1991 - 2000

MOTORCYCLE

SERVICE MANUAL

Model: CY50B, CY50D, CY50E, CY50F, CY50G, CY50H, CY50J, CY50M, SH50G
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 scooter have a basic understanding of the mechanical concepts and procedures inherent in scooter repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

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

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

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

⚠️ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠️ WARNING: Failure to follow WARNING instructions could result in severe injury or death to the scooter operator, a bystander, or a person inspecting or repairing the scooter.

⚠️ CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the scooter.

NOTE: A NOTE provides key information to make procedures easier or clearer.
HOW TO USE THIS MANUAL

CONSTRUCTION OF THIS MANUAL
This manual consists of chapters for the main categories of subjects. (See "Illustrated symbols")

1st title ①: This is a chapter with its symbol on the upper right of each page.

2nd title ②: This title appears on the upper of each page on the left of the chapter symbol. (For the chapter "Periodic inspection and adjustment" the 3rd title appears.)

3rd title ③: This is a final title.

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 inspections.

A set of particularly important procedure ④ is placed between a line of asterisks "★" with each procedure preceded by "●".

IMPORTANT FEATURES
• Data and a special tool are framed in a box preceded by a relevant symbol ⑤.
• An encircled numeral ⑥ indicates a part name, and an encircled alphabetical letter data or an alignment mark ⑦, the others being indicated by an alphabetical letter in a box ⑧.
• A condition of a faulty component will precede an arrow symbol and the course of action required the symbol ⑨.

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 Specifications
3 Periodic inspection and adjustment
4 Engine
5 Carburetion
6 Chassis
7 Electrical
8 Troubleshooting

Illustrated symbols 9 to 19 are used to identify the specifications appearing in the text.
9 Filling fluid
10 Lubricant
11 Special tool
12 Tightening
13 Wear limit, clearance
14 Engine speed
15 Ω, V, A

Illustrated symbols 16 to 22 in the exploded diagram indicate grade of lubricant and location of lubrication point.
16 Apply engine oil
17 Apply gear oil
18 Apply molybdenum disulfide oil
19 Apply wheel bearing grease
20 Apply lightweight lithium-soap base grease
21 Apply molybdenum disulfide grease
22 Apply locking agent (LOCTITE®)
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CHAPTER 1.
GENERAL INFORMATION

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GENERAL INFORMATION

SCOOTER IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER
The vehicle identification number ① is stamped into the frame.

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

Starting serial number:
JYA3SAN0 * MA000101

ENGINE SERIAL NUMBER
The engine serial number ① is stamped into the crankcase.

Starting serial number:
3SA-000101

NOTE:
• The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.
• Designs and specifications are subject to change without notice.
IMPORTANT INFORMATION
PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Remove all dirt, mud, dust and foreign material before removal and disassembly.
2. Use proper tools and cleaning equipment. Refer to "SPECIAL TOOL".

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

4. During the scooter disassembly, clean all parts and place them in trays in the order of disassembly. This will speed up assembly time and help assure that all parts are correctly reinstalled.
5. Keep away from fire.

ALL REPLACEMENT PARTS

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

GASKETS, OIL SEALS, AND O-RINGS

1. All gaskets, seals, and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips, and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.
LOCK WASHERS/PLATES AND COTTER PINS
1. All lock washers/plates and cotter pins must be replaced when they are removed. Lock tab(s) should be bent along the bolt or nut flat(s) after the bolt or nut has been properly tightened.

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

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

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

 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-A
   This tool is needed for detecting engine rpm.

2. Compression Gauge
   P/N. YU-33223
   This gauge is used to measure engine compression.

3. Fuel level gauge
   P/N. YM-01312-A
   This gauge is used to measure the fuel level in the float chamber.

FOR ENGINE SERVICE
1. Flywheel Holding Tool
   P/N. YU-01235
   This tool is used to hold the flywheel magneto and clutch assembly when removing or installing the securing nut.
2. Flywheel Magneto Puller  
   P/N. YM-01189  
   This tool is used to remove the flywheel.

3. Crankcase Separating Tool  
   P/N. YU-01135  
   This tool is used to remove the crankshaft or separate the crankcase.

4. Crankshaft Installing Set  
   P/N. YU-90050-①  
   Adapter (M10)  
   P/N. YM-90062-②  
   This tools are used to install the crankshaft.

5. Sheave Holder  
   P/N. YS-01880  
   This tool is used when holding the clutch hub.

6. Clutch Spring Holder  
   P/N. YS-28891  
   This tool is used to disassemble and assembly the secondary sheave.
7. Quick Gasket®
P/N. ACC-11001-01
YAMAHA Bond No. 1215

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

FOR CHASSIS SERVICE
1. Ring Nut Wrench
P/N. YU-33975

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

FOR ELECTRICAL COMPONENTS
1. Pocket Tester
P/N. YU-03112

This instrument is invaluable for electrical system inspection and adjustment.

2. Dynamic spark tester
P/N. YM-34487

This instrument is necessary for checking the ignition system components.
CHAPTER 2.
SPECIFICATIONS

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<th>CY50B</th>
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</thead>
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<tr>
<td><strong>Model Code Number</strong></td>
<td>3SA</td>
</tr>
<tr>
<td><strong>Vehicle Identification Number</strong></td>
<td>JYA3SAN0 * MA000101</td>
</tr>
<tr>
<td><strong>Engine Starting Number</strong></td>
<td>3SA-000101</td>
</tr>
</tbody>
</table>

### Dimensions:
- **Overall Length**: 1,645 mm (64.8 in)
- **Overall Width**: 630 mm (24.8 in)
- **Overall Height**: 980 mm (38.6 in)
- **Seat Height**: 710 mm (28.0 in)
- **Wheelbase**: 1,115 mm (43.9 in)
- **Minimum Ground Clearance**: 80 mm (3.1 in)

### Basic Weight:
- **With Oil and Full Fuel Tank**: 65 kg (143 lb)

### Minimum Turning Radius:
- 1,600 mm (63 in)

### Engine:
- **Engine Type**: Air cooled 2-stroke, gasoline
- **Cylinder Arrangement**: Single cylinder, Vertical
- **Displacement**: 49 cm³
- **Bore x Stroke**: 40.0 x 39.2 mm (1.575 x 1.543 in)
- **Compression Ratio**: 6.9 : 1
- **Starting System**: Electric and kick starter

### Lubrication System
- Separate lubrication (Yamaha Autolube)

### Oil Type or Grade:
- **Engine Oil**: Yamalube2 or equivalent air-cooled, 2-stroke engine oil
- **Transmission Oil**: SAE 10W30 type SE motor oil

### Oil Capacity:
- **Oil Tank (engine oil)**: 0.8 L (0.7 Imp qt, 0.84 US qt)
- **Transmission Oil**:
  - **Periodic Oil Change**: 0.10 L (0.09 Imp qt, 0.11 US qt)
  - **Total Amount**: 0.11 L (0.10 Imp qt, 0.12 US qt)

### Air Filter
- Wet type element

### Fuel:
- **Type**: Regular gasoline
- **Tank Capacity**: 3.5 L (0.77 Imp gal, 0.92 US gal)
<table>
<thead>
<tr>
<th>Model</th>
<th>CY50B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carburetor:</td>
<td>Y14P/TEIKEI KIKAKI</td>
</tr>
<tr>
<td>Type/Manufacturer</td>
<td></td>
</tr>
<tr>
<td>Spark Plug:</td>
<td>BPR7HS/NGK or W22FPR-U/ND</td>
</tr>
<tr>
<td>Type/Manufacturer</td>
<td></td>
</tr>
<tr>
<td>Gap</td>
<td>0.6 ~ 0.7 mm (0.024 ~ 0.028 in)</td>
</tr>
<tr>
<td>Clutch Type</td>
<td>Dry, Centrifugal automatic</td>
</tr>
<tr>
<td>Transmission:</td>
<td>Helical gear</td>
</tr>
<tr>
<td>Primary Reduction System</td>
<td></td>
</tr>
<tr>
<td>Primary Reduction Ratio</td>
<td>48/13 (3.692)</td>
</tr>
<tr>
<td>Secondary Reduction System</td>
<td>Spur gear</td>
</tr>
<tr>
<td>Secondary Reduction Ratio</td>
<td>38/11 (3.455)</td>
</tr>
<tr>
<td>Transmission Type</td>
<td>V-belt</td>
</tr>
<tr>
<td>Operation</td>
<td>Automatic</td>
</tr>
<tr>
<td>Chassis:</td>
<td>Steel tube underbone</td>
</tr>
<tr>
<td>Frame Type</td>
<td></td>
</tr>
<tr>
<td>Caster Angle</td>
<td>26.5°</td>
</tr>
<tr>
<td>Trail</td>
<td>72 mm (2.83 in)</td>
</tr>
<tr>
<td>Tire:</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Tubuless</td>
</tr>
<tr>
<td>Size</td>
<td>MB38/C-922</td>
</tr>
<tr>
<td>Manufacture</td>
<td>80/90-10 34J</td>
</tr>
<tr>
<td>Tire pressure (cold tire)</td>
<td>INOUE/CHENGSHIN</td>
</tr>
<tr>
<td></td>
<td>125 kPa</td>
</tr>
<tr>
<td></td>
<td>(1.25 kg/cm², 18 psi)</td>
</tr>
<tr>
<td></td>
<td>Tubeless</td>
</tr>
<tr>
<td></td>
<td>MB38/C-922</td>
</tr>
<tr>
<td></td>
<td>80/90-10 34J</td>
</tr>
<tr>
<td></td>
<td>INOUE/CHENGSHIN</td>
</tr>
<tr>
<td></td>
<td>200 kPa</td>
</tr>
<tr>
<td></td>
<td>(2.00 kg/cm², 29 psi)</td>
</tr>
<tr>
<td>Brake:</td>
<td></td>
</tr>
<tr>
<td>Front Brake Type</td>
<td>Drum brake</td>
</tr>
<tr>
<td>Operation</td>
<td>Right hand operation</td>
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<tr>
<td>Rear Brake Type</td>
<td>Drum brake</td>
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<td>Operation</td>
<td>Left hand operation</td>
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<td>Suspension:</td>
<td>Telescopic fork</td>
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<td>Front Suspension</td>
<td>Unit swing</td>
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<td>Rear Suspension</td>
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<td>Shock Absorber:</td>
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<tr>
<td>Front</td>
<td>Coil spring</td>
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<tr>
<td>Rear</td>
<td>Coil spring/Oil damper</td>
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<tr>
<td>Wheel Travel:</td>
<td></td>
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<tr>
<td>Front Wheel Travel</td>
<td>42 mm (1.65 in)</td>
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<tr>
<td>Rear Wheel Travel</td>
<td>42 mm (1.65 in)</td>
</tr>
<tr>
<td>Model</td>
<td>CY50B</td>
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<td><strong>Electrical:</strong></td>
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<tr>
<td>Ignition System</td>
<td>CDI</td>
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<tr>
<td>Generator System</td>
<td>Flywheel magneto</td>
</tr>
<tr>
<td>Battery Type or Model</td>
<td>YT4L-BS/GT4L-BS</td>
</tr>
<tr>
<td>Battery Capacity</td>
<td>12V 4AH</td>
</tr>
<tr>
<td><strong>Headlight type:</strong></td>
<td>Bulb type</td>
</tr>
<tr>
<td><strong>Bulb Wattage x Quantity:</strong></td>
<td></td>
</tr>
<tr>
<td>Headlight</td>
<td>12V 25W/25W X 1</td>
</tr>
<tr>
<td>Tail/Brake light</td>
<td>12V 5W/21W X 1</td>
</tr>
<tr>
<td>Flasher light</td>
<td>12V 10W X 4</td>
</tr>
<tr>
<td>Meter light</td>
<td>12W 3.4W X 1</td>
</tr>
<tr>
<td><strong>Indicator Light Wattage x Quantity:</strong></td>
<td></td>
</tr>
<tr>
<td>“TURN”</td>
<td>12V 1.7W X 1</td>
</tr>
<tr>
<td>“HIGH BEAM”</td>
<td>12V 1.7W X 1</td>
</tr>
<tr>
<td>“OIL”</td>
<td>12V 3.4W X 1</td>
</tr>
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# MAINTENANCE SPECIFICATIONS

## ENGINE

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<th>CY50B</th>
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<tr>
<td>Cylinder Head: Warp Limit</td>
<td>0.02 mm (0.00079 in)</td>
</tr>
<tr>
<td>* Lines indicate straightedge measurement</td>
<td></td>
</tr>
<tr>
<td>Cylinder: Bore Size &lt;Limit&gt;</td>
<td>39.993 ~ 40.012 mm (1.575 in)</td>
</tr>
<tr>
<td>Taper Limit</td>
<td>&lt;40.1 mm (1.579 in)</td>
</tr>
<tr>
<td>Out of Round Limit</td>
<td>0.05 mm (0.002 in)</td>
</tr>
<tr>
<td>Piston Pin Bore Size</td>
<td>0.01 mm (0.0004 in)</td>
</tr>
<tr>
<td>Piston: Piston Size Measuring Point *</td>
<td>39.952 ~ 39.972 mm (1.573 ~ 1.574 in)</td>
</tr>
<tr>
<td>5 mm (0.2 in)</td>
<td></td>
</tr>
<tr>
<td>Piston Clearance &lt;Limit&gt;</td>
<td>0.034 ~ 0.047 mm (0.0013 ~ 0.0018 in)</td>
</tr>
<tr>
<td>Oversize: 1st</td>
<td>0.1 mm (0.004 in)</td>
</tr>
<tr>
<td>2nd</td>
<td>40.25 mm (1.585 in)</td>
</tr>
<tr>
<td>40.50 mm (1.594 in)</td>
<td></td>
</tr>
<tr>
<td>Piston Pin Bore Size</td>
<td>10.004 ~ 10.015 mm (0.3939 ~ 0.3943 in)</td>
</tr>
<tr>
<td>Piston Pin: Outside Diameter</td>
<td>9.996 ~ 10.000 mm (0.3935 ~ 0.3937 in)</td>
</tr>
<tr>
<td>Piston Pin Clearance &lt;Limit&gt;</td>
<td>0.004 ~ 0.019 mm (0.0007 ~ 0.0008 in)</td>
</tr>
<tr>
<td>0.07 mm (0.0028 in)</td>
<td></td>
</tr>
<tr>
<td>Piston Ring: Sectional Sketch (B x T)/Type Top Ring 2nd Ring</td>
<td>1.5 x 1.8 mm (0.059 x 0.071 in)/Keystone</td>
</tr>
<tr>
<td>End Gap (installed): Top Ring 2nd Ring</td>
<td>1.5 x 1.8 mm (0.059 x 0.071 in)/Keystone</td>
</tr>
<tr>
<td>0.15 ~ 0.35 mm (0.006 ~ 0.014 in)</td>
<td></td>
</tr>
<tr>
<td>0.15 ~ 0.35 mm (0.006 ~ 0.014 in)</td>
<td></td>
</tr>
<tr>
<td>Side Clearance (installed): Top Ring 2nd Ring</td>
<td>0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)</td>
</tr>
<tr>
<td>0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)</td>
<td></td>
</tr>
<tr>
<td>Crankshaft: Crank Width “A” Run Out Limit “C” Connecting Rod Big End Side Clearance “D” Small End Free Play “F”</td>
<td>37.90 ~ 37.95 mm (1.492 ~ 1.494 in)</td>
</tr>
<tr>
<td>0.03 mm (0.0012 in)</td>
<td></td>
</tr>
<tr>
<td>0.2 ~ 0.5 mm (0.008 ~ 0.020 in)</td>
<td></td>
</tr>
<tr>
<td>0.4 ~ 0.8 mm (0.015 ~ 0.031 in)</td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>CY50B</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>Automatic Centrifugal Clutch:</strong></td>
<td></td>
</tr>
<tr>
<td>Shoe Thickness</td>
<td>2.5 mm (0.10 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.0 mm (0.08 in)&gt;</td>
</tr>
<tr>
<td>Clutch Shoe Spring Free Length</td>
<td>26.2 mm (1.03 in)</td>
</tr>
<tr>
<td>Clutch Spring Free Length</td>
<td>95.4 mm (3.76 in)</td>
</tr>
<tr>
<td>&lt;Limit&gt;</td>
<td>&lt;92.4 mm (3.64 in)&gt;</td>
</tr>
<tr>
<td>Clutch Housing Inside Diameter</td>
<td>105.0 mm (4.13 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;105.4 mm (4.15 in)&gt;</td>
</tr>
<tr>
<td>Clutch-In Revolution</td>
<td>3100 ~ 3500 r/min</td>
</tr>
<tr>
<td>Clutch-Stall Revolution</td>
<td>6050 ~ 6550 r/min</td>
</tr>
<tr>
<td><strong>V-Belt:</strong></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>16.6 mm (0.65 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;15.2 mm (0.60 in)&gt;</td>
</tr>
<tr>
<td><strong>Transmission:</strong></td>
<td></td>
</tr>
<tr>
<td>Main Axle Runout Limit</td>
<td>0.08 mm (0.003 in)</td>
</tr>
<tr>
<td>Drive Axle Runout Limit</td>
<td>0.08 mm (0.003 in)</td>
</tr>
<tr>
<td><strong>Kick Starter:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Ratchet type</td>
</tr>
<tr>
<td>Kick Clip Tension</td>
<td>150 ~ 250 g (5.3 ~ 8.8 oz)</td>
</tr>
<tr>
<td><strong>Carburetor:</strong></td>
<td></td>
</tr>
<tr>
<td>I.D. Mark</td>
<td>3KJ10</td>
</tr>
<tr>
<td>Main Jet (M.J.)</td>
<td>#76</td>
</tr>
<tr>
<td>Jet Needle-clip Position (J.N.)</td>
<td>3R00 3/5</td>
</tr>
<tr>
<td>Main Air Jet (M.A.J.)</td>
<td>$2.0</td>
</tr>
<tr>
<td>Cutaway (C.A.)</td>
<td>2.5</td>
</tr>
<tr>
<td>Pilot Jet (P.J.)</td>
<td>#42</td>
</tr>
<tr>
<td>Pilot Air Screw (A.S.)</td>
<td>1 and 5/8 turns out</td>
</tr>
<tr>
<td>Valve Seat Size (V.S.)</td>
<td>ø1.8</td>
</tr>
<tr>
<td>Starter Jet (P.J.)</td>
<td>#48</td>
</tr>
<tr>
<td>Float Height</td>
<td>15.0 ~ 17.0 mm (0.59 ~ 0.67 in)</td>
</tr>
<tr>
<td>Engine Idling speed</td>
<td>1,800 r/min</td>
</tr>
<tr>
<td><strong>Reed Valve:</strong></td>
<td></td>
</tr>
<tr>
<td>Valve Stopper Height</td>
<td>6.0 ~ 6.4 mm (0.24 ~ 0.25 in)</td>
</tr>
<tr>
<td>Reed Valve Clearance</td>
<td>Less than 0.2 mm (0.008 in)</td>
</tr>
<tr>
<td><strong>Lubrication System:</strong></td>
<td></td>
</tr>
<tr>
<td>Autolube Pump Stroke</td>
<td>0.5 mm (0.020 in)</td>
</tr>
<tr>
<td>Parts to be tightened</td>
<td>Part name</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Spark Plug</td>
<td>—</td>
</tr>
<tr>
<td>Cylinder Head</td>
<td>Nut</td>
</tr>
<tr>
<td>Stud Bolt</td>
<td>—</td>
</tr>
<tr>
<td>Stator Assembly</td>
<td>Screw</td>
</tr>
<tr>
<td>C.D.I. Magneto</td>
<td>Nut</td>
</tr>
<tr>
<td>Air Shroud</td>
<td>Screw</td>
</tr>
<tr>
<td>Fan</td>
<td>Screw</td>
</tr>
<tr>
<td>Autolube Pump</td>
<td>Screw</td>
</tr>
<tr>
<td>Reed Valve (carburetor joint)</td>
<td>Bolt</td>
</tr>
<tr>
<td>Air Cleaner Case</td>
<td>Screw</td>
</tr>
<tr>
<td>Exhaust Pipe</td>
<td>Screw</td>
</tr>
<tr>
<td>Muffler</td>
<td>Bolt</td>
</tr>
<tr>
<td>Muffler Protector</td>
<td>Screw</td>
</tr>
<tr>
<td>Crankcase cover 1</td>
<td>Screw</td>
</tr>
<tr>
<td>Cover 3</td>
<td>Screw</td>
</tr>
<tr>
<td>Transmission Oil Drain Bolt</td>
<td>—</td>
</tr>
<tr>
<td>Kick Crank</td>
<td>Bolt</td>
</tr>
<tr>
<td>Clutch Housing</td>
<td>Nut</td>
</tr>
<tr>
<td>Clutch Carrier</td>
<td>Nut</td>
</tr>
<tr>
<td>Primary Sheeve</td>
<td>Nut</td>
</tr>
<tr>
<td>Idle Gear Plate</td>
<td>Screw</td>
</tr>
<tr>
<td>Starter Motor</td>
<td>Bolt</td>
</tr>
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</table>
### CHASSIS

