


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

Scheduled Maintenance

2

**Non-scheduled
Maintenance**

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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

GPz1100

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Motorcycle Service Manual Supplement

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The right is reserved to make changes at any time without prior notice and without incurring an obligation to make such changes to products manufactured previously. See your Motorcycle dealer for the latest information on product improvements incorporated after this publication.

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.

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 page)

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:—



**WARNING
CONTAINS
ASBESTOS**

Breathing asbestos
dust is dangerous
to health

Follow safety
instructions

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.*

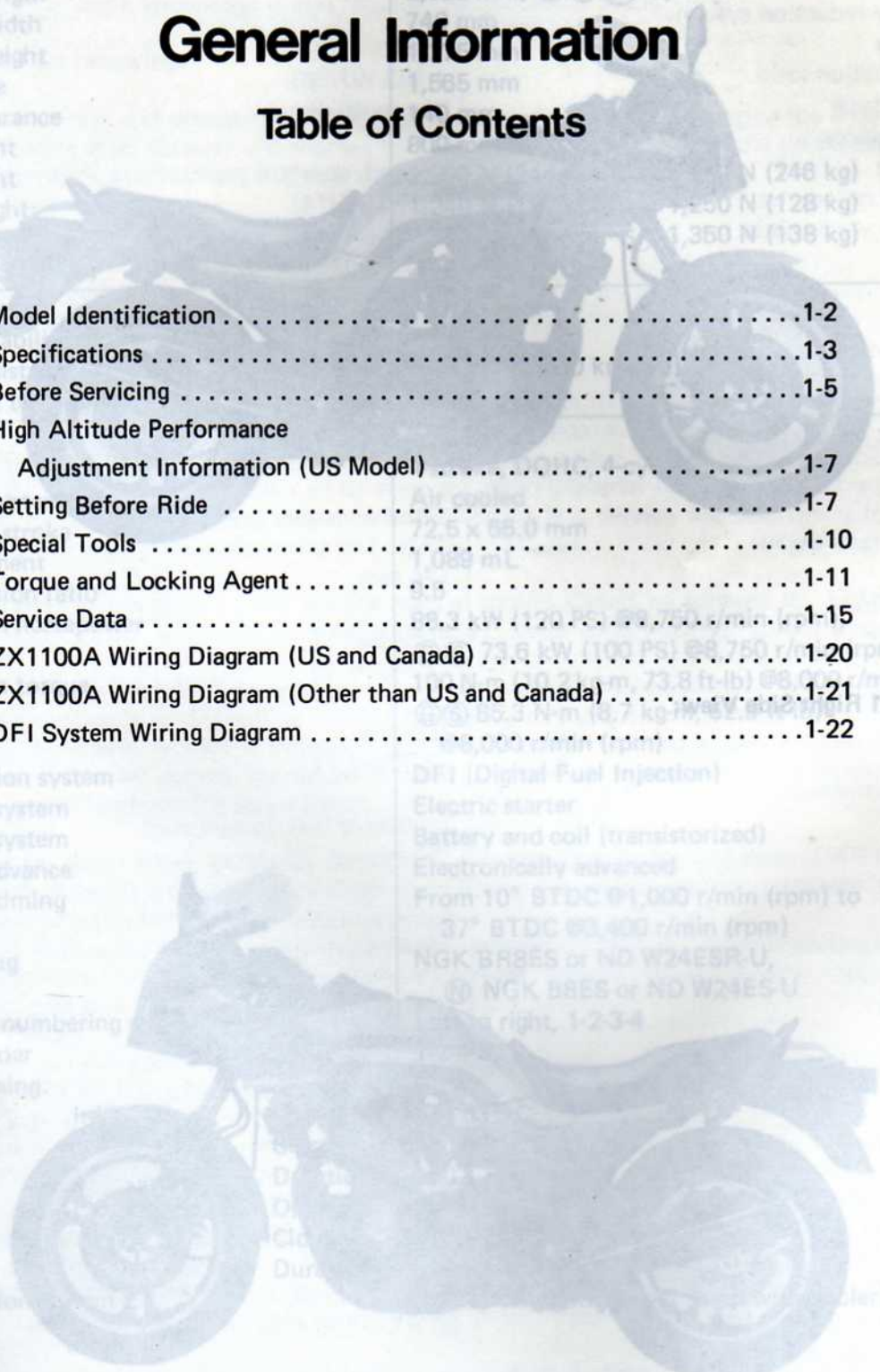
WARNING

- **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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Ⓢ : US model
 Ⓡ : Swedish model

Ⓢ : Canadian model
 Ⓡ : West German model

Ⓢ : South African model
 Ⓡ : Norwegian model

1-2 GENERAL INFORMATION

.....
Model Identification
.....

ZX1100-A1 Left Side View:



ZX1100-A1 Right Side View:



Specifications

Items	ZX1100-A1	
Dimensions:		
Overall length	2,320 mm, (U) (C) (SA) 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), (SA) 2,410 N (246 kg)	
Curb weight:	Front 1,240 N (127 kg), (SA) 1,250 N (128 kg)	
	Rear 1,340 N (137 kg), (SA) 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), (G) (S) 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), (G) (S) 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, (N) 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)	

(U) : US model
(S) : Swedish model

(C) : Canadian model
(G) : West German model

(SA) : South African model
(N) : Norwegian model

1-4 GENERAL INFORMATION

Items	ZX1100-A1
Engine oil: Grade Viscosity Capacity	SE class SAE10W40, 10W50, 20W40, or 20W50 3.7 L
Drive Train: Primary reduction system: Type Reduction ratio Clutch type Transmission: Type Gear ratios: 1st 2nd 3rd 4th 5th Final drive system: Type Reduction ratio Overall drive ratio	Gear 1.732 (97/56) Wet multi disc 5-speed, constant mesh, return shift 2.642 (37/14) 1.833 (33/18) 1.421 (27/19) 1.173 (27/23) 1.040 (26/25) Chain drive 2.733 (41/15) 4.923 @Top gear
Frame: Type Caster (rake angle) Trail Front Tire: Type Size Rear Tire: Type Size Front suspension: Type Wheel travel Rear suspension: Type Wheel travel Brake type: Front Rear	Tubular, double cradle 27.5° 116 mm Tubeless 110/90 V 18 Tubeless 130/90 V 17 Telescopic fork (pneumatic) 150 mm Swing arm (uni-trak) 105 mm Dual disc Single disc
Electrical Equipment: Battery Headlight: Type Bulb Tail/brake light Alternator: Type Rated output Voltage regulator: Type	12 V 16 AH Semi-Sealed beam 12 V 60/55 W (quartz-halogen) 12 V 5/21 W x 2, U C SA 12 V 8/27 W x 2 Three-phase AC 20 A @5,000 r/min (rpm), 14 V Short-circuit

Before Servicing

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

Especially note the following:
(1) Dirt

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

(2) Battery Ground

Remove the ground (—) lead from the battery before performing any disassembly operations on the motorcycle. This prevents:

- (a) the possibility of accidentally turning the engine over while partially disassembled.
- (b) sparks at electrical connections which will occur when they are disconnected.
- (c) damage to electrical parts.

(3) Tightening Sequence

Generally, when installing a part with several bolts, nuts, or screws, they should all be started in their holes and tightened to a snug fit. Then tighten them evenly in a cross pattern. This is to avoid distortion of the part and/or causing gas or oil leakage. Conversely when loosening the bolts, nuts, or screws, first loosen all of them by about a quarter of turn and then remove them.

Where there is a tightening sequence indication in this Service Manual, the bolts, nuts, or screws must be tightened in the order and method indicated.

(4) Torque

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

(5) Force

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

(6) Edges

Watch for sharp edges, especially during major engine disassembly and assembly. Protect your hands with gloves or a piece of thick cloth when lifting the engine or turning it over.

(7) High Flash-point Solvent

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

(8) Gasket, O-Ring

Do not reuse a gasket or O-ring once it has been in service. The mating surfaces around the gasket should be free of foreign matter and perfectly smooth to avoid oil or compression leaks.

(9) Liquid Gasket, Non-permanent Locking Agent

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

(10) Press

A part installed using a press or driver, such as a wheel bearing, should first be coated with oil on its outer or inner circumference so that it will go into place smoothly.

(11) Ball Bearing

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

1-6 GENERAL INFORMATION

(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 circlips and retaining rings, take care to compress or expand them only enough to install them and no more.

(15) Lubrication

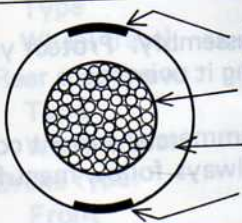
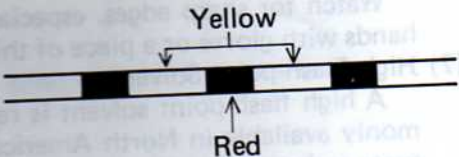
Engine wear is generally at its maximum while the engine is warming up and before all the rubbing surfaces have an adequate lubricative film. During assembly, oil or grease (whichever is more suitable) should be applied to any rubbing surface which has lost its lubricative film. Old grease and dirty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

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

(16) Electrical Wires

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

182100

Wire (cross-section)	Name of Wire Color	Picture in Wiring Diagram
 <p>Red Wire strands</p> <p>Yellow</p> <p>Red</p>	Yellow/red	 <p>Yellow</p> <p>Red</p>

(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

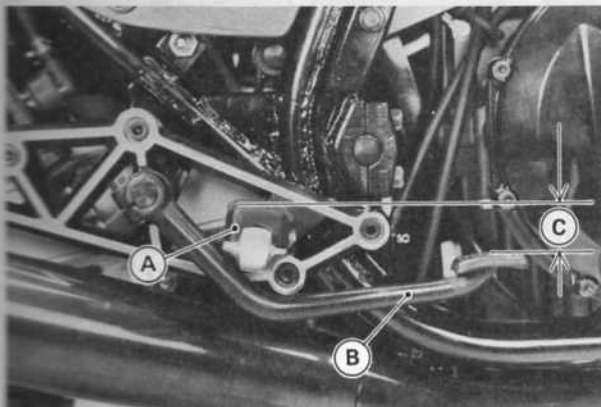
Before bringing this motorcycle into use, check and/or adjust the followings to ensure safe and comfortable riding conditions.

Brake Pedal:

Brake pedal position is important factor for safe and comfortable 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.



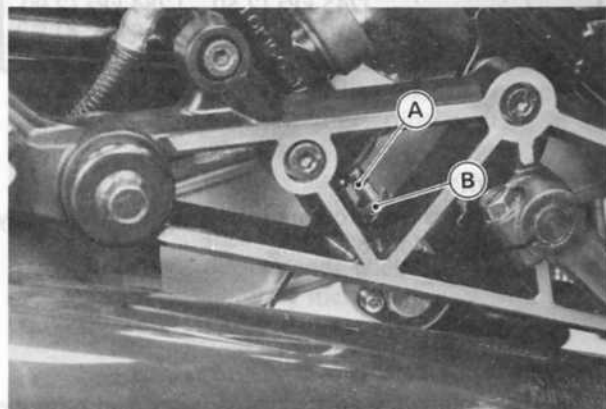
A. Footpeg
B. Brake Pedal
C. Pedal Position

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 position.
- Be sure to tighten the locknut after adjustment.
- Check operation of the rear brake and the brake light switch.



A. Push Rod
B. Locknut

"NOTE"

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

Tires:

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

Inspection of Tire Air Pressure

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

Tire Air Pressure (US and Canada)

	Load	Pressure
Front	Up to 1,770 N (180 kg)	196 kPa (2.00 kg/cm ² , 28 psi)
Rear	Up to 956 N (97.5 kg)	221 kPa (2.25 kg/cm ² , 32 psi)
	956 - 1,770 N (97.5 - 180 kg)	245 kPa (2.50 kg/cm ² , 36 psi)

1-8 GENERAL INFORMATION

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/cm ² , 28 psi)	221 kPa (2.25 kg/cm ² , 32 psi)
	1,470 – 1,770 N (150 – 180 kg)	221 kPa (2.25 kg/cm ² , 32 psi)	221 kPa (2.25 kg/cm ² , 32 psi)
Rear	Up to 1,470 N (150 kg)	221 kPa (2.25 kg/cm ² , 32 psi)	284 kPa (2.90 kg/cm ² , 41 psi)
	1,470 – 1,770 N (150 – 180 kg)	245 kPa (2.50 kg/cm ² , 36 psi)	284 kPa (2.90 kg/cm ² , 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"

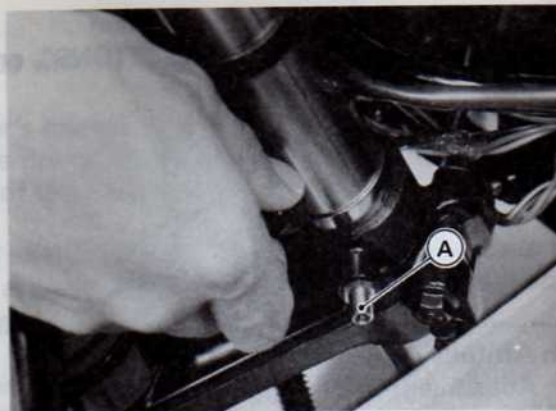
- Do not use a tire gauge for checking air suspension's air pressure. They do not indicate the correct pressure because of air leaks that occur when the gauge is applied to the valve.
- Lower air pressure is for comfortable riding, but it should be increased for high speed riding, or riding on bad roads.

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)

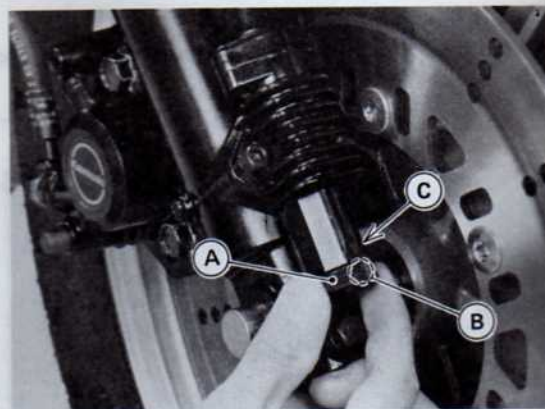
Anti-Dive Adjustment

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

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

WARNING

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



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

Anti-Dive Adjustment

Position	1	2	3
Anti-Dive	Weak	Moderate	Strong

Rear Shock Absorbers:

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

Inspection of Air Pressure

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

"NOTE"

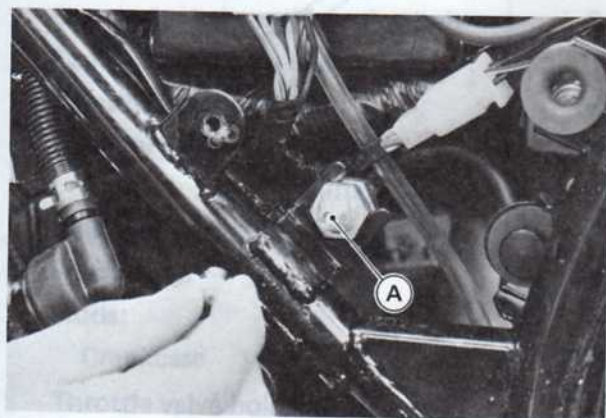
- Do not use a tire gauge for checking air pressure. They may not indicate the correct air pressure because of air leaks that occur when the gauge is applied to the valve.
- Lower air pressure is for comfortable riding for an average-built rider of 68 kg with no accessories. Ordinarily, the heavier the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

CAUTION

- Inject air little by little so that air pressure does not rise rapidly. Air pressure exceeding 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"

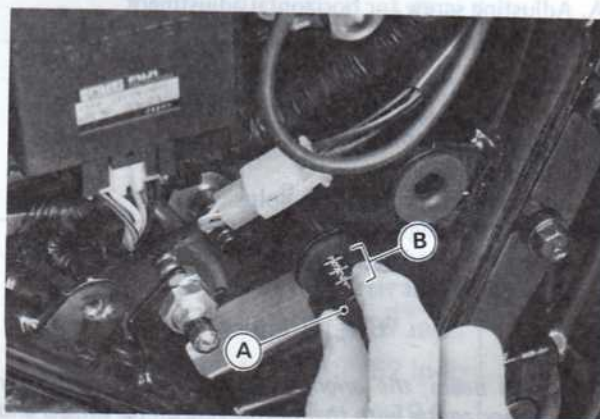
- The recommended air pressure is 196 kPa (2.00 kg/cm², 28 psi) for one rider with no accessories.

Rear Shock Absorber Air Pressure

Air Pressure kPa (kg/cm ² , 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 passenger. If the damper setting feels too soft or too stiff, adjust it in accordance with the following table:

Damping Force

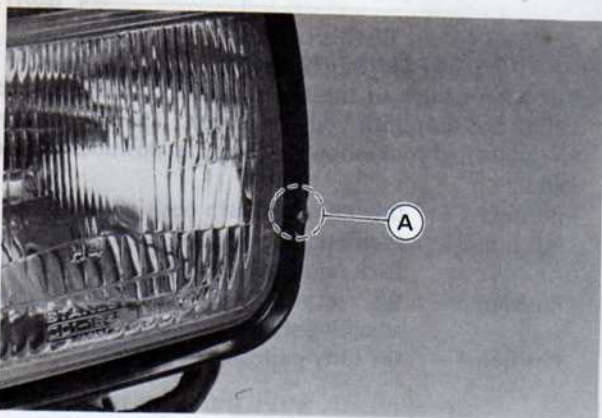
Setting Position	Damping Force	Setting	Load	Road	Speed
1	Stronger	Soft	Light	Good	Low
2	↓	↑	↑	↑	↑
3		↓	↓	↓	↓
4		Hard	Heavy	Bad	High

1-10 GENERAL INFORMATION

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



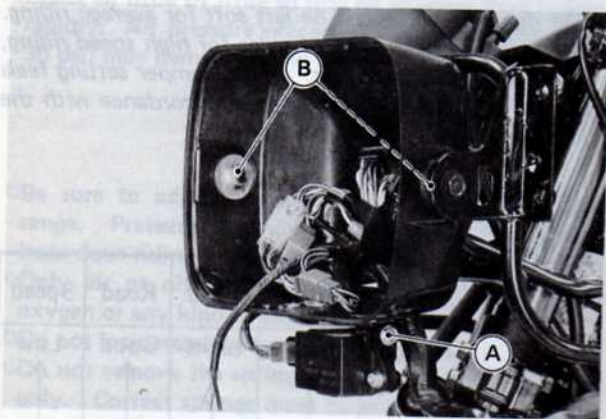
A. Adjusting screw for horizontal adjustment

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"

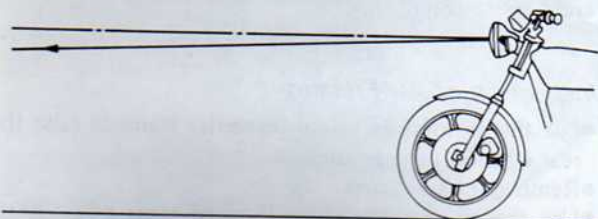
○ On high beam, the brightest point should be slightly below horizontal with the motorcycle on its wheels and the rider seated. Adjust the headlight to the proper angle according to local regulations.



A. Lower Headlight Bolt
B. Headlight 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-jumping 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)

1-12 GENERAL INFORMATION

(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	—

1-14 GENERAL INFORMATION

The table below, relating tightening torque to thread diameter, list the basic torque for the bolts and nuts used on Kawasaki Motorcycles. However, the actual torque that is necessary may vary 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 on 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

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

(Continued on next page.)

1-16 GENERAL INFORMATION

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:		261 N
Inner Spring	280.5 – 309.9 N (28.60 – 31.60 kg) @23.1 mm	(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:		1.3 mm
Inner Spring	---	1.5 mm
Outer Spring	---	
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.	72.60 mm, or
Cylinder Inside Diameter	72.500 – 72.512 mm, and less than 0.01 mm difference between any two measurements	more than 0.05 mm difference 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:		0.17 mm
Top Ring	0.030 – 0.070 mm	0.16 mm
2nd Ring	0.020 – 0.060 mm	
Piston Ring Thickness:		0.90 mm
Top Ring	0.970 – 0.990 mm	1.10 mm
2nd Ring	1.170 – 1.190 mm	
Piston Ring Groove Width:		1.12 mm
Top Ring Groove	1.02 – 1.04 mm	1.31 mm
2nd Ring Groove	1.21 – 1.23 mm	2.61 mm
Oil Ring Groove	2.51 – 2.53 mm	
Piston Ring End Gap:		0.7 mm
Top and 2nd	0.20 – 0.40 mm	17.96 mm
Piston Pin Diameter	17.995 – 18.000 mm	18.08 mm
Piston Pin Hole Diameter	18.004 – 18.011 mm	18.05 mm
Con-Rod Small End Diameter	18.003 – 18.014 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/cm ² , 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/cm ² , 63 – 85 psi)	---

1-18 GENERAL INFORMATION

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.	0.5 mm
Rim Runout: Axial	---	0.8 mm
Radial	---	0.7 mm
Axle Runout/100 mm	Under 0.05 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/cm ² , 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/cm ² , 14 – 57 psi)	---

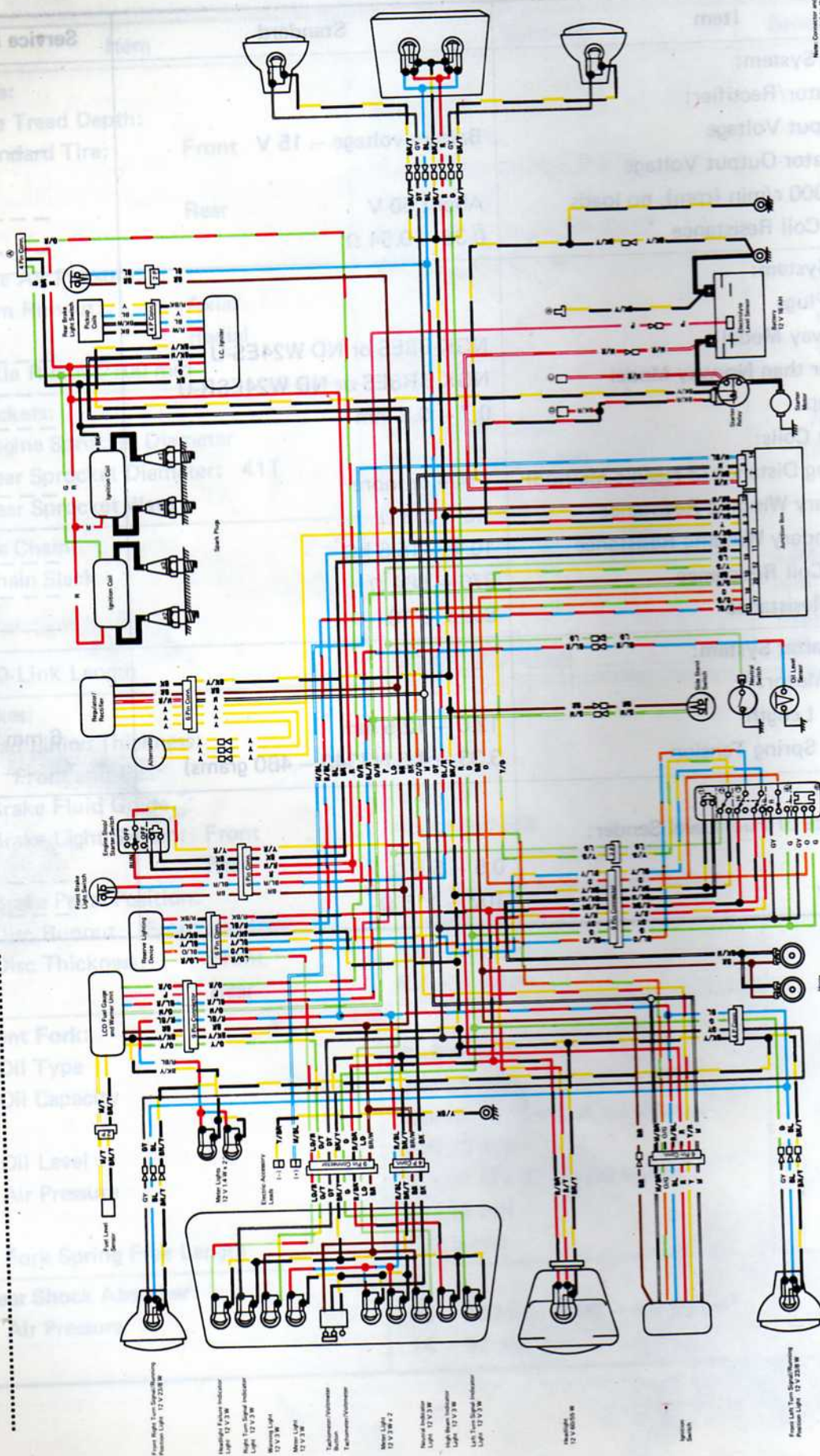
Electrical:

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 k Ω	---
Pickup Coil Resistance	376 - 564 Ω	---
Igniter Resistance	See p. 5-10.	---
Electric Starter System:		
Stator 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	---

S31001 Mitsui Densetsu (12 mm) Caution

1-20 GENERAL INFORMATION

ZX1100-A1 Wiring Diagram (US and Canada)



Front Right Turn Signal/Warning Light 12 V 21W
 Front Left Turn Signal/Warning Light 12 V 21W
 Headlight/Fake Indicator Light 12 V 21W
 High Beam Indicator Light 12 V 3W
 Warning Light 12 V 3W
 Master Light 12 V 3W
 Ignition/Warning Indicator Light 12 V 3W
 Neutral Indicator Light 12 V 3W
 High Beam Indicator Light 12 V 3W
 Left Turn Signal Indicator Light 12 V 3W
 Headlight 12 V 60/55 W
 Indicator Switch

Rear Right Turn Signal Light 12 V 21W

Tail/Brake Light 12 V 60/55 W

Rear Left Turn Signal Light 12 V 21W

Front Right Turn Signal/Warning Light 12 V 21W

Left Hand Side Switches
 (1) Ignition Switch
 (2) Master Light Switch
 (3) Turn Signal Switch
 (4) Horn Switch
 (5) Hazard Switch

Color	Wire
Red	12V
Blue	12V
Green	12V
Yellow	12V
Black	12V
White	12V
Grey	12V
Orange	12V
Purple	12V
Brown	12V
Pink	12V
Light Blue	12V
Light Green	12V
Light Yellow	12V
Light Purple	12V
Light Brown	12V
Light Pink	12V
Light Light Blue	12V
Light Light Green	12V
Light Light Yellow	12V
Light Light Purple	12V
Light Light Brown	12V
Light Light Pink	12V

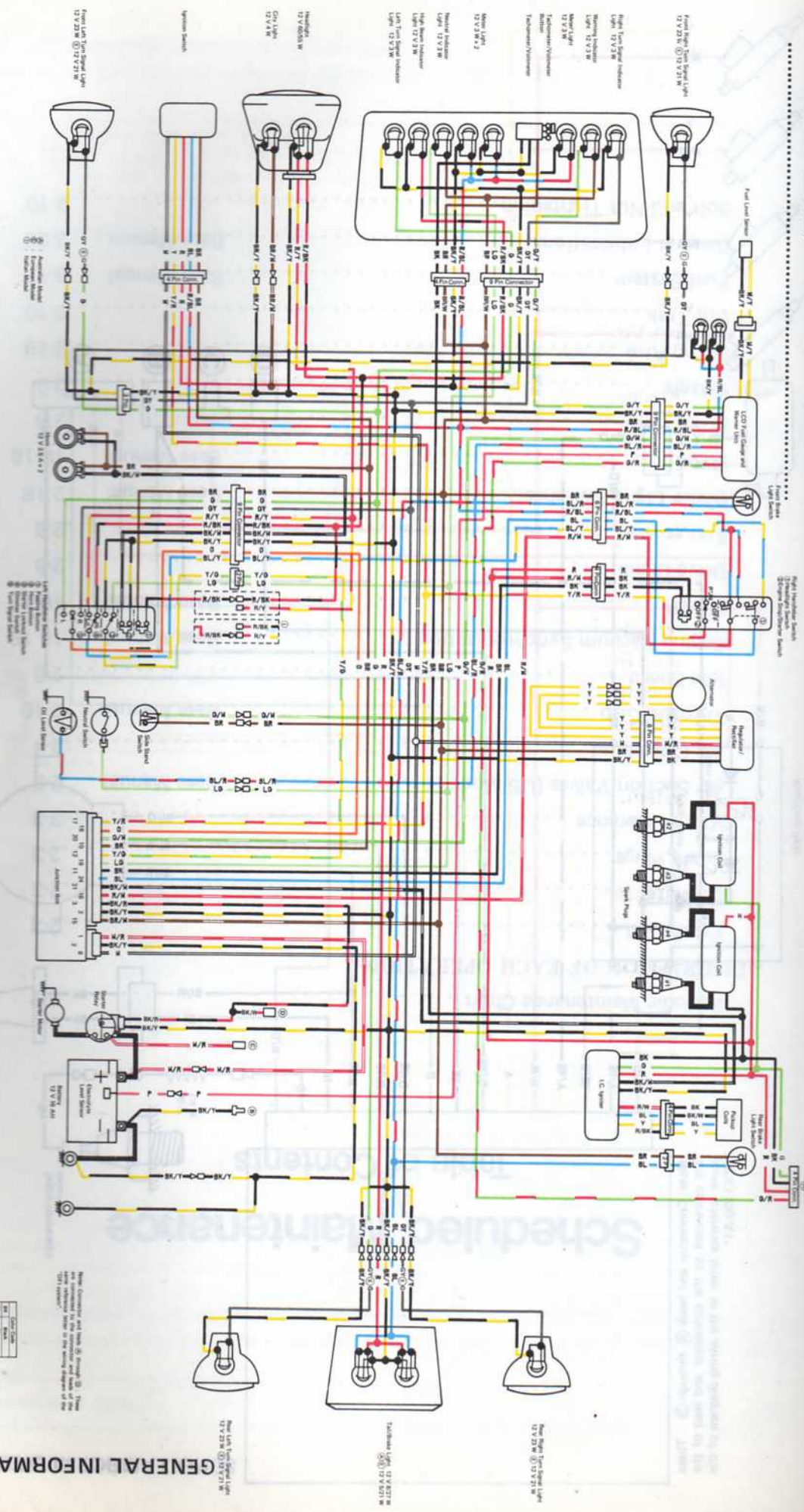
Switch	Color	Wire
Ignition	Red	12V
Master Light	Blue	12V
Turn Signal	Green	12V
Horn	Yellow	12V
Hazard	Black	12V

Switch	Color	Wire
Ignition	Red	12V
Master Light	Blue	12V
Turn Signal	Green	12V
Horn	Yellow	12V
Hazard	Black	12V

Switch	Color	Wire
Ignition	Red	12V
Master Light	Blue	12V
Turn Signal	Green	12V
Horn	Yellow	12V
Hazard	Black	12V

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



DLI System Wiring Diagram

LEFT HANDLEBAR SWITCH CONNECTIONS

Switch	Wiring	Notes
1	12V	Ignition Switch
2	12V	Ignition Switch
3	12V	Ignition Switch
4	12V	Ignition Switch
5	12V	Ignition Switch
6	12V	Ignition Switch
7	12V	Ignition Switch
8	12V	Ignition Switch
9	12V	Ignition Switch
10	12V	Ignition Switch
11	12V	Ignition Switch
12	12V	Ignition Switch
13	12V	Ignition Switch
14	12V	Ignition Switch
15	12V	Ignition Switch
16	12V	Ignition Switch
17	12V	Ignition Switch
18	12V	Ignition Switch
19	12V	Ignition Switch
20	12V	Ignition Switch
21	12V	Ignition Switch
22	12V	Ignition Switch
23	12V	Ignition Switch
24	12V	Ignition Switch
25	12V	Ignition Switch
26	12V	Ignition Switch
27	12V	Ignition Switch
28	12V	Ignition Switch
29	12V	Ignition Switch
30	12V	Ignition Switch
31	12V	Ignition Switch
32	12V	Ignition Switch
33	12V	Ignition Switch
34	12V	Ignition Switch
35	12V	Ignition Switch
36	12V	Ignition Switch
37	12V	Ignition Switch
38	12V	Ignition Switch
39	12V	Ignition Switch
40	12V	Ignition Switch
41	12V	Ignition Switch
42	12V	Ignition Switch
43	12V	Ignition Switch
44	12V	Ignition Switch
45	12V	Ignition Switch
46	12V	Ignition Switch
47	12V	Ignition Switch
48	12V	Ignition Switch
49	12V	Ignition Switch
50	12V	Ignition Switch

RIGHT HANDLEBAR SWITCH CONNECTIONS

Switch	Wiring	Notes
1	12V	Ignition Switch
2	12V	Ignition Switch
3	12V	Ignition Switch
4	12V	Ignition Switch
5	12V	Ignition Switch
6	12V	Ignition Switch
7	12V	Ignition Switch
8	12V	Ignition Switch
9	12V	Ignition Switch
10	12V	Ignition Switch
11	12V	Ignition Switch
12	12V	Ignition Switch
13	12V	Ignition Switch
14	12V	Ignition Switch
15	12V	Ignition Switch
16	12V	Ignition Switch
17	12V	Ignition Switch
18	12V	Ignition Switch
19	12V	Ignition Switch
20	12V	Ignition Switch
21	12V	Ignition Switch
22	12V	Ignition Switch
23	12V	Ignition Switch
24	12V	Ignition Switch
25	12V	Ignition Switch
26	12V	Ignition Switch
27	12V	Ignition Switch
28	12V	Ignition Switch
29	12V	Ignition Switch
30	12V	Ignition Switch
31	12V	Ignition Switch
32	12V	Ignition Switch
33	12V	Ignition Switch
34	12V	Ignition Switch
35	12V	Ignition Switch
36	12V	Ignition Switch
37	12V	Ignition Switch
38	12V	Ignition Switch
39	12V	Ignition Switch
40	12V	Ignition Switch
41	12V	Ignition Switch
42	12V	Ignition Switch
43	12V	Ignition Switch
44	12V	Ignition Switch
45	12V	Ignition Switch
46	12V	Ignition Switch
47	12V	Ignition Switch
48	12V	Ignition Switch
49	12V	Ignition Switch
50	12V	Ignition Switch

IGNITION SWITCH CONNECTIONS

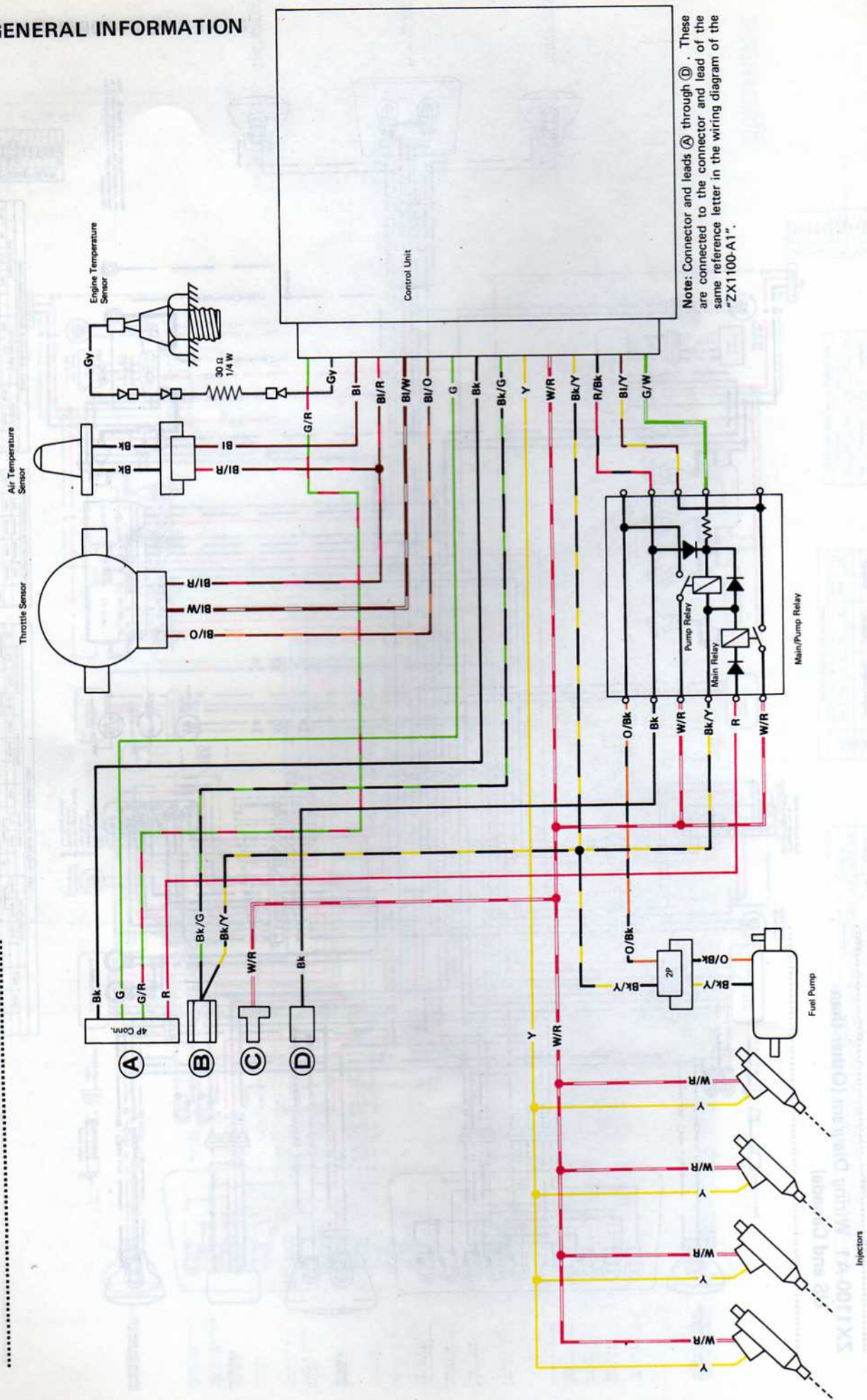
Terminal	Wiring	Notes
1	12V	Ignition Switch
2	12V	Ignition Switch
3	12V	Ignition Switch
4	12V	Ignition Switch
5	12V	Ignition Switch
6	12V	Ignition Switch
7	12V	Ignition Switch
8	12V	Ignition Switch
9	12V	Ignition Switch
10	12V	Ignition Switch
11	12V	Ignition Switch
12	12V	Ignition Switch
13	12V	Ignition Switch
14	12V	Ignition Switch
15	12V	Ignition Switch
16	12V	Ignition Switch
17	12V	Ignition Switch
18	12V	Ignition Switch
19	12V	Ignition Switch
20	12V	Ignition Switch
21	12V	Ignition Switch
22	12V	Ignition Switch
23	12V	Ignition Switch
24	12V	Ignition Switch
25	12V	Ignition Switch
26	12V	Ignition Switch
27	12V	Ignition Switch
28	12V	Ignition Switch
29	12V	Ignition Switch
30	12V	Ignition Switch
31	12V	Ignition Switch
32	12V	Ignition Switch
33	12V	Ignition Switch
34	12V	Ignition Switch
35	12V	Ignition Switch
36	12V	Ignition Switch
37	12V	Ignition Switch
38	12V	Ignition Switch
39	12V	Ignition Switch
40	12V	Ignition Switch
41	12V	Ignition Switch
42	12V	Ignition Switch
43	12V	Ignition Switch
44	12V	Ignition Switch
45	12V	Ignition Switch
46	12V	Ignition Switch
47	12V	Ignition Switch
48	12V	Ignition Switch
49	12V	Ignition Switch
50	12V	Ignition Switch

GENERAL INFORMATION 1-21

Terminal	Wiring	Notes
1	12V	Ignition Switch
2	12V	Ignition Switch
3	12V	Ignition Switch
4	12V	Ignition Switch
5	12V	Ignition Switch
6	12V	Ignition Switch
7	12V	Ignition Switch
8	12V	Ignition Switch
9	12V	Ignition Switch
10	12V	Ignition Switch
11	12V	Ignition Switch
12	12V	Ignition Switch
13	12V	Ignition Switch
14	12V	Ignition Switch
15	12V	Ignition Switch
16	12V	Ignition Switch
17	12V	Ignition Switch
18	12V	Ignition Switch
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36	12V	Ignition Switch
37	12V	Ignition Switch
38	12V	Ignition Switch
39	12V	Ignition Switch
40	12V	Ignition Switch
41	12V	Ignition Switch
42	12V	Ignition Switch
43	12V	Ignition Switch
44	12V	Ignition Switch
45	12V	Ignition Switch
46	12V	Ignition Switch
47	12V	Ignition Switch
48	12V	Ignition Switch
49	12V	Ignition Switch
50	12V	Ignition Switch

1-22 GENERAL INFORMATION

DFI System Wiring Diagram



Note: Connector and leads A through D. 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	*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	Every	•	•	•	•	•	•	•
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 malfunction.
- The oil cooler is equipped in the engine lubrication system. So the additional 0.2 liters 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 aligned with the timing mark on the crankcase.

