

Product: Yamaha YZF1000RJ(C) Motorcycle Service Repair Workshop Manual  
Full Download: <https://www.arepairmanual.com/downloads/yamaha-yzf1000rj-motocycle-service-repair-workshop-manual/>

**YAMAHA**

**YZF1000RJ**  
**YZF1000RJC**

**SERVICE MANUAL**

Sample of manual. Download All 407 pages at:  
<https://www.arepairmanual.com/downloads/yamaha-yzf1000rj-motocycle-service-repair-workshop-manual/>

LIT-11616-10-60

**YZF1000RJ/YZF1000RJC  
SERVICE MANUAL**  
©1996 by Yamaha Motor Corporation, U.S.A.  
First edition, November 1996  
All rights reserved.  
Any reproduction or unauthorized use  
without the written permission of  
Yamaha Motor Corporation, U.S.A.  
is expressly prohibited.  
Printed in U.S.A.  
P/N LIT-11616-10-60

---

## NOTICE

This manual was produced by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to include all the knowledge of a mechanic in one manual, so it is assumed that anyone who uses this book to perform maintenance and repairs on Yamaha motorcycles has a basic understanding of the mechanical ideas and the procedures of motorcycle repair. Repairs attempted by anyone without this knowledge are likely to render the motorcycle unsafe and unfit for use.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

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

### NOTE:

- This Service Manual contains information regarding periodic maintenance to the emission control system. Please read this material carefully.
  - Designs and specifications are subject to change without notice.
- 

## IMPORTANT INFORMATION

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



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

### **WARNING**

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

### **CAUTION**

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

### **NOTE:**

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

# HOW TO USE THIS MANUAL

## MANUAL ORGANIZATION

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

## PAGE FEATURES

The circled numbers below refer to the features indicated in the sample page.

① : An abbreviation and symbol in the upper right corner of each page indicates the current chapter.

② : The current section title is shown at the top of each page. †

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

④ : Lines of asterisks (\*) mark the beginning and end of a particularly important procedure. The steps of such procedures are marked with bullets (•).

⑤ : Important information such as fluids, special tools and torques are framed and marked with a corresponding symbol.

⑥ : A circled number refers to an illustrated part.

⑦ : A circled lower case letter refers to an illustrated dimension or alignment mark.

⑧ : An upper case letter in a box refers to other illustrated details.

⑨ : An arrow mark after a given defect suggests the recommended course of action.

† : In Chapter 3, "Periodic Inspection and Adjustment", it is usually the current sub-section title that appears at the top of each page, instead of the current section title.

## EXPLODED DIAGRAMS

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

The image shows two pages from a technical manual. The left page is titled "INSPECTION AND REPAIR" and "CYLINDER HEAD". The right page is titled "FRONT FORK" and "CHAS".

**Left Page (Cylinder Head):**

- ①** Points to the chapter title "INSPECTION AND REPAIR" and the symbol "ENG" with a wrench icon.
- ②** Points to the section title "2 Remove".
- ③** Points to the sub-section title "CYLINDER HEAD".
- ④** Points to the "NOTE" section.
- ⑤** Points to a framed box containing "Warpage limit: 0.02 mm (0.001 in)".

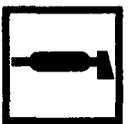
**Right Page (Front Fork):**

- ⑥** Points to the chapter title "INSPECTION AND REPAIR" and the symbol "CHAS" with a motorcycle icon.
- ⑦** Points to the sub-section title "3 Measure".
- ⑧** Points to a framed box containing "Chain lube: Yamaha chain lube or equivalent".
- ⑨** Points to a warning box.

## ILLUSTRATED SYMBOLS

Illustrated symbols ① to ⑨ are printed on the top right of each page and indicate the subject of each chapter.

- ① General information
- ② Specifications
- ③ Periodic inspections and adjustments
- ④ Engine
- ⑤ Cooling system
- ⑥ Carburetion
- ⑦ Chassis
- ⑧ Electrical
- ⑨ Troubleshooting

① GEN INFO 	② SPEC 	
③ INSP 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 <b>New</b>	

Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing in the text.

- ⑩ Filling fluid
- ⑪ Lubricant
- ⑫ Special tool
- ⑬ Torque
- ⑭ Wear limit, clearance
- ⑮ Engine speed
- ⑯  $\Omega$ , V, A

Illustrated symbols ⑰ to ⑳ in the exploded diagrams indicate the types of lubricants and lubrication points.

- ⑰ Apply engine oil
- ⑱ Apply gear oil
- ⑲ Apply molybdenum disulfide oil
- ㉑ Apply wheel bearing grease
- ㉒ Apply lightweight lithium-soap base grease
- ㉓ Apply molybdenum disulfide grease

Illustrated symbols ㉓ to ㉔ in the exploded diagrams indicate where to apply a locking agent ㉓ and when to install a new part ㉔.

- ㉓ Apply the locking agent (LOCTITE®)
- ㉔ Replace

# CHAPTER TITLES

<b>GENERAL INFORMATION</b>	
	<b>GEN INFO 1</b>
<b>SPECIFICATIONS</b>	
	<b>SPEC 2</b>
<b>PERIODIC INSPECTION AND ADJUSTMENT</b>	
	<b>INSP ADJ 3</b>
<b>ENGINE</b>	
	<b>ENG 4</b>
<b>COOLING</b>	
	<b>COOL 5</b>
<b>CARBURETION</b>	
	<b>CARB 6</b>
<b>CHASSIS</b>	
	<b>CHAS 7</b>
<b>ELECTRICAL</b>	
	<b>ELEC 8</b>
<b>TROUBLESHOOTING</b>	<b>?</b>
	<b>TRBL SHTG 9</b>

---

**CONTENTS**  
**CHAPTER 1.**  
**GENERAL INFORMATION**

<b>MOTORCYCLE IDENTIFICATION</b> .....	1-1
VEHICLE IDENTIFICATION NUMBER .....	1-1
ENGINE SERIAL NUMBER .....	1-1
MODEL LABEL .....	1-1
<b>IMPORTANT INFORMATION</b> .....	1-2
PREPARATION FOR REMOVAL PROCEDURES .....	1-2
REPLACEMENT PARTS .....	1-2
GASKETS, OIL SEALS AND O-RINGS .....	1-2
LOCK WASHERS/PLATES AND COTTER PINS .....	1-3
BEARINGS AND OIL SEALS .....	1-3
CIRCLIPS .....	1-3
<b>SPECIAL TOOLS</b> .....	1-4
FOR TUNE-UP .....	1-4
FOR ENGINE SERVICE .....	1-5
FOR CHASSIS SERVICE .....	1-7
FOR ELECTRICAL COMPONENTS .....	1-7

**CHAPTER 2.**  
**SPECIFICATIONS**

<b>GENERAL SPECIFICATIONS</b> .....	2-1
<b>MAINTENANCE SPECIFICATIONS</b> .....	2-4
ENGINE .....	2-4
CHASSIS .....	2-13
ELECTRICAL .....	2-17
<b>HOW TO USE THE CONVERSION TABLE</b> .....	2-19
<b>GENERAL TORQUE SPECIFICATIONS</b> .....	2-19
<b>LUBRICATION POINTS AND LUBRICANT TYPES</b> .....	2-20
ENGINE .....	2-20
CHASSIS .....	2-21
<b>COOLING SYSTEM DIAGRAMS</b> .....	2-22
<b>LUBRICATION DIAGRAMS</b> .....	2-25

