NOTICE

This manual was produced by the Yamaha Motor España S.A. primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual. Therefore, anyone who uses this book to perform maintenance and repairs on Yamaha vehicles should have a basic understanding of mechanics and the techniques to repair these types of vehicles. Repair and maintenance work attempted by anyone without this knowledge is likely to render the vehicle unsafe and unfit for use.

Yamaha Motor España S.A is continually striving to improve all of its models. Modifications and significant changes in specifications or procedures will be forwarded to all authorized Yamaha dealers and will appear in future editions of this manual where applicable.

NOTE:

Designs and specifications are subject to change without notice.

IMPORTANT MANUAL INFORMATION

Particularly important information is distinguished in this manual by the following.

⚠️ 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 motorcycle operator, a bystander or a person checking or repairing the motorcycle.

⚠️ CAUTION

A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.

NOTE:

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

This manual is intended as a handy, easy-to-read reference book for the mechanic. Comprehensive explanations of all installation, removal, disassembly, assembly, repair and check procedures are laid out with the individual steps in sequential order.

1. The manual is divided into chapters. An abbreviation and symbol in the upper right corner of each page indicate the current chapter. Refer to "SYMBOLS".

2. Each chapter is divided into sections. The current section title is shown at the top of each page, except in Chapter 3 ("PERIODIC CHECKS AND ADJUSTMENTS"), where the sub-section title(s) appears.

3. Sub-section titles appear in smaller print than the section title.

4. To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

5. Numbers are given in the order of the jobs in the exploded diagram. A circled number indicates a disassembly step.

6. Symbols indicate parts to be lubricated or replaced. Refer to "SYMBOLS".

7. A job instruction chart accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.

8. Jobs requiring more information (such as special tools and technical data) are described sequentially.
### SYMBOLS

The following symbols are not relevant to every vehicle.

Symbols ① to ⑨ indicate the subject of each chapter.

- ① General information
- ② Specifications
- ③ Periodic checks and adjustments
- ④ Chassis
- ⑤ Engine
- ⑥ Cooling system
- ⑦ Carburetor(s)
- ⑧ Electrical system
- ⑨ Troubleshooting

Symbols ⑩ to ⑭ indicate the following.

- ⑩ Serviceable with engine mounted
- ⑪ Filling fluid
- ⑫ Lubricant
- ⑬ Special tool
- ⑭ Tightening torque
- ⑮ Wear limit, clearance
- ⑯ Engine speed
- ⑰ Electrical data

Symbols ⑱ to ⑱ in the exploded diagrams indicate the types of lubricants and lubrication points.

- ⑱ Engine oil
- ⑲ Gear oil
- ⑳ Molybdenum-disulfide oil
- ⑳ Wheel-bearing grease
- ㉑ Lithium-soap-based grease
- ㉒ Molybdenum-disulfide grease

Symbols ㉓ to ㉓ in the exploded diagrams indicate the following.

- ㉓ Apply locking agent (LOCTITE®)
- ㉔ Replace the part
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL INFORMATION</td>
<td>1</td>
</tr>
<tr>
<td>SPECIFICATIONS</td>
<td>2</td>
</tr>
<tr>
<td>PERIODIC CHECKS AND ADJUSTMENTS</td>
<td>3</td>
</tr>
<tr>
<td>CHASSIS</td>
<td>4</td>
</tr>
<tr>
<td>ENGINE</td>
<td>5</td>
</tr>
<tr>
<td>COOLING SYSTEM</td>
<td>6</td>
</tr>
<tr>
<td>CARBURETOR</td>
<td>7</td>
</tr>
<tr>
<td>ELECTRICAL SYSTEM</td>
<td>8</td>
</tr>
<tr>
<td>TROUBLESHOOTING</td>
<td>9</td>
</tr>
</tbody>
</table>
CHAPTER 1
GENERAL INFORMATION

MOTORCYCLE IDENTIFICATION ......................................................1-1
  FRAME SERIAL NUMBER ..........................................................1-1
  ENGINE SERIAL NUMBER .........................................................1-1

IMPORTANT INFORMATION ............................................................1-2
  PREPARATION FOR REMOVAL ..................................................1-2
  ALL REPLACEMENT PARTS ......................................................1-2
  GASKETS, OIL SEALS AND O-RINGS ..........................................1-2
  LOCK WASHERS/PLATES AND COTTER PINS .................................1-2
  BEARINGS AND OIL SEALS .....................................................1-3
  CIRCLIP ..................................................................................1-3
  CHECKING THE CONNECTIONS ...............................................1-4

SPECIAL TOOLS ...........................................................................1-5
GENERAL INFORMATION
MOTORCYCLE IDENTIFICATION

FRAME SERIAL NUMBER
The frame IDENTIFICATION number ① is stamped onto the steering head pipe.

NOTE:
The frame serial number is used to identify the motorcycle and therefore it can be used for the enrollment in the face of the competent authority.

ENGINE SERIAL NUMBER
The engine serial number ① is stamped onto the left side of the crankcase.

NOTE:
The first three digits of this number identifies “the model; the other digits indicate the number” of production of the unit.

NOTE:
Design and specifications may change without notice.
IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Before removal and disassembly, remove all dirt, mud, dust and foreign material.
2. Use only the proper tools and cleaning equipment. Refer to the “SPECIAL TOOLS”.
3. When disassembling, always keep mated parts together. This includes gears, cylinders, pistons and other parts that have been “mated” through normal wear. Mated parts must always be reused or replaced as an assembly.
4. During disassembly, clean all of the parts and place them in trays in the order of disassembly. This will speed up assembly and allow for the correct installation of all parts.
5. Keep all parts away from any source of fire.

REPLACEMENT PARTS

Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

GASKETS, OIL SEALS AND O-RINGS

1. When overhauling the engine, replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly, properly oil all mating parts and bearings and lubricate the oil seal lips with grease.
BEARINGS AND OIL SEALS
Install bearings and oil seals so that the manufacturer’s marks or numbers are visible. When installing oil seals, lubricate the oil seal lips with a light coat of lithium-soap-based grease. Oil bearings liberally when installing, if appropriate.

2 Oil seal

CAUTION
Do not spin the bearing with compressed air because this will damage the bearing surfaces.

1 Bearing

CIRCLIPS
Before reassembly, check all circlips carefully and replace damaged or distorted circlips. Always replace piston pin clips after one use. When installing a circlip 1, make sure the sharp-edged corner 2 is positioned opposite the thrust 3 that the circlip receives.

4 Shaft
CHECKING THE CONNECTIONS

Check the leads, couplers, and connectors for stains, rust, moisture, etc.

1. Disconnect:
   • lead
   • coupler
   • connector

2. Check:
   • lead
   • coupler
   • connector
   - Moisture → Dry with an air blower.
   - Rust/stains → Connect and disconnect several times.

3. Check:
   • all connections
   - Loose connection → Connect properly.

NOTE: If the pin ① on the terminal is flattened, bend it up.

4. Connect:
   • lead
   • coupler
   • connector

NOTE: Make sure all connections are tight.

5. Check:
   • continuity
     (with the pocket tester)

   NOTE: If there is no continuity, clean the terminals.
   • When checking the wire harness, perform steps (1) to (3).
   • As a quick remedy, use a contact revitalizer available at most part stores.
The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools as this will help prevent damage caused by the use of inappropriate tools or improvised techniques. Special tools, part numbers or both may differ depending on the country. When placing an order, refer to the list provided below to avoid any mistakes.

<table>
<thead>
<tr>
<th>Tool No.</th>
<th>Tool name / Usage</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>90890-01312</td>
<td>Fuel level gauge This gauge is used to measure the fuel level in the float chamber.</td>
<td></td>
</tr>
<tr>
<td>90890-03113</td>
<td>Engine tachometer This tool is needed for detecting engine rpm.</td>
<td></td>
</tr>
<tr>
<td>90890-04086</td>
<td>Universal tool of subjection of the clutch This tool is used to immobilize the clutch during the assembly or disassembly of the blockade nut of the clutch.</td>
<td></td>
</tr>
<tr>
<td>90890-01701</td>
<td>Sheave holder This tool is used for holding the secondary sheave.</td>
<td></td>
</tr>
<tr>
<td>90890-01362</td>
<td>Flywheel puller For removing the flywheel.</td>
<td></td>
</tr>
<tr>
<td>90890-01304</td>
<td>Piston pin puller This tool is used to remove the piston pin.</td>
<td></td>
</tr>
<tr>
<td>90890-01325</td>
<td>Radiator cap tester Adaptor These tools are used for checking the cooling system.</td>
<td></td>
</tr>
<tr>
<td>Tool No.</td>
<td>Tool name / Usage</td>
<td>Illustration</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>90890-01135</td>
<td>Crankcase separation tool</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This tool is used to remove the crankshaft or separate the crankcase.</td>
<td></td>
</tr>
<tr>
<td>90890-01274 (1)</td>
<td>Crankshaft installing tool</td>
<td></td>
</tr>
<tr>
<td>-01275 (2)</td>
<td>Crankshaft pin</td>
<td></td>
</tr>
<tr>
<td>-01278 (3)</td>
<td>Adapter(M12)</td>
<td></td>
</tr>
<tr>
<td>90890-01326</td>
<td>T-Handle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This tool is used for holding the damper rod holder when removing or installing the damper rod holder.</td>
<td></td>
</tr>
<tr>
<td>90890-01367 -01381</td>
<td>Fork seal driver weight</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fork seal driver attachment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This tool is used when installing the fork seal.</td>
<td></td>
</tr>
<tr>
<td>90890-01403</td>
<td>Ring nut wrench</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This tool is used to loosen and tighten the steering ring nut.</td>
<td></td>
</tr>
<tr>
<td>90890-03112</td>
<td>Pocket tester</td>
<td></td>
</tr>
<tr>
<td></td>
<td>These instruments are invaluable for checking the electrical system.</td>
<td></td>
</tr>
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</table>
### General Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>DT125RE</th>
<th>DT125X</th>
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<tbody>
<tr>
<td>Model code</td>
<td>1D01/1D02</td>
<td>2C81</td>
</tr>
<tr>
<td>Dimensions:</td>
<td></td>
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<tr>
<td>Overall length</td>
<td>2210mm</td>
<td>2139mm</td>
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<tr>
<td>Overall width</td>
<td>795mm</td>
<td>1121mm</td>
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<tr>
<td>Overall height</td>
<td>1200mm</td>
<td>1200mm</td>
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<tr>
<td>Seat height</td>
<td>900mm</td>
<td>886mm</td>
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<tr>
<td>Wheelbase</td>
<td>1415mm</td>
<td>1396mm</td>
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<tr>
<td>Minimum ground clearance</td>
<td>300mm</td>
<td>271 mm</td>
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<tr>
<td>Minimum turning radius</td>
<td>2100mm</td>
<td>2016mm</td>
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<tr>
<td>Basic weight:</td>
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<td></td>
</tr>
<tr>
<td>With oil and full fuel tank</td>
<td>126kg</td>
<td>134 kg</td>
</tr>
<tr>
<td>Engine:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engine type:</td>
<td>2 strokes, liquid cooled</td>
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</tr>
<tr>
<td>Induction system</td>
<td>Reed valve</td>
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</tr>
<tr>
<td>Cylinder arrangement</td>
<td>Forward-inclined single cylinder</td>
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<td>Displacement</td>
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<td>Bore x Stroke</td>
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<td>Compression ratio</td>
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<tr>
<td>Maximum power</td>
<td>11kW /8000rpm</td>
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<tr>
<td>Maximum torque</td>
<td>13Nm/8000rpm</td>
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<tr>
<td>Idle speed</td>
<td>1250–1450r/min</td>
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<tr>
<td>Starting system</td>
<td>Electric starter</td>
<td></td>
</tr>
<tr>
<td>Lubrication system</td>
<td>Yamaha Autolube</td>
<td></td>
</tr>
<tr>
<td>Oil type or grade:</td>
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<td></td>
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<tr>
<td>Engine oil</td>
<td>2T motor oil (JASO grade FC)</td>
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<tr>
<td>Total amount</td>
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</tr>
<tr>
<td>Transmission oil</td>
<td>Type SE motor oil</td>
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</tr>
<tr>
<td>Periodic oil change</td>
<td>0,75L (0,79 us. qt.)</td>
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<tr>
<td>Total amount</td>
<td>0,8L (0,85 us.qt.)</td>
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<tr>
<td>Radiator capacity:</td>
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</tr>
<tr>
<td>Total amount (including all routes)</td>
<td>0,92L</td>
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<tr>
<td>Coolant reservoir capacity</td>
<td>0,30L</td>
<td></td>
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<td>Air filter:</td>
<td>Wet type element</td>
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</tr>
<tr>
<td>Fuel:</td>
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<tr>
<td>Type</td>
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<td>Fuel tank capacity:</td>
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<td></td>
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<tr>
<td>Reserve</td>
<td>1,8L</td>
<td></td>
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<tr>
<td>Carburetor:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type/quantity</td>
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<td>Manufacturer:</td>
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<td>1D01/1D02</td>
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<tr>
<td>----------------</td>
<td>-----------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Spark plug:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>BR8ES</td>
<td></td>
</tr>
<tr>
<td>Manufacturer</td>
<td>NGK</td>
<td></td>
</tr>
<tr>
<td>Spark plug gap</td>
<td>0.7<del>0.8mm (0.0276</del>0.03315in)</td>
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<tr>
<td><strong>Clutch type</strong></td>
<td>Wet, multiple disc</td>
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<tr>
<td><strong>Transmission:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary reduction system</td>
<td>Helical gear</td>
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<tr>
<td>Primary reduction ratio</td>
<td>71/22(3.227)</td>
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<tr>
<td>Secondary reduction system</td>
<td>chain drive</td>
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<tr>
<td>Secondary reduction ratio</td>
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</tr>
<tr>
<td>Transmission type</td>
<td>Constant mesh, 6 speed</td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Left foot operation</td>
<td></td>
</tr>
<tr>
<td><strong>Gear ratio:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>34/12(2.833)</td>
<td></td>
</tr>
<tr>
<td>2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>30/16(1.875)</td>
<td></td>
</tr>
<tr>
<td>3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>24/17(1.412)</td>
<td></td>
</tr>
<tr>
<td>4&lt;sup&gt;a&lt;/sup&gt;</td>
<td>24/21(1.143)</td>
<td></td>
</tr>
<tr>
<td>5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>22/23(0.957)</td>
<td></td>
</tr>
<tr>
<td>6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>18/22(0.818)</td>
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</tr>
<tr>
<td><strong>Chassis:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frame type:</td>
<td>Semi double cradle</td>
<td>Semi double cradle</td>
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<tr>
<td>Castor angle</td>
<td>27°</td>
<td>24.5°</td>
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<tr>
<td>Trail</td>
<td>107mm</td>
<td>73.1mm</td>
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<tr>
<td><strong>Tire:</strong></td>
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<td></td>
</tr>
<tr>
<td>Type</td>
<td>With tube</td>
<td>With tube</td>
</tr>
<tr>
<td>Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>80/90-21 48P</td>
<td>120/70-17 58H</td>
</tr>
<tr>
<td>Rear</td>
<td>110/80-18 58P</td>
<td>140/70-17 66H</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Michelin /T63</td>
<td>Pirelli/ Sport Demon</td>
</tr>
<tr>
<td><strong>Cold tire pressure:</strong></td>
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<td></td>
</tr>
<tr>
<td>Front 0~90kg</td>
<td>150kPa (1.5kgf/cm²)</td>
<td>180kPa (1.8kgf/cm²)</td>
</tr>
<tr>
<td>Rear 0~90kg</td>
<td>175kPa (1.75kgf/cm²)</td>
<td>200kPa (2.0kgf/cm²)</td>
</tr>
<tr>
<td>Front 90~178kg</td>
<td>175kPa (1.75kgf/cm²)</td>
<td>180kPa (1.8kgf/cm²)</td>
</tr>
<tr>
<td>Rear 90~178kg</td>
<td>200kPa (2.0kgf/cm²)</td>
<td>200kPa (2.0kgf/cm²)</td>
</tr>
<tr>
<td><strong>Off road riding:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>150kPa (1.5kgf/cm²)</td>
<td></td>
</tr>
<tr>
<td>Rear</td>
<td>175kPa(1.75kgf/cm²)</td>
<td></td>
</tr>
<tr>
<td><strong>Brakes:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front brake type</td>
<td>Single disc brake</td>
<td>Single disc brake</td>
</tr>
<tr>
<td>Front brake diameter</td>
<td>230mm diameter</td>
<td>298 mm diameter</td>
</tr>
<tr>
<td>Front brake operation</td>
<td>Right hand operation</td>
<td>Right hand operation</td>
</tr>
<tr>
<td>Rear brake type</td>
<td>Single disc brake</td>
<td>Single disc brake</td>
</tr>
<tr>
<td>Rear brake diameter</td>
<td>220mm diameter</td>
<td>220 mm diameter</td>
</tr>
<tr>
<td>Rear brake operation</td>
<td>Right foot operation</td>
<td>Right foot operation</td>
</tr>
<tr>
<td><strong>Suspensions:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>Telescopic fork</td>
<td></td>
</tr>
<tr>
<td>Rear</td>
<td>Swingarm (monocross suspension)</td>
<td></td>
</tr>
<tr>
<td><strong>Shock absorber:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>Coil-air spring/Oil damper</td>
<td></td>
</tr>
<tr>
<td>Rear</td>
<td>Coil and gas spring/Oil damper</td>
<td></td>
</tr>
</tbody>
</table>
### GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model code</th>
<th>1D01/1D02</th>
<th>2C81</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wheel travel:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front wheel travel</td>
<td>270mm (10.63in)</td>
<td>200mm (7.87in)</td>
</tr>
<tr>
<td>Rear wheel travel</td>
<td>260mm (10.24in)</td>
<td>230mm (9.05in)</td>
</tr>
<tr>
<td><strong>Electrical:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ignition system</td>
<td>CDI</td>
<td></td>
</tr>
<tr>
<td>Charging system</td>
<td>AC Magneto</td>
<td></td>
</tr>
<tr>
<td>Battery type</td>
<td>GT6B-3</td>
<td></td>
</tr>
<tr>
<td>Capacity</td>
<td>12V 6Ah</td>
<td></td>
</tr>
<tr>
<td><strong>Headlight:</strong></td>
<td>bulb type</td>
<td></td>
</tr>
<tr>
<td>Bulb wattage x quantity:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headlight</td>
<td>12V60W/55W x 1</td>
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<td>Tail/Brake light</td>
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<td>Turn signal indicator light</td>
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<tr>
<td>Front</td>
<td>12V10W x 1</td>
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<tr>
<td>Rear</td>
<td>12V10W x 1</td>
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<tr>
<td>Meter</td>
<td>LED</td>
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<td><strong>Control lights:</strong></td>
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<tr>
<td>“OIL”</td>
<td>12V3W X 1</td>
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<tr>
<td>“TURN”</td>
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<tr>
<td>“NEUTRAL”</td>
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<tr>
<td>“HIGH BEAM”</td>
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<td>“LOW BEAM”</td>
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<td><strong>Amperages:</strong></td>
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<td>Principal fuse</td>
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<td>-----------------------------</td>
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<tr>
<td><strong>Cylinder head:</strong></td>
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<tr>
<td>Warpage limit</td>
<td>* Lines indicate straightedge measurement.</td>
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<td><strong>Cylinder:</strong></td>
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<tr>
<td>Bore size</td>
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<tr>
<td>Taper limit</td>
<td>0.05mm</td>
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<td>Out of round limit</td>
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<td>***</td>
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<tr>
<td><strong>Piston:</strong></td>
<td></td>
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<tr>
<td>Piston size “D”</td>
<td>55.950~55.955</td>
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<td>Piston to cylinder clearance</td>
<td>0.045~0.050mm</td>
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<tr>
<td>Piston Offset</td>
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<tr>
<td><strong>Piston ring:</strong></td>
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<td></td>
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<tr>
<td>Type</td>
<td>Keystone</td>
<td>***</td>
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<tr>
<td>Dimensions(BxT):</td>
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<td>Top ring</td>
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<td>2nd ring</td>
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<tr>
<td>End gap (installed):</td>
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<tr>
<td>Top ring</td>
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<td>2nd ring</td>
<td>0.30~0.45mm</td>
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<td>Side clearance:</td>
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<td>Top ring</td>
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<td>2nd ring</td>
<td>0.035~0.070mm</td>
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<td>Radiator capacity (including all routes)</td>
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<tr>
<td>Reservoir tank capacity</td>
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<td>Radiator cap opening pressure</td>
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<td></td>
<td>(0.75~1.05kgf/cm²)</td>
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## GENERAL SPECIFICATIONS

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<td>Runout limit “C”</td>
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<td>Big end side clearance “D”</td>
<td>0.2–0.7mm</td>
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<td>Small end free play “E”</td>
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<td><strong>Clutch:</strong></td>
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<td>Friction plate thickness</td>
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<td>Quantity</td>
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<td>Clutch spring Free length</td>
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<td>Push rod bending limit</td>
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<td>Main axle runout limit</td>
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<tr>
<td>Drive axle runout limit</td>
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<td><strong>Carburetor:</strong></td>
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<td>ID Mark</td>
<td>1DO</td>
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<td>Main jet</td>
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<td>Air jet</td>
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<td>Jet Needle position</td>
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<tr>
<td>Needle jet</td>
<td>Q2M (#939)</td>
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<td>Pilot outlet</td>
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<tr>
<td>Pilot jet</td>
<td>#17.5</td>
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<td>Bypass1</td>
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<td>Air screw turns</td>
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<td>Valve seat size</td>
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<td>Starter jet 1</td>
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<td>Power jet</td>
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<td>Float height</td>
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<td>Fuel level</td>
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<td><strong>Air filter:</strong></td>
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<tr>
<td>Type</td>
<td>Wet element</td>
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<td>Oil type/grade</td>
<td>Foam air filter oil or</td>
<td>***</td>
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<td>SAE10W30SE</td>
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<td><strong>Reed valve:</strong></td>
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<td>Valve stopper height</td>
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<td><strong>Lubrication system:</strong></td>
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<td>Autolube pump</td>
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<td>*</td>
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<td>Minimum stroke</td>
<td>0.15–0.20mm</td>
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<tr>
<td>Maximum stroke</td>
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<tr>
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<tr>
<td>Maximum output</td>
<td>4.65–5.15cm³</td>
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<td>Pulley adjusting mark</td>
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## GENERAL SPECIFICATIONS

### CHASSIS

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<th>Item</th>
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<tbody>
<tr>
<td><strong>Model code</strong></td>
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<td>2C81</td>
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<td><strong>Front wheel:</strong></td>
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<tr>
<td>Type</td>
<td>Spoke wheels</td>
<td>Spoke wheels</td>
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<td>Rim Size</td>
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<td>Steel</td>
<td>Steel</td>
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<td>Front wheel travel:</td>
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<tr>
<td>Max. Radial wheel runout</td>
<td>1mm</td>
<td>1mm</td>
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<tr>
<td>Max. Lateral wheel runout</td>
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<td>0.5mm</td>
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<tr>
<td><strong>Rear wheel:</strong></td>
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<tr>
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<tr>
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<td>Max. Radial wheel runout</td>
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<td><strong>Front disc brake:</strong></td>
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<tr>
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<td>Brake pad lining thickness-inner</td>
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<td>Break pad lining thickness-outer</td>
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<td>Master cylinder inside diameter</td>
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<td>Caliper cylinder inside diameter</td>
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<td>DOT 4</td>
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<td><strong>Rear disc brake:</strong></td>
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<tr>
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<td>Brake pad lining thickness-inner</td>
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<tr>
<td>Master cylinder inside diameter</td>
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<td><strong>Steering system:</strong></td>
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<td>Steering type</td>
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<td><strong>Front suspension:</strong></td>
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<td>Front fork travel</td>
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<td>3.1N/mm</td>
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<td>Spring stroke K1</td>
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<td>No</td>
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<td>Quantity</td>
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## GENERAL SPECIFICATIONS

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<td><strong>Model code</strong></td>
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<td>(1.77~2.16in)</td>
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<td>Free play front lever brake</td>
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<td>Brake pedal free play</td>
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2-7
## GENERAL SPECIFICATIONS

### ELECTRICAL

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<td>Pick up coil resistance (ohm)</td>
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<td>Source coil resistance (ohm)</td>
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<td>Model/Manufacturer</td>
<td>SH629B-11/SHINDENGEN</td>
<td></td>
</tr>
<tr>
<td>No load regulated voltage</td>
<td>14.1~14.9V</td>
<td></td>
</tr>
<tr>
<td><strong>Rectifier:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectifier capacity</td>
<td>25A</td>
<td></td>
</tr>
<tr>
<td>Withstand voltage</td>
<td>200V</td>
<td></td>
</tr>
<tr>
<td><strong>Battery:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery type</td>
<td>GT6B-3</td>
<td></td>
</tr>
<tr>
<td>Battery voltage/Capacity</td>
<td>12V6Ah</td>
<td></td>
</tr>
<tr>
<td><strong>Bulbs (voltage/wattage x quantity)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headlight type</td>
<td>Bulb type</td>
<td></td>
</tr>
<tr>
<td>Headlight bulb type</td>
<td>Halogen H4</td>
<td></td>
</tr>
<tr>
<td>Headlight</td>
<td>12V60W/55Wx1</td>
<td></td>
</tr>
<tr>
<td>Auxiliary light</td>
<td>12V5Wx1</td>
<td></td>
</tr>
<tr>
<td>Brake/tail light</td>
<td>12V21W/5Wx1</td>
<td></td>
</tr>
<tr>
<td>Front flasher light</td>
<td>12V10Wx2</td>
<td></td>
</tr>
<tr>
<td>Rear flasher light</td>
<td>12V10Wx2</td>
<td></td>
</tr>
<tr>
<td>Meter light</td>
<td>LED</td>
<td></td>
</tr>
</tbody>
</table>
### GENERAL SPECIFICATIONS

**Indicator light**
- Neutral indicator light: 12V3Wx1
- Turn indicator light: 12V3Wx1
- Oil level indicator light: 12V3Wx1
- High beam indicator light: 12V3Wx1

**Starting system:**
- System type: Electric starter

**Starter motor:**
- Model/Manufacturer: 3MB / Moric
- Power output: 0.2kW
- Armature coil resistance: 0.0315~0.0385<ohm> 20°C
- Brush overal lengt: 5X7X7
- Brush spring force: 3.5
- Commutator diameter: 17.6mm
- Mica undercut (depth): 1.35mm

**Starter relay:**
- Model/Manufacturer: 1D0/JIDECO
- Amperage: 180A
- Coil resistance: 4.2 - 4.6<ohm> 20°C

**Horn:**
- Horn type: Plane
- Quantity: 1
- Model/Manufacturer: YF-12/NIKKO
- Max. Amperage: 3A
- Performance: 105~113db/2m

**Turn signal relay:**
- Relay type: Full transistor
- Model/Manufacturer: FE218BH/DENSO
- Turn signal blinking frequency: 75~95cyl/min
- Wattage: 10Wx2+3.4W

**Oil level gauge:**
- Model/Manufacturer: 3XP/ASTI

**Starting circuit cutt-off relay:**
- Model/Manufacturer: 25G/OMRON
- Coil resistance: 100<ohm>±10%

**Headlight relay:**
- Model/Manufacturer: 25G/OMRON
- Coil resistance: 100<ohm>±10%

**Side stand relay:**
- Built in cut off relay

**Thermostat switch:**
- Model/Manufacturer: 4BA/DENSO
- Temperature setting: 120±3<degree>

**Servo motor:**
- Model/Manufacturer: 3XP/MATSUSHITA

**Amperage for fuses:**
- Main fuse: 15A
- Spare fuse: 15A
CONVERSION TABLE / GENERAL TIGHTENING TORQUES SPECIFICATIONS

CONVERSION TABLE

All specification data in this manual are listed in SI and METRIC UNITS. Use this table to convert METRIC unit data to IMPERIAL unit data.

Ex.

METRIC MULTIPLIER IMPERIAL

\[
\begin{array}{c}
** \text{mm} \times 0.03937 = \text{** in} \\
2 \text{ mm} \times 0.03937 = 0.08 \text{ in}
\end{array}
\]

GENERAL TIGHTENING TORQUE SPECIFICATIONS

This chart specifies tightening torques for standard fasteners with a standard ISO thread pitch. Tightening torque specifications for special components or assemblies are provided for each chapter of this manual. To avoid warpage, tighten multi-fastener assemblies in a crisscross pattern and progressive stages until the specified tightening torque is reached. Unless otherwise specified, tightening torque specifications require clean, dry threads. Components should be at room temperature.

<table>
<thead>
<tr>
<th>Metric unit</th>
<th>Metric TO IMPERIAL</th>
<th>Multiplier</th>
<th>Imperial unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tightening Torque</td>
<td>m•kg</td>
<td>7.233</td>
<td>ft•lb</td>
</tr>
<tr>
<td></td>
<td>m•kg</td>
<td>86.794</td>
<td>in•lb</td>
</tr>
<tr>
<td></td>
<td>cm•kg</td>
<td>0.0723</td>
<td>ft•lb</td>
</tr>
<tr>
<td></td>
<td>cm•kg</td>
<td>0.8679</td>
<td>in•lb</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>2.205</td>
<td>lb</td>
</tr>
<tr>
<td></td>
<td>g</td>
<td>0.03527</td>
<td>oz</td>
</tr>
<tr>
<td>Speed</td>
<td>km/hr</td>
<td>0.6214</td>
<td>mph</td>
</tr>
<tr>
<td>Distance</td>
<td>km</td>
<td>0.6214</td>
<td>mi</td>
</tr>
<tr>
<td></td>
<td>m</td>
<td>3.281</td>
<td>ft</td>
</tr>
<tr>
<td></td>
<td>m</td>
<td>1.094</td>
<td>yd</td>
</tr>
<tr>
<td></td>
<td>cm</td>
<td>0.3937</td>
<td>in</td>
</tr>
<tr>
<td></td>
<td>mm</td>
<td>0.03937</td>
<td>in</td>
</tr>
<tr>
<td>Volume, Capacity</td>
<td>cc (cm$^3$)</td>
<td>0.03527</td>
<td>oz (IMP liq.)</td>
</tr>
<tr>
<td></td>
<td>cc (cm$^3$)</td>
<td>0.06102</td>
<td>cu•in</td>
</tr>
<tr>
<td></td>
<td>l (liter)</td>
<td>0.8799</td>
<td>qt (IMP liq.)</td>
</tr>
<tr>
<td></td>
<td>l (liter)</td>
<td>0.2199</td>
<td>gal (IMP liq.)</td>
</tr>
<tr>
<td>Misc.</td>
<td>kg/mm</td>
<td>55.997</td>
<td>lb/in</td>
</tr>
<tr>
<td></td>
<td>kg/cm$^2$</td>
<td>14.2234</td>
<td>psi (lb/in$^2$)</td>
</tr>
<tr>
<td></td>
<td>Centigrade ($^\circ$C)</td>
<td>9/5 + 32</td>
<td>Fahrenheit ($^\circ$F)</td>
</tr>
</tbody>
</table>

A: Width across flats
B: Thread diameter

<table>
<thead>
<tr>
<th>A (nut)</th>
<th>B (bolt)</th>
<th>General tightening torques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nm</td>
<td>m • kg</td>
<td></td>
</tr>
<tr>
<td>10 mm</td>
<td>6 mm</td>
<td>6 0.6</td>
</tr>
<tr>
<td>12 mm</td>
<td>8 mm</td>
<td>15 1.5</td>
</tr>
<tr>
<td>14 mm</td>
<td>10 mm</td>
<td>30 3.0</td>
</tr>
<tr>
<td>17 mm</td>
<td>12 mm</td>
<td>55 5.5</td>
</tr>
<tr>
<td>19 mm</td>
<td>14 mm</td>
<td>85 8.5</td>
</tr>
<tr>
<td>22 mm</td>
<td>16 mm</td>
<td>130 13.0</td>
</tr>
</tbody>
</table>
## TIGHTENING TORQUES
### ENGINE

