OWNER’S SERVICE MANUAL

YZ125(X)/X1

1C3-28199-33-E0
FOREWORD
INTRODUCTION
Congratulations on your purchase of a Yamaha YZ series. This model is the culmination of Yamaha's vast experience in the production of pacesetting racing machines. It represents the highest grade of craftsmanship and reliability that have made Yamaha a leader.

This manual explains operation, inspection, basic maintenance and tuning of your machine. If you have any questions about this manual or your machine, please contact your Yamaha dealer.

NOTE:
Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your machine and this manual. If you have any questions concerning this manual, please consult your Yamaha dealer.

PLEASE READ THIS MANUAL CAREFULLY AND COMPLETELY BEFORE OPERATING THIS MACHINE. DO NOT ATTEMPT TO OPERATE THIS MACHINE UNTIL YOU HAVE ATTAINED A SATISFACTORY KNOWLEDGE OF ITS CONTROLS AND OPERATING FEATURES AND UNTIL YOU HAVE BEEN TRAINED IN SAFE AND PROPER RIDING TECHNIQUES. REGULAR INSPECTIONS AND CAREFUL MAINTENANCE, ALONG WITH GOOD RIDING SKILLS, WILL ENSURE THAT YOU SAFETY ENJOY THE CAPABILITIES AND THE RELIABILITY OF THIS MACHINE.

PARTICULARLY IMPORTANT INFORMATION

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 machine operator, a bystander, or a person inspecting or repairing the machine.

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

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

IMPORTANT NOTICE

THIS MACHINE IS DESIGNED STRICTLY FOR COMPETITION USE, ONLY ON A CLOSED COURSE. It is illegal for this machine to be operated on any public street, road, or highway. Off-road use on public lands may be illegal. Please check local regulations before riding.

SAFETY INFORMATION

1. THIS MACHINE IS TO BE OPERATED BY AN EXPERIENCED RIDER ONLY.
Do not attempt to operate this machine at maximum power until you are totally familiar with its characteristics.

2. THIS MACHINE IS DESIGNED TO BE RIDDEN BY THE OPERATOR ONLY.
Do not carry passengers on this machine.

3. ALWAYS WEAR PROTECTIVE APPAREL.
When operating this machine, always wear an approved helmet with goggles or a face shield. Also wear heavy boots, gloves, and protective clothing. Always wear proper fitting clothing that will not be caught in any of the moving parts or controls of the machine.

4. ALWAYS MAINTAIN YOUR MACHINE IN PROPER WORKING ORDER.
For safety and reliability, the machine must be properly maintained. Always perform the pre-operation checks indicated in this manual. Correcting a mechanical problem before you ride may prevent an accident.

5. GASOLINE IS HIGHLY FLAMMABLE.
Always turn off the engine while refueling. Take care to not spill any gasoline on the engine or exhaust system. Never refuel in the vicinity of an open flame, or while smoking.

6. GASOLINE CAN CAUSE INJURY.
If you should swallow some gasoline, inhale excess gasoline vapors, or allow any gasoline to get into your eyes, contact a doctor immediately. If any gasoline spills onto your skin or clothing, immediately wash skin areas with soap and water, and change your clothes.

7. ONLY OPERATE THE MACHINE IN AN AREA WITH ADEQUATE VENTILATION.
Never start the engine or let it run for any length of time in an enclosed area. Exhaust fumes are poisonous. These fumes contain carbon monoxide, which by itself is odorless and colorless. Carbon monoxide is a dangerous gas which can cause unconsciousness or can be lethal.

8. PARK THE MACHINE CAREFULLY; TURN OFF THE ENGINE.
Always turn off the engine if you are going to leave the machine. Do not park the machine on a slope or soft ground as it may fall over.

9. PROPERLY SECURE THE MACHINE BEFORE TRANSPORTING IT.
When transporting the machine in another vehicle, always be sure it is properly secured and in an upright position and that the fuel cock is in the "OFF" position. Otherwise, fuel may leak out of the carburetor or fuel tank.
TO THE NEW OWNER
This manual will provide you with a good basic understanding of features, operation, and basic maintenance and inspection items of this machine. Please read this manual carefully and completely before operating your new machine. If you have any questions regarding the operation or maintenance of your machine, please consult your Yamaha dealer.

NOTE:
This manual should be considered a permanent part of this machine and should remain with it even if the machine is subsequently sold.

NOTICE
Some data in this manual may become outdated due to improvements made to this model in the future. If there is any question you have regarding this manual or your machine, please consult your Yamaha dealer.

F.I.M. MACHINE WEIGHTS
Weights of machines without fuel
The minimum weights for motocross machines are:
- for the class 125 cc: minimum 88 kg (194 lb)
- for the class 250 cc: minimum 98 kg (216 lb)
- for the class 500 cc: minimum 102 kg (225 lb)

In modifying your machine (e.g., for weight reduction), take note of the above limits of weight.

HOW TO USE THIS MANUAL
FINDING THE REQUIRED PAGE
1. This manual consists of seven chapters; "General Information", "Specifications", "Regular inspection and adjustments", "Engine", "Chassis", "Electrical" and "Tuning"
2. The table of contents is at the beginning of the manual. Look over the general layout of the book before finding then required chapter and item.

MANUAL FORMAT
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,
- Bearings
  Pitting/damage → Replace.
HOW TO READ DESCRIPTIONS
To help identify parts and clarify procedure steps, there are exploded diagrams at the start of each removal and disassembly section.

1. An easy-to-see exploded diagram "1" is provided for removal and disassembly jobs.
2. Numbers "2" are given in the order of the jobs in the exploded diagram. A number that is enclosed by a circle indicates a disassembly step.
3. An explanation of jobs and notes is presented in an easy-to-read way by the use of symbol marks "3". The meanings of the symbol marks are given on the next page.
4. A job instruction chart "4" accompanies the exploded diagram, providing the order of jobs, names of parts, notes in jobs, etc.
5. For jobs requiring more information, the step-by-step format supplements "5" are given in addition to the exploded diagram and job instruction chart.

ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols "1" to "7" are used to identify the specifications appearing in the text.
1. With engine mounted
2. Filling fluid
3. Lubricant
4. Special tool
5. Tightening
6. Specified value, Service limit
7. Resistance (Ω), Voltage (V), Electric current (A)

Illustrated symbols "8" to "14" in the exploded diagrams indicate grade of lubricant and location of lubrication point.
8. Apply engine mixing oil
9. Apply transmission oil
10. Apply molybdenum disulfide oil
11. Apply brake fluid
12. Apply lightweight lithium-soap base grease
13. Apply molybdenum disulfide grease
14. Apply silicone grease

Illustrated symbols "15" to "16" in the exploded diagrams indicate where to apply a locking agent and where to install new parts.
15. Apply locking agent (LOCTITE®)
16. Use new one
# 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>REGULAR INSPECTION AND ADJUSTMENTS</td>
<td>3</td>
</tr>
<tr>
<td>ENGINE</td>
<td>4</td>
</tr>
<tr>
<td>CHASSIS</td>
<td>5</td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td>6</td>
</tr>
<tr>
<td>TUNING</td>
<td>7</td>
</tr>
</tbody>
</table>
GENERAL INFORMATION

DESCRIPTION

1. Clutch lever
2. Engine stop switch
3. Front brake lever
4. Throttle grip
5. Radiator cap
6. Fuel tank cap
7. Kickstarter crank
8. Fuel tank
9. Radiator
10. Coolant drain bolt
11. Check bolt (Transmission oil level)
12. Rear brake pedal
13. Valve joint
14. Fuel cock
15. Air filter
16. Drive chain
17. Shift pedal
18. Starter knob
19. Front fork

NOTE:
• The machine you have purchased may differ slightly from those shown in the following.
• Designs and specifications are subject to change without notice.
MACHINE IDENTIFICATION

There are two significant reasons for knowing the serial number of your machine:

1. When ordering parts, you can give the number to your Yamaha dealer for positive identification of the model you own.
2. If your machine is stolen, the authorities will need the number to search for and identify your machine.

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number "1" is stamped on the right of the steering head pipe.

ENGINE SERIAL NUMBER

The engine serial number "1" is stamped into the elevated part of the right-side of the engine.

MODEL LABEL

The model label "1" is affixed to the frame under the rider's seat. This information will be needed to order spare parts.

INCLUDED PARTS

DETACHABLE SIDESTAND

This sidestand "1" is used to support only the machine when standing or transporting it.

WARNING

- Never apply additional force to the sidestand.
- Remove this sidestand before starting out.

VALVE JOINT

This valve joint "1" prevents fuel from flowing out and is installed to the fuel tank breather hose.

CAUTION:

In this installation, make sure the arrow faces the fuel tank and also downward.

COLLAR (tool for YPVS)

This collar "1" is used to remove and install the push rod of the engine.

NIPPLE WRENCH

This nipple wrench "1" is used to tighten the spoke.

IMPORTANT INFORMATION

PREPARATION FOR REMOVAL AND DISASSEMBLY

1. Remove all dirt, mud, dust, and foreign material before removal and disassembly.
   - When washing the machine with high pressured water, cover the parts follows.
   - Silencer exhaust port
   - Side cover air intake port
   - Crankcase cover hole at the bottom
   - Water pump housing hole at the bottom

2. Use proper tools and cleaning equipment. Refer to "SPECIAL TOOLS" section.

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

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

5. Keep away from fire.

ALL REPLACEMENT PARTS

1. We recommend to use Yamaha genuine parts for all replacements. Use oil and/or grease rec-
CHECKING OF CONNECTION

COMMENDED BY YAMAHA FOR ASSEMBLY AND ADJUSTMENT.

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

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

BEARINGS AND OIL SEALS
1. Install the bearing(s) “1” and oil seal(s) “2” with their manufacturer’s marks or numbers facing outward. (In other words, the stamped letters must be on the side exposed to view.) When installing oil seal(s), apply a light coating of lightweight lithium base grease to the seal lip(s). Oil the bearings liberally when installing.

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

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

CHECKING OF CONNECTION
Dealing with stains, rust, moisture, etc. on the connector.
1. Disconnect:
   • Connector
2. Dry each terminal with an air blower.
3. Connect and disconnect the connector two or three times.
4. Pull the lead to check that it will not come off.
5. If the terminal comes off, bend up the pin “1” and reinsert the terminal into the connector.
6. Connect:
   • Connector

NOTE:
The two connectors “click” together.
7. Check for continuity with a tester.

NOTE:
• If there is no continuity, clean the terminals.
• Be sure to perform the steps 1 to 7 listed above when checking the wire harness.
• For a field remedy, use a contact revitalizer available on the market.
• Use the tester on the connector as shown.
**SPECIAL TOOLS**

The proper special tools are necessary for complete and accurate tune-up and assembly. Using the correct special tool will help prevent damage caused by the use of improper tools or improvised techniques. The shape and part number used for the special tool differ by country, so two types are provided. Refer to the list provided to avoid errors when placing an order.

**NOTE:**
- For U.S.A. and Canada, use part number starting with "YM-", "YU-" or "ACC-".
- For others, use part number starting with "90890-".

<table>
<thead>
<tr>
<th>Tool name/Part number</th>
<th>How to use</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crankcase separating tool YU-1135-A, 90890-01135</td>
<td>These tool is used to remove the crankshaft from either case.</td>
<td><img src="image" alt="Crankcase separating tool" /></td>
</tr>
<tr>
<td>Flywheel puller YM-1189, 90890-01189</td>
<td>This tool is used to remove the flywheel magneto.</td>
<td><img src="image" alt="Flywheel puller" /></td>
</tr>
<tr>
<td>Rotor holding tool YU-1235, 90890-01235</td>
<td>This tool is used when loosening or tightening the flywheel magneto securing nut.</td>
<td><img src="image" alt="Rotor holding tool" /></td>
</tr>
<tr>
<td>Dial gauge and stand YU-3097, 90890-01252 Stand YU-1256</td>
<td>These tools are used to check each part for runout or bent.</td>
<td><img src="image" alt="Dial gauge and stand" /></td>
</tr>
<tr>
<td>Crankshaft installing tool Crankshaft installing pot YU-90050, 90890-01274 Crankshaft installing bolt YU-90050, 90890-01275 Adapter YU-90063, 90890-01278 Adapter YU-01499, 90890-01499</td>
<td>These tools are used to install the crankshaft.</td>
<td><img src="image" alt="Crankshaft installing tool" /></td>
</tr>
<tr>
<td>Piston pin puller set YU-1304, 90890-01304</td>
<td>This tool is used to remove the piston pin.</td>
<td><img src="image" alt="Piston pin puller set" /></td>
</tr>
<tr>
<td>Tool name/Part number</td>
<td>How to use</td>
<td>Illustration</td>
</tr>
<tr>
<td>----------------------</td>
<td>------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Fuel level gauge “1” YM-1312-A, 90890-01312 Fuel level gauge adaptor “2” YM-01470, 90890-01470</td>
<td>This gauge is used to measure the fuel level in the float chamber.</td>
<td>![Illustration of fuel level gauge and adaptor]</td>
</tr>
<tr>
<td>Radiator cap tester YU-24460-01, 90890-01325 Radiator cap tester adapter YU-33984, 90890-01352</td>
<td>These tools are used for checking the cooling system.</td>
<td>![Illustration of radiator cap tester and adapter]</td>
</tr>
<tr>
<td>Flywheel puller YU-33270-B, 90890-01362</td>
<td>These tool is used to split the crank-case.</td>
<td>![Illustration of flywheel puller]</td>
</tr>
<tr>
<td>Steering nut wrench YU-33975, 90890-01403</td>
<td>This tool is used when tighten the steering ring nut to specification.</td>
<td>![Illustration of steering nut wrench]</td>
</tr>
<tr>
<td>Cap bolt wrench YM-01500, 90890-01500</td>
<td>This tool is used to loosen or tighten the base valve.</td>
<td>![Illustration of cap bolt wrench]</td>
</tr>
<tr>
<td>Cap bolt ring wrench YM-01501, 90890-01501</td>
<td>This tool is used to loosen or tighten the damper assembly.</td>
<td>![Illustration of cap bolt ring wrench]</td>
</tr>
<tr>
<td>Tool name/Part number</td>
<td>How to use</td>
<td>Illustration</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Fork seal driver YM-A0948, 90890-01502</td>
<td>This tool is used when install the fork oil seal.</td>
<td><img src="image" alt="Fork seal driver" /></td>
</tr>
<tr>
<td>Pocket tester YU-3112-C, 90890-03112</td>
<td>Use this tool to inspect the coil resistance, output voltage and amperage.</td>
<td><img src="image" alt="Pocket tester" /></td>
</tr>
<tr>
<td>Clutch holding tool YM-91042, 90890-04086</td>
<td>This tool is used to hold the clutch when removing or installing the clutch boss securing nut.</td>
<td><img src="image" alt="Clutch holding tool" /></td>
</tr>
<tr>
<td>Dynamic spark tester YM-34487 Ignition checker 90890-06754</td>
<td>This instrument is necessary for checking the ignition system components.</td>
<td><img src="image" alt="Dynamic spark tester" /></td>
</tr>
<tr>
<td>YAMAHA Bond No. 1215 (ThreeBond® No. 1215) 90890-85505</td>
<td>This sealant (Bond) is used for crankcase mating surface, etc.</td>
<td><img src="image" alt="YAMAHA Bond" /></td>
</tr>
</tbody>
</table>
CONTROL FUNCTIONS

ENGINE STOP SWITCH
The engine stop switch "1" is located on the left handlebar. Continue pushing the engine stop switch till the engine comes to a stop.

CLUTCH LEVER
The clutch lever "1" is located on the left handlebar; it disengages or engages the clutch. Pull the clutch lever to the handlebar to disengage the clutch, and release the lever to engage the clutch. The lever should be pulled rapidly and released slowly for smooth starts.

SHIFT PEDAL
The gear ratios of the constant-mesh 6 speed transmission are ideally spaced. The gears can be shifted by using the shift pedal "1" on the left side of the engine.

KICKSTARTER CRANK
Rotate the kickstarter crank "1" away from the engine. Push the starter down lightly with your foot until the gears engage, then kick smoothly and forcefully to start the engine. This model has a primary kickstarter crank so the engine can be started in any gear if the clutch is disengaged. In normal practices, however, shift to neutral before starting.

THROTTLE GRIP
The throttle grip "1" is located on the right handlebar; it accelerates or decelerates the engine. For acceleration, turn the grip toward you; for deceleration, turn it away from you.

STARTER KNOB (CHOKE)
When cold, the engine requires a richer air-fuel mixture for starting. A separate starter circuit, which is controlled by the starter knob "1", supplies this mixture. Pull the starter knob out to open the circuit for starting. When the engine has warmed up, push it in to close the circuit.

FRONT BRAKE LEVER
The front brake lever "1" is located on the right handlebar. Pull it toward the handlebar to activate the front brake.

REAR BRAKE PEDAL
The rear brake pedal "1" is located on the right side of the machine. Press down on the brake pedal to activate the rear brake.

FUEL COCK
The fuel cock supplies fuel from the tank to carburetor and also filters the fuel. The fuel cock has the two positions: OFF: With the lever in this position, fuel will not flow. Always return the lever to this position when the engine is not running. ON: With the lever in this position, fuel flows to the carburetor. Normal riding is done with the lever in this position.

STARTING AND BREAK-IN
FUEL
Mix oil with the gas at the ratio specified below. Always use fresh, name-brand gasoline, and mix the oil and gas the day of the race. Do not use premix that is more than a few hours old.

Recommended fuel: Premium unleaded gasoline only with a research octane number of 95 or higher.

NOTE: If knocking or pinging occurs, use a different brand of gasoline or higher octane grade.

CAUTION:
Never mix two types of oil in the same batch; clotting of the oil could result. If you wish to change oil types, be sure to drain the fuel tank and the carburetor float bowl of old premix prior to filling with the new type.

Fuel tank capacity: 8.0 L (1.76 Imp gal, 2.11 US gal)
### HANDLING NOTE

#### CAUTION:
Before starting the machine, perform the checks in the pre-operation check list.

#### WARNING
Never start or run the engine in a closed area. The exhaust fumes are poisonous; they can cause loss of consciousness and death in a very short time. Always operate the machine in a well-ventilated area.

### STARTING A COLD ENGINE
1. Shift the transmission into neutral.
2. Turn the fuel cock to "ON" and fully open the starter knob (CHOKE).
3. With the throttle completely closed start the engine by kicking the kick starter forcefully with firm stroke.
4. Run the engine at idle or slightly higher until it warms up: this usually takes about one or two minutes.
5. The engine is warmed up when it responds normally to the throttle with the starter knob (CHOKE) turned off.

#### CAUTION:
Do not warm up the engine for extended periods of time.

### STARTING A WARM ENGINE
Do not operate the starter knob (CHOKE). Open the throttle slightly and start the engine by kicking the kick starter forcefully with firm stroke.

#### CAUTION:
Observe the following break-in procedures during initial operation to ensure optimum performance and avoid engine damage.

### BREAK-IN PROCEDURES
1. Before starting the engine, fill the fuel tank with a break-in oil-fuel mixture as follows.

#### Mixing oil:
Yamalube "2-R"
Mixing ratio: 30:1

If unavailable, use an equivalent type of oil.

#### Mixing oil:
Yamalube "2-R"
Mixing ratio: 15:1

2. Perform the pre-operation checks on the machine.
3. Start and warm up the engine. Check the idle speed, and check the operation of the controls and the "ENGINE STOP" button.
4. Operate the machine in the lower gears at moderate throttle openings for five to eight minutes. Stop and check the spark plug condition; it will show a rich condition during break-in.
5. Allow the engine to cool. Restart the engine and operate the machine as in the step above for five minutes. Then, very briefly shift to the higher gears and check full-throttle response. Stop and check the spark plug.
6. After again allowing the engine to cool, restart and run the machine for five more minutes. Full throttle and the higher gears may be used, but sustained full-throttle operation should be avoided. Check the spark plug condition.
7. Allow the engine to cool, remove the top end, and inspect the piston and cylinder. Remove any high spots on the piston with #600 grit wet sandpaper. Clean all components and carefully reassemble the top end.
8. Drain the break-in oil-fuel mixture from the fuel tank and refill with the specified mix.
9. Restart the engine and check the operation of the machine throughout its entire operating range. Stop and check the spark plug condition. Restart the machine and operate it for about 10 to 15 more minutes. The machine will now be ready to race.

#### CAUTION:

- After the break-in or before each race, you must check the entire machine for loose fittings and fasteners as per "TORQUE-CHECK POINTS". Tighten all such fasteners as required.

- When any of the following parts have been replaced, they must be broken in.

#### CYLINDER AND CRANKSHAFT:
About one hour of break-in operation is necessary.

#### PISTON, RING AND GEARS:
These parts require about 30 minutes of break-in operation at half-throttle or less. Observe the condition of the engine carefully during operation.

- Mixing oil:
  - Recommended oil: Yamalube "2-R" (Yamalube racing 2-cycle oil)
  - Mixing ratio: 30:1

- Mixing oil:
  - Yamalube "2-R"
  - Mixing ratio: 15:1

- If unavailable, use an equivalent type of oil.
## TORQUE-CHECK POINTS

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frame construction</strong></td>
<td>Frame to rear frame</td>
</tr>
<tr>
<td></td>
<td>Combined seat and fuel tank</td>
</tr>
<tr>
<td></td>
<td>Fuel tank to frame</td>
</tr>
<tr>
<td><strong>Exhaust system</strong></td>
<td>Silencer to rear frame</td>
</tr>
<tr>
<td><strong>Engine mounting</strong></td>
<td>Frame to engine</td>
</tr>
<tr>
<td></td>
<td>Engine bracket to engine</td>
</tr>
<tr>
<td></td>
<td>Engine bracket to frame</td>
</tr>
<tr>
<td><strong>Steering</strong></td>
<td>Steering stem to handlebar</td>
</tr>
<tr>
<td></td>
<td>Steering stem to frame</td>
</tr>
<tr>
<td></td>
<td>Steering stem to upper bracket</td>
</tr>
<tr>
<td></td>
<td>Upper bracket to handlebar</td>
</tr>
<tr>
<td><strong>Suspension</strong></td>
<td>Steering stem to front fork</td>
</tr>
<tr>
<td></td>
<td>Front fork to upper bracket</td>
</tr>
<tr>
<td></td>
<td>Front fork to lower bracket</td>
</tr>
<tr>
<td>Rear</td>
<td>For link type</td>
</tr>
<tr>
<td></td>
<td>Assembly of links</td>
</tr>
<tr>
<td></td>
<td>Link to frame</td>
</tr>
<tr>
<td></td>
<td>Link to rear shock absorber</td>
</tr>
<tr>
<td></td>
<td>Link to swingarm</td>
</tr>
<tr>
<td>Installation of rear shock absorber</td>
<td>Rear shock absorber to frame</td>
</tr>
<tr>
<td>Installation of swingarm</td>
<td>Tightening of pivot shaft</td>
</tr>
<tr>
<td><strong>Wheel</strong></td>
<td>Installation of wheel</td>
</tr>
<tr>
<td>Front</td>
<td>Tightening of wheel axle</td>
</tr>
<tr>
<td></td>
<td>Tightening of axle holder</td>
</tr>
<tr>
<td>Rear</td>
<td>Tightening of wheel axle</td>
</tr>
<tr>
<td></td>
<td>Wheel to rear wheel sprocket</td>
</tr>
<tr>
<td><strong>Brake</strong></td>
<td>Front Brake caliper to front fork</td>
</tr>
<tr>
<td></td>
<td>Brake disc to wheel</td>
</tr>
<tr>
<td></td>
<td>Tightening of union bolt</td>
</tr>
<tr>
<td></td>
<td>Brake master cylinder to handlebar</td>
</tr>
<tr>
<td></td>
<td>Tightening of bleed screw</td>
</tr>
<tr>
<td></td>
<td>Tightening of brake hose holder</td>
</tr>
<tr>
<td>Rear</td>
<td>Brake pedal to frame</td>
</tr>
<tr>
<td></td>
<td>Brake disc to wheel</td>
</tr>
<tr>
<td></td>
<td>Tightening of union bolt</td>
</tr>
<tr>
<td></td>
<td>Brake master cylinder to frame</td>
</tr>
<tr>
<td></td>
<td>Tightening of bleed screw</td>
</tr>
<tr>
<td></td>
<td>Tightening of brake hose holder</td>
</tr>
<tr>
<td><strong>Fuel system</strong></td>
<td>Fuel tank to fuel cock</td>
</tr>
</tbody>
</table>

**NOTE:**

Concerning the tightening torque, refer to "TIGHTENING TORQUES" section in the CHAPTER 2.
CLEANING AND STORAGE

CLEANING
Frequent cleaning of your machine will enhance its appearance, maintain good overall performance, and extend the life of many components.

1. Before washing the machine, block off the end of the exhaust pipe to prevent water from entering. A plastic bag secured with a rubber band may be used for this purpose.
2. If the engine is excessively greasy, apply some degreaser to it with a paint brush. Do not apply degreaser to the chain, sprockets, or wheel axles.
3. Rinse the dirt and degreaser off with a garden hose; use only enough pressure to do the job. Excessive hose pressure may cause water seepage and contamination of wheel bearings, front forks, brakes and transmission seals. Many expensive repair bills have resulted from improper high pressure detergent applications such as those available in coin-operated car washers.
4. After the majority of the dirt has been hosed off, wash all surfaces with warm water and a mild detergent. Use an old toothbrush to clean hard-to-reach places.
5. Rinse the machine off immediately with clean water, and dry all surfaces with a soft towel or cloth.
6. Immediately after washing, remove excess water from the chain with a paper towel and lubricate the chain to prevent rust.
7. Clean the seat with a vinyl upholstery cleaner to keep the cover pliable and glossy.
8. Automotive wax may be applied to all painted or chromed surfaces. Avoid combination cleaner-waxes, as they may contain abrasives.
9. After completing the above, start the engine and allow it to idle for several minutes.

STORAGE
If your machine is to be stored for 60 days or more, some preventive measures must be taken to avoid deterioration. After cleaning the machine thoroughly, prepare it for storage as follows:
1. Drain the fuel tank, fuel lines, and the carburetor float bowl.
2. Remove the spark plug, pour a tablespoon of SAE 10W-30 motor oil in the spark plug hole, and reinstall the plug. With the engine stop switch pushed in, kick the engine over several times to coat the cylinder walls with oil.
3. Remove the drive chain, clean it thoroughly with solvent, and lubricate it. Reinstall the chain or store it in a plastic bag tied to the frame.
4. Lubricate all control cables.
5. Block the frame up to raise the wheels off the ground.
6. Tie a plastic bag over the exhaust pipe outlet to prevent moisture from entering.
7. If the machine is to be stored in a humid or salt-air environment, coat all exposed metal surfaces with a film of light oil. Do not apply oil to rubber parts or the seat cover.

NOTE:
Make any necessary repairs before the machine is stored.
# GENERAL SPECIFICATIONS

## SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model name:</th>
<th>YZ125X1 (USA, CDN)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YZ125 (EUROPE, ZA)</td>
</tr>
<tr>
<td></td>
<td>YZ125X (AUS, NZ)</td>
</tr>
</tbody>
</table>

| Model code number: | 1C3D (USA, CDN) |
|                   | 1C3E (EUROPE)   |
|                   | 1C3G (AUS, NZ, ZA) |

<table>
<thead>
<tr>
<th>Dimensions:</th>
<th>USA, AUS, NZ, ZA</th>
<th>EUROPE, CDN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>2,135 mm (84.1 in)</td>
<td>2,139 mm (84.2 in)</td>
</tr>
<tr>
<td>Overall width</td>
<td>827 mm (32.6 in)</td>
<td>←</td>
</tr>
<tr>
<td>Overall height</td>
<td>1,315 mm (51.8 in)</td>
<td>1,318 mm (51.9 in)</td>
</tr>
<tr>
<td>Seat height</td>
<td>997 mm (39.3 in)</td>
<td>998 mm (39.3 in)</td>
</tr>
<tr>
<td>Wheelbase</td>
<td>1,443 mm (56.8 in)</td>
<td>←</td>
</tr>
<tr>
<td>Minimum ground clearance</td>
<td>386 mm (15.2 in)</td>
<td>388 mm (15.3 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dry weight:</th>
<th>Without oil and fuel</th>
<th>86.0kg (189.6 lb)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Engine:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
</tr>
<tr>
<td>Cylinder arrangement</td>
</tr>
<tr>
<td>Displacement</td>
</tr>
<tr>
<td>Bore x stroke</td>
</tr>
<tr>
<td>Compression ratio</td>
</tr>
<tr>
<td>Starting system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lubrication system:</th>
<th>Premix (30 : 1)/(Yamalube 2-R)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Oil type or grade (2-stroke):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission oil</td>
<td>Yamalube 4 (10W-30) or SAE 10W-30 type SE motor oil</td>
</tr>
<tr>
<td>Periodic oil change</td>
<td>0.66 L (0.58 Imp qt, 0.69 US qt)</td>
</tr>
<tr>
<td>Total amount</td>
<td>0.70 L (0.62 Imp qt, 0.74 US qt)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coolant capacity (including all routes):</th>
<th>0.9 L (0.79 Imp qt, 0.95 US qt)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Air filter:</th>
<th>Wet type element</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Fuel:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>Tank capacity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Carburetor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type/Manufacturer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spark plug:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type/Manufacturer</td>
</tr>
<tr>
<td>Gap</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clutch type:</th>
<th>Wet, multiple-disc</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Transmission:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary reduction system</td>
</tr>
<tr>
<td>Primary reduction ratio</td>
</tr>
<tr>
<td>Secondary reduction system</td>
</tr>
<tr>
<td>Secondary reduction ratio</td>
</tr>
</tbody>
</table>
MAINTENANCE SPECIFICATIONS

TRANSMISSION

Transmission type: Constant mesh, 6-speed
Operation: Left foot operation

GEAR RATIO:

<table>
<thead>
<tr>
<th>Gear</th>
<th>Ratio</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>31/13</td>
<td>29/15</td>
<td>27/17</td>
<td>23/17</td>
<td>24/20</td>
<td>23/21</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>1.933</td>
<td>2.385</td>
<td>1.588</td>
<td>1.353</td>
<td>1.200</td>
<td>1.095</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>1.588</td>
<td>1.933</td>
<td>1.353</td>
<td>1.200</td>
<td>1.095</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>1.353</td>
<td>1.588</td>
<td>1.200</td>
<td>1.095</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>1.200</td>
<td>1.353</td>
<td>1.095</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>1.095</td>
<td>1.200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHASSIS:

<table>
<thead>
<tr>
<th>Item</th>
<th>USA, ZA, AUS, NZ</th>
<th>EUROPE, CDN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frame type</td>
<td>Semi double cradle</td>
<td></td>
</tr>
<tr>
<td>Caster angle</td>
<td>25.5 °</td>
<td>25.6 °</td>
</tr>
<tr>
<td>Trail</td>
<td>105 mm (4.13 in)</td>
<td>107 mm (4.21 in)</td>
</tr>
</tbody>
</table>

TIRES:

<table>
<thead>
<tr>
<th>Type</th>
<th>With tube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (front)</td>
<td>80/100-21 51M</td>
</tr>
<tr>
<td>Size (rear)</td>
<td>100/90-19 57M</td>
</tr>
<tr>
<td>Tire pressure (front and rear)</td>
<td>100 kPa (1.0 kgf/cm², 15 psi)</td>
</tr>
</tbody>
</table>

BRAKE:

<table>
<thead>
<tr>
<th>Item</th>
<th>Single disc brake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation</td>
<td>Right hand operation</td>
</tr>
<tr>
<td>Rear brake type</td>
<td>Single disc brake</td>
</tr>
<tr>
<td>Operation</td>
<td>Right foot operation</td>
</tr>
</tbody>
</table>

SUSPENSION:

<table>
<thead>
<tr>
<th>Item</th>
<th>Telescopic fork</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear suspension</td>
<td>Swingarm (link type monocross suspension)</td>
</tr>
</tbody>
</table>

SHOCK ABSORBER:

<table>
<thead>
<tr>
<th>Item</th>
<th>Coil spring/oil damper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front shock absorber</td>
<td></td>
</tr>
<tr>
<td>Rear shock absorber</td>
<td></td>
</tr>
</tbody>
</table>

WHEEL TRAVEL:

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front wheel travel</td>
<td>300 mm (11.8 in)</td>
</tr>
<tr>
<td>Rear wheel travel</td>
<td>315 mm (12.4 in)</td>
</tr>
</tbody>
</table>

ELECTRICAL:

<table>
<thead>
<tr>
<th>Item</th>
<th>CDI magneto</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ignition system</td>
<td></td>
</tr>
</tbody>
</table>

