

**Kawasaki**

**KX250F**



# **Motorcycle Service Manual**

# Quick Reference Guide

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This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.
- Refer to the sectional table of contents for the exact pages to locate the specific topic required.



**KX250F**

# **Motorcycle Service Manual**

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The right is reserved to make changes at any time without prior notice and without incurring an obligation to make such changes to products manufactured previously. See your Motorcycle dealer for the latest information on product improvements incorporated after this publication.

All information contained in this publication is based on the latest product information available at the time of publication. Illustrations and photographs in this publication are intended for reference use only and may not depict actual model component parts.

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## LIST OF ABBREVIATIONS

A	ampere(s)	lb	pound(s)
ABDC	after bottom dead center	m	meter(s)
AC	alternating current	min	minute(s)
ATDC	after top dead center	N	newton(s)
BBDC	before bottom dead center	Pa	pascal(s)
BDC	bottom dead center	PS	horsepower
BTDC	before top dead center	psi	pound(s) per square inch
°C	degree(s) Celsius	r	revolution
DC	direct current	r/min, rpm	revolution(s) per minute
F	farad(s)	TDC	top dead center
°F	degree(s) Fahrenheit	TIR	total indicator reading
ft	foot, feet	V	volt(s)
g	gram(s) (mass)	W	watt(s)
h	hour(s)	Ω	ohm(s)
kg	(mass)		
kgf	(force)		
L	liter(s)		

# Foreword

This manual is designed primarily for use by trained mechanics in a properly equipped shop. However, it contains enough detail and basic information to make it useful to the owner who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and workshop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the owner has insufficient experience or doubts his ability to do the work, all adjustments, maintenance, and repair should be carried out only by qualified mechanics.

In order to perform the work efficiently and to avoid costly mistakes, read the text, thoroughly familiarize yourself with the procedures before starting work, and then do the work carefully in a clean area. Whenever special tools or equipment are specified, do not use makeshift tools or equipment. Precision measurements can only be made if the proper instruments are used, and the use of substitute tools may adversely affect safe operation.

To get the longest life out of your vehicle:

- Follow the Periodic Maintenance Chart in the Service Manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki Motorcycle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki motorcycles are introduced by the Special Tool Catalog or Manual. Genuine parts provided as spare parts are listed in the Parts Catalog.
- Follow the procedures in this manual carefully. Don't take shortcuts.
- Remember to keep complete records of maintenance and repair with dates and any new parts installed.

## How to Use This Manual

In this manual, the product is divided into its major systems and these systems make up the manual's chapters. The Quick Reference Guide shows you all of the product's system and assists in locating their chapters. Each chapter in turn has its own comprehensive Table of Contents.

For example, if you want stick coil information, use the Quick Reference Guide to locate the Electrical System chapter. Then, use the Table of Contents on the first page of the chapter to find the Stick Coil section.

Whenever you see these WARNING and CAUTION symbols, heed their instructions! Always follow safe operating and maintenance practices.

### WARNING

**This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.**

### CAUTION

**This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.**

This manual contains four more symbols (in addition to WARNING and CAUTION) which will help you distinguish different types of information.

### NOTE

○ *This note symbol indicates points of particular interest for more efficient and convenient operation.*

- Indicates a procedural step or work to be done.
- Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a NOTE.
- ★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

In most chapters an exploded view illustration of the system components follows the Table of Contents. In these illustrations you will find the instructions indicating which parts require specified tightening torque, oil, grease or a locking agent during assembly.

# General Information

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## 1-2 GENERAL INFORMATION

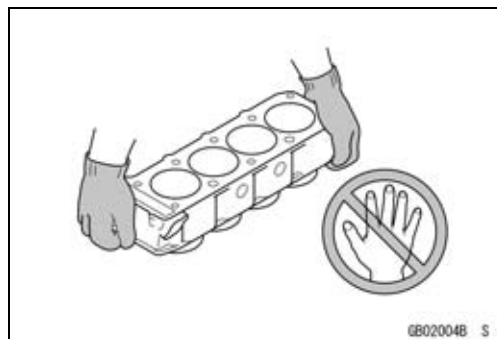
### Before Servicing

Before starting to perform an inspection service or carry out a disassembly and reassembly operation on a motorcycle, read the precautions given below. To facilitate actual operations, notes, illustrations, photographs, cautions, and detailed descriptions have been included in each chapter wherever necessary. This section explains the items that require particular attention during the removal and reinstallation or disassembly and reassembly of general parts.

Especially note the following:

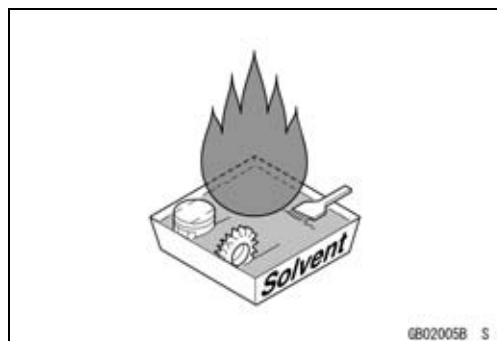
#### *Edges of Parts*

Lift large or heavy parts wearing gloves to prevent injury from possible sharp edges on the parts.



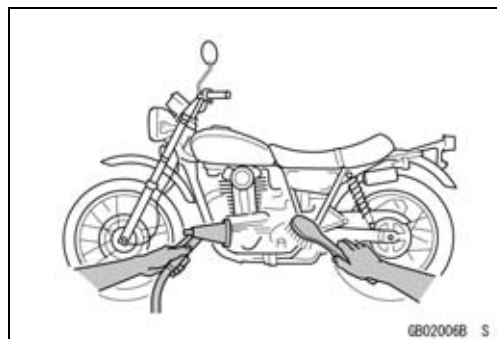
#### *Solvent*

Use a high flash point solvent when cleaning parts. High flash point solvent should be used according to directions of the solvent manufacturer.



