NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic’s education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha scooter have a basic understanding of the mechanical concepts and procedures inherent in scooter repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

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

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

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION
This material is distinguished by the following notation.

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

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

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

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

In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings
  Pitting/Damage→Replace.

EXPLODED DIAGRAM
Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.
ILLUSTRATED SYMBOLS
(Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter's number and content.
① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Appendices

Illustrated symbols ⑨ to ⑰ are used to identify the specifications appearing in the text.
⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ Ω, V, A

Illustrated symbols ⑮ to ⑰ in the exploded diagram indicate grade of lubricant and location of lubrication point.
⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)
<table>
<thead>
<tr>
<th>INDEX</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL INFORMATION</td>
<td>GEN INFO</td>
</tr>
<tr>
<td>PERIODIC INSPECTIONS AND ADJUSTMENTS</td>
<td>INSP ADJ</td>
</tr>
<tr>
<td>ENGINE OVERHAUL</td>
<td>ENG</td>
</tr>
<tr>
<td>CARBURETION</td>
<td>CARB</td>
</tr>
<tr>
<td>CHASSIS</td>
<td>CHAS</td>
</tr>
<tr>
<td>ELECTRICAL</td>
<td>ELEC</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>APPX</td>
</tr>
</tbody>
</table>
CHAPTER 1
GENERAL INFORMATION

SCOOTER IDENTIFICATION .............................................. B-3
VEHICLE IDENTIFICATION NUMBER ............................... B-3
ENGINE SERIAL NUMBER ............................................. B-3

IMPORTANT INFORMATION ........................................... B-3
ALL REPLACEMENT PARTS ............................................. B-3
GASKETS, OIL SEALS, AND O-RINGS ............................. B-3
LOCK WASHER/PLATES AND COTTER PINS ....................... B-3
BEARINGS AND OIL SEALS ......................................... B-4
CIRCLIPS ............................................................... B-4

SPECIAL TOOLS .......................................................... B-4
FOR TUNE-UP ............................................................ B-4
FOR ENGINE SERVICE ................................................ B-4
FOR CHASSIS SERVICE .............................................. B-5
FOR ELECTRICAL COMPONENTS ................................. B-5
GENERAL INFORMATION

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

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

Starting Serial Number:
JYA2UG00*HA720101

ENGINE SERIAL NUMBER
The engine serial number ② is stamped into the crankcase.

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

Starting Serial Number:
14T-720101

NOTE: ____________________________
Designs and specifications are subject to change without notice.
IMPORTANT INFORMATION

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

GASKETS, OIL SEALS, AND O-RINGS
1. All gaskets, seals, and O-rings should be replaced when an engine is overhauled. All gasket surfaces, oil seal lips and O-rings must be cleaned.

2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.

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

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

    ![Diagram](image1)

    ![Diagram](image2)

    ![Diagram](image3)

**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.

    ![Diagram](image4)

4. Shaft
SPECIAL TOOLS

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

FOR TUNE-UP
1. Inductive Tachometer
   P/N. YU-08036
   This tool is needed for detecting engine rpm.

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

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

2. Flywheel Magneto Puller
   P/N. YM-01189
   This tool is used to remove the flywheel.
3. Primary Sheave Holder  
P/N. YS-01880  
This tool is used when holding the clutch hub.

4. Clutch Spring Holder  
P/N. YS-28891  
This tool is used to disassemble and assembly the secondary sheave.

5. Thickness Gauge  
P/N. YU-03001

6. Universal Puller Set  
P/N. YU-33270  
This tool is used to remove the crankshaft from the crankcase.

7. Crankcase Separating Tool  
P/N. YU-01135  
This tool is used to remove the crankshaft or separate the crankcase.
8. Crankshaft Installation Set  
   P/N. YU-90050  
   Adapter (M10)  
   P/N. YM-90062  
   Adapter (M12)  
   P/N. YM-90063  
   These tools are used to install the crankshaft.

9. Sealant (Quick Gasket®)  
   P/N. ACC-11001-05-01  
   This sealant (bond) is used for crankcase mating surfaces.

FOR CHASSIS SERVICE  
1. Ring Nut Wrench  
   P/N. YU-01268  
   P/N. YU-33975  
   This tool is used to loosen and tighten the steering ring nut.

FOR ELECTRICAL COMPONENTS  
1. Pocket Tester  
   P/N. YU-03112  
   This instrument is invaluable for electrical system inspection and adjustment.

2. Electro Tester  
   P/N. YU-33260  
   This instrument is necessary for ignition system inspection.
CHAPTER 2
PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION .............................................................. C-3
PERIODIC MAINTENANCE/LUBRICATION INTERVALS ................. C-3
TAIL COVER ........................................................................ C-3
  REMOVAL ........................................................................ C-3
  INSTALLATION ................................................................. C-4
FRONT FENDER, FRONT PANEL AND FOOTREST BOARD .......... C-4
  REMOVAL ........................................................................ C-4
  INSTALLATION ................................................................. C-5
HANDLEBAR COVERS ....................................................... C-5
  REMOVAL ........................................................................ C-5
  INSTALLATION ................................................................. C-5
ENGINE ............................................................................ C-5
  ENGINE IDLE SPEED ADJUSTMENT ........................................ C-5
  THROTTLE CABLE FREE PLAY ADJUSTMENT ....................... C-6
  AUTOLUBE PUMP CABLE ADJUSTMENT ................................. C-6
  AUTOLUBE PUMP AIR BLEEDING ........................................ C-7
  AIR CLEANER ELEMENT CLEANING .................................... C-8
  FUEL COCK CLEANING ..................................................... C-8
  COMPRESSION PRESSURE MEASUREMENT .......................... C-9
  ENGINE OIL LEVEL INSPECTION ....................................... C-10
  TRANSMISSION OIL REPLACEMENT .................................... C-10
  FUEL LINE INSPECTION .................................................. C-11
CHASSIS ............................................................................ C-11
  FRONT BRAKE LEVER FREE PLAY CHECK ........................... C-11
  REAR BRAKE LEVER FREE PLAY CHECK ............................. C-11
  FRONT AND REAR BRAKE LINING INSPECTION .................. C-12
  TIRE AND WHEEL INSPECTION ........................................ C-12
  STEERING ADJUSTMENT ................................................. C-12
ELECTRICAL ................................................................. C-13
  BATTERY ....................................................................... C-13
  FUSE INSPECTION ......................................................... C-14
  SPARK PLUG INSPECTION ................................................ C-14
  HEADLIGHT BEAM ADJUSTMENT ....................................... C-15
  IGNITION TIMING ......................................................... C-15
# INTRODUCTION

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

## PERIODIC MAINTENANCE/LUBRICATION INTERVALS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>REMARKS</th>
<th>BREAK-IN EVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>500 (300)</td>
</tr>
<tr>
<td>Spark plug</td>
<td>Check/Clean or replace.</td>
<td></td>
</tr>
<tr>
<td>Air filter</td>
<td>Clean. Replace if necessary.</td>
<td></td>
</tr>
<tr>
<td>Carburetor</td>
<td>Check/Adjust/idle speed, starter operation.</td>
<td></td>
</tr>
<tr>
<td>Fuel line</td>
<td>Check fuel hose for cracks or damage.</td>
<td></td>
</tr>
<tr>
<td>Transmission oil</td>
<td>Replace (Warm engine before draining). Every 12,000 (8,000) or 24 months.</td>
<td>Replace</td>
</tr>
<tr>
<td>Autolube pump</td>
<td>Check/Adjust/Air bleeding.</td>
<td></td>
</tr>
<tr>
<td>Brake</td>
<td>Check operation. Adjust if necessary.</td>
<td></td>
</tr>
<tr>
<td>Wheels*</td>
<td>Check balance/damage/runout.</td>
<td></td>
</tr>
<tr>
<td>Wheel bearings</td>
<td>Check bearings assembly for looseness/damage. Replace if damaged.</td>
<td></td>
</tr>
<tr>
<td>Steering bearing</td>
<td>Check bearings assembly for looseness. Moderately repack every 12,000 (8,000) or 24 months.**</td>
<td>Check</td>
</tr>
<tr>
<td>Rear shock absorber</td>
<td>Check operation.</td>
<td></td>
</tr>
<tr>
<td>Fittings/Fasteners</td>
<td>Check all chassis fittings and fasteners.</td>
<td></td>
</tr>
<tr>
<td>Battery</td>
<td>Check specific gravity. Check breather pipe for proper operation.</td>
<td></td>
</tr>
<tr>
<td>V-belt</td>
<td>Check damage and wear. Replace if necessary.</td>
<td></td>
</tr>
</tbody>
</table>

**: Medium weight wheel bearing grease.
1. Open the seat lock.

2. Remove:
   • Seat

3. Remove:
   • Cover ①

4. Remove:
   • Grab bar
   • Rear carrier
   (With rear flasher lights and taillight)

5. Disconnect:
   • Rear flasher light leads
   • Taillight leads

6. Remove:
   • Side covers (Right and left)

NOTE: When removing the side cover, unhook it at the front and slide it forward.

7. Remove:
   • Tail cover
INSTALLATION
When installing the tail cover, reverse the “REMOVAL” procedure.
Note the following points.

1. Install:
   • Side covers
   NOTE: After installing the side covers, make sure that all hooks are securely fitted.

2. Connect:
   • Rear flasher light leads
   NOTE: The leads of identical colors should be connected.

3. Install:
   • Rear carrier
   \[ 7 \text{ Nm (0.7 m\cdot kg, 5.1 ft\cdot lb)} \]

4. Install:
   • Seat
   \[ 7 \text{ Nm (0.7 m\cdot kg, 5.1 ft\cdot lb)} \]
FRONT FENDER, FRONT PANEL AND FOOTREST BOARD

FRONT FENDER, FRONT PANEL AND FOOTREST BOARD REMOVAL

1. Remove:
   • Tail cover
   Refer to "TAIL COVER" section.

2. Remove:
   • Front fender
   NOTE: __________________________
   Before removing the fender, make sure that all hooks are free.

3. Remove:
   • Main switch cap
   Turn the cap counterclockwise.

4. Remove:
   • Front panel

5. Remove:
   • Footrest board
FRONT FENDER, FRONT PANEL AND FOOTREST BOARD/HANDLEBAR COVERS

INSTALLATION
Reverse the "REMOVAL" procedure.
Note the following points.

1. Install:
   • Front fender

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

HANDLEBAR COVERS

REMOVAL
1. Remove:
   • Screws (Handlebar cover — Front)
   • Rear view mirror(s)

2. Disconnect:
   • Headlight lead and flasher light leads

3. Remove:
   • Handlebar cover (Front) ①

4. Disconnect:
   • Leads
   • Speedometer cable ①

5. Remove:
   • Handlebar cover (Rear) ②
INSTALLATION

1. Install:
   • Handlebar cover (Rear) ①

2. Connect:
   • Leads
   • Speedometer cable ②

NOTE: Position the cables as shown.

① Front brake cable
② Throttle cable
③ Rear brake cable

ENGINE

ENGINE IDLE SPEED ADJUSTMENT

1. Remove:
   • Tail cover
   Refer to "TAIL COVER" section.

2. Start the engine and warm it up before checking the idle speed.

NOTE: A warm engine is defined as one which had been operated for about 3 minutes at 3,000 r/min with no load.
THROTTLE CABLE FREE PLAY ADJUSTMENT

1. Check:
   • Throttle cable free play ③
     Out of specification → Adjust.

   Throttle Cable Free Play ③:
   3.0~7.0 mm (0.12~0.28 in)

   Throttle cable free play adjustment steps;
   NOTE: 
   Before adjusting the throttle cable free play, the engine idle speed should be adjusted.
AUTOLUBE PUMP CABLE ADJUSTMENT

**NOTE:**
Before adjusting the pump cable, adjust the throttle cable free play.

1. **Remove:**
   - Tail cover
     Refer to "TAIL COVER" section.
   - Front fender
   - Front panel
   - Footrest board
     Refer to "FRONT FENDER, FRONT PANEL AND FOOTREST BOARD" section.

2. **Check:**
   - Throttle cable free play \( \text{③} \)
     (at carburetor side)
     Out of specification → Adjust.

   **Throttle Cable Free Play \( \text{③} \):**
   1.0 mm (0.04 in)

**Throttle cable free play adjustment steps:**
   - Loosen the locknut ①.
   - Turn the adjuster ② in or out until the correct free play is obtained.
   - Tighten the locknut.
3. Remove:
   • Autolube pump cover

4. Close the throttle grip completely.

5. Check:
   • Autolube pump pulley position
     Out of position—Adjust.

   Autolube Pump Pulley Position:
   0.0~1.0 mm (0.0~0.04 in)

   Autolube pump pulley position adjustment steps:
   • Loosen the locknut.
   • Turn the adjuster in or out until the pump
     plunger pin is aligned with the mark on the pump pulley.
   • Tighten the locknut.

6. Install:
   • Autolube pump cover
   • Footrest board
   • Front panel
   • Front fender
   • Tail cover
   Refer to “FRONT FENDER, FRONT PANEL AND FOOTREST BOARD” and “TAIL COVER” section.

AUTOLUBE PUMP AIR BLEEDING
The Autolube pump and delivery lines must be bled on the following occasions:
• Whenever the Autolube tank has run dry.
• Whenever any portion of the Autolube system is disconnected.
• If the scooter lies on its side after falling over.
1. Remove:
   • Tail cover
   • Front fender
   • Front panel
   • Footrest board
   Refer to "TAIL COVER" and "FRONT FENDER, FRONT PANEL AND FOOTREST BOARD" section.

2. Remove:
   • Autolube pump cover ①

3. Remove:
   • Bleed screw ①

   **NOTE:**
   Place a rag under the Autolube pump.

4. Start the engine at idle speed.

5. Air bleed:
   Keep the oil running out until air bubbles disappear.

   **NOTE:**
   Pull the pump cable all the way out to set the pump stroke to a maximum.

6. Inspect:
   • Bleed screw gasket
     Damage → Replace.

7. Install:
   • Bleed screw gasket
   • Bleed screw
8. Keep the engine running at about 2,000 r/min for two minutes or so, and both distributor and delivery pipe can be completely bled.

**NOTE:**
It is difficult to bleed the distributor completely with the pump stroke at a minimum, and therefore the pump stroke should be set to a maximum.

9. Install:
- Autolube pump cover
- Footrest board
- Front panel
- Front fender
- Tail cover
Refer to "FRONT PANEL, FRONT FENDER AND FOOTREST BOARD" and "TAIL COVER" section.

**AIR CLEANER ELEMENT CLEANING**

1. Remove:
- Side cover (Left)

**NOTE:**
When removing the side cover, unhook it at the front and slide it forward.

2. Remove:
- Air cleaner case cover ①
- Air cleaner element

**CAUTION:**
Never operate the engine with the air cleaner element removed. This will allow unfiltered air to enter, causing rapid wear and possible engine damage. Additionally, operation without the cleaner element will affect carburetor jetting with subsequent poor performance and possible engine overheating. Be careful not to have rags or the like blocking the intake area of the air cleaner.
3. Clean:
   • Air cleaner element

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

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

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

   **CAUTION:**
   Do not twist the element when squeezing the element.

4. Inspect:
   • Element
     Damage → Replace.

5. Apply:
   • Foam-air-filter oil or SAE 10W30 type SE motor oil
     Onto the element.

6. Squeeze out the excess oil.

   **NOTE:**
   The element should be wet but not dripping.

7. Install:
   • Air cleaner element
   • Air cleaner case cover
   • Side cover (Left)

---

**FUEL COCK CLEANING**

1. Remove:
   • Tail cover
     Refer to "TAIL COVER" section.
2. Drain:
- Fuel

**WARNING:**

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

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

4. Clean:
- Filter
- Cap
  Wash the filter and cap gently using solvent.

5. Inspect:
- Filter
- O-ring
  Damage → Replace.

6. Install:
- O-ring
- Filter
- Cap
- Tail cover
  Refer to "TAIL COVER" section.
COMPRESSION PRESSURE MEASUREMENT

Insufficient compression pressure will result in performance loss and may indicate worn or damaged piston rings.

1. Remove:
   • Cover ①

2. Warm up engine for several minutes, then stop the engine.
3. Remove:
   • Spark plugs
4. Connect:
   • Compression Gauge (YU-33223) ①
5. Measure:
   • Compression

NOTE:
Start the starter motor and throttle valve wide-open until the pressure indicated on gauge can rise no further. Compression should be within the specified levels.

Compression Pressure (at sea level):
Standard ........ 800 kPa (8.0 kg/cm², 114 psi)
Minimum .......... 640 kPa (6.4 kg/cm², 91 psi)

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

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

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

Compression test steps (above standard levels):
• Check cylinder head or piston crown for carbon deposits.
ENGINE OIL LEVEL INSPECTION

1. Place the scooter on the level place.

NOTE:

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

2. Inspect:

- Engine oil level

Oil level low—Add sufficient oil by the following inspection steps.

1. “OIL” indicator light

Engine oil level visual inspection steps:

Turn main switch to “*” position.

“OIL” indicator light does not come on.

Inspect electrical circuit.

“OIL” indicator light comes on.

Turn main switch to “ON” position.

“OIL” indicator light does not come on.

Engine oil level and electrical circuit are OK.

“OIL” indicator light comes on.

Supply engine oil.
Recommended Oil: Yamalube 2 or Air Cooled 2 Stroke Engine Oil
Oil Capacity:
Total: 0.8 L (0.7 Imp qt, 0.84 US qt)

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

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

TRANSMISSION OIL REPLACEMENT
1. Warm up the engine at idle speed, then stop it.
2. Place the oil pan under the drain hole.
3. Remove:
   • Drain bolt ①
     Drain the transmission oil.
   • Oil filler plug
4. Inspect:
   - Gasket (Drain bolt)
   - O-ring (Oil filler plug)
   Damage → Replace.

5. Install:
   - Gasket
   - Drain bolt

   ![Drain Bolt]
   18 Nm (1.8 m·kg, 13 ft·lb)

6. Fill:
   - Transmission case

   ![Transmission Oil]
   Yamalube 4 or SAE 10W30 Type
   SE Motor Oil
   Capacity:
   0.1 L (0.09 Imp qt, 0.11 US qt)

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

7. Install:
   - Oil filler plug

---

**FUEL LINE INSPECTION**

1. Remove:
   - Tail cover
     Refer to "TAIL COVER" section.
2. Inspect:
   - Fuel pipe
     Cracks/Damage → Replace.

3. Install:
   - Tail cover
     Refer to "TAIL COVER" section.

CHASSIS
FRONT BRAKE LEVER FREE PLAY CHECK
1. Check:
   - Front brake lever free play
     Out of specification → Adjust.

   
10～20 mm (0.4～0.8 in)

Front brake lever free play adjustment steps:
   - Turn the adjuster in or out until the correct free play is obtained.

REAR BRAKE LEVER FREE PLAY CHECK
1. Check:
   - Rear brake lever free play
     Out of specification → Adjust.

   
10～20 mm (0.4～0.8 in)

Rear brake lever free play adjustment steps:
   - Turn the adjuster in or out until the correct free play is obtained.
FRONT AND REAR BRAKE LINING INSPECTION/ TIRE AND WHEEL INSPECTION

FRONT AND REAR BRAKE LINING
1. Activate the brake lever.

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

TIRE AND WHEEL INSPECTION
1. Measure:
   • Air pressure
     Out of specification → Adjust.

<table>
<thead>
<tr>
<th></th>
<th>Cold tire pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Front 125 kPa (1.25 kg/cm², 18 psi)</td>
</tr>
<tr>
<td></td>
<td>Rear 225 kPa (2.25 kg/cm², 32 psi)</td>
</tr>
</tbody>
</table>

WARNING:

Proper loading of your scooter is important for the handling, braking, and other performance and safety characteristics of your scooter. Do not carry loosely packed items that can shift. Securely pack your heaviest items close to the center of the scooter, and distribute the weight evenly from side to side. And check the condition and pressure of your tires. NEVER OVERLOAD YOUR SCOOTER. Make sure the total weight to the cargo, rider, passenger, and accessories (fairing, saddlebags, etc. if approved for this model) does not exceed the maximum load of the scooter. Operation of an overloaded scooter could cause tire damage, an accident, or even injury.
2. Inspect:
• Tire surface
  Wear/Damage/Cracks/Road hazards → Replace.
• Aluminum wheels
  Damage/Bends → Replace.
  Never attempt even small repairs to the wheel.

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

3. Measure:
• Tire tread depth
  Out of specification → Replace.

<table>
<thead>
<tr>
<th>Minimum Tire Tread Depth:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(front and rear)</td>
</tr>
<tr>
<td>0.8 mm (0.03 in)</td>
</tr>
</tbody>
</table>

1. Tread depth
2. Side wall
3. Wear indicator

**STEERING ADJUSTMENT**
1. Place the scooter on its centerstand, then elevate the front wheel.
2. Check:
• Steering assembly bearings
  Grasp the bottom of the forks and gently
  rock the rock assembly back and forth.
  Looseness → Adjust.

Steering head adjustment steps:
• Remove the front fender and front panel.
  Refer to "FRONT FENDER, FRONT PANEL
  AND FOOTREST BOARD" section.
• Tighten the ring nut ① to specification us-
  ing the Ring Nut Wrench (YU-33975).

<table>
<thead>
<tr>
<th>Ring Nut ①:</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Nm (3.0 m·kg, 22 ft·lb)</td>
</tr>
</tbody>
</table>

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

• Move the handlebar up and down, and/or
  back and forth. If handlebar free play is ex-
  cess, tighten the bolt ② to specification.

<table>
<thead>
<tr>
<th>Bolt ②:</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 Nm (6.0 m·kg, 43 ft·lb)</td>
</tr>
</tbody>
</table>

• Install the front fender and front panel.

ELECTRICAL
BATTERY
1. Check:
• Fluid level
  Incorrect → Refill.
  Fluid level should be between upper and
  lower level marks.
  ① Upper level
  ② Lower level

CAUTION:
Refill with distilled water only; tap water
contains minerals harmful to a battery.
2. Inspect:
- Breather hose
  Obstruction → Remove.
  Damage → Replace.

3. Inspect:
- Battery

Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate one cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.

4. Measure:
- Specific gravity:
  Less than 1.280 → Recharge battery.

Charging Current:
0.4 amps/10 hrs
Specific Gravity:
1.280 at 20°C (68°F)
CAUTION:
Always charge a new battery before using it to ensure maximum performance.

