

## MODEL APPLICATION

Year	Model	Beginning Frame No.
1993	ZX1100-D1	JKAZXBD1□PA000001, or JKAZXBD1□PB500001, or ZXT10D-000001
1994	ZX1100-D2	JKAZXBD1□RA020001, or JKAZXBD1□RB502701, or ZXT10D-020001
1995	ZX1100-D3	JKAZXBD1□SA032001, or JKAZXBD1□SB505101, or ZXT10D-032001
1996	ZX1100-D4	JKAZXBD1□TA039001, or JKAZXBD1□TB506951, or ZXT10D-039001
1997	ZX1100-D5	JKAZXBD1□VA045001, or JKAZXBD1□VB509101, or ZXT10D-045001
1999	ZX1100-D7	JKAZXBD1□XA058001, or JKAZXBD1□XB511201, or JKAZXT10D DA058001
2000	ZX1100-D8	JKAZXBD1□YA069001, or JKAZXBD1□XB512201, or
2001	ZX1100-D9	JKAZXBD1□1A075001, or JKAZXBD1□1B512801, or JKAZXT10D DA095001

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



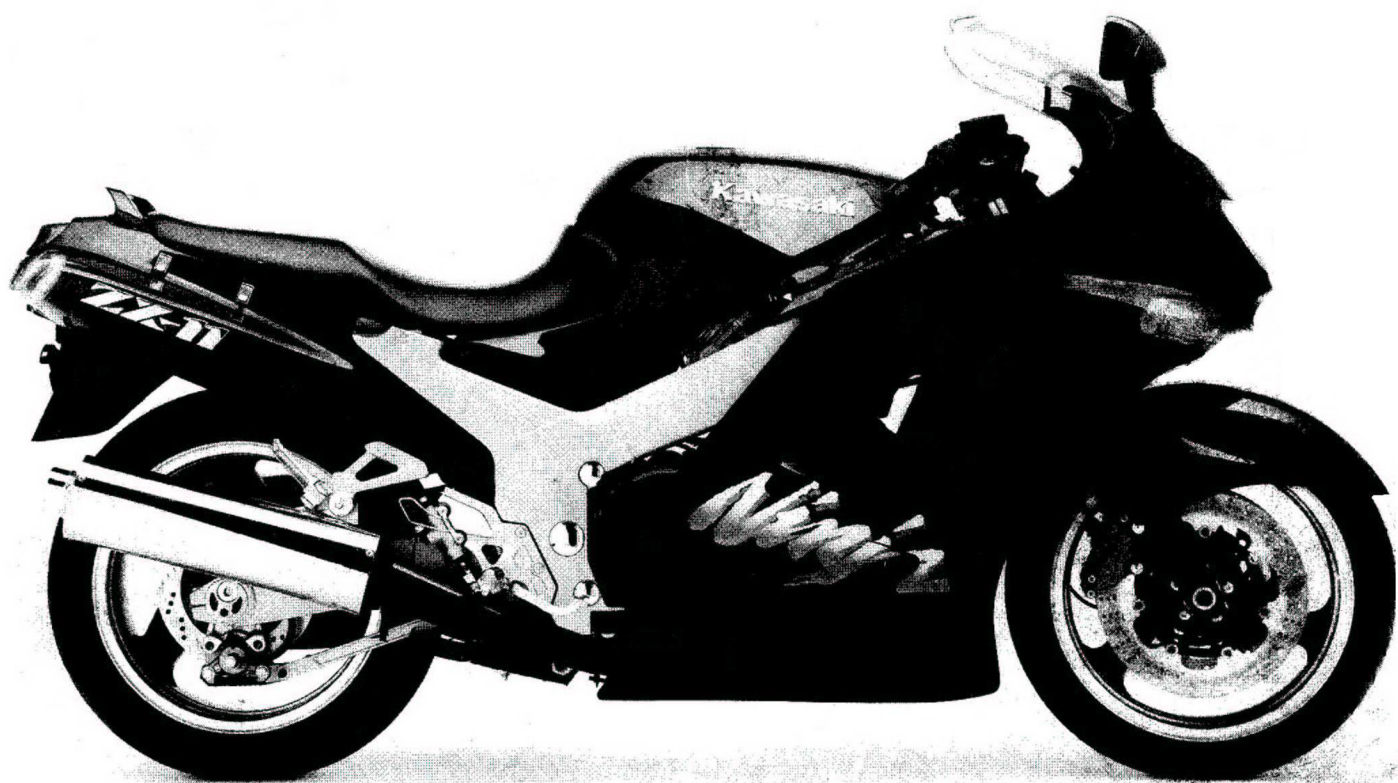
KAWASAKI HEAVY INDUSTRIES, LTD.  
Consumer Products & Machinery Group

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**Ninja ZX-11  
ZZ-R1100**



**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.

# Foreword

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.

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## How to Use This Manual

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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 four 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 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.

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.

# General Information

## Table of Contents

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## 1-2 GENERAL INFORMATION

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### Before Servicing

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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, start them all in their holes and tighten them 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 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 and Needle Bearing

Do not remove any ball or needle bearings that are pressed in unless it is necessary. If they are removed, replace them with new ones.

When installing a bearing, press it in with the marked side facing out using a suitable driver until it is bottomed. Bearings should be pressed into place by pushing evenly the bearing race which is affected by friction.



(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 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.

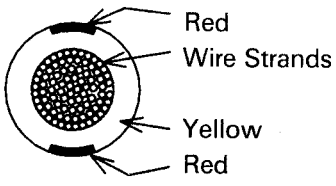
(16) Lubrication

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) Specifications

Specification terms are defined as follows:

"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.



## 1-6 GENERAL INFORMATION

### General Specifications

Items	ZX1100-D1, D2, D3
<b>Dimensions:</b> Overall length Overall width Overall height Wheelbase Road clearance Seat height Dry mass Curb mass:     Front Rear Fuel tank capacity	2 165 mm, (G) (N) (S) (Sw) 2 180 mm 730 mm 1 205 mm 1 495 mm, D3:(G) (F) (UK) (Gr) (N) 1 500 mm 110 mm 780 mm 233 kg, (Cal) 233.5 kg 130 kg 139 kg, (Cal) 139.5 kg 24.0 L
<b>Performance:</b> Minimum turning radius	3.0 m
<b>Engine:</b> Type Cooling system Bore and stroke Displacement Compression ratio Maximum horsepower  Maximum torque  Carburetion system Starting system Ignition system Timing advance Ignition timing	4-stroke, DOHC, 4-cylinder Liquid-cooled 76.0 x 58.0 mm 1052 mL 11.0 108 kW (147 PS) @10 500 r/min (rpm), (Ar) 74 kW (100 PS) @9 000 r/min (rpm), (F) 75.1 kW (-) @8 500 r/min (rpm) (UTAC'S norm), D3 : (F) 75.1 kW (-) @8 400 r/min (rpm) (UTAC'S norm), (S) 55 kW (75 PS) @6 000 r/min (rpm), (Sw) 68 kW (92 PS) @8 500 r/min (rpm), (U) - , (UK) 92 kW(-) @9 500 r/min (rpm) (ISO4106), (G) 74 kW (100 PS) @9 000 r/min (rpm) (DIN) 110 N-m(11.2 kg-m, 81 ft-lb) @8 500 r/min(rpm), (Ar) 90 N-m (9.2 kg-m, 67 ft-lb) @7 000 r/min (rpm), (F)(U)(UK) - , (S) 90 N-m (9.2 kg-m, 67 ft-lb) @5 500 r/min (rpm), (Sw) 86 N-m (8.8 kg-m, 64 ft-lb) @4 500 r/min (rpm), (G) 90 N-m (9.2 kg-m, 67 ft-lb) @7 000 r/min (rpm) (DIN) Carburetors, Keihin CVK-D 40 x 4 Electric starter Battery and coil (transistorized) Electronically advanced From 10° BTDC @1 000 r/min (rpm) to 40° BTDC @6 000 r/min (rpm) (Cal) From 7.5° BTDC @1 200 r/min (rpm) to 40° BTDC @6 000 r/min (rpm), (S) From 7.5° BTDC @1 300 r/min (rpm) to 40° BTDC @6 000 r/min (rpm) (U) From 7.5° BTDC @1 000 r/min (rpm) to 40° BTDC @6 000 r/min (rpm)

Items	ZX1100-D1, D2, D3
Spark plug Cylinder numbering method Firing order Valve timing: Inlet                      Open Close Duration Exhaust                 Open Close Duration Lubrication system Engine oil: Grade Viscosity Capacity	NGK CR9E or ND U27ESR-N Left to right, 1-2-3-4 1-2-4-3 40° BTDC,(F) 20° 70° ABDC,(F) 50° 290°           (F) 250° 63° BBDC,(F) 45° 43° ATDC,(F) 25° 286°           (F) 250° Forced lubrication (wet sump with cooler) SE, SF, or SG class SAE10W-40, 10W-50, 20W-40, or 20W-50 3.5 L
<b>Drive Train:</b> Primary reduction system: Type Reduction ratio Clutch type Transmission: Type Gear ratios:   1st 2nd 3rd 4th 5th 6th Final drive system: Type Reduction ratio Overall drive ratio	Gear 1.637 (95/58) Wet multi disc 6-speed, constant mesh, return shift 2.800 (42/15) 2.055 (37/18) 1.590 (35/22) 1.333 (32/24) 1.153 (30/26) 1.035 (29/28) Chain drive 2.647 (45/17), D3:(G) (F) (UK) (Gr) (N) 2.588 (44/17) 4.490 @Top gear, D3:(G) (F) (UK) (Gr) (N) 4.390 @Top gear
<b>Frame:</b> Type Caster (rake angle) Trail Front tire:        Type Size Rear tire:        Type Size Front suspension: Type Wheel travel Rear suspension: Type Wheel travel Brake type:      Front Rear	Tubular, double cradle 26.5° 107 mm Tubeless 120/70 ZR17 Tubeless 180/55 ZR17 Telescopic fork 120 mm Swing arm (uni-trak) 112 mm Deal disc Single disc

## 1-8 GENERAL INFORMATION

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Items	ZX1100-D1, D2, D3
<b>Electrical Equipment:</b>	
Battery	12 V 12 Ah
Headlight:       Type	Semi-sealed beam
Bulb	12V60/55W (quartz-halogen)
Tail/brake light	12 V 5/21 W × 2 (C)(Cal)(U) 12V8/27W × 2
Alternator:       Type	Three-phase AC
Rated output	28.6 A @6 000 r/min (rpm), 14 V

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

(AS) : Australian Model

(Ar) : Austrian Model

(C) : Canada model

(Cal) : California Model

(F) : France Model

(G) : Germany Model

(Gr) : Greece Model

(I) : Italy Model

(N) : Norway Model

(S) : Switzerland

(SA) : South Africa Model

(Sw) : Sweden Model

(U) : US Model

(UK) : UK 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 →							† ODOMETER READING							
		Every	800 km	5000 km	10000 km	15000 km	20000 km	25000 km	30000 km	800 km	5000 km	10000 km	15000 km	20000 km	25000 km	30000 km
Spark plug – clean			•	•	•	•	•	•								
Spark plug – check*			•	•	•	•	•	•								
Valve clearance – check*		•		•											•	
Air suction valve – check*			•	•	•	•	•	•								
Air cleaner element and air vent filter – clean		•		•											•	
Air cleaner element and air vent filter – replace	5 cleaning							•								
Throttle grip play--check*		•		•				•							•	
Idle speed – check*		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Engine vacuum synchronization -check *		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Fuel system--check *				•				•						•		
Coolant – change	2 years													•		
Evaporative emission control system (Cal) – check*		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Engine oil – change	year	•		•				•						•		
Oil filter –replace		•		•				•						•		
Radiator hoses, connections – check*	year	•		•				•						•		
Fuel filter – replace			•		•				•							
Fuel hose – replace	4 years															
Clutch fluid level – check *	month	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Clutch fluid – change	2 years								•							
Clutch hose and pipe – replace	4 years															
Clutch master cylinder cup and dust seal –replace	2 years															
Clutch slave cylinder piston seal – replace	2 years															
Drive chain wear –check *			•	•	•	•	•	•	•	•	•	•	•	•	•	•
Drive chain –lubricate	300 km															
Drive chain slack – check *	800 km															
Brake pad wear –check*			•	•	•	•	•	•	•	•	•	•	•	•	•	•
Brake fluid level – check*	month	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Brake fluid – change	2 years								•							
Brake hose – replace	4 years															
Brake master cylinder cup and dust seal – replace	2 years															
Caliper piston seal and dust seal – replace	2 years															
Brake light switch – check*		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Steering – check*		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Steering stem bearing – lubricate	2 years								•							
Front fork oil – change														•		
Tire wear – check*			•	•	•	•	•	•	•	•	•	•	•	•	•	•
Swing arm pivot, uni-trak linkage – lubricate				•				•						•		
Battery electrolyte level – check*	month	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
General lubrication – perform			•	•	•	•	•	•	•	•	•	•	•	•	•	•
Nuts, bolts, and fasteners tightness – check*		•		•				•					•			

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

# 1-10 GENERAL INFORMATION

## Torque and Locking Agent

The following table list the tightening torque for the major fasteners, and the parts requiring use of a non-permanent locking agent or liquid gasket.

