MODEL APPLICATION

Year	Model	Beginning Frame No.
2013	KX250ZD	JKAKXMZC□DA000001 JKAKX250ZZA000001
2014	KX250ZE	JKAKXMZC□EA013001 JKAKX250ZZA013001

□:This digit in the frame number changes from one machine to another.

Kawasaki
KAWASAKI HEAVY INDUSTRIES, LTD.
Motorcycle & Engine Company

Part No.99924-1459-02

Printed in Japan

Kawasaki

KX250F

Motorcycle Service Manual

Quick Reference Guide

LIST OF ABBREVIATIONS

A	ampere(s)	KDS	Kawasaki Diagnostic System
ABDC	after bottom dead center	km/h	kilometers per hour
AC	alternating current	L	liter(s)
Ah	ampere hour	lb	pound(s)
ATDC	after top dead center	LED	Light Emitting Diode
BBDC	before bottom dead center	m	meter(s)
BDC	bottom dead center	min	minute(s)
BTDC	before top dead center	mph	miles per hour
°C	degree(s) Celsius	N	newton(s)
cmHg	centimeters of mercury	oz	ounce(s)
cu in	cubic inch(s)	Pa	pascal(s)
DC	direct current	PS	horsepower
DFI	Digital Fuel Injection	psi	pound(s) per square inch
ECU	Electronic Control Unit	qt	quart(s)
F	farad(s)	r	revolution
°F	degree(s) Fahrenheit	rpm	revolution(s) perminute
ft	foot, feet	s	second(s)
g	gram(s)	TDC	top dead center
gal	gallon(s)	TIR	total indicator reading
h	hour(s)	V	volt(s)
HP	horsepower(s)	W	watt(s)
in.	inch(s)	Ω	ohm(s)

COUNTRY AND AREA CODES

AU	Australia	EUR	Europe
BR	Brazil	TH	Thailand
CA	Canada	US	United States

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 Service 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 symbols, heed their instructions! Always follow safe operating and maintenance practices.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

This manual contains four more symbols which will help you distinguish different types of information.

NOTE

○*NOTE indicates information that may help or guide you in the operation or service of the vehicle.*

- 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

Table of Contents

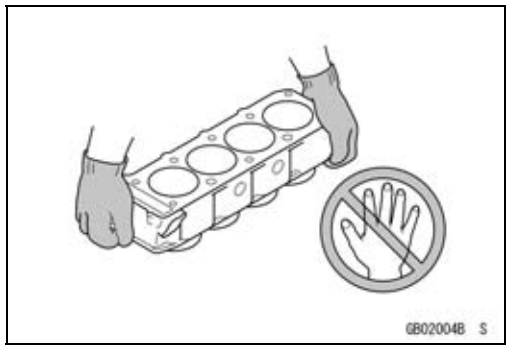
Before Servicing

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:

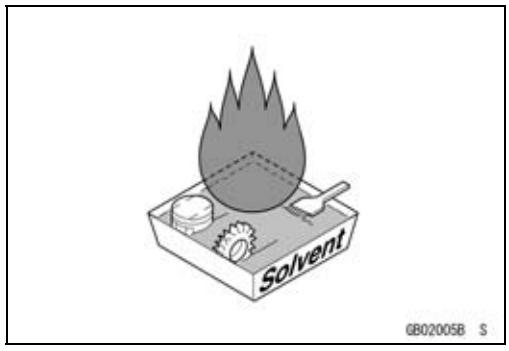
Edges of Parts

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



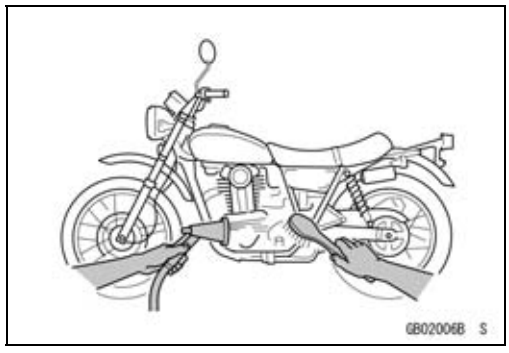
Solvent

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



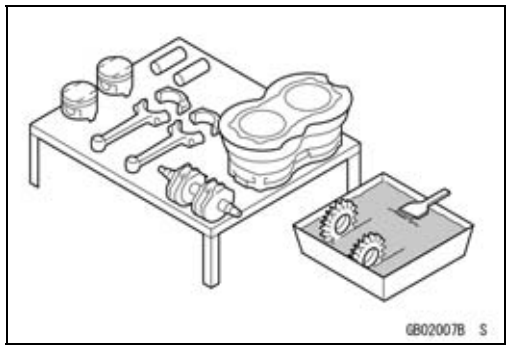
Cleaning Vehicle before Disassembly

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

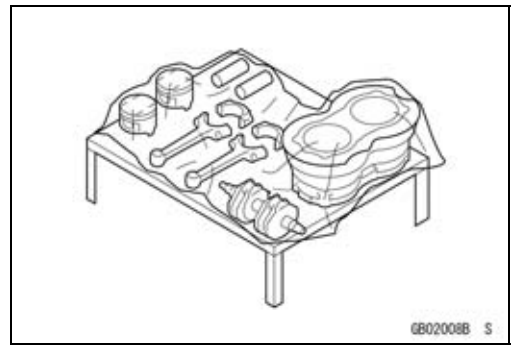
Disassembled parts are easy to confuse. Arrange the parts according to the order the parts were disassembled and clean the parts in order prior to assembly.



Before Servicing

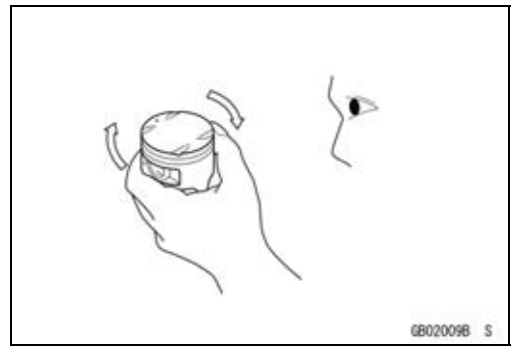
Storage of Removed Parts

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.



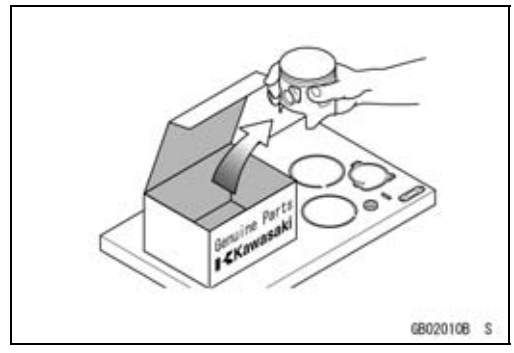
Inspection

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.



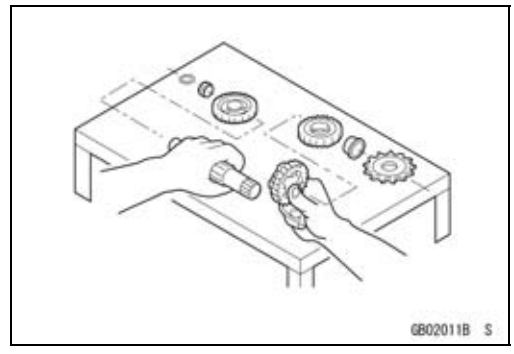
Replacement Parts

Replacement parts must be KAWASAKI genuine or recommended by KAWASAKI. Gaskets, O-rings, oil seals, grease seals, circlips, cotter pins or self-locking nuts must be replaced with new ones whenever disassembled.