WARNING:
Battery electrolyte is dangerous; it contains sulfuric acid and therefore is poisonous and highly caustic.
Always follow these preventive measures:
• Avoid bodily contact with electrolyte as it can cause severe burns or permanent eye injury.
• Wear protective eye gear when handling or working near batteries.
Antidote (EXTERNAL):
• SKIN—Flush with water.
• EYES—Flush with water for 15 minutes and get immediate medical attention.
Antidote (INTERNAL):
• Drink large quantities of water or milk (follow with milk of magnesia) beaten egg, or vegetable oil. Get immediate medical attention.
Batteries also generate explosive hydrogen gas, therefore you should always follow these preventive measures:
• Charge batteries in a well-ventilated area.
• Keep batteries away from fire, sparks, or open flames (e.g., welding equipment, lighted cigarettes, etc.)
• DO NOT SMOKE when charging or handling batteries.
KEEP BATTERIES AND ELECTROLYTE OUT OF REACH OF CHILDREN.

FUSE INSPECTION
1. Open the seat lock.
FUSE INSPECTION/SPARK PLUG INSPECTION

2. Inspect:
   • Fuse 1
     Defective → Replace.

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

WARNING:

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

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

SPARK PLUG INSPECTION

1. Remove:
   • Cover 1
   • Spark plug.

2. Inspect:
   • Electrode 1
     Wear/Damage → Replace.
   • Insulator 2
     Abnormal Color → Replace.

Standard Spark Plug:
BPR6HS (N.G.K.)
3. Measure:
   • Plug gap (a)
     Out of specification → Regap.
     Use a Wire Gauge or Feeler Gauge.

   ![Spark Plug Gap (a): 0.9 ~ 1.0 mm (0.035 ~ 0.039 in)]

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

5. Tighten:
   Before installing a spark plug, clean the gasket and plug surfaces.

   NOTE: Finger-tighten the spark plug before torquing to specification.

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

---

**HEADLIGHT BEAM ADJUSTMENT**

1. Adjust:
   • Headlight (Vertically)
     ![Vertical adjustment]
     
     | Vertical adjustment |
     |--------------------|
     | Higher             |
     | Lower              |
     | Loosen the adjusters ① |
     | Tighten the adjusters ① |

   • Headlight (Horizontal)
     ![Horizontal adjustment]
     
     | Horizontal adjustment |
     |-----------------------|
     | Right                 |
     | Left                  |
     | Loosen the adjuster ② or tighten the adjuster ③ |
     | Loosen the adjuster ③ or tighten the adjuster ② |

**IGNITION TIMING**

Adjustment free.
CHAPTER 3
ENGINE OVERHAUL

ENGINE REMOVAL ............................................. D-3
PREPARATION FOR REMOVAL ................................ D-3
TAIL COVER ................................................. D-3
FRONT FENDER, FRONT PANEL AND FOOTREST BOARD .... D-3
CARBURETOR ............................................... D-3
CABLES, LEADS AND PIPES ............................... D-4
ENGINE REMOVAL .......................................... D-4

DISASSEMBLY .............................................. D-5
MUFLER .................................................. D-5
CYLINDER HEAD ........................................ D-5
CYLINDER ................................................ D-6
PISTON PIN AND PISTON ................................ D-6
PRIMARY AND SECONDARY SHEAVE ....................... D-6
STARTER SYSTEM ....................................... D-7
C.D.I. MAGNETO .......................................... D-8
AUTOLUBE PUMP ........................................ D-8
TRANSMISSION ........................................ D-8
CRANKCASE AND CRANKSHAFT ........................... D-9

INSPECTION AND REPAIR ................................. D-10
CYLINDER HEAD .......................................... D-10
CYLINDER AND PISTON .................................. D-10
PISTON PIN AND PISTON PIN BEARING .................. D-12
AUTOLUBE PUMP ........................................ D-12
CRANKSHAFT ............................................. D-12
TRANSMISSION ......................................... D-13
PRIMARY SHEAVE ....................................... D-13
SECONDARY SHEAVE .................................... D-13
V-BELT ................................................ D-15
STARTER CLUTCH AND GEARS .......................... D-15

ENGINE ASSEMBLY AND ADJUSTMENT .................. D-16
CRANKSHAFT AND CRANKCASE .......................... D-16
TRANSMISSION .......................................... E-1
AUTOLUBE PUMP ........................................ E-3
C.D.I. MAGNETO .......................................... E-4
STARTER SYSTEM ...................................... E-5
PRIMARY AND SECONDARY SHEAVE ...................... E-6
PISTON PIN AND PISTON ................................ E-8
CYLINDER AND CYLINDER HEAD ......................... E-9
MUFLER ................................................ E-10
REMTOUNTING ENGINE .................................. E-10
ENGINE OVERHAUL

ENGINE REMOVAL

NOTE: It is necessary to remove the engine in order to remove the following components.
- Cylinder head
- Cylinder
- Piston
- CDI magneto
- Starter motor
- Primary and secondary sheave

PREPARATION FOR REMOVAL

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

2. Use proper tools and cleaning equipment. Refer to "CHAPTER 1. GENERAL INFORMATION—SPECIAL TOOLS" section.

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

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

4. Drain the transmission oil completely. Refer to “CHAPTER 2.—TRANSMISSION OIL REPLACEMENT” section.

TAIL COVER
1. Remove:
   - Seat
   - Tail cover
   - Rear carrier
   Refer to “CHAPTER 2.—TAIL COVER” section.

FRONT FENDER, FRONT PANEL AND FOOTREST BOARD
1. Remove:
   - Front fender
   - Front panel
   - Footrest board
   Refer to “CHAPTER 2.—FRONT FENDER, FRONT PANEL AND FOOTREST BOARD” section.

CARBURETOR
1. Remove:
   - Air cleaner case
2. Remove:
- Fuel pipe ①
- Oil delivery pipe ②
- Vacuum pipe ③
- Auto choke unit lead

3. Remove:
- Carburetor top cover
- Carburetor

**NOTE:**
Cover the carburetor with a clean rag to prevent dirt or foreign matter into the carburetor.

---

**CABLES, LEADS AND PIPES**

1. Remove:
- Autolube pump cover ①

2. Remove:
- Oil pump cable ①
- Oil pipe ②

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

3. Remove:
- Battery negative lead ①
4. Remove:
   • Spark plug cap

5. Remove:
   • Earth lead ①

6. Remove:
   • Rear brake cable ①

7. Disconnect:
   • C.D.I. magneto leads
   • Starter motor leads

ENGINE REMOVAL
1. Remove:
   • Air shroud ①
2. Remove:
- Engine mounting bolts

3. Remove:
- Engine
  Lift up the frame and remove the engine.

4. Place the frame on a suitable stand.

DISASSEMBLY
MUFFLER
1. Remove:
- Exhaust pipe
2. Remove:
   • Muffler

CYLINDER HEAD
1. Remove:
   • Fan cover

2. Remove:
   • Air shroud

3. Remove:
   • Cylinder head 1
   • Cylinder head gasket

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

**CYLINDER**

1. Remove:
   - Cylinder ①
   - Cylinder gasket

2. Remove:
   - Carburetor joint ①
   - Reed valve assembly

**PISTON PIN AND PISTON**

1. Remove:
   - Piston pin clip ①

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

2. Remove:
   - Piston pin ①
   - Piston ②
   - Piston pin bearing

   **NOTE:**
   Before removing the piston pin, deburr the clip groove and pin hole area. If the piston pin groove is deburred and piston pin is still difficult to remove, use Piston Pin Puller (YU-01304).

   **CAUTION:**
   Do not use a hammer to drive the piston pin out.
PRIMARY AND SECONDARY SHEAVE

1. Remove:
   - Crankcase cover (Left)
   - Dowel pins

2. Remove:
   - Fan

3. Remove:
   - Nut (Primary sheave)

NOTE:
When loosening the nut (primary sheave), hold the C.D.I. magneto using Flywheel Holding Tool (YU-01235).

4. Remove:
   - Conical spring washer
   - One-way clutch
   - Primary fixed sheave
   - V-Belt
5. Remove:
   - Shim ①
   - Collar ②
   - Primary sheave assembly ③

6. Remove:
   - O-ring ①
   - Nut ② (Secondary sheave)

   **NOTE:**
   Hold the secondary sheave using Sheave Holder (YS-01880) ③.

7. Remove:
   - Clutch housing ①
   - Secondary sheave assembly ②

---

**STARTER SYSTEM**

1. Remove:
   - Starter clutch assembly ①

2. Remove:
   - Plate ① (Idle gear)
3. Remove:
- Starter wheel gear ①
- Bearing ②
- Washers ③
- Idle gear ④

4. Remove:
- Stay ①
- Collar ②

5. Remove:
- Starter motor ①

6. Remove:
- Kick crank ①

7. Remove:
- Kick torsion spring ①
8. Remove:
   • Kick pinion gear ①

9. Remove:
   • Circlip ①
   • Plain washer ②

10. Remove:
    • Kick shaft ①
    • Collar ②

C.D.I. MAGNETO
1. Remove:
   • Nut ① (C.D.I. magneto)
     Use Flywheel Holding Tool (YU-01235) ②.

2. Remove:
   • C.D.I. magneto
     Use Flywheel Magneto Puller (YM-01189) ①.
   • Woodruff key
3. Remove:
- Stator assembly ①

4. Remove:
- Gasket ①

AUTOLUBE PUMP
1. Remove:
- Autolube pump ①

2. Remove:
- Circlip ①
- Shim ②
- Wave washer ③
- Pump drive gear ④
- Pin ⑤

TRANSMISSION
1. Remove:
- Rear wheel
- Brake shoe plate
2. Unhook:
   • Spring (Centerstand)

3. Remove:
   • Clip ①
   • Centerstand

4. Remove:
   • Transmission case cover ①
   • Gasket ②

5. Remove:
   • Main axle ①
   • Drive axle ②
   • Washer ③ (Main axle)
   • Washer ④ (Drive axle)

6. Remove:
   • Oil seal
   • Circlip ①

7. Remove:
   • Secondary sheave axle ①
CRANKCASE AND CRANKSHAFT

1. Remove:
   - Oil seal stopper
   - Circlip

2. Remove:
   - Screws (Crankcase)

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

3. Attach:
   - Crankcase Separating Tool (YU-01135)

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

4. Remove:
   - Crankcase (Left)

   As pressure is applied, alternately tap on the engine mounting bosses.

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

5. Remove:
   * Crankshaft
   Use Universal Puller Set (YU-33270) ①.

**NOTE:**
Use the following bolts available on the market.
- Length: 160 mm (6.3 in)
- Thread: 6 mm (0.24 in)
- Pitch: 1.25 mm

**INSPECTION AND REPAIR**

**CYLINDER HEAD**

1. Remove:
   * Carbon deposits
   Use a rounded scraper ①.

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

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

**Warpage measurement and re-surface-ment steps:**
- Attach a straight edge and a thickness gauge on the cylinder head.
- Measure the warpage limit.
Warpage Limit: 0.02 mm (0.0008 in)

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

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

**CYLINDER AND PISTON**

1. Eliminate:
   - Carbon deposits
     From the piston crown and ring grooves.

2. Eliminate:
   - Score marks and lacquer deposits
     From the sides of piston.
     Use a 600 – 800 grit wet sandpaper.

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

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

4. Eliminate:
   - Carbon deposits
     Use a rounded scraper ①.
5. Inspect:
   - Cylinder wall
     Wear/Scratches → Rebore or replace.

6. Measure:
   - Piston-to-cylinder clearance

**Piston-to-cylinder clearance measurement steps:**

First step:
   - Measure the cylinder bore “C” with a Cylinder Bore Gauge.

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

<table>
<thead>
<tr>
<th>Cylinder bore “C”</th>
<th>Standard</th>
<th>Wear Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.00 ~ 40.02 mm</td>
<td>40.50 mm (1.594 in)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Taper “T”</th>
<th>0.05 mm (0.0019 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Out of round “R”</td>
<td>0.01 mm (0.0004 in)</td>
</tr>
</tbody>
</table>

\[
C = \text{Maximum} \ D \\
T = (\text{Maximum} \ D_1 \text{ or } D_2) - \\
\quad (\text{Maximum} \ D_3 \text{ or } D_4) \\
R = (\text{Maximum} \ D_1, D_3 \text{ or } D_4) - \\
\quad (\text{Minimum} \ D_2, D_3 \text{ or } D_4)
\]

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

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

@ 5.0 mm (0.2 in) from the piston bottom edge.
**Piston Size P**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td>40.05 – 40.07 mm (1.577 – 1.578 in)</td>
</tr>
<tr>
<td><strong>Oversize 1</strong></td>
<td>40.25 mm (1.585 in)</td>
</tr>
<tr>
<td><strong>Oversize 2</strong></td>
<td>40.50 mm (1.594 in)</td>
</tr>
</tbody>
</table>

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

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

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

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

**Piston-to-cylinder Clearance:**
- Standard Limit: 0.15 – 0.30 mm (0.006 – 0.012 in)  
- Limit: 0.70 mm (0.028 in)

7. Measure:
- End gap
  - Out of specification → Replace rings as a set.
  - Use a Feeler Gauge ①.

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top ring</strong></td>
<td>0.15 – 0.30 mm (0.006 – 0.012 in)</td>
<td>0.70 mm (0.028 in)</td>
</tr>
<tr>
<td><strong>2nd ring</strong></td>
<td>0.15 – 0.30 mm (0.006 – 0.012 in)</td>
<td>0.70 mm (0.028 in)</td>
</tr>
</tbody>
</table>

③ Measuring Point 20 mm (0.8 in)
8. Oversize piston ring size:
   Ring size is stamped on top of the ring.

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

PISTON PIN AND PISTON PIN BEARING
1. Apply:
   • 2 cycle oil
     To the piston pin and bearing.
2. Install:
   • Piston pin
   • Piston pin bearing
     Into the small end of the connecting rod.
3. Check:
   • Free play
     There should be no noticeable for the play.
     Free play exists → Inspect the connecting rod for wear/Replace the pin and/or connecting rod as required.
4. Install:
   • Piston pin
     Into the piston pin hole.
5. Check:
   • Free play (when the piston pin is in place in the piston)
     There should be no noticeable for the play.
     Free play exists → Replace piston pin and/or piston.
6. Inspect:
   • Piston pin and bearing
     Signs of heat discoloration → Replace.
AUTOLUBE PUMP
Wear or an internal malfunction may cause pump output to vary from the factory setting. This situation is, however, extremely rare. If improper output is suspected, inspect the following:

1. Inspect:
   - Delivery line
     Obstructions → Blow out.
   - O-ring
     Wear/Damage → Replace.

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

CRANKSHAFT
1. Measure:
   - Runout limit "C"
   - Connecting rod big end side clearance "D"
   - Small end free play limit "F"
     Out of specification → Replace.
     Use V-Blocks, Dial Gauge and thickness gauge.

<table>
<thead>
<tr>
<th>Runout Limit &quot;C&quot;:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03 mm (0.0012 in)</td>
</tr>
<tr>
<td>Connecting Rod Big End Side</td>
</tr>
<tr>
<td>Clearance &quot;D&quot;:</td>
</tr>
<tr>
<td>0.2 – 0.5 mm (0.008 – 0.02 in)</td>
</tr>
<tr>
<td>Small End Free Play:</td>
</tr>
<tr>
<td>0.4 – 0.8 mm (0.015 – 0.031 in)</td>
</tr>
</tbody>
</table>

2. Inspect:
   - Bearings (Crankshaft)
     Spin the bearing inner race.
     Excessive play/Roughness → Replace.
     Pitting/Damage → Replace.
TRANSMISSION
1. Inspect:
   - Primary drive gear teeth (1)
   - Primary driven gear teeth (2)
   - Secondary drive gear teeth (3)
   - Secondary driven gear teeth (4)
   - Burrs/Chips/Roughness/Wear → Replace.

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

PRIMARY SHEAVE
1. Inspect:
   - Primary sliding sheave (1)
   - Primary fixed sheave (2)
   - Collar (3)
     Wear/Cracks/Scratch/Damage → Replace.

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

SECONDARY SHEAVE
Disassembly
1. Attach:
   - Primary Sheave Holder (YS-01880) (1)
   - Socket Wrench (41 mm) (2)

2. Loosen:
   - Clutch securing nut

CAUTION:
Do not remove the clutch securing nut yet.
3. Attach:
   - Clutch Spring Holder (YS-28891)

**NOTE:**
Use the following bolt available on the market.
Thread: 10 mm (0.39 in)
Pitch: 1.25 mm

4. Remove:
   - Clutch securing nut

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

6. Remove:
   - Guide pins

7. Remove:
   - Secondary sliding sheave

**Inspection**
1. Inspect:
   - Secondary fixed sheave
   - Secondary sliding sheave
   - Scratch/Crack/Damage → Replace as a set.
2. Inspect:
- Torque cam groove
- Guide pin
  Wear/Damage → Replace as a set.
- Oil seals
- O-rings
  Damage → Replace.

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

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

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

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

<table>
<thead>
<tr>
<th>Clutch Housing Inside Diameter:</th>
</tr>
</thead>
<tbody>
<tr>
<td>105.0 mm (4.13 in)</td>
</tr>
<tr>
<td>&lt; Wear Limit &gt;:</td>
</tr>
<tr>
<td>105.4 mm (4.15 in)</td>
</tr>
</tbody>
</table>

6. Inspect:
- Clutch shoes
  Glazed parts → Sand with coarse sandpaper.

NOTE:
After using the sand paper, clean of the polished particles with cloth.
7. Measure:
   - Clutch shoe thickness (a)
     Out of specification → Replace.

Clutch Shoe Thickness:
4.0 mm (0.16 in)
<Wear Limit>:
2.5 mm (0.10 in)

Assembly
When assembling the secondary sheave, reverse the disassembly procedure. Note the following points.

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

2. Install:
   • Sliding sheave

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

3. Apply:
   • BEL-RAY Assembly Lube®
     (to the torque cam grooves and O-rings)

4. Check:
   • Sliding sheave
     Unsmooth operation → Repair.
5. Install:
- Clutch securing nut
  Use Clutch Spring Holder ① (YS-28891).

6. Tighten:
- Clutch securing nut
  Use Sheave Holder ① (YS-01880) and Wrench (41 mm).

\[
\begin{align*}
50 \text{ Nm (5.0 m·kg, 36 ft·lb)}
\end{align*}
\]

**V-BELT**

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

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

2. Measure:
- V-belt width \( a \)
  
  Out of specification → Replace.

\[
\begin{align*}
\text{V-Belt Width:} & \quad 15.0 \text{ mm (0.59 in)} \\
\text{<Wear Limit>:} & \quad 13.5 \text{ mm (0.53 in)}
\end{align*}
\]

**STARTER CLUTCH AND GEARS**

1. Inspect:
- Starter clutch
  
  Push the dowel pin to arrow direction.
  
  Unsmooth operation → Replace starter clutch assembly.
2. Inspect:
   - Starter wheel gear teeth
   - Idle gear teeth
   Burrs/Chips/Roughness/Wear → Replace.

3. Inspect:
   - Bearing (Starter wheel gear)
   Pitting/Damage → Replace.

4. Inspect:
   - Kick gear teeth
   - Kick pinion gear teeth
   Burrs/Chips/Roughness/Wear → Replace.

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

6. Measure:
   - Clip tension (Kick pinion gear)
   Out of specification → Replace.
   Use a spring balance.

**Standard Tension:**
250 ~ 300 g (8.83 ~ 10.6 oz)
To protect the crankshaft against scratches or to facilitate the operation of the installation. Apply the grease to the oil seal lips, and apply the engine oil to each bearing.

1. Attach:
   - Crankshaft Installing Tool (YU-90050 ①, YM-90062 ②)

2. Install:
   - Crankshaft
   To left crankcase.

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

3. Apply:
   - Sealant (Quick Gasket®) (ACC-11001-30-00)
   To the mating surfaces of both case halves.

4. Install:
   - Dowel pins ①
   - Spacer ②

5. Install:
   - Right crankcase
   Use crankshaft Installing Tool (YU-90050 ①, YM-90063 ②).
6. Tighten:
   • Crankcase holding screws

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

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

8. Install:
   • Oil seal stopper plate ①
   • Circlip ②

**Screw (Oil Seal Stopper Plate):**
13 Nm (1.3 m·kg, 9.4 ft·lb)
CRANKSHAFT
1. Oil seal
2. Bearing
3. Crank (Right)
4. Crank pin
5. Bearing
6. Connecting rod
7. Crank (Left)
8. Bearing
9. Oil seal

A: 37.90 ~ 37.95 mm
(1.492 ~ 1.494 in)

C: 0.03 mm (0.0012 in)

D: 0.2 ~ 0.5 mm
(0.008 ~ 0.020 in)

F: 0.4 ~ 0.8 mm
(0.015 ~ 0.031 in)
TRANSMISSION

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

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

3. Install:
   - Circlip
   - Oil seal

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

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

5. Install:
   - Drive axle
   - Main axle
   - Washer (Main axle)
   - Washer (Drive axle)

6. Install:
   - Dowel pins
   - Gasket
7. Install:
   - Transmission case cover ①

![Screw (Case cover):]
   8 Nm (0.8 m·kg, 5.8 ft·lb)

8. Install:
   - Centerstand

9. Install:
   - Brake shoe plate ①

![Bolt (Brake Shoe Plate):]
   18 Nm (1.8 m·kg, 13 ft·lb)

10. Install:
    - Plain washer ①
    - Rear wheel ②
    - Plain washer ③
    - Nut ④

![93 Nm (9.3 m·kg, 67 ft·lb)]
TRANSMISSION

1. Bearing
2. Oil seal
3. Drive axle
4. Bearing
5. Main axle
6. Plain washer
7. Secondary sheave axle
8. Bearing
9. Circlip
10. Oil seal
AUTOLUBE PUMP

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

2. Install:
   • Autolube pump

3. Install:
   • Pin
   • Pump drive gear
   • Wave washer
   • Shim
   • Circlip

4. Apply:
   • Lithium soap base grease
     (to Autolube pump gear)

Screw (Autolube Pump):
4 Nm (0.4 m•kg, 2.9 ft•lb)

15 cc (0.92 cu•in)
AUTOLUBE PUMP
1. Autolube pump
2. Pin
3. Circlip
4. Shim
5. Wave washer
6. Pump drive gear
7. Circlip

4 Nm (0.4 m·kg, 2.9 ft·lb)
C.D.I. MAGNETO

1. Install:
   • Gasket

2. Pass the C.D.I. magneto lead through the crankcase hole.

3. Install:
   • Stator assembly

   **Screw (Stator Assembly):**
   8 Nm (0.8 m·kg, 5.8 ft·lb)

4. Install:
   • Woodruff key
   • C.D.I. magneto
   • Plain washer
   • Spring washer
   • Nut

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

5. Tighten:
   • Nut (C.D.I. magneto)
     Use Flywheel Holding Tool (YU-01235).

   **43 Nm (4.3 m·kg, 31 ft·lb)**
C.D.I. MAGNETO

1. Fan
2. C.D.I. magneto
3. Stator assembly
4. Gasket
5. Woodruff key

8 Nm (0.8 m\( \cdot \)kg, 5.8 ft\( \cdot \)lb)

43 Nm (4.3 m\( \cdot \)kg, 31 ft\( \cdot \)lb)

8 Nm (0.8 m\( \cdot \)kg, 5.8 ft\( \cdot \)lb)
STARTER SYSTEM

1. Install:
   • Collar ①
   • Kick shaft ②

2. Install:
   • Plain washer ①
   • Circlip ②

3. Install:
   • Kick pinion gear ①

4. Install:
   • Kick torsion spring ①

NOTE:
Set the kick torsion spring to the spring hook.

