Kawasaki

GPz1100
KZ1100R



Motorcycle Service Manual Supplement

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.



General Information 1

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Non-scheduled Maintenance
- Engine 3
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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.

Kawasaki

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

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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..."

(Continued on next pag

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 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).
- Remove 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.

(UK Model only)



This warning may apply to any of the following components or any assembly containing one or more of these components:–

Brake Shoes or Pads
Clutch Friction Material
Gaskets
Insulators

SAFETY INSTRUCTIONS

- Operate if possible out of doors or in a well ventilated place.
- Preferably use hand tools or low speed tools equipped, if necessary, with an appropriate dust extraction facility. If high speed tools are used, they should always be so equipped.
- If possible, dampen before cutting or drilling.
- Dampen dust and place it in properly closed receptacle and dispose of it safely.

Foreword

This Service Manual Supplement is designed to be used in conjunction with the KZ1000/KZ1100 Motorcycle Service Manual (P/N 99924-1026-03). The maintenance and repair procedures described in this supplement are only those that are unique to the models listed on the back cover. Most service operations for these models remain identical to those described in the base Service Manual. Complete and proper servicing of the models listed on the back cover 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.

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.**

General Information

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Model Identification

ZX1100-A1 Left Side View:



ZX1100-A1 Right Side View:



Specifications

Items			ZX1100-A1
Dimensions:			
Overall length			2,320 mm, Ⓤ Ⓒ Ⓢⓐ 2,270 mm
Overall width			740 mm
Overall height			1,275 mm
Wheelbase			1,565 mm
Road clearance			140 mm
Seat height			800 mm
Dry weight			2,390 N (244 kg), Ⓢⓐ 2,410 N (246 kg)
Curb weight:	Front		1,240 N (127 kg), Ⓢⓐ 1,250 N (128 kg)
	Rear		1,340 N (137 kg), Ⓢⓐ 1,350 N (138 kg)
Fuel tank capacity			20.4 L
Performance:			
Climbing ability			30°
Braking distance			12.5 m from 50 km/h
Minimum turning radius			2.8 m
Engine:			
Type			4-stroke, DOHC, 4-cylinder
Cooling system			Air cooled
Bore and stroke			72.5 x 66.0 mm
Displacement			1,089 mL
Compression ratio			9.5
Maximum horsepower			88.3 kW (120 PS) @8,750 r/min (rpm), Ⓖ Ⓢ 73.6 kW (100 PS) @8,750 r/min (rpm)
Maximum torque			100 N-m (10.2 kg-m, 73.8 ft-lb) @8,000 r/min (rpm), Ⓖ Ⓢ 85.3 N-m (8.7 kg-m, 62.9 ft-lb) @8,000 r/min (rpm)
Carburetion system			DFI (Digital Fuel Injection)
Starting system			Electric starter
Ignition system			Battery and coil (transistorized)
Timing advance			Electronically advanced
Ignition timing			From 10° BTDC @1,000 r/min (rpm) to 37° BTDC @3,400 r/min (rpm)
Spark plug			NGK BR8ES or ND W24ESR-U, Ⓝ NGK B8ES or ND W24ES-U
Cylinder numbering method			Left to right, 1-2-3-4
Firing order			1-2-4-3
Valve timing:			
	Inlet	Open	40° BTDC
		Close	80° ABDC
		Duration	300°
	Exhaust	Open	80° BBDC
		Close	40° ATDC
		Duration	300°
Lubrication system			Forced lubrication (wet sump with cooler)

Ⓤ : US model
Ⓒ : Canadian model
Ⓢⓐ : South African model
Ⓢ : Swedish model
Ⓖ : West German model
Ⓝ : Norwegian model

Items	ZX1100-A1
Engine oil:	
Grade	SE class
Viscosity	SAE10W40, 10W50, 20W40, or 20W50
Capacity	3.7 L
Drive Train:	
Primary reduction system:	
Type	Gear
Reduction ratio	1.732 (97/56)
Clutch type	Wet multi disc
Transmission:	
Type	5-speed, constant mesh, return shift
Gear ratios: 1st	2.642 (37/14)
2nd	1.833 (33/18)
3rd	1.421 (27/19)
4th	1.173 (27/23)
5th	1.040 (26/25)
Final drive system:	
Type	Chain drive
Reduction ratio	2.733 (41/15)
Overall drive ratio	4.923 @Top gear
Frame:	
Type	Tubular, double cradle
Caster (rake angle)	27.5°
Trail	116 mm
Front Tire:	
Type	Tubeless
Size	110/90 V 18
Rear Tire:	
Type	Tubeless
Size	130/90 V 17
Front suspension:	
Type	Telescopic fork (pneumatic)
Wheel travel	150 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 16 AH
Headlight:	
Type	Semi-Sealed beam
Bulb	12 V 60/55 W (quartz-halogen)
Tail/brake light	12 V 5/21 W x 2, Ⓤ Ⓒ (SA) 12 V 8/27 W x 2
Alternator:	
Type	Three-phase AC
Rated output	20 A @5,000 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 t eliminate unnecessary work. Photographs, diagrams, notes, cautions, warnings, and detailed des criptions 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 othe 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.

(Continued on next page.)

(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

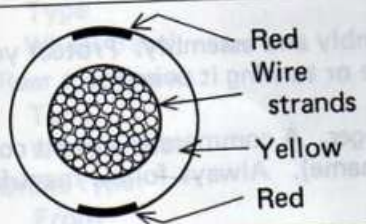
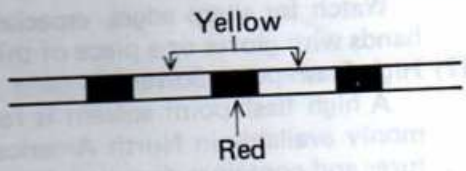
Engine wear is generally at its maximum while the engine is warming up and before all the rubbing surfaces have an adequate lubricative film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface which has lost its lubricative film. Old grease and dirty 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
Observe "SAFETY INSTRUCTIONS" on p.9-3 of the Base Manual.

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 1983 model ZX1100A.

Setting Before Ride

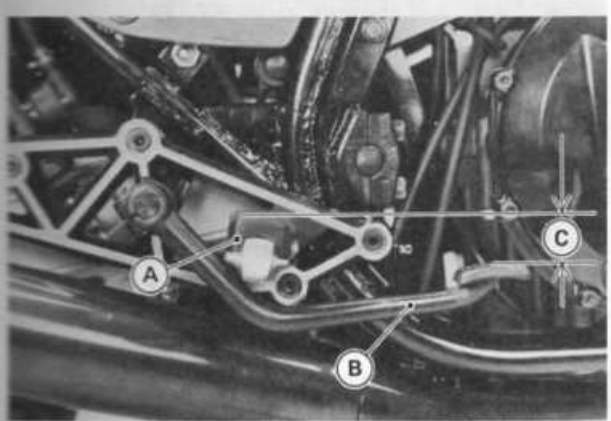
Before bringing this motorcycle into use, check and/or adjust the followings to ensure safe and comfortable riding conditions.

Brake Pedal:

Brake pedal position is 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.



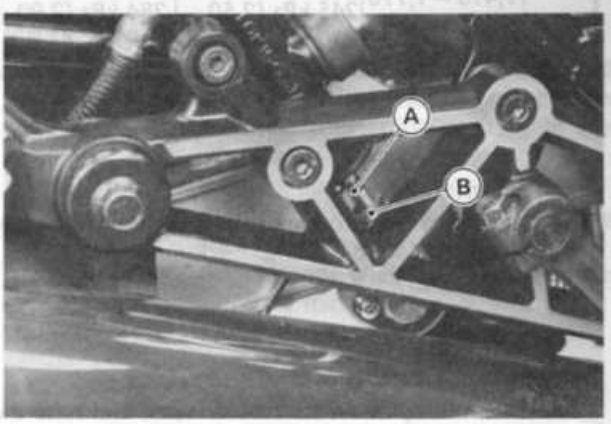
A. Footpeg
B. Brake Pedal
C. Pedal Position

Brake Pedal Position

35 mm below from 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 postion.
- 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)

	Load	Pressure
Front	Up to 1,770 N (180 kg)	196 kPa (2.00 kg/cm², 28 psi)
Rear	Up to 956 N (97.5 kg)	221 kPa (2.25 kg/cm², 32 psi)
	956 – 1,770 N (97.5 – 180 kg)	245 kPa (2.50 kg/cm², 36 psi)

Tire Air Pressure (Other than US and Canada)

	Load	Tire Air Pressure	
		Under 210 km/h	Over 210 km/h
Front	Up to 1,470 N (150 kg)	196 kPa (2.00 kg/cm², 28 psi)	221 kPa (2.25 kg/cm², 32 psi)
	1,470 – 1,770 N (150 – 180 kg)	221 kPa (2.25 kg/cm², 32 psi)	221 kPa (2.25 kg/cm², 32 psi)
Rear	Up to 1,470 N (150 kg)	221 kPa (2.25 kg/cm², 32 psi)	284 kPa (2.90 kg/cm², 41 psi)
	1,470 – 1,770 N (150 – 180 kg)	245 kPa (2.50 kg/cm², 36 psi)	284 kPa (2.90 kg/cm², 41 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 2.50 kg/cm² (245 kPa, 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: 0 – 98 kPa (0 – 1.00 kg/cm², 0 – 14 psi)

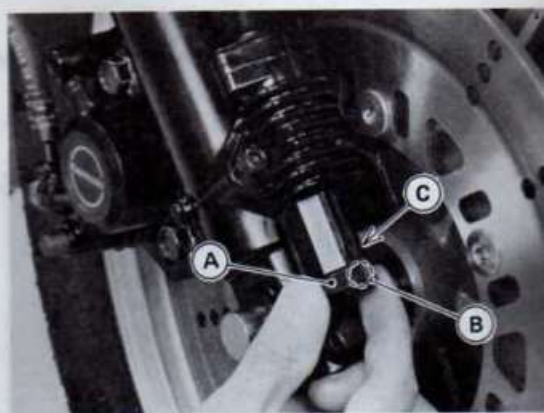
Anti-Dive Adjustment

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

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

WARNING

- **If both anti-dive adjusters are not adjusted e handling may be impaired and a hazardous con may result.**



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

Anti-Dive Adjustment

Position	1	2	3
Anti-Dive	Weak	Moderate	Stro

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"

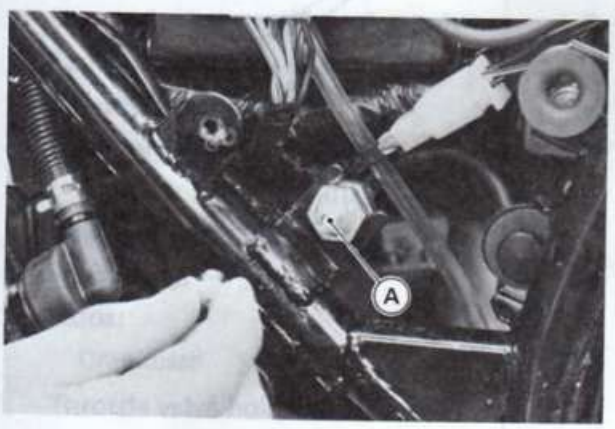
○Do not use a tire gauge for checking air pressure. They may not indicate the correct air pressure because of air leaks that occur when the gauge is applied to the valve.
○Lower air pressure is for comfortable riding for an average-built rider of 68 kg with no accessories. Ordinarily, the heavier the 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 5.0 kg/cm² (490 kPa, 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.

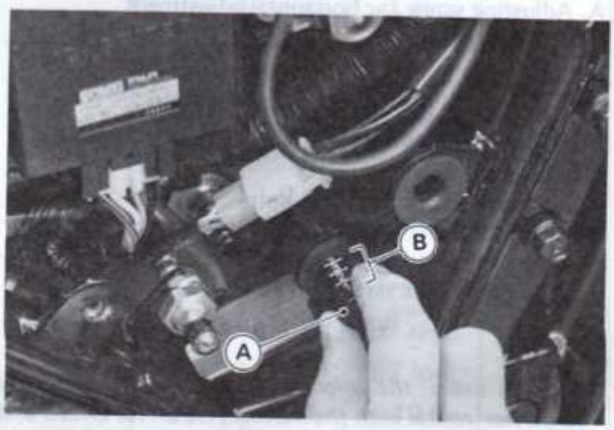
Rear Shock Absorber Air Pressure

Air Pressure kPa (kg/cm², psi)	Setting	Load	Road
98 (1.00, 14)	Soft	Light	Good
↕	↕	↕	↕
390 (4.0, 57)	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:

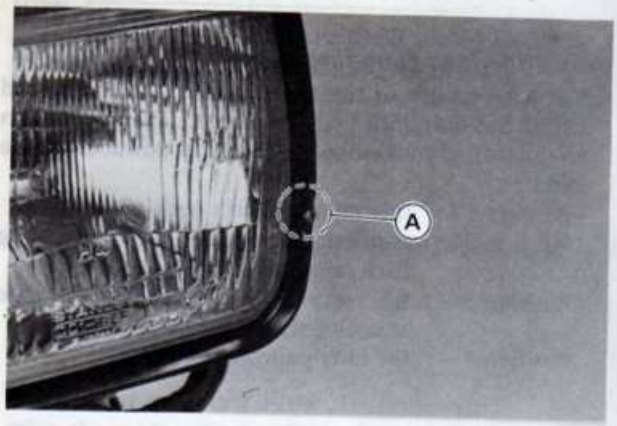
Damping Force

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



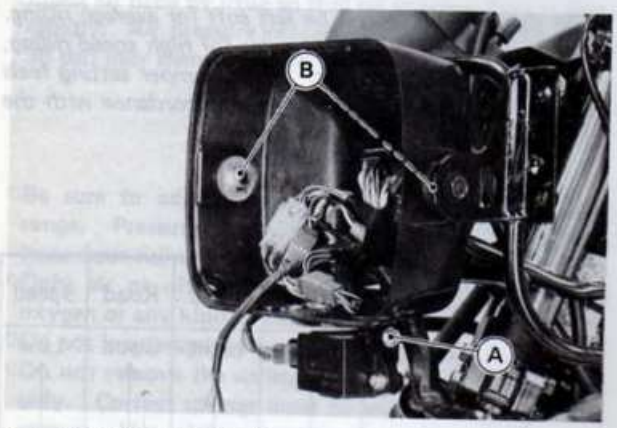
A. Adjusting screw for horizontal adjustment

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.

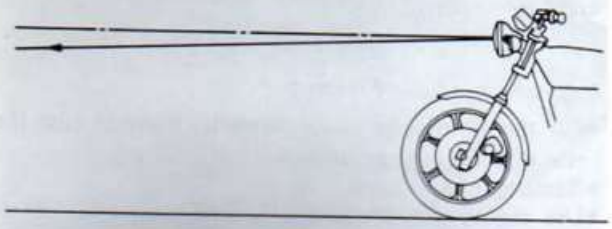
"NOTE"

○*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. Lower Headlight Bolt
B. Healight Housing Mounting Nuts

Vertical Adjustment 182101



Special Tools

Refer to pp. 1-13 through 1-17, 9-9, and 10-10 of the Base Manual noting the following exception.

- The special tools listed below are not needed to service the ZX1100A.
  - ○Valve lifter holder (P/N 57001-113). See p. 1-13 of the Base Manual.
  - ○Vacuum gauge set (P/N 57001-127). See p. 1-13 of the Base Manual.
- Use the adapter (special tool) to connect the fuel hose ends together when the fuel tank is removed.

Adapter (P/N 57001-401) 182536



Torque and Locking Agent

The following tables list the tightening torque for the major fasteners 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 liquid 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:						
Engine side	6	4	9.8	1.0	87 in-lb	–
Cooler side	6	4	7.8	0.80	69 in-lb	–
Engine Mounting:						
Engine mounting bolts: Front	10	2	39	4.0	29	–
Rear	12	1	39	4.0	29	–
Engine mounting bracket bolts	8	4	24	2.4	17.5	–
Top End:						
Air suction valve cover bolts (US model)	6	8*	9.8	1.0	87 in-lb	–
Breather cover bolt	8	1	5.9	0.60	52 in-lb	–
Camshaft bearing cap bolts	6	16	17	1.7	12.0	S
Camshaft chain anti-jamping bolt	8	1	–	–	–	A
Camshaft chain tensioner cap	18	1	27	2.8	20	–
Camshaft sprocket bolts	6	4	15	1.5	11.0	A
Cylinder head: Bolts	6	2	12	1.2	104 in-lb	S
Nuts	10	12	39	4.0	29	S
Cylinder head cover bolts	6	24*	9.8	1.0	87 in-lb	–
Spark plugs	14	4	27	2.8	20	–
Studs:						
Crankcase	10	12	–	–	–	A
Throttle valve holder bolts	6	8	–	–	–	A

*US model: The four out of these bolts are used to mount both the air suction valve covers and cylinder head cover.

(Continued on next page)

(Cont.)

Engine Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Left Side:						
Engine sprocket nut	20	1	98	10.0	72	–
Alternator cover bolts	6	8	–	–	–	A
Alternator rotor bolt	12	1	157	16.0	116	–
Alternator stator bolts	6	3	9.8	1.0	87 in-lb	A
Neutral switch	12	1	15	1.5	11	–
Shift pedal return spring pin	8	1	20	2.0	14.5	A
Starter clutch bolts	8	3	39	4.0	29	–
Starter motor retaining bolts	6	2	–	–	–	A
Starter motor terminal nut	6	1	4.9	0.50	43 in-lb	–
Right Side:						
Clutch hub nut	20	1	120	12.0	87	–
Clutch spring bolts	6	6	8.8	0.90	78 in-lb	–
Right engine cover bolts	6	6	–	–	–	A
Timing rotor mounting bolt	8	1	25	2.5	18.0	–
Bottom Side:						
Engine drain plug	12	1	29	3.0	22	–
Oil filter mounting bolt	20	1	20	2.0	14.5	–
Oil pan bolts	6	17	9.8	1.0	87 in-lb	–
Oil pressure relief valve	12	1	15	1.5	11.0	A
Oil pump mounting bolts	6	3	7.8	0.80	69 in-lb	–
Shift drum bearing holder plate bolts	6	2	9.8	1.0	87 in-lb	A
Shift drum pin plate screw	6	1	–	–	–	A
Internal Parts:						
Crankcase bolts:						
6 mm dia.	6	21	9.8	1.0	87 in-lb	A
8 mm dia.	8	8	25	2.5	18.0	A,S
Crankshaft main bearing cap bolts	8	4	25	2.5	18.0	S

Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Wheels:						
Front axle nut	14	1	64	6.5	47	–
Front axle clamp nut	8	1	20	2.0	14.5	–
Rear axle nut	18	1	98	10.0	72	–
Tire air valve nuts	8	4	1.5	0.15	13 in-lb	–

Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Brakes:						
Air bleed valves	7	7	7.8	0.80	69 in-lb	–
Brake hose banjo bolts	10	9	25	2.5	18.0	–
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	15	1.5	11.0	–
Caliper mounting bolts: Front	10	4	32	3.3	24	–
Rear	10	2	28	2.9	21	–
Disc mounting bolts	8	21	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	30	3.1	22	–
Steering:						
Handlebar clamp bolts	8	2	25	2.5	18.0	–
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	–
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	8	6	21	2.1	15.0	–
Front fork drain screws	4	2	–	–	–	G
Front fork top plugs	32	2	23	2.3	16.5	–
Rear shock absorber mounting bolts: Lower	12	1	69	7.0	51	–
Upper	10	1	37	3.8	27	–
Rear shock absorber air valve	8	1	7.8	0.80	69 in-lb	A
Rear shock absorber air hose male pipe	10	1	12	1.2	8.5	A
Rear sprocket nuts	10	6	39	4.0	29	–
Swing arm pivot shaft clamp bolts	10	2	34	3.5	25	–
Swing arm pivot shaft nut	14	1	98	10.0	72	–
Uni-Trak link pivot bolts	12	1	69	7.0	51	–
	16	1	69	7.0	51	–
Electrical Equipments:						
Turn signal mounting nuts (rear)	10	2	13	1.3	9.5	–

The table below, relating tightening torque to thread diameter, list the basic torque for the and nuts used on Kawasaki Motorcycles. However, the actual torque that is necessary may among bolts and nuts with the same thread diameter. Tightening torque listed in the preceding varies to a greater or lesser extent from what is given in the table below. Refer to this table for the bolts and nuts not included in the tables on the previous pages. All of the values are for use 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 – 34	2.6 – 3.5	19.0 – 25
12	44 – 61	4.5 – 6.2	33 – 45
14	73 –98	7.4 – 10.0	54 – 72
16	115 – 155	11.5 – 16.0	83 – 115
18	165 – 225	17.0 – 23	125 – 165
20	225 – 325	23 – 33	165 – 240

Service Data

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

Engine:

Item	Standard	Service Limit
Throttle Grip:		
Grip play	2 – 3 mm	– – –
Throttel Valves:		
Idle Speed	1,000 ± 50 r/min (rpm)	– – –
Synchronization	Under 2.7 kPa (2 cmHg) difference	– – –
Camshafts:		
Cam Height: In. and Ex.	37.75 – 37.85 mm	37.65 mm
Journal/Bearing Insert Clearance	0.020 – 0.070 mm	0.16 mm
Journal Diameter	24.459 – 24.480 mm	24.42 mm
Camshaft Runout	Under 0.03 mm	0.1 mm
Camshaft Chain, Chain Guides:		
Chain 20-Link Length	127.00 – 127.16 mm	128.9 mm
Chain Guide Groove Depth:		
Upper Guide	0 mm	4.3 mm
Front and Rear Guides	1.0 – 1.5 mm	3.3 mm
Cylinder Head, Valves:		
Valve Clearance: In. and Ex.	0.08 – 0.18 mm	– – –
Cylinder Head Warp	Under 0.05 mm	– – –
Combustion Chamber Volume	39.5 – 40.3 mL	– – –
Valve Head Thickness:		
Inlet Valve	1 mm	0.5 mm
Exhaust Valve	1 mm	0.7 mm
Valve Stem Bend	Under 0.01 mm	0.05 mm
Valve Stem Diameter:		
Inlet Valve	6.965 – 6.980 mm	6.95 mm
Exhaust Valve	6.955 – 6.970 mm	6.94 mm
Valve Guide Inside Diameter	7.000 – 7.015 mm	7.08 mm
Valve/Valve Guide Clearance (Wobble Method):		
Inlet Valve	0.05 – 0.12 mm	0.24 mm
Exhaust Valve	0.07 – 0.13 mm	0.22 mm

(Continued on next page.)

Engine (Cont.):

Item	Standard	Service Limit
Valve Seating Surface:		
Outside Diameter: In.	36.9 – 37.1 mm	– – –
Ex.	31.4 – 31.6 mm	– – –
Width: In. and Ex.	0.8 – 1.2 mm	– – –
Valve Spring Tension:		
Inner Spring	280.5 – 309.9 N (28.60 – 31.60 kg) @23.1 mm	261 N (26.6 kg)
Outer Spring	499.7 – 550.7 N (50.95 – 56.15 kg) @25.6 mm	465 N (47.4 kg)
Valve Spring Squareness:		
Inner Spring	– – –	1.3 mm
Outer Spring	– – –	1.5 mm
Clean Air System (US Model):		
Vacuum Switch Valve		
Switching Pressure:		
When raising vacuum	47 – 52 kPa (35 – 39 cmHg)	– – –
When lowering vacuum	36 – 41 kPa (27 – 31 cmHg)	– – –
Cylinder Block, Pistons:		
Cylinder Compression	See p. 3-3.	– – –
Cylinder Inside Diameter	72.500 – 72.512 mm, and less than 0.01 mm difference between any two measurements	72.60 mm, or more than 0.05 mm diference between any two measure-ments
Piston Diameter	72.442 – 72.457 mm	72.30 mm
Piston/Cylinder Clearance	0.043 – 0.070 mm	– – –
Piston Ring/Groove Clearance:		
Top Ring	0.030 – 0.070 mm	0.17 mm
2nd Ring	0.020 – 0.060 mm	0.16 mm
Piston Ring Thickness:		
Top Ring	0.970 – 0.990 mm	0.90 mm
2nd Ring	1.170 – 1.190 mm	1.10 mm
Piston Ring Groove Width:		
Top Ring Groove	1.02 – 1.04 mm	1.12 mm
2nd Ring Groove	1.21 – 1.23 mm	1.31 mm
Oil Ring Groove	2.51 – 2.53 mm	2.61 mm
Piston Ring End Gap:		
Top and 2nd	0.20 – 0.40 mm	0.7 mm
Piston Pin Diameter	17.995 – 18.000 mm	17.96 mm
Piston Pin Hole Diameter	18.004 – 18.011 mm	18.08 mm
Con-Rod Small End Diameter	18.003 – 18.014 mm	18.05 mm

Item	Standard	Service Limit
Crankshaft, Connecting Rods:		
Con-Rod Bend, Twist/100 mm	Under 0.05 mm	0.2 mm
Con-Rod Big End Radial Clearance	0.016 – 0.030 mm	0.08 mm
Con-Rod Big End Side Clearance	0.030 – 0.040 mm	0.6 mm
Crankshaft Runout	Under 0.04 mm	0.10 mm
Outer Race Side Clearance	0.2 – 0.3 mm	0.5 mm
Clutch:		
Clutch Lever Play	2 – 3 mm	– – –
Release Adjusting Screw Position	¼ turn in	– – –
Clutch Spring Tension	187 – 221 N (19.1 – 2.25 kg) @22.1 mm	172 N (17.5 kg)
Friction Plate Thickness	2.9 – 3.1 mm	2.8 mm
Friction, Steel Plate Warp	Under 0.2 mm	0.3 mm
Friction Plate/ Clutch Hosing Clearance	0.35 – 0.65 mm	0.9 mm
Clutch Housing Gear/ Primary Gear Backlash	0.03 – 0.10 mm	0.14 mm
Clutch Housing Inside Diameter	57.000 – 57.030 mm	57.06 mm
Clutch Housing Bearing Collar Outside Diameter	56.921 – 56.940 mm	56.90 mm
Cam Damper Spring Tension	319 – 378 N (32.5 – 38.5 kg) @20.0 mm	289 N (29.5 kg)
Transmission, Shift Mechanism:		
Shift Fork Ear Thickness	5.9 – 6.0 mm	5.8 mm
Shift Fork Guide Pin Diameter	7.990 – 8.005 mm	7.94 mm
Shift Drum Groove Width	8.05 – 8.20 mm	8.25 mm
Gear Backlash	0.06 – 0.23 mm	0.30 mm
Width of Shift Fork Groove on Gears	6.05 – 6.15 mm	6.25 mm
Gear/Shaft, Gear/Busing Clearance:		
O1	0.027 – 0.061 mm	0.16 mm
O2, D5	0.025 – 0.075 mm	0.17 mm
O3, D4	0.020 – 0.062 mm	0.16 mm
Engine Lubrication System:		
Engine Oil:		
Grade	SE class	– – –
Viscosity	10W40, 10W50, 20W40 or 20W50	– – –
Oil Capacity:		
Engine	3.7 liters	– – –
Oil Cooler & Hoses	0.2 liters	– – –
Oil Pressure @3,000 r/min (rpm), 60°C (140°F)	About 20 kPa (0.2 kg/cm², 2.8 psi)	– – –
Pump Gear/Pump Body Clearance	0.011 – 0.083 mm	0.14 mm
Oil Pressure Relief Valve Open	430 – 590 kPa (4.4 – 6.0 kg/cm², 63 – 85 psi)	– – –

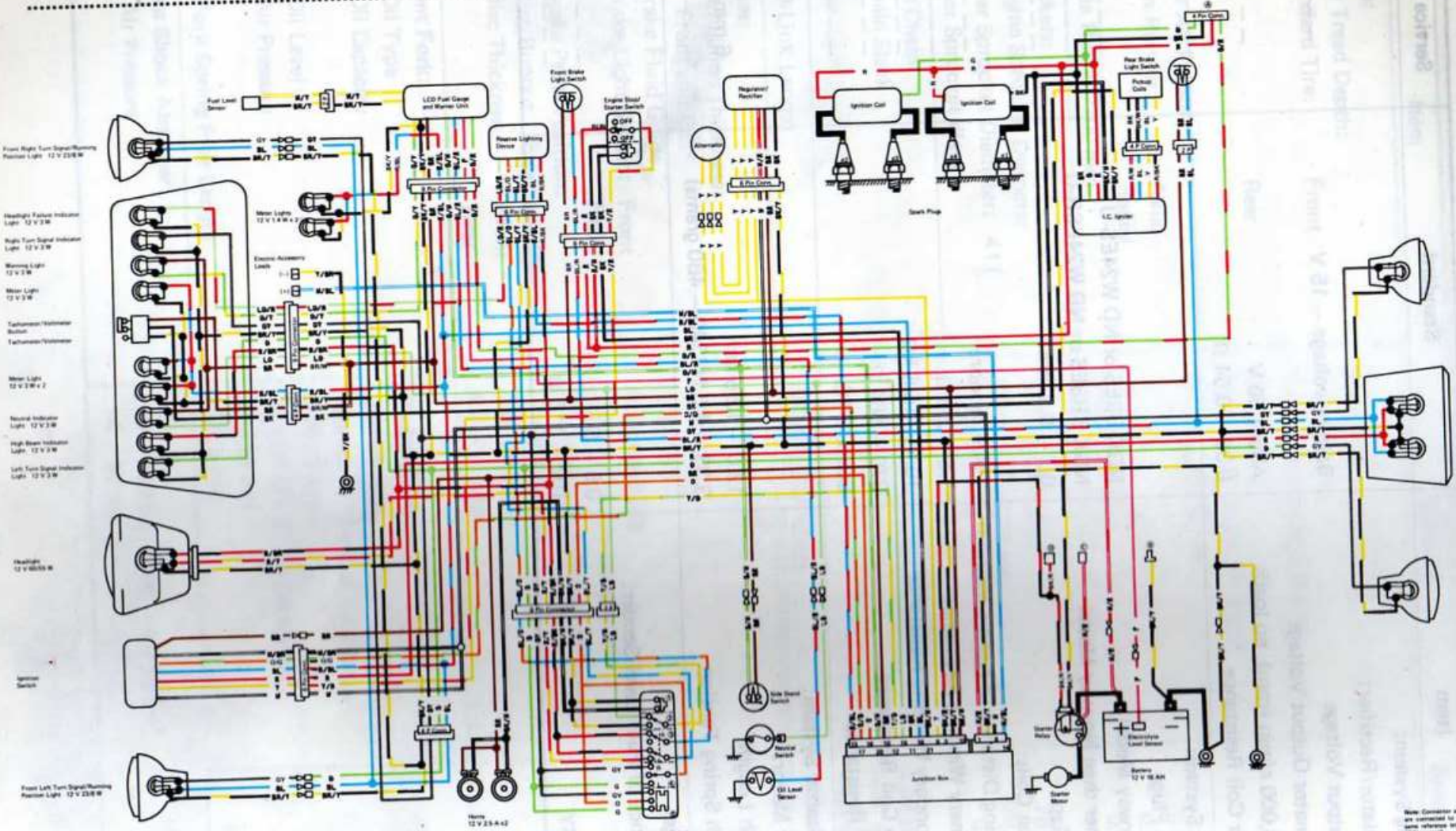
Chassis:

Item	Standard	Service Limit
Wheels:		
Tire Tread Depth:	See p. 2-9.	
Standard Tire: Front	110/90 V 18 TUBELESS DUNLOP F11	– – –
Rear	130/90 V 17 TUBELESS DUNLOP K127	– – –
Tire Air Pressure:	See pp. 1-8 and 1-9.	
Rim Runout: Axial	– – –	0.5 mm
Radial	– – –	0.8 mm
Axle Runout/100 mm	Under 0.05 mm	0.7 mm
Sprockets:		
Engine Sprocket Diameter	79.01 – 79.21 mm	78.3 mm
Rear Sprocket Diameter: 41T	236.72 – 237.22 mm	236.4 mm
Rear Sprocket Warp	Under 0.4 mm	0.5 mm
Drive Chain:		
Chain Slack	35 – 40 mm	Less than 35 mm, or more than 45 mm
20-Link Length	381.0 – 381.8 mm	389 mm
Brakes:		
Pad Lining Thickness:		
Front and Rear	4.85 mm	1 mm
Brake Fluid Grade	D.O.T.3	– – –
Brake Light Switch: Front	Non-adjustable	– – –
Rear	On after 15 mm pedal travel	– – –
Brake Pedal Position:	35 mm below from top of footpeg	
Disc Runout: Front and Rear	Under 0.15 mm	0.3 mm
Disc Thickness: Front	4.8 – 5.1 mm	4.5 mm
Rear	6.8 – 7.1 mm	6 mm
Front Fork:		
Oil Type	SAE 10W20	– – –
Oil Capacity	244 ±4 mL (approx. 210 mL at oil change)	– – –
Oil Level	216 ±2 mm	– – –
Air Pressure	0 – 98 kPa (0 – 1.00 kg/cm², 0 – 14 psi)	– – –
Fork Spring Free Length	522.5 mm	512 mm
Rear Shock Absorber:		
Air Pressure	98 – 390 kPa (1.00 – 4.0 kg/cm², 14 – 57 psi)	– – –

Electrical:

Item	Standard	Service Limit
Charging System:		
Regulator/Rectifier:		
Output Voltage	Battery voltage – 15 V	– – –
Alternator Output Voltage		
@4,000 r/min (rpm), no loads	About 50 V	– – –
Stator Coil Resistance	0.36 – 0.54 Ω	– – –
Ignition System:		
Spark Plugs		
Norway Model	NGK B8ES or ND W24ES-U	– – –
Other than Norway Model	NGK BR8ES or ND W24ESR-U	– – –
Plug Gap	0.7 – 0.8 mm	– – –
Ignition Coils:		
Arcing Distance (3-Needle Method)	7 mm or more	– – –
Primary Winding Resistance	1.8 – 2.8 Ω	– – –
Secondary Winding Resistance	10.4 – 15.6 kΩ	– – –
Pickup Coil Resistance	376 – 564 Ω	– – –
Igniter Resistance	See p. 5-10.	– – –
Electric Starter System:		
Startor Motor:		
Brush Length	12.0 – 12.5 mm	6 mm
Brush Spring Tension	3.33 – 4.5 N (340 – 460 grams)	– – –
Fuel Gauge:		
Resistance of Fuel Level Sender:		
Full	0.5 – 5.5 Ω	– – –
Empty	102 – 118 Ω	– – –

ZX1100-A1 Wiring Diagram (US and Canada)



LEFT HANDLEBAR SWITCH CONNECTIONS

Starter Lockout Switch				Hazard Switch				Dimmer Switch			Turn Signal Switch			Horn Button	
Color	BK/Y	O/G	LG	Color	Green	Orange	Gray	Color	R/BR	BL/Y	B/Y	Color	Gray	Color	BR/W	BR/Y
Released				OFF				HI				R		Push		
Pushed in				ON				LO				L				

IGNITION SWITCH CONNECTIONS

Color	Battery 1	Ignition 1	Ignition 2	Tail 1	Tail 2	Battery 2	Tail 3
	White	Yellow	Brown	Blue	Red	W/BR	O/G
LOCK							
OFF							
ON							
P(PARK)							

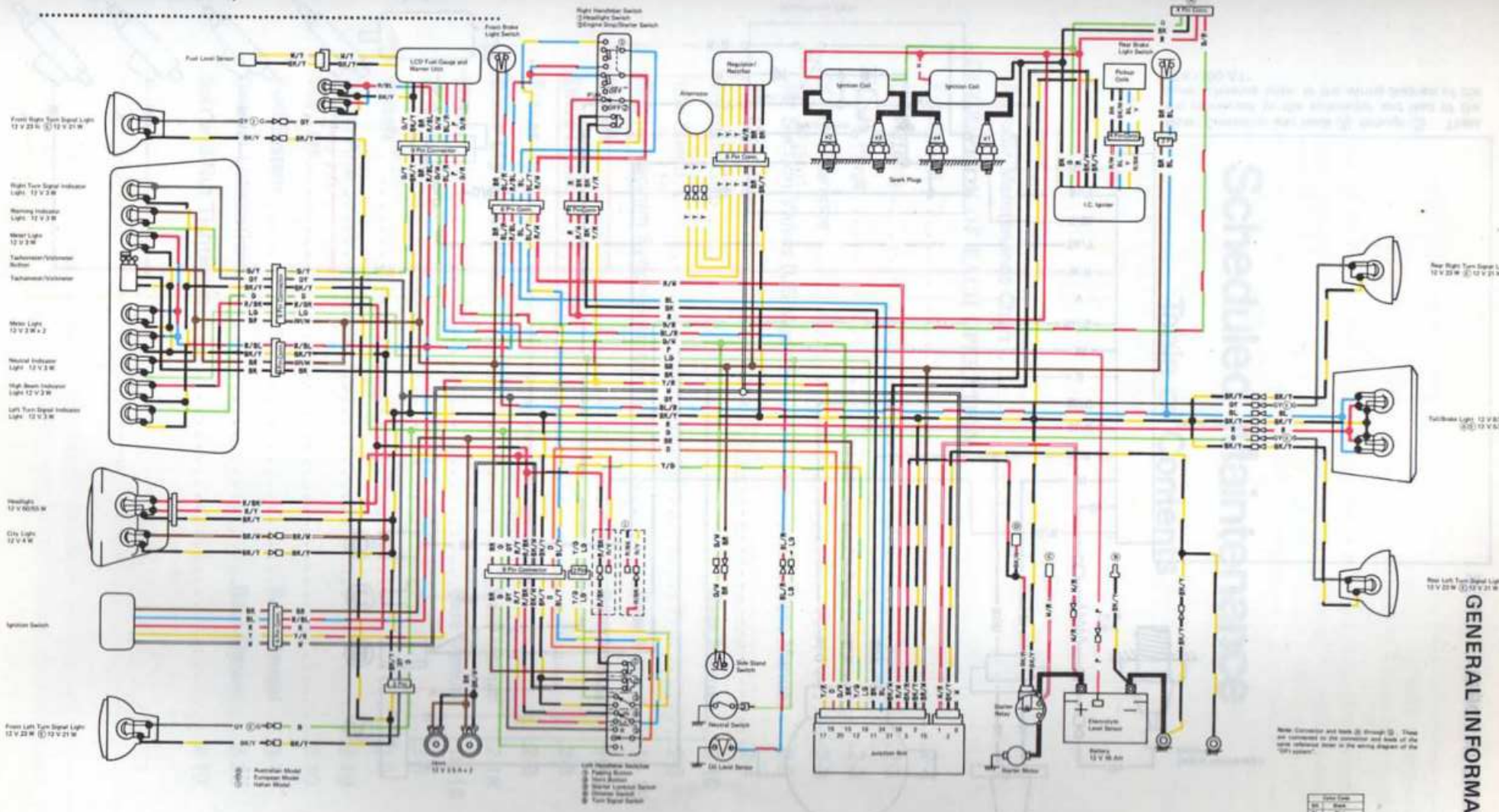
RIGHT HANDLEBAR SWITCH CONNECTIONS

Starter Switch			Engine Stop Switch		
Color	Black	Black	Color	W/R	Red
PUSH			OFF		
			RUN		
			OFF		

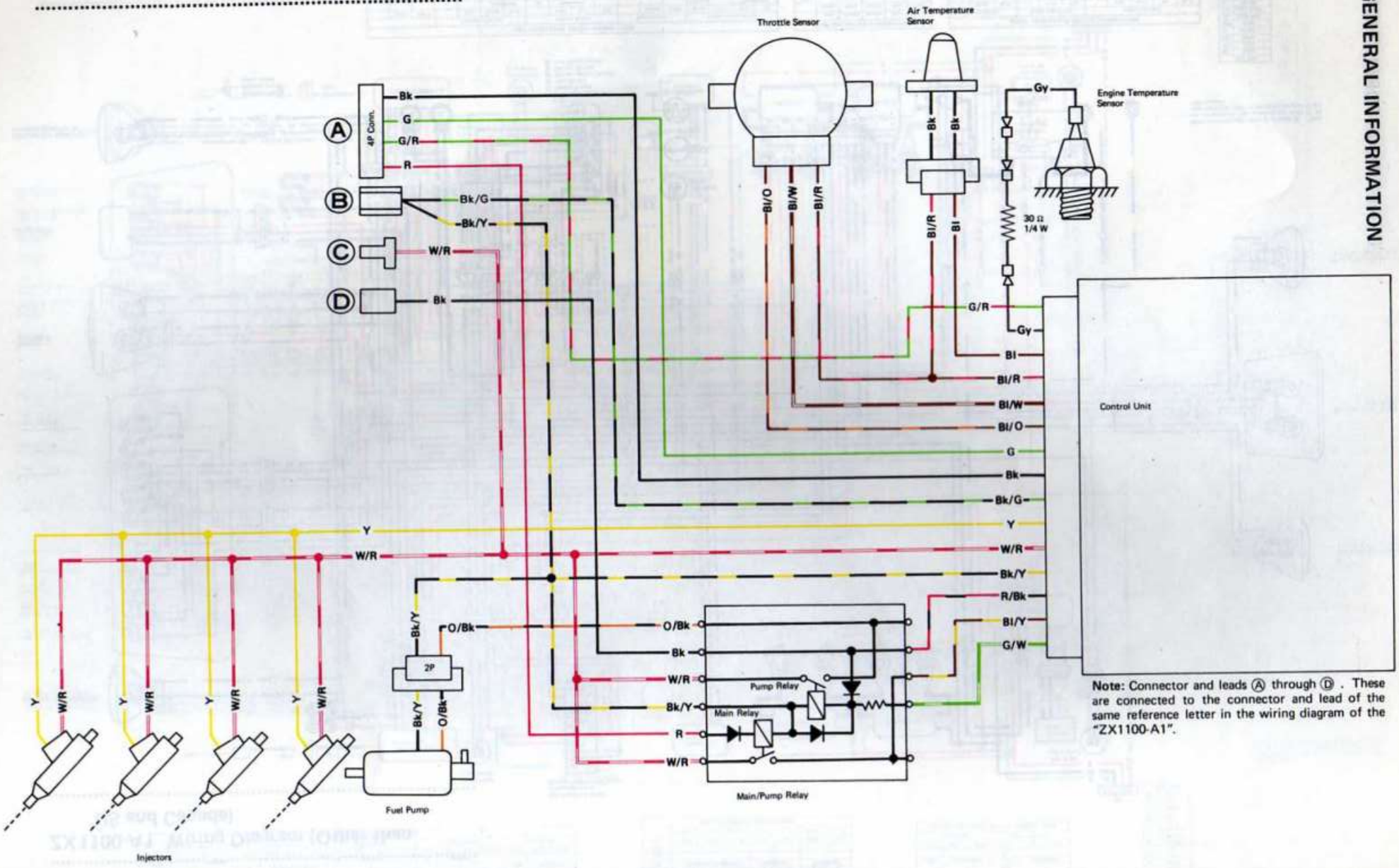
Color Code	
BK	Black
BL	Blue
BR	Brown
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
R	Red
W	White
Y	Yellow

Note: Connector and leads A through D. These are connected to the connector and leads of the same reference letter on the wiring diagram of the "EFI system".

ZX1100-A1 Wiring Diagram (Other than US and Canada)



DFI System Wiring Diagram



Note: Connector and leads Ⓐ through Ⓓ . These are connected to the connector and lead of the same reference letter in the wiring diagram of the "ZX1100-A1".

Scheduled Maintenance

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2-2 SCHEDULED MAINTENANCE

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	Whichever comes first ↓ Every	*ODOMETER READING 800 km	5,000 km	10,000 km	15,000 km	20,000 km	25,000 km	30,000 km
Spark plug – clean		•	•	•	•	•	•	•
Spark plug – check †		•	•	•	•	•	•	•
Valve clearance – check †		•	•	•	•	•	•	•
Air suction valve (US model only) – check †			•	•	•	•	•	•
Air cleaner element – clean			•		•		•	
Air cleaner element – replace	5 cleanings			•		•		•
Throttle grip play – check †		•	•	•	•	•	•	•
Idle speed – check †		•	•	•	•	•	•	•
Engine vacuum synchronization – check †		•	•	•	•	•	•	•
Cylinder head bolt tightness – check †		•		•		•		•
Cylinder head nut tightness – check †		•		•		•		•
Engine oil – change	year	•	•	•	•	•	•	•
Oil filter – replace		•		•		•		•
Fuel filter – replace			•		•		•	
Low-pressure fuel hose – replace	4 years							
High-pressure fuel hose – replace	2 years							
Clutch – adjust		•	•	•	•	•	•	•
Drive chain wear – check †			•	•	•	•	•	•
Drive chain – lubricate	300 km							
Drive chain slack – check †	800 km							
Brake lining wear – check †			•	•	•	•	•	•
Brake fluid level – check †	month	•	•	•	•	•	•	•
Brake fluid – change	year			•		•		•
Brake hose and pipe – replace	4 years							
Anti-dive brake plunger assembly – replace	2 years							
Master cylinder cup and dust seal – replace	2 years							
Caliper piston seal and dust seal – replace	2 years							
Brake light switch – check †		•	•	•	•	•	•	•
Steering – check †		•	•	•	•	•	•	•
Steering stem bearing – lubricate	2 years					•		
Front fork oil – change				•		•		•
Tire wear – check †			•	•	•	•	•	•
Wheel bearing – lubricate	2 years					•		
Swing arm pivot, uni-trak linkage – lubricate				•		•		•
General lubrication – perform			•	•	•	•	•	•
Nut, bolt, and fastener tightness – check †		•		•		•		•

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

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

Engine Oil
Oil Filter

Oil Level Inspection

Refer to p.2-4 of the Base Manual.

Oil and/or Oil Filter Change

Refer to p.2-4 of the Base Manual noting the following exception.

- When replacing the engine oil, check the O-ring of the filler cap for damage and deterioration, and replace it with a new one if it is damaged. Tighten the cap securely. An air leak can cause the fuel injection system to mulfunction.
- The oil cooler is equipped in the engine lubrication system. So the additional 0.2 litters of oil will be required for oil cooler and hoses if the oil is completely drained.

Spark Plugs

Refer to p.2-5 of the Base Manual noting the following exception.

Cleaning and Gapping

Spark Plugs

Norway Model:	NGK B8ES ND W24ES-U
Other than Norway Model:	NGK BR8ES ND W24ESR-U

Plug Gap

0.7 – 0.8 mm

Tightening Torque

27 N-m (2.8 kg-m, 20 ft-lb)

Valve Clearance

Inspection

- If the engine is hot, wait until the engine cools. Valve clearance must be checked when the engine is cold (room temperature).
- Remove the cylinder head cover and pickup coil cover.
- Check the valve clearance when pistons are at TDC.
  - Using a 17 mm wrench on the timing rotor, turn the crankshaft until a TDC mark on the timing rotor is alinged with the timing mark on the crankcase.

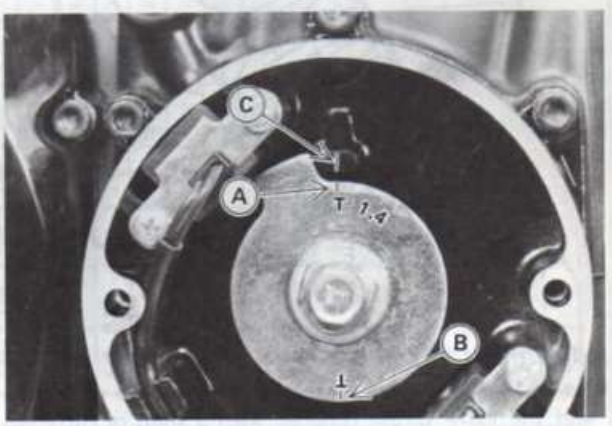
Measuring Position*

TDC of the #1 and #4 pistons → Exhaust #1 and #2 vlave clearances or Exhaust #3 and #4 valve clearances TDC of the #2 and #3 piston → Inlet #1 and #2 valve clearances or Inlet #3 and #4 valve clearances

* : Measure the valve clearance of the valves of which cam lobe is pointing away from the valve lifter.

"NOTE"

Check the valve clearance with the proper method in the text. Checking the clearance at any other cam position may result in improper valve clearance.



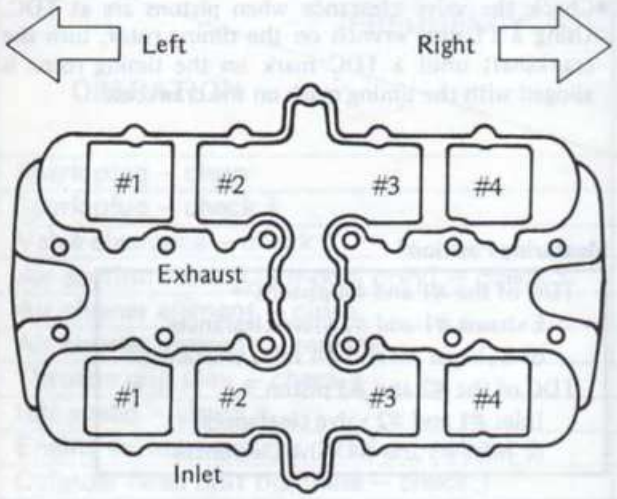
A. TDC Mark for #1 and #4 Pistons
B. TDC Mark for #2 and #3 Pistons
C. Crankcase Timing Mark

★If the valve clearance is incorrect, adjust it.