CABLE ROUTING ..... 2-29

EMISSION HOSE ROUTING (california only) ..... 2-36

### CHAPTER 3. PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION..... 3-1

PERIODIC MAINTENANCE/EMISSION CONTROL SYSTEM..... 3-1

GENERAL MAINTENANCE/LUBRICATION..... 3-2

COWLINGS..... 3-4

REMOVAL..... 3-6

INSTALLATION..... 3-7

SEATS..... 3-8

REMOVAL..... 3-8

INSTALLATION..... 3-8

FUEL TANK..... 3-9

REMOVAL..... 3-9

INSTALLATION..... 3-10

ENGINE..... 3-11

VALVE CLEARANCE ADJUSTMENT..... 3-11

CARBURETOR SYNCHRONIZATION..... 3-19

IDLING SPEED ADJUSTMENT..... 3-21

THROTTLE CABLE ADJUSTMENT..... 3-22

SPARK PLUG INSPECTION..... 3-24

IGNITION TIMING CHECK..... 3-25

COMPRESSION PRESSURE MEASUREMENT..... 3-27

ENGINE OIL LEVEL INSPECTION..... 3-29

ENGINE OIL REPLACEMENT..... 3-30

ENGINE OIL PRESSURE INSPECTION..... 3-32

CLUTCH ADJUSTMENT..... 3-33

CLUTCH FLUID LEVEL INSPECTION..... 3-34

AIR BLEEDING (HYDRAULIC CLUTCH SYSTEM)..... 3-35

AIR FILTER CLEANING..... 3-36

CARBURETOR JOINT INSPECTION..... 3-37

FUEL LINE INSPECTION..... 3-38

CRANKCASE BREATHER HOSE INSPECTION..... 3-38

EXUP CABLE ADJUSTMENT..... 3-39

EXHAUST SYSTEM INSPECTION..... 3-41

COOLANT LEVEL INSPECTION..... 3-42



GEN  
INFO 1



SPEC 2



INSP  
ADJ 3



ENG 4



COOL 5



CARB 6



CHAS 7



ELEC 8



TRBL  
SHTG 9

COOLANT REPLACEMENT .....	3-42
COOLING SYSTEM INSPECTION .....	3-46
<b>CHASSIS</b> .....	3-47
FRONT BRAKE ADJUSTMENT .....	3-47
REAR BRAKE ADJUSTMENT .....	3-47
BRAKE FLUID LEVEL INSPECTION .....	3-49
BRAKE PAD INSPECTION .....	3-50
BRAKE LIGHT SWITCH ADJUSTMENT .....	3-50
BRAKE HOSE INSPECTION .....	3-51
AIR BLEEDING (HYDRAULIC BRAKE SYSTEM) .....	3-51
SHIFT PEDAL ADJUSTMENT .....	3-52
DRIVE CHAIN SLACK ADJUSTMENT .....	3-53
DRIVE CHAIN LUBRICATION .....	3-55
STEERING HEAD INSPECTION .....	3-55
FRONT FORK INSPECTION .....	3-58
FRONT FORK ADJUSTMENT .....	3-58
REAR SHOCK ABSORBER ADJUSTMENT .....	3-60
TIRE INSPECTION .....	3-62
WHEEL INSPECTION .....	3-65
CABLE INSPECTION AND LUBRICATION .....	3-65
LEVER AND PEDAL LUBRICATION .....	3-66
SIDESTAND LUBRICATION .....	3-66
REAR SUSPENSION LUBRICATION .....	3-66
<b>ELECTRICAL</b> .....	3-67
BATTERY INSPECTION .....	3-67
FUSE INSPECTION .....	3-72
HEADLIGHT BEAM ADJUSTMENT .....	3-74
HEADLIGHT BULB REPLACEMENT .....	3-75

## CHAPTER 4. ENGINE

<b>ENGINE REMOVAL</b> .....	4-1
FUEL TANK AND COWLINGS .....	4-1
ENGINE OIL AND COOLANT .....	4-1
BATTERY LEADS .....	4-2
AIR FILTER CASE .....	4-2
CARBURETORS .....	4-2
RADIATOR .....	4-2
HOSES AND LEADS .....	4-3
DRIVE SPROCKET .....	4-3
WATER JACKET JOINTS AND WATER PUMP .....	4-4
AC GENERATOR AND STARTER MOTOR .....	4-5
MUFFLER ASSEMBLY .....	4-6
ENGINE REMOVAL .....	4-7

<b>ENGINE DISASSEMBLY</b> .....	4-9
OIL FILTER AND OIL COOLER.....	4-9
CYLINDER HEAD COVER, CYLINDER HEAD AND CAMSHAFTS ....	4-10
CYLINDERS AND PISTONS.....	4-14
CLUTCH .....	4-15
OIL PAN AND OIL STRAINER .....	4-17
OIL PUMP AND SHIFT SHAFT .....	4-19
CRANKCASE DISASSEMBLY.....	4-20
SHIFT FORKS AND SHIFT CAM.....	4-21
TRANSMISSION .....	4-22
STARTER CLUTCH AND CRANKSHAFT .....	4-22
VALVES AND CAMSHAFT CASE.....	4-23
CONNECTING RODS .....	4-25
OIL PUMP .....	4-25
<b>INSPECTION AND REPAIR</b> .....	4-26
CYLINDER HEAD.....	4-26
VALVES AND VALVE GUIDES .....	4-27
VALVE SEATS .....	4-28
VALVE SPRINGS.....	4-30
CAMSHAFT CASE.....	4-31
VALVE LIFTERS.....	4-31
CAMSHAFTS.....	4-31
TIMING CHAIN, HY-VO CHAIN, CAMSHAFT SPROCKETS AND CHAIN GUIDES.....	4-33
TIMING CHAIN TENSIONER .....	4-33
CYLINDERS AND PISTONS.....	4-33
PISTON RINGS.....	4-35
PISTON PINS.....	4-36
CRANKSHAFT AND CONNECTING RODS.....	4-36
OIL PUMP .....	4-41
PRIMARY DRIVE.....	4-42
STARTER DRIVES .....	4-42
AC GENERATOR SHAFT .....	4-43
CLUTCH .....	4-43
TRANSMISSION AND SHIFTER.....	4-45
SHIFT SHAFT AND STOPPER LEVER.....	4-47
OIL-JET NOZZLE .....	4-47
RELIEF VALVE, OIL PIPE AND STRAINER.....	4-48
OIL COOLER .....	4-49
CRANKCASE .....	4-49
BEARINGS AND OIL SEALS.....	4-49
CIRCLIPS AND WASHERS.....	4-49
<b>ENGINE ASSEMBLY AND ADJUSTMENT</b> .....	4-50
OIL PUMP .....	4-50
CONNECTING RODS .....	4-52
CAMSHAFT CASE AND VALVES.....	4-54

