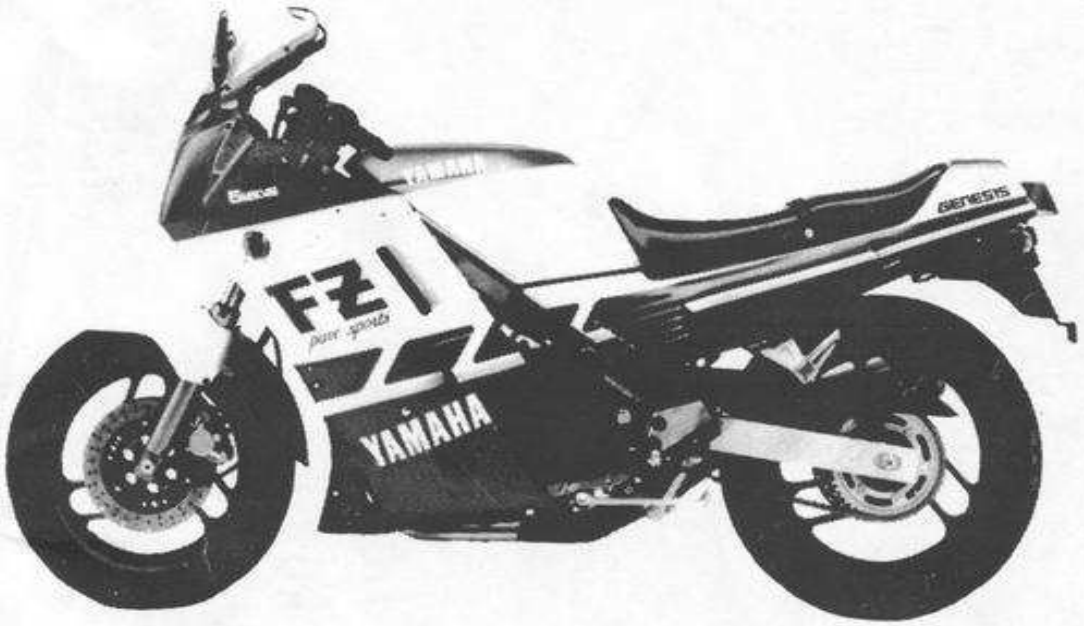
YAMAHA

FZ750 (N-U)
FZ700T

GENUINE YAMAHA

Service Manual



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 motorrepair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

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

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

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

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

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

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

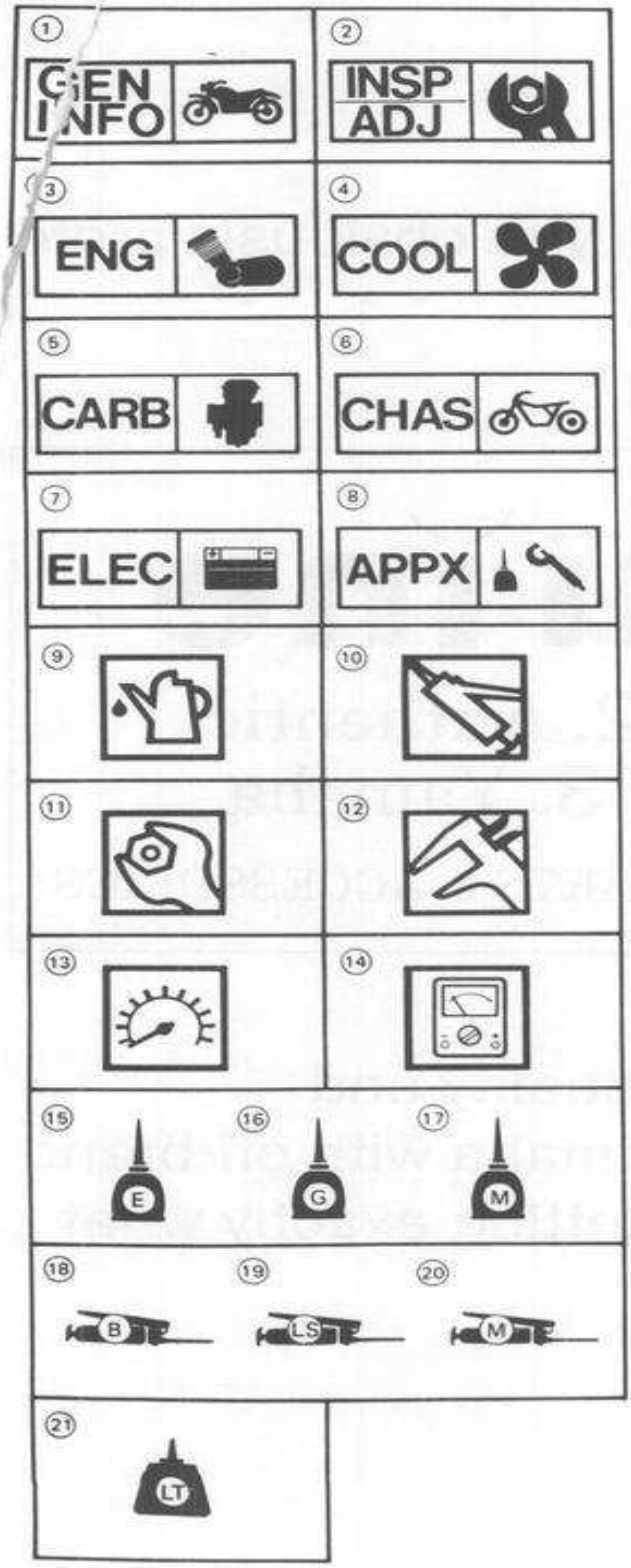
MANUAL FORMAT

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

•Bearings
Pitting/Damage → Replace.

EXPLODED DIAGRAM

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



ILLUSTRATED SYMBOLS (Refer to the illustration)

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

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

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

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

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

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

INDEX

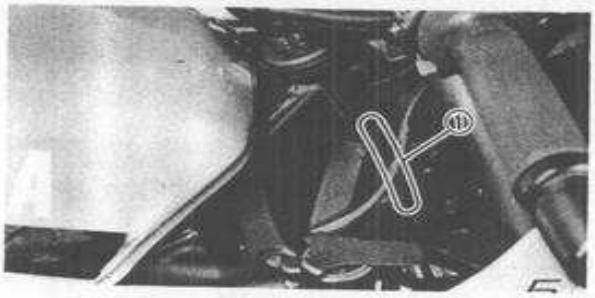
GENERAL INFORMATION	GEN INFO 1
PERIODIC INSPECTIONS AND ADJUSTMENTS	INSP ADJ 2
ENGINE OVERHAUL	ENG 3
COOLING SYSTEM	COOL 4
CARBURETION	CARB 5
CHASSIS	CHAS 6
ELECTRICAL	ELEC 7
APPENDICES	APPX 8

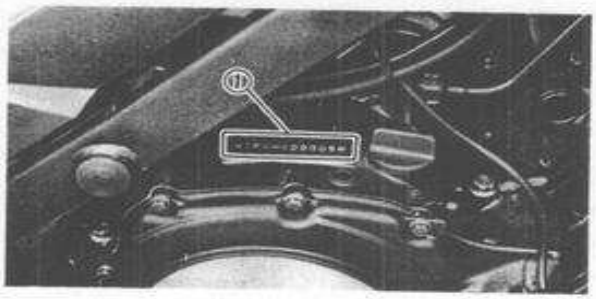
CHAPTER 1.
GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION 1-1
VEHICLE IDENTIFICATION NUMBER 1-1
ENGINE SERIAL NUMBER 1-1

IMPORTANT INFORMATION 1-2
ALL REPLACEMENT PARTS 1-2
GASKET, OIL SEALS, AND O-RINGS 1-2
LOCK WASHER/PLATES AND COTTER PINS 1-2
BEARINGS AND OIL SEALS 1-2
CIRCLIPS 1-3

SPECIAL TOOLS 1-3
FOR TUNE UP 1-3
FOR ENGINE SERVICE 1-4
FOR CHASSIS SERVICE 1-7
FOR ELECTRICAL COMPONENTS 1-8





GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

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

Starting Serial Number:
JYA1AE00 * FA000101

ENGINE SERIAL NUMBER

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

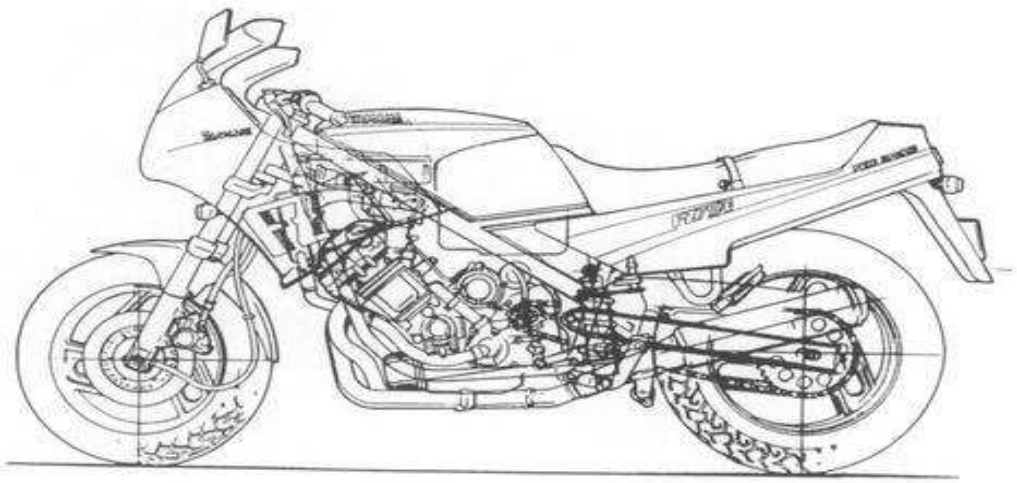
NOTE:

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

Starting Serial Number:
FZ750N 1AE-000101

NOTE:

Designs and specifications are subject to change without notice.



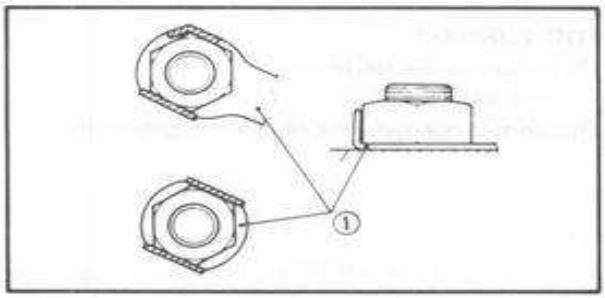
IMPORTANT INFORMATION

ALL REPLACEMENT PARTS

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

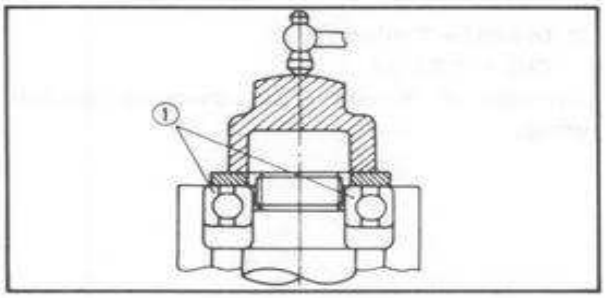
GASKETS, OIL SEALS, AND O-RINGS

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



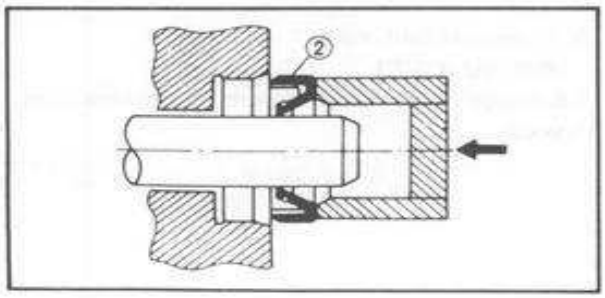
LOCK WASHERS/PLATES AND COTTER PINS

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



BEARINGS AND OIL SEALS

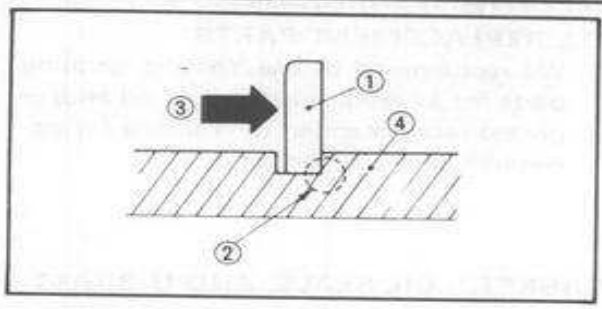
1. Install the bearing(s) ① and oil seal(s) ② with their manufacture's marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of light-weight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.



CAUTION:

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

SPECIAL TOOLS



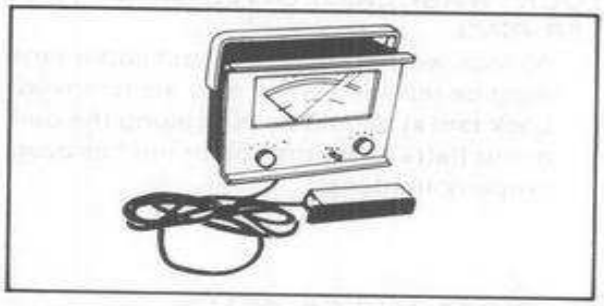
CIRCLIPS

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

④ Shaft

SPECIAL TOOLS

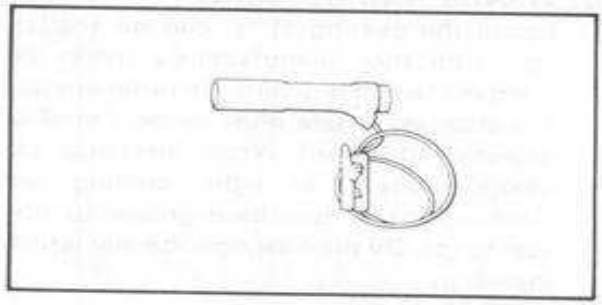
The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques.



FOR TUNE UP

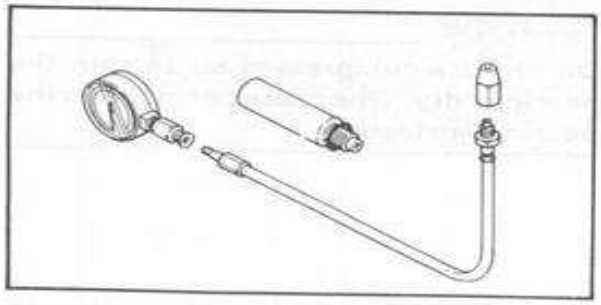
1. Inductive Tachometer
   P/N YU-08036

This tool is needed for detecting engine rpm.



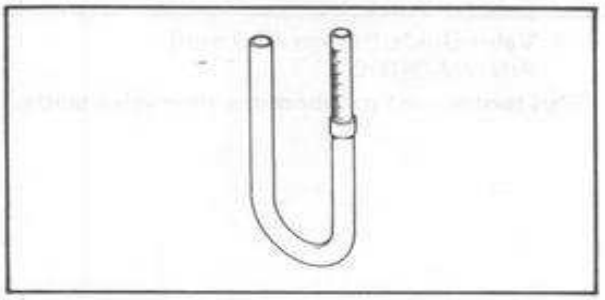
2. Inductive Timing Light
   P/N YM-33277

This tool is necessary for checking ignition timing.



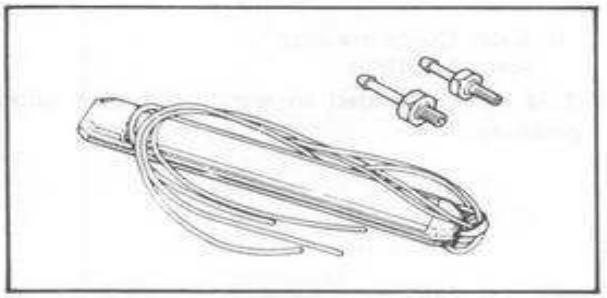
3. Compression Gauge
   P/N YU-33223

This gauge is used to measure the engine compression.



4. Fuel Level Gauge
   P/N YM-01312

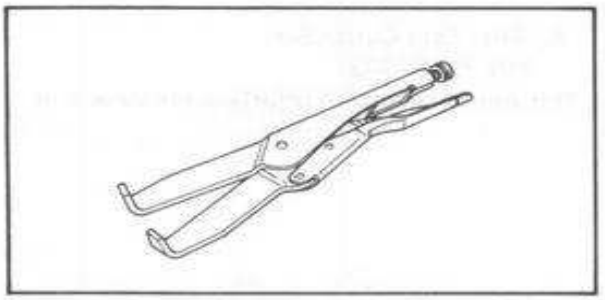
This gauge is used to measure the fuel level in the float chamber.



5 Vacuum Gauge
   P/N YU-08030

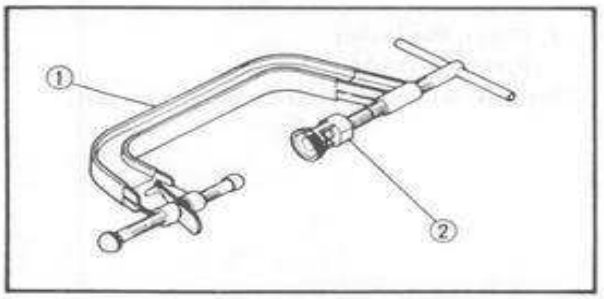
This gauge is needed for carburetor synchronization.

FOR ENGINE SERVICE



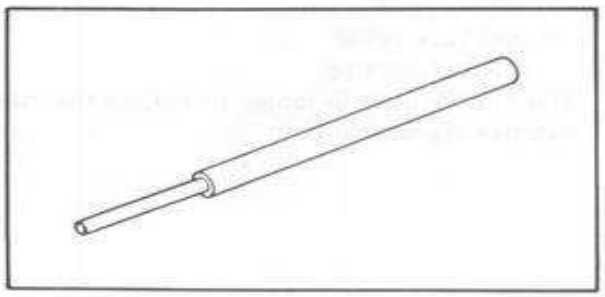
1. Universal Clutch Holder
   P/N YM-91042

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



2. Valve Spring Compressor ①
   P/N YM-04019
   Attachment ②
   P/N YM-04108

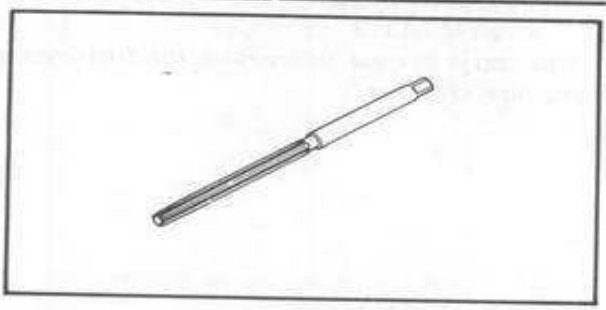
This tool is needed to remove and install the valve assemblies.



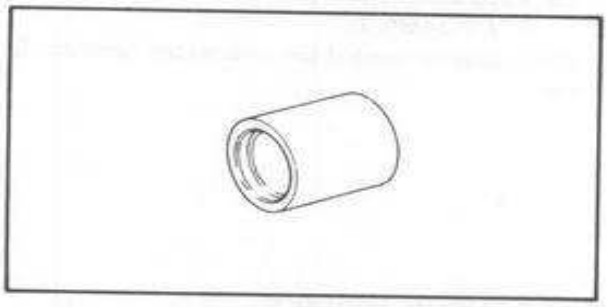
3. Valve Guide Remover (5.0 mm)
   P/N YM-04097

This tool is used to remove the valve guides.

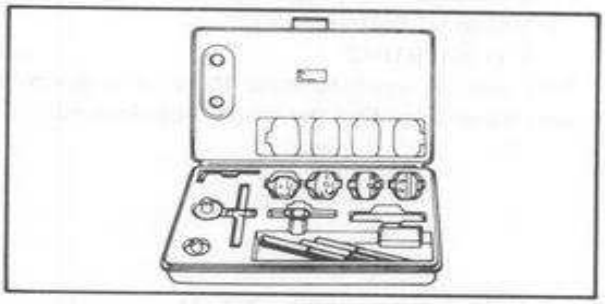
SPECIAL TOOLS



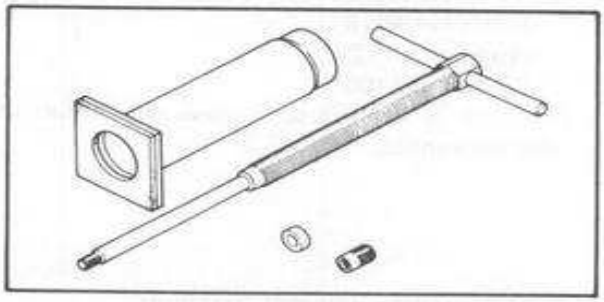
4. Valve Guide Reamer (5.0 mm)
   P/N YM-04099
This tool is used to rebore the new valve guide.



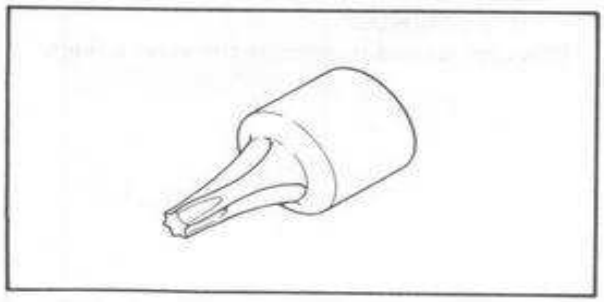
5. Valve Guide Installer
   P/N YM-04098
This tool is needed to install the valve guides properly.



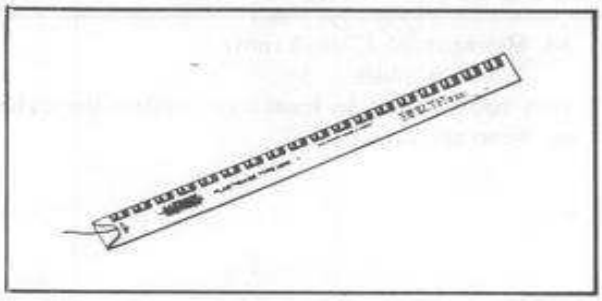
6. Valve Seat Cutter Set
   P/N YM-91043
This tool is needed to resurface the valve seat.



7. Piston Pin Puller
   P/N YU-01304
This tool is used to remove the piston pin.

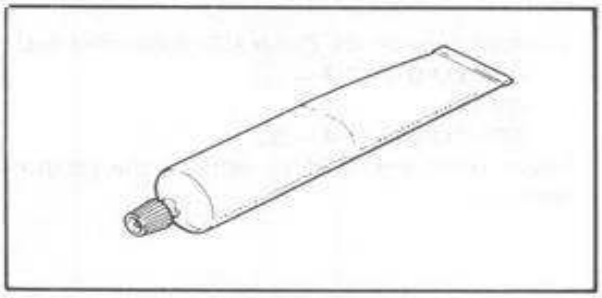


8. #30 Torx Driver
   P/N YU-29843-6
This tool is used to loosen or tighten the main axle bearing retainer bolt.



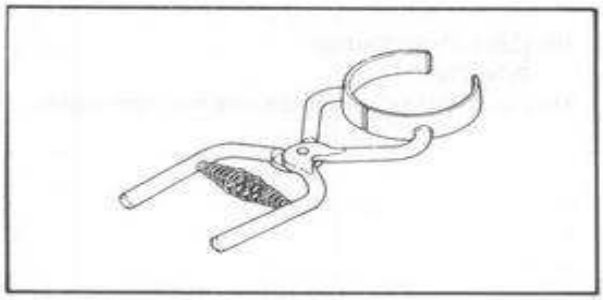
9. Plastigage® Set "Green"
   P/N YU-33210

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



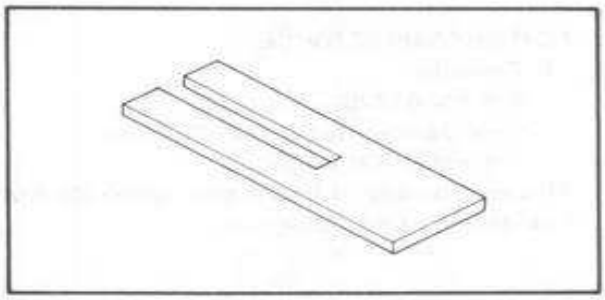
10. Quick Gasket
    P/N ACC-11001-05-01

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



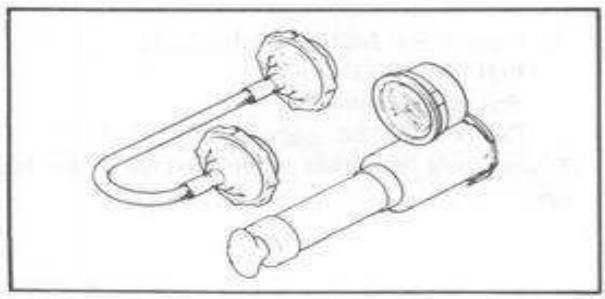
11. Piston Ring Compressor
    P/N YM-04008

This tool is used to compress piston rings when installing the cylinder.



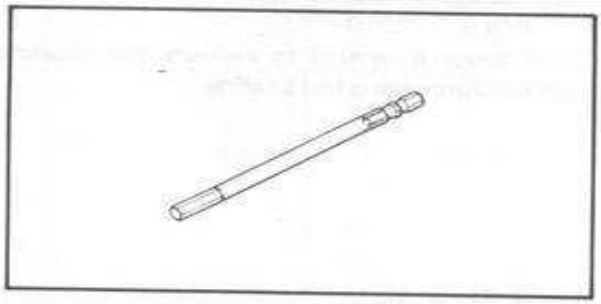
12. Piston Base
    P/N YM-01067

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



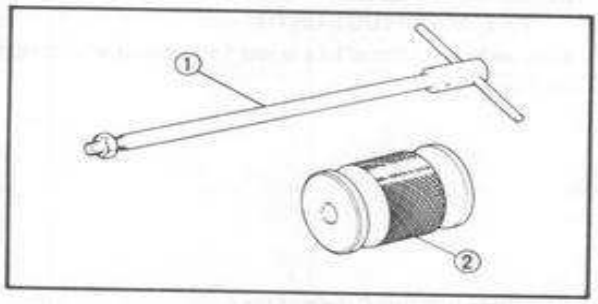
13. Radiator Cap Tester
    P/N YU-24460-01
    Adaptor
    P/N YU-33984

This tester is needed for checking the cooling system.



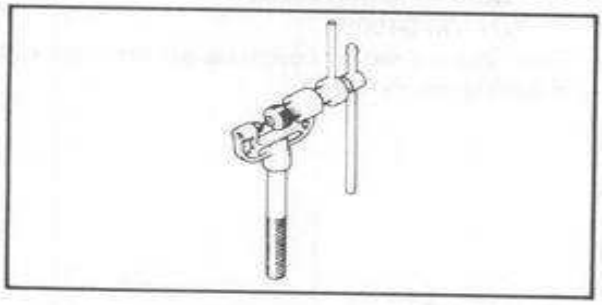
14. Hexagon Wrench (6 mm)
    P/N YM-3448

This tool is used to loosen or tighten the cylinder head securing nut.



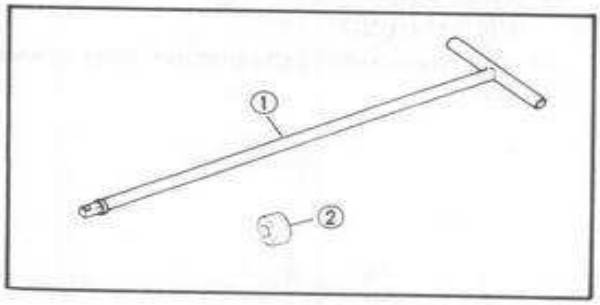
15. Armature Shock Puller (Slide hammer set)
    P/N YU-01047-3 – ①
    Weight
    P/N YU-01047-4 – ②

These tools are used to remove the generator armature.



16. Cam Chain Cutter
    P/N YM-01112

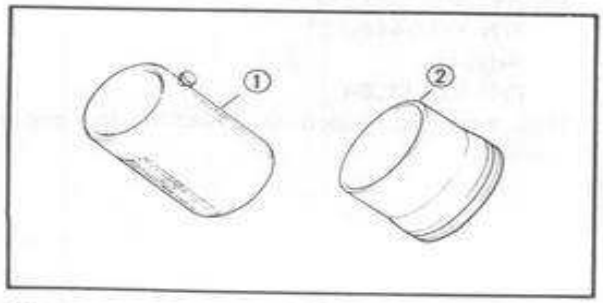
This tool is used when cutting the cam chain.



FOR CHASSIS SERVICE

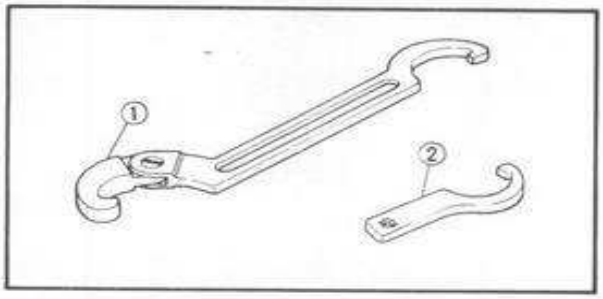
1. T-Handle
    P/N YM-01326 – ①
    Fork Damper Rod Holder 25.5 mm
    P/N YM-01397 – ②

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



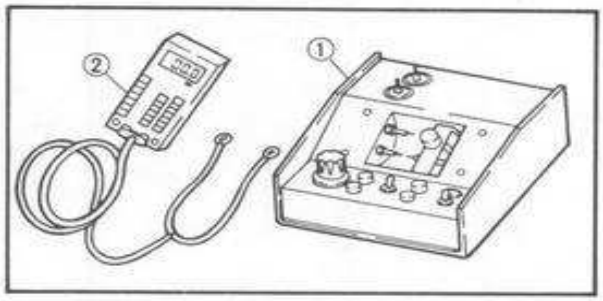
2. Front Fork Seal Driver (weight)
    P/N YM-33963 – ①
    Adapter (39 mm)
    P/N YM-34482 – ②

These tools are used when installing the fork seat.



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

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



FOR ELECTRICAL COMPONENTS

1. Electro Tester Set (YU-33260)
   Coil Tester
   P/N YU-33261 – ①
   Digital Volt-Ohm Meter
   P/N YU-33263 – ②

These instrument are necessary for checking the ignition system components and invaluable for checking the electrical system.

CHAPTER 2.
PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION 2-1

MAINTENANCE INTERVALS CHARTS 2-1

ENGINE 2-3
- VALVE CLEARANCE ADJUSTMENT 2-3
- CARBURETOR SYNCHRONIZATION 2-9
- SPARK PLUG 2-11
- CRANKCASE VENTILATION SYSTEM 2-11
- FUEL LINE 2-12
- INTAKE MANIFOLD 2-12
- EXHAUST SYSTEM 2-12
- IDLE SPEED 2-12
- ENGINE OIL 2-13
- IGNITION TIMING CHECK 2-15
- COMPRESSION PRESSURE MEASUREMENT 2-16
- COOLANT LEVEL 2-17

CHASSIS 2-18
- FUEL COCK 2-18
- AIR FILTER 2-19
- FRONT AND REAR BRAKE 2-19
- DRIVE CHAIN 2-21
- CABLE INSPECTION AND LUBRICATION 2-24
- BRAKE AND CHANGE PEDALS/BRAKE AND CLUTCH LEVERS 2-24
- CENTERSTAND AND SIDESTAND 2-24
- FRONT FORK OIL CHANGE 2-25
- FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT 2-26
- STEERING HEAD 2-29
- WHEEL BEARINGS 2-30
- TUBELESS TIRES AND ALUMINUM WHEELS 2-30
- CLUTCH FLUID 2-33

ELECTRICAL 2-33
- BATTERY 2-33
- HEADLIGHT 2-35
- FUSE 2-36

PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION

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

MAINTENANCE INTERVALS CHARTS

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

PERIODIC MAINTENANCE EMISSION CONTROL SYSTEM

No.	Item	Remarks	Initial	Odometer reading				
			1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	25,000 km or 25 months (15,800 mi)	**3 31,000 km or 31 months (19,600 mi)
1*	Valve clearance	Check and adjust valve clearance when engine is cold.	Every 42,000 km (26,600 mi)					
2	Spark plugs	Check condition. Adjust gap and clean. Replace at 13,000 km (or 13 months) and thereafter every 12,000 km (or 12 months).		○	Replace	○	Replace	○
3*	Crankcase ventilation system	Check ventilation hose for cracks or damage. Replace if necessary.		○	○	○	○	○
4*	Fuel line	Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.		○	○	○	○	○
5*	Fuel filter	Replace initial 31,000 km (19,600 mi) and thereafter every 30,000 km (19,000 mi).						Replace
6*	Exhaust system	Check for leakage. Retighten if necessary. Replace gasket(s) if necessary.		○	○	○	○	○
7*	Carburetor synchronization	Adjust synchronization of carburetors.	○	○	○	○	○	○
8*	Idle speed	Check and adjust engine idle speed. Adjust cable free play.		○	○	○	○	○

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

NOTE:

For farther odometer reading, repeat the above maintenance at the period established; **1: Every 6,000 km (3,800 mi), **2: Every 12,000 km (7,600 mi) and **3: Every 30,000 km (19,000 mi) intervals.

GENERAL MAINTENANCE/LUBRICATION

No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
1	Engine oil	Warm-up engine before draining.	See page 2-13.	○	○	○	○	○	○
2	Oil filter	Replace.	–	○		○		○	
3*	Air filter	Clean with compressed air. Replace if necessary.	–		○	○	○	○	○

MAINTENANCE INTERVALS CHARTS

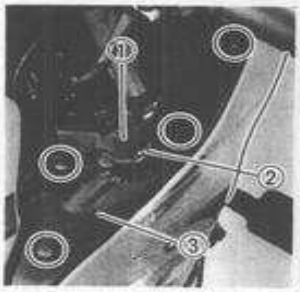
INSP ADJ

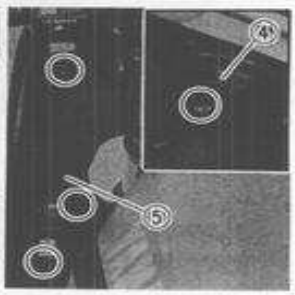
No.	Item	Remarks	Type	Initial	Odometer readings				
				1,000 km or 1 month (600 mi)	**1 7,000 km or 7 months (4,400 mi)	**2 13,000 km or 13 months (8,200 mi)	19,000 km or 19 months (12,000 mi)	**3 25,000 km or 25 months (15,800 mi)	31,000 km or 31 months (19,600 mi)
4*	Cooling system	Check hose for cracks or damage, replace if necessary. Replace coolant 24 months.	– Ethylene glycol anti-freeze coolant.		○	○	○	○ Replace	○
5*	Brake system	Adjust free play. Replace pads if necessary.	–	○	○	○	○	○	○
6	Drive chain	Check chain condition. Adjust and lubricate chain thoroughly.	SAE 30W-50W motor oil.	Every 500 km (300 mi)					
7*	Control and meter cable	Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W30 motor oil.	○	○	○	○	○	○
8*	Rear suspension adjusting chain	Check chain condition. Adjust and lubricate if necessary.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
9*	Rear arm pivot shaft and suspension link pivots	Apply grease lightly.	Molybdenum disulfide grease.					○	
10	Brake/Clutch lever pivot shaft	Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
11	Brake pedal and change pedal shaft	Lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
12*	Center/Side stand pivots	Check operation and lubricate. Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil.		○	○	○	○	○
13*	Front fork oil	Check operation and leakage.	–		○	○	○	○	○
14*	Steering bearings	Check bearings assembly for looseness. Moderately repack every 24,000 km (15,200 mi).	Medium weight wheel bearing grease.		○	○	○	○	○
15*	Wheel bearings	Check bearings for smooth rotation.	–		○	○	○	○	○
16*	Battery	Check specific gravity and breather pipe for proper operation.	–		○	○	○	○	○
17*	A.C. Generator	Replace generator brushes every 100,000 km (62,000 mi).	–						
18*	Sidestand switch	Check and clean or replace if necessary.	–		○	○	○	○	○

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

NOTE:

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



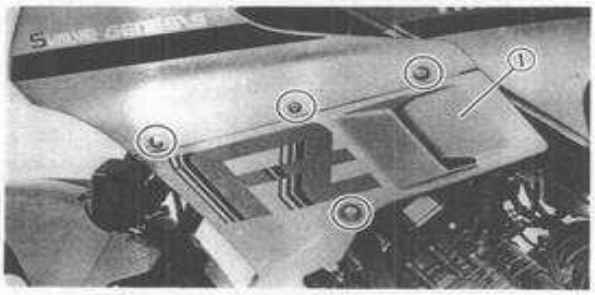


ENGINE

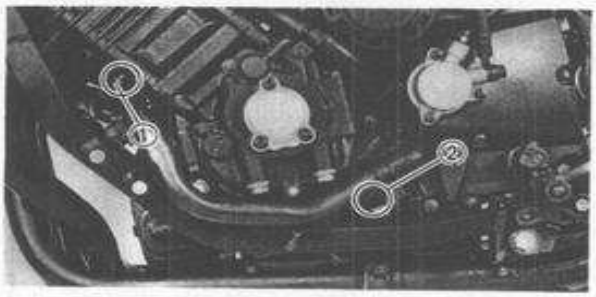
VALVE CLEARANCE ADJUSTMENT

Removal

1. Remove:
   - Radiator cap cover ①
   - Radiator cap ②
   - Right front panel ③
   - Starter knob ④
   - Left front panel ⑤



2. Remove:
   - Lower cowlings ①



3. Drain:
   - Coolant

① Cylinder drain bolt
② Water pump drain bolt



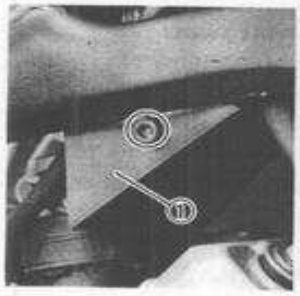


4. Remove:
   - Upper radiator bolts ①
   - Lower radiator bolts ②

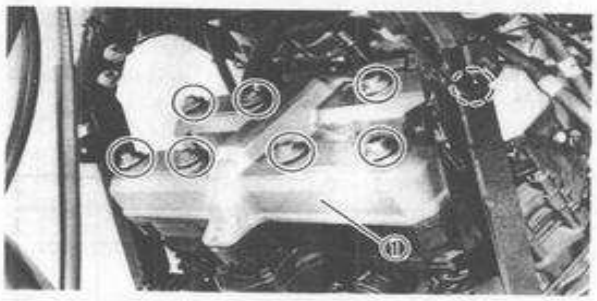




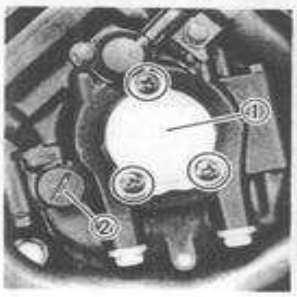
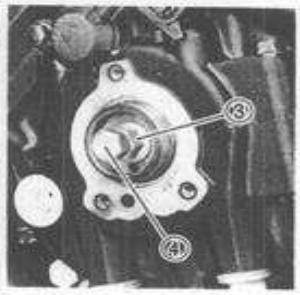
5. Disconnect:
   - Upper radiator hose ①
   - Lower radiator hose ②




6. Remove:
   - Air baffle plates ①
7. Disconnect:
   - Electric fan motor coupler ②
8. Remove:
   - Radiator assembly



9. Remove:
   - Cylinder head cover ①

10. Remove:
    - Left crankshaft end cover ①
    - Plug screw ②
11. Install:
    - Locknut ③
    - Bolt (8 mm) ④
      (into left crankshaft end)

12. Lock:
    - Locknut

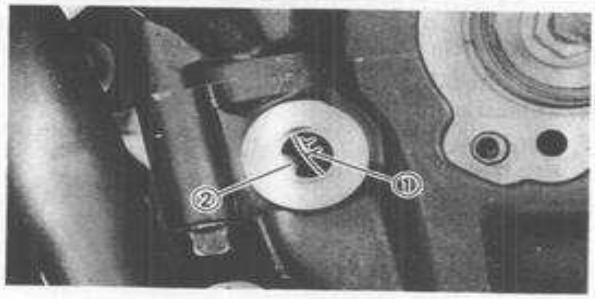
Valve Clearance Measurement

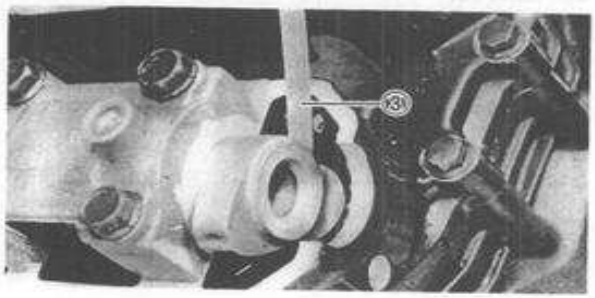
1. Measure:
   - Valve clearance

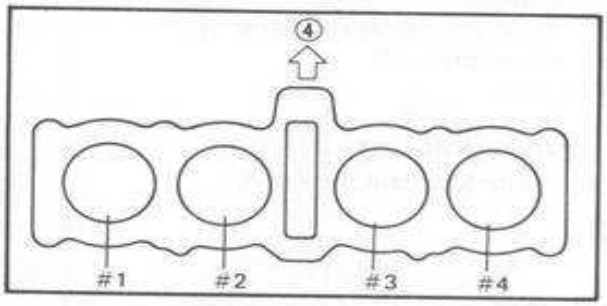
NOTE:

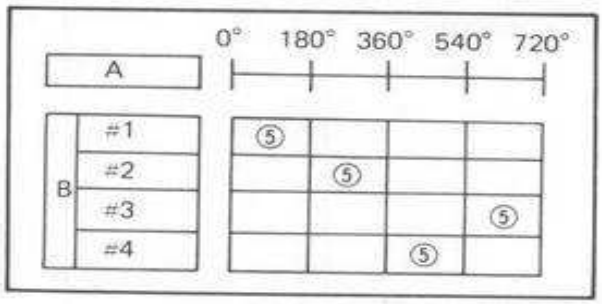
- Be sure piston is at Top Dead Center (TDC) on compression stroke when measuring clearance.
- Valve clearance must be measured when the engine is cool to the touch.

INSP ADJ VALVE CLEARANCE ADJUSTMENT









Valve clearance measurement steps:

- Turn the crankshaft counterclockwise
- Align the "T" mark ① on the crankshaft web with the stationary pointer ② when #1 piston is at TDC on compression stroke.
- Measure the valve clearance using Feeler Gauge ③.
- Record the measured amount if the clearance is incorrect.

Intake Valve (cold):
0.11 ~ 0.20 mm
(0.0043 ~ 0.0079 in)

Exhaust Valve (cold):
0.21 ~ 0.30 mm
(0.0083 ~ 0.0118 in)

- Measure valve clearance, in sequence, for #2, 4, and #3 cylinders.
  Out of specification → Adjust clearance.

Firing Sequence:
1 – 2 – 4 – 3

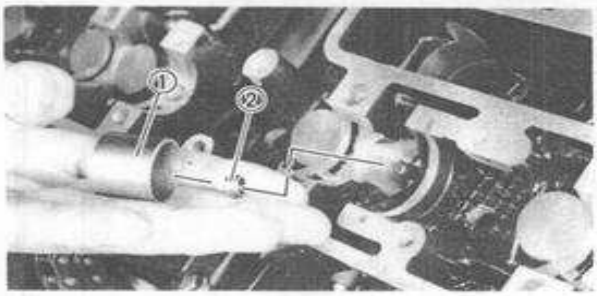
④ Front

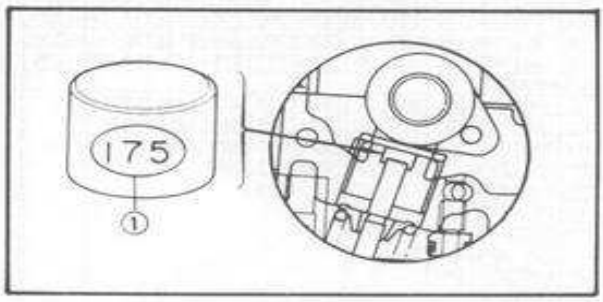
NOTE:
Turn crankshaft each degrees counterclockwise from #1 Cylinder TDC.

#2 Cylinder	180 degrees
#4 Cylinder	360 degrees
#3 Cylinder	540 degrees

[A] Crankshaft counterclockwise turning angle.
[B] Cylinder
⑤ Combustion

- If the clearance is correct, follow the Assembly steps.
- If the clearance is incorrect follow the Adjusting Pad Replacement steps.





Adjusting Pad Replacement

1. Remove:
   - Upper chain guide
   - Camshaft cap
   - Exhaust side chain guide
   - Tensioner assembly
   - Camshafts

NOTE:
Refer to CAMSHAFT AND CYLINDER HEAD step 4 to 10 of the ENGINE DISASSEMBLY (CHAPTER 3).

2. Remove:
   - Valve lifter ①
   - Pad ②

   (of the incorrect valve clearance)
   Note the installed pud number

3. Select:
   - Proper pad

Proper pad selection steps:
- Select the proper pad from the chart below:

Pad range		Pad Availability: 25 increments
No. 120 ~ No. 240	1.20 mm (0.047 in) 2.40 mm (0.094 in)	Pads stepped in 0.05 mm (0.002 in) increments

NOTE:
Thickness ① of each pad is marked on the pad side wall.

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

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

VALVE CLEARANCE ADJUSTMENT

INTAKE

B MEASURED CLEARANCE	A INSTALLED PAD NUMBER																								
	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
0.00 ~ 0.02				120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225
0.03 ~ 0.07			120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230
0.08 ~ 0.10		120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235
0.11 ~ 0.20	RECOMMENDED CLEARANCE																								
0.21 ~ 0.22	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	
0.23 ~ 0.27	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240		
0.28 ~ 0.32	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240			
0.33 ~ 0.37	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240				
0.38 ~ 0.42	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240					
0.43 ~ 0.47	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240						
0.48 ~ 0.52	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240							
0.53 ~ 0.57	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240								
0.58 ~ 0.62	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240									
0.63 ~ 0.67	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240										
0.68 ~ 0.72	175	180	185	190	195	200	205	210	215	220	225	230	235	240											
0.73 ~ 0.77	180	185	190	195	200	205	210	215	220	225	230	235	240												
0.78 ~ 0.82	185	190	195	200	205	210	215	220	225	230	235	240													
0.83 ~ 0.87	190	195	200	205	210	215	220	225	230	235	240														
0.88 ~ 0.92	195	200	205	210	215	220	225	230	235	240															
0.93 ~ 0.97	200	205	210	215	220	225	230	235	240																
0.98 ~ 1.02	205	210	215	220	225	230	235	240																	
1.03 ~ 1.07	210	215	220	225	230	235	240																		
1.08 ~ 1.12	215	220	225	230	235	240																			
1.13 ~ 1.17	220	225	230	235	240																				
1.18 ~ 1.22	225	230	235	240																					
1.23 ~ 1.27	230	235	240																						
1.28 ~ 1.32	235	240																							
1.33 ~ 1.37	240																								

VALVE CLEARANCE (cold):
0.11 ~ 0.20 mm (0.0043 ~ 0.0079 in)
Example: Installed is 170
Measured clearance is 0.24 mm (0.009 in)
Replace 170 pad with 180 pad

EXHAUST

B MEASURED CLEARANCE	A INSTALLED PAD NUMBER																								
	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240
0.00 ~ 0.02						120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215
0.03 ~ 0.07					120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
0.08 ~ 0.12				120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225
0.13 ~ 0.17			120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230
0.18 ~ 0.20		120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235
0.21 ~ 0.30	RECOMMENDED CLEARANCE																								
0.31 ~ 0.32	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	
0.33 ~ 0.37	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240		
0.38 ~ 0.42	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240			
0.43 ~ 0.47	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240				
0.48 ~ 0.52	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240					
0.53 ~ 0.57	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240						
0.58 ~ 0.62	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240							
0.63 ~ 0.67	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240								
0.68 ~ 0.72	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240									
0.73 ~ 0.77	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240										
0.78 ~ 0.82	175	180	185	190	195	200	205	210	215	220	225	230	235	240											
0.83 ~ 0.87	180	185	190	195	200	205	210	215	220	225	230	235	240												
0.88 ~ 0.92	185	190	195	200	205	210	215	220	225	230	235	240													
0.93 ~ 0.97	190	195	200	205	210	215	220	225	230	235	240														
0.98 ~ 1.02	195	200	205	210	215	220	225	230	235	240															
1.03 ~ 1.07	200	205	210	215	220	225	230	235	240																
1.08 ~ 1.12	205	210	215	220	225	230	235	240																	
1.13 ~ 1.17	210	215	220	225	230	235	240																		
1.18 ~ 1.22	215	220	225	230	235	240																			
1.23 ~ 1.27	220	225	230	235	240																				
1.28 ~ 1.32	225	230	235	240																					
1.33 ~ 1.37	230	235	240																						
1.38 ~ 1.42	235	240																							
1.43 ~ 1.47	240																								

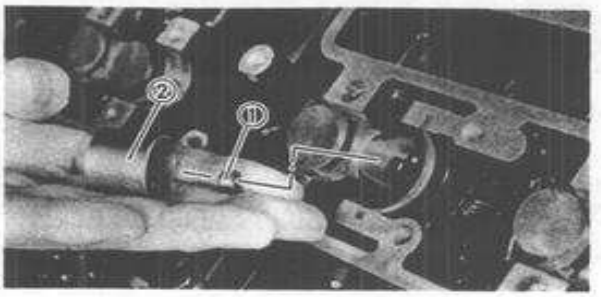
VALVE CLEARANCE (cold):
0.21 ~ 0.30 mm (0.0083 ~ 0.0118 in)
Example: Installed is 175
Measured clearance is 0.35 mm (0.014 in)
Replace 175 pad with 185 pad

EXAMPLE:
Installed pad number = 148 (1.48 mm)
Rounded off digit = 150

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

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

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



4. Install:
   - New pad ①
   - Valve lifter ②

NOTE:
Apply molybdenum disulfide grease to the pad.

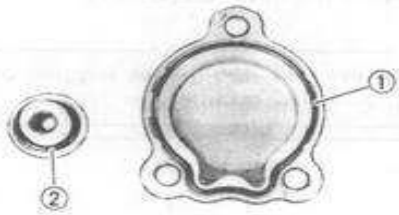
5. Install:
   - Camshafts
   - Cam chain sprockets
   - Camshaft caps

NOTE:
Refer to Camshaft step 1 to 3 and Cam Chain step 1 to 26 of the CYLINDER HEAD AND CAMSHAFT of ENGINE ASSEMBLY AND ADJUSTMENT (CHAPTER 3).

6. Measure:
   - Valve clearance

Valve clearance verification steps:
- Follow the valve clearance measurement steps.
- If the clearance is incorrect, repeat all Adjusting Pad Replacement steps until the proper clearance is obtained.

•If the clearance is correct, follow the Assembly steps.



Assembly

1. Reverse removal steps.
2. Inspect:
   - •Head cover gasket
   - •Crankshaft end cover O-ring ①
   - •Plug screw O-ring ②

   Damage → Replace.
3. Tighten:

Cylinder Head Cover:
10 Nm (1.0 m·kg, 7.2 ft·lb)

4. Fill:
   - •Coolant

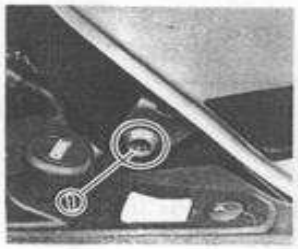
Coolant Amount:
2.3 L (2.0 Imp qt, 2.4 US qt)

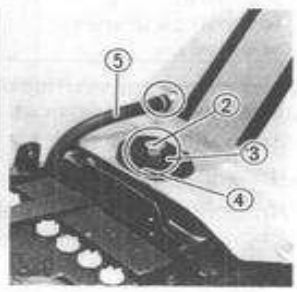
CARBURETOR SYNCHRONIZATION

Carburetors must be adjusted to open and close simultaneously.

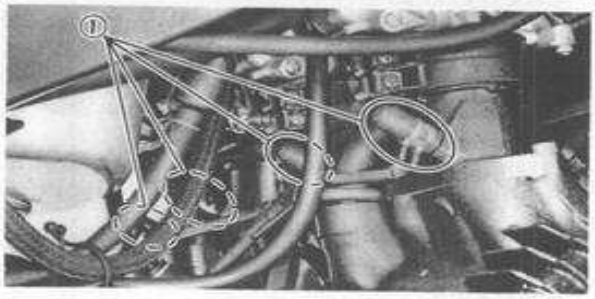
NOTE:

Valve clearance must be set properly before synchronizing the carburetors.





1. Remove:
   - •Seat
   - •Side covers
   - •Front fuel tank mounting screws ①
   - •Rear fuel tank mounting bolt ②
   - •Plate ③
   - •Mounting rubber ④
   - •Hose ⑤



2. Remove:
   - Vacuum plugs ①
3. Install:
   - Vacuum Gauge (YU-08030)
4. Start the engine and let it warm up.
5. Adjust:
   - Idle speed

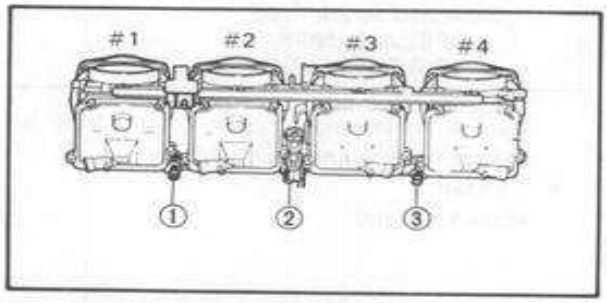
   Turn throttle stop screw to adjust.

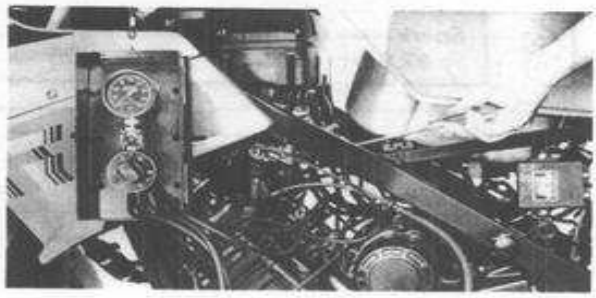
	1,000 ± 50 r/min

6. Adjust:
   - Carburetors synchronization

Carburetor synchronization adjustment steps:
- Lift up the front of fuel tank
- Synchronize carburetor No. 1 to carburetor No. 2 by turning synchronizing screw ① until both gauges read the same.
- Racing the engine for less than a second, two or three times, and check the synchronization again.

Vacuum Pressure at Idle Speed:
26.66 ± 0.6 kPa
(200 ± 5 mm Hg, 7.87 ± 0.2 in Hg)
Vacuum Synchronous Difference:
1.33 kPa (10 mm Hg, 0.4 in Hg)

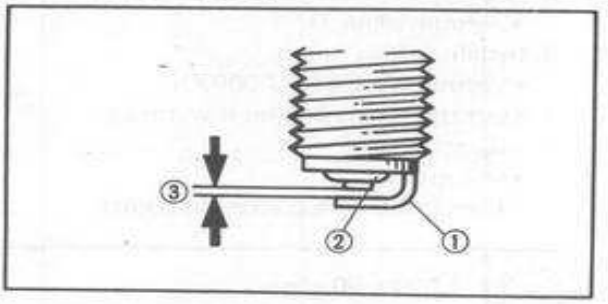




- Repeat the above steps to synchronize carburetor No. 4 to carburetor No. 3 by turning synchronizing screw ③ until both gauges read the same.
- Repeat the same steps to synchronize No. 2 carburetor to No. 3 carburetor by turning synchronizing screw ② until both gauges read the same.

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

SPARK PLUG/ CRANKCASE VENTILATION SYSTEM



SPARK PLUG

1. Remove:
   - Lower cowlings
   - Spark plug
2. Inspect:
   - Electrode ①
     Wear/Damage → Replace.
   - Insulator color ②
3. Measure:
   - Plug gap ③
     Out of specification → Regap.
     Use a Wire Gauge of Feeler Gauge.

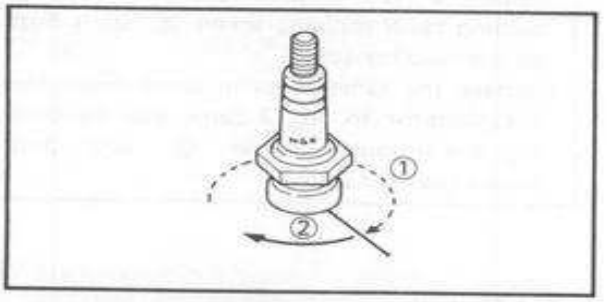
Spark Plug Gap:
0.8 ~ 0.9 mm (0.031 ~ 0.035 in)

Clean the plug with a spark plug cleaner if necessary.

Standard Spark Plug:
DP8EA-9 (NGK)
X24EP-U9 (ND)

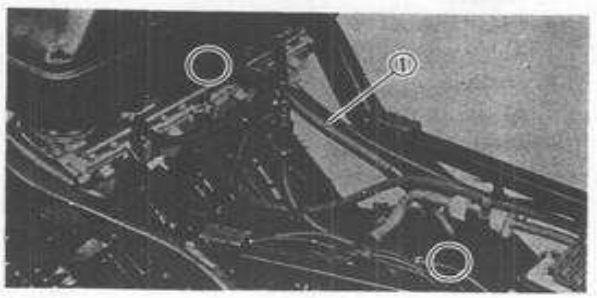
Before installing a spark plug, clean the gasket surface and plug surface.

4. Tighten:
   - Spark plug(s)



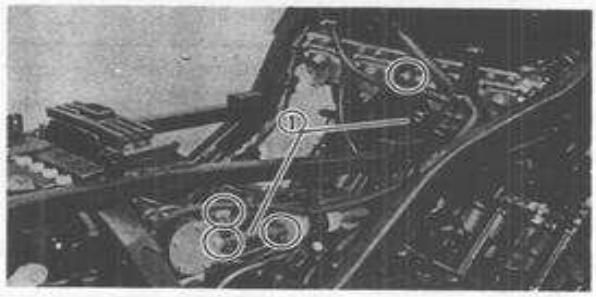
Spark Plug:
17.5 Nm (1.75 m·kg, 12.5 ft·lb)

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



CRANKCASE VENTILATION SYSTEM

1. Remove:
   - Seat
   - Side cover
   - Fuel tank
2. Inspect:
   - Crankcase ventilation hose ①
     Cracks/Damage → Replace.



FUEL LINE

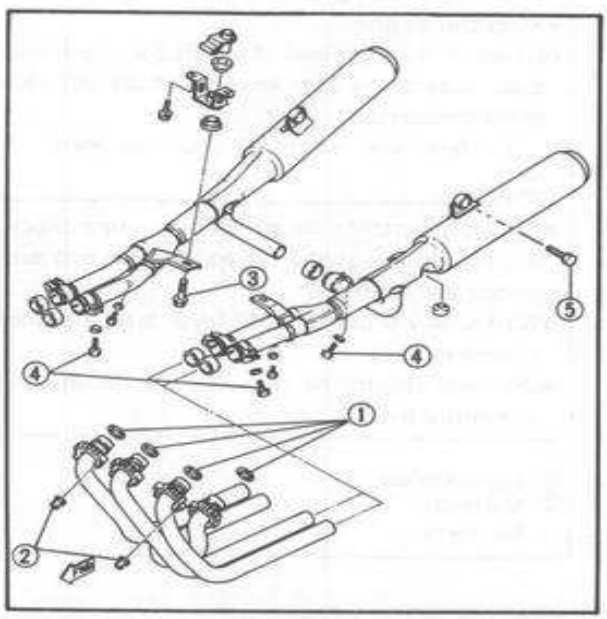
1. Remove:
   - Seat
   - Side cover
   - Fuel tank
2. Inspect:
   - Fuel hoses ①

   Cracks/Damage → Replace.

INTAKE MANIFOLD

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

   Cracks/Damage → Replace.



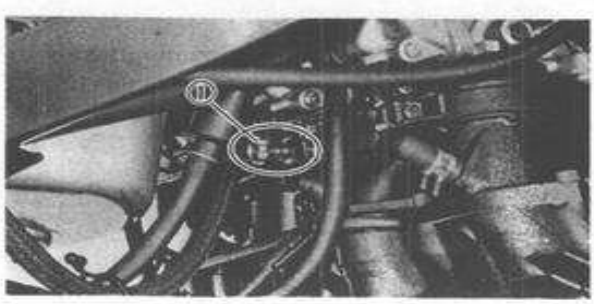
EXHAUST SYSTEM

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

   Damage → Replace.

   Exhaust gas leakage → Repair.
2. Tighten:

Exhaust Pipe Flange Nut ② :
10 Nm (1.0 m·kg, 7.2 ft·lb)
Muffler Stay Bolt ③ :
25 Nm (2.5 m·kg, 18 ft·lb)
Muffler Clamp Bolt ④ :
20 Nm (2.0 m·kg, 14 ft·lb)
Muffler/Rear Footrest Bolt ⑤ :
42 Nm (4.2 m·kg, 30 ft·lb)

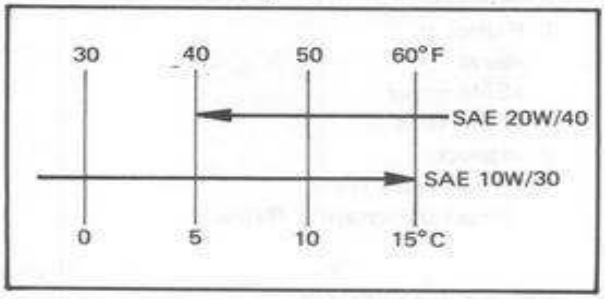


IDLE SPEED

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

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

Engine Idle Speed:
1,000 ± 50 r/min



ENGINE OIL

Recommended Engine Oil:
At 5°C (40°F) or Higher:
Yamalube 4-cycle oil or
SAE 20W40 Type SE Motor Oil
At 15°C (60°F) or Lower:
SAE 10W30 Type SE Motor Oil

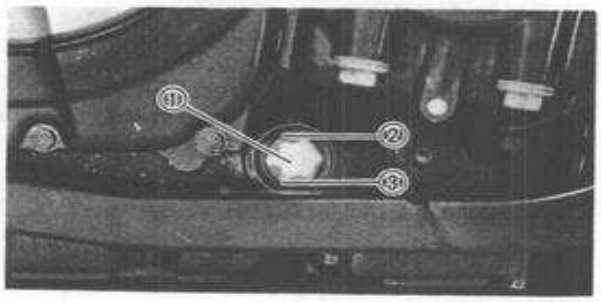
NOTE:
Recommended engine oil classification; API Service "SE", "SF" type or equivalent (e.g. "SF-SE", "SF-SE-CC", "SF-SE-SD" etc.).

Oil Level Measurement

1. Check:
   - Oil level

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

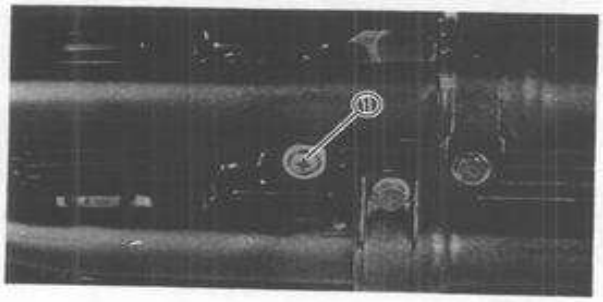
NOTE:
- Position motorcycle straight up when checking oil level; a slight filt to the side can produce false readings.
- Wait a few minutes until level settles before checking.
- Oil level should be between maximum and minimum marks.



① Level window
② Maximum
③ Minimum

Oil Change (Without filter change)

1. Warm up engine for several minutes.
2. Place a receptacle under the engine.
3. Remove:
   - Oil filler cap



4. Remove:
   - Drain plug ①

   Drain the engine oil
5. Tighten:
   - Drain plug ①

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

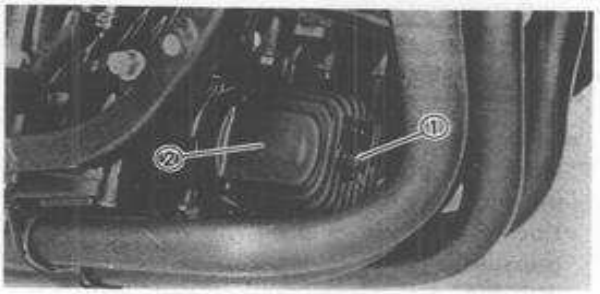
6. Fill:
   - Crankcase

Recommended Engine Oil:
2.70 L (2.35 Imp qt, 2.85 US qt)

CAUTION:

Do not allow foreign material to enter the crankcase.

7. Install:
   - Filler cap



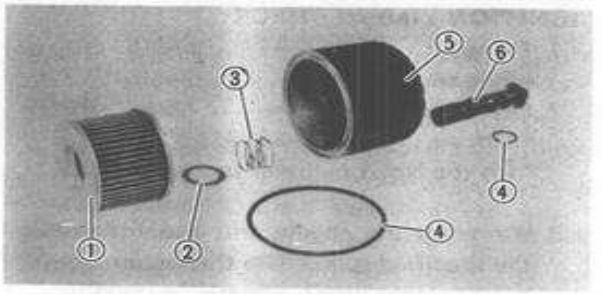
Oil Change (With filter change)

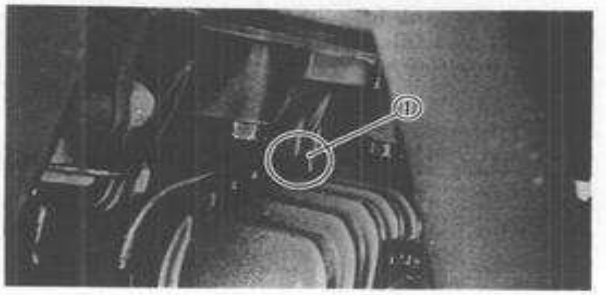
Follow the "Oil Change (without filter change)" steps 1–4. Then proceed as follows:

1. Remove:
   - Bolt ①
   - Oil filter cover ②
   - Spring
   - Washer
   - Oil filter
2. Inspect:
   - O-rings ④

   Cracks/Damage → Replace.
3. Install:
   - Oil filter ①

   Replace periodically
   - Washer ②
   - Spring ③
   - O-rings ④
   - Oil filter cover ⑤
   - Bolt ⑥
   - Drain plug





Drain Plug:
43 Nm (4.3 m·kg, 31 ft·lb)
Oil Filter Bolt:
15 Nm (1.5 m·kg, 11 ft·lb)

NOTE:

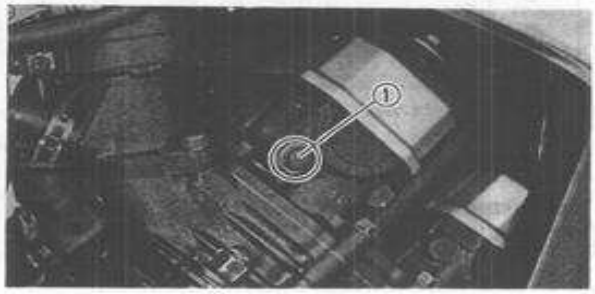
Mesh the oil filter cover projection ① with the crankcase slot.

IGNITION TIMING CHECK

4. Fill:
   - Crankcase

Recommended Engine Oil: 3.0 L (2.6 Imp qt, 3.1 US qt)

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



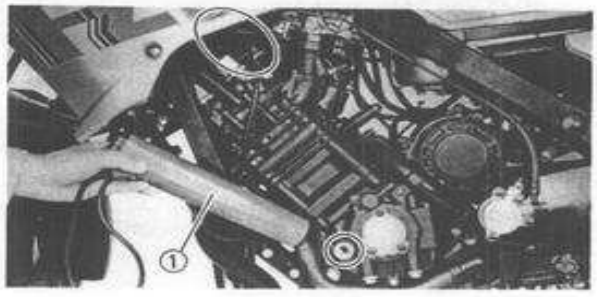
CAUTION:

Check oil pressure after replacing engine oil as follows:

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

Oil gallery Bolt: 10 Nm (1.0 m·kg, 7.2 ft·lb)

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

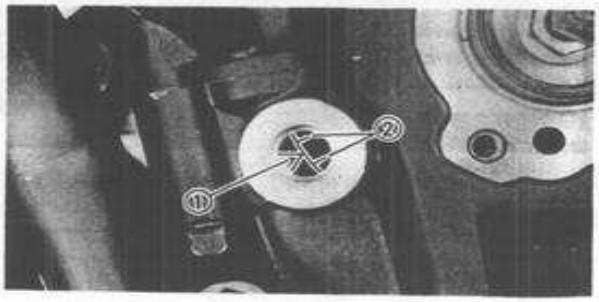


IGNITION TIMING CHECK

1. Remove:
   - Plug screw
2. Connect:
   - Timing Light (YM-33277) ①
     (to the No. 1 cylinder spark plug lead)

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

Engine Idle Speed: 1,000 ± 50 r/min



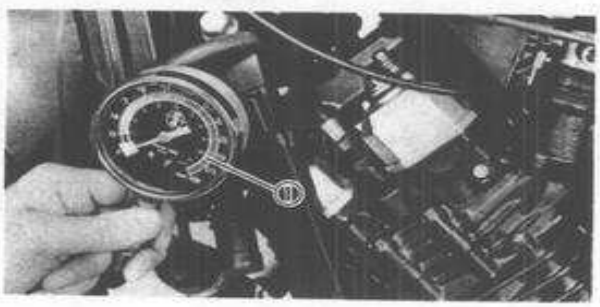
4. Observe:
   - Stationary pointer ①

   The stationary pointer should be within the "⊤⊤" ② mark on the crankshaft web. Out of range/Unsteady → Check pick up assembly for tightness and/or damage.
5. Install:
   - Plug screw

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 (YM-33223) ①
5. Measure:
   - Compression



NOTE:

Turn over engine with the electric starter 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	1,079 kPa (11 kg/cm², 156 psi)
Minimum . . .	883 kPa (9 kg/cm², 128 psi)
Maximum . . .	1,177 kPa (12 kg/cm², 171 psi)

NOTE:

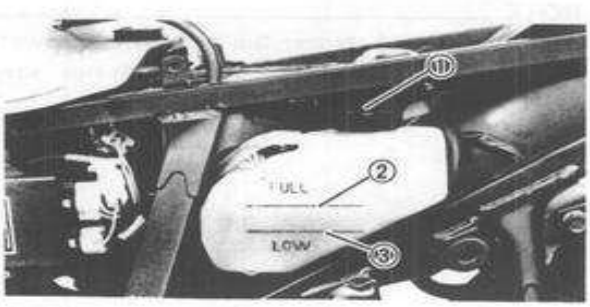
The difference between the highest and lowest cylinder compression readings must not vary more than the specified value.

Difference Between Each Cylinder: Less than 98 kPa (1 kg/cm², 14 psi)

WARNING:

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

Compression test steps (below minimum levels): •Squirt a few drops of oil into cylinder. • Measure compression again.	
Reading	Diagnosis
Higher than without oil	•Worn cylinder, piston and piston rings.
Same as without oil	•Defective piston, ring(s), valve(s) and cylinder head gasket •Improper valve timing and valve clearance.
Compression test steps (above maximum levels): •Check cylinder head, valve surfaces, or piston crown for carbon deposits.	



COOLANT LEVEL

1. Check:
   - Coolant level (of reservoir tank)
     Level low → Add tap water (Soft water).

① Coolant reservoir tank cap
② "FULL" level
③ "LOW" level

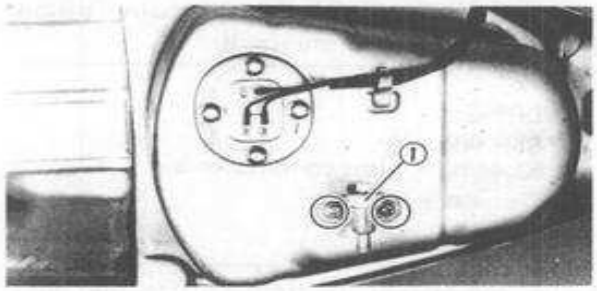
WARNING:

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

CAUTION:

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

Total Amount: (Including all routes)
2.59 L (2.28 Imp qt, 2.74 US qt)
Reservoir Tank Capacity:
0.29 L (0.26 Imp qt, 0.31 US qt)
From LOW to FULL Level:
0.15 L (0.13 Imp qt, 0.16 US qt)

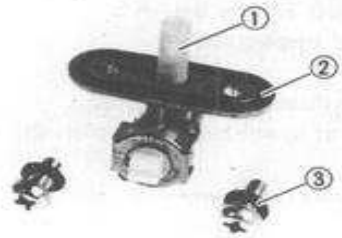


CHASSIS

FUEL COCK

Removal and Inspection

1. Inspect:
   - Fuel cock operation
     Leakage/Contamination → Disassemble.
2. Remove:
   - Seat
   - Side cover
   - Fuel tank
     Position tank so that fuel will not spill when cock is removed.
   - Fuel cock ①

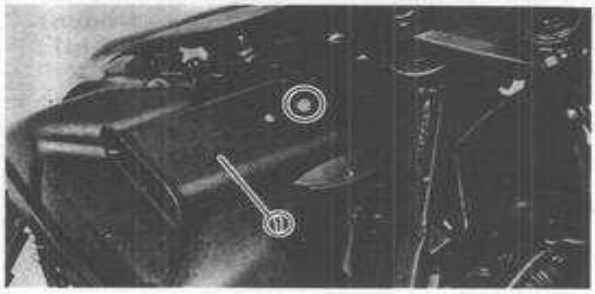


3. Inspect:
   - Filter screen ①
     Contamination → Replace fuel cock.
   - O-ring ②
     Damage → Replace
   - Gasket surfaces ③
     Scratches/Corrosion → Replace.

NOTE:

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

4. Assemble:
   - Fuel cock
5. Install:
   - Fuel cock
     (on to fuel tank)





AIR FILTER

1. Remove:
   - Seat
   - Fuel tank
   - Air filter case cover ①
   - Air filter element

CAUTION:

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

2. Inspect:
   - Element
     Clogging → Blow compressed air.
     Damage → Replace.

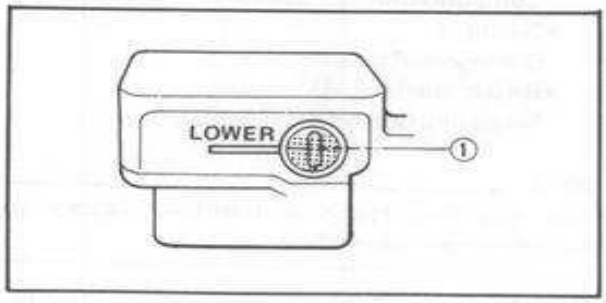
NOTE:

Below compressed air from outside the filter towards the inside 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

Brake Fluid Inspection

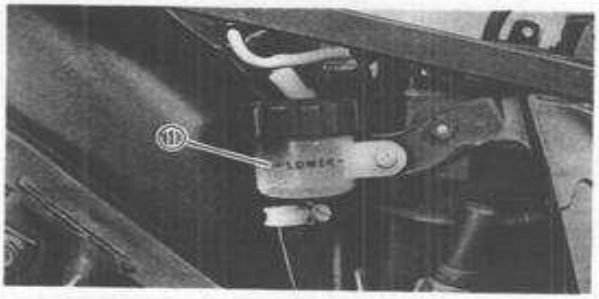
1. Check:
   - Brake fluid level
     Fluid at lower level → Replenish.

① Front brake fluid lower level

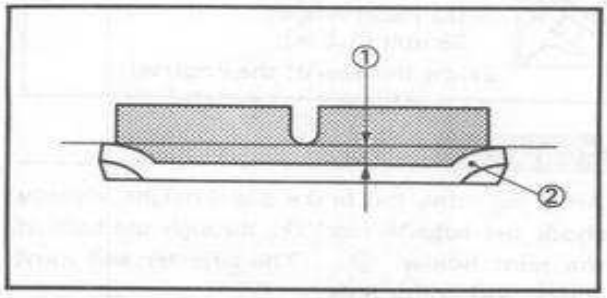
Brake Fluid: DOT #3

WARNING:

- **Use only designated 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.**



① Rear brake fluid lower level



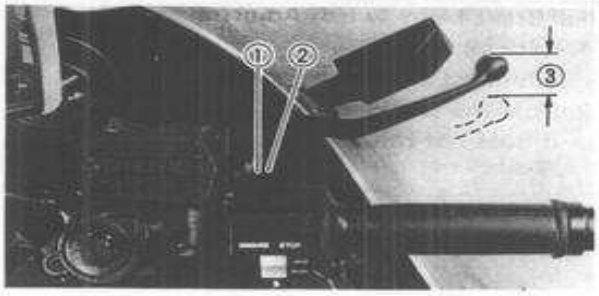
Brake Pad Inspection

1. Depress the brake lever.
2. Inspect:
   - Wear indicator

   Indicator almost contacts disc → Replace pads.

Brake Pad Wear Limit ①: 0.5 mm (0.0197 in)

② Brake pad wear indicator



Front Brake Lever Free Play Adjustment

1. Loosen:
   - Adjuster locknut ①
2. Adjust:
   - Free play

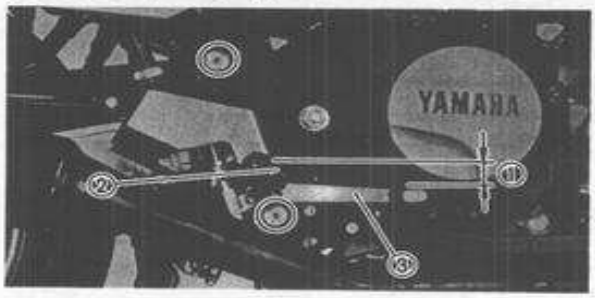
   Turn the adjuster ② until the free play ③ is within the specified limits.

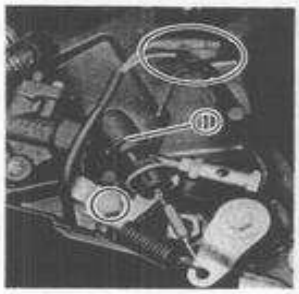
Front Brake Lever Free Play: 2 ~ 5 mm (0.08 ~ 0.2 in)

CAUTION:

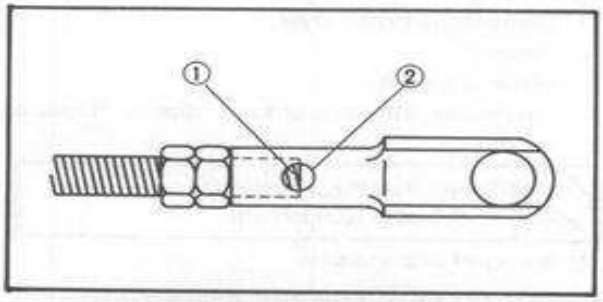
Proper lever free play is essential to avoid excessive brake drag.

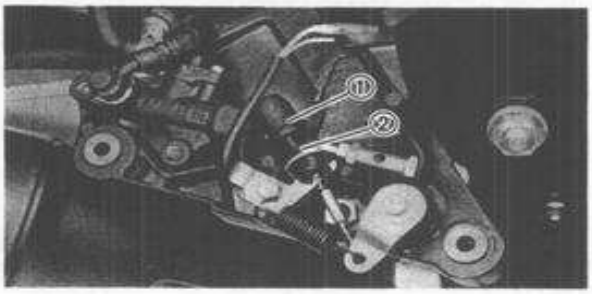
3. Tighten:
   - Adjuster locknut











Rear Brake Pedal Height Adjustment

1. Check:
   - Brake pedal height ①
     Out of specification → Adjust.
2. Remove:
   - Footrest ② and brake pedal ③ assembly.
3. Remove:
   - Brake switch assembly ①
4. Loosen:
   - Adjuster locknuts ②
5. Adjust:
   - Brake pedal height.
     Turn the adjuster ③ until the brake pedal position is at the specified height.

Brake Pedal Height:
35 mm (1.4 in)
Below the Top of the Footrest

WARNING:

After adjusting the brake pedal height, visually check the adjuster end ① through the hole of the joint holder ② . The adjuster end must appear within this hole.

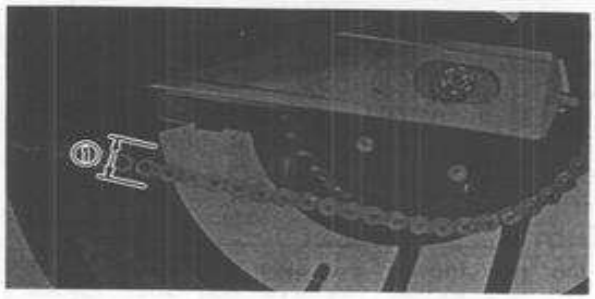
Rear Brake Light Switch Adjustment

1. Remove:
   - Footrest and brake pedal assembly
2. Hold the switch body ① with your hand so it does not rotate and turn the adjusting nut ② .

DRIVE CHAIN

Drive Chain Slack Check

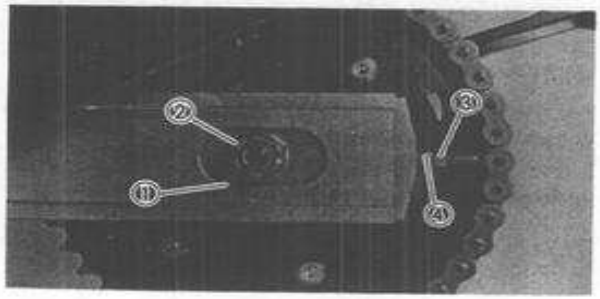
1. Measure:
   - Drive chain deflection
     Motorcycle is on the centerstand.
     Out of specification → Adjust.



Drive chain slack measurement steps:
- Turn the rear wheel several times.
- Check the chain slack several times to find the point where the chain is the tightest.
- Check the chain slack when the wheel is in this "tight chain" position.

Drive Chain Deflection ① :
15 ~ 20 mm (0.6 ~ 0.8 in)

- If the chain deflection exceeds Specification, adjust the chain slack.



Drive Chain Slack Adjustment

Drive chain slack adjustment steps:
- Remove the cotter pin ①
- Loosen the axle nut ②
- Loosen the locknuts ③
- Adjust chain slack by turning the adjuster nut ④.

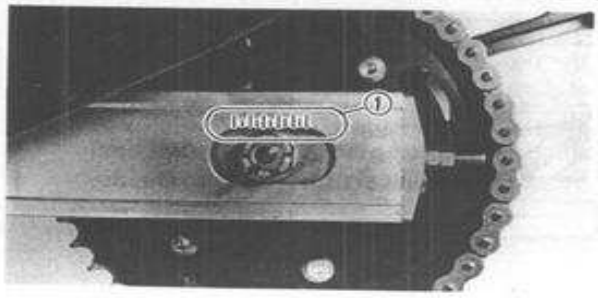
Adjuster Nut	Chain Slack
Turn clockwise	Tighten
Turn counterclockwise	Loosen

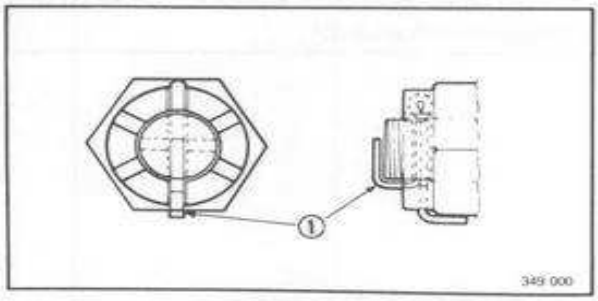
- Turn each nut exactly the same amount to maintain correct axle alignment.

CAUTION:

Excessive chain tension will overload the engine and other vital parts; keep the tension within the specified limits.

(There are marks on each side of the swing arm ① and on each chain puller alignment.)





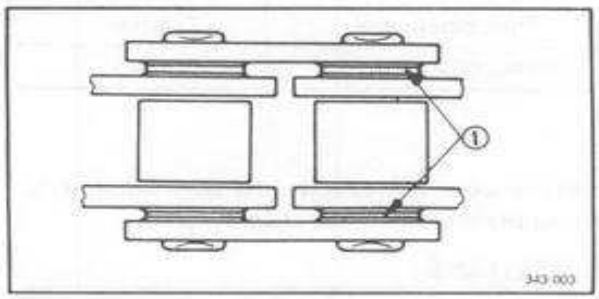
•Tighten the axle nut and locknuts.

Rear Axle Nut:
107 Nm (10.7 m·kg, 77.4 ft·lb)
Locknut:
15 Nm (1.5 m·kg, 11 ft·lb)

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

•Install a new cotter pin ① into the axle nut and bend the end of cotter pin as shown.

WARNING:
Always use a new cotter pin on the axle nut.



Drive Chain Cleaning and Lubrication

1. Drive chain cleaner

Drive Chain Cleaner:
Kerosene

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

2. Drive chain lubricant

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

CAUTION:

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

CABLE INSPECTION AND LUBRICATION

Cable inspection and lubrication steps:

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



Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

BRAKE AND CHANGE PEDALS/BRAKE AND CLUTCH LEVERS

Lubricate pivoting parts of each lever and pedal.



Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

CENTERSTAND AND SIDESTAND

Lubricate centerstand and sidestand at their pivot points.



Yamaha Chain and Cable Lube or SAE 10W30 Motor Oil

FRONT FORK OIL CHANGE

WARNING:

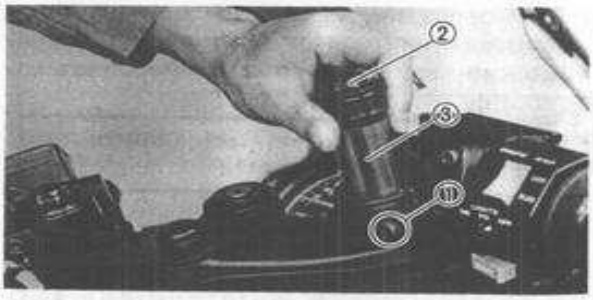
Securely support the motorcycle so there is no danger of it falling over.

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

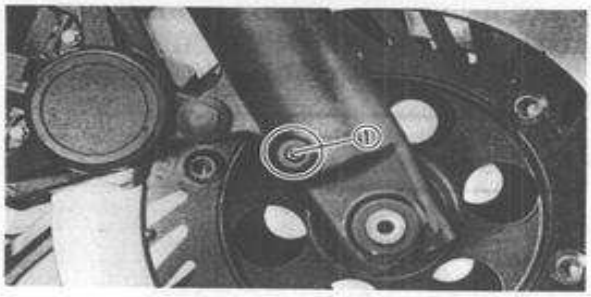


NOTE:

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



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



6. Remove:
   - Drain screws ①

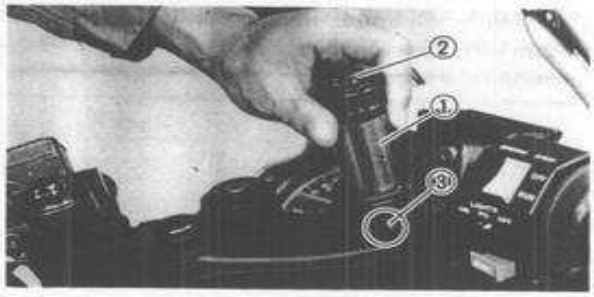
   Drain the fork oil.

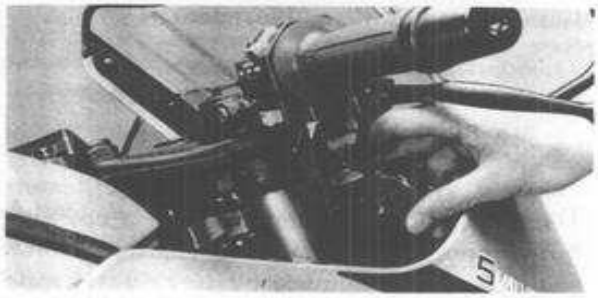
WARNING:

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

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

   Wear/Damage → Replace.





