

Product: 1998 Yamaha YFM250XL(C) Motorcycle Service Repair Workshop Manual
Full Download: <https://www.aresairmanual.com/downloads/1998-yamaha-yfm250xl-c-motocycle-service-repair-workshop-manual/>

YAMAHA

YFM250XL(C)

SERVICE MANUAL

Sample of manual. Download All 398 pages at:

<https://www.aresairmanual.com/downloads/1998-yamaha-yfm250xlc-motocycle-service-repair-workshop-manual/>

LIT-11616-12-01

4XE-F8197-10

Product: 1998 Yamaha YFM250XL(C) Motorcycle Service Repair Workshop Manual

Full Download: <https://www.aresairmanual.com/downloads/1998-yamaha-yfm250xl>

[c-motorcycle-service-repair-workshop-manual/](https://www.aresairmanual.com/downloads/1998-yamaha-yfm250xl-c-motorcycle-service-repair-workshop-manual/)

YFM250XL

SERVICE MANUAL

© 1998 by Yamaha Motor Corporation, U.S.A.

First Edition, February 1998

**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.

LIT-11616-12-01

Sample of manual. Download All 398 pages at:

<https://www.aresairmanual.com/downloads/1998-yamaha-yfm250xl-c-motorcycle-service-repair-workshop-manual/>

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 machine has a basic understanding of the mechanical ideas and the procedures of machine repair. Repairs attempted by anyone without this knowledge are likely to render the machine unsafe and unfit for use.

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: _____
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!



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



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

NOTE:

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

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.

1 → **INSPECTION AND REPAIR** **ENG**

2 → **INSPECTION AND REPAIR**

3 → **CRANKSHAFT**

4 → **INSPECTION AND REPAIR**

5 → **NOTE**

6 → **CRANKSHAFT**

7 → **CRANKSHAFT**

8 → **CRANKSHAFT**

9 → **WARNING**

FRONT FORK **CHAS**

INSPECTION

1 → **INSPECT**

2 → **INSPECT**

3 → **MEASURE**

4 → **MEASURE**

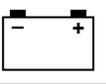
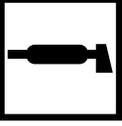
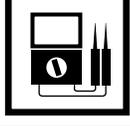
5 → **LUBRICATE**

6 → **CHAIN LUBE**

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 Carburetion
- ⑥ Drive train
- ⑦ Chassis
- ⑧ Electrical
- ⑨ Troubleshooting

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

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 Ω , 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
- ⑳ Apply wheel bearing grease
- ㉑ Apply lightweight lithium-soap base grease
- ㉒ 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

GENERAL INFORMATION	
	GEN INFO 1
SPECIFICATIONS	
	SPEC 2
PERIODIC INSPECTION AND ADJUSTMENT	
	INSP ADJ 3
ENGINE OVERHAUL	
	ENG 4
CARBURETION	
	CARB 5
DRIVE TRAIN	
	DRIVE 6
CHASSIS	
	CHAS 7
ELECTRICAL	
	ELEC 8
TROUBLESHOOTING	
	TRBL SHTG 9

CONTENTS

CHAPTER 1. GENERAL INFORMATION

MACHINE IDENTIFICATION	1-1
VEHICLE IDENTIFICATION NUMBER	1-1
MODEL LABEL	1-1
IMPORTANT INFORMATION	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
CHECKING OF CONNECTIONS	1-4
SPECIAL TOOLS	1-5

CHAPTER 2. SPECIFICATIONS

GENERAL SPECIFICATIONS	2-1
MAINTENANCE SPECIFICATIONS	2-4
ENGINE	2-4
CHASSIS	2-14
ELECTRICAL	2-18
HOW TO USE THE CONVERSION TABLE	2-20
GENERAL TORQUE SPECIFICATIONS	2-20
LUBRICATION POINTS AND LUBRICANT TYPES	2-21
ENGINE	2-21
CHASSIS	2-22
LUBRICATION DIAGRAMS	2-23
CABLE ROUTING	2-25

CHAPTER 3. PERIODIC INSPECTIONS AND ADJUSTMENTS

INTRODUCTION	3-1
PERIODIC MAINTENANCE/LUBRICATION	3-1
FENDER AND FUEL TANK	3-3
FRONT FENDER	3-3
REAR FENDER	3-5
FUEL TANK	3-7
ENGINE	3-10
VALVE CLEARANCE ADJUSTMENT	3-10
TIMING CHAIN TENSIONER ADJUSTMENT	3-12
IDLE SPEED ADJUSTMENT	3-13
THROTTLE CABLE FREE PLAY ADJUSTMENT	3-14
SPEED LIMITER ADJUSTMENT	3-15
SPARK PLUG INSPECTION	3-15
IGNITION TIMING CHECK	3-17
COMPRESSION PRESSURE MEASUREMENT	3-18
ENGINE OIL LEVEL INSPECTION	3-19
ENGINE OIL REPLACEMENT	3-20
CLUTCH ADJUSTMENT	3-23
AIR FILTER CLEANING	3-23
CHASSIS	3-26
FRONT AND REAR BRAKE LINING INSPECTION	3-26
FRONT BRAKE ADJUSTMENT	3-26
REAR BRAKE LEVER AND PEDAL ADJUSTMENT	3-27
DRIVE SELECT LEVER POSITION ADJUSTMENT	3-29
FINAL DRIVE GEAR OIL LEVEL INSPECTION	3-29
FINAL DRIVE GEAR OIL REPLACEMENT	3-30
DRIVE SHAFT DUST BOOT INSPECTION	3-31
STEERING SYSTEM INSPECTION	3-31
TOE-IN ADJUSTMENT	3-32
FRONT AND REAR SHOCK ABSORBERS INSPECTION	3-34
REAR SHOCK ABSORBER ADJUSTMENT	3-34
TIRE INSPECTION	3-35
WHEEL INSPECTION	3-37