<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Q'ty</th>
<th>Thread size</th>
<th>Tightening torque</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark plug</td>
<td>1</td>
<td>M14x1.25</td>
<td>20, 2,0</td>
<td></td>
</tr>
<tr>
<td>Cylinder head</td>
<td>5</td>
<td>M8x1.25</td>
<td>22, 2,2</td>
<td></td>
</tr>
<tr>
<td>Cylinder Stud bolt</td>
<td>9</td>
<td>M8x1.25</td>
<td>13, 1,3</td>
<td>LOCTITE screw glue</td>
</tr>
<tr>
<td>Cylinder Nut</td>
<td>4</td>
<td>M8x1.25</td>
<td>28, 2,8</td>
<td></td>
</tr>
<tr>
<td>Power valve holder, Valve cover Cap seal</td>
<td>6</td>
<td>M5x0.8</td>
<td>7, 0,7</td>
<td></td>
</tr>
<tr>
<td>Power valve pulley</td>
<td>6</td>
<td>M6x1.0</td>
<td>10, 1,0</td>
<td></td>
</tr>
<tr>
<td>Thermostat valve cover Screw</td>
<td>3</td>
<td>M6x1.0</td>
<td>8, 0,8</td>
<td></td>
</tr>
<tr>
<td>Housing cover Screw</td>
<td>2</td>
<td>M6x1.0</td>
<td>8, 0,8</td>
<td></td>
</tr>
<tr>
<td>Drain bolt (Housing cover)</td>
<td>1</td>
<td>M6x1.0</td>
<td>10, 1</td>
<td></td>
</tr>
<tr>
<td>Radiator Bolt</td>
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<td>M6x1.0</td>
<td>8, 0,8</td>
<td></td>
</tr>
<tr>
<td>Radiator cap stopper Screw</td>
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<td>M5x0.8</td>
<td>5, 0,5</td>
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<tr>
<td>Oil pump Screw</td>
<td>2</td>
<td>M5x0.8</td>
<td>5, 0,5</td>
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<tr>
<td>Carburetor joint</td>
<td>4</td>
<td>M6x1.0</td>
<td>8, 0,8</td>
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<tr>
<td>Air filter Screw</td>
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<td>5, 0,5</td>
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<tr>
<td>Exhaust pipe Nut</td>
<td>2</td>
<td>M8x1.25</td>
<td>18, 1,8</td>
<td>LOCTITE screw glue</td>
</tr>
<tr>
<td>Exhaust pipe Stud bolt</td>
<td>2</td>
<td>M8x1.25</td>
<td>10, 1</td>
<td></td>
</tr>
<tr>
<td>Exhaust pipe Bolt</td>
<td>3</td>
<td>M6x1.0</td>
<td>8, 0,8</td>
<td></td>
</tr>
<tr>
<td>Transmission Oil Drain Bolt</td>
<td>1</td>
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<td>15, 1,5</td>
<td></td>
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<tr>
<td>Crankcase cover (left) Screw</td>
<td>6</td>
<td>M6x1.0</td>
<td>5, 0,5</td>
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</tr>
<tr>
<td>Crankcase cover (right) Screw</td>
<td>6</td>
<td>M6x1.0</td>
<td>8, 0,8</td>
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</tr>
<tr>
<td>Oil pump Screw</td>
<td>3</td>
<td>M6x1.0</td>
<td>5, 0,5</td>
<td></td>
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<tr>
<td>Crankcase Screw</td>
<td>12</td>
<td>M6x1.0</td>
<td>8, 0,8</td>
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<tr>
<td>Oil Seal Holder Screw</td>
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<td>M8x1.25</td>
<td>16, 1,6</td>
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<tr>
<td>Cover Screw</td>
<td>2</td>
<td>M6x1.0</td>
<td>8, 0,8</td>
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<tr>
<td>Kick Crank Bass Nut</td>
<td>1</td>
<td>M12x1.0</td>
<td>70, 7</td>
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<tr>
<td>Clutch Spring</td>
<td>5</td>
<td>M5x0.8</td>
<td>6, 0,6</td>
<td></td>
</tr>
<tr>
<td>Plate cover Screw</td>
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<td>M6x1.0</td>
<td>10, 1</td>
<td></td>
</tr>
<tr>
<td>Drive Sprocket Nut</td>
<td>1</td>
<td>M16x1.0</td>
<td>60, 6</td>
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<tr>
<td>Tachometer housing Bolt</td>
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<td>M6x1.0</td>
<td>5, 0,5</td>
<td></td>
</tr>
<tr>
<td>Stopper lever Bolt</td>
<td>1</td>
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<td>14, 1,4</td>
<td>LOCTITE screw glue</td>
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<td>Shift pedal</td>
<td>1</td>
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<td>15, 1,5</td>
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<tr>
<td>Thermo unit</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Rotor Nut</td>
<td>1</td>
<td>M12x1.25</td>
<td>15, 1,5</td>
<td></td>
</tr>
<tr>
<td>Parts to be tightened</td>
<td>Thread size</td>
<td>Tightened torque</td>
<td>Remarks</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------</td>
<td>-------------</td>
<td>------------------</td>
<td>--------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Engine stay (Top) and frame</td>
<td>M10</td>
<td>30-35</td>
<td>3,0-3,5</td>
<td></td>
</tr>
<tr>
<td>Cylinder head stay (Top) and frame</td>
<td>M10</td>
<td>30-35</td>
<td>3,0-3,5</td>
<td></td>
</tr>
<tr>
<td>Bottom screw (front) engine and frame</td>
<td>M10</td>
<td>60-78</td>
<td>6,0-7,8</td>
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<tr>
<td>Bottom screw (front) engine to swingarm</td>
<td>M10</td>
<td>30-35</td>
<td>3,0-3,5</td>
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</tr>
<tr>
<td>Steering nut</td>
<td>M25</td>
<td>120-155</td>
<td>12,0-15,5</td>
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</tr>
<tr>
<td>Fuel cock lever</td>
<td>M6</td>
<td>5-8</td>
<td>0,5-0,8</td>
<td></td>
</tr>
<tr>
<td>Upper bracket and meter holder</td>
<td>M6</td>
<td>5-8</td>
<td>0,5-0,8</td>
<td></td>
</tr>
<tr>
<td>Rear bolt fuel tank to frame</td>
<td>M6</td>
<td>7,5-12</td>
<td>0,75-1,2</td>
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<tr>
<td>Footrest security pins</td>
<td>—</td>
<td></td>
<td>Completely bend</td>
<td></td>
</tr>
<tr>
<td>Front brake holder</td>
<td>M10</td>
<td>2-3</td>
<td>0,2-0,3</td>
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</tr>
<tr>
<td>Front brake pipe</td>
<td>M10</td>
<td>23-37</td>
<td>2,3-3,7</td>
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</tr>
<tr>
<td>Handlebar holder bolts to handlebars</td>
<td>M8</td>
<td>5-8</td>
<td>0,5-0,8</td>
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<tr>
<td>Main switch</td>
<td>M6</td>
<td>7-12</td>
<td>0,7-1,2</td>
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<tr>
<td>Top holder bolts to suspension tubes</td>
<td>M8</td>
<td>12-28</td>
<td>1,2-2,8</td>
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<tr>
<td>Sidestand nut</td>
<td>M8</td>
<td>20-32</td>
<td>2,0-3,2</td>
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<tr>
<td>Rear brake lever</td>
<td>M8</td>
<td>7,5-12</td>
<td>0,75-1,2</td>
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<tr>
<td>Rear master cylinder to holder</td>
<td>M6</td>
<td>7,5-12</td>
<td>0,75-1,2</td>
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<tr>
<td>Brake pipe bolt</td>
<td>M10</td>
<td>23-37</td>
<td>2,3-3,7</td>
<td></td>
</tr>
<tr>
<td>Security pin rear brake lever to pump</td>
<td>—</td>
<td></td>
<td>Completely bend</td>
<td></td>
</tr>
<tr>
<td>Pivot shaft</td>
<td>M15</td>
<td>80-100</td>
<td>8,0-10,0</td>
<td></td>
</tr>
<tr>
<td>Swingarm to connecting arm</td>
<td>M13</td>
<td>45-70</td>
<td>4,5-7,0</td>
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<tr>
<td>Connecting arm relay arm</td>
<td>M13</td>
<td>45-70</td>
<td>4,5-7,0</td>
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</tr>
<tr>
<td>Relay arm to frame</td>
<td>M13</td>
<td>45-70</td>
<td>4,5-7,0</td>
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</tr>
<tr>
<td>Damper to frame</td>
<td>M10</td>
<td>30-35</td>
<td>3,0-3,5</td>
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<tr>
<td>Damper to relay arm</td>
<td>M10</td>
<td>30-35</td>
<td>3,0-3,5</td>
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<tr>
<td>Swingarm end bolts</td>
<td>—</td>
<td>2-4</td>
<td>0,2-0,4</td>
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<tr>
<td>Driven sprocket</td>
<td>M8</td>
<td>32-37</td>
<td>3,2-3,7</td>
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<tr>
<td>Rear wheel axle nut</td>
<td>M17</td>
<td>80-100</td>
<td>8,0-10,0</td>
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<tr>
<td>Front brake caliper to outer tube</td>
<td>M10</td>
<td>31-49</td>
<td>3,1-4,9</td>
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<tr>
<td>Front wheel axle</td>
<td>M15</td>
<td>45-70</td>
<td>4,5-7,0</td>
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<tr>
<td>Exhaust to cylinder head</td>
<td>M8</td>
<td>15-20</td>
<td>1,5-2,0</td>
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<tr>
<td>Exhaust assy 1 to central exhaust pipe</td>
<td>M8</td>
<td>8-12</td>
<td>0,8-1,2</td>
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</tr>
<tr>
<td>Central exhaust pipe to muffler</td>
<td>M8</td>
<td>8-12</td>
<td>0,8-1,2</td>
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<tr>
<td>Muffler and central pipe to frame holder</td>
<td>M8</td>
<td>38-42</td>
<td>3,8-4,2</td>
<td></td>
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<tr>
<td>Clutch lever pivot nut</td>
<td>M6</td>
<td>5-8</td>
<td>0,5-0,8</td>
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</tr>
<tr>
<td>Front brake pivot lever nut</td>
<td>M6</td>
<td>5-8</td>
<td>0,5-0,8</td>
<td></td>
</tr>
<tr>
<td>Front brake lever adjusting nut</td>
<td>M6</td>
<td>5-8</td>
<td>0,5-0,8</td>
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<tr>
<td>Security nuts</td>
<td>M6</td>
<td>7,5-12</td>
<td>0,75-1,2</td>
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<td>Chain puller</td>
<td>M6</td>
<td>18-28</td>
<td>1,8-2,8</td>
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<tr>
<td>shift shaft nut</td>
<td>M6</td>
<td>8-12</td>
<td>0,8-1,2</td>
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<tr>
<td>Rear footrest holder</td>
<td>M8</td>
<td>17-22</td>
<td>1,7-2,2</td>
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<tr>
<td>Bottom bolts inner holder to tube</td>
<td>M8</td>
<td>20-25</td>
<td>2,0-2,5</td>
<td></td>
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</table>
Coolant cold (Less than 65°C (149°F))
Coolant hot (165°F (149°F) or more)
<table>
<thead>
<tr>
<th>Lubrication points (part name)</th>
<th>Lubricant Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil seal lips (All)</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>O-Rings (All)</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Bearing retainer</td>
<td></td>
</tr>
<tr>
<td>Crankshaft bearings (Left and center)</td>
<td>Apply engine oil</td>
</tr>
<tr>
<td>Needle bearings (Connecting rod)</td>
<td>Apply engine oil</td>
</tr>
<tr>
<td>Main axle bearings</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Drive axle bearings</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Push lever bearings</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Crank pins</td>
<td>Apply engine oil</td>
</tr>
<tr>
<td>Piston rings - piston pins and pistons</td>
<td>Apply engine oil</td>
</tr>
<tr>
<td>Power valve holder</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Impeller shaft (water pump)</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Warm shaft (Autolube pump)</td>
<td>Apply engine oil</td>
</tr>
<tr>
<td>Kick idle gear</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Kick axle</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Primary driven gear (clutch housing)</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Push rod</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Push lever axle</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Sliding gear (Transmission)</td>
<td>Apply molybdenum disulfide grease</td>
</tr>
<tr>
<td>Free movement gear (Transmission)</td>
<td>Apply molybdenum disulfide grease</td>
</tr>
<tr>
<td>Guide bar (Shift forks)</td>
<td>Apply gear oil</td>
</tr>
<tr>
<td>Crankcase mating surfaces</td>
<td>Yamaha bond no.4</td>
</tr>
</tbody>
</table>
## Lubrication Points and Lubricant Types

<table>
<thead>
<tr>
<th>Lubrication points (part name)</th>
<th>Lubricant Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball bearing (Steering shaft)</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Bearing (Steering shafts)</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Oil seal clutch to lever</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Clutch lever axle free play</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Throttle guide bar</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Oil seal throttle wire to guide</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Front brake lever axle free play</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Footrests free play</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Rear footrests free play (ball and axle)</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Swingarm axle to frame</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Relay arm to swingarm</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Connecting rods</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Engine holder to cylinder head</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Rear brake lever pivot</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Sidestand pivot</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Oil seal lip (front wheel)</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Front wheel axle outer surface</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Oil seal lip (rear wheel)</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
<tr>
<td>Rear wheel axle outer surface</td>
<td>Apply lightweight lithium-soap base grease</td>
</tr>
</tbody>
</table>
CABLE ROUTING

1. Clutch wire
2. Right turn signal lead
3. Left turn signal lead
4. Throttle cable
5. Indicator light wire lead
6. Meter wire lead
7. Headlight bulb wire
8. Handle wire lead (right)

A. Cover with cap after connecting wires.
B. Route the installation between lower bracket and headlight bottom holder.
C. Clamp connection wire.
CABLE ROUTING

1. Master cylinder
2. Front brake hose
3. Wire throttle
4. Clutch sw wire lead
5. SW handle wire lead (left)
6. Clip
7. A.I.S.
8. Pipe overflow
9. Pipe to air filter
10. Pipe I
11. License light wire lead
12. Oil gauge

A. Turn the hose to obtain the desired angle.
B. Route clutch wire first for the inside, after route the throttle wire.
C. Clamp handle wire lead (L).
D. Clamp handle wire lead (R).
E. Clamp pipe overflow to the frame clamp.
F. Hold hoses on chassis clamp.
G. Cover with cap after connecting wires.
H. Route brake/tail light wire through rear mudguard hole.
I. Clamp rear turning light wire (R) and tail/brake wire to frame clamp.
J. Route the following cables through the frame bracket:
   - rear turning signal wire (R), rear turning signal wire (L), tail/brake wire, license light wire.
1. Main switch wire lead
2. Pipe overflow
3. Ignition coil
4. Horn
5. Flasher relay
6. Air vent hose
7. Fuel pipe
8. Oil pipe

A. Route speedometer cable to frame guide.
B. Route pipe overflow behind engine holder.
C. Screw ground wire and rectifier with the same bolt.
D. Pipe overflow pass behind oil hose.
E. Route carburetor breather hose between rear shock absorber and swingarm.
F. Route pipe overflow between rear shock absorber and swingarm.
CABLE ROUTING

1. Front brake hose
2. Clutch wire
3. Ignition coil
4. Throttle wire
5. Therm switch
6. Sidestand switch wire lead
7. Oil hose

A. Route brake hose through the guide.
B. Clamp clutch wire.
C. Guide wire (chassis): SW handle wire lead (R), SW handle wire lead (L), clutch SW wire lead, front stop SW wire lead, wire throttle, wire clutch.
D. Insert installation clip to frame hole.
E. Route clutch wire through the guides.
F. Connect ground on the front part of the coil. Install screw and wire terminal.
G. Cover thermo-switch with cap.
H. Insert connector to frame clamp (X3).
I. Install clamp with open part to the upper side. Route pipe overflow and pipe I through clamp.
J. Route sidestand switch through brackets. The lead must have no slack at distance “X”.
K. Route oil hose through clamp under the battery.
L. Route sidestand switch through the lower part of the air filter.
CHAPTER 3
PERIODIC CHECKS AND ADJUSTMENTS

INTRODUCTION/PERIODIC MAINTENANCE/LUBRICATION .................3-1

ENGINE .................................................................3-2
  Y.P.V.S. CABLE ADJUSTMENT ........................................3-2
  IDLE SPEED ADJUSTMENT .............................................3-3
  THROTTLE CABLE FREE PLAY ADJUSTMENT ........................3-4
  CARBURETOR CABLE FREE PLAY ADJUSTMENT ......................3-5
  AUTOLUBE PUMP STROKE ADJUSTMENT ..............................3-6
  AUTOLUBE PUMP AIR BLEEDING ......................................3-6
  SPARK PLUG INSPECTION .............................................3-7
  IGNITION TIMING CHECK ............................................3-8
  ENGINE OIL LEVEL INSPECTION ....................................3-9
  TRANSMISSION OIL LEVEL INSPECTION ............................3-11
  TRANSMISSION OIL REPLACEMENT ..................................3-11
  CLUTCH ADJUSTMENT ................................................3-12
  AIR FILTER CLEANING ..............................................3-16
  CARBURETOR JOINT INSPECTION ....................................3-18
  FUEL LINE INSPECTION .............................................3-18
  CHECKING THE CRANKCASE BREATHER HOSE ......................3-18
  EXHAUST SYSTEM INSPECTION .....................................3-19
  ENGINE OIL LINE INSPECTION .....................................3-19
  COOLANT LEVEL INSPECTION ......................................3-19
  COOLANT REPLACEMENT ............................................3-20
  COOLING SYSTEM INSPECTION .....................................3-23

CHASSIS .................................................................3-24
  FRONT BRAKE ADJUSTMENT ..........................................3-24
  REAR BRAKE ADJUSTMENT ...........................................3-24
  BRAKE FLUID INSPECTION ..........................................3-25
  BRAKE PAD INSPECTION ............................................3-27
  BRAKE LIGHT SWITCH ADJUSTMENT ................................3-27
  BRAKE HOSE INSPECTION ..........................................3-28
  DRIVE CHAIN SLACK ADJUSTMENT ..................................3-28
  DRIVE CHAIN LUBRICATION .........................................3-30
  STEERING HEAD ADJUSTMENT ......................................3-30
  FRONT FORK INSPECTION .........................................3-32
  REAR SHOCK ABSORBER ADJUSTMENT ..............................3-33
  TIRE INSPECTION ..................................................3-34
  WHEEL INSPECTION ................................................3-36
  CABLE INSPECTION AND LUBRICATION .............................3-37

ELECTRICAL ...............................................................3-39
  BATTERY INSPECTION ..............................................3-39
  FUSE INSPECTION ..................................................3-42
  HEADLIGHT BULB REPLACEMENT ...................................3-43
  HEADLIGHT BEAM ADJUSTMENT ....................................3-44
## PERIODIC CHECKS AND ADJUSTMENTS

### NOTE:
- The annual checks must be performed every year, except if a kilometer-based maintenance is performed instead.
- From 30,000 km, repeat the maintenance intervals starting from 60,000 km.
- Items marked with an asterisk should be performed by a Yamaha dealer as they require special tools, data and technical skills.

<table>
<thead>
<tr>
<th>No</th>
<th>ITEM</th>
<th>CHECK OR MAINTENANCE JOB</th>
<th>ODOMETER READING ( x 1,000 km)</th>
<th>ANNUAL CHECK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>* Fue line</td>
<td>Check fuel hoses and vacuum hose for cracks or damage.</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
| 2  | Spark plug | • Check condition.  
• Clean and regap.  
• Replace. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 3  | Air filter element | • Clean.  
• Replace. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 4  | Clutch | • Check operation.  
• Adjust. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 5  | * Front brake | • Check operation and adjust brake lever free play.  
• Replace brake shoes. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 6  | * Rear brake | • Check operation, fluid level and vehicle for fluid leakage.  
• Replace brake pads. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 7  | * Brake hoses | • Check for cracks or damage.  
• Replace. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 8  | * Wheels | • Check runout, spoke tightness and for damage.  
• Tighten spokes if necessary. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 9  | * Tires | • Check tread depth and for damage.  
• Replace if necessary.  
• Check air pressure.  
• Correct if necessary. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 10 | * Wheel bearings | • Check bearing for looseness or damage. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 11 | * Swingarm | • Check operation and for excessive play.  
• Lubricate with lithium-soap-based grease. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 12 | Drive chain | • Check chain slack.  
• Make sure that the rear wheel is properly aligned.  
• Lubricate. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 13 | * Steering bearings | • Check bearing play and steering for roughness.  
• Lubricate with lithium-soap-based grease. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 14 | Chassis fasteners | • Make sure that all nuts, bolts and screws are properly tightened. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 15 | Sidestand | • Check operation.  
• Lubricate. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 16 | * Sidestand switch | • Check operation. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 17 | * Front fork | • Check operation and for oil leakage. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 18 | * Shock absorber assembly | • Check operation and shock absorber for oil leakage. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 19 | * Rear suspension relay arm and connecting arm pivoting points | • Check operation.  
• Lubricate with lithium-soap-based grease. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 20 | * Carburetor | • Check starter (choke) operation.  
• Adjust engine idling speed. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 21 | Engine oil | • Change. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 22 | Autolube pump | • Check operation.  
• Bleed if necessary. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 23 | Transmission oil | • Check oil level.  
• Change. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 24 | Cooling system | • Check coolant level and vehicle for coolant leakage.  
• Change. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
| 25 | * Throttle grip housing and cable | • Check operation and free play.  
• Adjust the throttle cable free play if necessary.  
• Lubricate the throttle grip housing and cable. | ✓  | ✓  | ✓  | ✓  | ✓  | ✓  |
Y.P.V.S. CABLE ADJUSTMENT

ENGINE

Y.P.V.S. CABLE ADJUSTMENT

1. Remove
   • pulley cover (power valve) ①

2. Turn on the main switch

NOTE

If the Y.P.V.S. Doesn’t operate, refer to the “Y.P.V.S. SYSTEM” in CHAPTER 9

3. Check
   • alignment mark ①
   Not aligned → Adjust the Y.P.V.S. Cables

4. Adjust
   • Y.P.V.S. Cables

Adjustments steps:
• Loosen both locknuts ② and turn in both adjusters ③.
• Insert a pin [fl 0,16 in.] through the aligning indent in the pulley and into the hole to lock the pulley.
• Turn both adjusters, counterclockwise so that the cable free play becomes zero mm (zero in.) with fingers.
• Turn both adjusters 1/4 turn clockwise.
• Tighten the locknuts.

Locknuts: 8 Nm (0,8 m•kg, 5,8 ft•lb)

• Turn on the main switch and check that the alignment mark is aligned.
  If not, repeat the above steps.

5. Install
   • pulley cover (Power valve) ①

Locknuts: 7 Nm (0,7 m•kg, 5,1 ft•lb)
IDLE SPEED ADJUSTMENT

1. Adjust:
• engine idle speed

ADJUSTING THE ENGINE IDLING SPEED

NOTE:
Prior to adjusting the engine idling speed, the air filter element should be clean, and the engine should have adequate compression.

1. Start the engine and let it warm up for several minutes.
2. Connect:
• engine tachometer
(onto the spark plug lead of cylinder #1)

3. Check:
• engine idling speed
Out of specification
Adjust.

4. Adjust:
• engine idling speed

a. Turn the pilot screw 1 in or out until it is lightly seated.
b. Turn the pilot screw out the specified number of turns.
c. Turn the throttle stop screw 2 in direction a or b until the specified engine idling speed is obtained.

5. Adjust:
• throttle cable free play
Refer to “ADJUSTING THE THROTTLE CABLE FREE PLAY”.

Throttle cable free play (at the flange of the throttle grip)
3 ~ 5 mm (0.11 ~ 0.18 in)
ADJUSTING THE THROTTLE CABLE FREE PLAY

NOTE:
Prior to adjusting the throttle cable free play, the engine idling speed and carburetor synchronization should be adjusted properly.

1. Check:
   • throttle cable free play
     Out of specification → Adjust.

   Throttle cable free play (at the flange of the throttle grip)
   3 ~ 5 mm (0,11 ~ 0,19 in)

2. Adjust:
   • throttle cable free play

   Handlebar side
   a. Loosen the locknut ①.
   b. Turn the adjusting nut ② in direction ① or ④ until the specified throttle cable free play is obtained.

   Direction ①  |  Throttle cable free play is increased.
   Direction ④  |  Throttle cable free play is decreased.

   c. Tighten the locknut.

   WARNING
   After adjusting the throttle cable free play, start the engine and turn the handlebar to the right or left to ensure that this does not cause the engine idling speed to change.
CARBURETOR CABLE FREE PLAY ADJUSTMENT

NOTE:

Before adjusting carburetor cable, throttle cable free play should be adjusted.

1. Pull back the adjuster cover.

2. Check:
   • carburetor cable free play @
     Out of specification → adjust

   Carburetor Cable Free Play: 1,0 mm (0,04 in)

3. Adjust:
   • Carburetor free play

   Adjustment steps:
   • Loosen the locknut ②
   • Turn the adjuster ③ in or out until the correct free play obtained.

<table>
<thead>
<tr>
<th>Turn in</th>
<th>Turn out</th>
<th>Free play is increased.</th>
<th>Free play is decreased.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• Tighten the locknuts

4. Push in the adjuster cover.
AUTOLUBE PUMP STROKE ADJUSTMENT

1. Remove:
   • Autolube pump cover

2. Adjusting mark
   Not aligned → Adjust the Autolube Pump

3. Adjust
   • Autolube pump

The adjusting marks ② and ③ has to match when the throttle cable free play ends.

Adjustment steps:
   a. Loosen the locknut
   b. Turn the adjuster until the correct adjustment is obtained
   c. Tighten the locknut.

AUTOLUBE PUMP AIR BLEEDING

NOTE:

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

1. Remove:
   • Autolube pump cover

2. Fill:
   • Oil tank

Yamaha il 2T or Air-Cooled
2 Stroke Engine Oil
AUTOLUBE PUMP AIR BLEEDING/
CHECKING THE SPARK PLUG

3. Air bled:
• pump case and/or oil pipe

Air bleeding steps
• Remove the bleed cap ①
• Start the engine.
• Keep the oil running out until air bubbles dissapear.
• Keep the engine running at about 2,000r/min for two minutes or so
• When air bubbles are expelled completely, install the bleed cap.

NOTE: Place a rag or oil pan under the autolube pump to catch the oil.

CHECKING THE SPARK PLUG
1. Disconnect:
• spark plug cap
2. Remove:
• spark plug

CAUTION
Before removing the spark plug, blow away any dirt accumulated in the spark plug well with compressed air to prevent it from falling into the cylinder.

3. Check:
• spark plug type
  Incorrect → Change.

Spark plug type (manufacturer)
BR8ES (NGK)

4. Check:
• electrode ①
  Damage/wear → Replace the spark plug.
• insulator ②
  Abnormal color → Replace the spark plug.
  Normal color is medium-to-light tan.

5. Clean:
• spark plug
  (with a spark plug cleaner or wire brush)
6. Measure:
   • spark plug gap @ (with a wire Thickness gauge)
     Out of specification → Regap.

   ![Spark plug gap 0,7-0,8mm (0,0276-0,03315in)]

7. Install:
   • spark plug

   ![Spark plug 20Nm (2,0m·kg, 14ft·lb)]

NOTE: 
Before installing the spark plug, clean the spark plug and gasket surface.

8. Connect:
   • spark plug cap

---

CHECKING THE IGNITION TIMING

NOTE: 
Prior to checking the ignition timing, check the wiring connections of the entire ignition system. Make sure all connections are tight and free of corrosion.

1. Remove:
   • crankcase cover (left)

2. Connect:
   • timing light
   • engine tachometer
     (onto the spark plug lead of cylinder #1)

   ![Timing light 90890-03141
   Engine Tachometer 90890-03113]
3. Check:
   • ignition timing

   a. Start the engine, warm it up for several minutes, and then let it run at the specified engine idling speed.

   b. Check that the stationary pointer is within the firing range on the generator rotor. Incorrect firing range → Check the ignition system.

   NOTE: The ignition timing is not adjustable.

4. Install:
   • Crankcase cover (left)

---

ENGINE OIL LEVEL INSPECTION
1. Check
   • oil level

   oil level low → Adjust sufficient oil

   Recommended oil:
   Yamaha Oil 2T or Air Cooled 2 stroke Engine Oil

   Oil Tank Capacity:
   1,3 L
**CAUTION**

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

1. “OIL” Indicator light
TRANSMISSION OIL LEVEL INSPECTION

1. Inspect:
   • transmission oil level
     Oil level low → Add sufficient oil

Transmission oil level steps:
   • Place the machine on a level surface.
   • Warm up the engine for several minutes and stop it.
   • Visually check the oil level through the level window ①.

NOTE:
   • Check the oil level just one minute after stopping the engine.
   • The oil should confirmed between maximum ② and minimum ③ marks.
   • If the oil level is lower, add sufficient oil to raise it to the proper level.

Recommended oil:
SAE10W30 Type SE Motor Oil

   • Do not add any chemical additives. Transmission oil also lubricates the clutch and additives could cause clutch slippage.
   • Be sure no foreign material enters the crankcase.

TRANSMISSION OIL REPLACEMENT

1. Warm up the engine for several minutes.
2. Place a container under the engine.
3. Remove:
   • oil filler cap ①
   • drain plug ②
     drain transmission oil.

NOTE:
Drain the transmission oil with the motorcycle slightly inclined to the right.

4. Inspect:
   • gasket (Drain plug)
   • O-Ring (oil filter cap)
     Damage → Replace
TRANSMISSION OIL REPLACEMENT/ADJUSTING THE CLUTCH CABLE FREE PLAY

5. Install:
• Drain plug

6. Fill:
• Crankcase

7. Install:
• Oil filler cap

8. Inspect:
• Oil leaks
• Oil level

NOTE: Wipe off any oil spilled on the crankcase.

ADJUSTING THE CLUTCH CABLE FREE PLAY

1. Check:
• clutch cable free play
  Out of specification → Adjust.

2. Adjust:
• clutch cable free play


Handlebar side
a. Loosen the locknut.
b. Turn the adjusting bolt in direction or until the specified clutch cable free play is obtained.

CAUTION
• Do not add any chemical additives. Transmission oil also lubricates the clutch and additives could cause clutch slippage.
• Be sure no foreign materials enters the crankcase.
ADJUSTING THE CLUTCH CABLE FREE PLAY

<table>
<thead>
<tr>
<th>Direction @</th>
<th>Clutch cable free play is increased.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction ⑥</td>
<td>Clutch cable free play is decreased.</td>
</tr>
</tbody>
</table>

NOTE: If the specified clutch cable free play cannot be obtained on the handlebar side of the cable, use the adjusting nut on the engine side.

**Engine side**

a. Loosen the locknuts ①.

b. Turn the adjusting bolt ② in direction @ or ⑥ until the specified clutch cable free play is obtained.

c. Tighten the locknuts.

**Mechanism adjustment**

1. Remove:
   - Brush guard
2. Loosen:
   - Locknuts ①
3. Turn the adjusters ②.

4. Drain:
   - Coolant
   - Refer to the “COOLANT REPLACEMENT” section.
5. Disconnect:
   - Outlet hose (radiator)
6. Remove:
   - Screw (Water outlet pipe) ①
7. Disconnect:
- Autolube pump cable
- Autolube pump hose
Refer to the “AUTOLUBE PUMP CABLE AND HOSE” section in the CHAPTER 4.

8. Drain:
- Transmission oil
Refer to the "TRANSMISSION OIL REPLACEMENT" section.

9. Remove:
- Return spring
- Bolt (master cylinder)
- Brake pedal
- Crankcase cover (Right)

10. Adjust:
- Adjuster (push rod=1)

Adjustments steps:
- Loosen the locknut
- Move the push lever toward the front with your finger until it stops.
- With the push lever in this position turn the adjuster to align the mark on the end of the push lever with the mark (protuberance) on the crankcase.
- Tighten the locknut.

11. Install:
- crankcase cover (right)
- brake pedal
- return spring

Screw (crankcase cover):
8 Nm (0,8 m • kg, 5,8 ft • lb)

Drain plug (Oil):
15 Nm (1,5 m • kg, 11 ft • lb)

Drain plug (coolant):
10 Nm (1,0 m • kg, 7,2 ft • lb)

Screw (brake pedal):
20 Nm (2,0 m • kg, 14 ft • lb)
ADJUSTING THE CLUTCH CABLE FREE PLAY

NOTE:

• When installing the crankcase cover, engage the autolube pump drive gear with its driven gear as slowly turn the autolube pump shaft.
• Tighten the screws (Crankcase cover) in stage, using a crisscross pattern.
• Before installing the brake pedal apply the lithium soap base grease to the brake pedal pivot shaft.

12. Install:
   • Gasket (Autolube pump cover) 1

13. Connect:
   • Autolube pump hoses 2
   • Autolube pump cable 3

14. Install:
   • Screw (Water outlet pipe) 1

Screw (Water outlet Pipe)
8 Nm (0,8 m • kg, 5,8 ft • lb)

15. Connect:
   • Outlet hose (Radiator)

16. Adjust:
   • Clutch cable free play
     Refer to the “Cable free play adjustment” section.”

17. Install:
   • Brush guard 1

18. Fill:
   • Crankcase
     Refer to the “TRANSMISSION OIL REPLACEMENT” section.

Recommended oil:
SAE10W30 Type SE Motor Oil
Periodic Oil Change
0,75 L

19. Fill:
   • Radiator
   • Reservoir tank (radiator)
     Refer to the “COOLANT REPLACEMENT” section.

Total amount:
0,92 L
ADJUSTING THE CLUTCH CABLE FREE PLAY/
CLEANING THE AIR FILTER ELEMENT

20. Air bleeding:
   • Autolube pump
     Refer to the “AUTOLUBE PUMP AIR BLEEDING section.

21. Install:
   • Autolube pump cover ①

**CLEANING THE AIR FILTER ELEMENT**

**NOTE:**
On the bottom of the air filter case is a check hose ①. If dust or water or both collects in this hose, clean the air filter element and air filter case.

1. Remove:
   • Side cover (left)

2. Remove:
   • air filter case cover screws ①
   • air filter assembly ①
     Slide out guide together with element

3. Clean:
   • air filter element
     (with solvent)

**WARNING**

Never use low flash point solvents, such as gasoline, to clean the air filter element. Such solvents may cause a fire or an explosion.

**NOTE:**

After cleaning, gently squeeze the air filter element to remove the excess solvent.
CAUTION
Do not twist the air filter element when squeezing it.

4. Check:
- air filter element
  Damage → Replace.

5. Apply the recommended oil to the entire surface of the air filter element and squeeze out the excess oil. The air filter element should be wet but not dripping.

![Recommended oil](SAE10W30)

6. Install:
- air filter element
- air filter element (to element guide)

NOTE: Install the washer 1 with its bent fringe upwards as shown.

- Air filter assembly.
  Slide in guide to air case.

CAUTION
Be sure to insert the element guide into the filter case with its handle 2 located close to you, and also pay attention to the seal sponge for damage.

7. Install:
- Side cover (left)
CARBURETOR JOINT INSPECTION

1. Inspect:
   • Carburetor joint ①
     Crack-damage → Replace
     Refer to the “REED VALVE” section in chapter 7 for replacement

2. Check the tightening torque of the carburetor joint securing bolts.

   Bolt (Carburetor joint)
   8 Nm (0.8 m • kg, 5.8 ft • lb)

FUEL LINE INSPECTION

1. Inspect:
   • Fuel hose ①
     Cracks-damage → replace
     Loose connection → Connect properly

CHECKING THE CRANKCASE BREATHER HOSE

1. Check:
   • Crankcase breather hose
     Cracks/damage → Replace.
     Loose connection → Connect properly.

   CAUTION

Make sure the crankcase breather hose is routed correctly.
EXHAUST SYSTEM INSPECTION

1. Inspect:
   - Gasket (exhaust pipe) ①
   - Joint (Silencer) ②
     Damage → Replace
     Exhaust gas leakage → Repair
   - Exhaust pipe ③
   - Silencer ④
     Cracked/Dent/Damage → Repair or replace

2. Tighten:
   - Exhaust pipe
   - Muffler

ENGINE OIL LINE INSPECTION

1. Remove:
   - Autolube pump cover

2. Inspect:
   - Oil hose ①
   - Oil delivery hose ②
     Cracks-damage → replace
     Loose connection → Connect properly

3. Install:
   - Autolube pump cover

COOLANT LEVEL INSPECTION

1. Place the machine in a level surface.

2. Remove:
   - Side cover (left)

3. Inspect:
   - Coolant level
     Coolant level is under “Low” level line
     ① → Add soft water (tap water).
     ② Coolant reservoir tank.
COOLANT LEVEL INSPECTION/CHANGING THE COOLANT

**WARNING**

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

**CAUTION**

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

4. Add:
   - Soft water (tap water)
     Until the coolant level reaches “FULL” level line.

<table>
<thead>
<tr>
<th>Reservoir tank capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
</tr>
<tr>
<td>0,30 L</td>
</tr>
<tr>
<td><strong>From “LOW” to “FULL” Level</strong></td>
</tr>
<tr>
<td>0,24 L</td>
</tr>
</tbody>
</table>

5. Install:
   - Side cover (Left).

**CHANGING THE COOLANT**

1. Remove:
   - side covers (left and right)
   - exhaust pipe.
2. Disconnect:
   - coolant reservoir hose ①
3. Drain:
   - coolant
     (from the coolant reservoir)
4. Remove:
   - radiator cap

**WARNING**

A hot radiator is under pressure. Therefore, do not remove the radiator cap when the engine is hot. Scalding hot fluid and steam may be blown out, which could cause serious injury. When the engine has cooled, open the radiator cap as follows:
Place a thick rag or a towel over the radia-
CHANGING THE COOLANT

1. Remove:
   • coolant drain bolt (engine) \(^1\)
     (along with the copper washer)

5. Remove:
   • coolant drain bolt (engine) \(^1\)

6. Drain:
   • coolant
     (from the engine and radiator)

7. Check:
   • copper washer \(^1\) (coolant drain bolt-engine \(^2\))

8. Install:
   • coolant drain bolt (engine)

9. Connect:
   • coolant reservoir hose

10. Fill:
    • cooling system
     (with the specified amount of the recommended coolant)

<table>
<thead>
<tr>
<th>Coolant drain bolt (engine):</th>
</tr>
</thead>
<tbody>
<tr>
<td>10Nm (1.0 m·kg, 7.2lb·ft)</td>
</tr>
</tbody>
</table>

Handling notes for coolant
Coolant is potentially harmful and should be handled with special care.