9. Install:
   - Drain screws
10. Fill:
   - Front forks

Front Fork Oil Capacity (each fork):
408 cm³ (14.4 Imp oz, 13.8 US oz)
Recommended Oil:
Yamaha fork oil 10wt or equivalent

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

11. Install:
   - Collar ①
   - Cap bolts ②
   - Pinch bolts ③

Cap Bolt:
23 Nm (2.3 m·kg, 17 ft·lb)
Front Fork Upper Pinch Bolt:
20 Nm (2.0 m·kg, 14 ft·lb)

12. Fill:
   - Front forks
   (with specified amount of air.)
   Refer to "Front fork and rear shock absorber adjustment".

Maximum Air Pressure:
39 kPa (0.4 kg/cm², 5.7 psi)
Do not exceed this amount.

FRONT FORK AND REAR SHOCK ABSORBER ADJUSTMENT

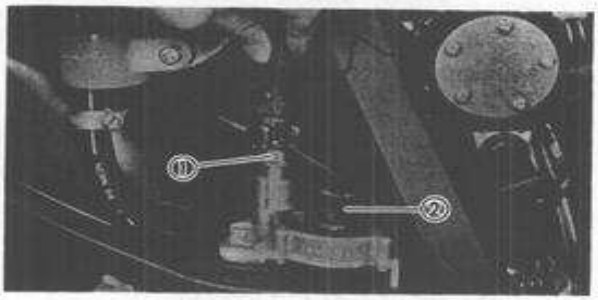
Rear Shock Absorber Adjustment

WARNING:

This shock absorber contains highly pressurized nitrogen gas Read and understand the following information before handling the shock absorber. The manufacture cannot be

held responsible for property damage or personal injury that may result from improper handling.

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



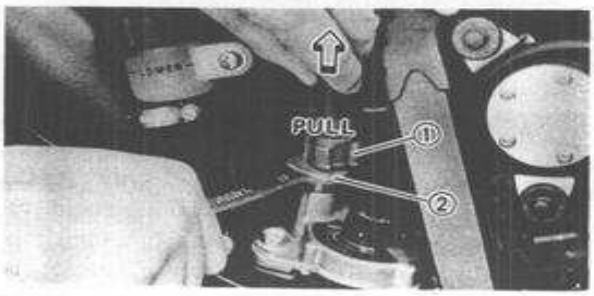
Rear Shock Absorber Adjustment

1. Adjust:
   - Spring preload ①
   - Damping ②

The rear shock absorber of this model features a spring preload adjuster which is a combined spring preload and damping adjuster. Normal adjustment can be made by turning this spring preload adjuster, whereas damping adjustment can only be made by the damping adjuster.

CAUTION:

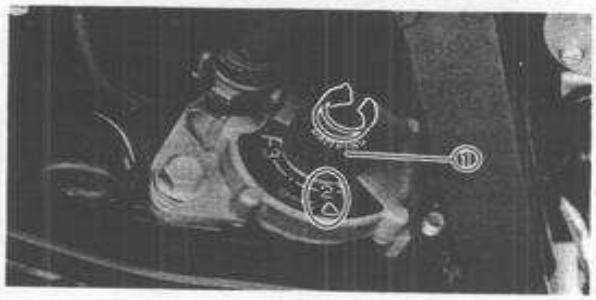
Turn spring preload adjuster and damping adjuster from 1 to 5, or 5 to 1 in progressive steps (1, 2, 3, 4, 5). Never turn adjuster directly from 1 to 5, or 5 to 1.



Spring preload adjustment steps:

1. Elevate the wheel by placing the motorcycle on the centerstand.
2. Lift up the adjuster cover ① , and turn the spring preload adjuster ② so that the damping adjuster turns with it.

Hard → Turn the adjuster clockwise.
Soft → Turn the adjuster counterclockwise.

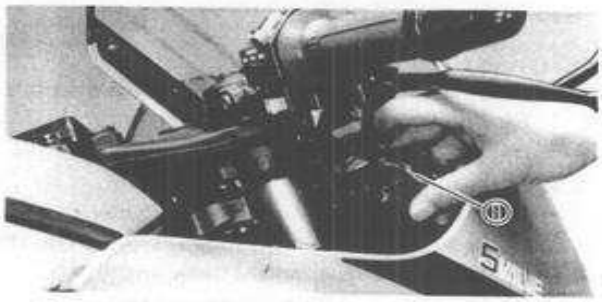


Damping adjustment steps:
Soft → Turn the adjuster ① clockwise. Hard → Turn the adjuster counterclockwise. Standard Position: "2" Minimum Position: "5" Maximum Position: "1"

Front Fork Air Adjustment

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

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



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

   Use an air gauge ① and adjust as needed.

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

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

Standard Air Pressure: 0 kPa (0 kg/cm², 0 psi) Maximum Air Pressure: 39 kPa (0.4kg/cm², 5.7 psi)

CAUTION:

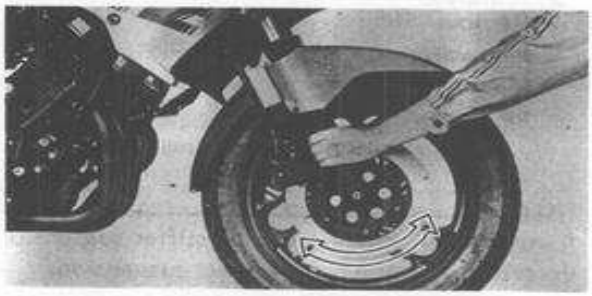
Never exceed maximum pressure or oil seal damage may occur.

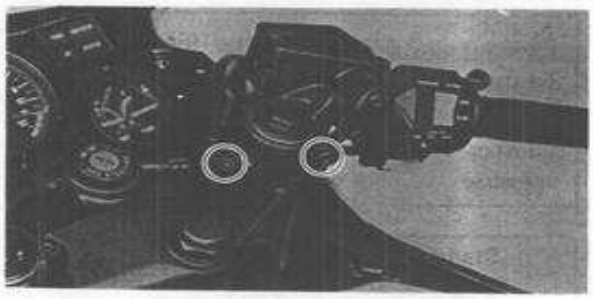
4. Install:
   - Air valve cap

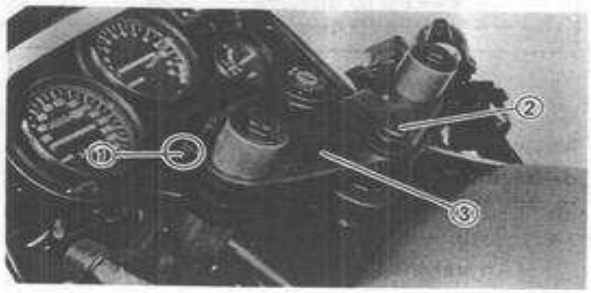
STEERING HEAD

Recommended combinations of the front fork and the rear shock absorber settings:
Use this table as a guide for specific riding and motorcycle load conditions.

Front fork	Rear sock absorber		Loading condition			
Air pressure	Spring preload adjuster	Damping adjuster	Solo rider	With passenger	With accessories and equipment	With accessories, equipment, and passenger
0 ~ 39 kPa (0 ~ 0.4 kg/cm², 0 ~ 5,7 psi)	1, 2	1, 2	○			
	3,4	3,4		○		
	2, 3	2, 3			○	
	4, 5	4, 5				○







STEERING HEAD

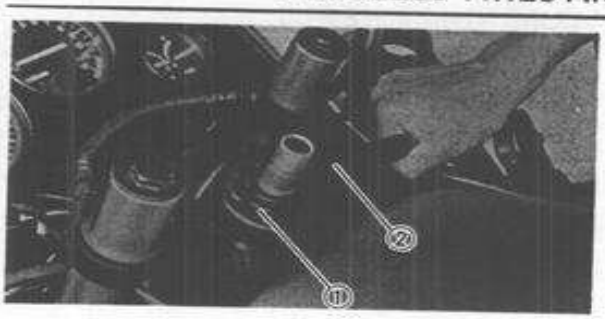
Steering Head Inspection

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

Steering Head Adjustment

1. Remove:
   - •Handlebar assembly

2. Loosen:
   - •Upper front fork pinch bolt ①
3. Remove:
   - •Steering stem nut ②
   - •Handle crown ③
   - •Lock washer
   - •Upper ring nut
   - •Washer

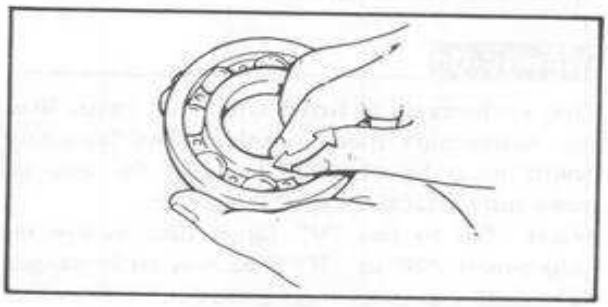


4. Tighten:
   - Lower ring nut ①
     Use the Ring Nut Wrench ②
     (YU-01268).

Lower Ring Nut:
1st: 52 Nm (5.2 m·kg, 37 ft·lb)
2nd: Loosen it completely
3rd: 3 Nm (0.3 m·kg, 2.2 ft·lb)

5. Install:
   - Washer
   - Upper ring nut (Finger tighten)
   - Lock washer
   - Handle crown
6. Tighten:

Steering Stem Nut:
110 Nm (11 m·kg, 80 ft·lb)
Upper Front Fork Pinch Bolt:
20 Nm (2.0 m·kg, 14 ft·lb)



WHEEL BEARINGS

Front Wheel Bearings

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

Rear Wheel Bearings

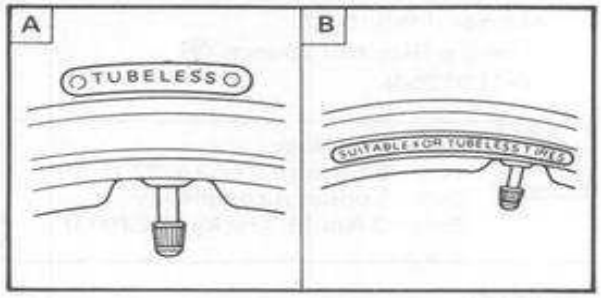
1. Remove:
   - Rear wheel
2. Check:
   - Bearing movement
     Roughness → Replace bearings.

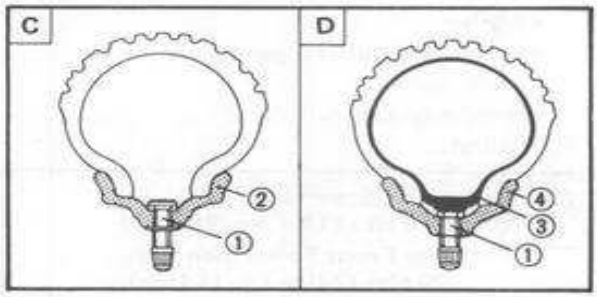
TUBELESS TIRES AND ALUMINUM WHEELS

WARNING:

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

INSP ADJ TUBELESS TIRES AND ALUMINUM WHEELS





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

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

[A] Tire
[B] Wheel
[C] Tubeless tire
[D] Tube type tire
① Air valve
② Aluminum wheel (tubeless type)
③ Tube
④ Aluminum wheel (tube type)

WARNING:

This motorcycle is fitted with "V" range tires (for super high speed running). The following points must be observed in order for you to make fully effective use of these tires.

- **Never fail to use "V" range tires in tire replacement. "S" or "H" tires may be in danger of bursting at super high-speeds.**
- **New tires have a relatively poor adhesion on the road surface so do not allow them to be subjected to high speed load from maximum speed until after a break-in run of approx. 100 km (60 mi).**
- **Before any high-speed runs, remember to allow a sufficient warm-up time for the tires.**
- **Always use the correct tire inflation pressure according to the operating conditions.**

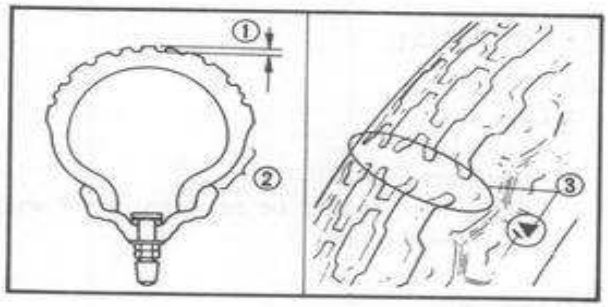
Always perform the following steps to ensure safe operation, maximum tire performance, and long service.

1. Measure:
   - Tire pressure

   Out of specification → Adjust.

Basic weight: With oil and full fuel tank	232 kg (511 lb)	
Maximum load*	213 kg (470 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load*	196 kPa (2.0 kg/cm², 28 psi)	225 kPa (2.3 kg/cm², 32 psi)
90 kg (198 lb) ~ Maximum load*	226 kPa (2.3 kg/cm², 32 psi)	284 kPa (2.9 kg/cm², 42 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.



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

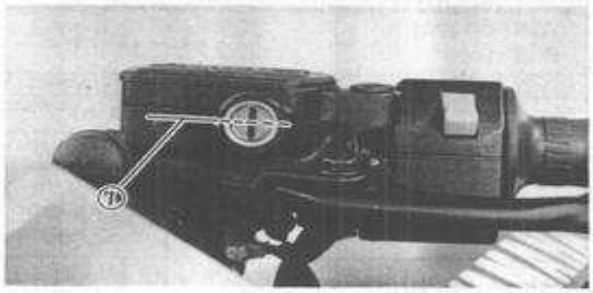
Minimum Tire Tread Depth:
(Front and Rear)
1.0 mm (0.04 in)

① Tread depth
② Side wall
③ Wear indicator

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

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

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



CLUTCH FLUID

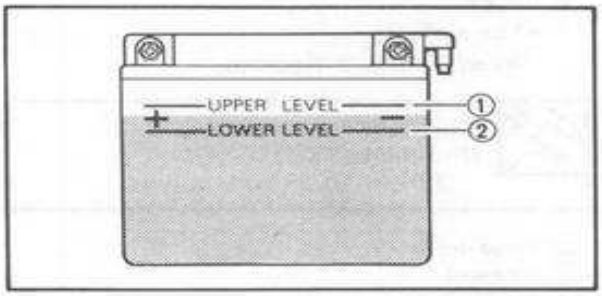
1. Check:
   - Clutch fluid level
     Fluid at lower level → Replenish.

① Clutch fluid lower level

Clutch Fluid:
DOT #3

NOTE:

Be sure that:
- Water does not enter the master cylinder when refilling.
- Spilled fluid is cleaned up immediately to prevent painted surfaces or plastic parts from eroding.



ELECTRICAL

BATTERY

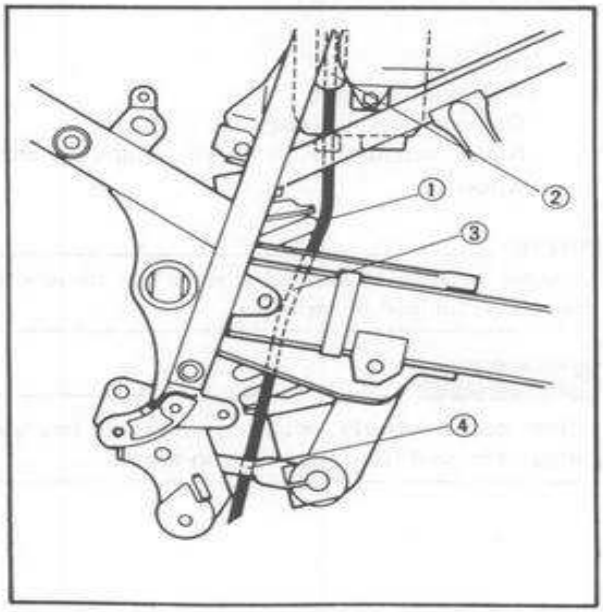
1. Check:
   - Fluid level
     Incorrect → Refill
     Fluid level should be between upper and lower level marks.

① Upper level
② Lower level

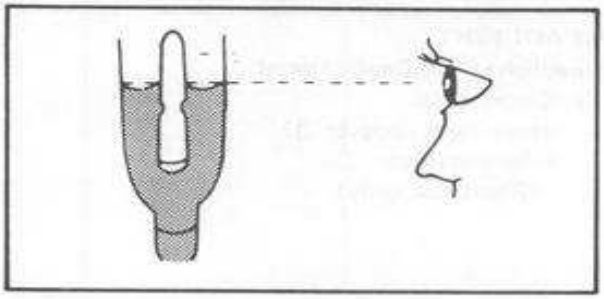
CAUTION:

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

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



② Pass through inside of battery case
③ Pass through inside of swingarm.
④ Pass through the connecting rod hole.





CAUTION:

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

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

WARNING:

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

Always follow these preventive measures:

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

Antidote (EXTERNAL):

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

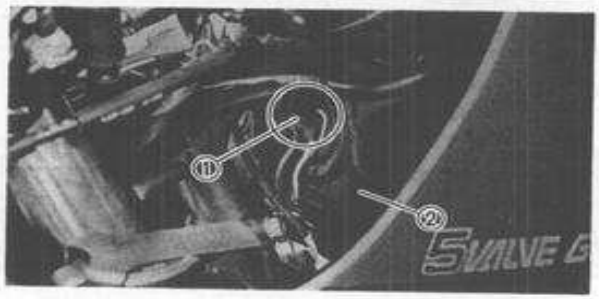
Antidote (INTERNAL):

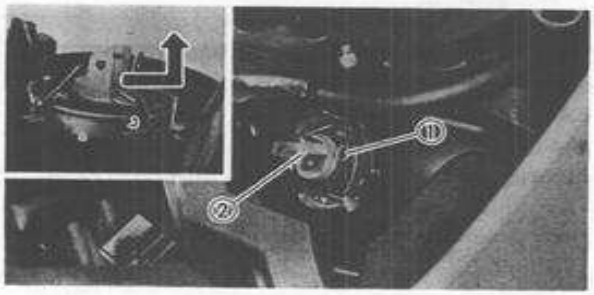
- **Drink large quantities of water or milk follow with milk of magnesia beaten egg, or vegetable oil. Get immediate medical attention.**

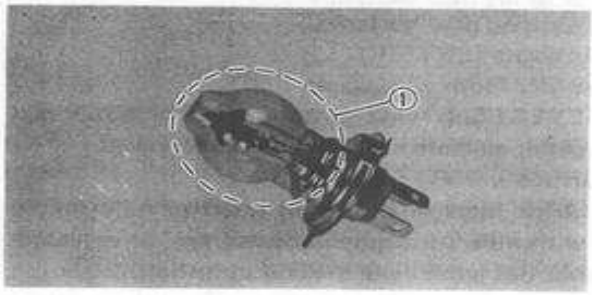
Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:

- **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. Disconnect:
   - Headlight coupler ①
   - Rubber cover ②
     (Right side only)
2. Unhook:
   - Bulb holder spring ①
3. Remove:
   - Bulb ②
4. Install:
   - Bulb (New)

WARNING:

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

CAUTION:

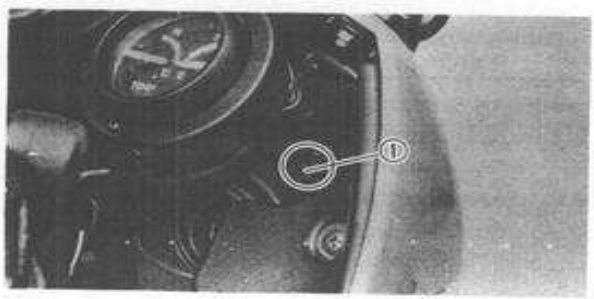
Avoid touching glass part ① of bulb. Also keep it free form oil otherwise, transparency of glass, bulb life and illuminous flux will be adversely affected. If oil gets on bulb, clean it with a cloth moistened thoroughly with alcohol or lacquer thinner.

5. Hook:
   - Bulb holder spring.
6. Connect:
   - Rubber cover
   - Headlight coupler

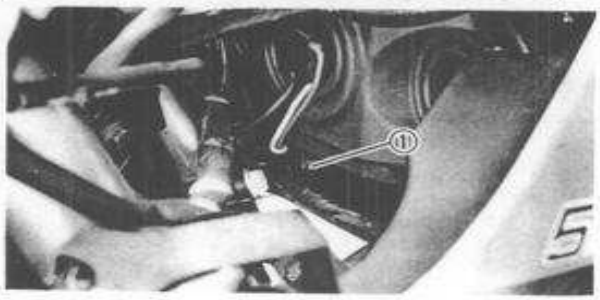
Headlight Adjustment

Horizontal adjustment

1. Rotate:
   - Horizontal adjusting screw ①



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



Vertical adjustment

1. Rotate:
   - Vertical adjusting screw ①

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

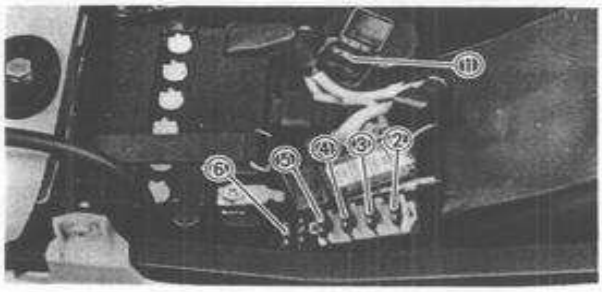
FUSE

The fuse panel is located under the seat.

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

NOTE:

Install new fuses of proper amperage.



Description	Amperage	Quantilty
① Main	30A	1
② Head	15A	1
③ Signal	10A	1
④ Ignition	10A	1
⑤ Fan	10A	1
⑥ Reserve	30A 15A 10A	1 1 1

Blown fuse remedy 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

ENGINE REMOVAL 3-1
- PREPARATION FOR REMOVAL 3-1
- SEAT AND FUEL TANK 3-2
- AIR CLEANER AND CARBURETOR 3-2
- EXHAUST PIPE AND MUFFLER 3-3
- RADIATOR HOSE AND SPARK PLUG LEAD 3-3
- DRIVE CHAIN SPROCKET 3-4
- LEADS 3-5
- ENGINE REMOVAL 3-5

ENGINE DISASSEMBLY 3-6
- CAMSHAFT AND CYLINDER HEAD 3-6
- CYLINDER AND PISTON 3-9
- RIGHT CRANKCASE COVER 3-10
- CLUTCH 3-11
- OIL PUMP AND CHANGE LEVER 3-12
- STARTER MOTOR AND AC GENERATOR 3-12
- WATER PUMP 3-13
- OIL PAN AND OIL STRAINER 3-13
- CRANKCASE DISASSEMBLY 3-14
- UPPER CRANKCASE 3-14
- LOWER CRANKCASE 3-16

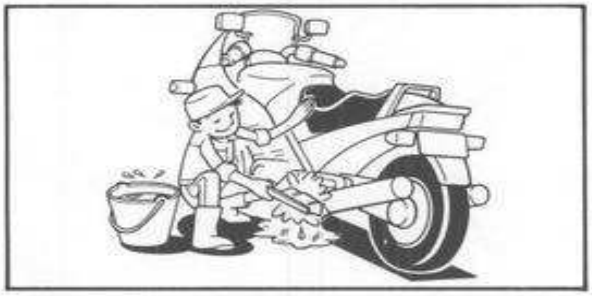
INSPECTION AND REPAIR 3-17
- CYLINDER HEAD AND CAMSHAFT CASE 3-17
- VALVE, VALVE GUIDE, VALVE SEATS AND VALVE SPRING 3-20
- CAMSHAFT, CAM CHAIN AND CAM SPROCKET 3-26
- CYLINDER 3-28
- PISTON, PISTON RING AND PISTON PIN 3-29
- CRANKSHAFT AND CONNECTING ROD 3-32
- OIL PUMP 3-35
- PRIMARY DRIVE 3-36
- STARTER DRIVES 3-37
- CLUTCH 3-37
- TRANSMISSION 3-39
- SHIFTER 3-40
- RELIEF VALVE 3-40
- OIL PIPES 3-40
- COOLANT PIPE 3-41
- CRANKCASE 3-41
- BEARING AND OIL SEALS 3-41
- CIRCLIPS AND WASHERS 3-41

ENGINE ASSEMBLY AND ADJUSTMENT 3-42
LOWER CRANKCASE 3-42
UPPER CRANKCASE 3-44
CRANKCASE ASSEMBLY 3-47
OIL STRAINER AND OIL PAN 3-49
WATER PUMP 3-50
AC GENERATOR AND STARTER MOTOR 3-50
CHANGE LEVER AND OIL PUMP 3-51
CLUTCH 3-52
RIGHT CRANKCASE COVER 3-54
PISTON AND CYLINDER 3-55
CYLINDER HEAD AND CAMSHAFT 3-56
REMOUNTING ENGINE 3-65

ENGINE OVERHAUL

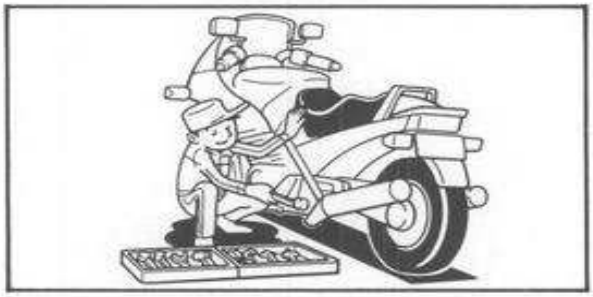
ENGINE REMOVAL

NOTE:
It is not necessary to remove the engine in order to remove the following components:
- Piston
- Clutch
- Carburetor
- AC Generator



PREPARATION FOR REMOVAL

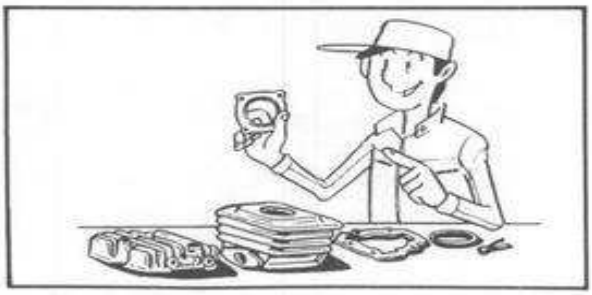
1. Remove all dirt, mud, dust, and foreign material before removal and disassembly.



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

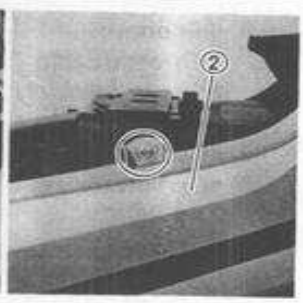


NOTE:
When disassembling the engine, keep mated parts together. This includes gears, cylinders, pistons, and other parts that have been "mated" through normal wear. Mated parts must be reused as an assembly or replaced.



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





SEAT AND FUEL TANK

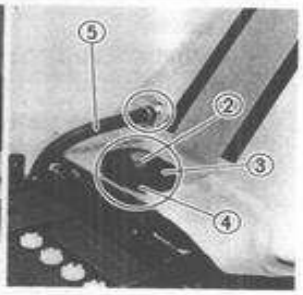
1. Remove:
   - Seat ①
   - Side covers (Left/Right) ②



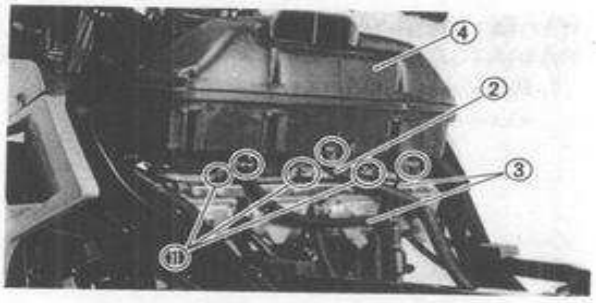


2. Turn the fuel cock to the "OFF" ① position.
3. Disconnect:
   - Fuel pipe ②
   - Fuel sender lead coupler ③



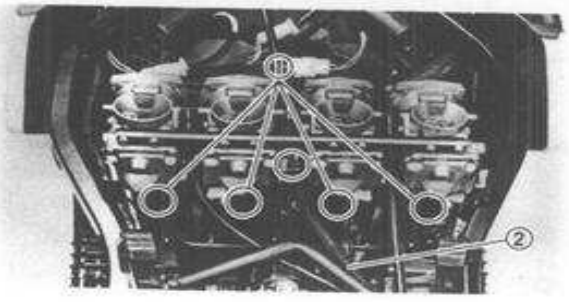


4. Remove:
   - Front fuel tank mounting screws ①
   - Rear fuel tank mounting bolt ②
   - Plate ③
   - Mounting rubber ④
   - Hose ⑤
   - Fuel tank



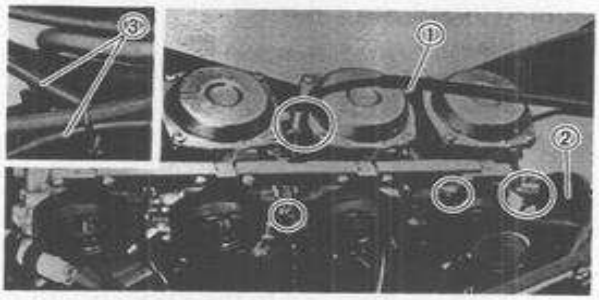
AIR CLEANER AND CARBURETOR

1. Loosen:
   - Air cleaner joint clamp screw ①
2. Disconnect:
   - Crankcase ventilation hose ②
   - Air vent hose ③
3. Remove:
   - Air cleaner assembly ④

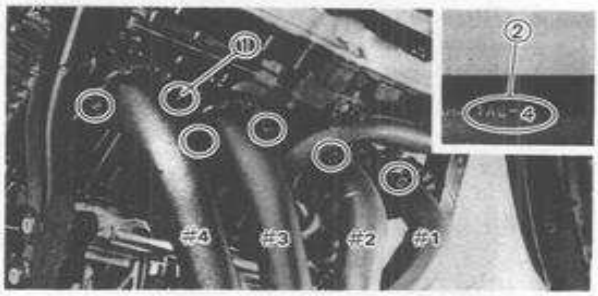


4. Loosen:
   - Carburetor joint clamp screw ①
5. Disconnect:
   - Fuel hose ②

ENGINE REMOVAL



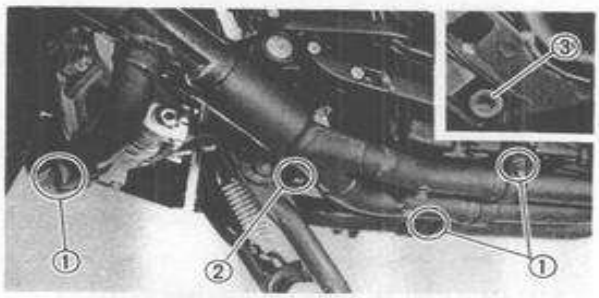
6. Disconnect:
   - Throttle cable ①
   - Choke cable ②
7. Remove:
   - Carbure air vent hose ③
   - Carburetor assembly



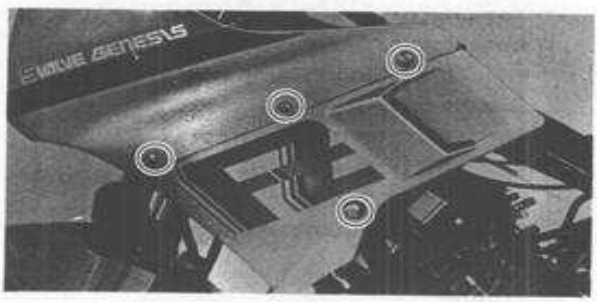
EXHAUST PIPE AND MUFFLER

1. Remove:
   - Exhaust pipe flange bolts ①

NOTE:
- Remove the #2 and #3 exhaust pipe before #1.
- Exhaust pipe number ② is mentioned at it's tail.

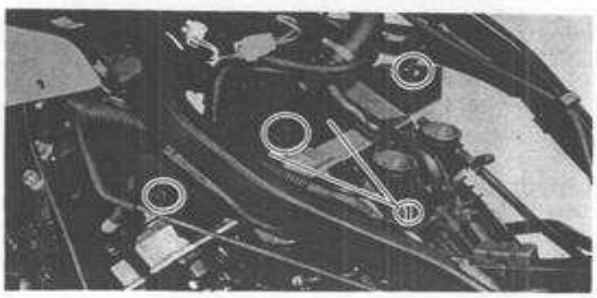


2. Loosen:
   - Muffler clamp bolts ①
3. Remove:
   - Muffler stay bolt ②
   - Muffler/Footrest bolt ③
   - Exhaust pipe
   - Muffler

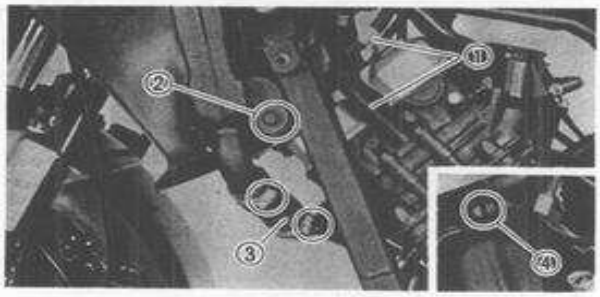


RADIATOR HOSE AND SPARK PLUG LEAD

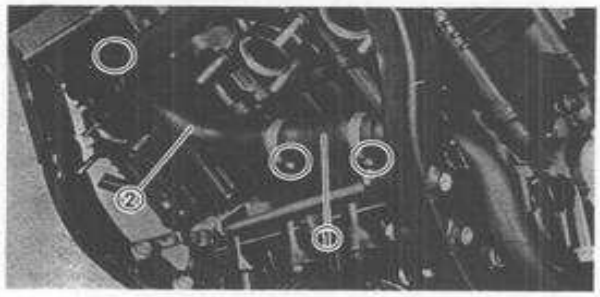
1. Remove:
   - Lower cowling



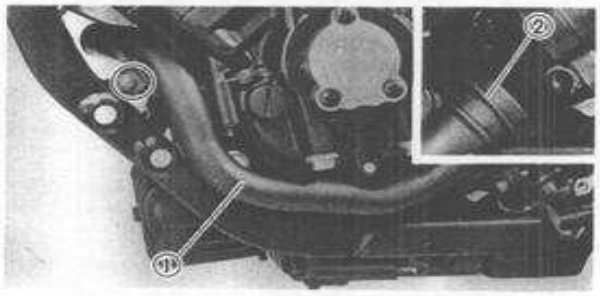
2. Remove:
   - Air baffle plates ①



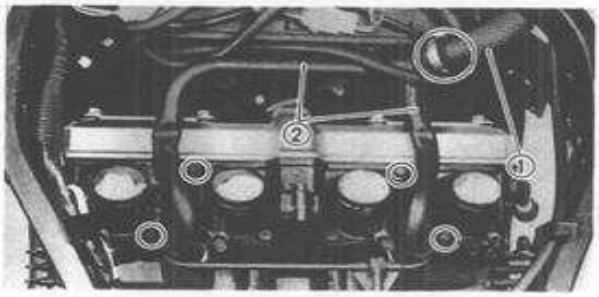
3. Remove:
   - Spark plug leads ①
   - Radiator lower bolts ②
   - Radiator hose ③
4. Loosen:
   - Radiator upper bolts ④



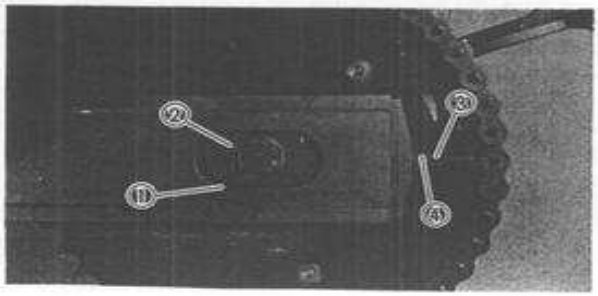
5. Remove:
   - Radiator hose ①
   - Middle radiator pipe ②



6. Remove:
   - Lower radiator pipe ①
   - O-ring ②



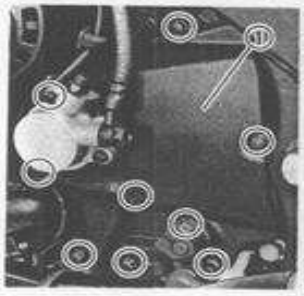
7. Disconnect:
   - Upper radiator hose ①
8. Remove:
   - Upper radiator pipe ②



DRIVE CHAIN SPROCKET

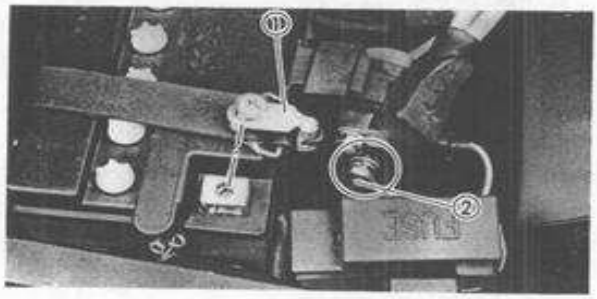
1. Remove:
   - Cotter pin ①
2. Loosen:
   - Rear axle nut ②
   - Locknut ③
   - Adjuster ④
   - Drive chain

ENGINE REMOVAL





3. Remove:
   - Left crankcase cover ①
   - Nut ②
   - Lock washer ③
   - Drive sprocket ④
   - Drive chain ⑤

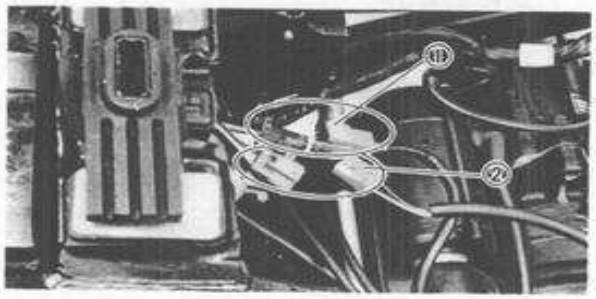


LEADS

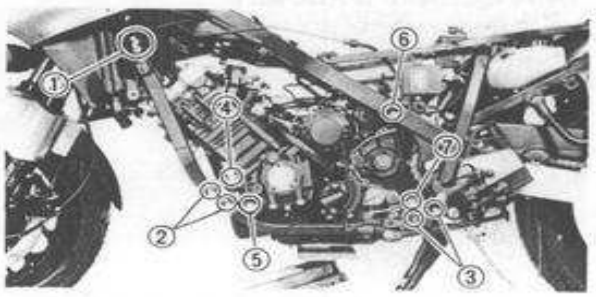
1. Disconnect:
   - Battery ground lead ①
   - Starter motor lead ②



2. Disconnect:
   - Pick up coil coupler ①

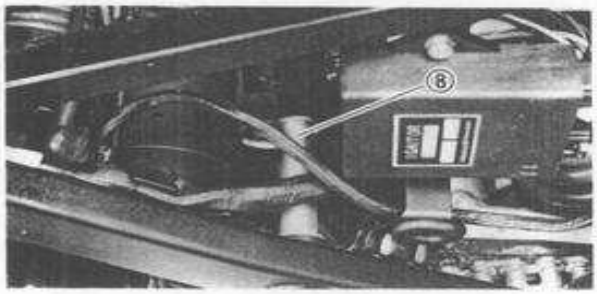


3. Disconnect:
   - AC Generator coupler ①
   - Neutral/Oil level switch coupler ②

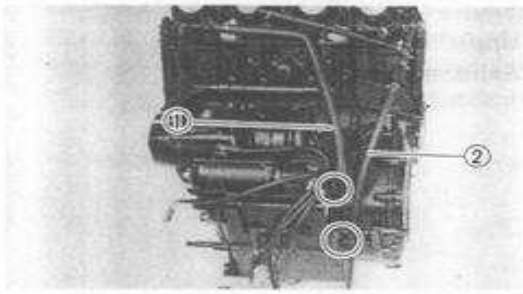


ENGINE REMOVAL

1. Place a suitable stand under the engine.
2. Remove:
   - Front down tube bolts ①
   - Middle down tube bolts ②
   - Rear down tube bolts ③
   - Front upper mounting bolt ④
   - Front lower mounting bolt ⑤



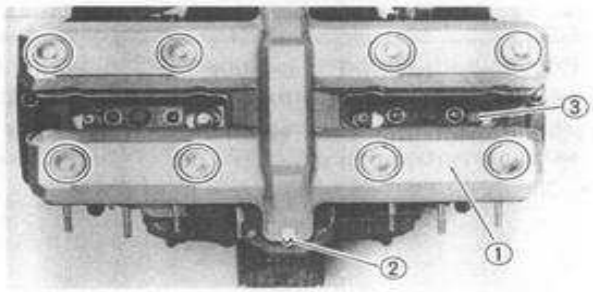
3. Remove:
   - Rear upper mounting bolt ⑥
   - Rear lower mounting bolt ⑦
   - Rear upper mounting collar ⑧
   - Engine assembly (from right chassis)



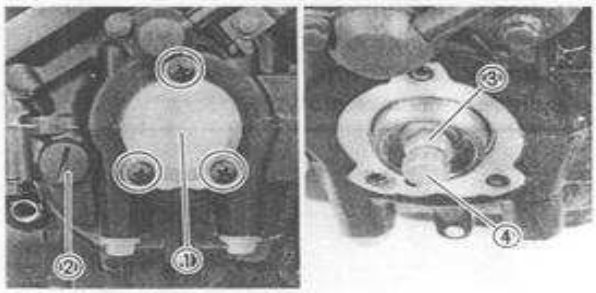
4. Remove:
   - Crankcase ventilation hose ①
   - Air vent hose ②

ENGINE DISASSEMBLY

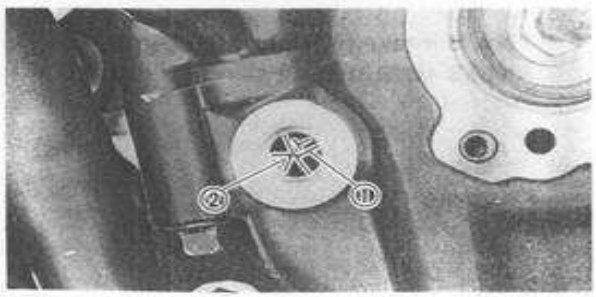
CAMSHAFT AND CYLINDER HEAD



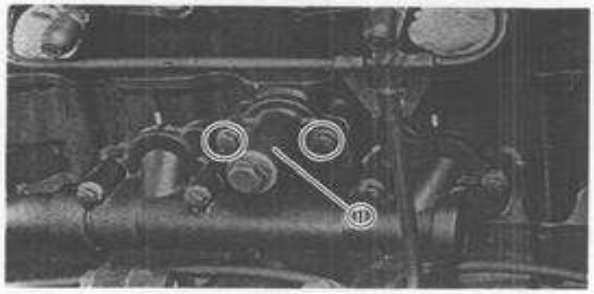
1. Remove:
   - Cylinder head cover ①
   - Cylinder head gasket ②
   - Spark plug ③



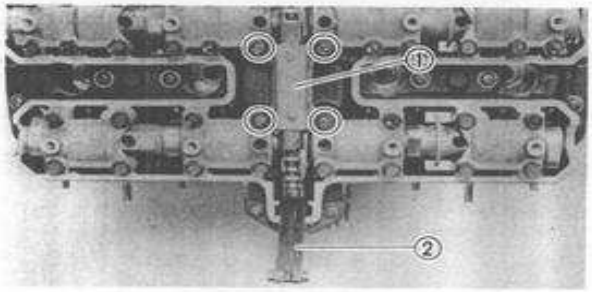
2. Remove:
   - Left crankshaft end cover ①
   - Plug screw ②
3. Install:
   - Locknut ③
   - Bolt (8 mm) ④ (into left crankshaft end)



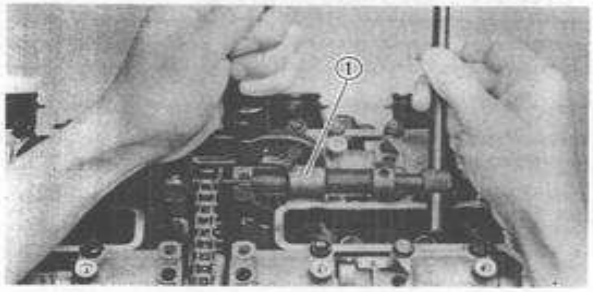
4. Turn:
   - Crankshaft (Counterclockwise)
5. Align:
   - Crankshaft web "T" mark ① (With the stationary pointer ② when #1 piston is at TDC on compression stroke.)



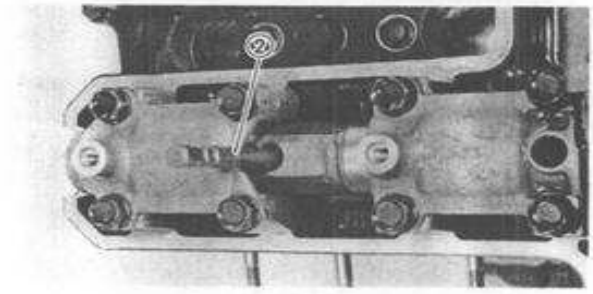
6. Remove:
   - Tensioner assembly ①



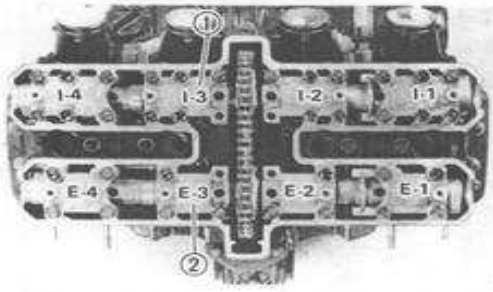
7. Remove:
   - Upper chain guide ①
   - Exhaust side chain guide ②



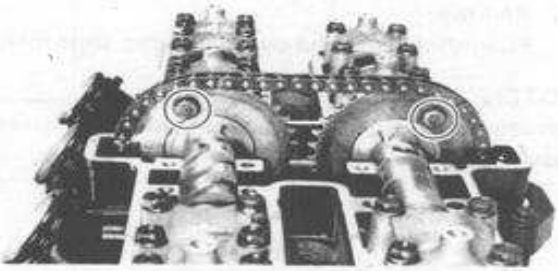
NOTE:
Piston and cylinder can be removed, when necessary, without removing the camshaft. The main steps are as follows.
- Disconnect the cam chain using Cam Chain Cutter ① (YM-01112)



- Remove the cylinder head nuts in the comshaft case using Hexagon Wrench ② (YM-3448)
- Remove the camshaft, camshaft case and cylinder head assembly.

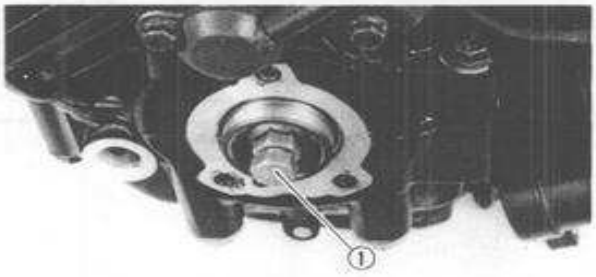


8. Remove:
   - No. 3 intake (I-3) camshaft cap ①
   - No. 3 exhaust (E-3) camshaft cap ②

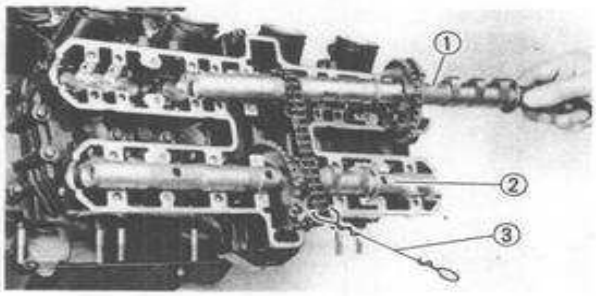


9. Remove:
   - Sprocket bolts (all)

   Turn the crankshaft counterclockwise to remove opposite side sprocket bolt.



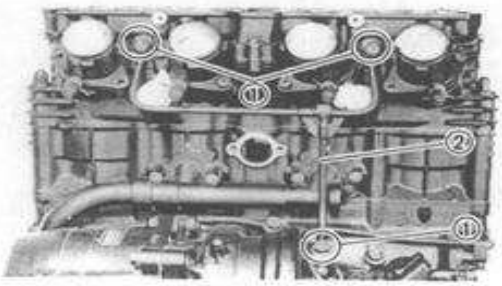
NOTE:
If difficult to loosen the cam sprocket securing bolts; hold the 8 mm bolt ① on the left crankshaft end.



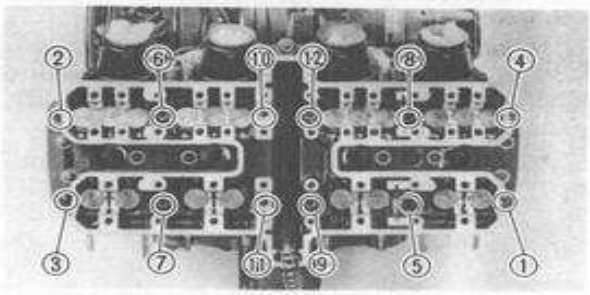
10. Remove:
    - Camshaft caps (all)
    - Intake camshaft ①
    - Exhause camshaft ②

NOTE:
Fasten safety wire ③ to the cam chain to prevent it from falling into the crankcase.

CAUTION:
Do not rotate the camshaft or valve damage may occur.

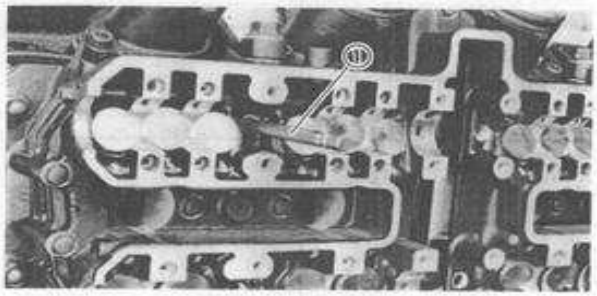


11. Remove:
    - Oil pipe union bolts ①
    - Oil pipe 1 ②

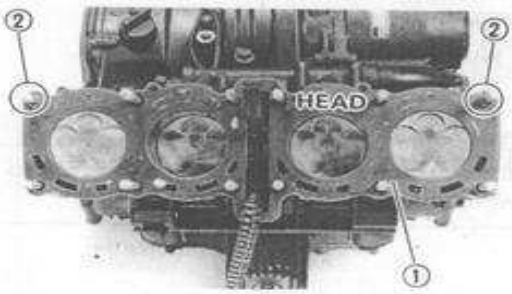


12. Remove:
    - Camshaft case and cylinder head assembly.

NOTE:
Loosen the nuts in their proper loosening sequence.



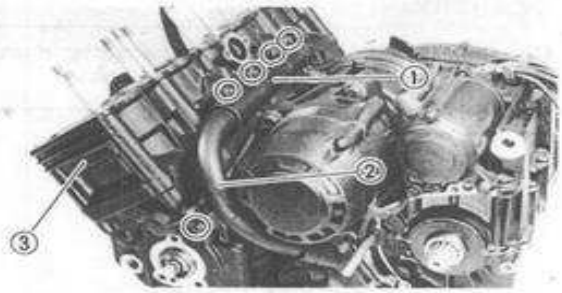
NOTE:
Remove the cylinder head nuts in the camshaft case using Hexagon Wrench ① (YM-3448)

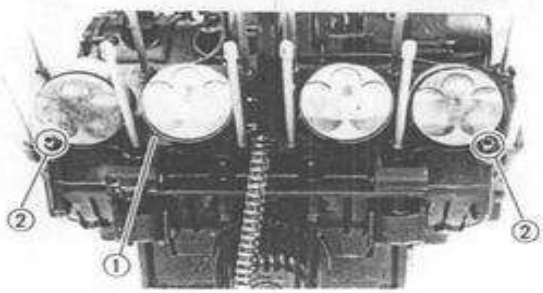


13. Remove:
    - Cylinder head gasket ①
    - Dowels ②

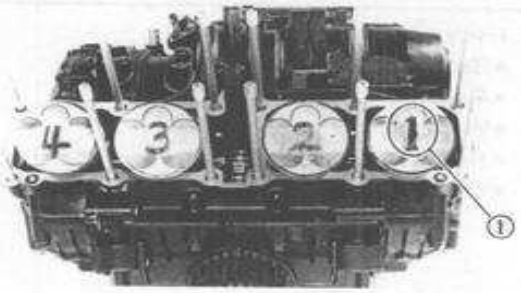
CYLINDER AND PISTON

1. Remove:
    - Water jacket joint ①
    - Coolant feed pipe ②
    - Cylinder ③

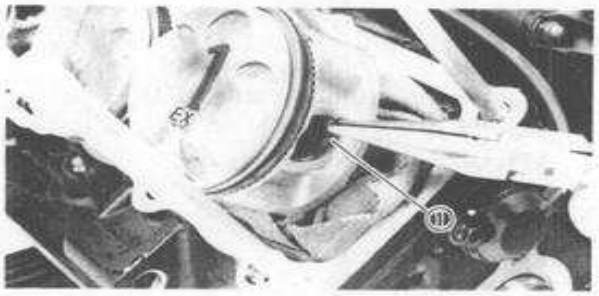




2. Remove:
    - Cylinder gasket ①
    - Dowels ②

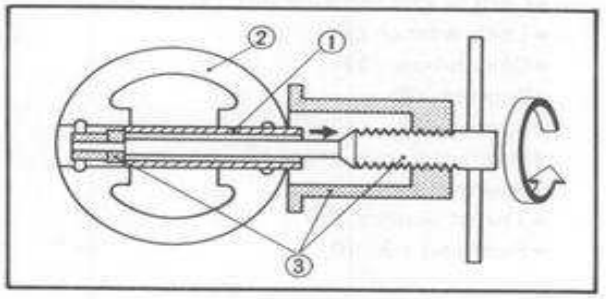


3. Mark:
   - Pistons
     (with piston number ① designations as shown)



4. Remove:
   - Piston pin circlips ①

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

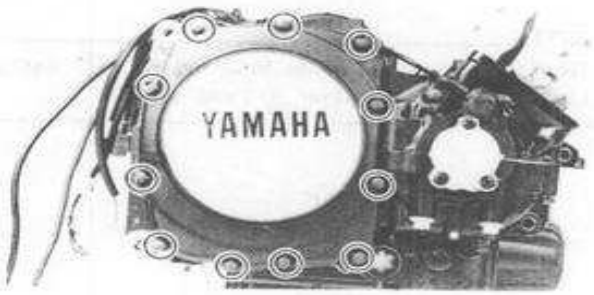


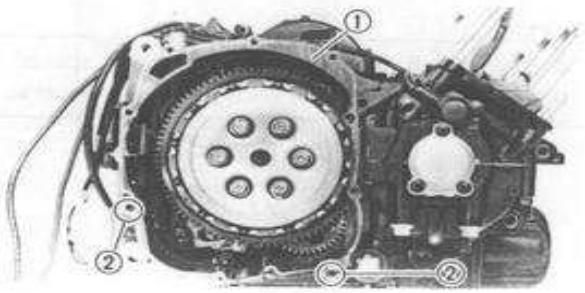
5. Remove:
   - Piston pins ①
   - Pistons ②

NOTE:
Remove the piston pin using Piston Pin Puller ③ (YU-01304)

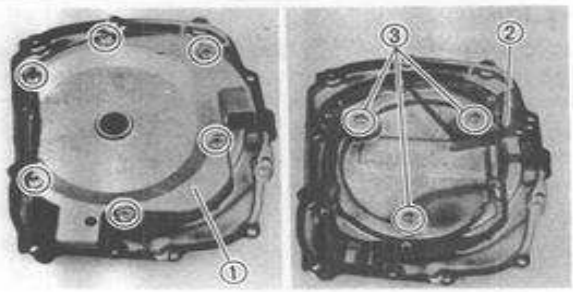
RIGHT CRANKCASE COVER

1. Remove:
   - Right crankcase cover assembly.

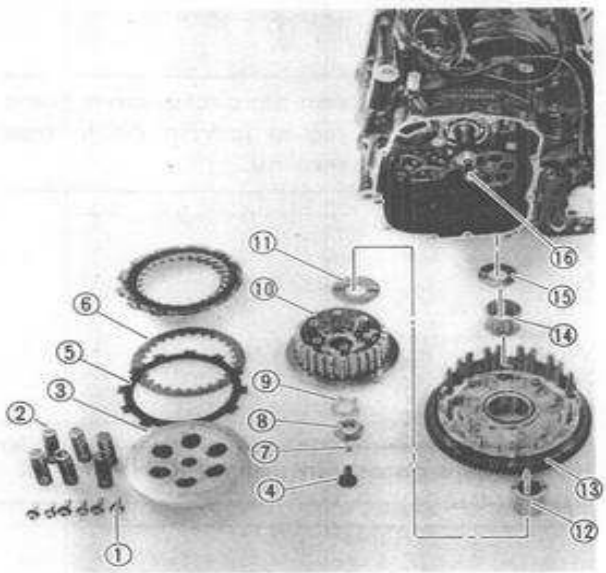




2. Remove:
   - Gasket ①
   - Dowels ②

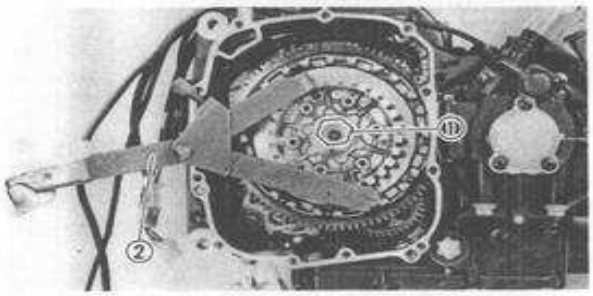


3. Remove:
   - Breather ①
   - Gasket ②
   - Washer ③
   - Rubber ring
   - Cover

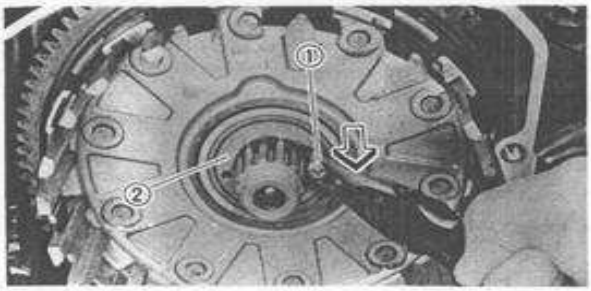


CLUTCH

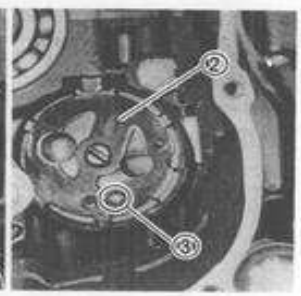
1. Remove:
   - Clutch spring holding screws ①
   - Clutch springs ②
   - Pressure plate ③
   - Push rod #1 ④
   - Friction plates ⑤
   - Clutch plates ⑥
   - Push rod ball ⑦
   - Clutch boss securing nut ⑧
   - Lock washer ⑨
   - Clutch boss ⑩
   - Washer ⑪
   - Spacer ⑫
   - Primary driven gear ⑬
   - Bearing ⑭
   - Thrust washer ⑮
   - Push rod #2 ⑯



NOTE:
Remove the clutch boss securing nut ① using Universal Clutch Holder ② (YM-91042)

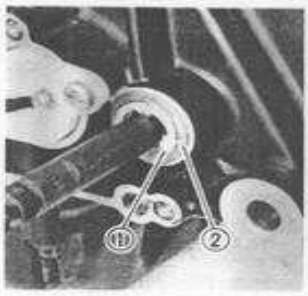
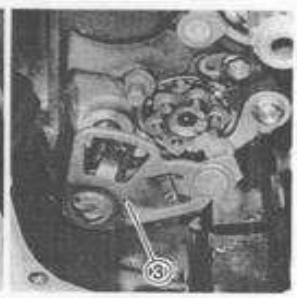


NOTE:
Install the 5 mm screw ① on the spacer ② then remove the spacer with pulling out screw.

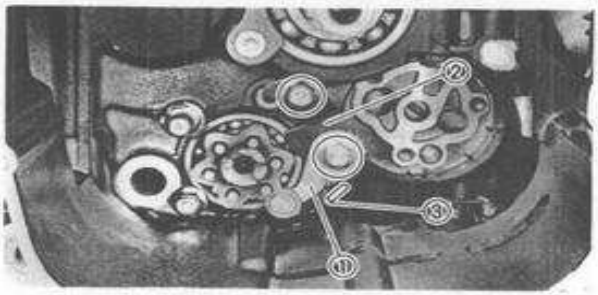



OIL PUMP AND CHANGE LEVER

1. Remove:
   - Oil pump assembly ①
   - Gasket ②
   - Dowel ③

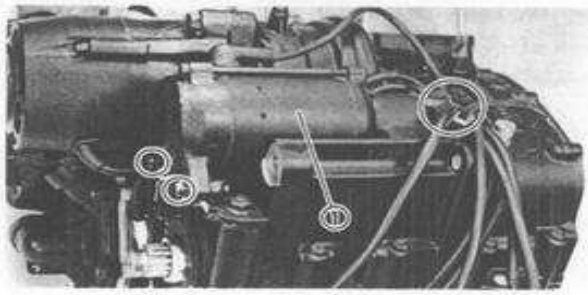



2. Remove:
   - Circlip ①
   - Washer ②
   - Change lever assembly ③

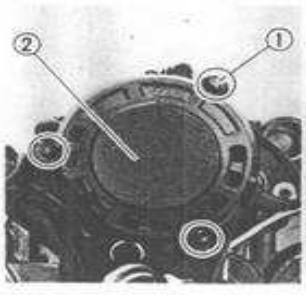
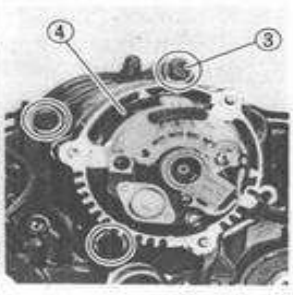


3. Remove:
   - Stopper lever ①
   - Shift fork guide bar stopper ②
   - Spring ③

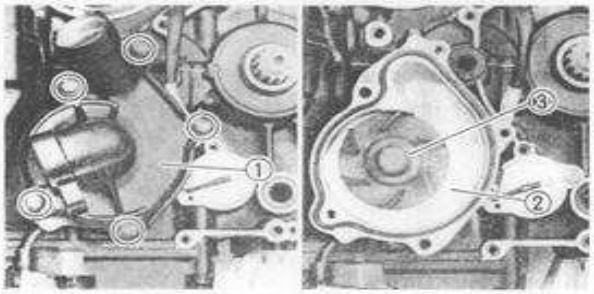
STARTER MOTOR AND AC GENERATOR



1. Remove:
   - Starter motor ①

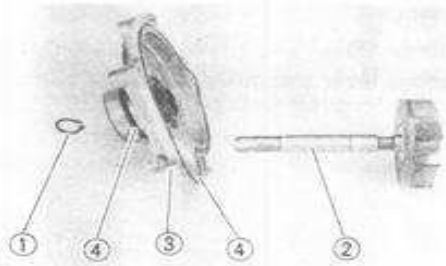



2. Remove:
   - Nuts ①
   - Generator cover ②
   - Bolts ③
   - Generator ④

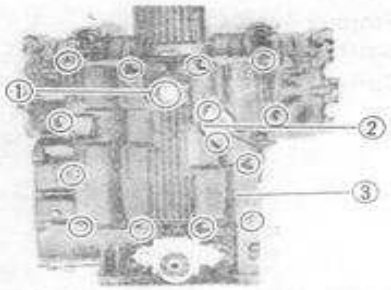


WATER PUMP

1. Remove:
   - Water pump cover ①
   - Housing ② and impeller ③ assembly

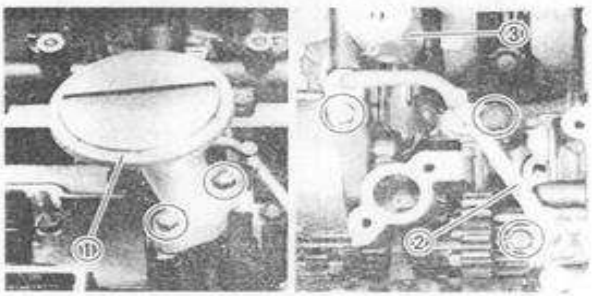


2. Remove:
   - Circlip ①
   - Impeller ②
   - Housing ③
   - O-rings ④

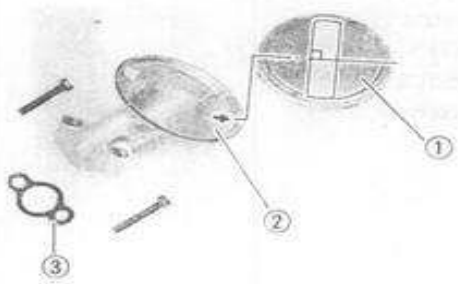


OIL PAN AND OIL STRAINER

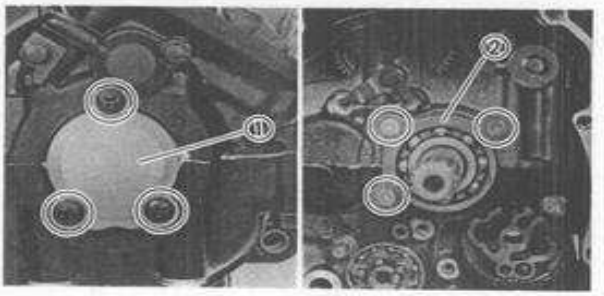
1. Remove:
   - Drian plug ①
   - Oil level switch ②
   - Oil pan ③



2. Remove:
   - Oil strainer assembly ①
   - Oil pipe 5 ②
   - Relief valve ③



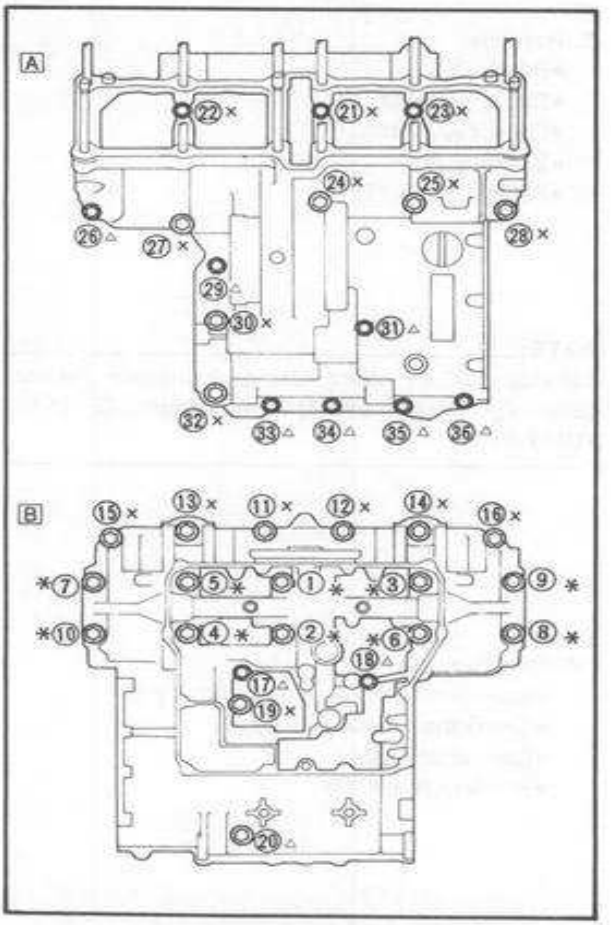
3. Remove:
   - Oil strainer element ①
   - Housing ②
   - Gasket ③



CRANKCASE DISASSEMBLY

1. Remove:
   - Right crankshaft end cover ①
   - Main axle bearing stopper ②

NOTE:
Use #30 Torx Driver (YU-29843-6).

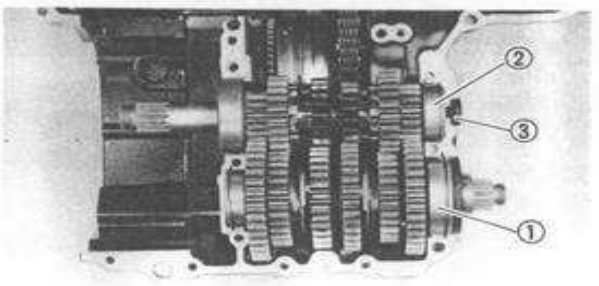


2. Remove:
   - Upper crankcase bolts [A]
   - Lower crankcase bolts [B]

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

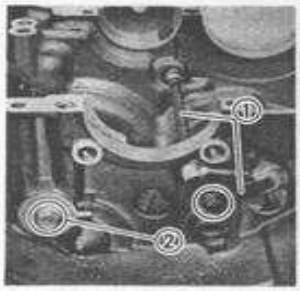
3. Remove:
   - Lower crankcase
     Use a rubber hammer.

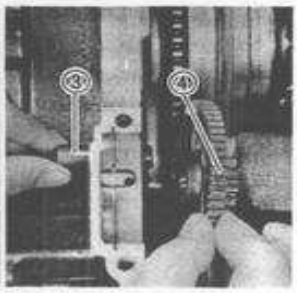
△: 6 mm bolts
×: 8 mm bolts
*: 9 mm bolts



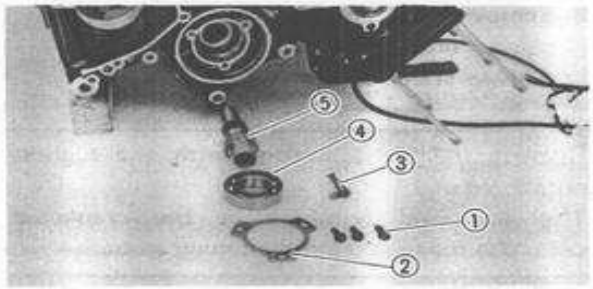
UPPER CRANKCASE

1. Remove:
   - Drive axle assembly ①
   - Main axle assembly ②
   - Oil seal ③

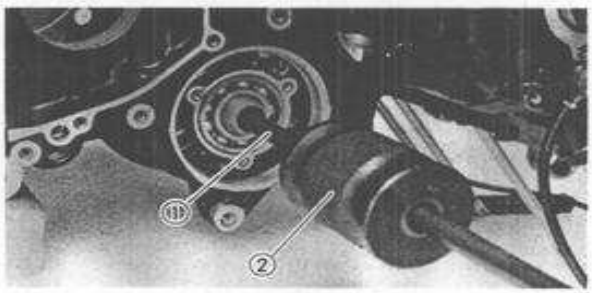




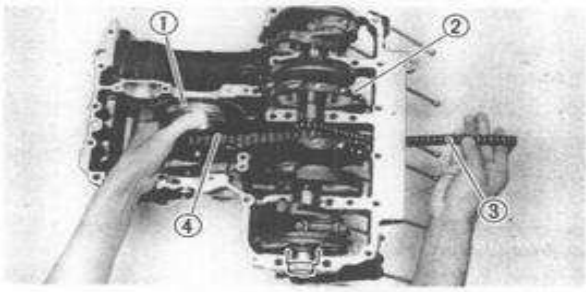
2. Remove:
   - Oil pipe 2 ①
   - Oil plug plate ②
   - Gasket
   - Shaft ③
   - Starter idle gear ④



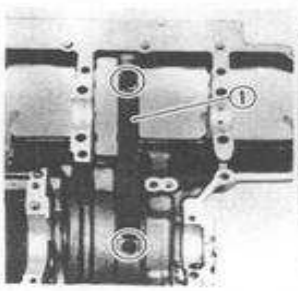
3. Remove:
   - Bolts ①
   - Cover plate ②
   - Oil spray nozzle ③
   - Bearing ④
   - A.C.G. shaft ⑤

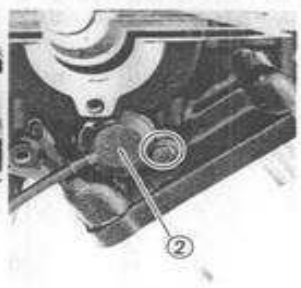


NOTE:
Remove A.C.G. shaft Using Armature Shock Puller ① (YU-01047-3) and Weight ② (YU-01047-4)

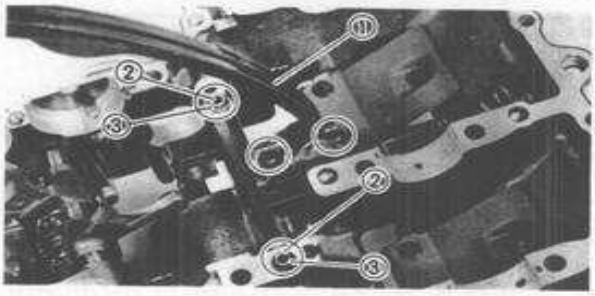


4. Remove:
   - Starter clutch damper assembly ①
   - Crankshaft assembly ②
   - Cam chain ③
   - HY-VO chain ④



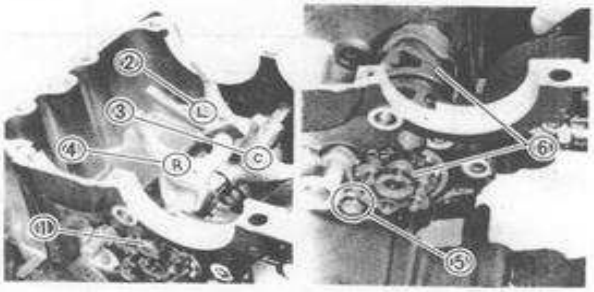


5. Remove:
   - HY-VO chain guide ①
   - Pick up coils ②

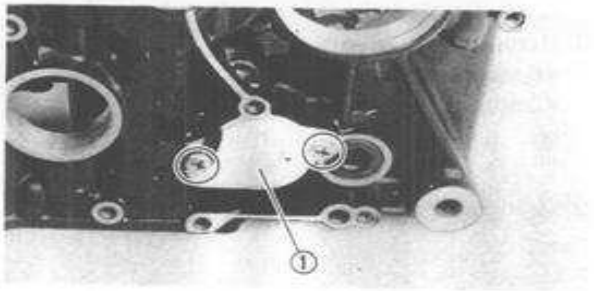


LOWER CRANKCASE

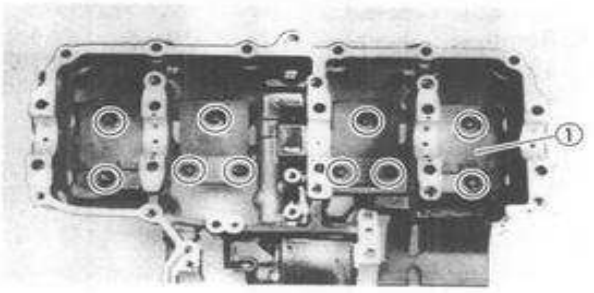
1. Remove:
   - Intake side cam chain guide ①
   - Dowels ②
   - O-rings ③



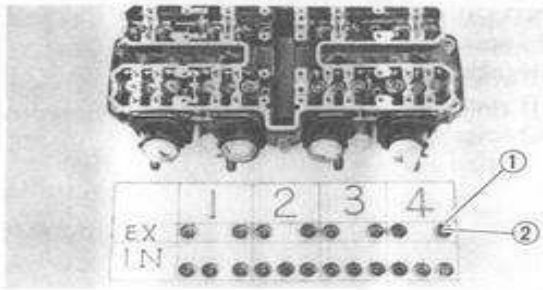
2. Remove:
   - Guide bar ①
   - "L" shift fork ②
   - "C" shift fork ③
   - "R" shift fork ④
   - Bolt ⑤
   - Shift cam assembly ⑥



3. Remove:
   - Neutral switch assembly ①



4. Remove:
   - Oil baffle plates ①

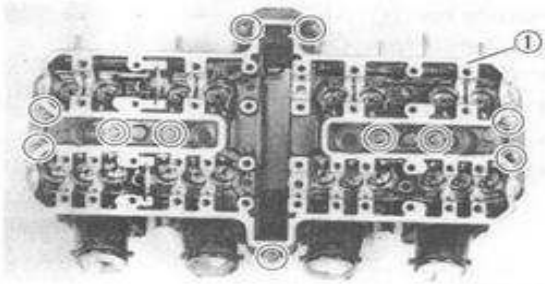


INSPECTION AND REPAIR

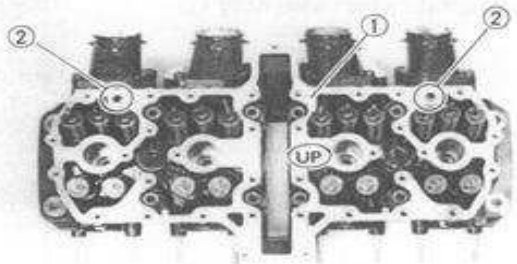
CYLINDER HEAD AND CAMSHAFT CASE

1. Remove:
   - Lifers ①
   - Valve pads ②

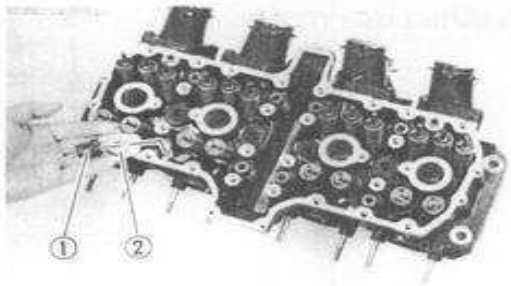
NOTE:
Identify each lifter and pad position very carefully so that it can be reinstalled in its original place.



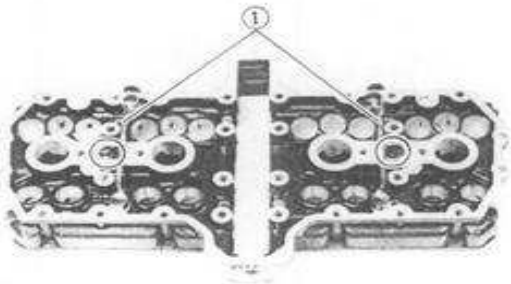
2. Remove:
   - Camshaft case ①



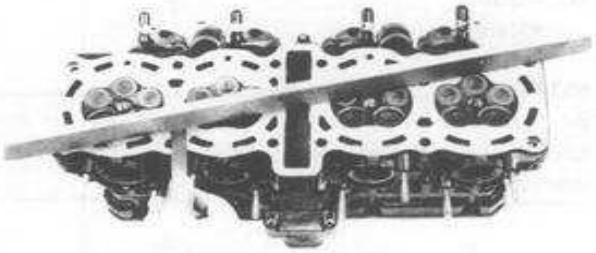
3. Remove:
   - Camshaft case gasket ①
   - Dowels ②



4. Remove:
   - Cylinder head nuts ①
   - Plain washers ②

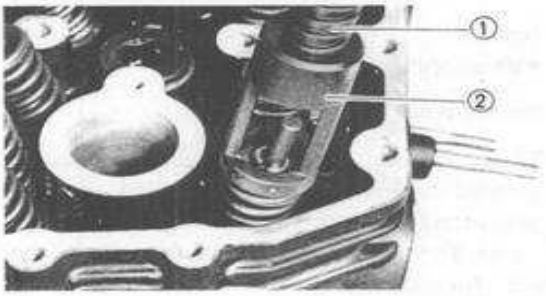


5. Remove:
   - Oil pipes 3 and 4 ①
     (from the camshaft case)

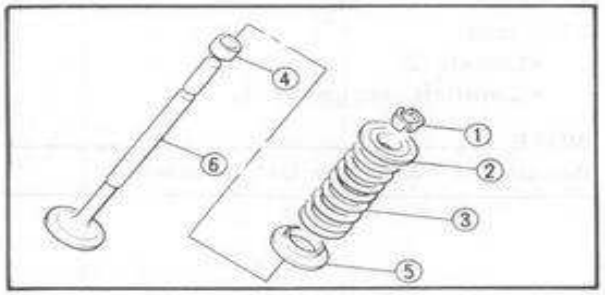


6. Measure:
   •Warpage
   Exceeds allowable limit → Resurface.

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

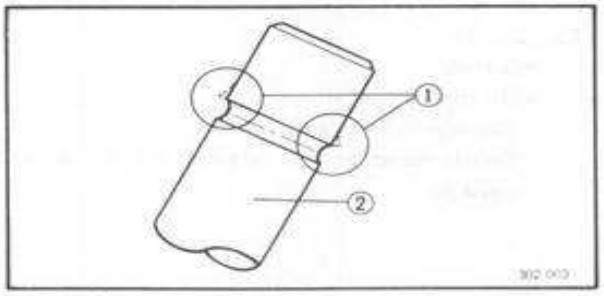


7. Attach:
   • Valve Spring Compressor (YM-04019) ①
   • Attachment (YM-04108) ②



8. Remove:
   •Valve retainers ①
   •Valve spring seat ②
   •Valve spring ③
   •Oil seal ④
   •Valve spring seat ⑤
   •Valve ⑥

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



① Deburr
② Valve stem

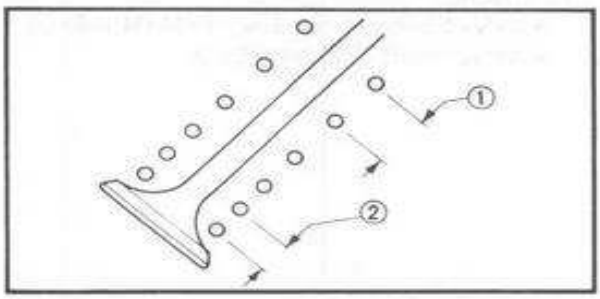
9. Eliminate:
   •Carbon deposit
   (from combustion chamber)
   Use rounded scraper.

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



10. Install:
    - Valves

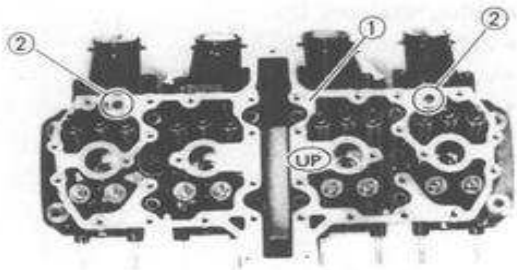
NOTE:
Be sure the "1AA:" mark ① valves are for intake left, and right and "1AA·" mark ② for intake center.



11. Install:
    - Valve springs

② Smaller pitch

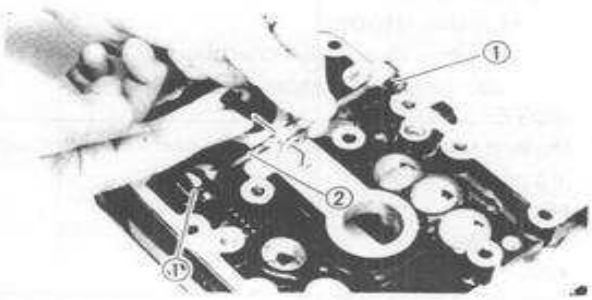
NOTE:
- All valve springs must be installed with the larger pitch ① upward as shown.
- Be sure the "Blue" spring is for intake and "Red" for exhaust.



12. Install:
    - Dowels ②
    - Camshaft case gasket ①

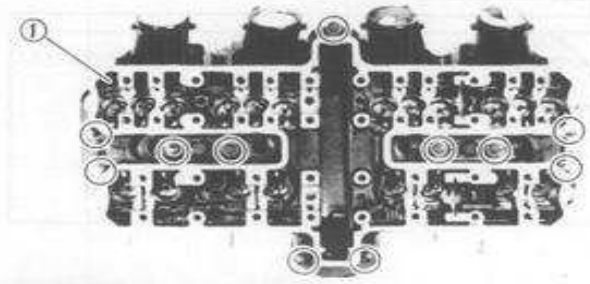
NOTE:
Be sure the "UP" mark face to upward.

13. Check:
    - O-ring
    - Oil pipe 3 and 4
      Damage → Replace.
      Comtamination → Wash and blow out passage.



14. Install:
    - O-rings ①
    - Oil pipe 3 and 4 ②
    - Bolts
      (on the camshaft case)

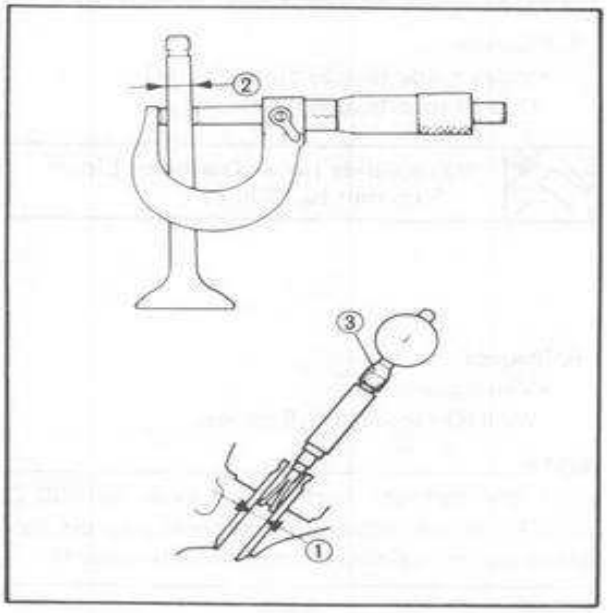
	Oil pipe 3 and 4 Bolts: 10 Nm (1.0 m·kg, 7.2 ft·lb)





15. Install:
- Camshaft case ①
- Washers ②
- Brakcet ③

	Camshaft Case Bolts: 10 Nm (1.0 m·kg, 7.2 ft·lb)



VALVE, VALVE GUIDE, VALVE SEATS AND VALVE SPRING

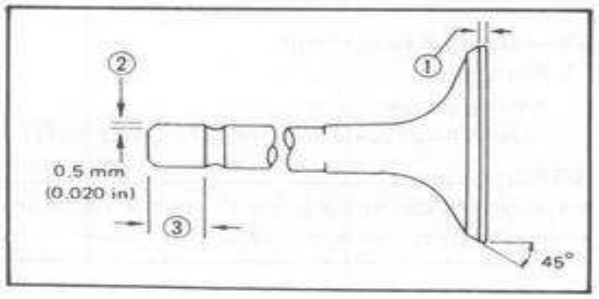
1. Measure:
- Valve stem clearance

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

Out of specification → Replace valve or guide.

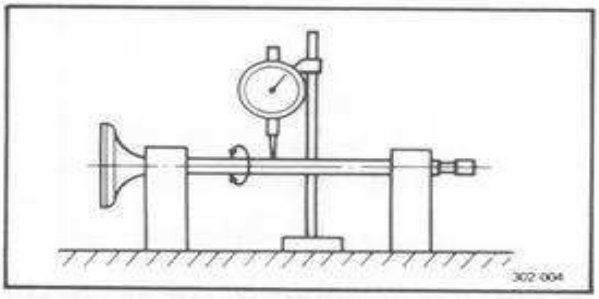
	Valve Stem Clearance Limit:
Intake	0.08 mm (0.0031 in)
Exhaust	0.10 mm (0.0039 in)

③ Bore gauge



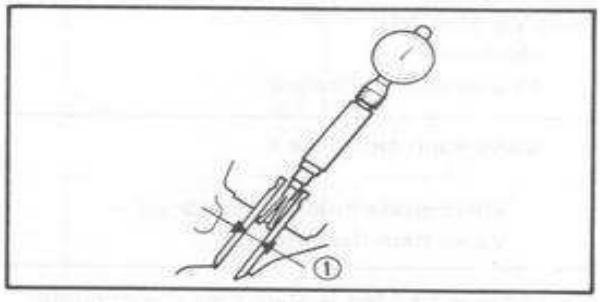
2. Measure:
- Valve face:
  Pitting/Wear → Regrind.
  Out of specification → Raplace.