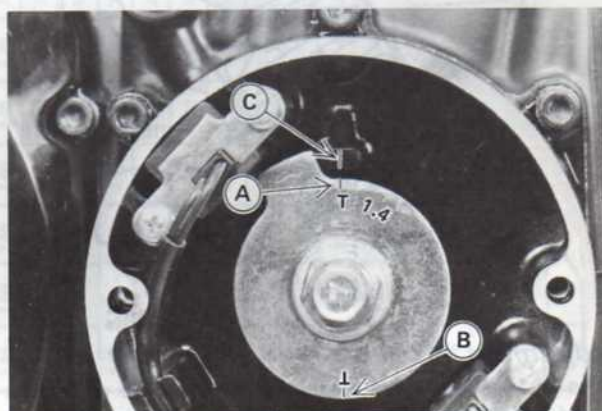
Measuring Position*

TDC of the #1 and #4 pistons →
 Exhaust #1 and #2 valve 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

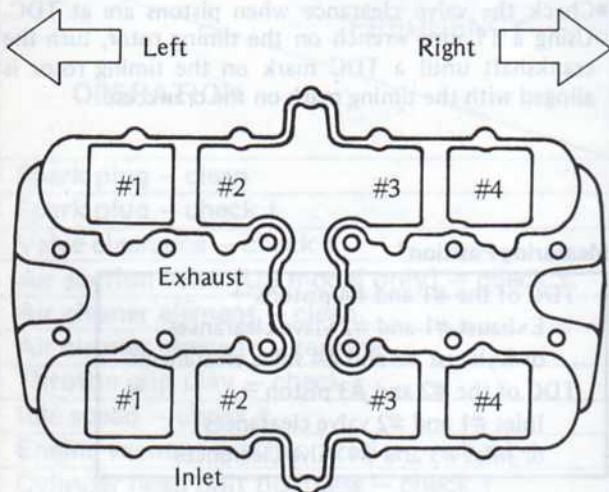
*If the valve clearance is incorrect, adjust it.

2-4 SCHEDULED MAINTENANCE

Valve Clearance

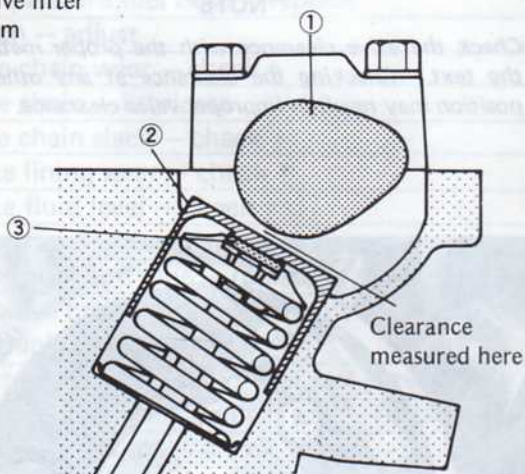
Standard:
Inlet and Exhaust 0.08 – 0.18 mm

Valve Numbering Method (viewed from top) 282101



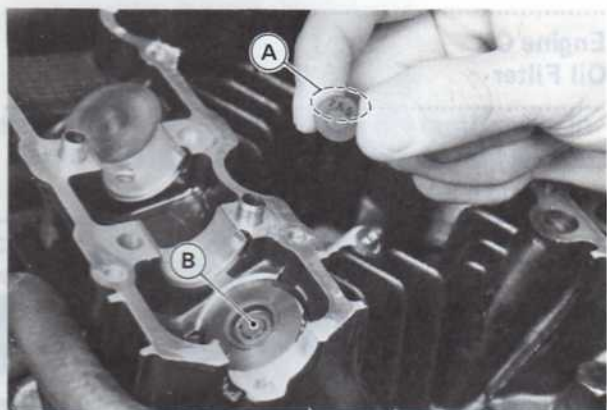
Valve Clearance 282102

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. Re-adjust 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)

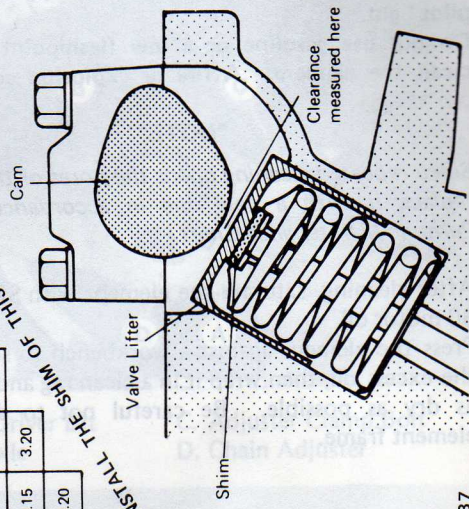
PART NUMBER (92025-) THICKNESS (mm)	PRESENT SHIM SIZE																								
	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114
0.00 ~ 0.03	2.00	2.05	2.10	2.15	2.20	2.25	2.30	2.35	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20
0.04 ~ 0.07	2.00	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		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
0.19 ~ 0.22		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		2.15	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		2.20	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		2.25	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		2.30	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		2.35	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		2.40	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		2.45	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		2.50	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		2.55	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		2.60	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		2.65	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		2.70	2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20													
0.83 ~ 0.87		2.75	2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20														
0.88 ~ 0.92		2.80	2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20															
0.93 ~ 0.97		2.85	2.90	2.95	3.00	3.05	3.10	3.15	3.20																
0.98 ~ 1.02		2.90	2.95	3.00	3.05	3.10	3.15	3.20																	
1.03 ~ 1.07		2.95	3.00	3.05	3.10	3.15	3.20																		
1.08 ~ 1.12		3.00	3.05	3.10	3.15	3.20																			
1.13 ~ 1.17		3.05	3.10	3.15	3.20																				
1.18 ~ 1.22		3.10	3.15	3.20																					
1.23 ~ 1.27		3.15	3.20																						
1.28 ~ 1.32		3.20																							
1.33 ~ 1.38																									

SPECIFIED CLEARANCE / NO CHANGE REQUIRED

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"

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



INSTALL THE SHIM OF THIS THICKNESS (mm)

2-6 SCHEDULED MAINTENANCE

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.

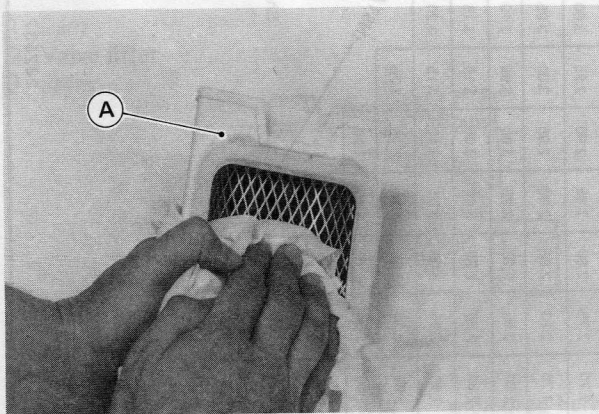
WARNING

- 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.

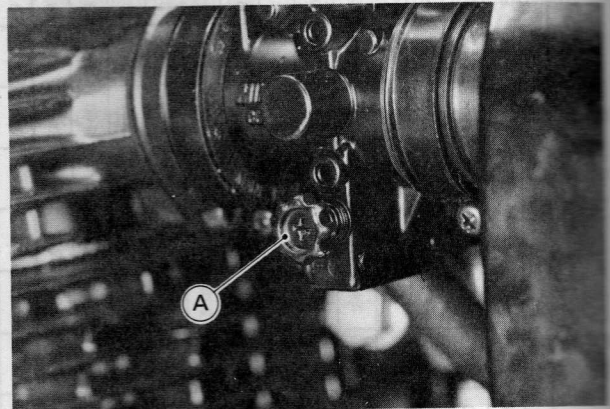
- Check that the idle speed is within the specified range.
- ★ If the idle speed is out of the specified range, adjust it.

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. Re-adjust if necessary.

Drive Chain

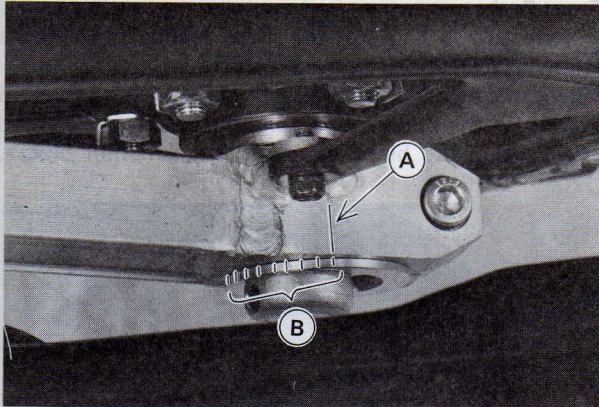
The drive chain must be checked, adjusted, and lubricated in accordance with the Periodic Maintenance Chart for safety and to prevent excessive wear. If the chain becomes badly worn or maladjusted – either too loose or too tight – the chain could jump off the sprocket or break.

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 alignment 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.

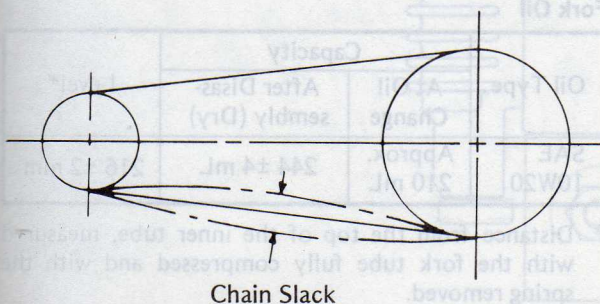
WARNING

- 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

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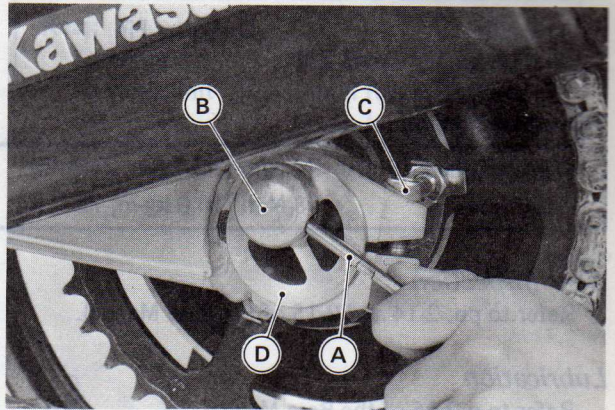


Drive Chain Slack

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 C. Adjuster Clamp Bolt
B. Rear Axle 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.

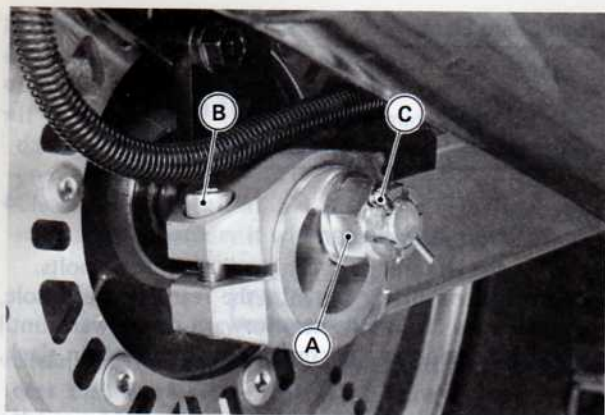
Wheel Alignment Adjustment

- 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.

2-8 SCHEDULED MAINTENANCE



- 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 noting the following exception.

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

Air Bleeding:

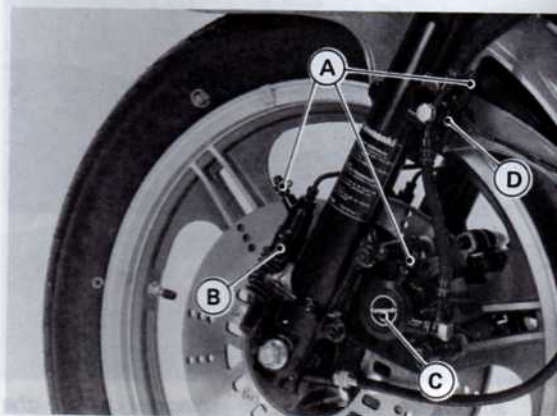
Rear Brake:

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

Front Brake:

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

- Bleed the air from the brake line, first using the bleed valves on the brake calipers and the anti-dive units, then using the bleed valves on the junction block.



- 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 Manual 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 mm

* Distance from the top of the inner tube, measured 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.

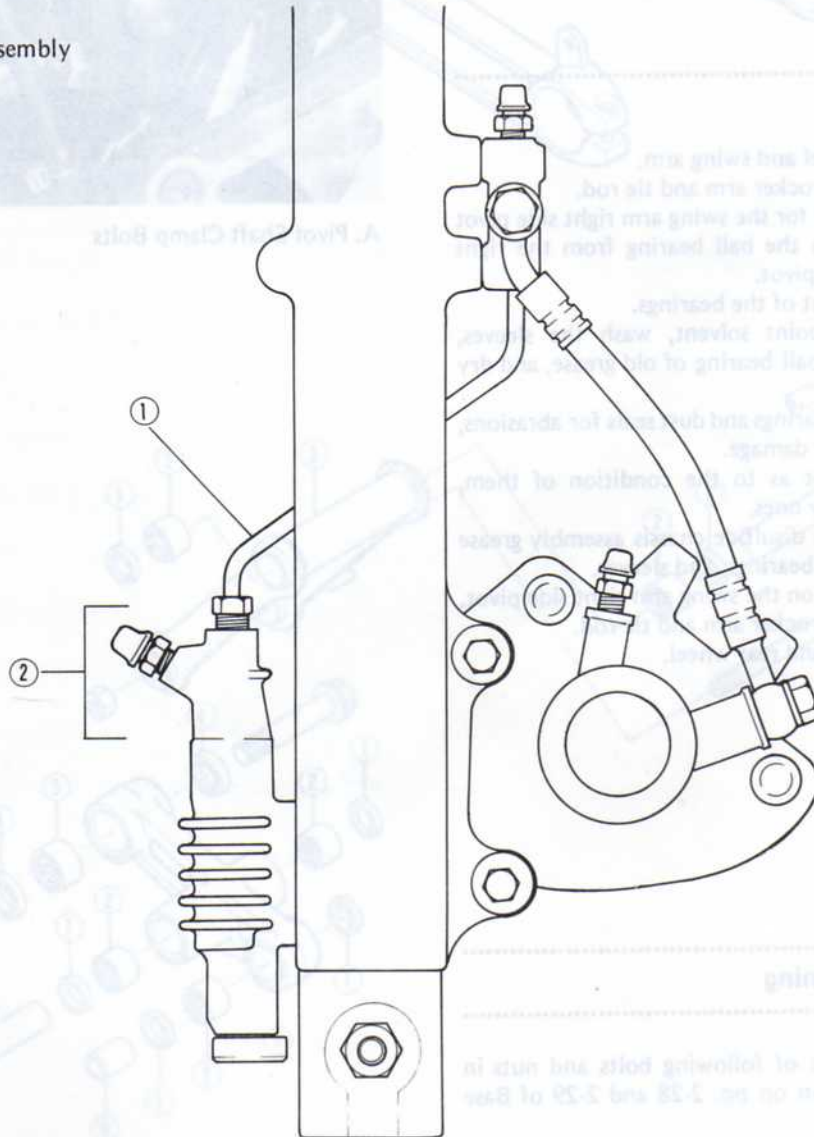
Periodic Replacement Parts of Anti-Dive System

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

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

Periodic Replacement Parts of Anti-Dive System

1. Metal Pipe
2. Brake Plunger Assembly



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)

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2-10 SCHEDULED MAINTENANCE

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.

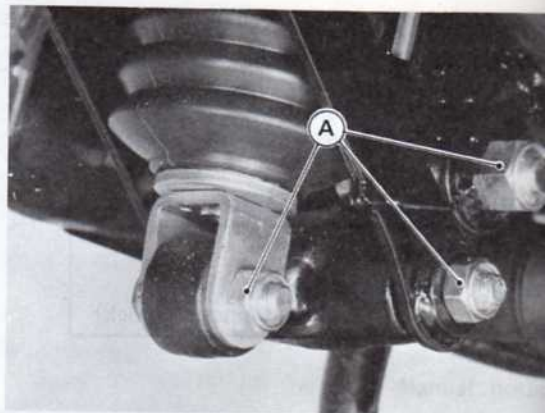
Swing Arm Uni-Trak

Lubrication

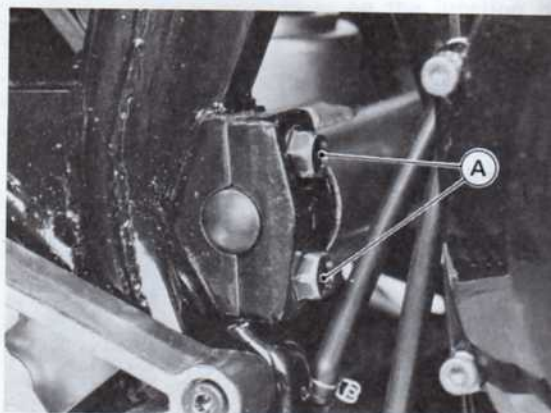
- Remove the rear wheel and swing arm.
- Remove the uni-trak rocker arm and tie rod.
- Remove the dust seal for the swing arm right side pivot bearings, and remove the ball bearing from the right side of the swing arm pivot.
- Pull out the sleeves out of the bearings.
- Using a high flash-point solvent, 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.

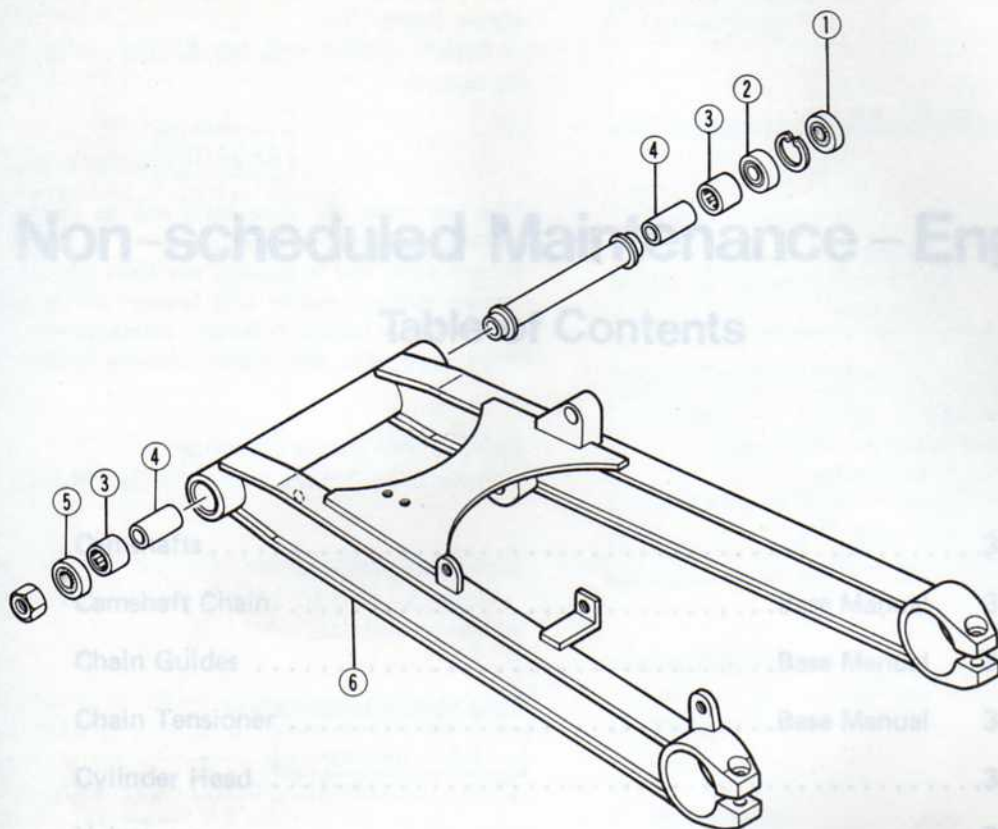


A. Uni-Trak Link Nuts



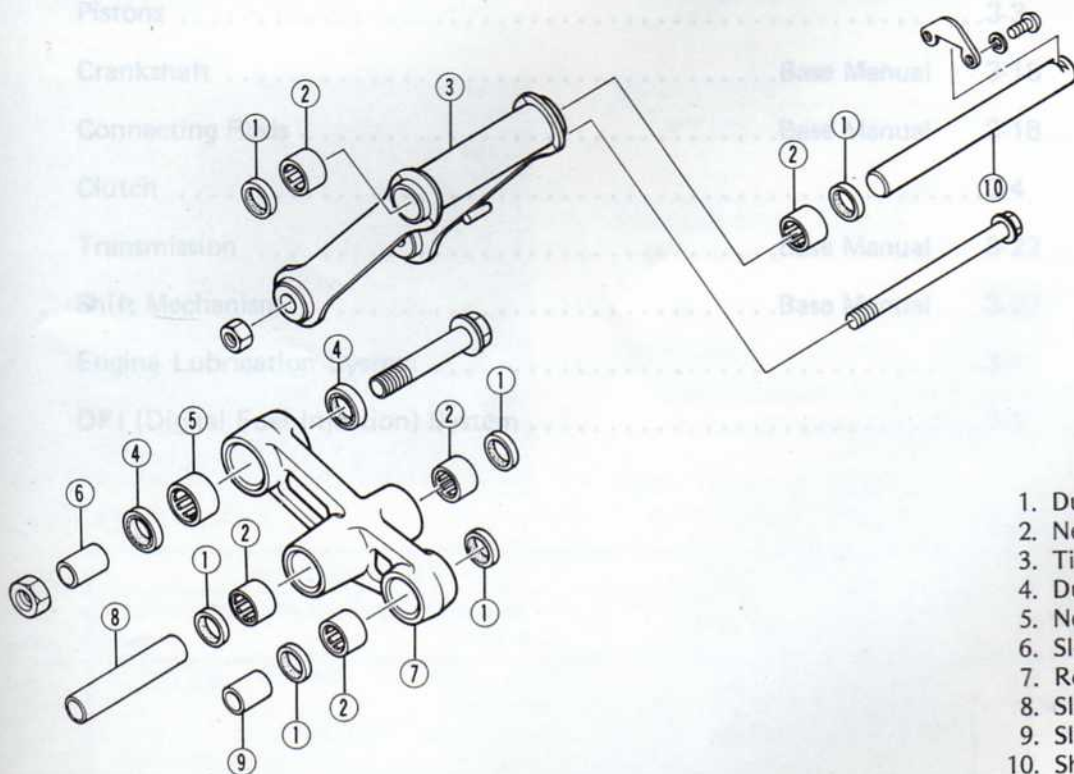
A. Pivot Shaft Clamp Bolts

Swing Arm Pivot



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

Uni-Trak Link



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

3-2 NON-SCHEDULED MAINTENANCE – ENGINE

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.

Valve Guide, Valve, Valve Seat: Valve Inspection

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

CAUTION

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

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 the 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 Manual noting the following exception.

CAUTION

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

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 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.

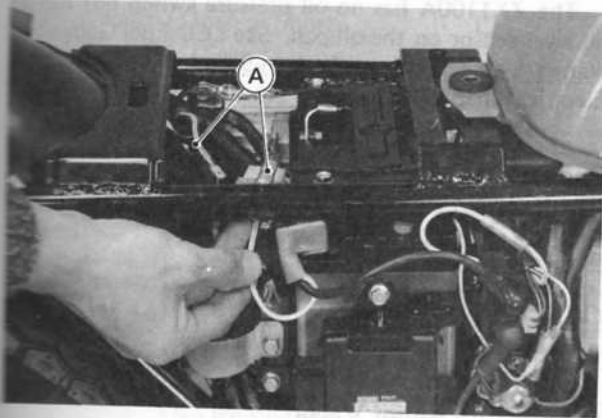
Spring	Test Length	Standard	Service Limit
Inner	23.1 mm	280.5 – 309.9 N (28.60 – 31.60 kg)	261 N (26.6 kg)
Outer	25.6 mm	499.7 – 550.7 N (50.95 – 56.15 kg)	465 N (47.4 kg)

**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, disconnect the white/red lead which connects the battery positive terminal to the fuel injection system harness.



A. DFI System White/Red Lead

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)

Cylinder Compression

Usable Range: 735 – 1,150 kPa (7.5 – 11.7 kg/cm ² , 107 – 166 psi), and less than 98 kPa (1 kg/cm ² , 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.

3-4 NON-SCHEDULED MAINTENANCE – ENGINE

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 Clearance

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/cm ² , 63 – 85 psi)
--

DFI (Digital Fuel Injection System)

General Information:

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

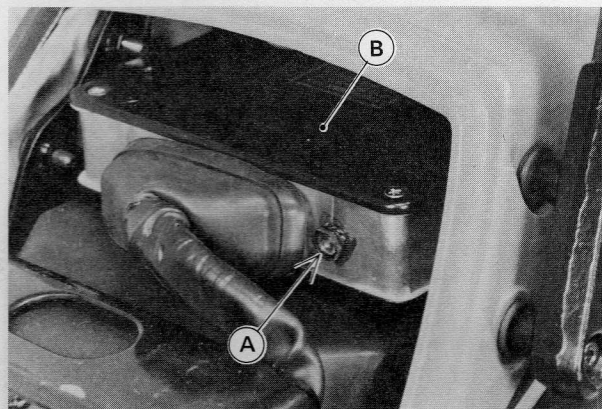
Self-Diagnosis and Fail-Safe Function:

The 1983 DFI control unit diagnoses the DFI system while the engine is running. If trouble occurs 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 data are choosed to minimize 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 occur 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

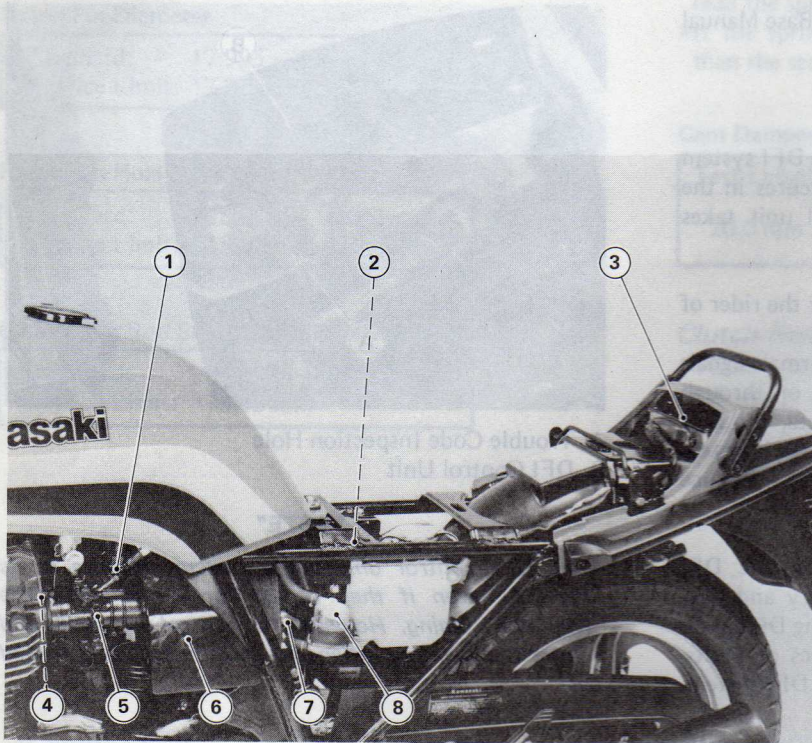
382538

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 Sensor	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.

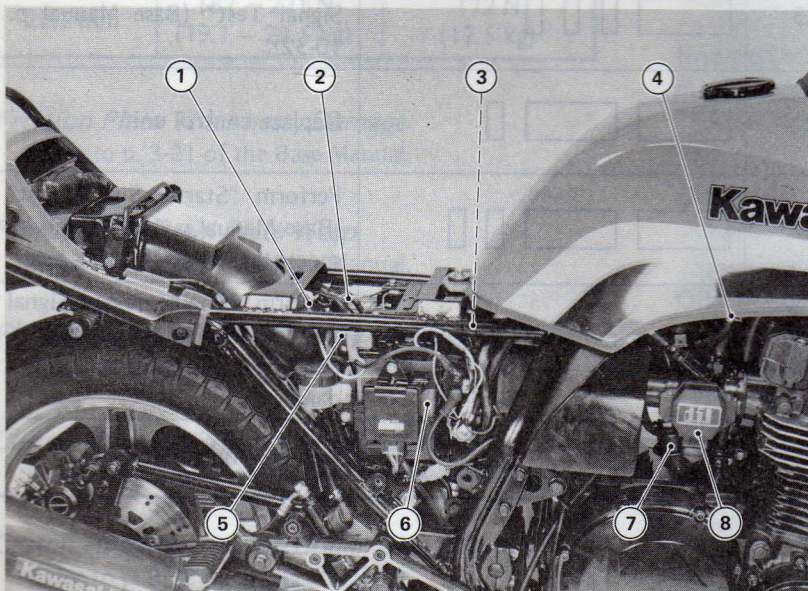
* : □ Long pulse, □ Short pulse
** : Central Processing Unit

3-6 NON-SCHEDULED MAINTENANCE — ENGINE

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



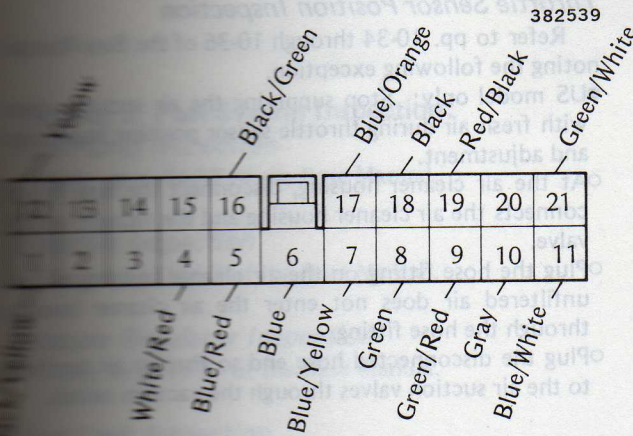
1. DFI System Positive (+) Lead
(white/red)
2. DFI System Negative (-) Leads
(black/yellow and black/green)
3. Air Cleaner (between battery and
surge tank)
4. Check Valve
5. Main/Pump Relay
6. Battery
7. Pressure Regulator
8. Throttle Sensor

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 begins to monitor the system condition and emits the green light pulses if the DFI system has any trouble.

DFI Wiring Diagram:

A green/red wire is added to transmit 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 occurs 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 main connector.
- Connect the open ends of the fuel hoses using vacuum pump adapter (special tool).

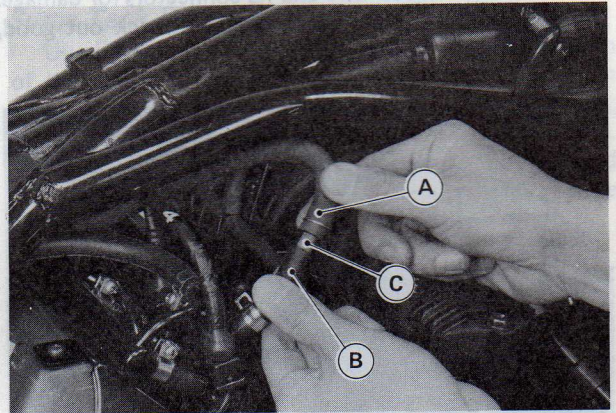
Warning Signal Inspection

Meter Range	Connections*	Meter Reading (Criteria)
∞/100Ω	○Meter Black (-) Probe → Green/red (Main harness side)	○∞Ω with ignition switch turned on, and before starter switch is pushed on.
	○Meter Red (+) Probe → Chassis ground	○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.

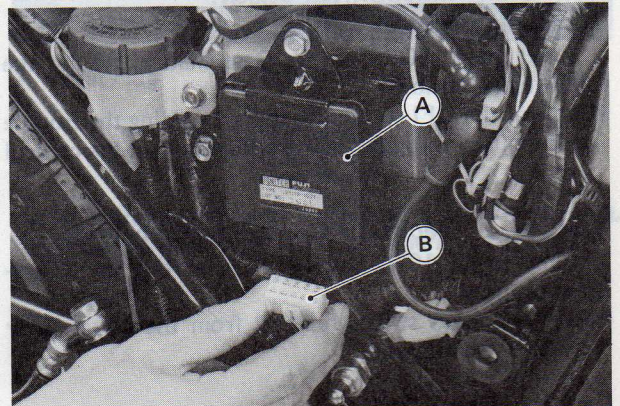
WARNING

- 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

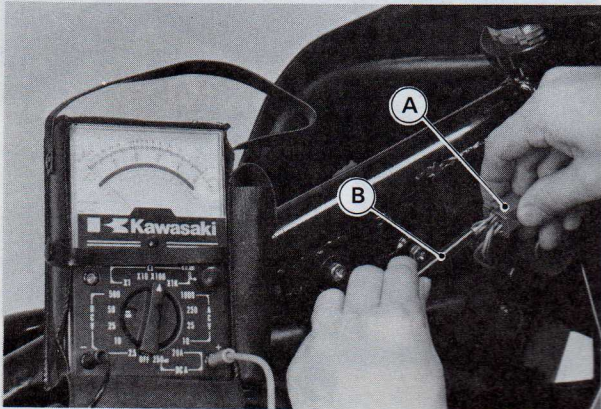
- Connect the ohmmeter to the wire shown in the table, and inspect the warning signal.

3-8 NON-SCHEDULED MAINTENANCE – ENGINE

“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.

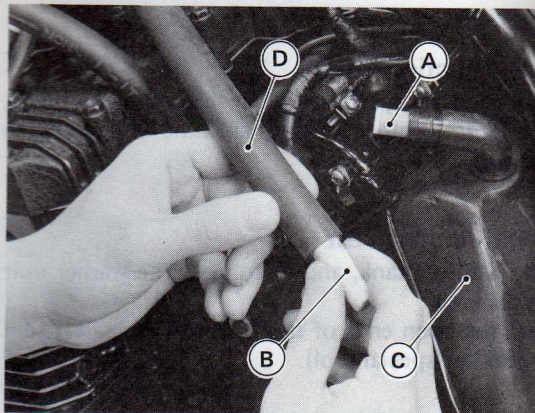
Throttle Sensor Test

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

Throttle Sensor Position Inspection

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

- US model only: Stop supplying the air suction with fresh air during throttle sensor position inspection and adjustment.
- At the air cleaner housing, disconnect the hose that connects the air cleaner housing and the vacuum valve.
- Plug the hose fitting on the air cleaner housing so that unfiltered air does not enter the air cleaner housing through the hose fitting.
- Plug the disconnected hose end so that no air can flow to the air suction valves through the vacuum switch.



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

- Set the engine idle speed to the value specified during throttle sensor position inspection and adjustment.

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 Manual.

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.

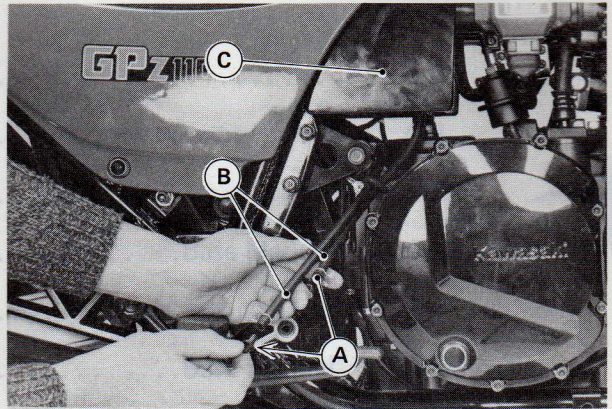
- The air duct between the surge tank and the air cleaner housing is discontinued.

