Kawasaki KLR 600

Motorcycle Service Manual

Decimal Equivalents

INCH					MM INCH
1/64				.015625	
	1/32			.03125	1 mm= .03937 inch
3/64				.046875	
		1/16		.0625	2 mm= .07874 inch
5/64				.078125	
	3/32			.09375	3 mm= .11811 inch
7/64				.109375	
		1/8		.125	4 mm= .15748 inch
9/64				.140625	
	5/32			.15625	5 mm= .19685 inch
11/64				.171875	
		3/16		.1875	6 mm= .23622 inch
13/64				.203125	
	7/32			.21875	7 mm= .27559 inch
15/64				.234375	
		1/4		.25	8 mm= .31496 inch
17/64				.265625	
	9/32			.28125	9 mm= .35433 inch
19/64				.296875	
		5/16		.3125	10 mm= .39370 inch
21/64				.328125	
	11/32			.34375	11 mm= .43307 inch
23/64				.359375	
		3/8		.375	12 mm= .47244 inch
25/64				.390625	
	13/32			.40625	13 mm= .51181 inch
27/64				.421875	
		7/16		.4375	14 mm= .55118 inch
29/64				.453125	
	15/32			.46875	15 mm= .59055 inch
31/64				.484375	
		1/2		.5	16 mm= .62992 inch
33/64				.515625	
	17/32			.53125	17 mm= .66929 inch
35/64				.546875	
		9/16		.5625	18 mm= .70866 inch
37/64				.578125	
	19/32			.59375	19 mm= .74803 inch
39/64				.609375	
		5/8		.625	20 mm= .78740 inch
41/64				.640625	
	21/32			.65625	21 mm= .82677 inch
43/64				.671875	
		11/16		.6875	22 mm= .86614 inch
45/64				.703125	
	23/32			.71875	23 mm= .90551 inch
47/64				.734375	
		3/4		.75	24 mm= .94488 inch
49/64				.765625	
	25/32			.78125	25 mm= .98425 inch
51/64				.796875	
		13/16		.8125	
53/64				.828125	
	27/32			.84375	
55/64				.859375	
		7/8		.875	
57/64				.890625	
	29/32			.90625	
59/64				.921875	
		15/16		.9375	
61/64				.953125	
	31/32			.96875	
63/64				.984375	
			1	1.	

Unit Conversion Table

cc	x	.0610	=	cu in
cc	x	.02816	=	oz (imp)
cc	x	.03381	=	oz (US)
cu in	x	16.39	=	cc
ft-lbs	x	12	=	in lbs
ft-lbs	x	.1383	=	kg-m
gal (imp)	x	4.546	=	litres
gal (imp)	x	1.201	=	gal (US)
gal (US)	x	3.7853	=	liters
gal (US)	x	.8326	=	gal (Imp)
grams	x	.03527	=	oz
in	x	25.40	=	mm
in lbs	x	.0833	=	ft-lbs
in lbs	x	.0115	=	kg-m
kg	x	2.2046	=	lbs
kg	x	35.274	=	oz
kg-m	x	7.233	=	ft-lbs
kg-m	x	86.796	=	in-lbs
kg/cm^2	x	14.22	=	lbs/in^2
km	x	.6214	=	mile
lb	x	.4536	=	kg
lb/in^2	x	.0703	=	kg/cm^2
litre	x	28.16	=	oz (imp)
litre	x	33.81	=	oz (US)
litre	x	.8799	=	qt (imp)
litre	x	1.0567	=	qt (US)
metre	x	3.281	=	ft
mile	x	1.6093	=	km
mm	x	.03937	=	in
oz (imp)	x	35.51	=	cc
oz (US)	x	29.57	=	cc
oz (weight)	x	28.35	=	grams
qt (imp)	x	1.1365	=	litre
qt (imp)	x	1.201	=	qt (US)
qt (US)	x	.9463	=	litre
qt (US)	x	.8326	=	qt (imp)
kg/cm^2	x	98.07	=	kPa
lbs/in^2	x	6.896	=	kPa
kPa	x	.1450	=	lbs/in^2

$°C \rightarrow °F: \frac{9\,(°C + 40)}{5} - 40 = °F$

$°F \rightarrow °C: \frac{5\,(°F + 40)}{9} - 40 = °C$

List of Abbreviations

ABDC	after bottom dead center
ATDC	after top dead center
BBDC	before bottom dead center
BDC	bottom dead center
BTDC	before top dead center
cc	cubic centimeters
cu in	cubic inches
ft	foot, feet
ft-lbs	foot-pounds
gal	gallon, gallons
hp	horsepower
in	inch, inches
in-lb	inch-pounds
kg	kilogram, kilograms
kg/cm^2	kilograms per square centimeter
kg-m	kilogram meters
km	kilometer
kph	kilometers per hour
lb, lbs	pound, pounds
lbs/in^2	pounds per square inch
ltr	liter, litre
m	meter, meters
mi	mile, miles
mm	milimeters
mph	miles per hour
oz	ounce, ounces
psi	pounds per square inch
qt	quart, quarts
rpm	revolutions per minute
sec	second, seconds
SS	standing start
TDC	top dead center
"	inch, inches
r/min	revolutions per minute
l	liter, litre
kPa	kilo-Pascals

SAFETY AWARENESS

Whenever you see the symbols shown below, heed their instructions! Always follow safe operating and maintenance practices.

WARNING

○This warning symbol identifies special instructions or procedures which, if not correctly followed, could result in personal injury, or loss of life.

CAUTION

○This caution symbol identifies special instructions or procedures which, if not strictly observed, could result in damage to or destruction of equipment.

"NOTE"

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

LIST OF ABBREVIATIONS

A	ampere(s)	lb	pound(s)
ABDC	after bottom dead center	m	meter(s)
AC	alternating current	min	minute(s)
ATDC	after top dead center	N	newton(s)
BBDC	before bottom dead center	Pa	pascal(s)
BDC	bottom dead center	PS	horsepower
BTDC	before top dead center	psi	pound(s) per square inch
°C	degree(s) Celcius	r	revolution
DC	direct current	rpm	revolution(s) per minute
F	farad(s)	TDC	top dead center
°F	degree(s) Fahrenheit	TIR	total indicator reading
ft	foot, feet	V	volt(s)
g	gram(s)	W	watt(s)
h	hour(s)	Ω	ohm(s)
L	liter(s)		

Read OWNER'S MANUAL before operating

Emission Control Information

To protect the environment in which we all live, Kawasaki has incorporated two emission control systems in compliance with the applicable regulations of the United States Environmental Protection Agency.

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 carburetors.
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.