**WARNING**

- If coolant splashes in your eyes, thoroughly wash them with water and consult a doctor.
- If coolant splashes on your clothes, quickly wash it away with water and then
with soap and water.

- If coolant is swallowed, induce vomiting and get immediate medical attention.

**CAUTION**

- Adding water instead of coolant lowers the antifreeze content of the coolant. If water is used instead of coolant check, and if necessary, correct the antifreeze concentration of the coolant.
- Use only distilled water. However, if distilled water is not available, soft water may be used.
- If coolant comes into contact with painted surfaces, immediately wash them with water.
- Do not mix different types of antifreeze.

11. Install:
   - radiator cap

12. Fill:
   - coolant reservoir
     (with the recommended coolant to the maximum level mark (a))

13. Install:
   - coolant reservoir cap

14. Start the engine, warm it up for several minutes, and then stop it.

15. Check:
   - coolant level
     Refer to “CHECKING THE COOLANT LEVEL”.

**NOTE:**
Before checking the coolant level, wait a few minutes until the coolant has settled.

16. Install:
   - Exhaust pipe
   - Side covers (left and right)

**Nut 1 (Exhaust pipe):**
18 Nm (1.8 m • kg, 13 ft • lb)

**Bolt 3 (Stay):**
10 Nm (1.0 m • kg, 7.2 ft • lb)

**Screw 1 (Muffler Joint):**
10 Nm (1.0 m • kg, 7.2 ft • lb)
COOLING SYSTEM INSPECTION

1. Inspect:
   - radiator
   - inlet hose
   - outlet hose
   - water outlet pipe
     cracks-damage ➔ Replace

Refer to the “COOLING SYSTEM” section in CHAPTER 6.
ADJUSTING THE FRONT BRAKE/ADJUSTING THE REAR BRAKE

CHASSIS

ADJUSTING THE FRONT BRAKE

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

   Brake lever free play (at the end of the brake lever)
   2 ~ 5mm (0,08 ~ 0,20in)

2. Adjust:
   - brake lever free play

   Loosen the locknut.

   Turn the adjusting bolt in direction a or b until the specified brake lever free play is obtained.

   Tighten the locknut.

   WARNING
   A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. Before the vehicle is operated, the air must be removed by bleeding the brake system. Air in the brake system will considerably reduce braking performance and could result in loss of control and possibly an accident. Therefore, check and, if necessary, bleed the brake system.

   CAUTION
   After adjusting the brake lever free play, make sure there is no brake drag.

ADJUSTING THE REAR BRAKE

1. Check:
   - brake pedal position
     (distance from the top of the rider footrest to the top of the brake pedal)
     Out of specification → Adjust.

   Brake pedal position (below the top of the rider footrest)
   15 mm (0,6 in)
2. Adjust:
• brake pedal position

\[\text{Loosen the locknut } \text{(1).}\]

a. Loosen the locknut (1).
b. Turn the adjusting bolt (2) in direction (a) or (b) until the specified brake pedal position is obtained.

<table>
<thead>
<tr>
<th>Direction (a)</th>
<th>Brake pedal is raised.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction (b)</td>
<td>Brake pedal is lowered.</td>
</tr>
</tbody>
</table>

**WARNING**
After adjusting the brake pedal position, check that the end of the adjusting bolt protrudes 2 mm (0,08 in) from the bottom of the set nut.

c. Tighten the locknut.

**WARNING**
A soft or spongy feeling in the brake pedal can indicate the presence of air in the brake system. Before the vehicle is operated, the air must be removed by bleeding the brake system. Air in the brake system will considerably reduce braking performance and could result in loss of control and possibly an accident. Therefore, check and, if necessary, bleed the brake system.

**CAUTION**
After adjusting the brake pedal position, make sure there is no brake drag.

3. Adjust:
• rear brake light switch

Refer to “ADJUSTING THE REAR BRAKE LIGHT SWITCH”.

---

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CHECKING THE BRAKE FLUID LEVEL

1. Stand the motorcycle on a level surface.

**NOTE:**

• Place the motorcycle on a suitable stand.
• Make sure the motorcycle is upright.
2. Check:
• brake fluid level
  Below the minimum level mark ① → Add the recommended brake fluid to the proper level.

![Recommended brake fluid]

- **DOT 4**
- **A** Front brake
- **B** Rear brake

**WARNING**
- Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
- Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
- When refilling, be careful that water does not enter the brake fluid reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

**CAUTION**
Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilled brake fluid immediately.

**NOTE:**
In order to ensure a correct reading of the brake fluid level, make sure the top of the brake fluid reservoir is horizontal.
CHECKING THE FRONT AND REAR BRAKE PADS

The following procedure applies to all of the brake pads.

1. Remove:
   • Rubber plug

2. Operate the brake.

3. Check:
   • front brake pad
   • rear brake pad

Wear indicators ① almost touch the brake disc → Replace the brake pads as a set.

Refer to “REPLACING THE FRONT BRAKE PADS” and “REPLACING THE REAR BRAKE PADS” in chapter 4.

4. Install:
   • Rubber plug.

ADJUSTING THE REAR BRAKE LIGHT SWITCH

NOTE: ________________

The rear brake light switch is operated by movement of the brake pedal.
The rear brake light switch is properly adjusted when the brake light comes on just before the braking effect starts.

1. Check:
   • rear brake light operation timing
     Incorrect → Adjust.

2. Adjust:
   • rear brake light operation timing

a. Hold the main body ① of the rear brake light switch so that it does not rotate and turn the adjusting nut ② in direction ③ or ④ until the rear brake light comes on at the proper time.

| Direction ③ | Brake light comes on sooner. |
| Direction ④ | Brake light comes on later. |

~~~~~~~~~~~~~~~~~~~~~~~~~

FRONT

REAR

A Front brake
B Rear brake
CHECKING THE FRONT AND REAR BRAKE HOSES

The following procedure applies to all of the brake hoses and brake hose clamps.

1. Check:
   • brake hose
     Cracks/damage/wear → Replace.

2. Check:
   • brake hose clamp
     Loose → Tighten the clamp bolt.

3. Hold the motorcycle upright and apply the brake several times.

4. Check:
   • brake hose
     Brake fluid leakage → Replace the damaged hose.
     Refer to “FRONT AND REAR BRAKES” in chapter 4.

ADJUSTING THE DRIVE CHAIN SLACK

NOTE: __________________________
The drive chain slack must be checked at the tightest point on the chain.

CAUTION __________________________
A drive chain that is too tight will overload the engine and other vital parts, and one that is too loose can skip and damage the swingarm or cause an accident. Therefore, keep the drive chain slack within the specified limits.

1. Stand the motorcycle on a level surface.

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

NOTE: __________________________
Both wheels should be on the ground without a rider on the motorcycle.

2. Move the rear wheel several times and find the tightest position of drive chain.
3. Check:
- drive chain slack @
  Out of specification → Adjust.

4. Remove:
- cotter pin

5. Loosen:
- wheel axle nut ①

6. Adjust:
- drive chain slack

   a. Loosen both locknuts.
   b. Turn both adjusters ② in direction @ or ⑤ until the specified drive chain slack is obtained.

   Drive chain slack
   - 25 ~ 40 mm
     (0.9842 ~ 1.5748 in) DT125X
   - 45 ~ 55 mm
     (1.7716 ~ 2.1653 in) DT125RE

   NOTE:
   • To maintain the proper wheel alignment, adjust both sides evenly.
   • Push the rear wheel forward to make sure there is no clearance between the swingarm end plates and the ends of the swingarm.

   c. Tighten the wheel axle nut to specification.

   Wheel axle nut
   - 90 Nm (9.0 m-kg, 65 ft-lb)

   d. Tighten the locknuts to specification.

7. Install:
- cotter pin

   WARNING
   Always use a new cotter pin.

   CAUTION
   Do not loosen the wheel axle nut after tightening it to the specified torque. If the groove in the wheel axle nut is not aligned with the cotter pin hole in the wheel axle, tighten the nut further until they are aligned.
LUBRICATING THE DRIVE CHAIN

The drive chain consists of many interacting parts. If the drive chain is not maintained properly, it will wear out quickly. Therefore, the drive chain should be serviced, especially when the motorcycle is used in dusty areas. This motorcycle has a drive chain with small rubber O-rings between each side plate. Steam cleaning, high-pressure washing, certain solvents, and the use of a coarse brush can damage these O-rings. Therefore, use only kerosene to clean the drive chain. Wipe the drive chain dry and thoroughly lubricate it with engine oil or chain lubricant that is suitable for O-ring chains. Do not use any other lubricants on the drive chain since they may contain solvents that could damage the O-rings.

Recommended lubricant
Engine oil or chain lubricant suitable for O-ring chains

CHECKING AND ADJUSTING THE STEERING HEAD

1. Stand the motorcycle on a level surface.

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

NOTE:
Place the motorcycle on a suitable stand so that the front wheel is elevated.

2. Check:
- steering head
  Grasp the bottom of the front fork legs and gently rock the front fork.
  Binding/looseness ➔ Adjust the steering head.

3. Remove:
- side covers, seat, fuel tank, main switch protector.
  Remove handlebar from its position.
  Remove handle crown.

4. Adjust:
- steering head
CHEEKING AND ADJUSTING THE STEERING HEAD

a. Remove the lock washer ①, the upper ring nut ②, and the rubber washer ③.
b. Loosen the lower ring nut ④ and then tighten it to specification with a steering nut wrench.

c. Loosen the lower ring nut ④ completely, then tighten it to specification.

**WARNING**
Do not overtighten the lower ring nut.

d. Check the steering head for looseness or binding by turning the front fork all the way in both directions. If any binding is felt, remove the lower bracket and check the upper and lower bearings. Refer to “STEERING HEAD” in chapter 4.
e. Install the rubber washer ③.
f. Install the upper ring nut ②.
g. Finger tighten the upper ring nut ②, then align the slots of both ring nuts. If necessary, hold the lower ring nut and tighten the upper ring nut until their slots are aligned.
h. Install the lock washer ①.

**NOTE:**
Make sure the lock washer tabs sit correctly in the ring nut slots.

5. Install:
- Install handle crown
- Install Handlebars
- Install side covers, seat, fuel tank, main switch protector.

**Nut Cap**
120 ~ 155 Nm (12.0 ~ 15.5 m•kg, 85.3 ~ 110.1 ft•lb)
6. Measure:
• steering head tension

NOTE: ______________________________________
Make sure all of the cables and wires are properly routed.

a. Point the front wheel straight ahead.
b. Install a plastic locking tie loosely around the end of the handlebar as shown.
c. Hook a spring gauge onto the plastic locking tie.
d. Hold the spring gauge at a 90° angle from the handlebar, pull the spring gauge, and then record the measurement when the handlebar starts to run.

e. Repeat the above procedure on the opposite handlebar.
f. If the steering head tension is out of specification (both handlebars should be within specification), remove the upper bracket and loosen or tighten the upper ring nut.
g. Reinstall the upper bracket and measure the steering head tension again as described above.
h. Repeat the above procedure until the steering head tension is within specification.
i. Grasp the bottom of the front fork legs and gently rock the front fork.
Binding/looseness → Adjust the steering head.

<table>
<thead>
<tr>
<th>Steering head tension</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 ~ 250 g</td>
</tr>
</tbody>
</table>

CHECKING THE FRONT FORK
1. Stand the motorcycle on a level surface.

**WARNING**

Securely support the motorcycle so that there is no danger of it falling over.
2. Check:
- inner tube
  Damage/scratches → Replace.
- oil seal
  Oil leakage → Replace.

3. Hold the motorcycle upright and apply the front brake.

4. Check:
- front fork operation
  Push down hard on the handlebar several times and check if the front fork rebounds smoothly.
  Rough movement → Repair.
  Refer to “FRONT FORK” in chapter 4.

---

**ADJUSTING THE REAR SHOCK ABSORBER ASSEMBLY**

**WARNING**

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

**CAUTION**

Never go beyond the maximum or minimum adjustment positions.

1. Adjust:
- loosen the locknut
- adjust the spring preload

\[ \begin{align*}
&\text{a. Adjust the spring preload with a ring nut wrench.} \\
&\text{b. Turn the adjusting ring in direction } a \text{ or } b.
\end{align*} \]

<table>
<thead>
<tr>
<th>Direction</th>
<th>Spring preload is increased (suspension is harder)</th>
<th>Spring preload is decreased (suspension is softer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>@</td>
<td></td>
<td></td>
</tr>
<tr>
<td>@</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adjusting positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
</tr>
</tbody>
</table>

---
ADJUSTING THE REAR SHOCK ABSORBER ASSEMBLY/CHECKING THE TIRES

2. Tighten:
   • Tighten the locknut

CHECKING THE TIRES
The following procedure applies to both of the tires.

1. Check:
   • tire pressure
     Out of specification ➔ Regulate.

WARNING
• The tire pressure should only be checked and regulated when the tire temperature equals the ambient air temperature.
• The tire pressure and the suspension must be adjusted according to the total weight (including cargo, rider, passenger and accessories) and the anticipated riding speed.
• Operation of an overloaded motorcycle could cause tire damage, an accident or an injury.
NEVER OVERLOAD THE MOTORCYCLE.

Tire air pressure (measured on cold tires):

**DT125R**
- Up to 90 kg (198 lb):
  - Front: 150 kPa (21.8 psi) (1.5 kgf/cm²)
  - Rear: 175 kPa (25.4 psi) (1.75 kgf/cm²)
- 90 kg (198 lb) to maximum load:
  - Front: 175 kPa (25.4 psi) (1.75 kgf/cm²)
  - Rear: 200 kPa (28.9 psi) (2 kgf/cm²)

**Maximum load**: 178 kg (392 lb)

**DT125X**
- Up to 90 kg (198 lb):
  - Front: 180 kPa (26.1 psi) (1.8 kgf/cm²)
  - Rear: 200 kPa (28.9 psi) (2 kgf/cm²)
- 90 kg (198 lb) to maximum load:
  - Front: 180 kPa (26.1 psi) (1.8 kgf/cm²)
  - Rear: 200 kPa (28.9 psi) (2 kgf/cm²)

**Maximum load**: 180 kg (396 lb)

* Total weight of rider, passenger, cargo and accessories
**WARNING**

It is dangerous to ride with a worn-out tire. When the tire tread reaches the wear limit, replace the tire immediately.

---

2. Check:

- tire surfaces
  - Damage/wear → Replace the tire.

<table>
<thead>
<tr>
<th>Minimum tire tread depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6 mm (0.04 in)</td>
</tr>
</tbody>
</table>

---

**WARNING**

- Do not use a tubeless tire on a wheel designed only for tube tires to avoid tire failure and personal injury from sudden deflation.
- When using tube tires, be sure to install the correct tube.
- Always replace a new tube tire and a new tube as a set.
- To avoid pinching the tube, make sure the wheel rim band and tube are centered in the wheel groove.
- Patching a punctured tube is not recommended. If it is absolutely necessary to do so, use great care and replace the tube as soon as possible with a good quality replacement.

---

<table>
<thead>
<tr>
<th>Tube wheel</th>
<th>Tube tire only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tubeless wheel</td>
<td>Tube or tubeless tire</td>
</tr>
</tbody>
</table>

---

**WARNING**

- After extensive tests, the tires listed below have been approved by Yamaha Motor España, S.A. for this model. The front and rear tires should always be by the same manufacturer and of the same design. No guarantee concerning handling characteristics can be given if a tire combination other than one approved by Yamaha is used on this motorcycle.
WARNING

- New tires have a relatively low grip on the road surface until they have been slightly worn. Therefore, approximately 100 km should be traveled at normal speed before any high-speed riding is done.
- After a tire has been repaired or replaced, be sure to tighten the tire air valve stem nut ① and locknut ② to specification.

**Tire air valve stem (front wheel only)**
Valve stem lock nut  
1.5 Nm (0.15 m•kg, 1.1 ft•lb)

**CHECKING AND TIGHTENING THE SPOKES**
The following procedure applies to all of the spokes.

1. Check:
   - spoke ①
     - Bends/damage ➔ Replace.
     - Loose ➔ Tighten.
     - Tap the spokes with a screwdriver.

**NOTE:**
A tight spoke will emit a clear, ringing tone; a loose spoke will sound flat.
2. Tighten:
   • spoke
     (with a spoke wrench)

   2–3.5 Nm (0.2–0.35 m•kg,
   1.42–2.49 ft•lb)

   NOTE: _____________________________
   Be sure to tighten the spokes before and after break-in.

CHECKING AND LUBRICATING THE CABLES

The following procedure applies to all of the inner and outer cables.

WARNING _____________________________

Damaged outer cable may cause the cable to corrode and interfere with its movement. Replace damaged outer cable and inner cables as soon as possible.

1. Check:
   • outer cable
     Damage → Replace.

2. Check:
   • cable operation
     Rough movement → Lubricate.

   Recommended lubricant
   SAE 10W30 Motor Oil

NOTE: _____________________________

Hold the cable end upright and pour a few drops of lubricant into the cable sheath or use a suitable lubricating device.
LUBRICATING THE LEVERS AND PEDALS
Lubricate the pivoting point and metal-to-metal moving parts of the levers and pedals.

Recommended lubricant
SAE 10W30 Motor Oil

LUBRICATING THE SIDESTAND
Lubricate the pivoting point and metal-to-metal moving parts of the sidestand.

Recommended lubricant
SAE 10W30 Motor Oil

LUBRICATING THE REAR SUSPENSION
Lubricate the pivoting point and metal-to-metal moving parts of the rear suspension.

Recommended lubricant
Molybdenum disulfide grease
ELECTRICAL SYSTEM

CHECKING AND CHARGING THE BATTERY

**WARNING**

Batteries generate explosive hydrogen gas and contain electrolyte which is made of poisonous and highly caustic sulfuric acid. Therefore, always follow these preventive measures:

- Wear protective eye gear when handling or working near batteries.
- Charge batteries in a well-ventilated area.
- Keep batteries away from fire, sparks or open flames (e.g., welding equipment, lighted cigarettes).
- DO NOT SMOKE when charging or handling batteries.
- KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.
- Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.

**FIRST AID IN CASE OF BODILY CONTACT:**

**EXTERNAL**

- Skin ⬠ Wash with water.
- Eyes ⬠ Flush with water for 15 minutes and get immediate medical attention.

**INTERNAL**

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

**CAUTION**

- This is a sealed battery. Never remove the sealing caps because the balance between cells will not be maintained and battery performance will deteriorate.
- Charging time, charging amperage and charging voltage for an MF battery are different from those of conventional batteries. The MF battery should be charged as explained in the charging method illustrations. If the battery is overcharged, the electrolyte level will drop considerably. Therefore, take special care when charging the battery.
CHECKING AND CHARGING THE BATTERY

NOTE: Since MF batteries are sealed, it is not possible to check the charge state of the battery by measuring the specific gravity of the electrolyte. Therefore, the charge of the battery has to be checked by measuring the voltage at the battery terminals.

1. Remove:
   • Rear side cover (right)
   • Battery cover
2. Disconnect:
   • battery leads
     (from the battery terminals)

CAUTION

First, disconnect the negative battery lead ①, and then the positive battery lead ②.

3. Remove:
   • battery

4. Check:
   • battery charge

     a. Connect a pocket tester to the battery terminals.

Positive tester probe → positive battery terminal.
Negative tester probe → negative battery terminal.

NOTE: The charge state of an MF battery can be checked by measuring its open-circuit voltage (i.e., the voltage when the positive battery terminal is disconnected).

   • No charging is necessary when the open-circuit voltage equals or exceeds 12.8 V.

b. Check the charge of the battery, as shown in the charts and the following example.

Example

   c. Open-circuit voltage = 12.0 V
   d. Charging time = 6.5 hours
   e. Charge of the battery = 20 ~ 30%

5. Charge:
   • battery
WARNING

Do not quick charge a battery.

CAUTION

• Never remove the MF battery sealing caps.
• Do not use a high-rate battery charger since it forces a high-amperage current into the battery quickly and can cause battery overheating and battery plate damage.
• If it is impossible to regulate the charging current on the battery charger, be careful not to overcharge the battery.
• When charging a battery, be sure to remove it from the motorcycle. (If charging has to be done with the battery mounted on the motorcycle, disconnect the negative battery lead from the battery terminal.)
• To reduce the chance of sparks, do not plug in the battery charger until the battery charger leads are connected to the battery.
• Before removing the battery charger lead clips from the battery terminals, be sure to turn off the battery charger.
• Make sure the battery charger lead clips are in full contact with the battery terminal and that they are not shorted. A corroded battery charger lead clip may generate heat in the contact area and a weak clip spring may cause sparks.
• If the battery becomes hot to the touch at any time during the charging process, disconnect the battery charger and let the battery cool before reconnecting it. Hot batteries can explode!
• As shown in the following illustration, the open-circuit voltage of an MF battery stabilizes about 30 minutes after charging has been completed. Therefore, wait 30 minutes after charging is completed before measuring the open-circuit voltage.

Charging method using a variable-current (voltage) charger

Charging method using a constant voltage charger

6. Install:
   • battery

7. Connect:
   • battery leads
     (to the battery terminals)
CHECKING AND CHARGING THE BATTERY/
CHECKING THE FUSES

CAUTION
First, connect the positive battery lead ①, and then the negative battery lead ②.

8. Check:
   • battery terminals
   Dirt → Clean with a wire brush.
   Loose connection → Connect properly.

9. Lubricate:
   • battery terminals

<table>
<thead>
<tr>
<th>Recommended lubricant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dielectric grease</td>
</tr>
</tbody>
</table>

10. Install:
   • Battery cover
   • Rear side cover (right)

CHECKING THE FUSES
The following procedure applies to all of the fuses.

CAUTION
To avoid a short circuit, always set the main switch to “OFF” when checking or replacing a fuse.

1. Remove:
   • Rear side cover (right)

2. Check:
   • fuse

a. Connect the pocket tester to the fuse and check the continuity.

NOTE:
Set the pocket tester selector to “<OHM> <MLT> 1”.

Pocket tester
90890-03112

b. If the pocket tester indicates “<INF>”, replace the fuse.
3. Replace:
   • blown fuse

   a. Set the main switch to “OFF”.
   b. Install a new fuse of the correct amperage rating.
   c. Set on the switches to verify if the electrical circuit is operational.
   d. If the fuse immediately blows again, check the electrical circuit.

<table>
<thead>
<tr>
<th>Fuses</th>
<th>Amperage rating</th>
<th>Q'ty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>15A</td>
<td>1</td>
</tr>
<tr>
<td>Reserve</td>
<td>15A</td>
<td>1</td>
</tr>
</tbody>
</table>

**WARNING**

Never use a fuse with an amperage rating other than that specified. Improvising or using a fuse with the wrong amperage rating may cause extensive damage to the electrical system, cause the lighting and ignition systems to malfunction and could possibly cause a fire.

4. Install:
   • Rear side cover (right).

---

**REPLACING THE HEADLIGHT BULB**

1. Remove front cowling
2. Disconnect:
   • Couplers
3. Remove headlight bulb cover
4. Remove the headlight bulb holder according to the drawing, then remove the defective bulb

**WARNING**

Since the headlight bulb gets extremely hot, keep flammable products and your hands away from the bulb until it has cooled down.
5. Install:
• headlight bulb
  Secure the new headlight bulb with the headlight bulb holder.

**CAUTION**
Avoid touching the glass part of the headlight bulb to keep it free from oil, otherwise the transparency of the glass, the life of the bulb and the luminous flux will be adversely affected. If the headlight bulb gets soiled, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.

6. Install:
• headlight bulb holder
7. Install:
• headlight bulb cover
8. Connect:
• Front cowling

**ADJUSTING THE HEADLIGHT BEAM**
1. Adjust:
   • headlight beam (vertically)
   a. Loosen screws ① and ②
   b. Adjust the headlight vertically
   c. Tighten screw ① and ②
# CHAPTER 4
## CHASSIS

### FRONT WHEEL
- REMOVAL ................................................................. 4-1-1
- INSPECTION ............................................................ 4-2
- INSTALLATION ......................................................... 4-3

### REAR WHEEL
- REMOVAL ................................................................. 4-7
- INSPECTION ............................................................ 4-8
- INSTALLATION ......................................................... 4-9

### FRONT AND REAR BRAKE
- BRAKE PAD REPLACEMENT ........................................... 4-11
- CALIPER DISASSEMBLY ............................................... 4-13
- MASTER CYLINDER DISASSEMBLY ................................. 4-18
- INSPECTION AND REPAIR .......................................... 4-19
- ASSEMBLY ............................................................... 4-23
- AIR BLEEDING .......................................................... 4-35

### FRONT FORK
- REMOVAL ................................................................. 4-37
- DISASSEMBLY .......................................................... 4-38
- INSPECTION ............................................................ 4-38
- ASSEMBLY ............................................................... 4-40

### STEERING HEAD AND HANDLEBAR
- REMOVAL ................................................................. 4-45
- INSPECTION ............................................................ 4-46
- INSTALLATION ......................................................... 4-49

### REAR SHOCK ABSORBER AND SWINGARM
- HANDLING NOTES ....................................................... 4-55
- NOTES ON DISPOSAL .................................................. 4-57
- REMOVAL ................................................................. 4-57
- INSPECTION ............................................................ 4-62
- SIDE CLEARANCE ADJUSTMENT ................................. 4-62
- INSTALLATION ......................................................... 4-64

### DRIVE CHAIN AND SPROCKETS
- REMOVAL ................................................................. 4-66
- INSPECTION ............................................................ 4-67
- INSTALLATION ......................................................... 4-68
FRONT WHEEL

CHASSIS

FRONT WHEEL

1. Hub
2. Bearing
3. Collar
4. Oil Seal
5. Rim
6. Spoke
7. Cap
8. Collar
9. Dust cover
10. Wheel axle
11. Cap
12. Gear unit (speedometer)

<table>
<thead>
<tr>
<th>Basic weight:</th>
<th>DT125RE</th>
<th>DT125X</th>
</tr>
</thead>
<tbody>
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<td>With oil and full tank</td>
<td>126 kg</td>
<td>134 kg</td>
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<th>Maximum load*</th>
<th>178 kg (392 lb)</th>
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Cold tire pressure

<table>
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<tr>
<th>Up to 90 Kg (198 lb) load*</th>
<th>150kPa (1.5kgf/cm²) (21.8psi)</th>
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<tr>
<td>90kg (198lb)–Maximum load</td>
<td>175kPa (1.75kgf/cm²) (25.4psi)</td>
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<tr>
<td>Off-road riding</td>
<td>150kPa (1.5kgf/cm²) (21.8psi)</td>
<td>—</td>
</tr>
</tbody>
</table>

DT125RE

- Tire Size: 80/90-21 48P
- Rim Size: 21x1.60
- Rim Runout Limit:
  - Vertical: 1.0 mm (0.08 in)
  - Lateral: 0.5 mm (0.02 in)

DT125X

- Tire Size: 120/70/17 58H
- Rim Size: 17x3.00
- Rim Runout Limit:
  - Vertical: 1.0 mm (0.08 in)
  - Lateral: 0.5 mm (0.02 in)

58 Nm (5.8 m * kg, 42ft•lb)
1. Stand the motorcycle on a level surface.

**WARNING**

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

**NOTE:**

Place the motorcycle on a suitable stand so that the front wheel is elevated.

2. Remove:
   - Cable holder (speedometer) ①

3. Disconnect:
   - Speedometer cable ②

4. Loosen:
   - Nuts (Axle holder) ③

5. Remove:
   - Front wheel axle
   - Front wheel ①
   - Gear unit (speedometer) ②
   - Spacer collar ③

**NOTE:**

Do not apply the brake lever when removing the brake caliper.
CHECKING THE FRONT WHEEL

1. Check:
   • wheel axle
     Roll the wheel axle on a flat surface.
     Bends → Replace.

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

2. Check:
   • tire
   • front wheel
     Damage/wear → Replace.
     Refer to “CHECKING THE TIRES” and “CHECKING THE WHEELS” in chapter 3.

3. Check:
   • spokes
     Bends/damage → Replace.
     Loose → Tighten.
     Tap the spokes with a screwdriver.

   **NOTE:**
   A tight spoke will emit a clear, ringing tone, a loose spoke will sound flat.

4. Tighten:
   • spokes

   **NOTE:**
   After tightening the spokes, measure the front wheel runout.

5. Measure:
   • front wheel radial runout
   • front wheel lateral runout
     Over the specified limits → Replace.

   **Front wheel radial runout limit**
   1 mm (0.04 in)

   **Front wheel lateral runout limit**
   0.5 mm (0.02 in)
6. Check:
- collars
  Damage/wear → Replace.

**WARNING**
- After mounting a new tire, ride conservatively for a while to become accustomed to the “feel” of the new tire and to allow the tire to seat itself properly in the rim. Failure to do so could lead to an accident with possible injury to the rider or damage to the motorcycle.
- After a tire has been repaired or replaced, be sure to tighten the tire air valve stem locknut ① to specification.

---

7. Check:
- wheel bearings
  Front wheel turns roughly or is loose → Replace the wheel bearings.
- oil seals
  Damage/wear → Replace.

8. Replace:
- wheel bearings
- oil seals

---

a. Clean the outside of the front wheel hub.
b. Remove the oil seals with a flat-head screwdriver.

**NOTE:**
To prevent damaging the wheel, place a rag between the screwdriver and the wheel surface.

c. Remove the wheel bearings with a general bearing puller.
d. Install the new wheel bearings and oil seals in the reverse order of disassembly.
CAUTION

Do not contact the wheel bearing inner race or balls. Contact should be made only with the outer race.

NOTE:

Use a socket that matches the diameter of the wheel bearing outer race and oil seal.

INSTALLING THE FRONT WHEEL

1. Lubricate:
   • wheel axle
   • wheel bearings
   • oil seal lips
   • speedometer drive gear
   • speedometer driven gear

Recommended lubricant
Lithium-soap-based grease

2. Install:
   • speedometer gear unit

NOTE:

Make sure the speedometer gear unit and the wheel hub are installed with the two projections meshed into the two slots respectively.

3. Install:
   • front wheel

NOTE:

Make sure the slot in the speedometer gear unit fits over the stopper on the outer tube.
INSTALLING THE FRONT WHEEL

4. Tighten:
   • wheel axle

   \[
   \begin{array}{l}
   \text{WARNING} \\
   \text{CAUTION}
   \end{array}
   \]

   \[
   \begin{array}{l}
   45-70 \text{ Nm (4.5-7.0 m\(\times\)kg, 33-51.3 ft\(\times\)lb)} \\
   \text{7.5-12 \text{ Nm (0.75-1.2 m\(\times\)kg, 5.5-8.8 ft\(\times\)lb)}}
   \end{array}
   \]

   \[
   \begin{array}{l}
   \text{WARNING} \\
   \text{CAUTION}
   \end{array}
   \]

   Make sure the brake cable is routed properly.

   Before tightening the wheel axle nut, push down hard on the handlebar several times and check if the front fork rebounds smoothly.
REAR WHEEL

- Hub
- Collar
- Bearing
- Oil Seal
- Rim
- Spoke
- Cap
- Driven Sprocket
- Bolt
- Nut
- Collar
- Dust Cover
- Oil Seal
- Chain puller
- Bolt
- Nut
- Washer
- Drive chain

Basic weight:

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<td>—</td>
</tr>
</tbody>
</table>

A Tire Size:

- DT125RE: 110/80-18 58P
- DT125X: 140/70-17 66H

B Rim Size:

- DT125RE: 18 x 1,85
- DT125X: 17 x 3.50

C Rim Runout Limit:

- DT125RE:
  - Vertical: 1,0 mm (0,08 in)
  - Lateral: 0,5 mm (0,02 in)
- DT125X:
  - Vertical: 1,0 mm (0,08 in)
  - Lateral: 0,5 mm (0,02 in)

90 Nm (9,0 m • kg, 65ft•lb)
REMOVING THE REAR WHEEL

1. Stand the motorcycle on a level surface.

**WARNING**

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

**NOTE:**

Place the motorcycle on a suitable stand so that the rear wheel is elevated.

2. Remove:
   - rear brake caliper protection

**NOTE:**

Do not depress the brake pedal when removing the brake caliper.

3. Loosen:
   - bolts (swingarm end).

4. Remove:
   - wheel axle nut
   - wheel axle
   - rear wheel

**NOTE:**

Push the rear wheel forward and remove the drive chain from the rear wheel sprocket.
INSPECTING THE REAR WHEEL

1. Inspect:
   • Rear wheel axle
     Refer to the “FRONT WHEEL - INSPECTION” section.

2. Inspect:
   • Wheel hub (1)
   • Dust covers (Bearings) (2)
   • Wheel (3)
     Refer to the “FRONT WHEEL - INSPECTION” section.

3. Measure:
   • Wheel runout
     Refer to the “FRONT WHEEL - INSPECTION” section.

4. Check:
   • Wheel bearings (4)
     Refer to the “FRONT WHEEL - INSPECTION” section.

5. Check:
   • Wheel balance
     Refer to the “FRONT WHEEL - INSPECTION” section.

INSTALLING THE REAR WHEEL

When installing the rear wheel, reverse the removal procedure. Note the following points:

1. Lubricate:
   • wheel axle (1)
   • wheel bearings
   • oil seal lips (2)
CHAS

INSTALLING THE REAR WHEEL

2. Adjust:
• Drive chain slack

Drive chain slack:
DT125RE 40–55mm (1.77~2.16in.)
DT125X 25–40mm (0.98~1.58 in.)

• Refer to the “DRIVE CHAIN SLACK ADJUSTMENT” section in CHAPTER 3.

Recommended lubricant
Lithium-soap-based grease

3. Tighten:
• wheel axle nut ①
• bolts (swingarm end)

80~100Nm (8.0~10.0 m•kg, 58.7~73.3 ft•lb)
30 Nm (3 m•kg, 22 ft•lb)
### FRONT AND REAR BRAKE

1. Master cylinder cap
2. Diaphragm
3. Master cylinder kit
4. Master cylinder
5. Brake hose
6. Brake caliper
7. Pad spring
8. Piston
9. Piston seal
10. Dust seal
11. Brake pad
12. Brake disc

<p>| | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| A | Brake Fluid Type: 
DOT 4 or DOT 3 |
| B | Brake pad Wear Limit: 
0,8 m (0.03 in.) |
| C | Brake Disc Wear Limit: 
3mm (0.12 in.) |

**Diagrams:**
- 26 Nm (2,6 m • kg, 19ft•lb)
- 6 Nm (0,6 m • kg, 4,3ft•lb)
- 18 Nm (1,8 m • kg, 13ft•lb)
- 20 Nm (2,0m•kg, 14ft•lb)
- 35 Nm (3,5 m • kg, 25ft•lb)

**Use new one:**
- Brake Fluid Type: DOT 4 or DOT 3
- Brake pad Wear Limit: 0,8 m (0.03 in.)
- Brake Disc Wear Limit: 3mm (0.12 in.)
FRONT AND REAR BRAKE

1 Reservoir tank cap protector
2 Reservoir tank cap
3 Inner cap
4 Diaphragm
5 Reservoir tank
6 Reservoir hose
7 Master cylinder
8 Master cylinder kit
9 Brake hose
10 Brake caliper
11 Piston
12 Piston seal
13 Dust seal
14 Shim
15 Pad spring
16 Brake pads
17 Brake disc

A Brake Fluid Type:
DOT 4 or DOT 3

B Brake pad Wear Limit:
0.8 m (0.03 in.)

C Brake Disc Wear Limit:
4 mm (0.16 in.)

D USE NEW ONE

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>Brake pad Wear Limit: 0.8 m (0.03 in.)</td>
</tr>
<tr>
<td>C</td>
<td>Brake Disc Wear Limit: 4 mm (0.16 in.)</td>
</tr>
</tbody>
</table>

- 18 Nm (1.8 m • kg, 13 ft•lb)
- 10 Nm (1.0 m • kg, 7.2 ft•lb)
- 26 Nm (2.6 m • kg, 19 ft•lb)
- 6 Nm (0.6 m • kg, 4.3 ft•lb)
- 4 Nm (0.4 m • kg, 2.9 ft•lb)

D USE NEW ONE
**CAUTION**

Disc brake components rarely require disassembly. Therefore, always follow these preventive measures:

- Never disassemble brake components unless absolutely necessary.
- If any connection on the hydraulic brake system is disconnected, the entire brake system must be disassembled, drained, cleaned, properly filled, and bled after reassembly.
- Never use solvents on internal brake components.
- Use only clean or new brake fluid for cleaning brake components.
- Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.
- Avoid brake fluid coming into contact with the eyes as it can cause serious injury.

**FIRST AID FOR BRAKE FLUID ENTERING THE EYES:**
- Flush with water for 15 minutes and get immediate medical attention.

**NOTE:**

When replacing the brake pads, it is not necessary to disconnect the brake hose or disassemble the brake caliper.

1. Loosen:
   - retaining bolt (caliper body)

2. Turn:
   - brake caliper counterclockwise
3. Remove:
   • brake pads ①
   • brake pad springs ②

4. Measure:
   • brake pad wear limit @
     Out of specification — Replace the brake pads as a set.

   Brake pad wear limit
   0.8 mm (0.03 in)

5. Install:
   • brake pad springs ①
   • brake pads

NOTE:
Always install new brake pads and a new brake pad spring as a set.

a. Connect a clear plastic hose ① tightly to the bleed screw ②. Put the other end of the hose into an open container.
b. Loosen the bleed screw and push the brake caliper pistons into the brake caliper with your finger.
c. Tighten the bleed screw.

d. Install new brake pads and a new brake pad spring.

Bleed screw
6 Nm (0.6 m•kg, 4.3 ft•lb)
6. Lubricate:
   • retaining bolt

   ![Recommended lubricant]
   Lithium-soap-based grease

   **CAUTION**
   • Do not allow grease to contact the brake pads.
   • Remove any excess grease.

7. Install:
   • retaining bolt

8. Check:
   • brake fluid level
     Below the minimum level mark Add the recommended brake fluid to the proper level.
     Refer to “CHECKING THE BRAKE FLUID LEVEL” in chapter 3.

9. Check:
   • brake lever operation
     Soft or spongy feeling BLEEDING THE HYDRAULIC BRAKE SYSTEM” in chapter 3.

---

**REPLACING THE REAR BRAKE PADS**

**NOTE:**

When replacing the brake pads, it is not necessary to disconnect the brake hose or disassemble the brake caliper.
1. Remove:
- Protector (caliper body)
- Retaining bolt
- Turn the caliper body counterclockwise

2. Remove:
- brake pads
- brake pad springs
- Shim (brake pad)

3. Measure:
- brake pad wear limit
  Out of specification → Replace the brake pads as a set.

4. Install:
- brake pad shims (onto the brake pads)
- brake pad springs
- brake pads

**NOTE:** Always install new brake pads, brake pad shims, and a brake pad spring as a set.

![Brake pad wear limit](0.8 mm (0.03 in))

a. Connect a clear plastic hose tightly to the bleed screw. Put the other end of the hose into an open container.

b. Loosen the bleed screw and push the brake caliper pistons into the brake caliper with your finger.

c. Tighten the bleed screw.

**Bleed screw**

- 6 Nm (0.6 m•kg, 4.3 ft•lb)
5. Lubricate:
   • Retaining bolt (Caliper body)

6. Tighten:
   • Retaining bolt (Caliper body)

\[18 \text{ Nm (1.8 m•kg, 13 ft•lb)}\]

7. Check:
   • brake fluid level
      Below the minimum level mark → Add the recommended brake fluid to the proper level.
      Refer to “CHECKING THE BRAKE FLUID LEVEL” in chapter 3.

8. Check:
   • brake pedal operation
      Soft or spongy feeling → Bleed the brake system.
      Refer to “BLEEDING THE HYDRAULIC BRAKE SYSTEM” in chapter 3.
NOTE:
Before disassembling the brake caliper, drain the brake fluid from the entire brake system.

1. Remove:
   - union bolt
   - copper washers
   - brake hose

   NOTE: 
   Put the end of the brake hose into a container and pump out the brake fluid carefully.

2. Remove:
   - Retaining bolt (caliper body)
   - Brake pads
   - Pad springs
   - Refer to the “BRAKE PAD REPLACE- MENT” section.

3. Remove:
   - Caliper body
   - Caliper bracket

4. Remove:
   - Caliper piston
   - Clip
   - Dust seal
   - Piston seal
a. Blow compressed air into the brake hose joint opening (a) to force out the piston from the brake caliper.

**WARNING**
- Cover the brake caliper piston with a rag.
- Be careful not to get injured when the piston is expelled from the brake caliper.
- Never try to pry out the brake caliper piston.

b. Remove the clip using a thin screwdriver

**CAUTION**
- When removing the clip, take care not to damage the dust seal and caliper body.

c. Remove the brake caliper piston seals.

---

**DISASSEMBLING THE REAR BRAKE CALIPER**

**NOTE:**
Before disassembling the brake caliper, drain the brake fluid from the entire brake system.

1. Remove:
   - Protector (Caliper body) ①
   - Union bolts ②
   - Copper washers ③
   - Retaining bolt (Caliper body) ④

**NOTE:**
Put the end of the brake hose into a container and pump out the brake fluid carefully.

2. Remove:
   - Brake pads ①
   - Shim (brake pads) ②
   - Pad springs ③
   - Refer to the “BRAKE PAD REPLACEMENT” section.
3. Disconnect the dust boot ① and then pull out the caliper body from the guide shaft ② on the caliper bracket ③.

4. Remove:
   • Rear wheel
     Refer to the “REAR WHEEL” section.
   • Caliper bracket

5. Remove:
   • Caliper piston ①
   • Dust seal ②
   • Piston seal ③

----------

a. Blow compressed air into the brake hose joint opening ③ to force out the piston from the brake caliper.

**WARNING**

• Cover the brake caliper piston with a rag. Be careful not to get injured when the piston is expelled from the brake caliper.
• Never try to pry out the brake caliper piston.

b. Remove the brake caliper piston seals.
DISASSEMBLING THE FRONT BRAKE MASTER CYLINDER

NOTE:
Before disassembling the front brake master cylinder, drain the brake fluid from the entire brake system.

1. Remove:
   • Brake switch ①
   • Brake lever ②
   • Return spring (brake lever) ③

NOTE:
When removing the brake switch push the switch hook using a suitable rod, then pull it out.

2. Pull back the brake hose cover ① from the master cylinder.

3. Remove:
   • Union bolt ②
   • Cooper washers ③

4. Remove:
   • Bracket (master cylinder)
   • Master cylinder
5. Remove:
   • Cap (master cylinder) ①
   • Diaphragm ②
   • Dust boot ③
   • Circlip ④
   • Master cylinder kit ⑤

**NOTE:**
To collect any remaining brake fluid, place a container under the master cylinder and the end of the brake hose.

---

**DISASSEMBLING THE REAR BRAKE MASTER CYLINDER**

1. Remove:
   • Brake hose guides ①

2. Loosen:
   • Union bolt ②

3. Remove:
   • Cotter pin ③
   • Washer ④
   • Cotter pin ⑤
   • Screw (Reservoir tank ⑥
   • Bolts (master cylinder) ⑦
   • Master cylinder (with brake hose and reservoir tank) ⑧
4. Remove:
- Brake hoses ①
- Reservoir tank ②
- Circlip ③
- Push rod
- Master cylinder kit ⑤

5. Remove:
- Cap (reservoir tank) ①
- Inner cap (reservoir tank) ②
- Diaphragm ③

**NOTE:**
To collect any remaining brake fluid, place a container under the master cylinder and the end of the brake hose.

---

**CHECKING THE FRONT AND REAR BRAKE CALIPER**

<table>
<thead>
<tr>
<th>Recommended brake component</th>
<th>replacement schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brake pads</td>
<td>If necessary</td>
</tr>
<tr>
<td>Piston seals</td>
<td>Every two years</td>
</tr>
<tr>
<td>Brake hose</td>
<td>Every four years</td>
</tr>
<tr>
<td>Brake fluid</td>
<td>Every two years and</td>
</tr>
<tr>
<td></td>
<td>whenever the brake is</td>
</tr>
<tr>
<td></td>
<td>disassembled</td>
</tr>
</tbody>
</table>
1. Check:
- brake caliper piston ① Rust/scratches/wear ➔ Replace the brake caliper piston.
- brake caliper cylinder ② Scratches/wear ➔ Replace the brake caliper assembly.
- brake caliper body ③ Cracks/damage ➔ Replace the brake caliper assembly.
- brake fluid delivery passage (brake caliper body) Obstruction ➔ Blow out with compressed air.

**WARNING**
Whenever a brake caliper is disassembled, replace the piston seals.

2. Check:
- Caliper body ①
- Caliper bracket ② Cracks/damage ➔ Replace.
- Oil delivery passage (caliper body) Blow out with compressed air.
- Slide collar (caliper body) ③
- Guide shaft (caliper bracket) ④ Rust/wear/damage ➔ Replace.
- Slider boot caliper body) ⑤
- Dust boot (Guide pin - bracket) Cracks/damage ➔ Replace.

[A] Front
[B] Rear
3. Check:
- Master cylinder [1]
  Wear/scratches → Replace the caliper assembly.
- Master cylinder body [2]
  Cracks/damage → Replace.
- Oil delivery passage (caliper body)
  Blow out with compressed air.
  A Front
  B Rear

4. Check:
- Master cylinder kit [1]
  Scratches/Wear/Damage → Replace.
  A Front
  B Rear

5. Check:
- Reservoir tank [1]
  Cracks/damage → Replace.
- Diaphragm (Front) [2]
  Wear/damage → Replace.

6. Check:
- Brake hoses
  Cracks/wear/damage → Replace.

7. Measure:
- Brake pads (thickness) [3]
  Out of specification → Replace.

Brake pad wear limit
0.8 mm (0.03 in)

[1] Wear indicator
CHECKING THE FRONT AND REAR BRAKE CALIPER

NOTE:

- Replace the pad spring as a set if pad replacement is required.
- Replace the pads as a set if either if found to be worn to the wear limit.

8. Inspect:
   - Brake disc ①
     Galling/damage → Replace.

9. Measure:
   - Brake disc deflection
     Out of specification → Inspect wheel runout.
     If wheel runout is in good condition, replace.

     **Maximum deflection:**
     0.15mm (0.006in.)

   - Brake disc thickness
     Out of specification → Replace.

     **Minimum thickness:**
     Front: 3.0mm (0.12in.)
     Rear: 4.0mm (0.16in.)

   ① Dial gauge
   A Front
   B Rear

   **Bolt (brake disc):**
   20 Nm (2.0 m•kg, 14ft•lb)
   Use LOCTITE®
ASSEMBLING AND INSTALLING THE FRONT AND REAR BRAKE CALIPER

**WARNING**

- Before installation, all internal brake components should be cleaned and lubricated with clean or new brake fluid.
- Never use solvents on internal brake components as they will cause the piston seals to swell and distort.
- Whenever a brake caliper is disassembled, replace the brake caliper piston seals.

---

**Recommended brake fluid**

DOT 4

---

**Front brake**

1. Install:
   - Master cylinder kit ①
   - Circlip ②
   - Dust boot ③

2. Install:
   - Master cylinder ①

**NOTE:**

- Install the master cylinder bracket with the “UP” mark facing upward.
- Tighten first the upper bolt, then the lower bolt.

**Bolts (Master cylinder bracket):**

9 Nm (0.9 m•kg, 6.5ft•lb)

3. Install:
   - Return spring (brake lever) ①
   - Brake lever ②
   - Brake switch ③

**NOTE:**

Apply lithium soap base grease to the brake lever pivot.
ASSEMBLING AND INSTALLING THE FRONT AND REAR BRAKE CALIPER

4. Install:
   • Piston seal ①
   • Dust seal ②
   • Clip ③
   • Caliper piston ④

**WARNING**
Always use new piston seal and dust seal.

**CAUTION**
Install the clip into the slot on the caliper body correctly.

5. Install:
   • Caliper bracket ①

**Caliper bracket:**
35 Nm (3.5 m•kg, 25ft•lb)

6. Install:
   • Pad springs
   • Brake pads
   Refer to the “BRAKE PAD REPLACEMENT” section.

7. Install:
   • Caliper body ②

**NOTE:**
Apply the lithium soap-base grease onto the caliper guide shaft and retaining bolt.

**CAUTION**
• Take care no to allow the brake pads to be smeared by grease.
• Wipe off any unnecessary grease that comes out of place.

**Retaining bolt (Caliper body):**
18 Nm (1.8m•kg, 13ft•lb)
8. Install:
   • Copper washers ①
   • Brake hose ②
   • Union bolt ③

   **CAUTION**
   When installing the brake hoses to the caliper ① and master cylinder ② lightly touch the brake pipe with the projections ③ on them.

   **WARNING**
   • Proper hose routing is essential to insure safe machine operation. Refer to “CABLE ROUTING”
   • Always use new copper washers.

9. Fill:
   • Master cylinder tank

   **CAUTION**
   Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

   **WARNING**
   • Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
   • Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
   • When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.

   **Union bolt:** 26 Nm (2.6m•kg, 19ft•lb)

   **Recommended brake fluid:** DOT 4
10. Bleed:
• brake system
  Refer to “AIR BLEEDING” section.

11. Check:
• brake fluid level
  Below the minimum level mark (②) → Add
  the recommended brake fluid to the proper
  level.
  Refer to “BRAKE FLUID INSPECTION” in
  chapter 3.
  ①”Lower” level line.

12. Install:
• Diaphragm ①
• Cap (Master cylinder) ②

13. Adjust:
• Front brake lever free play ③

Refer to the “FRONT BRAKE ADJUST-
MENT” section in chapter 3.
ASSEMBLING AND INSTALLING THE FRONT AND REAR BRAKE CALIPER

1. Install:
- Master cylinder kit 1
- Push rod 2
- Circlip 3
- Dust boot 4
- Brake hoses 5
- Cooper washers 6
- Union bolt 7
- Reservoir tank 8

**NOTE:** At this time, temporarily tighten the union bolt.

**WARNING**
Always use a new cooper washer.

2. Install:
- Master cylinder 1
- Reservoir tank 2
- Pin 3
- Washer 4
- Cotter pin 5
- Brake hose guides 6

**NOTE:** Apply the lithium-soap base grease to the pin.

**WARNING**
Always use a new cotter pin.

- Bolt (Master cylinder):
  10 Nm (1.0 m•kg, 7.2 ft•lb)
- Screw (Reservoir tank):
  4 Nm (0.4 m•kg, 2.9 ft•lb)

3. Install:
- Piston seal 3
- Dust seal 2
- Caliper piston 1

**WARNING**
Always use new piston seal and dust seal.
ASSEMBLING AND INSTALLING THE FRONT AND REAR BRAKE CALIPER

4. Install:
- Caliper bracket
- Rear wheel
Refer to the “REAR WHEEL INSTALLATION” section.

NOTE: ________________

Be sure the boss on the swingarm correctly engages with the locating slot on the caliper bracket.

5. Install:
- Pad springs
- Brake pads
- Shim
Refer to the “BRAKE PAD REPLACEMENT” section.

6. Install:
- Caliper body

CAUTION
- Take care not to allow the brake pads to be smeared by grease.
- Wipe off any unnecessary grease that comes out of place.

NOTE: ________________

Apply the lithium-soap base grease onto the caliper guide shaft and retaining bolt.
7. Install:
• Cooper washers
• Brake hose
• Union bolt
• Protector (Caliper body)

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

**CAUTION**
When installing the brake hoses to the caliper and master cylinder, lightly touch the brake pipe with the projections on them.

**WARNING**
• Proper hose routing is essential to insure safe machine operation. Refer to “CABLE ROUTING” section.
• Always use new cooper washers.

**Recommended brake fluid:**
DOT 4
If DOT 4 is not available DOT 3 can be used.

**CAUTION**
Brake fluid may damage painted surfaces and plastic parts. Therefore, always clean up any spilt brake fluid immediately.

**WARNING**
• Use only the designated brake fluid. Other brake fluids may cause the rubber seals to deteriorate, causing leakage and poor brake performance.
• Refill with the same type of brake fluid that is already in the system. Mixing brake fluids may result in a harmful chemical reaction, leading to poor brake performance.
• When refilling, be careful that water does not enter the brake master cylinder reservoir. Water will significantly lower the boiling point of the brake fluid and could cause vapor lock.
9. Bleed:
   • brake system
   Refer to “AIR BLEEDING” section.

10. Check:
    • brake fluid level
    Below the minimum level mark \( L55443 \) Add
    the recommended brake fluid to the proper
    level.
    Refer to “BRAKE FLUID INSPECTION” in
    chapter 3.

\( L55443 \)

"Lower" level line.

11. Install:
    • Diaphragm \( L55445 \)
    • Inner cap (Reservoir tank) \( L55444 \)
    • Cap (Master cylinder) \( L55443 \)

12. Adjust:
    • Rear brake pedal height (a)

\[ \text{Pedal height:} \]
\[ 15\text{ mm (0.95in)} \]
\[ \text{Below top of footrest.} \]

Refer to the “REAR BRAKE ADJUST-
MENT” section.

13. Adjust:
    • Drive chain slack (a)
    Refer to the “DRIVE CHAIN SLACK
    ADJUSTMENT” section in chapter 3.

\[ \text{Drive chain slack:} \]
\[ \text{DT125RE 40–55mm (1,77–2,16in.)} \]
\[ \text{DT125X 25–40mm (0,98–1,58 in.)} \]
BLEEDING THE HYDRAULIC BRAKE SYSTEM

WARNING

Bleed the hydraulic brake system whenever:
• the system is disassembled.
• a brake hose is loosened, disconnected or replaced.
• the brake fluid level is very low.
• brake operation is faulty.

NOTE:
• Be careful not to spill any brake fluid or allow the brake master cylinder reservoir or brake fluid reservoir to overflow.
• When bleeding the hydraulic brake system, make sure there is always enough brake fluid before applying the brake. Ignoring this precaution could allow air to enter the hydraulic brake system, considerably lengthening the bleeding procedure.
• If bleeding is difficult, it may be necessary to let the brake fluid settle for a few hours. Repeat the bleeding procedure when the tiny bubbles in the hose have disappeared.

1. Bleed:
   • hydraulic brake system

a. Fill the brake fluid reservoir to the proper level with the recommended brake fluid.
b. Install the diaphragm (brake master cylinder reservoir or brake fluid reservoir).
c. Connect a clear plastic hose tight to the bleed screw.

   A Front  B Rear

d. Place the other end of the hose into a container.
e. Slowly apply the brake several times.
f. Fully pull the brake lever or fully press down the brake pedal and hold it in position.
g. Loosen the bleed screw.
BLEEDING THE HYDRAULIC BRAKE SYSTEM

NOTE: ____________________________________________

Loosening the bleed screw will release the pressure and cause the brake lever to contact the throttle grip or the brake pedal to fully extend.

h. Tighten the bleed screw and then release the brake lever or brake pedal.
i. Repeat steps (e) to (h) until all of the air bubbles have disappeared from the brake fluid in the plastic hose.
j. Tighten the bleed screw to specification.

<table>
<thead>
<tr>
<th>Bleed screw</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Nm (0.6 m•kg, 4.3 ft•lb)</td>
</tr>
</tbody>
</table>

k. Fill the brake fluid reservoir to the proper level with the recommended brake fluid. Refer to “CHECKING THE BRAKE FLUID LEVEL”.

WARNING

After bleeding the hydraulic brake system, check the brake operation.

-----------------------------------------------
FRONT FORKS

1. Cap bolt
2. O-ring
3. Spacer
4. Spring seat
5. Fork spring
6. Inner fork tube
7. Damper rod
8. Oil lock pieces
9. Circlip
10. Dust seal
11. Oil seal
12. Washer
13. Slide bush
14. Outer fork tube
15. Axle holder
16. Fork boot

A FOR OIL (EACH):
CAPACITY:
495 cm³
GRADE:
FOR OIL 10W OR EQUIVALENT
OIL LEVEL:
165.5mm
Below the top of inner tube fully rebounded without fork spring

B FOR SPRING:
MINIMUM FREE LENGTH:
503mm

C USE NEW ONE

23 Nm (2.3m•kg, 17ft•lb)

10 Nm (1.0 m • kg, 7.2ft•lb)

62 Nm (6.2 m • kg, 45ft•lb)

30 Nm (3.0 m • kg, 22ft•lb)
REMOVAL

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

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

3. Loosen:
   - upper bracket pinch bolt ①
   - cap bolt ②
   - lower bracket pinch bolt ③

**WARNING**
Before loosening the upper and lower bracket pinch bolts, support the front fork leg.

4. Remove:
   - front fork leg

DISASSEMBLY

1. Remove:
   - Clamps (Upper ① and lower ②)
   - Fork boot ③

2. Remove:
   - Cap bolt ①
   - Spacer ②
   - Spring seat ③
   - Fork spring ④
3. Drain:
   • Fork oil

4. Remove:
   • Retaining clip
     Use a thin slotted head screwdriver
   • Washer

**CAUTION**
Take care not to scratch the inner tube

5. Remove:
   • Bolt (Damper rod)
   • Cooper washer

**NOTE:**
Hold the damper rod to loosen the bolt (Damper rod) by the T-handle and the Holder

- Damper rod holder
  90890-01388
- T-handle
  90890-01326

6. Remove:
   • Damper rod
   • Rebound spring
     (Out of inner fork tube)
7. Remove:
  • Inner fork tube

