Kawasaki

KR-1



Motorcycle
Service Manual

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.

1

General Information

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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) Cotter Pin

Replace any cotter pins that were removed with new ones, as removal deforms and breaks them.

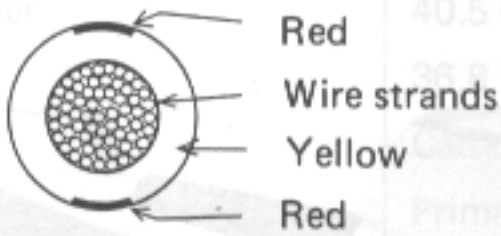
(16) Lubrication

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.

(17) Electrical Wires

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

Wire (cross-section)	Name of Wire Color
	Yellow/red

(18) 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.

(19) 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	

(20) 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.

Model Identification

KR250-B1



KR250-B2



General Specifications

Items		KR250-B1	KR250-B2
Dimensions:			
Overall length		Ⓐ 2 005 mm, Ⓢ 1 945 mm	2 015mm, Ⓖ Ⓘ 2 035 mm
Overall width		690 mm	←
Overall height		1 115 mm	←
Wheelbase		1 365 mm	←
Road clearance		125 mm	←
Seat height		750 mm	←
Dry weight		123 kg	←
Curb weight:	Front	70 kg	←
	Rear	76 kg	←
Fuel tank capacity		16.0 L	←
Performance:			
Braking distance		12.5 m from 50 km/h	
Minimum turning radius		3.2 m	
Engine:			
Type		2-stroke, Crankcase Reed Valve, 2-cylinder	
Cooling system		Liquid-cooled	
Bore and stroke		56.0 x 50.6 mm	
Displacement		249 mL	
Compression ratio		7.4	
Maximum horsepower		40.5 kW (55 PS) @10 500 r/min (rpm)	
Maximum torque		36.8 N-m (3.75 kg-m, 27.1 ft-lb) @10 500 r/min (rpm)	
Carburetion system		Carburetors, Keihin PWK28 x 2	
Starting system		Primary kick	
Ignition system		CDI	
Timing advance		Electronically advanced	
Ignition timing		From 13.5° BTDC @1 200 r/min (rpm) to 25° BTDC @5 600 r/min (rpm)	
Spark plug		NGK BR9ES, ND W27ESR	
Valve timing:			
Inlet	Open	—	
	Close	—	
	Duration	—	

Items			KR250-B1	KR250-B2
Exhaust	Open		93° BBDC	←
	Close		93° ABDC	←
	Duration		186°	←
Scavenging	Open		63° BBDC	←
	Close		63° ABDC	←
	Duration		126°	←
Lubrication system			Superlube (oil injection)	←
Engine oil:				
Type			2-stroke oil	←
Capacity			1.2 L	←
Drive Train:				
Primary reduction sytem:				
Type			Gear	←
Reduction ratio			2.541 (61/24)	←
Clutch type			Wet multi disc	←
Transmission:	Type		6-speed, constant mesh, return shift	←
	Gear ratios:	1st	2.533 (38/15)	←
		2nd	1.727 (38/22)	←
		3rd	1.315 (25/19)	←
		4th	1.086 (25/23)	←
		5th	0.962 (26/27)	←
		6th	0.862 (25/29)	←
Final drive system:				
Type			Chain drive	←
Reduction ratio			2.666 (40/15), Ⓢ 2.928 (41/14)	←
Overall drive ratio			5.842 @Top gear, Ⓢ 6.416 @Top gear	←
Transmission oil				
Grade			SE class	←
Viscosity			SAE 10W30 or 10W40	←
Capacity			0.85 L	←
Frame:				
Type			Tubular, diamond	←
Caster (rake angle)			24°	←
Trail			93 mm	←
Front tire:	Type		Tubeless	←
	Size		100/70 R17 48H	100/70 R17 49H

Items		KR250-B1	KR250-B2
Rear tire:	Type	Tubeless	←
	Size	130/60 R18 60H	←
Front suspension:			
	Type	Telescopic fork	←
	Wheel travel	130 mm	←
Rear suspension:	Type	Swing arm (uni-trak)	←
	Wheel travel	105 mm	←
Brake type:	Front	Dual disc	←
	Rear	Single disc	←
Electrical Equipment:			
Battery		12 V 4 Ah	←
Headlight:	Type	Semi-sealed beam	←
	Bulb	12 V 60/55 W (quartz-halogen)	←
Tail/brake light		12 V 5/21 W, Ⓢ 12 V 8/27 W	←
Magneto:	Type	Three-phase AC	←
	Rated output	14 A @8 000 r/min (rpm), 14 V	←
Voltage regulator:			
	Type	Short-circuit	←

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

Ⓐ : Australian Model
Ⓖ : Greek Model
Ⓘ : Italian Model
Ⓢ : South African Model

Periodic Maintenance Chart

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

OPERATION \ FREQUENCY	Whichever comes first → Every	*ODOMETER READING 800 km	4 000 km	8 000 km	12 000 km	16 000 km	20 000 km	24 000 km
Idle speed – check †		•	•	•	•	•	•	•
Throttle grip play – check †		•		•		•		•
Oil pump and carburetor synchronization –check †		•	•	•	•	•	•	•
Spark plug – clean and gap †		•	•	•	•	•	•	•
Air cleaner element – clean			•		•		•	
Air cleaner element–replace	5 cleanings					•		
Fuel system–clean				•		•		•
Cylinder head bolts – check †		•		•		•		•
Battery electrolyte level – check †	month	•	•	•	•	•	•	•
Brake fluid level – check †	month	•	•	•	•	•	•	•
Brake fluid – change	2 years						•	
Brake light switch – check †		•	•	•	•	•	•	•
Brake pad wear – check †			•	•	•	•	•	•
Clutch – adjust		•	•	•	•	•	•	•
Steering play – check †		•	•	•	•	•	•	•
Drive chain wear – check †			•	•	•	•	•	•
Nuts, bolts, fasteners – check †		•		•		•		•
Tire wear – check †			•	•	•	•	•	•
Transmission oil – change	year	•		•		•		•
General lubrication – perform			•	•	•	•	•	•
Front fork oil – change								•
Swing arm pivot – lubricate				•		•		•
Coolant – change	2 years							•
Radiator hoses, connections – check †	year	•		•		•		•
Steering stem bearing – lubricate	2 years						•	
Caliper piston seal and dust seal – replace	2 years							
Master cylinder cup and dust seal – replace	2 years							
Brake hose – replace	4 years							
Fuel hose – replace	4 years							
Drive chain – lubricate	Every 300 km							
Drive chain slack – check †	Every 800 km							

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

Torque and Locking Agent

Tighten all bolts and nuts to the proper torque using an accurate torque wrench. In insufficiently tightened, a bolt or nut may become damaged or fall off, possibly resulting in damage to the motorcycle and injury to the rider. A bolt or nut which is overtightening may become damaged, strip an internal thread, or break and then fall out. The following table lists the tightening torque for the major bolts and nuts, and the parts requiring use of a non-permanent locking agent, liquid gasket, or silicone sealant. When checking the tightening torque of the bolts and nuts, first loosen the bolt or nut by half a turn and then tighten to specified torque.

Letters used in the "Remarks" column mean:
L : Apply a non-permanent locking agent to the threads.
LG : Apply liquid gasket – silver (Kawasaki bond: 92104-002) to the threads.
S : Tighten the fasteners following the specified sequence.
SS : Apply a silicone sealant (Kawasaki bond: 56019-120) to the threads.