<table>
<thead>
<tr>
<th>Model</th>
<th>CY50B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steering System:</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>Steering Bearing Type</td>
<td>5/32 in 26 pcs.</td>
</tr>
<tr>
<td>No./Size of Steel Balls</td>
<td>5/32 in 26 pcs.</td>
</tr>
<tr>
<td>Upper</td>
<td>Lower</td>
</tr>
<tr>
<td>Front Fork Travel</td>
<td>47.8 mm (1.88 in)</td>
</tr>
<tr>
<td>Fork spring Free Length</td>
<td>91.5 mm (3.60 in)</td>
</tr>
<tr>
<td>&lt;Limit&gt;</td>
<td>&lt;87 mm (3.42 in)&gt;</td>
</tr>
<tr>
<td>Spring Rate</td>
<td>5.64 N/mm (0.564/mm, 31.6 lb/in)</td>
</tr>
<tr>
<td>Stroke</td>
<td>Zero ~ 47.8 mm (Zero ~ 1.88 in)</td>
</tr>
<tr>
<td>Optional Spring</td>
<td>No.</td>
</tr>
<tr>
<td>Rear Suspension:</td>
<td></td>
</tr>
<tr>
<td>Shock absorber Travel</td>
<td>45 mm (1.77 in)</td>
</tr>
<tr>
<td>Spring Free Length</td>
<td>176.5 mm (6.95 in)</td>
</tr>
<tr>
<td>Spring Fitting Length</td>
<td>166.5 mm (6.56 in)</td>
</tr>
<tr>
<td>Spring Rate: (K1)</td>
<td>25.0 N/mm (2.5 kg/mm, 140.0 lb/in)</td>
</tr>
<tr>
<td>(K2)</td>
<td>37.0 N/mm (3.7 kg/mm, 207.2 lb/in)</td>
</tr>
<tr>
<td>(K3)</td>
<td>53.0 N/mm (5.3 kg/mm, 296.8 lb/in)</td>
</tr>
<tr>
<td>Stroke: (K1)</td>
<td>Zero ~ 20 mm (Zero ~ 0.79 in)</td>
</tr>
<tr>
<td>(K2)</td>
<td>20 ~ 35 mm (0.79 ~ 1.38 in)</td>
</tr>
<tr>
<td>(K3)</td>
<td>35 ~ 45 mm (1.38 ~ 1.77 in)</td>
</tr>
<tr>
<td>Optional Spring</td>
<td>No.</td>
</tr>
<tr>
<td>Wheel:</td>
<td>Panel wheel</td>
</tr>
<tr>
<td>Front Wheel Type</td>
<td>Panel wheel</td>
</tr>
<tr>
<td>Rear Wheel Type</td>
<td>MT 2.15 x 10 / Steel</td>
</tr>
<tr>
<td>Front Rim Size/Material</td>
<td>MT 2.15 x 10 / Steel</td>
</tr>
<tr>
<td>Rear Rim Size/Material</td>
<td></td>
</tr>
<tr>
<td>Rim Runout Limit:</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Vertical</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Front Drum Brake:</td>
<td>Leading, Trailing</td>
</tr>
<tr>
<td>Type</td>
<td>95.0 mm (3.74 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;96.0 mm (3.78 in)&gt;</td>
</tr>
<tr>
<td>Lining Thickness</td>
<td>4.0 mm (0.16 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.0 mm (0.08 in)&gt;</td>
</tr>
<tr>
<td>Rear Drum Brake:</td>
<td>Leading, Trailing</td>
</tr>
<tr>
<td>Type</td>
<td>110.0 mm (4.33 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;111.0 mm (4.37 in)&gt;</td>
</tr>
<tr>
<td>Lining Thickness</td>
<td>4.0 mm (0.16 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.0 mm (0.08 in)&gt;</td>
</tr>
<tr>
<td>Parts to be tightened</td>
<td>Part name</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Frame and Engine Bracket</td>
<td>Nut</td>
</tr>
<tr>
<td>Engine Bracket and Engine</td>
<td>Bolt</td>
</tr>
<tr>
<td>Rear Suspension (upper)</td>
<td>Nut</td>
</tr>
<tr>
<td>Rear Suspension (lower)</td>
<td>Bolt</td>
</tr>
<tr>
<td>Handlebar and Steering Column</td>
<td>Bolt</td>
</tr>
<tr>
<td>Ring nut (steering column)</td>
<td>—</td>
</tr>
<tr>
<td>Front Wheel Axle</td>
<td>Nut</td>
</tr>
<tr>
<td>Front Brake Cam Lever</td>
<td>Bolt</td>
</tr>
<tr>
<td>Rear Brake Cam Lever</td>
<td>Bolt</td>
</tr>
<tr>
<td>Rear Wheel Axle</td>
<td>Nut</td>
</tr>
<tr>
<td>Fuel Sender</td>
<td>Bolt</td>
</tr>
<tr>
<td>Carrier</td>
<td>Nut</td>
</tr>
<tr>
<td>Carrier</td>
<td>Bolt</td>
</tr>
<tr>
<td>Bridge Plate</td>
<td>Bolt</td>
</tr>
<tr>
<td>Fuel cock</td>
<td>Bolt</td>
</tr>
<tr>
<td>Fuel tank (upper)</td>
<td>Nut</td>
</tr>
<tr>
<td>Fuel tank (lower)</td>
<td>Bolt</td>
</tr>
<tr>
<td>Seat lock</td>
<td>Bolt</td>
</tr>
<tr>
<td>Box (front)</td>
<td>Bolt</td>
</tr>
<tr>
<td>Plastic Part (M6)</td>
<td>—</td>
</tr>
<tr>
<td>Plastic Part (M5)</td>
<td>—</td>
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### ELECTRICAL

<table>
<thead>
<tr>
<th>Model</th>
<th>CY50B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage:</strong></td>
<td>12V</td>
</tr>
<tr>
<td><strong>Ignition System:</strong></td>
<td>14° at 5,000 r/min</td>
</tr>
<tr>
<td>Ignition Timing (B.T.D.C.)</td>
<td>Electrical</td>
</tr>
<tr>
<td>Advancer Type</td>
<td></td>
</tr>
</tbody>
</table>

![Graph showing ignition timing (B.T.D.C.) vs engine speed (x 10^3 r/min)]

#### C.D.I.:
- **Magneto Model/Manufacturer**: 3KJ/YAMAHA
- **Pickup Coil Resistance (color)**: 400 ~ 600Ω at 20°C (68°F) (White/Red – Black)
- **Source Coil Resistance (color)**: 640 ~ 960Ω at 20°C (68°F) (Black/Red – Black)
- **C.D.I. Unit-Model/Manufacturer**: 3KJ/YAMAHA

#### Ignition Coil:
- **Model/Manufacturer**: 3KJ/YAMAHA
- **Primary Coil Resistance**: 0.56 ~ 0.84Ω at 20°C (68°F)
- **Secondary Coil Resistance**: 5.68 ~ 8.52kΩ at 20°C (68°F)

#### Spark plug cap:
- **Resistance**: 4 ~ 6kΩ at 20°C (68°F)

#### Charging System/Type:
- **Charging System/Type**: Flywheel magneto

#### C.D.I. Magneto:
- **Model/Manufacturer**: 3KJ/YAMAHA
- **Charging Coil Resistance (color)**: 0.48 ~ 0.72Ω at 20°C (68°F) (White – Black)
- **Charging Current**: 0.4 A at 3000 r/min ~ 1.0 A at 8000 r/min
- **Lighting Coil Resistance (color)**: 0.45 ~ 0.55 at 20°C (68°F) (Yellow/Red – Black)
- **Lighting Voltage**: 12V at 3000 r/min ~ 15V at 8000 r/min

#### Voltage Regulator/Rectifier:
- **Type**: Semi conductor short circuit type
- **Model/Manufacturer**: EHU-01TR27/MATSUSHITA or SH580-12/SHINDENGEN
- **No Load Regulated Voltage**: 13.5 ~ 14.5V
- **Capacity**: 5A
- **Withstand Voltage**: 240V
<table>
<thead>
<tr>
<th>Model</th>
<th>CY50B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Battery:</strong></td>
<td></td>
</tr>
<tr>
<td>Capacity</td>
<td>12V, 4AH</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.32</td>
</tr>
<tr>
<td><strong>Starter Motor:</strong></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>DA5AN</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>NIPPON DENSO</td>
</tr>
<tr>
<td>Output</td>
<td>0.15 kW</td>
</tr>
<tr>
<td>Armature Coil Resistance</td>
<td>0.08 ~ 0.10Ω</td>
</tr>
<tr>
<td></td>
<td>at 20°C (68°F)</td>
</tr>
<tr>
<td>Brush Length</td>
<td>4.5 mm (0.18 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.5 mm (0.10 in)&gt;</td>
</tr>
<tr>
<td>Brush Spring Pressure</td>
<td>250 ~ 450 gf (8.8 ~ 15.9 oz)</td>
</tr>
<tr>
<td>Commutator Diameter</td>
<td>15.5 mm (0.61 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;14.5 mm (0.57 in)&gt;</td>
</tr>
<tr>
<td>Mica Undercut</td>
<td>0.9 ~ 1.2 mm</td>
</tr>
<tr>
<td></td>
<td>(0.035 ~ 0.047 in)</td>
</tr>
<tr>
<td><strong>Starter Relay:</strong></td>
<td></td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>27V/TATEISHI</td>
</tr>
<tr>
<td>Amperage Rating</td>
<td>20A</td>
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<tr>
<td>Coil Resistance</td>
<td>54 ~ 66Ω at 20°C (68°F)</td>
</tr>
<tr>
<td><strong>Horn:</strong></td>
<td></td>
</tr>
<tr>
<td>Type/Quantity</td>
<td>Plain type/1 pc</td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>GF-12/NIKKO</td>
</tr>
<tr>
<td>Maximum Amperage</td>
<td>1.5A</td>
</tr>
<tr>
<td><strong>Flasher Relay:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Condenser type</td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>FZ222SD/NIPPON DENSO</td>
</tr>
<tr>
<td>Self Cancelling Device</td>
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</tr>
<tr>
<td>Flasher Frequency</td>
<td>60 ~ 120 cycle/min</td>
</tr>
<tr>
<td>Wattage</td>
<td>10W x 2 + 3.4W</td>
</tr>
<tr>
<td><strong>Oil Level Gauge:</strong></td>
<td></td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>3KJ/NIPPON BINYLON, 53L/TAIHEIYOU ASTI</td>
</tr>
<tr>
<td><strong>Circuit Breaker:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Fuse</td>
</tr>
<tr>
<td>Amperage for Individual Circuit x Quantity:</td>
<td>7A x 1</td>
</tr>
<tr>
<td>Main</td>
<td></td>
</tr>
<tr>
<td><strong>Fuel Sender Unit:</strong></td>
<td></td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>YA-750-01-NO-FU/NIPPON SEIKI</td>
</tr>
<tr>
<td>Resistance (full)</td>
<td>4 ~ 10Ω at 20°C (68°F)</td>
</tr>
<tr>
<td>(empty)</td>
<td>90 ~ 100Ω at 20°C (68°F)</td>
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</table>
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.

<table>
<thead>
<tr>
<th>A (Nut)</th>
<th>B (Bolt)</th>
<th>General torque specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nm</td>
<td>m-kg</td>
<td>ft-lb</td>
</tr>
<tr>
<td>10 mm</td>
<td>6 mm</td>
<td>6 0.6 4.3</td>
</tr>
<tr>
<td>12 mm</td>
<td>8 mm</td>
<td>15 1.5 11</td>
</tr>
<tr>
<td>14 mm</td>
<td>10 mm</td>
<td>30 3.0 22</td>
</tr>
<tr>
<td>17 mm</td>
<td>12 mm</td>
<td>55 5.5 40</td>
</tr>
<tr>
<td>19 mm</td>
<td>14 mm</td>
<td>85 8.5 6.1</td>
</tr>
<tr>
<td>22 mm</td>
<td>16 mm</td>
<td>130 13.0 94</td>
</tr>
</tbody>
</table>

A: Distance across flats
B: Outside thread diameter

DEFINITION OF UNITS

<table>
<thead>
<tr>
<th>Unit</th>
<th>Read</th>
<th>Definition</th>
<th>Measure</th>
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<tbody>
<tr>
<td>mm</td>
<td>millimeter</td>
<td>$10^{-3}$ meter</td>
<td>Length</td>
</tr>
<tr>
<td>cm</td>
<td>centimeter</td>
<td>$10^{-2}$ meter</td>
<td>Length</td>
</tr>
<tr>
<td>kg</td>
<td>kilogram</td>
<td>$10^3$ gram</td>
<td>Weight</td>
</tr>
<tr>
<td>N</td>
<td>Newton</td>
<td>$1 \text{kg} \times \text{m/sec}^2$</td>
<td>Force</td>
</tr>
<tr>
<td>Nm</td>
<td>Newton meter</td>
<td>$N \times \text{m}$</td>
<td>Torque</td>
</tr>
<tr>
<td></td>
<td>Meter kilogram</td>
<td>$m \times \text{kg}$</td>
<td>Torque</td>
</tr>
<tr>
<td>Pa</td>
<td>Pascal</td>
<td>$N/\text{m}^2$</td>
<td>Pressure</td>
</tr>
<tr>
<td>N/mm</td>
<td>Newton per millimeter</td>
<td>$N/\text{mm}$</td>
<td>Spring rate</td>
</tr>
<tr>
<td>L</td>
<td>Liter</td>
<td>—</td>
<td>Volume or Capacity</td>
</tr>
<tr>
<td>cm$^3$</td>
<td>Cubic centimeter</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>r/min</td>
<td>Revolution per minute</td>
<td>—</td>
<td>Engine Speed</td>
</tr>
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### LUBRICATION POINTS AND LUBRICANT TYPE

#### ENGINE

<table>
<thead>
<tr>
<th>Lubrication Points (part name)</th>
<th>Lubricant Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil seal lips (all)</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>O-rings (all)</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Bearing retainer</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Crankshaft bearings</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Needle bearings (connecting rod)</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Main axle bearings</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Drive axle bearings</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Secondary sheave axle bearing</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Piston rings, piston pins and pistons</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Kick pinion gear</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Kick shaft</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Starter idle gear</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Starter clutch pin</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Oil pump driven gear and drive gear</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Secondary sliding sheave cam groove</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Secondary fixed sheave in-side dia.</td>
<td>BEL-RAY assembly lube®</td>
</tr>
<tr>
<td>Crankcase mating surfaces</td>
<td>Yamaha bond No. 1215®</td>
</tr>
<tr>
<td>CHASSIS</td>
<td><strong>LUBRICATION POINTS AND LUBRICANT TYPE</strong></td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Lubrication Points (part name)</td>
<td>Lubricant Type</td>
</tr>
<tr>
<td>Ball bearing (steering shaft)</td>
<td></td>
</tr>
<tr>
<td>Throttle grip inner surface</td>
<td></td>
</tr>
<tr>
<td>Lever pivots and cable end</td>
<td></td>
</tr>
<tr>
<td>Oil seal lip (front wheel)</td>
<td></td>
</tr>
<tr>
<td>Bearing (front wheel)</td>
<td></td>
</tr>
<tr>
<td>Speedometer gear</td>
<td></td>
</tr>
<tr>
<td>Center stand pivot</td>
<td></td>
</tr>
</tbody>
</table>
CABLE ROUTING

1. Rectifier/regulator
2. Throttle cable 1
3. Rear brake cable
4. Speedometer cable
5. Front brake cable
6. Wireharness
7. Throttle cable 2
8. Oil level gauge
9. Starter motor lead
10. Starter relay
11. Fuel sender
12. Tailight ass'Y
13. Fuel over flow hose
14. Battery lead (-)
15. Battery lead (+)
16. Fuse
17. Ground terminal
18. Oil hose

A. Clamp the cable and wireharness.
B. Clamp the wireharness, throttle cable 2 and rear brake cable.
C. Pass the wireharness and throttle cable on the footrest bracket 2.
D. Clamp the wireharness to the frame.
E. Mate the fuse box mating surface and lead.
F. Pass the fuel over flow hose through the tailight ass'Y guide.
G. Insert the cable tube end in the holder and then install the boots to the cable tube end.
H. Clamp the rear brake cable.
I. Install the oil hose until stop it.
J. Do not twist the speedometer cable and front brake cable.
K. Pass the speedometer cable and front brake cable through the hole of inner fender 1 and 2.
CABLE ROUTING SPEC

1. Horn
2. Main switch
3. C.D.I. unit
4. Fuel hose
5. Vacuum hose
6. Fuel cock
7. Fuel over flow hose
8. Ignition coil
9. Taillight lead
10. Fuel sender lead
11. Battery lead (–)
12. Auto choke unit lead
13. High tension lead
14. Rectifier/regulator
15. C.D.I. magneto lead
16. Engine mounting bolt

A. Clamp the C.D.I. unit lead.
B. Pass the fuel hose and vacuum hose through to the carburetor via right side of engine stay and between the oil tank and stay.
C. Pass the vacuum hose over the fuel hose.
D. Clip the fuel hose.
E. Clamp the fuel hose under the seat bracket.
F. Clamp the fuel sender, taillight and battery lead (–).
G. Tighten the ignition coil together with ground lead.
H. Pass the starter motor lead under the engine mounting bolt.
I. Pass the starter motor lead connector on the frame.
J. Clamp the wireharness and starter motor lead.
K. Pass the auto choke unit lead over the carburetor top and then connect /clamp.
L. Clamp the wireharness at white tape aria.
M. To engine.
1. Lever holder (right)
2. Front brake cable
3. Flasher relay
4. Rear brake cable
5. Lever holder (left)
6. Speedometer cable
7. Throttle cable 1
8. Horn
9. Main switch
10. Rectifier/regulator

A. After installing, check the throttle operation.
B. Clamp the front/rear brake cable, throttle cable and speedometer cable.
C. Tighten the handlebar install bolt and then clamp it.
D. Hook the lead to bracket of left handlebar.
E. Clamp the wireharness only under the handlebar stem pin (6φ).
F. Connect the flasherlight lead and then install it at flasherlight connector holder.
CHAPTER 3.
PERIODIC INSPECTION AND ADJUSTMENT

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**PERIODIC INSPECTION AND ADJUSTMENT**

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

**PERIODIC MAINTENANCE/LUBRICATION**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>REMARKS</th>
<th>BREAK-IN 500 (300)</th>
<th>EVERY 3,000 (2,000) or 6 months</th>
<th>EVERY 6,000 (4,000) or 12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark plug(s)</td>
<td>Check condition. Clean or replace if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Air filter</td>
<td>Clean. Replace if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Carburetor*</td>
<td>Check idle speed/starter operation. Adjust if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fuel line*</td>
<td>Check fuel hose and vacuum pipe for cracks or damage. Replace if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Transmission oil*</td>
<td>Check oil leakage. Correct if necessary. Replace every 12,000 (8,000) or 24 months. (warm engine before draining.)</td>
<td>REPLACE</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Autolube pump*</td>
<td>Check operation. Correct if necessary. Air bleeding.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Brake</td>
<td>Check operation. Adjust if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wheels*</td>
<td>Check damage/runout. Repair if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Wheel bearings*</td>
<td>Check bearings assembly for looseness/damage. Replace if damaged.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Steering bearing*</td>
<td>Check bearings assembly for looseness. Correct if necessary. Moderately repack every 12,000 (8,000) or 24 months.**</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rear shock absorber*</td>
<td>Check operation/oil leakage. Replace if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>V-belt*</td>
<td>Check damage and wear. Replace if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fittings/Fasteners*</td>
<td>Check all chassis fittings and fasteners. Correct if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Centerstand*</td>
<td>Check operation. Repair if necessary.</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

* : It is recommended that these items be serviced by a Yamaha dealer.

** : Medium weight wheel bearing grease.
TAIL COVER AND FOOTREST BOARD

REMOVAL

1. Open the seat lock.
2. Remove:
   - Seat ①

3. Remove:
   - Cover ①

4. Disconnect:
   - Rear flasher light leads
   - Tail light leads

5. Remove:
   - Rear carrier ①
   - Fuel tank cap ②

NOTE: 
After removing the tail cover, immediately install the tank cap on the fuel tank.

6. Remove:
   - Side covers ① (right and left)

NOTE: 
When removing the side cover, unhook it at the front and slide it backward.
7. Remove:
   - Tail cover

8. Remove:
   - Footrest board ①

**INSTALLATION**

When installing the footrest board and tail cover, reverse the "REMOVAL" procedure. Note the following points.

1. Insert:
   - Inner damper stay ① (in the box hole ②)

2. Install:
   - Side covers ①

**NOTE:**
- Match the stay ② and hole ③, and then slide the side cover forward.
- Hook the front stay ⑤.
FRONT FENDER, AND FRONT PANEL

3. Install:
   - Rear carrier

   **Bolt:**
   - 16 Nm (1.6 m • kg, 12 ft • lb)
   **Nut:**
   - 10 Nm (1.0 m • kg, 7.2 ft • lb)

FRONT FENDER, AND FRONT PANEL REMOVAL

1. Remove:
   - Cap ①
   - Front fender ②

   **NOTE:**
   Before removing the fender, make sure that all hooks are free.

2. Remove:
   - Main switch cap
     Turn the cap counterclockwise.

3. Remove:
   - Front panel ①

4. Remove:
   - Footrest board bolts ①
INSTALLATION
Reverse the "REMOVAL" procedure.
Note the following points.

1. Install:
   - Front fender ①

NOTE: ______________________________________
After installing the front fender, make sure that all hooks are securely fitted.

HANDLEBAR COVERS
REMOVAL
1. Remove:
   - Rear view mirror
   - Handlebar cover (front) ①

2. Disconnect:
   - Headlight leads
   - Flasher leads

3. Disconnect:
   - Speedometer cable
   - Meter leads
   - Flasher relay leads

4. Remove:
   - Handle cover (rear)

INSTALLATION
Reverse the "REMOVAL" procedure.
Note the following points.
1. Connect:
   - Speedometer cable ①
   - Meter leads ②
   - Flasher relay leads ③
ENGINE IDLE SPEED ADJUSTMENT

2. Install:
   • Handle cover (rear)

3. Connect:
   • Headlight leads
   • Flasher light leads

4. Install:
   • Handle cover (front)

NOTE:
• On the leftside, install the flasher light having a chocolate color lead. Next, install the other flasher light with a dark green color lead on the right side.
• The leads of identical colors should be connected.
• After installing the handlebar cover, make sure that all hooks are securely fitted.

