

# General Information

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## 1-2 GENERAL INFORMATION

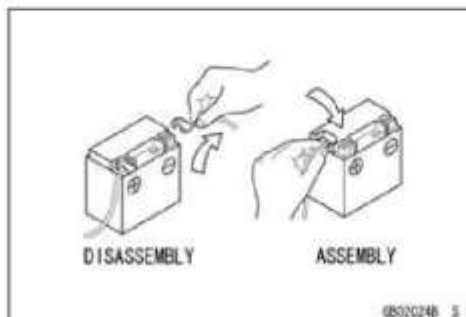
### Before Servicing

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.

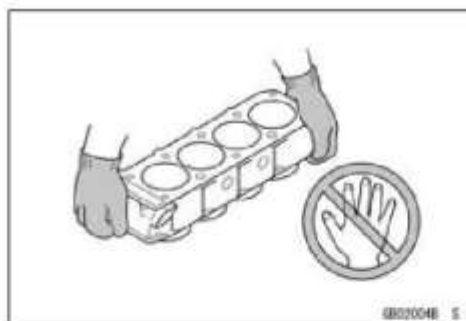
#### **Battery Ground**

Before completing any service on the motorcycle, disconnect the battery cables from the battery to prevent the engine from accidentally turning over. Disconnect the ground cable (-) first and then the positive (+). When completed with the service, first connect the positive (+) cable to the positive (+) terminal of the battery then the negative (-) cable to the negative terminal.



#### **Edges of Parts**

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



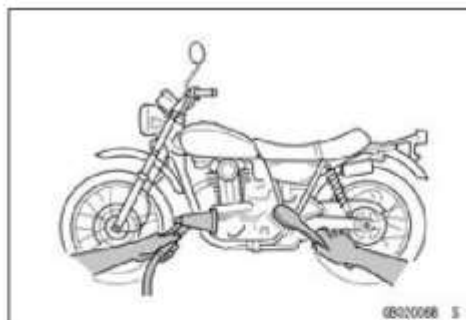
#### **Solvent**

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**

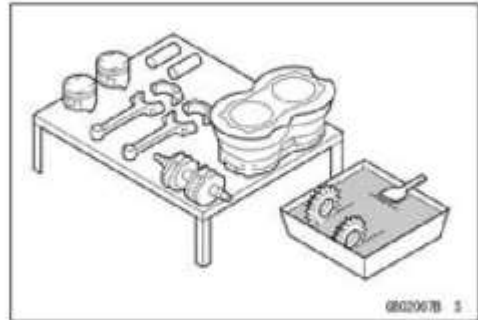
Clean the vehicle thoroughly before disassembly. Dirt or other foreign materials entering into sealed areas during vehicle disassembly can cause excessive wear and decrease performance of the vehicle.



## Before Servicing

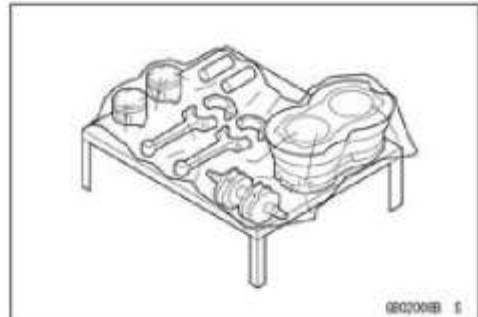
### **Arrangement and Cleaning of Removed Parts**

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.



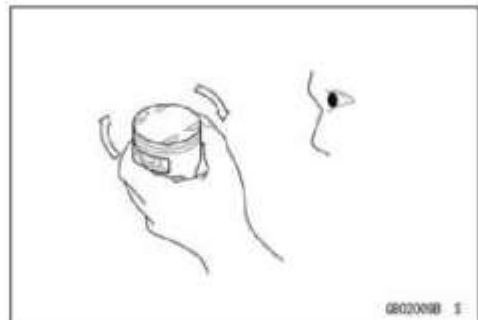
### **Storage of Removed Parts**

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.



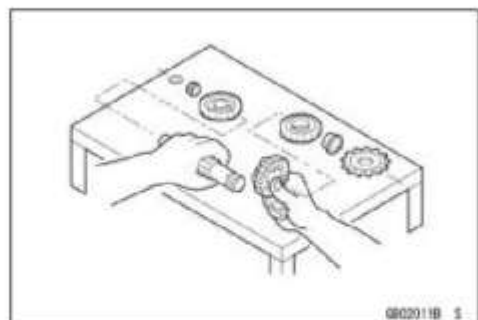
### **Replacement Parts**

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.