	
<b>GEN INFO</b>	<b>1</b>
	
<b>SPEC</b>	<b>2</b>
	
<b>INSP ADJ</b>	<b>3</b>
	
<b>ENG</b>	<b>4</b>
	
<b>COOL</b>	<b>5</b>
	
<b>CARB</b>	<b>6</b>
	
<b>CHAS</b>	<b>7</b>
	
<b>ELEC</b>	<b>8</b>
	
<b>TRBL SHTG</b>	<b>9</b>

---

CRANKSHAFT AND STARTER CLUTCH .....	4-57
TRANSMISSION .....	4-60
SHIFT CAM AND SHIFT FORKS .....	4-60
CRANKCASE ASSEMBLY .....	4-61
SHIFT SHAFT AND OIL PUMP .....	4-64
OIL PAN AND OIL STRAINER .....	4-65
CLUTCH .....	4-67
PISTONS AND CYLINDERS .....	4-72
CYLINDER HEAD AND CAMSHAFTS .....	4-76
TIMING CHAIN TENSIONER .....	4-79
OIL COOLER AND OIL FILTER .....	4-81
ENGINE REMOUNTING .....	4-82

## CHAPTER 5. COOLING

<b>RADIATOR/OIL COOLER</b> .....	5-1
<b>RADIATOR</b> .....	5-2
REMOVAL .....	5-2
INSPECTION .....	5-4
INSTALLATION .....	5-5
<b>OIL COOLER</b> .....	5-6
REMOVAL .....	5-6
INSPECTION .....	5-6
INSTALLATION .....	5-7
<b>THERMOSTATIC VALVE/WATER PUMP</b> .....	5-8
<b>THERMOSTATIC VALVE</b> .....	5-9
REMOVAL .....	5-9
INSPECTION .....	5-10
INSTALLATION .....	5-11
<b>WATER PUMP</b> .....	5-13
REMOVAL .....	5-13
INSPECTION .....	5-14
INSTALLATION .....	5-17

## CHAPTER 6. CARBURETION

<b>CARBURETORS</b> .....	6-1
REMOVAL .....	6-3
DISASSEMBLY .....	6-5
INSPECTION .....	6-7
ASSEMBLY .....	6-9
INSTALLATION .....	6-11
FUEL LEVEL ADJUSTMENT .....	6-12
THROTTLE POSITION SENSOR (TPS) ADJUSTMENT AND INSPECTION .....	6-13

## CHAPTER 7. CHASSIS

<b>FRONT WHEEL</b> .....	7-1
REMOVAL .....	7-2
INSPECTION .....	7-3
INSTALLATION .....	7-4
FRONT WHEEL STATIC BALANCE ADJUSTMENT .....	7-5
 <b>REAR WHEEL</b> .....	7-7
REMOVAL .....	7-8
INSPECTION .....	7-9
INSTALLATION .....	7-9
REAR WHEEL STATIC BALANCE ADJUSTMENT .....	7-9
 <b>FRONT AND REAR BRAKES</b> .....	7-10
FRONT BRAKE .....	7-10
REAR BRAKE .....	7-11
BRAKE PAD REPLACEMENT .....	7-12
BRAKE CALIPER DISASSEMBLY .....	7-16
MASTER CYLINDER DISASSEMBLY .....	7-18
INSPECTION AND REPAIR .....	7-20
BRAKE CALIPER ASSEMBLY .....	7-24
MASTER CYLINDER ASSEMBLY .....	7-28
 <b>HYDRAULIC CLUTCH</b> .....	7-33
DISASSEMBLY .....	7-34
INSPECTION AND REPAIR .....	7-36
ASSEMBLY .....	7-37

	<b>GEN INFO</b>	<b>1</b>
	<b>SPEC</b>	<b>2</b>
	<b>INSP ADJ</b>	<b>3</b>
	<b>ENG</b>	<b>4</b>
	<b>COOL</b>	<b>5</b>
	<b>CARB</b>	<b>6</b>
	<b>CHAS</b>	<b>7</b>
	<b>ELEC</b>	<b>8</b>
	<b>TRBL SHTG</b>	<b>9</b>

<b>FRONT FORK</b> .....	7-41
REMOVAL.....	7-42
DISASSEMBLY.....	7-43
INSPECTION.....	7-45
ASSEMBLY.....	7-46
INSTALLATION.....	7-51
<b>STEERING HEAD AND HANDLEBARS</b> .....	7-53
REMOVAL.....	7-54
INSPECTION.....	7-57
INSTALLATION.....	7-58
<b>REAR SHOCK ABSORBER AND SWINGARM</b> .....	7-61
HANDLING NOTES.....	7-62
NOTES ON DISPOSAL.....	7-62
REMOVAL.....	7-62
INSPECTION.....	7-67
INSTALLATION.....	7-68
<b>DRIVE CHAIN AND SPROCKETS</b> .....	7-71
REMOVAL.....	7-72
INSPECTION.....	7-73
INSTALLATION.....	7-75

## CHAPTER 8. ELECTRICAL

<b>ELECTRICAL COMPONENTS</b> .....	8-1
<b>CHECKING OF CONNECTIONS</b> .....	8-3
<b>IGNITION SYSTEM</b> .....	8-4
CIRCUIT DIAGRAM.....	8-4
TROUBLESHOOTING.....	8-5
<b>ELECTRIC STARTING SYSTEM</b> .....	8-11
CIRCUIT DIAGRAM.....	8-11
STARTING CIRCUIT OPERATION.....	8-12
TROUBLESHOOTING.....	8-13
STARTER MOTOR.....	8-20
<b>CHARGING SYSTEM</b> .....	8-25
CIRCUIT DIAGRAM.....	8-25
TROUBLESHOOTING.....	8-26

<b>LIGHTING SYSTEM</b> .....	8-30
CIRCUIT DIAGRAM .....	8-30
TROUBLESHOOTING .....	8-31
LIGHTING SYSTEM CHECK .....	8-33
<b>SIGNAL SYSTEM</b> .....	8-36
CIRCUIT DIAGRAM .....	8-36
TROUBLESHOOTING .....	8-38
SIGNAL SYSTEM CHECK .....	8-40
<b>COOLING SYSTEM</b> .....	8-49
CIRCUIT DIAGRAM .....	8-49
TROUBLESHOOTING .....	8-50
<b>FUEL PUMP SYSTEM</b> .....	8-54
CIRCUIT DIAGRAM .....	8-54
FUEL PUMP CIRCUIT OPERATION .....	8-55
TROUBLESHOOTING .....	8-56
FUEL PUMP TEST .....	8-61
<b>EXUP SYSTEM</b> .....	8-62
CIRCUIT DIAGRAM .....	8-62
TROUBLESHOOTING .....	8-63
<b>SELF-DIAGNOSIS</b> .....	8-68
TROUBLESHOOTING .....	8-69

## CHAPTER 9. TROUBLESHOOTING

<b>STARTING FAILURE/HARD STARTING</b> .....	9-1
FUEL SYSTEM .....	9-1
ELECTRICAL SYSTEM .....	9-1
COMPRESSION SYSTEM .....	9-2
<b>POOR IDLE SPEED PERFORMANCE</b> .....	9-2
POOR IDLE SPEED PERFORMANCE .....	9-2
<b>POOR MEDIUM-AND HIGH-SPEED PERFORMANCE</b> .....	9-2
POOR MEDIUM-AND HIGH-SPEED PERFORMANCE .....	9-2
<b>FAULTY GEAR SHIFTING</b> .....	9-3
HARD SHIFTING .....	9-3
SHIFT PEDAL DOES NOT MOVE .....	9-3
JUMPS-OUT-OF GEAR .....	9-3