ENGINE

ENGINE IDLE SPEED ADJUSTMENT

1. Remove:
   • Cover

2. Tighten:
   • Pilot air screw ①
   Turn the pilot air screw in until lightly seated.

3. Loosen:
   • Pilot air screw
   Back it out from its lightly seated position.

Pilot Air Screw Turns Out:
1-5/8
4. Start the engine and let it warm up.

**WARNING**

Before starting the engine, be sure to use the centerstand for safety.

5. Attach:
   - Inductive tachometer
     To the spark plug lead

   ![Inductive Tachometer: YU-08036-A](image)

6. Check:
   - Engine idle speed
     Out of specification → Adjust.

   ![Engine Idle Speed: 1,800 r/min](image)

7. Adjust:
   - Engine idle speed

   *****************************************************************

   Adjustment steps:
   - Turn the throttle, stop screw ① in or out until specified idle speed is obtained.

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

   *****************************************************************

THROTTLE CABLE FREE PLAY ADJUSTMENT

1. Check:
   - Throttle cable free play ②
     Out of specification → Adjust.

   ![Throttle Cable Free Play](image)

   Free play: 1.5 ~ 3.5 mm (0.06 ~ 0.14 in)

   *****************************************************************

   Throttle cable free play adjustment steps;

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

   First step:
   - Loosen the locknut ① on the throttle cable.
   - Turn the adjuster ② in or out until the specified free play is obtained.
Turning in → Free play is increased.
Turning out → Free play is decreased.

- Tighten the locknuts.

NOTE:
If the free play cannot be adjusted here, adjust it at the carburetor side of the cable. (second step)

Second step:
- Remove the cover.
- Loosen the locknut ③.
- Turn the adjuster ④ in or out until the specified free play is obtained.

Turning in → Free play is increased.
Turning out → Free play is decreased.

- Tighten the locknut.
- Install the cover

WARNING
After adjusting, turn the handlebar to right and left and make sure that the engine idling does not run faster.

************************************************************

AUTOLUBE PUMP AIR BLEEDING

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

1. Remove:
   - Cover
   - Side cover (left and right)
   - Footrest board
     Refer to “TAIL COVER AND FOOTREST BOARD” section.

2. Remove:
   - Fan cover ①
3. Air bleed:

*************************************************

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

NOTE: 
Check the bleed screw gasket, and if damaged, replace with a new one.

- Install the bleed screw.

NOTE: 
Wipe off any oil on the crankcase.

*************************************************

4. Install:
- Fan cover
- Footrest board
- Side cover (left and right)
- Cover
  Refer to "TAIL COVER AND FOOTREST BOARD" section.

SPARK PLUG INSPECTION
1. Remove:
- Cover
- Side cover (left and right)
- Footrest board
- Spark plug

2. Inspect:
- Spark plug type
  Incorrect → Replace.

Standard spark plug:
BPR 7HS (N.G.K.)
W22FPR-U (N.D.)
3. Inspect:
- Electrode ①
  Wear/Damage → Replace.
- Insulator ②
  Abnormal color → Replace.
  Normal color is a medium-to-light tan color.

4. Clean the spark plug with a spark plug cleaner or wire brush.

5. Measure:
- Plug gap ③
  Use a Wire Gauge or Feeler Gauge.
  Out of specification → Regap.

6. Tighten:
- Spark plug(s)

| Spark plug gap: | 0.6 ~ 0.7 mm (0.024 ~ 0.028 in) |

7. Install:
- Footrest board
- Side cover (left and right)
- Cover

**NOTE:**
- Before installing a spark plug, clean the gasket surface and plug surface.
- If a torque wrench is not available when you are installing a spark plug, a good estimate of the correct torque is 1/4 to 1/2 turns past finger tight. Have the spark plug torqued to the correct valve as soon as possible with a torque wrench.

**COMPRESSION PRESSURE MEASUREMENT**

**NOTE:**
Insufficient compression pressure will result in performance loss.

1. Warm up the engine.
2. Remove:
- Cover
- Side cover (left and right)
- Footrest board
- Spark plug
3. Measure:
   • Compression pressure

Measurement steps:
   • Install the compression gauge ① using an adapter.
   • Crank over the engine with the electric starter (be sure the battery is fully charged) with the throttle wide open until the compression reading on the gauge stabilizes.
   • Check readings with specified levels (see chart)

Compression gauge:
   YU-33223

Compression pressure (at sea level):
   Standard:
   800 kPa (8.0 kg/cm², 114 psi)
   Minimum:
   600 kPa (6.0 kg/cm², 85 psi)

⚠️ WARNING

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

Compression test steps (below minimum levels):
   • Squirt a few drops of oil into cylinder.
   • Measure compression again.

<table>
<thead>
<tr>
<th>Reading</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher than without oil</td>
<td>• Worn cylinder, piston and piston rings</td>
</tr>
<tr>
<td>Same as without oil</td>
<td>• Defective piston, ring(s), valve(s) and cylinder head gasket</td>
</tr>
</tbody>
</table>

Compression test steps (above standard levels):
   • Check cylinder head or piston crown for carbon deposits.
   • Remove the compression gauge with an adapter.

******************************
4. Install:
   • Spark plug

   Spark plug: 20 Nm (2.0 m • kg, 14 ft • lb)

Refer to the “SPARK PLUG INSPECTION” section.
   • Footrest board
   • Side cover (left and right)
   • Cover

ENGINE OIL LEVEL INSPECTION
1. Place the scooter on the level place.

NOTE:
Be sure the scooter is positioned straight up and on both wheels when inspecting the oil level.

2. Inspect:
   • Engine oil level
      Oil level low → Add sufficient oil by the following inspection steps.

   ① “OIL” indicator light

---

Engine oil level visual inspection steps:

- Turn main switch to "*" position.

  “OIL” indicator light does not come on.
  - Inspect faulty electrical circuit, light bulbs etc.

  “OIL” indicator light comes on.
  - Turn main switch to "ON" position.

- Engine oil level and electrical circuit are OK.

  “OIL” indicator light does not come on.

- Supply engine oil.
Recommended Oil:
Yamalube 2 or equivalent air cooled 2 stroke engine oil.
Total:
0.8 L (0.7 Imp qt, 0.84 US qt)

NOTE: ________________
Install the oil tank filler cap ① and push it fully into the filler.

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

TRANSMISSION OIL REPLACEMENT
1. Warm up the engine at idle speed, then stop it.

2. Place the oil pan under the drain hole.

3. Remove:
   • Drain bolt ①
     Drain the transmission oil.
   • Oil filler plug ②

4. Inspect:
   • Gasket ③ (drain bolt)
   • O-ring ④ (oil filler plug)
   Damage → Replace.
5. Install:
   - Gasket
   - Drain bolt

<table>
<thead>
<tr>
<th>Drain Bolt:</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 Nm (1.8 m·kg, 13 ft·lb)</td>
</tr>
</tbody>
</table>

6. Fill:
   - Transmission case

<table>
<thead>
<tr>
<th>Transmission Oil:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAE 10W30 Type SE Motor Oil or GL gear oil</td>
</tr>
<tr>
<td>Capacity:</td>
</tr>
<tr>
<td>0.1 L (0.09 Imp qt, 0.11 US qt)</td>
</tr>
</tbody>
</table>

NOTE:
Wipe off any oil split on the crankcase, tire or wheel.

7. Install:
   - Oil filler plug

AIR CLEANER ELEMENT CLEANING

1. Remove:
   - Cover
   - Side cover (left)
     Refer to “TAIL COVER AND FOOTREST BOARD” section.

2. Remove:
   - Air cleaner case Assembly ①
3. Remove:
   - Air cleaner case ①
   - Air cleaner element ②

**CAUTION:**

Never operate the engine with the air cleaner element removed. This will allow unfiltered air to enter, causing rapid wear and possible engine damage. Additionally, operation without the cleaner element will affect carburetor jetting with subsequent poor performance and possible engine overheating.

Be careful not to have rags or the like blocking the intake area of the air cleaner.

4. Inspect:
   - Element
     Damage → Replace.

5. Clean:
   - Air cleaner element

Air cleaner element cleaning steps:
- Wash the element gently, but thoroughly in solvent.

**WARNING**

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

- Squeeze the excess solvent out of the element and let dry.

**CAUTION:**

Do not twist the element when squeezing the element.

- Apply the Foam-air-filter oil or Yamalube 2 or equivalent air cooled 2 stroke engine oil.
- Squeeze out the excess oil.

**NOTE:**

The element should be wet but not dripping.
6. Install:
   • Air cleaner element
   • Air cleaner case cover
   • Air cleaner case assembly
cover
   • Side cover (left)
Refer to "TAIL COVER AND FOOTREST BOARD" section.

FUEL COCK CLEANING
1. Remove:
   • Side cover (right)
Refer to "TAIL COVER AND FOOTREST BOARD" section.

2. Drain:
   • Fuel

**WARNING**

FUEL IS HIGHLY FLAMMABLE:
   • Always turn off the engine when draining.
   • Take care not to spill any fuel on the engine or exhaust pipe/muffler when draining.
   • Never drain fuel while smoking or in the vicinity of an open flame.

3. Remove:
   • Cap ①
   • Filter ②
   • O-ring ③

4. Clean:
   • Filter
   • Cap
   Wash the filter and cap gently using solvent.
5. Inspect:
   • Filter
   • O-ring
     Damage → Replace.
6. Install:
   • O-ring
   • Filter
   • Cap
   • Side cover
     Refer to “TAIL COVER AND FOOTREST BOARD” section.

FUEL LINE INSPECTION
1. Remove:
   • Cover
   • Side cover (right)
     Refer to “TAIL COVER AND FOOTREST BOARD” section.

2. Inspect:
   • Fuel pipe ①
     Cracks/Damage → Replace.

3. Install:
   • Cover
   • Side cover (right)
     Refer to “TAIL COVER AND FOOTREST BOARD” section.

CARBURETOR JOINT INSPECTION
1. Remove:
   • Seat/Rear carrier
   • Tail cover/Side cover (left and right)
   • Footrest board
     Refer to the “TAIL COVER AND FOOTREST BOARD” section.
   • Oil tank ①
2. Disconnect
   • Oil level gauge lead
3. Inspect:
   • Carburetor joints ①
     Cracks/Damage → Replace.
     Refer to the “CARBURETOR” and “REED VALVE – REMOVAL” section in the CHAPTER 5.
4. Install:
   • Oil tank
   • Footrest board
   • Tail cover/Side cover (left and right)
   • Seat/Carrier
   Refer to the "TAIL COVER AND FOOTREST BOARD" section.

EXHAUST SYSTEM INSPECTION

1. Inspect:
   • Muffler assembly
     Cracks/Damage → Replace.
   • Gaskets
     Exhaust gas leaks → Replace.

Replacement steps:
   • Remove the muffler assembly.
   • Install a new muffler assembly.

Bolt (exhaust pipe) ②:
   9 Nm (0.9 m·kg, 6.5 ft·lb)
Bolt (muffler) ③:
   26 Nm (2.6 m·kg, 19 ft·lb)

CHASSIS

FRONT BRAKE LEVER FREE PLAY CHECK

1. Check:
   • Front brake lever free play
     Out of specification → Adjust.

   10 ~ 20 mm (0.4 ~ 0.8 in)

Front brake lever free play adjustment steps:
   • Turn the adjuster ① in or out until the correct free play is obtained.
REAR BRAKE LEVER FREE PLAY CHECK

1. Check:
   • Rear brake lever free play \( \theta \)
     Out of specification → Adjust.

   \[ 10 \sim 20 \text{ mm (0.4 \sim 0.8 in)} \]

Rear brake lever free play adjustment steps:
• Turn the adjuster \( 1 \) in or out until the correct free play is obtained.

BRAKE SHOE INSPECTION

1. Activate the brake lever.

2. Inspect:
   • Wear indicator \( 1 \)
     Indicator at wear limit line \( 2 \) → Replace brake shoes.

STEERING ADJUSTMENT

1. Place the scooter on its centerstand, then elevate the front wheel.

2. Check:
   • Steering assembly bearings
     Grasp the bottom of the forks and gently rock the fork assembly back and forth.
     Looseness → Adjust.
Steering head adjustment step:
- Remove the front fender and front panel. Refer to "FRONT FENDER, AND FRONT PANEL" section.
- Tighten the ring nut(1) to specification using the Ring Nut Wrench (YU-33975).

30 Nm (3.0 m • kg, 22 ft • lb)

NOTE:
Set the torque wrench to the ring nut wrench so that they form a right angle.

- Move the handlebar up and down, and/or back and forth. If handlebar play is excess, tighten the bolt (2) to specification.

60 Nm (6.0 m • kg, 43 ft • lb)

- Install the front panel and front fender.

---

TIRE INSPECTION

**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.

<table>
<thead>
<tr>
<th>Wheel</th>
<th>Tire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tube type</td>
<td>Tube type only</td>
</tr>
<tr>
<td>Tubeless type</td>
<td>Tube type or tubeless type</td>
</tr>
</tbody>
</table>

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

A Tire  
B Wheel  
C Tubeless tire  
D Tube typ tire  
1 Air valve  
2 Wheel (tubeless type)  
3 Tube  
4 Wheel (tube type)
Front and Rear:

<table>
<thead>
<tr>
<th>Manufacture</th>
<th>Size</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>INOUE</td>
<td>80/90-10,34J</td>
<td>MB38 *</td>
</tr>
<tr>
<td>CHENGSHIN</td>
<td>80/90-10,34J</td>
<td>C-922 *</td>
</tr>
</tbody>
</table>

(*Tubullos tire)

**WARNING**

- After extensive tests, the tires mentioned have been approved by Yamaha motor Co., Ltd. for this model. NO guarantee for handling characteristics can be given if tire combinations other than what is approved are used on this scooter.

The front and rear tires should be of the same manufacture and design.

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

<table>
<thead>
<tr>
<th></th>
<th>Cold tire pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td>125 kPa (1.25 kg/cm², 18 psi)</td>
</tr>
<tr>
<td>Rear</td>
<td>200 kPa (2.00 kg/cm², 29 psi)</td>
</tr>
</tbody>
</table>

**WARNING**

1. Proper loading of your scooter is important for the handling, braking, and other performance and safety characteristics of your scooter. NEVER OVERLOAD YOUR SCOOTER. Make sure the total weight of the cargo, rider, and accessories (faireng, saddlebags, etc. if approved for this model) does not exceed the maximum load of the scooter. Operation of an overloaded scooter could cause tire damage, an accident, or even injury.

2. Improper tire pressures greatly affect tire life and handling. Check tire pressures prior to each trip and adjust properly if necessary. If tire pressures are too high, shocks from the road will not be damped and will be carried to the frame and handlebars, thus adversely affecting riding comfort. In addition, scooter stability will be poor when making a turn. If tire pressures are too low, tires will be deformed greatly, thus shortening tire life. When braking the wheels, tires could slip over wheel rims and tire tubes could be broken. When turning the corner or the curve, the scooter could easily turn over.
2. Inspect:
   • Tire surfaces
     Wear/Damage → Replace.

Minimum tire tread depth (front and rear):
0.8 mm (0.03 in)

1 Tread depth
2 Side wall
3 Wear indicator

WHEEL INSPECTION
1. Inspect:
   • Wheels
     Damage/Bends → Replace.

WARNING
Never attempt even small repairs to the wheel.

CABLE INSPECTION
1. Inspect:
   • Throttle cable
   • Front and rear brake cable
   • Speedometer cable
     Check for damage to the cable insulation
     Corrosion/Damage → Replace.
     Obstruction → Reroute.
     Unsmoothness → Lubricate.

LUBRICATION
Cable Lubrication

Cable lubrication steps:
• Hold the cable in a vertical position.
• Apply lubricant to the uppermost end of the cable.
• Maintain its vertical position until the oil flows to the bottom.
• Allow excess oil to drain, then reinstall the cable.

SAE 10W30 Type SE Motor Oil
FRONT FORK INSPECTION

1. Inspect:
   - Front fork
     Bends/Damage → Inner tube comp, Fork Ass’y – Replace.
     Grease leakage → Inner tube comp, Fork Ass’y – Replace.
     Unsmooth operation → Fork Ass’y – Replace.

REAR SHOCK ABSORBER INSPECTION

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

2. Check
   - Tightening torque

<table>
<thead>
<tr>
<th>Upper (nut)</th>
<th>32 Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(3.2 m • kg, 23 ft • lb)</td>
</tr>
<tr>
<td>Lower (bolt)</td>
<td>18 Nm</td>
</tr>
<tr>
<td></td>
<td>(1.8 m • kg, 13 ft • lb)</td>
</tr>
</tbody>
</table>
ELECTRICAL
BATTERY INSPECTION

NOTE:
Since the MF battery is of a sealed-type construction, it is impossible to measure the specific gravity of the electrolyte in order to check the state of charge in the battery. Therefore, to check the state of charge in the battery, voltage must be measured at the battery terminals.

CAUTION:

CHARGING METHOD
• This battery is sealed type. Never remove sealing caps even when charging. With the sealing cap removed, this balancing will not be maintained, and battery performance will lower gradually.
• Never add water. If distilled water is added, chemical reaction in the battery will not proceed in the normal way, thus making it impossible for the battery to operate regularly.
• The charging time, charging current and charging voltage for the MF battery is different than general type batteries.
  The MF battery should be charged as instructed in the “Charging method”. Should the battery be overcharged, the electrolyte level will lower extremely. Therefore, use special care when charging the battery.
• Avoid using any electrolyte other than specified. The specific gravity of the MF battery electrolyte is 1.32 at 20°C (68°F). (The specific gravity of the general type battery electrolyte is 1.28.) If the electrolyte whose specific gravity is less than 1.32, the sulfuric acid will decrease and thus low battery performance will result. Should any electrolyte, whose specific gravity is 1.32 or more, be used, the battery plates will corrode and battery life will shorten.

WARNING
Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.
Always follow these preventive measures:
• Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.
• Wear protective eye gear when handling or working near batteries.
Antidote (EXTERNAL):
• SKIN-Flush with water.
• EYES-Flush with water for 15 minutes and get immediate medical attention.

Antidote (INTERNAL):
• Drink large quantities of water or milk follow with milk of magnesia, beaten egg, or vegetable oil. Get immediate medical attention. Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:
• Charge batteries in a well-ventilated area.
• Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)
• DO NOT SMOKE When charging or handling batteries.

KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.

1. Remove:
   • Side cover ① (left)
   Refer to the “TAIL COVER AND FOOTREST BOARD” section.

2. Disconnect:
   • Battery leads

CAUTION:
Disconnect the negative lead first and then disconnect the positive lead.

3. Remove:
   • Battery

4. Check:
   • Battery condition

*****************************************************************************
Battery condition checking steps:
• Connect the pocket tester to the battery terminals.

Tester (+) lead → Battery (+) terminal.
Tester (−) lead → Battery (−) terminal.
NOTE:
The state of a discharged MF battery can be checked by measuring open circuit voltage (the voltage measured with the positive terminals being disconnected).

<table>
<thead>
<tr>
<th>Open-circuit voltage</th>
<th>Charging time</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.8 V or higher</td>
<td>No charging is necessary</td>
</tr>
<tr>
<td>12.7 V - 11.5 V</td>
<td>5 - 10 hours</td>
</tr>
<tr>
<td>Less than 11.5 V</td>
<td>15 - 20 hours</td>
</tr>
</tbody>
</table>

- Battery condition chart shown.

5. Charging method of MF battery

**CAUTION:**
- If it is impossible to set the standard charging current, be careful not to overcharge.
- When charging the battery, be sure to remove it from the machine. (If charging has to be done with the battery mounted on the machine for some reason, be sure to disconnect the wire at the negative terminal)
- Never remove the sealing plug from the MF battery.
- Use special care so that charging clips are in a full contact with the terminal and that they are not shorted. (A corroded clip of the charger may cause the battery to generate heat at the contact area. A weak clip spring may cause sparks.)
- Before removing the clips from the battery terminals, be sure to turn off the power switch of the charger.
- Change in the open-circuit voltage of the MF battery after being charged is shown below. As shown in the figure, the open-circuit voltage is stabilized 30 minutes after charging has been completed. Therefore, to check the condition of the battery, measure the open-circuit voltage 30 minutes after charging has been completed.
Charging method using a variable-current (voltage) type charger

In case that charging requires more than 5 hours, it is advisable to check the charging current after a lapse of 5 hours. If there is any change in the amperage, readjust the voltage to obtain the standard charging current.

Measure the battery open-circuit voltage after having left the battery unused for more than 30 minutes.
12.8 v or more --- Charging is complete.
12.7 v or less --- Recharging is required.
Under 12.0 v --- Replace the battery.
Charging method using a constant-voltage type charger

Measure the open-circuit voltage prior to charging.

Connect a charger and AMP meter to the battery, and start charging.

Make sure the current is higher than the standard charging current written on the battery.

YES

Charge the battery until the battery's charging voltage is 16 volts or more

NOTE: Set the charging time at 20 hours (maximum).

Check the open-circuit voltage after having left the battery for 30 minutes after charging.
12.8 v or more --- Charging is complete.
12.7 v or less --- Recharging is necessary.
Under 12 v --- Replace the battery.

NO

This type of battery charger can not charge the MF battery. A variable voltage charger or a constant current charger is recommended.
Charging method using a constant current type charger (Exclusive for MF battery)

1. Measure the open-circuit voltage prior to charging.

2. Connect a charger and AMP meter to the battery, and start charging.

3. After one hour of charging, make sure the rated charging current of the charge is flowing by checking AMP meter.

   YES: Since the charging current is constant, the charging time varies depending on the battery capacity. Set the charging time according to the instructions specified for the charger.

