

General Information

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1-2 GENERAL INFORMATION

Before Servicing

Before starting to service a motorcycle, careful reading of the applicable section is recommended to eliminate unnecessary work. Photographs, diagrams, notes, cautions, warnings, and detailed descriptions have been included wherever necessary. Nevertheless, even a detailed account has limitations, a certain amount of basic knowledge is also required for successful work.

Especially note the following:

- (1) **Dirt**

Before removal and disassembly, clean the motorcycle. Any dirt entering the engine or other parts will work as an abrasive and shorten the life of the motorcycle. For the same reason, before installing a new part, clean off any dust or metal filings.
- (2) **Battery Ground**

Remove the ground (-) lead from the battery before performing any disassembly operations on the motorcycle. This prevents: (a) the possibility of accidentally turning the engine over while partially disassembled. (b) sparks at electrical connections which will occur when they are disconnected. (c) damage to electrical parts.
- (3) **Installation, Assembly**

Generally, installation or assembly is the reverse of removal or disassembly. But if this Service Manual has installation or assembly procedures, follow them. Note parts locations and cable, wire, and hose routing during removal or disassembly so they can be installed or assembled in the same way. It is preferable to mark and record the locations and routing as much as possible.
- (4) **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 evenly in a cross pattern. This is to avoid distortion of the part and/or causing gas or oil leakage. Conversely when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter turn and then remove them. Where there is a tightening sequence indication in this Service Manual, the bolts, nuts, or screws must be tightened in the order and method indicated.
- (5) **Torque**

When torque values are given in this Service Manual, use them. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.
- (6) **Force**

Common sense should dictate how much force is necessary in assembly and disassembly. If a part seems especially difficult to remove or install, stop and examine what may be causing the problem. Whenever tapping is necessary, tap lightly using a wooden or plastic-faced mallet. Use an impact driver for screws (particularly for the removal of screws held by a locking agent) in order to avoid damaging the screw heads.
- (7) **Edges**

Watch for sharp edges, especially during major engine disassembly and assembly. Protect your hands with gloves or a piece of thick cloth when lifting the engine or turning it over.
- (8) **High-Flash Point Solvent**

A high-flash point solvent is recommended to reduce fire danger. A commercial solvent commonly available in North America is Stoddard solvent (generic name). Always follow manufacturer and container directions regarding the use of any solvent.
- (9) **Gasket, O-Ring**

Do not reuse a gasket or O-ring once it has been in service. The mating surfaces around the gasket should be free of foreign matter and perfectly smooth to avoid oil or compression leaks.
- (10) **Liquid Gasket, Non-Permanent Locking Agent**

Follow manufacturer's directions for cleaning and preparing surfaces where these compounds will be used. Apply sparingly. Excessive amounts may block engine oil passages and cause serious damage. An example of a non-permanent locking agent commonly available in North America is Loctite Lock'n Seal (Blue).
- (11) **Press**

A part installed using a press or driver, such as a wheel bearing, should first be coated with oil on its outer or inner circumference so that it will go into place smoothly.
- (12) **Ball Bearing and Needle Bearing**

Do not remove a ball bearing or a needle bearing unless it is absolutely necessary. Replace any ball or needle bearings that were removed with new ones, as removal generally damages bearings. Install bearings with the marked side facing out applying pressure evenly with a suitable driver. Only press on the race that forms the press fit with the base component to avoid damaging the bearings. This prevents severe stress on the balls or needles and races, and prevent races and balls or needles from being dented. Press a ball bearing until it stops at the stops in the hole or on the shaft.

(13) Oil Seal and Grease Seal.

Replace any oil or grease seals that were removed with new ones, as removal generally damages seals. When pressing in a seal which has manufacturer's marks, press it in with the marks facing out. Seals should be pressed into place using a suitable driver, which contacts evenly with the side of seal, until the face of the seal is even with the end of the hole. Before a shaft passes through a seal, apply a little high temperature grease on the lips to reduce rubber to metal friction.

(14) Circlip, Retaining Ring, and Cotter Pin

Replace any circlips, retaining rings, and cotter pins that were removed with new ones, as removal weakens and deforms them. When installing circlips and retaining rings, take care to compress or expand them only enough to install them and no more.

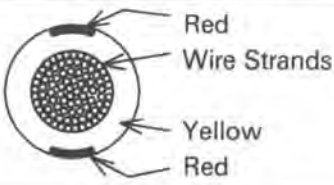
(15) Lubrication

Engine wear is generally at its maximum while the engine is warming up and before all the rubbing surfaces have an adequate lubricative film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface which has lost its lubricative film. Old grease and dirty oil should be cleaned off. Deteriorated grease has lost its lubricative quality and may contain abrasive foreign particles.