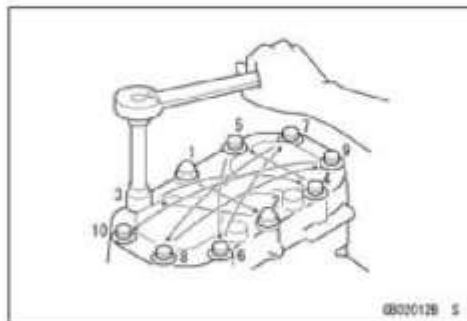


## 1-4 GENERAL INFORMATION

### Before Servicing

#### **Tightening Sequence**

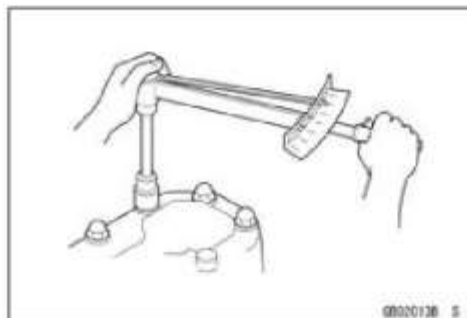
Generally, when installing a part with several bolts, nuts, or screws, start them all in their holes and tighten them to a snug fit. Then tighten them according to the specified sequence to prevent case warpage or deformation which can lead to malfunction. Conversely when loosening the bolts, nuts, or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



#### **Tightening Torque**

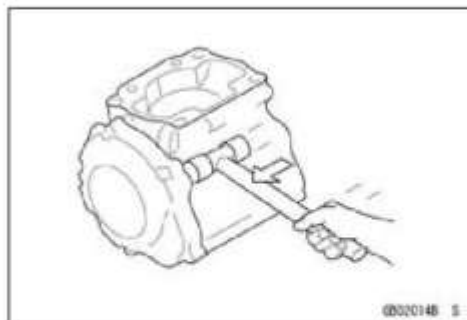
Incorrect torque applied to a bolt, nut, or screw may lead to serious damage. Tighten fasteners to the specified torque using a good quality torque wrench.

All of the tightening torque values are for use with dry, solvent - cleaned threads unless otherwise indicated. If a fastener which should have dry, clean threads gets contaminated with lubricant, etc., applying even the specified torque could damage it.



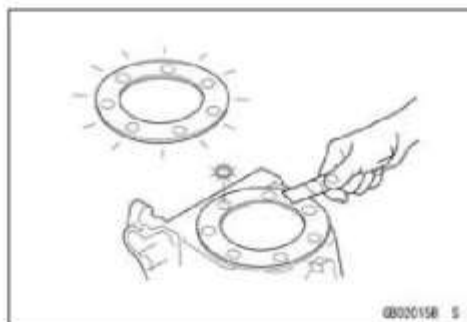
#### **Force**

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 the new gaskets and replace the used O-rings when re-assembling.



#### **Liquid Gasket, Non-permanent Locking Agent**

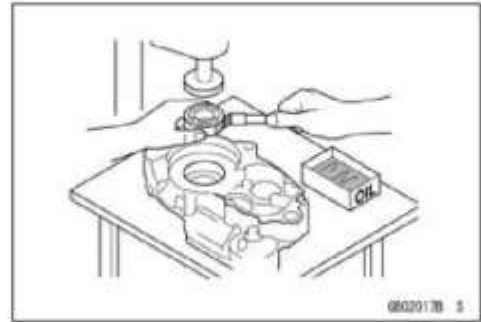
For applications that require Liquid Gasket or a Non-permanent Locking Agent, clean the surfaces so that no oil residue remains before applying liquid gasket or non-permanent locking agent. Do not apply them excessively. Excessive application can clog oil passages and cause serious damage.



## Before Servicing

### Press

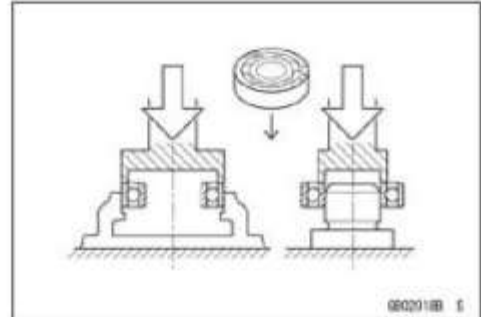
For items such as bearings or oil seals that must be pressed into place, apply small amount of oil to the contact area. Be sure to maintain proper alignment and use smooth movements when installing.



### Ball Bearing and Needle Bearing

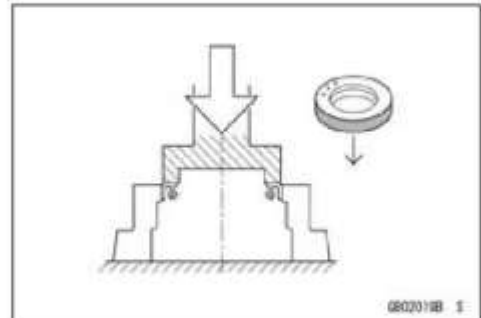
Do not remove pressed ball or needle unless removal is absolutely necessary. Replace with new ones whenever removed. Press bearings with the manufacturer and size marks facing out. Press the bearing into place by putting pressure on the correct bearing race as shown.