MAINTENANCE SPECIFICATIONS

ENGINE

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder head:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combustion chamber capacity</td>
<td>8.4 cm³ (0.296 Imp oz, 0.284 US oz)</td>
<td>----</td>
</tr>
<tr>
<td>Warp limit</td>
<td></td>
<td>0.03 mm (0.0012 in)</td>
</tr>
<tr>
<td>Cylinder:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bore size</td>
<td>54.000–54.014 mm (2.1260–2.1265 in)</td>
<td>54.1 mm (2.130 in)</td>
</tr>
<tr>
<td>Taper limit</td>
<td></td>
<td>0.05 mm (0.0020 in)</td>
</tr>
</tbody>
</table>
### Maintenance Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of round limit</td>
<td>----</td>
<td>0.01 mm (0.0004 in)</td>
</tr>
<tr>
<td>Piston:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston size/</td>
<td>53.957–53.972 mm (2.1243–2.1249 in)</td>
<td>----</td>
</tr>
<tr>
<td>Measuring point &quot;H&quot;</td>
<td>17.5 mm (0.69 in)</td>
<td>----</td>
</tr>
<tr>
<td>Piston clearance</td>
<td>0.040–0.045 mm (0.0016–0.0018 in)</td>
<td>0.1 mm (0.004 in)</td>
</tr>
<tr>
<td>Piston offset</td>
<td>0.5 mm (0.019 in)/EX-side</td>
<td>----</td>
</tr>
<tr>
<td>Piston pin:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piston pin outside diameter</td>
<td>14.995–15.000 mm (0.5904–0.5906 in)</td>
<td>14.975 mm (0.5896 in)</td>
</tr>
<tr>
<td>Piston ring:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sectional sketch</td>
<td>Plain</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>B=1.0 mm (0.039 in)</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>T=2.35 mm (0.093 in)</td>
<td>----</td>
</tr>
<tr>
<td>End gap (installed)</td>
<td>0.5–0.7 mm (0.020–0.028 in)</td>
<td>1.2 mm (0.047 in)</td>
</tr>
<tr>
<td>Side clearance (installed)</td>
<td>0.035–0.070 mm (0.0014–0.0028 in)</td>
<td>0.1 mm (0.004 in)</td>
</tr>
<tr>
<td>Crankshaft:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crank width &quot;A&quot;</td>
<td>55.90–55.95 mm (2.201–2.203 in)</td>
<td>----</td>
</tr>
<tr>
<td>Runout limit &quot;C&quot;</td>
<td>0.03 mm (0.0012 in)</td>
<td>0.05 mm (0.0020 in)</td>
</tr>
<tr>
<td>Connecting rod big end side clearance &quot;D&quot;</td>
<td>0.06–0.64 mm (0.002–0.025 in)</td>
<td>----</td>
</tr>
<tr>
<td>Small end free play &quot;F&quot;</td>
<td>0.8–1.0 mm (0.031–0.039 in)</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Clutch:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friction plate thickness</td>
<td>2.9–3.1 mm (0.114–0.122 in)</td>
<td>2.8 mm (0.110 in)</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td>8</td>
</tr>
<tr>
<td>Clutch plate thickness</td>
<td>1.5–1.7 mm (0.059–0.067 in)</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Quantity</td>
<td>7</td>
</tr>
</tbody>
</table>
### MAINTENANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warp limit</td>
<td>-----</td>
<td>0.2 mm (0.008 in)</td>
</tr>
<tr>
<td>Clutch spring free length</td>
<td>40.1 mm (1.579 in)</td>
<td>38.1 mm (1.500 in)</td>
</tr>
<tr>
<td>Quantity</td>
<td>5</td>
<td>-----</td>
</tr>
<tr>
<td>Clutch housing thrust clearance</td>
<td>0.15–0.26 mm (0.006–0.010 in)</td>
<td>-----</td>
</tr>
<tr>
<td>Clutch housing radial clearance</td>
<td>0.014–0.046 mm (0.0006–0.0018 in)</td>
<td>-----</td>
</tr>
<tr>
<td>Clutch release method</td>
<td>Inner push, cam push</td>
<td>-----</td>
</tr>
<tr>
<td>Transmission:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main axle deflection limit</td>
<td>0.01 mm (0.0004 in)</td>
<td>-----</td>
</tr>
<tr>
<td>Drive axle deflection limit</td>
<td>0.01 mm (0.0004 in)</td>
<td>-----</td>
</tr>
<tr>
<td>Shifter:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shifting type</td>
<td>Cam drum and guide bar</td>
<td>-----</td>
</tr>
<tr>
<td>Guide bar bending limit</td>
<td>0.05 mm (0.0020 in)</td>
<td>-----</td>
</tr>
<tr>
<td>Kick starter type</td>
<td>Kick and mesh type</td>
<td>-----</td>
</tr>
<tr>
<td>Kick clip friction force</td>
<td>P=0.8–1.2 kg (1.8–2.6 lb)</td>
<td>-----</td>
</tr>
<tr>
<td>Air filter oil grade (oiled filter):</td>
<td>Foam-air-filter oil or equivalent oil</td>
<td>-----</td>
</tr>
<tr>
<td>Carburetor:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type/Manufacturer</td>
<td>TMX χ 38SS/MIKUNI</td>
<td>USA, CDN, EUROPE</td>
</tr>
<tr>
<td>I.D. mark</td>
<td>1C35 30</td>
<td>1C36 40, 1C37 50</td>
</tr>
<tr>
<td>Main jet (M.J.)</td>
<td>#410</td>
<td>#430</td>
</tr>
<tr>
<td>Jet needle-clip position (J.N.)</td>
<td>6BFY42-74-3</td>
<td>6BFY43-74-3</td>
</tr>
<tr>
<td>Cutaway (C.A.)</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Pilot jet (P.J.)</td>
<td>#40</td>
<td>#45, #40</td>
</tr>
<tr>
<td>Pilot air screw (P.A.S.)</td>
<td>2-1/4</td>
<td></td>
</tr>
<tr>
<td>Valve seat size (V.S.)</td>
<td>ø3.8 mm (0.15 in)</td>
<td></td>
</tr>
<tr>
<td>Starter jet (G.S.)</td>
<td>#80</td>
<td></td>
</tr>
<tr>
<td>Fuel level (F.L.)</td>
<td>9.5–10.5 mm (0.37–0.41 in)</td>
<td></td>
</tr>
<tr>
<td>Reed valve:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>0.47 mm (0.019 in)</td>
<td></td>
</tr>
<tr>
<td>Valve stopper height</td>
<td>8.2–8.6 mm (0.323–0.339 in)</td>
<td></td>
</tr>
<tr>
<td>Valve bending limit</td>
<td></td>
<td>0.2 mm (0.008 in)</td>
</tr>
<tr>
<td>Cooling:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiator core size:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>107.8 mm (4.24 in)</td>
<td></td>
</tr>
<tr>
<td>Height (left)</td>
<td>240 mm (9.45 in)</td>
<td></td>
</tr>
<tr>
<td>Height (right)</td>
<td>220 mm (8.66 in)</td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>32 mm (1.26 in)</td>
<td></td>
</tr>
<tr>
<td>Radiator cap opening pressure</td>
<td>95–125 kPa (0.95–1.25 kg/cm², 13.5–17.8 psi)</td>
<td></td>
</tr>
<tr>
<td>Radiator capacity (total)</td>
<td>0.56 L (0.49 Imp qt, 0.59 US qt)</td>
<td></td>
</tr>
</tbody>
</table>
### CHASSIS

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water pump:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Single-suction centrifugal pump</td>
<td></td>
</tr>
<tr>
<td>Steering system:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering bearing type</td>
<td>Taper roller bearing</td>
<td></td>
</tr>
<tr>
<td>Front suspension:</td>
<td>USA, CDN, ZA, AUS, NZ</td>
<td>EUROPE</td>
</tr>
<tr>
<td>Front fork travel</td>
<td>300 mm (11.8 in)</td>
<td></td>
</tr>
<tr>
<td>Fork spring free length</td>
<td>454 mm (17.9 in)</td>
<td>449 mm (17.7 in)</td>
</tr>
<tr>
<td>Spring rate, STD</td>
<td>K=4.1 N/mm (0.418 kg/mm, 23.4 lb/in)</td>
<td></td>
</tr>
<tr>
<td>Optional spring</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Oil capacity</td>
<td>524 cm³ (18.4 Imp oz, 17.7 US oz)</td>
<td>526 cm³ (18.5 Imp oz, 17.8 US oz)</td>
</tr>
<tr>
<td>Oil grade</td>
<td>Suspension oil <em>S1</em></td>
<td></td>
</tr>
<tr>
<td>Inner tube outer diameter</td>
<td>48 mm (1.89 in)</td>
<td></td>
</tr>
<tr>
<td>Front fork top end</td>
<td>5 mm (0.2 in)</td>
<td></td>
</tr>
<tr>
<td>Rear suspension:</td>
<td>USA, CDN, ZA, AUS, NZ</td>
<td>EUROPE</td>
</tr>
<tr>
<td>Shock absorber travel</td>
<td>131.5 mm (5.18 in)</td>
<td></td>
</tr>
<tr>
<td>Spring free length</td>
<td>Approx. 265 mm (10.43 in)</td>
<td></td>
</tr>
<tr>
<td>Fitting length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One I.D. mark</td>
<td>258 mm (10.16 in)</td>
<td>252 mm (9.92 in)</td>
</tr>
<tr>
<td>Two I.D. marks</td>
<td>264 mm (10.39 in)</td>
<td>258 mm (10.16 in)</td>
</tr>
<tr>
<td>Three I.D. marks</td>
<td>255.5 mm (10.06 in)</td>
<td>249.5 mm (9.82 in)</td>
</tr>
<tr>
<td>&lt;Min.–Max.&gt;</td>
<td></td>
<td></td>
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<tr>
<td>One I.D. mark</td>
<td>245.5–263.5 mm (9.67–10.37 in)</td>
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</tr>
<tr>
<td>Two I.D. marks</td>
<td>251.5–269.5 mm (9.90–10.61 in)</td>
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<tr>
<td>Three I.D. marks</td>
<td>243.0–261.0 mm (9.57–10.28 in)</td>
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</tr>
<tr>
<td>Spring rate, STD</td>
<td>K=46.0 N/mm (4.70 kg/mm, 263.2 lb/in)</td>
<td></td>
</tr>
<tr>
<td>Optional spring</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Enclosed gas pressure</td>
<td>1,000 kPa (10 kg/cm², 142 psi)</td>
<td></td>
</tr>
<tr>
<td>Swingarm:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swingarm free play limit</td>
<td></td>
<td>1.0 mm (0.04 in)</td>
</tr>
<tr>
<td>End</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side clearance</td>
<td></td>
<td>0.2–0.9 mm (0.008–0.035 in)</td>
</tr>
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---

### Swingarm:

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
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<tbody>
<tr>
<td>Swingarm free play limit</td>
<td></td>
<td>1.0 mm (0.04 in)</td>
</tr>
<tr>
<td>End</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Side clearance</td>
<td></td>
<td>0.2–0.9 mm (0.008–0.035 in)</td>
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</table>
## MAINTENANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
</tr>
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<tbody>
<tr>
<td><strong>Wheel:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front wheel type</td>
<td>Spoke wheel</td>
<td></td>
</tr>
<tr>
<td>Rear wheel type</td>
<td>Spoke wheel</td>
<td></td>
</tr>
<tr>
<td>Front rim size/material</td>
<td>21 × 1.60/Aluminum</td>
<td></td>
</tr>
<tr>
<td>Rear rim size/material</td>
<td>19 × 1.85/Aluminum</td>
<td></td>
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<tr>
<td>Rim runout limit:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radial</td>
<td></td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Lateral</td>
<td></td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td><strong>Drive chain:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type/manufacturer</td>
<td>DID520DMA2 SDH/DAIDO</td>
<td></td>
</tr>
<tr>
<td>Number of links</td>
<td>111 links + joint</td>
<td></td>
</tr>
<tr>
<td>Chain slack</td>
<td>48–58 mm (1.9–2.3 in)</td>
<td></td>
</tr>
<tr>
<td>Chain length (15 links)</td>
<td></td>
<td>242.9 mm (9.563 in)</td>
</tr>
<tr>
<td><strong>Front disc brake:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disc outside dia.×Thickness</td>
<td>250 × 3.0 mm (9.84 × 0.12 in)</td>
<td>250 × 2.5 mm (9.84 × 0.10 in)</td>
</tr>
<tr>
<td>Pad thickness</td>
<td>4.4 mm (0.17 in)</td>
<td>1.0 mm (0.04 in)</td>
</tr>
<tr>
<td>Master cylinder inside dia.</td>
<td>9.52 mm (0.375 in)</td>
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</tr>
<tr>
<td>Caliper cylinder inside dia.</td>
<td>22.65 mm (0.892 in) × 2</td>
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</tr>
<tr>
<td>Brake fluid type</td>
<td>DOT #4</td>
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<tr>
<td><strong>Rear disc brake:</strong></td>
<td></td>
<td></td>
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<tr>
<td>Disc outside dia.×Thickness</td>
<td>245 × 4.0 mm (9.65 × 0.16 in)</td>
<td>245 × 3.5 mm (9.65 × 0.14 in)</td>
</tr>
<tr>
<td>Deflection limit</td>
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<td>0.15 mm (0.006 in)</td>
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<tr>
<td>Pad thickness</td>
<td>6.4 mm (0.25 in)</td>
<td>1.0 mm (0.04 in)</td>
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<tr>
<td>Master cylinder inside dia.</td>
<td>11.0 mm (0.433 in)</td>
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<tr>
<td>Caliper cylinder inside dia.</td>
<td>25.4 mm (1.000 in) × 1</td>
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<tr>
<td>Brake fluid type</td>
<td>DOT #4</td>
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<tr>
<td><strong>Brake lever and brake pedal:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brake lever position</td>
<td>95 mm (3.74 in)</td>
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<tr>
<td>Brake pedal height (vertical height above footrest top)</td>
<td>Zero mm (Zero in)</td>
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<tr>
<td>Clutch lever free play (lever end)</td>
<td>8–13 mm (0.31–0.51 in)</td>
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</tr>
<tr>
<td>Throttle grip free play</td>
<td>3–5 mm (0.12–0.20 in)</td>
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</table>

### ELECTRICAL

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ignition system:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ignition timing (B.T.D.C.)</td>
<td>0.48 mm (0.019 in)</td>
<td></td>
</tr>
<tr>
<td>Advancer type</td>
<td>Electrical</td>
<td></td>
</tr>
<tr>
<td><strong>CDI:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magneto-model (stator)/Manufacturer</td>
<td>1C3-10/YAMAHA</td>
<td></td>
</tr>
</tbody>
</table>
### TIGHTENING TORQUES

#### ENGINE

**NOTE:**
- *marked portion shall be checked for torque tightening after break-in or before each race.

<table>
<thead>
<tr>
<th>Item</th>
<th>Standard Limit</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charging coil 1 resistance (color)</td>
<td>720–1,080 Ω at 20 °C (68 °F) (Green/White-Black/Red)</td>
<td>----</td>
</tr>
<tr>
<td>Charging coil 2 resistance (color)</td>
<td>44–66 Ω at 20 °C (68 °F) (Black-Green/Blue)</td>
<td>----</td>
</tr>
<tr>
<td>Pickup coil resistance (color)</td>
<td>248–372 Ω at 20 °C (68 °F) (White/Blue-White/Red)</td>
<td>----</td>
</tr>
<tr>
<td>CDI unit-model/manufacturer</td>
<td>1C3-10/YAMAHA</td>
<td>----</td>
</tr>
<tr>
<td>Ignition coil:</td>
<td></td>
<td>-------</td>
</tr>
<tr>
<td>Model/manufacturer</td>
<td>1C3-00/YAMAHA</td>
<td>----</td>
</tr>
<tr>
<td>Minimum spark gap</td>
<td>6 mm (0.24 in)</td>
<td>----</td>
</tr>
<tr>
<td>Primary winding resistance</td>
<td>0.24–0.36 Ω at 20 °C (68 °F)</td>
<td>----</td>
</tr>
<tr>
<td>Secondary winding resistance</td>
<td>5.7–8.5 kΩ at 20 °C (68 °F)</td>
<td>----</td>
</tr>
<tr>
<td>Spark plug cap:</td>
<td></td>
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</tr>
<tr>
<td>Resistance</td>
<td>4–6 kΩ at 20 °C (68 °F)</td>
<td>----</td>
</tr>
</tbody>
</table>

#### TIGHTENING TORQUES

<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q'ty</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark plug</td>
<td>M14S × 1.25</td>
<td>1</td>
<td>20 2.0 14</td>
</tr>
<tr>
<td>Cylinder head (nut)</td>
<td>M8 × 1.25</td>
<td>5</td>
<td>28 2.8 20</td>
</tr>
<tr>
<td>Cylinder head (stud)</td>
<td>M8 × 1.25</td>
<td>5</td>
<td>13 1.3 9.4</td>
</tr>
<tr>
<td>Cylinder (nut)</td>
<td>M8 × 1.25</td>
<td>4</td>
<td>30 3.0 22</td>
</tr>
<tr>
<td>Cylinder (stud)</td>
<td>M10 × 1.25</td>
<td>4</td>
<td>13 1.3 9.4</td>
</tr>
<tr>
<td>Power valve:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cover</td>
<td>M5 × 0.8</td>
<td>4</td>
<td>5 0.5 3.6</td>
</tr>
<tr>
<td>Link lever</td>
<td>M4 × 0.7</td>
<td>1</td>
<td>4 0.4 2.9</td>
</tr>
<tr>
<td>Holder (power valve)</td>
<td>M5 × 0.8</td>
<td>4</td>
<td>8 0.8 5.8</td>
</tr>
<tr>
<td>Push rod</td>
<td>M5 × 0.8</td>
<td>1</td>
<td>5 0.5 3.6</td>
</tr>
<tr>
<td>Thrust plate</td>
<td>M5 × 0.8</td>
<td>1</td>
<td>4 0.4 2.9</td>
</tr>
<tr>
<td>Governor fork</td>
<td>M4 × 0.7</td>
<td>2</td>
<td>5 0.5 3.6</td>
</tr>
<tr>
<td>Housing</td>
<td>M5 × 0.8</td>
<td>3</td>
<td>4 0.4 2.9</td>
</tr>
<tr>
<td>Water pump housing cover</td>
<td>M6 × 1.0</td>
<td>4</td>
<td>10 1.0 7.2</td>
</tr>
<tr>
<td>Coolant drain bolt</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>10 1.0 7.2</td>
</tr>
<tr>
<td>Radiator</td>
<td>M6 × 1.0</td>
<td>6</td>
<td>10 1.0 7.2</td>
</tr>
<tr>
<td>Radiator panel</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>10 1.0 7.2</td>
</tr>
<tr>
<td>Radiator hose clamp</td>
<td>M6 × 1.0</td>
<td>8</td>
<td>2 0.2 1.4</td>
</tr>
<tr>
<td>Air filter element</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>2 0.2 1.4</td>
</tr>
<tr>
<td>Carburetor joint</td>
<td>M6 × 1.0</td>
<td>4</td>
<td>10 1.0 7.2</td>
</tr>
<tr>
<td>Carburetor joint clamp</td>
<td>M4 × 0.7</td>
<td>1</td>
<td>2 0.2 1.4</td>
</tr>
<tr>
<td>Air filter joint clamp</td>
<td>M4 × 0.7</td>
<td>1</td>
<td>2 0.2 1.4</td>
</tr>
<tr>
<td>Air filter case</td>
<td>M6 × 1.0</td>
<td>4</td>
<td>8 0.8 5.8</td>
</tr>
<tr>
<td>Air filter guide clamp</td>
<td>M5 × 0.8</td>
<td>1</td>
<td>4 0.4 2.9</td>
</tr>
<tr>
<td>Reed valve</td>
<td>M3 × 0.5</td>
<td>6</td>
<td>1 0.1 0.7</td>
</tr>
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## Tightening Torques

<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q'ty</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>Throttle cable adjust bolt and locknut</td>
<td>M8 × 1.25</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Throttle cable</td>
<td>M6 × 0.75</td>
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<td>4</td>
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<tr>
<td>Crankcase</td>
<td>M6 × 1.0</td>
<td>12</td>
<td>14</td>
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<tr>
<td>Right crankcase cover</td>
<td>M6 × 1.0</td>
<td>8</td>
<td>10</td>
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<tr>
<td>Left crankcase cover</td>
<td>M6 × 1.0</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Drive chain sprocket cover</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Bearing plate cover</td>
<td>M6 × 1.0</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Holder</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Oil check bolt</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>10</td>
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<tr>
<td>Oil drain bolt</td>
<td>M10 × 1.25</td>
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<td>20</td>
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<tr>
<td>Kickstarter crank</td>
<td>M6 × 1.0</td>
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<td>10</td>
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<tr>
<td>Clutch cover</td>
<td>M8 × 1.25</td>
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<tr>
<td>Clutch boss</td>
<td>M16 × 1.0</td>
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<tr>
<td>Clutch spring</td>
<td>M6 × 1.0</td>
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<td>10</td>
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<tr>
<td>Clutch cable adjust bolt and locknut</td>
<td>M6 × 0.75</td>
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<td>4</td>
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<tr>
<td>Drive sprocket</td>
<td>M18 × 1.0</td>
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<td>75</td>
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<tr>
<td>Shift pedal</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Bearing plate cover (shift cam)</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Shift guide</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Stopper lever</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Segment</td>
<td>M8 × 1.25</td>
<td>1</td>
<td>30</td>
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<tr>
<td>Exhaust pipe</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>12</td>
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<tr>
<td>Exhaust pipe stay (front)</td>
<td>M6 × 1.0</td>
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<td>12</td>
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<tr>
<td>Exhaust pipe stay (rear)</td>
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<tr>
<td>Silencer</td>
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<td>Silencer and frame</td>
<td>M6 × 1.0</td>
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<td>12</td>
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<tr>
<td>Fiber (Except for EUROPE)</td>
<td>M6 × 1.0</td>
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<td>10</td>
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<tr>
<td>Fiber (For EUROPE)</td>
<td>M6 × 1.0</td>
<td>4</td>
<td>10</td>
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</tbody>
</table>

### CHASSIS

△ - marked portion shall be checked for torque tightening after break-in or before each race.

<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q'ty</th>
<th>Tightening torque</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>Upper bracket and outer tube</td>
<td>M8 × 1.25</td>
<td>4</td>
<td>21</td>
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<tr>
<td>Lower bracket and outer tube</td>
<td>M8 × 1.25</td>
<td>4</td>
<td>21</td>
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<tr>
<td>Upper bracket and steering stem</td>
<td>M24 × 1.0</td>
<td>1</td>
<td>145</td>
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<tr>
<td>Handlebar upper holder</td>
<td>M8 × 1.25</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Handlebar lower holder</td>
<td>M12 × 1.25</td>
<td>2</td>
<td>40</td>
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<tr>
<td>Steering ring nut</td>
<td>M28 × 1.0</td>
<td>1</td>
<td>Refer to NOTE.</td>
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<tr>
<td>Front fork and damper assembly</td>
<td>M51 × 1.5</td>
<td>2</td>
<td>30</td>
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<tr>
<td>Front fork and adjuster</td>
<td>M22 × 1.25</td>
<td>2</td>
<td>55</td>
</tr>
<tr>
<td>Damper assembly and base valve</td>
<td>M42 × 1.5</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Adjuster and damper assembly</td>
<td>M12 × 1.25</td>
<td>2</td>
<td>29</td>
</tr>
<tr>
<td>Part to be tightened</td>
<td>Thread size</td>
<td>Q'ty</td>
<td>Tightening torque</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------</td>
<td>------</td>
<td>-------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>Bleed screw (front fork) and base valve</td>
<td>M5 × 0.8</td>
<td>2</td>
<td>1 0.1 0.7</td>
</tr>
<tr>
<td>Front fork and front fork protector</td>
<td>M6 × 1.0</td>
<td>6</td>
<td>5 0.5 3.6</td>
</tr>
<tr>
<td>Cable guide (front brake hose) and lower bracket</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>4 0.4 2.9</td>
</tr>
<tr>
<td>Front fork protector and brake hose holder</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>7 0.7 5.1</td>
</tr>
<tr>
<td>Throttle cable cap</td>
<td>M4 × 0.7</td>
<td>2</td>
<td>1 0.1 0.7</td>
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<tr>
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<td>9 0.9 6.5</td>
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<td>1</td>
<td>6 0.6 4.3</td>
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<td>6 0.6 4.3</td>
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<td>5 0.5 3.6</td>
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<td>1</td>
<td>4 0.4 2.9</td>
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<td>Clutch lever holder</td>
<td>M5 × 0.8</td>
<td>2</td>
<td>4 0.4 2.9</td>
</tr>
<tr>
<td>Front brake master cylinder cap</td>
<td>M4 × 0.7</td>
<td>2</td>
<td>2 0.2 1.4</td>
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<tr>
<td>Front brake hose union bolt (brake master cylinder)</td>
<td>M10 × 1.25</td>
<td>1</td>
<td>30 3.0 22</td>
</tr>
<tr>
<td>Front brake hose union bolt (caliper)</td>
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<td>1</td>
<td>30 3.0 22</td>
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<td>Front brake caliper and front fork</td>
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<td>28 2.8 20</td>
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<td>Grip cap upper and lower</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>4 0.4 2.9</td>
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<td>Brake caliper (front and rear) and pad pin plug</td>
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<td>3 0.3 2.2</td>
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<tr>
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<td>2</td>
<td>18 1.8 13</td>
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<tr>
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<td>6 0.6 4.3</td>
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<td>12 1.2 8.7</td>
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<td>6</td>
<td>14 1.4 10</td>
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<tr>
<td>Footrest bracket and frame</td>
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<td>10 1.0 7.2</td>
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<tr>
<td>Rear brake master cylinder cap</td>
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<td>2 0.2 1.4</td>
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<td>30 3.0 22</td>
</tr>
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<td>30 3.0 22</td>
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<td>64 6.4 46</td>
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<td>64 6.4 46</td>
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<td>34 3.4 24</td>
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<td>Connecting rod and frame</td>
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<td>80 8.0 58</td>
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### TIGHTENING TORQUES

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<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q'ty</th>
<th>Tightening torque</th>
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<td></td>
<td></td>
<td></td>
<td>Nm</td>
</tr>
<tr>
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<tr>
<td>Rear shock absorber and relay arm</td>
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<td>53</td>
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<tr>
<td>Rear frame and frame (upper)</td>
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<tr>
<td>Rear frame and frame (lower)</td>
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<td>2</td>
<td>29</td>
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<tr>
<td>Swingarm and brake hose holder</td>
<td>M5 × 0.8</td>
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<td>2</td>
</tr>
<tr>
<td>Swingarm and patch</td>
<td>M4 × 0.7</td>
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<td>Drive chain tensioner</td>
<td>M8 × 1.25</td>
<td>2</td>
<td>16</td>
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<tr>
<td>Drive chain support and swingarm</td>
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<td>7</td>
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<tr>
<td>Seal guard and swingarm</td>
<td>M5 × 0.8</td>
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<td>6</td>
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<tr>
<td>Cable guide and frame</td>
<td>M5 × 0.8</td>
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<td>4</td>
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<td>Fuel tank boss and frame</td>
<td>M10 × 1.25</td>
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<td>20</td>
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<tr>
<td>Fuel tank</td>
<td>M6 × 1.0</td>
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<td>10</td>
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<tr>
<td>Fuel tank and fuel cock</td>
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<td>4</td>
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<td>Fuel tank and hooking screw (fitting band)</td>
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<td>Fuel tank and fuel tank bracket</td>
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<td>4</td>
<td>7</td>
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<td>Air scoop and fuel tank</td>
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<td>Air scoop and radiator guard (lower)</td>
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</tr>
<tr>
<td>Front fender</td>
<td>M6 × 1.0</td>
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<td>7</td>
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<td>Rear fender (front)</td>
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<td>7</td>
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<tr>
<td>Rear fender (rear)</td>
<td>M6 × 1.0</td>
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<td>12</td>
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<td>Side cover</td>
<td>M6 × 1.0</td>
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<td>7</td>
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<td>Seat</td>
<td>M8 × 1.25</td>
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<td>19</td>
</tr>
<tr>
<td>Number plate</td>
<td>M6 × 1.0</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

**NOTE:**
1. First, tighten the steering ring nut approximately 38 Nm (3.8 m•kg, 27 ft•lb) by using the steering nut wrench, then loosen the steering ring nut one turn.
2. Retighten the steering ring nut 7 Nm (0.7 m•kg, 5.1 ft•lb).

### ELECTRICAL

<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q'ty</th>
<th>Tightening torque</th>
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</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>Stator</td>
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<td>3</td>
<td>7</td>
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<tr>
<td>Rotor</td>
<td>M12 × 1.25</td>
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<td>56</td>
</tr>
<tr>
<td>Ignition coil</td>
<td>M6 × 1.0</td>
<td>2</td>
<td>7</td>
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</table>
GENERAL TORQUE SPECIFICATIONS
This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

A. Distance between flats
B. Outside thread diameter

<table>
<thead>
<tr>
<th>A (Nut)</th>
<th>B (Bolt)</th>
<th>TORQUE SPECIFICATION</th>
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<td></td>
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<td>Nm</td>
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<tr>
<td>10 mm</td>
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<td>12 mm</td>
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<td>15</td>
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<tr>
<td>14 mm</td>
<td>10 mm</td>
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<tr>
<td>17 mm</td>
<td>12 mm</td>
<td>55</td>
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<td>19 mm</td>
<td>14 mm</td>
<td>85</td>
</tr>
<tr>
<td>22 mm</td>
<td>16 mm</td>
<td>130</td>
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DEFINITION OF UNITS

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<tr>
<th>Unit</th>
<th>Read</th>
<th>Definition</th>
<th>Measure</th>
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<tr>
<td>mm</td>
<td>millimeter</td>
<td>$10^{-3}$ meter</td>
<td>Length</td>
</tr>
<tr>
<td>cm</td>
<td>centimeter</td>
<td>$10^{-2}$ meter</td>
<td>Length</td>
</tr>
<tr>
<td>kg</td>
<td>kilogram</td>
<td>$10^3$ gram</td>
<td>Weight</td>
</tr>
<tr>
<td>N</td>
<td>Newton</td>
<td>$1$ kg × m/sec$^2$</td>
<td>Force</td>
</tr>
<tr>
<td>Nm</td>
<td>Newton meter</td>
<td>$N \times m$</td>
<td>Torque</td>
</tr>
<tr>
<td>m×kg</td>
<td>Meter kilogram</td>
<td>$m \times kg$</td>
<td>Torque</td>
</tr>
<tr>
<td>Pa</td>
<td>Pascal</td>
<td>N/m$^2$</td>
<td>Pressure</td>
</tr>
<tr>
<td>N/mm</td>
<td>Newton per millimeter</td>
<td>N/mm</td>
<td>Spring rate</td>
</tr>
<tr>
<td>L</td>
<td>Liter</td>
<td>—</td>
<td>Volume or capacity</td>
</tr>
<tr>
<td>cm$^3$</td>
<td>Cubic centimeter</td>
<td>—</td>
<td>Volume or capacity</td>
</tr>
<tr>
<td>r/min</td>
<td>Revolution per minute</td>
<td>—</td>
<td>Engine speed</td>
</tr>
</tbody>
</table>
1. "ENGINE STOP" button lead
2. Throttle cable
3. Clutch cable
4. Ground lead
5. High tension cord
6. Clamp
7. Air vent hose
8. Radiator breather hose
9. CDI magneto lead
10. YPVS breather hose
11. Engine bracket (right)
12. Engine bracket (left)
13. Crankcase breather hose
14. Overflow hose
15. Connector cover

A. Pass the clutch cable on the outside of the throttle cable and "ENGINE STOP" button lead.
B. Align the throttle cable locating tape with the cable guide.
C. Pass the throttle cable, clutch cable and "ENGINE STOP" button lead above the radiator hose.
D. Install the ignition coil, side core and ground lead together to the frame. Take care to fasten the ground lead so that its terminal is within the indicated range.

E. Clamp the throttle cable and high tension cord to the frame.

F. Clamp the clutch cable to the left engine bracket. Clamp the clutch cable below the positioning grommet.

G. Pass the air vent hose back of the throttle cable.

H. Pass the air vent hose, overflow hose and crankcase breather hose between the frame and connecting rod.

I. Pass the radiator breather hose and YPVS breather hose outside the engine bracket and inside the down tube. Then pass the radiator breather hose inside the YPVS breather hose.