Letters used in the "Remarks" column mean:

L : Apply a non-permanent locking agent to the threads.

O : Apply an oil to the threads, seated surface, or washer.

S : Tighten the fasteners following the specified sequence.

SS: Apply silicone sealant to the threads.

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
<b>Cooling System:</b>				
Fan switch	18	1.8	13.0	
Water temperature sensor	15	1.5	11.0	SS
Bleed valve	7.8	0.80	69 in-lb	
Water pump cover bolts	9.8	1.0	87 in-lb	
Water pump drain plug	9.8	1.0	87 in-lb	
<b>Engine Top End:</b>				
Camshaft cap bolts	12	1.2	104 in-lb	S
Rocker shaft end bolts	25	2.5	18.0	
Oil hose fitting	22	2.2	16.0	
Oil hose banjo bolt	25	2.5	18.0	
Carburetor holder bolts	12	1.2	104 in-lb	L
Cylinder head bolts:	11 mm dia.	51	38	O,S
	10 mm dia.	39	29	O,S
	6 mm dia.	9.8	87 in-lb	
Cylinder bolts	15	1.5	11.0	
Upper chain guide mounting bolt	-	-	-	L
Rear chain guide mounting bolts	20	2.0	14.5	L
Chain tensioner mounting bolts	9.8	1.0	87 in-lb	
Camshaft sprocket bolts	15	1.5	11.0	L
<b>Clutch:</b>				
Clutch hose banjo bolts	25	2.5	18.0	
Clutch pipe nipple	18	1.8	13.0	
Clutch lever pivot nut	5.9	0.60	52 in-lb	
Clutch master cylinder clamp bolts	11	1.1	95 in-lb	S
Clutch slave cylinder bolts	-	-	-	L(2)
Bleed valve	7.8	0.80	69 in-lb	
Right cover bolts	-	-	-	L(4)
Right cover damper bolts	-	-	-	L
Clutch spring bolts	11	1.1	95 in-lb	
Clutch hub nut	130	13.5	98	
<b>Engine Lubrication System:</b>				
Oil hose banjo bolts (14 mm dia.):	Cooler side	25	18.0	
	Oil pan side	34	25	
Oil hose banjo bolt(8 mm dia.)	15	1.5	11.0	
Oil pan bolts	-	-	-	L(4)
Drain plugs	29	3.0	22	
Oil pressure switch	15	1.5	11.0	SS
Oil pan plug	20	2.0	14.5	L
Crankcase main oil passage plug	18	1.8	13.0	
Crankcase plug	18	1.8	13.0	

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Oil pipe banjo bolts(12 mm dia.)	25	2.5	18.0	
Oil pimp gear holder screws	-	-	-	L
Oil pump mounting bolts	12	1.2	104 in-lb	L
Oil filter bolt	20	2.0	14.5	
<b>Engine Removal/Installation:</b>				
Engine mounting nuts      8 mm	20	2.0	14.5	
10 mm	44	4.5	33	
Down tube mounting bolts	44	4.5	33	
<b>Crankshaft/Transmission:</b>				
Crankshaft cap bolts	32	3.3	24	
Balancer shaft guide pin plate bolt	-	-	-	L
Balancer shaft clamp lever mounting bolt	-	-	-	L
Alternator shaft chain tensioner bolts	-	-	-	L
Crankcase bolts:      9 mm dia.	32	3.3	24	S
8 mm dia.	27	2.8	20	
7 mm dia.	18	1.8	13.0	
6 mm dia.	15	1.5	11.0	
Connecting rod big end cap nuts				See p.8-11
Alternator shaft chain sprocket bolt	25	2.5	18.0	
Alternator shaft nut	59	6.0	43	
Alternator shaft bolt	25	2.5	18.0	
One-way clutch bolts	12	1.2	104 in-lb	L
Shift drum bearing holder bolts	-	-	-	L
External shift mechanism return spring pin	29	3.0	22	L
External shift mechanism cover bolts	9.8	1.0	87 in-lb	L(4)
Neutral switch	15	1.5	11.0	
<b>Wheels/Tires:</b>				
Front axle nut	145	15.0	110	
Front axle clamp bolts	20	2.0	14.5	
Rear axle nut	110	11.0	80	
<b>Final Drive:</b>				
Engine sprocket nut	125	13.0	94	
Engine sprocket cover damper bolts	-	-	-	L
Rear sprocket nuts	74	7.5	54	
Rear sprocket studs	-	-	-	L
Chain adjuster clamp bolts	39	4.0	29	
<b>Brakes:</b>				
Brake lever pivot nut	8.8	0.90	78 in-lb	
Front master cylinder clamp bolts	11	1.1	95 in-lb	S
Brake hose banjo bolts	25	2.5	18.0	
Bleed valves	7.8	0.80	69 in-lb	
Caliper mounting bolts      : Front	34	3.5	25	
: Rear	25	2.5	18	
Front caliper assembly bolts	21	2.1	15.0	
Brake disc mounting bolts	23	2.3	16.5	
Brake pedal pivot bolt	8.8	0.90	78 in-lb	
Rear master cylinder mounting bolts	23	2.3	16.5	
Push rod nut	18	1.8	13.0	
Torque link bolts/nut	25	2.5	18.0	

## 1-12 GENERAL INFORMATION

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
<b>Suspension:</b>				
Front fork top plugs	23	2.3	16.5	
Front fork clamp bolts(Upper)	28	2.9	21	
Front fork clamp nuts(Lower)	21	2.1	15.0	
Front fork bottom Allen bolts	61	6.2	45	L
Front axle clamp bolts	20	2.0	14.5	
Rear shock absorber mounting nuts	59	6.0	43	
Swing arm pivot nut	88	9.0	65	
Rocker arm pivot nut	59	6.0	43	
Tie-rod bolts	59	6.0	43	
<b>Steering:</b>				
Handlebar weight bolts	-	-	-	L
Handlebar holder bolts	20	2.0	14.5	
Steering stem head nut	39	4.0	29	
Steering stem nut	4.9	0.50	43 in-lb	
<b>Frame:</b>				
Downtube bolts	44	4.5	33	
Side stand switch screws	-	-	-	L
Center stand spring hook bolts	-	-	-	L
Side stand bracket mounting bolts	49	5.0	36	L
Side Stand Bolt	34	3.5	25	
<b>Electrical System:</b>				
Spark plugs	14	1.4	10.0	
Pickup coil cover bolts	-	-	-	L(2)
Timing rotor bolt	25	2.5	18.0	
Pickup coil holder bolts	-	-	-	L
Alternator mounting bolts	25	2.5	18.0	
Alternator coupling bolts	9.8	1.0	87 in-lb	
Alternator cover nuts	4.4	0.45	39 in-lb	
Alternator cover studs	8.8	0.90	78 in-lb	

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.

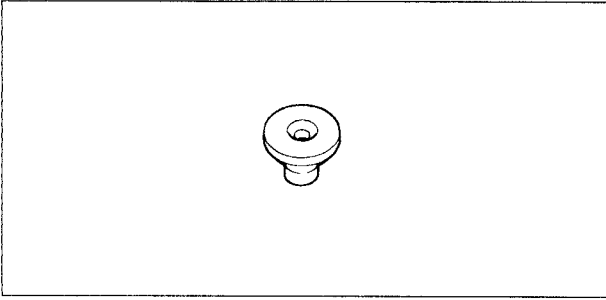
**Basic Torque for General Fasteners**

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 ~ 25.0
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

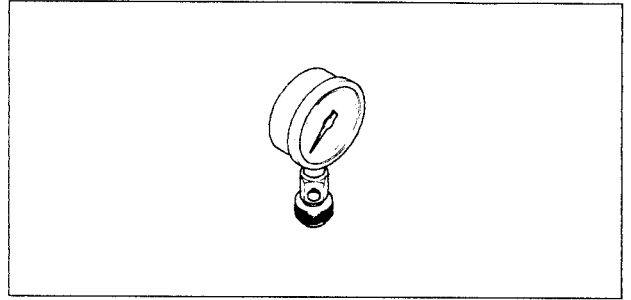


Special Tools and Sealant

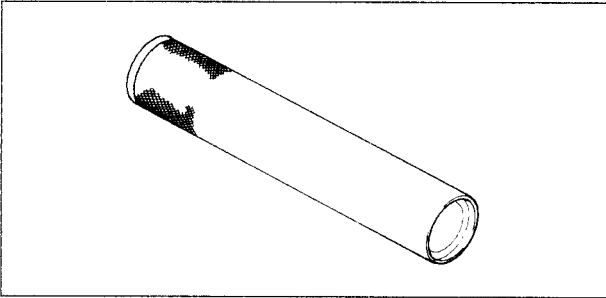
Bearing Puller Adapter: 57001-136



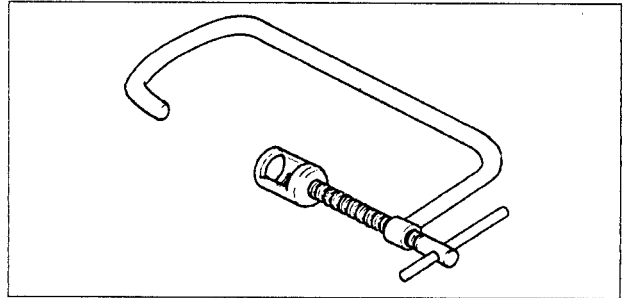
Compression Gauge: 57001-221



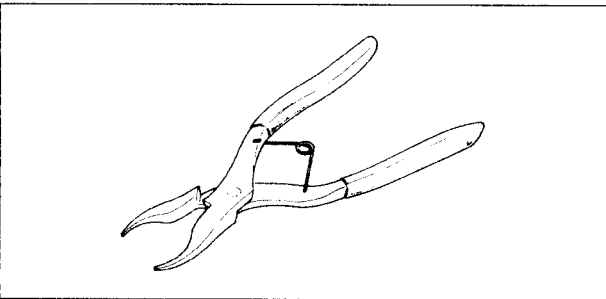
Steering Stem Bearing Driver: 57001-137



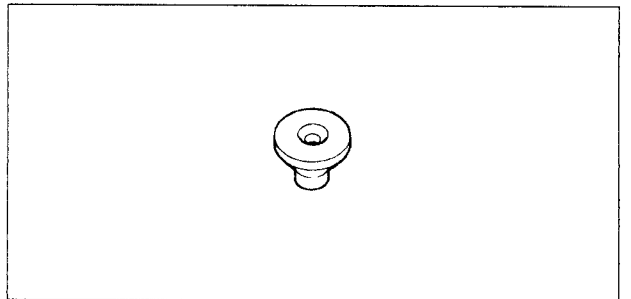
Valve Spring Compressor Assembly: 57001-241