Valve Clearance

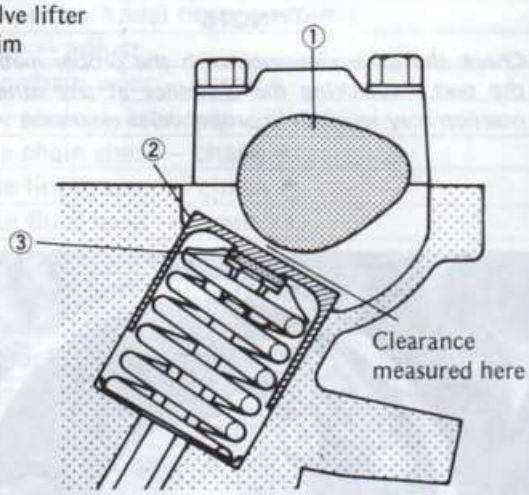
Standard:	
Inlet and Exhaust	0.08 – 0.18 mm

Valve Numbering Method (viewed from top) 282101



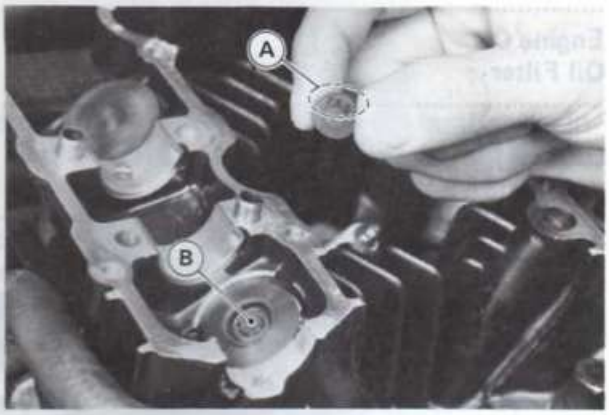
Valve Clearance 282102

1. Cam
2. Valve lifter
3. Shim



Adjustment

- To change the valve clearance, remove the camshafts and the valve spring retainer with a shim of different thickness.
- To select a new shim which brings valve clearance the specified limit, refer to the Valve Clearance Adjustment Chart.
- Shim thickness is printed on the shim surface. When installing, face the marked side toward the spring retainer. This avoids the marking from being polished off by the action of the valve lifter.



A. Face the marked side downwards.
B. Apply a little high temperature grease to the spring retainer to keep the shim in place during camshaft installation.

- Install the camshafts. Be sure to time the camshafts properly.
- Remeasure the valve clearance that was adjusted. Readjust if necessary.

CAUTION

- **Do not put shim stock under the shim. This may cause the shim to pop out at high rpm, causing extensive engine damage.**
- **Do not grind the shim. This may cause it to fracture, causing extensive engine damage.**
- **Do not grind the valve stem end to repair it or to permit additional valve clearance. If the valve end is ground, the shim may contact the spring retainer and/or split keepers during operation, allowing the keeper to loosen. Consequently, the valve may drop into the engine, causing serious damage.**

Air Cleaner

A clogged air cleaner restricts the engine's air intake, increasing fuel consumption, reducing engine power, and causing spark plug fouling.

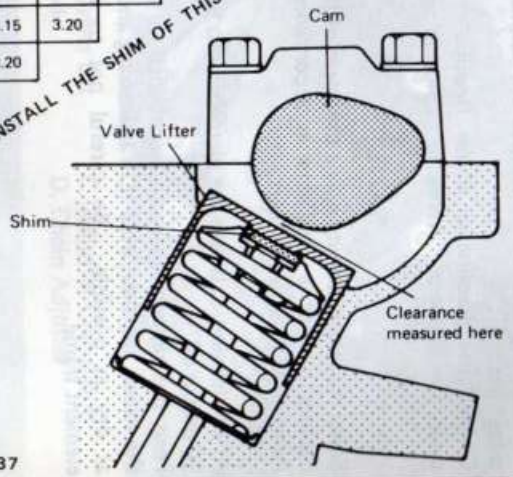
The air cleaner element must be cleaned and replaced in accordance with the Periodic Maintenance Chart. In dusty areas, the element should be cleaned more frequently than the recommended interval. After riding through rain or on muddy roads, the element should be cleaned immediately. The element should be replaced if it is damaged.

Valve Clearance Adjustment Chart (both Inlet and Exhaust)

	PRESENT SHIM SIZE																								
PART NUMBER (92025-)	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114
THICKNESS (mm)	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20

VALVE CLEARANCE (mm)	SPECIFIED CLEARANCE / NO CHANGE REQUIRED
0.00 ~ 0.03	2.00 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05
0.04 ~ 0.07	2.00 2.00 2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10
0.08 ~ 0.18	
0.19 ~ 0.22	2.05 2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.23 ~ 0.27	2.10 2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.28 ~ 0.32	2.15 2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.33 ~ 0.37	2.20 2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.38 ~ 0.42	2.25 2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.43 ~ 0.47	2.30 2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.48 ~ 0.52	2.35 2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.53 ~ 0.57	2.40 2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.58 ~ 0.62	2.45 2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.63 ~ 0.67	2.50 2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.68 ~ 0.72	2.55 2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.73 ~ 0.77	2.60 2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.78 ~ 0.82	2.65 2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.83 ~ 0.87	2.70 2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.88 ~ 0.92	2.75 2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.93 ~ 0.97	2.80 2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
0.98 ~ 1.02	2.85 2.90 2.95 3.00 3.05 3.10 3.15 3.20
1.03 ~ 1.07	2.90 2.95 3.00 3.05 3.10 3.15 3.20
1.08 ~ 1.12	2.95 3.00 3.05 3.10 3.15 3.20
1.13 ~ 1.17	3.00 3.05 3.10 3.15 3.20
1.18 ~ 1.22	3.05 3.10 3.15 3.20
1.23 ~ 1.27	3.10 3.15 3.20
1.28 ~ 1.32	3.15 3.20
1.33 ~ 1.38	3.20

INSTALL THE SHIM OF THIS THICKNESS (mm)



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1. Measure the clearance (when engine cold).
2. Check present shim size.
3. Match clearance in vertical column with present shim size in horizontal column.
4. The shim specified where the lines intersect is the one that will give you the proper clearance.

"NOTE"

If there is no clearance, select a shim which is several sizes smaller and then measure the clearnace.

Inspection and Cleaning

- Remove the fuel tank.
- Remove the air cleaner element, and inspect it.
- ★If there is a break in the element material or any other damage to the element, replace the element with a new one.
- Clean the element in a bath of a high flash-point solvent, and then dry it with compressed air.

WARNING

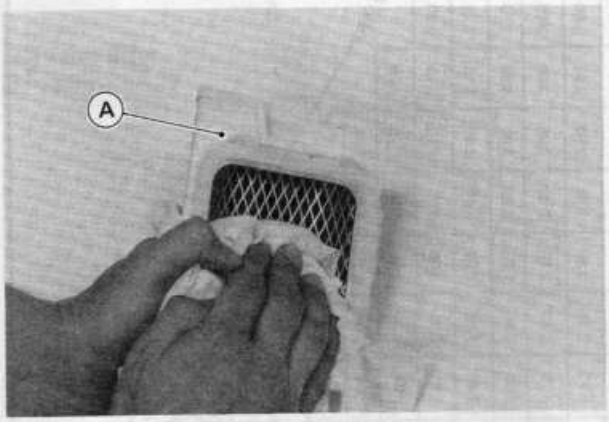
○**Clean the element in a well-ventilated area, and take care that there are no sparks or flame anywhere near the working area; this includes any appliance with a pilot light.**

○**Do not use gasoline or a low flash-point solvent to clean the element. A fire or explosion could result.**

"NOTE"

○*Since repeated cleaning opens the pores of the element, replace it with a new one in accordance with the Periodic Maintenance Chart.*

- After cleaning, saturate the element with SE class SAE 30 motor oil.
- Press the element against a workbench to squeeze out the excess oil, then wrap it in a clean rag and squeeze it as dry as possible. Be careful not to deform the element frame.



A. Air Cleaner Element

Idle Speed

Inspection

- Thoroughly warm up the engine.
- With the engine idling, turn the handlebar to both sides.
- ★If handlebar movement changes the idle speed; the throttle cable may be improperly adjusted or incorrectly routed, or it may be damaged. Be sure to correct any of these conditions before riding.

WARNING

○**Operation with improperly adjusted incorrectly routed, or a damaged cable could result in an unsafe riding condition.**

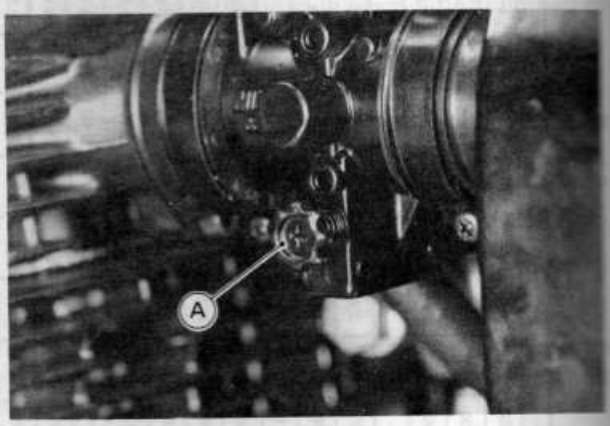
- Check that the idle speed is within the specified range.
- ★If the idle speed is out of the specified range, adjust it.

Idle Speed

950 – 1,050 r/min (rpm)

Adjustment

- Turn the idle adjusting screw to adjust the idle speed.



A. Idle Adjusting Screw

- Open and close the throttle a few times to make sure that the idle speed is within the specified range. Readjust if necessary.

Drive Chain

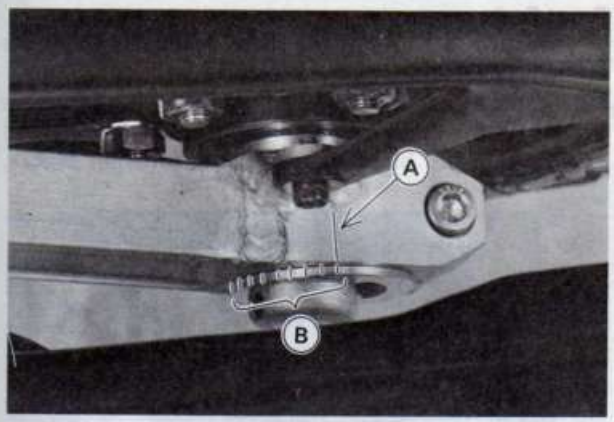
The drive chain must be checked, adjusted, and lubricated in accordance with the Periodic Maintenance Chart for safety and to prevent excessive wear. If the chain becomes badly worn or maladjusted – either too loose or too tight – the chain could jump off the sprocket or break.

WARNING

○**A chain that breaks or jumps off the sprockets could snag on the engine sprocket or lock the rear wheel, severely damaging the motorcycle and causing it to go out of control.**

Chain Slack Inspection

- Set the motorcycle up on its center stand.
- Check to see if wheel alignemnt is properly adjusted. The left and right notches on the swing arm should point to the same marks or positions on the left and right chain adjusters. If they do not, adjust wheel alignment as described in the later paragraph—Wheel Alignment Adjustment.



A. Swing Arm Notch B. Marks

"NOTE"

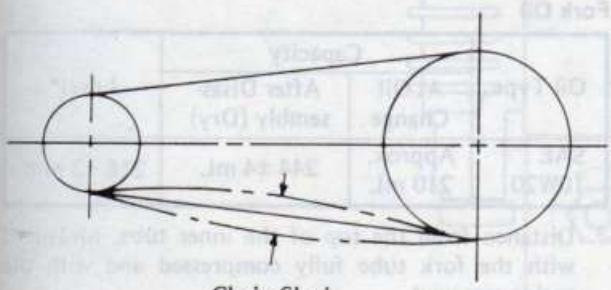
○*Wheel alignment can also be checked using the straightedge or string method.*

WARNING

○**Misalignment of the wheel will result in abnormal wear, and may result in an unsafe riding condition.**

- Rotate the rear wheel to find the position where the chain is tightest, and measure the vertical movement midway between the sprockets.
- If the drive chain is too tight or too loose adjust it so that the chain slack will be within the standard value.

Chain Slack Inspection 282525



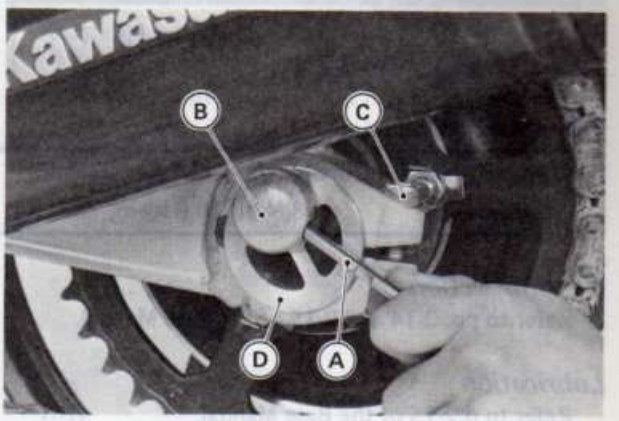
Chain Slack

Drive Chain Slack

Standard:	35 – 40 mm
Too Tight:	Less than 35 mm
Too Loose:	More than 45 mm

Chain Slack Adjustment

- Loosen the left and right chain adjuster clamp bolts.
- Insert a screw driver bit into the rear axle head hole, and turn the chain adjusters forward or rearward until the drive chain has the correct amount of chain slack.



A. Screw Driver Bit
B. Rear Axle
C. Adjuster Clamp Bolt
D. Chain Adjuster

- Tighten the chain adjuster clamp bolts to the specified torque.

WARNING

○**If the clamp bolts are not securely tightened, an unsafe riding condition may result.**

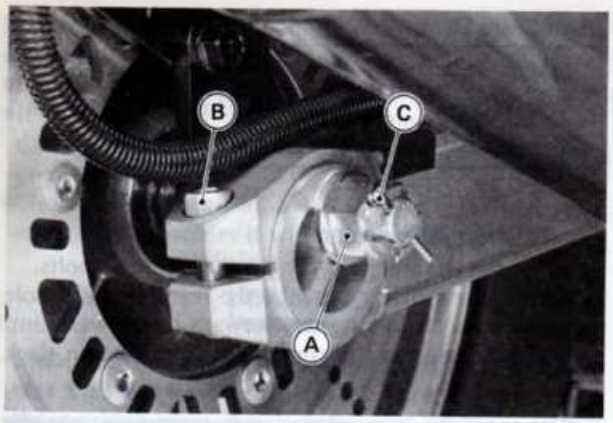
- Rotate the wheel, measure the chain slack again at the tightest position, and readjust if necessary.
- Check the rear brake effectiveness.

Wheel Alignment Adjustment

- Remove the cotter pin from the axle nut.
- Loosen the axle nut.
- Loosen the left or right chain adjuster clamp bolt, and turn the chain adjuster so that the left and right notches on the swing arm point to the same marks or positions on the left and right adjusters.
- Tighten the clamp bolt and axle nut to the specified torque.
- Insert a new cotter pin through the axle nut, and spread its ends.

WARNING

○**If the axle nut and clamp bolts are not securely tightened and the cotter pin is not installed, an unsafe riding condition may result.**



A. Axle Nut
B. Chain Adjuster Clamp Bolt
C. Cotter Pin

Tightening Torque

Adjuster Clamp Bolts:	32 N-m (3.3 kg-m, 24 ft-lb)
Axle Nut:	98 N-m (10.0 kg-m, 72 ft-lb)

Wear Inspection

Refer to pp. 2-14 and 2-15 of the Base Manual.

Lubrication

Refer to p.2-15 of the Base Manual.

Brakes

Brake Wear:

Inspection

Refer to p.2-15 of the Base Manual noting the following exception.

Pad Lining Wear

Front:	
Standard	4.85 mm
Service Limit	1 mm
Rear:	
Standard	4.85 mm
Service Limit	1 mm

Brake Fluid Level:

Inspection

Refer to pp.2-15 and 2-16 of the Base Manual.

Brake Fluid Change:

Rear Brake:

Refer to pp.2-16 and 2-17 of the Base Manual.

Front Brake:

Refer to pp.2-16 and 2-17 of the Base Manual r
the following exception.

- Using the bleed valves on the anti-dive units, dra
brake fluid from the barke line as well as the disc
calipers.

Air Bleeding:

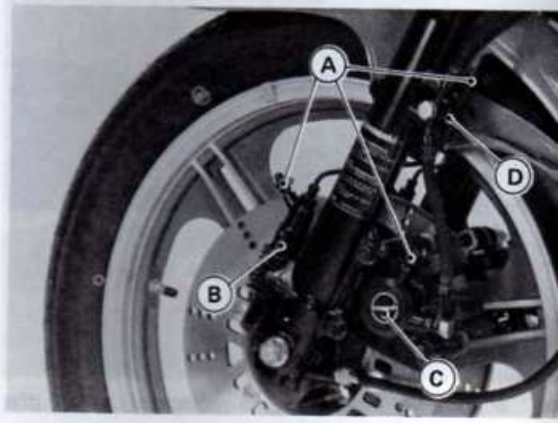
Rear Brake:

Refer to p.2-17 of the Base Manual.

Front Brake:

Refer to p.2-17 of the Base Manual notin
following exception.

- Bleed the air from the brake line, first using the
valves on the brake calipers and the anti-dive unit
then using the bleed valves on the junction b



A. Air Bleed Valves
B. Anti-Dive Unit
C. Brake Caliper
D. Junction Block

Rubber Disc Brake Parts:

Refer to p. 2-17 of the Base Manual.

Front Fork

Oil Change

Refer to pp.2-20 and 2-21 of the Base Ma
noting the following exception.

Fork Oil

Oil Type	Capacity		Level*
	At Oil Change	After Disassembly (Dry)	
SAE 10W20	Approx. 210 mL	244 ±4 mL	216 ±2 m

* Distance from the top of the inner tube, meas
with the fork tube fully compressed and with
spring removed.

Replacement of Anti-Dive System Parts

In accordance with the Periodic Maintenance Chart, replace the following anti-dive system parts.

Periodic Replacement Parts of Anti-Dive System

Brake plunger assembly
Metal pipe (between anti-dive unit and junction block)

●Be sure to bleed the air from the brake line after replacement.

Wheels

Tires:

Tire Wear, Damage

Refer to pp. 2-21 and 2-22 of the Base Manual noting the following exception.

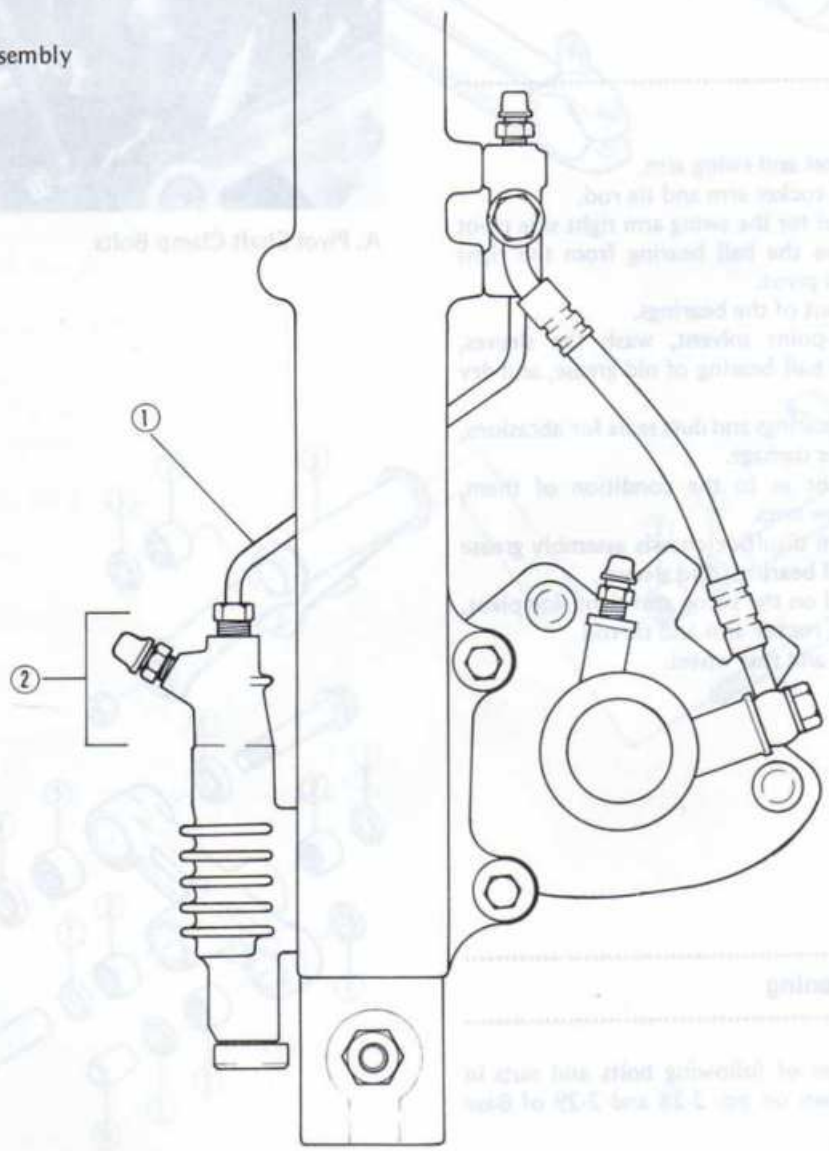
Tire Tread Depth

Front:	
Standard	4.9 mm
Service Limit	1 mm
Rear:	
Standard	7.2 mm
Service Limit	2 mm (Up to 130 km/h)
	3 mm (over 130 km/h)

Periodic Replacement Parts of Anti-Dive System

282527

1. Metal Pipe
2. Brake Plunger Assembly



Standard Tire

Front:	110/90 V 18 Tubeless Dunlop F11
Rear:	130/90 V 17 Tubeless Dunlop K127

Wheel Bearings:

Lubrication

Refer to pp. 2-22 and 2-23 of the Base Manual.

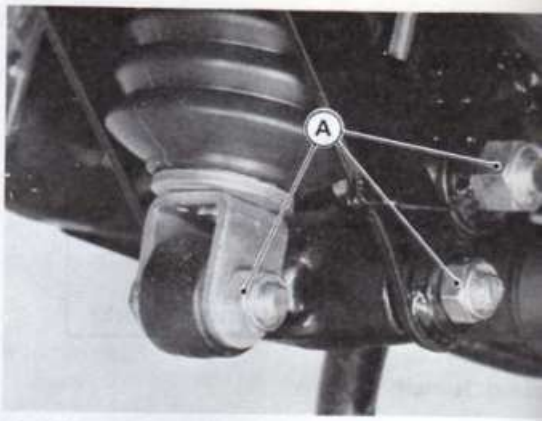
Swing Arm Uni-Trak

Lubrication

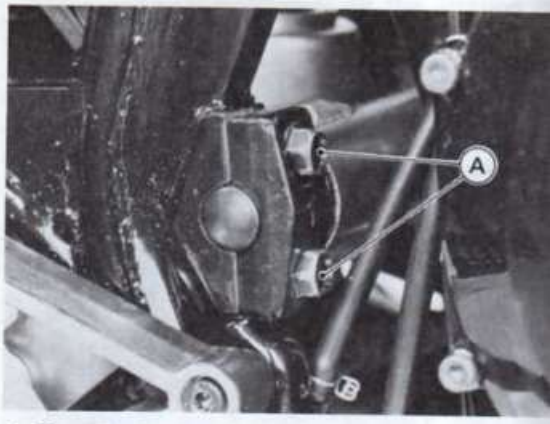
- Remove the rear wheel and swing arm.
- Remove the uni-trak rocker arm and tie rod.
- Remove the dust seal for the swing arm right side pivot bearings, and remove the ball bearing from the right side of the swing arm pivot.
- Pull out the sleeves out of the bearings.
- Using a high flash-point solvent, wash the sleeves, needle bearings, and ball bearing of old grease, and dry them.
- Inspect the sleeves, bearings and dust seals for abrasions, color change, or other damage.
- ★If there is any doubt as to the condition of them, replace them with new ones.
- Apply a molybdenum disulfide chassis assembly grease to the needle and ball bearings, and sleeves.
- Using a new dust seal on the swing arm right side pivot, assemble the uni-trak rocker arm and tie rod.
- Install the swing arm and rear wheel.
- Check the rear brake.

Bolt and Nut Tightening

Check the tightness of following bolts and nuts in addition to those shown on pp. 2-28 and 2-29 of Base Manual.



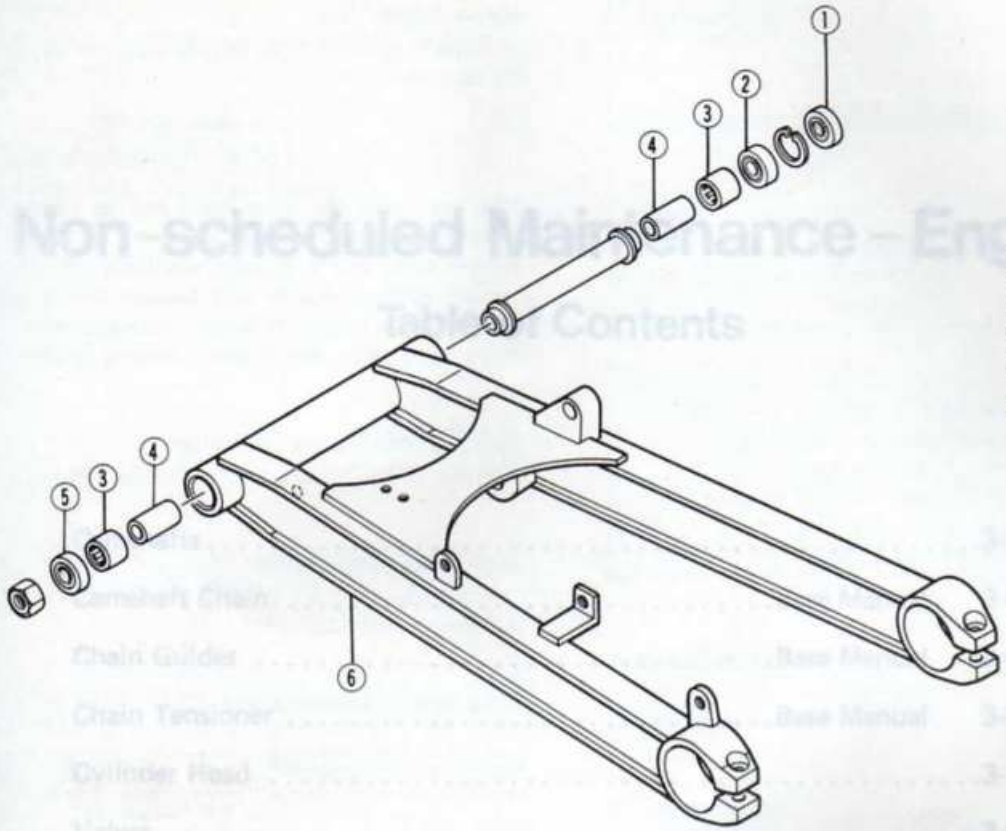
A. Uni-Trak Link Nuts



A. Pivot Shaft Clamp Bolts

Swing Arm Pivot

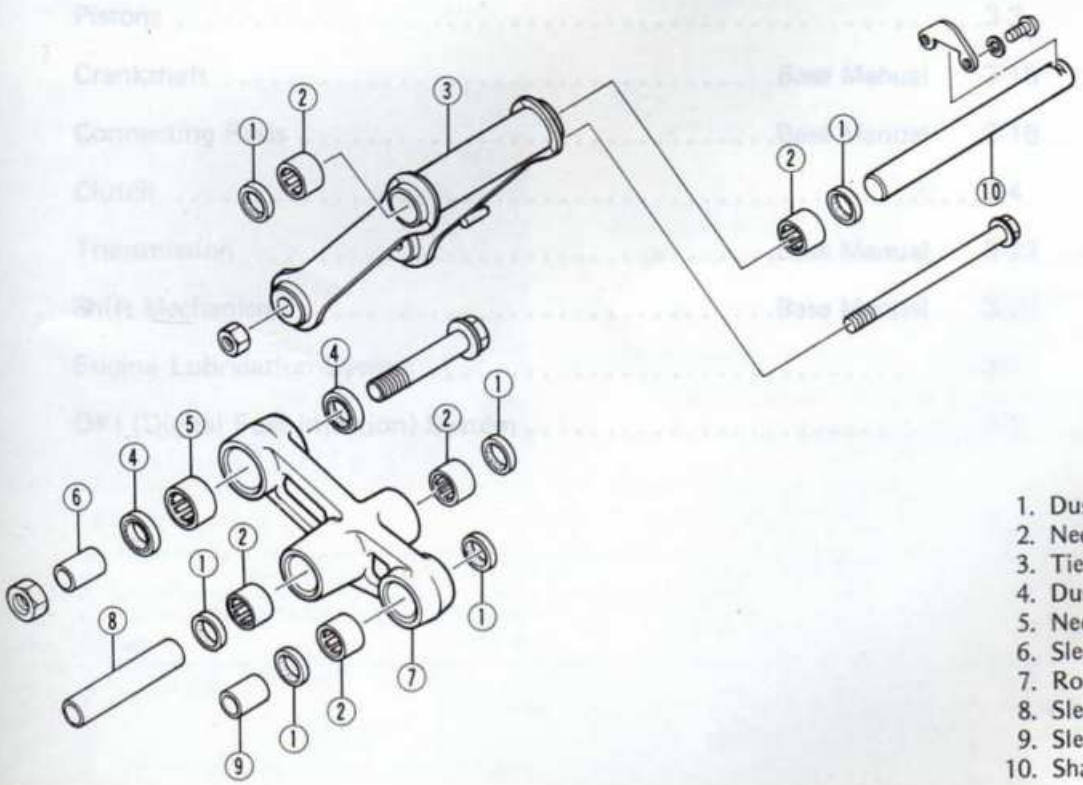
282528



1. Dust Seal
2. Ball Bearing
3. Needle Bearing
4. Sleeve
5. Dust Seal
6. Swing Arm

Uni-Trak Link

282529



1. Dust Seal
2. Needle Bearing
3. Tie Rod
4. Dust Seal
5. Needle Bearing
6. Sleeve
7. Rocker Arm
8. Sleeve
9. Sleeve
10. Shaft

Camshafts

Cam Wear

Refer to p. 3-5 of the Base Manual noting the following exception.

Cam Height

Standard	37.75 – 37.85 mm
Service Limit	37.65 mm

Journal, Bearing Wear

Refer to pp. 3-5 and 3-6 of the Base Manual.

Camshaft Runout

Refer to p. 3-6 of the Base Manual.

Cylinder Head Valves

Cylinder Head:

Cylinder Head Warp

Refer to p. 3-7 of the Base Manual.

Combustion Chamber Volume Measurement

Refer to pp. 3-7 and 3-8 of the Base Manual.

Valve Guide, Valve, Valve Seat:

Valve Inspection

Refer to p. 3-8 of the Base Manual noting the fo ing exception.

CAUTION

○Do not grind the valve stem end to repair it permit additional valve clearance.
○If the valve end is ground, the shim may contac spring retainer and/or split keepers during opera allowing the keeper to loosen. Consequently, the may drop into the engine, causing serious dar

Valve Guide Inside Diameter

Refer to pp. 3-9 and 3-10 of the Base Manual.

Valve Seat Inspection

Refer to p. 3-10 of the Base Manual noting following exception.

Valve Seating Surface Width

0.8 – 1.2 mm

Valve Seating Pattern Outside Diameter

Inlet:	36.9 – 37.1 mm
Exhaust:	31.4 – 31.6 mm

Valve Seat Repair

Refer to pp. 3-10 and 3-11 of the Base Manual.

Valve Installed Height

Refer to pp. 3-11 and 3-12 of the Base M noting the following exception.

CAUTION

○Do not grind the valve stem end to repair it permit additional valve clearnace.
○If the valve end is ground, the shim may contac spring retainer and/or split keepers during opera allowing the keeper to loosen. Consequently, the may drop into the engine, causing serious dar

Valve Installed Height

Height (mm)	Probable Cause	Recommendation
37.17 – 37.97	Normal/acceptable	●After assembling check and adjust valve clearance.
More than 37.98	Valve face or seat worn out, or ground excessively.	●Move valve to shallower cut seat. Remeasure. ●Replace valve. Remeasure. ●Replace cylinder head. Remeasure.

Valve Spring:

Spring Tension

Refer to p. 3-12 of the Base Manual noting the following exception.

Spring Squareness

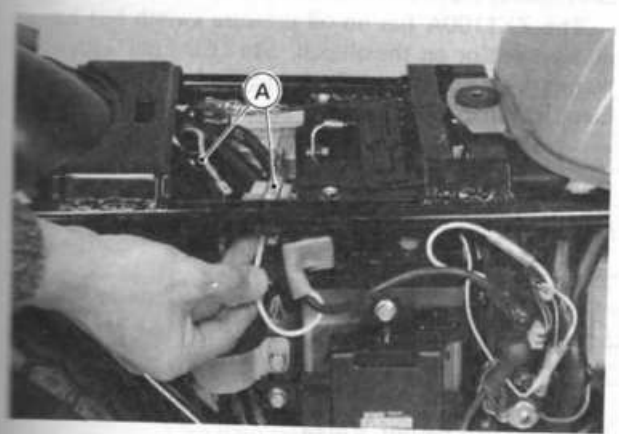
Refer to p. 3-13 of the Base Manual.

Cylinder Block
Pistons

Compression Measurement

Refer to p. 3-15 of the Base Manual noting the following exception.

- To stop fuel injector operation during cylinder compression measurement, dicsonnect the white/red lead which connects the battery positive terminal to the fuel injection system harness.



A. DFI System White/Red Lead

Cylinder Compression

Usable Range:	735 – 1,150 kPa (7.5 – 11.7 kg/cm², 107 – 166 psi), and less than 98 kPa (1 kg/cm², 14 psi) difference between any two cylinders

Cylinder Diameter

Refer to pp. 3-15 and 3-16 of the Base Manual noting the following exception.

Cylinder Inside Diameter

Standard:	72.500 – 72.512 mm, and less than 0.01 mm difference between any two measurements
Service Limit:	72.60 mm, or more than 0.05 mm difference between any two measurements

Piston Diameter

Refer to p. 3-16 of the Base Manual noting the following exception:

Piston Diameter

Standard:	72.442 – 72.457 mm
Service Limit:	72.30 mm

Piston/Cylinder Clearance

Refer to p. 3-16 of the Base Manual.

Boring, Honing

Refer to p. 3-16 of the Base Manual.

Piston/Cylinder Seizure

Refer to p. 3-16 of the Base Manual.

Piston Ring, Piston Ring Groove Wear

Refer to p. 3-17 of the Base Manual.

Piston Ring End Gap

Refer to p. 3-17 of the Base Manual.

Valve Spring Tension

Spring	Test Length	Standard	Service Limit
Inner	23.1 mm	280.5 – 309.9 N (28.60 – 31.60 kg)	261 N (26.6 kg)
Outer	25.6 mm	499.7 – 550.7 N (50.95 – 56.15 kg)	465 N (47.4 kg)

Piston, Piston Pin, Connecting Rod Wear

Refer to p. 3-18 of the Base Manual noting the following exception.

Piston Pin Diameter

Standard:	17.995 – 18.000 mm
Service Limit:	17.96 mm

Piston Pin Hole Diameter

Standard:	18.004 – 18.011 mm
Service Limit:	18.08 mm

Connecting Rod Small End Diameter

Standard:	18.003 – 18.014 mm
Service Limit:	18.05 mm

Clutch

Spring Tension

Refer to pp. 3-20 and 3-21 of the Base Manual noting the following exception.

Clutch Spring Tension

Test Length	Standard	Service Limit
22.1 mm	187 – 221 N (19.1 – 22.5 kg)	172 N (17.5 kg)

Friction Plate Thickness, Damage

Refer to p. 3-21 of the Base Manual.

Friction and Steel Plate Warp

Refer to p. 3-21 of the Base Manual.

Friction Plate/Clutch Housing Clearnace

Refer to p. 3-21 of the Base Manual.

Clutch Housing/Primary Gear Backlash

Refer to pp. 3-21 and 3-22 of the Base Manual.

Clutch Housing Bearing Collar Diameter

Refer to p. 3-22 of the Base Manual.

Cam Damper Spring Tension

- Remove the damper springs, and set them, one at a time, on a spring tension device.
- Compress the spring to the specified test length, and read the spring tension.

★If the spring tension at the specified length is weaker than the service limit, replace the spring.

Cam Damper Spring Tension

Test Length	Standard	Service Limit
20.0 mm	319 – 378 N (32.5 – 38.5 kg)	289 N (29.5 kg)

Clutch Release Inspection

- Visually inspect the clutch release lever, balls, spring, ball ramp and needle bearing for damage or excessive wear.

★If there is any damage or excessive wear, replace them.

Engine Lubrication System

Oil Pressure Measurement

Refer to pp. 3-25 through 3-27 of the Base Manual.

Oil Pressure Switch Inspection

The ZX1100A has no oil pressure switch but has an oil level sensor on the oil pan. See LCD Fuel Gauge and Warner Unit section on the Non-Scheduled Maintenance Electrical chapter for oil level sensor inspection.

Engine Oil Pump:

Pump Gear/Pump Body Clearance

Refer to p. 3-27 of the Base Manual.

Oil Screen Inspection

Refer to p. 3-27 of the Base Manual.

Oil Pressure Relief Valve:

The relief valve on the engine oil pump keeps the maximum oil pressure between the values shown in the following table when the cold engine is started and oil pressure is liable to rise over the allowable level of the lubrication system.

Relief Valve Opening Pressure

430 – 590 kPa (4.4 – 6.0 kg/cm², 63 – 85 psi)

DFI (Digital Fuel Injection System)

Gerneral Information:

Refer to pp. 10-20 through 10-22 of the Base Manual noting the following exception.

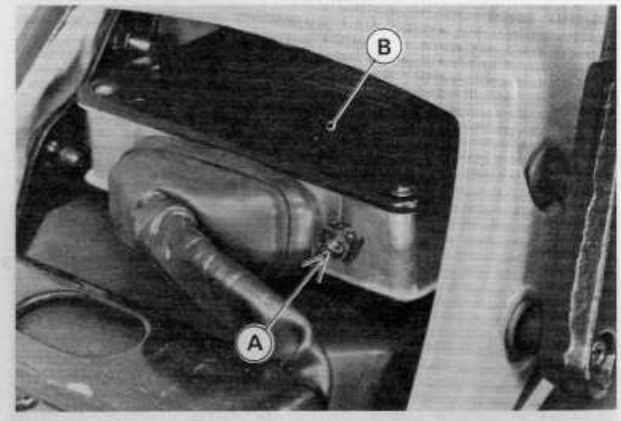
Self-Diagnosis and Fail-Safe Function:

The 1983 DFI control unit diagnoses the DFI system while the engine is running. If trouble occures in the DFI system while riding, the DFI control unit takes following measures:

- To send signal to the warner unit to notify the rider of the DFI system trouble.
- To fail-safe the system. Ignoring abnormal signals which are sent from damaged sensor(s) or through damaged wires and using the fail-safe data, the DFI control unit compute the fuel amount to be injected. The fail-safe date are choosed to mimize the influence of system damage.

Until the ignition switch is turned off, the DFI control unit keeps the faults in its memory and continues to turn the green LED (Light Emitting Diode) on and off repeatedly to notify the mechanics of faults. This greatly helps them to troubleshoot the DFI system.

Pulses of green light can be seen through the inspection hole in the control unit. Arrangement of long and short pulses express the trouble codes which correspond to the faults.



A. Trouble Code Inspection Hole
B. DFI Control Unit

"NOTE"

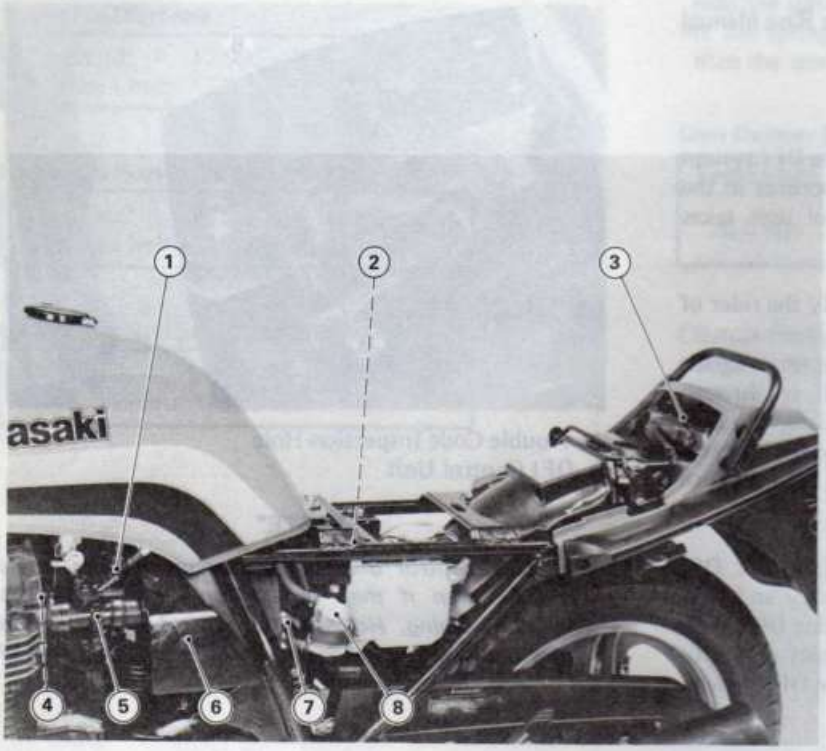
○*The DFI control unit keeps system troubles in its memory, even if they occure for a time while the engine is running. However, the control unit resets and clears the memory when the ignition switch is turned off.*

Self-Diagnosis and Trouble Code 382538

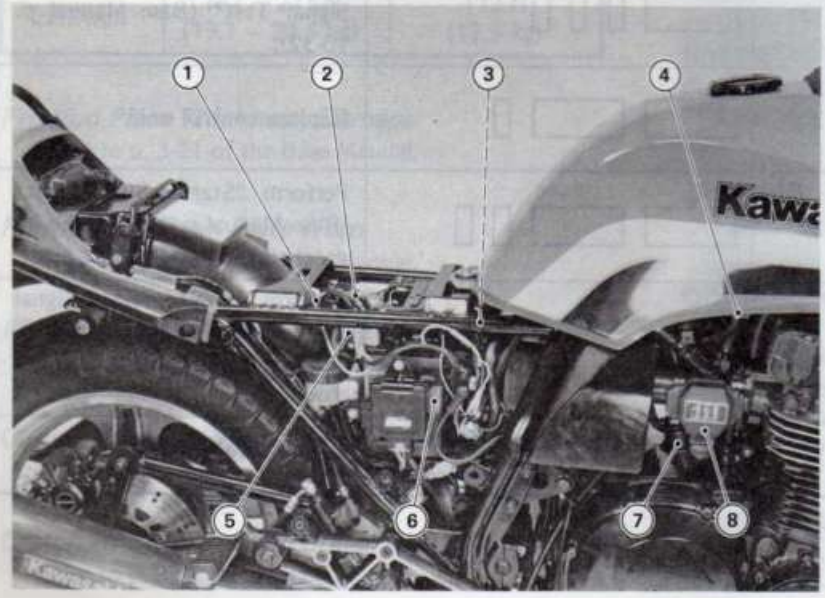
Items	Criteria	Trouble Codes	Arrangement of Pulses*	Action
Throttle Sensor	Open or Short	11	▭ ▯	Perform "Throttle Opening Angle Signal Test" (Base Manual p.10-29).
Air Temperature Sensor	Open or Short	12	▭ ▯ ▯	Perform "Air Temperature Signal Test" (Base Manual p. 10-31).
Engine Temperature Sensor	Open or Short	13	▭ ▯ ▯ ▯	Perform "Engine Temperature Signal Test" (Base Manual p. 10-32).
Atmospheric Pressure Senosr	Open or Short	21	▭ ▭ ▯	Replace control unit.
Starter Switch	Continues on after engine starts.	22	▭ ▭ ▯ ▯	Perform "Starter Signal Test" (Base Manual p. 10-33), and inspect starter switch for damage.
Ignition Pulse	No ignition pulses are transmitted to control unit when cranking engine.	23	▭ ▭ ▯ ▯ ▯	Perform "Engine Speed Signal Test" (Base Manual p. 10-30), and inspect ignition system damage.
CPU** Memory	Memories in CPU do not operate properly.	31	▭ ▭ ▭ ▯	Replace control unit.

* : ▭ Long pulse, ▯ Short pulse
** : Central Processing Unit

DFI System Location of Parts:



1. Fuel Injectors
2. Air Temperature Sensor (on air cleaner housing)
3. Control Unit
4. Engine Temperature Sensor (between #1 and #2 inlet)
5. Throttle Valve Assembly
6. Surge Tank
7. Fuel Pump
8. Fuel Filter



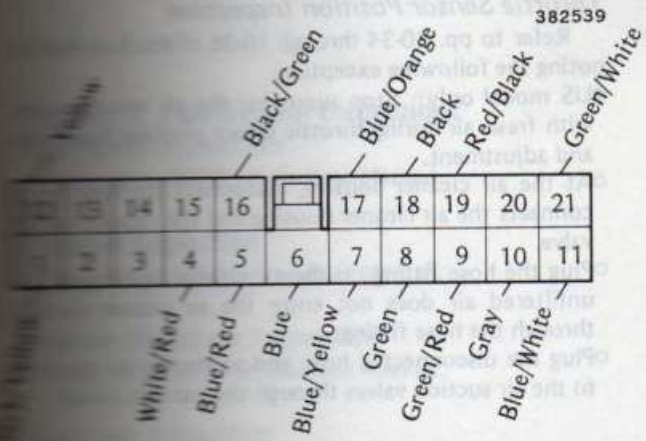
1. DFI System Positive (+) Lead (white/red)
2. DFI System Negative (–) Leads (black/yellow and black/green)
3. Air Cleaner (between battery and surge tank)
4. Check Valve
5. Main/Pump Relay
6. Battery
7. Pressure Regulator
8. Throttle Sensor

The DFI control unit does not start operating unless it receives some ignition pulses. If the ignition switch has been turned off, and it is necessary to confirm the troubles which the DFI system has at present, turn the ignition switch on and crank the engine a few seconds, then the control unit bigins to monitor the system condition and emitts the green light pulses if the DFI system has any trouble.

DFI Wiring Diagram:

A green/red wire is added to transmits the DFI warning signal to the warner unit, and the connector is changed from 3-pin type for the 1982 model to 4-pin type for the 1983 model. See Fuel Injection System Wiring Diagram in this chapter.

Pin Numbers and Wire Colors in Control Unit Connector (viewed from wire side)



Warning Function Test:

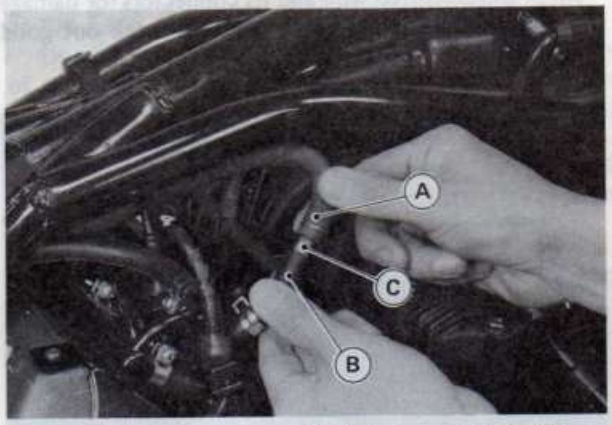
When the DFI system trouble occures while riding, the DFI control unit sends a signal to the warner unit to warn the rider.

Warning Function Test

- Remove the fuel tank, and disconnect the warner unit 4-pin connector.
- Connect the open ends of the fuel hoses using vacuum gauge adapter (special tool).

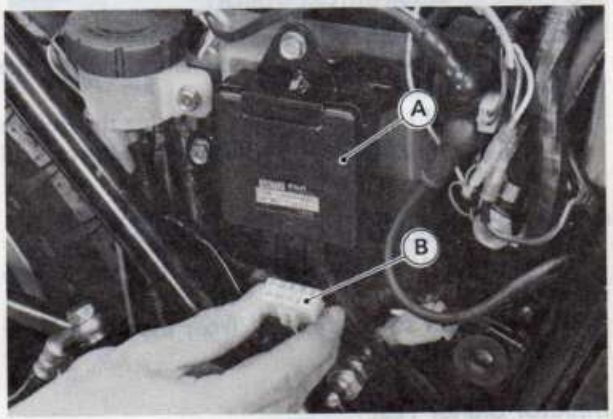
WARNING

○If the ends of the fuel hoses are not connected together using a suitable pipe, fuel will spout from the fuel hoses when the ignition switch is turned on. Fuel spilled from the hoses is hazardous.



A. Outlet Hose
B. Return Hose
C. Adapter: 57001-401

- Disconnect the igniter connector to stop ignition system operation.



A. Igniter B. Connector

- Connect the ohmmeter to the wire shown in the table, and inspect the warning signal.

Warning Signal Inspection

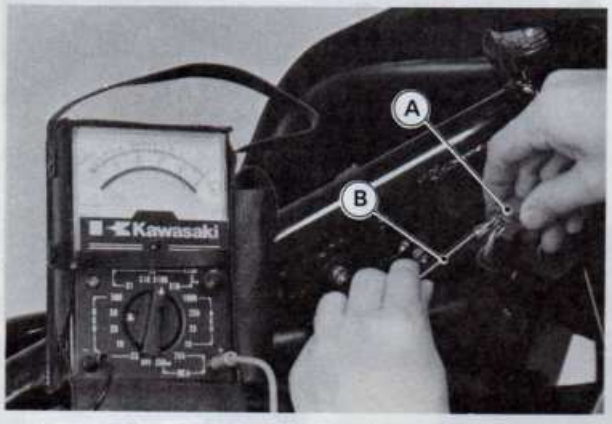
Meter Range	Connections*	Meter Reading (Criteria)
	○Meter Black (–) Probe → Green/red (Main harness side) ○Meter Red (+) Probe → Chassis ground	○∞Ω with ignition switch turned on, and before starter switch is pushed on. ○Shows continuity (less than 100Ω) with ignition switch turned on, and after starter switch is pushed on for more than 0.5 second.