Minimum Thickness (Service limit) ① :
0.7 mm (0.0276 in)
Beveled ② :
0.35 mm (0.0138 in)
Minimum Length (Service limit) ③ :
14.5 mm (0.571 in)



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

Maximum Valve Stem Runout:
0.01 mm (0.0004 in)

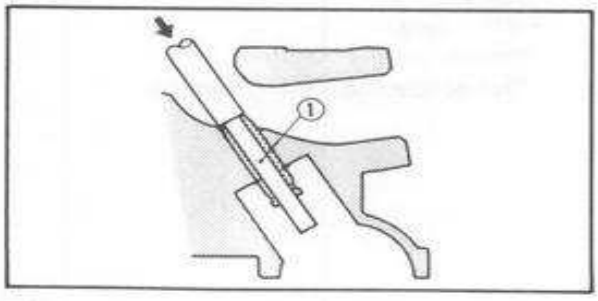


4. Measure:
   - Valve guide (inside diameter) ①
     Out of specification → Replace.

Valve Guide Inside Diameter Limit:
5.05 mm (0.1988 in)

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

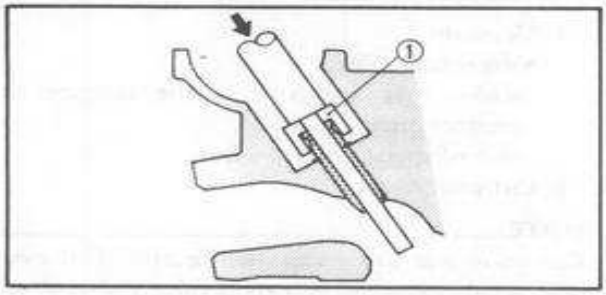
NOTE:
Heat the cylinder head in an oven to 100°C (212°F) to ease valve guide removal and reinstallation and to maintain correct interference fit.



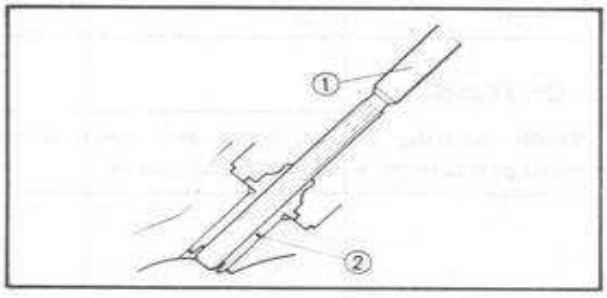
Valve Guide Replacement

1. Remove:
   - Valve guide
     Use Valve Guide remove (YM-04097) ①

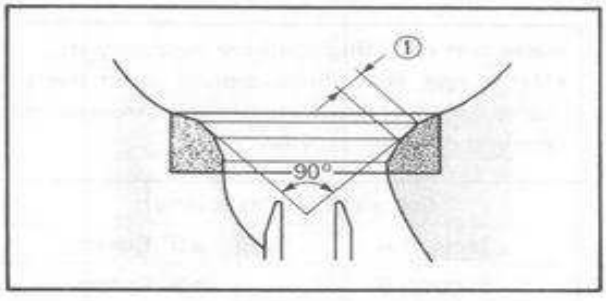
NOTE:
- Always replace valve guide if valve is replaced.
- Always replace oil seal if valve is removed.



2. Install:
   - Valve guide (new)
     Use Valve Guide Installer (YM-04098) ①.



3. Bore valve guide ② to obtain proper valve stem clearance.
   Use 5.0 mm Reamer (YM-04099) ①.

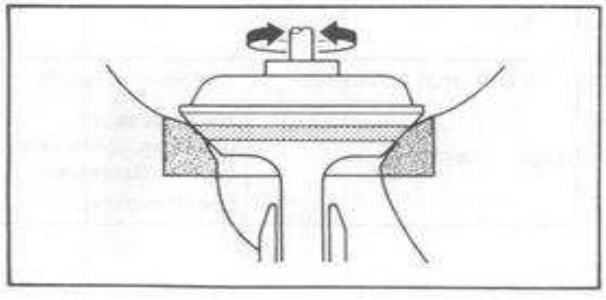


Valve Seat

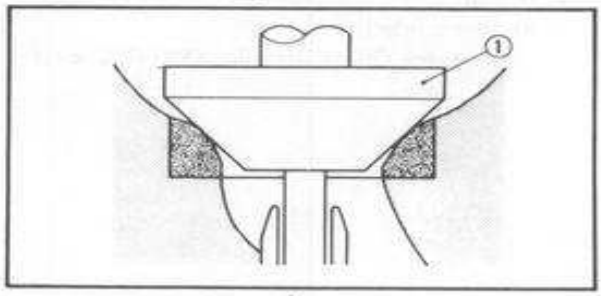
1. Inspect:
   - Valve seat
     Pitting/Wear → Cut.
2. Measure:
   - Valve seat width ①
     Out of specification → Follow next steps.

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

3. Apply:
   - Mechanic's bluing dye (Dykem)
     (to valve and seat)
   - Fine grinding compound (Small amount)
     (to valve face surface)
4. Position:
   - Valve
     (into cylinder head)



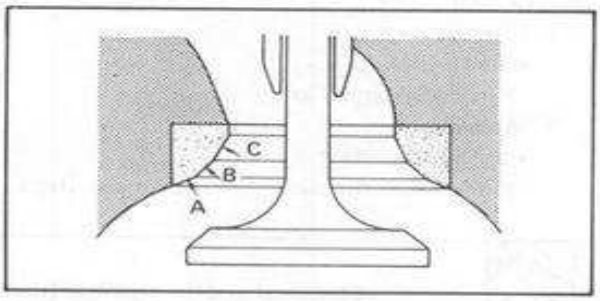
5. Spin it rapidly back and forth, then lift valve and clean off all grinding compound.
6. Inspect:
   - Valve seat surface
     Wherever valve seat and valve face made contact, bluing will have been removed.

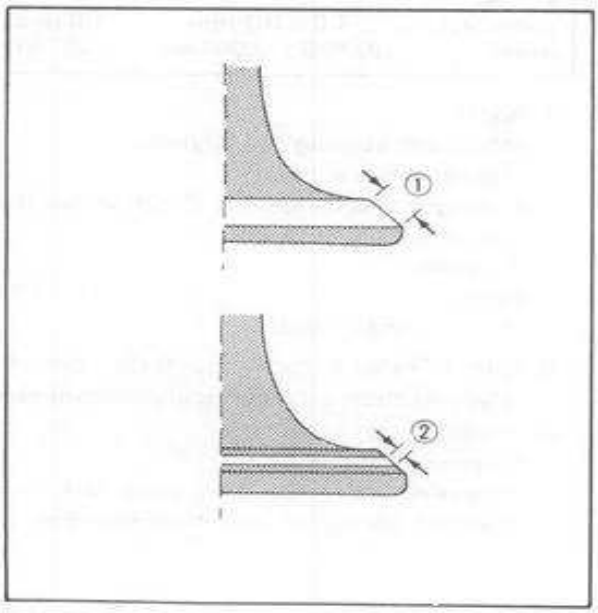


7. Measure:
   - Valve seat width
     Valve seat width must be uniform in contact area.
     Out of specification → Cut.
8. Cut valve seat.

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

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





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

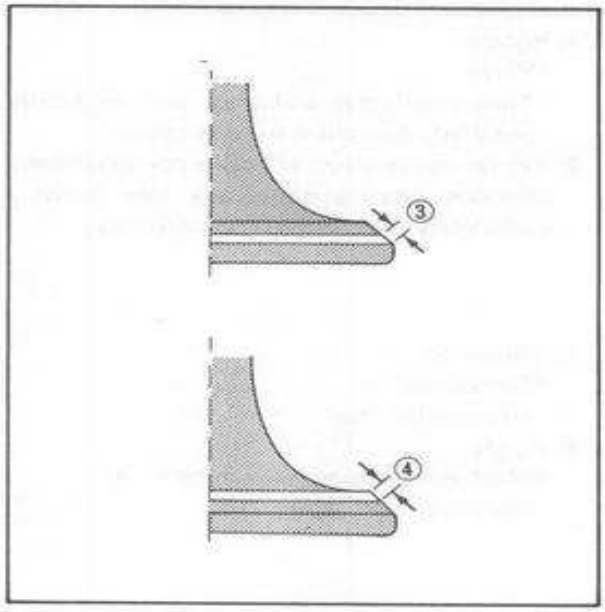
Cut vlave seat as follows:	
Section A	20° Cutter
Section B	45° Cutter
Section C	60° Cutter

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

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

- Valve seat is desired position but too narrow ② .

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

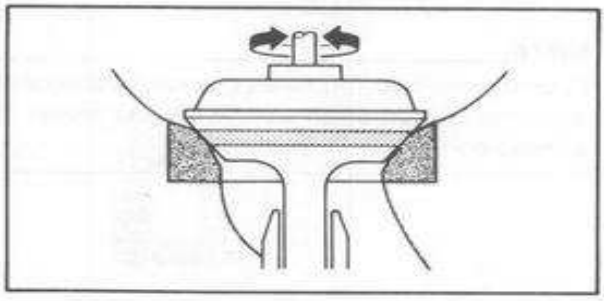


•Valve seat is too narrow and touching the valve margin ③.

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

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

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



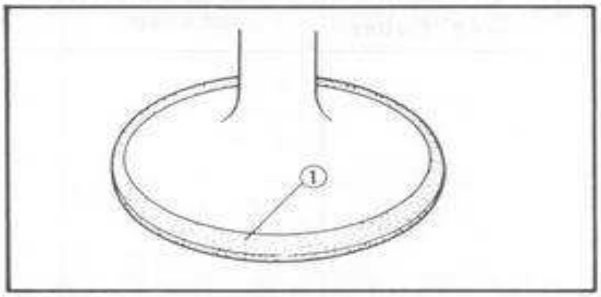
NOTE:

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.

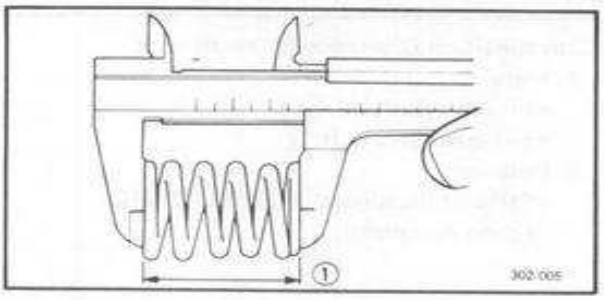


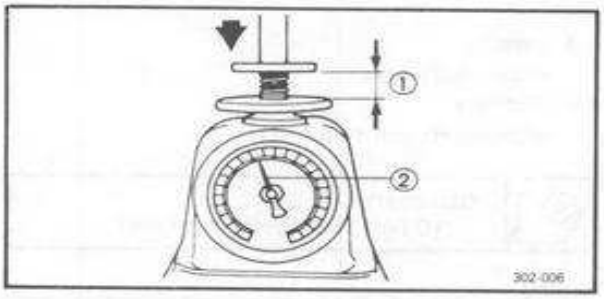
5. Eliminate:
   • Compound
   (from valve face)
6. Apply:
   • Mechanic's bluing dye (Dykem) ①
   (to valve face and seat)

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 satifactory seal.





Valve Spring Measurement

1. Measure:
   - Valve spring free length ①

   Out of specification → Replace.

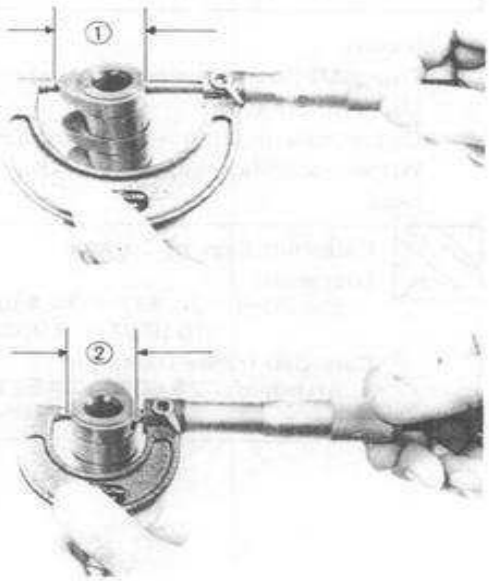
Valve spring free length	
Intake spring	Exhaust spring
39.76 mm (1.565 in)	39.96 mm (1.573 in)

2. Measure:
   - Valve spring installed force ②

   Out of specification → Replace.

① Installed length

Valve spring installed force			
Intake spring		Exhaust spring	
①	②	①	②
35.0 mm (1.378 in)	7.3 ~ 8.7 kg (16.1 ~ 19.2 lb)	35.0 mm (1.378 in)	11.0 ~ 13.0 kg (24.3 ~ 28.7 lb)



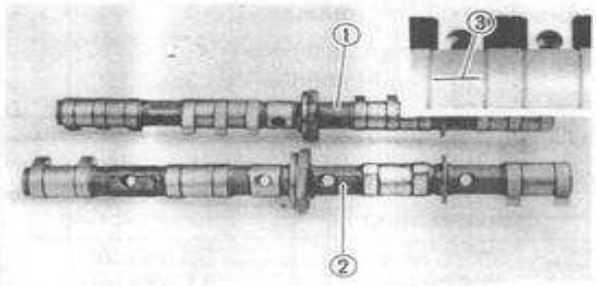
CAMSHAFT, CAM CHAIN AND CAM SPROCKET

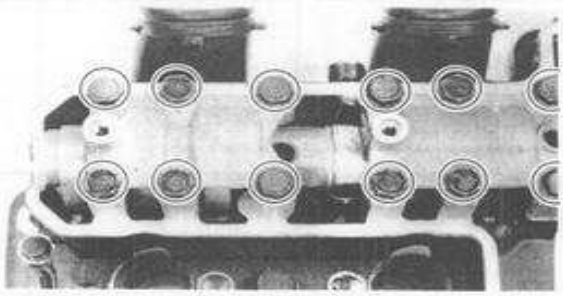
1. Measure:
   - Large cam lobe length ①
   - Small cam lobe length ②

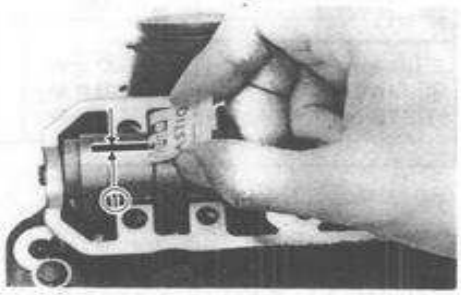
   Use a micrometer.

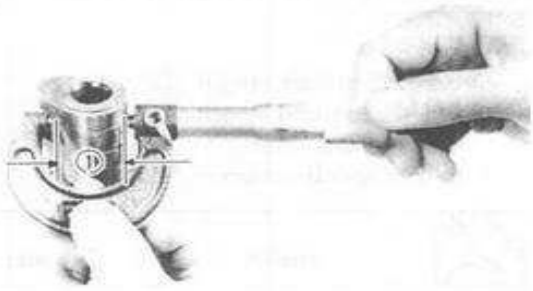
   Out of specification → Replace.

	Intake	Exhaust
①	32.55 ~ 32.65 mm (1.2815 ~ 1.2854 in)	32.4 ~ 32.5 mm (1.2756 ~ 1.2795 in)
②	24.95 ~ 25.05 mm (0.9823 ~ 0.9862 in)	24.95 ~ 25.05 mm (0.9823 ~ 0.9862 in)









Camshaft/Cap Clearance Measurement

1. Install:
   - Intake camshaft ①
   - Exhaust camshaft ②
2. Position:
   - Strip of Plastigage® ③ (YU-33210) (onto camshaft)
3. Install:
   - Camshaft caps
4. Tighten:
   - Camshaft cap bolts ①

Camshaft Cap Bolts:
10 Nm (1.0 m·kg, 7.2 ft·lb)

NOTE:
Do not turn the camshaft when measuring clearance with Plastigage.

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

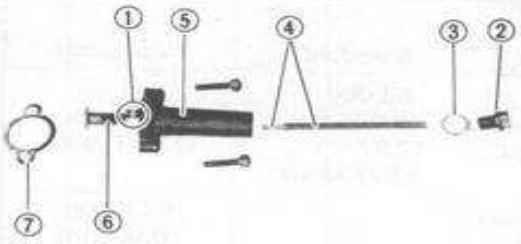
   Out of specification → Follow step 7.

Camshaft-to-cap Clearance:
0.050 ~ 0.084 mm
(0.00197 ~ 0.00331 in)

7. Measure
   - Camshaft bearing surface diameter ①

   Use a micrometer.
   Out of specification → Replace camshaft.
   Within specification → Replace cylinder head.

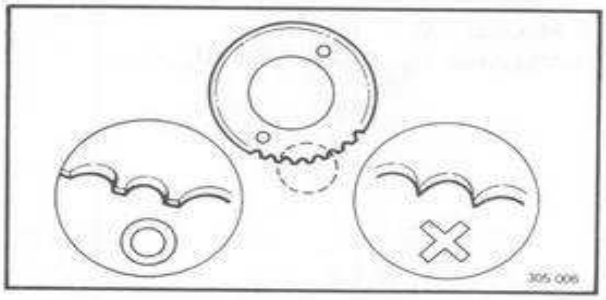
Camshaft Bearing Surface Diameter:
Standard: 24.437 ~ 24.450 mm (0.9621 ~ 0.9626 in)
Cam Cap Inside Diameter:
Standard: 24.500 ~ 24.521 mm (0.9646 ~ 0.9654 in)



Cam Chain Tensioner

1. Check:
   - One-way cam ① operation
     Unsmooth operation → Replace.
2. Inspect:
   - All parts
     Damage/Wear → Replace.

② End plug
③ Washer
④ Spring
⑤ Tensioner body
⑥ Tensioner rod
⑦ Gasket

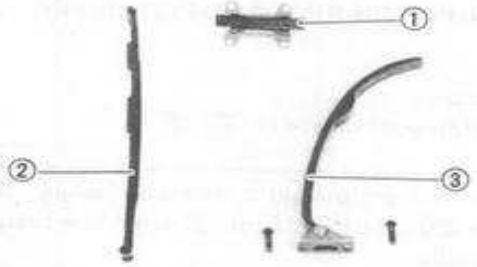


Cam Chain

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

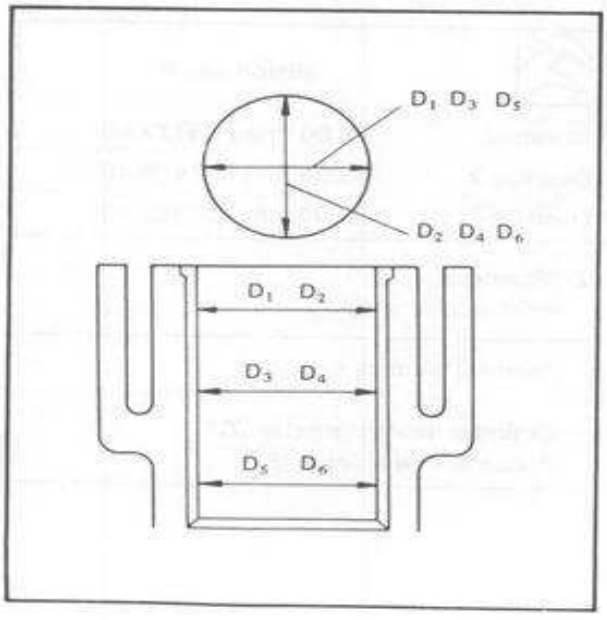
Cam Sprockets

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



Chain Guide

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



CYLINDER

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

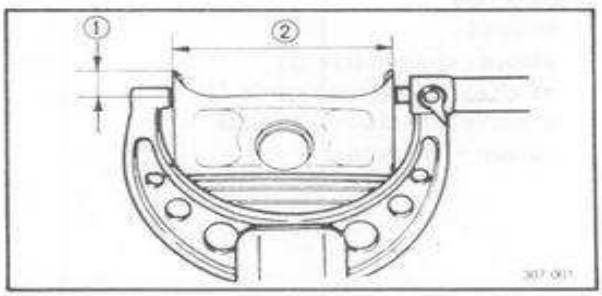
NOTE:

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

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

	Standard	Wear Limit
Cylinder bore: C	68.000 ~ 68.005 mm (2.67717 ~ 2.67736 in)	68.1 mm (2.68110 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" ②

NOTE:
Measure the piston skirt diameter where the distance 5.0 mm (0.197 in) ① from the piston bottom edge.

	Piston size P
Standard	68.00 mm (2.6772 in)
Oversize 2	68.50 mm (2.6969 in)
Oversize 4	69.00 mm (2.7165 in)

2. Measure:
   - Piston clearance

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

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

	Piston Clearance: **0.06 ~ 0.08 mm** **(0.00236 ~ 0.00315 in)**



Piston Ring

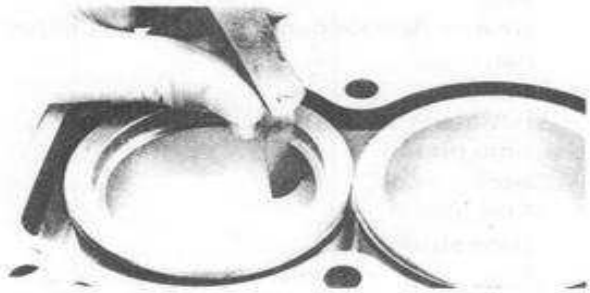
1. Measure:
   - Ring side clearance
     Use a feeler gauge.
     Out of specification → Replace piston.

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

	Piston ring side clearance:
Top	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
2nd	0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)

2. Position:
   - Piston ring
     (in cylinder)

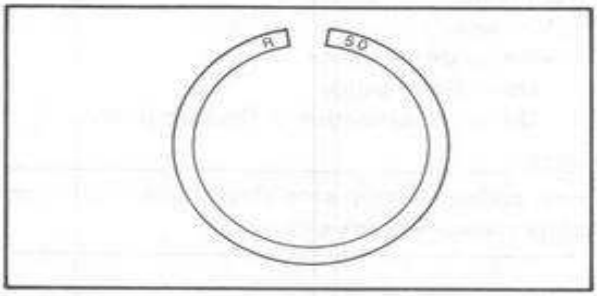
NOTE:
Insert a ring into cylinder, and push it approximarely 20 mm (0.8 in) into cylinder. Push ring with piston crown so that ring will be at a right angle to cylinder bore.

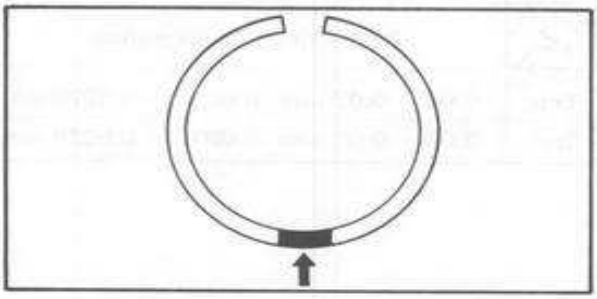


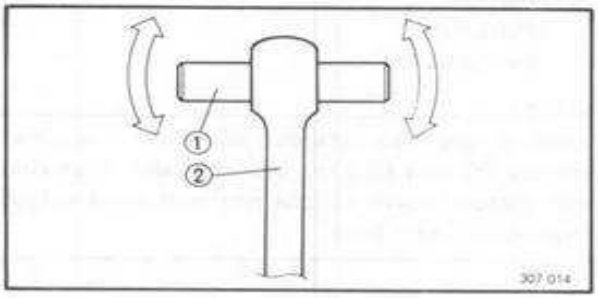
3. Measure:
   - Ring end gap
     Out of specification → Replace.

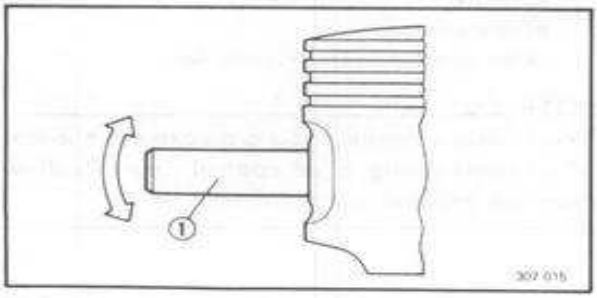
NOTE:
You cannot measure end gap on expander spacer of oil control ring. If oil control ring rails show excessive gap, replace all three rigns.

	Piston ring end gap (Installed)
Top ring	0.30 ~ 0.45 mm (0.0118 ~ 0.0177 in)
2nd ring	0.20 ~ 0.35 mm (0.0079 ~ 0.0138 in)
Oil ring	0.20 ~ 0.70 mm (0.0079 ~ 0.0276 in)









Piston Ring Oversize

- Top and 2nd piston ring

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

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

- Oil control ring

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

Size	Color
Oversize 2	Red
Oversize 4	Yellow

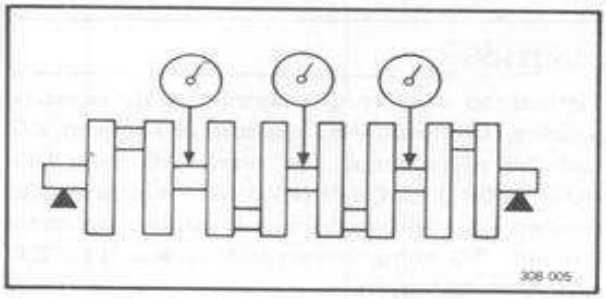
Piston Pin

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

   Free play → Inspect connecting rod for wear.

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

   Free play → Replace piston pin and/or piston.



CRANKSHAFT AND CONNECTION ROD

Crankshaft Runout

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

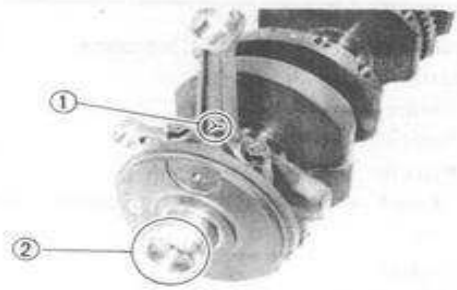
Maximum Crankshaft Runout:
0.03 mm (0.0012 in)

Connecting Rod Bearings

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

Connecting Rod Bearing Clearance

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



NOTE:
- Be sure the "Y" marks ① on the connecting rods face toward left crankshaft end ②
- Be sure the letters on both components align to form a perfect character.

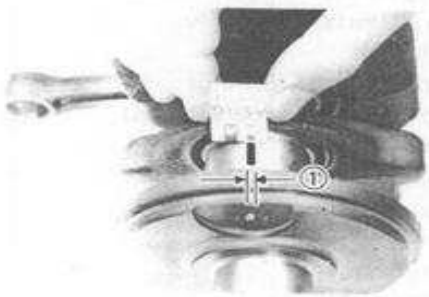
5. Apply:
   - Molybdenum disulfide grease
     (to bolt threads)
     Torque both ends of rod cap evenly.

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

CAUTION:

Tighten to full torque specification without pausing. Apply continuous torque between 2.0 and 3.6 m·kg. Once you reach 2.0 m·kg DO NOT STOP TIGHTENING unitl final torque is reached. If tightening is interrupted between 2.0 and 3.6 m·kg, loosen nut to less than 2.0 m·kg and start again.

36 Nm (3.6 m·kg, 25 ft·lb)



6. Remove:
   - Connecting rod cap
     Remove carefully.
7. Measure:
   - Plastigage width ①
     Out of specification → Replace connecting rod bearing.

Connecting Rod Bearing Clearance:
0.032 ~ 0.056 mm
(0.00126 ~ 0.00220 in)

Crankshaft Main Bearing Clearance Measurement

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

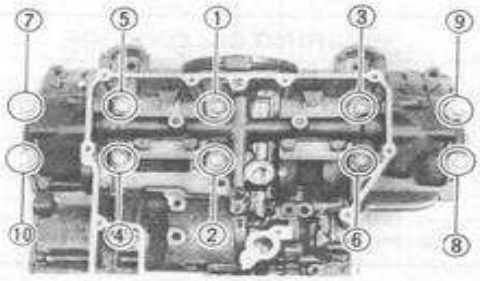
NOTE:

Do not move crankshaft until clearance measurement has been completed.

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

CAUTION:

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



9 mm (0.35 in) Bolt:
32 Nm (3.2 m·kg, 23 ft·lb)

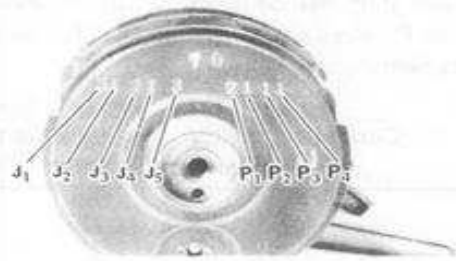
7. Remove:
   - Bolts
     Reverse assembly order
   - Lower crankcase
     Use care in removing.
8. Measure:
   - Plastigage width ① (YU-33210)
     Out of specification → Replace bearings; replace crankshaft if necessary.



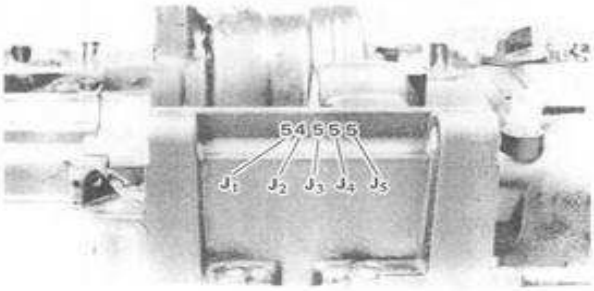
Main Bearing Oil Clearance:
0.020 ~ 0.044 mm
(0.0008 ~ 0.0017 in)

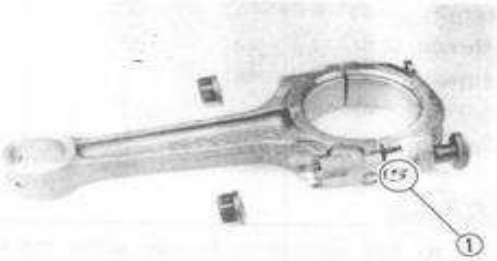
Crankshaft Main and Connecting Rod Bearing Selection

- Numbers used to indicate crankshaft journal sizes are stamped on the LH crankweb. The first five (5) are main bearing journal numbers, starting with the left journal. The four (4) rod bearing journal numbers follow in the same sequence.

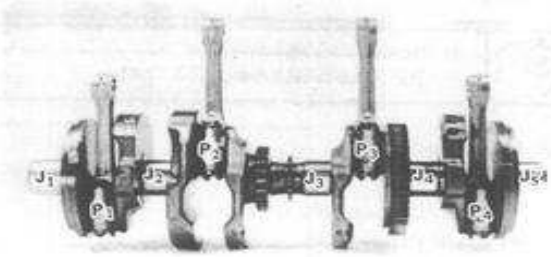


- The upper crankcase half is numbered J1, J2, J3, J4 and J5 on the rear right bosse as shown.





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



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

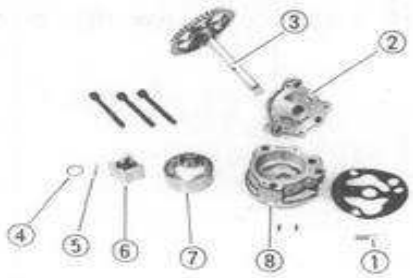
*No. 5 applies only to the crankshaft main bearing selection.

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

Bearing size No. =
Crankcase No. – Crankshaft No. =
4 – 1 = 3 (Brown)

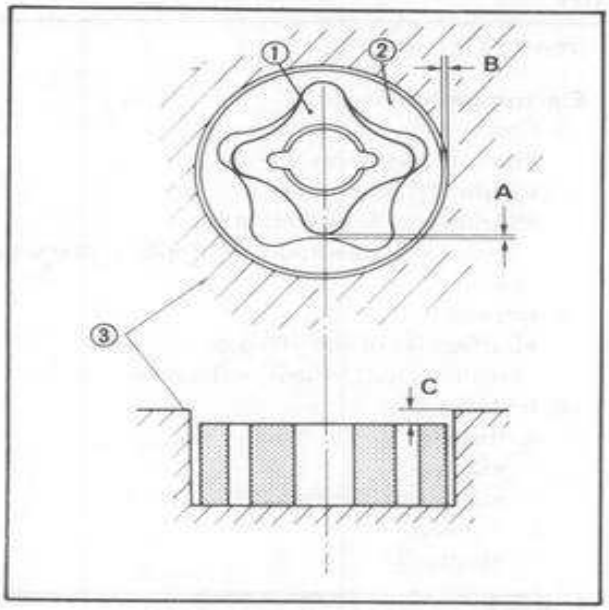
Example 2: Selection of the connecting rod bearing; If the connecting rod P1 and crankshaft P1 sizes are No. 4 and No. 1, repectively, the bearing size No. is:

Bearing size No. =
Connecting rod No. – Crankshaft No. =
4 – 1 = 3 (Brown)



OIL PUMP

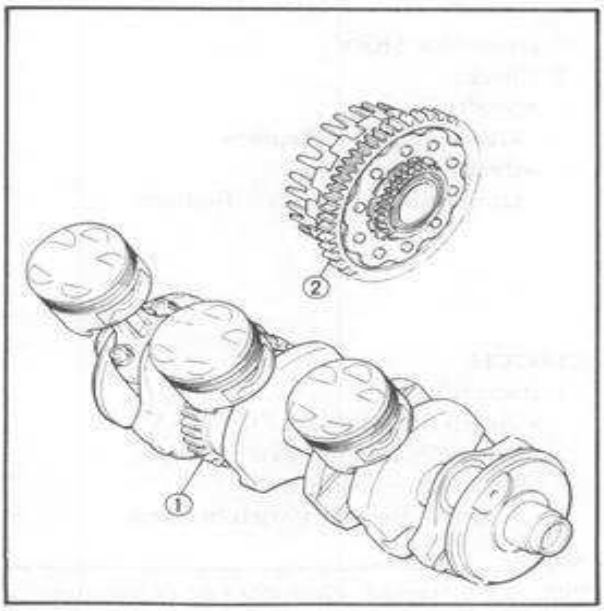
1. Remove:
   - •Screw ①
   - •Pump cover ②
   - •Pump shaft ③
   - •Washer ④
   - •Pin ⑤
   - •Inner rotor ⑥
   - •Outer rotor ⑦
   - •Pump housing ⑧



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

   Out of specification → Replace oil pump.

	Oil pump clearance:
Clearance A	0.09 ~ 0.15 mm (0.00354 ~ 0.00591 in)
Clearance B	0.09 ~ 0.15 mm (0.00354 ~ 0.00591 in)
Clearance C	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)

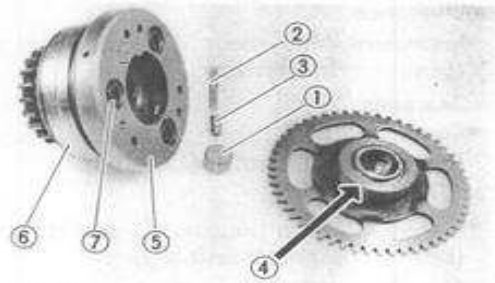


PRIMARY DRIVE

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	
48	91	1.896



STARTER DRIVES

Electric Starter Clutch

1. Check:
   - •Ball ① operation
   - •Spring ② operation
   - •Spring cap ③ operation

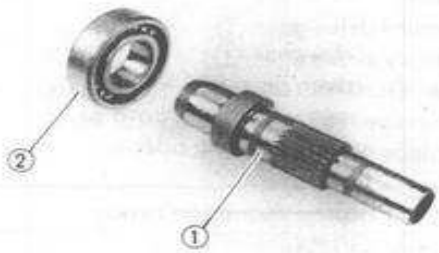
   Unsmooth operation → Replace one-way clutch.
2. Inspect:
   - •Surface ④ of the idle gear

   Pitting/Wear/Damage → Replace.
3. Installation
   a. Install:
      - •Cover ⑤
      - •Outer starter clutch ⑥

   b. Tighten:
      - •Bolts ⑦

25 Nm (2.5 m·kg, 18 ft·lb)
LOCTITE®
Stake Over the End of the Bolt

   c. Install:
      - •Spring
      - •Spring cap
      - •Ball
      - •Idle gear
      - •Collar

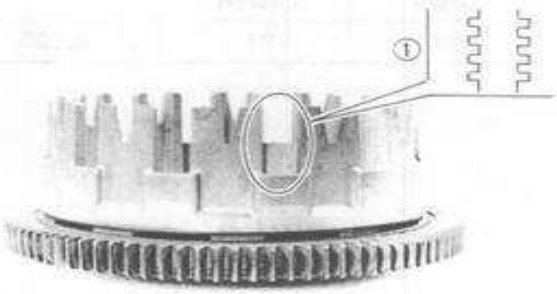


AC Generator Shaft

1. Check:
   - •Shaft ①

     Wear/Damage → Replace
   - •Bearing ②

     Unsmooth operation → Replace

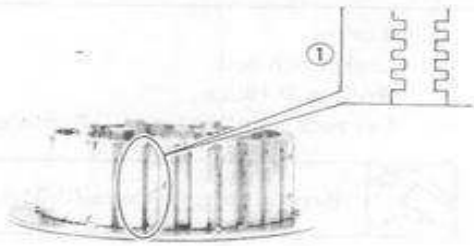


CLUTCH

1. Inspect:
   - •Clutch housing dogs ①

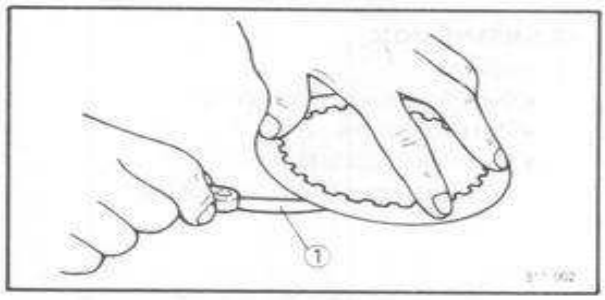
     Cracks/Pitting (edges):
     Moderate → Deburr.
     Severe → Replace clutch housing.

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



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

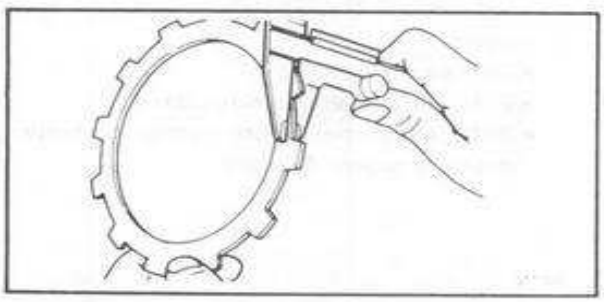
NOTE:
Pitting on clutch plate splines of clutch boss will cause erratic operation.

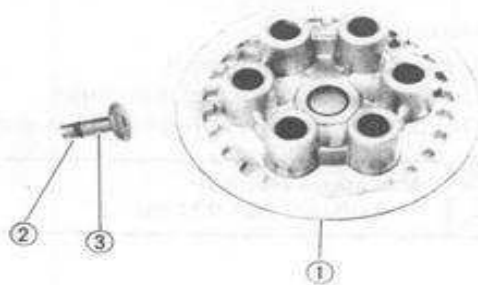


4. Measure:
   - Clutch plate warpage
   - Friction plate thickness
     Out of specification → Replace clutch or friction plate as a set.

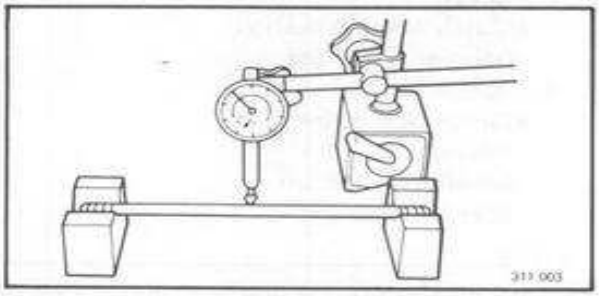
① Feeler guage

	Standard	Wear limit
Friction plate thickness	2.9 ~ 3.1 mm (0.114 ~ 0.122 in)	2.5 mm (0.098 in)
Clutch plate warp limit	—	0.10 mm (0.0039 in)



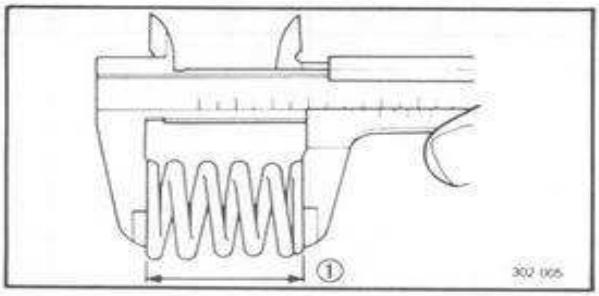


5. Inspect:
   - Pressure plate ①
   - O-ring ②
   - Short push rod ③
     Damage → Replace.



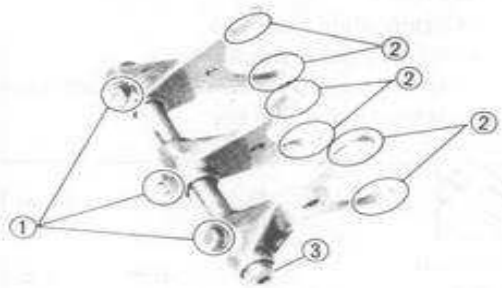
6. Measure:
   - Long push rod
     Roll on V-block.
     Exceeds bending limit → Replace.

Bend Limit: 0.3 mm (0.012 in)



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

Clutch spring minimum free length ① :
54.0 mm (2.126 in)



TRANSMISSION

1. Inspect:
   - Shift fork cam follower ①
   - Shift fork pawl ②
   - Shift fork guide bar ③
     Scoring/Bends/Wear → Replace.

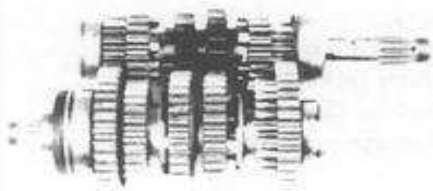


2. Inspect:
   - Shift cam groove
   - Shift cam dowel and side plate
   - Shift cam stopper plate, circlip and stopper
     Wear/Damage → Replace.

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

Maximum Runout: 0.08 mm (0.0031 in)

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

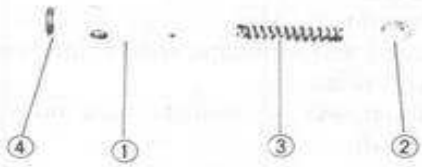


5. Check:
   - Proper gear engagement (Each gear) (to its counter part)
     Incorrect → Reassemble.
   - Gear movement
     Roughness → Replace.

SHIFTER

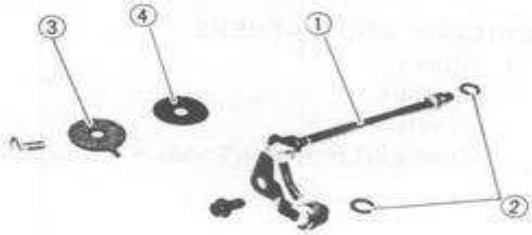
1. Inspect:
   - Shift return spring
     Damage → Replace.
   - Change shaft
     Damage/Bends/Wear → Replace.

RELIEF VALVE

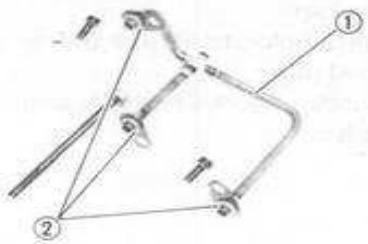


1. Check:
   - Relief valve body ①
   - Cover ②
   - Spring ③
   - O-ring ④
     Damage/Wear → Replace.

OIL PIPES

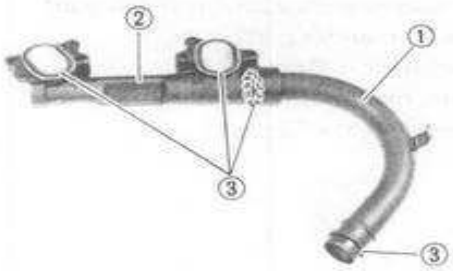


1. Check:
   - Oil pipe 2 ①
   - O-ring ②
   - Oil plug plate ③
   - Gasket ④
     Damage → Replace.
     Comtamination → Wash and blow out passage.



2. Check:
   - Oil pipe 5 ①
   - O-ring ②

   Damage → Replace.
   Comtamination → Wash and blow out passage.



COOLANT PIPE

1. Check:
   - Coolant pipe ①
   - Water jacket joint ②
   - O-rings ③

   Damage → Replace.

CRANKCASE

1. Inspect:
   - Case halves
   - Bearing seat
   - Fitting

   Damage → Replace

BEARINGS AND OIL SEALS

1. Inspect:
   - Bearing

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

   Damage/Wear → Replace (see Removal).

CIRCLIPS AND WASHERS

1. Inspect:
   - Circlips
   - Washers

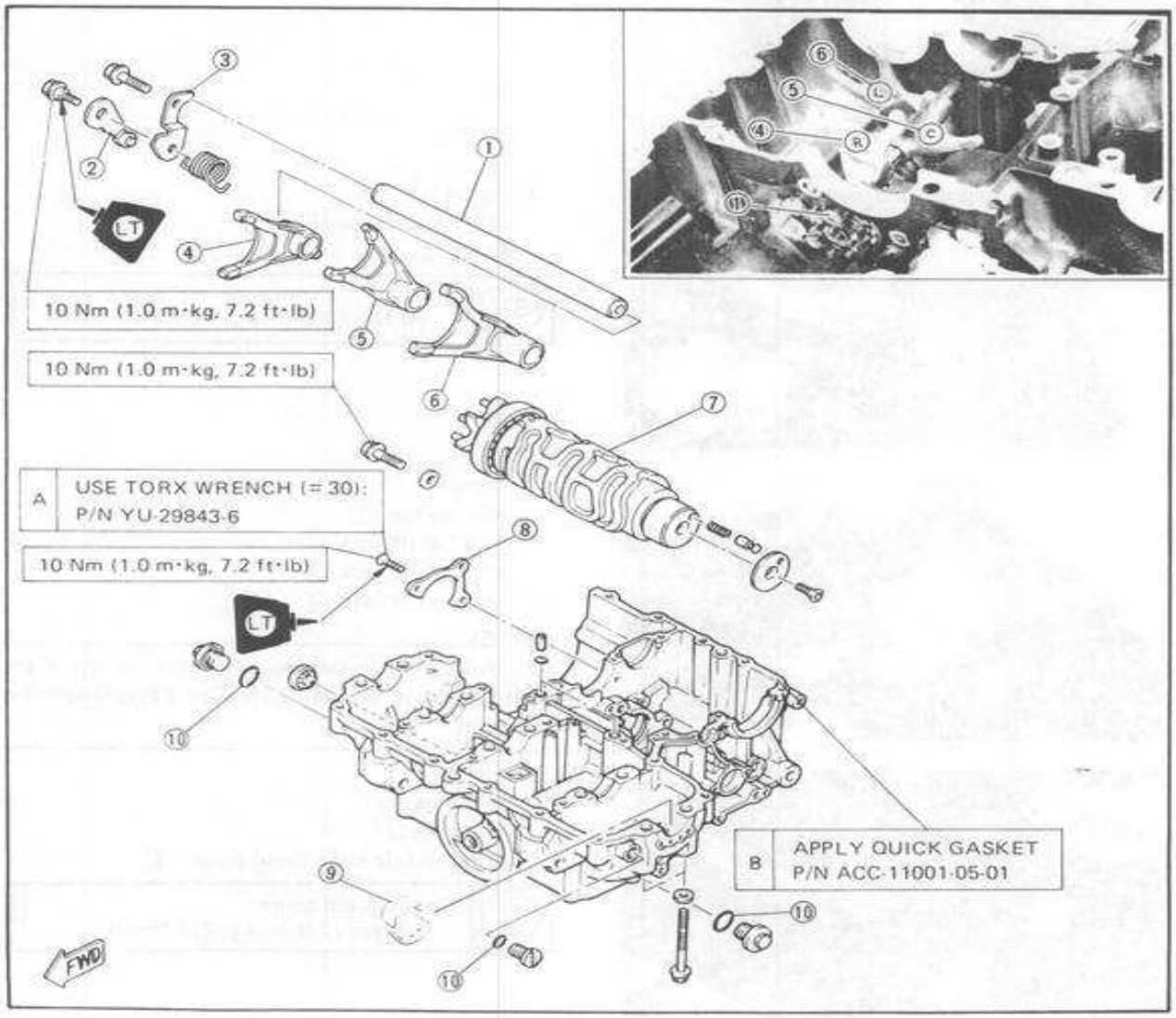
   Damage/Looseness/Bends → Replace.

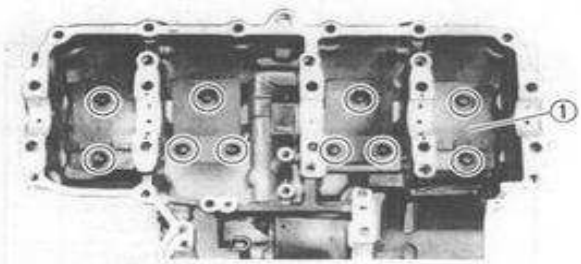
ENGINE ASSEMBLY AND ADJUSTMENT

LOWER CRANKCASE

① Guide bar
② Stopper lever
③ Shift fork guide bar stopper
④ Shift fork (R)
⑤ Shift fork (C)
⑥ Shift fork (L)
⑦ Shift cam
⑧ Main axle bearing stopper
⑨ Crankshaft main bearing
⑩ O-ring

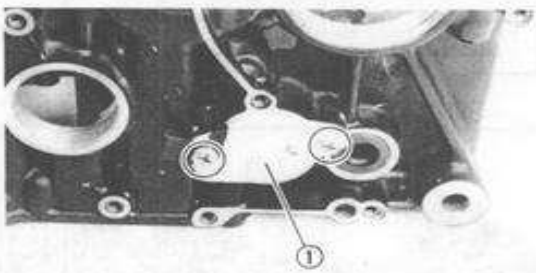
CRANKSHAFT MAIN BEARING SELECTION: CRANKSHAFT MAIN BEARING NO. = CRANKCASE NO. – CRANKSHAFT NO.	
CALCULATED NO.	COLOR CODE
1	BLUE
2	BLACK
3	BROWN
4	GREEN
5	YELLOW



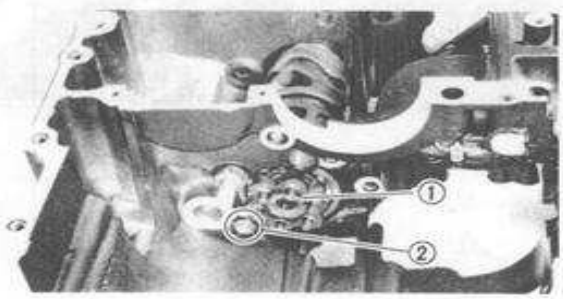


1. Install:
   - Oil baffle plates ①

Oil Baffle Plate Bolts: 10 Nm (1.0 m·kg, 7.2 ft·lb)

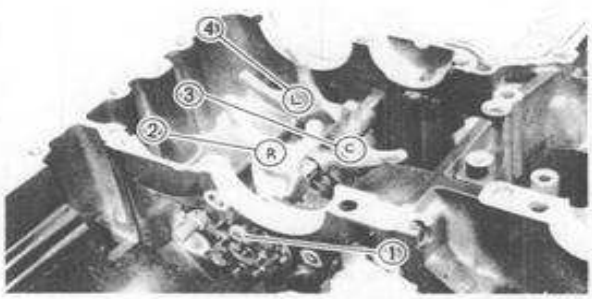


2. Install:
   - Neutral switch assembly ①



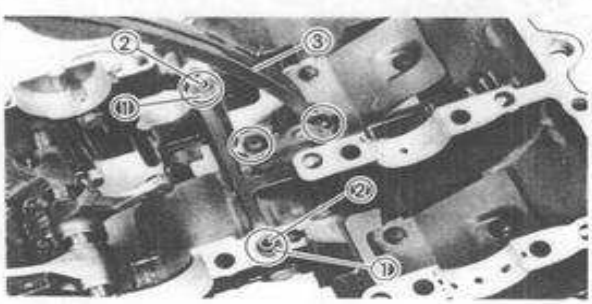
3. Install:
   - Shift cam assembly ①
   - Bolt ②

Bolt: 10 Nm (1.0 m·kg, 7.2 ft·lb)



4. Install:
   - Guide bar ①
   - "R" shift fork ②
   - "C" shift fork ③
   - "L" shift fork ④

NOTE:
All shift fork letters should face to the right side and be in sequence (R, C, L) begining from the right.



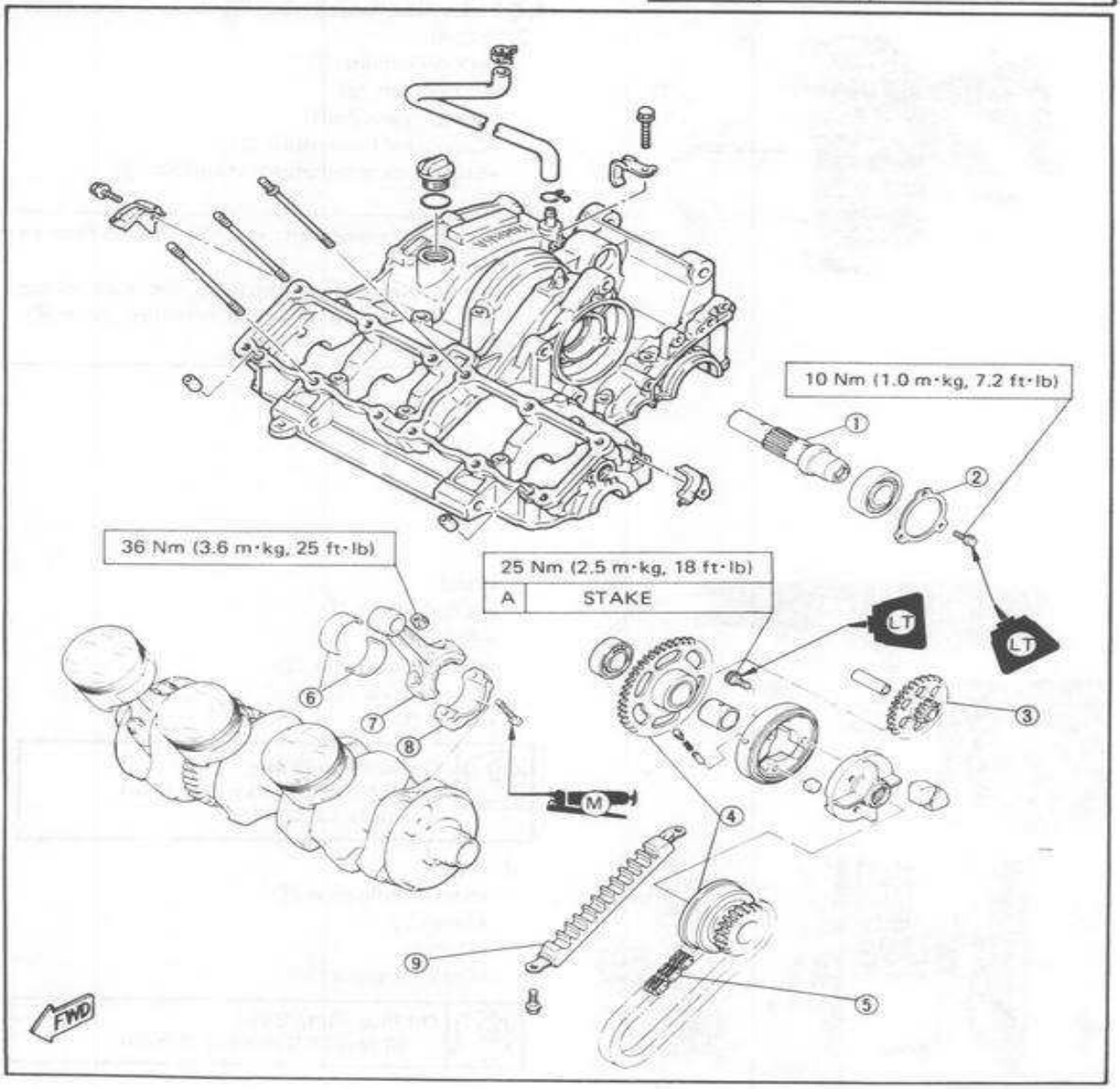
5. Install:
   - O-rings ①
   - Dowels ②
   - Intake side cam chain guide ③

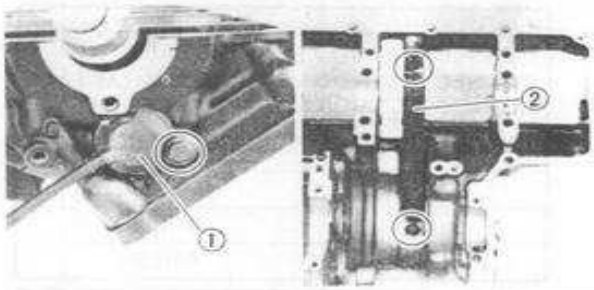
Chain guide screw: 10 Nm (1.0 m·kg, 7.2 ft·lb)

UPPER CRANKCASE

① AC generator shaft
② Cover plate
③ Starter idle gear
④ Starter clutch damper assembly
⑤ HY-VO chain
⑥ Connecting rod bearing
⑦ Connecting rod
⑧ Connecting rod cap
⑨ HY-VO chain guide

CONNECTING ROD BEARING SELECTION: CONNECTING ROD BEARING = CONNECTING ROD NO. – CRANKSHAFT NO.	
CALCULATED NO.	COLOR CODE
1	BLUE
2	BLACK
3	BROWN
4	GREEN



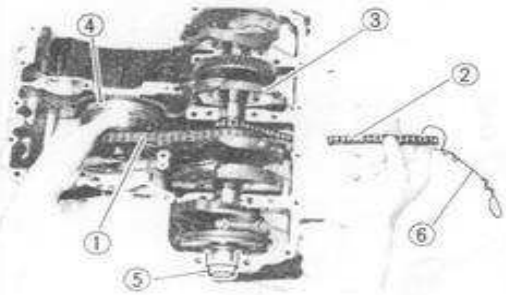


1. Install:
   - Pick up coils ①

Pick Up Coil Bolt:
10 Nm (1.0 m·kg, 7.2 ft·lb)

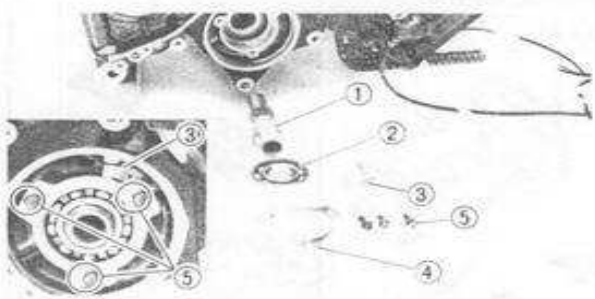
   - HY-VO chain guide ②

HY-VO Chain Guide Bolt:
10 Nm (1.0 m·kg, 7.2 ft·lb)



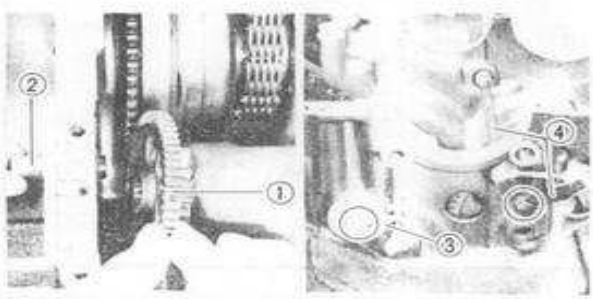
2. Install:
   - HY-VO chain ①
   - Cam chain ②
     (onto crankshaft)
   - Crankshaft assembly ③
   - Starter clutch damper assembly ④

NOTE:
- The stepped crankshaft end ⑤ should face to the left.
- Pass the cam chain through the cam chain cavity. Be sure to attach a retaining wire ⑥ to the cam chain.



3. Install:
   - A.C.G shaft ①
   - Bearing ②
   - Oil sprag nozzle ③
   - Cover plate ④
   - Bolts ⑤

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



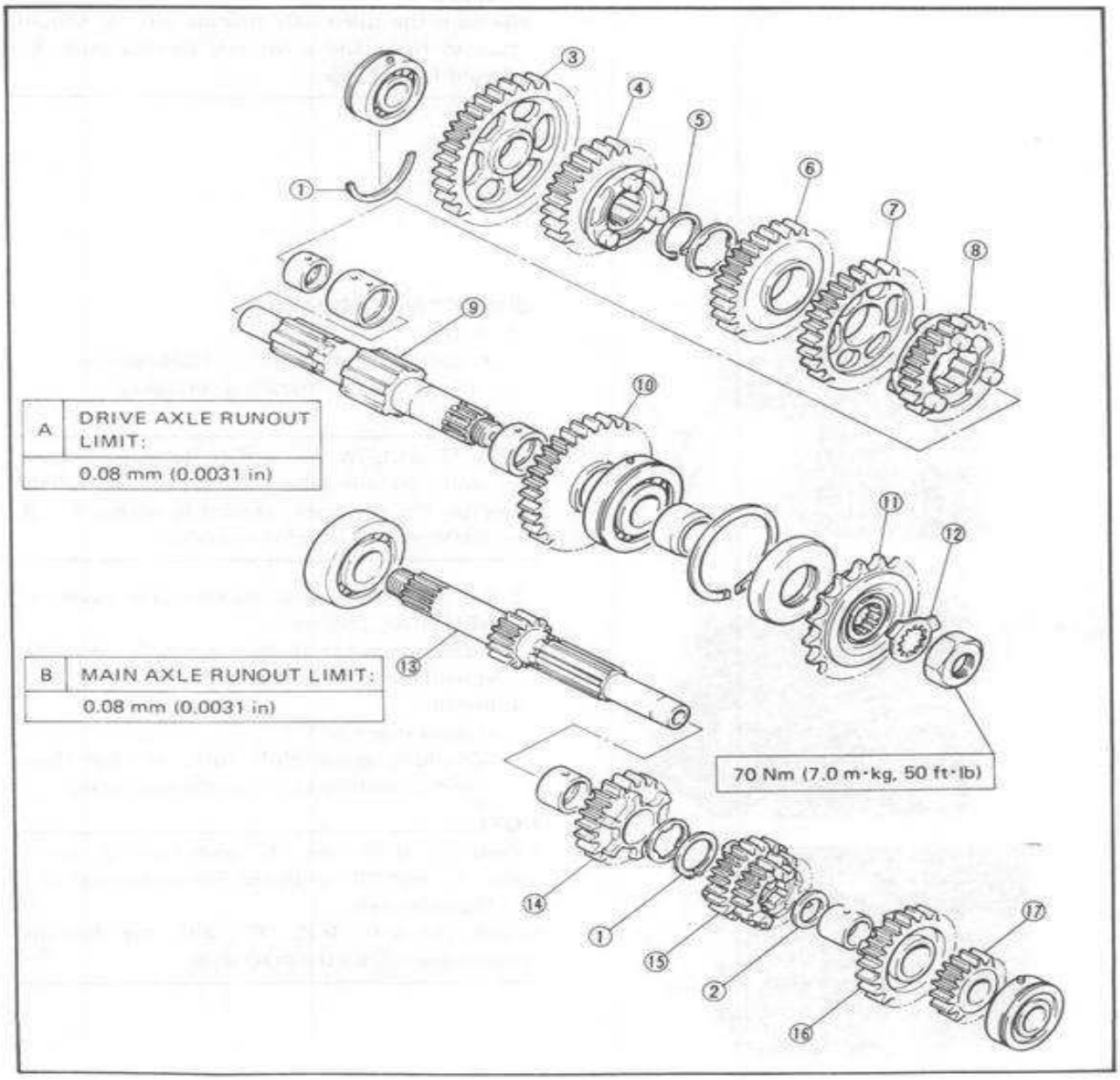
4. Install:
   - Starter idle gear ①
   - Shaft ②
   - Gasket
   - Oil plug plate ③

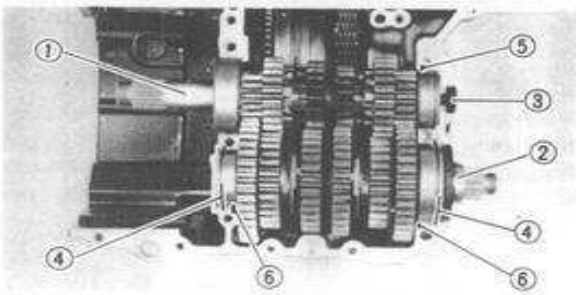
Oil Plug Plate Bolt:
10 Nm (1.0 m·kg, 7.2 ft·lb)

   - Oil pipe 2 ④

Transmission

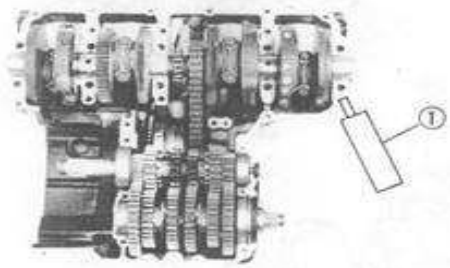
① Circlip
② Plain washer
③ 1st wheel gear (37T)
④ 5th wheel gear (28T)
⑤ Circlip
⑥ 4th wheel gear (30T)
⑦ 3rd wheel gear (32T)
⑧ 6th wheel gear (26T)
⑨ Drive axle
⑩ 2nd wheel gear (35T)
⑪ Drive sprocket
⑫ Lock washer
⑬ Main axle
⑭ 5th pinion gear (22T)
⑮ 3rd/4th pinion gear (18T/20T)
⑯ 6th pinion gear (24T)
⑰ 2nd pinion gear (16T)





5. Install:
   - Main axle assembly ①
   - Drive axle assembly ②
   - Oil seal ③
   - Circlip ④

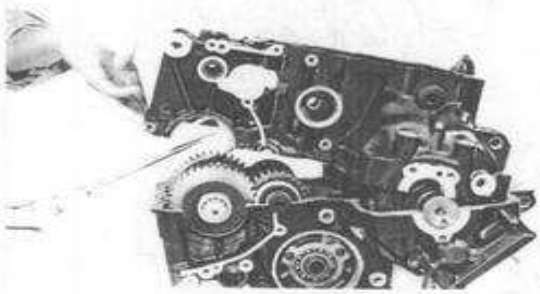
NOTE:
- Be sure the drive axle bearing circlips ④ are inserted into upper crankcase positioning grooves.
- Be sure the main axle bearing pin ⑤ should face to front and drive axle bearing pins ⑥ should face to rear.



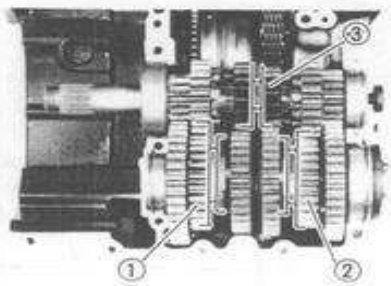
CRANKCASE ASSEMBLY

1. Apply:
   - Quick Gasket ① (ACC-11001-05-01)
     (To crankcase matching surfaces.)

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



2. Set shift cam and transmission gears in NEUTRAL position.
3. Place lower crankcase assembly on the upper crankcase assembly.
4. Install:
   - Lower crankcase
     Carefully guide shift forks so that they mesh smoothly with transmission gears.

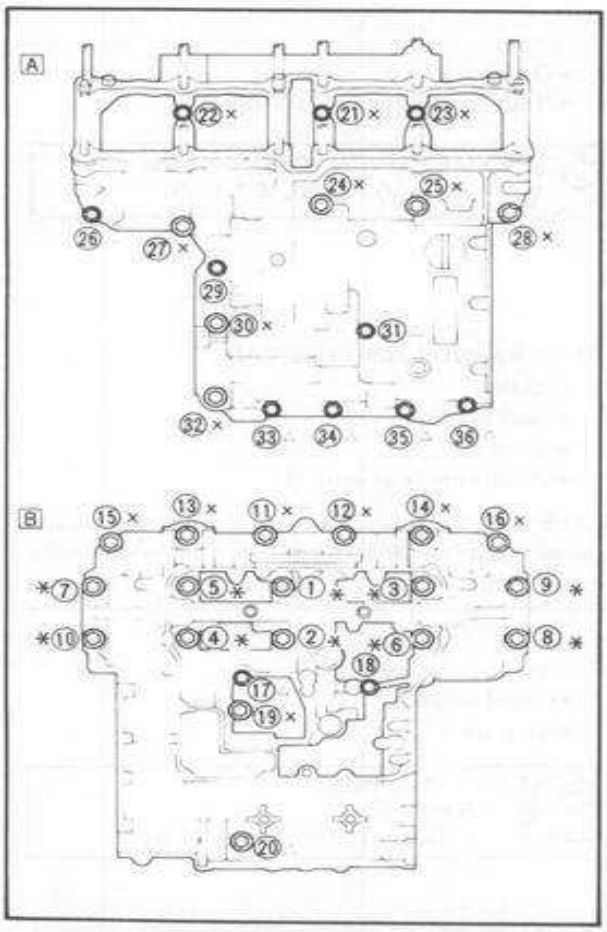


NOTE:
- Mesh the shift fork "L" with the 6th wheel gear ① and "R" with the 5th wheel gear ② on the drive axle.
- Mesh the shift fork "C" with the 3rd/4th pinion gear ③ on the main axle.

CAUTION:

Before tightening the crankcase bolts, check the following points:

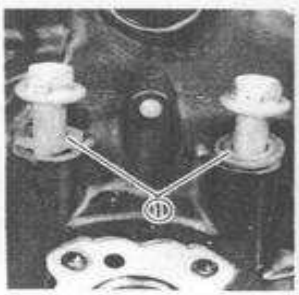
- **Be sure the gear shifts correctly while hand-turning the shift cam.**

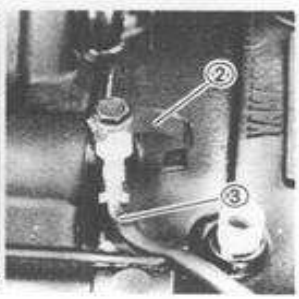


5. Tighten:
   - Lower crankcase bolt [B]
   - Upper crankcase bolt [A]

   (Follow proper tightening sequence.)

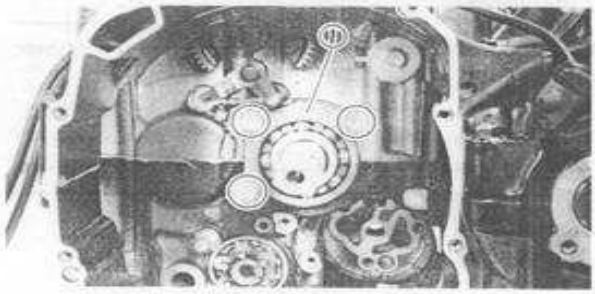
△6 mm Bolts:
12 Nm (1.2 m·kg, 8.7 ft·lb)
×8 mm Bolts:
24 Nm (2.4 m·kg, 17 ft·lb)
*9 mm Bolts:
32 Nm (3.2 m·kg, 23 ft·lb)





NOTE:

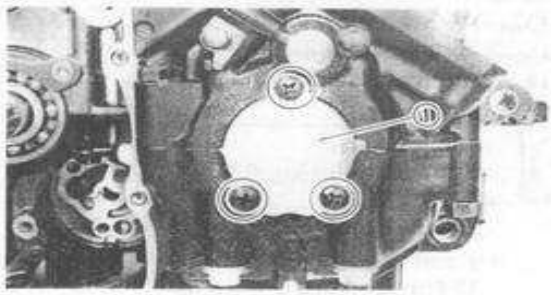
- Install the washer ① on Bolt No. 7, 8, 9, and 10.
- Install the clamp ② and ground lead ③ on Bolt No. 31.



6. Install:
   - Main axle bearing stopper ①

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

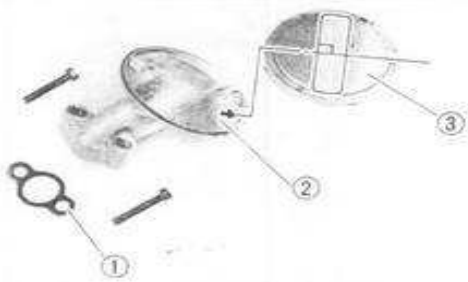
NOTE:
Use #30 Torx Driver (YU-29843-6).



7. Install:
   - O-ring
   - Right crankshaft end cover ①

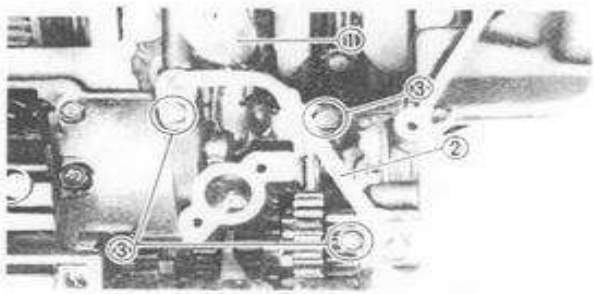
	Crankshaft End Cover Screws: **7 Nm (0.7 m·kg, 5.1 ft·lb)**

OIL STRAINER AND OIL PAN



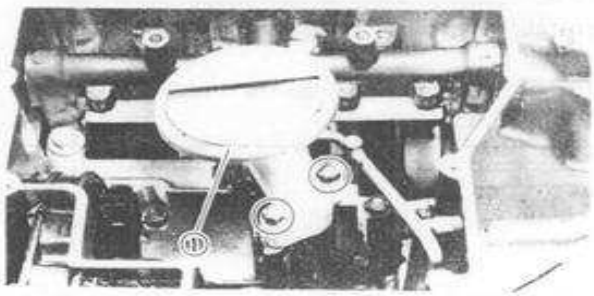
1. Install:
   - Gasket ①
   - Housing ②
   - Oil strainer element ③

NOTE:
The element (window) must be installed vertically against housing arrow mark.



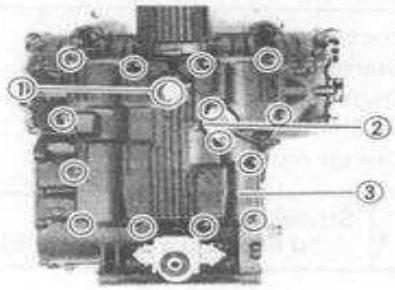
2. Install:
   - Relief valve ①
   - Oil pipe 5 ②

	Oil Pipe 5 Bolts: 6 mm ③: 10 Nm (1.0 m·kg, 7.2 ft·lb)



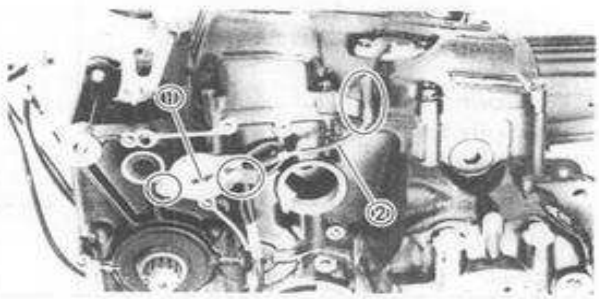
3. Install:
   - Oil strainer assembly ①

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



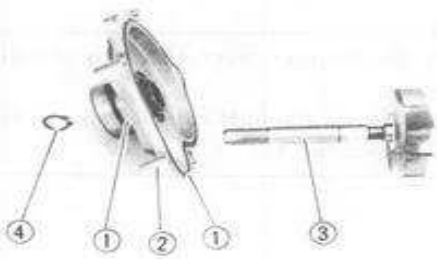
4. Install:
   - Drain plug ①
   - Oil level switch ②
   - Oil pan ③

Drain Plug:
43 Nm (4.3 m·kg, 31 ft·lb)
Oil Level Switch Bolts:
Oil Pan Bolts:
10 Nm (1.0 m·kg, 7.2 ft·lb)

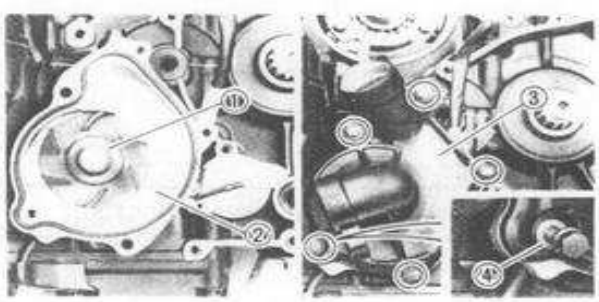


5. Connect:
   - Neutral switch lead ①
   - Oil level switch lead ②

WATER PUMP



1. Install:
   - O-rings ①
   - Housing ②
   - Impeller ③
   - Circlip ④

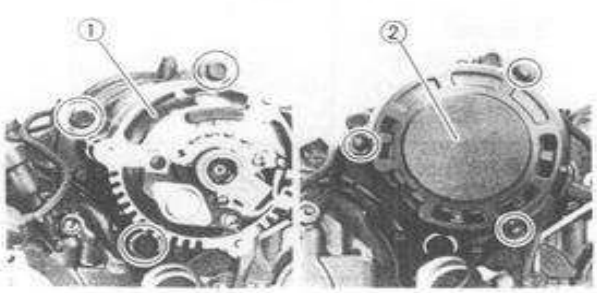


2. Install
   - Housing ② and impeller ① assembly
   - Water pump cover ③

Water Pump Bolts:
10 Nm (1.0 m·kg, 7.2 ft·lb)

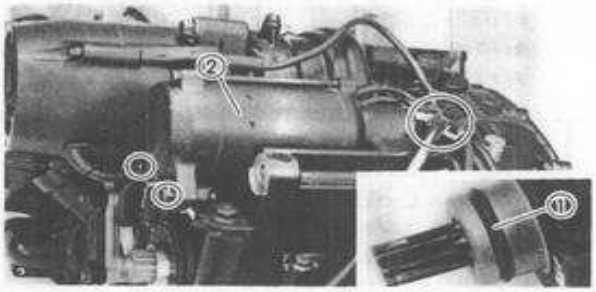
NOTE:
Use cupper washer ④ on coolant drain bolt.

AC GENERATOR AND STARTER MOTOR



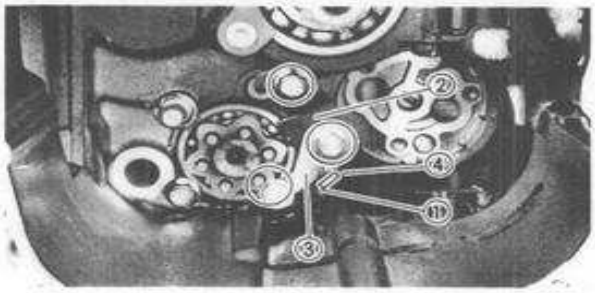
1. Install:
   - Generator ①
   - Generator cover ②

Generator Bolts:
20 Nm (2.0 m·kg, 14 ft·lb)
Generator Cover Nut:
5 Nm (0.5 m·kg, 3.6 ft·lb)



2. Check:
   - Starter motor O-ring ①
     Damage → Replace
3. Install:
   - Starter motor ②

Strater Motor Bolt:
10 Nm (1.0 m·kg, 7.2 ft·lb)

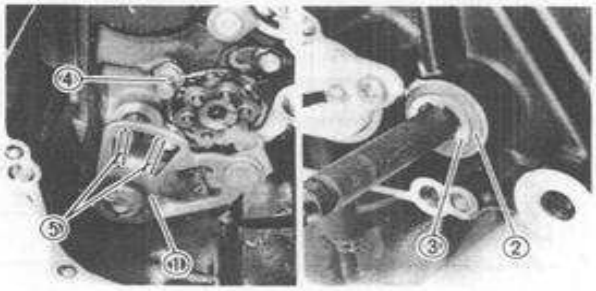


CHANGE LEVER AND OIL PUMP

1. Install:
   - Spring ①
   - Shift fork shaft stopper ②
   - Stopper lever ③

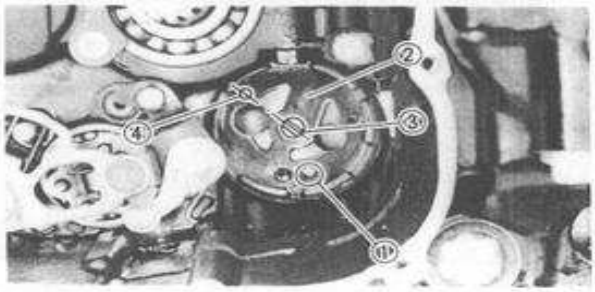
Bolts:
10 Nm (1.0 m·kg, 7.2 ft·lb)
LOCTITE®

NOTE:
- Mesh the stopper lever ③ with the shift cam stopper.
- Hook the spring ends on the stopper lever and crankcase boss ④.



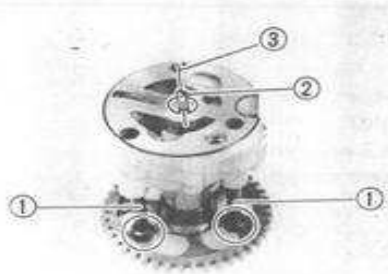
2. Install:
   - Change lever assembly ①
   - Wahser ②
   - Circlip ③

NOTE:
Insert the stopper ④ between springs ⑤.



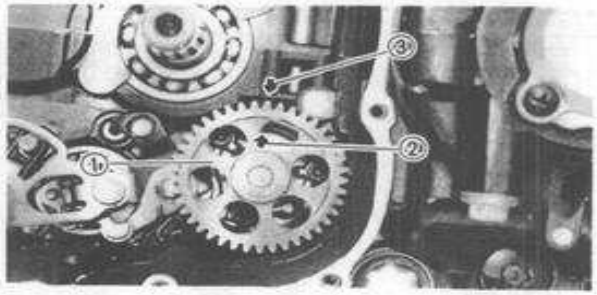
3. Install:
   - Dowel ①
   - Gasket ②

NOTE:
Align the water pump impeller shaft slot ③ with the oil pump thread hole ④.



4. Install:
   - Oil pump mounting bolts ①

NOTE:
Align the oil pump shaft projection ② with the oil pump hole ③.

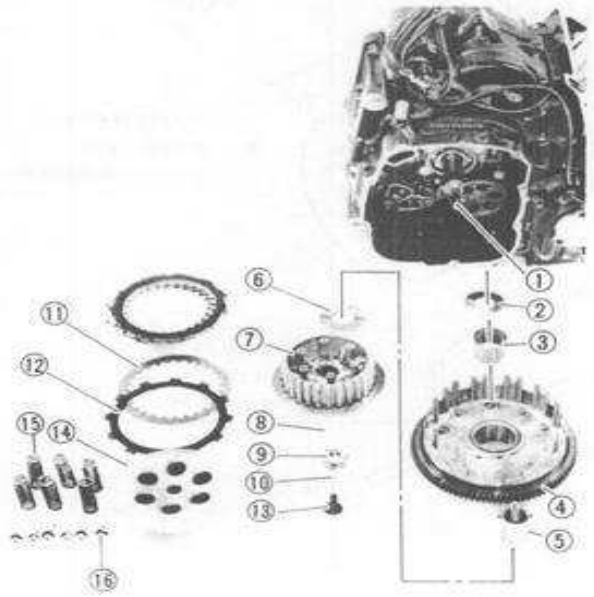


5. Install
   - Oil pump assembly ①

Oil Pump Mounting Bolts:
10 Nm (1.0 m·kg, 7.2 ft·lb)

NOTE:
Align the oil pump arrow mark ② with crankcase arrow mark ③.

CAUTION:
Be sure the oil pump shaft projection mesh with the water pump impeller shaft slot.



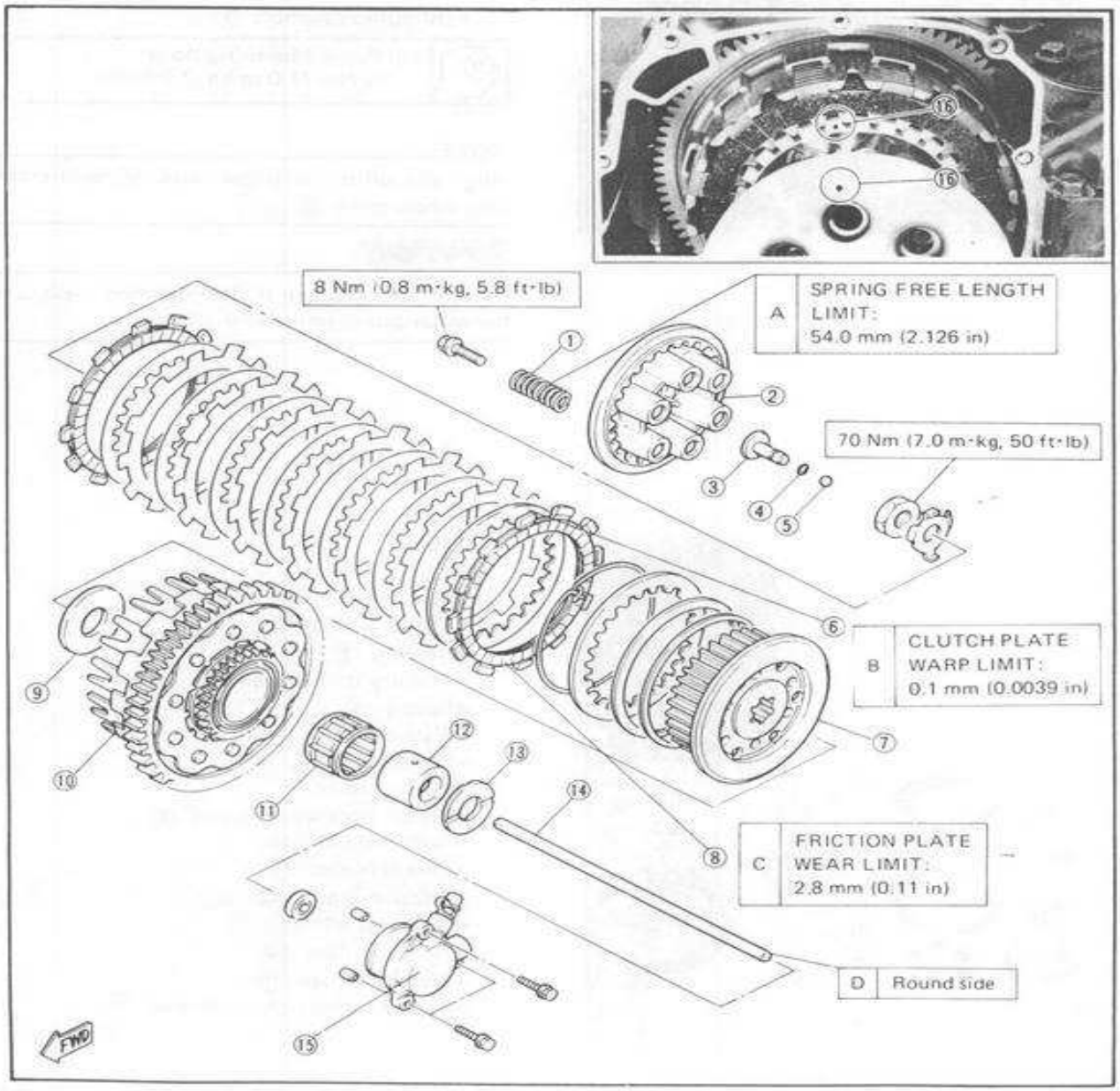
CLUTCH

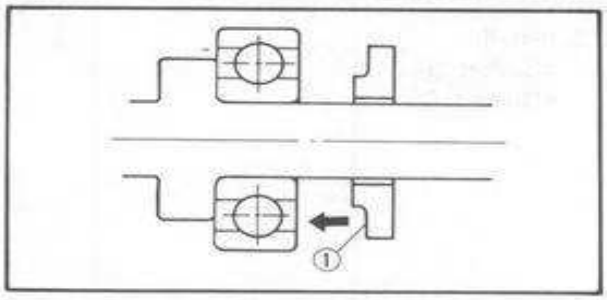
1. Install:
   - Push rod #2 ①
   - Thrust washer ②
   - Bearing ③
   - Primary driven gear ④
   - Spacer ⑤
   - Washer ⑥
   - Clutch boss ⑦
   - Lock washer ⑧
   - Clutch boss securing nut ⑨
   - Push rod ball ⑩
   - Clutch plates ⑪
   - Friction plates ⑫
   - Push rod #1 ⑬
   - Pressure plate ⑭
   - Clutch springs ⑮
   - Clutch spring holding screws ⑯

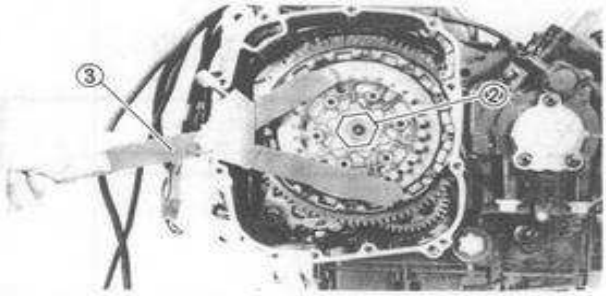
ENGINE ASSEMBLY AND ADJUSTMENT

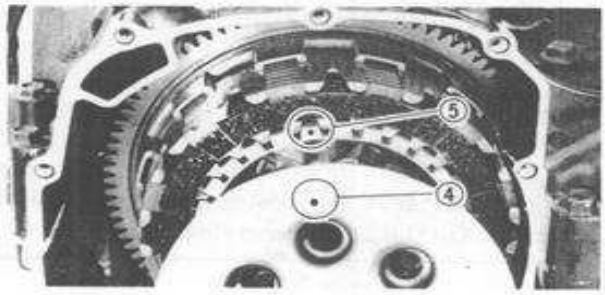
Clutch

① Clutch spring
② Pressure plate
③ Push rod = 1
④ O-ring
⑤ Push rod ball
⑥ Clutch plate
⑦ Clutch boss
⑧ Friction plate
⑨ Washer
⑩ Primary driven gear
⑪ Bearing
⑫ Spacer
⑬ Thrust washer
⑭ Push rod = 2
⑮ Clutch release assembly
⑯ Match mark









Clutch Assembling Notes

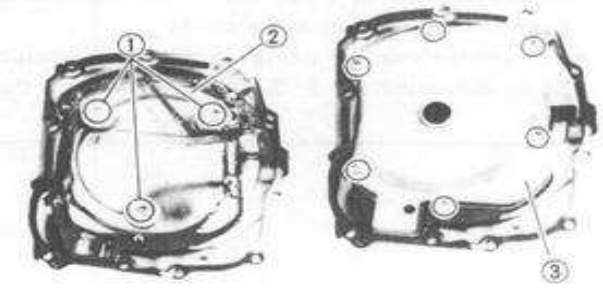
- Be sure the thrust washer must be installed its stepped fringe ① facing the bearing.

