

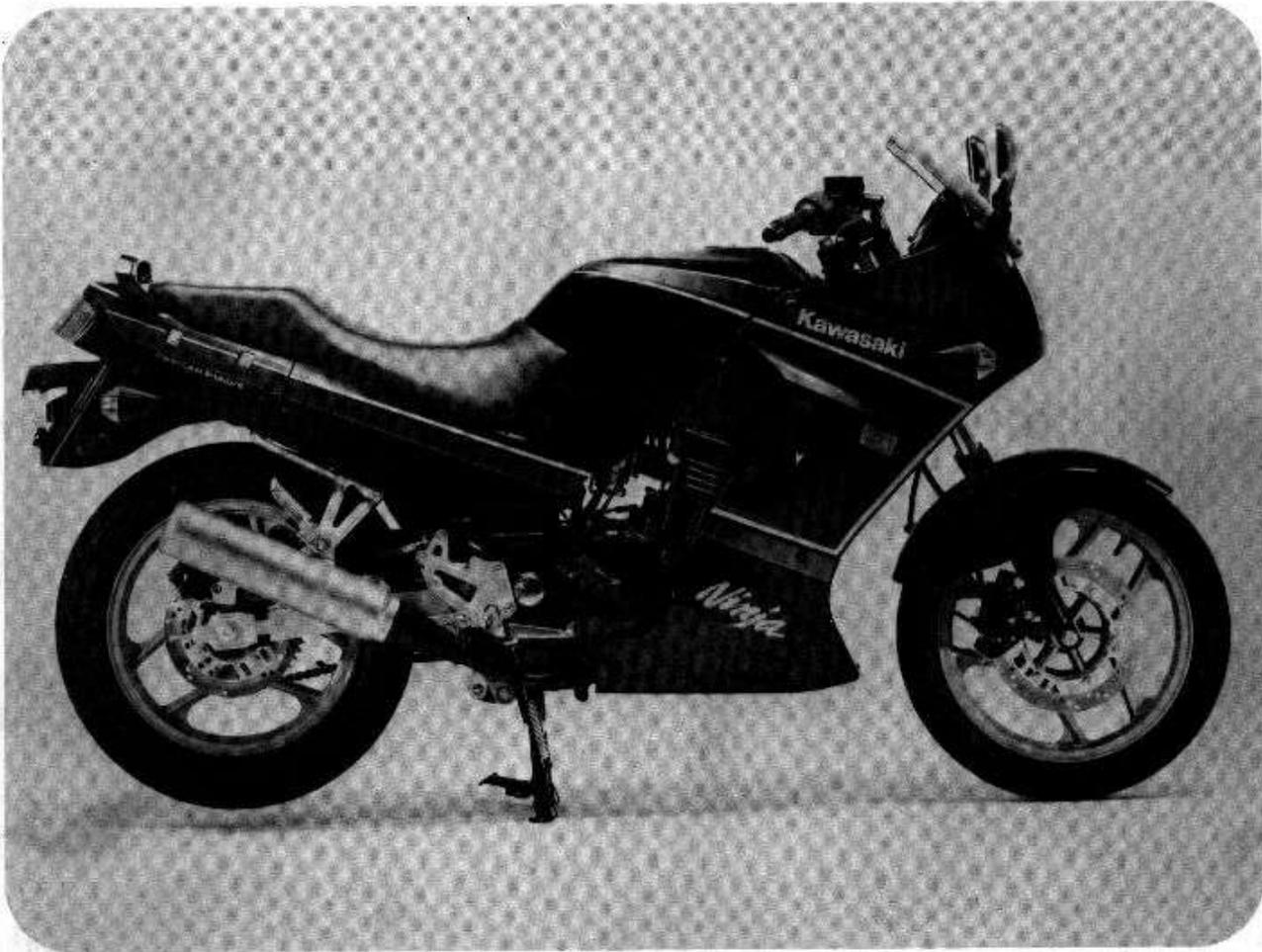
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Kawasaki

**Ninja250R
GPX250R**



Motorcycle Service Manual Supplement

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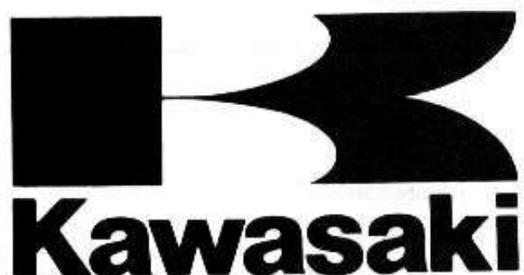
Quick Reference Guide

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This quick reference guide will assist you in locating a desired topic or procedure.

- Bend the pages back to match the black tab of the desired chapter number with the black tab on the edge at each table of contents page.

- Refer to the sectional table of contents for the exact pages to locate the specific topic required.



Ninja250R
GPX250R

Motorcycle Service Manual Supplement

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No liability can be accepted for any inaccuracies or omissions in this publication, although every possible care has been taken to make it as complete and accurate as possible.

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.

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)		

U.K. model only



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

Brake Shoes or Pads
Clutch Friction Material
Gaskets
Insulators

SAFETY INSTRUCTIONS

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

Read OWNER'S MANUAL before operating.

EMISSION CONTROL INFORMATION

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

1. Crankcase Emission Control System

This system eliminates the release of crankcase vapors into the atmosphere. Instead, the vapors are routed through an oil separator to the intake side of the engine. While the engine is operating, the vapors are drawn into combustion chamber, where they are burned along with the fuel and air supplied by the carburetion system.

2. Exhaust Emission Control System

This system reduces the amount of pollutants discharged into the atmosphere by the exhaust of this motorcycle. The fuel and ignition systems of this motorcycle have been carefully designed and constructed to ensure an efficient engine with low exhaust pollutant levels.

3. Evaporative Emission Control System

Vapors caused by fuel evaporation in the fuel system are not vented into the atmosphere. Instead, fuel vapors are routed into the running engine to be burned, or stored in a canister when the engine is stopped. Liquid fuel is caught by a vapor separator and returned to the fuel tank.

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

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

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

(Continued on next page.)

NOTE

o *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).
- Removal of the air box or air box cover.
- Modifications to the muffler(s) or air intake system by cutting, drilling, or other means if such modifications result in increased noise levels.

Foreword

This service manual supplement contains only the information unique to the models covered. It must be used with the base service manual listed below. Read both this supplement and the base manual for complete information on proper service procedures for the models covered by this manual.

Base Manual	Part Number
Ninja 250R (GPZ 250R)	99924-1066-01

This manual is designed primarily for use by trained mechanics in a properly equipped shop. However, it contains enough detail and basic information to make it useful to the owner who desires to perform his own basic maintenance and repair work. A basic knowledge of mechanics, the proper use of tools, and workshop procedures must be understood in order to carry out maintenance and repair satisfactorily. Whenever the owner has insufficient experience or doubts his ability to do the work, all adjustments, maintenance, and repair should be carried out only by qualified mechanics.

