Kawasaki 750 turbo

Motorcycle Service Manual

Quick Reference Guide

To use, bend the manual back and match the desired chapter below against the black spot showing at the edge of these pages.

Kawasaki

750 turbo

Motorcycle Service Manual Supplement

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First Edition ② : July 13, 1984 Ⓜ

SAFETY AWARENESS

Whenever you see the symbols shown below, 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.

"NOTE"

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

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) Celcius	r	revolution
DC	direct current	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)	W	watt(s)
h	hour(s)	Ω	ohm(s)
L	liter(s)		

Read OWNER'S MANUAL before operating.

Emission Control Information

To protect the environment in which we all live, Kawasaki has incorporated crankcase emission (1) and exhaust emission (2) control systems in compliance with applicable regulations of the United States Environmental Protection Agency and California Air Resources Board. Additionally, Kawasaki has incorporated an evaporative emission control system (3) in compliance with applicable regulations of the California Air Resources Board on vehicles sold in California only.

1. Crankcase Emission Control System
   This system eliminates the release of crankcase vapors into the atmosphere. Instead, the vapors are routed through an oil separator to the intake side of the engine. While the engine is operating, the vapors are drawn into combustion chamber, where they are burned along with the fuel and air supplied by the carburetion system.
2. Exhaust Emission Control System
   This system reduces the amount of pollutants discharged into the atmosphere by the exhaust of this motorcycle. The fuel and ignition systems of this motorcycle have been carefully designed and constructed to ensure an efficient engine with low exhaust pollutant levels.
3. Evaporative Emission Control System
   Vapors caused by fuel evaporation in the fuel system are not vented into the atmosphere. Instead, fuel vapors are routed into the running engine to be burned, or stored in a canister when the engine is stopped. Liquid fuel is caught by a vapor separator and returned to the fuel tank.

The Clean Air Act, which is the Federal law covering motor vehicle pollution, contains what is commonly referred to as the Act's "tampering provisions."

"Sec. 203(a) The following acts and the causing thereof are prohibited...

(3)(A) for any person to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title prior to its sale and delivery to the ultimate purchaser, or for any manufacturer or dealer knowingly to remove or render inoperative any such device or element of design after such sale and delivery to the ultimate purchaser.

(3)(B) for any person engaged in the business of repairing, servicing, selling, leasing, or trading motor vehicles or motor vehicle engines, or who operates a fleet of motor vehicles knowingly to remove or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under this title following its sale and delivery to the ultimate purchaser..."

"NOTE"

○*The phrase "remove or render inoperative any device or element of design" has been generally interpreted as follows:*

1. *Tampering does not include the temporary removal or rendering inoperative of devices or elements of design in order to perform maintenance.*
2. *Tampering could include:*
   a. *Maladjustment of vehicle components such that the emission standards are exceeded.*
   b. *Use of replacement parts or accessories which adversely affect the performance or durability of the motorcycle.*
   c. *Addition of components or accessories that result in the vehicle exceeding the standards.*
   d. *Permanently removing, disconnecting, or rendering inoperative any component or element of design of the emission control systems.*

WE RECOMMEND THAT ALL DEALERS OBSERVE THESE PROVISIONS OF FEDERAL LAW, THE VIOLATION OF WHICH IS PUNISHABLE BY CIVIL PENALTIES NOT EXCEEDING $10,000 PER VIOLATION.

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

Federal law prohibits the following acts or the causing thereof:

(1) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

- Replacement of the original exhaust system or muffler with a component not in compliance with Federal regulations.
- Removal of the muffler(s) or any internal portion of the muffler(s).
- Removal of the air box or air box cover.
- Modifications to the muffler(s) or air intake system by cutting, drilling, or other means if such modifications result in increased noise levels.

Foreword

This 750 turbo Service Manual Supplement is designed to be used in conjunction with the KZ750 Four Motorcycle Service Manual (P/N 99924-1021-04). The maintenance and repair procedures described in this supplement are only those that are unique to the ZX750E motorcycle. Most service operations for this model remain identical to those described in the base Service Manual. Complete and proper servicing of the ZX750E motorcycle therefore requires both this supplement and the base Service Manual.

The base Service Manual and this Supplement are designed primarily for use by motorcycle mechanics in a properly equipped shop. However, they contain enough detail and basic information to make them useful to the operator who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and work shop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the operator has insufficient experience or doubts his ability to do the work, the adjustments, maintenance, and repair should be carried out only by qualified mechanics.

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

"NOTE"

○*This Supplement covers all items of the 750 turbo service data, so it is not necessary to refer to the base Service Manual for any service data.*

Kawasaki DFI (Digital Fuel Injection) System Precautions

"NOTE"

○*Engine performance is sensitive to throttle sensor position.*
○*The throttle sensor does not require any periodic maintenance.*
○*Do not alter or adjust sensor position unless otherwise the sensor position has been obviously upset.*
○*Sensor position is the last cause to be suspected in troubleshooting the DFI system.*

WARNING

○**When any fuel hose is disconnected, do not turn on the ignition switch. The fuel pump will operate and fuel will spout from the fuel hose if you turn on the switch while the hose is disconnected.**