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Cooling System:				
Coolant Temperature Sensor	15	1.5	11.0	SS
Drain Plug	17	1.7	12.0	
Impeller Shaft Nut	9.8	1.0	87 in-lb	
Engine Top End:				
Cylinder Head Bolts	25	2.5	18.0	S
Cylinder Nuts	22	2.2	16.0	S
Exhaust Valve Operating Unit Screw	2.9	0.3	26 in-lb	
Exhaust Valve Operating Unit Connecting-rod Screws	–	–	–	L
Cylinder Studs	9.8	1.0	87 in-lb	
Engine Right Side:				
Clutch Spring Bolts	9.8	1.0	87 in-lb	
Kick Stopper Mounting Screws	–	–	–	L
Engine Lubrication System:				
Transmission Oil Drain Plug	20	2.0	14.5	
Oil Pump Outlet Hose Banjo Bolts	4.9	0.5	43 in-lb	
Engine Removal/Installation:				
Engine Mounting Bolts	49	5.0	36	
Crankshaft/Transmission:				
Crankcase Bolts (8 mm Dia.)	25	2.5	18.0	
Crankcase Bolts (6 mm Dia.)	9.8	1.0	87 in-lb	
Shift Drum Pin Plate Bolt	22	2.2	16.0	L
Shift Drum Positioning Lever Mounting Bolt	9.8	1.0	87 in-lb	
Gear Positioning Lever Stud	22	2.2	16.0	L
Balance Cover Mounting Bolts (8 mm Dia.)	25	2.5	18.0	
Balance Cover Mounting Bolts (6 mm Dia.)	9.8	1.0	87 in-lb	

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Wheels/Tires:				
Front Axle Nut	88	9.0	65	
Front Axle Clamp Bolts	20	2.0	14.5	
Rear Axle Nut	88	9.0	65	
Tire Air Valve Nuts	1.5	0.15	13 in-lb	
Final Drive:				
Engine Sprocket Holding Plate Bolts	9.8	1.0	87 in-lb	
Rear Sprocket Nuts	59	6.0	43	
Rear Coupling Studs	—	—	—	L
Brakes:				
Caliper Mounting Bolts	25	2.5	18.0	
Brake Hose Banjo Bolts	25	2.5	18.0	
Disc Mounting Allen Bolts	23	2.3	16.5	
Brake Lever Pivot Nut	5.9	0.60	52 in-lb	
Front Master Cylinder Clamp Bolts	8.8	0.90	78 in-lb	
Torque Link Nut (Front)	34	3.5	25	
Torque Link Nut (Rear)	14	1.4	10.0	
Rear Master Cylinder Mounting Bolts	25	2.5	18.0	
Bleed Valves	7.8	0.8	69 in-lb	
Brake Pedal Mounting Bolt	25	2.5	18.0	
Suspension:				
Front Fork:				
Fork Clamp Bolts (Upper)	20	2.0	14.5	
Fork Clamp Bolts (Lower)	29	3.0	22	
Bottom Allen Bolts	61	6.2	45	L
Drain Screws	—	—	—	LG
Axle Clamp Bolts	20	2.0	14.5	
Rear Shock Absorber:				
Shock Absorber Bolts	49	5.0	36	
Rocker Arm Bolt	49	5.0	36	
Swing Arm Pivot Nut	93	9.5	69	
Rocker Arm Nut	49	5.0	36	
Steering:				
Steering Stem Head Nut	39	4.0	29	
Handlebar Holder Allen Bolts	12	1.2	104 in-lb	L
Handlebar Clamp Bolts	23	2.3	16.5	
Frame:				
Side Stand Bracket Mounting Bolts	25	2.5	18.0	L

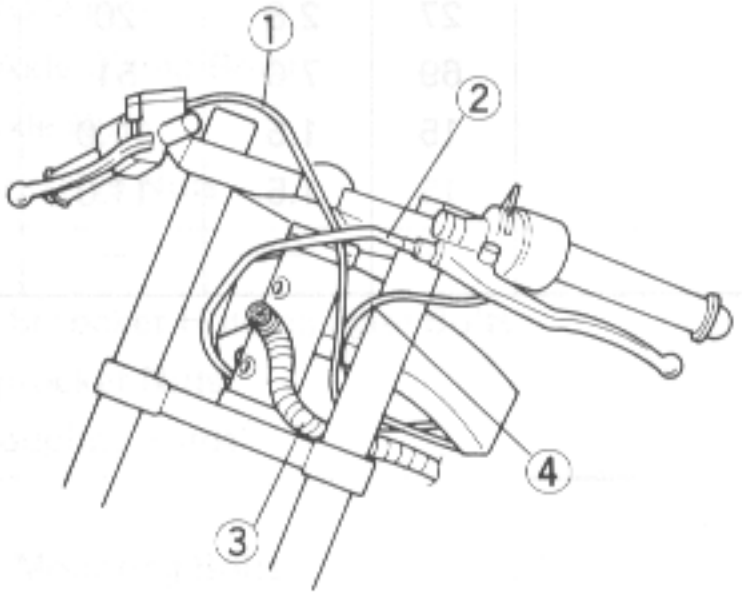
Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Electrical System:				
Spark Plugs	27	2.8	20	
Magneto Rotor Bolt	69	7.0	51	
Coolant Temperature Sensor	15	1.5	11.0	SS
Neutral Switch	15	1.5	11.0	
Side Stand Switch Mounting Screws	—	—	—	L

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.