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

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

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

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

"NOTE"

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

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

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

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED

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

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

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

Foreword

This manual is designed primarily for use by trained mechanics in a properly equipped shop, although it contains enough detail and basic information to make it useful to the motorcycle user who desires to carry out his own basic maintenance and repair work. Since a certain basic knowledge of mechanics, the proper use of tools, and workship procedures must be understood in order to carry out maintenance and repair satisfactorily; the adjustments, maintenance, and repair should be carried out only by qualified mechanics whenever the owner has insufficient experience, or has doubts as to his ability to do the work, so that the motorcycle can be operated safely.

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

"NOTE"

○*Explanation on major changes and additions, that the unique to later year units since the publication of the Service Manual, will be added to the end of the text as "Supplements".*

For the duration of your warranty period, especially, 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 General Information Chapter.
- 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 listed in the Special Tool Catalog. 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.

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

Table of Contents

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, 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 filings.

(2) Battery Ground

Remove the ground (–) lead from the battery before performing any disassembly operations. 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, start them all in their holes and tighten them to 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

When torque values are given in this Service Manual , use them. Either too little or too much torque may lead to serious damage. Use a good quality, reliable torque wrench.

(5) Force

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

(6) Edges

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

(7) High Flash-point Solvent

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

(8) Gasket, O-Ring

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

(9) Liquid Gasket, Non-permanent Locking Agent

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

(10) Press

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

(11) Ball Bearing

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

(12) Oil Seal and Grease Seal

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

When pressing in a seal which has manufacturer's marks, press it in with the marks facing out.

Seals should be pressed into place using a suitable driver, which evenly contacts 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 high temperature grease to the seal lips to reduce rubber to metal friction.

(14) Circlip, Retaining Ring

Replace any circlips and retaining rings that are 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.

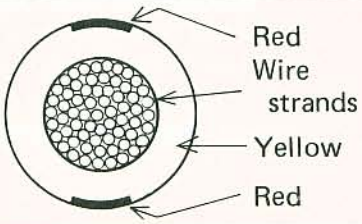
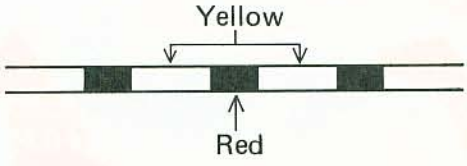
(15) Lubrication

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.

Wire (cross-section)	Name of Wire Color	Picture in Wiring Diagram
	Yellow/red	

(17) Replacement Parts

When there is a replacement instruction, replace these parts with new ones every time they are removed. These replacement parts will be damaged or lose their original function once removed.

(18) Inspection

When parts have been disassembled, visually inspect these parts for following conditions or other damage. If there is any doubt as to the condition of them, replace them with new ones.

Abrasion	Denting	Hardening	Warping
Bending	Deterioration	Scratching	Wear
Cracking	Discoloration	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.

KL600-A1 US Model

KL600-A1 European Model

Specifications

Items		KL600-A1
Dimensions:		
Overall length		2,240 mm/Ⓤ Ⓒ Ⓒa 2,230 mm
Overall width		875 mm
Overall height		1,225 mm
Wheelbase		1,470 mm
Road clearance		280 mm
Seat height		870 mm
Dry weight		1,280 N (130 kg), Ⓒa 1,280 N (130.5 kg)
Curb weight:	Front	670 N (68 kg), Ⓒa 670 N (68.5 kg)
	Rear	760 N (77 kg)
Fuel tank capacity		11.5 L
Performance:		
Climbing ability		32°
Braking distance		12.5 m from 50 km/h
Minimum turning radius		2.2 m
Engine:		
Type		4-stroke, DOHC, 4-valve, 1-cylinder
Coolaing system		Liquid cooled
Bore and stroke		96.0 x 78.0 mm
Displacement		564 mL
Compression ratio		9.5
Maximum horsepower		30.9 kW (42 PS) @7,000 r/min (rpm)
		Ⓦ Ⓖ 19.9 kW (27 PS, DIN) @6,000 r/min (rpm)
Maximum torque		46.1 N-m (4.7 kg-m, 34.0 ft-lb) @5,000 r/min (rpm)
		Ⓦ Ⓖ 39.2 N-m (4.0 kg-m, 28.9 ft-lb)
		3,000 r/min (rpm)
Carburetion system		Carburetor, Keihin CVK40
Starting system		Primary kick
Ignition system		CDI
Timing advance		Electronically advanced
Ignition timing		From 10° BTDC @1,300 r/min (rpm) to
		40° BTDC @3,000 r/min (rpm)
		NGK DR8ES, or ND X24ESR-U
		ⓊⒶⓈⒾ NGK D8ES, or ND X24ES-U
Cylinder numbering method		1
Firing order		1

Items			KL600-A1
Valve timing:			
	Inlet	Open	19° (BTDC)
		Close	69° (ABDC)
		Duration	268°
	Exhaust	Open	55° (BBDC)
		Close	25° (ATDC)
		Duration	260°
Lubrication system			Forced lubrication (wet sump)
Engine oil:			
Grade			SE class
Viscosity			SAE10W40, 10W50, 20W40, or 20W50
Capacity			2.0 L
Drive Train:			
Primary reduction system:			
Type			Gear
Reduction ratio			2.428 (68/28)
Clutch type			Wet multi disc
Transmission:			
Type			5-speed, constant mesh, return shift
Gear ratios:	1st		2.437 (39/16)
	2nd		1.529 (26/17)
	3rd		1.181 (26/22)
	4th		0.954 (21/22)
	5th		0.791 (19/24)
Final drive system:			
Type			Chain drive
Reduction ratio			2.866 (43/15)
Overall drive ratio			5.511 @Top gear
Frame:			
Type			Tubular, diamond
Caster (rake angle)			29.5°
Trail			122 mm
Front Tire:			
Type			Tube type
Size			3.00S21 4PR, Ⓤ Ⓒ Ⓒa 3.00-21 4PR
Rear Tire:			
Type			Tube type
Size			5.10S17 4PR, Ⓤ Ⓒ Ⓒa 5.10-17 4PR
Front suspension:			
Type			Telescopic fork (pneumatic)
Wheel travel			230 mm

Items	KL600-A1
Rear suspension:	
Type	Swing arm (uni-trak)
Wheel travel	220 mm
Brake type:	
Front	Single disc
Rear	Drum
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, Ⓤ Ⓒ Ⓒa Ⓢ 12 V 8/27 W
Alternator:	
Type	Single-phase AC
Rated output	10.5 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.

Abbreviation

Ⓐ : Australian Model
Ⓑ : U.K. Model
Ⓒ : Canadian Model
Ⓒa : Californian Model
Ⓔ : European Model
Ⓕ : French Model
Ⓖ : West German Model
Ⓝ : Norwegian Model
Ⓢ : South African Model
Ⓢw : Swedish Model
Ⓤ : U.S. Model
Ⓦ : Swiss Model
Ⓖr : Greek Model

Bolt and Nut Tightening

Tightness Inspection

●Check the tightness of the bolts and nuts listed here. Also, check to see that each cotter pin is in place and in good condition.