```
  a. Hold the front fork leg horizontally.
  b. Securely clamp the brake caliper bracket in a vise with soft jaws.
  c. Separate the inner tube from the outer tube by pulling the inner tube forcefully but carefully.
```

**CAUTION**

• Excessive force will damage the oil seal and bushing. A damaged oil seal or bushing must be replaced.
• Avoid bottoming the inner tube into the outer tube during the above procedure, as the oil flow stopper will be damaged.

---

**CHECKING THE FRONT FORK LEGS**
The following procedure applies to both of the front fork legs.

1. Check:
  • inner tube
  • outer tube
  Bends/damage/scratches → Replace.

**WARNING**

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

2. Measure:
  • spring free length
  Out of specification → Replace.

```
  Spring free length
  DT125RE 503mm (19.8 in)
  DT125X 501mm (19.7 in)
```
CHECKING THE FRONT FORK LEGS/ASSEMBLING THE FRONT FORK LEGS

3. Check:
- damper rod ①
- piston ring ②
  Damage/wear → Replace.
  Obstruction → Blow out all of the oil passages with compressed air.
- rebound spring ③
  Damage → Replace.

4. Check:
- cap bolt O-ring
  Damage/wear → Replace.

ASSEMBLING THE FRONT FORK LEGS
The following procedure applies to both of the front fork legs.

WARNING
- Make sure the oil levels in both front fork legs are equal.
- Uneven oil levels can result in poor handling and a loss of stability.

NOTE:
- When assembling the front fork leg, be sure to replace the following parts:
  - inner tube bushing
  - outer tube bushing
  - oil seal
  - dust seal
- Before assembling the front fork leg, make sure all of the components are clean.

1. Install:
- damper rod assembly ①

CAUTION
Allow the damper rod assembly to slide slowly down the inner tube ② until it protrudes from the bottom of the inner tube. Be careful not to damage the inner tube.
2. Lubricate:
   • inner tube’s outer surface

```
Recommended lubricant
Fork oil 10W or equivalent
```

3. Tighten:
   • damper rod assembly bolt

```
62 Nm (6.2 m•kg, 45 ft•lb)
LOCTITE®
```

NOTE: While holding the damper rod assembly with the damper rod holder and T-handle, tighten the damper rod assembly bolt.

4. Install:
   • outer tube bushing ①
     (with the fork seal driver weight and fork seal driver attachment)

```
Fork seal driver weight
90890-01367
Fork seal driver attachment
90890-01381
```

5. Install:
   • washer
   • oil seal ①
     (with the fork seal driver weight and fork seal driver attachment)