J. Clamp the CDI magneto lead, radiator breather hose and YPVS breather hose to the frame.

K. Clamp to the frame the CDI magneto lead and radiator breather hose. Take care to clamp them above the projection on the frame.

L. Locate the clamp ends in the arrowed range.

M. Pass the air vent hose, overflow hose and crankcase breather hose so that they do not contact the rear shock absorber.

N. Bring the connector cover into contact with the coupler.
1. High tension cord
2. "ENGINE STOP" button lead
3. Ignition coil lead
4. Clamp
5. CDI unit
6. CDI unit band
7. Radiator breather hose
8. CDI magneto lead
9. Connector cover
10. Throttle cable
11. Clutch cable
12. CDI unit stay

A. Pass the high tension cord to the left of the radiator hose.
B. Using a plastic locking tie, clamp the "ENGINE STOP" button lead, ignition coil lead and CDI magneto lead together with the clamp ends backward and then cut off the tie end.

C. Clamp to the frame the throttle cable, clutch cable, ignition coil lead and "ENGINE STOP" button lead. In so doing, clamp the ignition coil lead and "ENGINE STOP" button lead at their protecting tubes. Tighten the clamp so that the "ENGINE STOP" button lead is not pulled when the handlebar is turned to the right and left.
D. Pass the CDI magneto lead and radiator breather hose between the frame and the radiator (right).

E. Clamp the CDI magneto lead to the frame at its locating tape.

F. Bring the connector cover into contact with the coupler.

G. Locate the clamp ends in the arrowed range.

H. Insert the CDI unit band until it stops at the CDI unit stay.

I. Pass the CDI magneto lead and radiator breather hose between the frame and the radiator hose so that they come within the arrow-indicated range. Also take care so that the CDI magneto lead passes on the left of the radiator breather hose.
1. Master cylinder  
2. Brake hose holder  
3. Brake hose  
A. Install the brake hose so that its pipe portion directs as shown and lightly touches the projection on the caliper.  
B. Pass the brake hose into the brake hose holders.  
C. If the brake hose contacts the spring (rear shock absorber), correct its twist.  
D. Install the brake hose so that its pipe portion directs as shown and lightly touches the projection on the master cylinder.
1. Brake hose
2. Master cylinder
3. "ENGINE STOP" button lead
4. "ENGINE STOP" button
5. Throttle cable
6. Clutch cable
7. Clamp
8. Cable guide

A. Install the brake hose so that its pipe portion directs as shown and lightly touches the projection on the master cylinder.
B. Pass the "ENGINE STOP" button lead in the middle of the clutch holder.
C. Clamp the "ENGINE STOP" button lead to the handlebar.
D. Pass the brake hose in front of the number plate and through the cable guide.
E. Pass the clutch cable through the cable guide on the number plate.
The following schedule is intended as a general guide to maintenance and lubrication. Bear in mind that such factors as weather, terrain, geographical location, and individual usage will alter the required maintenance and lubrication intervals. If you are in doubt as to what intervals to follow in maintaining and lubricating your machine, consult your Yamaha dealer.

<table>
<thead>
<tr>
<th>Item</th>
<th>After break-in</th>
<th>Every race</th>
<th>Every third</th>
<th>Every fifth</th>
<th>As required</th>
<th>Remarks</th>
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<td>●</td>
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<td>●</td>
<td>●</td>
<td>Inspect crack.</td>
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<td>Inspect carbon deposits and eliminate them.</td>
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<td>Check ring end gap.</td>
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<td>●</td>
<td>●</td>
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<td>●</td>
<td>●</td>
<td>Inspect carbon deposits and eliminate them.</td>
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<td>Inspect and clean</td>
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<td>●</td>
<td>●</td>
<td>●</td>
<td>Inspect score marks.</td>
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<td>Replace</td>
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<td>Inspect wear.</td>
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<td>●</td>
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<td>●</td>
<td>Inspect carbon deposits and eliminate them.</td>
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<td>●</td>
<td>●</td>
<td>Inspect housing, friction plate, clutch plate and spring.</td>
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<tr>
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<td>Yamalube 4 (10W-30) or SAE 10W-30 SE motor oil</td>
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<td>SHIFT FORK, SHIFT CAM, GUIDE BAR</td>
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## MAINTENANCE INTERVALS

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<tr>
<th>Item</th>
<th>After break-in</th>
<th>Every race</th>
<th>Every third</th>
<th>Every fifth</th>
<th>As required</th>
<th>Remarks</th>
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<td>SPARK PLUG</td>
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<tr>
<td>Inspect and clean</td>
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<td>Use chain lube.</td>
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<tr>
<td>Replace</td>
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<td>●</td>
<td>Chain slack: 48–58 mm (1.9–2.3 in)</td>
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<td>DRIVE CHAIN</td>
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<td>Lubricate, slack, alignment</td>
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<td>Use chain lube.</td>
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<td>Replace</td>
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<td>Check coolant level and leakage</td>
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<td>●</td>
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<td>●</td>
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<td>Every two years</td>
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<td>Check radiator cap operation</td>
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<td>Inspect hoses</td>
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<td>OUTSIDE NUTS AND BOLTS</td>
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<td>Refer to &quot;STARTING AND BREAK-IN&quot; section in the CHAPTER 1.</td>
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<td>Clean and lubricate</td>
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<td>Use foam air-filter oil or equivalent oil.</td>
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PRE-OPERATION INSPECTION AND MAINTENANCE

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<tr>
<th>Item</th>
<th>After break-in</th>
<th>Every race</th>
<th>Every third</th>
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<tr>
<td>Lube</td>
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<tr>
<td>Retighten</td>
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<td>Clean and lube</td>
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<td>Replace bearing</td>
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<td>Retighten sprocket bolt</td>
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<td>THROTTLE, CONTROL CABLE</td>
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<td>Check routing and connection</td>
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<tr>
<td>Lubricate</td>
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<td>Yamaha cable lube or SAE 10W-30 motor oil</td>
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PRE-OPERATION INSPECTION AND MAINTENANCE

Before riding for break-in operation, practice or a race, make sure the machine is in good operating condition. Before using this machine, check the following points.

GENERAL INSPECTION AND MAINTENANCE

<table>
<thead>
<tr>
<th>Item</th>
<th>Routine</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coolant</td>
<td>Check that coolant is filled up to the radiator cap. Check the cooling system for leakage.</td>
<td>P.3-5 – 6</td>
</tr>
<tr>
<td>Fuel</td>
<td>Check that a fresh mixture of oil and gasoline is filled in the fuel tank. Check the fuel line for leakage.</td>
<td>P.1-7– 8</td>
</tr>
<tr>
<td>Transmission oil</td>
<td>Check that the oil level is correct. Check the crankcase for leakage.</td>
<td>P.3-7 – 8</td>
</tr>
<tr>
<td>Gear shifter and clutch</td>
<td>Check that gears can be shifted correctly in order and that the clutch operates smoothly.</td>
<td>P.3-6</td>
</tr>
<tr>
<td>Throttle grip/Housing</td>
<td>Check that the throttle grip operation and free play are correctly adjusted. Lubricate the throttle grip and housing, if necessary.</td>
<td>P.3-6 – 7</td>
</tr>
<tr>
<td>Brakes</td>
<td>Check the play of front brake and effect of front and rear brake.</td>
<td>P.3-8 – 11</td>
</tr>
<tr>
<td>Drive chain</td>
<td>Check drive chain slack and alignment. Check that the drive chain is lubricated properly.</td>
<td>P.3-11 – 12</td>
</tr>
</tbody>
</table>
# PRE-OPERATION INSPECTION AND MAINTENANCE

<table>
<thead>
<tr>
<th>Item</th>
<th>Routine</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheels</td>
<td>Check for excessive wear and tire pressure. Check for loose spokes and have no excessive play.</td>
<td>P.3-15</td>
</tr>
<tr>
<td>Steering</td>
<td>Check that the handlebar can be turned smoothly and have no excessive play.</td>
<td>P.3-15 – 16</td>
</tr>
<tr>
<td>Front forks and rear shock absorber</td>
<td>Check that they operate smoothly and there is no oil leakage.</td>
<td>P.3-12 – 15</td>
</tr>
<tr>
<td>Cables (wires)</td>
<td>Check that the clutch and throttle cables move smoothly. Check that they are not caught when the handlebars are turned or when the front forks travel up and down.</td>
<td>—</td>
</tr>
<tr>
<td>Muffler</td>
<td>Check that the muffler is tightly mounted and has no cracks.</td>
<td>P.4-3 – 4</td>
</tr>
<tr>
<td>Rear wheel sprocket</td>
<td>Check that the rear wheel sprocket tightening bolt is not loose.</td>
<td>P.3-11</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Check for smooth operation. Lubricate if necessary.</td>
<td>P.3-17</td>
</tr>
<tr>
<td>Bolts and nuts</td>
<td>Check the chassis and engine for loose bolts and nuts.</td>
<td>P.1-9</td>
</tr>
<tr>
<td>Lead connectors</td>
<td>Check that the CDI magneto, CDI unit, and ignition coil are connected tightly.</td>
<td>P.1-3</td>
</tr>
<tr>
<td>Settings</td>
<td>Is the machine set suitably for the condition of the racing course and weather or by taking into account the results of test runs before racing? Are inspection and maintenance completely done?</td>
<td>P.7-1 – 11</td>
</tr>
</tbody>
</table>
ENGINE

CHECKING THE COOLANT LEVEL

**WARNING**
Do not remove the radiator cap "1", drain bolt and hoses when the engine and 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 towel over the radiator cap, slowly rotate the cap counterclockwise to the detent. This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it.

**CAUTION:**
Hard water or salt water is harmful to the engine parts. You may use distilled water, if you can't get soft water.

1. Place the machine on a level place, and hold it in an upright position.
2. Remove:
   - Radiator cap
3. Check:
   - Coolant level "a"
   - Coolant level low → Add coolant.

CHANGING THE COOLANT

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

**CAUTION:**
Take care so that coolant does not splash on painted surfaces. If it splashes, wash it away with water.

1. Place a container under the engine.
2. Remove:
   - Coolant drain bolt "1"
3. Remove:
   - Radiator cap
   - Drain the coolant completely.
4. Clean:
   - Cooling system
   - Thoroughly flush the cooling system with clean tap water.
5. Install:
   - Copper washer
   - Coolant drain bolt
6. Fill:
   - Radiator
   - Engine
   - To specified level.

**Recommended coolant:**
High quality ethylene glycol anti-freeze containing anti-corrosion for aluminum engine
Coolant "1" and water (soft water) "2" mixing ratio:
50%/50%
Coolant capacity:
0.9 L (0.79 Imp qt, 0.95 US qt)

**CAUTION:**
Do not mix more than one type of ethylene glycol antifreeze containing corrosion inhibitors for aluminum engine.
Do not use water containing impurities or oil.

CHECKING THE RADIATOR CAP

**OPENING PRESSURE**

1. Attach:
   - Radiator cap tester "1" and adapter "2"

**Radiator cap tester:**
YU-24460-01/90890-01325
**Radiator cap tester adapter:**
YU-33984/90890-01352

**NOTE:**
Apply water on the radiator cap seal.

1. Radiator
2. Coolant drain bolt:
   - 10 Nm (1.0 m•kg, 7.2 ft•lb)

**Recommended coolant:**
High quality ethylene glycol anti-freeze containing anti-corrosion for aluminum engine
Coolant "1" and water (soft water) "2" mixing ratio:
50%/50%
Coolant capacity:
0.9 L (0.79 Imp qt, 0.95 US qt)

**Handling notes of coolant:**
The coolant is harmful so it should be handled with special care.
ADJUSTING THE CLUTCH CABLE FREE PLAY
1. Check:
   • Clutch lever free play "a"
     Out of specification → Adjust.
2. Adjust:
   • Clutch lever free play
   Clutch lever free play adjustment steps:
     a. Loosen the locknuts "1".
     b. Turn the adjuster "2" until free play "a" is within the specified limits.
     c. Tighten the locknuts.

NOTE:
- Before adjustment, expose the adjuster by moving the boot "3" and cap "4" away.
- Make minute adjustment on the lever side using the adjuster "5".
- After adjustment, check proper operation of clutch lever.

ADJUSTING THE THROTTLE CABLE FREE PLAY
1. Check:
   • Throttle grip free play "a"
     Out of specification → Adjust.
2. Adjust:
   • Throttle grip free play
   Throttle grip free play adjustment steps:
     a. Slide the adjuster cover.
     b. Loosen the locknut "1".
     c. Turn the adjuster "2" until the specified free play is obtained.
     d. Tighten the locknut.

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

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

LUBRICATING THE THROTTLE
1. Remove:
   • Cap cover "1"
   • Throttle cable cap "2"

NOTE:
- Before adjusting, expose the adjuster by moving the boot "3" and cap "4" away.
- Make minute adjustment on the lever side using the adjuster "5".
- After adjustment, check proper operation of clutch lever.

NOTE:
- Clutch lever free play "a": 8–13 mm (0.31–0.51 in)
- Throttle grip free play "a": 3–5 mm (0.12–0.20 in)

Radiator cap opening pressure:
95–125 kPa (0.95–1.25 kg/cm², 13.5–17.8 psi)

Radiator cap tester:
YU-24460-01/90890-01325
Radiator cap tester adapter:
YU-33984/90890-01352

Standard pressure:
180 kPa (1.8 kg/cm², 25.6 psi)

NOTE:
- Do not apply pressure more than specified pressure.
- Radiator should be filled fully.

4. Inspect:
   • Pressure
     Impossible to maintain the specified pressure for 10 seconds → Repair.
   • Radiator "1"
   • Radiator hose joint "2"
     Coolant leakage → Repair or replace.
   • Radiator hose "3"
     Swelling → Replace.

3. Apply the specified pressure.

CHECKING THE COOLING SYSTEM
1. Inspect:
   • Coolant level
2. Attach:
   • Radiator cap tester "1" and adapter "2"

3. Apply the specified pressure.

ENGINE
2. Apply:
- Lithium soap base grease
  On the throttle cable end “a”, tube
  guide cable winding portion “b”
  and roller sliding surface “c”.

3. Install:
- Throttle cable cap

   Throttle cable cap:
   1 Nm (0.1 m•kg, 0.7
   ft•lb)

- Cap cover

CLEANING THE AIR FILTER ELEMENT

NOTE:
Proper air filter maintenance is the
biggest key to preventing premature
engine wear and damage.

CAUTION:
Never run the engine without the
air filter element in place; this
would allow dirt and dust to enter
the engine and cause rapid wear
and possible engine damage.

1. Remove:
- Seat
- Fitting bolt “1”
- Washer “2”
- Air filter element “3”
- Air filter guide “4”

2. Clean:
- Air filter element
  Clean them with solvent.

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

3. Inspect:
- Air filter element
  Damage → Replace.

4. Apply:
- Foam-air-filter oil or equivalent oil
to the element

NOTE:
Squeeze out the excess oil. Element
should be wet but not dripping.

5. Install:
- Air filter guide “1”

NOTE:
Align the projection “a” on filter guide
with the hole “b” in air filter element.

6. Apply:
- Lithium soap base grease
  On the matching surface “a” on air
  filter element.

7. Install:
- Air filter element “1”
- Washer
- Fitting bolt

   Fitting bolt:
   2 Nm (0.2 m•kg, 1.4
   ft•lb)

NOTE:
Align the projection “a” on filter guide
with the hole “b” in air filter case.

CHECKING THE TRANSMISSION OIL LEVEL

1. Start the engine, warm it up for
several minutes and wait for five
minutes.

2. Place the machine on a level
place and hold it up on upright po-
position by placing the suitable
stand under the engine.

3. Check:
- Transmission oil level

   Transmission oil level checking steps:
   a. Remove the oil check bolt “1”.
   b. Inspect the oil level.

NOTE:
Be sure the machine is positioned
straight up when inspecting the oil
level.

WARNING
Never attempt to remove the oil
check bolt just after high speed
operation. The heated oil could
spout out, causing danger. Wait
until the oil cools down.

Oil flows out → Oil level is correct.
Oil does not flow out → Oil level is
low. Add transmission oil until oil
flows out.

Recommended oil:
Yamalube 4
(SAE10W30) or
SAE10W30 type SE
motor oil

- c. Inspect the gasket (oil check bolt),
  replace if damaged.
- d. Tighten the oil check bolt.

Oil check bolt:
10 Nm (1.0 m•kg, 7.2
ft•lb)
CHASSIS

CHANGING THE TRANSMISSION OIL

1. Start the engine and warm it up for several minutes and wait for five minute.
2. Place the machine on a level place and hold it on upright position by placing the suitable stand under the engine.
3. Place a suitable container under the engine.
4. Remove:
   - Oil drain bolt "1"
   - Oil filler cap "2"
   Drain the transmission oil.
5. Install:
   - Aluminum washer
   - Oil drain bolt "1"

6. Fill:
   - Transmission oil

7. Check:
   - Oil leakage
8. Check:
   - Transmission oil level
9. Install:
   - Oil filler cap "2"

ADJUSTING THE PILOT SCREW

1. Adjust:
   - Pilot air screw "1"

Adjustment steps:
   a. Screw in the pilot air screw until it is lightly seated.
   b. Back out by the specified number of turns.

ADJUSTING THE ENGINE IDLING SPEED

1. Start the engine and thoroughly warm it up.
2. Adjust:
   - Engine idling speed

ADJUSTMENT steps:
   a. Loosen the throttle stop screw "1".
   b. Turn the throttle stop screw "2" until the engine runs at the lowest possible speed.
   c. Tighten the locknut.

To Increase idle speed → Turn the throttle stop screw "2" in.
To Decrease idle speed → Turn the throttle stop screw "2" out.

CHECKING THE EXHAUST PIPE

1. Inspect:
   - O-ring "1"
Damage → Replace.
NOTE: Install the O-rings with their depressed "a" facing outward.

BLEEDING THE HYDRAULIC BRAKE SYSTEM

A WARNING

Bleed the brake system if:
- The system has been disassembled.
- A brake hose has been loosened or removed.
- The brake fluid is very low.
- The brake operation is faulty. A dangerous loss of braking performance may occur if the brake system is not properly bled.

1. Remove:
   - Brake master cylinder cap
   - Diaphragm
   - Reservoir float (front brake)
   - Protector (rear brake)
2. Bleed:
   - Brake fluid

Air bleeding steps:
   a. Add proper brake fluid to the reservoir.
   b. Install the diaphragm. Be careful not to spill any fluid or allow the reservoir to overflow.
   c. Connect the clear plastic tube "2" tightly to the caliper bleed screw "1".

   A. Front
   B. Rear

   d. Place the other end of the tube into a container.
   e. Slowly apply the brake lever or pedal several times.
   f. Pull the lever in or push down on the pedal. Hold the lever or pedal in position.
   g. Loosen the bleed screw and allow the lever or pedal to travel towards its limit.
   h. Tighten the bleed screw when the lever or pedal limit has been reached; then release the lever or pedal.

   Bleed screw:
   - 6 Nm (0.6 m•kg, 4.3 ft•lb)
i. Repeat steps (e) to (h) until all air bubbles have been removed from the system.

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

j. Add brake fluid to the level line on the reservoir.

WARNING Check the operation of the brake after bleeding the brake system.

ADJUSTING THE FRONT BRAKE
1. Check:
   • Brake lever position "a"

2. Remove:
   • Brake lever cover
3. Adjust:
   • Brake lever position

Brake lever position adjustment steps:
   a. Loosen the locknut "1".
   b. Turn the adjusting bolt "2" until the lever position "a" is within specified position.
   c. Tighten the locknut.

CAUTION:
Be sure to tighten the locknut, as it will cause poor brake performance.

4. Install:
   • Brake lever cover

ADJUSTING THE REAR BRAKE
1. Check:
   • Brake pedal height "a"

Out of specification → Adjust.

Brake pedal height "a":
   Zero mm (Zero in)

Pedal height adjustment steps:
   a. Loosen the locknut "1".
   b. Turn the adjusting nut "2" until the pedal height "a" is within specified height.
   c. Tighten the locknut.

WARNING
• Adjust the pedal height between the maximum “A” and the minimum “B” as shown. (In this adjustment, the bolt “3” end “b” should protrude out of the threaded portion “4” but not be less than 2 mm (0.08 in) “c” away from the brake pedal “5”).
• After the pedal height adjustment, make sure that the rear brake does not drag.

CHECKING AND REPLACING THE FRONT BRAKE PADS
1. Inspect:
   • Brake pad thickness "a"

Out of specification → Replace as a set.

Brake pad thickness:
   4.4 mm (0.17 in)
   <Limit>: 1.0 mm (0.04 in)

2. Replace:
   • Brake pad

Brake pad replacement steps:
   a. Remove the pad pin plug "1".
   b. Loosen the pad pin "2".
   c. Remove the brake caliper "3" from the front fork.
   d. Remove the pad pin and brake pads "4".

Brake lever position "a":

<table>
<thead>
<tr>
<th>Standard position</th>
<th>Extent of adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>95 mm (3.74 in)</td>
<td>86–105 mm (3.39–4.13 in)</td>
</tr>
</tbody>
</table>
e. Connect the transparent hose "5" to the bleed screw "6" and place the suitable container under its end.

f. Loosen the bleed screw and push the brake caliper piston in.

**CAUTION:**
Do not reuse the drained brake fluid.

g. Tighten the bleed screw.

| Bleed screw: 6 Nm (0.6 m•kg, 4.3 ft•lb) |

h. Install the brake pads "7" and pad pin.

**NOTE:**
- Install the brake pads with their projections "a" into the brake caliper recesses "b".
- Temporarily tighten the pad pin at this point.

i. Install the brake caliper "8" and tighten the pad pin "9".

| Bolt (brake caliper): 28 Nm (2.8 m•kg, 20 ft•lb) |
| Pad pin: 18 Nm (1.8 m•kg, 13 ft•lb) |

j. Install the pad pin plug "10".

| Pad pin plug: 3 Nm (0.3 m•kg, 2.2 ft•lb) |

3. Inspect:
- Brake fluid level
  Refer to "CHECKING THE BRAKE FLUID LEVEL" section.

4. Check:
- Brake lever operation
  A softy or spongy feeling → Bleed brake system.
  Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" section.

**CHECKING AND REPLACING THE REAR BRAKE PADS**

1. Inspect:
- Brake pad thickness "a"
  Out of specification → Replace as a set.

| Brake pad thickness: 6.4 mm (0.25 in) |
| <Limit>: 1.0 mm (0.04 in) |

2. Replace:
- Brake pad

**NOTE:**
- Install the brake pads with their projections "a" into the brake caliper recesses "b".
- Temporarily tighten the pad pin at this point.

f. Loosen the bleed screw and push the brake caliper piston in.

g. Tighten the bleed screw.

| Bleed screw: 6 Nm (0.6 m•kg, 4.3 ft•lb) |

h. Install the brake pad "10" and pad pin "11".

i. Install the brake caliper "12" and rear wheel "13".

| Bolt (brake caliper): 28 Nm (2.8 m•kg, 20 ft•lb) |
| Pad pin: 18 Nm (1.8 m•kg, 13 ft•lb) |

| Pad pin plug: 3 Nm (0.3 m•kg, 2.2 ft•lb) |

3-10
j. Tighten the pad pin "14".

k. Install the pad pin plug "15" and protector "16".

### Checking the Rear Brake Pad Insulator

1. Remove:
   - Brake pad
   Refer to "Checking and Replacing the Rear Brake Pads" section.

2. Inspect:
   - Rear brake pad insulator "1"
   Damage → Replace.

### Checking the Brake Fluid Level

1. Place the brake master cylinder so that its top is in a horizontal position.

2. Inspect:
   - Brake fluid level
   Fluid at lower level → Fill up.

### Recommended Brake Fluid:

- DOT #4

### Warning

- Use only designated quality brake fluid to avoid poor brake performance.
- Refill with same type and brand of brake fluid; mixing fluids could result in poor brake performance.
- Be sure that water or other contaminants do not enter master cylinder when refilling.
- Clean up spilled fluid immediately to avoid erosion of painted surfaces or plastic parts.

### Checking the Sprocket

1. Inspect:
   - Sprocket teeth "a"
   Excessive wear → Replace.

2. Replace the drive sprocket, rear wheel sprocket and drive chain as a set.

### Checking the Drive Chain

1. Measure:
   - Drive chain length (15 links) "a"
   Out of specification → Replace.

   **Drive chain length (15 links):**
   \(<\text{Limit}>: 242.9 \text{ mm (9.563 in)}

### Note:

- While measuring the drive chain length, push down on the drive chain to increase its tension.
- Measure the length between drive chain roller "1" and "16" as shown.
- Perform this measurement at two or three different places.

2. Remove:
   - Master link clip
   - Joint "1"
   - Drive chain "2"

3. Clean:
   - Drive chain
   Place it in kerosene, and brush off as much dirt as possible. Then remove the drive chain from the kerosene and dry the drive chain.

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

5. Install:
   - Drive chain "1"
   - Joint "2"
   - Master link clip "3" New

### Caution:

Be sure to install the master link
ADJUSTING THE DRIVE CHAIN SLACK
1. Elevate the rear wheel by placing the suitable stand under the engine.
2. Check:
   • Drive chain slack “a”
     Above the seal guard installation bolt.
   Out of specification → Adjust.

   Drive chain slack:
   48–58 mm (1.9–2.3 in)

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

3. Adjust:
   • Drive chain slack

   Drive chain slack adjustment steps:
   a. Loosen the axle nut “1” and locknuts “2”.
   b. Adjust the drive chain slack by turning the adjusters “3”.

   To tighten → Turn the adjuster “3” counterclockwise.
   To loosen → Turn the adjuster “3” clockwise and push wheel forward.

c. Turn each adjuster exactly the same amount to maintain correct axle alignment. (There are marks “a” on each side of the drive chain puller alignment.)

   NOTE:
   Turn the adjuster so that the drive chain is in line with the sprocket, as viewed from the rear.

   CAUTION:
   Too small drive chain slack will overload the engine and other vital parts; keep the slack within the specified limits.

d. Tighten the axle nut while pushing down the drive chain.

   Axle nut:
   125 Nm (12.5 m•kg, 90 ft•lb)

e. Tighten the locknuts.

   Locknut:
   19 Nm (1.9 m•kg, 13 ft•lb)

CHECKING THE FRONT FORK
1. Inspect:
   • Front fork smooth action
     Operate the front brake and stroke the front fork.
     Unsmooth action/oil leakage → Repair or replace.

CLEANING THE FRONT FORK OIL SEAL AND DUST SEAL
1. Remove:

   • Protector
   • Dust seal “1”

NOTE:_________________________________________________________
Use a thin screw driver, and be careful not to damage the inner fork tube and dust seal.

2. Clean:
   • Dust seal “a”
   • Oil seal “b”

NOTE:_________________________________________________________
• Clean the dust seal and oil seal after every run.
• Apply the lithium soap base grease on the inner tube.

RELIEVING THE FRONT FORK INTERNAL PRESSURE
NOTE:_________________________________________________________
If the front fork initial movement feels stiff during a run, relieve the front fork internal pressure.

1. Elevate the front wheel by placing a suitable stand under the engine.
2. Remove the air bleed screw “1” and release the internal pressure from the front fork.
3. Install:
   • Air bleed screw

   Air bleed screw:
   1 Nm (0.1 m•kg, 0.7 ft•lb)

ADJUSTING THE FRONT FORK REBOUND DAMPING FORCE
1. Adjust:
   • Rebound damping force
By turning the adjuster "1".

Stiffer "a" → Increase the rebound damping force. (Turn the adjuster "1" in.)
Softer "b" → Decrease the rebound damping force. (Turn the adjuster "1" out.)

**Extent of adjustment:**

<table>
<thead>
<tr>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 clicks out (from maximum position)</td>
<td>0 clicks out (from fully turned-in position)</td>
</tr>
</tbody>
</table>

**STANDARD POSITION:**
This is the position which is back by the specific number of clicks from the fully turned-in position.

* For EUROPE

**WARNING**
Always adjust each front fork to the same setting. Uneven adjustment can cause poor handling and loss of stability.

**CHECKING THE REAR SHOCK ABSORBER**

1. Inspect:
   - Swingarm smooth action
   - Abnormal noise/unsMOOTH action → Grease the pivoting points or repair the pivoting points.
   - Damage/oil leakage → Replace.

2. Adjust:
   - Spring preload
     By turning the adjuster "2".
   - Stiffer → Increase the spring preload. (Turn the adjuster "2" in.)
   - Softer → Decrease the spring preload. (Turn the adjuster "2" out.)

**Spring length (installed) "a":**

<table>
<thead>
<tr>
<th>I.D. mark</th>
<th>Standard length</th>
<th>Extent of adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>One I.D. mark</td>
<td>258 mm (10.16 in)</td>
<td>245.5–263.5 mm (9.67–10.37 in)</td>
</tr>
<tr>
<td>Two I.D. marks</td>
<td>264 mm (10.39 in)</td>
<td>251.5–269.5 mm (9.90–10.61 in)</td>
</tr>
<tr>
<td>Three I.D. marks</td>
<td>255.5 mm (10.06 in)</td>
<td>243.0–261.0 mm (9.57–10.28 in)</td>
</tr>
</tbody>
</table>

* For EUROPE

**NOTE:**
- Be sure to remove all dirt and mud from around the locknut and adjuster before adjustment.
- The length of the spring (installed) changes 1.5 mm (0.06 in) per turn of the adjuster.
- The I.D. mark "b" is marked at the end of the spring.
- The standard length and extent of adjustment vary according to the quantity of I.D. marks.

**CAUTION:**
Never attempt to turn the adjuster beyond the maximum or minimum setting.
5. Tighten:
• Locknut

6. Install:
• Rear frame (upper)

Rear frame (upper):
32 Nm (3.2 m•kg, 23 ft•lb)

• Rear frame (lower)

Rear frame (lower):
29 Nm (2.9 m•kg, 21 ft•lb)

ADJUSTING THE REAR SHOCK ABSORBER REBOUND DAMPING FORCE
1. Adjust:
• Rebound damping force
By turning the adjuster "1".

Stiffer "a" — Increase the re-bound damping force. (Turn the adjuster "1" in.)
Softer "b" — Decrease the re-bound damping force. (Turn the adjuster "1" out.)

• STANDARD POSITION:
This is the position which is back by the specific number of clicks from the fully turned-in position.
(Which align the punch mark "a" on the adjuster with the punch mark "b" on the bracket.)

Standard position:
About 11 clicks out
* About 12 clicks out

* For EUROPE

CAUTION:
Do not force the adjuster past the minimum or maximum extent of adjustment. The adjuster may be damaged.

ADJUSTING THE REAR SHOCK ABSORBER LOW COMPRESSION DAMPING FORCE
1. Adjust:
• Low compression damping force
By turning the adjuster "1".

Stiffer "a" — Increase the low compression damping force. (Turn the adjuster "1" in.)
Softer "b" — Decrease the low compression damping force. (Turn the adjuster "1" out.)

• STANDARD POSITION:
This is the position which is back by the specific number of turns from the fully turned-in position.
(Which align the punch mark "a" on the adjuster with the punch mark "b" on the high compression damping adjuster.)

Standard position:
About 13 clicks out

CAUTION:
Do not force the adjuster past the minimum or maximum extent of adjustment. The adjuster may be damaged.

ADJUSTING THE REAR SHOCK ABSORBER HIGH COMPRESSION DAMPING FORCE
1. Adjust:
• High compression damping force
By turning the adjuster "1".

Stiffer "a" — Increase the high compression damping force. (Turn the adjuster "1" in.)
Softer "b" — Decrease the high compression damping force. (Turn the adjuster "1" out.)

• STANDARD POSITION:
This is the position which is back by the specific number of turns from the fully turned-in position.
(Which align the punch mark "a" on the adjuster with the punch mark "b" on the high compression damping adjuster.)

Standard position:
About 13 clicks out
CAUTION:
Do not force the adjuster past the minimum or maximum extent of adjustment. The adjuster may be damaged.

CHECKING THE TIRE PRESSURE
1. Measure:
   • Tire pressure
     Out of specification → Adjust.

   Standard tire pressure: 100 kPa (1.0 kgf/cm², 15 psi)

NOTE:
• Check the tire while it is cold.
• Loose bead stoppers allow the tire to slip off its position on the rim when the tire pressure is low.
• A tilted tire valve stem indicates that the tire slips off its position on the rim.
• If the tire valve stem is found tilted, the tire is considered to be slipping off its position. Correct the tire position.

CHECKING THE WHEELS
1. Inspect:
   • Wheel runout
     Elevate the wheel and turn it. Abnormal runout → Replace.