* Do not reverse the ohmmeter connections as this gives different readings.

"NOTE"

○*The acts to kill the ignition system and to push the starter switch with the ignition switch turned on is to let the DFI control unit recognize no ignition pulses reach.*

★If the meter does not read as specified in the table, check the green/red wire and its connectors for damage.
★If green/red wire and its connectors check out good, replace the DFI control unit.



A. Warner Unit Connector (Main Harness Side)
B. Black Probe

Test No. 1 Quick Initial Check:

Quick Initial Check

Refer to p. 10-22 of the Base Manual noting the following exception.

●Confirm the DFI system trouble by reading the trouble code emitted through the inspection hole in the control unit.

Test No. 2 Electronic Control System Tests:

Refer to pp. 10-22 through 10-37 noting the following exception.

●Starter lockout switch removal from the clutch lever holder is not required.

Injector Signal Test

Refer to p. 10-23 of the Base Manual.

Control Unit Power Supply Test (Including Ignition ON Signal Test)

Refer to p. 10-24 of the Base Manual.

Main Relay Wire Test

Refer to p. 10-25 of the Base Manual.

Fuel Pump Power Supply Test

Refer to p. 10-26 of the Base Manual.

Pump Relay Wire Test

Refer to p. 10-27 of the Base Manual.

Injector Wire Test (Including Battery Voltage Signal Test)

Refer to p. 10-28 of the Base Manual.

Throttle Opening Angle Signal Test

Refer to p. 10-29 of the Base Manual.

Engine Speed Signal Test

Refer to p. 10-30 of the Base Manual.

Air Temperature Signal Test

Refer to p. 10-31 of the Base Manual.

Engine Temperature Signal Test

Refer to p. 10-32 of the Base Manual.

Starter Signal Test

Refer to p. 10-33 of the Base Manual.

Throttle Sensor Test

Refer to p. 10-34 of the Base Manual.

Throttle Sensor Position Inspection

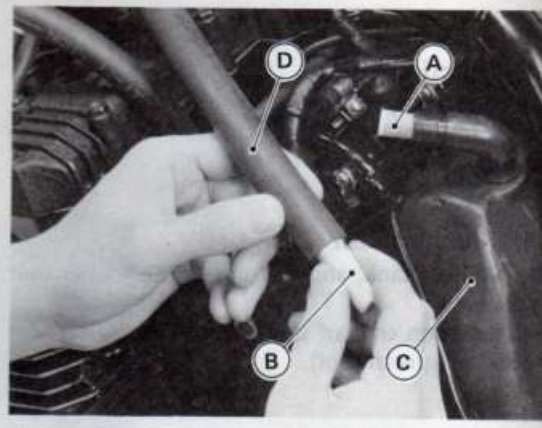
Refer to pp. 10-34 through 10-36 of the Base
noting the following exception.

●US model only: Stop supplying the air suctio
with fresh air during throttle sensor position ins
and adjustment.

○At the air cleaner housing, disconnect the hos
connects the air cleaner housing and the vacuum
valve.

○Plug the hose fitting on the air cleaner housing
unfiltered air does not enter the air cleaner
through the hose fitting.

○Plug the disconnected hose end so that no air c
to the air suction valves through the vacuum swi



A. Plug hose fitting.
B. Plug hose end.
C. Air Cleaner Housing
D. Air Hose

●Set the engine idle speed to the value specified during throttle sensor position inspection and ment.

Engine Speed During Throttle Sensor Position Inspection and Adjustment

1,100 r/min (rpm)

•US model only: After inspection and adjustment, remove the plugs from the hose and hose fitting, and connect the hose to the air cleaner housing.
•After inspection and adjustment of the throttle sensor position, adjust the engine idle speed to the standard, 950 – 1,050 r/min (rpm).

Air Temperature Sensor Inspection
Refer to p. 10-36 of the Base Manual.

Engine Temperature Sensor Inspection
Refer to p. 10-36 of the Base Manual.

Main/Pump relay Inspection
Refer to p. 10-37 of the Base Manaul.

Wire and Connector Inspection
Refer to the "Harness Inspection" section on p. 9-29.

Test No. 3 Fuel System Inspection:
Fuel Pump Inspection
Refer to p. 10-37 of the Base Manual.

Injection Inspection
Refer to p. 10-37 of the Base Manual.

Pressure Regulator Inspection
Refer to p. 10-37 of the Base Manual.

Fuel Leak Inspection
Inspect the connections between the parts shown in fig. 9-29 on p. 9-27 for fuel leaks.

Fuel System Cleaning
Refer to the "Fuel System Cleaning" section on p. 9-26.

Fuel Filter Inspection
Refer to the "Fuel Filter Inspection" section on p. 9-26 of the Base Manual.

Test No. 4 Air System Inspection:
Throttle Valve Inspection
•Check the engine vacuum synchronization (p. 10-18 of the Base Manual).
•Check the throttle valve link mechanism referring to the "Link Mechanism Inspection" on p. 9-29 of the Base Manual.

Air Leak Inspection
Refer to p. 10-38 of the Base Manual noting the following exception.
•The air duct between the surge tank and the air cleaner housing is discontinued.
•The air cleaner housing shape and air cleaner element shape differ from those in fig. 10-34 on p. 10-38 of the Base Manual, but check air seal tightness in the same way as for the 1982 model's.
•Surge tank drain plugs are provided at the end of the drain hoses which are routed from the surge tank bottom to the rear right side of the engine.

Surge Tank Draining
Usually water, oil, etc. do not collect at the bottom of the tank. In the event that rain water is drawn in through the air cleaner, or if engine oil is blown back; pull off the drain plugs from the ends of the drain hoses.
Before installing the drain plugs, check the plugs and drain hoses for damage. If they are damaged, replace them with new ones.



A. Drain Plug B. Drain Hose C. Surge Tank

CAUTION

○**If air is drawn in through a damaged or loose drain plug, the fuel injection system will not operate properly.**

Non-scheduled Maintenance – Chassis

Table of Contents

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Steering ..... Base Manual 4-13
Front Fork 4-4
Drive Chain ..... Base Manual 4-18

Wheels

Wheel Balance

Refer to pp. 4-2 and 4-3 of the Base Manual noting the following exception.

Installation of Balance Weight:

- Check that the weight portion has any play on the blade-and-clip plate.

★If it does, discard it.

- Lubricate the balance weight blade, tire bead, and rim flange with a soap and water solution or rubber lubricant. This helps the balance weight slip on the rim flange.

CAUTION

○**Do not lubricate the tire bead with engine oil or gasoline because they will deteriorate the tire.**

- Install the balance weight on the rim.

○Slip the weight on the rim flange by pushing or lightly hammering the weight in the direction shown in the figure.

○Check that the blade and weight seat fully on the rim flange, and that the clip is hooked over the rim ridge and reaches rim flat portion.

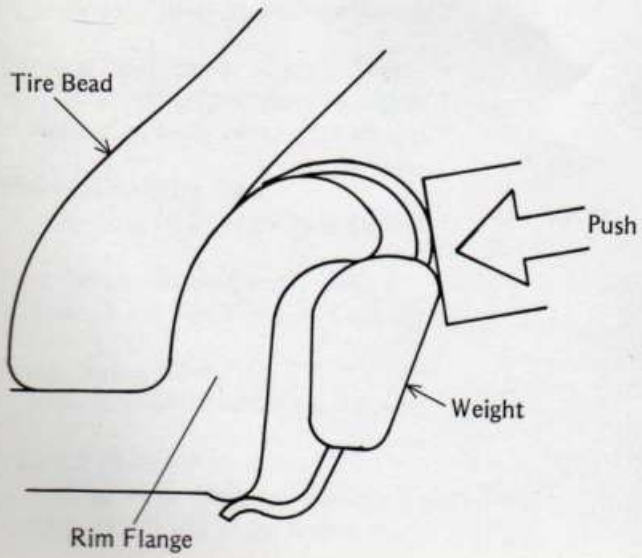
WARNING

○**If the balance weight has any play on the rim flange, the blade and/or clip of the weight are widened. Replace the loose balance weight.**

○**Do not reuse used balance weights.**

Installing Balance Weight

(a) Press or lightly hammer the weight in.



Balance Weight

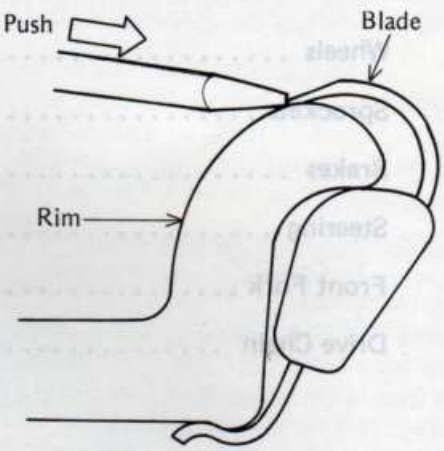
Part Number	Weight (grams)
41075-1014	10
41075-1015	20
41075-1016	30

Removal of Balance Weight:

(a) When the tire is not on the rim.

- Push the blade portion toward the outside w regular tip screw driver, and slip the weight off th flange.
- Discard the used balance weight.

Removing Balance Weight (without tire on rim) 4

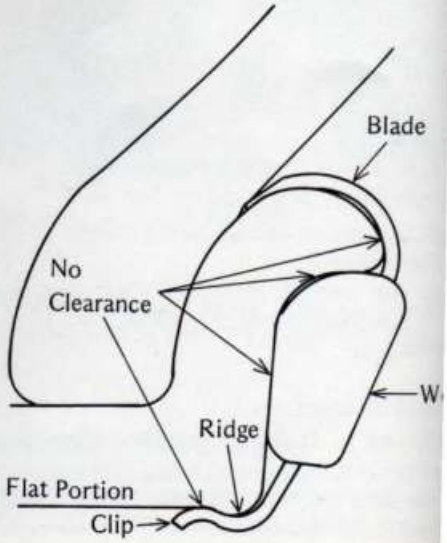


(b) When the tire is on the rim.

- Pry the Balance weight off the rim flange us regular tip screw driver as shown in the figure.

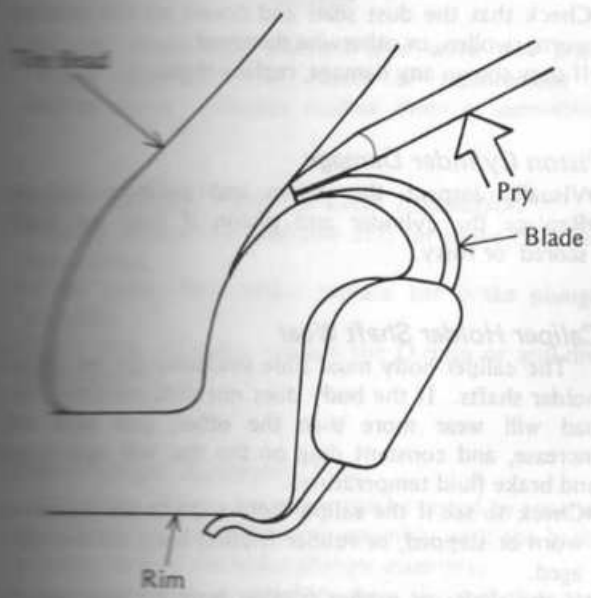
4

(b) Installation completed.



Insert a tip of the screw driver between the tire bead and weight blade until the end of the tip reaches the end of the weight blade.
Push the driver grip toward the tire so that the balance weight slips off the rim flange.
Discard the used balance weight.

Removing Balance Weight (with tire on rim) 482532



Sprockets

Sprocket Diameter

Refer to p. 4-8 of the Base Manual.

Rear Sprocket Warp

Refer to p. 4-8 of the Base Manual.

Brakes

Master Cylinders:

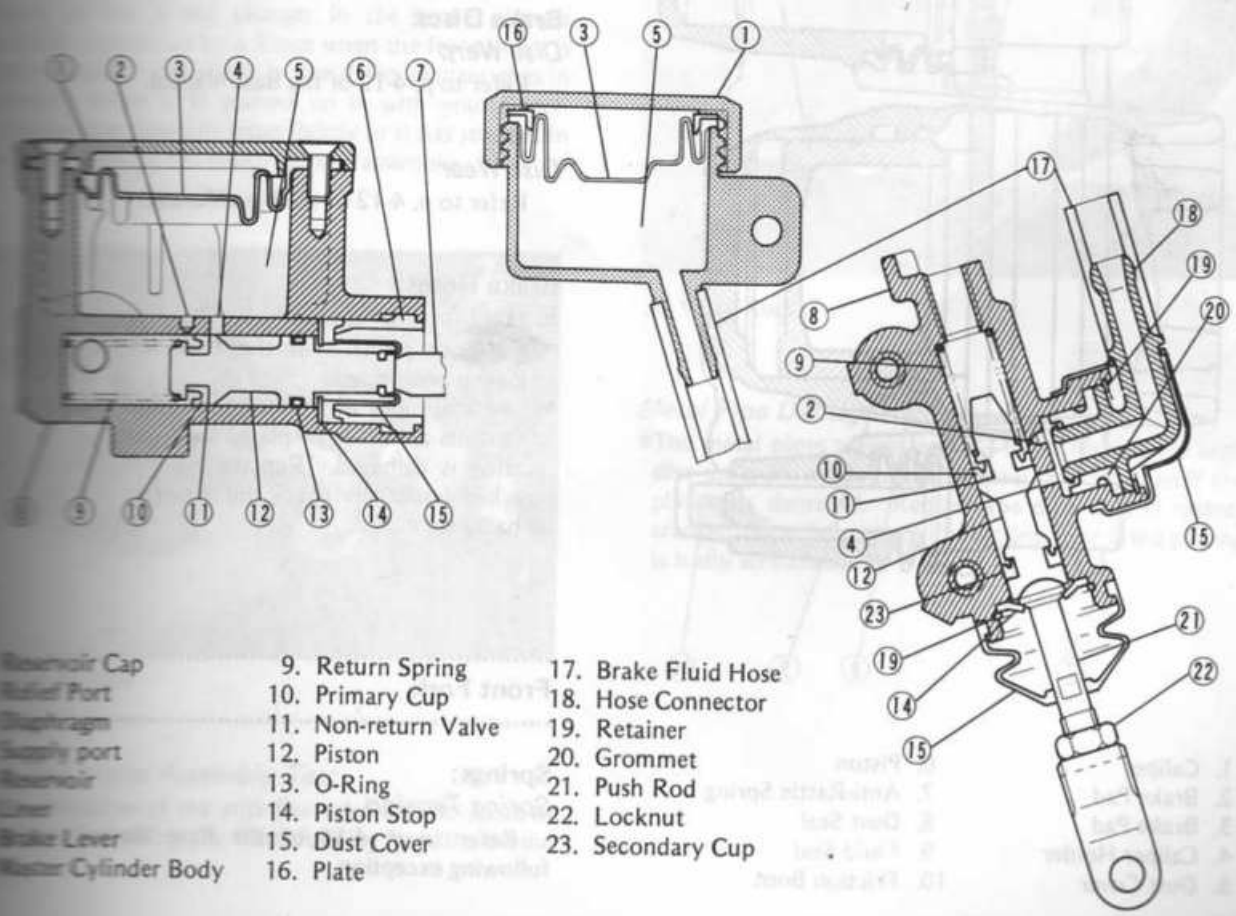
Visual Inspection

- Disassemble the front and rear master cylinders.
- Check that there are no scratches, rust or pitting on the inside of the master cylinder and on the outside of the piston.

★If the master cylinder or piston shows any damage, replace the master cylinder and piston.

- Inspect the primary cups, secondary cup, and O-ring on the pistons.

Front and Rear Master Cylinders 482533



1. Reservoir Cap
2. Relief Port
3. Diaphragm
4. Supply port
5. Reservoir
6. Cover
7. Brake Lever
8. Master Cylinder Body
9. Return Spring
10. Primary Cup
11. Non-return Valve
12. Piston
13. O-Ring
14. Piston Stop
15. Dust Cover
16. Plate
17. Brake Fluid Hose
18. Hose Connector
19. Retainer
20. Grommet
21. Push Rod
22. Locknut
23. Secondary Cup

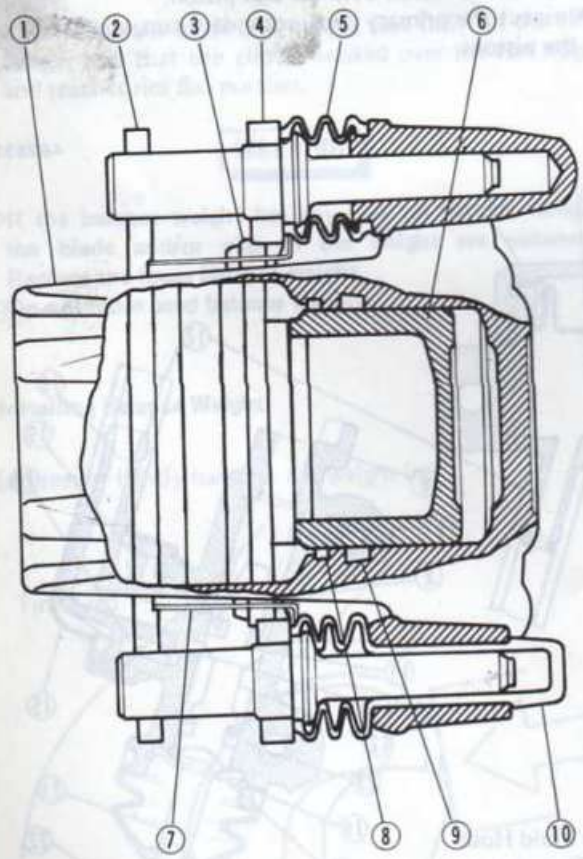
★If a cup or O-ring is worn, damaged, softened (rotted), or swollen, replace the piston assembly.
★If fluid leakage is noted at the brake lever, the piston assembly should be replaced to renew the cup(s) and O-ring.
●Check the dust covers for damage.
★If they are damaged, replace them.
●Check that the relief and supply ports are not plugged.
★If the small relief port becomes plugged, especially with a swollen or damaged primary cup, the brake pads will drag on the disc. Blow the ports clean with compressed air.
●Check the piston return springs for any damage.
★If the spring is damaged, replace the piston assembly.

Calipers:

Fluid Seal Damage

The fluid seal around the piston maintains the proper pad/disc clearance. If this seal is not satisfactory, pad wear will increase, and constant pad drag on the disc will raise brake and brake fluid temperature.

Caliper 482534



1. Caliper
2. Brake Pad
3. Brake Pad
4. Caliper Holder
5. Dust Cover
6. Piston
7. Anti-Rattle Spring
8. Dust Seal
9. Fluid Seal
10. Friction Boot

Replace the fluid seals under any of the follow conditions: (a) fluid leakage around the pad; (b) bra overheat; (c) there is a large difference in left and ri pad wear; (d) the seal is stuck to the piston. If the fl seal is replaced, replace the dust seal as well. Also, place all seals every other time the pads are chang

Dust Seal and Cover Damage

●Check that the dust seals and covers are not crack worn, swollen, or otherwise damaged.
★If they shown any damage, replace them.

Piston Cylinder Damage

●Visually inspect the piston and cylinder surfa
★Replace the cylinder and piston if they are ba scored or rusty.

Caliper Holder Shaft Wear

The caliper body must slide smoothly on the cal holder shafts. If the body does not slide smoothly, pad will wear more than the other, pad wear increase, and constant drag on the disc will raise b and brake fluid temperature.
●Check to see if the caliper holder shafts are not b worn or stepped, or rubber friction boot are not d aged.
★If the shafts or rubber friction boot are damaged place the rubber friction boot, and the caliper ho

Brake Discs:

Disc Warp

Refer to p. 4-12 of the Base Manual.

Disc Wear

Refer to p. 4-12 of the Base Manual.

Brake Hoses:

Brake Line Damage

Refer to p. 4-12 of the Base Manual notin following exception.
●The metal pipes which feed the brake fluid to the dive units are made of plated steel, and will rust plating is damaged. Replace the pipe if it is r cracked (especially check the fittings), or if the p is badly scratched.

Front Fork

Springs:

Spring Tension

Refer to p. 4-14 of the Base Manual noti following exception.

Fork Spring Free Length

Standard:	522.5 mm
Service Limit:	512 mm

Anti-Dive System:

"NOTE"

Do not disassemble the anti-dive valve and brake plunger assemblies for repair or replacement of internal parts. Allways replace them as assemblies.

Brake Fluid and Fork Oil Leak Inspection

- Visually inspect the anti-dive unit for brake fluid and fork oil leak.
- If the brake fluid leaks, replace the brake plunger assembly.
- If the fork oil leaks, replace the O-rings or anti-dive valve assembly.

Brake Plunger Assembly Test

The brake plunger assembly can be tested by separating it from the anti-dive valve assembly with the brake line connected to the brake plunger assembly.

- Separate the plunger assembly from the anti-dive valve assembly.
- Unbolt the brake line junction from hte fork leg to prevent the metal pipe from being deformed.
- Check to see if the plunger in the brake plunger assembly comes out by a 2 mm when the front brake is lightly applied, and check to see if the plunger goes in smoothly when it is pushed on in with your finger.
- If the plunger does not move lightly or it has stucked in the body, replace the brake plunger assembly.



A. Brake Plunger

Anti-Dive Valve Assembly Test

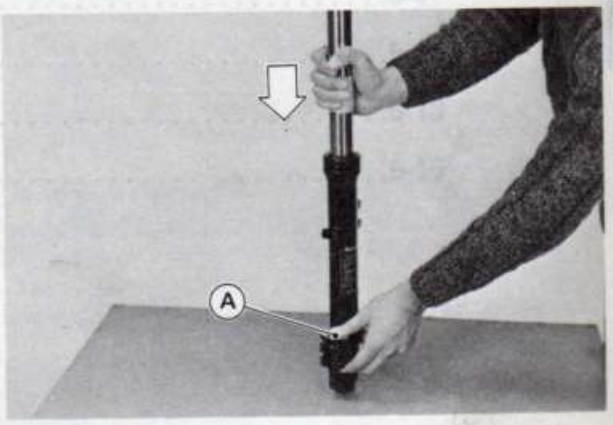
The operation of the anti-dive valve assembly can be checked by removing the front fork leg from the motorcycle.

- Separate the brake plunger assembly from the anti-dive valve assembly with the brake line connected.
- Unscrew the top bolt, and take the fork main spring out of the fork tube.
- Remove the front wheel, disc brake caliper, front fender and brake line junction from the fork leg.
- Remove the front fork leg with its anti-dive valve assembly installed and tape the equalizing hole in the fork inner tube to prevent the fork oil from flowing out during anti-dive valve assembly test.
- With the fork leg held upright, compress the fork leg, and see that the compression stroke is light and smooth when the valve rod is not pushed in and that there is notable damping when the valve rod is pushed in with your finger.

"NOTE"

○*The extension stroke should be smooth with the notable damping regardless of valve rod positions.*

★If the fork leg has heavy compression stroke when the valve rod is left released, or if it has light compression stroke when the rod is pushed in; the anti-dive valve assembly does not operate properly necessitating replacement of the anti-dive assembly.



A. Valve Rod

Metal Pipe Damage

- The metal pipes which feed the brake fluid to the anti-dive units are made of plated steel, and will rust if the plating is damaged. Replace the pipe if it is rusted, cracked (especially check the fittings), or if the plating is badly scratched.

Non-scheduled Maintenance – Electrical

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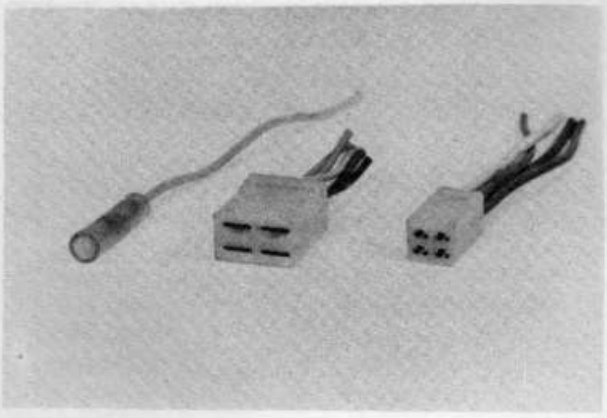
LCD Fuel Gauge and Warner Unit 5-15

Precautions

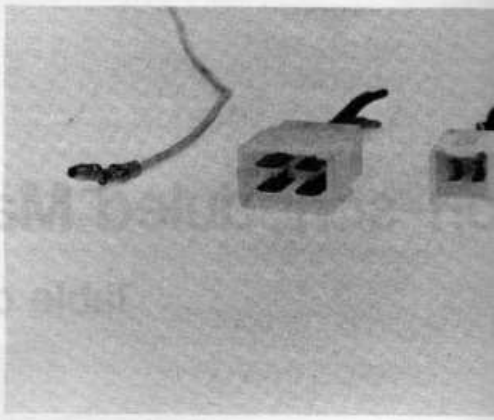
There are numbers of important precautions that are musts when servicing electrical systems. Though cautions that apply to the indications are listed below, failure to observe these rules can result in serious system damage. Learn and observe all the rules below.

(a) Do not reverse the battery lead connections. This will burn out the diodes in the electrical parts.
(b) Always check battery condition before condemning other parts of an electrical system. A fully charged battery is a must for conducting accurate electrical system tests.
(c) The electrical parts should never be struck sharply, as with a hammer, or allowed to fall on a hard surface. Such a shock to the parts can damage them.
(d) To prevent damage to electrical parts, unless otherwise there is instruction during a test, do not disconnect the battery leads or any other electrical connections when the ignition switch is on, or during the engine is running.
(e) Because of the large amount of current, never keep the starter switch pushed when the starter motor will not turn over, or the current may burn out the starter motor windings.
(f) Do not use a meter illumination bulb rated for other than voltage or watage specified in the wiring diagram, as the meter or gauge panel could be warped by excessive heat radiated from the bulb.
(g) Take care not to short the leads that are directly connected to the battery positive (+) terminal to the chassis ground.
(h) Troubles may involve one or in some cases all items. Never replace a defective part without determining what CAUSED the failure. If the failure was brought on by some other item or items, they too must be repaired or replaced, or the new replacement will soon fail again.
(i) Make sure all connectors in the circuit are clean and tight, and examine wires for signs of burning, fraying. etc. Poor wires and bad connections will affect electrical system operation.
(j) Electrical Connectors.

Female Connectors



Male Connectors



(k) Color Codes:

BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark green
G	Green
GY	Gray
LB	Light blue
LG	Light green
O	Orange
P	Pink
R	Red
W	White
Y	Yellow

(l) Measure coil and winding resistance when cold (at room temperature).

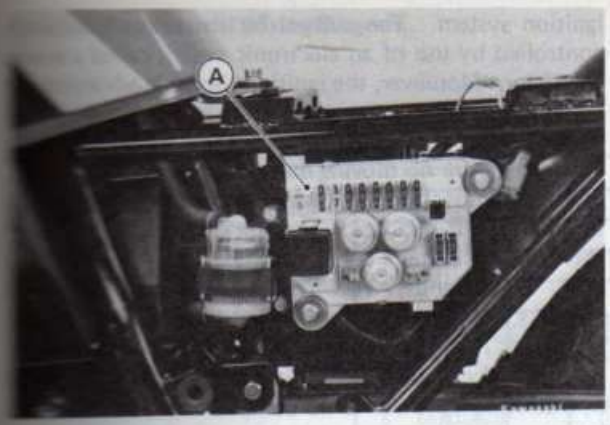
Junction Box

The junction box contains compactly electrical components in a small room:

- Fuses
- Relays
- Diodes
- ACC 2-Pin Connector

CAUTION

Special care must be taken during re installation of the junction box electrical c Refer to Disassembly-Chassis chapter.



A. Junction Box

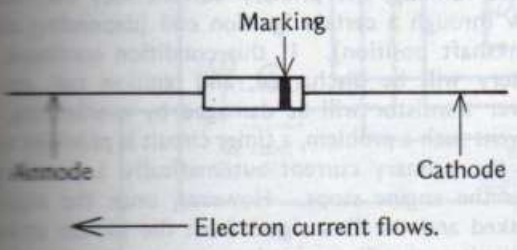
Inspecting Diodes

- Disconnect the diode assembly from the junction box.
- Set the ohmmeter, and connect it to each diode leads to check the resistance in both directions.
- The resistance should be low in one direction and more than ten times as much in the ohter direction. If any diode shows low or high in both directions, the diode is defective and the diode assembly must be replaced.

"NOTE"

The acctual meter reading varies with the meter used and the individual diode, but, generally speaking, the lower reading should be from zero to the first 1/2 of the scale.

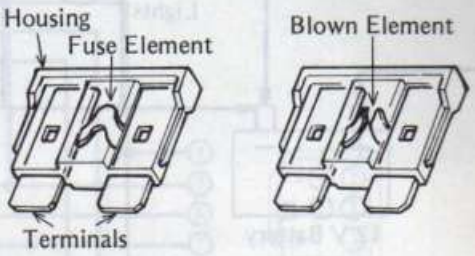
Polarity of Diode 582520



Inspecting Fuses

- Remove the fuse from the junction box.
- Inspect the fuse element for blowout.
- ★If it has been blown out, replace the fuse.

Fuse 582521



Testing Main, Starter Circuit, and Headlight Relays

- Remove the relay from the junction box.
- Connect the ohmmeter and one 12-volt battery to the relay as shown.
- ★If the relay does not work as specified, the relay is defective.

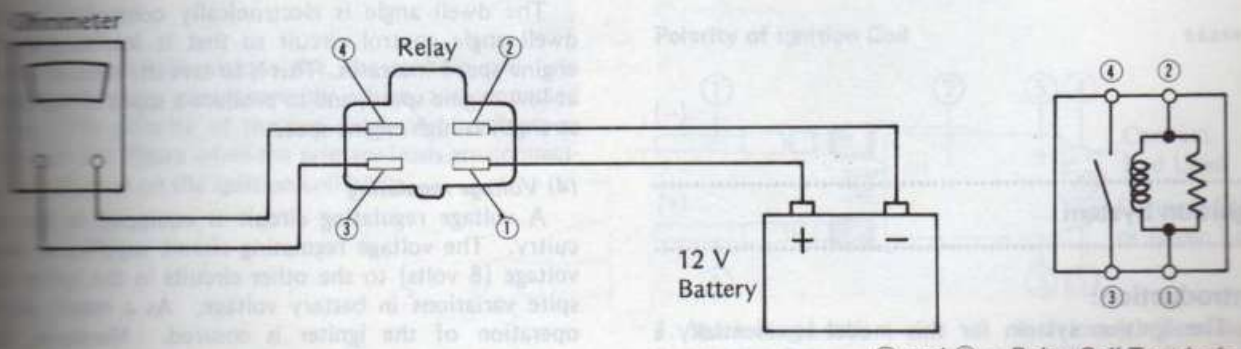
Testing Relay

Meter range:	x 1 Ω range
Criteria:	
When battery is connected →	0 Ω
When battery is disconnected →	∞ Ω

Testing Turn Signal Relay

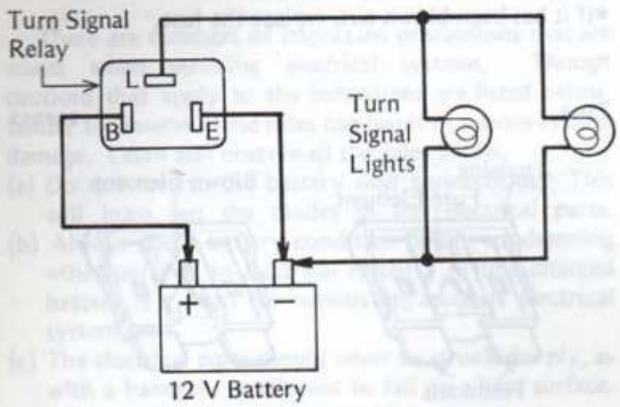
- Remove the turn signal relay from the junction box.
- Connect one 12-volt battery and turn signal lights as indicated in the figure, and count how many times the lights flash for one minutes.
- ★If the lights do not flash as specified, replace the turn signal relay.

Testing Relay 582522



① and ② : Relay Coil Terminals
③ and ④ : Relay Switch Terminals

Testing Turn Signal Relay 582523
(Example: Two lights are connected.)



Testing Turn Signal Relay

Load		Flashing Times (c/m*)
The Number of Turn Signal Lights	Wattage (W)	
1	21 – 23	More than 150
2	42 – 46	75 – 95
3	63 – 69	
4	84 – 92	

*: Cycle(s) per minute

Inspecting Junction Box Internal Circuit

- ●Remove the junction box from the motorcycle.
- ●Disconnect all the fuses, relays, diode assemblies, and connectors from the junction box.
- ●Make sure all connector terminals are clean and tight, and none of them have been bent.
- ★Clean the dirty terminals, and correct lightly-bent bent terminals.
- ●Check conductivity of the internal circuit. Both terminals of the same number should conduct, and the differently numbered terminals should not conduct.
- ★If there are open or short circuit, replace the junction box.

Ignition System

Introduction:

The ignition system for this model is essentially a battery and coil ignition system where the battery supplies the current for the primary circuit in the ignition system. The current for the primary ci controlled by use of an electronic switch called a transistor. Moreover, the ignition timing is advanc by a centrifugal advance mechanism but by an ele circuit in the IC igniter: the electronic advance s Since there are no moving mechanical parts to we periodic inspection and adjustment of the i timing are not required. The working electrical the ignition system consists of a battery, two coils, an IC igniter, two ignition coils, and fou plugs. Each spark plug fires every time the pisto However, if a spark does jump across the ele during the exhaust stroke, it has no effect on operation since there is no compression and no burn.

Main Component Parts:

Pickup Coil Assembly:

The pickup coil is a magnetic signal generato consists of a permanent magnet and coil. Every t projection of the timing rotor is pass under the coil core, a signal is generated and sent to the IC

IC igniter:

The IC igniter has the following functions.

(1) Electronic ignition timing advance

The timing control circuit is provided in the IC and the ignition timing is controlled electroni that it advances as the engine speed rises.

(2) Time-controlled cutting off

If the ignition switch is left turned on but th is not running, the primary current may cont flow through a certain ignition coil (depending crankshaft position). If this condition contin battery will be discharged, and ignition coil power transistor will be damaged by overheati prevent such a problem, a timer circuit is provide off the primary current automatically a few after the engine stops. However, once the e cranked and the first signal from the pickup a the igniter, the timer circuit returns to its origi to permit the primary current to flow.

(3) Dwell-angle control

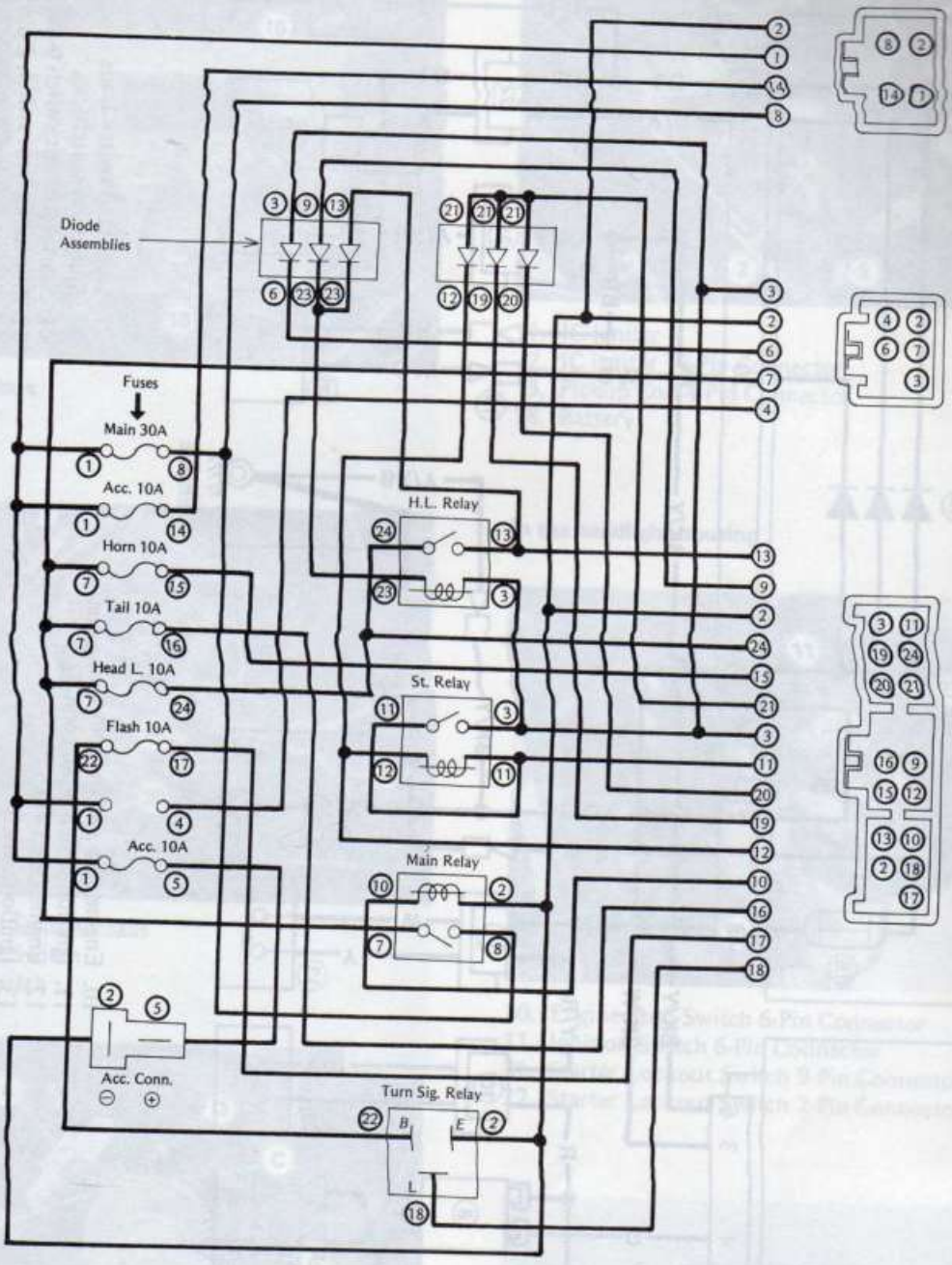
The dwell angle is electronically controlled dwell angle control circuit so that it increase engine speed increases. This is to save the electri at low engine speed, and to produce a spark of s strength at high engine speed.

(4) Voltage regulating

A voltage regulating circuit is equipped in cuitry. The voltage regulating circuit supplies voltage (8 volts) to the other circuits in the ig spite variations in battery voltage. As a resul operation of the igniter is ensured. Moreo voltage regulating circuit protects the circuit surge currents in the power lines.

Junction Box Internal Wiring Diagram

582514

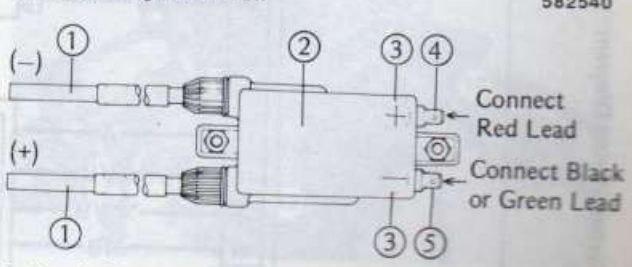


Ignition coil:

Every time both pistons rise, the ignition coil fires both spark plugs simultaneously which are connected series. The polarity of the two spark plug leads are as shown in the figure when the primary leads are connected as indicated on the ignition coil body.

Polarity of Ignition Coil

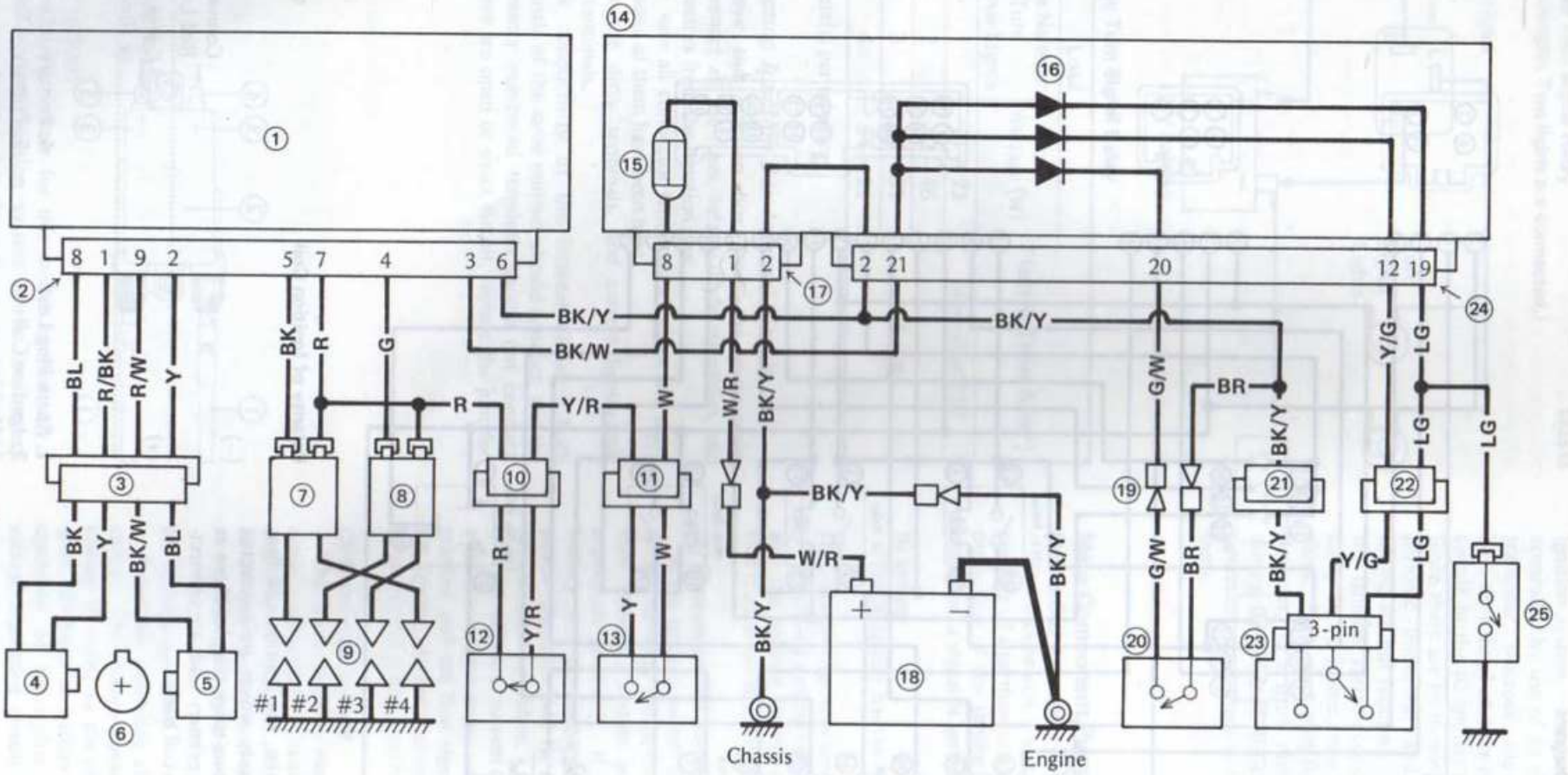
582540



1. Spark Plug Lead
2. Ignition Coil
3. Marking
4. Primary + Terminal
5. Primary – Terminal

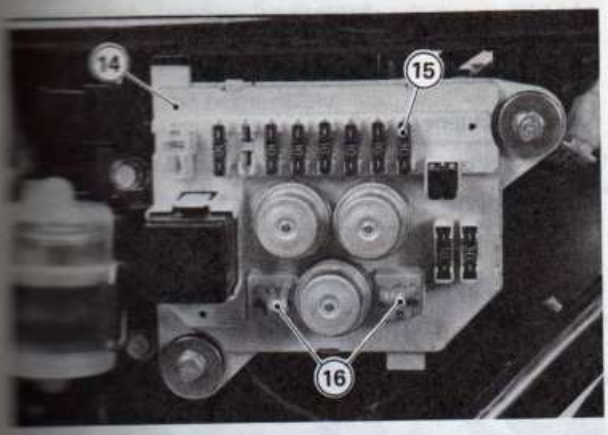
Ignition System Wiring Diagram

582541

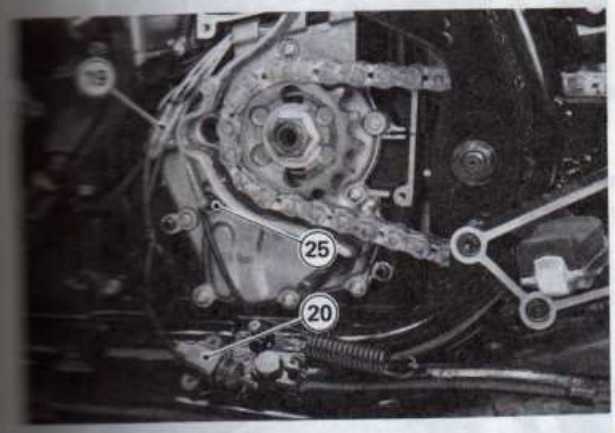


1. IC igniter
2. IC igniter 10-pin connector
3. Pickup coil 4-pin connector
4. Pickup coil for #1 and #4 cylinders
5. Pickup coil for #2 and #3 cylinders
6. Timing rotor
10. Engine stop switch 6-pin connector
11. Ignition switch 6-pin connector
12. Engine stop switch
13. Ignition switch
14. Junction box
19. Side stand switch leads
20. Side stand switch
21. Starter lockout switch 9-pin connector
22. Starter lockout switch 2-pin connector
23. Starter lockout switch

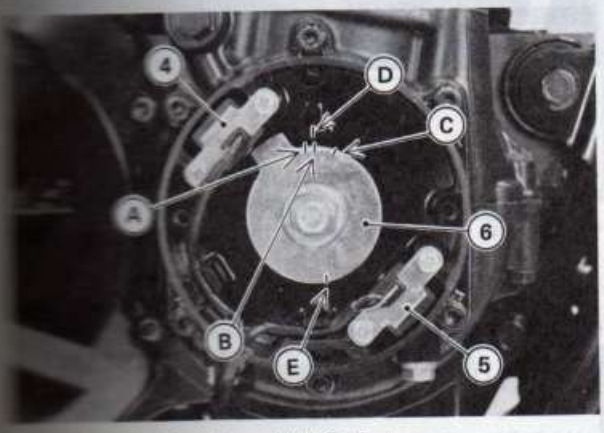
Parts Location and Timing Marks:



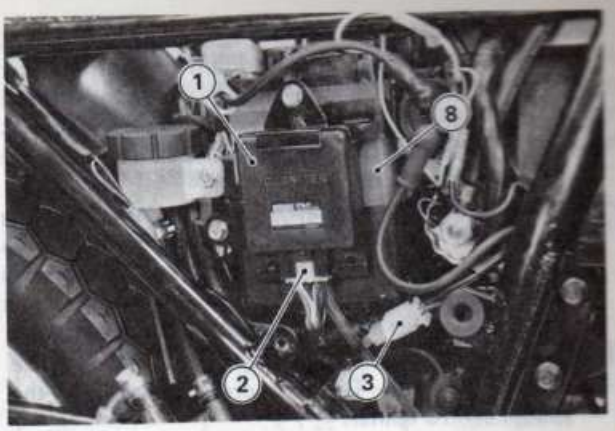
14. Junction box
15. 30 A fuse
16. Diodes



19. Side Stand Switch Leads
20. Side Stand Switch
25. Neutral Switch

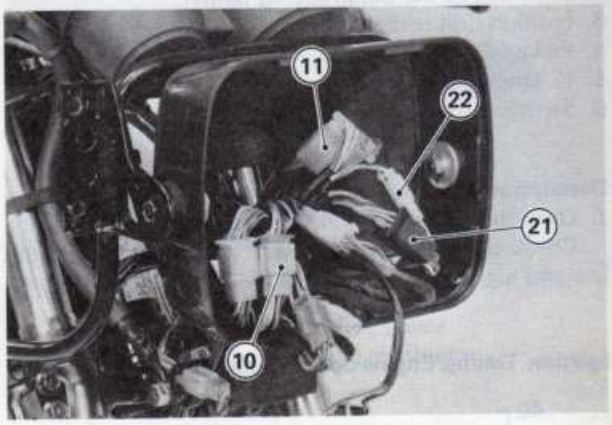


4. Pickup Coil for #1 and #4 Cylinders
5. Pickup Coil for #2 and #3 Cylinders
6. Timing Rotor
A. "T" Mark for #1 and #4 cylinders
B. "F" Mark
C. Advanced Timing Mark
D. Timing Mark on the Engine
E. "T" Mark for #2 and #3 Cylinders