5. Install:
   • Kick crank ①

10 Nm (1.0 m·kg, 7.2 ft·lb)
6. Install:
   • Starter motor ①

![8 Nm (0.8 m·kg, 5.8 ft·lb)]

**NOTE:**
Apply lithium soap base grease to the O-ring of the starter motor.

7. Install:
   • Stay ①
   • Collar ②

![Screw (Stay):
8 Nm (0.8 m·kg, 5.8 ft·lb)]

8. Install:
   • Plain washers ①
   • Idle gear ②
   • Bearing ③
   • Starter wheel gear ④

**NOTE:**
- Apply Yamalube 2 cycle oil to the idle gear ②.
- Apply lithium soap base grease to the bearing ③.

9. Install:
   • Plate ① (Idle gear)

![Screw (Idle Gear Plate):
8 Nm (0.8 m·kg, 5.8 ft·lb)]

10. Install:
    • Starter clutch assembly ①
ENGINE ASSEMBLY AND ADJUSTMENT

STARTER SYSTEM
1. Kick shaft
2. Kick torsion spring
3. Kick crank
4. Idle gear
5. Collar
6. Stay

7. Bearing
8. Starter wheel gear
9. Starter clutch assembly
10. Kick pinion gear

10 Nm (1.0 m·kg, 7.2 ft·lb)

8 Nm (0.8 m·kg, 5.8 ft·lb)

CLIP STANDARD TENSION:
250 - 300 g (8.83 - 10.6 oz)
PRIMARY AND SECONDARY SHEAVE

1. Install:
   • Secondary sheave assembly ①
   • Clutch housing ②

2. Tighten:
   • Nut (Secondary sheave)
   Use Sheave Holder ① (YS-01880).

   \[40 \text{ Nm (4.0 m•kg, 29 ft•lb)}\]

3. Install:
   • O-ring

4. Apply:
   • Lithium soap base grease

5. Install:
   • Primary sheave assembly ①
   • Collar ②
   • Shim ③

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

**NOTE:**
The V-belt must be installed with the arrow frontward.
7. Install:
   • Primary fixed sheave ①
   • One-way clutch ②
   • Conical spring washer ③
   • Nut

8. Tighten:
   • Nut (primary sheave) ①

   ![Diagram showing parts of the engine]

   **NOTE:**
   When tightening the nut (primary sheave), hold the C.D.I. magneto using Flywheel Holding Tool (YU-01235).

9. Install:
   • Fan ①

   ![Diagram showing fan installation]

   **Screw (Fan):**
   8 Nm (0.8 m·kg, 5.8 ft·lb)

10. Install:
    • Dowel pins
    • Crankcase cover (Left)

   ![Diagram showing crankcase cover installation]

   **Screw (Crankcase Cover):**
   8 Nm (0.8 m·kg, 5.8 ft·lb)
ENGINE ASSEMBLY AND ADJUSTMENT

PRIMARY AND SECONDARY SHEAVE

1. Secondary fixed sheave  
2. Oil seal  
3. Secondary sliding sheave  
4. O-ring  
5. Oil seal  
6. Spring seat  
7. Clutch spring  
8. Clutch assembly  
9. Clutch housing  
10. O-ring  
11. Primary sheave assembly  
12. V-belt  
13. Primary fixed sheave  
14. One-way clutch

*Apply BEL-RAY Assembly Lube®

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>CLUTCH SPRING FREE LENGTH LIMIT:</td>
<td>94.0 mm (3.70 in)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>CLUTCH HOUSING WEAR LIMIT:</td>
<td>105.4 mm (4.15 in)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>CLUTCH SHOE WEAR LIMIT:</td>
<td>2.5 mm (0.10 in)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>V-BELT WEAR LIMIT:</td>
<td>13.5 mm (0.53 in)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

50 Nm (5.0 m·kg, 36 ft·lb)  
40 Nm (4.0 m·kg, 29 ft·lb)  
30 Nm (3.0 m·kg, 22 ft·lb)
PISTON PIN AND PISTON

1. Apply:
   • Yamalube 2 cycle oil
     To the piston pin, bearing, piston ring grooves and piston skirt areas.

2. Install:
   • Small end bearing
   • Piston
   • Piston pin
   • Piston pin clip

NOTE:

- The arrow (1) on the piston must point to the front of the engine.
- Before installing the piston pin clip, cover the crankcase with a clean towel or rag so you will not accidentally drop the pin clip and material into the crankcase.
- Always use a new piston pin clip.
PISTON PIN AND PISTON
1. Piston ring (1st, 2nd)
2. Piston
3. Piston pin clip
4. Piston pin
5. Piston pin clip
6. Small end bearing

PISTON RING SIDE CLEARANCE:
A  0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)
< LIMIT >: 0.10 mm (0.004 in)

PISTON RING END GAP:
B  0.015 ~ 0.03 mm (0.006 ~ 0.012 in)
< LIMIT >: 0.7 mm (0.028 in)
ENGINE ASSEMBLY AND ADJUSTMENT

CYLINDER AND CYLINDER HEAD

1. Install:
   • Cylinder gasket (New gasket)

2. Offset the piston ring end gaps as shown.
   ① 1st ring
   ② 2nd ring

NOTE:
- Be sure to check the manufacturer's marks or numbers stamped on the rings are on the top side of the rings.
- Before installing the cylinder, apply a liberal coating of 2-stroke to the piston rings.

3. Install:
   • Reed valve
   • Carburetor joint ①

<table>
<thead>
<tr>
<th>Bolt (Carburetor Joint):</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Nm (0.8 m·kg, 5.8 ft·lb)</td>
</tr>
</tbody>
</table>

4. Install:
   • Cylinder ①

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

5. Pass the oil delivery pipe as shown.
6. Install:
   • Cylinder head gasket (New gasket)
7. Install:
   • Cylinder head
   • Spark plug

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

Cylinder Head Holding Nuts:
10 Nm (1.0 m\*kg, 7.2 ft\*lb)
Spark Plug:
20 Nm (2.0 m\*kg, 14 ft\*lb)

8. Install:
   • Air shroud

Bolt (Air Shroud):
8 Nm (0.8 m\*kg, 5.8 ft\*lb)

9. Install:
   • Fan cover

Screw (Fan cover):
8 Nm (0.8 m\*kg, 5.8 ft\*lb)
CYLINDER AND CYLINDER HEAD

1. Spark plug
2. Cylinder head
3. Gasket
4. Cylinder
5. Gasket

**ADJUSTMENT**

- **A** PISTON TO CYLINDER CLEARANCE:
  - 0.034 – 0.047 mm (0.0013 – 0.0018 in)

- **B** CYLINDER HEAD WARPAGE LIMIT:
  - 0.02 mm (0.0008 in)

- **C** SPARK PLUG:
  - BPR6HS (N.G.K.)
  - GAP: 0.9 – 1.0 mm (0.035 – 0.039 in)
MUFFLER
1. Install:
   • Muffler

Bolt (Muffler):
27 Nm (2.7 m·kg, 19 ft·lb)
Bolt (Exhaust pipe):
8 Nm (0.8 m·kg, 5.8 ft·lb)

REMTOUNTING ENGINE
When remounting the engine, reverse the removal procedure.
1. Install:
   • Engine mounting bolts
     These bolts should be temporarily secured.
2. Tighten:
   • Engine mounting bolts

Bolt A:
42 Nm (4.2 m·kg, 30 ft·lb)
Bolt B:
17 Nm (1.7 m·kg, 12 ft·lb)

3. Install:
   • Carburetor
   • Carburetor top together with throttle valve

NOTE:
When installing the throttle valve into the carburetor, align the groove ① of the throttle valve with the projection ② of the carburetor.
4. Air bleeding:
   • Autolube pump
     Refer to “CHAPTER 2—AUTOLUBE PUMP AIR BLEEDING” section.

5. Apply:
   • Transmission oil
     Refer to “CHAPTER 2—TRANSMISSION OIL REPLACEMENT” section.

6. Adjust:
   • Brake lever free play
     Refer to “CHAPTER 2—BRAKE LEVER FREE PLAY ADJUSTMENT” section.
   • Autolube pump cable
     Refer to “CHAPTER 2—AUTOLUBE PUMP CABLE ADJUSTMENT” section.
   • Throttle cable free play
     Refer to “THROTTLE CABLE FREE PLAY ADJUSTMENT” section.
CHAPTER 4
CARBURETION

AUTO CHOKE SYSTEM ........................................ F-3
CONSTITUENTS ............................................. F-3
WIRING SCHEMATIC ......................................... F-3
OPERATION ................................................ F-3

CARBURETOR ................................................ F-4
SECTION VIEW ............................................ F-5
REMOVAL .................................................. F-5
DISASSEMBLY ............................................. F-5
INSPECTION ............................................... F-6
ASSEMBLY ................................................ F-7
INSTALLATION ............................................ F-7
AUTO CHOKE UNIT CHECK .............................. F-8

REED VALVE ............................................... F-8
REMOVAL ................................................ F-8
INSPECTION ............................................. F-8
INSTALLATION ........................................... F-9
CARBURATION

AUTO CHOKE SYSTEM

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

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

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

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

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

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

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

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

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

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

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

1. Spring
2. Spring seat
3. Jet needle
4. Throttle valve
5. Throttle stop screw
6. Pilot air jet
7. Pilot jet
8. Main nozzle
9. Main jet
10. Needle valve
11. Float
12. Gasket
13. Float chamber
14. Drain screw
15. Auto choke unit
16. O-ring
17. Starter jet needle
18. Starter plunger

A SPECIFICATIONS

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN JET</td>
<td>#82</td>
</tr>
<tr>
<td>JET NEEDLE</td>
<td>3S30-4/5</td>
</tr>
<tr>
<td>MAIN AIR JET</td>
<td>φ2.0</td>
</tr>
<tr>
<td>PILOT JET</td>
<td>#42</td>
</tr>
<tr>
<td>PILOT AIR JET</td>
<td>φ1.04</td>
</tr>
<tr>
<td>VALVE SEAT</td>
<td>φ1.5</td>
</tr>
<tr>
<td>FLOAT HEIGHT</td>
<td>15.0 ~ 17.0 mm</td>
</tr>
<tr>
<td></td>
<td>(0.59 ~ 0.67 in)</td>
</tr>
<tr>
<td>ENGINE IDLE SPEED</td>
<td>1,500 ~ 2,100 r/min</td>
</tr>
</tbody>
</table>
SECTION VIEW

1) Jet needle
2) Throttle valve
3) Main nozzle
4) Main jet
5) Pilot air jet
6) Pilot jet
7) Auto choke unit
8) Starter plunger
9) Starter jet needle
10) Starter needle jet
11) Starter jet
12) Needle valve
13) Float

A) Main metering system
B) Slow metering system
C) Starter metering system
D) Fuel metering system
E) Air
F) Mixture
G) Fuel
REMOVAL
1. Remove:
   - Tail cover
     Refer to "CHAPTER 2-TAIL COVER" section.
   - Air cleaner case ①

2. Disconnect:
   - Fuel pipe ①
   - Vacuum pipe ②
   - Oil delivery pipe ③

3. Remove:
   - Carburetor top ①

4. Remove:
   - Carburetor assembly

5. Disconnect:
   - Auto choke unit leads ①

DISASSEMBLY
1. Remove:
   - Float chamber ①
   - Gasket ②
2. Remove:
- Float pin stop screw
- Float pin
- Float
- Needle valve

3. Remove:
- Main jet
- Main nozzle
- Pilot jet

4. Remove:
- Throttle stop screw
- Spring (Throttle stop screw)

5. Remove:
- Pilot air jet

6. Remove:
- Auto choke unit
- O-ring
CARBURETOR

INSPECTION

1. Inspect:
   • Carburetor body
     Contamination → Clean.

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

2. Inspect:
   • Float ①
     Damage → Replace.
   • Gasket ②
     Damage → Replace.

3. Inspect:
   • Needle valve ①
     Wear/Contamination → Replace.

4. Inspect:
   • Throttle valve ①
     Wear/Damage → Replace.

5. Check:
   • Free movement
     Stick → Replace.
     Insert the throttle valve into the carburetor body, and check for free movement.
6. Inspect:
   - Jet needle ①
     Bends/Wear → Replace.
   - Main jet ②
   - Main nozzle ③
   - Pilot jet ④
     Contamination → Replace.

7. Inspect:
   - Throttle stop screw ①
     Wear/Damage → Replace.

8. Inspect:
   - Starter plunger ①
     Wear/Damage → Replace.

9. Measure:
   - Float height ⑧
     Out of specification → Inspect needle valve, float and valve seat.

**Float Height:**
15.0 ~ 17.0 mm (0.59 ~ 0.67 in)

**Float height measurement steps:**
- Install the needle valve, float and float pin to the carburetor body.
- Hold the carburetor in an upside down position.
**CARBURETOR**

- Measure the distance between the mating surface of the float chamber (gasket removed) and top of the float using a gauge.

**NOTE:**

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

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

**NOTE:**

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

**ASSEMBLY**

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

**CAUTION:**

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

1. Install:
   - Throttle valve (1)

**NOTE:**

Align the groove (2) of the throttle valve with the projection (3) of the carburetor body.

**INSTALLATION**

1. Install:
   - Carburetor assembly
     Reserve the removal procedure.
AUTO CHOKE UNIT CHECK

1. Remove:
   • Auto choke unit

2. Measure:
   • Starter plunger height (③)
     Plunger height will not change with the temperature change—Replace.

Plunger height measurement steps:
• Freeze auto choke unit to −5°C (23.5°F) in freezer.
• Measure plunger height at −5°C (23.5°F).
• Take auto choke unit out of freezer and after about 30 minutes, again measure plunger height at room temperature.
• If both measurements are the same, auto choke unit is defective. Replace it. For reference, below is a table of plunger heights at respective temperature.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Plunger height</th>
</tr>
</thead>
<tbody>
<tr>
<td>−5°C (23.5°F)</td>
<td>16.1 ± 0.3 mm (0.63 ± 0.01 in)</td>
</tr>
<tr>
<td>10°C (50°F)</td>
<td>17.8 ± 0.3 mm (0.70 ± 0.01 in)</td>
</tr>
<tr>
<td>20°C (68.5°F)</td>
<td>18.8 ± 0.3 mm (0.74 ± 0.01 in)</td>
</tr>
<tr>
<td>30°C (86.5°F)</td>
<td>19.7 ± 0.3 mm (0.78 ± 0.01 in)</td>
</tr>
<tr>
<td>40°C (104.5°F)</td>
<td>20.1 ± 0.3 mm (0.79 ± 0.01 in)</td>
</tr>
</tbody>
</table>

NOTE: In the above table, auto choke was first frozen to −5°C (23.5°F) and then the measurements were made at while the temperature was raised gradually.
REED VALVE

REMOVAL

1. Remove:
   • Tail cover
     Refer to "CHAPTER 2-TAIL COVER" section.
   • Air cleaner case

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

3. Remove:
   • Carburetor joint
   • Reed valve assembly

INSPECTION

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

   Inspection steps:
   • Visually inspect the reed valve.

   NOTE: ________________

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

   • If in doubt as to sealing ability, apply suction to carburetor side of assembly.
   • Leakage should be slight to moderate.
2. Measure:
- Valve stopper height (3):
  Out of specification → Adjust stopper/
  Replace valve stopper.

<table>
<thead>
<tr>
<th>Valve Stopper Height (3):</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0 ~ 3.4 mm (0.12 ~ 0.13 in)</td>
</tr>
</tbody>
</table>

**NOTE:**
If it is 0.4 mm (0.016 in) more or less than specified, replace the valve stopper.

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

<table>
<thead>
<tr>
<th>Reed Valve Clearance (3):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 0.2 mm (0.008 in)</td>
</tr>
</tbody>
</table>

**INSTALLATION**
When installing the reed valve assembly, reverse the removal procedure. Note the following points.
1. Install:
   - Gasket (New)

2. Tighten:
   - Reed valve securing bolts

| 9 Nm (0.9 m·kg, 6.5 ft·lb) |

**NOTE:**
Tighten each bolt gradually to avoid warping.
CHAPTER 5
CHASSIS

FRONT WHEEL ................................................. G-3
REMOVAL ................................................... G-3
INSPECTION ................................................. G-3
ASSEMBLY (BRAKE SHOE PLATE) ......................... G-4
INSTALLATION ............................................... G-5

REAR WHEEL ................................................ G-6
REMOVAL ................................................... G-6
INSPECTION ................................................. G-7
ASSEMBLY (BRAKE SHOE PLATE) ......................... G-7
INSTALLATION ............................................... G-7

FRONT FORK AND STEERING ................................ G-8
REMOVAL ................................................... G-9
DISASSEMBLY ................................................ G-10
INSPECTION ................................................ G-10
ASSEMBLY AND INSTALLATION ............................. G-10

REAR SHOCK ABSORBER .................................... G-12
REMOVAL ................................................... G-13
INSPECTION ................................................ G-13
INSTALLATION ............................................... G-13
FRONT WHEEL

1. Collar
2. Oil seal
3. Bearing
4. Spacer (Flange)
5. Spacer
6. Bearing
7. Speedometer drive gear
8. Brake shoe
9. Return spring
10. Dust seal
11. Brake camshaft
12. Camshaft seal
13. Brake shoe plate
14. Wear indicator
15. Camshaft lever
16. Stop ring
17. O-ring
18. Stop ring
19. Plain washer
20. Speedometer driven gear

TIRE SIZE:
2.75-10-4PR

RIM RUNOUT LIMIT:
RADIAL: 2.0 mm (0.08 in)
LATERAL: 2.0 mm (0.08 in)

BRAKE DRUM WEAR LIMIT:
80.5 mm (3.17 in)

BRAKE SHOE WEAR LIMIT:
2.0 mm (0.08 in)

WHEEL AXLE RUNOUT LIMIT:
0.25 mm (0.01 in)

35 Nm (3.5 m·kg, 25 ft·lb)

4 Nm (0.4 m·kg, 2.9 ft·lb)
REMOVAL
1. Place the scooter on its centerstand.
2. Remove:
   - Brake cable ①
   - Speedometer cable ②

3. Remove:
   - Front wheel

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

   Wheel Axle Runout Limit:
   0.25 mm (0.01 in)

WARNING:
Do not attempt to straighten a bent axle.

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

   Runout Limit:
   Radial 2.0 mm (0.08 in)
   Lateral 2.0 mm (0.08 in)

3. Inspect:
   - Wheel
     Cracks/Bends/Warpage → Replace.
4. Inspect:
   - Wheel bearings
     Bearings allow play in the wheel hub or wheel turns roughly → Replace.

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

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

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

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

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

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

**Brake Shoe Thickness:**
S.T.D.: 3.5 mm (0.14 in)
Limit: 2.0 mm (0.08 in)
7. Inspect:
   - Brake drum inner surface
     Oil/Scratches → Remove.

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

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

   ![Brake Drum Wear Limit: 80.5 mm (3.17 in)]

**ASSEMBLY (BRAKE SHOE PLATE)**

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

1. Apply:
   - Lithium-soap base grease
     (to speedometer driven gear)

2. Apply:
   - Lithium-soap base grease
     (to speedometer drive gear)

3. Install:
   - Dust seal (New)

**NOTE:**

Install the dust seal with their manufacturer's marks or numbers facing outward.
4. Apply:
   - Lithium-soap base grease
     (to the brake camshaft)

5. Install:
   - Brake camshaft
   - Camshaft lever

**NOTE:**
Align the camshaft mark ① with the lever mark ② as shown.

**INSTALLATION**
When installing the front wheel, reverse the removal procedure.
Note the following points.

1. Install:
   - Brake shoe plate

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

2. Install:
   - Front wheel

**NOTE:**
Be sure the boss on the front fork correctly engages with the locating slot on the brake shoe plate assembly.
3. Tighten:
- Axle nut

35 Nm (3.5 m•kg, 25 ft•lb)
REAR WHEEL

1. Wheel ring
2. Plain washer
3. Spring
4. Brake shoes
5. Brake camshaft
6. Brake shoe plate
7. Camshaft seal
8. Wear indicator
9. Camshaft lever

<table>
<thead>
<tr>
<th>Part</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIRE SIZE:</td>
<td>2.75-10-4PR</td>
</tr>
<tr>
<td>BRAKE DRUM WEAR LIMIT:</td>
<td>95.5 mm (3.76 in)</td>
</tr>
<tr>
<td>BRAKE SHOE WEAR LIMIT:</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>WHEEL RUNOUT LIMIT:</td>
<td></td>
</tr>
<tr>
<td>RADIAL:</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>LATERAL:</td>
<td>2.0 mm (0.08 in)</td>
</tr>
</tbody>
</table>

93 Nm (9.3 m·kg, 67 ft·lb)

18 Nm (1.8 m·kg, 13 ft·lb)

6 Nm (0.6 m·kg, 4.3 ft·lb)
REMOVAL

1. Remove:
   - Tail cover
   Refer to "CHAPTER 2--TAIL COVER" section.

2. Remove:
   - Fan cover

3. Remove:
   - Exhaust pipe
   - Muffler

4. Remove:
   - Rear axle nut

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

5. Remove:
   - Rear wheel

6. Remove:
   - Adjuster
   - Rear brake cable
   - Brake shoe plate
INSPECTION

1. Inspect:
   • Wheel
     Cracks/Bends/Warpage→Replace.

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

   **Runout Limit:**
   - Radial 2.0 mm (0.08 in)
   - Lateral 2.0 mm (0.08 in)

3. Inspect:
   • Brake shoes
     Glazed parts→Sand with coarse sandpaper.

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

4. Measure:
   • Brake shoe thickness

   **Brake Shoe Thickness:**
   - S.T.D.: 3.0 mm (0.12 in)
   - Limit: 2.0 mm (0.08 in)

5. Inspect:
   • Brake drum inner surface
     Oil/Scratches→Remove.

   **Table:**
<table>
<thead>
<tr>
<th>Oil</th>
<th>Use a rag soaked in lacquer thinner or solvent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scratches</td>
<td>Use an emery cloth (lightly and evenly polishing).</td>
</tr>
</tbody>
</table>
6. Measure:
- Brake drum inside diameter 
  Out of specification → Replace.