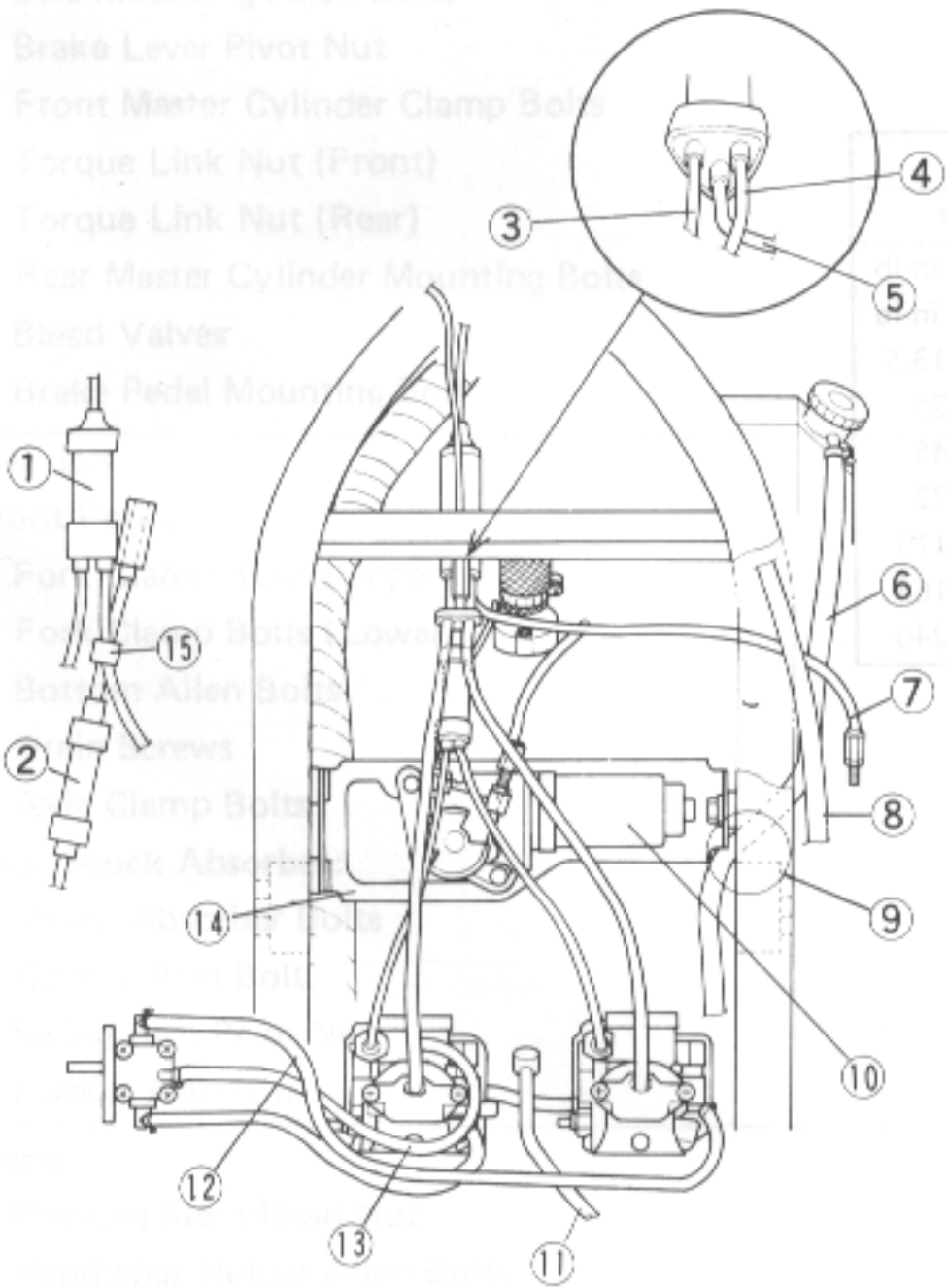
General Fasteners

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

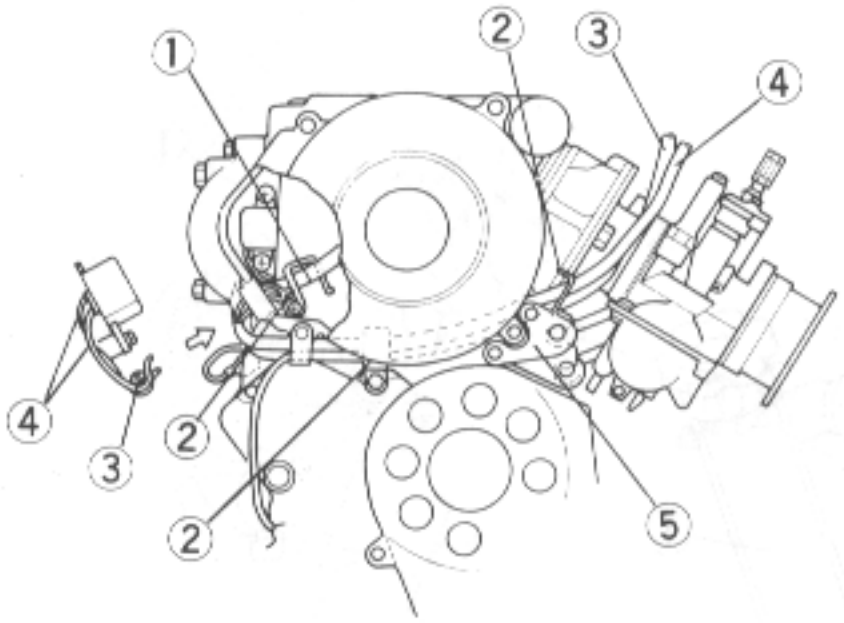
Suggested Wiring, Cable or Hose Routing



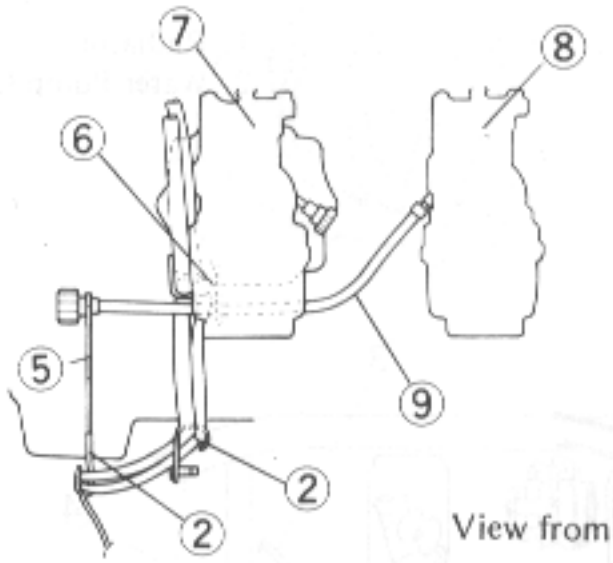
1. Throttle Cable
2. Clutch Cable
3. Main Harness
4. Choke Cable



1. Throttle Cable
2. Choke Cable
3. To Left Carburetor
4. To Right Carburetor
5. To Oil Pump
6. Radiator Reservoir Tank Tube (route ⑥ under ⑧)
7. Oil Pump Cable (route ⑦ over ⑥)
8. Clutch Cable (route ⑧ over ⑥)
9. Route ⑥ between ⑭ and engine.
10. Exhaust Valve Operating Motor
11. Crankcase Breather Tube
12. Fuel Tank Hose
13. Vent Hose (route ⑬ under ⑫)
14. Bracket
15. Clamp



1. Take care not to touch the magnet lead to the magneto flywheel.
2. Clamp
3. Magneto Lead
4. Pickup Coil Lead
5. Bracket
6. Tighten the clamp and carburetor holder together.
7. Left Carburetor
8. Right Carburetor



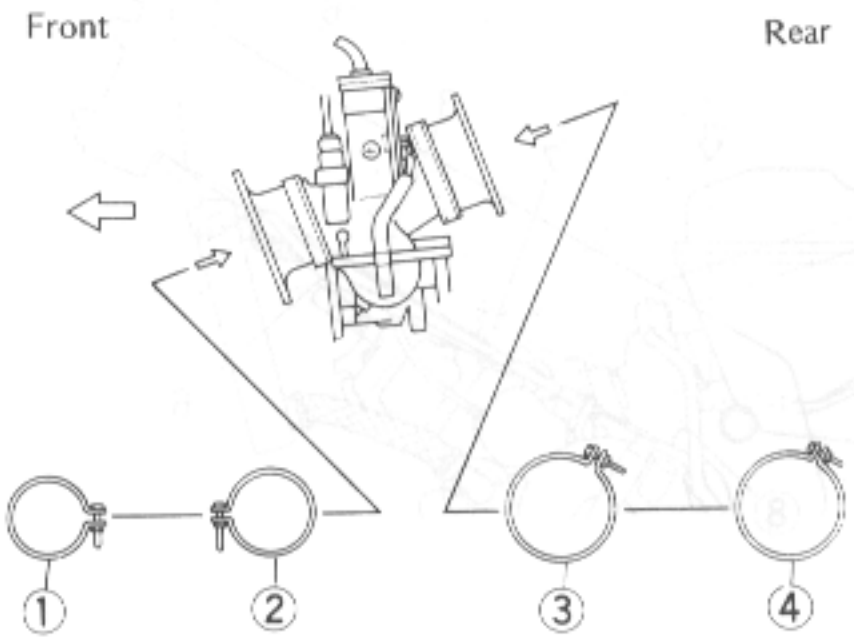
View from Rear

NOTE

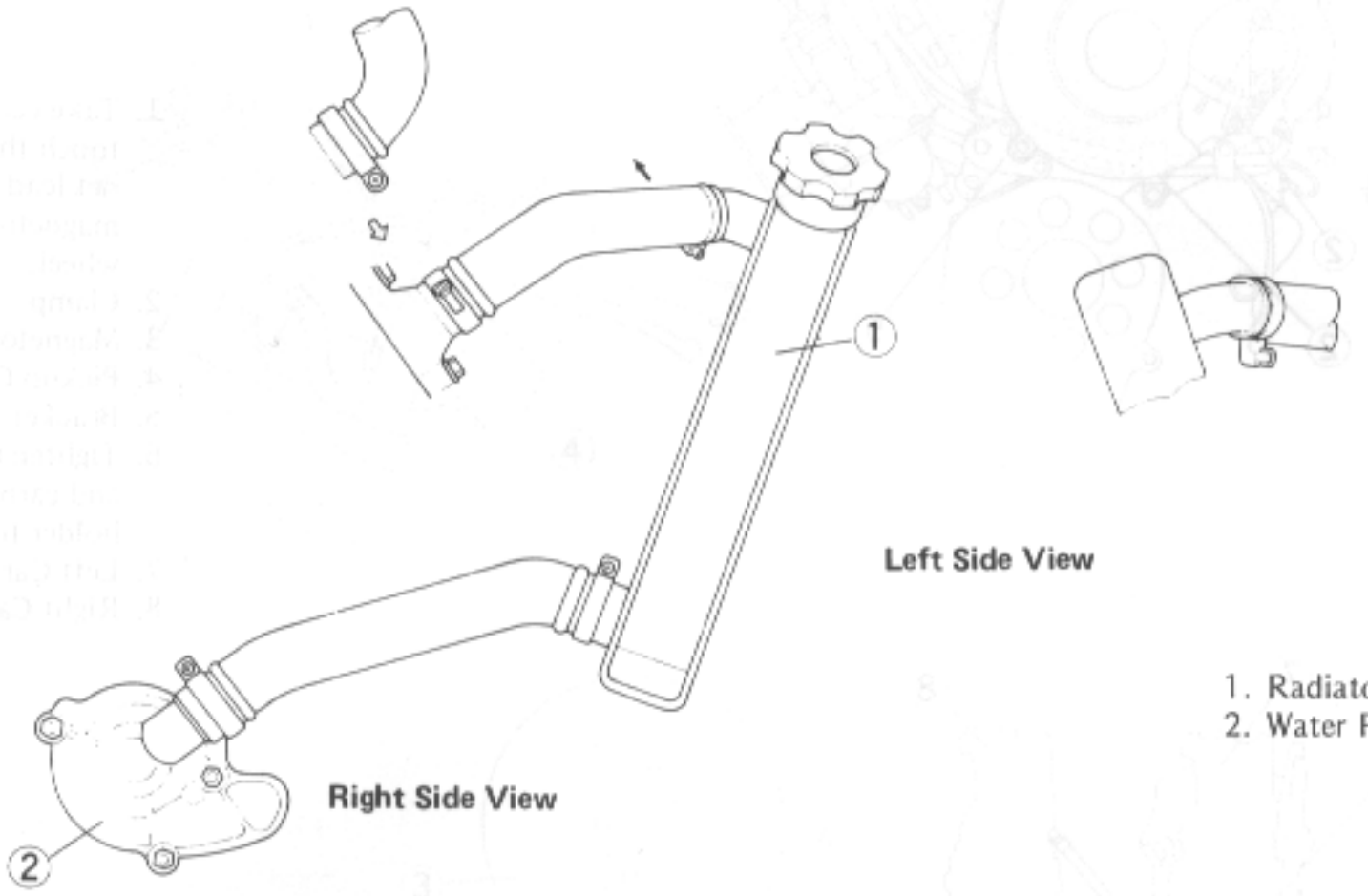
○*Install the left carburetor after right carburetor installation.*