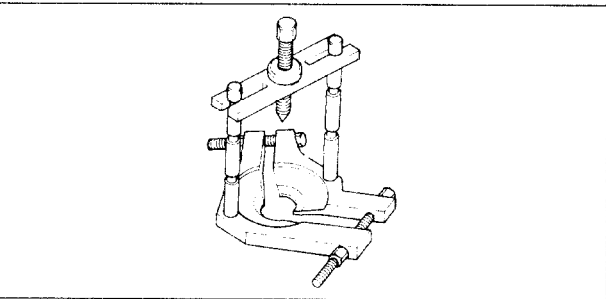
Inside Circlip Pliers: 57001-143



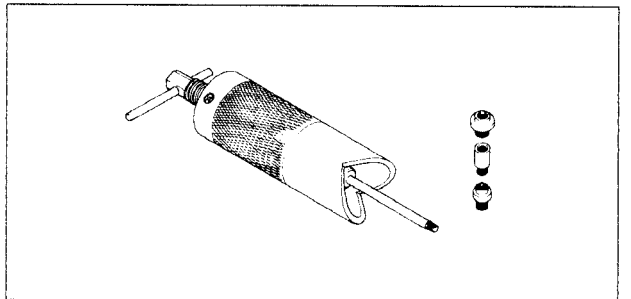
Bearing Puller Adapter: 57001-317



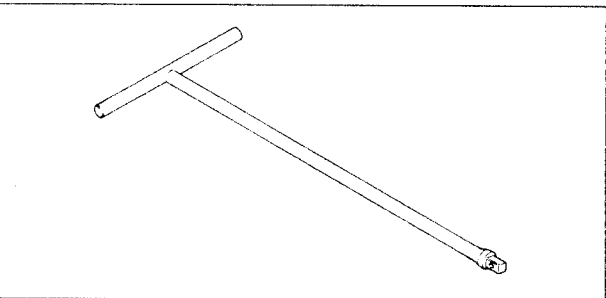
Bearing Puller: 57001-158



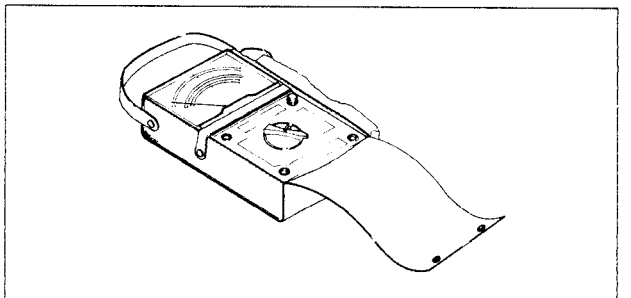
Piston Pin Puller Assembly: 57001-910



Fork Cylinder Holder Handle: 57001-183

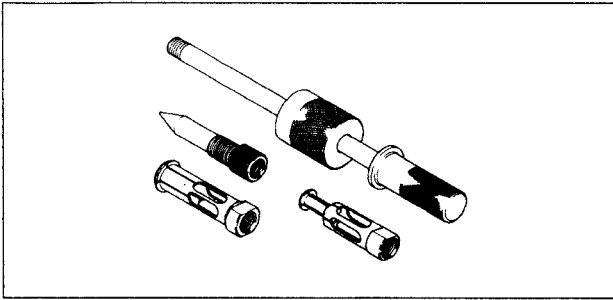


Hand Tester: 57001-983

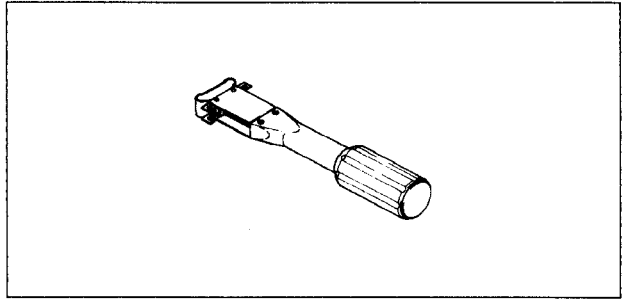


# 1-14 GENERAL INFORMATION

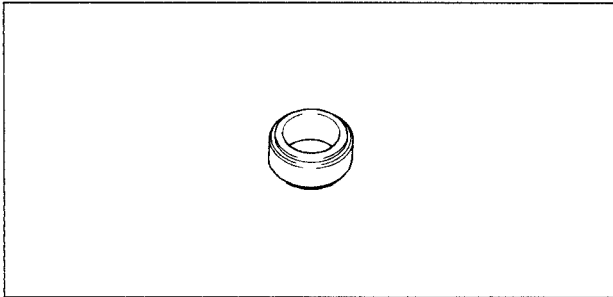
Oil Seal & Bearing Remover: 57001-1058



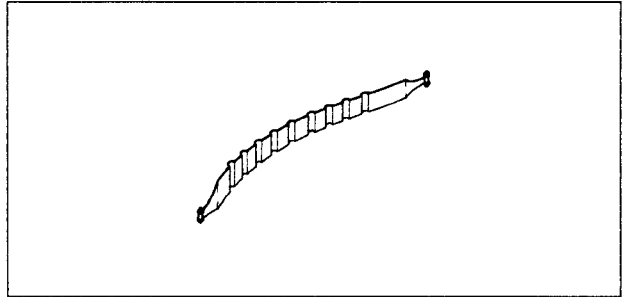
Piston Ring Compressor Grip: 57001-1095



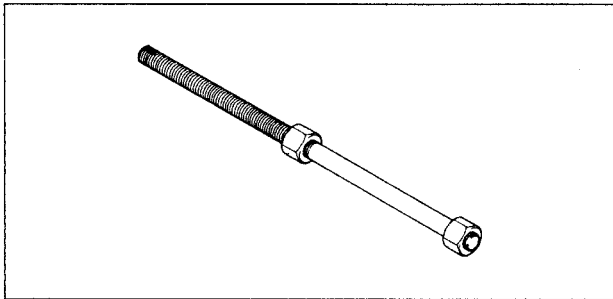
Steering Stem Bearing Driver Adapter: 57001-1074



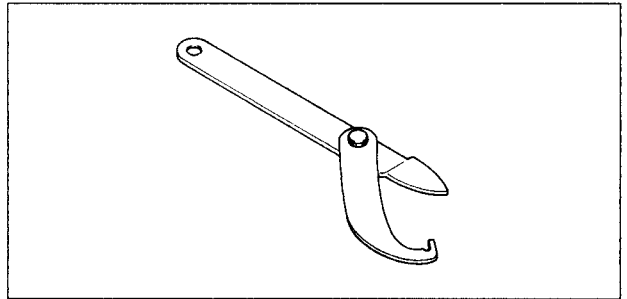
Piston Ring Compressor Belt,  $\phi 67 \sim \phi 79$ : 57001-1097



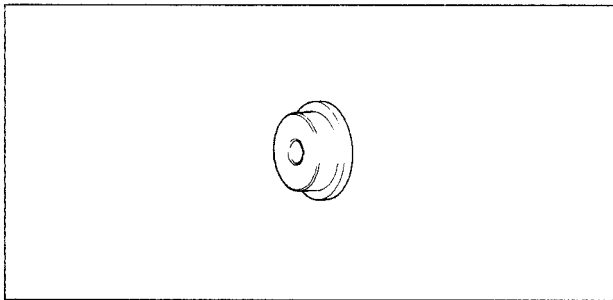
Head Pipe Outer Race Press Shaft: 57001-1075



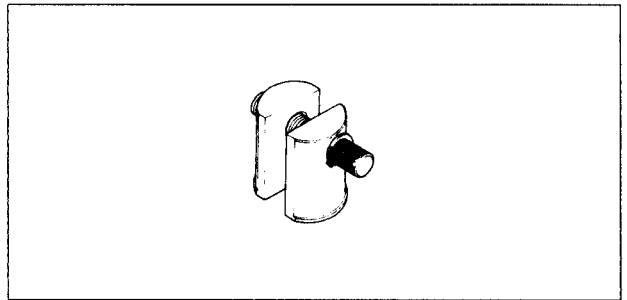
Steering Stem Nut Wrench: 57001-1100



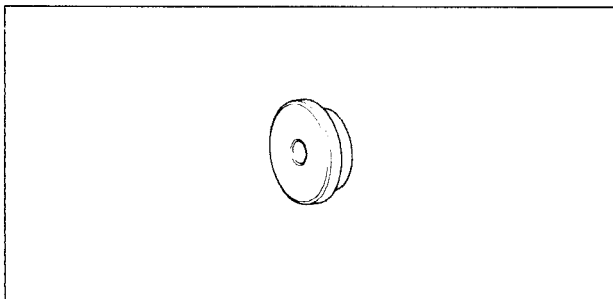
Head Pipe Outer Race Driver: 57001-1076



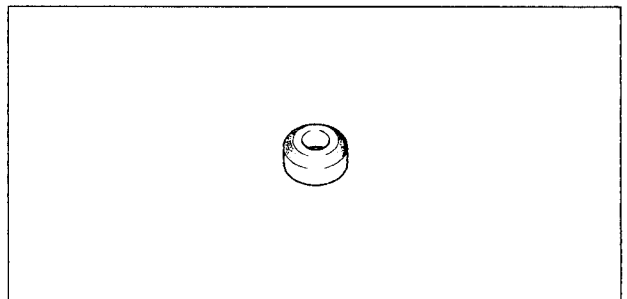
Head Pipe Outer Race Remover: 57001-1107



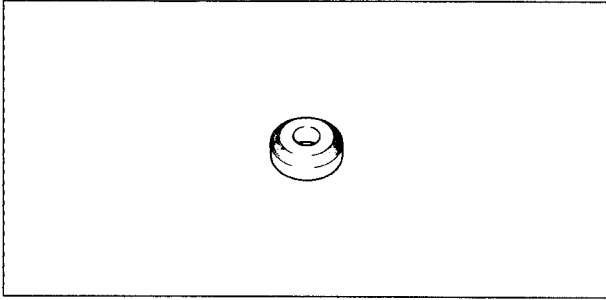
Head Pipe Outer Race Driver: 57001-1077



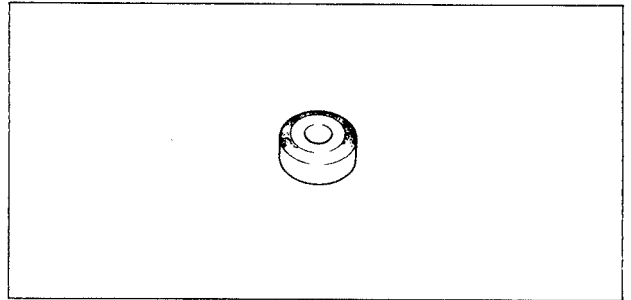
Valve Seat Cutter,  $45^\circ - \phi 27.5$ : 57001-1114



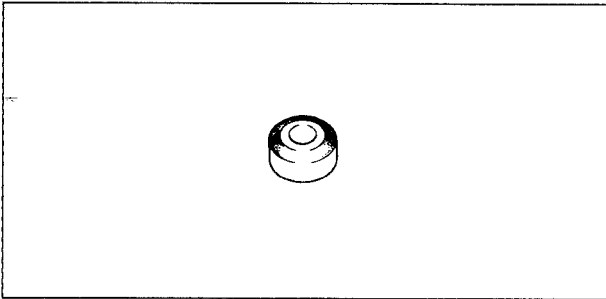
Valve Seat Cutter, 45° –  $\phi$ 32: 57001-1115



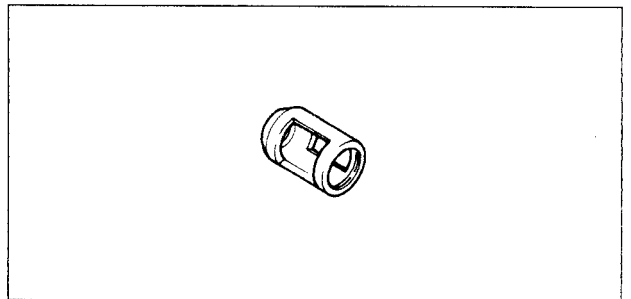
Valve Seat Cutter, 32° –  $\phi$ 33: 57001-1199



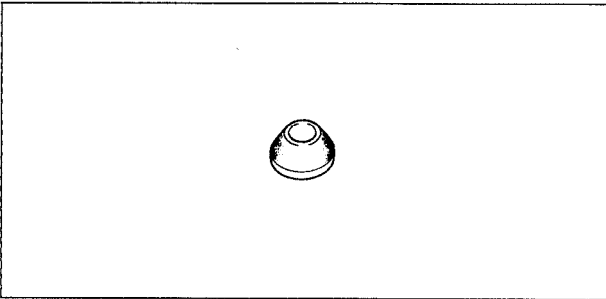
Valve Seat Cutter, 32° –  $\phi$ 30: 57001-1120



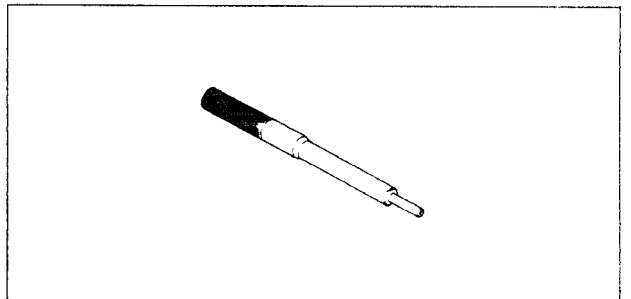
Valve Spring Compressor Adapter,  $\phi$ 22: 57001-1202