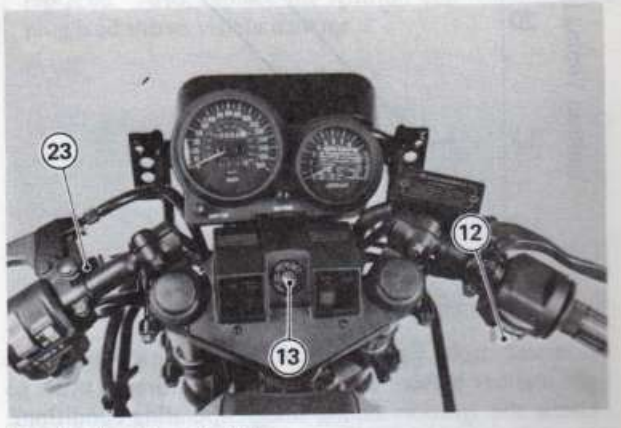


1. IC Igniter
2. IC igniter 10-Pin Connector
3. Pickup Coil 4-Pin Connector
18. Battery

In the headlight housing

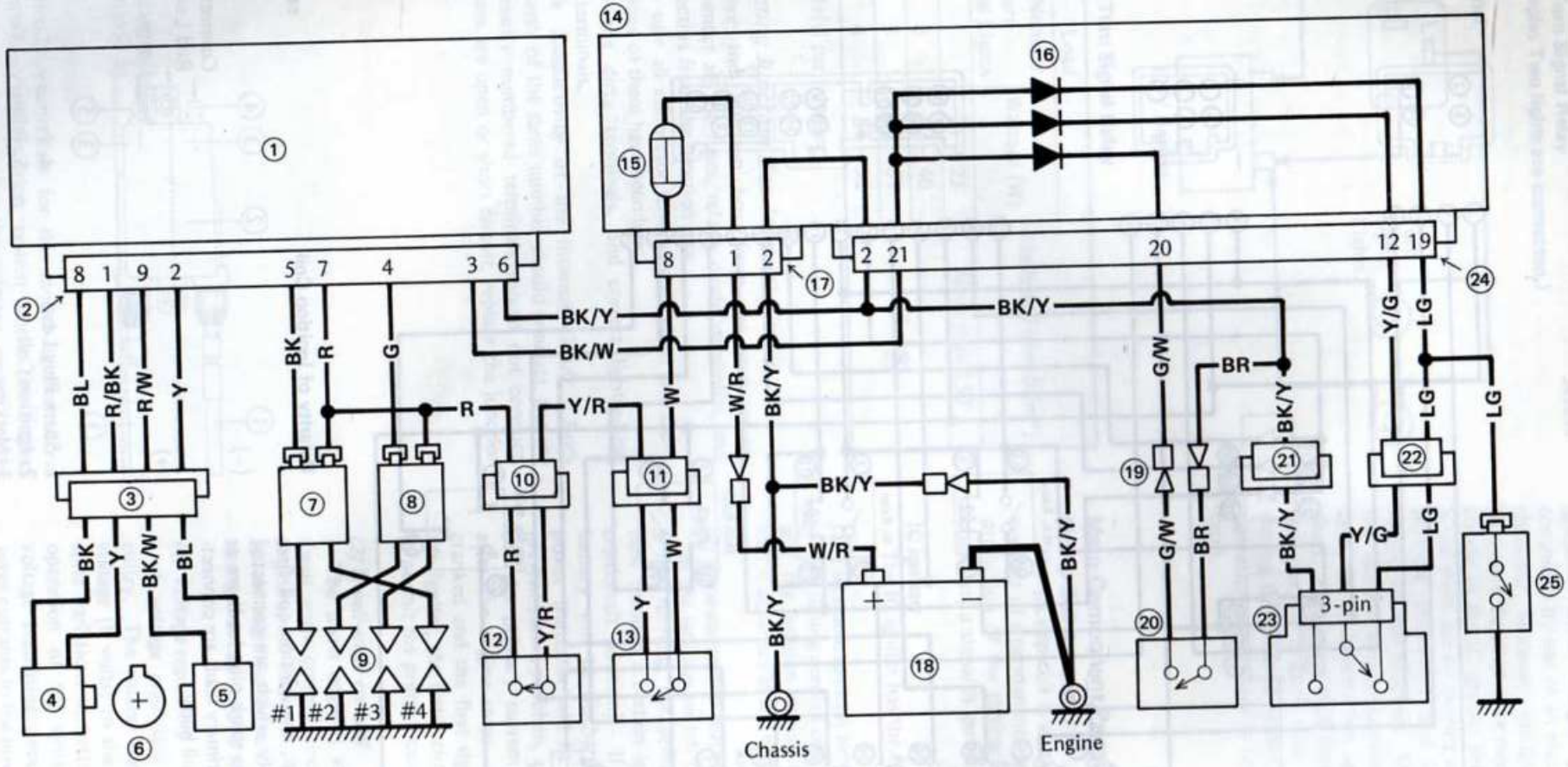


10. Engine Stop Switch 6-Pin Connector
11. Ignition Switch 6-Pin Connector
21. Starter Lockout Switch 9-Pin Connector
22. Starter Lockout Switch 2-Pin Connector



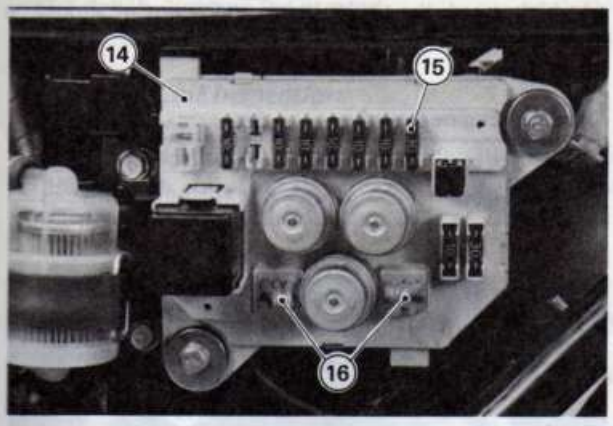
12. Engine Stop Switch
13. Ignition Switch
23. Starter Lockout Switch

Ignition System Wiring Diagram

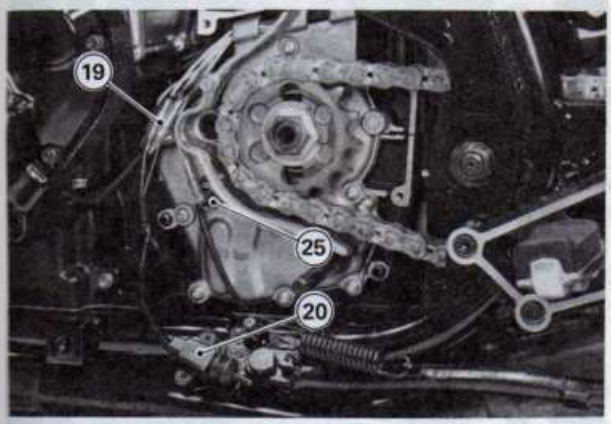


1. IC igniter
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4. Pickup coil for #1 and #4 cylinders
5. Pickup coil for #2 and #3 cylinders
6. Timing rotor
10. Engine stop switch 6-pin connector
11. Ignition switch 6-pin connector
12. Engine stop switch
13. Ignition switch
14. Junction box
15. 30A fuse
19. Side stand switch leads
20. Side stand switch
21. Starter lockout switch 9-pin connector
22. Starter lockout switch 2-pin connector
23. Starter lockout switch
24. Junction box 18-pin connector
25. Neutral switch

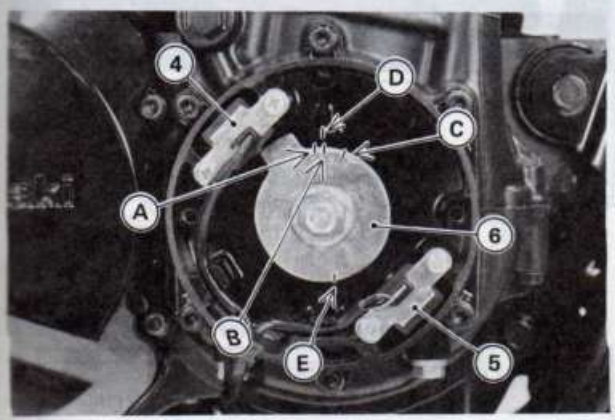
Parts Location and Timing Marks:



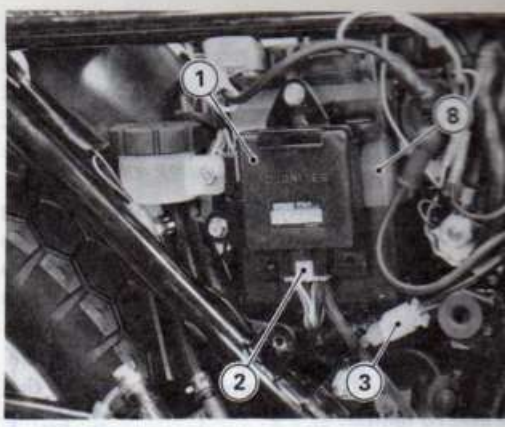
14. Junction box
15. 30 A fuse
16. Diodes



19. Side Stand Switch Leads
20. Side Stand Switch
25. Neutral Switch

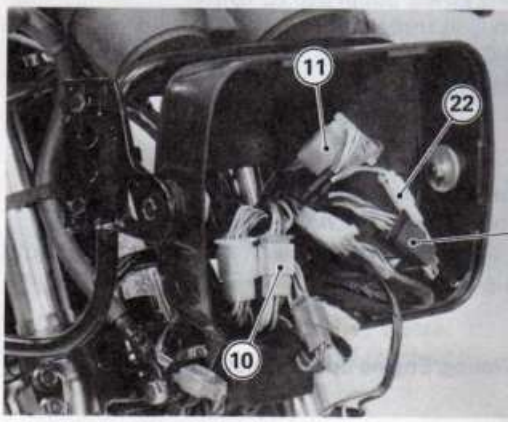


4. Pickup Coil for #1 and #4 Cylinders
5. Pickup Coil for #2 and #3 Cylinders
6. Timing Rotor
A. "T" Mark for #1 and #4 cylinders
B. "F" Mark
C. Advanced Timing Mark
D. Timing Mark on the Engine
E. "T" Mark for #2 and #3 Cylinders



1. IC Igniter
2. IC igniter 10-Pin Connector
3. Pickup Coil 4-Pin Connector
18. Battery

In the headlight housing



10. Engine Stop Switch 6-Pin Connector
11. Ignition Switch 6-Pin Connector
21. Starter Lockout Switch 9-Pin Connector
22. Starter Lockout Switch 2-Pin Connector



12. Engine Stop Switch
13. Ignition Switch
23. Starter Lockout Switch

7. Ignition coil for #1 and #4 cylinders
8. Ignition coil for #2 and #3 cylinders
9. Spark plugs
17. Junction box 4-pin connector
18. Battery

Safety Instruction:

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

(1) Because of limited capacity of the voltage regulating circuit in the IC igniter, 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 IC igniter damage.

(2) Do not install the battery backwards. The negative side is grounded. This is to prevent damage to the diodes and IC igniter.

Ignition System Inspection:

If trouble is suspected in the ignition system, check the following items. Before inspecting these item, make sure that all connectors and leads in the ignition system are clean, tight, and in good condition.

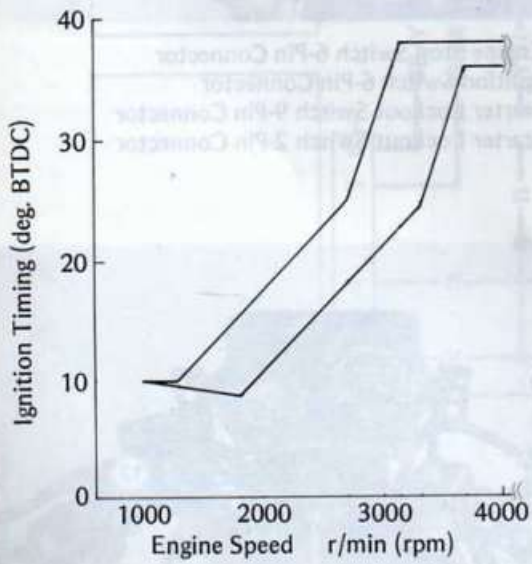
1. Dynamic Ignition Timing Inspection
2. Checking Power Supply to IC Igniter
3. Ignition Coil Inspection
4. Pickup Coil Inspection
5. IC Igniter Inspection
6. Switch Inspection

Description of Each Testing Procedure:

1. Dynamic Ignition Timing Inspection

Check the ignition timing with a strobe light for both low and high speed operations.

Ignition Timing/Engine Speed Relationship 582542

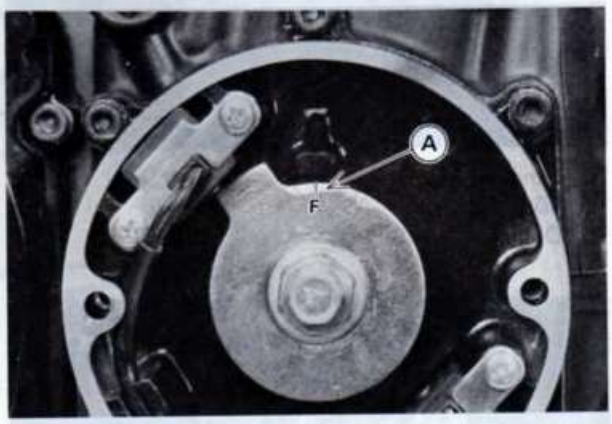


- Connect strobe light to the #1 or #4 spark plug lead in the manner prescribed by the manufacturer in order to check the ignition timing under operating conditions.
- Start the engine, and direct the strobe light at the timing marks.
- Check the ignition timing at low and high engine speeds.

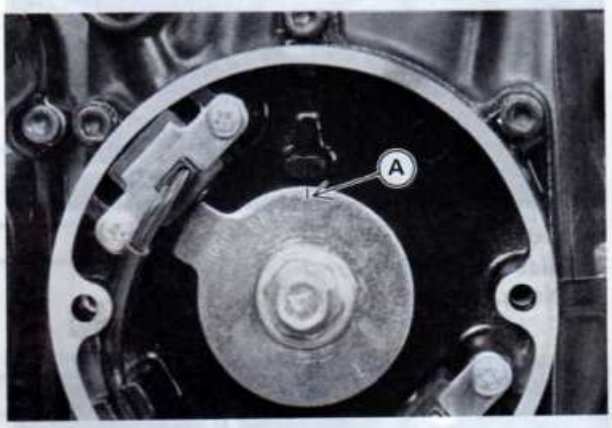
★At low speed the "F" mark on the timing rotor should be aligned with the timing mark on the engine.
★At high speed, the timing mark on the engine should be aligned with the advanced timing mark.

Checking Engine Speed

Low Speed:	Idle speed
High Speed:	Above 4,000 r/min (rpm)



A. "F" Mark



A. Advanced Mark

2. Checking Power Supply to IC Igniter

- Disconnect the IC igniter 10-pin connector.
- Using the voltmeter, check the voltage of the power supply leads.

Checking Power Supply to IC Igniter

Switch Position:	Ignition Switch ON Engine Stop Switch RUN
Voltmeter Connections:	
Lead Location	Female IC igniter 10-Pin Connector
Meter Range	25 V DC
Meter (+) ⟶	Red Lead
Meter (–) ⟶	Black/Yellow Lead
Meter Reading:	Battery Voltage

★If the battery power does not reach the IC igniter, inspect the main harness wires, ignition switch, engine stop switch, and fuse for damage.

3. Ignition Coil Inspection

(a) Measuring Arcing Distance:

The most accurate test for determining the condition of the ignition coil is made by measuring arcing distance with electrotester 57001-980.

"NOTE"

○*Since a tester other than the Kawasaki electrotester may produce a different arcing distance, the Kawasaki electrotester is recommended for reliable results.*

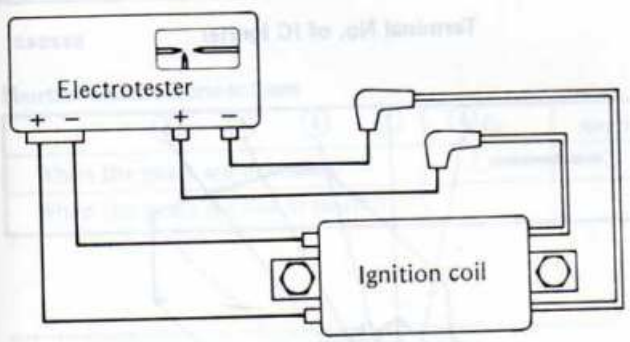
- Connect the ignition coil (with the spark plug caps left installed at the ends of the spark plug leads) to the electrotester.
- Turn on the tester switches.

WARNING

○**To avoid extermely high voltage shocks, do not touch the coil or leads.**

- Gradually slide the arcing distance adjusting knob from left to right (small distance to large distance) carefully checking the arcing.
- Stop moving the knob at the point where the arcing begins to fluctuate, and note the knob position in mm.

Ignition Coil Test 582108



Arcing Distance

Standard:	7 mm or more

★If the distance reading is less than the specified value, the ignition coil or spark plug caps are difective. To determine which part is defective, measure the arcing distance again with the spark plug caps removed from the ignition coil. If the arcing distance is subnormal as before, the trouble is with the ignition coil itself. If the arcing distance is now normal, the trouble is with the spark plug caps.

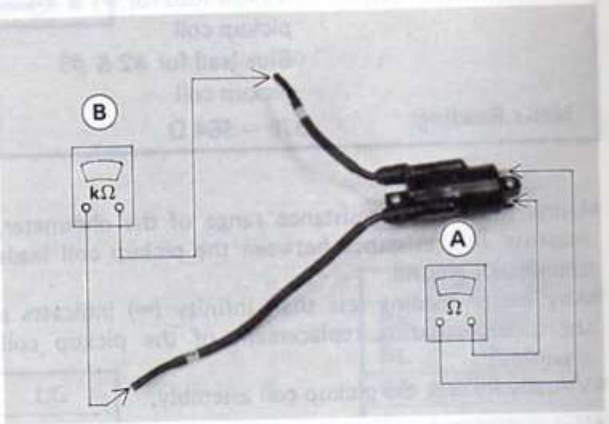
(b) Measuring Coil Resistance:

If an electrotester is not available, the coil can be checked for a broken or badly shorted winding with an ohmmeter. However, an ohmmeter cannot detect layer shorts and shorts resulting from insulation breakdown under high voltage.

- Remove the spark plug caps from the spark plug leads.
- Zero the ohmmeter, and connect it to the ignition coil.

Ignition Coil Resistance

	Meter Range	Reading
Primary Winding	x 1 Ω	1.8 – 2.8 Ω
Secondary Winding	x 1 kΩ	10.4 – 15.6 kΩ

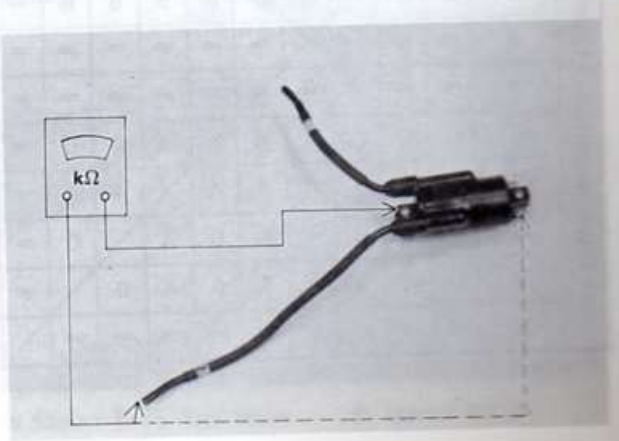


A. Measuring primary winding resistance
B. Measuring secondary winding resistance

★If either the primary or secondary winding does not have the correct resistance, replace the ignition coil.

- With the highest ohmmeter range, check for continuty between one primary winding terminal, and one spark plug lead and the coil core.

★If there is any reading, the coil is shorted and must be replaced. Also, replace the ignition coil if either spark plug lead shows visible damage.



4. Pickup Coil Inspection

●Disconnect the pickup coil 4-pin connector.
●Zero the ohmmeter, and connect it to pickup coil leads.
★If there is more resistance than the specified value, the coil has an open lead and must be replaced. Much less than this resistance means the coil is shorted, and must be replaced.

Pickup Coil Resistance

Meter Connections:	
Lead location	Female pickup coil 4-pin connector
Meter range	x 100 Ω
One meter lead →	○Black lead for #1 & #4 pickup coil ○Black/white lead for #2 & #3 pickup coil
Other meter lead →	○Yellow lead for #1 & #4 pickup coil ○Blue lead for #2 & #3 pickup coil
Meter Reading:	376 – 564 Ω

●Using the highest resistance range of the ohmmeter, measure the resistance between the pickup coil leads and chassis ground.
★Any meter reading less than infinity (∞) indicates a short, necessitating replacement of the pickup coil assembly.
●Visually inspect the pickup coil assembly.
★If it is damaged, replace the pickup coil assembly.

IC Igniter Internal Resistance

Tester Negative (–) Lead Connection \ Tester Positive (+) Lead Connection	1	2	3	4	5	6	7	8	9	10
1		D	D	D	D	D	D	D	D	∞
2	D		D	D	D	D	D	D	D	∞
3	C	C		B	B	B	B	B	B	∞
4	∞	∞	∞		∞	∞	∞	∞	∞	∞
5	∞	∞	∞	∞		∞	∞	∞	∞	∞
6	C	C	B	A	A		A	0	0	∞
7	C	C	B	A	A	A		A	A	∞
8	C	C	B	A	A	0	A		0	∞
9	C	C	B	A	A	0	A	0		∞
10	∞	∞	∞	∞	∞	∞	∞	∞	∞	

●Check the pickup coil air gaps (clearance between the timing rotor projection and the pickup coil core).
★If both air gaps are not equal, reposition the pickup coils. Recommended air gap is 0.4 – 0.6 mm.

5. IC Igniter Inspection

●Remove the IC igniter.
●Zero the ohmmeter, and connect it to terminals of the IC igniter to check the internal resistance of the igniter.

CAUTION

○**Use only Kawasaki Hand Tester 57001-983 for this test. A tester other than the Kawasaki Hand Tester may show different readings.**
○**If a megger or a meter with a large-capacity battery is used, the IC igniter will be damaged.**

★Replace the IC igniter if the reading is not specified value.

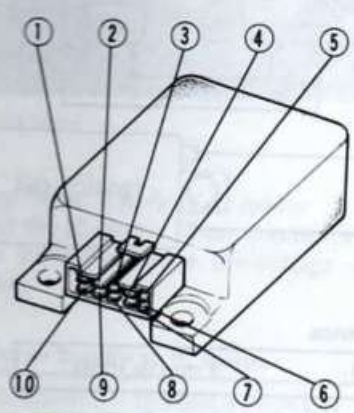
6. Switch Inspection

●Using the ohmmeter, check to see that only the connections shown in the table have continuity (about zero ohms).
★If the switch has open or a short, repair it or replace it with a new one.

Engine Stop Switch Connections

	R	Y/R
OFF		
RUN	○	○

Terminal No. of IC Igniter 582543



Value (kΩ)	
0	Zero
A	0.3 – 4.2
B	6.6 – 21.4
C	25 – 75
D	125 – 375
∞	Infinity

Ignition Switch Connections (US and Canada)

	Lead Color						
	White	Brown	Yellow	Blue	Red	White/Black	Orange/Green
LOCK							
OFF							
ON	○	○	○	○	○	○	○
PARK	○				○	○	○

Ignition Switch Connections (Other than US and Canada)

	Lead Color				
	White	Brown	Yellow	Blue	Red
LOCK					
OFF					
ON	○	○	○	○	○
PARK	○				○

Side Stand Switch Connections

	G/W	BR
When the side stand is left up	○	○
When the side stand is left down		

Starter Lockout Switch Connections

	BK/Y	Y/G	LG
When the clutch lever is pulled in	○	○	
When the clutch lever is released		○	○

Neutral Switch Connections

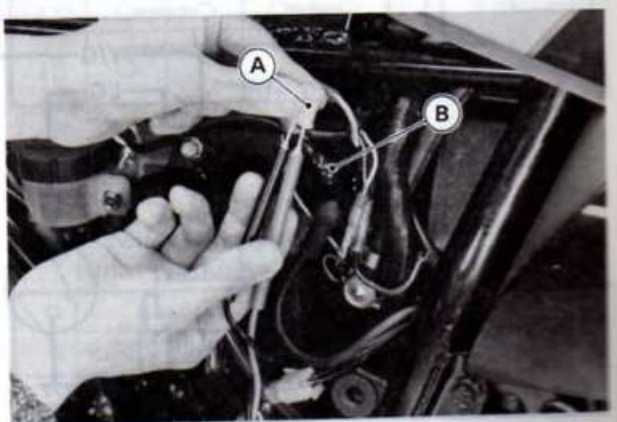
	LG	⏚
When the gears are in neutral	○	○
When the gears are not in neutral		

Color Code	
BK	Black
BL	Blue
BR	Brown
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
R	Red
W	White
Y	Yellow

Electric Starter System

Checking Power Supply to Starter Relay

- Remove the right side cover and disconnect the 2-pin connector from the starter relay.
- Using a multimeter, check the voltage of the power supply wires.



A. Starter Relay Connector B. Starter Relay

Power Supply Inspection

Switch Position:	
Ignition Switch	ON
Engine stop/starter switch	ON (Pushed with RUN)
Starter lockout switch	ON (When clutch lever released and neutral switch ON)
	or OFF (When clutch lever pulled in and neutral switch OFF)
Meter Connections:	
Meter range	25 V DC
Wire location	Female 2-pin connector (disconnected)
Meter (+) →	Black/red wire
Meter (–) →	Black/yellow wire
Meter Reading:	Battery voltage

★If the meter does not show the specified reading, inspect the power supply and ground side circuits.

- ○Junction box
- ○Fuse (main)
- ○Relay (starter circuit)
- ○Switches (ignition, engine stop/starter, starter lockout, and/or neutral)
- ○Wires and connectors

★If the meter shows the specified reading, inspect the starter relay and/or starter motor.

Junction Box Inspection

Refer to p. 5-4.

Fuse Inspection

Refer to p. 5-3.

Starter Circuit Relay Inspection

Refer to p. 5-3.

Ignition Switch Inspection

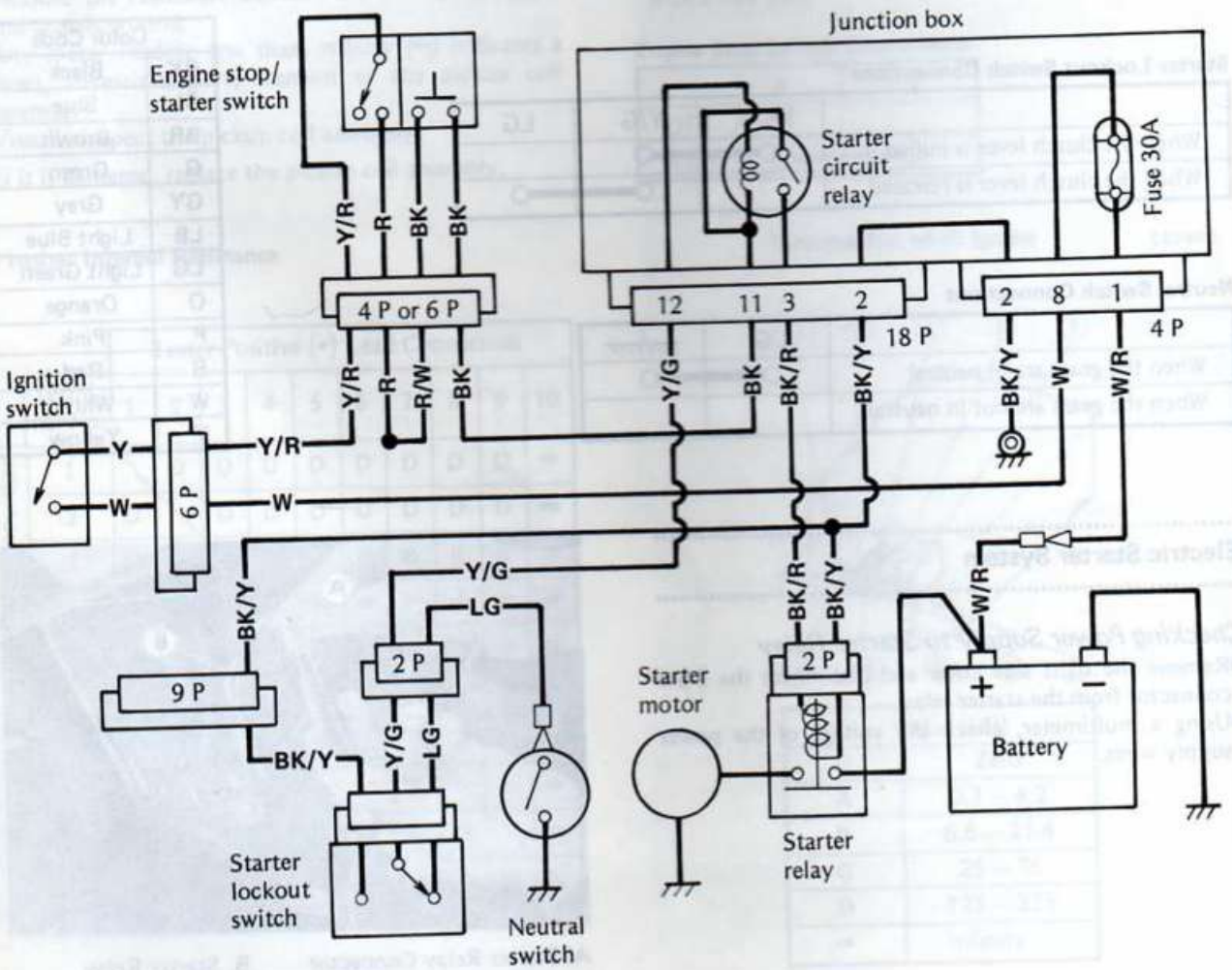
Refer to p. 5-11.

Engine Stop/Starter Switch Inspection

Refer to p. 5-10.

Electric Starter Circuit

582544



Starter Lockout Switch Inspection

Refer to p. 5-11.

Neutral Switch Inspection

Refer to p. 5-11.

Starter Relay Inspection

Refer to p. 5-15 and 5-16 of the Base Manual.

Starter Motor Inspection

Refer to p. 10-50 of the Base Manual.

Headlight System

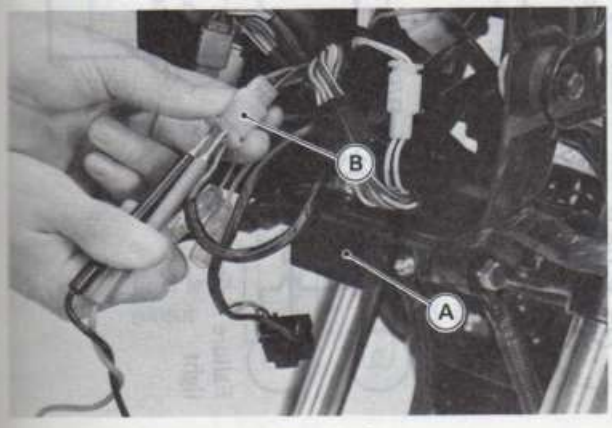
The US and Canadian models of the ZX1100A contain a relay in the headlight circuit. In these models, the headlight does not go on when the ignition switch is first turned on, but the headlight goes on once the engine is cranked, and stays on until the ignition switch is turned off. But the headlight goes out whenever the engine stop/starter switch is pushed to restart the engine after engine stalling.

"NOTE"

○*The following inspection of the headlight is explained on the assumption that the charging system and electric starter system are in good conditions.*

Checking Power Supply to Reserve Lighting Device

•Using a multimeter, check the voltage of the power supply wires.



A. Reserve Lighting Device B. Connector

Power Supply Test

Switch Position:	
Ignition Switch	ON
Meter Connections:	
Meter range	25 V DC
Wire location	Reserve lighting device connector (connected)
Meter (+) →	Red/blue wire
Meter (–) →	Black/yellow wire
Meter Reading: 0V:	Condition 1 – Just after ignition switch is turned on and before starter switch is pushed. Condition 2 – When engine stop/ starter switch is pushed.
Battery voltage:	When engine stop/ starter switch is released after starter button is once pushed.

★If the meter shows the specified voltage, inspect the reserve lighting circuit.
- ○Bulbs (headlight, indicator lights)
- ○Dimmer switch
- ○Reserve lighting device
- ○Wires and connectors

★If the meter does not show the specified voltage, inspect the headlight relay circuit.
- ○Junction box
- ○Fuses (main, head)
- ○Relays (main, headlight)
- ○Diode assembly
- ○Ignition switch
- ○Wires and connectors

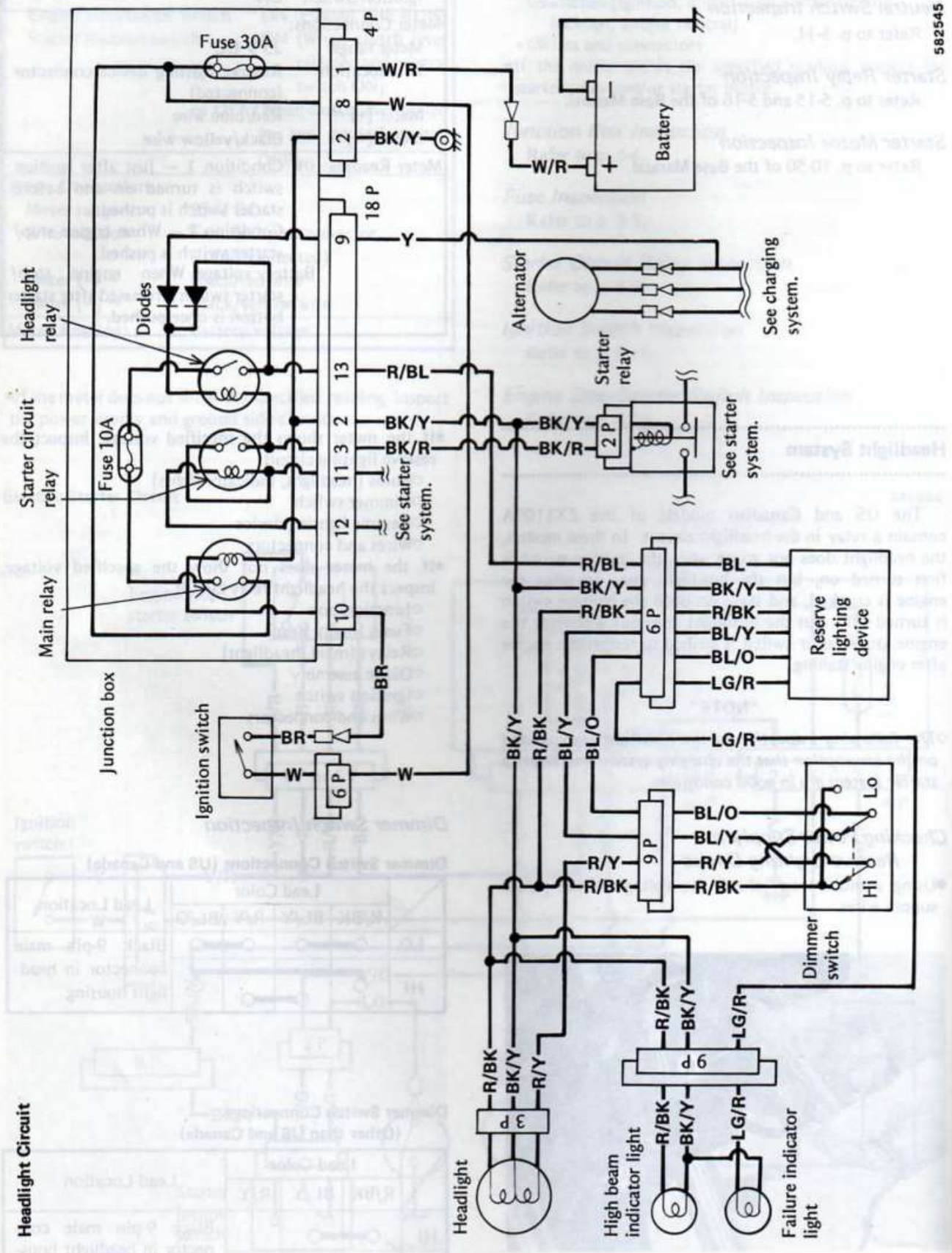
Dimmer Switch Inspection

Dimmer Switch Connections (US and Canada)

	Lead Color				Lead Location
	R/BK	BL/Y	R/Y	BL/O	
LO	○—○		○—○		Black 9-pin male connector in headlight housing
HI	○	○—○		○	

Dimmer Switch Connections (Other than US and Canada)

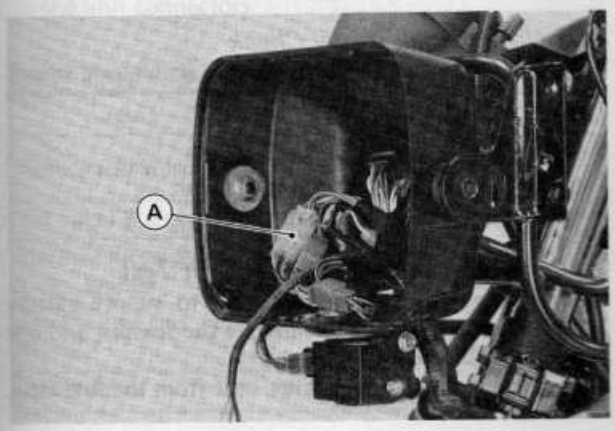
	Lead Color			Lead Location
	R/BK	BL/Y	R/Y	
HI	○—○			Black 9-pin male connector in headlight housing
LO		○—○		



Headlight Circuit

Reserve Lighting System Wiring Inspection

Refer to p. 5-24, of the Base Manual noting the following exception.



A. 6-Pin Reserve Lighting Device Connector in Headlight Housing

Junction Box Inspection

Refer to p.5-4.

Fuse Inspection

Refer to p. 5-3.

Relay Inspection

Refer to p. 5-3.

Diode Inspection

Refer to p. 5-3.

Ignition Switch Inspection

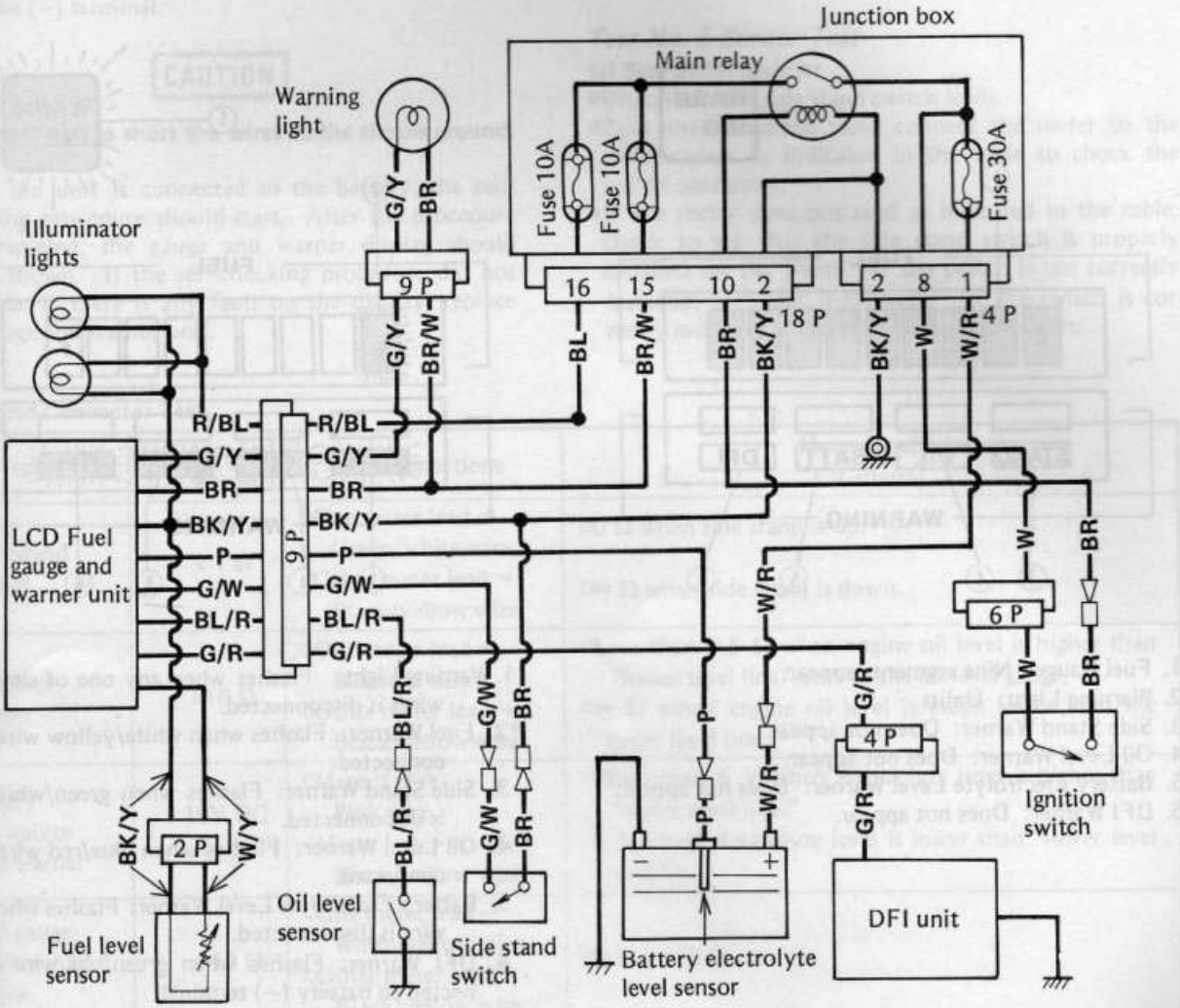
Refer to p. 5-11.

LCD Fuel Gauge and Warner Unit

Outline:

Gauge and Warning System Wiring Diagram

582546

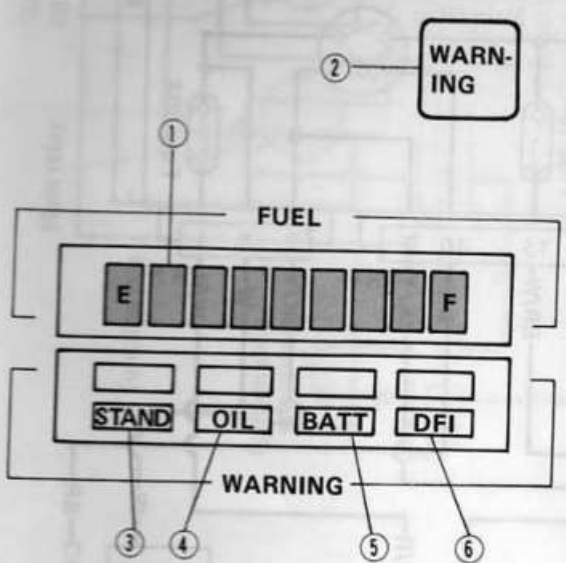


Refer to p. 10-44 of the Base Manual noting the following exception.

1. The DFI warner is newly added to the LCD warner unit. The STAND, ENG. SW. warner is changed to the STAND warner, and the ENG. SW. warner is deleted.
   - ○DFI (DFI Warning): This red LCD warner consists of two segments, upper and lower halves. When the DFI system is troubled, this warner warns the rider by flashing.
   - ○STAND (Side Stand Warning): This red LCD warner consists of two segments, upper and lower halves. When the side stand is down this warner warns the rider by flashing.
2. The warning light is separated from the LCD unit and built in the indicator panel.
   - ○Warning Light: This red warning light flashes when any one of the LCD warners flashes.

Gauge and Warner Unit Test

(a) All sensor-simulating wires are connected.



1. Fuel Gauge: Nine segments appear.
2. Warning Light: Unlits.
3. Side Stand Warner: Does not appear.
4. Oil Level Warner: Does not appear.
5. Battery Electrolyte Level Warner: Does not appear.
6. DFI Warner: Does not appear.

Gauge and Warning System Troubleshooting:

Refer to pp.10-45 through 10-48 of the Base Manual noting the following exception.

Test No. 1-Quick Initial Check

Refer to p. 10-45 of the Base Manual.

Test No. 2-Power Supply Test

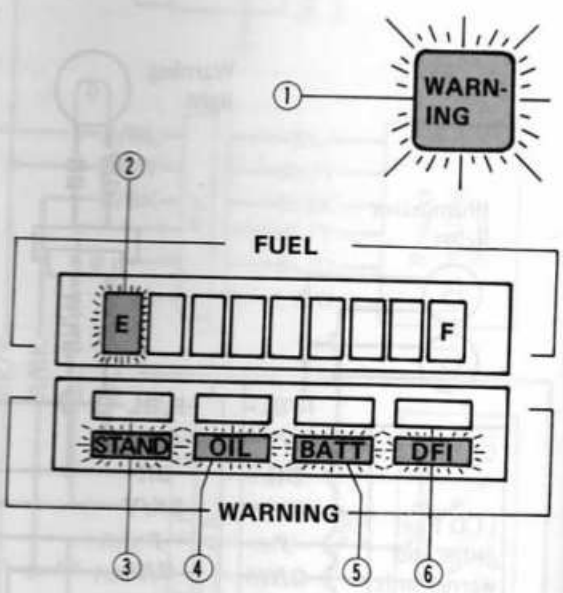
Refer to p. 10-45 of the Base Manual.

Test No. 3-Gauge and Warner Unit Test

- Prepare eight auxiliary wires, two to supply battery power to the unit, five to simulate the sensors, and one to connect to the warning light.
- Remove the gauge and warner unit from the fuel tank.

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(b) Sensor-simulating wires are disconnected.



1. Warning Light: Flashes when any one of simulating wires is disconnected.
2. *Fuel Warner: Flashes when white/yellow wire is disconnected.
3. Side Stand Warner: Flashes when green/white wire is disconnected.
4. Oil Level Warner: Flashes when blue/red wire is disconnected.
5. Battery Electrolyte Level Warner: Flashes when pink wire is disconnected.
6. DFI Warner: Flashes when green/red wire is connected to battery (–) terminal.

*The time delay circuit is provided in the fuel gauge circuit to stabilize the gauge display. It takes 3 to 12 seconds for each segment to disappear or appear. Also it takes 3 to 7 seconds for the bottom segment to begin or stop flashing.

•Connect one wire between the green/yellow wires in the male unit connector and female main harness connector.
•Connect the five sensor simulating wires to the terminals in the unit connectors.

Sensor Simulating Wire Connections

Circuit	Connections
Side Stand Warner	○Green/white lead → Battery (–)
Oil Level Warner	○Blue/red lead → Battery (–)
Battery Electrolyte Level Warner	○Pink lead → Battery (+)
Fuel Gauge and Warner	○White/Yellow lead → Battery (–)
DFI Warner	○Green/red lead → Open

•Using the wires to supply battery power to the unit, connect the brown terminal in the connector with the battery positive (+) terminal and connect the black/yellow terminal in the connector with the battery negative (–) terminal.

CAUTION

○**Take care not to short the wires to the chassis ground.**

★When the unit is connected to the battery, the self-checking procedure should start. After the procedure is completed, the gauge and warner display should be as shown. If the self-checking procedure did not start, or if there is any fault on the display; replace the gauge and warner unit.

•Disconnect one of the sensor simulating wires from the connector.
★If both the LCD warner and the red warning light flash as shown the unit works properly. Proceed to the "Test No. 4-Wiring and Connector Test" If any of them does not flash, or if any of them stays on without flashing, replace the gauge and warner unit.

Test No. 4-Wiring and Connector Test

•Set the motorcycle on the center stand.
•Connect the multimeter to wire in the disconnected female connector (main wiring harness side connector) as indicated in the table and read the meter. When checking the wiring for the fuel gauge and low fuel warner, disconnect the fuel level sensor connector.
★If the multimeter does not read as shown in the table, first inspect the related wire(s) and connector(s), then repair or replace the damaged part(s). If the wire(s) and connector(s) prove good, proceed to the "Test No. 5-Sensor Test."

Test No. 5-Sensor Test

(a) Side Stand Switch:

•Disconnect the side stand switch leads.
•Zero the ohmmeter, and connect the meter to the switch leads as indicated in the table to check the switch operation.
★If the meter does not read as indicated in the table, check to see that the side stand switch is properly installed on the frame. If the switch is not correctly installed, re-mount it correctly. If the switch is correctly mounted, replace the side stand switch.

Wiring and Connector Test

Wire	Meter Range	Connections	Meter Reading (Criteria)
Side Stand Warner	x 1 Ω	○One meter lead → Green/white wire ○Other meter lead → Black/yellow wire	○0 Ω when side stand is up. ○∞ Ω when side stand is down.
Oil Level Warner	x10 Ω	○One meter lead → Blue/red wire ○Other meter lead → Black/yellow wire	○Less than 0.5 Ω when engine oil level is higher than "lower level line" next to the oil level gauge. ○∞ Ω when engine oil level is much lower than the "lower level line."
Battery electrolyte level warner	10V DC	○Meter (+) → Pink wire ○Meter (–) → Black/yellow wire	○More than 6 V when electrolyte level is higher than "lower level line." ○0 V when electrolyte level is lower than "lower level line."
Fuel gauge and low fuel warner	x 10 Ω	○One meter lead → White/yellow wire ○Other meter lead → Black/yellow wire	○0.5 – 118 Ω
DFI warner	Refer to *"Warning Function Test"* in the DFI System section (p. 3-7).		

Side Stand Switch Operation

Meter Range	Connections	Meter Reading (Criteria)
x 1 Ω	○One meter lead → Brown switch lead ○Other meter lead → Green/white switch lead	○0 Ω when the side stand is up. ○∞ Ω when the side stand is down.