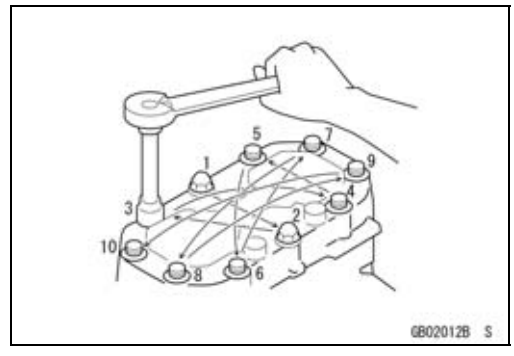
Assembly Order

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

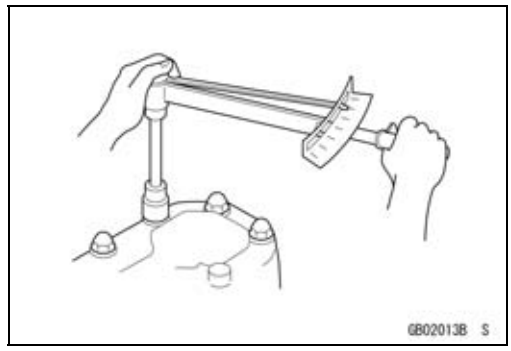
Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them according to the specified sequence to prevent case warpage or deformation which can lead to malfunction. Conversely when loosening the bolts, nuts, or 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.



Before Servicing

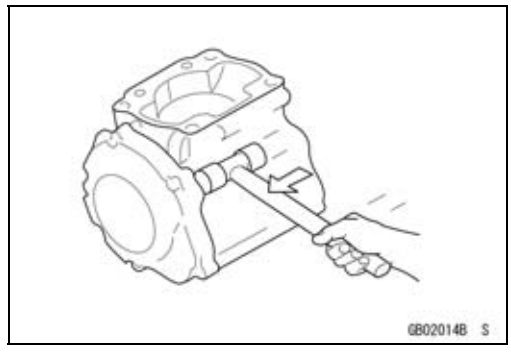
Tightening Torque

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.



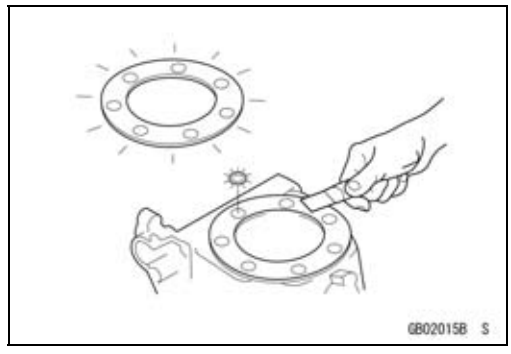
Force

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.



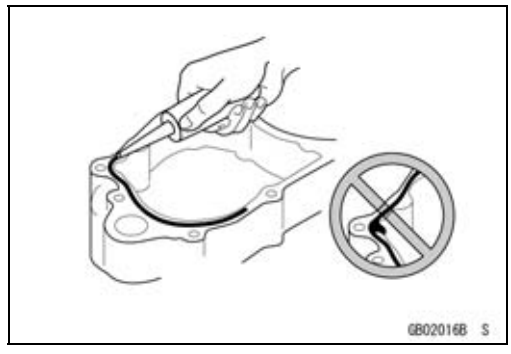
Gasket, O-ring

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.



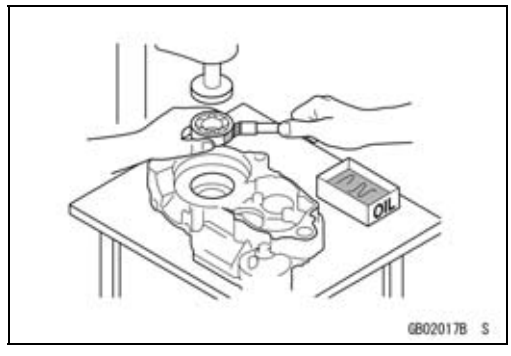
Liquid Gasket, Non-permanent Locking Agent

For applications that require Liquid Gasket or a Non-permanent Locking Agent, clean the surfaces so that no oil residue remains before applying liquid gasket or non-permanent 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.

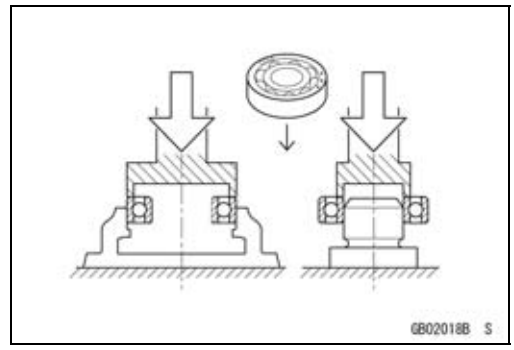


Before Servicing

Ball Bearing and Needle Bearing

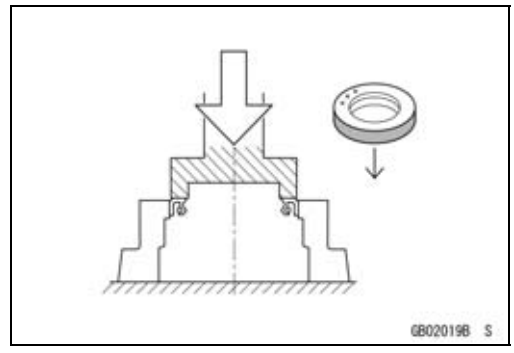
Do not remove pressed ball or needle unless removal is absolutely necessary. Replace with new ones whenever removed. Press bearings with the manufacturer and size marks facing out. Press the bearing into place by putting pressure on the correct bearing race as shown.

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

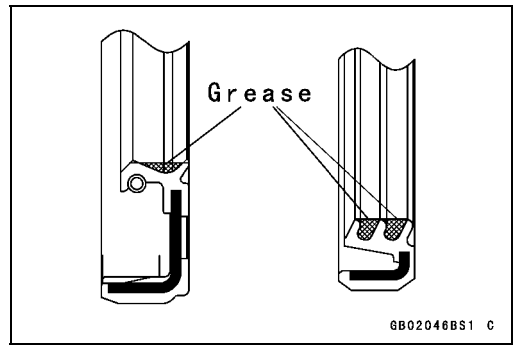


Oil Seal, Grease Seal

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.

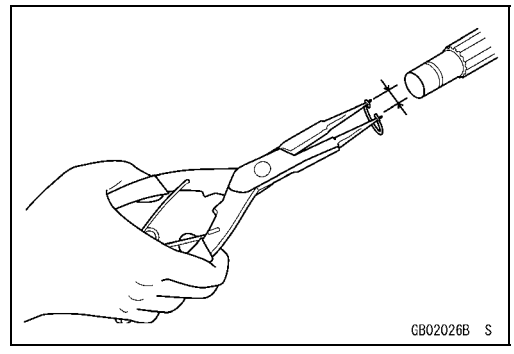


Apply specified grease to the lip of seal before installing the seal.



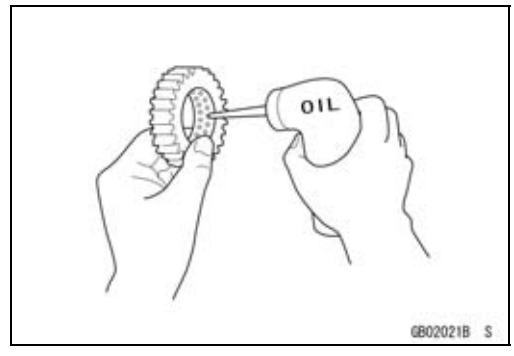
Circlips, Cotter Pins

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

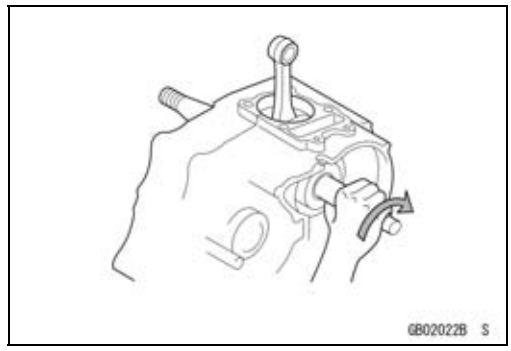
It is important to lubricate rotating or sliding parts during assembly to minimize wear during initial operation. Lubrication points are called out throughout this manual, apply the specific oil or grease as specified.



