distance

This figure indicates braking performance that can be met or exceeded by the vehicles to which it applies, without locking the wheels, under different conditions of loading and with partial failures of the braking system. The information presented represents result sobtainable by skilled drivers under controlled road and vehicle conditions, and the information may not be correct under other conditions.

Description of vehicles to which this table applies: Yamaha motorcycle XV700L/LC
XV1000L/LC

A. Fully Operational Service Brake



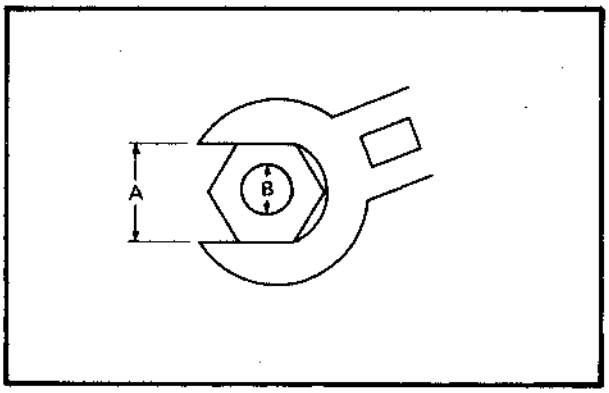

Stopping distance in feet from 60 mi/h

**NOTE:**
The statement above is required by U.S. Federal law. "Partical failures" of the braking system do not apply to this chart.

## GENERAL TORQUE SPECIFICATIONS

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

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




## DEFINITION OF UNITS

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

# CONVERSION TABLES

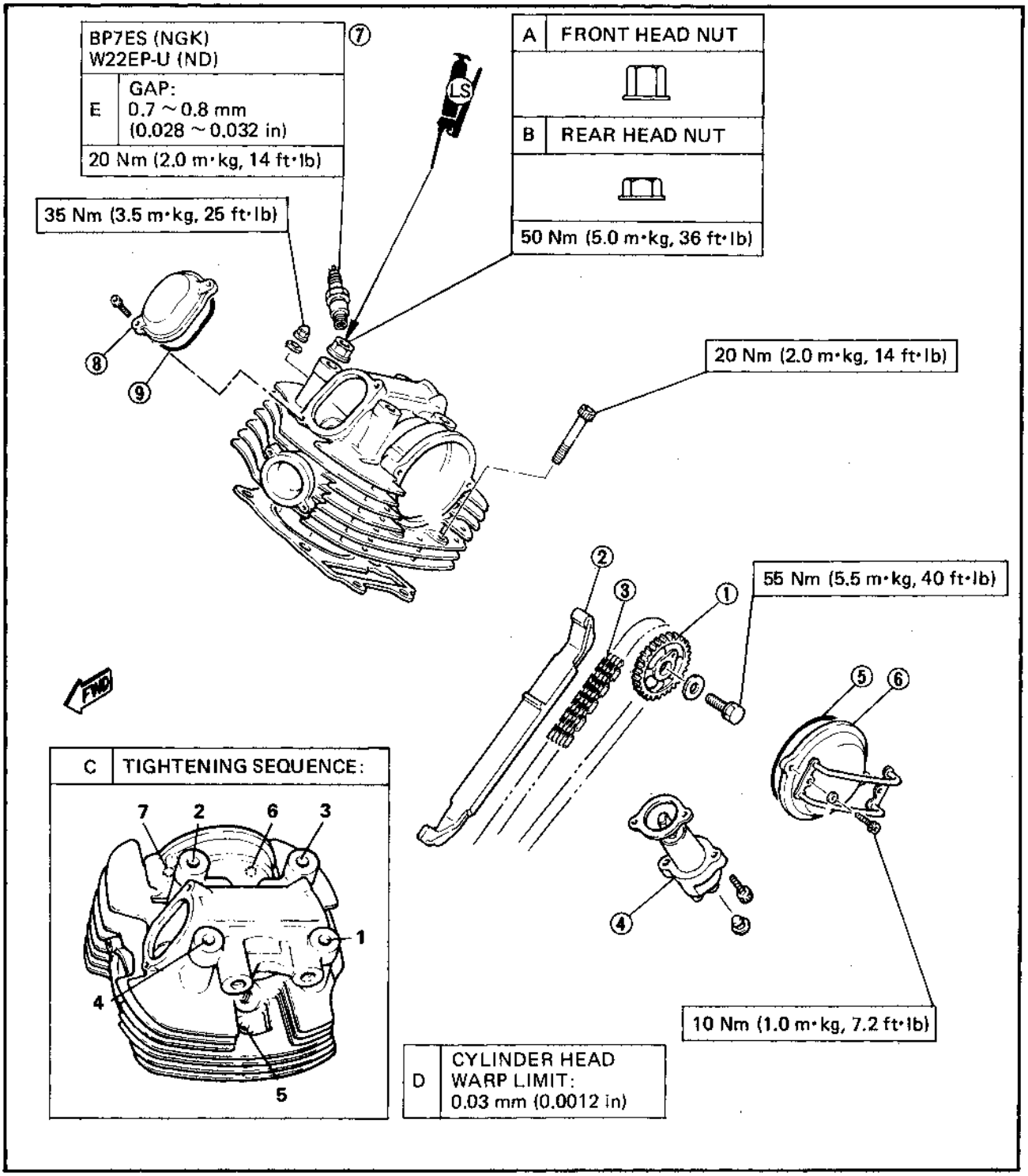
| Metric to inch system | | |
|---|---|---|
| Known | Multiplier | Result |
| m•kg | 7.233 | ft•lb |
| m•kg | 86.80 | in•lb |
| cm•kg | 0.0723 | ft•lb |
| cm•kg | 0.8680 | in•lb |
| kg | 2.205 | lb |
| g | 0.03527 | oz |
| kg/lit | 2.352 | mpg |
| km/hr | 0.6214 | mph |
| km | 0.6214 | mi |
| m | 3.281 | ft |
| m | 1.094 | yd |
| cm | 0.3937 | in |
| mm | 0.03937 | in |
| cc ($cm^3$) | 0.03382 | oz (US liq) |
| cc ($cm^3$) | 0.06102 | cu in |
| lit (liter) | 2.1134 | pt (US liq) |
| lit (liter) | 1.057 | qt (US liq) |
| lit (liter) | 0.2642 | gal (US liq) |
| kg/mm | 56.007 | lb/in |
| kb/$cm^2$ | 14.2234 | psi (lb/$in^2$) |
| Centigrade (°C) | 9/5 (°C) + 32 | Fahrenheit (°F) |

| Inch to metric system | | |
|---|---|---|
| Known | Multiplier | Result |
| ft•lb | 0.13826 | m•kg |
| in•lb | 0.01152 | m•kg |
| ft•lb | 13.831 | cm•kg |
| in•lb | 1.1521 | cm•kg |
| lb | 0.4535 | kg |
| oz | 28.352 | g |
| mpg | 0.4252 | km/lit |
| mph | 1.609 | km/hr |
| mi | 1.609 | km |
| ft | 0.3048 | m |
| yd | 0.9141 | m |
| in | 2.54 | cm |
| in | 25.4 | mm |
| oz (US liq) | 29.57 | cc ($cm^3$) |
| cu in | 16.387 | cc ($cm^3$) |
| pt (US liq) | 0.4732 | lit (liter) |
| qt (US liq) | 0.9461 | lit (liter) |
| gal (US liq) | 3.785 | lit (liter) |
| lb/in | 0.017855 | kg/mm |
| psi (lb/$in^2$) | 0.07031 | kg/$cm^2$ |
| Fahrenheit (°C) | 5/9 (°F − 32) | Centigrade (°F) |

# EXPLODED DIAGRAMS

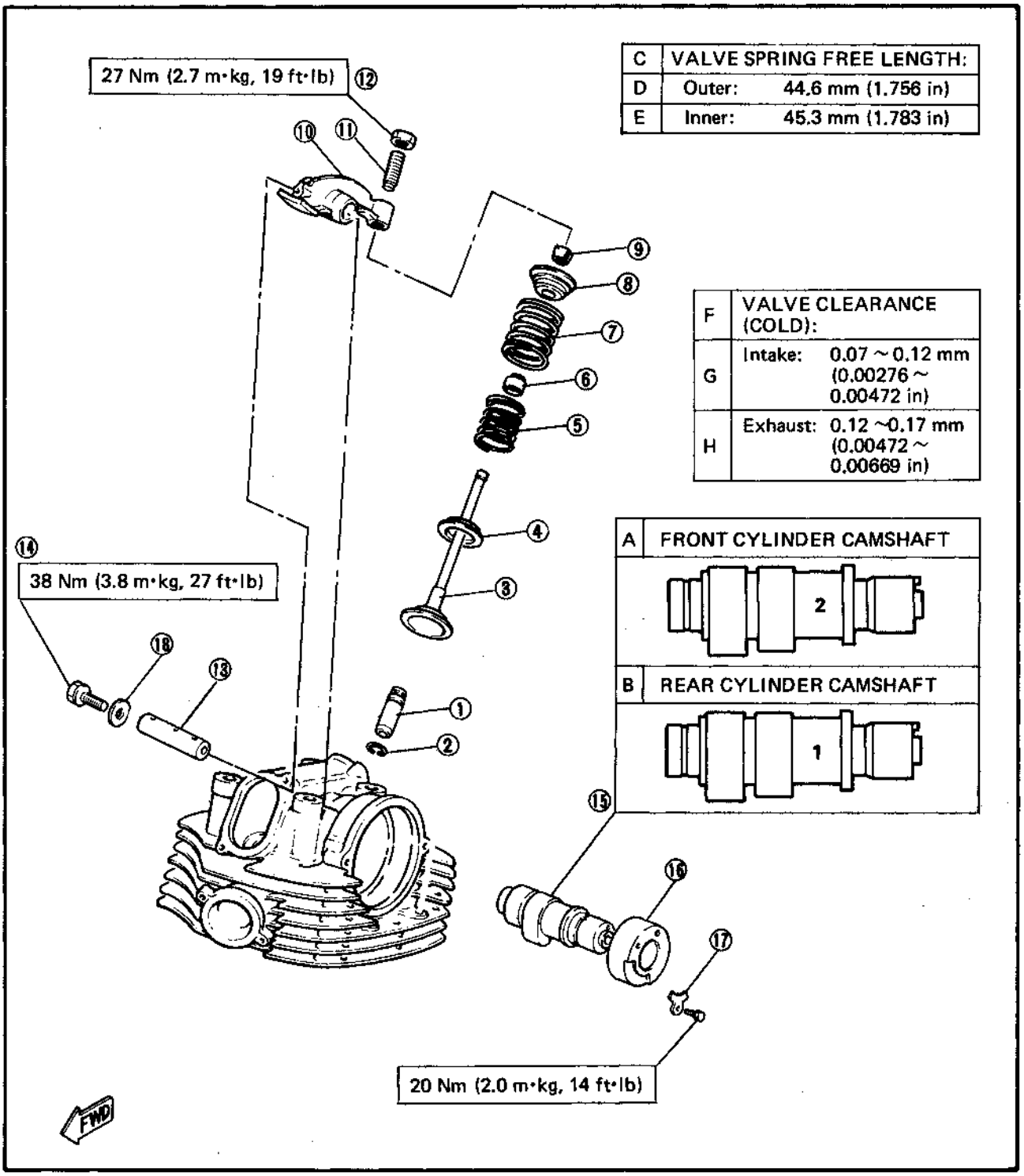
## CYLINDER HEAD AND CAMSHAFT SPROCKET

1 Cam chain sprocket
2 Front cam chain guide
3 Cam chain
4 Cam chain tensioner
5 O-ring
6 Cam sprocket cover
7 Spark plug
8 Valve cover
9 O-ring



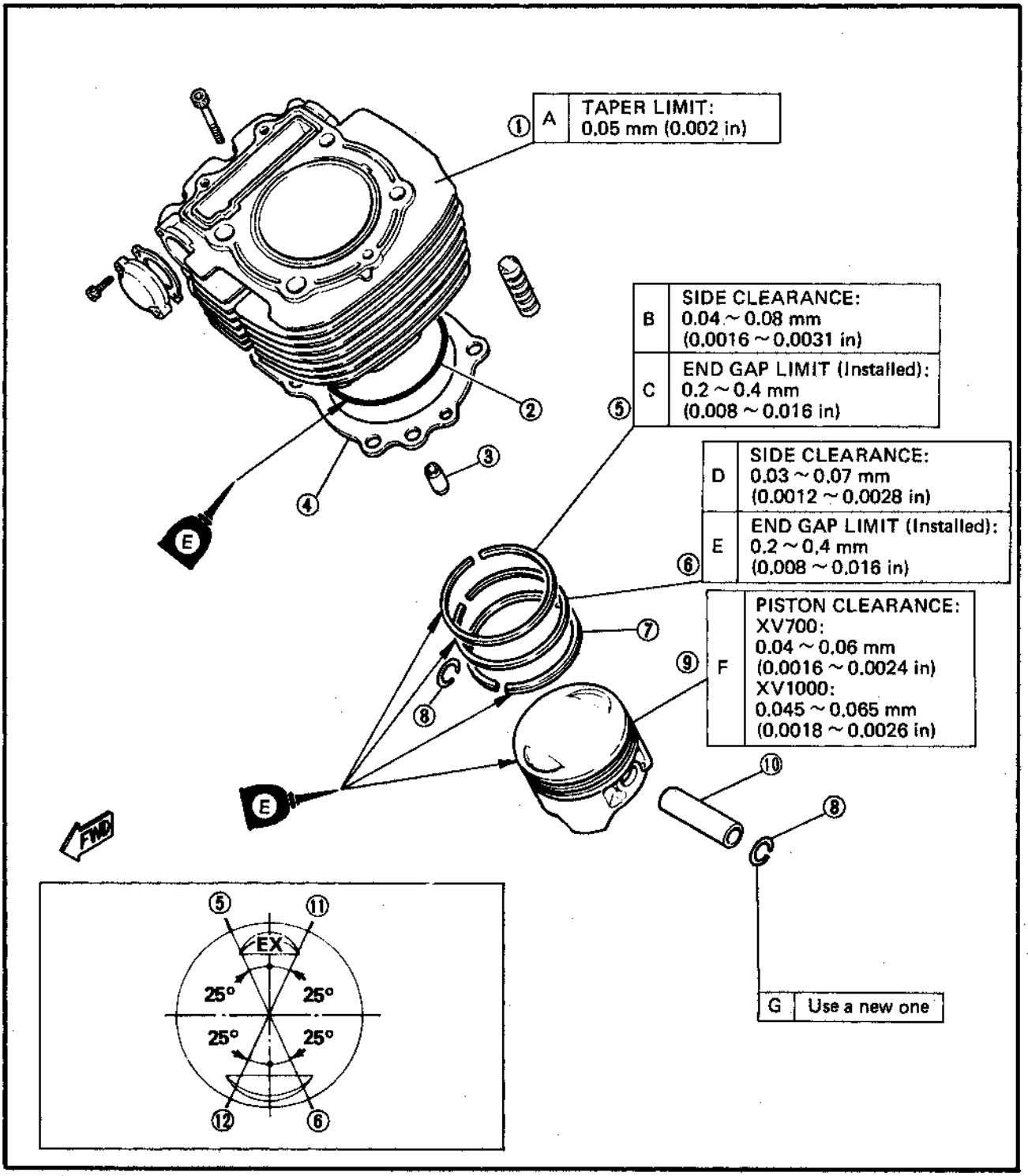
## ROCKER ARM, CAMSHAFT, VALVE, AND VALVE SPRING

1 Valve guide
2 Circlip
3 Valve
4 Spring seat
5 Inner spring
6 Oil seal
7 Outer spring
8 Spring seat
9 Valve retainer
10 Rocker arm
11 Adjuster
12 Locknut
13 Rocker arm shaft
14 Left side rocker arm bolt
15 Camshaft
16 Camshaft bushing
17 Stopper plate
18 Copper washer