	
GEN INFO	1
	
SPEC	2
	
INSP ADJ	3
	
ENG	4
	
CARB	5
	
DRIVE	6
	
CHAS	7
	
ELEC	8
?	
TRBL SHTG	9

ELECTRICAL	3-38
BATTERY INSPECTION	3-38
FUSE INSPECTION	3-41
HEADLIGHT BEAM ADJUSTMENT	3-42
HEADLIGHT BULB REPLACEMENT	3-42

CHAPTER 4. ENGINE OVERHAUL

ENGINE REMOVAL	4-1
PREPARATION FOR REMOVAL	4-1
FRONT FENDER AND REAR FENDER	4-1
ENGINE OIL	4-2
EXHAUST PIPE AND MUFFLER	4-2
CARBURETOR	4-2
STARTER MOTOR	4-3
REAR BRAKE CABLES AND FOOTREST	4-3
WIRINGS AND HOSES	4-3
REAR WHEEL DRIVE ASSEMBLY AND SWINGARM	4-4
ENGINE REMOVAL	4-4
 ENGINE DISASSEMBLY	 4-5
CYLINDER HEAD ASSEMBLY, CYLINDER AND PISTON	4-5
STARTER PULLEY CDI MAGNETO	4-8
MIDDLE DRIVEN PINION GEAR	4-10
PRIMARY AND SECONDARY CLUTCHES	4-11
OIL PUMP AND SHIFTER	4-13
BALANCER DRIVEN GEAR	4-14
CRANKCASE (LEFT)	4-15
BALANCER SHAFT, TRANSMISSION AND CRANKSHAFT	4-16
CYLINDER HEAD	4-17
VALVE	4-18
RECOIL STARTER	4-19
 INSPECTION AND REPAIR	 4-20
CYLINDER HEAD	4-20
INTAKE AND EXHAUST VALVE	4-20
VALVE GUIDE	4-21
VALVE SEAT	4-22
VALVE SPRING	4-25
VALVE INSTALLATION	4-26
CAM SHAFT	4-27
ROCKER ARM AND ROCKER ARM SHAFT	4-28

TIMING CHAIN	4-30
CAM SPROCKET AND CAM DRIVE SPROCKET	4-31
TIMING CHAIN GUIDE	4-31
TIMING CHAIN TENSIONER	4-31
TAPPET COVER AND CAM SPROCKET COVER	4-32
CYLINDER AND PISTON	4-32
PISTON RING AND PISTON PIN	4-33
CRANKSHAFT	4-36
BALANCER DRIVE GEAR AND DRIVEN GEARS	4-37
PRIMARY GEARS AND STARTER	4-37
PRIMARY CLUTCH	4-38
SECONDARY CLUTCH	4-38
OIL PUMP	4-40
TRANSMISSION AND SHIFTER	4-41
MIDDLE GEAR	4-43
BEARINGS AND OIL SEALS	4-43
CIRCLIPS AND WASHERS	4-43
CRANKCASE	4-43
RECOIL STARTER	4-44
ENGINE ASSEMBLY AND ADJUSTMENT	4-45
RECOIL STARTER	4-45
CRANKSHAFT/BALANCER	4-47
TRANSMISSION	4-48
SHIFTER	4-49
CRANKSHAFT, TRANSMISSION AND BALANCER SHAFT	4-50
CRANKCASE (LEFT)	4-51
BALANCER DRIVEN AND DRIVE GEARS	4-51
SHIFT SHAFT/OIL PUMP	4-53
SHIFTER AND OIL PUMP	4-54
CLUTCH	4-56
PRIMARY AND SECONDARY CLUTCHES	4-57
MIDDLE DRIVEN PINION GEAR	4-61
STARTER PULLEY (EXCEPT FOR USA)/CDI MAGNETO	4-62
STARTER PULLEY (EXCEPT FOR USA) AND CDI MAGNETO	4-63
CYLINDER AND CYLINDER HEAD ASSEMBLY	4-65
PISTON, CAMSHAFT AND TIMING CHAIN	4-66
CYLINDER HEAD ASSEMBLY, CYLINDER AND PISTON	4-67
REMountING ENGINE	4-72

	GEN INFO	1
	SPEC	2
	INSP ADJ	3
	ENG	4
	CARB	5
	DRIVE	6
	CHAS	7
	ELEC	8
	TRBL SHTG	9

CHAPTER 5. CARBURETION

CARBURETOR	5-1
REMOVAL	5-2
DISASSEMBLY	5-2
INSPECTION	5-4
ASSEMBLY	5-6
INSTALLATION	5-8
FUEL LEVEL ADJUSTMENT	5-9

CHAPTER 6. DRIVE TRAIN

MIDDLE GEAR SERVICE	6-1
MIDDLE GEAR	6-1
MIDDLE GEAR SHIMS	6-2
REMOVAL	6-3
DISASSEMBLY	6-5
INSPECTION	6-7
MIDDLE GEAR SHIM SELECTION	6-9
ASSEMBLY	6-16
MIDDLE GEAR LASH ADJUSTMENT	6-21
INSTALLATION	6-22
FINAL DRIVE GEAR AND DRIVE SHAFT	6-24
TROUBLESHOOTING	6-25
REMOVAL	6-28
DISASSEMBLY	6-29
INSPECTION	6-31
FINAL DRIVE PINION GEAR AND RING GEAR SHIM SELECTION	6-32
ASSEMBLY	6-35
FINAL GEAR GEAR LASH MEASUREMENT AND ADJUSTMENT	6-37
INSTALLATION	6-40

CHAPTER 7. CHASSIS

FRONT WHEELS AND FRONT BRAKE	7-1
REMOVAL	7-2
INSPECTION	7-3
INSTALLATION	7-6
REAR WHEELS/REAR BRAKE AND REAR AXLE	7-9
REMOVAL	7-11
INSPECTION	7-13
INSTALLATION	7-16
STEERING SYSTEM	7-20
REMOVAL	7-21
INSPECTION	7-23
INSTALLATION	7-24
FRONT SHOCK ABSORBER AND FRONT ARM	7-28
REMOVAL	7-29
INSPECTION	7-31
INSTALLATION	7-32
REAR SHOCK ABSORBER AND SWINGARM	7-35
REMOVAL	7-36
INSPECTION	7-38
INSTALLATION	7-40