- Tighten the clutch boss securing nut ② using Universal Clutch Holder ③ (YM-91042).

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

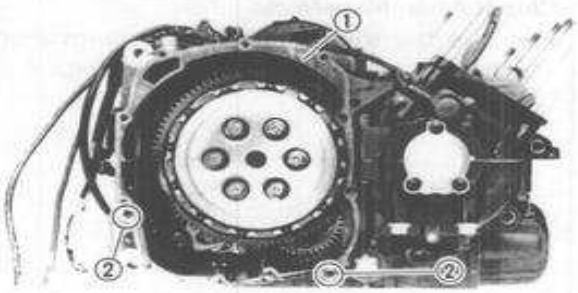
- Align the pressure plate mark ④ with clutch boss mark ⑤ .

	Clutch Spring Holding Screws: 8 Nm (0.8 m·kg, 5.8 ft·lb)

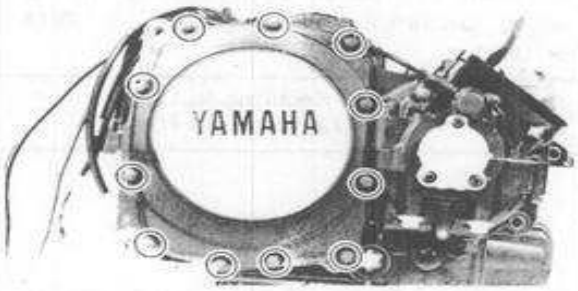


RIGHT CRANKCASE COVER

1. Install:
   - Cover
   - Rubber ring
   - Washer ①
   - Gasket ②
   - Breather ③

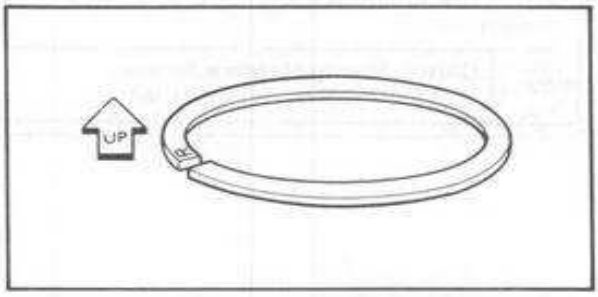


2. Install:
   - Gasket ①
   - Dowels ②



3. Install:
   - Right crankcase cover assembly.

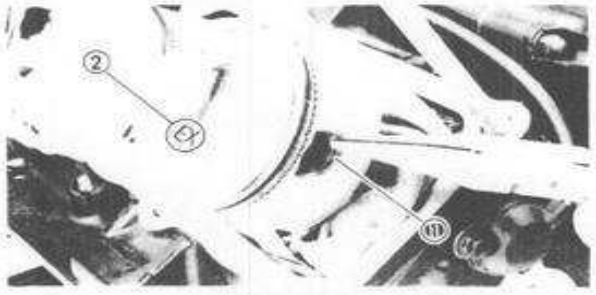
	Crankcase Cover Bolts: 10 Nm (1.0 m·kg, 7.2 ft·lb)



PISTON AND CYLINDER

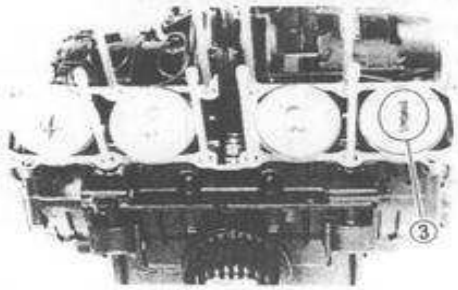
1. Install:
   - Piston rings

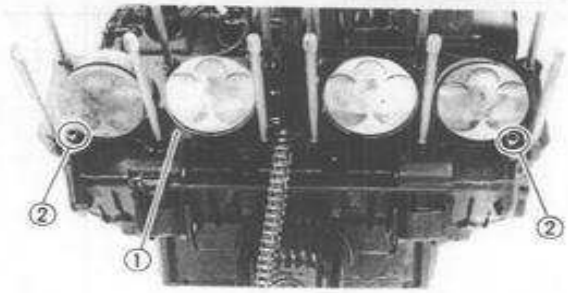
NOTE:
Be sure to install rings so that Manufacturer's marks or numbers are located on the top side of the rings. Oil the pistons and rings liberally.



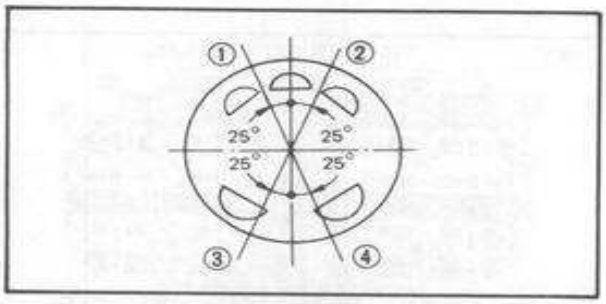
2. Install:
   - Piston pin
   - Piston
   - Piston pin Circlip (New) ①

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

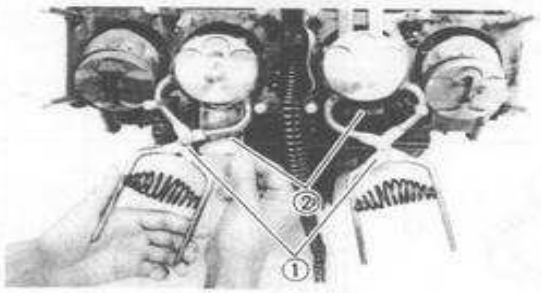




3. Install:
   - Cylinder gasket ①
   - Dowels ②



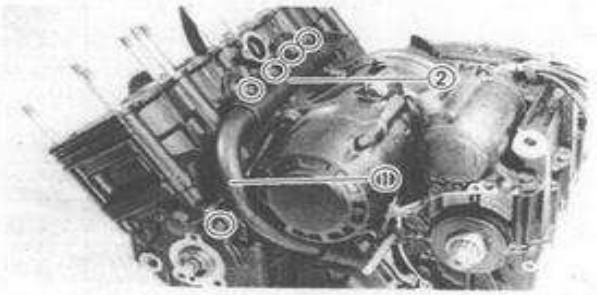
4. Oil liberally:
   - Piston
   - Rings
   - Cylinders
5. Set:
   - Top ring end ①
   - Oil ring end (Lower) ②
   - Oil ring end (Upper) ③
   - 2nd ring end ④



6. Install:
   - Cylinder

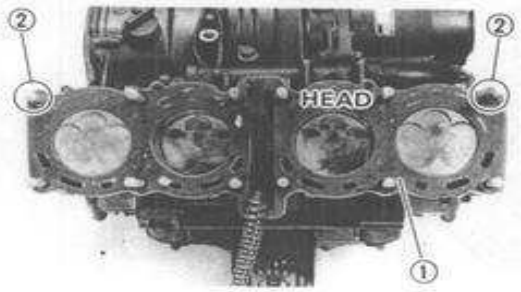
   Use Piston Ring Compressor ① (YM-04008) and Piston Base ② (YM-01067).

NOTE:
Pass the cam chain and exhaust side cam chain guide throuch cam chain cavity.



7. Install:
   - Coolant feed pipe ①
   - Water jacket joint ②

	Coolant Feed Pipe Bolt: **Water Jacket Joint Bolt:** **10 Nm (1.0 m·kg, 7.2 ft·lb)**



CYLINDER HEAD AND CAMSHAFT

Cylinder Head

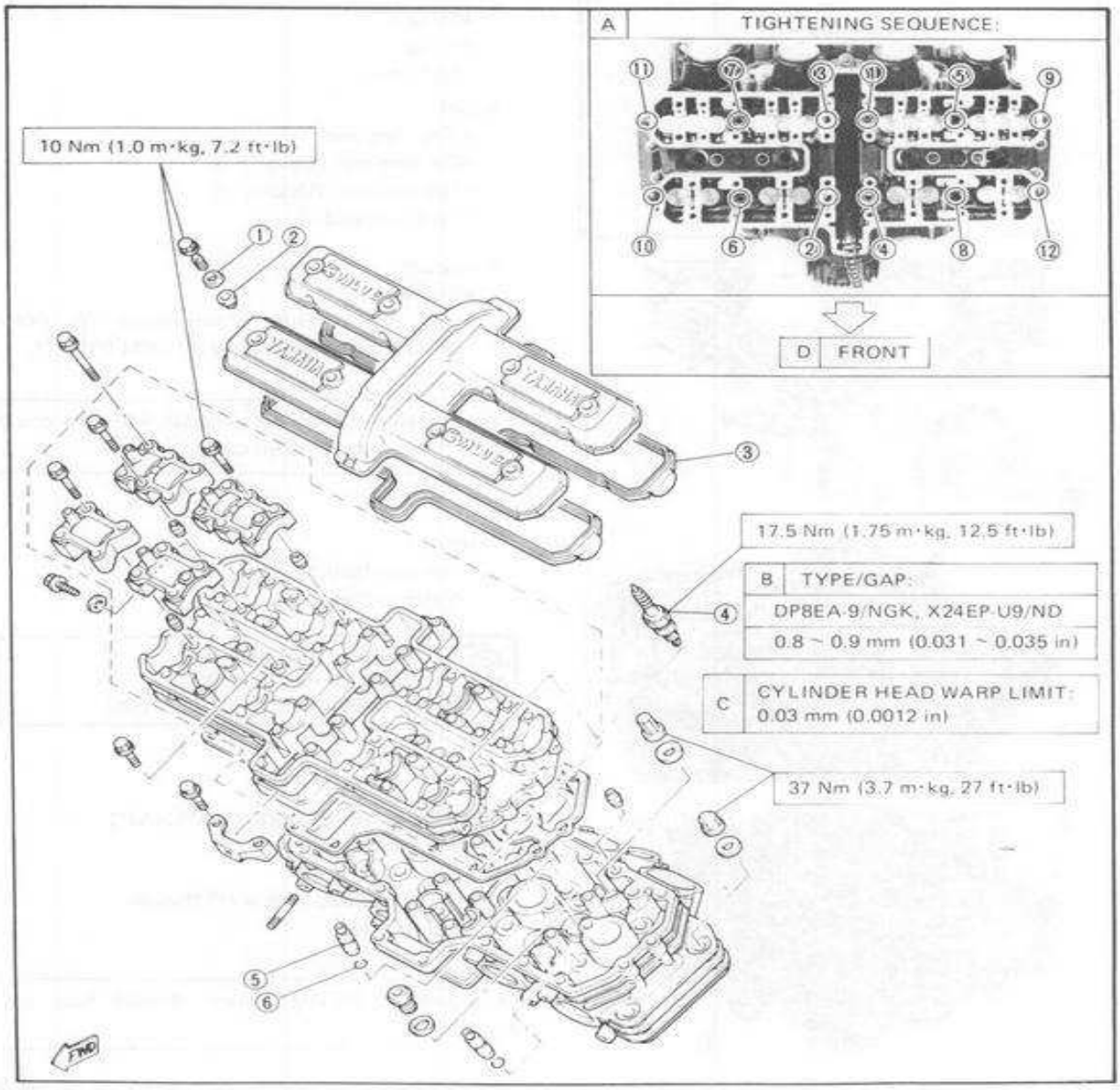
1. Install:
   - Cylinder head gasket ① (New)
   - Dowels ②

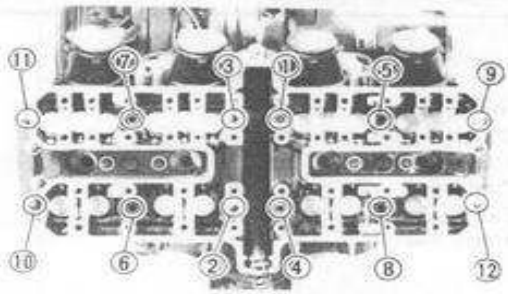
NOTE:
The gasket "HEAD" mark should face upward.

ENGINE ASSEMBLY AND ADJUSTMENT

Cylinder Head

① Washer
② Rubber washer
③ Gasket
④ Spark plug
⑤ Valve guide
⑥ Circlip

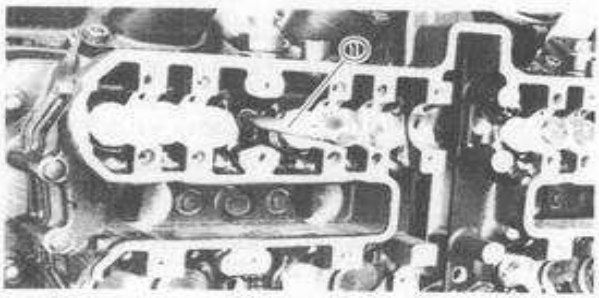




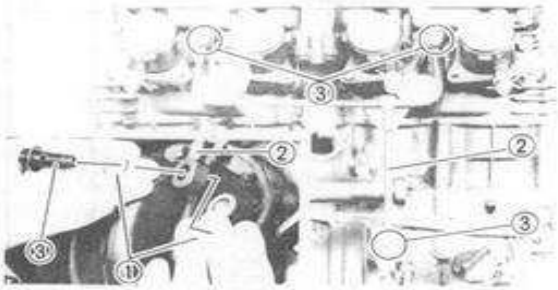
2. Install:
   - Camshaft case and cylinder head assembly

	Cylinder Head Nut: 37 Nm (3.7 m·kg, 27 ft·lb)

NOTE:
Tighten the nuts in their proper tightening sequence and toruqe nuts in two srage.

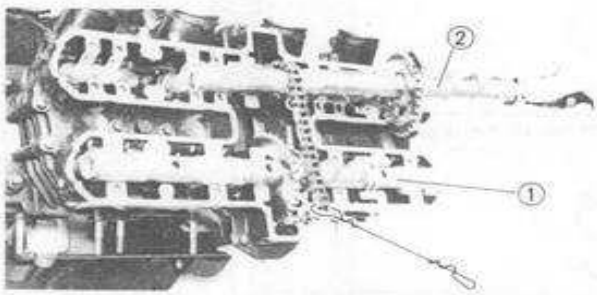


NOTE:
Tighten the cylinder head nuts in the camshaft case using Hexagon Wrench ① (YM-3448)



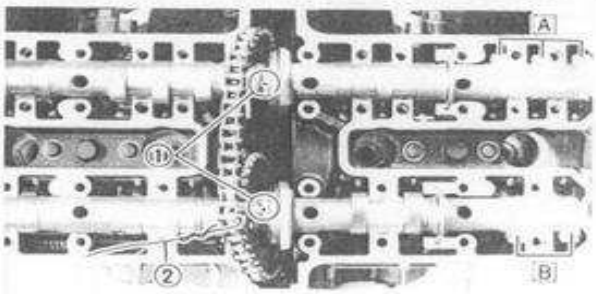
3. Install:
   - Washers ①
   - Oil pipe 1 ②
   - Oil pipe union bolts ③

	Oil Pipe Union Bolts: 21 Nm (2.1 m·kg, 15 ft·lb)



Camshaft

1. Install:
   - Exhaust camshaft ①
   - Intake camshaft ②

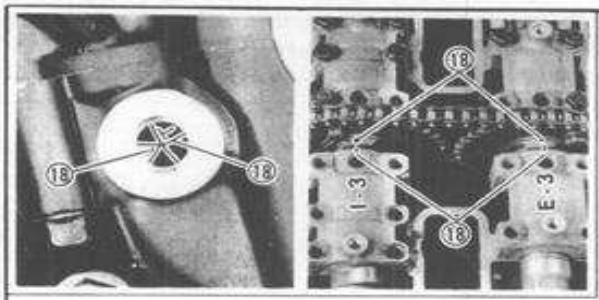


NOTE:
- "3-Lobe" [A] for intake camshaft
- "2-Lobe" [B] for exhaust camshaft
- Make sure the timing mark ① on the camshaft faces upward.
- Apply engine oil to camshaft bearing surfaces before installing camshafts.
- Remove the retaining wire ② .

ENGINE ASSEMBLY AND ADJUSTMENT

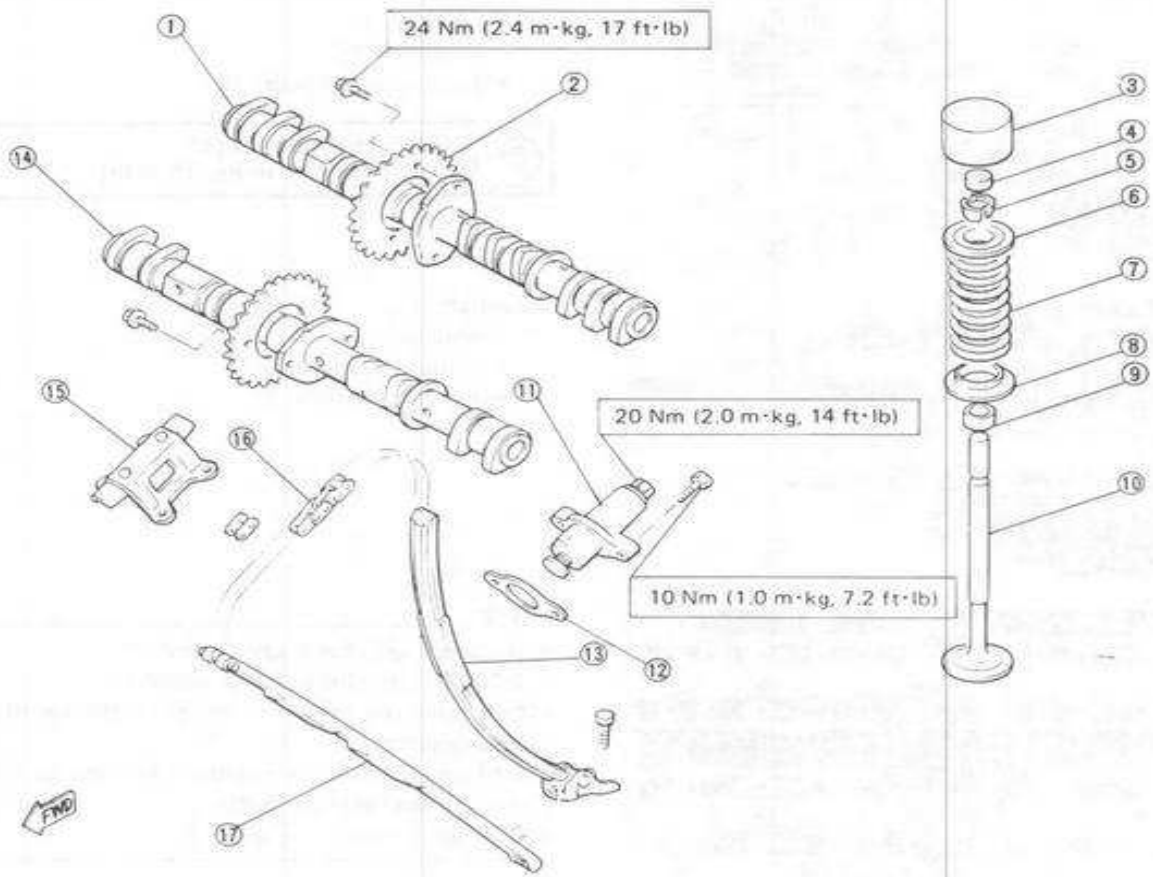
Camshaft

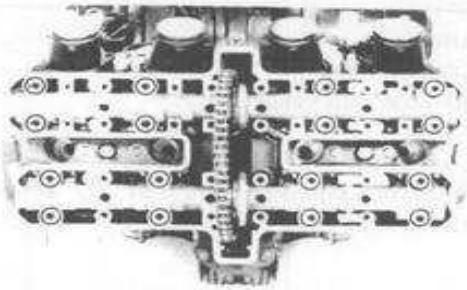
① Camshaft (Intake)
② Cam chain sprocket
③ Valve lifter
④ Valve pad
⑤ Valve retainer
⑥ Spring seat
⑦ Valve spring
⑧ Spring seat
⑨ Oil seal
⑩ Valve
⑪ Chain tensioner assembly
⑫ Gasket
⑬ Intake side chain guide
⑭ Camshaft (Exhaust)
⑮ Upper chain guide
⑯ Cam chain
⑰ Exhaust side chain guide
⑱ Match mark



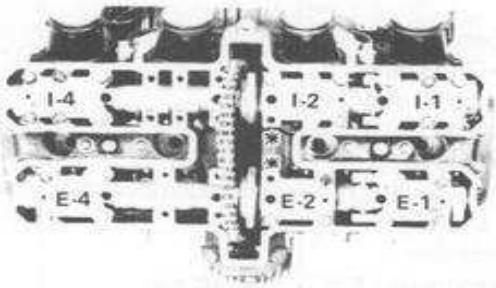
A	VALVE CLEARANCE (COLD):	
B	Intake	0.11 ~ 0.20 mm (0.0043 ~ 0.0079 in)
C	Exhaust	0.21 ~ 0.30 mm (0.0083 ~ 0.0118 in)

D	VALVE SPRING COLOR:	
E	Intake	Blue
F	Exhaust	Red





2. Install:
   - Camshaft cap dowels

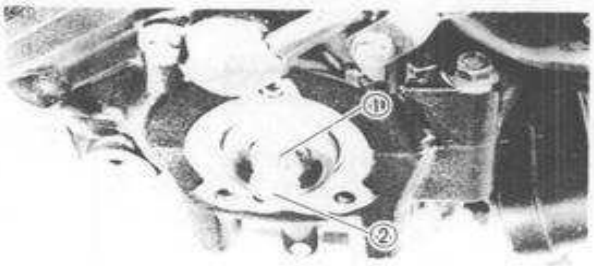


3. Install:
   - No. 1 intake (I-1) camshaft cap
   - No. 2 intake (I-2) camshaft cap
   - No. 4 intake (I-4) camshaft cap
   - No. 1 exhaust (E-1) camshaft cap
   - No. 2 exhaust (E-2) camshaft cap
   - No. 4 exhaust (E-4) camshaft cap

Camshaft Cap Bolts:
10 Nm (1.0 m·kg, 7.2 ft·lb)

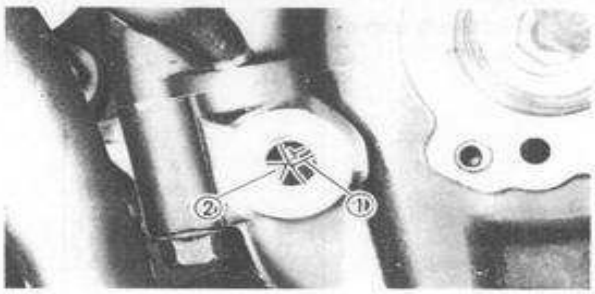
NOTE:
- Do not install the bolts at ✳ marked places in this stage.
- Do not install No. 3 intake (I-3) and No. 3 exhaust (E-3) cam caps at in this stage.

CAUTION:
The cam caps must be tightened evenly or damage to the cylinder head, cam caps and cam will result.



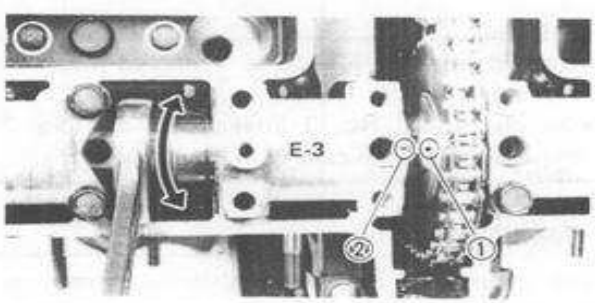
Cam Chain

1. Install:
   - Locknut ①
   - Bolt (8 mm) ②
     (into left crankshaft end)



2. Turn:
   •Crankshaft
   (Counterclockwise)
3. Align:
   •Crankshaft web "T" mark ①
   (with the stationary pointer ② when #1 piston is at TDC on compression stroke.)

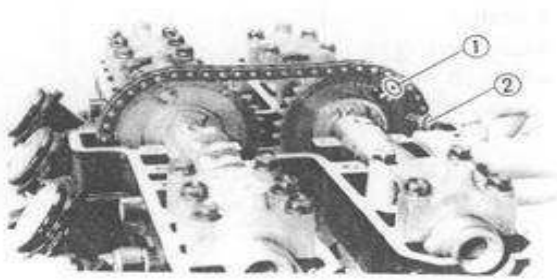
4. Position:
   •Cam chain
   (onto sprockets)
5. Install:
   •Sprockets
   (onto the it's seated position of the camshaft)
6. Position:
   •Exhaust "E-3" camshaft cap
   (onto cylinder head)
7. Rotate:
   •Exhaust camshaft
8. Align:
   •Exhaust camshaft timing mark ①
   (with the "E-3" camshaft cap mark ②)



CAUTION:

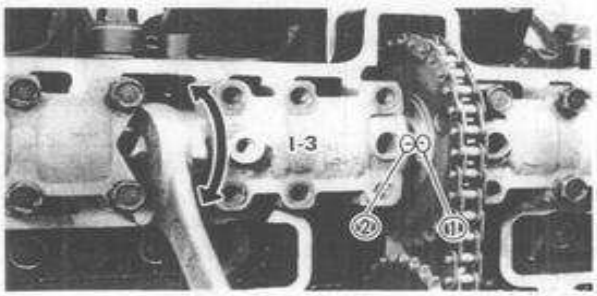
Do not rotate the camshaft over 1/2 turn or damage to the piston and valve will result.

9. Remove:
   •Exhaust "E-3" camshaft cap
10. Force the exhaust sprocket countercloskwise (viewing from right side engine) to remove all cam chain slack.



11. Align:
    •Marked sprocket hole ①
    (with the exhaust camshaft thread hole)
12. Install:
    •Exhaust sprocket bolt ②
    (temporarily tighten)

NOTE:
- If the sprocket hole do not align with the camshaft hole, Adjust chain links between crankshaft and exhaust camshaft.
- Do not rotate the exhaust camshaft or camshaft and camshaft cap alignment is necessary.

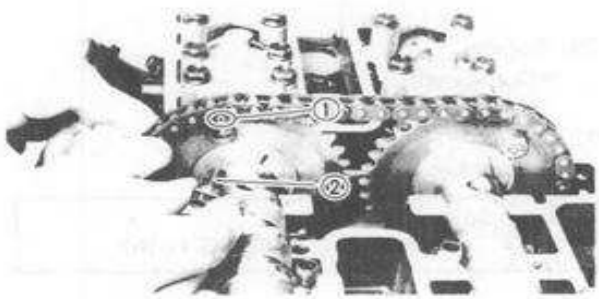


13. Position
    - Intake "I-3" camshaft cap (onto cylinder head)
14. Rotate:
    - Intake camshaft
15. Align:
    - Intake camshaft timing mark ①
      (with the "I-3" camshaft cap mark ②)

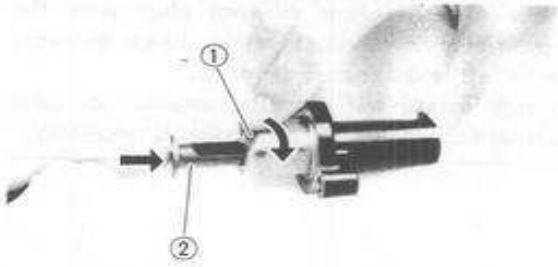
CAUTION:

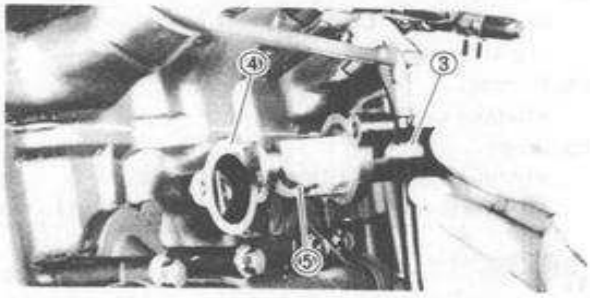
Do not rotate the camshaft over 1/2 turn or damage to the piston and valve will result.

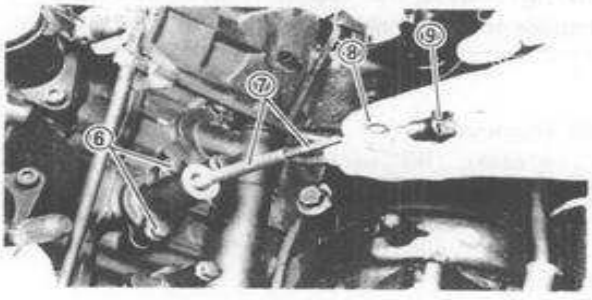
16. Remove:
    - Intake "I-3" camshaft cap
17. Force the intake sprocket countercloskwise (viewing from right side engine) to remove all cam chain slack.
18. Align:
    - Marked sprocket hole ①
      (with the intake camshaft thread hole)
19. Install:
    - Intake sprocket bolt ②
      (temporarily tighten)



NOTE:
- If the sprocket hole do not align with the camshaft thread hole. Adjust chain links between exhaust and intake camshafts.
- Do not rotate the intake camshaft or camshaft and camshaft cap alignment is necessary.







20. Install:
    - Cam chain tensioner

Cam chain tensioner installation steps:
- Remove the tensioner end cap bolt and spring.
- Release the cam chain tensioner one-way cam ①.
- Push the tension rod assembly ② into the body.
- Install the tensioner ③ with a new gasket ④ onto the cylinder

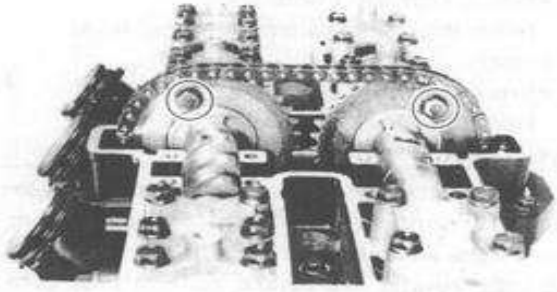
CAUTION:

The one-way cam ⑤ should be faced downward.

Tensioner Body Bolts ⑥ :
10 Nm (1.0 m·kg, 7.2 ft·lb)

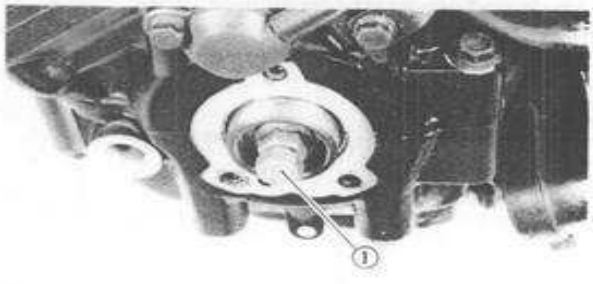
- Install the springs ⑦ , washer ⑧ and end cap bolt ⑨ .

Tensioner End Cap Bolt:
20 Nm (2.0 m·kg, 14 ft·lb)

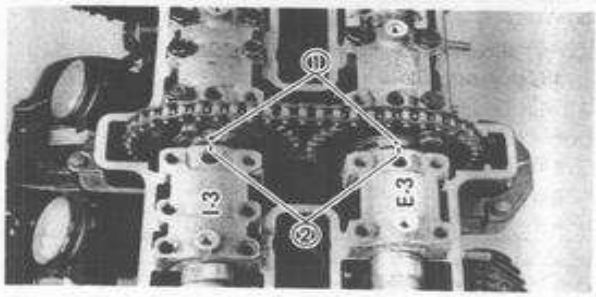


21. Rotate:
    - Crankshaft
      Counterclockwise
22. Install:
    - Sprocket bolts (all)

Sprocket Bolts:
24 Nm (2.4 m·kg, 17 ft·lb)

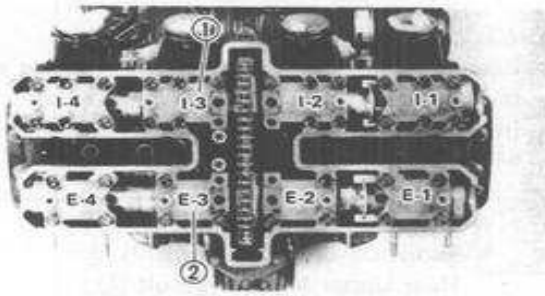


NOTE:
If difficult to tighten the cam sprocket securing bolts; hold the 8 mm bolt ① on the left crankshaft end.



23. Install:
- No. 3 exhaust (E-3) camshaft cap
- No. 3 intake (I-3) camshaft cap

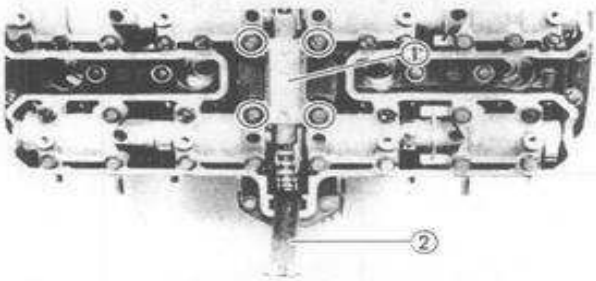
NOTE:
- Be sure the camshaft timing marks ① align with the camshaft cap mark ② .
- Be sure the "T" mark on the crankshaft web align with the stationary pointer when #1 position is at TDC on compression stroke.



24. Tighten:
- No. 3 intake ① and exhaust ② camshaft cap bolts.

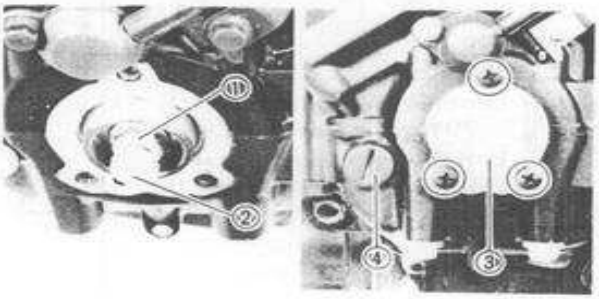
Camshaft Cap Bolts: 10 Nm (1.0 m·kg, 7.2 ft·lb)

NOTE:
Do not install the bolt at * marked places in this stage.



25. Install:
- Upper chain guide ①
- Exhaust chain guide ②

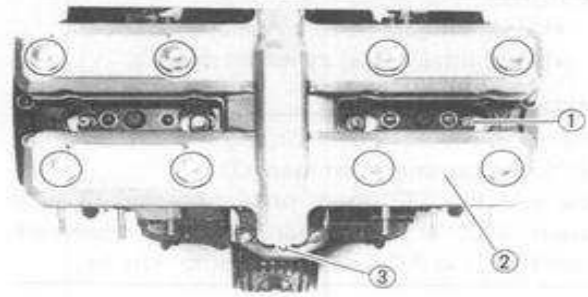
Upper Chain Guide Bolt: 10 Nm (1.0 m·kg, 7.2 ft·lb)



26. Remove:
- Locknut ①
- Bolt (8 mm) ②

27. Install:
- O-rings
- Left crankshaft end cover ③
- Plug screw ④

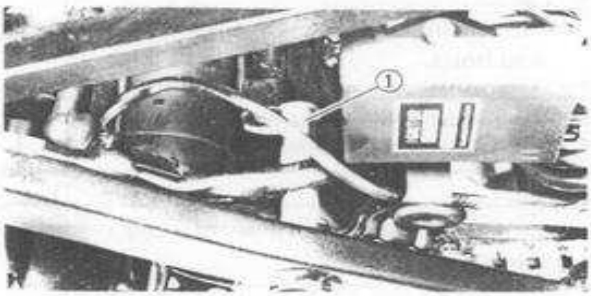
Crankshaft End Cover Screws: 7 Nm (0.7 m·kg, 5.1 ft·lb)

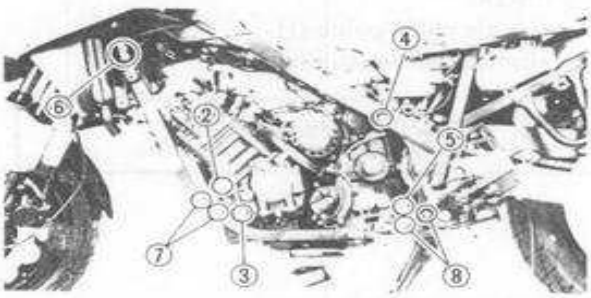


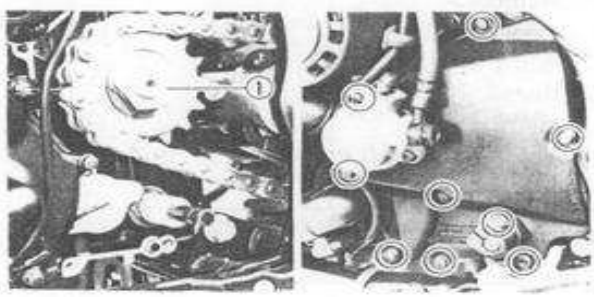
28. Install:
- Spark plug ①
- Cylinder head gasket
- Cylinder head cover ②
- Rubber plugs
- Washers
- Bolts

Spark Plug:
17.5 Nm (1.75 m·kg, 12.5 ft·lb)
Cylinder Head Cover Bolts:
10 Nm (1.0 m·kg, 7.2 ft·lb)

NOTE:
Be sure the cylinder head gasket mark ③ face front.





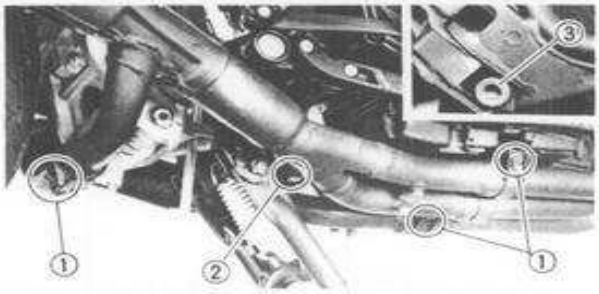


REMOUNTING ENGINE
1. Reverse engine removal steps. Pay close attention to installation of following steps.
2. Install:
- Rear upper mounting collar ①

Front Upper Mounting Bolt ② :
Front Lower Mounting Bolt ③ :
Rear Upper Mounting Bolt ④ :
Rear Lower Mounting Bolt ⑤ :
55 Nm (5.5 m·kg, 40 ft·lb)
Front Down Tube Bolts ⑥ :
Middle Down Tube Bolts ⑦ :
Rear Down Tube Bolts ⑧ :
28 Nm (2.8 m·kg, 20 ft·lb)

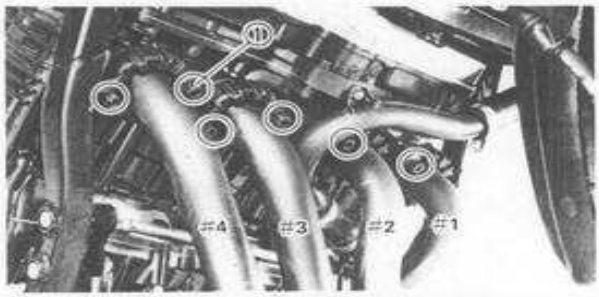
3. Tighten:

Drive Chain Sprocket Nut ① :
70 Nm (7.0 m·kg, 50 ft·lb)
Left Crankcase Cover Screw:
10 Nm (1.0 m·kg, 7.2 ft·lb)



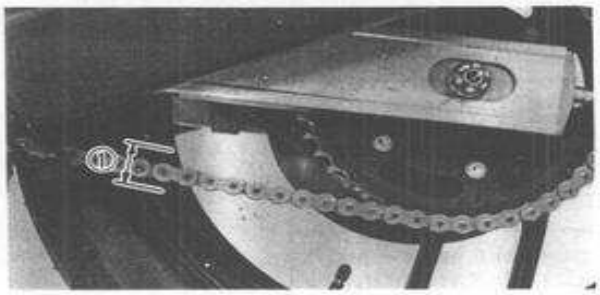
4. Tighten:

Muffler Clamp Bolts ① : 20 Nm (2.0 m·kg, 14 ft·lb) Muffler Stay Bolt ② : 25 Nm (2.5 m·kg, 18 ft·lb) Muffler/Rear Footrest Bolt ③ : 42 Nm (4.2 m·kg, 30 ft·lb)



5. Tighten:

Exhaust Pipe Flange Nut ① : 10 Nm (1.0 m·kg, 7.2 ft·lb)



6. Adjust:
- Drive chain deflection

Standard Drive Chain Deflection ① : 15 ~ 20 mm (0.6 ~ 0.8 in)

7. Tighten:

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

8. Fill:
- Crankcase

Engine Oil: 3.5 L (3.1 Imp qt, 3.7 US qt)

9. Fill:
- Radiator

Coolant: 2.3 L (2.0 Imp qt, 2.4 US qt)

CHAPTER 4.
COOLING SYSTEM

COOLANT DRAINING 4-1

WATER PUMP 4-1
- DISASSEMBLY 4-1
- INSPECTION 4-1
- BEARING AND SEAL REPLACEMENT 4-2
- ASSEMBLY 4-3

THERMOSTATIC VALVE 4-3
- REMOVAL 4-3
- INSPECTION 4-4
- ASSEMBLY 4-4

RADIATOR 4-5
- REMOVAL 4-5
- INSPECTION 4-5
- ASSEMBLY 4-5

COOLANT FILLING 4-5

COOLING SYSTEM

COOLANT DRAINING

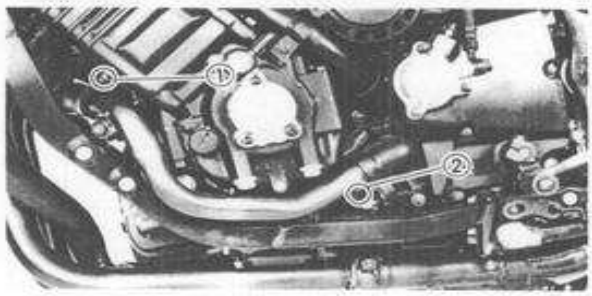
WARNING:

Do not remove the radiator cap when the engine and radiator are hot.

1. Place a receptacle under the coolant drain bolt.



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



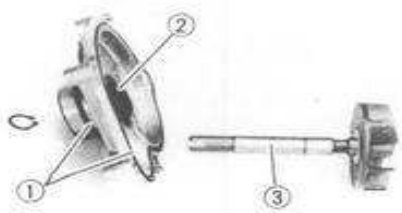
3. Drain:
   - Coolant

① Cylinder drain bolt
② Water pump drain bolt

WATER PUMP

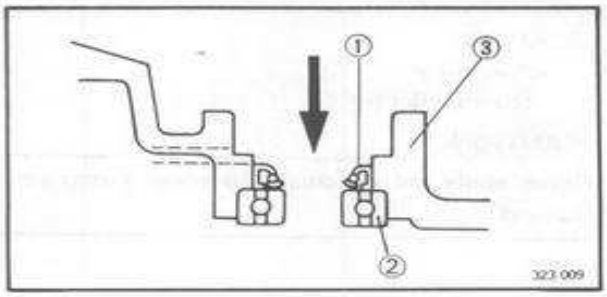
DISASSEMBLY

NOTE:
- Be sure to drain the coolant before disassembly of the cooling system components.
- Refer to Engine Disassembly for water pump disassembly.



INSPECTION

1. Inspect:
   - Bearing
   - O-rings ①
   - Oil seal
   - Water pump seal ②
     Wear/Damage → Replace
   - Impeller ③
     Cracks/Wear/Damage → Replace

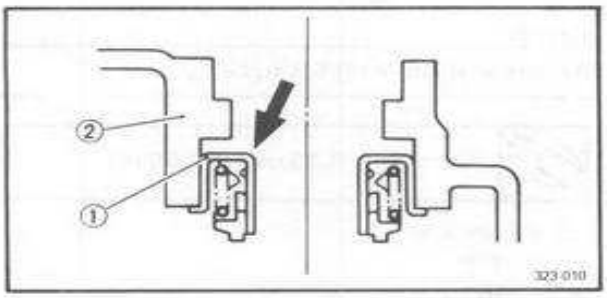


BEARING AND SEAL REPLACEMENT

1. Remove:
   - Bearing ②
   - Oil seal ①

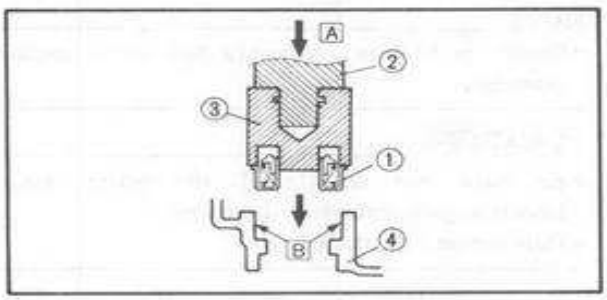
   Tap off both components from water pump seal side.

③ Water pump housing



2. Remove:
   - Water pump seal ①

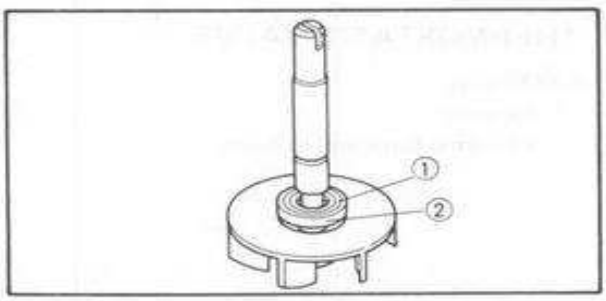
   Tap it off from the water pump housing ②



3. Install:
   - Water pump seal ①

   (Use Water Pump Seal Installer (YM-04058-1 ②/YM-33221 ③))
   Apply Quick Gasket® to water pump housing ④ before installing seal.

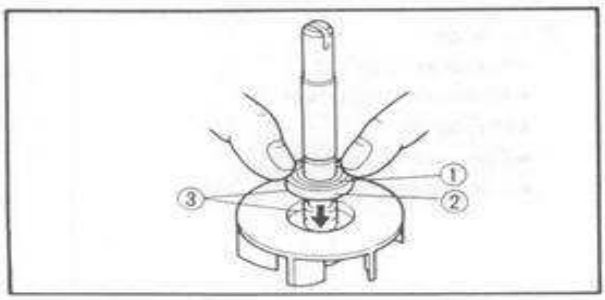
A PRESS
B APPLY QUICK GASKET®



4. Remove:
   - Seal No. 2 ① /Damper rubber ②

   (from impeller)
   Pry out with a small screwdriver.

NOTE:
Be careful not to scratch or bend the impeller shaft.

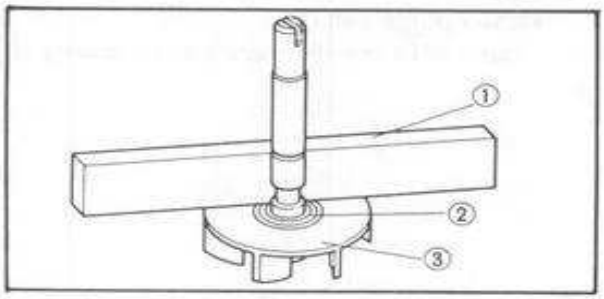


5. Assemble:
   - Seal No. 2 ① /Damper rubber ②
6. Apply water or coolant to outer surface of damper rubber ③ and impeller hub.

7. Attach:
   - Assemlby
     (to impeller hub)

CAUTION:

Never apply oil or grease to water pump seal surfaces.



NOTE:

Be sure seal No. 2 ② fits squarely.

Tilt Limit: 0.15 mm (0.006 in)

① Straight edge
③ Impeller

ASSEMBLY

NOTE:

- Refer to Engine Assembly for water pump assembly.

CAUTION:

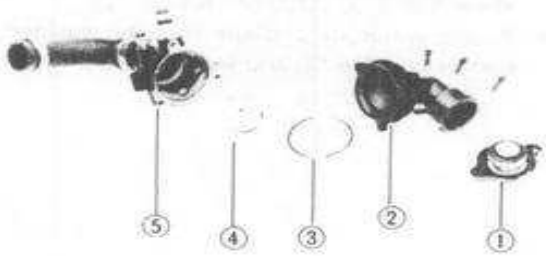
- **Be sure not to scratch the water pump (mechanical) seal while installing.**
- **Replace any scratched seal.**



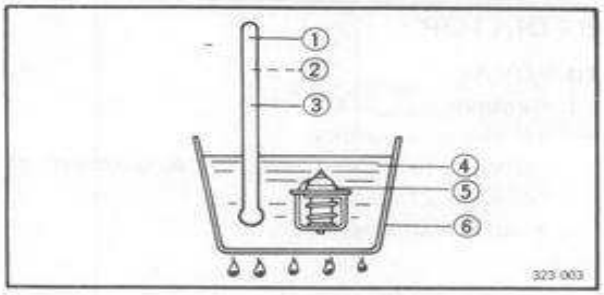
THERMOSTATIC VALVE

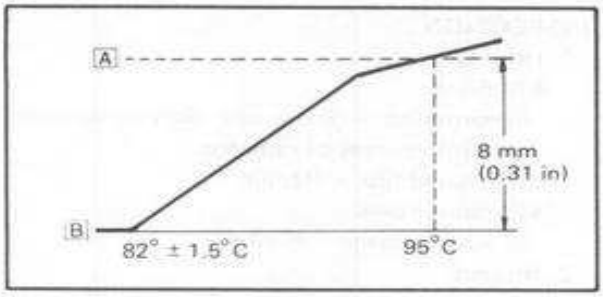
REMOVAL

1. Remove:
   - Thermostatic cover bolts



2. Remove:
   - Radiator cap ①
   - Thermostatic cover ②
   - O-ring ③
   - Thermostatic valve ④
   - Thermostatic housing ⑤





INSPECTION

1. Inspect:
   - Thermostatic valve ⑤
     Valve does not open at 80.5°C ~ 83.5°C (176.9 ~ 182.3°F) → Replace.

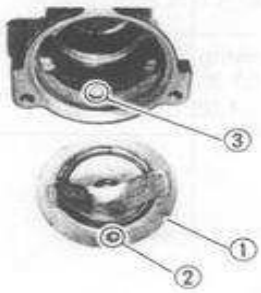
Inspection Steps:
- Suspend thermostatic valve in a vessel.
- Place reliable thermometer in a water.
- Heat water slowly.
- Observe thermometer, while stirring water continually.

① Thermometer
② Full open (95°C, 203°F)
③ Opening sequence begins (82° ± 1.5°C, 179.6° ± 34.7°F)
④ Water
⑥ Vessel
A FULL OPEN
B CLOSE

NOTE:

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

2. Inspect:
   - O-ring
     Wear/Damage → Replace.



ASSEMBLY

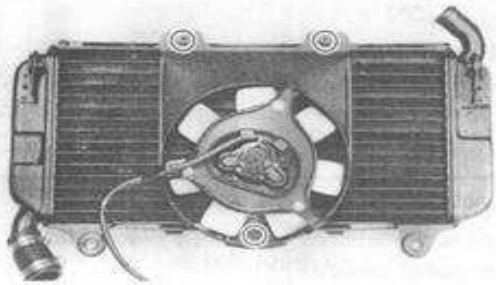
1. Install:
   - Thermostatic valve ①

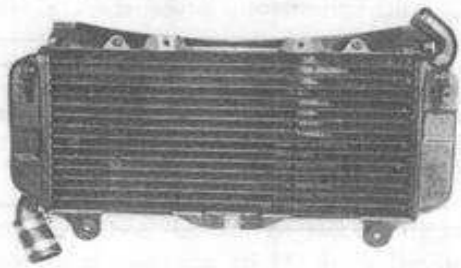
NOTE:

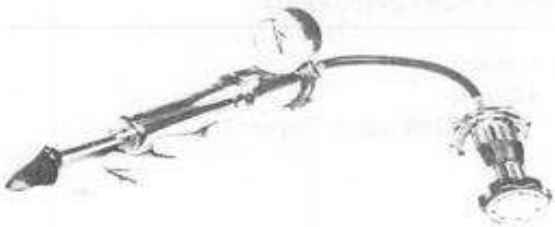
The thermostatic valve breather hole ② must be aligned with housing slot ③.

2. Install:
   - Thermostatic valve cover

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







RADIATOR

REMOVAL

1. Remove:
   - Radiator assembly
     (Refer to valve clearance adjustment of chapter 2)
   - Fan motor assembly.

INSPECTION

1. Inspect:
   - Radiator
     Obstruction → Blow out with compressed air through rear of radiator.
     Flattened fins → Repair.
   - Coolant hoses
     Cracks/Damage → Replace.
2. Inspect:
   - Radiator cap
   - Vacuum valve

Inspection Steps:
- Measure radiator cap pressure using the Cooling System Tester (YU-24460-01).
- Check vacuum valve for spring tension and seating condition.

Valve opens at pressure below specified valve or defective → Replace.

Valve Opening Pressure:
74 ~ 103 KPa
(0.75 ~ 1.05 kg/cm², 10.7 ~ 14.9 psi)

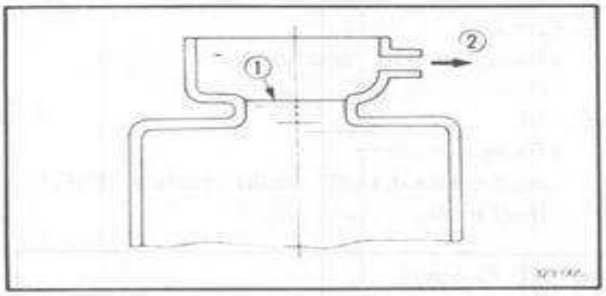
ASSEMBLY

1. Connect:
   - Fan motor coupler
2. Install:
   - Radiator
   - Coolant hoses
     Refer to valve clearance adjustment

COOLANT FILLING

1. Install:
   - Coolant drain bolts

10 Nm (1.0 m·kg, 7.2 ft·lb)



2. Remove:
   - Radiator cap

   Pour coolant into radiator to specified level.

① Coolant level
② Reserve tank flow

Coolant:
High-Quality Ethylene Glycol Anti-Freeze Containing Anti-Corrosion Inhibitors for Aluminum Engines.
Coolant and Soft Water Mix Ratio:
50%/50%
Amount:
2.3 L (2.0 Imp qt, 2.4 US qt)

CAUTION:

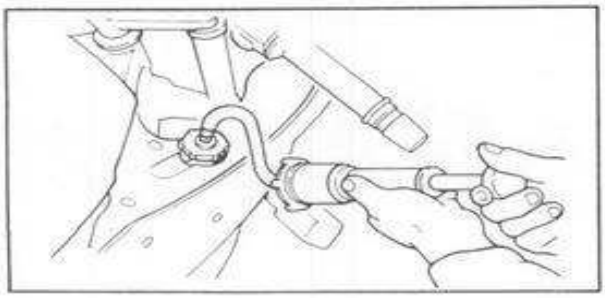
Hard water or salt water is harmful to the engine parts. You may use boiled water or distilled water if no soft water is available.

3. Fill:
   - Coolant

Coolant Filling Steps:
- Start engine (coolant level decreases).
- Add coolant while engine is running.
- Stop engine when coolant level stabilizes.
- Add coolant again to specified level (see illustration above)
- Install radiator cap

CAUTION:

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

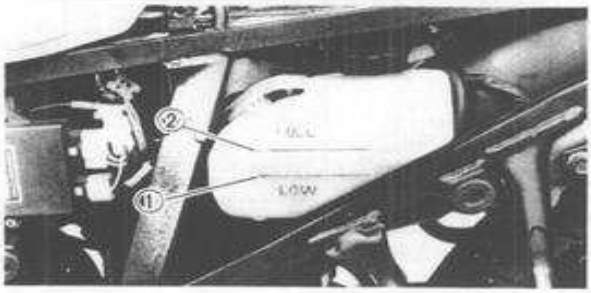


4. Inspect:
   - Cooling system leakage

Inspection Steps:
- Connect Cooling System Tester (YU-24460-01).
- Apply 1.0 kg/cm² (14 lb/in²) pressure.
- Measure pressure with gauge.

Decrease of pressure (leaks) → Repair as required.

COOLANT FILLING



5. Connect:
   - Reservoir tank feed hose.

6. Fill:
   - Reservoir tank

   Add coolant until liquid reaches "FULL" level mark.

Coolant:
Reservoir Tank Capacity:
0.29 L (0.26 Imp qt, 0.31 US qt)
From LOW ① to FULL ② Level:
0.15 L (0.13 Imp qt, 0.16 US qt)

CHAPTER 5.
CARBURETION

CARBURETOR 5-1
SECTION VIEW 5-2
REMOVAL 5-3
DISASSEMBLY 5-3
INSPECTION 5-4
ASSEMBLY 5-5
FUEL LEVEL ADJUSTMENT 5-5

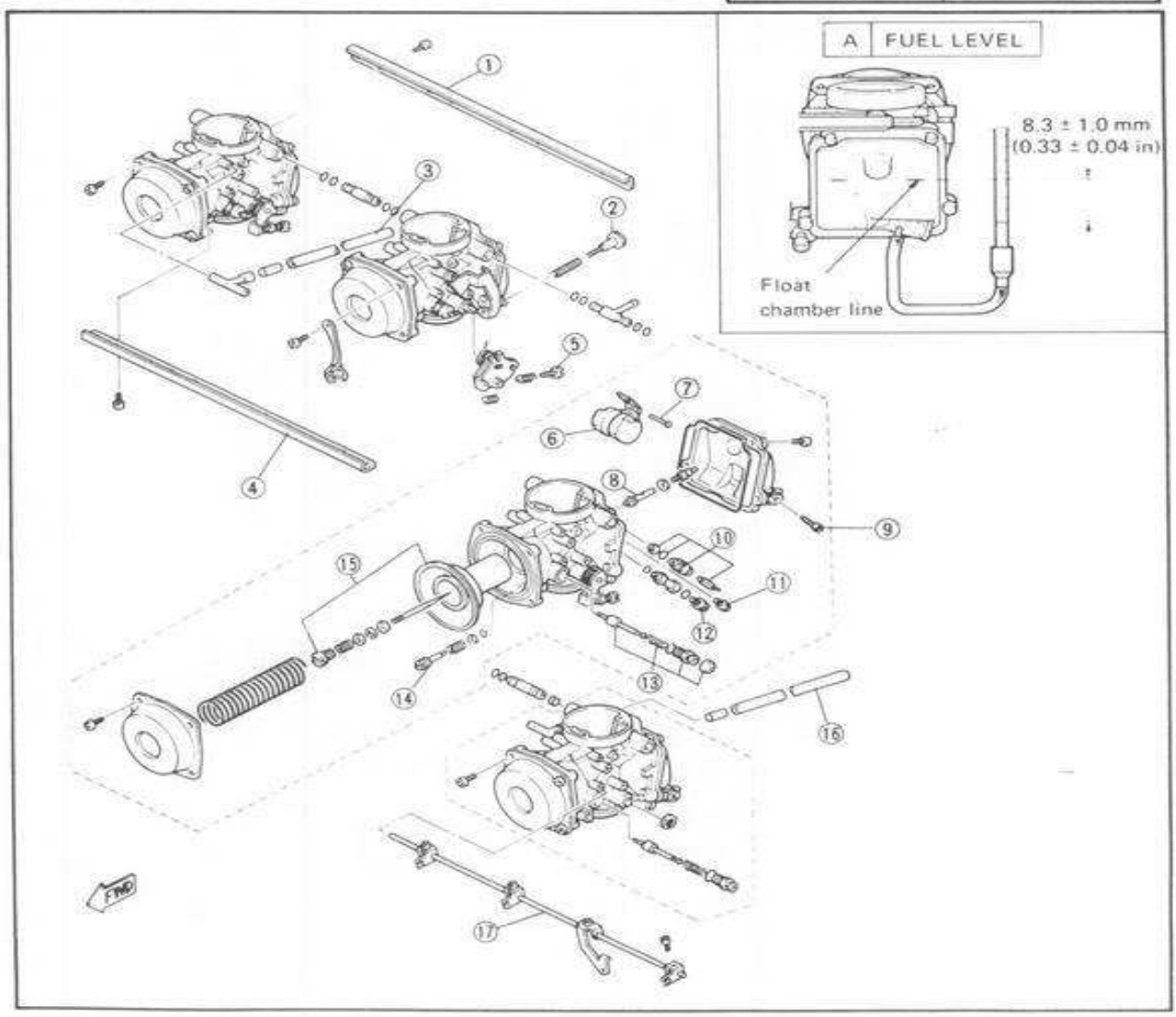
AIR CLEANER AND CRANKCASE VENTILATIONS SYSTEM 5-6

CARBURETION

CARBURETOR

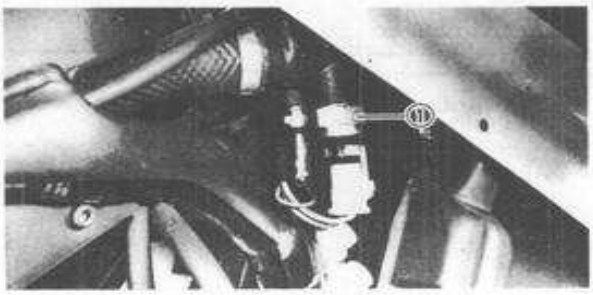
① Upper bracket
② Throttle stop screw
③ Fuel overflow hose
④ Lowr bracket
⑤ Syncronization screw
⑥ Float
⑦ Float pin
⑧ Neelde jet
⑨ Fuel drain screw
⑩ Float needle valve
⑪ Pilot jet
⑫ Main jet
⑬ Starter plunger assembly
⑭ Pilot screw
⑮ Piston valve assembly
⑯ Fuel feed hose
⑰ Starter lever shaft

SPECIFICATIONS	
ID Mark	1AE00
Main jet	#105
Main air jet	#65
Jet needle	5CEZ02
Needle jet	Y-0
Starter jet	
(GS. 1)	#37.5
(GS. 2)	φ0.5
Fuel level	8.3 ± 1.0 mm (0.326 ± 0.04 in)
Pilot screw	3.0 turns out
Float valve seat	φ1.2
Engine idle speed	1,000 ± 50 r/min



CAUTION:

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

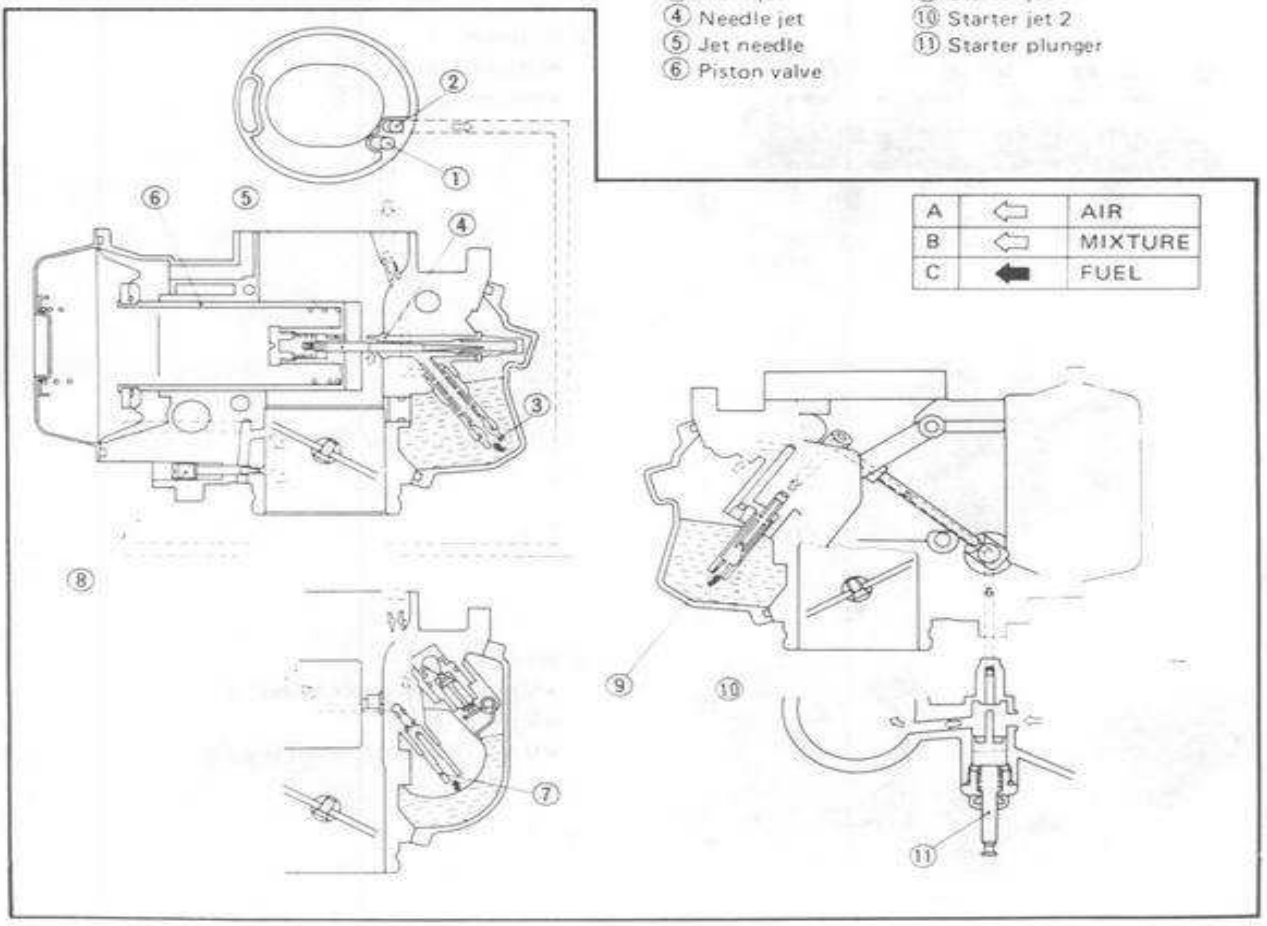


WARNING:

When the pilot screw adjustment is necessary, disconnect the thermostatic switch ① coupler to prevent cooling fan turning.

SECTION VIEW

① Main air jet
② Pilot air jet
③ Main jet
④ Needle jet
⑤ Jet needle
⑥ Piston valve
⑦ Pilot jet
⑧ Pilot screw
⑨ Starter jet 1
⑩ Starter jet 2
⑪ Starter plunger



REMOVAL

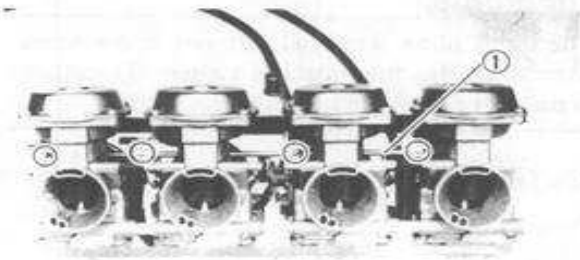
1. Remove:
   - Carburetor assembly
     Refer to engine removal section

DISASSEMBLY

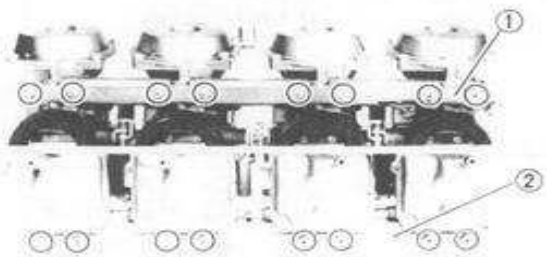
NOTE:

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

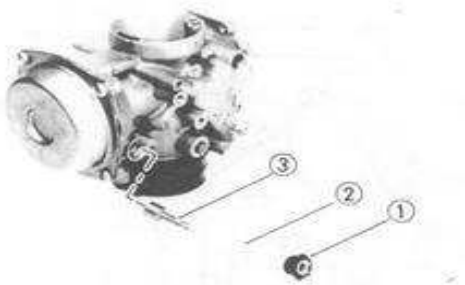
- Piston valve
- Starter plunger
- Float chamber components



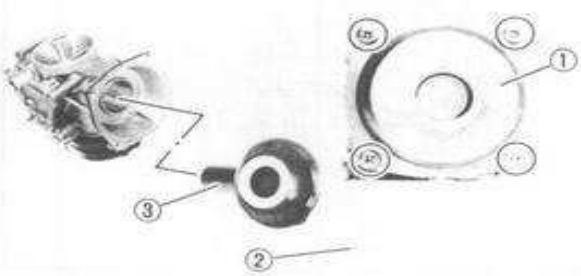
1. Remove:
   - Starter lever shaft ①



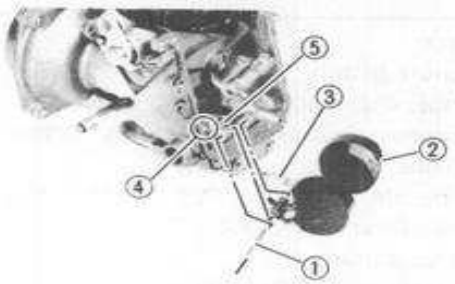
2. Remove:
   - Upper bracket ①
   - Lower bracket ②



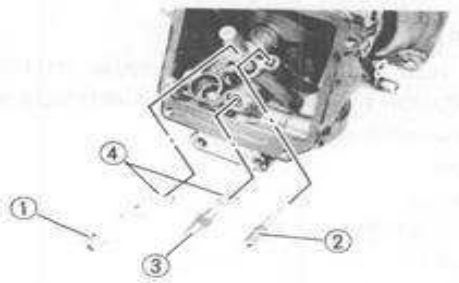
3. Remove:
   - Nut ①
   - Spring ②
   - Starter plunger ③



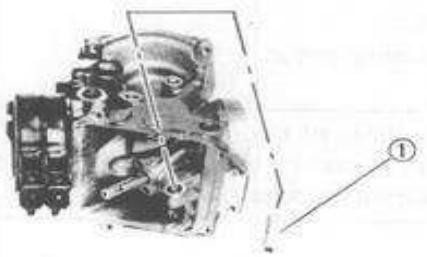
4. Remove:
   - Vacuum chamber cover ①
   - Spring ②
   - Vacuum piston assembly ③



5. Remove:
   - Float chamber cover
   - Gasket
   - Float pin ①
   - Float ②
   - Floart needle valve ③
   - Valve seat screw ④
   - Valve seat assembly ⑤



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



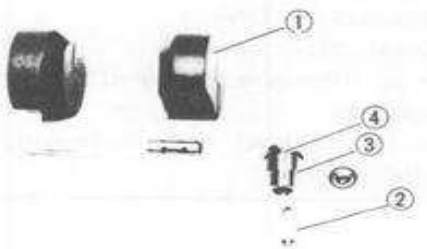
7. Remove:
   - Main nozzle ①

INSPECTION

1. Inspect:
   - Carburetor body
   - Fuel passage

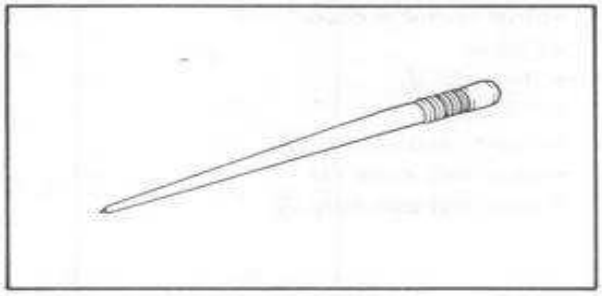
   Contamination → Clean as indicated.

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.

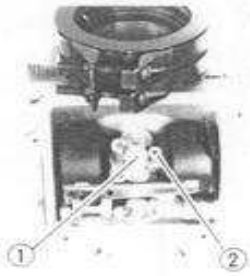


2. Inspect:
   - Float ①
   - Float needle valve ②
   - Seat ③
   - O-ring ④

   Damage/Wear/Contamination → Replace as a set



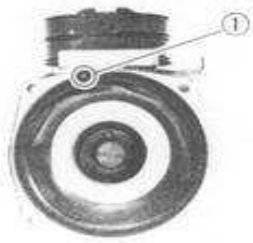
3. Inspect:
   - Vacuum piston
   - Rubber diaphragm
     Scratches (piston)/Tears (diaphragm) → Replace.
   - Jet needle
     Bends/Wear → Replace.
   - Starter plunger
     Wear/Damage → Replace.



ASSEMBLY

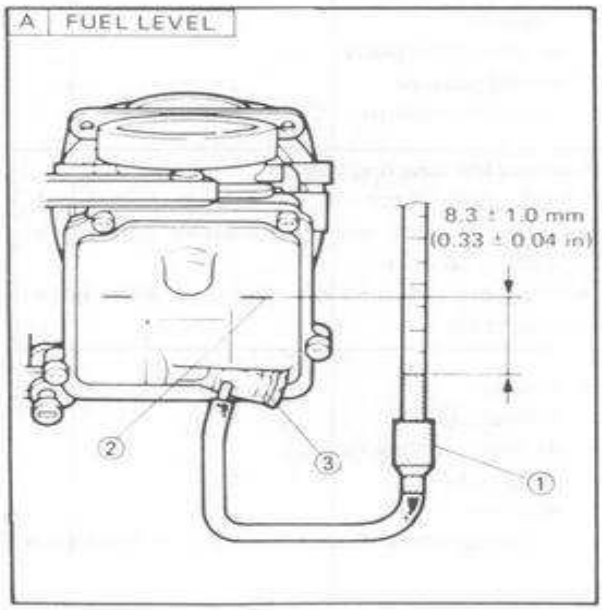
Reverse disassembly steps. Pay close attention to installation of vacuum piston diaphragm and location of each jet.

1. Install:
   - Washer
   - Pilot jet ②
   - Washer
   - Main jet ①



2. Install:
   - Vacuum piston

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



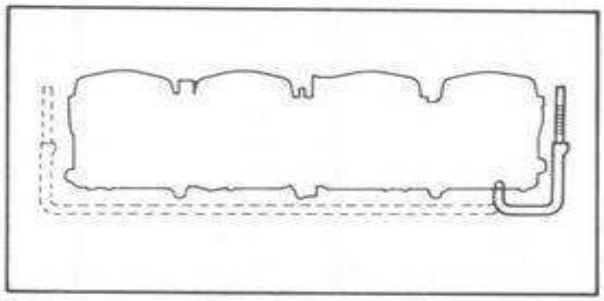
FUEL LEVEL ADJUSTMENT

1. Measure:
   - Fuel level

Fuel level inspection steps:
- Connect Fuel Level Gauge ① (YM-01312) or vinyl tube, 6 mm (0.24 in) inside diameter, to float chamber cover.
- Place tube vertically next to the float chamber line ②.
- Set fuel cock to "ON".
- Loosen the drain screw ③.
- Warm up the engine, then shut it off after a few minutes.
- Check the fuel level. It should be within the specified range.

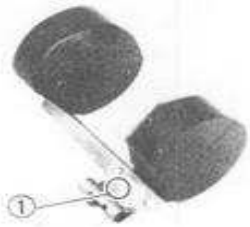
Fuel Level:
8.3 ± 1.0 mm (0.326 ± 0.04 in)
below float chamber line

Out of range → Follow next steps.



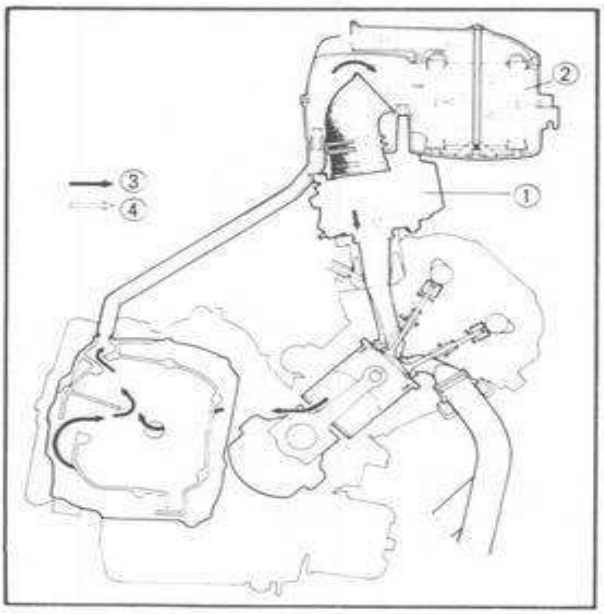
NOTE:
Fuel level readings of both side of carburetor line should be equal.

2. Remove:
   - Carburetors
   - Float assembly



3. Inspect:
   - Float valve assembly
   - Float

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



4. Observe:
   - Fuel level

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

AIR CLEANER AND CRANKCASE VENTILATION SYSTEM

REFER TO "CHAPTER 2, Air Cleaner Maintenance."

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

CHAPTER 6.
CHASSIS

FRONT WHEEL 6-1
REMOVAL 6-2
INSPECTION 6-2
WHEEL BEARING REPLACEMENT 6-3
INSTALLATION 6-4

REAR WHEEL 6-5
REMOVAL 6-6
INSPECTION 6-6
INSTALLATION 6-7

FRONT BRAKE 6-8
BRAKE PAD REPLACEMENT 6-9
CALIPER DISASSEMBLY 6-10
MASTER CYLINDER DISASSEMBLY 6-10
INSPECTION AND REPAIR 6-11
ASSEMBLY 6-12
AIR BLEEDING 6-13

REAR BRAKE 6-14
BRAKE PAD REPLACEMENT 6-15
CALIPER DISASSEMBLY 6-15
MASTER CYLINDER DISASSEMBLY 6-16
INSPECTION AND REPAIR 6-16
ASSEMBLY 6-16
AIR BLEEDING 6-16

HYDRAULIC CLUTCH 6-17
CLUTCH RELEASE DISASSEMBLY 6-18
MASTER CYLINDER DISASSEMBLY 6-19
INSPECTION AND REPAIR 6-19
ASSEMBLY 6-20
AIR BLEEDING 6-21

FRONT FORK 6-22
REMOVAL AND DISASSEMBLY 6-23
INSPECTION 6-25
ASSEMBLY 6-27

STEERING HEAD 6-30
ADJUSTMENT 6-31
REMOVAL 6-31
INSPECTION 6-33
ASSEMBLY 6-34

REAR SHOCK ABSORBER/REAR ARMS 6-35
HANDLING NOTES 6-35
REMOVAL 6-37
INSPECTION 6-38
INSTALLATION 6-39

SWING ARM AND DRIVE CHAIN 6-41
FREE PLAY INSPECTION 6-42
REMOVAL 6-42
INSPECTION 6-42
INSTALLATION 6-43

CABLES AND FITTINGS 6-44
CABLES MAINTENANCE 6-44

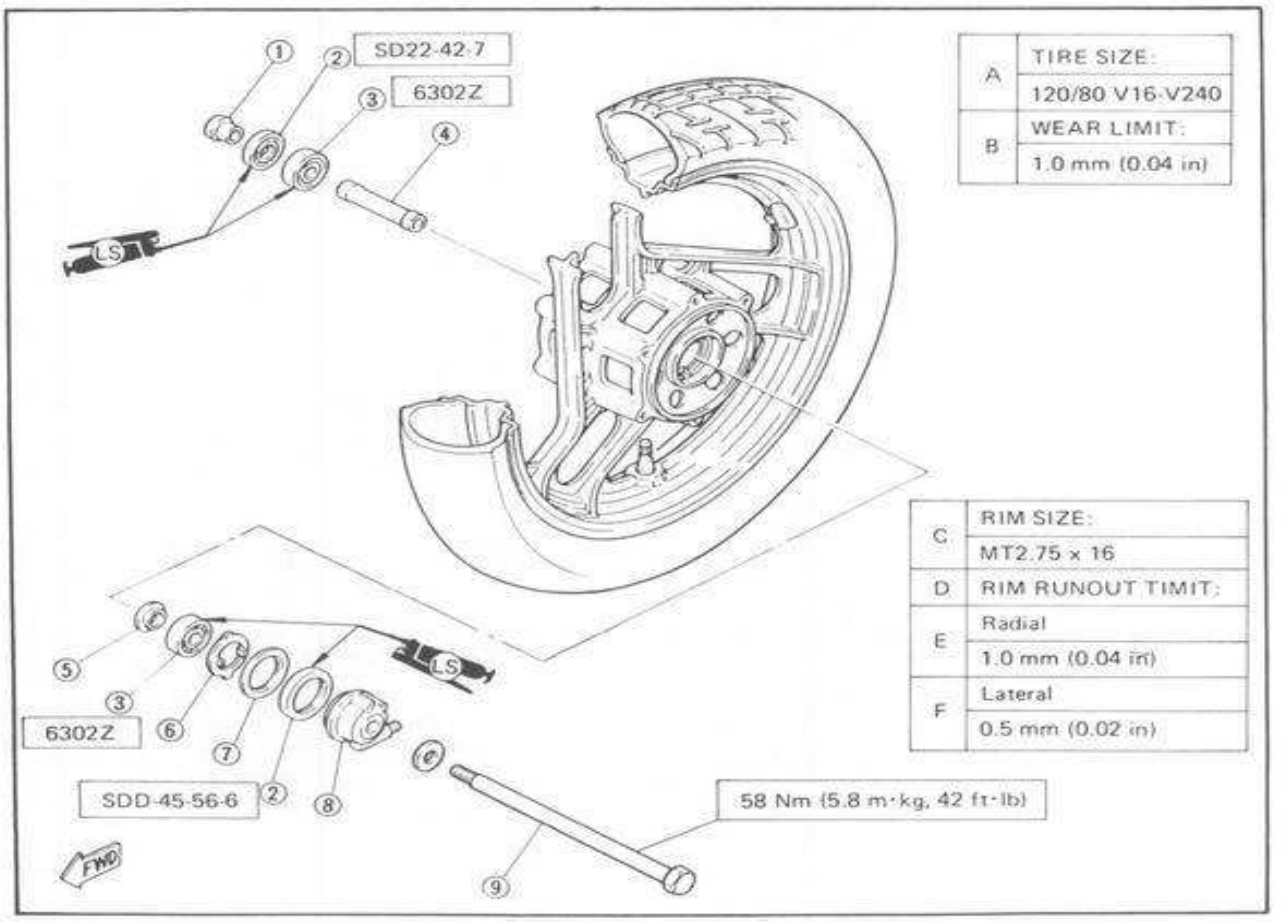
CHASSIS

FRONT WHEEL

① Collar
② Oil seal
③ Bearing
④ Spacer
⑤ Spacer flange
⑥ Meter clutch
⑦ Clutch retainer
⑧ Speedometer housing
⑨ Front axle

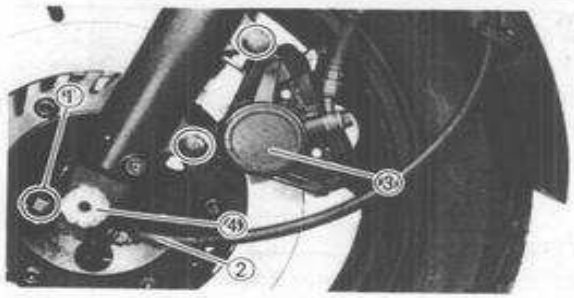
TIRE AIR PRESSURE (COLD):		
Basic weight: With oil and full fuel tank	232 kg (511 lb)	
Maximum load *	213 kg (470 lb)	
Cold tire pressure	Front	Rear
Up to 90 kg (198 lb) load *	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)
90 kg (198 lb) ~ Maximum load *	226 kPa (2.3 kg/cm², 32 psi)	284 kPa (2.9 kg/cm², 42 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.



A	TIRE SIZE:
	120/80 V16-V240
B	WEAR LIMIT:
	1.0 mm (0.04 in)

C	RIM SIZE:
	MT2.75 x 16
D	RIM RUNOUT TIMIT:
E	Radial
	1.0 mm (0.04 in)
F	Lateral
	0.5 mm (0.02 in)



REMOVAL

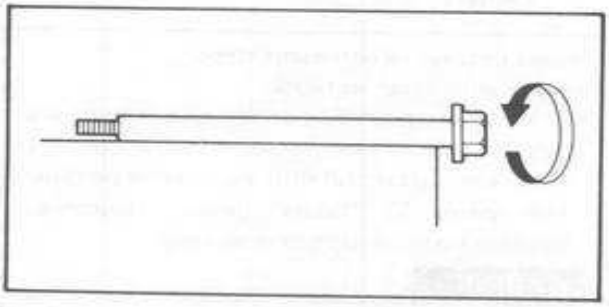
1. Place the motorcycle on its centerstand.
2. Loosen:
   - Pinch bolt ①
3. Remove:
   - Speedometer cable ②
   - Brake caliper ③
   - Axle ④
   - Front wheel
   - Collar
   - Speedometer-housing

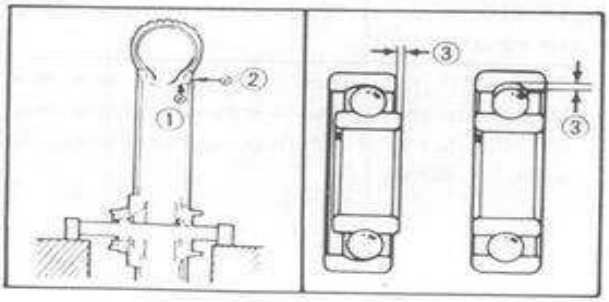
CAUTION:

Make sure the motorcycle is properly supported.

NOTE:

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





INSPECTION

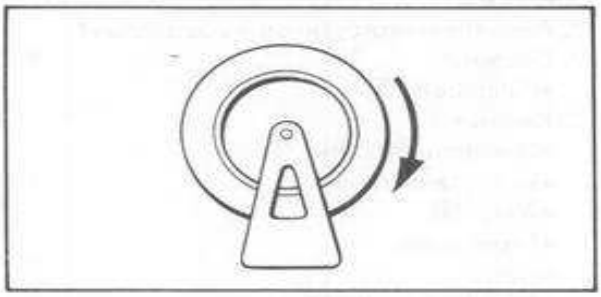
1. Eliminate any corrosion from parts.
2. Inspect:
   - Front axle
     Roll the axle on a Flat Surface.
     Bends → Replace.

WARNING:

Do not attempt to straighten a dent axle.