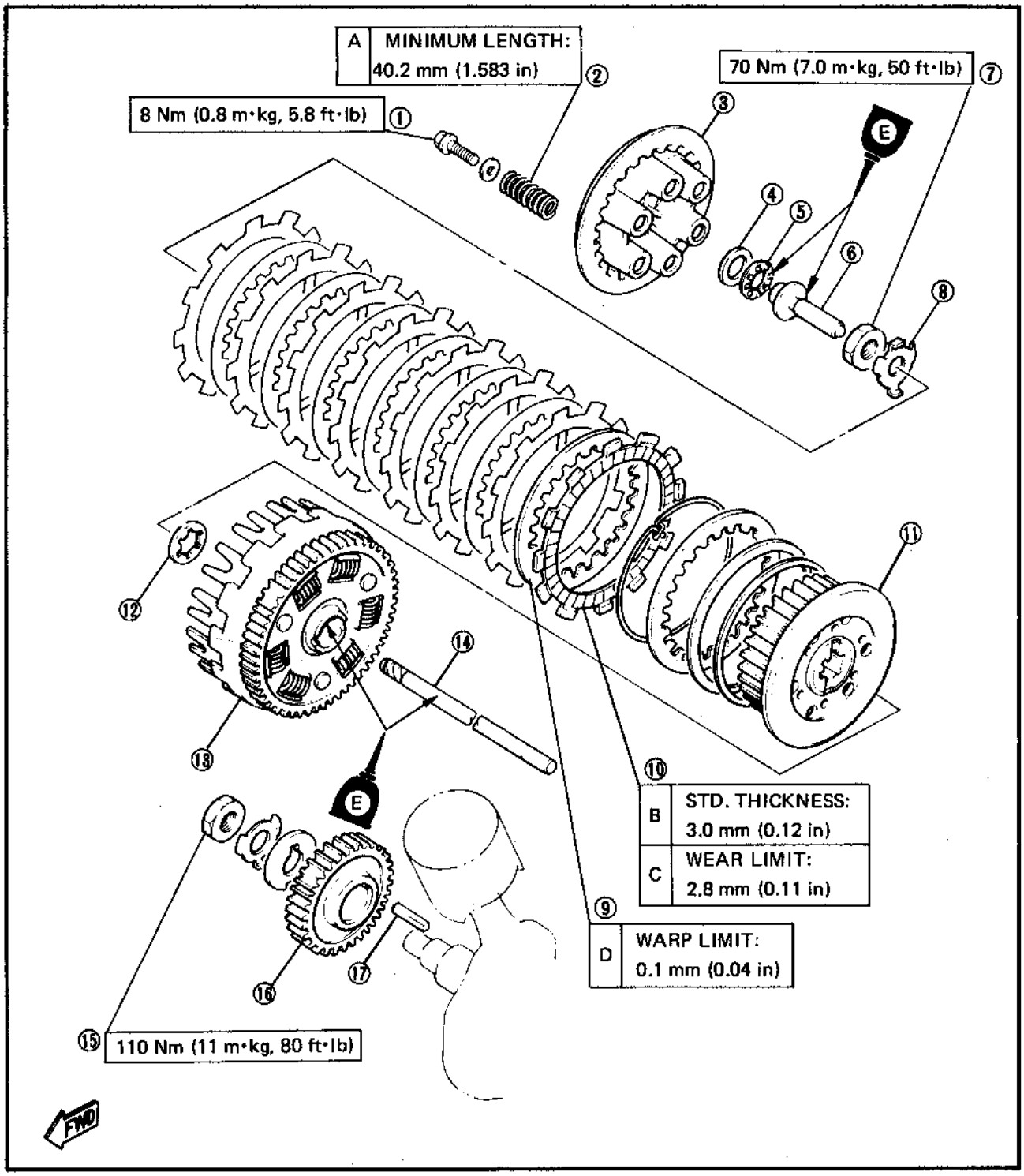
## PISTON AND CYLINDER

1 Cylinder
2 O-ring (New)
3 Dowel
4 Base gasket (New)
5 Top ring
6 2nd ring
7 Oil ring
8 Piston pin clip (New)
9 Piston
10 Piston pin
11 Oil ring (Lower rail)
12 Oir ring (Upper rail)



## PRIMARY GEAR AND CLUTCH

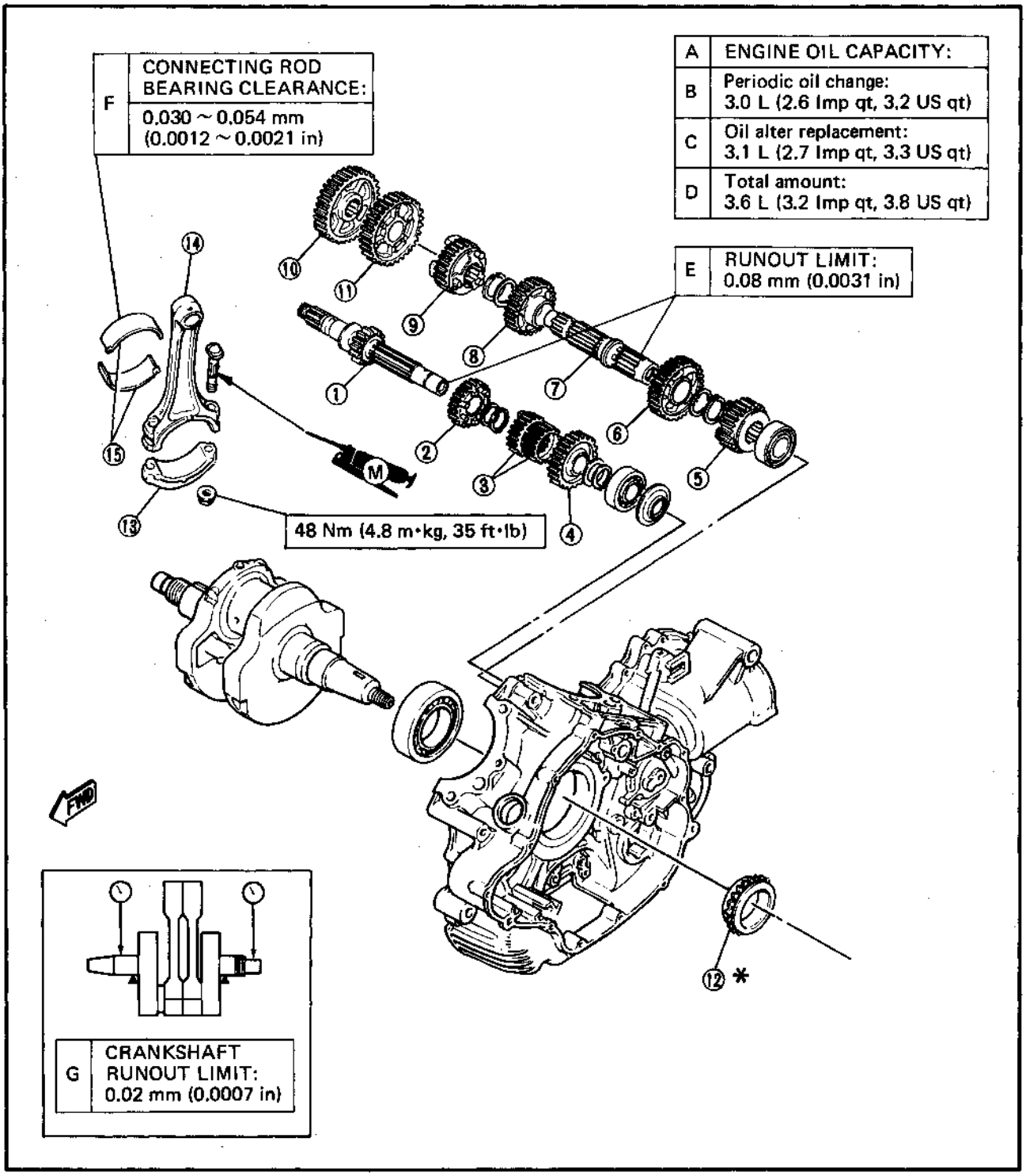
1 Flange bolt
2 Clutch spring
3 Clutch pressure plate
4 Washer
5 Thrust bearing
6 Push rod No. 1
7 Clutch boss securing nut
8 Lock tab
9 Clutch plate
10 Friction plate
11 Clutch boss
12 Thrust washer
13 Clutch housing
14 Push rod No. 2
15 Primary drive gear securing nut
16 Primary drive gear
17 Key



## CRANKSHAFT, TRANSMISSION, AND LEFT SIDE CRANKCASE

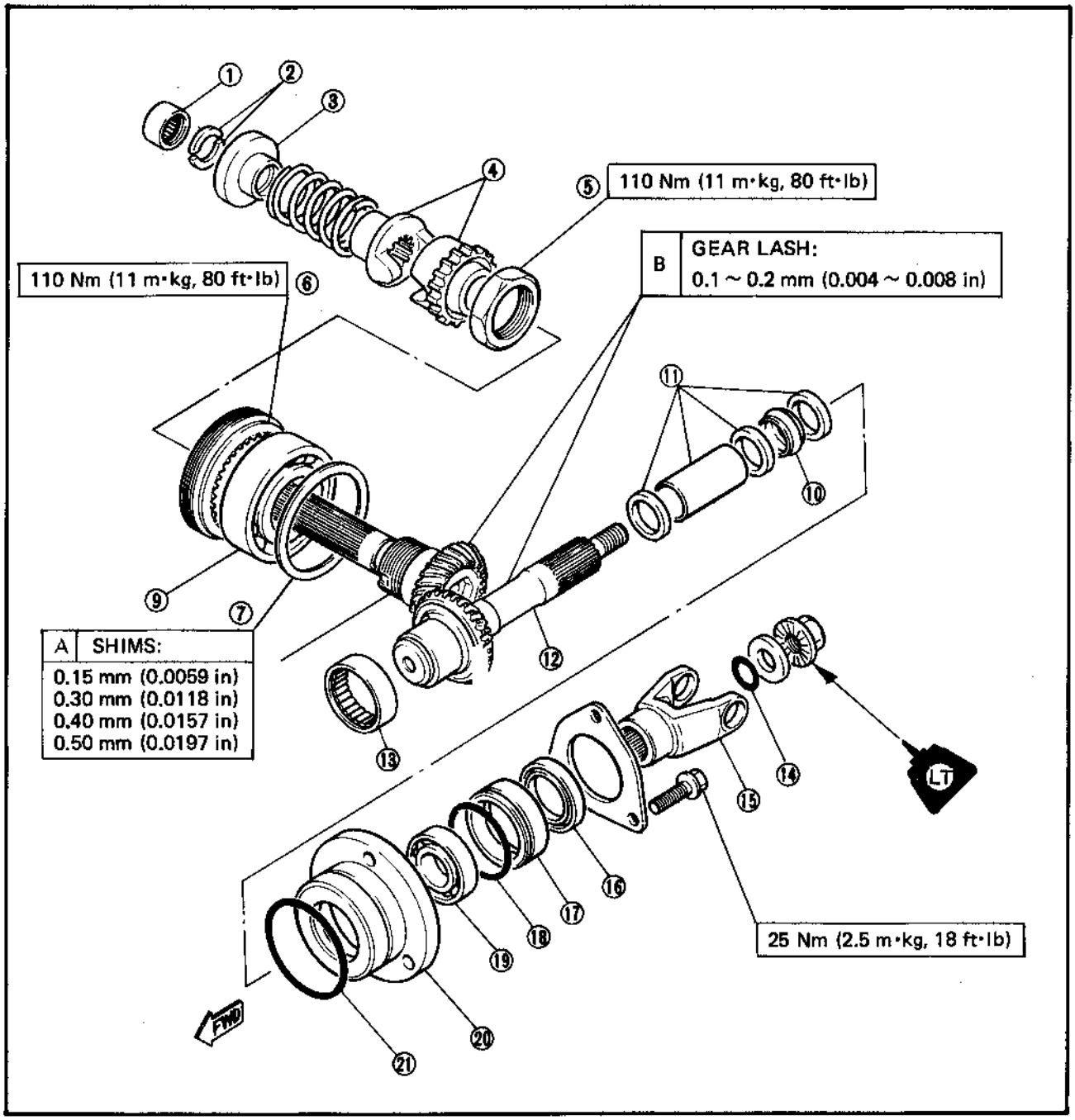
1 Main shaft
2 4th pinion gear
3 2nd/3rd pinion gear
4 5th pinion gear
5 5th wheel gear
6 2nd wheel gear
7 Drive axle
8 3rd wheel gear
9 4th wheel gear
10 Middle drive gear
11 1st wheel gear
12 Oil-pump drive sprocket (Press fit)
13 Connecting rod cap
14 Connecting rod
15 Connecting rod bearing

* Discard removed oil pump drive sprocket



## MIDDLE GEAR

1 Bearing (Needle 20 x 26 x 12)
2 Spring retainers
3 Spring seat
4 Damper cams
5 Middle drive shaft nut
6 Middle-drive-shaft-bearing retainer
7 Middle drive gear shim
8 Middle drive shaft
9 Bearing (B6209RSH2C2)
10 Collapsible collar (Always use a new one)
11 Spacers
12 Middle driven shaft
13 Bearing (Needle 40 x 50 x 15)
14 O-ring
15 Universal joint
16 Oil seal (35 x 50 x 6)
17 Bearing retainer
18 O-ring (52 x 56 x 1.9)
19 Bearing (B6205 RC2)
20 Bearing housing
21 O-ring (71 x 77 x 3)