2. Inspect:
   • Bearing free play
     Exist play → Replace.

CHECKING AND ADJUSTING THE STEERING HEAD
1. Elevate the front wheel by placing a suitable stand under the engine.
2. Check:
   • Steering stem
     Grasp the bottom of the forks and gently rock the fork assembly back and forth. Free play → Adjust steering head.

3. Check:
   • Steering smooth action
     Turn the handlebar lock to lock. Unsmooth action → Adjust steering ring nut.

   Standard position:
   About 1-1/2 turns out

4. Adjust:
   • Steering ring nut

Steering ring nut adjustment steps:
   a. Remove the number plate.
   b. Remove the handlebar and upper bracket.
   c. Loosen the steering ring nut “1” using the steering nut wrench “2”.

   Steering nut wrench:
   YU-33975/90890-01403

   d. Tighten the steering ring nut “3” using steering nut wrench “4”.

NOTE:
• Apply the lithium soap base grease on the thread of the steering stem.
• Set the torque wrench to the steering nut wrench so that they form a right angle.

Steering nut wrench:
YU-33975/90890-01403

Steering ring nut (initial tightening):
38 Nm (3.8 m•kg, 27 ft•lb)

e. Loosen the steering ring nut one turn.
f. Retighten the steering ring nut using the steering nut wrench.

WARNING
Avoid over-tightening.

Spokes:
3 Nm (0.3 m•kg, 2.2 ft•lb)

NOTE:
Be sure to retighten these spokes before and after break-in. After a practice or a race check spokes for looseness.

3-15
g. Check the steering stem by turning it lock to lock. If there is any binding, remove the steering stem assembly and inspect the steering bearings.

h. Install the washer "5", upper bracket "6", washer "7", steering stem nut "8", handlebar "9", handlebar upper holder "10" and number plate "11".

**NOTE:**
- The handlebar upper holder should be installed with the punched mark "a" forward.
- Install the handlebar so that the marks "b" are in place on both sides.
- Install the handlebar so that the projection "c" of the handlebar upper holder is positioned at the mark on the handlebar as shown.
- Insert the end of the fuel breather hose "12" into the hole in the steering stem.

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

**Steering ring nut (final tightening):**
7 Nm (0.7 m•kg, 5.1 ft•lb)

**Steering stem nut:**
145 Nm (14.5 m•kg, 105 ft•lb)

**Handlebar upper holder:**
28 Nm (2.8 m•kg, 20 ft•lb)

**Pinch bolt (upper bracket):**
21 Nm (2.1 m•kg, 15 ft•lb)

**Number plate:**
7 Nm (0.7 m•kg, 5.1 ft•lb)
To ensure smooth operation of all components, lubricate your machine during setup, after break-in, and after every race.

1. All control cable
2. Clutch lever pivot
3. Shift pedal pivot
4. Footrest pivot
5. Throttle-to-handlebar contact
6. Drive chain
7. Throttle roller cable guide
8. Throttle roller sliding surface
9. Tube guide cable winding portion
10. Throttle cable end
11. Clutch cable end

A. Use Yamaha cable lube or equivalent on these areas.
B. Use SAE 10W-30 motor oil or suitable chain lubricants.
C. Lubricate the following areas with high quality, lightweight lithium-soap base grease.

**CAUTION:**
Wipe off any excess grease, and avoid getting grease on the brake discs.
ELECTRICAL

CHECKING THE SPARK PLUG

1. Remove:
   • Spark plug

2. Inspect:
   • Electrode "1"
     Wear/damage → Replace.
   • Insulator color "2"
     Normal condition is a medium to light tan color.
     Distinctly different color → Check the engine condition.

   3. Measure:
      • Plug gap "a"
        Use a wire gauge or thickness gauge.
        Out of specification → Regap.

   4. Clean the plug with a spark plug cleaner if necessary.

   5. Tighten:
      • Spark plug
        • Before installing a spark plug, clean the gasket surface and plug surface.
        • Finger-tighten "a" the spark plug before torquing to specification "b".

   NOTE:
   When the engine runs for many hours at low speeds, the spark plug insulator will become sooty, even if the engine and carburetor are in good operating condition.

CHECKING THE IGNITION TIMING

1. Remove:
   • Fuel tank
     Refer to "SEAT, FUEL TANK AND SIDE COVERS" section in the CHAPTER 4.
   • Spark plug
   • Crankcase cover (left)

2. Attach:
   • Dial gauge "1"
   • Spark plug hole dial stand "2"

3. Rotate the magneto rotor "1" until the piston reaches top dead center (TDC). When this happens, the needle on the dial gauge will stop and reverse directions even though the rotor is being turned in the same direction.

4. Set the dial gauge to zero at TDC.

5. From TDC, rotate the rotor clockwise until the dial gauge indicates that the piston is at a specified distance from TDC.

6. Check:
   • Ignition timing
     Punch mark "a" on rotor should be aligned with punch mark "b" on stator.
     Not aligned → Adjust.

   7. Adjust:
      • Ignition timing

Adjustment steps:
   a. Loosen the screws (stator) "1".
   b. Align the punch mark on the rotor with punch mark on the stator "2" by moving the stator.
   c. Tighten the screws (stator).

Dial gauge:
YU-3097/90890-01252
Spark plug hole dial stand:
YU-1256

Screw (stator):
7 Nm (0.7 m•kg, 5.1 ft•lb)

Standard spark plug:
BR9EVX/NGK (resistance type)

NOTE:
• Before installing a spark plug, clean the gasket surface and plug surface.
• Finger-tighten "a" the spark plug before torquing to specification "b".
ENGINE

SEAT, FUEL TANK AND SIDE COVERS

REMOVING THE SEAT, FUEL TANK AND SIDE COVERS

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Seat</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Air scoop (left and right)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Fitting band</td>
<td>1</td>
<td>Remove on fuel tank side.</td>
</tr>
<tr>
<td>4</td>
<td>Bolt (fuel tank)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fuel tank</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Left side cover</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>7</td>
<td>Right side cover</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>8</td>
<td>Number plate</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
</tbody>
</table>

Turn the fuel cock to "OFF".
Disconnect the fuel hose.

19 Nm (1.9 m·kg, 13 ft·lb)
7 Nm (0.7 m·kg, 5.1 ft·lb)
6 Nm (0.6 m·kg, 4.3 ft·lb)
7 Nm (0.7 m·kg, 5.1 ft·lb)
7 Nm (0.7 m·kg, 5.1 ft·lb)
19 Nm (1.9 m·kg, 13 ft·lb)
7 Nm (0.7 m·kg, 5.1 ft·lb)
7 Nm (0.7 m·kg, 5.1 ft·lb)
7 Nm (0.7 m·kg, 5.1 ft·lb)
6 Nm (0.6 m·kg, 4.3 ft·lb)
4 Nm (0.4 m·kg, 2.9 ft·lb)
7 Nm (0.7 m·kg, 5.1 ft·lb)
SEAT, FUEL TANK AND SIDE COVERS

REMOVING THE SIDE COVER
1. Remove:
   • Bolt (side cover)
   • Side cover (left and right) "1"

NOTE:
Draw the side cover downward to remove it because its claws "a" are inserted in the air filter case.

REMOVING THE NUMBER PLATE
1. Remove:
   • Bolt (number plate)
   • Number plate "1"

NOTE:
• The projection "a" is inserted into the band of the number plate. Pull the band off the projection before removal.
• Remove the clutch cable "2" from the cable guide "b" on the number plate.
• The projection "c" on the lower bracket is inserted into the number plate. Remove the number plate by pulling it off the projection.
## EXHAUST PIPE AND SILENCER

### REMOVING THE EXHAUST PIPE AND SILENCER

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>A. For EUROPE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Right side cover</td>
<td></td>
<td>Refer to &quot;SEAT, FUEL TANK AND SIDE COVERS&quot; section.</td>
</tr>
<tr>
<td>1</td>
<td>Bolt (silencer)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Washer [ø=22 mm (0.87 in)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>*2</td>
<td>Washer [ø=26 mm (1.02 in)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Silencer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Collar [L=ø13.0 mm (0.51 in)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>*4</td>
<td>Collar [L=ø15.5 mm (0.61 in)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Collar [L=ø13.5 mm (0.53 in)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Grommet (front)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Grommet (rear)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Tension spring</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Bolt (exhaust pipe)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Exhaust pipe</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
EXHAUST PIPE AND SILENCER

CHANGING THE SILENCER FIBER

1. Remove:
   • Side cover (right)
   • Bolt (silencer) "1"
   • Silencer "2"
   • Bolt (fiber) "3"

2. Remove:
   • Inner pipe "1"

3. Replace:
   • Fiber "2"

4. Install:
   • Inner pipe

NOTE:
Fully apply Quick gasket® (Yamaha bond No.1215) or equivalent as shown.

Yamaha bond No.1215
(Three Bond® No.1215):
90890-85505

5. Install:
   • Bolt (fiber) "1"
   • Silencer "2"
   • Bolt [silencer (front)] "3"
   • Bolt [silencer (rear)] "4"

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

   Bolt [silencer (front)]:
   12 Nm (1.2 m•kg, 8.7 ft•lb)

   Bolt [silencer (rear)]:
   12 Nm (1.2 m•kg, 8.7 ft•lb)

   Side cover (right):
   7 Nm (0.7 m•kg, 5.1 ft•lb)

A. Except for EUROPE
B. For EUROPE
## Removing the Radiator

**Order** | **Part name** | **Q’ty** | **Remarks** |
--- | --- | --- | --- |
1 | Drain the coolant. |  | Refer to "CHANGING THE COOLANT" section in the CHAPTER 3. |
1 | Seat and fuel tank |  | Refer to "SEAT, FUEL TANK AND SIDE COVERS" section. |
2 | Radiator guard | 2 |  |
3 | Radiator hose clamp (radiator hose 1, 3) | 2 | Only loosening. |
3 | Radiator hose 2 | 1 |  |
4 | Left radiator | 1 |  |
5 | Radiator hose 4 | 1 |  |
6 | Right radiator | 1 |  |
7 | Radiator hose 1 | 1 |  |
8 | Radiator hose 3 | 1 |  |
9 | Radiator breather hose | 1 |  |

- Nm (1.0 m · kg, 7.2 ft · lb)
- Nm (0.2 m · kg, 1.4 ft · lb)
HANDLING NOTE

**WARNING**

Do not remove the radiator cap when the engine and radiator are hot. Scalding hot fluid and steam may be blown out under pressure, which could cause serious injury. When the engine has cooled, open the radiator cap by the following procedure:

Place a thick rag, like a towel, over the radiator cap, slowly rotate the cap counterclockwise to the detent. This procedure allows any residual pressure to escape. When the hissing sound has stopped, press down on the cap while turning counterclockwise and remove it.

CHECKING THE RADIATOR

1. Inspect:
   - Radiator core "1"
     Obstruction → Blow out with compressed air through rear of the radiator.
     Bent fin → Repair/replace.

2. Install:
   - Radiator breather hose "1"
   - Radiator hose 3 "2"

   Radiator hose 3: 2 Nm (0.2 m•kg, 1.4 ft•lb)

   Radiator hose 1 "3"

   Radiator hose 1: 2 Nm (0.2 m•kg, 1.4 ft•lb)

   To right radiator "4".

NOTE: Clamp the radiator hose in the direction as shown.

3. Install:
   - Left radiator "1"
   - Washer "2"
   - Bolt (left radiator) "3"

   Bolt (left radiator): 10 Nm (1.0 m•kg, 7.2 ft•lb)

   Radiator hose 2 "4"

   Radiator hose 2: 2 Nm (0.2 m•kg, 1.4 ft•lb)

   Refer to "CABLE ROUTING DIAGRAM" section in the CHAPTER 2.

4. Tighten:
   - Radiator hose clamp 1, 3 "5"

   Radiator hose clamp 1, 3: 2 Nm (0.2 m•kg, 1.4 ft•lb)

5. Install:
   - Radiator guard "1"
   - Bolt (radiator guard) "2"

   Bolt (radiator guard): 10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE: Fit the hook "a" on the inner side first into the radiator.
### REMOVING THE CARBURETOR AND REED VALVE

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel tank</td>
<td></td>
<td></td>
<td>Refer to &quot;SEAT, FUEL TANK AND SIDE COVERS&quot; section.</td>
</tr>
<tr>
<td>1</td>
<td>Clamp (carburetor joint)</td>
<td>2</td>
<td>Loosen the screw (carburetor joint).</td>
</tr>
<tr>
<td>2</td>
<td>Carburetor</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Carburetor joint</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Reed valve assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Stopper (reed valve)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Reed valve</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

- 2 Nm (0.2 m · kg, 1.4 ft · lb)
- 10 Nm (1.0 m · kg, 7.2 ft · lb)
- 1 Nm (0.1 m · kg, 0.7 ft · lb)
CARBURETOR AND REED VALVE

DISASSEMBLING THE CARBURETOR

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mixing chamber top</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>2</td>
<td>Throttle valve</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Needle holder</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Jet needle</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Float chamber</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Needle jet cover</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Float pin</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Float</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Valve seat</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Main jet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Main jet holder</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Pilot jet</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Starter plunger</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Throttle stop screw</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Pilot air screw</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

4 Nm (0.4 m·kg, 2.9 ft·lb)
HANDLE AND NOTE

CAUTION:
Do not disassemble the venturi block "1" and main nozzle "2" because it will cause a drop in carburetor performance.

REMOVING THE THROTTLE VALVE
1. Remove:
   - Throttle valve "1"
   - Ring "2"
   - Spring (throttle valve) "3"
   - Mixing chamber top "4"
   - Throttle cable "5"

   While compressing the spring (throttle valve), disconnect the throttle cable.

NOTE:

CHECKING THE CARBURETOR
1. Inspect:
   - Carburetor body
     Contamination → Clean.

   CAUTION:
   When cleaning the main air passage "a", do not blow air at the filter side because it will clog the passage with mud or sand.

   NOTE:
   - Use a petroleum based solvent for cleaning. Blow out all passages and jets with compressed air.
   - Never use a wire.
   - When cleaning the main air passage, blow air through it while covering the nozzle with a clean rag.

CHECKING THE JET NEEDLE
1. Inspect:
   - Jet needle "1"
   - Air cleaner "2"
   - Pilot jet "3"
   - Contamination → Clean.

NOTE:
   Use a petroleum based solvent for cleaning. Blow out all passages and jets with compressed air.
   Never use a wire.

CHECK THE THROTTLE VALVE
1. Check:
   - Free movement
     Stick → Repair or replace.

   NOTE:
   Insert the throttle valve "1" into the carburetor body, and check for free movement.

CHECKING THE FILTER
1. Inspect:
   - Filter "1"
     Damage → Replace.

NOTE:
   Inspect the filter as it is assembled to the carburetor. Do not remove the filter except when replacing it.

CHECKING THE NEEDLE VALVE
1. Inspect:
   - Needle valve "1"
   - Valve seat "2"
     Grooved wear "a" → Replace.
     Dust "b" → Clean.

NOTE:
   Always replace the needle valve and valve seat as a set.

CHECK THE FUEL LEVEL
1. Measure:
   - Fuel level "a"
     Out of specification → Adjust.

Fuel level Measurement and adjustment steps:
   a. Remove the drain plug.
   b. Connect the fuel level gauge adapter "2" and fuel level gauge "1" to the float chamber.
   c. Hold the fuel level gauge vertically next to the float chamber mating surface.
   d. Measure the fuel level with the
CARBURETOR AND REED VALVE

fuel level gauge.

NOTE:
Keep the carburetor and fuel level gauge vertically when measuring the fuel level.

e. If the fuel level is not within specification, inspect the valve seat and needle valve.
f. If either is worn, replace them both.
g. If both are fine, adjust the fuel level by bending the float tab "b" on the float.
h. Recheck the fuel level.

CHECKING THE FLOAT
1. Inspect:
   • Float "1"
     Damage → Replace.

CHECKING THE REED VALVE
1. Measure:
   • Reed valve bending "a"
     Out of specification → Replace.

Reed valve bending limit: 0.2 mm (0.008 in)

2. Measure:
   • Valve stopper height "a"
     Out of specification → Adjust stop-

ASSEMBLING THE CARBURETOR
1. Install:
   • Throttle stop screw "1"  
   • Locknut "2"  
   • Pilot air screw "3"

Note the following installation points:
a. Screw in the pilot air screw until it is lightly seated.
b. Back out it by the specified number of turns.

Pilot air screw: 2-1/4 turns out

2. Install:
   • Starter plunger "1"

3. Install:
   • Main jet holder "1"  
   • Main jet "2"  
   • Pilot jet "3"  
   • Valve seat "4"  
   • Screw (valve seat) "5"

4. Install:
   • Needle valve "1"  
   • Float "2"  
   • Float pin "3"  
   • Screw (float pin) "4"  
   • Needle jet cover "5"

Installing the reed valve with the reed valve bending as shown.
Note the cut "a" in the lower corner of the reed and stopper plate.

CAUTION:
Tighten each screw gradually to avoid warping.

INSTALLING THE REED VALVE
1. Install:
   • Reed valve "1"  
   • Stopper (reed valve) "2"  
   • Screw (reed valve) "3"

Screw (reed valve):
1 Nm (0.1 m•kg, 0.7 ft•lb)

NOTE:
• Install the reed valve with the reed valve bending as shown.
• Note the cut "a" in the lower corner of the reed and stopper plate.

Bolt (carburetor joint):
10 Nm (1.0 m•kg, 7.2 ft•lb)
**NOTE:**
- After installing the needle valve to the float, install them to the carburetor.
- Check the float for smooth movement.

5. Install:
- Float chamber "1"
- Plate "2"
- Screw (float chamber) "3"

6. Install:
- Jet needle "1"
- Needle holder "2"
To throttle valve 3.

7. Install:
- Throttle cable "1"
- Locknut "2"

8. Install:
- Mixing chamber top "1"
- Screw (mixing chamber top) "2"
  To carburetor "3".

**NOTE:**
After installing, check the throttle grip for smooth movement.

9. Install:
- Air vent hose "1"
- Overflow hose "2"
- Clamp "3"

**NOTE:**
Pass the air vent hose at the rear (on the air cleaner side) of the throttle cable "4".

**INSTALLING THE CARBURETOR**
1. Install:
- Carburetor "1"

**NOTE:**
Install the projection between the carburetor joint slots.

2. Tighten:
- Bolt (air filter joint) "1"

- Bolt (carburetor joint) "2"

3. Clamp:
- Air vent hose "1"
- Overflow hose "2"
  Refer to "CABLE ROUTING DIAGRAM" section in the CHAPTER 2.

4. Adjust:
- Idle speed
  Refer to "ADJUSTING THE ENGINE IDLING SPEED" section in the CHAPTER 3.
REMOVING THE CYLINDER HEAD AND CYLINDER

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seat and fuel tank</td>
<td>1</td>
<td>Refer to “SEAT, FUEL TANK AND SIDE COVERS” section.</td>
</tr>
<tr>
<td></td>
<td>Exhaust pipe and silencer</td>
<td>1</td>
<td>Refer to “EXHAUST PIPE AND SILENCER” section.</td>
</tr>
<tr>
<td></td>
<td>Radiator</td>
<td>1</td>
<td>Refer to “RADIATOR” section.</td>
</tr>
<tr>
<td>1</td>
<td>Spark plug</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Engine bracket</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Nut (cylinder head)</td>
<td>5</td>
<td>Loosen each nut 1/4 turn, and remove them after all nuts are loosened.</td>
</tr>
<tr>
<td>4</td>
<td>Cylinder head</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Power valve housing</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Push rod</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>7</td>
<td>Nut (cylinder)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cylinder</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### REMOVING THE PISTON AND POWER VALVE

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Piston pin clip</td>
<td>2</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>2</td>
<td>Piston pin</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>3</td>
<td>Piston</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>4</td>
<td>Small end bearing</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>5</td>
<td>Piston ring</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>6</td>
<td>Power valve cover</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Thrust plate</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Bolt (link lever)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Valve holder</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Valve shaft</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Collar</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Link lever</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Spring</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Power valve 1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Power valve 2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

**Torque Specifications**
- 4 Nm (0.4 m·kg, 2.9 ft·lb)
- 8 Nm (0.8 m·kg, 5.8 ft·lb)
- 5 Nm (0.5 m·kg, 3.6 ft·lb)
CYLINDER HEAD, CYLINDER AND PISTON

REMOVING THE PUSH ROD
1. Remove:
   • Bolt (push rod) "1"
   • Push rod "2"

NOTE:
Set the collar "3" included in owner's tool kit to remove the bolt (push rod).

3. Remove:
   • Piston ring "1"

NOTE:
Take care not to scratch the piston or damage the piston ring by expanding it more than necessary.

REMOVING THE PISTON AND PISTON RING
1. Remove:
   • Piston pin clip "1"

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

2. Remove:
   • Piston pin "1"
   • Piston "2"
   • Small end bearing "3"

NOTE:
Before removing each piston pin, deburr the clip groove and pin hole area. If the piston pin groove is deburred and the piston pin is still difficult to remove, use the piston pin puller set "4".

2. Inspect:
   • Cylinder head water jacket
     Crust of minerals/Rust → Replace.

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

   Warpage measurement and resurfacing steps:
a. Attach a straightedge "1" and a thickness gauge "2" on the cylinder head.
b. Measure the warpage.
c. If the warpage is out of specification, resurface the cylinder head.
d. Place a 400–600 grit wet sandpaper "3" on the surface plate, and resurface the head "4" using a figure-eight sanding pattern.

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

CHECKING THE CYLINDER
1. Eliminate:
   • Carbon deposits

   Use a rounded scraper.

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

2. Inspect:
   • Cylinder inner surface
     Score marks → Repair or replace.

   Use #400–600 grit wet sandpaper.

   Do not rebore the cylinder.

3. Measure:
   • Cylinder bore "C"

   Use cylinder gauge "1".

   Out of limit → Replace.

NOTE:
Measure the cylinder bore "C" in parallel (A, B, C) to and at right angles to the crankshaft (a, b). Then, find the average of the measurements.
CHECKING THE PISTON

1. Eliminate:
   - Carbon deposits
     - From the piston crown "a" and
     - Ring groove "b".

2. Inspect:
   - Piston wall
     - Score marks → Repair or replace.

3. Measure:
   - Piston skirt diameter
     - Use micrometer "1".
     - Measure the specific distance "a"
       from the bottom edge.
     - Out of specification → Replace.

4. Install:
   - Small end bearing
   - Piston pin
     - Into the small end of connecting rod.

5. Check:
   - Free play
     - There should be no noticeable free play.
     - Free play exists → Inspect the connecting rod for wear/Replace the pin and/or connecting rod as required.

CHECKING THE PISTON PIN AND SMALL END BEARING

1. Inspect:
   - Piston pin
   - Small end bearing
     - Signs of heat discoloration → Replace.

2. Measure:
   - Piston pin outside diameter
     - Use micrometer "1".
     - Out of limit → Replace.

3. Check:
   - Free play (when the piston pin "1" is in place in the piston "2")
     - There should be no noticeable for the play.
     - Free play exists → Replace piston pin and/or piston.

CHECKING THE PISTON RING

1. Install:
   - Piston ring
     - Into the cylinder.
     - Push the ring with the piston crown.

2. Measure:
   - End gap
     - Use a thickness gauge "1".
     - Out of limit → Replace.

3. Measure:
   - Side clearance
     - Use a thickness gauge "1".
     - Out of limit → Replace piston and/or ring.

NOTE:
- Check at several points.
CHECKING THE PISTON CLEARANCE
1. Calculate:
   • Piston clearance
     Out of limit → Replace piston, and piston ring and/or cylinder.
     Refer to "Cylinder" and "Piston".

PISTON CLEARANCE = CYLINDER BORE - PISTON DIAMETER

<table>
<thead>
<tr>
<th>Standard</th>
<th>&lt;Limit&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.040–0.045 mm (0.0016–0.0018 in)</td>
<td>0.1 mm (0.004 in)</td>
</tr>
</tbody>
</table>

CHECKING THE COMBINATION OF PISTON AND CYLINDER
1. Check:
   • Cylinder mark "a"

<table>
<thead>
<tr>
<th>Cylinder mark “a”</th>
<th>Cylinder size</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>54.000–54.002 mm (2.1260–2.1261 in)</td>
</tr>
<tr>
<td>B</td>
<td>54.004–54.006 mm (2.1261–2.1262 in)</td>
</tr>
<tr>
<td>C</td>
<td>54.008–54.010 mm (2.1263–2.1264 in)</td>
</tr>
<tr>
<td>D</td>
<td>54.012–54.014 mm (2.1265–2.1265 in)</td>
</tr>
</tbody>
</table>

2. Check:
   • Piston mark "a"

<table>
<thead>
<tr>
<th>Piston mark “a” (color)</th>
<th>Piston size</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (red)</td>
<td>53.957–53.960 mm (2.1243–2.1244 in)</td>
</tr>
<tr>
<td>B (orange)</td>
<td>53.961–53.964 mm (2.1244–2.1246 in)</td>
</tr>
<tr>
<td>C (green)</td>
<td>53.965–53.968 mm (2.1246–2.1247 in)</td>
</tr>
<tr>
<td>D (purple)</td>
<td>53.969–53.972 mm (2.1248–2.1249 in)</td>
</tr>
</tbody>
</table>

3. Combination:
   Combine the piston and cylinder by the following chart.

<table>
<thead>
<tr>
<th>Cylinder mark (color)</th>
<th>Piston mark (color)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (red)</td>
<td>A</td>
</tr>
<tr>
<td>B (orange)</td>
<td>B</td>
</tr>
<tr>
<td>C (green)</td>
<td>C</td>
</tr>
<tr>
<td>D (purple)</td>
<td>D</td>
</tr>
</tbody>
</table>

NOTE:
When you purchase a cylinder, you cannot designate its size. Choose the piston that matches the above chart.

CHECKING THE POWER VALVE
1. Inspect:
   • Power valve 1 "1"
     Wear/Damage → Replace.
     Carbon deposits → Remove.
   • Valve holder "2"
   • Link lever "3"
   • Valve shaft "4"
   • Collar "5"
     Wear/Damage → Replace.
     Spring "6" Broken → Replace.

   CHECKING THE POWER VALVE HOLE ON CYLINDER
1. Remove:
   • Carbon deposits
     From power valve hole surface "a".

NOTE:
Do not use a sharp instrument. Avoid scratching the aluminum.

INSTALLING THE POWER VALVE
1. Install:
   • Power valve 1 "1"
   • Power valve 2 "2"
   • Bolt (power valve) "3"

2. Install:
   • Spring "1"
   • Link lever "2"
   • Collar "3"
   • Valve shaft "4"
   • Valve holder "5"
   • Bolt (link lever) "6"

NOTE:
Install the power valve at cut-away faced "a" for down side.
3. Install:
- Thrust plate "1"
- Screw (thrust plate) "2"

Screw (thrust plate):
4 Nm (0.4 m•kg, 2.9 ft•lb)

4. Check:
- Power valve smooth movement
  Unsmooth movement → Repair or replace.

5. Install:
- Gasket (power valve cover) "1" New
- Power valve cover "2"
- Screw (power valve cover) "3"

Screw (power valve cover):
5 Nm (0.5 m•kg, 3.6 ft•lb)
- YPVS breather hose "4"

NOTE:
- Install the power valve cover so that the arrow mark "a" faces upward.
- Install the clamp of the YPVS breather hose with its opening portion "b" facing backward.

INSTALLING THE PISTON RING AND PISTON
1. Install:
- Piston ring "1"

NOTE:
- Take care not to scratch the piston or damage the piston ring.
- Align the piston ring gap with the pin "2".
- After installing the piston ring, check the smooth movement of it.

CAUTION:
- When installing the piston pin clip, use the hand so that it may not be distorted.
- Do not allow the clip open ends to meet the piston pin slot "b".

2. Install:
- Gasket (cylinder) "1" New
- Small end bearing "2"
- Dowel pin "3"

NOTE:
- Apply the engine oil onto the bearing (crankshaft and connecting rod) and connecting rod big end washers.
- Install the gasket with the seal print side toward the crankcase.

CAUTION:
- Cylinder "1"

Make sure the piston ring is properly positioned. Install the cylinder with one hand while compressing the piston ring with the other hand.

NOTE:
After installing, check the smooth movement of the piston.

3. Install:
- Piston "1"
- Piston pin "2" New
- Piston pin clip "3"

NOTE:
- The arrow "a" on the piston dome must point to exhaust side.
- Before installing the piston pin clip, cover the crankcase with a clean rag to prevent the piston pin clip from falling into the crankcase cavity.

CAUTION:
- Nut (cylinder) "1"

Nut (cylinder):
30 Nm (3.0 m•kg, 22 ft•lb)
4-18

CYLINDER HEAD, CYLINDER AND PISTON

NOTE:
Tighten the nuts in stage, using a crisscross pattern.

4. Install:
• Collar "1"
• Push rod "2"
• Plain washer "3"
• Bolt (push rod) "4"

Bolt (push rod):
5 Nm (0.5 m•kg, 3.6 ft•lb)

NOTE:
Apply the lithium soap base grease on the O-rings.

7. Install:
• Cylinder head "1"
• Copper washer "2" New
• Nut (cylinder head) "3"

Nut (cylinder head):
28 Nm (2.8 m•kg, 20 ft•lb)

NOTE:
Tighten the nuts (cylinder head) in stage, using a crisscross pattern.

8. Install:
• Engine bracket "1"
• Bolt (engine bracket) "2"

Bolt (engine bracket):
34 Nm (3.4 m•kg, 24 ft•lb)

• Engine mounting bolt (upper) "3"

Engine mounting bolt (upper):
34 Nm (3.4 m•kg, 24 ft•lb)

9. Install:
• Spark plug "1"

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

• Spark plug cap "2"

5. Install:
• Gasket (power valve housing) New
• Power valve housing "1"
• Bolt (power valve housing) "2"

Bolt (power valve housing):
4 Nm (0.4 m•kg, 2.9 ft•lb)

6. Install:
• O-ring "1" New

Bolt (push rod): 5 Nm (0.5 m•kg, 3.6 ft•lb)

NOTE:
Set the collar "5" included in owner’s tool kit to install the bolt (push rod).
Do not forget to remove the collar.
### CLUTCH

#### REMOVING THE CLUTCH

1. Drain the transmission oil. Refer to "CHANGING THE TRANSMISSION OIL" section in the CHAPTER 3.
2. Bolt (brake pedal) Shift the brake pedal downward.
3. Rotor and stator Refer to "CDI MAGNETO" section.
4. Clutch cable Disconnect at engine side.

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q’ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clutch cover</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bolt (clutch spring)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Clutch spring</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pressure plate</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Friction plate</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Clutch plate</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

10 Nm (1.0 m · kg, 7.2 ft · lb)
## REMOVING THE CLUTCH BOSS

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Push rod 1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Circlip</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Washer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bearing</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Ball</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Push rod 2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Nut (clutch boss)</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>8</td>
<td>Lock washer</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>9</td>
<td>Clutch boss</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>10</td>
<td>Thrust washer [D=ø34mm (1.34 in)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Primary driven gear</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Bearing</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Thrust washer [D=ø34mm (1.34 in)]</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Push lever shaft</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

\[80 \text{Nm (8.0 m·kg, 58 ft·lb)}\]
**REMOVING THE CLUTCH BOSS**

1. Remove:
   - Nut "1"
   - Lock washer "2"
   - Clutch boss "3"

**NOTE:**
Straighten the lock washer tab and use the clutch holding tool "4" to hold the clutch boss.

**CHECKING THE CLUTCH BOSS**

1. Remove:
   - Nut "1"
   - Lock washer "2"
   - Clutch boss "3"

A. For USA and CDN
B. Except for USA and CDN

**CHECKING THE CLUTCH HOUSING AND BOSS**

1. Inspect:
   - Clutch housing "1"
     Cracks/wear/damage → Replace.
   - Clutch boss "2"
     Scoring/wear/damage → Replace.

**CHECKING THE PRIMARY DRIVEN GEAR**

1. Check:
   - Circumferential play
     Free play exists → Replace.
   - Gear teeth "a"
     Wear/damage → Replace.

**CHECKING THE PRIMARY DRIVEN GEAR**

1. Measure:
   - Clutch spring free length "a"  
     Out of specification → Replace springs as a set.

   **Clutch spring free length:**
   - 40.1 mm (1.579 in)
   - <Limit>: 38.1 mm (1.500 in)

**CHECKING THE PRIMARY DRIVEN GEAR**

1. Measure:
   - Friction plate thickness
     Out of specification → Replace friction plate as a set.
     Measure at all four points.