1

General Information

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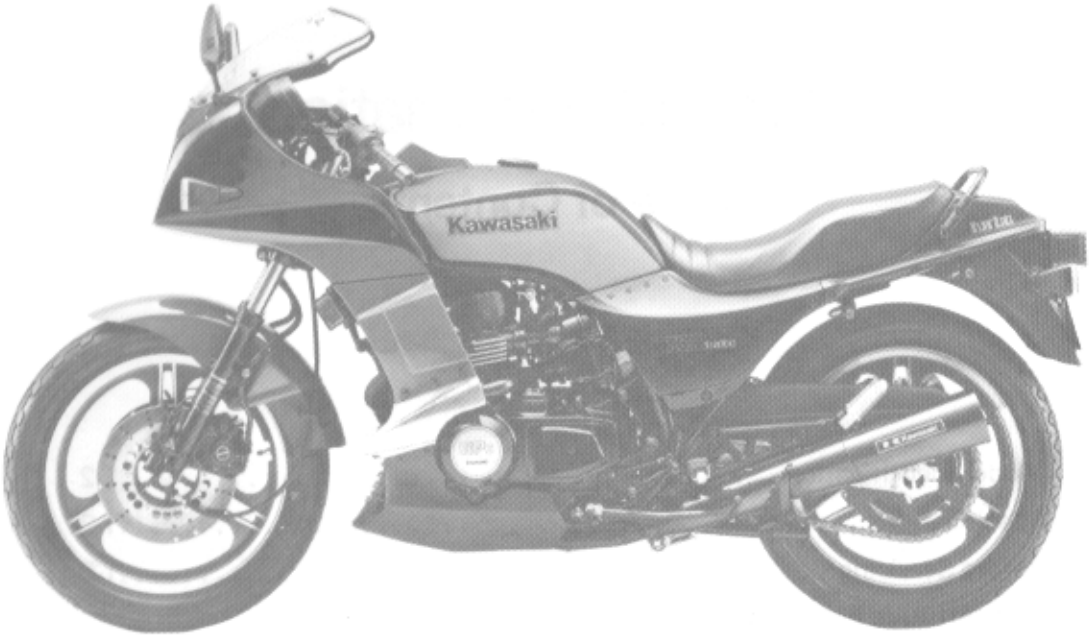
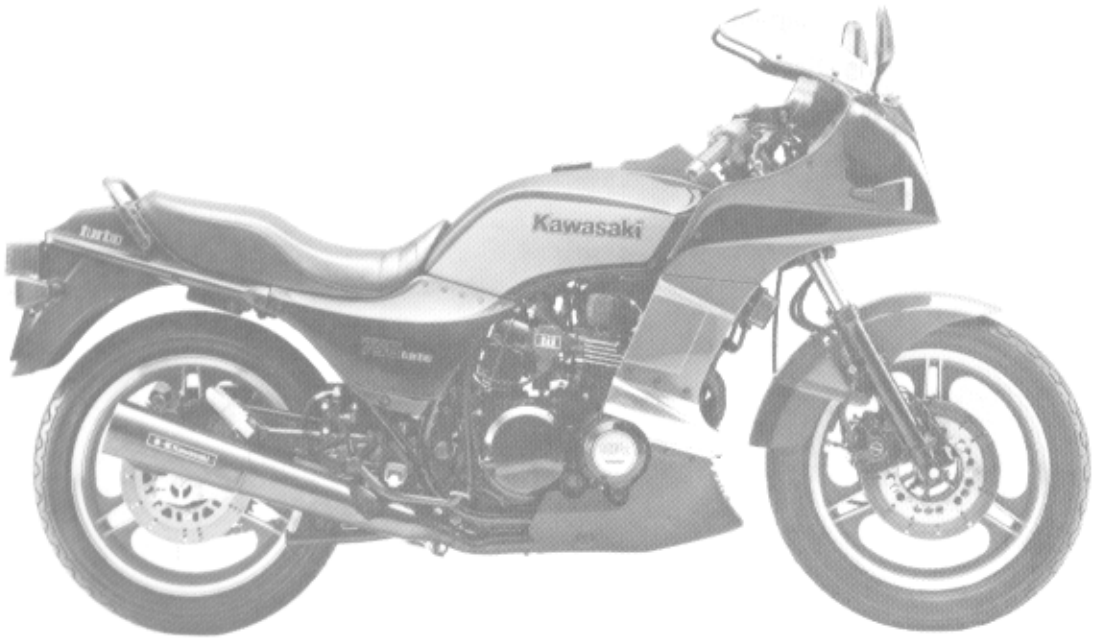
Model Identification

ZX750-E1 Left Side View:



ZX750-E1 Right Side View:



Specifications

Items			ZX750-E1
Dimensions:			
Overall length			2,220 mm, Ⓒ Ⓤ (SA) 2,190 mm
Overall width			740 mm, Ⓒ Ⓕ Ⓤ 720 mm
Overall height			1,260 mm
Wheelbase			1,490 mm
Road clearance			155 mm
Seat height			780 mm
Dry weight			2,285 N (233 kg), (Cal) 2,290 N (233.5 kg)
Curb weight:	Front		1,206 N (123 kg), (Cal) 1,211 N (123.5 kg)
	Rear		1,275 N (130 kg), (Cal) 1,275 N (130 kg)
Fuel tank capacity			17.0 L
Performance:			
Climbing ability			30°
Braking distance			12.5 m from 50 km/h
Minimum turning radius			2.7 m
Engine:			
Type			4-stroke, DOHC, 4-cylinder
Cooling system			Air cooled
Bore and stroke			66.0 x 54.0 mm
Displacement			738 mL
Compression ratio			7.8
Maximum horsepower			82.4 kW (112 PS) @9,000 r/min (rpm), Ⓖ Ⓢ 73.6 kW (100 PS) @9,000 r/min (rpm), (Swi) 61.0 kW (83 PS) @6,600 r/min (rpm)
Maximum torque			99.1 N-m (10.1 kg-m, 73.1 ft-lb) @6,500 r/min (rpm), Ⓖ Ⓢ 94.1 N-m (9.6 kg-m, 69.4 ft-lb) @6,500 r/min (rpm), (Swi) 92.2 N-m (9.4 kg-m, 68.0 ft-lb) @6,000 r/min (rpm)
Carburetion system			DFI (Digital Fuel Injection), Turbo
Starting system			Electric starter
Ignition system			Battery and coil (transistorized)
Timing advance			Electronically advanced
Ignition timing			From 10° BTDC @1,050 r/min (rpm) to 30° BTDC @3,300 r/min (rpm) Ⓤ From 10° BTDC @1,200 r/min (rpm) to 30° BTDC @3,300 r/min (rpm)
Spark plug			NGK BR9EV
Cylinder numbering method			Left to right, 1-2-3-4
Firing order			1-2-4-3
Valve timing:	Inlet	Open	22° BTDC
		Close	52° ABDC
		Duration	254°
	Exhaust	Open	60° BBDC
		Close	20° ATDC
		Duration	260°

Ⓒ : Canadian model
Ⓖ : West German model
(SA): South African model
(Cal): California model
Ⓢ : Swedish model
(Swi): Switzerland model
Ⓕ : French model
Ⓤ : US model

Items			ZX750-E1
Lubrication system			Forced lubrication (wet sump with cooler)
Engine Oil:	Grade		SE class
	Viscosity		SAE10W40, 10W50, 20W40, or 20W50
	Capacity		3.5 L
Drive Train:			
Primary reduction system:			
	Type		Gear
	Reduction ratio		1.935 (60/31)
Clutch type			Wet multi disc
Transmission:	Type		5-speed, constant mesh, return shift
	Gear ratios:	1st	2.285 (32/14)
		2nd	1.647 (28/17)
		3rd	1.272 (28/22)
		4th	1.045 (23/22)
		5th	0.833 (20/24)
Final drive system:			
	Type		Chain drive
	Reduction ratio		3.066 (46/15)
	Overall drive ratio		4.946 @Top gear
Frame:			
Type			Tubular, double cradle
Caster (rake angle)			28°
Trail			117 mm
Front tire:	Type		Tubeless
	Size		110/90 V 18
Rear tire:	Type		Tubeless
	Size		130/80 V 18
Front suspension:			
	Type		Telescopic fork (pneumatic)
	Wheel travel		130 mm
Rear suspension:			
	Type		Swing arm (uni-trak)
	Wheel travel		105 mm
Brake type:	Front		Dual disc
	Rear		Single disc
Electrical Equipment:			
Battery			12 V 14 AH
Headlight:	Type		Semi-Sealed beam
	Bulb		12 V 60/55 W (quartz-halogen)
Tail/brake light			12 V 5/21 W x 2, Ⓒ Cal SA Ⓤ 12 V 8/27 W x 2
Alternator:	Type		Three-phase AC
	Rated output		20 A @8,000 r/min (rpm), 14 V
Voltage regulator:			
	Type		Short-circuit

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 detail 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 fillings.