Brake Drum Wear Limit:
95.5 mm (3.76 in)

ASSEMBLY (BRAKE SHOE PLATE)
When assembling the brake shoe plate, reverse the disassembly procedure.
Note the following points.

1. Apply:
   - Lithium-soap base grease
     (to the brake camshaft)

2. Install:
   - Brake camshaft
   - Camshaft lever

**NOTE:**
Align the camshaft mark 1 with the lever mark 2.

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

1. Install:
   - Brake shoe plate

**18 Nm (1.8 m·kg, 13 ft·lb)**
2. Install:
   • Rear wheel

   ![93 Nm (9.3 m·kg, 67 ft·lb)]

   **NOTE:**
   Make sure the splines on the wheel hub fit the rear drive axle.

3. Install:
   • Muffler
   • Exhaust pipe

   ![Muffler:
   18 Nm (1.8 m·kg, 13 ft·lb)
   Exhaust pipe:
   8 Nm (0.8 m·kg, 5.8 ft·lb)]
FRONT FORK AND STEERING

1. Handlebar
2. Flange bolt
3. Frange nut
4. Ring nut
5. Washer
6. Upper bearing race (Top)
7. Bearings
8. Upper bearing race (Bottom)
9. Lower bearing race (Top)
10. Lower bearing race (Bottom)
11. Steering column
12. Front fork spring
13. Rubber (Left side only)
14. Spring seat
15. Inner tube (Right and left)

<table>
<thead>
<tr>
<th>A</th>
<th>BEARING SIZE:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5/32 in</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>FORK SPRING FREE LENGTH:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STANDARD: 92 mm (3.62 in)</td>
</tr>
<tr>
<td></td>
<td>LIMIT: 87 mm (3.42 in)</td>
</tr>
</tbody>
</table>

C USE NEW ONE

60 Nm (6.0 m·kg, 43 ft·lb)

C USE NEW ONE

30 Nm (3.0 m·kg, 22 ft·lb)

5/32 in x 26
FRONT FORK AND STEERING

REMOVAL
1. Place the scooter on the centerstand.

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

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

3. Remove:
   • Front fender
   • Front panel
   Refer to "CHAPTER 2 — FRONT FENDER, FRONT PANEL AND FOOTREST BOARD" section.

4. Remove:
   • Handlebar cover
   Refer to "CHAPTER 2 — HANDLEBAR COVER" section.

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

6. Remove:
   • Handlebar switch (Right) ①
   • Front brake lever assembly ②
   • Bracket ③
   • Throttle cable ④
   • Throttle grip ⑤
7. Remove:
   - Rear brake lever assembly ①

8. Remove:
   - Bolt ①
   - Nut ②
   - Handlebar ③

9. Remove:
   - Inner fender with cable guide ①

10. Remove:
    - Ring nut ①
        Using the Ring Nut Wrench ② (YU-01268).

**NOTE:**
Support the steering column so that it may not fall down.

11. Remove:
    - Washer ①
    - Upper bearing race (Top) ②
        Turn it counterclockwise.
    - Steering column
    - Bearings

**NOTE:**
Take care not to lose the bearings. (Upper: 26 pieces, Lower: 26 pieces)
DISASSEMBLY
1. Remove:
   - Dust seal
   - Circlip

2. Remove:
   - Inner tube (Left and right)
   - Spring seat
   - Rubber (Left side only)
   - Front fork spring

INSPECTION
1. Wash the bearings in solvent.
2. Inspect:
   - Bearing races
     Pitting/Damage → Replace.
   - Bearings
     Pitting/Damage → Replace.

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

Bearing Size:
  Upper: 5/32 in
  Lower: 5/32 in

Bearing Quantity:
  Upper: 26 pcs.
  Lower: 26 pcs.
Bearing race replacement steps:
- Remove the bearing race by hitting it on several points.
- Set the bearing race.
- Drive in the bearing race evenly by hitting it on several points.

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

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

**WARNING:**
Do not attempt to straighten a bent fork tube.

4. Measure:
- Fork spring free length
  Out of specification → Replace.

**Fork Spring Free Length**: ①
- Standard: 92 mm (3.62 in)
- Limit: 87 mm (3.42 in)

**ASSEMBLY AND INSTALLATION**
Reverse the disassembly and removal steps.
Note the following points.
1. Apply:
   - Molybdenum disulfide grease
     To inner tube 3 and rubber 5.

2. Install:
   - Front fork spring 1
   - Rubber 2 (Left side only)
   - Spring seat 3
   - Inner tube 4
   - Circlip 5
   - Oil seal 6

3. Check:
   - Front fork operation
     Unsmooth operation → Repair.

4. Apply:
   - Wheel bearing grease
     To upper bearings and lower bearings.

5. Install:
   - Steering column
   - Upper bearing race (Top) 1
     Turn it clockwise completely.
   - Washer 2
   - Ring nut

**CAUTION:**

Hold the steering column until it is secured.
6. Tighten:
   • Ring nut ①
     Using the Ring Nut Wrench ② (YU-33975).
   
   **Ring Nut ①:**
   30 Nm (3.0 m•kg, 22 ft•lb)
   
   **NOTE:**
   Set the torque wrench to the Ring Nut Wrench so that they form a right angle ③.

7. Check:
   • Steering column for smooth action
     Slack → Tighten the ring nut.
     Sticky → Loosen the ring nut.

8. Install:
   • Handlebar ①
   • Bolt ② (New)
   • Nut ③ (New)
   
   **NOTE:**
   Fit the handlebar bridge ④ into the steering column notcher ⑤.
   
   **CAUTION:**
   • Before installing the handlebar, wipe the oil off the insertion portion ⑧ using thinner, etc.
   • Install the bolt ② from the right as shown.
   • Make sure that the slit ⑥ has enough clearance after tightening the nut ③.
   
   **WARNING:**
   Always use a new bolt ② and nut ③.
   
   **Bolt (Handlebar) ①:**
   60 Nm (6.0 m•kg, 43 ft•lb)

9. Install:
   • Inner fender with cable guide
10. Install:
- Rear brake lever assembly

11. Apply:
- Lithium-soap base grease
  To throttle cable end and handlebar right end.

12. Install:
- Throttle grip
- Throttle cable
- Bracket
- Front brake lever assembly
- Handlebar switch (Right)

13. Install:
- Front brake cable
- Rear brake cable

NOTE: Apply lithium-soap base grease onto the cable end pivot.

14. Install:
- Handlebar covers (Front and rear)
- Speedometer cable
- Front panel
- Front fender
  Refer to "CHAPTER 2 — FRONT FENDER, FRONT PANEL AND FOOTREST BOARD" and "HANDLEBAR COVERS" section.

15. Adjust:
- Front and rear brake lever free play
- Throttle cable free play
  Refer to "CHAPTER 2" section.
Rear shock absorber

- 32 Nm (3.2 m·kg, 23 ft·lb)
- 18 Nm (1.8 m·kg, 13 ft·lb)
REAR SHOCK ABSORBER

REMOVAL
1. Place the scooter on its centerstand.

2. Remove:
   • Tail cover
     Refer to "CHAPTER 2—TAIL COVER" section.

3. Remove:
   • Air cleaner case

4. Remove:
   • Rear shock absorber

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

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

   | Upper:    | 32 Nm (3.2 m·kg, 23 ft·lb) |
   | Lower:    | 18 Nm (1.8 m·kg, 13 ft·lb) |
CHAPTER 6
ELECTRICAL

CE50T CIRCUIT DIAGRAM ........................................ H-3
ELECTRICAL COMPONENTS ....................................... H-4
ELECTRICAL STARTING SYSTEM ................................ H-5
  CIRCUIT DIAGRAM ........................................... H-5
  TROUBLESHOOTING CHART ................................. H-6
  STARTER MOTOR ............................................. H-8
  STARTER MOTOR CHECK ................................. H-9
IGNITION SYSTEM .................................................. H-11
  CIRCUIT DIAGRAM ........................................... H-11
  TROUBLESHOOTING CHART ......................... H-12
CHARGING SYSTEM ................................................ H-15
  CIRCUIT DIAGRAM ........................................... H-15
  TROUBLESHOOTING CHART ......................... H-16
LIGHTING SYSTEM ............................................... I-2
  CIRCUIT DIAGRAM ........................................... I-2
  TROUBLESHOOTING CHART ......................... I-3
SIGNAL SYSTEM .................................................... I-5
  CIRCUIT DIAGRAM ........................................... I-5
  TROUBLESHOOTING CHART ......................... I-6
  SIGNAL SYSTEM TEST AND CHECKS ............. I-7
AUTO CHOKE SYSTEM ........................................... I-9
  CIRCUIT DIAGRAM ........................................... I-9
  TROUBLESHOOTING CHART ......................... I-10
  AUTO CHOKE UNIT TEST .......................... I-10
CE50T CIRCUIT DIAGRAM

ELECTRICAL
CE50T CIRCUIT DIAGRAM

1. C.D.I. magneto
   (Lighting coil, charging coil)
2. Rectifier/Regulator
3. Starter motor
4. Starter relay
5. "START" switch
6. Main switch
7. Fuse
8. Battery
9. "ENGINE STOP" switch
10. C.D.I. magneto
    (Source coil, pick-up coil)
11. C.D.I. unit
12. Ignition coil
13. Spark plug
14. Flasher light relay
15. "TURN" switch
16. Left flasher light (Front and rear)
17. Right flasher light (Front and rear)
18. "TURN" indicator light
19. Horn
20. Horn (reallocating) switch
21. Oil level gauge
22. "OIL" indicator light
23. Front brake switch
24. Rear brake switch
25. Tail/Brake light
26. "LIGHTS" switch (Dimmer)
27. Headlight
28. "HIGH BEAM" indicator light
29. Meter light
30. Auto choke unit

COLOR CODE

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

6-2
ELECTRICAL COMPONENTS

1. Fuse
2. Oil level gauge
3. Ignition coil
4. Battery
5. C.D.I. unit
6. Starter relay

|   | **BATTERY**
|---|---
| A | TYPE: GM4-3B
|   | SPECIFIC GRAVITY: 1.280

|   | **IGNITION COIL RESISTANCE**
|---|---
| B | PRIMARY: 0.21~0.25Ω at 20°C (68°F)
|   | SECONDARY: 4.5~6.7kΩ at 20°C (68°F)
1. Main switch
2. Flasher light relay
3. Horn
4. Rectifier/Regulator
ELECTRICAL STARTING SYSTEM

CIRCUIT DIAGRAM

Below circuit diagram shows starter circuit.
3 Starter motor
4 Starter relay
5 "START" switch
6 Main switch
7 Fuse
8 Battery
9 Front brake switch
10 Rear brake switch
STATER MOTOR DOES NOT OPERATE

Fuse inspection:
1. Remove fuse.
2. Inspect fuse using Pocket Tester (YU-03112).

Ω x 1

No Continuity
• Replace fuse.

Continuity

Battery fluid level inspection:
Fluid level should be between upper ① and lower ② level mark.

Incorrect
• Refill battery fluid.

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

Correct

Check battery terminals.

Dirty or poor connection
• Clean battery terminals using wire brush.

NOTE: After cleaning terminals, apply grease lightly to both terminals.
• Connect battery leads correctly.
Battery fluid specific gravity inspection:
1. Remove caps.
2. Inspect specific gravity of all cell using Battery Hydrometer.

**WARNING:**
Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately. Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries. KEEP OUT OF REACH OF CHILDREN.

**Specific Gravity:**
1.280 ± 0.01 at 20°C (68°F)

If there is not Battery Hydrometer, check battery voltage using Pocket Tester (YU-03112).
1. Remove battery.
2. Set the Tester selector to “DC20V” position.
3. Connect tester leads to battery terminals.

**Tester (+) lead → (+) terminal**
**Tester (-) lead → (-) terminal**

**Battery Voltage:**
12 V or more.

**Charging Current:**
0.4 amps/10 hrs

**NOTE:**
Replace the battery if:
• Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
• Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
• Specific gravity readings after a long, slow charge indicate one cell to be lower than the rest.
• Warpage or buckling of plates or insulators is evident.

---

**Low specific gravity (voltage)**

- Recharge battery
Main switch conduct check:
1. Disconnect main switch leads.
2. Set Pocket Tester (YU-03112) selector to "Ω x 1" position.
3. Connect tester leads to main switch leads (Red lead, Brown lead).

Tester (+) lead → Red lead
Tester (−) lead → Brown lead

4. Turn main switch to "ON" position.

"START" switch conduct check:
1. Disconnect handlebar switch (Right) leads.
2. Set Pocket Tester (YU-03112) selector to "Ω x 1" position.
3. Connect tester leads to "START" switch leads (Black lead, Blue/White lead).

Tester (+) lead → Blue/White lead
Tester (−) lead → Black lead

4. Push on "START" switch

No Continuity
Replace main switch.

Continuity

No Continuity
Replace handlebar switch (Right).

Continuity
**Front and rear brake switches conduct check:**
1. Disconnect brake switch leads.
2. Set pocket Tester (YU-03112) selector to "Ω×1" position.
3. Connect tester leads to brake switch leads (Brown lead, Green/Yellow lead).

**Tester (+) lead → Brown lead**
**Tester (−) lead → Green/Yellow lead**

4. Apply front or rear brake.

---

**Starter relay conduct check:**
1. Remove starter relay.
2. Connect 12V battery to starter relay terminals as shows.

**NOTE:**
Use full charge battery.

3. Set Pocket Tester (YU-03112) selector to "Ω×1" position.
4. Connect tester leads to starter relay terminals as shows.
Check entire electrical starting system for connections. Refer to "WIRING DIAGRAM".

Poor connection → Correct.

OK

Check starter motor condition. Refer to "STARTER MOTOR CHECK" section.

Poor condition → Replace starter motor.
The starter motor for this scooter comes in two types:
- DA5AG (2EX-81800-M0) (NIPPON DENSO)
- 2EX-81800-50 (YAMAHA)
So, check which type is fitted before maintenance. Data for YAMAHA's starter motor are shown in brackets ([ ]).

<table>
<thead>
<tr>
<th></th>
<th>COMMUTATOR UNDER CUT:</th>
<th>1.0 mm (0.039 in) [1.15 mm (0.045 in)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>COMMUTATOR DIAMETER WEAR LIMIT:</td>
<td>14.5 mm (0.57 in) [14.8 mm (0.58 in)]</td>
</tr>
<tr>
<td>B</td>
<td>BRUSH WEAR LIMIT:</td>
<td>2.5 mm (0.10 in) [0.9 mm (0.04 in)]</td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ELECTRICAL STARTING SYSTEM

STARTER MOTOR CHECK

Removal

1. Remove:
   • Starter motor
     Refer to "CHAPTER 3 — ENGINE DISASSEMBLY" section.

2. Remove:
   • Yoke assembly

3. Remove:
   • Armature

Inspection and Repair

1. Measure:
   • Brush length (Each)
     Out of specification → Replace the starter motor assembly.

   Minimum Brush Length:
   2.5 mm (0.10 in)
   [0.9 mm (0.04 in)]

2. Inspect:
   • Brush spring
     Wear/Damage → Replace the starter motor assembly.
3. Inspect:
- Commutator (Outer surface)
  Grooved wear/Burning/scratches → Smooth out using a sandpaper (#500–600).

**NOTE:**
Sand the commutator outer surface lightly and evenly.

4. Measure.
- Commutator diameter
  Out of specification → Replace the starter motor assembly.

- Outside Diameter Limit:
  14.5 mm (0.57 in)
  [14.8 mm (0.58 in)]

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

- Mica Undercut: 1.0 mm (0.039 in)
  [1.15 mm (0.045 in)]

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

6. Measure:
- Armature coil resistance
  Out of specification → Replace the starter motor assembly.

- Armature Coil Resistance: 0.08 – 0.10Ω at 20°C (68°F)
7. Check:
- Armature coil insulation

Set the pocket tester selector to “Ω×1K” position.
Continuity → Replace the starter motor assembly.

Assembly
Reverse the removal procedure.
Note the following points.

1. Install:
   - Brush
   - Brush spring
   Using a thin screw driver.

2. Install:
   - Armature coil assembly

3. Install:
   - O-ring (New) ①
4. Install:
   • Starter motor cover

   NOTE: ________________________________
   Align the projection on the cover with the groove on the housing.

5. Install:
   • Bolts ①
   • O-rings (New) ②

6. Install:
   • O-ring (New) ①

   NOTE: ________________________________
   Apply a grease lightly.

**Installation**

1. Install:
   • Starter motor

   ![9 Nm (0.9 m·kg, 6.5 ft·lb)]
Below circuit diagram shows ignition circuit.
6 Main switch
7 "ENGINE STOP" switch
8 C.D.I. magneto
   (Source coil, pick-up coil)
9 C.D.I. unit
10 Ignition coil
11 Spark plug
IF IGNITION SYSTEM SHOULD BECOME INOPERATIVE (NO SPARK OR INTERMITTENT SPARK).

Spark plug inspection:
1. Remove spark plug.
2. Clean spark plug with spark plug cleaner if necessary.
3. Inspect:
   - Electrode
   - Insulator
   - Plug gap
   Refer to "CHAPTER 2 -- SPARK PLUG INSPECTION" section.

Plug Gap:
0.9~1.0 mm (0.035~0.039 in)

Ignition spark test:
1. Install spark plug to plug cap.
2. Ground spark plug to air shroud.

No good
- Replace or regap spark plug.

Spark
- Ignition circuit is good.

No spark
- Replace spark plug and/or plug cap.

Ignition spark gap test:
1. Remove spark plug and plug cap.
2. Hold spark plug lead 5 mm (0.20 in) from air shroud.
No spark

**Main switch conduct check:**
1. Disconnect main switch leads.
2. Set Pocket Tester (YU-03112) selector to "Ω x 1" position.
3. Connect tester leads to main switch leads (Black/White, Black/Red).
4. Turn main switch to "ON" position.

<table>
<thead>
<tr>
<th>Tester (+) lead</th>
<th>Black/Red lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester (-) lead</td>
<td>Black/White lead</td>
</tr>
</tbody>
</table>

No continuity
- Replace main switch.

Continuity

**"ENGINE STOP" switch conduct check:**
1. Disconnect handlebar switch (Right) leads.
2. Set Pocket Tester (YU-03112) selector to "Ω x 1" position.
3. Connect tester leads to "ENGINE STOP" switch leads.
4. Turn "ENGINE STOP" switch to "RUN" position.

<table>
<thead>
<tr>
<th>Tester (+) lead</th>
<th>Black/Red lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester (-) lead</td>
<td>Black lead</td>
</tr>
</tbody>
</table>

Continuity
- Replace handlebar switch (Right).
Ignition coil resistance test:
1. Disconnect ignition coil lead (orange lead).
2. Measure:
   - Primary coil resistance [A]  
     (Orange lead — Ignition coil base) 
     Set Pocket Tester (YU-03112) selector to “Ω x 1” position.
   - Secondary coil resistance [B]  
     (Orange lead — Spark plug lead) 
     Set Pocket Tester selector to “Ω x 1K” position.

Primary Coil Resistance:  
0.21 – 0.25Ω at 20°C (68°F)  
Secondary Coil Resistance:  
4.5 – 6.7kΩ at 20°C (68°F)  

Out of specification  
Replace ignition coil.
Source coil resistance test:
1. Disconnect C.D.I. magneto leads.
2. Set Pocket Tester (YU-03112) selector to “Ω x 100” position.
3. Connect tester leads to source coil leads.

- Tester (+) lead → Black/Red lead
- Tester (−) lead → Black lead

4. Measure:
   - Source coil resistance

   ![Multimeter measurement](image)

   216 ~ 264Ω at 20°C (68°F)

Out of specification
Replace source coil.

Pick-up coil resistance test:
1. Set Pocket Tester (YU-03112) selector to “G x 10” position.
2. Connect tester leads to pick-up coil leads.

- Tester (+) lead → White/Red lead
- Tester (−) lead → Black lead

3. Measure:
   - Pick-up coil resistance

   ![Multimeter measurement](image)

   27 ~ 33Ω at 20°C (68°F)

Out of specification
Replace pick-up coil.
Check entire ignition system for connections. Refer to “WIRING DIAGRAM”.

C.D.I. unit is faulty, replace it.

Correct.
Below circuit diagram shows charging circuit.
CHARGING SYSTEM

1. C.D.I. magneto
   (Lighting coil, charging coil)
2. Rectifier/Regulator
3. Fuse
4. Battery

---

6-26
THE BATTERY IS NOT CHARGED.

Fuse inspection:
1. Remove fuse.
2. Inspect fuse using Pocket Tester (YU-03112).

No continuity
• Replace fuse.

Continuity

Battery fluid level inspection:
Fluid level should be between upper ① and lower ② level mark.

Incorrect
• Refill battery fluid.

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

Correct

Check battery terminals.

Dirty or poor connection
• Clean battery terminals using wire brush.

NOTE: After cleaning terminals, apply grease lightly to both terminals.

• Connect battery leads correctly.

OK
Battery fluid specific gravity inspection:
1. Remove caps.
2. Inspect specific gravity of all cell using Battery Hydrometer.

**WARNING:**
Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing.
Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.
Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

Specific Gravity:
1.280 ± 0.01 at 20°C (68°F)

If there is not Battery Hydrometer, check battery voltage using Pocket Tester (YU-03112).
1. Remove battery.
2. Set the Tester selector to “DC20V” position.
3. Connect tester leads to battery terminals.