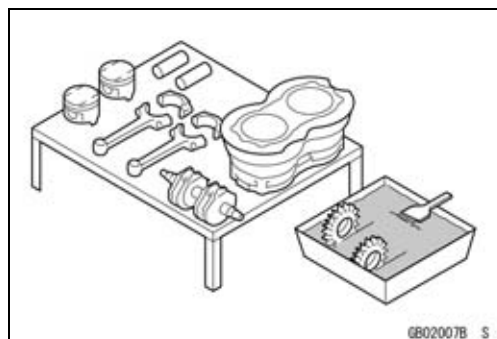
#### *Cleaning vehicle before disassembly*

Clean the vehicle thoroughly before disassembly. Dirt or other foreign materials entering into sealed areas during vehicle disassembly can cause excessive wear and decrease performance of the vehicle.



#### *Arrangement and Cleaning of Removed Parts*

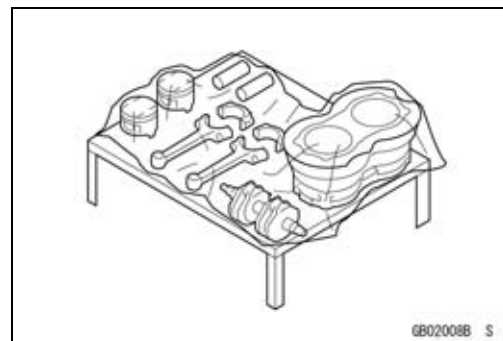
Disassembled parts are easy to confuse. Arrange the parts according to the order the parts were disassembled and clean the parts in order prior to assembly.



## Before Servicing

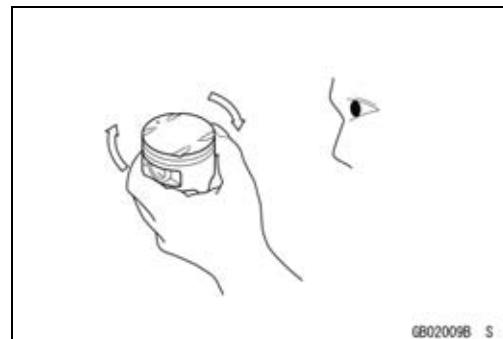
### Storage of Removed Parts

After all the parts including subassembly parts have been cleaned, store the parts in a clean area. Put a clean cloth or plastic sheet over the parts to protect from any foreign materials that may collect before re-assembly.



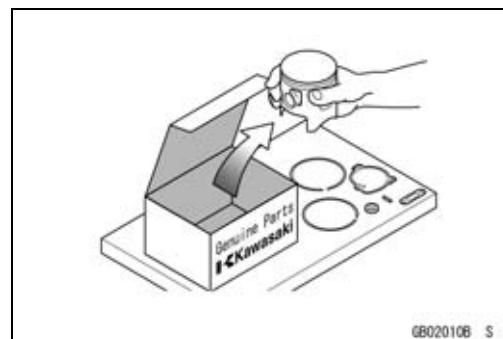
### Inspection

Reuse of worn or damaged parts may lead to serious accident. Visually inspect removed parts for corrosion, discoloration, or other damage. Refer to the appropriate sections of this manual for service limits on individual parts. Replace the parts if any damage has been found or if the part is beyond its service limit.



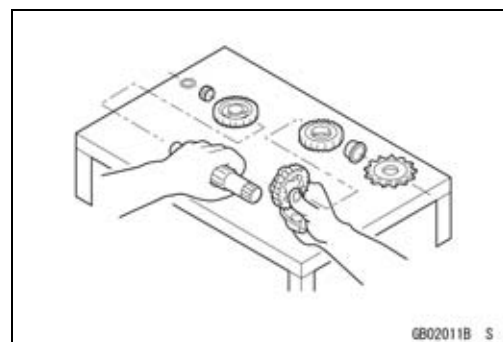
### Replacement Parts

Replacement Parts must be KAWASAKI genuine or recommended by KAWASAKI. Gaskets, O rings, Oil seals, Grease seals, circlips or cotter pins must be replaced with new ones whenever disassembled.



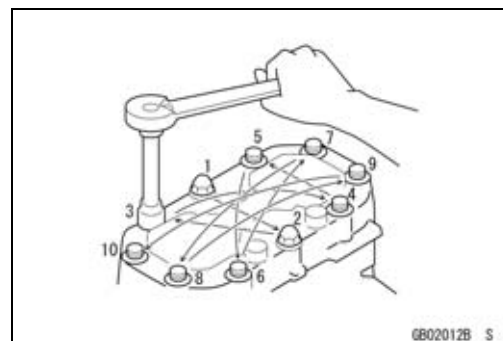
### Assembly Order

In most cases assembly order is the reverse of disassembly, however, if assembly order is provided in this Service Manual, follow the procedures given.



### Tightening Sequence

Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them according to the specified sequence to prevent case warpage or deformation which can lead to malfunction. Conversely when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter turn and then remove them. If the specified tightening sequence is not indicated, tighten the fasteners alternating diagonally.