Don't use just any oil or grease. Some oils and greases in particular should be used only in certain applications and may be harmful if used in an application for which they are not intended. This manual makes reference to molybdenum disulfide grease (MoS_2) in the assembly of certain engine and chassis parts. Always check manufacturer recommendations before using such special lubricants.

(16) Electrical Wires

All the electrical wires are either single-color or two-color and, with only a few exceptions, must be connected to wires of the same color. On any of the two-color wires there is a greater amount of one color and a lesser amount of a second color, so a two-color wire is identified by first the primary color and then the secondary color. For example, a yellow wire with thin red stripes is referred to as a "yellow/red" wire; it would be a "red/yellow" wire if the colors were reversed to make red the main color.

| Wire (cross-section) | Name of Wire Color |
|---|--------------------|
|  | Yellow/Red |

(17) Replacement Parts

When there is a replacement instruction, replace these parts with new ones every time they are removed. These replacement parts will be damaged or lose their original function once removed.

(18) Inspection

When parts have been disassembled, visually inspect these parts for the following conditions or other damage. If there is any doubt as to the condition of them, replace them with new ones.

| | | | |
|--------------|---------------|-----------|------|
| Abrasion | Crack | Hardening | Warp |
| Bent | Dent | Scratch | Wear |
| Color change | Deterioration | Seizure | |

(19) Specifications

Specification terms are defined as follows:

"Standards": show dimensions or performances which brand-new parts or systems have.

"Service Limits": indicate the usable limits. If the measurement shows excessive wear or deteriorated performance, replace the damaged parts.

1-4 GENERAL INFORMATION

Model Identification

ZX900-C1 (US) Left Side View:



ZX900-C1 (US) Right Side View:



ZX900-D1 (Europe Model) Left Side View:



ZX900-D1 (Europe Model) Right Side View:



1-6 GENERAL INFORMATION

General Specifications

| Items | ZX900-C1 | D1 |
|---------------------------|---|--|
| Dimensions: | | |
| Overall length | 2 050 mm, (FG)(GR)(NR)(SW) 2 115 mm | 2115 mm |
| Overall width | 720 mm | ← |
| Overall height | 1 155 mm | ← |
| Wheelbase | 1 415 mm | ← |
| Road clearance | 160 mm | ← |
| Seat height | 810 mm | ← |
| Dry mass | 183 kg, (CA) 186 kg | 185 kg |
| Curb mass: Front | 107 kg (CA) 107.5 kg | 107 kg |
| Rear | 100 kg, (CA) 102.5 kg | 102 kg |
| Fuel tank capacity | 19 L | ← |
| Performance: | | |
| Minimum turning radius | 3.2 m | |
| Engine: | | |
| Type | 4-stroke, DOHC, 4-cylinder | ← |
| Cooling system | Liquid-cooled | ← |
| Bore and stroke | 75.0 x 50.9 mm | ← |
| Displacement | 899 mL | ← |
| Compression ratio | 11.5 | ← |
| Maximum horsepower | 105 kW (143 PS) @11 000 r/min (rpm), (KR, AS) 104 kW (142 PS) @11 000 r/min (rpm) (FG) 72 kW (98 PS) @11 000 r/min (rpm), (FR) 78.2 kW (106.3 PS) @11 000 r/min (rpm) (UTAC's norm), (SW) 55 kW (75 PS) @10 000 r/min (rpm), (US) --- | (FG) 72 kW (98 PS) @11 000 r/min (rpm) (ST) 104 kW (142 PS) @11 000 r/min (rpm) |
| Maximum torque | 101 N-m(10.3 kg-m, 73 ft-lb) @9 000 r/min (rpm), (KR, AS) 100 N-m (10.2 kg-m, 72 ft-lb) @9 000 r/min (rpm) (FG) 83 N-m (8.5 kg-m, 61 ft-lb) @9 000 r/min (rpm), (SW) 79 N-m (8.0 kg-m, 58 ft-lb) @4 000 r/min (rpm), (FR)(UK)(US) --- | (FG) 83 N-m (8.5 kg-m, 61 ft-lb) @6 000 r/min (rpm) (ST) 100 N-m (10.2 kg-m, 72 ft-lb) @9 000 r/min (rpm) |
| Carburetion system | Carburetors, Keihin CVKD 40 x 4 | ← |
| Starting system | Electric starter | ← |
| Ignition system | Battery and coil (transistorized) | ← |
| Timing advance | Electronically advanced(digital igniter) | ← |
| Ignition timing | From 10° BTDC @1 100 r/min (rpm) to 32.5° BTDC @5 000 r/min (rpm) | ← |
| Spark plug | NGK CR9EK or ND U27ETR | ← |
| Cylinder numbering method | Left to right, 1-2-3-4 | ← |
| Firing order | 1-2-4-3 | ← |
| Valve timing: | | |
| Inlet | Open | ← |
| | Close | ← |
| | Duration | ← |
| Exhaust | Open | ← |
| | Close | ← |
| | Duration | ← |