Tester (+) lead→(+ ) terminal
Tester (-) lead→(- ) terminal

Battery Voltage:
12V or more

**Charging System**

- **Charging Current:**
  0.4 amps/10 hrs

**NOTE:**
Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate on cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.
CHARGING SYSTEM

Charging voltage test:
1. Connect Inductive Tachometer (YU-08036) to ignition lead.
2. Set Pocket Tester (YU-03112) selector to "DC20V" position.
3. Connect tester leads to battery terminals.

<table>
<thead>
<tr>
<th>Tester (+) lead</th>
<th>(+) terminal</th>
<th>Tester (-) lead</th>
<th>(-) terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>Replace battery.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Start engine and accelerate to about 4,000 r/min.
5. Measure:
   - Charging voltage

12.5~17.5V at 4,000 r/min

Out of specification

Charging coil resistance test:
1. Disconnect C.D.I. magneto leads.
2. Set Pocket Tester (YU-03112) selector to "Ω×1" position.
3. Connect tester leads to charging coil leads.

<table>
<thead>
<tr>
<th>Tester (+) lead</th>
<th>White lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester (-) lead</td>
<td>Black lead</td>
</tr>
</tbody>
</table>
4. Measure:
- Charging coil resistance

0.63 ~ 0.77Ω at 20°C (68°F)

Out of specification
Replace charging coil.

OK
Check entire charging system for connections. Refer to "WIRING DIAGRAM".

Poor connection
Correct.

OK
Replace rectifier/regulator.
Below circuit diagram shows lighting circuit.
1. C.D.I. magneto
   (Lighting coil, charging coil)
2. Rectifier/Regulator
3. "LIGHTS" switch (Dimmer)
4. Headlight
5. "HIGH BEAM" indicator light
6. Meter light
ELEC  LIGHTING SYSTEM

TROUBLESHOOTING CHART

HEADLIGHT DOES NOT COME ON.

Headlight condition check:
1. Remove headlight lens unit.
2. Set Pocket Tester (YU-03112) selector to “Ω x 1” position.
3. Connect tester leads to headlight terminals and check it for continuity.

Tester (+) lead → Terminal 1
Tester (-) lead → Terminal 3

Tester (+) lead → Terminal 2
Tester (+) lead → Terminal 3

Continuity does not exist on one circuit. Remove headlight lens unit.

Continuity exists on both circuit.

Lighting voltage test:
1. Set Pocket Tester (YU-03112) Selector to “AC20V” position.
2. Turn “LIGHTS” switch to “HI” position.
3. Connect tester leads to headlight leads.

Tester (+) lead → Yellow lead
Tester (-) lead → Black lead
4. Connect Inductive Tachometer (YU-08036) to ignition lead.
5. Start engine and accelerate to about 4,000 r/min.
6. Measure:
   • Lighting voltage

   ![Image of tachometer reading 11.5~13.5V at 4,000 r/min]

   Out of specification

   "LIGHTS" switch conduct check:
   1. Remove front fender and disconnect left handlebar switch lead.
   2. Set Pocket Tester (YU-03112) selector to "Ω x 1" position.
   3. Connect tester leads to "LIGHTS" switch leads.

   ![Diagram indicating continuity test positions for "LO" and "HI" switch positions]

   If switch is turned to "LO" position.
   Tester (+) lead → Blue lead
   Tester (−) lead → Green lead

   If switch is turned to "HI" position.
   Tester (+) lead → Blue lead
   Tester (−) lead → Yellow lead

   Continuity exists on both circuits.

   Continuity does not exist on one circuit.

   Replace left handlebar switch.

   Lighting system is good.
Lighting coil resistance test:
1. Disconnect C.D.I. magneto leads.
2. Set Pocket Tester (YU-03112) selector to "Ω × 1" position.
3. Connect tester leads to lighting coil leads.

Tester (+) lead → Yellow/Red lead
Tester (-) lead → Black lead

4. Measure:
- Lighting coil resistance

| 0.27 ~ 0.33Ω at 20°C (68°F) |

Out of specification
Replace lighting coil.

OK

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

Poor connection
Correct.

OK
Replace rectifier/regulator.
Below circuit diagram shows signal circuit.
Main switch, Fuse, Battery, Flasher light relay, "TURN" switch, Left flasher light (Front and rear), Right flasher light (Front and rear), "TURN" indicator light, Horn, "HORN" switch, Oil level gauge, "OIL" indicator light, Front brake switch, Rear brake switch, Tail/Brake light.
SIGNAL SYSTEM SHOULD BECOME INOPERATIVE.

Fuse inspection:
1. Remove fuse.
2. Inspect fuse using Pocket Tester (YU-03112).

Ω x 1

No continuity
- Replace fuse.

Continuity

Battery fluid level inspection:
Fluid level should be between upper ① and lower ② level mark.

Incorrect
- Refill battery fluid.

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

Correct

Dirty or poor connection
- Clean battery terminals using wire brush.

NOTE: ______________________
After cleaning terminals, apply grease lightly to both terminals.
- Connect battery leads correctly.

Check battery terminals.

OK
Battery fluid specific gravity inspection:
1. Remove caps.
2. Inspect specific gravity of all cell using Battery Hydrometer.

**WARNING:**
Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing.

Antidote: EXTERNAL-Flush with water. INTERNAL-Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.

Eyes: Flush with water for 15 minutes and get prompt medical attention. Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.

**KEEP OUT OF REACH OF CHILDREN.**

**Specific Gravity:**
\[ 1.280 \pm 0.01 \text{ at } 20^\circ C (68^\circ F) \]

If there is not Battery Hydrometer, check battery voltage using Pocket Tester (YU-03112).
1. Remove battery.
2. Set the tester selector to "DC20V" position.
3. Connect tester leads to battery terminals.

Tester (+) lead→(+)_terminal
Tester (−) lead→(−)_terminal

**Battery Voltage:**
12V or more

**Charging Current:**
0.4 amps/10 hrs

**NOTE:**
Replace the battery if:
- Battery voltage will not rise to a specific value or bubbles fail to rise even after many hours of charging.
- Sulfation of one or more cells occurs, as indicated by the plates turning white, or an accumulation of material exists in the bottom of the cell.
- Specific gravity readings after a long, slow charge indicate on cell to be lower than the rest.
- Warpage or buckling of plates or insulators is evident.

• Recharge battery.
Main switch conduct check:
1. Disconnect main switch leads.
2. Set Pocket Tester (YU-03112) selector to “Ω x 1” position.
3. Connect tester leads to main switch leads (Red lead, Brown lead).

Tester (+) lead→Red lead
Tester (-) lead→Brown lead

4. Turn main switch to “ON” position.

Check bulb conditions of flasher lights, indicator lights and tail/brake light.

Continuity

Check entire signal system for connections (Refer to “WIRING DIAGRAM” section.)

OK

Check condition of each circuit for signal system (Refer to “SIGNAL SYSTEM TEST AND CHECKS” section.)

OK

No continuity

Replace main switch.

Poor condition

Replace bulb(s)

Correct.

Poor condition

Replace poor condition electrical component(s).
The battery provides power for operation of the horn, flasher lights, indicator light and brake light. If none of the above operates, always check the battery voltage before proceeding further. Low battery voltage indicates either a faulty battery, low battery electrolyte, or a defective charging system. See “CHARGING SYSTEM” for checks of the battery and charging system. Also, check the fuse condition. Replace the fuse if necessary.

1. Brake light does not work

- **Check for voltage (12V) on “Br” lead at front brake switch connector.**
  - **OK**
  - **No voltage**
    - Wiring circuit from fuse to front brake switch connector is faulty, repair.

- **Check for voltage (12V) on “Br” lead at rear brake switch connector.**
  - **OK**
  - **No voltage**
    - Wiring circuit from fuse to rear brake switch connector is faulty, repair.

- **Check for voltage (12V) on “G/Y” lead at front brake switch connector while applying front brake.**
  - **OK**
  - **No voltage**
    - Front brake switch is faulty, replace.

- **Check for voltage (12V) on “G/Y” lead at rear brake switch connector while applying rear brake.**
  - **No voltage**
    - Rear brake switch is faulty or maladjustment, replace or adjust.

Brake light bulb socket is faulty, replace it.
2. Flasher lights (left and/or right) do not work

Check for voltage (12V) on “Br” lead at flasher relay terminal.

- **OK**: No voltage
  - Wiring circuit from fuse to flasher relay terminal is faulty, repair.
  - Flasher relay is faulty, replace.

Check for voltage (12V) on “Br/W” lead at flasher relay terminal.

- **OK**: No voltage
  - Wiring circuit from flasher relay to “TURN” switch connector is faulty, repair.

Check for voltage (12V) on “Ch” and/or “Dg” lead at “TURN” switch connector.

- **OK**: No voltage
  - “TURN” switch is faulty replace.

- **OK**: Flasher light bulb socket is faulty, replace it.

3. Horn does not work

Check for voltage (12V) on “Br” lead at horn terminal.

- **OK**: No voltage
  - Wiring circuit from fuse to horn terminal is faulty, repair.

Check for voltage (12V) on “P” lead at “HORN” switch connector.

- **OK**: No voltage
  - Horn is faulty, replace.

Check for continuity of “HORN” switch, while pushing it.

- **Continuity**: No continuity
  - “HORN” switch is faulty, replace.

- **Continuity**: Adjust horn, replace it damage.
4. "OIL" indicator light does not work

Check for voltage (12V) on "Br" lead at oil level gauge connector.

- No voltage → Wiring circuit from fuse to oil level gauge connector is faulty, repair.
- OK → Check for voltage (12V) on "Gy" lead at oil level gauge connector.

Check for voltage (12V) on "Gy" lead at oil level gauge connector.

- No voltage → Check for condition of oil level gauge. If oil level gauge is poor condition, replace it.
- OK → Check for voltage (12V) on "B" lead at "OIL" indicator light connector.

Check for voltage (12V) on "B" lead at "OIL" indicator light connector.

- No voltage → Indicator light bulb socket is faulty, replace it.

[Oil level gauge check]

1. Disconnect:
   • Oil level gauge leads

2. Remove:
   • Oil level gauge

3. Connect:
   • Pocket Tester (YU-03112)
     Set the tester selector to "Ω × 1" position.

4. Check:
   • Oil level gauge conduct
     Refer to following table
     Not per result → Replace.

<table>
<thead>
<tr>
<th>Float position</th>
<th>Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up (1)</td>
<td>No continuity</td>
</tr>
<tr>
<td>Down (2)</td>
<td>Continuity</td>
</tr>
</tbody>
</table>

5. Taillight does not work

Check for voltage (12V) on "Br" lead at taillight connector.

- No voltage → Wiring circuit from fuse to taillight connector is faulty, repair.
- OK → Taillight bulb socket is faulty, replace it.
AUTO CHoke SYSTEM
CIRCUIT DIAGRAM
Below circuit diagram shows auto choke circuit.
1. C.D.I. magneto
   (Charging coil, lighting coil)
2. Auto choke unit
AUTO CHOKING SYSTEM DOES NOT OPERATE.

Lighting coil resistance test:
1. Disconnect C.D.I. magneto leads.
2. Set Pocket Tester (YU-03112) selector to "Ω x 1" position.
3. Connect tester leads to lighting coil leads.

Tester (+) lead→Yellow/Red lead
Tester (−) lead→Black lead

4. Measure:
   • Lighting coil resistance

   ![Resistance Chart]

   0.27 - 0.33Ω at 20°C (68°F)

   Out of specification
   → Replace lighting coil.

OK

Check entire auto choke system for connections.
Refer to "WIRING DIAGRAM".

OK

Check auto choke condition.
Refer to "AUTO CHOKING UNIT TEST" section.

Correct.
AUTO CHOKE UNIT TEST

1. Remove:
   - Tail cover
   Refer to "CHAPTER 2 – TAIL COVER" section.

2. Remove:
   - Air cleaner case

3. Disconnect:
   - Auto choke unit leads

4. Connect:
   - Pocket tester (YU-03112)
     Set the tester selector to "Ω×1" position.

5. Measure:
   - Auto choke unit resistance
     Out of specification → Replace.

   \[2 \sim 6Ω \text{ at } 20°C (68°F)\]
CHAPTER 7
APPENDICES

SPECIFICATIONS ................................................ J-3
GENERAL SPECIFICATIONS ..................................... J-3
MAINTENANCE SPECIFICATIONS ................................ J-4

GENERAL TORQUE SPECIFICATIONS ......................... J-8
DEFINITION OF UNITS ........................................... J-8
CABLE ROUTING ................................................ J-8
CE50S WIRING DIAGRAM
## SPECIFICATIONS
### GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model Code Number</th>
<th>2UG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Identification Number</td>
<td>JYA2UG00×HA720101</td>
</tr>
<tr>
<td>Engine Starting Number</td>
<td>14T-720101</td>
</tr>
<tr>
<td>Dimensions:</td>
<td></td>
</tr>
<tr>
<td>Overall Length</td>
<td>1,560 mm (61.4 in)</td>
</tr>
<tr>
<td>Overall Width</td>
<td>620 mm (24.4 in)</td>
</tr>
<tr>
<td>Overall Height</td>
<td>972 mm (38.3 in)</td>
</tr>
<tr>
<td>Seat Height</td>
<td>690 mm (27.1 in)</td>
</tr>
<tr>
<td>Wheelbase</td>
<td>1,085 mm (42.7 in)</td>
</tr>
<tr>
<td>Minimum Ground Clearance</td>
<td>100 mm (3.9 in)</td>
</tr>
<tr>
<td>Basic Weight:</td>
<td></td>
</tr>
<tr>
<td>With Oil and Full Fuel Tank</td>
<td>58.5 kg (129 lb)</td>
</tr>
<tr>
<td>Minimum Turning Radius</td>
<td>1600 mm (63 in)</td>
</tr>
<tr>
<td>Engine:</td>
<td></td>
</tr>
<tr>
<td>Engine Type</td>
<td>Air cooled 2-stroke, gasoline torque induction</td>
</tr>
<tr>
<td>Cylinder Arrangement</td>
<td>Single cylinder, Forward inclined</td>
</tr>
<tr>
<td>Displacement</td>
<td>49 cm³</td>
</tr>
<tr>
<td>Bore x Stroke</td>
<td>40.0×39.2 mm (1.57×1.54 in)</td>
</tr>
<tr>
<td>Compression Ratio</td>
<td>7.2:1</td>
</tr>
<tr>
<td>Starting System</td>
<td>Electric and Kick Starter</td>
</tr>
<tr>
<td>Lubrication System</td>
<td>Separate lubrication (Yamaha Autolube)</td>
</tr>
<tr>
<td>Oil Type or Grade:</td>
<td></td>
</tr>
<tr>
<td>Engine Oil</td>
<td>Yamalube 2-cycle oil or Air cooled 2-stroke engine oil</td>
</tr>
<tr>
<td>Transmission Oil</td>
<td>Yamalube 4-cycle oil or SAE 10W30 type SE motor oil or GL gear oil</td>
</tr>
<tr>
<td>Oil Capacity:</td>
<td></td>
</tr>
<tr>
<td>Oil Tank (Engine Oil)</td>
<td>0.8 L (0.70 Imp qt, 0.84 US qt)</td>
</tr>
<tr>
<td>Transmission Oil</td>
<td>0.10 L (0.09 Imp qt, 0.11 US qt)</td>
</tr>
<tr>
<td>Periodic Oil Change</td>
<td>0.11 L (0.10 Imp qt, 0.12 US qt)</td>
</tr>
<tr>
<td>Total Amount</td>
<td></td>
</tr>
<tr>
<td>Air Filter</td>
<td>Wet type element</td>
</tr>
<tr>
<td>Fuel:</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Regular gasoline</td>
</tr>
<tr>
<td>Tank Capacity</td>
<td>2.9 L (0.64 Imp gal, 0.77 US gal)</td>
</tr>
<tr>
<td>Model</td>
<td>CE50T</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>Carburetor:</td>
<td>Y12P/TEIKEI KIKAKI</td>
</tr>
<tr>
<td>Type/Manufacturer</td>
<td></td>
</tr>
<tr>
<td>Spark Plug:</td>
<td>BPR6HS/NGK</td>
</tr>
<tr>
<td>Type/Manufacturer</td>
<td></td>
</tr>
<tr>
<td>Gap</td>
<td>0.9～1.0 mm (0.036～0.039 in)</td>
</tr>
<tr>
<td>Clutch Type</td>
<td>Dry, Centrifugal Automatic</td>
</tr>
<tr>
<td>Transmission:</td>
<td></td>
</tr>
<tr>
<td>Primary Reduction System</td>
<td>Spur gear</td>
</tr>
<tr>
<td>Primary Reduction Ratio</td>
<td>52/14 (3.714)</td>
</tr>
<tr>
<td>Secondary Reduction System</td>
<td>Spur gear</td>
</tr>
<tr>
<td>Secondary Reduction Ratio</td>
<td>36/12 (3.000)</td>
</tr>
<tr>
<td>Transmission Type</td>
<td>V-belt</td>
</tr>
<tr>
<td>Operation</td>
<td>Automatic</td>
</tr>
<tr>
<td>Chassis:</td>
<td>Steel Tube Underbone</td>
</tr>
<tr>
<td>Frame Type</td>
<td></td>
</tr>
<tr>
<td>Caster Angle</td>
<td>25°</td>
</tr>
<tr>
<td>Trail</td>
<td>62 mm (2.44 in)</td>
</tr>
<tr>
<td>Tire:</td>
<td></td>
</tr>
<tr>
<td>Size (F)</td>
<td>2.75-10-4PR</td>
</tr>
<tr>
<td>Size (R)</td>
<td>2.75-10-4PR</td>
</tr>
<tr>
<td>Tire Pressure (Cold tire):</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>125 kPa (1.25 kg/cm², 18 psi)</td>
</tr>
<tr>
<td>Rear</td>
<td>225 kPa (2.25 kg/cm², 32 psi)</td>
</tr>
<tr>
<td>Brake:</td>
<td></td>
</tr>
<tr>
<td>Front Brake Type</td>
<td>Drum brake</td>
</tr>
<tr>
<td>Operation</td>
<td>Right hand operation</td>
</tr>
<tr>
<td>Rear Brake Type</td>
<td>Drum brake</td>
</tr>
<tr>
<td>Operation</td>
<td>Left hand operation</td>
</tr>
<tr>
<td>Suspension:</td>
<td></td>
</tr>
<tr>
<td>Front Suspension</td>
<td>Telescopic Fork</td>
</tr>
<tr>
<td>Rear Suspension</td>
<td>Unit Swing</td>
</tr>
<tr>
<td>Shock Absorber:</td>
<td></td>
</tr>
<tr>
<td>Rear Shock Absorber</td>
<td>Coil Spring/Oil Damper</td>
</tr>
<tr>
<td>Wheel Travel:</td>
<td></td>
</tr>
<tr>
<td>Front Wheel Travel</td>
<td>44 mm (1.73 in)</td>
</tr>
<tr>
<td>Rear Wheel Travel</td>
<td>49 mm (1.93 in)</td>
</tr>
<tr>
<td>Model</td>
<td>CE50T</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>Electrical:</td>
<td></td>
</tr>
<tr>
<td>Ignition System</td>
<td>CDI</td>
</tr>
<tr>
<td>Generator System</td>
<td>Flywheel magneto</td>
</tr>
<tr>
<td>Battery Type or Model</td>
<td>GM4-3B</td>
</tr>
<tr>
<td>Battery Capacity</td>
<td>12V 4AH</td>
</tr>
<tr>
<td>Headlight Type:</td>
<td>Shealed Beam</td>
</tr>
<tr>
<td>Bulb Wattage × Quantity:</td>
<td></td>
</tr>
<tr>
<td>Headlight</td>
<td>12V 25W/25W × 1</td>
</tr>
<tr>
<td>Tail/Brake light</td>
<td>12V 5W/21W × 1</td>
</tr>
<tr>
<td>Flasher light</td>
<td>12V 10W × 4</td>
</tr>
<tr>
<td>Licence Light</td>
<td>12V 5W × 1</td>
</tr>
<tr>
<td>Meter light</td>
<td>12V 3.4W × 1</td>
</tr>
<tr>
<td>Indicator Light Wattage × Quantity:</td>
<td></td>
</tr>
<tr>
<td>“TURN”</td>
<td>12V 1.7W × 1</td>
</tr>
<tr>
<td>“HIGH BEAM”</td>
<td>12V 1.7W × 1</td>
</tr>
<tr>
<td>“OIL”</td>
<td>12V 3.4W × 1</td>
</tr>
</tbody>
</table>
# Maintenance Specifications

## Engine

<table>
<thead>
<tr>
<th>Model</th>
<th>CE50T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder Head:</td>
<td></td>
</tr>
<tr>
<td>Warp Limit</td>
<td>0.02 mm (0.0008 in)</td>
</tr>
<tr>
<td>*Lines indicate straightedge measurement</td>
<td></td>
</tr>
</tbody>
</table>

| Cylinder: |       |
| Bore Size | 40.0 mm (1.575 in) |
| <Limit> | 40.1 mm (1.579 in) |
| Taper Limit | 0.05 mm (0.002 in) |
| Out of Round Limit | 0.01 mm (0.0004 in) |

| Piston: |       |
| Piston Size | 40.0 mm (1.575 in) |
| Measuring Point* | 5 mm (0.2 in) |
| Piston Clearance |       |
| Oversize 1st | 40.25 mm (1.585 in) |
| 2nd | 40.50 mm (1.594 in) |

| Piston Ring: |       |
| Sectional Sketch (B × T) |       |
| Top Ring | 1.2 × 1.6 mm (0.047 × 0.063 in) |
| 2nd Ring | 1.2 × 1.6 mm (0.047 × 0.063 in) |
| End Gap (Installed) |       |
| Top Ring | 0.15 ~ 0.30 mm (0.006 ~ 0.012 in) |
| 2nd Ring | 0.15 ~ 0.30 mm (0.006 ~ 0.012 in) |
| Side Clearance (Installed) |       |
| Top Ring | 0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in) |
| 2nd Ring | 0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in) |

| Crankshaft: |       |
| Crank Width "A" | 37.90 ~ 37.95 mm (1.492 ~ 1.494 in) |
| Run Out Limit "C" | 0.03 mm (0.0012 in) |
| Connecting Rod Big End Side Clearance "D" | 0.2 ~ 0.5 mm (0.008 ~ 0.020 in) |
| Small End Free Play "F" | 0.4 ~ 0.8 mm (0.015 ~ 0.031 in) |
## SPECIFICATION