   NO: If rated current is not flowing, replace the battery.

   - Measure the battery open-circuit voltage after having left the battery unused for more than 30 minutes.
     - 12.8 V or more --- Charging is complete.
     - 12.7 V or less --- Recharging is required.
     - Under 12.0 V --- Replace the battery.

NOTE: Voltage should be measured 30 minutes after the machine is stopped.
FUSE INSPECTION
1. Remove:
   • Side cover ① (left)

2. Inspect:
   • Fuse ①
     Defective → Replace.

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

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Amperage</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>7A</td>
<td>1</td>
</tr>
</tbody>
</table>

HEADLIGHT BEAM ADJUSTMENT
1. Adjust:
   • Headlight (vertically)

<table>
<thead>
<tr>
<th></th>
<th>Vertical adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher</td>
<td>Loosen the adjusters ①</td>
</tr>
<tr>
<td>Lower</td>
<td>Tighten the adjusters ①</td>
</tr>
</tbody>
</table>

• Headlight (horizontal)

<table>
<thead>
<tr>
<th></th>
<th>Horizontal adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right</td>
<td>Tighten the adjuster ②</td>
</tr>
<tr>
<td>Left</td>
<td>Loosen the adjusters ②</td>
</tr>
</tbody>
</table>
HEADLIGHT BULB REPLACEMENT

1. Remove:
   • Handlebar cover (front) ①

2. Disconnect:
   • Headlight leads
   • Flasher light leads

3. Remove:
   • Headlight bulb cover
   • Headlight bulb

4. Install:
   When installing the handlebar cover, reverse the “REMOVAL” procedure.
CHAPTER 4.
ENGINE OVERHAUL

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ENGINE REMOVAL

ENGINE OVERHAUL

ENGINE REMOVAL

NOTE: It is not necessary to remove the engine in order to remove the following components.
- Cylinder head
- Cylinder
- Piston
- C.D.I. magneto
- Starter motor
- Primary and secondary sheave
- Transmission

TAIL COVER AND FOOTREST BOARD

1. Remove:
- Seat
- Rear carrier
- Side covers (left and right)
- Tail cover
- Footrest board
Refer to "CHAPTER 3. – TAIL COVER AND FOOTREST BOARD" section.

CARBURETOR TOP COVER

1. Remove:
- Air cleaner case assembly ①

2. Remove:
- Carburetor top cover ①

NOTE: Cover the carburetor with a clean rag to prevent dirt or foreign matter into the carburetor.
- Fuel hose ②
- Vacuum hose ③
MUFFLER ASSEMBLY
1. Remove:
   - Muffler assembly ①
   - Fan cover ②

2. Loosen:
   - Rear wheel axle nut ①

NOTE: When loose the rear wheel axle nut, apply the rear brake.

CABLES, LEADS AND PIPES
1. Remove:
   - Oil hose ① at oil pump side.

NOTE: Plug the oil hose so the oil will not drain out of it.

2. Remove:
   - Battery negative lead ①
   - Earth lead ②

3. Disconnect:
   - Starter motor lead ③

4. Remove:
   - Spark plug cap

5. Disconnect:
   - CDI magneto lead ①
   - Auto choke unit lead ②
6. Remove:
   • Rear brake cable ①

ENGINE REMOVAL
1. Remove:
   • Rear shock absorber bolt ① (lower)
   • Engine mounting bolt ②

2. Remove:
   • Engine
   Lift up the frame and remove the engine.
3. Place the frame on a suitable stand.

ENGINE DISASSEMBLY
CARBURETOR
1. Remove:
   • Oil delivery hose ①
   • Carburetor ②
REAR WHEEL
1. Remove:
   - Rear wheel
   - Brake shoes ①
   - Plane washer ②

CENTER STAND
1. Remove:
   - Spring ①
   - Clip ②
   - Rubber washer ③
   - Shaft ④
   - Clamp ⑤
   - Center stand ⑥

CYLINDER HEAD AND CYLINDER

NOTE:
With the engine mounted, the cylinder head, cylinder, and piston can be maintained by removing the following parts.
- Cover and sidecover (left and right)
- Footrest board
- Fan cover and air shroud
- Muffler assembly and cylinder stud bolt

1. Remove:
   - Air should
   - Cylinder head ①
   - Cylinder head gasket

NOTE:
- Before loosening the cylinder head, loosen the spark plug ②.
- The cylinder head holding nuts should be loosened 1/2 turn each time, and remove.

2. Remove:
   - Cylinder ①
   - Cylinder gasket ②
PISTON PIN AND PISTON
1. Remove:
   • Piston pin clip ①

NOTE: ________________________________
Before removing the piston pin clip, cover the crankcase with a clean rag so you will not accidentally drop the clip into the crankcase.

2. Remove:
   • Piston pin ①
   • Piston ②
   • Piston pin bearing ③

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

KICK STARTER
NOTE: ________________________________
With the engine mounted, the kick starter can be maintained by removing the following parts.
   • Air cleaner case assembly

1. Remove:
   • Kick crank ①
   • Cover ②

2. Remove:
   • Crankcase cover ① (left)
3. Remove
   • Kick pinion gear ①

NOTE:
When remove the kick pinion gear, operate the kick axle.

4. Unhook
   • Return spring ②

5. Remove:
   • Circlip ①
   • Plain washer ②
   • Kick shaft ③

PRIMARY SHEAVE

NOTE:
With the engine mounted, the primary and secondary sheave can be maintained by removing the following parts.
• Cover and side cover (left and right)
• Footrest board
• Fan cover
• Crankcase cover (left)

1. Remove:
   • Fan ①

2. Remove:
   • Nut ① (primary sheave)

NOTE:
When loosening the nut (primary sheave), hold the C.D.I. magneto using Flywheel Holding Tool ②.

Flywheel Holding Tool:
YU-01235
3. Remove:
- Conical spring washer ①
- One-way clutch ②
- Washer ③
- Primary fixed sheave ④
- Shim ⑤
- V-Belt

4. Remove:
- Collar ①
- Primary sheave assembly ②

SECONDARY SHEAVE
1. Remove:
- O-ring ①
- Nut ② (secondary sheave)

NOTE:
Hold the secondary sheave using Sheave Holder ③.

Sheave Holder:
YS-01880

2. Remove:
- Clutch housing ①
- Secondary sheave assembly ②
- Crankcase cover gasket
- Dowel pins

3. Attach:
- Sheave Holder ①
- Socket Wrench (41MM) ②

Sheave Holder:
YS-01880

4. Loosen:
- Clutch securing nut

CAUTION:
Do not remove the clutch securing nut yet.
5. Attach:
   - Clutch Spring Holder

**NOTE:**
Compress the secondary sheave by Clutch Spring Holder.

**Clutch Spring Holder:**
YS-28891

6. Remove:
   - Clutch securing nut

7. Remove:
   - Clutch assembly
   - Clutch spring
   - Spring seat

8. Remove:
   - Guide pins
   - Secondary sliding sheave

---

**STARTER SYSTEM**

**NOTE:**
With the engine mounted, the starter system can be maintained by removing the following parts.
   - Footrest board and Fan cover
   - Muffler assembly and Rear wheel
   - Crankcase cover (left)
   - Primary sheave

1. Remove:
   - Plate (idle gear)
   - Idle gear
   - Starter clutch assembly
   - Washer
   - Starter wheel gear

---

4-8
2. Remove:
- Collar ①
- Bearing ②
- Washer ③

3. Remove:
- Starter motor ①

TRANSMISSION

NOTE:
With the engine mounted, the transmission can be maintained by removing the following parts.
- Air cleaner case assembly
- Muffler assembly
- Rear wheel
- Crank case cover (left)
- V-belt and Secondary sheave

1. Remove:
- Transmission case cover ①
- Gasket ②
- Dowel pins ③

2. Remove:
- Main axle ①
- Drive axle ②
- Plain washer ③
- Conical spring washer ④
3. Remove:
- Oil seal ①
- Circlip ②
- Secondary sheave axle ③

C.D.I. MAGNETO

NOTE:
With the engine mounted, the C.D.I. magneto can be maintained by removing the following parts.
- Seat and rear carrier
- Tail cover and footrest board
- Fan cover
- Fan

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

NOTE:
Hold the rotor to loosen the nut by the Flywheel Holding Tool ②.

Flywheel Holding Tool:
YU-01235

2. Remove:
- Rotor ①
- Woodruff key
Use the Flywheel Magneto Puller ②.

Flywheel Magneto Puller:
YM-01189

3. Remove:
- Stator assembly ①
4. Remove:
   - Gasket ①

AUTOLUBE PUMP

NOTE:
With the engine mounted, the autolube pump can be maintained by removing the following parts.
   - Cover and side cover
   - Footrest board
   - Fan cover
   - C.D.I. magneto

1. Remove:
   - Autolube pump ①

2. Remove:
   - Circlip ①
   - Pump drive gear ②
   - Pin ③
   - Circlip ④

3. Remove:
   - Carburetor joint ①
   - Reed valve
   - Reed valve gasket
CRANKCASE AND CRANKSHAFT

1. Remove:
   - Oil seal stopper ①
   - Screws (crankcase)

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

2. Attach:
   - Crankcase Separating Tool ①

   ![Crankcase Separating Tool: YU-01135]

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

3. Remove:
   - Crankcase (right)
     As pressure is applied, alternately tap on the engine mounting bosses.

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

4. Attach:
   - Crankcase Separating Tool ①

   ![Crankcase Separating Tool: YU-01135]

5. Remove:
   - Crankshaft ②

4-12
INSPECTION AND REPAIR

CYLINDER HEAD

1. Eliminate:
   - Carbon deposits
     Use a rounded scraper ①.

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

2. Inspect:
   - Cylinder head warpage
     Out of specification → Re-surface.

   **Warpage measurement and re-surfacement steps:**
   - Attach a straight edge ① and a thickness gauge ② on the cylinder head.
   - Measure the warpage limit.

   **Warpage Limit:**
   0.02 mm (0.0008 in)

   - If the warpage is out of specification, reface the cylinder head.
   - Place a 400 ~ 600 grit wet sandpaper on the surface plate, and re-surface the head using a figure-eight sanding pattern.

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

   **CYLINDER AND PISTON**

1. Eliminate:
   - Carbon deposits
     Use a rounded scraper ①.

2. Inspect:
   - Cylinder wall
     Wear/Scratches → Rebore or replace.
3. Eliminate:
   - Carbon deposits
     From the piston crown and ring grooves.

4. Remove:
   - Score marks and lacquer deposits
     From the sides of piston.
     Use a 600 ~ 800 grit wet sandpaper.

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

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

6. Measure:
   - Piston-to-cylinder clearance

**Piston-to-cylinder clearance measurement steps:**
First step:
   - Measure the cylinder bore “C” with a Cylinder Bore Gauge.

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

<table>
<thead>
<tr>
<th>Standard</th>
<th>Wear Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder Bore “C”</td>
<td>38.99 ~ 40.01 mm (1.574 ~ 1.575 in)</td>
</tr>
<tr>
<td>Taper “T”</td>
<td>–</td>
</tr>
<tr>
<td>Out of Round “R”</td>
<td>–</td>
</tr>
</tbody>
</table>

\[ C = \text{Maximum } D \]
\[ T = (\text{Maximum } D_1 \text{ or } D_2) \text{ or } (\text{Maximum } D_5 \text{ or } D_6) \]
\[ R = (\text{Maximum } D_1, D_3 \text{ or } D_6) \text{ or } (\text{Minimum } D_2, D_4 \text{ or } D_6) \]
- If out of specification, rebore or replace cylinder, and replace piston and piston rings as a set.

2nd step:
- Measure the piston skirt diameter “P” with a micrometer.

5.0 mm (0.20 in) from the piston bottom edge

<table>
<thead>
<tr>
<th>Piston Size P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
</tr>
<tr>
<td>Oversize 1</td>
</tr>
<tr>
<td>Oversize 2</td>
</tr>
</tbody>
</table>

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

3rd step:
- Calculate the piston-to-cylinder clearance with following formula:

\[
\text{Piston-to-cylinder Clearance} = \frac{\text{Cylinder Bore “C”}}{\text{Piston Skirt Diameter “P”}}
\]

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

Piston-to-cylinder Clearance: 0.034 ~ 0.047 mm (0.0013 ~ 0.0018 in)
Limit: 0.1 mm (0.004 in)

***************

PISTON RINGS

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

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top ring</td>
<td>0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)</td>
<td>0.10 mm (0.004 in)</td>
</tr>
<tr>
<td>2nd ring</td>
<td>0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)</td>
<td>0.10 mm (0.004 in)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top ring</td>
<td>0.15 ~ 0.35 mm</td>
<td>0.70 mm</td>
</tr>
<tr>
<td></td>
<td>(0.006 ~ 0.014 in)</td>
<td>(0.028 in)</td>
</tr>
<tr>
<td>2nd ring</td>
<td>0.15 ~ 0.35 mm</td>
<td>0.70 mm</td>
</tr>
<tr>
<td></td>
<td>(0.006 ~ 0.014 in)</td>
<td>(0.028 in)</td>
</tr>
</tbody>
</table>

③ Measuring Point 20 mm (0.8 in)

4. Oversize piston ring size:
  Ring size is stamped on top of the ring.

<table>
<thead>
<tr>
<th>Oversize piston ring</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oversize 1</td>
<td>25</td>
</tr>
<tr>
<td>Oversize 2</td>
<td>50</td>
</tr>
</tbody>
</table>

PISTON PIN AND PISTON PIN BEARING

1. Inspect:
   Piston pin
   Blue discoloration/Groove → Replace, then inspect lubrication system.

2. Measure:
   - Outside diameter ③ (piston pin)
     Out of specification → Replace.

   Outside diameter (piston pin):
   9.996 ~ 10.000 mm
   (0.3935 ~ 0.3937 in)

3. Measure:
   - Piston pin-to-piston clearance
     Out of specification → Replace piston.

   Piston pin-to-piston clearance =
   Bore size (piston pin) ⑤ -
   Outside diameter (piston pin) ③

   Piston pin-to-piston clearance:
   0.004 ~ 0.0019 mm
   (0.0002 ~ 0.0008 in)
   <Limit: 0.07 mm (0.028 in)>
4. Inspect:
   Bearing (piston pin)
   Pitting/Damage → Replace.

KICK STARTER
1. Inspect:
   • Kick gear teeth ①
   • Kick pinion gear teeth ②
     Burrs/Chips/Roughness/Wear → Replace.

2. Inspect:
   • Mating dogs (kick pinion gear and one-way clutch)
     Rounded edges/Damage → Replace.

3. Measure:
   • Clip tension (kick pinion gear)
     Out of specification → Replace.
     Use a spring balance.
     
     **Standard Tension:**
     100 ~ 300 g (3.53 ~ 10.6 oz)
TRANSMISSION
1. Inspect:
   - Drive axle ①
   - Main axle ②
   - Secondary sheave axle ③
     Burrs/Chips/Roughness/Wear → Replace.

2. Inspect:
   - Secondary sheave axle bearing ①
   - Main axle bearing ②
   - Drive axle bearing ③
     Spin the bearing inner race.
     Excessive play/Roughness → Replace.
     Pitting/Damage → Replace.

AUTOLUBE PUMP
Wear or an internal malfunction may cause pump output to vary from the factory setting. This situation is, however, extremely rare. If improper output is suspected, inspect the following:
1. Inspect:
   - Delivery line
     Obstructions → Blow out.
   - O-ring
     Wear/Damage → Replace.

2. Inspect:
   - Autolube pump drive gear teeth ①
   - Autolube pump driven gear teeth ②
     Pitting/Wear/Damage → Replace

CRANKSHAFT
1. Measure:
   - Runout limit “C”
   - Connecting rod big end side clearance “D”
   - Small end free play limit “F”
     Out of specification → Replace.
     Use V-Blocks, Dial Gauge and thickness gauge.
2. Inspect:
- Bearings (crankshaft)
  Spin the bearing inner race.
  Excessive play/Roughness → Replace.
  Pitting/Damage → Replace.

PRIMARY SHEAVE
1. Inspect:
- Primary sliding sheave ①
- Primary fixed sheave ②
  Wear/Cracks/Scratch/Damage → Replace.

2. Check:
- Free movement
  Insert the collar into the primary sliding sheave, and check for free movement.
  Stick or excessive play → Replace the sheave or collar.

3. Measure:
- Outside diameter ① (weight)
  Out of specification → Replace.

Out side diameter (weight)
1.50 mm (0.59 in)
<Limit 14.5 mm (0.57 in)>
SECONDARY SHEAVE

1. Inspect:
   - Secondary fixed sheave ①
   - Secondary sliding sheave ②
     Scratch/Crack/Damage → Replace as a set.
   - Oil seal ③
     Damage → Replace.

2. Inspect:
   - Torque cam groove ①
   - Guide pin ②
     Wear/Damage → Replace as a set.
   - O-rings ③
     Damage → Replace.

3. Measure:
   - Clutch spring free length
     Out of specification → Replace.

   Clutch Spring Free Length:
   109.6 mm (4.31 in)
   <Limit>:
   94.0 mm (3.70 in)

4. Inspect:
   - Clutch housing inner surface
     Oil/Scratches → Remove.

<table>
<thead>
<tr>
<th>Oil</th>
<th>Use a rag soaked in lacquer thinner or solvent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scratches</td>
<td>Use an emery cloth (lightly and evenly polishing).</td>
</tr>
</tbody>
</table>

5. Measure:
   - Clutch housing inside diameter ③
     Out of specification → Replace.

   Clutch Housing Inside Diameter:
   105.0 mm (4.13 in)
   <Wear Limit>:
   105.4 mm (4.15 in)
6. Inspect:
- Clutch shoes
  Glazed parts → Sand with coarse sandpaper.

NOTE:
After using the sand paper, clean off the polished particles with cloth.

7. Measure:
- Clutch shoe thickness @
  Out of specification → Replace.

<table>
<thead>
<tr>
<th>Clutch Shoe Thickness:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 mm (0.10 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;:</td>
</tr>
<tr>
<td>2.0 mm (0.08 in)</td>
</tr>
</tbody>
</table>

V-BELT
1. Inspect:
- V-belt
  Crack/Wear → Replace.

NOTE:
Replace the V-belt smeared with a lot of oil or grease.

2. Measure:
- V-belt width @
  Out of specification → Replace.

<table>
<thead>
<tr>
<th>V-Belt Width:</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.6 mm (0.65 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;:</td>
</tr>
<tr>
<td>15.2 mm (0.60 in)</td>
</tr>
</tbody>
</table>

STARTER CLUTCH AND GEARS
1. Inspect:
- Starter clutch
  Push the dowel pin to arrow direction.
  Unsmooth operation → Replace starter clutch assembly.
2. Inspect:
- Starter wheel gear teeth ①
- Idle gear teeth ②
  Burrs/Chips/Roughness/Wear → Replace.
- Bearing ③ (starter wheel gear)
  Pitting/Damage → Replace.
CRANKSHAFT AND CRANKCASE

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

1. Attach:
   - Crankshaft Installation set

   **Crankshaft Installation Set:**
   1: YU-90050
   2: YM-90062

2. Install:
   - Crankshaft
     (to left crankcase)

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

3. Install:
   - Dowel pins ①
   - Spacer ②

4. Apply:
   - Yamaha Bond No.1215
     To the mating surfaces of both case halves.

   **Yamaha bond No.1215:**
   P/N. ACC-11001-01
5. Attach:
   • Crankshaft Installation Set

   Crankshaft Installation Set:
   ①: YU-90050
   ②: YU-90062

6. Install:
   • Right crankcase

7. Tighten:
   • Crankcase holding screws

   NOTE:
   Tighten the crankcase holding screws in stage, using a crisscross pattern.

   9 Nm (0.9 m·kg, 6.5 ft·lb)

8. Check:
   • Crankshaft operation
     Unsmooth operation → Repair.

9. Install:
   • Oil seal stopper plate ①

   Screw (oil seal stopper plate)
   9 Nm (0.9 m·kg, 6.5 ft·lb)
AUTOLUBE PUMP AND C.D.I. MAGNETO

1. Fan
2. Plain washer
3. Rotor assembly
4. Charge coil
5. Lighting coil
6. Pick up coil
7. Starter assembly
8. Oil seal
9. Gasket
10. Oil delivery hose
11. Oil hose
12. Clip
13. Autolube pump
14. O-ring
15. Circlip
16. Oil pump drive gear
17. Pin

- 7 Nm (0.7 m·kg, 5.1 ft·lb)
- 38 Nm (3.8 m·kg, 27 ft·lb)
- 8 Nm (0.8 m·kg, 5.8 ft·lb)
- 4 Nm (0.4 m·kg, 2.9 ft·lb)

A USE NEW ONE
ENGINE ASSEMBLY AND ADJUSTMENT

**AUTOLUBE PUMP**

1. Install:
   - Circlip ①
   - Pin ②
   - Pump drive gear ③
   - Circlip ④

2. Apply:
   - Lithium soap base grease
     (to O-ring ②)

3. Install:
   - Autolube pump ①

   **Screw (autolube pump):**
   4 Nm (0.4 m·kg, 2.9 ft·lb)

4. Apply:
   - Lithium soap base grease
     (to autolube pump gear ①, ②)

   **15 cc (0.92 cu·in)**

**C.D.I. MAGNETO**

1. Install:
   - Gasket ①

2. Apply:
   - Lithium soap base grease
     (to oil seal ①)
3. Pass the C.D.I. magneto lead through the crankcase hole.

4. Install:
   - Stator assembly ①

   Screw (stator assembly):
   8 Nm (0.8 m·kg, 5.8 ft·lb)

5. Install:
   - Woodruff key
   - C.D.I. magneto
   - Plain washer
   - Nut

**NOTE:**
When installing the C.D.I. magneto, make sure the woodruff key is properly seated in the key way of the crankshaft. Apply a light coating of lithium soap base grease to the tapered portion of the crankshaft end.