CHAPTER 8. ELECTRICAL

ELECTRICAL COMPONENTS	8-1
SWITCH INSPECTION	8-2
SWITCH INSPECTION	8-2
INSPECTING A SWITCH SHOWN IN THE MANUAL	8-2
SWITCH CONTINUITY INSPECTION	8-4
CHECKING OF BULBS (FOR HEADLIGHT)	8-6
CHECKING BULBS CONDITION	8-6

		1
GEN INFO		1
		2
SPEC		2
		3
INSP ADJ		3
		4
ENG		4
		5
CARB		5
		6
DRIVE		6
		7
CHAS		7
		8
ELEC		8
		9
TRBL SHTG		9

IGNITION SYSTEM	8-7
CIRCUIT DIAGRAM	8-7
TROUBLESHOOTING	8-8
ELECTRIC STARTING SYSTEM	8-12
CIRCUIT DIAGRAM	8-12
STARTING CIRCUIT OPERATION	8-13
TROUBLESHOOTING	8-14
STARTER MOTOR	8-18
STARTER MOTOR INSPECTION	8-19
STARTER MOTOR ASSEMBLY	8-20
CHARGING SYSTEM	8-21
CIRCUIT DIAGRAM	8-21
TROUBLESHOOTING	8-22
LIGHTING SYSTEM	8-24
CIRCUIT DIAGRAM	8-24
TROUBLESHOOTING	8-25
LIGHTING SYSTEM CHECK	8-27
SIGNAL SYSTEM	8-29
CIRCUIT DIAGRAM	8-29
TROUBLESHOOTING	8-30
SIGNAL SYSTEM CHECK	8-32

CHAPTER 9. TROUBLESHOOTING

STARTING FAILURE/HARD STARTING	9-1
FUEL SYSTEM	9-1
ELECTRICAL SYSTEM	9-1
COMPRESSION SYSTEM	9-2
POOR IDLE SPEED PERFORMANCE	9-2
POOR IDLE SPEED PERFORMANCE	9-2
POOR MEDIUM AND HIGH-SPEED PERFORMANCE	9-2
POOR MEDIUM AND HIGH-SPEED PERFORMANCE	9-2

FAULTY DRIVE TRAIN	9-3
FAULTY GEAR SHIFTING	9-4
HARD SHIFTING	9-4
SHIFT PEDAL DOES NOT MOVE	9-4
JUMPS OUT OF GEAR	9-4
CLUTCH SLIPPING	9-4
CLUTCH SLIPPING	9-4
CLUTCH DRAGGING	9-4
CLUTCH DRAGGING	9-4
OVERHEATING	9-5
OVERHEATING	9-5
FAULTY BRAKE	9-5
POOR BRAKING EFFECT	9-5
SHOCK ABSORBER MALFUNCTION	9-5
MALFUNCTION	9-5
UNSTABLE HANDLING	9-6
UNSTABLE HANDLING	9-6
LIGHTING SYSTEM	9-6
HEADLIGHT DARK	9-6
BULB BURNT OUT	9-6



**GEN
INFO** **1**



SPEC **2**



**INSP
ADJ** **3**



ENG **4**



CARB **5**



DRIVE **6**



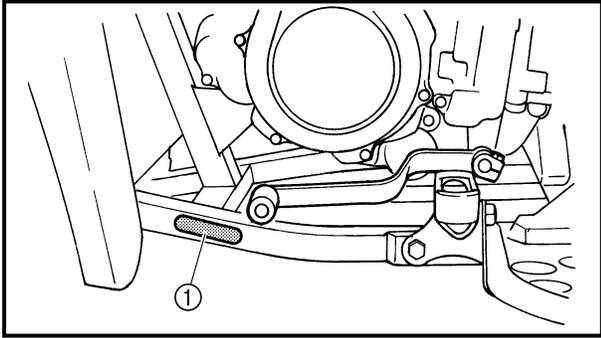
CHAS **7**



ELEC **8**



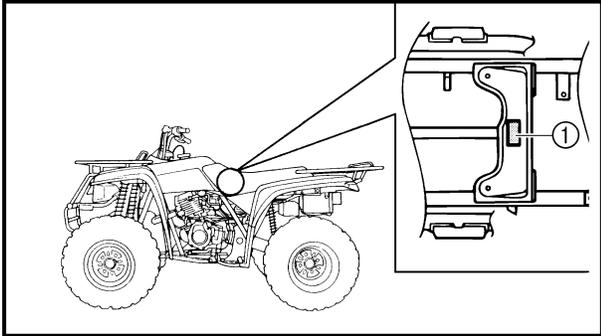
**TRBL
SHTG** **9**



GENERAL INFORMATION
MACHINE IDENTIFICATION
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the left side of the frame.

1



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. Remove all dirt, mud, dust and foreign material before removal and disassembly.
2. Use proper tools and cleaning equipment. Refer to the "SPECIAL TOOLS" section.
3. When disassembling the machine, always keep mated parts together. This includes gears, cylinder, piston and other parts that have been "mated" through normal wear. Mated parts must always be reused or replaced as an assembly.
4. During machine 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