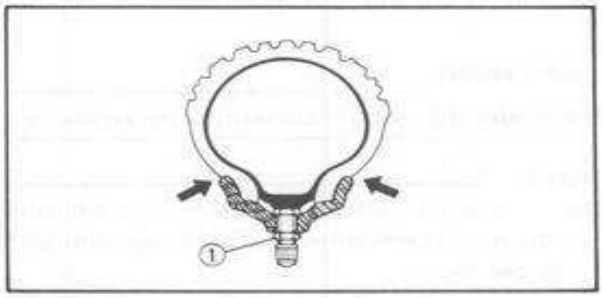
3. Inspect.
   - Wheel
     Cracks/Bends/Warpage → Replace.
4. Measure:
   - Wheel runout
     Over specified limit → Replace, wheel or check bearing play ③.

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



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

NOTE:
- Balance wheel with brake disc installed.

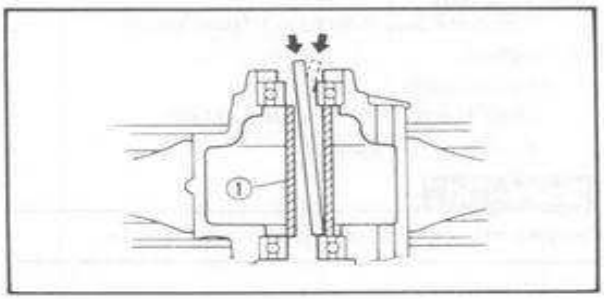


WARNING:
- After mounting a tire, ride conservatively to allow proper tire to rim seating. Failure to do so may cause an accident resulting in motorcycle damage and possible operator injury.
- After a tire repair or replacement, be sure to torque tighten the valve stem locknut ① to specification.

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

WHEEL BEARING REPLACEMENT

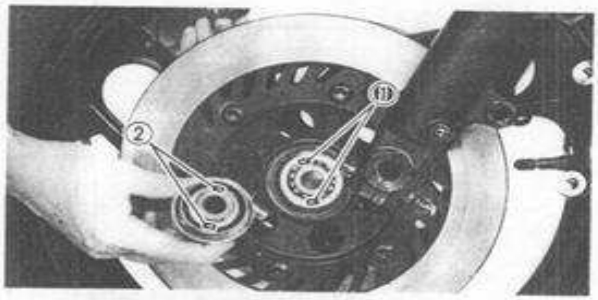
1. Inspect:
   - Wheel bearings
     Wheel hub play/Wheel turns roughly → Replace.

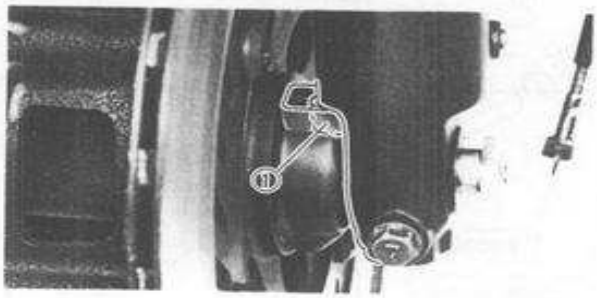


Wheel bearing replacement steps:
- Clean wheel hub exterior.
- Drive bearing out by pushing spacer aside and tapping around perimeter of bearing inner race. Use soft metal drift punch and hammer. The spacer ① "floats" between bearings. Remove both bearing as described.

WARNING:
Eye protection is recommended when using striking tools.

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





CAUTION:

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

INSTALLATION

1. Install
   - Front wheel

   Reverse removal procedure.

Front wheel installation points:

- Be sure the two projections ① inside the wheel hub are meshed with the two slots ② in the speedometer housing.
- 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 outer tube is positioned correctly.
- Tighten the axle.

	Front Axle. **58 Nm (5.8 m·kg, 42 ft·lb)**

- Tighten the axle pinch bolt.

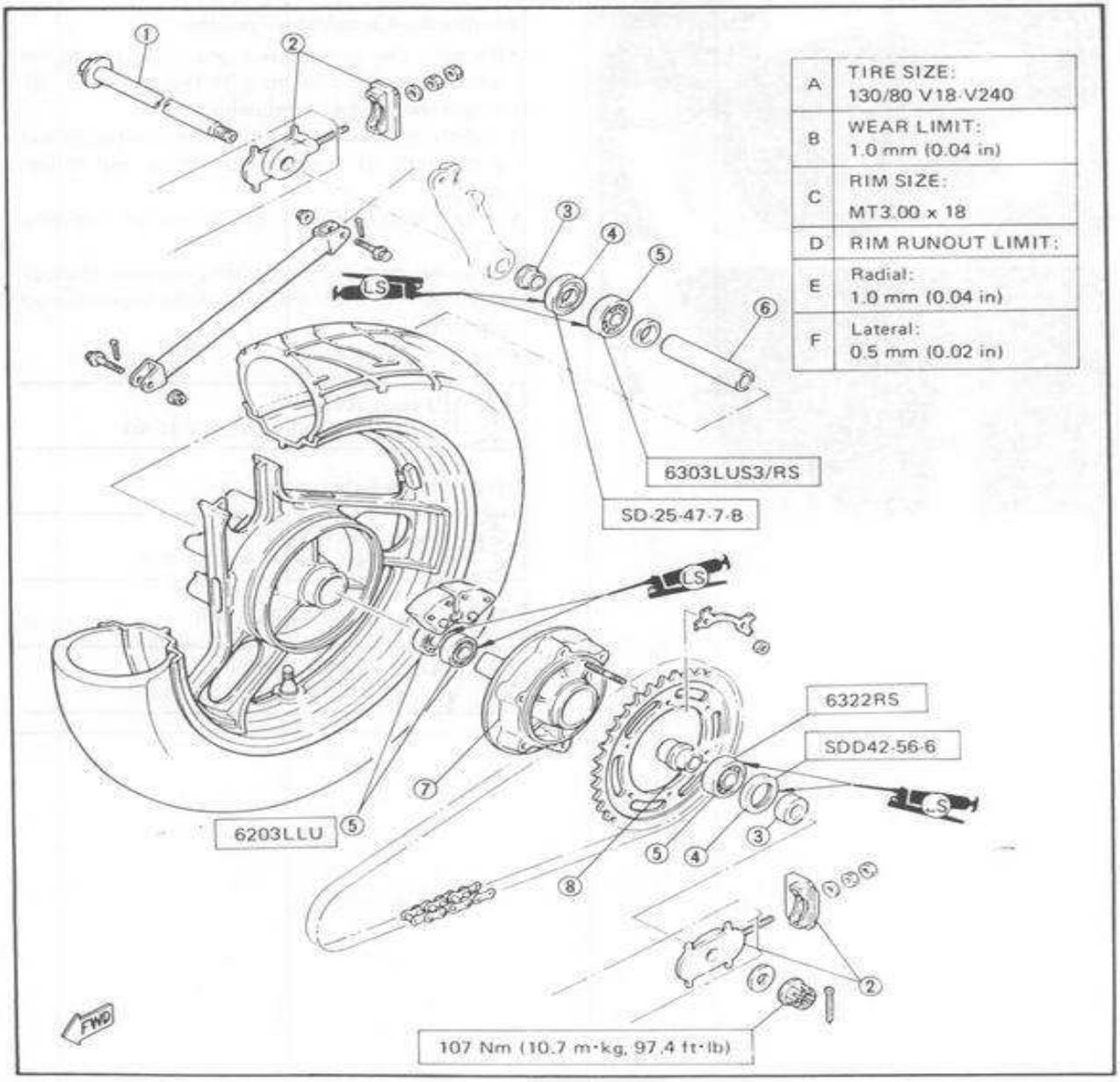
	Axle Pinch Bolt: **20 Nm (2.0 m·kg, 14 ft·lb)**

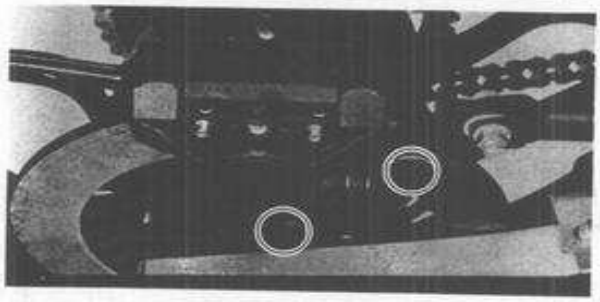
- Tighten the brake caliper bolt.

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

REAR WHEEL

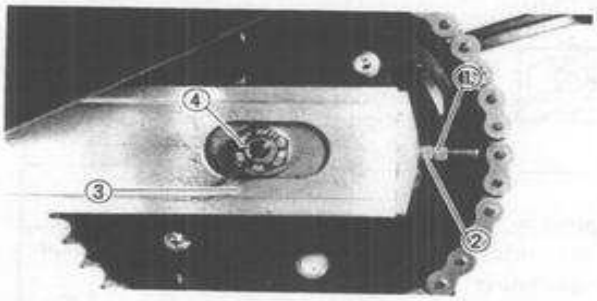
① Rear axle
② Drive chain puller
③ Collar
④ Oil seal
⑤ Bearing
⑥ Spacer
⑦ Clutch hub
⑧ Collar



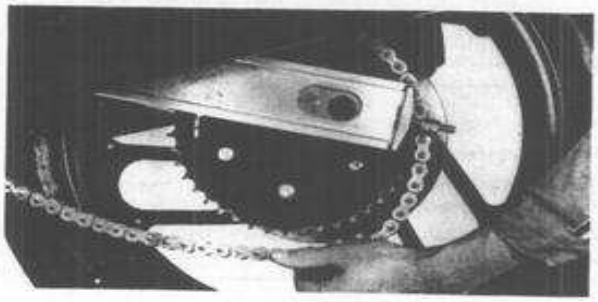


REMOVAL

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



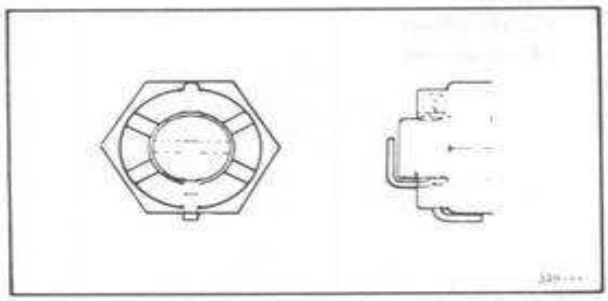
3. Loosen:
   - Locknut ①
   - Adjuster nut ②
4. Remove:
   - Cotter pin ③
   - Axle nut ④
   - Axle



5. Remove:
   - Drive chain
   - Rear wheel

INSPECTION

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



INSTALLATION

1. Install:
   - Rear wheel

   Reverse removal procedure.

Rear wheel installation points:
- Lightly grease lips of rear wheel oil seals and bearings.
- Adjust drive chain.
- Tighten

Rear Axle :
107 Nm (10.7 m·kg, 77.4 ft·lb)
Brake Caliper Bolts:
35 Nm (3.5 m·kg, 25 ft·lb)

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

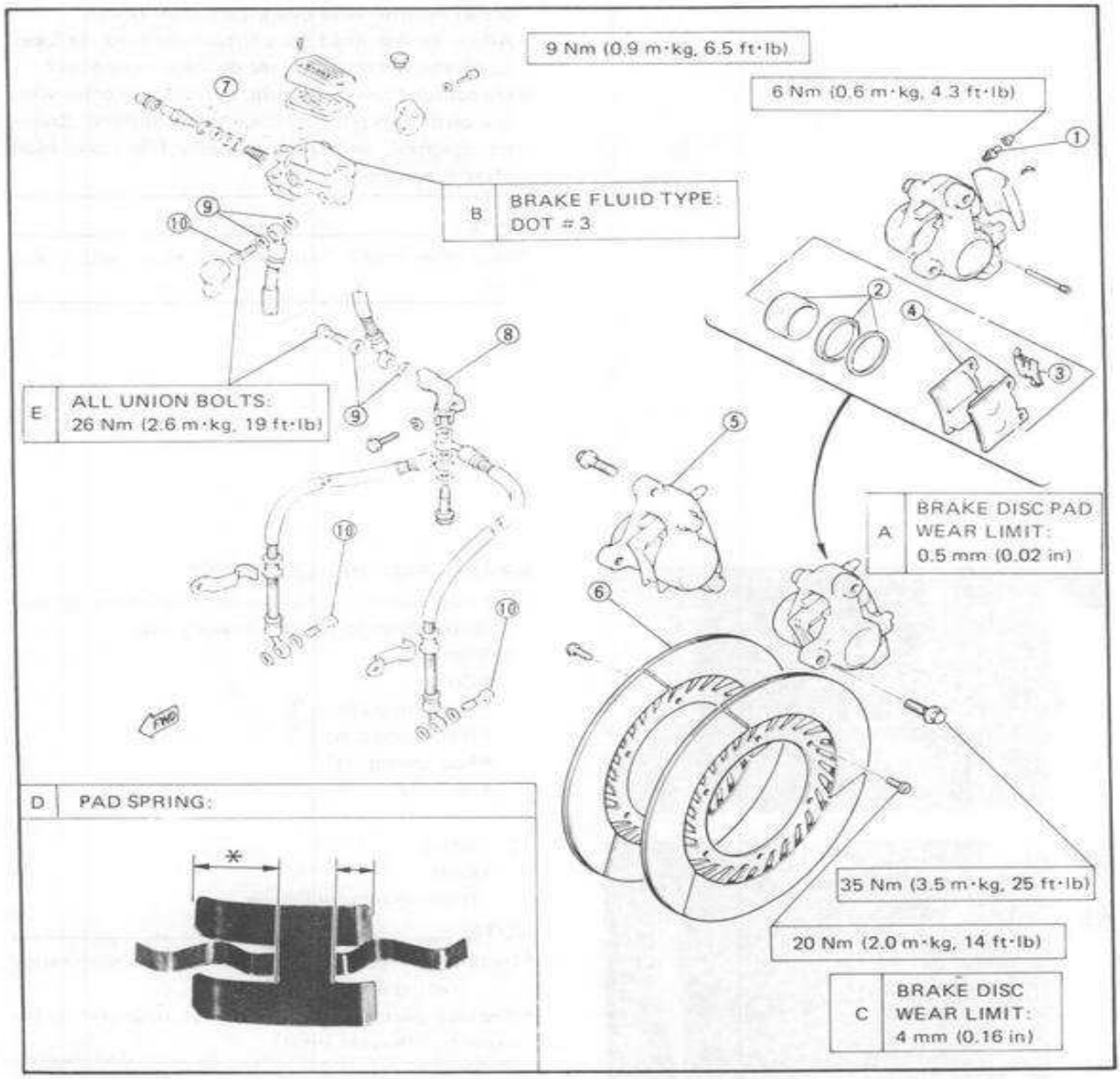
- Install the cotter pin.

WARNING:
Always use a new cotter pin on the axle nut.

FRONT BRAKE

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

NOTE:
Install the pad spring with its longer tangs (✱) in the disc rotation direction.



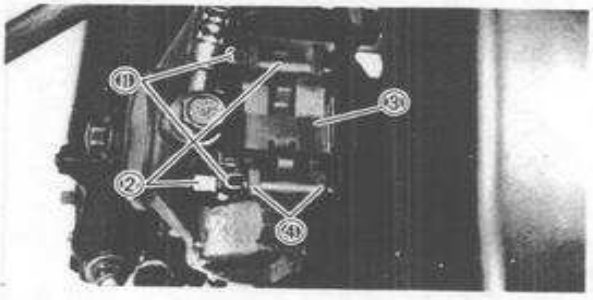
CAUTION:

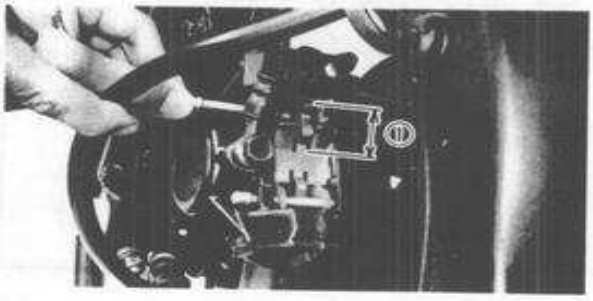
Disc brake components rarely require disassembly. DO NOT:

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

NOTE:

Drain the brake fluid before removing brake hose.





BRAKE PAD REPLACEMENT

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

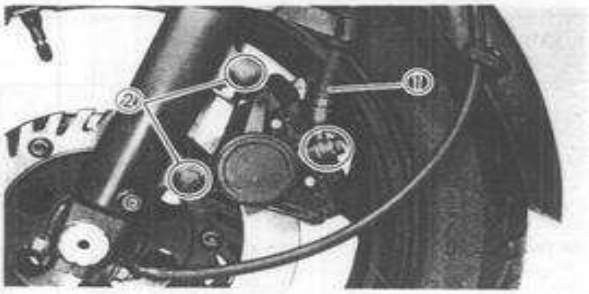
1. Remove:
   - Cover
   - Retaining clips ①
   - Retaining pins ②
   - Pad spring ③
   - Pads ④

2. Install:
   - Pads

   Reverse removal steps.

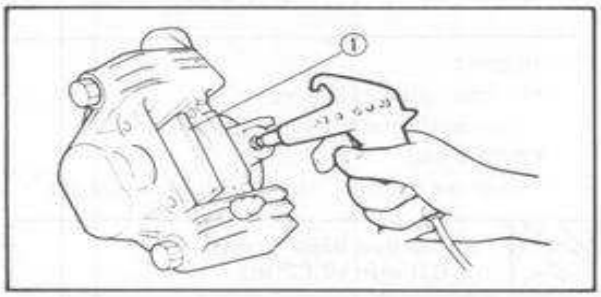
NOTE:

- Install the pad spring with its longer tangs 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



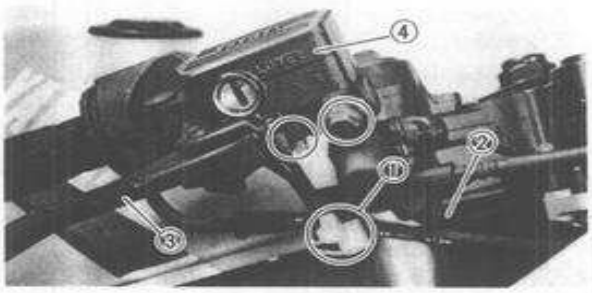
Caliper piston removal steps:

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

3. Remove:
   - Piston seal
   - Dust seal

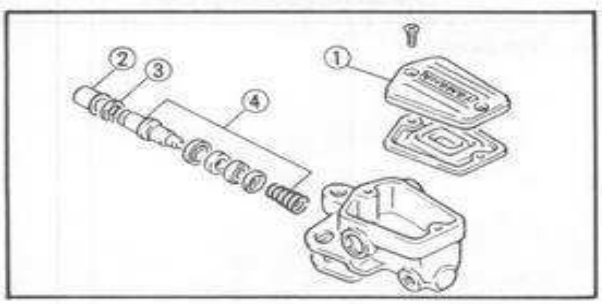
WARNING:

- **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 leads ①
   - Brake hose ②
   - Brake lever ③ and spring
   - Master cylinder assembly ④



2. Remove:
   - Cap ①
     Drain remaining fluid.
   - Master cylinder dust boot ②
   - Circlip ③
   - Master cylinder cup assembly.

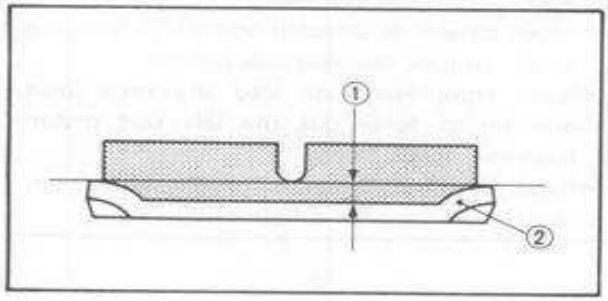
NOTE:

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

④ Master cylinder kit

INSPECTION AND REPAIR

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

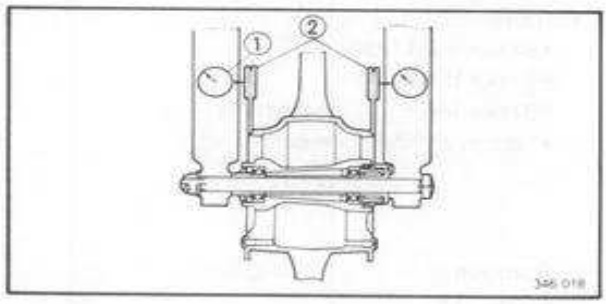


1. Inspect:
   - Caliper piston assembly
     Damage/Scratches → Replace.
   - Brake pad
     Over wear limit ① → Replace as a set.

Brake Pad Wear Limit:
0.5 mm (0.02 in)

② Wear Indicator

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



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

Maximum Deflection:
0.15 mm (0.006 in)
Minimum Disc Thickness:
6.5 mm (0.256 in) (Front)
7.5 mm (0.295 in) (Rear)

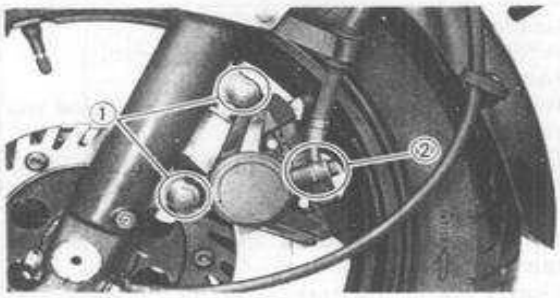
① Dial gauge

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.

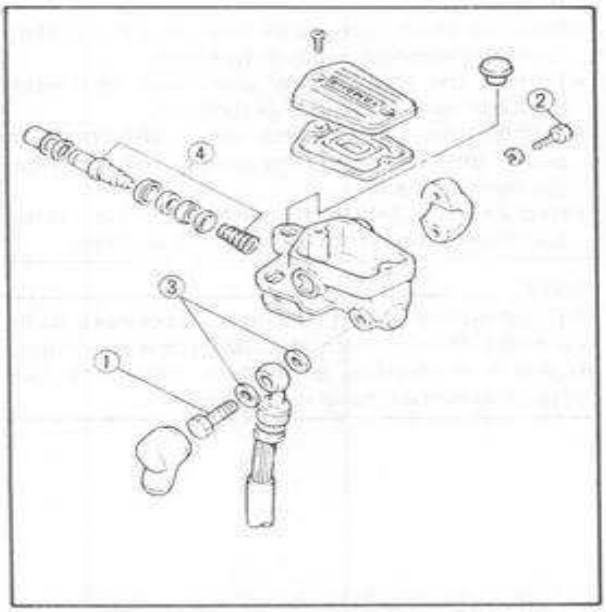


1. Install:
   - Caliper piston assembly
   - Brake pads
   - Caliper assembly
2. Tighten:

Caliper Securing Bolts ① :	35 Nm (3.5 m-kg, 25 ft-lb)
Brake Hose Union Bolts ② :	26 Nm (2.6 m-kg, 19 ft-lb)

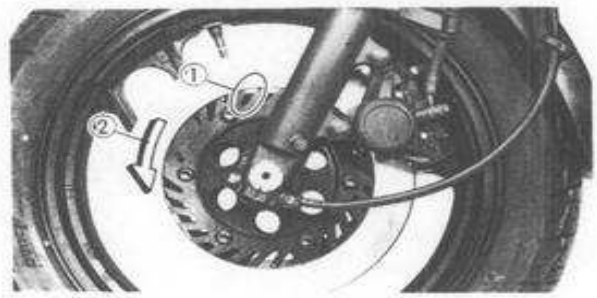
Master Cylinder

1. Assemble:
   - Master cylinder



Union Bolt ①:	26 Nm (2.6 m-kg, 19 ft-lb)
Master Cylinder Holding Bolt ② :	9.0 Nm (0.9 m-kg, 6.5 ft-lb)

③ Copper washer
④ Master cylinder kit



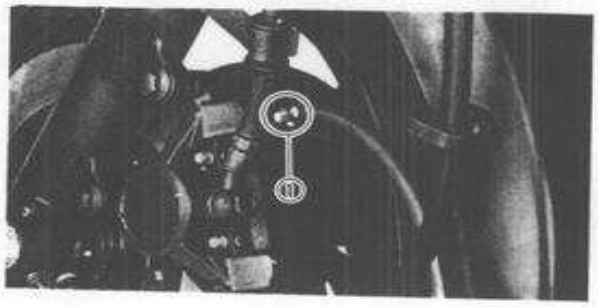
Brake Disc

1. Install:
   - Brake disc

NOTE:

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

① Slot
② Rotating direction



AIR BLEEDING

WARNING:

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

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

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

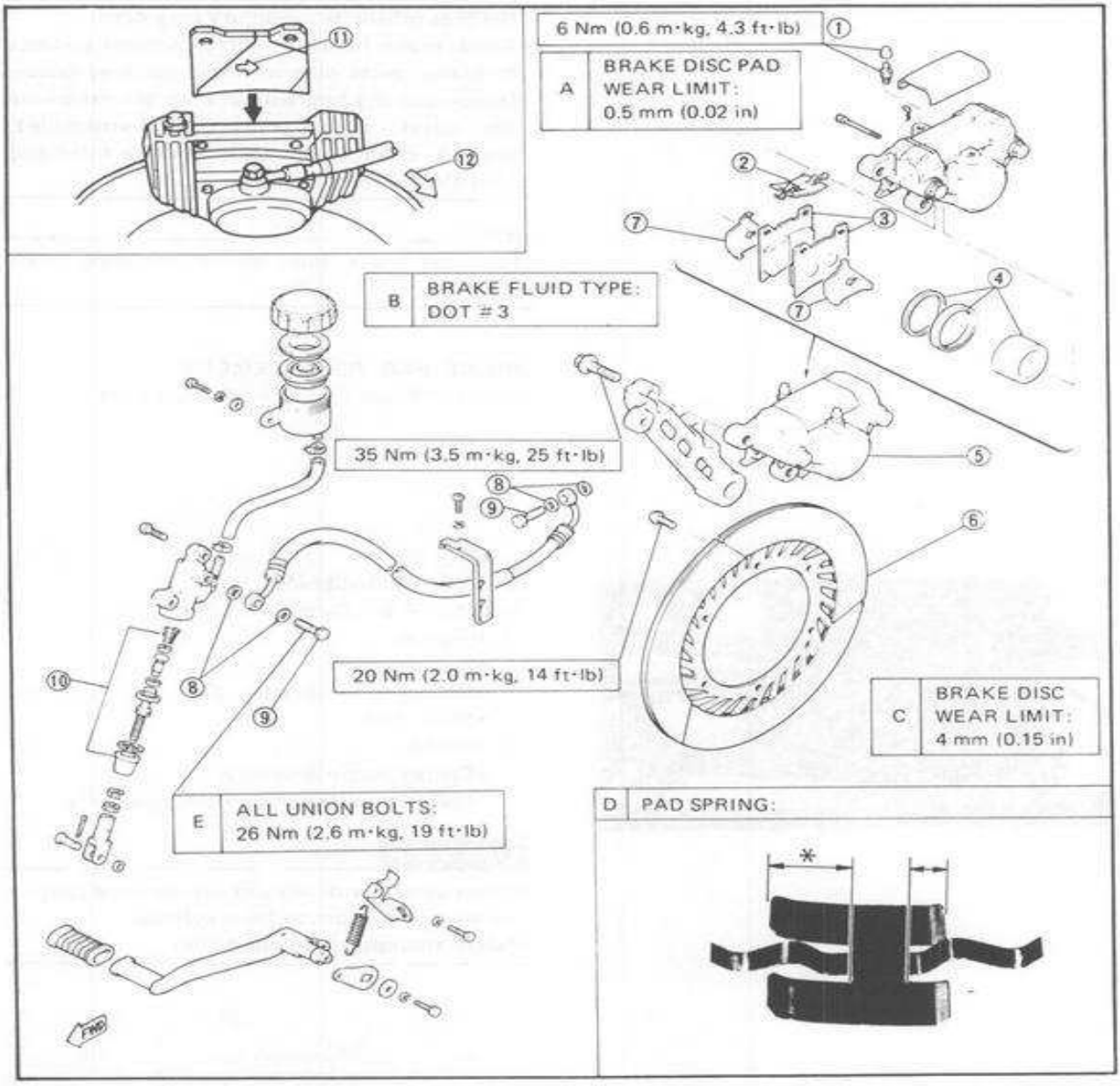
NOTE:

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

REAR BRAKE

① Bleed screw
② Pad spring
③ Brake pad
④ Caliper piston assembly
⑤ Brake caliper
⑥ Brake disc
⑦ Shim
⑧ Copper washer
⑨ Union bolt
⑩ Master cylinder kit

NOTE:
- Install the pad spring with its longer tangs (✳) in the disc rotation direction.
- Be sure to position the shim so that its arrow mark ⑪ points in the direciton of the disc plate rotation ⑫.



CAUTION:

Disc brake components rarely require disassembly. DO NOT :

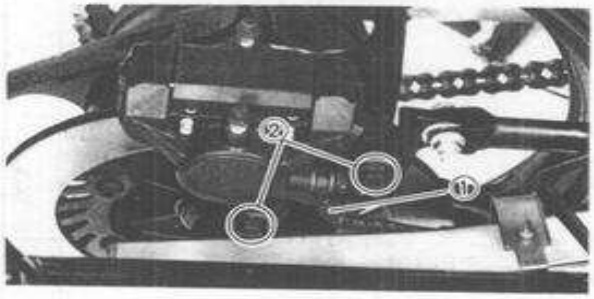
- Disassembly components unless absolutely necessary.
- Use solvents on internal brake component.
- Use contaminated brake fluid for cleaning.
- Use only clean brake fluid.
- Allow brake fluid to come in contact with the eyes otherwise eye injury may occur.
- Allow brake fluid to contact painted surfaces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

NOTE:

Drain the brake fluid before removing brake hose.

BRAKE PAD REPLACEMENT

Refer to "Front Brake Pad Replacement"



CALIPER DISASSEMBLY

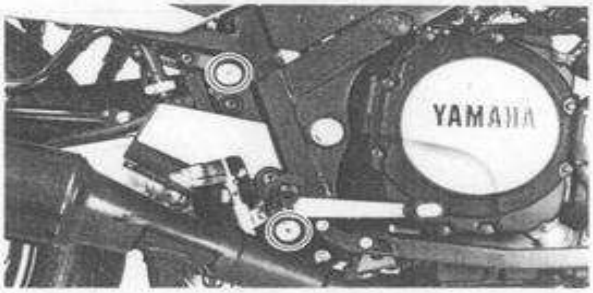
Refer to "Front Caliper Disassembly"

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

   Use compressed and procede carefully.

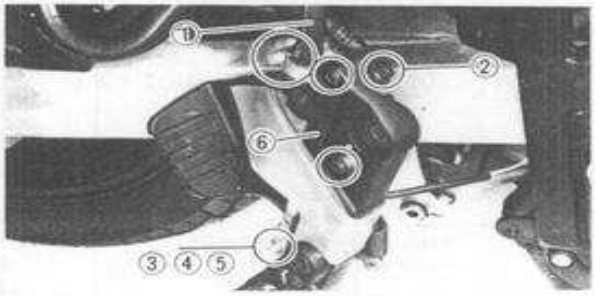
WARNING:

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

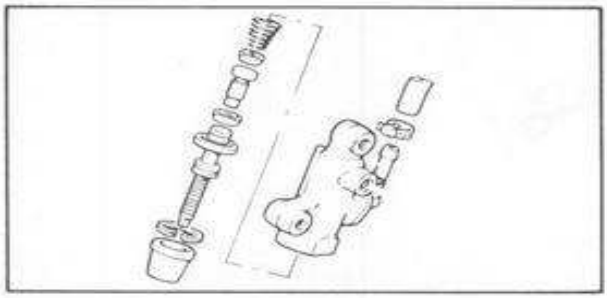


MASTER CYLINDER DISASSEMBLY

1. Remove:
   - Footrest and brake pedal assembly



2. Remove:
   - Brake hose ①
   - Union bolt ②
   - Cotter pin ③
   - Washer ④
   - Pivot pin ⑤
   - Master cylinder assembly ⑥



3. Remove:
   - Master cylinder kit (from master cylinder body)

INSPECTION AND REPAIR

Refer to "Front Brake Inspection and Repair".

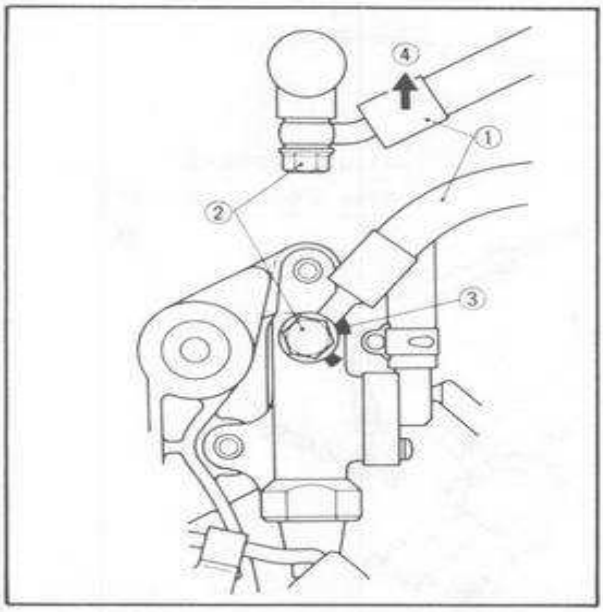
ASSEMBLY

Caliper

Refer to "Front Brake Caliper Assembly".

Master Cylinder

1. Assemble:
   - Master cylinder



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

2. Install:
   - Brake hose ①

	Union Bolt ②: 26 Nm (2.6 m·kg, 19 ft·lb)

CAUTION:

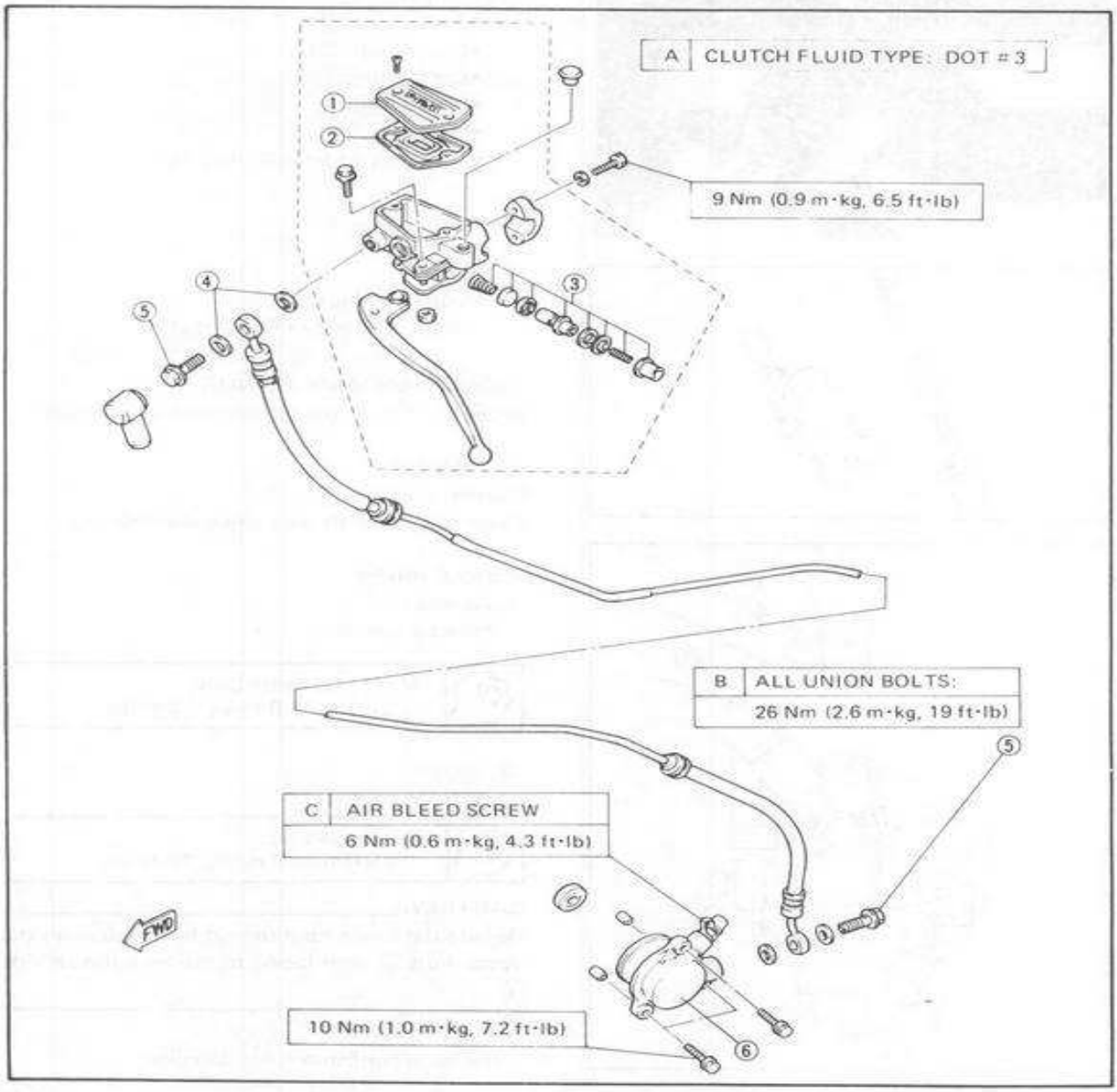
Be sure the brake hose should be installed on the upper boss ③ and facing to master cylinder side ④.

AIR BLEEDING

Refer to "Front Brake Air Bleeding".

HYDRAULIC CLUTCH

① Master cylinder cap
② Rubber seal
③ Master cylinder kit
④ Copper washer
⑤ Union bolt
⑥ Clutch release assembly



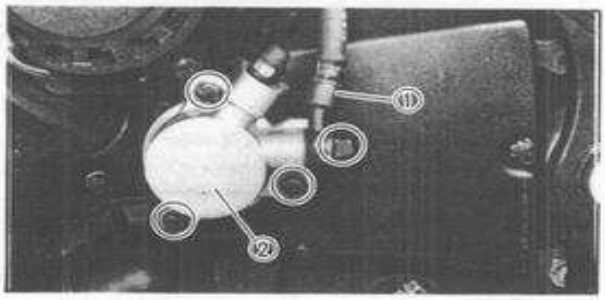
CAUTION:

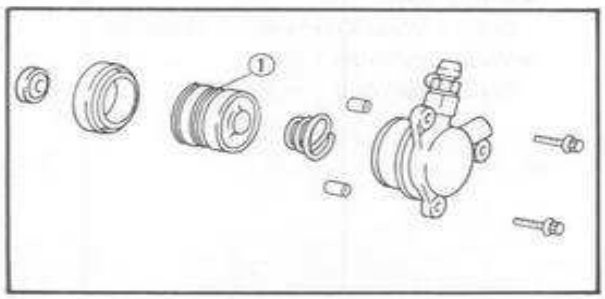
Hydraulic clutch components rarely require disassembly. DO NOT:

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

NOTE:

Drain the clutch fluid before removing clutch hose.





CLUTCH RELEASE DISASSEMBLY

1. Remove:
   - Clutch hose ①
   - Clutch release assembly ②
2. Remove:
   - Piston assembly

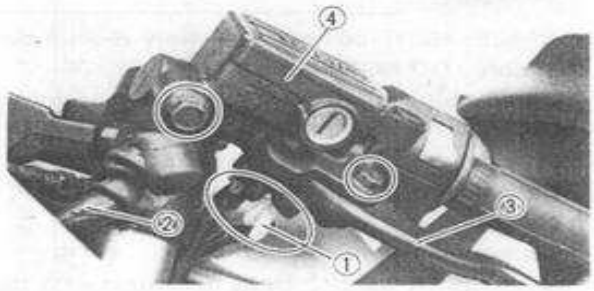
NOTE:

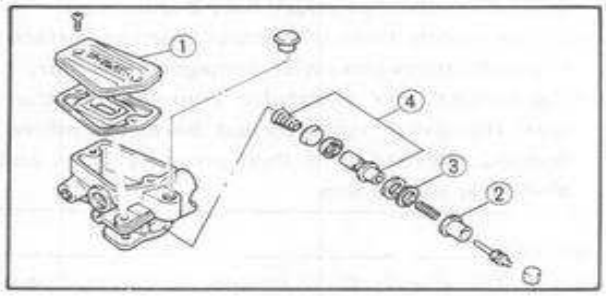
Blow compressed air into the hose joint opening to force out the piston from the release cylinder body.

① Piston seal

WARNING:

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





MASTER CYLINDER DISASSEMBLY

1. Remove:
   - Clutch switch leads ①
   - Clutch hose ②
   - Clutch lever ③ and spring
   - Master cylinder assembly ④

2. Remove:
   - Cap ①
     Drain remaining fluid
   - Master cylinder dust boot ②
   - Circlip ③
   - Master cylinder cup assembly.

NOTE:

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

④ Master cylinder kit

INSPECTION AND REPAIR

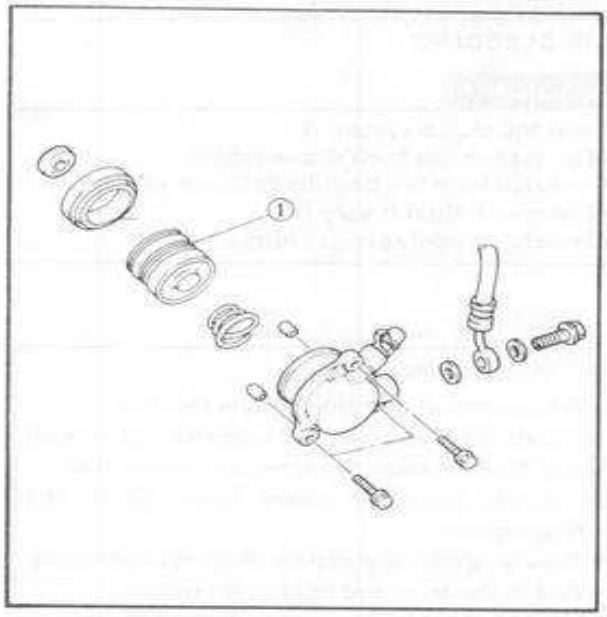
Recommended Clutch Component Replacement Schedule	
Piston seal, dust seal	Every two years
Clutch hoses	Every four years
Clutch fluid	Replace only when Clutch is disassembled

1. Inspect:
   - Master cylinder body
     Scratches/Wear → Replace.

NOTE:

Clean all passages with new clutch fluid.

   - Brake hose:
     Cracks/Wear/Damage → Replace.
   - Master cylinder kit
     Scratches/Wear → Replace.



2. Inspect:
   - Release cylinder body
     Scratches/Wear → Replace.

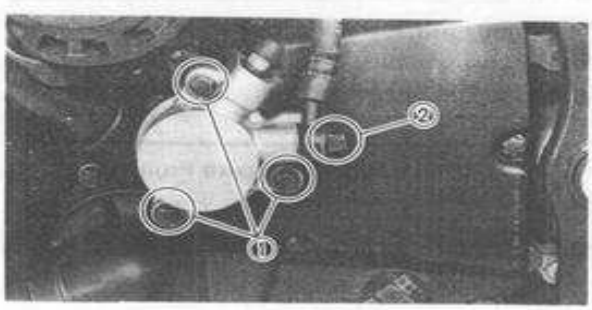
NOTE:
Clean all passage with new clutch fluid.

   - Clutch hoses
     Cracks/Wear/Damage → Replace.
   - Piston
     Scratches/Wear → Replace.
   - Piston seal ①
     Scratches/Wear → Replace.

ASSEMBLY

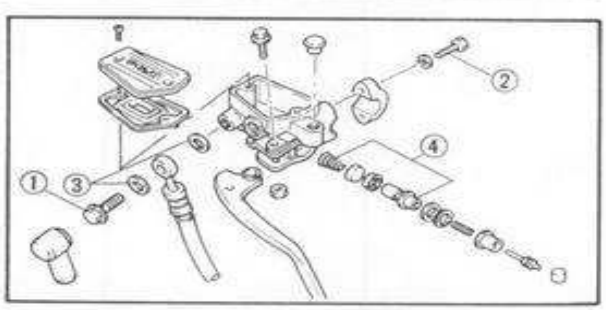
Clutch Release

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



1. Install:
   - Piston assembly
   - Clutch release assembly
2. Tighten:

Clutch Release Securing Bolts ① :
10 Nm (1.0 m-kg, 7.2 ft-lb)
Clutch Hose Union Bolt ② :
26 Nm (2.6 m-kg, 19 ft-lb)



Master Cylinder

1. Assemble:
   - Master cylinder

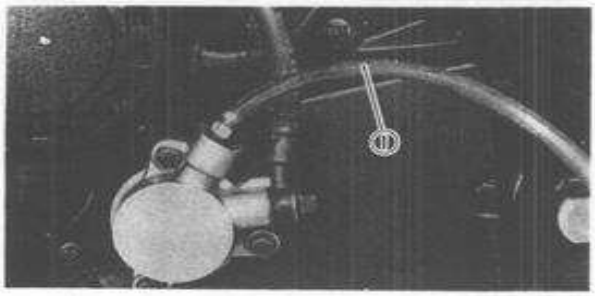
Union Bolt ① :
26 Nm (2.6 m-kg, 19 ft-lb)
Master Cylinder Holding Bolt ② :
9.0 Nm (0.9 m-kg, 6.5 ft-lb)

③ Copper washer
④ Master cylinder kit

AIR BLEEDING

WARNING:

Bleed the clutch system if:
- **The system has been disassembled.**
- **A clutch hose has been loosened or removed.**
- **The clutch fluid is very low.**
- **The clutch operation is faulty.**



Air bleeding steps:
- Add proper clutch fluid to the reservoir.
- Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.
- Connect the clear plastic hose ① to the bleed screw.
- Slowly apply the clutch lever several times.
- Pull in the lever and hold it in position.
- Loosen the bleed screw and allow the lever to travel slowly toward its limit.
- Tighten the bleed screw when the lever has reached its limit, then release the lever.
- Repeat above steps until all of the air bubbles have been removed from the system.

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

NOTE:

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

Clutch Fluid (Use Brake Fluid):
DOT #3

FRONT FORK

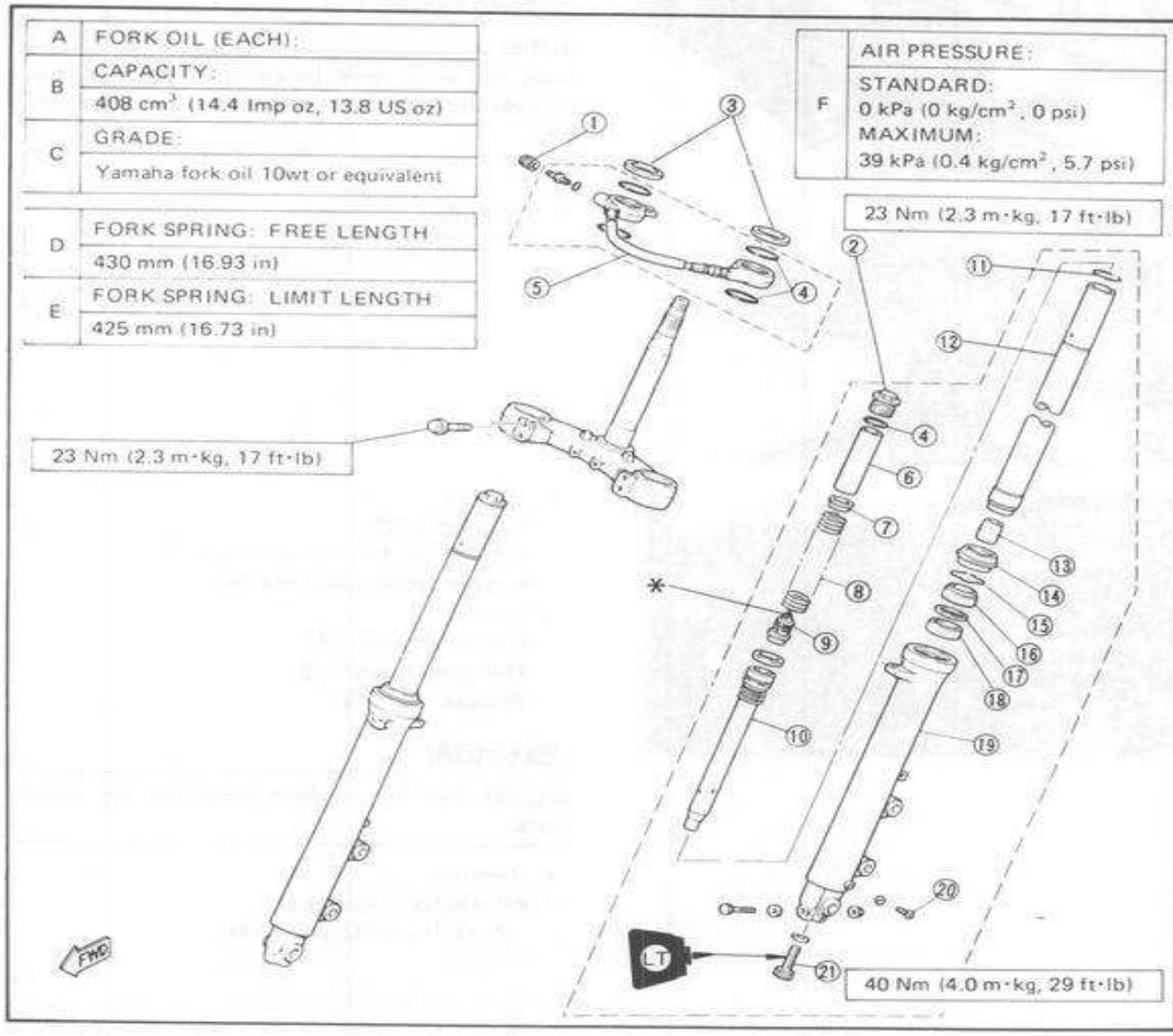
① Air valve cap
② Cap bolt
③ Rubber spacer
④ O-ring
⑤ Air joint bracket
⑥ Collar
⑦ Spring seat
⑧ Fork spring
⑨ Variable damper
⑩ Damper rod
⑪ Stopper ring
⑫ Inner fork tube
⑬ Taper spindle
⑭ Dust seal
⑮ Retaining clip
⑯ Oil seal
⑰ Plate washer
⑱ Guide bushing
⑲ Outer fork tube
⑳ Drain screw
㉑ Damper rod securing bolt

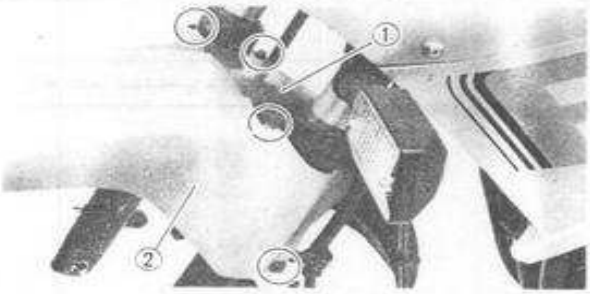
CAUTION:
Be sure the locknut (✱) side face upward.

A	FORK OIL (EACH):
B	CAPACITY: 408 cm³ (14.4 Imp oz, 13.8 US oz)
C	GRADE: Yamaha fork oil 10wt or equivalent

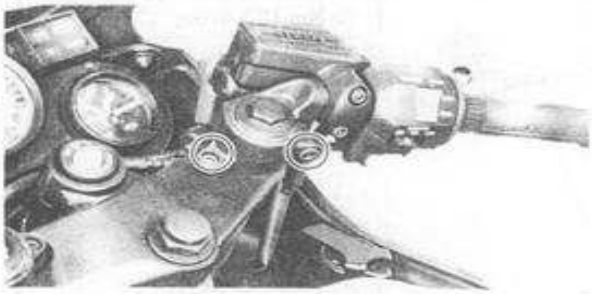
D	FORK SPRING: FREE LENGTH 430 mm (16.93 in)
E	FORK SPRING: LIMIT LENGTH 425 mm (16.73 in)

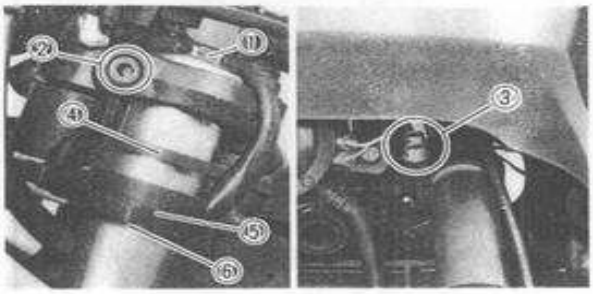
F	AIR PRESSURE: STANDARD: 0 kPa (0 kg/cm², 0 psi) MAXIMUM: 39 kPa (0.4 kg/cm², 5.7 psi)











REMOVAL AND DISASSEMBLY

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Remove:
   - Front wheel
   - Fork brace ①
   - Front fender ②

WARNING:

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

3. 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.

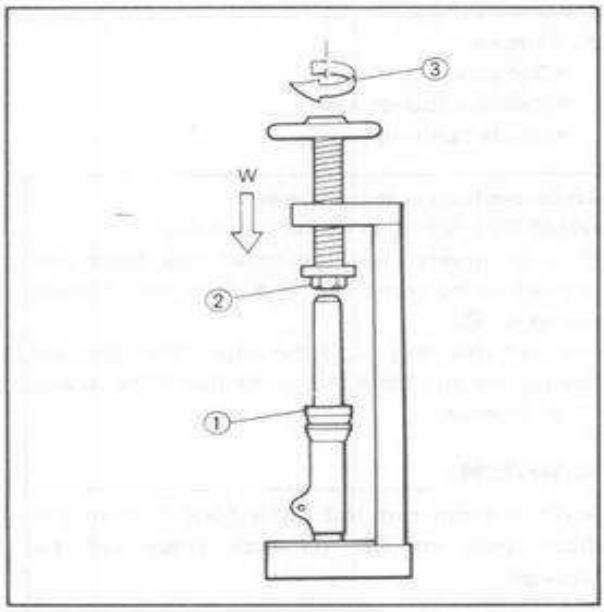
4. Remove:
   - Handlebar assembly

5. Loosen:
   - Cap bolt ①
   - Upper front fork pinch bolt ②
   - Lower front fork pinch bolt ③
6. Remove:
   - Rubber spacer ④
   - Air joint bracket ⑤
   - Stopper ring ⑥

CAUTION:

Support the fork before loosening the pinch bolts.

7. Remove:
   - Front fork assembly (from the undder bracket)



8. Remove:
   - Cap bolt
   - Collar
   - Spring seat
   - Fork spring
   - Variable damper
   - Dust seal
   - Retaining clip
9. Fill:
   - Fork inner tube (with fork oil)

   Stretch the inner tube before filling.
10. Install:
    - Cap bolt
11. Remove:
    - Oil seal (from outer tube.)

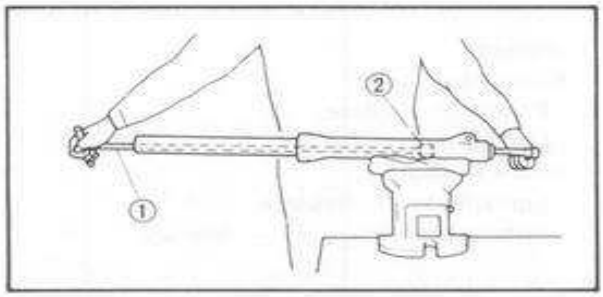
    Press the inner tube to facilitate removal.

① Wrap with rag
② Spacer
③ Turn slowly

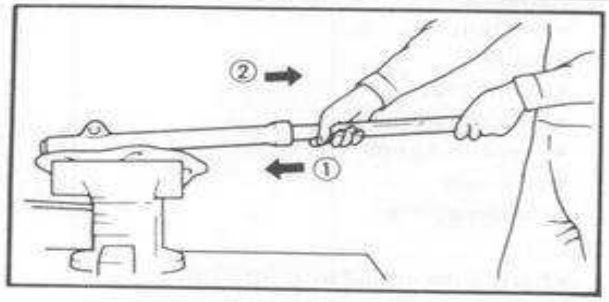
CAUTION:

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

12. Remove:
    - Oil seal
    - Cap bolt
13. Drain:
    - Fork



14. Remove:
    - Damper rod securing bolt
    - Use T-handle ① (YM-01326) and Fork Damper Rod Holder (YM-01397) ② to lock the damper rod.



15. Remove:
    - Damper rod
    - Damper rod spring
    - Guide bushing

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

CAUTION:

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

16. Remove:
    - Inner fork tube
    - Taper spindle

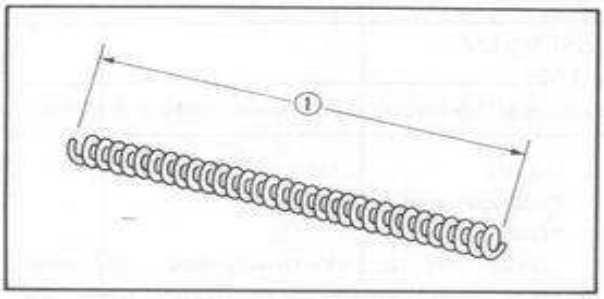
INSPECTION

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

WARNING:

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

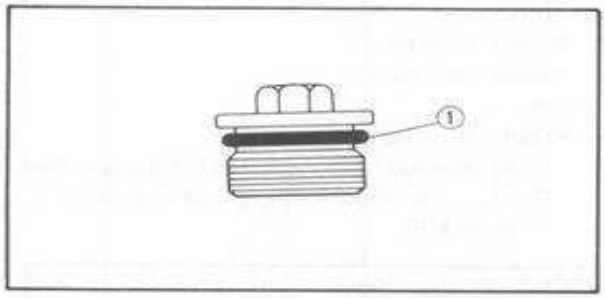
2. Inspect:
    - Outer fork tube
      Bends → Replace.
      Damaged fork seal seat → Replace.
    - Fork oil seal
      Lip damage → Replace.
      Outer surface damage → Replace.



3. Inspect.
   - Fork spring ①

   Over specified limit → Replace.

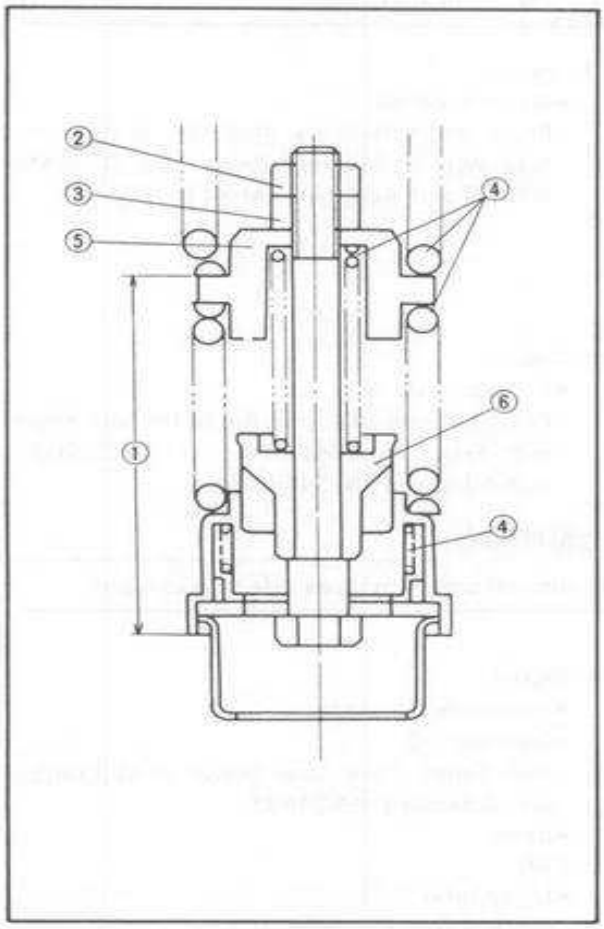
Fork Spring Free Length Limit:
425 mm (16.73 in)



4. Inspect:
   - Damper rod

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

   Damage → Replace.



5. Measure:
   - Variable damper height ①

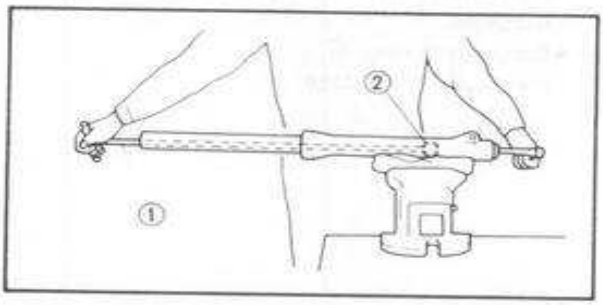
   Out of specification → Adjust.

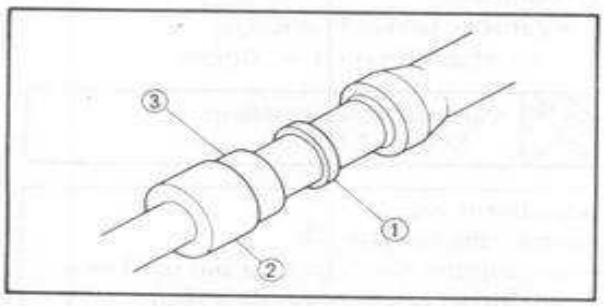
Variable Damper Height:
42 mm (1.65 in)

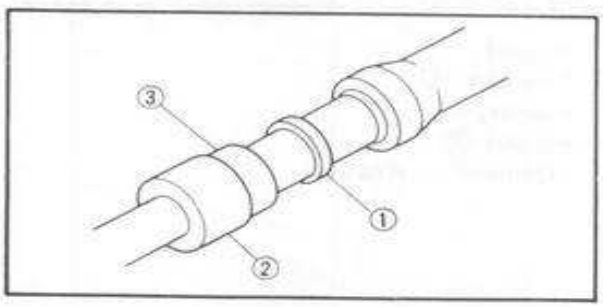
Adjustment steps:
- Loosen the locknut ②
- Turn adjuster nut ③ in or out until variable damper height is specified value.

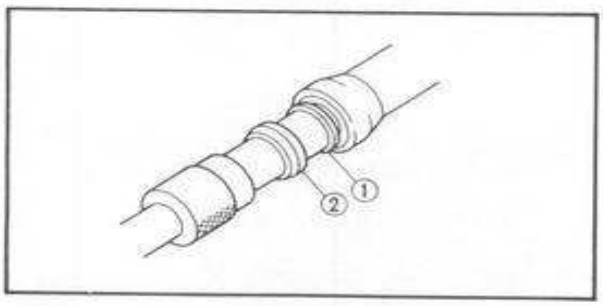
6. Inspect:
   - Springs ④
   - Spring seat ⑤
   - Spool ⑥

   Damage → Replace.









ASSEMBLY

NOTE:

Be sure all components are clean before assembly.

1. Install:
   - Damper rod spring
   - Damper rod

   Allow rod to slide slowly down the inner fork tube until it protrudes from the bottom.
   - Taper spindle
   - Inner fork tube
2. Install:
   - Damper rod securing bolt

   Hold damper rod with Fork Damper Rod Holder ② (YM-01397) and T-handle ① (YM-01326).

40 Nm (4.0 m·kg, 29 ft·lb)
LOCTITE®

3. Install:
   - Guide bushing ①

   Press guide bushing into the outer fork tube with Front Fork Seal Driver ② (YM-33963) and Adapter (YM-34482) ③.

4. Install:
   - Fork oil seal ①

   Press fork oil seal into the outer fork tube with Front Fork Seal Driver ② (YM-33963) and Adapter (YM-34482) ③.

CAUTION:

Be sure oil seal numbered side face upward.

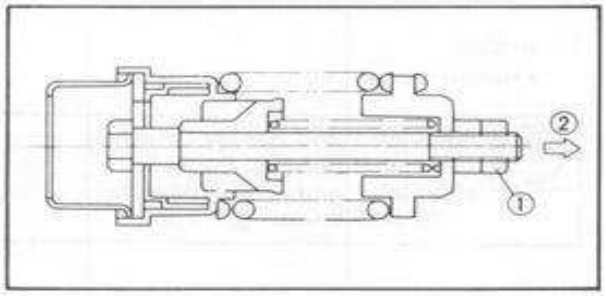
5. Install:
   - Retaining clip ①
   - Dust seal ②

   Use Front Fork Seal Driver (YM-33963) and Adapter (YM-34482).
   - Boot
6. Fill:
   - Inner tube

   (with fork oil)

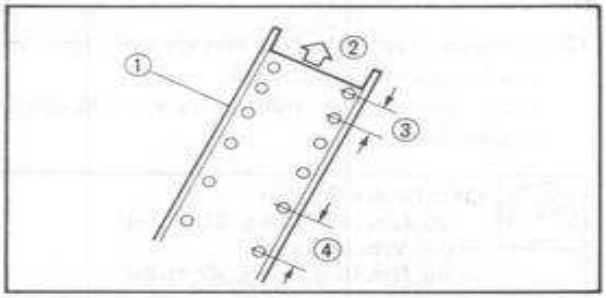
Capacity (each):
408 cm³ (14.4 Imp oz, 13.8 US oz)
Type:
Yamaha fork oil 10wt or equivalent

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



7. Install.
   - Variable damper (into the inner tube)

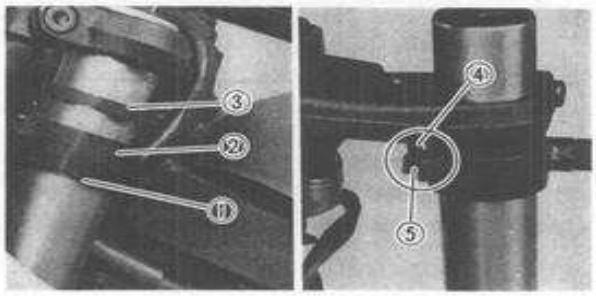
CAUTION:
Be sure the locknut ① side face upward ②.



8. Install:
   - Fork spring

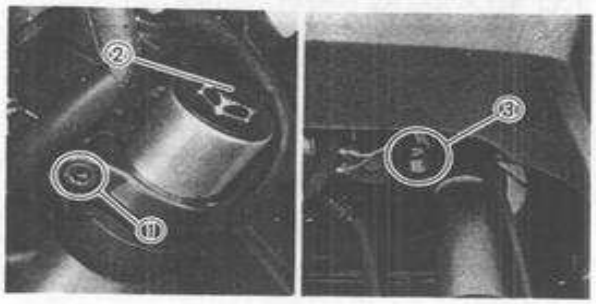
NOTE:
Be sure the short pitch ③ side face upward ②.

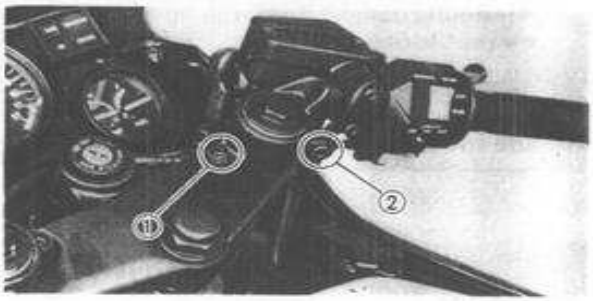
① Inner tube
- Spring seat
- Collar
- Cap bolt
  (into the inner fork tube)



9. Install:
   - Front fork assembly
     (into the underbracket)
   - Stopper ring ①
   - Air joint bracket ②
   - Rubber spacer ③

NOTE:
- Mesh the handle crown projection ④ with the air joint slot ⑤.





10. Tighten:
    - Upper front fork pinch bolts ①
    - Cap bolt ②
    - Lower front fork pinch bolts ③

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

11. Install:
    - Handlebar assembly

Handlebar and Handle Crown ①: **9 Nm (0.9 m·kg, 6.5 ft·lb)** **Handlebar and Inner Tube ②:** **20 Nm (2.0 m·kg, 14 ft·lb)**

12. 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:** **58 Nm (5.8 m·kg, 42 ft·lb)**



13. Fill:
    - Front fork (with air)

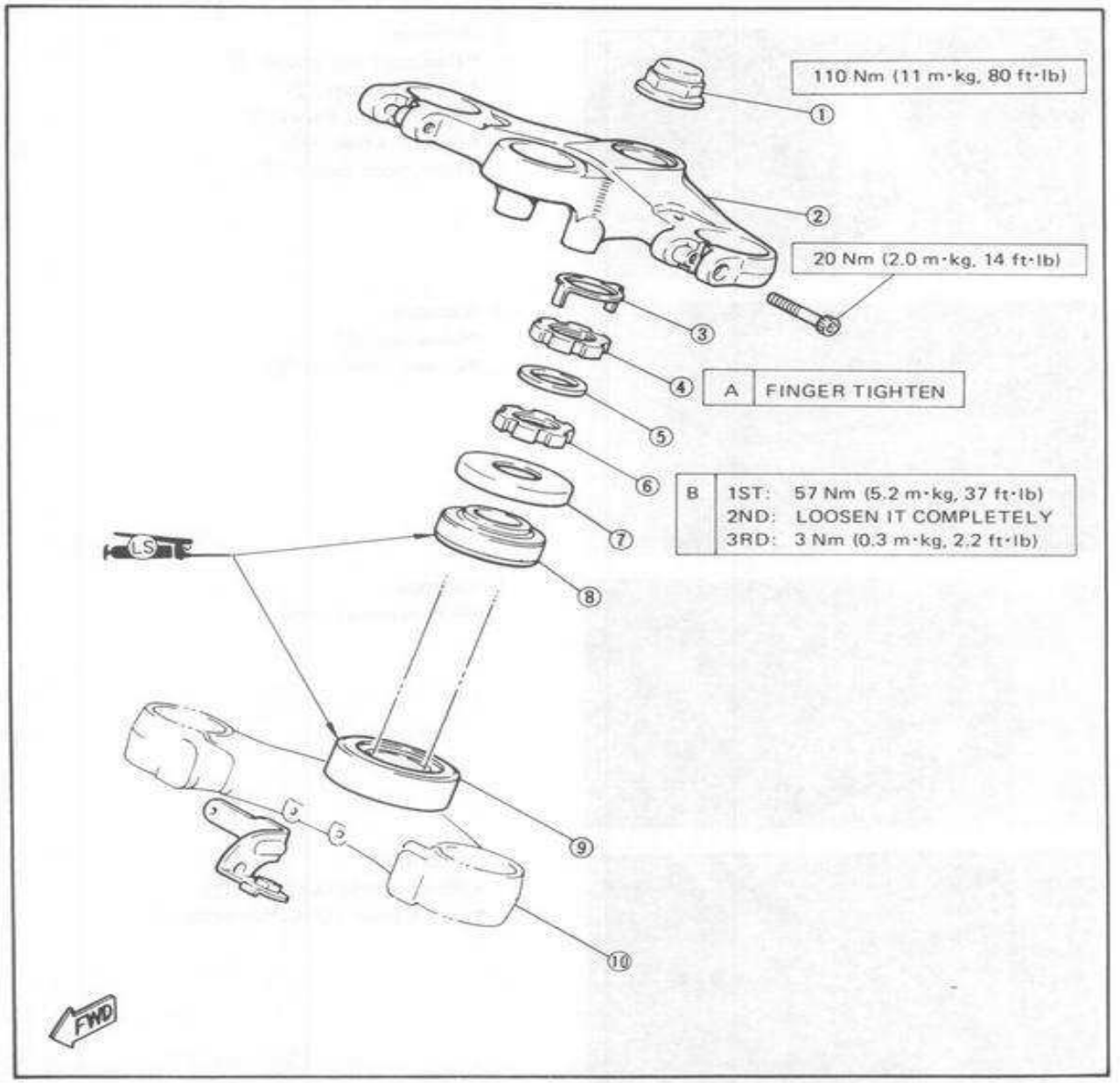
Maximum Air Pressure: **39 kPa (0.4 kg/cm², 5.7 psi)**

① Air check gauge

14. Install:
    - Air valve cap

STEERING HEAD

① Steering stem nut
② Handle crown
③ Lock washer
④ Upper ring nut
⑤ Washer
⑥ Lower ring nut
⑦ Bearing cover
⑧ Bearing (Upper)
⑨ Bearing (Lower)
⑩ Steering stem

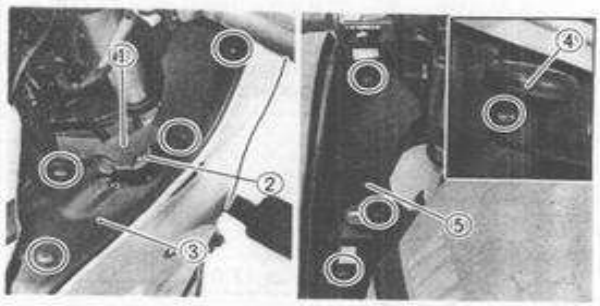


ADJUSTMENT

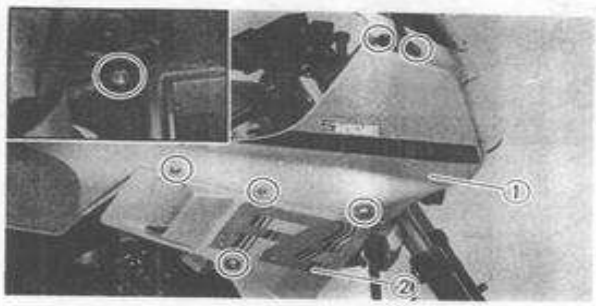
Refer to Chapter 2. "STEERING HEAD ADJUSTMENT".

REMOVAL

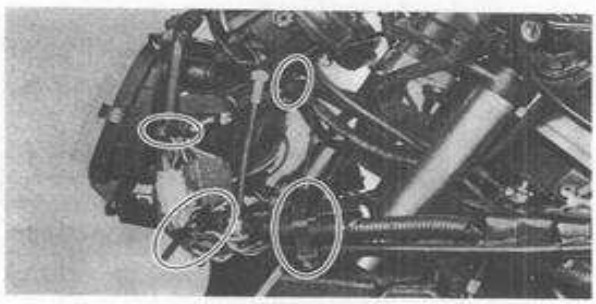
1. Remove:
   - Front wheel
   - Front fender



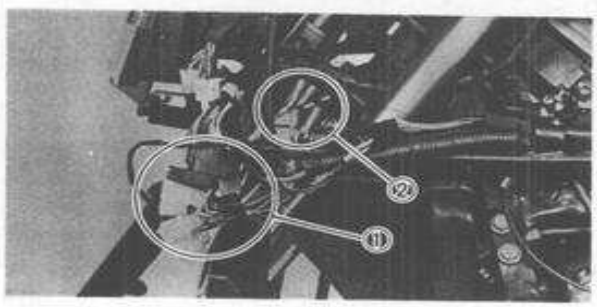
2. Remove:
   - Radiator cap cover ①
   - Radiator cap ②
   - Right front panel ③
   - Starter knob ④
   - Left front panel ⑤



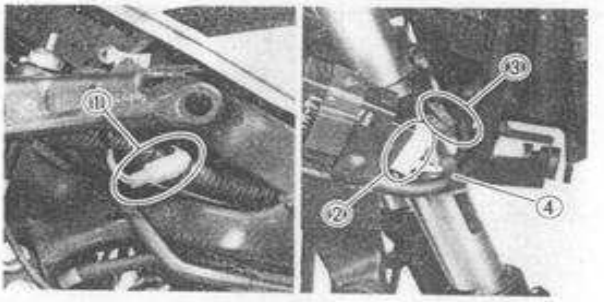
3. Remove:
   - Cowling ①
   - Lower cowling ②



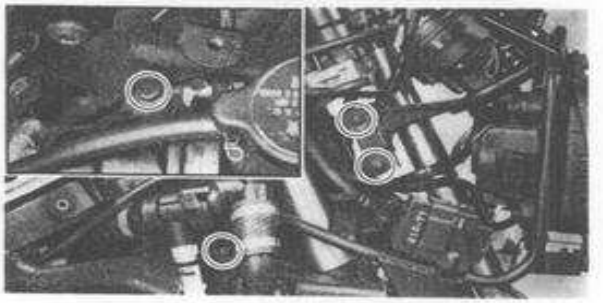
4. Remove:
   - Wire harness band



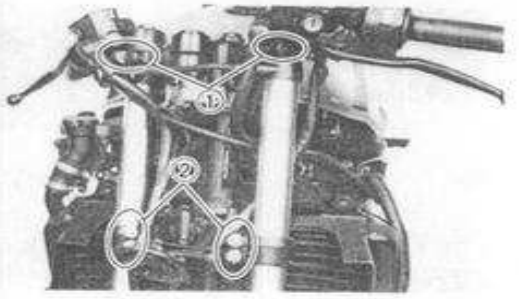
5. Disconnect:
   - Wire harness couplers ①
   - Left flasher light connecter ②



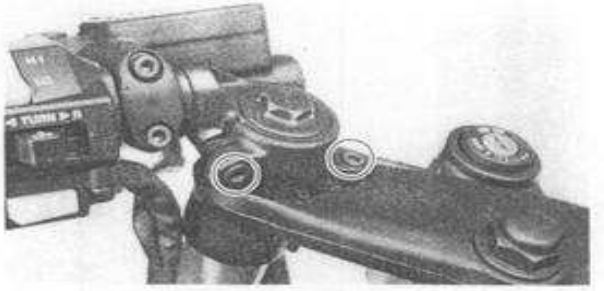
6. Disconnect:
   - Reserve switch coupler ①
   - Relay assembly coupler ②
   - Right flasher light connecter ③
7. Remove:
   - Band ④



8. Remove:
   - Cowling stay, headlight, meter panel assembly.



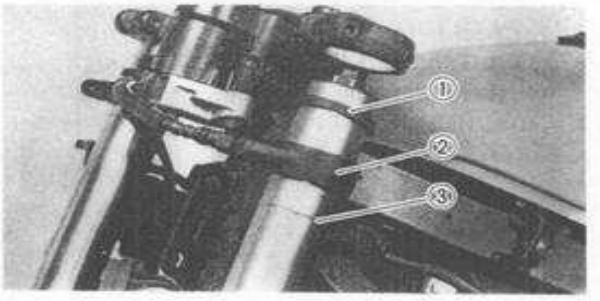
9. Loosen:
   - Upper front fork pinch bolts ①
   - Lower front fork pinch bolts ②



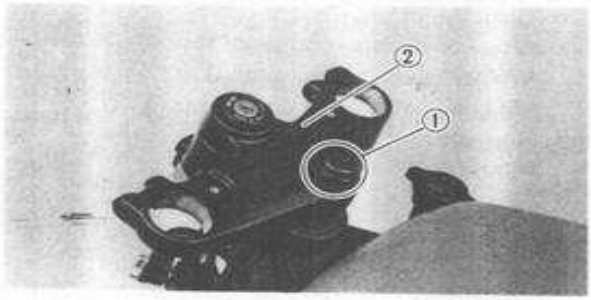
10. Remove:
    - Handlebar assembly

CAUTION:

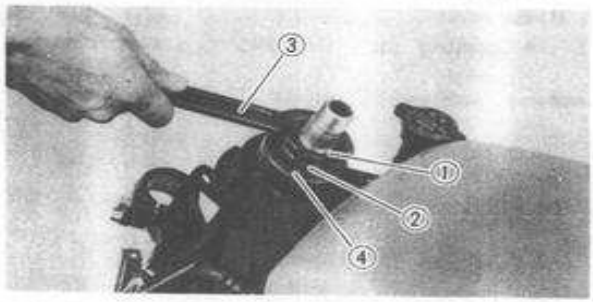
Support the fork before loosening the pinch bolts.



11. Remove:
    - Rubber spacer ①
    - Air joint bracket ②
    - Stopper ring ③

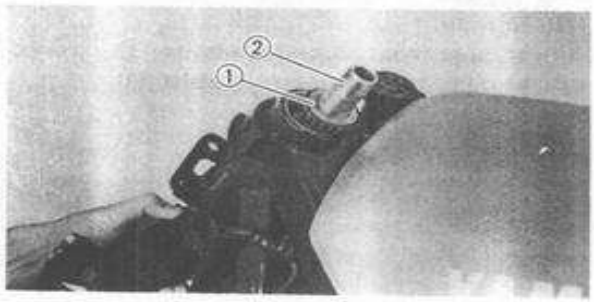


12. Remove:
- Steering stem nut ①
- Handle crown ②

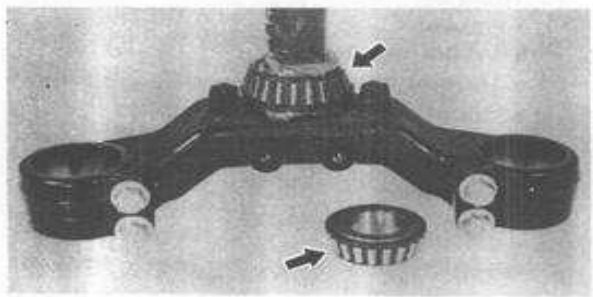


13. Remove:
- Lock washer
- Upper ring nut ①
- Washer
- Lower ring nut ②

Use Ring Nut Wrench ③ (YU-01268).
- Bearing cover ④



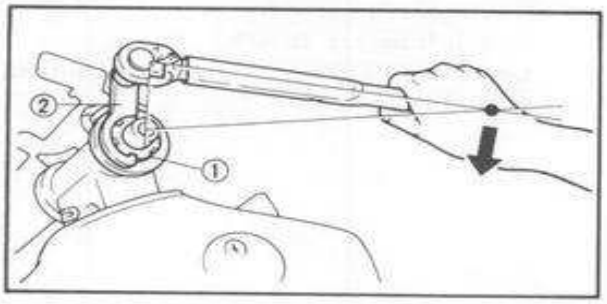
14. Remove:
- Upper bearing ①
- Steering stem ②



INSPECTION

1. Check:
- Bearing

Pitting/Damage → Replace bearing.



ASSEMBLY

1. Lubricate:
   - Bearings

	Wheel Bearing Grease

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

	Lower Ring Nut: **1st: 52 Nm (5.2 m·kg, 37 ft·lb)** **2nd: Loosen it completely.** **3rd: 3 Nm (0.3 m·kg, 2.2 ft·lb)**

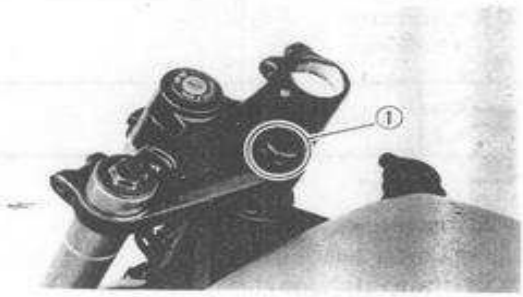
Use Ring Nut Wrench ② (YU-33975).

4. Install:
   - Washer
   - Upper ring nut

NOTE:
- Finger Tighten the upper ring nut.
- If the upper ring nut groove is not aligned with the lower ring nut groove, align upper groove to lower groove by tightening up.

5. Install:
   - Lock washer
   - Handle crown
6. Position:
   - Front fork (into handle crown)

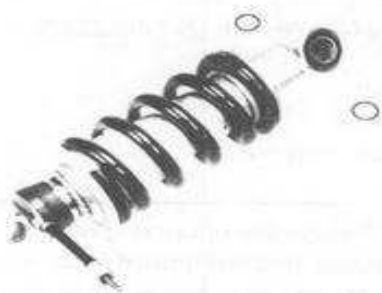
   This will facilitate alignment of under bracket holes with handle crown holes.



7. Tighten:
   - Steering stem nut (1)

Steering Stem Nut: 110 Nm (11 m-kg, 80 ft-lb)

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



REAR SHOCK ABSORBER/REAR ARMS

HANDLING NOTES

WARNING:

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

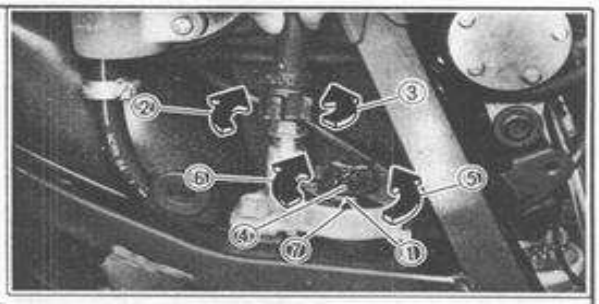
- Do not tamper or attempt to open the cylinder assembly.
- Do not subject shock absorber to an open flame or other high heat. This may cause the unit to explode due to excessive gas pressure.
- Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.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

REAR SHOCK ABSORBER/REAR ARMS

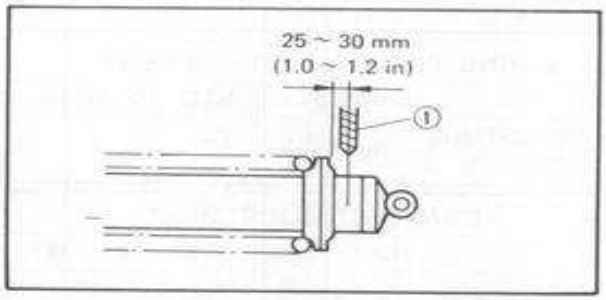
① Spring preload adjuster
② Hard
③ Soft
④ Damping adjuster
⑤ Hard
⑥ Soft
⑦ Matching mark
⑧ Remote control unit
⑨ Collar
⑩ Bushing
⑪ O-ring
⑫ Rear shock absorber assembly
⑬ Relay arm
⑭ Connecting rod
⑮ Oil seal
⑯ Thrust cover
⑰ Bearing

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

DAMPING ADJUSTMENT:					
	Hard ⑤			STD	Soft ⑥
ADJUSTING POSITION ④	5	4	3	2	1



REAR SHOCK ABSORBER/REAR ARMS



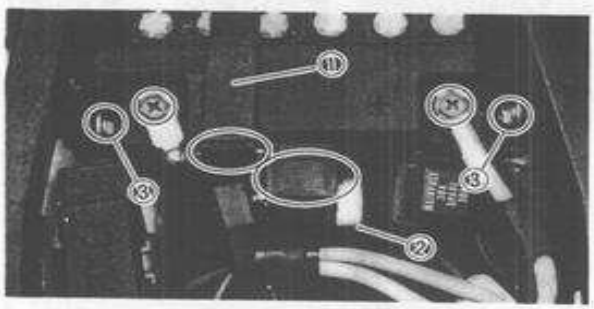
Shock absorber disposal steps:
Gas pressure must be released before disposing shock absorber. To do so, drill ① a 2 ~ 3 mm (0.08 ~ 0.12 in) hole through the cylinder wall at a point 25 ~ 30 mm (1.0 ~ 1.2 in) under the spring seat.

CAUTION:

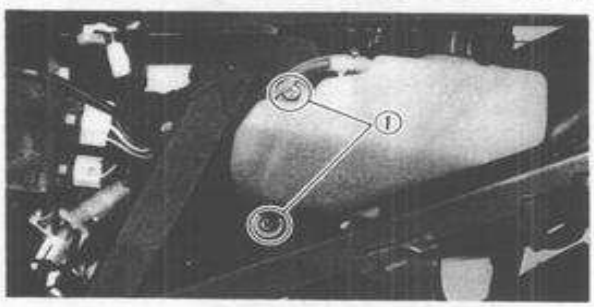
Wear eye protection to prevent eye damage from escaping gas and/or metal chips.

