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**YAMAHA**

**MBK** 

**CS50/Z** <sup>2002</sup>  
<sub>5RW1-AE1</sub>

# **SERVICE MANUAL**

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**CS50/Z  
SERVICE MANUAL**  
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## NOTICE

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

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

**NOTE:** 

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Designs and specifications are subject to change without notice.

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## IMPORTANT INFORMATION

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



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

**WARNING**

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

**CAUTION:**

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

**NOTE :**

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

# HOW TO USE THIS MANUAL

## FORMAT OF THIS MANUAL

This manual consists of chapters for the main subject categories (See "Illustrated Symbols").

First heading ①: This is a chapter with a symbol at the top right-hand side of each page.

Second heading ②: This title appears at the top of each page to the left of the chapter symbol.  
(For the "Inspection and periodic adjustments", chapter the third heading appears.)

Third heading ③: This is a final heading.

## MANUAL FORMAT

All the procedures in this manual are organized sequentially, step by step. The information has been compiled to make reading easy for the mechanic and to provide useful reference material which contains ample explanations of all disassembly, repair, assembly and inspection procedures. A particularly important procedure ④ is placed between a lines of asterisks "\*\*\*" with each procedure preceded by "•".

## IMPORTANT CHARACTERISTICS

- Data and special tools are put in a box preceded by a corresponding symbol ⑤.
- A number within a circle ⑥ indicates the number of a part, and a alphabetical letter within a circle indicates data or an alignment mark ⑦, everything else is indicated by a letter within a box ⑧.
- The conditions of defective components will precede an arrow symbol and the course of action to be followed will follow the symbol ⑨.

## DETAILED DIAGRAM

Each chapter provides detailed diagrams before each disassembly section, for the easy identification of disassembly/assembly procedures.

② INSPECTION AND REPAIR MOT

①

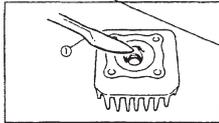
④ ③

**INSPECTION AND REPAIR**

**CYLINDER HEAD**

1. Eliminate:

- Carbon deposits
- Use a rounded scraper ①



2. Inspect:

- Warping of cylinder head
- Out of specification → Correct

Steps for measuring and correcting warp:

- Place a straight edge ① and a thickness gauge ② against the head
- Measure the warp limit.

⑤ Warp limit:  
0.02 mm

- If warp is out of specification, straighten the head.

NOTE:

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

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**CYLINDER AND PISTON**

1. Eliminate:

- Carbon deposits
- Use a rounded file ①

2. Inspect:

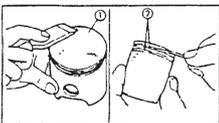
- Cylinder wall
- Wear/Scratches → Rectify or replace

⑨

3. Eliminate:

- Carbon deposits ① ②
- From the crown of the piston and ring slots.

⑥



**SIGNAL SYSTEM** ELEC

• Turn the main switch to "ON".

• Place the "↔" switch at "→" or "←".

• Check the voltage (12 V) on the "Chocolate" or "Dark Green" wire from the socket connector.

OUT OF SPECIFICATION

↓

MEETS SPECIFICATION (12V)

↓

The circuit is in good condition.

4. The "OIL" indicator light does not light up.

1. Bulb and socket

- Check the bulb and socket to see if there is continuity

NO CONTINUITY

↓

CONTINUITY

Change the bulb and/or socket.

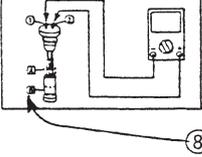
2. Oil level switch

- Remove the oil level switch from the oil tank.
- Connect the pocket tester (1x1) to the oil level switch.

Tester cable (+) → Terminal ①

Tester cable (-) → Terminal ②

- Check the oil level gauge for continuity.



Position of switch	Good condition	Poor condition
A Position straight upward	x	○ x ○
B Position backwards	○	x x ○
⑧ Continuity	x: No continuity	

POOR CONDITION

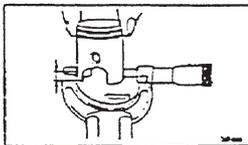
↓

Change the oil level switch.

• If it is out of specification, rectify or replace the cylinder. Replace the piston and piston rings together.

Second case:

- Measure the diameter of the skirt of piston "P" with a micrometer.
- ⑦ 5.0 mm (0.20 in.) from the lower edge of the piston.



## ILLUSTRATED SYMBOLS

(See illustration)

The symbols from ① to ⑨ are designed as thumb indices, to indicate the chapter number and index.

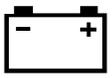
- ① General information
- ② Specifications
- ③ Periodic checks and adjustments
- ④ General motor revision
- ⑤ Cooling system
- ⑥ Carburetor
- ⑦ Chassis
- ⑧ Electrical system
- ⑨ Troubleshooting

The illustrated symbols from ⑩ to ⑯ are used to identify the specifications that appear in the text.

- ⑩ Refill liquid
- ⑪ Lubricant
- ⑫ Special tool
- ⑬ Torque
- ⑭ Wear, play limit
- ⑮ Motor speed
- ⑯  $\Omega$ , V, A

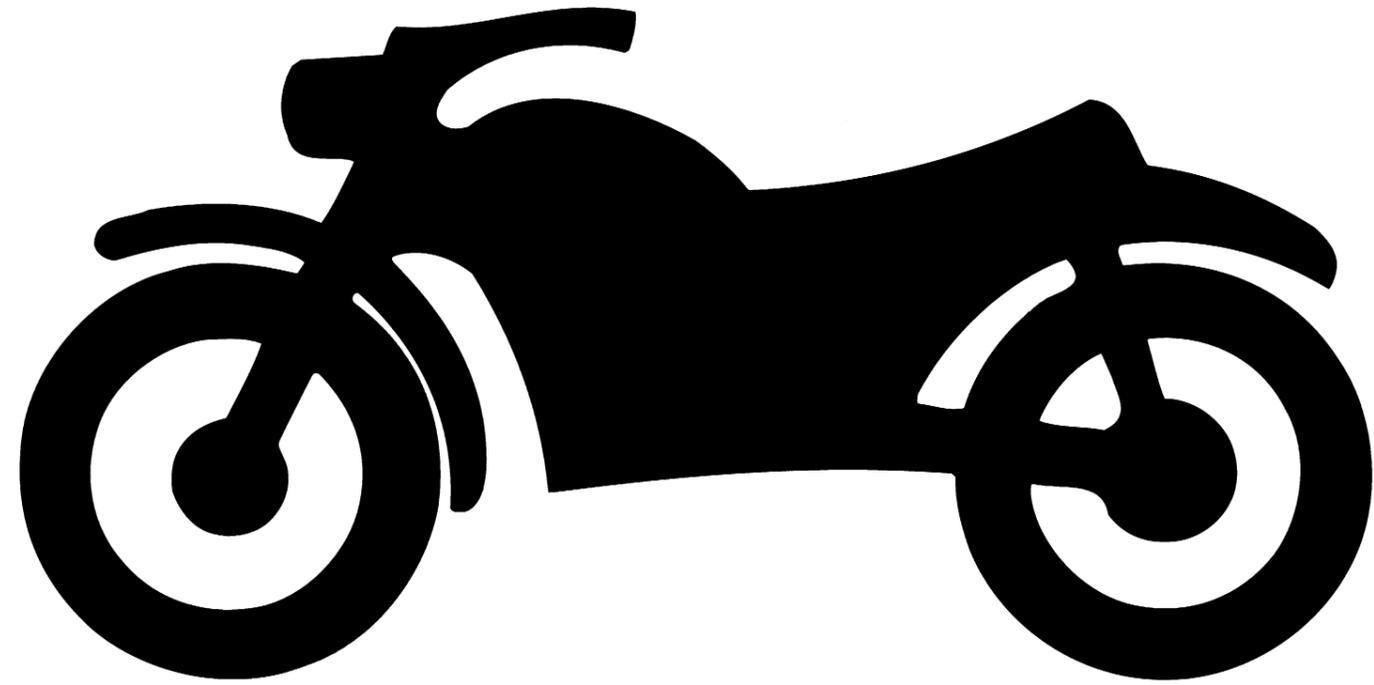
The illustrated symbols from ⑰ to ⑳ of the detailed diagrams indicate the grade of lubricant and the site of the lubrication point.