- 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

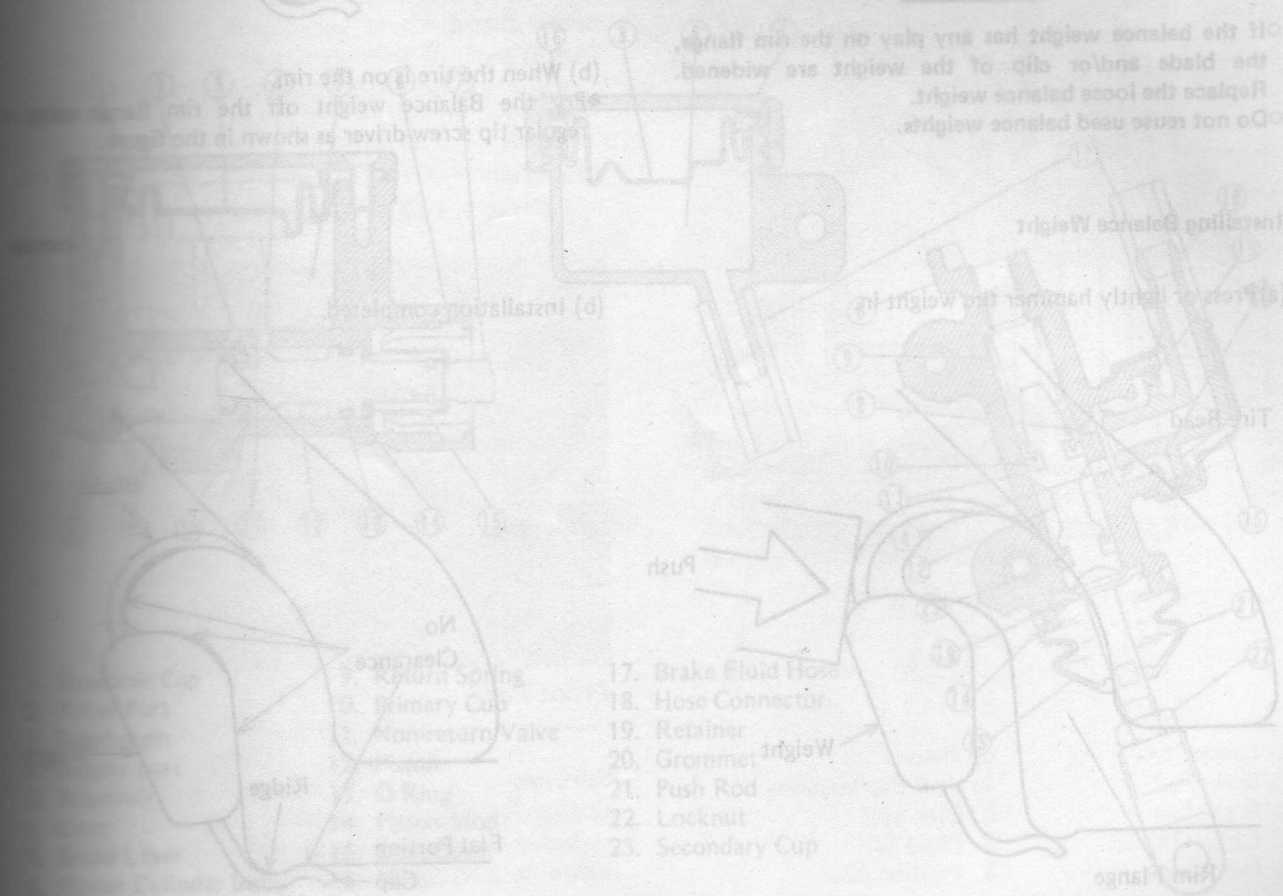
CAUTION

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

Non-scheduled Maintenance – Chassis

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



4-2 NON-SCHEDULED MAINTENANCE – CHASSIS

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

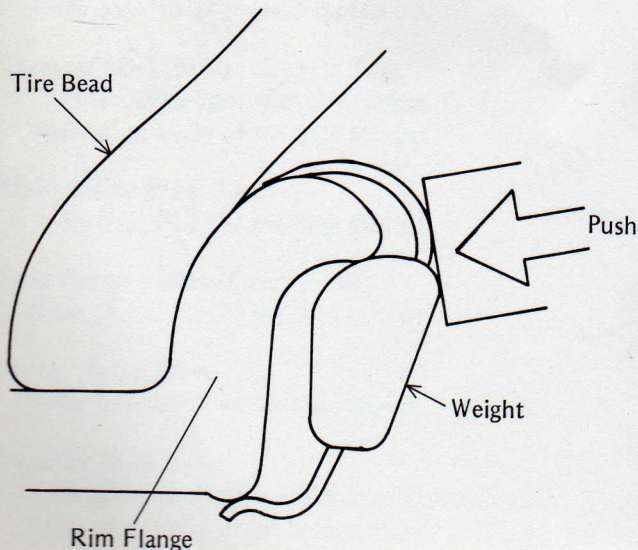
- Do not lubricate the tire bead with engine oil or gasoline because they will deteriorate the tire.
- Install the balance weight on the rim.
- Slip the weight on the rim flange by pushing or lightly hammering the weight in the direction shown in the figure.
- Check that the blade and weight seat fully 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.



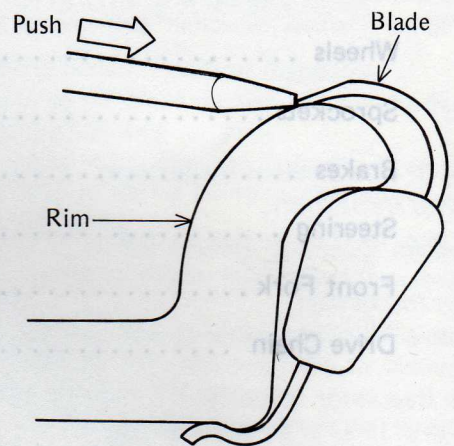
Balance Weight

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 with a regular tip screw driver, and slip the weight off the rim flange.
- Discard the used balance weight.

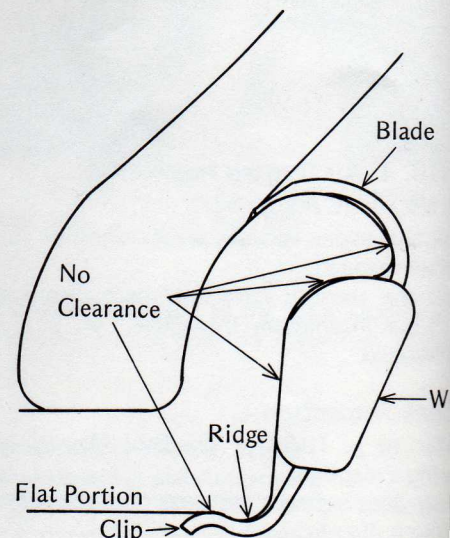
Removing Balance Weight (without tire on rim)



(b) When the tire is on the rim.

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

(b) Installation completed.

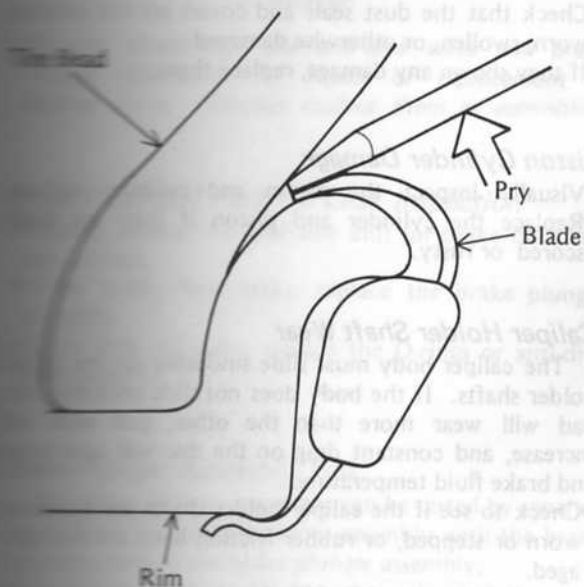


Insert a tip of the screw driver between the tire bead and weight blade until the end of the tip reaches the end of the weight blade.

Push the driver grip toward the tire so that the balance weight slips off the rim flange.

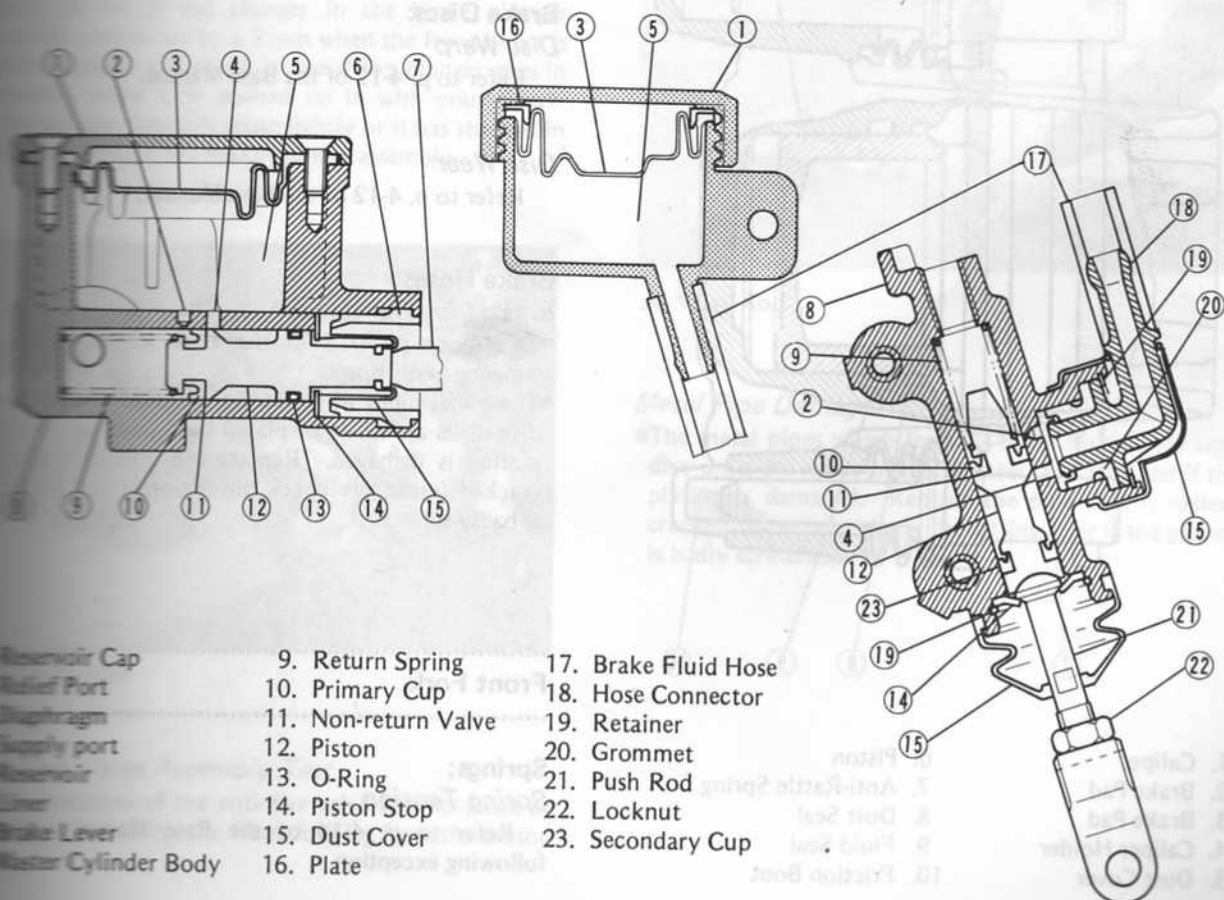
Discard the used balance weight.

Removing Balance Weight (with tire on rim) 482532



Front and Rear Master Cylinders

482533



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

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.

4-4 NON-SCHEDULED MAINTENANCE – CHASSIS

- ★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.

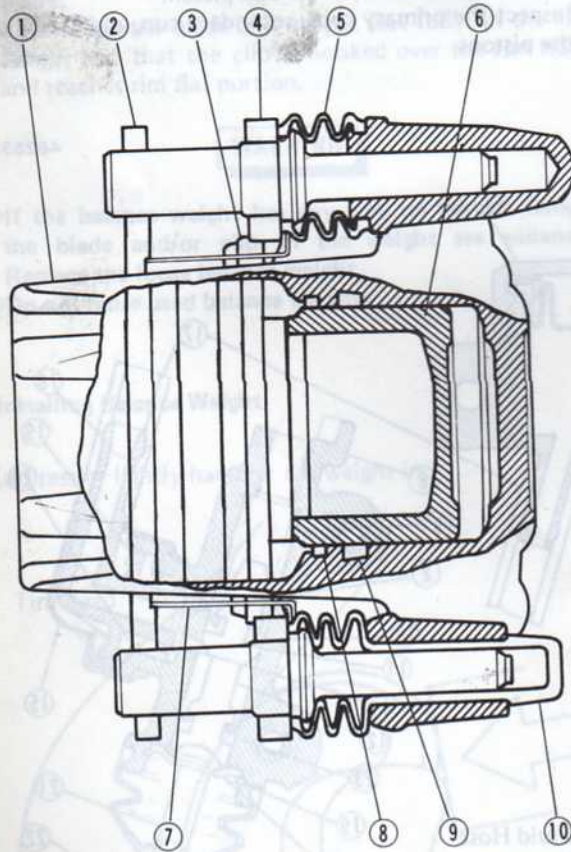
Calipers:

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

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

Dust Seal and Cover Damage

- Check that the dust seals and covers are not cracked, worn, swollen, or otherwise damaged.
- ★If they show any damage, replace them.

Piston Cylinder Damage

- Visually inspect the piston and cylinder surface.
- ★Replace the cylinder and piston if they are badly scored or rusty.

Caliper Holder Shaft Wear

The caliper body must slide smoothly on the caliper holder shafts. If the body does not slide smoothly, pad wear will increase, and constant drag on the disc will raise brake and brake fluid temperature.

- Check to see if the caliper holder shafts are not bent, worn or stepped, or rubber friction boot are not damaged.
- ★If the shafts or rubber friction boot are damaged, replace the rubber friction boot, and the caliper holder shafts.

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 noting the following exception.

- The metal pipes which feed the brake fluid to the caliper 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 pipe is badly scratched.

Front Fork

Springs:

Spring Tension

Refer to p. 4-14 of the Base Manual noting the 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. Always replace them as assemblies.

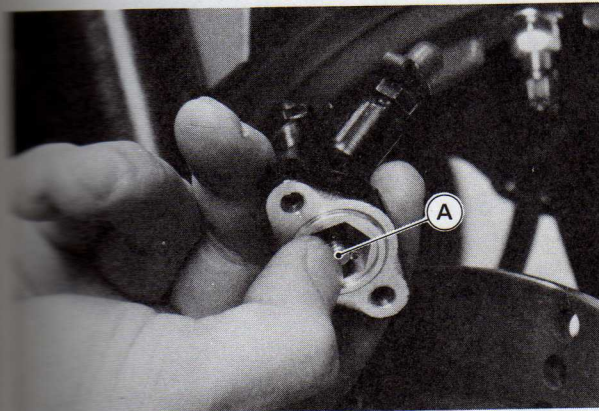
Brake Fluid and Fork Oil Leak Inspection

- 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 the 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 stuck in the body, replace the brake plunger assembly.



A. Brake Plunger

Anti-Dive Valve Assembly Test

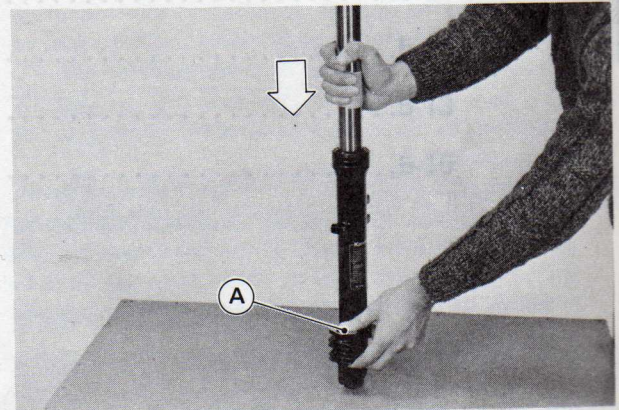
The operation of the anti-dive valve assembly can be checked by removing the front fork leg from the motorcycle.

- 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

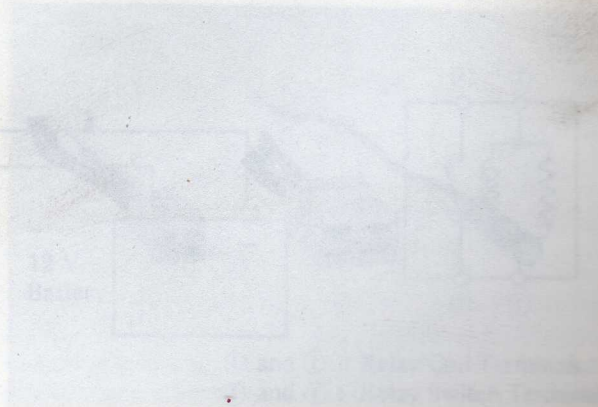
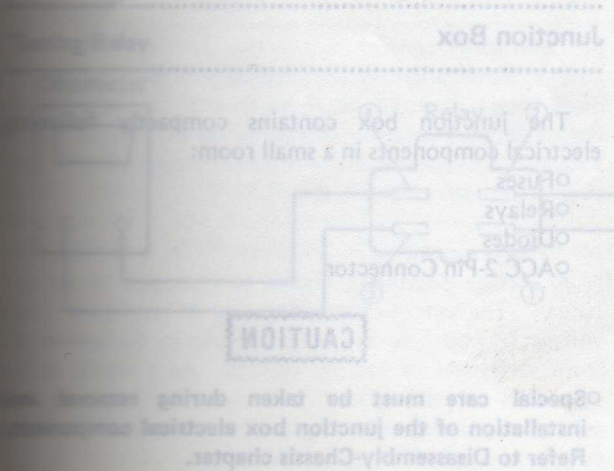
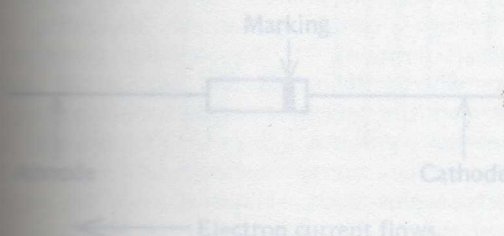
Metal Pipe Damage

- 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

Table of Contents

Precautions		5-2
Battery	Base Manual	5-2
Charging System	Base Manual	5-4
Junction Box		5-2
Ignition System		5-4
Electric Starter System		5-11
Headlight System		5-13
LCD Fuel Gauge and Warner Unit		5-15



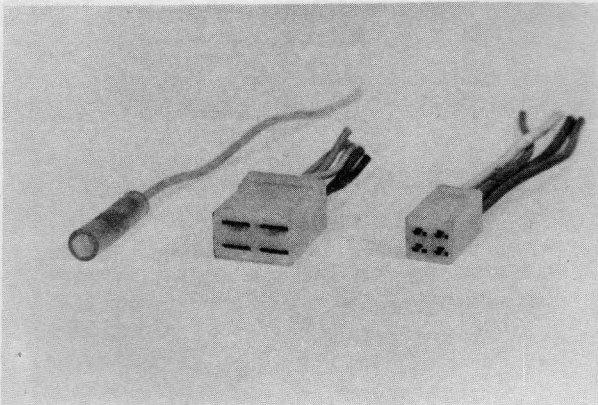
5-2 NON-SCHEDULED MAINTENANCE – ELECTRICAL

Precautions

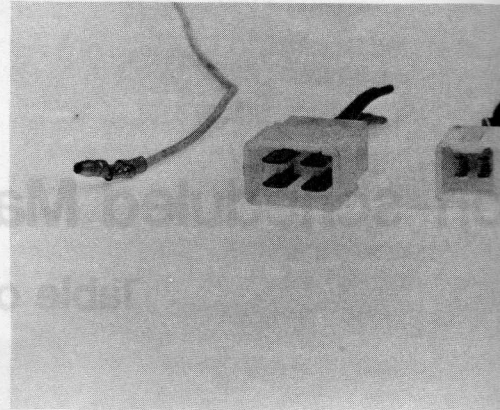
There are numbers of important precautions that are musts when servicing electrical systems. Though cautions that apply to the indications are listed below, failure to observe these rules can result in serious system damage. Learn and observe all the rules below.

- (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 wattage 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).

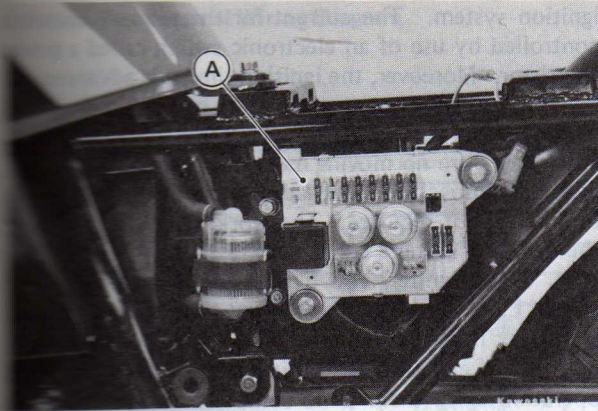
Junction Box

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.



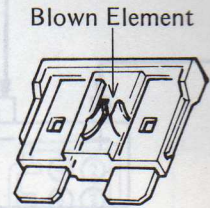
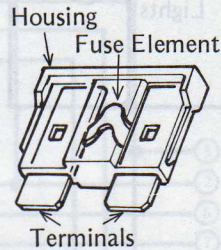
A. Junction Box

Inspecting 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



Inspecting Diodes

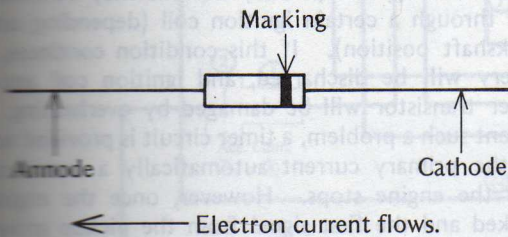
- Disconnect the diode assembly from the junction box.
- Turn the ohmmeter, and connect it to each diode leads to check the resistance in both directions.
- The resistance should be low in one direction and more than ten times as much in the other direction. If any diode shows low or high in both directions,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

"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

582520



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

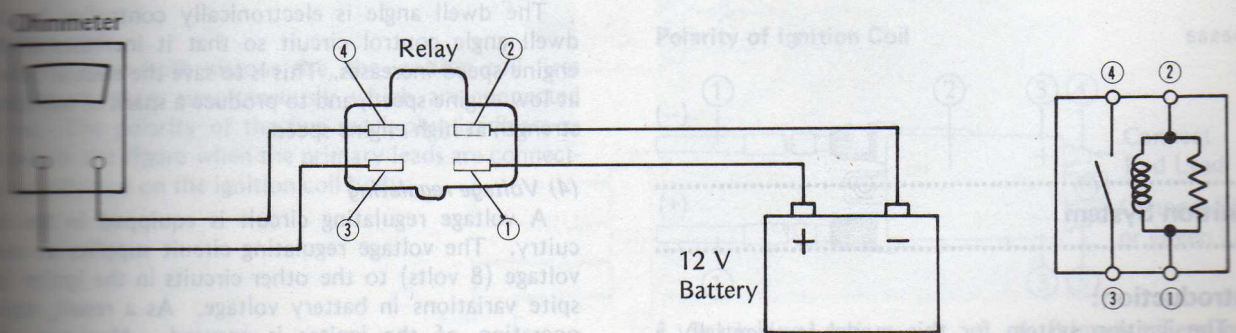
Meter range:	x 1 Ω range
Criteria:	
	When battery is connected $\rightarrow 0 \Omega$
	When battery is disconnected $\rightarrow \infty \Omega$

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



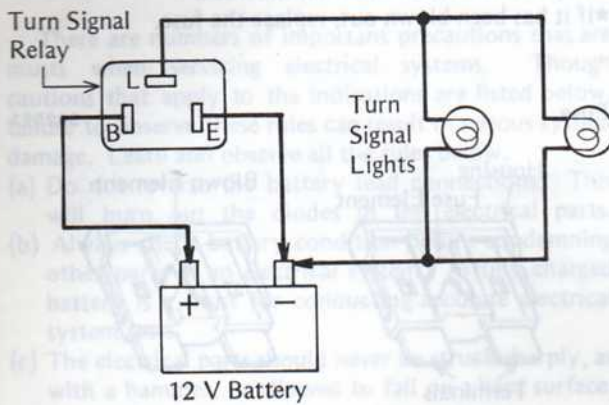
- ① and ② : Relay Coil Terminals
- ③ and ④ : Relay Switch Terminals

5-4 NON-SCHEDULED MAINTENANCE – ELECTRICAL

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 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 circuit is controlled by use of an electronic switch called a transistor. Moreover, the ignition timing is advanced by a centrifugal advance mechanism but by an electronic circuit in the IC igniter: the electronic advance system. Since there are no moving mechanical parts to wear, periodic inspection and adjustment of the timing are not required. The working electrical system of the ignition system consists of a battery, two coils, an IC igniter, two ignition coils, and four spark plugs. Each spark plug fires every time the piston fires. However, if a spark does jump across the electrodes during the exhaust stroke, it has no effect on engine operation since there is no compression and no burn.

Main Component Parts:

Pickup Coil Assembly:

The pickup coil is a magnetic signal generator that consists of a permanent magnet and coil. Every time a projection of the timing rotor passes under the coil core, a signal is generated and sent to the IC igniter.

IC igniter:

The IC igniter has the following functions.

(1) Electronic ignition timing advance

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

(2) Time-controlled cutting off

If the ignition switch is left turned on but the engine is not running, the primary current may continue to flow through a certain ignition coil (depending on crankshaft position). If this condition continues, the battery will be discharged, and ignition coil power transistor will be damaged by overheating. To prevent such a problem, a timer circuit is provided to cut off the primary current automatically a few seconds after the engine stops. However, once the engine is cranked and the first signal from the pickup coil is received at the igniter, the timer circuit returns to its original state to permit the primary current to flow.

(3) Dwell-angle control

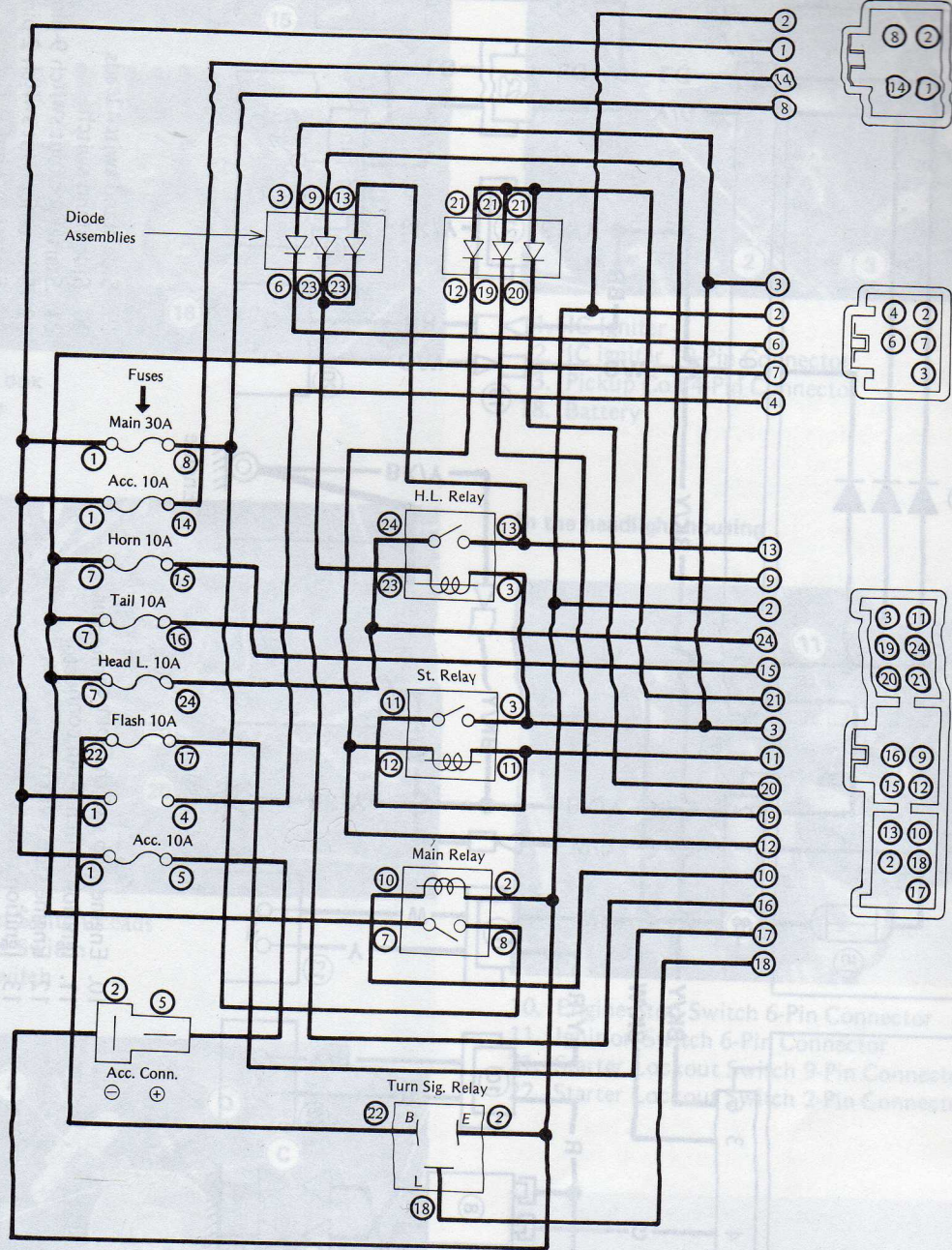
The dwell angle is electronically controlled by a dwell angle control circuit so that it increases as engine speed increases. This is to save the electrical energy at low engine speed, and to produce a spark of sufficient strength at high engine speed.

(4) Voltage regulating

A voltage regulating circuit is equipped in the ignition system. The voltage regulating circuit supplies a constant voltage (8 volts) to the other circuits in the ignition system despite variations in battery voltage. As a result, the operation of the igniter is ensured. Moreover, the voltage regulating circuit protects the circuit from surge currents in the power lines.

Junction Box Internal Wiring Diagram

582514

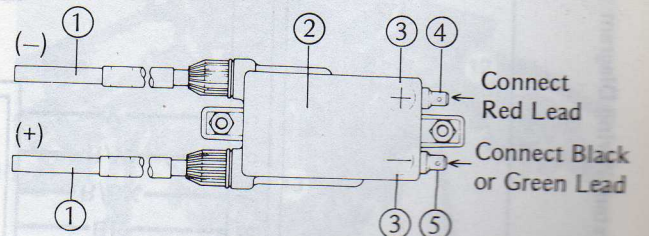


Ignition coil:

Every time both pistons rise, the ignition coil fires both spark plugs simultaneously which are connected in 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

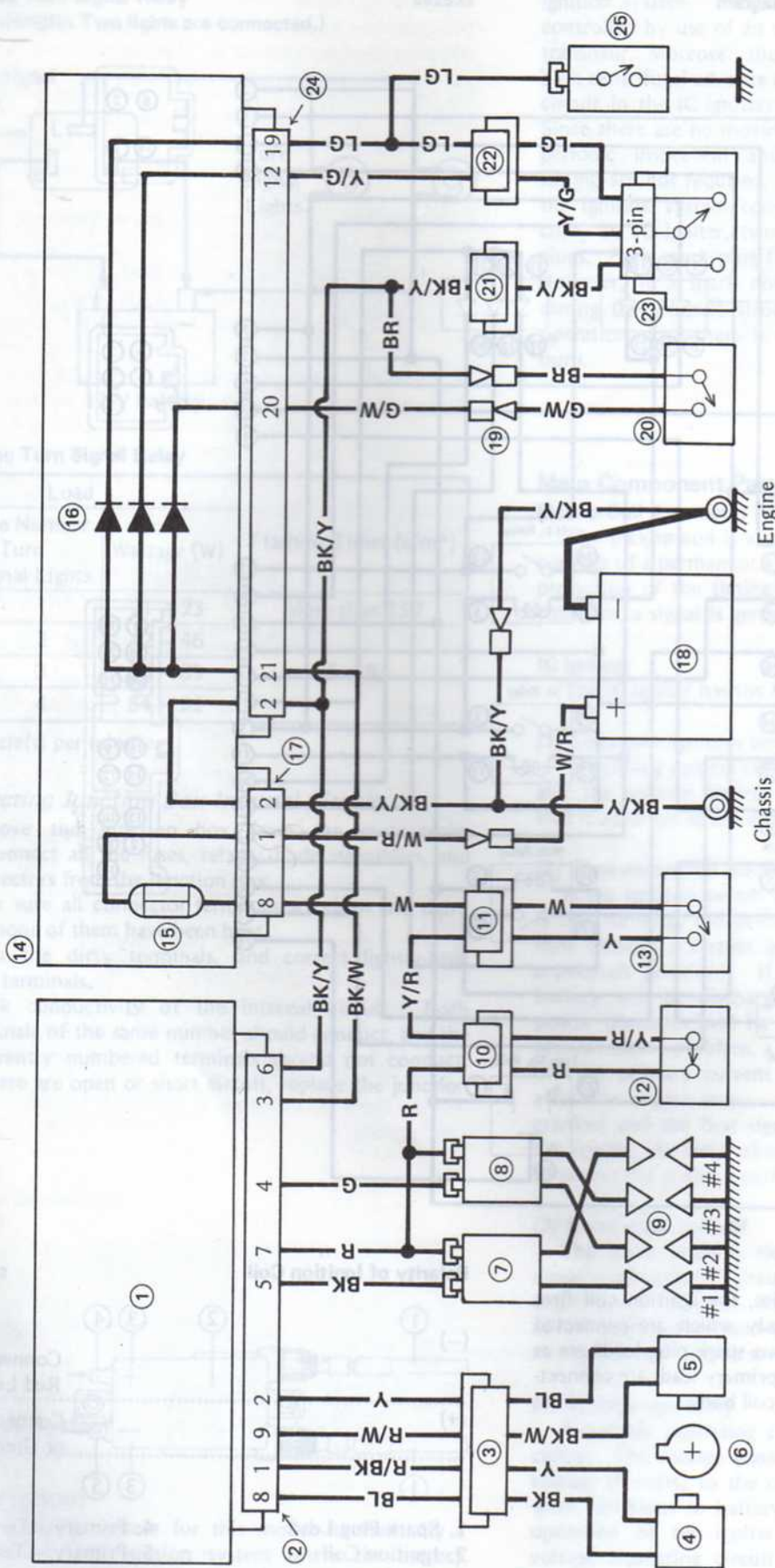


- 1. Spark Plug Lead
- 2. Ignition Coil
- 3. Marking

- 4. Primary + Terminal
- 5. Primary - Terminal

582541

Ignition System Wiring Diagram

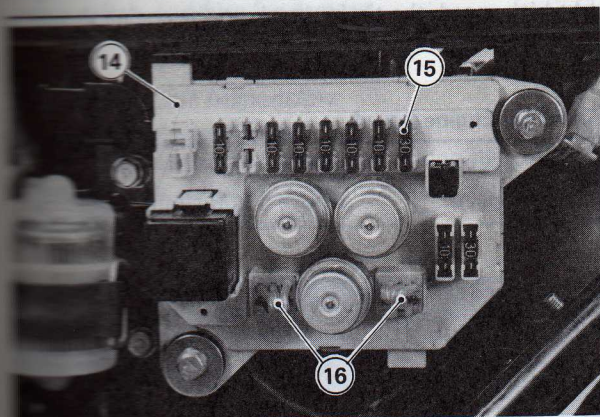


- 1. IC igniter
- 2. IC igniter 10-pin connector
- 3. Pickup coil #1 and #4 cylinders
- 4. Pickup coil for #2 and #3 cylinders
- 5. Timing rotor

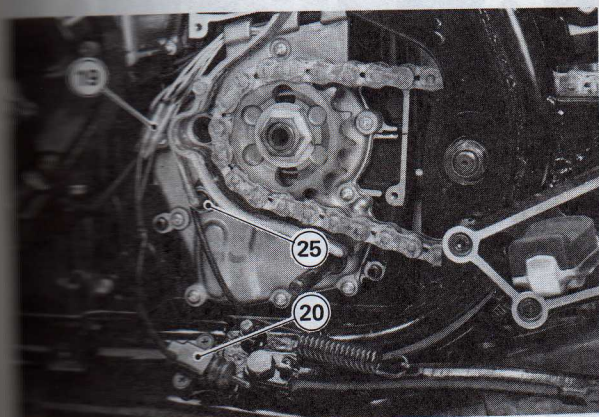
- 6. Engine stop switch
- 7. Ignition stop switch
- 8. Engine stop switch
- 9. Ignition stop switch
- 10. Engine stop switch 6-pin connector
- 11. Ignition stop switch 6-pin connector
- 12. Engine stop switch
- 13. Ignition stop switch
- 14. Junction box
- 15. 30A fuse

- 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. Starter lockout switch
- 25. Starter lockout switch

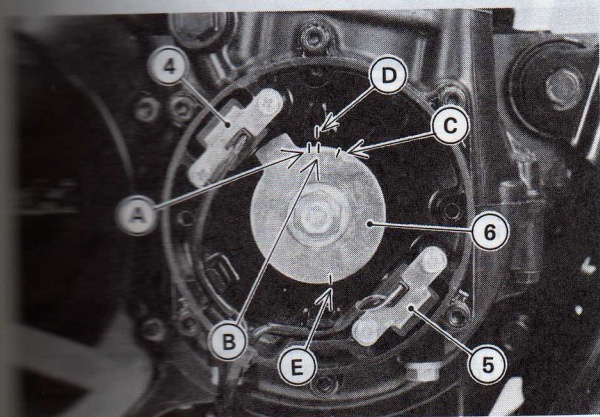
Parts Location and Timing Marks:



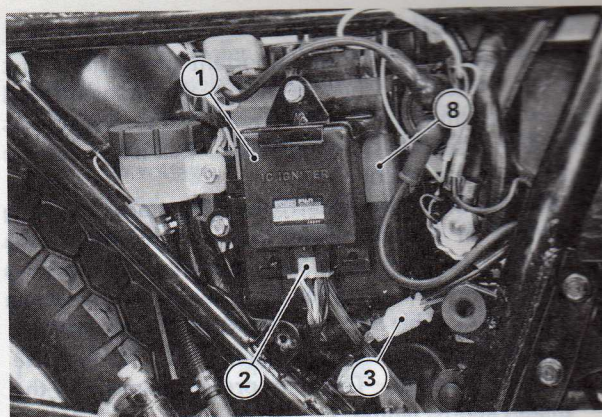
- 14. Junction box
- 15. 30 A fuse
- 16. Diodes