```
CAUTION
Make sure the numbered side of the oil seal faces up.
```
NOTE:
• Before installing the oil seal, lubricate its lips with lithium-soap-based grease.
• Lubricate the outer surface of the inner tube with fork oil.
• Before installing the oil seal, cover the top of the front fork leg with a plastic bag to protect the oil seal during installation.

6. Install:
• oil seal clip

NOTE: Adjust the oil seal clip so that it fits into the outer tube’s groove.

7. Install:
• dust seal

(with the fork seal driver weight)

Fork seal driver weight
90890-01367

8. Fill:
• front fork leg

(with the specified amount of the recommended fork oil)

Quantity (each front fork leg)
DT125RE 0.495 L
DT125X 0.6 L
Recommended oil
Yamaha fork and shock oil 10W or equivalent

Front fork leg oil level (from the top of the inner tube, with the inner tube fully compressed and without the fork spring)
DT125RE 165.5 mm (6.52 in)
DT125X 140mm (5.52 in)
ASSEMBLING THE FRONT FORK LEGS

NOTE:
• While filling the front fork leg, keep it upright.
• After filling, slowly pump the front fork leg up and down to distribute the fork oil.

9. Install:
• spring ①
• spring seat ②
• spacer ③
• cap bolt ④

NOTE:
• Install the spring with the smaller pitch facing up.
• Before installing the cap bolt, lubricate its O-ring with grease.
• Temporarily tighten the cap bolt.
STERING HEAD AND HANDLEBARS

① Handlebar ② Handlebar grip (Right) ③ Handlebar grip (Left) ④ Handlebar holder (Upper) ⑤ Handlebar crown ⑥ Ring nut

⑦ Cover ⑧ Bearing race ⑨ Headlight stay

A TIGHTENING STEPS
• Tightening ring nut
  35Nm to 40Nm (3.5 to 4.0 m•kg, 25.6 to 29.3 ft•lb)
• Loosen it fully
• Retighten it
  3Nm to 5Nm (0.3 to 0.5 m•kg, 2.2 to 3.6 ft•lb)

120 to 155 Nm (12 to 15.5 m•kg, 88 to 110 ft•lb)

12 to 28 Nm (1.2 to 2.8 m•kg, 8.8 to 20.5 ft•lb)
1. Elevate the front wheel by placing a suitable stand under the engine.

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

2. Remove:
   - Front wheel
     Refer to the “FRONT WHEEL REMOVAL” section.
   - Front fork
     Refer to the “FRONT FORK REMOVAL” section.

3. Remove:
   - Bolts 1 (front fender)
   - Front fender 2
   - Washers

4. Remove:
   - Headlight cover 1
   - Headlight lens unit 2

5. Disconnect:
   - Headlight lead
   - Auxiliary light lead 3

6. Disconnect:
   - Flasher light leads
7. Remove:
   - Flasher lights (left and right)
   - Brake hose guide (From left side only)
8. Disconnect:
   - Speedometer cable
9. Remove:
   - Bands
10. Disconnect:
    - Meter leads
    - Handlebar switch leads
    - Main switch leads
    - Flasher relay leads
11. Remove:
    - Bands
    - Master cylinder assembly
12. Remove:
    - Brush guard
13. Disconnect:
    - Clutch cable (from clutch cable pivot)
14. Remove:
    - Meter assembly
15. Loosen:
• Screws (throttle cable housing) ①

16. Remove:
• Handlebar holders ①
• Handlebars ②

NOTE: For completely removal of the handlebar, be sure to clear the throttle cable housing

17. Remove:
• Flange nut ①
• Handlebar crown ②

18. Remove:
• Lock washer ①
• Ring nut 1 ②
• Ring nut 2 ③
• Cover ④

NOTE: Remove the ring nut using the Ring Nut wrench

Ring Nut Wrench: 90890-01403

WARNING
Support the lower bracket so that it may not fall down
19. Remove:
- Bearing cover
- Ball race (Top-Upper)
- Ball bearing (22pcs)

**INSPECTION**

1. Wash the bearing in solvent.
2. Inspect:
   - Bearings
   - Bearing races
     Pitting/Damage → Replace
   - Dust seal
     Wear/Damage → Replace

**Bearing race replacement steps:**
- Remove the bearing races on the head pipe using a long rod and the hammer as shown.
- Remove the bearing race on the steering stern using the floor chisel and the hammer as shown.
- Install the new dust seal and races.

**NOTE:**
- Always replace bearings and races as a set
- Replace the dust seat whenever the steering head is disassembled.

**CAUTION**
If the bearing race is fitted not squarly, the head pipe could be damaged

3. Inspect:
   - Handlebar crown
   - Under bracket with steering stem
     Cracks/Bend/Damage → Replace
4. Inspect:
   • Handlebar
     Cracks/Bend/Damage ➔ Replace

**WARNING**
Do not attempt to straighten a bent handlebar as this may dangerously weaken the handlebar.

Handlebar replacement steps:
   • Remove the handlebar grip and handlebar switch (Left) and lever holder.
   • Install the lever holder and handlebar switch (Left) to a new handlebar.
   • Apply a light coat of an adhesive for rubber on the left handlebar end.
   • Install the handlebar grip.

**NOTE:**
Wipe off any excess adhesive with a clear rag

**WARNING**
Leave the handlebar intact until the adhesive becomes dry enough to make the grip and handlebar stuck securely.

**INSTALLATION**
Reverse the “REMOVAL” procedures.
Note the following points

1. Lubricate:
   • Bearing races ①
   • Bearings ②

Lithium Soap Base Grease

2. Install:
   • Ball bearings

**NOTE:**
Be sure the balls has the same size and the quantity is correct (22pcs)
3. Install:
- Ball race (Upper-Lower)
- Bearing cover
- Under bracket
- Ring nut

**WARNING**
Hold the under bracket until its secured

4. Tighten:
- Ring nut

**Tightening steps:**
- Tighten the ring nut using the Ring Nut Wrench

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

**Ring Nut Wrench:**
90890-01403

**NOTE:**
Temporarily tighten the flange bolt.

**Ring Nut (Initial tightening):**
35Nm to 40Nm (3.5 to 4.0 m·kg, 25.6 to 29.3 ft·lb)

- Loosen the ring nut fully
- Retighten the ring nut using the Ring Nut Wrench

**WARNING**
Avoid over tightening

**Ring Nut (Final tightening):**
3Nm to 5Nm (0.3 to 0.5 m·kg, 2.2 to 3.6 ft·lb)

5. Install:
- Handlebar crown
- Flange nut (Steering stem)

**NOTE:**
Temporarily tighten the flange bolt.
6. Install:
- Meter assembly

Bolt (Meter assembly):
5Nm to 8Nm (0.5 to 0.8 m·kg, 3.6 to 5.8 ft·lb)

7. Install:
- Front fork
  Refer to the “FRONT FORK INSTALLATION” section.

Pinch Bolt (Under Bracket):
20 to 25Nm (2.0 to 2.5 m·kg, 14.6 to 18.3 ft·lb)

NOTE:
In this stage, temporarily tighten the pinch bolts (Handlebar crown).

8. Tighten:
- Flange nut (Steering stem)
- Pinch bolts (Handlebar crown)

Flange nut (Steering stem):
120 to 155 Nm (12 a 15.5 m·kg, 88 to 110ft·lb)

Pinch bolt (Handlebar crown):
12 to 28 Nm (1.2 to 2.8 m·kg, 8.80 to 20.5ft·lb)

NOTE:
- Install the brake hose guide to the left side only.
- On the left side, install the flasher light having a chocolate color lead. Next, install the other flasher light with a dark green color lead.
9. Install:
• Handlebar
• Handlebar holders

**NOTE:**
The handlebar should be installed in the position assigned by the position mark.

**CAUTION**
First tighten the bolts on the front side of the handlebar holder, and then tighten the bolts on the rear side.

**NOTE:**
Before installing the handlebar onto the handlebar crown, apply a light coat of lithium soap base grease onto the handlebar end and install the throttle housing to the handlebar.

10. Install:
• Brake master cylinder

**NOTE:**
• Install the master cylinder bracket with the “UP” mark facing upward.
• Tighten first the upper bolt, then the lower bolt.

**Bolts (Master cylinder bracket):**
5 to 8 Nm (0.5 to 0.8 m·kg, 3.6 to 5.8 ft·lb)

11. Install:
• Clutch cable

**NOTE:**
Apply a light coat of lithium soap base grease onto the clutch cable end.
12. Install:
- Headlight lens unit

13. Install:
- Front wheel
  Refer to the “FRONT WHEEL INSTALLATION” section.

Front wheel axle:
  80 to 100 Nm (8.0 to 10.0 m·kg, 58.6 to 73.3 ft·lb)
Axle security bolts:
  7.5 to 12 Nm (0.75 to 1.2 m·kg, 5.5 to 8.85 ft·lb)

14. Adjust:
- Clutch cable free play ³
  Refer to the “CLUTCH ADJUSTMENT” section in chapter 3.

Free play:
  2~3mm (0.08~0.12in)
1 Rear shock absorber assembly
2 Spring
3 Bush

<table>
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30 to 35 Nm (3.0 to 3.5 m • kg, 22 to 25.6 ft•lb)
REAR SHOCK ABSORBER AND SWINGARM

1. Swingarm
2. Relay arm
3. Connecting arm
4. Chain case
5. Chain guard
6. Chain guide
7. Collar
8. Bearing
9. Oil seal
10. Bush
11. Plain washer
12. Shim
13. Thrust cover

- 3 to 5 Nm (0.3 to 0.5 m • kg, 2.2 to 3.6 ft•lb)
- 2 to 4 Nm (0.2 to 0.4 m • kg, 1.46 to 2.9 ft•lb)
- 3 to 5 Nm (0.3 to 0.5 m • kg, 2.2 to 3.6 ft•lb)
- 80 to 100 Nm (8 to 10 m • kg, 58.6 to 73.3 ft•lb)
- 45 to 70 Nm (4.5 to 7 m • kg, 33 to 51.3 ft•lb)
HANDLING THE REAR SHOCK ABSORBER

WARNING
This rear shock absorber contains highly compressed nitrogen gas. Before handling the rear shock absorber, read and make sure you understand the following information. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling of the rear shock absorber.

- Do not tamper or attempt to open the rear shock absorber.
- Do not subject the rear shock absorber to an open flame or any other source of high heat. High heat can cause an explosion due to excessive gas pressure.
- Do not deform or damage the rear shock absorber in any way. Rear shock absorber damage will result in poor damping performance.

DISPOSING OF A REAR SHOCK ABSORBER
Gas pressure must be released before disposing of a rear shock absorber. To release the gas pressure, drill a 2 ~ 3-mm hole through the rear shock absorber at a point 15 ~ 20 mm from its end as shown.

WARNING
Wear eye protection to prevent eye damage from released gas or metal chips.

REMOVING THE REAR SHOCK ABSORBER ASSEMBLY
1. Stand the motorcycle on a level surface.

WARNING
Securely support the motorcycle so that there is no danger of it falling over.
NOTE: Place the motorcycle on a suitable stand so that the rear wheel is elevated.

2. Remove:
- Bolt (Connecting arm swingarm) \( L55443 \) (from swingarm side)

3. Remove:
- Bolt (Shock absorber → Lower)

**WARNING**
When removing the lower bolt \( 1 \) hold the swingarm \( 2 \) so that it does not drop downwards when the lower bolt is removed.

4. Remove:
- Bolt (Shock absorber → Upper) \( 1 \)

5. Remove:
- Rear shock absorber

**NOTE:**
Pull up the swingarm, then remove the rear shock absorber, through between the swingarm and relay arm
WARNING

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

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

2. Remove:
   • Rear shock absorber
     Refer to the “REAR SHOCK ABSORBER” section.

3. Remove:
   • Rear wheel
     Refer to the “REAR WHEEL REMOVAL” section.

4. Remove:
   • Brake hose guides
   • Mud guard

5. Remove:
   • Protector (Brake caliper)
   • Brake caliper assembly

6. Remove:
   • Chain case
   • Chain guide
   • Chain guard
7. Check:
   • Swingarm free play

\textbf{Inspection steps}

- Check the tightening torque of the pivot shaft (swingarm) securing nut \textsuperscript{1}

\begin{center}
\textbf{Nut (Swingarm-Pivot shaft):}
80 to 100Nm (8 to 10 m·kg; 58.6 to 73.3lb·ft)
\end{center}

- Check the swingarm side play by moving it from side to side. If side play noticeable, check the inner collar, bearing, bushing and thrust over, or adjust the shim.

\begin{center}
\textbf{Side play (At the end of the swingarm):}
1mm (0.04in)
\end{center}

- Check the swingarm vertical movement by moving it up and down. If vertical movement is tight, binding or rough, check the inner collar, bearing, bushing and thrust cover or adjust the shim.

8. Remove:
   • Pivot shaft \textsuperscript{1}
   • Swingarm

9. Remove:
   • Connecting arm \textsuperscript{1}
10. Remove:
• Relay arm

11. Remove:
• Chain protector ①

12. Remove:
• Thrust covers ①
• Inner collars (Swingarm) ②
• Inner collars (Connecting arm) ③
• Inner collar (Relay arm) ④
CHECKING THE REAR SHOCK ABSORBER ASSEMBLY

1. Check:
   - rear shock absorber rod
     Bends/damage → Replace the rear shock absorber assembly.
   - rear shock absorber
     Gas leaks/oil leaks → Replace the rear shock absorber assembly.
   - spring
     Damage/wear → Replace the rear shock absorber assembly.
   - bushings
     Damage/wear → Replace.
   - dust seals
     Damage/wear → Replace.
   - bolts
     Bends/damage/wear → Replace.

2. Check:
   - pivot shaft
     Roll the pivot shaft on a flat surface.
     Bends → Replace.

   **WARNING**
   Do not attempt to straighten a bent pivot shaft.

3. Wash:
   - pivot shaft
   - dust covers
   - spacer
   - washers
   - bearings

   **Recommended cleaning solvent**
   Kerosene
4. Check:
- dust covers ①
- spacer ②
- washers ③
- oil seals ④
  Damage/wear → Replace.
- bearings
  Damage/pitting → Replace.

5. Check:
- connecting arms ①
- relay arm ②
  Damage/wear → Replace.

6. Check:
- bearings ①
- oil seals ②
  Damage/pitting → Replace.
CHECKING THE SWINGARM/INSTALLING THE SWINGARM

7. Check:
• spacers
  Damage/scratches → Replace.

EAS00711
INSTALLING THE SWINGARM

1. Lubricate:
• bearings
• spacers
• dust covers
• pivot shaft

Recommended lubricant
Molybdenum disulfide grease

2. Install:
• relay arm

45 to 70 Nm (4.5 to 7.0 m•kg, 33 to 95.5 ft•lb)

• connecting arms

45 to 70 Nm (4.5 to 7.0 m•kg, 33 to 95.5 ft•lb)

NOTE: ______________________________________
Install the connecting arm front bolt ④ from the right.

3. Install:
• rear shock absorber assembly
• rear wheel
Refer to “INSTALLING THE REAR SHOCK ABSORBER ASSEMBLY” and “INSTALLING THE REAR WHEEL”.

4-64
4. Adjust:
• drive chain slack
Refer to “ADJUSTING THE DRIVE CHAIN SLACK” in chapter 3.

Drive chain slack
DT125RE 40–55mm (1,77–2,16 in.)
DT125X 25–40mm (0,98–1,58 in.)
### DRIVE CHAIN AND SPROCKETS

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<tr>
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<tr>
<td>1</td>
<td>Drive sprocket</td>
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<tr>
<td>2</td>
<td>Chain joint</td>
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<tr>
<td>3</td>
<td>Drive chain</td>
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</table>

#### DRIVE CHAIN AND SPROCKETS

- **Drive sprocket**
- **Chain joint**
- **Drive chain**

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<td>(0.984–1.575in)</td>
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32 to 37 Nm (3.2 to 3.7 m • kg, 23.5 to 27.1 ft•lb)
REMOVING THE DRIVE CHAIN

1. Stand the motorcycle on a level surface.

**WARNING**

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

**NOTE:**

Place the motorcycle on a suitable stand so that the rear wheel is elevated.

2. Remove:
   - Crankcase cover (left)  

3. Straighten:
   - Lock washer tab  

4. Loosen:
   - Nut (drive sprocket)  

**NOTE:**

When loosening the drive sprocket nut, apply the rear brake pedal and transmission gear to the 6th position.

5. Remove:
   - Clip (master link)  
   - Plate (master link)  
   - master link  
   - O-rings  
   - Drive chain  

6. Remove:
   - Chain guide  
   - Drive sprocket  

7. Remove:
   - Rear wheel  
   Refer to the “REAR WHEEL REMOVAL” section.

4-67
8. Remove:
- Chain guide rollers (Upper and lower)

---

CHECKING THE DRIVE CHAIN

1. Measure:
- ten-link section \( a \) of the drive chain
  Out of specification → Replace the drive chain.

![Ten-link drive chain section limit](image)

Ten-link drive chain section limit (maximum)
120 mm (4.72 in)

2. Check:
- drive chain
  Stiffness → Clean and lubricate or replace.

3. Clean:
- drive chain

\\[ \begin{align*}
\text{a. Wipe the drive chain with a clean cloth.} \\
\text{b. Put the drive chain in kerosene and remove any remaining dirt.} \\
\text{c. Remove the drive chain from the kerosene and completely dry it.}
\end{align*} \]
CHECKING THE DRIVE CHAIN

CAUTION

This motorcycle has a drive chain with small rubber O-rings ① between the drive chain side plates. Never use high-pressure water or air, steam, gasoline, certain solvents (e.g., benzine), or a coarse brush to clean the drive chain. High-pressure methods could force dirt or water into the drive chain’s internals, and solvents will deteriorate the O-rings. A coarse brush can also damage the O-rings. Therefore, use only kerosene to clean the drive chain. Don’t soak drive chain in kerosine more than ten minutes. O-ring is damage by kerosine.

4. Check:
- O-rings ① Damage → Replace the drive chain.
- drive chain rollers ② Damage/wear → Replace the drive chain.
- drive chain side plates ③ Damage/wear → Replace the drive chain. Cracks → Replace the drive chain and make sure the battery breather hose is properly routed away from the drive chain and below the swingarm.

5. Lubricate:
- drive chain

Recommended lubricant
Engine oil or chain lubricant suitable for O-ring chains

6. Check:
- drive sprocket
- rear wheel sprocket
  More than 1/4 tooth ④ wear → Replace the drive chain sprockets as a set.
  Bent teeth → Replace the drive chain sprockets as a set.
  ① Correct
  ② Drive chain roller
  ③ Drive chain sprocket

4-69
INSTALLING THE DRIVE CHAIN

1. Lubricate:
   - drive chain
   - master link <NEW>

2. Install:
   - drive chain
   - drive sprocket
   - washer
   - drive sprocket nut

**NOTE:**
While applying the rear brake, tighten the drive sprocket nut.

3. Install:
   - master link
   - O-ring
   - master link plate (with a drive chain cutter)

**CAUTION**
Never install a new drive chain onto worn drive chain sprockets; this will dramatically shorten the drive chain's life.

4. Adjust:
   - drive chain slack
   Refer to “ADJUSTING THE DRIVE CHAIN SLACK” in chapter 3.

**Recommended lubricant**
Engine oil or chain lubricant suitable for O-ring chains

60 Nm (6.0 m•kg, 43 ft•lb)

Drive chain slack DT125RE
45 ~ 55 mm (1.77 ~ 2.16 in)

Drive chain slack DT125X
25 ~ 40 mm (0.984 ~ 1.575 in)
CAUTION

A drive chain that is too tight will overload the engine and other vital parts, and one that is too loose can skip and damage the swingarm or cause an accident. Therefore, keep the drive chain slack within the specified limits.
ENG
CHAPTER 5
ENGINE

ENGINE REMOVAL ................................................................. 5-1
SIDE COVERS ................................................................. 5-1
COOLANT ................................................................. 5-1
TRANSMISSION OIL ................................................................. 5-1
EXHAUST PIPE ................................................................. 5-2
CARBURETOR ................................................................. 5-2
AUTOLUBE PUMP CABLE AND HOSE ........................................... 5-2
CLUTCH CABLE ................................................................. 5-3
Y.P.V.S. CABLES ................................................................. 5-3
RADIATOR HOSE ................................................................. 5-4
LEADS ................................................................. 5-4
DRIVE CHAIN ................................................................. 5-5

ENGINE DISASSEMBLY ......................................................... 5-6
CYLINDER HEAD, CYLINDER AND PISTON ..................................... 5-8
CLUTCH, PRIMARY DRIVE GEAR AND BALANCER GEAR ......................... 5-8
CLUTCH PUSH LEVER ............................................................. 5-11
SHIFT SHAFT AND STOPPER LEVER ........................................... 5-11
MAGNETO ROTOR ................................................................. 5-12
REED VALVE ................................................................. 5-12
CRANKCASE (RIGHT) ............................................................... 5-13
SHIFTER, TRANSMISSION AND BALANCER WEIGHT ......................... 5-14
CRANKSHAFT ................................................................. 5-15
POWER VALVE ................................................................. 5-15
AUTOLUBE PUMP ASSEMBLY .................................................... 5-16

INSPECTION AND REPAIR ......................................................... 5-17
CYLINDER HEAD ................................................................. 5-17
CYLINDER AND PISTON .......................................................... 5-18
PISTON RINGS ................................................................. 5-19
PISTON PIN AND BEARING ...................................................... 5-21
CLUTCH ................................................................. 5-21
PRIMARY DRIVE ............................................................... 5-24
TRANSMISSION AND SHIFTER .................................................. 5-25
SHIFT SHAFT AND STOPPER LEVER ........................................... 5-27
CRANKSHAFT ................................................................. 5-27
AUTOLUBE PUMP ............................................................... 5-28
POWER VALVE ................................................................. 5-29
CRANKCASE ................................................................. 5-30

ENGINE ASSEMBLY AND ADJUSTMENTS ....................................... 5-31
AUTOLUBE PUMP ............................................................... 5-31
POWER VALVE ................................................................. 5-33
CRANKSHAFT AND BALANCER .................................................. 5-35
TRANSMISSION AND SHIFTER .................................................. 5-35
CRANKCASE (RIGHT) ............................................................... 5-39
REED VALVE ................................................................. 5-40
MAGNETO ROTOR ................................................................. 5-41
STOPPER LEVER AND SHIFT SHAFT ........................................... 5-43
CLUTCH PUSH LEVER ............................................................. 5-46
BALANCER GEAR, PRIMARY DRIVE GEAR AND CLUTCH ......................... 5-47
PISTON CYLINDER AND CYLINDER HEAD ....................................... 5-52
REMOUNTING ENGINE ............................................................ 5-56
ENGINE REMOVAL

ENGINE OVERHAUL

NOTE:

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

• Cylinder head
• Cylinder
• Piston and piston ring
• Power valve
• Clutch
• Primary drive gear
• Kick axle
• Shift shaft
• Magneto rotor
• Stator
• Autolube pump

SIDE COVERS

1. Remove:
   • Side cover (right)
   • Side cover (left)
   • Seat

COOLANT

1. Drain:
   • Coolant
     Refer to the “COOLANT REPLACEMENT” section in chapter 3.

TRANSMISSION OIL

1. Drain:
   • Transmission oil
     Refer to the “TRANSMISSION OIL REPLACEMENT” section in chapter 3.
**EXHAUST PIPE**

1. Loosen:
   - Bolts (Exhaust holder)
   - Screw (muffler joint) \( \textcircled{1} \)

2. Remove:
   - A.I.S. hose \( \textcircled{1} \)
   - Bolts (Exhaust pipe) \( \textcircled{2} \)
   - Exhaust pipe \( \textcircled{3} \)

**CARBURETOR**

1. Remove:
   - Fuel tank
   - Carburetor
   Refer to the “CARBURETOR REMOVAL” section in chapter 6.

**AUTOLUBE PUMP CABLE AND HOSE**

1. Remove:
   - Autolube pump cover \( \textcircled{1} \)

2. Disconnect:
   - hose \( \textcircled{1} \)
     (from autolube pump and hose guide)
   - Gasket (autolube pump cover \( \textcircled{2} \))

**NOTE:**
Plug the oil hose so that oil will not run out of the oil tank.

3. Remove:
   - Pump cable \( \textcircled{1} \)

**NOTE:**
Turn the pump pulley clockwise by finger to make the pump cable loose enough for its end to be removed from the pulley.
CLUTCH CABLE
1. Loosen:
   • Adjuster (Clutch cable) ②

2. Loosen:
   • Adjuster lock nuts (Clutch cable)①

3. Disconnect:
   • Clutch cable②
     (from clutch push lever ③ and cable guide ④).

Y.P.V.S. CABLES
1. Remove:
   • Pulley cover (Power valve) ①

2. Remove:
   • Pulley (Power valve) ①

Removal steps
- Loosen both locknuts ② and turn in both adjusters ③.
- Insert a pin (Ø4mm.(Ø0.16in)) through the aligning indent in the pulley ④ and into the hole to lock the pulley.
- Remove the pulley ① from the power valve and then disconnect the Y.P.V.S. cables ⑤ from the pulley.
- Remove the pin
3. Disconnect:
   • Servomotor unit leads

4. Remove:
   • Servomotor unit
   • Adjuster (Y.P.V.S. cable)
   • Pulley housing

RADIATOR HOSES

1. Disconnect:
   • Radiator hose (Inlet)

2. Disconnect:
   • Radiator hose (Outlet)

LEADS

1. Disconnect:
   • Battery lead (Negative)

2. Disconnect:
   • Spark plug lead
   • Thermo unit lead
3. Disconnect:
- CDI magneto leads

4. Remove:
- Bands

**DRIVE CHAIN**

1. Remove:
- Change pedal
- Crankcase cover (Left)
- Gasket (Crankcase cover)

2. Straighten:
- Lock washer tab

3. Loosen:
- Nut (Drive sprocket)

**NOTE:**
When loosening the nut (Drive sprocket) apply the rear brake pedal and transmission gear to the 6th position

4. Remove:
- Drive chain
- Nut (Drive sprocket)
- Lock washer
- Drive sprocket
- Spacer collar

**ENGINE REMOVAL**

1. Remove:
- Bolts (Engine stay ➔ Upper)
- Bolts (Engine mount ➔ Front)
2. Remove:
- Bolt (Engine mount → Rear lower)
- Pivot shaft

**NOTE:**
The engine and swingarm are installed using the same pivot shaft. Therefore, take care so that the pivot shaft is pulled, not entirely, out, but for enough to set the engine free.

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

**ENGINE DISASSEMBLY**
**CYLINDER HEAD, CYLINDER AND PISTON**

**NOTE:**
With the engine mounted, the cylinder head, cylinder and piston can be maintained by removing the following parts:
- Side covers (Right and left)
- Seat
- Radiator cover
- Oil tank cover
- Fuel tank
- Radiator hose (inlet)
- Servomotor unit (Y.P.V.S.)
- Engine stay (Upper)
- Exhaust pipe

1. Remove:
- Hoses (Inlet ① and Outlet ②)
2. Remove:
• Spark plug ①
• Thermo unit ②

**WARNING**

Handle the thermo unit with special care. Never subject it to strong or allow it to be dropped. In case of being dropped, it must be replaced.

3. Remove:
• Cover (thermostatic valve)

4. Remove:
• Gasket ①
• Thermostatic valve ②
• O-ring ③

5. Remove:
• Cylinder head
• Gasket (Cylinder head)

**NOTE:**
- Loosen the nuts starting with the highest numbered one.
- Loosen each nut 1/4 turn, and remove them after all nuts are loosened.

6. Remove:
• Clutch cable guide
• Cylinder ①
• Gasket (Cylinder)
• Dowel pins

**NOTE:**
Loosen each nut 1/4 turn, and remove them after all nuts are loosened.
REMOVING THE CYLINDER AND PISTON

1. Remove:
   • piston pin clip
   • piston pin
   • piston

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

NOTE:
• Before removing the piston pin clip, cover the crankcase opening with a clean rag to prevent the piston pin clip from falling into the crankcase.
• Before removing the piston pin, deburr the piston pin clip’s groove and the piston’s pin bore area. If both areas are deburred and the piston pin is still difficult to remove, remove it with the piston pin puller set.

2. Remove:
   • top ring
   • 2nd ring
   • oil ring

NOTE:
When removing a piston ring, open the end gap with your fingers and lift the other side of the ring over the piston crown.

CLUTCH, PRIMARY DRIVE GEAR AND BALANCER GEAR

NOTE:
With the engine mounted, the clutch, primary drive gear and balancer gear can be maintained by removing the following parts:

• Brake pedal
• Radiator hose (Outlet)
• Autolube pump cable and hoses
• Crankcase cover (Right)
1. Remove:
   - Water outlet pipe ①
   - O-Ring ②
     (from water outlet pipe)
   ① Right side
   ② Left side

2. Remove:
   - Crankcase cover (Right)
   - Dowel pins
   - Gasket (Crankcase cover)

3. Remove:
   - Bolts ①
   - Clutch springs ②
   - Pressure plate ③
   - Push rod #1 ④
   - Friction plates ⑤
   - Clutch plates ⑥
   - Clutch dumper ⑦
   - Nut (Clutch boss) ⑧
   - Lock washer ⑨
   - Clutch boss ⑩
   - Thrust washer ⑪
   - Clutch housing ⑫
   - Thrust plate ⑬
   - Conical spring washer ⑭
   - Boll ⑮
   - Push rod #2 ⑯
ENGINE DISASSEMBLY

NOTE:
- Before loosening the nut (Clutch boss) straighten the lock washer tab.
- Hold the clutch boss to loosen the nut (Clutch boss) by the universal Clutch holder.

4. Straighten:
   - Lock washer tab

5. Loosen:
   - Nut (Primary drive gear)
   - Nut (Balancer gear)

NOTE:
Hold the magneto rotor to loosen the nut (primary drive gear) and nut (Balancer driven gear) by the universal rotor holder

6. Remove:
   - Nut (Balancer driven gear)
   - Lock washer
   - Driven gear (Balancer weight)
   - Straight key
   - Nut (Primary drive gear)
   - Plain washer
   - Primary drive gear
   - Baffle plate

7. Remove:
   - Drive gear (Balancer weight)
   - Straight key
8. Remove:
- Spacer collar ①
- Oil seal retainer ②

CLUTCH PUSH LEVER
1. Unhook:
- Return spring (Push lever) ①

2. Remove:
- Push lever (Clutch) ②
- Return spring ③
- Washer ④

SHIFT SHAFT AND STOPPER LEVER

NOTE: With the engine mounted, the shift shaft can be maintained by removing the following parts.
- Brake pedal
- Radiator hose (Outlet)
- Autolube pump cable and hoses
- Crankcase cover (Right)
- Clutch

1. Remove:
- Shift shaft ①

CAUTION
When removing the shift shaft, hold the guide bar (shift fork) ② in place. Otherwise, the guide bar will come loose with the shift shaft, leaving the shift fork out of order in the crankcase.

2. Remove:
- Stopper lever ①
- Return spring ②
ENGINE DISASSEMBLY

ROTOR

NOTE: 
With the engine mounted, the rotor can be maintained by removing the following parts:
• Crankcase cover (Left).

1. Remove:
• Nut (Rotor)
• Plain washer

NOTE: 
Hold the rotor to loosen the nut (Rotor) by the Universal Rotor Holder

Universal Rotor Holder
90890-01235

2. Remove:
• Rotor
• Woodruff key

Rotor Puller
90890-01189

3. Disconnect:
• Neutral switch lead

4. Remove:
• Stator

REED VALVE

NOTE: 
With the engine mounted, the reed valve can be maintained by removing the following parts:
• Side covers (Right and Left)
• Seat
• Radiator cover
• Oil tank cover
• Fuel tank
• Carburetor
1. Remove:
   • Carburetor joint
   • Reed valve assembly
   • Gasket

CRANKCASE RIGHT
1. Remove:
   • Crankcase (Right)

NOTE:
• Loosen the bolts starting with the highest numbered one.
• Loosen each bolt 1/4 turn and remove them after all bolts are loosened.

Removal steps:
• Attach the Crankcase Separating Tool

Crankcase Separating Tool:
90890-01135

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 evel tool body.
• As pressure is applied alternately tap on the front engine mounting boss, transmission shafts and shift cam. Then remove the crankcase (Right).

NOTE:
Turn the shift cam to the position shown in the figure so that it doesn’t contact the crankcase when separating the crankcase.
CAUTION

- Use soft hammer to tap on the case half.
- Tap only on reinforced portions of case.
- Don’t 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 don’t separate, check for a remaining case screw or fitting.
- Don’t force.

2. Remove:
   - Dowel pins ①
   - Damper collar ②

3. Remove:
   - Bearing retainer ①

SHIFT, TRANSMISSION AND BALANCER WEIGHT

1. Remove:
   - Guide bars ①
   - Shift cam ②
   - Shift forks ③

NOTE:
Note the position of each part. Pay particular attention to the location and direction of shift forks.

2. Remove:
   - Transmission assembly
     Tap lightly on the transmission drive axle with a soft hammer.
3. Remove:
• Balancer weight

CRANKSHAFT
1. Remove:
• Crankshaft

NOTE:
• Remove the crankshaft with the Crankcase Separating Tool
• 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.

POWER VALVE
NOTE:
With the engine mounted, the power valve can be maintained by removing the following parts:
• Side covers
• Seat
• Radiator cover
• Cover (engine oil tank)
• Fuel tank
• Servomotor unit

Crankcase Separating Tool:
90890-01135
1. Remove:
   • Hose guide
   • Power valve holder (Right)\(^2\)

2. Remove:
   • Bolt (Power valve) \(^1\)

   **NOTE:**
   When loosening the power valve connecting bolt \(^1\), lock the valve by inserting a wooden piece \(^2\) into the exhaust port.

3. Remove:
   • Power valve (Right) \(^1\)
   • Power valve (Left) \(^2\)
   • Dowel pins \(^3\)
   • Holder (Power valve)
   • Gasket seal

**AUTOLUBE PUMP ASSEMBLY**

**NOTE:**
With the engine mounted, the autolube pump assembly can be maintained by removing the following parts:
   • Brake pedal
   • Radiator hose (Outlet)
   • Autolube pump cable and hoses
   • Kick crank
   • Crankcase cover (Right)
1. Remove: (ref. oil pump)
   • ① Circlip
   • ② Drive gear (autolube pump)
   • ① Circlip
   • ③ Oil seal
   • ④ Collar
   • ⑤ Pin
   • ⑥ Drive shaft (autolube pump)
   • ⑦ O-Ring
   • ⑧ Autolube pump

CHECKING THE CYLINDER HEAD
1. Eliminate:
   • combustion chamber carbon deposits
     (with a rounded scraper)

NOTE: ______________________________
Do not use a sharp instrument to avoid damaging or scratching:
• spark plug bore threads
• valve seats

2. Check:
   • cylinder head
     Damage/scratches → Replace.

3. Measure:
   • cylinder head warpage
     Out of specification → Resurface the cylinder head.

Maximum cylinder head warpage
0.03 mm (0.0012 in)
INSPECTION AND REPAIR

a. Place a straightedge ① and a thickness gauge ② across the cylinder head.
b. Measure the warpage.
c. If the limit is exceeded, resurface the cylinder head as follows.
d. Place a 400 ~ 600 grit wet sandpaper on the surface plate and resurface the cylinder head using a figure-eight sanding pattern.

NOTE:
To ensure an even surface, rotate the cylinder head several times.

CHECKING THE CYLINDER AND PISTON

1. Check:
   • piston wall
   • cylinder wall
   Vertical scratches → Rebore or replace the cylinder, and replace the piston and piston rings as a set.

2. Measure:
   • piston-to-cylinder clearance

   a. Measure cylinder bore “C” with the cylinder bore gauge.

NOTE:
Measure cylinder bore “C” by taking side-to-side and front-to-back measurements of the cylinder. Then, find the average of the measurements.

Cylinder bore gauge
56.00 ~ 56.02 mm (2.2047 ~ 2.2055 in)
INSPECTION AND REPAIR

<table>
<thead>
<tr>
<th>Cylinder Bore “C”</th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>56.00 ~ 56.02 mm</td>