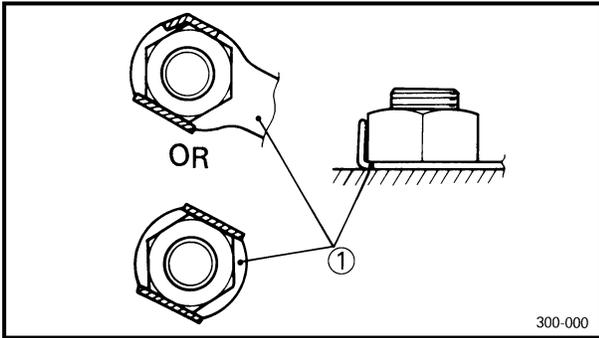
REPLACEMENT PARTS

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

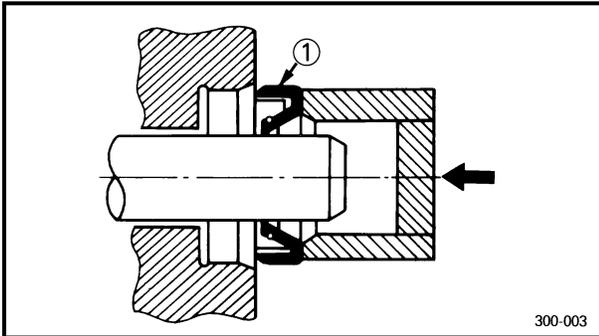
1. Replace all gaskets, seals and O-rings when overhauling the engine. All gasket surfaces, oil seal lips and O-rings must be cleaned.
2. Properly oil all mating parts and bearings during reassembly. Apply grease to the oil seal lips.



EB101030

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.



EB101040

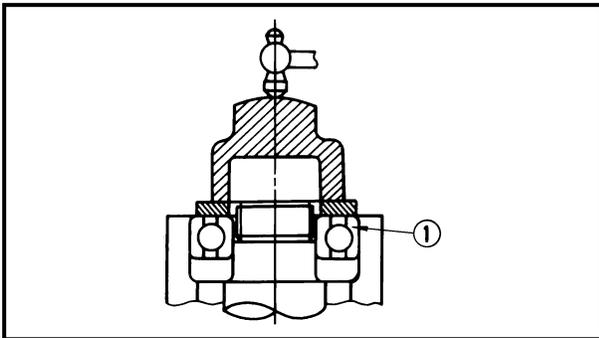
BEARINGS AND OIL SEALS

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. Oil bearings liberally when installing, if appropriate.

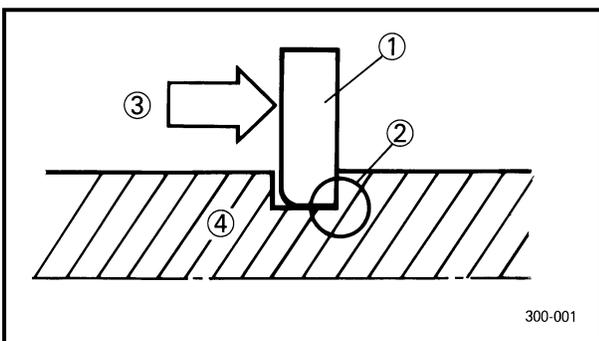
① Oil seal

CAUTION:

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



① Bearing



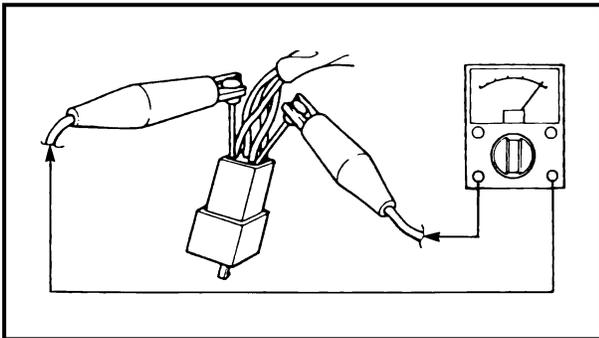
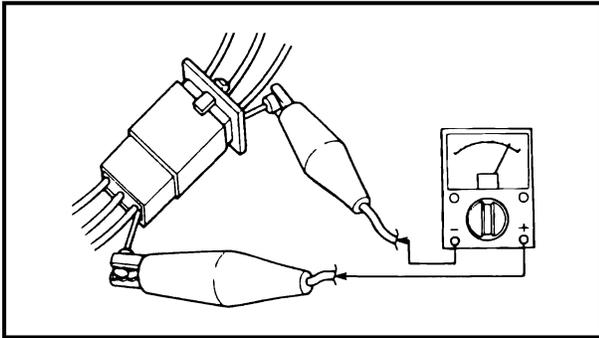
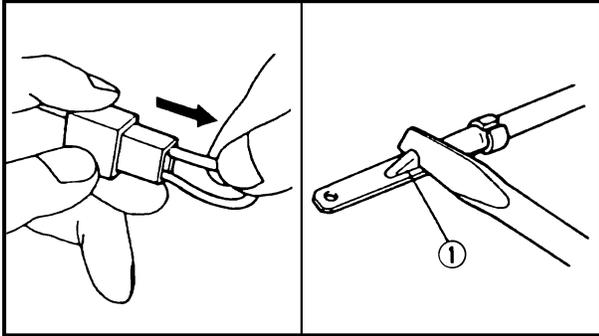
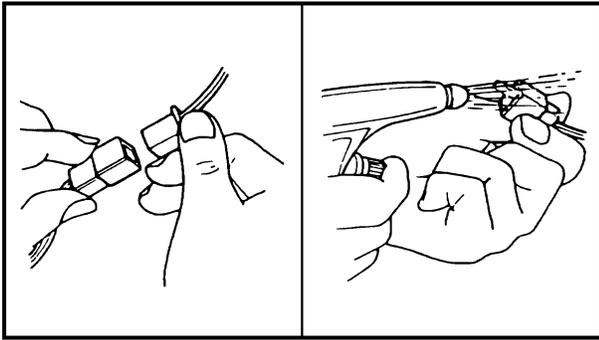
EB101050

CIRCLIPS

1. 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

1



EB801000

CHECKING OF CONNECTIONS

Check the connectors for stains, rust, moisture, etc.

1. Disconnect:

- Connector

2. Check:

- Connector

Moisture → Dry each terminal with an air blower.

Stains/rust → Connect and disconnect the terminals several times.

3. Check:

- Connector leads

Looseness → Bend up the pin ① and connect the terminals.

4. Connect:

- Connector terminals

NOTE: _____

The two terminals “click” together.

5. Check:

- Continuity (using a pocket tester)

NOTE: _____

- If there is no continuity, clean the terminals.