6. Tighten:
   - Nut (C.D.I. magneto)
     Use Flywheel Holding Tool ①.

   Flywheel holding tool:
   YU-01235

   38 Nm (3.8 m·kg, 27 ft·lb)
TRANSMISSION

1. Circlip
2. Bearing
3. Oil seal
4. Drive axle
5. Bearing
6. Main axle
7. Conical spring washer
8. Plain washer
9. Secondary sheave axle
10. Bearing
11. Dowel pin
12. Gasket
13. Transmission case cover
14. Circlip
15. Oil seal

9 Nm (0.9 m·kg, 6.5 ft·lb)
TRANSMISSION

1. Apply:
   • 10W30 Type SE Motor oil
     (to transmission case cover bearing)

2. Install:
   • Secondary sheave axle ①
     (to transmission case cover)

3. Install:
   • Circlip ②
   • Oil seal ③

NOTE:
Apply lithium soap base grease onto the oil seal lips.

4. Check:
   • Secondary sheave axle operation
     Unsmooth operation → Repair.

5. Apply:
   • 10W30 type SE Motor oil
     (to main axle bearing and drive axle bearing)

6. Install:
   • Drive axle ①
   • Main axle ②
   • Conical spring washer ③
   • Plain washer ④

7. Install:
   • Gasket ①
   • Dowel pins ②
   • Transmission case cover ③

Screw (case cover):
9 Nm (0.9 m • kg, 6.5 ft • lb)
STARTER SYSTEM

1. Collar
2. Plain washer
3. Bearing
4. Starter wheel gear
5. Starter clutch
6. Plate
7. Shaft
8. Plain washer
9. Idle gear
10. O-ring
11. Starter motor

13 Nm (1.3 m·kg, 9.4 ft·lb)
8 Nm (0.8 m·kg, 5.8 ft·lb)

USE NEW ONE
STARTER SYSTEM
1. Install:
   - Collar ①
   - Plain washer ②
   - Bearing ③
   - Starter wheel gear ④
   - Starter clutch ⑤

NOTE:
- Apply lithium soap base grease to the bearing ③.
- Apply molybdenum disulfide oil to the pin (starter clutch) ⑤.

2. Install:
   - Plain washer ①
   - Idle gear ②
   - Plain washer ①
   - Plate ③ (idle gear)

   Screw (idle gear plate):
   8 Nm (0.8 m·kg, 5.8 ft·lb)

NOTE:
Apply engine oil to the idle gear ②.

3. Install:
   - Starter motor ①

   13 Nm (1.3 m·kg, 9.4 ft·lb)

NOTE:
Apply lithium soap base grease to the O-ring of the starter motor.
PRIMARY AND SECONDARY SHEAVE

1. O-ring
2. Clutch housing
3. Clutch carrier
4. Weight spring
5. Clutch spring
6. Spring seat
7. Oil seal
8. O-ring
9. Secondary sliding sheave
10. V-belt
11. Guide pin
12. Secondary fixed sheave
13. Conical spring washer
14. One-way clutch
15. Washer
16. Primary fixed sheave
17. Shim
18. Collar
19. Primary sliding sheave
20. Clutch weight
21. Slider
22. Cam

* : Apply BEL-RAY Assembly lube *

<table>
<thead>
<tr>
<th></th>
<th>CLUTCH SPRING FREE LENGTH LIMIT: 95.4 mm (3.76 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>CLUTCH HOUSING WEAR LIMIT: 105.4 mm (4.15 in)</td>
</tr>
<tr>
<td>D</td>
<td>CLUTCH SHOE WEAR LIMIT: 2.0 mm (0.079 in)</td>
</tr>
<tr>
<td>E</td>
<td>V-BELT WEAR LIMIT: 15.2 mm (0.60 in)</td>
</tr>
<tr>
<td>F</td>
<td>CLUTCH WEIGHT LIMIT: 14.5 mm (0.57 in)</td>
</tr>
</tbody>
</table>

A USE NEW ONE
KICK STARTER

1. Kick shaft
2. Return spring
3. Collar
4. Plain washer
5. Circlip
6. Kick crank
7. Clip
8. Kick pinion gear

9 Nm (0.9 m·kg, 6.5 ft·lb)

A USE NEW ONE

CLIP STANDARD TENSION:
100 - 300 g (3.53 - 10.60 oz)
SECONDARY SKEAVE
When assembling the secondary sheave, reverse the disassembly procedure. Note the following points.

1. Apply:
   • BEL-RAY Assembly Lube®
     (to the inside of the sliding/fixed sheave)

2. Install:
   • Sliding sheave

NOTE:
Be careful so that the oil seal lips are not turned over when installing the sheave.

3. Apply:
   • BEL-RAY Assembly Lube®
     (to the torque cam grooves and O-rings)
4. Check:
   • Sliding sheave
     Unsmooth operation → Repair.

5. Install:
   • Clutch securing nut
     Use Clutch Spring Holder

   Clutch Spring Holder:
   YS-28891

6. Tighten:
   • Clutch securing nut
     Use Sheave Holder
     Wrench (41MM).

   Sheave holder:
   YS-01880

   50 Nm (5.0 m·kg, 36 ft·lb)
7. Install:
- Dowel pin ①
- Crankcase cover gasket ②

8. Install:
- Secondary sheave assembly ①
- Clutch housing ②

9. Tighten:
- Nut ① (secondary sheave)
  Use Sheave Holder ②

   Sheave Holder: YS-01880

   40 Nm (4.0 m·kg, 29 ft·lb)

10. Install:
- O-ring ③

**PRIMARY SHEAVE**

1. Clean:
- Primary sliding sheave face ①
- Primary fixed sheave face ②
- Collar ③
- Weight ④
- Primary sliding sheave cam surface ⑤

2. Install:
- Weight ①
- Cam ②
- Slider ③
- Collar ④

3. Check:
- Cam operation
  Not smooth → Repair.
4. Install:
- Primary sheave assembly ①
- Collar ②

5. Install:
- V-belt
  Place the V-belt around the secondary sheave, and compress the secondary sheave spring hard so that the V-belt moves toward the clutch hub.

NOTE:
The V-belt must be installed with the arrow forward.

6. Install:
- Shim ①
- Primary fixed sheave ②
- Washer ③
- One-way clutch ④
- Conical spring washer ⑤
- Nut ⑥

7. Tighten:
- Nut ① (primary sheave)

33 Nm (3.3 m·kg, 24 ft·lb)

NOTE:
When tightening the nut (primary sheave), hold the C.D.I. magneto using Flywheel Holding Tool ②.

Flywheel Holding Tool: YU-01235
8. Adjust:
- V-belt

Tense the V-belt by turning the primary sheave several times.

9. Install:
- Fan ①

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

KICK STARTER
1. Install:
- Return spring ①
- Kick shaft ②
- Collar ③
- Plain washer ④
- Circlip ⑤

2. Hook:
- Return spring ①
to the kick gear ② and boss ③

3. Install:
- Kick pinion gear ①
4. Install:
   • Crankcase cover ①

   **Screw (crankcase cover)**
   9 Nm (0.9 m • kg, 6.5 ft • lb)

5. Install:
   • Cover ①
   • Kick crank ②

   **Screw (cover)**
   7 Nm (0.7 m • kg, 5.1 ft • lb)

   **Kick crank**
   9 Nm (0.9 m • kg, 6.5 ft • lb)
PISTON, CYLINDER AND CYLINDER HEAD

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Caruretor joint</td>
</tr>
<tr>
<td>2</td>
<td>Reed valve</td>
</tr>
<tr>
<td>3</td>
<td>Gasket</td>
</tr>
<tr>
<td>4</td>
<td>Cylinder head</td>
</tr>
<tr>
<td>5</td>
<td>Cylinder head gasket</td>
</tr>
<tr>
<td>6</td>
<td>Cylinder</td>
</tr>
<tr>
<td>7</td>
<td>Cylinder gasket</td>
</tr>
<tr>
<td>8</td>
<td>Piston ring</td>
</tr>
<tr>
<td>9</td>
<td>Piston</td>
</tr>
<tr>
<td>10</td>
<td>Piston pin</td>
</tr>
<tr>
<td>11</td>
<td>Piston pin clip</td>
</tr>
<tr>
<td>12</td>
<td>Bearing</td>
</tr>
</tbody>
</table>

PISTON TO CYLINDER CLEARANCE:

<table>
<thead>
<tr>
<th>A</th>
<th>0.034 ~ 0.047 mm (0.0013 ~ 0.00181 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limit</td>
<td>0.1 mm (0.004 in)</td>
</tr>
</tbody>
</table>

END GAP (INSTALLED):

<table>
<thead>
<tr>
<th>C</th>
<th>&lt;0.07 mm (0.028 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>0.15 ~ 0.35 mm (0.006 ~ 0.014 in)</td>
</tr>
<tr>
<td>Limit</td>
<td>&lt;0.07 mm (0.028 in)</td>
</tr>
</tbody>
</table>

SIDE CLEARANCE:

<table>
<thead>
<tr>
<th>D</th>
<th>&lt;0.10 mm (0.004 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)</td>
</tr>
<tr>
<td>Limit</td>
<td>&lt;0.10 mm (0.004 in)</td>
</tr>
</tbody>
</table>

SPARK PLUG:

<table>
<thead>
<tr>
<th>E</th>
<th>NGK/BPR7HS, ND/W22FPR-U</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLUG GAP</td>
<td>0.6 ~ 0.7 mm (0.024 ~ 0.028 in)</td>
</tr>
</tbody>
</table>

9 Nm (0.9 m·kg, 6.5 ft·lb)

14 Nm (1.4 m·kg, 10 ft·lb)

20 Nm (2.0 m·kg, 14 ft·lb)
PISTON PIN AND PISTON
1. Apply:
   • Engine oil
     (to the crankshaft bearing, connecting rod big end bearing, small end bearing, piston pin, piston ring grooves and piston skirt areas.)

2. Install:
   • Reed valve gasket
   • Reed valve ①
   • Carburetor joint ③

   Carburetor joint
   9 Nm (0.9 m • kg, 6.5 ft • lb)

3. Install:
   • Small end bearing
   • Piston ①
   • Piston pin ③
   • Piston pin clip ④

NOTE:
• The arrow ② on the piston must point to the exhaust side.
• Before installing the piston pin clip, cover the crankcase with a clean towel or rag so you will not accidentally drop the pin clip and material into the crankcase.
• Always use a new piston pin clip.

CYLINDER AND CYLINDER HEAD
1. Install:
   • Cylinder gasket (new gasket)

2. Check:
   • Piston rings

NOTE:
Make sure the ring ends ① are properly fitted around the ring locating pins in the piston grooves.
Be sure to check the manufacturer's marks or numbers stamped on the rings are on the top side of the rings.

3. Install:
   - Cylinder ①

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

4. Install:
   - Cylinder head gasket (new gasket)

5. Install:
   - Cylinder head ①
   - Spark plug ②

NOTE:
- The arrow ③ "EX" on the head cylinder must point to the exhaust side.
- Tighten the cylinder head holding nuts in stage, using a crisscross pattern.

Cylinder Head Holding Nuts:
14 Nm (1.4 m•kg, 10 ft•lb)

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

6. Install:
   - Centerstand ①
   - Shaft ②
   - Cramp ③
   - Rubber washer ④
   - Clip ⑤
   - Spring ⑥
7. Install:
- Brake shoe plate ①
- Plain washer ②
- Rear wheel

8. Install:
- Reed valve ass’y ①
- Gasket ②
- Carbrotor ③
- Oil delivery hose ④
- Air cleaner case assembly

NOTE:
- Align the projection ⑤ with the projections ⑥.
- Before installing the oil delivery hose, fill the engine oil in it.

9. Install:
- Air shroud ①
- Oil hose ②
- Oil delivery hose ③

NOTE:
Pass the oil delivery hose and oil hose as shown.

10. Air bleeding:
- Autolube pump
  Refer to “CHAPTER 3 – AUTOLUBE PUMP
  AIR BLEEDING” section.

REMOVING ENGINE
When remounting the engine, reverse the removal procedure.

1. Install:
- Engine mounting bolt ①
- Rear shock absorber bolt ② (lower)
  These bolts should be temporarily secured.

2. Tighten:
- Engine mounting bolt
- Rear shock absorber bolt (lower)
3. Install:
   • Carburetor top together with throttle valve
   • Fuel hose / Vacuum pipe
   • Brake cable/plug cap

**NOTE:**
When installing the throttle valve into the carburetor, align the groove of the throttle valve with the projection of the carburetor.

4. Connect:
   • Auto choke unit leads
   • Starter motor lead
   • C.D.I. magneto lead
   • Earth lead

5. Tighten:
   • Rear wheel axle nut

**NOTE:**
When tighten the rear wheel axle nut, apply the rear brake.

6. Install:
   • Muffler
   • Fan cover

**Bolt (muffler):**
26 Nm (2.6 m - kg, 19 ft - lb)
**Bolt (exhaust pipe):**
9 Nm (0.9 m - kg, 6.5 ft - lb)

7. Apply:
   • Transmission oil
   Refer to "CHAPTER 3 – TRANSMISSION OIL REPLACEMENT" section.

8. Adjust:
   • Brake lever free play
   Refer to "CHAPTER 3 – FRONT/REAR BRAKE LEVER FREE PLAY ADJUSTMENT" section.
   • Throttle cable free play
   Refer to "THROTTLE CABLE FREE PLAY ADJUSTMENT" section.
CHAPTER 5.
CARBURETION

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CARBURETION

AUTO CHOKE SYSTEM

CONSTITUENTS

The electric auto-choke consists of the Positive Temperature Coefficient (P.T.C.) thermistor, wax element and starter plunger.

1. P.T.C. thermistor
2. Wax element
3. O-ring
4. Starter plunger

P.T.C. thermistor

When electric current flows in this thermistor, it begins to be heated up to a specified temperature. This specified temperature is then retained.

Wax element

The wax element changes its volume according to a varying temperature of the thermistor, thereby causing the starter plunger to operate.

Starter plunger

The starter plunger opens or closes the starter passage according to changes in the volume of the wax element.

WIRING SCHEMATIC

Power source is provided by the C.D.I. magneto lighting coil.

1. C.D.I. magneto
2. Rectifier/Regulator
3. Auto choke unit
OPERATION

Cold engine
On the cold engine the wax element changes (reduces) its volume according to the ambient temperature.
In this state the starter plunger is at the top, thereby opening the starter plunger.

Running engine
When the engine is started, the heated P.T.C. thermistor expands the wax element, gradually pushing the starter plunger and controlling the opening of the starter passage. The further heated thermistor expands the wax element to a complete extent, thereby fully closing the starter passage.
This in turn causes the engine r.p.m. to change (be reduced) with time, finally coming to specified idling.
The wax element expands during the ride as well by means of the P.T.C. thermistor, thereby keeping the starter passage fully closed.
AUTO CHoke SYSTEM

Restarting after engine warm-up

1. Restarting right after ride:
The wax element is fully expanded, so the starter passage is fully closed by the starter plunger.

2. Restarting after leaving engine for a particular time:
The wax element begins to reduce its volume according to the ambient temperature, permitting the starter plunger to open the passage to meet the engine requirement.
CARBURETOR

1. Carburetor top cover
2. Gasket
3. Spring
4. Needle set
5. Throttle valve
6. Pilot air screw
7. Throttle stop screw
8. Pilot jet
9. Main nozzle
10. Main jet
11. Needle valve
12. Float
13. Float pin
14. Gasket
15. Float chamber
16. Drain screw
17. Auto choke unit assembly
18. O-ring

A | SPECIFICATIONS
---|------------------
MAIN JET  | #76
JET NEEDLE | 3R00-3/5
MAIN AIR JET | φ2.0
PILOT JET  | #42
STARTER JET | #48
PILOT AIR SCREW | 1 and 5/8 turns out
VALVE SEAT  | φ1.8
FLOAT HEIGHT | 15 - 17 mm.
(0.59 - 0.67 in)
ENGINE IDLE SPEED | 1800 r/min
SECTION VIEW

1. Jet needle
2. Throttle valve
3. Main nozzle
4. Main jet
5. Pilot jet
6. Auto choke unit
7. Starter plunger
8. Starter jet needle
9. Starter needle jet
10. Starter jet
11. Needle valve
12. Float
A. Main metering system
B. Slow metering system
C. Starter metering system
D. Fuel metering system
E. Air
F. Mixture
G. Fuel
CARBURETOR

REMOVAL
1. Remove:
   • Tail cover and footrest board
     Refer to "CHAPTER 3-TAIL COVER AND FOOTREST BOARD" section.
   • Air cleaner case assembly

2. Disconnect:
   • Fuel pipe
   • Vacuum pipe
   • Oil delivery pipe
   • Auto choke unit lead

3. Remove:
   • Carburetor top
   • Carburetor

4. Remove:
   • Throttle valve
   • Throttle valve spring
   • Carburetor top cover

DISASSEMBLY
1. Remove:
   • Float chamber

2. Remove:
   • Gasket
   • Float pin stop screw
   • Float pin
   • Float
   • Needle valve
3. Remove:
   - Main jet ①
   - Main nozzle ②
   - Pilot jet ③

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

5. Remove:
   - Auto choke unit ①
   - O-ring

**INSPECTION**

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

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

2. Inspect:
   - Float ①
     Damage → Replace.
   - Gasket
     Damage → Replace.
   - Needle valve ②
     Wear/Contamination → Replace.
3. Inspect:
   - Throttle valve ①
     Wear/Damage → Replace.

4. Check:
   - Free movement
     Stick → Replace.
     Insert the throttle valve ① into the carburetor body ②, and check for free movement.

5. Inspect:
   - Main jet ①
   - Main nozzle ②
   - Pilot jet ③
     Contamination → Replace.

6. Inspect:
   - Throttle stop screw ①
     Wear/Damage → Replace.
   - Pilot air screw ②
     Wear/Damage → Replace.
   - Jet needle ③
     Bends/Wear → Replace.

7. Inspect:
   - Starter plunger ①
     Wear/Damage → Replace.
8: Measure:
- Float height (a)
  Out of specification → Inspect needle valve, float and valve seat.

**Float Height:**
15.0 ~ 16.0 mm (0.63 ± 0.04 in)

Float height measurement steps:
- Install the needle valve, float and float pin to the carburetor body.
- Hold the carburetor in an upside down position.
- Measure the distance between the mating surface of the float chamber (gasket removed) and top of the float using a gauge.

**NOTE:**
The float arm should be resting on the needle valve, but not compressing the needle valve.

- If the float height is not within specification, inspect the needle valve, float and valve seat.
- If it is worn, replace it.

**NOTE:**
The float height is properly adjusted at the Yamaha factory. Never attempt to adjust it.

**ASSEMBLY**
To assemble the carburetor, reverse the disassembly procedures. Note the following points.

**CAUTION:**
- Before reassembling, wash all parts in clean gasoline.
- Always use a new gasket.

1. Install:
  - Throttle valve (1)
  - Jet needle (2)
  - Clip (3)
  - Spring seat (4)

**Jet Needle Clip Position:**
3/5
2. Install:
- Throttle valve ①

**NOTE:**
Align the groove ② of the throttle valve with the projection ③ of the carburetor body.

3. Install:
- Carburetor assembly

**NOTE:**
Align the projection ① with the projections ②.

**INSTALLATION**
1. Install:
   - Carburetor assembly
     Reserve the removal procedure.

**AUTO CHOKE UNIT CHECK**
1. Remove:
   - Auto choke unit

2. Measure:
   - Starter plunger height ⑧
     Plunger height will not change with the temperature change → Replace.
FUEL COCK
INSPECTION
1. Stop the engine.
2. Remove:
   • Side cover (right)
     Refer to "CHAPTER 3. - TAIL COVER AND FOOTREST BOARD" section.
3. Inspect:
   • Fuel cock

Fuel cock inspection steps:
• Disconnect the fuel hose ①.
• Place the receptacle under the fuel hose end.
• If fuel stops flowing out in a few seconds, the fuel cock is in good condition. If not, clean or replace the fuel cock.
• Disconnect the vacuum hose ② and breathe in the vacuum hose with the mouth etc. for vacuum.
• If fuel flows out of the fuel hose under vacuum and stops under non-vacuum, the fuel cock is in good condition.
   If not, clean or replace the vacuum hose, fuel hose and fuel cock.

REED VALVE
REMOVAL
1. Remove:
   • Tail cover and footrest board
     Refer to "CHAPTER 3-TAIL COVER AND FOOTREST BOARD" section.
   • Air cleaner case assembly ①

2. Remove:
   • Carburetor
     Refer to "CARBURETOR - REMOVAL" section.

3. Disconnect:
   • Oil level gauge lead ①
   • Oil hose ②

4. Remove:
   • Oil tank
5. Remove:
- Carburetor joint ①
- Reed valve assembly

**INSPECTION**

1. Inspect:
- Carburetor joint
  Damage/ Cracks → Replace.
- Reed valve
  Fatigue/Cracks → Replace.

**-------------------------------**

Inspection steps:
- Visually inspect the reed valve.

**NOTE:**

Correct reed valve should fit flush or nearly flush against valve seat.

- If in doubt as to sealing ability, apply suction to carburetor side of assembly.
- Leakage should be slight to moderate.

**-------------------------------**

2. Measure:
- Valve stopper height ①:
  Out of specification → Adjust stopper/Replace valve stopper.

**Valve Stopper Height ①:**
6.0 ~ 6.4 mm (0.24 ~ 0.25 in)

3. Measure:
- Reed valve clearance ①
  Out of specification → Replace reed valve.

**Reed Valve Clearance ①:**
Less than 0.2 mm (0.008 in)
INSTALLATION
When installing the reed valve assembly, reverse the removal procedure. Note the following points.