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

For the duration of the warranty period, we recommend that all repairs and scheduled maintenance be performed in accordance with this service manual. Any owner maintenance or repair procedure not performed in accordance with this manual may void the warranty.

To get the longest life out of your Motorcycle:

- Follow the Periodic Maintenance Chart in the service manual.
- Be alert for problems and non-scheduled maintenance.
- Use proper tools and genuine Kawasaki Motorcycle parts. Special tools, gauges, and testers that are necessary when servicing Kawasaki motorcycles are introduced by the Special Tool Manual. Genuine parts provided as spare parts are listed in the Parts Catalog.

- Follow the procedures in this manual carefully. Don't take shortcuts.
- Remember to keep complete records of maintenance and repair with dates and any new parts installed.

How to Use this Manual

In preparing this manual, we divided the product into its major systems. These systems became the manual's chapters. All information for a particular system from adjustment through disassembly and inspection is located in a single chapter.

The Quick Reference Guide shows you all of the product's system and assists in locating their chapters. Each chapter in turn has its own comprehensive Table of Contents.

The Periodic Maintenance Chart is located in the General Information chapter. The chart gives a time schedule for required maintenance operations.

If you want spark plug information, for example, go to the Periodic Maintenance Chart first. The chart tells you how frequently to clean and gap the plug. Next, use the Quick Reference Guide to locate the Electrical System chapter. Then, use the Table of Contents on the first page of the chapter to find the spark plug section.

Whenever you see these WARNING and CAUTION symbols, 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.

This manual contains five more symbols (in addition to WARNING and CAUTION) which will help you distinguish different types of information.

NOTE

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

- Indicates a procedural step or work to be done.
- Indicates a procedural sub-step or how to do the work of the procedural step it follows. It also precedes the text of a WARNING, CAUTION, or NOTE.
- ★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.
- ☆ Indicates a conditional sub-step or what action to take based upon the results of the conditional step it follows.

In most chapters an exploded view illustration of the system components follows the Table of Contents. In these illustrations you will find the instructions indicating which parts require specified tightening torque, oil, grease or a locking agent during assembly.

1-2 GENERAL INFORMATION

Before Servicing

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

Especially note the following:

- (1) Dirt
Before removal and disassembly, clean the motorcycle. Any dirt entering the engine or other parts will work as an abrasive and shorten the life of the motorcycle. For the same reason, before installing a new part, clean off any dust or metal filings.
- (2) Battery Ground
Remove the ground (-) lead from the battery before performing any disassembly operations on the motorcycle. This prevents:
 - (a) the possibility of accidentally turning the engine over while partially disassembled.
 - (b) sparks at electrical connections which will occur when they are disconnected.
 - (c) damage to electrical parts.
- (3) 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, Nonpermanent Locking Agent
Follow manufacturer's directions for cleaning and preparing surfaces where these compounds will be used. Apply sparingly. Excessive amounts may block engine oil passages and cause serious damage. An example of a non-permanent locking agent commonly available in North America is Loctite Lock'n Seal (Blue).
- (10) Press
A part installed using a press or driver, such as a wheel bearing, should first be coated with oil on its outer or inner circumference so that it will go into place smoothly.
- (11) Ball Bearing
When installing a ball bearing, the bearing race which is affected by friction should be pushed by a suitable driver. This prevents severe stress on the balls and races, and prevents races and balls from being dented. Press a ball bearing until it stops at the stop in the hole or on the shaft.

(12) Oil Seal and Grease Seal

Replace any oil or grease seals that were removed with new ones, as removal generally damages seals.

When pressing in a seal which has manufacturer's marks, press it in with the marks facing out. Seals should be pressed into place using a suitable driver, which contacts evenly with the side of seal, until the face of the seal is even with the end of the hole.

(13) Seal Guide

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

(14) Circlip, Retaining Ring

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

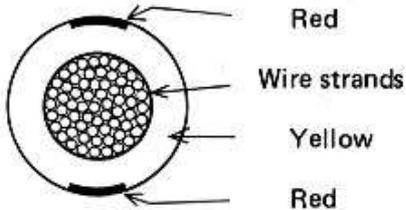
(15) Lubrication

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 (MoS₂) in the assembly of certain engine and chassis parts. Always check manufacturer recommendations before using such special lubricants.

(16) Electrical Wires

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

Wire (cross-section)	Name of Wire Color
 <p data-bbox="635 1308 686 1339">Red</p> <p data-bbox="603 1370 753 1402">Wire strands</p> <p data-bbox="635 1433 721 1464">Yellow</p> <p data-bbox="635 1496 686 1527">Red</p>	<p data-bbox="1088 1402 1225 1433">Yellow/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 the following conditions or other damage. If there is any doubt as to the condition of them, replace them with new ones.

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

(19) 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.

General Information

Table of Contents

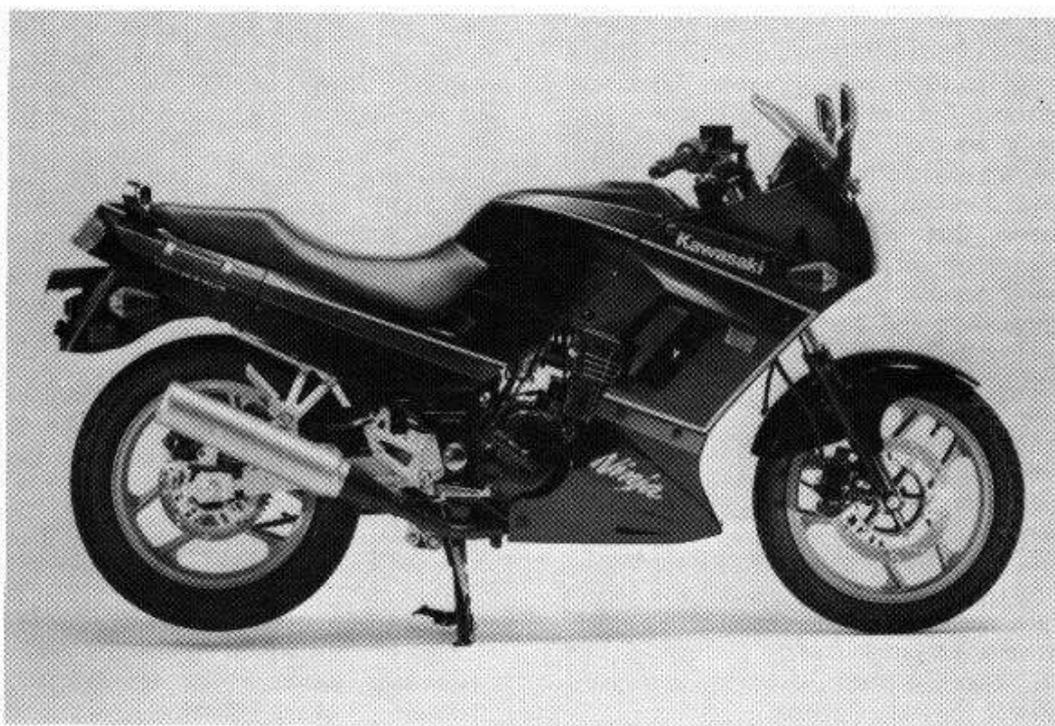
Before Servicing	*
Model Identification	1-2
General Specifications	1-4
Wiring, Cable, or Hose Routing	1-6
Torque and Locking Agent	1-11
Periodic Maintenance Chart	1-15