<table>
<thead>
<tr>
<th>Model</th>
<th>CE50T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automatic Centrifugal Clutch:</strong></td>
<td></td>
</tr>
<tr>
<td>Shoe Thickness</td>
<td>4.0 mm (0.16 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.5 mm (0.10 in)&gt;</td>
</tr>
<tr>
<td>Clutch Spring Free Length</td>
<td>109.6 mm (4.31 in)</td>
</tr>
<tr>
<td>&lt;Limit&gt;</td>
<td>&lt;94.0 mm (3.70 in)&gt;</td>
</tr>
<tr>
<td>Clutch Housing Inside Diameter</td>
<td>105.0 mm (4.13 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;105.4 mm (4.15 in)&gt;</td>
</tr>
<tr>
<td>Clutch-In Revolution</td>
<td>2,300–2,700 r/min</td>
</tr>
<tr>
<td>Clutch-Stall Revolution</td>
<td>3,700–4,300 r/min</td>
</tr>
<tr>
<td><strong>V-Belt:</strong></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>15 mm (0.59 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;13.5 mm (0.53 in)&gt;</td>
</tr>
<tr>
<td><strong>Transmission:</strong></td>
<td></td>
</tr>
<tr>
<td>Main Axle Runout Limit</td>
<td>0.08 mm (0.003 in)</td>
</tr>
<tr>
<td>Drive Axle Runout Limit</td>
<td>0.08 mm (0.003 in)</td>
</tr>
<tr>
<td><strong>Kick Starter:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Ratchet Type</td>
</tr>
<tr>
<td>Kick Clip Tension</td>
<td>250–300 g (8.83–10.6 oz)</td>
</tr>
<tr>
<td><strong>Carburetor:</strong></td>
<td></td>
</tr>
<tr>
<td>I.D. Mark</td>
<td>1UV00</td>
</tr>
<tr>
<td>Main Jet</td>
<td>M.J.) #82</td>
</tr>
<tr>
<td>Jet Needle-clip Position</td>
<td>J.N.) 3S30-4/5</td>
</tr>
<tr>
<td>Main Air Jet</td>
<td>M.A.J.) 2.0</td>
</tr>
<tr>
<td>Cutaway</td>
<td>C.A.) 3.0</td>
</tr>
<tr>
<td>Pilot Jet</td>
<td>P.J.) #42</td>
</tr>
<tr>
<td>Pilot Air Jet</td>
<td>P.A.J.) φ1.04</td>
</tr>
<tr>
<td>Valve Seat Size</td>
<td>V.S.) 1.5</td>
</tr>
<tr>
<td>Starter Jet</td>
<td>G.S.) #46</td>
</tr>
<tr>
<td>Float Height</td>
<td>15.0–17.0 mm (0.59–0.67 in)</td>
</tr>
<tr>
<td>Engine Idling speed</td>
<td>1,500–2,100 r/min</td>
</tr>
<tr>
<td><strong>Reed Valve:</strong></td>
<td></td>
</tr>
<tr>
<td>Thickness</td>
<td>0.15 mm (0.006 in)</td>
</tr>
<tr>
<td>Valve Stopper Height</td>
<td>3.0–3.4 mm (0.12–0.13 in)</td>
</tr>
<tr>
<td>Reed Valve Clearance</td>
<td>Less than 0.2 mm (0.008 in)</td>
</tr>
<tr>
<td><strong>Lubrication System:</strong></td>
<td></td>
</tr>
<tr>
<td>Autolube Pump</td>
<td></td>
</tr>
<tr>
<td>Minimum Stroke</td>
<td>0.10–0.15 mm (0.004–0.006 in)</td>
</tr>
<tr>
<td>Maximum Stroke</td>
<td>0.55–0.65 mm (0.022–0.026 in)</td>
</tr>
<tr>
<td>Pulley Adjusting Mark</td>
<td>At idle</td>
</tr>
<tr>
<td></td>
<td>③: 0.0–1.0 mm (0.0–0.039 in)/at idle</td>
</tr>
</tbody>
</table>

---

7-5
<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q'ty</th>
<th>Tightening torque</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nm</td>
<td>m•kg</td>
</tr>
<tr>
<td>Spark plug</td>
<td>M14x1.25</td>
<td>1</td>
<td>20</td>
<td>2.0</td>
</tr>
<tr>
<td>Cylinder head</td>
<td>M6x1.0</td>
<td>4</td>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>Stud bolt</td>
<td>M6x1.0</td>
<td>4</td>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>Startor assembly</td>
<td>M6x1.0</td>
<td>2</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>C.D.I. magneto</td>
<td>M12x1.25</td>
<td>1</td>
<td>43</td>
<td>4.3</td>
</tr>
<tr>
<td>Air shroud</td>
<td>M6x1.0</td>
<td>3</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Fan</td>
<td>M6x1.0</td>
<td>2</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Autolube pump</td>
<td>M5x0.8</td>
<td>2</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Reed valve (carburetor joint)</td>
<td>M6x1.0</td>
<td>4</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Air cleaner Case</td>
<td>M6x1.0</td>
<td>2</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Exhaust pipe</td>
<td>M6x1.0</td>
<td>2</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Muffler</td>
<td>M8x1.25</td>
<td>2</td>
<td>27</td>
<td>2.7</td>
</tr>
<tr>
<td>Muffler protector</td>
<td>M6x1.0</td>
<td>2</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Crankcase</td>
<td>M6x1.0</td>
<td>6</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Transmission case cover</td>
<td>M6x1.0</td>
<td>5</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Crankcase cover</td>
<td>M6x1.0</td>
<td>10</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Transmission oil drain bolt</td>
<td>M8x1.25</td>
<td>1</td>
<td>18</td>
<td>1.8</td>
</tr>
<tr>
<td>Autolube pump cover</td>
<td>M6x1.0</td>
<td>2</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Stay (starter clutch)</td>
<td>M6x1.0</td>
<td>3</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Kick crank</td>
<td>M6x1.0</td>
<td>1</td>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>Clutch</td>
<td>M28x1.0</td>
<td>1</td>
<td>50</td>
<td>5.0</td>
</tr>
<tr>
<td>Clutch housing</td>
<td>M10x1.0</td>
<td>1</td>
<td>40</td>
<td>4.0</td>
</tr>
<tr>
<td>Primary sheave</td>
<td>M10x1.25</td>
<td>1</td>
<td>30</td>
<td>3.0</td>
</tr>
<tr>
<td>Idle gear plate</td>
<td>M6x1.0</td>
<td>2</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Oil seal stopper plate</td>
<td>M6x1.0</td>
<td>1</td>
<td>13</td>
<td>1.3</td>
</tr>
</tbody>
</table>
## APPX  
### SPECIFICATION

<table>
<thead>
<tr>
<th>Chassis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td><strong>CE50T</strong></td>
</tr>
<tr>
<td>Steering System:</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>Steering Bearing Type</td>
<td></td>
</tr>
<tr>
<td>No./Size of Steel Balls</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>5/32 in/26 pcs</td>
</tr>
<tr>
<td>Lower</td>
<td>5/32 in/26 pcs</td>
</tr>
<tr>
<td>Front Suspension:</td>
<td></td>
</tr>
<tr>
<td>Front Fork Travel</td>
<td>48.6 mm (1.91 in)</td>
</tr>
<tr>
<td>Fork spring Free Length</td>
<td>92 mm (3.62 in)</td>
</tr>
<tr>
<td>&lt; Limit &gt;</td>
<td>&lt; 87 mm (3.42 in)</td>
</tr>
<tr>
<td>Spring Rate (K1)</td>
<td>9.55 N/mm (0.974 kg/mm, 53.6 lb/in)</td>
</tr>
<tr>
<td>Stroke</td>
<td>0.0 ~ 48.6 mm (0.0 ~ 1.91 in)</td>
</tr>
<tr>
<td>Optional Spring</td>
<td>No.</td>
</tr>
<tr>
<td>Rear Suspension:</td>
<td></td>
</tr>
<tr>
<td>Shock absorber Travel</td>
<td>45 mm (1.77 in)</td>
</tr>
<tr>
<td>Spring Free Length</td>
<td>187.5 mm (7.38 in)</td>
</tr>
<tr>
<td>Spring Fitting Length</td>
<td>182.5 (7.18 in)</td>
</tr>
<tr>
<td>Spring Rate (K1)</td>
<td>37.2 N/mm (3.8 kg/mm, 209.3 lb/in)</td>
</tr>
<tr>
<td>(K2)</td>
<td>48.1 N/mm (4.9 kg/mm 269.9 lb/in)</td>
</tr>
<tr>
<td>(K3)</td>
<td>72.6 N/mm (7.4 kg/mm 407.6 lb/in)</td>
</tr>
<tr>
<td>Stroke (K1)</td>
<td>0.0 ~ 25 mm (0.0 ~ 0.98 in)</td>
</tr>
<tr>
<td>(K2)</td>
<td>25 ~ 40 mm (0.98 ~ 1.57 in)</td>
</tr>
<tr>
<td>(K3)</td>
<td>40 ~ 45 mm (1.57 ~ 1.77 in)</td>
</tr>
<tr>
<td>Optional Spring</td>
<td>No.</td>
</tr>
<tr>
<td>Wheel:</td>
<td></td>
</tr>
<tr>
<td>Front Wheel Type</td>
<td>Disc wheel</td>
</tr>
<tr>
<td>Rear Wheel Type</td>
<td>Disc wheel</td>
</tr>
<tr>
<td>Front Rim Size/Material</td>
<td>1.50×10 DC/Steel</td>
</tr>
<tr>
<td>Rear Rim Size/Material</td>
<td>1.50×10 DC/Steel</td>
</tr>
<tr>
<td>Rim Runout Limit</td>
<td></td>
</tr>
<tr>
<td>Vertical</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Lateral</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Front Drum Brake:</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Leading, Trailing</td>
</tr>
<tr>
<td>Drum Inside Diameter</td>
<td>80.0 mm (3.15 in)</td>
</tr>
<tr>
<td>&lt; Wear Limit &gt;</td>
<td>&lt; 80.5 mm (3.17 in)</td>
</tr>
<tr>
<td>Lining Thickness</td>
<td>3.5 mm (0.14 in)</td>
</tr>
<tr>
<td>&lt; Wear Limit &gt;</td>
<td>&lt; 2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Rear Drum Brake:</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Leading, Trailing</td>
</tr>
<tr>
<td>Drum Inside Diameter</td>
<td>95.0 mm (3.74 in)</td>
</tr>
<tr>
<td>&lt; Wear Limit &gt;</td>
<td>&lt; 95.5 mm (3.76 in)</td>
</tr>
<tr>
<td>Lining Thickness</td>
<td>3.0 mm (0.12 in)</td>
</tr>
<tr>
<td>&lt; Wear Limit &gt;</td>
<td>&lt; 2.0 mm (0.08 in)</td>
</tr>
</tbody>
</table>
## Tightening Torque

<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q'ty</th>
<th>Tightening torque</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nm</td>
<td>m•kg</td>
</tr>
<tr>
<td>Frame and Engine bracket</td>
<td>M10×1.25</td>
<td>2</td>
<td>42</td>
<td>4.2</td>
</tr>
<tr>
<td>Engine bracket and Engine</td>
<td>M10×1.25</td>
<td>1</td>
<td>42</td>
<td>4.2</td>
</tr>
<tr>
<td>Rear Suspension (Upper)</td>
<td>M10×1.25</td>
<td>1</td>
<td>32</td>
<td>3.2</td>
</tr>
<tr>
<td>(Lower)</td>
<td>M 8×1.25</td>
<td>1</td>
<td>17</td>
<td>1.7</td>
</tr>
<tr>
<td>Handlebar and Steering column</td>
<td>M 8×1.25</td>
<td>1</td>
<td>29</td>
<td>2.9</td>
</tr>
<tr>
<td>Ring nut (Steering column)</td>
<td>M25</td>
<td>1</td>
<td>30</td>
<td>3.0</td>
</tr>
<tr>
<td>Front wheel axle</td>
<td>M10×1.25</td>
<td>1</td>
<td>35</td>
<td>3.5</td>
</tr>
<tr>
<td>Front brake cam lever</td>
<td>M 5×0.8</td>
<td>1</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Rear brake cable holder</td>
<td>M 6×1.0</td>
<td>1</td>
<td>7</td>
<td>0.7</td>
</tr>
<tr>
<td>Rear brake cam lever</td>
<td>M 5×0.8</td>
<td>1</td>
<td>6</td>
<td>0.6</td>
</tr>
<tr>
<td>Rear wheel axle</td>
<td>M14×1.5</td>
<td>1</td>
<td>93</td>
<td>9.3</td>
</tr>
<tr>
<td>Rear brake shoe plate</td>
<td>M 8×1.25</td>
<td>3</td>
<td>18</td>
<td>1.8</td>
</tr>
<tr>
<td>Rear stay</td>
<td>M 6×1.0</td>
<td>4</td>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>Seat bracket and seat</td>
<td>M 6×1.0</td>
<td>2</td>
<td>7</td>
<td>0.7</td>
</tr>
<tr>
<td>Rear Carrier</td>
<td>M 6×1.0</td>
<td>4</td>
<td>7</td>
<td>0.7</td>
</tr>
</tbody>
</table>
### Electrical

<table>
<thead>
<tr>
<th>Model</th>
<th>CE50T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage:</td>
<td>12V</td>
</tr>
<tr>
<td>Ignition System:</td>
<td></td>
</tr>
<tr>
<td>Ignition Timing (B.T.D.C.)</td>
<td>18°/5,000 r/min</td>
</tr>
<tr>
<td>Advancer Type</td>
<td>Electrical</td>
</tr>
</tbody>
</table>

![Graph showing Ignition Timing (B.T.D.C.) vs. Engine speed (x 10^3 r/min)](image)

<table>
<thead>
<tr>
<th>C.D.I.:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>C.D.I. Unit-Model/Manufacturer</td>
<td>24L-MO/YAMAHA</td>
</tr>
</tbody>
</table>

| Ignition Coil: | |
| Model/Manufacturer | 2EX/YAMAHA |
| Primary Winding Resistance | 0.21~0.25Ω at 20°C (68°F) |
| Secondary Winding Resistance | 4.5~6.7kΩ at 20°C (68°F) |

| Charging System/Type: | Flywheel Magneto |

<p>| C.D.I. Magneto: | |
| Model/Manufacturer | F 1HH/YAMAHA |
| Pickup Coil Resistance (Color) | 27<del>330Ω at 20°C (68°F) (White/Red—Black) |
| Charging Voltage | 13.0</del>17.5V at 4,000 r/min |
| Lighting Voltage | 11.5<del>13.5V at 4,000 r/min |
| Source Coil Resistance (Color) | 216</del>264Ω at 20°C (68°F) (Black/Red—Black) |
| Charging Coil Resistance (Color) | 0.63<del>0.77Ω at 20°C (68°F) (White—Black) |
| Lighting Coil Resistance (Color) | 0.27</del>0.33Ω at 20°C (68°F) (Yellow/Red—Black) |</p>
<table>
<thead>
<tr>
<th><strong>Voltage Regulator:</strong></th>
<th><strong>Model</strong></th>
<th>CE50T</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td></td>
<td>Semi conductor short circuit type</td>
</tr>
<tr>
<td><strong>Model/Manufacturer</strong></td>
<td></td>
<td>EHU-01TR05/MATSUSHITA</td>
</tr>
<tr>
<td><strong>No Load Regulated Voltage</strong></td>
<td></td>
<td>13.5 ~ 14.5V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Rectifier:</strong></th>
<th><strong>Model/Manufacturer</strong></th>
<th>EHU-01TR15/MATSUSHITA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>4A</td>
<td>240V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Battery:</strong></th>
<th><strong>Capacity</strong></th>
<th>12V, 4AH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>1.280</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Starter Motor:</strong></th>
<th><strong>Model</strong></th>
<th>DA5AG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manufacturer</strong></td>
<td>NIPPON DENSO</td>
<td>YAMAHA</td>
</tr>
<tr>
<td><strong>Out Put</strong></td>
<td>0.15 kW</td>
<td>0.14 kW</td>
</tr>
<tr>
<td><strong>Armature Coil Resistance</strong></td>
<td>0.08 ~ 0.10Ω</td>
<td>0.08 ~ 0.10Ω</td>
</tr>
<tr>
<td><strong>Brush Length</strong></td>
<td>5.5 mm (0.22 in)</td>
<td>3.9 mm (0.15 in)</td>
</tr>
<tr>
<td><strong>&lt;Wear Limit&gt;</strong></td>
<td>&lt;2.5 mm 0.10 in)</td>
<td>&lt;0.9 mm (0.03 in)</td>
</tr>
<tr>
<td><strong>Commutator Diameter</strong></td>
<td>15.5 mm (0.61 in)</td>
<td>15.8 mm (0.62 in)</td>
</tr>
<tr>
<td><strong>&lt;Wear Limit&gt;</strong></td>
<td>&lt;14.5 mm (0.57 in)</td>
<td>&lt;14.8 mm (0.58 in)</td>
</tr>
<tr>
<td><strong>Mica Undercut</strong></td>
<td>1.0 mm (0.039 in)</td>
<td>1.15 mm (0.045 in)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Starter Relay:</strong></th>
<th><strong>Model/Manufacturer</strong></th>
<th>27V/TATEISHI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amperage Rating</strong></td>
<td>20A</td>
<td></td>
</tr>
<tr>
<td><strong>Coil Resistance</strong></td>
<td>54 ~ 66Ω</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Horn:</strong></th>
<th><strong>Type/Quantity</strong></th>
<th>Plain type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model/Manufacturer</strong></td>
<td>GF-12/NIKKO</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Amperage</strong></td>
<td>1.5A</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Flash Relay:</strong></th>
<th><strong>Type</strong></th>
<th>Condenser type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model/Manufacturer</strong></td>
<td>FZ222SD/NIPPON DENSO</td>
<td></td>
</tr>
<tr>
<td><strong>Self Cancelling Device</strong></td>
<td>No</td>
<td></td>
</tr>
<tr>
<td><strong>Flasher Frequency</strong></td>
<td>60 ~ 120 cycle/min</td>
<td></td>
</tr>
<tr>
<td><strong>Wattage</strong></td>
<td>10W × 2 + 3.4W</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Circuit Breaker:</strong></th>
<th><strong>Type</strong></th>
<th>Fuse</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amperage for Individual Circuit × Quantity</strong></td>
<td>7A × 1</td>
<td></td>
</tr>
</tbody>
</table>

7-10
GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

<table>
<thead>
<tr>
<th>A (Nut)</th>
<th>B (Bolt)</th>
<th>General torque specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 mm</td>
<td>6 mm</td>
<td>6</td>
</tr>
<tr>
<td>12 mm</td>
<td>8 mm</td>
<td>15</td>
</tr>
<tr>
<td>14 mm</td>
<td>10 mm</td>
<td>30</td>
</tr>
<tr>
<td>17 mm</td>
<td>12 mm</td>
<td>55</td>
</tr>
<tr>
<td>19 mm</td>
<td>14 mm</td>
<td>85</td>
</tr>
<tr>
<td>22 mm</td>
<td>16 mm</td>
<td>130</td>
</tr>
</tbody>
</table>

A: Distance cross flats
B: Outside thread diameter

DEFINITION OF UNITS

<table>
<thead>
<tr>
<th>Unit</th>
<th>Read</th>
<th>Definition</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>millimeter</td>
<td>10^{-3} meter</td>
<td>Length</td>
</tr>
<tr>
<td>cm</td>
<td>centimeter</td>
<td>10^{-2} meter</td>
<td>Length</td>
</tr>
<tr>
<td>kg</td>
<td>kilogram</td>
<td>10^3 gram</td>
<td>Weight</td>
</tr>
<tr>
<td>N</td>
<td>Newton</td>
<td>1 kg x m/sec^2</td>
<td>Force</td>
</tr>
<tr>
<td>Nm</td>
<td>Newton meter</td>
<td>N x m</td>
<td>Torque</td>
</tr>
<tr>
<td>m·kg</td>
<td>Meter kilogram</td>
<td>m x 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>Cubic centimeter</td>
<td>Volume or Capacity</td>
</tr>
<tr>
<td>cm^3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>r/min</td>
<td>Rotation per minute</td>
<td></td>
<td>Engine Speed</td>
</tr>
</tbody>
</table>
CABLE ROUTING

1. Main switch
2. Leg shield bracket
3. Rear brake cable
4. Throttle cable
5. Carrier stay 2
6. Horn
7. Rectifier/Regulator

A. Route along left side of leg shield bracket and frame.
B. Route wire harness along left side of leg shield bracket and then, along left side of frame down-tube.
C. Wire harness should be on the left side.
CABLE ROUTING

1. Throttle cable
2. Rear brake cable
3. Wire cylinder ass’y
4. Oil level gauge
5. Breather hose
6. Band

A. It should be firmly installed on the engine protector.
B. Route wire harness between rear stay and fuel tank.
C. Insert fuse case (wire harness assembly) into holder (integrated with battery case).
D. Route wire harness over frame.
E. Route breather hose along engine protector slit.
F. Route wire harness under back stay.
CABLE ROUTING

1. Inner fender
2. C.D.I. unit
3. Ignition coil
4. Fuel pipe (tank to cock)
5. Clamp
6. Band
7. Auto choke unit lead

A. Pass meter cable and brake cable through the window in inner fender.
B. Meter cable and front brake cable should be free of twists.
C. Clamp rear brake cable.
D. Be sure the casing cap of brake cable is completely in crankcase.
E. Clamp wire harness only.
Push the projecting portion of clamp into the mounting hole on the stay side.
1. High tension cord
2. Auto choke unit lead
3. Band
4. Boot
5. C.D.I. magneto lead
6. Oil pump cover
7. Exhaust pipe
8. Clamp
9. Starter motor lead
10. Carrier 2
11. Taillight assembly
12. Tail cover assembly
13. License bracket
14. Flasher stay
15. Cap
16. Flasher light assembly

A. Clamp firmly.
B. Route battery breather hose inside the back stay and hold with clamp.
   When installing cover, use care so that pipe is not pinched.
C. Pass flasher lead through holes in flasher stay and carrier 2.
D. As shown, after connecting the taillight and flasher leads, push the connections completely into the tail cover.
   No coupler and connector are allowed to be outside the case.
COLOR CODE

B .......... Black
L .......... Blue
O .......... Orange
P .......... Pink
Y .......... Yellow
R .......... Red
G .......... Green
Br .......... Brown
Gy .......... Gray
Ch .......... Chocolate
Dg .......... Dark green
W .......... White
B/R .......... Black/Red
L/W .......... Blue/White
Y/R .......... Yellow/Red
G/Y .......... Green/Yellow
Br/W .......... Brown/White
W/R .......... White/Red
B/W .......... Black/White
FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the CG50U. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

| CE50T Service Manual: 2UG-ME1 |

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

©1987 by Yamaha Motor Co., Ltd.
1st Edition, November 1987
All rights reserved. Any reprinting or unauthorized use without the written permission of Yamaha Motor Co., Ltd. is expressly prohibited.
NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha scooters have a basic understanding of the mechanical concepts and procedures inherent in scooter repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

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

HOW TO USE THIS MANUAL

PARTICULARLY IMPORTANT INFORMATION

This material is distinguished by the following notation.