| Items | ZX900-C1 | D1 |
|------------------------------|--|-----------------|
| Lubrication system | Forced lubrication (wet sump with cooler) | ↑ |
| Engine oil: | | |
| Grade | SE, SF or SG class | ↑ |
| Viscosity | SAE10W-40, 10W-50, 20W-40, or 20W-50 | ↑ |
| Capacity | 3.8 L | ↑ |
| Drive Train: | | |
| Primary reduction system: | | |
| Type | Gear | ↑ |
| Reduction ratio | 1.714 (84/49) | ↑ |
| Clutch type | Wet multi disc | ↑ |
| Transmission: | | |
| Type | 6-speed, constant mesh, return shift | ↑ |
| Gear ratios: | | |
| 1st | 2.571 (36/14) | ↑ |
| 2nd | 1.941 (33/17) | ↑ |
| 3rd | 1.556 (28/18) | ↑ |
| 4th | 1.333 (28/21) | ↑ |
| 5th | 1.200 (24/20) | ↑ |
| 6th | 1.095 (23/21) | ↑ |
| Final drive system: | | |
| Type | Chain drive | ↑ |
| Reduction ratio | 2.563 (41/16) | ↑ |
| Overall drive ratio | 4.811 @Top gear | ↑ |
| Frame: | | |
| Type | Tubular, diamond | ↑ |
| Caster (rake angle) | 24° | ↑ |
| Trail | 93 mm | ↑ |
| Front tire: Type | Tubeless | ↑ |
| Size | 120/70 ZR17 (58W) | ↑ |
| Rear tire: Type | Tubeless | ↑ |
| Size | 180/55 ZR17 (73W) | ↑ |
| Front suspension: | | |
| Type | Telescopic fork | ↑ |
| Wheel travel | 120 mm | ↑ |
| Rear suspension: | | |
| Type | Swingarm (uni-trak) | ↑ |
| Wheel travel | 130 mm | ↑ |
| Brake type: Front | Dual disc | ↑ |
| Rear | Single disc | ↑ |
| Electrical Equipment: | | |
| Battery | 12 V 8 Ah | ↑ |
| Headlight: Type | Semi-sealed beam | ↑ |
| Bulb | 12V60/55W (quartz-halogen). | ↑ |
| Tail/brake light | 12 V 5/21 W x 2, (CN)(US) 12 V 8/27 W x 2 | 12 V 5/21 W x 2 |
| Alternator: Type | Three-phase AC | ↑ |
| Rated output | 27 A/ 14 V @5 000 r/min (rpm) | ↑ |

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

(AS) : Australian Model
 (CA) : California Model
 (FG) : German Model
 (FR) : French Model
 (GR) : Greek Model
 (KR) : Korean Model

(ST) : Swiss Model
 (SW) : Swedish Model
 (US) : U.S.A. Model
 (UK) : U.K. Model
 (NR) : Norwegian Model

1-8 GENERAL INFORMATION

Periodic Maintenance Chart

The scheduled maintenance must be done in accordance with this chart to keep the motorcycle in good running condition. **The initial maintenance is vitally important and must not be neglected.**