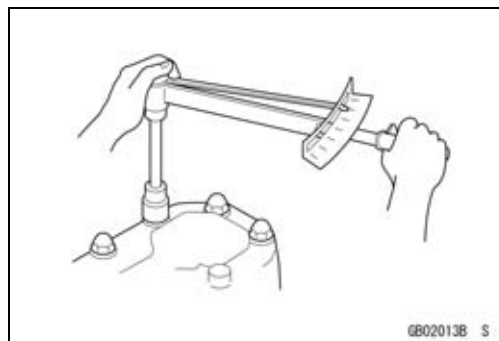
## 1-4 GENERAL INFORMATION

### Before Servicing

#### *Tightening Torque*

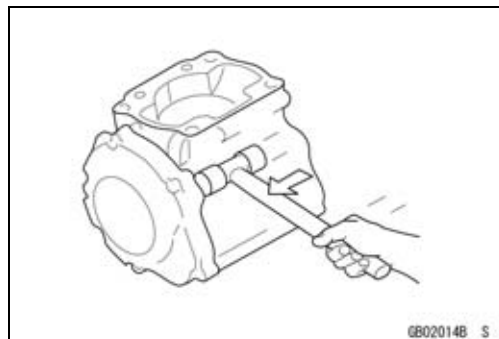
Incorrect torque applied to a bolt, nut, or screw may lead to serious damage. Tighten fasteners to the specified torque using a good quality torque wrench.

Often, the tightening sequence is followed twice-initial tightening and final tightening with torque wrench.



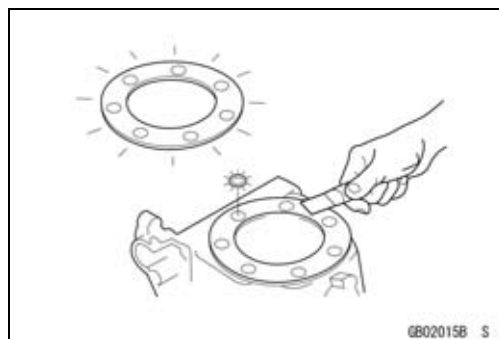
#### *Force*

Use common sense during disassembly and assembly, excessive force can cause expensive or hard to repair damage. When necessary, remove screws that have a non-permanent locking agent applied using an impact driver. Use a plastic-faced mallet whenever tapping is necessary.



#### *Gasket, Oring*

Hardening, shrinkage, or damage of both gaskets and O-rings after disassembly can reduce sealing performance. Remove old gaskets and clean the sealing surfaces thoroughly so that no gasket material or other material remains. Install new gaskets and replace used O-rings when re-assembling.



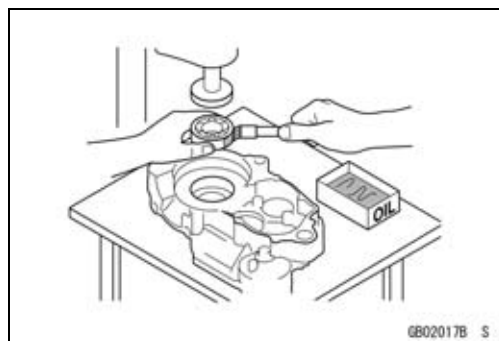
#### *Liquid Gasket, Locking Agent*

For applications that require Liquid Gasket or a Locking agent, clean the surfaces so that no oil residue remains before applying liquid gasket or locking agent. Do not apply them excessively. Excessive application can clog oil passages and cause serious damage.



#### *Press*

For items such as bearings or oil seals that must be pressed into place, apply small amount of oil to the contact area. Be sure to maintain proper alignment and use smooth movements when installing.

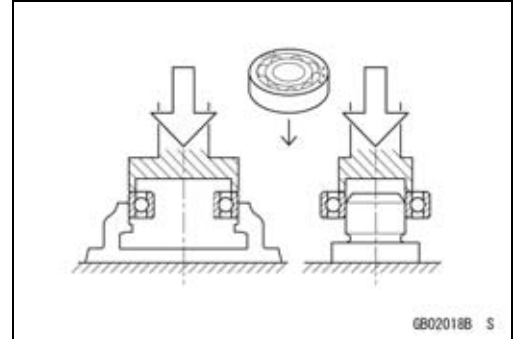


## Before Servicing

### Ball Bearing and Needle Bearing

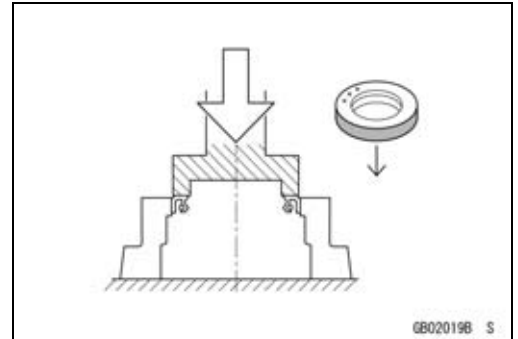
Do not remove pressed ball or needle unless removal is absolutely necessary. Replace with new ones whenever removed. Press bearings with the manufacturer and size marks facing out. Press the bearing into place by putting pressure on the correct bearing race as shown.

Pressing the incorrect race can cause pressure between the inner and outer race and result in bearing damage.

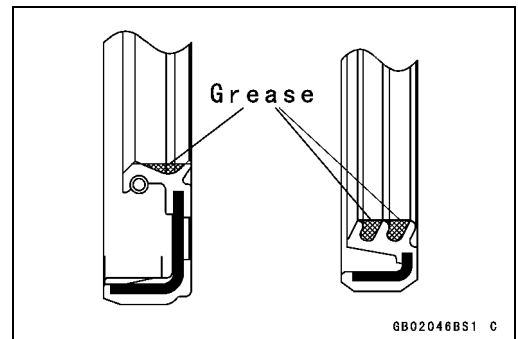


### Oil Seal, Grease Seal

Do not remove pressed oil or grease seals unless removal is necessary. Replace with new ones whenever removed. Press new oil seals with manufacture and size marks facing out. Make sure the seal is aligned properly when installing.