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

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

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

MANUAL FORMAT

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

• Bearings
  Pitting/Damage → Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.
ILLUSTRATED SYMBOLS
(Refer to the illustration)

Illustrated symbols ① to ⑧ are designed as thumb tabs to indicate the chapter’s number and content.
① General information
② Periodic inspection and adjustment
③ Engine
④ Cooling system
⑤ Carburetion
⑥ Chassis
⑦ Electrical
⑧ Appendices

Illustrated symbols ⑨ to ⑭ are used to identify the specifications appearing in the text.
⑨ Filling fluid
⑩ Lubricant
⑪ Tightening
⑫ Wear limit, clearance
⑬ Engine speed
⑭ ① V, A

Illustrated symbols ⑮ to ⑱ in the exploded diagram indicate grade of lubricant and location of lubrication point.
⑮ Apply engine oil
⑯ Apply gear oil
⑰ Apply molybdenum disulfide oil
⑱ Apply wheel bearing grease
⑲ Apply lightweight lithium-soap base grease
⑳ Apply molybdenum disulfide grease
㉑ Apply locking agent (LOCTITE®)
**CONTENTS**

**GENERAL INFORMATION** .................................................. L-5
  SCOOTER IDENTIFICATION ................................................. L-5
  VEHICLE IDENTIFICATION NUMBER ...................................... L-5
  ENGINE SERIAL NUMBER .................................................. L-5

**PERIODIC INSPECTION AND ADJUSTMENT** ............................. L-5
  INTRODUCTION ..................................................................... L-5
  PERIODIC MAINTENANCE/LUBRICATION INTERVALS .................. L-5
  COVERS .............................................................................. L-6
  TAIL COVERS AND MOLES ................................................... L-6
  FRONT PANEL, LEG SHIELD AND FOOTREST BOARD ................. L-7
  HANDLEBAR COVERS .......................................................... L-8
  ENGINE .............................................................................. L-8
  ENGINE OIL LEVEL INSPECTION ......................................... L-8
  AUTOLUBE PUMP AIR BLEEDING .......................................... L-9

**ELECTRICAL** .................................................................... L-10
  CG50U CIRCUIT DIAGRAM .................................................... L-10
  ELECTRICAL COMPONENTS .................................................. L-11
  SIGNAL SYSTEM ................................................................... L-12
  CIRCUIT DIAGRAM ................................................................ L-12
  TROUBLESHOOTING ............................................................. L-13

**APPENDICES** .................................................................... L-14
  SPECIFICATIONS ................................................................. L-14
    GENERAL SPECIFICATIONS ............................................... L-14
    MAINTENANCE SPECIFICATIONS ....................................... L-16
  GENERAL TORQUE SPECIFICATIONS .................................. M-3
  DEFINITION OF UNITS ........................................................ M-3
  CABLE ROUTING .................................................................. M-4

**CG50U WIRING DIAGRAM**
SCOOTER IDENTIFICATION

GENERAL INFORMATION

SCOOTER IDENTIFICATION

VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the frame.

NOTE: ________________

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

Starting Serial Number:
JYA2YTN0JA000101

ENGINE SERIAL NUMBER

The engine serial number ② is stamped into the crankcase.

NOTE: ________________

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

Starting Serial Number:
2YT-000101

NOTE: ________________

Designs and specifications are subject to change without notice.
**INTRODUCTION**

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

**PERIODIC MAINTENANCE/LUBRICATION INTERVALS**

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

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

**: Medium weight wheel bearing grease.
TAIL COVERS AND MOLES

COVERS

TAIL COVERS AND MOLES

Removal

1. Open the seat lock.

2. Remove:
   - Seat ①
   - Helmet holder ②

3. Remove:
   - Moles ① (Left and right)

   **NOTE:**
   - Unhook the pawl ② out of groove ③ of the footrest board.
   - Slide the mole backward and unhook the pawl ④ out of groove ⑤ of the tail cover.

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

5. Remove:
   - Carrier assembly ①

6. Remove:
   - Cover ①
7. Remove:
   • Cover 1

8. Remove:
   • Tail cover 1

Installation
1. Install:
   • Tail cover 1

2. Install:
   • Cover 1
   NOTE: Install the projection 2 into the opening 3.

3. Install:
   • Carrier assembly 1

Nut (Carrier):
7 Nm (0.7 m•kg, 5.1 ft•lb)

Bolt (Carrier):
7 Nm (0.7 m•kg, 5.1 ft•lb)

4. Connect:
   • Taillight leads
   • Rear flasher light leads
5. Install:
• Mole (Left and right) ①

**NOTE:**
• Hook the pawl ② onto the opening ③, and slide the mole forward.
• Hook the pawl ④ onto the opening ⑤.

6. Install:
• Seat ①
• Helmet holder ②

**Nut (Seat):**
7 Nm (0.7 m·kg, 5.1 ft·lb)

---

FRONT PANEL, LEG SHIELD AND FOOTREST BOARD

Removal

1. Remove:
• Covers ① (Left and right)

**NOTE:**
Unhook the projection by pulling up the cover.

2. Remove:
• Front panel ①

**NOTE:**
Unhook the projection by pulling up the front panel.
3. Remove:
   • Leg shield

4. Remove:
   • Tail cover
   Refer to “TAIL COVERS AND MOLES” section.

5. Remove:
   • Footrest board

Installation
1. Install:
   • Footrest board

2. Install:
   • Tail cover
   Refer to “TAIL COVER AND MOLES” section.

3. Install:
   • Leg shield

4. Install:
   • Front panel

NOTE: Install the projection into the slot.
HANDLEBAR COVERS

5. Install:
   • Covers ① (Left and right)

NOTE: ____________________________________________
Install the projection into the slot.

HANDLEBAR COVERS
Removal
1. Remove:
   • Screws (Handlebar cover — Front)

2. Disconnect:
   • Headlight lead and flasher light leads
3. Remove:
   • Handlebar cover ① (Front)

4. Disconnect:
   • Leads
   • Speedometer cable ①
5. Remove:
   • Rear view mirror ②
   • Handlebar cover ③ (Rear)

Installation
1. Install:
   • Handlebar cover ① (Rear)
   • Rear view mirror ②
2. Connect:
   • Leads
   • Speedometer cable

WARNING: ____________________________________________
Proper cable and lead routing is essential to insure safe scooter operation. Refer to "CABLE ROUTING" section.
3. Connect:
- Headlight lead
- Flasher light leads
4. Install:
- Handlebar cover (Front)

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

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

2. Check:
- Oil level
  Oil level low → Add sufficient oil.

Recommended Oil:
Yamalube 2 or Air Cooled 2 Stroke Engine Oil
Oil Tank Capacity:
0.8 L (0.70 Imp qt, 0.84 US qt)

OIL LEVEL AND "OIL" INDICATOR LIGHT CHECKING METHOD

Turn main switch to "ON"

"OIL" indicator light
does not come on

"OIL" indicator light comes on

Wait a few seconds

"OIL" indicator light goes off

"OIL" indicator light stays on

Refer to ELECTRICAL "SIGNAL SYSTEM"
Enigne oil level and electrical circuit are OK
Supply engine oil
NOTE:
If the main switch is turned off after the "OIL" light goes off and then immediately again the main switch is turned on, the "OIL" light may not come on. This is not because of failure.

① "OIL" indicator light

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

AUTOLUBE PUMP AIR BLEEDING

CAUTION:
The oil pump and delivery line must be bled on the following occasions:
• Any portion of the oil system has been disconnected.
• The scooter has been turned on its side.
• Whenever the oil tank has been run empty.
• During predelivery.

1. Remove:
• Tail cover
  Refer to "TAIL COVERS AND MOLES" section.
• Pump cover ①
2. Fill:
• Oil tank

ṣ Recommended Oil:
Yamalube "2" or Air-cooled 2 Stroke Engine Oil

3. Place a rag or oil pan under the oil pump to catch oil.
4. Remove:
• Bleed screw ①
5. Inspect:
• Gasket (Bleed screw)
  Damage→Replace.
6. Keep the oil running out until air bubbles disappear from the oil hose and bleed hole.

7. Install:
   • Gasket (Bleed screw)
   • Bleed screw

8. Disconnect:
   • Oil delivery hose ①
     From the carburetor ②.

9. Feed the engine oil into the oil delivery hose using a oil can from complete air bleeding. Then, connect the oil delivery hose to the carburetor.

   NOTE: Thoroughly clean the engine exterior of oil.

10. Install:
    • Tail cover
        Refer to "TAIL COVERS AND MOLES" section.
CG50U CIRCUIT DIAGRAM

1. Spark plug
2. Ignition coil
3. CDI magneto
4. CDI unit
5. Rectifier/Regulator
6. Auto choke unit
7. "ENGINE STOP" switch
8. Main switch
9. Fuse
10. Battery
11. "START" switch
12. Starter relay
13. Starter motor
14. "LIGHTS" (Dimmer) switch
15. Headlight
16. "HIGH BEAM" indicator light
17. Meter light
18. Tail/Brake light
19. Fuel meter
20. Fuel sender
21. Flasher relay
22. "TURN" switch
23. "TURN" indicator light
24. Left flasher light (Front)
25. Left flasher light (Rear)
26. Right flasher light (Front)
27. Right flasher light (Rear)
28. Horn
29. "HORN" switch
30. Front brake switch
31. Rear brake switch
32. "OIL" indicator light
33. Oil level gauge

COLOR CODE

| R | Red  | P | Pink |
| B | Black | L | Blue |
| W | White | Y/R | Yellow/Red |
| Y | Yellow | L/W | Blue/White |
| Br | Brown | G/Y | Green/Yellow |
| Gy | Gray | B/W | Black/White |
| O | Orange | B/R | Black/Red |
| Ch | Chocolate | W/R | White/Red |
| Dg | Dark green | Br/W | Brown/White |
| G | Green |
### ELECTRICAL COMPONENTS

1. Wire harness
2. Fuel sender
3. Ignition coil
4. Battery
5. Starter relay
6. Oil level gauge
7. CDI unit

#### A
**BATTERY**
- **TYPE:** YB4L-B
- **SPECIFIC GRAVITY:** 1.280

#### B
**IGNITION COIL RESISTANCE**
- **PRIMARY:** 0.56 - 0.84Ω at 20°C (68°F)
- **SECONDARY:** 5.68 - 8.52kΩ at 20°C (68°F)
① Main switch
② Horn
③ Rectifier/Regulator
④ Flasher relay
Below circuit diagram shows signal system.
NOTE: 
- For color codes, see page 12. 
- Unlike the previous CE50T, this model has a fuel meter and fuel sender added and the oil level gauge changed. This signal system explains the checking of only such addition and change.

SIGNAL SYSTEM

6 Main switch  
8 Fuse  
10 Battery  
12 Fuel meter  
14 Fuel sender  
16 "OIL" indicator light  
18 Oil level gauge
**TROUBLESHOOTING**

**NOTE:**

The battery provides power for operation of the fuel meter and "OIL" indicator light. If none of the above operates, always check the battery voltage before proceeding further. Low battery voltage indicates either a faulty battery, low battery electrolyte, or defective charging system. Also, check the fuse condition.

1. **Fuel meter does not work**

<table>
<thead>
<tr>
<th>Check for voltage (12V) on &quot;Br&quot; lead at fuel meter connector.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OK</strong></td>
</tr>
<tr>
<td>Check for voltage (12V) on &quot;G&quot; lead at fuel meter connector.</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
<tr>
<td>Check for voltage (6-12V) on &quot;G&quot; lead at fuel sender connector.</td>
</tr>
<tr>
<td><strong>OK</strong></td>
</tr>
<tr>
<td>Check for condition of fuel sender and fuel meter. Refer to &quot;FUEL SENDER CHECK&quot; and &quot;FUEL METER CHECK&quot;.</td>
</tr>
</tbody>
</table>

- Wiring circuit from fuse to fuel meter connector is faulty, repair.
- Check for condition of fuel meter. If fuel meter is poor condition, replace it.
- Wiring circuit from fuel meter to fuel sender is faulty, repair.

---

**Fuel Sender Check**

1. Remove:
   - Fuel sender

---
2. Connect:
   • Pocket Tester (YU-03112)
     Set the tester selector to “Ω × 10” position.
3. Check:
   • Fuel sender conduct
     Refer to following table.
     Not per result → Replace.

<table>
<thead>
<tr>
<th>Float position</th>
<th>Fuel sender resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up ①</td>
<td>4 ~ 10Ω</td>
</tr>
<tr>
<td>Down ②</td>
<td>90 ~ 100Ω</td>
</tr>
</tbody>
</table>

NOTE:
Check from top to bottom.

Fuel Meter Check
1. Connect:
   • Fuel sender lead
2. Turn the main switch to “ON”.
3. Check:
   • Fuel meter
     Refer to following table.
     Not per result → Replace.

<table>
<thead>
<tr>
<th>Float position</th>
<th>Fuel meter position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up ①</td>
<td>“F”</td>
</tr>
<tr>
<td>Down ②</td>
<td>“E”</td>
</tr>
</tbody>
</table>

NOTE:
Before reading the meter, stay put the float for more than three minutes respectively at ① and ②.
2. "OIL" indicator light does not work

- Check for voltage (12V) on "Br" lead at "OIL" indicator light connector.
  - OK
  - No Voltage
    - Wiring circuit from fuse to "OIL" indicator light connector is faulty, repair.

- Check for voltage (12V) on "Gy" lead at "OIL" indicator light connector.
  - OK
  - No Voltage
    - "OIL" indicator light socket is faulty, replace it.

- Check for voltage (12V) on "Gy" lead at oil level gauge connector.
  - OK
  - No Voltage
    - Wiring circuit from "OIL" indicator light to oil level gauge is faulty, repair.

- Check for condition of oil level gauge. Refer to "OIL LEVEL GAUGE CHECK".

Oil Level Gauge Check

1. Remove:
   - Oil level gauge ①

   **NOTE:**
   Do not disconnect the oil level gauge lead.

2. Turn the main switch to "ON".

3. Check
   - Oil level gauge
     Refer to following table.
     Not per result → Replace.

<table>
<thead>
<tr>
<th>Oil level gauge position</th>
<th>&quot;OIL&quot; indicator light</th>
</tr>
</thead>
</table>
| Upright position         | •Light comes on
                           | •Wait a few second
                           | •Light goes out         |
| Upside down position     | •Light comes on
                           | •Wait a few second
                           | •Light stays on         |
# SPECIFICATIONS

## GENERAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model Code Number</th>
<th>2YT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Identification Number</td>
<td>2YTN0*JA000101</td>
</tr>
<tr>
<td>Engine Starting Number</td>
<td>2YT-000101</td>
</tr>
</tbody>
</table>

### Dimensions:
- Overall Length: 1,610 mm (63.4 in)
- Overall Width: 625 mm (24.6 in)
- Overall Height: 985 mm (38.8 in)
- Seat Height: 700 mm (27.5 in)
- Wheelbase: 1,115 mm (43.9 in)
- Minimum Ground Clearance: 95 mm (3.7 in)

### Basic Weight:
- With Oil and Full Fuel Tank: 58 kg (128 lb)

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

### Engine:
- Engine Type: Air cooled 2-stroke, gasoline torque induction
- Cylinder Arrangement: Single cylinder, Forward inclined
- Displacement: 49 cm³
- Bore x Stroke: 40.0 x 39.2 mm (1.575 x 1.543 in)
- Compression Ratio: 6.7 : 1
- Starting System: Electric and kick starter

### Lubrication System:
- Separated lubrication (Yamaha Autolube)

### Oil Type or Grade:
- Engine Oil: Yamalube 2 or Air cooled 2-stroke engine oil
- Transmission Oil: Yamalube 4 or SAE 10W30 type SE motor oil

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

### Air Filter
- Wet type element

### Fuel:
- Type: Regular gasoline
- Tank Capacity: 3.5 L (0.77 Imp gal, 0.92 US gal)
<table>
<thead>
<tr>
<th>Model</th>
<th>CG50U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carburetor:</td>
<td></td>
</tr>
<tr>
<td>Type/Manufacturer</td>
<td>Y12P/TEIKEI KIKAKI</td>
</tr>
<tr>
<td>Spark Plug:</td>
<td></td>
</tr>
<tr>
<td>Type/Manufacturer</td>
<td>BPR7HS/NGK, W22FPR-U/N.D</td>
</tr>
<tr>
<td>Gap</td>
<td>0.6 – 0.7 mm (0.024 – 0.028 in)</td>
</tr>
<tr>
<td>Clutch Type</td>
<td>Dry, Centrifugal automatic</td>
</tr>
<tr>
<td>Transmission:</td>
<td></td>
</tr>
<tr>
<td>Primary Reduction System</td>
<td>Herical gear</td>
</tr>
<tr>
<td>Primary Reduction Ratio</td>
<td>52/14 (3.714)</td>
</tr>
<tr>
<td>Secondary Reduction System</td>
<td>Spur gear</td>
</tr>
<tr>
<td>Secondary Reduction Ratio</td>
<td>38/10 (3,800)</td>
</tr>
<tr>
<td>Transmission Type</td>
<td>V-belt</td>
</tr>
<tr>
<td>Operation</td>
<td>Automatic</td>
</tr>
<tr>
<td>Chassis:</td>
<td></td>
</tr>
<tr>
<td>Frame Type</td>
<td>Steel tube underbone</td>
</tr>
<tr>
<td>Caster Angle</td>
<td>26.5°</td>
</tr>
<tr>
<td>Trail</td>
<td>72 mm (2.83 in)</td>
</tr>
<tr>
<td>Tire:</td>
<td></td>
</tr>
<tr>
<td>Size (F)</td>
<td>3.00-10-4PR</td>
</tr>
<tr>
<td>Size (R)</td>
<td>3.00-10-4PR</td>
</tr>
<tr>
<td>Tire Pressure (Cold tire):</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>125 kPa (1.25 kg/cm², 18 psi)</td>
</tr>
<tr>
<td>Rear</td>
<td>200 kPa (2.00 kg/cm², 28 psi)</td>
</tr>
<tr>
<td>Brake:</td>
<td></td>
</tr>
<tr>
<td>Front Brake Type</td>
<td>Drum brake</td>
</tr>
<tr>
<td>Operation</td>
<td>Right hand operation</td>
</tr>
<tr>
<td>Rear Brake Type</td>
<td>Drum brake</td>
</tr>
<tr>
<td>Operation</td>
<td>Left hand operation</td>
</tr>
<tr>
<td>Suspension:</td>
<td></td>
</tr>
<tr>
<td>Front Suspension</td>
<td>Telescopic fork</td>
</tr>
<tr>
<td>Rear Suspension</td>
<td>Unit swing</td>
</tr>
<tr>
<td>Shock Absorber:</td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>Coil spring</td>
</tr>
<tr>
<td>Rear</td>
<td>Coil spring/Oil damper</td>
</tr>
<tr>
<td>Wheel Travel:</td>
<td></td>
</tr>
<tr>
<td>Front Wheel Travel</td>
<td>48 mm (1.89 in)</td>
</tr>
<tr>
<td>Rear Wheel Travel</td>
<td>58 mm (2.28 in)</td>
</tr>
<tr>
<td>Model</td>
<td>CG50U</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>Electrical:</strong></td>
<td></td>
</tr>
<tr>
<td>Ignition System</td>
<td>CDI</td>
</tr>
<tr>
<td>Generator System</td>
<td>Flywheel magneto</td>
</tr>
<tr>
<td>Battery Type or Model</td>
<td>YB4L-B</td>
</tr>
<tr>
<td>Battery Capacity</td>
<td>12V 4AH</td>
</tr>
<tr>
<td>Headlight Type:</td>
<td>Semi-sealed beam</td>
</tr>
<tr>
<td><strong>Bulb Wattage x Quantity:</strong></td>
<td></td>
</tr>
<tr>
<td>Headlight</td>
<td>12V 25W/25W x 1</td>
</tr>
<tr>
<td>Tail/Brake light</td>
<td>12V 5W/21W x 1</td>
</tr>
<tr>
<td>Flasher light</td>
<td>12V 10W x 4</td>
</tr>
<tr>
<td>Meter light</td>
<td>12W 3.4W x 1</td>
</tr>
<tr>
<td><strong>Indicator Light Wattage x Quantity:</strong></td>
<td></td>
</tr>
<tr>
<td>&quot;TURN&quot;</td>
<td>12V 1.7W x 1</td>
</tr>
<tr>
<td>&quot;HIGH BEAM&quot;</td>
<td>12V 1.7W x 1</td>
</tr>
<tr>
<td>&quot;OIL&quot;</td>
<td>12V 3.4W x 1</td>
</tr>
</tbody>
</table>
## MAINTENANCE SPECIFICATIONS