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

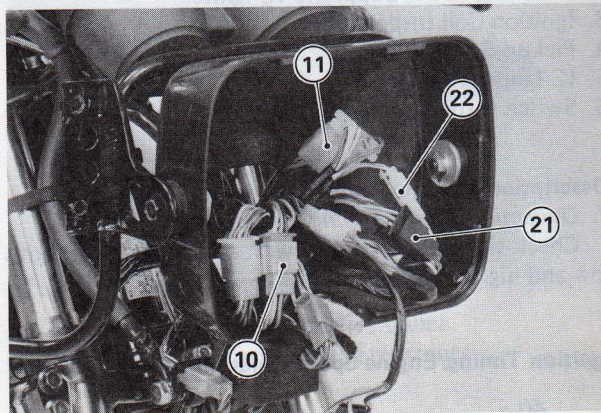


- 4. Pickup Coil for #1 and #4 Cylinders
- 5. Pickup Coil for #2 and #3 Cylinders
- 6. Timing Rotor
- A. 1° Mark for #1 and #4 cylinders
- B. 1° Mark
- C. Advanced Timing Mark
- D. Timing Mark on the Engine
- E. 1° Mark for #2 and #3 Cylinders

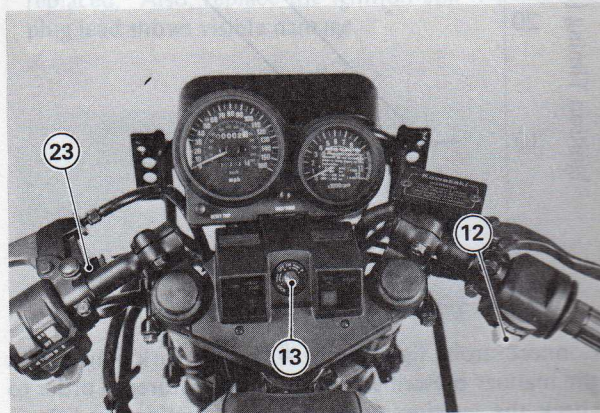


- 1. IC Igniter
- 2. IC igniter 10-Pin Connector
- 3. Pickup Coil 4-Pin Connector
- 18. Battery

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

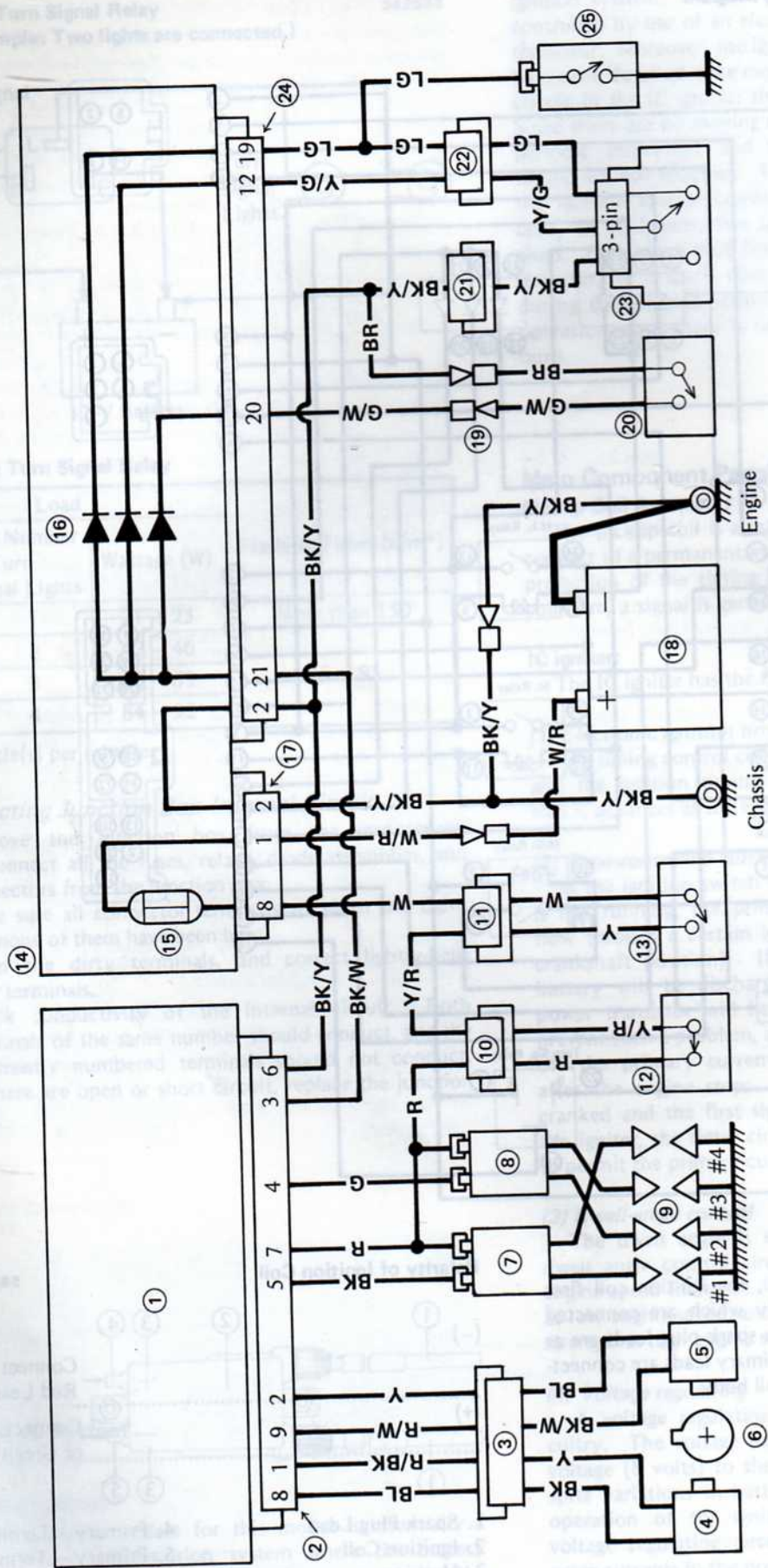


- 12. Engine Stop Switch
- 13. Ignition Switch
- 23. Starter Lockout Switch

5-6 NON-SCHEDULED MAINTENANCE – ELECTRICAL

582541

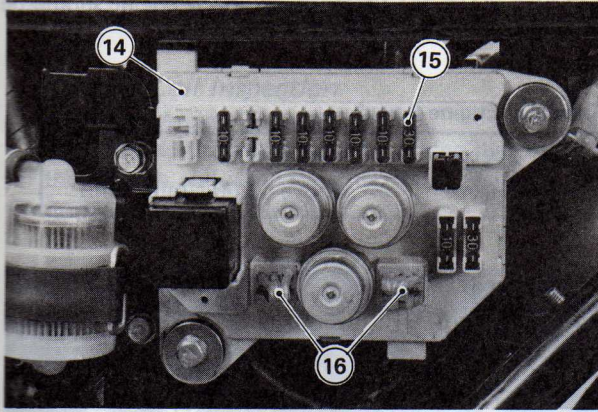
Ignition System Wiring Diagram



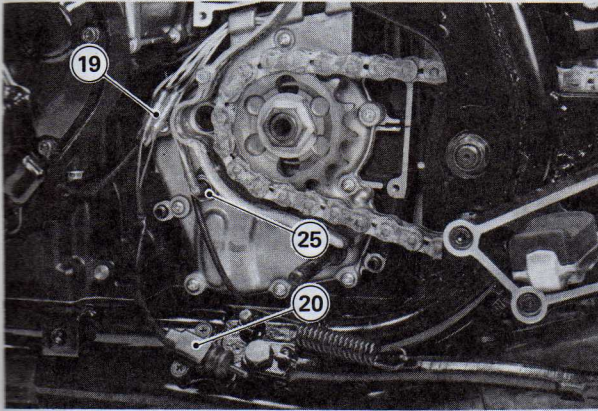
- 1. IC igniter
- 2. IC igniter 10-pin connector
- 3. Pickup coil 4-pin connector
- 4. Pickup coil for #1 and #4 cylinders
- 5. Pickup coil for #2 and #3 cylinders
- 6. Timing rotor

- 7. Ignition switch
- 8. Ignition switch 6-pin connector
- 9. Engine stop switch
- 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
- 16. Starter lockout switch
- 17. Starter lockout switch 2-pin connector
- 18. Starter lockout switch 9-pin connector
- 19. Side stand switch
- 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

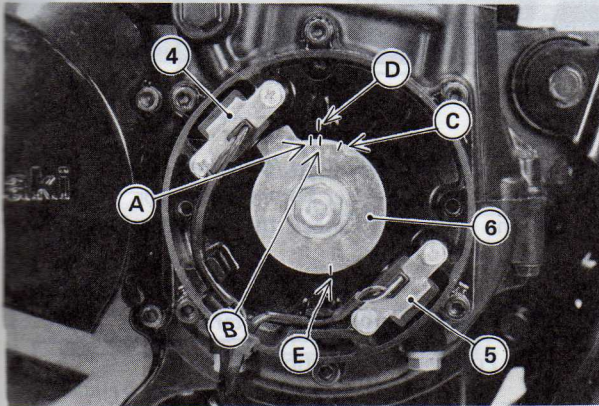
Parts Location and Timing Marks:



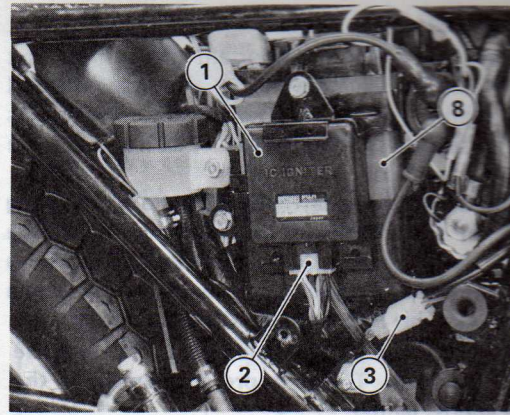
14. Junction box
15. 30 A fuse
16. Diodes



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

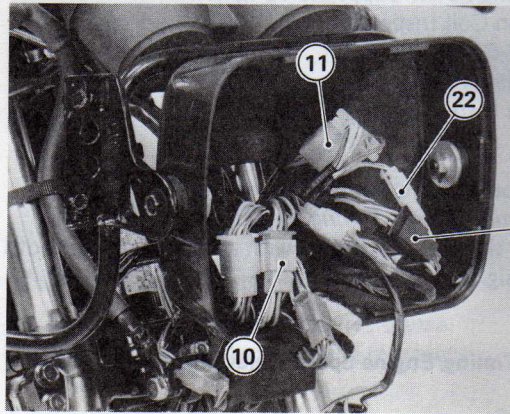


4. Pickup Coil for #1 and #4 Cylinders
5. Pickup Coil for #2 and #3 Cylinders
6. Timing Rotor
A. "T" Mark for #1 and #4 cylinders
B. "F" Mark
C. Advanced Timing Mark
D. Timing Mark on the Engine
E. "T" Mark for #2 and #3 Cylinders

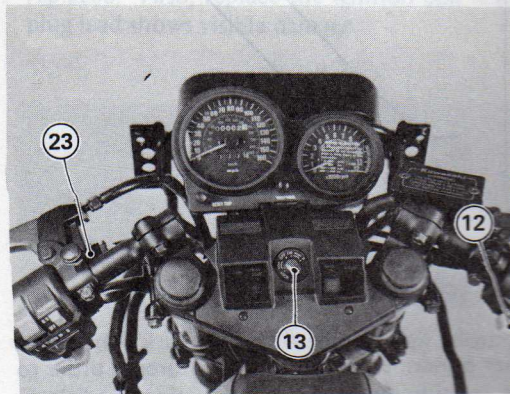


1. IC Igniter
2. IC igniter 10-Pin Connector
3. Pickup Coil 4-Pin Connector
8. Battery

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

10. Diodes
17. Junction box 4-pin connector
18. Battery

7. Ignition coil for #1 and #4 cylinders
8. Ignition coil for #2 and #3 cylinders
9. Spark plugs

5-8 NON-SCHEDULED MAINTENANCE – ELECTRICAL

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 items, 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

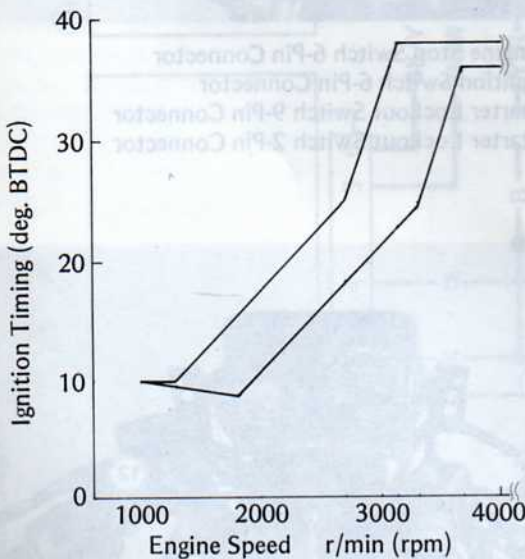
Description of Each Testing Procedure:

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

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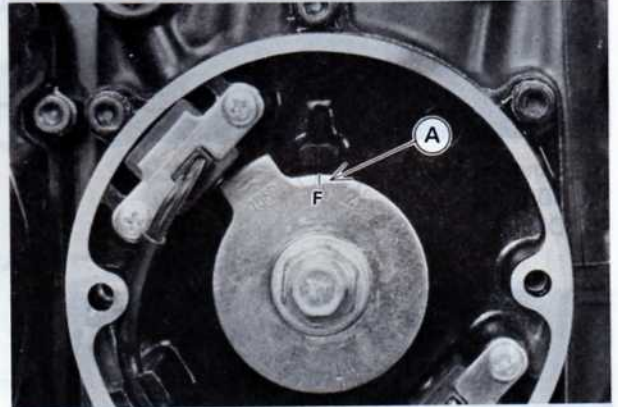


- Connect strobe light to the #1 or #4 spark plug lead in the manner prescribed by the manufacturer in order to check the ignition timing under operating conditions.
- Start the engine, and direct the strobe light at the timing marks.
- Check the ignition timing at low and high engine speeds.

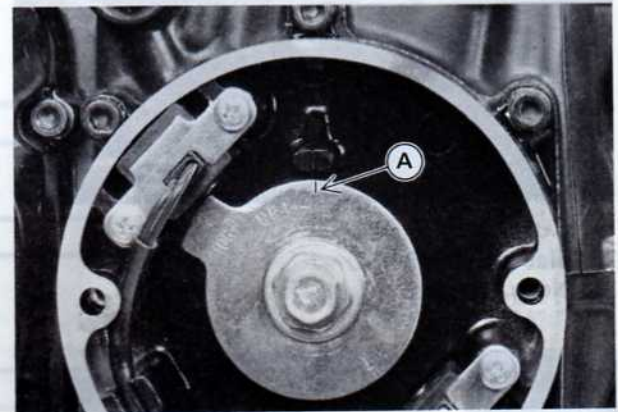
- ★ At low speed the "F" mark on the timing rotor should be aligned with the timing mark on the engine.
- ★ At high speed, the timing mark on the engine should be aligned with the advanced timing mark.

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.

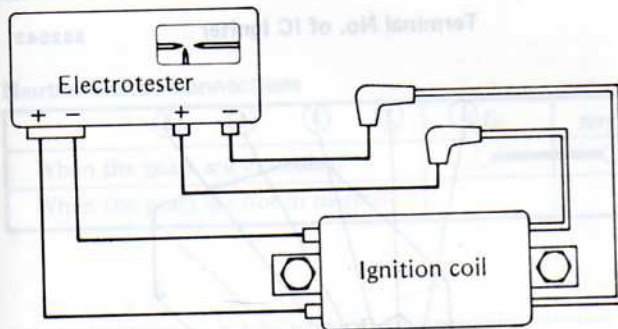
WARNING

○To avoid extremely 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 defective. 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.

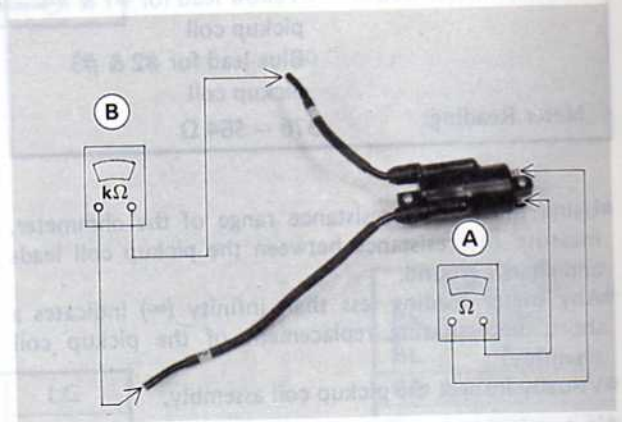
(b) Measuring Coil Resistance:

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.

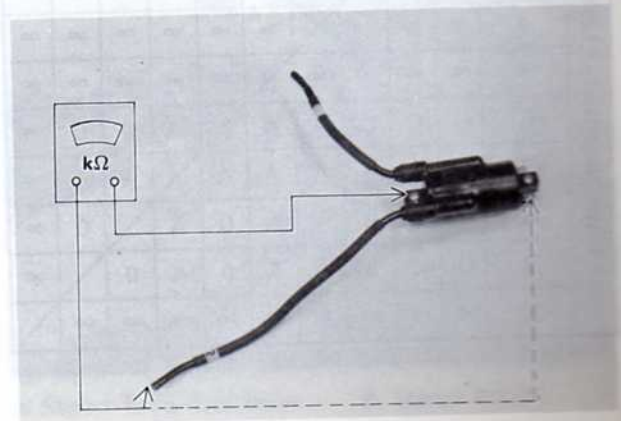
Ignition Coil Resistance

	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 continuity 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.



5-10 NON-SCHEDULED MAINTENANCE – ELECTRICAL

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 Positive (+) Lead Connection									
		1	2	3	4	5	6	7	8	9	10
Tester Negative (-) Lead Connection	Terminal No.	1	D	D	D	D	D	D	D	D	∞
	2	D	D	D	D	D	D	D	D	D	∞
	3	C	C	B	B	B	B	B	B	B	∞
	4	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
	5	∞	∞	∞	∞	∞	∞	∞	∞	∞	∞
	6	C	C	B	A	A	A	0	0	0	∞
	7	C	C	B	A	A	A	A	A	A	∞
	8	C	C	B	A	A	0	A	0	0	∞
	9	C	C	B	A	A	0	A	0	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

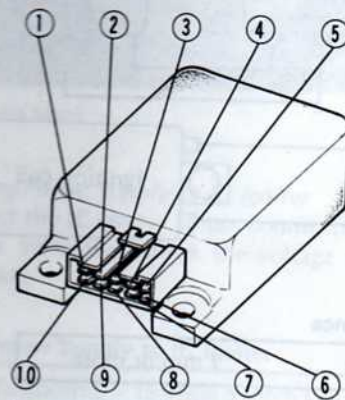
- Using the ohmmeter, check to see that only the connections shown in the table have continuity (about zero ohms).
- ★ If the switch has open or a short, repair it or replace it with a new one.

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

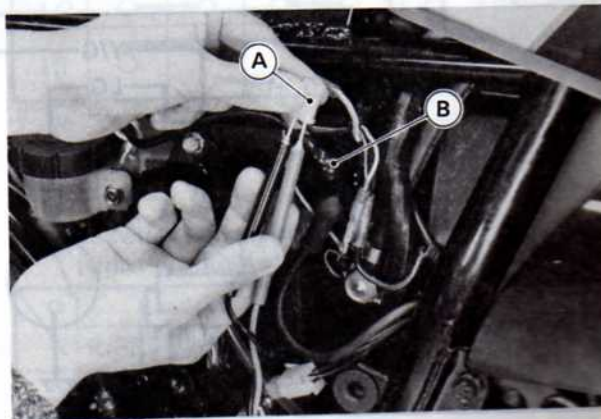
	LG	
When the gears are in neutral	○ ————— ○	
When the gears are not in neutral		

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

5-12 NON-SCHEDULED MAINTENANCE – ELECTRICAL

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

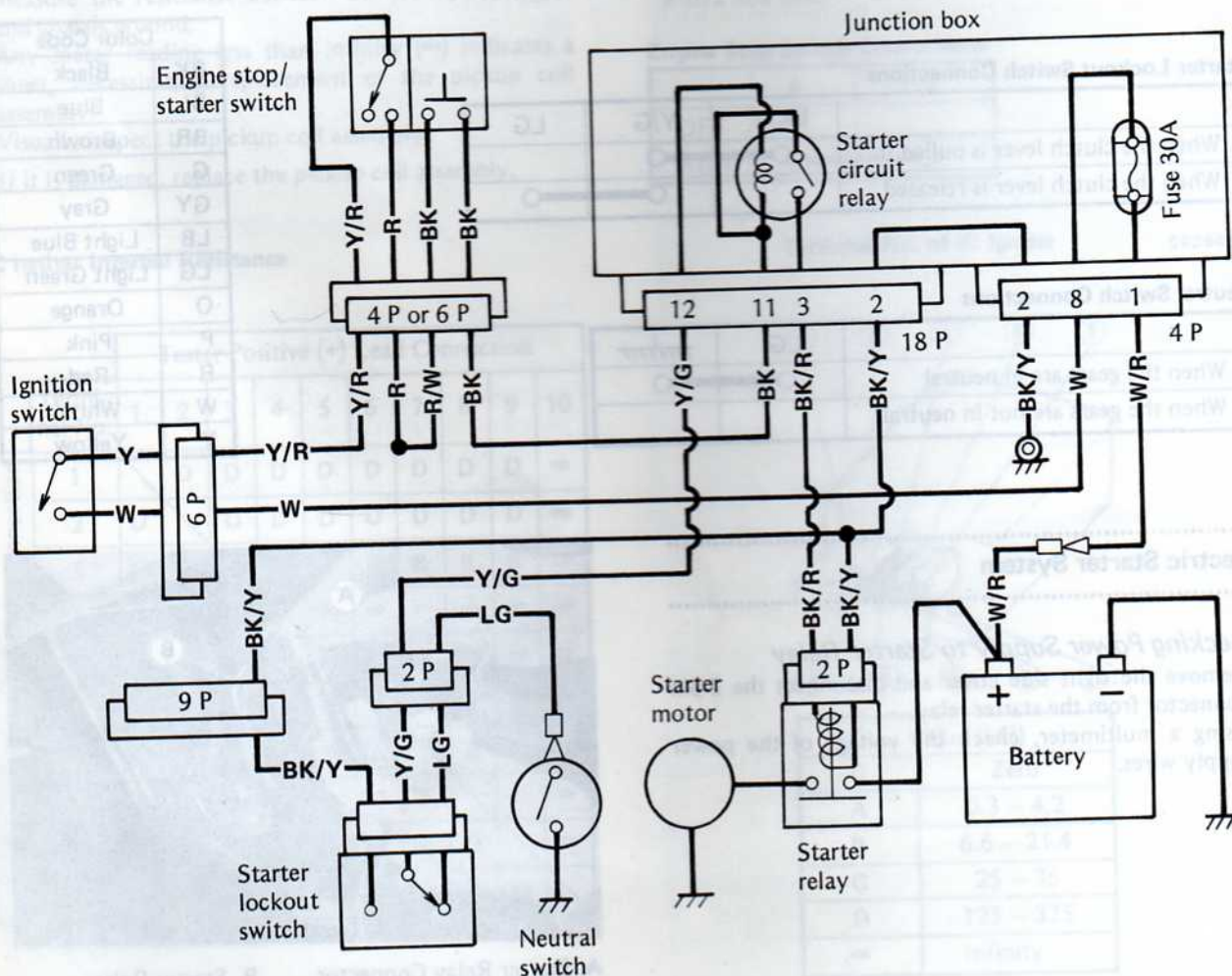
Refer to p. 5-11.

Engine Stop/Starter Switch Inspection

Refer to p. 5-10.

582544

Electric Starter Circuit



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.

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.	

Headlight System

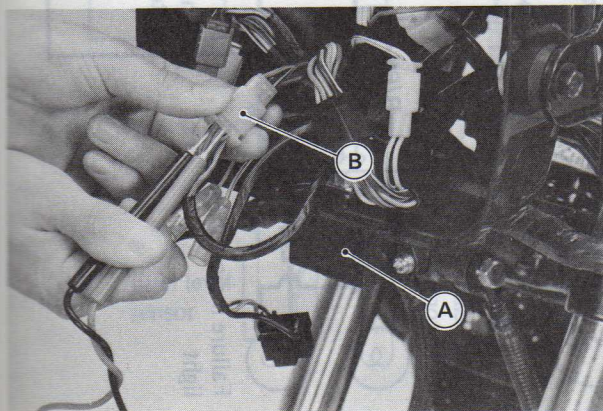
The US and Canadian models of the ZX1100A contain a relay in the headlight circuit. In these models, the headlight does not go on when the ignition switch is first turned on, but the headlight goes on once the engine is cranked, and stays on until the ignition switch is turned off. But the headlight 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

★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

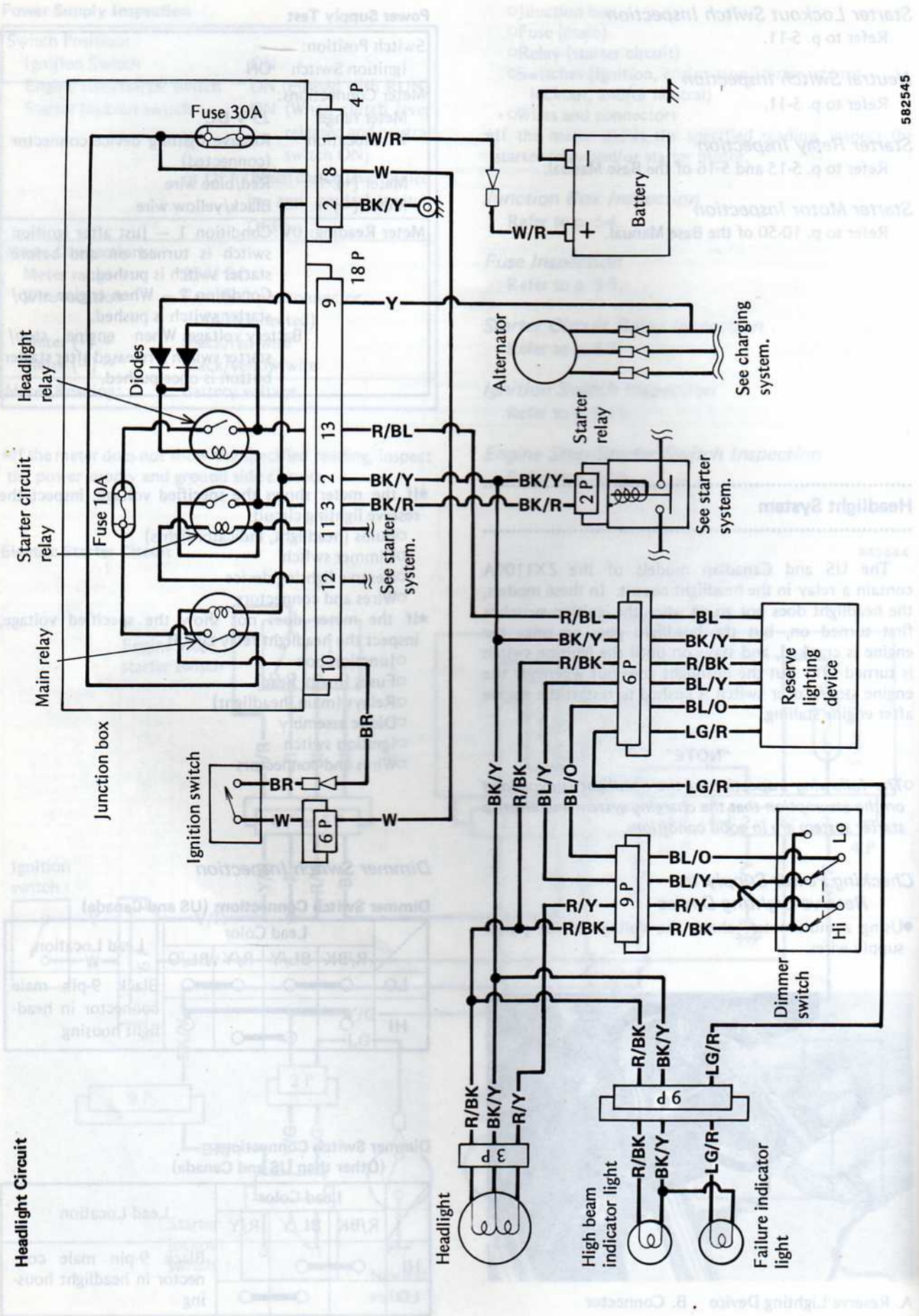
Dimmer Switch Connections (US and Canada)

	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)

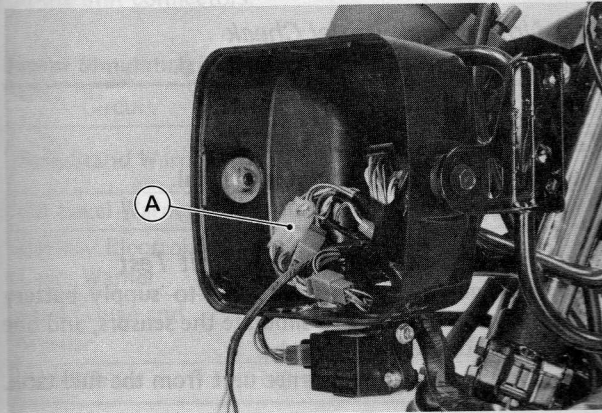
	Lead Color			Lead Location
	R/BK	BL/Y	R/Y	
HI	○—○			Black 9-pin male connector in headlight housing
LO		○—○		

5-14 NON-SCHEDULED MAINTENANCE – ELECTRICAL



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

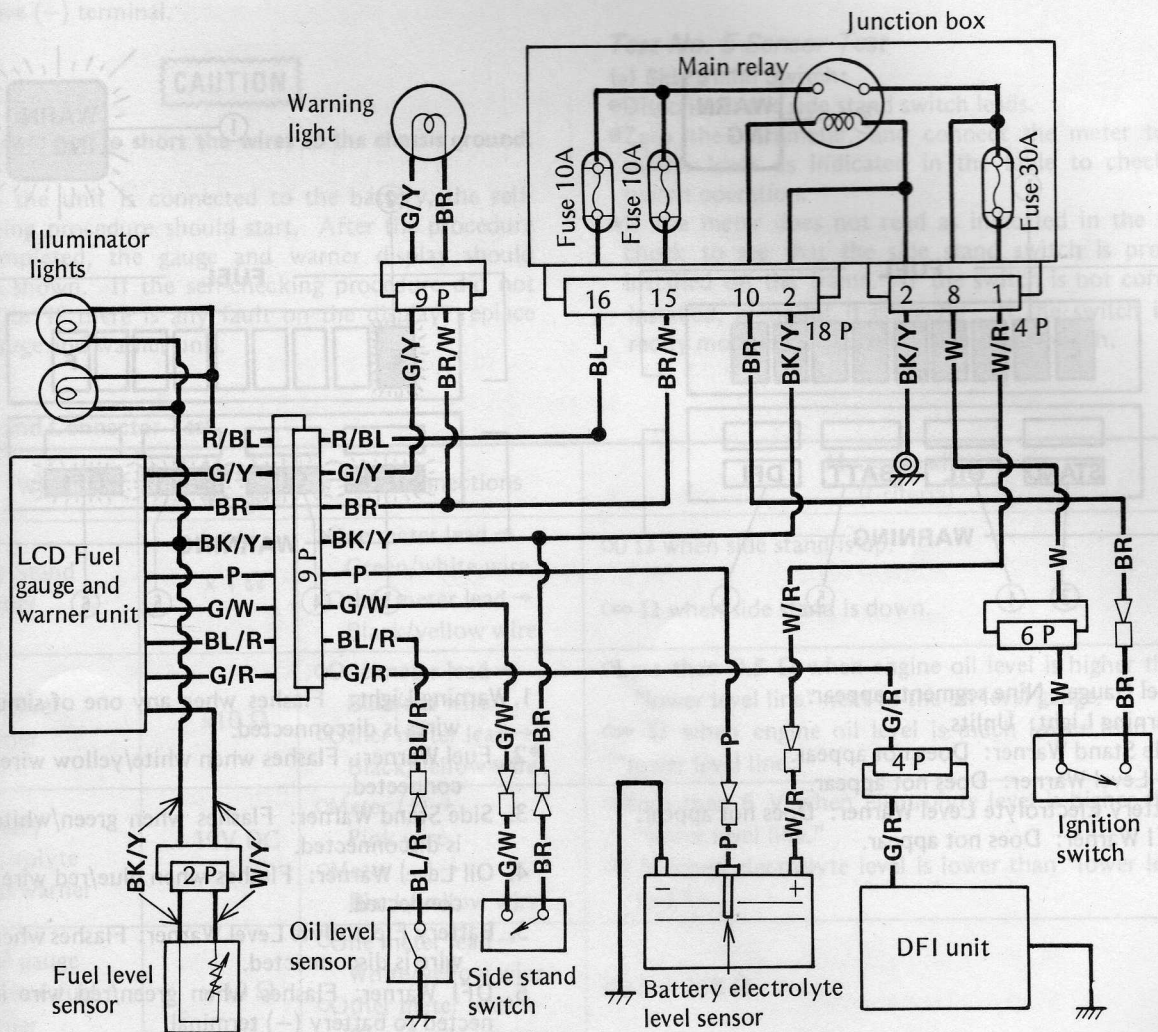
Refer to p. 5-11.

LCD Fuel Gauge and Warner Unit

Outline:

582546

Gauge and Warning System Wiring Diagram



5-16 NON-SCHEDULED MAINTENANCE – ELECTRICAL

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

- 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.
- 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 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.

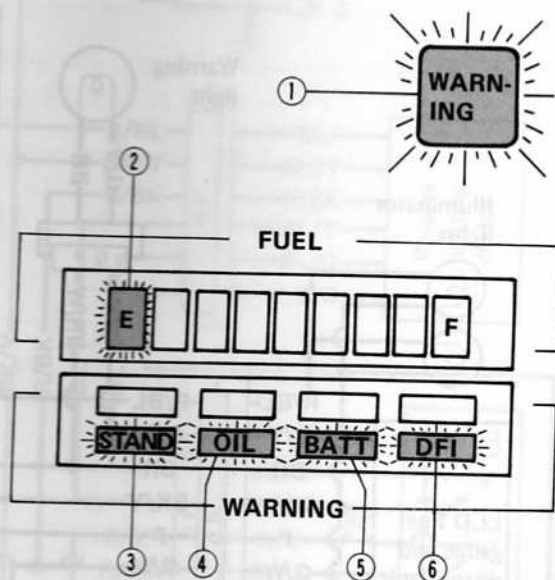
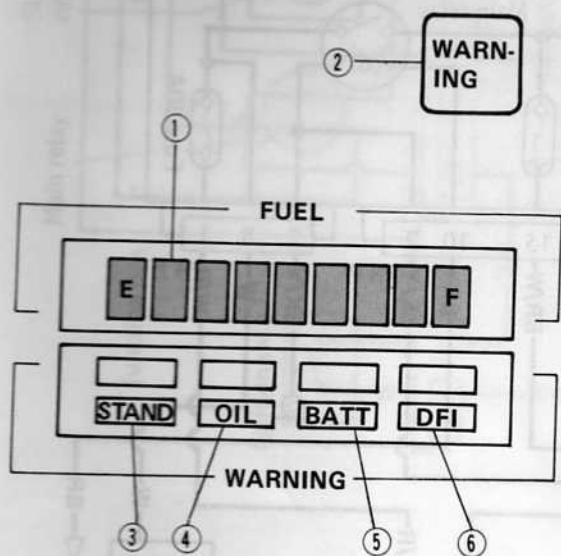
Test No. 3-Gauge and Warner Unit Test

- 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.

Gauge and Warner Unit Test

(a) All sensor-simulating wires are connected.

(b) Sensor-simulating wires are disconnected.



- Fuel Gauge: Nine segments appear.
- Warning Light: Unlits.
- Side Stand Warner: Does not appear.
- Oil Level Warner: Does not appear.
- Battery Electrolyte Level Warner: Does not appear.
- DFI Warner: Does not appear.

- Warning Light: Flashes when any one of simulating wires is disconnected.
- *Fuel Warner: Flashes when white/yellow wire is disconnected.
- Side Stand Warner: Flashes when green/white wire is disconnected.
- Oil Level Warner: Flashes when blue/red wire is disconnected.
- Battery Electrolyte Level Warner: Flashes when pink wire is disconnected.
- 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.

- 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.

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.



- 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.

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).		

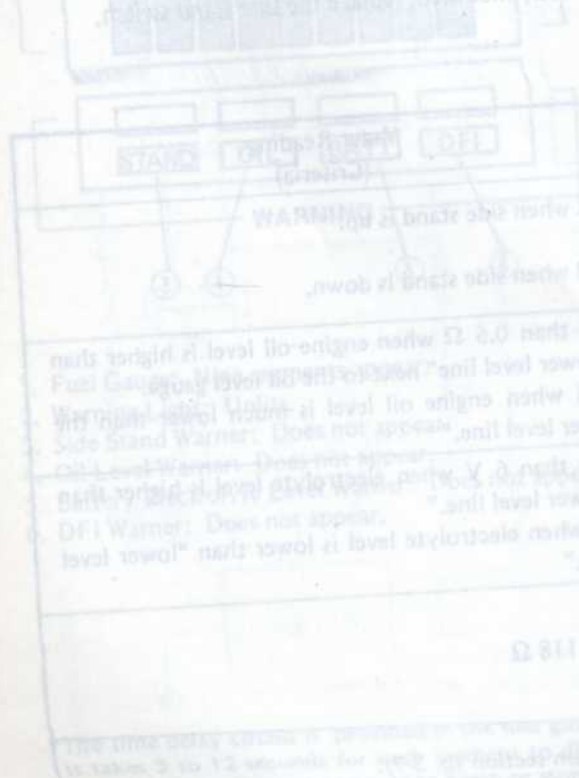
5-18 NON-SCHEDULED MAINTENANCE – ELECTRICAL

Side Stand Switch Operation

Meter Range	Connections	Meter Reading (Criteria)
x 1 Ω	<ul style="list-style-type: none"> ○ One meter lead \rightarrow Brown switch lead ○ Other meter lead \rightarrow Green/white switch lead 	<ul style="list-style-type: none"> ○ 0 Ω when the side stand is up. ○ $\infty \Omega$ 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).