- When checking the wire harness be sure to perform steps 1 to 3.

- As a quick remedy, use a contact revitalizer available at most part stores.

- Check the connector with a pocket tester as shown.

EB102001

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 by shape and part number from country to country. In such a case, two types are provided.

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

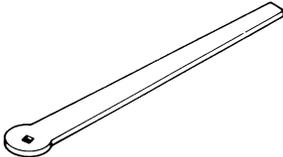
For US and CDN
P/N. YM-, YU-, YS-, YK-, ACC-

Except for US and CDN
P/N. 90890-

1

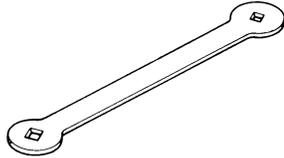
FOR TUNE UP

1-B
Valve adjusting tool 3mm (0.12 in)
P/N. 90890-01311



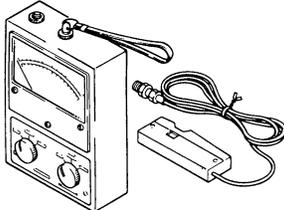
This tool is necessary for adjusting the valve clearance.

1-A
Valve adjusting tool 3mm (0.12 in)
P/N. YM-08035



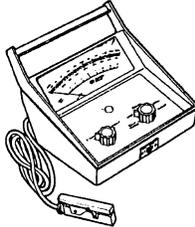
This tool is necessary for adjusting the valve clearance.

2-B
Engine tachometer
P/N. 90890-03113



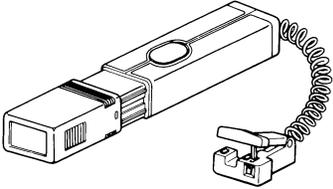
This tool is needed to measure engine rpm.

2-A
Inductive tachometer
P/N. YU-8036-A



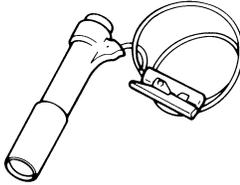
This tool is needed to measure engine rpm.

3-B
Timing light
P/N. 90890-03141



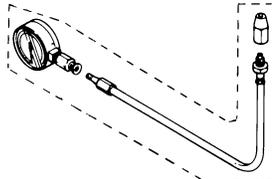
This tool is necessary for checking ignition timing.

3-A
Timing light
P/N. YM-33277-A



This tool is necessary for checking ignition timing.

4-A
Compression gauge
P/N. YU-33223
Adapter (M12)
P/N. YU-33223-3

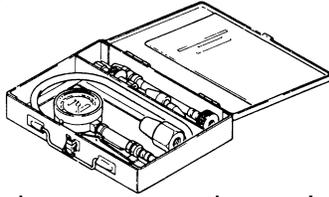


These gauge are used to measure the engine compression.

1

4-B

Compression gauge
P/N. 90890-03081
Extension
P/N. 90890-04082



This gauge is used to measure the engine compression.

5

Fuel level gauge
P/N. YM-01312-A
P/N. 90890-01312

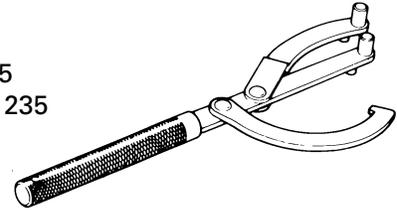


This gauge is used to measure the fuel level in the float chamber.

FOR ENGINE SERVICE

1

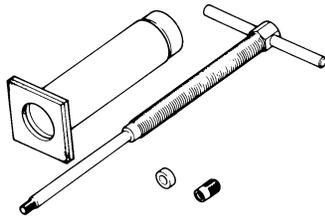
Rotor holder
P/N. YU-01235
P/N. 90890-01235



This tool is used to hold the starter pulley and clutch when removing or installing the starter pulley and clutch boss securing nut.

2

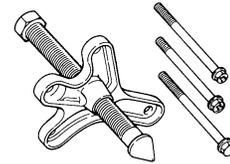
Piston pin puller
P/N. YU-01304
P/N. 90890-01304



This tool is used to remove the piston pin.

3-A

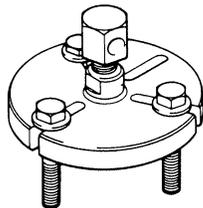
Flywheel puller
P/N. YU-33270



This tool is used to remove the flywheel magnet rotor.

3-B

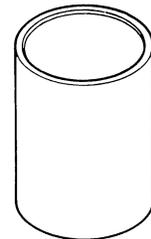
Flywheel puller
P/N. 90890-01362



This tool is used to remove the flywheel magnet rotor.

4

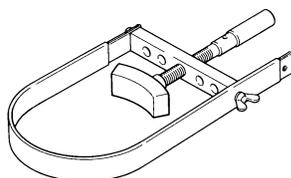
Flywheel puller attachment
P/N. YM-33278
P/N. 90890-04087



This tool is used to remove the flywheel magnet rotor and crankcase.

5

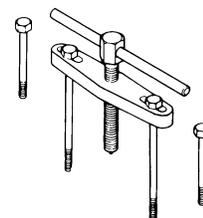
Sheave holder
P/N. YS-01880
P/N. 90890-01701



This tool is used to holder the flywheel magnet rotor when removing or installing the rotor securing nut.

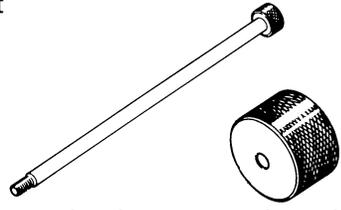
6

Crankcase separating tool
P/N. YU-01135-A
P/N. 90890-01135



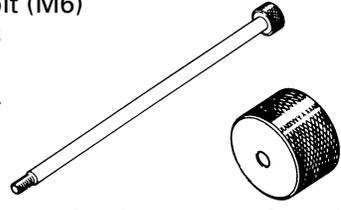
This tool is used when separating the crankcase.