   **Friction plate thickness:**
   - 2.9–3.1 mm (0.114–0.122 in)
   - <Limit>: 2.8 mm (0.110 in)

**CHECKING THE CLUTCH PLATES**

1. Measure:
   - Clutch plate warpage
     Out of specification → Replace clutch plate as a set.
     Use a surface plate "1" and thickness gauge "2".

   **Warp limit:**
   - 0.2 mm (0.008 in)

**CHECKING THE PUSH LEVER SHAFT**

1. Inspect:
   - Push lever shaft "1"

**NOTE:**
Apply the lithium soap base grease on the oil seal lip and push lever shaft.

**CHECKING THE PUSH ROD**

1. Inspect:
   - Push rod 1 "1"
   - Bearing "2"
   - Washer "3"
   - Push rod 2 "4"
   - Ball "5"

   Wear/damage/bend → Replace.

**INSTALLING THE PUSH LEVER SHAFT**

1. Install:
   - Push lever shaft "1"

**NOTE:**
Apply the lithium soap base grease on the oil seal lip and push lever shaft.

**INSTALLING THE CLUTCH**

1. Install:
   - Thrust washer [D=ø34 mm (1.34 in)] "1"
   - Spacer "2"
   - Bearing "3"
   - Primary driven gear "4"

**NOTE:**
Apply the transmission oil on the bearing, spacer and primary driven gear inner circumference.
2. Install:
   • Thrust washer \[D=\varnothing 34 \text{ mm (1.34 in)}\] "1"
   • Clutch boss "2"

3. Install:
   • Lock washer "1" New
   • Nut (clutch boss) "2"

**NOTE:**
Use the clutch holding tool "3" to hold the clutch boss.

| Nut (clutch boss): 80 Nm (8.0 m•kg, 58 ft•lb) |

**NOTE:**
Apply the lithium soap base grease on the bearing and washer.

4. Install:
   • Friction plate "1"
   • Clutch plate "2"

| Clutch holding tool: YM-91042/90890-04086 |

5. Install:
   • Friction plate "1"
   • Clutch plate "2"

**NOTE:**
1. Install the clutch plates and friction plates alternately on the clutch boss, starting with a friction plate and ending with a friction plate.
2. Apply the transmission oil on the friction plates and clutch plates.

6. Install:
   • Bearing "1"
   • Washer "2"
   • Circlip "3" New
   To push rod 1 "4".

**NOTE:**
Apply the transmission oil on the push rod 1, 2 and ball.

7. Install:
   • Push rod 2 "1"
   • Ball "2"
   • Push rod 1 "3"

**NOTE:**
Apply the transmission oil on the push rod 1, 2 and ball.

8. Install:
   • Pressure plate "1"

9. Install:
   • Clutch spring "1"
   • Bolt (clutch spring) "2"

**NOTE:**
Tighten the bolts in stage, using a crisscross pattern.

10. Install:
    • Dowel pin "1"
    • Gasket (clutch cover) "2" New

**NOTE:**
Tighten the bolts in stage, using a crisscross pattern.

11. Install:
    • Clutch cover "1"
    • Bolt (clutch cover)

**NOTE:**
Apply the lithium soap base grease on the O-ring.

| Bolt (clutch cover): 10 Nm (1.0 m•kg, 7.2 ft•lb) |

12. Install:
    • O-ring "1" New
    • Clutch cable "2"

**NOTE:**
Apply the lithium soap base grease on the O-ring.

| Bolt (clutch spring): 10 Nm (1.0 m•kg, 7.2 ft•lb) |

**NOTE:**
Tighten the bolts in stage, using a crisscross pattern.
## KICK SHAFT AND SHIFT SHAFT

### REMOVING THE PRIMARY DRIVE GEAR

**Order Part name Q'ty Remarks**

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain the transmission oil.</td>
<td>1 Kickstarter crank</td>
<td>1</td>
<td>Refer to &quot;CHANGING THE TRANSMISSION OIL&quot; section in the CHAPTER 3.</td>
</tr>
<tr>
<td>Clutch cable</td>
<td>Disconnect at engine side.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolt (brake pedal)</td>
<td>Shift the brake pedal downward.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiator hose 4</td>
<td>Disconnect at water pump side.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolt (push rod)</td>
<td>Refer to &quot;CYLINDER HEAD, CYLINDER AND PISTON&quot; section.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Kickstarter crank</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Crankcase cover (right)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bolt (Primary drive gear)</td>
<td>1</td>
<td>Only loosening. Refer to removal section.</td>
</tr>
<tr>
<td>4</td>
<td>Primary driven gear</td>
<td>1</td>
<td>Refer to &quot;CLUTCH&quot; section.</td>
</tr>
<tr>
<td>5</td>
<td>Primary drive gear</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
## REMOVING THE KICK SHAFT AND SHIFT SHAFT

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kick idle gear</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>kick shaft assembly</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>3</td>
<td>Shift pedal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Shift shaft</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Roller</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Shift guide</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>7</td>
<td>Shift lever assembly</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>8</td>
<td>Stopper lever</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
REMOVING THE PRIMARY DRIVE GEAR
1. Loosen:
   • Bolt (primary drive gear) "1"

   **NOTE:**
   Place an aluminum plate "a" between the teeth of the primary drive gear "2" and driven gear "3".

REMOVING THE KICK SHAFT ASSEMBLY
1. Remove:
   • Kick shaft assembly "1"

   **NOTE:**
   Unhook the torsion spring "2" from the hole "a" in the crankcase.

REMOVING THE SHIFT GUIDE AND SHIFT LEVER ASSEMBLY
1. Remove:
   • Bolt (shift guide)
   • Shift guide "1"
   • Shift lever assembly "2"

   **NOTE:**
   The shift lever assembly is disassembled at the same time as the shift guide.

CHECKING THE KICK SHAFT AND KICK GEAR
1. Check:
   • Kick gear smooth movement
     Unsmooth movement → Replace.
   2. Inspect:
      • Kick shaft "1"
      Wear/damage → Replace.

CHECKING THE KICK GEAR AND KICK IDLE GEAR
1. Inspect:
   • Kick gear "1"
   • Kick idle gear "2"
   • Gear teeth "a"
     Wear/damage → Replace.

CHECKING THE KICK GEAR CLIP
1. Measure:
   • Kick clip friction force
     Out of specification → Replace.
     Use a spring gauge "1".

   **Kick clip friction force:**
   0.8–1.2 kg (1.8–2.6 lb)

CHECKING THE KICK SHAFT
1. Inspect:
   • Shift shaft "1"
     Bend/damage → Replace.
   • Spring "2"
     Broken → Replace.

CHECKING THE PRIMARY DRIVE GEAR AND PRIMARY DRIVEN GEAR
1. Inspect:
   • Primary drive gear "1"
   • Primary driven gear "2"
     Wear/Damage → Replace.

INSTALLING THE STOPPER LEVER
1. Install:
   • Torsion spring "1"
   • Stopper lever "2"
   • Bolt (stopper lever) "3"

   **Bolt (stopper lever):**
   10 Nm (1.0 m•kg, 7.2 ft•lb)

   **NOTE:**
   • Align the stopper lever roller with the slot on segment.
   • When installing the stopper lever, make sure that the torsion spring is in the position as shown.

CHECKING THE STOPPER LEVER
1. Inspect:
   • Stopper lever "1"
     Wear/damage → Replace.
   • Roller "2"
     Rough outer race with a finger.
     Rough spot/Seizure → Replace the stopper lever.
     • Torsion spring "3"
     Broken → Replace.
INSTALLING THE SHIFT GUIDE AND SHIFT LEVER ASSEMBLY

1. Install:
   • Spring "1"  
   • Pawl pin "2"  
   • Pawl "3"  
   To shift lever "4".

2. Install:
   • Shift lever assembly "1"  
   To shift guide "2".

3. Install:
   • Shift lever assembly "1"  
   • Shift guide "2"  
   The shift lever assembly is installed at the same time as the shift guide.  
   • Apply the transmission oil on the bolt (segment) shaft.

INSTALLING THE SHIFT SHAFT

1. Install:
   • Roller "1"  
   • Shift shaft "2"  

NOTE:
Apply the transmission oil on the roller and shift shaft.

2. Install:
   • Bolt (shift guide) "1"  

Bolt (shift guide):
10 Nm (1.0 m•kg, 7.2 ft•lb)

3. Install:
   • Kick shaft assembly "1"  

NOTE:
• Apply the transmission oil on the kick shaft.  
• Slide the kick shaft assembly into the crankcase, make sure the clip "2" and kick shaft stopper "a" fit into their home position "b", "c".

4. Hook:
   • Torsion spring "1"  

NOTE:
Turn the torsion spring clockwise and hook into the proper hole "a" in the crankcase.

INSTALLING THE KICK SHAFT ASSEMBLY

1. Install:
   • Kick gear "1"  
   • Washer "2"  
   • Torsion spring "3"  
   To kick shaft "4".

NOTE:
Make sure the stopper "a" of the torsion spring fits into the hole "b" on the kick shaft.

2. Install:
   • Spring guide "1"  

NOTE:
Slide the spring guide into the kick shaft, make sure the groove "a" in the spring guide fits on the stopper of the torsion spring.

INSTALLING THE KICK IDLE GEAR

1. Install:
   • Kick idle gear "1"  
   • Washer "2"  
   • Circlip "3" New  

NOTE:
Apply the transmission oil on the kick idle gear inner circumference.
INSTALLING THE PRIMARY DRIVE GEAR

1. Install:
   • Spacer "1"
   • Primary drive gear "2"
   • Bolt "3"

NOTE: Install the primary drive gear with its depressed side toward you.

2. Install:
   • Primary driven gear
   Refer to “CLUTCH” section.

3. Tighten:
   • Bolt (primary drive gear) "1"

   Bolt (primary drive gear): 48 Nm (4.8 m•kg, 35 ft•lb)

NOTE: Place an aluminum plate "a" between the teeth of the primary drive gear and driven gear.

4. Install:
   • Dowel pin "1"
   • Gasket [crankcase cover (right)] "2"

5. Install:
   • Crankcase cover (right) "1"

NOTE: Mesh the governor gear "2", and impeller shaft gear "3" with primary drive gear "4".

6. Install:
   • Bolt [crankcase cover (right)] "1"

   Bolt [crankcase cover (right)]:
   10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE: Tighten the bolts in stage, using a crisscross pattern.

7. Install:
   • Kick starter "1"
   • Plain washer "2"
   • Bolt (kick starter) "3"

   Bolt (kick starter) :
   10 Nm (1.0 m•kg, 7.2 ft•lb)

NOTE: Install the kick starter closest to but not contacting the pillar tube "4".

8. Install:
   • Shift pedal "1"
   • Bolt (shift pedal) "2"

   Bolt (shift pedal) :
   12 Nm (1.2 m•kg, 8.7 ft•lb)

NOTE: Align the upper line "a" of the shift pedal with the center "b" of the crankcase projection and rotate the shift pedal counterclockwise until it first engages. Then install the shift pedal.
## YPVS GOVERNOR

### REMOVING THE YPVS GOVERNOR

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Right crankcase cover</td>
<td></td>
<td>Refer to &quot;KICK SHAFT AND SHIFT SHAFT&quot; section.</td>
</tr>
<tr>
<td>1</td>
<td>Governor assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Dowel pin</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>3</td>
<td>Retainer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Ball</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Retainer weight</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Plain washer</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Thrust bearing</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Collar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Plate</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Compression spring</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Governor gear</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Governor shaft</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
REMOVING THE GOVERNOR
1. Remove:
• Dowel pin "1"

NOTE: While compressing the spring, re-
move the dowel pin.

CHECKING THE GOVERNOR
GROOVE
1. Inspect:
• Washer "1"
• Collar "2"
  Wear/Damage → Replace.

CHECKING THE BEARING
1. Inspect:
• Thrust bearing "1"
• Washer "2"
  Wear/Damage → Replace.

INSTALLING THE GOVERNOR
1. Install:
• Governor gear "1"
• Compression spring "2"
• Plate "3"
• Washer "4"
• Thrust bearing "5"
• Collar "6"
• Retainer weight "7"
  To governor shaft "8".

NOTE: Apply the lithium soap base grease
on the thrust bearing.

2. Install:
• Ball "1"
• Retainer "2"
  To governor shaft "3".

NOTE: Apply the transmission oil on the re-
tainer and ball.

3. Install:
• Dowel pin "1"

NOTE: While compressing the spring, in-
stall the dowel pin.
• Make sure the dowel pin fits into the
groove "a" in the retainer.

4. Install:
• Governor assembly "1"

NOTE: Align the groove "a" in the governor
with the fork "b" and set the governor in
the crankcase cover.
## WATER PUMP
### DISASSEMBLING THE WATER PUMP

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crankcase cover (right)</td>
<td></td>
<td>Refer to &quot;KICK SHAFT AND SHIFT SHAFT&quot; section.</td>
</tr>
<tr>
<td>1</td>
<td>Water pump housing cover</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Impeller shaft gear</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Dowel pin</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Plain washer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Impeller shaft assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Bearing</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>7</td>
<td>Oil seal</td>
<td>2</td>
<td>Refer to removal section.</td>
</tr>
</tbody>
</table>

10 Nm (1.0 m·kg, 7.2 ft·lb)
WATER PUMP

REMOVING THE OIL SEAL

**NOTE:**
- Replace the oil seal when transmission oil or coolant leaks out from the water pump housing hole at the bottom.
- Do not reuse the removed bearing and oil seal.

1. Remove:
   - Bearing "1"

2. Remove:
   - Oil seal (outside) "1"
   - Oil seal (inside) "2"

CHECKING THE IMPELLER SHAFT

1. Inspect:
   - Impeller shaft "1"
     - Bend/wear/damage → Replace.
     - Fur deposits → Clean.

CHECKING THE IMPELLER SHAFT GEAR

1. Inspect:
   - Gear teeth "a"
     - Wear/damage → Replace.

CHECKING THE BEARING

1. Inspect:
   - Bearing
     - Rotate inner race with a finger.
     - Rough spot/seizure → Replace.

INSTALLING THE OIL SEAL

1. Install:
   - Oil seal (inside) "1" New
   - Oil seal (outside) "2" New

**NOTE:**
- Apply the lithium soap base grease on the oil seal lip.
- Install the oil seal with its manufacture's marks or numbers facing the right crankcase cover "3".

2. Install:
   - Bearing "1"

**NOTE:**
Install the impeller shaft gear with the dowel pin fitted in the groove "a" in the same gear.

3. Install:
   - Dowel pin "1"
   - Gasket (water pump housing cover) "2" New

4. Install:
   - Water pump housing cover "1"
   - Bolt (water pump housing cover) "2"

**Bolt (water pump housing cover):**
- 10 Nm (1.0 m•kg, 7.2 ft•lb)

**Copper washer (coolant drain bolt) "3" New**
**Coolant drain bolt "4"**

- 10 Nm (1.0 m•kg, 7.2 ft•lb)
CDI MAGNETO REMOVING THE CDI MAGNETO

Order | Part name | Q'ty | Remarks
--- | --- | --- | ---
1 | Seat and fuel tank | | Refer to “SEAT, FUEL TANK AND SIDE COVERS” section.
2 | Bolt (Radiator) | | Refer to “RADIATOR” section.
3 | Disconnect the CDI magneto lead. | | 
4 | Left crankcase cover | 1 | 
5 | Nut (rotor) | 1 | Refer to removal section.
6 | Rotor | 1 | Refer to removal section.
7 | Stator | 1 | 
8 | Woodruff key | 1 |
**REMOVING THE ROTOR**

1. Remove:
   - Nut (rotor) "1"
   - Washer "2"
     Use the rotor holding tool "3".

2. Remove:
   - Rotor "1"
     Use the flywheel puller "2".

**CHECKING THE CDI MAGNETO**

1. Inspect:
   - Rotor inner surface "a"
   - Stator outer surface "b"
     Damage → Inspect the crankshaft runout and crankshaft bearing. If necessary, replace CDI magneto and/or stator.

2. Install:
   - Woodruff key "1"
   - Rotor "2"

   **NOTE:**
   - Clean the tapered portions of the crankshaft and rotor.
   - When installing the woodruff key, make sure that its flat surface "a" is in parallel with the crankshaft center line "b".
   - When installing the rotor, align the keyway "c" of the rotor with the woodruff key.

**CHECKING THE WOODRUFF KEY**

1. Inspect:
   - Woodruff key "1"
     Damage → Replace.

2. Adjust:
   - Ignition timing
     Refer to "CHECKING THE IGNITION TIMING" section in the

---

**INSTALLING THE CDI MAGNETO**

1. Install:
   - Stator "1"
   - Screw (stator) "2"

   **NOTE:**
   - Temporarily tighten the screw (stator) at this point.

2. Install:
   - Woodruff key "1"
   - Rotor "2"

   **NOTE:**
   - Clean the tapered portions of the crankshaft and rotor.
   - When installing the woodruff key, make sure that its flat surface "a" is in parallel with the crankshaft center line "b".
   - When installing the rotor, align the keyway "c" of the rotor with the woodruff key.

3. Install:
   - Washer "1"
   - Nut (rotor) "2"
     Use the rotor holding tool "3".

4. Adjust:
   - Ignition timing
     Refer to "CHECKING THE IGNITION TIMING" section in the

---

**CHAPTER 3.**

**Ignition timing (B.T.D.C):**
0.48 mm (0.019 in)

5. Tighten:
   - Screw (stator) "1"
   - Screw (stator):
     7 Nm (0.7 m·kg, 5.1 ft·lb)

6. Check:
   - Ignition timing
     Re-check the ignition timing.

7. Connect:
   - CDI magneto lead "1"
     Refer to "CABLE ROUTING DIAGRAM" section in the CHAPTER 2.

8. Install:
   - Gasket [crankcase cover (left)]
     New
   - Crankcase cover (left) "1"
   - Screw [crankcase cover (left)] "2"

   **NOTE:**
   - Tighten the screws in stage, using a crisscross pattern.

---

**Rotor holding tool:**
YU-1235/90890-01235

**Flywheel puller:**
YM-1189/90890-01189

**Nut (rotor):**
56 Nm (5.6 m·kg, 40 ft·lb)

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

**Screw [crankcase cover (left)]:**
5 Nm (0.5 m·kg, 3.6 ft·lb)
ENGINE REMOVAL

REMOVING THE ENGINE

Order | Part name | Q'ty | Remarks
--- | --- | --- | ---
Hold the machine by placing the suitable stand under the engine. | | | Refer to "HANDLING NOTE".
Seat and fuel tank | | | Refer to "SEAT, FUEL TANK AND SIDE COVERS" section.
Carburetor | | | Refer to "CARBURETOR AND REED VALVE" section.
Exhaust pipe and silencer | | | Refer to "EXHAUST PIPE AND SILENCER" section.
Clutch cable | | | Disconnect at the engine side.
Radiator | | | Refer to "RADIATOR" section.
Spark plug cap | | | Disconnect the CDI magneto lead.
1 Drive chain sprocket cover | 1 | | Refer to removal section.
2 Nut (drive sprocket) | 1 | | Refer to removal section.
3 Lock washer | 1 | | Refer to removal section.
4 Drive sprocket | 1 | | Refer to removal section.
5 Clip | 1 | | Refer to removal section.
6 Bolt (brake pedal) | 1 | |
<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q’ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Brake pedal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Engine bracket</td>
<td>2</td>
<td></td>
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<tr>
<td>9</td>
<td>Engine mounting bolt</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Pivot shaft</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>11</td>
<td>Engine</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
</tbody>
</table>
ENGINE REMOVAL

HANDLING NOTE

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

**REMOVING THE DRIVE SPROCKET**

1. Remove:
   - Nut (drive sprocket) "1"
   - Lock washer "2"

**NOTE:**
- Straighten the lock washer tab.
- Loosen the nut while applying the rear brake.

2. Remove:
   - Drive sprocket "1"
   - Drive chain "2"

**NOTE:**
Remove the drive sprocket together with the drive chain.

**REMOVING THE ENGINE**

1. Remove:
   - Pivot shaft "1"

**NOTE:**
If the pivot shaft is pulled all the way out, the swingarm will come loose. If possible, insert a shaft of similar diameter into the other side of the swingarm to support it.

2. Remove:
   - Engine "1"
      From right side.

**NOTE:**
Make sure that the couplers, hoses and cables are disconnected.

**INSTALLING THE ENGINE**

1. Install:
   - Engine "1"
     Install the engine from right side.
   - Pivot shaft "2"

   **Pivot shaft:**
   - 85 Nm (8.5 m•kg, 61 ft•lb)

   **Engine mounting bolt (lower) "3"**
   - 64 Nm (6.4 m•kg, 46 ft•lb)

   **Engine mounting bolt (front) "4"**
   - 64 Nm (6.4 m•kg, 46 ft•lb)

   **Engine bracket "5"**
   - Bolt (engine bracket) "6"

   **Bolt (engine bracket):**
   - 34 Nm (3.4 m•kg, 24 ft•lb)

   **Engine mounting bolt (upper) "7"**
   - 34 Nm (3.4 m•kg, 24 ft•lb)

**INSTALLING THE BRAKE PEDAL**

1. Install:
   - Spring "1"
   - Brake pedal "2"
   - O-ring "3" New
   - Bolt (brake pedal) "4"

   **Bolt (brake pedal):**
   - 26 Nm (2.6 m•kg, 19 ft•lb)

   **Clip "5"**

**NOTE:**
Apply the lithium soap base grease on the bolt, O-rings and brake pedal bracket.

**INSTALLING THE DRIVE SPROCKET**

1. Install:
   - Drive sprocket "1"
   - Drive chain "2"

**NOTE:**
Install the drive sprocket together with the drive chain.

2. Install:
   - Lock washer "1" New
   - Nut (drive sprocket) "2"

**Nut (drive sprocket):**
- 75 Nm (7.5 m•kg, 54 ft•lb)

**NOTE:**
Tighten the nut while applying the rear brake.

3. Bend the lock washer tab to lock the nut.

4. Install:
   - Drive chain sprocket guide "1"
   - Drive chain sprocket cover "2"
• Screw (drive chain sprocket cover) "3"

**Screw (drive chain sprocket cover):**
5 Nm (0.5 m•kg, 3.6 ft•lb)
### CRANKCASE AND CRANKSHAFT

#### REMOVING THE CRANKSHAFT

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q’ty</th>
<th>Remarks</th>
</tr>
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<tr>
<td>Engine</td>
<td>Refer to &quot;ENGINE REMOVAL&quot; section.</td>
<td></td>
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<tr>
<td>Piston</td>
<td>Refer to &quot;CYLINDER HEAD, CYLINDER AND PISTON&quot; section.</td>
<td></td>
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<tr>
<td>Primary drive gear</td>
<td>Refer to &quot;KICK SHAFT AND SHIFT SHAFT&quot; section.</td>
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<td></td>
</tr>
<tr>
<td>Kick idle gear</td>
<td>Refer to &quot;KICK SHAFT AND SHIFT SHAFT&quot; section.</td>
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<td></td>
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<tr>
<td>Stopper lever</td>
<td>Refer to &quot;KICK SHAFT AND SHIFT SHAFT&quot; section.</td>
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<td></td>
</tr>
<tr>
<td>Rotor and stator</td>
<td>Refer to &quot;CDI MAGNETO&quot; section.</td>
<td></td>
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<tr>
<td>1</td>
<td>Segment</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>2</td>
<td>Bolt [L=45 mm (1.77 in)]</td>
<td>6</td>
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<tr>
<td>3</td>
<td>Bolt [L=55 mm (2.17 in)]</td>
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<tr>
<td>4</td>
<td>Bolt [L=65 mm (2.56 in)]</td>
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</tr>
<tr>
<td>5</td>
<td>Bolt [L=75 mm (2.95 in)]</td>
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<td></td>
</tr>
<tr>
<td>6</td>
<td>Holder</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Crankcase (right)</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>8</td>
<td>Crankcase (left)</td>
<td>1</td>
<td>Refer to removal section.</td>
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CRANKCASE AND CRANKSHAFT

<table>
<thead>
<tr>
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<th>Part name</th>
<th>Q'ty</th>
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</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Crankshaft</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>10</td>
<td>Oil seal</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Bearing</td>
<td>2</td>
<td>Refer to removal section.</td>
</tr>
</tbody>
</table>

30 Nm (3.0 m · kg, 22 ft · lb) 10 Nm (1.0 m · kg, 7.2 ft · lb) 14 Nm (1.4 m · kg, 10 ft · lb)

20 Nm (2.0 m · kg, 14 ft · lb)
REMOVING THE SEGMENT
1. Remove:
   - Bolt (segment) "1"
   - Segment "2"

NOTE:
Turn the segment counterclockwise until it stops and loosen the bolt.

CAUTION:
If the segment gets an impact, it may be damaged. Take care not to give an impact to the segment when removing the bolt.

DISASSEMBLING THE CRANKCASE
1. Remove:
   - Crankcase (right) "1"
   - Use the flywheel puller "2".
   - Make appropriate bolts "3" as shown available by yourself and attach the tool with them.
   - 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.
   - As pressure is applied, alternately tap on the engine mounting boss and transmission shafts.

NOTE:
- Make appropriate bolts "3" as shown available by yourself and attach the tool with them.
- Flywheel puller: YU-1362-A/90890-01362

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

CHECKING THE CRANKCASE
1. Measure:
   - Runout limit "a"
   - Small end free play limit "b"
   - Connecting rod big end side clearance "c"
   - Crank width "d"
   Out of specification → Replace. Use the dial gauge and a thickness gauge.

CHECKING THE CRANKSHAFT
1. Inspect:
   - Contacting surface "a"
   - Cratches → Replace.
   - Engine mounting boss "b", crankcase
   - Cracks/damage → Replace.

   2. Inspect:
      - Bearing "1"
      - Rotate inner race with a finger.
      - Rough spot/seizure → Replace.

   3. Inspect:
      - Oil seal "1"
      - Damage → Replace.

REMOVING THE CRANKCASE BEARING
1. Remove:
   - Bearing "1"

NOTE:
- Remove the bearing from the crankcase by pressing its inner race as shown in "A".
- If the bearing is removed together with the crankshaft, remove the bearing using a general bearing puller "2" as shown in "B".
- Do not use the removed bearing.

REMOVING THE CRANKSHAFT
1. Remove:
   - Crankshaft "1"
   - Use the crankcase separating tool "2".

NOTE:
Make appropriate bolts "3" as shown available by yourself and attach the tool with them.

CAUTION:
Do not use a hammer to drive out the crankshaft.

CRANKCASE separating tool:
YU-1135-A/90890-01135

Flywheel puller slotted:
YU-1362-A/90890-01362

Dial gauge and stand:
YU-3097/90890-01252
CRANKCASE AND CRANKSHAFT

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>&lt;Limit&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Runout limit:</td>
<td>0.03 mm</td>
<td>0.05 mm</td>
</tr>
<tr>
<td>Small end free play:</td>
<td>0.8–1.0 mm</td>
<td>2.0 mm</td>
</tr>
<tr>
<td>Side clearance:</td>
<td>0.06–0.64 mm</td>
<td>—</td>
</tr>
<tr>
<td>Crack width:</td>
<td>55.90–55.95 mm</td>
<td>—</td>
</tr>
</tbody>
</table>

INSTALLING THE CRANKCASE BEARING
1. Install:
   • Bearing “1” New
   To left and right crankcase.

NOTE: Install the bearing by pressing its outer race parallel.

INSTALLING THE OIL SEAL
1. Install:
   • Oil seal (left) “1” New
   • Oil seal (right) “2” New

NOTE: Apply the lithium soap base grease on the oil seal lip.
Install the oil seal with its manufacture’s marks or numbers facing outward.

INSTALLING THE CRANKCASE
1. Install:
   • Crankshaft “1”
   Use the crankshaft installing tool “2”, “3”, “4”.

NOTE:
• Hold the connecting rod at top dead center with one hand while turning the nut of the installing tool with the other. Operate the installing tool until the crankshaft bottoms against the bearing.
• Before installing the crankshaft, clean the contacting surface of crankcase.
• Apply molybdenum disulfide grease to the surface “a” where the crankshaft and bearing come in contact.
• Apply the lithium soap base grease on the oil seal lip.

CAUTION: Do not use a hammer to drive in the crankshaft.

3. Apply:
   • Sealant
   On the right crankcase “1”.

NOTE:
Clean the contacting surface of left and right crankcase before applying the sealant.

4. Install:
   • Dowel pin “1” New
   • O-ring “2” New

5. Install:
   • Right crankcase “1”
   Use the crankshaft installing tool “2”, “3”, “4”.

NOTE:
• Apply molybdenum disulfide grease to the surface “a” where the crankshaft and bearing come in contact.
• Use two plain washers (Yamaha genuine: 90201-243K3) “5” or the ones of a size as shown one on the other. (Except for USA and CDN)
• Install so that the plain washers do not deviate from the crankshaft cen-
CRANKCASE AND CRANKSHAFT

4-43

ter. (Except for USA and CDN)

• When installing the crankcase, the connecting rod should be positioned at TDC (top dead center).
• Install while checking that the dowel pin is in place.

6. Install:
• Clamp "1"
• Bolt (crankcase) "2"

Tighten the crankcase tightening bolts in stage, using a crisscross pattern.

7. Install:
• Holder "1"
• Bolt (holder) "2"

Bolt (crankcase):
14 Nm (1.4 m•kg, 10 ft•lb)

NOTE:

Bolt (segment):
30 Nm (3.0 m•kg, 22 ft•lb)

NOTE:

When installing the segment onto the shift cam "3", align the punch mark "a" with the dowel pin "b".
• Turn the segment clockwise until it stops and tighten the bolt.

CAUTION:

If the segment gets an impact, it may be damaged. Take care not to give an impact to the segment when tightening the bolt.

8. Install:
• Segment "1"
• Bolt (segment) "2"

9. Remove:
• Sealant
  Forced out on the cylinder mating surface.

10. Apply:
• Engine oil
  To the crank pin, bearing, oil delivery hole and connecting rod big end washer.

11. Check:
• Crankshaft and transmission operation.
  Unsmooth operation → Repair.

NOTE:

If the crankshaft will not turn smoothly, make an adjustment by gently tapping its right end with a soft hammer.
REMOVING THE TRANSMISSION, SHIFT CAM AND SHIFT FORK

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Engine</td>
<td></td>
<td>Refer to &quot;ENGINE REMOVAL&quot; section.</td>
</tr>
<tr>
<td></td>
<td>Separate the crankcase.</td>
<td></td>
<td>Refer to &quot;CRANKCASE AND CRANK-SHAFT&quot; section.</td>
</tr>
<tr>
<td>1</td>
<td>Guide bar (long)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Guide bar (short)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Shift cam</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Shift fork 3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Shift fork 1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Shift fork 2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Main axle</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>8</td>
<td>Drive axle</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>9</td>
<td>Collar</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
REMOVING THE TRANSMISSION
1. Remove:
   • Main axle “1”
   • Drive axle “2”

NOTE:
   • Tap lightly on the transmission drive axle with a soft hammer to remove.
   • Remove assembly carefully. Note the position of each part. Pay particular attention to the location and direction of shift forks.

CHECKING THE GEARS
1. Inspect:
   • Matching dog “a”
   • Gear teeth “b”
   • Shift fork groove “c”
   Wear/damage/scratches → Replace.

2. Check:
   • Gears movement
   Unsmooth movement → Repair or replace.

CHECKING THE BEARING
1. Inspect:
   • Bearing “1”
   Rotate inner race with a finger.
   Rough spot/seizure → Replace.

CHECKING THE SHIFT FORK, SHIFT CAM AND SEGMENT
1. Inspect:
   • Shift fork “1”

Wear/damage/scratches → Replace.

2. Inspect:
   • Shift cam “1”
   • Segment “2”
   • Guide bar “3”
   Wear/damage → Replace.

3. Check:
   • Shift fork movement
   On its guide bar.
   Unsmooth operation → Replace shift fork and/or guide bar.

NOTE:
   For a malfunctioning shift fork, replace not only the shift fork itself but the two gears each adjacent to the shift fork.

INSTALLING THE TRANSMISSION
1. Install:
   • 6th pinion gear (21T) “1”
   • 3rd/4th pinion gear (17T/17T) “2”
   • 5th pinion gear (20T) “3”
   • 2nd pinion gear (15T) “4”
   To main axle “5”.

   Apply the molybdenum disulfide oil on the inner and end surface of the idler gear and on the inner surface of the sliding gear, then install.

2. Install:
   • 2nd wheel gear (29T) “1”
   • 5th wheel gear (24T) “2”
   • 3rd wheel gear (27T) “3”
   • 4th wheel gear (23T) “4”
   • 6th wheel gear (23T) “5”
   • 1st wheel gear (31T) “6”
   To drive axle “7”.

NOTE:
   • Apply the molybdenum disulfide oil on the inner and end surface of the idler gear and on the inner surface of the sliding gear, then install.