<td>(2.204 ~ 2.205 in)</td>
</tr>
</tbody>
</table>

| Taper “T” | — | 0.05 mm | (0.001968 in) |
| Out of round “R” | — | 0.01 mm | (0.00039 in) |

\[ C = \text{maximum of } D_1 ~ D_2 \]
\[ T = \text{maximum of } D_1 \text{ or } D_2 - \text{maximum of } D_5 \text{ or } D_6 \]
\[ R = \text{maximum of } D_1, D_3 \text{ or } D_5 - \text{minimum of } D_2, D_4 \text{ or } D_6 \]

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

c. Measure piston skirt diameter “P” with the micrometer.

**Micrometer**

90890 - 03008

Piston size “P”

| Standard | 56.34 ~ 56.40 mm | (2.218 ~ 2.220 in) |
| Oversize | 56.65 mm | (2.23 in) |
| Oversize | 56.90 mm | (2.24 in) |

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

e. Calculate the piston-to-cylinder clearance with the following formula.

\[ \text{Piston-to-cylinder clearance} = \frac{\text{Cylinder bore “C” - Piston skirt diameter “P”}}{}} \]

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

CHECKING THE PISTON RINGS

1. Measure:
   * piston ring side clearance
     
     Out of specification ➔ Replace the piston and piston rings as a set.
NOTE: 
Before measuring the piston ring side clearance, eliminate any carbon deposits from the piston ring grooves and piston rings.

**Piston ring side clearance**

- **Top ring**
  - 0.02 ~ 0.060 mm (0.0008 ~ 0.0024 in)

- **2nd ring**
  - 0.035 ~ 0.070 mm (0.0014 ~ 0.0028 in)

2. Install:
- • piston ring 
  (into the cylinder)

NOTE:  
Level the piston ring into the cylinder with the piston crown.

3. Measure:
- • piston ring end gap
  - Out of specification ➔ Replace the piston ring.

NOTE:  
The oil ring expander spacer’s end gap cannot be measured. If the oil ring rail's gap is excessive, replace all three piston rings.

**Piston ring end gap**

- **Top ring**
  - 0.3 ~ 0.45 mm
    - (0.012 ~ 0.018 in)

- **2nd ring**
  - 0.30 ~ 0.45 mm
    - (0.012 ~ 0.018 in)
Piston ring oversize
- Top and 2nd piston rings
The size of the top and 2nd oversize piston rings is stamped on the top of each ring.

Oversize
- 25 mm
- 50 mm

PISTON PIN AND BEARING
1. Lubricate:
   - Small end bearing ①
   - Piston pin ②
     (Lightly)
2. Install:
   - Small end bearing ①
   - Piston pin ②
     (into small end ③ of connecting rod)
3. Check:
   - Free play
     There should be no noticeable play. Free play exists → Inspect the connecting rod for wear/Replace the pin and/or connecting rod as required.
4. Install:
   - Piston pin
     (into piston pin hole)
5. Check:
   - Free play (when the piston pin is in place in the piston).
     There should be no noticeable play. Free play exists → Inspect the connecting rod for wear/Replace the pin and/or connecting rod as required.
6. Inspect:
   - Piston pin and bearing
     Signs of heat discoloration → Replace

CHECKING THE FRICTION PLATES
The following procedure applies to all of the friction plates.
1. Check:
   - Friction plate
     Damage/wear → Replace the friction plates as a set.
2. Measure:
  • friction plate thickness
    Out of specification → Replace the friction plates as a set.

**NOTE:**
Measure the friction plate at four places.

Friction plate thickness
2.9 ~ 3.1 mm (0.11 ~ 0.12 in)
<Limit>: 2.7 mm

**CHECKING THE CLUTCH PLATES**
The following procedure applies to all of the clutch plates.

1. Check:
  • clutch plate
    Damage → Replace the clutch plates as a set.

2. Measure:
  • clutch plate warpage
    (with a surface plate and thickness gauge)
    Out of specification → Replace the clutch plates as a set.

Clutch plate warpage limit
0.05 mm (0.001 in)

**CHECKING THE CLUTCH SPRINGS**
The following procedure applies to all of the clutch springs.

1. Check:
  • clutch spring
    Damage → Replace the clutch springs as a set.
2. Measure:
• clutch spring free length
  Out of specification → Replace the clutch springs as a set.

Clutch spring free length
34.5mm (1.36 in)

CHECKING THE CLUTCH HOUSING
1. Check:
• clutch housing dogs
  Damage/pitting/wear → Deburr the clutch housing dogs or replace the clutch housing.

NOTE: Pitting on the clutch housing dogs will cause erratic clutch operation.

2. Check:
• bearing
  Damage/wear → Replace the bearing and clutch housing.

CHECKING THE CLUTCH BOSS
1. Check:
• clutch boss splines
  Damage/pitting/wear → Replace the clutch boss.

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

CHECKING THE PRESSURE PLATE
1. Check:
• pressure plate
  Cracks/damage → Replace.
• bearing
  Damage/wear → Replace.
CHECKING THE CLUTCH PUSH RODS

1. Check:
   - O-ring
   - short clutch push rod
   - long clutch push rod
   - ball

   Cracks/damage/wear → Replace the defective part(s).

2. Measure:
   - long clutch push rod bending limit
     Out of specification → Replace the long clutch push rod.

CHECKING THE PRIMARY DRIVE

1. Check:
   - primary drive gear
   - primary driven gear
     Damage/wear → Replace the primary drive and primary driven gears as a set.
     Excessive noise during operation → Replace the primary drive and primary driven gears as a set.

2. Check:
   - primary-drive-gear-to-primary-driven-gear free play
     Free play exists → Replace the primary drive and primary driven gears as a set.
CHECKING THE SHIFT FORKS
The following procedure applies to all of the shift forks.

1. Check:
   • shift fork cam follower
   • shift fork pawl
     Bends/damage/scoring/wear → Replace the shift fork.

2. Check:
   • shift fork guide bar
     Roll the shift fork guide bar on a flat surface.
     Bends → Replace.

WARNING
Do not attempt to straighten a bent shift fork guide bar.

3. Check:
   • shift fork movement (along the shift fork guide bar)
     Rough movement → Replace the shift forks and shift fork guide bar as a set.

CHECKING THE SHIFT DRUM ASSEMBLY
1. Check:
   • shift drum grooves
     Damage/scratches/wear → Replace the shift drum assembly.
   • shift drum segment
     Damage/wear → Replace the shift drum assembly.
   • shift drum bearing
     Damage/pitting → Replace the shift drum assembly.
CHECKING THE TRANSMISSION

1. Measure:
   • main axle runout
     (with a centering device and dial gauge 1)
     Out of specification → Replace the main axle.

   Main axle runout limit
   0.08 mm (0.0031 in)

2. Measure:
   • drive axle runout
     (with a centering device and dial gauge 1)
     Out of specification → Replace the drive axle.

   Drive axle runout limit
   0.08 mm (0.0031 in)

3. Check:
   • transmission gears
     Blue discoloration/pitting/wear →
     Replace the defective gear(s).
   • transmission gear dogs
     Cracks/damage/rounded edges →
     Replace the defective gear(s).

4. Check:
   • transmission gear engagement
     (each pinion gear to its respective wheel gear)
     Incorrect → Reassemble the transmission axle assemblies.

5. Check:
   • transmission gear movement
     Rough movement → Replace the defective part(s).

6. Check:
   • circlips
     Bends/damage/looseness → Replace.
CHECKING THE SHIFT SHAFT

1. Check:
   - shift shaft ①
   - shift pawls ②
     Bends/damage/wear → Replace.

2. Check:
   - stopper lever ③
     Roller turns roughly → Replace
     Bend/damage → Replace

3. Check:
   - Return spring (shift shaft) ④
   - Return spring (Shift pawls) ⑤
   - Return spring (Stopper lever) ⑥
     Wear/damage → Replace.

CHECKING THE CRANKSHAFT AND CONNECTING ROD

1. Measure:
   - crankshaft runout
     Out of specification → Replace the crankshaft, bearing or both.

   NOTE:  
   Turn the crankshaft slowly.

   Maximum crankshaft runout
   0.03 mm (0.0012 in)

2. Measure:
   - big end side clearance
     Out of specification → Replace the big end bearing, crankshaft pin, or connecting rod.

   Big end side clearance
   0.2~0.7mm (0.0079~0.0276in)
3. Measure:
• crankshaft width
  Out of specification → Replace the crankshaft.

4. Check:
• crankshaft sprocket ①
  Damage/wear → Replace the crankshaft.
• bearing ②
  Cracks/damage/wear → Replace the crankshaft.

AUTOLUBE PUMP
Wear or an internal malfunction may cause pump output to vary from the factory settings. This situation is, however extremely dangerous. If improper output is suspected, inspect the following:

1. Inspect:
• Delivery line
  Obstructions → Blow out.
• Pump body seal/crankcase cover seal
  Wear/damage → Replace.

2. Inspect:
• Allowing air
  Air exists → Air bleed.
  Refer to the “AUTOLUBE PUMP AIR BLEEDING” section in chapter 3.
3. Check:
• Pump output.
  Out of specification ➔ Adjust.

Minimum output/200 stroke:
  0.38 ~ 0.50 cm³ (0.02 ~ 0.03 cu.in)
Maximum output/200 stroke:
  4.65 ~ 5.15 cm³ (0.28 ~ 0.31 cu.in)

4. Check:
• Drive gear (Autolube pump) ②
• Drive shaft (Autolube pump) ⑧
• Pivot collar (Drive shaft) ④
  Wear/damage ➔ Replace.

POWER VALVE
1. Eliminate:
  • Score marks and lacquer deposits.
  • Carbon deposits.
    (from power valve ①, specially in cleaning groove ② surface, and its contact surface of cylinder block).

2. Check:
• O-rings ①
• Bushes ②
• Gsket seals ③
  Wear/damage ➔ Replace
CHECKING THE CRANKCASE

1. Thoroughly wash the crankcase halves in a mild solvent.
2. Thoroughly clean all the gasket surfaces and crankcase mating surfaces.
3. Check:
   • crankcase
     Cracks/damage ➔ Replace.
   • oil delivery passages
     Obstruction ➔ Blow out with compressed air.
AUTOLUBE PUMP

1. Autolube pump
2. End cap
3. Hose
4. Clip
5. Adjusting bolt
6. Washer
7. Drive shaft
8. Collar
9. O-Ring
10. Screw
11. Oil seal
12. Autolube pump gear
13. Pin
14. Circlip

5 Nm (0.5 m•kg, 3.6 ft•lb)
AUTOLUBE PUMP

1. Lubricate:
   - Oil seal lips

2. Install:
   - Drive shaft (autolube pump)
   - Circlip
   - Pin
   - Drive gear (autolube pump)
   - Circlip
   - O-ring
   - Autolube pump

**WARNING**

- Always use a new circlip
- Always use a new O-ring

Lightweight Lithium-soap base grease

Screw (Autolube pump): 5 Nm (0.5m•kg; 3.6ft•lb)
POWER VALVE

1. Power valve  
2. Power valve holder (right)  
3. O-ring  
4. Power valve holder (left)  
5. Gasket seal  
6. Pulley housing  
7. Pulley  
8. Pulley cover  
9. Y.P.V.S. Cable

- USE NEW ONE

**Torque Specifications:**
- 7 Nm (0.7 m • kg, 5.1 ft•lb)
- 10 Nm (1.0 m • kg, 7.2 ft•lb)
POWER VALVE

1. Lubricate:
   • Power valve connecting rod
   • O-rings
   • Gasket seal
   • Bushes (Power valve shaft contact surface)
   • Power valve surface

Molybdenum Disulfide Grease

• O-rings
• Gasket seal
• Bushes (Power valve shaft contact surface)
• Power valve surface

Lightweight Lithium-soap base grease

2. Install:
   • Power valve holder (Left)
   • Gasket seal (to left power valve)
   • Dowel pins
   • Power valve (Left and right) (to cylinder block)
   • Bolt (Power valve)

3. Tighten:
   • Bolt (Power valve)

NOTE:
When tightening the power valve connecting bolt, lock the valve by inserting a wooden piece into the exhaust port.

Bolt (Power Valve): 7 Nm (0.7 m•kg; 5.1 ft•lb)

4. Install:
   • Power valve holder

Bolt (Power Valve Holder): 7 Nm (0.7 m•kg; 5.1 ft•lb)

5. Check:
   • Power valve operation
   Unsmooth operation → Repair.
CRANKSHAFT/PISTON/BALANCER

1. Balancer gear
2. Bearing
3. Straight key
4. Balancer weight
5. Bearing
6. Drive gear
7. Oil seal
8. Collar
9. Bearing
10. Piston ring set
11. Piston
12. Piston pin
13. Piston pin clip
14. Small end bearing
15. Straight key
16. Crank (Right)
17. Thrust bearing
18. Connecting rod
19. Crank pin
20. Big end bearing
21. Crank (Left)
22. Wodruff key
23. Bearing
24. Oil seal

A  PISTON TO CYLINDER CLEARANCE: 0.045–0.050 mm (0.0018–0.0020in)

B  EN GAP (INSTALLED):
   Top ring 0.30–0.45mm (0.012–0.018in)
   2nd ring 0.30–0.45mm (0.012–0.018in)

C  CRANKSHAFT
   Width 57.90–57.95mm (2.279–2.271in)
   Max Runout 0.03mm (0.012in)
   Big end side clearance 0.2–0.7mm (0.0079–0.0276in)
   Big end radial clearance 0.026–0.040mm (0in)

D  BALANCER GEAR INSTALLATION
ENGINE ASSEMBLY AND ADJUSTMENTS

TRANSMISSION

1. Main axle
2. 2nd pinion gear
3. 3rd 4th pinion gear
4. 5th pinion gear
5. 6th pinion gear
6. Plain washer
7. Circlip
8. Bearing
9. Cylindrical bearing
10. Drive axle
11. 1st wheel gear
12. 2nd wheel gear
13. 3rd wheel gear
14. 4th wheel gear
15. 5th wheel gear
16. 6th wheel gear
17. Special washer
18. Oil seal
19. Drive sprocket
20. Lock washer

A. RUNOUT LIMIT
   0.08mm (0.003in)

B. USE NEW ONE
ENGINE ASSEMBLY AND ADJUSTMENTS

SHIFTER

① Shift cam
② Stopper lever
③ Return spring
④ Securing bolt
⑤ Shift fork #1

⑥ Shift fork #2
⑦ Shift fork #3
⑧ Shift fork #1
⑨ Shift fork #2

14 Nm (1.4 m•kg, 10 ft•lb)
INSTALLING THE CRANKSHAFT

1. Install:
   • crankshaft assembly

NOTE:

• Install the crankshaft assembly with the crankshaft installer pot, crankshaft installer bolt, adapter (M12) and spacer.

CAUTION

To avoid scratching the crankshaft and to ease the installation procedure, lubricate the oil seal lips with lithium-soap-based grease and each bearing with engine oil.

NOTE:

Hold the connecting rod at top dead center (TDC) with one hand while turning the nut of the crankshaft installer bolt with the other. Turn the crankshaft installer bolt until the crankshaft assembly bottoms against the bearing.

INSTALLING THE SHIFT FORKS AND SHIFT DRUM ASSEMBLY

1. Install:
   • shift fork guide bars ①
   • shift fork “3” ②
   • shift fork “2” ③
   • shift fork “1” ④
NOTE:

- The embossed marks on the shift forks should face towards the left side of the engine and be in the following sequence: “3”, “2”, “1”.
- The grooved side of the shift fork guide bar should face towards the right side of the engine.

CRANKCASE (RIGHT)

1. Install:
   - Bearing retainer

2. Apply:
   - Yamaha Bond nº4
     (to mating surface of both crankcase halves)

3. Install:
   - Damper collar
   - Dowel pins

4. Install:
   - Crankcase (Right)

**Installation steps:**
- Apply the lithium soap base grease to the oil seal lips.
- Fit the right crankcase onto the left case. Tap lightly on the case with a soft hammer.

NOTE:

Turn the shift cam to the position shown in the figure so that it doesn’t contact the crankcase when installing the crankcase.

- Install the water outlet pipe stay
- Tighten the bolts (Crankcase)
ENGINE ASSEMBLY AND ADJUSTMENTS

CAUTION

Before installing and torquing the bolts (Crankcase) be sure to check whether the transmission is functioning properly by manually rotating the shift cam either way.

NOTE:

Tighten the bolts (Crankcase) in stage, using a crisscross pattern.

Bolts (Crankcase):
8 Nm (0.8 m•kg; 5.8 ft•lb)

5. Apply:
• 2 stroke oil
  (to crank pin, bearing and oil delivery hole).

6. Check:
• Crankshaft and transmission operation
  Unsmooth operation → Repair.

REED VALVE

1. Install:
• Breather hose (Crankcase)
• Gasket ①
• Reed valve assembly ②
• Carburetor joint ③

WARNING

• Always use a new gasket.
• A damaged gasket may cause the engine revs to accelerate.

2. Tighten:
• Bolts (Carburetor joint)

Bolts (Carburetor joint):
8 Nm (0.8 m•kg; 5.8 ft•lb)
MAGNETO ROTOR

1. Stator assembly
2. Rotor
3. Washer

80 Nm (8.0 m•kg, 58 ft•lb)
MAGNETO ROTOR

1. Install:
   - Stator ①

2. Connect:
   - Neutral switch lead ①

3. Install:
   - Woodruf key ①
   - Rotor ②
   - Plain washer ③
   - Nut (Rotor) ④

NOTE:
- Clean the tapered portions of the crankshaft and rotor.
- When installing the rotor, make sure the key is properly seated in the key way of the crankshaft.
- Hold the rotor by the Rotor Holder to tighten the nut

Screw (Stator):
- 8 Nm (0.8 m•kg; 5.8 ft•lb)
- Use Loctite®

Universal Rotor Holder:
- 90890-01235

Nut (Rotor):
- 80 Nm (8.0 m•kg; 58 ft•lb)
SHIFT SHAFT

1. Shift tank
2. Spring
3. Circlip
4. Oil seal
5. Change pedal

\[ 15 \text{Nm (1.5 m} \cdot \text{kg, 11ft} \cdot \text{lb)} \]
STOPPER LEVER AND SHIFT SHAFT

1. Install:
   • Return spring ①
   • Stopper lever ②

   14Nm (1.4m•kg, 10 ft•lb)

   NOTE:
   • Mesh the stopper lever with the shift cam.

2. Install:
   • shift shaft ①

   NOTE:
   • Lubricate the oil seal lips with lithium-soap-based grease.

3. Check:
   • shift pawl ① position
     Gaps ⑥ and ⑧ are not equal → Replace the defective part(s).

   ② Shift cam

CLUTCH PUSH LEVER

1. Lubricate:
   • Bearing ①
   • Oil seal lip ②
   • Washer ③
   • Push lever axle ④

   Lithium Soap Base Grease
2. Install:
   • Washer ①
   • Return spring ②
   • Push lever ③

3. Set the return spring ② to the spring hook ④.
CLUTCH AND PRIMARY DRIVE GEAR

1. Clutch spring
2. Pressure plate
3. Push plate
4. Clutch plate
5. Friction plate
6. Clutch damper
7. Clutch boss
8. Thrust washer
9. Clutch housing
10. Thrust plate
11. Conical spring washer
12. Push rod #1
13. Ball
14. Push rod #2
15. Push lever axle
16. Return spring
17. Bearing
18. Primary drive gear

A  CLUTCH SPRING FREE LENGTH LIMIT: 34.5 mm (1.26 in)
B  FRICTION PLATE WEAR LIMIT 2.7 mm (0.106 in)
C  CLUTCH PLATE WEAR LIMIT: 0.05 mm (0.002 in)

70 Nm (7.0 m • kg, 50 ft•lb)
80 Nm (8.0 m • kg, 58 ft•lb)
BALANCER GEAR, PRIMARY DRIVE GEAR AND CLUTCH

1. Install:
   • Oil seal retainer (1)
   • Spacer collar (2)

   **NOTE:**
   Before installing the spacer collar (2), grease the oil seal lip (3).

2. Install:
   • Straight key (1)
   • Drive gear (Balancer weight) (2)
   • Baffle plate (3)

   **Screw (Baffle Plate):**
   8 Nm (0.8 m•kg; 5.8 ft•lb)
   Use Loctite®

3. Install:
   • Driven gear (Balancer weight) (1)
   • Straight key (2)

   **CAUTION**
   Align the balancer drive gear mark 3 with the balancer driven gear mark 4

4. Install:
   • Lock washer (1)
   • Nut (Balancer driven gear) (2)
   • Plain washer (3)
   • Nut (Primary drive gear) (4)

   **NOTE:**
   Install the lock washer tab (5) into the key way of the balancer driven gear (6).
**WARNING**

Always use a new lock washer

---

5. Tighten:
   - Nut (Primary drive gear) 1
   - Nut (Balancer driven gear) 2

<table>
<thead>
<tr>
<th>Nut (Primary drive gear):</th>
<th>80 Nm (8.0 m•kg; 58 ft•lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nut (Balancer driven gear):</td>
<td>55 Nm (5.5 m•kg; 40 ft•lb)</td>
</tr>
</tbody>
</table>

NOTE:

Hold the rotor to tighten the nut (Primary drive gear) 1 and nut (Balancer driven gear) 2 by the Universal Rotor Holder

| Universal Rotor Holder: | 90890-01235 |

6. Bend the lock washer tab 3 along the nuts flats.

7. Lubricate:
   - Push rod #2
   - Ball 2

| Lithium Soap Base Grease |
8. Install:
- Push rod #2
- Ball (2)
- Conical spring washer (3)
- Thrust plate (4)
- Clutch housing (5)
- Thrust washer (6)
- Clutch boss (7)
- Lock washer (8)
- Nut (Clutch boss) (9)

**WARNING**
Always use a new lock washer

**NOTE:**
- Be careful to install the conical spring washer (3) in proper position as shown.
- Install the lock washer tab (8) onto the indentation of the clutch boss.

9. Tighten:
- Nut (Clutch boss)

| Nut (Clutch boss): | 70 Nm (7.0 m•kg; 50 ft•lb) |

**NOTE:**
Hold the clutch boss to tighten the nut (clutch boss) by the Universal Clutch Holder (1)

| Universal Clutch Holder: | 90890-04086 |

10. Bend the lock washer tab along the nut flats.
11. Install:
- Friction plates ①
- Clutch plates ②
- Clutch damper ③

Installation steps
- Install the friction plate onto the clutch boss.
- Install the clutch plate so as to locate the projection ④ at #1.
- Install the friction plate with the larger inside diameter onto the clutch boss.
- Install the clutch damper onto the clutch plate.
- Install the remaining clutch plates and friction plates alternately on the clutch boss.
- Be sure to install a clutch plate with projection offset approximately 60° from previous plate projection. Continue this procedure in a clockwise direction until all clutch plates are installed.

NOTE: Before installing friction and clutch plates, sink them into transmission oil almost 3 hours before mounting

12. Install:
- Push rod #1 ①
- Pressure plate ②
- Clutch springs ③
- Bolts (Pressure plate) ④

NOTE: Align the punched mark ⑤ on the clutch boss with the punched mark ⑥ on the clutch pressure plate.

13. Tighten:
- Bolts (Pressure plate)

Bolt (Pressure plate):
6 Nm (0.6 m•kg; 4.8 ft•lb)
NOTE: 
Tighten the bolts (pressure plate) in stage, using a crisscross pattern

14. Adjust:
• Clutch mechanism free play
  Refer to the “CLUTCH MECHANISM ADJUSTMENT” section in chapter 3.

15. Install:
• Gasket (Crankcase cover)
• Dowel pins
• Crankcase cover (Right) ①
• Drain plug (Transmission oil) ②
• Drain plug (Coolant) ③

NOTE: 
Tighten the screws (Crankcase cover) in stage using a crisscross pattern

⚠️ WARNING
Always use a new gasket

Screw (Crankcase cover): 8 Nm (0.8 m•kg; 5.8 ft•lb)
Drain plug (Transmission Oil): 15Nm (1.5 m•kg; 11 ft•lb)
Drain plug (Coolant): 10Nm (1.0 m•kg; 7.2 ft•lb)

16. Apply the grease to the O-ring
17. Install:
• O-ring ①
  (to water outlet pipe ②)
• Water outlet pipe ②

⚠️ WARNING
Always use a new O-ring

Screw (Water Outlet Pipe): 8 Nm (0.8 m•kg; 5.8 ft•lb)
ENGINE ASSEMBLY AND ADJUSTMENTS

CYLINDER HEAD AND CYLINDER

1. Spark plug
2. Cylinder head
3. Cylinder head gasket
4. Cylinder
5. Cylinder gasket

**A** SPARK PLUG

**B** MANUFACTURER
NGK

**C** TYPE:
BR9ES

**D** PLUG GAP:
0.7~0.8mm
(0.028~0.0012in)

**E** CYLINDER HEAD
WARRAGE LIMIT:
0.03mm (0.0012in)

- **F** USE NEW ONE

- **G** The “UP” mark on the
gasket must be facing up

- **H** 20 Nm (2.0m • kg, 14ft•lb)

- **I** 22 Nm (2.2m • kg, 16ft•lb)

- **J** 28 Nm (2.8m • kg, 20ft•lb)

- **K** 13 Nm (1.3m • kg, 9.4ft•lb)
PISTON, CYLINDER AND CYLINDER HEAD

1. Install:
   • Bearing
   • Piston
   • Piston pin
   • Piston pin clips

NOTE:
• Apply engine oil to the piston pin, bearings and piston skirts areas.
• Make sure the arrow mark on the piston points towards the exhaust side of the cylinder.
• Before installing the piston pin clip, cover the crankcase opening with a clean rag to prevent the clip from falling into the crankcase.

**WARNING**
Always use a new piston pin clip

**CAUTION**
Do not allow the clip open ends to meet the piston pin slot

2. Check:
• Piston ring position

**CAUTION**
• Make sure ring ends are properly fitted around ring locating pins in 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:
   • Dowel pins ①
   • Gasket NEW (Cylinder) ②

**WARNING**
Always use a new gasket

4. Install:
   • Cylinder ①
   • Clutch cable guide

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

5. Tighten:
   • Nuts (cylinder)

**NOTE:**
Tighten the nuts in stage using a crisscross pattern.

6. Install:
   • Gasket (Cylinder head)
   • Cylinder head

**WARNING**
Always use a new gasket

**NOTE:**
The “UP” mark on the gasket must be facing up

7. Tighten:
   • Nuts (Cylinder head)

**NOTE:**
Tighten the nuts in stage, using a crisscross pattern
8. Install:
- O-ring ①
- Thermostatic valve ②
- Gasket ③

**NOTE:**
Apply the lithium soap base grease to the O-ring

**WARNING**
- Always use a new O-ring.
- Always use a new gasket.

9. Install:
- Cover (Thermostatic valve) ①

**Screw (Thermostatic Valve Cover):**
8 Nm (0.8 m•kg, 5.8 ft•lb)

10. Install:
- Spark plug ①
- Thermo unit ②

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

**Thermo unit:**
15 Nm (1.5 m•kg, 11 ft•lb)

**WARNING**
Handle the thermo unit with special care. Never subject it too strong or allow it to be dropped. In case of being hit, replace it.
11. Install:
   • Hoses (Inlet ① and outlet ②)

   **Union bolt:**
   8 Nm (0.8 m•kg, 5.8 ft•lb)

**REMOUNTING THE ENGINE**
Reverse the “ENGINE REMOVAL” procedure. Note the following points:

1. Install:
   • Engine assembly (to right side)
   • Mounting bolts

   **NOTE:**
   • Apply lithium soap base grease to the pivot shaft.
   • Temporary tighten the bolts before tightening them to specification.

2. Install:
   • Spacer collar ①
   • Drive sprocket ②
   • Lock washer ③
   • Nut (Drive sprocket) ④
   • Drive chain

   **NOTE:**
   Before installing the spacer collar ① apply grease to the oil seal lip.

   **Nut (Drive sprocket):**
   60 Nm (6.0 m•kg, 43 ft•lb)
3. Bend the lock washer tab along the nut flats

4. Install:
   - Gasket (Crankcase cover)
   - Crankcase cover (Left)
   - Change pedal

**NOTE:**

Tighten the screws (Crankcase cover) in stage, using a crisscross pattern.

5. Adjust:
   - Drive chain slack
     Refer to the “DRIVE CHAIN SLACK ADJUSTMENT” section in chapter 3.

6. Connect:
   - Radiator hose (Outlet)
   - Radiator hose (Inlet)

7. Install:
   - Pulley housing
   - Adjusters (Y.P.V.S. cables)
   - Servomotor unit

<table>
<thead>
<tr>
<th><strong>Screw (Crankcase cover):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Nm (0.8 m•kg, 5.8 ft•lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bolt (Change pedal):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Nm (1.5 m•kg, 11 ft•lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bolt (Pulley housing):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Nm (0.8 m•kg, 5.8 ft•lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Screw (Servomoto unit):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Nm (0.7 m•kg, 5.1 ft•lb)</td>
</tr>
</tbody>
</table>
8. Connect:
   • Servomotor unit lead
   • Cables (Y.P.V.S.)
     (to power valve pulley)

9. Install:
   • Pulley (power valve)

10. Adjust:
    • Y.P.V.S. cables
        Refer to the “Y.P.V.S. CABLE ADJUSTMENT” section in chapter 3.

   NOTE:
   Before adjusting the Y.P.V.S. cables, turn the main switch “ON” and operate the Y.P.V.S. motor.

11. Install:
    • Pulley cover (Power valve)

12. Adjust:
    • Clutch cable free play
        Refer to the “CLUTCH ADJUSTMENT” section in chapter 3.
13. Air bleeding:
- Autolube pump
  Refer to the “AUTOLUBE PUMP AIR BLEEDING” section in chapter 3.

14. Install:
- Autolube pump cover ①

<table>
<thead>
<tr>
<th>Bolt (Autolube pump cover):</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Nm (0.5 m•kg, 3.6 ft•lb)</td>
</tr>
</tbody>
</table>

15. Install:
- Gasket (Exhaust pipe)
- Exhaust pipe

<table>
<thead>
<tr>
<th>Nut ① (Exhaust pipe):</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 Nm (1.8 m•kg, 13 ft•lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolt ② (Stay):</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Nm (1.0 m•kg, 7.2 ft•lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bolt ③ (Frame mount):</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Nm (1.0 m•kg, 7.2 ft•lb)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Screw ④ (Muffler joint):</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Nm (1.0 m•kg, 7.2 ft•lb)</td>
</tr>
</tbody>
</table>

**WARNING**
Always use a new gasket

16. Fill:
- Radiator
- Reservoir tank (Radiator)
  Refer to the “COOLANT REPLACEMENT” section in chapter 3.

<table>
<thead>
<tr>
<th>Total amount:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,92L</td>
</tr>
</tbody>
</table>
17. Fill:
   • Crankcase
   Refer to the “TRANSMISSION OIL REPLACEMENT” section in chapter 3.

Total amount: 0,92L
COOL
CHAPTER 6
COOLING SYSTEM

WATER PUMP .................................................................6-1
REMOVAL .......................................................................6-2
INSPECTION .................................................................6-4
INSTALLATION ..............................................................6-4

THERMOSTATIC VALVE AND RADIATOR .............................6-7
REMOVAL .......................................................................6-8
INSPECTION .................................................................6-10
INSTALLATION ..............................................................6-11
WATER PUMP

COOLING SYSTEM

WATER PUMP

1. Impeller shaft
2. Oil Seal
3. Pin
4. Impeller shaft gear
5. Plain washer
6. Circlip
7. Water pump housing cover
8. Gasket
9. Dowel pin
10. Drain bolt
11. Gasket

8 Nm (0.8 m•kg, 5.8 ft•lb)

USE NEW ONE
NOTE: It is necessary to disassemble the water pump unless there is no abnormality such as excessive change in coolant temperature and/or discoloration of coolant or milky transmission oil.

1. Drain:
   - Transmission oil
     Refer to the “TRANSMISSION OIL REPLACEMENT” section in chapter 3.
   - Coolant
     Refer to the “COOLANT REPLACEMENT” section in chapter 3.

2. Disconnect:
   - Outlet hose (Radiator)

3. Remove:
   - Screw (Water outlet pipe)

4. Remove:
   - Autolube pump cover

5. Disconnect:
   - Oil delivery hose

6. Remove:
   - Gasket (Autolube pump cover)
   - Stopper clip (Pump cable)
   - Clip (Pump cable outer)
   - Autolube pump cable

NOTE:
- Plug the oil hose so that oil will not run out of the oil tank.
- Turn the pump pulley counterclockwise by finger to make the pump cable loose enough for its end to be removed from the pulley.
7. Remove:
• Return spring ①
• Bolt (Master cylinder) ②
• Brake pedal ③
• Crankcase cover ④

8. Remove:
• Water outlet pipe ①
• Housing cover (Water pump) ②
• Gasket
• Dowel pins

9. Remove:
• Circlip ①
• Plain washer ②
• Impeller shaft gear ③

10. Remove:
• Pin ①
• Plain washer ②

11. Remove:
• Impeller shaft ①

12. Eliminate deposits from the impeller and water pump housing.
CHECKING THE WATER PUMP

1. Check:
   - O-ring
     Damage/wear → Replace.
   - oil seal
     Damage/wear → Replace the water pump housing assembly.

2. Check:
   - impeller
     Cracks/damage/wear → Replace the water pump housing assembly.
   - bearing
     Rough movement → Replace the water pump housing assembly.

Oil seal replacement steps:
- Remove the oil seal from the crankcase cover by tapping it towards the outside.
- Install the new oil seal with the “WATER SIDE” mark on the outside.

NOTE:
- Apply the lightweight lithium base grease to oil seal outside.
- Press fit the oil seal until it contacts the bottom.

INSTALL
Reverse the “REMOVAL” procedure. Note the following points.

1. Apply:
   - Lightweight lithium base grease
     (to oil seal lips and impeller shaft)

2. Install:
   - Impeller shaft
     Install the shaft while turning it.

NOTE:
Take care so that the oil seal lip is not damaged or the spring doesn’t slip off its position.
3. Install:
   • Housing cover (Water pump) 1
   • Water outlet pipe 2

   **CAUTION**
   • Always use new gaskets
   • Always use a new O-ring

4. Install:
   • Crankcase cover (Right) 1
   • Brake pedal 2
   • Return spring 3
   • Drain plug (Transmission oil) 4
   • Drain plug (Coolant) 5

   **NOTE:**
   Before installing the brake pedal apply lithium soap base grease to the brake pedal pivot shaft.

   **WARNING**
   Always use new cotter pin and gasket.

5. Install:
   • Screw (Water outlet pipe) 1

   **Screw (Water Outlet pipe):**
   8 Nm (0.8 m•kg, 5.8 ft•lb)
6. Fill:
   • Crankcase
     Refer to the “TRANSMISSION OIL REPLACEMENT” section in chapter 3.

7. Fill:
   • Radiator
     Refer to the “COOLANT REPLACEMENT” section.

8. Air bleeding:
   • Autolube pump
     Refer to the “AUTOLUBE PUMP AIR BLEEDING” section.

9. Install:
   • Autolube pump cover

   **Recommended Oil:**
   SAE 10W30 type SE Motor Oil
   **Periodic Oil Change:**
   0.75L

   **Total amount:**
   0.92L

   **Screw (Autolube pump cover):**
   5 Nm (0.5 m•kg, 3.6 ft•lb)
THERMOSTATIC VALVE AND RADIATOR

1. Radiator assembly
2. Radiator cap
3. Inlet hose
4. Coolant breather hose
5. Outlet hose
6. Gasket
7. Hose (Carburetor warmer → Inlet)
8. Hose (Carburetor warmer → Inlet)
9. Thermostatic valve cover
10. Gasket
11. Thermostatic valve
12. O-ring

A  RADIATOR CAP OPENING PRESSURE:
   75~105kPA
   (0.75~1.05kg/cm², 10~14psi)

B  COOLANT CAPACITY:
   0.92L Including all routes

C  THERMOSTATIC VALVE OPENING TEMPERATURE:
   63~67°C (146~153°C)

D  USE NEW ONE

8 Nm (0.8 m • kg, 5.8 ft•lb)

8 Nm (0.8 m • kg, 5.8 ft•lb)

8 Nm (0.8 m • kg, 5.8 ft•lb)
THERMOSTATIC VALVE AND RADIATOR

REMOVAL
1. Remove:
   - Side covers (Left and Right)
   - Seat
   - Exhaust pipe

2. Remove:
   - Radiator cover
   - Oil tank cover
   - Fuel tank
   Refer to the “CARBURETOR REMOVAL” section in chapter 7.

3. Drain:
   - Cooling system
   Refer to the “COOLANT REPLACEMENT” section in chapter 3.

NOTE:
Thoroughly flush the cooling system with clean tap water.

CAUTION
Take care so that coolant doesn’t splash painted surfaces. If splashes, wash it away with water.

WARNING
Do not remove the radiator cap, drain bolts and hoses specially when the engine and the radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, place a thick rag like a towel over the radiator cap, slowly rotate the cap counterclockwise to detent. This procedure allows any residual pressure to escape. When the hissing sound stops, press down the cap while turning counterclockwise to remove it.
4. Remove:
   - Radiator cap ①

5. Disconnect:
   - Breather hose (Radiator ②)

6. Remove:
   - Inlet hose (Radiator) ③
   - Outlet hose (Radiator) ④

7. Remove:
   - Water outlet pipe ①
   - O-ring ②

8. Remove:
   - Radiator fin ①

9. Remove:
   - Radiator
10. Remove:
   • Thermostatic valve cover
   • Gasket
   • Thermostatic valve
   • O-ring

CHECKING THE RADIATOR

1. Check:
   • radiator fins
     Obstruction → Clean.
     Apply compressed air to the rear of the radiator.
     Damage → Repair or replace.

   NOTE:
   Straighten any flattened fins with a thin, flat-head screwdriver.

2. Check:
   • radiator hoses
   • radiator pipes
     Cracks/damage → Replace.

3. Measure:
   • radiator cap opening pressure
     Below the specified pressure → Replace the radiator cap.

Radiator cap opening pressure
75~105 kPa
(0.75 ~ 1.05 kg/cm², 10 ~ 14 psi)
THERMOSTATIC VALVE AND RADIATOR

a. Install the radiator cap tester ① and radiator cap tester adapter ② to the radiator cap.

Radiator cap tester
90890-01325
Radiator cap tester adapter
90890-01352

b. Apply the specified pressure for ten seconds and make sure there is no drop in pressure.

4. Inspect:
   • Thermostatic valve
     Valve doesn’t open at 63~67°C (146~153°F)
     → Replace.

INSTALLATION
Reverse the “REMOVAL” procedure. Note the following points.