Test No. 5-Sensor Test
(a) Side Stand Switches
Disconnect the side stand switch leads from the instrument, 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 properly installed, re-install it correctly. If the switch is correctly installed, replace the instrument.



Connections	Criteria
Side Stand Switch	0 Ω when the side stand is up. $\infty \Omega$ when the side stand is down.
Oil Level Sensor	0.5 Ω when engine oil level is higher than lower level line.
Fuel Level Sensor	0.5 Ω when engine oil level is higher than lower level line.
DFI Sensor	0.5 Ω when engine oil level is higher than lower level line.

Take care not to short the wires to the chassis ground.
When the link is connected to the battery, the self-checking procedure should start. After the procedure is completed, the gauge and warning lights should be 0. If there is any fault on the display, replace the power supply cable.

CAUTION

When the link is connected to the battery, the self-checking procedure should start. After the procedure is completed, the gauge and warning lights should be 0. If there is any fault on the display, replace the power supply cable.

Connections	Meter Range	Criteria
Side Stand Switch	x 1 Ω	0 Ω when the side stand is up. $\infty \Omega$ when the side stand is down.
Oil Level Sensor	x 10 Ω	0.5 Ω when engine oil level is higher than lower level line.
Fuel Level Sensor	x 10 Ω	0.5 Ω when engine oil level is higher than lower level line.
DFI Sensor	x 10 Ω	0.5 Ω when engine oil level is higher than lower level line.

Disassembly – Engine

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DISASSEMBLY WHICH CAN BE CARRIED OUT AFTER ENGINE REMOVAL

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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.

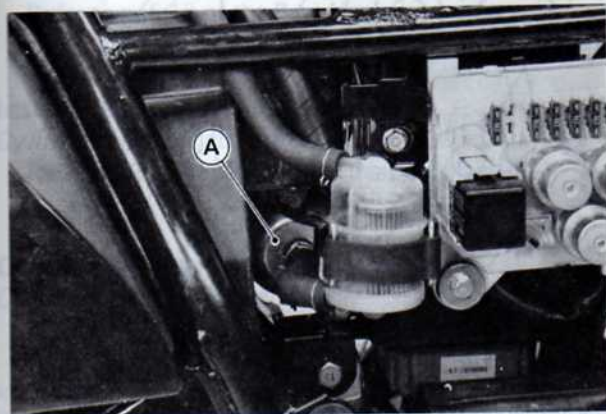
If the arrow mark shows direction of rotation, install the part so that the arrow mark coincides with the rotational direction.

- 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.

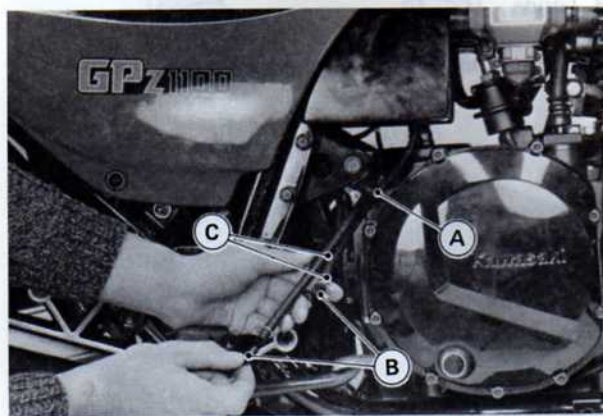


A. Fuel Pump

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 sure 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

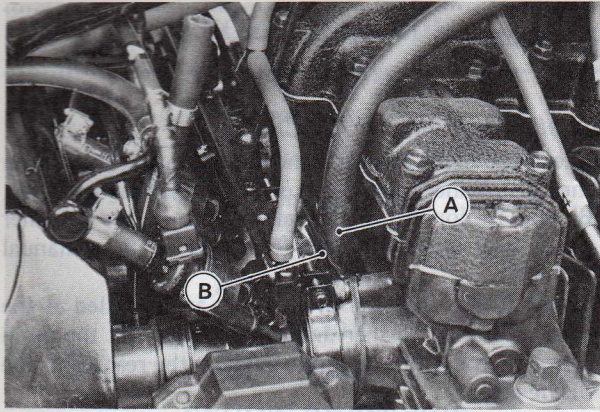
C. Drain Hoses

Oil Cooler Oil Hoses

Installation Point of Oil Hoses

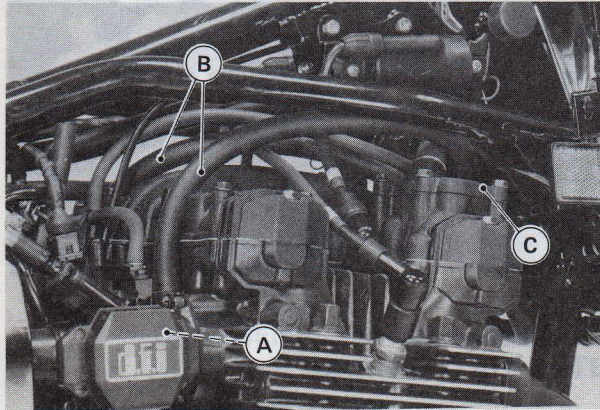
- The left side hose is longer than the right side one.
- Run the left side hose between the #1 and #2 throttle valve holders and then to the left side of the oil cooler. Be sure the oil hose does not interfere with operation of the throttle linkage.
- Run the right side hose between the #3 and #4 throttle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

6-4 DISASSEMBLY – ENGINE



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

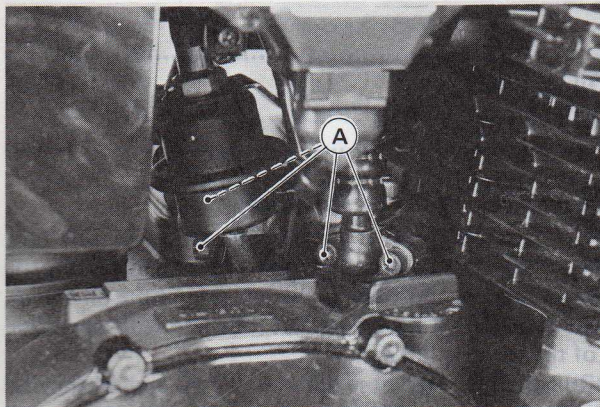
- Run both oil hoses inside the frame pipes.



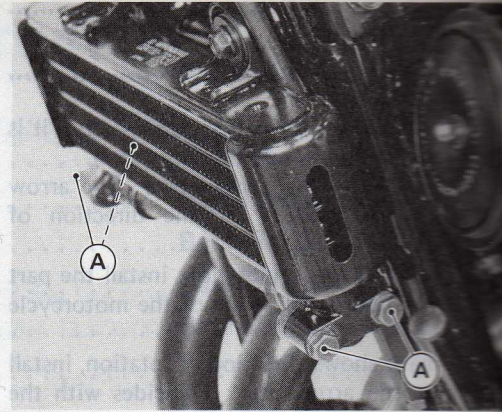
A. Throttle Valve Holders C. Air Suction Valve Covers
B. Avoid sharp bending. (US model only)

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.

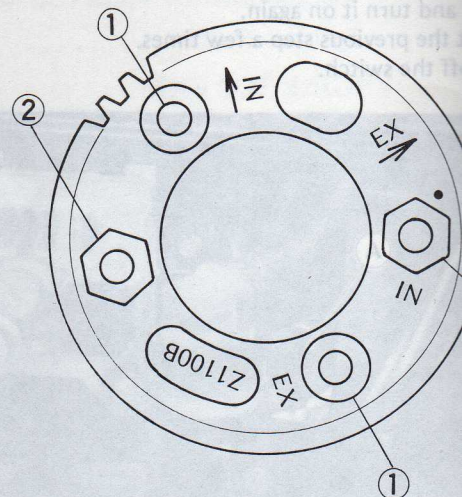
Installation:

Camshaft and Sprocket Installation

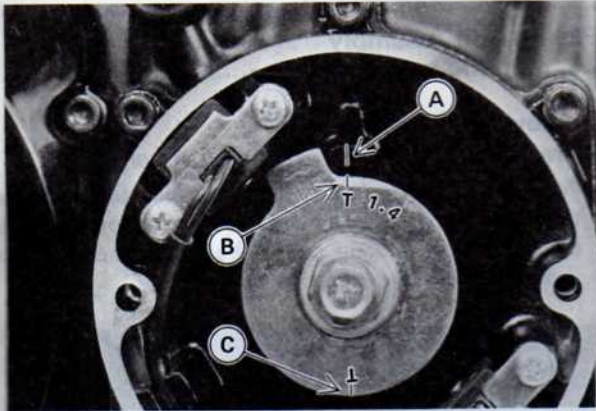
Refer to pp. 6-19 through 6-22 of the Base Manual, noting the following exception.

- The same sprockets and camshafts are used for the inlet and exhaust camshafts.
- For exhaust use, the two bolt holes in the sprocket are in the recesses.
- For inlet use, two bolt holes in the hexagon are in the recesses.

Camshaft Sprocket



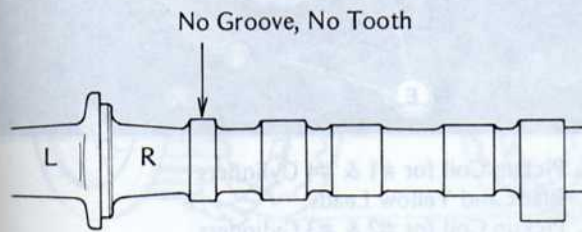
1. Bolt Holes for Exhaust Camshaft
2. Bolt Holes for Inlet Camshaft



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

Camshaft Identification Mark

682549



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:

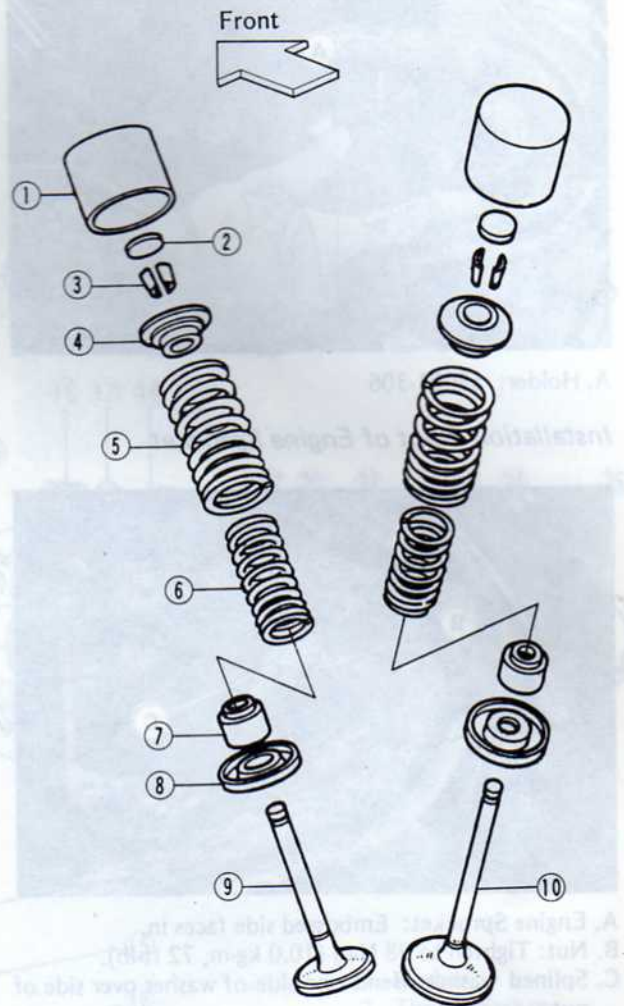
Cylinder Head Disassembly

(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.

Valves, Springs, and Guides



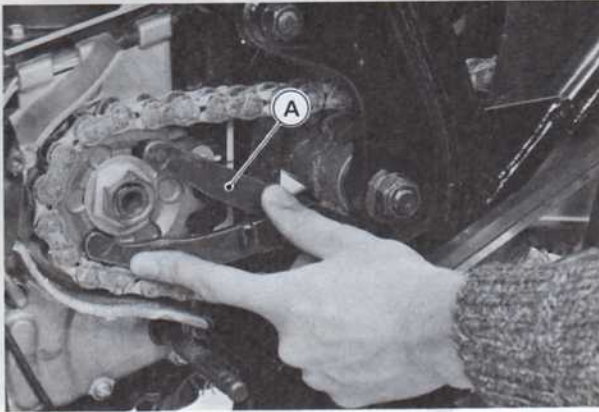
- | | |
|------------------------|------------------------|
| 1. Valve lifter | 6. Valve spring, inner |
| 2. Shim | 7. Oil seal |
| 3. Split keeper | 8. Spring seat |
| 4. Spring retainer | 9. Valve, exhaust |
| 5. Valve spring, outer | 10. Valve, inlet |

Engine Sprocket

Removal Point of Engine Sprocket

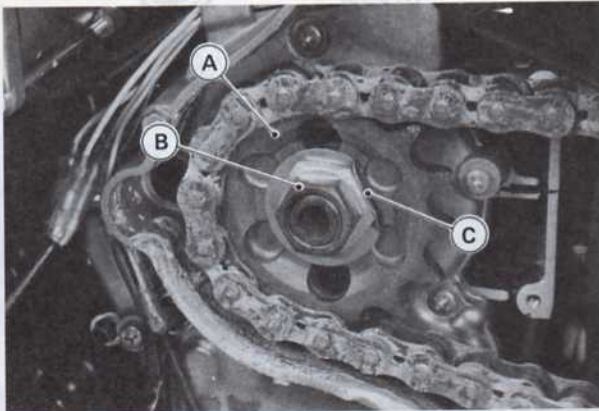
- Use the holder (special tool) to hold the engine sprocket steady during sprocket loosening and tightening.

6-6 DISASSEMBLY – ENGINE



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.

1. Valve lifter	1. Valve lifter
2. Spring	2. Spring
3. Oil seal	3. Oil seal
4. Valve lifter	4. Valve lifter
5. Valve lifter	5. Valve lifter
6. Valve lifter	6. Valve lifter
7. Oil seal	7. Oil seal
8. Valve lifter	8. Valve lifter
9. Valve lifter	9. Valve lifter
10. Valve lifter	10. Valve lifter
11. Valve lifter	11. Valve lifter
12. Valve lifter	12. Valve lifter
13. Valve lifter	13. Valve lifter
14. Valve lifter	14. Valve lifter
15. Valve lifter	15. Valve lifter
16. Valve lifter	16. Valve lifter
17. Valve lifter	17. Valve lifter
18. Valve lifter	18. Valve lifter
19. Valve lifter	19. Valve lifter
20. Valve lifter	20. Valve lifter
21. Valve lifter	21. Valve lifter
22. Valve lifter	22. Valve lifter
23. Valve lifter	23. Valve lifter
24. Valve lifter	24. Valve lifter
25. Valve lifter	25. Valve lifter
26. Valve lifter	26. Valve lifter
27. Valve lifter	27. Valve lifter
28. Valve lifter	28. Valve lifter
29. Valve lifter	29. Valve lifter
30. Valve lifter	30. Valve lifter

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

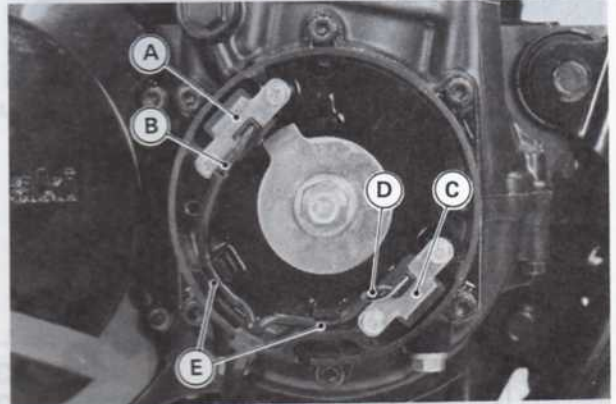
Refer to pp. 10-53 through 10-55 of the Base Manual.

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.



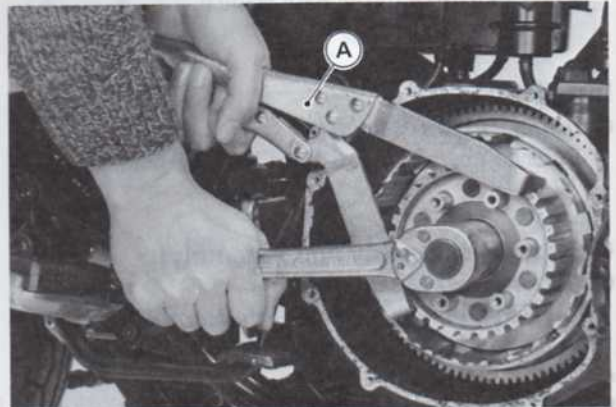
- A. Pickup Coil for #1 & #4 Cylinders
- B. Black and Yellow Leads
- C. Pickup Coil for #2 & #3 Cylinders
- D. Black/White and Blue Leads
- E. Fit the coil leads into the grooves.

Clutch

Clutch Cam Damper

Removal of Clutch and Clutch Cam Damper

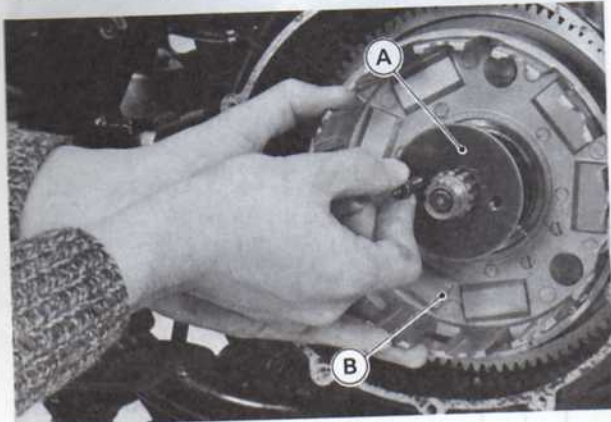
- The clutch cam damper mechanism is assembled in the clutch hub.
- When loosening or tightening the clutch hub self-locking nut ⑳, use the holder (special tool) to keep the clutch hub from turning.



A. Holder: 57001-305

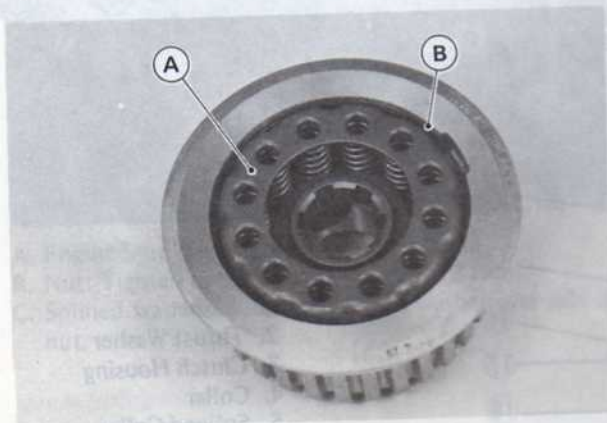
6-8 DISASSEMBLY – ENGINE

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



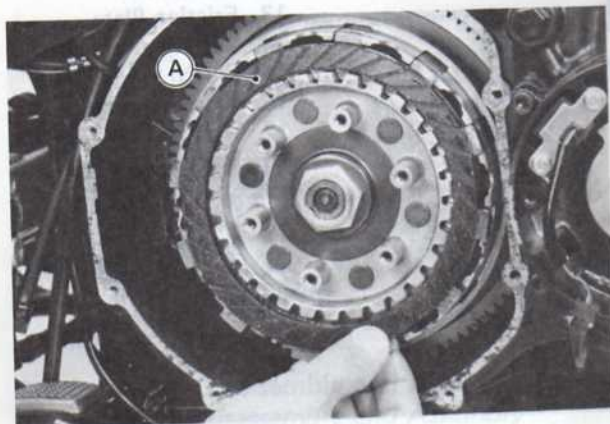
A. Thrust Washer and Bearing Collar
B. Clutch Housing

- To remove the cam damper mechanism in the clutch hub, push in the damper spring plate (7), and remove the circlip (6). 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 radially; 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 the 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

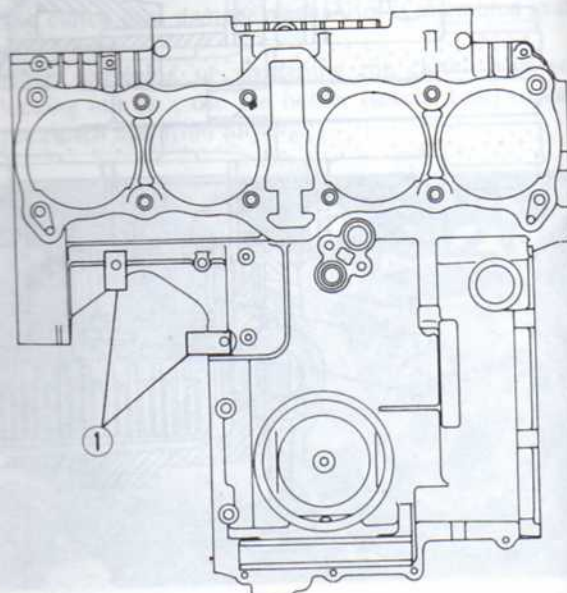
Refer to pp. 6-44 through 6-46 of the Base Manual noting the following exception.

Crankcase Splitting and Assembly

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

Lead Clamp Location

682552



1. Lead Clamps

Disassembly – Chassis

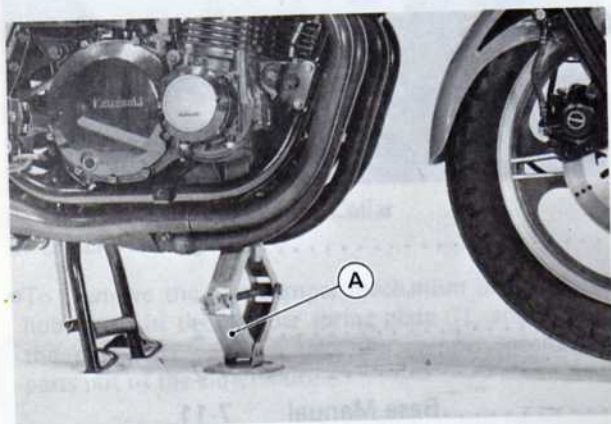
Table of Contents

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7-2 DISASSEMBLY – CHASSIS

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

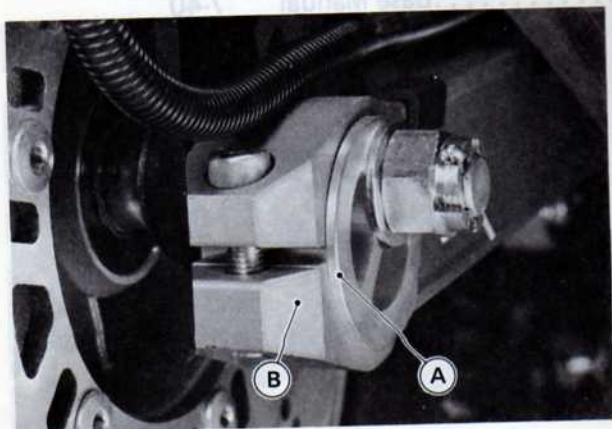
Rear Wheel Wheel Coupling

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

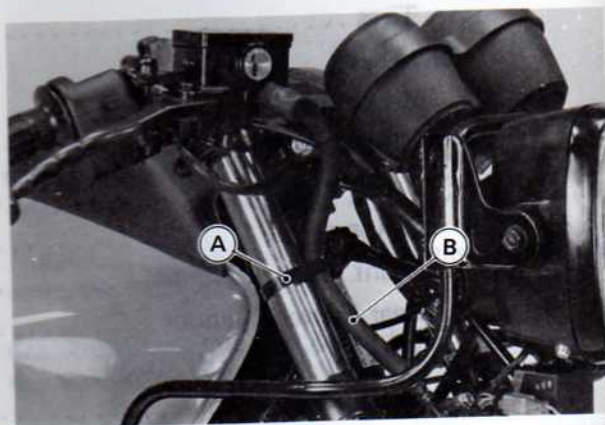
Brake Hose Removal

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.

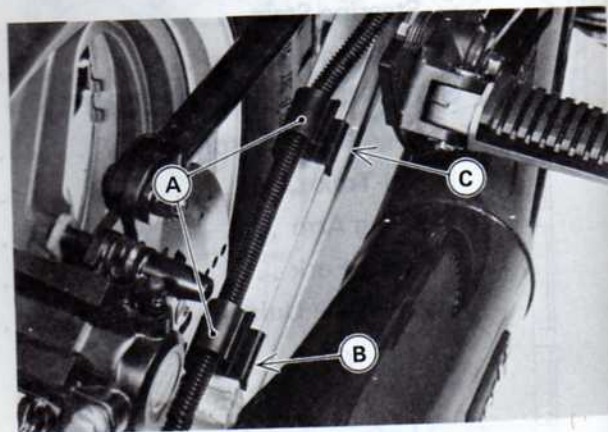
- Clamp the front brake hose on the fork tube using a band.



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.



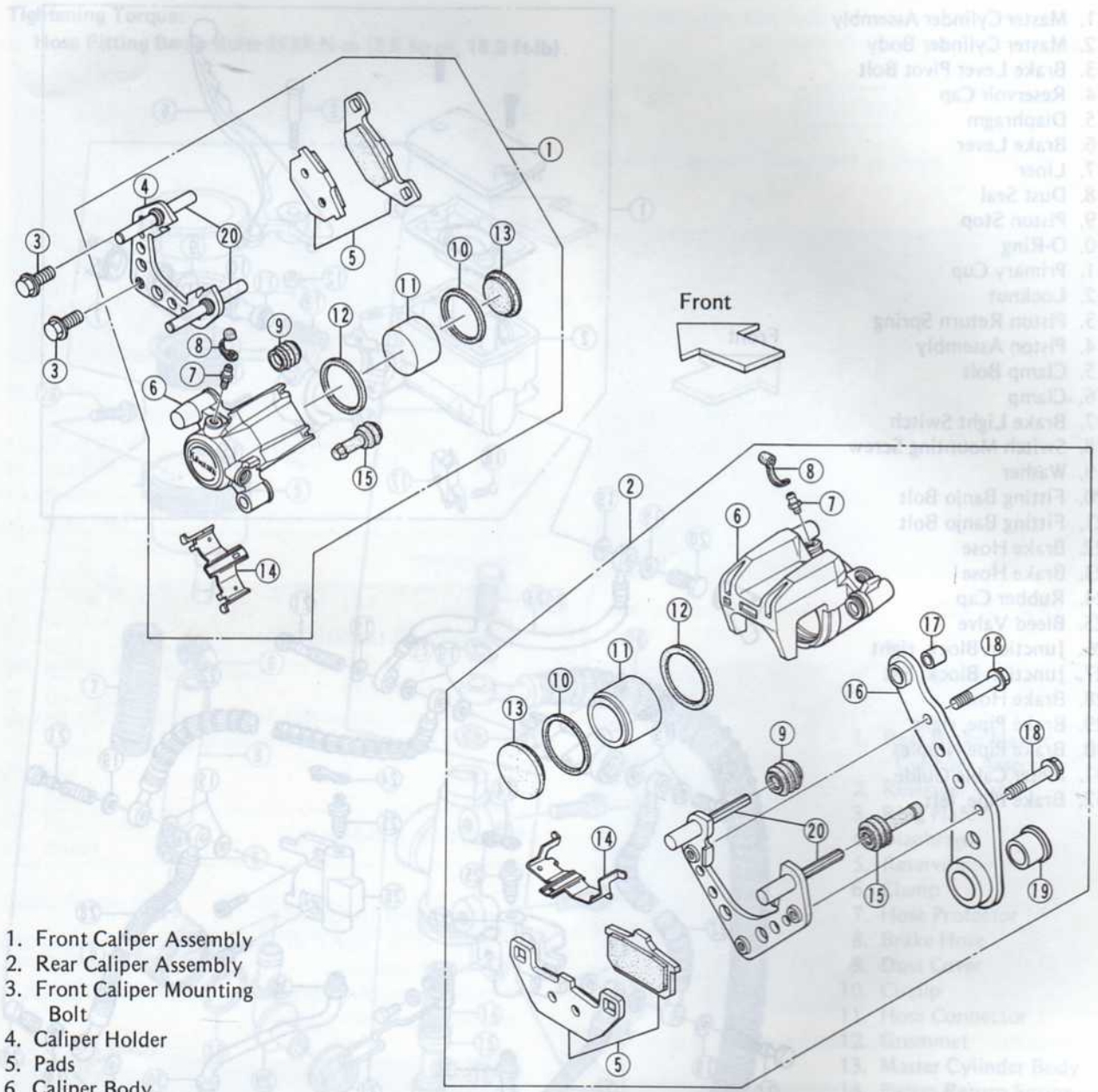
A. Hose Clamps

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)

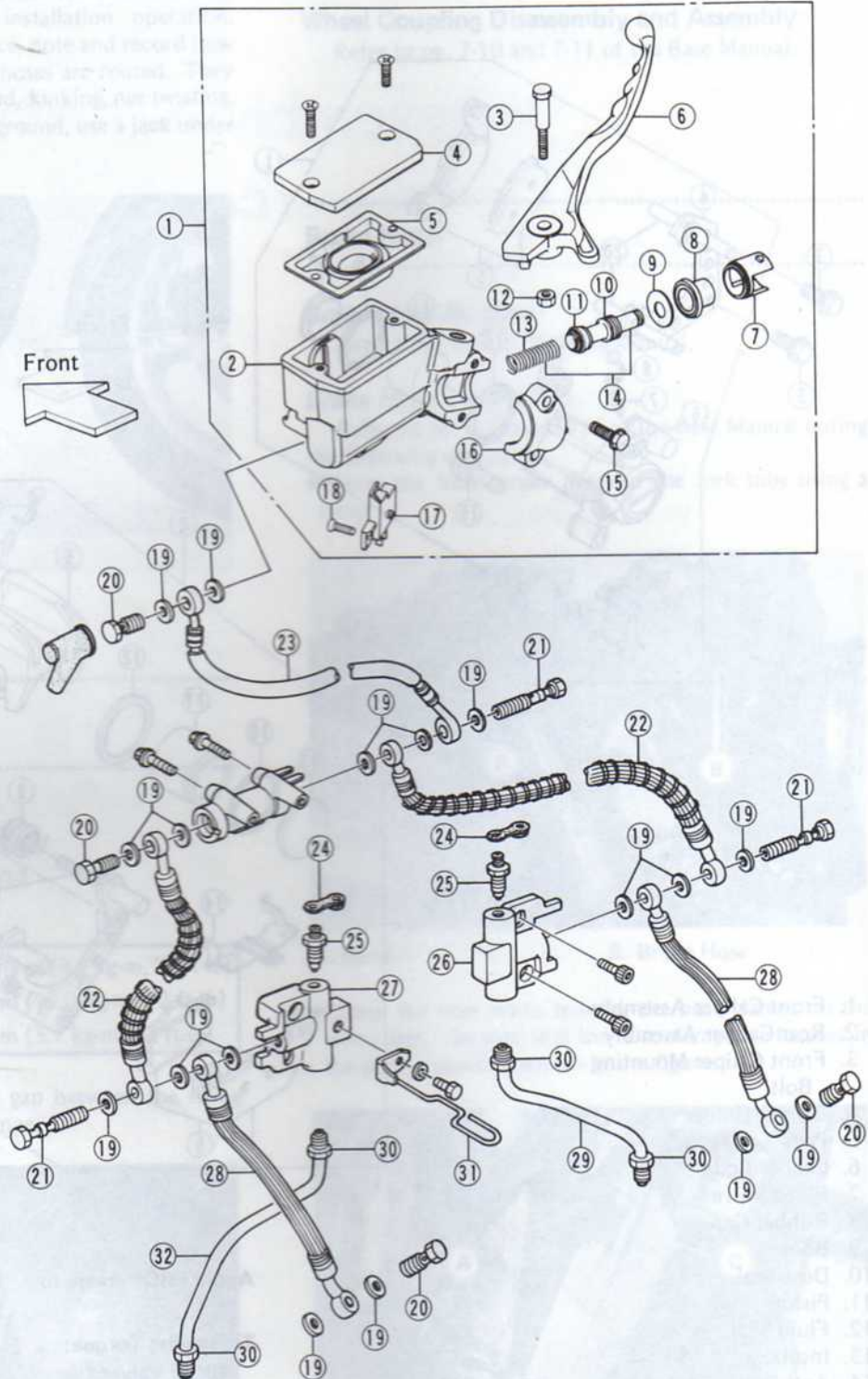
* : PBC grease is a special high temperature, water-resistant grease.

7-4 DISASSEMBLY – CHASSIS

Front Master Cylinder

Brake Parts
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)

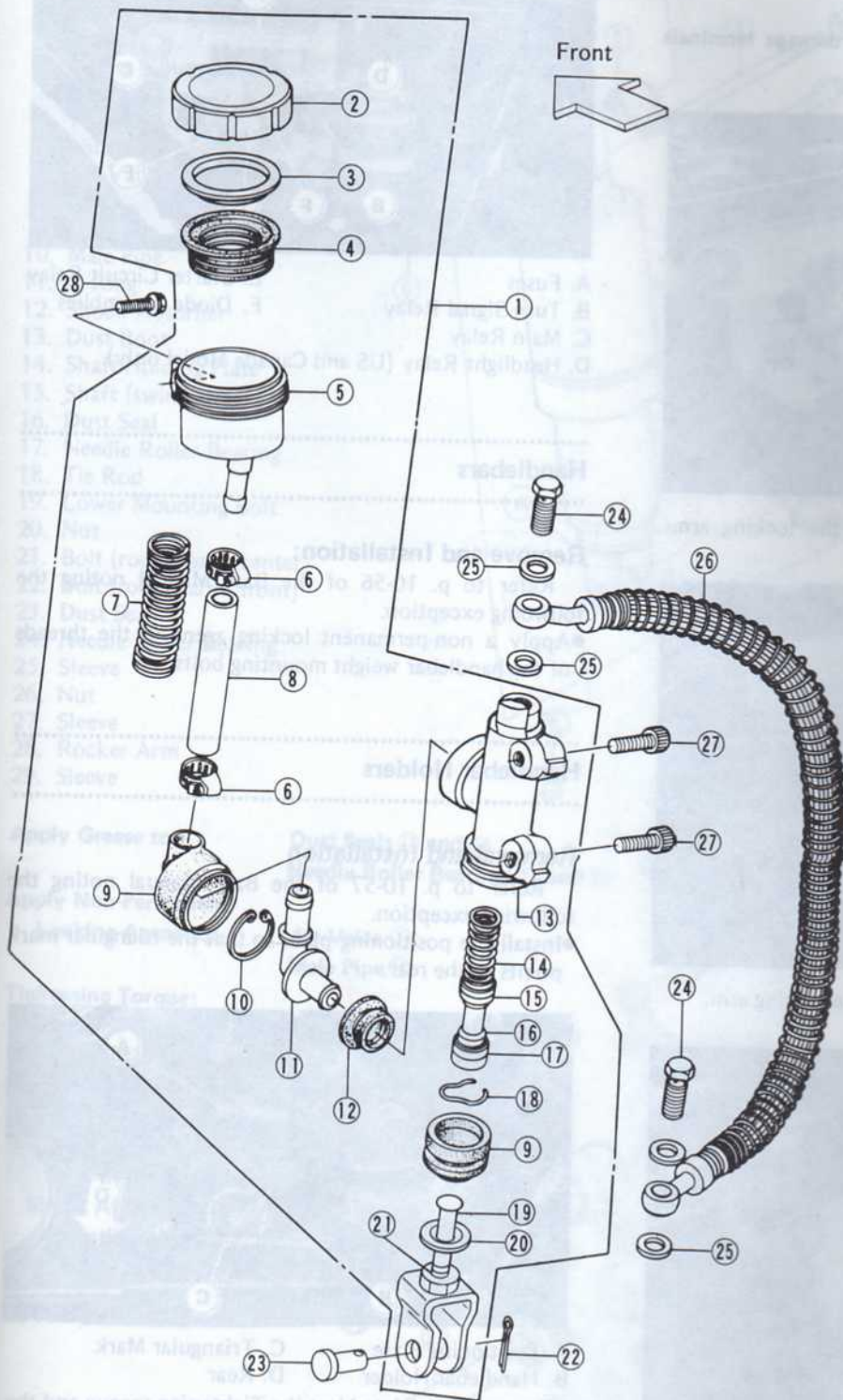
Fitting Banjo

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

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

7-6 DISASSEMBLY – CHASSIS

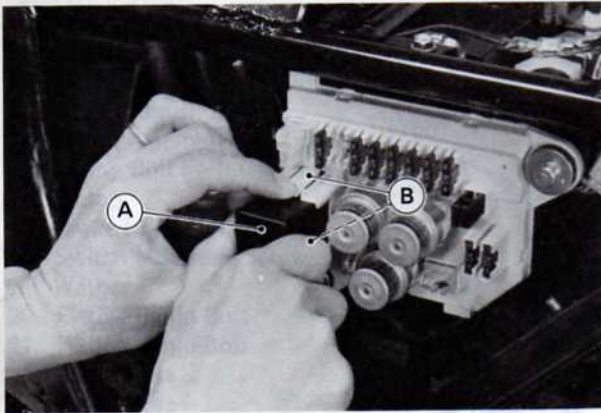
Junction Box

Removal Point of Junction Box Parts

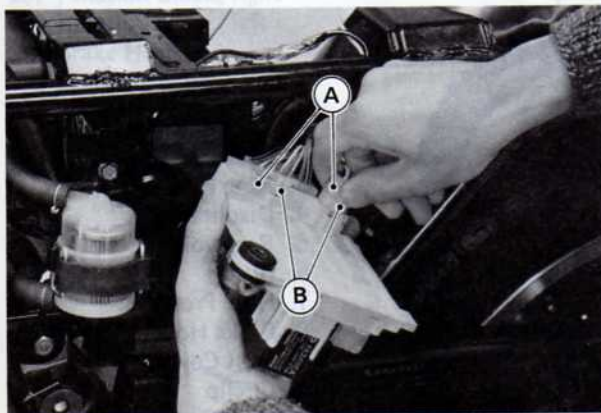
- Unlock the locking arm(s), and pull the relays and connectors straight off the junction box.