Before Servicing

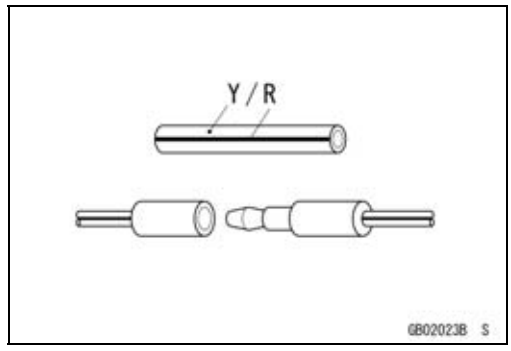
Direction of Engine Rotation

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).



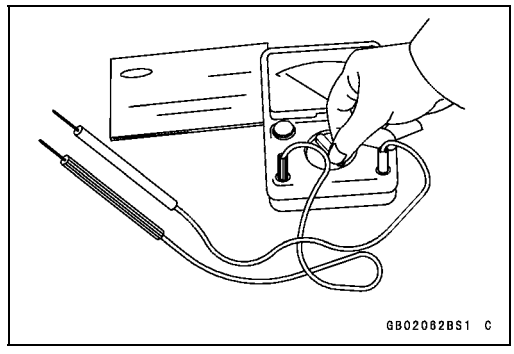
Electrical Leads

A two-color lead is identified first by the primary color and then the stripe color. Unless instructed otherwise, electrical leads 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.



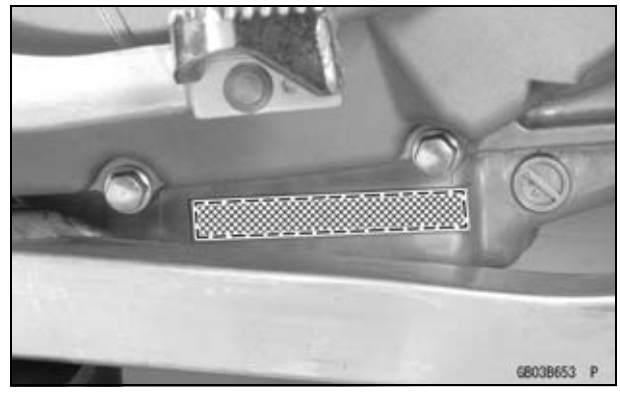
Model Identification

KX250ZD Left Side View

KX250ZD Right Side View

Frame Number

Engine Number



General Specifications

Items	KX250ZD ~ ZE
Dimensions	
Overall Length	2 170 mm (85.43 in.)
Overall Width	820 mm (32.3 in.)
Overall Height	1 270 mm (50.00 in.)
Wheelbase	1 475 mm (58.07 in.)
Road Clearance	330 mm (13.0 in.)
Seat Height	945 mm (37.2 in.)
Curb Mass:	106.2 kg (234.2 lb) (US, CA) 106.0 kg (233.7 lb)
Front:	51.7 kg (114.0 lb)
Rear:	54.5 kg (120.2 lb) (US, CA) 54.3 kg (119.7 lb)
Fuel Tank Capacity	6.1 L (1.6 US gal)
Engine	
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 cm³ (15.2 cu in.)
Compression Ratio	13.8:1
Fuel System	FI (Fuel Injection), KEIHIN ϕ43
Fuel Type:	
Minimum Octane Rating:	
Research Octane Number (RON)	(AU, EUR, TH) 95
Antiknock Index (RON + MON)/2	(US, CA, BR) 90
Starting System	Primary kick
Ignition System	Digital DC-CDI
Timing Advance	Electronically advanced
Ignition Timing	BTDC 4° at 2 000 r/min (rpm)
Spark Plug:	
Standard:	NGK CPR8EB-9
Terminal	Solid post
Option:	NGK CPR9EB-9
Terminal	Solid post
Valve Timing:	
Intake:	
Open	BTDC 36°
Close	ABDC 76°
Duration	292°
Exhaust:	
Open	BBDC 69°
Close	ATDC 49°
Duration	298°
Lubrication System	Forced lubrication (semi-dry sump)

General Specifications

Items	KX250ZD ~ ZE
Engine Oil:	
Type	API SG, SH, SJ, SL or SM with JASO MA, MA1 or MA2
Viscosity	SAE 10W-40
Capacity	1.0 L (1.1 US qt)
Drive Train	
Primary Reduction System:	
Type	Gear
Reduction Ratio	3.350 (67/20)
Clutch Type	Wet multi disc, Manual
Transmission:	
Type	5-speed, constant mesh, return shift
Gear Ratios:	
1st	2.142 (30/14)
2nd	1.750 (28/16)
3rd	1.444 (26/18)
4th	1.235 (21/17)
5th	1.045 (23/22)
Final Drive System:	
Type	Chain drive
Reduction Ratio	3.846 (50/13)
Overall Drive Ratio	13.470 at Top gear
Frame	
Type	Tubular, semi-double cradle
Steering Angle	42° to either side
Caster (Rake Angle)	28.7°
Trail	126.4 mm (4.976 in.)
Front Wheel:	
Tire Size	80/100-21 51M
Tire Make/Type	DUNLOP MX51FA, Tube type
Rim Size	21 × 1.60
Rear Wheel:	
Tire Size	100/90-19 57M
Tire Make/Type	DUNLOP MX51, Tube type
Rim Size	19 × 1.85
Front Suspension:	
Type	Telescopic fork (upside 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

General Specifications

Items	KX250ZD ~ ZE
Effective Disc Diameter:	
Front	225 mm (8.86 in.)
Rear	215 mm (8.46 in.)

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

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	=	kg
N	×	0.2248	=	lb
kg	×	9.807	=	N
kg	×	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	=	cmHg
kgf/cm²	×	98.07	=	kPa
kgf/cm²	×	14.22	=	psi
cmHg	×	1.333	=	kPa

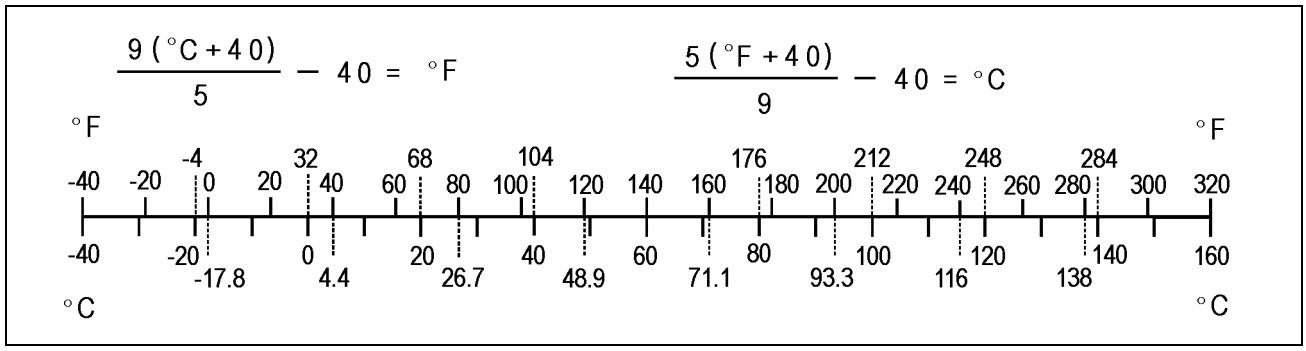
Units of Speed:

km/h	×	0.6214	=	mph

Units of Power:

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

Units of Temperature:



Periodic Maintenance

Table of Contents

Periodic Maintenance Chart

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

	FREQUENCY / OPERATION	Each race or 2.5 hours	Every 3 races or 7.5 hours	Every 6 races or 15 hours	Every 12 races or 30 hours	See Page
ENGINE	Spark plug - clean and inspect †	●				2-81
	Spark plug - replace		●			2-81
	Clutch - inspect	●				2-29
	Clutch plates - inspect †	●				2-29
	Throttle cable - inspect and adjust	●				2-14
	Air cleaner element - clean	●				2-19
	Air cleaner element - replace	If damaged				2-19
	Throttle body assy - inspect and adjust	●				2-15
	Engine oil - change			●		2-30
	Piston and piston ring - replace			●		2-27
	Cylinder head, cylinder - inspect			●		2-26
	Piston pin - replace				●	2-27
	Valve clearance - inspect †			●		2-23
	Oil filter - replace			●		2-31
	Exhaust system - inspect †	●				2-27
	Silencer wool - change		●			2-28
	Kick pedal and shift pedal - clean	●				–
	Engine sprocket - inspect †	●				2-38
	Coolant level - inspect	●				2-22
	Water hoses and connections - inspect †	●				2-23
	Crankshaft - inspect			●		2-33
	Breather hose - inspect	●				2-32
CHASSIS	Brake - adjust †	●				2-39
	Brake pad wear - inspect †	●				2-43
	Brake fluid level - inspect †	●				2-40
	Brake fluid - change	Every 2 years				2-41
	Brake master cylinder cup and dust cover - replace	Every 2 years				2-43
	Brake caliper fluid seal and dust seal - replace	Every 2 years				2-45
	Brake hoses - replace	Every 4 years				2-48
	Brake hoses, connections - inspect †	●				2-48
	Spoke tightness and rim runout - inspect †	●				2-34
	Wheel bearing - inspect †	●				2-35
	Frame - inspect	●				2-81
	Drive chain wear - inspect †	●				2-35
	Drive chain - inspect and adjust	●				2-36
	Drive chain - lubricate	●				2-38

2-4 PERIODIC MAINTENANCE

Periodic Maintenance Chart

	FREQUENCY / OPERATION	Each race or 2.5 hours	Every 3 races or 7.5 hours	Every 6 races or 15 hours	Every 12 races or 30 hours	See Page
CHASSIS	Wheels/tires - inspect	●				2-34
	Rear sprocket - inspect †	●				2-38
	Front fork - clean and inspect	●				2-50
	Front fork oil - change			●		2-50
	Rear shock absorber oil - change			●		2-70
	Cable - inspect	●				2-83
	Fuel hose - replace	Every 5 years				2-15
	Fuel hose, connections - inspect †	●				2-14
	Fuel system - clean		●			2-21
	Steering play - inspect †	●				2-79
	Steering stem bearing - lubricate			●		2-80
	Swingarm and Uni-Trak linkage pivots - lubricate		●			2-78
	Swingarm and Uni-Trak linkage pivots - inspect †		●			2-78
	Nuts, bolts, fasteners - inspect †	●				2-83
	General lubrication - perform	●				2-82

†: 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 silicone grease etc.

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.
G: Apply grease.
L: Apply a non-permanent locking agent.
Lh: Left-hand Threads
MO: Apply molybdenum disulfide oil solution.
(mixture of the engine oil and molybdenum disulfide grease in a weight ratio 10:1)
R: Replacement Parts
S: Follow the specified tightening sequence.
Si: Apply silicone grease (ex. PBC grease).
T: First, tighten the stem nut with 39 N·m (4.0 kgf·m, 29 ft·lb) of torque, then loosen it and retighten it with 4.9 N·m (0.50 kgf·m, 43 in·lb) of torque.
2T: Apply 2-stroke oil.

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Fuel System (DFI)				
Throttle Pulley Cover Bolts	3.4	0.35	30 in·lb	
Throttle Cable Bolts	3.0	0.31	27 in·lb	
Air Cleaner Duct Clamp Bolt	2.0	0.20	18 in·lb	
Throttle Case Mounting Screws	3.8	0.39	34 in·lb	
Delivery Joint Bolt	3.5	0.36	31 in·lb	L
Water Temperature Sensor	12	1.2	106 in·lb	
Gear Position Switch Screws	2.9	0.30	26 in·lb	L
Cooling System				
Water Hose Clamp Screws	3.0	0.31	27 in·lb	
Water Pipe Bolt	9.8	1.0	87 in·lb	
Water Pump Cover Bolts (L = 55 mm)	9.8	1.0	87 in·lb	L
Water Pump Impeller Bolt	7.0	0.71	62 in·lb	
Water Pump Cover Bolts (L = 30, 65 mm)	9.8	1.0	87 in·lb	
Coolant Drain Bolt	7.0	0.71	62 in·lb	
Engine Top End				
Cylinder Head Cover Bolts	9.8	1.0	87 in·lb	
Camshaft Cap Bolts	9.8	1.0	87 in·lb	MO, S
Plug	20	2.0	15	L
Cylinder Head Bolts (M10)	44	4.5	32	MO, R, S
Auto-Decompressor Bolt	12	1.2	106 in·lb	
Cylinder Head Bolts (M6)	12	1.2	106 in·lb	S
Cylinder Bolt	12	1.2	106 in·lb	S
Throttle Body Assy Clamp Screw	2.0	0.20	18 in·lb	
Throttle Body Assy Holder Clamp Screw	2.0	0.20	18 in·lb	
Lower Camshaft Chain Guide Bolt	9.8	1.0	87 in·lb	
Rear Camshaft Chain Guide Bolt	15	1.5	11	

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Camshaft Chain Tensioner Cap Bolt	20	2.0	15	
Camshaft Chain Tensioner Mounting Bolts	9.8	1.0	87 in·lb	
Clutch				
Right Engine Cover Bolts	9.8	1.0	87 in·lb	
Clutch Cover Bolts	9.8	1.0	87 in·lb	
Oil Filler Plug	3.5	0.36	31 in·lb	
Clutch Hub Nut	98	10.0	72	R
Clutch Spring Bolts	9.0	0.92	80 in·lb	
Engine Lubrication System				
Oil Filter Cap Bolts	9.8	1.0	87 in·lb	
Piston Oil Nozzle	2.9	0.30	26 in·lb	
Breather Fitting	15	1.5	11	
Oil Pump Idle Gear Shaft Screws	5.9	0.60	52 in·lb	L
Oil Pump Mounting Bolts	7.0	0.71	62 in·lb	L
Engine Oil Drain Bolt	20	2.0	15	
Engine Removal/Installation				
Upper Engine Mounting Bolts	49	5.0	36	S
Upper Engine Bracket Bolts	29	3.0	21	S
Middle Engine Bracket Nuts	29	3.0	21	R, S
Middle Engine Mounting Nut	49	5.0	36	R, S
Lower Engine Mounting Nut	49	5.0	36	R, S
Swingarm Pivot Shaft Nut	98	10.0	72	R, S
Crankshaft/Transmission				
Primary Gear Nut	98	10.0	72	Lh, R
Reed Valve Screws	7.0	0.71	62 in·lb	
Crankcase Bearing Retainer Screws	15	1.5	11	L
Piston Oil Nozzle	2.9	0.30	26 in·lb	
Crankcase Bolts (L = 50 mm)	9.8	1.0	87 in·lb	S
Crankcase Bolt (L = 65 mm)	9.8	1.0	87 in·lb	S
Crankcase Bolts (L = 70 mm)	9.8	1.0	87 in·lb	S
Crankcase Bolts (L = 60 mm)	9.8	1.0	87 in·lb	S
Kick Ratchet Guide Bolt	8.8	0.90	78 in·lb	L
Kick Pedal Bolt	25	2.5	18	L
Shift Drum Cam Bolt	24	2.4	18	L
Gear Positioning Lever Nut	8.8	0.90	78 in·lb	
Ratchet Plate Bolt	9.8	1.0	87 in·lb	L, S
Ratchet Plate Screw	15	1.5	11	L, S
Shift Pedal Bolt	9.8	1.0	87 in·lb	
Wheels/Tires				
Spoke Nipples	Not less than 2.2	Not less than 0.22	Not less than 19 in·lb	
Front Axle Nut	78	8.0	58	
Front Axle Clamp Bolts	20	2.0	15	AL, S