1. Install:
   • O-ring ①
   • Thermostatic valve ②
   • Gasket ③
   • Thermostatic valve cover

WARNING
Always use new O-ring and gasket

Screw (Thermostatic Valve Cover):
8 Nm (0.8 m·kg; 5.8 ft·lb)
2. Install:
   • Radiator (1)

3. Apply grease to the O-ring (1)

4. Install:
   • O-ring (1)
   • Water outlet pipe (2)

   **WARNING**
   Always use a new O-ring

5. Fill:
   • Radiator
   • Reservoir tank (Radiator)
     Refer to the “COOLANT REPLACEMENT” section in chapter 3.

6. Inspect:
   • Cooling system
     Decrease of pressure (leaks) → Repair as required

**Bolt (Radiator):**
8 Nm (0.8 m·kg; 5.8 ft·lb)

**Screw (Water Outlet Pipe):**
8 Nm (0.8 m·kg; 5.8 ft·lb)
Inspection steps
• Attach the Cooling System Tester to the radiator

Radiator cap tester
90890-01325

• Apply 100kPa (1.0 kg/cm², 14psi) pressure.
• Measure the indicated pressure with the gauge.
CHAPTER 7
CARBURETOR

CARBURETOR ................................................................. 7-1
REMOVAL ................................................................. 7-2
DISASSEMBLY ......................................................... 7-3
INSPECTION ........................................................... 7-4
ASSEMBLY ............................................................... 7-6
INSTALLATION .......................................................... 7-8
ADJUSTMENT ............................................................. 7-9

REED VALVE ............................................................... 7-10
REMOVAL ................................................................. 7-11
DISASSEMBLY ......................................................... 7-11
INSPECTION ........................................................... 7-12
ASSEMBLY ............................................................... 7-12
INSTALLATION .......................................................... 7-13
CARBURETION

CARBURETOR

1. Cap
2. Throttle valve spring
3. Starter plunger
4. Throttle stop screw
5. Pilot air screw
6. Throttle valve
7. Needle set
8. Pilot jet
9. Needle jet
10. Gasket
11. Main jet
12. Needle valve assembly
13. Float
14. Drain screw

<table>
<thead>
<tr>
<th>Part Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Jet (M.J.)</td>
<td>#210</td>
</tr>
<tr>
<td>Main Air Jet (M.A.J.)</td>
<td>Ø 0.8</td>
</tr>
<tr>
<td>Jet Needle (J.N.)</td>
<td>JK40-2</td>
</tr>
<tr>
<td>Needle Jet (N.J.)</td>
<td>Q2-M (#939)</td>
</tr>
<tr>
<td>Pilot Jet (P.J.)</td>
<td>#17.5</td>
</tr>
<tr>
<td>Power Jet (PW.J.)</td>
<td>#60</td>
</tr>
<tr>
<td>Pilot Air Screw (P.A.S.)</td>
<td></td>
</tr>
<tr>
<td>Float Height (F.H.)</td>
<td>15.5<del>16.5mm (0.61</del>0.65 in)</td>
</tr>
<tr>
<td>Engine Idling Speed</td>
<td>1250~1450 rev/min.</td>
</tr>
</tbody>
</table>
CARBURETOR

REMOVAL

NOTE:
The following parts can be cleaned and inspected without disassembly
- Throttle valve
- Starter plunger
- Throttle stop screw

1. Remove:
   - Side cover (Left and Right) ②
   - Seat
   - Radiator cover ①

2. Turn the fuel cock to “OFF” position.

3. Disconnect:
   - Fuel hose ① (from carburetor side)

4. Remove:
   - Fuel tank

WARNING
Gasoline is highly flammable. Avoid spilling fuel over the engine when it’s hot

5. Disconnect:
   - Reservoir tank (Rear brake) ①
   - Y.E.I.S. system
CARB

CARBURETOR

6. Disconnect:
   • Hoses
   • Oil delivery hose
   • Cooling hoses

7. Loosen:
   • Screw (carburetor joint) ①
   • Screw (air box) ②

8. Remove:
   • Carburetor top
   • Carburetor

9. Remove:
   • Cable holder
   • Throttle valve
   • Return spring

DISASSEMBLY

1. Remove:
   • Hoses ①

2. Remove:
   • Starter plunger assembly ①

3. Remove:
   • Float chamber ①
   • Gasket float chamber ②
4. Remove:
   - Float pin ①
   - Float ②
   - Needle valve ③

5. Remove:
   - Valve seat ①
   - Main jet ②
   - Jet needle holder

6. Remove:
   - Throttle stop screw ①
   - Pilot air screw

**INSPECTION**

1. Inspect:
   - Carburetor mixing chamber body
     Contamination ➔ Clean

**NOTE:**

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

2. Inspect:
   - Carburetor float chamber body
     Contamination ➔ Clean

**NOTE:**

Starter jet and all air jets are fixed type
3. Inspect:
   - Valve seat
   - Gasket
   - Needle valve

NOTE:
Always replace the needle valve and valve seat as a set.

4. Inspect:
   - Starter plunger
     Wear/Contamination ➔ Replace

5. Check:
   - Free movement
     Stick ➔ Replace
     Insert the throttle valve into the carburetor body and check for free movement.

6. Inspect:
   - Throttle stop screw
   - Pilot air screw
   - O-ring
     Wear/Damage ➔ Replace

7. Inspect:
   - Jet needle
     Bends/Wear ➔ Replace

8. Inspect:
   - Throttle valve
     Wear/Damage ➔ Replace

9. Check:
   - Free movement
     Stick ➔ Replace
     Insert the throttle valve into the carburetor body, and check for free movement.
CARBURETOR

10. Inspect:
• Float ①
  Damage → Replace

11. Inspect:
• Main jet
• Needle jet
• Pilot jet
  Contamination → Clean

NOTE: ________________________________
Blow out the jets with compressed air

ASSEMBLY
Reverse the “DISASSEMBLY” procedures. Note the following points.

CAUTION
Before reassembling, wash all parts with clean gasoline

1. Tighten:
• Jet needle holder

2. Install:
• Valve seat ①
• Main jet ②
• Pilot jet ③
• Needle jet ④

NOTE: ________________________________
Align the knock pin with the pin slot in the needle jet

3. Measure:
• Float height @
  Out of specification → Adjust

Float height (F.H.):
15.5~16.5mm (0.61~0.65in)
Measurement and adjustment steps:
- Hold the carburetor in an upside down position.
- Measure the distance from the mating surface on the float chamber (gasket removed) to the top of the float.

**CAUTION**
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 valve seat and needle valve.
- If either is worn, replace them both.
- If both are fine, adjust the float height by bending the float tang ① on the float.
- Recheck the float height.

4. Install:
- Float chamber ①
- Hose ②
- Gasket (float chamber) ③

**WARNING**
Always use a new gasket

5. Tighten:
- Screws (Float chamber)

- Screw (Float chamber)
  2 Nm (0.2 m·kg; 1.4 ft·lb)

6. Install:
- Starter plunger ①
CARBURETOR

7. Install:
• Throttle valve

NOTE: ________________________________
Align the groove of the throttle valve with the projection of the carburetor body.

INSTALLATION
Reverse the “REMOVAL” procedures. Note the following points.

1. Install:
• Carburetor assembly

NOTE: ________________________________
Align the groove of the carburetor joint with the projection of the carburetor body.

2. Adjust:
• Idle speed
  Refer to the “IDLE SPEED ADJUSTMENT” section in chapter 3.

Engine idle speed
1250~1450 rev/min

3. Adjust:
• Carburetor cable free play.
  Refer to the “THROTTLE CABLE FREE PLAY ADJUSTMENT” section in chapter 3.

Throttle cable free play:
3-5mm 0’11-0,19in.

4. Adjust:
• Carburetor cable free play
  Refer to the “CARBURETOR CABLE FREE PLAY ADJUSTMENT” section in chapter 3.

Carburetor cable free play:
1mm (0.04in.)
ADJUSTMENT
Fuel level adjustment
1. Measure:
   • Fuel level
     Out of specification → adjust

Fuel level:
1.5~2.5mm (0.05~0.09in.)
In the middle of the Float Chamber. Below the carburetor Body edge.

Fuel level measurement and adjustment steps:
• Place the motorcycle on a level surface.
• Use a garage jack under the engine to ensure that the carburetor is positioned vertically.
• Connect the fuel level gauge ① to the drain pipe ②.

Fuel level gauge:
90890-01312

• Loosen the drain screw and warm up the engine for several minutes.
• Measure the fuel level with the gauge.
• If the level is incorrect, adjust the fuel level.
• Remove the carburetor.
• Inspect the valve seat and needle valve.
• If either is worn, replace them both.
• If both are fine, adjust the float level by bending the float tang slightly.
• Install the carburetor.
• Recheck the fuel level.

Fuel level:
1.5~2.5mm (0.05~0.09in.)
In the middle of the Float Chamber. Below the carburetor Body edge.
REED VALVE

1. Reed valve assembly
2. Reed valve
3. Stopper plate
4. Gasket
5. Carburetor joint
6. Y.E.I.S. Chamber

*USE NEW ONE*

- 10 Nm (1.0 m • kg, 7.2 ft•lb)
- 1 Nm (0.1 m • kg, 0.7 ft•lb)
REMOVAL
1. Remove:
   • Carburetor
   Refer to the “CARBURETOR REMOVAL” section.

2. Remove:
   • Carburetor joint

3. Remove:
   • Reed valve assembly
   • Gasket

DISASSEMBLY
1. Remove:
   • Y.E.I.S. chamber

2. Remove:
   • Reed valve stopper
   • Reed valve
REED VALVE

INSPECTION

1. Inspect:
   - Reed valve ①
   - Reed valve stopper ②
   Cracks/Damage ➔ Replace

2. Measure:
   - Reed valve bending limit
     Out of specification ➔ Replace.

   **Reed valve Bending Limit:**
   0.5mm (0.02in)

3. Measure:
   - Reed valve stopper height
     Out of specification ➔ Replace.

   **Reed valve Stopper Height:**
   6.8mm (0.27in)

4. Inspect:
   - Carburetor joint ①
   - Y.E.I.S. chamber ②
   Cracks/Damage ➔ Replace.

ASSEMBLY

Reverse the “DISASSEMBLY” procedure. Note the following points.

1. Install:
   - Reed valves
   - Reed valve stoppers

**NOTE:**

- Place the reed valve with its concave side facing the reed valve seat.
• Fit the reed valve stopper out with the corresponding cut on the reed valve.

2. Tighten:
• Screws (Reed valve)

![Screws (Reed valve):
1 Nm (0.1 m·kg; 0.7 ft·lb) Use LOCTITE®]

NOTE:
Tighten each screw gradually to avoid warping.

3. Install:
• Y.E.I.S. chamber ①

![NOTE: The arrow on the Y.E.I.S. chamber must point forward.]

INSTALLATION
Reverse the “REMOVAL” procedure. Note the following points.

1. Install:
• Gasket (New) ①
• Reed valve assembly ②

![WARNING: A damaged gasket may cause the engine revs to accelerate. Always use a new gasket.]

2. Install:
• Carburetor joint ①

![Bolt (Carburetor joint):
10 Nm (1.0 m·kg; 7.2 ft·lb)]
CHAPTER 8
ELECTRICAL SYSTEM

DT125RE CIRCUIT DIAGRAM ................................................................. 8-1
COLOR CODE ................................................................................. 8-1

ELECTRICAL COMPONENTS .................................................................. 8-2
CHECKING SWITCH CONTINUITY ....................................................... 8-4
CHECKING THE SWITCHES ................................................................. 8-5

IGNITION SYSTEM ........................................................................... 8-6
CIRCUIT DIAGRAM ........................................................................ 8-6
IGNITION CONTROL CIRCUIT OPERATION ...................................... 8-6
TROUBLESHOOTING ..................................................................... 8-8

CHARGING SYSTEM ......................................................................... 8-14
CIRCUIT DIAGRAM ....................................................................... 8-14
TROUBLESHOOTING ................................................................... 8-15

LIGHTING SYSTEM ........................................................................ 8-16
CIRCUIT DIAGRAM ....................................................................... 8-16
TROUBLESHOOTING ................................................................... 8-17

SIGNALING SYSTEM ........................................................................ 8-26
CIRCUIT DIAGRAM ....................................................................... 8-26
TROUBLESHOOTING ................................................................... 8-27

COOLING SYSTEM ........................................................................ 8-38
CIRCUIT DIAGRAM ....................................................................... 8-38
TROUBLESHOOTING ................................................................... 8-39

YAMAHA POER VALVE SYSTEM ............................................................. 8-42
CIRCUIT DIAGRAM ....................................................................... 8-42
TROUBLESHOOTING ................................................................... 8-43

METER ASSEMBLY .......................................................................... 8-46
REMOVAL ...................................................................................... 8-47
INSTALLATION ............................................................................... 8-48
<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
<th>Code</th>
<th>Color</th>
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<td>Chocolate</td>
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<td>White/Red</td>
</tr>
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<td>Red</td>
<td>Dg</td>
<td>Dark green</td>
<td>W/L</td>
<td>White/Blue</td>
</tr>
<tr>
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<td>Orange</td>
<td>Sb</td>
<td>Sky blue</td>
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<td>B/W</td>
<td>Black/White</td>
<td>Br/W</td>
<td>Brown/White</td>
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<td>White</td>
<td>B/R</td>
<td>black/Red</td>
<td>L7R</td>
<td>Blue/Red</td>
</tr>
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</table>
ELECTRICAL COMPONENTS

ELECTRICAL COMPONENTS(1)

1. CDI Unit
2. Servomotor
3. Battery
4. Fuse
5. Neutral switch
6. Thermo unit
7. Rectifier/Regulator
8. Ignition coil
9. Main switch

Ignition coil:
- Primary coil resistance: 0.23 Ω at 20 °C
- Secondary coil resistance: 7.9 kΩ at 20 °C
ELECTRICAL COMPONENTS

ELECTRICAL COMPONENTS(2)

1. Flasher relay
2. Conductor wire
3. Rectifier 2
4. Oil gauge
5. Sidestand switch
6. Brake switch
7. Relay
8. Horn

Battery:
Capacity: 12V 6Ah
No maintenance
CHECKING SWITCH CONTINUITY

Check each switch for continuity with the pocket tester. If the continuity reading is incorrect, check the wiring connections and if necessary, replace the switch.

**CAUTION:**

Never insert the tester probes into the coupler terminal slots. Always insert the probes from the opposite end of the coupler, taking care not to loosen or damage the leads.

**NOTE:**

- Before checking for continuity, set the pocket tester to “0” and to the “Ωx1” range.
- When checking for continuity, switch back and forth between the switch positions a few times.

The terminal connections for switches (e.g., main switch, engine stop switch) are shown in an illustration similar to the one on the left. The switch positions a are shown in the far left column and the switch lead colors b are shown in the top row in the switch illustration.

**NOTE:**

“○—○” indicates a continuity of electricity between switch terminals (i.e., a closed circuit at the respective switch position).

The example illustration on the left shows that:

There is continuity between black and black/white when the switch is set to “ON”. There is continuity between red and brown when the switch is set to “ON”.

Pocket tester
90890-03112
CHECKING THE SWITCHES

Check each switch for damage or wear, proper connections, and also for continuity between the terminals. Refer to “CHECKING SWITCH CONTINUITY”.

- Damage/wear → Repair or replace.
- Improperly connected → Properly connect.
- Incorrect continuity reading → Replace the switch.

Diagram of switches and their labels:
- 7 Main switch
- 2 Left handle switch
- 1 Side stand switch
- 8 Right handle switch
- 3 Oil Level gauge
- 5 Neutral switch
- 22 Rear stop switch
- 4 Fuse
IGNITION SYSTEM
The circuit diagram shows the ignition system.
**NOTE:**

For the color codes see the electric diagram

1. Magneto CDI
2. Battery
3. Fuse
4. Starter relay
5. Starting engine
6. Main switch
7. C.D.I.
8. Ignition coil
TROUBLESHOOTING

The ignition system fails to operate (no spark or intermittent spark).

Check:
1. Main and ignition fuses
2. Battery
3. Spark plug
4. Ignition spark gap
5. Spark plug cap resistance
6. Ignition coil resistance
7. Main switch
8. Engine stop switch
9. Neutral switch
10. Sidestand switch
11. Pickup coil resistance
12. Wiring connections (of the entire ignition system)

NOTE:
• Before troubleshooting, remove the following part(s):
  1. Side covers (right and left)
  2. Seat
  3. Fuel tank
  4. Headlight cover
  5. Headlight unit
• Troubleshoot with the following special tool(s).

1. Spark plug
   • Check the condition of the spark plug.
   • Check the spark plug type.
   • Measure the spark plug gap.
   Refer to “CHECKING THE SPARK PLUG” in chapter 3.

   Standard spark plug
   BR8HS (NGK)
   Spark plug gap
   0.6 ~ 0.7 mm

   • Is the spark plug in good condition, is it of the correct type, and is its gap within specification?

   YES  NO

   Re-gap or replace the spark plug.

2. Ignition spark gap
   • Disconnect the spark plug cap from the spark plug.
   • Connect the ignition checker as shown.

   Spark plug cap
   • Set the main switch to “ON”.
   • Measure the ignition spark gap (a).
   • Crank the engine by pushing the starter switch and gradually increase the spark gap until a misfire occurs.

   Minimum ignition spark gap
   6 mm (0.24 in)

   • Is there a spark and is the spark gap within specification?

   YES  NO

The ignition system is OK.
3. Spark plug cap resistance
- Remove the spark plug cap from the spark plug lead.
- Connect the pocket tester ("Ω x 1k" range) to the spark plug cap as shown.
- Measure the spark plug cap resistance.

**Spark plug cap resistance**  
5KΩ at 20°C (68 °C)

- Is the spark plug cap OK?
  - YES
  - NO  
  
  Replace the spark plug cap.

4. Ignition coil resistance (Orange) from the wireharness
- Disconnect the ignition coil connectors from the ignition coil terminals.
- Connect the pocket tester (Ω x 1) to the ignition coil as shown.

**Positive tester probe → Orange terminal**  
**Negative tester probe → Ignition coil base**

- Measure the primary coil resistance.

**Primary coil resistance**  
0.23 +/- 20°C (68 °C)
5. Main switch
- Disconnect the main switch coupler and lead from the wireharness (red).
- Connect the pocket tester (Ω 100) to the main switch.

**Positive tester probe → red Lead**

**Negative tester probe → brown-blue Terminal**

- Turn the main switch to “ON” and “OFF”.
- Check the main switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>ON</td>
<td>X</td>
<td>○</td>
</tr>
<tr>
<td>PARK</td>
<td>X</td>
<td>○</td>
</tr>
</tbody>
</table>

○:Continuity  X: No continuity

• Is the engine stop switch OK?

YES

NO

Replace the main switch.

6. “ENGINE STOP” switch
- Disconnect the “ENGINE STOP” switch leads from the wireharness.
- Connect the pocket tester (Ω 100) to the “ENGINE STOP” switch.

**Positive tester probe → black/white Lead**

**Negative tester probe → Black Lead**

- Turn the “ENGINE STOP” switch to “OFF” and “RUN”.
- Check the “ENGINE STOP” switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>X</td>
<td>○</td>
</tr>
<tr>
<td>ON</td>
<td>○</td>
<td>X</td>
</tr>
</tbody>
</table>

○:Continuity  X: No continuity

• Is the engine stop switch OK?

YES

NO

Replace the handlebar switch.
IGNITION SYSTEM

7. Source coil resistance
- Disconnect the CDI magneto coupler from the wire harness.
- Connect the pocket tester (Ω 100) to the source coil.

Positive tester probe ➔ Green/white
Terminal
Negative tester probe ➔ Black/red
Terminal

- Measure the source coil resistance.

Source coil resistance
192~288 Ω at 20°C (68°F)

- Is the source coil resistance OK?

YES ➔ Replace the source coil.
NO ➔

8. Pickup coil resistance
- Disconnect the CDI magneto coupler from the harness.
- Connect the pocket tester (Ω 100) to the pickup coil.

Positive tester probe ➔ white/blue
Terminal
Negative tester probe ➔ white/red
Terminal

- Measure the pickup coil resistance.

Pickup coil resistance
280 ~ 420 Ω at 20°C (68°F)
(between white/red and white/blue)

- Is the pickup coil OK?

YES ➔ Replace the pickup coil.
NO ➔

9. Wiring
- Check the entire ignition system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the ignition system’s wiring properly connected and without defects?

YES ➔ Replace the DC-CDI unit.
NO ➔ Properly connect or repair the ignition system’s wiring.
Procedure (2)

1. Sidestand switch
   • Disconnect the sidestand switch leads from the wireharness.
   • Connect the pocket tester (Ω 100) to the sidestand switch.

   Positive tester probe → blue/white
   Terminal
   Negative tester probe → blue/black
   Terminal

   • Move the sidestand to up position and down position.
   • Check the sidestand switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>DOWN</td>
<td>X</td>
<td>○</td>
</tr>
</tbody>
</table>
   ○: Continuity    | X: No continuity

   • Is the sidestand switch OK?

   YES  NO
   Replace the sidestand switch.

2. Neutral switch
   • Disconnect the CDI magneto coupler from the wireharness.
   • Connect the pocket tester (Ω 100) to the neutral switch lead.

   Positive tester probe → sky blue lead
   Negative tester probe → Frame ground

   • Shift the transmission in neutral and gear.
   • Check the neutral switch for continuity.

   Switch position | Good condition | Bad condition |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUTRAL</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>GEAR</td>
<td>X</td>
<td>○</td>
</tr>
</tbody>
</table>
   ○: Continuity    |                | X: No continuity

   • Is the sidestand switch OK?

   YES  NO
   Replace the sidestand switch.

3. Wiring
   • Check the entire ignition system’s wiring. Refer to “CIRCUIT DIAGRAM”.
   • Is the ignition system’s wiring properly connected and without defects?

   YES  NO
   Replace the DC-CDI unit.
   Properly connect or repair the ignition system’s wiring.
CHARGING SYSTEM
CIRCUIT DIAGRAM

1. Generator
2. Rectifier/regulator
3. Battery
4. Main fuse
TROUBLESHOOTING

The battery is not being charged.

1. main fuse
2. battery
3. charging voltage
4. charging coil resistance
5. wiring connections
   (of the entire charging system)

NOTE:
• Before troubleshooting, remove the following part(s):
  1. Side covers (Left and right)
  2. Seat
  3. Fuel tank
  4. Radiator cover
• Troubleshoot with the following special tool(s).

1. Fuse
   • Remove the fuse.
   • Connect the pocket tester (Ω 100) to the fuse.
   • Check the fuse for continuity.
   • Is the fuse OK?

   YES
   NO
   Replace the fuse.

2. Battery
   • Check the battery condition.
     Refer to the “BATTERY INSPECTION” section in CHAPTER 3.
   • Is the battery OK?

   YES
   NO
   Replace the battery.

3. Charging voltage
   • Connect the engine tachometer to the spark plug lead.
   • Connect the pocket tester (DC 20 V) to the battery.
   Positive tester probe → positive battery terminal
   Negative tester probe → negative battery terminal

   • Start the engine and let it run at approximately 3000 r/min.
   • Measure the charging voltage.

   Charging voltage
   14 V at 5000 r/min

   NOTE:
   Make sure the battery is fully charged.
   • Is the charging voltage within specification?

   YES
   NO
   The charging circuit is OK.

4. Wiring
   • Check the wiring connections of the entire charging system.
     Refer to “CIRCUIT DIAGRAM”.
   • Is the charging system’s wiring properly connected and without defects?

   YES
   NO
   Replace the rectifier/regulator.

   Properly connect or repair the charging system’s wiring.
ELEC LIGHTING SYSTEM

LIGHTING SYSTEM
CIRCUIT DIAGRAM

① Magento-CDI
③ Rectifier/regulator
⑦ Main switch
⑩ “LIGHTS” switch

② Headlight
④ Tail light
⑤ Meter lights
TROUBLESHOOTING

Any of the following fail to light: headlight, high beam indicator light, taillight, auxiliary light or meter light.

Check:
1. Headlight bulb/"HI BEAM" indicator light bulb
2. Headlight bulb socket/"HI BEAM"
3. "LIGHTS" (dimmer) switch
4. "Lights" switch
5. Lighting voltage
6. Lighting coil resistance
7. wiring connection
   (of the entire lighting system)

NOTE:
• Before troubleshooting, remove the following part(s):
  1. Sidecovers (left and right)
  2. Seat
  3. Fuel tank
  4. Headlight cover
  5. Headlight unit

• Troubleshoot with the following special tool(s).

Pocket tester
90890-03112
Inductive Tachometer:
90890-03113

1. Bulb
   • Remove the bulb.
   Refer to the “HEADLIGHT BULB REPLACEMENT” section in the chapter 3.
   • Connect the pocket tester (Ω 100) to the bulbs terminals.

Positive tester probe → terminal ①
Negative tester probe → terminal ②

Positive tester probe → terminal ①
Negative tester probe → terminal ③

A. Headlight bulb
   B. "HI BEAM" indicator light bulb

   • Check the bulb for continuity.
   • Is the bulb OK?

YES
NO

Replace the bulb.
2. Bulb socket
- Disconnect the bulb socket leads from the wire harness.
- Install the bulb to the bulb socket.
- Connect the pocket tester ($\Omega 100$) to the bulbs terminals.

| Positive tester probe → Yellow lead | Negative tester probe → Black lead |

 Positive tester probe → Green lead  
 Negative tester probe → Black lead

A. Headlight bulb socket  
B. "HI BEAM" indicator light bulb socket
- Check the bulb socket for continuity.
- Is the bulb socket OK?

3. "LIGHTS" (Dimmer) switch
- Connect the pocket tester ($\Omega 100$) to the bulbs terminals.

When turning "LIGHTS" (Dimmer) switch to "HI".

| Positive tester probe → Yellow lead | Negative tester probe → Black lead |

 When turning "LIGHTS" (Dimmer) switch to "LO".

| Positive tester probe → Green lead | Negative tester probe → Black lead |

- Turn the "LIGHTS" (Dimmer) switch to the "HI" and "LO".
- Check the "LIGHTS" (Dimmer) for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;HI&quot;</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>&quot;LO&quot;</td>
<td>○</td>
<td>○ X X X</td>
</tr>
</tbody>
</table>

○:Continuity  
X: No continuity
- Is the "LIGHTS" (Dimmer) OK?

 Replace handlebar switch (left).
4. Lighting voltage.

- Turn (Dimmer) switch to "LO".
- Connect the pocket tester (DC 20 V) to the battery.

**Positive tester probe → Green (2) terminal**
**Negative tester probe → Black (3) terminal**

- Connect the inductive tachometer to the spark plug lead.
- Start the engine and check the lightning voltage.
- Is the "LIGHTS" switch OK?

5. Wiring

- Check the entire lighting system's wiring. Refer to "CIRCUIT DIAGRAM".
- Is the lighting system's wiring properly connected and without defects?

**YES**
- Check the condition of each of the lighting system's circuits. Refer to "CHECKING THE LIGHTING SYSTEM".

**NO**
- Properly connect or repair the lighting system's wiring.

---

Replace handlebar switch (left).
TROUBLESHOOTING

Meter light does not come on

Check:
1. Meter light bulb
2. Meter light bulb socket
3. Wiring connection
   (of the entire lighting system)

NOTE:

• Before troubleshooting, remove the following part(s):
  1. Sidecovers (left and right)
  2. Seat
  3. Fuel tank
  4. Headlight cover
  5. Headlight unit
• Troubleshoot with the following special tool(s).

Pocket tester
90890-03112
Inductive Tachometer:
90890-03113

1. Bulb

• Remove the bulb.
  Refer to the “METER ASSEMBLY” section.
• Connect the pocket tester (Ω 1) to the bulbs terminals.

Positive tester probe → terminal 1
Negative tester probe → terminal 2

• Check the bulb for continuity.
• Is the bulb OK?

YES  NO

Replace the bulb.
2. Bulb socket

- Disconnect the bulb socket lead and coupler from the wire harness.
- Install the bulb to the bulb socket.
- Connect the pocket tester (Ω 1) to the bulbs socket lead end and coupler.

Positive tester probe → Blue ① lead
Negative tester probe → Black ② Terminal

- Check the bulb socket for continuity.
- Is the bulb socket OK?

![Diagram of bulb socket with GR, Br, B, BG, and Ω 1 labels]

YES NO
Replace the bulb socket.

3. Wiring

- Check the entire lighting system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the lighting system’s wiring properly connected and without defects?

YES NO
Check the condition of each of the lighting system’s circuits.
Refer to “CHECKING THE LIGHTING SYSTEM”.

Properly connect or repair the lighting system’s wiring.
## TROUBLESHOOTING

### Tail light/Auxiliary light do not come on

Check:
1. Tail/Brake light bulb/Auxiliary light bulb
2. Tail light bulb socket/Auxiliary light
3. Main switch
4. Wiring connection (of the entire lighting system)

### NOTE:
- Before troubleshooting, remove the following part(s):
  1. Sidecovers (left and right)
  2. Seat
  3. Fuel tank
  4. Headlight cover
  5. Headlight unit
- Troubleshoot with the following special tool(s).

### Pocket tester
- 90890-03112

### Inductive Tachometer:
- 90890-03113

### 1. Bulb
- Remove the bulb.
- Connect the pocket tester (Ω 1) to the bulb terminals.

#### Positive tester probe → terminal ①
#### Negative tester probe → terminal ②

### Positive tester probe → terminal ①
#### Negative tester probe → terminal ②

#### A. Tail/Brake bulb
#### B. Auxiliary light bulb

- Check the bulb for continuity.
- Is the bulb OK?

### YES

Replace the bulb.

### NO
2. Bulb socket
- Disconnect the bulb socket and leads from the wire harness.
- Install the bulb to the bulb socket.
- Connect the pocket tester (Ω 1) to the bulbs socket lead end and coupler.

A
Positive tester probe → Blue ① Terminal
Negative tester probe → Black ② Terminal

B
Positive tester probe → Blue/Red ③ Lead
Negative tester probe → Black ④ Lead

- Check the bulb socket for continuity.
- Is the bulb socket OK?

3. Main switch
- Disconnect the main switch coupler from the wire harness.

A
Positive tester probe → Red Lead
Negative tester probe → Brown-blue Lead

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>OFF</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

B
Positive tester probe → Yellow-blue Lead
Negative tester probe → Blue-Black Lead

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>OFF</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

C
Positive tester probe → Red Lead
Negative tester probe → Blue-Black Lead

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>OFF</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

○: Continuity    X: No continuity

Replace the bulb socket.
4. Wiring

- Check the entire lighting system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the lighting system’s wiring properly connected and without defects?

YES

Check the condition of each of the lighting system’s circuits. Refer to “CHECKING THE LIGHTING SYSTEM”.

NO

Properly connect or repair the lighting system’s wiring.
SIGNALING SYSTEM

CIRCUIT DIAGRAM

- Main switch
- Main fuse
- Battery
- Neutral switch
- Engine oil level switch
- Diode
- Horn switch
- Horn
- Turn switch
- Turn signal relay
- Tail/brake light
- Rear brake light switch
- Front brake light switch
TROUBLESHOOTING

Any of the following fail to light: flasher light, brake light or an indicator light do not come on and the horn fails to sound.

Check:
1. Fuse
2. Battery
3. Main switch
4. Wiring connections (of the entire signaling system)

NOTE:
• Before troubleshooting, remove the following part(s):
  1. Side covers (left and right)
  2. Seat
  3. Fuel tank
  4. Headlight cover
  5. Headlight unit
• Troubleshoot with the following special tool(s).

Pocket tester
90890-03112

1. Fuse
• Remove the fuse.
• Connect the pocket tester (Ω 1) to the fuse.
• Check the fuse for continuity.

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

3. Main switch
• Disconnect the main switch coupler from the wire harness.
• Connect the pocket tester (Ω 1) to the main switch.

Tester (+) Lead → Red 1 Lead
Tester (-) Lead → Brown-Blue 2 Lead

• Turn the main switch to “ON”, “OFF” and “PARK”.
• Check the main switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>OFF</td>
<td>X</td>
<td>O</td>
</tr>
<tr>
<td>PARK</td>
<td>X</td>
<td>O</td>
</tr>
</tbody>
</table>

Ο: Continuity  X: No continuity

4. Wiring
• Check the entire signal system’s wiring.
  Refer to “CIRCUIT DIAGRAM”.
• Is the signaling system’s wiring properly connected and without defects?

Check the condition of each of the signaling system’s circuits.
Refer to “CHECKING THE SIGNALING SYSTEM”.

YES

NO

Properly connect or repair the signaling system’s wiring.
### FLASHER LIGHT DOES NOT BLINK

#### 1. Bulb

- Remove the bulb.
- Connect the pocket tester (Ω 1) to the bulb terminals.

  **Positive tester probe → terminal ①**
  **Negative tester probe → terminal ②**

- Check the bulb for continuity.

  **YES** → **NO**

  Replace the bulb

#### 2. Bulb socket

- Install the bulb to the sockets.
- Disconnect the flasher light leads from the wire harness.
- Connect the pocket tester (Ω 1) to the flasher light leads.

When checking right flasher light:
- **Positive tester probe → Dark Green ① Lead**
- **Negative tester probe → Black ③ Lead**

When checking left flasher light:
- **Positive tester probe → Chocolate ② Lead**
- **Negative tester probe → Black ③ Lead**

**A** FRONT

**B** REAR

- Check the bulb socket for continuity.
- Is the bulb socket OK?

  **YES** → **NO**

  Replace the bulb socket.
3. “TURN” switch
   - Disconnect the “TURN” switch (Left hand-lebar switch) coupler ① from the wire harness.
   - Connect the pocket tester (Ω 1) to the “TURN” switch.

   When turning “TURN” switch to “R”:
   Positive tester probe → Brown/White ② Lead
   Negative tester probe → Dark green ③ Lead

   When turning “TURN” switch to “L”:
   Positive tester probe → Brown/White ② Lead
   Negative tester probe → Chocolate ④ Lead

   • Turn the “TURN” switch to the “R” and “L”.
   • Check the “TURN” switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>L</td>
<td>○</td>
<td>X</td>
</tr>
</tbody>
</table>

   ○:Continuity X: No continuity

   • Is the “TURN” switch OK?

4. Voltage
   • Disconnect the flasher relay ① coupler from the wire harness.
   • Turn the main switch to “ON”.
   • Turn the “TURN” switch to the “R” or “L”.
   • Connect the pocket tester (DC20V) to the flasher relay coupler.