REMOVAL

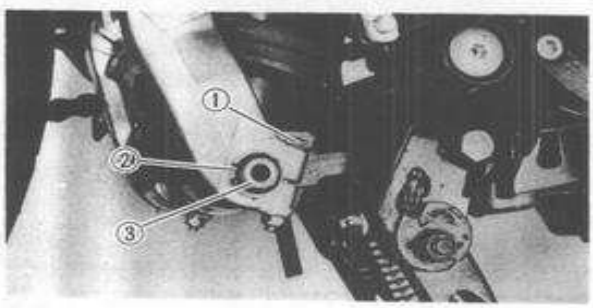
1. Place the motorcycle on its centerstand.
2. Remove:
   - Seat
   - Side cover
   - Muffler



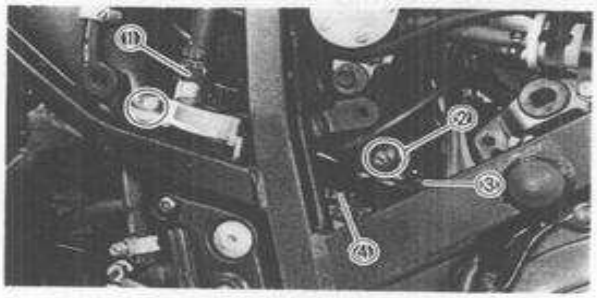
3. Disconnect:
   - Battery leads
   - Battery band ①
   - Starter switch ②
     (from the battery case)
4. Remove:
   - Battery
   - Battery mounting bolts ③



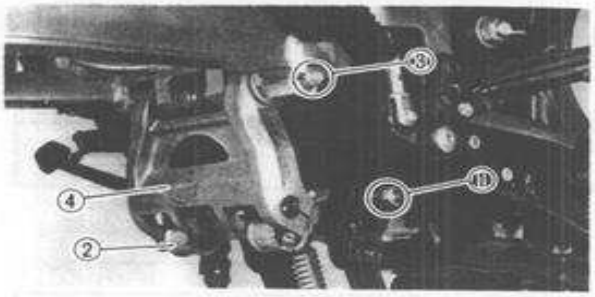
5. Remove:
   - Coolant reservoir tank screw ①
   - Battery case



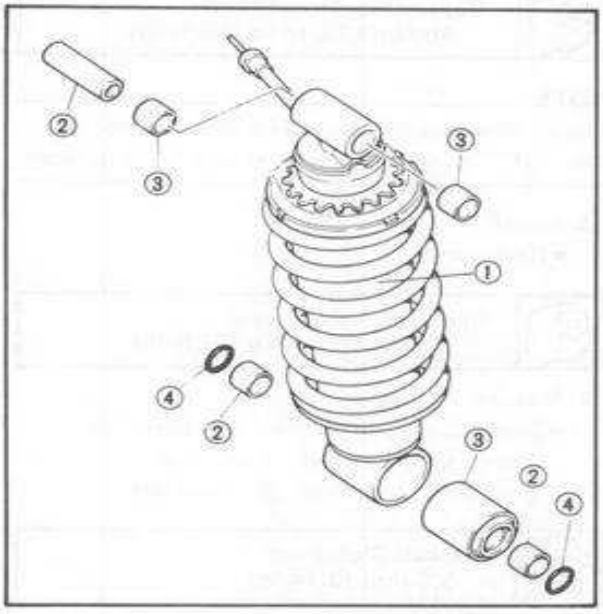
6. Loosen:
   - Pinch bolts ①
7. Remove:
   - Circlip ②
   - Washer
   - Lower pivot shaft ③



8. Remove:
   - Remote control unit ①
   - Upper pivot shaft ②
   - Shock absorber ③
   - Adjusting chain ④



9. Remove.
   - Connecting rod securing bolt ①
   - Connecting rod ②
   - Relay arm securing bolts ③
   - Relay arm ④

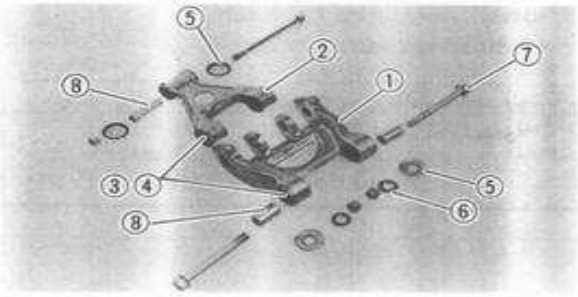


INSPECTION

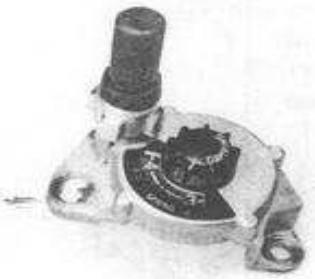
1. Inspect:
   - Shock absorber ①
     Oil leaks/Gas leaks/Damge → Replace.

NOTE:
It is not possible to disassemble the shock absorber. Always replace with a new shock absorber.

   - Collars ②
     Wear/Damage → Replace.
   - Bushings ③
     Wear/Damage → Replace.
   - O-rings ④
     Wear/Damage → Replace.



2. Inspect.
   - Relay arm ①
   - Connecting rod ②
   - Bearing ③
   - Oil seals ④
     Damage/Wear → Replace.
   - Cover ⑤
   - Washer ⑥
   - Bolt ⑦
   - Collar ⑧
     Damage/Wear → Replace.



3. Check:
   - Remote control unit
     Unsmooth operation → Replace.
4. Inspect:
   - Adjusting chain
     Wear/Damage → Replace.

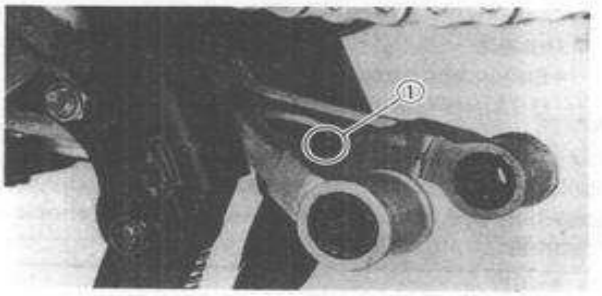
INSTALLATION

1. Grease the bearings, collar, and dust seals.

	Molybdenum Grease

2. Install:
   - Connecting rod

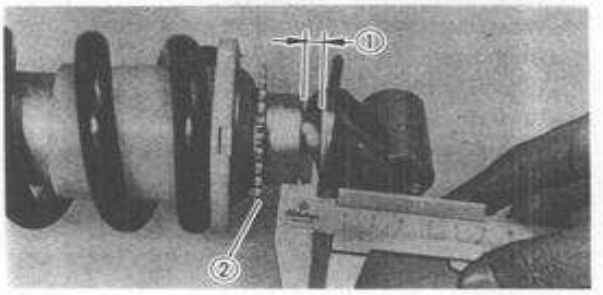
	Connecting Rod/Frame: 90 Nm (9.0 m·kg, 65 ft·lb)



NOTE:
The connecting rod should be installed so that the "UP" mark ① on the rod faces upward.

3. Install:
   - Relay arm

	Relay Arm/Swingarm: 90 Nm (9.0 m·kg, 65 ft·lb)



4. Mesure:
   - Shock absorber preload clearance ①
     Out of specification → Adjust.
     Turn chain sprocket ② in or out.

	Preload Clearance: 3.5 mm (0.14 in)

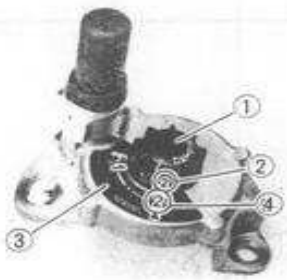
5. Install:
   - Rear shock absorber assembly
   - Adjusting chain

	Upper Pivot Shaft: 42 Nm (4.2 m·kg, 30 ft·lb) Lower Pivot Shaft Pinch Bolt: 9 Nm (0.9 m·kg, 6.5 ft·lb)



6. Adjust:
   - Shock absorber damping position.

Damping position adjustment steps:
Turn the control cable ① counterclockwise until it stops. Then turn it clockwise so its end ② can be viewed as either ■ or ◆ within 135° to 180° in relation to the shock absorber center.



7. Adjust:
   - Remote control damping adjuster ① position.
   - Remote control preload adjuster ③ position

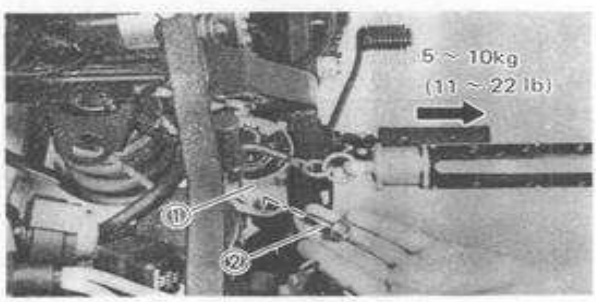
Damping Position ②	: "2"
Preload Position ④	: "2"

8. Connect:
   - Control cable
     (to remote control unit)

WARNING:

The positions of the spring preload and of the shock absorber damping must be identical to those of the spring preload and damping of the remote control unit. Uneven setting and/or installation can cause poor handling and loss of stability.

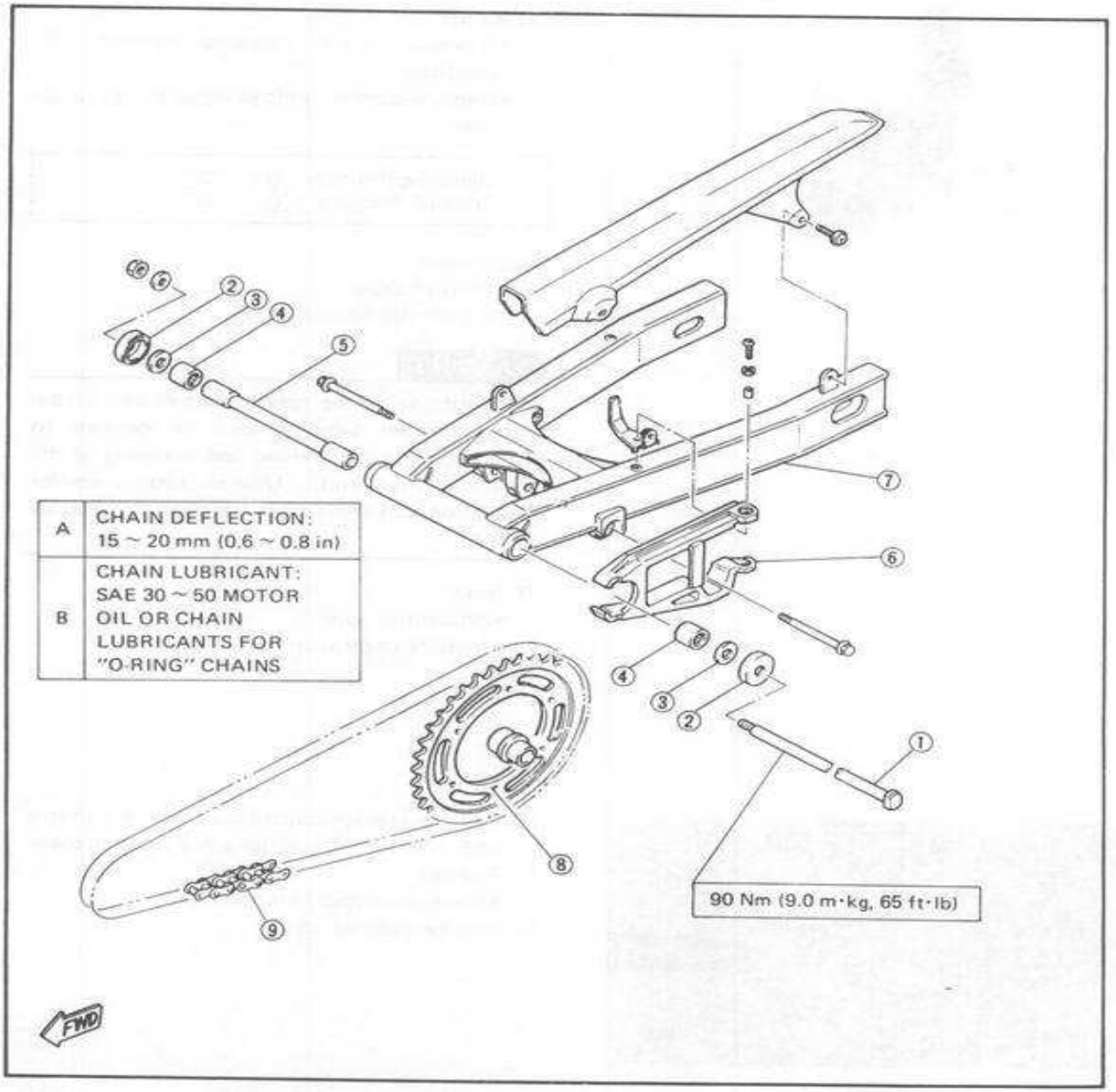
9. Install:
   - Adjusting chain
   - Remote control unit

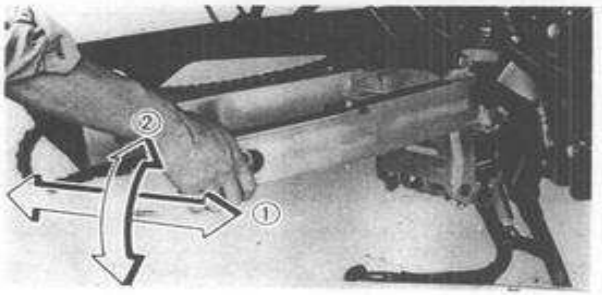


10. Pull the remote control unit ① by a force of 5 ~ 10 kg (11 ~ 22 lb) using a spring scale.
11. Tighten:
    - Remote control unit bolt ②
12. Reverse removal steps.

SWINGARM AND DRIVE CHAIN

① Pivot shaft
② Thrust cover
③ Washer
④ Bearing
⑤ Collar
⑥ Guard seal
⑦ Swingarm
⑧ Driven sprocket
⑨ Drive chain

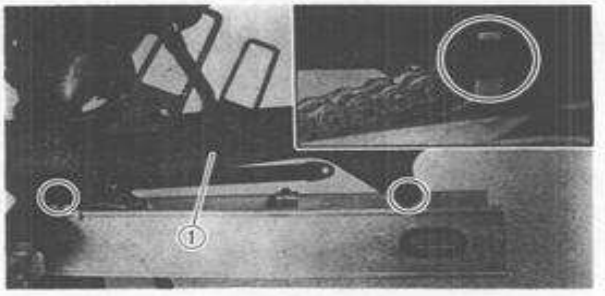




FREE PLAY INSPECTION

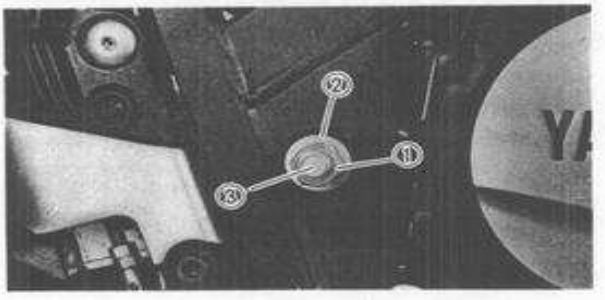
1. Check:
   - Swingarm side play ①
     Side play → Replace swingarm or bearing.
   - Swingarm up and down movement ②
     Tightness/Binding/Rough spots → Replace bearings.

Free play inspection step:
- Remove the rear wheel and muffler.
- Remove the shock absorber lower pivot shaft.
- Inspect swingarm side play by moving it from side to side. (There should be on noticeable side play)
- Inspect swingarm up and down movement by moving it up and down.

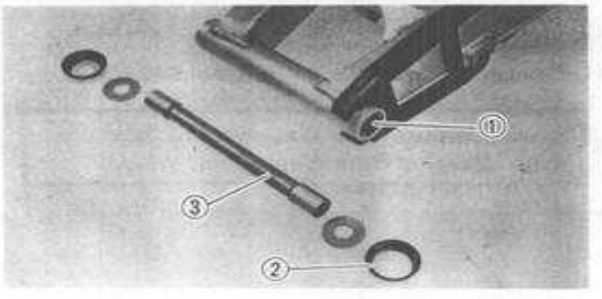


REMOVAL

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

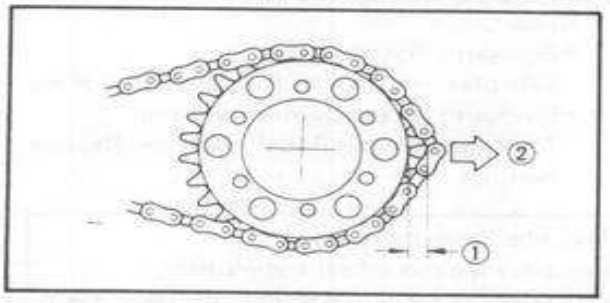


2. Remove:
   - Pivot shaft nut ①
   - Washer ②
   - Pivot shaft ③
   - Swingarm assembly
   - Change pedal
   - Left crankcase cover
   - Drive chain

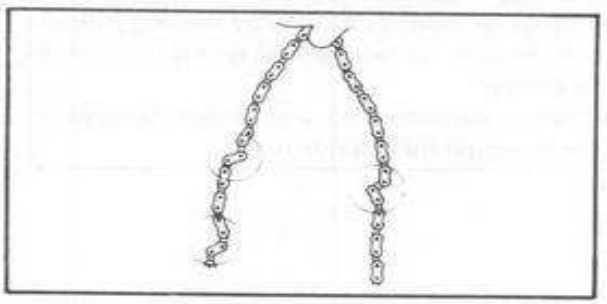


INSPECTION

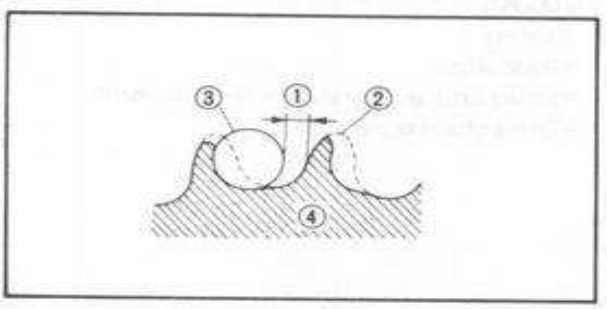
1. Wash the bearings in a solvent.
2. Inspect:
   - Bearings ① (Race/Balls)
     Pitting/Damage → Replace.
   - Thrust cover ②
     Damage → Replace.
   - Collar ③
     Damage → Replace.



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

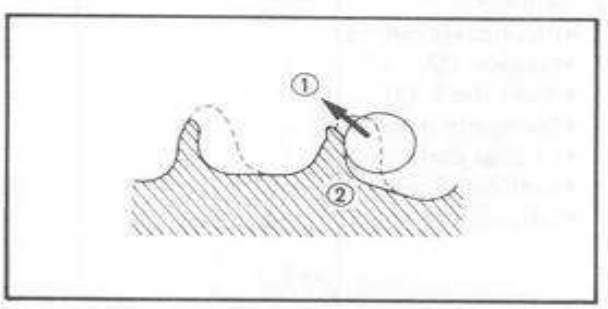


4. Check:
   - Drive chain stiffness
     Clean and oil the chain and hold as illustrated
     Stiff → Replace drive chain.



5. Inspect:
   - Drive sprocket
     More than 1/4 teeth ① wear → Replace sprocket.

② Correct
③ Roller
④ Sprocket



6. Inspect:
   - Drive sprocket
     Bent teeth ② → Replace sprocket.

① Slip off

INSTALLATION

Reverse removal steps

1. Grease the bearings oil seal and collar.

Lithium Base Waterproof Wheel Bearing Grease

2. Install:
   - Drive chain
   - Swingarm assembly

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

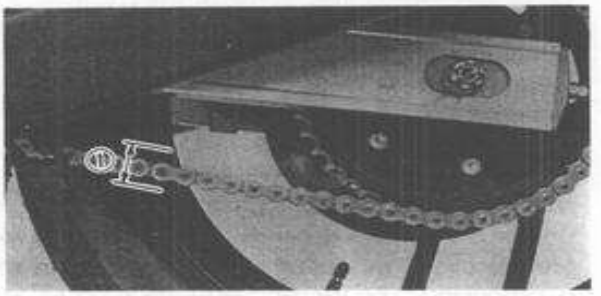
3. Install:
   - Relay arm and swingarm securing bolt.

Relay Arm/Swingarm Securing Bolt: 90 Nm (9.0 m·kg, 65 ft·lb)

4. Install:
   - Rear shock absorber lower pivot shaft

Lower Pivot Shaft Pinch Bolt: 9 Nm (0.9 m·kg, 6.5 ft·lb)

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

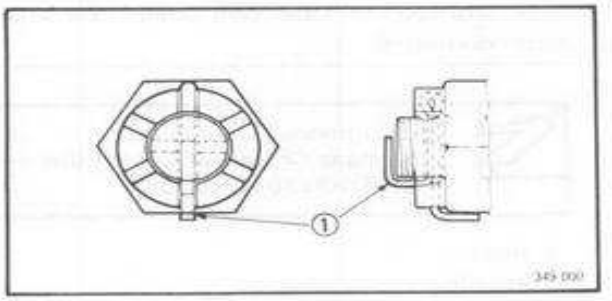


Chain Deflection ① : 15 ~ 20 mm (0.6 ~ 0.8 in)

7. Tighten:
   - Axle nut

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

8. Install:
   - Cotter pin ① (New)



NOTE:

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

CABLE AND FITTINGS

CABLES MAINTENANCE

NOTE:

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

WARNING:

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

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

Cable lubrication steps:
- Hold the cable in a vertical position.
- Apply lubricant to the uppermost end of the cable.
- Maintain its vertical position until the oil to the bottom.
- Allow excess oil to drain, then reinstall the cable.

NOTE:

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



Recommended Lubricant:
Yamaha Chain and Cable Lube or SAE 10W30 motor oil

4. Install:
   - Cables
     Reverse the removal procedure.

CHAPTER 7.
ELECTRICAL

FZ750N CIRCUIT DIAGRAM 7-1

ELECTRICAL COMPONENTS 7-3

ELECTRIC STARTING SYSTEM 7-5
- TROUBLESHOOTING CHART 7-7
- STARTING CIRCUIT OPERATION 7-10
- STARTER MOTOR 7-11
- STARTER RELAY 7-13
- STARTER SAFETY UNIT (Relay Assembly) 7-13
- NEUTRAL SWITCH 7-14
- CLUTCH SWITCH 7-14
- STARTER SWITCH 7-14
- DIODE 7-15
- SIDESTAND RELAY 7-15
- SIDESTAND SWITCH 7-16

CHARGING SYSTEM 7-17
- TROUBLESHOOTING CHART 7-19
- BATTERY 7-21
- RECTIFIER 7-23

IGNITION SYSTEM 7-25
- TROUBLESHOOTING CHART 7-27
- ENTIRE IGNITION SYSTEM CHECK 7-29
- IGNITION COIL SPARK GAP 7-30

LIGHTING SYSTEM 7-31
- TROUBLESHOOTING CHART 7-33

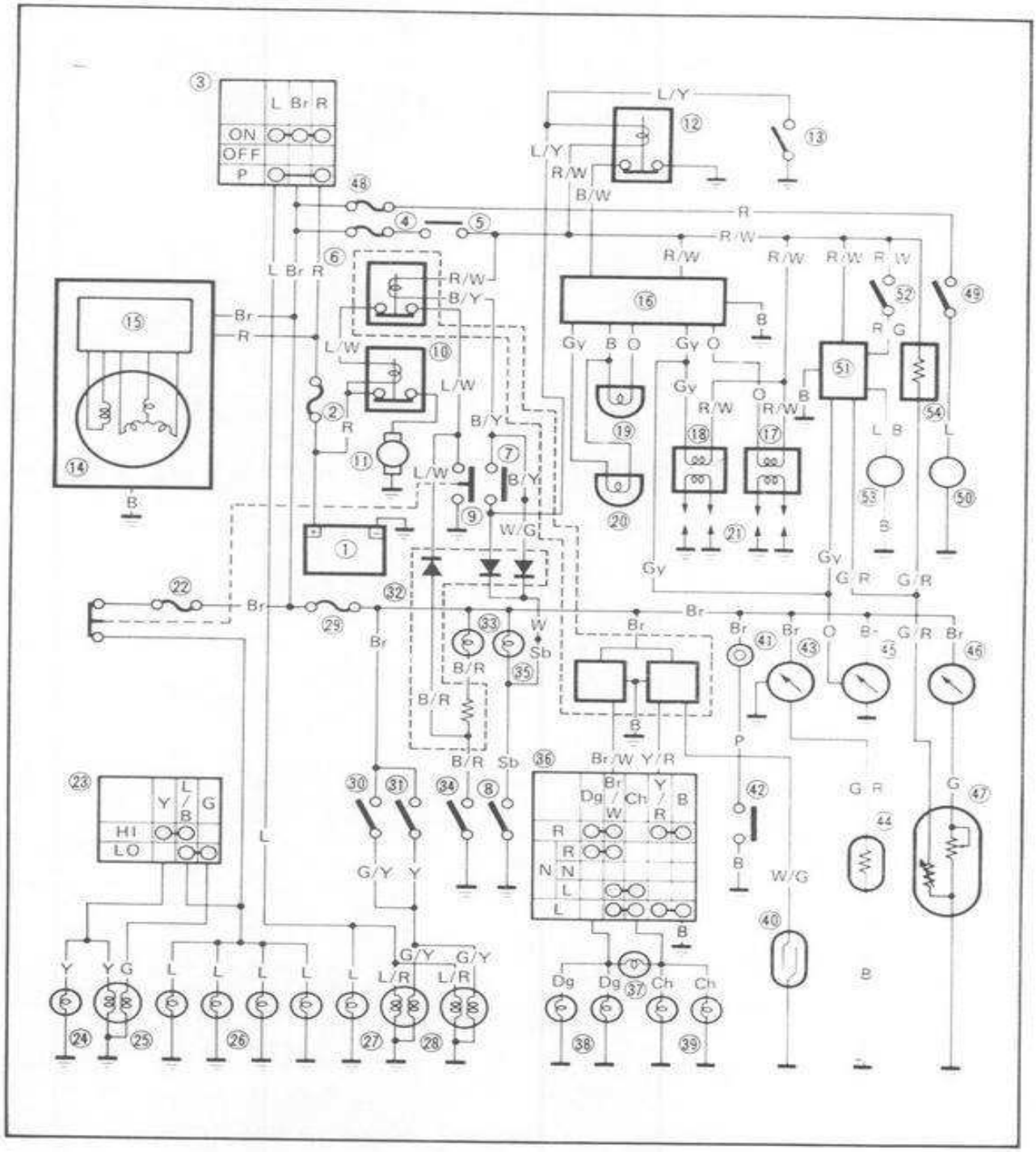
SIGNAL SYSTEM 7-37
- TROUBLESHOOTING CHART 7-39
- HORN 7-44
- OIL LEVEL SWITCH 7-44
- TEMPERATURE SENSOR 7-45
- FUEL SENDER 7-46
- REED SWITCH 7-47
- SWITCHES 7-48

COOLING SYSTEM 7-49
TROUBLESHOOTING CHART 7-51
ELECTRIC FAN 7-52
THERMOSTATIC SWITCH 7-52

FUEL PUMP SYSTEM 7-55
FUEL PUMP CIRCUIT OPERATION 7-57
TROUBLESHOOTING CHART 7-58
FUEL PUMP CONTROLLER 7-62
FUEL PUMP 7-63
FUEL RESERVE SWITCH 7-63

ELECTRICAL

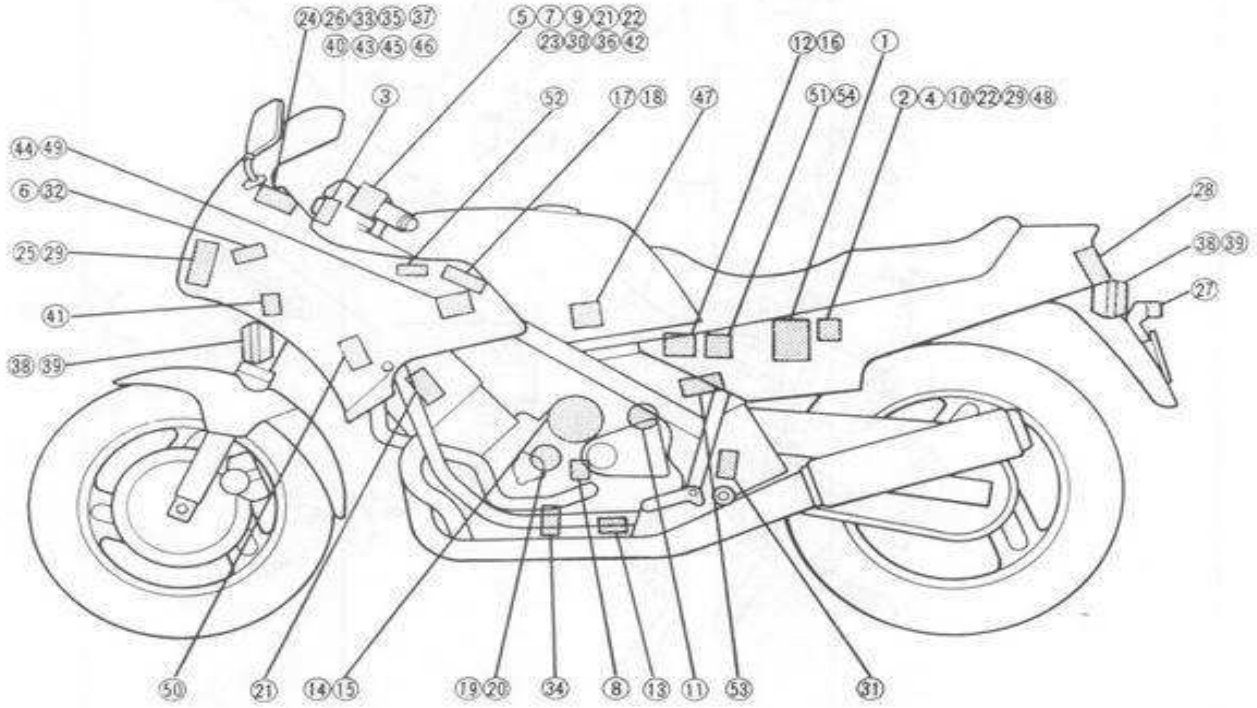
FZ750N CIRCUIT DIAGRAM



① Battery
② Main fuse
③ Main switch
④ Ignition fuse
⑤ "ENGINE STOP" switch
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ Sidestand relay
⑬ Sidestand switch
⑭ AC Magneto
⑮ Rectifier/Regulator
⑯ Ignitor unit
⑰ Ignition coil (# 1 and # 4 cylinder)
⑱ Ignition coil (# 2 and # 3 cylinder)
⑲ Pick up coil (# 1 and # 4 cylinder)
⑳ Pick up coil (# 2 and # 3 cylinder)
㉑ Spark plug
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ Fuel sender
㊽ Fan fuse
㊾ Thermostatic switch
㊿ Electric fan motor
(51) Fuel pump controller
(52) "FUEL" (Reserve) switch
(53) Fuel pump
(54) Resister

COLOR CODE

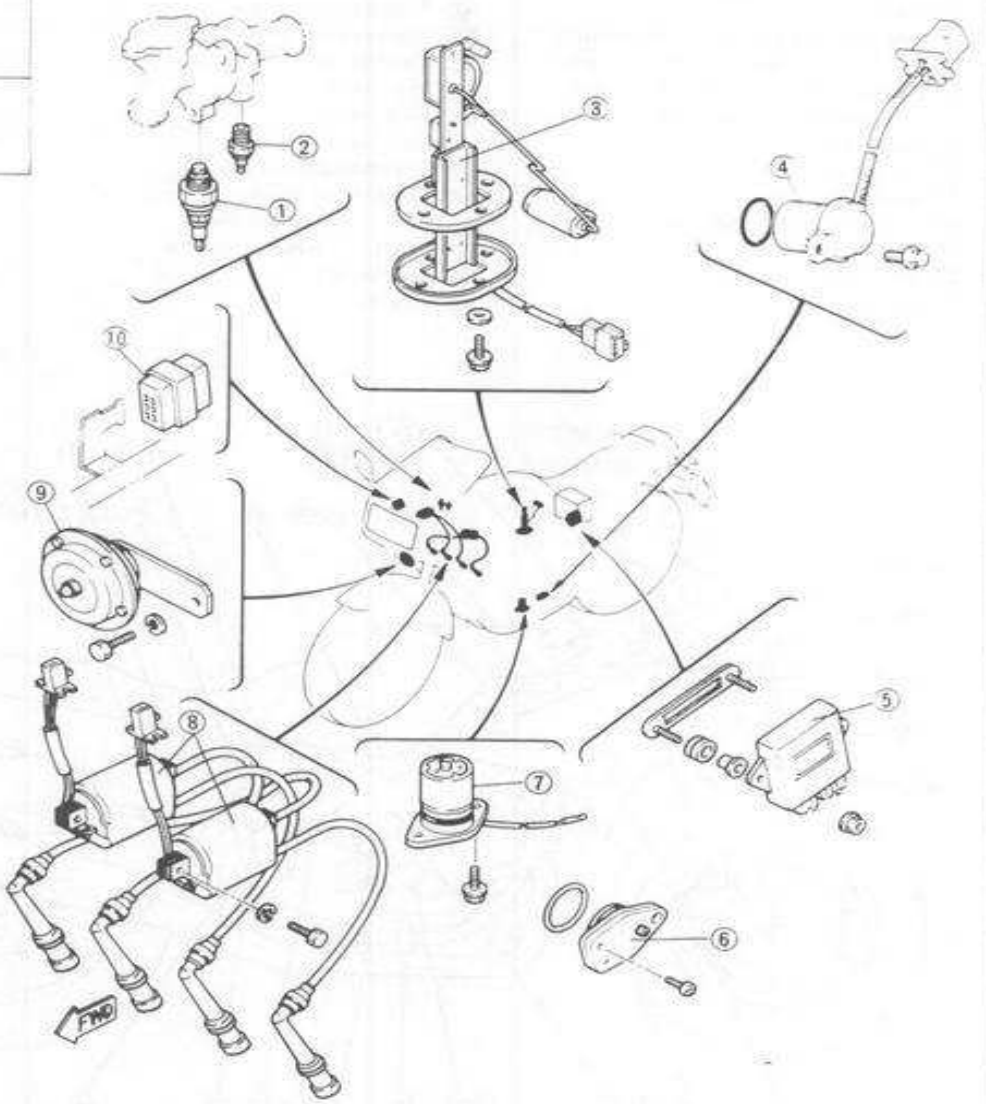
L	Blue
R	Red
G	Green
B	Black
Y	Yellow
P	Pink
W	White
O	Orange
Dg	Dark green
Gy	Gray
Br	Brown
Ch	Chocolate
Sb	Sky blue
R/W	Red/White
R/Y	Red/Yellow
R/G	Red/Green
L/R	Blue/Red
L/W	Blue/White
L/B	Blue/Black
W/G	White/Green
Y/R	Yellow/Red
B/R	Black/Red
B/Y	Black/Yellow
G/Y	Green/Yellow
G/R	Green/Red
Br/W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



ELECTRICAL COMPONENTS (1)

① Thermostatic switch
② Temperature sensor
③ Fuel sender
④ Pick up coil
⑤ Ignitor unit
⑥ Neutral switch
⑦ Oil level switch
⑧ Ignition coil
⑨ Horn
⑩ Relay assembly

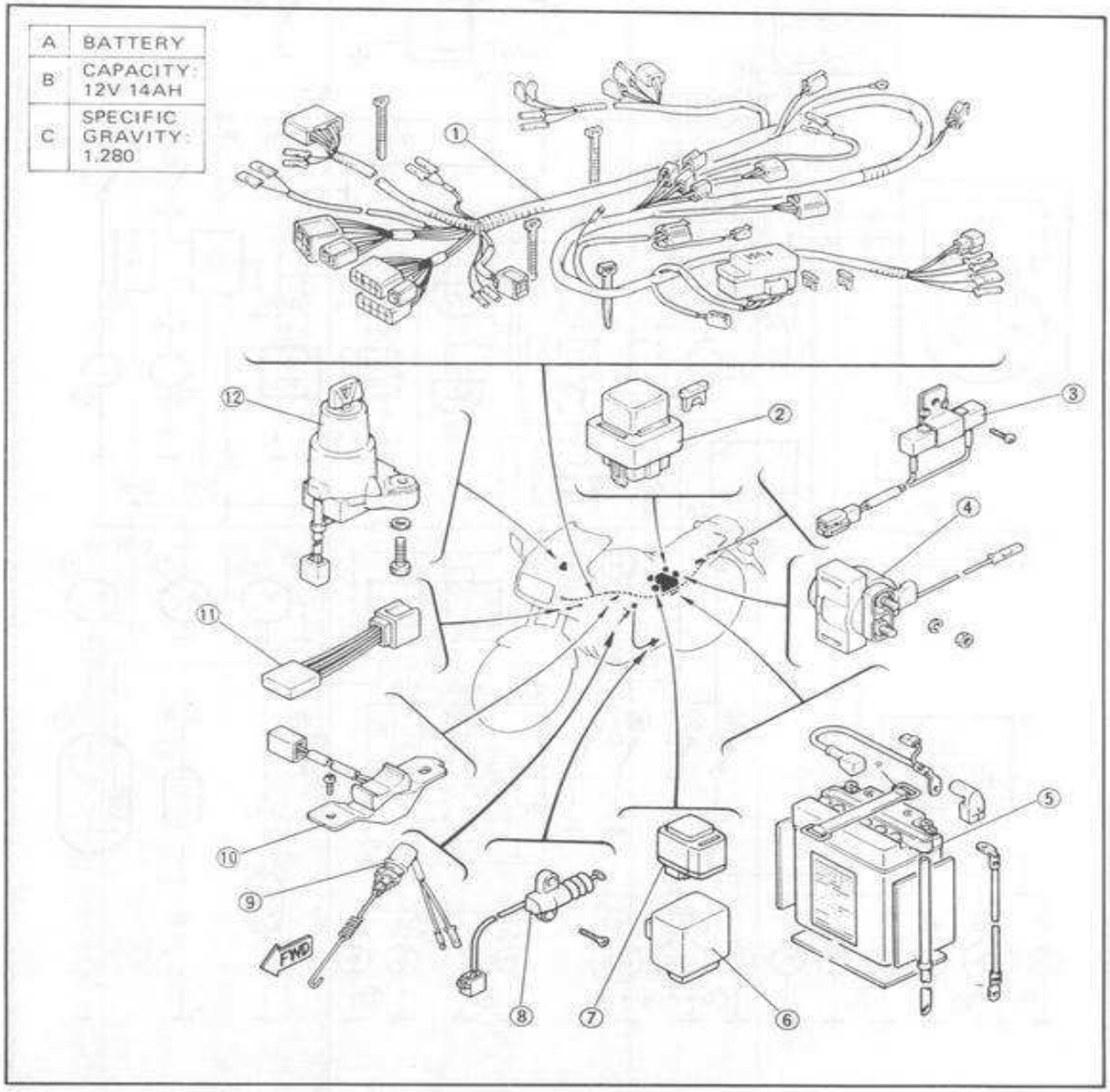
A	IGNITION COIL:
B	PRIMARY WINDING RESISTANCE: 2.7Ω ± 10%
C	SECONDARY WINDING RESISTANCE: 9.5 kΩ ± 20%



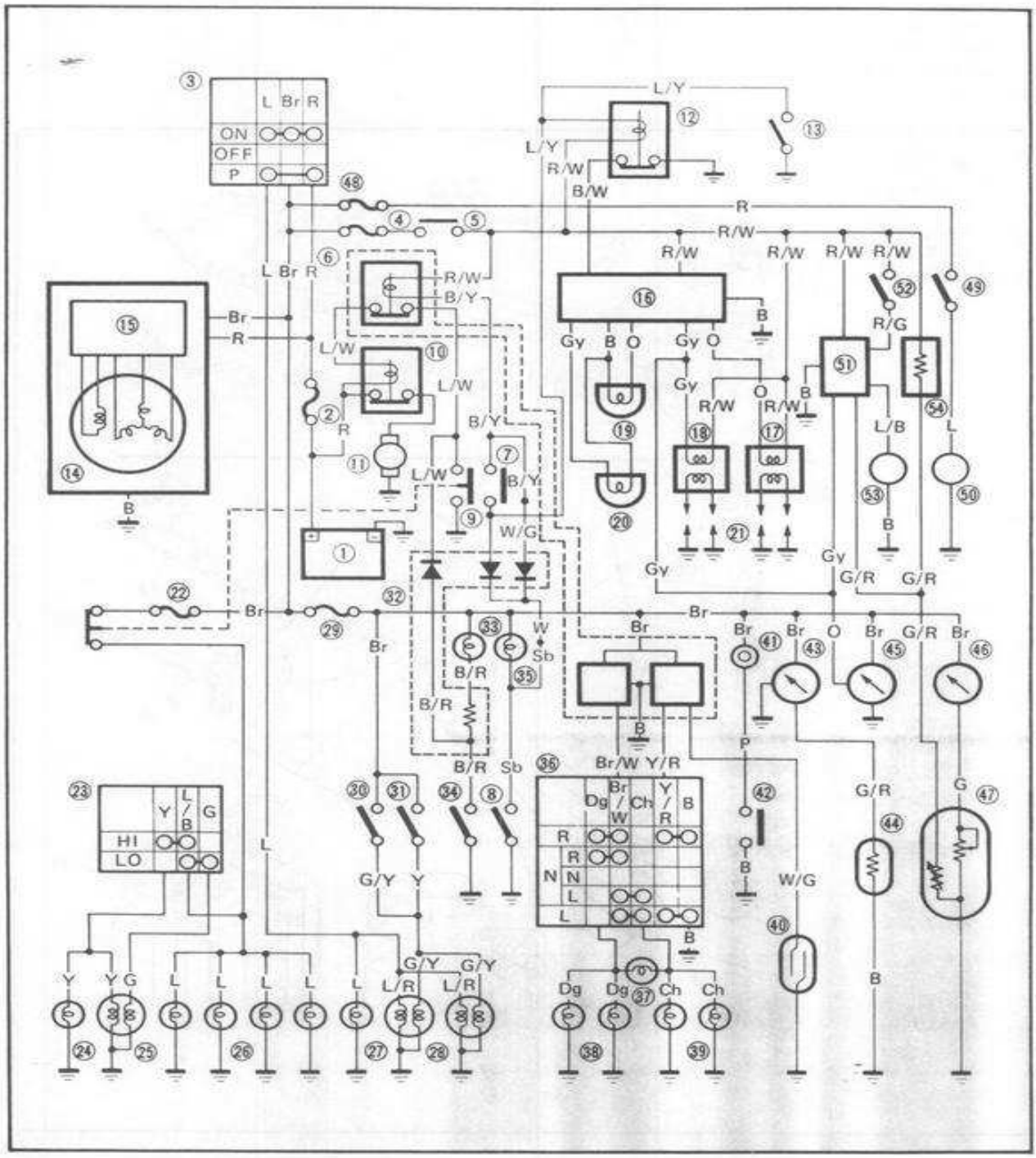
ELECTRICAL COMPONENTS (2)

1. Wire harness
2. Fuse box
3. Resister
4. Starter relay
5. Battery
6. Fuel pump controller
7. Sidestand relay
8. Sidestand switch
9. Rear brake switch
10. Reserve switch
11. Diode
12. Main switch

A	BATTERY
B	CAPACITY: 12V 14AH
C	SPECIFIC GRAVITY: 1.280



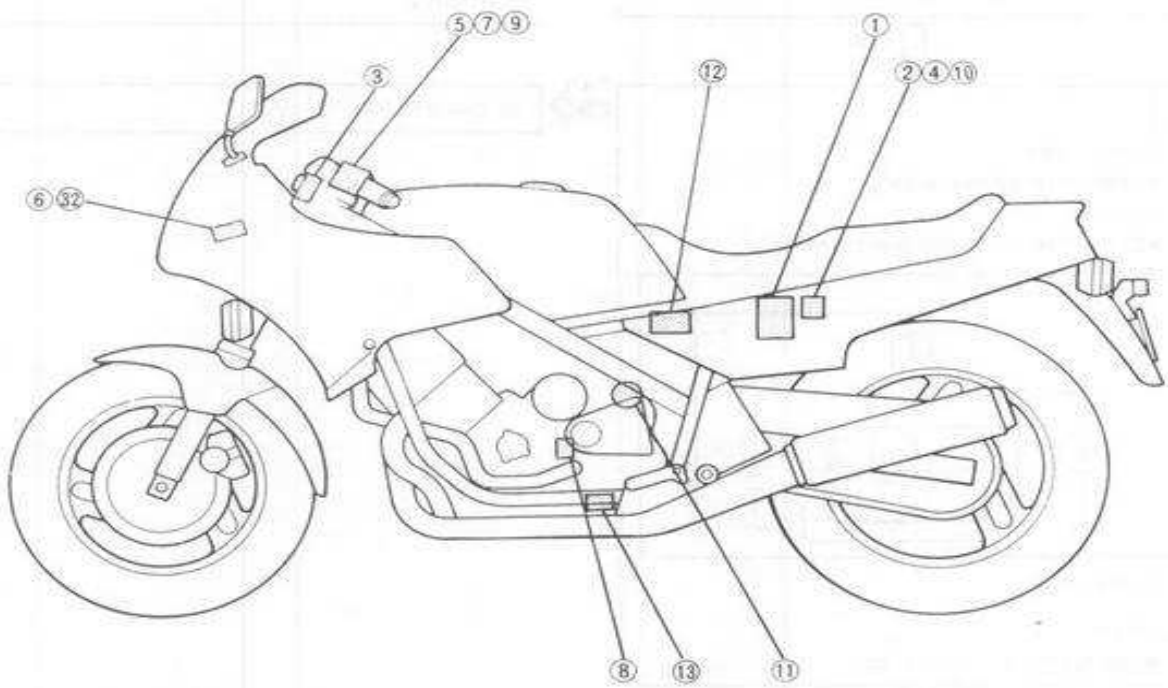
ELECTRIC STARTING SYSTEM



① Battery
② Main fuse
③ Main switch
④ Ignition fuse
⑤ "ENGINE STOP" switch
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ Sidestand relay
⑬ Sidestand switch
⑭ AC Magneto
⑮ Rectifier/Regulator
⑯ Ignitor unit
⑰ Ignition coil (#1 and #4 cylinder)
⑱ Ignition coil (#2 and #3 cylinder)
⑲ Pick up coil (#1 and #4 cylinder)
⑳ Pick up coil (#2 and #3 cylinder)
㉑ Spark plug
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ Fuel sender
㊽ Fan fuse
㊾ Thermostatic switch
㊿ Electric fan motor
(51) Fuel pump controller
(52) "FUEL" (Reserve) switch
(53) Fuel pump
(54) Resister

COLOR CODE

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



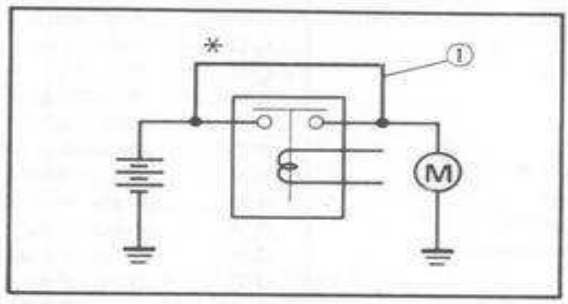
ELECTRIC STARTING SYSTEM

TROUBLESHOOTING CHART

THE STARTER MOTOR DOES NOT OPERATE

A

1. Remove:
   - Seat
2. Connect:
   - Starter relay terminals (Battery side and starter motor side)



① Jumper lead

3. Check:
   - Starter motor operation

No → Check battery.

OK → Repair and/or replace starter motor.

No → Replace and/or charge battery.

*

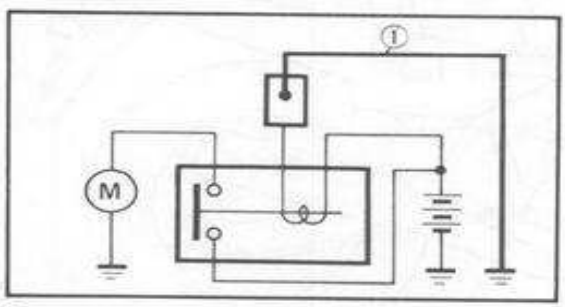
WARNING:

1. A wire for the jumper lead ① must have the equivalent capacity as that of the battery lead or more, otherwise it may cause the jumper lead to be burned.
2. This check is likely to produce sparks, so be sure that no flammable gas or fluid is in the vicinity.

OK

B

1. Disconnect:
   - Starter relay connector
2. Connect:
   - Starter relay connecter terminals



① Jumper lead

3. Check:
   - Starter motor operation

No → Replace starter relay.

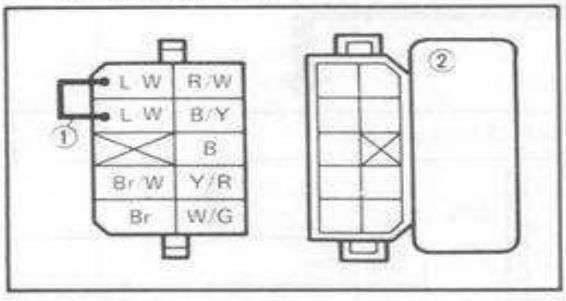
OK

C

1. Remove:
   - Right front panel
2. Disconnect:
   - Relay assembly ① coupler



3. Connect:
   - Relay assembly coupler terminals. (Wire harness side)



① Jumper lead
② Relay assembly

4. Check:
   - Starter motor operation
     Push the starter switch.

No → Check starter switch.

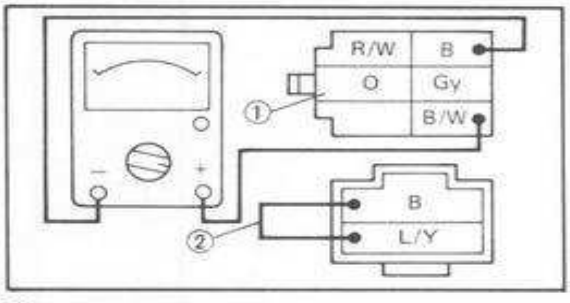
OK ↓ Correct connection.

No ↓ Replace.

OK →

D

1. Remove:
   - Seat
   - Left side cover
2. Disconnect:
   - Ignitor coupler
   - Sidestand switch coupler
3. Connect:
   - Pocket Tester (to wire harness side ignitor coupler)
   - Jumper lead (to wire harness side sidestand switch coupler)



① Ignitor coupler
② Jumper lead

4. Measure:
   - "B/W" and "B" lead resistance

	0Ω ("B/W" and "B")

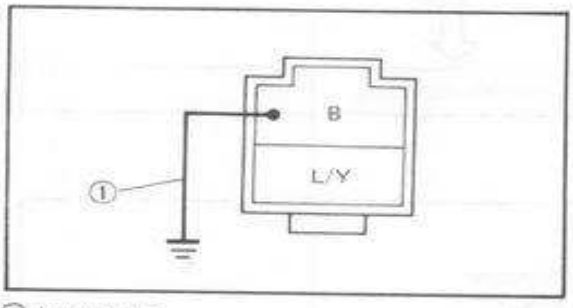
Turn the main switch to "ON".
Turn the engine stop switch to "RUN".

Out of specification ↓ Replace sidestand relay.

OK ↓

E

1. Connect:
   - Sidestand switch coupler terminal (wire harness side coupler)



① Jumper lead

2. Check:
   - Starter motor operation
     Turn the main switch to "ON".
     Turn the engine stop switch to "RUN".
     Pull in clutch lever.
     Shift to gear.
     Push the starter switch.

OK

Check sidestand switch, neutral switch, and diode.

No

Replace.

OK

Correct connection.

No

Check clutch switch.

No

Replace.

OK

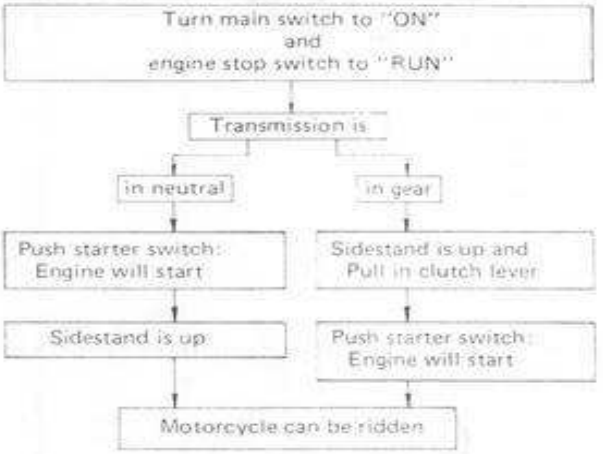
Replace relay assembly.

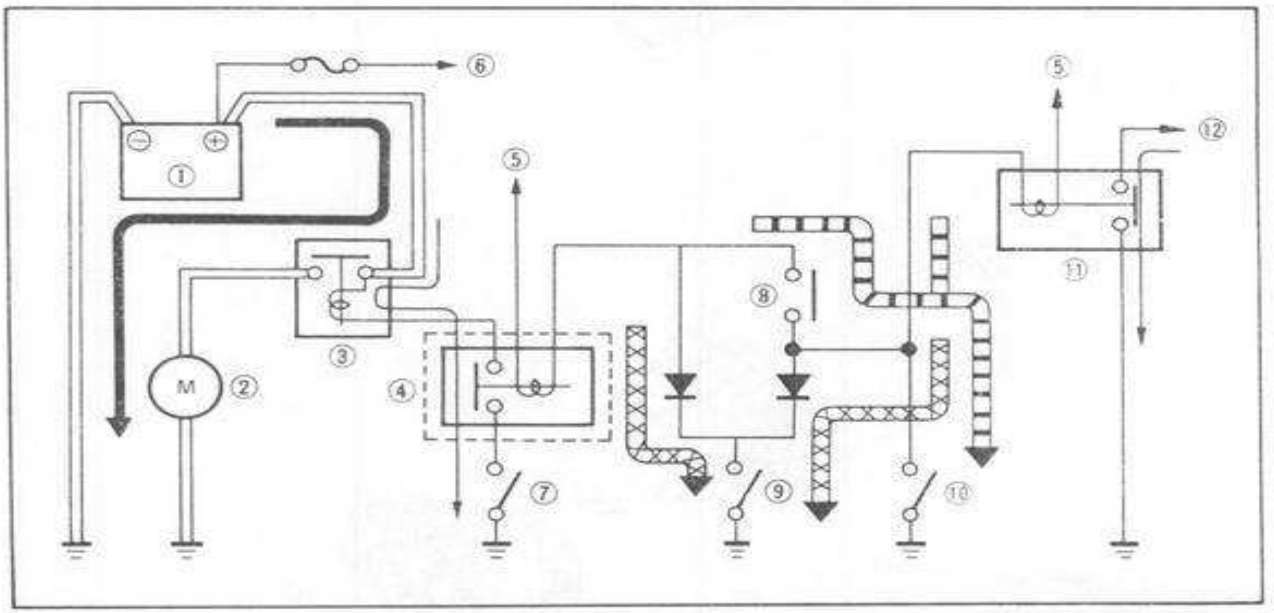
STARTING CIRCUIT OPERATION

The starting circuit on this model consists of the starter motor, starter relay, starter safety unit (relay assembly), 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 clutch lever is pulled in (clutch switch is on).



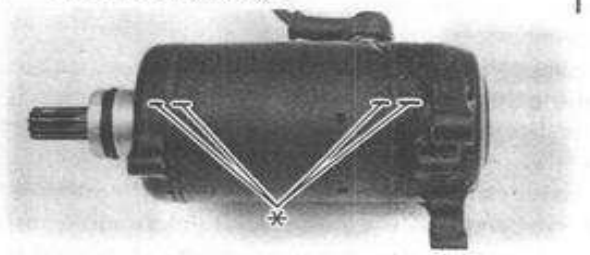


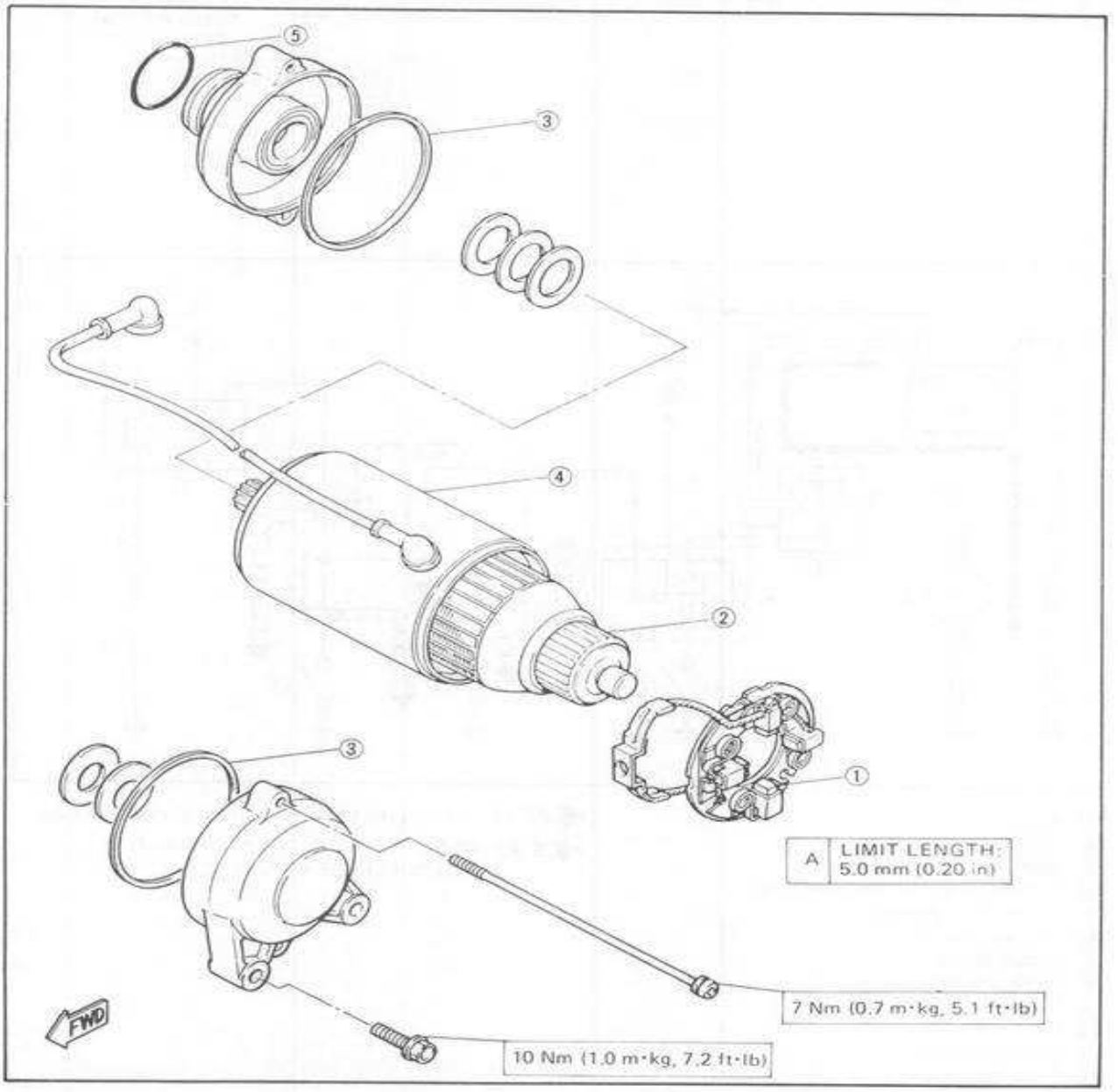
① Battery
② Starter motor
③ Starter realy
④ Starter safety unit (Relay assembly)
⑤ To engine stop switch
⑥ To main switch
⑦ Starter switch
⑧ Clutch switch
⑨ Neutral switch
⑩ Sidestand switch
⑪ Sidestand relay
⑫ To ignitor unit

WHEN THE TRANSMISSION IS IN NEUTRAL.
WHEN THE SIDESTAND IS UP AND CLUTCH LEVER IS PULLED IN.

STARTER MOTOR

1. Brush
2. Armature
3. Gasket
4. Stator
5. O-ring

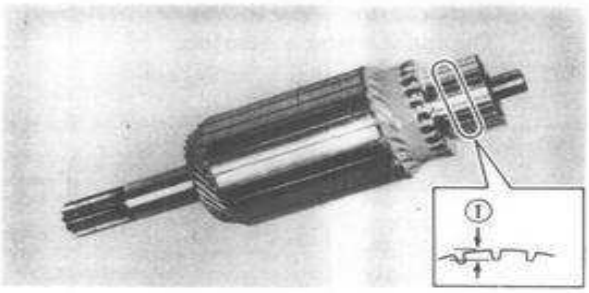




Inspection and Repair

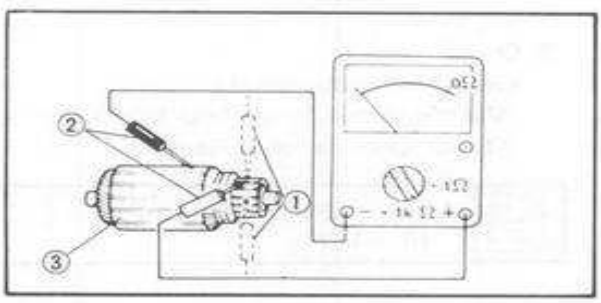
Amature coil inspection

1. Inspect:
   - Commutator (Outer surface)
     Dirty → Clean with #600 grit sandpaper.
2. Measure:
   - Mica (Insulation depth)
     (between commutator segments)
     Out of specification → Scrape mica to proper limits.
     Use a hacksaw blade that is ground to fit.



Depth of Insulator ①:
0.8 mm (0.03 in)

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



3. Measure:
   - Armature coil (Insulation/Continuity)
     Defect(s) → Replace starter motor.

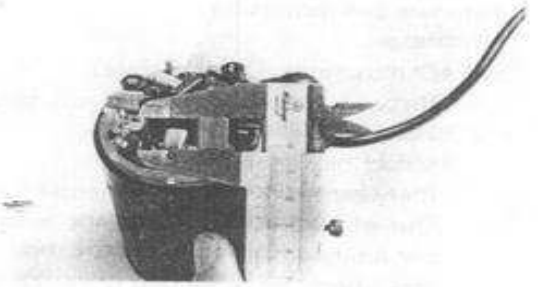
Insulation Resistance:
More than 1 MΩ at 20°C (68°F)

① Continuity check
② Insulation check
③ Armature coil



Bearing, and O-ring Inspection

1. Inspect:
   - Bearing
     Wear/Damage → Replace.
   - O-ring ①
     Wear/Damage → Replace.



Brush Inspection

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

	Minimum Brush Length: **5.0 mm (0.20 in)**

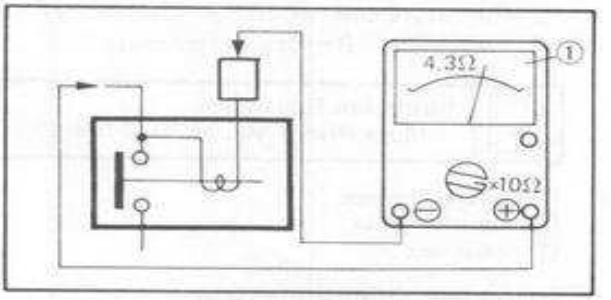
2. Inspect:
   - Brush spring:
     Compare with new spring.
     Weaker/Damage → Replace.



STARTER RELAY

Inspection

1. Remove:
   - Seat
   - Starter relay ①



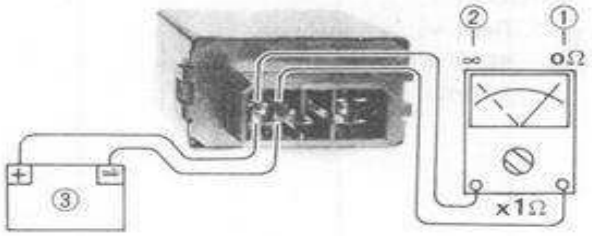
2. Check:
   - Relay coil resistance ①
     Use the Pocket Tester (YU-33263).
     Out of specification → Replace.

	4.3Ω ± 10% at 20°C (68°F) **(R – L/W)**



STARTER SAFETY UNIT (Relay Assembly)

1. Remove:
   - Right front panel
   - Relay assembly ①

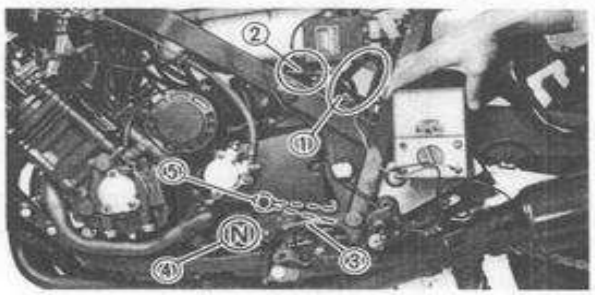


2. Check:
   - Relay contacts
     Use 12V battery ③ and Pocket Tester (YU-33263).
     Out of specification → replace relay.

	Battery Connected: 0Ω ① **Battery disconnected: ∞ ②**

NEUTRAL SWITCH

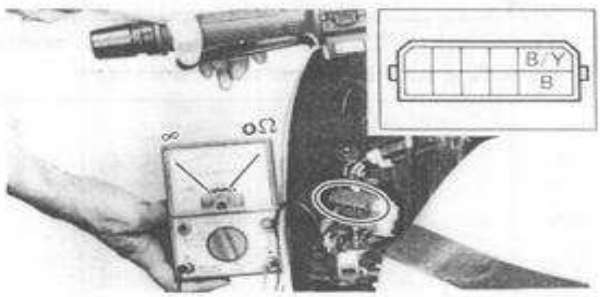
1. Remove:
   - Seat
   - Left side cover
2. Connect:
   - Pocket Tester (YU-33263) to neutral switch side coupler (Sb lead)



3. Check:
   - Neutral switch contact
     Out of specification → Replace switch.

Change Pedal ③	In Neutral ④	In Gear ⑤
Tester	0Ω	∞

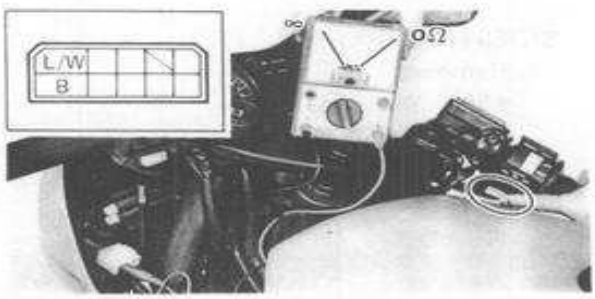
① Sb wire
② Ground



CLUTCH SWITCH

1. Remove:
   - Left front panel
2. Check:
   - Clutch switch contact
     Out of specification → Replace switch.

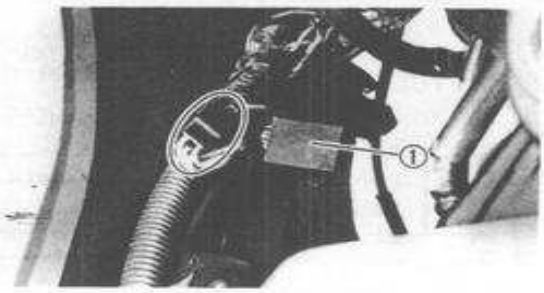
Clutch Lever	Pull in	Not Pull in
Tester	0Ω	∞



STARTER SWITCH

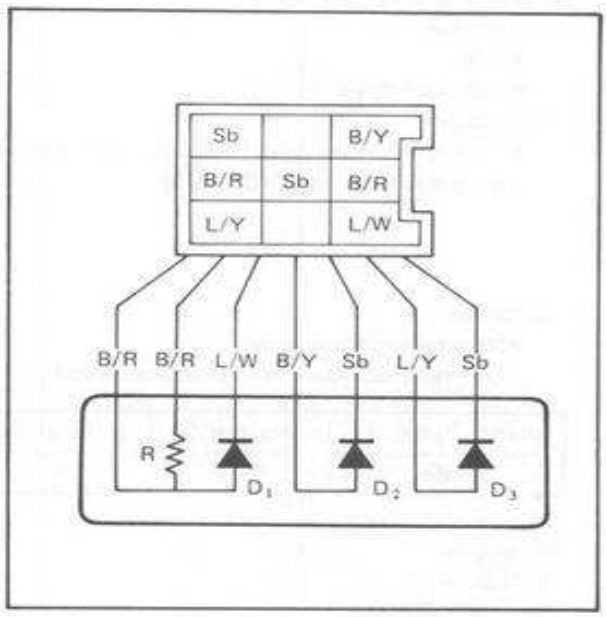
1. Remove:
   - Left front panel
2. Check:
   - Starter switch contact
     Out of specification → Replace switch.

Starter Switch	ON	OFF
Tester	0Ω	∞



DIODE

1. Remove:
   - Left front panel
   - Diode ①

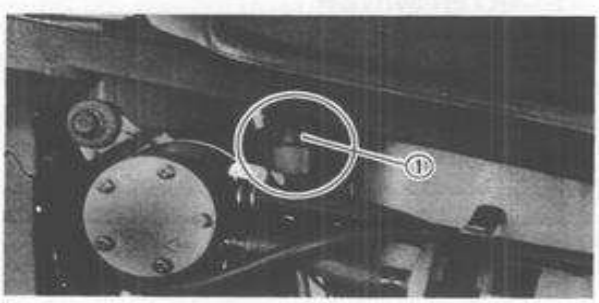


2. Check:
   - Diode continuity/discontinuity
     Defective element(s) → Replace the unit.

Checking element	Pocket tester connecting point		Good
	(+) (red)	(−) (black)	
D_1	L/W	B/R	○
	B/R	L/W	×
D_2	Sb	B/Y	○
	B/Y	Sb	×
D_3	Sb	L/Y	○
	L/Y	Sb	×
R	B/R	B/R	8.2Ω

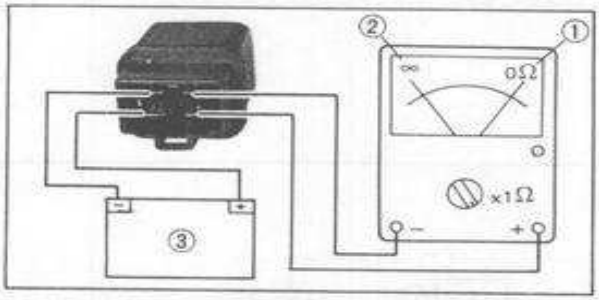
○: Continuity (0Ω) (Scale Ω x 1000)
×: Discontinuity (∞) (Scale Ω x 1)

NOTE:
The results "○" or "×" should be reversed according to the pocket tester polarity.



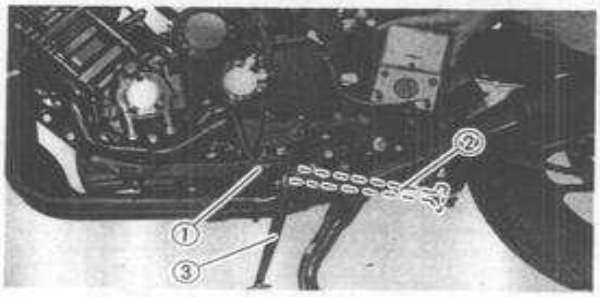
SIDESTAND RELAY

1. Remove:
   - Seat
   - Right side cover
   - Sidestand relay ①



2. Check:
   • Relay contacts
   Use 12V battery ③ and Pocket Tester (YU-33263).
   Out of specification → Replace relay.

	Battery Connected: ∞ ② Battery Disconnected: 0Ω ①

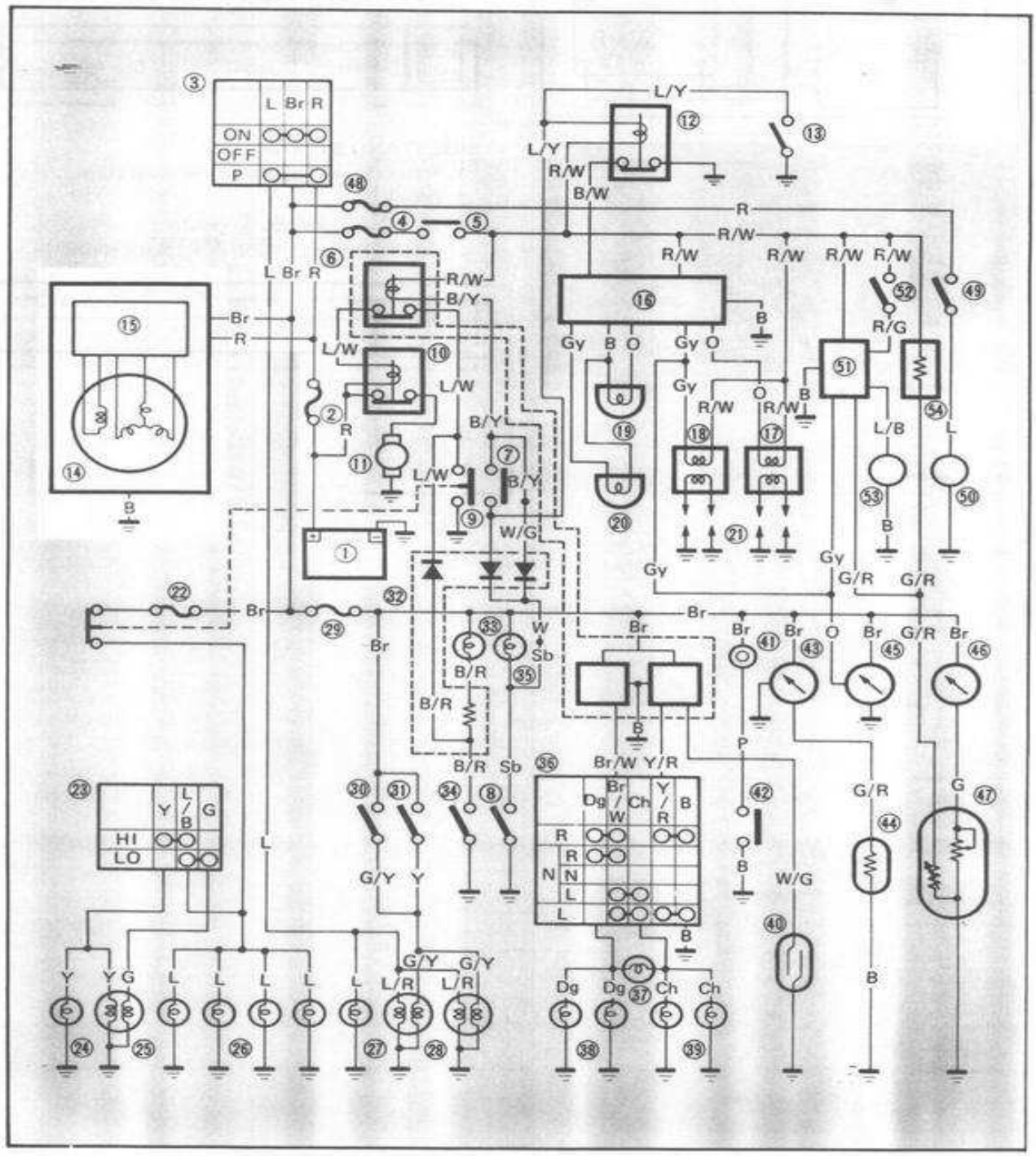


SIDESTAND SWITCH

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	∞

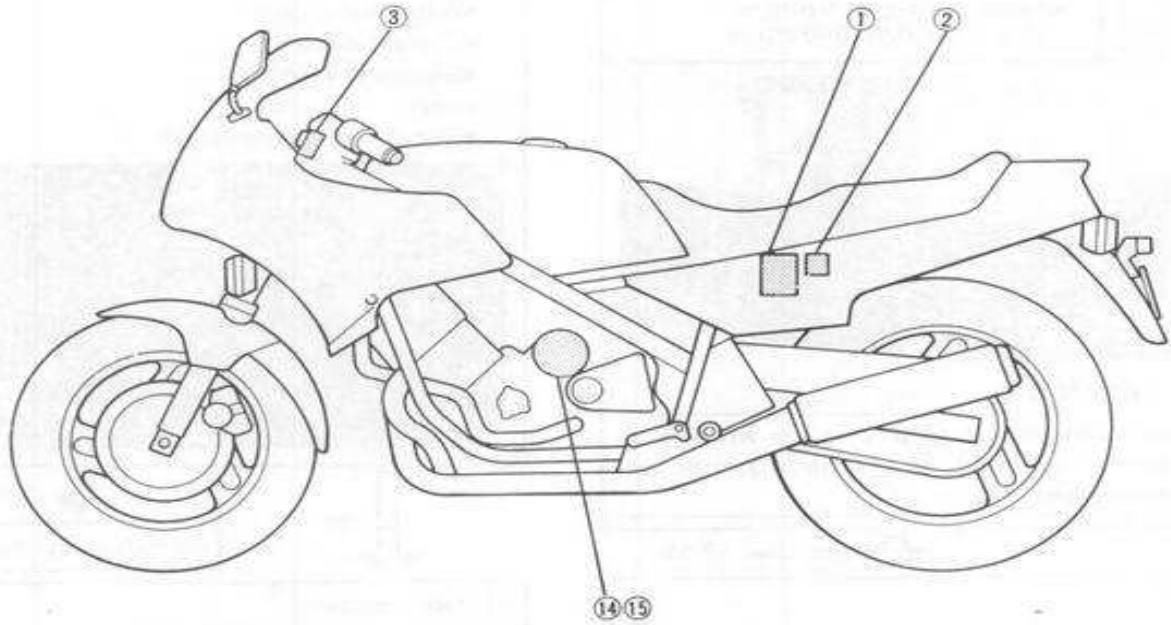
CHARGING SYSTEM



① **Battery**
② **Main fuse**
③ **Main switch**
④ Ignition fuse
⑤ "ENGINE STOP" switch
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ Sidestand relay
⑬ Sidestand switch
⑭ **AC Magneto**
⑮ **Rectifier/Regulator**
⑯ Ignitor unit
⑰ Ignition coil (# 1 and # 4 cylinder)
⑱ Ignition coil (# 2 and # 3 cylinder)
⑲ Pick up coil (# 1 and # 4 cylinder)
⑳ Pick up coil (# 2 and # 3 cylinder)
㉑ Spark plug
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ Fuel sender
㊽ Fan fuse
㊾ Thermostatic switch
㊿ Electric fan motor
(51) Fuel pump controller
(52) "FUEL" (Reserve) switch
(53) Fuel pump
(54) Resister

COLOR CODE

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



CHARGING SYSTEM

TROUBLESHOOTING CHART

THE BATTERY IS NOT CHARGED

A

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

Battery Voltage: 12V
Battery Gravity: 1.280

Out of specification

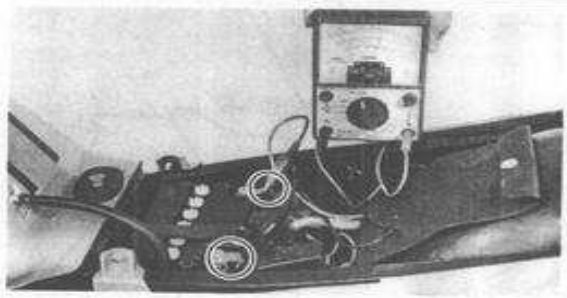
- Check the battery.
- Replace and/or charge battery.

OK

B

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

Generator Charging Voltage: 13.5 ~ 15.3V/5,000 r/min



CAUTION:

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

More than 15.3V

1. Drain:
   - Coolant
2. Remove:
   - Left crankcase cover
   - Water pump cover
   - Coolant pipes
   - Generator cover
3. Check:
   - Regulator ① connection



Defects

Correct connections.

OK

Replace regulator.

Less than 13.5V

C

1. Check:
   - Main fuse

Faulty

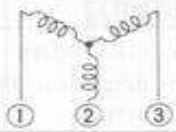
Replace main fuse.

OK

D

1. Drain:
   - Coolant
2. Remove:
   - Left crankcase cover
   - Water pump cover
   - Coolant pipes
   - Generator cover
3. Connect:
   - Pocket Tester (to the stator coils)





Connecting point	
Check 1	① and ②
Check 2	① and ③
Check 3	② and ③

4. Measure:
   - Stator coil resistance

Stator Coil Resistance :
0.2Ω ± 5 mΩ at 20°C (68°F)

Out of Specification

Replace stator coil.

Out of specification

Replace rotor (Field coil).

OK

Correct connection.

OK

E

1. Check:
   - Rectifier

Faulty

Replace rectifier.

OK

F

1. Remove:
   - Bruch assembly ①
2. Inspect:
   - Brush spring
   - Brush length



Minimum Brush Length:
4.5 mm (0.18 in)

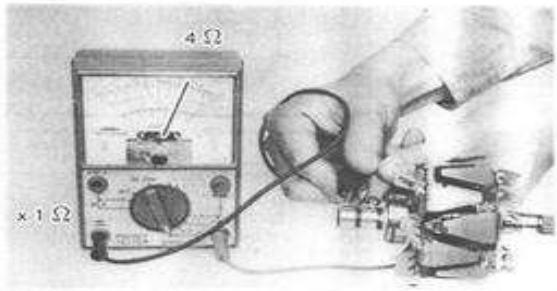
Wear/Damage
Out of specification

Replace brush and/or spring.

OK

G

1. Remove:
   - Rotor (Field coil)
2. Measure:
   - Field coil resistance



Field Coil Resistance:
4.0Ω ± 5% at 20°C (68°F)

BATTERY

CAUTION:

To insure maximum battery performance be sure to:

- Charge a new battery before use.
- Maintain proper electrolyte level.
- Charge at proper current; 1.4 amps/10 hrs. or until the specific gravity reaches 1.280 at 20°C (68°F).

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

WARNING:

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

Always follow these preventive measures:

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

Antidote (EXTERNAL):

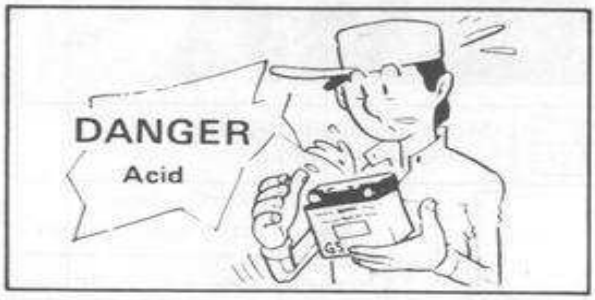
- SKIN-Flush with water.
- EYES-Flush with water for 15 minutes and get immediate medical attention.
- Drink large quantities of water or milk and follow with milk of magnesia, beaten egg, or vegetable oil.

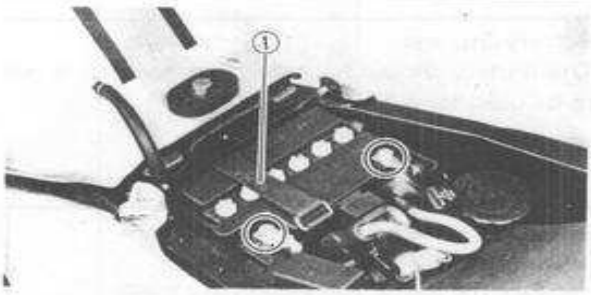
Get immediate medical attention.

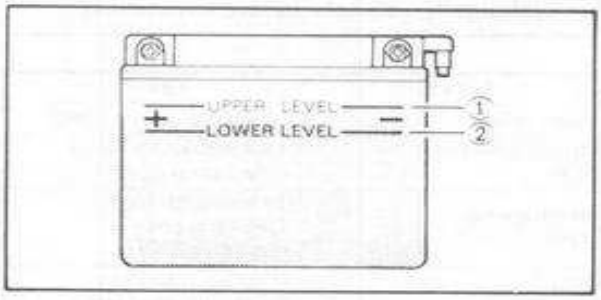
Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:

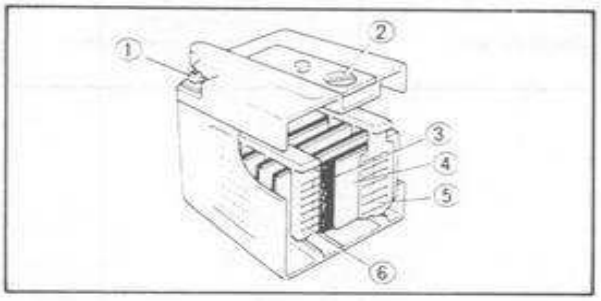
- Charge batteries in a well-ventilated area.
- Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)
- DO NOT SMOKE when charging or handling batteries.

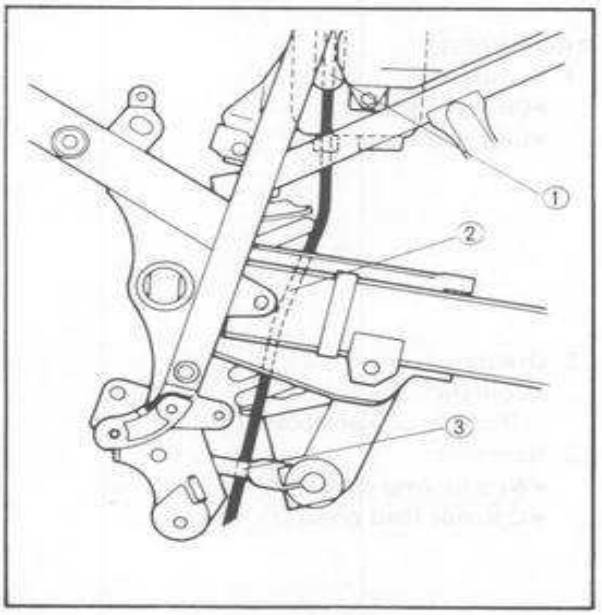
KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN:











Inspection

1. Remove:
   - Seat
   - Battery band ①
   - Battery

   Disconnect negative lead first.

2. Inspect:
   - Battery fluid level

   Below lower level → Add distilled water.

① Upper level
② Lower level

NOTE:

Replace the battery if:

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

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

3. Measure:
   - Specific gravity:

   Less than 1.280 → Recharge battery.
4. Install:
   - Battery

   Connect positive lead first.
5. Check:
   - Breather hose

   Improper routing → Correct.
   Obstruction/Damage → Replace.

① Pass through inside of battery case.
② Pass through inside of swingarm.
③ Pass through the connecting rod hole.

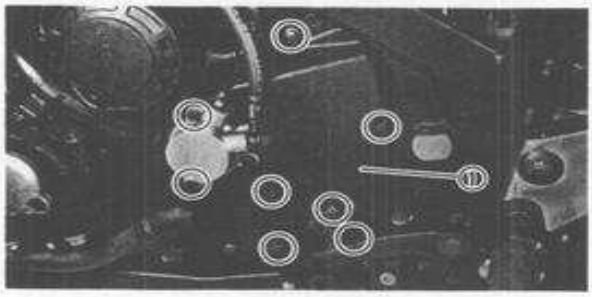
Battery Storage

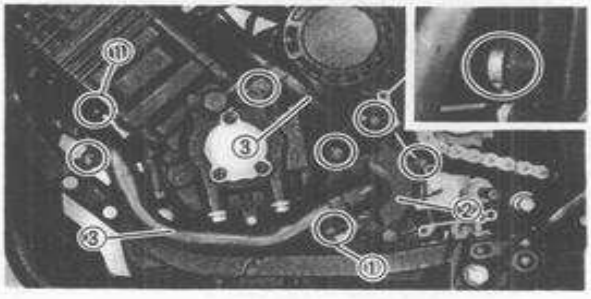
The battery should be stored if the vehicle is not to be used for a long period.