(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) Tightening Sequence

Generally, when installing a part with several bolts, nuts, or screws, they should all be started in their holes and tightened 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 of 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.

(4) Torque

The torque values given in this Service Manual should always be adhered to. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.

(5) 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.

(6) 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.

(7) 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.

(8) 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.

(9) 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).

(10) 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.

(11) Ball Bearing

When installing a ball bearing, the bearing race which is affected by friction should be pushed by a suitable driver. This prevents severe stress on the balls and races, and prevents races and balls from being dented. Press a ball bearing until it stops at the stop in the hole or on the shaft.

(12) 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.

(13) Seal Guide

A seal guide is required for certain oil or grease seals during installation to avoid damage to the seal lips. Before a shaft passes through a seal, apply a little oil, preferably high temperature grease on the lips to reduce rubber to metal friction.

(14) Circlip, Retaining Ring

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

(15) Lubrication

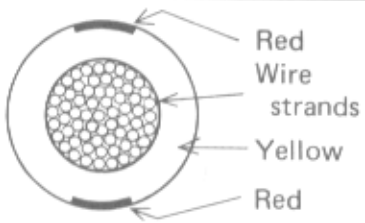
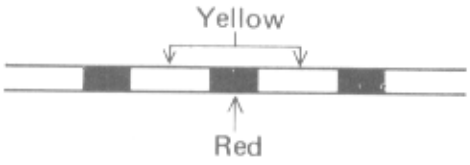
Engine wear is generally at its maximum while the engine is warming up and before all the rubbing surfaces have an adequate lubricative film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface which has lost its lubricative film. Old grease and dirty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

182100

Wire (cross-section)	Name of Wire Color	Picture in Wiring Diagram
	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 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) Service Data

Numbers of service data in this text have following meanings:

"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.

(20) DFI (Digital Fuel Injection) System

There are a number of important precautions that must be observed when servicing the Kawasaki DFI system. Failure to observe these precautions can result in serious system damage. Learn and observe all the rules listed below.

Electrical System:

- Do not disconnect the battery leads or any other electrical connections when the ignition switch is on, or while the engine is running. This is to prevent control unit damage.

"NOTE"

○*Whenever electrical connections are to be disconnected, first turn off the* **ignition switch,** *disconnect the* **DFI positive (+) lead** *from the battery positive terminal, and then disconnect the required connections. There are other white/red leads which are connected to the battery positive terminal, but these leads can be left connected.*

- Conversely, make sure that all electrical connections are firmly reconnected before starting the engine. Especially, do not forget to connect the DFI negative lead to the battery negative (−) terminal.
- The Kawasaki electronic fuel injection system is designed to be used with a 12-volt battery as its power source. Do not use anything other than a 12-volt battery as a power source.

"NOTE"

○*Do not directly connect a 12-volt battery to a fuel injector. Insert a resistor, which has a resistance of 5 — 7 Ω, in series between the battery and the injector, or use a 3-volt dry battery.*

- Always disconnect the battery positive and negative leads from the terminals, and remove the battery from the motorcycle for charging. This is to prevent the DFI control unit from being damaged by excessive peak voltage.
- Avoid spryaing water with any great force on the electrical components, connectors, leads, and wiring harness of the DFI system.
- Keep the DFI system wiring harness at least 100 mm from all other system leads (especially high tension leads of the ignition system). This to prevent the DFI control unit from malfunctioning due to external electrical noises.
- If a transceiver is installed on the motorcycle, make sure that the operation of the fuel injection system is not influenced by electric wave radiated from the antenna. Check operation of the system with the engine at idle.

"NOTE"

○*Locate the antenna as far as possible from the control unit. The interference from radio waves can be reduced by grounding the unit control box to the motorcycle.*

- Important throttle sensor information for Kawasaki DFI system.

"NOTE"

○*Engine performance is sensitive to throttle sensor position.*
○*The throttle sensor does not require any periodic maintenance.*
○*Do not alter or adjust sensor position unless otherwise the sensor position has been obviously upset.*
○*Sensor position is the last cause to be suspected in troubleshooting the DFI system.*

Fuel System:

- Do not operate the fuel pump if the inside of the pump is completely dry. This is to prevent the pump from running without lubricant at the friction surfaces.
- Blow the fuel system clean with compressed air before removing the parts.
- Any hose clamps on the high-pressure fuel line must be replaced with new ones once they are loosened.

"NOTE"

- Install the hose clamps in the position shown in the Disassembly Chapter and securely tighten the clamp screws. Check the fuel system for leaks.

- To prevent corrosion and deposits in the fuel system, do not add any antifreeze chemicals in fuel.

WARNING

- **When any fuel hose is disconnected, do not turn on the ignition switch. The fuel pump will operate and fuel will spout from the fuel hose if you turn on the switch while the hose is disconnected.**

Air System:

- In order to maintain the correct fuel/air mixture, there must be no air leaks in the air system. Be sure to install the oil filler cap securely after adding engine oil.

High Altitude Performance Adjustment Information (US Model)

To improve the EMISSION CONTROL PERFORMANCE of vehicles operated above 4,000 feet an Environmental Protection Agency (EPA) approved modification may be required for some models. However, any kind of modification is not necessary for the 1984 model ZX750E.

Setting Before Ride

Before using this motorcycle check and/or adjust the following to ensure safe and comfortable riding conditions.

Fuel Requirement:

Octance Rating

The octane rating of a gasoline is a measure of its resistance to detonation or "knocking". Use premium gasoline with an octane rating equal to or higher than that shown in the table below.

Octane Rating Method	Minimum Rating
Antiknock Index $\frac{(RON + MON)}{2}$	90
Research Octane No. (RON)	95

The Antiknock Index is an average of the Research Octane No. (RON) and the Motor Octane No. (MON). The Antiknock Index is posted on service station pumps in the U.S.A. Research Octane No. is a commonly used term describing a gasoline's octane rating.

"NOTE"

○*If "knocking" or "pinging" occurs, try a different brand of gasoline or a higher octane grade.*

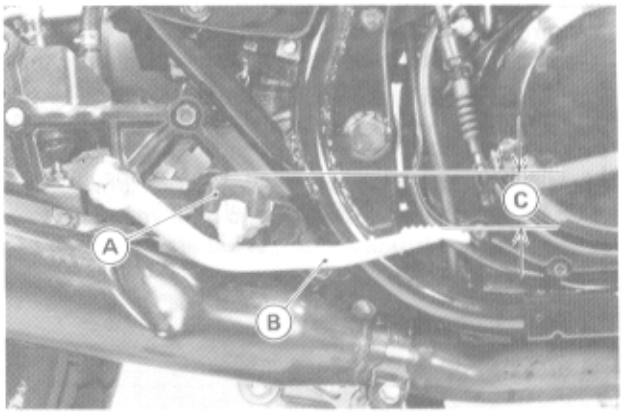
Brake Pedal:

Brake pedal position is an important factor for safe and confortable riding.