   Positive tester probe → Brown ② Terminal
   Negative tester probe → Frame ground.

   • Check the flasher voltage.

   Flasher voltage 12.0 V

   • Is the flasher relay OK?

   - YES
   - NO

   Replace the flasher relay.

5. Wiring
   • Check the entire signal system’s wiring. Refer to “CIRCUIT DIAGRAM”.
   • Is the signaling system’s wiring properly connected and without defects?

   - YES
   - NO

   Check the condition of each of the signaling system’s circuits. Refer to “CHECKING THE SIGNALING SYSTEM”.

   - YES
   - NO

   Properly connect or repair the signaling system’s wiring.
BRAKE LIGHT DOES NOT COME ON

1. Bulb
- Remove the bulb.
- Connect the pocket tester (Ω 1) to the bulb terminals.

Positive tester probe → terminal ①
Negative tester probe → terminal ②

- Check the bulb for continuity.
- Is the bulb OK?

↓ YES
↓ NO
Replace the bulb

2. Bulb socket
- Disconnect the bulb socket coupler ① from the wire harness.
- Connect the pocket tester (Ω 1) to the bulb socket leads.

Positive tester probe → Yellow ② Terminal
Negative tester probe → Black ③ Terminal

- Check the bulb socket for continuity.
- Is the bulb socket OK?

↓ YES
↓ NO
Replace the bulb socket.
3. Front brake switch

- Disconnect the front brake switch coupler \(^1\) from the wire harness.
- Connect the pocket tester (Ω 1) to the brake switch coupler.

**Positive tester probe → Brown Terminal**
**Negative tester probe → Green/Yellow Terminal**

- Check the brake switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front brake applied</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>Front brake not applied</td>
<td>X</td>
<td>○</td>
</tr>
</tbody>
</table>

○:Continuity  X: No continuity

- Is the front brake switch OK?

4. Rear brake switch

- Disconnect the front brake switch coupler \(^1\) from the wire harness.
- Connect the pocket tester (Ω 1) to the brake switch coupler.

**Positive tester probe → Brown \(^2\) Terminal**
**Negative tester probe → Green/Yellow \(^3\) Terminal**

- Check the brake switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear brake applied</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>Rear brake not applied</td>
<td>X</td>
<td>○</td>
</tr>
</tbody>
</table>

○:Continuity  X: No continuity

- Is the rear brake switch OK?

5. Wiring

- Check the entire signal system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the signaling system’s wiring properly connected and without defects?

YES  NO

Replace the front brake switch.

Replace the rear brake switch.

Check the condition of each of the signaling system’s circuits. Refer to “CHECKING THE SIGNALING SYSTEM”.

Properly connect or repair the signaling system’s wiring.
1. Bulb

- Remove the bulb.
  Refer to the “METER ASSEMBLY” section.
- Connect the pocket tester (Ω 1) to the bulb terminals.

**Positive tester probe → terminal ①**
**Negative tester probe → terminal ②**

- Check the bulb for continuity.
- Is the bulb OK?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Replace the bulb.</td>
</tr>
</tbody>
</table>

2. Bulb socket

- Disconnect the bulb socket coupler from the wire harness.
- Connect the pocket tester (Ω 1) to the bulb socket leads.

**Positive tester probe → Brown ② Terminal**
**Negative tester probe → Sky Blue ③ Terminal**

- Check the bulb socket for continuity.
- Is the bulb socket OK?

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Replace the bulb socket.</td>
</tr>
</tbody>
</table>
3. Neutral switch

- Disconnect the CDI magneto coupler from the wire harness.
- Connect the pocket tester (Ω 1) to the neutral switch coupler.

**Positive tester probe → Sky Blue Terminal**
**Negative tester probe → Frame ground**

- Shift the transmission in neutral and gear.
- Check the neutral switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral Gear</td>
<td>○ X X X ○</td>
<td>○ X ○ ○ ○ ○</td>
</tr>
<tr>
<td>○:Continuity</td>
<td>X: No continuity</td>
<td></td>
</tr>
</tbody>
</table>

- Is the neutral switch OK?

4. Wiring

- Check the entire signal system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the signaling system’s wiring properly connected and without defects?

**YES**
Check the condition of each of the signaling system’s circuits. Refer to “CHECKING THE SIGNALING SYSTEM”.

**NO**
Properly connect or repair the signaling system’s wiring.

---

Replace the neutral switch.
### “OIL” Indicator Light Does Not Come On

**1. Bulb**
- Remove the bulb. Refer to the “METER ASSEMBLY” section.
- Connect the pocket tester (Ω 1) to the bulb terminals.

<table>
<thead>
<tr>
<th>Positive tester probe ➔ terminal ①</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative tester probe ➔ terminal ②</td>
</tr>
</tbody>
</table>

- Check the bulb for continuity.
- Is the bulb OK?

**2. Bulb socket**
- Disconnect the bulb socket coupler from the wire harness.
- Connect the pocket tester (Ω 1) to the coupler.

<table>
<thead>
<tr>
<th>Positive tester probe ➔ Brown ① Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative tester probe ➔ Black/Red ③ Terminal</td>
</tr>
</tbody>
</table>

- Check the bulb socket for continuity.
- Is the bulb socket OK?

**Replace the bulb socket.**
3. Oil level switch (Diode)
• Disconnect the oil level switch from the wire harness.
• Connect the pocket tester (Ω 1) to the neutral switch coupler.

Positive tester probe → Black/Red ① Terminal
Negative tester probe → Sky Blue ② Terminal

• Check the oil level switch for continuity.

4. Oil level switch
• Connect the pocket tester (Ω 1) to the oil level switch.

Positive tester probe → Black/Red ① Terminal
Negative tester probe → Black ② Terminal

• Hold the oil level switch in an upright and upside down position.
• Check the oil level switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upright</td>
<td>○</td>
<td>X X X ○</td>
</tr>
<tr>
<td>Upside</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

○: Continuity  X: No continuity

• Is the oil level switch OK?

5. Wiring
• Check the entire signal system’s wiring. Refer to “CIRCUIT DIAGRAM”.
• Is the signaling system’s wiring properly connected and without defects?

Check the condition of each of the signaling system’s circuits. Refer to “CHECKING THE SIGNALING SYSTEM”.

Replace the oil level switch.
1. “HORN” switch
   • Disconnect the “HORN” switch (Left hand-lever switch) couplers from the wire harness.
   • Connect the pocket tester (Ω 1) to the “HORN” switch.

   **Positive tester probe → Pink Terminal**
   **Negative tester probe → Black Terminal**

   • Check the “HORN” switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>“HORN” switch is pushed</td>
<td>O</td>
<td>X</td>
</tr>
<tr>
<td>“HORN” switch is not pushed</td>
<td>X</td>
<td>O</td>
</tr>
</tbody>
</table>

   ○: Continuity  X: No continuity

   • Is the oil level switch OK?

   **HORN DOES NOT SOUND, WHEN PUSHING “HORN” SWITCH**

2. Voltage
   • Connect the pocket tester (DC20V) to the horn terminal.

   **Positive tester probe → Brown Terminal**
   **Negative tester probe → Frame ground.**

   • Turn the main switch to “ON”.
   • Check the horn voltage.

   ![Diagram of horn voltage test]

   **Horn voltage**
   12.0 V

3. Wiring
   • Check the entire signal system’s wiring. Refer to “CIRCUIT DIAGRAM”.
   • Is the signaling system’s wiring properly connected and without defects?

   **YES**
   Check the condition of each of the signaling system’s circuits. Refer to “CHECKING THE SIGNALING SYSTEM”.

   **NO**
   Properly connect or repair the signaling system’s wiring.

   ![Diagram of wiring check]

   **YES**
   Replace the “HORN” switch.

   **NO**
4. Horn

- Disconnect the “pink” lead at the horn terminal.
- Connect a jumper lead ① to the horn terminal and ground the jumper lead.

- Does the horn sounds OK?

- **YES**
  - Replace the horn.

- **NO**

5. Voltage

- Connect the pocket tester (DC20V) to the horn at the pink terminal.

  **Positive tester probe → Pink ② Terminal**
  **Negative tester probe → Frame ground.**

- Check the “pink” terminal voltage.

  - **“Pink” terminal voltage**
    - 12.0 V
COOLING SYSTEM
CIRCUIT DIAGRAM

③ Battery
⑦ Main switch
④ Main fuse
⑬ Thermo switch
TROUBLESHOOTING

- The radiator fan motor fails to turn.
- The water temperature gauge needle fails to move when the engine is warm.

Check:
1. main fuse
2. battery
3. main switch
4. thermo switch
5. wiring connections
   (the entire cooling system)

NOTE:
- Before troubleshooting, remove the following part(s):
  1. side covers (left and right)
  2. seat
  3. fuel tank
  4. headlight cover
  5. headlight unit
- Troubleshoot with the following special tool(s).

1. Fuse
   - Remove the fuse.
   - Connect the pocket tester (Ω) to the fuse.
   - Check the fuse for continuity.
   - Is the fuse OK?

   YES
   - Replace the fuse.

   NO

2. Battery
   - Check the battery condition.
   - Refer to the “BATTERY INSPECTION” section in chapter 3.

Pocket tester
90890-03112
3. Main switch
- Disconnect the main switch coupler from the wire harness.
- Connect the pocket tester (Ω 1) to the main switch.

Positive tester probe → Red Lead
Negative tester probe → Brown-Blue Terminal

- Turn the main switch to “ON”, “OFF” and “PARK”.
- Check the main switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>OFF</td>
<td>X</td>
<td>○</td>
</tr>
<tr>
<td>PARK</td>
<td>X</td>
<td>○</td>
</tr>
</tbody>
</table>

○: Continuity
X: No continuity

4. Thermo unit
- Remove the thermo unit from the cylinder head.
- Connect the pocket tester (Ω 1) to the thermo unit
- Immerse the thermo unit in the water
- Measure the resistances.
Note temperatures while heating the water with the temperature gauge

Positive tester probe → Terminal
Negative tester probe → Body ground

<table>
<thead>
<tr>
<th>Water temperature</th>
<th>50°C (122°F)</th>
<th>80°C (176°F)</th>
<th>100°C (212°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance</td>
<td>153.9Ω</td>
<td>47.5–56.8Ω</td>
<td>26.2–29.3Ω</td>
</tr>
</tbody>
</table>

- Is the thermo unit OK?

Replace the main switch.

Replace the thermo unit.
5. Wiring

- Check the entire signal system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the signaling system’s wiring properly connected and without defects?

**YES**

Check the condition of each of the signaling system’s circuits. Refer to “CHECKING THE SIGNALLING SYSTEM”.

**NO**

Properly connect or repair the signaling system’s wiring.
YAMAHA POWER VALVE SYSTEM
CIRCUIT DIAGRAM

⑥ CDI Unit
⑦ Main switch
④ Main fuse
③ Battery
⑨ Servomotor
Servomotor does not move

Check:
1. fuse
2. battery
3. main switch
4. servomotor operation
5. wiring connections (Yamaha Power Valve System)
6. servomotor and tachometer operation

NOTE:
• Before troubleshooting, remove the following part(s):
  1. side covers (left and right)
  2. seat
  3. fuel tank
  4. headlight cover
  5. headlight unit
• Troubleshoot with the following special tool(s).

Pocket tester
90890-03112

1. Fuse
   • Remove the fuse.
   • Connect the pocket tester (Ω 1) to the fuse.
   • Check the fuse for continuity.
   • Is the fuse OK?

   YES
   NO
   Replace the fuse.

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

- Disconnect the main switch coupler from the wire harness.
- Connect the pocket tester (Ω 1) to the main switch.

Positive tester probe → Red Lead
Negative tester probe → Brown-Blue Terminal

- Turn the main switch to “ON”, “OFF” and “PARK”.
- Check the main switch for continuity.

<table>
<thead>
<tr>
<th>Switch position</th>
<th>Good condition</th>
<th>Bad condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>○</td>
<td>X</td>
</tr>
<tr>
<td>OFF</td>
<td>X</td>
<td>○</td>
</tr>
<tr>
<td>PARK</td>
<td>X</td>
<td>○</td>
</tr>
</tbody>
</table>

○: Continuity  X: No continuity

4. Servomotor operation

- Disconnect servomotor coupler from the wire harness.
- Connect the battery leads to the servomotor.

Positive tester probe → Brown Terminal
Negative tester probe → Black Terminal

- Check the servomotor for operation.
- Is the servomotor OK?

5. Wiring

- Check the entire signal system’s wiring. Refer to “CIRCUIT DIAGRAM”.
- Is the signaling system’s wiring properly connected and without defects?

- Check the condition of each of the signaling system’s circuits. Refer to “CHECKING THE SIGNALLING SYSTEM”.
- Properly connect or repair the signaling system’s wiring.

Replace the main switch.

Replace the servomotor.
6. Servomotor and tachometer operation

- Start the engine and increase revolution to about 7000rev/min.
- Check servomotor and tachometer for operation.

Pocket tester
90890-03112

- Is the servomotor OK?

YES

NO

Replace the servomotor.
METER ASSEMBLY

1. Speedometer
2. Bulb
3. Bulb socket
4. Speedometer cable
5. Meter cushion
6. Meter bracket
7. Stopper clip
8. Washer
9. Damper collar
**METEOR ASSEMBLY**

**REMOVAL**

1. Remove:
   - Headlight cover

2. Disconnect:
   - Headlight leads
   - Auxiliary light leads

3. Remove:
   - Band

4. Disconnect:
   - Speedometer cable

5. Disconnect:
   - Meter leads

6. Remove:
   - Meter assembly
7. Remove:
   • Meter cushion ①
   • Meter lights ②
   • Leads ③

**CAUTION**
Do not remove the indicator bulbs sockets by pulling the leads

**INSTALLATION**
Reverse the “REMOVAL” procedure. Note the following points:
1. Install the meter lights, indicator lights and leads as shown.

① "OIL" indicator light
② "NEUTRAL" indicator light
③ "HIGH BEAM" indicator light
④ "TURN" indicator light

2. Install:
   • Meter assembly ①

**Bolt (Meter Assembly)**
7 Nm (0.7 m•kg, 5.1 ft•lb)
NOTE:
Install the headlight lens unit onto the headlight stay by fitting the guide rubber properly in the guide hole of the headlight unit.

3. Install:
- Headlight cover

4. Adjust:
- Headlight beam
Refer to the "HEADLIGHT BEAM ADJUSTMENT" section.
CHAPTER 9
TROUBLESHOOTING

STARTING FAILURE / HARD STARTING ........................................... 9-1
FUEL SYSTEM ................................................................. 9-1
ELECTRICAL SYSTEM ......................................................... 9-2

POOR IDLE SPEED PERFORMANCE .......................................... 9-3
POOR IDLE SPEED PERFORMANCE .......................................... 9-3

POOR MEDIUM AND HIGH SPEED PERFORMANCE ...................... 9-3
FUEL SYSTEM ................................................................. 9-3
ELECTRICAL SYSTEM ......................................................... 9-3
COMPRESSION SYSTEM ....................................................... 9-4
Y.P.V.S. ........................................................................... 9-4

FAULTY GEAR SHIFTING ......................................................... 9-5
HARD SHIFTING ................................................................ 9-5
CHANGE PEDAL DOES NOT MOVE ........................................ 9-5
JUMP OUT GEAR ................................................................ 9-5

CLUTCH SLIPPING/DRAGGING .................................................. 9-5
CLUTCH SLIPPING ................................................................ 9-5
CLUTCH DRAGGING ................................................................ 9-6

FAULTY BRAKE ..................................................................... 9-6
POOR BRAKING EFFECT ......................................................... 9-6

FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION .... 9-6
OIL LEAKAGE ...................................................................... 9-6
MALFUNCTION .................................................................... 9-6

INSTABLE HANDLING ............................................................. 9-7
INSTABLE HANDLING ............................................................. 9-7

FAULTY SIGNAL AND LIGHTING SYSTEM ................................ 9-8
HEADLIGHT DARK ................................................................ 9-8
BULB BURNT OUT ................................................................ 9-8
FLASHER DOES NOT LIGHT .................................................. 9-8
FLASHER KEEPS ON ............................................................. 9-8
FLASHER WINKS SLOWER .................................................... 9-8
FLASHER WINKS QUICKER .................................................... 9-8
HORN IS INOPERATIVE ......................................................... 9-8

FAULTY Y.P.V.S. ................................................................. 9-9
FAULTY Y.P.V.S. ................................................................. 9-9

OVERHEATING OR OVERCOOLING ......................................... 9-9
OVERHEATING ................................................................... 9-9
OVERCOOLING ................................................................... 9-9

DT125 WIRING DIAGRAM ....................................................... 9-10
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

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel tank</td>
</tr>
<tr>
<td>• Empty</td>
</tr>
<tr>
<td>• Clogged fuel filter</td>
</tr>
<tr>
<td>• Clogged fuel tank cap</td>
</tr>
<tr>
<td>• Deteriorated fuel or fuel containing or foreign material</td>
</tr>
<tr>
<td>Fuel cock</td>
</tr>
<tr>
<td>• Clogged fuel hose</td>
</tr>
<tr>
<td>Carburetor</td>
</tr>
<tr>
<td>• Deteriorated fuel, fuel containing water or foreign material</td>
</tr>
<tr>
<td>• Clogged pilot jet</td>
</tr>
<tr>
<td>• Clogged pilot air passage</td>
</tr>
<tr>
<td>• Sucked-in air</td>
</tr>
<tr>
<td>• Deformed float</td>
</tr>
<tr>
<td>• Groove worm needle valve</td>
</tr>
<tr>
<td>• Improperly sealed valve seat</td>
</tr>
<tr>
<td>• Improperly adjustment fuel level</td>
</tr>
<tr>
<td>• Improperly set pilot jet</td>
</tr>
<tr>
<td>• Clogged starter jet</td>
</tr>
<tr>
<td>• Starter plunger malfunction</td>
</tr>
<tr>
<td>• Improperly adjusted starter cable</td>
</tr>
<tr>
<td>Air cleaner</td>
</tr>
<tr>
<td>• Clogged air filter</td>
</tr>
</tbody>
</table>
### ELECTRICAL SYSTEM

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark plug</td>
</tr>
<tr>
<td>Improper plug gap</td>
</tr>
<tr>
<td>Worn electrodes</td>
</tr>
<tr>
<td>Wire between terminals broken</td>
</tr>
<tr>
<td>Improper heat range</td>
</tr>
<tr>
<td>Faulty spark plug cap</td>
</tr>
<tr>
<td>Ignition coil</td>
</tr>
<tr>
<td>Broken or shorted primary/secondary</td>
</tr>
<tr>
<td>Faulty spark plug lead</td>
</tr>
<tr>
<td>Broken body</td>
</tr>
<tr>
<td>C.D.I. Unit system</td>
</tr>
<tr>
<td>Faulty C.D.I. unit</td>
</tr>
<tr>
<td>Faulty source coil</td>
</tr>
<tr>
<td>Faulty pick-up coil</td>
</tr>
<tr>
<td>Broken woodruff key</td>
</tr>
<tr>
<td>Switches and wiring</td>
</tr>
<tr>
<td>Faulty main switch</td>
</tr>
<tr>
<td>Faulty engine stop switch</td>
</tr>
<tr>
<td>Broken or shorted wiring</td>
</tr>
<tr>
<td>Faulty neutral switch</td>
</tr>
<tr>
<td>Faulty sidestand switch</td>
</tr>
<tr>
<td>Faulty ignition control unit</td>
</tr>
</tbody>
</table>

### COMPRESSION SYSTEM

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder and cylinder head</td>
</tr>
<tr>
<td>Loose spark plug</td>
</tr>
<tr>
<td>Loose cylinder head or cylinder</td>
</tr>
<tr>
<td>Broken cylinder head gasket</td>
</tr>
<tr>
<td>Broken cylinder gasket</td>
</tr>
<tr>
<td>Worn, damaged or seized cylinder</td>
</tr>
<tr>
<td>Piston and piston rings</td>
</tr>
<tr>
<td>Improperly installed piston ring</td>
</tr>
<tr>
<td>Worn, fatigued or broken piston ring</td>
</tr>
<tr>
<td>Seized piston ring</td>
</tr>
<tr>
<td>Seized or damaged piston</td>
</tr>
<tr>
<td>Crankcase and crankshaft</td>
</tr>
<tr>
<td>Improperly seated crankcase</td>
</tr>
<tr>
<td>Improperly sealed crankcase (Damaged oil seal)</td>
</tr>
<tr>
<td>Seized crankshaft</td>
</tr>
<tr>
<td>Reed valve</td>
</tr>
<tr>
<td>Deformed reed valve stopper</td>
</tr>
<tr>
<td>Improperly seated reed valve</td>
</tr>
<tr>
<td>Loose intake manifold</td>
</tr>
<tr>
<td>Broken gasket</td>
</tr>
<tr>
<td>Broken reed valve</td>
</tr>
</tbody>
</table>
### 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 cable play
- Faulty pick up coil

### POOR MEDIUM AND HIGH SPEED PERFORMANCE

#### FUEL SYSTEM
- **PROBLABLE CAUSE**
  - Clogged fuel filter
  - Deteriorated fuel or fuel containing water or foreign material
  - Clogged fuel breather hose
  - Clogged fuel hose
  - Deteriorated fuel or fuel containing water or foreign material
  - Sucked-in air
  - Deformed float
  - 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 needle jet
  - Clogged air filter

#### ELECTRICAL SYSTEM
- **PROBLABLE CAUSE**
  - Improper plug gap
  - Worn electrodes
  - Wire between terminals broken
  - Improper heat range
  - Faulty spark plug cap
  - Faulty CDI unit
  - Faulty source coil
  - Faulty pickup coil
### Compression System

<table>
<thead>
<tr>
<th>Component</th>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder and cylinder head</td>
<td>• Loose spark plug</td>
</tr>
<tr>
<td></td>
<td>• Broken cylinder head gasket</td>
</tr>
<tr>
<td></td>
<td>• Broken cylinder gasket</td>
</tr>
<tr>
<td></td>
<td>• Loose cylinder head or cylinder</td>
</tr>
<tr>
<td></td>
<td>• Worn, damaged or seized cylinder</td>
</tr>
<tr>
<td>Piston and piston ring</td>
<td>• Improperly installed piston ring</td>
</tr>
<tr>
<td></td>
<td>• Worn, fatigued or broken piston ring</td>
</tr>
<tr>
<td></td>
<td>• Seized piston ring</td>
</tr>
<tr>
<td></td>
<td>• Seized or damaged piston</td>
</tr>
<tr>
<td>Crankcase and crankshaft</td>
<td>• Improperly seated crankcase</td>
</tr>
<tr>
<td></td>
<td>• Improperly sealed crankcase</td>
</tr>
<tr>
<td></td>
<td>(Damaged oil seal)</td>
</tr>
<tr>
<td></td>
<td>• Seized crankshaft</td>
</tr>
<tr>
<td>Reed valve</td>
<td>• Deformed reed valve stopper</td>
</tr>
<tr>
<td></td>
<td>• Improperly adjusted reed valve stopper height</td>
</tr>
<tr>
<td></td>
<td>• Improperly seated reed valve</td>
</tr>
<tr>
<td></td>
<td>• Loose intake manifold</td>
</tr>
<tr>
<td></td>
<td>• Broken gasket</td>
</tr>
<tr>
<td></td>
<td>• Broken reed valve</td>
</tr>
</tbody>
</table>

### Y.P.V.S.

<table>
<thead>
<tr>
<th>Component</th>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power valve</td>
<td>• Seized or damaged power valve</td>
</tr>
<tr>
<td></td>
<td>• Carbon build-up</td>
</tr>
<tr>
<td>Control cable</td>
<td>• Improperly adjustable cable</td>
</tr>
<tr>
<td></td>
<td>• Seized or discontinuous cable</td>
</tr>
<tr>
<td>Electrical parts</td>
<td>• Faulty battery</td>
</tr>
<tr>
<td></td>
<td>(Improperly charged battery)</td>
</tr>
<tr>
<td></td>
<td>• Faulty main switch</td>
</tr>
<tr>
<td></td>
<td>• Faulty servomotor</td>
</tr>
<tr>
<td></td>
<td>• Faulty GDI unit</td>
</tr>
<tr>
<td></td>
<td>• Faulty Y.P.V.S. control unit</td>
</tr>
<tr>
<td></td>
<td>• Broken or shorted wiring</td>
</tr>
</tbody>
</table>
## TROUBLESHOOTING

### FAULTY GEAR SHIFTING

#### HARD SHIFTING

<table>
<thead>
<tr>
<th>Part</th>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clutch</td>
<td>Improperly adjusted clutch cable</td>
</tr>
<tr>
<td></td>
<td>Improperly adjusted push lever position</td>
</tr>
<tr>
<td></td>
<td>Improper engagement of push lever and push rod</td>
</tr>
<tr>
<td></td>
<td>Warped clutch plate</td>
</tr>
<tr>
<td></td>
<td>Swollen friction plate</td>
</tr>
<tr>
<td></td>
<td>Broken clutch plate</td>
</tr>
<tr>
<td>Transmission oil</td>
<td>High oil level</td>
</tr>
<tr>
<td></td>
<td>Improper quality (High viscosity)</td>
</tr>
<tr>
<td></td>
<td>Deterioration</td>
</tr>
</tbody>
</table>

#### CHANGE PEDAL DOES NOT MOVE

<table>
<thead>
<tr>
<th>Part</th>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift shaft</td>
<td>Bent shift shaft</td>
</tr>
<tr>
<td>Shift cam and shift fork</td>
<td>Groove jammed with impurities</td>
</tr>
<tr>
<td></td>
<td>Seized shift fork</td>
</tr>
<tr>
<td></td>
<td>Bent shift forks guide bar</td>
</tr>
<tr>
<td>Transmission</td>
<td>Seized transmission gear</td>
</tr>
<tr>
<td></td>
<td>Jammed impurities</td>
</tr>
<tr>
<td></td>
<td>Incorrectly assembled transmission</td>
</tr>
</tbody>
</table>

#### JUMP OUT GEAR

<table>
<thead>
<tr>
<th>Part</th>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shift shaft</td>
<td>Improperly adjusted shift lever position</td>
</tr>
<tr>
<td></td>
<td>Improperly returned stopper lever</td>
</tr>
<tr>
<td>Shift fork</td>
<td>Worn shift fork</td>
</tr>
<tr>
<td>Shift cam</td>
<td>Improper thrust play</td>
</tr>
<tr>
<td></td>
<td>Worn shift cam groove</td>
</tr>
<tr>
<td>Transmission</td>
<td>Worn gear dog</td>
</tr>
</tbody>
</table>

### CLUTCH SLIPPING/DRAGGING

#### CLUTCH SLIPPING

<table>
<thead>
<tr>
<th>Part</th>
<th>Probable Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clutch</td>
<td>Improperly adjusted clutch cable</td>
</tr>
<tr>
<td></td>
<td>Loose clutch spring</td>
</tr>
<tr>
<td></td>
<td>Fatigued clutch spring</td>
</tr>
<tr>
<td></td>
<td>Worn friction plate</td>
</tr>
<tr>
<td></td>
<td>Worn clutch plate</td>
</tr>
<tr>
<td>Transmission</td>
<td>Low oil level</td>
</tr>
<tr>
<td></td>
<td>Improper quality (Low viscosity)</td>
</tr>
<tr>
<td></td>
<td>Deterioration</td>
</tr>
</tbody>
</table>
# Troubleshooting

## Clutch Dragging

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Improperly adjusted clutch cable</td>
<td></td>
</tr>
<tr>
<td>Improperly adjusted push lever position</td>
<td></td>
</tr>
<tr>
<td>Improper engagement of push lever and push rod</td>
<td></td>
</tr>
<tr>
<td>Warped clutch plate</td>
<td></td>
</tr>
<tr>
<td>Swollen friction plate</td>
<td></td>
</tr>
<tr>
<td>Broken clutch boss</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission oil</td>
<td>High oil level</td>
</tr>
<tr>
<td></td>
<td>Improper quality (High viscosity)</td>
</tr>
<tr>
<td></td>
<td>Deterioration</td>
</tr>
</tbody>
</table>

## Faulty Brake

### Poor Braking Effect

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Worn brake pad</td>
<td></td>
</tr>
<tr>
<td>Worn brake disc</td>
<td></td>
</tr>
<tr>
<td>Air in brake fluid</td>
<td></td>
</tr>
<tr>
<td>Leaking brake fluid</td>
<td></td>
</tr>
<tr>
<td>Faulty cylinder kit cup</td>
<td></td>
</tr>
<tr>
<td>Faulty caliper kit seal</td>
<td></td>
</tr>
<tr>
<td>Loose union bolt</td>
<td></td>
</tr>
<tr>
<td>Broken brake hose</td>
<td></td>
</tr>
<tr>
<td>Oily or grasy brake disc</td>
<td></td>
</tr>
<tr>
<td>Oily or greasy brake pad</td>
<td></td>
</tr>
<tr>
<td>Improper brake fluid level</td>
<td></td>
</tr>
</tbody>
</table>

## Front Fork Oil Leakage and Front Fork Malfunction

### Oil Leakage

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bent, damaged or rusty inner tube</td>
<td></td>
</tr>
<tr>
<td>Damaged or cracked outer tube</td>
<td></td>
</tr>
<tr>
<td>Damaged oil seal lip</td>
<td></td>
</tr>
<tr>
<td>Improperly installed oil seal</td>
<td></td>
</tr>
<tr>
<td>Improper oil level (too much)</td>
<td></td>
</tr>
<tr>
<td>Loose damper rod</td>
<td></td>
</tr>
<tr>
<td>Broken</td>
<td></td>
</tr>
</tbody>
</table>

### Malfunction

<table>
<thead>
<tr>
<th>PROBABLE CAUSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bent, deformed or damaged inner tube</td>
<td></td>
</tr>
<tr>
<td>Bent or deformed outer tube</td>
<td></td>
</tr>
<tr>
<td>Damaged fork spring</td>
<td></td>
</tr>
<tr>
<td>Worn or damaged slide metal</td>
<td></td>
</tr>
<tr>
<td>Bent or damaged damper rod</td>
<td></td>
</tr>
<tr>
<td>Improper oil viscosity</td>
<td></td>
</tr>
<tr>
<td>Improper oil level</td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td>Probable Cause</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Handlebars</td>
<td>Improperly installed or bent</td>
</tr>
<tr>
<td>Steering</td>
<td>Improperly installed handle crown</td>
</tr>
<tr>
<td></td>
<td>Bent steering shaft</td>
</tr>
<tr>
<td></td>
<td>Improperly installed steering shaft (Improperly tightened ringnut)</td>
</tr>
<tr>
<td></td>
<td>Damaged ball bearing (roller bearing or bearing race)</td>
</tr>
<tr>
<td>Front forks</td>
<td>Uneven oil levels on both sides</td>
</tr>
<tr>
<td></td>
<td>Uneven spring tension (Uneven damping adjuster position)</td>
</tr>
<tr>
<td></td>
<td>Broken spring</td>
</tr>
<tr>
<td></td>
<td>Twisted front forks</td>
</tr>
<tr>
<td>Tires</td>
<td>Uneven tire pressure on both sides</td>
</tr>
<tr>
<td></td>
<td>Incorrect tire pressure</td>
</tr>
<tr>
<td></td>
<td>Unevenly worn tires</td>
</tr>
<tr>
<td>Wheels</td>
<td>Incorrect wheel balance</td>
</tr>
<tr>
<td></td>
<td>Deformed cast wheel</td>
</tr>
<tr>
<td></td>
<td>Loose bearing</td>
</tr>
<tr>
<td></td>
<td>Bent or loose wheel axle</td>
</tr>
<tr>
<td></td>
<td>Excessive wheel run-out</td>
</tr>
<tr>
<td>Frame</td>
<td>Twisted</td>
</tr>
<tr>
<td></td>
<td>Damaged head pipe</td>
</tr>
<tr>
<td></td>
<td>Improperly installed bearing race</td>
</tr>
<tr>
<td>Swingarm</td>
<td>Worn bearing or bush</td>
</tr>
<tr>
<td></td>
<td>Bent or damaged</td>
</tr>
<tr>
<td>Rear shock absorber</td>
<td>Fatigued spring</td>
</tr>
<tr>
<td></td>
<td>Improperly adjusted spring preload</td>
</tr>
<tr>
<td></td>
<td>Oil leakage</td>
</tr>
<tr>
<td>Drive chain</td>
<td>Improperly adjusted chain slack</td>
</tr>
</tbody>
</table>
# Troubleshooting

## Faulty Signal and Lighting System

### Headlight Dark

**Probable Cause**
- Improper bulb
- Too many electric accessories
- Hard charging (broken charging coil and/or faulty rectifier/rectifier)
- Incorrect connection
- Improperly grounded
- Poor contacts (main or "LIGHTS" switch)
- Bulb life expired

### Bulb Burnt Out

**Probable Cause**
- Improper bulb
- Faulty battery
- Faulty rectifier/regulator
- Improperly grounded
- Faulty main and/or light switch
- Bulb life expired

### Flasher Does Not Light

**Probable Cause**
- Improperly grounded
- Discharged battery
- Faulty "TURN" switch
- Faulty flasher relay
- Broken wireharness
- Loosely connected coupler
- Bulb burnt out

### Flasher Keeps On

**Probable Cause**
- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Bulb burnt out

### Flasher Winks Slower

**Probable Cause**
- Faulty flasher relay
- Insufficient battery capacity (nearly discharged)
- Improper bulb
- Faulty main and/or "TURN" switch

### Flasher Winks Quicker

**Probable Cause**
- Improper bulb
- Faulty flasher relay

### Horn Is Inoperative

**Probable Cause**
- Faulty battery
- Faulty main and/or horn switch
- Improperly adjusted horn
- Faulty horn
- Broken wireharness
<table>
<thead>
<tr>
<th>TROUBLESHOOTING</th>
<th>TRBL SHTG</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAULTY Y.P.V.S.</td>
<td>PROBABLE CAUSE</td>
</tr>
<tr>
<td>• Power valve</td>
<td>• Seized or damaged power valve</td>
</tr>
<tr>
<td></td>
<td>• Carbon build-up</td>
</tr>
<tr>
<td>• Control cable</td>
<td>• Improperly adjusted cable</td>
</tr>
<tr>
<td></td>
<td>• Seized or discontinuous cable</td>
</tr>
<tr>
<td>• Electrical parts</td>
<td>• Insufficient battery capacity (improperly charged battery)</td>
</tr>
<tr>
<td></td>
<td>• Faulty main switch</td>
</tr>
<tr>
<td></td>
<td>• Faulty servomotor</td>
</tr>
<tr>
<td></td>
<td>• Faulty CDI unit</td>
</tr>
<tr>
<td></td>
<td>• Faulty Y.P.V.S. control unit</td>
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<td>• Broken or shorted wiring</td>
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<th>OVERHEATING OR OVER-COOLING</th>
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<tr>
<td>OVERHEATING</td>
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<tr>
<td>• Ignition system</td>
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<td>• Fuel system</td>
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<td>• Compression system</td>
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<td>• Transmission oil</td>
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<td>• Brake</td>
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<td>• Cooling system</td>
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COMPONENTS

1. CDI. Mag.
2. Rect./Regu.
3. Battery
4. Fuse
5. Starter Relay
6. Starting Motor
7. Main Sw.
8. Handle Sw. R
9. Starter Sw.
10. E/G Stop Sw.
11. Clutch Sw.
12. Side Stand Sw.
13. Thermo Sw.
14. Side Stand Relay
15. Neutral Sw.
16. CDI. Unit
17. Ign. Coil
18. Servo. Motor
19. Lightning Relay
20. Horn Sw.
21. Dimmer Sw.
22. Flasher Sw.
23. Hazard Sw.
24. Handle Sw. L
25. Horn
26. Flasher Relay
27. Fr. Stop Sw.
28. Rr. Stop Sw.
29. Head Light
30. Fr. Lh Flasher
31. Rr. Lh Flasher
32. Fr. Rh Flasher
33. Rr. Rh Flasher
34. Tail/Stop Light
35. Oil Level Gauge
36. Meter
37. Diode 1
38. License Light
39. Position Lamp
40. Anti Theft Unit

COLOR CODE

B ......................... Balck
R ......................... Red
L .......................... Blue
G .......................... Green
Or ........................ Orange
Y .......................... Yellow
P .......................... Pink
Br ........................ Brown
Ch ........................ Chocolate
Sb ........................ Skip blue
Dg ........................ Dark green
W .......................... White
Gy ........................ Gray
BG ........................ Black-Green
BY ......................... Black-Yellow
BW ........................ Black-White
GR ........................ Green-Red
GY ........................ Green-Yellow
BrW ........................ Brown-White
YR ........................ Yellow-Red
LR ........................ Blue-Red
LY ........................ Blue-Yellow
LG ........................ Blue-Green
RY ........................ Red-Yellow
PW ........................ Pink-White
WG ........................ White-Green
WL ........................ White-Blue
WR ........................ White-Red