CAUTION

○**Do not pull the magneto lead after installation. If the clamp deforms by pulling the magneto lead, the lead will be touch to the magneto flywheel.**



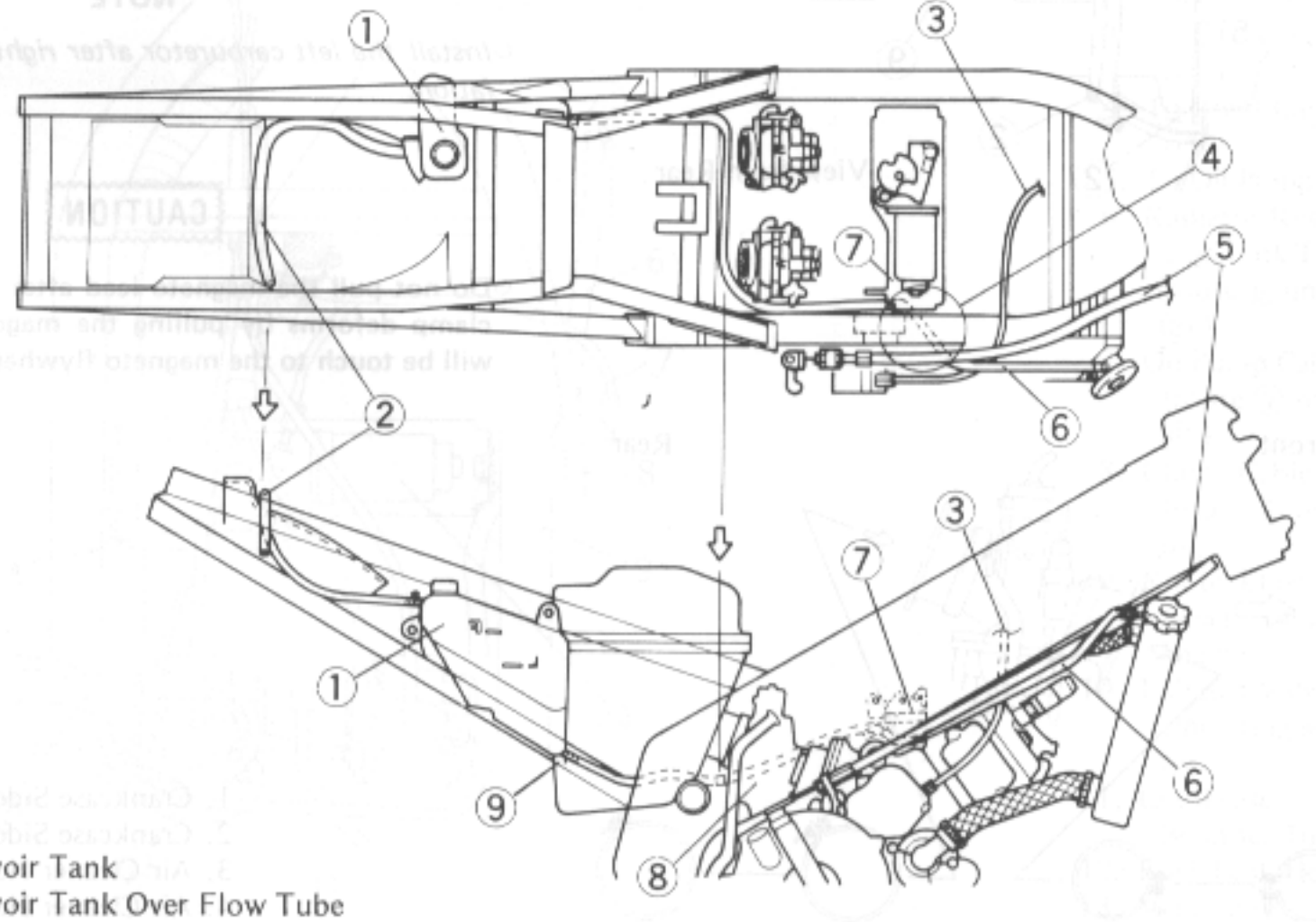
1. Crankcase Side (Right)
2. Crankcase Side (Left)
3. Air Cleaner Housing Side (Left)
4. Air Cleaner Housing Side (Right)



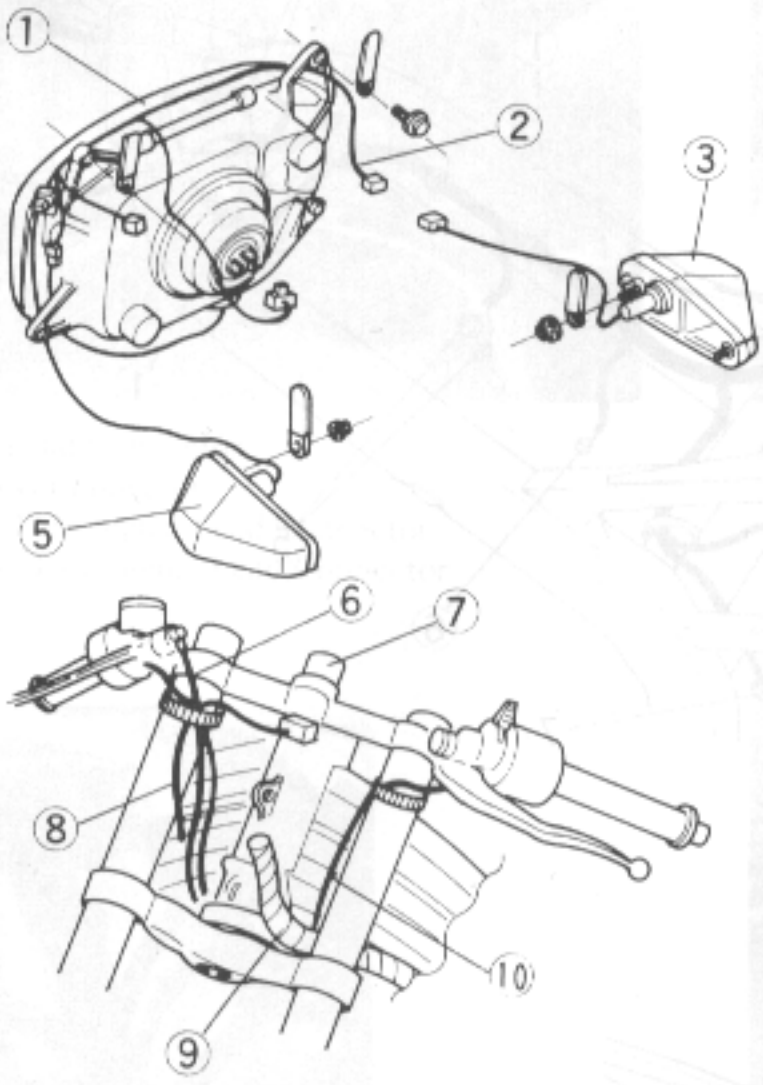
Left Side View

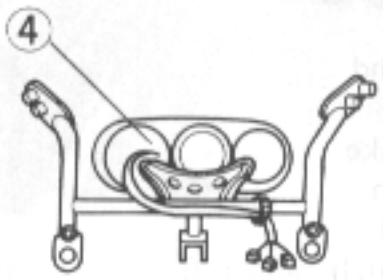
Right Side View

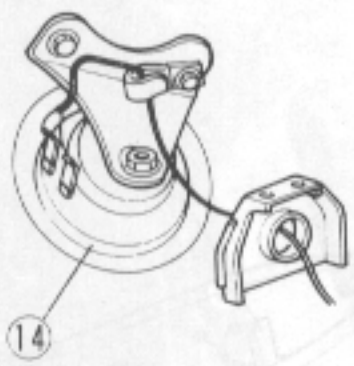
1. Radiator
2. Water Pump Cover

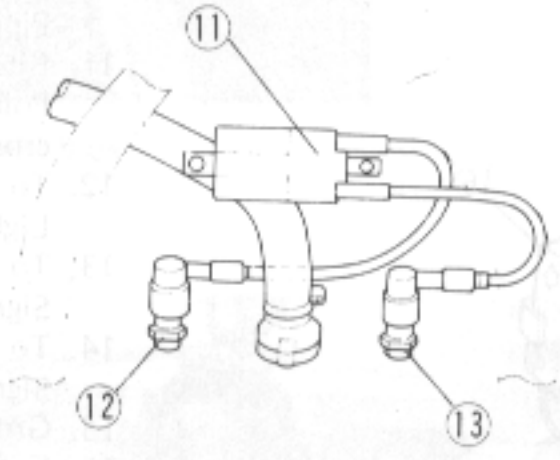


1. Coolant Reservoir Tank
2. Coolant Reservoir Tank Over Flow Tube
3. Oil Pump Cable
4. Route ⑥ between ⑦ and engine.
5. Clutch Cable
6. Radiator Reservoir Tank Tube
7. Exhaust Valve Operating Motor Bracket
8. Carburetor
9. Clamp