* : Base Manual

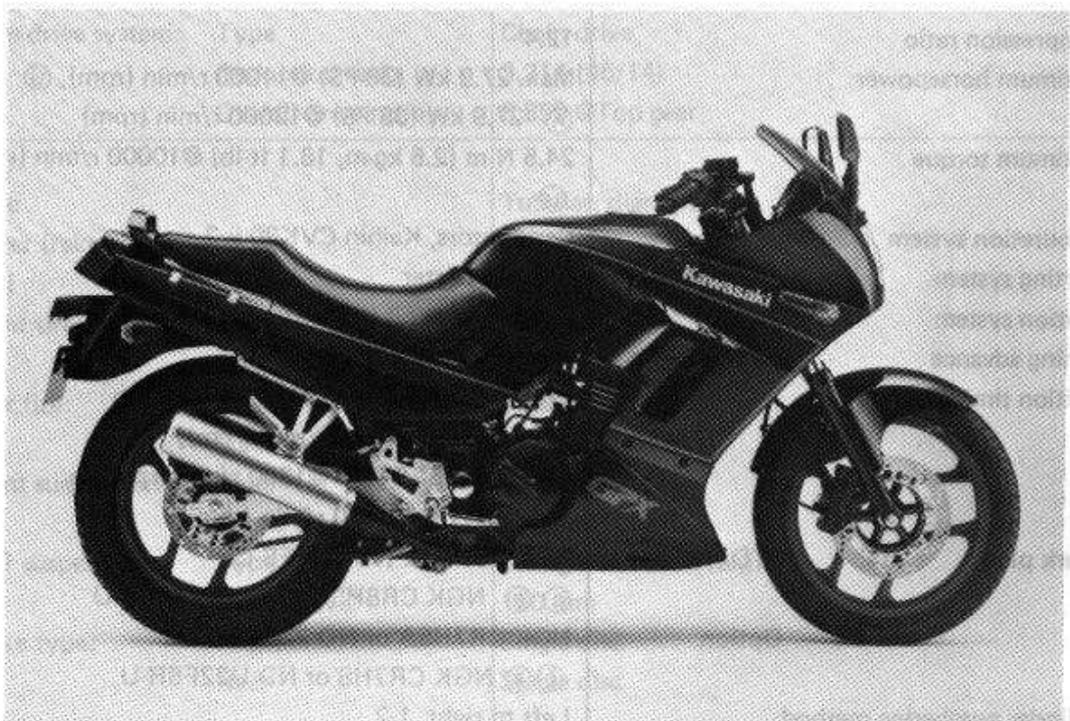
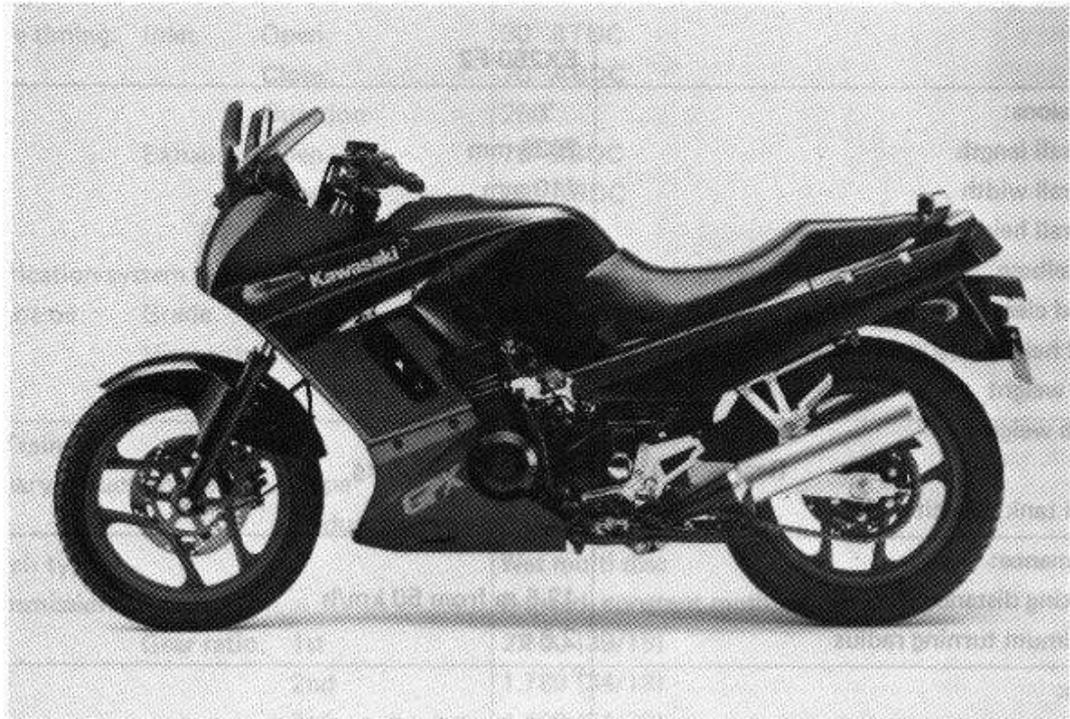
1-2 GENERAL INFORMATION

.....
Model Identifications
.....