(b) Oil Level Sensor:
Refer to p. 10-48 of the Base Manual.

(c) Electrolyte Level Sensor:
Refer to p. 10-48 of the Base Manual.

(d) Fuel Level Sensor:
Refer to the *"Fuel Level Sender Inspection"* on p. 5-32 of the Base Manual.

(e) DFI Sensor:
Refer to *"Warning Function Test"* in the DFI System section (p. 3-7).

Disassembly – Engine

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Precautions

- Set the motorcycle up on its center stand so that it is stable during removal and installation operation.
- An arrow mark is placed on some parts. The arrow shows either the orientation or the direction of rotation of a part.

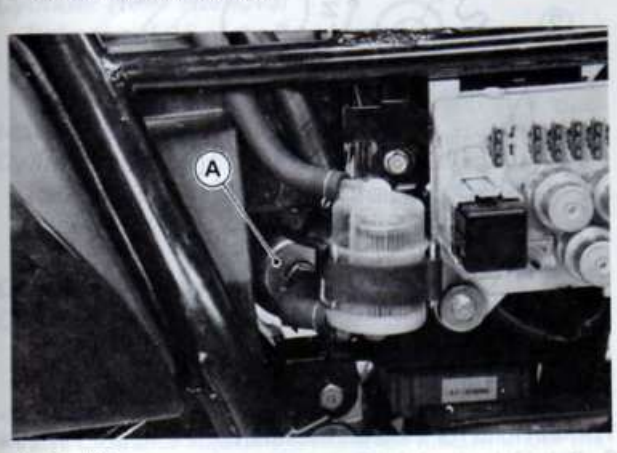
  If the arrow mark shows orientation, install the part so that the arrow points the front of the motorcycle when it is installed.

  If the arrow mark shows direction of rotation, install the part so that the arrow mark coincides with the rotational direction.
- For later installation convenience, note and record how and where cables, wirings, and hoses are routed. They should not be allowed sharp bend, kinking nor twisting.
- Install the gaskets in the correct position and direction so that they perfectly match with the mating surfaces where they are to be installed.
- Before assembling parts, wear an eye protector, and blow the oil passages in the parts clean with compressed air.

Fuel Pump

Installation Point of Fuel Pump

- Observe the "Fuel Hose Installation Notes" (Base Manual p. 9-34).
- If a new fuel pump is installed, bleed the air in the fuel line before starting the engine. Follow the procedures below.
  - ○Check to see if the fuel tank is full. If not, top up the tank.
  - ○Turn on the ignition switch to operate the fuel pump. When the fuel pump stops, turn off the switch and turn it on again.
  - ○Repeat the previous step a few times.
  - ○Turn off the switch.

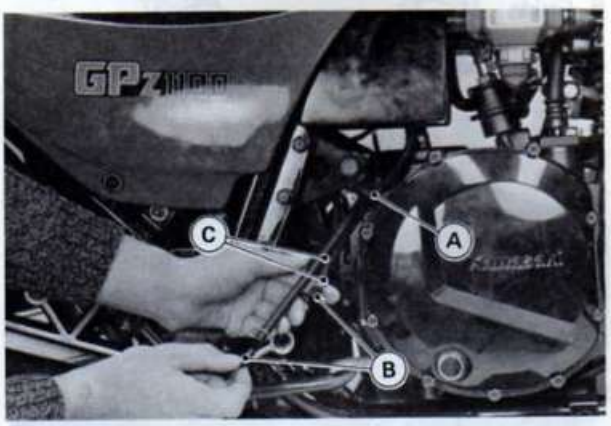


A. Fuel Pump

Air Cleaner

Installation Point of Air Cleaner

- Check to see the arrow on the duct points at the dot on the air cleaner (fig. 9-58 on Base Manual p. 9-38).
- Be sue to connect the breather hose to the breather cover, and install the clip (fig. 9-59 on Base Manual p. 9-38)
- Check to see that the drain plugs are installed at the ends of the air cleaner drain hoses, and that the drain hoses are routed through the guide at the rear right side of the engine.

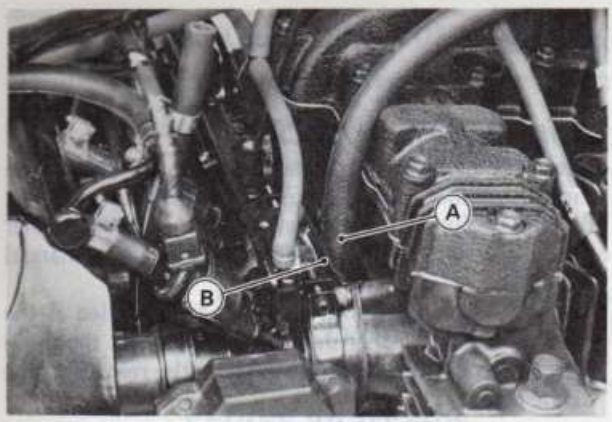


A. Hose Guide
B. Drain Plugs
C. Drain Hoses

Oil Cooler
Oil Hoses

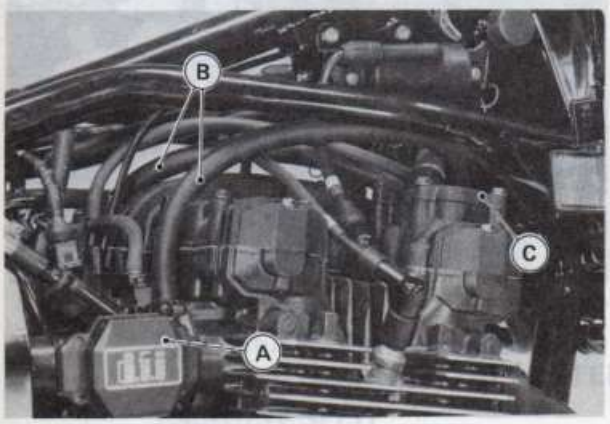
Installation Point of Oil Hoses

- The left side hose is longer than the right side one.
- Run the left side hose between the #1 and #2 throttle valve holders and then to the left side of the oil cooler. Be sure the oil hose does not interfere with operation of the throttle linkage.
- Run the right side hose between the #3 and #4 throttle valve holders, and then to the right side of the oil cooler.



A. Run the oil hoses between the guides and the engine.
B. Guide

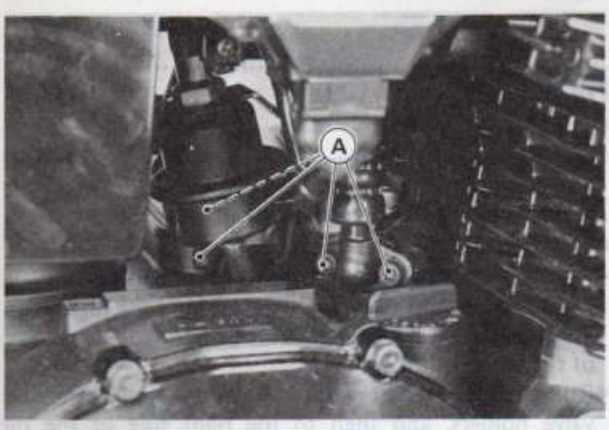
●Run both oil hoses inside the frame pipes.



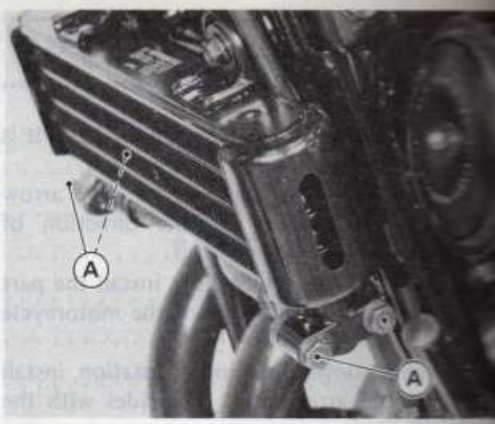
A. Throttle Valve Holders
B. Avoid sharp bending.
C. Air Suction Valve Covers (US model only)

Tightening Torque

Engine-Side Fitting Bolts:	9.8 N-m (1.0 kg-m, 87 in-lb)
Oil-Cooler-Side Fitting Bolts:	7.8 N-m (0.80 kg-m, 69 in-lb)



A. Engine-Side Fitting Bolts



A. Oil-Cooler-Side Fitting Bolts

Camshafts
Camshaft Sprockets

Removal:
Camshaft and Sprocket Removal

Refer to p. 6-18 of the Base Manual.

Installation:
Camshaft and Sprocket Installation

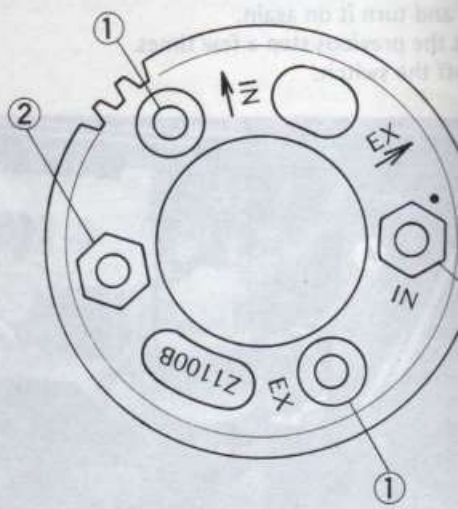
Refer to pp. 6-19 through 6-22 of the B noting the following exception.

●The same sprockets and camshafts are used f and exhaust camshafts.

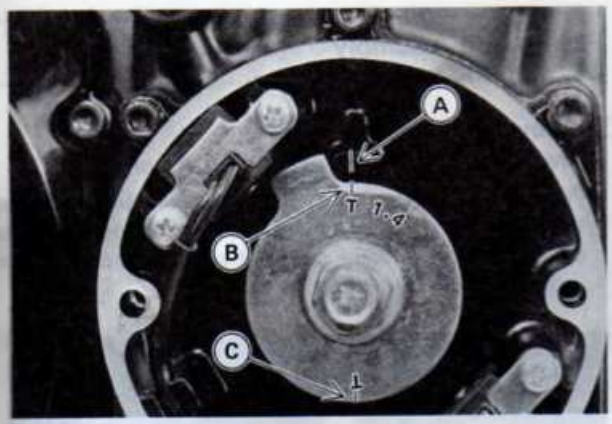
○For exhaust use, the two bolts holes in recesses.

○For inlet use, two bolt holes in the hexagon

Camshaft Sprocket

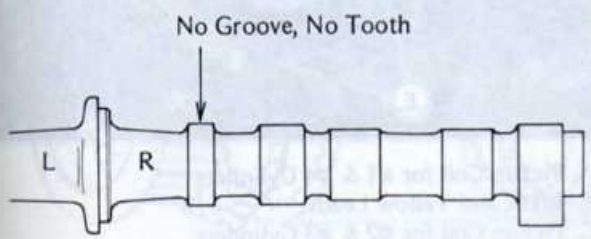


1. Bolt Holes for Exhaust Camshaft
2. Bolt Holes for Inlet Camshaft

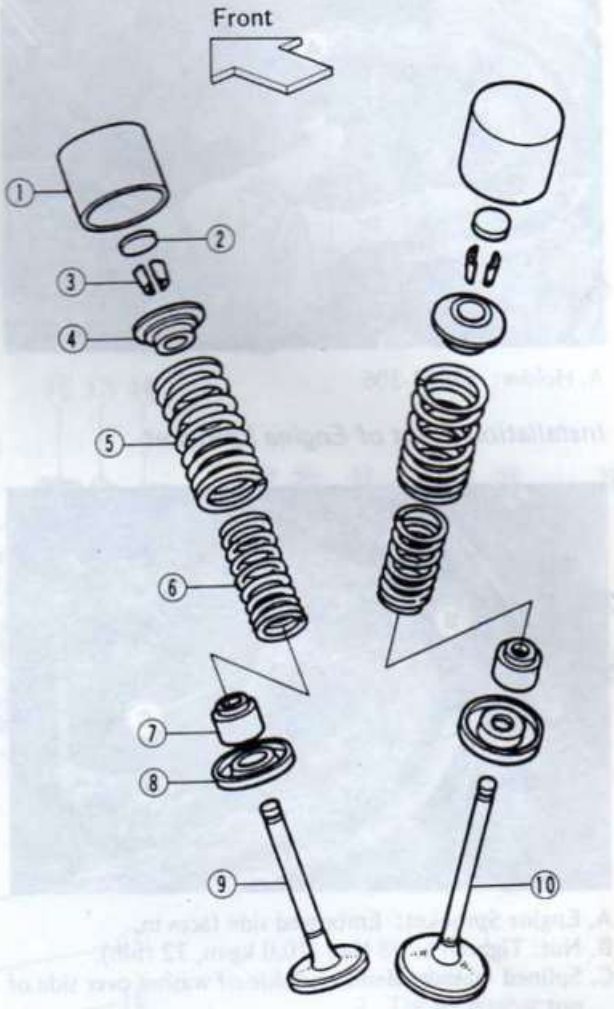


A. Timing Mark
B. 1 4 "T" Mark
C. 2 3 "T" Mark

Camshaft Identification Mark 682549



Valves, Springs, and Guides 682550



1. Valve lifter
2. Shim
3. Split keeper
4. Spring retainer
5. Valve spring, outer
6. Valve spring, inner
7. Oil seal
8. Spring seat
9. Valve, exhaust
10. Valve, inlet

Cylinder Head

Removal:

Cylinder Head Removal

Refer to p. 6-18 of the Base Manual.

Installation:

Cylinder Head Installation

Refer to pp. 6-18 and 6-19 of the Base Manual.

Cylinder Disassembly and Assembly:

Cylinder Head Disassembly

(Each Valve, Valve Guide Removal)

Refer to pp. 6-22 through 6-24 noting the following exception.

- Valve Clearance adjustment shims are located under the valve lifters.

Engine Sprocket

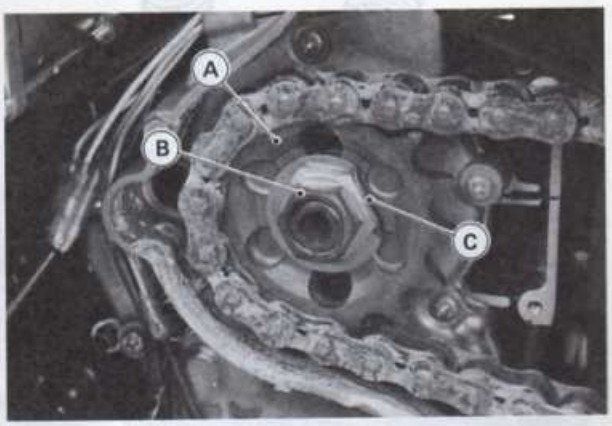
Removal Point of Engine Sprocket

- Use the holder (special tool) to hold the engine sprocket steady during sprocket loosening and tightening.



A. Holder: 57001-306

Installation Point of Engine Sprocket



A. Engine Sprocket: Embossed side faces in.
B. Nut: Tighten to 98 N-m (10.0 kg-m, 72 ft-lb).
C. Splined washer: Bend one side of washer over side of nut.

Starter Motor

Removal:
Starter Motor Removal
Refer to p. 6-33 of the Base Manual.

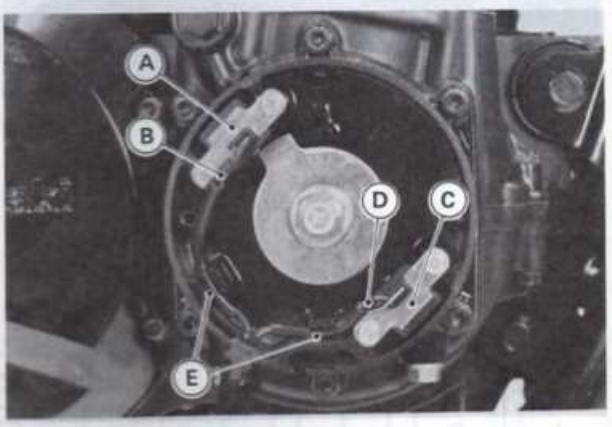
Installation:
Starter Motor Installation
Refer to pp.6-33 and 6-34 of the Base Manual.

Starter Motor Disassembly and Assembly:
Starter Motor Disassembly and Assembly
Refer to pp. 10-53 through 10-55 of the Base Manual.

Pickup Coil Assembly

Removal and Installation:
Installation Point of Pickup Coil Assembly

- Position the pickup coils so that the clearance between the pickup coil core and the timing rotor projection is equal for both pickup coils. Preferably the clearance should be 0.4 – 0.6 mm.

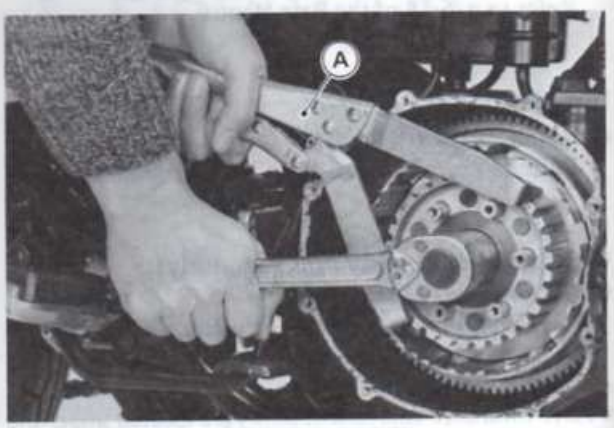


A. Pickup Coil for #1 & #4 Cylinders
B. Black and Yellow Leads
C. Pickup Coil for #2 & #3 Cylinders
D. Black/White and Blue Leads
E. Fit the coil leads into the grooves.

Clutch
Clutch Cam Damper

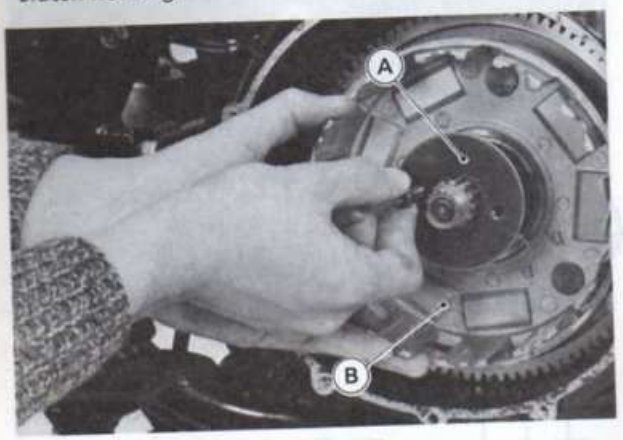
Removal of Clutch and Clutch Cam Damper

- The clutch cam damper mechanism is assembled in the clutch hub.
- When loosening or tightening the clutch hub self-locking nut ⑳ , use the holder (special tool) to keep the clutch hub from turning.



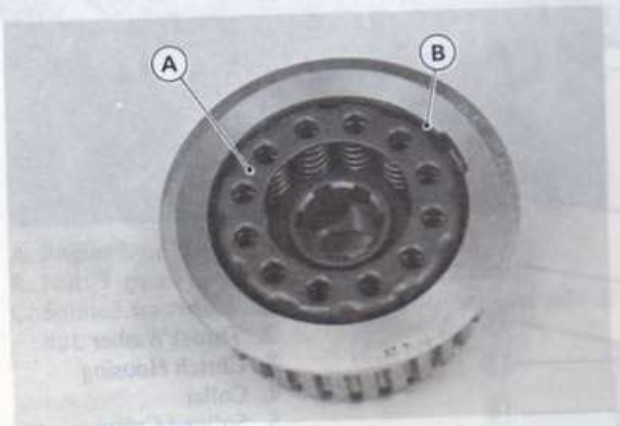
A. Holder: 57001-305

●To remove the clutch hub, first pull off the bearing collar using clutch cover bolts and then remove the clutch housing.



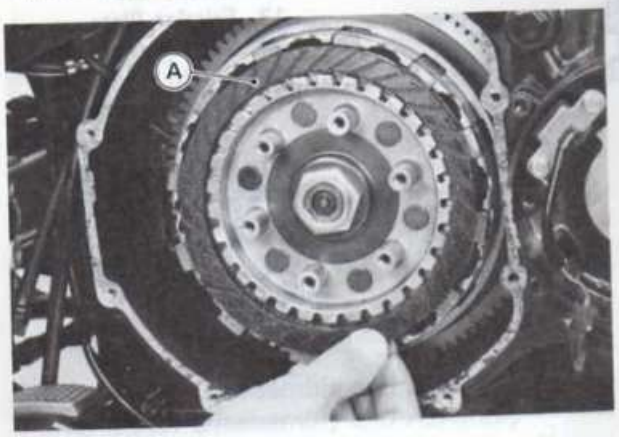
A. Thrust Washer and Bearing Collar
B. Clutch Housing

●To remove the cam damper mechanism in the clutch hub, push in the damper spring plate ⑦, and remove the clrclip ⑤. Then take the damper mechanism parts out of the clutch hub.



A. Spring Plate B. Circlip

●The grooves on the friction plate surfaces are cut tangentially and radialy; install the friction plates so that the grooves run toward the center in the direction of the clutch housing rotation (counterclockwise viewed from the right side of the engine).



A. Grooves

●Install the friction plates (9) and steel plates (8), starting with a friction plate and alternating them.

CAUTION

○**If new dry steel plates and friction plates are installed, apply engine oil on the surfaces of each plate to avoid clutch plate seizure.**

●Discard the used clutch hub self-locking nut, and screw on a new nut on hte drive shaft. Tightening torque for the clutch hub self-locking nut is 120 N-m (12.0 kg-m, 87 ft-lb).
●Tightening torque for the clutch spring bolts (6) is 11 N-m (1.1 kg-m, 95 in-lb).
●Check the oil level, and add oil if necessary.

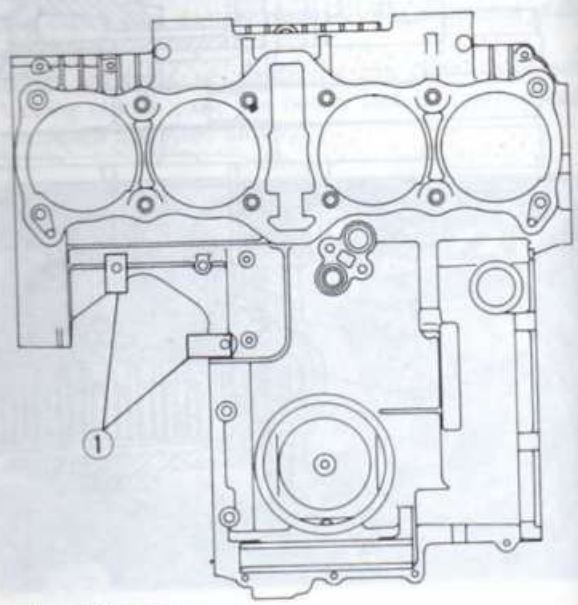
Crankcase Split

Refer to pp. 6-44 through 6-46 of the Base Manual noting the following exception.

Crankcase Splitting and Assembly

●Lead clamp location is changed as shown in the figure.

Lead Clamp Location 682552



1. Lead Clamps

Disassembly – Chassis

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STEERING

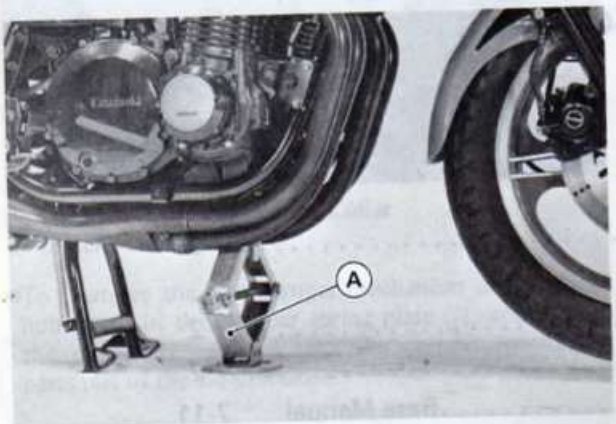
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SUSPENSION AND DRIVE TRAIN

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Precautions

- Set the motorcycle up on its center stand so that it is stable during removal and installation operation.
- For later installation convenience, note and record how and where cables, wirings, and hoses are routed. They should not be allowed sharp bend, kinking, nor twisting.
- To lift the front wheel off the ground, use a jack under the engine.



A. Jack

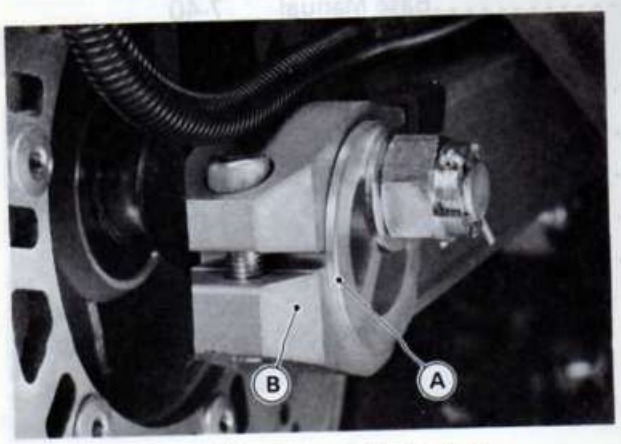
Rear Wheel
Wheel Coupling

Removal and Installation:
Installation Point of Rear Wheel and Wheel Coupling

Tightening Torque

Chain Adjuster Clamp Bolts	32 N-m (3.3 kg-m, 24 ft-lb)
Axle Nut	98 N-m (10.0 kg-m, 72 ft-lb)
Torque Link Nuts	30 N-m (3.1 kg-m, 22 ft-lb)

- Check to see that there is no gap between the swing arm and each chain adjuster flange.



A. Chain Adjuster Flange B. Swing Arm

- Adjust the drive chain slack after wheel installation.

Rear Hub Disassembly and Assembly:
Refer to pp. 7-8 through 7-10 of the Base Manual.

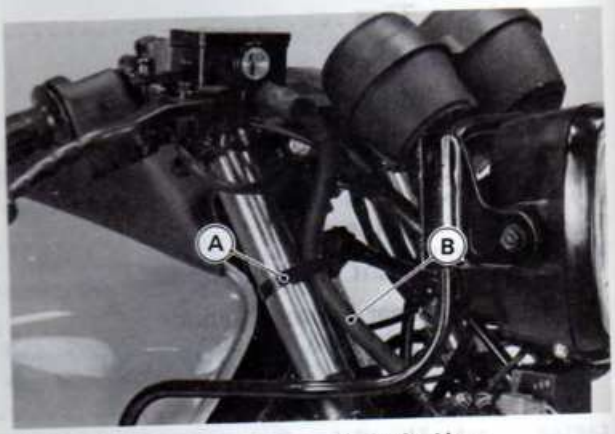
Wheel Coupling Disassembly and Assembly:
Refer to pp. 7-10 and 7-11 of the Base Manual.

Brake Hoses

Brake Hose Removal
Refer to p. 7-14 of the Base Manual.

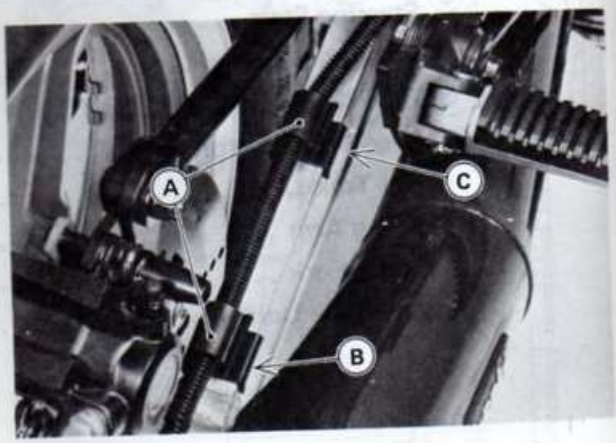
Brake Hose Installation
Refer to pp. 7-15 and 7-16 of the Base Manual noting the following exception.

- Clamp the front brake hose on the fork tube using a band.



A. Band B. Brake Hose

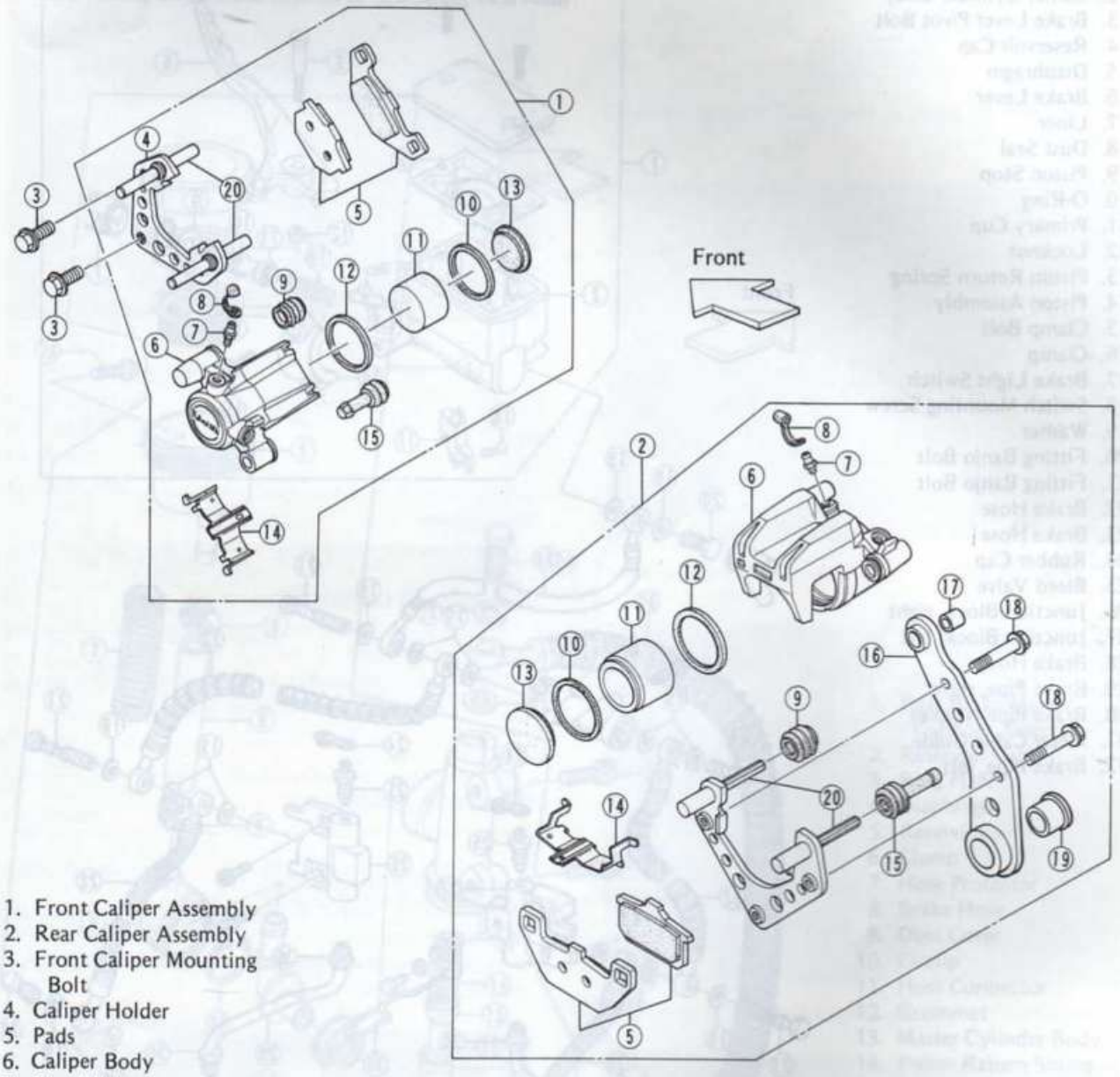
- Clamp the rear brake hose in the hose clamps on the swing arm. Be sure that the hose clamps are located in the proper position shown in the figure.



A. Hose Clamps
B. One at the rear of the swing arm.
C. Another at the side of the rear footpeg.

Brake Pads
Calipers

782553



1. Front Caliper Assembly
2. Rear Caliper Assembly
3. Front Caliper Mounting Bolt
4. Caliper Holder
5. Pads
6. Caliper Body
7. Bleed Valve
8. Rubber Cap
9. Boot
10. Dust Seal
11. Piston
12. Fluid Seal
13. Insulator
14. Anti-Rattle Spring
15. Friction Boot
16. Holder
17. Collor
18. Rear Caliper Mounting Bolts
19. Collor
20. Shafts

Apply PBC* grease to: Collors ⑰ and ⑲. Shafts ⑳

Tightening Torque:

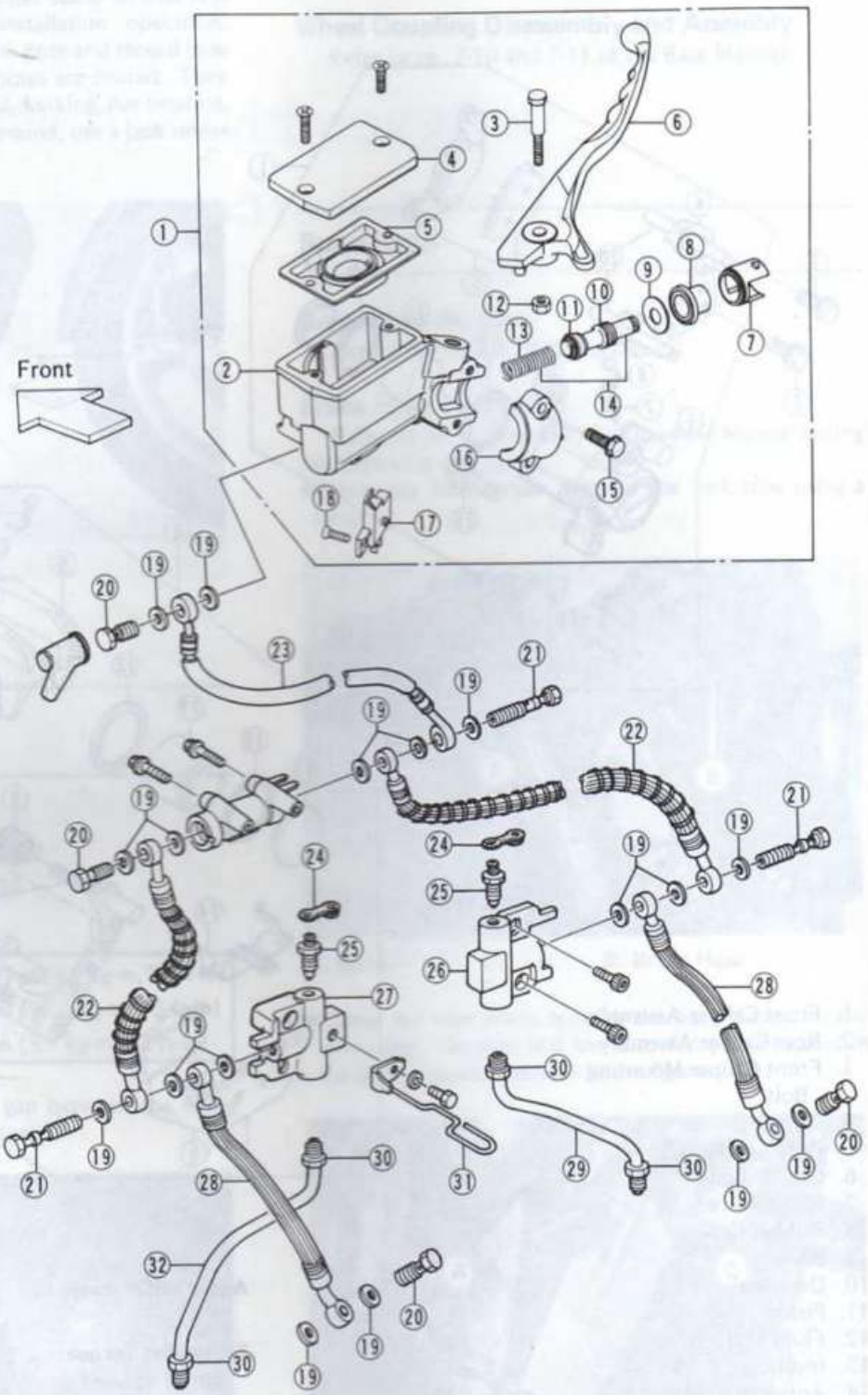
Bleed Valves ⑦	7.8 N-m (0.80 kg-m, 69 in-lb)
Front Caliper Mounting Bolts ③	32 N-m (3.3 kg-m, 24 ft-lb)
Rear Caliper Mounting Bolts ⑱	28 N-m (2.9 kg-m, 21 ft-lb)

* : PBC grease is a special high temperature, water-resistant grease.

Front Master Cylinder

782554

1. Master Cylinder Assembly
2. Master Cylinder Body
3. Brake Lever Pivot Bolt
4. Reservoir Cap
5. Diaphragm
6. Brake Lever
7. Liner
8. Dust Seal
9. Piston Stop
10. O-Ring
11. Primary Cup
12. Locknut
13. Piston Return Spring
14. Piston Assembly
15. Clamp Bolt
16. Clamp
17. Brake Light Switch
18. Switch Mounting Screw
19. Washer
20. Fitting Banjo Bolt
21. Fitting Banjo Bolt
22. Brake Hose
23. Brake Hose
24. Rubber Cap
25. Bleed Valve
26. Junction Block, right
27. Junction Block, left
28. Brake Hose
29. Brake Pipe, right
30. Brake Pipe Nipples
31. Meter Cable Guide
32. Brake Pipe, left



Apply Locking Agent to:
- Brake Light Switch Mounting Screw (18)

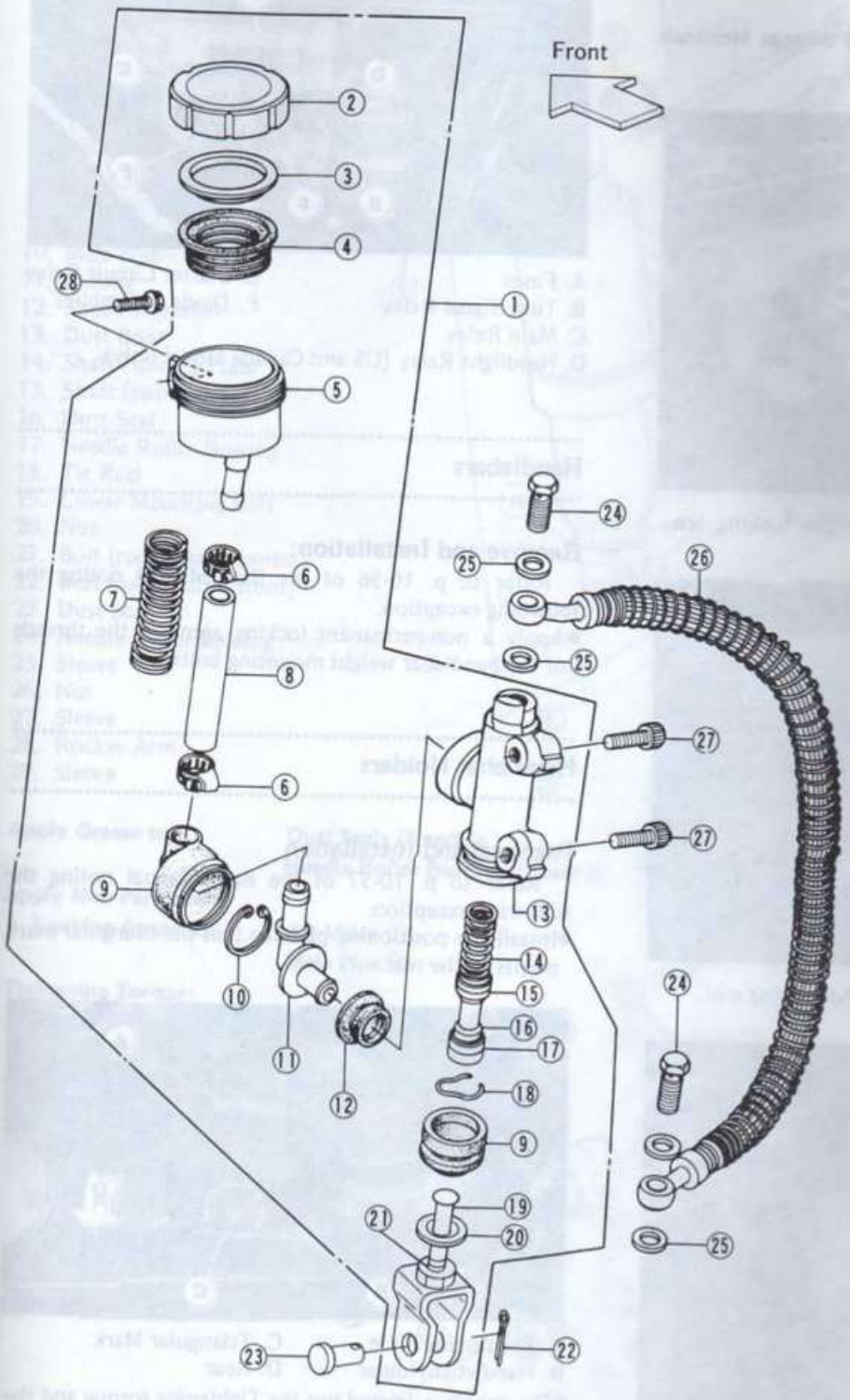
Tightening Torque:

Bleed Valves (25)	7.8 N-m (0.80 kg-m, 69 in-lb)
Brake Lever Pivot Bolt (3)	2.9 kg-m (0.30 kg-m, 26 in-lb)
Brake Pipe Nipples (30)	15 N-m (1.5 kg-m, 11.0 ft-lb)
Fitting Banjo Bolts (20) and (21)	25 N-m (2.5 kg-m, 18.0 ft-lb)
Master Cylinder Clamp Bolts (15)	8.8 N-m (0.90 kg-m, 78 in-lb)
Pivot Bolt Locknut (12)	5.9 kg-m (0.60 kg-m, 52 in-lb)

Rear Master Cylinder

782555

Tightening Torque:
Hose Fitting Banjo Bolts ㉔ 25 N-m (2.5 kg-m, 18.0 ft-lb)



1. Rear Brake Master Cylinder Assembly
2. Reservoir Cap
3. Ring Plate
4. Diaphragm
5. Reservoir
6. Clamp
7. Hose Protector
8. Brake Hose
9. Dust Cover
10. Circlip
11. Hose Connector
12. Grommet
13. Master Cylinder Body
14. Piston Return Spring
15. Primary Cup
16. Piston
17. Secondary Cup
18. Retainer
19. Push Rod
20. Piston Stop
21. Locknut
22. Cotter Pin
23. Clevis Pin
24. Fitting Banjo Bolt
25. Washer
26. Brake Hose
27. Master Cylinder Mounting Bolt
28. Reservoir Mounting Bolt

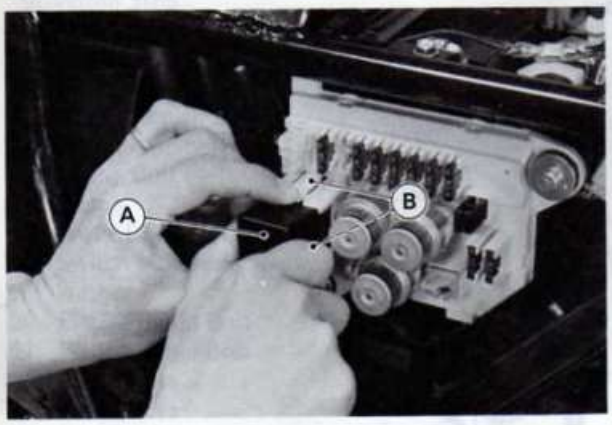
Junction Box

Removal Point of Junction Box Parts

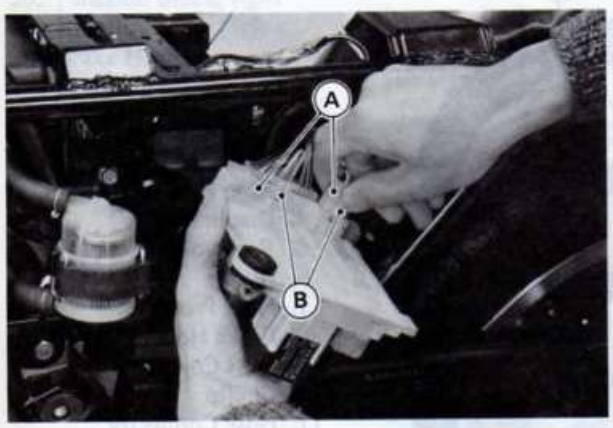
- Unlock the locking arm(s), and pull the relays and connectors staright off the junction box.

CAUTION

- **Do not pull on wires as this could damage terminals and wires.**



A. Turn Signal Relay B. Unlock the locking arms.



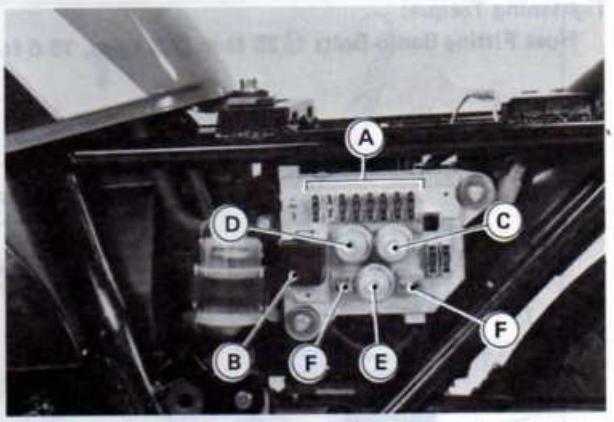
A. Connector B. Unlock the locking arm.



A. Remove fuses using puller.

Installation Point of Junction Box

- Orient the relays and connectors correctly.
- Push the relays and connectors all the way in place until you feel a click.



A. Fuses
B. Turn Signal Relay
C. Main Relay
D. Headlight Relay (US and Canada Model only)
E. Starter Circuit Relay
F. Diode Assemblies

Handlebars

Remove and Installation:

Refer to p. 10-56 of the Base Manual noting the follwoing exception.

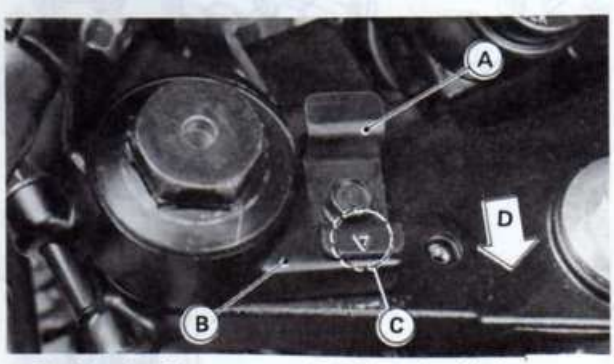
- Apply a non-permanent locking agent to the threads of the handlebar weight mounting bolts.

Handlebar Holders

Removal and Installation

Refer to p. 10-57 of the Base Manual noting the following exception.

- Install the positioning plate so that the triangular mark points to the rear.

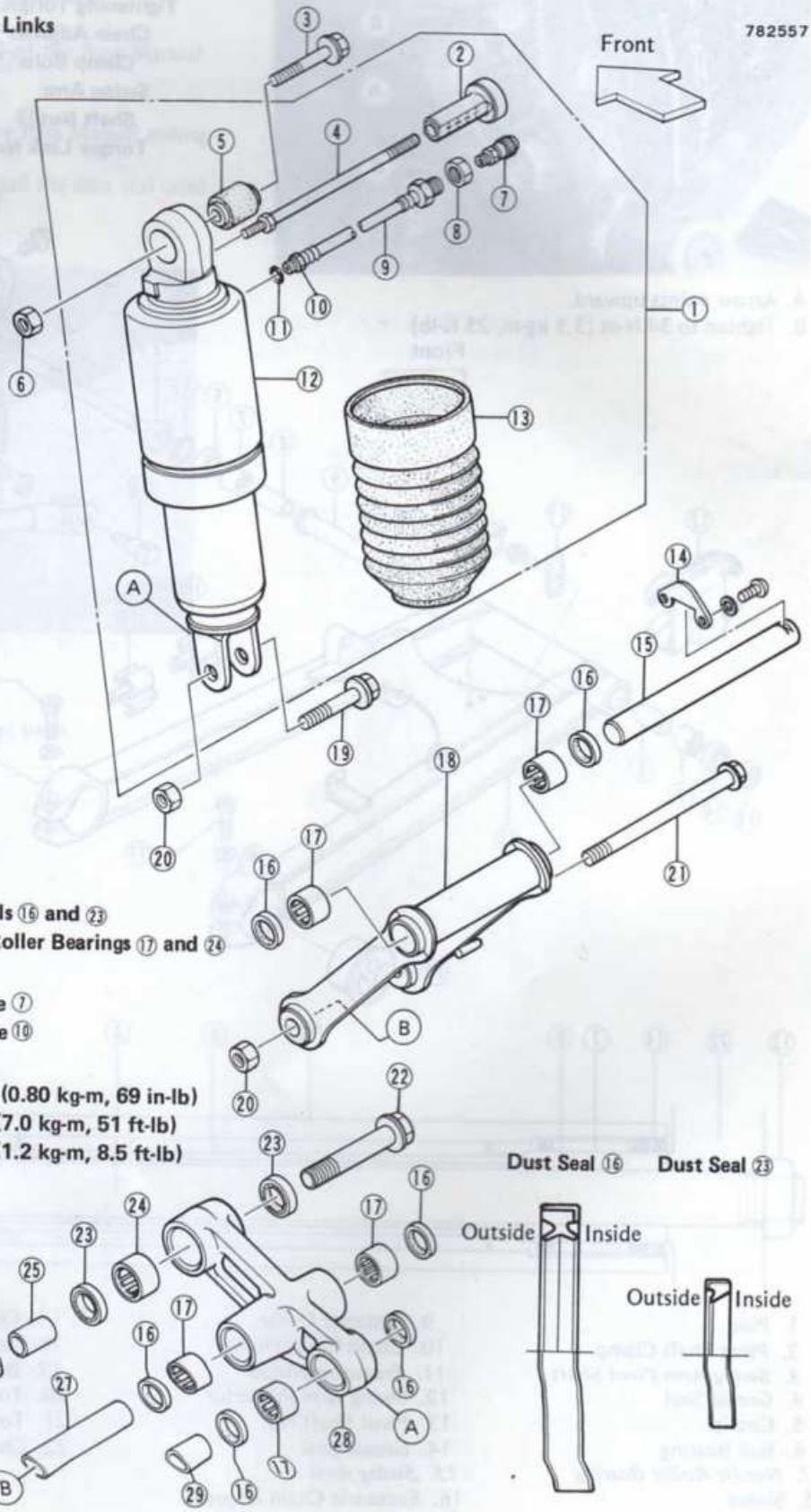


A. Positioning Plate
B. Handlebar Holder
C. Triangular Mark
D. Rear

- The spacer is deleted but the Tightening torque and the Sequence for Holder Bolt, Fork Clamp Bolt and Positioning Plate Bolt remain unchanged.