7-A
Slide hammer set
P/N. YU-01083-A



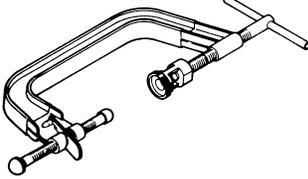
These tools are used when removing the rocker arm shaft.

7-B
Slide hammer bolt (M6)
P/N. 90890-01083
Weight
P/N. 90890-01084



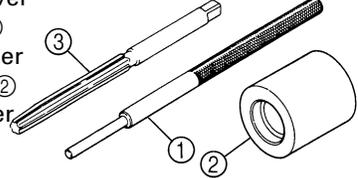
These tools are used when removing the rocker arm shaft.

8
Valve spring compressor
P/N. YM-04019
P/N. 90890-04019



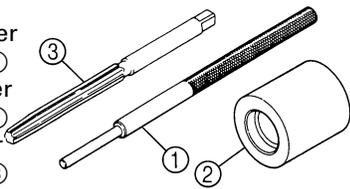
This tool is used to remove and install the valve assemblies.

9-A
Valve guide remover and installer 6mm (0.24 in)
Valve guide remover
P/N. YM-4064-A-①
Valve guide installer
P/N. YM-04065-A-②
Valve guide reamer
P/N. YM-04066-③



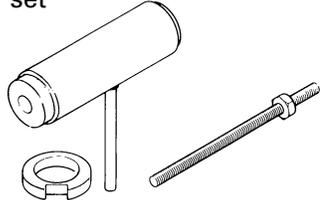
These tools are used to remove, install and rebore the valve guide.

9-B
Valve guide remover and installer set
6mm (0.24 in)
Valve guide remover
P/N. 90890-04064-①
Valve guide installer
P/N. 90890-04065-②
Valve guide reamer
P/N. 90890-04066-③



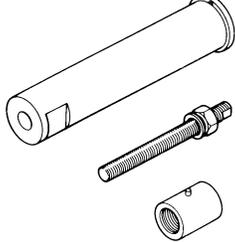
These tools are used to remove, install and rebore the valve guide.

10-A
Crankshaft installer set
P/N. YU-90050



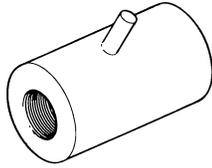
These tools are used to install the crankshaft and balancer drive gear.

10-B
Buffer boss installer set
P/N. 90890-04088



These tools are used to install the crankshaft and balancer drive gear.

11
Adapter #11
P/N. YM-33279



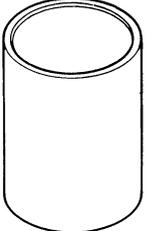
This tool is used to install the crankshaft and balancer drive gear.

12-A
Pot spacer
P/N. YM-90070-A



This tool is used to install the crankshaft and balancer drive gear.

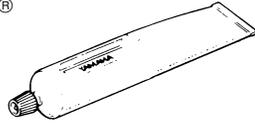
12-B
Crankshaft spacer
P/N. 90890-04060



This tool is used to install the crankshaft and balancer drive gear.

13

Sealant (Quick Gasket[®])
P/N. ACC-QUICK-GS-KT
YAMAHA bond No. 1215[®]
P/N. 90890-85505

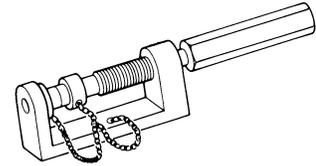


This sealant (bond) is used for crankcase mating surface, etc.

FOR DRIVE TRAIN SERVICE

1-A

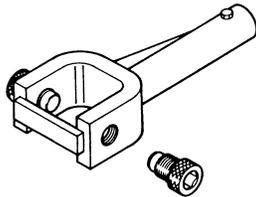
Universal joint holder
P/N. YM-04062
Attachment
P/N. YM-33291



These tools are used to remove and install the universal joint.

1-B

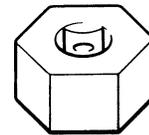
Universal joint holder
P/N. 90890-04062
Attachment
P/N. 90890-04096



These tools are used to remove and install the universal joint.

2

Bearing retainer wrench
P/N. YM-33289
P/N. 90890-04104



This tool is used to disassemble and reassemble the bearing.

3

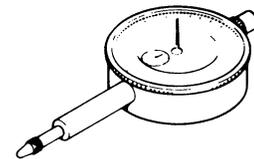
Ring nut wrench
P/N. YM-1391
P/N. 90890-01391



This tool is used to remove and install the reverse gear.

4

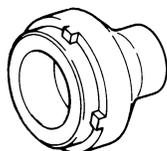
Dial gauge
P/N. YM-03097
P/N. 90890-03097



This tool is used to measure the gear lash for the middle gear and final gear.

5

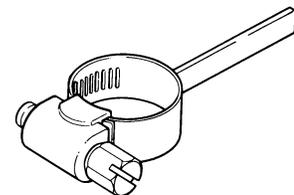
Bearing retainer wrench
P/N. YM-04050
P/N. 90890-04050



This tool is used to remove and install the final gear bearing retainer.

6

Gear lash measurement tool
P/N. YM-01231
P/N. 90890-01231



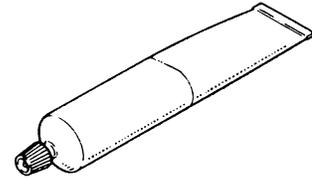
This tool is used to measure the gear lash.

1

FOR CHASSIS SERVICE

1

Yamaha brake grease
P/N. 90793-40003

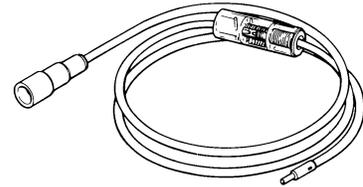


This Yamaha brake grease is used for rear brake dust seal.

FOR ELECTRICAL COMPONENTS

1-A

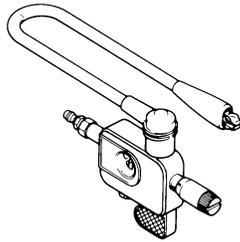
Dynamic spark tester
P/N. YM-34487



This instrument is necessary for checking the ignition system components.