"NOTE"

○*For the engine fasteners, check the tightness of them when the engine is cold (at room temperature).*

★If there are loose fasteners, retorque them to the specified torque following the specified tightening sequence. For each fastener, first loosen it by ½ turn, then tighten it.

★If cotter pins are damaged, replace them with new ones.

Bolts, Nuts, and Fasteners to be checked

Wheels

Front axle nut
Spokes
Rear axle nut

Brake

Master cylinder clamp bolts
Caliper mounting bolts
Brake cam lever bolt
Brake pedal bolts
Brake rod clevis pin cotter pin

Suspension

Front fork clamp bolts
Front fork top bolts
Swing arm pivot shaft nut
Rear shock absorber bolt
Rear shock absorber nut

Steering

Handlebar clamp bolts
Stem head nut

Engine

Muffler mounting nuts
Muffler mounting bolts
Exhaust pipe holder nuts
Engine mounting bolts
Engine mounting nuts
Shift pedal bolt
Muffler connecting pipe clamp bolt
Cylinder head nuts
Cylinder head bolts

Others:

Clutch lever holder bolt
Side stand bolt
Front footpeg mounting bolts
Front footpeg cotter pins
Rear footpeg cotter pins
Light switch housing bolts

Standard Torque Table

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

General Fasteners:

Threads dia. (mm)	Torque		
	N-m	kg-m	ft-lb
5	3.4 – 4.9	0.35 – 0.50	30 – 43 in-lb
6	5.9 – 7.8	0.60 – 0.80	52 – 69 in-lb
8	14 – 19	1.4 – 1.9	10.0 – 13.5
10	25 – 39	2.6 – 3.5	19.0 – 25
12	44 – 61	4.5 – 6.2	33 – 45
14	73 – 98	7.4 – 10.0	54 – 72
16	115 – 155	11.5 – 16.0	83 – 115
18	165 – 225	17.0 – 23	125 – 165
20	225 – 325	23 – 33	165 – 240

General Lubrication

Lubrication

●Before lubricating each part, clean off any rusty sports with rust remover and wipe off any grease, oil, dirt, or grime.

●Lubricate the points listed below with indicated lubricant.

"NOTE"

○*Whenever the vehicle has been operated under wet or rainy conditions, or especially after using a highpressure spray water, perform the general lubrication.*

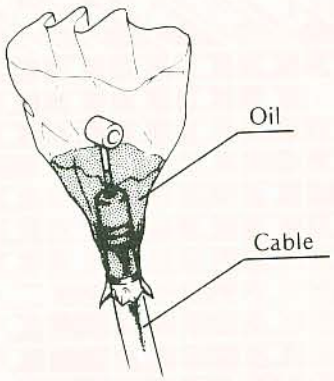
Pivot Points: Lubricate with Motor Oil

Clutch lever
Front brake lever
Kick pedal
Rear brake cable joint
Rear brake pedal
Rear brake pedal shaft
Shift pedal
Side stand

Cables: Lubricate with Motor Oil

Choke cable
Clutch cable
Throttle cable

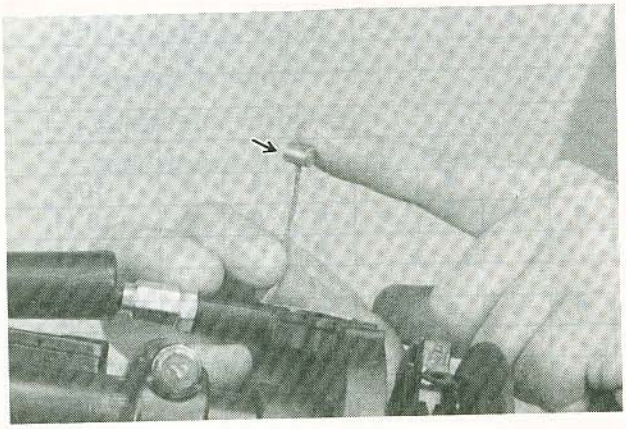
Cable Lubrication



Apply Grease to Following Points

Choke inner cable upper end
Clutch inner cable upper end
Clutch inner cable lower end
Handlebar throttle grip portion
Speedometer inner cable*
Throttle inner cable upper end

*Grease the lower part of the inner cable sparingly.



Periodic Maintenance Chart

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

OPERATION \ FREQUENCY	Whichever comes first / Every	*ODOMETER READING 800 km	5,000 km	10,000 km	15,000 km	20,000 km	25,000 km	30,000 km	See Page
Spark plug – clean		●	●	●	●	●	●	●	14-9
Spark plug – check †		●	●	●	●	●	●	●	14-9
Valve clearance – check †		●	●	●	●	●	●	●	3-11
Air cleaner element – clean			●		●		●		2-7
Air cleaner element – replace	5 cleanings			●		●		●	2-7
Throttle grip play – check †		●	●	●	●	●	●	●	12-3
Idle speed – check †		●	●	●	●	●	●	●	2-4
Fuel system – check †				●		●		●	2-8
Cylinder head bolt tightness – check †		●		●		●		●	3-18
Cylinder head nut tightness – check †		●		●		●		●	3-18
Coolant – change	2 years							●	5-4
Spark arrestor – clean (for Ⓤ, Ⓒ model)			●	●	●	●	●	●	3-22
Evaporative emission control system – check (for Ⓒa model)		●	●	●	●	●	●	●	2-10
Engine oil – change	year	●	●	●	●	●	●	●	4-12
Oil filter – replace		●		●		●		●	4-13
Radiator hoses, connections – check †	year	●		●		●		●	5-8
Fuel hose – replace	4 years								– – –
Balancer chain tension – adjust		●	●	●	●	●	●	●	4-16
Clutch – adjust		●	●	●	●	●	●	●	4-8
Drive chain wear – check †			●	●	●	●	●	●	9-4
Drive chain – lubricate	300 km								9-5
Drive chain slack – check †	800 km								9-3
Brake lining wear – check †			●	●	●	●	●	●	10-4, 9
Brake fluid level – check †	month	●	●	●	●	●	●	●	10-4
Brake fluid – change	year			●		●		●	10-4
Brake hose – replace	4 years								– – –
Master cylinder cup and dust seal – replace	2 years								– – –
Caliper piston seal and dust seal – replace	2 years								– – –
Brake play – check †		●	●	●	●	●	●	●	10-8
Brake light switch – check †		●	●	●	●	●	●	●	10-11
Brake camshaft – lubricate	2 years					●			10-11
Brake cable – replace	2 years								– – –
Steering – check †		●	●	●	●	●	●	●	11-6
Steering stem bearing – lubricate	2 years					●			11-7
Front fork oil – change				●		●		●	11-9
Tire wear – check †			●	●	●	●	●	●	8-5
Wheel bearing – lubricate	2 years					●			8-8
Speedometer gear – lubricate	2 years					●			12-4
Spoke tightness and rim runout – check †		●	●	●	●	●	●	●	8-6
Swing arm pivot, uni-trak linkage – lubricate				●		●		●	11-14
Battery electrolyte level – check †	month	●	●	●	●	●	●	●	14-4
General lubrication – perform			●	●	●	●	●	●	1-8
Nut, bolt, and fastener tightness – check †		●		●		●		●	1-8