<b>GEN INFO 1</b>

<b>SPEC 2</b>

<b>INSP ADJ 3</b>

<b>ENG 4</b>

<b>COOL 5</b>

<b>CARB 6</b>

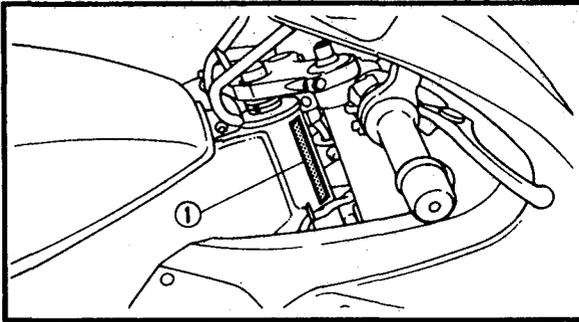
<b>CHAS 7</b>

<b>ELEC 8</b>
<b>?</b>
<b>TRBL SHTG 9</b>

---

<b>CLUTCH SLIPPING/Dragging</b> .....	9-3
CLUTCH SLIPPING .....	9-3
CLUTCH DRAGGING .....	9-3
<b>OVERHEATING</b> .....	9-4
OVERHEATING .....	9-4
<b>FAULTY BRAKE</b> .....	9-4
POOR BRAKING EFFECT .....	9-4
<b>FRONT FORK OIL LEAKAGE AND FRONT FORK MALFUNCTION</b> .....	9-4
MALFUNCTION .....	9-4
OIL LEAKAGE .....	9-4
<b>UNSTABLE HANDLING</b> .....	9-5
UNSTABLE HANDLING .....	9-5
<b>FAULTY LIGHTING AND SIGNAL SYSTEMS</b> .....	9-5
HEADLIGHT DOES NOT LIGHT .....	9-5
BULB BURNT OUT .....	9-5
FLASHER DOES NOT LIGHT .....	9-5
FLASHER BLINKS SLOWLY .....	9-5
FLASHER REMAINS LIT .....	9-5
FLASHER BLINKS QUICKLY .....	9-5
HORN DOES NOT SOUND .....	9-5

**YZF1000R WIRING DIAGRAM**



EB100000

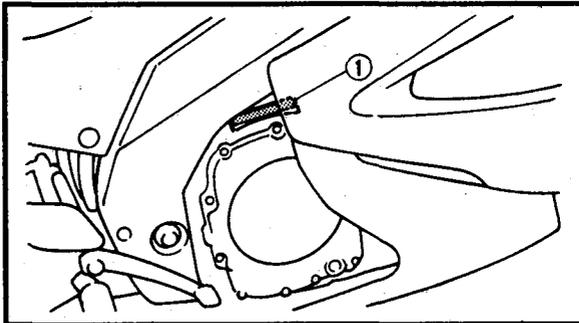
**GENERAL INFORMATION**  
**MOTORCYCLE IDENTIFICATION**  
**VEHICLE IDENTIFICATION NUMBER**

The vehicle identification number ① is stamped into the right side of the steering head.

**NOTE:**

The vehicle identification number is used to identify the motorcycle and may be used to register the motorcycle with a licensing authority.

1



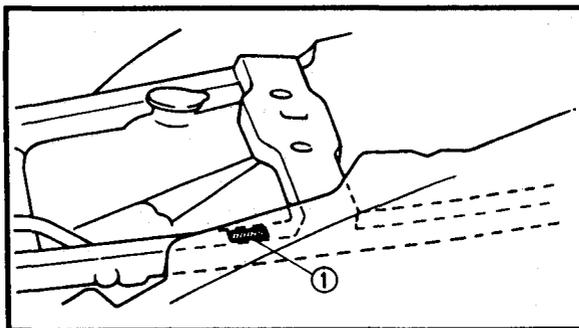
EB100030

**ENGINE SERIAL NUMBER**

The engine serial number ① is stamped into the crankcase.

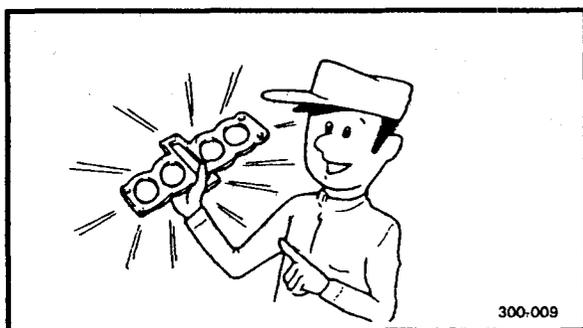
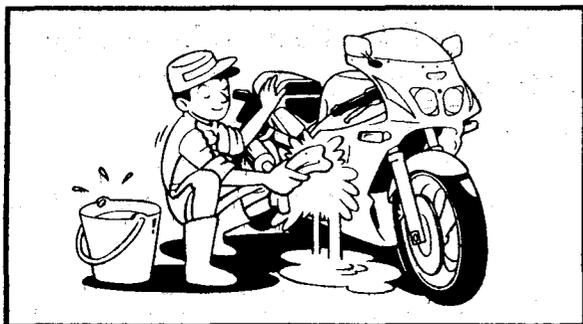
**NOTE:**

The first three digits of the engine serial number indicate the model type; the remaining digits are the unit production number.



**MODEL LABEL**

The model label ① is affixed to the frame. This information will be needed to order spare parts.



EB101000

**IMPORTANT INFORMATION  
PREPARATION FOR REMOVAL  
PROCEDURES**

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

EB101010

**REPLACEMENT PARTS**

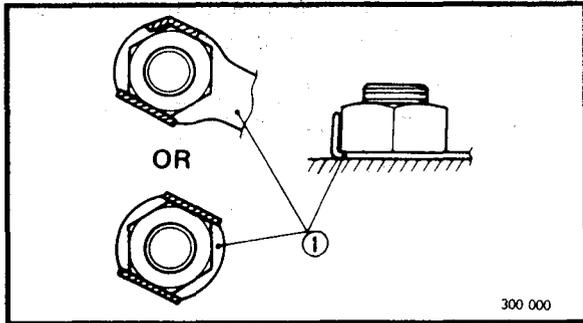
1. Use only genuine Yamaha parts for all replacements. Use oil and grease recommended by Yamaha for all lubrication jobs. Other brands may be similar in function and appearance, but inferior in quality.

EB101020

**GASKETS, OIL SEALS AND O-RINGS**

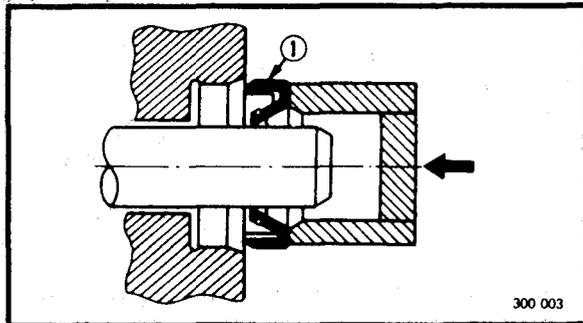
1. When overhauling the engine replace all gaskets, seals and O-rings. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. During reassembly properly oil all mating parts and bearings. Apply grease to the oil seal lips.

# IMPORTANT INFORMATION



## EB101030 LOCK WASHERS/PLATES AND COTTER PINS

1. After removal replace all lock washers/plates ① and cotter pins. After the bolt or nut has been tightened to specification bend the lock tab(s) along a flat side of the bolt or nut.