EX250-F2 (US Model)



EX250-F2 (European or General Model)



1-4 GENERAL INFORMATION

General Specifications

Items	EX250-F2
Dimensions:	
Overall length	2035 mm
Overall width	710 mm
Overall height	1095 mm
Wheelbase	1400 mm
Road clearance	155 mm
Seat height	745 mm
Dry weight	138 kg, (Ca) 138.5 kg
Curb weight:	
Front	76 kg
Rear	85 kg, (Ca) 85.5 kg
Fuel tank capacity	18.0 L
Performance:	
Braking distance	12.5 m from 50 km/h
Minimum turning radius	2.8 m
Engine:	
Type	4-stroke, DOHC, 2-cylinder
Cooling system	Liquid-cooled
Bore and stroke	62.0 x 41.2 mm
Displacement	248 mL
Compression ratio	12.4
Maximum horsepower	Max. 27.9 kW (38 PS) @11000 r/min (rpm), (U) —, (A) 27.9 kW (38 PS) @12000 r/min (rpm)
Maximum torque	24.5 N-m (2.5 kg-m, 18.1 ft-lb) @10000 r/min (rpm), (U) —
Carburetion system	Carburetors, Keihin CVK30 x 2
Starting system	Electric starter
Ignition system	Battery and coil (transistorized)
Timing advance	Electronically advanced
Ignition timing	From 10° BTDC @1300 r/min (rpm) to 42° BTDC @4500 r/min (rpm), (Ca) From 5° BTDC @1300 r/min (rpm) to 42° BTDC @4500 r/min (rpm)
Spark plug	STD
	Option
	NGK C8HA or ND U24FS-L, (C) (B) NGK CR8HSA or ND U24FSR-U NGK CR7HSA or ND 22FS-L, (C)(B) NGK CR7HS or ND U22FSR-U
Cylinder numbering method	Left to right, 1-2

(Continued on next page.)

GENERAL INFORMATION 1-5

Items	Standard
Firing order	1-2
Valve timing: Inlet	Open 30° BTDC Close 70° ABDC Duration 280°
Exhaust	Open 70° BBDC Close 30° ABDC Duration 280°
Lubrication system	Forced lubrication (wet sump)
Engine oil: Grade	SE or SF class
Viscosity	SAE 10W-40, 10W-50, 20W-40, or 20W-50
Capacity	1.9 L
Drive Train:	
Primary reduction system: Type	Gear
Reduction ratio	3.086 (71/23)
Clutch type	Wet multi disc
Transmission: Type	6-speed, constant mesh, return shift
Gear ratio: 1st	2.600 (39/15)
2nd	1.789 (34/19)
3rd	1.409 (31/22)
4th	1.160 (29/25)
5th	1.000 (27/27)
6th	0.892 (25/28)
Final drive system: Type	Chain drive
Reduction ratio	3.214 (45/14)
Overall drive ratio	8.859 @Top gear
Frame:	
Type	Tubular, diamond
Caster (rake angle)	27°
Trail	83 mm
Front tire: Type	Tubeless
Size	100/80-16 50S
Rear tire: Type	Tubeless
Size	130/80-16 64S
Front suspension: Type	Telescopic fork
Wheel travel	140 mm
Rear suspension: Type	Swing arm (Uni-Trak)
Wheel travel	130 mm
Brake type: Front	Single disc
Rear	Single disc

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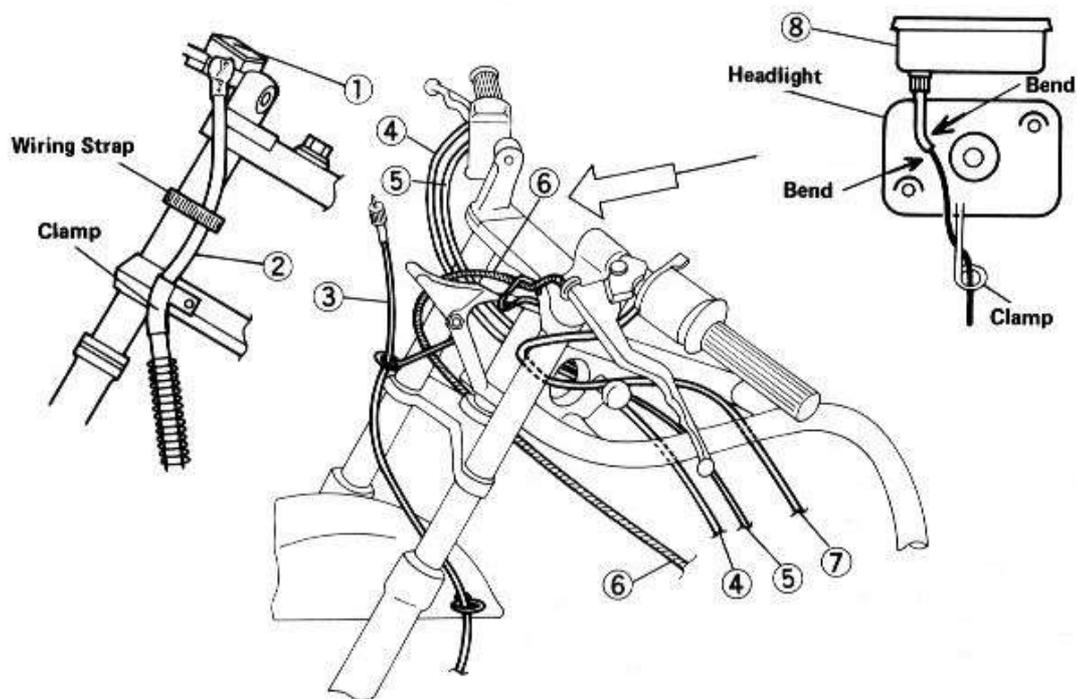
1-6 GENERAL INFORMATION

Items	EX250-F2	
Electrical Equipment:		
Battery		12 V 8 Ah
Headlight:	Type	Semi-sealed beam
	Bulb	12 V 60/55 W (quartz-halogen)
Tail/brake light		12 V 8/27 W x 2, (A) (B) 12 V 5/21 W x 2
Alternator:	Type	Three-phase AC
	Rated output	17 A @10000 r/min (rpm), 14 V
Voltage regulator:	Type	Short-circuit