- ⑰ Apply motor oil
- ⑱ Apply gear oil
- ⑲ Apply molybdenum disulphide oil
- ⑳ Apply wheel bearing grease
- ㉑ Apply lightweight lithium soap base grease
- ㉒ Apply molybdenum disulphide grease
- ㉓ Apply blocking agent (LOCTITE®)
- ㉔ Use a new one

① GEN INFO 	② SPEC 
③ CHK ADJ 	④ ENG 
⑤ COOL 	⑥ CARB 
⑦ CHAS 	⑧ ELEC 
⑨ TRBL SHTG 	⑩ 
⑪ 	⑫ 
⑬ 	⑭ 
⑮ 	⑯ 
⑰ 	⑱ 
⑲ 	⑳ 
㉑ 	㉒ 
㉓ 	㉔ 

# TABLE OF CONTENTS

<b>GENERAL INFORMATION</b>	
	<b>GEN INFO 1</b>
<b>SPECIFICATIONS</b>	
	<b>SPEC 2</b>
<b>PERIODIC CHECKS AND ADJUSTMENTS</b>	
	<b>CHK ADJ 3</b>
<b>ENGINE</b>	
	<b>ENG 4</b>
<b>COOLING SYSTEM</b>	
	<b>COOL 5</b>
<b>CARBURETOR</b>	
	<b>CARB 6</b>
<b>CHASSIS</b>	
	<b>CHAS 7</b>
<b>ELECTRICAL SYSTEM</b>	
	<b>ELEC 8</b>
<b>TROUBLESHOOTING</b>	<b>?</b>
	<b>TRBL SHTG 9</b>



**GEN  
INFO**

**1**

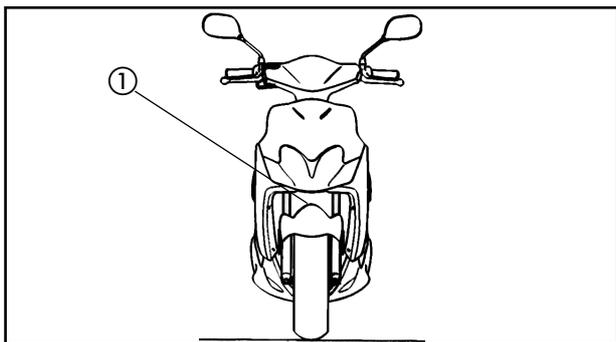
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## CHAPTER 1 GENERAL INFORMATION

<b>SCOOTER IDENTIFICATION</b> .....	1-1
FRAME SERIAL NUMBER .....	1-1
ENGINE SERIAL NUMBER.....	1-1
<b>IMPORTANT INFORMATION</b> .....	1-2
REPLACEMENT PARTS .....	1-2
GASKETS, OIL SEALS AND O-RINGS .....	1-2
LOCK WASHERS/PLATES AND COTTER PINS.....	1-2
BEARINGS AND OIL SEALS .....	1-2
CIRCLIPS .....	1-3
<b>SPECIAL TOOLS</b> .....	1-4

## IDENTIFICATION OF SCOOTER

GEN  
INFO

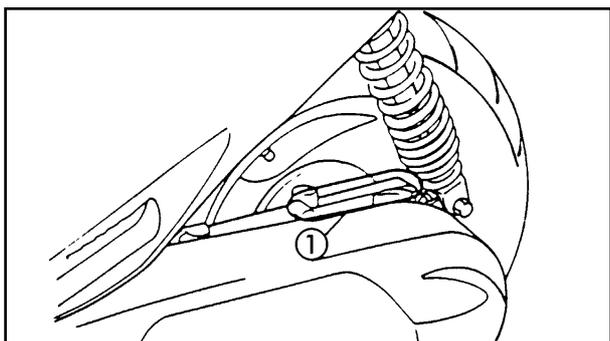


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### GENERAL INFORMATION SCOOTER IDENTIFICATION

#### FRAME SERIAL NUMBER

The frame serial number ① is stamped on the chassis.



#### ENGINE SERIAL NUMBER

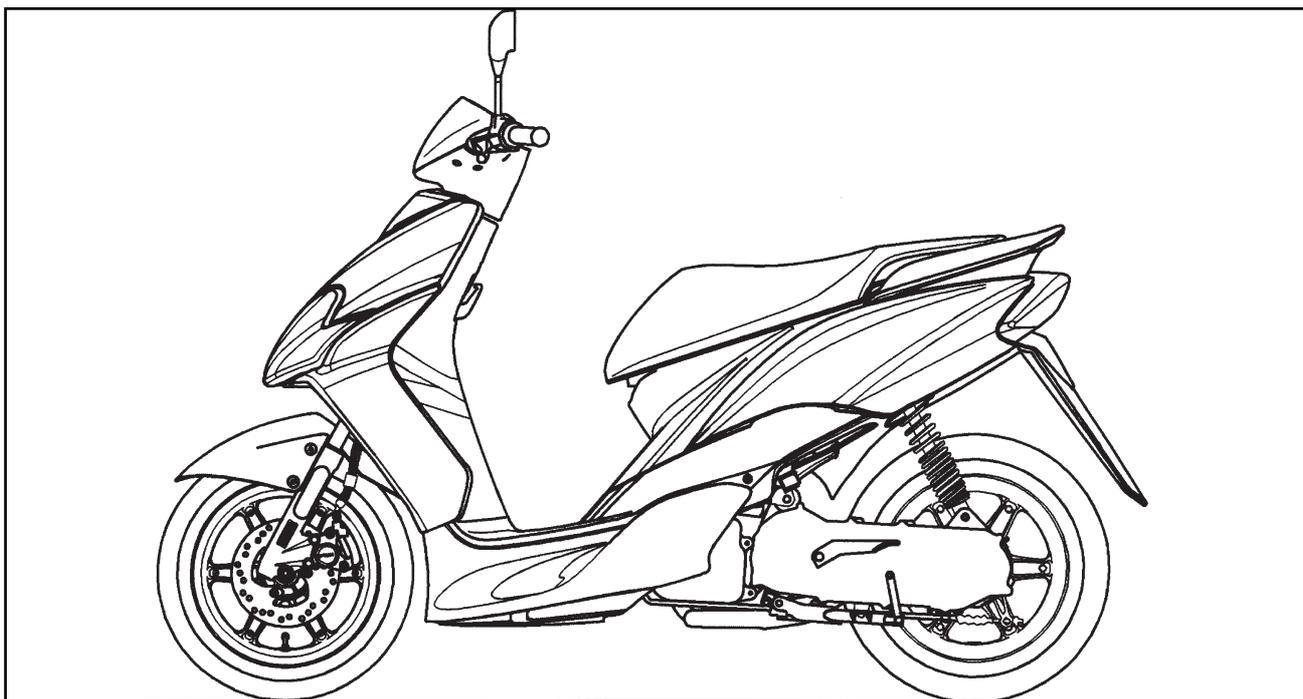
The serial number of the engine ① is stamped on the raised portion of the rear left section of the transmission box.

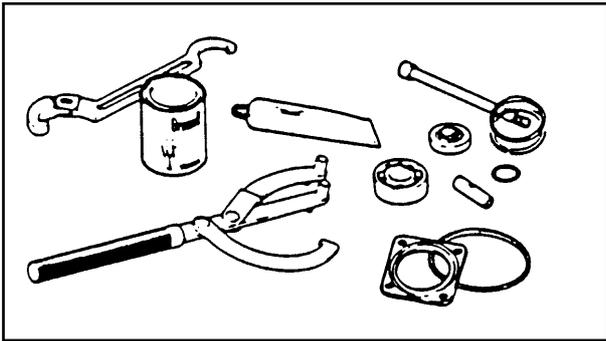
#### NOTE:

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

#### NOTE:

Designs and specifications are subject to change without notice.