## EB101040 BEARINGS AND OIL SEALS

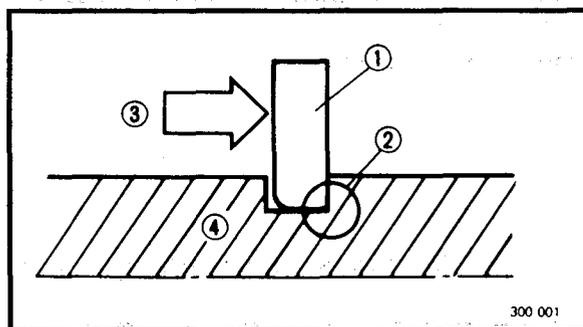
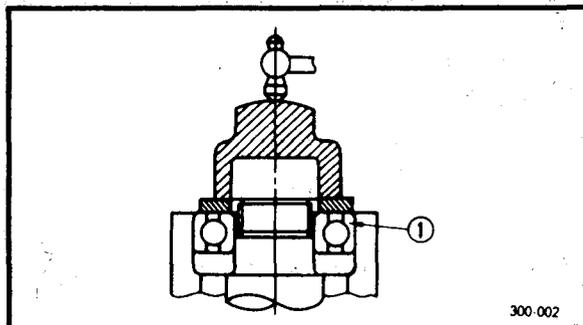
1. Install bearings and oil seals so that the manufacturer's marks or numbers are visible. When installing oil seals, apply a light coating of lightweight lithium base grease to the seal lips. When installing bearings oil them liberally, if appropriate.

① Oil seal

### CAUTION:

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

① Bearing



## EB101050 CIRCLIPS

1. Before reassembly, check all circlips carefully. 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

EB102000

**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. Special tools may differ in shape and part number from country to country. In such a case, two types are provided.

EB102010

**FOR TUNE-UP**

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

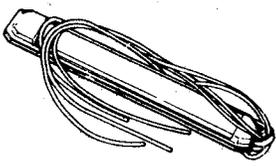
P/N. YM- □□□□□, YU-□□□□□  
 YS- □□□□□, YK-□□□□□  
 ACC-□□□□□

For  
 CDN

P/N.90890- □□□□□

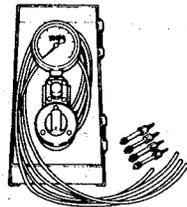
Except for  
 CDN

**2-A**  
 Vacuum gauge  
 YU-08030



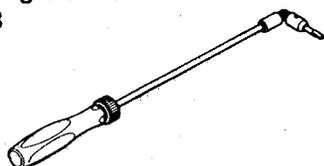
This gauge is needed for carburetor synchronization.

**2-B**  
 Vacuum gauge  
 90890-03094



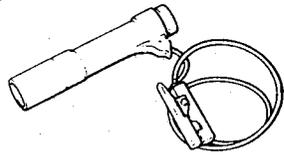
This gauge is needed for carburetor synchronization.

**3**  
 Carburetor angle driver  
 90890-03158



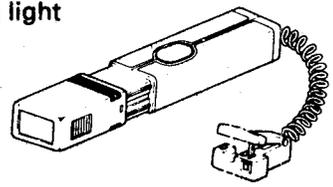
This tool is used to adjust the pilot screw.

**4-A**  
 Inductive timing light  
 YM-33277-A



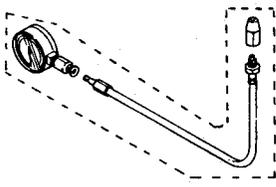
This tool is necessary for checking ignition timing.

**4-B**  
 Inductive timing light  
 90890-03141



This tool is necessary for checking ignition timing.

**5-A**  
 Compression gauge  
 YU-33223

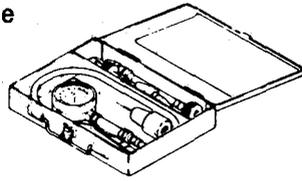


This gauge is used to measure the engine compression.



**5-B**

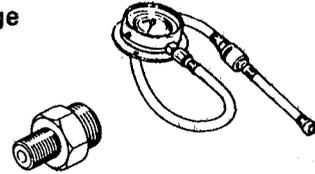
Compression gauge  
90890-03081



This gauge is used to measure the engine compression.

**6**

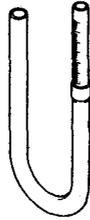
Oil pressure gauge  
90890-03153  
Adapter  
90890-03139



This gauge is used to measure engine oil pressure.

**7**

Fuel level gauge  
YM-01312-A  
90890-01312



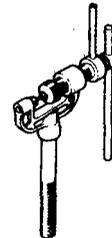
This gauge is used to measure the fuel level in the float chamber.

EB102020

**FOR ENGINE SERVICE**

**1**

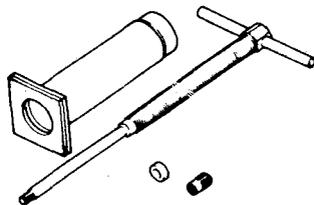
Cam chain cutter  
YM-01112  
90890-01112



This tool is used when cutting the cam chain.

**2**

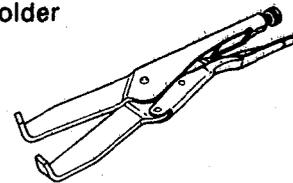
Piston pin puller  
YU-01304  
90890-01304



This tool is used to remove the piston pin.

**3-A**

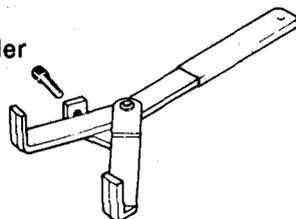
Universal clutch holder  
YM-91042



This tool is used to hold the clutch when removing or installing the clutch boss locknut.

**3-B**

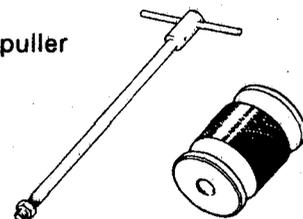
Universal clutch holder  
90890-04086



This tool is used to hold the clutch when removing or installing the clutch boss locknut.

**4**

Armature shock puller  
YU-1047-3  
90890-01290  
Weight  
YU-1047-4  
90890-01291



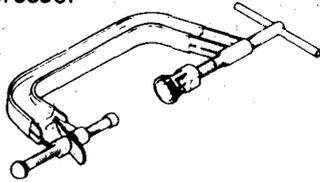
These tools are used to remove the starter clutch shaft.

# SPECIAL TOOLS



5-A

Valve spring compressor  
YM-04019  
90890-04019



This tool is needed to remove and install the valve assemblies.

5-B

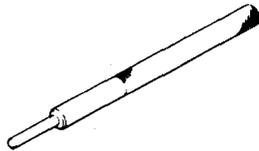
Attachment  
(For exhaust valve)  
YM-4108  
(For intake valve)  
YM-4114  
90890-04114



These tools are needed to remove and install the valve assemblies.

6

Valve guide remover (4.5 mm)  
YM-4116  
90890-04116



This tool is used to remove the valve guides.

7

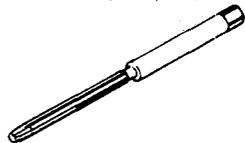
Valve guide installer (4.5 mm)  
YM-4117  
90890-04117



This tool is needed to install the valve guides properly.