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

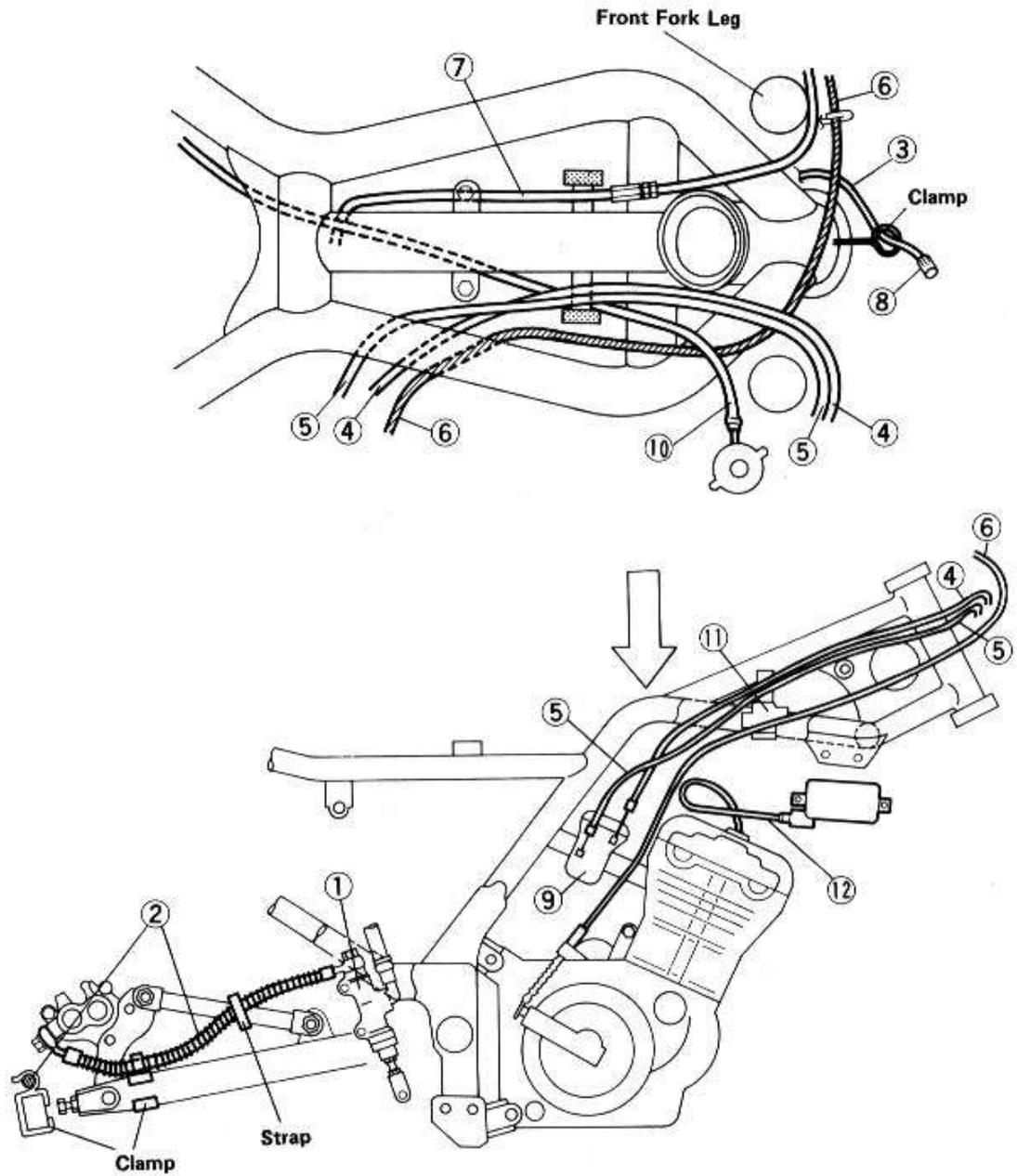
- (A) : Australia Model
- (B) : UK Model
- (Ca) : California Model
- (U) : US Model

Wiring Cable, or Hose Routing



1. Front Brake Fluid Reservoir
2. Brake Hose
3. Speedometer Cable
4. Throttle Cable (Decelerator)

5. Throttle Cable (Accelerator)
6. Clutch Cable
7. Choke Cable
8. Meter Unit



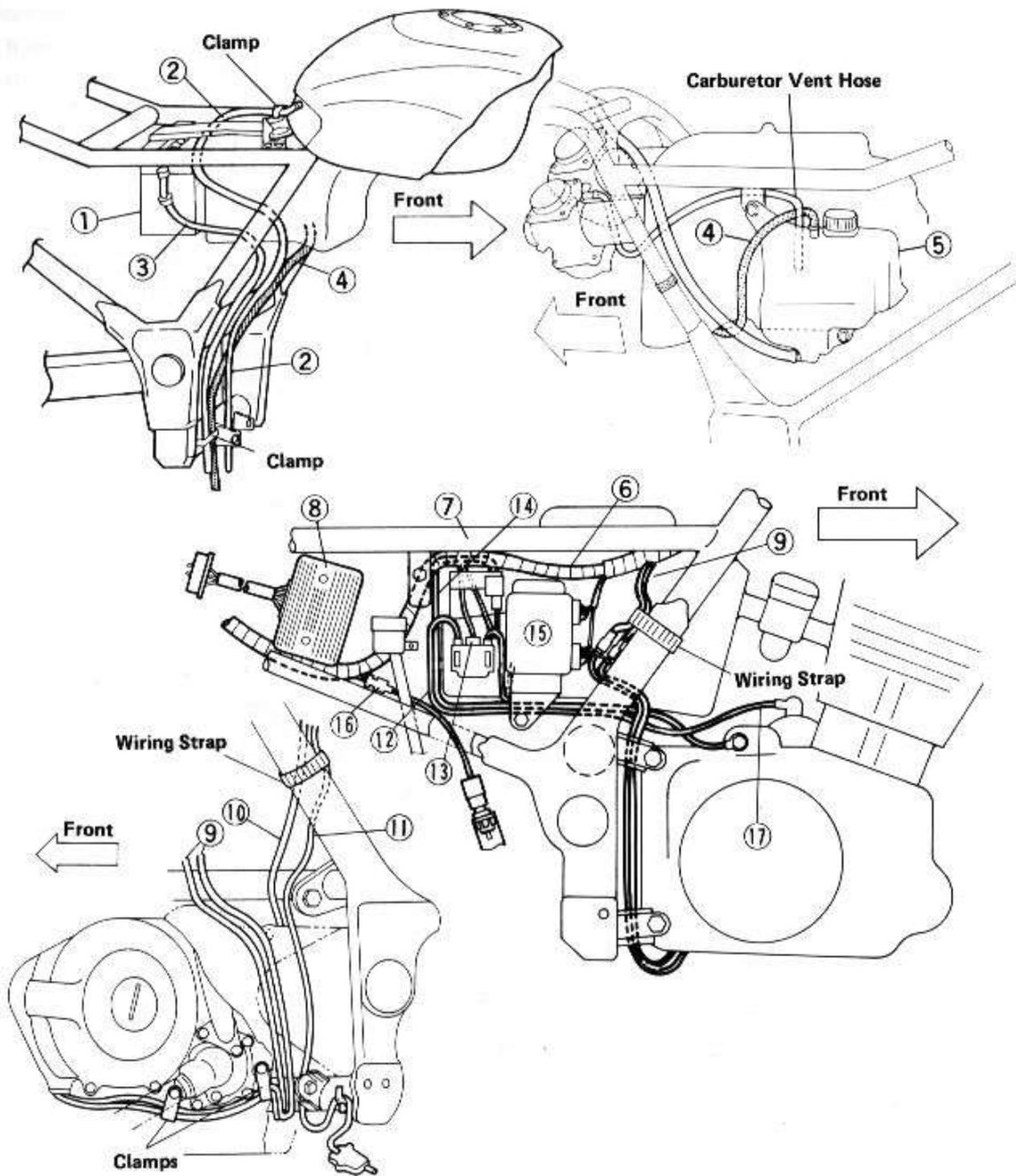
- 1. Rear Brake Master Cylinder
- 2. Brake Hose
- 3. Speedometer Cable
- 4. Throttle Cable (decelerator)
- 5. Throttle Cable (accelerator)
- 6. Clutch Cable