Inspection of Brake Pedal Position

●Measure the height difference between the tops of the footpeg and the pedal.

★If the pedal position is not within the limit, adjust it.



A. Footpeg
B. Brake Pedal
C. Pedal Position

Brake Pedal Position

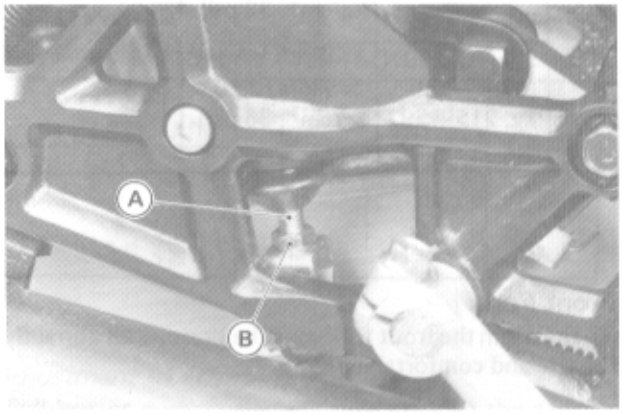
50.5 – 54.5 mm below top of footpeg

Adjustment of Brake Pedal Position

●Loosen the locknut, and turn the push rod of the rear brake master cylinder to adjust the pedal position.

●Be sure to tighten the locknut after adjustment.

●Check operation of the rear brake and the brake light switch.



A. Push Rod
B. Locknut

"NOTE"

○*If the brake pedal position cannot be adjusted by turning the push rod, the brake pedal may be deformed or incorrectly installed.*

Tires:

Failure to maintain proper inflation pressures or observe payload limits for your tires may adversely affect handling and performance of your motorcycle and can result in loss of control.

Inspection of Tire Air Pressure

- Measure the tire pressure when the tires are cold (that is, when the motorcycle has not been ridden more than a mile during the past 3 hours).
- Tire pressure is affected by changes in ambient temperature and altitude, and so the tire pressure should be checked and adjusted when your riding involves wide variations in temperature or altitude.

Tire Air Pressure (US and Canada)

Front	196 kPa (2.0 kg/cm², 28 psi)	
Rear	Up to 956 N (97.5 kg, 215 lb) load	221 kPa (2.25 kg/cm², 32 psi)
	956 – 1,770 N (97.5 – 180 kg, 215 – 397 lb) load	245 kPa (2.5 kg/cm², 36 psi)

Tire Air Pressure (Other than US and Canada)

	Load	Tire Air Pressure	
		Under 210 km/h (130 mph)	Over 210 km/h (130 mph)
Front	———	196 kPa (2.00 kg/cm², 28 psi)	221 kPa (2.25 kg/cm², 32 psi)
Rear	Up to 956 N (97.5 kg, 215 lb)	221 kPa (2.25 kg/cm², 32 psi)	284 kPa (2.90 kg/cm², 41 psi)
	956 – 1,770 N (97.5 – 180 kg, 215 – 397 lb)	245 kPa (2.50 kg/cm², 36 psi)	

Front Fork:

The air in the front fork must be pressurized correctly for safe and comfortable riding.

Inspection of Front Fork Air Pressure

- Put the motorcycle on its center stand, and raise the front wheel off the ground using a jack under the engine.
- Use the air pressure gauge (special tool: P/N 52005-1003) specially made for air suspensions.
- Check and adjust the air pressure when the front fork is cold (room temperature).

"NOTE"

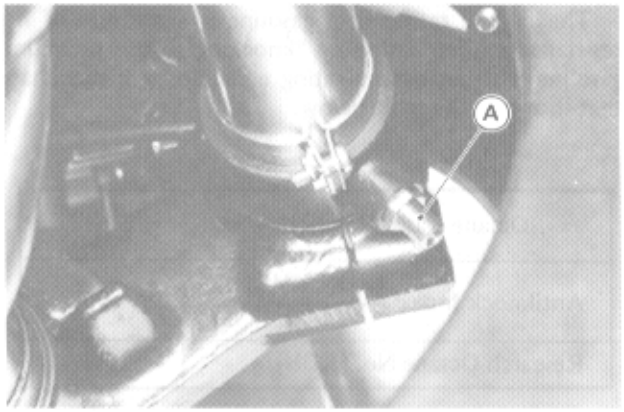
- *Do not use a tire gauge for checking air suspension's air pressure. They do not indicate the correct pressure because of air leaks that occure when the gauge is applied to the valve.*
- *Lower air pressure is for comfortable riding, but it should be increased for high speed riding, or riding on bad roads.*

CAUTION

- **Inject air little by little so that air pressure does not rise rapidly. Air pressure exceeding 245 kPa (2.50 kg/cm², 36 psi) may damage the oil seal.**

WARNING

- **Be sure to adjust the air pressure within the usable range. Pressure too high or too low can produce a hazardous riding condition.**
- **Only air or nitrogen gas can be used. Never inject oxygen or any kind of explosive gas.**
- **Do not incinerate the front fork.**
- **Do not remove the springs and rely on compressed air only. Correct springs must be used in this suspension system. Use without springs can lead to a condition causing accident and injury.**



A. Air Valve

Front Fork Air Pressure

Standard:	49 kPa (0.50 kg/cm², 7.1 psi)
Usable range:	39 – 59 kPa (0.4 – 0.6 kg/cm², 5.7 – 8.5 psi)

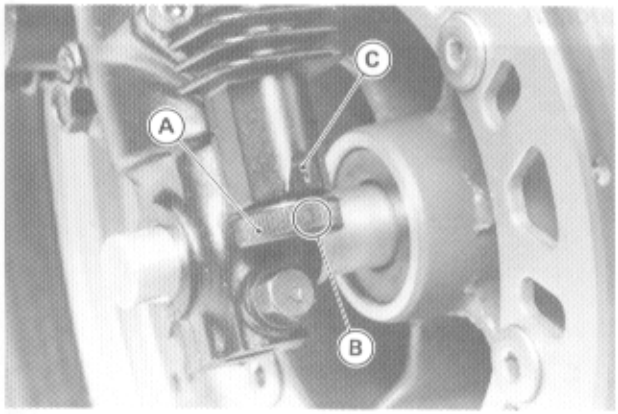
Anti-Dive Adjustment

The anti-dive adjuster on each front fork leg has 3 positions so that the anti-dive system can be adjusted for different road and loading conditions. The numbers on the adjuster show the setting position of the anti-dive system.

- Turn the anti-dive adjuster until you feel a click so that the desired position number aligns with the triangular mark.
- Check to see that both adjusters are turned to the same relative position.