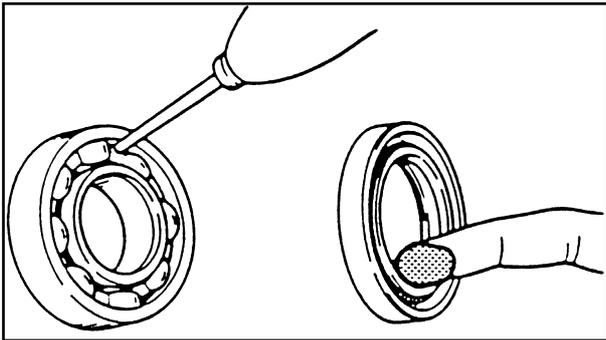


## IMPORTANT INFORMATION

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### REPLACEMENT PARTS

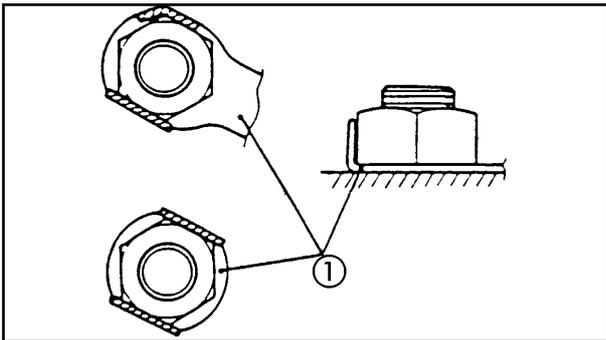
1. Use only genuine Yamaha/MBK parts for all replacements. Use the oil and/or grease recommended by Yamaha/MBK for assembly and adjustment.



EAS00022

### GASKETS, OIL SEALS AND O-RINGS

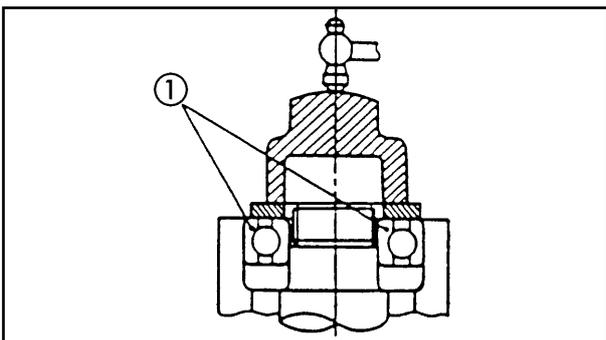
1. Replace all gaskets, seals and O-rings when overhauling the engine. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



EAS00023

### LOCK WASHERS/PLATES AND COTTER PINS

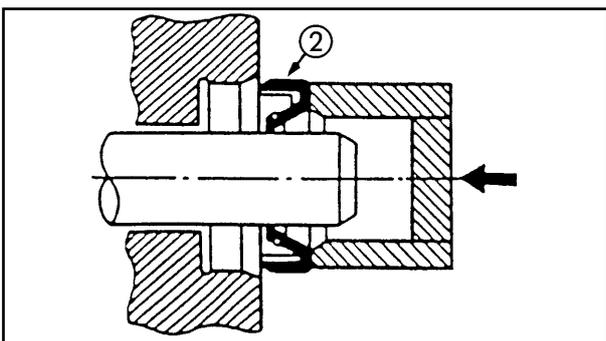
1. Replace all lock washers/plates ① and cotter pins after removal. Bend lock tabs along the bolt or nut flats after the bolt or nut has been tightened to specification.



EAS00024

### BEARINGS AND OIL SEALS

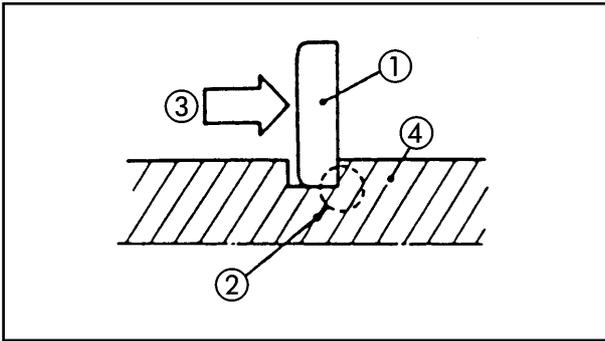
1. Install the bearings ① and oil stops ② with their manufacturer brands or numbers facing outwards. (In other words, the stamped letters should be on the side exposed to view.) When installing oil seals, apply a light coating of lightweight lithium base grease to the seal lips. Put oil on the bearings when installing.



**CAUTION:** \_\_\_\_\_

Do not use compressed air to spin the bearings dry. This will damage the bearing surface.

\_\_\_\_\_



EAS00025

## CIRCLIPS

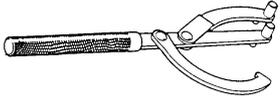
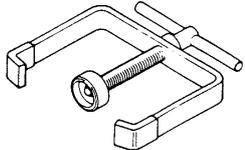
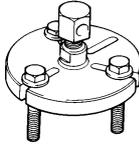
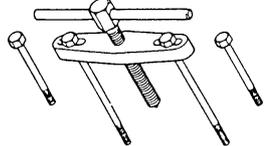
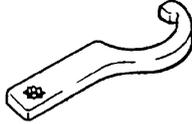
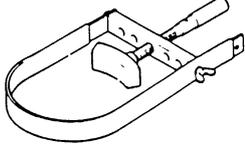
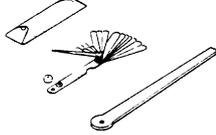
1. Check all circlips carefully before reassembly. Always replace piston pin clips after one use. Replace distorted circlips. When installing a circlip ①, make sure that the sharp-edged corner ② is positioned opposite the thrust ③ it receives. See sectional view.  
④ Shaft.

EAS00027

## SPECIAL TOOLS

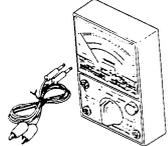
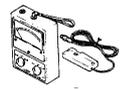
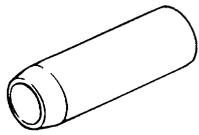
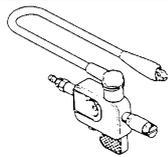
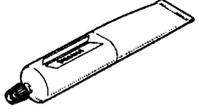
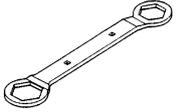
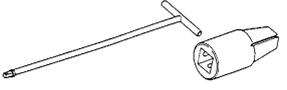
The following special tools are necessary for complete and accurate tune-up and assembly. Use only the appropriate special tools; this will help prevent damage caused by the use of inappropriate tools or improvised techniques.

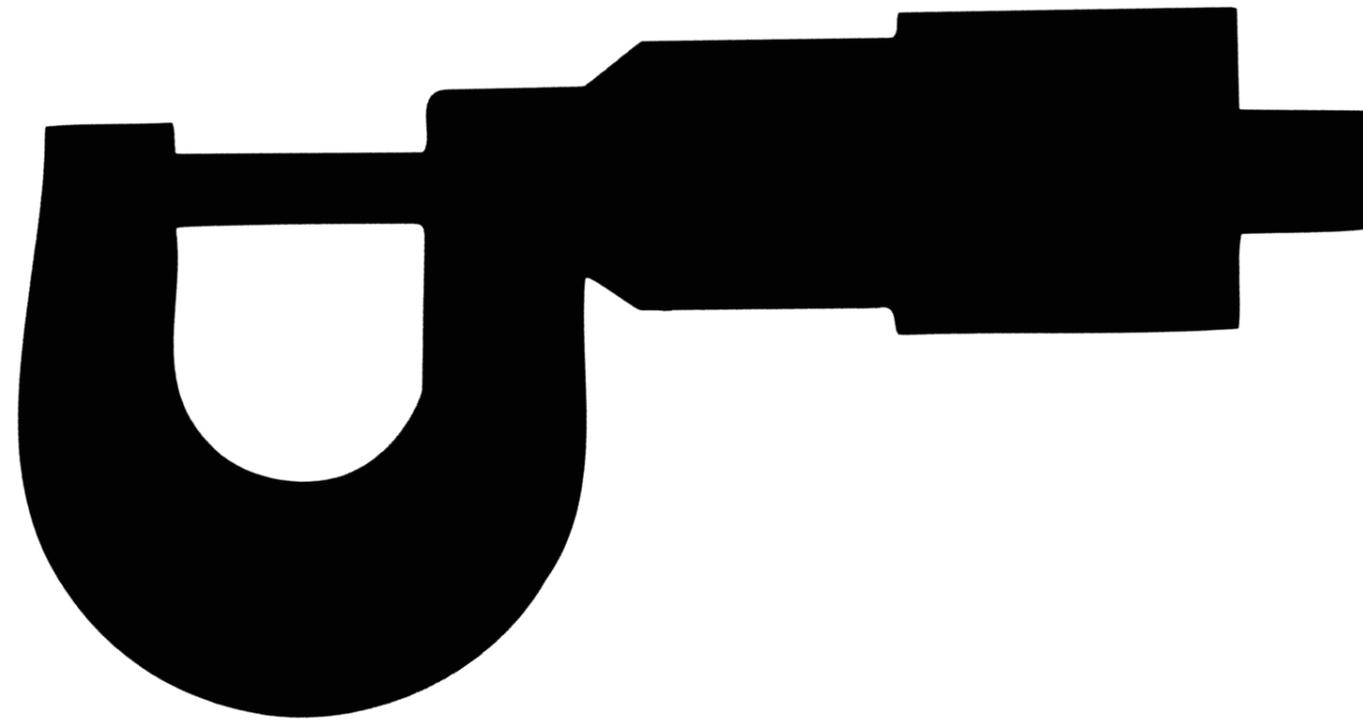
When placing an order, refer to the list provided below to avoid any mistakes.