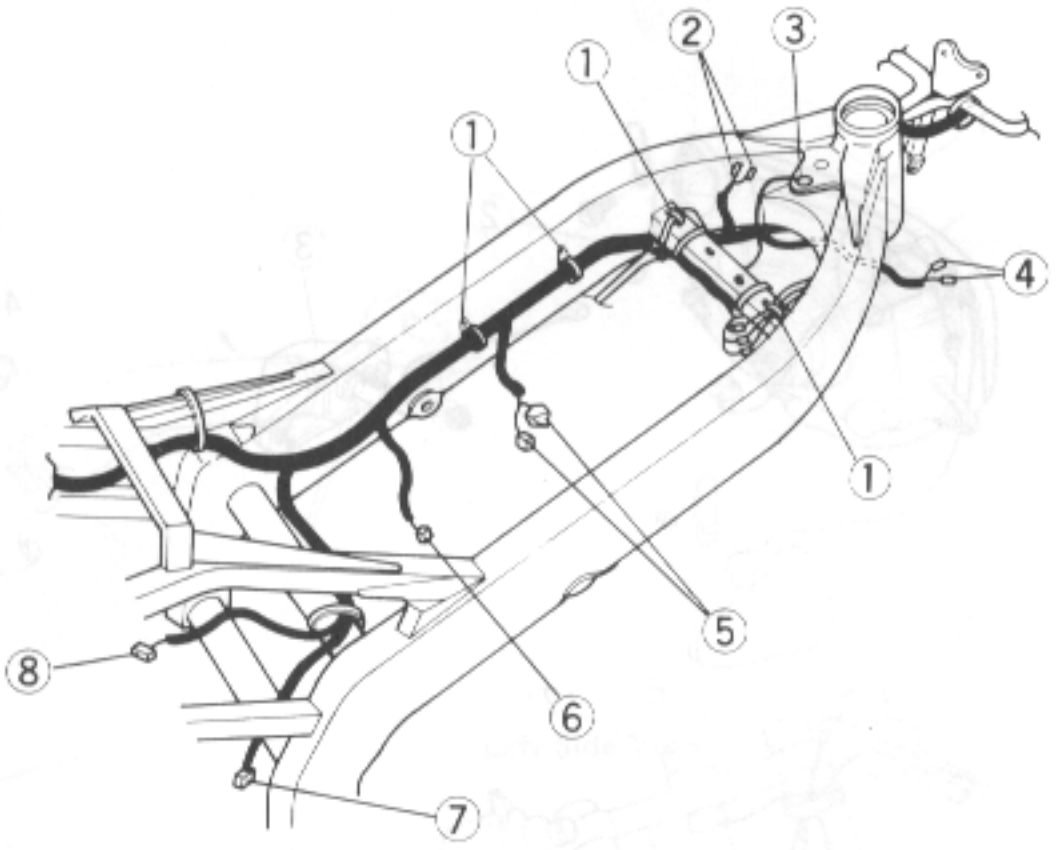


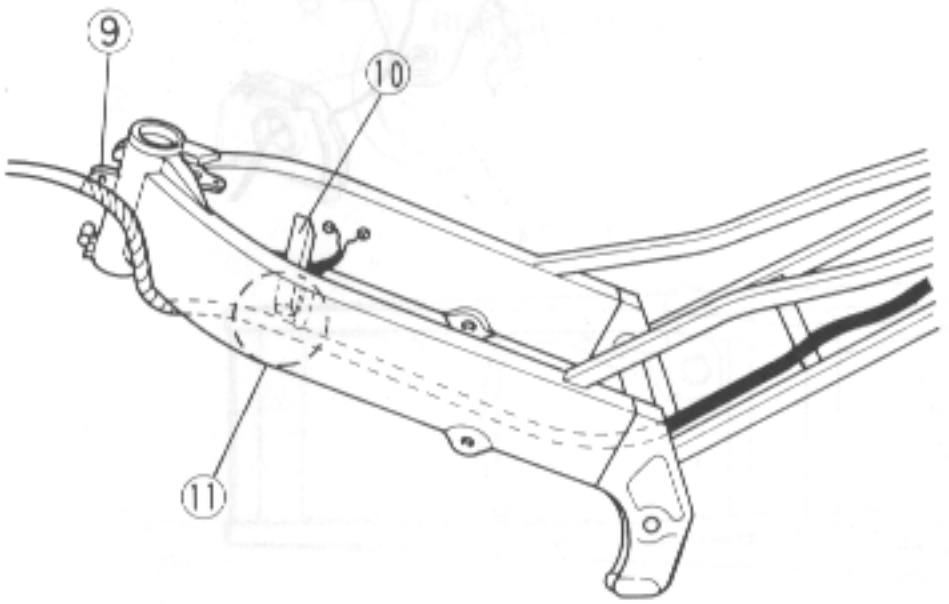


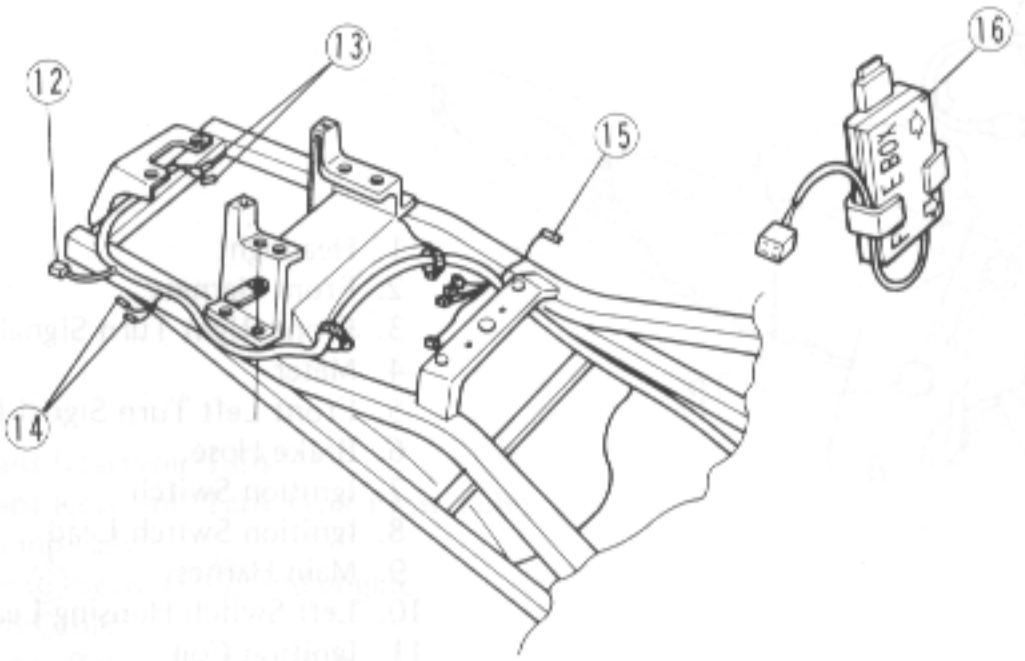


1. Headlight
2. Front Harness
3. Front Right Turn Signal Light
4. Meter
5. Front Left Turn Signal Light
6. Brake Hose
7. Ignition Switch
8. Ignition Switch Lead
9. Main Harness
10. Left Switch Housing Lead
11. Ignition Coil
12. Left Spark Plug
13. Right Spark Plug
14. Horn