| OPERATION | FREQUENCY | Which ever comes first | | *ODOMETER READING | | | | | | | | | |
|---|-----------|------------------------|---|------------------------|--------------------------|---------------------------|----------------------------|----------------------------|----------------------------|----------------------------|---|---|---|
| | | Every | ↓ | 1 000 km (600 mile) | 6 000 km (4 000 mile) | 12 000 km (7 500 mile) | 18 000 km (12 000 mile) | 24 000 km (15 000 mile) | 30 000 km (20 000 mile) | 36 000 km (24 000 mile) | | | |
| Spark plug – clean and gap † | | | • | • | • | • | • | • | • | • | • | • | • |
| Valve clearance – check † | | | | • | • | • | • | • | • | • | • | • | • |
| Air suction valve – check † | | | • | • | • | • | • | • | • | • | • | • | • |
| Air cleaner element and air vent filter – clean# | | | | • | • | • | • | • | • | • | • | • | • |
| Throttle grip play – check † | | • | | • | • | • | • | • | • | • | • | • | • |
| Idle speed – check † | | • | | • | • | • | • | • | • | • | • | • | • |
| Carburetor synchronization – check † | | | | • | • | • | • | • | • | • | • | • | • |
| Engine oil – change # | 6 months | • | • | • | • | • | • | • | • | • | • | • | • |
| Oil filter – replace | | • | | • | • | • | • | • | • | • | • | • | • |
| Evaporative emission control system (CA) -check † | | • | • | • | • | • | • | • | • | • | • | • | • |
| Drive chain wear – check † # | | | • | • | • | • | • | • | • | • | • | • | • |
| Brake pad wear – check † # | | | • | • | • | • | • | • | • | • | • | • | • |
| Brake light switch – check † | | • | • | • | • | • | • | • | • | • | • | • | • |
| Steering – check † | | • | • | • | • | • | • | • | • | • | • | • | • |
| Front fork oil – change | 2 years | | | | | | • | | | | | | |
| Rear shock absorber oil leak – check † | | | | • | • | • | • | • | • | • | • | • | • |
| Front fork oil leak – check † | | | | • | • | • | • | • | • | • | • | • | • |
| Tire wear – check † | | | • | • | • | • | • | • | • | • | • | • | • |
| Swingarm pivot, Uni-trak linkage – lubricate | | | | • | • | • | • | • | • | • | • | • | • |
| General lubrication – perform | | | | • | • | • | • | • | • | • | • | • | • |
| Nuts, bolts, and fasteners tightness – check † | | • | | • | • | • | • | • | • | • | • | • | • |
| Drive chain – lubricate # | 600 km | | • | • | • | • | • | • | • | • | • | • | • |
| Drive chain slack – check † # | 1000 km | • | • | • | • | • | • | • | • | • | • | • | • |
| Brake fluid level – check † | month | • | • | • | • | • | • | • | • | • | • | • | • |
| Clutch adjust – check † | month | • | • | • | • | • | • | • | • | • | • | • | • |
| Radiator hoses, connection – check † | | • | | | | | | | | | | | |
| Brake fluid – change | 2 years | | | | | | • | | | | | | |
| Brake master cylinder cup and dust seal – replace | 4 years | | | | | | | | | | | | |
| Coolant – change | 2 years | | | | | | • | | | | | | |
| Caliper piston seal and dust seal – replace | 4 years | | | | | | | | | | | | |
| Steering stem bearing – lubricate | 2 years | | | | | | • | | | | | | |

: Service more frequently when operating in severe conditions; dusty, wet, muddy, high speed, or frequent starting/stopping.

* : For higher odometer readings, repeat at the frequency interval established here.

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

(CA): California Model only

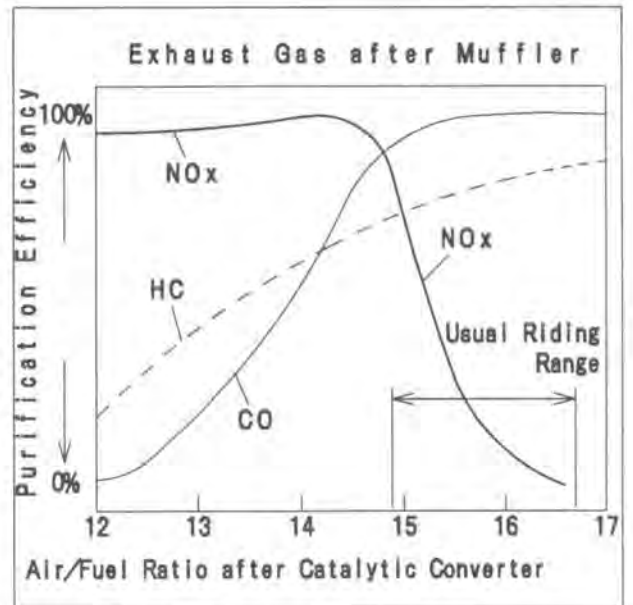
Technical Information – KLEEN (KAWASAKI LOW EXHAUST EMISSION)

The ZX900C (California), and the ZX900D (Germany and Switzerland) have catalytic converters.

The secondary air injection system [A] helps Kawasaki keep motorcycle exhaust gases below the established emission regulation limits. This system draws air into the exhaust ports, dilutes and burns harmful ingredients in the exhaust gas in order to reduce them. This allows the carburetor to be set at a reasonable setting position without adjusting it much leaner, so engine performance and actual riding performance are not spoiled.

But, under the trend that the emission regulation becomes more severe, Kawasaki has adopted two catalytic converters [B] in addition to the secondary air injection system. Moreover, a CVKD 40-type carburetor has been adopted from the ZX1100D because of its good balance between cost and performance. As a result, we can reduce the exhaust gas emission below the current standards without hurting the output performance and the actual riding feeling at all. The harmful ingredients in the exhaust gas under LA4 or EC-mode running performance was reduced considerably. As actual examples, carbon monoxide (CO) is reduced about 70%, hydrocarbons (HC) about 60%, nitrogen oxides (NOx) about 10%.

Moreover, in order to improve the reliability of the system, we install fuel cut valves [C] as a catalyst protection system.



Kawasaki Low Exhaust Emission System