Tool No.	Tool name / Usage	Illustration
90890-01235	Rotor holding tool  This tool is used to remove the flywheel magneto.	
90890-01337	Clutch spring bracket  This tool is used to remove the clutch nut while holding the compression spring.	
90890-01274 -01275 -01277 -01288	Container of the crankshaft installer a Bolt of the crankshaft installer b Adapter c, Spacer d These tools are used to install the crankshaft.	
90890-01362	Flywheel puller  For removing the flywheel.	
90890-01135	Crankcase separation tool  This tool is used to remove the crankshaft or separate the crankcase.	
90890-01384	Oil seal guide  Protects the edge of the oil seal during the installation of the secondary sliding pulley wheel.	
90890-01403	Ring nut wrench  This tool is used to loosen and tighten the steering ring nut.	
90890-01701	Pulley bracket  This tools is used to disassemble and assemble the secondary pulley.	
90890-03079	Thickenss gauge  This tool is used to measure the clearance.	

## SPECIAL TOOLS



Tool No.	Tool name / Usage	Illustration
90890-03112	<p>Pocket tester</p> <p>This instrument is very important for checking the electrical system.</p>	
90890-03113	<p>Engine tachometer</p> <p>This tool is necessary for detecting the engine rpm.</p>	
90890-01409	<p>Oil seals guide</p> <p>This tool is used to install the left oil guide of the crankcase.</p>	
90890-01410	<p>Oil seals installer</p> <p>This tool is used to install the left oil seal of the crankcase.</p>	
90890-06754	<p>Ignition checker</p> <p>This instrument is necessary to check the components of the ignition system.</p>	
90890-85505	<p>Yamaha bond No. 1215</p> <p>This bond (sealant) is used for crankcase mating surface, etc.</p>	
90890-01348	<p>Locknut wrench</p> <p>This tool is used to loosen and tighten the secondary sheave nut.</p>	
90890-01367 ① -01400 ②	<p>Front oil seals inserter Counterweight a Adapter b</p> <p>These tools are used in the installation of seals.</p>	
90890-01326 -01294	<p>T-handle Damper rod holder</p> <p>These tool are used for holding the damper rod holder when removing or installing the damper rod holder.</p>	



**SPEC**

**2**



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## CHAPTER 2 SPECIFICATIONS

<b>GENERAL SPECIFICATIONS</b> .....	2-1
<b>MAINTENANCE SPECIFICATIONS</b> .....	2-3
ENGINE .....	2-3
CHASSIS .....	2-5
ELECTRICAL SYSTEM .....	2-6
<b>CONVERSION TABLE</b> .....	2-7
<b>GENERAL TIGHTENING TORQUE SPECIFICATIONS</b> .....	2-7
<b>TIGHTENING TORQUES</b> .....	2-8
ENGINE TIGHTENING TORQUES .....	2-8
CHASSIS TIGHTENING TORQUES .....	2-9
<b>COOLING SYSTEM (CS50Z only)</b> .....	2-10
<b>CABLE ROUTING</b> .....	2-11



SPECIFICATIONS

GENERAL SPECIFICATIONS

Model	CS50	CS50Z
<b>Dimensions:</b> Overall length Overall width Overall height Seat height Wheelbase Minimum ground clearance	1.740 mm 675 mm 1.065 mm 770 mm / 776 mm 1.210 mm 132 mm	
<b>Basic weight</b> (With oil and full fuel tank):	80,5 kg	83,7 kg
<b>Engine:</b> Engine type  Cylinder arrangement Displacement Bore x stroke Compression ratio Starting system	Plate valve, gasoline, 2-strokes air-cooled   Liquid cooled Forward-inclined single cylinder 49,3 cc 40,0 x 39,2 mm 10,2 : 1   11,4 : 1 Electric and kickstarter	
<b>Lubrication system:</b>	Yamaha autolube	
<b>Oil type or grade:</b> Engine oil Transmission oil	2-strokes motor oil (JASO grade FC) SE type 10W30 SAE motor oil	
<b>Oil capacity:</b> Oil tank (motor oil) Transmission fluid Periodic fluid change Total amount	1,4 L 0,10 L 0,11 L	
<b>Cooling system capacity:</b> (Total amount)	–	0,910 L
<b>Air filter:</b>	Wet type element	
<b>Fuel:</b> Type Fuel tank capacity	Unleaded gasoline 5,5 L	
<b>Carburetor:</b> Type/quantity Manufacturer	PHVA12ZS/1, PY12/1 DELL'ORTO, GURTNER	PHVA12ZS/1 DELL'ORTO
<b>Spark plug:</b> Type/Manufacturer Spark plug gap	BR8HS/N.G.K. 0,6 ~ 0,7 mm	
<b>Clutch type:</b>	Dry, centrifugal automatic	
<b>Transmission:</b> Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Transmission type  Operation	Helical gear 52/13 (4.000) Straight gearing 42/13 (3.230)   43/13 (3.310) Single speed automatic (V-belt type) Centrifugal automatic type	

## GENERAL SPECIFICATIONS

**SPEC**

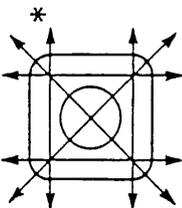
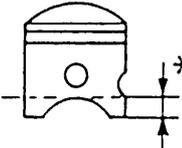
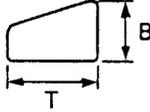
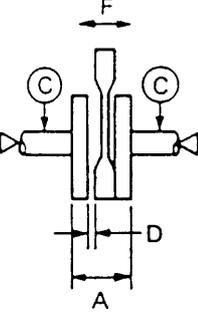


Model	CS50	CS50Z
<b>Chassis:</b> Frame type Front axle incline angle Steering angle base	Steel tube underbone 25° 80 mm	
<b>Tire:</b> Size/Type (Front) Size/Type (Rear)	110/70-12 / 47 L 120/70-12 / 51 L, 130/70-12 / 56 L	
<b>Tire pressure (cold tire):</b> Front Rear	175 KPa (1,75 kg/cm <sup>2</sup> ) 200 KPa (2,00 kg/cm <sup>2</sup> )	
<b>Maximum Load:</b> Front Rear	175 KPa (1,75 Kg/cm <sup>2</sup> ) 225 KPa (2,25 Kg/cm <sup>2</sup> )	
<b>Brake:</b> Type of front brake Activation Type of rear brake Activation	Disk brake Right hand operation Drum brake Left hand operation	
<b>Suspension:</b> Front suspension Rear suspension	Telescopic fork Unit swing	
<b>Shock absorber:</b> Front shock absorber Rear shock absorber	Coil spring/Oil damper Coil spring/Oil damper	
<b>Wheel travel:</b> Front wheel travel Rear wheel travel	70 mm 60 mm	
<b>Electrical:</b> Ignition system Generator system Battery type or model Battery capacity	DC-CDI Magnetic flywheel Maintenance free 12V 4AH	
<b>Type of headlamp:</b>	Bulb	
<b>Bulb wattage/quantity:</b> Headlight Tail/brake light Turn signal light Auxiliary light License plate light Meter lighting	12V, 35W / 35Wx1 12V, 5W / 21Wx1 12V, 10Wx2 (rear) / 12V, 16Wx2 (front) 12V, 5W x 2 12V, 5W x 1 12V, 1,2W x 2	
<b>Indicator light voltage/quantity:</b> Oil level warning light Turn signal indicator light High beam indicator light Coolant temperature warning light	LED 12V, 2W x 2 12V, 2W x 1 -	
		LED