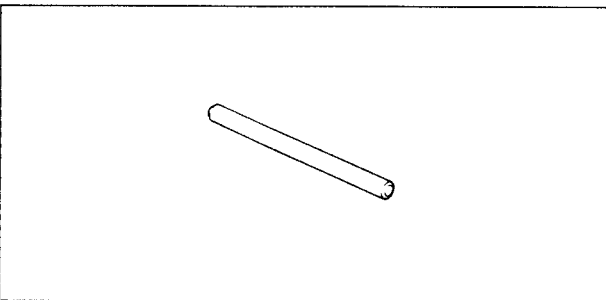
Valve Seat Cutter, 60° –  $\phi$ 30: 57001-1123



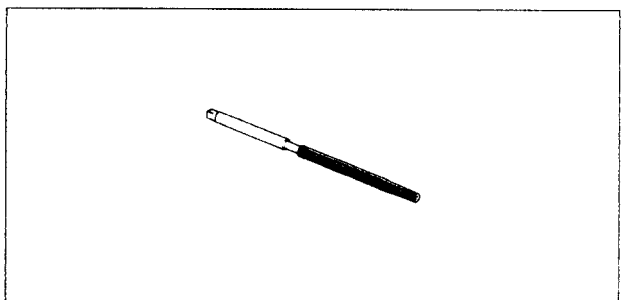
Valve Guide Arbor,  $\phi$ 5: 57001-1203



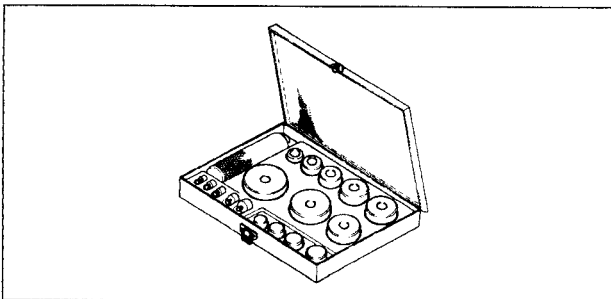
Valve Seat Cutter Holder Bar: 57001-1128



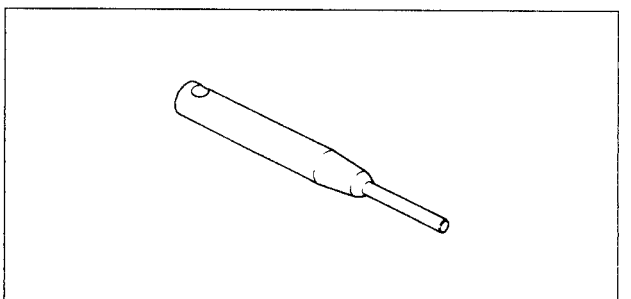
Valve Guide Reamer,  $\phi$ 5: 57001-1204



Bearing Driver Set: 57001-1129

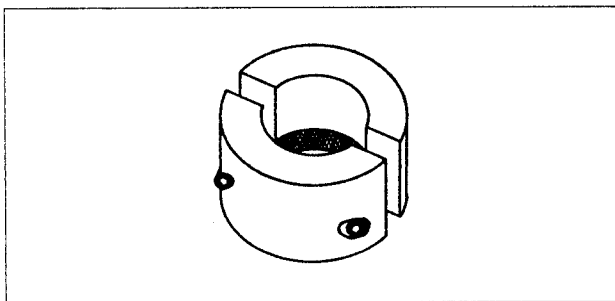


Valve Seat Cutter Holder,  $\phi$ 5: 57001-1208

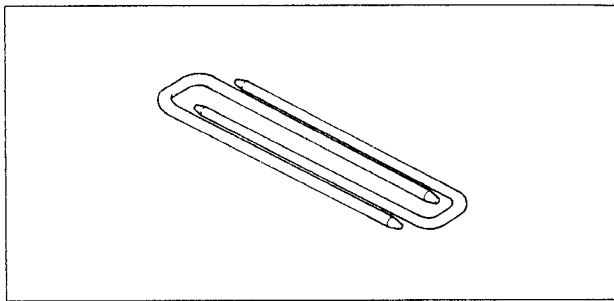


## 1-16 GENERAL INFORMATION

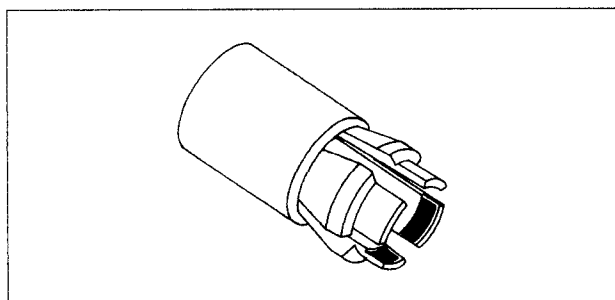
Fork Outer Tube Weight: 57001-1218



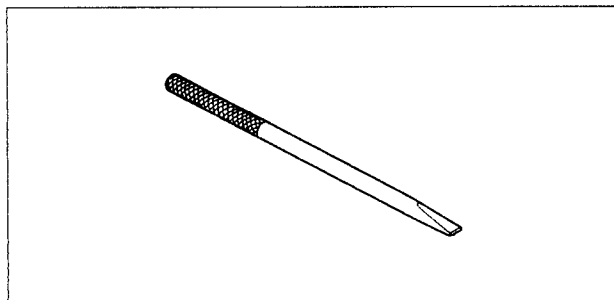
Piston Base,  $\phi 6$ : 57001-1263



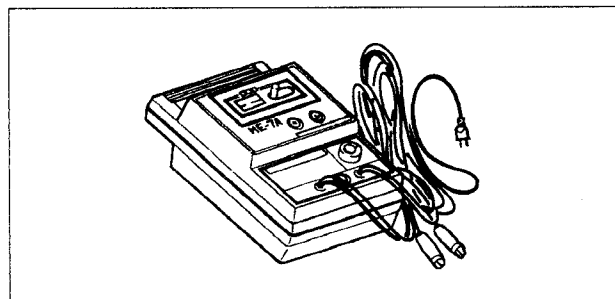
Front Fork Oil Seal Driver: 57001-1219



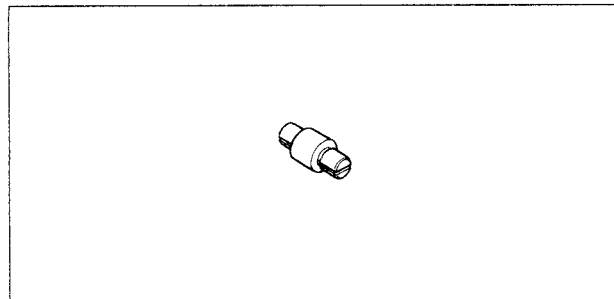
Bearing Remover Shaft: 57001-1265



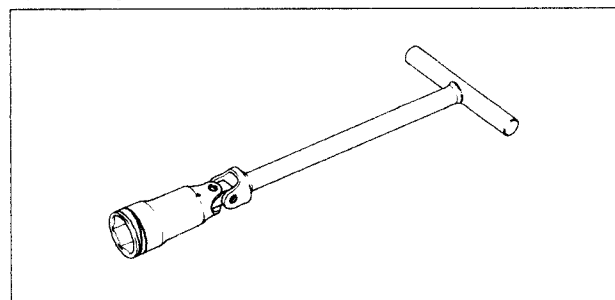
Coil Tester: 57001-1242



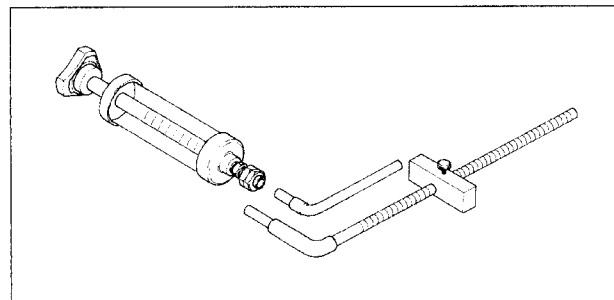
Bearing Remover Head,  $\phi 15 \times \phi 17$ : 57001-1267



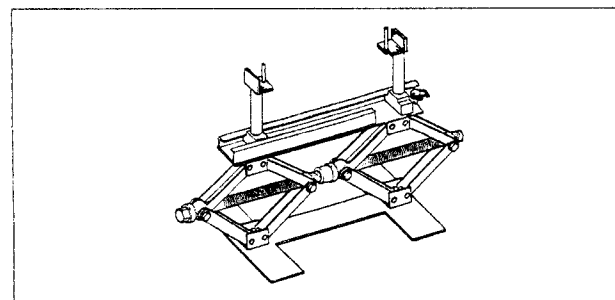
Spark Plug Wrench, Hex 16: 57001-1262



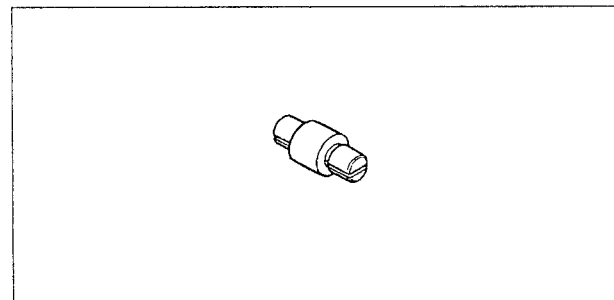
Fork Oil Level Gauge: 57001-1290



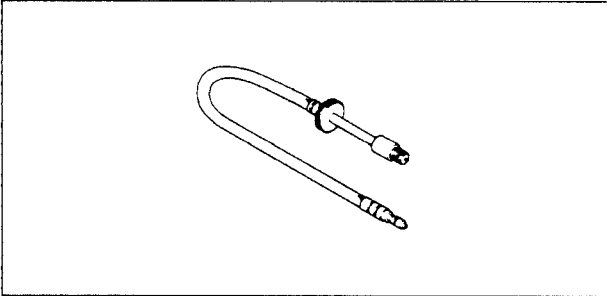
Jack: 57001-1238



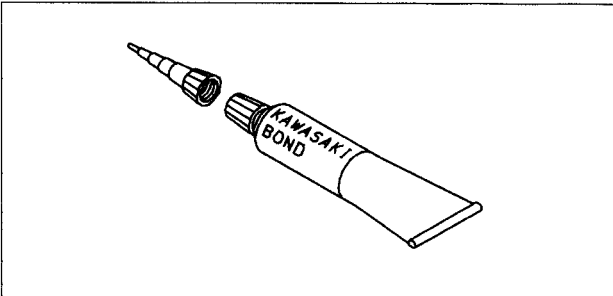
Bearing Remover Head,  $\phi 20 \times \phi 22$ : 57001-1293



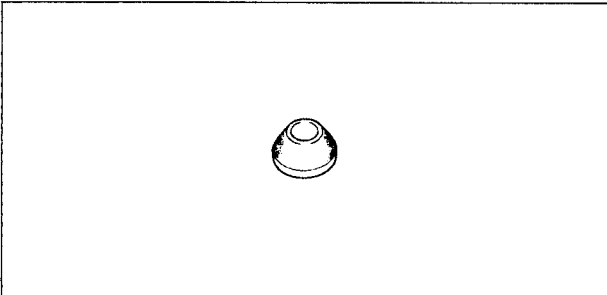
Compression Gauge Adapter, M10 X 1.0: 57001-1317



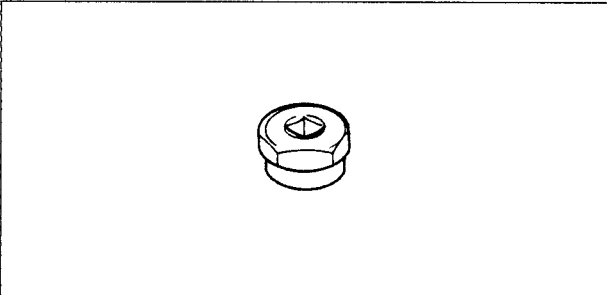
Kawasaki Bond (Liquid Gasket – Black): 92104-1003



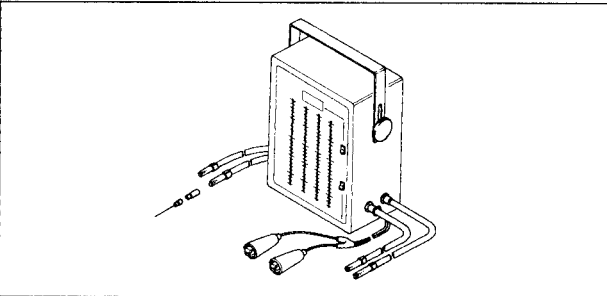
Valve Seat Cutter, 60° –  $\phi 33$ : 57001-1334