   Apply the molybdenum disulfide grease on the inner surface of the 4th wheel gear, then install.

3. Install:
   • Washer “1”
   • Circlip “2” New

NOTE:
   • Be sure the circlip sharp-edged corner “a” is positioned opposite side to the washer and gear “b”.
   • Be sure the circlip end “c” is positioned at axle spline groove “d”.

New
TRANSMISSION, SHIFT CAM AND SHIFT FORK

4. Install:
• Collar "1"

NOTE:
• Apply the lithium soap base grease on the oil seal lip.
• When installing the collar into the crankcase, pay careful attention to the crankcase oil seal lip.

5. Install:
• Main axle "1"
• Drive axle "2"

NOTE:
Apply the transmission oil on the crankcase bearing.

INSTALLING THE SHIFT CAM AND SHIFT FORK

1. Install:
• Shift fork 1 (L) "1"
• Shift fork 2 (C) "2"
• Shift fork 3 (R) "3"

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

2. Install:
• Shift cam "1"

NOTE:
• Apply the transmission oil on the shift cam.
• Install the shift cam while holding up the 5th wheel gear "2" and keeping the shift fork #1 "3" moved in the direction of the arrow.

3. Install:
• Guide bar (short) "1"
• Guide bar (long) "2"

NOTE:
• Apply the transmission oil on the guide bars.
• Be sure the long bar is inserted into the shift forks #1 and #3 and the short one into #2.

4. Check:
• Shifter operation
• Transmission operation
Unsmooth operation → Repair.
CHASSIS
FRONT WHEEL AND REAR WHEEL
REMOVING THE FRONT WHEEL

Order | Part name | Q'ty | Remarks
--- | --- | --- | ---
1 | Hold the machine by placing the suitable stand under the engine. | 4 | Refer to “HANDLING NOTE”.
2 | Bolt (axle holder) | 4 | Only loosening.
3 | Nut (front wheel axle) | 1 |
4 | Front wheel axle | 1 |
5 | Front wheel | 1 |
6 | Collar | 2 |
7 | Oil seal | 2 |
8 | Bearing | 2 | Refer to removal section.
9 | Brake disc | 1 |
# FRONT WHEEL AND REAR WHEEL

## REMOVING THE REAR WHEEL

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hold the machine by placing the suitable stand under the engine.</td>
<td></td>
<td>Refer to “HANDLING NOTE”.</td>
</tr>
<tr>
<td>1</td>
<td>Nut (rear wheel axle)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Rear wheel axle</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Drive chain puller</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Rear wheel</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>5</td>
<td>Collar</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Rear wheel sprocket</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Oil seal</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Circlip</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Bearing</td>
<td>2</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>10</td>
<td>Brake disc</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
FRONT WHEEL AND REAR WHEEL

HANDLING NOTE

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

REMOVING THE REAR WHEEL
1. Remove:
   • Wheel "1"

**NOTE:**
Push the wheel forward and remove the drive chain "2".

REMOVING THE WHEEL BEARING
1. Remove:
   • Bearing "1"

**NOTE:**
Remove the bearing using a general bearing puller "2".

CHECKING THE WHEEL
1. Measure:
   • Wheel runout
     Out of limit → Repair/replace.

   **Wheel runout limit:**
   - Radial "1": 2.0 mm (0.08 in)
   - Lateral "2": 2.0 mm (0.08 in)

2. Inspect:
   • Bearing
     Rotate inner race with a finger.
     Rough spot/seizure → Replace.

**NOTE:**
Replace the bearings, oil seal and wheel collar as a set.

CHECKING THE WHEEL AXLE
1. Measure:
   • Wheel axle bends
     Out of specification → Replace.
     Use the dial gauge "1".

   **Wheel axle bending limit:**
   0.5 mm (0.020 in)

**NOTE:**
The bending value is shown by one half of the dial gauge reading.

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

CHECKING THE BRAKE DISC
1. Measure:
   • Brake disc deflection (only rear brake disc)
     Use the dial gauge "1".
     Out of specification → inspect wheel runout.
     If wheel runout is in good condition, replace the brake disc.

   **Brake disc deflection limit:**
   - Rear:
     <Limit>: 0.15 mm (0.006 in)

2. Measure:
   • Brake disc thickness "a"
     Out of limit → Replace.

   **Brake disc thickness:**
   - Front:
     3.0 mm (0.12 in)
     <Limit>: 2.5 mm (0.10 in)
   - Rear:
     4.0 mm (0.16 in)
     <Limit>: 3.5 mm (0.14 in)

INSTALLING THE FRONT WHEEL
1. Install:
   • Bearing (left) "1"
   • Spacer "2"
   • Bearing (right) "3"
   • Oil seal "4" New

**NOTE:**
- Apply the lithium soap base grease on the bearing and oil seal lip when installing.
- Use a socket that matches the outside diameter of the race of the bearing.
- Left side of bearing shall be installed first.
- Install the oil seal with its manufacturer’s marks or numbers facing outward.

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

2. Install:
   • Brake disc "1"
FRONT WHEEL AND REAR WHEEL

- Bolt (brake disc) "2"

**Bolt (brake disc):**
12 Nm (1.2 m•kg, 8.7 ft•lb)

**NOTE:**
Tighten the bolts in stage, using a crisscross pattern.

3. Install:
- Collar "1"

**NOTE:**
- Apply the lithium soap base grease on the oil seal lip.
- Install the collars with their projections "a" facing the wheel.

4. Install:
- Wheel
Install the brake disc "1" between the brake pads "2" correctly.

5. Install:
- Wheel axle "1"

**NOTE:**
Apply the lithium soap base grease on the wheel axle.

6. Install:
- Nut (wheel axle) "1"

**Nut (wheel axle):**
105 Nm (10.5 m•kg, 75 ft•lb)

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

7. Tighten:
- Bolt (axle holder) "1"

**Bolt (axle holder):**
21 Nm (2.1 m•kg, 15 ft•lb)

**NOTE:**
Before tightening the bolt, fit the wheel axle to the axle holder by stroking the front fork several times with the front brake applied.

INSTALLING THE REAR WHEEL

1. Install:
- Bearing (right) "1"
- Circlip "2" New
- Spacer "3"
- Bearing (left) "4"
- Oil seal "5" New

**NOTE:**
- Apply the lithium soap base grease on the bearing and oil seal lip when installing.
- Install the bearing with seal facing outward.
- Use a socket that matches the outside diameter of the race of the bearing.
- Right side of bearing shall be installed first.
- Install the oil seal with its manufacture's marks or numbers facing outward.

2. Install:
- Brake disc "1"
- Bolt (brake disc) "2"

**Bolt (brake disc):**
14 Nm (1.4 m•kg, 10 ft•lb)

**NOTE:**
Tighten the bolts in stage, using a crisscross pattern.

3. Install:
- Rear wheel sprocket "1"
- Bolt (rear wheel sprocket) "2"
- Washer (rear wheel sprocket) "3"
- Nut (rear wheel sprocket) "4"

**Nut (rear wheel sprocket):**
42 Nm (4.2 m•kg, 30 ft•lb)

**NOTE:**
Tighten the nuts in stage, using a crisscross pattern.
4. Install:
   • Collar "1"

**NOTE:**
Apply the lithium soap base grease on the oil seal lip.

5. Install:
   • Wheel

**NOTE:**
Install the brake disc "1" between the brake pads "2" correctly.

6. Install:
   • Drive chain "1"

**NOTE:**
Push the wheel "2" forward and install the drive chain.

7. Install:
   • Left drive chain puller "1"
   • Wheel axle "2"

**NOTE:**
• Install the left drive chain puller, and insert the wheel axle from left side.
• Apply the lithium soap base grease on the wheel axle.

8. Install:
   • Right drive chain puller "1"
   • Washer "2"
   • Nut (wheel axle) "3"

**NOTE:**
Temporarily tighten the nut (wheel axle) at this point.

9. Adjust:
   • Drive chain slack "a"

**Drive chain slack:**
48–58 mm (1.9–2.3 in)

Refer to "ADJUSTING THE DRIVE CHAIN SLACK" section in the CHAPTER 3.

10. Tighten:
    • Nut (wheel axle) "1"

**Nut (wheel axle):**
125 Nm (12.5 m•kg, 90 ft•lb)

• Locknut "2"

**Locknut:**
19 Nm (1.9 m•kg, 13 ft•lb)
FRONT BRAKE AND REAR BRAKE

REMOVING THE FRONT BRAKE

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hold the machine by placing the suitable stand under the engine.</td>
<td></td>
<td>Refer to &quot;HANDLING NOTE&quot;.</td>
</tr>
<tr>
<td></td>
<td>Drain the brake fluid.</td>
<td></td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>1</td>
<td>Brake hose holder (protector)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Union bolt</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Brake hose</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Pad pin plug</td>
<td>1</td>
<td>Remove when loosening the pad pin.</td>
</tr>
<tr>
<td>5</td>
<td>Pad pin</td>
<td>1</td>
<td>Loosen when disassembling the brake caliper.</td>
</tr>
<tr>
<td>6</td>
<td>Brake caliper</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Brake lever</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Brake master cylinder bracket</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Brake master cylinder</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### REMOVING THE REAR BRAKE

**Order** | **Part name** | **Qty** | **Remarks**
--- | --- | --- | ---
| Hold the machine by placing the suitable stand under the engine. |  |  | Refer to "HANDLING NOTE". |
| Rear wheel |  |  | Refer to "FRONT WHEEL AND REAR WHEEL" section. |
| Drain the brake fluid. |  |  | Refer to removal section. |
| 1 | Brake pedal | 1 |  |
| 2 | Brake master cylinder | 1 |  |
| 3 | Brake hose holder | 2 |  |
| 4 | Union bolt | 2 |  |
| 5 | Brake hose | 1 |  |
| 6 | Pad pin plug | 1 | Remove when loosening the pad pin. |
| 7 | Pad pin | 1 | Loosen when disassembling the brake caliper. |
| 8 | Brake caliper | 1 |  |
FRONT BRAKE AND REAR BRAKE

DISASSEMBLING THE BRAKE CALIPER

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A. Front</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B. Rear</td>
</tr>
<tr>
<td>1</td>
<td>Pad pin</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Brake pad</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Pad support</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Brake caliper piston</td>
<td>2</td>
<td>1 Refer to removal section.</td>
</tr>
<tr>
<td>5</td>
<td>Brake caliper piston dust seal</td>
<td>2</td>
<td>1 Refer to removal section.</td>
</tr>
<tr>
<td>6</td>
<td>Brake caliper piston seal</td>
<td>2</td>
<td>1 Refer to removal section.</td>
</tr>
</tbody>
</table>
FRONT BRAKE AND REAR BRAKE

DISASSEMBLING THE BRAKE MASTER CYLINDER

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brake master cylinder cap</td>
<td>1</td>
<td>A. Front</td>
</tr>
<tr>
<td>2</td>
<td>Diaphragm</td>
<td>1</td>
<td>B. Rear</td>
</tr>
<tr>
<td>3</td>
<td>Reservoir float</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Push rod (Front)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Brake master cylinder boot</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Circlip</td>
<td>1</td>
<td>Use a long nose circlip pliers.</td>
</tr>
<tr>
<td>7</td>
<td>Washer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Push rod (Rear)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Brake master cylinder kit</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

2 Nm (0.2 m · kg, 1.4 ft · lb)
FRONT BRAKE AND REAR BRAKE

HANDLING NOTE

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

DRAINING THE BRAKE FLUID
1. Remove:
   • Brake master cylinder cap "1"
   • Protector (rear brake)

   **NOTE:**
   Do not remove the diaphragm.

2. Connect the transparent hose "2" to the bleed screw "1" and place a suitable container under its end.

   **A. Front**
   **B. Rear**

3. Loosen the bleed screw and drain the brake fluid while pulling the lever in or pushing down on the pedal.

   **CAUTION:**
   • Do not reuse the drained brake fluid.
   • Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

REMOVING THE BRAKE CALIPER PISTON
1. Remove:
   • Brake caliper piston
   Use compressed air and proceed carefully.

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

   !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
   Caliper piston removal steps:
   a. Insert a piece of rag into the brake caliper to lock one brake caliper.
   b. Carefully force the piston out of the brake caliper cylinder with compressed air.

   **A. Front**
   **B. Rear**

REMOVING THE BRAKE CALIPER PISTON SEAL KIT
1. Remove:
   • Brake caliper piston dust seal "1"
   • Brake caliper piston seal "2"

   **NOTE:**
   Remove the brake caliper piston seals and brake caliper piston dust seals by pushing them with a finger.

   **CAUTION:**
   Never attempt to pry out brake caliper piston seals and brake caliper piston dust seals.

   **WARNING**
   Replace the brake caliper piston seals and brake caliper piston dust seals whenever a caliper is disassembled.

CHECKING THE BRAKE MASTER CYLINDER
1. Inspect:
   • Brake master cylinder inner surface "a"
   Wear/scratches → Replace master cylinder assembly.
   Stains → Clean.

   **WARNING**
   Use only new brake fluid.

   **A. Front**
   **B. Rear**

2. Inspect:
   • Diaphragm "1"
   Crack/damage → Replace.

   **A. Front**
   **B. Rear**

3. Inspect: (front brake only)
   • Reservoir float "1"
   Damage → Replace.

   **A. Front**
   **B. Rear**

4. Inspect:
   • Brake master cylinder piston "1"
   • Brake master cylinder cup "2"
   Wear/damage/score marks → Replace brake master cylinder kit.
CHECKING THE BRAKE CALIPER
1. Inspect:
   • Brake caliper cylinder inner surface "a"
     Wear/score marks → Replace brake caliper assembly.

2. Inspect:
   • Brake caliper piston "1"
     Wear/score marks → Replace brake caliper piston assembly.

> WARNING
Replace the brake caliper piston seals and brake caliper piston dust seals "2" whenever a caliper is disassembled.

CHECKING THE BRAKE HOSE
1. Inspect:
   • Brake hose "1"
     Crack/damage → Replace.

HANDLING NOTE
> WARNING
• All internal parts should be cleaned in new brake fluid only.
• Internal parts should be lubricated with brake fluid when installed.
• Replace the brake caliper piston seals and brake caliper piston dust seals whenever a caliper is disassembled.

INSTALLING THE BRAKE CALIPER PISTON
1. Clean:
   • Brake caliper
   • Brake caliper piston seal
   • Brake caliper piston dust seal
   • Brake caliper piston
   Clean them with brake fluid.
2. Install:
   • Brake caliper piston seal "1"
   • Brake caliper piston dust seal "2"

> WARNING
Always use new brake caliper piston seals and brake caliper piston dust seals.

NOTE:
• Apply the brake fluid on the brake caliper piston seal.
• Apply the silicone grease on the brake caliper piston dust seal.
• Fit the brake caliper piston seals and brake caliper piston dust seals onto the slot on brake caliper correctly.

INSTALLING THE FRONT BRAKE CALIPER
1. Install:
   • Pad support "1"
   • Brake pad "2"
   • Pad pin "3"
   • Install the brake pads with their projections "a" into the brake caliper recesses "b".
   • Temporarily tighten the pad pin at this point.

2. Install:
   • Brake caliper "1"
   • Bolt (brake caliper) "2"

3. Tighten:
   • Pad pin "3"

4. Install:
   • Pad pin plug "4"

Bolt (brake caliper):
28 Nm (2.8 m•kg, 20 ft•lb)

Pad pin:
18 Nm (1.8 m•kg, 13 ft•lb)

Pad pin plug:
3 Nm (0.3 m•kg, 2.2 ft•lb)
INSTALLING THE REAR BRAKE CALIPER
1. Install:
   • Pad support “1”
   • Brake pad “2”
   • Pad pin “3”

NOTE:
• Install the brake pads with their projections “a” into the brake caliper recesses “b”.
• Temporarily tighten the pad pin at this point.

2. Install:
   • Brake disc cover “1”
   • Bolt (brake disc cover) “2”

3. Install:
   • Brake caliper “1”
   • Rear wheel “2”
   Refer to “FRONT WHEEL AND REAR WHEEL” section.

4. Tighten:
   • Pad pin “3”

5. Install:
   • Pad pin plug “4”

INSTALLING THE BRAKE MASTER CYLINDER KIT
1. Clean:
   • Brake master cylinder
   • Brake master cylinder kit
   Clean them with brake fluid.

2. Install:
   • Brake master cylinder cup (primary) “1”
   • Brake master cylinder cup (secondary) “2”
   To brake master cylinder piston “3”.

NOTE:
Apply the brake fluid on the brake master cylinder cup.

**WARNING**
After installing, cylinder cup should be installed as shown direction. Wrong installation cause improper brake performance.

3. Install:
   • Spring “1”
   To brake master cylinder piston “2”.
   Install the spring at the smaller dia. side.

4. Install:
   • Brake master cylinder kit “1”
   • Washer (front brake) “2”
   • Push rod (rear brake) “2”
   • Circlip “3”
   • Brake master cylinder boot “4”
   • Push rod (front brake) “5”
   To brake master cylinder.

NOTE:
• Apply the brake fluid on the brake master cylinder kit.
• Apply the silicone grease on the tip of the push rod.
• When installing the circlip, use a long nose circlip pliers.

INSTALLING THE FRONT BRAKE MASTER CYLINDER
1. Install:
   • Brake master cylinder “1”
   • Brake master cylinder bracket “2”
   • Bolt (brake master cylinder bracket) “3”

   Bolt (brake master cylinder bracket):
   9 Nm (0.9 m•kg, 6.5 ft•lb)

NOTE:
• Install the bracket so that the arrow mark “a” face upward.
• First tighten the bolts on the upper side of the brake master cylinder bracket, and then tighten the bolts on the lower side.

2. Install:

Bolt (brake disc cover):
10 Nm (1.0 m•kg, 7.2 ft•lb)

Pad pin:
18 Nm (1.8 m•kg, 13 ft•lb)

Pad pin plug:
3 Nm (0.3 m•kg, 2.2 ft•lb)
FRONT BRAKE AND REAR BRAKE

• Brake lever "1"
• Bolt (brake lever) "2"

Bolt (brake lever): 6 Nm (0.6 m·kg, 4.3 ft·lb)  

• Nut (brake lever) "3"

Nut (brake lever): 6 Nm (0.6 m·kg, 4.3 ft·lb)  

NOTE: Apply the silicone grease on the brake lever sliding surface, bolt and tip of the push rod.

INSTALLING THE REAR BRAKE MASTER CYLINDER

1. Install:
   • Copper washer "1"  
   • Brake hose "2"  
   • Union bolt "3"

Union bolt: 30 Nm (3.0 m·kg, 22 ft·lb)  

WARNING  
Always use new copper washers.

CAUTION:  
Install the brake hose so that its pipe portion "a" directs as shown and lightly touches the projection "b" on the brake master cylinder.

3. Install:
   • Spring "1"  
   • Brake pedal "2"  
   • O-ring "3"  
   • Bolt (brake pedal) "4"

Bolt (brake pedal): 26 Nm (2.6 m·kg, 19 ft·lb)

• Clip "5"

NOTE: Apply the lithium soap base grease on the bolt, O-ring and brake pedal bracket.

4. Install:
   • Pin "1"  
   • Washer "2"  
   • Cotter pin "3"

NOTE: After installing, check the brake pedal height. Refer to "ADJUSTING THE REAR BRAKE" section in the CHAPTER 3.

INSTALLING THE FRONT BRAKE HOSE

2. Install:
   • Brake master cylinder "1"

3. Pass the brake hose through the cable guide "1".

4. Install:
   • Copper washer "1"  
   • Brake hose "2"

Bolt (brake master cylinder): 10 Nm (1.0 m·kg, 7.2 ft·lb)

WARNING  
Always use new copper washers.

CAUTION:  
Install the brake hose so that its pipe portion "a" directs as shown and lightly touches the projection "b" on the brake caliper.

Bolt (brake master cylinder): 30 Nm (3.0 m·kg, 22 ft·lb)

Bolt (brake pedal): 26 Nm (2.6 m·kg, 19 ft·lb)

Nut (brake hose holder): 7 Nm (0.7 m·kg, 5.1 ft·lb)

CAUTION:  
Align the top "a" of the brake hose holder with the paint "b" of the brake hose.

Bolt (brake lever): 6 Nm (0.6 m·kg, 4.3 ft·lb)

Bolt (brake master cylinder): 10 Nm (1.0 m·kg, 7.2 ft·lb)

Bolt (brake pedal): 26 Nm (2.6 m·kg, 19 ft·lb)

Bolt (brake master cylinder): 30 Nm (3.0 m·kg, 22 ft·lb)
INSTALLING THE REAR BRAKE HOSE

1. Install:
   - Copper washer "1*"
   - Brake hose "2*"
   - Union bolt "3"

2. Install:
   - Brake hose holder "1*"
   - Screw (brake hose holder) "2"
   - Union bolt "3"

   **WARNING**
   Always use new copper washers.

   **CAUTION:**
   Install the brake hose so that its pipe portion "a" directs as shown and lightly touches the projection "b" on the brake master cylinder.

FILLING THE BRAKE FLUID

1. Fill:
   - Brake fluid
   - Until the fluid level reaches "LOWER" level line "a".

   **WARNING**
   Use only the designated quality brake fluid: otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.

   - Refill with the same type of brake fluid; mixing fluids may result in a harmful chemical reaction and lead to poor performance.

   - Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.

   **CAUTION:**
   Brake fluid may erode painted surfaces or plastic parts. Always clean up spilled fluid immediately.

   **Recommended brake fluid:**
   DOT #4

   **Screw (brake hose holder):**
   2 Nm (0.2 m•kg, 1.4 ft•lb)

2. Air bleed:
   - Brake system
   - Refer to "BLEEDING THE HYDRAULIC BRAKE SYSTEM" section in the CHAPTER 3.

3. Inspect:
   - Brake fluid level
   - Fluid at lower level → Fill up.
   - Refer to "CHECKING THE BRAKE FLUID LEVEL" section in the CHAPTER 3.

4. Install:
   - Reservoir float (front brake)
   - Diaphragm
   - Brake master cylinder cap "1*"
   - Screw (brake master cylinder cap) "2"

   **Recommended brake fluid:**
   DOT #4

   **Screw (bolt) (brake master cylinder cap):**
   2 Nm (0.2 m•kg, 1.4 ft•lb)

   **CAUTION:**
   After installation, while pulling the brake lever in or pushing down on the brake pedal, check whether there is any brake fluid leaking where the union bolts are installed respectively at the brake master cylinder and brake caliper.
FRONT BRAKE AND REAR BRAKE

A. Front
B. Rear

5. Install: (rear brake only)
   • Protector "1"
   • Bolt (protector) "2"

Bolt (protector):
7 Nm (0.7 m•kg, 5.1 ft•lb)
# FRONT FORK

## REMOVING THE FRONT FORK

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hold the machine by placing the suitable stand under the engine.</td>
<td></td>
<td>Refer to &quot;HANDLING NOTE&quot;.</td>
</tr>
<tr>
<td></td>
<td>Front wheel</td>
<td></td>
<td>Refer to &quot;FRONT WHEEL AND REAR WHEEL&quot; section.</td>
</tr>
<tr>
<td></td>
<td>Front brake caliper</td>
<td></td>
<td>Refer to &quot;FRONT BRAKE AND REAR BRAKE&quot; section.</td>
</tr>
<tr>
<td></td>
<td>Number plate</td>
<td></td>
<td>Refer to &quot;SEAT, FUEL TANK AND SIDE COVERS&quot; section in the CHAPTER 4.</td>
</tr>
<tr>
<td>1</td>
<td>Protector</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pinch bolt (upper bracket)</td>
<td>2</td>
<td>Only loosening.</td>
</tr>
<tr>
<td>3</td>
<td>Damper assembly</td>
<td>1</td>
<td>Loosen when disassembling the front fork. Refer to removal section.</td>
</tr>
<tr>
<td>4</td>
<td>Pinch bolt (lower bracket)</td>
<td>2</td>
<td>Only loosening.</td>
</tr>
<tr>
<td>5</td>
<td>Front fork</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram of front fork](image)

- **1** Protector: 5 Nm (0.5 m·kg, 3.6 ft·lb)
- **2** Pinch bolt (upper bracket): 21 Nm (2.1 m·kg, 15 ft·lb)
- **3** Damper assembly: 21 Nm (2.1 m·kg, 15 ft·lb)
- **4** Pinch bolt (lower bracket): 7 Nm (0.7 m·kg, 5.1 ft·lb)
- **5** Front fork: 5 Nm (0.5 m·kg, 3.6 ft·lb)
DISASSEMBLING THE FRONT FORK

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adjuster</td>
<td>1</td>
<td>Drain the fork oil. Refer to removal section.</td>
</tr>
<tr>
<td>2</td>
<td>Fork spring</td>
<td>1</td>
<td>Drain the fork oil.</td>
</tr>
<tr>
<td>3</td>
<td>Dust seal</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>4</td>
<td>Stopper ring</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>5</td>
<td>Inner tube</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>6</td>
<td>Outer tube</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Piston metal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Slide metal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Oil seal washer</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Oil seal</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Base valve</td>
<td>1</td>
<td>Drain the fork oil. Refer to removal section.</td>
</tr>
<tr>
<td>12</td>
<td>Damper assembly</td>
<td>1</td>
<td>Drain the fork oil. Refer to removal section.</td>
</tr>
</tbody>
</table>
HANDLING NOTE

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

NOTE:
The front fork requires careful attention. So it is recommended that the front fork be maintained at the dealers.

CAUTION:
To prevent an accidental explosion of air, the following instructions should be observed:
- The front fork with a built-in piston rod has a very sophisticated internal construction and is particularly sensitive to foreign material. Use enough care not to allow any foreign material to come in when the oil is replaced or when the front fork is disassembled and reassembled.
- Before removing the base valves or front forks, be sure to extract the air from the air chamber completely.

REMOVING THE DAMPER ASSEMBLY
1. Loosen:
   - Damper assembly "1"

NOTE:
Before removing the front fork from the machine, loosen the damper assembly with the cap bolt ring wrench "2".

REMOVING THE ADJUSTER
1. Drain the outer tube of its front fork oil at its top.
2. Loosen:
   - Adjuster "1"

REMOVING THE INNER TUBE
1. Remove:
   - Dust seal "1"
   - Stopper ring "2"
   - Using slotted-head screwdriver.

NOTE:
While compressing the inner tube "2", set the cap bolt ring wrench "4" between the inner tube and locknut "3".
- Hold the locknut and remove the adjuster.

CAUTION:
Do not remove the locknut as the damper rod may go into the damper assembly and not be taken out.

REMOVING THE BASE VALVE
1. Remove:
   - Base valve "1"
   - From damper assembly "2".

NOTE:
Hold the damper assembly with the cap bolt ring wrench "3" and use the cap bolt wrench "4" to remove the base valve.

CHECKING THE DAMPER ASSEMBLY
1. Inspect:
   - Damper assembly "1"
   - O-ring "2"
   - Bend/damage → Replace.
   - Wear/damage → Replace.

CAUTION:
The front fork with a built-in piston rod has a very sophisticated internal construction and is particularly sensitive to foreign material. Use enough care not to allow any foreign material to come in when the oil is replaced or when the front fork is disassembled and reassembled.

CHECKING THE BASE VALVE
1. Inspect:
   - Base valve "1"
   - Wear/damage → Replace.
Contamination → Clean.
• O-ring “2” Wear/damage → Replace.
• Piston metal “3” Wear/damage → Replace.
• Spring “4” Damage/fatigue → Replace base valve.
• Air bleed screw “5” Wear/damage → Replace.

CHECKING THE COLLAR
1. Inspect:
• Piston metal “1” Wear/damage → Replace.

CHECKING THE FORK SPRING
1. Measure:
• Fork spring free length “a” Out of specification → Replace.

Fork spring free length: 454 mm (17.9 in)
<Limit>: 449 mm (17.7 in)

CHECKING THE INNER TUBE
1. Inspect:
• Inner tube surface “a” Score marks → Repair or replace. Use #1,000 grit wet sandpaper. Damaged oil lock piece → Replace.
• Inner tube bends Out of specification → Replace. Use the dial gauge “1”.

Inner tube bending limit: 0.2 mm (0.008 in)

NOTE: The bending value is shown by one half of the dial gauge reading.

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

CHECKING THE OUTER TUBE
1. Inspect:
• Outer tube “1” Score marks/wear/damage → Replace.

CHECKING THE ADJUSTER
1. Inspect:
• Adjuster “1” Wear/damage → Replace.
• O-ring “2” Wear/damage → Replace.

ASSEMBLING THE FRONT FORK
1. Wash the all parts in a clean solvent.
2. Stretch the damper assembly fully.
3. Fill:
• Front fork oil “1” To damper assembly.

Recommended oil:
Suspension oil “S1”
Oil capacity: 199 cm³ (7.00 Imp oz, 6.73 US oz)

CAUTION:
• Be sure to use recommended fork oil. If other oils are used, they may have an excessively adverse effect on the front fork performance.
• Never allow foreign materials to enter the front fork.

4. After filling, pump the damper assembly “1” slowly up and down (about 200 mm (7.9 in) stroke) several times to bleed the damper assembly of air.

NOTE:
Be careful not to excessive full stroke. A stroke of 200 mm (7.9 in) or more will cause air to enter. In this case, repeat the steps 2 to 4.

5. Measure:
• Oil level (left and right) “a” Out of specification → Adjust.

Standard oil level:
145-148 mm (5.71-5.83 in)
From top of fully stretched damper assembly.

6. Tighten:
• Locknut “1”

NOTE: Fully finger tighten the locknut onto the damper assembly.
7. Loosen:
• Compression damping adjuster "1"

NOTE:
• Loosen the compression damping adjuster finger tight.
• Record the set position of the adjuster (the amount of turning out the fully turned in position).

8. Install:
• Base valve "1" To damper assembly "2".

NOTE:
First bring the damper rod pressure to a maximum. Then install the base valve while releasing the damper rod pressure.

9. Check:
• Damper assembly Not fully stretched → Repeat the steps 2 to 8.

10. Tighten:
• Base valve "1"

11. After filling, pump the damper assembly "1" slowly up and down more than 10 times to distribute the fork oil.

12. While protecting the damper assembly "1" with a rag and compressing fully, allow excessive oil to overflow on the base valve side.

CAUTION: Take care not to damage the damper assembly.

13. Allow the overflowing oil to escape at the hole "a" in the damper assembly.

14. Check:
• Damper assembly smooth movement
  Tightness/binding/rough spots → Repeat the steps 2 to 13.

15. Install:
• Dust seal "1"

16. Install:
• Piston metal "1" New

NOTE:
Install the piston metal onto the slot on inner tube.

17. Install:
• Outer tube "1" To inner tube "2".

18. Install:
• Slide metal "1" New

NOTE:
• Oil seal washer "2" To outer tube slot.

Press the slide metal into the outer tube with fork seal driver "3".
19. Install:
• Oil seal "1"
NOTE:
Press the oil seal into the outer tube with fork seal driver "2".

20. Install:
• Stopper ring "1"
NOTE:
Fit the stopper ring correctly in the groove in the outer tube.

21. Install:
• Dust seal "1"
NOTE:
Apply the lithium soap base grease on the inner tube.

22. Check:
• Inner tube smooth movement
  Tightness/binding/rough spots
→ Repeat the steps 15 to 21.

23. Measure:
• Distance "a"
Out of specification → Turn into the locknut.

Distance "a":
16 mm (0.63 in) or more
Between the damper assembly "1" bottom and locknut "2" bottom.

24. Install:
• Collar "1"
• Fork spring "2"
  To damper assembly "3".
NOTE:
Install the collar with its larger dia. end "a" facing the fork spring.

25. Install:
• Damper assembly "1"
  To inner tube "2".
CAUTION:
To install the damper assembly into the inner tube, hold the inner tube aslant. If the inner tube is held vertically, the damper assembly may fall into it, damaging the valve inside.

26. Loosen:
• Rebound damping adjuster "1"
NOTE:
Loosen the rebound damping adjuster finger tight.
• Record the set position of the adjuster (the amount of turning out the fully turned in position).

27. Install:
• Push rod "1"
• Copper washer "2" New
• Adjuster "3"
  To damper assembly "4".
NOTE:
• While compressing the inner tube "5", set the cap bolt ring wrench "7" between the inner tube and locknut "6".
• Fully finger tighten the adjuster onto the damper assembly.

28. Inspect:
• Gap "a" between the adjuster "1" and locknut "2".
Out of specification → Retighten and readjust the locknut.

Gap "a" between the adjuster and locknut:
0.5–1.0 mm (0.02–0.04 in)
NOTE:
If the adjuster is installed out of specification, proper damping force cannot be obtained.