MAINTENANCE SPECIFICATIONS

ENGINE

Model	CS50	CS50Z
<b>Cylinder head:</b> Warp limit 	0,02 mm * The lines indicate measurement with straight edge	
<b>Cylinder:</b> Bore size <Limit> Taper limit Out of round limit	39,993 ~ 40,012 mm <40,1 mm> 0,05 mm 0,01 mm	
<b>Piston:</b> Piston size Measuring point   Piston clearance On measurement 1st	39,952 - 39,972 mm	39,957 - 39,997 mm
	5 mm	
	0,034 - 0,047 mm	0,029 - 0,042 mm
	40,25 mm	
<b>Piston rings:</b> Cut-away section (BXT)/TYPE Top ring 2nd ring   End gap (installed) Top ring 2nd ring <Limit> Side clearance Top ring 2nd ring	1.5 x 1.8 mm/Keystone 1.5 x 1.8 mm/Keystone  0,15 ~ 0,35 mm 0,15 ~ 0,35 mm <0,6 mm>  0,03 ~ 0,05 mm 0,03 ~ 0,05 mm	
<b>Crankshaft:</b>   Crank width "A" Runout limit "C" Large end of rod side clearance "D" Small end of rod clearance "F"	37,90 ~ 37,95 mm 0,03 mm 0,2 ~ 0,5 mm 0,4 ~ 0,8 mm	

## MAINTENANCE SPECIFICATIONS

**SPEC**



<b>Model</b>	<b>CS50</b>	<b>CS50Z</b>	
<b>Automatic centrifugal clutch:</b> Clutch shoe thickness <Limit> Clutch shoe spring free length Clutch - in revolution Clutch - stall revolution	2,0 mm <1,0 mm> 29,9 mm		
	3.350 - 3.850 r/min. 5.200 - 6.000 r/min.	3.950 - 4.450 r/min. 6.900 - 7.700 r/min.	
<b>V-belt:</b> V-belt width <Limit>	16,5 mm <15,7 mm>		
<b>Transmission:</b> Main axle eccentricity limit Drive axle eccentricity limit	0,08 mm 0,08 mm		
<b>Pedal starting:</b> Type Strength of pedal spring	Ratchet 150 ~ 250 g		
<b>Air filter oil grade:</b>	For foam air filter or air-cooled 2-stroke motor oil		
<b>Carburetor:</b> Type / Manufacturer / Amount  Main jet / Model (M.J.) Jet needle (J.N.) Main air jet (M.A.J.) Pilot jet (P.J.) Pilot screw (P.A.S.) Valve seat size Engine idling speed Starter jet	PHVA12ZS/1 DELL'ORTO #65	PY12/1 GURTNER #62	PHVA12ZS/1 DELL'ORTO #65
	A20-3/5	B10A-2/3	A35-4/5
	ø 2.5	ø 2.0	ø 2.5
	#36	#38	#36
2 - 2 <sup>1</sup> / <sub>4</sub>	1 <sup>3</sup> / <sub>4</sub> - 2	1 <sup>3</sup> / <sub>4</sub> ± 1/8	
1.2	1.4	1.2	
	1650 ~ 1950 r/min		
	#50	#42	#50


**CHASSIS**

Model	CS50	CS50Z
<b>Steering system:</b> Steering bearing type    Upper Lower	Ball bearing	Ball bearing
<b>Front suspension:</b> Front fork travel Fork spring free length  Spring rate                    (K <sub>1</sub> ) (K <sub>2</sub> )  Oil capacity Oil grade	70 mm 224 mm  1,33 Kgf/mm 2,0 Kgf/mm  45 cc ± 1 Fork oil: 10W or equivalent	
<b>Rear suspension:</b> Shock absorber stroke Spring free length Spring rate                    (K <sub>1</sub> ) (K <sub>2</sub> )	60 mm 220 mm 4,58 Kgf/mm 6,12 Kgf/mm	
<b>Wheels:</b> Type of front wheel Type of rear wheel Size/material of front tyre Size/material of rear tyre Rim runout limit  Radial Lateral	Alloy rim Alloy rim 2,75 x 12 / aluminium 3,00 x 12 / aluminium  1,0 mm 1,0 mm	
<b>Front disc brake:</b> Type Disc outside diameter x thickness Pad thickness <Limit> Interior diameter of pump Calliper interior diameter Brake fluid type	Single ø 190 x 3,5 mm 4,5 mm <0,5 mm> 11 mm 30 mm DOT #4	
<b>Rear drum brake:</b> Type Drum inside diameter <Limit> Shoe thickness <Limit>	Single cam ø 110 mm <ø 110,5 mm> 4 mm <2 mm>	
<b>Brake levers:</b> Free play of the front brake lever (right)/measurement Free play of the rear brake lever (left)/measurement	2 ~ 5 mm / At the end of the lever  5 ~ 10 mm / At the end of the lever	



## ELECTRICAL SYSTEM

Model	CS50	CS50Z
<b>Ignition system:</b> Type Ignition timing (B.T.D.C.) Pickup coil resistance (colour)	DC-CDI 14°/5.000 r/min 400 ~ 600 Ω at 20 °C (68 °F) (Black-White/Blue)	
<b>Ignition coil:</b> Minimum spark gap Primary winding resistance Secondary winding resistance	6.0 mm 0.56 ~ 0.84 Ω at 20 °C 5.68 ~ 8.52 KΩ at 20 °C	
<b>Charging system:</b> Normal output Source coil resistance (colour)	0.4 A or more/3.000 r/min 1.0 A or less/8.000 r/min 0.288 ~ 0.432 Ω at 20 °C (68 °F) (White-Black)	
<b>Lighting system:</b> Lighting output Lighting coil resistance (colour)	12 V or more/3.000 r/min 15 V or less/8.000 r/min 0.176 ~ 0.264 Ω at 20 °C (68 °F) (Yellow/Red-Black)	
<b>Battery:</b> Type Capacity	GT4L-BS 12V 4 Ah	
<b>Electric starter system:</b> Type	Constant mesh type	
<b>Starter motor:</b> Output Armature coil resistance Brush length <Limit>	0.14 kw 0.064 ~ 0.079 Ω at 20 °C (68°F) 3.9 mm <0.9 mm>	
<b>Circuit breaker:</b> Type Amperage/Quantity	Fuse 7.5A x 1	

# CONVERSION TABLE / GENERAL TIGHTENING TORQUES SPECIFICATIONS



EAS00028

## CONVERSION TABLE

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

Ex.  
 METRIC      MULTIPLIER      IMPERIAL  
 \*\* mm    x    0.03937    =    \*\* in  
 2 mm    x    0.03937    =    0.08 in

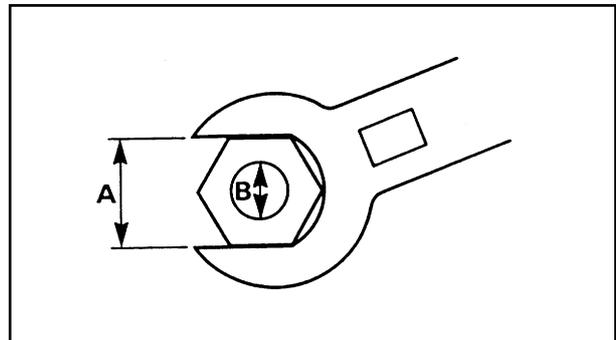
### CONVERSION TABLE

METRIC TO IMPERIAL			
	Metric unit	Multiplier	Imperial unit
Tightening Torque	m•kg	7.233	ft•lb
	m•kg	86.794	in•lb
	cm•kg	0.0723	ft•lb
	cm•kg	0.8679	in•lb
Weight	kg	2.205	lb
	g	0.03527	oz
Speed	km/h	0.6214	mi/h
Distance	km	0.6214	mi
	m	3.281	ft
	m	1.094	yd
	cm	0.3937	in
	mm	0.03937	in
Volume, Capacity	cc (cm <sup>3</sup> )	0.03527	oz (IMP liq.)
	cc (cm <sup>3</sup> )	0.06102	cu•in
	L (liter)	0.8799	qt (IMP liq.)
	L (liter)	0.2199	gal (IMP liq.)
Misc.	kg/mm	55.997	lb/in
	kg/cm <sup>2</sup>	14.2234	psi (lb/in <sup>2</sup> )
	Centigrade (°C)	9/5 + 32	Fahrenheit (°F)