WARNING

○If both anti-dive adjusters are not adjusted equally, handling may be impaired and a hazardous condition may result.



A. Anti-Dive Adjuster
B. Position Number
C. Triangular Mark

Anti-Dive Adjustment

Position	1	2	3
Anti-Dive	Weak	Moderate	Strong

Rear Shock Absorbers:

The rear shock absorber can be adjusted by changing the air pressure and damping force to suit various riding and loading conditions.

Inspection of Air Pressure

- Put the motorcycle up on its center stand to raise the rear wheel off the ground.
- Remove the side cover.
- Use the air pressure gauge (Special tool: P/N 52005-1003) specially made for air suspensions.
- Check and adjust the air pressure when the rear shock absorbers are cold (room temperature).

"NOTE"

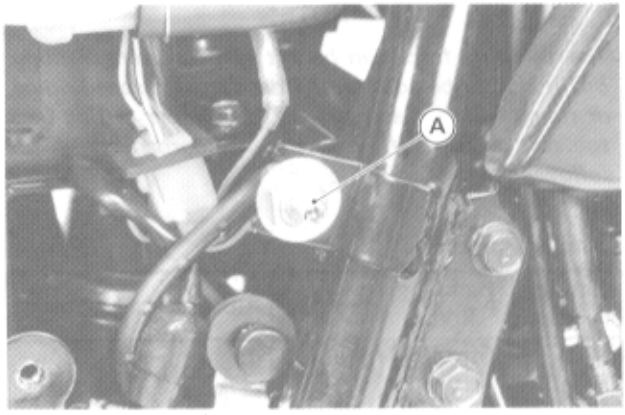
○Do not use a tire gauge for checking air pressure. They may not indicate the correct air pressure because of air leaks that occur when the gauge is applied to the valve.
○Lower air pressure is for comfortable riding for an average-built rider of 68 kg with no accessories. Ordinarily, the heavier the total load becomes, the higher the air pressure should be set.

CAUTION

○Inject air little by little so that air pressure does not rise rapidly. Air pressure exceeding 490 kPa (5.0 kg/cm², 71 psi) may damage the oil seal.

WARNING

○Be sure to adjust the air pressure within the usable range. Pressure too high or too low can produce a hazardous riding condition.
○Only air or nitrogen gas can be used. Never inject oxygen or any kind of explosive gas.
○Do not incinerate the rear shock absorbers.



A. Air Valve

"NOTE"

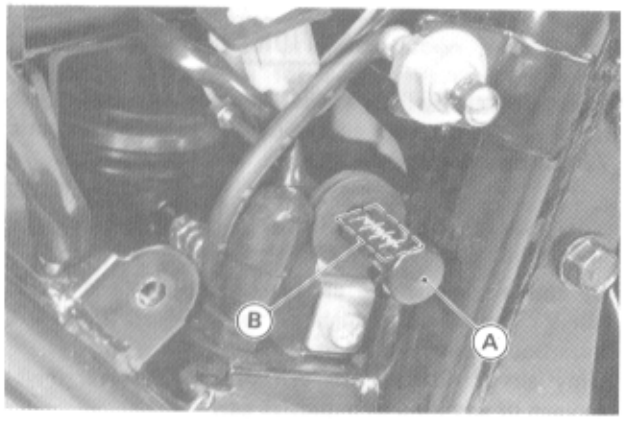
○The recommended air pressure is 196 kPa (2.00 kg/cm², 28 psi) for one rider with no accessories.

Rear Shock Absorber Air Pressure

Air Pressure kPa (kg/cm², psi)	Setting	Load	Road
49 (0.5, 7.1)	Soft	Light	Good
↕	↕	↕	↕
294 (3.0, 43)	Hard	Heavy	Bad

Adjustment of Damping Force

- Pull out or push in the adjusting stick to the desired setting position until you feel a click. The numbers on the adjusting stick show the setting position of the damper.
  - Position 1 – the fully-pushed-in position.
  - Position 2 – the first click position on the adjusting stick return way.
  - Position 3 – the second click position on the adjusting stick return way.
  - Position 4 – the fully-pulled-out position.



A. Adjusting Stick B. Position Number

"NOTE"

○*The damping force can be left soft for average riding. But it should be adjusted harder for high speed riding, or riding with a passanger. If the damper setting feels too soft or too stiff, adjust it in accordance with the following table:*

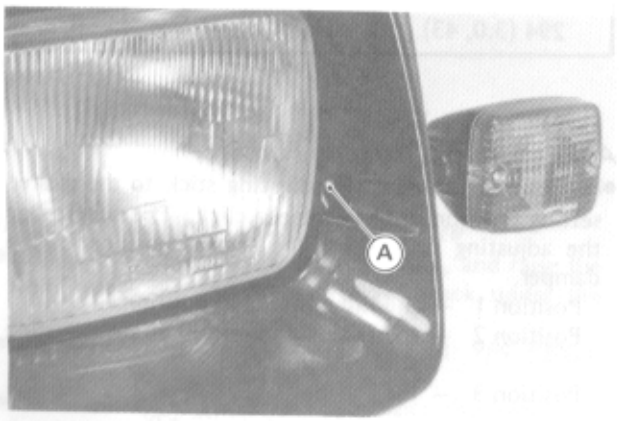
Damping Force

Setting Position	Damping Force	Setting	Load	Road	Speed
1	Stronger	Soft	Light	Good	Low
2	↓	↕	↕	↕	↕
3					
4		Hard	Heavy	Bad	High

Headlight:

The headlight beam is adjustable both horizontally and vertically. Headlight aiming must be correctly adjusted for your safe riding as well as oncoming drivers. In most areas it is illegal to ride with improperly adjusted headlights.

Horizontal Adjustment



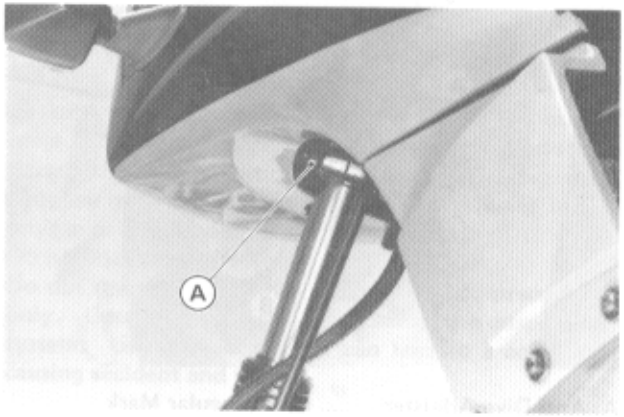
A. Adjusting Screw for Horizontal Adjustment

Vertical Adjustment

- Remove the cowling.
- Loosen the lower headlight bolt.
- Open the headlight unit.
- Loosen the headlight housing mounting nuts, and adjust the headlight vertically.