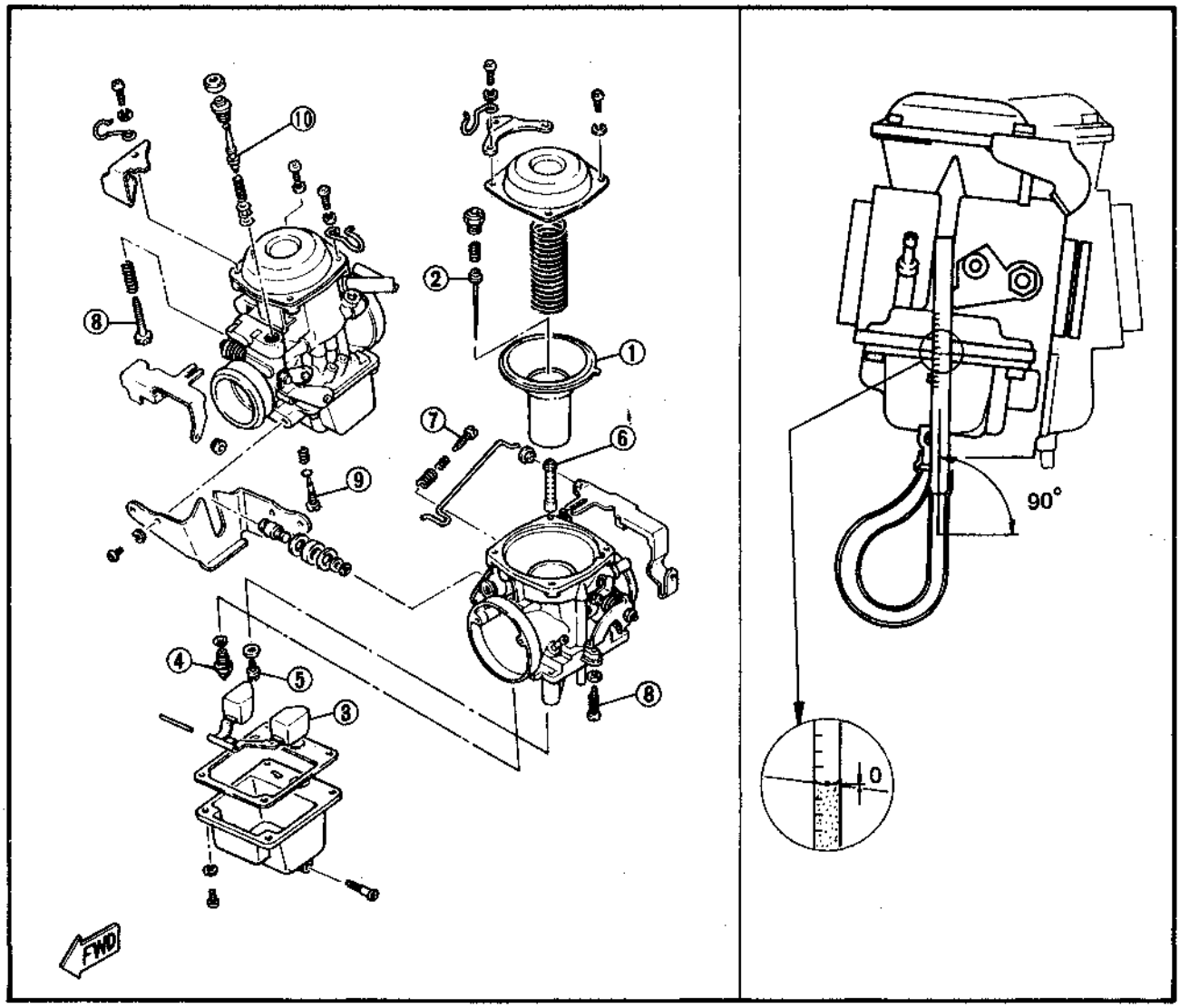
## CARBURETOR

1. Vaccum piston
2. Jet needle
3. Float
4. Float valve
5. Main jet
6. Main nozzle
7. Synchronizing screw
8. Throttle stop screw
9. Pilot screw
10. Starter plunger

**CAUTION:**

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

| SPECIFICATIONS | | |
|---|---|---|
| | XV700 | XV1000 |
| Main jet: | | |
| #1 Carburetor | #128 | #124 |
| #2 Carburetor | #132 | ← |
| Jet needle: | | |
| #1 Carburetor | Y-32 | Y-34 |
| #2 Carburetor | Y-32 | Y-33 |
| Pilot jet: | #42 | #40 |
| Starter jet | #40 | ← |
| Fuel level | 0 ± 1.0 mm (0 ± 0.04 in) | ← |
| Pilot screw | Preset | ← |
| Float valve seat | φ 2.0 | ← |
| Engine idle speed | 1,000 ± 50 r/min | ← |

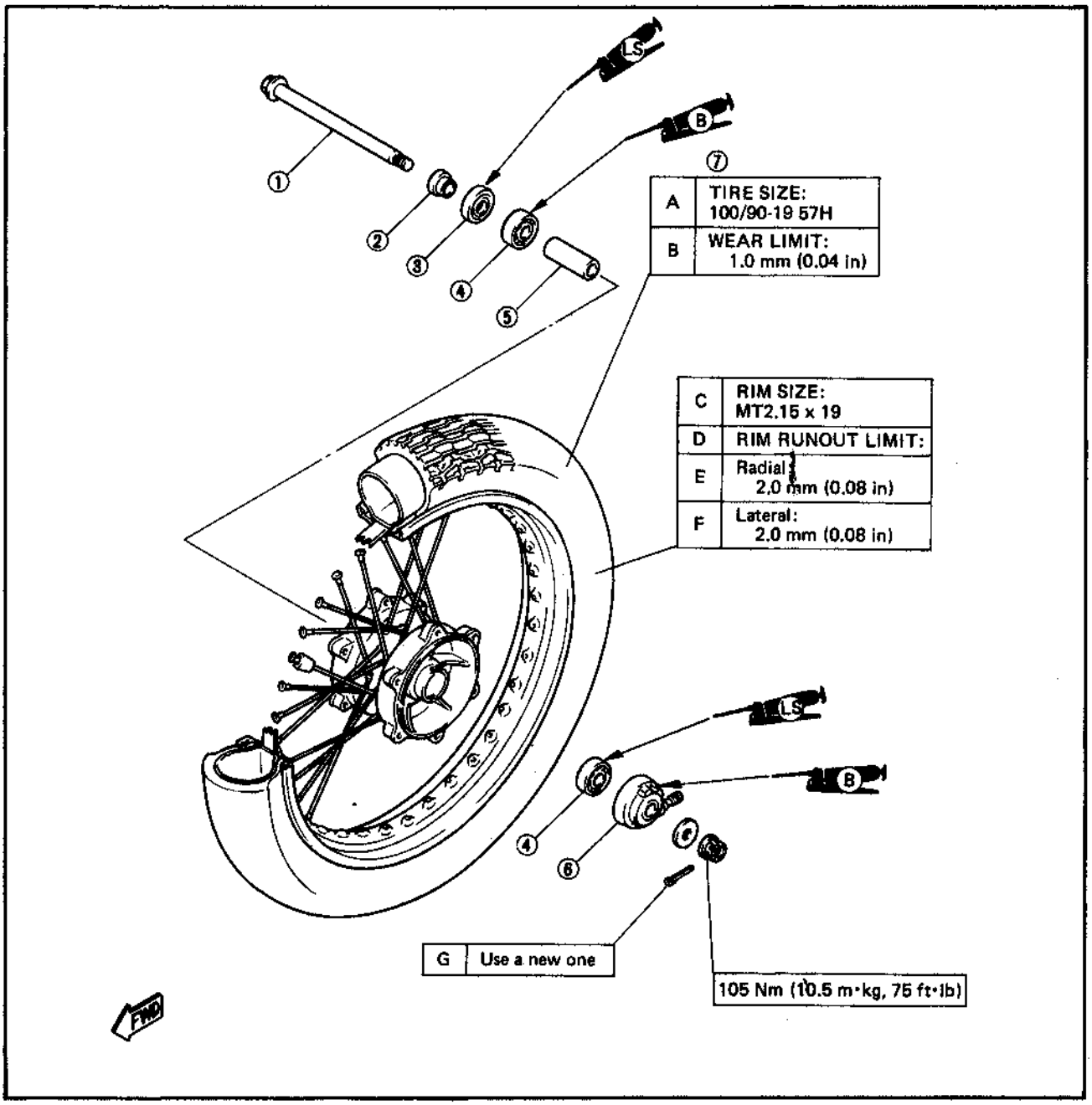


## FRONT WHEEL

1. Wheel axle
2. Collar
3. Oil seal
4. Bearing
5. Spacer
6. Speedometer gear unit
7. Tire

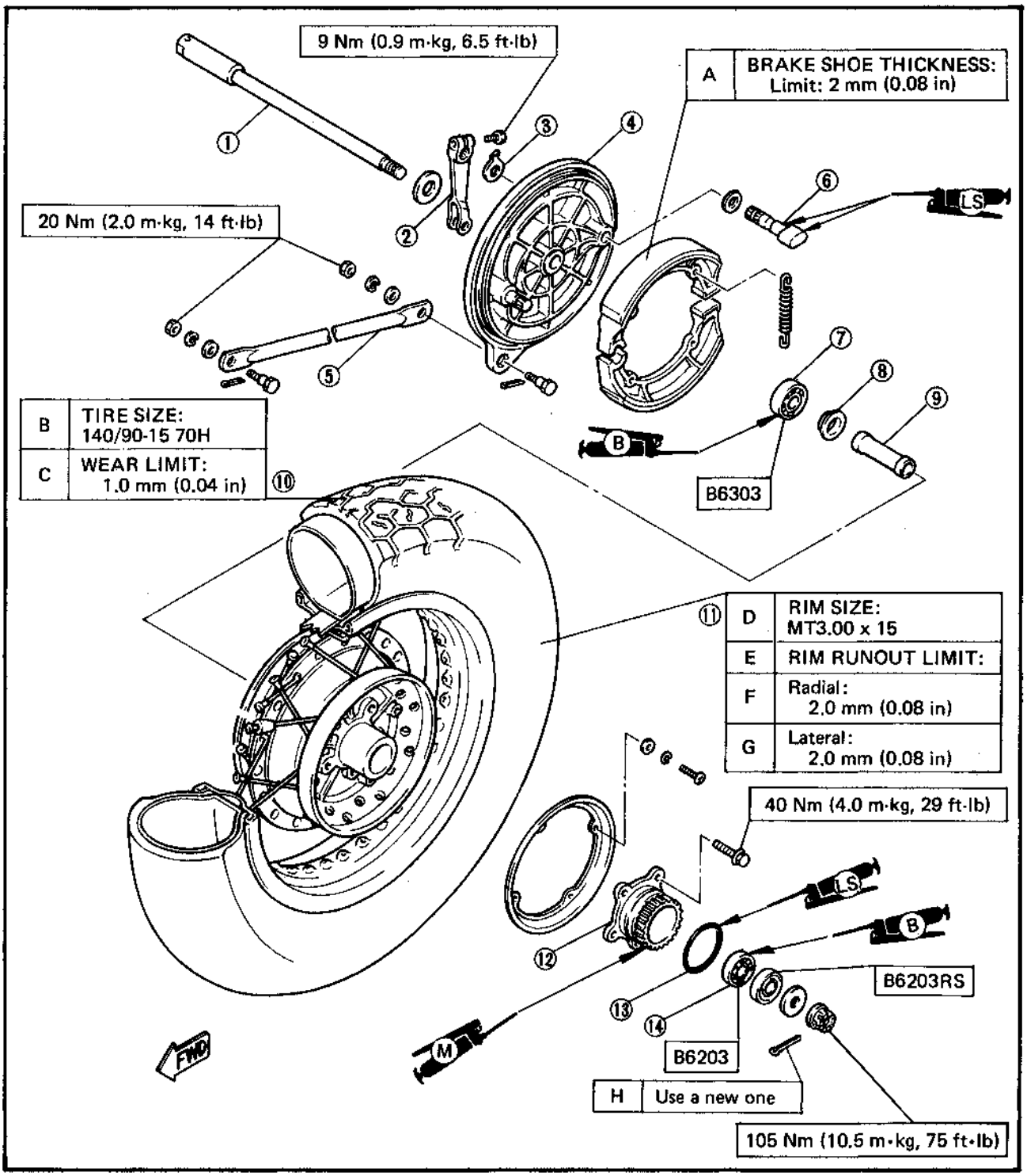
| | | |
|---|---|---|
| Basic weight: With oil and full fuel tank | XV700: 225 kg (496 lb)<br>XV1000: 236 kg (520 lb) | |
| Maximum load*: | XV700: 245 kg (540 lb)<br>XV1000: 234 kg (516 lb) | |
| Cold tire pressure: | Front | Rear |
| Up to 90 kg (198 lb)* | 177 kPa (1.8 kg/cm², 26 psi) | 196 kPa (2.0 kg/cm², 28 psi) |
| 90 kg (198 lb) load ~ 160 kg (353 lb) load* | 196 kPa (2.0 kg/cm², 28 psi) | 226 kPa (2.3 kg/cm², 32 psi) |
| 160 kg (353 lb) load ~ Maximum load* | 196 kPa (2.0 kg/cm², 28 psi) | 275 kPa (2.8 kg/cm², 40 psi) |
| High speed riding | 226 kPa (2.3 kg/cm², 32 psi) | 245 kPa (2.5 kg/cm², 36 psi) |

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



## REAR WHEEL

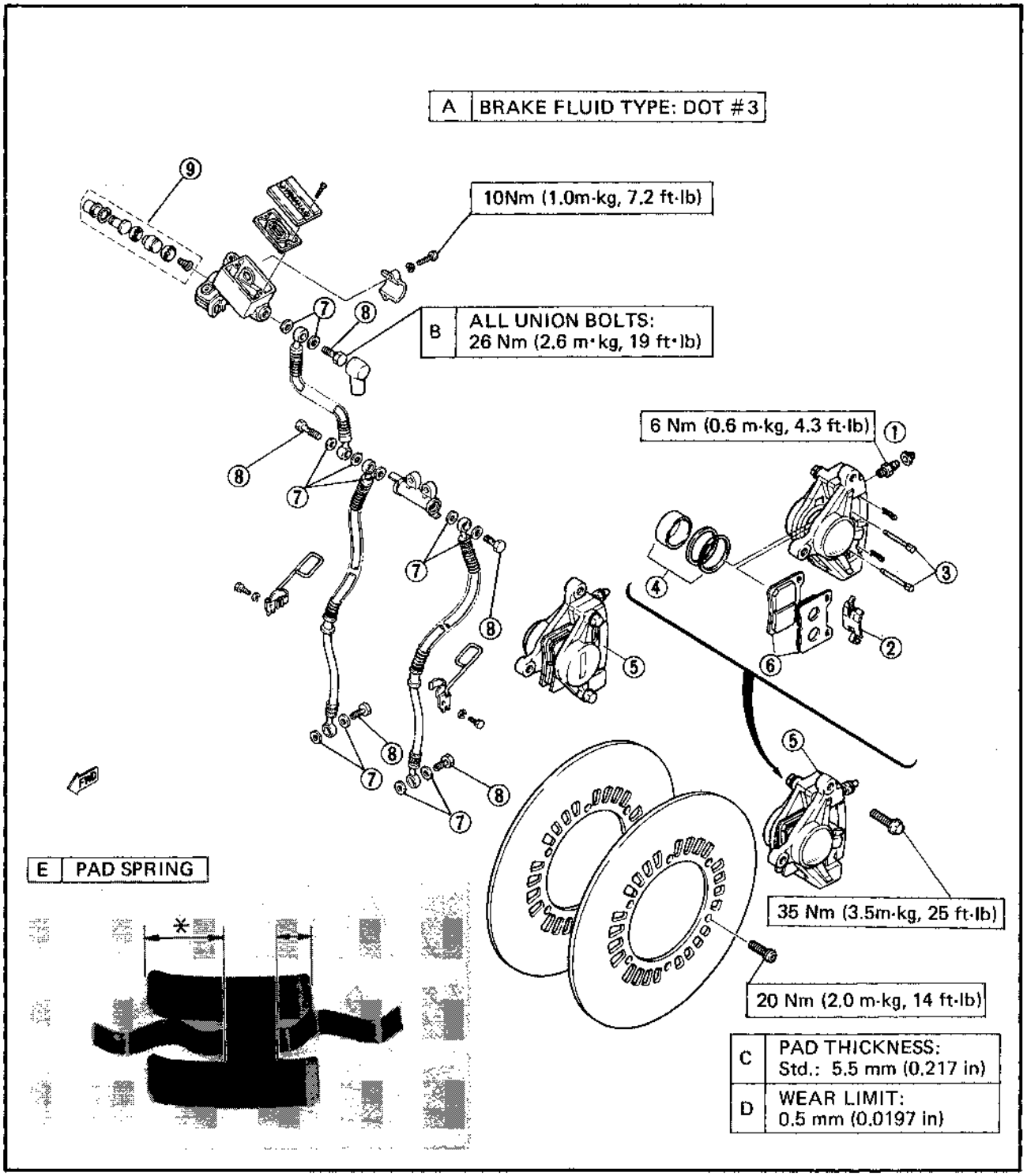
1. Axle
2. Rear brake camshaft lever
3. Wear indicator
4. Brake plate
5. Tension bar
6. Rear brake camshaft
7. Bearing (B6303RS)
8. Spacer flange
9. Spacer
10. Tire
11. Wheel
12. Clutch hub
13. O-ring
14. Bearing
15. Bearing