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

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

Ⓒa : California Model Ⓤ : U.S. Model Ⓒ : Canadian Model

Fuel System

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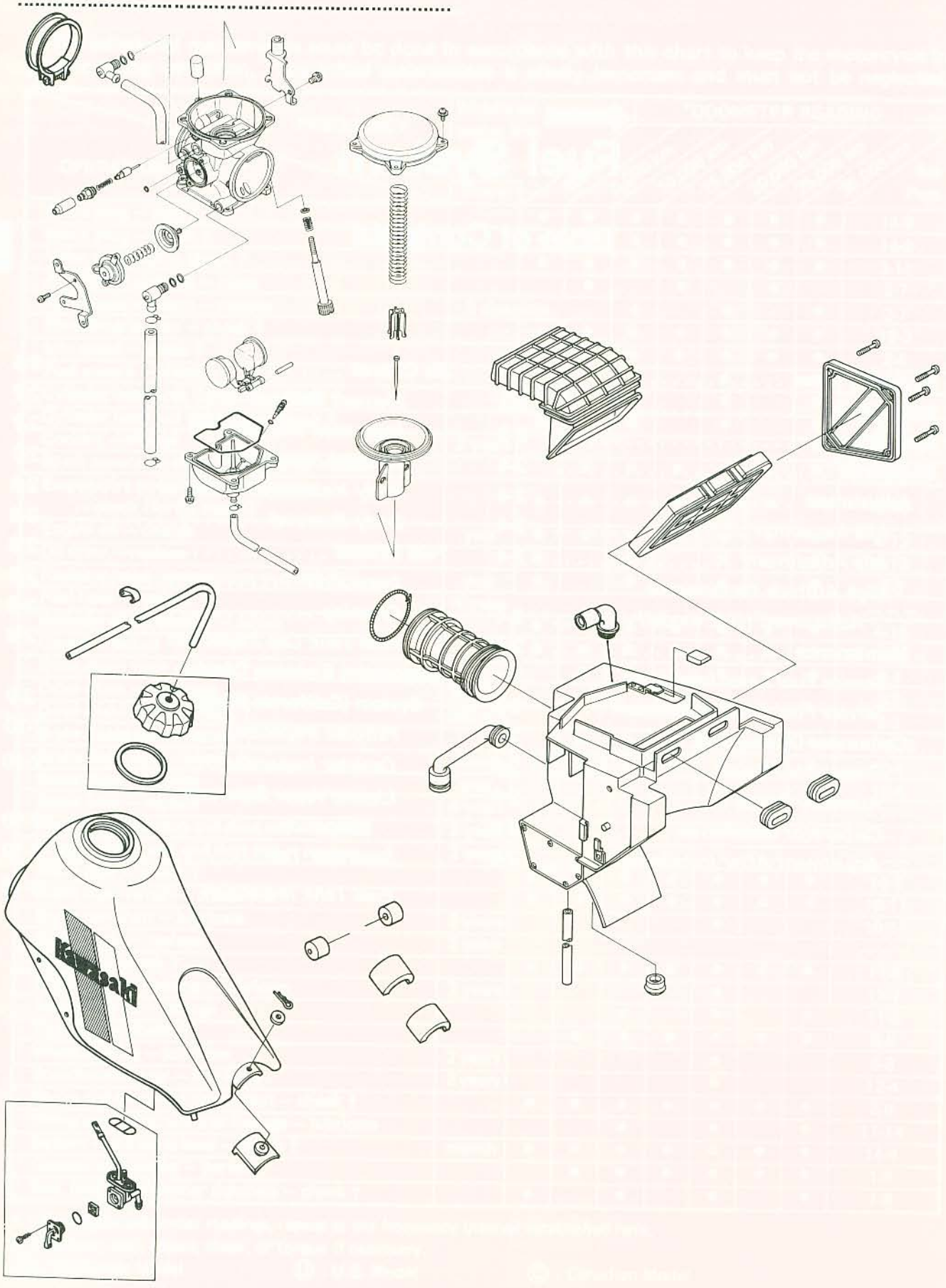
Exploded Views

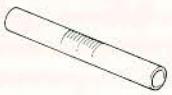


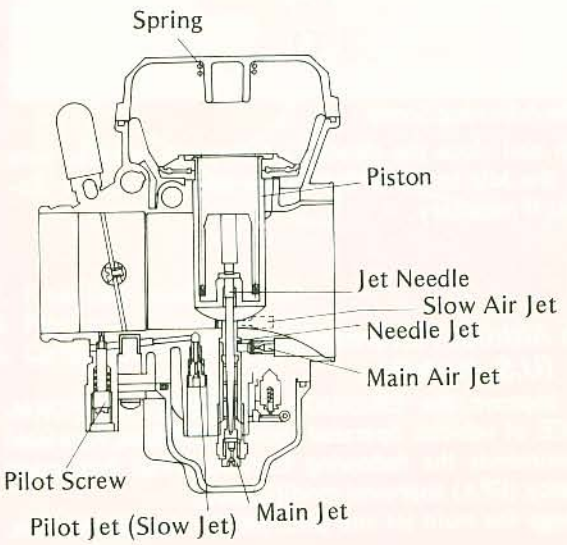
Service Data

Item	Standard				See Page
Carburetor:	Ⓤ	Ⓖ	Ⓦ	Other than ⓊⒼⓌ	
Make & type	Keihin, CVK40	←	←	←	
Main Jet	#138 (#135)	#130	#130	#138	
Main air jet	#50	←	←	←	
Needle jet	#6	←	←	←	
Jet needle mark	N24C	N23B	N23B	N24B	
Slow air jet	#70	←	←	←	
Pilot jet (: slow jet)	#40 (#38)	#40	←	←	
Pilot screw	$1^3/_8$ (for reference)	$2^1/_4$	$1^3/_8$	$2^1/_4$	
Service fuel level	–0.5 mm	←	←	←	2-4
Float height	17.5 mm	←	←	←	2-5
Bore center	37.5 mm	←	←	←	
	( ) : for high altitude				
Throttle Lever:					chap. 12
Free play	2 – 3 mm				2-7
Air Cleaner Element Oil:					
Grade	SE class				
Viscosity	SAE30				

Special Tool

Fuel Level Gauge: 57001-1017





Carburetor

Adjustment:

When the idle speed is too low, the engine may stall; when the idle speed is too high, the fuel consumption becomes excessive, and the resulting lack of engine braking may make the motorcycle difficult to control.