Rear Shock Absorber
Uni-Trak Links
Swing Arm

Rear Shock Absorber and Uni-Trak Links



1. Rear Shock Absorber Assembly
2. Knob
3. Upper Mounting Bolt
4. Rod
5. Rubber Bushing
6. Nut
7. Air Valve and Cap
8. Nut
9. Air Hose
10. Male Pipe
11. O-Ring
12. Shock Absorber
13. Dust Boot
14. Shaft Holding Plate
15. Shaft (swing arm)
16. Dust Seal
17. Needle Roller Bearing
18. Tie Rod
19. Lower Mounting Bolt
20. Nut
21. Bolt (rocker arm, center)
22. Bolt (rocker arm, front)
23. Dust Seal
24. Needle Roller Bearing
25. Sleeve
26. Nut
27. Sleeve
28. Rocker Arm
29. Sleeve

Apply Grease to: Dust Seals ⑯ and ㉓; Needle Roller Bearings ⑰ and ㉔

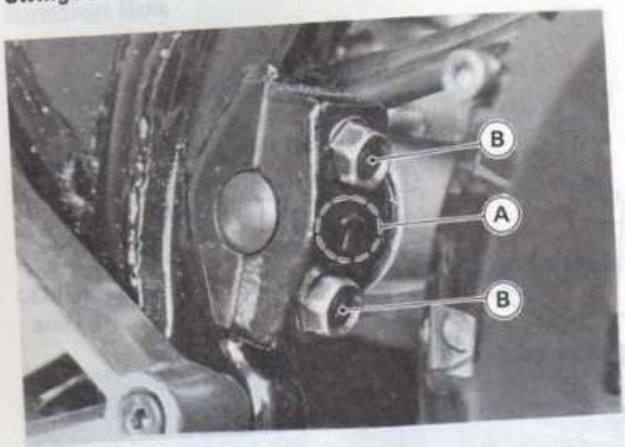
Apply Non-Permanent Locking Agent to: Air Valve ⑦; Male Pipe ⑩

Tightening Torque:

Air Valve ⑦	7.8 N-m (0.80 kg-m, 69 in-lb)
Bolt ㉒ (φ16), ㉑ (φ12)	69 N-m (7.0 kg-m, 51 ft-lb)
Male Pipe ⑩	12 N-m (1.2 kg-m, 8.5 ft-lb)
Shock Absorber Lower Mounting Bolt ③	69 N-m (7.0 kg-m, 51 ft-lb)
Shock Absorber Upper Mounting Bolt ⑲	37 N-m (3.8 kg-m, 27 ft-lb)

782558

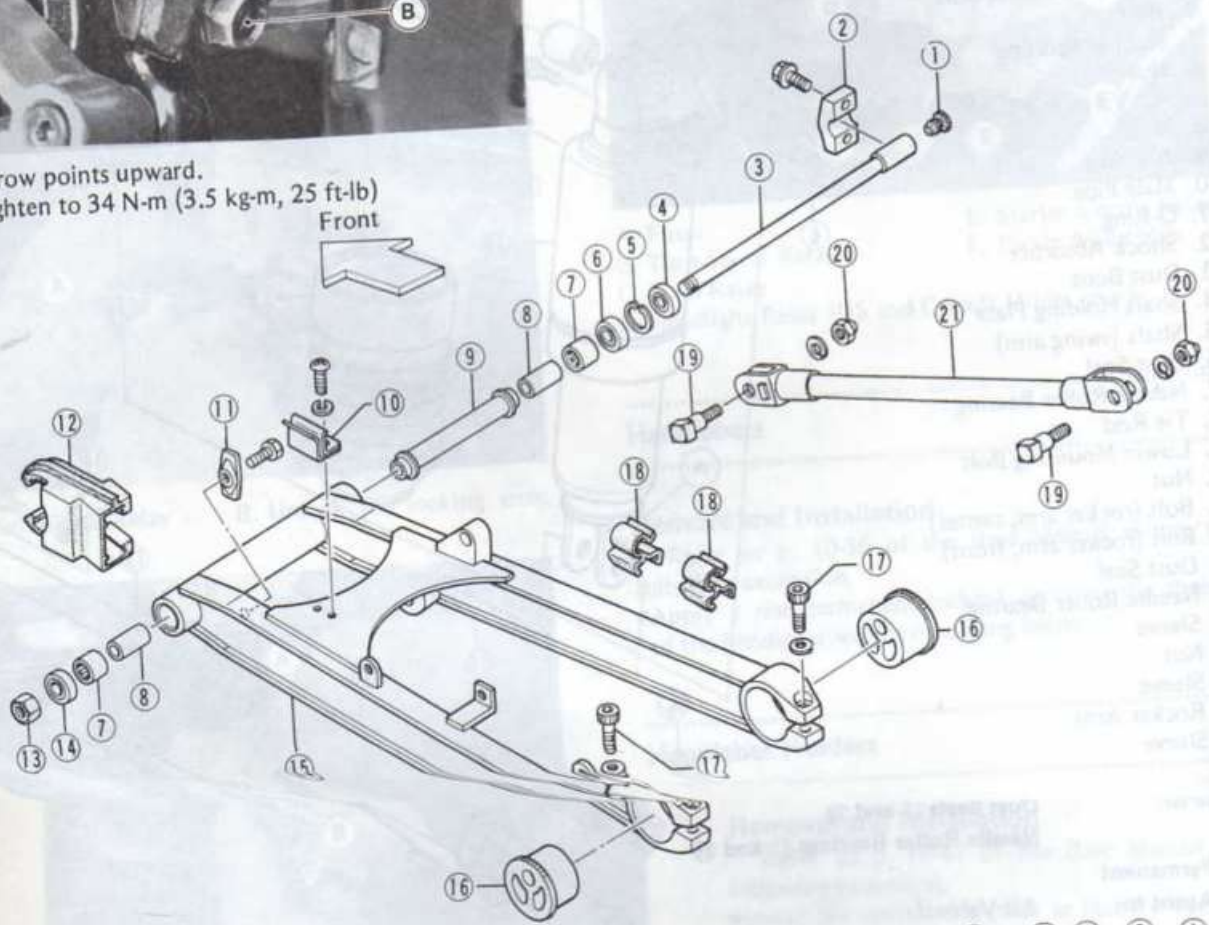
Swing Arm

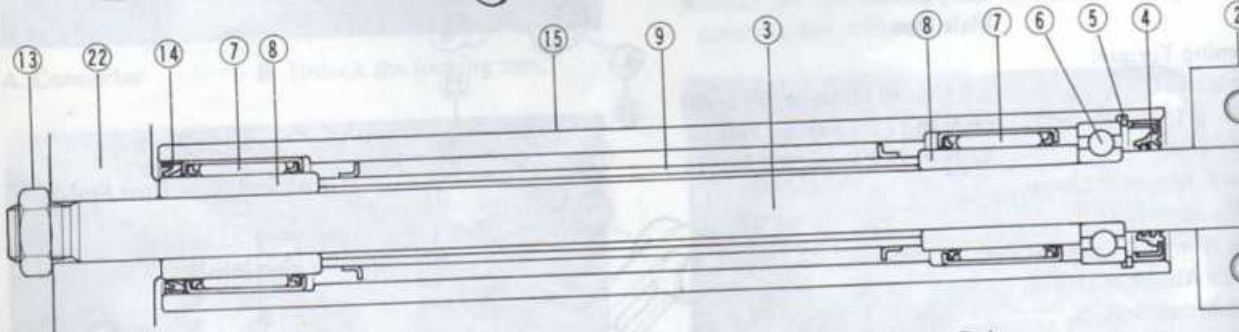


A. Arrow points upward.
B. Tighten to 34 N-m (3.5 kg-m, 25 ft-lb)

Apply Grease to: Ball Bearing ⑥
Grease Seal ④ and ⑭
Needle Bearings ⑦

Tightening Torque:
Chain Adjuster Clamp Bolts ⑰: 32 N-m (3.3 kg-m, 24 ft-lb)
Swing Arm Shaft Nut ⑬: 98 N-m (10.0 kg-m, 72 ft-lb)
Torque Link Nuts ⑳: 30 N-m (3.1 kg-m, 22 ft-lb)





1. Plug
2. Pivot Shaft Clamp
3. Swing Arm Pivot Shaft
4. Grease Seal
5. Circlip
6. Ball Bearing
7. Needle Roller Bearing
8. Sleeve
9. Distance Collar
10. Chain Cover Holder
11. Protector Holder
12. Swing Arm Protector
13. Pivot Shaft Nut
14. Grease Seal
15. Swing Arm
16. Eccentric Chain Adjuster
17. Clamp Bolt
18. Brake Hose Clamp
19. Bolt
20. Torque Link Nut
21. Torque Link
22. Chassis

Front Fork
Anti-Dive Units

Front Fork Disassembly and Assembly:

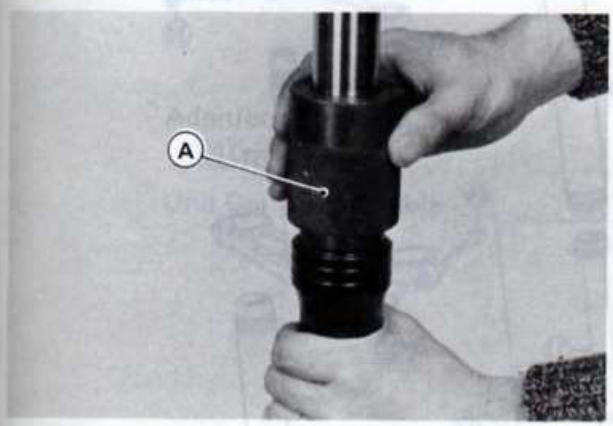
Front Fork Disassembly

Refer to pp. 7-43 through 7-45 of the Base Manual.

Front Fork Assembly

Refer to pp. 7-45 and 7-46 of the Base Manual noting the following exception.

- Use the dirver (special tool) to install the dust seal onto the fork outer tube.



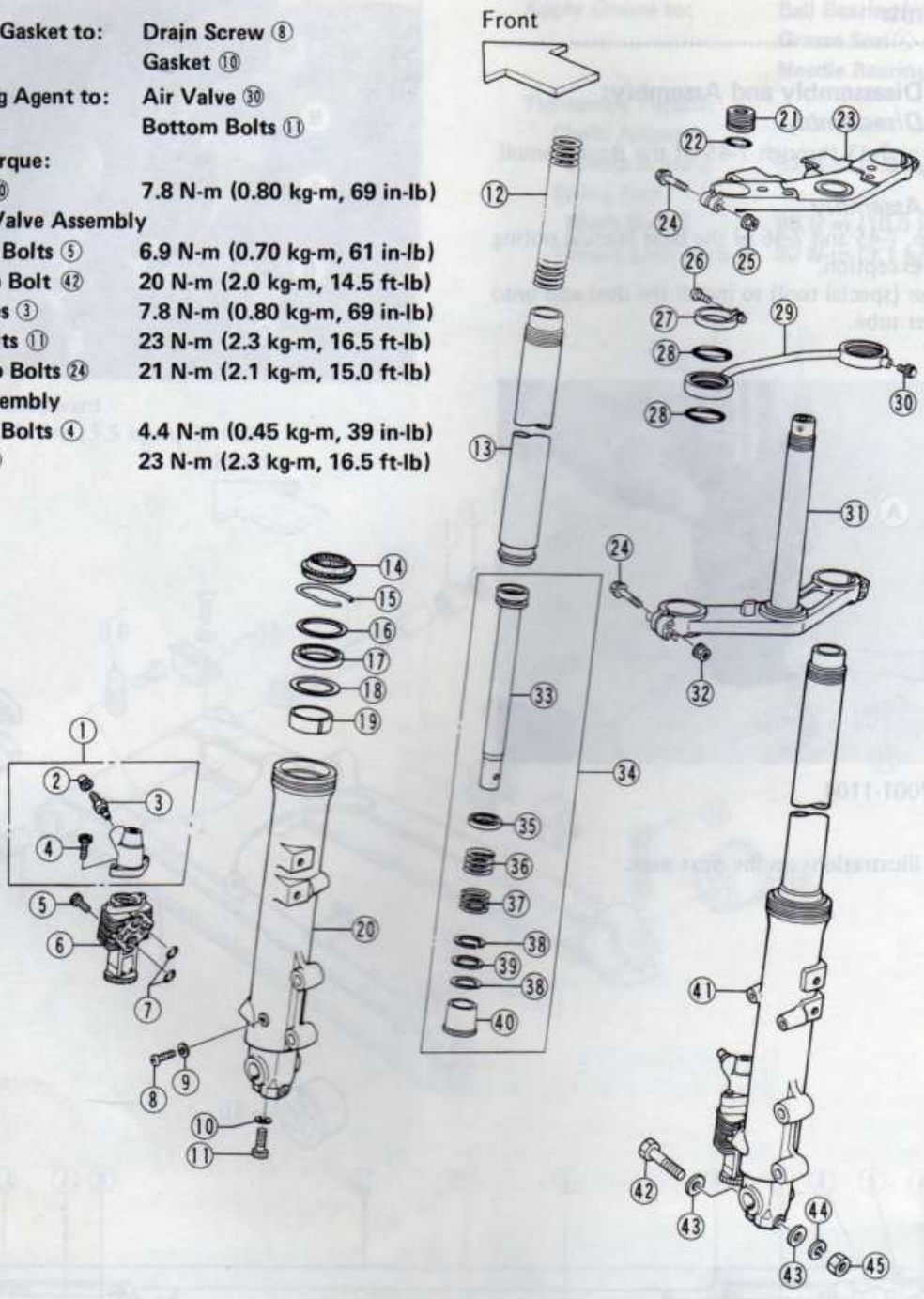
A. Driver: 57001-1104

- Refer to the illustrations on the next page.

Front Fork and Anti-Dive Unit

782556

Apply Liquid Gasket to:	**Drain Screw ⑧**
	Gasket ⑩
Apply Locking Agent to:	**Air Valve ㉚**
	Bottom Bolts ⑪
Tightening Torque:	
Air Valve ㉚	**7.8 N-m (0.80 kg-m, 69 in-lb)**
Anti-Dive Valve Assembly Mounting Bolts ⑤	**6.9 N-m (0.70 kg-m, 61 in-lb)**
Axle Clamp Bolt ㊷	**20 N-m (2.0 kg-m, 14.5 ft-lb)**
Bleed Valves ③	**7.8 N-m (0.80 kg-m, 69 in-lb)**
Bottom Bolts ⑪	**23 N-m (2.3 kg-m, 16.5 ft-lb)**
Fork Clamp Bolts ㉔	**21 N-m (2.1 kg-m, 15.0 ft-lb)**
Plunger Assembly Mounting Bolts ④	**4.4 N-m (0.45 kg-m, 39 in-lb)**
Top Plug ㉑	**23 N-m (2.3 kg-m, 16.5 ft-lb)**



1. Anti-Dive Brake Plunger Assembly
2. Rubber Cap
3. Bleed Valve
4. Plunger Assembly Mounting Bolts
5. Valve Assembly Mounting Bolts
6. Anti-Dive Valve Assembly
7. O-Rings
8. Drain Screw
9. Gasket
10. Gasket
11. Bottom Bolt
12. Fork Main Spring
13. Inner Tube
14. Dust Seal
15. Retainer
16. Washer
17. Oil Seal
18. Washer
19. Guide Bush
20. Left Outer Tube
21. Top Plug
22. O-Ring
23. Stem Head
24. Fork Clamp Bolts
25. Nut
26. Clamp Screw
27. Band
28. O-Rings
29. Connecting Pipe
30. Air Valve
31. Steering Stem and Base
32. Nut
33. Cylinder
34. Cylinder Assembly
35. Piston Ring
36. Spring
37. Spring
38. Springs
39. Washer
40. Cylinder Base
41. Right Outer Tube
42. Axle Clamp Bolt
43. Washer
44. Lockwasher
45. Nut

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Additional Considerations for Racing 8-2
Unit Conversion Table 8-4

Additional Considerations for Racing

This motorcycle has been manufactured for use in a reasonable and prudent manner and as a vehicle only. However, some may wish to subject this motorcycle to abnormal operation, such as would be experienced under racing conditions. KAWASAKI STRONGLY RECOMMENDS THAT ALL RIDERS RIDE SAFELY AND OBEY ALL LAWS AND REGULATIONS CONCERNING THEIR MOTORCYCLE AND ITS OPERATION.

Racing should be done under supervised conditions, and recongnized sanctioning bodies should be contacted for further details. For those who desire to participate in competitive racing or related use, the following technical information may prove useful. However, please note the following important points.

- You are entirely responsible for the use of your motorcycle under abnormal conditions such as racing, and Kawasaki shall not be liable for any damages which might arise from such use.
- US model only: Kawasaki's Limited Motorcycle Warranty and Limited Emission Contorl Systems Warranty specifically exclude motorcycles which are used in competitive or related uses. Please read th warranty carefully.
- Motorcycle racing is a very sophisticated sport, subject to many variables. The following information is theoretical only, and Kawasaki shall not be liable for any damages which might arise from alterations utilizing this information.
- When the motorcycle is operated on public roads, it **must** be in its original state in order to ensure safety and compliance with applicable regulations.

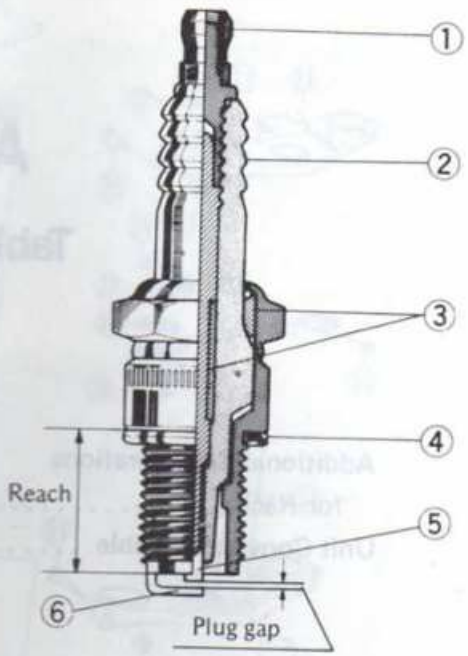
Spark Plug:

The spark plug ignites the fuel/air mixture in the combustion chamber. To do this effectively and at the proper time, the correct spark plug must be used, and the spark plug must be kept clean and adjusted.

Test have shown the plug listed in the "Specifications" section in the chapter 1 to be the best plug for general use.

Since spark plug requirements change with the ignition and carburetion adjustments and with riding conditions, whether or not a spark plug of a correct heat range is used should be determined by removing and inspecting the plug.

Spark Plug 882101

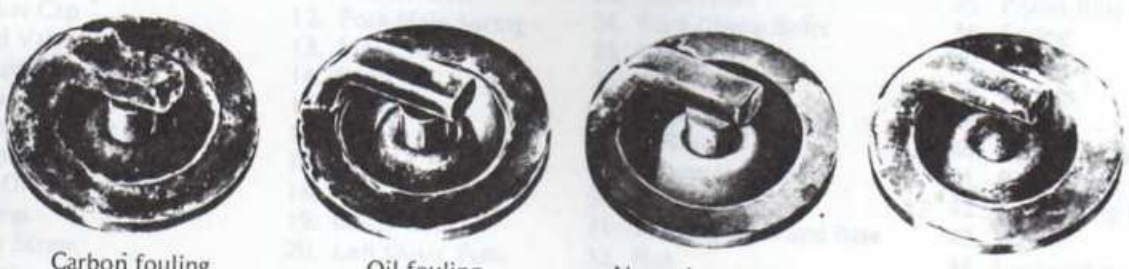


1. Terminal
2. Insulator
3. Cement
4. Gasket
5. Center electrode
6. Side electrode

When a plug of the correct head range is being used, the electrodes will stay hot enough to keep all the carbon burned off, but cool enough to keep from damaging the engine adn plug itself. This temperature is about 400 – 800°C (750 – 1,450°F) and can be judged by noting the condition and color of the ceramic insulator around the center electrode. If the ceramic is clean and of a light brown color, the plug is operating at the right temperature.

A spark plug for higher operating temperatures is used for racing. Such a plug is designed for better cooling efficiency so that it will not overheat and thus is often called a "colder" plug. If a spark plug with too high a heat range is used – that is, a "cold" plug that cools itself too well – the plug will stay too cool to burn off the carbon, and the carbon will correct on the electrodes and the ceramic insulator.

Spark Plug Condition 882102



Carbon fouling | Oil fouling | Normal operation | Overheating

The carbon on the electrodes conducts electricity, and can short the center electrode to ground by either coating the ceramic insulator or bridging across the gap. Such a short will prevent an effective spark. Carbon build-up on the plug can also cause other troubles. It can heat up red-hot and cause preignition and knocking, which may eventually burn a hole in the top of the piston.

Spark Plug Inspection

●Remove the spark plug and inspect the ceratic insulator.

★Whether or not the right temperature plug is being used can be ascertained by noting the condition of the ceramic insulator around the electrode. A light brown color indicates the correct plug is being used. If the ceramic is white, the plug is operating at too high a temperature and it should be replaced with the next colder type.

Required Spark Plug for Racing

NGK BR9ES

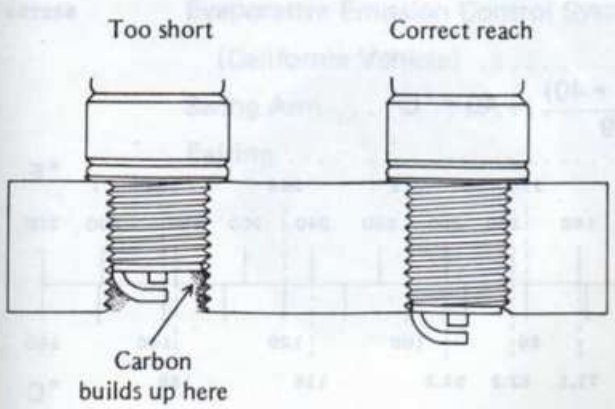
CAUTION

○**If the spark plug is replaced with a type other than the standard plug, listed in the "Specifications" section, make certain the replacement plugs have the same thread pitch and reach (length of threaded portion) and the same insulator type (regular type or projected type) as the standard plug.**

○**If the plug reach is too short, carbon will build up on the plug hole threads in the cylinder head, causing overheating and making it very difficult to insert the correct spark plug later.**

○**If the reach is too long, carbon will build up on the exposed spark plug threads causing overheating, preignition, and possibly burning a hole in the piston top. In addition, it may be impossible to remove the plug without damaging the cylinder head.**

Plug Reach 882103



Standard Spark Plug Threads

Diameter:	14 mm
Pitch:	1.25 mm
Reach:	19.0 mm

"NOTE"

○*The heat range of the spark plug functions like a thermostat for the engine. Using the wrong type of spark plug can make the engine run too hot (resulting in engine damage) or too cold (with poor performance, misfiring, and stalling). The standard plug has been slected to match the normal usage of this motorcycle in combined street and highway riding. Unusual riding conditions may require a different spark plug heat range. For racing, install the colder plug.*

Unit Conversion Table

Prefixes for Units:

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

Units of Mass:

kg	x	2.205	=	lb
g	x	0.03527	=	oz

Units of Volume:

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

Units of Force:

N	x	0.1020	=	kg
N	x	0.2248	=	lb
kg	x	9.807	=	N
kg	x	2.205	=	lb

Units of Length:

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

Units of Torque:

N-m	x	0.1020	=	kg-m
N-m	x	0.7376	=	ft-lb
N-m	x	8.851	=	in-lb
kg-m	x	9.807	=	N-m
kg-m	x	7.233	=	ft-lb
kg-m	x	86.80	=	in-lb

Units of Pressure:

kPa	x	0.01020	=	kg/cm^2
kPa	x	0.1450	=	psi
kPa	x	0.7501	=	cm Hg
kg/cm^2	x	98.07	=	kPa
kg/cm^2	x	14.22	=	psi
cm Hg	x	1.333	=	kPa

Units of Speed:

km/h	x	0.6214	=	mph

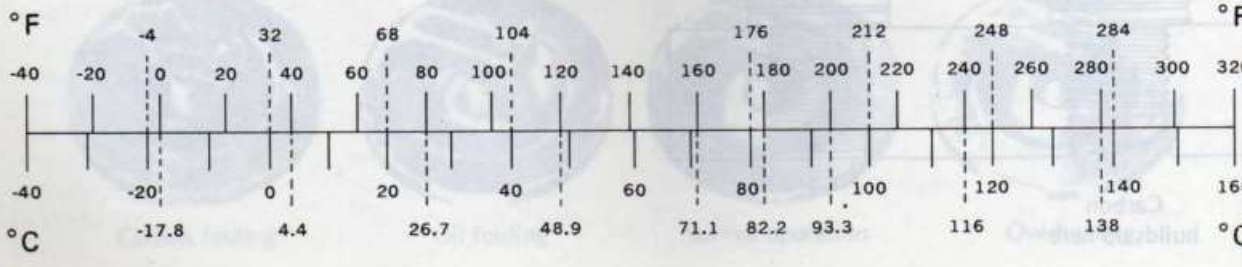
Units of Power:

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

Units of Temperature:

$$\frac{9\,(°C + 40)}{5} - 40 = °F$$

$$\frac{5\,(°F + 40)}{9} - 40 = °C$$



Supplement - ZX1100-A2(A3)

This 9th chapter "Supplement – ZX1100-A2" is designed to be used in conjunction with the front part of this manual (up to the end of the 8th chapter). The maintenance and repair procedures discribed in this chapter are only those that are unique to the 1984 model. Complete and proper servicing of the 1984 model therefore requires mechanics to read both this chapter and the text in front of this chapter.

NOTE

○*The maintenance and repair procedures for the 1985 ZX1100-A3 are the same as those for the 1984 ZX1100-A2.*

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General Information

Model Identification

ZX1100-A2 Left Side View



ZX1100-A2 Right Side View



Specifications

Items			ZX1100-A2
Dimensions:			
Overall length			2,320 mm, Ⓤ Ⓒ Ⓒa Ⓢ Ⓐ 2,270 mm
Overall width			740 mm
Overall height			1,275 mm
Wheelbase			1,565 mm, Ⓐ 1,570 mm
Road clearance			140 mm
Seat height			800 mm
Dry weight			2,390 N (244 kg), Ⓢ Ⓐ 2,410 N (246 kg), Ⓒa 2,398 N (244.5 kg)
Curb weight:	Front		1,240 N (127 kg), Ⓢ Ⓐ 1,250 N (128 kg), Ⓒa 1,250 N (127.5 kg)
	Rear		1,340 N (137 kg), Ⓢ Ⓐ 1,350 N (138 kg),
Fuel tank capacity			20.4 L
Performance:			
Climbing ability			30°
Braking distance			12.5 m from 50 km/h
Minimum turning radius			2.8 m
Engine:			
Type			4-stroke, DOHC, 4-cylinder
Cooling system			Air cooled
Bore and stroke			72.5 x 66.0 mm
Displacement			1,089 mL
Compression ratio			9.5
Maximum horsepower			88.3 kW (120 PS) @8,750 r/min (rpm), ⒼⓈ 73.6 kW (100 PS) @8,750 r/min (rpm)
Maximum torque			100 N-m (10.2 kg-m, 73.8 ft-lb) @8,000 r/min (rpm) ⒼⓈ 85.3 N-m (8.7 kg-m, 62.9 ft-lb) 8,000 r/min (rpm)
Carburetion system			DFI (Digital Fuel Injection)
Starting system			Electric starter
Ignition system			Battery and coil (transistorized)
Timing advance			Electronically advanced
Ignition timing			From 10° BTDC @1,000 r/min (rpm) to 37° BTDC @3,400 r/min (rpm)
Spark plug			NGK B8ES or ND W24ESR-U, Ⓝ NGK B8ES or ND W24ES-U
Cylinder numbering method			Left to right, 1-2-3-4
Firing order			1-2-4-3
Valve timing:			
Inlet		Open	40° BTDC
		Close	80° ABDC
		Duration	300°
Exhaust		Open	80° BBDC
		Close	40° ATDC
		Duration	300°
Lubrication system			Forced lubrication (wet supm with cooler)

Items		ZX1100-A2
Engine oil:		
Grade		SE class
Viscosity		SAE10W40, 10W50, 20W40, or 20W50
Capacity		3.7 L
Drain Train:		
Primary reduction system:		
Type		Gear
Reduction ratio		1.732 (97/56)
Clutch type		Wet multi disc
Transmission:		
Type		5-speed, constant mesh, return shift
Gear ratio:	1st	2.642 (37/14)
	2nd	1.833 (33/18)
	3rd	1.421 (27/19)
	4th	1.173 (27/23)
	5th	1.040 (26/25)
Final drive system:		
Type		Chain drive
Reduction ratio		2.733 (41/15), Ⓐ 2.666 (40/15)
Overall drive ratio		4.923 @Top gear, Ⓐ 4.803
Frame:		
Type		Tubular, double cradle
Caster (rake angle)		27.5°
Trail		116 mm
Front Tire:		
Type		Tubeless
Size		110/90 V 18
Rear Tire:		
Type		Tubeless
Size		130/90 V 17
Front suspension:		
Type		Telescopic fork (pneumatic)
Wheel travel		150 mm
Brake type:		
Front		Dual disc
Rear		Single disc
Electrical Equipment:		
Battery		12 V 16 AH
Headlight:		
Type		Semi-Sealed beam
Bulb		12 V 60/55 W (quartz-halogen)
Tail/brake light		12 V 5/21 W x 2, Ⓒa Ⓒ ⓈA 12 V 8/27 W x 2
Alternator:		
Type		Three-phase AC
Rated output		20 A @5,000 r/min (rpm), 14 V
Voltage regulator:		
Type		Short-circuit

Ⓤ : US model
Ⓒ : Canadian model
ⓈA : South African model
Ⓢ : Swedish model
Ⓖ : West German model
Ⓝ : Norwegian model
Ⓒa : California model
Ⓐ : Australian model

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 ZX1100A.

Setting Before Ride

Tires:

Refer to pp. 1-7 and 1-8, noting the following.

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 – 1770 N (97.5 – 180 kg, 215 – 397 lb) load	245 kPa (2.5 kg/cm², 36 psi

Rear Shock Absorber:

Refer to p. 1-9, noting the following.

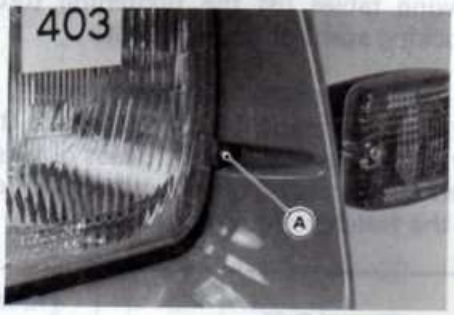
"NOTE"

○*The recommended air pressure is 147 kPa (1.5 kg/cm², 21 psi) for one rider with no accessories.*

Headlight:

Refer to p. 1-10, noting the following.

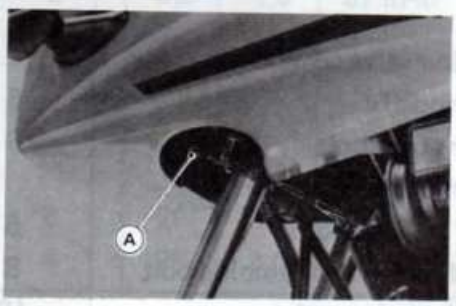
Horizontal Adjustment



A. Adjusting screw for horizontal adjustment

Vertical Adjustment

- Loosen the lower headlight bolt.
- Adjust the headlight vertically.
- Tighten the lower headlight bolt.



A. Lower Headlight Bolt

Tire Air Pressure (Other than US and Canada)

	Load	Tire Air Pressure	
		Under 210 kph (130 mph)	Over 210 kph (130 mph)
Front	Up to 1470 N (150 kg, 331 lb)	196 kPa (2.00 kg/cm², 28 psi)	221 kPa (2.25 kg/cm², 32 psi)
	1470 – 1770 N (150 – 180 kg, 331 – 397 lb)	221 kPa (2.25 kg/cm², 32 psi)	
Rear	Up to 1470 N (150 kg, 331 lb)	221 kPa (2.25 kg/cm², 32 psi)	284 kPa (2.90 kg/cm², 41 psi)
	1470 – 1770 N (150 – 180 kg, 331 – 397 lb)	245 kPa (2.50 kg/cm², 36 psi)	

Torque and Locking Agent

The following tables list the tightening torque for the major fasteners 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 liquid 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 Sytem 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:						
Engine side	6	4	9.8	1.0	87 in-lb	–
Cooler side	6	4	7.8	0.80	69 in-lb	–
Engine Mounting:						
Engine mounting bolts: Front	10	2	39	4.0	29	–
Rear	12	1	39	4.0	29	–
Engine mounting bracket bolts	8	4	24	2.4	17.5	–
Top End:						
Air suction valve cover bolts (US model)	6	8*	9.8	1.0	87 in-lb	–
Breather cover bolt	8	1	5.9	0.60	52 in-lb	–
Camshaft bearing cap bolts	6	16	17	1.7	12.0	S
Camshaft chain anti-jamping bolt	8	1	–	–	–	A
Camshaft chain tensioner cap	18	1	25	2.5	18	–
Camshaft sprocket bolts	6	4	15	1.5	11.0	A
Cylinder head: Bolts	6	2	12	1.2	104 in-lb	S
Nuts	10	12	39	4.0	29	S
Cylinder head cover bolts	6	24*	9.8	1.0	87 in-lb	–
Spark plugs	14	4	27	2.8	20	–
Studs:						
Cylinder head	8	8	–	–	–	A
Throttle valve holder bolts	6	8	–	–	–	A

*US model: The four out of these bolts are used to mount both the air suction valve covers a
cylinder head cover.

Engine Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Left Side:						
Engine sprocket nut	20	1	98	10.0	72	–
Alternator rotor bolt	12	1	155	16.0	115	–
Alternator stator bolts	6	3	9.8	1.0	87 in-lb	A
Neutral switch	12	1	15	1.5	11	–
Shift pedal return spring pin	8	1	20	2.0	14.5	A
Starter clutch bolts	8	3	39	4.0	29	–
Starter motor retaining bolts	6	2	–	–	–	A
Starter motor terminal nut	6	1	4.9	0.50	43 in-lb	–
Right Side:						
Clutch hub nut	20	1	120	12.0	87	–
Clutch spring bolts	6	6	8.8	0.90	78 in-lb	–
Right engine cover bolts	6	6	–	–	–	A
Timing rotor mounting bolt	8	1	25	2.5	18.0	–
Bottom Side:						
Engine drain plug	12	1	29	3.0	22	–
Oil filter mounting bolt	20	1	20	2.0	14.5	–
Oil pan bolts	6	17	9.8	1.0	87 in-lb	–
Oil pressure relief valve	12	1	15	1.5	11.0	A
Oil pump mounting bolts	*6*	*3*	*7.8*	*0.80*	*69 in-lb*	–
Shift drum bearing holder plate bolts	6	2	9.8	1.0	87 in-lb	A
Shift drum pin plate screw	6	1	–	–	–	A
Internal Parts:						
Crankcase bolts:						
6 mm dia.	6	21	12	1.2	8.5	A
8 mm dia.	8	8	29	3.0	22	A,S
Crankshaft main bearing cap bolts	8	4	29	3.0	22	S

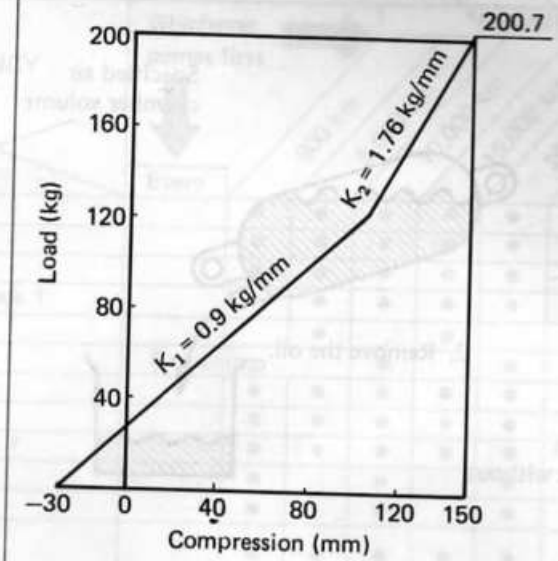
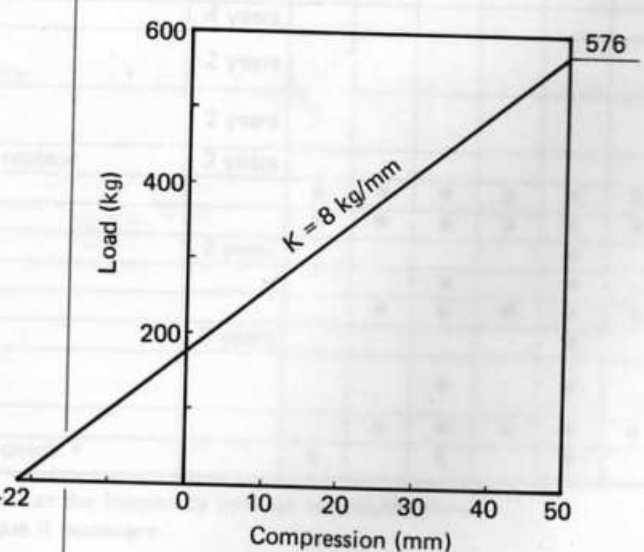
Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Wheels:						
Front axle nut	14	1	64	6.5	47	–
Front axle clamp nut	8	1	20	2.0	14.5	–
Rear axle nut	18	1	98	10.0	72	–
Tire air valve nuts	8	4	1.5	0.15	13 in-lb	–
Chain adjuster clamp bolts	10	2	32	3.3	24	–

(Continued on next page.)

Chassis Parts	Threads Dia. (mm)	Quantity	Torque N-m	Torque kg-m	Torque ft-lb	Remarks
Brakes:						
Air bleed valves	7	7	7.8	0.80	69 in-lb	–
Brake hose banjo bolts	10	9	25	2.5	18.0	–
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	15	1.5	11.0	–
Caliper mounting bolts: Front	10	4	32	3.3	24	–
Rear	10	2	28	2.9	21	–
Disc mounting bolts	8	21	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	30	3.1	22	–
Steering:						
Handlebar clamp bolts	8	2	25	2.5	18.0	–
Handlebar holder mounting bolts	32	2	83	8.5	61	–
Handlebar weight mounting bolts	8	2	–	–	–	A
Steering stem head bolt	14	1	42	4.3	31	–
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	8	6	21	2.1	15.0	–
Front fork drain screws	4	2	–	–	–	G
Front fork top plugs	32	2	23	2.3	16.5	–
Rear shock absorber mounting bolts: Lower	12	1	69	7.0	51	–
Upper	10	1	37	3.8	27	–
Rear shock absorber air valve	8	1	7.8	0.80	69 in-lb	A
Rear shock absorber air hose male pipe	10	1	12	1.2	8.5	A
Rear sprocket nuts	10	6	39	4.0	29	–
Swing arm pivot shaft clamp bolts	10	2	34	3.5	25	–
Swing arm pivot shaft nut	16	1	98	10.0	72	–
Uni-trak link pivot bolts	12	1	69	7.0	51	–
	16	1	69	7.0	51	–
Electrical Equipments:						
Turn signal mounting nuts (rear)	10	2	13	1.3	9.5	–

Service Data

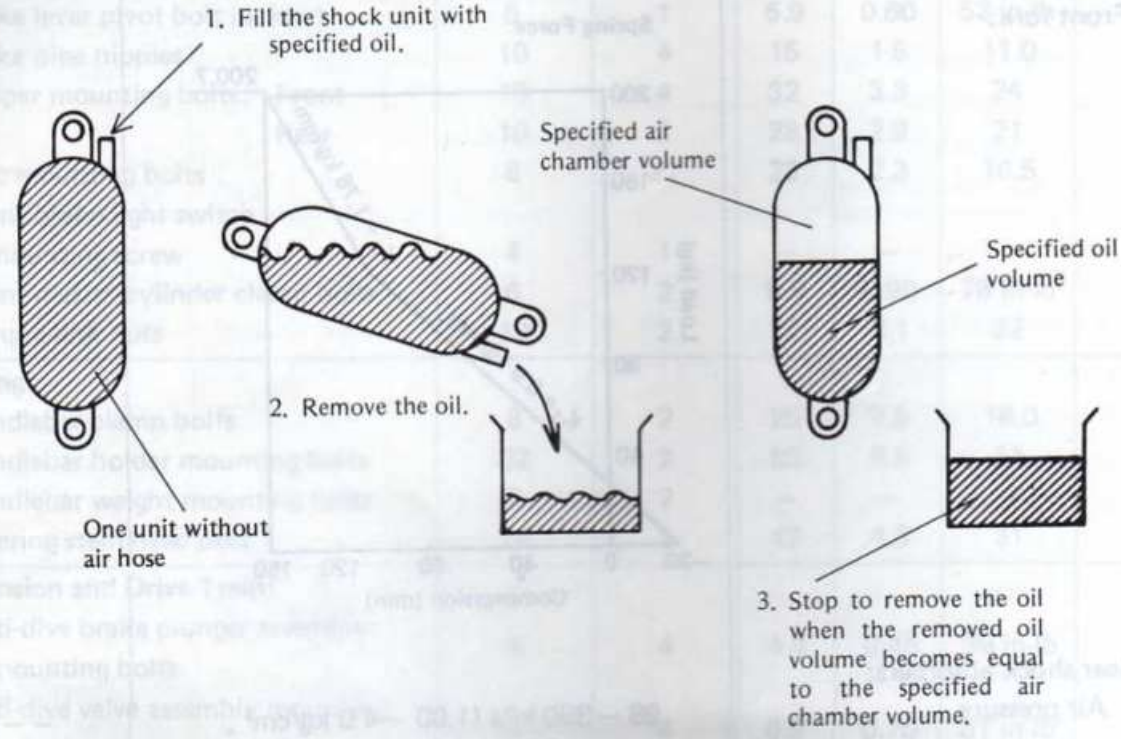
Refer to pp. 1-15 through 1-19, noting the following.

Item	Standard	Service Limit
Suspensions:		
Front fork:	**Spring Force** 	
Rear shock absorbers:		
Air pressure	98 – 390 kPa (1.00 – 4.0 kg/cm², 14 – 57 psi)	– – –
Air chamber capacity	240 mL	– – –
Oil viscosity	SAE5W	– – –
Oil capacity	292 mL	– – –
	Shock Absorber Spring Force 	

Rear Shock Absorbers

Adjusting of Shock Absorber Oil Capacity

Procedures for Measuring Oil Capacity



Scheduled Maintenance

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.**

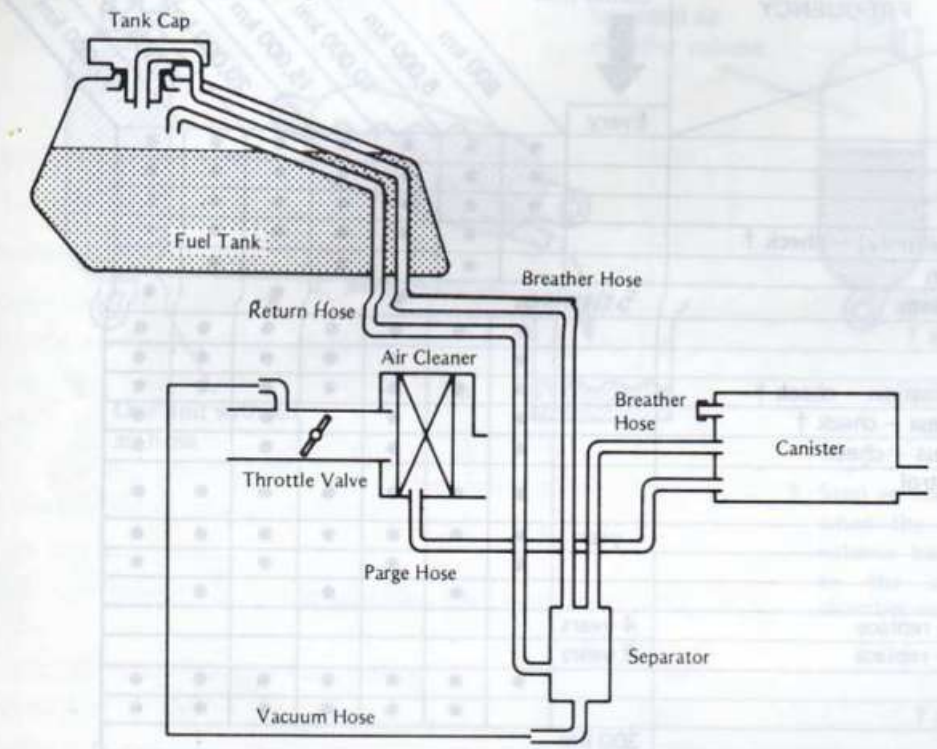
OPERATION \ FREQUENCY	Whichever comes first — Every	*ODOMETER READING 800 km	5,000 km	10,000 km	15,000 km	20,000 km	25,000 km	30,000 km
Spark plug – clean		•	•	•	•	•	•	•
Spark plug – check †		•	•	•	•	•	•	•
Valve clearance – check †		•	•	•	•	•	•	•
Air suction valve (US model only) – check †			•	•	•	•	•	•
Air cleaner element – clean			•	•	•	•	•	•
Air cleaner element – replace	5 cleanings		•		•		•	
Throttle grip play – check †		•		•		•		•
Idle speed – check †		•	•	•	•	•	•	•
Engine vacuum synchronization – check †		•	•	•	•	•	•	•
Cylinder head bolt tightness – check †		•	•	•	•	•	•	•
Cylinder head nut tightness – check †		•		•		•		•
Evaporative emission control system (Ca) – check †		•		•		•		•
Engine oil – change		•	•	•	•	•	•	•
Oil filter – replace	year	•	•	•	•	•	•	•
Fuel filter – replace		•		•		•		•
Low-pressure fuel hose – replace	4 years		•		•		•	
High-pressure fuel hose – replace	2 years							
Clutch – adjust		•	•	•	•	•	•	•
Drive chain wear – check †			•	•	•	•	•	•
Drive chain – lubricate	300 km							
Drive chain slack – check †	800 km							
Brake lining wear – check †			•	•	•	•	•	•
Brake fluid level – check †	month	•	•	•	•	•	•	•
Brake fluid – change +	year			•		•		•
Brake hose and pipe – replace	4 years							
Anti-dive brake plunger assembly – replace	2 years							
Master cylinder cup and dust seal – replace	2 years							
Caliper piston seal and dust seal – replace	2 years							
Brake light switch – check †		•	•	•	•	•	•	•
Steering – check †		•	•	•	•	•	•	•
Steering stem bearing – lubricate	2 years							
Front fork oil – change								
Tire wear – check †			•		•		•	
Wheel bearing – lubricate	2 years		•	•	•	•	•	•
Swing arm pivot, unitrak linkage – lubricate								
General lubrication – perform			•		•		•	
Nut, bolt, and fastener tightness – check †		•	•	•	•	•	•	•

*: For higher odometer readings, repeat at the frequency interval established here.
†: Replace, add, adjust, clean, or torque if necessary.
(Ca) : California vehicle only.

Evaporative Emission Control System (California Vehicle)

The Evaporative Emission Control System routes fuel vapors from the fuel system into the running engine or stores the vapors in a canister when the engine is stopped. Although no adjustments are required, a thorough visual inspection must be made at the intervals specified by the Periodic Maintenance Chart.

Evaporative Emission Control System



Scheduled Maintenance:

Inspection

- Check that the hoses are securely connected.
- Replace any kinked, deteriorated, or damaged hoses.

Non-scheduled Maintenance

Evaporative Emission Control System (California Vehicle)

Non-scheduled Maintenance:

Liquid/Vapor Separator:

Separator Inspection

- Disconnect the hoses from the liquid/vapor separator, and remove the separator from the motorcycle.
- Visually inspect the separator for cracks and other damage.

★If the separator has any cracks or severe damage, replace it with a new one.

Separator Test

- Connect the hoses to the separator, and install the separator on the motorcycle.
- Disconnect one of the breather hoses from the separator, and inject about 20 mL of gasoline into the separator through the hose fitting.
- Disconnect the fuel return hose from the fuel tank.
- Run the open end of the return hose into the container level with the tank top.
- Start the engine, and let it idle.