1. Remove:
   - Battery

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

Battery	YB14L
Electrolyte	Specific gravity—1.280
Initial charging rate	1.4Amp for 10 hours (new battery)
Recharging rate	10 hours (or until specific gravity reaches 1.280)
Refill fluid	Distilled water (to maximum level line)
Refill period	Check once per month (or more often as required)

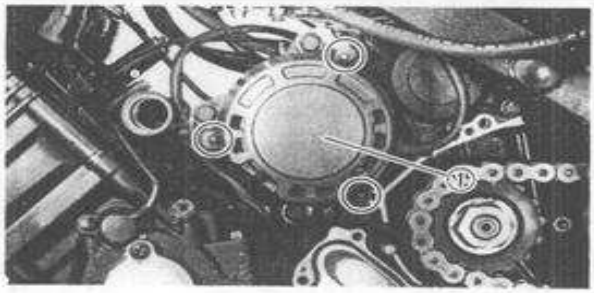




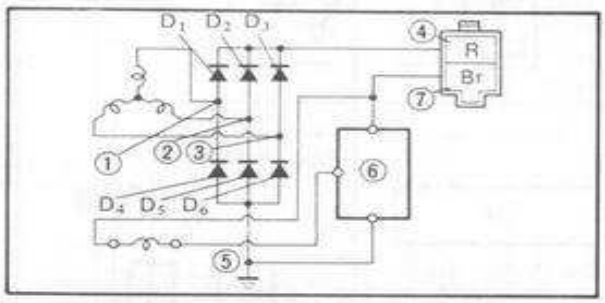
RECTIFIER

1. Remove:
   - Change pedal
   - Left crankcase cover ①

2. Drain:
   - Coolant
     (Remove coolant bolts ①)
3. Remove:
   - Water pump cover ②
   - Coolant feed pipes ③



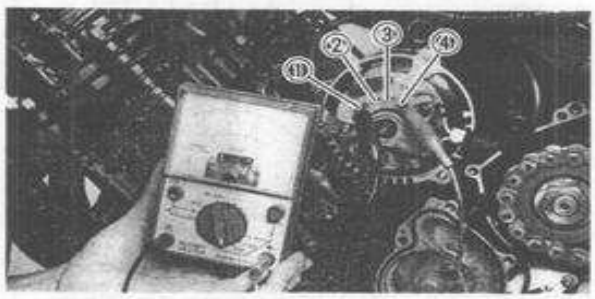
4. Remove:
   - Generator cover ①

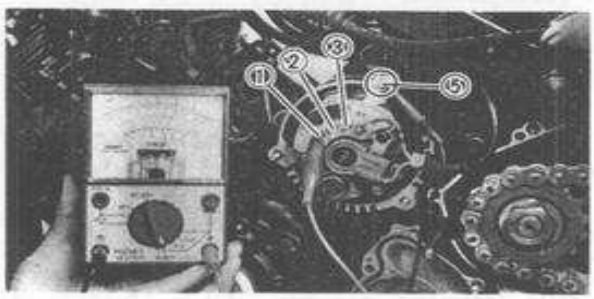


5. Check:
   - Rectifier diodes

   Refer to the following table.
   Defective element → Replace rectifier.

④ Red
⑤ Ground
⑥ IC Regulator
⑦ Brown





Checking Element	Pocket Tester Connecting Point (+) (red)	Pocket Tester Connecting Point (−) (black)	Good
D_1	④	①	○
	①	④	×
D_2	④	②	○
	②	④	×
D_3	④	③	○
	③	④	×
D_4	①	⑤	○
	⑤	①	×
D_5	②	⑤	○
	⑤	②	×
D_6	③	⑤	○
	⑤	③	×

○: Continuity ×: Discontinuity (∞)

CAUTION:

Do not overcharge rectifier or damage may result.

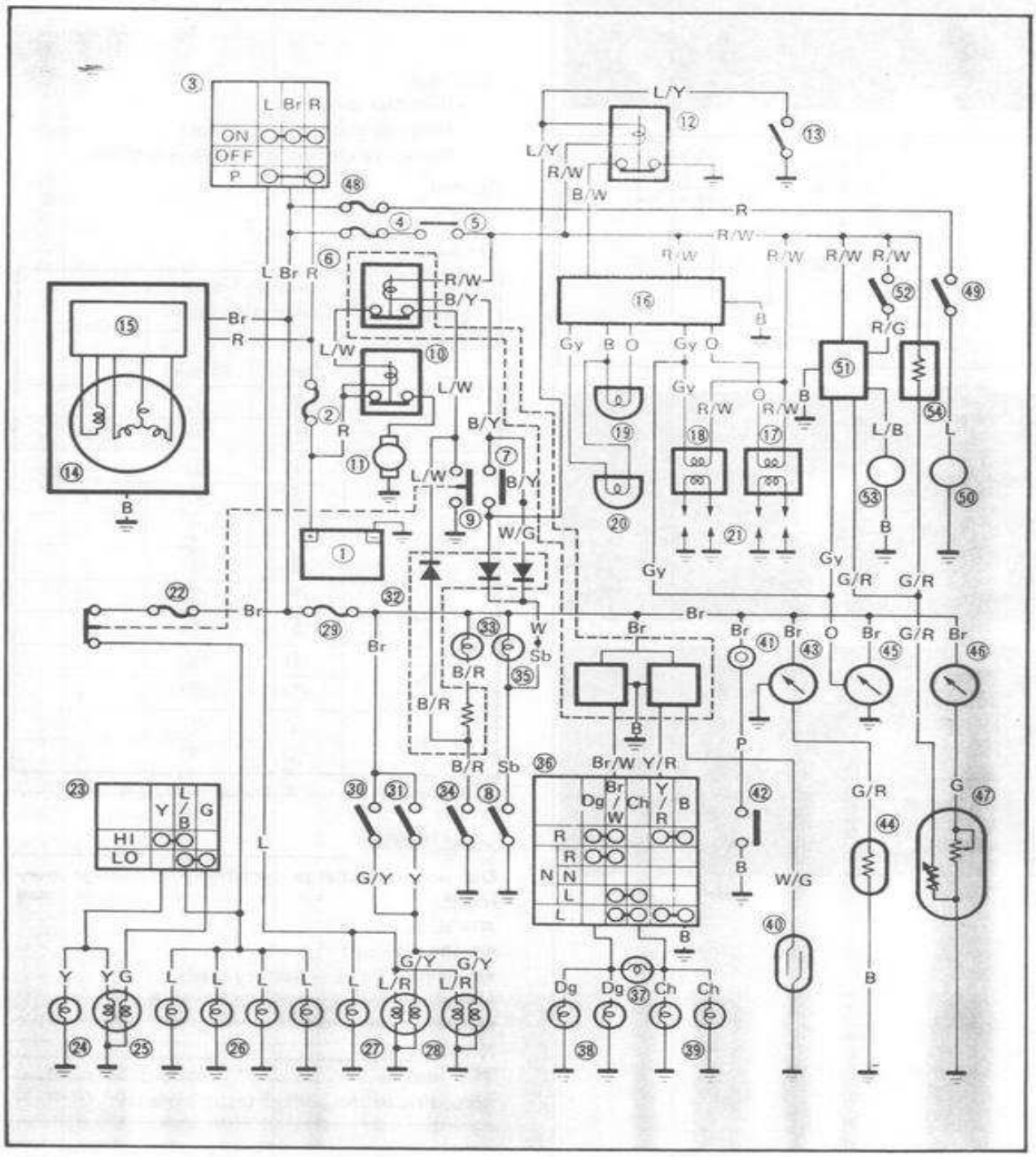
Avoid:

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

NOTE:

The results "○" or "×" should be reversed according to the pocket tester polarity.

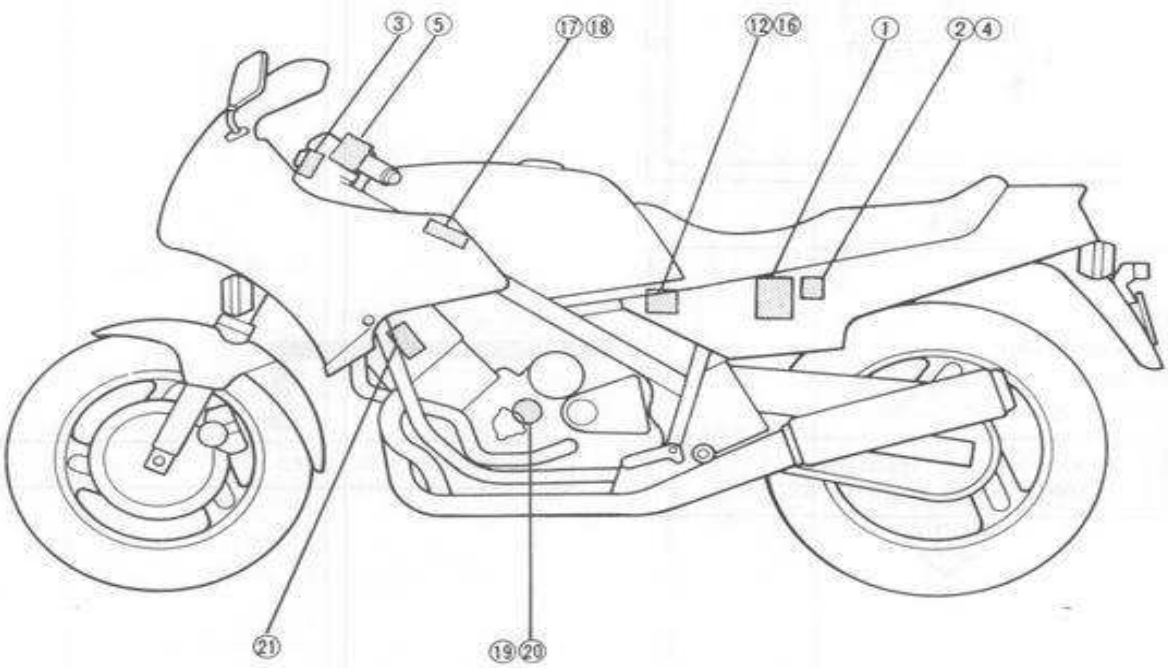
IGNITION SYSTEM



① **Battery**
② **Main fuse**
③ **Main switch**
④ **Ignition fuse**
⑤ **"ENGINE STOP" switch**
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ **Sidestand relay**
⑬ Sidestand switch
⑭ AC Magneto
⑮ Rectifier/Regulator
⑯ **Ignitor unit**
⑰ **Ignition coil (# 1 and # 4 cylinder)**
⑱ **Ignition coil (# 2 and # 3 cylinder)**
⑲ **Pick up coil (# 1 and # 4 cylinder)**
⑳ **Pick up coil (# 2 and # 3 cylinder)**
㉑ **Spark plug**
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ Fuel sender
㊽ Fan fuse
㊾ Thermostatic switch
㊿ Electric fan motor
(51) Fuel pump controller
(52) "FUEL" (Reserve) switch
(53) Fuel pump
(54) Resister

COLOR CODE

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



TROUBLESHOOTING CHART

NO SPARK OR WEAK SPARK

A

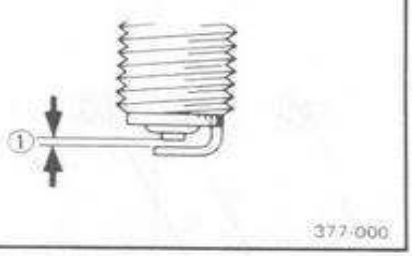
1. Remove:
   - Lower cowling
   - Spark plugs
2. Check:
   - Spark plug type

Standard Spark Plug:
DP8EA-9 (NGK)
X24EP-U9 (ND)

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

3. Measure:
   - Electrode gap

Spark Plug Electrode Gap ① :
0.8 ~ 0.9 mm (0.031 ~ 0.035 in)



OK

B

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

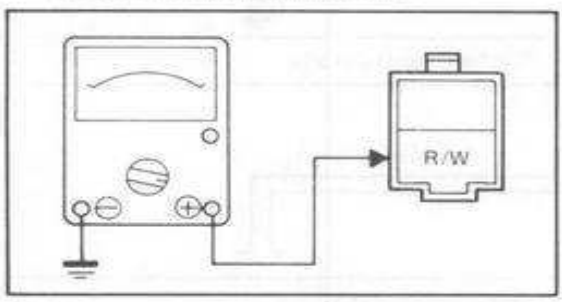
Spark Plug Cap Resistance:
10kΩ ± 25% at 20°C (68°F)

Out of specification → Replace spark plug cap.

OK

C

1. Remove:
   - Seat
   - Fuel tank
   - Air cleaner case
2. Disconnect:
   - Ignition coil coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)



4. Measure:
   - Battery voltage (12V)
     (on the "R/N" lead)
     Turn main swith to "ON".
     Turn engine stop switch to "RUN".



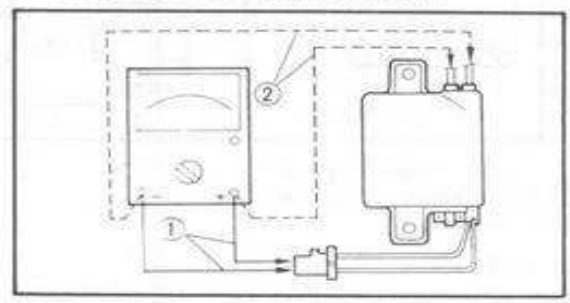
Less than 12V

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

12V

D

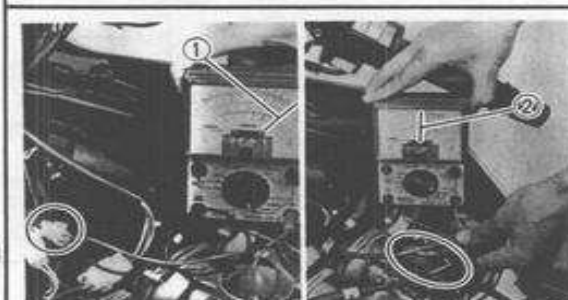
1. Connect:
   - Pocket Tester
     (to ignition coil side connector)



① Primary
② Secondary

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

Ignition Coil Resistance:
Primary ① : 2.7Ω ± 10%
Secondary ② : 9.5kΩ ± 20%



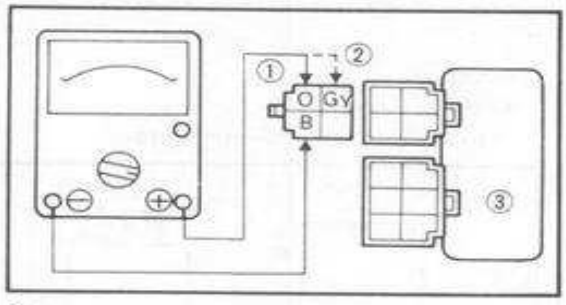
OK

Out of specification

Replace ignition coil.

E

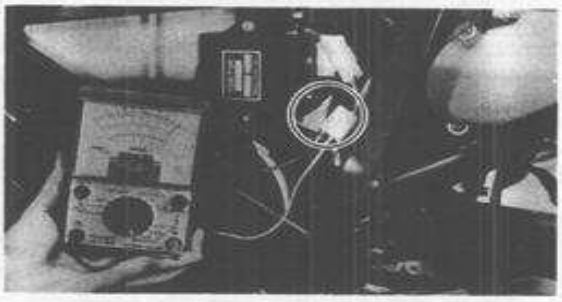
1. Remove:
   - Seat
   - Left side cover
2. Disconnect:
   - Ignitor unit coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)



① For =1 and =4 cylinder
② For =2 and =3 cylinder
③ Ignitor unit

4. Measure:
   - Pick-up coil resistance

Pick-up Coil Resistance:
190Ω ± 10% at 20°C (68°F)
For =1 and =4 cylinder
(Orange – Black)
For =2 and =3 cylinder
(Gray – Black)



Out of specification → Replace faulty parts.

OK → Check sidestand relay.
(Refer to starting system trouble-shooting chart [D].)

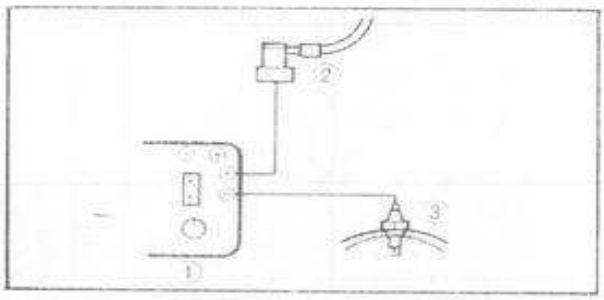
Defects → Replace sidestand relay.

OK → Replace ignitor unit.

ENTIRE IGNITION SYSTEM CHECK

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

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



2. Connect:
   - Electro Tester (YU-33261) ①
3. Start the engine, and increase the spark gap until misfire occurs. (Test at vaious r/min between idle and red line.)

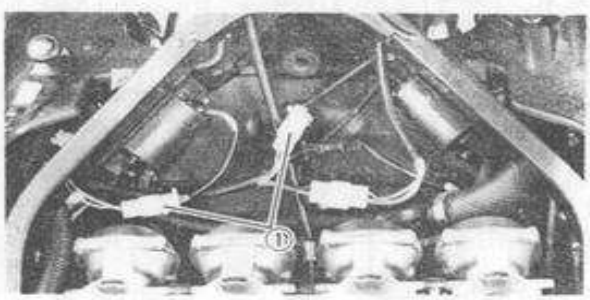
② Spark plug wire
③ Spark plug

CAUTION:

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

Minimum Spark Gap:
6 mm (0.24 in)

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



IGNITION COIL SPARK GAP

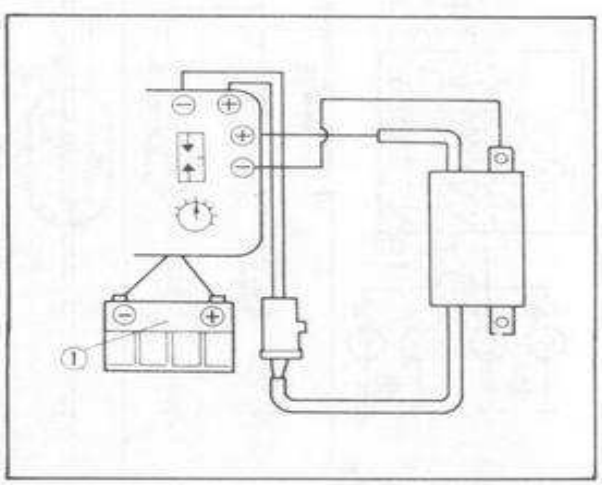
1. Remove:
   - Seat
   - Fuel tank
   - Air cleaner case
2. Disconnect:
   - Ignition coil lead couplers ①
   - Spark plug leads
3. Connect:
   - Electro Tester (YU-33261)

NOTE:

Be sure to use a fully charged battery.

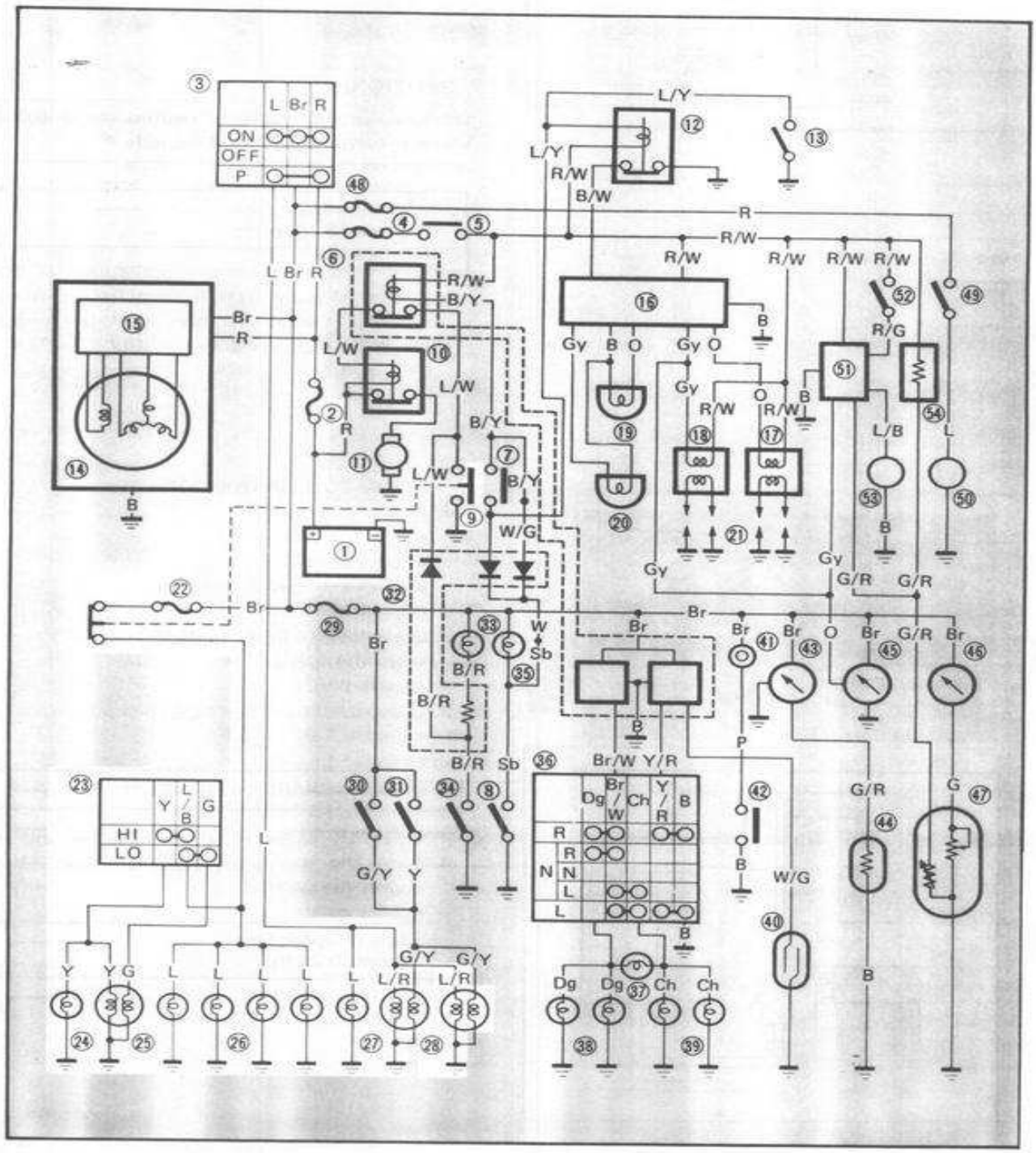
4. Turn the spark plug gap adjuster and increase the gap to the maximum limit unless misfire occurs first.

Minimum Spark Gap:
6 mm (0.24 in)



① Battery (12V)

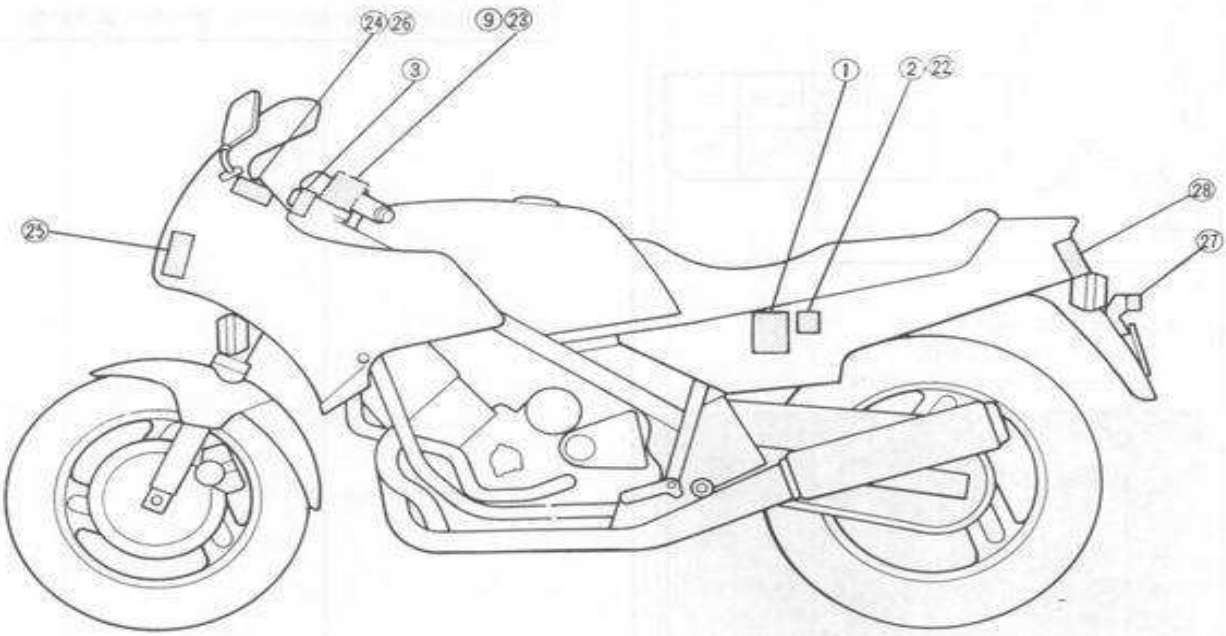
LIGHTING SYSTEM



① Battery
② Main fuse
③ Main switch
④ Ignition fuse
⑤ "ENGINE STOP" switch
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ Sidestand relay
⑬ Sidestand switch
⑭ AC Magneto
⑮ Rectifier/Regulator
⑯ Ignitor unit
⑰ Ignition coil (# 1 and # 4 cylinder)
⑱ Ignition coil (# 2 and # 3 cylinder)
⑲ Pick up coil (# 1 and # 4 cylinder)
⑳ Pick up coil (# 2 and # 3 cylinder)
㉑ Spark plug
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ Fuel sender
㊽ Fan fuse
㊾ Thermostatic switch
㊿ Electric fan motor
(51) Fuel pump controller
(52) "FUEL" (Reserve) switch
(53) Fuel pump
(54) Resister

COLOR CODE

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



TROUBLESHOOTING CHART (1)

THE HEADLIGHT AND HIGH BEAM INDICATOR LIGHT DO NOT COME ON

A

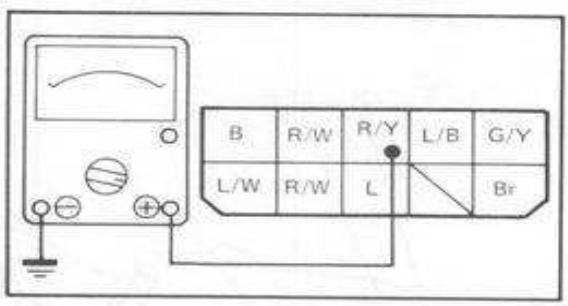
1. Disconnect:
   - Headlight couple
2. Remove:
   - Headlight bulb
   - Cowling
   - High beam indicator light bulb
3. Check:
   - Bulbs

Faulty → Replace bulbs.

OK

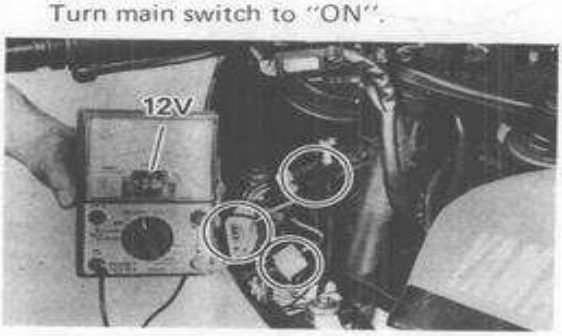
B

1. Remove:
   - Left front panel
2. Disconnect
   - Starter switch coupler
3. Connect:
   - Pocket Tester to wire harness side coupler



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

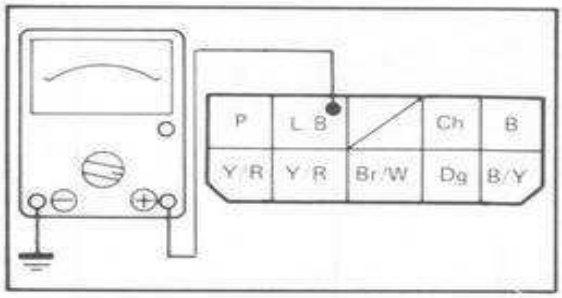
4. Measure:
   - Battery voltage (12V)
     (on the "R/Y" lead)
     Turn main switch to "ON".



12V

C

1. Disconnect:
   • Dimmer switch coupler
2. Connect:
   • Pocket Tester to wire harness side coupler



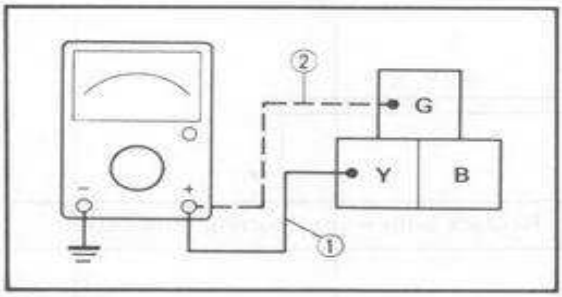
3. Measure:
   • Battery voltage (12V)
   (on the "L/B" lead)
   Turn main switch to "ON".

Less than 12V → Replace starter switch.

12V

D

1. Disconnect:
   • Headlight coupler
2. Connect:
   • Pocket Testre to headlight coupler



① High beam
② Low beam

2. Measure:
   • Battery voltage (12V)
   (on "Y" and "G" leads)

Less than 12V → Replace dimmer switch.

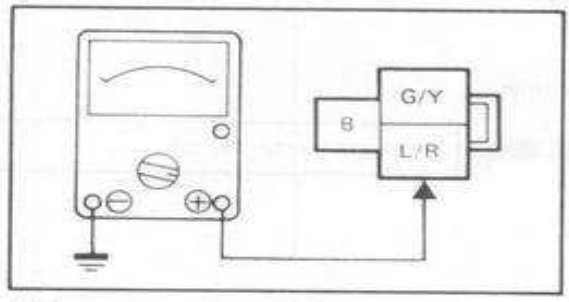
12V → Correct connection.

TROUBLESHOOTING CHART (2)

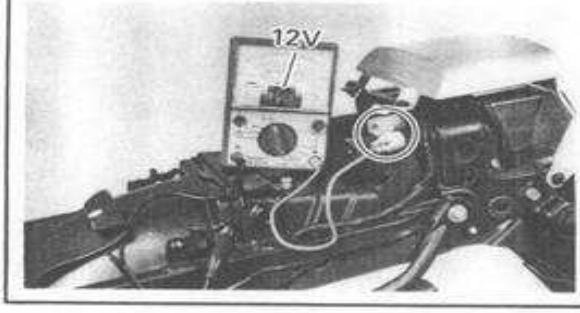
THE TAIL LIGHT AND LICENCE LIGHT DO NOT COME ON

A

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



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

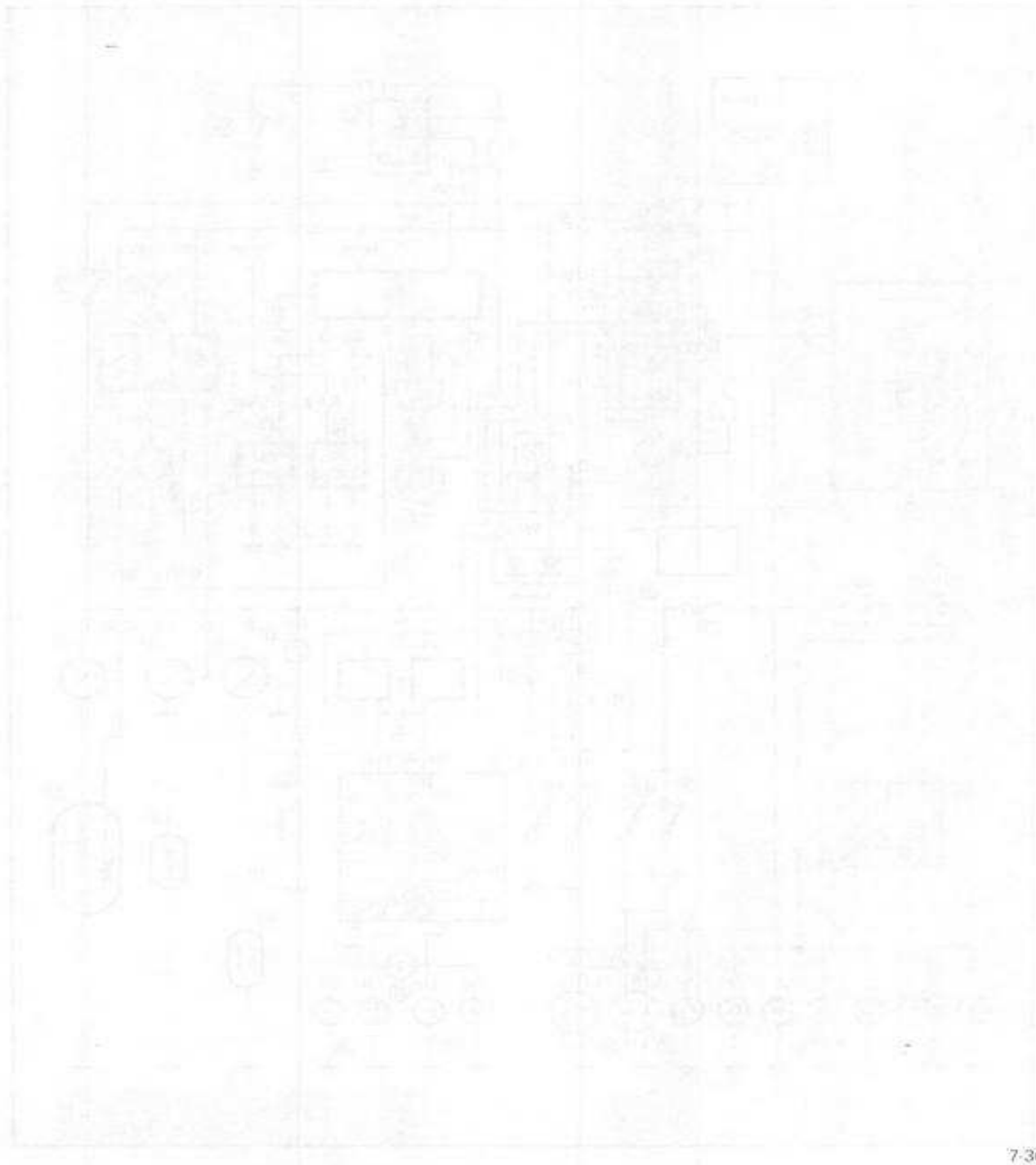


Less than 12V

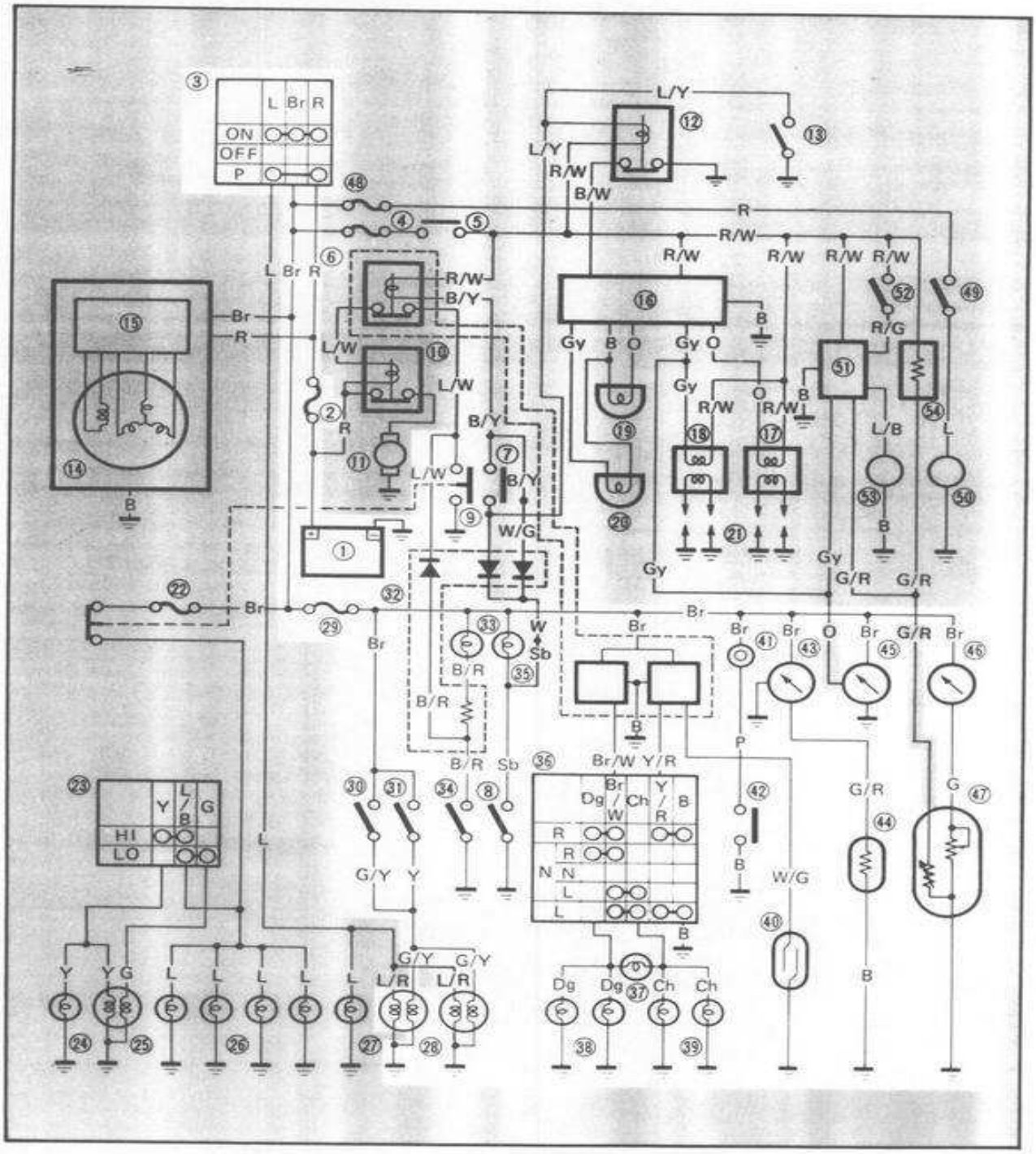
- Check the main switch, main fuse, and battery.
- Replace faulty parts and/or charge battery.

12V

Replace bulb and/or correct connection.



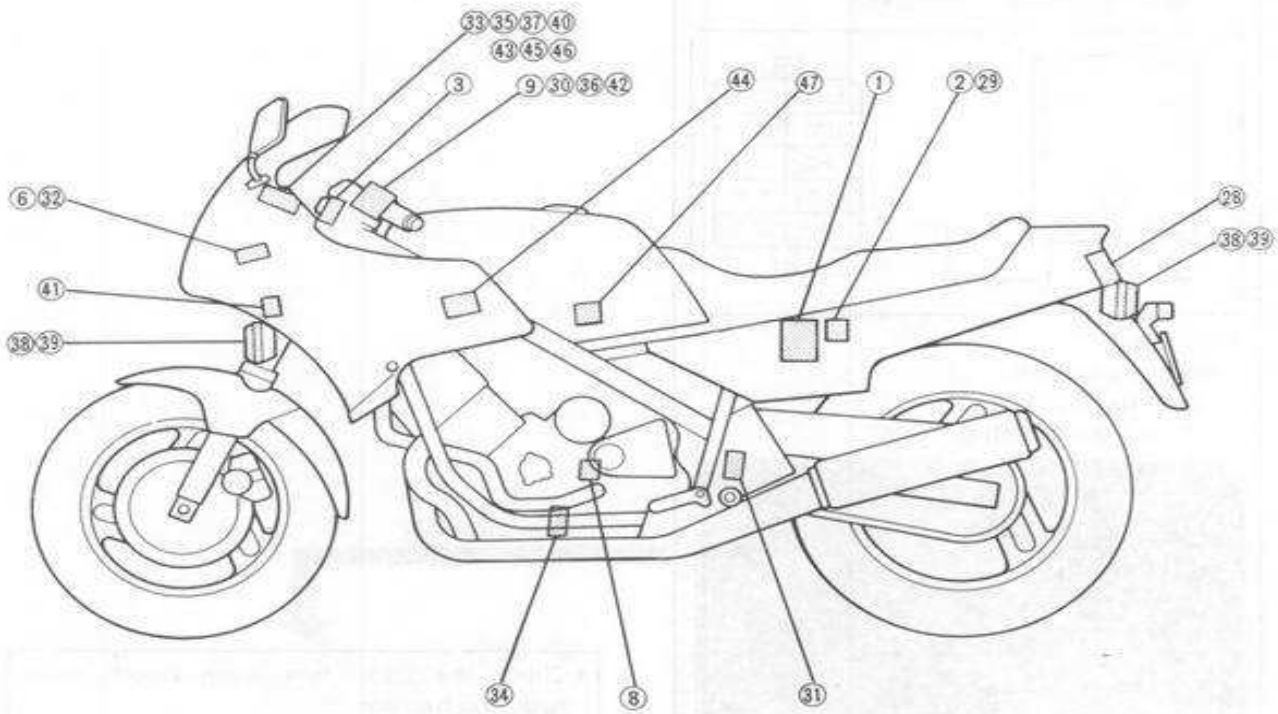
SIGNAL SYSTEM



① Battery
② Main fuse
③ Main switch
④ Ignition fuse
⑤ "ENGINE STOP" switch
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ Sidestand relay
⑬ Sidestand switch
⑭ AC Magneto
⑮ Rectifier/Regulator
⑯ Ignitor unit
⑰ Ignition coil (#1 and #4 cylinder)
⑱ Ignition coil (#2 and #3 cylinder)
⑲ Pick up coil (#1 and #4 cylinder)
⑳ Pick up coil (#2 and #3 cylinder)
㉑ Spark plug
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ Fuel sender
㊽ Fan fuse
㊾ Thermostatic switch
㊿ Electric fan motor
(51) Fuel pump controller
(52) "FUEL" (Reserve) switch
(53) Fuel pump
(54) Resister

COLOR CODE

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



TROUBLESHOOTING CHART (1)

THE FLASHER LIGHT AND INDICATOR LIGHT DO NOT COME ON

A

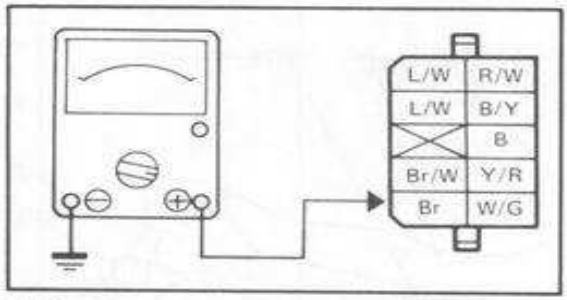
1. Remove:
   - Flasher light cover
   - Flasher light bulb
   - Cowling
   - Flasher indicator light bulb
2. Check:
   - Bulbs

Faulty → Replace bulb.

OK

B

1. Remove:
   - Right front panel
2. Disconnect:
   - Relay assembly coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)



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

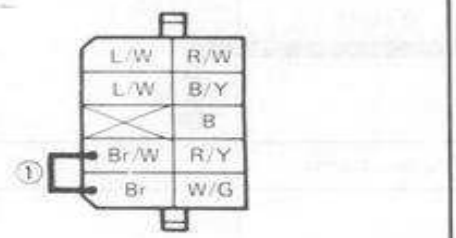


Less than 12V →
- Check the signal fuse, main switch, main fuse, and battery.
- Replace faulty parts and/or charge battery.

12V

C

1. Connect:
   - Relay assembly coupler terminals.



① Jumper lead

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

Does not light → Replace "TURN" switch.

Lights ↓

Check all connections.

Faulty → Correct connection.

OK ↓

Replace relay assembly.

TROUBLESHOOTING CHART (2)

THE BRAKE LIGHT DOES NOT COME ON

A

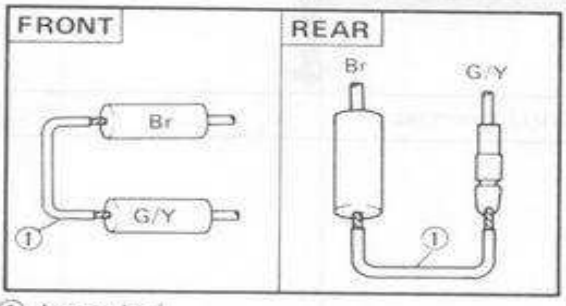
1. Remove:
   - Brake light cover
   - Brake light bulb
2. Check:
   - Bulbs

Faulty → Replace bulbs.

OK ↓

B

1. Remove:
   - Seat
   - Right side cover
2. Disconnect:
   - Brake switch coupler
3. Connect:
   - Wire harness side coupler terminals



① Jumper lead

4. Check:
   - Brake light conditiion
     Turn main switch to "ON".

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

Lights ↓

Check all connections.

Faulty →

OK ↓

Replace brake switch.

Correct connection.

TROUBLESHOOTING CHART (3)

THE NEUTRAL AND OIL INDICATOR LIGHTS DO NOT COME ON

A

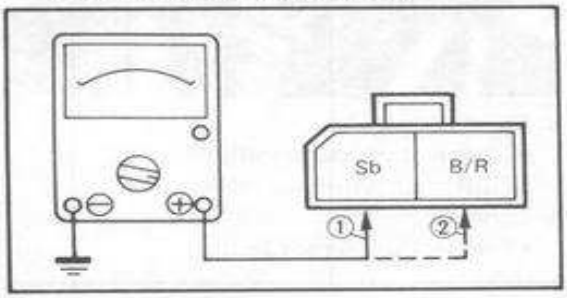
1. Remove:
   - Cowing
   - Oil indicator bulb
   - Neutral light bulb
2. Check:
   - Bulbs

Faulty → Replace bulb.

OK

B

1. Remove:
   - Seat
   - Left side cover
2. Disconnect:
   - Neutral/oil level switch coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)

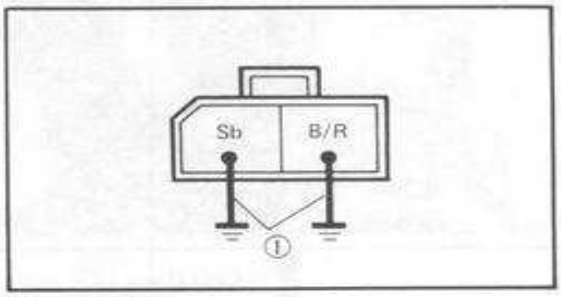


① Neutral switch check
② Oil level switch check

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

12V → **C**

1. Ground
   - Neutral/oil level switch coupler terminals.
     (wire harness side)



① Jumper lead

2. Check:
   - Neutral and oil indicator lights condition
     Turn main switch to "ON."

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

Do not light → Correct connection. Replace diode.

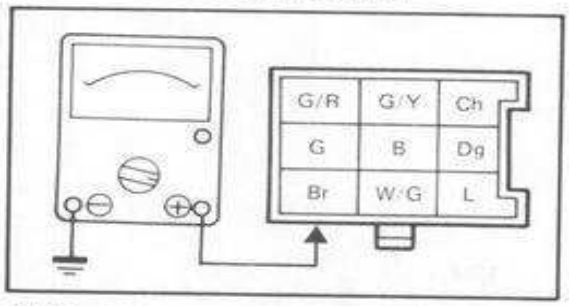
Light → Replace neutral and oil level switchs.

TROUBLESHOOTING CHART (4)

THE TEMPERATURE GAUGE DOES NOT FUNCTION

A

1. Remove:
   - Left front panel
2. Disconnect:
   - Indicator light coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)



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



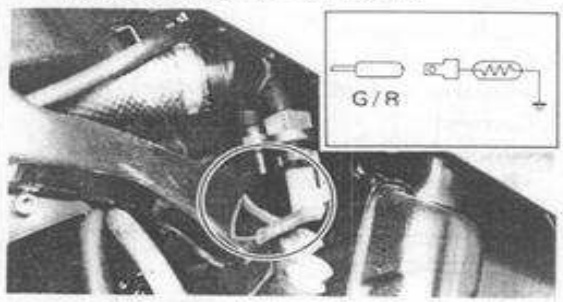
Less than 12V

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

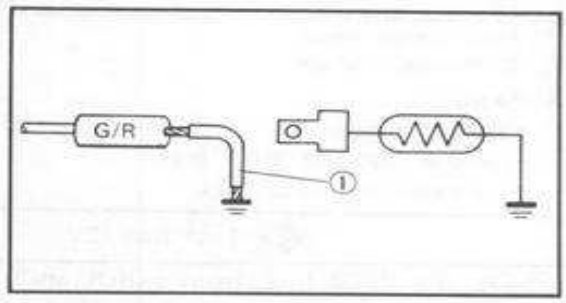
12V

B

1. Remove:
   - Right lower cowling
2. Disconnect:
   - Temperature sensor connector



3. Check:
   - Temperature gauge indicatoin "C"
     Turn main switch to "ON."
4. Connect:
   - Temperature sensor lead



① Jumper lead

5. Check:
   - Temperature gauge indication "H"
     Turn main switch to "ON."

Correct indications

Incorrect indications

Replace temperature sensor.

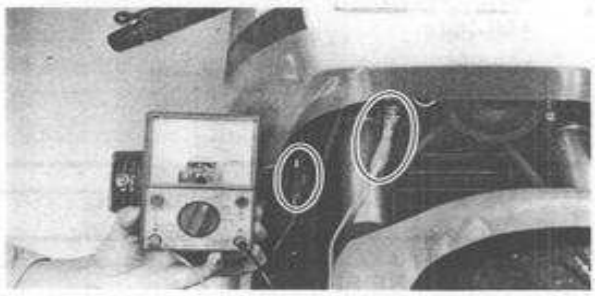
Check all connections.

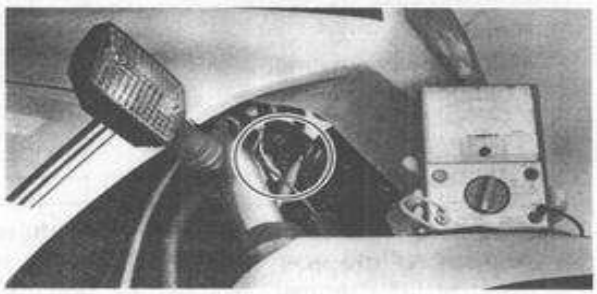
OK

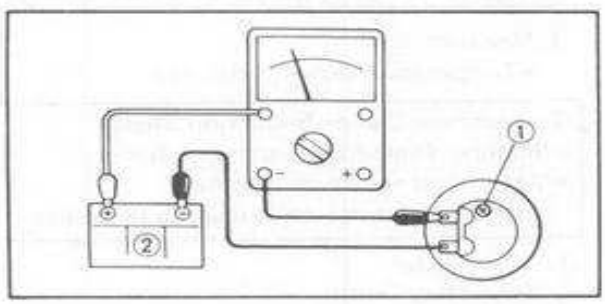
Faulty

Correct connections.

Replace the temperature gauge (tachometer assembly).







HORN

1. Check:

CHECK FOR:	HORN INOPERATIVE
	12V ON BROWN WIRE TO HORN
	GOOD GROUND (HORN/PINK WIRE) WHEN HORN BUTTON IS PRESSED

Defective components → Replace.

2. Disconnect:
   - Horn lead
3. Measure:
   - Horn resistance

   Out of specification → Replace.

Tester's lead wire		Standard resistance	Tester's range
Red lead	Black lead		
Brown lead	Pink lead	1.05Ω ± 10%	R x 1

4. Adjust:
   - Volume

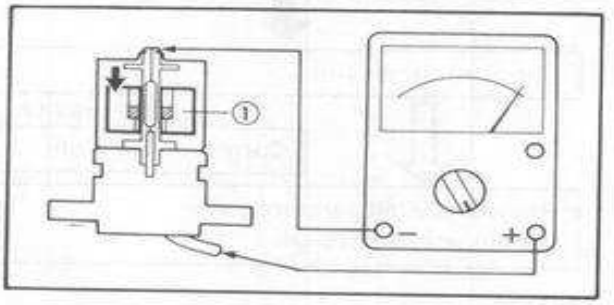
   Turn the adjuster ① in and out so that the volume is maximum at the maximum amperage.

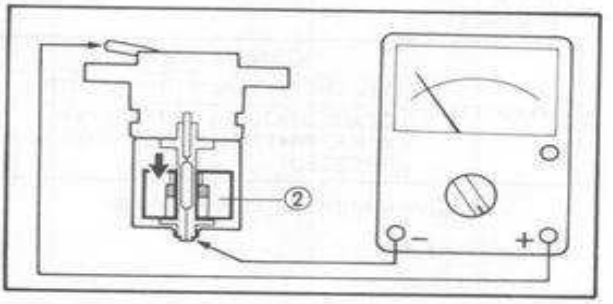
Horn Maximum Amperage: 2.5A

② Battery (12V)

OIL LEVEL SWITCH

1. Drain:
   - Engine oil
2. Remove:
   - Muffler
   - Oil level switch





3. Measure:
   - Oil level switch resistance
   Out of specification → Replace.

Oil Level Switch Resistance:
Float is down ① → 0Ω
Float is up ② → ∞Ω

4. Install:
   - Oil level switch
   - Muffler
5. Conncect:
   - Leads
6. Fill:
   - Crankcase

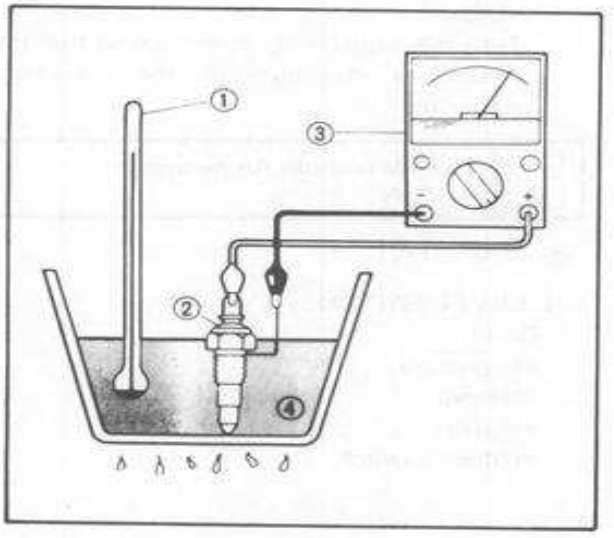
3.5 L (3.08 Imp qt, 3.70 US qt)

TEMPERATURE SENSOR

1. Drain the coolant.
2. Remove:
   - Right lower cowling
   - Temperature sensor

CAUTION:

Handle the temperature sensor very carefully. Never subject it to severe shock or allow it to be dropped. If dropped, it must be replaced.



3. Measure:
   - Temperature sensor resistance

Temperature Sensor Inspection Steps:
- Immerse Temperature sensor water.
- Measure resistance as indicated.
  Note temperatures while heating the water.

① Thermometer
② Temperature Sensor
③ Pocket tester
④ Water

Water Temperature	Resistance
50°C (122°F)	153.9Ω
80°C (176°F)	47.5 ~ 56.8Ω
100°C (212°F)	26.2 ~ 29.3Ω

4. Install:
   - Temperature sensor

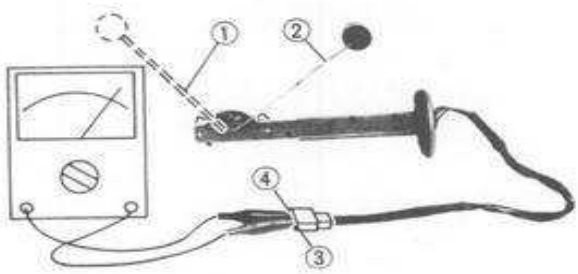
	Temperature Sensor: 14Nm (1.4 m.kg, 10 ft.lb)

FUEL SENDER

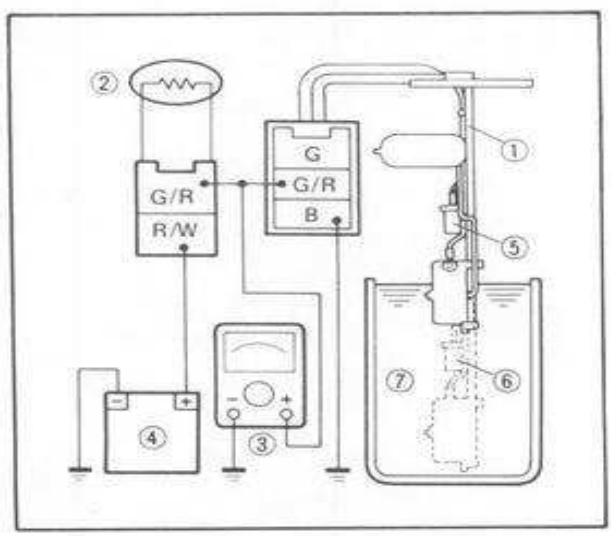
1. Remove:
   - Seat
   - Side covers
   - Fuel tank
   - Fuel sender
2. Measure:
   - Fuel sender resistance

   Out of specification → Replace.

Fuel sensor resistance	
Full ①	3 ± 2Ω
Empty ②	110 ± 7Ω



③ Green lead
④ Brack lead

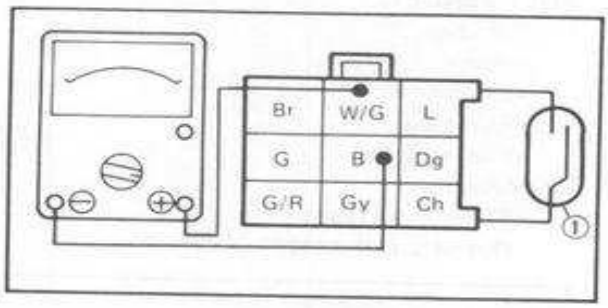


3. Connect:
   - Fuel sender ①
   - Resister (70Ω) ②
   - Pocket Tester ③
   - Battery (12V) ④
4. Measure:
   - Battery voltage

   Out of specification → Replace fuel sender.

Battery Voltage		
⑥	Thermistor is in the gasoline	More than 8.5V
⑤	Thermistor is in the air	Less than 6.5V

⑦ Gasoline



REED SWITCH

1. Remove:
   - Left front panel
2. Disconnect:
   - Indicator light coupler
3. Connect:
   - Pocket Tester
     (to reed switch side coupler)
4. Measure:
   - Reed switch ① resistance
     Lift the front wheel and slowly rotate front wheel back and forth.

	Reed Switch Resistance: **0Ω and ∞Ω**

SWITCHES

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

A

Switch position	Wire color		
	R	Br	L
P	○		○
OFF			
ON	○	○	○

B

Switch position	Wire color	
	R/W	R/W
OFF		
RUN	○	○

C

Brake lever/ (pedal position)	Wire color	
	Br	G/Y
FREE		
DEPRESS	○	○

D

Switch position	Wire color		
	Y	L/B	G
HI	○	○	
LO		○	○

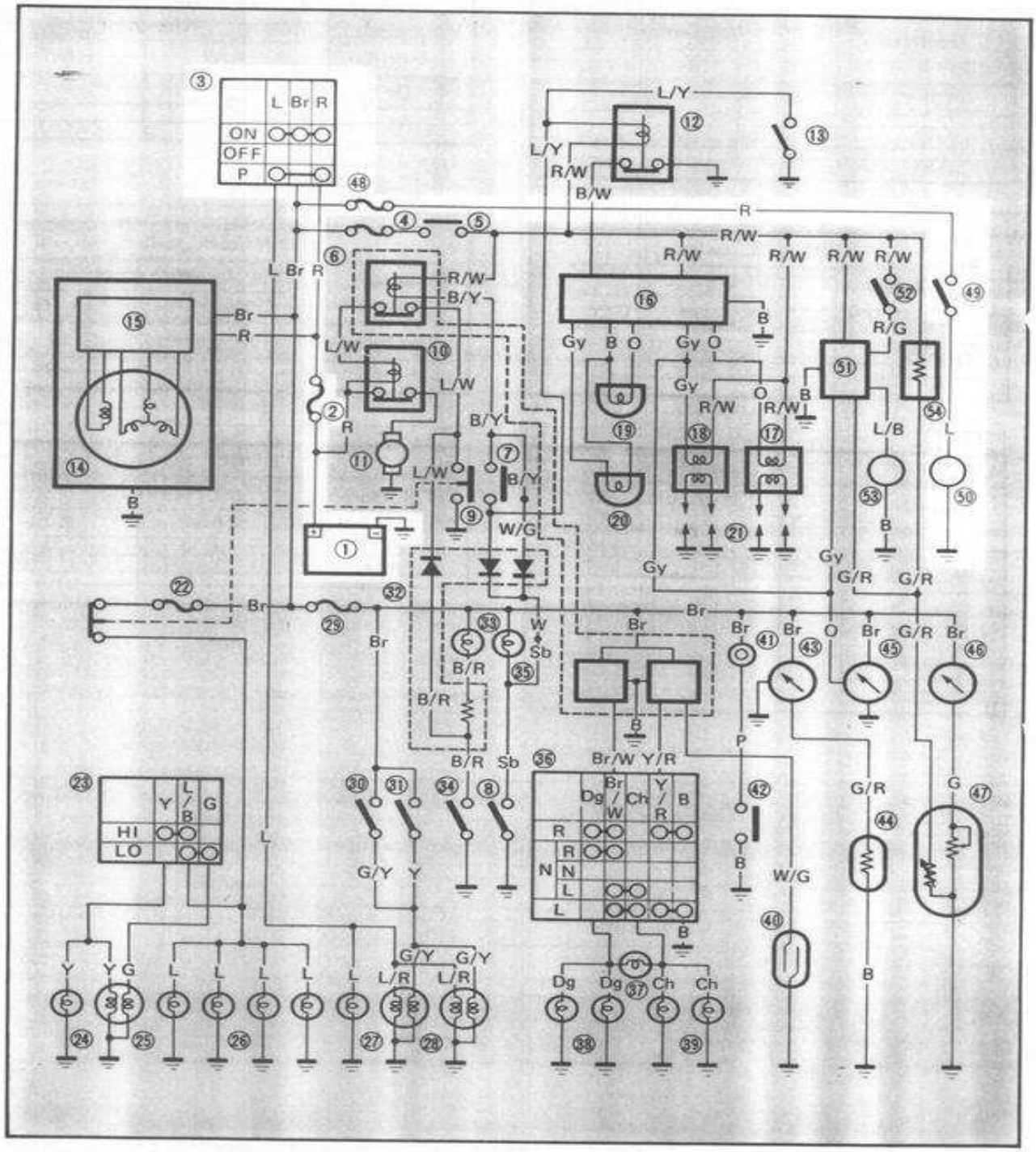
E

Switch position		Wire color				
		Ch	Br/W	Dg	Y/R	B
L		○	○		○	○
N	L	○	○			
	N					
	R		○	○		
R			○	○	○	○

F

Button position	Wire color	
	P	B
PUSH	○	○
OFF		

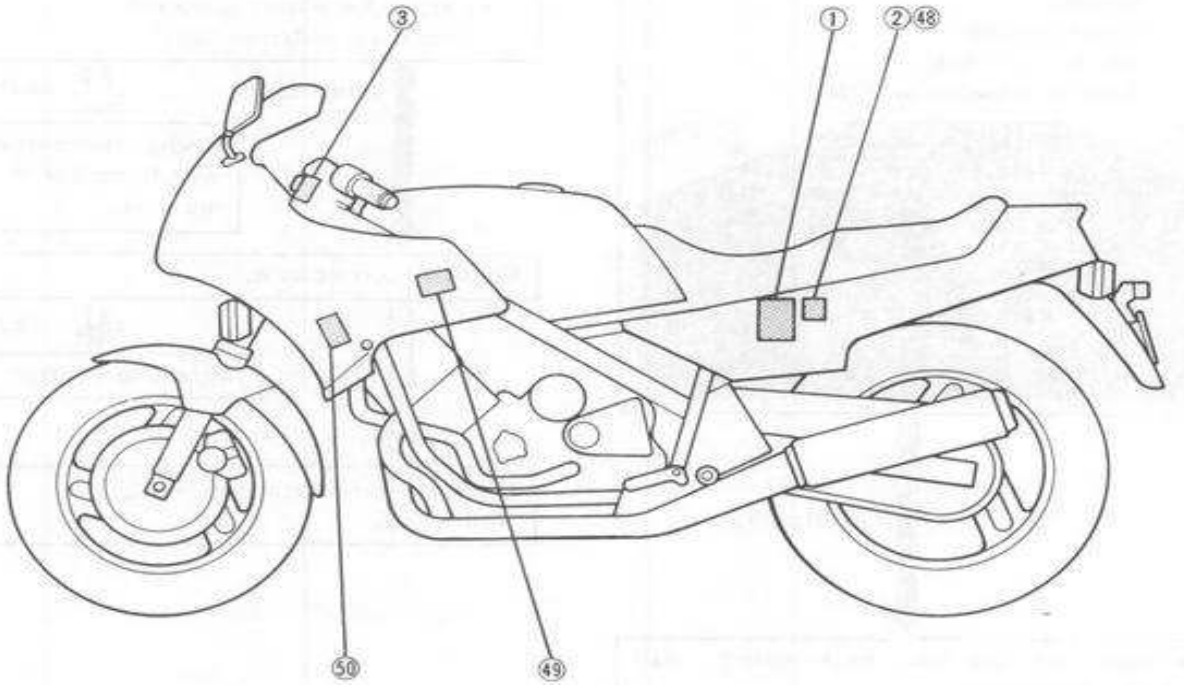
COOLING SYSTEM



① **Battery**
② **Main fuse**
③ **Main switch**
④ Ignition fuse
⑤ "ENGINE STOP" switch
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ Sidestand relay
⑬ Sidestand switch
⑭ AC Magneto
⑮ Rectifier/Regulator
⑯ Ignitor unit
⑰ Ignition coil (# 1 and # 4 cylinder)
⑱ Ignition coil (# 2 and # 3 cylinder)
⑲ Pick up coil (# 1 and # 4 cylinder)
⑳ Pick up coil (# 2 and # 3 cylinder)
㉑ Spark plug
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ Fuel sender
㊽ **Fan fuse**
㊾ **Thermostatic switch**
㊿ **Electric fan motor**
(51) Fuel pump controller
(52) "FUEL" (Reserve) switch
(53) Fuel pump
(54) Resister

COLOR CODE

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

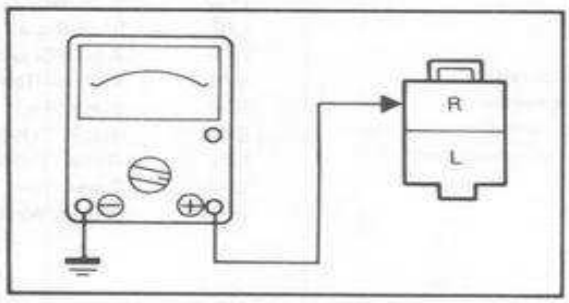


TROUBLESHOOTING CHART

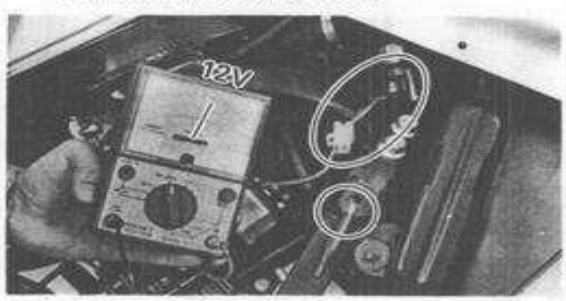
ELECTRIC FAN MOTOR FAILS TO OPERATE
when temperature meter indicator enters "Red" zone

A

1. Remove:
   - Right lower cowling
2. Disconnect:
   - Thermostatic switch coupler
3. Connect:
   - Pocket Tester
     (to wire harness side coupler)



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



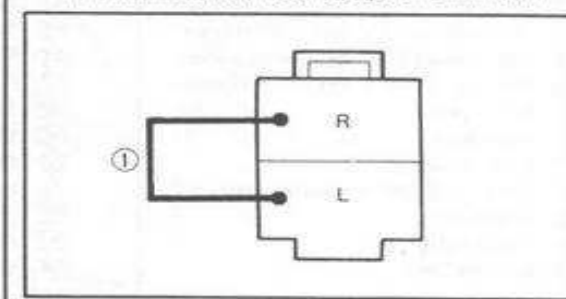
Less than 12V

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

12V

B

1. Connect:
   - Thermostatic switch coupler terminals



① Jumper lead

2. Check:
   - Electric fan motor operation.
     Turn main switch to "ON".

Inoperative

Operative

Inspect thermostatic switch, replace if necessary.

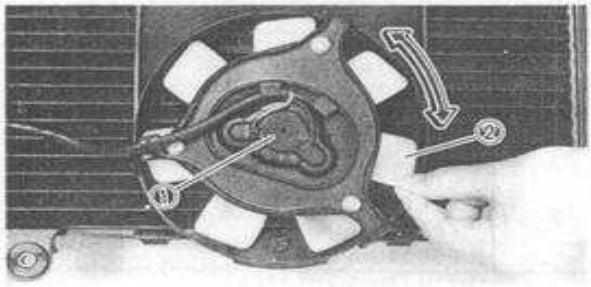
Check all connections.

Faulty

Correct connection.

OK

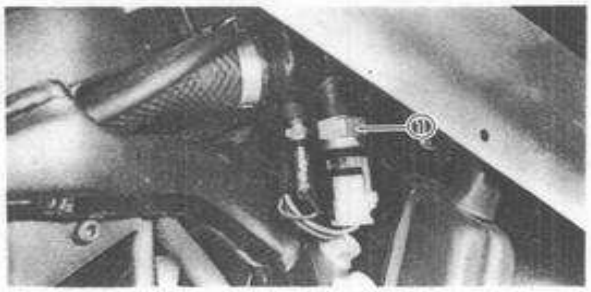
Inspect electric fan motor, replace if necessary.



ELECTRIC FAN

THE FOLLOWING PROBLEMS MAY REQUIRE REPAIR OR REPLACEMENT OF COMPONENTS	
COMPONENT	CONDITION
FAN MOTOR	UNSMOOTH OPERATION
FAN MOTOR	EXCESSIVE VIBRATION
FAN MOTOR BRACKET	CRACKS
FAN BLADES	CRACKS
SECURING BOLTS	LOOSENESS

① Electirc fan motor
② Fan



THERMOSTATIC SWITCH

1. Remove:
   - Right lower cowling
   - Thermostatic switch ①

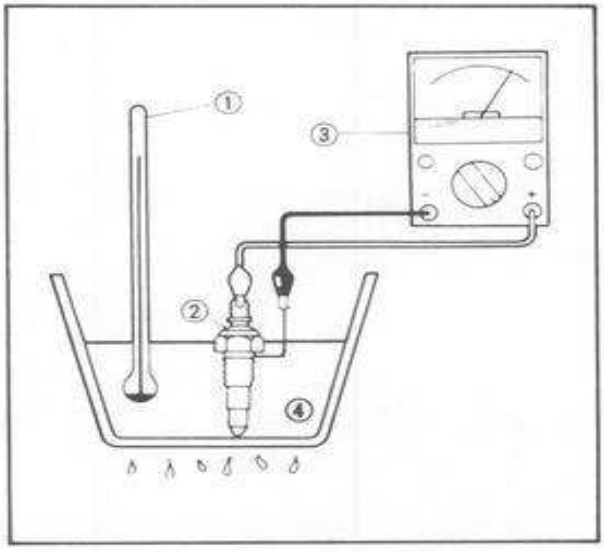
WARNING:

Handle the thermostatic switch very carefully. Never subject it to strong shock or allow it to be dropped. Should it be dropped, it must be re-places.

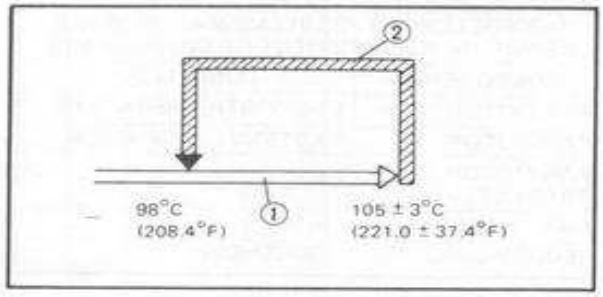
2. Inspect:
   - Thermostatic switch operation.

Thermostatic switch inspection steps:
- Immerse thermostatic switch ② in water ④.
- Check continuity as indicated.
  Note temperatures while heating the water.

Thermostatic Switch Operating Temperature:
98°C ~ 105°C (208.4°F ~ 221.0°F)



① Thermometer
③ Pocket tester



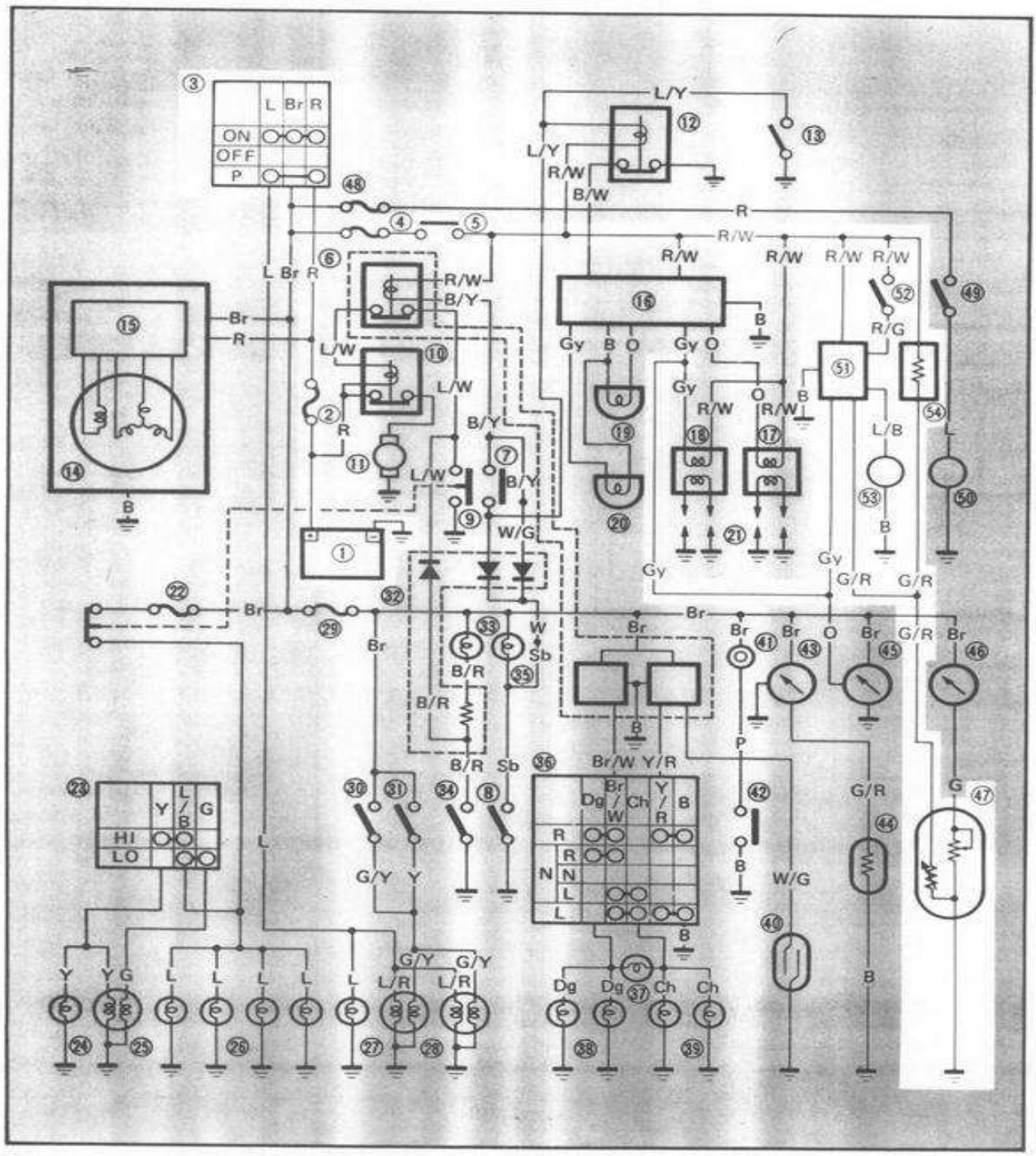
TEST STEP	WATER TEMPERATURE	POCKET TESTER (Ω x 1)
1	0 ~ 98°C (32° ~ 208.4°F)	DISCONTINUITY
2	MORE THAN 105°C (MORE THAN 221.0°F)	CONTINUITY
3*	105 TO 98°C (221.0 TO 208.4°F)	CONTINUITY
4*	LESS THAN 98°C (LESS THAN 208.4°F)	DISCONTINUITY

Test 1 & 2: Heat-up tests ①
Test 3* & 4*: Cool-down tests ②

3. Install:
   - Thermostatic switch
   - Right lower cowling

15 Nm (1.5 m.kg, 11 ft.lb)
Three Bond Sealock® #10

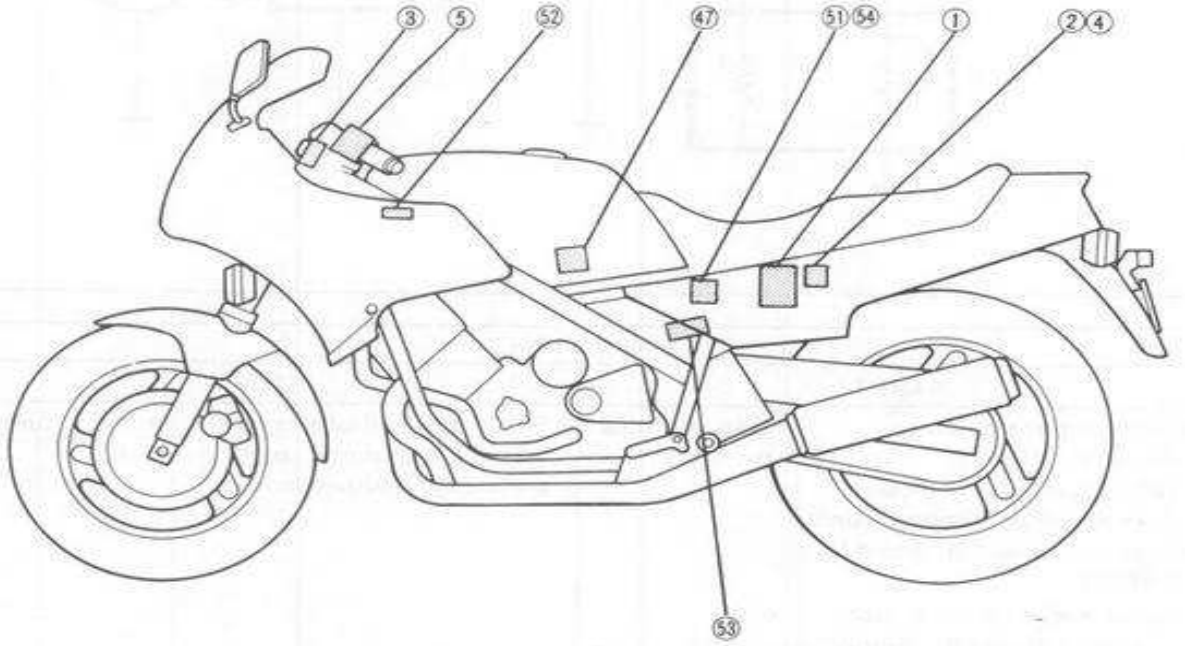
FUEL PUMP SYSTEM



① **Battery**
② **Main fuse**
③ **Main switch**
④ **Ignition fuse**
⑤ **"ENGINE STOP" switch**
⑥ Relay assembly
⑦ Clutch switch
⑧ Neutral switch
⑨ "START" switch
⑩ Starter relay
⑪ Starter motor
⑫ Sidestand relay
⑬ Sidestand switch
⑭ AC Magneto
⑮ Rectifier/Regulator
⑯ Ignitor unit
⑰ Ignition coil (# 1 and # 4 cylinder)
⑱ Ignition coil (# 2 and # 3 cylinder)
⑲ Pick up coil (# 1 and # 4 cylinder)
⑳ Pick up coil (# 2 and # 3 cylinder)
㉑ Spark plug
㉒ Head fuse
㉓ Dimmer switch
㉔ "HIGH BEAM" indicator light
㉕ Headlight
㉖ Meter light
㉗ License light
㉘ Tail/Brake light
㉙ Signal fuse
㉚ Front brake switch
㉛ Rear brake switch
㉜ Diode brock
㉝ "OIL" indicator light
㉞ Oil level switch
㉟ "NEUTRAL" indicator light
㊱ "TURN" switch
㊲ "TURN" indicator light
㊳ Right flasher light
㊴ Left flasher light
㊵ Reed switch
㊶ Horn
㊷ "HORN" switch
㊸ Temperature meter
㊹ Temperature sensor
㊺ Tachometer
㊻ Fuel meter
㊼ **Fuel sender**
㊽ Fan fuse
㊾ Thermostatic switch
㊿ Electric fan motor
(51) **Fuel pump controller**
(52) **"FUEL" (Reserve) switch**
(53) **Fuel pump**
(54) **Resister**

COLOR CODE

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

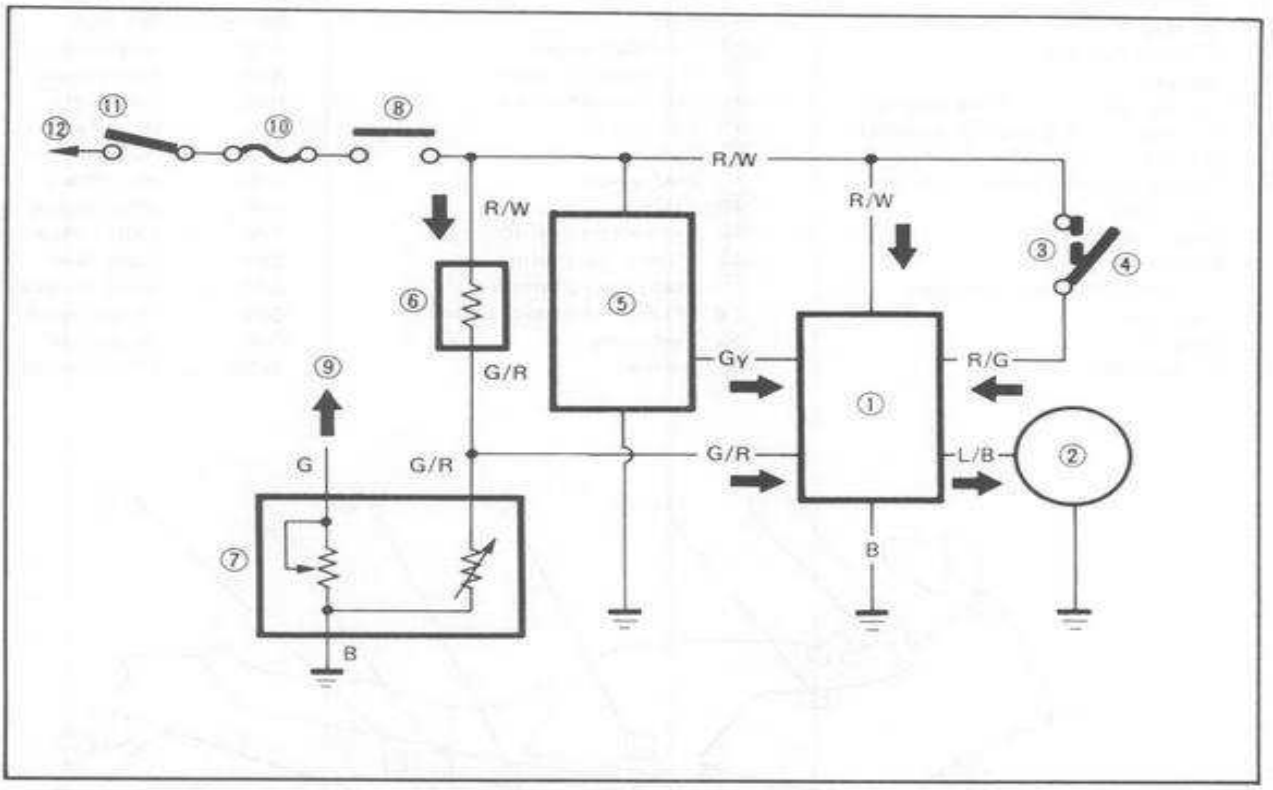


FUEL PUMP SYSTEM

FUEL PUMP CIRCUT 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 Resister (70Ω ± 10%)
⑦ Fuel sender
⑧ Engine steop switch
⑨ To fuel meter
⑩ Ignition fuse
⑪ Main switch
⑫ To main fuse and battery



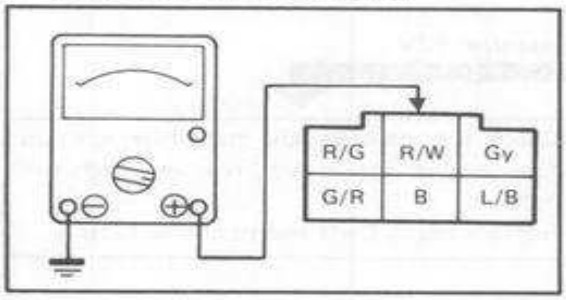
FUEL PUMP			
START		STOP	
•Main/Engine stop switch turned to "ON" (When fuel meter indicator does not enter "Empty" zone) •Fuel reserve switch turned to "RES") (When fuel meter indicator is about half way in "Empty" zone)	•Engine turned on	• Fuel meter indicator is about halfway in "Empty" zone while engine turned on	•Engine turned off
For about 5 seconds when carburetor fuel leve is low	After about 0.1 second	After about 30 seconds	After about 5 seconds

TROUBLESHOOTING CHART (1)
"R/W" Wire Circuit

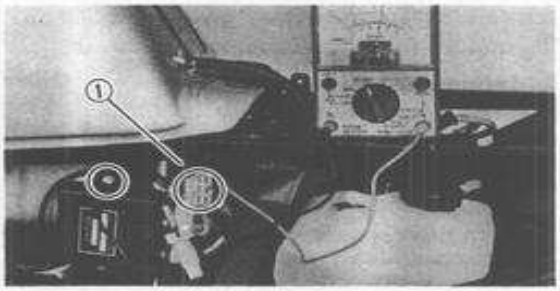
FUEL PUMP FAILS TO OPERATE FOR A 5 SECOND INTERVAL
when carburetor fuel level is low and fuel meter indicator does not enter "Empty" zone.

A

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



4. Measure:
   - Battery voltage
     (on the "R/W" lead)
     Turn main switch to "ON".
     Turn engine stop switch to "RUN".



① Fuel pump controller

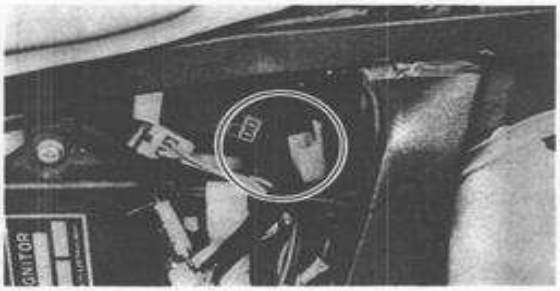
Less than 12V

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

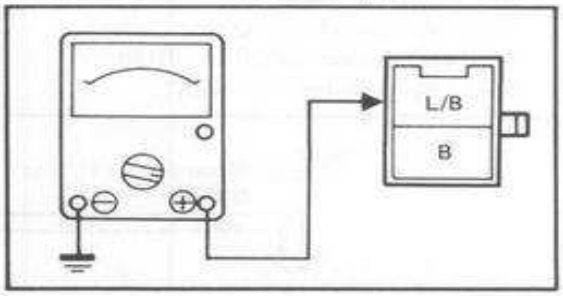
12V

B

1. Disconnect:
   - Fuel pump coupler



2. Connect:
   - Pocket Tester
     (to wire harness side coupler)



3. Measure:
   - Fuel pump input voltage
     (on the "L/B" lead)
     Turn main switch to "ON".
     Turn engine stop switch to "RUN"

More than 11V for about 5 seconds

Less than 11V

Check fuel pump, replace if necessary.

Check fuel pump controller connections.

OK

Faulty

Correct connections.

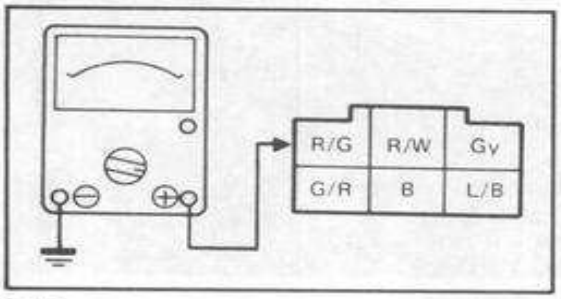
Replace fuel pump controller.

TROUBLESHOOTING CHART (2)
"R/G" Wire Circuit

FUEL PUMP FAILS TO OPERATE FOR A 5 SECOND INTERVAL
when carburetor fuel level is low and fuel meter indicator is about halfway in "Empty" zone.

A

1. Follow troubleshooting chart (1) — A 1, 2 and 3.



2. Measure:
   - Battery voltage (on the "R/G" lead)
   Turn main switch to "ON".
   Turn engine stop switch to "RUN".
   Turn reserve switch to "RES".