CAUTION

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



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



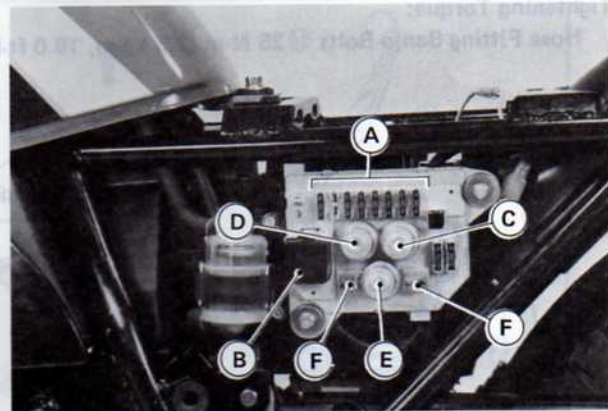
A. Connector B. Unlock the locking arm.



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

Handlebars

Remove and Installation:

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

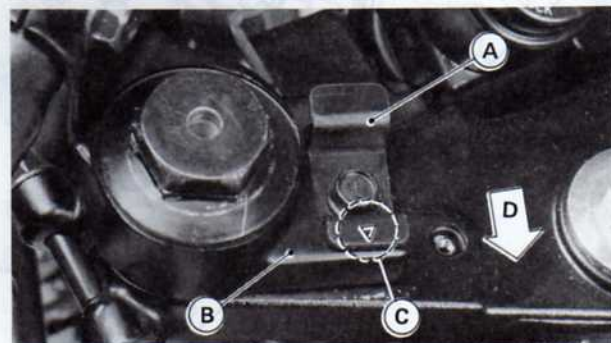
- Apply a non-permanent locking agent to the threads of the handlebar weight mounting bolts.

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 C. Triangular Mark
B. Handlebar Holder 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.

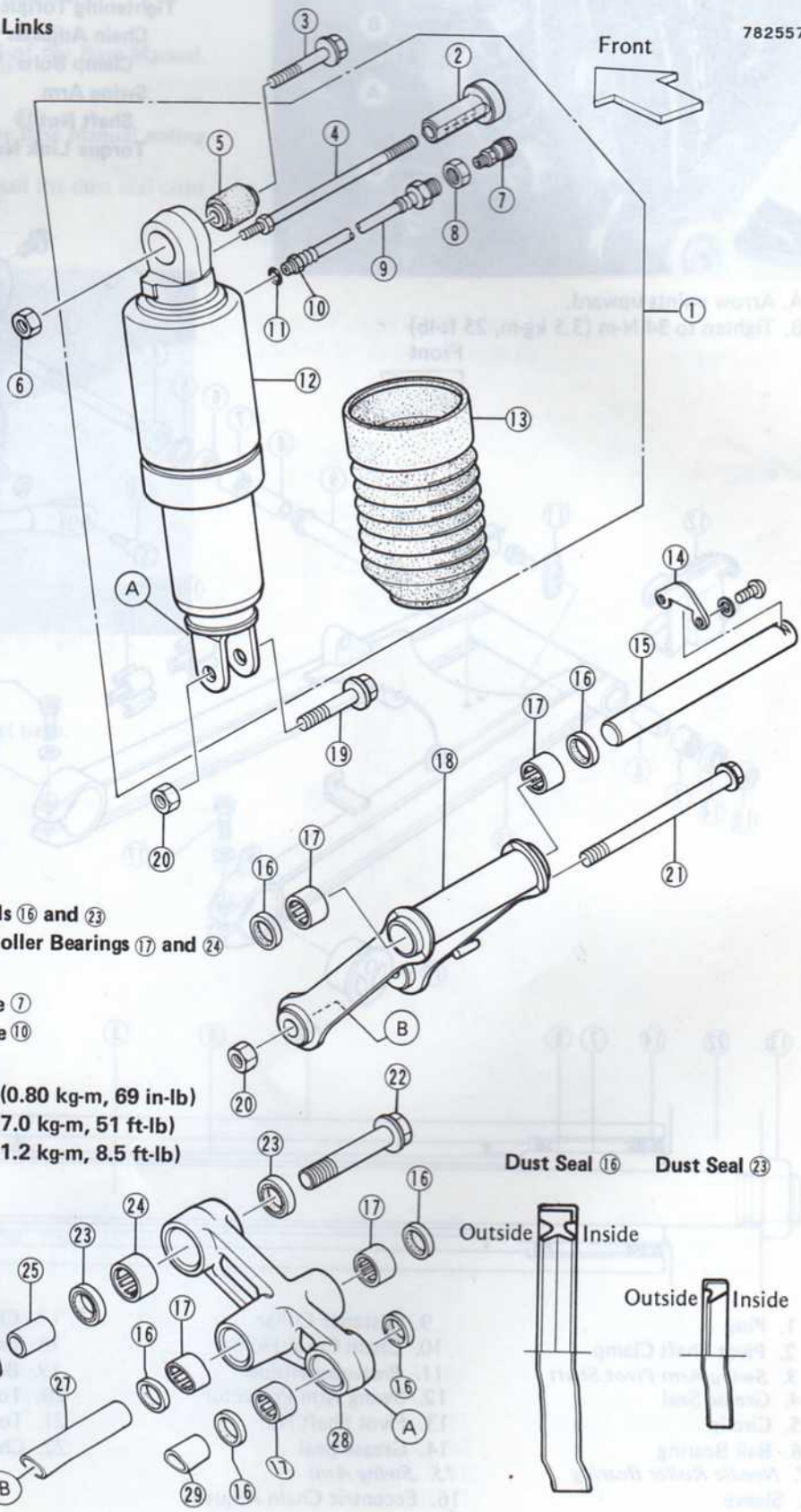
Rear Shock Absorber
Uni-Trak Links
Swing Arm

Rear Shock Absorber and Uni-Trak Links

782557

Front

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
Bolt 22 (φ16), 21 (φ12)
Male Pipe 10

7.8 N-m (0.80 kg-m, 69 in-lb)
69 N-m (7.0 kg-m, 51 ft-lb)
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)

Dust Seal 16 Dust Seal 23

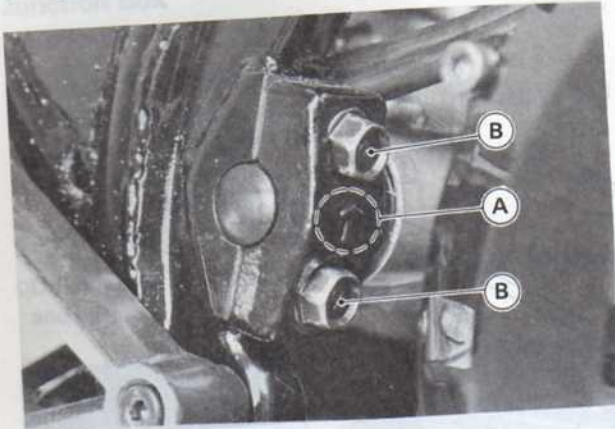
Outside Inside

Outside Inside

7-8 DISASSEMBLY – CHASSIS

782558

Swing Arm



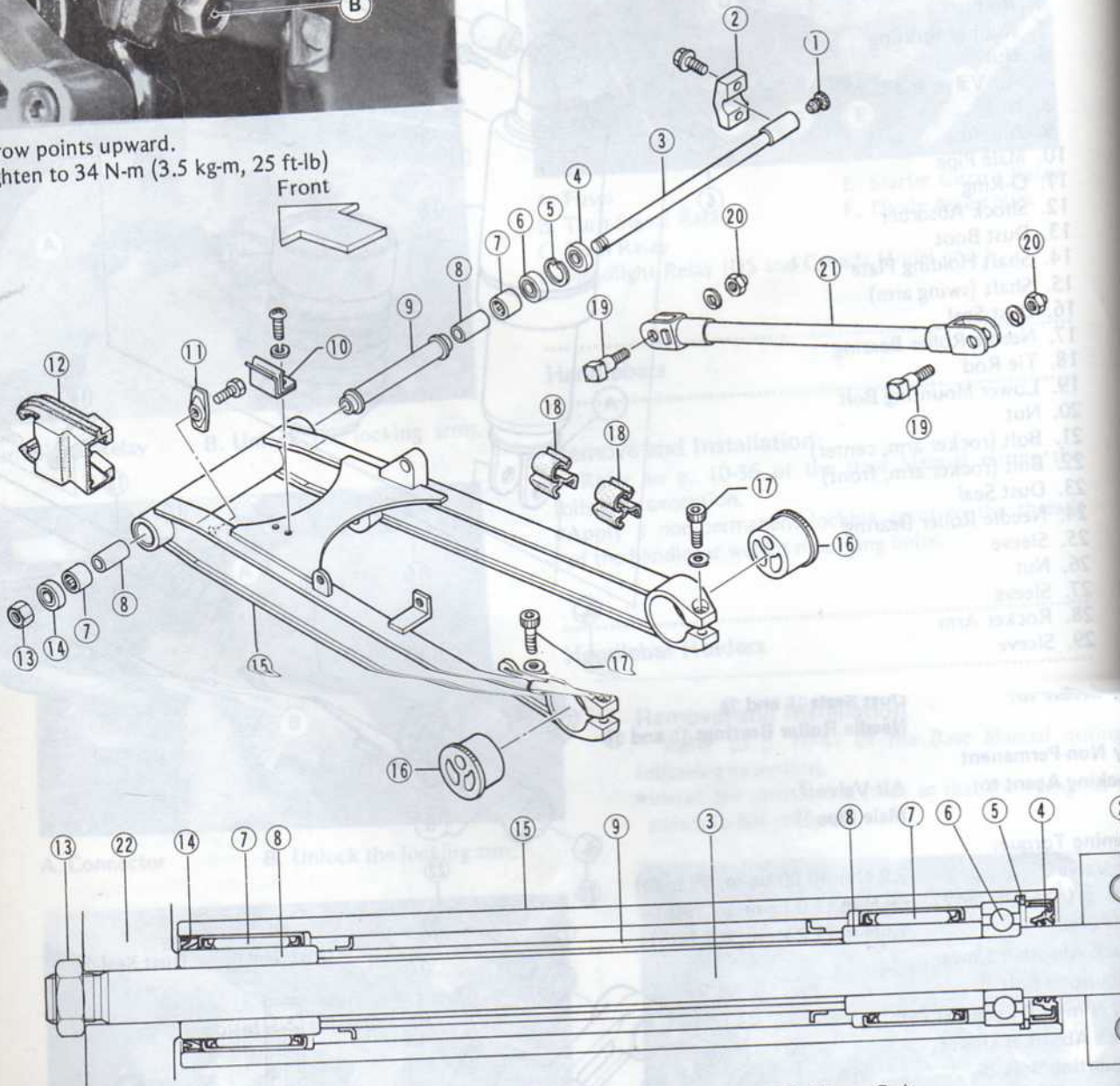
A. Arrow points upward.
 B. Tighten to 34 N-m (3.5 kg-m, 25 ft-lb)

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

**Front Fork
Anti-Dive Units**

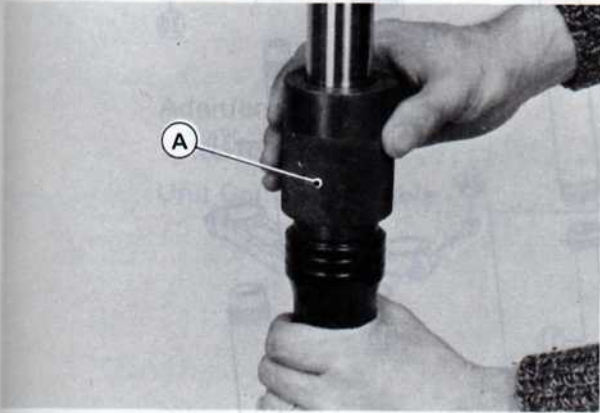
**Front Fork Disassembly and Assembly:
Front Fork Disassembly**

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 driver (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

Apply Liquid Gasket to:	Drain Screw (1)
Apply Locking Agent to:	Air Valve (5)
Tightening Torque:	7.8 N-m (0.69 kg-m, 6.1 in-lb)
Air Valve (5)	7.8 N-m (0.80 kg-m, 6.9 in-lb)
Anti-Dive Valve Assembly:	23 N-m (2.3 kg-m, 18.5 ft-lb)
Mounting Bolt (2)	23 N-m (2.3 kg-m, 18.5 ft-lb)
Axis Clamp Bolt (2)	23 N-m (2.3 kg-m, 18.5 ft-lb)
Blind Valve (1)	23 N-m (2.3 kg-m, 18.5 ft-lb)
Bottom Bolt (1)	23 N-m (2.3 kg-m, 18.5 ft-lb)
Fork Clamp Bolt (2)	23 N-m (2.3 kg-m, 18.5 ft-lb)
Plunger Assembly:	23 N-m (2.3 kg-m, 18.5 ft-lb)
Mounting Bolt (1)	23 N-m (2.3 kg-m, 18.5 ft-lb)
Top Plug (1)	23 N-m (2.3 kg-m, 18.5 ft-lb)

- 34. Cylinder Assembly
- 35. Piston Ring
- 36. Spring
- 37. Spring
- 38. Spring
- 39. Washer
- 40. Cylinder Base
- 41. Right Outer Tube
- 42. Axis Clamp Bolt
- 43. Washer
- 44. Lockwasher
- 45. Nut

- 33. O-Ring
- 32. Stem Head
- 34. Fork Clamp Bolt
- 35. Nut
- 36. Clamp Screw
- 37. Bush
- 38. O-Ring
- 39. Connecting Pipe
- 40. Air Valve
- 41. Steering Stem and Base
- 32. Nut
- 33. Cylinder

- 10. Gasket
- 11. Bottom Bolt
- 12. Fork Main Spring
- 13. Inner Tube
- 14. Dust Seal
- 15. Resistor
- 16. Washer
- 17. Oil Seal
- 18. Washer
- 19. Guide Bush
- 20. Left Outer Tube
- 21. Top Plug

- 1. Anti-Dive Brake
- 2. Plunger Assembly
- 3. Rubber Cap
- 4. Blind Valve
- 5. Plunger Assembly
- 6. Mounting Bolt
- 7. Valve Assembly Mounting Bolt
- 8. Anti-Dive Valve Assembly
- 9. O-Ring
- 10. Drain Screw
- 11. Gasket

7-10 DISASSEMBLY – CHASSIS

Front Fork and Anti-Dive Unit

782556

Apply Liquid Gasket to: Drain Screw ⑧
Gasket ⑩

Apply Locking Agent to: Air Valve ③⑩
Bottom Bolts ⑪

Tightening Torque:

Air Valve ③⑩ 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)

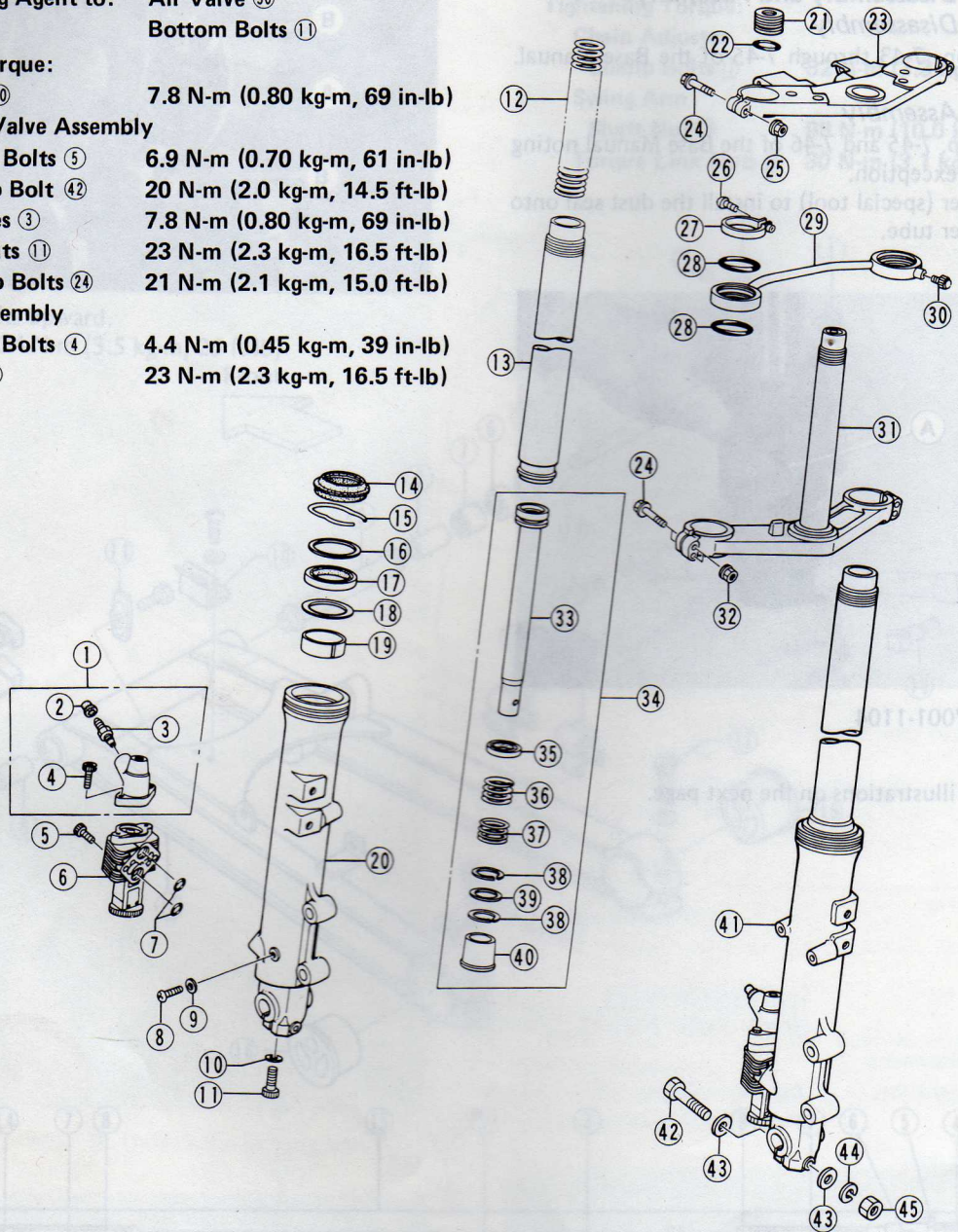
Fork Clamp Bolts ②④ 21 N-m (2.1 kg-m, 15.0 ft-lb)

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)

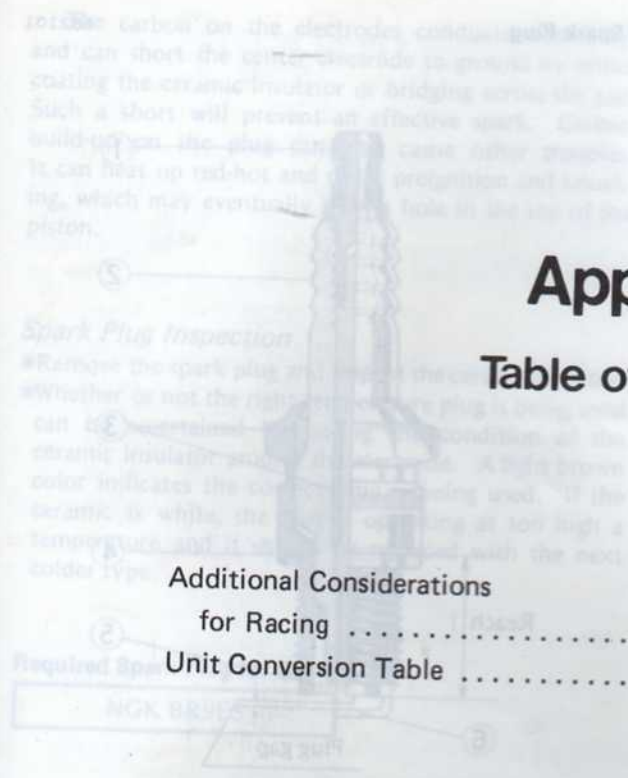
Front



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

Appendix

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Spark Plug Inspection

Remove the spark plug from the engine. Inspect the tip of the central electrode. The color of the ceramic insulator indicates the operating temperature. A light tan color indicates normal operating temperature. A white color indicates a light hot condition. A black color indicates a rich mixture or fouling, which may eventually damage the piston.

Additional Considerations for Racing

- 1. Terminal Insulator
- 2. Center Electrode
- 3. Shell
- 4. Gasket
- 5. Ground Electrode

CAUTION

When the motorcycle is operating, the spark plug is subjected to high temperatures and pressures. The center electrode is made of a special alloy and is very hard. It is not to be touched with bare hands. The ceramic insulator is also very hard and brittle. It should be handled with care. The shell is made of a special alloy and is very hard. It is not to be touched with bare hands. The gasket is made of a special material and is very hard. It is not to be touched with bare hands. The ground electrode is made of a special alloy and is very hard. It is not to be touched with bare hands.



Additional Considerations for Racing

This motorcycle has been designed for racing. It is not to be used for normal street riding. The engine is tuned for high RPM and will not run properly at low RPM. The spark plug is a racing type and is not to be used for normal street riding. The spark plug is a racing type and is not to be used for normal street riding. The spark plug is a racing type and is not to be used for normal street riding.

Spark Plug:

The spark plug ignites the fuel-air mixture in the combustion chamber. To do this effectively, the spark plug must be kept clean and adjusted. The spark plug must be kept clean and adjusted. The spark plug must be kept clean and adjusted. The spark plug must be kept clean and adjusted.

Spark plug inspections should be done with the engine and carburetor 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.

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 recognized 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 Control Systems Warranty specifically exclude motorcycles which are used in competitive or related uses. Please read the 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.

Tests 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 Condition



Carbon fouling



Oil fouling



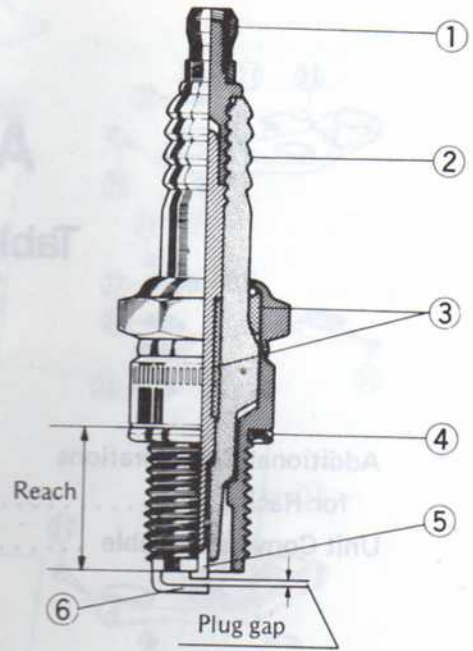
Normal operation



Overheating

Spark Plug

882101



- | | |
|--------------|---------------------|
| 1. Terminal | 4. Gasket |
| 2. Insulator | 5. Center electrode |
| 3. Cement | 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 and 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 collect on the electrodes and the ceramic insulator.

882102

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 ceramic 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

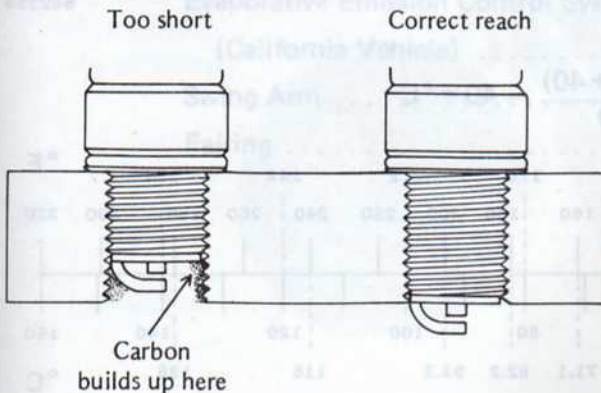
NGK BR9ES

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 selected 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.

8-4 APPENDIX

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

Spark Plug:

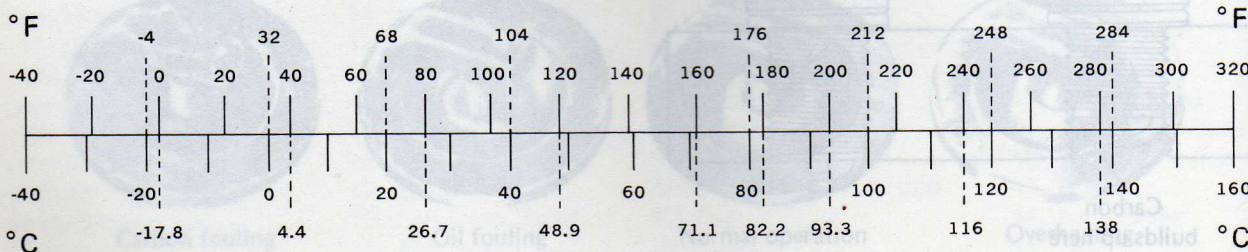
Units of Force:

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

Units of Temperature:

$$\frac{9(^{\circ}\text{C} + 40)}{5} - 40 = ^{\circ}\text{F}$$

$$\frac{5(^{\circ}\text{F} + 40)}{9} - 40 = ^{\circ}\text{C}$$



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

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 described 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, (U) (C) (Ca) (SA) 2,270 mm	
Overall width	740 mm	
Overall height	1,275 mm	
Wheelbase	1,565 mm, (A) 1,570 mm	
Road clearance	140 mm	
Seat height	800 mm	
Dry weight	2,390 N (244 kg), (SA) 2,410 N (246 kg), (Ca) 2,398 N (244.5 kg)	
Curb weight:	Front	1,240 N (127 kg), (SA) 1,250 N (128 kg), (Ca) 1,250 N (127.5 kg)
	Rear	1,340 N (137 kg), (SA) 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), (G) (S) 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) (G) (S) 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, (N) NGK B8ES or ND W24ÉS-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)	

9-4 SUPPLEMENT – ZX1100-A2

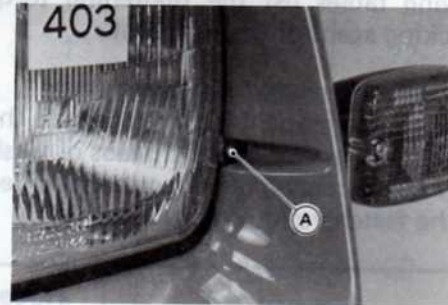
Items	ZX1100-A2
Engine oil: Grade Viscosity Capacity	SE class SAE10W40, 10W50, 20W40, or 20W50 3.7 L
Drain Train:	
Primary reduction system:	
Type	Gear
Reduction ratio	1.732 (97/56)
Clutch type	Wet multi disc
Transmission:	
Type	5-speed, constant mesh, return shift
Gear ratio: 1st 2nd 3rd 4th 5th	2.642 (37/14) 1.833 (33/18) 1.421 (27/19) 1.173 (27/23) 1.040 (26/25)
Final drive system:	
Type	Chain drive
Reduction ratio	2.733 (41/15), (A) 2.666 (40/15)
Overall drive ratio	4.923 @Top gear, (A) 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, (Ca) (C) (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

- (U) : US model
- (S) : Swedish model
- (Ca) : California model
- (C) : Canadian model
- (G) : West German model
- (A) : Australian model
- (SA) : South African model
- (N) : Norwegian 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.

Horizontal Adjustment



A. Adjusting screw for horizontal adjustment

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/cm ² , 28 psi)	
Rear	Up to 956 N (97.5 kg, 215 lb) load	221 kPa (2.25 kg/cm ² , 32 psi)
	956 – 1770 N (97.5 – 180 kg, 215 – 397 lb) load	245 kPa (2.5 kg/cm ² , 36 psi)

Vertical Adjustment

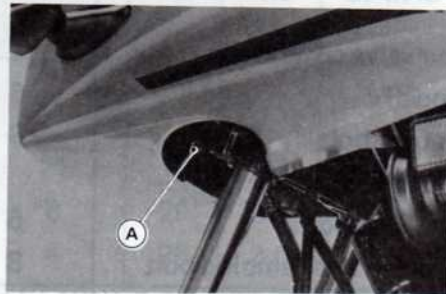
- Loosen the lower headlight bolt.
- Adjust the headlight vertically.
- Tighten the lower headlight bolt.

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.



A. Lower Headlight Bolt

Headlight:

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

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/cm ² , 28 psi)	221 kPa (2.25 kg/cm ² , 32 psi)
	1470 – 1770 N (150 – 180 kg, 331 – 397 lb)	221 kPa (2.25 kg/cm ² , 32 psi)	
Rear	Up to 1470 N (150 kg, 331 lb)	221 kPa (2.25 kg/cm ² , 32 psi)	284 kPa (2.90 kg/cm ² , 41 psi)
	1470 – 1770 N (150 – 180 kg, 331 – 397 lb)	245 kPa (2.50 kg/cm ² , 36 psi)	

9-6 SUPPLEMENT – ZX1100-A2

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-jumping 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 and 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	—

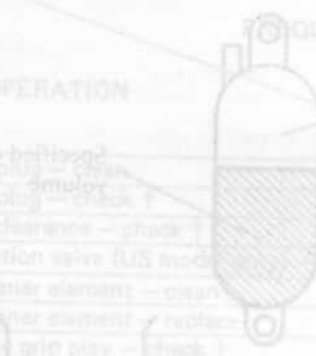
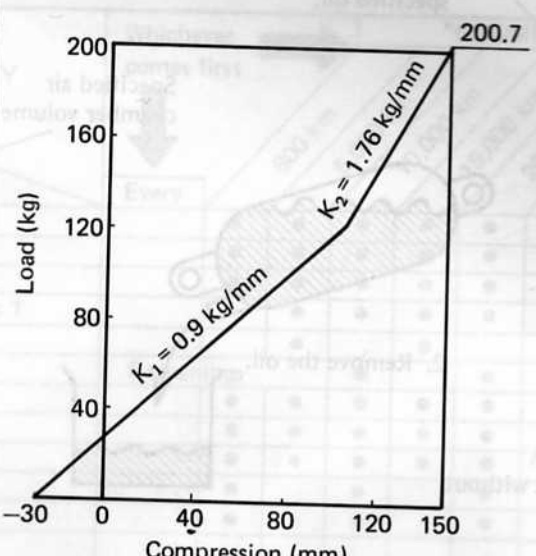
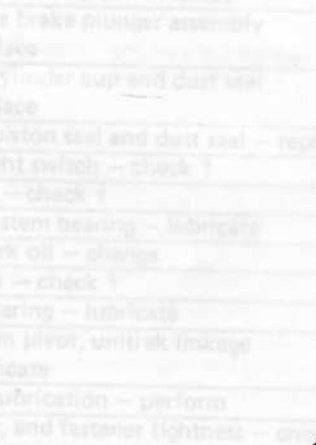
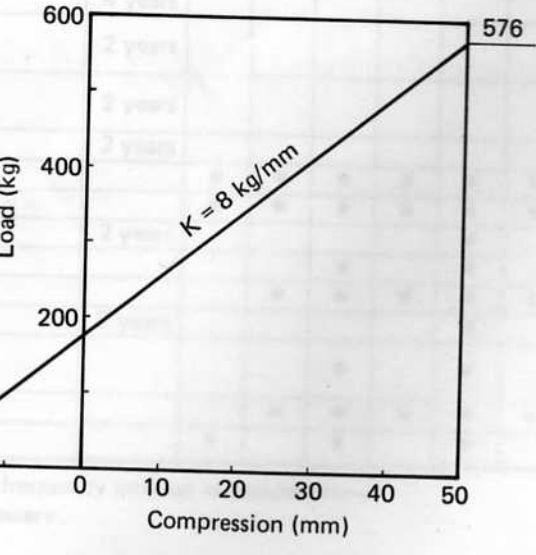
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9-8 SUPPLEMENT – ZX1100-A2

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	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

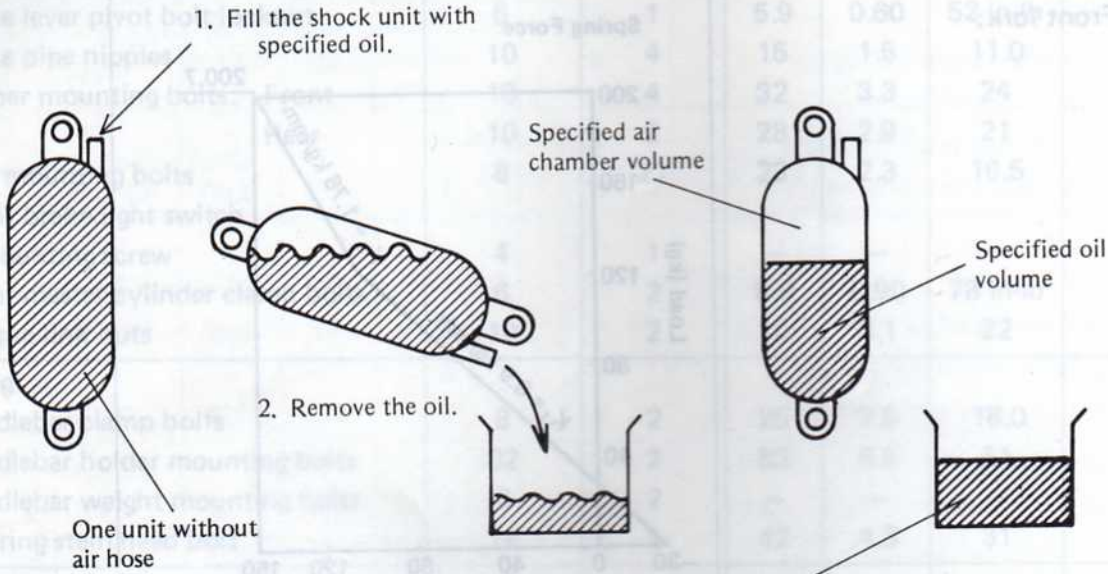
Refer to pp. 1-15 through 1-19, noting the following.

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

Rear Shock Absorbers

Adjusting of Shock Absorber Oil Capacity

Procedures for Measuring Oil Capacity



Part	Threads	Quantity	Suppl. Part No.	Part No.	Service Data
Standard		9	25	0.81	18.0
Supplement		1	27	0.50	10.5
Front Fork		2	25	0.80	18.0
Spring Force		4	16	1.6	11.0
Caliper mounting bolts		2	22	3.3	74
Disc		1	28	2.8	21
Front Fork		8	28	3.3	10.5
Front Fork		4	150		
Torque			30		
Steering			12		
Handlebar top bolts			12		
Handlebar holder mounting bolts			12		
Handlebar weight mounting bolts			12		
Steering			12		
Suspension			12		
Anti-dive brake plunger			4		
mounting bolts			4		
Anti-dive valve assembly			22		
bolts			14		
Countdown chain adjuster clamp bolts			32		
Front fork air valve			27		
Front fork bottom bolts			23		
Front fork clamp bolts			12		
Front fork drain screws					
Front fork top plugs			23		
Rear shock absorber			25		
mounting bolts: Lower		12	25	7.0	51
Upper		10	37	3.8	27
Rear shock absorber air valve		8	27	0.80	18.0
Rear shock absorber air hose					
male pipe			12	1.2	8.5
Rear sprocket nuts			38	4.0	29
Swing arm pivot shaft clamp bolts		10	34	3.5	25
Swing arm pivot shaft nut		16	98	10.0	72
Uni-trak link pivot bolts		12	88	7.0	51
		16	88	7.0	51
Electrical Equipments:					
Turn signal mounting nuts		2	13	1.3	8.5

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	*ODOMETER READING							
		Every	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			•	•	•	•	•	•	•
Throttle grip play – check †	5 cleanings			•		•		•	
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	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			•	•	•	•	•	•	•
Drive chain slack – check †	300 km								
Brake lining wear – check †	800 km								
Brake fluid level – check †			•	•	•	•	•	•	•
Brake fluid – change +	month	•	•	•	•	•	•	•	•
Brake hose and pipe – replace	year			•		•		•	
Anti-dive brake plunger assembly – 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 †	2 years								
Steering – check †		•	•	•	•	•	•	•	•
Steering stem bearing – lubricate		•	•	•	•	•	•	•	•
Front fork oil – change	2 years								
Tire wear – check †				•		•		•	
Wheel bearing – lubricate			•	•	•	•	•	•	•
Swing arm pivot, unitrak linkage – lubricate	2 years								
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.

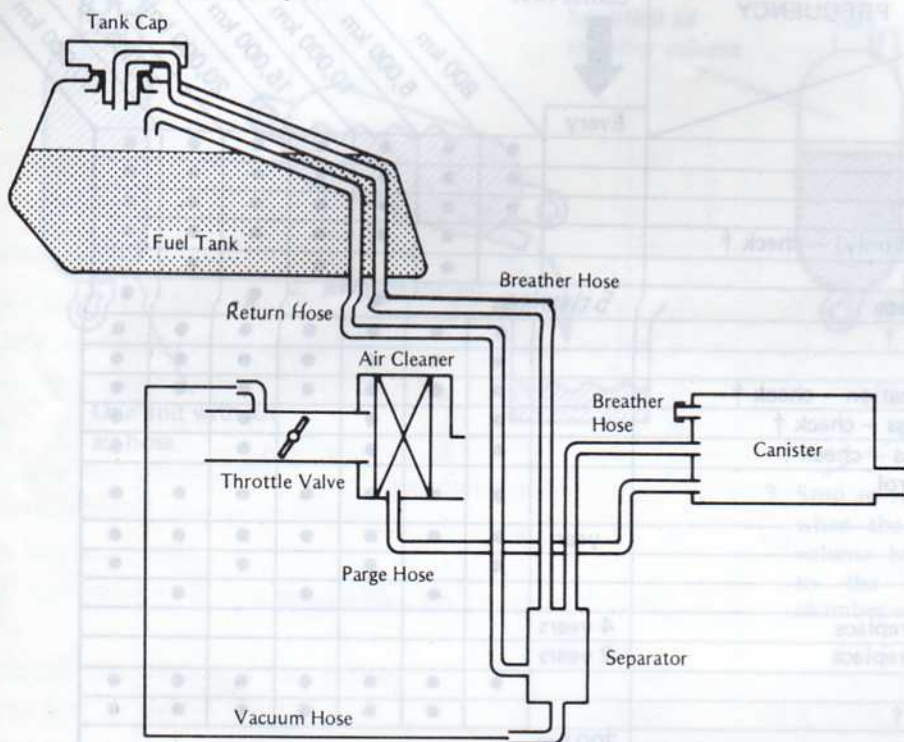
**Evaporative Emission Control System
(California Vehicle)**

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.