1-B

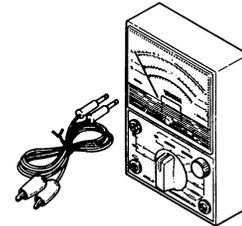
Ignition checker
P/N. 90890-06754



This instrument is necessary for checking the ignition system components.

2

Pocket tester
P/N. YU-03112
P/N. 90890-03112



This instrument is invaluable for checking the electrical system.

1





SPECIFICATIONS

GENERAL SPECIFICATIONS

Item	Standard
Model code:	4XE1 (USA) 4XE2 (CAL) 4XE3 (CDN)
Dimensions:	
Overall length	1,940 mm (76.4 in)
Overall width	1,005 mm (39.6 in)
Overall height	1,118 mm (44.0 in)
Seat height	780 mm (30.7 in)
Wheelbase	1,170 mm (46.1 in)
Minimum ground clearance	155 mm (6.1 in)
Minimum turning radius	2,900 mm (114 in)
Basic weight:	
With oil and full fuel tank	215 kg (474 lb)
Engine:	
Engine type	Air-cooled 4-stroke, SOHC
Cylinder arrangement	Forward-inclined single cylinder
Displacement	229.6 cm ³
Bore × stroke	71 × 58 mm (2.795 × 2.283 in)
Compression ratio	8.7 : 1
Compression pressure	900 kPa (9.0 kg/cm ² , 128 psi)
Starting system	Electric and recoil starter
Lubrication system:	Wet sump
Oil type or grade:	
Engine oil	
Final gear oil	SAE80API "GL-4" Hypoid Gear Oil
Oil capacity:	
Engine oil	
Periodic oil change	1.5 L (1.3 Imp qt, 1.6 US qt)
With oil filter replacement	1.6 L (1.4 Imp qt, 1.7 US qt)
Total amount	1.8 L (1.6 Imp qt, 1.9 US qt)
Final gear case oil	
Periodic oil change	0.25 L (0.21 Imp qt, 0.27 US qt)
Total amount	0.27 L (0.24 Imp qt, 0.29 US qt)
Air filter:	Dry type element



2

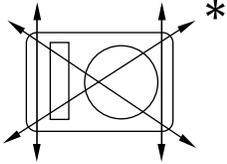
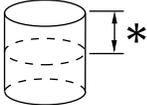
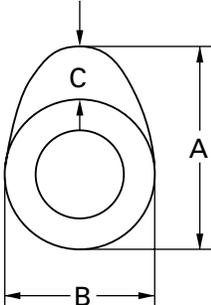
Item	Standard
Fuel: Type Fuel tank capacity Fuel reserve amount	Unleaded fuel 12 L (2.64 Imp gal, 3.17 US gal) 1.6 L (0.35 Imp gal, 0.42 US gal)
Carburetor: Type / quantity Manufacturer	BST34/1 MIKUNI
Spark plug: Type Manufacturer Spark plug gap	DR7EA NGK 0.6 ~ 0.7 mm (0.024 ~ 0.028 in)
Clutch type	Wet, centrifugal automatic
Transmission: Primary reduction system Primary reduction ratio Secondary reduction system Secondary reduction ratio Transmission type Operation Gear ratio: 1st 2nd 3rd 4th 5th Reverse gear ratio	Spur gear 73/22 (3.318) Shaft drive 19/18 × 46/11 (4.414) Constant mesh 5-speed Left foot operation 34/12 (2.833) 34/19 (1.789) 29/22 (1.318) 26/25 (1.040) 23/28 (0.821) 73/22 × 34/12 × 19/18 × 46/11 (41.500)
Chassis: Frame type Caster angle Kingpin angle Trail Tread (STD) front Tread (STD) rear Toe-in	Steel tube frame 4° 13° 20 mm (0.79 in) 785 mm (30.9 in) 770 mm (30.3 in) 0 ~ 5 mm (0 ~ 0.20 in)
Tire: Type Size front rear Manufacturer front rear Type front rear	Tubeless AT22 × 7-10 AT22 × 10-10 CARLISLE/DUNLOP CARLISLE/DUNLOP TRAIL WOLF/KT701 TRAIL WOLF/KT705



Item	Standard
Tire pressure (cold tire): Recommended front rear Minimum front rear Maximum front rear	20 kPa (0.20 kg/cm ² , 2.9 psi) 25 kPa (0.25 kg/cm ² , 3.6psi) 17 kPa (0.17 kg/cm ² , 2.5 psi) 22 kPa (0.22 kg/cm ² , 3.2 psi) 23 kPa (0.23 kg/cm ² , 3.3 psi) 28 kPa (0.28 kg/cm ² , 4.0 psi)
Brake: Front brake type operation Rear brake type operation	Drum brake Right hand operation Drum brake (full sealed) Left hand and right foot operation
Suspension: Front suspension Rear suspension	Strut Swingarm (monocross)
Shock absorber: Front shock absorber Rear shock absorber	Coil spring / oil damper Coil spring / oil damper
Wheel travel: Front wheel travel Rear wheel travel	125 mm (4.92 in) 135 mm (5.31 in)
Electrical: Ignition system Generator system Battery type Battery capacity	C.D.I. A.C. magneto YB14A-A2 12 V 14 AH
Headlight type:	Bulb type
Bulb wattage × quantity: Headlight Tail light Indicator lights: Neutral Reverse	12 V 25 W/ 25 W × 2 12 V 7.5 W × 1 12 V 3.4 W × 1 12 V 3.4 W × 1