- 7. Choke Cable
- 8. To Meter Unit
- 9. Carburetor
- 10. Coolant Reservoir Tank Hose
- 11. Thermostat Housing
- 12. Spark Plug Leads

1-8 GENERAL INFORMATION

Items

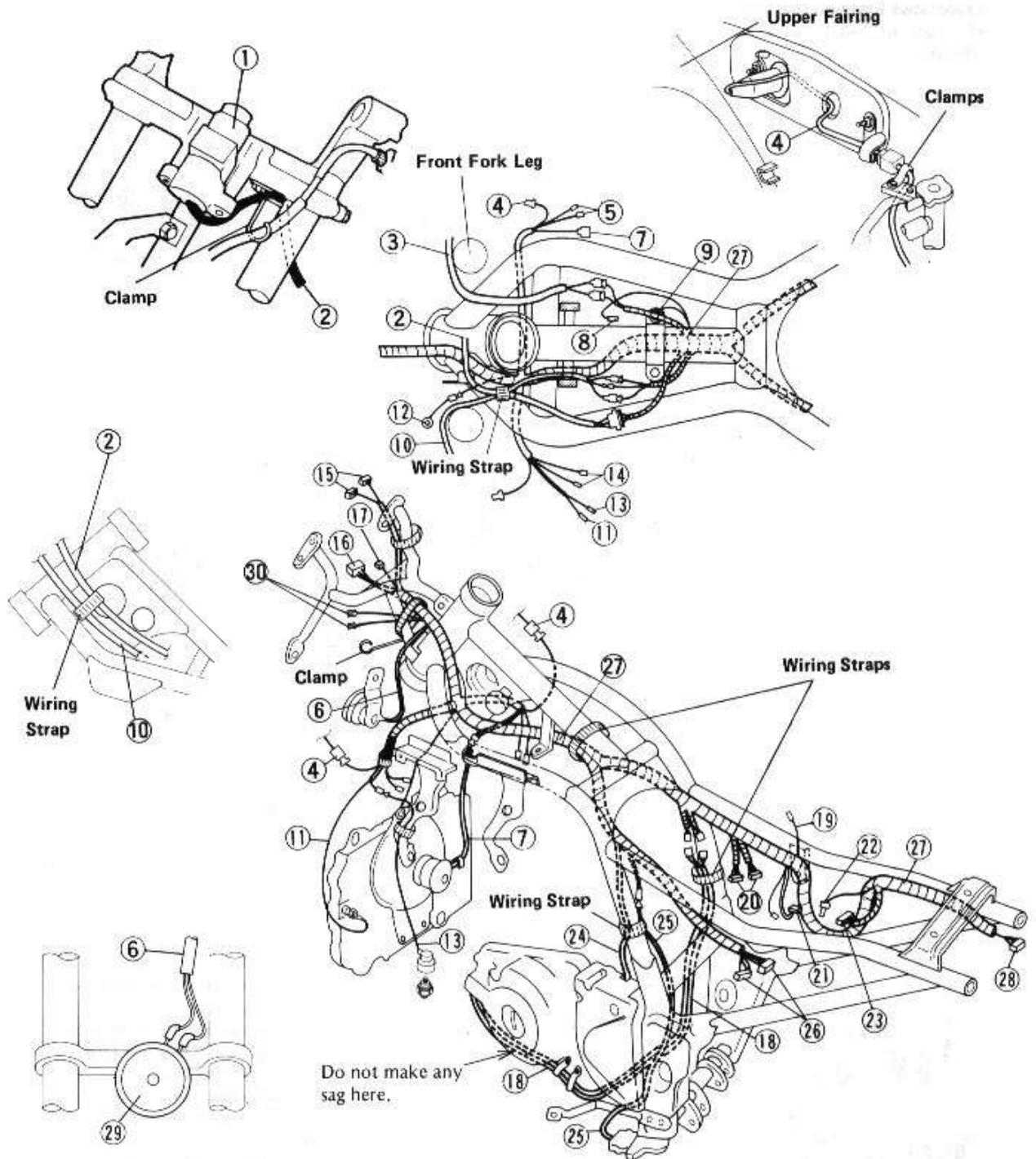
Electrical



1. Battery
2. Fuel Tank Drain Hose
3. Battery Vent Hose
4. Coolant Reservoir Tank Vent Hose
5. Coolant Reservoir Tank
6. Main Harness

7. Frame Tube
8. Regulator/Rectifier
9. Alternator, Pickup Coil Leads
10. Neutral Switch Lead
11. Side Stand Switch Lead
12. To Starter Relay Negative Terminal
13. Starter Relay Connector
14. Battery Ground Cable
15. Junction Box
16. Brake Switch Connector
17. Starter Motor Cable

GENERAL INFORMATION 1-9



- 1. Ignition Switch
- 2. Ignition Switch Lead
- 3. To Right Handlebar Switch
- 4. Turn Signal Connectors
- 5. To #2 Ignition Coil
- 6. Horn Lead
- 7. Fan Motor Lead
- 8. Water Temperature Sensor Lead
- 9. Water Temperature Sensor Ground Lead
- 10. To Left Handlebar Switch

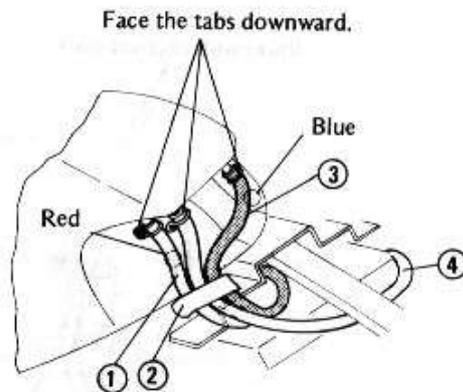
- 11. Fan Switch Lead
- 12. Fan Switch Ground Lead
- 13. Oil Pressure Switch Lead
- 14. To #1 Ignition Coil
- 15. Meter Connectors
- 16. Headlight Connector
- 17. City Light Connector
- 18. Alternator, Pickup Coil Leads
- 19. To Battery Ground Terminal
- 20. Junction Box Connectors