Idle Inspection

- Thoroughly warm up the engine.
- With the engine idling, turn the handlebar to each side.
- ★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 damaged cable could result in an unsafe riding condition.**

- Check that the idle speed is within the specified range.

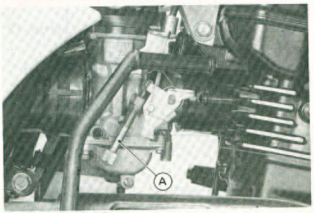
Idle Speed

1,300 ±100 r/min (rpm)

★If the idle speed is out of the specified range, adjust it as follows.

Idle Adjustment

- Turn the adjusting screw to adjust the idle speed.



A. Idle Adjusting Screw

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

High Altitude Performance Adjustment (U.S. model)

○To improve the EMISSION CONTROL PERFORMANCE of vehicles operated above **4,000 feet,** Kawasaki recommends the following Environmental Protection Agency (EPA) approved modification.

- Change the main jet and pilot jet for high altitude use.

High Altitude Carburetor Specifications

Main Jet:	#135
Pilot Jet:	#38

"NOTE"

○*When properly performed, these specified modifications only, are not considered to be emission system "tampering" and vehicle performance is generally unchanged as a result.*

Maintenance:

Carburetor trouble can be caused by dirt, wear, maladjustment, or improper fuel level in the float chamber.

Mixture Trouble Symptoms

Starting difficulty
Poor running
Overheating
Exhaust smokes excessively
Frequent backfiring in the exhaust system during engine braking

The following explanation covers the inspection of the carburetor.

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 any appliance with a pilot light.**
○**Make sure the engine is cold before working. Wipe any fuel off the engine before starting it.**

Service Fuel Level Inspection

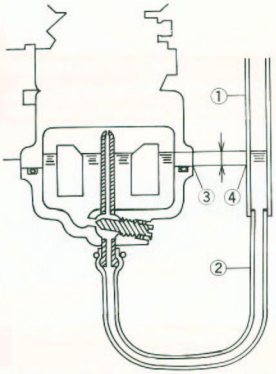
- Remove the carburetor, and hold it in a true vertical position on a stand.
- Secure an optional fuel tank with a valve to some high place to supply fuel to the carburetor.
- Attach fuel level gauge (Special tool) to the open end of the overflow tube.
- Holding the gauge against the side of the carburetor body so that the "0" line is several millimeters higher than the bottom edge of the carburetor body, turn out the carburetor drain plug 1 – 2 turns to feed fuel to the gauge.
- Wait until the fuel level in the gauge settles. If the fuel does not appear or overflows, inspect the float and float valve.
- Keeping the gauge vertical, slowly lower it until the "0" line is even with the bottom edge of the carburetor body.

"NOTE"

○*Do not lower the "0" line below the bottom edge of the carburetor body. If the gauge is lowered and then moved upwards, the fuel level measured shows somewhat higher than the actual fuel level, necessitating to repeat the measurement from the beginning.*

●Read the service fuel level in the gauge.

Service Fuel Level Measurement



1. Fuel Level Gauge (57001-1017)
2. Overflow Tube
3. Bottom Edge of the Carburetor Body
4. 0 – line

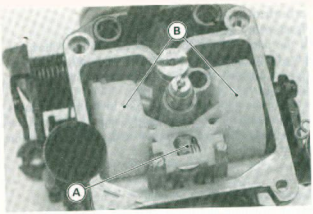
Service Fuel Level Adjustment

●Remove the float from the carburetor.

●Bend the tang on the float a very slight amount to change the float height. (Refer to the "NOTE" below for the float height measurement.) Increasing the float height lowers the fuel level, and decreasing the float height raise the fuel level.

●After adjustment, assemble the carburetor, and inspect the service fuel level again.

★Readjust the service fuel level if necessary. If the service fuel level cannot be corrected by adjusting the float height within the specified range, the float and/or float valve may be damaged necessitating float and/or vlave replacement.



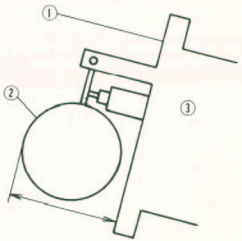
A. Tang B. Float

"NOTE"

○*Float height is the distance from the float bowl mating surface of the carburetor body (with the gasket removed) to the top of the float.*

●Measure the height with the carburetor almost laid down so that the spring loaded rod in the float valve needle makes contact with the tang on the float but is not pushed in.

Float Height Measurement–TK Carburetor



1. Float bowl mating surface
2. Float
3. Carburetor body

Carburetor Disassembly:

Disassembly Points

●If the pilot screw is to be removed, do the following:

○For the US model, remove the pilot screw plug as follows. Punch and pry out the plug with an awl or other suitable tools.

○Turn in the pilot screw and count the number of turns until it seats fully but not tightly, and then remove the screw, this is to set the screw to its original position when assembling.

Assembly Points

●After installing the upper chamber cover, check that the vacuum piston slides up and down smoothly without binding in the carburetor bore.

CAUTION

○**During carburetor disassembly, be careful not to damage the diaphragm. Never use a sharp tool to remove the diaphragm.**

●Turn in the pilot screw fully but not tightly, and the back it out the same number of turns counted during disassembly.

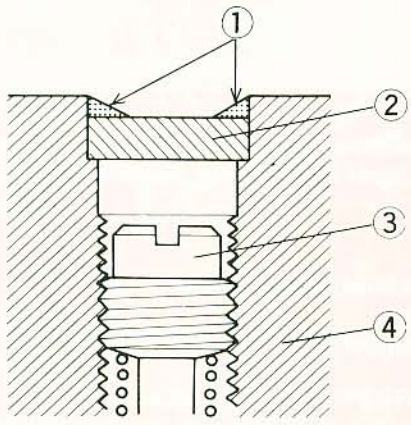
●For the US model, install the pilot screw plug as follows.

○Install a new plug in the pilot screw hole, and apply a small amount of a bonding agent to the circumference of the plug.