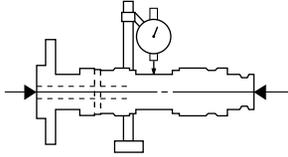


MAINTENANCE SPECIFICATIONS
ENGINE

Item	Standard	Limit
<p>Cylinder head: Warp limit</p>  <p>Measuring point *</p>	<p>----</p> <p>Lines indicate straight edge measurement.</p>	<p>0.10 mm (0.004 in)</p>
<p>Cylinder: Bore size</p> <p>Measuring point *</p> 	<p>70.97 ~ 71.02 mm (2.794 ~ 2.796 in)</p> <p>40 mm (1.6 in)</p>	<p>71.10 mm (2.799 in)</p> <p>----</p>
<p>Camshaft:</p> <p>Drive method</p> <p>Cam cap inside diameter</p> <p>Camshaft outside diameter</p> <p>Shaft-to-cap clearance</p> <p>Cam dimensions</p>  <p>Intake</p> <p>Exhaust</p>	<p>Chain drive (Left)</p> <p>25.000 ~ 25.033 mm (0.9843 ~ 0.9855 in)</p> <p>24.96 ~ 24.98 mm (0.9827 ~ 0.9835 in)</p> <p>0.020 ~ 0.073 mm (0.0008 ~ 0.0029 in)</p> <p>Intake</p> <p>“A”</p> <p>36.537 ~ 36.637 mm (1.438 ~ 1.442 in)</p> <p>“B”</p> <p>30.131 ~ 30.231 mm (1.186 ~ 1.190 in)</p> <p>“C”</p> <p>6.527 ~ 6.647 mm (0.257 ~ 0.262 in)</p> <p>Exhaust</p> <p>“A”</p> <p>36.582 ~ 36.682 mm (1.440 ~ 1.444 in)</p> <p>“B”</p> <p>30.252 ~ 30.352 mm (1.191 ~ 1.195 in)</p>	<p>----</p> <p>----</p> <p>----</p> <p>----</p> <p>36.437 mm (1.435 in)</p> <p>30.031 mm (1.182 in)</p> <p>----</p> <p>36.482 mm (1.436 in)</p> <p>30.152 mm (1.187 in)</p>

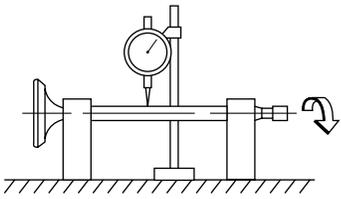
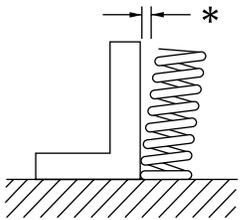
2



Item	Standard	Limit	
"C" Camshaft runout limit 	6.572 ~ 6.692 mm (0.259 ~ 0.263 in) ----	---- 0.03 mm (0.0012 in)	
Cam chain: Cam chain type / No. of links Cam chain adjustment method	DID25SH/104 Automatic	---- ----	
Rocker arm / rocker arm shaft: Rocker arm inside diameter Shaft outside diameter Arm-to-shaft clearance	12.000 ~ 12.018 mm (0.4724 ~ 0.4731 in) 11.981 ~ 11.991 mm (0.4717 ~ 0.4721 in) 0.009 ~ 0.037 mm (0.0004 ~ 0.0015 in)	---- ----	
Valve, valve seat, valve guide: Valve clearance (cold)	IN 0.05 ~ 0.09 mm (0.002 ~ 0.004 in) EX 0.11 ~ 0.15 mm (0.004 ~ 0.006 in)	---- ----	
Valve dimensions: 			
"A" head diameter "B" face width "C" seat width "D" margin thickness Stem outside diameter	IN EX IN EX IN EX IN EX	33.9 ~ 34.1 mm (1.335 ~ 1.343 in) 28.4 ~ 28.6 mm (1.118 ~ 1.126 in) 1.7 ~ 2.8 mm (0.067 ~ 0.110 in) 1.7 ~ 2.8 mm (0.067 ~ 0.110 in) 0.9 ~ 1.1 mm (0.035 ~ 0.043 in) 0.9 ~ 1.1 mm (0.035 ~ 0.043 in) 0.8 ~ 1.2 mm (0.032 ~ 0.047 in) 0.8 ~ 1.2 mm (0.032 ~ 0.047 in) 5.975 ~ 5.990 mm (0.2352 ~ 0.2358 in) 5.960 ~ 5.975 mm (0.2346 ~ 0.2352 in)	---- ---- 1.6 mm (0.063 in) 1.6 mm (0.063 in) ---- ---- ---- ----



2

Item		Standard	Limit
Guide inside diameter	IN	6.000~ 6.012mm (0.236 ~ 0.237 in)	----
	EX	6.000~ 6.012mm (0.236 ~ 0.237 in)	----
Stem-to-guide clearance	IN	0.010 ~ 0.037 mm (0.0004 ~ 0.0015 in)	0.08 mm (0.0031 in)
	EX	0.025 ~ 0.052 mm (0.001 ~ 0.002 in)	0.10 mm (0.0039 in)
Stem runout limit		----	0.03 mm (0.0012 in)
Valve seat width	IN	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)	----
	EX	0.9 ~ 1.1 mm (0.035 ~ 0.043 in)	----
			
Valve spring:			
Inner spring:			
Free length	IN	35.5 mm (1.4 in)	----
	EX	35.5 mm (1.4 in)	----
Set length (valve closed)	IN	30.5 mm (1.2 in)	----
	EX	30.5 mm (1.2 in)	----
Compressed pressure (installed)	IN	82.4 ~ 100.0 N (8.4 ~ 10.2 kg, 18.5 ~ 22.5 lb)	----
	EX	82.4 ~ 100.0 N (8.4 ~ 10.2 kg, 18.5 ~ 22.5 lb)	----
Tilt limit *	IN		2.5°/ 1.6 mm (2.5°/0.06 in)
	EX		2.5°/ 1.6 mm (2.5°/0.06 in)
			
Direction of winding (top view)			
	IN	Counterclockwise	----
	EX	Counterclockwise	----
Outer spring:			
Free length	IN	37.2 mm (1.46 in)	----
	EX	37.2 mm (1.46 in)	----
Set length (valve closed)	IN	32.0 mm (1.26 in)	----
	EX	32.0 mm (1.26 in)	----