### Engine

<table>
<thead>
<tr>
<th>Model</th>
<th>CG50U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cylinder Head:</td>
<td></td>
</tr>
<tr>
<td>Warp Limit</td>
<td>0.03 mm (0.0012 in)</td>
</tr>
<tr>
<td>*Lines indicate straightedge measurement</td>
<td></td>
</tr>
<tr>
<td>Cylinder:</td>
<td></td>
</tr>
<tr>
<td>Bore Size</td>
<td>39.993 ~ 40.012 mm (1.575 in)</td>
</tr>
<tr>
<td>&lt;Limit&gt;</td>
<td>40.1 mm (1.579 in)</td>
</tr>
<tr>
<td>Taper Limit</td>
<td>0.05 mm (0.002 in)</td>
</tr>
<tr>
<td>Out of Round Limit</td>
<td>0.01 mm (0.0004 in)</td>
</tr>
<tr>
<td>Piston:</td>
<td></td>
</tr>
<tr>
<td>Piston Size</td>
<td>39.952 ~ 39.972 mm (1.573 ~ 1.574 in)</td>
</tr>
<tr>
<td>Measuring Point*</td>
<td>5 mm (0.2 in)</td>
</tr>
<tr>
<td>Piston Clearance</td>
<td>0.034 ~ 0.047 mm (0.0013 ~ 0.0018 in)</td>
</tr>
<tr>
<td>Oversize: 2nd</td>
<td>40.50 mm (1.594 in)</td>
</tr>
<tr>
<td>Piston Ring:</td>
<td></td>
</tr>
<tr>
<td>Sectional Sketch (B x T)/Type</td>
<td></td>
</tr>
<tr>
<td>Top Ring</td>
<td>1.5 x 1.8 mm (0.059 x 0.071 in)/Keystone</td>
</tr>
<tr>
<td>2nd Ring</td>
<td>1.5 x 1.8 mm (0.059 x 0.071 in)/Keystone</td>
</tr>
<tr>
<td>End Gap (Installed):</td>
<td></td>
</tr>
<tr>
<td>Top Ring</td>
<td>0.15 ~ 0.35 mm (0.006 ~ 0.014 in)</td>
</tr>
<tr>
<td>2nd Ring</td>
<td>0.15 ~ 0.35 mm (0.006 ~ 0.014 in)</td>
</tr>
<tr>
<td>Side Clearance (Installed):</td>
<td></td>
</tr>
<tr>
<td>Top Ring</td>
<td>0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)</td>
</tr>
<tr>
<td>2nd Ring</td>
<td>0.03 ~ 0.05 mm (0.0012 ~ 0.0020 in)</td>
</tr>
<tr>
<td>Crankshaft:</td>
<td></td>
</tr>
<tr>
<td>Crank Width “A”</td>
<td>37.90 ~ 37.95 mm (1.492 ~ 1.494 in)</td>
</tr>
<tr>
<td>Run Out Limit “C”</td>
<td>0.03 mm (0.0012 in)</td>
</tr>
<tr>
<td>Connecting Rod Big End Side Clearance “D”</td>
<td>0.2 ~ 0.5 mm (0.008 ~ 0.020 in)</td>
</tr>
<tr>
<td>Small End Free Play “F”</td>
<td>0.4 ~ 0.8 mm (0.015 ~ 0.031 in)</td>
</tr>
</tbody>
</table>
## SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>CG50U</th>
</tr>
</thead>
</table>

### Automatic Centrifugal Clutch:
- **Shoe Thickness**: 4.0 mm (0.16 in)
- **<Wear Limit>**: <2.5 mm (0.10 in)>
- **Clutch Spring Free Length**: 109.6 mm (4.31 in)
- **<Limit>**: <94.0 mm (3.70 in)>
- **Clutch Housing Inside Diameter**: 105.0 mm (4.13 in)
- **<Wear Limit>**: <105.4 mm (4.15 in)>
- **Clutch-In Revolution**: 3,150 ~ 3,650 r/min
- **Clutch-Stall Revolution**: 4,660 ~ 5,350 r/min

### V-Belt:
- **Width**: 15 mm (0.59 in)
- **<Wear Limit>**: <13.5 mm (0.53 in)>

### Transmission:
- **Main Axle Runout Limit**: 0.08 mm (0.003 in)
- **Drive Axle Runout Limit**: 0.08 mm (0.003 in)

### Kick Starter:
- **Type**: Ratchet type
- **Kick Clip Tension**: 150 ~ 250 g (5.3 ~ 8.8 oz)

### Carburetor:
- **I.D. Mark**: 2YR00
- **Main jet**: #90
- **Jet Needle-clip Position**: 3P01-4/5
- **Main Air Jet**: φ2.0
- **Cutaway**: 2.5
- **Pilot Jet**: #42
- **Pilot Air Screw**: 1 and 3/4 turns out
- **Valve Seat Size**: φ1.8
- **Starter Jet**: #48
- **Float Height**: 15.0 ~ 17.0 mm (0.59 ~ 0.67 in)
- **Engine Idling speed**: 1,800 r/min

### Reed Valve:
- **Valve Stopper Height**: 4.0 ~ 4.4 mm (0.13 ~ 0.17 in)
- **Reed Valve Clearance**: Less than 0.2 mm (0.008 in)

### Lubrication System:
- **Autolube Pump Stroke**: 0.34 ~ 0.55 mm (0.013 ~ 0.022 in)
<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q’ty</th>
<th>Tightening torque</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nm</td>
<td>m·kg</td>
</tr>
<tr>
<td>Spark plug</td>
<td>M14 x 1.4</td>
<td>1</td>
<td>20</td>
<td>2.0</td>
</tr>
<tr>
<td>Cylinder head</td>
<td>M 6 x 1.0</td>
<td>4</td>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>Stud bolt</td>
<td>M 6 x 1.0</td>
<td>4</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Stator assembly</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>C.D.I. magneto</td>
<td>M10 x 1.25</td>
<td>1</td>
<td>38</td>
<td>3.8</td>
</tr>
<tr>
<td>Air shroud</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Fan cover</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Fan</td>
<td>M 6 x 1.0</td>
<td>3</td>
<td>7</td>
<td>0.7</td>
</tr>
<tr>
<td>Autolube pump</td>
<td>M 5 x 0.8</td>
<td>2</td>
<td>4</td>
<td>0.4</td>
</tr>
<tr>
<td>Reed valve (carburetor joint)</td>
<td>M 6 x 1.0</td>
<td>4</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Air cleaner Case</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Exhaust pipe</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Muffler</td>
<td>M 8 x 1.25</td>
<td>2</td>
<td>33</td>
<td>3.3</td>
</tr>
<tr>
<td>Muffler protector</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Crankcase</td>
<td>M 6 x 1.0</td>
<td>6</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Transmission case cover</td>
<td>M 6 x 1.0</td>
<td>5</td>
<td>8</td>
<td>0.8</td>
</tr>
<tr>
<td>Crankcase cover</td>
<td>M 6 x 1.0</td>
<td>10</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Transmission oil drain bolt</td>
<td>M 8 x 1.25</td>
<td>1</td>
<td>18</td>
<td>1.8</td>
</tr>
<tr>
<td>Autolube pump cover</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Starter motor</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>13</td>
<td>1.3</td>
</tr>
<tr>
<td>Kick crank</td>
<td>M 6 x 1.0</td>
<td>1</td>
<td>10</td>
<td>1.0</td>
</tr>
<tr>
<td>Clutch</td>
<td>M28 x 1.0</td>
<td>1</td>
<td>50</td>
<td>5.0</td>
</tr>
<tr>
<td>Clutch housing</td>
<td>M10 x 1.0</td>
<td>1</td>
<td>40</td>
<td>4.0</td>
</tr>
<tr>
<td>Primary sheave</td>
<td>M10 x 1.25</td>
<td>1</td>
<td>33</td>
<td>3.3</td>
</tr>
<tr>
<td>Idle gear plate</td>
<td>M 6 x 1.0</td>
<td>2</td>
<td>9</td>
<td>0.9</td>
</tr>
<tr>
<td>Oil seal stopper plate</td>
<td>M 6 x 1.0</td>
<td>1</td>
<td>9</td>
<td>0.9</td>
</tr>
</tbody>
</table>
### Chassis

<table>
<thead>
<tr>
<th>Model</th>
<th>CG50U</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Steering System:</strong></td>
<td></td>
</tr>
<tr>
<td>Steering Bearing Type</td>
<td>Ball bearing</td>
</tr>
<tr>
<td>No./Size of Steel Balls</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>5/32 in 26 pcs.</td>
</tr>
<tr>
<td>Lower</td>
<td>5/32 in 26 pcs.</td>
</tr>
<tr>
<td><strong>Front Suspension:</strong></td>
<td></td>
</tr>
<tr>
<td>Front Fork Travel</td>
<td>48.6 mm (1.91 in)</td>
</tr>
<tr>
<td>Fork spring Free Length</td>
<td>91.5 mm (3.60 in)</td>
</tr>
<tr>
<td>Spring Rate</td>
<td>11.28 N/mm (1.128 kg/mm, 62.1 lb/in)</td>
</tr>
<tr>
<td>Stroke</td>
<td>Zero ~ 48.6 mm (Zero ~ 1.91 in)</td>
</tr>
<tr>
<td>Optional Spring</td>
<td>No.</td>
</tr>
<tr>
<td><strong>Rear Suspension:</strong></td>
<td></td>
</tr>
<tr>
<td>Shock absorber Travel</td>
<td>45 mm (1.77 in)</td>
</tr>
<tr>
<td>Spring Free Length</td>
<td>191.5 mm (7.54 in)</td>
</tr>
<tr>
<td>Spring Fitting Length</td>
<td>181.5 mm (7.15 in)</td>
</tr>
<tr>
<td>Spring Rate: (K1)</td>
<td>38.0 N/mm (3.8 kg/mm, 209.3 lb/in)</td>
</tr>
<tr>
<td>(K2)</td>
<td>49.0 N/mm (4.9 kg/mm, 269.9 lb/in)</td>
</tr>
<tr>
<td>(K3)</td>
<td>74.0 N/mm (7.4 kg/mm, 407.6 lb/in)</td>
</tr>
<tr>
<td>Stroke: (K1)</td>
<td>Zero ~ 20 mm (Zero ~ 0.79 in)</td>
</tr>
<tr>
<td>(K2)</td>
<td>20 ~ 35 mm (0.79 ~ 1.38 in)</td>
</tr>
<tr>
<td>(K3)</td>
<td>35 ~ 45 mm (1.38 ~ 1.77 in)</td>
</tr>
<tr>
<td>Optional Spring</td>
<td>No.</td>
</tr>
<tr>
<td><strong>Wheel:</strong></td>
<td></td>
</tr>
<tr>
<td>Front Wheel Type</td>
<td>Panel wheel</td>
</tr>
<tr>
<td>Rear Wheel Type</td>
<td>Panel wheel</td>
</tr>
<tr>
<td>Front Rim Size/Material</td>
<td>1.85x10 DC/Steel</td>
</tr>
<tr>
<td>Rear Rim Size/Material</td>
<td>1.85x10 DC/Steel</td>
</tr>
<tr>
<td>Rim Runout Limit:</td>
<td></td>
</tr>
<tr>
<td>Vertical</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td>Lateral</td>
<td>2.0 mm (0.08 in)</td>
</tr>
<tr>
<td><strong>Front Drum Brake:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Leading, Trailing</td>
</tr>
<tr>
<td>Drum Inside Diameter</td>
<td>80.0 mm (3.15 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;80.5 mm (3.17 in)&gt;</td>
</tr>
<tr>
<td>Lining Thickness</td>
<td>3.5 mm (0.14 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.0 mm (0.08 in)&gt;</td>
</tr>
<tr>
<td><strong>Rear Drum Brake:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Leading, Trailing</td>
</tr>
<tr>
<td>Drum Inside Diameter</td>
<td>95.0 mm (3.74 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;95.5 mm (3.76 in)&gt;</td>
</tr>
<tr>
<td>Lining Thickness</td>
<td>3.0 mm (0.12 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.0 mm (0.08 in)&gt;</td>
</tr>
</tbody>
</table>
## SPECIFICATIONS

### Tightening torque:

<table>
<thead>
<tr>
<th>Part to be tightened</th>
<th>Thread size</th>
<th>Q’ty</th>
<th>Tightening torque</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nm   m·kg ft·lb</td>
<td></td>
</tr>
<tr>
<td>Frame and engine bracket</td>
<td>M10×1.25</td>
<td>2</td>
<td>42  4.2  30</td>
<td></td>
</tr>
<tr>
<td>Engine bracket and engine</td>
<td>M10×1.25</td>
<td>1</td>
<td>42  4.2  30</td>
<td></td>
</tr>
<tr>
<td>Rear shock absorber (Upper)</td>
<td>M10×1.25</td>
<td>1</td>
<td>32  3.2  23</td>
<td></td>
</tr>
<tr>
<td>(Lower)</td>
<td>M 8×1.25</td>
<td>1</td>
<td>18  1.8  13</td>
<td></td>
</tr>
<tr>
<td>Handlebar and steering column</td>
<td>M10×1.25</td>
<td>1</td>
<td>60  6.0  43</td>
<td></td>
</tr>
<tr>
<td>Ring nut (Steering column)</td>
<td>M25</td>
<td>1</td>
<td>30  3.0  22</td>
<td></td>
</tr>
<tr>
<td>Front wheel axle</td>
<td>M10×1.25</td>
<td>1</td>
<td>35  3.5  25</td>
<td></td>
</tr>
<tr>
<td>Front brake cam lever</td>
<td>M 5×0.8</td>
<td>1</td>
<td>4   0.4  2.9</td>
<td></td>
</tr>
<tr>
<td>Rear brake cable holder</td>
<td>M 6×1.0</td>
<td>1</td>
<td>9   0.9  6.5</td>
<td></td>
</tr>
<tr>
<td>Rear brake cam lever</td>
<td>M 5×0.8</td>
<td>1</td>
<td>4   0.4  2.9</td>
<td></td>
</tr>
<tr>
<td>Rear wheel axle</td>
<td>M14×1.5</td>
<td>1</td>
<td>95  9.5  68</td>
<td></td>
</tr>
<tr>
<td>Rear brake shoe plate</td>
<td>M 8×1.25</td>
<td>3</td>
<td>18  1.8  13</td>
<td></td>
</tr>
<tr>
<td>Rear stay</td>
<td>M 6×1.0</td>
<td>4</td>
<td>10  1.0  7.2</td>
<td></td>
</tr>
<tr>
<td>Seat bracket and seat</td>
<td>M 6×1.0</td>
<td>2</td>
<td>7   0.7  5.1</td>
<td></td>
</tr>
<tr>
<td>Rear carrier</td>
<td>M 6×1.0</td>
<td>4</td>
<td>7   0.7  5.1</td>
<td></td>
</tr>
</tbody>
</table>
## Electrical

<table>
<thead>
<tr>
<th>Model</th>
<th>CG50U</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Ignition System:</strong></td>
<td></td>
</tr>
<tr>
<td>Ignition Timing (B.T.D.C.)</td>
<td>14° at 5,000 r/min</td>
</tr>
<tr>
<td>Advancer Type</td>
<td>Electrical</td>
</tr>
</tbody>
</table>

### Graph
- **Engine speed (×10³ r/min)**
- **Ignition Timing (B.T.D.C.)**

### C.D.I.:
- Magneto Model/Manufacturer: 2JA/YAMAHA
- Pickup Coil Resistance (Color): 400~600Ω at 20°C (68°F) (White/Red—Black)
- Source Coil Resistance (Color): 640~960Ω at 20°C (68°F) (Black/Red—Black)
- C.D.I. Unit-Model/Manufacturer: 2JA/YAMAHA

### Ignition Coil:
- Model/Manufacturer: 2JA/YAMAHA
- Primary Coil Resistance: 0.56~0.84Ω at 20°C (68°F)
- Secondary Coil Resistance: 5.68~8.52kΩ at 20°C (68°F)

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

### C.D.I. Magneto:
- Model/Manufacturer: F2JA/YAMAHA
- Charging Coil Resistance (Color): 0.48~0.72Ω at 20°C (68°F) (White—Black)
- Charging Current
  - Full Charged Battery (1.280): 0.5A or less at 3,000 r/min
  - Half Charged Battery (1.180): 1.0A or more at 3,000 r/min
- Charging Voltage: 13~14V at 4,000 r/min
- Lighting Coil Resistance (Color): 0.4~0.6Ω at 20°C (68°F) (Yellow/Red—Black)
- Lighting Voltage: 11.5~13.5V at 4,000 r/min

### Voltage Regulator:
- Type: Semi conductor short circuit type
- Model/Manufacturer: EHU-01TR05 or SU232Y/MATSUSHITA or STANLEY
- No Load Regulated Voltage: 13.5~14.5V
**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>CG50U</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rectifier:</strong></td>
<td></td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>EHU-01TR21/MATSUSHITA or SH592-12/SHINDENGEN</td>
</tr>
<tr>
<td>Capacity</td>
<td>5A</td>
</tr>
<tr>
<td>Withstand Voltage</td>
<td>240V</td>
</tr>
<tr>
<td><strong>Battery:</strong></td>
<td></td>
</tr>
<tr>
<td>Capacity</td>
<td>12V, 4AH</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.280</td>
</tr>
<tr>
<td><strong>Starter Motor:</strong></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>DA5AG</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>NIPPO DENSO</td>
</tr>
<tr>
<td>Out Put</td>
<td>0.15 kW</td>
</tr>
<tr>
<td>Armature Coil Resistance</td>
<td>0.08~0.10Ω at 20°C (68°F)</td>
</tr>
<tr>
<td>Brush Length</td>
<td>5.5 mm (0.22 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;2.5 mm (0.10 in)&gt;</td>
</tr>
<tr>
<td>Brush Spring Pressure</td>
<td>250<del>450 g (8.8</del>15.9 oz)</td>
</tr>
<tr>
<td>Commutator Diameter</td>
<td>15.5 mm (0.61 in)</td>
</tr>
<tr>
<td>&lt;Wear Limit&gt;</td>
<td>&lt;14.5 mm (0.57 in)&gt;</td>
</tr>
<tr>
<td>Mica Undercut</td>
<td>0.9<del>1.2 mm (0.035</del>0.047 in)</td>
</tr>
<tr>
<td><strong>Starter Relay:</strong></td>
<td></td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>27V/OMRON</td>
</tr>
<tr>
<td>Amperage Rating</td>
<td>20A</td>
</tr>
<tr>
<td>Coil Resistance</td>
<td>54~660Ω at 20°C (68°F)</td>
</tr>
<tr>
<td><strong>Horn:</strong></td>
<td></td>
</tr>
<tr>
<td>Type/Quantity</td>
<td>Plain type/1 pc</td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>GF-12/NIKKO</td>
</tr>
<tr>
<td>Maximum Amperage</td>
<td>1.5A</td>
</tr>
<tr>
<td><strong>Flasher Relay:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Condenser type</td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>FZ222SD/NIPPO DENSO</td>
</tr>
<tr>
<td>Self Cancelling Device</td>
<td>No</td>
</tr>
<tr>
<td>Flasher Frequency</td>
<td>60~120 cycle/min</td>
</tr>
<tr>
<td>Wattage</td>
<td>10W×2+3.4W</td>
</tr>
<tr>
<td><strong>Oil Level Gauge:</strong></td>
<td></td>
</tr>
<tr>
<td>Model/Manufacturer</td>
<td>2JA/TAIHEIYOU ASTI</td>
</tr>
<tr>
<td><strong>Circuit Breaker:</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Fuse</td>
</tr>
<tr>
<td>Amperage for Individual Circuit × Quantity:</td>
<td>7A × 1</td>
</tr>
</tbody>
</table>
GENERAL TORQUE SPECIFICATIONS

This chart specifies torque for standard fasteners with standard I.S.O. pitch threads. Torque specifications for special components or assemblies are included in the applicable sections of this book. To avoid warpage, tighten multi-fastener assemblies in a crisscross fashion, in progressive stages, until full torque is reached. Unless otherwise specified, torque specifications call for clean, dry threads. Components should be at room temperature.

<table>
<thead>
<tr>
<th>A (Nut)</th>
<th>B (Bolt)</th>
<th>General torque specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Nm</td>
</tr>
<tr>
<td>10 mm</td>
<td>6 mm</td>
<td>6</td>
</tr>
<tr>
<td>12 mm</td>
<td>8 mm</td>
<td>15</td>
</tr>
<tr>
<td>14 mm</td>
<td>10 mm</td>
<td>30</td>
</tr>
<tr>
<td>17 mm</td>
<td>12 mm</td>
<td>55</td>
</tr>
<tr>
<td>19 mm</td>
<td>14 mm</td>
<td>85</td>
</tr>
<tr>
<td>22 mm</td>
<td>16 mm</td>
<td>130</td>
</tr>
</tbody>
</table>

A: Distance cross flats
B: Outside thread diameter

DEFINITION OF UNITS

<table>
<thead>
<tr>
<th>Unit</th>
<th>Read</th>
<th>Definition</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm cm</td>
<td>millimeter</td>
<td>10^{-2}meter</td>
<td>Length</td>
</tr>
<tr>
<td></td>
<td>centimeter</td>
<td>10^{-2}meter</td>
<td>Length</td>
</tr>
<tr>
<td>kg</td>
<td>kilogram</td>
<td>10^3gram</td>
<td>Weight</td>
</tr>
<tr>
<td>N</td>
<td>Newton</td>
<td>1 kg x m/sec^2</td>
<td>Force</td>
</tr>
<tr>
<td>N m·kg</td>
<td>Newton meter</td>
<td>N x m</td>
<td>Torque</td>
</tr>
<tr>
<td></td>
<td>Meter kilogram</td>
<td>m x kg</td>
<td>Torque</td>
</tr>
<tr>
<td>Pa N/mm</td>
<td>Pascal</td>
<td>N/m^2</td>
<td>Pressure</td>
</tr>
<tr>
<td></td>
<td>Newton per millimeter</td>
<td>N/mm</td>
<td>Spring rate</td>
</tr>
<tr>
<td>L cm^3</td>
<td>Liter</td>
<td></td>
<td>Volume or Capacity</td>
</tr>
<tr>
<td>r/min</td>
<td>Rotation per minute</td>
<td></td>
<td>Engine Speed</td>
</tr>
</tbody>
</table>
CABLE ROUTING

1. Front brake cable
2. Flasher relay
3. Rear brake cable
4. Speedometer cable
5. Throttle cable
6. Band
7. Main switch
8. Horn
9. Rectifier/Regulator
1. Rear brake cable
2. Throttle cable
3. Band
4. Wireharness
5. Starter relay
6. CDI unit
7. Oil level gauge
8. Battery positive lead
9. Fuse
10. Fuel sender
11. Clamp
1. Front brake cable
2. Speedometer cable
3. Rectifier/Regulator
4. Throttle cable
5. Fuel hose
6. Vacuum hose
7. Ignition coil
8. Rear brake cable
9. Band
CABLE ROUTING

1. Battery breather pipe
2. CDI unit
3. Oil level gauge
4. Fuse
5. Auto choke unit
6. Throttle cable
7. Starter motor lead
8. CDI magneto lead