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Rear Axle Nut	108	11.0	79.7	
Final Drive				
Rear Sprocket Nuts	34	3.5	25	R
Engine Sprocket Nut (KX250ZE)	78	8.0	57	
Brakes				
Brake Hose Banjo Bolts	25	2.5	18	
Front Brake Reservoir Cap Screws	1.5	0.15	13 in·lb	
Front Master Cylinder Clamp Bolts	8.8	0.90	78 in·lb	S
Brake Lever Pivot Bolt	5.9	0.60	52 in·lb	Si
Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in·lb	
Front Brake Disc Mounting Bolts	9.8	1.0	87 in·lb	L
Front Brake Pad Pin	17	1.7	13	
Caliper Bleed Valves	7.8	0.80	69 in·lb	
Front Caliper Mounting Bolts	25	2.5	18	
Rear Brake Reservoir Cap Bolts	1.5	0.15	13 in·lb	
Rear Master Cylinder Mounting Bolts	9.8	1.0	87 in·lb	
Rear Master Cylinder Push Rod Locknut	17	1.7	13	
Brake Pedal Bolt	25	2.5	18	G, L
Rear Caliper Holder Shaft	27	2.8	20	Si
Rear Brake Pad Pin	17	1.7	13	
Rear Brake Pad Pin Plug	2.4	0.24	21 in·lb	
Rear Brake Disc Mounting Bolts	23	2.3	17	L
Suspension				
Air Pressure Relief Screws	1.3	0.13	12 in·lb	
Left Front Fork Base Valve Assembly	30	3.1	22	
Front Fork Clamp Bolts (Upper)	20	2.0	15	AL, L
Front Fork Clamp Bolts (Lower)	22	2.2	16	AL
Right Front Fork Spring Adjuster Unit	34	3.5	25	
Left Front Fork Cylinder Unit	34	3.5	25	
Left Front Fork Adjuster Assembly Locknut	22	2.2	16	
Left Front Fork Adjuster Assembly	69	7.0	51	L
Right Front Fork Spring Preload Adjuster	30	3.1	22	
Right Front Fork Bottom Plug Locknut	22	2.2	16	
Right Front Fork Bottom Plug	69	7.0	51	L
Rear Shock Absorber Mounting Nut (Upper)	39	4.0	29	R
Rear Shock Absorber Mounting Nut (Lower)	34	3.5	25	R
Tie-Rod Mounting Nuts	59	6.0	44	R
Swingarm Pivot Shaft Nut	98	10.0	72	R
Rocker Arm Pivot Nut	59	6.0	44	R
Gas Reservoir Damping Adjuster Assembly	29.5	3.01	21.8	
Rear Shock Absorber Spring Locknut	45	4.6	33	

Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Piston Rod Locknut	37	3.8	27	R
Steering				
Handlebar Clamp Bolts	25	2.5	18	AL, 2T
Steering Stem Head Nut	98	10.0	72	
Front Fork Clamp Bolts (Upper)	20	2.0	15	AL, L
Steering Stem Nut	4.9	0.50	43 in·lb	T
Handlebar Holder Nuts	34	3.5	25	R
Front Fork Clamp Bolts (Lower)	22	2.2	16	AL
Brake Hose Clamp Bolt	3.0	0.31	27 in·lb	
Frame				
Footpeg Bracket Bolts (Upper)	54	5.5	40	L
Rear Frame Mounting Bolts	34	3.5	25	
Electrical System				
Regulator/Rectifier Nuts	10	1.02	89 in·lb	R
Spark Plug	13	1.3	115 in·lb	
Flywheel Nut Cap	3.5	0.36	31 in·lb	
Magneto Cover Bolts	9.8	1.0	87 in·lb	
Timing Inspection Cap	3.5	0.36	31 in·lb	
Flywheel Nut	78.5	8.00	57.9	
Stator Coil Bolts	9.8	1.0	87 in·lb	L
Crankshaft Sensor Bolts	7.0	0.71	62 in·lb	L
Gear Position Switch Screws	2.9	0.30	26 in·lb	L

Basic Torque for General Fasteners

Threads Diameter (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 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19 ~ 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	23.0 ~ 33.0	165 ~ 240

Specifications

Item	Standard	Service Limit
Fuel System (DFI)		
Throttle Grip Free Play	2 ~ 3 mm (0.08 ~ 0.12 in.)	– – –
Idle Speed	2 050 ±50 r/min (rpm)	– – –
Air Cleaner Element Oil	High quality foam air filter oil	– – –
Cooling System		
Coolant:		
Type (Recommended)	Permanent type antifreeze	– – –
Color	Green	– – –
Mixed Ratio	Soft water 50%, coolant 50%	– – –
Freezing Point	–35°C (–31°F)	– – –
Total Amount	1.2 L (1.3 US qt)	– – –
Engine Top End		
Valve Clearance:		
Exhaust	0.17 ~ 0.22 mm (0.0067 ~ 0.0087 in.)	– – –
Intake	0.10 ~ 0.15 mm (0.0039 ~ 0.0059 in.)	– – –
Cylinder Head Warp	– – –	0.05 mm (0.002 in.)
Cylinder Inside Diameter (see text)	77.000 ~ 77.012 mm (3.0315 ~ 3.0320 in.)	77.10 mm (3.035 in.)
Piston/Cylinder Clearance	0.041 ~ 0.068 mm (0.0016 ~ 0.0027 in.)	– – –
Clutch		
Clutch Lever Free Play	8 ~ 13 mm (0.3 ~ 0.5 in.)	– – –
Friction Plate Thickness	2.72 ~ 2.88 mm (0.107 ~ 0.113 in.)	2.5 mm (0.10 in.)
Friction Plate Warp	0.15 mm (0.0059 in.) or less	0.3 mm (0.012 in.)
Steel Plate Warp	0.15 mm (0.0059 in.) or less	0.3 mm (0.012 in.)
Engine Lubrication System		
Engine Oil:		
Type	Castrol “POWER1 Racing 4T” 5W-40 or API SG, SH, SJ, SL or SM with JASO MA, MA1 or MA2	– – –
Viscosity	SAE 10W-30, 10W-40, or 10W-50	– – –
Capacity	0.75 L (0.79 US qt) (when filter is not removed)	– – –
	0.80 L (0.85 US qt) (when filter is removed)	– – –
	1.00 L (1.06 US qt) (when engine is completely dry)	– – –
Crankshaft/Transmission		
Connecting Rod Big End Side Clearance	0.25 ~ 0.35 mm (0.0098 ~ 0.0138 in.)	0.6 mm (0.02 in.)