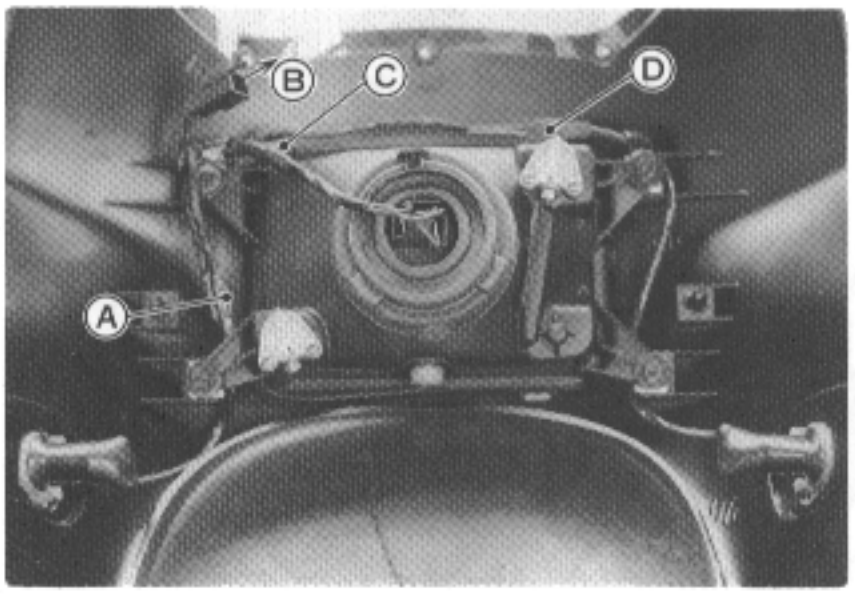
1. Clamp
2. To Ignition Coil
3. Ground Lead
4. To Horn
5. To Exhaust Valve Operating Motor
6. To Side Stand Switch
7. To Rear Brake Light Switch
8. To Oil Level Warning Switch



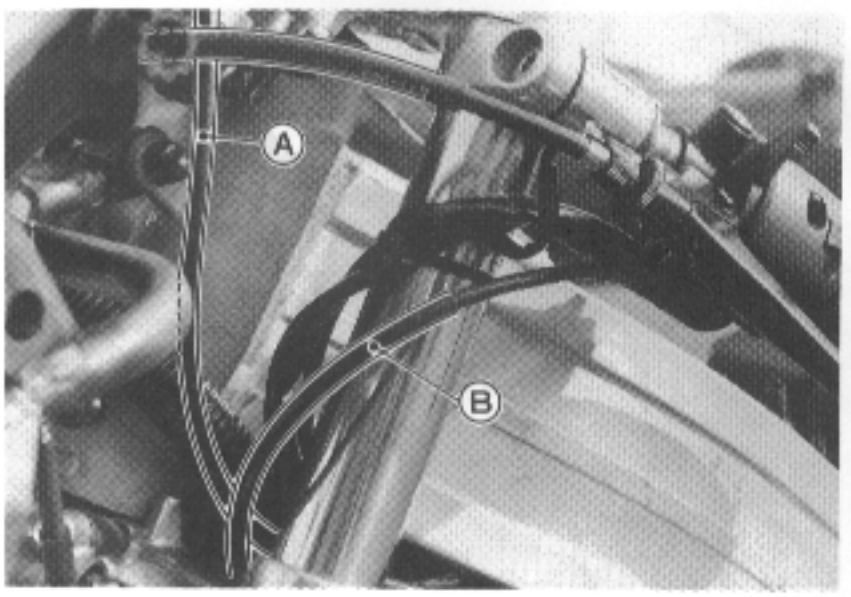




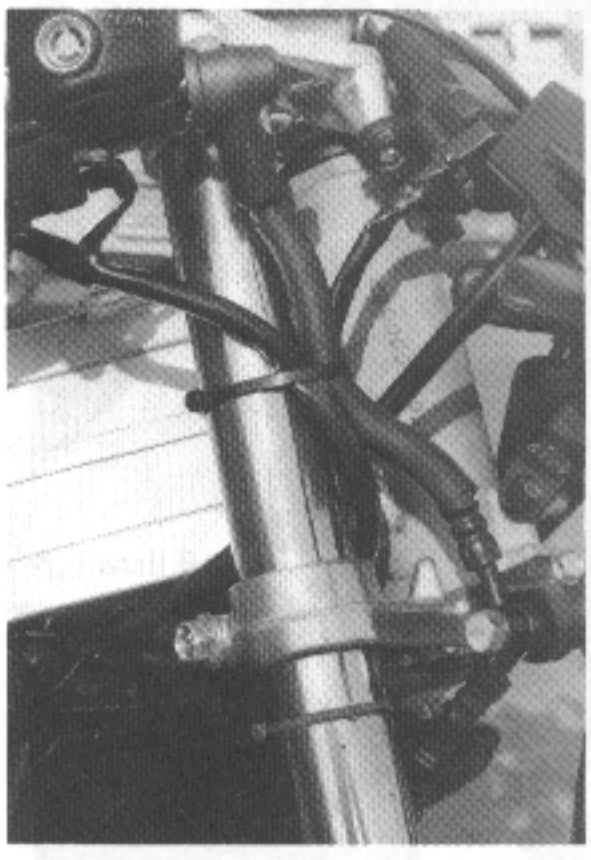
9. Align the end of main harness guard to the upper fairing stay mounting portion.
10. Front Cross Pipe
11. Fit the Branch Point under the cross pipe.
12. To Tail/Brake Light
13. To Left Turn Signal Light
14. To Right Turn Signal Light
15. Ground Lead
16. Fuse Box



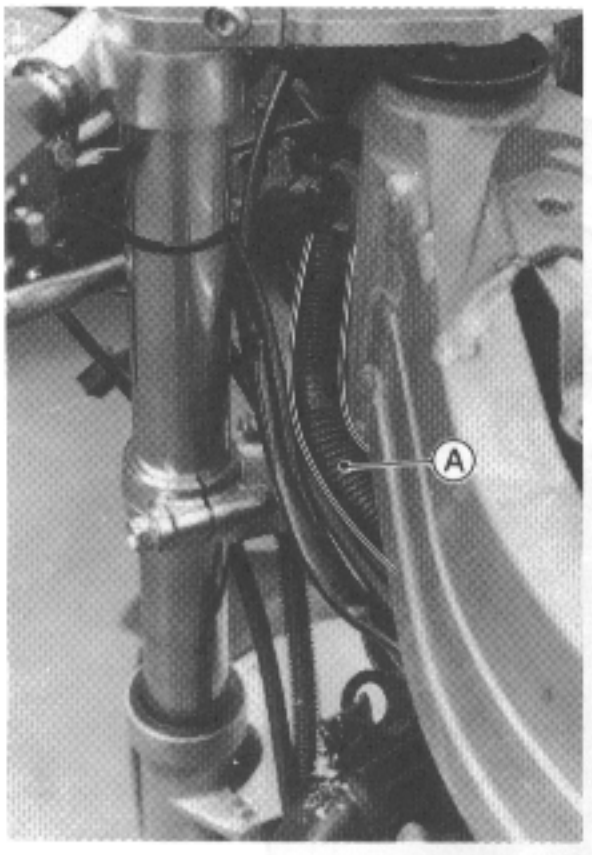
A. City Light Lead Connector
B. Main Harness Connector
C. Front Left Turn Signal Lead Connector
D. Front Right Turn Signal Lead Connector