1. Install:
   - Gasket (new)

2. Tighten:
   - Reed valve securing bolts

\[ 9 \text{ Nm (0.9 m \cdot kg, 6.5 ft \cdot lb)} \]

NOTE:
Tighten each bolt gradually to avoid warping.
CHAPTER 6.
CHASSIS

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FRONT WHEEL

1. Wheel axle
2. Collar
3. Oil seal
4. Bearing
5. Spacer
6. Collar
7. Valve
8. Ring
9. Return spring
10. Brake shoe
11. Bearing
12. Oil seal
13. Speedometer drive gear
14. Camshaft
15. Brake shoe plate
16. Camshaft seal
17. Wear indicator
18. Camshaft lever
19. Speedometer driven gear
20. Plain washer
21. Stop ring

---

A TIRE SIZE:
80/90-10, 34J

B RIM RUNOUT LIMIT:
Vertical: 2.0 mm (0.08 in)
Lateral: 2.0 mm (0.08 in)

C BRAKE DRUM WEAR LIMIT:
95.0 mm (3.74 in)

D BRAKE LINING WEAR LIMIT:
2.0 mm (0.08 in)

E WHEEL AXLE RUNOUT LIMIT:
0.25 mm (0.01 in)

---

Replace:
Brake shoe and return spring as a set.
REMOVAL
1. Place the scooter on its centerstand and place a suitable stand under the engine.

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

2. Remove:
   - Brake cable ①
   - Speedometer cable ②
   - Axle nut ③

3. Remove:
   - Brake shoe ①
   - Return spring ②
   - Oil seal ③
   - Speedometer drive gear ④
   - Stop ring ⑤
   - Plain washer ⑥
   - Speedometer driven gear ⑦

INSPECTION
1. Measure:
   - Wheel axle runout
     Out of specification → Replace.

   Wheel Axle Runout Limit:
   0.25 mm (0.01 in)

   WARNING
   Do not attempt to straighten a bent axle.

2. Measure:
   - Wheel runout
     Out of specification → Replace.

   Runout Limit:
   Vertical 2.0 mm (0.08 in)
   Lateral 2.0 mm (0.08 in)
3. Inspect:
- Wheel
  Cracks/Bends/Warpage → Replace.
4. Inspect:
- Wheel bearings
  Bearings allow play in the wheel hub or
  wheel turns roughly → Replace.

Wheel bearing replacement steps:
- Clean the outer side of the wheel hub.
- Remove the bearing using a general bearing
  puller ①.
- Install the new bearing.

NOTE:
Use a socket ② that matches the outside diameter of the race of the bearing.

CAUTION:
Do not strike the inner race of balls of the bearing.
Contact should be made only with the outer race.

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

NOTE:
After using the sand paper, clean of the polished
particles with cloth.

6. Measure:
- Brake shoe thickness ③
  Out of specification → Replace.

Brake lining Thickness:
4.0 mm (0.16 in)
Limit: 2.0 mm (0.08 in)
7. Inspect:
   - Brake drum inner surface
     Oil/Scratches → Remove.

<table>
<thead>
<tr>
<th>Oil</th>
<th>Use a rag soaked in lacquer thinner or solvent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scratches</td>
<td>Use an emery cloth (lightly and evenly polishing).</td>
</tr>
</tbody>
</table>

8. Measure:
   - Brake drum inside diameter •
     Out of specification → Replace.

   ![Brake Drum Wear Limit: 96.0 mm (3.78 in)]

9. Inspect:
   - Speedometer drive gear •
   - Speedometer driven gear •
     Wear/Damage → Replace.

### ASSEMBLY

When assembling the brake shoe plate, reverse the removal procedure.

Note the following points.

1. Apply:
   - Lithium-soap base grease
     To speedometer driven gear • and oil seal •.

2. Apply:
   - Lithium-soap base grease
     To speedometer drive gear •, dust seal • and brake cam shaft •.
3. Install:
   • Dust seal (new)

**NOTE:**
Install the dust seal with their manufacturer's marks or numbers facing outward.

4. Install:
   • Brake cam shaft ①

**NOTE:**
Apply the lithium soap base grease onto the brake cam shaft and pin.

**CAUTION:**
After installing the brake cam shaft, wipe off the excess grease.

5. Install:
   • Wear indicator ②

**NOTE:**
Align the wear indicator projection with "A" line as shown.

6. Install:
   • Cam shaft lever ①

**NOTE:**
Align the camshaft mark with the lever mark ② as shown.

**Bolt ③ (cam shaft lever):**
4 Nm (0.4 m•kg, 2.9 ft•lb)

7. Install:
   • Brake shoe ①
   • Return spring ②

**CAUTION:**
When installing the brake shoe, take care not to apply grease to the brake shoe.
INSTALLATION
When installing the front wheel, reverse the removal procedure.
Note the following points.

1. Install:
   • Brake shoe plate.

NOTE:
Make sure the projections ① inside the gear unit are meshed with the flats ② in the wheel hub.

2. Install:
   • Front wheel

NOTE:
Be sure the boss ② on the front fork correctly engages with the locating slot ① on the brake shoe plate assembly.

3. Install:
   • Front brake cable ①
   • Speedometer cable ②
   • Axle nut ③

   Axle nut:
   47 Nm (4.7 m·kg, 34 ft·lb)

4. Adjust
   • Front brake lever free play
   Refer to "CHAPTER 3 - FRONT BRAKE LEVER FREE PLAY CHECK” section.

   Front brake lever free play:
   10 ~ 20 mm (0.4 ~ 0.8 in)
REAR WHEEL

1. Plain washer
2. Valve
3. Ring
4. Plain washer
5. Return spring
6. Brake shoe
7. Brake camshaft
8. Torsion spring
9. Wear indicator
10. Camshaft lever

---

95 Nm (9.5 m·kg, 68 ft·lb)

A
TIRE SIZE:
80/90-10, 34J

B
BRAKE DRUM WEAR LIMIT:
111.0 mm (4.37 in)

C
BRAKE LINING WEAR LIMIT:
2.0 mm (0.08 in)

D
WHEEL RUNOUT LIMIT:
VERTICAL: 2.0 mm (0.08 in)
LATERAL: 2.0 mm (0.08 in)

---

Replace:
Brake shoe and return spring as a set.

8 Nm (0.8 m·kg, 5.8 ft·lb)
REMOVAL
1. Remove:
   • Muffler assembly

2. Loosen:
   • Rear axle nut ①

NOTE:
When loosening axle nut, apply the rear brake.

3. Remove:
   • Rear wheel

4. Remove:
   • Rear brake cable ①
   • Brake shoe ②
   • Plain washer ③

INSPECTION
1. Inspect:
   • Wheel
     Refer to "FRONT WHEEL – INSPECTION" section.

2. Measure:
   • Wheel runout
     Refer to "FRONT WHEEL – INSPECTION" section.

Rim Runout Limits:
Vertical: 2.0 mm (0.08 in)
Lateral: 2.0 mm (0.08 in)
3. Check:
   • Wheel bearings
     Refer to "FRONT WHEEL – INSPECTION" section.

4. Inspect:
   • Brake lining surface
     Refer to "FRONT WHEEL – INSPECTION" section.

5. Measure:
   • Brake lining thickness
     Refer to "FRONT WHEEL – INSPECTION" section.

<table>
<thead>
<tr>
<th>Brake Lining Thickness:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 mm (0.16 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wear Limit:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 mm (0.08 in)</td>
</tr>
</tbody>
</table>

6. Inspect:
   • Brake drum inner surface
     Refer to "FRONT WHEEL – INSPECTION" section.

7. Measure:
   • Brake drum inside diameter
     Refer to "FRONT WHEEL – INSPECTION" section.

<table>
<thead>
<tr>
<th>Brake Drum Wear Limit:</th>
</tr>
</thead>
<tbody>
<tr>
<td>111.0 mm (4.37 in)</td>
</tr>
</tbody>
</table>

**ASSEMBLY**

When assembling the brake shoe plate, reverse the removal procedure.
Note the following points.

1. Install:
   • Brake camshaft 1

**NOTE:**
Apply the lithium soap base grease onto the brake camshaft 1 and pin 2.

**CAUTION:**
After installing the brake cam shaft, take off the excess grease.
2. Install:
   • Brake shoe ①
   • Return spring ②

NOTE: ______________________________________
Install with the punched mark ③ outside.

CAUTION: ______________________________________
When installing the spring and brake shoe, take care not to damage the spring.

3. Install:
   • Torsion spring ①
   • Wear indicator ②
   • Cam shaft lever ③

NOTE: ______________________________________
• Align the wear indicator ② projection with "A" line as shown.
• Align the punch marks ④.

Bolt (cam shaft lever):
8 Nm (0.8 m•kg, 5.8 ft•lb)

4. Install:
   • Plain washer ①
   • Brake cable

INSTALLATION
When installing the rear wheel, reverse the removal procedure.
Note the following points.
1. Clean:
   • Rear wheel axle ①

2. Install:
   • Rear wheel
   • Plain washer ①
   • Nut ②

NOTE: ______________________________________
Make sure the splines on the wheel hub fit the rear drive axle.
3. Install:
   - Muffler

   **Nut (rear wheel axle):**
   104 Nm (10.4 m•kg, 75.4 ft•lb)

   **Bolt (exhaust pipe side):**
   9 Nm (0.9 m•kg, 6.5 ft•lb)

   **Bolt (muffler side):**
   26 Nm (2.6 m•kg, 19 ft•lb)

4. Adjust:
   - Rear brake lever free play
     Refer to “CHAPTER 3 – REAR BRAKE LEVER FREE PLAY CHECK” section.
HANDLEBAR, STEERING AND FRONT FORK

1. Trottle grip guide
2. Handlebar
3. Throttle cable
4. Boot
5. Connector
6. Throttle cable
7. Front brake cable
8. Cover
9. Rear brake cable
10. Ring nut
11. Upper bearing race (upper)
12. Bearing
13. Upper bearing race (lower)
14. Lower bearing race (upper)
15. Lower bearing race (lower)
16. Steering column
17. Fork spring
18. Rubber
19. Spring seat
20. Inner tube assembly (right)
21. Inner tube assembly (left)

BEARING SIZE:
A
UPPER: 5/32 in
LOWER: 5/32 in

FORK SPRING FREE LENGTH:
B
S.T.D.: 91.5 mm (3.60 in)
LIMIT: 87 mm (3.42 in)

60 Nm (5.0 m·kg, 43 ft·lb)
REMOVAL
1. Place the scooter on the centerstand and place a suitable stand under the engine.

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

2. Remove:
   • Front wheel
     Refer to "FRONT WHEEL – REMOVAL" section.

3. Remove:
   • Front fender
   • Front panel
     Refer to "CHAPTER 3 – FRONT FENDER AND FRONT PANEL" section.

4. Remove:
   • Handlebar cover
     Rear view mirror
     Refer to "CHAPTER 3 – HANDLEBAR COVER" section.

5. Remove:
   • Front brake cable ①
   • Rear brake cable ②

6. Disconnect:
   • Handlebar switch lead ① (left and right)
   • Front brake switch lead ②
   • Rear brake switch lead ③
7. Remove:
- Lever holder (right)
- Handlebar switch (right)
- Throttle grip

8. Remove:
- Handlebar switch (left)

9. Unhook:
- Wire harness strap

10. Remove:
- Band

11. Remove:
- Handlebar
12. Remove:
- Ring nut ①
  Use the Ring Nut Wrench ②

Ring nut wrench:
YU-33975

13. Remove:
- Upper bearing race ①

NOTE:
Support the steering column so that it may not fall down.
- Steering column ②
- Bearings

DISASSEMBLY
1. Remove:
- Boots ①
- Circlip ②
- Oil seal ③

2. Remove:
- Inner tube ①
- Spring seat ②
- Rubber ③
- Front fork spring ④

INSPECTION
1. Inspect:
- Handlebar ①
  Bend/Damage/Crack → Replace.
2. Wash the bearings in solvent.

3. Inspect:
   - Bearing race ①
     Pitting/Damage → Replace.
   - Bearings ②
     Pitting/Damage → Replace.

**NOTE:**
Always replace the bearing and race as a set.

<table>
<thead>
<tr>
<th>Bearing Size:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper 5/32 in</td>
</tr>
<tr>
<td>Lower 5/32 in</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bearing Quantity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper 26 pcs.</td>
</tr>
<tr>
<td>Lower 26 pcs.</td>
</tr>
</tbody>
</table>

**Bearing race replacement steps:**
- Remove the bearing race by hitting it on several points.
- Set the bearing race.
- Drive in the bearing race evenly by hitting it on several points.

**CAUTION:**
- Unless the ball race is installed evenly, it will damage the frame or steering column.
- Do not hit the face of the ball race.

4. Inspect:
   - Steering column
   - Inner fork tube
     Bends/Damage → Replace.

**WARNING**
Do not attempt to straighten a bent fork tube.
5. Measure:
   • Fork spring free length
     Out of specification → Replace.

   Fork Spring Free Length:
   91.5 mm (3.60 in)
   Limit: 87 mm (3.42 in)

ASSEMBLY AND INSTALLTION
Reverse the disassembly and removal steps. Note the following points.

⚠️ WARNING
Proper cable and read routing is essential to issue safe scooter operation. Refer to “CHAPTER 2 – CABLE ROUTING”.

1. Apply:
   • Molybdenum disulfide grease

2. Check:
   • Front fork operation
     Unsmooth operation → Repair.

3. Apply:
   • Wheel bearing grease
     (to upper bearings and lower bearings.)
4. Install:
   - Steering column
   - Upper ball race
   - Ring nut

**CAUTION:**
Hold the steering column until it is secured.

Upper ball race (nut):
4 Nm (0.4 m·kg, 2.9 ft·lb)

5. Tighten:
   - Ring nut ①

**NOTE:**
Set the torque wrench to the ring nut wrench ② so that they form a right angle.

Ring nut wrench:
YU-33975

30 Nm (3.0 m·kg, 22 ft·lb)

6. Install:
   - Handlebar ①
   - Bolt ②
   - Nut

**NOTE:**
Match the bolt ② onto the steering column dent ③.

**CAUTION:**
Before installing the handlebar, wipe the oil off the insertion portion using thinner, etc.

Bolt ① (handlebar)
60 Nm (6.0 m·kg, 43 ft·lb)

7. Hook:
   - Wire harness strap ①

8. Install:
   - Band ②

**NOTE:**
Clamp the wire harness.
9. Clamp
   • Throttle cable ①
   • Speedometer cable ②
   • Rear brake cable ③
   • Front brake cable ④
     (to handlebar with the band ⑤.)

10. Apply:
    • Lithium-soap base grease
     (to throttle cable end and handlebar right end.)

11. Adjust:
    • Front brake lever free play
    • Rear brake lever free play
    • Throttle cable free play

<table>
<thead>
<tr>
<th>Front Brake Lever Free Play:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 ~ 20 mm (0.4 ~ 0.8 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rear Brake Lever Free Play:</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 ~ 20 mm (0.4 ~ 0.8 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Throttle Cable Free Play:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 ~ 3.5 mm (0.06 ~ 0.14 in)</td>
</tr>
</tbody>
</table>

Refer to “CHAPTER 3—FRONT BRAKE LEVER FREE PLAY CHECK, REAR BRAKE LEVER FREE PLAY CHECK and THROTTLE CABLE PLAY ADJUSTMENT” section.
REAR SHOCK ABSORBER

1. Rear shock absorber

32 Nm (3.2 m·kg, 23 ft·lb)

18 Nm (1.8 m·kg, 13 ft·lb)
REAR SHOCK ABSORBER

REMOVAL
1. Place the scooter on its centerstand.
2. Remove:
   • Rear shock absorber

INSPECTION
1. Inspect:
   • Rear shock absorber
   Oil leaks/Damage → Replace.

INSTALLATION
When installing the rear shock absorber, reverse the removal procedure. Note the following points.
1. Install:
   • Rear shock absorber

| Upper: | 32 Nm (3.2 m·kg, 23 ft·lb) |
| Lower:  | 18 Nm (1.8 m·kg, 13 ft·lb)  |
CHAPTER 7.
ELECTRICAL

CY50B CIRCUIT DIAGRAM .............................................. F-13
ELECTRICAL COMPONENTS ............................................. F-14
CHECKING OF CONNECTIONS ........................................... F-15
CHECKING OF SWITCHES .................................................. F-15
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  CIRCUIT DIAGRAM ..................................................... H-8
  TROUBLESHOOTING ..................................................... H-9
① Spark plug ⑧ Fuel meter ⑫ Fuel sender ⑱ Flasher relay ⑲ "TURN" switch ⑲ "TURN" indicator light ⑳ Left flasher light (front) ⑳ Left flasher light (rear) ⑳ Left flasher light (rear) ⑳ Right flasher light (front) ⑳ Right flasher light (rear) ⑳ Right flasher light (rear) ⑳ Horn ⑳ "HORN" switch ⑳ Front brake switch ⑳ Rear brake switch ⑳ Rear brake switch ⑳ Rear brake switch ⑳ Oil level gauge ⑳ "OIL" indicator light ⑳ "OIL" indicator light ⑳ Engine "stop" switch ⑳ Engine "stop" switch ⑳ Engine "stop" switch

COLOR CODE

<table>
<thead>
<tr>
<th>R</th>
<th>Red</th>
<th>P</th>
<th>Pink</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Black</td>
<td>L</td>
<td>Blue</td>
</tr>
<tr>
<td>W</td>
<td>White</td>
<td>Y/R</td>
<td>Yellow/Red</td>
</tr>
<tr>
<td>Y</td>
<td>Yellow</td>
<td>L/W</td>
<td>Blue/White</td>
</tr>
<tr>
<td>Br</td>
<td>Brown</td>
<td>G/Y</td>
<td>Green/Yellow</td>
</tr>
<tr>
<td>Gy</td>
<td>Gray</td>
<td>B/W</td>
<td>Black/White</td>
</tr>
<tr>
<td>O</td>
<td>Orange</td>
<td>B/R</td>
<td>Black/Red</td>
</tr>
<tr>
<td>Ch</td>
<td>Chocolate</td>
<td>W/R</td>
<td>White/Red</td>
</tr>
<tr>
<td>Dg</td>
<td>Dark green</td>
<td>Br/W</td>
<td>Brown/White</td>
</tr>
<tr>
<td>G</td>
<td>Green</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ELECTRICAL COMPONENTS

- Ignition coil
- C.D.I. unit
- Fuse
- Battery
- Starter relay
- Oil level gauge

**BATTERY**
- CAPACITY: 12V, 4AH
- SPECIFIC GRAVITY: 1.32

**IGNITION COIL RESISTANCE**
- PRIMARY: 0.56 ~ 0.84Ω at 20°C (68°F)
- SECONDARY: 5.68 ~ 8.52 kΩ at 20°C (68°F)
⑤ Rectifier/Regulator
⑦ Main switch
⑧ Flasher relay
⑨ Horn
CHECKING OF CONNECTIONS

Dealing with stains, rust, moisture, etc. on the connector.
1. Disconnect:
   - Connector
2. Dry each terminal by an air blower.

3. Connect and disconnect the connector two or three times.
4. Pull the lead to check that it will not come off.
5. If the terminal comes off, bend up the pin and reinsert the terminal into connector.

6. Connect:
   - Connector
7. Check for continuity by a tester.

NOTE:
- If there is no continuity, clean the terminals.
- Be sure to perform the above steps 1 to 7 when checking the wire harness.
- When replacing the C.D.I. unit, be sure to check its connector.
- For a field remedy, use a contact revitalizer available on the market.
- Use the tester on the connector as shown.
CHECKING OF SWITCHES

Check the switches for the continuity between the terminal to determine correct connection.

Read the following for switch inspection.

SWITCH CONNECTION AS SHOWN IN MANUAL

The manual contains a connection chart as shown left showing the terminal connections of the switches (e.g., main switch, handlebar switch, bracket switch, lighting switch etc.)

The extreme left column indicates the switch positions and the top line indicates the colors of leads connected with the terminals in the switch component.

"O—O" indicates the terminals between which there is a continuity of electricity; i.e., a closed circuit at the respective switch positions.

In this chart:
"R and Br" and "L/W and L/R" are continuous with the "ON" switch position.

"B and B/W" is continuous with the "OFF" switch position.

"B and B/W" is continuous with the "LOCK" switch position.

"B and B/W" and "R and L/R" are continuous with the "P" switch position.

CHECKING SWITCH FOR TERMINAL CONNECTION

Before checking the switch, refer to the connection chart as shown above and check for the correct terminal connection (closed circuit) by the color combination.

To explain how to check the switch, the main switch taken for example in the following.
1. Disconnect the main switch coupler from the wireharness.

**CAUTION:**

Never disconnect the main switch coupler by pulling the leads. Otherwise, leads may be pulled off the terminals inside the coupler.

2. Inspect whether any lead is off the terminal inside the coupler. If it is, repair it.

**NOTE:**

If the coupler is clogged with mud or dust, blow it off by compressed air.

3. Use the connection chart to check the color combination for continuity (a closed circuit). In this example, the continuity is as follows.

"R and Br" and L/W and L/R are continuous with the "ON" switch position.

"B and B/W" is continuous with the "OFF" switch position.

"B and B/W" is continuous with the "LOCK" switch position.

"B and B/W" and "R and L/R" are continuous with the "P" switch position.

Please note that there is no continuity (an open circuit) at all for the color combinations other than the above.

4. Check the switch component for the continuity between "R and Br".

Checking steps:

- Turn the switch key to the "ON", "OFF", "LOCK", and "P" several times.
- Set the pocket tester selector to the "Ω x 1".
- Connect the tester (+) lead to the "R" lead terminal in the coupler and the (−) lead to the "Br" lead terminal.
NOTE:

Use thin probes for checking the continuity. Otherwise, the probes may contact other terminals inside the coupler.