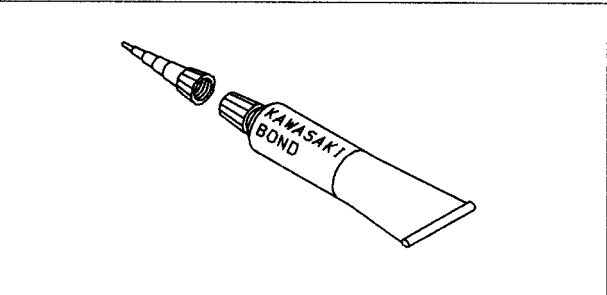
Hexagon Wrench, Hex 29: 57001-1335



Vacuum Gauge: 57001-1369



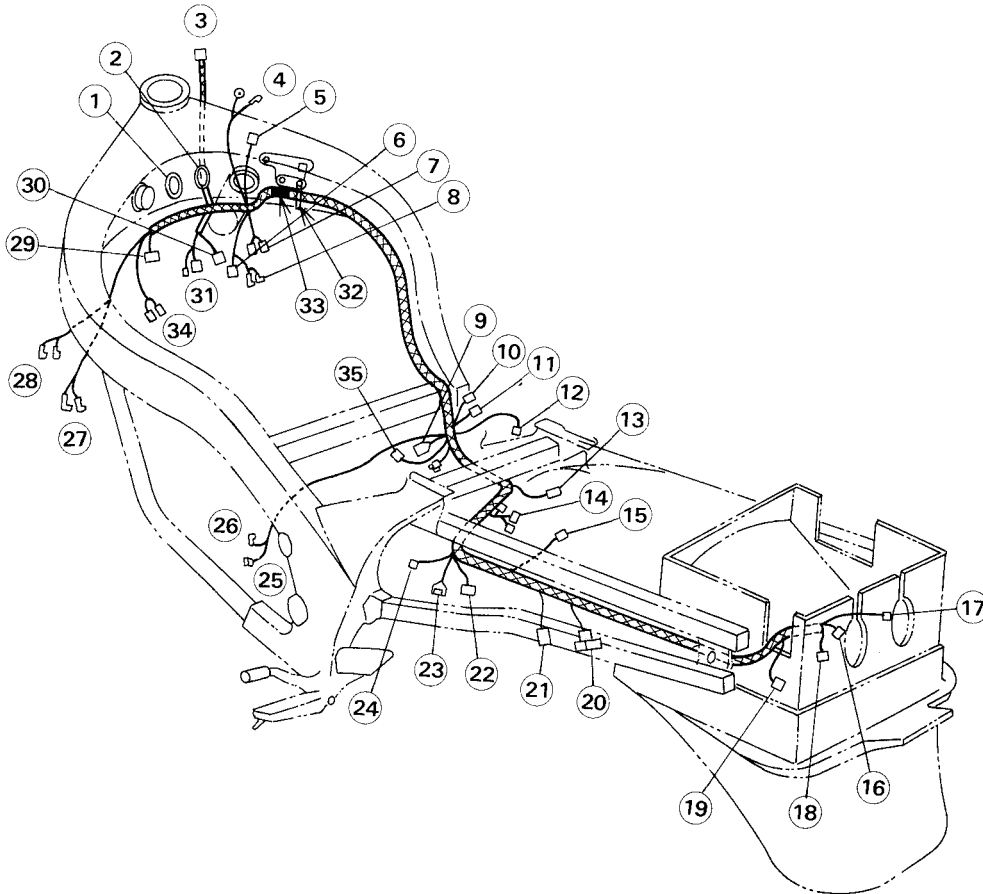
Kawasaki Bond (Silicone Sealant): 56019-120



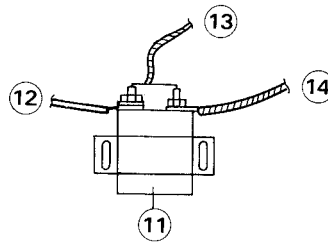
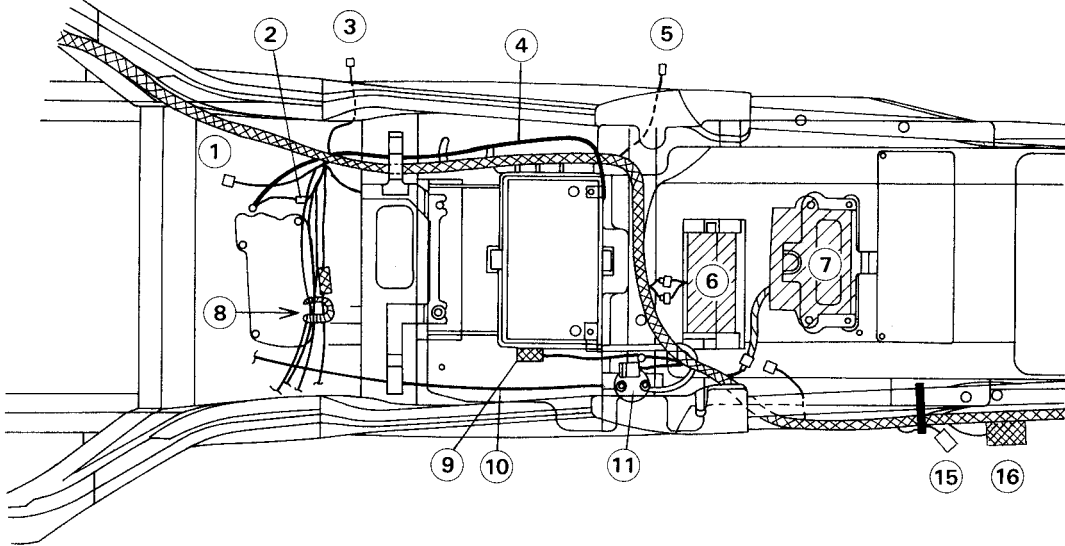
# 1-18 GENERAL INFORMATION

## Cable, Wire, and Hose Routing

1. Cables passing in Left Hole  
Throttle Cable  
Choke Cable  
Ignition Switch Leads  
Left Switch Case Leads
2. Cable passing in Right Hole  
Main Harness  
Right Switch Case Leads



- |                              |                            |  |
|------------------------------|----------------------------|--|
| 3. Main Harness              | 15. Fuel Level Gauge Lead  | 27. Cooling Fan Switch Lead                |
| 4. Water Temp. Sensor Leads  | 16. Tail/Brake Light Lead  | 28. Left Horn Lead                         |
| 5. Ground Lead               | 17. Right Turn Signal Lead | 29. Left Handlebar Switch Lead             |
| 6. Fan Motor Lead            | 18. Licence Light Lead     | 30. Right Handlebar Switch Lead            |
| 7. #2,3 Ignition Coil Leads  | 19. Left Turn Signal Lead  | 31. Ignition Switch Leads                  |
| 8. Right Horn Lead           | 20. Turn Signal Relay Lead | 32. Clamp                                  |
| 9. Alternator Lead           | 21. Rectifier Lead         | 33. White Color Tape Wound on Main Harness |
| 10. Pickup Coil Lead         | 22. IC Igniter Lead        | 34. #1, 4 Ignition Coil Leads              |
| 11. Battery (-) Lead         | 23. Starter Relay Lead     | 35. Fuel Pump Lead                         |
| 12. Oil Pressure Switch Lead | 24. Fuel pump Relay lead   |  |
| 13. Rear Brake Switch Lead   | 25. Side Stand Switch Lead |  |
| 14. Junction Box Lead        | 26. Neutral Switch Lead    |  |

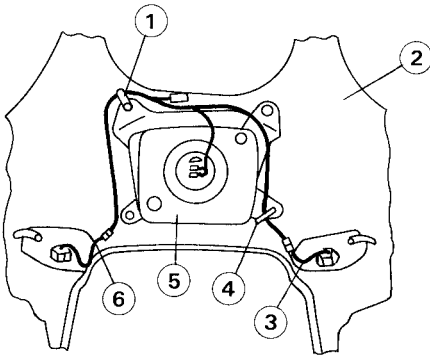


- 1. Fuel Pump Lead
- 2. Ground Lead
- 3. Oil Pressure Switch Lead
- 4. Battery (-) Lead
- 5. Rear Brake Switch Lead
- 6. Junction Box
- 7. Igniter

- 8. Clamp Following Leads
- Pickup Coil Lead
- Alternator Lead
- Neutral Switch Lead
- 9. Fuel Pump Relay
- 10. Starter Motor Lead
- 11. Starter Relay
- 12. To Starter Motor
- 13. Main Harness
- 14. Battery (+) Lead
- 15. Rectifier
- 16. Turn Signal Relay

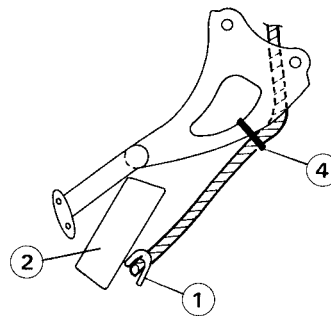
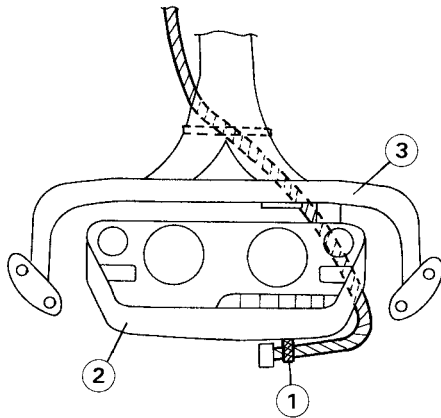


**Fairing Inside Harness Leads**



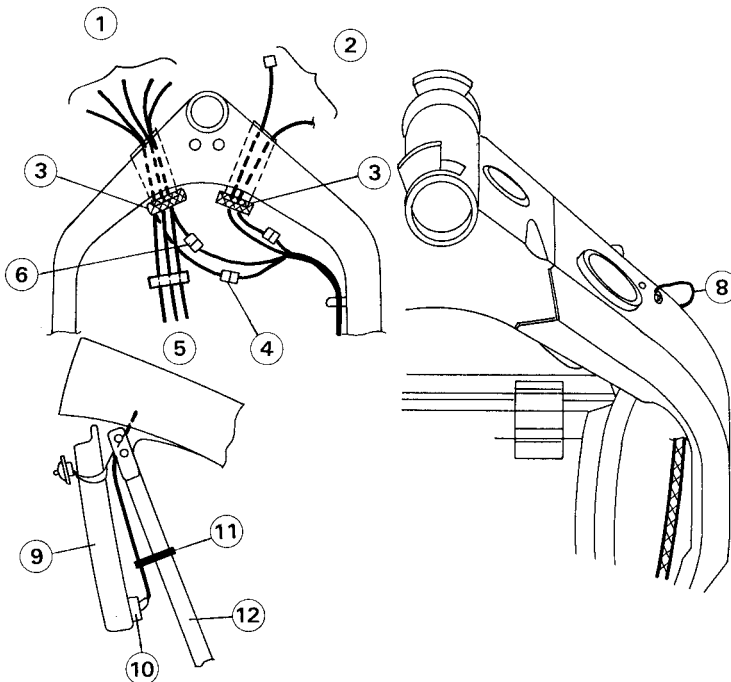
1. Clamp
2. Upper Fairing
3. Right Turn Signal Lead
4. Clamp
5. Headlight
6. Left Turn Signal Lead