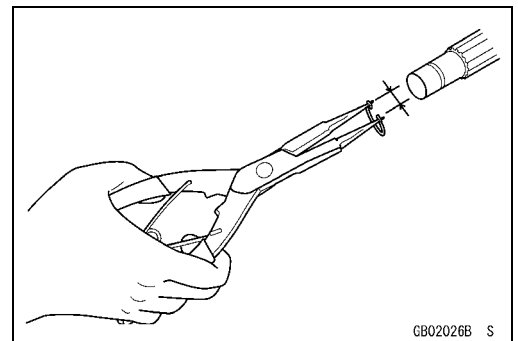


Apply specified grease to the lip of seal before installing the seal.



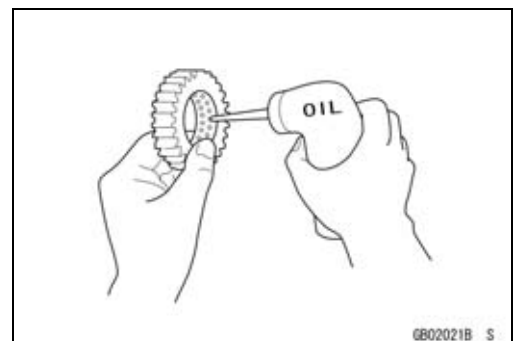
### Circlips, Cotter Pins

Replace circlips or cotter pins that were removed with new ones. Take care not to open the clip excessively when installing to prevent deformation.



### Lubrication

It is important to lubricate rotating or sliding parts during assembly to minimize wear during initial operation. Lubrication points are called out throughout this manual, apply the specific oil or grease as specified.

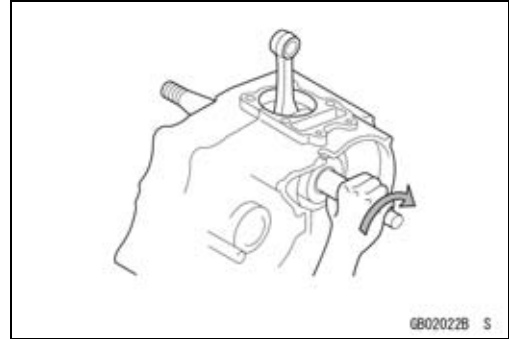


## 1-6 GENERAL INFORMATION

### Before Servicing

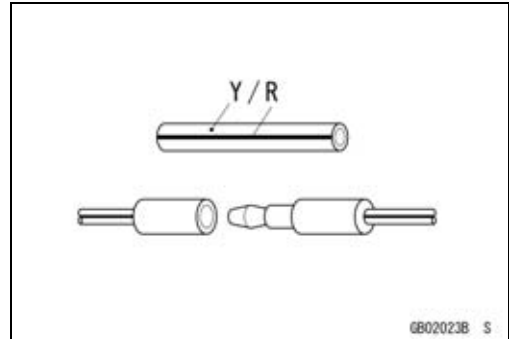
#### *Direction of Engine Rotation*

When rotating the crankshaft by hand, the free play amount of rotating direction will affect the adjustment. Rotate the crankshaft to positive direction (clockwise viewed from output side).



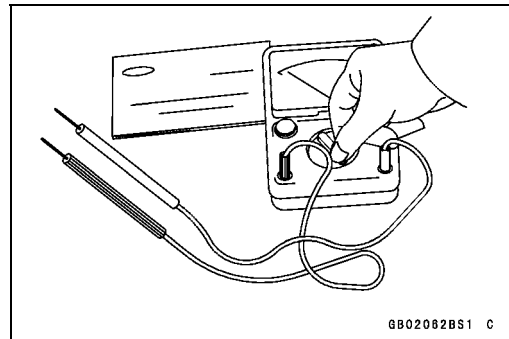
#### *Electrical Wires*

A two-color wire is identified first by the primary color and then the stripe color. Unless instructed otherwise, electrical wires must be connected to those of the same color.



#### *Instrument*

Use a meter that has enough accuracy for an accurate measurement. Read the manufacture's instructions thoroughly before using the meter. Incorrect values may lead to improper adjustments.



Model Identification

KX250T6F Left Side View



KX250T6F Right Side View



## 1-8 GENERAL INFORMATION

### General Specifications

Items	KX250T6F
<b>Dimensions</b>	
Overall Length	2 160 mm (85.04 in.)
Overall Width	820 mm (32.3 in.)
Overall Height	1 270 mm (50 in.)
Wheelbase	1 469 mm (57.83 in.)
Road Clearance	372 mm (14.6 in.)
Seat Height	960 mm (37.8 in.)
Dry Mass	92.5 kg (204 lb)
Curb Mass:	
Front	49.9 kg (110 lb)
Rear	52.6 kg (116 lb)
Fuel Tank Capacity	7.2 L (1.9 US gal)
<b>Performance</b>	
Minimum Turning Radius	—
<b>Engine</b>	
Type	4-stroke, single cylinder, DOHC 4 valve
Cooling System	Liquid-cooled
Bore and Stroke	77.0 × 53.6 mm (3.03 × 2.11 in.)
Displacement	249 mL (15.2 cu in.)
Compression Ratio	13.5 : 1
Carburetion System	Carburetor, KEIHIN FCR37
Starting System	Primary kick
Ignition System	Digital AC-CDI
Timing Advance	
Ignition Timing	BTDC 8° @2 000 r/min (rpm)
Spark Plug	NGK CR8E
Valve Timing	
Inlet	
Open	BTDC 41°
Close	ABDC 71°
Duration	292°
Exhaust	
Open	BBDC 69°
Close	ATDC 49°
Duration	298°
Lubrication System	Forced lubrication (semi-dry sump)
Engine Oil:	
Type	API SG, SH, SJ or SL with JASO MA
Viscosity	SAE 10W-40
Capacity	1.5 L (1.6 USqt)
<b>Drive Train</b>	
Primary Reduction System:	
Type	Gear
Reduction Ratio	3.350 (67/20)