- Check the continuity between “R” and “Br” at the respective switch position of “ON” ①, “OFF” ②, “LOCK” ③, and “P” ④. There must be continuity (the tester indicating “0”) at the “ON” switch position, and there must be no continuity (the tester indicating “∞”) at “OFF”, “LOCK”, or “P”. There is something wrong between “R” and “Br” if there is no continuity at the “ON” position or if there is some continuity either at the “OFF” or “LOCK” or “P”.

NOTE:

Check the switch for continuity several times.

5. Next go on to checking of the continuity between “B and B/W”, “L/W and L/R”, and “R and L/R” at the respective switch positions, as in the same manner mentioned above.

6. If there is something wrong with any one of the combinations, replace the switch component.
CHECKING OF BULBS
(FOR HEADLIGHT, TAIL/BRAKE
LIGHT, FLASHER LIGHT, METER
LIGHT, ETC.)

Check the bulb terminal continuity for the condition of the bulb.

KINDS OF BULBS
The bulbs used in the motorcycle are classified as shown left by the shape of the bulb socket.

A and B are mainly used for the headlight.

C is mainly used for the flasher light and tail/brake light.

D and E are mainly used for the meter light and other indicator lights.

CHECKING BULB CONDITION
1. Remove the bulb.

NOTE:
• Bulbs of the A and B type uses a bulb holder. Remove the bulb holder before removing the bulb itself. Most of the bulb holders for this type can be removed by turning them counterclockwise.

• Most of the bulbs C and D type can be removed from the bulb sockets by pushing and turning them counterclockwise.

• Bulbs of the E type can be removed from the bulb sockets by simply pulling them out.

CAUTION:
Be sure to hold the socket firmly when removing the bulb. Never pull the lead. Otherwise, the lead may be pulled off the terminal in the coupler.

WARNING
Keep flammable products and your hands away from the headlight bulb while it is on. It will be hot. Do not touch the bulb until it cools down.
2. Check the bulb terminals for continuity.

Checking steps:
- Set the pocket tester selector to the "Ω x 1".
- Connect the tester leads to the respective bulb terminals. Take for example a 3-terminal bulb as shown left. First check the continuity between the 1 and 2 terminals by connecting the tester (+) lead to the 1 terminal and the tester (-) lead to the 2 terminal. Then check the continuity between the 1 and 3 terminals by connecting the tester (+) lead still to the 1 terminal and the tester (-) lead to the 3 terminal. If the tester shows "∞" in either case, replace the bulb.

3. Check the bulb socket by installing a proven bulb to it. As in the checking of bulbs, connect the pocket tester leads to the respective leads of the socket and check for continuity in the same manner as mentioned above.
IGNITION AND STARTING SYSTEM
CIRCUIT DIAGRAM
Below circuit diagram shows ignition and starter circuit.
NOTE:
For the color codes see page 7-2.

1. Spark plug
2. Ignition coil
3. C.D.I. magneto
4. C.D.I. unit
5. Main switch
6. Fuse
7. Battery
8. Starter switch
9. Starter relay
10. Starter motor
11. Front brake switch
12. Rear brake switch
13. Engine "stop" switch
# Ignition and Starting System

## Quick Reference Chart

<table>
<thead>
<tr>
<th>Inspection Parts</th>
<th>Troubleshooting</th>
<th>Malfunction during operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Battery</td>
<td>1 1 1</td>
<td></td>
</tr>
<tr>
<td>B Fuse</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C Starter Motor</td>
<td>3 2 2</td>
<td></td>
</tr>
<tr>
<td>D Starter Relay</td>
<td>4 3</td>
<td></td>
</tr>
<tr>
<td>E Main Switch</td>
<td>5</td>
<td>6 6 1</td>
</tr>
<tr>
<td>F Brake Switch</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>G Starter Switch</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>H Spark Plug</td>
<td></td>
<td>1 1 1 1 1 1 2</td>
</tr>
<tr>
<td>I Spark Plug Cap</td>
<td></td>
<td>2 2 2 2 2 2 1 1</td>
</tr>
<tr>
<td>J Ignition Coil</td>
<td></td>
<td>3 3 3 3 3 3 3 3</td>
</tr>
<tr>
<td>K Source Coil</td>
<td></td>
<td>4 4 4 4 4 4 4 4</td>
</tr>
<tr>
<td>L Pickup Coil</td>
<td></td>
<td>5 5 5 5 5 5 5 5</td>
</tr>
<tr>
<td>M &quot;Engine Stop&quot; Switch</td>
<td></td>
<td>6 6 6 6 6 6 6 6</td>
</tr>
<tr>
<td>N Wire Harness</td>
<td></td>
<td>7 7 7 7 7 3 1 2</td>
</tr>
<tr>
<td>O CDI Unit</td>
<td></td>
<td>8 8 8 8 8 8 8 4</td>
</tr>
</tbody>
</table>

### NOTE:
- **A ~ M & O** indicates the location of the parts-connectors for checking.
- Use the following special tools in this troubleshooting.

Pocket Tester: YU-03112

Dynamic Spark Tester: YM-34487

### How to Use Chart:
Step 1. Look for an appropriate trouble mode from the scooter phenomenon.
Step 2. Proceed to checking in the ascending order of the numbers.
Step 3. Look for location by reference to the "LOCATION OF PARTS-CONNECTORS". (P. 7-14)
Step 4. Go to further details of checking. (P. 7-3 ~ 7-28).
IGNITION AND STARTING CIRCUIT SYSTEM

1. Spark plug
2. Ignition coil
3. CDI unit
4. Main switch
5. Fuse
6. Battery
7. Starter switch
8. Starter relay
9. Starter motor
10. Front brake switch
11. Rear brake switch
12. Engine "stop" switch
13. Source coil
14. Pickup coil
15. Wave-shape shaping circuit
16. Condenser
17. Diode
18. SCR
19. To oil level switch

Current flow in ignition control circuit
Current flow in starter motor control circuit
INSPECTION PARTS
A Battery Inspection
1. Inspect:
   • Battery terminal
   • Battery voltage

<table>
<thead>
<tr>
<th>Tester lead (Red)</th>
<th>Tester lead (Black)</th>
<th>Battery voltage</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
<td>12 ~ 14V</td>
<td>DC20V</td>
</tr>
</tbody>
</table>

Out of specification → Recharge battery or replace the battery.
Refer to the “BATTERY INSPECTION” section in the CHAPTER 3.

B Fuse Inspection
1. Inspect:
   • Fuse for continuity
   • Fuse holder

<table>
<thead>
<tr>
<th>Tester lead (Red)</th>
<th>Tester lead (Black)</th>
<th>Continuity</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuse holder lead ①</td>
<td>Fuse holder lead ②</td>
<td>Continuous</td>
<td>Ω x 1</td>
</tr>
</tbody>
</table>

Non-continuous → Replace fuse or fuse holder.
Loose terminal → Replace fuse or fuse holder.

Amperage for Individual:
7A
Refer to the “FUSE INSPECTION” section in the CHAPTER 3.

C Starter Motor Inspection
1. Connect 12V battery to the starter motor terminals as shown.

NOTE: Use full charged battery.

CAUTION: Do not run the starter motor for more than a few seconds.
Starter motor does not run → Go on to steps 2 to 6.
2. Measure:
- Brush length (each)

Minimum Brush Length:
- 0.9 mm (0.035 in)/YAMAHA,
- 1.25 mm (0.10 in)/NIPPON DENSO

Out of specification → Replace starter motor assembly.
Damaged surface of contact with commutator → Repair.

3. Inspect:
- Commutator condition
  Damaged, worn, and bruned surface of commutator → Replace starter motor assembly.

4. Inspect:
- Armature coil for continuity.

<table>
<thead>
<tr>
<th>Tester lead (Red)</th>
<th>Tester lead (Black)</th>
<th>Continuity</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commutator</td>
<td>Commutator</td>
<td>Continuous</td>
<td>Ω x 1</td>
</tr>
<tr>
<td>Commutator</td>
<td>Iron core</td>
<td>Non-continuous</td>
<td>Ω x 1k</td>
</tr>
</tbody>
</table>

Bad condition → Replace starter motor assembly.

5. Measure:
- Commutator diameter

Outside Diameter Wear Limit:
- 14.8 mm (0.58 in)/YAMAHA
- 14.5 mm (0.57 in)/NIPPON DENSO

Out of specification → Replace starter motor assembly.

6. Measure:
- Mica undercut:
  Out of specification → Scrape mica using a hacksaw blade.

Mica Undercut:
- 1.15 mm (0.045 in)/YAMAHA
- 0.9 ~ 1.2 mm (0.035 ~ 0.047 in)/NIPPON DENSO

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

7-17
D) Starter Relay Inspection

1. Inspect:
   • Starter relay ①
     Use the jumper leads ②.
     Starter motor does not run → Go on to steps 2 and 3.

   Battery Positive Terminal → Green/Yellow.
   Battery Negative Terminal → Blue/White Terminal.

2. Disconnect:
   • Starter relay leads and connector

3. Inspect:
   • Starter relay for continuity.

<table>
<thead>
<tr>
<th>Range: Ω x 1</th>
<th>Copuller Terminals</th>
<th>Voltage applied</th>
<th>Voltage not applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester lead (Red)</td>
<td>R1</td>
<td>Continuity</td>
<td>No continuity</td>
</tr>
<tr>
<td>Tester lead (Black)</td>
<td>R2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

E) Main Switch Inspection

1. Inspect:
   • Flasher operation
     Flasher does not move → Go on to steps 2 and 3.

2. Disconnect:
   • Main switch coupler

3. Inspect:
   • Main switch for continuity.

<table>
<thead>
<tr>
<th>Terminal (Red ①)</th>
<th>Terminal (Brown ②)</th>
<th>Continuity</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal (Black/White ③)</td>
<td>Terminal (Black ④)</td>
<td>Continuous</td>
<td>Ω x 1</td>
</tr>
</tbody>
</table>

Refer to the "CHECKING OF SWITCHES" section.
Bad condition → Replace main switch.
Brake Switch Inspection
1. Disconnect:
   - Brake switch connector
2. Inspection:
   - Brake switch for continuity.

Refer to the "CHECKING OF SWITCHES" section.
Bad condition → Replace brake switch.

Starter Switch Inspection
1. Disconnect:
   - Starter switch connector
2. Inspection:
   - Starter switch for continuity.

Refer to the "CHECKING OF SWITCHES" section.
Bad condition → Replace handlebar switch (right)

Spark Plug Inspection
1. Inspect:
   - Electrode ①
     Wear/Damage → Replace spark plug.
   - Insulator ②
     Abnormal color → Replace spark plug.
2. Measure:
   - Plug gap ③
     Use a Wire Gauge or Feeler Gauge.
Spark Plug Gap:
0.6 ~ 0.7 mm (0.024 ~ 0.028 in)

Out of specification → Replace spark plug.
Refer to the "SPARK PLUG INSPECTION" section in the CHAPTER 3.

3. Measure:
   • Spark gap
     Use a Dynamic Spark Tester ①.

Minimum Spark Gap:
6 mm (0.24 in)

Meets specification → Replace spark plug.

Dynamic Spark Tester:
YM-34487

Meets specification → Replace spark plug.

Spark Plug Cap Inspection
1. Inspect:
   • Spark plug cap resistance

Spark Plug Cap Resistance:
4 ~ 6Ω at 20°C (68°F)

Out of specification → Replace spark plug cap.

NOTE:
Check the spark plug lead for any fault when fitting the spark plug cap to it. If any fault is found, cut the spark plug lead 5 mm (0.197 in) as its tip.
Ignition Coil Inspection
1. Disconnect:
   • Primary coil connector
2. Inspect:
   • Primary coil resistance

<table>
<thead>
<tr>
<th>Tester lead (Red)</th>
<th>Tester lead (Black)</th>
<th>Specified resistance</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal (Orange)</td>
<td>Terminal (Black)</td>
<td>0.56 - 0.84Ω</td>
<td>Ω x 1</td>
</tr>
</tbody>
</table>

Out of specification → Replace ignition coil.

3. Inspect:
   • Secondary coil resistance

<table>
<thead>
<tr>
<th>Tester lead (Red)</th>
<th>Tester lead (Black)</th>
<th>Specified resistance</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark plug lead</td>
<td>Terminal (Black)</td>
<td>5.68 - 8.52Ω</td>
<td>Ω x 1k</td>
</tr>
</tbody>
</table>

Out of specification → Replace ignition coil.

Source Coil Resistance Inspection
1. Disconnect:
   • Source coil connector
2. Inspect:
   • Source coil resistance

<table>
<thead>
<tr>
<th>Tester lead (Red)</th>
<th>Tester lead (Black)</th>
<th>Specified resistance</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal (Black/Red (1))</td>
<td>Terminal (Black (2))</td>
<td>640 - 960Ω</td>
<td>Ω x 100</td>
</tr>
</tbody>
</table>

Out of specification → Replace source coil.
**IGNITION AND STARTING SYSTEM**

**L** Pickup Coil Resistance Inspection
1. Disconnect:
   - Pickup coil connector
2. Inspect:
   - Pickup coil

<table>
<thead>
<tr>
<th>Tester lead (Red)</th>
<th>Tester lead (Black)</th>
<th>Specified resistance</th>
<th>Tester selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal (White/Red ①)</td>
<td>Terminal (Black ②)</td>
<td>400 - 600 Ω at 20°C (68°F)</td>
<td>Ω x 100</td>
</tr>
</tbody>
</table>

Out of specification → Replace pickup coil.

**M** "ENGINE STOP" Switch Inspection
1. Disconnect:
   - "ENGINE STOP" switch connector
2. Check the "ENGINE STOP" switch component for the continuity between "Black/White ①" and "Black ②".
   - Refer to the "CHECKING OF SWITCHES" section.
   - Bad condition → Replace handlebar switch (Right)

**N** Wire harness Inspection
1. Inspect:
   - Connection
   - Damage
     - Repair/Replace
   - Refer to the wire harness inspection, see page 7-23.

**O** CDI Unit Replacement
1. Inspect:
   - Connection
2. Replace:
   - CDI unit ①
NOTE:
- Check the continuity with the connector connected, as shown.
- For the connector shape, refer to the color wiring diagram.
The starter motor for this scooter comes in two types:

DA5AN (NIPPON DENSO)
3KJ (YAMAHA)

<table>
<thead>
<tr>
<th></th>
<th>COMUTATOR UNDER CUT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>DA5AN: 0.9 – 1.2 mm (0.035 – 0.047 in)</td>
</tr>
<tr>
<td></td>
<td>3KJ: 1.15 mm (0.045 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>COMUTATOR DIAMETER WEAR LIMIT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>DA5AN: 14.5 mm (0.57 in)</td>
</tr>
<tr>
<td></td>
<td>3KJ: 14.8 mm (0.58 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>BRUSH WEAR LIMIT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>DA5AN: 2.5 mm (0.10 in)</td>
</tr>
<tr>
<td></td>
<td>3KJ: 0.9 mm (0.035 in)</td>
</tr>
</tbody>
</table>
STARTER MOTOR CHECK

Removal

1. Remove:
   • Side cover (right)
   • Muffler assembly
   • Rear wheel
   • Starter motor

2. Remove:
   • Yoke assembly

3. Remove:
   • Armature

Assembly
Reverse the removal procedure.
Note the following points.

1. Install:
   • Brush holder assembly
2. Install:
   • Armature coil assembly

3. Install:
   • Rubber seal ①

4. Install:
   • Starter motor cover

5. Install:
   • Bolts ①

6. Install:
   • O-ring ① (new)

**NOTE:**
Apply a grease lightly.
Installation
1. Install:
   • Starter motor

13 Nm (1.3 m·kg, 9.4 ft·lb)
CHARGING SYSTEM
CIRCUIT DIAGRAM
Below circuit diagram shows charging circuit.
NOTE:
For the color codes, see page 7-2.

③ C.D.I. magneto
⑤ Rectifier/Regulator
⑧ Fuse
⑨ Battery
THE BATTERY IS NOT CHARGED.

Procedure
Check:
1. Fuse
2. Battery
3. Charge voltage
4. Charging coil resistance
5. Wiring connection
   (Entire charging system)

NOTE:
• Remove the following parts before troubleshooting.
  1) Cover/Seat/Rear carrier
  2) Tail cover/ Side cover (L, R)
• Use the following special tools in this troubleshooting.

1. Fuse
   • Remove the fuse.
   • Connect the Pocket Tester (Ω x 1) to the fuse.
   • Check the fuse for continuity.

   CONTINUITY

2. Battery
   • Check the battery condition.
   Refer to the "BATTERY INSPECTION" section in the chapter 3.

   CORRECT

Pocket Tester: YU-03112

Inductive Tachometer: YU-08036-A

NO CONTINUITY

Replace fuse.

INCOMPLETE

• Clean battery terminals.
• Recharge or replace battery
3. Charge voltage

- Connect the Engine Tachometer to spark plug lead.
- Connect the Pocket Tester (DC20V) to the battery.

**Tester (+) Lead → Battery (+) terminal**
**Tester (-) Lead → Battery (-) terminal**

- Start the engine and accelerate to about 5,000 r/min.
- Check charging voltage.

| Charging Voltage: | 14 ~ 15 at 5,000 r/min |

4. Charging coil resistance

- Disconnect the C.D.I. magneto coupler from the wire harness.
- Connect the Pocket Tester (Ω x 1) to the charging coil coupler.

**Tester (+) Lead → White ① Terminal**
**Tester (-) Lead → Black ② Terminal**

- **MEETS SPECIFICATION**
- Replace battery.

- **OUT OF SPECIFICATION**
CHARGING SYSTEM

- Check the charging coil for specified resistance.

<table>
<thead>
<tr>
<th>Charging Coil Resistance: White – Black</th>
<th>0.48 ~ 0.72Ω at 20°C (68°F)</th>
</tr>
</thead>
</table>

5. Wiring connection
- Check the entire charging system for connections.
  Refer to the "WIRING DIAGRAM" section.

OUT OF SPECIFICATION
Replace charging coil.

POOR CONNECTION
Correct.

MEETS SPECIFICATION

CORRECT
Replace rectifier/regulator.
LIGHTING SYSTEM
CIRCUIT DIAGRAM
Below circuit diagram shows lighting circuit.
NOTE:
For color codes, see page 7-2.

1. CDI magneto
2. Rectifier/Regulator
3. "LIGHTS" (dimmer) switch
4. Headlight
5. "HIGH BEAM" indicator light
6. Meter light
TROUBLESHOOTING

HEADLIGHT "HIGH BEAM" INDICATOR LIGHT
AND/OR METER LIGHT DO NOT COME ON

Procedure
Check:
1. Bulb and bulb socket (HEADLIGHT)
2. Lighting coil resistance
3. "LIGHT" (dimmer) switch
4. Wiring connection (entire lighting system)

NOTE:
• Remove the following parts before troubleshooting.
  1) Cover, Seat, Rear carrier, Tail cover, Side cover
  2) Front fender
  3) Handlebar cover (front)
• Use the following special tool in this troubleshooting.

Pocket Tester: YU-03112

1. Bulb and bulb socket (HEADLIGHT)
   • Check the bulb and bulb socket for continuity.
   Refer to the "CHECKING OF BULBS" section.

2. Lighting coil resistance
   • Disconnect the C.D.I. magneto coupler from the wire harness.
   • Connect the Pocket Tester (Ω x 1) to the lighting coil coupler.

   C.D.I. magneto

   Tester (+) Lead → Yellow/Red 1 Terminal
   Tester (−) Lead → Black 2 Terminal

   NO CONTINUITY

   Replace bulb and/or bulb socket.
• Check the lighting coil for specified resistance.

3. Lighting coil

[Diagram showing wiring connections and labels]

- Check the entire lighting system for connections.
- Refer to the "WIRING DIAGRAM" section.

Replace rectifier/regulator.
Below circuit diagram shows signal circuit.
NOTE:

For the color codes, see page 7-2.

- ① Main switch
- ② "TURN" indicator light
- ③ Fuse
- ④ Front flasher light (right)
- ⑤ Battery
- ⑥ Rear flasher light (right)
- ⑦ Tail/Brake light
- ⑧ Horn
- ⑨ Fuel meter
- ⑩ Horn switch
- ⑪ Fuel sender
- ⑫ Front brake switch
- ⑬ Flasher relay
- ⑭ Rear brake switch
- ⑮ "TURN" switch
- ⑯ Oil level gauge
- ⑰ Front flasher light (left)
- ⑱ Oil indicator light
- ⑲ Rear flasher light (left)
TROUBLESHOOTING

- Flasher light, tail/brake light, "oil" indicator light and "turn" indicator light do not come on.
- Horn does not sound.
- Fuel meter does not operate.

Procedure
Check:
1. Fuse
2. Battery
3. Main switch
4. Wiring connection (signal system)

NOTE:
- Remove the following parts before troubleshooting.
  1) Cover, Seat, Rear carrier, Side cover, Tail cover
  2) Front fender
  3) Handlebar cover (front)
- Use the following special tool in this troubleshooting.

Pocket Tester: YU-03112

1. Fuse
- Remove the fuse.
- Connect the Pocket Tester (Ω x 1) to the fuse.
- Check the fuse for continuity.

CONTINUITY

NO CONTINUITY
Replace fuse.

2. Battery
- Check the battery condition.
  Refer to the "BATTERY INSPECTION" section in the CHAPTER 3.

CORRECT

INCORRECT
- Clean battery terminals.
- Recharge or replace battery.

*
3. Main switch

- Disconnect the main switch coupler from the wire harness.
- Check the switch component for the continuity between "Red(1) and Gray(2)" and "Red(1) and Brown(3)". Refer to the "CHECKING OF SWITCHES" section.