**Scheduled Maintenance:
Inspection**

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

Evaporative Emission Control System



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 cracks 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 capacity 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.

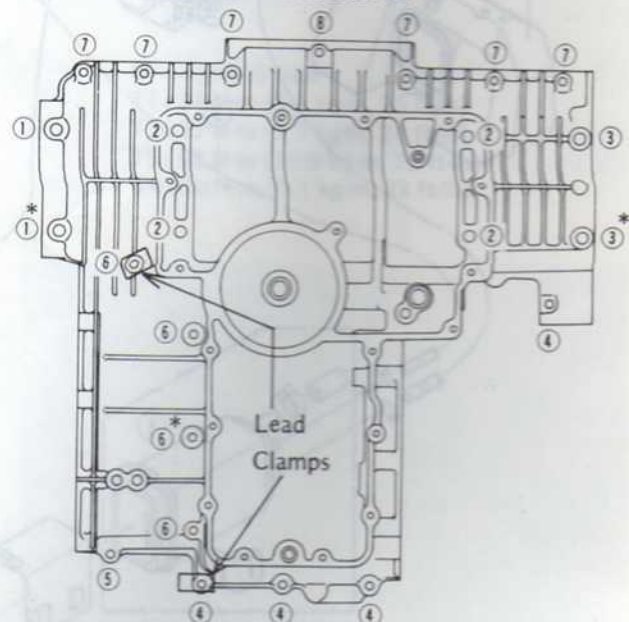
Tightening Torque

- 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.

1. Fuel Tank
2. Throttle Valve Assembly
3. Air Cleaner
4. Liquid/Vapor Separator
5. Canister
6. Breather Hose (Blue)
7. Fuel Return Hose (Red)
8. Vacuum Hose (White)
9. Breather Hose (Blue)
10. Page Hose (Green)

Evaporative Emission Control System (California Vehicle)

Disassembly and Assembly!

Removal Note

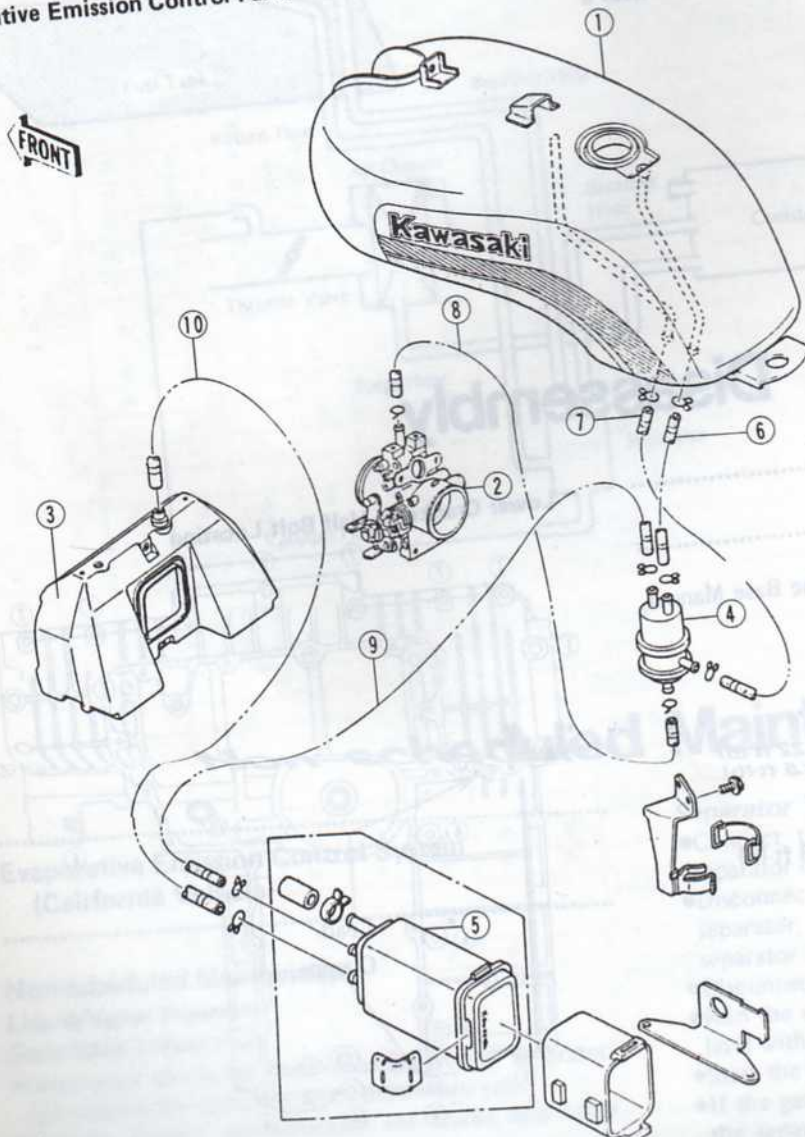
Installation Note

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

Removal 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.

Evaporative Emission Control Parts



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

WARNING

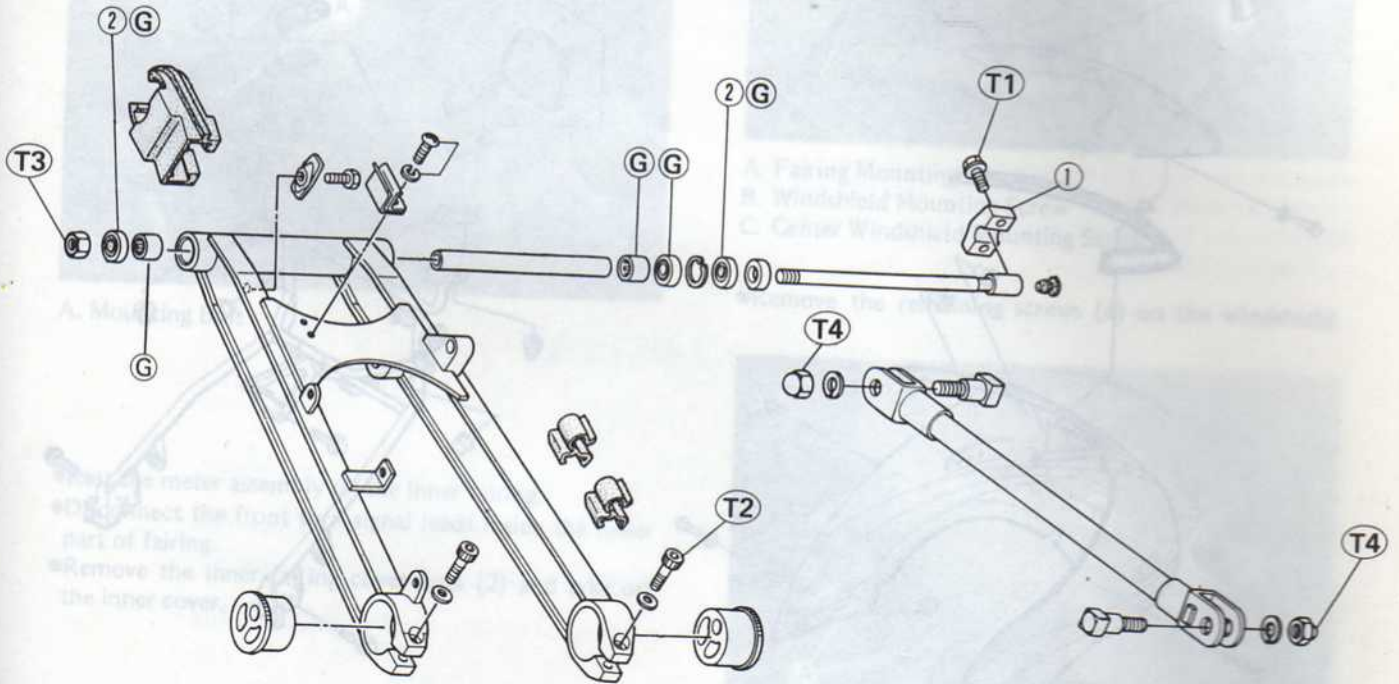
Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes and appliance with a pilot light.

CAUTION

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

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)

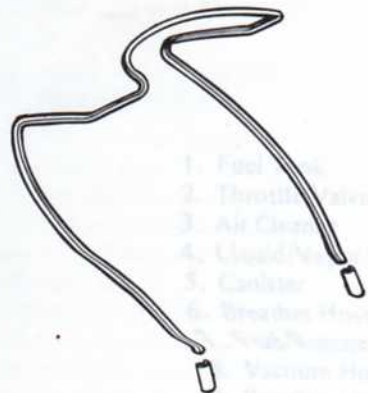
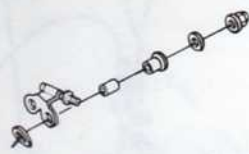
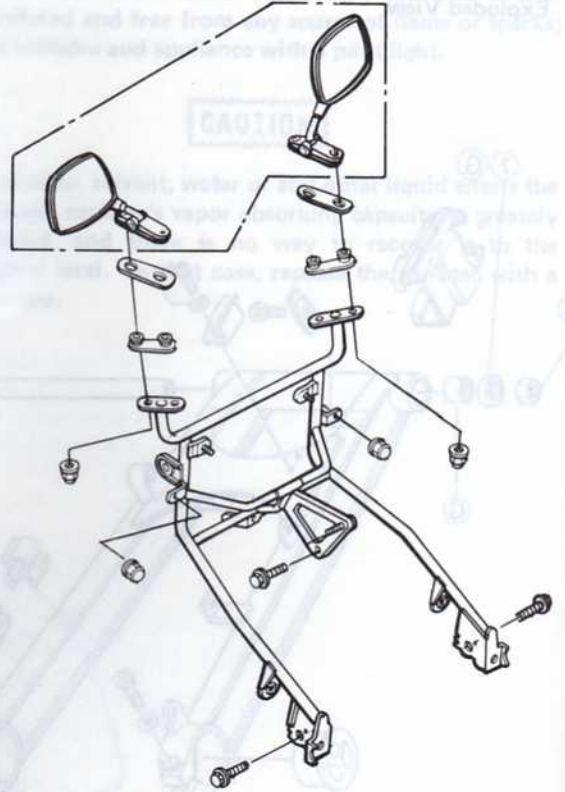
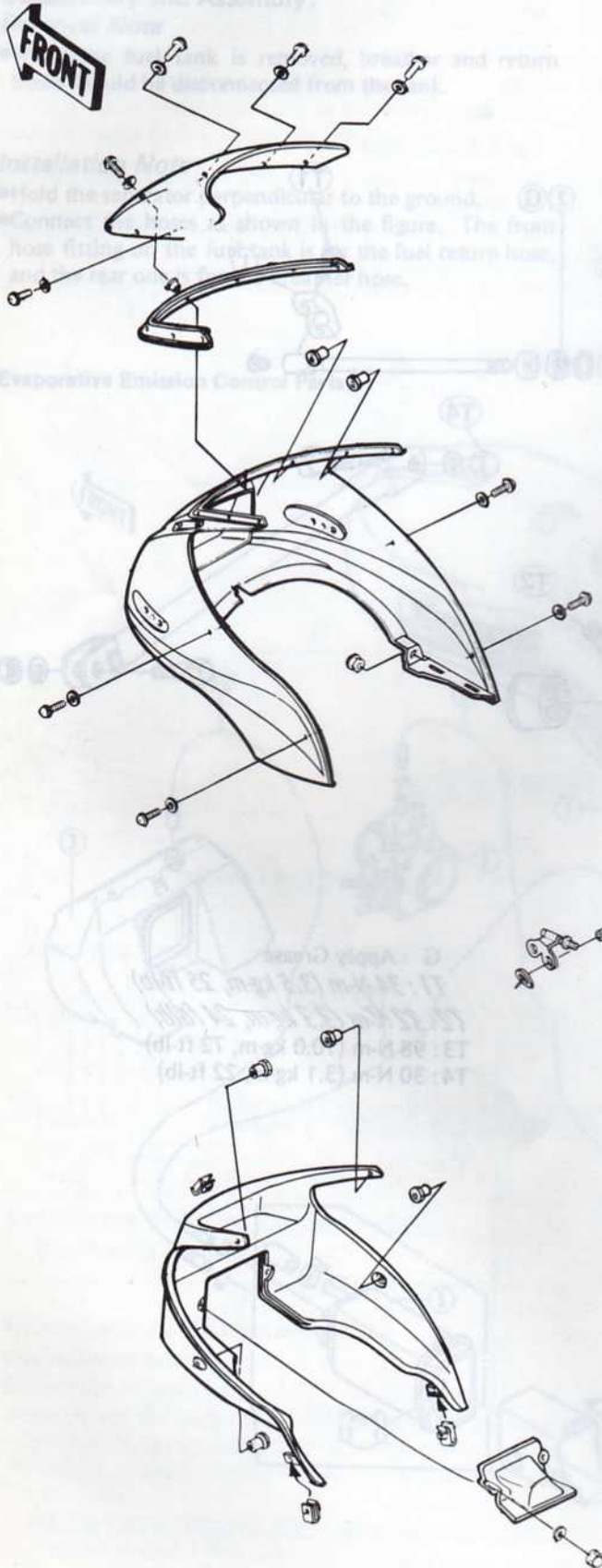
A. Cover Nut

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

9-16 SUPPLEMENT – ZX1100-A2

Fairing

Exploded View



1. Fuel Line
2. Throttle Cable Assembly
3. Air Cleaner
4. Liquid/Vapor Separator
5. Canister
6. Breather Hose (Blue)
7. Vacuum Hose (Black)
8. Vacuum Hose (White)
9. Breather Hose (Blue)
10. Fuel Hose (Green)

WARNING

mA gnw2

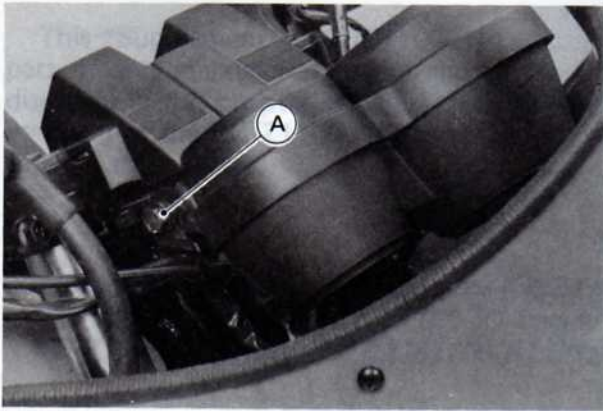
is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the fuel system is well ventilated and free from any sparks or flames. Do not inhale and do not breathe with the engine running.

CAUTION

Do not use water, oil, or any liquid on the engine. Do not use any liquid on the engine. Do not use any liquid on the engine. Do not use any liquid on the engine.

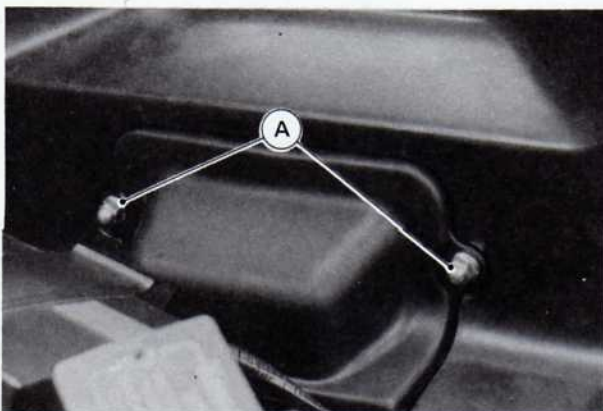
Fairing Removal

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



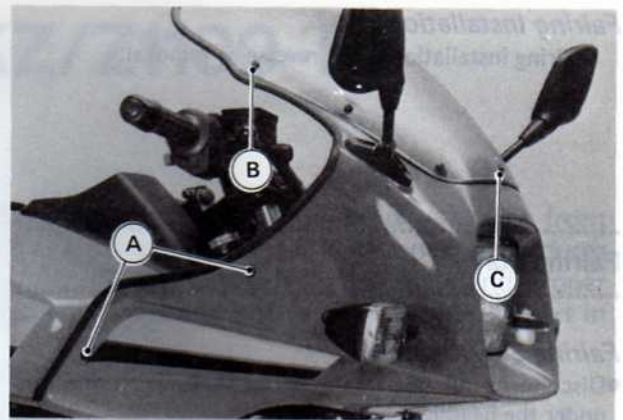
A. Mounting Bolt

- 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.



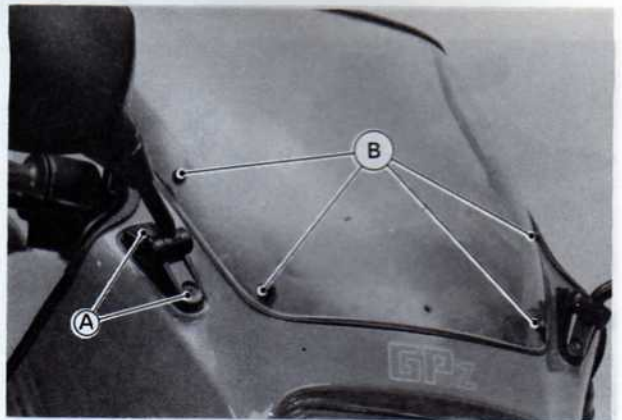
A. Cover Nuts

- 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

9-18 SUPPLEMENT – ZX1100-A2

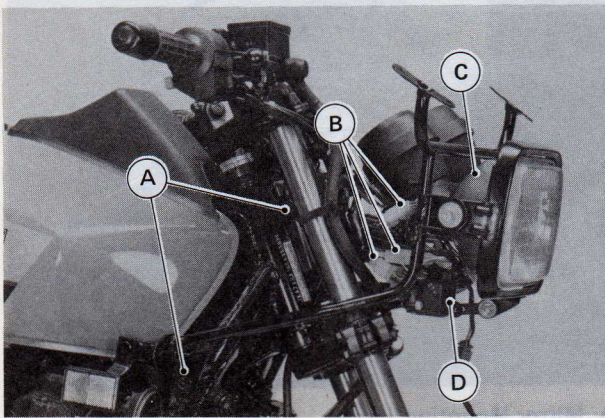
Fairing Installation

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.

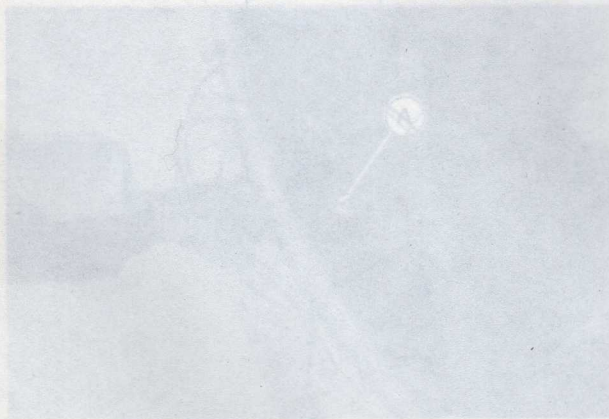


A. Stay Mounting Bolts
B. Connectors

C. Headlight Body
D. Reserve Lighting Device

Fairing Stay Installation

Fairing stay installation is the reverse of removal.



Supplement - KZ/Z1100-R1

KZ1100-R1 Left Side View:

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 described 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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General Information

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

Fairing Stay Installation

Fairing stay installation is the reverse of removal.

Model Identification

KZ1100-R1 Left Side View:



KZ1100-R1 Right Side View:



(C) Canadian model
 (G) West German model
 (S) South African model
 (N) Norwegian model

10-4 SUPPLEMENT – KZ/Z1100-R1

Specifications

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

(C) : Canadian model
 (G) : West German model

(SA) : South African model
 (N) : Norwegian model

Items	KZ/Z1100-R1
Engine oil: Grade Viscosity Capacity	SE class SAE10W40, 10W50, 20W40, or 20W50 3.7 L
Drive Train: Primary reduction system: Type Reduction ratio Clutch type Transmission: Type Gear Ratios: 1st 2nd 3rd 4th 5th Final drive system: Type Reduction ratio Overall drive ratio	Gear 1.732 (97/56) Wet multi disc 5-speed, constant mesh, return shift 2.642 (37/14) 1.833 (33/18) 1.421 (27/19) 1.173 (27/23) 1.040 (26/25) Chain drive 2.733 (41/15) 4.923 @Top gear
Frame: Type Caster (rake angle) Trail Front Tire: Type Size Rear Tire: Type Size Front suspension: Type Wheel travel Rear suspension: Type Wheel travel Brake type: Front Rear	Tubular, double cradle 28° 114 mm Tubeless 110/90 V 18 Tubeless 130/80 V 18 Telescopic fork (pneumatic) 145 mm Swing arm 100 mm Dual disc Single disc
Electrical Equipment: Battery Headlight: Type Bulb Trail/brake light Alternator: Type Rated output Voltage regulator: Type	12 V 18 AH Semi-Sealed beam 12 V 60/55 W (quartz-halogen) 12 V 5/21 W x 2, (C)SA 12 V 8/27 W x 2 Three-phase AC 20 A @5,000 r/min (rpm), 14 V Short-circuit

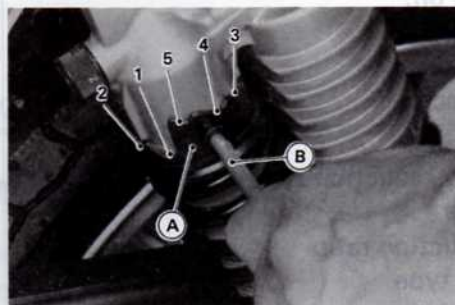
Setting Before Ride

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.

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

Front	221 kPa (2.25 kg/cm ² , 32 psi)	
	© 196 kPa (2.00 kg/cm ² , 28 psi)	
	245 kPa (2.50 kg/cm ² , 36 psi)	
Rear	Over 210 kph (130 mph)	284 kPa (2.90 kg/cm ² , 41 psi)
	© Up to 956 N (97.5 kg, 215 lb) load	221 kPa (2.25 kg/cm ² , 32 psi)
	© 956 – 1,620 N (97.5 – 165 kg, 215 – 364 lb) load	245 kPa (2.50 kg/cm ² , 36 psi)

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.

© : 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/cm ² , 7.1 psi)
Usable range:	39 – 59 kPa (0.4 – 0.6 kg/cm ² , 5.7 – 8.5 psi)

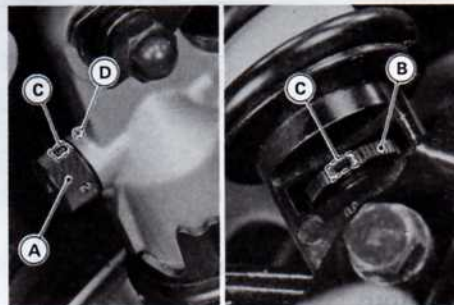
Rear Shock Absorbers

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.

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	III
Damping Force		Larger \longrightarrow			

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.

(Continued on next page)

10-8 SUPPLEMENT – KZ/Z1100-R1

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 bearing cap bolts	6	16	17	1.7	12.0	S
Camshaft chain anti-jumping 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.)

10-10 SUPPLEMENT – KZ/Z1100-R1

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 fasteners:

Refer to p. 1-14.

Chassis Parts	Threads Dia. (mm)	Quantity	Torque N-m	Torque kg-m	Torque ft-lb	Remarks
Torque link nuts	10	1	10	1.0	7.3	
Front master cylinder clamp bolts	8	2	8	0.8	5.9	
mounting screw	8	4	8	0.8	5.9	
Front brake light switch	8	1	8	0.8	5.9	
Disc mounting bolts	8	1	8	0.8	5.9	
Calliper mounting bolts	10	1	10	1.0	7.3	
Brake pipe nipples	10	4	10	1.0	7.3	
Brake lever pivot bolt	8	1	8	0.8	5.9	
Brake lever pivot bolt locknut	8	1	8	0.8	5.9	
Brake lever pivot bolt	8	1	8	0.8	5.9	
Brake hose band bolts	10	2	10	1.0	7.3	
Air bleed valves	10	2	10	1.0	7.3	
Brakes:						
Tire air valve nuts	8	4	8	0.8	5.9	
Rear axle nut	18	1	18	1.8	13.2	
Rear axle nut	18	1	18	1.8	13.2	
Front axle clamp nut	8	1	8	0.8	5.9	
Front axle nut	14	4	14	1.4	10.2	
Whosie:						

(Continued on next page.)

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Service Data

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

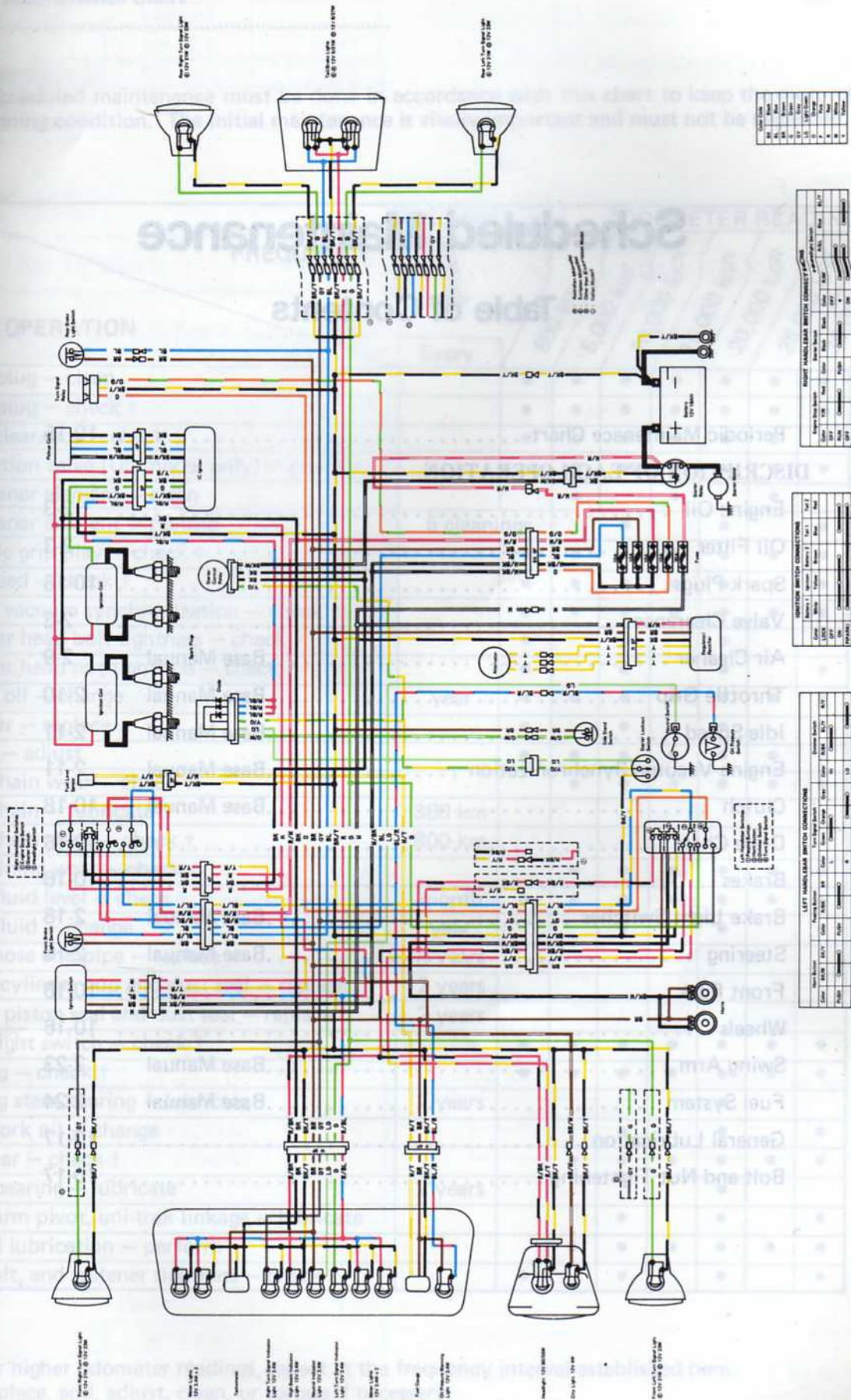
Item	Standard	Service Limit
Tread Depth:	Front 4.5 mm	1 mm
	Rear 6.9 mm	2 mm (Up to 130 km/h) 3 mm (Over 130 km/h)
Standard Tire:	Front 110/90 V18 TUBELESS DUNLOP F17 or BRIDGESTON G515	
	Rear 130/90 V18 TUBELESS DUNLOP K427 or BRIDGESTON G516	
Rear Pressure	See p. 10-6	
Main Spring Slack	30 – 35 mm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

European Model

ⓈA : South African Model

KZ/Z1100-R1 Mitsub System

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	Which ever comes first ↓	*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	Every		•	•	•	•	•	•	•	•
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

Standard	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 to 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)

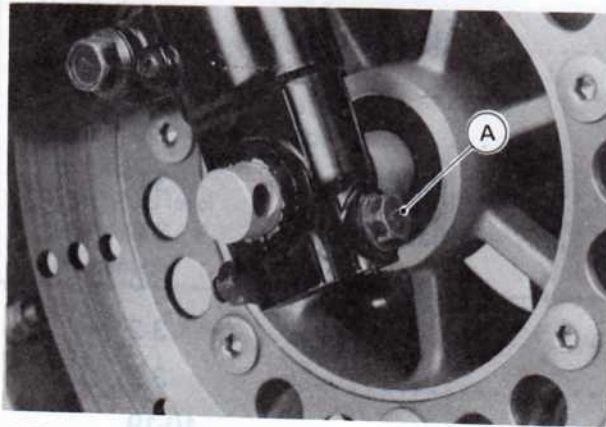
	Service Limit
Axial	0.5 mm
Radial	0.8 mm

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

(Mirrored text from the reverse side of the page)

Cylinder Head	3-18	Base Manual
Valves	3-18	Base Manual
Cylinder Block		
Pistons	3-18	Base Manual
Connecting Rods	3-18	Base Manual
Crankshaft		
Clutch		
Transmission		
Shift Mechanism		
Engine Lubrication System	10-18	

Engine Lubrication System

Refer to pp. 2-25 through 2-27 of the Base Manual, noting the following:

Relief Valve Operating Pressure

430 - 250 kPa (34.5 - 36.3 psi)

Non-scheduled Maintenance – Engine

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Fuel Tank	Base Manual	3-2
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Camshaft Chain	Base Manual	3-6
Chain Guides	Base Manual	3-6
Chain Tensioner	Base Manual	3-6
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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

Standard	Service Limit
381.0 – 381.8 mm	389 mm

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

Brakes

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

	Service Limit
Axial	0.5 mm
Radial	0.8 mm

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	1 3/4 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.

Fork Spring Free Length

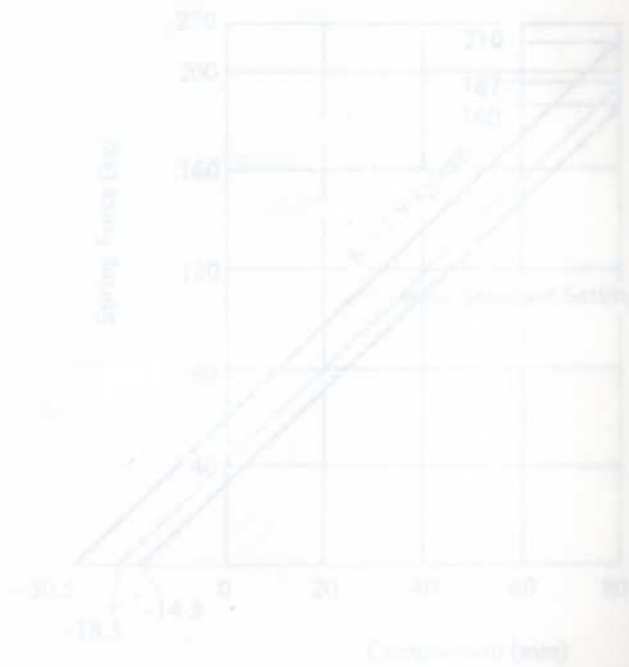
Standard	341.5 mm
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Engine Lubrication System

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
Cylinder Block		10-11
Pistons		10-11
Crankshaft	Base Manual	3-18
Connecting Rods	Base Manual	3-18
Clutch		3-22
Transmission		3-22
Shift Mechanism		3-22
Engine Lubrication System		10-19

Oil Pressure (4.4 – 8.0 kg/cm², 63 – 85 psi)

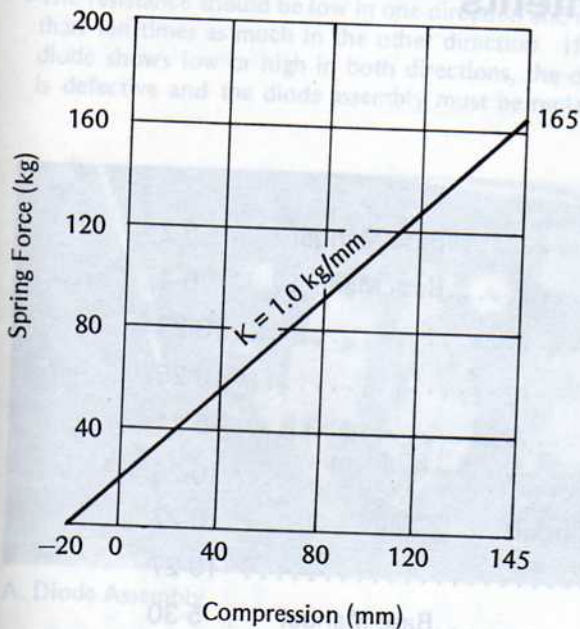
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Front Fork

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/cm ² (50 kPa, 7.1 psi)
Usable Range:	0.4 – 0.6 kg/cm ² (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

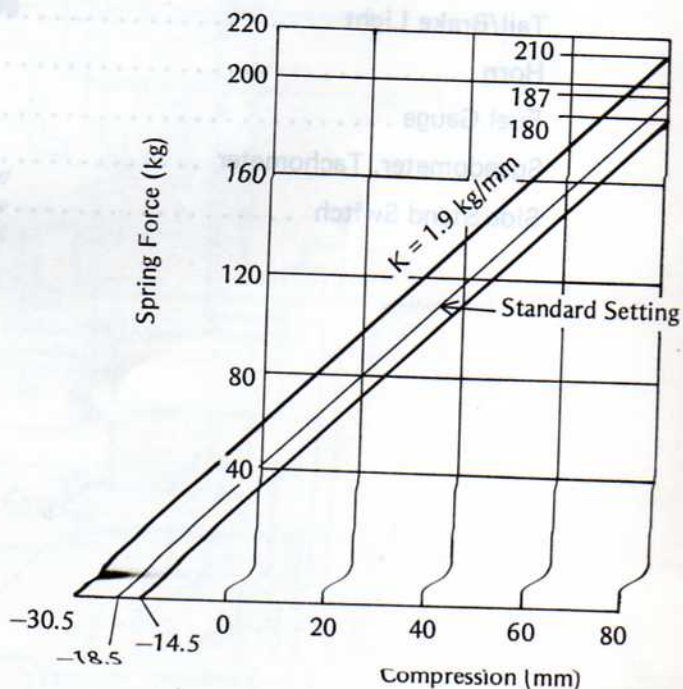
•If both spring adjusting nuts are not adjusted equally, handling may be impaired and a hazardous condition may result.

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.

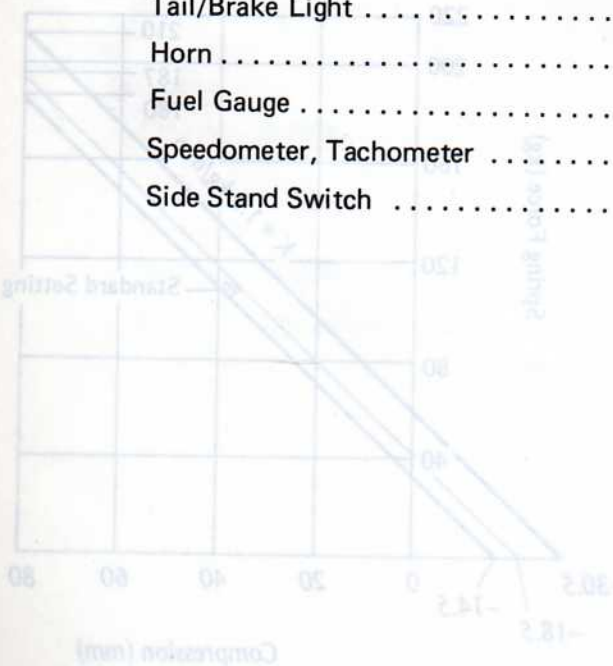
Rear Shock Absorber Spring Force (per one shock absorber unit)



Non-scheduled Maintenance - Electrical

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Battery	Base Manual	5-2
Charging System	Base Manual	5-4
Ignition System		10-23
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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



Standard:	24.5 mm
Service Limit:	22.3 mm

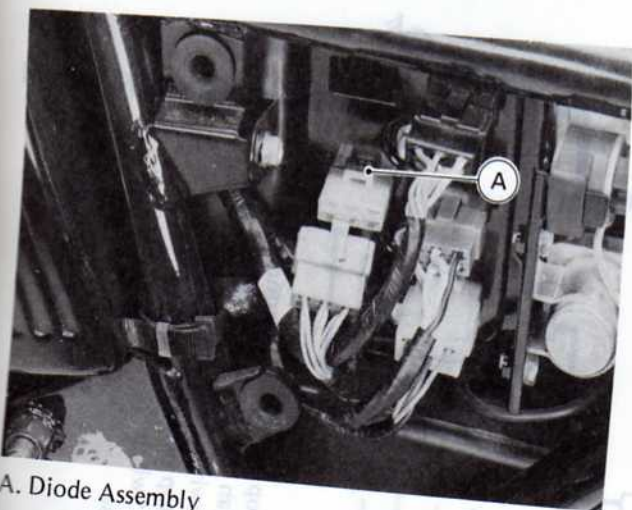
.....
Ignition System

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.