Specifications

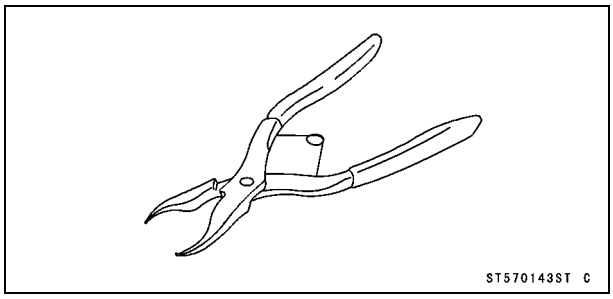
Item	Standard	Service Limit
Wheels/Tires		
Rim Runout (with tire installed):		
Axial	TIR 1.0 mm (0.04 in.) or less	TIR 2.0 mm (0.08 in.)
Radial	TIR 1.0 mm (0.04 in.) or less	TIR 2.0 mm (0.08 in.)
Tires Air Pressure (Front/Rear)	100 kPa (1.00 kgf/cm², 14 psi)	– – –
Standard Tire:		
Front:		
Size	80/100-21 51M	– – –
Make	DUNLOP	– – –
Type	MX51FA, Tube	– – –
Rear:		
Size	100/90-19 57M	– – –
Make	DUNLOP	– – –
Type	MX51, Tube	– – –
Final Drive		
Drive Chain Slack	52 ~ 58 mm (2.0 ~ 2.3 in.)	– – –
Drive Chain 20-link Length	317.5 ~ 318.2 mm (12.50 ~ 12.53 in.)	323 mm (12.7 in.)
Rear Sprocket Warp (Runout)	TIR 0.4 mm (0.016 in.) or less	TIR 0.5 mm (0.020 in.)
Brakes		
Brake Lever Free Play	Adjustable (to suit rider)	– – –
Brake Fluid Type:		
Front	DOT3 or DOT4	– – –
Rear	DOT3 or DOT4	– – –
Brake Pad Lining Thickness:		
Front	4.0 mm (0.16 in.)	1 mm (0.04 in.)
Rear	6.4 mm (0.25 in.)	1 mm (0.04 in.)
Suspension		
Front Fork		
KX250ZD		
Suspension Oil	Kawasaki SS-19 or equivalent	– – –
Amount (Left Front Fork):		
Cylinder Unit	330 mL (11.16 US oz.)	– – –
Cylinder Unit Oil Level	115 ~ 123 mm (4.53 ~ 4.84 in.)	– – –
Outer Tube	320 ±2.5 mL (10.82 ±0.085 US oz.) (EUR, BR) 300 ±2.5 mL (10.14 ±0.085 US oz.)	(Adjustable Range) 300 ~ 340 mL (10.14 ~ 11.50 US oz.)
Amount (Right Front Fork)	235 ±2.5 mL (7.95 ±0.085 US oz.)	(Adjustable Range) 230 ~ 378 mL (7.78 ~ 12.78 US oz.)
KX250ZE		
Suspension Oil	Kawasaki SS-19 or equivalent	

Specifications

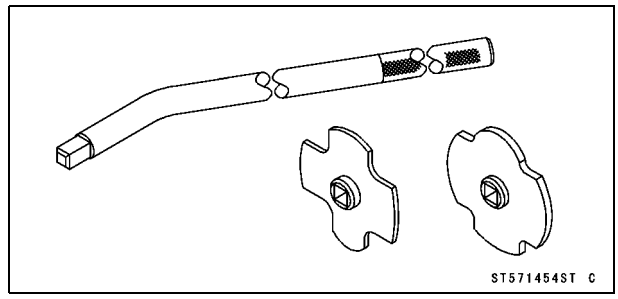
Item	Standard	Service Limit
Amount (Left Front Fork):		
Cylinder Unit	330 mL (11.16 US oz.)	
Cylinder Unit Oil Level	115 ~ 123 mm (4.53 ~ 4.84 in.)	
Outer Tube	300 ±2.5 mL (10.14 ±0.085 US oz.)	(Adjustable Range) 300 ~ 340 mL (10.14 ~ 11.50 US oz.)
Amount (Right Front Fork)	223 ±2.5 mL (7.54 ±0.085 US oz.)	(Adjustable Range) 218 ~ 366 mL (7.37 ~ 12.37 US oz.)
Rear Shock Absorber		
Suspension Oil	Kawasaki SS-25 or equivalent	– – –
Amount	approx. 380 mL (12.8 US oz.)	– – –
Electrical System		
Spark Plug Gap	0.8 ~ 0.9 mm (0.031 ~ 0.035 in.)	– – –

Special Tools

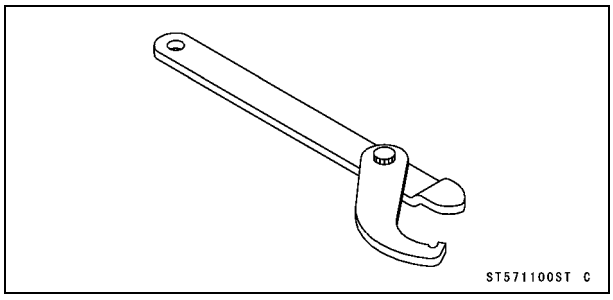
Inside Circlip Pliers:
57001-143



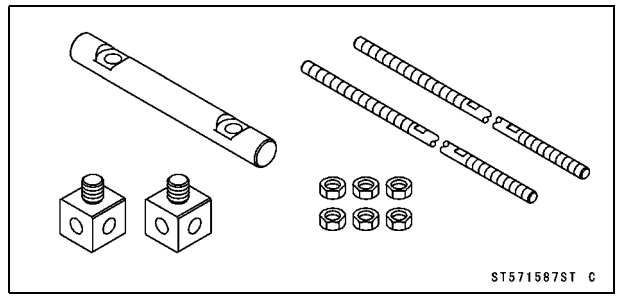
Filler Cap Driver:
57001-1454



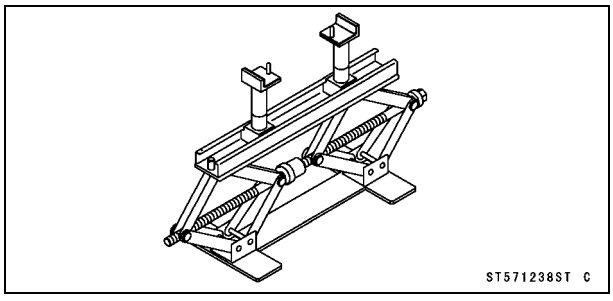
Steering Stem Nut Wrench:
57001-1100



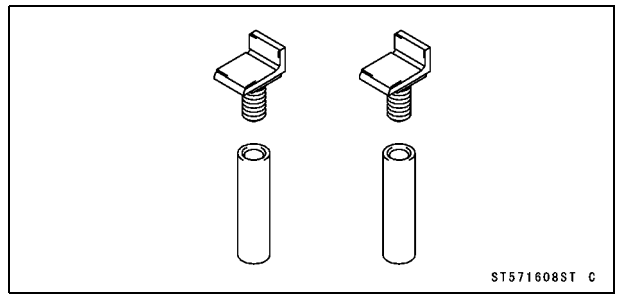
Fork Spring Compressor:
57001-1587



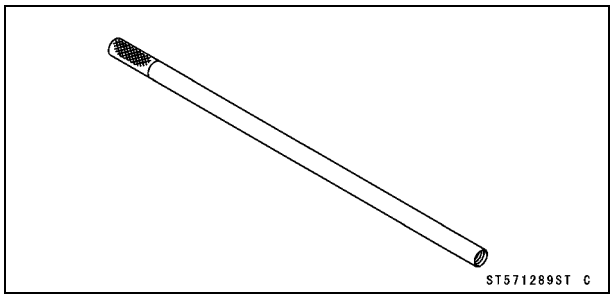
Jack:
57001-1238



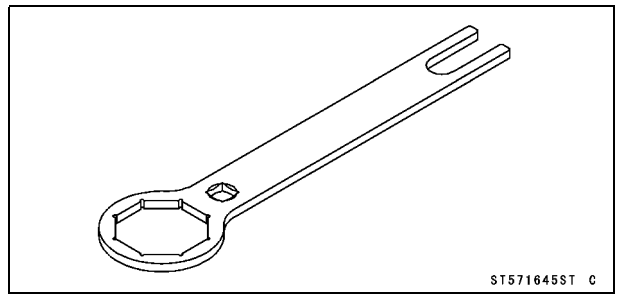
Jack Attachment:
57001-1608



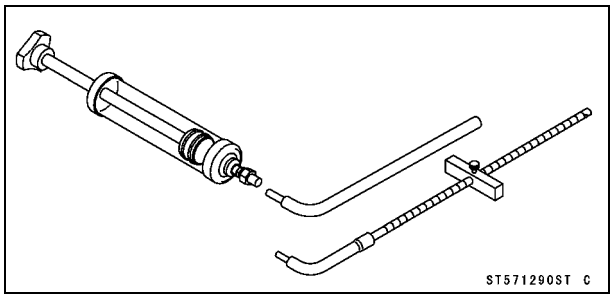
Fork Piston Rod Puller, M12 × 1.25:
57001-1289