EAS00029

## GENERAL TIGHTENING TORQUE SPECIFICATIONS

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



**A:** Width across flats  
**B:** Thread diameter

A (Nut)	B (Bolt)	General tightening torques	
		Nm	m • kg
10 mm	6 mm	6	0.6
12 mm	8 mm	15	1.5
14 mm	10 mm	30	3.0
17 mm	12 mm	55	5.5
19 mm	14 mm	85	8.5
22 mm	16 mm	130	13.0

## TIGHTENING TORQUES

SPEC



### TIGHTENING TORQUES ENGINE TIGHTENING TORQUES

Part to be tightened	Part name	Thread size	Q'ty	Tightening torque		Remarks
				Nm	m•kg	
Spark plug	-	M 14	1	20	2,0	
Cylinder head and cylinder	Nut	M 7	4	14	1.4	
Cylinder	Stud	M 7	4	17	1.7	
Air protector 2 (A/C)	Screw	M 6	3	7	0.7	
Air protector 3 (A/C)	Screw	M 6	1	2	0.2	
Fan (A/C)	Screw	M 6	3	7	0.7	
Automatic lubrication pump	Screw	M 5	2	4	0.4	
Reed valve	Bolt	M 6	4	11	1.1	
Air filter	Screw	M 6	1	9	0.9	
Carburettor cover	Screw	M 4	2	2	0.2	
Exhaust pipe	Screw	M 6	2	9	0.9	
Muffler	Bolt	M 8	2	26	2.6	
Exhaust pipe protector	Bolt	M 6	2	0.7	0.7	
Exhaust pipe cover	Bolt	M 6	5	0.7	0.7	
Crankcase	Bolt	M 6	6	10	1.0	
Cover of crankcase 2	Bolt	M 6	6	10	1.0	
Cover of crankcase 1	Bolt	M 6	12	12	1.2	
Air conduct (A/C)	Screw	M 6	2	7	0.7	
Crankcase bracket	Screw	M 6	2	7	0.7	
Drain bolt	Bolt	M 8	1	18	1.8	
Oil plug	Plug	M 14	1	3	0.3	
Intermediate gear plate	Screw	M 6	2	8	0.8	
Kickstarter	Bolt	M 6	1	9	0.9	
Starter motor	Bolt	M 6	2	13	1.3	
Clutch housing	Nut	M 10	1	40	4.0	
Primary pulley	Nut	M 12	1	45	4.5	
Magnet base	Screw	M 6	2	8	0.8	
Magnet rotor	Nut	M 12	1	43	4.3	
Crankshaft oil seal stay	Bolt	M 6	1	8	0.8	
Water pump housing cover (L/C)	Bolt	M 6	3	7	0.7	
Water pump driver bolts (L/C)	Bolt	M 6	3	6.5	0.65	
Magnet cover (L/C)	Bolt	M 6	3	6.5	0.65	

# TIGHTENING TORQUES

SPEC



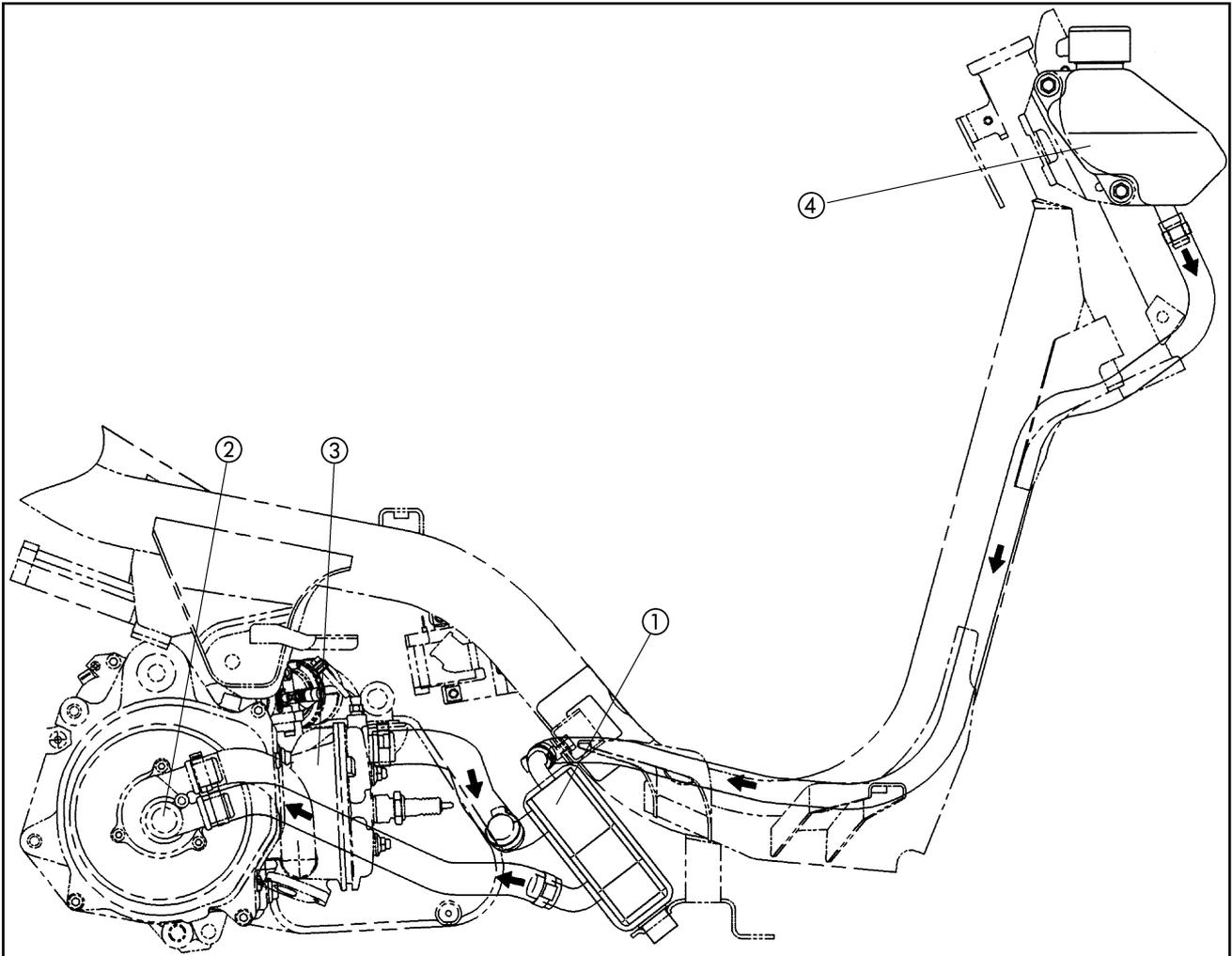
## CHASSIS TIGHTENING TORQUES

Part to be tightened	Thread size	Tightening torque		Remarks
		Nm	m•kg	
Frame, Engine and Parts				
Frame with bracket 3	M10 x 1.25	42	4.2	
Engine bracket 3 with the engine	M12 x 1.25	84	8.4	
Cushion and related parts				
Rear shock absorber (bracket side)	M10 x 1.25	31.5	3.15	
Rear shock absorber (engine side)	M8 x 1.25	17.5	1.75	
Forks, handlebar and parts				
Handlebar or grip with axle guide	M10 x 1.25	42.5	4.25	
Axle guide	M25 x 1.00	75	7.5	See chapter 3 "ADJUSTING THE STEERING HEAD"
Brake tube joint screw	M10 x 1.25	23	2.3	
Seats and related parts				
Seat lock unit	M6 x 1.0	9.75	0.975	
Hook bracket	M6 x 1.0	8	0.8	
Case	M6 x 1.0	8	0.8	
Covers and related parts				
Plastic parts, plastic covers	M5	1.5	0.15	
Frame footrest plate	M6 x 1.0	4	0.4	
Leg protector 2/frame	M6 x 1.0	4	0.4	
Front and rear wheels				
Front wheel axle	M10 x 1.25	47.5	4.75	
Rear wheel axle	M14 x 1.5	125	12.5	
Rear brake lever	M6 x 1.0	13.5	1.35	
Shoe axle	M10 x 1.25	12	1.2	
Brake disk	M8 x 1.25	23	2.3	
Front brake calliper	M8 x 1.25	23	2.3	
Fuel tank				
Fuel cut-off valve		11	1.1	