## FRONT BRAKE

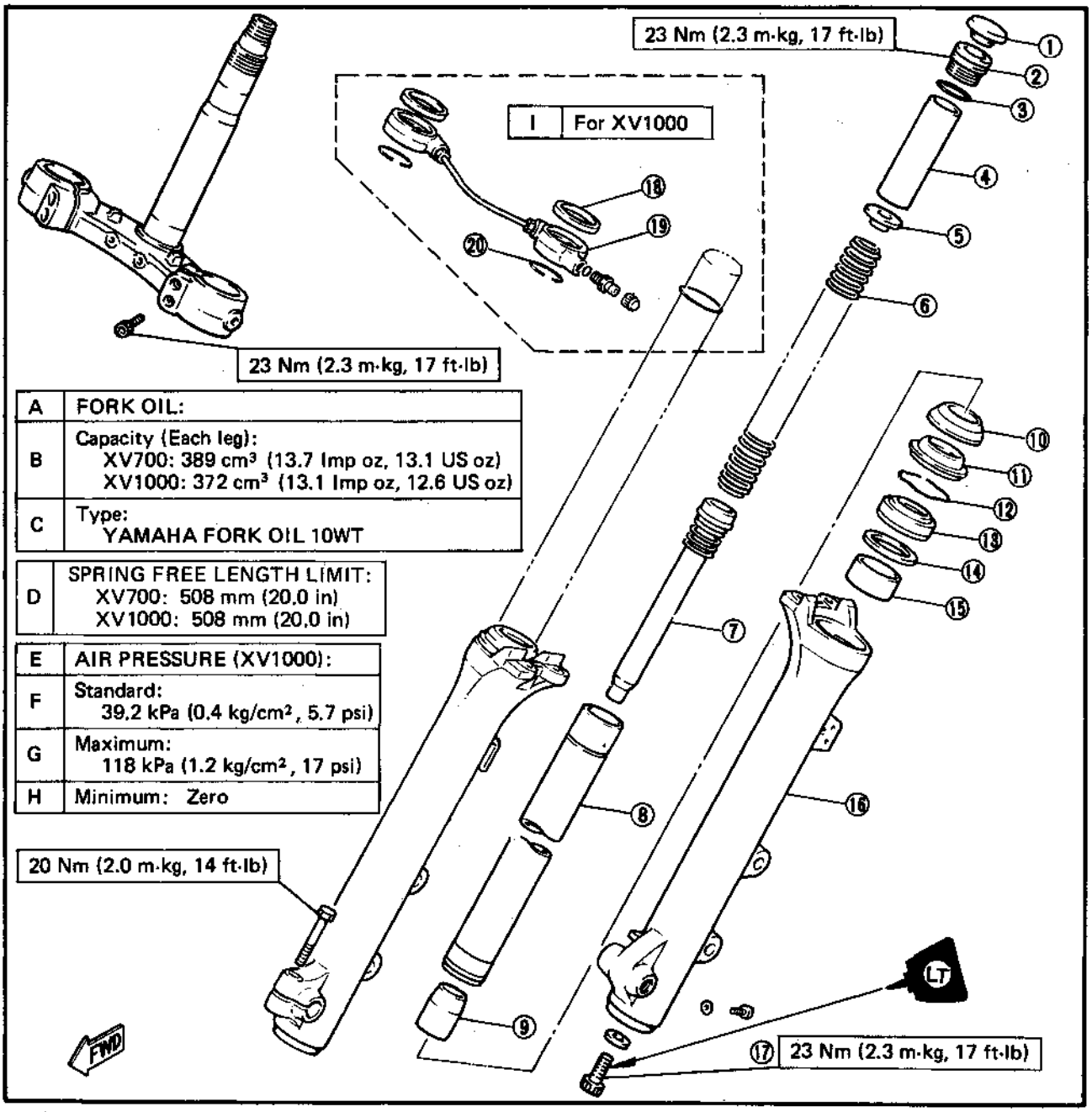
1. Bleed screw
2. Pad spring
3. Pad retaining pin
4. Caliper piston assembly (Replace as a set)
5. Caliper
6. Brake pads (Replace as a set)
7. Copper washer
8. Union bolt
9. Master cylinder kit (Replace as a set)

* Install the pad spring with its longer tangs facing upwards.



## FRONT FORK

1. Cap
2. Cap bolt
3. O-ring
4. Spacer
5. Spring seat
6. Fork spring
7. Damper rod
8. Inner fork tube
9. Taper spindle
10. Dust seal cover
11. Dust seal
12. Circlip
13. Fork seal
14. Washer
15. Guide bushing
16. Outer fork tube
17. Damper rod securing screw
18. Rubber spacer
19. Air joint bracket
20. Stopper ring



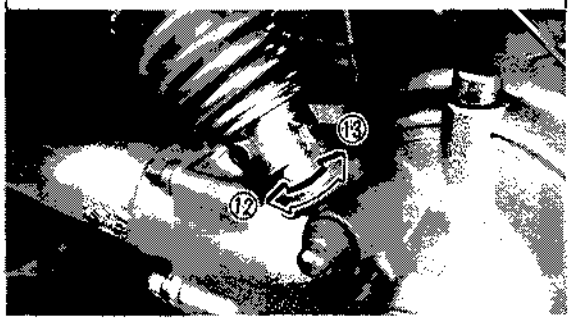
## SWINGARM AND REAR SHOCK ABSORBER

1. Rear shock absorber
2. Swingarm
3. Bearing
4. Oil seal
5. Collar
6. Lock washer
7. Left pivot shaft
8. Pivot cover
9. Right pivot shaft
10. Nut
11. Rubber boot
12. Softer
13. Stiffer

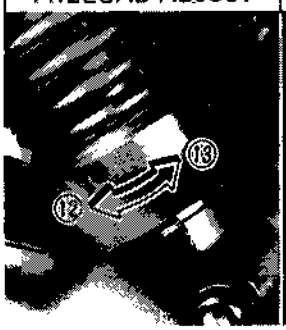
| DAMPING ADJUST (XV1000): |
|---|
| Standard position: No. 1<br>Minimum: No. 1<br>Maximum: No. 4 |

| SPRING PRELOAD ADJUST | | |
|---|---|---|
| | XV700 | XV1000 |
| Standard position | B | 2 |
| Softest | A | 1 |
| Stiffest | E | 5 |