**Speedometer Lead**

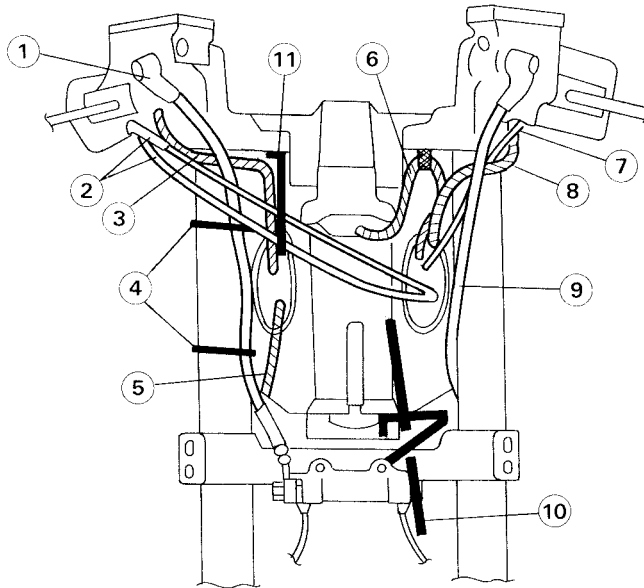


1. Clamp
2. Speedometer
3. Bracket
4. Band

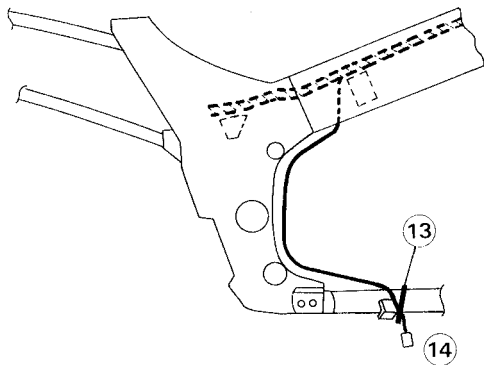
**Frame Front Part Leads**



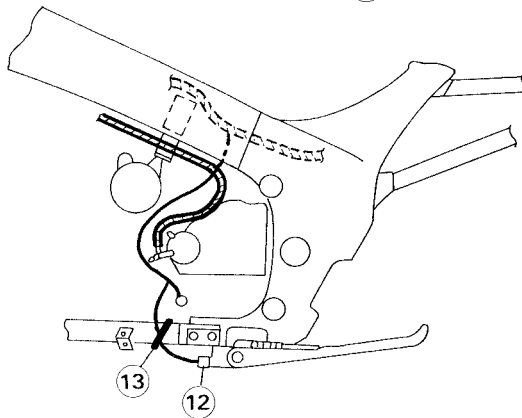
1. Cables passing in Left Hole  
Throttle Cable  
Choke Cable  
Ignition Switch Leads  
Left Handlebar Leads
2. Cable passing in Right Hole  
Main Harness  
Right Handlebar Leads
3. Guards
4. Ignition Switch Lead
5. Throttle and Choke Cables
6. Left Handlebar Switch Lead
7. Clamp
8. Ground Lead
9. Radiator
10. Fan Switch Lead
11. Band
12. Down Tube

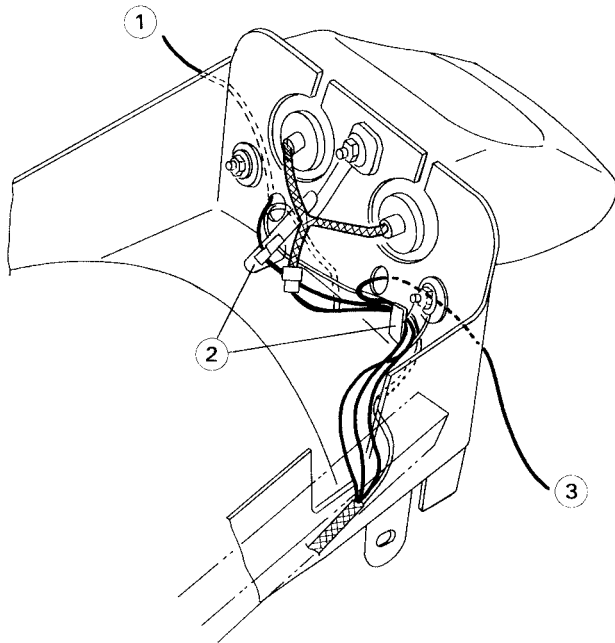


- 1. Front Brake Hose
- 2. Throttle Cables
- 3. Right Handlebar Switch Lead
- 4. Bands
- 5. Main Harness
- 6. Ignition Switch Lead
- 7. Choke Cable
- 8. Left Handlebar Switch Lead
- 9. Clutch Hose
- 10. Speedometer Cable
- 11. Clamp



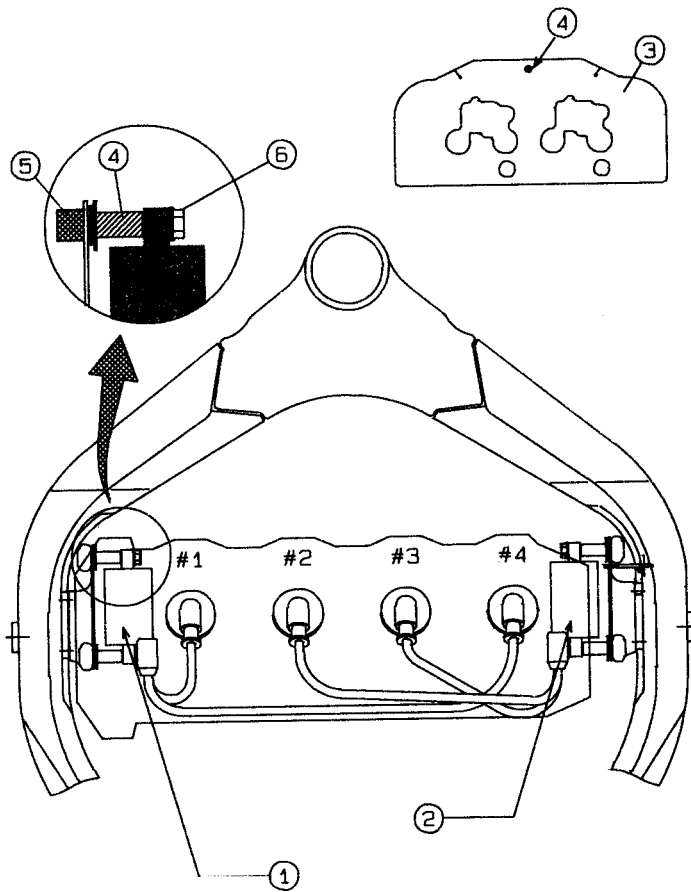
- 12. Side Stand Switch
- 13. Band
- 14. Oil Pressure Switch Lead





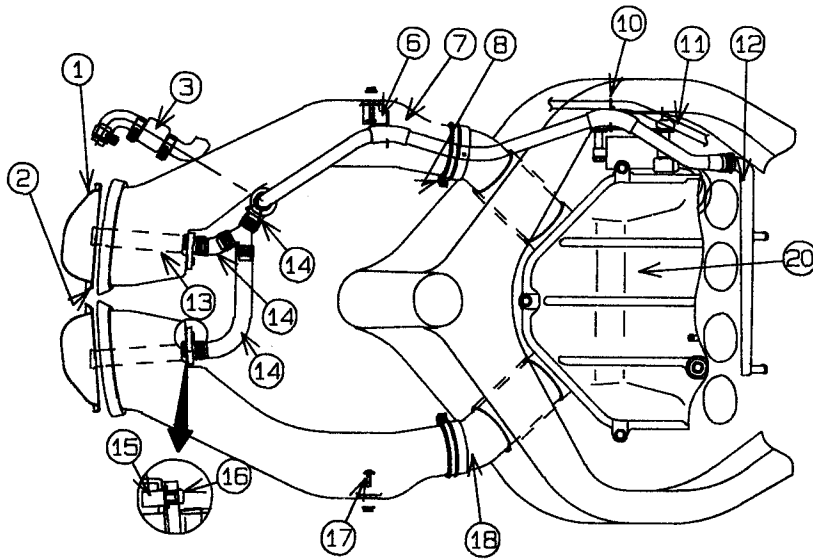
1. Right Rear Turn Signal Lead
2. Clamp  
Tighten to the tail Light
3. Left Rear Turn Signal Lead

**Ignition Coil Read**



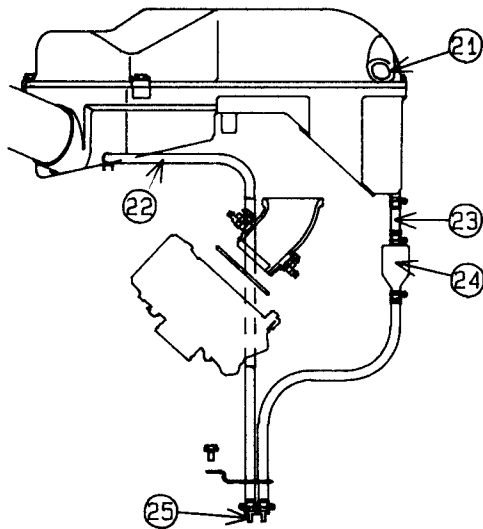
1. # 1, 4 Ignition Coil
2. # 2, 3 Ignition Coil
3. Heat Sealed  
(White paint mark should be on top).
4. White paint
5. Bolt
6. Nut

**Air Filter**

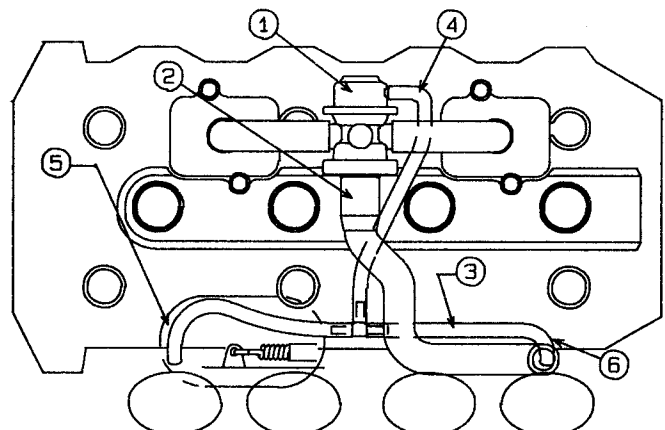


1. Screen
2. White paint  
ID mark for R.H.screen
3. Air Vent Filter
6. Clamp
7. Air Duct
8. Clump
10. Clamp
11. Reservoir Tank Hose
12. Pipe  
To #1, 4 Carburetors
13. Pipe
14. Tube
15. Nut
16. Screw
17. Screw
18. Duct ID Mark  
L or R mark should be up.
20. Air Cleaner Housing
21. Plugs
22. Front Drain Tube
23. Rear Drain Tube
24. Catch Tank
25. Plug

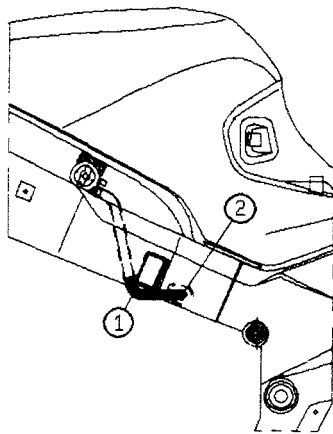
**Vacuum Switch Valve (Other than California Model)**



1. Vacuum Switch Valve
2. Vacuum Switch Valve Hose
3. To Bottom of Air Cleaner  
Housing
4. Vacuum Tube
5. To # 1 Carburetor Holder
6. To # 4 Carburetor Holder