## General Specifications

Items	KX250T6F
Clutch Type	Wet, multi disc, Manual
Transmission:	
Type	5-speed, constant mesh, return shift
Gear ratios:	
1st	2.142 (30/14)
2nd	1.785 (25/14)
3rd	1.444 (26/18)
4th	1.200 (24/20)
5th	1.052 (20/19)
Final Drive System:	
Type	Chain drive
Reduction Ratio	3.692 (48/13)
Overall Drive Ratio	13.020 @Top gear
<b>Frame</b>	
Type	semi-double cradle
Steering Angle	42° to either side
Caster (rake angle)	27.7°
Trail	119 mm (4.69 in.)
Front tire:	
Size	80/100-21 51M
Make/Type	BRIDGESTONE, M401, Tube type BRIDGESTONE M201 (EUR), Tube type
Rear tire:	
Size	100/90-19 57M
Make/Type	BRIDGESTONE, M402, Tube type BRIDGESTONE M202 (EUR), Tube type
Front suspension:	
Type	Telescopic fork (up side down)
Wheel travel	315 mm (12.4 in.)
Rear suspension:	
Type	Swingarm (New Uni-trak)
Wheel travel	310 mm (12.2 in.)
Brake type:	
Front and Rear	Single disc
Effective disc diameter:	
Front (effect. dia.)	225 mm (8.86 in.)
Rear (effect. dia.)	215 mm (8.46 in.)

EUR: Europe Model

Specifications are subject to change without notice, and may not apply to every country.

1-10 GENERAL INFORMATION

Unit Conversion Table

Prefixes for Units:

Prefix	Symbol	Power
mega	M	× 1 000 000
kilo	k	× 1 000
centi	c	× 0.01
milli	m	× 0.001
micro	μ	× 0.000001

Units of Mass:

kg	×	2.205	=	lb
g	×	0.03527	=	oz

Units of Volume:

L	×	0.2642	=	gal (US)
L	×	0.2200	=	gal (imp)
L	×	1.057	=	qt (US)
L	×	0.8799	=	qt (imp)
L	×	2.113	=	pint (US)
L	×	1.816	=	pint (imp)
mL	×	0.03381	=	oz (US)
mL	×	0.02816	=	oz (imp)
mL	×	0.06102	=	cu in

Units of Force:

N	×	0.1020	=	kgf
N	×	0.2248	=	lb
kgf	×	9.807	=	N
kgf	×	2.205	=	lb

Units of Length:

km	×	0.6214	=	mile
m	×	3.281	=	ft
mm	×	0.03937	=	in

Units of Torque:

N·m	×	0.1020	=	kgf·m
N·m	×	0.7376	=	ft·lb
N·m	×	8.851	=	in·lb
kgf·m	×	9.807	=	N·m
kgf·m	×	7.233	=	ft·lb
kgf·m	×	86.80	=	in·lb

Units of Pressure:

kPa	×	0.01020	=	kgf/cm²
kPa	×	0.1450	=	psi
kPa	×	0.7501	=	cm Hg
kgf/cm²	×	98.07	=	kPa
kgf/cm²	×	14.22	=	psi
cm Hg	×	1.333	=	kPa

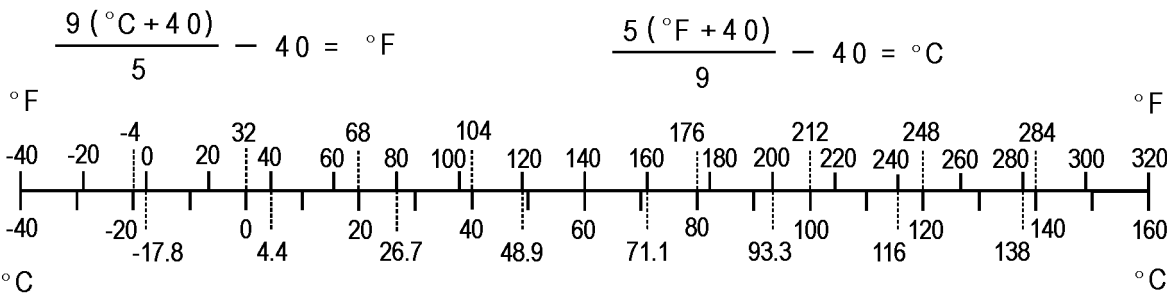
Units of Speed:

km/h	×	0.6214	=	mph
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Units of Power:

kW	×	1.360	=	PS
kW	×	1.341	=	HP
PS	×	0.7355	=	kW
PS	×	0.9863	=	HP

Units of Temperature:



# Periodic Maintenance

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## Periodic Maintenance Chart

The maintenance must be done in accordance with this chart to keep the motorcycle in good running condition.

		FREQUENCY	Each race or 2.5 hr	Every 3 races or 7.5 hr	Every 6 races or 15 hr	Every 12 races or 30 hr	See Page
OPERATION							
E N G I N E	Spark plug - clean, gap †	•					2-70
	Spark plug - replace			•			2-70
	Clutch - adjust	•					2-26
	Clutch and friction plates - inspect †	•					2-27
	Throttle cable - adjust	•					2-13
	Air cleaner element - clean	•					2-16
	Air cleaner element - replace	If damaged					2-16
	Carburetor - inspect and adjust	•					2-14
	Engine Oil - change				•		2-28
	Piston and piston ring - replace				•		2-24
	Cylinder head, cylinder - inspect				•		2-23
	Piston pin - replace					•	2-24
	Valve clearance - inspect †				•		2-21
	Hot start - adjust	•					2-14
	Oil filter - replace				•		2-29
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C H A S S I S	Brake adjustment - inspect †	•					2-36
	Brake pad wear - inspect †	•					2-41
	Brake fluid level - inspect †	•					2-38
	Brake fluid - change	Every 2 years					2-39
	Brake master cylinder cup and dust seal - replace	Every 2 years					2-41
	Brake caliper piston seal and dust seal - replace	Every 2 years					2-42
	Brake hoses and pipe - replace	Every 4 years					2-45
	Brake hoses, connections - inspect †	•					2-45
	Spoke tightness and rim runout - inspect †	•					2-31
	Wheel bearing - inspect †	•					2-32
	Frame - inspect	•					2-70
	Drive chain wear - inspect †	•					2-33
	Drive chain - inspect and adjust	•					2-34
	Drive chain - lubricate	•					2-35