"NOTE"

○*On high beam, the brightest point should be slightly below horizontal with the motorcycle on its wheels and the rider seated. Adjust the headlight to the proper angle according to local regulations.*



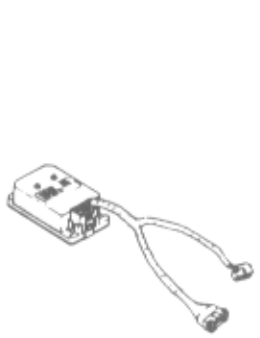
A. Headlight Bolt

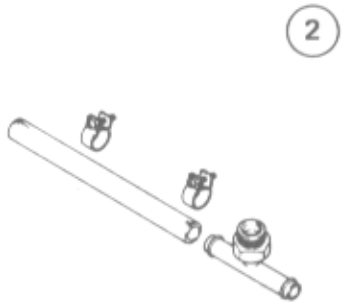
Vertical Adjustment 182101

Special Tools

Refer to p. 383 of the Base Manual noting the following exception.

Ref. No.	Part No.	Discription	Quantity
1	57001-1003	Throttle Sensor Positioning Checker	1
2	57001-1089	Adapter	1





Torque and Locking Agent

The following tables list the tightening torque for the major fasterners requiring use of a non-permanent locking agent or liquid gasket.

Letters used in the "Remarks" column mean:
A : Apply a non-permanent locking agent to the threads.
G : Apply a liquied gasket to the threads or washers.
S : Tighten the fasteners following the specified sequence.
St : Stake the fasteners to prevent loosening.

Engine Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
DFI System Parts:						
Engine temperature sensor	10	1	13	1.3	9.5	–
Fuel injector mounting bolts	5	8	4.9	0.50	43 in-lb	–
Accessories:						
Oil cooler hose fitting:						
Bolts	6	4	9.8	1.0	87 in-lb	–
Nuts	6	2	7.8	2.2	69 in-lb	–
Engine Mounting:						
Engine mounting bolts:	10	4	39	4.0	29	–
Engine mounting bracket bolts	8	8	24	2.4	17.5	–
Top End:						
Breather cover bolt	8	1	5.9	0.60	52 in-lb	–
Camshaft bearing cap bolts	6	16	12	1.2	104 in-lb	S
Camshaft chain tensioner cap	18	1	25	2.5	18	–
Camshaft sprocket bolts	6	4	15	1.5	11.0	A
Cylinder head: Bolts	8	2	29	3.0	22	S
Nuts	10	12	39	4.0	29	S
Cylinder head cover bolts	6	24	7.8	0.80	69 in-lb	–
Spark plugs	14	4	27	2.8	20	–
Studs:						
Cylinder head	6	8	–	–	–	A
Crankcase	10	12	–	–	–	A
Throttle valve holder bolts	6	8	14	1.4	10.0	A
Left Side:						
Engine sprocket nut	20	1	98	10.0	72	–
Alternator cover bolts	6	4	–	–	–	A
Alternator rotor bolt	12	1	125	13.0	94	–
Alternator stator bolts	6	3	9.8	1.0	87 in-lb	A
Neutral switch	12	1	15	1.5	11	–

(Continued on next page.)

Engine Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Shift pedal return spring pin	8	1	25	2.5	18.0	A
Starter clutch bolts	8	3	34	3.5	25	–
Secondary shaft nut	18	1	59	6.0	43	–
Right Side:						
Clutch hub nut	20	1	130	13.5	98	–
Clutch spring bolts	6	5	8.8	0.90	78 in-lb	–
Oil pressure switch	–	1	15	1.5	11.0	–
Timing rotor mounting bolt	8	1	25	2.5	18.0	–
Bottom Side:						
Engine drain plug	12	1	37	3.8	27	–
Oil filter mounting bolt	20	1	20	2.0	14.5	–
Oil pan bolts	6	17	9.8	1.0	87 in-lb	–
Sub oil pan bolts	6	2	9.8	1.0	87 in-lb	–
Oil pressure relief valve	12	1	15	1.5	11.0	A
Turbocharger mounting bolts	6	2	–	–	–	–
Oil pipe banjo bolts	10	2	20	2.0	14.5	–
Oil hose elbow mounting bolts	2	–	–	–	–	–
Shift drum pin plate screw	6	1	–	–	–	A
Internal Parts:						
Crankcase bolts:						
6 mm dia.	6	20	9.8	1.0	87 in-lb	A
8 mm dia.	8	10	25	2.5	18.0	A, S
Connecting rod big end cap nuts	8	8	36	3.7	27	–

Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Wheels:						
Front axle nut	14	1	59	6.0	43	–
Front axle clamp nut	8	1	20	2.0	14.5	–
Front fender mounting bolts	8	4	–	–	–	–
Rear axle nut	16	1	93	9.5	69	–
Tire air valve nuts	8	4	1.5	0.15	13 in-lb	–
Muffler:						
Exhaust pipe holder nuts	8	8	–	–	–	–
Exhaust manifold mouting nuts	8	3	20	2.0	14.5	–
Connecting pipe mounting bolts	8	2	20	2.0	14.5	–
Muffler body clamp bolts	8	2	–	–	–	–
Rear mounting bolts	8	4	–	–	–	–

(Continued on next page.)

Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Brakes:						
Air bleed valves	7	5	7.8	0.80	69 in-lb	–
Brake hose banjo bolts	10	9	29	3.0	22	–
Brake lever pivot bolt	6	1	2.9	0.30	26 in-lb	–
Brake lever pivot bolt locknut	6	1	5.9	0.60	52 in-lb	–
Brake pipe nipples	10	4	23	2.3	16.5	–
Brake pedal bolt	8	1	–	–	–	–
Caliper mounting bolt (front and rear)	10	6	32	3.3	24	–
Disc mounting bolts	8	18	23	2.3	16.5	–
Front brake light switch mounting screw	4	1	–	–	–	A
Front master cylinder clamp bolts	6	2	8.8	0.90	78 in-lb	–
Torque link nuts	10	2	29	3.0	22	–
Steering:						
Handlebar clamp bolts	6	4	9.8	1.0	87 in-lb	–
Handlebar holder mounting bolts	32	2	74	7.5	54	–
Handlebar weight mounting bolts	8	2	–	–	–	A
Steering stem head bolt	14	1	42	4.3	31	–
Clutch lever holder bolt	6	1	–	–	–	–
Suspension and Drive Train:						
Anti-Dive brake plunger assembly mounting bolts	5	4	4.4	0.45	39 in-lb	–
Anti-Dive valve assembly mounting bolts	6	4	6.9	0.70	61 in-lb	–
Eccentric chain adjuster clamp bolts	10	2	32	3.3	24	–
Front fork air valve	8	1	7.8	0.80	69 in-lb	A
Front fork bottom bolts	8	2	23	2.3	16.5	A, G
Front fork clamp bolts: Upper	8	2	20	2.0	14.5	–
Lower	12	2	39	4.0	29	–
Front fork drain screws	4	2	–	–	–	G
Front fork top plugs	32	2	23	2.3	16.5	–
Rear shock absorber nuts:						
Upper	10	1	37	3.8	27	–
Lower	12	1	69	7.0	51	–
Rear shock absorber air valve	8	1	7.8	0.80	69 in-lb	A
Rear shock absorber air hose male pipe	8	1	12	1.2	104 in-lb	A
Rear sprocket nuts	10	6	39	4.0	29	–

(Continued on next page.)

Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Swing arm pivot shaft nut	16	1	98	10.0	72	–
Uni-trak links:						
Rocker arm pivot shaft nut	12	1	69	7.0	51	–
Tie-rod nuts: Upper	10	2	37	3.8	27	–
Lower	12	1	69	7.0	51	–
Electrical Equipments:						
Front brake light switch mounting screw	4	1	–	–	–	A
Starter motor end cover screws	6	2	5.4	0.55	48 in-lb	–
Starter motor terminal nut	6	1	11	1.1	95 in-lb	–
Turn signal mounting nuts	10	4	13	1.3	113 in-lb	–
Side stand switch mounting screws	5	2	–	–	–	A

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts used on Kawasaki Motorcycles. However, the actual torque that is necessary may vary among bolts and nuts with the same thread diameter. Tightening torque listed in the preceding tables varies to a greater or lesser extent from what is given in the table below. Refer to this table for only the bolts and nuts not included in the tables on the previous pages. All of the values are for use with dry, solvent cleaned threads.

General Fasteners:

Threads dia. (mm)	Torque		
	N-m	kg-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 – 39	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	125 – 165
20	225 – 325	23 – 33	165 – 240

Service Data

The following tables list the service data which show criteria for servicing 1984 model. Although reliable measurements can only be obtained by using the proper instruments and following the procedures explained in this manual, detail has not been explained in this section. See each section for a detailed account.

"NOTE"

- *"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 performace, replace the damaged parts.*

Engine:

Item		Standard	Service Limit	See Page
Throttle grip play		2 – 3 mm		291
Idle speed		1,050 ±50 r/min (rpm), Ⓤ 1,200 ±50 r/min (rpm)		2-7
Engine vacuum synchronization		Less than 2.7 kPa (2 cmHg) difference between any two cylinders		2-7
Camshafts, Chain:				
Cam height		35.746 – 35.854 mm	35.65 mm	157
Camshaft bearing oil clearance		0.100 – 0.141 mm	0.23 mm	158
Camshaft journal diameter		21.94 – 21.96 mm	21.91 mm	158
Camshaft bearing inside diameter		22.060 – 22.081 mm	22.14 mm	158
Camshaft runout		– – –	0.1 mm TIR	158
Cam chain 20-link length		127.00 – 127.36 mm	128.9 mm	159
Cylinder Compression:		785 – 980 kPa (8.0 – 10.0 kg/cm^2, 114 – 142 psi), and less than 98 kPa (1 kg/cm^2, 14 psi) difference between any two cylinders	620 – 980 kPa (6.3 – 10.0 kg/cm^2, 90 – 142 psi), or 98 kPa (1 kg/cm^2, 14 psi) difference between any two cylinders	169
Cylinder Head, Valves:				
Valve clearance:	Inlet	0.13 – 0.23 mm	– – –	2-4
	Exhaust	0.08 – 0.18 mm	– – –	2-4
Cylinder head warp		– – –	0.05 mm	160
Combustion chamber volume		24.6 ±0.4 mL	– – –	160
Valve head thickness:	Inlet	0.8 – 1.2 mm	0.5 mm	161
	Exhaust	0.8 – 1.2 mm	0.7 mm	161
Valve stem bend		– – –	0.05 mm TIR	162
Valve stem diameter		6.95 – 6.97 mm	6.94 mm	162
Valve guide inside diameter		7.000 – 7.015 mm	7.08 mm	163
Valve/valve guide clearance (wobble method)		0.08 – 0.16 mm	0.33 mm	163
Valve seating area outside diameter:				
	Inlet	33 mm	– – –	279
	Exhaust	29 mm	– – –	279

(Continued on next page.)

Engine: (Cont.)

Item		Standard	Service Limit	See Page
Valve seating area width		0.5 – 1.0 mm	– – –	279
Valve installed height:	Inlet	36.56 – 37.48 mm	– – –	164
	Exhaust	37.11 – 38.03 mm	– – –	164
Valve spring free length:	Inlet	37.25 mm	35.3 mm	
	Exhaust	41.85 mm	40.3 mm	
Cylinder Block, Pistons:				
Cylinder inside diameter		66.005 – 66.017 mm, and less than 0.01 mm difference between any two measurements	66.10 mm, or 0.05 mm difference between any two measurements	169
Piston diameter		65.951 – 65.966 mm	65.81 mm	170
Piston/cylinder clearance		0.040 – 0.067 mm	– – –	170
Piston ring groove width:	Top	1.02 – 1.04 mm	1.12 mm	171
	Second	1.21 – 1.23 mm	1.31 mm	171
	Oil	2.50 – 2.52 mm	2.60 mm	171
Piston ring thickness:	Top	0.970 – 0.990 mm	0.90 mm	171
	Second	1.170 – 1.190 mm	1.10 mm	171
Piston ring/groove clearance:	Top	0.03 – 0.07 mm	0.17 mm	171
	Second	0.02 – 0.06 mm	0.16 mm	171
Piston ring end gap (top and second)		0.20 – 0.40 mm (installed in standard cylinder bore)	0.7 mm	171
Crankshaft, Connecting Rods:				
Connecting rod bend		– – –	0.2/100 mm	172
Connecting rod twist		– – –	0.2/100 mm	173
Connecting rod bearing insert/ crankpin clearance		0.036 – 0.066 mm	0.10 mm	173
Crankpin diameter:		34.984 – 35.000 mm	34.97 mm	173
	None	34.984 – 34.994 mm		
	○	34.995 – 35.000 mm		
Connecting rod big end inside diameter:		38.000 – 38.016 mm	– – –	174
	None	38.000 – 38.008 mm		
	○	38.009 – 38.016 mm		
Connecting rod big end bearing insert thickness:	Brown	1.475 – 1.480 mm	– – –	174
	Black	1.480 – 1.485 mm	– – –	174
	Green	1.485 – 1.490 mm	– – –	174
Connecting rod bearing insert selection:				174, 351

		Marking for con-rod big end bore	
		○	None
Marking for crankpin diameter	○	Black P/N: 92028-1204	Brown P/N: 92028-1205
	None	Green P/N: 92028-1203	Black P/N: 92028-1204

(Continued on next page.)

Engine: (Cont.)