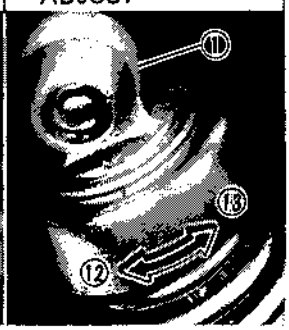
XV700 SPRING PRELOAD ADJUST

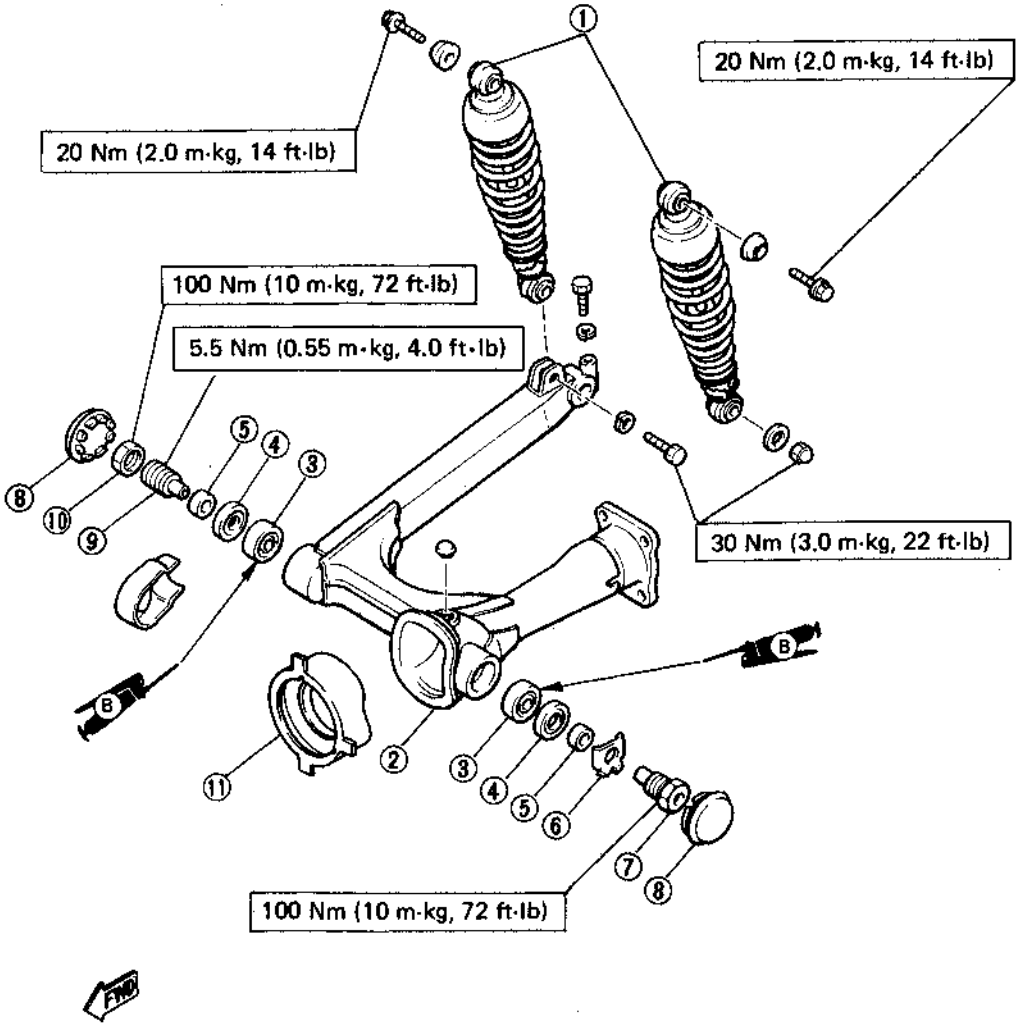



XV1000 SPRING PRELOAD ADJUST



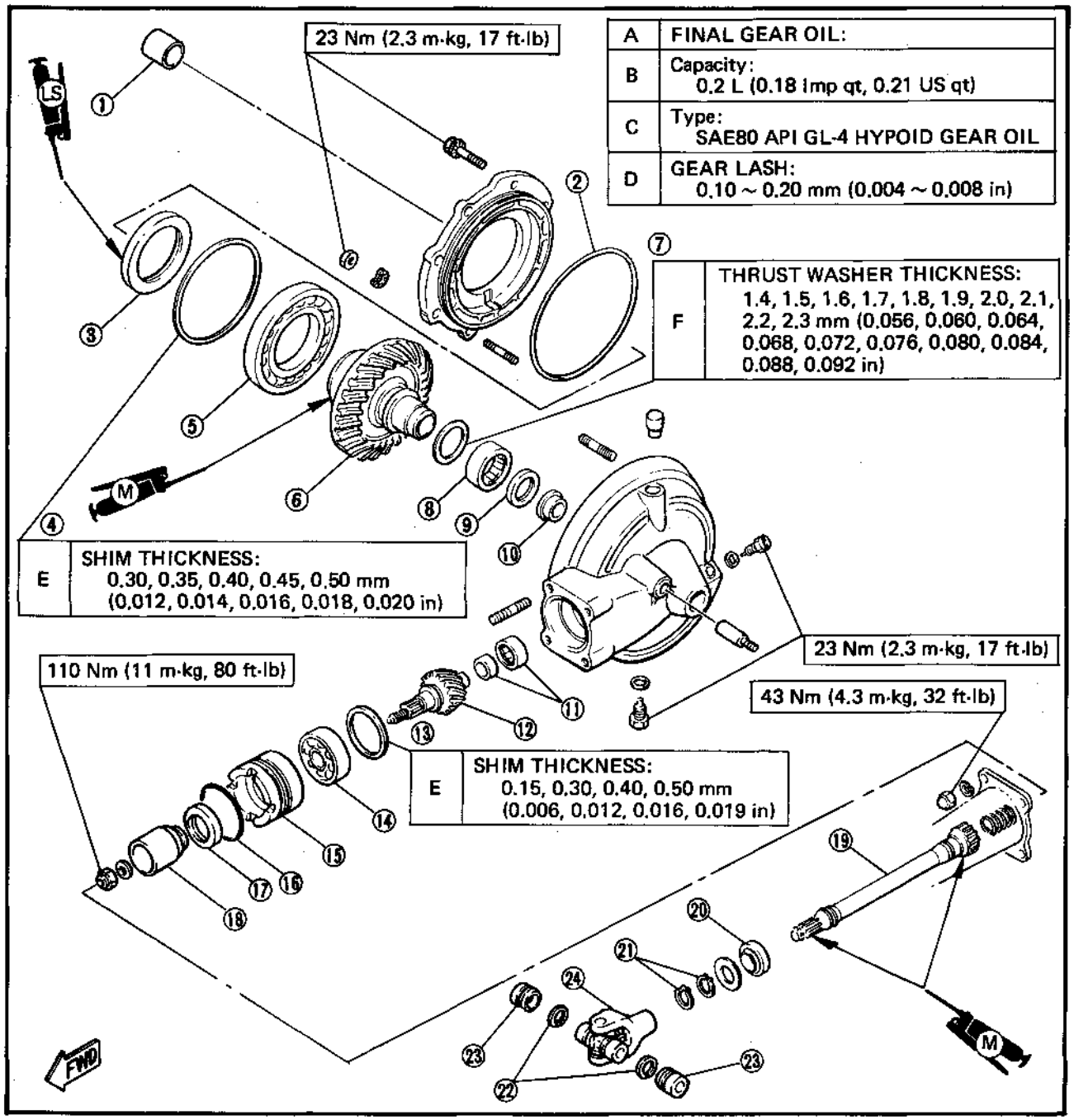

XV1000 DAMPING ADJUST



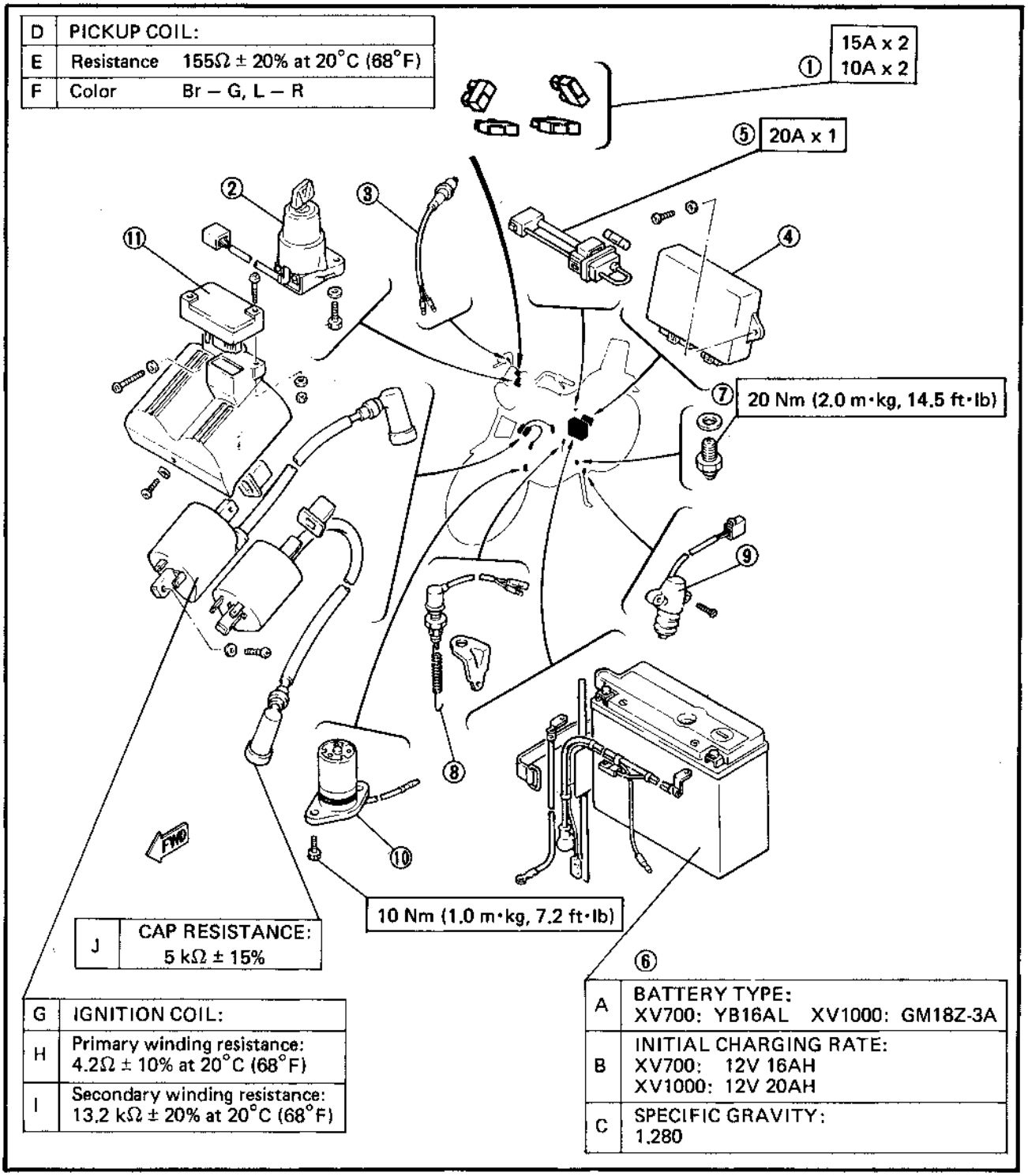
## SHAFT DRIVE

1. Collar
2. O-ring
3. Oil seal
4. Shim(s)
5. Bearing ($B16014C_2$)
6. Ring gear
7. Thrust washer
8. Bearing (Needle NQ37/20D)
9. Oil seal
10. Guide collar
11. Bearing (Needle 22BTM3018)
12. Final drive shaft
13. Shim(s)
14. Bearing (B6305RBI special)
15. Bearing retainer
16. O-ring
17. Oil seal
18. Gear coupling
19. Drive shaft
20. Oil seal
21. Circlip (New)
22. Circlip (New)
23. Bearing
24. Universal joint



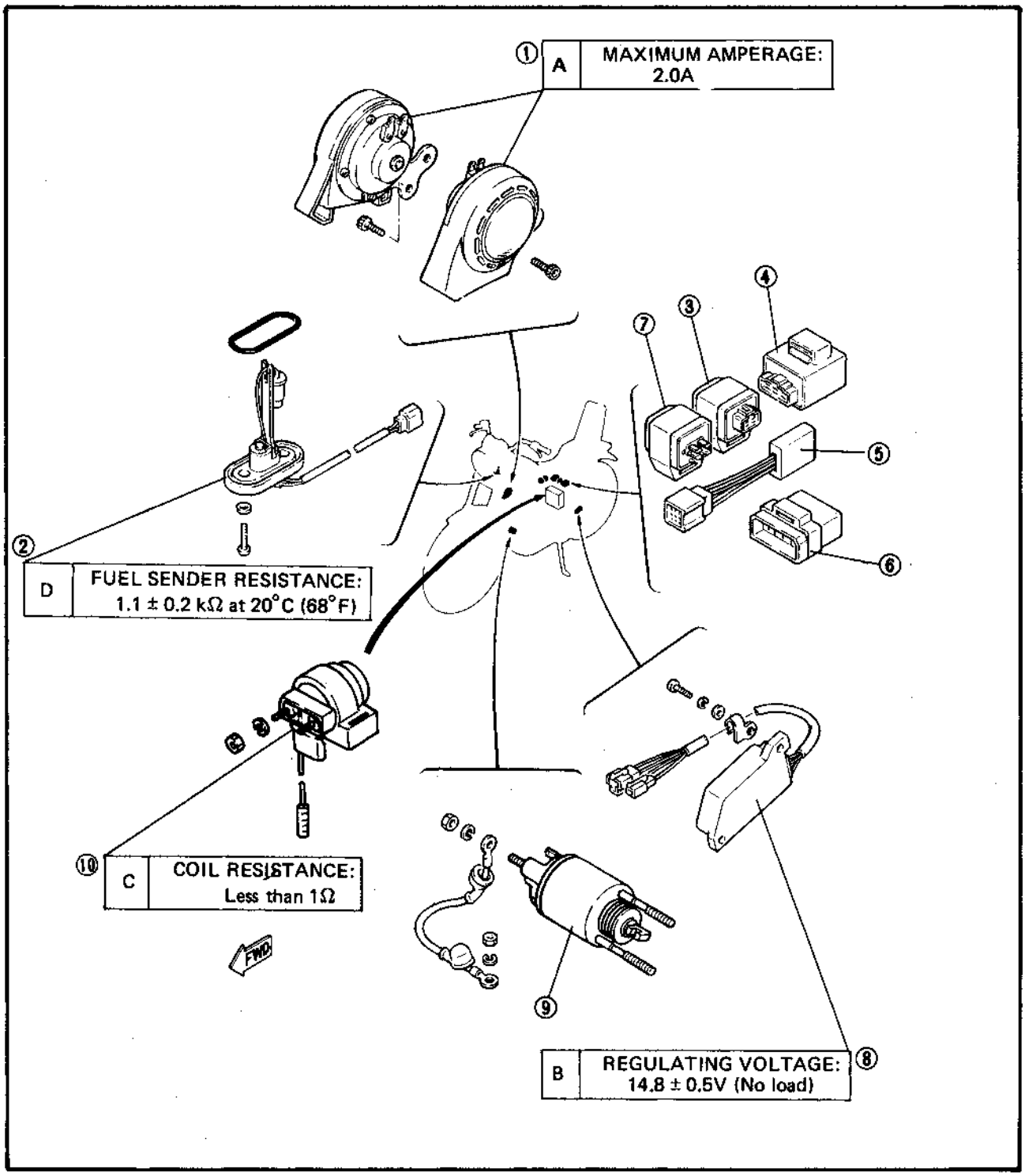
## ELECTRICAL COMPONENTS (1)

1. Fuse
2. Main switch
3. Front brake switch
4. TCI unit
5. Main fuse
6. Battery
7. Neutral switch
8. Rear brake switch
9. Sidestand switch
10. Oil level switch
11. Pressure sensor (XV1000)



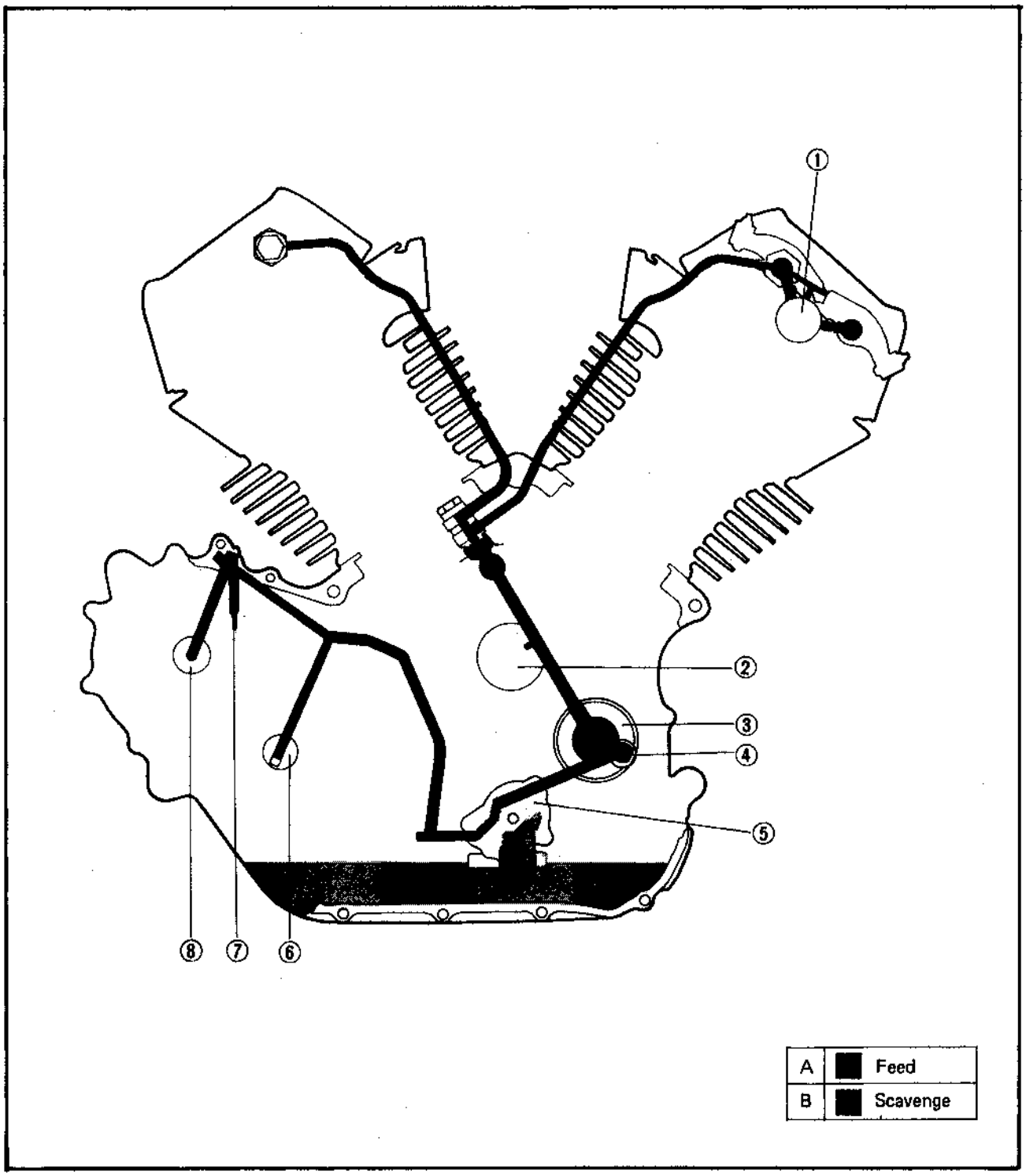
## ELECTRICAL COMPONENTS (2)

1. Horn
2. Fuel sender
3. Sidestand relay
4. Fuel pump timer (XV1000)
5. Diode block
6. Relay assembly
7. Starter relay (XV1000)
8. Rectifier/Regurator
9. Solenoid switch (XV1000)
10. Starter relay (XV700)



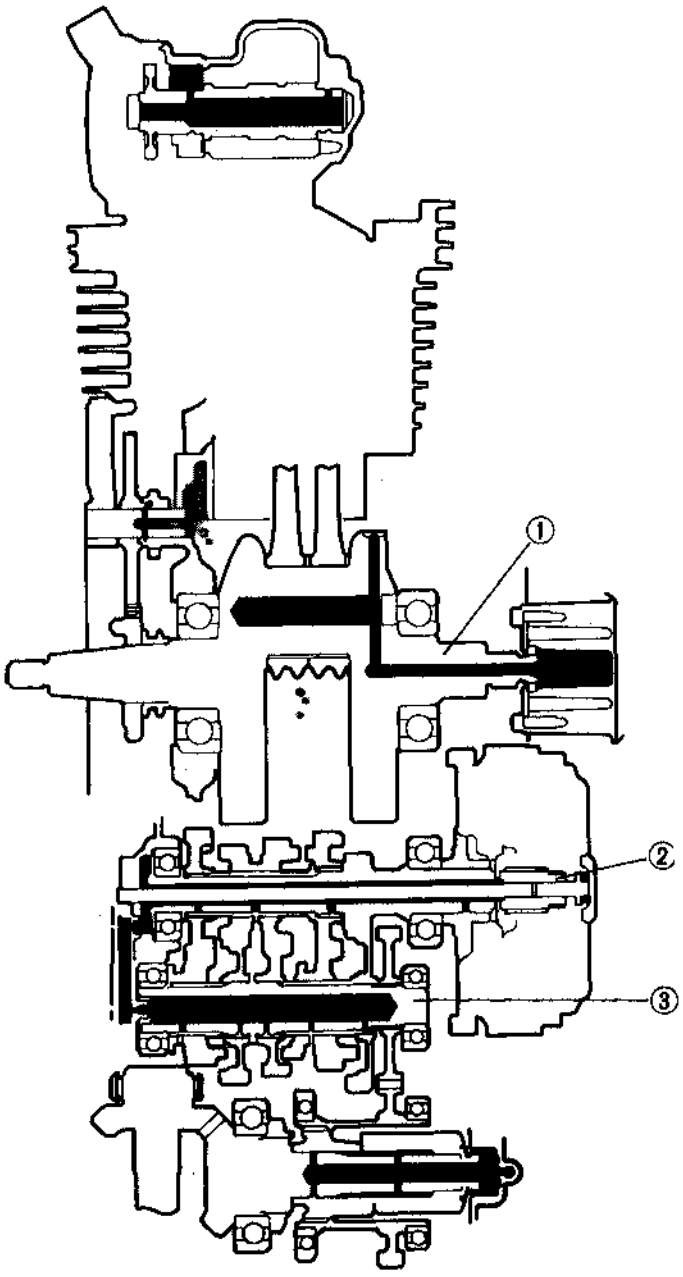
# LUBRICATION DIAGRAMS

1. Camshaft
2. Crankshaft
3. Oil filter
4. Relief valve
5. Oil pump
6. Main axle
7. Drive axle
8. Middle drive shaft

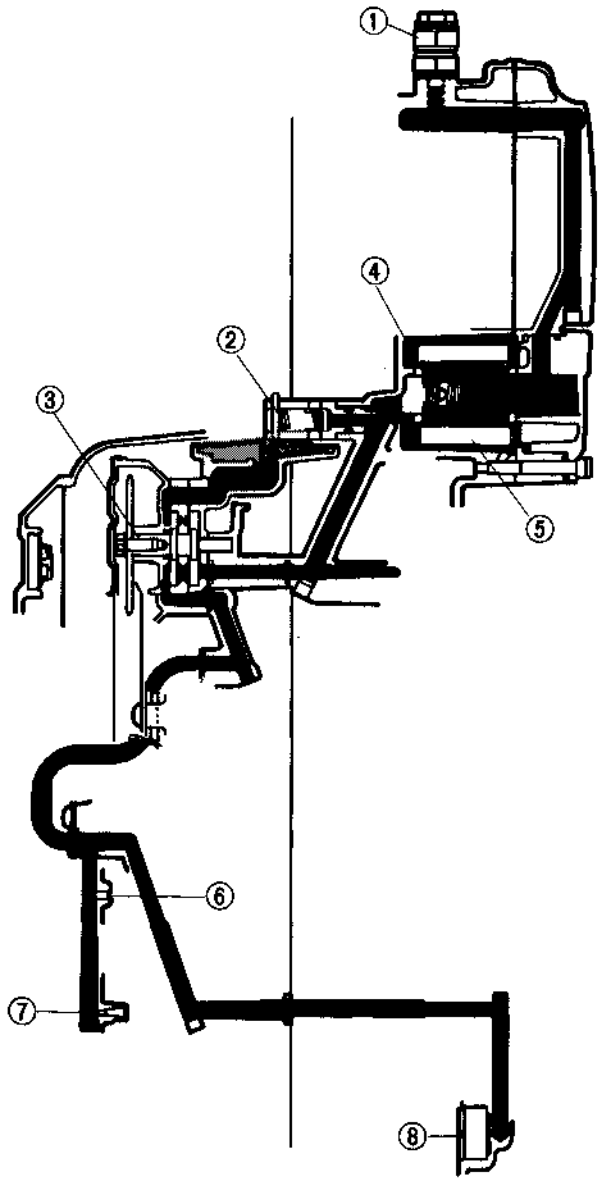


# LUBRICATION DIAGRAM

1. Crankshaft
2. Main axle
3. Drive axle



1. To cylinder heads
2. Oil filter
3. Bypass valve
4. Relief valve
5. Oil pump
6. Main axle
7. Drive axle
8. Middle drive shaft