**WARNING**
Never fail to make the oil amount adjustment between the maximum and minimum amount and always adjust each front fork to the same setting. Uneven adjustment can cause poor handling and loss of stability.

**CAUTION:**
- Be sure to use recommended fork oil. If other oils are used, they may have an excessively adverse effect on the front fork performance.
- Never allow foreign materials to enter the front fork.

29. Tighten:
   • Adjuster (locknut) "1"

   **Adjuster (locknut):**
   29 Nm (2.9 m•kg, 21 ft•lb)

**NOTE:**
Hold the locknut "2" and tighten the adjuster with specified torque.

30. Install:
   • Adjuster "1" To inner tube.

   **Adjuster:**
   55 Nm (5.5 m•kg, 40 ft•lb)

**NOTE:**
Temporarily tighten the damper assembly.

32. Install:
   • Damper assembly "1" To outer tube.

**NOTE:**
Recommended oil:
Suspension oil "S1"
Standard oil amount:
333 cm³ (11.72 Imp oz, 11.26 US oz)
*335 cm³ (11.79 Imp oz, 11.33 US oz)
Extent of adjustment:
300–375 cm³ (10.6–13.2 Imp oz, 10.1–12.7 US oz)

33. Install:
   • Protector guide "1"

**NOTE:**
Installing the FRONT FORK
1. Install:
   • Front fork "1"

   **NOTE:**
   - Temporarily tighten the pinch bolts (lower bracket).
   - Do not tighten the pinch bolts (upper bracket) yet.

   **CAUTION:**
   Tighten the lower bracket to specified torque. If torqued too much, it may cause the front fork to malfunction.
5. Install:
   • Protector "1"
   • Bolt (protector) "2"

   **Bolt (protector):**
   5 Nm (0.5 m•kg, 3.6 ft•lb)

6. Adjust:
   • Rebound damping force

   **NOTE:**
   Turn in the damping adjuster "1" finger-tight and then turn out to the originally set position.

7. Adjust:
   • Compression damping force

   **NOTE:**
   Turn in the damping adjuster "1" finger-tight and then turn out to the originally set position.
### REMOVING THE HANDLEBAR

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number plate</td>
<td></td>
<td>Remove the band only.</td>
</tr>
<tr>
<td>1</td>
<td>Clutch cable</td>
<td>1</td>
<td>Disconnect at the lever side.</td>
</tr>
<tr>
<td>2</td>
<td>Clutch lever holder</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Engine stop switch</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Brake master cylinder</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>5</td>
<td>Throttle cable cap</td>
<td>1</td>
<td>Turn over the cap cover.</td>
</tr>
<tr>
<td>6</td>
<td>Throttle cable</td>
<td>1</td>
<td>Disconnect at the throttle side.</td>
</tr>
<tr>
<td>7</td>
<td>Throttle</td>
<td>1</td>
<td>Loosen the bolts.</td>
</tr>
<tr>
<td>8</td>
<td>Cap cover</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Collar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Left grip</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>11</td>
<td>Handlebar upper holder</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Handlebar</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Handlebar lower holder</td>
<td>2</td>
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</table>
### DISASSEMBLING THE THROTTLE

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Grip cap (lower)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Grip cap (upper)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Grip assembly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Grip (right)</td>
<td>1</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>5</td>
<td>Tube guide</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

4 Nm (0.4 m · kg, 2.9 ft · lb)
REMOVING THE BRAKE MASTER CYLINDER
1. Remove:
   • Brake master cylinder bracket “1”
   • Brake master cylinder “2”

CAUTION:
• Do not let the brake master cylinder hang on the brake hose.
• Keep the brake master cylinder cap side horizontal to prevent air from coming in.

REMOVING THE GRIP
1. Remove:
   • Grip “1”

NOTE:
Blow in air between the handlebar or tube guide and the grip. Then remove the grip which has become loose.

CHECKING THE HANDLEBAR
1. Inspect:
   • Handlebar “1”
   Bends/cracks/damage → Replace.

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

ASSEMBLING THE THROTTLE
1. Remove:
   • Grip (right) “1”
   Apply the adhesive on the tube guide “2”.

NOTE:
• Before applying the adhesive, wipe off grease or oil on the tube guide surface “a” with a lacquer thinner.
• Align the mating mark “b” on the grip (right) with the slot “c” in the tube guide.

INSTALLING THE HANDLEBAR
1. Install:
   • Handlebar lower holder “1”
   • Washer “2”
   • Nut (handlebar lower holder) “3”

NOTE:
• Install the handlebar lower holder with its side having the greater distance “a” from the mounting bolt center facing forward.
• Apply the lithium soap base grease on the thread of the handlebar lower holder.
• Installing the handlebar lower holder in the reverse direction allows the front-to-rear offset amount of the handlebar position to be changed.
• Do not tighten the nut yet.

2. Install:
   • Handlebar “1”
   • Handlebar upper holder “2”
   • Bolt (handlebar upper holder) “3”

Bolt (handlebar upper holder):
28 Nm (2.8 m•kg, 20 ft•lb)

NOTE:
• The handlebar upper holder should be installed with the punched mark “a” forward.
• Install the handlebar so that the marks “b” are in place on both sides.
• Install the handlebar so that the projection “c” of the handlebar upper holder is positioned at the mark on the handlebar as shown.
• First tighten the bolts on the front side of the handlebar upper holder, and then tighten the bolts on the rear side.
3. Tighten:
• Nut (handlebar lower holder) "1"

Nut (handlebar lower holder):
40 Nm (4.0 m•kg, 29 ft•lb)

4. Install:
• Left grip "1"
  Apply the adhesive to the handlebar "2".

NOTE:
• Before applying the adhesive, wipe off grease or oil on the handlebar surface "a" with a lacquer thinner.
• Install the left grip to the handlebar so that the line "b" between the two arrow marks faces straight upward.

5. Install:
• Collar "1"
• Grip cap cover "2"
• Throttle grip "3"

NOTE:
• Apply the lithium soap base grease on the throttle grip sliding surface.
• Tighten the grip cap bolts temporarily without the throttle being fixed to the handlebar.

6. Install:
• Throttle cables "1"
  To tube guide "2".

NOTE:
Apply the lithium soap base grease on the throttle cable end and tube guide winding portion.

7. Install:
• Roller "1"
• Collar "2"

NOTE:
• Apply the lithium soap base grease on the roller sliding surface and cable guide.
• Install the roller so that the "UP-PER" mark "a" faces upward.
• Pass the throttle cable in the groove "b" in the roller.

8. Install:
• Throttle cable cap "1"
• Screw (throttle cable cap) "2"

Screw (throttle cable cap):
1 Nm (0.1 m•kg, 0.7 ft•lb)

9. Adjust:
• Throttle grip free play
  Refer to "ADJUSTING THE THROTTLE CABLE FREE PLAY" section in the CHAPTER 3.

10. Install:
• Cap cover "1"

11. Install:
• Brake master cylinder "1"
• Brake master cylinder bracket "2"
• Bolt (brake master cylinder bracket) "3"

Bolt (brake master cylinder bracket):
9 Nm (0.9 m•kg, 6.5 ft•lb)

NOTE:
• Install the bracket so that the arrow mark "a" faces upward.
• First tighten the bolt on the upper side of the brake master cylinder bracket, and then tighten the bolt on the lower side.

12. Install:
• Bolt (grip cap) "1"

Bolt (grip cap):
4 Nm (0.4 m•kg, 2.9 ft•lb)

WARNING
After tightening the bolts, check that the throttle grip "2" moves smoothly. If it does not, retighten the bolts for adjustment.
13. Install:
• Engine stop switch "1"
• Clutch lever holder "2"
• Bolt (clutch lever holder) "3"

<table>
<thead>
<tr>
<th>Bolt (clutch lever holder):</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Nm (0.4 m•kg, 2.9 ft•lb)</td>
</tr>
</tbody>
</table>

• Clamp "4"

**NOTE:**
• The engine stop switch, clutch lever holder and clamp should be installed according to the dimensions shown.
• Pass the engine stop switch lead in the middle of the clutch lever holder.

14. Install:
• Clutch cable "1"

**NOTE:**
Apply the lithium soap base grease on the clutch cable end.

15. Adjust:
• Clutch lever free play
Refer to "ADJUSTING THE CLUTCH CABLE FREE PLAY" section in the CHAPTER 3.
STEERING
REMOVING THE STEERING

Hold the machine by placing the suitable stand under the engine.
Refer to "HANDLING NOTE".

Number plate
Refer to "SEAT, FUEL TANK AND SIDE COVERS" section in the CHAPTER 4.

Handlebar
Refer to "HANDLEBAR" section.

Front fender

1  Steering stem nut  1
2  Front fork  2  Refer to "FRONT FORK" section.
3  Upper bracket  1
4  Steering ring nut  1  Refer to removal section.
5  Lower bracket  1
6  Bearing race cover  1
7  Upper bearing  1
8  Lower bearing  1  Refer to removal section.

Order | Part name | Q'ty | Remarks
--- | --- | --- | ---
1 | Steering stem nut | 1 |
2 | Front fork | 2 | Refer to "FRONT FORK" section.
3 | Upper bracket | 1 |
4 | Steering ring nut | 1 | Refer to removal section.
5 | Lower bracket | 1 |
6 | Bearing race cover | 1 |
7 | Upper bearing | 1 |
8 | Lower bearing | 1 | Refer to removal section.

TIGHTENING STEPS:
- Tighten ring nut. 38 Nm (3.8 m•kg, 27 ft•lb)
- Loosen it one turn.
- Retighten it. 7 Nm (0.7 m•kg, 5.1 ft•lb)
**STEERING**

TIGHTENING STEPS:
- Tighten ring nut.
  38 Nm (3.8 m·kg, 27 ft·lb)
- Loosen it one turn.
- Retighten it.
  7 Nm (0.7 m·kg, 5.1 ft·lb)

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Bearing race</td>
<td>2</td>
<td>Refer to removal section.</td>
</tr>
</tbody>
</table>
STEERING

Handling Note

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

Removing the Steering Ring Nut

1. Remove:
   - Steering ring nut "1"
     - Use the steering nut wrench "2".

**WARNING**
Support the steering stem so that it may not fall down.

Removing the Lower Bearing

1. Remove:
   - Lower bearing "1"
     - Use the floor chisel "2".

**CAUTION:**
Take care not to damage the steering shaft thread.

Removing the Bearing Race

1. Remove:
   - Bearing race "1"
     - Remove the bearing race using long rod "2" and the hammer.

Checking the Steering Stem

1. Inspect:
   - Steering stem "1"
     - Bend/damage → Replace.

Checking the Bearing and Bearing Race

1. Wash the bearings and bearing races with a solvent.
2. Inspect:
   - Bearing "1"
   - Bearing race
     - Pitting/damage → Replace bearings and bearing races as a set.
     - Install the bearing in the bearing races. Spin the bearings by hand.
     - If the bearings hang up or are not smooth in their operation in the bearing races, replace bearings and bearing races as a set.

Installing the Lower Bracket

1. Install:
   - Lower bearing "1"

   **NOTE:** Apply the lithium soap base grease on the dust seal lip and bearing inner circumference.

2. Install:
   - Bearing race
   - Upper bearing "1"
   - Bearing race cover "2"

   **NOTE:** Apply the lithium soap base grease on the bearing and bearing race cover lip.

3. Install:
   - Lower bracket "1"

   **NOTE:**
   - Apply the lithium soap base grease on the bearing, the portion "a" and thread of the steering stem.

4. Install:
   - Steering ring nut "1"

   **NOTE:**
   - Tighten the steering ring nut using the steering nut wrench "2".
   - Refer to “CHECKING AND ADJUSTING THE STEERING HEAD” section in the CHAPTER 3.

5. Check the steering stem by turning it lock to lock. If there is any binding, remove the steering stem assembly and inspect the steering bearings.
6. Install:
   • Washer "1"

7. Install:
   • Front fork "1"
   • Upper bracket "2"

**NOTE:**
- Temporarily tighten the pinch bolts (lower bracket).
- Do not tighten the pinch bolts (upper bracket) yet.

8. Install:
   • Washer "1"
   • Steering stem nut "2"

   **Steering stem nut:**
   145 Nm (14.5 m•kg, 105 ft•lb)

9. After tightening the nut, check the steering for smooth movement. If not, adjust the steering by loosening the steering ring nut little by little.

10. Adjust:
    • Front fork top end "a"

   **Front fork top end (standard) "a":**
   5 mm (0.20 in)

11. Tighten:
    • Pinch bolt (upper bracket) "1"

   **Pinch bolt (upper bracket):**
   21 Nm (2.1 m•kg, 15 ft•lb)

    • Pinch bolt (lower bracket) "2"

   **Pinch bolt (lower bracket):**
   21 Nm (2.1 m•kg, 15 ft•lb)

   **CAUTION:**
   Tighten the lower bracket to specified torque. If torqued too much, it may cause the front fork to malfunction.
### SWINGARM

#### REMOVING THE SWINGARM

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hold the machine by placing the suitable stand under the engine.</td>
<td></td>
<td>Refer to &quot;HANDLING NOTE&quot;.</td>
</tr>
<tr>
<td></td>
<td>Brake hose holder</td>
<td></td>
<td>Refer to &quot;FRONT BRAKE AND REAR BRAKE&quot; section.</td>
</tr>
<tr>
<td></td>
<td>Rear brake caliper</td>
<td></td>
<td>Refer to &quot;FRONT BRAKE AND REAR BRAKE&quot; section.</td>
</tr>
<tr>
<td></td>
<td>Bolt (brake pedal)</td>
<td></td>
<td>Shift the brake pedal backward.</td>
</tr>
<tr>
<td>1</td>
<td>Drive chain support</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Lower chain tensioner</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bolt (rear shock absorber-relay arm)</td>
<td>1</td>
<td>Hold the swingarm.</td>
</tr>
<tr>
<td>4</td>
<td>Bolt (connecting rod)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pivot shaft</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Swingarm</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
DISASSEMBLING THE SWINGARM

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Qty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cap</td>
<td>2</td>
<td>Refer to removal section.</td>
</tr>
<tr>
<td>2</td>
<td>Relay arm</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Connecting rod</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Collar</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Oil seal</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Thrust bearing</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Bushing</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Oil seal</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Bearing</td>
<td>10</td>
<td>Refer to removal section.</td>
</tr>
</tbody>
</table>

- **70 Nm (7.0 m·kg, 50 ft·lb)**
- **2 Nm (0.2 m·kg, 1.4 ft·lb)**
- **6 Nm (0.6 m·kg, 4.3 ft·lb)**
- **80 Nm (8.0 m·kg, 58 ft·lb)**
**HANDLING NOTE**

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

**REMOVING THE CAP**
1. Remove:
   - Left cap “1”

**NOTE:**
Remove with a slotted-head screwdriver inserted under the mark “a” on the left cap.

**REMOVING THE BEARING**
1. Remove:
   - Bearing “1”

**NOTE:**
Remove the bearing by pressing its outer race.

**CHECKING THE SWINGARM**
1. Inspect:
   - Bearing “1”
   - Bushing “2”
   - Free play exists/unsmooth revolution/rust → Replace bearing and bushing as a set.
2. Inspect:
   - Oil seal “3”
   - Damage → Replace.

**CHECKING THE RELAY ARM**
1. Inspect:
   - Bearing “1”
   - Collar “2”
   - Free play exists/unsmooth revolution/rust → Replace bearing and collar as a set.
2. Inspect:
   - Oil seal “3”
   - Damage → Replace.

**CHECKING THE CONNECTING ROD**
1. Inspect:
   - Bearing “1”
   - Collar “2”
   - Free play exists/unsmooth revolution/rust → Replace bearing and collar as a set.
2. Inspect:
   - Oil seal “3”
   - Damage → Replace.

**INSTALLING THE BEARING AND OIL SEAL**
1. Install:
   - Bearing “1”
   - Oil seal “2”
   - To swingarm.

**NOTE:**
- Apply the molybdenum disulfide grease on the bearing when installing.
- Install the bearing by pressing it on the side having the manufacturer’s marks or numbers.
- Apply the molybdenum disulfide grease on the washer.

**CHECKING THE CONNECTING ROD**
3. Install:
   - Bearing “1”
   - Oil seal “2”
   - To connecting rod.

**NOTE:**
- Apply the molybdenum disulfide grease on the bearing when installing.
- Install the bearing by pressing it on the side having the manufacturer’s marks or numbers.

---

**Installed depth of bearings:**

- **Outer “a”: Zero mm (Zero in)**
- **Inner “b”: 6.5 mm (0.26 in)**
INSTALLING THE SWINGARM

1. Install:
   - Bushing "1"
   - Thrust bearing "2"
   - Oil seal "3"
   - Collar "4"
   To swingarm "5".

   **NOTE:**
   Apply the molybdenum disulfide grease on the bushings, thrust bearings, oil seal lips and contact surfaces of the collar and thrust bearing.

2. Install:
   - Collar "1"
   - Washer "2"
   To relay arm "3".

   **NOTE:**
   Apply the molybdenum disulfide grease on the collars and oil seal lips.

3. Install:
   - Collar "1"
   To connecting rod "2".

   **NOTE:**
   Apply the molybdenum disulfide grease on the collar and oil seal lips.

4. Install:
   - Connecting rod "1"
   - Bolt (connecting rod) "2"

5. Install:
   - Relay arm "1"
   - Bolt (relay arm) "2"
   - Washer "3"
   - Nut (relay arm) "4"
   To swingarm.

   **NOTE:**
   Apply the molybdenum disulfide grease on the bolt circumference and threaded portion.

6. Install:
   - Swingarm "1"
   - Pivot shaft "2"

   **NOTE:**
   Apply the molybdenum disulfide grease on the pivot shaft.

7. Check:
   - Swingarm side play "a"
   Free play exists → Replace thrust bearing.

8. Install:
   - Bolt (connecting rod) "1"
   - Washer "2"
   - Nut (connecting rod) "3"

   **NOTE:**
   Apply the molybdenum disulfide grease on the bolt.

   Do not tighten the nut yet.

9. Install:
   - Bolt (rear shock absorber-relay arm) "1"
   - Nut (rear shock absorber-relay arm) "2"

   **NOTE:**
   Apply the molybdenum disulfide grease on the bolt.

10. Tighten:
    - Nut (connecting rod) "1"

    **Nut (connecting rod):**
    80 Nm (8.0 m•kg, 58 ft•lb)

    **Pivot shaft:**
    85 Nm (8.5 m•kg, 61 ft•lb)

    **Nut (rear shock absorber-relay arm):**
    53 Nm (5.3 m•kg, 38 ft•lb)

    **Nut (connecting rod):**
    80 Nm (8.0 m•kg, 58 ft•lb)
11. Tighten:
• Nut (relay arm) "1"

**Nut (relay arm):**
70 Nm (7.0 m•kg, 50 ft•lb)

12. Install:
• Cap "1"

**NOTE:**
Install the right cap with its mark "a" facing forward.

13. Install:
• Bolt (lower chain tensioner) "1"
• Washer "2"
• Collar "3"
• Lower chain tensioner "4"
• Nut (lower chain tensioner) "5"

**Nut (lower chain tensioner):**
16 Nm (1.6 m•kg, 11 ft•lb)

14. Install:
• Drive chain support "1"
• Drive chain support cover "2"
• Bolt (drive chain support [L = 50 mm (1.97 in)]) "3"

• Nut (drive chain support) "4"

**Nut (drive chain support):**
7 Nm (0.7 m•kg, 5.1 ft•lb)

• Bolt (drive chain support cover [L = 10 mm (0.39 in)]) "5"

**Bolt (drive chain support cover):**
7 Nm (0.7 m•kg, 5.1 ft•lb)
# REAR SHOCK ABSORBER

## REMOVING THE REAR SHOCK ABSORBER

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold the machine by placing the suitable stand under the engine.</td>
<td></td>
<td>Refer to &quot;HANDLING NOTE&quot;.</td>
<td></td>
</tr>
<tr>
<td>Seat</td>
<td>Refer to &quot;SEAT, FUEL TANK AND SIDE COVERS” section in the CHAPTER 4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silencer</td>
<td>Refer to &quot;EXHAUST PIPE AND SILENCER&quot; section in the CHAPTER 4.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Clamp (air filter joint)</td>
<td>1</td>
<td>Only loosening.</td>
</tr>
<tr>
<td>2</td>
<td>Rear frame</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bolt (rear shock absorber-relay arm)</td>
<td>1</td>
<td>Hold the swingarm.</td>
</tr>
<tr>
<td>4</td>
<td>Bolt (rear shock absorber-frame)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Rear shock absorber</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Locknut</td>
<td>1</td>
<td>Only loosening.</td>
</tr>
<tr>
<td>7</td>
<td>Adjuster</td>
<td>1</td>
<td>Only loosening.</td>
</tr>
<tr>
<td>8</td>
<td>Spring seat</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Lower spring guide</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Upper spring guide</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Spring (rear shock absorber)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### REAR SHOCK ABSORBER

<table>
<thead>
<tr>
<th>Order</th>
<th>Part name</th>
<th>Q'ty</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Bearing</td>
<td>2</td>
<td>Refer to removal section.</td>
</tr>
</tbody>
</table>

- **53 Nm** (5.3 m·kg, 38 ft·lb)
- **56 Nm** (5.6 m·kg, 40 ft·lb)
- **2 Nm** (0.2 m·kg, 1.4 ft·lb)
- **32 Nm** (3.2 m·kg, 23 ft·lb)
- **29 Nm** (2.9 m·kg, 21 ft·lb)

---

**Diagram:**
- Numbered parts with corresponding torque values.
- New parts indicated with the label "New."
REAR SHOCK ABSORBER

HANDLING NOTE

**WARNING**

- Support the machine securely so there is no danger of it falling over.
- This rear shock absorber is provided with a separate type tank filled with high-pressure nitrogen gas. To prevent the danger of explosion, read and understand the following information before handling the shock absorber. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling.
- Never tamper or attempt to disassemble the cylinder or the tank.
- Never throw the rear shock absorber into an open flame or other high heat. The rear shock absorber may explode as a result of nitrogen gas expansion and/or damage to the hose.
- Be careful not to damage any part of the gas tank. A damaged gas tank will impair the damping performance or cause a malfunction.
- Take care not to scratch the contact surface of the piston rod with the cylinder; or oil could leak out.
- Never attempt to remove the plug at the bottom of the nitrogen gas tank. It is very dangerous to remove the plug.
- When scrapping the rear shock absorber, follow the instructions on disposal.

**NOTES ON DISPOSAL (YAMAHA DEALERS ONLY)**

Before disposing the rear shock absorber, be sure to extract the nitrogen gas from valve “1”. Wear eye protection to prevent eye damage from escaping gas and/or metal chips.

**WARNING**

To dispose of a damaged or worn-out rear shock absorber, take the unit to your Yamaha dealer for this disposal procedure.

**REMOVING THE BEARING**

1. Remove:
   - Stopper ring (upper bearing) "1"
   **NOTE:** Press in the bearing while pressing its outer race and remove the stopper ring.

2. Remove:
   - Upper bearing "1"
   **NOTE:** Remove the bearing by pressing its outer race.

3. Remove:
   - Lower bearing "1"
   **NOTE:** Remove the bearing by pressing its outer race.

**CHECKING THE REAR SHOCK ABSORBER**

1. Inspect:
   - Damper rod "1"
     Bends/damage → Replace rear shock absorber assembly.
   - Shock absorber "2"
     Oil leaks → Replace rear shock absorber assembly.
     Gas leaks → Replace rear shock absorber assembly.

2. Install:
   - Stopper ring (upper bearing) "1" New
   **NOTE:** After installing the stopper ring, push back the bearing until it contacts the stopper ring.

**INSTALLING THE BEARING**

1. Install:
   - Upper bearing "1"
   **NOTE:** Install the bearing parallel until the stopper ring groove appears by pressing its outer race.

2. Install:
   - Stopper ring (upper bearing) "1"
   After installing the stopper ring, push back the bearing until it contacts the stopper ring.
3. Install:
   • Lower bearing "1"

   **NOTE:**
   Install the bearing by pressing it on the side having the manufacturer's marks or numbers.

   ![Installed depth of the bearing “a”: 4 mm (0.16 in)](image)

**INSTALLING THE SPRING (REAR SHOCK ABSORBER)**

1. Install:
   • Spring "1"
   • Upper spring guide "2"
   • Lower spring guide "3"

2. Install:
   • Spring seat "1"

   **NOTE:**
   Install the spring seat with the projection "a" brought into contact with the spring end, as shown.

3. Install:
   • Dust seal "1"
   • O-ring "2"** New **
   • Collar "3"

   **NOTE:**
   • Apply the molybdenum disulfide grease on the dust seal lips and collars.
   • Apply the lithium soap base grease on the O-rings.

**INSTALLING THE REAR SHOCK ABSORBER**

1. Install:
   • Dust seal "1"
   • O-ring "2"** New **
   • Collar "3"

   **NOTE:**
   • Apply the molybdenum disulfide grease on the bearing and dust seal lips.
   • Install the dust seals with their lips facing outward.

2. Install:
   • Bushing "1"
   • Collar "2"
   • Dust seal "3"

   **NOTE:**
   • Apply the molybdenum disulfide grease on the bearing and dust seal lips.

4. Adjust:
   • Spring length (installed)
   Refer to "ADJUSTING THE REAR SHOCK ABSORBER SPRING PRELOAD" section in the CHAPTER 3.

5. Tighten:
   • Locknut "1"

   **NOTE:**
   Apply the molybdenum disulfide grease on the bolt.

5. Install:
   • Bolt (rear shock absorber-relay arm) "1"
   • Nut (rear shock absorber-relay arm) "2"

   **NOTE:**
   Apply the molybdenum disulfide grease on the bolt.

6. Install:
   • Rear frame "1"
   • Bolt [rear frame (upper)] "2"

   **Bolt [rear frame (upper)]:**
   32 Nm (3.2 m•kg, 23 ft•lb)

   **Nut (rear shock absorber-frame):**
   56 Nm (5.6 m•kg, 40 ft•lb)

   **Nut (rear shock absorber-rear arm):**
   53 Nm (5.3 m•kg, 38 ft•lb)
• Bolt [rear frame (lower)] "3"

Bolt [rear frame (lower)]:
29 Nm (2.9 m•kg, 21 ft•lb)

7. Tighten:
• Bolt (air filter joint) "1"

Bolt (air filter joint):
2 Nm (0.2 m•kg, 1.4 ft•lb)
ELECTRICAL COMPONENTS AND WIRING DIAGRAM

1. Engine stop switch
2. CDI unit
3. Ignition coil
4. CDI magneto
5. Spark plug

WIRING DIAGRAM

COLOR CODE
- **B** Black
- **O** Orange
- **Y** Yellow
- **B/R** Black/Red
- **B/W** Black/White
- **G/L** Green/Blue
- **G/W** Green/White
- **W/L** White/Blue
- **W/R** White/Red
IGNITION SYSTEM

INSPECTION STEPS
Use the following steps for checking the possibility of the malfunctioning engine being attributable to ignition system failure and for checking the spark plug which will not spark.

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spark gap test</td>
<td>Spark → *Clean or replace spark plug.</td>
</tr>
<tr>
<td>No spark</td>
<td></td>
</tr>
<tr>
<td>Check entire ignition system for connection.</td>
<td>No good → Repair or replace.</td>
</tr>
<tr>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Check engine stop switch.</td>
<td>No good → Replace.</td>
</tr>
<tr>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Check ignition coil. (primary coil and secondary coil)</td>
<td>No good → Replace.</td>
</tr>
<tr>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Check spark plug cap.</td>
<td>No good → Replace.</td>
</tr>
<tr>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Check CDI magneto. (pickup coil and charging coil)</td>
<td>No good → Replace.</td>
</tr>
<tr>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>Replace CDI unit.</td>
<td></td>
</tr>
</tbody>
</table>

*marked: Only when the ignition checker is used.

NOTE:
- Remove the following parts before inspection.
  1. Seat
  2. Fuel tank
- Use the following special tools in this inspection.

Dynamic spark tester: YM-34487
Ignition checker: 90890-06754
Pocket tester: YU-3112-C/90890-03112
IGNITION SYSTEM

SPARK GAP TEST
1. Disconnect the spark plug cap from spark plug.
2. Connect the dynamic spark tester "1" (ignition checker "2") as shown.
   • Ignition coil "3"
   • Spark plug "4"

   Not conductive while it is pushed → Replace.
   Conductive while it is freed → Replace.

   NOTE:
   Set the tester selection position to "Ω × 1".

CHECKING THE IGNITION COIL
1. Inspect:
   • Primary coil resistance
     Out of specification → Replace.

   Tester (+) lead → Yellow lead "1"
   Tester (-) lead → Black lead "2"

<table>
<thead>
<tr>
<th>Primary coil resistance</th>
<th>Tester selector position</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.24–0.36 Ω at 20 °C (68 °F)</td>
<td>Ω × 1</td>
</tr>
</tbody>
</table>

2. Inspect:
   • Secondary coil resistance
     Out of specification → Replace.

   Tester (+) lead → Spark plug lead terminal "1"
   Tester (-) lead → Yellow lead "2"

<table>
<thead>
<tr>
<th>Secondary coil resistance</th>
<th>Tester selector position</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.7–8.5 kΩ at 20 °C (68 °F)</td>
<td>kΩ × 1</td>
</tr>
</tbody>
</table>

CHECKING THE SPARK PLUG CAP
1. Inspect:
   • Spark plug cap
     Loose connection → Tighten.
     Deteriorated/damaged → Replace.
   • Spark plug cap resistance
     Out of specification → Replace.

   Tester (+) lead → Spark plug lead terminal "1"
   Tester (-) lead → Spark plug terminal "2"

<table>
<thead>
<tr>
<th>Spark plug cap resistance</th>
<th>Tester selector position</th>
</tr>
</thead>
<tbody>
<tr>
<td>4–6 kΩ at 20 °C (68 °F)</td>
<td>kΩ × 1</td>
</tr>
</tbody>
</table>

CHECKING THE CDI MAGNETO
1. Inspect:
   • Pickup coil resistance
     Out of specification → Replace.

   Tester (+) lead → White/Red lead terminal "1"
   Tester (-) lead → White/Blue lead "2"

<table>
<thead>
<tr>
<th>Pickup coil resistance</th>
<th>Tester selector position</th>
</tr>
</thead>
<tbody>
<tr>
<td>248–372 Ω at 20 °C (68 °F)</td>
<td>Ω × 100</td>
</tr>
</tbody>
</table>

A. For USA and CDN
B. Except for USA and CDN

CHECKING THE COUPLERS, LEADS AND IGNITION COIL CONNECTION
1. Check:
   • Couplers and leads connection
     Rust/dust/looseness/short-circuit → Repair or replace.

CHECKING THE ENGINE STOP SWITCH
1. Inspect:
   • Engine stop switch conduction

   Tester (+) lead → Black/White lead "1"
   Tester (-) lead → Black lead "2"

   Result
   Conductive (while the engine stop switch is pushed)

   Minimum spark gap: 6.0 mm (0.24 in)
2. Inspect:
   • Charging coil 1 resistance
     Out of specification → Replace.

<table>
<thead>
<tr>
<th>Charging coil 1 resistance</th>
<th>Tester selector position</th>
</tr>
</thead>
<tbody>
<tr>
<td>720–1,080 Ω at 20 °C (68 °F)</td>
<td>Ω x 100</td>
</tr>
</tbody>
</table>

3. Inspect:
   • Charging coil 2 resistance
     Out of specification → Replace.

<table>
<thead>
<tr>
<th>Charging coil 2 resistance</th>
<th>Tester selector position</th>
</tr>
</thead>
<tbody>
<tr>
<td>44–66 Ω at 20 °C (68 °F)</td>
<td>Ω x 10</td>
</tr>
</tbody>
</table>

CHECKING THE CDI UNIT
Check all electrical components. If no fault is found, replace the CDI unit. Then check the electrical components again.
TUNING ENGINE
CARBURETOR SETTING
• The role of fuel is to cool the engine, and in the case of a 2-stroke engine, to lubricate the engine in addition to power generation. Accordingly, if a mixture of air and fuel is too lean, abnormal combustion will occur, and engine seizure may result. If the mixture is too rich, spark plugs will get wet with oil, thus making it impossible to bring the engine into full play or if the worst comes to the worst, the engine may stall.

• The richness of the air-fuel mixture required for the engine will vary with atmospheric conditions of the day and therefore, the settings of the carburetor must be properly suited to the atmospheric conditions (air pressure, humidity and temperature).

• Finally, the rider himself must make a test-run and check his machine for conditions (pick-up of engine speed, road surface conditions) and for the discoloration of the spark plug(s). After taking these into consideration, he must select the best possible carburetor settings.