Less than 12V

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

12V

B

1. Follow troubleshooting chart (1) — B 1 and 2.
2. Measure:
   - Fuel pump input voltage (on the "L/B" lead)
   Turn main switch to "ON"
   Turn engine stop switch to "RUN".
   Turn reserve switch to "RES".

More than 11V for about 5 seconds

Less than 11V

Check fuel pump, replace if necessary.

Check fuel pump controller connections.

OK

Faulty

Replace fuel fuel pump controller.

Correct connections.

TROUBLESHOOTING CHART (3)
"Gy" Wire Circuit

FUEL PUMP FAILS TO OPERATE after engine is started.

A

1. Follow troubleshooting chart (1) — [A] and [B] 1 and 2.
2. Measure:
   - Fuel pump input voltage (on the "L/B" lead)
     Turn main switch to "ON".
     Turn engine stop switch to "RUN".
     Turn reserve switch to "RES".
     Start the engine.

More than 11V → Check fuel pump, replace if necessary.

Less than 11V → Check fuel pump controller connections.

OK → Replace fuel pump controller.

Faulty → Correct connections.

TROUBLESHOOTING CHART (4)
"G/R" Wire Circuit

FUEL PUMP DOES NOT STOP AFTER 30 SECONDS
when fuel meter indicator is about halfway in "Empty" zone while engine turned on.

A

1. Follow troubleshooting chart (1) — [A].
2. Check:
   - Resister resistance

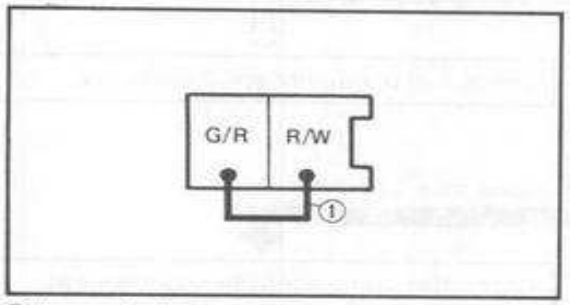
Resister Resistance:
70Ω ± 10% at 20°C (68°F)

Out of specification → Replace resister.

OK

B

1. Connect
   - Resister coupler terminals (wire harness side)



① Jumper lead

2. Follow troubleshooting chart (1) – B 1 and 2.
3. Measure:
   - Fuel pump input voltage (on the "L/B" lead)
     Start the engine.

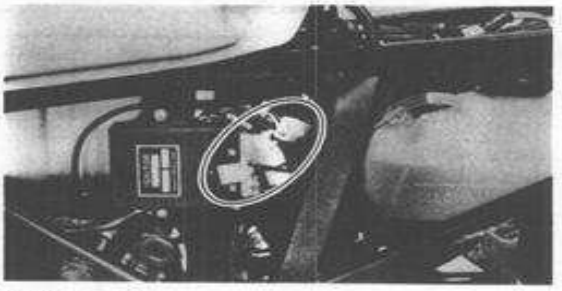
Less than 11V

Follow troubleshooting chart (3).

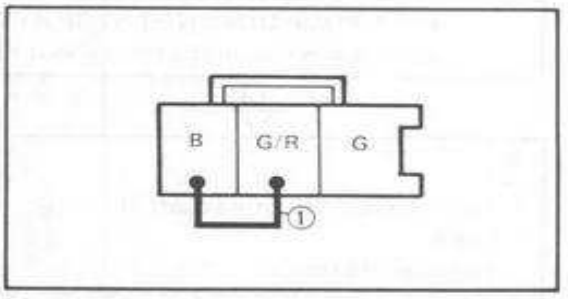
More than 11V

C

1. Follow step B 1.
2. Disconnect:
   - Fuel sender coupler



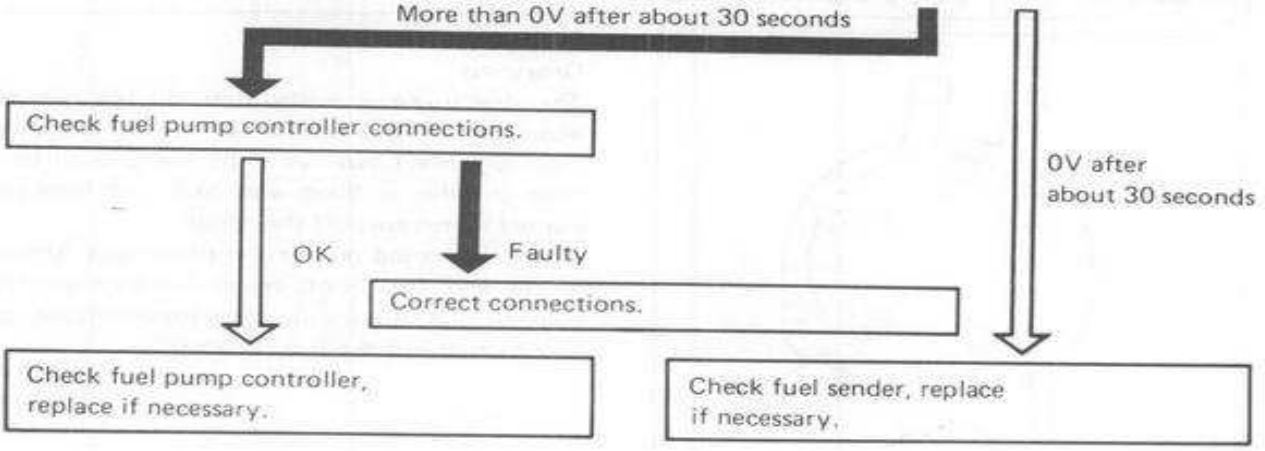
3. Connect:
   - Fuel sender coupler terminals (wire harness side)

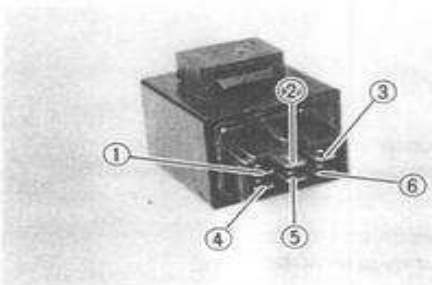


① Jumper lead

4. Measure:
   - Fuel pump input voltage (on the "L/B" lead)

NOTE:
Be sure the reserve switch turned to "ON".



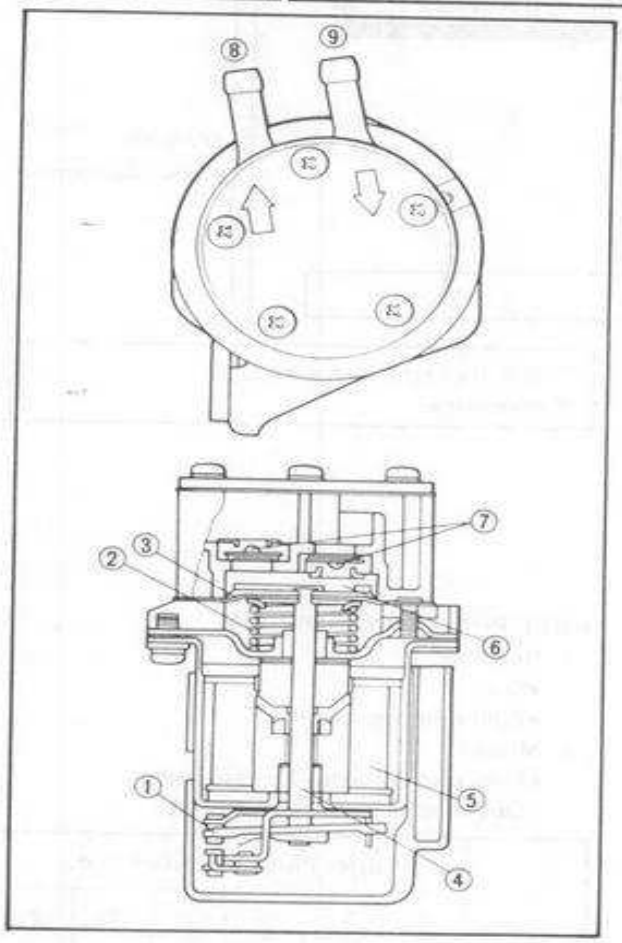


FUEL PUMP CONTROLLER

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	*350kΩ		160kΩ	∞	45kΩ	180kΩ
③	*350kΩ	∞		∞	100kΩ	28kΩ
④	∞	∞	∞		∞	∞
⑤	*140kΩ	∞	60kΩ	∞		80kΩ
⑥	*350kΩ	∞	30kΩ	∞	120kΩ	

* Read the static tester value a few seconds after the tester leads are connected to each termianl.



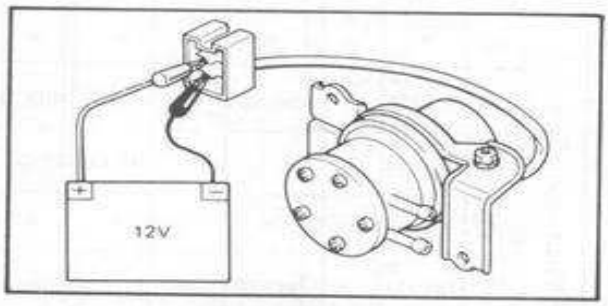
FUEL PUMP

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 inot the fuel chamber.

① Cut-out switch
② Spring
③ Diaphramg
④ Plunger
⑤ Solenoid coil
⑥ Fuel chamber
⑦ Valve
⑧ Outlet
⑨ Inlet

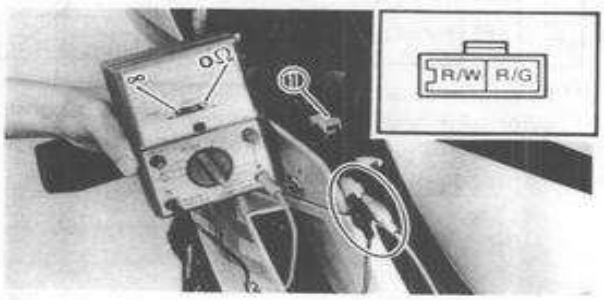


Inspection

1. Connect:
   - Battery
2. Check:
   - Fuel pump

   Faulty operation → Replace.
3. Inspect:
   - Fuel pump operation

   cracks/Damage → Replace.



FUEL RESERVE SWITCH

1. Remove:
   - Left front panel
2. Measure:
   - Fuel reserve switch ① 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

CHAPTER 8.
APPENDICES

SPECIFICATIONS 8-1
GENERAL SPECIFICATIONS 8-1
MAINTENANCE SPECIFICATIONS 8-3
ENGINE 8-3
CHASSIS 8-11
ELECTRICAL 8-14
CONSUMER INFORMATION 8-16
GENERAL TORQUE SPECIFICATIONS 8-17
DEFINITION OF UNITS 8-17

LUBRICATION DIAGRAM 8-18

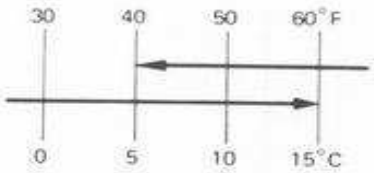
CABLE ROUTING 8-19

FZ750N WIRING DIAGRAM

APPENDICES

SPECIFICATIONS

GENERAL SPECIFICATIONS

Item \ Model	FZ750N
Model Code Number: Engine Starting Number: Vehicle Identification Number:	1AE 1AE-000101 JYA1AE00 * FA000101
Dimensions: Overall Length Overall Width Overall Height Seat Height Wheelbase Minimum Ground Clearance	 2,225 mm (87.6 in) 755 mm (29.7 in) 1,165 mm (45.9 in) 790 mm (31.1 in) 1,485 mm (58.5 in) 160 mm (6.3 in)
Basic Weight: Weight Oil and Full-Fuel Tank	 232 kg (511 lb)
Minimum Turning Radius:	3,200 mm (126 in)
Engine: Engine Type Cylinder Arrangement Displacement Bore x Stroke Compression Ratio Compression Pressure Starting System	 Liquid cooled 4-stroke gasoline, DOHC Parallel, 4-cylinder, Forward inclined 749 cm^3 68.0 x 51.6 mm (6.68 x 2.03 in) 11.2 : 1 1,078.8 kPa (11.0 kg/cm^2, 156 psi) 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))
Oil Capacity: Engine Oil: Periodic Oil Change With Oil Filter Replacement Total Amount	 2.70 L (2.38 Imp qt, 2.85 US qt) 3.00 L (2.6 Imp qt, 3.1 US qt) 3.50 L (3.1 Imp qt, 3.7 US qt)
Coolant Total Amount (Including All Routes)	 2.59 L (2.28 Imp qt, 2.74 US qt)
Air Filter:	Dry type element
Fuel: Type Tank Capacity	 Regular gasoline 22.0 L (4.8 Imp gas, 5.8 US gal)
Carburetor: Type/Manufacturer	 BDS34 x 4/MIKUNI

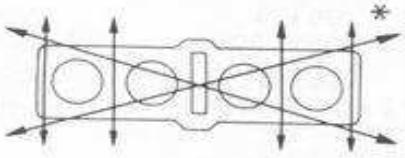
Item \ Model	FZ750N	
Spark Plug:		
Type/Manufacturer	DP8EA-9/NGK, X24EP-U9/NIPPONDENSO	
Gap	0.8 ~ 0.9 mm (0.031 ~ 0.035 in)	
Clutch Type:	Wet, multiple-disc	
Transmission:		
Primary Reduction System	Spar gear	
Primary Reduction Ratio	91/48 (1.896)	
Secondary Reduction System	Chain Drive	
Secondary Reduction Ratio	45/16 (2.813)	
Transmission Type	Constant mesh, 6-speed	
Operation	Left foot operation	
Gear Ratio:		
1st	37/13 (2.846)	
2nd	35/16 (2.188)	
3rd	32/18 (1.778)	
4th	30/20 (1.500)	
5th	28/22 (1.273)	
6th	26/24 (1.083)	
Chassis:		
Frame Type	Double cradle	
Caster Angle	25.5°	
Trail	94 mm (3.7 in)	
Tire:		
Type	Tubeless	
Size (F)	120/80 V16 V240	
Size (R)	130/80 V18 V240	
Tire Pressure (Cold tire):		
Basic Weight:		
With Oil and Full Fuel Tank	232 kg (511 lb)	
Maximum Load *	213 kg (470 lb)	
Cold Tire Pressure	Front	Rear
Up to 90 kg (198 lb) Load *	196 kPa (2.0 kg/cm², 28 psi)	226 kPa (2.3 kg/cm², 32 psi)
90 kg (198 lb) ~ Maximum Load *	226 kPa (2.3 kg/cm², 32 psi)	284 kPa (2.9 kg/cm², 42 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.		
Brake:		
Front Brake Type	Dual disc brake	
Operation	Right hand operation	
Rear Brake Type	Single disc brake	
Operation	Right foot operation	
Suspension:		
Front Suspension	Telescopic fork	
Rear Suspension	Swingarm (Link suspension)	
Shock Absorber:		
Front Shock Absorber	Coil spring, Air, Oil damper	
Rear Shock Absorber	Coil spring, Oil/Gas damper	

SPECIFICATIONS

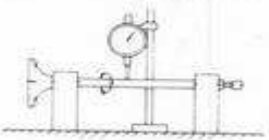
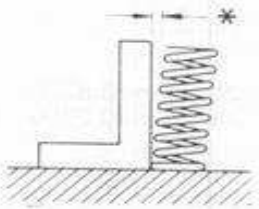
Item \ Model	FZ750N
Wheel Travel:	
Front Wheel Travel	140 mm (5.5 in)
Rear Wheel Travel	120 mm (4.7 in)
Electrical:	
Ignition System	BATTERY
Generator System	AC generator
Battery Type or Model	YB14L
Battery Capacity	12V 14AH
Headlight Type:	Bulb type (Quartz bulb)
Bulb Wattage x Quantity:	
Headlight	12V, 60W/55W x 1
Tail/Brake Light	12V, 8W/27W x 2
Flasher Light	12V, 27W x 4
Meter Light	12V, 3.4W x 4
Licence light	12V, 8W x 1
Indicator Light:	
Wattage x Quantity:	
"NEUTRAL"	12V, 3.4W x 1
"HIGH BEAM"	12V, 3.4W x 1
"TURN"	12V, 3.4W x 2
"OIL"	12V, 3.4W x 1

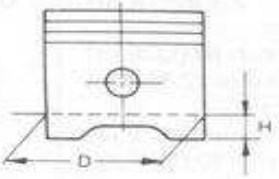
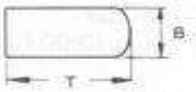
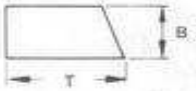
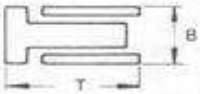
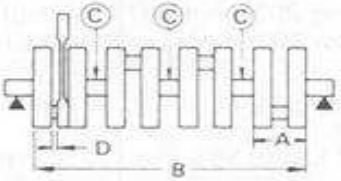
MAINTENANCE SPECIFICATIONS

Engine

Item \ Model	FZ750N
Cylinder Head:	
Warp Limit *	0.03 mm (0.0012 in) *Lines indicate straightedge measurement
	
Cylinder:	
Bore Size	68,000 ~ 68,005 (2.67717 ~ 2.67736 in)
Taper Limit	0.05 mm (0.002 in)
Out of Round Limit	0.05 mm (0.002 in)

Item	Model FZ750N
Camshaft:	
Drive Method	Chain drive (Center)
Cam Cap Inside Dia.	24.500 ~ 24.521 mm (0.9646 ~ 0.9654 in)
Camshaft Outside Dia.	24.437 ~ 24.450 mm (0.9621 ~ 0.9626 in)
Shaft-to-Cap Clearance	0.050 ~ 0.084 mm (0.00197 ~ 0.00331 in)
Cam Dimensions	
Intake "A"	32.55 ~ 32.65 mm (1.2815 ~ 1.2854 in)
<Limit>	32.45 mm (1.278 in)
Intake "B"	24.95 ~ 25.05 mm (0.9823 ~ 0.9862 in)
<Limit>	24.85 mm (0.9783 in)
Exhaust "A"	32.4 ~ 32.5 mm (1.2756 ~ 1.2795 in)
<Limit>	32.3 mm (1.27 in)
Exhaust "B"	24.95 ~ 25.05 mm (0.9823 ~ 0.9862 in)
<Limit>	24.85 mm (0.978 in)
Camshaft Runout Limit	0.03 mm (0.0012 in)
Cam Chain:	
Cam Chain Type/No. of Links	DID219FTS (BUSH CHAIN)/110 Links
Cam Chain Adjustment Method	Automatic
Valve, Valve Seat, Valve Guide:	
Valve Clearance (Cold):	
IN.	0.11 ~ 0.20 mm (0.0043 ~ 0.0079 in)
EX.	0.21 ~ 0.30 mm (0.0083 ~ 0.0118 in)
Valve Dimensions:	
"A" Head Dia.	
IN.	20.9 ~ 21.1 mm (0.8228 ~ 0.8307 in)
EX.	22.9 ~ 23.1 mm (0.9016 ~ 0.9094 in)
"B" Face Width	
IN.	1.98 ~ 2.55 mm (0.0779 ~ 0.1004 in)
EX.	1.98 ~ 2.55 mm (0.0779 ~ 0.1004 in)
"C" Seat Width	
IN.	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)
EX.	0.9 ~ 1.1 mm (0.0354 ~ 0.0433 in)
"D" Margin Thickness	
IN.	0.6 ~ 0.8 mm (0.0236 ~ 0.0315 in)
EX.	0.6 ~ 0.8 mm (0.0236 ~ 0.0315 in)
Stem Outside Dia.:	
IN.	4.975 ~ 4.990 mm (0.1959 ~ 0.1965 in)
EX.	4.960 ~ 4.975 mm (0.1953 ~ 0.1959 in)
<Limit>	
IN.	4.945 mm (0.1947 in)
EX.	4.930 mm (0.1941 in)

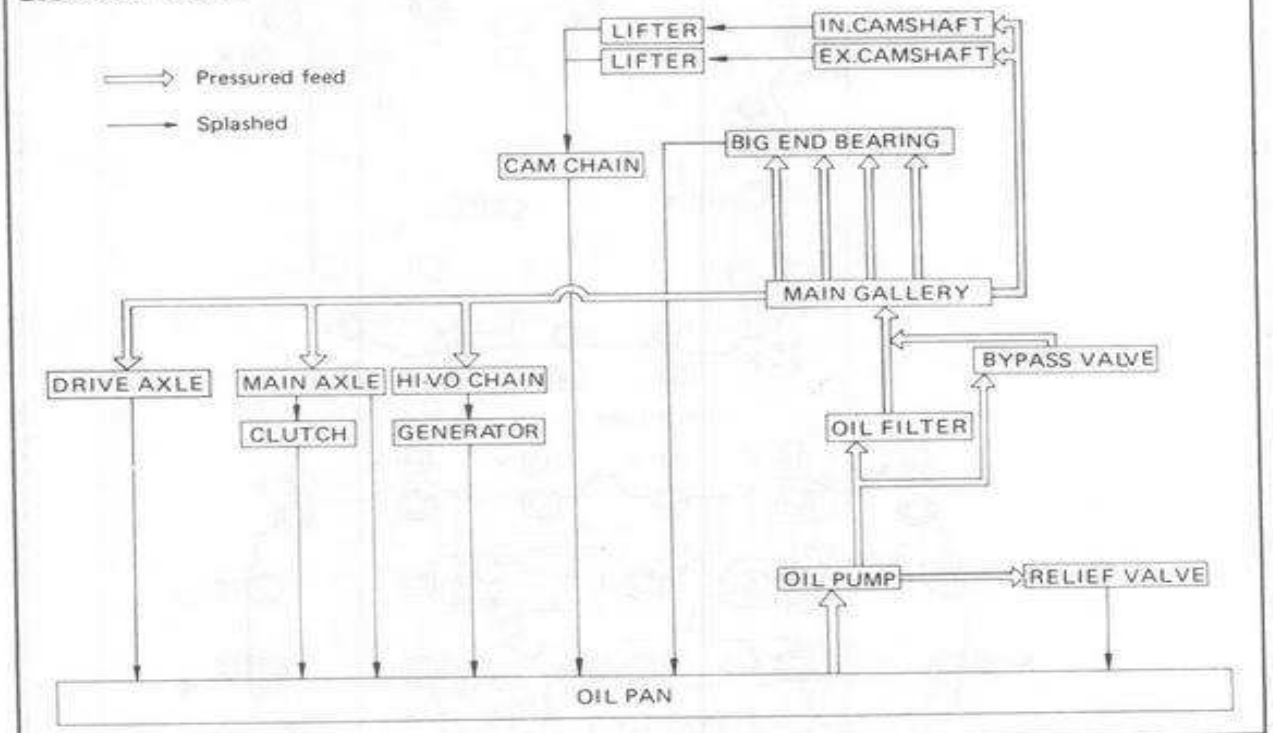
Item \ Model	FZ750N
Guide Inside Dia:	
IN.	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)
EX.	5.000 ~ 5.012 mm (0.1969 ~ 0.1973 in)
<Limit >	
IN.	5.05 mm (0.1988 in)
EX.	5.05 mm (0.1988 in)
Stem-to-Guide Clearance:	
IN.	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)
EX.	0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)
<Limit >	
IN.	0.08 mm (0.0031 in)
EX.	0.10 mm (0.0039 in)
Stem Runout Limit:	0.01 mm (0.0004 in)
	
Valve Spring:	
Free Length:	
IN.	39.76 mm (1.565 in)
EX.	39.96 mm (1.573 in)
Set Length (Valve Closed):	
IN.	35.0 mm (1.378 in)
EX.	35.0 mm (1.378 in)
Set Force (Valve Closed):	
IN.	7.3 ~ 8.7 kg (16.1 ~ 19.2 lb)
EX.	11.0 ~ 13.0 kg (24.3 ~ 28.7 lb)
Tilt Limit *	
IN.	2.5°/1.7 mm (0.067 in)
EX.	2.5°/1.7 mm (0.067 in)
	
Direction of Winding (Top View):	
IN.	Right
EX.	Right

Item	Model	FZ750N
Piston:		
Piston Clearance		0.06 ~ 0.08 mm (0.00236 ~ 0.00315 in)
<Limit>		0.10 mm (0.0039 in)
Piston Size "D"		67.925 ~ 67.940 mm (2.6742 ~ 2.6748 in)
Measuring Point "H"		5.0 mm (0.197 in)
		
Oversize	2nd	68.50 mm (2.677 in)
Oversize	4th	69.00 mm (2.717 in)
Piston Ring:		
Top Ring:		
Type		Barrel
Dimensions (B x T)		1.0 x 2.6 mm (0.0394 x 0.1024 in)
End Gap (Installed)		0.30 ~ 0.45 mm (0.0118 ~ 0.0177 in)
Side Clearance (Installed)		0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
2nd Ring:		
Type		Plain (Taper face)
Dimensions (B x T)		1.2 x 2.7 mm (0.0472 x 0.1063 in)
End Gap (Installed)		0.20 ~ 0.35 mm (0.0079 ~ 0.0138 in)
Side Clearance (Installed)		0.03 ~ 0.07 mm (0.0012 ~ 0.0028 in)
Oil Ring:		
Dimensions (B x T)		2.0 x 2.5 mm (0.0787 x 0.0984 in)
End Gap (Installed)		0.2 ~ 0.7 mm (0.0079 ~ 0.0276 in)
Connecting Rod:		
Oil Clearance		0.032 ~ 0.056 mm (0.00126 ~ 0.00220 in)
Bearing Color Code		1. Blue 2. Black 3. Brown 4. Green
Crankshaft:		
Crank Width	"A"	55.7 ~ 59.5 mm (2.1929 ~ 2.3425 in)
Assembly Width	"B"	339.8 ~ 340.2 mm(13.378 ~ 13.394 in)
<Runout Limit>	"C"	0.03 mm (0.0012 in)
Big End Side Clearance	"D"	0.160 ~ 0.262 mm (0.0063 ~ 0.0103 in)
Journal Oil Clearance		0.020 ~ 0.044 mm (0.0008 ~ 0.0017 in)
Bearing Color Code		1. Blue 2. Black 3. Brown 4. Green 5. Yellow

Item \ Model	FZ750N
Clutch:	
Friction Plate Thickness	2.9 ~ 3.1 mm (0.1142 ~ 0.1220 in)
Quantity	8 pcs.
<Wear Limit>	2.8 mm (0.11 in)
Clutch Plate Thickness	1.9 ~ 2.1 mm (0.0748 ~ 0.0827 in)
Quantity	7 pcs.
<Warp Limit>	0.1 mm (0.0039 in)
Clutch Spring Free Height	55.5 mm (2.185 in)
Quantity	6 pcs.
Minimum Height	54.0 mm (2.126 in)
Push Rod Bending Limit	0.3 mm (0.012 in)
Clutch Release Method	Hydraulic inner push
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
Guide Bar Bending Limit	0.1 mm (0.004 in)
Carburetor:	
ID Mark	1AE00
Main Jet (M.J.)	#105
Main Air Jet (M.A.J.)	#65
Jet Needle (J.N.)	5CEZ02
Needle Jet (N.J.)	Y-0
Pilot Air Jet (P.A.J.)	#125
Pilot Jet (P.J.)	#15
Pilot Screw (P.S.)	3 (turns out)
Valve Seat Size (V.S.)	ϕ1.2
Starter Jet (G.S.1.)	#37.5
(G.S.2.)	ϕ0.5
Fuel Level (F.L.)	8.3 ± 1.0 mm (0.326 ± 0.04 in)
Engine Idling Speed	950 ~ 1,050 r/min
Vacuum Pressure at Idling Speed	Above 200 mm Hg (7.87 in Hg)
Vacuum Synchronous Difference	Below 10 mm Hg (0.394 in Hg)
Fuel Pump:	
Type	Electrical type
Consumption Amperage (Max.)	1.0A
Out-put Pressure	15.7 kPa (0.16 kg/cm^2, 2.28 psi)
Lubrication System:	
Oil Filter Type	Paper type
Oil Pump Type:	Trochoid type
Tip clearance	0.09 ~ 0.15 mm (0.00354 ~ 0.00591 in)
Side Clearance	0.03 ~ 0.08 mm (0.0012 ~ 0.0031 in)
Bypass Valve Setting Pressure	176.5 ~ 215.8 kPa (1.8 ~ 2.2 kg/cm^2, 25.6 ~ 31.3 psi)
Relief Valve Operating Pressure	382.5 ~ 460.9 kPa (3.9 ~ 4.7 kg/cm^2, 55.5 ~ 66.8 psi)

Item \ Model	FZ750N
Cooling System:	
Radiator Core Size:	
Width	350 mm (13.78 in)
Height	185 mm (7.28 in)
Thickness	32 mm (1.26 in)
Radiator Cap Opening Pressure	74 ~ 103 kPa (0.75 ~ 1.05 kg/cm², 10.7 ~ 14.9 psi)
Reservoir Tank Capacity	0.29 L (0.26 Imp qt, 0.31 US qt)
<From Low to Full Level>	0.15 L (0.13 Imp qt, 0.16 US qt)
Water Pump:	
Type	Single-suction centrifugal pump
Reduction Ratio	91/48 x 41/43 (1.808)

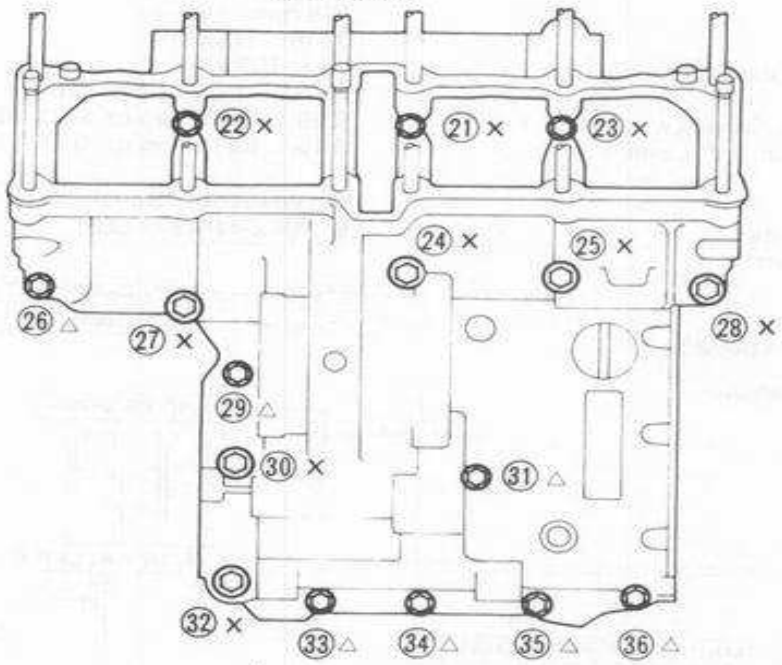
Lubrication Chart:



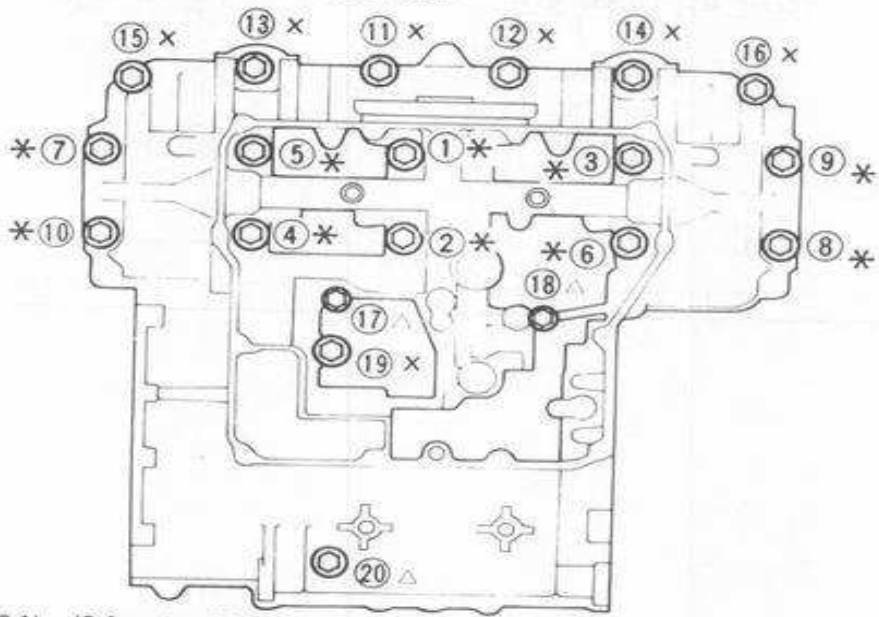
Item	Model FZ750N

Crankcase Tightening Sequence

Upper Case



Lower Case



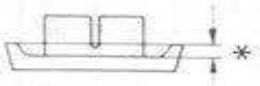
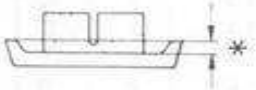
*: 9 mm Bolt: 32 Nm (3.2 m·kg, 23 ft·lb)
×: 8 mm Bolt: 24 Nm (2.4 m·kg, 17 ft·lb)
△: 6 mm Bolt: 12 Nm (1.2 m·kg, 8.7 ft·lb)

TIGHTENING TORQUE

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m-kg	ft-lb	
Camshaft cap	Bolt	M6 x 1.0	40	10	1.0	7.2	
Cylinder head (Exhaust pipe)	Stud bolt	M6 x 1.0	8	5	0.5	3.6	
Cylinder head	Nut	M9 x 1.25	12	37	3.7	27	
Spark plug	–	M12 x 1.5	4	17.5	1.75	12.5	
Cylinder head cover	Bolt	M6 x 1.0	8	10	1.0	7.2	
Connecting rod cap	Nut	M8 x 0.75	8	36	3.6	25	
Cam chain sprocket	Bolt	M7 x 1.0	4	24	2.4	17	
Cam chain tensioner	Bolt	M6 x 1.0	2	10	1.0	7.2	
Cam chain tensioner end	Bolt	M11 x 1.0	1	20	2.0	14	
Chain guide (Intake side)	Bolt	M6 x 1.0	2	10	1.0	7.2	
Oil pump housing	Screw	M6 x 1.0	1	10	1.0	7.2	
Oil pump mount	Bolt	M6 x 1.0	3	10	1.0	7.2	
Oil filter case	–	M20 x 1.5	1	15	1.5	11	
Oil pan	Bolt	M6 x 1.0	12	10	1.0	7.2	
Drain plug	–	M14 x 1.5	1	43	4.3	31	
Oil pipe 1	Union bolt	M10 x 1.25	3	21	2.1	15	
Oil plug plate	Bolt	M6 x 1.0	1	10	1.0	7.2	
Oil level switch	Bolt	M6 x 1.0	2	10	1.0	7.2	
Exhaust pipe flange	Nut	M6 x 1.0	8	10	1.0	7.2	
Muffler stay	Bolt	M10 x 1.25	1	25	2.5	18	
Muffler clamp bolt	Bolt	M8 x 1.25	5	20	2.0	14	
Exhaust pipe blind plug (CO test)	Bolt	M6 x 1.0	4	10	1.0	7.2	
Crankcase (Cylinder head)	Stud bolt	M9 x 1.25	12	10	1.0	7.2	
Main axle bearing stopper	Torx	M6 x 1.0	3	10	1.0	7.2	
Crankshaft end cover	Screw	M6 x 1.0	6	7	0.7	5.1	
Crankcase cover (Clutch)	Bolt	M6 x 1.0	11	10	1.0	7.2	
Crankcase	Bolt	M6 x 1.0	10	12	1.2	8.7	
Crankcase	Bolt	M8 x 1.25	16	24	2.4	17	
Crankcase	Bolt	M9 x 1.25	10	32	3.2	23	
Starter clutch	Bolt	M8 x 1.25	3	25	2.5	18	Stake
Starter chain guide	Bolt	M6 x 1.0	2	10	1.0	7.2	
Clutch boss	Nut	M20 x 1.0	1	70	7.0	50	Use lock washer
Clutch spring	Bolt	M6 x 1.0	6	8	0.8	5.8	
Drive chain sprocket	Nut	M18 x 1.0	1	70	7.0	50	Use lock washer
Shift cam stopper lever	Bolt	M6 x 1.0	2	10	1.0	7.2	
Shift cam (Neutral)	Screw	M5 x 0.8	1	4	0.4	2.9	
Other engine part	Bolt	M8 x 1.25	–	20	2.0	14	
	Bolt	M6 x 1.0	–	10	1.0	7.2	
	Screw	M6 x 1.0	–	7	0.7	5	

Chassis

Item \ Model	FZ750N
Steering System:	
Steering Bearing Type	Taper roller bearing
Front Suspension:	
Front Fork Travel	140 mm (5.51 in)
Front Spring Free Length	430 mm (16.93 in)
<Limit>	425 mm (16.73 in)
Collar Length	110 mm (4.33 in)
Spring Rate	
K1	4.12 N/mm (0.42 kg/mm, 23.52 lb/in)
K2	6.86 N/mm (0.7 kg/mm, 39.2 lb/in)
Stroke	
K1	0 ~ 100 mm (0 ~ 3.94 in)
K2	100 ~ 140 mm (3.94 ~ 5.51 in)
Optional Spring	No
Oil Capacity	408 cm³ (14.4 Imp oz, 13.8 US oz)
Oil Grade	Yamaha fork oil 10wt or equivalent
Enclosed Air Pressure	
(Standard)	0 kPa (0 kg/cm², 0 psi)
(Maximum)	39 kPa (0.4 kg/cm², 5.7 psi)
Rear Suspension:	
Shock Absorber Travel	40 mm (1.57 in)
Spring Free Length	174.5 mm (6.87 in)
<Limit>	170 mm (6.70 in)
Fitting Length	156.5 mm (6.16 in)
Spring Rate	166 N/mm (17.0 kg/mm, 952 lb/in)
Stroke	0 ~ 40 mm (0 ~ 1.57 in)
Optional Spring	No.
Enclosed Gas Pressure	1,177 kPa (12 kg/cm², 171 psi)
Rear Arm:	
Swingarm Free Play Limit: End	1 mm (0.04 in)
Swingarm Free Play Limit: Side	1 mm (0.04 in)
Front Wheel:	
Type	Cast wheel
Rim Size	MT2.75 x 16
Rim Material	Aluminum
Rim Runout Limit	
Radial	1.0 mm (0.04 in)
Lateral	0.5 mm (0.02 in)
Rear Wheel:	
Type	Cast wheel
Rim Size	MT3.00 x 18
Rim Material	Aluminum
Rim Runout Limit	
Radial	1.0 mm (0.04 in)
Lateral	0.5 mm (0.02 in)
Drive chain:	
Type/Manufacturer	50VA/DID
No. of Links	110 Links
Chain Slack	15 ~ 20 mm (0.6 ~ 0.8 in)

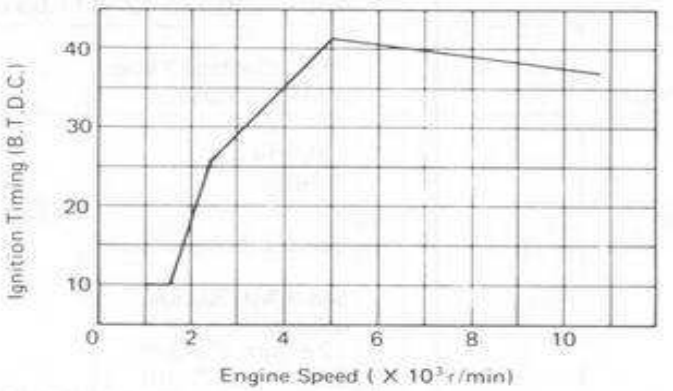
Item \ Model	FZ750N
Front Disc Brake:	
Type	Dual
Disc Outside Dia. x Thickness	235 x 7.5 mm (9.25 x 0.3 in)
Pad Thickness	
Inner	5.5 mm (0.217 in)
<Limit> *	0.5 mm (0.0197 in)
Pad Thickness	
Outer	5.5 mm (0.217 in)
<Limit> *	0.5 mm (0.0197 in)
	
Master Cylinder Inside Dia.	15.87 mm (0.63 in)
Caliper Cylinder Inside Dia.	45.4 mm (1.79 in)
Brake Fluid Type	DOT #3
Rear Disc Brake:	
Type	Single
Disc Outside Dia. x Thickness	235 x 8.5 mm (9.25 x 0.3 in)
Pad Thickness Inner	5.5 mm (0.217 in)
<Limit> *	0.5 mm (0.0197 in)
Pad Thickness Outer	5.5 mm (0.217 in)
<Limit> *	0.5 mm (0.0197 in)
	
Master Cylinder Inside Dia.	14.0 mm (0.55 in)
Caliper Cylinder Inside Dia.	42.8 mm (1.69 in)
Brake Fluid Type	DOT #3
Brake Lever and Brake Pedal:	
Brake Lever Free Play	2 ~ 5 mm (0.08 ~ 0.20 in)
Brake Pedal Position	35 mm (1.4 in) (Below the top of the footrest)
Brake Pedal Free Paly	13 ~ 15 mm (0.512 ~ 0.591 in)
Clutch:	
Master Cylinder Inside Dia.	15.87 mm (0.625 in)
Release Cylinder Inside Dia.	38.1 mm (1.5 in)
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in)
Clutch Fluid Type	DOT #3

TIGHTENING TORQUE

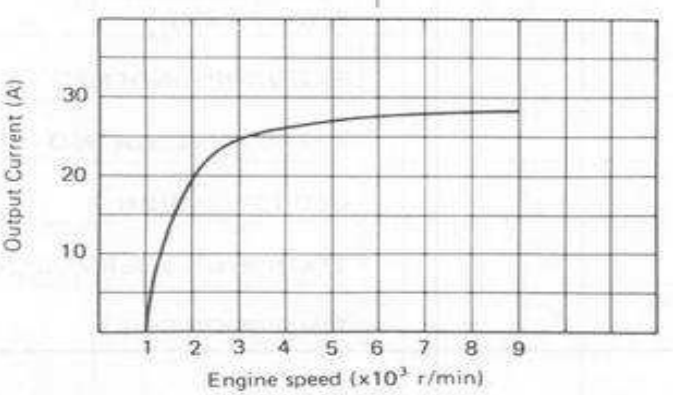
Part to be tightened	Part name	Thread size	Q'ty	Tightening torque			Remarks
				Nm	m-kg	ft-lb	
Front axle	Bolt	M14 x 1.5	1	58	5.8	42	
Front axle pinch	Bolt/Nut	M8 x 1.25	2	20	2.0	14	
Rear axle	Bolt/Nut	M16 x 1.5	1	107	10.7	77.4	
Steering crown-Fork	Bolt	M8 x 1.25	2	20	2.0	14	
Steering stam	Nut	M22 x 1.0	1	110	11	80	
Underbracket-Fork	Bolt/Nut	M8 x 1.25	4	23	2.3	17	
Caliper (Front & Rear)	Bolt	M10 x 1.25	6	35	3.5	25	
Air blead (Caliper)	Screw	M8 x 1.25	6	6	0.6	4.3	
Brake hose (All)	Union bolt	M10 x 1.25	8	26	2.6	19	
Master cylinder bracket	Bolt	M6 x 1.0	4	9	0.9	6.5	
Master cylinder cap	Screw	M5 x 0.8	8	2	0.2	1.4	
Drive chain sprocket (Driven)	Nut	M10 x 1.25	6	55	5.5	40	Use new lock washer
Brake disc	Bolt	M8 x 1.25	6	20	2.0	14	
Front fender-Fork	Bolt	M6 x 1.0	6	9	0.9	6.5	
Handlebar-Fork	Bolt	M8 x 1.25	2	20	2.0	14	
Handlebar-Steering crown	Bolt	M6 x 1.0	2	9	0.9	6.5	
Handlebar end grip	Special	M16 x 1.5	2	26	2.6	19	
Engine mount (Front upper)	Bolt/Nut	M10 x 1.25	1	55	5.5	40	
Engine mount (Front lower)	Bolt/Nut	M10 x 1.25	2	55	5.5	40	
Engine mount (Rear upper)	Bolt	M10 x 1.25	1	55	5.5	40	
Engine mount (Rear lower)	Bolt/Nut	M10 x 1.25	1	55	5.5	40	
Downtube frame	Bolt/Nut	M8 x 1.25	8	28	2.8	20	
Pivot shaft	Bolt/Nut	M14 x 1.5	1	90	9.0	65	
Connecting rod-Frame	Bolt/Nut	M12 x 1.25	1	90	9.0	65	
Relay arm Swingarm	Bolt/Nut	M12 x 1.25	2	90	9.0	65	
Shock absorber pivot shaft pinch bolt	Bolt/Nut	M6 x 1.0	2	9	0.9	6.5	
Shock absorber (Upper)	Bolt/Nut	M12 x 1.25	1	42	4.2	30	
Bracket footrest-Frame	Bolt	M8 x 1.25	2	28	2.8	20	
Footrest-Bracket footrest	Bolt	M10 x 1.25	2	42	4.2	30	
Muffler/Rear footrest-Frame	Bolt	M10 x 1.25	2	42	4.2	30	
Rear brake master cylinder	Bolt	M8 x 1.25	2	20	2.0	14	
Fuel sender-Fuel tank	Bolt	M5 x 0.8	4	4	0.4	2.9	
Tension bar	Bolt/Nut	M8 x 1.25	2	28	2.8	20	

Electrical

Item \ Model	FZ750N
Voltage:	12V
Ignition System:	
Ignition Timing (B.T.D.C.)	10° at 1,000 r/min
Advanced Timing (B.T.D.C.)	42° at 5,000 r/min
Advancer Type	Electrical, Vacuum



TCI:	
Pickup Coil Resistance (Color)	190Ω ± 10% at 20°C (68°F) (Orange — Black), (Orange, — Gray)
TCI Unit-Model/Manufacturer	TID14-39/HITACHI
Ignition Coil:	
Model/Manufacturer	CM12-27/HITACHI
Primary Winding Resistance	2.7Ω ± 10% at 20°C (68°F)
Secondary Winding Resistance	9.5 kΩ ± 20% at 20°C (68°F)
Spark Plug Cap:	
Type	Resin
Resistance	10kΩ
Charging System/Type:	AC generator
AC Generator:	
Model/Manufacturer	B3G/NIPPONDENSO
Nominal Output	12V, 25A at 5,000 r/min



Item \ Model	FZ750N
Generator Assembly:	
Stator Coil Resistance	0.2Ω ± 5MΩ at 20°C (68°F)
Field (rotor) Coil Resistance	4.0Ω ± 5% at 20°C (68°F)
Brush Overall Length	10.5 mm (0.41 in)
<Limit>	4.5 mm (0.18 in)
Spring Pressure	230 ~ 330 g (8.12 ~ 11.65 oz)
Voltage Regulator:	
Type	Field Control Type
No Load Regulated Voltage	13.5 ~ 15.3V
Battery:	
Capacity	12V, 14AH
Specific Gravity	1.280
Electrical Starter System:	
Type	Constant mesh type
Starter Motor:	
Model/Manufacturer	SM-8/MITSUBA
Output	0.6 kW
Brush-Overall Length	12.5 mm (0.49 in)
<Limit>	5.5 mm (0.22 in)
Spring Pressure	680 ~ 920 g (23.98 ~ 32.48 oz)
Commutator Dia.	28 mm (1.1 in)
<Wear Limit>	27 mm (1.06 in)
Mica Undercut	0.5 mm (0.02 in)
Starter Switch:	
Model/Manufacturer	A104-128/HITACHI
Amperage Rating	100A
Coil Winding Resistance	4.3Ω ± 10% at 20°C (68°F)
Horn:	
Type x Quantity	Plain type x 1
Model/Manufacturer	CFH-12/NIKKO
Maximum Amperage	2.5A
Relay Assembly:	
Type	Semi-transistor type
Model/Manufacturer	FX257N/NIPPONDENSO
Self Cancelling Device	Yes.
Flasher Frequency	75 ~ 95 cycle/min
Wattage	27W x 2 + 3.4W
Self Cancelling Unit:	
Model/Manufacturer	FX257/NIPPONDENSO
Oil Level Switch:	
Model/Manufacturer	4H7-00/NIPPONDENSO
Fuel Pump Controller:	
Model/Manufacturer	G8D-19Y/OMRON
Thermostatic Switch:	
Model/Manufacturer	47X/NIPPON THERMOSTAT
Thermostatic Sensor:	
Model/Manufacturer	11H/NIPPON SEIKI

Item \ Model	FZ750N
Fuel Gauge:	
Model/Manufacturer	1AE/NIPPON SEIKI
Sender Unit Resistance	
(Color)	(Green – Black)
Full	3Ω ± 2Ω at 20°C (68°F)
Empty	110Ω ± 7Ω at 20°C (68°F)
Circuit Breaker:	
Type	Fuse
Amperage for Individual Circuit x Quantity	
MAIN	30A x 1
HEAD	15A x 1
SIGNAL	10A x 1
IGNITION	10A x 1
FAN	10A x 1
RESERVE	30A x 1
	15A x 1
	10A x 1

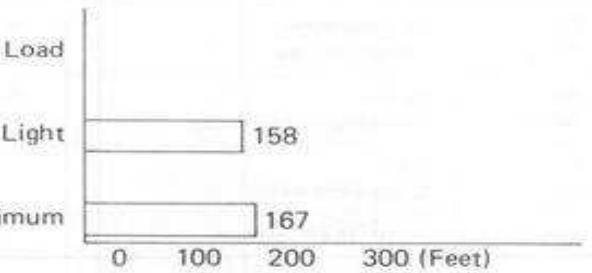
CONSUMER INFORMATION

STOPPING DISTANCE

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

Description of vehicles to which this table applies: Yamaha motorcycle FZ750N

A. Fully Operational Service Brake



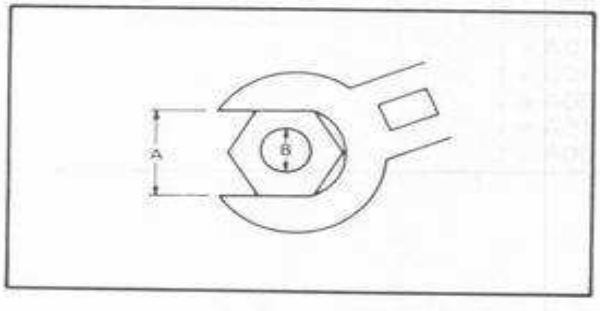
Stopping distance in feet from 60 mi/h

NOTE:
The statement above is required by U.S. Federal law. "Partial 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

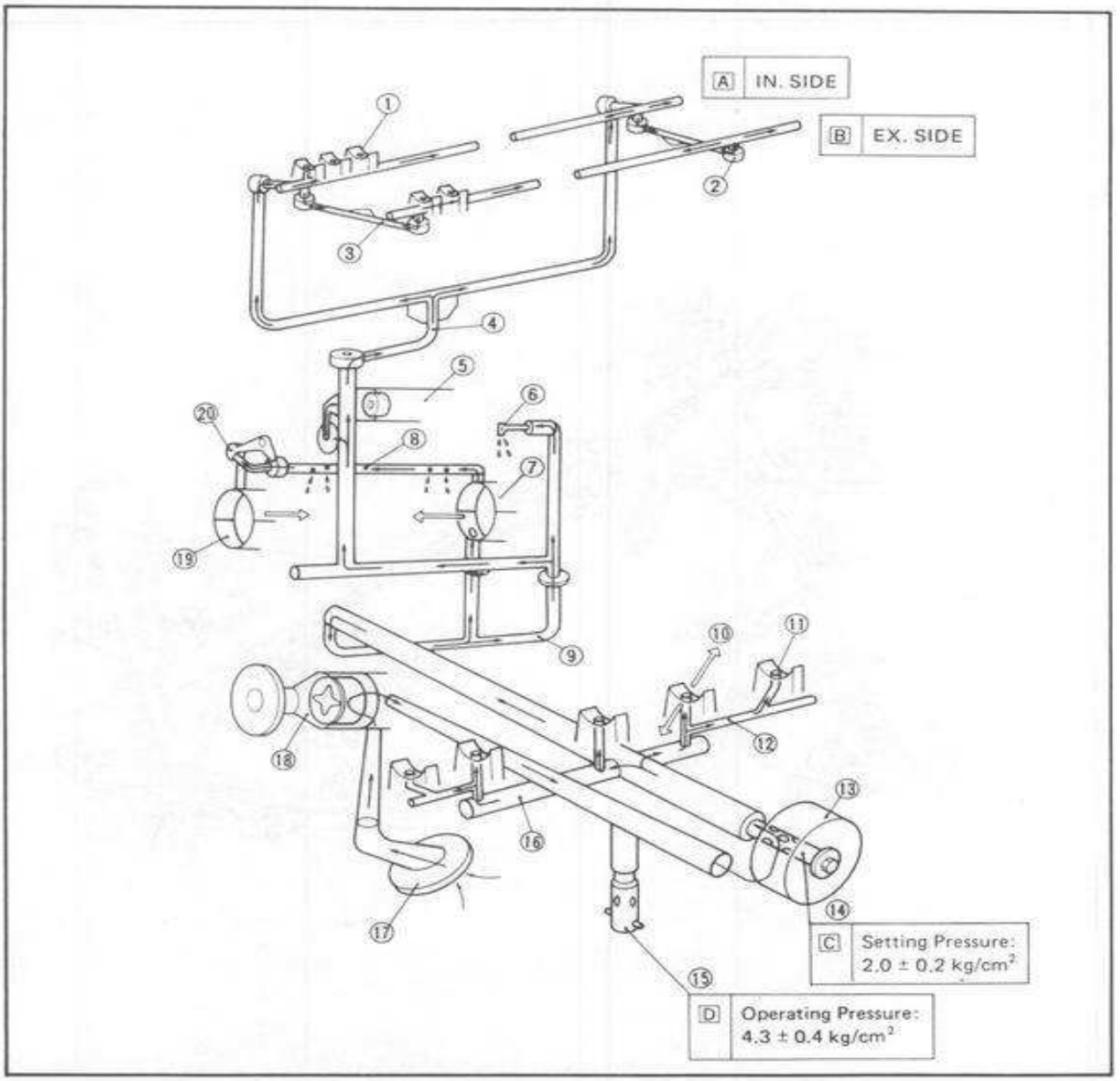


DEFINITION OF UNITS

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

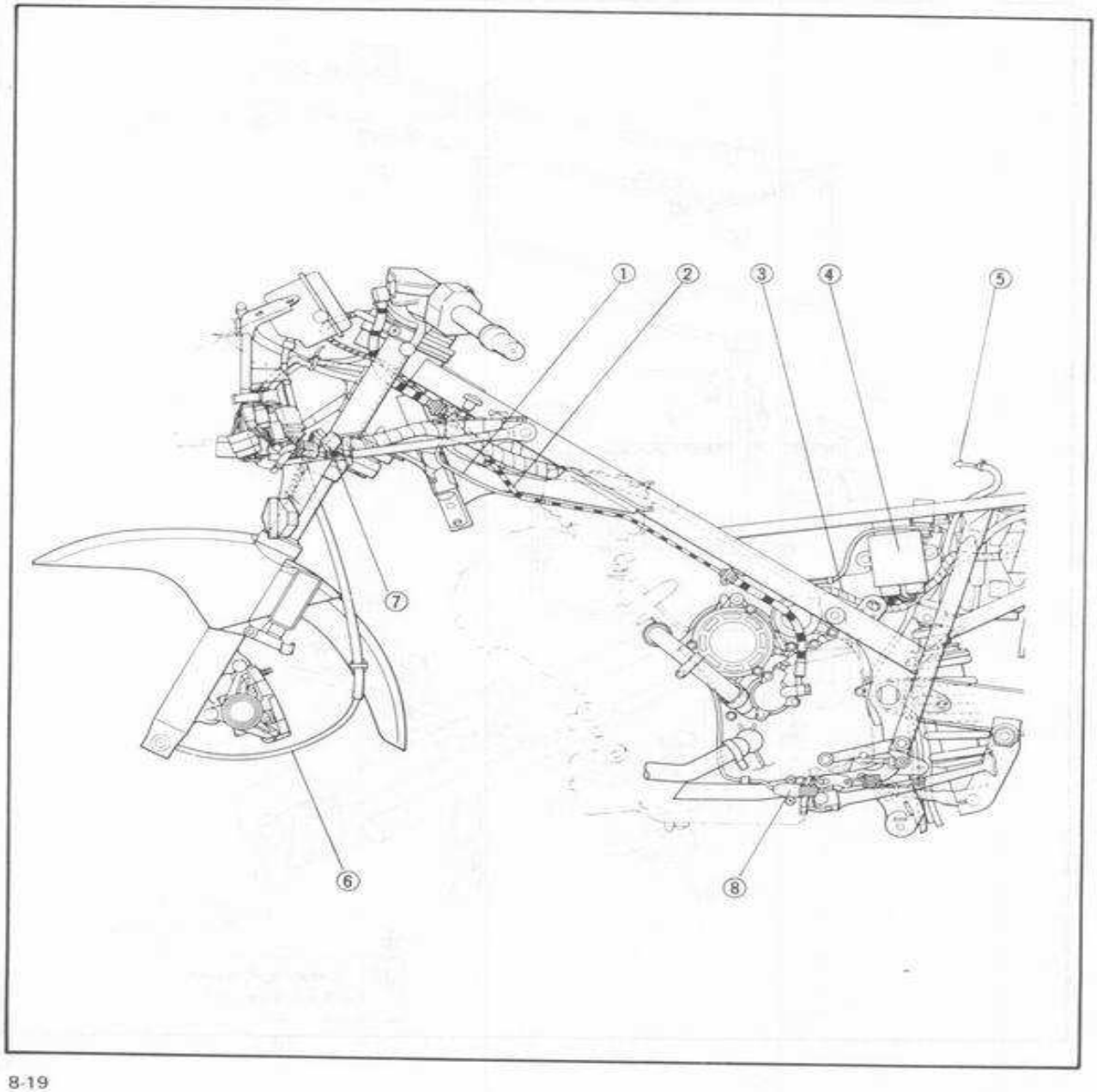
LUBRICATION DIAGRAM

① Camshaft bearing and lifter
② Oil pipe (3)
③ Oil pipe (4)
④ Oil pipe (1)
⑤ AC generator
⑥ Nozzle (HY-VO chain)
⑦ Main axle (L)
⑧ Shift fork
⑨ Oil pipe (5)
⑩ Big-end bearing
⑪ Crankshaft journal bearing
⑫ Sub gallery
⑬ Oil element
⑭ Bypass valve
⑮ Relief valve
⑯ Main gallery
⑰ Oil strainer
⑱ Oil pump
⑲ Drive axle (R)
⑳ Oil pipe (2)



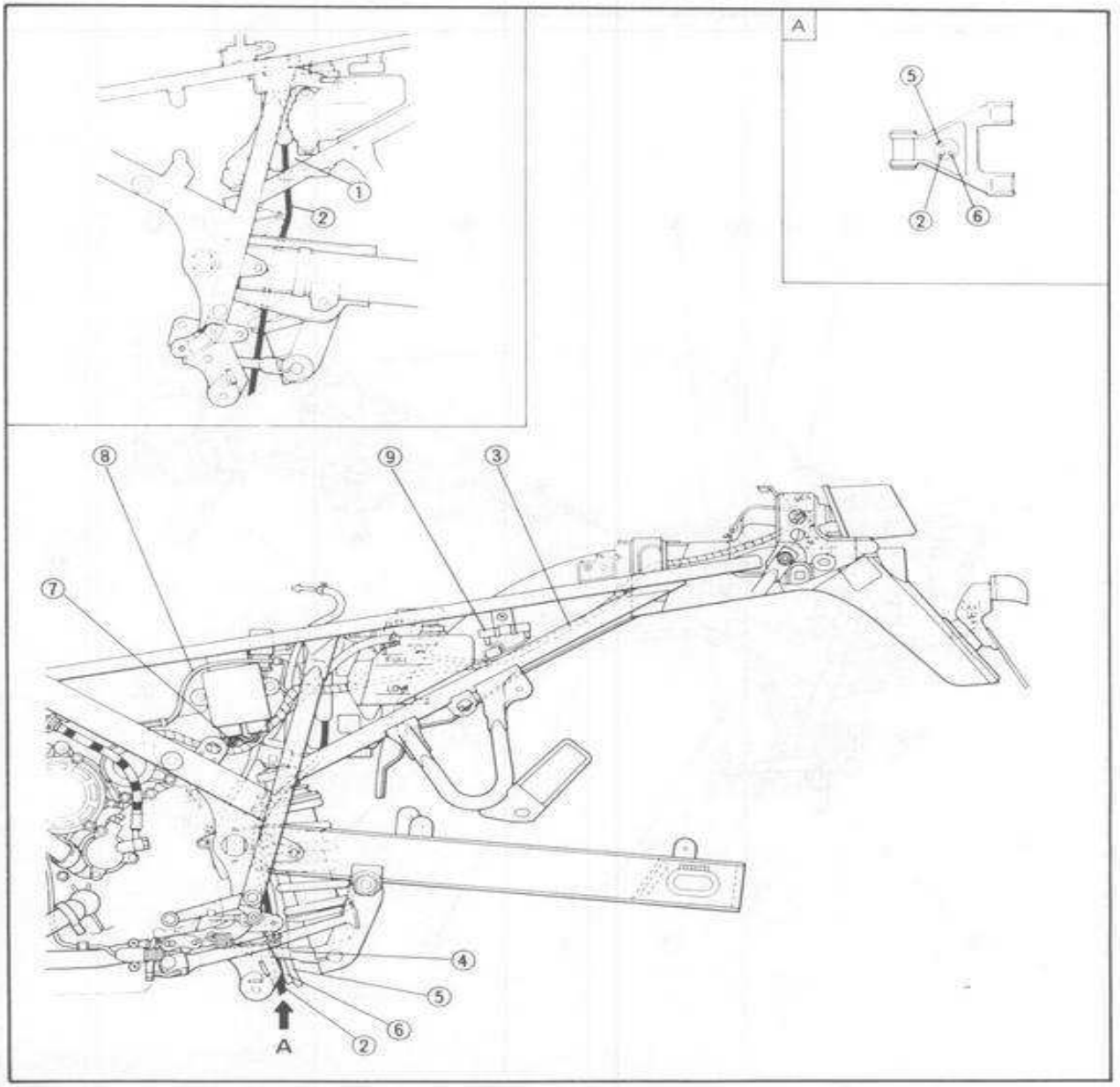
CABLE ROUTING (1)

① Pass the choke cable along under the side member.
② Clutch hose
③ Wire harness
④ Ignitor unit
⑤ Fuel tank overflow hose (to fuel tank) Pass the fuel tank overflow hose front of the battery box.
⑥ Speedometer cable
⑦ Diode
⑧ Sidestand switch



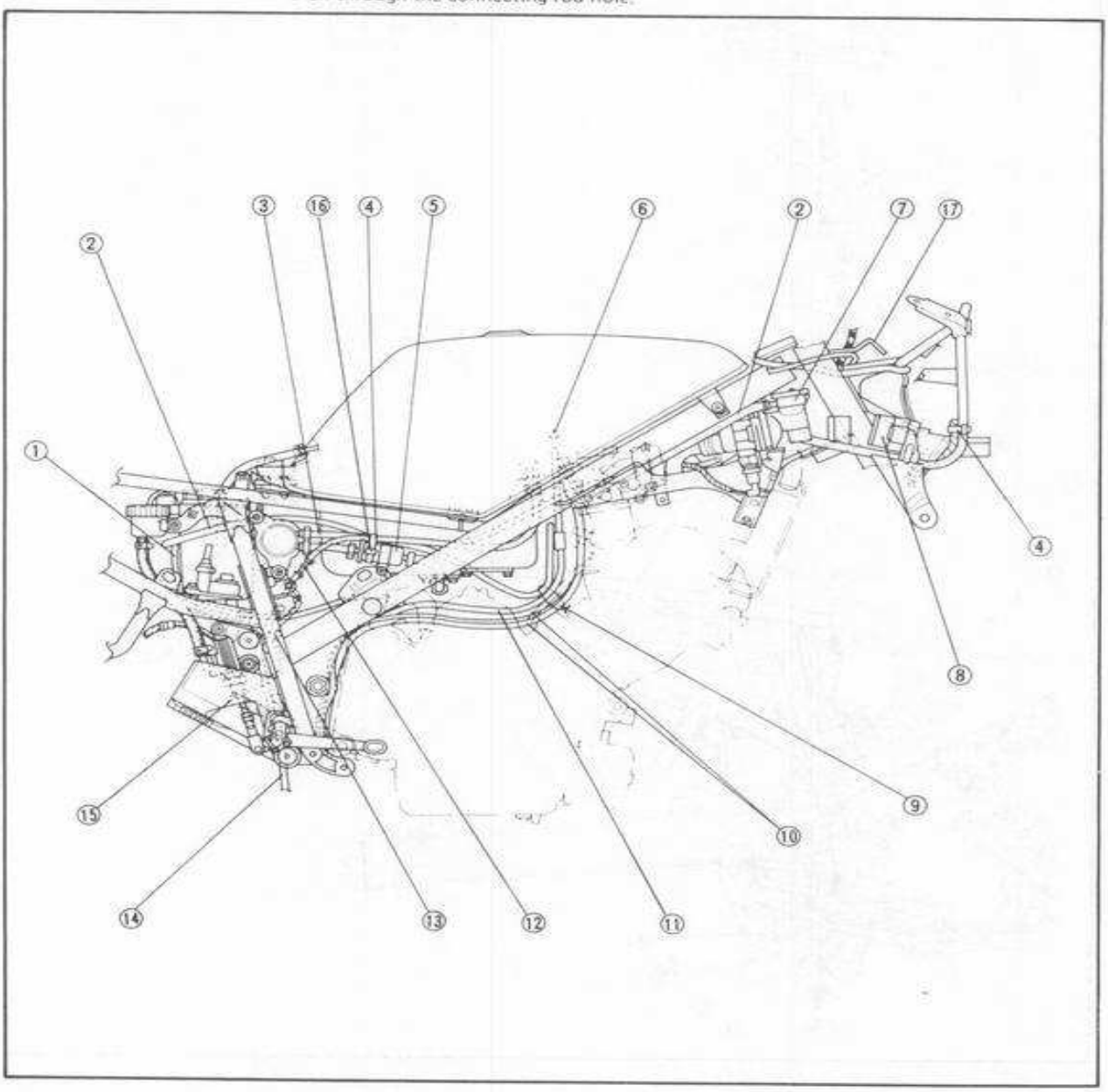
CABLE ROUTING (2)

① Battery
② Battery breather hose
③ Wire harness
④ Pass through the connecting rod hole.
⑤ Fuel tank overflow hose
⑥ Fuel tank reservor hose
⑦ Pass the ignitor unit lead over the wire harness.
⑧ Fuel sender lead
⑨ Resistor
A "A" VIEW



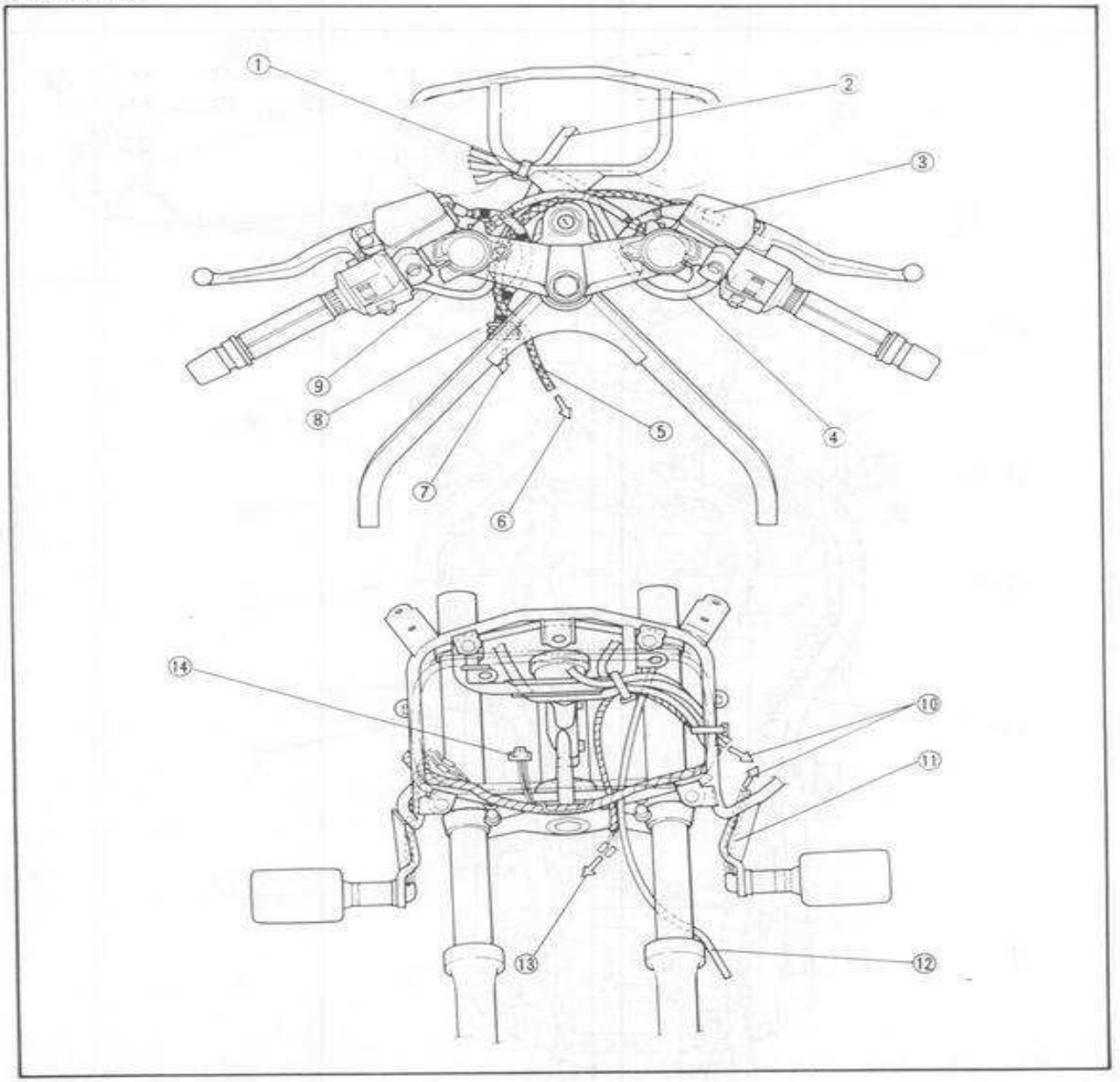
CABLE ROUTING (3)

① Ground lead
② Radiator overflow hose
③ Fuel hose
④ Band
⑤ Fuel filter
⑥ To air cleaner
⑦ Thermostatic valve
⑧ Relay assembly
⑨ Clamp five lines (oil delivery pipe, two carburetor air vent hoses, air cleaner breather hose, and fuel hose)
⑩ Carburetor air vent hose
⑪ Air cleaner breather hose
⑫ Joint
⑬ Clamp the brake switch lead
⑭ Pass the fuel tank reservor hose between swingarm and shock absorber, then through the connecting rod hole.
⑮ Rear brake switch
⑯ Clamp the fuel hose and radiator overflow hose to the fuel filter with band.
⑰ Pass only the throttle cable through the cable holder.



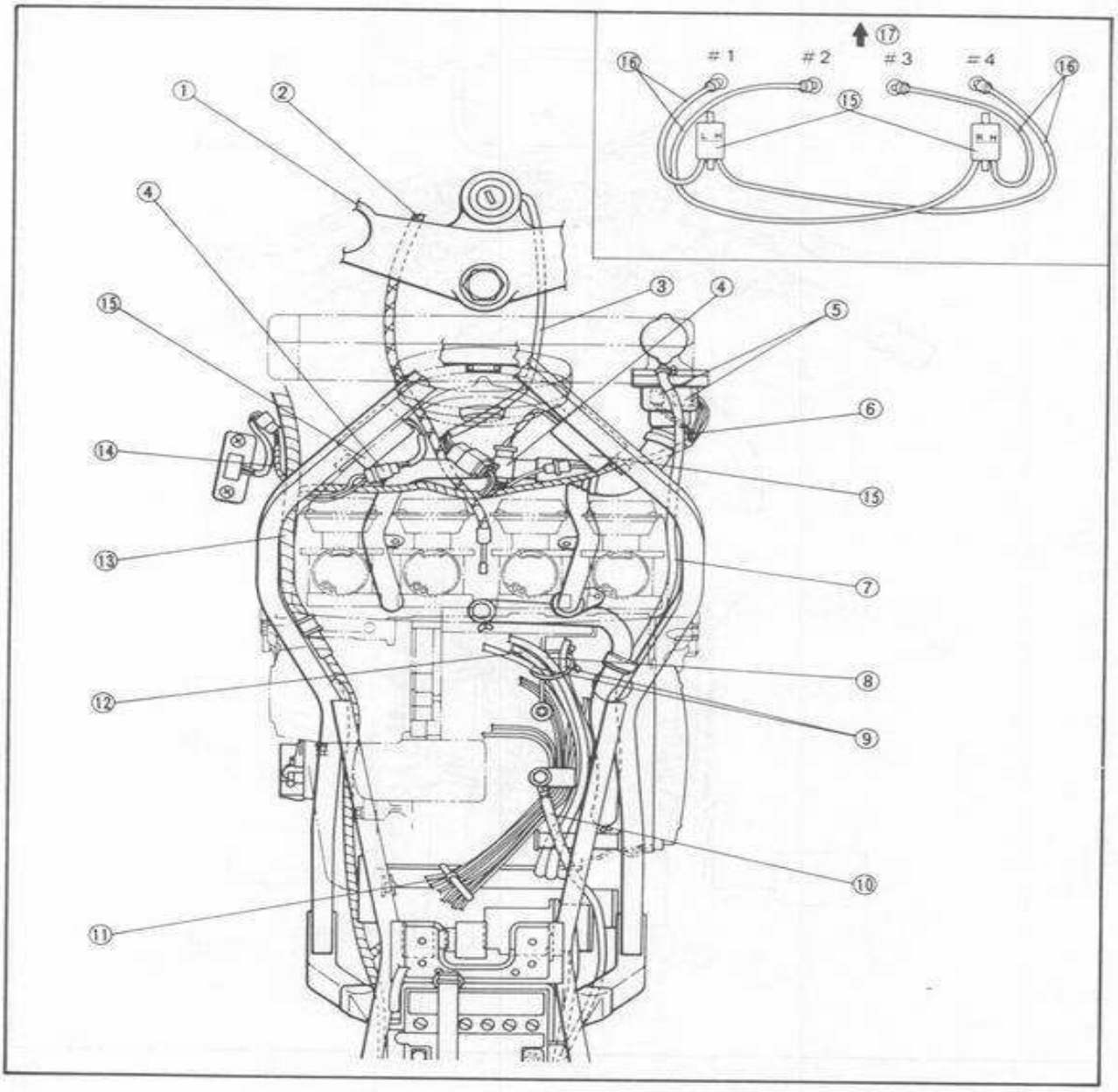
CABLE ROUTING (4)

① Clamp the handlebar switch (Left), headlight, and meter unit leads to the headlight stay with band.
② Meter unit lead
③ Brake switch coupler
④ Handlebar switch lead (Right)
⑤ Throttle cable
⑥ To carburetor
⑦ To engine
⑧ Clutch hose
⑨ Handlebar switch lead (Left)
⑩ To wire harness
⑪ Flasher light leads (Left)
⑫ Speedometer cable
⑬ To horn
⑭ Headlight coupler



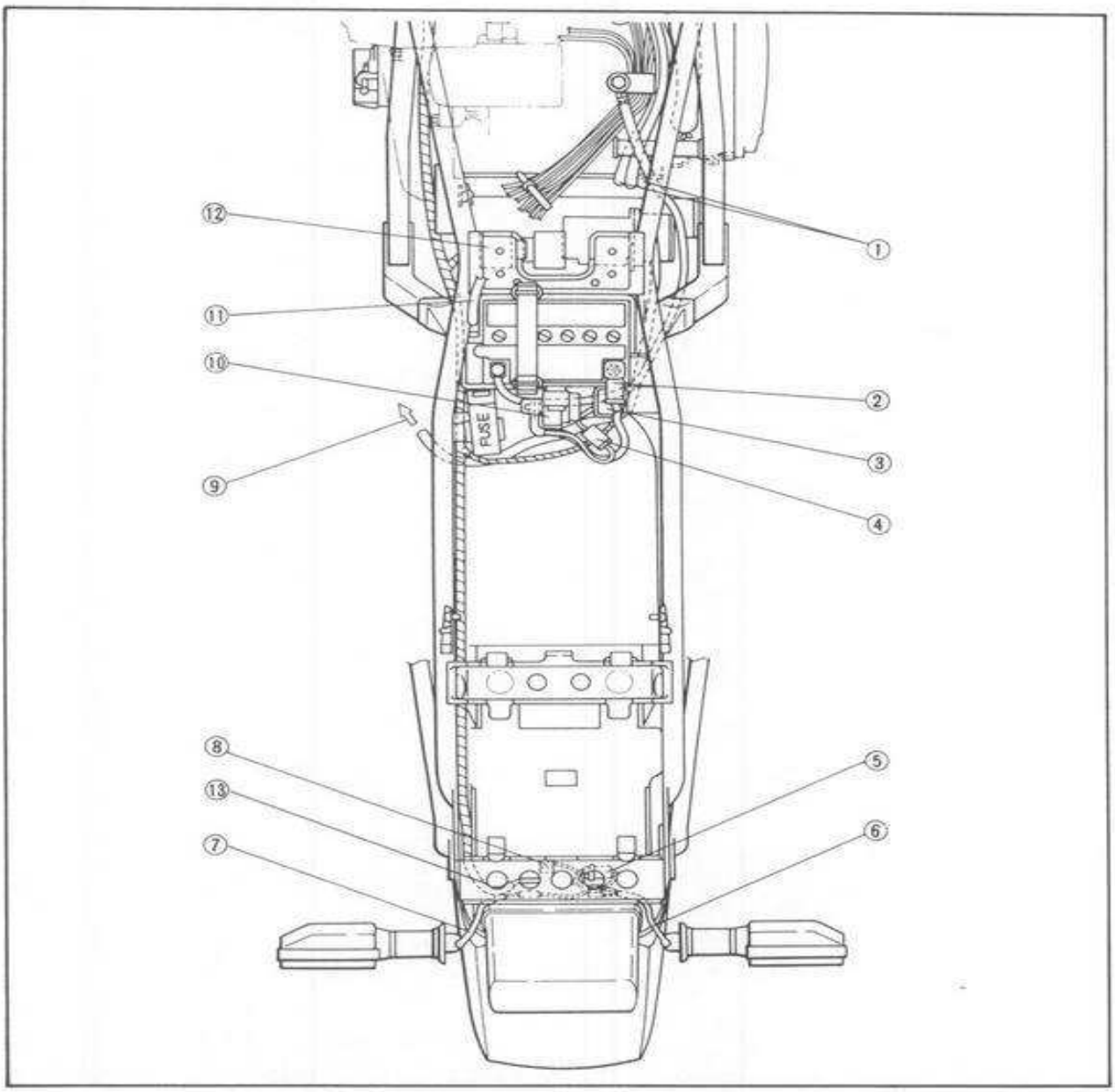
CABLE ROUTING (5)

① Handle crown
② Throttle cable
③ Pass the main switch lead through under the handle crown, between tank rail and side member then connect the couplers over the radiator.
④ Ignition coil coupler
⑤ Thermostatic switch coupler
⑥ Fan motor lead
⑦ Radiator over flow hose
⑧ Air cleaner breather hose
⑨ Carburetor air vent hose
⑩ Ground lead
⑪ Band
⑫ Fuel hose
⑬ Wire harness
⑭ Pass the fuel reserve switch lead through between the tank rail and side member.
⑮ Ignition coil
⑯ Spark plug lead
⑰ Front

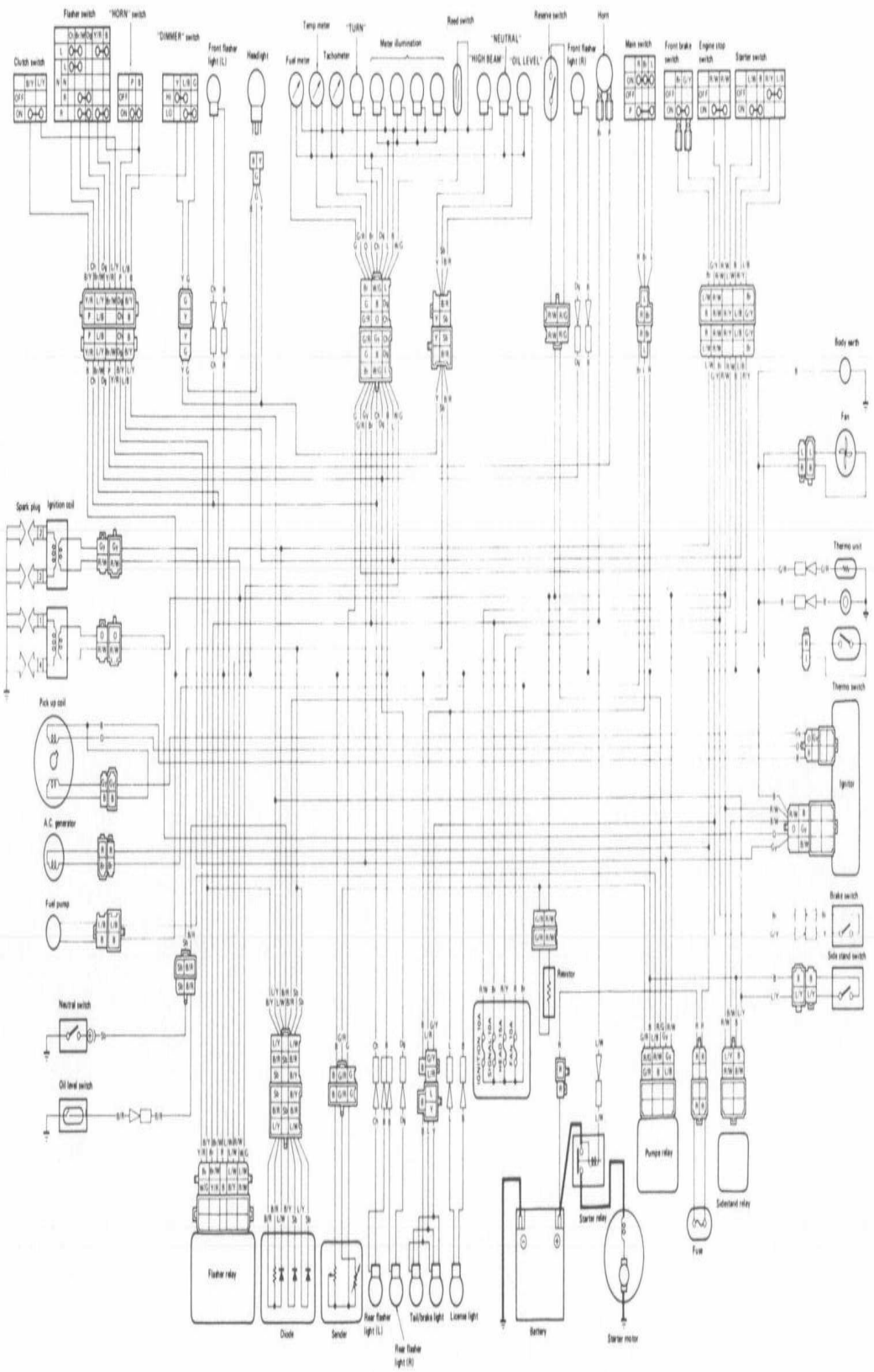


CABLE ROUTING (6)

① Pass the carburetor overflow hoses between the engine and swingarm pivot.
② Battery positive lead
③ Main fuse
④ Main fuse coupler
⑤ Tail light coupler
⑥ Flasher light lead (Right)
⑦ Flasher light lead (Left)
⑧ License light connector
⑨ To coolant reservoire tank
⑩ Starter relay
⑪ Fuel tank overflow hose
⑫ Fuel pump relay
⑬ Clamp the license light, flasher lights (Left and Right), and tail light leads on the rear stay.



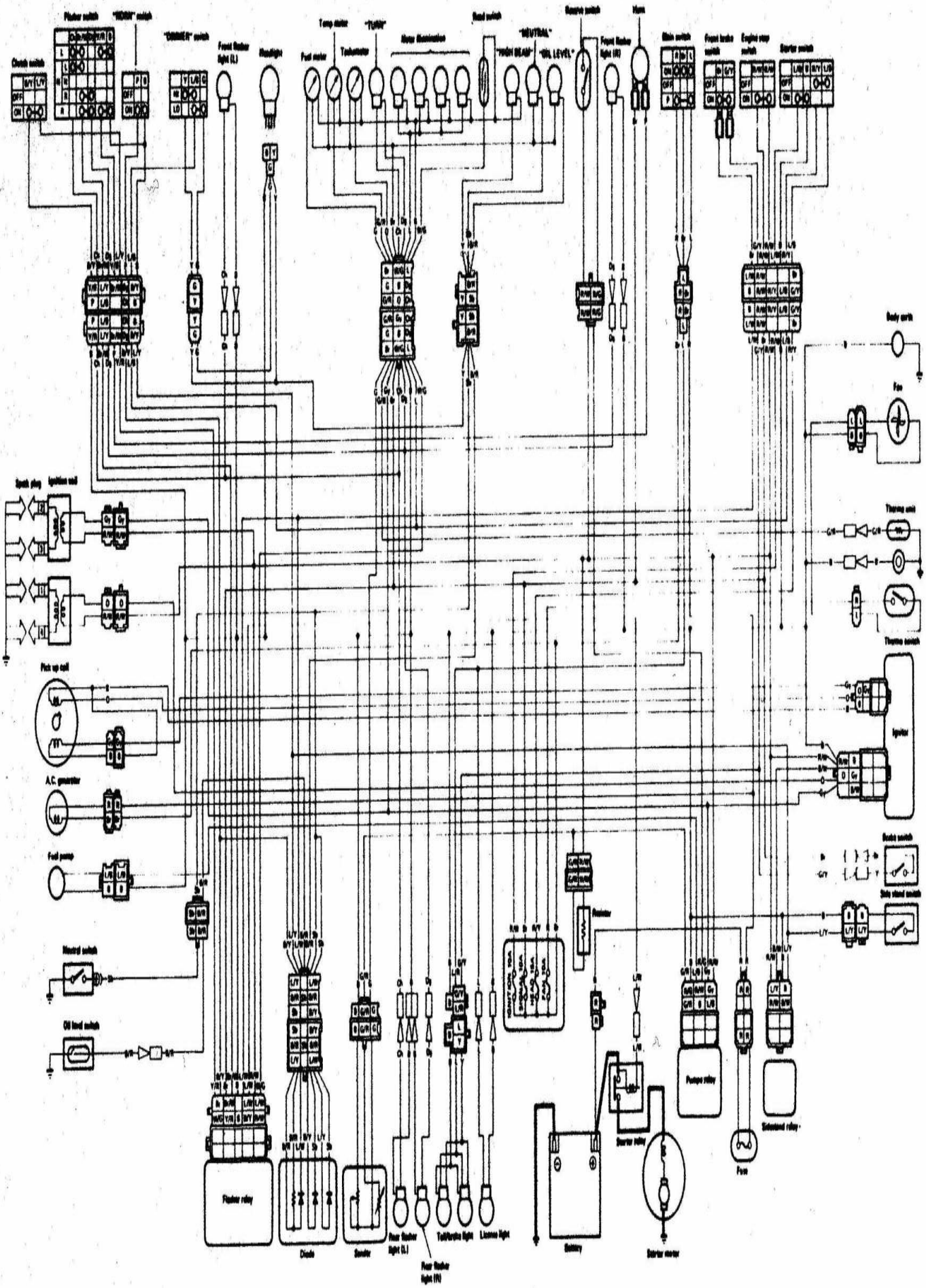
FZ750N WIRING DIAGRAM



COLOR CODE

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

FZ750N WIRING DIAGRAM



COLOR CODE

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