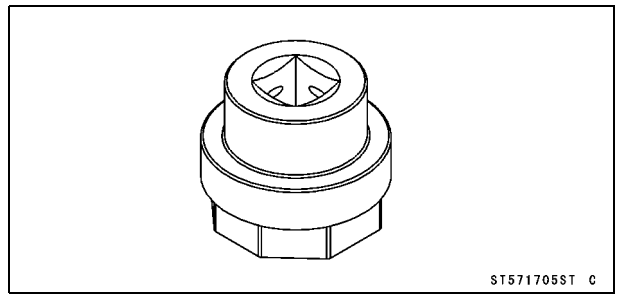
Top Plug Wrench, 50 mm:
57001-1645



Fork Oil Level Gauge:
57001-1290

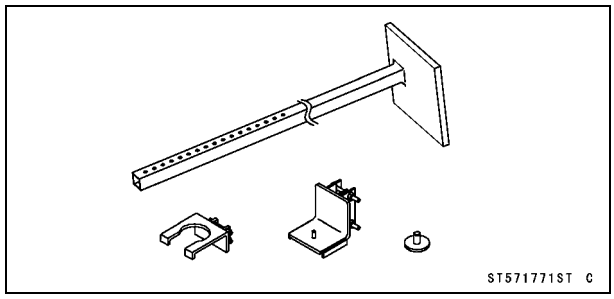


Top Plug Wrench, 36 mm:
57001-1705

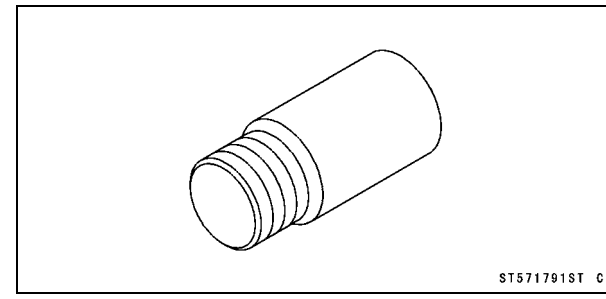


Special Tools

Fork Spring Compressor:
57001-1771



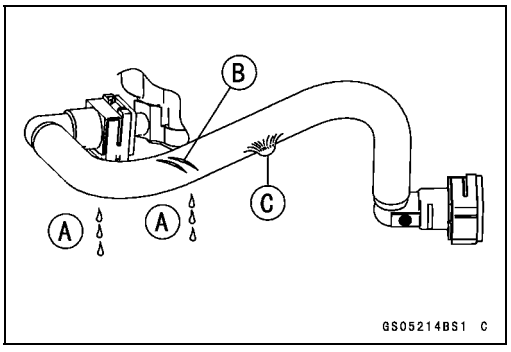
Fork Piston Rod Puller Adapter:
57001-1791



Periodic Maintenance Procedures

Fuel System (DFI)

Fuel Hose and Connections Inspection



○If the motorcycle is not properly handled, the high pressure inside the fuel line can cause fuel to leak [A] or the hose burst. Remove the fuel tank (see Fuel Tank Removal in the Fuel System (DFI) chapter) and check the fuel hose.

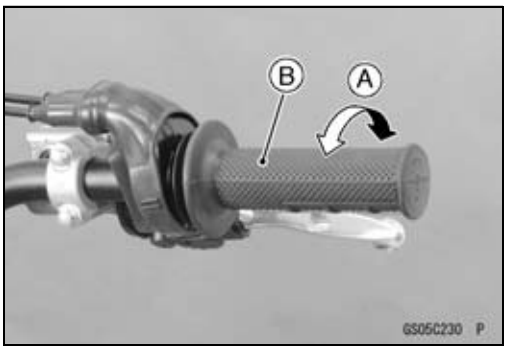
★Replace the fuel hose if any fraying, cracks [B] or bulges [C] are noticed.

● Check that the fuel hose is routed according to Cable, Wire, and Hose Routing section in the Appendix chapter.

● When installing the fuel hose, avoid sharp bending, kinking, flattening or twist, and run the fuel hose with a minimum of bending so that fuel flow will not be obstructed.

★Replace the hose if it has been sharply bent or kinked.

Throttle Grip (Throttle Cable) Free Play Inspection



● Check the throttle grip free play [A] by lightly turning the throttle grip [B] back and forth.

Throttle Grip Free Play
Standard: 2 ~ 3 mm (0.08 ~ 0.12 in.)

★If the free play is improper, adjust the throttle cable.

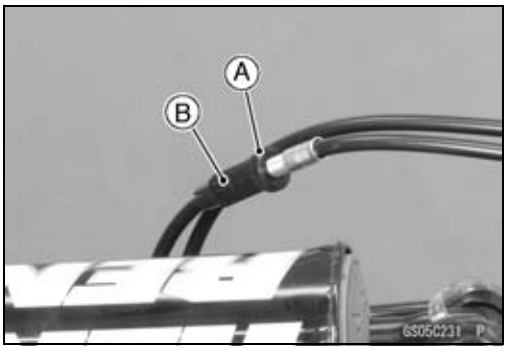
● Check that the throttle grip moves smoothly from full open to close, and the throttle closes quickly and completely in all steering positions by the return spring.

★If the throttle grip does not return properly, check the throttle cable routing, grip free play, and cable damage. Then lubricate the throttle cable.

● Run the engine at the idle speed, and turn the handlebars all the way to the right and left to ensure that the idle speed does not change.

★If the idle speed increase, check the throttle cable free play and the cable routing.

Throttle Grip (Throttle Cable) Free Play Adjustment



● Loosen the locknut [A] at the upper end of the throttle cable.

● Screw the throttle cable adjuster [B] to give the throttle grip plenty of play.

● Tighten the locknut.

★If the throttle grip free play cannot be adjusted with the adjuster, replace the throttle cables.

● Turn the handlebars from side to side while idling the engine. If idle speed varies, the throttle cable may be poorly routed or it may be damaged.

⚠ WARNING

Operation with improperly adjusted, incorrectly routed or damaged cables could result in an unsafe riding condition. Follow the service manual to make sure to correct any of these conditions.

Periodic Maintenance Procedures

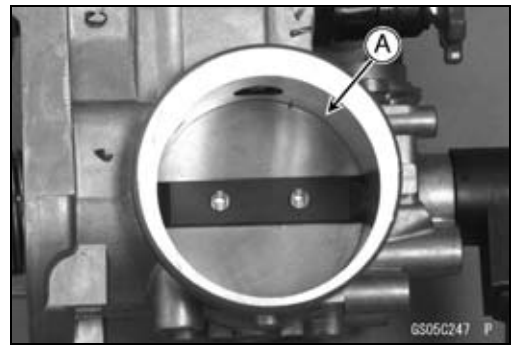
Throttle Body Cleaning

- Check the throttle bore for cleanliness as follows.

○Remove the throttle body assy (see Throttle Body Assy Removal in the Fuel System (DFI) chapter).

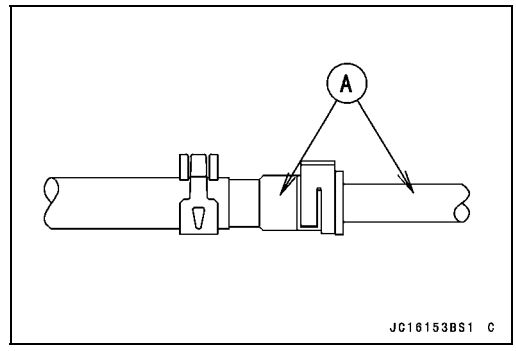
○Check the throttle bore [A] at the throttle valve for carbon deposits by opening the throttle valve.