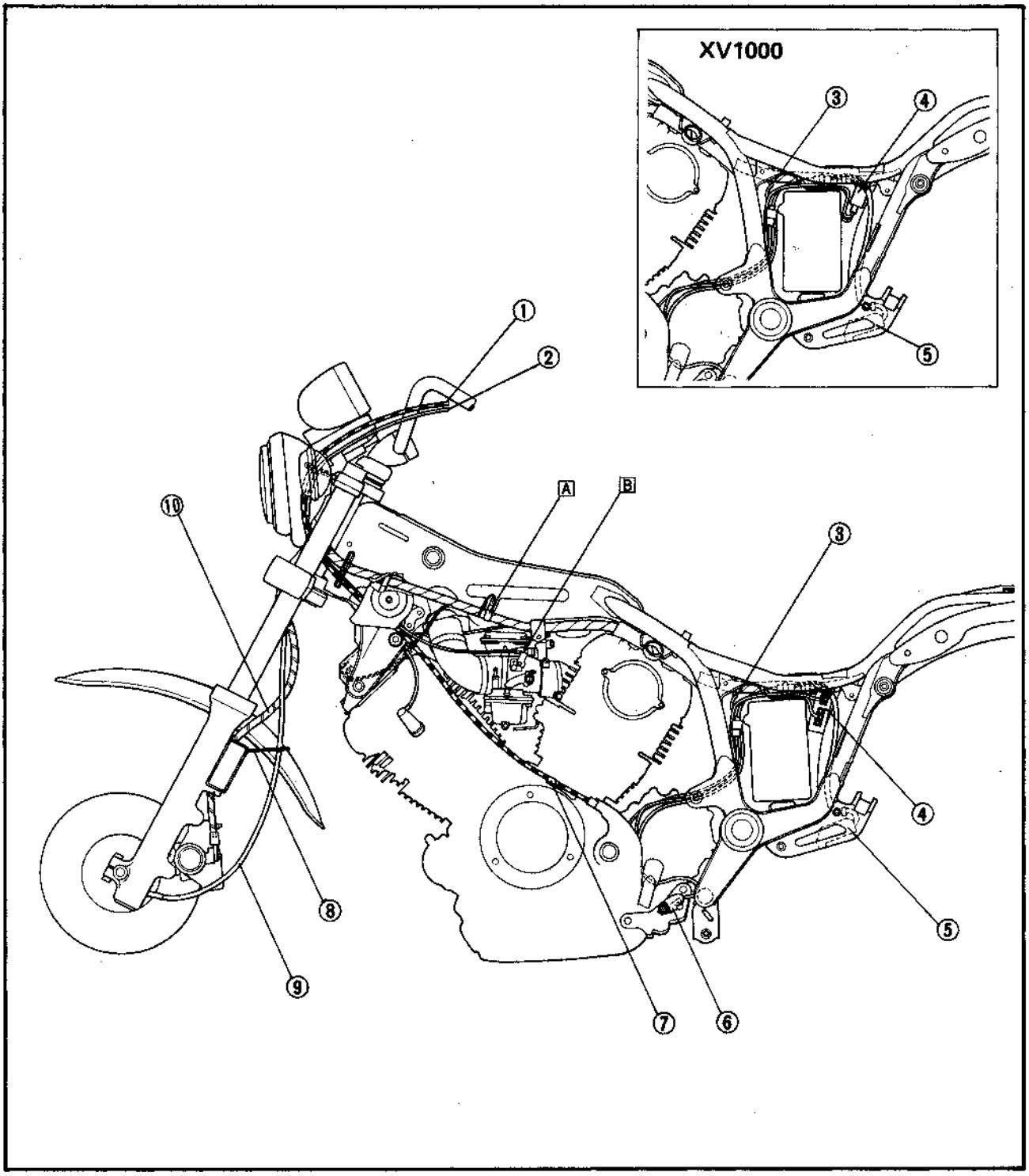



LEFT-SIDE CRANKCASE RIGHT-SIDE CRANKCASE

## CABLE ROUTING (1)

1. Clutch cable
2. Starter wire
3. Sidestand switch lead
4. Ignitor unit
5. Rectifier with regulator
6. Sidestand switch
7. Clutch cable holder
8. Wire guide
9. Speedometer cable
10. Brake hose

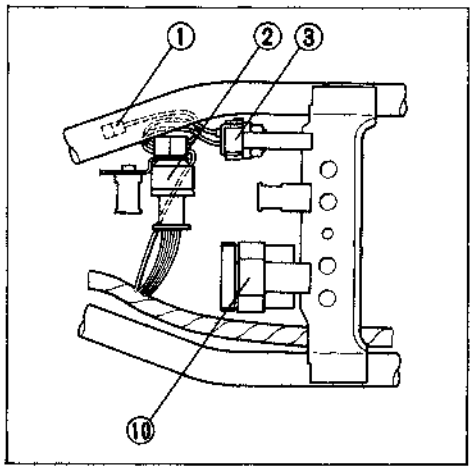
[A] Clamp the wireharness at the white tape wound around it.
[B] Connect the outer cable end with the cable stopper.

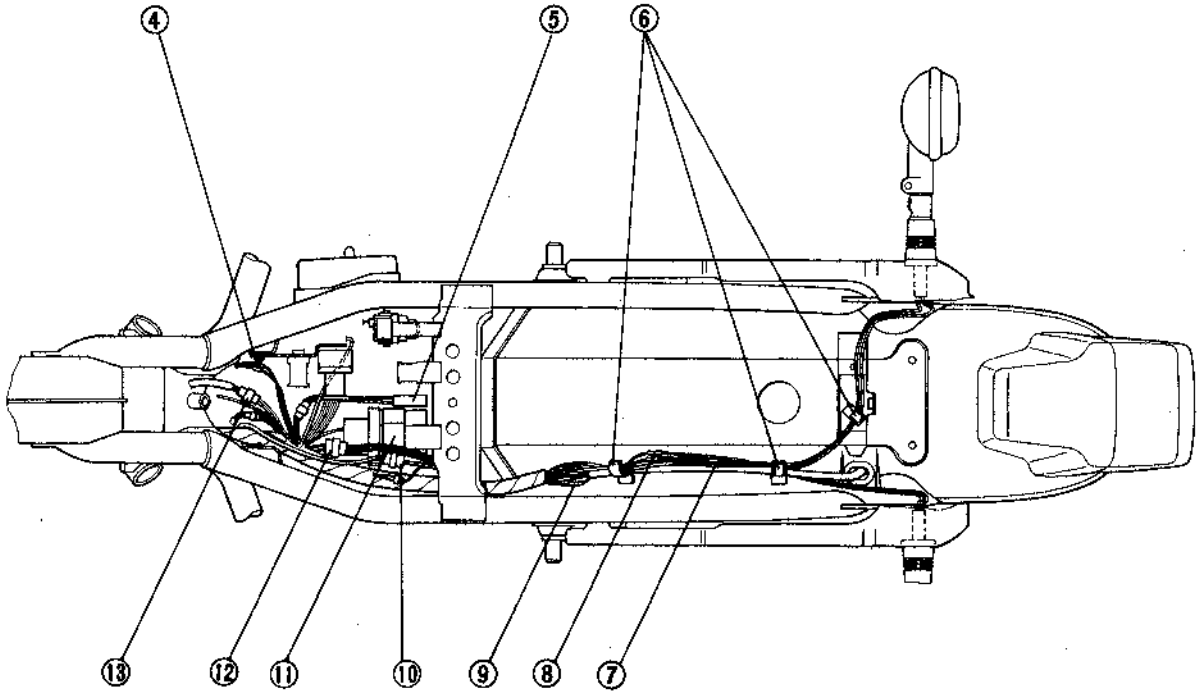


## CABLE ROUTING (2)

1. Battery positive lead
2. Sidestand relay
3. Main fuse
4. Rear brake switch lead
5. Diode
6. Clamp
7. Rear flasher light lead (Right)
8. Rear flasher light lead (Left)
9. Taillight lead
10. AC magneto/rectifier coupler
11. Flasher relay
12. Rectifier lead coupler
13. Fuel sender coupler

**XV700**

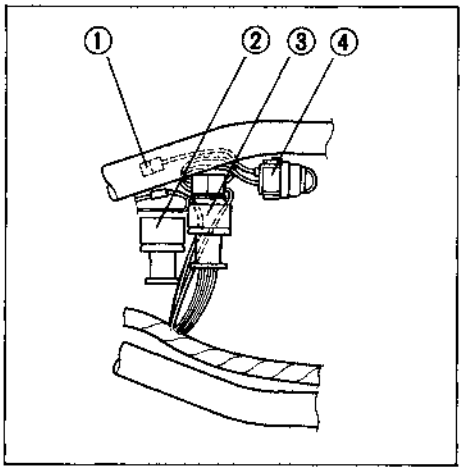


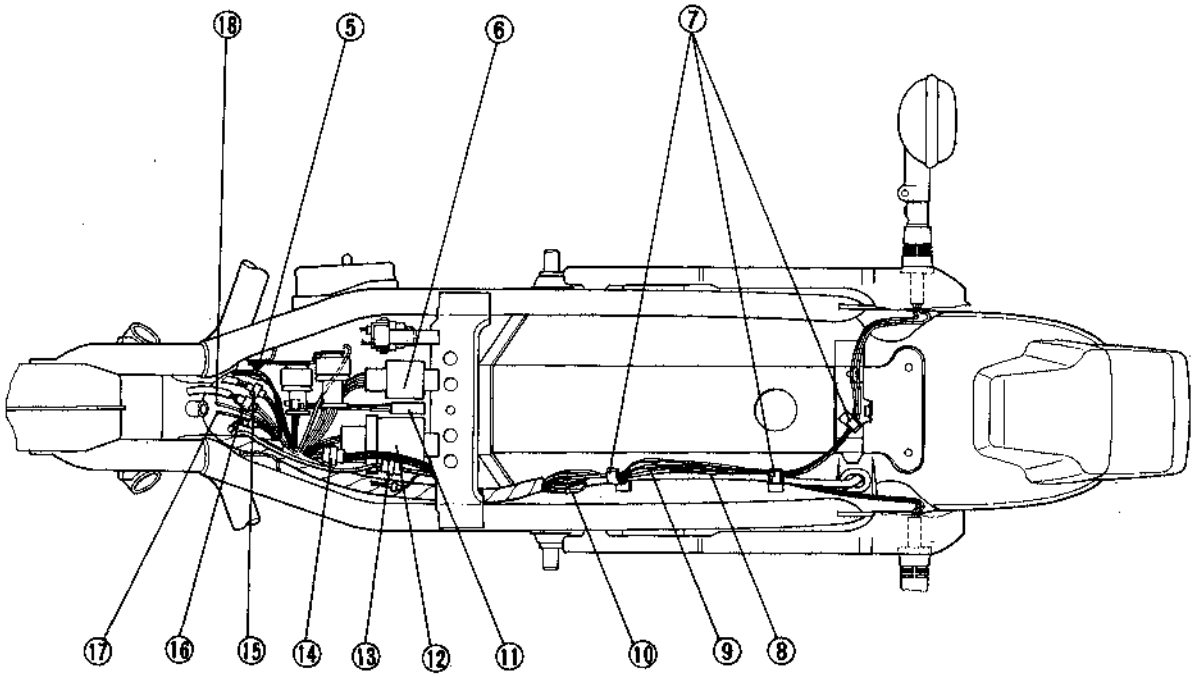



## CABLE ROUTING (3)

1. Battery positive lead
2. Starter relay
3. Sidestand relay
4. Main fuse
5. Rear brake switch lead
6. Fuel pump relay
7. Clamp
8. Rear flasher light lead (Right)
9. Rear flasher light (Left)
10. Taillight lead
11. Diode
12. Flasher relay
13. AC magneto/rectifier coupler
14. Rectifier lead coupler
15. Fuel pump coupler
16. Fuel sender coupler
17. Solenoide lead
18. Oil level switch lead