8

Valve guide reamer (4.5 mm)  
YM-4118  
90890-04118



This tool is used to rebore the new valve guide.

9

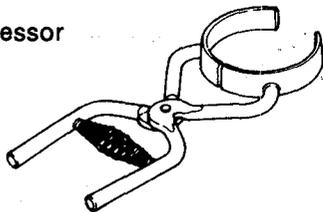
Quick gasket®  
ACC-11001-15-01  
YAMAHA Bond No. 1215  
90890-85505



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

10

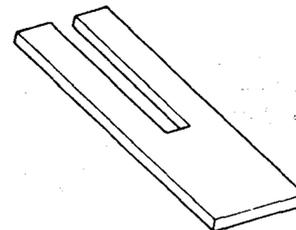
Piston ring compressor  
YM-01066  
90890-01066



This tool is used to compress piston rings when installing the cylinder.

11

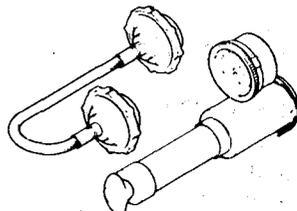
Piston base  
YM-01067  
90890-01067



Use four pieces of these to hold the pistons during cylinder installation.

12

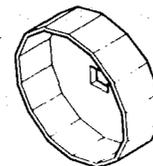
Radiator cap tester  
YU-24460-01  
90890-01325  
Adaptor  
YU-33984  
90890-01352



This tester is needed for checking the cooling system.

13

Oil filter wrench  
YU-38411  
90890-01426



This tool is used to remove and install the oil filter.

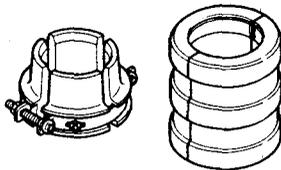


EB102040

**FOR CHASSIS SERVICE**

**2**

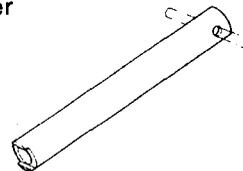
Fork seal driver  
YM-01442  
90890-01442



This tool is used when installing the fork seal.

**1**

Damper rod holder  
90890-01447



This tool is used to loosen and tighten the front fork damper rod holding bolt.

**3**

Ring nut wrench  
YU-33975  
90890-01403



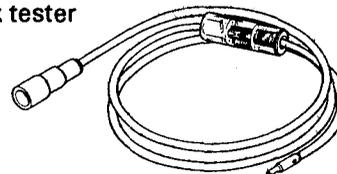
This tool is used to loosen and tighten the steering ring nut.

EB102050

**FOR ELECTRICAL COMPONENTS**

**1-A**

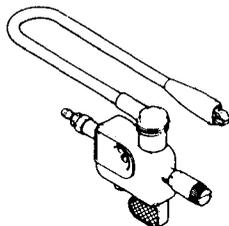
Dynamic spark tester  
YM-34487



This instrument is necessary for checking the ignition system components.

**1-B**

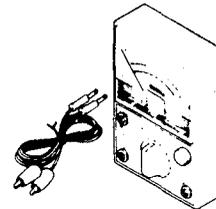
Ignition checker  
90890-06754



This instrument is necessary for checking the ignition system components.

**2**

Pocket tester  
YU-03112  
90890-03112



This instrument is invaluable for checking the electrical system.



## SPECIFICATIONS

## GENERAL SPECIFICATIONS

Model	YZF1000RJ/YZF1000RJC
Model code:	4YW1 (YZF1000RJ) 4YW2 (YZF1000RJC)
Dimensions:	
Overall length	2,085 mm (82.1 in)
Overall width	740 mm (29.1 in)
Overall height	1,175 mm (46.3 in)
Seat height	790 mm (31.1 in)
Wheelbase	1,430 mm (56.3 in)
Minimum ground clearance	140 mm (5.51 in)
Minimum turning radius	3,100 mm (122.0 in)
Basic weight:	
With oil and full fuel tank	224 kg (494 lb) (YZF1000RJ) 225 kg (496 lb) (YZF1000RJC)
Engine:	
Engine type	Liquid-cooled 4-stroke, DOHC
Cylinder arrangement	Forward-inclined parallel 4-cylinder
Displacement	1,002 cm <sup>3</sup>
Bore × stroke	75.5 × 56.0 mm (2.97 × 2.20 in)
Compression ratio	11.5:1
Compression pressure (STD)	1,422 kPa (14.22 kg/cm <sup>2</sup> , 202 psi) at 400 r/min
Starting system	Electric starter
Lubrication system:	Wet sump
Oil type or grade:	
Engine oil	Yamalube 4 or SAE10W30 type SE motor oil, or SAE20W40 type SE motor oil
Oil capacity:	
Engine oil	
Periodic oil change	3 L (2.6 Imp qt, 3.2 US qt)
With oil filter replacement	3.2 L (2.8 Imp qt, 3.4 US qt)
Total amount	3.5 L (3.1 Imp qt, 3.7 US qt)
Radiator capacity (including all routes):	2.7 L (2.38 Imp qt, 2.85 US qt)

2

# GENERAL SPECIFICATIONS

**SPEC**



Model	YZF1000RJ/YZF1000RJC
Air filter:	Dry type element
Fuel:	UNLEADED FUEL
Type	UNLEADED FUEL
Fuel tank capacity	20 L (4.40 Imp gal, 5.28 US gal)
Fuel reserve amount	4.5 L (0.99 Imp gal, 1.19 US gal)
Carburetor:	
Type / quantity	BDSR38/4
Manufacturer	MIKUNI
Spark plug:	
Type	DR8EA/X24ESR-U
Manufacturer	NGK/NIPPONDENSO
Spark plug gap	0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Clutch type:	Wet, multiple-disc
Transmission:	
Primary reduction system	Spur gear
Primary reduction ratio	68/41 (1.659)
Secondary reduction system	Chain drive
Secondary reduction ratio	46/17 (2.706)
Transmission type	Constant mesh 5-speed
Operation	Left foot operation
Gear ratio	
1st	36/14 (2.571)
2nd	32/18 (1.778)
3rd	29/21 (1.381)
4th	27/23 (1.174)
5th	28/27 (1.037)
Chassis:	
Frame type	Diamond
Caster angle	24°
Trail	97 mm (3.82 in)
Tire:	
Type	Tubeless
Size	
front	120/70 ZR17
rear	180/55 ZR17
Manufacturer	
front	BRIDGESTONE/DUNLOP
rear	BRIDGESTONE/DUNLOP
Type	
front	BT50F/D204FN
rear	BT50R/D204M
Tire pressure (cold tire):	
Maximum load-except motorcycle	196 kg (432 lb) (YZF1000RJ) 195 kg (430 lb) (YZF1000RJC)

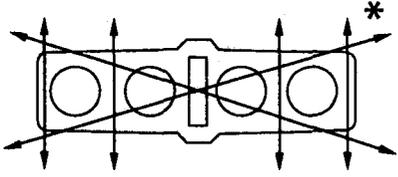
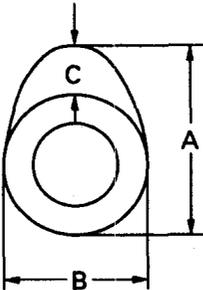
# GENERAL SPECIFICATIONS