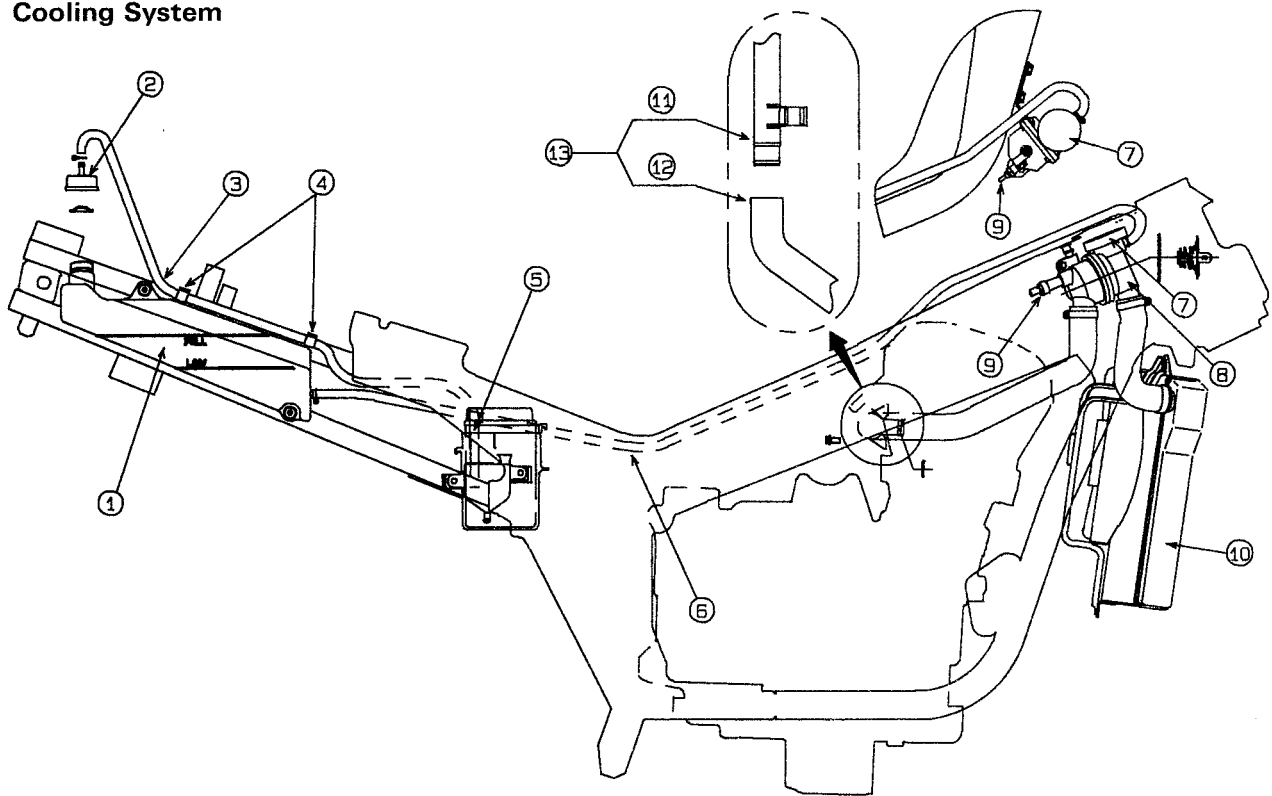


Fuel Pump Pipe



1. Fuel Pump Pipe  
Route under cross pipe
2. Connect pipe so that while paint on pipe is top.

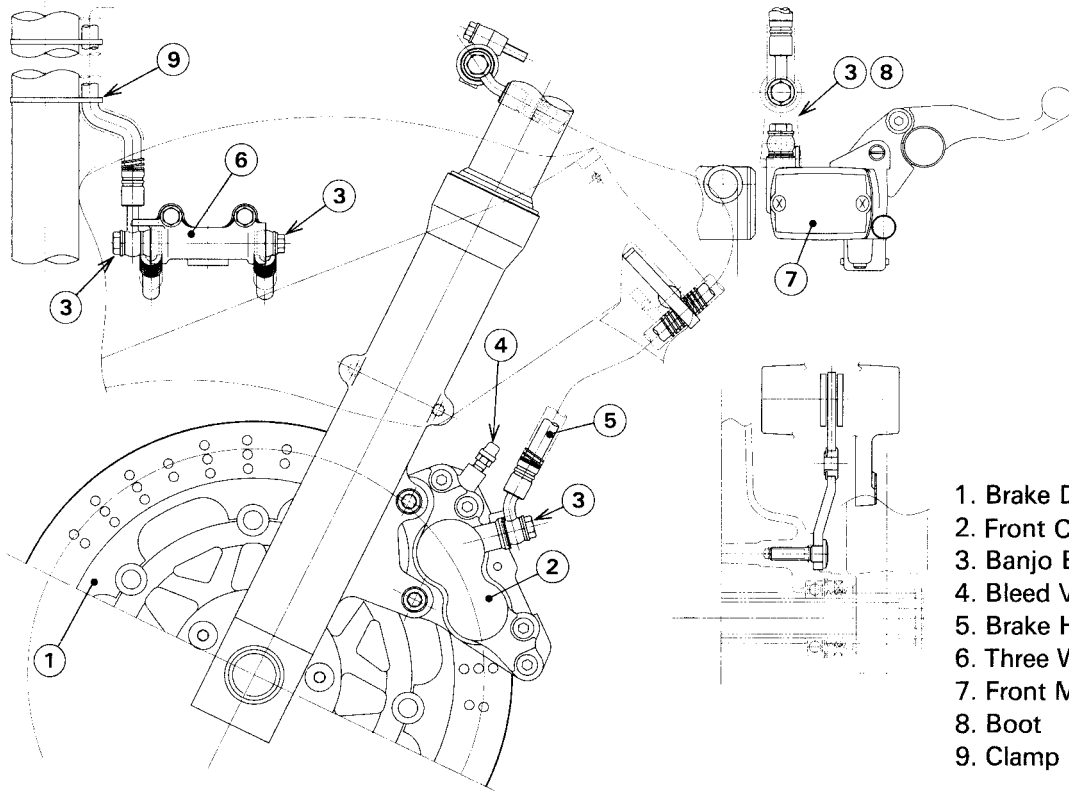
Cooling System



1. Reservoir Tank
2. Cap
3. Drain Hose
4. Clamps
5. Insert drain hose tip in breather case.
6. Reservoir Tank Hose
7. Radiator Cap
8. Thermostat Body
9. Water Temp. Switch
10. Radiator
11. Groove
12. White Color Painted
13. Insert hose so that white paint meets with groove.

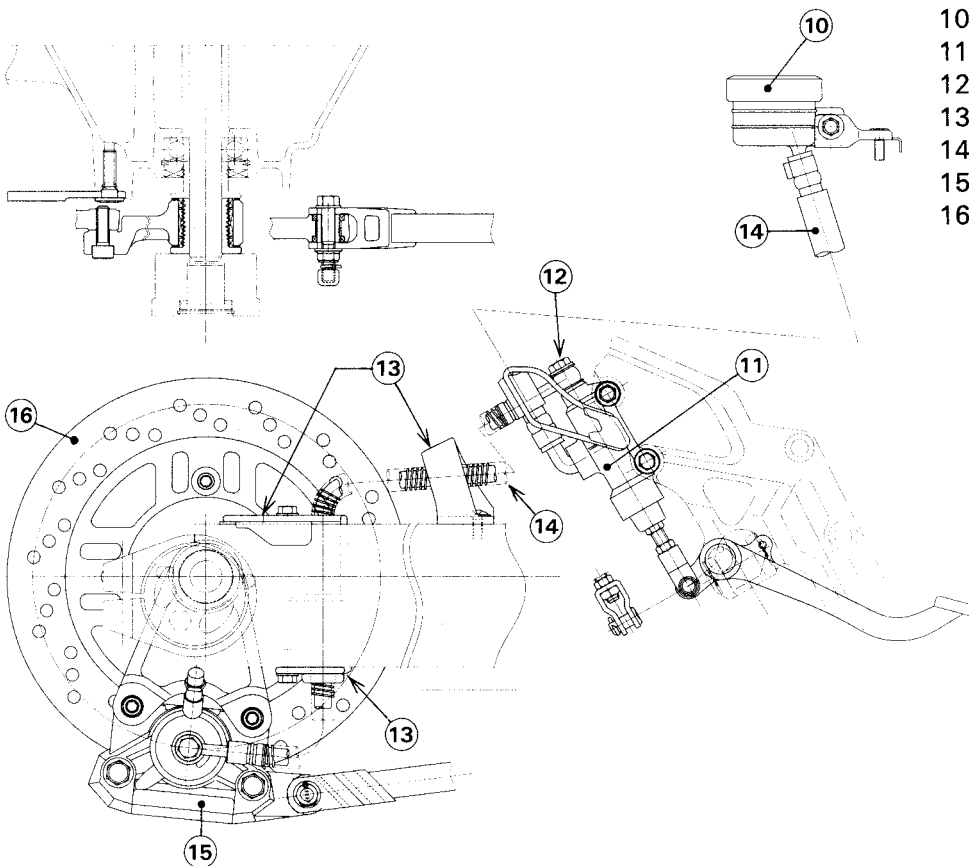
**Brake Hose**

**(1) Front Brake**



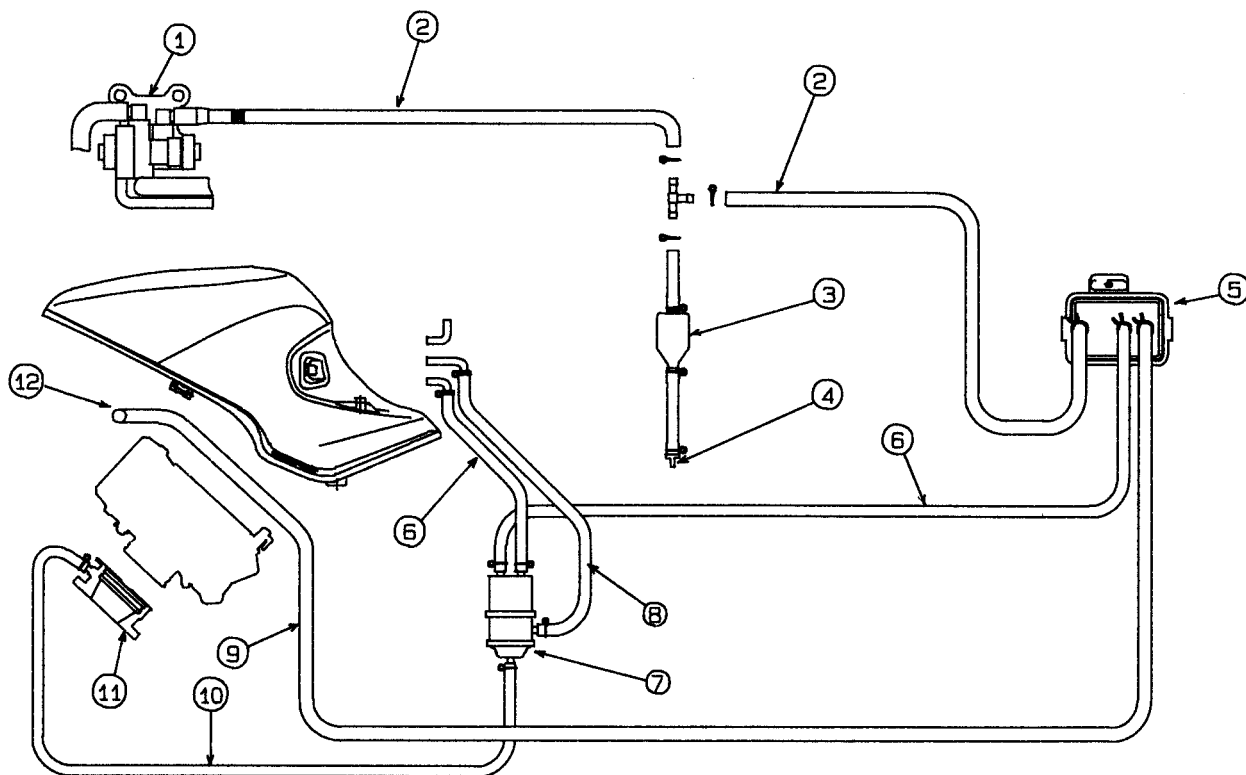
- 1. Brake Disc
- 2. Front Caliper
- 3. Banjo Bolts
- 4. Bleed Valve
- 5. Brake Hose
- 6. Three Way Joint
- 7. Front Master Cylinder
- 8. Boot
- 9. Clamp

**(2) Rear Brake**



- 10. Rear Reservoir Tank
- 11. Rear Master Cylinder
- 12. Banjo Bolt
- 13. Clamp
- 14. Brake Hose
- 15. Rear Caliper
- 16. Brake Disc

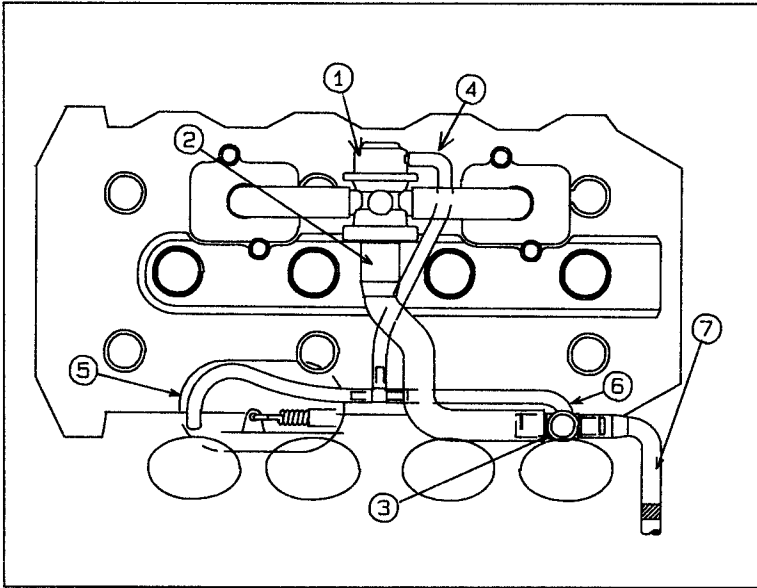
Evaporative Emission Control System (California Model Only)