- 21. Starter Relay Connector
- 22. Brake Light Switch Connector
- 23. Regulator/Rectifier Connector
- 24. Neutral Switch Lead
- 25. Side Stand Switch Lead
- 26. Igniter Connectors
- 27. Main Harness
- 28. Taillight, Turn Signal Light Connector
- 29. Horn
- 30. Accessory Leads

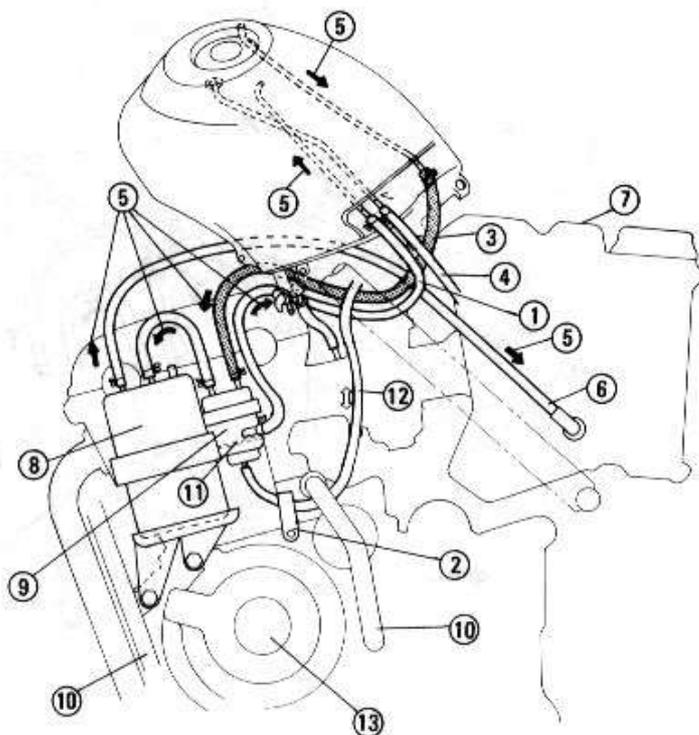
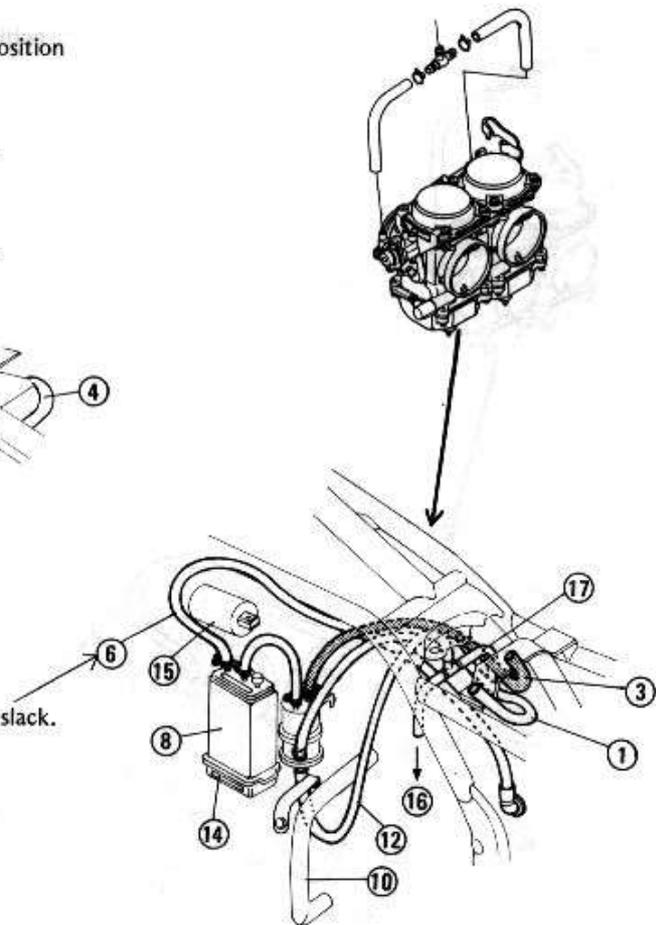
1-10 GENERAL INFORMATION

Evaporative Emission Control System

●Be sure to install the hose clamps on the position shown.



Run the purge hose before the ignition coil with slack.



1. Return Hose with Red Mark
2. Clamp
3. Breather Hose with Blue Mark
4. Fuel Tank Overflow Drain Hose
5. Fuel Vapor Flow
6. Purge Hose with Green Mark
7. Air Cleaner Housing
8. Canister
9. Separator (Return Pump)
10. Water Pipes
11. Diaphragm
12. Vacuum Pulse Hose with White Mark
13. Alternator Cover
14. Canister Opening
15. Left-Hand Ignition Coil
16. To Vacuum Joint on Coasting Enricher of Left-Hand Carburetor
17. To Vacuum Joint on Right-Hand Carburetor

.....
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:

- G : Apply grease.
- L : Apply non-permanent locking agent to the threads.
- LG : Apply liquid gasket to the threads.
- O : Apply oil to the threads and seated surface.
- S : Tighten the fasteners following the specified sequence.
- SS : Apply silicone sealant (PN 56019-120) to the threads.
- St : Stake the fasteners to prevent loosening.

Parts	Torque			Remarks
	N-m	kg-m	ft-lb	
Fuel System:				
Switch housing clamp screws	3.4	0.35	30	
Cooling System:				
Water temperature sensor	7.8	0.80	69 in-lb	SS
Thermostatic fan switch	7.8	0.80	69 in-lb	
Coolant drain plug (cylinder)	7.8	0.80	69 in-lb	
Coolant drain plug (water pump)	7.8	0.80	69 in-lb	
Engine Top End:				
Cylinder head cover bolts	9.8	1.0	87 in-lb	
Cylinder head bolts (8 mm)	25	2.5	18 in-lb	S
Cylinder bolts (6 mm)	12	1.2	104 in-lb	S
Chain guide bolt (upper)	25	2.5	18.0	
Chain guide bolt (lower)	27	2.8	20	L
Camshaft sprocket bolts	15	1.5	11.0	L
Valve adjusting screw locknuts	18	1.8	13.0	O*
Camshaft bearing cap bolts	12	1.2	104	S
Camshaft chain tensioner bolts	—	—	—	L
Coolant drain plug (cylinder)	7.8	0.80	69	
Clutch:				
Clutch spring bolts	8.8	0.90	78 in-lb	
Clutch hub nut	130	13.5	98	