**SPEC**



Model	YZF1000RJ/YZF1000RJC	
0 ~ 90 kg (0 ~ 198 lb) load *	front	250 kPa (2.5 kg/cm <sup>2</sup> , 36 psi)
	rear	250 kPa (2.5 kg/cm <sup>2</sup> , 36 psi)
90 kg (198 lb) ~ Maximum load *	front	290 kPa (2.9 kg/cm <sup>2</sup> , 41 psi)
	rear	290 kPa (2.9 kg/cm <sup>2</sup> , 41 psi)
High-speed riding	front	290 kPa (2.9 kg/cm <sup>2</sup> , 41 psi)
	rear	290 kPa (2.9 kg/cm <sup>2</sup> , 41 psi)
* Load is the total weight of the cargo, rider, passenger and accessories.		
<b>Brake:</b>		
Front brake	type	Dual disc brake
	operation	Right hand operation
Rear brake	type	Single disc brake
	operation	Right foot operation
<b>Suspension:</b>		
Front suspension		Telescopic fork
Rear suspension		Swingarm (link suspension)
<b>Shock absorber:</b>		
Front shock absorber		Coil spring / Oil damper
Rear shock absorber		Coil spring / Gas-oil damper
<b>Wheel travel:</b>		
Front wheel travel		120 mm (4.7 in)
Rear wheel travel		120 mm (4.7 in)
<b>Electrical:</b>		
Ignition system		T.C.I. (Digital)
Generator system		A.C. generator
Battery type		YTX14-BS
Battery capacity		12 V 12 AH
<b>Headlight type:</b>		Quartz bulb (Halogen)
<b>Bulb wattage × quantity:</b>		
Headlight		12 V 35 W / 35 W × 2
Auxiliary light		12 V 5 W × 1
Tail / brake light		12 V 5 W / 21 W × 2
Flasher light		12 V 27 W × 2
Front flasher light		12 V 27 W / 8 W × 2
Licence light		12 V 5 W × 2
Meter light		12 V 1.7 W × 4
Indicator light		
Neutral indicator light		12 V 3.4 W × 1
Turn indicator light		12 V 3.4 W × 1
Oil level indicator light		12 V 3.4 W × 1
High beam indicator light		12 V 3.4 W × 1
Fuel indicator light		12 V 3.4 W × 1

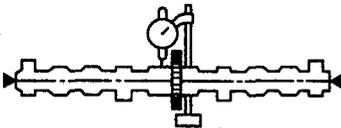
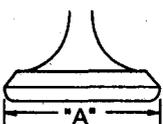
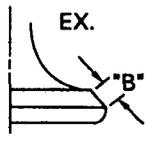
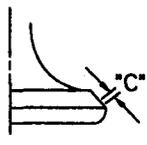
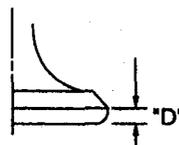
**MAINTENANCE SPECIFICATIONS  
ENGINE**

Model	YZF1000RJ/YZF1000RJC
<p>Cylinder head: Warp limit</p> 	<p>0.10 mm (0.0039 in)</p>
<p>Cylinder: Bore size Taper limit Out of round limit</p>	<p>75.500 ~ 75.505 mm (2.9724 ~ 2.9726 in) 0.05 mm (0.002 in) 0.05 mm (0.0020 in)</p>
<p>Camshaft:</p> <p>Drive method Cam cap inside diameter Camshaft outside diameter Shaft-to-cap clearance Cam cap inside diameter Shaft-to-cap clearance Cam dimensions</p>  <p>Intake</p> <p>Exhaust</p>	<p>Chain drive (Center)</p> <p>24.470 ~ 24.491 mm (0.9634 ~ 0.9642 in) 24.437 ~ 24.450 mm (0.9621 ~ 0.9626 in) 0.020 ~ 0.054 mm (0.0008 ~ 0.0021 in) 24.500 ~ 24.521 mm (0.9646 ~ 0.9654 in) 0.050 ~ 0.084 mm (0.0020 ~ 0.0033 in)</p> <p>Intake</p> <p>"A" 32.5 ~ 32.6 mm (1.280 ~ 1.283 in) &lt;limit&gt; &lt;32.4mm (1.276 in)&gt; "B" 24.95 ~ 25.05 mm (0.982 ~ 0.986 in) &lt;limit&gt; &lt;24.85 mm (0.978 in)&gt; "C" 7.45 ~ 7.65 mm (0.293 ~ 0.301 in)</p> <p>Exhaust</p> <p>"A" 32.95 ~ 33.05 mm (1.297 ~ 1.301 in) &lt;limit&gt; &lt;32.85 mm (1.293 in)&gt; "B" 24.95 ~ 25.05 mm (0.982 ~ 0.986 in) &lt;limit&gt; &lt;24.85 mm (0.978 in)&gt; "C" 7.75 ~ 7.95 mm (0.305 ~ 0.313 in)</p>

# MAINTENANCE SPECIFICATIONS

**SPEC**

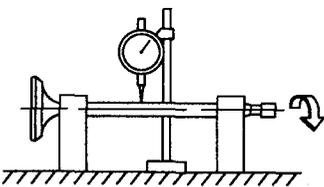
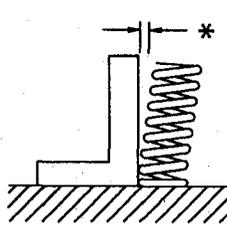
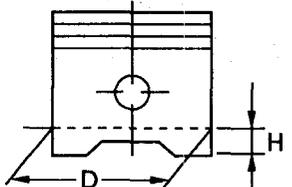


<b>Model</b>	YZF1000RJ/YZF1000RJC		
<p><b>Camshaft runout limit</b></p> <div style="text-align: center;">  </div>	0.03 mm (0.0012 in)		
<p><b>Cam chain:</b></p> <p>Cam chain type / No. of links</p> <p>Cam chain adjustment method</p>	<p>219FTS/108</p> <p>Automatic</p>		
<p><b>Valve, valve seat, valve guide:</b></p> <p>Valve clearance (cold)</p> <p style="text-align: right;">IN</p> <p style="text-align: right;">EX</p> <p>Valve dimensions:</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Head Dia</p> </div> <div style="text-align: center;">  <p>Face Width</p> </div> <div style="text-align: center;">  <p>Seat Width</p> </div> <div style="text-align: center;">  <p>Margin Thickness</p> </div> </div>	<p>0.11 ~ 0.20 mm (0.004 ~ 0.008 in)</p> <p>0.21 ~ 0.30 mm (0.008 ~ 0.012 in)</p>		
<p>"A" head diameter</p> <p>"B" face width</p> <p>"C" seat width</p> <p>"D" margin thickness</p> <p>Stem outside diameter</p> <p>&lt;Limit&gt;</p> <p>Guide inside diameter</p> <p>&lt;Limit&gt;</p> <p>Stem-to-guide clearance</p> <p>&lt;Limit&gt;</p>	<p>IN</p> <p>EX</p>	<p>23.4 ~ 23.6 mm (0.921 ~ 0.929 in)</p> <p>24.9 ~ 25.1 mm (0.980 ~ 0.988 in)</p> <p>1.63 ~ 2.90 mm (0.064 ~ 0.114 in)</p> <p>1.63 ~ 2.90 mm (0.064 ~ 0.114 in)</p> <p>0.9 ~ 1.1 mm (0.035 ~ 0.043 in)</p> <p>0.9 ~ 1.1 mm (0.035 ~ 0.043 in)</p> <p>0.45 ~ 0.95 mm (0.018 ~ 0.037 in)</p> <p>0.75 ~ 1.25 mm (0.030 ~ 0.049 in)</p> <p>4.475 ~ 4.490 mm (0.1762 ~ 0.1768 in)</p> <p>4.460 ~ 4.475 mm (0.1756 ~ 0.1762 in)</p> <p>&lt;4.445 mm (0.175 in)&gt;</p> <p>&lt;4.43 mm (0.174 in)&gt;</p> <p>4.500 ~ 4.512 mm (0.1772 ~ 0.1776 in)</p> <p>4.500 ~ 4.512 mm (0.1772 ~ 0.1776 in)</p> <p>&lt;4.55 mm (0.179 in)&gt;</p> <p>&lt;4.55 mm (0.179 in)&gt;</p> <p>0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)</p> <p>0.025 ~ 0.052 mm (0.0010 ~ 0.0020 in)</p> <p>&lt;0.08 mm (0.003 in)&gt;</p> <p>&lt;0.1 mm (0.004 in)&gt;</p>	