**XV1000**

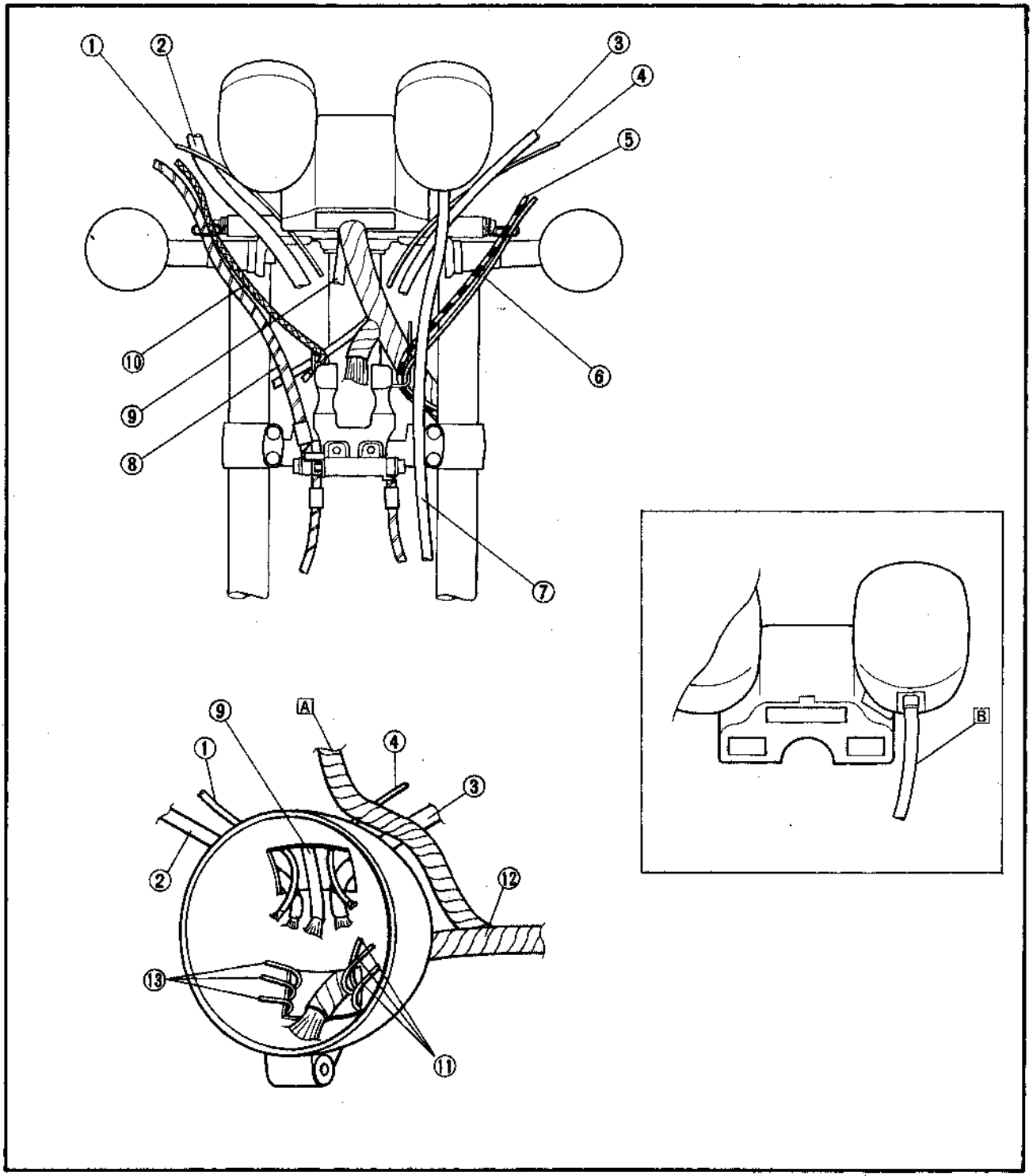


## CABLE ROUTING (4)

1. Brake switch lead
2. Handlebar switch lead (Right)
3. Handlebar switch lead (Left)
4. Clutch switch lead
5. Clutch cable
6. Starter cable
7. Speedometer cable
8. Brake hose
9. Main switch lead
10. Throttle cable
11. Front flasher light leads (Left)
12. Wireharness
13. Front flasher light leads (Right)

[A] To main switch lead.
[B] The bended outer case must face downward as shown in the illustration.

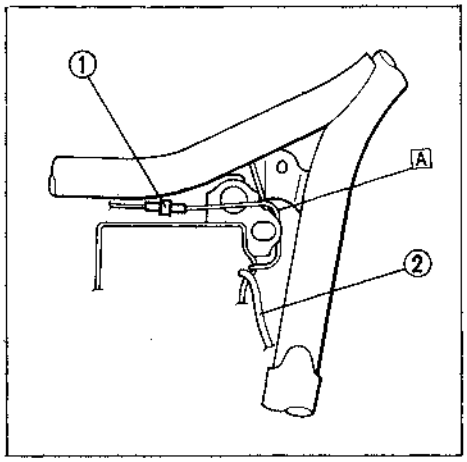


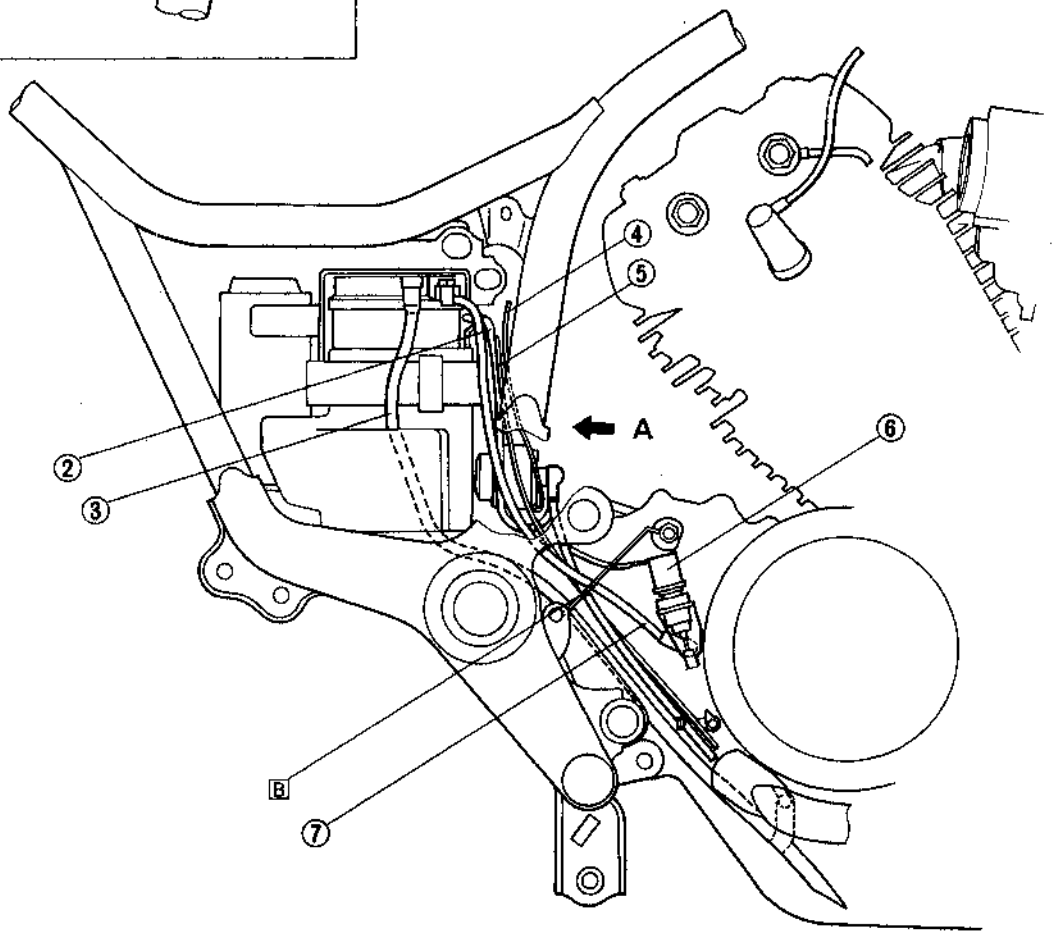
## CABLE ROUTING (5)

1. Battery positive lead
2. Starter lead
3. Battery breather pipe
4. Starter switch lead
5. Oil level switch lead
6. Rear brake switch
7. Ground lead

[A] Route the lead behind of the side cover stay.
[B] Pass the all leads through the wire holder.

**XV700**



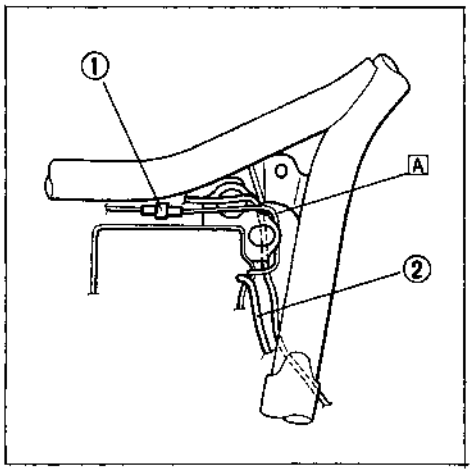



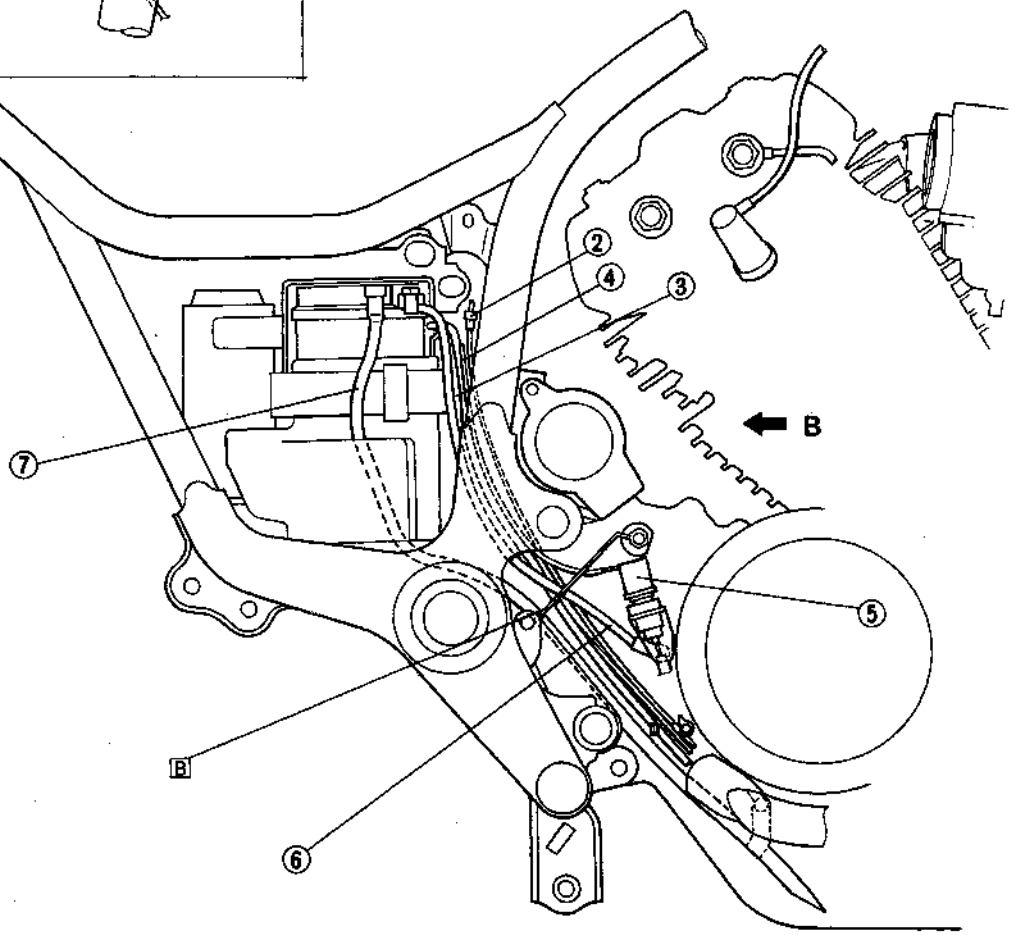
## CABLE ROUTING (6)

1. Battery positive lead
2. Solenoid lead
3. Starter lead
4. Oil level switch lead
5. Rear brake switch
6. Ground lead
7. Battery breather pipe

[A] Route the leads behind of the side cover stay.
[B] Pass the all leads through the wire holder.

**XV1000**



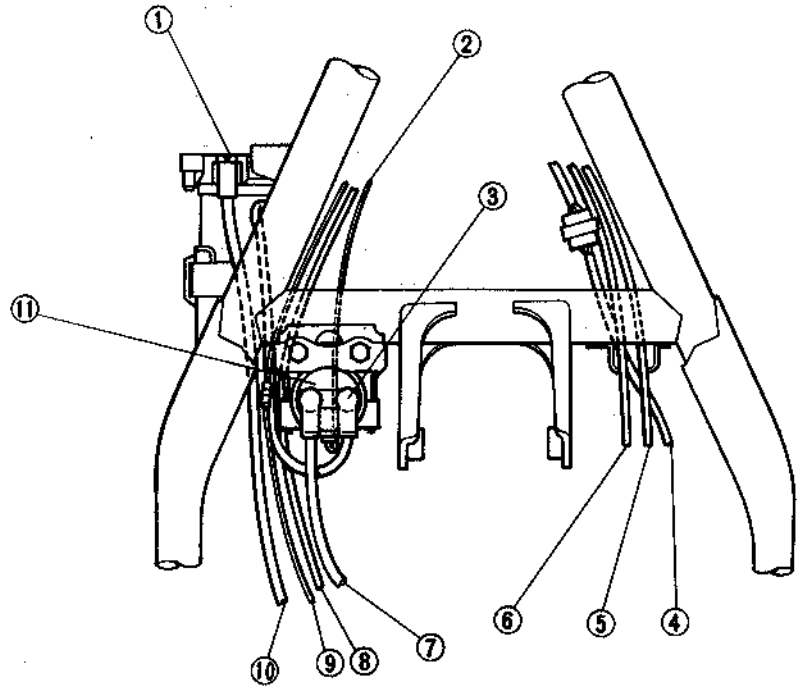



## CABLE ROUTING (7)

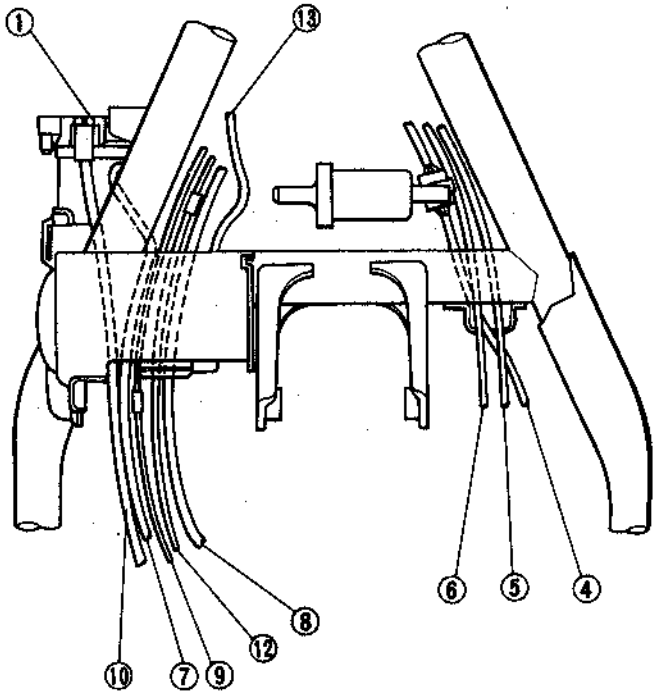
1. Battery negative terminal
2. Starter switch lead
3. Starter lead
4. Sidestand switch lead
5. AC magneto lead
6. Pickup coil lead
7. Starter motor lead
8. Rear brake switch lead
9. Oil level switch lead
10. Battery breather pipe
11. Starter switch
12. Solenoid lead
13. Fuel pump lead

[A] "A" VIEW (Cable Routing (5))
[B] "B" VIEW (Cable Routing (6))