CAUTION

○**Do not apply too much bond to the plug in order to keep the pilot screw itself from being fixed.**

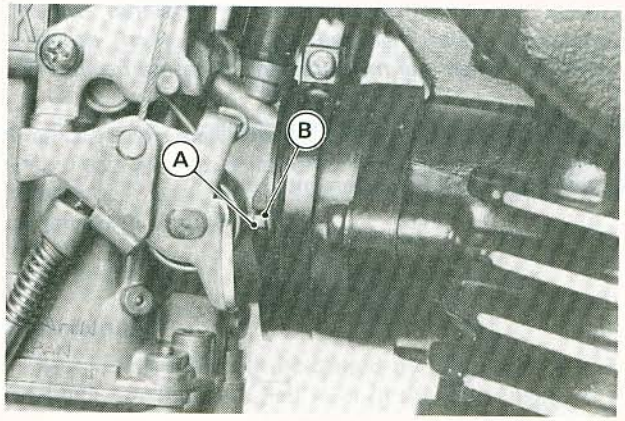
Plug Installation (US model only)



1. Apply a bonding agent.
2. Plug
3. Pilot Screw
4. Carburetor body

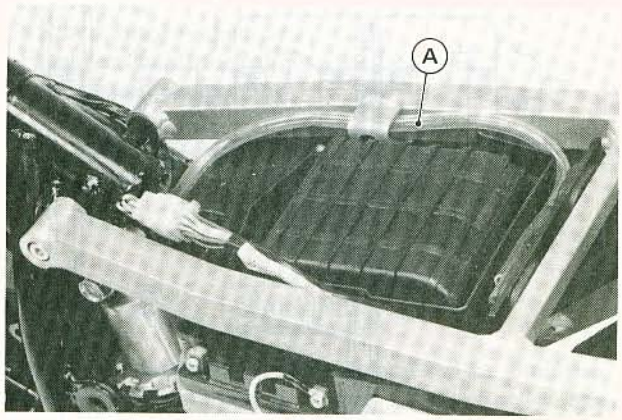
Carburetor Installation

●When installing the carburetor, fit the ridge into the notch on the carburetor holder.



A. Ridge B. Notch

●Route and clamp air vent tube as shown.



A. Air Vent Tube

●Route and clamp the over flow tube with the battery vent hose and the reserve tank tube (See Battery in Electrical System)

CAUTION

○**Always keep the tubes free of obstruction, make sure they do not touch the chain.**

Adjustment After Installation

●Adjust the following items:

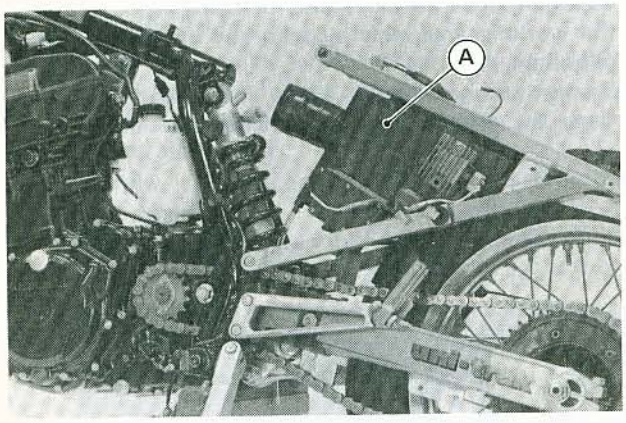
Throttle grip play (See Throttle Grip Adjustment in Chapter 12.)
Idle speed (See Idle Adjustment)

Air Cleaner

In non-racing use, inspect the element according to the **Periodic Maintenance Chart.**

Body Removal

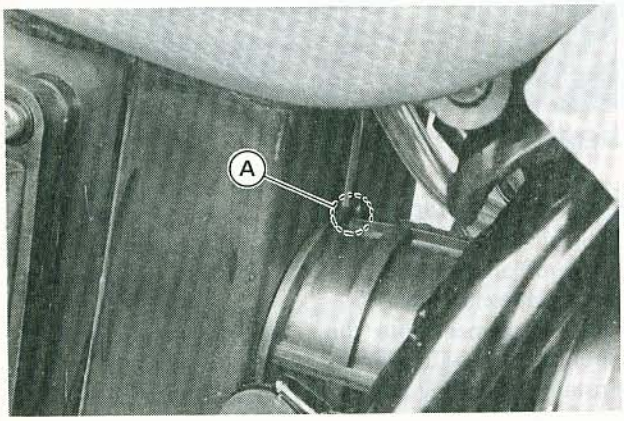
After removal of rear frame (See Rear Shock Removal on chapter 11), take out the air cleaner body.



A. Air Cleaner Body

Body Installation Point

- When installing the air cleaner duct, fit the notch in the duct with the ridge on the air cleaner housing.



A. Notch

Fuel System

Accumulation of moisture or sediment in the fuel system will restrict the flow of fuel and cause carburetor and/or fuel tap malfunction.

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 any appliance with a pilot light.

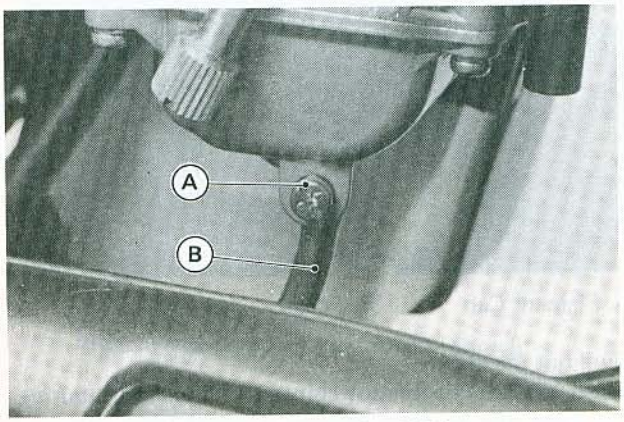
○Make sure the engine is cold before working. Wipe any fuel off the engine before starting it.

Inspection

- Turn the fuel tap lever to the OFF position.
- Run the lower end of the carburetor overflow tube into a suitable container.
- Turn out the drain plug a few turns to drain the carburetor, and check to see if water or dirt comes out.

★If any water or dirt comes out, clean the fuel system as follows.

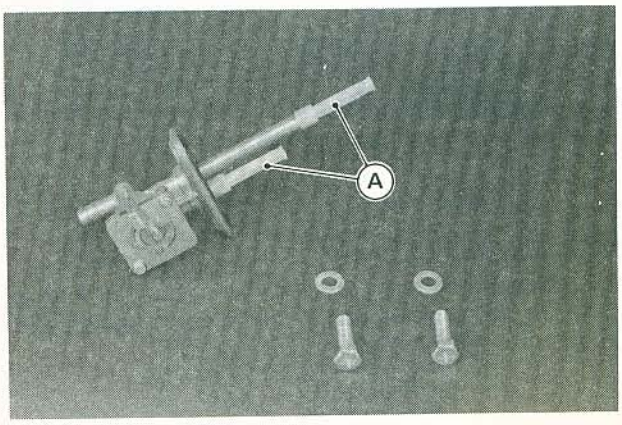
- Tighten the drain screw securely.



A. Drain Plug B. Overflow Tube

Cleaning

- Remove the fuel tank, and remove the fuel tap from the tank.
- Flush out the fuel tank with a high flash-point solvent.
- Wash the fuel filter on the fuel tap clean of dirt with a high flash-point solvent.



A. Fuel Filter

- Remove the carburetor, and disassemble it to clean the fuel and air passages.

CAUTION

○Remove the float before cleaning the carburetor with compressed air, or it will be damaged.