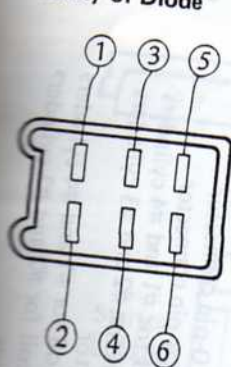


A. Diode Assembly

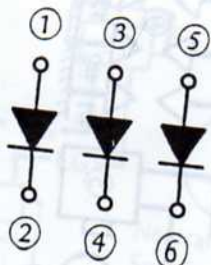
NOTE

○ 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

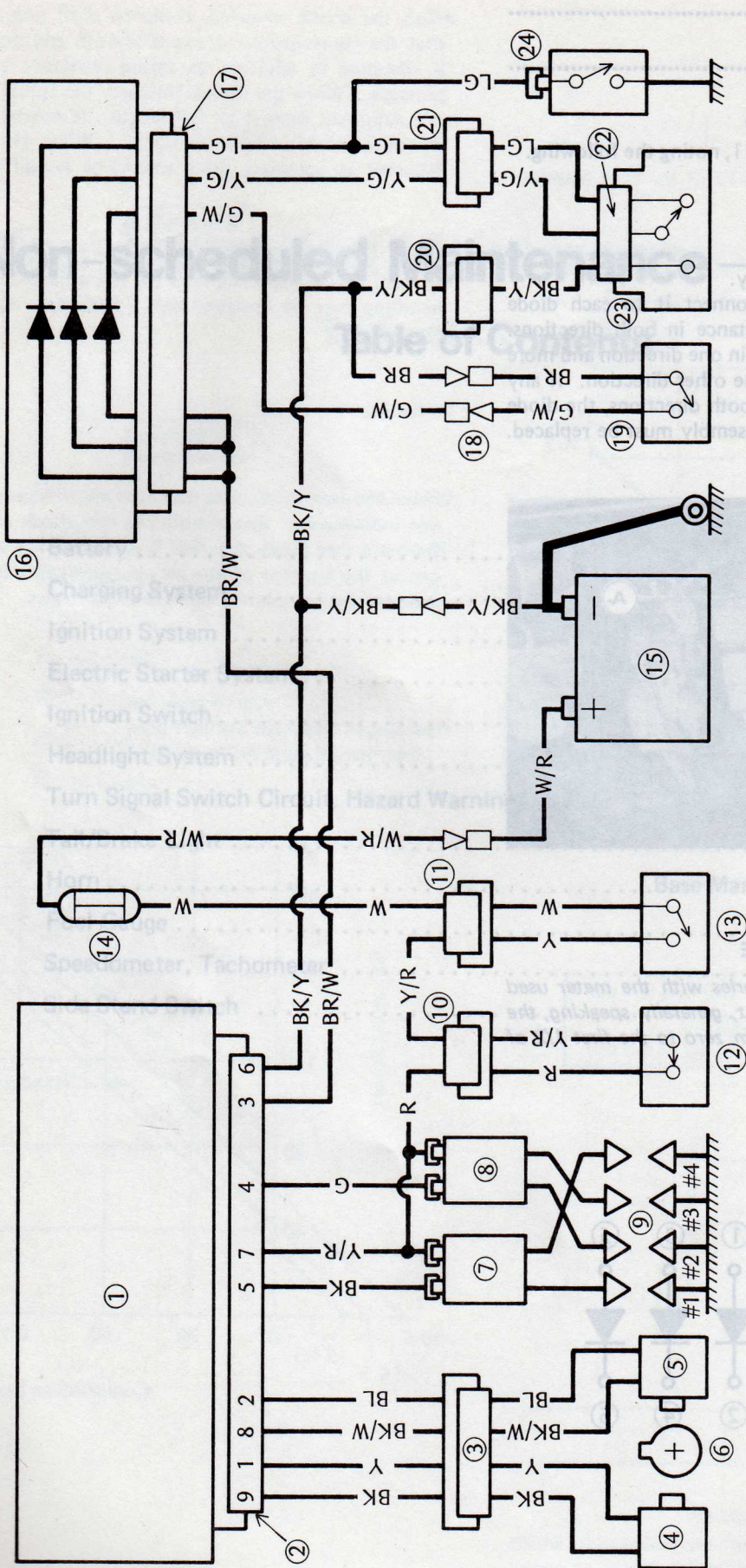


Anode



Cathode

Ignition System Wiring Diagram



- 1. IC igniter
- 2. IC igniter 10-pin connector
- 3. Pickup coil #1 and #4 cylinders
- 4. Pickup coil for #2 and #3 cylinders
- 5. Timing rotor
- 6. Ignition coil for #1 and #4 cylinders
- 7. Ignition coil for #2 and #3 cylinders
- 8. Spark plug

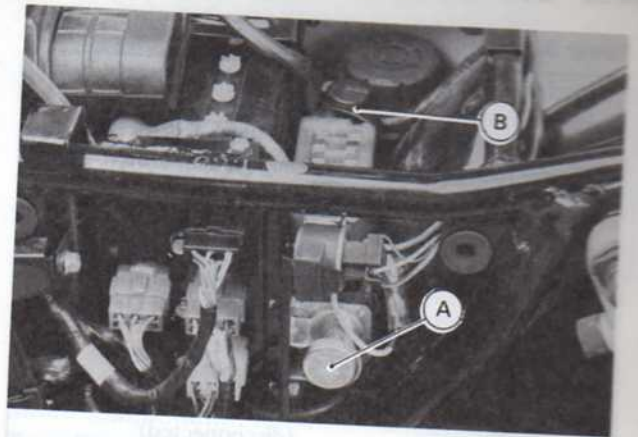
- 10. Engine stop switch 4-pin connector (Canadian model: 6 pin connector)
- 11. Ignition switch 6-pin connector
- 12. Engine stop switch
- 13. Ignition Switch
- 14. 30A Fuse
- 15. Battery
- 16. Diodes

- 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

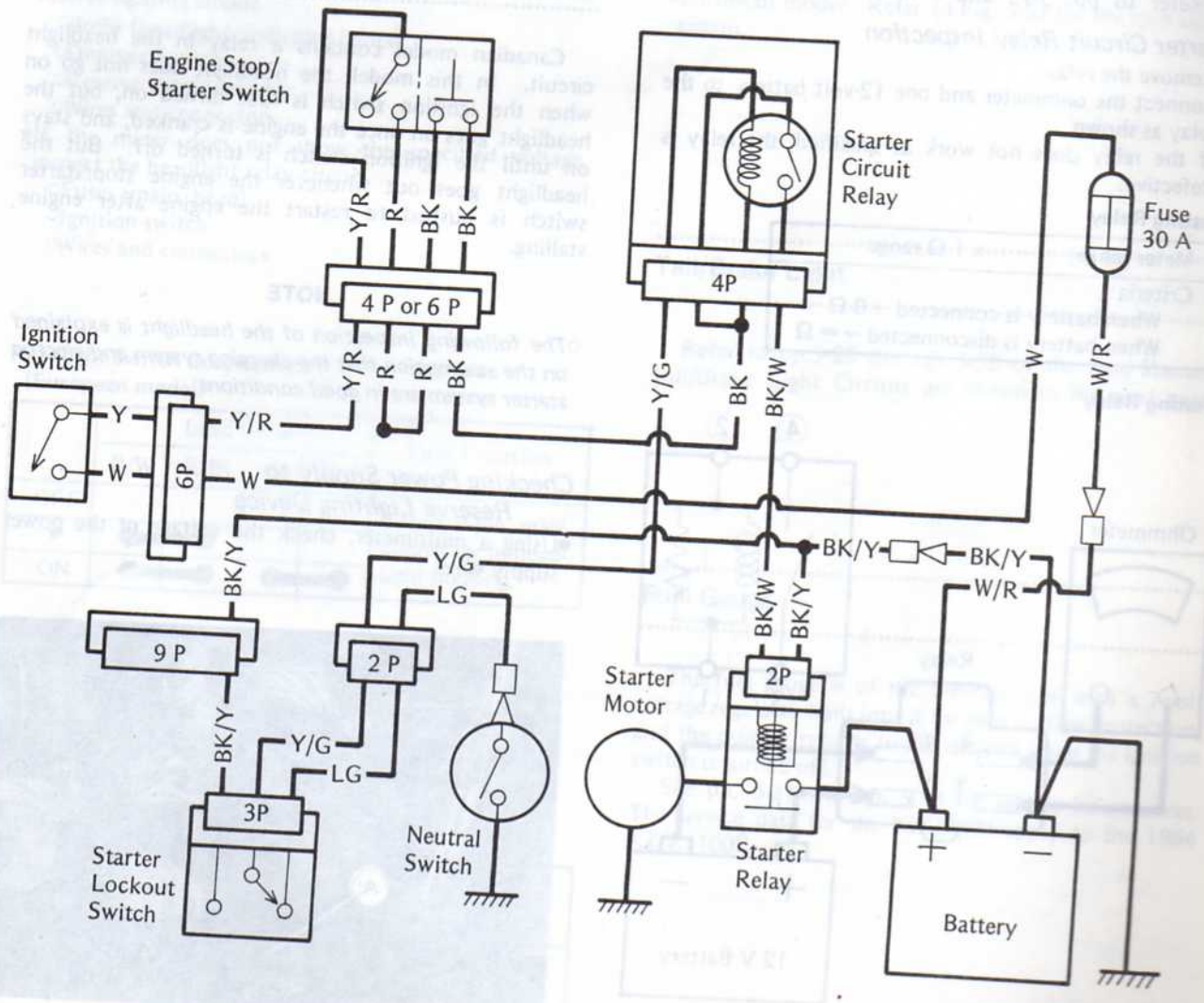
Checking Power Supply to Starter Relay

- 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 lock-out, 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.

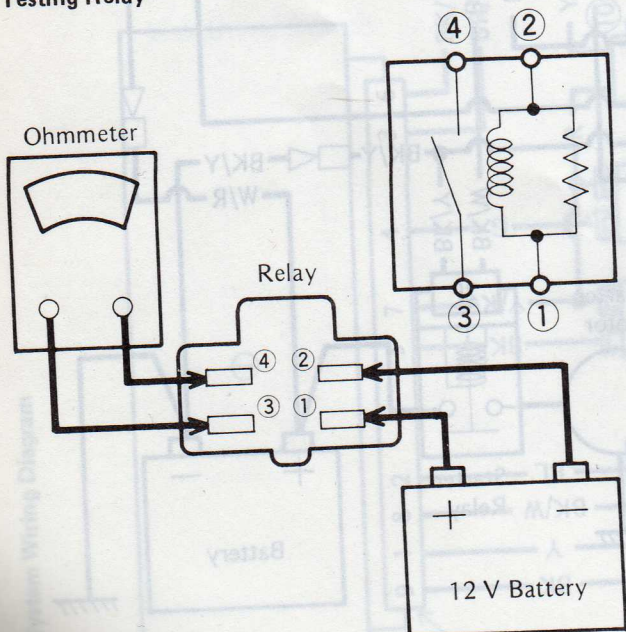
Starter Circuit Relay Inspection

- 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 Inspection

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

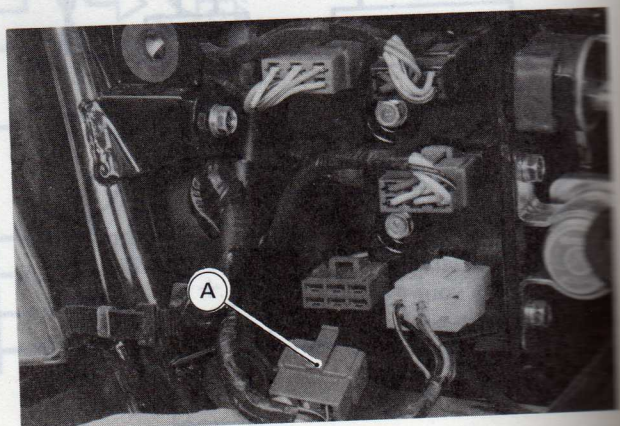
Canadian model contains a relay in the headlight circuit. In this model, the headlight does not go on when the ignition switch is first turned on, but the headlight goes on once the engine is cranked, and stays on until the ignition switch is turned off. But the headlight goes out whenever the engine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

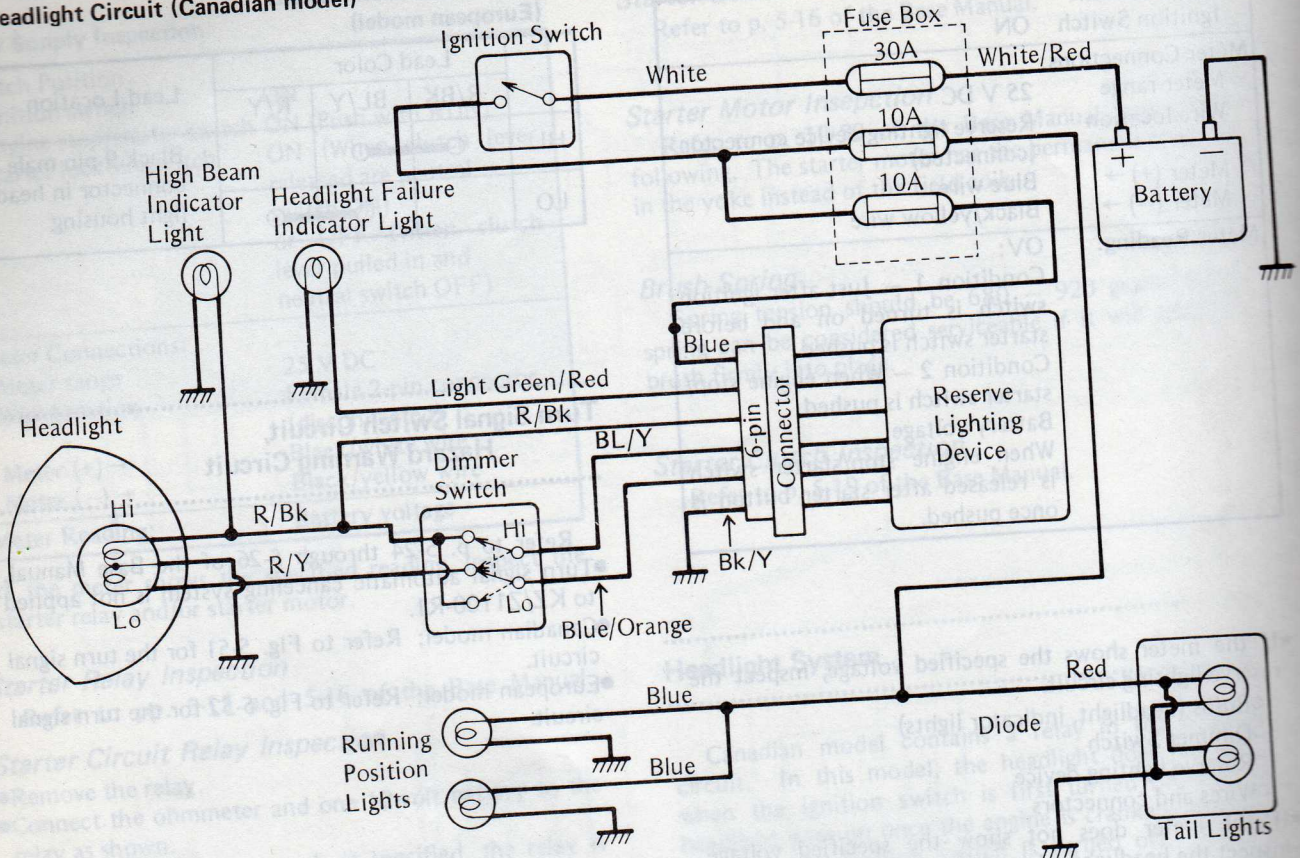
Fuel Gauge

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.

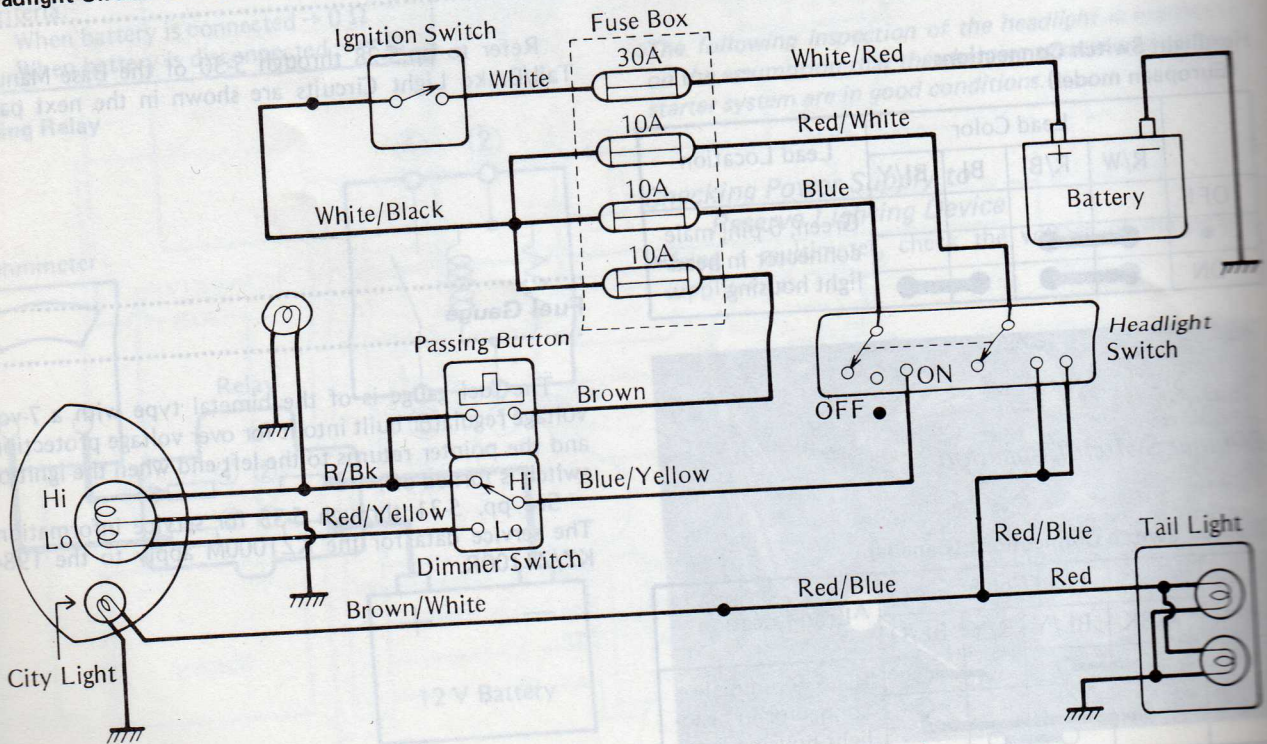
See pp. 5-31 through 5-33 for service information. The service data for the KZ1000M apply to the 1984 KZ/Z1100R.

10-28 SUPPLEMENT -- KZ/Z1100-R1

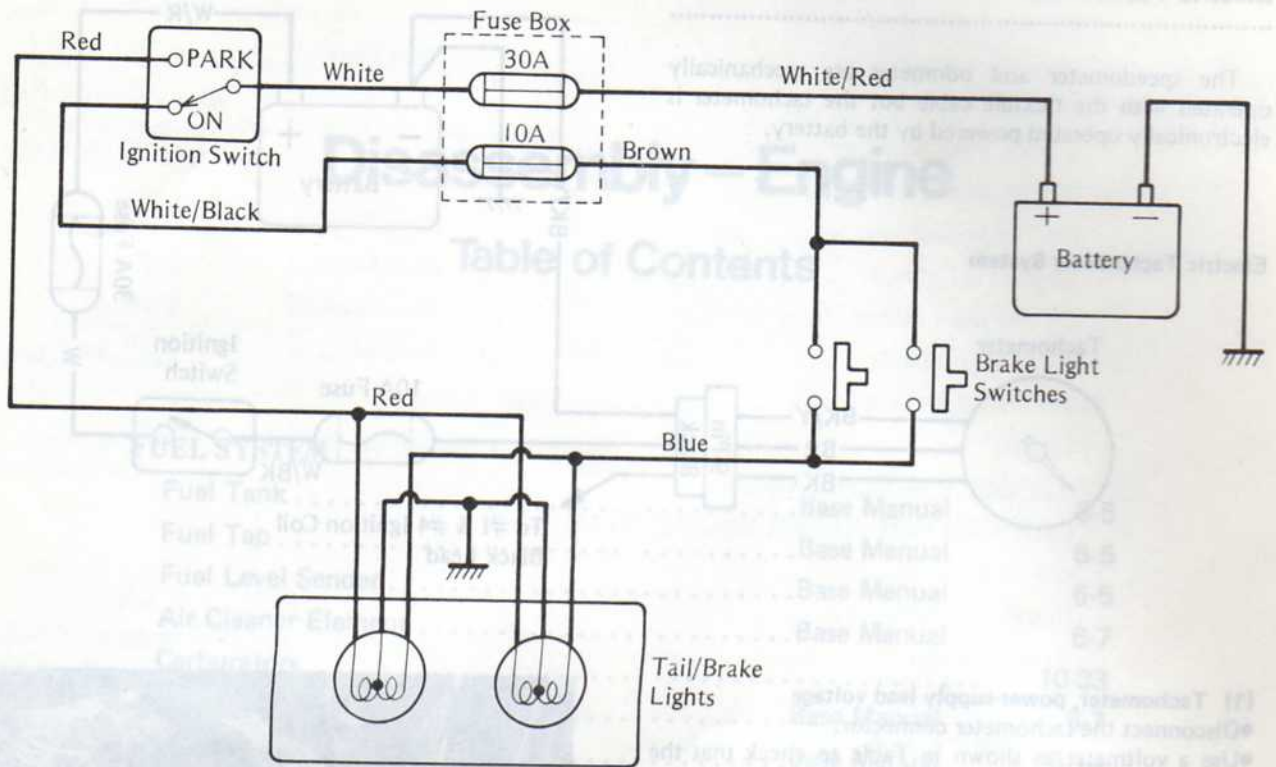
Headlight Circuit (Canadian model)



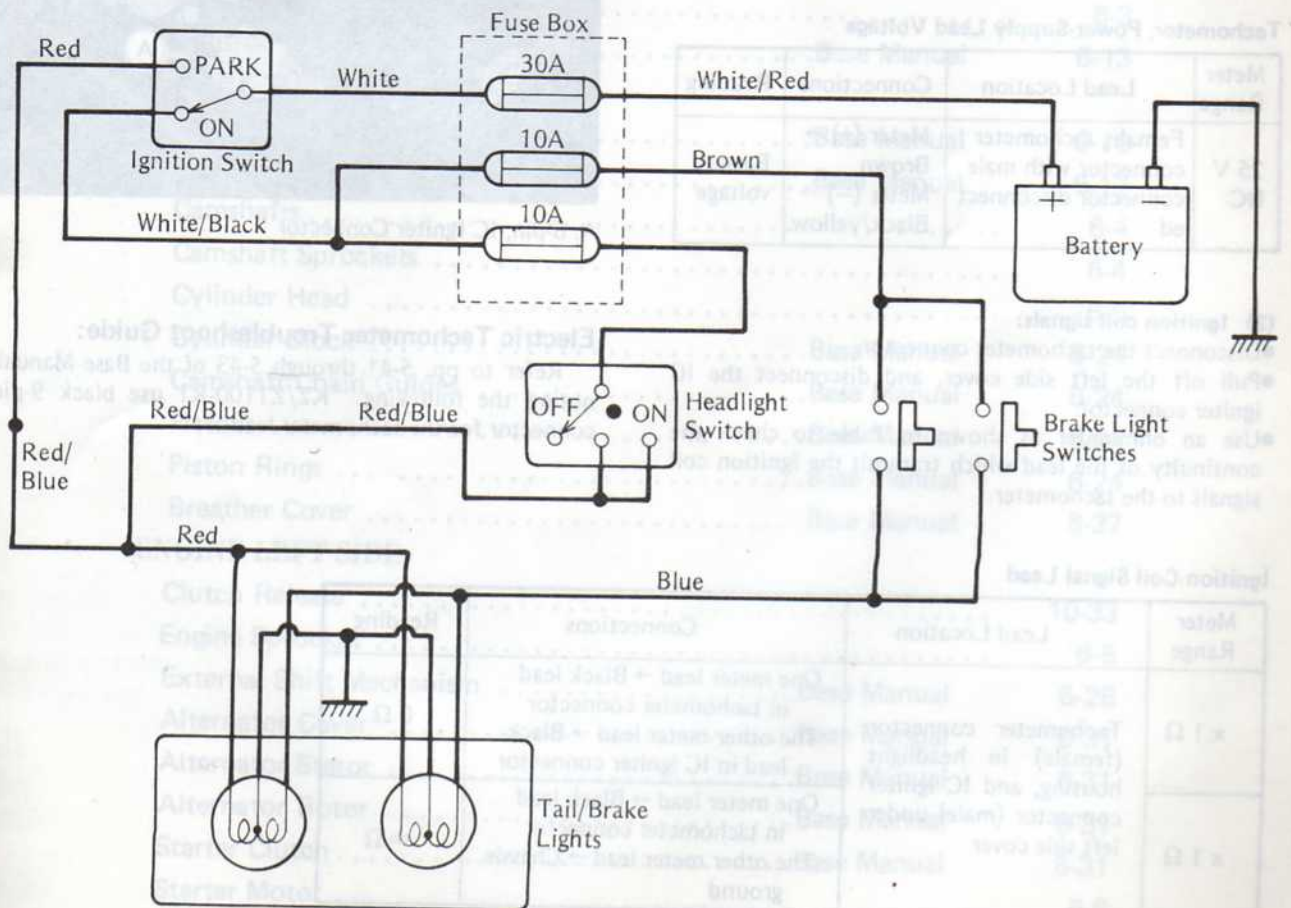
Headlight Circuit (European model)



Tail/Brake Light Circuit (US, Canadian Models)



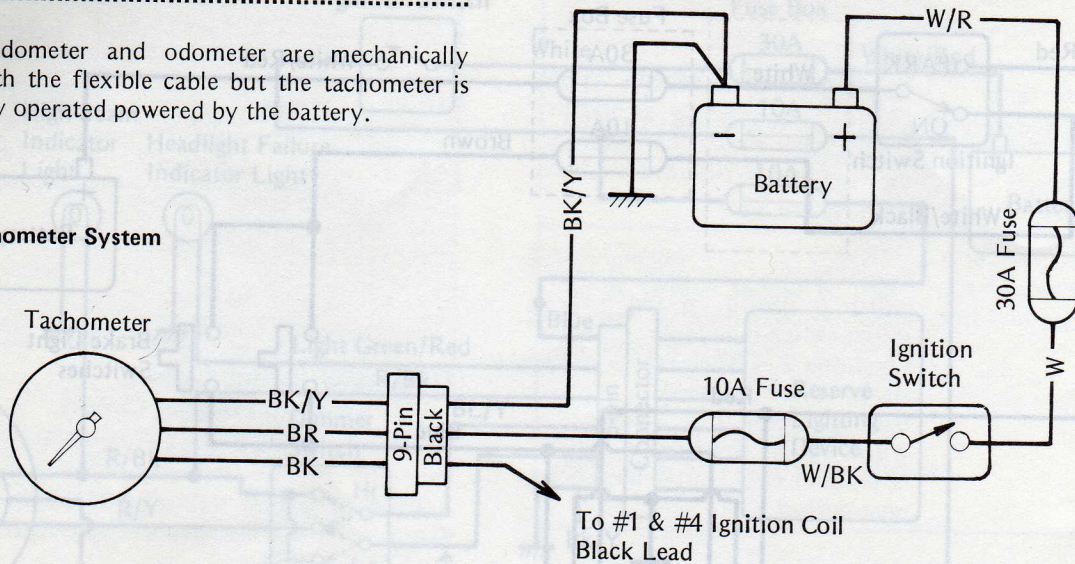
Tail/Brake Light Circuit (European Model)



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

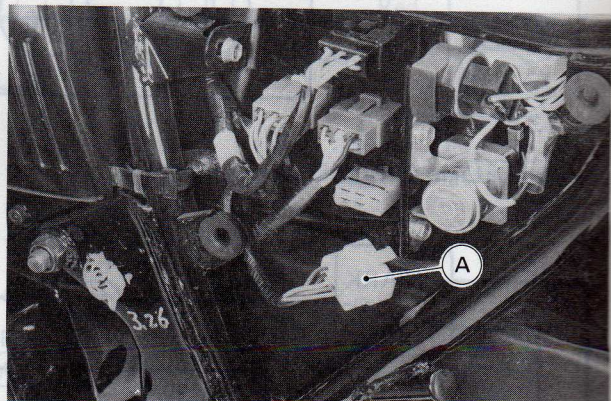


(1) Tachometer, power-supply lead voltage

- 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.

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.

Ignition Coil Signal Lead

Meter Range	Lead Location	Connections	Reading
$\times 1 \Omega$	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	0Ω
$\times 1 \Omega$		One meter lead → Black lead in tachometer connector The other meter lead → Chassis ground	$\infty \Omega$

Disassembly – Engine

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DISASSEMBLY WHICH CAN BE CARRIED OUT AFTER ENGINE REMOVAL

ENGINE SPLIT

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Camshaft Chain Base Manual 6-49

Crankcase Base Manual 6-49

Meter Range	Lead Location	Connections	Signal
25 V DC	8-13	Base Manual	
	8-17	Base Manual	
	8-4	Base Manual	

8-4

8-5

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8-24

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ENGINE LEFT SIDE

Meter Range	Lead Location	Connections	Signal
10-33	8-5	Base Manual	
8-28	8-28	Base Manual	
8-31	8-31	Base Manual	
8-31	8-31	Base Manual	
8-31	8-31	Base Manual	
8-31	8-31	Base Manual	

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.

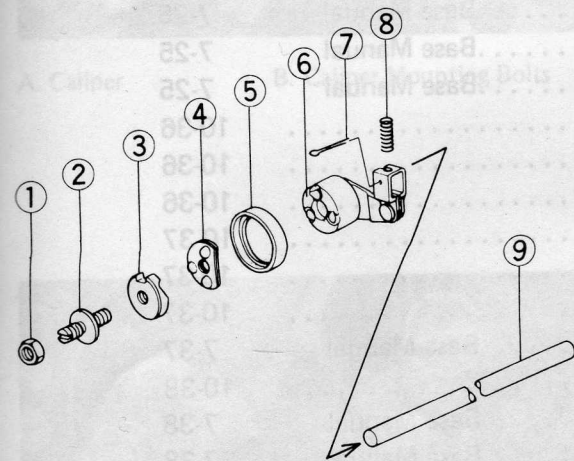
Clutch Release

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

Disassembly – Chassis

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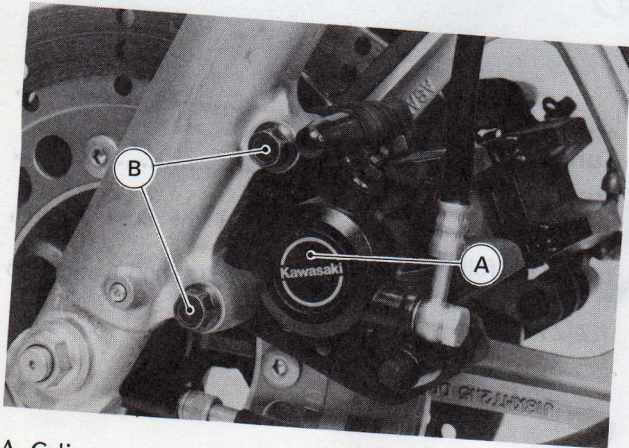
Front Wheel Speedometer Gear Housing

Removal:

Front Wheel and

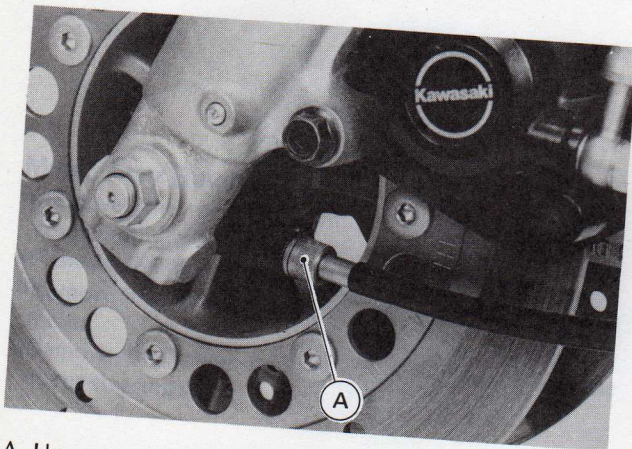
Speedometer Gear Housing Removal

- 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 suitable support to lift the front wheel off the ground, and place the front wheel with the speedometer gear housing on a flat surface.

CAUTION

- Do not lay the wheel down on one of the brake discs. This can damage or warp the disc. Place the wheel on a flat surface so that the discs do not touch the ground.

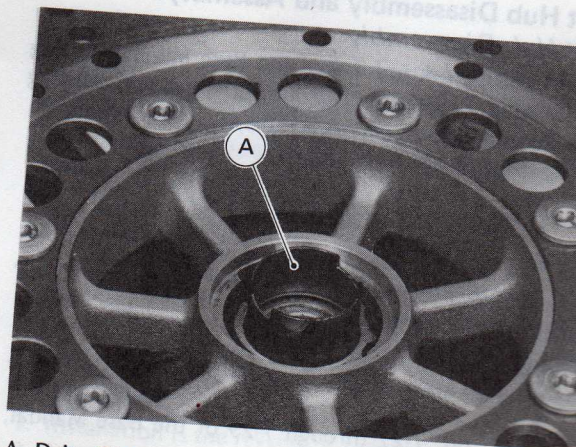
- Insert a wood wedge (4 – 5 mm thick) between the disc brake pads. This prevents the pads from moving out of their proper position, should the brake lever be squeezed accidentally.

Installation:

Front Wheel and Speedometer Gear Housing Installation

NOTE

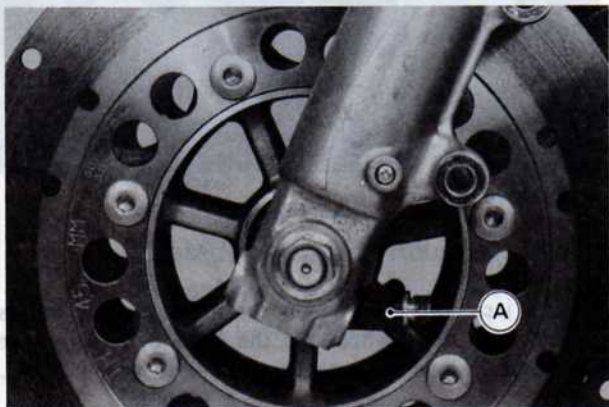
1. properly engage the drive sleeve with the speedometer gear housing.



A. Drive Sleeve

10-36 SUPPLEMENT – KZ/Z1100-R1

- 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

- 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).
- 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.
- 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

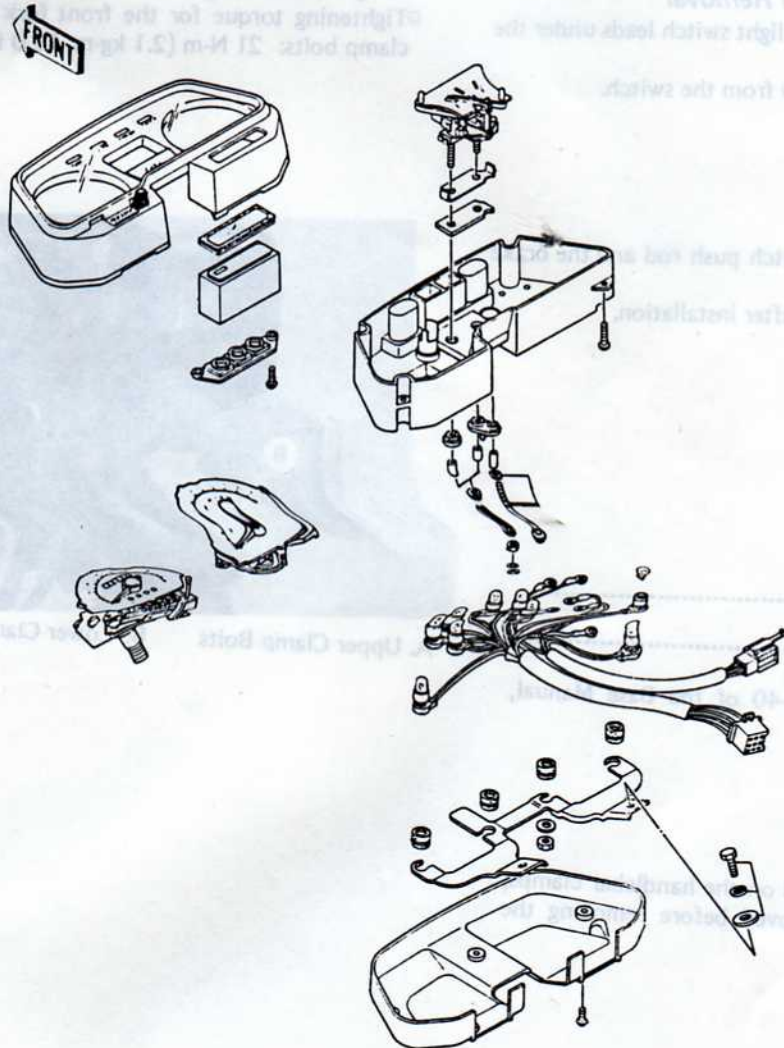
- Main Wiring Harness

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 housing.
- 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.

- 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.

Speedometer, Tachometer and Fuel Gauge Removal:

- Remove the screws (4 ea) 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.

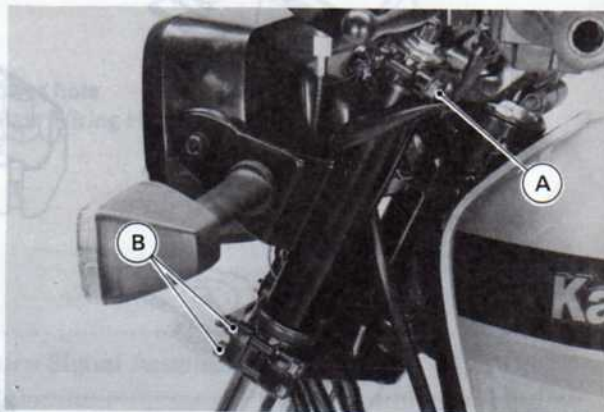
Installation:

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

.....
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

.....
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).

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.

LOCATION		
T2731		D 13
PART NO.		QTY.
99924-1038-02		1
S/M SUP ZX1100A		
MEMO:	ORDER NO.	INVOICE NO.
0010-40-95	13	
DEALER NO.	ORDER NO.	INVOICE NO.
0469	12159A	0013952

Part No. 99924-1038-02

Printed in Japan