COOLING SYSTEM (L/C VERSION ONLY)

- ① Radiator
- ② Water pump
- ③ Cylinder
- ④ Reservoir tank

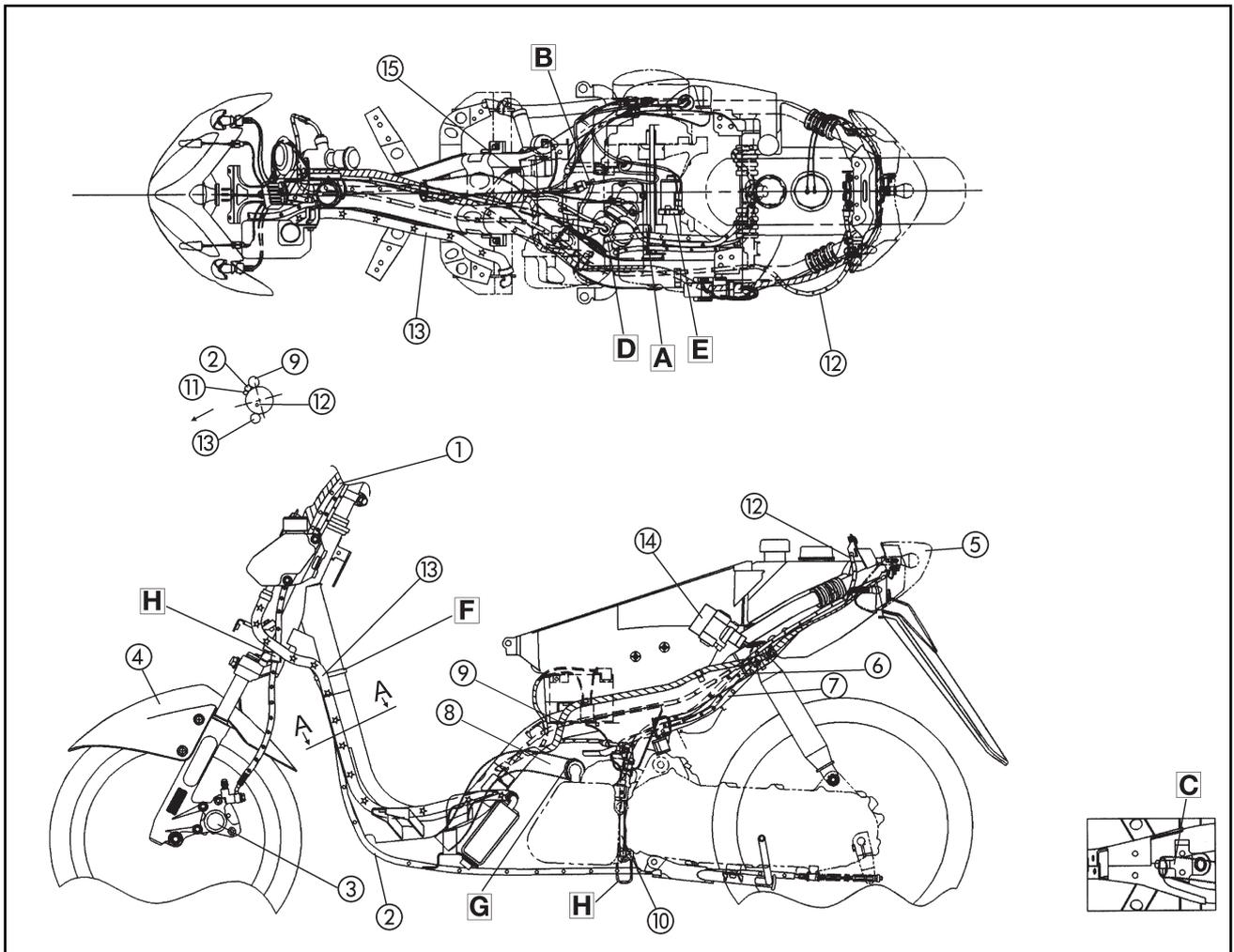




CABLE ROUTING

- ① Front brake hose
- ② Rear brake cable
- ③ Front brake calliper
- ④ Front mudguard
- ⑤ Taillight
- ⑥ Vacuum pipe
- ⑦ Fuel pipe
- ⑧ Intake hose (L/C)
- ⑨ Wire harness
- ⑩ Engine breather
- ⑪ Throttle cable
- ⑫ Seat lock cable
- ⑬ Coolant hose (L/C)
- ⑭ DC-CDI
- ⑮ Coolant hoses - Carburetor (L/C)

- A Insert the three tubes through the clamp
- B Connect the oil hose to the carburettor
- C Set the intake hose under the reinforcement (L/C)
- D Clamp the fuel pipe to the carburettor
- E Tighten together the ground cable and the starter motor
- F Clamp all the cables except the coolant hose (L/C) without tightening
- G Clamp the intake hose to the air filter box (L/C)
- H Pass the brake cable through the guide