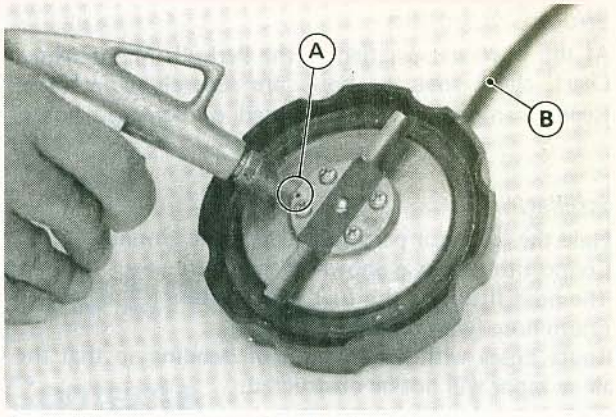
○Do not use a strong carburetor cleaning solution which could attack rubber or plastic parts; instead, use a mild cleaning solution safe for these parts.

○Do not use wire for cleaning as this could damage the jets.

- Wash the disassembled parts, and air and fuel passages with a high flash-point solvent. If necessary, use a bath of automotive type carburetor cleaner.
- Blow the jets, and air and fuel passages clean with compressed air.
- Assemble the disassembled parts, and install the removed parts.

Fuel Tank 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 bottom free with compressed air.



A. Air Vent B. Breather Hose

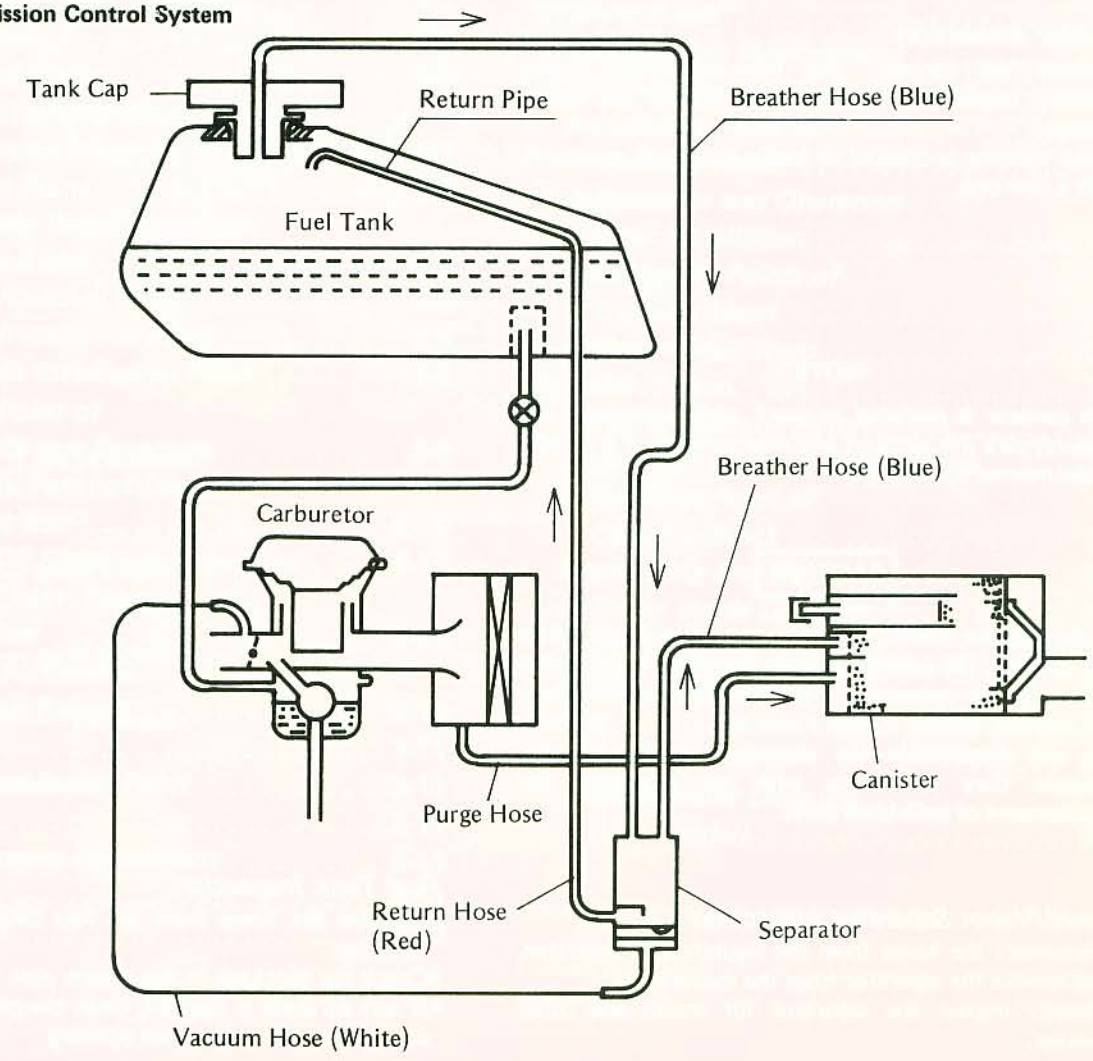
CAUTION

○**Do not apply compressed air to the air vent from the breather hose on the cap top. This could cause damage and clogging of the labyrinth in the cap.**

Evaporative Emission Control System (California Model)

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

Evaporative Emission Control System



Periodic Inspection

- At the intervals specified in the Periodic Maintenance Chart, check that the hoses are securely connected.
- Replace any kinked, deteriorated or damaged hoses.

Installation

- Hold the separator perpendicular to the ground.
- Connect the hoses as shown in the figure.
- ○The hose fitting at the fuel tank bottom is for the fuel return hose (with red marking tape).
- Route hoses with a minimum of bending so that the air or vapor will not be obstructed.
- Be sure to plug the return hose to prevent fuel spilling before fuel tank removal.

WARNING

○**When removing the fuel tank, be careful not to spill the gasoline through the return hose.**

★If liquid gasoline flows into the breather hose, remove the hose and blow it clean with compressed air.

Canister Inspection

- Remove the canister, and disconnect the hoses.
- Visually inspect the canister for cracks and other damage.

★If the canister is cracked or badly damaged, replace it with a new one.