NOTE:
It is advisable to make a note of settings, atmospheric conditions, road surface condition, lap-time, etc. so that the memorandum can be used as a reference useful for future.

ATMOSPHERIC CONDITIONS AND CARBURETOR SETTINGS

<table>
<thead>
<tr>
<th>Air temp.</th>
<th>Humidity</th>
<th>Air pressure (altitude)</th>
<th>Mixture</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>High</td>
<td>Low (high)</td>
<td>Richer</td>
<td>Leaner</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
<td>High (low)</td>
<td>Leaner</td>
<td>Richer</td>
</tr>
</tbody>
</table>

NOTE:
The reason for the above tendency is that the richness or leanness of a fuel mixture depends on the density of the air (i.e. the concentration of oxygen in it).

• Higher temperature expands the air with its resultant reduced density.

• Higher humidity reduces the amount of oxygen in the air by so much of the water vapor in the same air.

• Lower atmospheric pressure (at a high altitude) reduces the density of the air.

TEST RUN
After warming up the engine equipped with the standard type carburetor(s) and spark plug(s), run two or three laps of the circuit and check the smooth operation of the engine and discoloration of spark plug(s).

<table>
<thead>
<tr>
<th>Discoloration</th>
<th>Condition of spark plug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Insulator is dry and burnt brown.</td>
</tr>
<tr>
<td>Over burned (too lean)</td>
<td>Insulator is whitish.</td>
</tr>
<tr>
<td>Oil fouled (too rich)</td>
<td>Insulator is sooty and wet.</td>
</tr>
</tbody>
</table>

EFFECT OF SETTING PARTS IN RELATION TO THROTTLE VALVE OPENING

ADJUSTING THE MAIN JET
The richness of air-fuel mixture with 1/2–4/4 throttle can be set by changing the main jet "1".

1. Spark plug is too hot.
   • Select a main jet having higher calibrating No. than standard. (To be enriched)

2. Spark plug is wet.
   • Select a main jet having lower calibrating No. than standard. (To be leaned out)

ADJUSTING THE PILOT AIR SCREW
The richness of the air-fuel mixture with full closed to 1/4 throttle can be set by turning the pilot air screw "1". Turning in the pilot air screw will enrich the mixture at low speeds, and turning out it will lean out the mixture.

Standard main jet | #410
*Except for USA and CDN

Standard pilot air screw position | 2-1/4 turns out
ADJUSTING THE PILOT JET
The richness of air-fuel mixture with the throttle fully closed to 1/2 open can be set by changing the pilot jet “1”. It is changed when adjustment cannot be made by the pilot air screw alone.

<table>
<thead>
<tr>
<th>Standard pilot jet</th>
<th>#40</th>
<th>#45</th>
</tr>
</thead>
</table>
*For EUROPE

ADJUSTING THE JET NEEDLE
GROOVE POSITION
Should the engine be hard to run smoothly at intermediate speeds, the jet needle “1” must be adjusted. If the mixture is too rich or too lean at intermediate speed operation, irregular engine operation and poor acceleration will result. Whether or not the richness of the mixture is proper is hard to be determined by means of the spark plug and therefore, it should be judged from your feeling of actual engine operation.

1. Too rich at intermediate speeds
   • Rough engine operation is felt and the engine will not pick up speed smoothly.
   In this case, step up the jet needle clip by one groove or 0.5 groove and move down the needle to lean out the mixture.
2. Too lean at intermediate speeds
   • The engine breathes hard and will not pick up speed quickly.
   In this case, step down the jet needle clip by one groove or 0.5 groove and move up the needle to enrich the mixture.

| Standard clip position | No.3 groove |

ADJUSTING THE JET NEEDLE
(For USA and CDN)
On the carburetors used in the YZ125, the main nozzle is a non dis-assembly type, so it can not be replaced. Therefore, carburetor setting requires the change of the jet needle.

1. The jet needle setting parts, having the same taper angle, are available in different straight portion diameters and in different taper starting positions.

ADJUSTING THE JET NEEDLE
(For EUROPE, AUS, NZ, and ZA)
On the carburetors used in the YZ125, the main nozzle is a non dis-assembly type, so it can not be replaced. Therefore, carburetor setting requires the change of the jet needle.

1. The jet needle setting parts, having the same taper angle, are available in different straight portion diameters and in different taper starting positions.

| Standard jet needle | 6BFY42-74 |

RELATIONSHIP WITH THROTTLE OPENING
The flow of the fuel through the carburetor main system is controlled by the main jet and then, it is further regulated by the area between the main nozzle and the jet needle. On the relationship between the fuel flow and the throttle opening, the fuel flow relates to the straight portion of the jet needle at full closed–1/8 throttle, to the 1st tapered portion at 1/4 throttle, to the second tapered portion at 1/2 throttle, to the third tapered portion at 3/4 throttle and to the fourth tapered portion at full open.

Therefore, the fuel flow is balanced at each stage of throttle opening by a combination of the jet needle diameter and clip position.

<Example>
(For USA and CDN)

In the case of the same number of clip position, changing from 6BFY42-74 to 6BFY43-74 has the same effect as a rising of 0.5-clip position. And in the case of the same number of clip position, changing from 6BFY42-74 to 6BFY44-74 has the same effect as a rising of 1-clip position.
### Carburetor Setting Parts

**Main jet "1"**

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number (-14143-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich</td>
<td>137-94</td>
</tr>
<tr>
<td>#470</td>
<td></td>
</tr>
<tr>
<td>#460</td>
<td></td>
</tr>
<tr>
<td>#450</td>
<td></td>
</tr>
<tr>
<td>#440</td>
<td></td>
</tr>
<tr>
<td><strong>,</strong>* (STD)</td>
<td>137-86</td>
</tr>
<tr>
<td>#430</td>
<td></td>
</tr>
<tr>
<td>** (STD)</td>
<td>137-84</td>
</tr>
<tr>
<td>#410</td>
<td></td>
</tr>
<tr>
<td>Lean</td>
<td>137-80</td>
</tr>
<tr>
<td>#400</td>
<td></td>
</tr>
</tbody>
</table>

**Pilot jet "2"**

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number (-14142-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich</td>
<td>4KM-50</td>
</tr>
<tr>
<td>#50</td>
<td></td>
</tr>
<tr>
<td>** (STD)</td>
<td>4KM-45</td>
</tr>
<tr>
<td>#47.5</td>
<td></td>
</tr>
<tr>
<td>#45</td>
<td></td>
</tr>
<tr>
<td><em>,</em>** (STD)</td>
<td>4KM-42</td>
</tr>
<tr>
<td>#42.5</td>
<td></td>
</tr>
<tr>
<td>#40</td>
<td></td>
</tr>
<tr>
<td>** (STD)</td>
<td>4KM-37</td>
</tr>
<tr>
<td>#37.5</td>
<td></td>
</tr>
<tr>
<td>#35</td>
<td></td>
</tr>
<tr>
<td>#32.5</td>
<td></td>
</tr>
<tr>
<td>Lean</td>
<td>4KM-30</td>
</tr>
<tr>
<td>#30</td>
<td></td>
</tr>
</tbody>
</table>

**Throttle valve "3"**

<table>
<thead>
<tr>
<th>Size</th>
<th>Part number (-14112-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rich (STD)</td>
<td>1C3-40</td>
</tr>
<tr>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Lean</td>
<td>1C3-42</td>
</tr>
<tr>
<td>4.25</td>
<td></td>
</tr>
</tbody>
</table>

---

* For USA and CDN
** For EUROPE
*** For AUS, NZ and ZA
## ROAD CONDITION AND EXAMPLES OF CARBURETOR SETTING

<table>
<thead>
<tr>
<th></th>
<th>General condition</th>
<th>Sandy condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under 10°C (50°F) (Winter)</td>
<td>15–25°C (59–77°F) (Spring, Autumn)</td>
</tr>
<tr>
<td></td>
<td>Under 10°C (50°F) (Winter)</td>
<td>15–25°C (59–77°F) (Spring, Autumn)</td>
</tr>
<tr>
<td><strong>Main jet</strong></td>
<td>A #420 #410 #410</td>
<td>#440 #430 #420</td>
</tr>
<tr>
<td></td>
<td>B, C #440 #430 #420</td>
<td>#460 #450 #440</td>
</tr>
<tr>
<td></td>
<td>C 6BFY44-74-3</td>
<td>6BFY44-74-3 6BFY44-74-2</td>
</tr>
<tr>
<td><strong>Pilot jet</strong></td>
<td>A #42.5 #40 #40</td>
<td>#42.5 #40 #40</td>
</tr>
<tr>
<td></td>
<td>B #47.5 #45 #42.5</td>
<td>#47.5 #45 #42.5</td>
</tr>
<tr>
<td></td>
<td>C #42.5 #40 #40</td>
<td>#45 #42.5 #40</td>
</tr>
<tr>
<td><strong>Pilot air screw</strong></td>
<td>2-1/4 2-1/4 2-1/4</td>
<td>2-1/4 2-1/4 2-1/4</td>
</tr>
</tbody>
</table>

### Specifications of Jet Needle (For USA and CDN)

<table>
<thead>
<tr>
<th>Diameter of Straight Portion</th>
<th>ø2.72 mm (0.1071 in)</th>
<th>ø2.73 mm (0.1075 in)</th>
<th>ø2.74 mm (0.1079 in)</th>
<th>ø2.75 mm (0.1083 in)</th>
<th>ø2.76 mm (0.1087 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rich</strong></td>
<td>6BFY44-72-3</td>
<td>6BFY44-73-3</td>
<td>6BFY44-74-3</td>
<td>6BFY44-75-3</td>
<td>6BFY44-76-3</td>
</tr>
<tr>
<td>1 richer</td>
<td>6BFY42-72-4</td>
<td>6BFY42-73-4</td>
<td>6BFY42-74-4</td>
<td>6BFY42-75-4</td>
<td>6BFY42-76-4</td>
</tr>
<tr>
<td>0.5 richer</td>
<td>6BFY43-72-3</td>
<td>6BFY43-73-3</td>
<td>6BFY43-74-3</td>
<td>6BFY43-75-3</td>
<td>6BFY43-76-3</td>
</tr>
<tr>
<td>STD</td>
<td>6BFY42-72-3</td>
<td>6BFY42-73-3</td>
<td>6BFY42-74-3</td>
<td>6BFY42-75-3</td>
<td>6BFY42-76-3</td>
</tr>
<tr>
<td>0.5 leaner</td>
<td>6BFY43-72-2</td>
<td>6BFY43-73-2</td>
<td>6BFY43-74-2</td>
<td>6BFY43-75-2</td>
<td>6BFY43-76-2</td>
</tr>
<tr>
<td>Lean</td>
<td>6BFY42-72-1</td>
<td>6BFY44-73-1</td>
<td>6BFY44-74-1</td>
<td>6BFY44-75-1</td>
<td>6BFY44-76-1</td>
</tr>
<tr>
<td>1 leaner</td>
<td>6BFY42-72-2</td>
<td>6BFY44-73-2</td>
<td>6BFY44-74-2</td>
<td>6BFY44-75-2</td>
<td>6BFY44-76-2</td>
</tr>
</tbody>
</table>

### Specifications of Jet Needle (For EUROPE, AUS, NZ, and ZA)

<table>
<thead>
<tr>
<th>Diameter of Straight Portion</th>
<th>ø2.72 mm (0.1071 in)</th>
<th>ø2.73 mm (0.1075 in)</th>
<th>ø2.74 mm (0.1079 in)</th>
<th>ø2.75 mm (0.1083 in)</th>
<th>ø2.76 mm (0.1087 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rich</strong></td>
<td>6BFY43-72-4</td>
<td>6BFY43-73-4</td>
<td>6BFY43-74-4</td>
<td>6BFY43-75-4</td>
<td>6BFY43-76-4</td>
</tr>
<tr>
<td>1 richer</td>
<td>6BFY44-72-3</td>
<td>6BFY44-73-3</td>
<td>6BFY44-74-3</td>
<td>6BFY44-75-3</td>
<td>6BFY44-76-3</td>
</tr>
<tr>
<td>0.5 richer</td>
<td>6BFY42-72-4</td>
<td>6BFY42-73-4</td>
<td>6BFY42-74-4</td>
<td>6BFY42-75-4</td>
<td>6BFY42-76-4</td>
</tr>
<tr>
<td>STD</td>
<td>6BFY43-72-3</td>
<td>6BFY43-73-3</td>
<td>6BFY43-74-3</td>
<td>6BFY43-75-3</td>
<td>6BFY43-76-3</td>
</tr>
<tr>
<td>0.5 leaner</td>
<td>6BFY42-72-2</td>
<td>6BFY42-73-3</td>
<td>6BFY42-74-3</td>
<td>6BFY42-75-3</td>
<td>6BFY42-76-3</td>
</tr>
</tbody>
</table>

### Examples of Carburetor Setting Depending on Symptom

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Setting</th>
<th>Checking</th>
</tr>
</thead>
<tbody>
<tr>
<td>At full throttle</td>
<td>Increase main jet calibration no. (Gradually)</td>
<td>Discoloration of spark plug ← If tan color, it is in good condition.</td>
</tr>
<tr>
<td>Stall at high speeds</td>
<td></td>
<td>If cannot be corrected: Clogged float valve seat</td>
</tr>
<tr>
<td>*Hard breathing</td>
<td></td>
<td>Clogged fuel hose</td>
</tr>
<tr>
<td>Shearing noise</td>
<td></td>
<td>Clogged fuel cock</td>
</tr>
<tr>
<td>Whitish spark plug</td>
<td></td>
<td></td>
</tr>
<tr>
<td>![Down Arrow]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lean mixture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom</td>
<td>Setting</td>
<td>Checking</td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| At full throttle  
Stop of speed pick-up  
Slow speed pick-up  
Slow response  
Sooty spark plug  
↓  
Rich mixture | Decrease main jet calibration no. (Gradually)  
*In case of racing slight enrichment of mixture reduces engine trouble. | Discoloration of spark plug → If tan color, it is in good condition.  
If not effect:  
Clogged air filter  
Fuel overflow from carburetor  
Clogged main air passage or clogged filter |
| Lean mixture | Lower jet needle clip position. (1 groove down) |  |
| Rich mixture | Raise jet needle clip position. (1 groove up) |  |
| 1/4–3/4 throttle  
*Hard breathing  
Lack of speed | Lower jet needle clip position. (1 groove down) |  |
| 1/4–1/2 throttle  
Slow speed pick-up  
White smoke  
Poor acceleration | Raise jet needle clip position. (1 groove up) |  |
| 0–1/4 throttle  
*Hard breathing  
Speed down | Use jet needle having a smaller diameter. | Number of turns-back → Correct properly  
Overflow from carburetor |
| 0–1/4 throttle  
Poor acceleration  
White smoke | Use jet needle with a larger diameter. |  |
| Unstable at low speeds  
Pinking noise | Lower jet needle clip position. (1 groove down)  
Turn in pilot air screw. | Dragging brake  
Overflow from carburetor |
| Poor response at extremely low speed | Reduce pilot jet calibration No.  
Turn out pilot air screw.  
If not effect, reverse the above procedures. |  |
| Poor response in the range of low to intermediate speeds | Raise jet needle clip position.  
If no effect, reverse the above procedures. |  |
| Poor response when throttle is opened quickly | Check overall settings.  
Use main jet having lower calibration no.  
Raise jet needle clip position. (1 groove up)  
If no effect, reverse the above procedures. | Check air filter for fouling. |
| Poor engine operation | Turn in pilot air screw. | Check throttle valve operation. |

* In case of hard breathing, check the air vent hose for clogging.

**NOTE:**
This should be taken simply for an example. It is necessary to set the carburetor while checking the operating conditions of the engine and discoloration of spark plugs. Normally, carburetor setting is made by means of the main jet, jet needle clip position (including one with 0.5 difference), pilot jet and pilot air screw. If the result of setting is still unsatisfactory, it is advisable to change the diameter of the straight portion the jet needle.
CHANGE OF THE HEAT RANGE OF SPARK PLUGS
Judging from the discoloration of spark plugs, if they are found improper, it can be corrected by the following two methods: changing carburetor settings and changing the heat range of spark plug.

- In principle, it is advisable to first use spark plugs of standard heat range, and judging from the discoloration of spark plugs, adjust carburetor settings.
- If the calibration No. of the main jet must be changed by ±30, it is advisable to change the heat range of spark plugs and newly select the proper main jet.
- When checking the discoloration of spark plugs, be sure to stop the engine immediately after a run and check.
- Avoid racing.
- When changing the heat range of spark plugs, never attempt to change it more than ±1 rank.
- When using a spark plug other than standard, check its heat range against the standard and check that it is a resistance type.
- Note that even if the discoloration seems proper, it may slightly vary with the spark plug maker and oil in use.

| Standard spark plug | BR9EVX/NGK (resistance type) |

NOTE:
- Under a rainy, muddy, sandy, or slippery condition, the tire pressure should be lower for a larger area of contact with the road surface.
- Under a stony or hard road condition, the tire pressure should be higher to prevent a flat tire.

DRIVE AND REAR WHEEL SPROCKETS SETTING PARTS

<table>
<thead>
<tr>
<th>Part name</th>
<th>Size</th>
<th>Part number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive sprocket &quot;1&quot; (STD)</td>
<td>13T</td>
<td>9383B-13218</td>
</tr>
<tr>
<td>Rear wheel sprocket &quot;2&quot; (STD)</td>
<td>47T</td>
<td>1C3-25447-00</td>
</tr>
<tr>
<td></td>
<td>48T</td>
<td>1C3-25448-00</td>
</tr>
<tr>
<td></td>
<td>49T</td>
<td>1C3-25449-00</td>
</tr>
<tr>
<td></td>
<td>50T</td>
<td>1C3-25450-00</td>
</tr>
<tr>
<td></td>
<td>51T</td>
<td>1C3-25451-00</td>
</tr>
<tr>
<td></td>
<td>52T</td>
<td>1C3-25452-00</td>
</tr>
</tbody>
</table>

CHASSIS SELECTION OF THE SECONDARY REDUCTION RATIO (SPROCKET)

<table>
<thead>
<tr>
<th>Secondary reduction ratio = Number of rear wheel sprocket teeth/Number of drive sprocket teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard secondary reduction ratio 48/13 (3.692)</td>
</tr>
</tbody>
</table>

<Requirement for selection of secondary gear reduction ratio>
- It is generally said that the secondary gear ratio should be reduced for a longer straight portion of a speed course and should be increased for a course with many corners. Actually, however, as the speed depends on the ground condition of the day of the race, be sure to run through the circuit to set the machine suitable for the entire course.
- In actuality, it is very difficult to achieve settings suitable for the entire course and some settings may be sacrificed. Thus, the settings should be matched to the portion of the course that has the greatest effect on the race result. In such a case, run through the entire course while making notes of lap times to find the best balance; then, determine the secondary reduction ratio.
- If a course has a long straight portion where a machine can run at maximum speed, the machine is generally set such that it can develop its maximum revolutions toward the end of the straight line, with care taken to avoid the engine over-revving.

NOTE:
Riding technique varies from rider to rider and the performance of a machine also vary from machine to machine. Therefore, do not imitate other rider’s settings from the beginning but choose your own setting according to the level of your riding technique.

FRONT FORK SETTING
The front fork setting should be made depending on the rider’s feeling of an actual run and the circuit conditions. The front fork setting includes the following three factors:
1. Setting of air spring characteristics
   - Change the fork oil amount.
2. Setting of spring preload
   - Change the spring.
3. Setting of damping force
   - Change the compression damping.
   - Change the rebound damping.
   - The spring acts on the load and the damping force acts on the cushion travel speed.

CHANGE IN AMOUNT AND CHARACTERISTICS OF FORK OIL
Damping characteristic near the final stroke can be changed by changing the fork oil amount.
CAUTION:
Adjust the oil amount in 5 cm³ (0.2 Imp oz, 0.2 US oz) increments or decrements. Too small oil amount causes the front fork to produce a noise at full rebound or the rider to feel some pressure on his hands or body. Alternatively, too large oil amount will cause the air spring characteristics to have a tendency to be stiffer with the consequent deteriorated performance and characteristics. Therefore, adjust the front fork within the specified range.

Standard oil amount:

333 cm³ (11.72 Imp oz, 11.26 US oz)
*335 cm³ (11.79 Imp oz, 11.33 US oz)

Extent of adjustment:
300–375 cm³ (10.6–13.2 Imp oz, 10.1–12.7 US oz)

* For EUROPE

FRONT FORK SETTING PARTS
- Front fork spring "1"

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SPRING RATE</th>
<th>SPRING PART NUMBER (-23141-)</th>
<th>I.D. MARK (slit s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFT</td>
<td>0.398</td>
<td>1C3-A1</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>0.408</td>
<td>1C3-B1</td>
<td>II</td>
</tr>
<tr>
<td>STD</td>
<td>0.418</td>
<td>1C3-P0</td>
<td>—</td>
</tr>
<tr>
<td>STIFF</td>
<td>0.428</td>
<td>1C3-D1</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>0.436</td>
<td>1C3-E1</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>0.449</td>
<td>1C3-F1</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>0.459</td>
<td>1C3-G1</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>0.469</td>
<td>1C3-H1</td>
<td>III</td>
</tr>
<tr>
<td></td>
<td>0.479</td>
<td>1C3-J1</td>
<td>III</td>
</tr>
</tbody>
</table>

NOTE:
The I.D. mark (slits) "a" is proved on the end of the spring.

REAR SUSPENSION SETTING
The rear suspension setting should be made depending on the rider’s feeling of an actual run and the circuit conditions.
The rear suspension setting includes the following two factors:
1. Setting of spring preload
   • Change the set length of the spring.
   • Change the spring.
2. Setting of damping force
   • Change the rebound damping.
   • Change the compression damping.

CHOOSING SET LENGTH
1. Place a stand or block under the engine to put the rear wheel above the floor, and measure the length "a" between the rear wheel axle center and the rear fender holding bolt.
2. Remove the stand or block from the engine and with a rider astride the seat, measure the sunken length "b" between the rear wheel axle center and the rear fender holding bolt.
3. Loosen the locknut "1" and make adjustment by turning the spring adjuster "2" to achieve the standard figure from the subtraction of the length "b" from the length "a".

NOTE:
- If the machine is new and after it is broken in, the same set length of the spring may change because of the initial fatigue, etc. of the spring. Therefore, be sure to make reevaluation.
- If the standard figure cannot be achieved by adjusting the spring adjuster and changing the spring setting of the spring, take care so that the machine front and rear are balanced (in position, etc.) when setting the front fork.

1. Setting of spring preload
   • Change the set length of the spring.
   • Change the spring.
2. Setting of damping force
   • Change the rebound damping.
   • Change the compression damping.
set length, replace the spring with an optional one and make readjustment.

**SETTING OF SPRING AFTER REPLACEMENT**

After replacement, be sure to adjust the spring to the set length [sunken length 90–100 mm (3.5–3.9 in)] and set it.

1. **Use of soft spring**
   - Set the soft spring for less rebound damping to compensate for its less spring load. Run with the rebound damping adjuster one or two clicks on the softer side and readjust it to suit your preference.

2. **Use of stiff spring**
   - Set the stiff spring for more rebound damping to compensate for its greater spring load. Run with the rebound damping adjuster one or two clicks on the stiffer side and readjust it to suit your preference.

**NOTE:**

Adjusting the rebound damping will be followed more or less by a change in the compression damping. For correction, turn the low compression damping adjuster on the softer side.

**CAUTION:**

When using a rear shock absorber other than currently installed, use the one whose overall length “a” does not exceed the standard as it may result in faulty performance. Never use one whose overall length is greater than standard.

**Length “a” of standard shock:**

490 mm (19.29 in)

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**REAR SHOCK ABSORBER SETTING PARTS**

- Rear shock spring “1”
  - [Equal-pitch titanium spring]
  - [Unequal-pitch steel spring]

<table>
<thead>
<tr>
<th>TYPE</th>
<th>RATING</th>
<th>SPRING PART NUMBER (-22212-)</th>
<th>I.D. MARK</th>
<th>SPRING FREE LENGTH (approx.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOFT</td>
<td>4.5</td>
<td>1C3-00</td>
<td>Green</td>
<td>265</td>
</tr>
<tr>
<td>STIFF</td>
<td>4.7</td>
<td>1C3-10</td>
<td>Red</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td>4.9</td>
<td>1C3-20</td>
<td>Black</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td>5.1</td>
<td>1C3-30</td>
<td>Blue</td>
<td>265</td>
</tr>
<tr>
<td></td>
<td>5.3</td>
<td>5UN-00</td>
<td>Brown/1</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td>5.5</td>
<td>5UN-50</td>
<td>Yellow/1</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td>5.7</td>
<td>5UN-60</td>
<td>Pink/1</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td>5.7</td>
<td>5UN-70</td>
<td>White/1</td>
<td>260</td>
</tr>
</tbody>
</table>

**UNEQUAL-PITCH STEEL SPRING**

- Use of soft spring
  - Set the soft spring for less rebound damping to compensate for its less spring load. Run with the rebound damping adjuster one or two clicks on the softer side and readjust it to suit your preference.

- Use of stiff spring
  - Set the stiff spring for more rebound damping to compensate for its greater spring load. Run with the rebound damping adjuster one or two clicks on the stiffer side and readjust it to suit your preference.

**NOTE:**

- The unequal-pitch spring is softer in initial characteristic than the equal-pitch spring and is difficult to bottom out under full compression.
- The I.D. mark “a” is marked at the end of the spring.
- Spring specification varies according to the color and quantity of I.D. marks.

**CAUTION:**

Install the spring seat “2” to the titanium spring.
### Extent of adjustment (spring length)

#### [Titanium spring]

<table>
<thead>
<tr>
<th>SPRING FREE LENGTH</th>
<th>EXTENT OF ADJUSTMENT &quot;b&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 265 mm (10.43 in)</td>
<td>One I.D. mark 245.5–263.5 mm (9.67–10.37 in)</td>
</tr>
<tr>
<td></td>
<td>Two I.D. marks 251.5–269.5 mm (9.90–10.61 in)</td>
</tr>
<tr>
<td></td>
<td>Three I.D. marks 243.0–261.0 mm (9.57–10.28 in)</td>
</tr>
</tbody>
</table>

#### [Steel spring]

<table>
<thead>
<tr>
<th>SPRING FREE LENGTH</th>
<th>EXTENT OF ADJUSTMENT &quot;b&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>260 mm (10.24 in)</td>
<td>240.5–258.5 mm (9.47–10.18 in)</td>
</tr>
<tr>
<td>275 mm (10.83 in)</td>
<td>255.5–273.5 mm (10.06–10.77 in)</td>
</tr>
</tbody>
</table>
### CHASSIS

#### SUSPENSION SETTING (FRONT FORK)

**NOTE:**
- If any of the following symptoms is experienced with the standard position as the base, make resetting by reference to the adjustment procedure given in the same chart.
- Before any change, set the rear shock absorber sunken length to the standard figure 90–100 mm (3.5–3.9 in).

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Section</th>
<th>Check</th>
<th>Adjust</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(Jump)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low front, tending to lower front posture</td>
<td>Jump</td>
<td>Compression damping, Rebound damping, Balance with rear end</td>
<td>Turn adjuster clockwise (about 2 clicks) to increase damping. Set sunken length for 95–100 mm (3.7–3.9 in) when one passenger is astride seat (lower rear posture). Increase oil amount by about 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Soft toward stroke end</td>
<td>Jump</td>
<td>Oil amount</td>
<td>Decrease oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Soft toward stroke end, bottoming out</td>
<td>Jump</td>
<td>Oil amount</td>
<td>Increase oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Stiff initial movement</td>
<td>Jump</td>
<td>Compression damping</td>
<td>Turn adjuster counterclockwise (about 2 clicks) to decrease damping.</td>
</tr>
<tr>
<td><em>(Large gap)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soft over entire range, bottoming out</td>
<td>Large gap</td>
<td>Compression damping</td>
<td>Turn adjuster clockwise (about 2 clicks) to increase damping. Increase oil amount by about 5–10 cm³ (0.2–0.4 Imp oz, 0.2–0.3 US oz). Replace with stiff spring.</td>
</tr>
<tr>
<td>Stiff toward stroke end</td>
<td>Large gap</td>
<td>Oil amount</td>
<td>Decrease oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Soft toward stroke end, bottoming out</td>
<td>Large gap</td>
<td>Oil amount</td>
<td>Increase oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Stiff initial movement</td>
<td>Large gap</td>
<td>Compression damping</td>
<td>Turn adjuster clockwise (about 2 clicks) to increase damping.</td>
</tr>
<tr>
<td><em>(Medium gap)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low front, tending to lower front posture</td>
<td>Medium gap</td>
<td>Compression damping, Rebound damping, Balance with rear end</td>
<td>Turn adjuster clockwise (about 2 clicks) to increase damping. Set sunken length for 95–100 mm (3.7–3.9 in) when one passenger is astride seat (lower rear posture). Increase oil amount by about 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Soft toward stroke end</td>
<td>Medium gap</td>
<td>Oil amount</td>
<td>Decrease oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Soft toward stroke end, bottoming out</td>
<td>Medium gap</td>
<td>Oil amount</td>
<td>Increase oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Stiff initial movement</td>
<td>Medium gap</td>
<td>Compression damping</td>
<td>Turn adjuster clockwise (about 2 clicks) to increase damping.</td>
</tr>
<tr>
<td><em>(Small gap)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low front, tending to lower front posture</td>
<td>Small gap</td>
<td>Compression damping, Rebound damping, Balance with rear end</td>
<td>Turn adjuster clockwise (about 2 clicks) to increase damping. Set sunken length for 95–100 mm (3.7–3.9 in) when one passenger is astride seat (lower rear posture). Increase oil amount by about 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Soft toward stroke end</td>
<td>Small gap</td>
<td>Oil amount</td>
<td>Decrease oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Soft toward stroke end, bottoming out</td>
<td>Small gap</td>
<td>Oil amount</td>
<td>Increase oil amount by 5 cm³ (0.2 Imp oz, 0.2 US oz).</td>
</tr>
<tr>
<td>Stiff initial movement</td>
<td>Small gap</td>
<td>Compression damping</td>
<td>Turn adjuster clockwise (about 2 clicks) to increase damping.</td>
</tr>
</tbody>
</table>

### Adjustments:

- **Compression damping**
  - Turn adjuster counterclockwise (about 2 clicks) to decrease damping.
  - Turn adjuster clockwise (about 2 clicks) to increase damping.

- **Oil amount**
  - Decrease oil amount by about 5–10 cm³ (0.2–0.4 Imp oz, 0.2–0.3 US oz).
  - Increase oil amount by about 5–10 cm³ (0.2–0.4 Imp oz, 0.2–0.3 US oz).

- **Spring**
  - Replace with soft spring.
  - Replace with stiff spring.
  - Replace with a new one for extended use.

- **Balance with rear end**
  - Set sunken length for 95–100 mm (3.7–3.9 in) when one passenger is astride seat (lower rear posture).
  - Set sunken length for 90–95 mm (3.5–3.7 in) when one passenger is astride seat (upper rear posture).

- **Oil seal**
  - Apply grease in oil seal wall.
  - Apply grease in oil seal wall.

- **Outer tube**
  - Check for any bends, dents, and other noticeable scars, etc. If any, replace affected parts.

- **Inner tube**
  - Replace with a new one for extended use.

- **Slide metal**
  - Replace with a new one for extended use.

- **Piston metal**
  - Replace with a new one for extended use.

- **Under bracket tightening torque**
  - Retighten to specified torque.

- **Rebound damping**
  - Turn adjuster counterclockwise (about 2 clicks) to decrease damping.
  - Turn adjuster clockwise (about 2 clicks) to decrease damping.
SUSPENSION SETTING (REAR SHOCK ABSORBER)

NOTE:
- If any of the following symptoms is experienced with the standard position as the base, make resetting by reference to the adjustment procedure given in the same chart.
- Adjust the rebound damping in 2-click increments or decrements.
- Adjust the low compression damping in 1-click increments or decrements.
- Adjust the high compression damping in 1/6 turn increments or decrements.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Section</th>
<th>Check</th>
<th>Adjust</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jump</td>
<td>Large gap</td>
<td>Medium gap</td>
</tr>
<tr>
<td>Stiff, tending to sink</td>
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<td></td>
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<tr>
<td>Spongy and unstable</td>
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<td>Heavy and dragging</td>
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<tr>
<td>Poor road gripping</td>
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<tr>
<td>Bottoming out</td>
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<tr>
<td>Stiff travel</td>
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</tbody>
</table>