1-12 GENERAL INFORMATION

Parts	Torque			Remarks
	N-m	kg-m	ft-lb	
Engine Lubrication System:				
Engine drain plug	20	2.0	14.5	
Oil filter bolt	20	2.0	14.5	
Oil passage plug	15	1.5	11.0	
Oil pressure switch	15	1.5	11.0	SS
Oil pressure relief valve	15	1.5	11.0	L
Oil pump mounting Allen bolts	—	—	—	L
Engine oil hose banjo bolts	20	2.0	14.5	
Engine oil pipe banjo bolts (crankcase LH)	12	1.2	104 in-lb	
Oil breather bolts	—	—	—	L
Engine Removal/Installation:				
Engine mounting nuts	32	3.3	24	
Cylinder head bracket bolts	32	3.3	24	
Crankshaft/Transmission:				
Alternator rotor bolt	69	7.0	51	
Alternator stator Allen bolts	12	1.2	104 in-lb	L
Neutral switch	15	1.5	11.0	
Shift drum bearing holder Allen bolts	—	—	—	L
Shift drum pin plate screw	—	—	—	L
Shift drum positioning bolt	25	2.5	18.0	
External shift mechanism return spring pin	20	2.0	14.5	L
Connecting rod big end cap nuts	27	2.8	20	O
Starter clutch Allen bolts	34	3.5	25	L
Crankcase bolts (6 mm)	12	1.2	104 in-lb	
Crankcase bolts (8 mm)	27	2.8	20	
Engine drain plug	20	2.0	14.5	
Wheels/Tires:				
Front axle nut	88	9.0	65	
Rear axle nut	110	11.0	80	
Final Drive:				
Engine sprocket bolts	9.8	1.0	87 in-lb	
Rear sprocket nuts	67	6.8	49	
Rear sprocket stud ends	—	—	—	L
Torque link nuts	32	3.3	24	
Brakes:				
Bleed valves	7.8	0.80	69 in-lb	
Torque link nuts	32	3.3	24	
Caliper mounting bolts (Front)	32	3.3	24	
(Rear)	25	2.5	18.0	

GENERAL INFORMATION 1-13

Parts	Torque			Remarks
	N-m	kg-m	ft-lb	
Rear master cylinder clevis locknut	18	1.8	13.0	
Brake pedal mounting bolt	8.8	0.90	78 in-lb	
Disc mounting Allen bolts	23	2.3	16.5	
Brake hose banjo bolts	25	2.5	18.0	
Brake lever pivot bolt locknut	5.9	0.60	52 in-lb	
Front master cylinder clamp bolts	8.8	0.90	78 in-lb	S, G
Rear master cylinder mounting bolts	23	2.3	16.5	
Front brake fluid reservoir cap screws	1.5	0.15	13 in-lb	
Rear brake fluid reservoir bolt	5.9	0.60	52 in-lb	
Suspensions:				
Front fork drain bolts	7.8	0.80	69 in-lb	L
Front fork clamp bolts (upper)	20	2.0	14.5	
(lower)	29	3.0	22	
Front fork bottom Allen bolts	20	2.0	14.5	L
Rear shock absorber mounting nuts	44	4.5	33	
Tie-rod nuts	44	4.5	33	
Rocker arm pivot shaft nut	44	4.5	33	
Swing arm pivot shaft nut	88	9.0	65	
Steering:				
Steering stem head bolt	47	4.8	35	
Handle bar clamp bolts	23	2.3	16.5	
Handle holder mounting bolts	23	2.3	16.5	
Frame:				
Side stand bracket bolts	44	4.5	33	L
Electrical System:				
Spark plugs	13	1.3	113 in-lb	
Alternator rotor bolt	69	7.0	51	
Alternator stator bolts	12	1.2	104 in-lb	
Thermostatic fan switch	7.8	0.80	69 in-lb	
Water temperature sensor	7.8	0.80	69 in-lb	SS
Neutral switch	15	1.5	11.0	
Oil pressure switch	15	1.5	11.0	SS
Switch housing clamp screws	3.4	0.35	30 in-lb	
Taillight lense screws	1.0	0.10	9 in-lb	
Taillight mounting nuts	5.9	0.60	52 in-lb	
Front turn signal light mounting nuts	5.9	0.60	52 in-lb	
Speedometer mounting screws	—	—	—	L

1-14 GENERAL INFORMATION

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

Basic Torque for 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 – 23.0	125 – 165
20	225 – 325	23 – 33	165 – 240

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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							See Page
		Whichever comes first ↓ Every	800 km	5 000 km	10 000 km	15 000 km	20 000 km	25 000 km	
Carburetor synchronization --check †		•	•	•	•	•	•	•	(2-8)
Idle speed--check †		•	•	•	•	•	•	•	(2-7)
Throttle grip play--check †		•	•	•	•	•	•	•	2-4
Spark plug--clean and gap †		•	•	•	•	•	•	•	(15-20)
Valve clearance--check †		•	•	•	•	•	•	•	4-7
Air cleaner element--clean †		•	•	•	•	•	•	•	(2-16)
Air cleaner element--replace	5 cleanings				•				(2-16)
Fuel system--check †			•		•		•		(2-9)
Evaporative emission control system (Ca) --check †		•	•	•	•	•	•	•	2-6
Battery electrolyte level--check †	month	•	•	•	•	•	•	•	(15-9)
Brake light switch--check †		•	•	•	•	•	•	•	(15-35)
Brake pad wear--check †			•	•	•	•	•	•	11-5
Brake fluid level--check †	month	•	•	•	•	•	•	•	(11-11)
Brake fluid--change	2 years					•			(11-11)
Clutch--adjust		•	•	•	•	•	•	•	(5-4)
Steering--check †		•	•	•	•	•	•	•	(13-4)
Drive chain wear--check †			•	•	•	•	•	•	(10-5)
Nuts, bolts, and fasteners tightness--check †		•		•		•		•	16-2
Tire wear--check †			•	•	•	•	•	•	9-3
Engine oil--change	year	•		•		•		•	(6-6)
Oil filter--replace		•		•		•		•	(6-6)
General lubrication--perform			•	•	•	•	•	•	(16-7)
Front fork oil--change							•		12-3
Swing arm pivot, uni-trak linkage--lubricate				•		•		•	(12-10) (12-11)
Coolant--change	2 years						•		(3-5)
Radiator hoses, connections --check †	year	•		•		•		•	(3-11)
Steering stem bearing--lubricate	2 years					•			(13-6)
Master cylinder cup and dust seal--replace	2 years								(11-9)
Caliper piston seal and dust seal--replace	2 years								(11-6)
Brake hose--replace	4 years								(11-14)
Fuel hose--replace	4 years								
Drive chain--lubricate	Every 300 km								(10-6)
Drive chain slack--check †	Every 800 km								(10-4)

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

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

(Ca) : California vehicle only

(xx-xx): Reference Page in the Base Manual

Fuel System

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* : Base Manual

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Exploded View