★If the gasoline in the separator comes out of the hose, the separator works well. If it does not, replace the separator with a new one.

Canister:

Canister Inspection

- Remove the canister, and disconnect the hoses from the canister.
- Visually inspect the canister for crackes and other damage.
- ★If the canister has any cracks or severe damage, replace it with a new one.

NOTE

○*The canister is designed to work well through out the motorcycle's life without any maintenance, if it is used under normal conditions.*

CAUTION

○**If gasoline, solvent, water or any other liquid enters the canister, the canister's vapor absorbing capasity is greatly reduced, and there is no way to return it to the original level. In that case, replace the canister with a new one.**

Fuel Tank and Cap:

Cap Inspection

- Visually inspect the gasket on the tank cap for any damage.
- ★Replace the gasket if it is damaged.
- Blow the air vent in the tank cap free with compressed air.

Tank Inspection

- Remove the hoses from the fuel tank, and open the tank cap.
- Check to see if the breather and fuel return pipes in the tank are not clogged.
- ★If they are clogged, blow them out with compressed air.

Disassembly

Crankcase Split

Refer to pp. 6-44 through 6-46 of the Base Manual, noting the following.

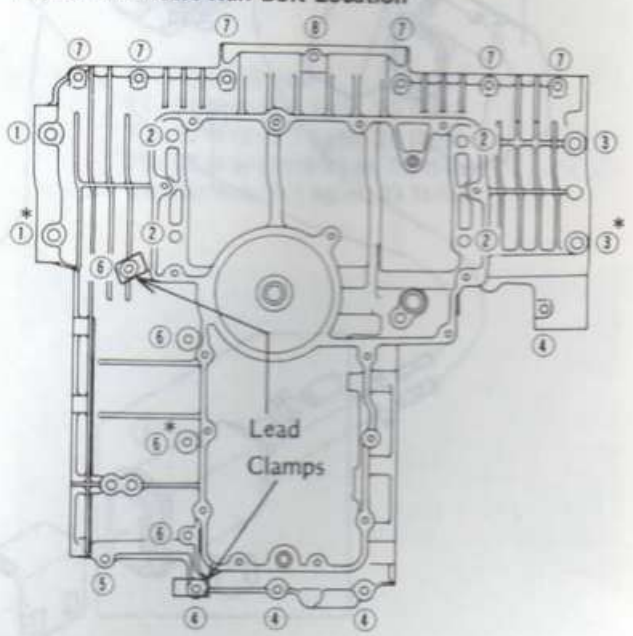
Tightening Torque

①~③	**29 N-m (3.0 kg-m, 22 ft-lb)**
④~⑧	**12 N-m (1.2 kg-m, 8.5 ft-lb)**

Crankshaft main bearing:

29 N-m (3.0 kg-m, 43 ft-lb)

Lower Crankcase-Half Bolt Location



*Apply a non-permanent locking agent to the threads of these three bolts.

Evaporative Emission Control System (California Vehicle)

Disassembly and Assembly

Removal Note

Removal Note

●When the fuel tank is removed, breather and return hoses should be disconnected from the tank.

Installation Note

●Hold the separator perpendicular to the ground.

●Connect the hoses as shown in the figure. The front hose fitting on the fuel tank is for the fuel return hose, and the rear one is for the breather hose.

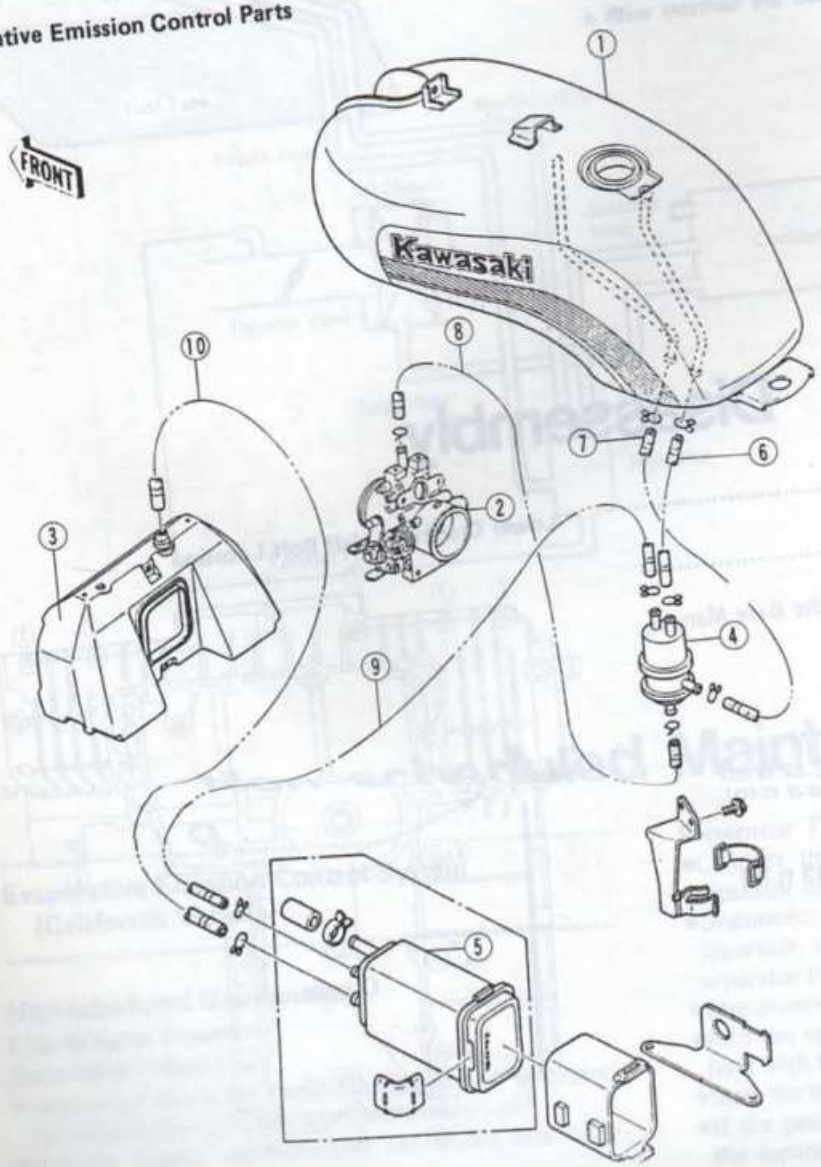
WARNING

○Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes and appliance with a pilot light.

CAUTION

○If gasoline, solvent, water or any other liquid enters the canister, canister's vapor absorbing capacity is greately reduced, and there is no way to recover it to the original level. In that case, replace the canister with a new one.

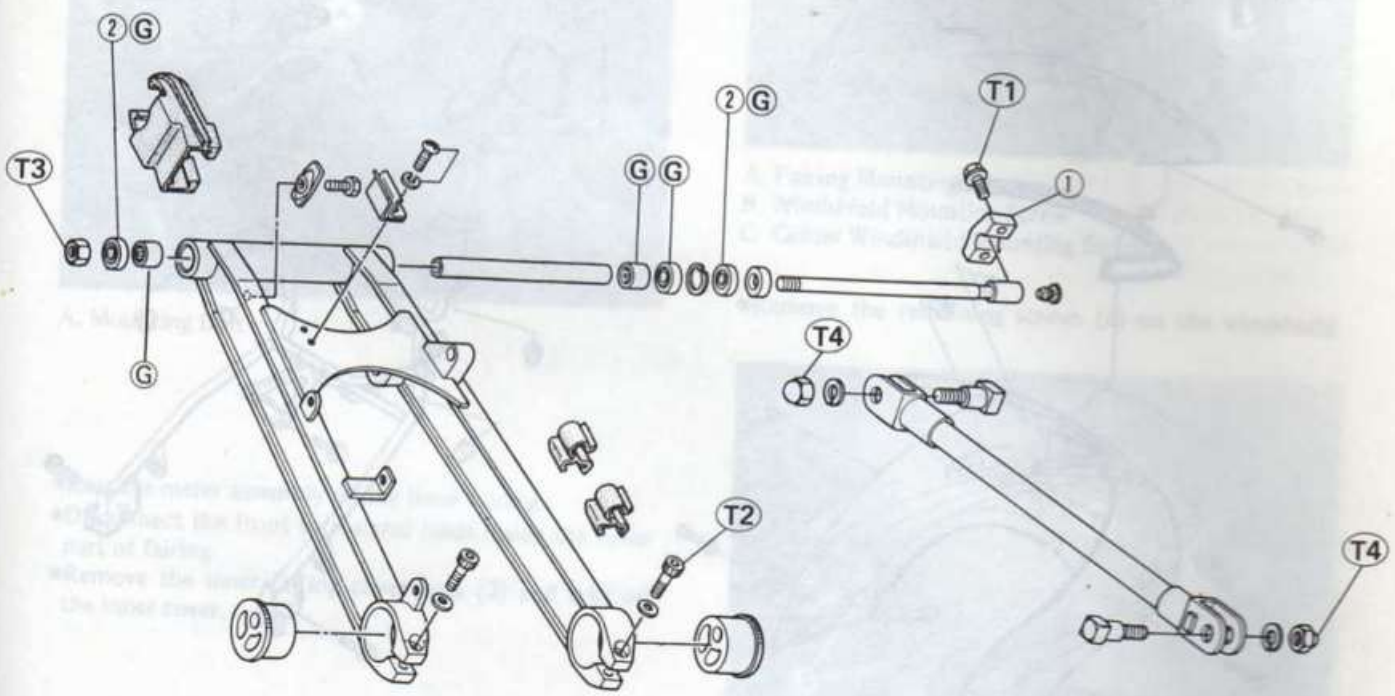
Evaporative Emission Control Parts



1. Fuel Tank
2. Throttle Valve As
3. Air Cleaner
4. Liquid/Vapor Se
5. Canister
6. Breather Hose (B
7. Fuel Return Hos
8. Vacuum Hose (V
9. Breather Hose (B
10. Parge Hose (Gre

Swing Arm

Exploded View

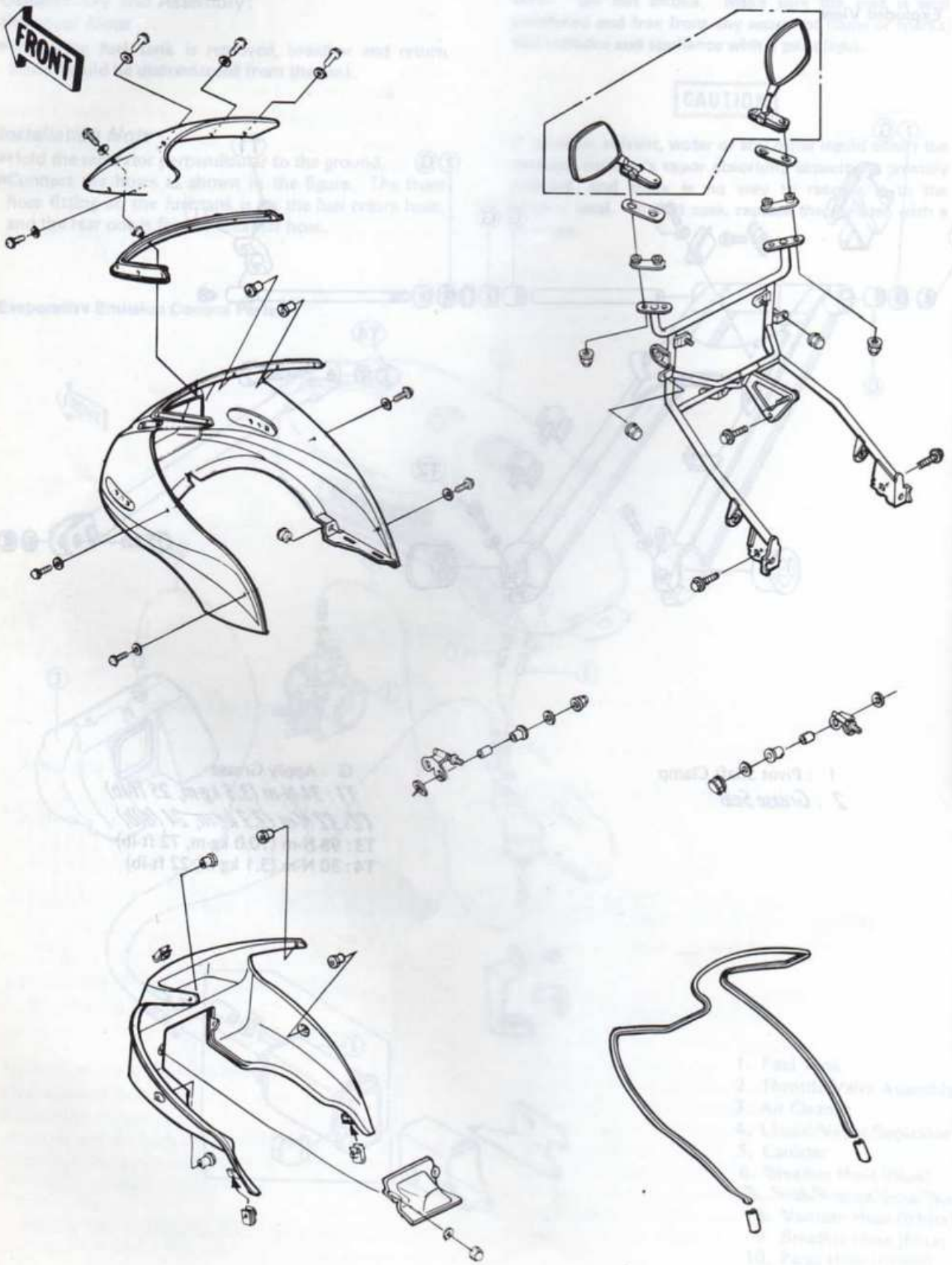


1 : Pivot Shaft Clamp
2 : Grease Seal

G : Apply Grease
T1 : 34 N-m (3.5 kg-m, 25 ft-lb)
T2 : 32 N-m (3.3 kg-m, 24 ft-lb)
T3 : 98 N-m (10.0 kg-m, 72 ft-lb)
T4 : 30 N-m (3.1 kg-m, 22 ft-lb)

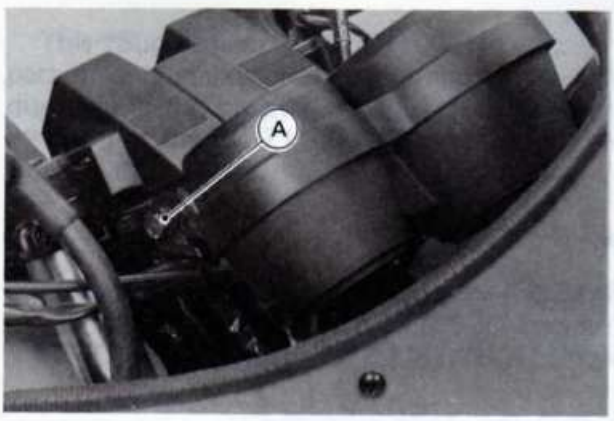
Fairing

Exploded View



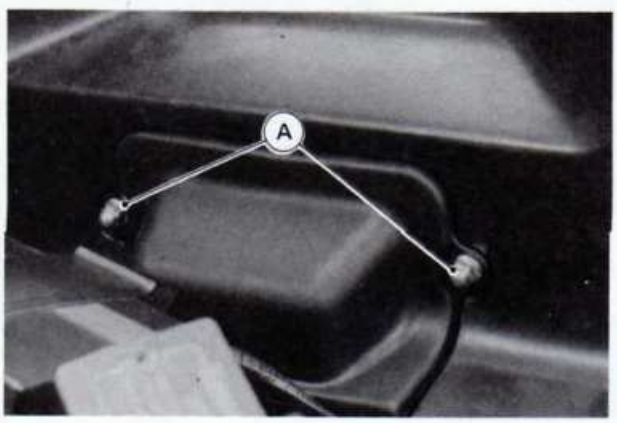
Fairing Removal

•Remove the speed and Tachometer mounting bolts (2) and take off the meter assembly from the steering stem head.



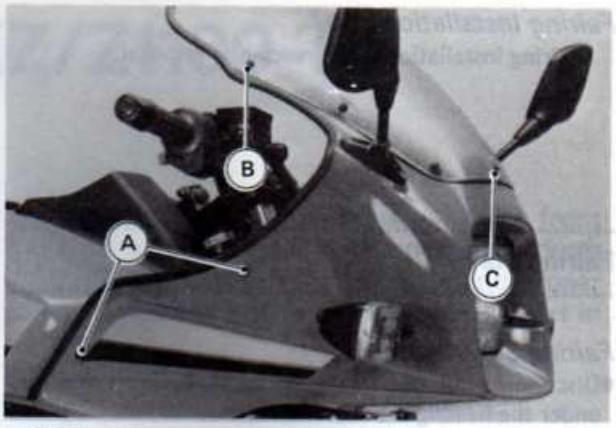
A. Mounting Bolt

•Rest the meter assembly on the inner fairing.
•Disconnect the front turn signal leads inside the lower part of fairing.
•Remove the inner fairing cover nuts (2) and take off the inner cover.



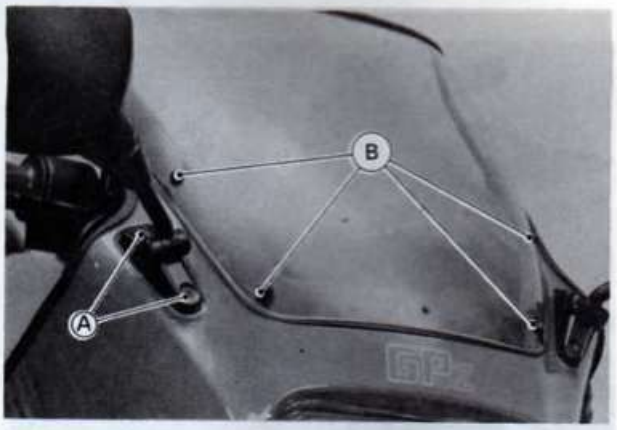
A. Cover Nuts

•In order to take out the rear view mirrors, remove the following screws from the fairing.
  ○Fairing mounting screws (4).
  ○End part of windshield mounting screws (2).
  ○Center windshield mounting screw.
•Slide out the inner fairing from the fairing stay.
•Remove the rear view mirror mounting screws (4) and take off the rear view mirrors.



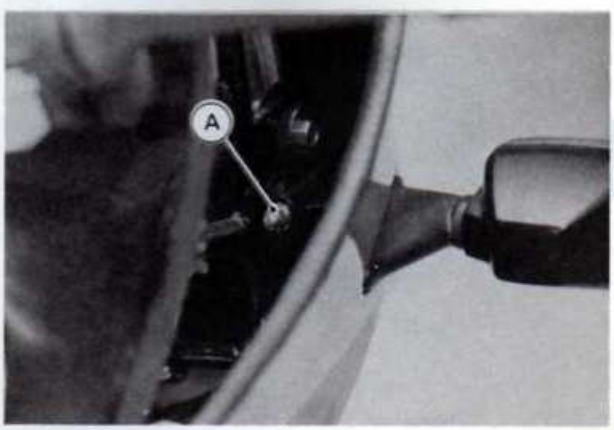
A. Fairing Mounting Screws
B. Windshield Mounting Screw
C. Center Windshield Mounting Screw

•Remove the remaining screws (4) on the windshield.



A. Mirror Mounting Screws
B. Windshield Mounting Screws

•Remove the trimming covering the windshield and take off the windshield.
•Remove nuts (2) from the fairing mounting studs and take off the fairing toward the front, then take off the inner fairing.



A. Nut

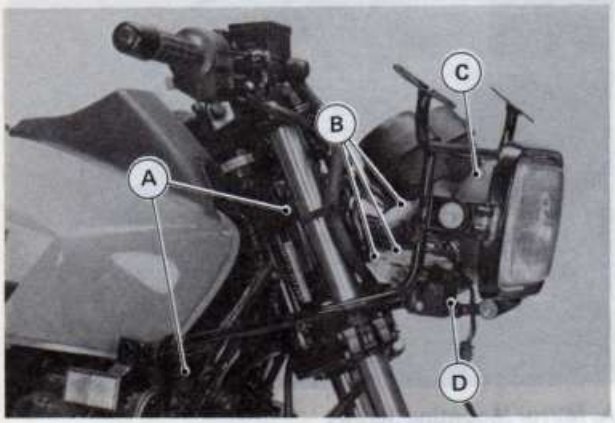
Fairing Installation

Fairing installation is the reverse of removal.

Fairing Stay

Fairing Stay Removal

- Disconnect all the main wiring harness connectors under the headlight body.
- Remove the headlight body and reserve lighting device from the fairing stay.
- Remove the fairing stay mounting bolts (3) and take off the fairing stay.



A. Stay Mounting Bolts
B. Connectors
C. Headlight Body
D. Reserve Lighting Device

Fairing Stay Installation

Fairing stay installation is the reverse of removal.

Supplement -KZ/Z1100-R1

This "Supplement – KZ/Z1100-R1" chapter is designed to be used in conjunction with the front part of this manual (up to the end of the 9th chapter). The maintenance and repair procedures discribed in this chapter are only those that are unique to the KZ/Z1100-R1. Complete and proper servicing of the KZ/Z1100-R1 therefore requires mechanics to read both this chapter and the text in front of this chapter.

NOTE

○*Unless otherwise noted, procedure for KZ/Z1100-R1 are the same as the following models.*
ZX1100-A2 Engine for KZ/Z1100-R1 Engine
KZ/Z1000-R2 Chassis for KZ/Z1100-R1 Chassis

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Z1100R Wiring Diagram (European) 10-13

Model Identification

KZ1100-R1 Left Side View:



KZ1100-R1 Right Side View:



Specifications

Items			KZ/Z1100-R1
Dimensions:			
Overall length			2,265 mm, Ⓒ Ⓢ 2,240 mm
Overall width			785 mm
Overall height			1,240 mm
Wheelbase			1,540 mm
Road clearance			140 mm
Seat height			785 mm
Dry weight			2,330 N (238 kg), Ⓒ 2,320 N (237 kg)
Curb weight:	Front		1,210 N (123 kg), Ⓒ 1,200 N (122 kg)
	Rear		1,330 N (136 kg), Ⓒ 1,330 N (136 kg)
Fuel tank capacity			21.4 L
Performance:			
Climbing ability			30°
Braking distance			12.5 m from 50 km/h
Minimum turning radius			2.5 m
Engine			
Type			4-stroke, DOHC, 4-cylinder
Cooling system			Air cooled
Bore and stroke			72.5 x 66.0 mm
Displacement			1,089 mL
Compression ratio			9.5
Maximum horsepower			83.8 kW (114 PS) @8,500 r/min (rpm), Ⓖ 73.6 kW (100 PS) @8,500 r/min (rpm)
Maximum torque			100 N-m (10.2 kg-m, 73.8 ft-lb) @7,000 r/min (rpm), Ⓖ 83.4 N-m (8.5 kg-m, 61.5 ft-lb) @6,500 r/min (rpm)
Carburetion system			Mikuni carburetors, BS34 x 4
Starting system			Electric starter
Ignition system			Battery and coil (transistorized)
Timing advance			Electronically advanced
Ignition timing			From 10° BTDC @1,000 r/min (rpm) to 37° BTDC @3,400 r/min (rpm)
Spark plug			NGK BR8ES or ND W24ESR-U, Ⓝ Ⓢ NGK B8ES or ND W24ES-U
Cylinder numbering method			Left to right, 1-2-3-4
Firing order			1-2-4-3
Valve timing:	Inlet	Open	40° BTDC
		Close	80° ABDC
		Duration	300°
	Exhaust	Open	80° BBDC
		Close	40° ATDC
		Duration	300°
Lubrication sytem			Forced lubrication (wet sump with cooler)

Ⓒ : Canadian model
Ⓖ : West German model
Ⓢ : South African model
Ⓝ : Norwegian model

Items	KZ/Z1100-R1
Engine oil:	
Grade	SE class
Viscosity	SAE10W40, 10W50, 20W40, or 20W50
Capacity	3.7 L
Drive Train:	
Primary reduction system:	
Type	Gear
Reduction ratio	1.732 (97/56)
Clutch type	Wet multi disc
Transmission:	
Type	5-speed, constant mesh, return shift
Gear Ratios: 1st	2.642 (37/14)
2nd	1.833 (33/18)
3rd	1.421 (27/19)
4th	1.173 (27/23)
5th	1.040 (26/25)
Final drive system:	
Type	Chain drive
Reduction ratio	2.733 (41/15)
Overall drive ratio	4.923 @Top gear
Frame:	
Type	Tubular, double cradle
Caster (rake angle)	28°
Trail	114 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	145 mm
Rear suspension:	
Type	Swing arm
Wheel travel	100 mm
Brake type:	
Front	Dual disc
Rear	Single disc
Electrical Equipment:	
Battery	12 V 18 AH
Headlight:	
Type	Semi-Sealed beam
Bulb	12 V 60/55 W (quartz-halogen)
Trail/brake light	12 V 5/21 W x 2, Ⓒ Ⓢ Ⓐ 12 V 8/27 W x 2
Alternator:	
Type	Three-phase AC
Rated output	20 A @5,000 r/min (rpm), 14 V
Voltage regulator:	
Type	Short-circuit

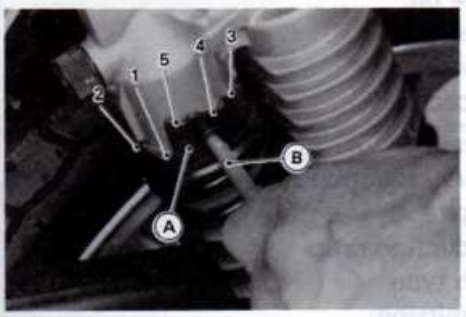
Setting Before Ride

Brake Pedal:

Refer to pp. 4-8 and 4-9 of the Base Manual, noting the following.

Brake Pedal Position

13 – 17 mm below from top of footpeg



A. Adjusting Sleeve B. Screwdriver Bit

Tires:

Refer to p. 1-7, noting the following.

Front	221 kPa (2.25 kg/cm², 32 psi) © 196 kPa (2.00 kg/cm², 28 psi)	
Rear	245 kPa (2.50 kg/cm², 36 psi)	
	Over 210 kph (130 mph)	284 kPa (2.90 kg/cm², 41 psi)
	© Up to 956 N (97.5 kg, 215 lb) load	221 kPa (2.25 kg/cm², 32 psi)
	© 956 – 1,620 N (97.5 – 165 kg, 215 – 364 lb) load	245 kPa (2.50 kg/cm², 36 psi)

© : Canadian model

Front Fork:

Refer to p. 1-8, noting the following. Anti-Dive adjustment is not apply to KZ/Z1100-R1.

Front Fork Air Pressure

Standard:	49 kPa (0.5 kg/cm², 7.1 psi)
Usable range:	39 – 59 kPa (0.4 – 0.6 kg/cm², 5.7 – 8.5 psi)

Rear Shock Absorbers

Spring Adjustment

The spring adjusting sleeve on each rear shock absorber has 5 positions so that the spring can be adjusted for different road and loading conditions.

If the spring action feels too soft or too stiff, adjust it in accordance with the following table:

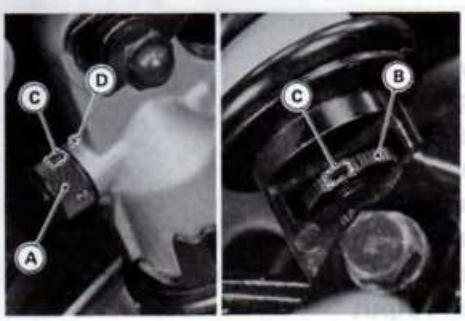
Position	1	2	3	4	5
Spring Action	Stronger →				

WARNING

If both spring adjusting sleeves are not adjusted equally, handling may be impaired and a hazardous condition may result.

Damping Force Adjustment

Both the compression and the rebound damper adjusters on each rear shock absorber have 4 positions so that the damping force can be adjusted for different road and loading conditions. The numbers on the damper adjusters show the setting position of the damper.



A. Damper Adjuster for Compression Action
B. Damper Adjuster for Rebound Action
C. Number D. Mark

If the damper setting feels too soft or too stiff, adjust it in accordance with the following table:

Position	Compression	1	2	3	4
	Rebound	I	II	III	IIII
Damping Force		Larger →			

WARNING

○**If the respective left and right damper adjusters for compression and rebound action are not adjusted equally, handling may be impaired and a hazardous condition may result.**

NOTE

○*when setting the damping force of compression action, turn the damper adjuster until the desired number aligns with the upper mark, and rebound action until it comes front with a click.*

Rear Shock Absorber Setting

To obtain the stable handling or suitable riding condition, adjust the spring force or damping force for different road and loading conditions if necessary. For instance, the initial setting (spring adjusting sleeve position is 1; both damper adjusters positions are 1) is softest and designed for an average-build rider of 68 kg (150 lb) with no passenger and accessories. Ordinarily, the heavier the total load becomes, the harder the suspension should be set.

Headlight:

Refer to p. 1-10.

Special Tools

Refer to pp. 1-13 through 1-17, 9-9, and 10-10 of the Base Manual noting the following exception.

●The special tools listed below are not needed to service the KZ/Z1100-R1.

○Valve lifter holder (P/N 57001-113). See p. 1-13 of the Base Manual.

○Vacuum gauge set (P/N 57001-127). See p. 1-13 of the Base Manual.

○Throttle Sensor Position Checker (P/N 57001-1003). See p. 10-10 of the Base Manual.

Torque and Locking Agent

The following tables list the tightening torque for the major fasteners 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	
Accessories:						
Oil cooler hose fitting bolts:						
Engine side	6	4	9.8	1.0	87 in-lb	–
Cooler side	6	4	7.8	0.80	69 in-lb	–
Engine Mounting:						
Engine mounting bolts: Front	10	2	39	4.0	29	–
Rear	12	1	39	4.0	29	–
Engine mounting bracket bolts	8	4	24	2.4	17.5	–
Top End:						
Breather cover bolt	8	1	5.9	0.60	52 in-lb	–
Camshaft bering cap bolts	6	16	17	1.7	12.0	S
Camshaft chain anti-jamping bolt	8	1	–	–	–	A
Camshaft chain tensioner cap	18	1	25	2.5	18	–
Camshaft sprocket bolts	6	4	15	1.5	11.0	A
Cylinder head: Bolts	6	2	12	1.2	104 in-lb	S
Nuts	10	12	39	4.0	29	S
Cylinder head cover bolts	6	24	9.8	1.0	87 in-lb	–
Spark plugs	14	4	27	2.8	20	–
Studs: Crankcase	10	12	–	–	–	A
Cylinder head	8	8	–	–	–	A
Left Side:						
Engine sprocket nut	20	1	98	10.0	72	–
Alternator cover bolts	6	8	–	–	–	A
Alternator rotor bolt	12	1	155	16.0	115	–
Alternator stator bolts	6	3	9.8	1.0	87 in-lb	A
Neutral switch	12	1	15	1.5	11	–
Shift pedal return spring pin	8	1	20	2.0	14.5	A
Starter clutch bolts	8	3	39	4.0	29	A
Starter motor retaining bolts	6	2	–	–	–	A
Starter motor terminal nut	6	1	4.9	0.50	43 in-lb	–

(Continued on next page.)

Engine Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Right Side:						
Clutch hub nut	20	1	125	13.0	94	–
Clutch spring bolts	6	6	8.8	0.90	78 in-lb	–
Right engine cover bolts	6	6	–	–	–	A
Timing rotor mounting bolt	8	1	25	2.5	18.0	–
Bottom Side:						
Engine drain plug	12	1	29	3.0	22	–
Oil filter mounting bolt	20	1	20	2.0	14.5	–
Oil pan bolts	6	17	9.8	1.0	87 in-lb	–
Oil pressure switch	20	1	5.9	0.6	52 in-lb	–
Oil pressure relief valve	12	1	15	1.5	11.0	A
Oil pump mounting bolts	6	3	7.8	0.80	69 in-lb	–
Shift drum bearing holder plate bolts	6	2	9.8	1.0	87 in-lb	A
Shift drum pin plate screw	6	1	–	–	–	A
Internal Parts:						
Crankcase bolts:						
6 mm dia.	6	21	12	1.2	8.5	A
8 mm dia.	8	8	29	3.0	22	A,S
Crankshaft main bearing cap bolts	8	4	29	3.0	22	S

Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Wheels:						
Front axle nut	14	1	64	6.5	47	–
Front axle clamp nut	8	1	20	2.0	14.5	–
Rear axle nut	18	1	98	10.0	72	–
Tire air valve nuts	8	4	1.5	0.15	13 in-lb	–
Brakes:						
Air bleed valves	7	3	7.8	0.80	69 in-lb	–
Brake hose banjo bolts	10	7	25	2.5	18.0	–
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	15	1.5	11.0	–
Caliper mounting bolts: Front	10	4	32	3.3	24	–
Rear	10	2	18	1.8	13	–
Disc mounting bolts	8	21	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	30	3.1	22	–

(Continued on next page.)

Chassis Parts	Threads Dia. (mm)	Quantity	Torque			Remarks
			N-m	kg-m	ft-lb	
Steering:						
Steering stem head bolt	14	1	42	4.3	31	–
Steering stem head clamp bolt	8	1	21	2.1	15	–
Suspension and Drive Train:						
Front fork air valve	8	2	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	8	6	21	2.1	15.0	–
Front fork drain screws	4	2	–	–	–	G
Front fork top plugs	32	2	23	2.3	16.5	–
Rear shock absorber mounting bolts: Lower	10	2	30	3.1	22	–
Upper	12	2	30	3.1	22	–
Rear shock absorber air valve	8	1	7.8	0.80	69 in-lb	A
Rear shock absorber air hose male pipe	10	1	12	1.2	8.5	A
Rear sprocket nut	10	6	39	4.0	29	–
Swing arm pivot shaft clamp bolts	10	2	34	3.5	25	–
Swing arm pivot shaft nut	14	1	98	10.0	72	–
Electrical Equipments:						
Turn signal mounting nuts	10	4	13	1.3	9.5	–

General fastners:

Refer to p. 1-14.

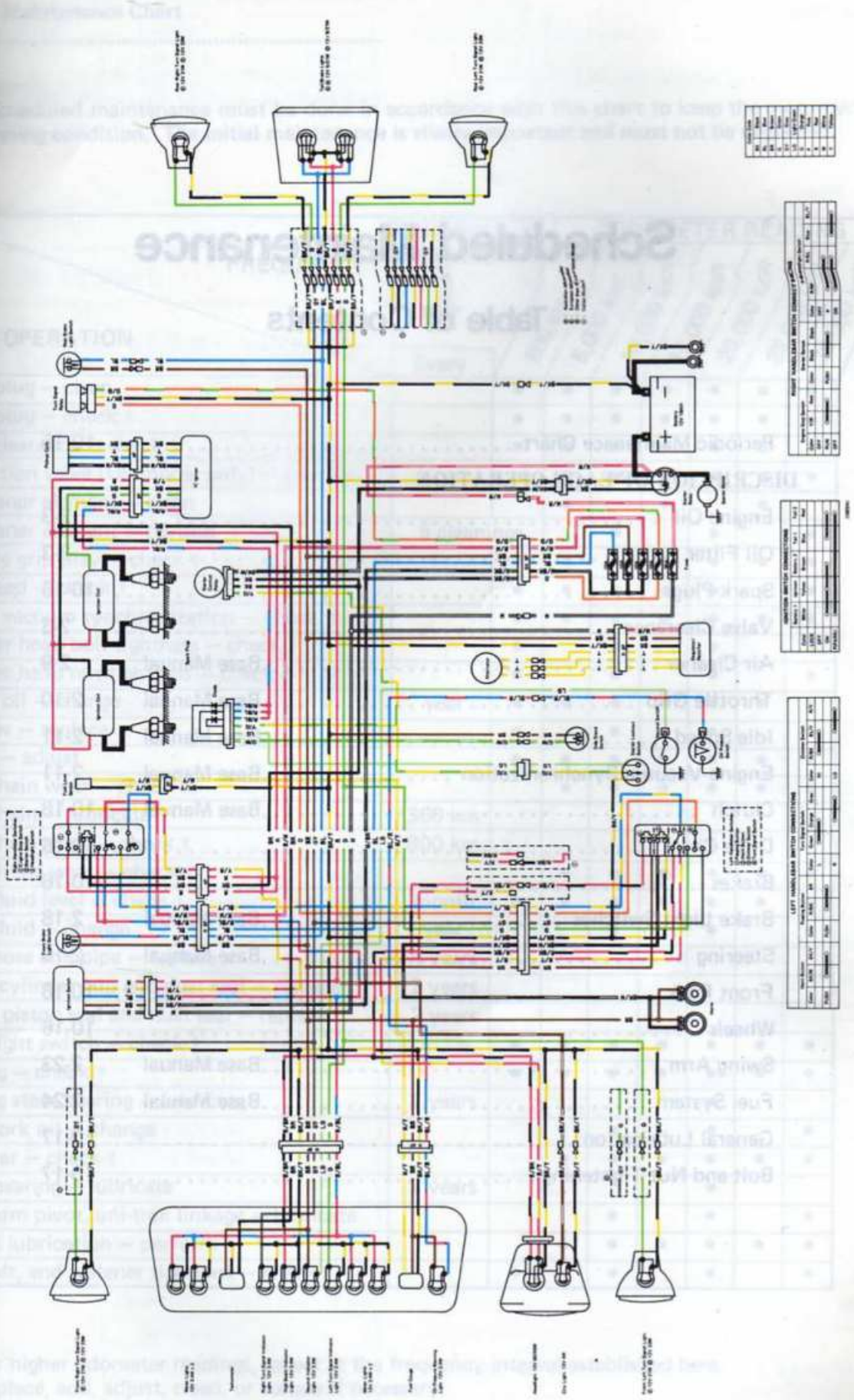
ce Data

r to pp. 1-15 through 1-19 of the Base Manual, noting the following.
essure for Rear Shock Absorber is not applied to KZ/Z1100-R1.

Item		Standard	Service Limit
read Depth:	Front	4.5 mm	1 mm
	Rear	6.9 mm	2 mm (Up to 130 km/h) 3 mm (Over 130 km/h)
rd Tire:	Front	110/90 V18 TUBELESS DUNLOP F17 or BRIDGESTON G515	
	Rear	130/90 V18 TUBELESS DUNLOP K427 or BRIDGESTON G516	
r Pressure		See p. 10-6	
ain:			
Slack		30 – 35 mm	Less than 30 mm or than 40 mm
Pedal Position		13 – 17 mm below from top of footpeg	
ork			
e		SAE10W20 348 ±4 mL (approx 295 mL at oil change)	
el			
led, without main spring)		110 ±2 mm	
ssure: Standard		50 kPa (0.5 kg/cm², 7.1 psi)	39 – 59 kPa (0.4 – 0.6 kg/cm², 5.7 – 5.8 psi)
pring Free Length		543.5 mm	532.5 mm
System:			
Plugs		NGK BR8ES or ND W24ESR-U Ⓝ Ⓢ NGK BR8ES or ND W24ESR	

vegian Model Ⓢ : South African Model

KZ/Z1100-R1 Wiring Diagram (Canada)



Z1100-R1 Wiring Diagram (European)

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	Whichever comes first ➡ / Every ⬇	*ODOMETER READING 800 km	5,000 km	10,000 km	15,000 km	20,000 km	25,000 km	30,000 km
Spark plug – clean		•	•	•	•	•	•	•
Spark plug – check †		•	•	•	•	•	•	•
Valve clearance – check †		•	•	•	•	•	•	•
Air suction valve (US model only) – check †			•	•	•	•	•	•
Air cleaner element – clean			•		•		•	
Air cleaner element – replace	5 cleanings			•		•		•
Throttle grip play – check †		•	•	•	•	•	•	•
Idle speed – check †		•	•	•	•	•	•	•
Engine vacuum synchronization – check †		•	•	•	•	•	•	•
Cylinder head bolt tightness – check †		•		•		•		•
Cylinder head nut tightness – check †		•		•		•		•
Engine oil – change	year	•	•	•	•	•	•	•
Oil filter – replace		•		•		•		•
Clutch – adjust		•	•	•	•	•	•	•
Drive chain wear – check †			•	•	•	•	•	•
Drive chain – lubricate	300 km							
Drive chain slack – check †	800 km							
Brake lining wear – check †			•	•	•	•	•	•
Brake fluid level – check †	month	•	•	•	•	•	•	•
Brake fluid – change	year			•		•		•
Brake hose and pipe – replace	4 years							
Master cylinder cup and dust seal – replace	2 years							
Caliper piston seal and dust seal – replace	2 years							
Brake light switch – check †		•	•	•	•	•	•	•
Steering – check †		•	•	•	•	•	•	•
Steering stem bearing – lubricate	2 years					•		
Front fork oil – change				•		•		•
Tire wear – check †			•	•	•	•	•	•
Wheel bearing – lubricate	2 years					•		
Swing arm pivot, uni-trak linkage – lubricate				•		•		•
General lubrication – perform			•	•	•	•	•	•
Nut, bolt, and fastener tightness – check †		•		•		•		•

* : For higher odometer readings, repeat at the frequency interval established here.
† : Replace, add, adjust, clean, or torque if necessary.

Spark Plug

Refer to p. 2-5 of the Base Manual, noting the following.

Cleaning and Gapping

Spark Plugs

Standard Plug	NGK BR8ES or ND W24ESR-U
	Ⓝ Ⓢ NGK B8ES or ND W24ES-U
Plug Gap	0.7 – 0.8 mm (0.028 – 0.032 in)
Tightening Torque	27 N-m (2.8 kg-m, 20 ft-lb)

Ⓝ : Norwegian model
Ⓢ : South African model

Drive Chain

Refer to p. 2-13 of the Base Manual, noting the following.

Drive Chain Slack

Standard	30 – 35 mm
Too tight or too loose	less than 30 mm or more than 40 mm

Tightening Torque

Rear Axle Nut	98 N-m (10.0 kg-m, 72 ft-lb)
Torque Link Nut	30 N-m (3.1 kg-m, 22 ft-lb)

Drive Chain 20 Link Length

Srandard	*Service Limit*
381.0 – 381.8 mm	389 mm

Brakes

Refer to pp. 2-15 through 2-17 of the Base Manual, noting the following.

Front and Rear Pad Lining Thickness

	Standard	Service Limit
Front	4.85 mm	1 mm
Rear	4.85 mm	1 mm

Front Fork

Refer to pp. 2-20 tp 2-21 of the Base Manual, noting the following.

Fork Oil

Oil Type	SAE10W20
Oil Capacity	
When changing oil	295 mL
After Disassembly and Completely Dry	348 mL
Oil Level*	110 ±2 mm

*Distance from the top of the inner tube, measured with the fork tube fully extended and with the main spring removed.

Wheel

Refer to pp. 2-21 and 2-22 of the Base Manual, noting the following.

Standard Tire

Front	110/90 V 18 Tubeless DUNLOP F-17 or BRIDGESTONE G515
Rear	130/80 V 18 Tubeless DUNLOP K427 or BRIDGESTONE G516

Rim Runout (with tire installed)

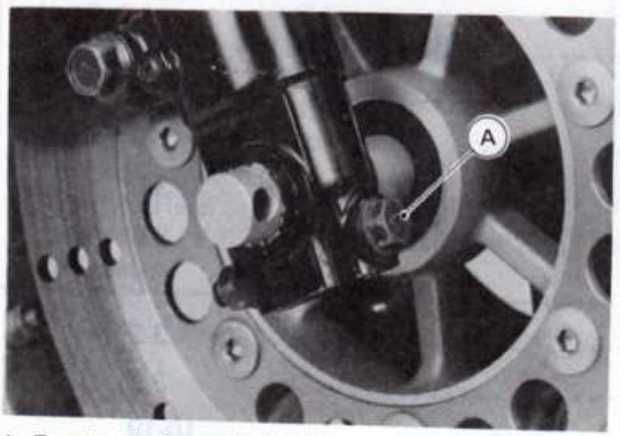
	Service Limit
Axial	0.5 mm
Radial	0.8 mm

General Lubrication

Refer to pp. 2-25 through 2-27 of the Base Manual. Lubrication for tachometer cable is not applied to KZ/Z1100 R1.

Bolt and Nut Tightening

Refer to pp. 2-28 and 2-29 of the Base Manual, noting the following.



A. Front Axle Clamp Bolt

Non-scheduled Maintenance – Engine

Table of Contents

Fuel Tank	Base Manual	3-2
Carburetors		10-19
Camshafts		3-2
Camshaft Chain	Base Manual	3-6
Chain Guides	Base Manual	3-6
Chain Tensioner	Base Manual	3-6
Cylinder Head		3-2
Valves		3-2
Cylinder Block		10-19
Pistons		10-19
Crankshaft	Base Manual	3-18
Connecting Rods	Base Manual	3-18
Clutch		3-4
Transmission	Base Manual	3-22
Shift Mechanism	Base Manual	3-22
Engine Lubrication System		10-19

Carburetor

Refer to pp. 3-2 through 3-5 of the Base Manual, noting the following.

Item		Standard
Carburetor:		
Make & type		Mikuni BS34
Main Jet	No. 1	130
	No. 2	135
	No. 3	135
	No. 4	130
Main air jet		85
Needle Jet		Y-8
Jet needle mark		5B5-3
Pilot Jet		37.5
Pilot Air Jet		350
Starter Jet		50
Pilot screw		1¾ turns out
Service fuel level		3 mm
Float height		18.6 mm
Bore center		32 mm

Cylinder Block
Pistons

Compression Measurement

Refer to p. 3-3, noting the following exception. The fuel injection operation is not applied to KZ/Z1100-R1.

Engine Lubrication System

Refer to pp. 3-25 through 3-27 of the Base Manual, noting the following.

Relief Valve Opening Pressure

430 – 590 kPa (4.4 – 6.0 kg/cm^2, 63 – 85 psi)

Non-scheduled Maintenance – Chassis

Table of Contents

Wheels		4-2
Sprockets	Base Manual	4-8
Brakes	Base Manual	4-8
Steering	Base Manual	4-13
Front Fork		10-21
Rear Shock Absorbers		10-21
Swing Arm	Base Manual	4-18
Drive Chain	Base Manual	4-18

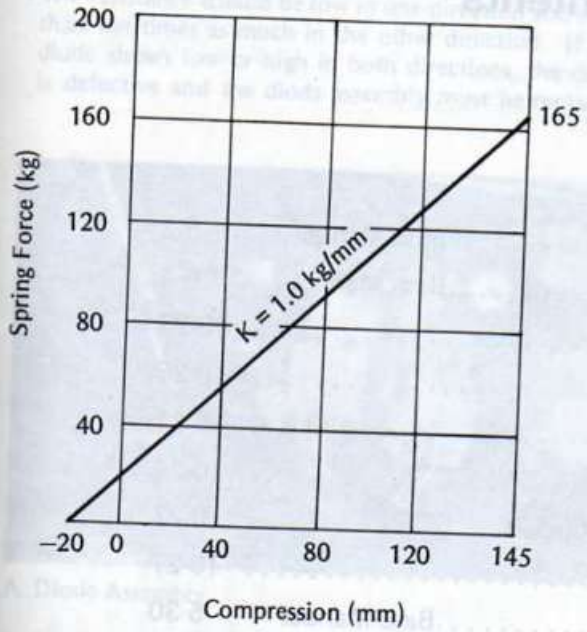
Front Fork

Springs:

Spring Tension

Refer to pp. 4-13 through 4-15 of the Base Manual, noting the following.

Front Fork Spring Force (per one fork leg unit)



Front Fork Air Pressure

Standard:	0.5 kg/cm² (50 kPa, 7.1 psi)
Usable Range:	0.4 – 0.6 kg/cm² (40 – 60 kPa, 5.7 – 8.5 psi)

Fork Spring Free Length

Standard:	543.5 mm
Service Limit:	532.5 mm

Rear Shock Absorbers

Rear Shock Absorber Inspection

Since the rear shock absorbers are sealed units which cannot be disassembled, only external checks of operation are necessary.

- With the shock removed, compress each one and see that the compression stroke is smooth and that there is damping in addition to spring resistance to compression. When the unit is released, the spring should not suddenly snap it to full length. It should extend smoothly with notable damping. When the shock absorber is operated, there should be no oil leakage.

WARNING

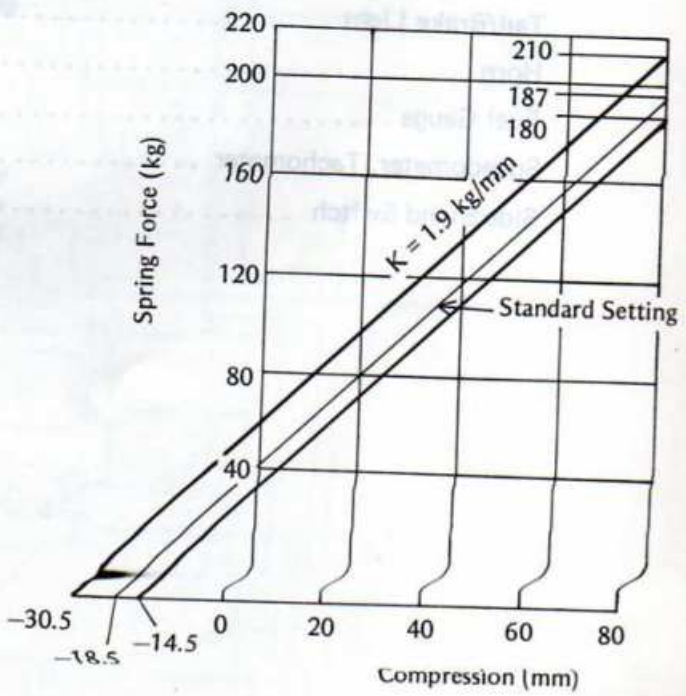
○If both spring adjusting nuts are not adjusted equally, handling may be impaired and a hazardous condition may result.