## 2-4 PERIODIC MAINTENANCE

### Periodic Maintenance Chart

		FREQUENCY	Each race or 2.5 hr	Every 3 races or 7.5 hr	Every 6 races or 15 hr	Every 12 races or 30 hr	See Page
OPERATION							
	Wheels/tires - inspect		•				2-30
	Rear sprocket - inspect †		•				2-36
	Front fork - inspect and clean		•				2-47
	Front fork oil - change				•		2-47
	Rear shock oil - replace				•		2-57
	Cable - inspect		•				2-71
	Fuel hose - replace		Every 4 years				2-13
	Fuel hose, connections - inspect †		•				2-13
	Fuel system - clean			•			2-18
	Steering play - inspect †		•				2-67
	Steering stem bearing - grease				•		2-69
	Swingarm and Uni-Trak linkage pivots - grease			•			2-67
	Swingarm and Uni-Trak linkage pivots - inspect †			•			2-66
	Nuts, bolts, fasteners - inspect †		•				2-72
	Chassis parts - lubricate		•				2-71

†: Replace, add, adjust, clean or torque if necessary.

## Torque and Locking Agent

Tighten all bolts and nuts to the proper torque using an accurate torque wrench. If insufficiently tightened, a bolt or nut may become damaged, strip an internal thread, or break and then fall out. The following table lists the tightening torque for the major bolts and nuts, and the parts requiring use of a non-permanent locking agent or liquid gasket.

When checking the tightening torque of the bolts and nuts, first loosen the bolt or nut by half a turn and then tighten to specified torque.

Letters used in the "Remarks" column mean:

AL: Tighten the two clamp bolts alternately two times to ensure even tightening torque.

L: Apply a non-permanent locking agent to the threads.

Lh: Left-hand Threads

S: Tighten the fasteners following the specified sequence.

## Basic Torque for General Fasteners

Threads dia. (mm)	Torque		
	N·m	kgf·m	ft·lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in·lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in·lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
<b>Fuel System</b>				
Air Cleaner Element Wing Bolt	—	—	—	Hand Tighten
Throttle Pulley Cover Bolt	3.4	0.3	30 in·lb	
Throttle Cable Locknut	7.0	0.7	61 in·lb	
Hot Start Plunger Cap Bolt	1.0	0.1	10 in·lb	
Air Cleaner Duct Bolt and Nuts	3.0	0.3	27 in·lb	
Rear Frame Mounting Bolts	34	3.5	25	
Air Cleaner Housing Bolts	9.8	1.0	87 in·lb	
Air Cleaner Duct Clamp Screws	3.0	0.3	27 in·lb	
Carburetor Holder Clamp Screws	2.0	0.2	17 in·lb	
Fuel Tap Plate Mounting Screws	0.8	0.08	7 in·lb	
<b>Cooling System</b>				
Right Engine Cover Bolt	9.8	1.0	87 in·lb	L (1) L (1)
Water Pipe Bolt	9.8	1.0	87 in·lb	
Water Pump Cover Bolts	9.8	1.0	87 in·lb	
Water Pump Cover Bolts (with washer)	9.8	1.0	87 in·lb	
Water Pump Impeller Bolt	7.0	0.7	61 in·lb	
Radiator Hose Clamp Screws	1.5	0.15	13 in·lb	
Radiator Screen Bolts	9.8	1.0	87 in·lb	
Coolant Drain Plug	7.0	0.7	61 in·lb	

## 2-6 PERIODIC MAINTENANCE

### Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Radiator Mounting Bolts	9.8	1.0	87 in·lb	
Radiator Shroud Bolts	9.8	1.0	87 in·lb	
<b>Engine Top End</b>				
Auto-Decompressor Bolt	12	1.2	104 in·lb	
Decompressor Plug	9.8	1.0	87 in·lb	
Cylinder Head Cover Bolts	9.8	1.0	87 in·lb	
Cylinder Head Bolts:				
M10	50	5.0	36	S
M6	12	1.2	104 in·lb	S
Camshaft Cap Bolts	9.8	1.0	87 in·lb	S
Carburetor Holder Clamp Screws	2.0	0.2	17 in·lb	
Plug	20	2.0	14	L
Lower Camshaft Chain Guide Bolt	9.8	1.0	87 in·lb	
Rear Camshaft Chain Guide Bolt	15	1.5	11	
Exhaust Pipe Stud	—	—	—	L (Planted side)
Camshaft Chain Tensioner Mounting Bolts	9.8	1.0	87 in·lb	
Camshaft Chain Tensioner Cap Bolt	20	2.0	14.5	
Cylinder Bolt M6	12	1.2	104 in·lb	S
Exhaust Pipe Cover Screws	12	1.2	104 in·lb	
Exhaust Pipe Holder Nuts	21	2.1	15	S
Silencer Mounting Bolts	21	2.1	15	S
Silencer Cover Bolt	12	1.2	109 in·lb	L
<b>Engine Right Side</b>				
Primary Gear Nut	98	10	72	Lh
Shift Drum Cam Bolt	24	2.4	17	L
Clutch Spring Bolts	9.8	1.0	87 in·lb	
Clutch Hub Nut	98	10	72	
Gear Set Lever Nut	8.8	0.9	78 in·lb	
Gear Set Lever Pivot Stud	—	—	—	L (Planted Side)
Ratchet Plate Mounting Bolt	9.8	1.0	87 in·lb	L
Ratchet Plate Mounting Screw	6.4	0.65	56 in·lb	L
Kick Ratchet Guide Bolt	8.8	0.9	78 in·lb	L
Kick Pedal Mounting Bolt	25	2.5	18	L
Shift Pedal Bolt	9.8	1.0	87 in·lb	
Clutch Cover Bolts	9.8	1.0	87 in·lb	L (2)
Right Engine Cover Bolts	9.8	1.0	87 in·lb	
<b>Engine Lubrication System</b>				
Engine Oil Drain Bolt M10 (for transmission room oil sump)	15	1.5	11	
Engine Oil Drain Bolt M6 (for crank room oil sump)	7.0	0.7	61 in·lb	