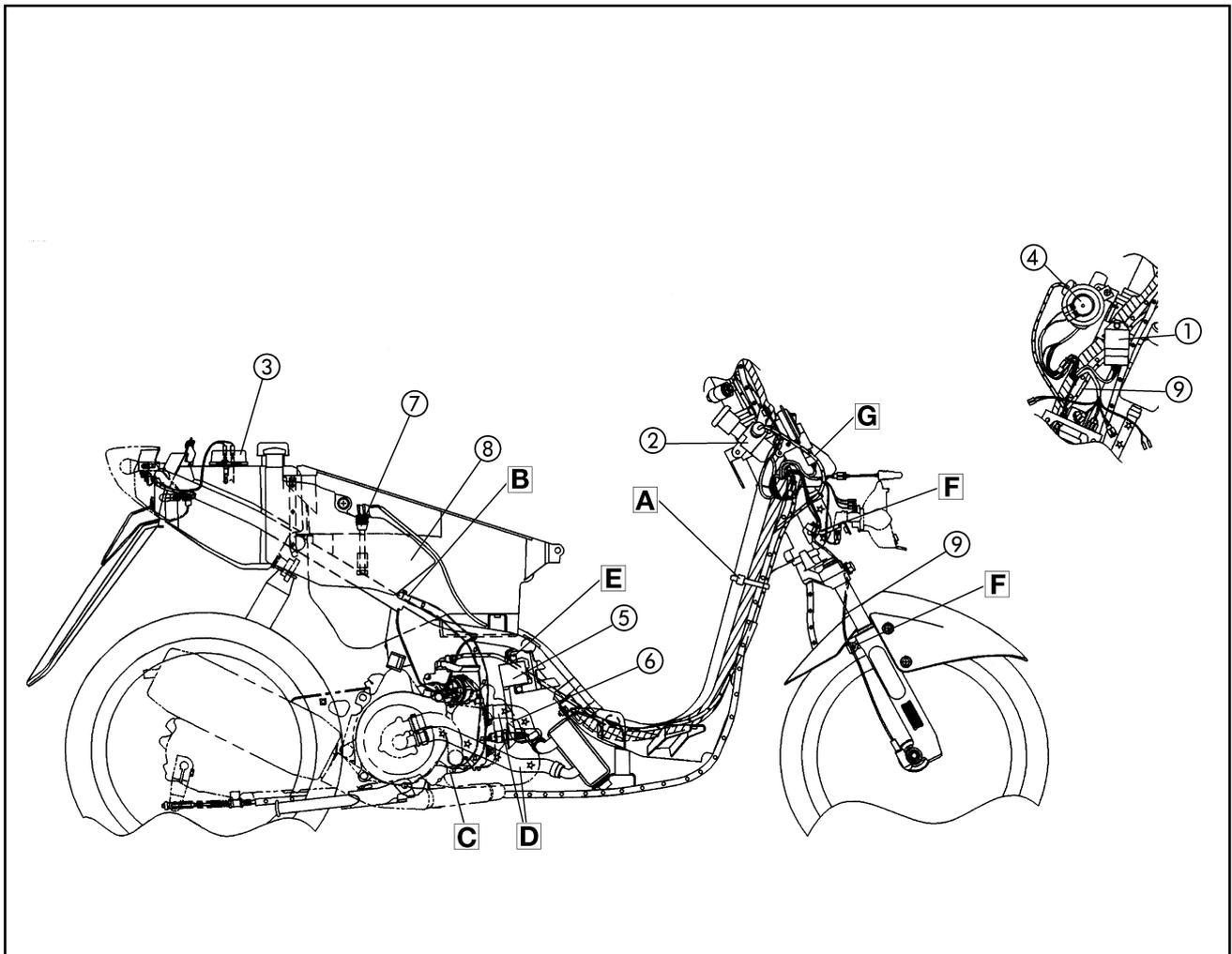




CABLE ROUTING

- ① Rectifier / Regulator
- ② Main switch
- ③ Fuel level gauge
- ④ Horn
- ⑤ Ignition coil
- ⑥ Spark plug wire
- ⑦ Oil level gauge
- ⑧ Oil tank
- ⑨ Speedometer cable

- A Clamp the wire harness, brake cable and throttle to the frame
- B Clamp the oil hose to the tank
- C Connect the oil hose to the pump
- D Tie both ends
- E Tighten together the ground cable and the ignition coil
- F Pass the speedometer cable through the guide
- G Insert the seat lock cable through the orifice of the frame

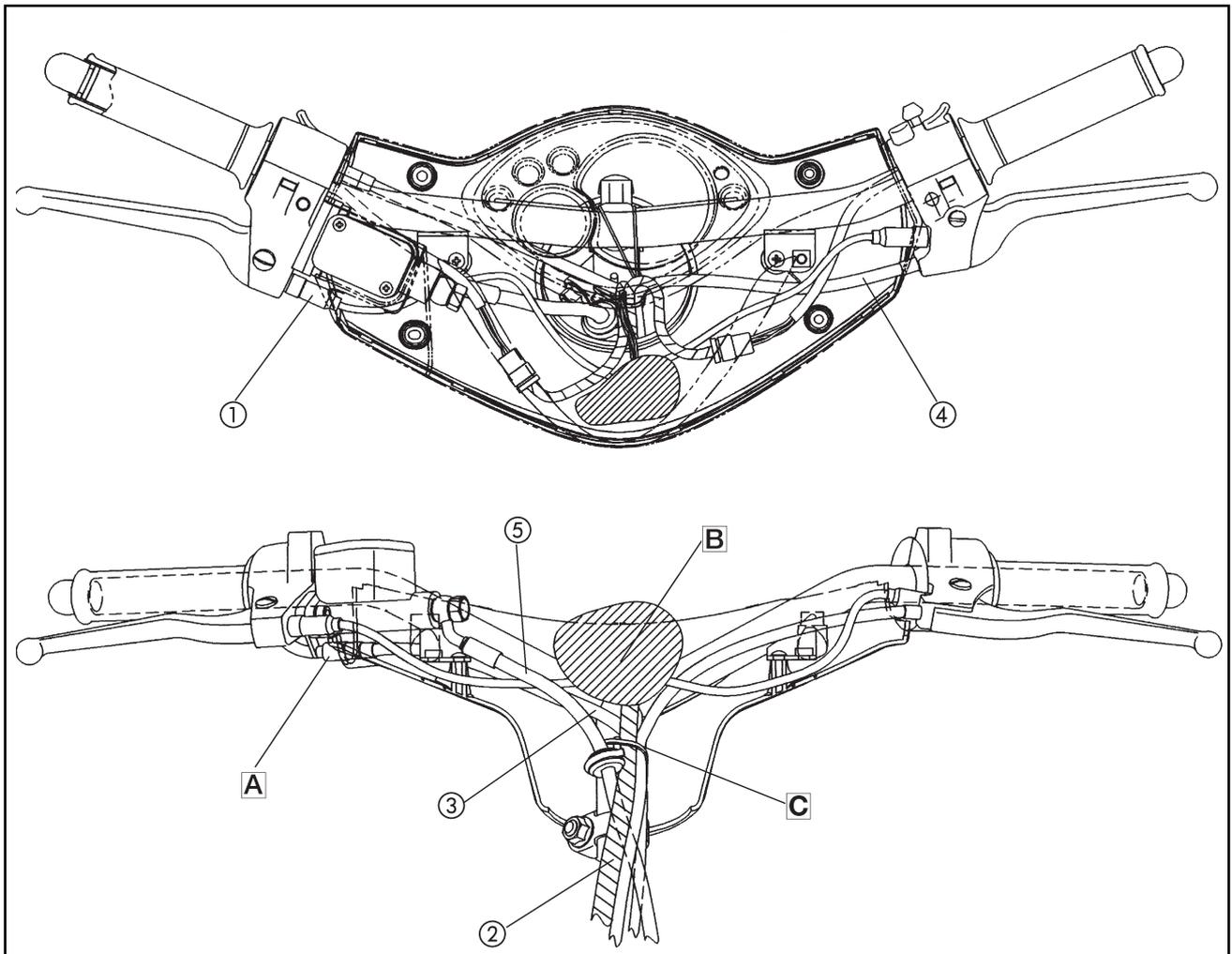




CABLE ROUTING

- ① Front brake switch
- ② Wire harness
- ③ Throttle cable
- ④ Rear brake cable
- ⑤ Front brake hose

- A Throttle tension cable. Cover then adjust
- B Connect the brake switch cables in this area
- C Do not pass the brake hose through the clamp





**CHK**



**ADJ**

**3**



## CHAPTER 3 PERIODIC CHECKS AND ADJUSTMENTS

<b>INTRODUCTION/PERIODIC MAINTENANCE/LUBRICATION INTERVALS.....</b>	<b>3-1</b>
<b>REAR BODYWORK AND MUDGUARD .....</b>	<b>3-2</b>
REMOVAL .....	3-2
INSTALLATION .....	3-3
<b>FRONT COWLING AND FOOTREST .....</b>	<b>3-4</b>
REMOVAL .....	3-4
INSTALLATION .....	3-5
<b>HANDLEBAR COVERS .....</b>	<b>3-6</b>
REMOVAL .....	3-6
INSTALLATION .....	3-7
<b>ENGINE .....</b>	<b>3-8</b>
ADJUSTING THE ENGINE IDLING SPEED .....	3-8
ADJUSTING THE THROTTLE CABLE FREE PLAY .....	3-9
CHECKING THE SPARK PLUG .....	3-10
CHECKING THE ENGINE OIL LEVEL .....	3-11
CHANGING THE TRANSMISSION OIL .....	3-12
AUTOLUBE PUMP AIR BLEEDING .....	3-12
CLEANING THE AIR FILTER ELEMENT.....	3-13
CHECKING THE COOLANT LEVEL (CS50Z only) .....	3-14
CHANGING THE COOLANT (CS50Z only) .....	3-15
<b>CHASSIS .....</b>	<b>3-18</b>
ADJUSTMENT THE FRONT BRAKE LEVER.....	3-18
ADJUSTMENT THE REAR BRAKE LEVER .....	3-18
CHECKING THE FRONT BRAKE PADS .....	3-18
CHECKING THE REAR BRAKE SHOES .....	3-19
CHECKING THE BRAKE FLUID LEVEL.....	3-19
BLEEDING THE HYDRAULIC BRAKE SYSTEM .....	3-20
CHECKING AND ADJUSTING THE STEERING HEAD .....	3-21
CHECKING THE TIRES .....	3-23
CHECKING THE WHEELS .....	3-23
CHECKING THE FRONT FORK .....	3-23
REAR SHOCK ABSORBER INSPECTION.....	3-24
<b>ELECTRICAL SYSTEM.....</b>	<b>3-25</b>
CHECKING AND CHARGING THE BATTERY .....	3-25
CHECKING THE FUSE .....	3-30
REPLACING THE HEADLIGHT BULB .....	3-31
ADJUSTING THE HEADLIGHT BEAM .....	3-31