Item	Standard	Service Limit	See Page
Connecting rod big end side clearance	0.13 – 0.33 mm	0.50 mm	174
Crankshaft runout	– – –	0.05 mm TIR	174
Crankshaft main bearing insert/ journal clearance	0.020 – 0.044 mm	0.08 mm	175
Crankshaft main journal diameter:	35.984 – 36.000 mm	35.96 mm	175
None	35.984 – 35.992 mm		
○	35.993 – 36.000 mm		
Crankshaft main bearing bore inside diameter:	39.000 – 39.016 mm	– – –	175
○	39.000 – 39.008 mm		
None	39.009 – 39.016 mm		
Crankshaft main bearing insert thickness: Brown	1.490 – 1.494 mm	– – –	176
Black	1.494 – 1.498 mm	– – –	176
Blue	1.498 – 1.502 mm	– – –	176
Crankshaft main bearing insert selection:			176

Marking for crankshaft journal dia.	Marking for con-rod big end bore: ○	Marking for con-rod big end bore: None
1	Brown P/N: 92028-1102	Black P/N: 92028-1101
None	Black P/N: 92028-1101	Blue P/N: 92028-1100

Crankshaft side clearance	0.05 – 0.15 mm	0.35 mm	176
Primary Reduction System:			
Secondary gear/clutch housing gear backlash	0 – 0.10 mm	0.14 mm	180
Clutch:			
Clutch lever play	2 – 3 mm	– – –	17,346
Friction plate thickness	2.90 – 3.10 mm	2.8 mm	178
Friction and steel plate warp	– – –	0.3 mm	179
Clutch spring free length	35.0 mm	33.9 mm	
Transmission:			
Gear backlash	0 – 0.17 mm	0.25 mm	184
Shift fork ear thickness	4.9 – 5.0 mm	4.8 mm	184
Gear shift fork groove width	5.05 – 5.15 mm	5.25 mm	184
Shift fork guide pin diameter:			
1st, 2nd – 3rd gear shift fork	7.9 – 8.0 mm	7.8 mm	185
4th – 5th gear shift fork	7.985 – 8.000 mm	7.9 mm	185
Shift drum groove width	8.05 – 8.20 mm	8.3 mm	185
Engine Lubrication System:			
Relief valve opening pressure	4.4 – 6.0 kg/cm^2		186
Oil pressure @4,000 r/min (rpm), 90°C (194°F) oil temp.	196 – 245 kPa (2.0 – 2.5 kg/cm^2, 28 – 36 psi)		186

(Continued on next page.)

Engine: (Cont.)

Item		Standard	Service Limit	See Page
Engine oil:	Grade	SE class		18
	Viscosity	SAE 10W40, 10W50, 20W40, or 20W50		18
	Amount	3.5 L		18
	Level	Between upper and lower levels		18
Turbocharger:				
Actuator valve opening pressure @0.5 mm Actuator rod stroke		49 – 69 kPa (0.50 – 0.70 kg/cm^2, 7.1 – 10.0 psi)		3-7

Chassis:

Item	Standard	Service Limit	See Page
Wheels:			
Wheel balance	Imbalance of less than 0.1 N (10 g)		27,348
Tire payload	1,770 N (180 kg)		2-9
Standard tires:			2-9

Front	Rear
110/90 V 18 Michelin A48 Tubeless	130/80 V 18 Michelin M48 Tubeless

Air pressure: 2-9

US and Canada

Front	196 kPa (2.0 kg/cm^2, 28 psi)	
Rear	Up to 956 N (97.5 kg, 215 lb) load	221 kPa (2.25 kg/cm^2, 32 psi)
	956 – 1,770 N (97.5 – 180 kg, 215 – 397 lb) load	245 kPa (2.5 kg/cm^2, 36 psi)

Other than US and Canada

	Load	Tire Air Pressure	
		Under 210 km/h (130 mph)	Over 210 km/h (130 mph)
Front	———	196 kPa (2.00 kg/cm^2, 28 psi)	221 kPa (2.25 kg/cm^2, 32 psi)
Rear	Up to 956 N (97.5 kg, 215 lb)	221 kPa (2.25 kg/cm^2, 32 psi)	284 kPa (2.90 kg/cm^2, 41 psi)
	956 – 1,770 N (97.5 – 180 kg, 215 – 397 lb)	245 kPa (2.50 kg/cm^2, 36 psi)	

Tire tread depth:	Front	4.5 mm	1 mm	2-9
	Rear	7.0 mm	2 mm, Under 130 km/h	193
			3 mm, Over 130 km/h	193
Rim runout:	Axial	– – –	0.5 mm TIR	193
	Radial	– – –	0.8 mm TIR	193

(Continued on next page.)

Chassis: (Cont.)

Item		Standard	Service Limit	See Page
Drive Train:				
Drive chain slack		35 – 40 mm	35 – 45 mm	347
Drive chain 20-link length		381.0 – 382.0 mm	389 mm	198
Front sprocket diameter		79.01 – 79.21 mm	78.3 mm	199
Rear sprocket diameter		267.29 – 267.79 mm	267.0 mm	199
Rear sprocket warp		– – –	0.5 mm TIR	199
Disc Brake:				
Brake fluid grade		DOT3	– – –	205
Pad lining thickness:	Front	4.85 mm	1 mm	203
	Rear	5.00 mm	1 mm	203
Disc warp		– – –	0.3 mm TIR	205
Disc thickness:	Front	4.8 – 5.1 mm	4.5 mm	205
	Rear	6.8 – 7.1 mm	6.0 mm	205
Brake pedal position		50.5 – 54.5 mm		293
Brake light switch operation:	Front	Non-adjustable		25
	Rear	On after about 15 mm pedal travel		25
Front Fork:				
Air pressure		39 – 59 kPa (0.4 – 0.6 kg/cm^2, 5.7 – 8.5 psi)		292
Oil viscosity		SAE10W		
Oil amount		271 ±4 mL		212
Oil level		176 ±2 mm (Compressed)		212
Rear Shock Absorber:				
Air pressure		49 – 294 kPa (0.5 – 3.0 kg/cm^2, 7.1 – 43 psi)		346

Electrical Equipment:

Item		Standard	Service Limit	See Page
Charging System:				
Regulator/rectifier output voltage		Battery voltage – 15 V		223
Alternator output @4,000 r/min (rpm), no load		About 50 V		223
Stator coil resistance		0.45 – 0.55 Ω		223
Ignition System:				
Spark plug:	Electrode gap	0.5 – 0.6 mm		12
	Type	NGK BR9EV		12
Ignition Coil:				
Arcing distance (3-needle method)		7 mm or more		230
Primary winding resistance		1.8 – 2.8 Ω		230
Secondary winding resistance		10 – 16 kΩ		230
Pickup coil resistance		380 – 560 Ω		373
Electric Starter System:				
Starter motor carbon brush length		12.0 – 12.5 mm	6 mm	234
Fuel Gauge:				
Fuel level sensor resistance:	Full	1 – 5 Ω		327
	Empty	103 – 117 Ω		327
Battery:				
Electrolyte level sensor resistance		600 – 750 Ω		381

Ⓤ: U.S. Model

ZX750-E1 Wiring Diagram (US and Canada)