"NOTE"

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

CAUTION

○**If the gasoline, solvent, water or any other liquid enters the canister, the canister's vapor absorbing capacity becomes greatly reduced. If a liquid does contaminate the canister, replace it with a new one.**

○**Do not disassemble the separator or the canister, because they are made with no allowance for replacement of individual parts.**

Liquid/Vapor Separator Inspection

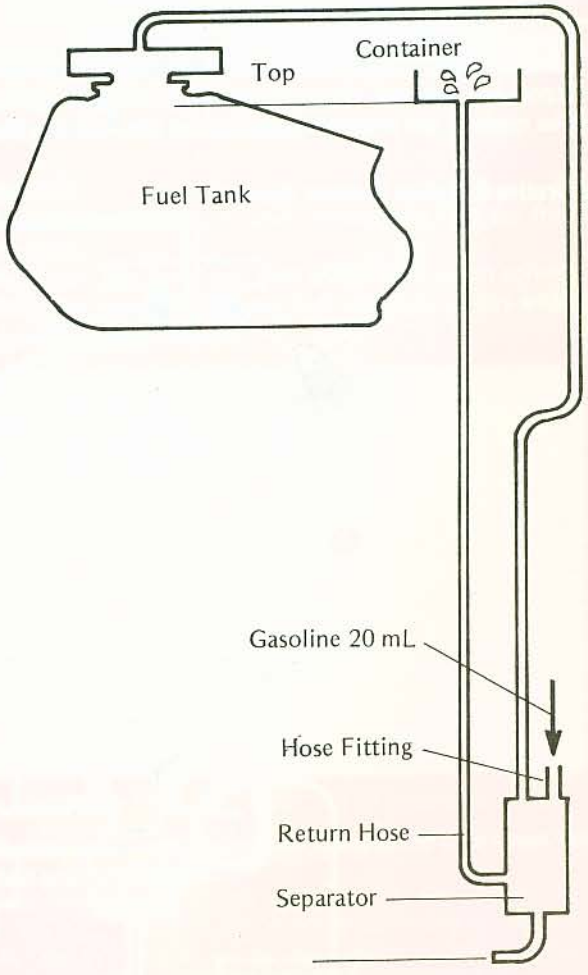
- Disconnect the hoses from the liquid/vapor separator, and remove the separator from the motorcycle.
- Visually inspect the separator for cracks and other damage.

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

Separator Test

- Disconnect the canister breather hose 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 return hose, the separator works. If it does not, replace the separator with a new one.



Fuel Tank Inspection

- Remove the hoses from the fuel tank, and open the tank cap.
- Check for blockage in the return pipe in the fuel tank.

★If any of them is clogged, clean the pipes by applying compressed air to the hose opening.

Engine Top End

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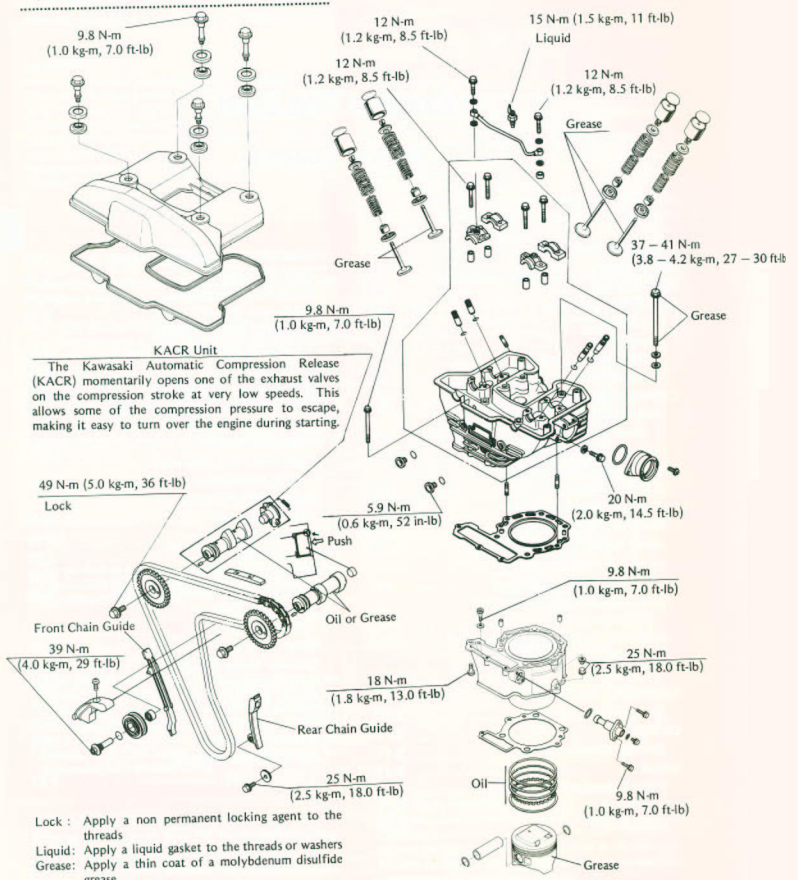
Exploded Views



Lock : Apply a non permanent locking agent to the threads
Liquid: Apply a liquid gasket to the threads or washers
Grease: Apply a thin coat of a molybdenum disulfide grease
Oil: Apply engine oil

Service Data

Item		Standard	Service Limit	See Page
Camshafts, Chain:				
Inlet Cam Height		36.63 – 36.77 mm	36.53 mm	– – –
Exhaust Cam Height		36.23 – 36.37 mm	36.13 mm	– – –
Camshaft bearing oil clearance		0.030 – 0.072 mm	0.16 mm	3-10
Camshaft jornal diameter		22.949 – 22.970 mm (In. Ex.)	22.92 mm	
Camshaft bearing inside diameter		23.000 – 23.021 mm (In. Ex.)	23.08 mm	
Camshaft chain 20-link length		127.0 – 127.4 mm	128.9 mm	3-10
Balancer chain 20-link length		190.5 – 191.0 mm	193.5 mm	
Valves:				
Valve clearance:				
	Inlet	0.10 – 0.20 mm	– – –	3-12
	Exhaust	0.15 – 0.25 mm		
Valve head thickness:				
	Inlet	0.85 – 1.15 mm	0.7 mm	– – –
	Exhaust	0.85 – 1.15 mm	0.7 mm	– – –
Valve stem bend		Less than 0.01 mm TIR	0.05 mm TIR	– – –
Valve stem diameter:				
	Inlet	6.965 – 6.980 mm	6.95 mm	– – –
	Exhaust	6.955 – 6.970 mm	6.94 mm	
Valve guide inside diameter		7.000 – 7.015 mm	7.08 mm	
Valve guide/valve clearance (wobble method):				
	Inlet	0.04 – 0.11 mm	0.24 mm	3-17
	Exhaust	0.05 – 0.12 mm	0.24 mm	
Valve seating area outside diameter	Inlet	37 mm	– – –	3-16
	Exhaust	32 mm	– – –	
Valve seating area width		0.8 – 1.2 mm	– – –	
Valve spring free length:				
	Inner	37.0 – 37.6 mm	36.7 mm	– – –
	Outer	41.5 – 42.2 mm	40.0 mm	– – –
Cylinder Head:				
Cylinder compression		920 – 1,280 kPa (9.4 – 13 kg/cm² 134 – 185 psi)	– – –	3-17
Cylinder head warp		– – –	0.05 mm	3-19