Scrapping:

WARNING

○Since the rear shock absorber contains nitrogen gas, do not incinerate or disassemble the rear shock absorber.
○Before a rear shock absorber is scrapped, pry open the cap at the bottom of the air chamber and release the nitrogen gas completely through the air valve.

Rear Shock Absorber Spring Force (per one shock absorber unit)



Non-scheduled Maintenance – Electrical

Table of Contents

Battery	Base Manual	5-2
Charging System	Base Manual	5-4
Ignition System		10-23
Electric Starter System		10-25
Ignition Switch		5-11
Headlight System		10-26
Turn Signal Switch Circuit, Hazard Warning Circuit		10-27
Tail/Brake Light		10-27
Horn	Base Manual	5-30
Fuel Gauge		10-27
Speedometer, Tachometer		10-30
Side Stand Switch		5-11

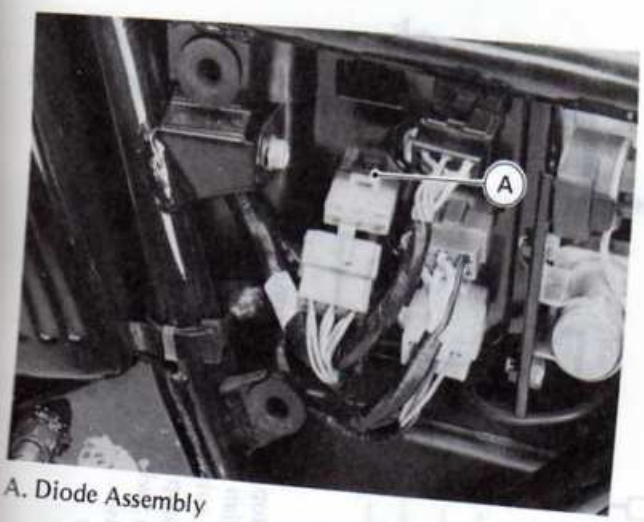
Ignition System

Ignition System Inspection

Refer to pp. 5-8 through 5-11, noting the following.

Diodes Inspection

- Disconnect the diode assembly.
- Zero the ohmmeter, and connect it to each diode terminals to check the resistance in both directions.
- ★The resistance should be low in one direction and more than ten times as much in the other direction. If any diode shows low or high in both directions, the diode is defective and the diode assembly must be replaced.

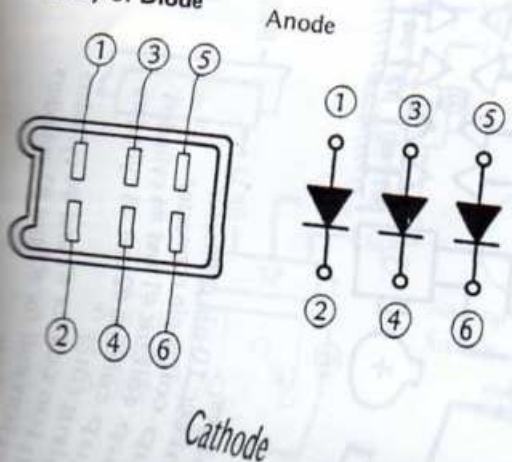


A. Diode Assembly

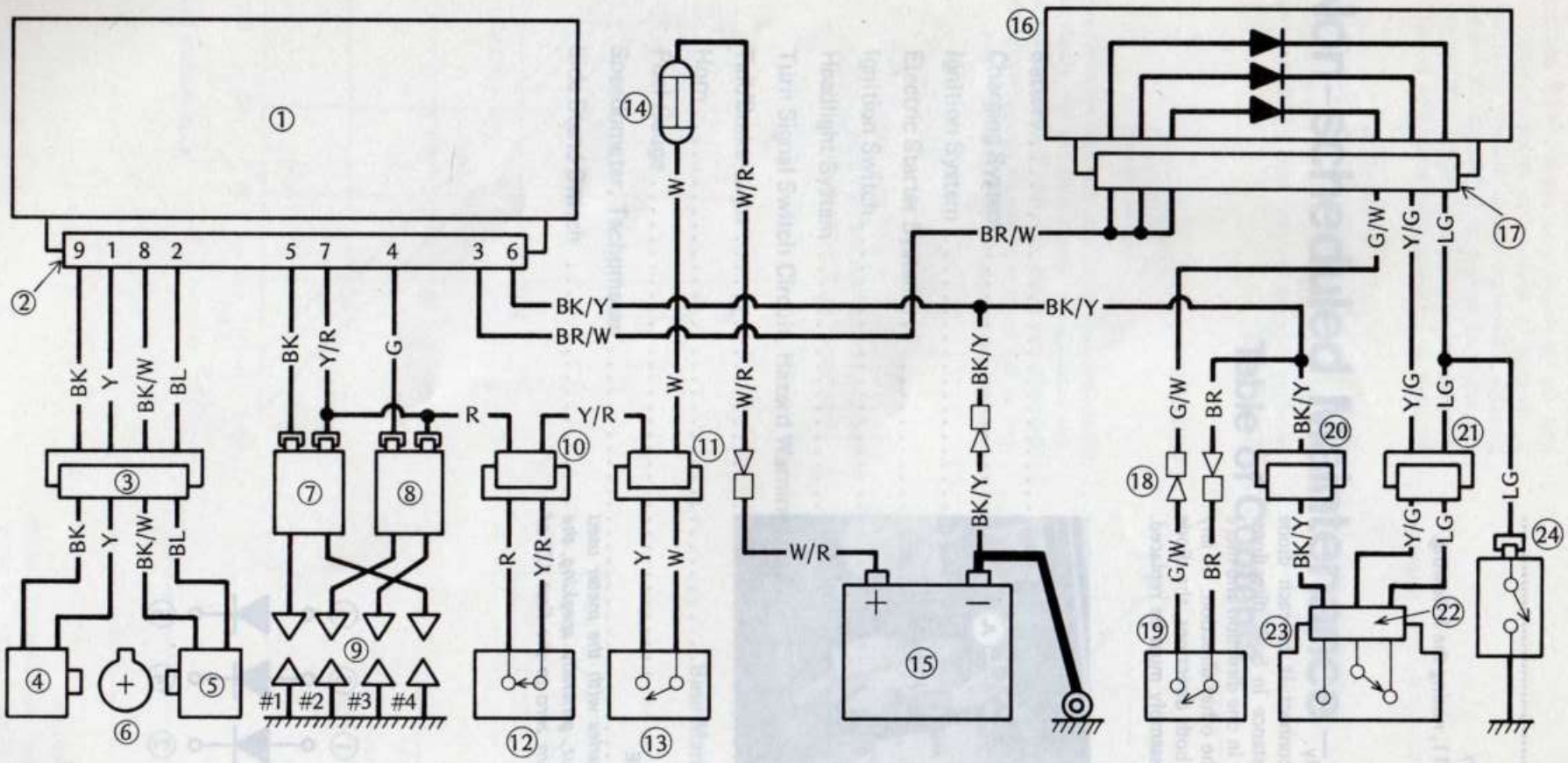
NOTE

○*The actual meter reading varies with the meter used and the individual diode, but, generally speaking, the lower reading should be from zero to the first 1/2 of the scale.*

Polarity of Diode



Ignition System Wiring Diagram



1. IC igniter
2. IC igniter 10-pin connector
3. Pickup coil 4-pin connector
4. Pickup coil for #1 and #4 cylinders
5. Pickup coil for #2 and #3 cylinders
6. Timing rotor
7. Ignition coil for #1 and #4 cylinders
8. Ignition coil for #2 and #3 cylinders
9. Spark plugs
10. Engine stop switch 4-pin connector (Canadian model: 6 pin connector)
11. Ignition switch 6-pin connector
12. Engine stop switch
13. Ignition Switch
14. 30A Fuse
15. Battery
16. Diodes
17. Diode assembly 6-pin connector
18. Side stand switch leads
19. Side stand switch
20. 6-pin connector
21. 6-pin connector
22. Starter lockout switch 3-pin connector
23. Starter lockout switch
24. Neutral switch

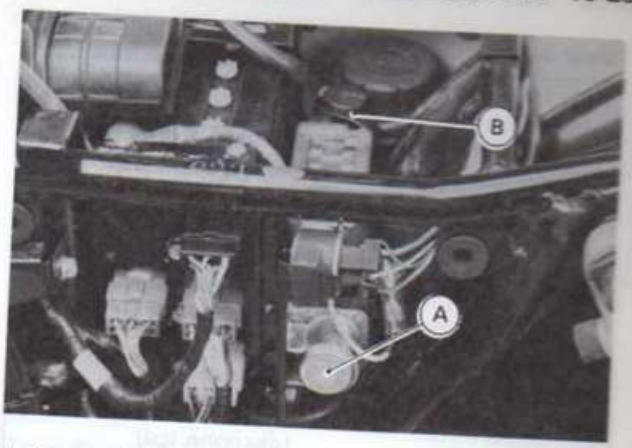
Electric Starter System

Checking Power Supply to Starter Relay

- Remove the left side cover and disconnect the 2-pin connector from the starter relay.
- Using a multimeter, check the voltage of the power supply wires.

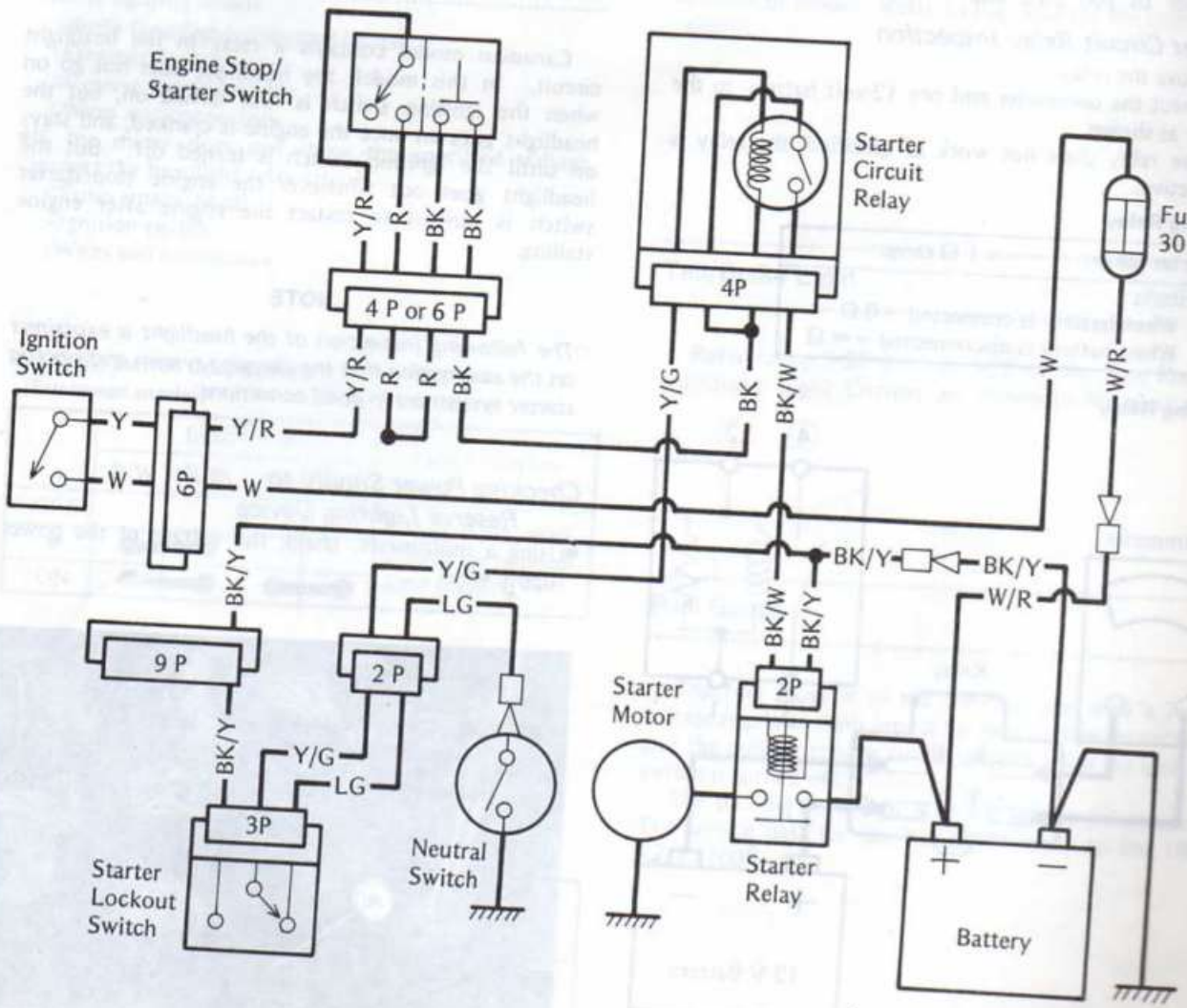
★If the meter does not show the specified reading, inspect the power supply and ground side circuits.

- ○Fuse (main)
- ○Relay (starter circuit)
- ○Switches (ignition, engine stop/starter, starter lockout, and/or neutral)
- ○Wires and connectors



A. Starter Relay B. Starter Circuit Relay

Ignition System Wiring Diagram



Power Supply Inspection

Switch Position:	
Ignition switch	ON
Engine stop/starter switch	ON (Push with RUN)
Starter lockout switch	ON (When clutch lever released are neutral switch ON) or OFF (When clutch lever pulled in and neutral switch OFF)
Meter Connections:	
Meter range	25 V DC
Wire location	Female 2-pin connector (disconnected)
Meter (+) →	Black/white wire
Meter (–) →	Black/yellow wire
Meter Reading:	Battery voltage

★If the meter shows the specified reading, inspect the starter relay and/or starter motor.

Starter Relay Inspection

Refer to pp. 5-15 and 5-16 of the Base Manual.

Starter Circuit Relay Inspection

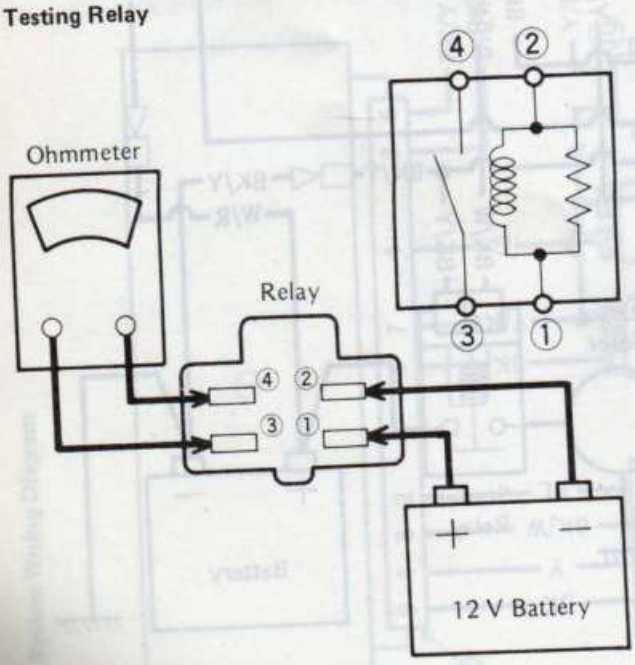
- Remove the relay.
- Connect the ohmmeter and one 12-volt battery to the relay as shown.

★If the relay does not work as specified, the relay is defective.

Testing Relay

Meter range:	x 1 Ω range
Criteria:	
When battery is connected →	0 Ω
When battery is disconnected →	∞ Ω

Testing Relay



① and ② : Relay Coil Terminals
③ and ④ : Relay Switch Terminals

Starter Lockout Switch Inspection

Refer to p. 5-16 of the Base Manual.

Starter Motor Insepction

Refer to p. 10-50 of the Base Manual, noting the following. The starter motor has the permanent magnets in the yoke instead of the field coils.

Brush Spring

Spring tension should be 680 – 920 grams but a spring can be considered serviceable if it will snap the brush firmly into place.

Starter Clutch Inspection

Refer to p. 5-19 of the Base Manual.

Headlight System

Canadian model contains a relay in the headlight circuit. In this model, the headlight does not go on when the ignition switch is first turned on, but the headlight goes on once the engine is cranked, and stays on until the ignition switch is turned off. But the headlight goes out whenever the engine stop/starter switch is pushed to restart the engine after engine stalling.

NOTE

○*The following inspection of the headlight is explained on the assumption that the charging system and electric starter system are in good conditions.*

Checking Power Supply to Reserve Lighting Device

- Using a multimeter, check the voltage of the power supply wires.



A. Brown, 6-pin, Reserve Lighting Device Connector

Power Supply Test

Switch Position:	
Ignition Switch	ON
Meter Connections:	
Meter range	25 V DC
Wire location	Reserve lighting device connector (connected)
Meter (+) →	Blue wire
Meter (–) →	Black/yellow wire
Meter Reading:	OV: Condition 1 – Just after ignition switch is turned on and before starter switch is pushed. Condition 2 – When engine stop/starter switch is pushed. Battery voltage: When engine stop/starter switch is released after starter button is once pushed.

★If the meter shows the specified voltage, inspect the reserve lighting circuit.
- ○Bulbs (headlight, indicator lights)
- ○Dimmer Switch
- ○Reserve lighting device
- ○Wires and connectors

★If the meter does not show the specified voltage, inspect the headlight relay circuit.
- ○Fuses (main, head)
- ○Ignition switch
- ○Wires and connectors

Headlight Switch Connections (European model)

	Lead Color				Lead Location
	R/W	R/BI	BI	BI/Y	
OFF					Green, 6-pin, male connector in headlight housing.
•	●	●			
ON	●	●	●	●	

Dimmer Switch Inspection

Dimmer Switch Connections (Canada)

	Lead Color				Lead Location
	R/BK	BL/Y	R/Y	BL/O	
LO	○—○		○—○		Black 9-pin male connector in headlight housing
HI	○			○	
		○—○			

Dimmer Switch Connections (European model)

	Lead Color			Lead Location
	R/BK	BL/Y	R/Y	
HI	○—○			Black 9-pin male connector in headlight housing
LO		○—○		

Turn Signal Switch Circuit, Hazard Warning Circuit

Refer to p. 5-24 through 5-26 of the Base Manual.
- •Turn signal automatic canceling system is not applied to KZ/Z1100-R1.
- •Canadian model: Refer to Fig. 5-51 for the turn signal circuit.
- •European model: Refer to Fig. 5-52 for the turn signal circuit.

Tail/Brake Light

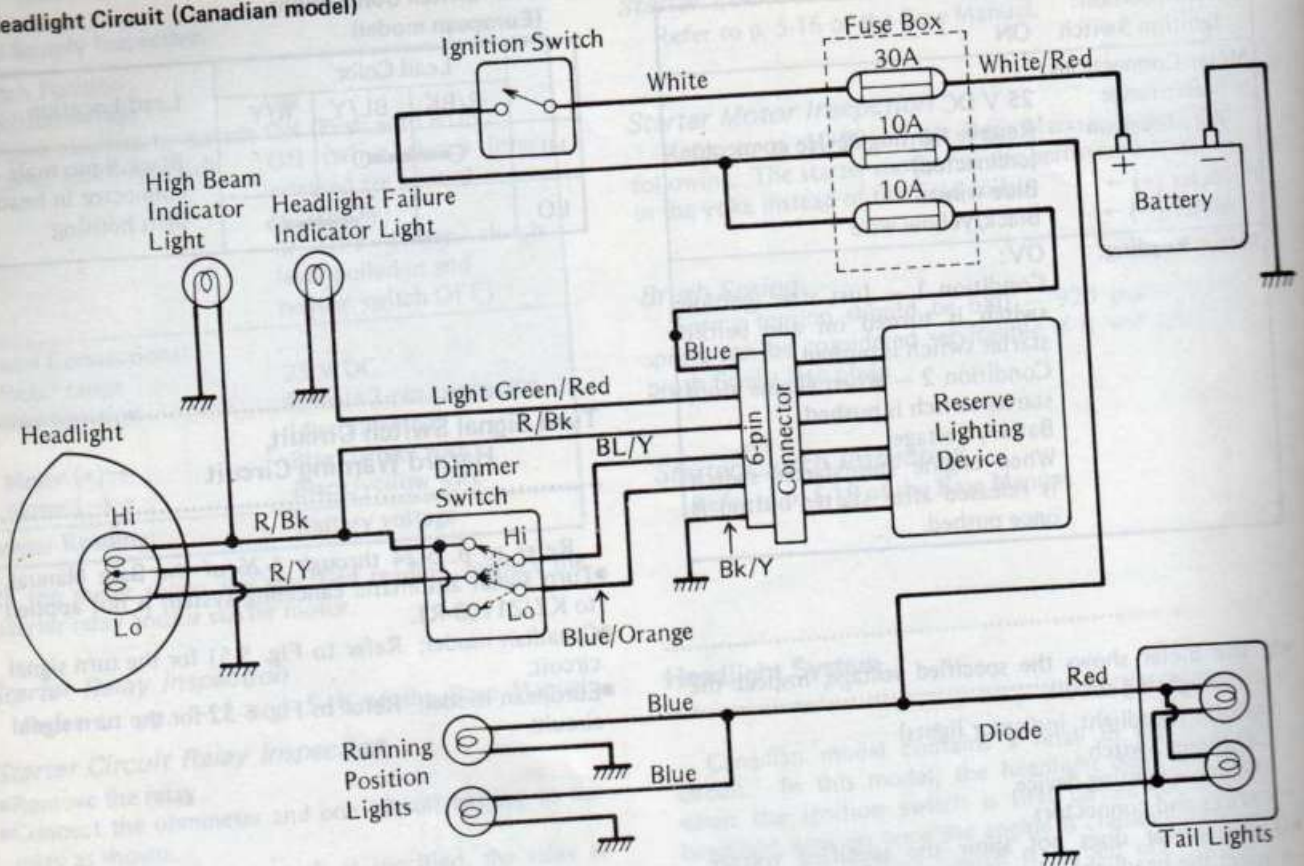
Refer to pp.5-28 through 5-30 of the Base Manual, Tail/Brake Light Circuits are shown in the next page.

Fuel Gauge

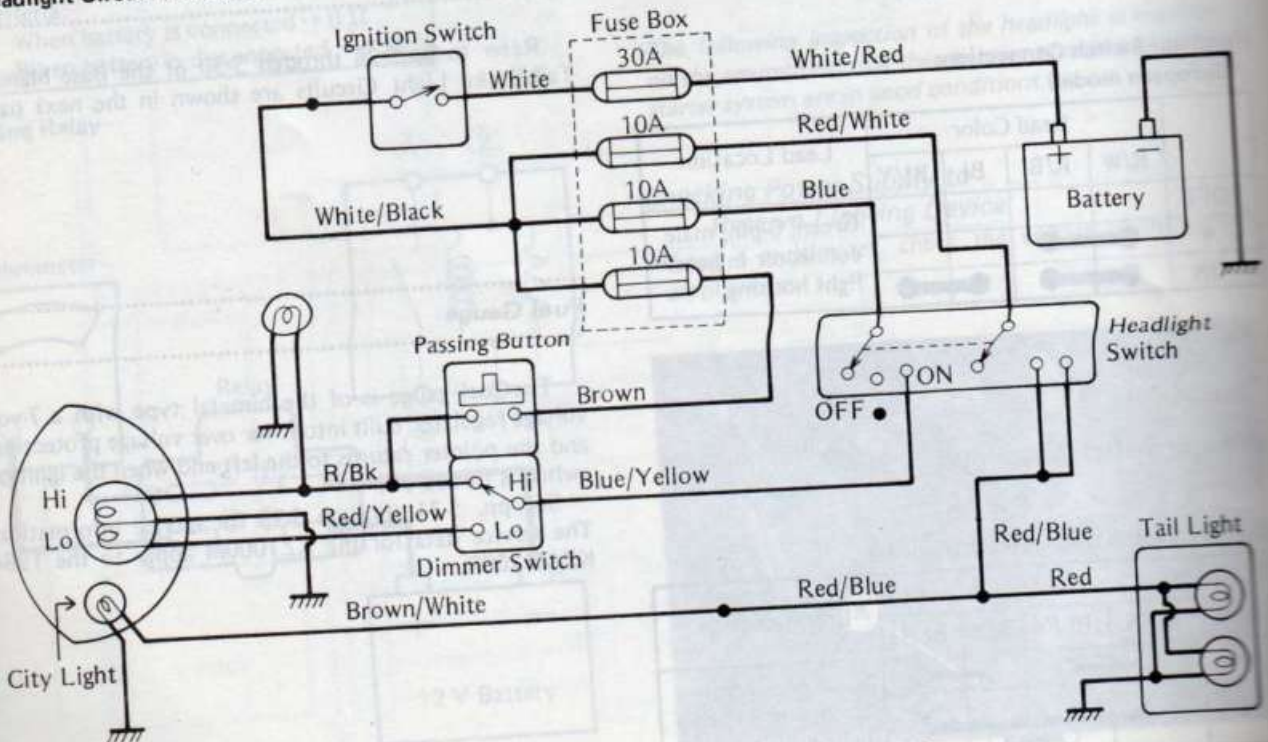
The fuel gauge is of the bimetal type with a 7-volt voltage regulator built into it for over voltage protection, and the pointer returns to the left end when the ignition switch is turned off.

See pp. 5-31 through 5-33 for service information. The service data for the KZ1000M apply to the 1984 KZ/Z1100R.

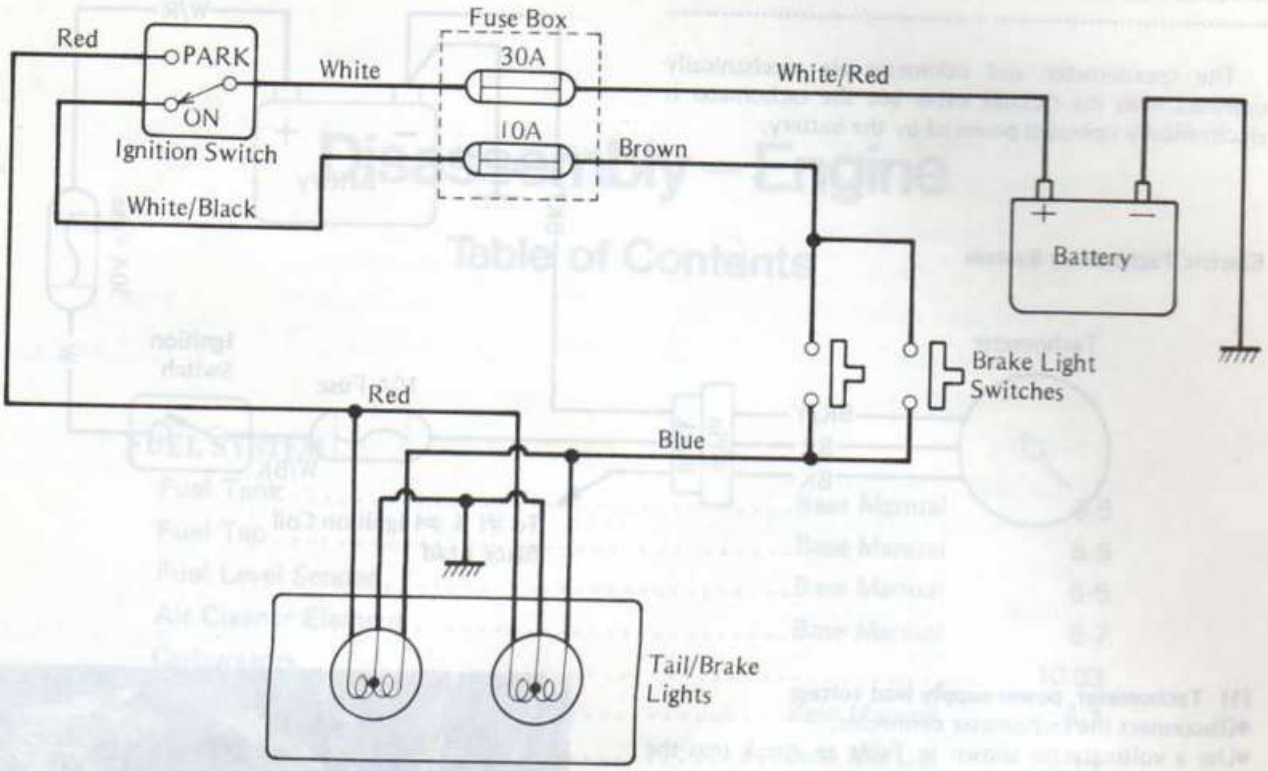
Headlight Circuit (Canadian model)



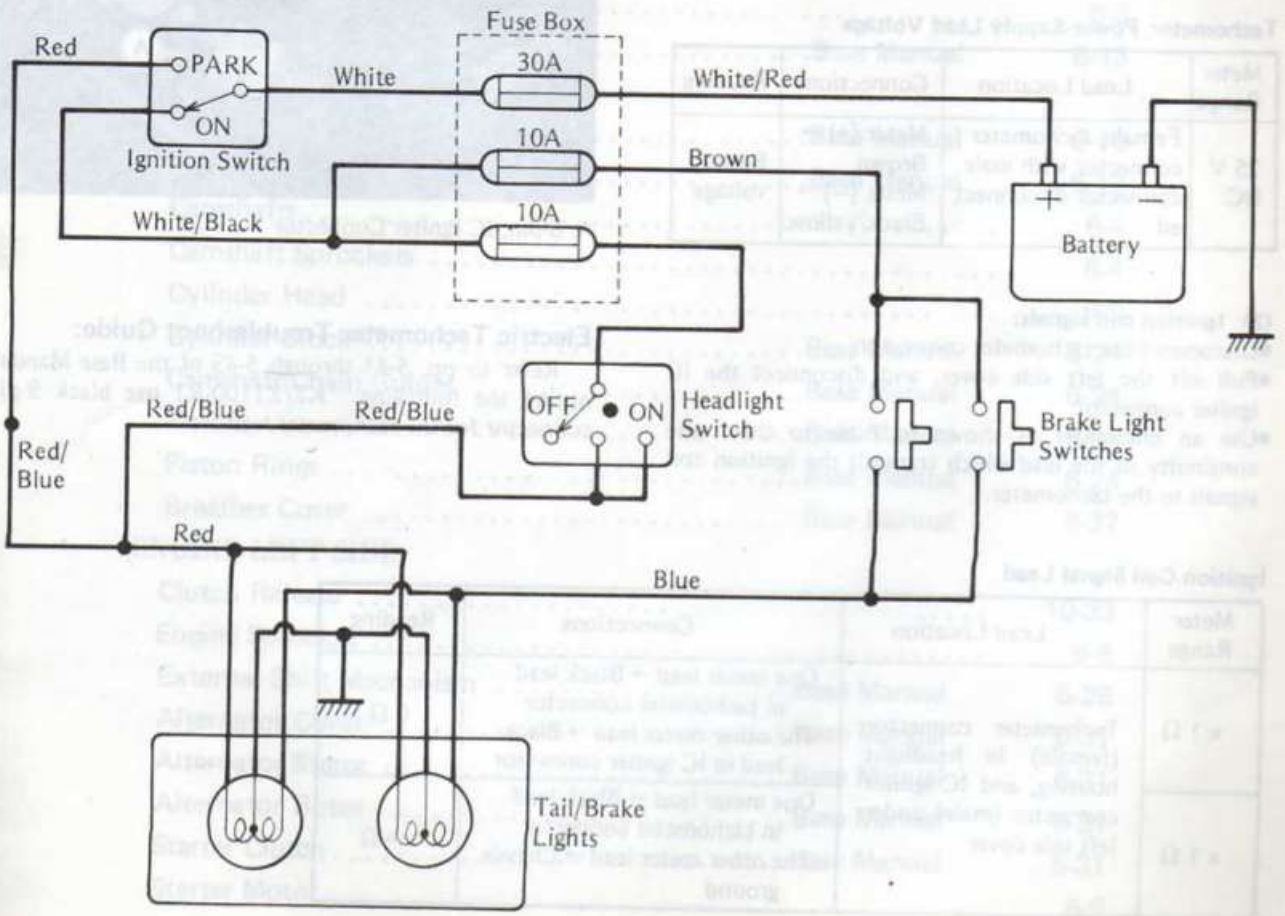
Headlight Circuit (European model)



Tail/Brake Light Circuit (US, Canadian Models)



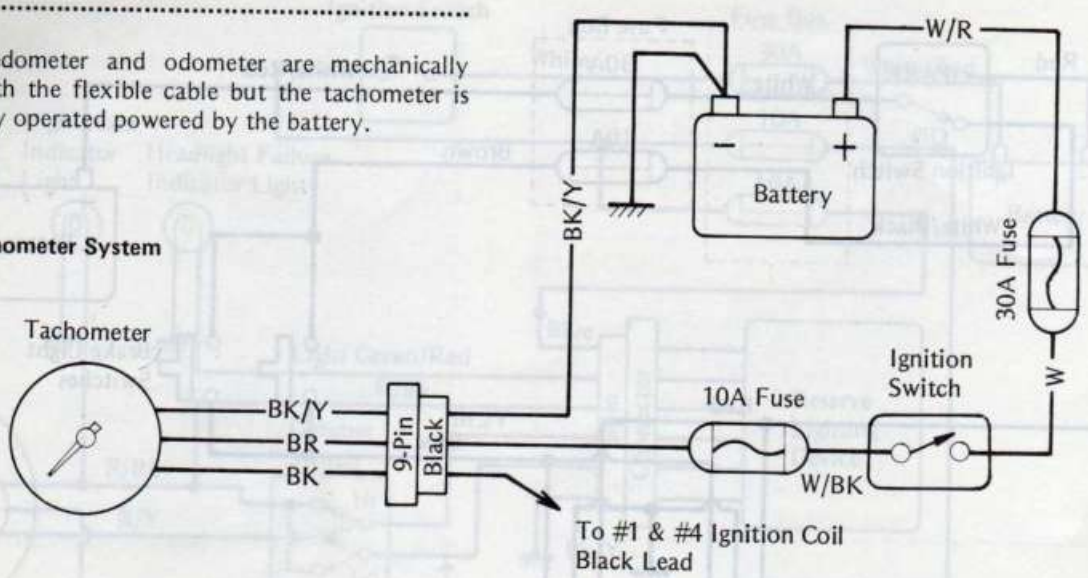
Tail/Brake Light Circuit (European Model)



Electric Tachometer

The speedometer and odometer are mechanically operated with the flexible cable but the tachometer is electronically operated powered by the battery.

Electric Tachometer System

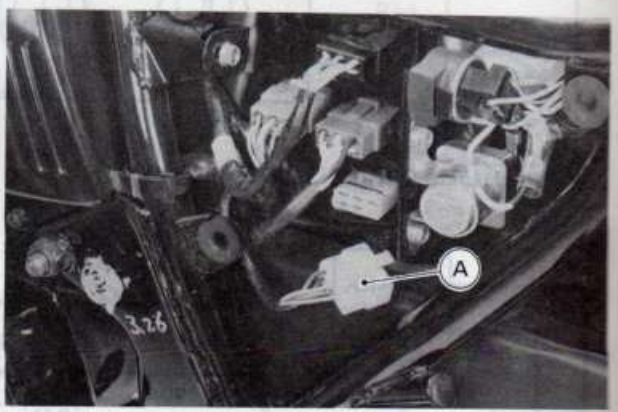


(1) Tachometer, power-supply lead voltage

- Disconnect the tachometer connector.
- Use a voltmeter as shown in Table to check that the tachometer is powered by the battery.
- Turn the ignition switch on, and measure the lead voltage.

Tachometer, Power-Supply Lead Voltage

Meter Range	Lead Location	Connections	Reading
25 V DC	Female, tachometer connector with male connector disconnected	Meter (+) → Brown Meter (–) → Black/yellow	Battery voltage



A. 6-pin, IC Igniter Connector

(2) Ignition coil signals:

- Disconnect the tachometer connector.
- Pull off the left side cover, and disconnect the IC igniter connector.
- Use an ohmmeter as shown in Table to check the continuity of the lead which transmit the ignition coil signals to the tachometer.

Ignition Coil Signal Lead

Meter Range	Lead Location	Connections	Reading
x 1 Ω	Tachometer connector (female) in headlight housing, and IC igniter connector (male) under left side cover	One meter lead → Black lead in tachometer connector The other meter lead → Black lead in IC igniter connector	0 Ω
x 1 Ω		One meter lead → Black lead in tachometer connector The other meter lead → Chassis ground	∞ Ω

Electric Tachometer Troubleshoot Guide:

Refer to pp. 5-41 through 5-43 of the Base Manual, noting the following. KZ/Z1100-R1 use black 9-pin connector for the tachometer lead.

Disassembly – Engine

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Carburetor

Refer to pp. 6-9 through 6-13 of the Base Manual, noting the following.

The costing enricher system is not applied to KZ/Z1100-R1.

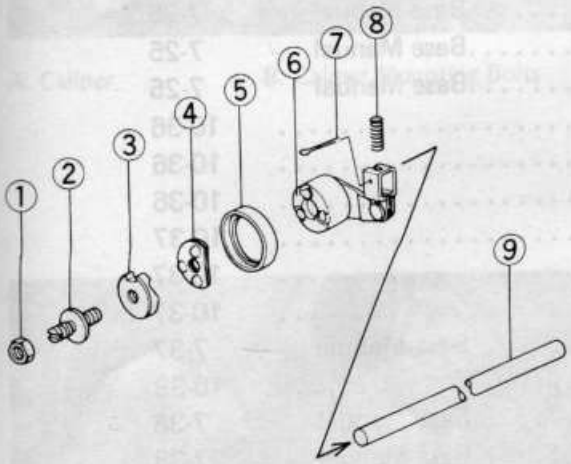
Clutch Release

Refer to p. 6-28 and 6-31 of the Base Manual noting the following:

Clutch Release Removal and Installation

- Install the adjusting screw and ball ramp plate aligning the ridge on the engine sprocket cover with the groove in the ball ramp plate.

Clutch Release



1. Locknut
2. Adjusting Screw
3. Ball Ramp Plate
4. Ball Assembly
5. Grease Seal
6. Release Lever
7. Cotter Pin
8. Spring
9. Push Rod

Disassembly – Chassis

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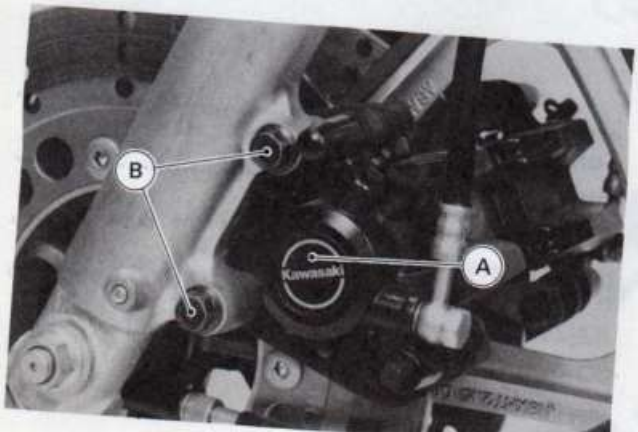
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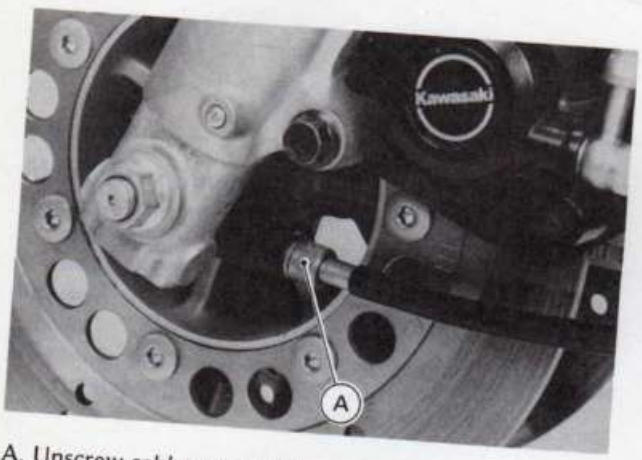
Front Wheel
Speedometer Gear Housing

Removal:
Front Wheel and
Speedometer Gear Housing Removal

- Set the motorcycle up on its center stand.
- Disconnect following parts and keep it away from the front fork and frame so that they will not get damaged during wheel removal.
  - One of the front brake calipers
  - Lower end of the speedometer cable



A. Caliper B. Caliper Mounting Bolts



A. Unscrew cable nut, and free meter cable.

- Loosen or remove the fasteners shown in the figures.



A. Remove nut

- Use a jack under the engine or other suit
to lift the front wheel off the ground, a
the front wheel with the speedometer ge

CAUTION

- **Do not lay the wheel down on one of the d
can damage or warp the disc. Place the blo
the wheel so that the discs do not touch the g**

- Insert a wood wedge (4 – 5 mm thick) be
disc brake pads. This prevents the pads fr
moved out of their proper position, should
lever be squeezed accidentally.

Installation:
Front Wheel and Speedometer Gear
Housing Installation

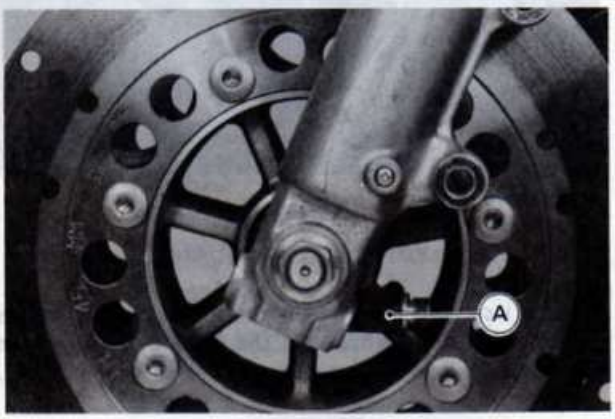
NOTE

1. properly engage the drive sleeve with the speed
gear housing.



A. Drive Sleeve

2. To properly route the speedometer cable, position the speedometer gear housing as follows:
   ○Turn the gear housing so that it stops against the projection on the fork leg.



A. Correct Position

3. Tightening torques for the fasteners are as follows:
   ○Front axle nut 6.5 kg-m, 47 ft-lbs.
   ○Front axle clamp nut 2.0 kg-m (14.5 ft-lbs).
   ○Caliper mounting bolts (2) – 3.3 kg-m (24 ft-lbs).

4. Pump the brake lever several times until a full, firm lever "feel" is obtained.

WARNING

○Do not ride the motorcycle until the pads are seated against the discs. The front brakes will not function on the first application of the lever if this is not done.

5. Check the headlight beam, and adjust it if necessary.

Front Hub Disassembly and Assembly:

Front Hub Disassembly

Refer to pp. 7-4 and 7-5 of the Base Manual, noting the following. Tightening torque for the disc mounting bolt is 23 N-m (2.3 kg-m, 16.5 ft-lbs).

Headlight Housing

Headlight Unit

Refer to pp. 7-27 through 7-29 of the Base Manual, noting the following.

Headlight Housing Installation:

●Route the following leads and wiring harness through the holes in the headlight housing.

Upper Hole
○Handlebar switch wiring harness
○Ignition switch wiring harness
○Tachometer wiring harness
○Left turn signal leads
○Right turn signal leads

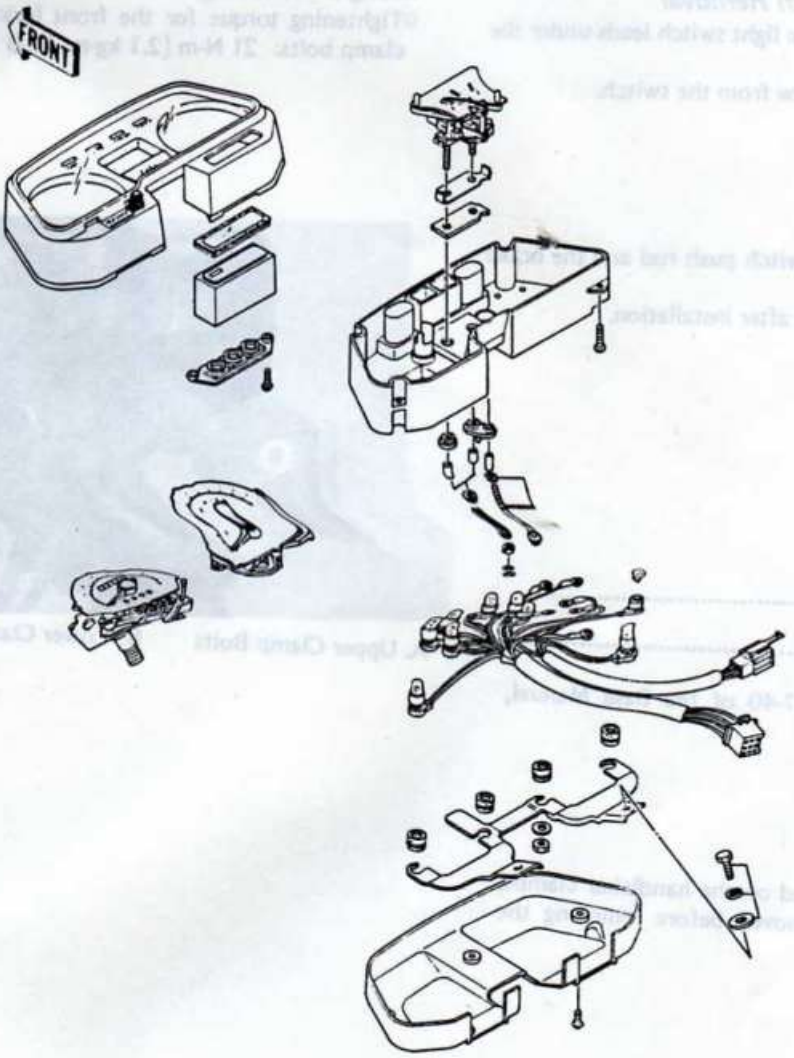
Lower hole
○Main Wiring Harness

Turn Signal Assembly

Refer to pp. 7-30 and 7-31 of the Base Manual, noting the following.

Removal and installation for KZ/Z1000-J apply to KZ/Z1100-R1.

Speedometer
Tachometer
Fuel Gauge



Meter Assy Removal:

- Remove the headlight unit, disconnect the meter connector and lead in the headlight houring.
- Remove the speedometer cable.
- Remove the screws (3 ea) from the bottom of the meter.
- Remove the meter bracket mounting bolt from the upper steering stem.

Speedometer, Tachometer and Fuel Gauge Removal:

- Remove the screws (4 ea) from the bottom of meter unit.
- Remove the meter bracket mounting screws (2 ea) from the bottom of the meter case.
- Remove each mounting screws of the speedometer, tachometer and fuel gauge from the bottom of meter unit.

Installation:

1. Installation is the reverse of removal.
2. Adjust the headlight aim.

Brake Light Switches

Removal:

Front Brake Light Switch Removal

- Disconnect the front brake light switch leads under the switch.
- Remove the mounting screw from the switch.

Installation:

1. Grease the end of the switch push rod and the brake lever.
2. Adjust the headlight aim after installation.

Handlebar

Refer to pp. 7-39 and 7-40 of the Base Manual, noting the following.

Removal:

- The handle cover is installed on the handlebar clamps, so the cover must be removed before removing the handlebar clamps.

Installation:

- Handlebar installation for KZ/Z1000-J applies to KZ/Z1100-R1.

Swing Arm

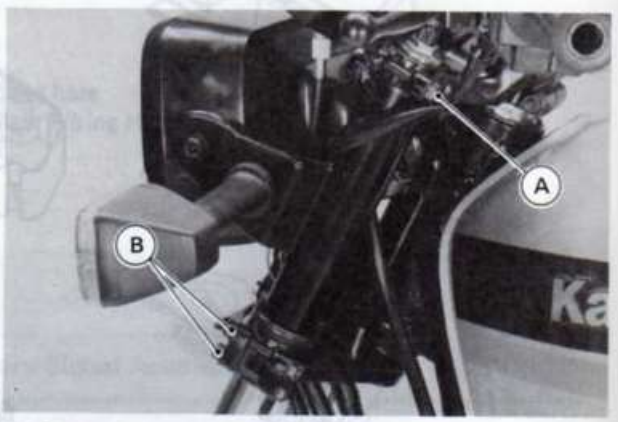
Refer to pp. 7-46 through 7-49 of the Base Manual, noting the following.

- Tightening torque for the engine sprocket nut is 98 N-m (10 kg-m, 72 ft-lbs).

Front Fork

Refer to pp. 7-42 through 7-46 of the Base Manual, noting the following.

- Tightening torque for the front fork upper and lower clamp bolts: 21 N-m (2.1 kg-m, 15.0 ft-lbs).

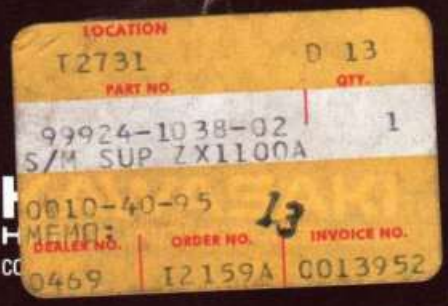


A. Upper Clamp Bolts B. Lower Clamp Bolts

MODEL APPLICATION

Year	Model	Beginning Frame Number
1983	ZX1100-A1	JKAZXBA1□DA000001 or ZXT10A-000001
1984	ZX1100-A2	JKAZXBA1□EA012701 or ZXT10A-010801
	KZ/Z1100-R1	JKAKZBR1□EA000001 or KZT10R-000001
1985	ZX1100-A3	ZXT10A-015901

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



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