[A] XV700



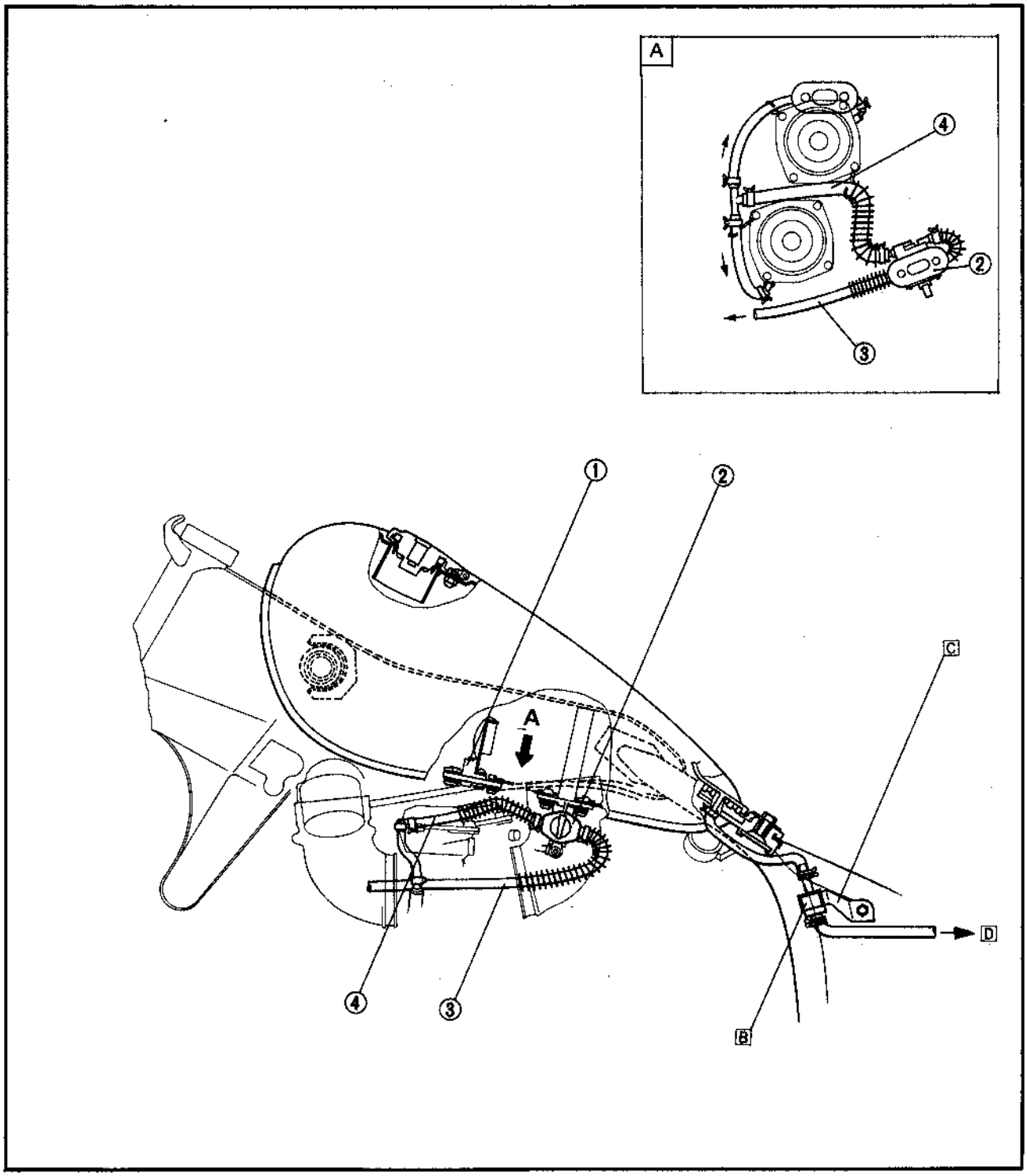

[B] XV1000



## XV700 FUEL PIPE ROUTING

1. Fuel sender
2. Fuel cock assembly
3. Vacuum hose
4. Fuel hose

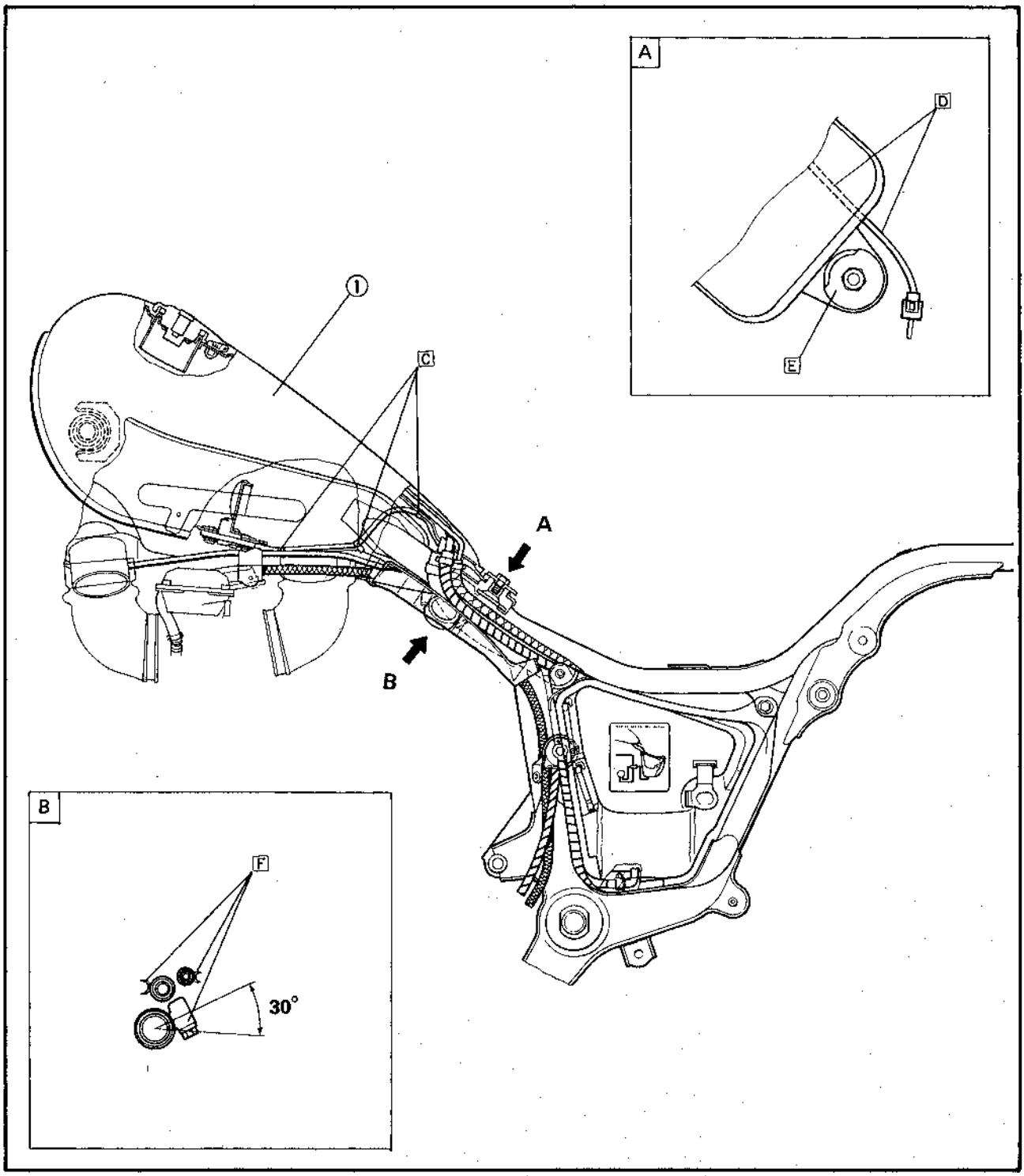
[A] "A" VIEW
[B] Be sure that the roll over valve is installed with correct direction.
[C] Install the holder onto the relay stay.
[D] Connect the white marked end of the joint pipe 2 to the canistar port (For California).



## XV1000 FUEL PIPE ROUTING (1)

1. Fuel tank assembly

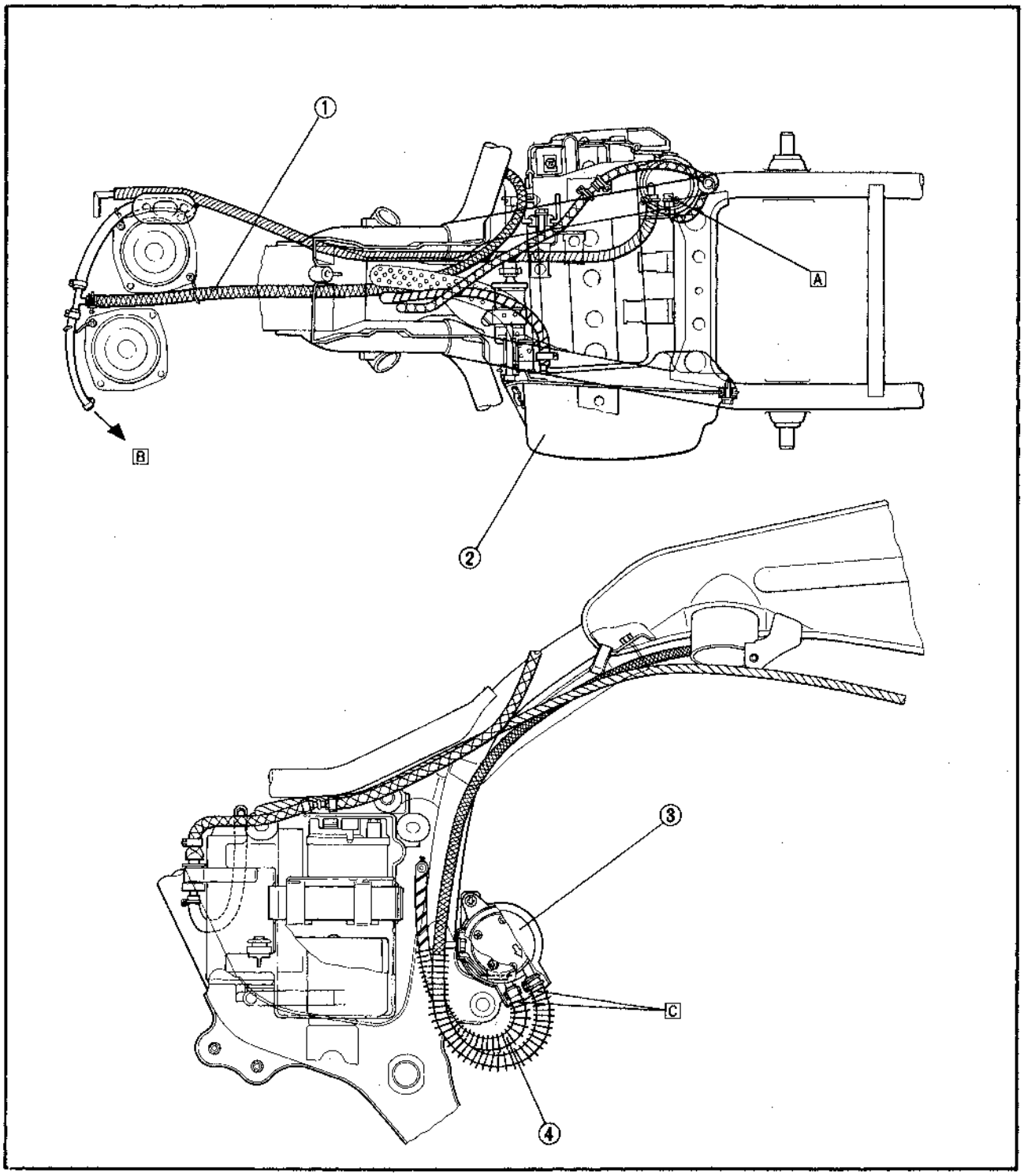
[A] "A" VIEW
[B] "B" VIEW
[C] Clamp the fuel sender lead with the three inner clamps.
[D] Pay attention to the fuel tank so that it may not clip the fuel sender lead.
[E] Refer to the illustration for the installing direction of the special washer.
[F] Refer to the illustration for the installing direction of the hose clamps.



## XV1000 FUEL PIPE ROUTING (2)

1. Fuel pump outlet hose
2. Sub fuel tank assembly
3. Fuel pump
4. Fuel pump inlet hose

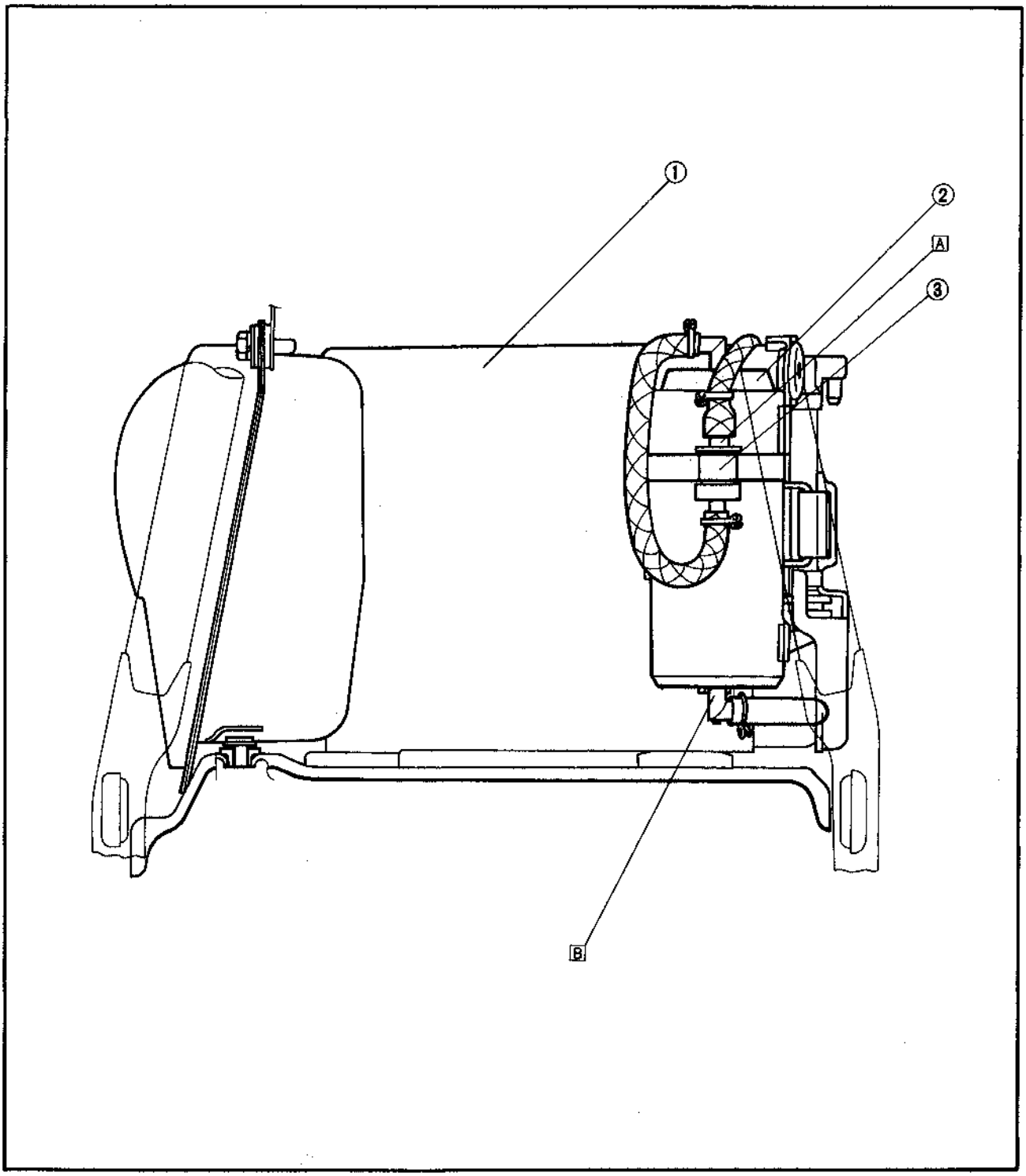
[A] Connect the white-marked hose into the white-marked port.
[B] To carburetor.
[C] Insert the springs end into the fuel pump cover.



## XV1000 FUEL PIPE ROUTING

1. Battery case
2. Canister assembly (for 42H only)
3. Roll over valve

[A] Be sure that the canister is installed with correct direction.
[B] Insert the canister pipe into the slot of the battery case.



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# XV700-1100(L-K) 1998
# Service Manual

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