**Torque and Locking Agent**

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Oil Filter Cap Bolts	9.8	1.0	87 in·lb	L L (1) L (1)  L L
Oil Pump Mounting Bolts	7.0	0.7	61 in·lb	
Water Pump Cover Bolts	9.8	1.0	87 in·lb	
Water Pump Cover Bolt (with washer)	9.8	1.0	87 in·lb	
Right Engine Cover Bolts	9.8	1.0	87 in·lb	
Breather Fitting	15	1.5	11	
Oil Pump Idle Gear Shaft Screws	6.4	0.65	56 in·lb	
<b>Engine Removal/Installation</b>				
Engine Mounting Nuts	49	5.0	33	
Engine Bracket Nuts	29	3.0	22	
Swingarm Pivot Shaft Nut	98	10	72	
<b>Crankshaft/Transmission</b>				
Breather Fitting	15	1.5	11	L
Reed Valve Screws	7.0	0.7	61 in·lb	
Piston Oil Nozzle	2.9	0.29	26 in·lb	
Crankcase Bolts	9.8	1.0	87 in·lb	S
Engine Oil Drain Bolt (for crank room oil sump)	7.0	0.7	61 in·lb	
(for transmission room oil sump)	15	1.5	11	
Output Shaft Bearing Retaining Screw	6.4	0.65	56 in·lb	L
Drive Shaft Bearing Retaining Screw	6.4	0.65	56 in·lb	L
Shift Drum Bearing Retaining Bolts	9.8	1.0	87 in·lb	L
Gear Set Lever Nut	8.8	0.9	78 in·lb	L
Shift Drum Cam Bolt	24	2.4	17	
Neutral Switch	12	1.2	104 in·lb	
<b>Wheels/Tires</b>				
Front Axle	79	8.0	58	AL
Front Axle Clamp Bolts	20	2.0	14.5	
Rear Axle Nut	110	11.0	80	
Spoke Nipple	Not less than 2.2	Not less than 0.22	Not less than 19 in·lb	
<b>Final Drive</b>				
Rear Sprocket Nuts	34	3.5	25	
Engine Sprocket Cover Bolts	9.8	1.0	87 in·lb	
<b>Brakes</b>				
Brake Lever Pivot Locknut	5.9	0.6	52 in·lb	S
Brake Reservoir Cap Screws	1.5	0.15	13 in·lb	
Brake Lever Pivot Bolt	5.9	0.6	52 in·lb	
Caliper Mounting Bolts (Front)	25	2.5	18	
Brake Hose Banjo Bolts	34	3.5	25	
Front Master Cylinder Clamp Bolts	8.8	0.9	78 in·lb	
Rear Master Cylinder Mounting Bolts	10	1.0	88 in·lb	
Rear Master Cylinder Push Rod Locknut	17	1.7	12.5	

## 2-8 PERIODIC MAINTENANCE

### Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Brake Reservoir Cap Bolts	1.5	0.15	13 in·lb	
Brake Disc Mounting Bolts:				
(Front)	9.8	1.0	87 in·lb	L
(Rear)	23	2.3	16.6	L
Caliper Bleed Valves (Front, Rear)	7.8	0.8	69 in·lb	
Front Caliper Holder Shaft	22	2.2	16	L
Rear Caliper Holder Shaft	27	2.8	20	
Caliper Pin Bolts	12	1.2	104 in·lb	L
Brake Pad Bolts	17	1.7	12.5	
Rear Brake Pad Bolt Plug	2.5	0.25	22 in·lb	
Brake Pedal Mounting Bolt	25	2.5	18	L
<b>Suspension</b>				
Front Fork Cylinder Unit	34	3.5	25	
Front Fork Clamp Bolts				
(Upper)	20	2.0	14.5	L, AL
(Lower)	20	2.0	14.5	AL
Front Fork Adjuster Assembly	69	7.0	51	L
Front Fork Base Valve Assembly	29.5	3.0	21.8	
Adjuster Assemble Locknut	21.6	2.2	16	
Swingarm Pivot Shaft Nut	98	10	72	
Rear Shock Absorber Mounting Nuts:				
(Upper)	39	4.0	29	
(Lower)	34	3.5	25	
Spring Locknut	45	4.6	33	
Piston Rod Locknut	37	3.8	27	
Gas Reservoir Damping Adjuster Assembly	29	3.0	21	
Tie-Rod Mounting Nut (Front, Rear)	83	8.5	61	
Rocker Arm Pivot Nut	83	8.5	61	
<b>Steering</b>				
Steering Stem Head Nut	98	10	72	
Steering Stem Locknut	4.9	0.5	43 in·lb	
Handlebar Clamp Bolts	25	2.5	18	S
<b>Frame</b>				
Footpeg Bracket Bolts (Upper)	54	5.5	40	L
Rear Frame Mounting Bolts	34	3.5	25	
<b>Electrical System</b>				
Neutral Switch	12	1.2	104 in·lb	
Neutral Switch Lead Terminal Screw	1.3	0.13	12 in·lb	
Flywheel Nut	49	5.0	36	
Flywheel Nut Cap	5.0	0.5	44 in·lb	
Timing Inspection Cap	4.0	0.4	35 in·lb	
Stator Bolts	7.0	0.7	61 in·lb	