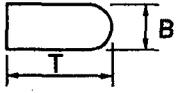
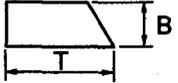
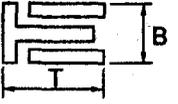
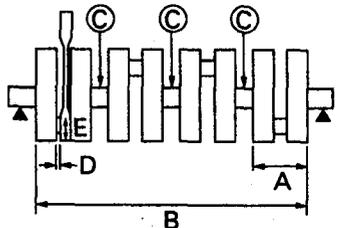
MAINTENANCE SPECIFICATIONS

SPEC



Model	YZF1000RJ/YZF1000RJC	
<p>Stem runout limit</p>  <p>Valve seat width</p>	<p>0.01 mm (0.0004 in)</p> <p>IN 0.9 ~ 1.1 mm (0.035 ~ 0.043 in) EX 0.9 ~ 1.1 mm (0.035 ~ 0.043 in)</p>	
<p>Valve spring:</p> <p>Free length</p> <p>Set length (valve closed)</p> <p>Compressed pressure (installed)</p> <p>Tilt limit</p>  <p>Direction of winding (top view)</p>	<p>IN 40.73 mm (1.60 in) EX 44.01 mm (1.73 in)</p> <p>IN 35 mm (1.4 in) EX 35 mm (1.4 in)</p> <p>IN 12.20 ~ 13.19 kg (26.90 ~ 29.09 lb) EX 21 ~ 23 kg (46.30 ~ 50.71 lb)</p> <p>IN 2.5°/1.7 mm (2.5°/0.067 in) EX 2.5°/1.7 mm (2.5°/0.067 in)</p> <p>IN Clockwise EX Clockwise</p> 	
<p>Piston:</p> <p>Piston to cylinder clearance &lt;Limit&gt;</p> <p>Piston size "D"</p>  <p>Measuring point "H"</p>	<p>0.06 ~ 0.08 mm (0.0024 ~ 0.0031 in) &lt;0.1 mm (0.0039 in)&gt;</p> <p>75.425 ~ 75.440 mm (2.969 ~ 2.970 in)</p> <p>3 mm (0.118 in)</p>	



Model	YZF1000RJ/YZF1000RJC
Piston off-set Piston off-set direction Piston pin bore inside diameter Piston pin outside diameter	0.5 mm (0.02 in) IN side 19.004 ~ 19.015 mm (0.7482 ~ 0.7486 in) 18.991 ~ 19.000 mm (0.7477 ~ 0.7480 in)
Piston rings: Top ring:  Type Dimensions (B × T) End gap (installed) Side clearance (installed) 2nd ring:  Type Dimensions (B × T) End gap (installed) Side clearance Oil ring:  Dimensions (B × T) End gap (installed)	Barrel 0.8 × 2.8 mm (0.031 × 0.110 in) 0.3 ~ 0.5 mm (0.012 ~ 0.020 in) 0.03 ~ 0.07 mm (0.001 ~ 0.003 in) Taper 0.8 × 2.8 mm (0.031 × 0.110 in) 0.3 ~ 0.5 mm (0.012 ~ 0.020 in) 0.02 ~ 0.06 mm (0.001 ~ 0.002 in) 1.5 × 2.5 mm (0.059 × 0.098 in) 0.2 ~ 0.8 mm (0.008 ~ 0.031 in)
Connecting rod: Oil clearance Color code (corresponding size)	0.032 ~ 0.056 mm (0.001 ~ 0.002 in) ① Blue ② Black ③ Brown ④ Green
Crankshaft:  Crank width "A" Assembly width "B" Runout limit "C" Big end side clearance "D"	55.7 ~ 59.5 mm (2.193 ~ 2.343 in) 339.8 ~ 340.2 mm (13.378 ~ 13.394 in) 0.03 mm (0.0012 in) 0.160 ~ 0.262 mm (0.006 ~ 0.010 in)



Model	YZF1000RJ/YZF1000RJC
Journal oil clearance "E"	0.020 ~ 0.044 mm (0.0008 ~ 0.0017 in)
Color code (corresponding size)	① Blue ② Black ③ Brown ④ Green ⑤ Yellow
<b>Clutch:</b>	
Friction plate thickness	2.9 ~ 3.1 mm (0.114 ~ 0.122 in)
Quantity	9
Friction plate wear limit	2.8 mm (0.11 in)
Clutch plate thickness	1.9 ~ 2.1 mm (0.075 ~ 0.083 in)
Quantity	8
Warp limit	0.1 mm (0.004 in)
Clutch spring free length	50 mm (1.97 in)
Quantity	6
Minimum length	48 mm (1.89 in)
Clutch release method	Hydraulic inner push
<b>Transmission:</b>	
Main axle deflection limit	0.08 mm (0.003 in)
Drive axle deflection limit	0.08 mm (0.003 in)
<b>Shifter:</b>	
Shifter type	Guide bar
Guide bar bending limit	0.1 mm (0.004 in)
<b>Carburetor:</b>	
I. D. mark	4YW 00 (YZF1000RJ) 4YW 10 (YZF1000RJC)
Main jet (M.J)	#1,4:#127.5:#2,3:#125
Main air jet (M.A.J)	#1,4:#60:#2,3:#45
Jet needle (J.N)	6DJP15-53
Needle jet (N.J)	P-0
Pilot air jet (P.A.J.1)	#122.5
Pilot outlet (P.O)	1.0
Pilot jet (P.J)	#17.5
Bypass 1 (B.P.1)	0.8
Bypass 2 (B.P.2)	0.8
Bypass 3 (B.P.3)	0.8
Valve seat size (V.S)	1.5
Starter jet (G.S.1)	#30
Starter jet (G.S.2)	0.8
Throttle valve size (Th.V)	#105
Fuel level	4.1 ~ 5.1 mm (0.16 ~ 0.20 in)
<b>IDLING CONDITION:</b>	
Engine idle speed	1,050 ~ 1,150 r/min
Intake vacuum	20.3 ~ 30.7 (190 ~ 230 mm Hg, 7.48 ~ 9.055 in Hg)