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

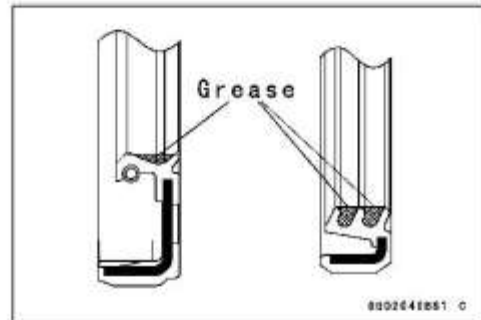


### Oil Seal, Grease Seal

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.

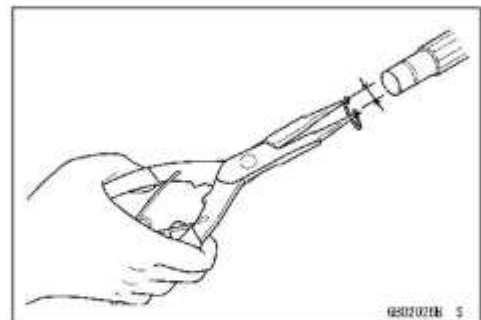


Apply specified grease to the lip of seal before installing the seal.



### Circlips, Cotter Pins

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

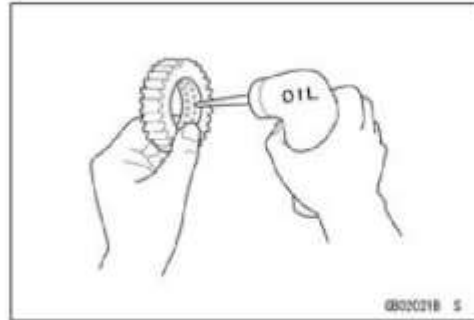


## 1-6 GENERAL INFORMATION

### Before Servicing

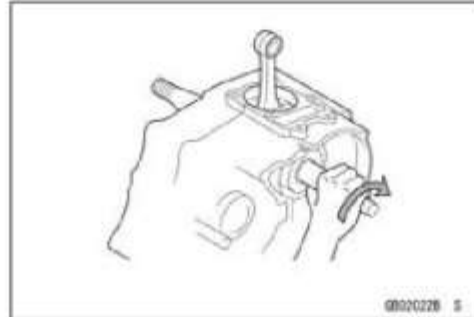
#### **Lubrication**

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.



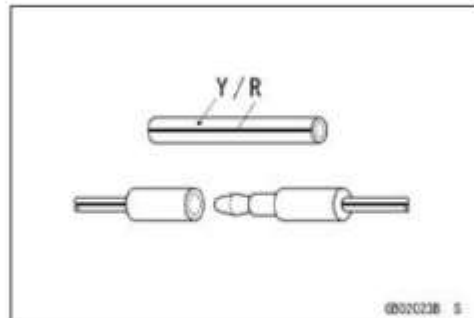
#### **Direction of Engine Rotation**

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).



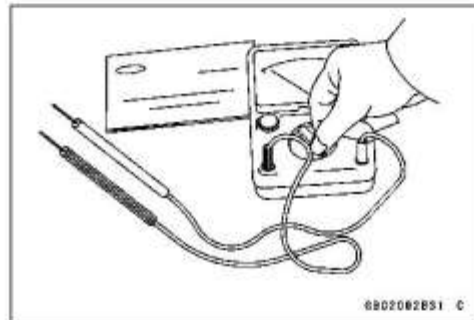
#### **Electrical Wires**

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 manufacturer's instructions thoroughly before using the meter. Incorrect values may lead to improper adjustments.



#### **Handling Electronic Parts**

Severe impacts to electronic parts such as the ECU, sensor, and relay can damage them. If dropped on a hard surface, replace such parts with new ones.

If a high voltage that is created by static electricity is applied to the electric parts, it could cause them to fail. To avoid this, touch a non-painted metal surface to discharge any static electricity that is accumulated on your body before inspecting or replacing electric parts.

Be careful not to touch the electrical terminals of the electronic parts. The static electricity discharged from your body could damage them or deform the electrical terminals.