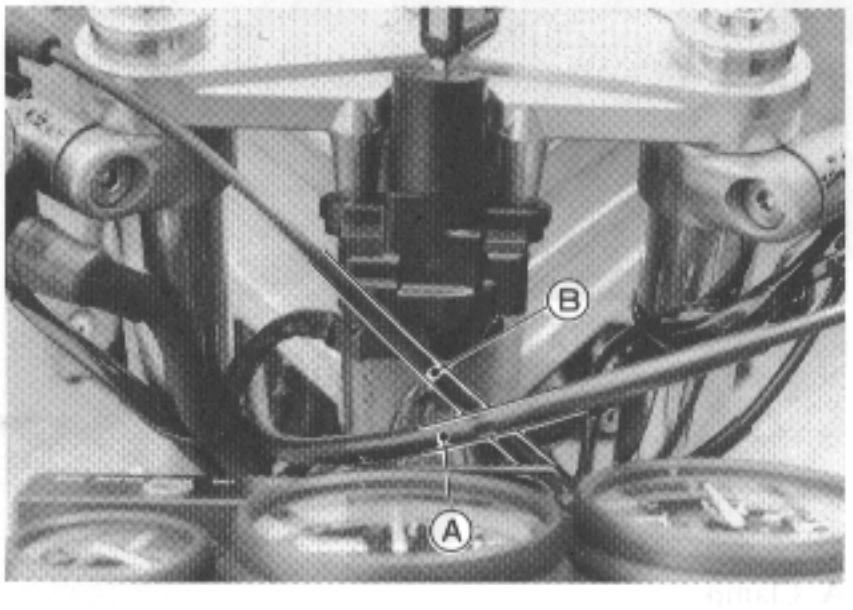
A. Throttle Cable B. Choke Cable



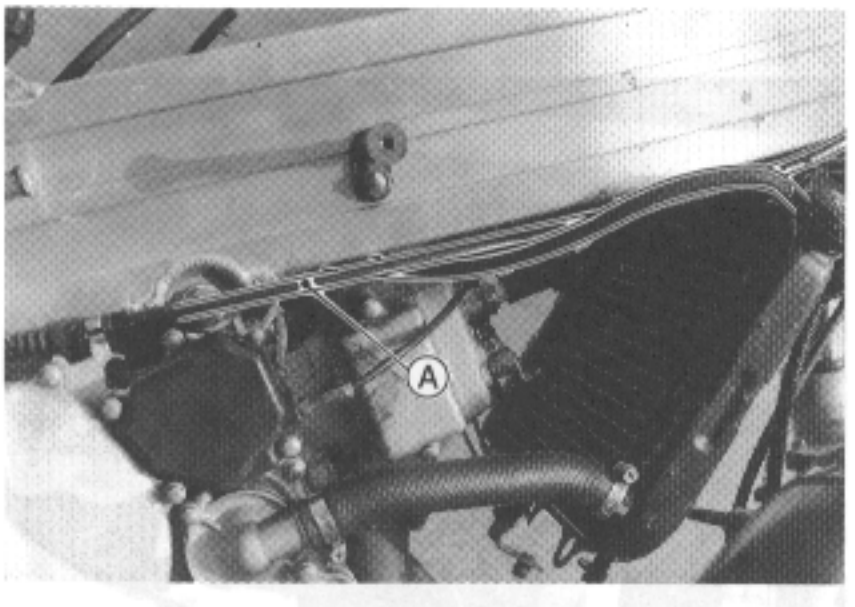
Front Fork Right Side



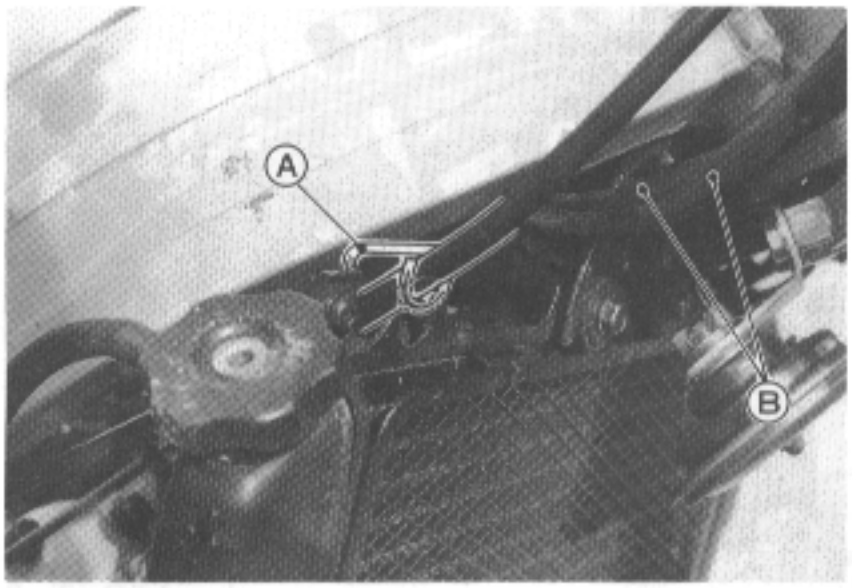
Route the main harness inside of the other leads and cables.