4. Wiring connection

- Check the entire signal fpr connections. Refer to the "WIRING DIAGRAM" section.

- Check condition of each circuit for signal system. Refer to "SIGNAL SYSTEM CHECK" section.
SIGNAL SYSTEM CHECK

1. Horn does not sound.

1. “HORN” switch
- Disconnect the handlebar switch coupler from the wire harness.
- Check the switch component for the continuity between “Pink ① and Black ②”. Refer to the “CHECKING OF SWITCHES” section.

![Diagram of switch and wiring connections]

INCORRECT
Replace “HORN” switch.

CORRECT

2. Voltage
- Connect the Pocket Tester (DC20V) to the horn lead.

**Tester (+) Lead → Brown ① Lead**
**Tester (-) Lead → Frame Ground**

- Turn the main switch to “ON”.
- Check for voltage (12V) on the “Brown” lead at the horn terminal.

![Diagram of voltage testing setup]

OUT OF SPECIFICATION
Check the entire signal system for continuity.

MEETS SPECIFICATION (12V)
3. Horn
- Disconnect the "Pink" lead at the horn terminal.
- Connect a jumper lead to the horn terminal and ground the jumper lead.

4. Voltage
- Connect the Pocket Tester (DC20V) to the horn at the Pink terminal.

   Tester (+) Lead → Pink ① Lead
   Tester (−) Lead → Frame Ground

- Turn the main switch to "ON".
- Check for voltage (12V) on the "Pink" lead at the horn terminal.

HORN IS SOUNDING
Horn is good.

HORN IS NOT SOUNDING
OUT OF SPECIFICATION
Replace horn.

Adjust or replace horn.
2. Taillight does not come on.

1. Bulb and bulb socket
   - Check the bulb and bulb socket for continuity. Refer to the “CHECKING OF BULBS” section.

   **CONTINUITY**

2. Voltage
   - Connect the Pocket Tester (DC20V) to the bulb socket connector.
   - **Tester (+) Lead → Blue 1 Terminal**
   - **Tester (-) Lead → Black 2 Terminal**

   ![Diagram of wiring connection]

   - Turn the main switch to “ON”.
   - Start the engine.
   - Check for voltage (12V) on the “Blue” lead at the bulb socket connector.

   **MEETS SPECIFICATION (12V)**

This circuit is good.

3. Wiring connection
   - Check the entire signal system for connections. Refer to the “WIRING DIAGRAM” section.
3. Brake light does not come on.

1. Bulb and bulb socket
   - Check the bulb and bulb socket for continuity. Refer to the "CHECKING OF BULBS" section.

   NO CONTINUITY
   Replace bulb and/or bulb socket.

   CONTINUITY

2. Brake switch
   - Disconnect the brake switch coupler from the wire harness.
   - Check the switch component for the continuity between "Brown" ① and Green/Yellow ②.
     Refer to the "CHECKING OF SWITCHES" section.

   INCORRECT
   Replace brake switch.

   CORRECT

3. Voltage
   - Connect the Pocket Tester (DC20V) to the bulb socket connector.

   Tester (+) Lead → Green/Yellow ① Terminal
   Tester (−) Lead → Black ② Terminal

*
4. Flasher light and/or "TURN" indicator light do not blink.

1. Bulb and bulb socket
   - Check the bulb and bulb socket for continuity. Refer to the "CHECKING OF BULBS" section.

2. "TURN" switch
   - Disconnect the handlebar switch coupler from the wire harness.
   - Check the switch component for the continuity between "Brown/White ① and Chocolate②" and "Brown/White① and Dark green ③". Refer to the "CHECKING OF SWITCHES" section.

4. Wiring connection
   - Check the entire signal system for connections. Refer to the "WIRING DIAGRAM" section.

This circuit is good.

Replace bulb and/or bulb socket.

Replace handlebar switch (left).

* CORRECT
3. Voltage
- Connect the Pocket Tester (DC20V) to the flasher relay.

**Tester (+) Lead → Brown**
**Tester (-) Lead → Frame Ground**

- Turn the main switch to "ON".
- Check for voltage (12V) on the "Brown" lead at the flasher relay terminal.

OUT OF SPECIFICATION
Check the entire signal system for connections.

MEETS SPECIFICATION (12V)

4. Voltage
- Connect the Pocket Tester (DC20V) to the flasher relay.

**Tester (+) Lead → Brown/White**
**Tester (-) Lead → Frame Ground**

- Turn the main switch to "ON".
- Check for voltage (12V) on the "Brown/White" lead at the flasher relay terminal.

OUT OF SPECIFICATION
Replace flasher relay.

MEETS SPECIFICATION (12V)
5. Voltage

- Connect the Pocket Tester (DC20V) to the bulb socket connector.

<table>
<thead>
<tr>
<th>At Flasher Light (left):</th>
<th>At Flasher Light (right):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester (+) Lead → Chocolate ① Lead</td>
<td>Tester (+) Lead → Dark green ② Lead</td>
</tr>
<tr>
<td>Tester (−) Lead → Frame Ground</td>
<td>Tester (−) Lead → Frame Ground</td>
</tr>
</tbody>
</table>

- Turn the main switch to “ON”.
- Turn the “TURN” switch to “L” or “R”.
- Check for voltage (12V) on the “Chocolate” lead or “Dark green” lead at the bulb socket connector.

OUT OF SPECIFICATION

6. Wiring connection

- Check the entire signal system for connections.
Refer to the “WIRING DIAGRAM” section.

This circuit is good.
5. "OIL" indicator light does not come on.

1. Bulb and bulb socket
   - Check the bulb and bulb socket for continuity. Refer to the "CHECKING OF BULBS" section.

2. Oil level switch
   - Remove the oil level switch from the oil tank.
   - Connect the Pocket Tester (Ω x 1) to the oil level switch.

   **Tester (+) Lead → Terminal 1**
   **Tester (−) Lead → Terminal 2**

   ![Diagram of oil level switch setup]

   - Check the oil level gauge for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Upright position</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>B Upside down position</td>
<td>O</td>
<td>X</td>
</tr>
</tbody>
</table>

   O: Continuity  X: Nocontinuity

   * GOOD CONDITION

   NO CONTINUITY

   Replace bulb and/or bulb socket.

   BAD CONDITION

   Replace oil level switch.
3. Voltage
- Connect the Pocket Tester (DC20V) to the bulb socket connector.

Tester (+) Lead → Gray ① Lead
Tester (−) Lead → Frame Ground

- Turn the main switch to “×”
- Check for voltage (12V) on the “Gray” lead at bulb socket connector.

MEETS SPECIFICATION (12V)

This circuit is good.

OUT OF SPECIFICATION

4. Wiring connection
- Check the entire signal system for connections.
  Refer to the “WIRING DIAGRAM” section.
6. Fuel meter does not operate

1. Fuel sender
   - Remove the fuel sender from the fuel tank.
   - Connect the Pocket Tester (Ω x 10) to the fuel sender coupler.
   - Check the fuel sender for specified resistance.

   **Fuel Sender Resistance (Up ③):**
   4 ~ 10Ω at 20°C (68°F)
   **Fuel Sender Resistance (Down ④):**
   90 ~ 100Ω at 20°C (68°F)

2. Voltage
   - Connect the Pocket Tester (DC20V) to the fuel meter coupler.
   - Turn the main switch to “ON”.
   - Check for voltage (12V) on the “Brown” lead at the fuel meter coupler.

   **OUT OF SPECIFICATION**
   Replace fuel sender.

   **OUT OF SPECIFICATION**
   Check the entire signal system for connections.

   **BOTH MEET SPECIFICATION**
   **MEETS SPECIFICATION (12V)**
3. Fuel meter
- Move the float to "UP ①" or "DOWN ②".
- Turn the main switch to "ON".
- Check the fuel meter needle moves "F" ① or "E" ②.

**NOTE:**
Before reading the meter, stay put the float for more than three minutes respectively at "Up" or "Down".

4. Wiring connection
Check the entire signal system for connections.
Refer to the "WIRING DIAGRAM" section.

Replace fuel meter.
METER ASSEMBLY

Removal
1. Remove:
   - Handlebar cover (front and rear)
     Refer to "CHAPTER 3 – COVERS" section.
2. Remove:
   - Meter lights
   - Leads
   - Indicator lights

CAUTION:
Do not remove the indicator bulbs by pulling the leads.

Installation
Reverse the "REMOVAL" steps by noting the following points.
1. Install the meter lights and leads as shown.
   ① "OIL" indicator light leads
      (Gray and Black lead)
   ② "TURN" indicator light lead
      (Dark green and chocolate lead)
   ③ "HIGH BEAM" indicator light lead
      (Yellow and Black lead)
   ④ Meter light lead
      (Blue and Black lead)
   ⑤ Fuel meter lead (Green)
   ⑥ Fuel meter lead (Brown)
   ⑦ Fuel meter lead (Black)
AUTO CHOKE
CIRCUIT DIAGRAM
Below circuit diagram shows aut choke circuit.
NOTE:
For the color codes, see page 7-2.

③ C.D.I. magneto
⑥ Auto choke unit assembly
TROUBLE SHOOTING

AUTO CHOKE DOES NOT OPERATE.

Procedure
Check;
1. P.T.C. thermistor resistance
2. Lighting coil resistance
3. Voltage
4. Wiring connection

NOTE:
• Remove the following parts before troubleshooting.
  1) Cover, Seat, Rear carrier
  2) Side cover (left and right) Tail cover.
• Use the following special tool in this troubleshooting.

Pocket tester:
YU-03112

1. P.T.C. thermistor resistance

• Disconnect the auto choke unit coupler from the wire harness.
• Connect the pocket tester (Ω x 1) to the auto choke unit lead.

Tester (+) lead → Black ①
Tester (−) lead → Black ②

P.T.C. thermistor resistance
2 ~ 6 Ω at 20°C (68°F)

OUT OF SPECIFICATION
Replace the auto choke unit.

MEETS SPECIFICATION

7-57
2. Lighting coil resistance

- Disconnect the C.D.I. magneto coupler from wire harness
- Connect the pocket tester (Ω x 1) to the lighting coil lead.

**Tester (+) lead → Yellow/Red ① terminal**
**Tester (-) lead → Black ② terminal**

Lighting coil resistance:
0.4 ~ 0.6Ω at 20°C

3. Voltage

- Connect the pocket tester (AC20V) to the auto choke lead.

**Tester (+) lead → Yellow/Red ① terminal**
**Tester (-) lead → Black ② terminal**

- Turn the main switch to "ON".
- Start the engine and accelerate to about 3,000r/min.
- Check the voltage.

OUT OF SPECIFICATION
Replace the lighting coil.

MEETS SPECIFICATION

OUT OF SPECIFICATION

4. Wiring connection

- Check the entire auto choke unit for connection.
Refer to the "WIRING DIAGRAM" section.
<table>
<thead>
<tr>
<th>Voltage: 10V or more at 3,000r/min</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEETS SPECIFICATION</td>
</tr>
<tr>
<td>Auto choke unit is good.</td>
</tr>
</tbody>
</table>
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CY50B WIRING DIAGRAM
NOTE:
The following troubleshooting does not cover all the possible causes of trouble. It should be helpful, however, as a guide to troubleshooting. Refer to the relative procedure in this manual for inspection, adjustment and replacement of parts.

STARTING FAILURE/HARD STARTING

FUEL SYSTEM

- Fuel tank
  - Empty
  - Clogged fuel filter
  - Deteriorated fuel or fuel containing water or foreign material
  - Clogged fuel tank cap

- Fuel cock
  - Clogged fuel hose
  - Clogged Vacuum hose
  - Faulty diaphragm

- Carburetor
  - Deteriorated fuel, fuel containing water of foreign material
  - Clogged pilot jet
  - Clogged pilot air passage
  - Sucked-in air
  - Groove-worn needle valve
  - Improperly sealed valve seat
  - Improperly adjusted fuel level
  - Improperly set pilot jet
  - Clogged starter jet
  - Starter plunger malfunction
  - Improperly adjusted pilot air screw

- Air cleaner
  - Clogged air filter
STARTING FAILURE/HARD STARTING

ELECTRICAL SYSTEM

- Spark plug
  - Improper plug gap
  - Worn electrodes
  - Wire between terminals broken
  - Improper heat range
  - Faulty spark plug cap

- Ignition coil
  - Broken or shorted primary/secondary
  - Faulty spark plug lead
  - Broken body

- CDI unit system
  - Faulty C.D.I. unit
  - Faulty source coil
  - Faulty pick-up coil

- Switches and wiring
  - Faulty main switch
  - Broken or shorted wiring
  - Faulty Brake switch (front and rear)
  - Faulty starter switch
  - Faulty Engine "stop" switch

- Starter motor
  - Faulty starter motor
  - Faulty starter relay

- Auto choke unit
  - Broken or shorted wiring
  - Faulty auto choke unit
STARTING FAILURE/HARD STARTING/Poor Idle Speed Performance

**Compression System**
- Cylinder and cylinder head
  - Loose spark plug
  - Loose cylinder head
  - Broken cylinder head gasket
  - Broken cylinder gasket
  - Worn, damaged or seized cylinder

- Piston and piston rings
  - Improperly installed piston ring
  - Worn, fatigued or broken piston ring
  - Seized piston ring
  - Seized or damaged piston

- Crankcase and crankshaft
  - Improperly seated crankcase
  - Improperly sealed crankcase (damaged oil seal)
  - Seized crankshaft

- Reed valve
  - Deformed reed valve stopper
  - Improperly seated reed valve
  - Loose intake manifold
  - Broken gasket
  - Broken reed valve

POOR IDLE SPEED PERFORMANCE

**Probable Cause**
- Improperly returned starter plunger
- Clogged or loose pilot jet
- Clogged pilot air passage
- Improperly adjusted idle speed (throttle stop screw)
- Improper throttle/carburetor cable play
- Flooded carburetor
POOR MEDIUM AND HIGH SPEED PERFORMANCE

FUEL SYSTEM
- Fuel tank
  - Clogged fuel filter
  - Deteriorated fuel or fuel containing water or foreign material
  - Clogged fuel tank cap
- Fuel cock
  - Clogged fuel hose
  - Clogged vacuum hose
  - Faulty diaphragm
- Carburetor
  - Deteriorated fuel, fuel containing water or foreign material
  - Sucked-in air
  - Groove-worn needle valve
  - Improperly sealed valve seat
  - Improperly set clip position of jet needle
  - Improperly adjusted fuel level
  - Clogged or loose main jet
  - Clogged or loose main nozzle
  - Clogged main air passage
- Air cleaner
  - Clogged air filter

ELECTRICAL SYSTEM
- Spark plug
  - Improper plug gap
  - Worn electrodes
  - Wire between terminals broken
  - Improper heat range
  - Faulty spark plug cap
- CDI unit system
  - Faulty C.D.I. unit
  - Faulty source coil
  - Faulty pickup coil
- Auto choke unit
  - Broken or shorted wiring
  - Faulty auto choke unit
POOR MEDIUM AND HIGH SPEED PERFORMANCE

COMPRESSSION SYSTEM

- Cylinder and cylinder head
  - Loose spark plug
  - Broken cylinder head gasket
  - Broken cylinder gasket
  - Loose cylinder head
  - Worn, damaged or seized cylinder

- Piston and piston ring
  - Improperly installed piston ring
  - Worn, fatigued or broken piston ring
  - Seized piston ring
  - Seized or damaged piston

- Crankcase and crankshaft
  - Improperly seated crankcase
  - Improperly sealed crankcase (damaged oil seal)
  - Seized crankshaft

- Reed valve
  - Deformed reed valve stopper
  - Improperly adjusted reed valve stopper height
  - Improperly seated reed valve
  - Loose intake manifold
  - Broken gasket
  - Broken reed valve
FAULTY AUTOMATIC (V-BELT TYPE)

SCOOTER DOES NOT MOVE WHILE ENGINE IS OPERATING

<table>
<thead>
<tr>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Worn, damaged or slipped V-belt</td>
</tr>
<tr>
<td>• Worn or damaged cam plate</td>
</tr>
<tr>
<td>• Worn or damaged slider bushing</td>
</tr>
</tbody>
</table>

Primary sheave

<table>
<thead>
<tr>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Broken compression spring</td>
</tr>
<tr>
<td>• Pealed lining from clutch shoe</td>
</tr>
<tr>
<td>• Worn spline of clutch housing</td>
</tr>
</tbody>
</table>

Secondary sheave

CLUTCH-OUT FAILURE

<table>
<thead>
<tr>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Seized primary sliding sheave and collar</td>
</tr>
<tr>
<td>• Broken or fatigued clutch shoe spring</td>
</tr>
</tbody>
</table>

Primary sheave

Secondary sheave

POOR STANDING START (LOW CLIMBING ABILITY)

<table>
<thead>
<tr>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Worn or slipped V-belt</td>
</tr>
<tr>
<td>• Worn or improper operation of weight</td>
</tr>
</tbody>
</table>

Secondary sheave

<table>
<thead>
<tr>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fatigued compression spring</td>
</tr>
<tr>
<td>• Improper operation of secondary sliding sheave</td>
</tr>
</tbody>
</table>

POOR ACCELERATION (POOR HIGH SPEED)

<table>
<thead>
<tr>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Worn or greasy V-belt</td>
</tr>
<tr>
<td>• Worn or greasy clutch shoe</td>
</tr>
</tbody>
</table>

Secondary sheave

<table>
<thead>
<tr>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improper operation of secondary sliding sheave</td>
</tr>
</tbody>
</table>
IMPROPER KICKING

SLIPPING
- Kick axle assembly
  - Low tension of kick clip
  - Worn kick axle
  - Worn or damaged kick gear
  - Damaged kick clip
  - Kick clip coming off
  - Damaged kick clip stopper

- Transmission oil
  - Improper quality (low viscosity)
  - Deterioration

HARD KICKING
- Kick axle assembly
  - High tension of kick clip
  - Seized kick gear

- Cylinder, piston and piton ring
  - Damaged or seized cylinder
  - Damaged or seized piston
  - Damaged or seized piston ring

- Crankcase and crankshaft
  - Improperly seated crankcase
    - Improperly seated crankshaft
    - Damaged or seized crankshaft
    - Damaged or seized crankshaft bearing

KICK CRANK NOT RETURNING
- Kick axle assembly
  - Damaged kick return spring
  - Kick return spring coming off
  - Kick clip coming off
  - Damaged kick return spring stopper
FAULTY BRAKE

POOR BRAKING EFFECT

- Drum brake

  PROBABLE CAUSE
  • Worn brake shoe
  • Worn or rusty brake drum
  • Improperly adjusted brake free play
  • Improper brake cam lever position
  • Improper brake shoe position
  • Fatigue/Damaged return spring
  • Oily or greasy brake shoe
  • Oily or greasy brake drum
  • Broken brake cable

MALFUNCTION

  PROBABLE CAUSE
  • Bent, deformed or damaged suspension arm
  • Bent or deformed suspension pivots
  • Damaged damper spring
  • Worn or damaged collar
  • Suspension oil leakage
INSTABLE HANDLING

PROBABLE CAUSE

- Handlebar
  - Improperly installed or bent

- Steering
  - Improperly installed steering column
    - Improperly tightened ringnut
  - Bent steering column
  - Damaged ball bearing or bearing race

- Front forks
  - Broken damper spring
  - Bent or deformed suspension arm and pivots

- Tires
  - Uneven tire pressures on both sides
  - Incorrect tire pressure
  - Unevenly worn tires

- Wheels
  - Damaged bearing
  - Bent or loose wheel axle
  - Excessive wheel run-out

- Frame
  - Twisted
  - Damaged head pipe
  - Improperly installed bearing race

- Engine bracket
  - Bent or damaged

- Rear shock absorber
  - Fatigued spring
  - Oil leakage
FAULTY SIGNAL AND LIGHTING SYSTEM

HEADLIGHT DARK

- Improper bulb
- Too many electric accessories
- Hard charging (broken charging coil)
- Incorrect connection
- Improperly grounded
- Poor contacts (main or light switch)
- Bulb life expires

BULB BURNT OUT

- Improper bulb
- Improperly grounded
- Faulty main and/or light switch
- Bulb life expires

FLASHER DOES NOT LIGHT

- Improperly grounded
- Discharged battery
- Faulty "TURN" switch
- Faulty flasher relay
- Broken wireharness
- Loosely connected coupler
- Bulb burnt out
- Faulty fuse

FLASHER keeps ON

- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Bulb burnt out
**FAULTRY SIGNAL AND LIGHTING SYSTEM/ OVERHEATING**

### FLASHER WINKS SLOWER

**PROBABLE CAUSE**
- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Improper bulb
- Faulty main and/or flasher switch

### FLASHER WINKS QUICKER

**PROBABLE CAUSE**
- Improper bulb
- Faulty flasher relay

### HORN IS INOPERATIVE

**PROBABLE CAUSE**
- Faulty battery
- Faulty fuse
- Faulty main and/or horn switch
- Improperly adjusted horn
- Faulty horn
- Broken wireharness

### OVERHEATING

#### OVERHEATING

- **Ignition system**
  
  **PROBABLE CAUSE**
  - Improper spark plug gap
  - Improper spark plug heat rang
  - Improper ignition timing

- **Faulty system**
  
  **PROBABLE CAUSE**
  - Improper carburetor main jet (improper setting)
  - Clogged air cleaner element
  - Lean mixture (faulty autolube pump settings)

- **Compression system**
  
  **PROBABLE CAUSE**
  - Heavy carbon build-up

- **Cooling fan**
  
  **PROBABLE CAUSE**
  - Damaged cooling fan
  - Damaged air shrouds

- **Brake**
  
  **PROBABLE CAUSE**
  - Dragging brake