Model Identification

ZX1002DK Left Side View



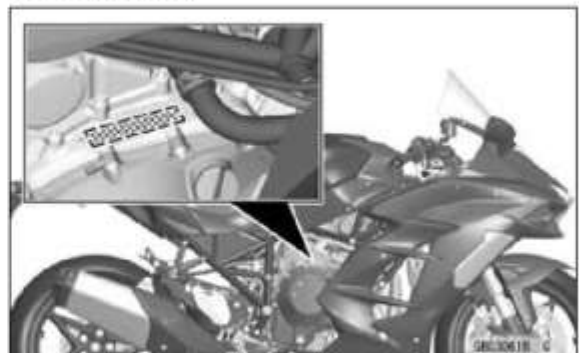
ZX1002DK Right Side View



Frame Number



Engine Number



## 1-8 GENERAL INFORMATION

### General Specifications

Items	ZX1002DK ~ DM
<b>Dimensions</b> Overall Length Overall Width Overall Height Wheel Base Ground Clearance Seat Height Curb Mass: Front Rear Fuel Tank Capacity	2 135 mm (84.05 in.) 775 mm (30.51 in.) 1 260 mm (49.61 in.) 1 480 mm (58.27 in.) 130 mm (5.12 in.) 835 mm (32.9 in.) 262 kg (578 lb) 134 kg (295 lb) 128 kg (282 lb) 19 L (5.0 US gal)
<b>Performance</b> Minimum Turning Radius	3.1 m (10.2 ft.)
<b>Engine</b> Type Cooling System Bore and Stroke Displacement Compression Ratio Maximum Horsepower  Maximum Torque  Fuel System Fuel Type: Minimum Octane Rating: Research Octane number (RON) Antiknock Index (RON + MON)/2 Starting System Ignition System Timing Advance Ignition Timing  Spark Plug Cylinder Numbering Method Firing Order Valve Timing: Intake: Open Close Duration	4-stroke, DOHC, 4-cylinder Liquid-cooled 76.0 × 55.0 mm (2.99 × 2.17 in.) 998 cm <sup>3</sup> (60.9 cu in.) 11.2:1 147.1 kW (200 PS) @11 000 r/min (rpm) (TH) 125.0 kW (170 PS) @9 000 r/min (rpm) (CA, US, CAL) ---  137.3 N·m (14.0 kgf·m, 101 ft·lb) @9 500 r/min (rpm) (TH) 133.4 N·m (13.6 kgf·m, 98 ft·lb) @8 200 r/min (rpm) (CA, US, CAL) ---  FI (Fuel injection), MIKUNI 40E1DW × 4  95 90 Electric Starter Battery and coil (transistorized) Electronically advanced (IC igniter in ECU) 10° BTDC @1 100 r/min (rpm) ~ 48° BTDC @6 000 r/min (rpm)  NGK SILMAR9E9 Left to right, 1-2-3-4 1-2-4-3  38° (BTDC) 38° (ABDC) 256°



## General Specifications

Items	ZX1002DK ~ DM
Exhaust: Open Close Duration Lubrication System Engine Oil: Type Viscosity Capacity	44° (BBDC) 24° (ATDC) 248° Forced lubrication (wet sump) API SG, SH, SJ, SL, or SM with JASO MA, MA1 or MA2 SAE 10W-40 4.7 L (5.0 US qt)
<b>Drive Train</b> Primary Reduction System: Type Reduction Ratio Clutch Type Transmission: Type Gear Ratios: 1st 2nd 3rd 4th 5th 6th Final Drive System: Type Reduction Ratio Overall Drive Ratio	Gear 1.480 (74/50) Wet multi disc 6-speed, constant mesh, return shift 3.077 (40/13) 2.471 (42/17) 2.045 (45/22) 1.727 (38/22) 1.524 (32/21) 1.348 (31/23) Chain drive 2.444 (44/18) 4.876 @Top gear
<b>Frame</b> Type Caster (Rake Angle) Trail Front Tire: Type Size Rim Size Rear Tire: Type Size Rim Size Front Suspension: Type Wheel Travel	Trellis, high-tensile steel 24.7° 103 mm (4.06 in.) Tubeless 120/70 ZR17M/C (58W) 17M/C × MT3.50 Tubeless 190/55 ZR17M/C (75W) 17M/C × MT6.00 Telescopic fork (upside-down) 120 mm (4.72 in.)

## 1-10 GENERAL INFORMATION

### General Specifications

Items	ZX1002DK ~ DM
Rear Suspension: Type Wheel Travel Brake Type: Front Rear	Swingarm (Uni-Trak) 139 mm (5.47 in.)  Dual discs Single disc
<b>Electrical Equipment</b> Battery Headlight: High Beam Low Beam City Light Cornering Light Brake/Tail Light Turn Signal Light License Plate Light Alternator: Type Maximum Output	12 V 8.6 Ah (10HR)  LED LED LED LED LED LED LED  Three-phase AC 14.0 V - 30.0 A @5 000 r/min (rpm)

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/cm <sup>2</sup>
kPa	×	0.1450	=	psi
kPa	×	0.7501	=	cmHg
kgf/cm <sup>2</sup>	×	98.07	=	kPa
kgf/cm <sup>2</sup>	×	14.22	=	psi
cmHg	×	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:**