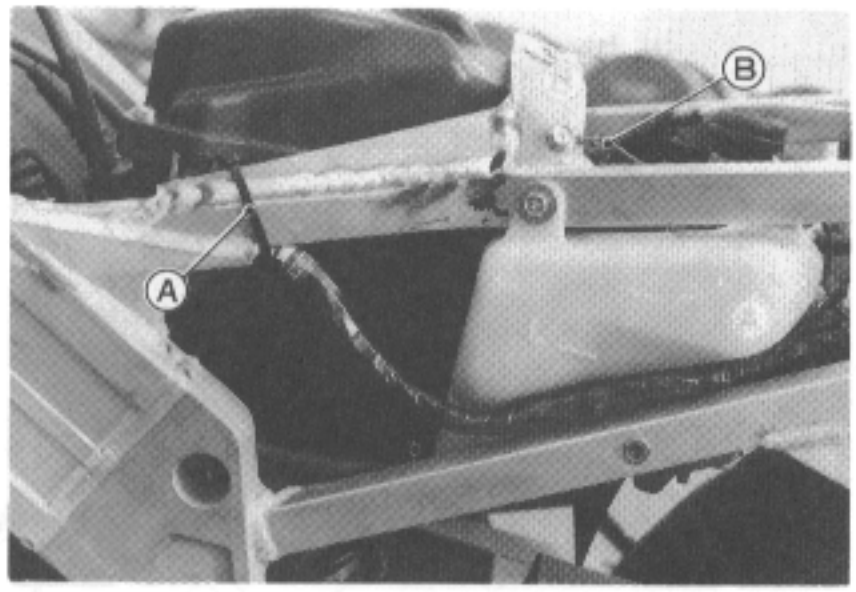
A. Clutch Cable B. Throttle Cable



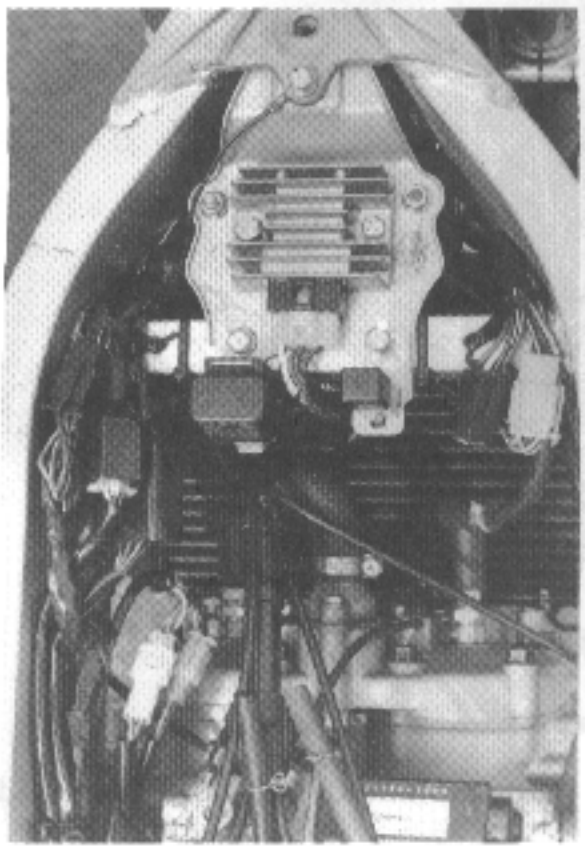
A. Clutch Cable

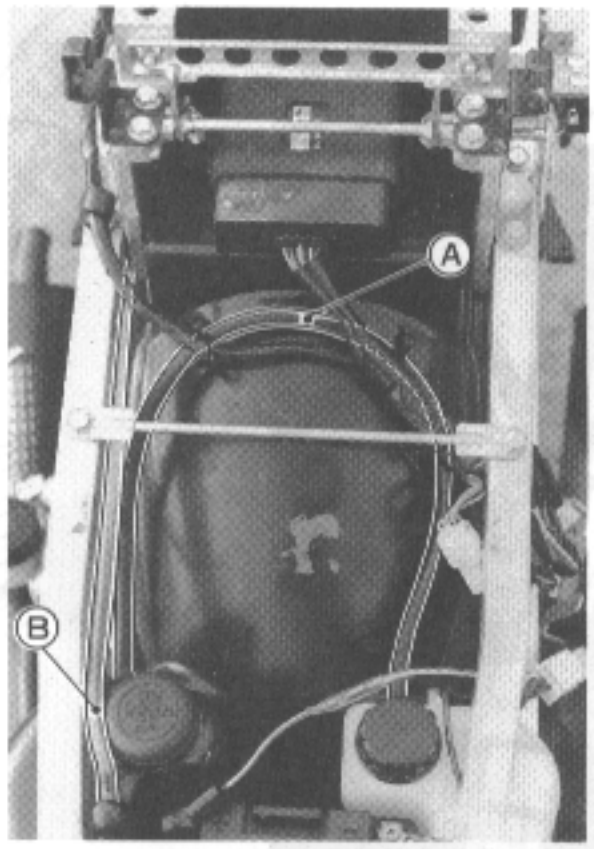


A. Clutch Cable Clamp
B. Right Switch Housing Lead, Ignition Switch Lead

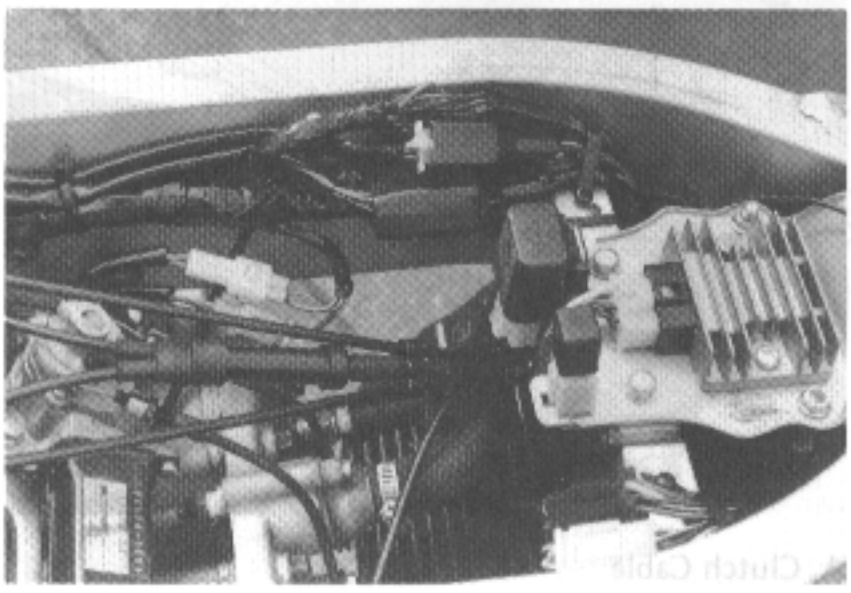


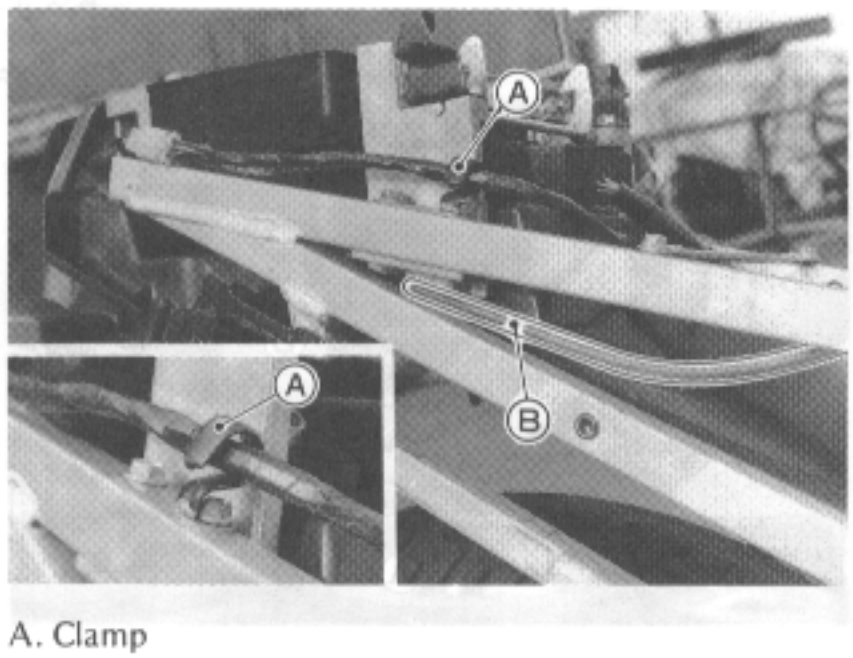
A. Strap B. Ground Lead



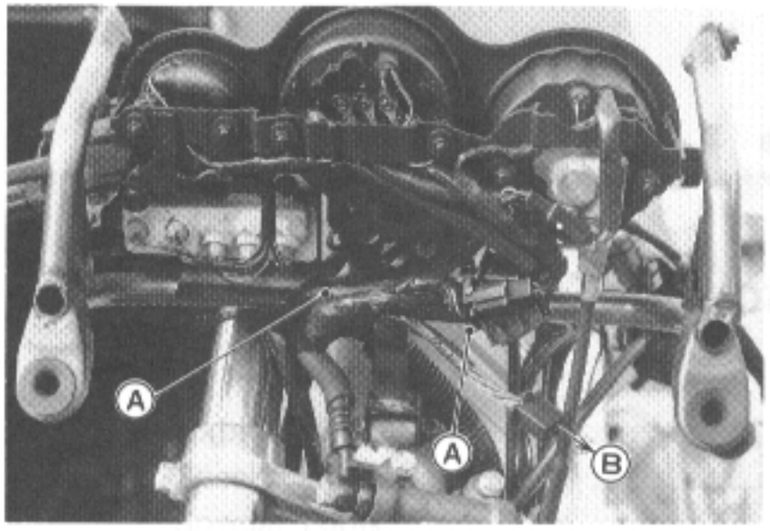


A. Coolant Reservoir Tank Over Flow Tube
B. Oil Tank Vent Hose

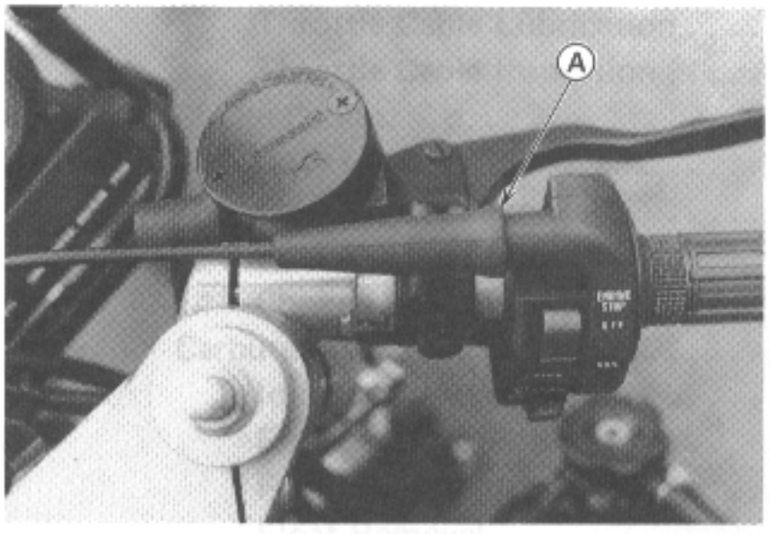




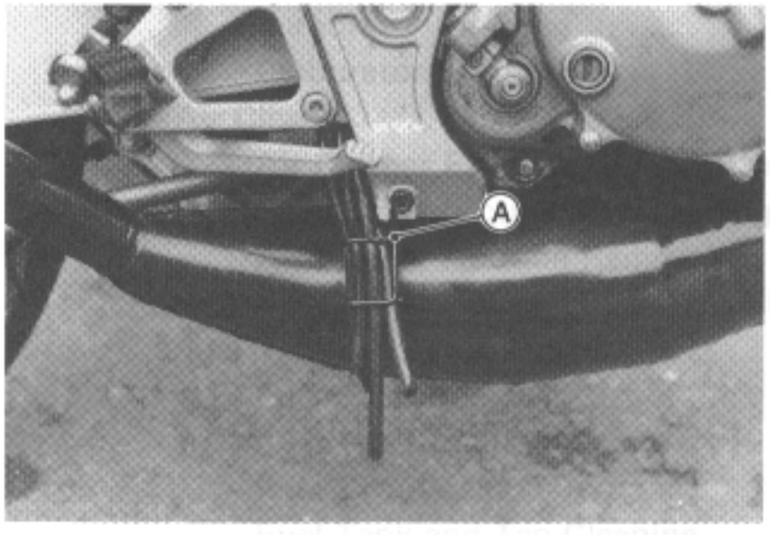
A. Clamp
B. Oil Tank Vent Hose Rear End



A. Strap
B. To Front Harness



A. Install Boot



A. Clamp for Vent Hose