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**PERIODIC MAINTENANCE 2-9****Torque and Locking Agent**

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Crankshaft Sensor Bolts	7.0	0.7	61 in·lb	L
Spark Plug	13	1.3	115 in·lb	
C.D.I. Unit Bolts	9.8	1.0	87 in·lb	
Magneto Cover Bolts				
L: 30	9.8	1.0	87 in·lb	
L: 35	9.8	1.0	87 in·lb	

## 2-10 PERIODIC MAINTENANCE

### Specifications

Item	Standard	Service Limit
<b>Fuel System</b>		
Throttle Grip Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	— — —
Hot Start Lever Free Play	0.5 ~ 1.0 mm (0.02 ~ 0.04 in.)	— — —
Idle Speed	2 000 r/min (rpm)	— — —
Air Cleaner Element Oil	High quality foam air filter oil	— — —
<b>Cooling System</b>		
Coolant:		
Type (recommended)	Permanent type antifreeze	— — —
Color	Green	— — —
Mixed Ratio	Soft water 50% and coolant 50%	— — —
Freezing Point	-35°C (-31°F)	— — —
Total Amount	1.10 L (1.16 US qt)	— — —
<b>Engine Top End</b>		
Valve Clearance:		
Exhaust	0.17 ~ 0.22 mm (0.0067 ~ 0.0087 in.)	— — —
Inlet	0.10 ~ 0.15 mm (0.0039 ~ 0.0059 in.)	— — —
Cylinder Head Warp	— — —	0.05 mm (0.0020 in.)
Cylinder Inside Diameter (see text)	77.000 ~ 77.012 mm (3.0315 ~ 3.0320 in.)	77.06 mm (3.0339 in.)
Piston/cylinder Clearance	0.030 ~ 0.057 mm (0.0012 ~ 0.0022 in.)	— — —
<b>Engine Right Side</b>		
Clutch Lever Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	— — —
Friction Plate Thickness	2.72 ~ 2.88 mm (0.107 ~ 0.113 in.)	2.6 mm (0.102 in.)
Steel Plate Thickness	1.5 ~ 1.7 mm (0.059 ~ 0.067 in.)	1.4 mm (0.055 in.)
Friction Plate Warp	Not more than 0.15 mm (0.0059 in.)	0.3 mm (0.012 in.)
Steel Plate Warp	Not more than 0.15 mm (0.0059 in.)	0.3 mm (0.012 in.)
<b>Engine Lubrication System</b>		
Engine Oil:		
Type	Castrol "R4 superbike" 5W-40 or API SG, SH, SJ or SL with JASO MA	— — —
Viscosity	SAE 10W-30, 10W-40, or 10W-50	— — —
Capacity	1.5 L (0.74 US qt)	— — —
<b>Crankshaft/Transmission</b>		
Connecting Rod Big End Side Clearance	0.25 ~ 0.35 mm (0.0098 ~ 0.0138 in.)	0.55 mm (0.0217 in.)
<b>Wheels/Tires</b>		
Rim Runout:		
Axial	Under 1.0 mm (0.039 in.)	2 mm (0.08 in.)
Radial	Under 1.0 mm (0.039 in.)	2 mm (0.08 in.)
Front and Rear Tires Air Pressure	100 kPa (1.0 kgf/cm <sup>2</sup> , 14 psi)	— — —

## Specifications

Item	Standard	Service Limit
Standard Tire:		
Front:		
Size	80/100-21 51M	— — —
Make	BRIDESTONE	— — —
Type	M401, Tube, (EUR) M201, Tube	— — — — — —
Rear:		
Size	100/90-19 57M	— — —
Make	BRIDESTONE	— — —
Type	M402, Tube, (EUR) M202, Tube	— — — — — —
<b>Final Drive</b>		
Drive Chain Slack	52 ~ 58 mm (2.05 ~ 2.28 in.)	— — —
Drive Chain 20 Link Length	317.5 ~ 318.2 mm (12.50 ~ 12.53 in.)	323 mm (12.72 in.)
Rear Sprocket Warp	Under 0.4 mm (0.016 in.)	0.5 mm (0.020 in.)
<b>Brakes</b>		
Brake Lever Free Play	(to suit rider)	— — —
Brake Fluid:		
Type:		
Front	DOT3 or DOT4	— — —
Rear	DOT4	— — —
Brake pad lining thickness:		
Front	4.0 mm (0.157 in.)	1 mm (0.04 in.)
Rear	6.4 mm (0.252 in.)	1 mm (0.04 in.)
<b>Suspension</b>		
Fork Oil:		
Oil Viscosity	SHOWA SS-05 or equivalent	— — —
Oil Capacity (per unit):		
Cylinder Unit	193 ±4 mL (6.53 ±0.14 US oz.)	— — —
Oil Level	42 ~ 49 mm (1.65 ~ 1.93 in.)	— — —
Outer Tube	360 ±4 mL (12.2 ±0.14 US oz.) (EUR) 358 ±4 mL (12.2 ±0.14 US oz.)	(Adjustable range) 322 ~ 417 mL (10.9 ~ 14.1 US oz.)
Rear Shock Absorber:		
Oil Viscosity	SHOWA SS-25 or equivalent	— — —
Oil Capacity	Approximately 395 mL (13.4 US oz.)	— — —
<b>Electrical System</b>		
Spark Plug Gap	0.7 ~ 0.8 mm (0.028 ~ 0.031 in.)	— — —

TIR: Total Indicator Readings  
EUR: Europe Model