★If any carbon accumulates, wipe the carbon off the throttle bore and the throttle valve, using a lint-free cloth penetrated with a high flash-point solvent.



Fuel Hose Replacement

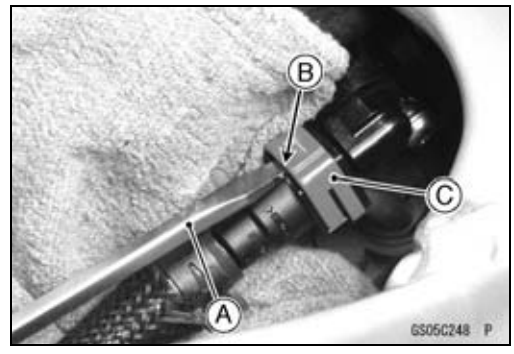
- Remove the fuel tank (see Fuel Tank Removal in the Fuel System (DFI) chapter).
- Be sure to place a piece of cloth around each fuel hose joint.
- Wipe off the dirt of the surface [A] around the connection using a cloth or a soft brush.



Throttle Body Assy Side

When removing with standard tip screwdriver:

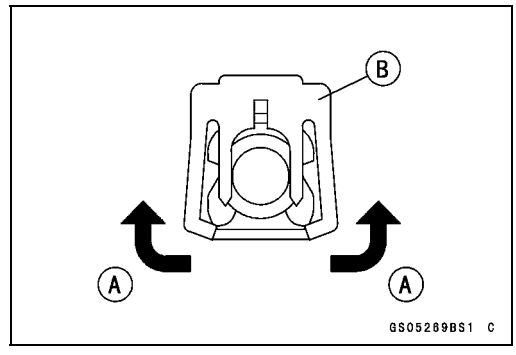
- Insert the standard tip screwdriver [A] into the slit [B] on the joint lock [C].
- Turn the driver to disconnect the joint lock.



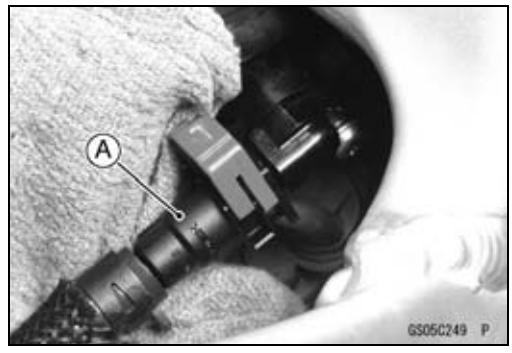
When removing with fingers:

- Open and push up [A] the joint lock [B] with your fingers.

NOTICE
Prying or excessively widening the joint lock ends for fuel hose removal will permanently deform the joint lock, resulting in a loose or incomplete lock that may allow fuel to leak and create the potential for a fire explosion. To prevent fire or explosion from a damaged joint lock, do not pry or excessively widen the joint lock ends when removing the fuel hose. The joint lock has a retaining edge that locks around the housing.



● Pull the fuel hose joint [A] out of the delivery pipe.

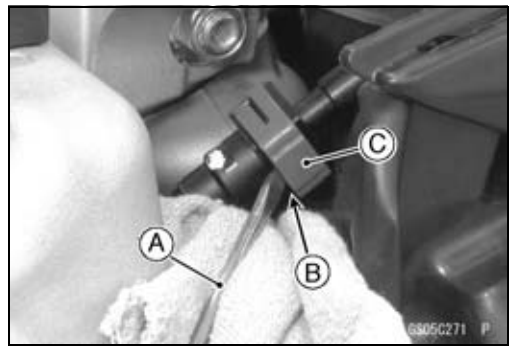


⚠ WARNING

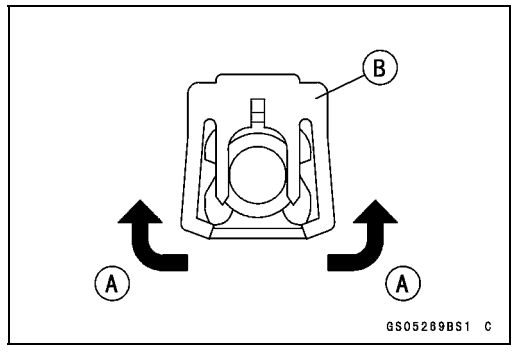
Fuel is flammable and explosive under certain conditions and can cause severe burns. Be prepared for fuel spillage; any spilled fuel must be completely wiped up immediately. When the fuel hose is disconnected, fuel spills out from the hose and the pipe. Cover the hose connection with a clean shop towel to prevent fuel spillage.

● Clean the delivery pipe.
● Cover the delivery pipe with the vinyl bag to keep it clean.

Air Cleaner Side
When removing with standard tip screwdriver:
● Insert the standard tip screwdriver [A] into the slit [B] on the joint lock [C].
● Turn the driver to disconnect the joint lock.



When removing with fingers:
● Open and push up [A] the joint lock [B] with your fingers.



NOTICE

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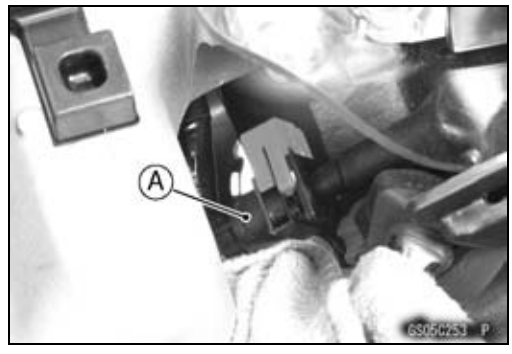
● Pull the fuel hose joint [A] out of the delivery pipe.



⚠ WARNING

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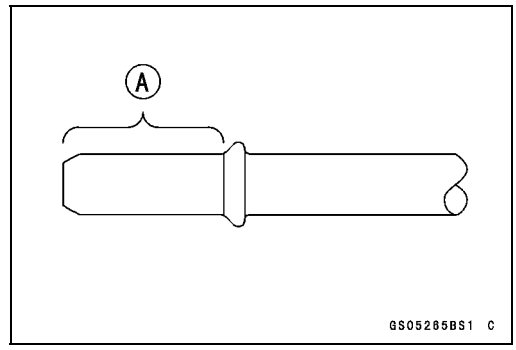
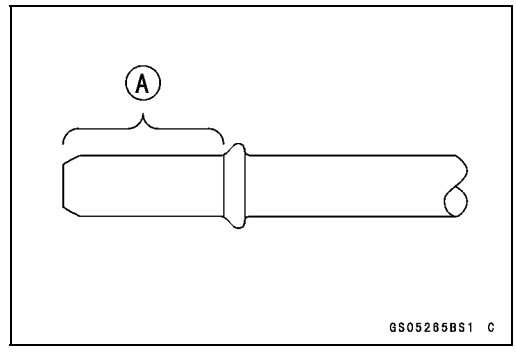
● Clean the delivery pipe.
● Cover the delivery pipe with the vinyl bag to keep it clean.

Periodic Maintenance Procedures

- Remove the vinyl bag on each delivery pipe.
- Check that there are no flaws, burrs, and adhesion of foreign materials on each delivery pipe [A].
- Replace the fuel hose with a new one.
- Run the fuel hose correctly (see Cable, Wire, and Hose Routing section in the Appendix chapter).



- Apply engine oil to the fuel outlet pipe [A] lightly.



- Insert [A] the fuel hose joint [B] straight onto the delivery pipe until the hose joint clicks.
- Push [C] the joint lock [D].
  Throttle Body Assy Side [E]
  Air Cleaner Side [F]