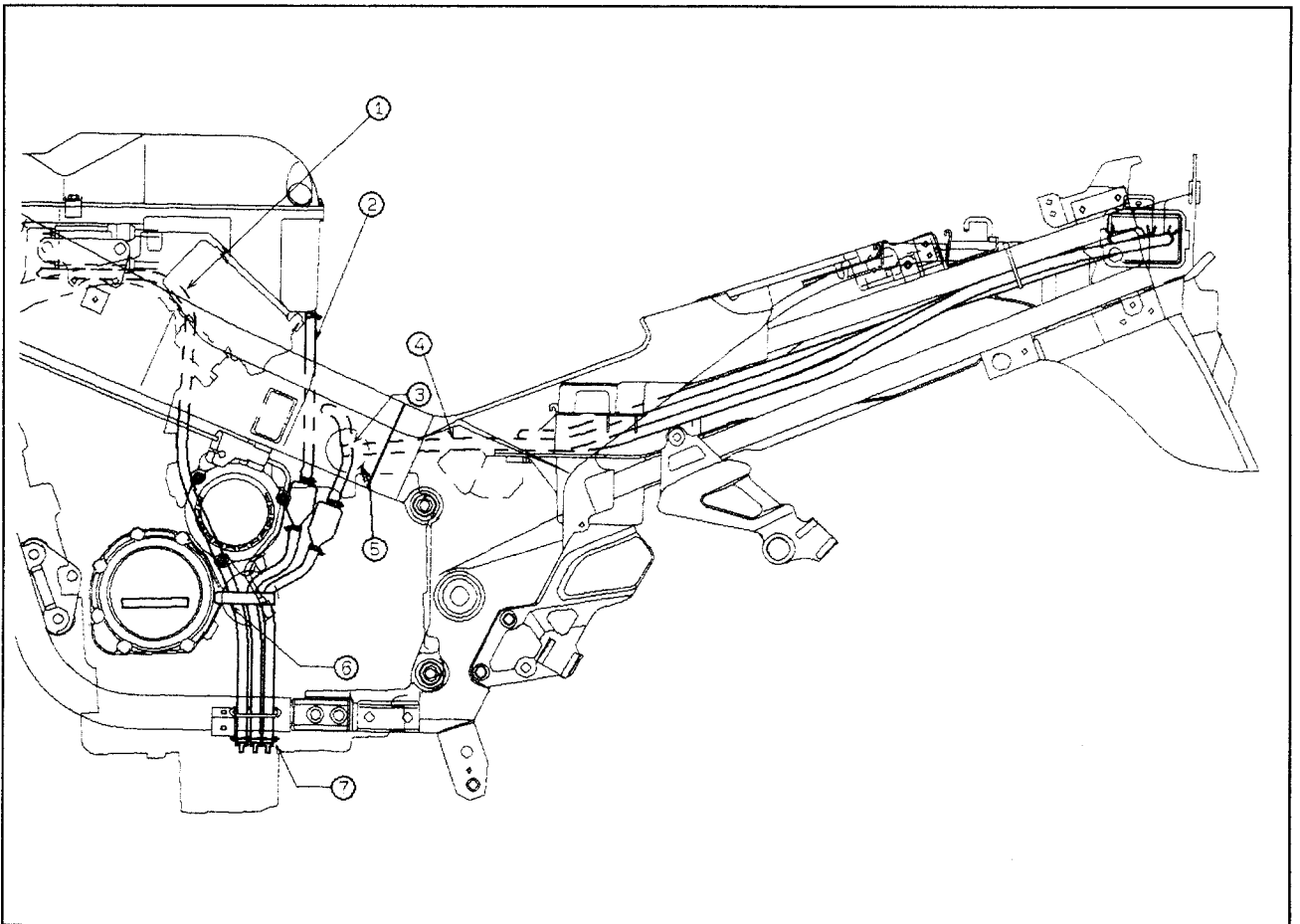
- 1. Vacuum Valve
- 2. Tube (Yellow)
- 3. Catch Tank
- 4. Plug
- 5. Canister
- 6. Tube (Blue)
- 7. Separator
- 8. Tube (Red)
- 9. Tube (Green)
- 10. Tube (White)

- 11. # 3 Carburetor Holder
- 12. To Vacuum Switch Valve Hose Connector



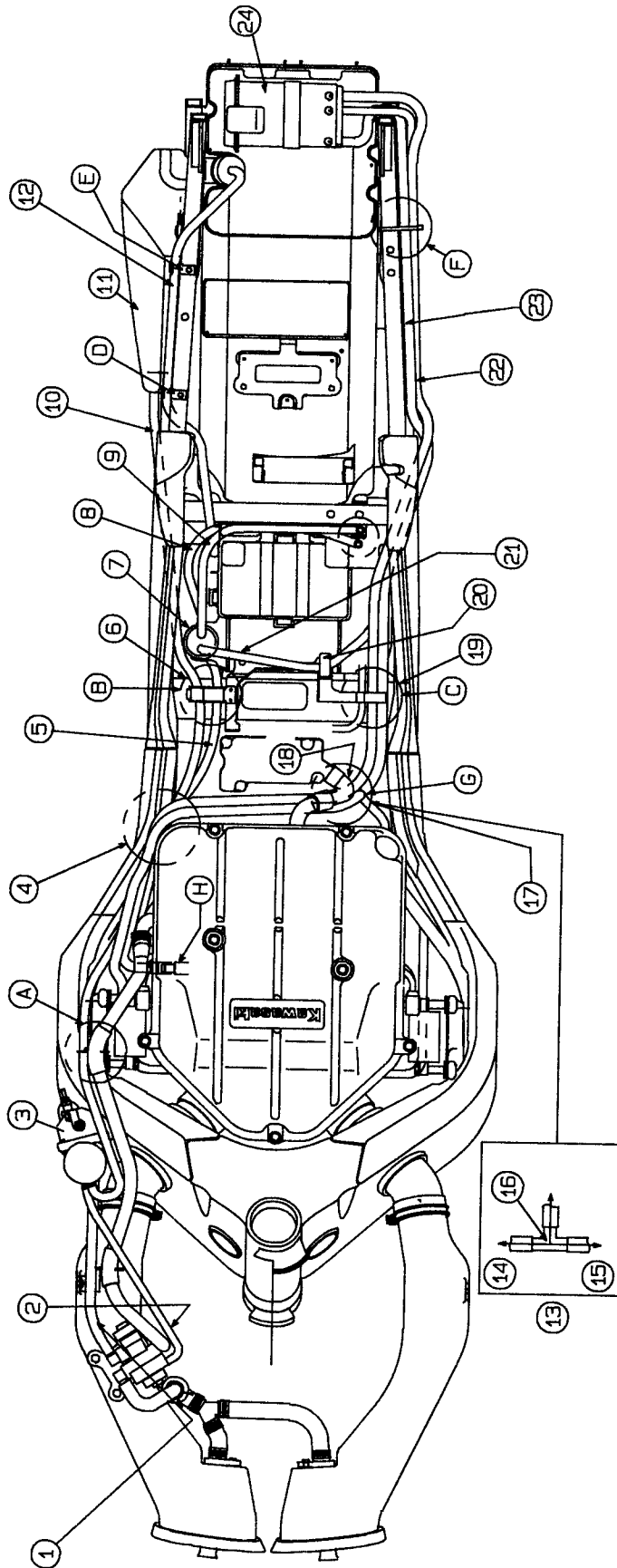


1. Vacuum Switch Valve
2. Vacuum Switch Valve Hose
3. To Bottom of Air Cleaner Housing
4. Vacuum Tube
5. To # 1 Carburetor Holder
6. # 4 Carburetor Holder
7. Tube (Green)  
To Canister



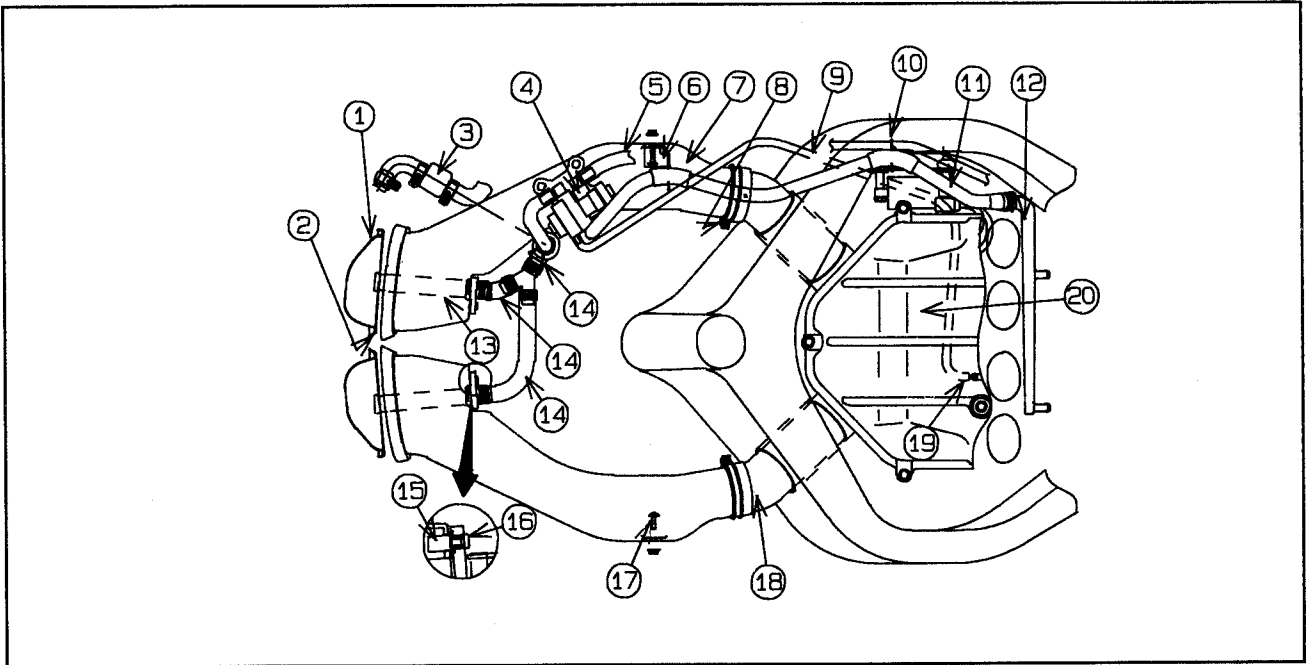
1. Air Cleaner Housing Front Left and Right Drain Tubes  
Front of air Cleaner housing → Under ignition coil → Clamps (Left and Right).
2. Air Cleaner Housing Rear Drain Tube
3. Three Way Joint
4. Tube (Yellow)
5. This area should be lowest position in the yellow tube line.
6. Clamp
7. Clamp

1-28 GENERAL INFORMATION



1. Tube (Yellow)  
Three Way Joint at (G) → Front of crankcase breather hose → Under ignition coil → Under frame → Inside of radiator tank hose → Front of thermostat → Vacuum Valve.
2. Vacuum Hose  
# 2 Carburetor Holder → Under ignition coil → Under frame → inside of radiator tank hose → Front of thermostat → Vacuum Valve.
3. Thermostat
4. Tubes (White, Green, Yellow) and Reservoir Tank Hose  
Route these tubes and hose between frame and carburetor.
5. Tube (White)  
# 3 Carburetor → Clamp at (B) → Separator
6. Clamp Following ones at (B)  
Tube (White)  
Reservoir Tank Hose  
Main Wiring Harness
7. Separator
8. Tube (Red)  
Separator → Back of battery case → Fuel tank.
9. Tube (Blue)  
Separator → Back of battery case → Fuel tank.
10. Reservoir Tank Hose  
Thermostat Cap → Clamp at (A) → Clamp at (B) → Reservoir Tank.
11. Reservoir Tank
12. Reservoir Tank Overflow Tube  
Reservoir Tank → Clamp at (D) and (E) → Breather at side of battery case.
13. Three Way Joint
14. To Vacuum Valve
15. To Catch Tank
16. To Canister
17. Tubes (Yellow, Green)  
Route these tubes at front of crankcase breather tube.
18. Engine Breather Tube
19. Clamp  
Route tube (Yellow) at outside and tube (Green) at inside.
20. Clamp
21. Tube (Blue)  
Separator → Clamp at (F) → canister.
22. Tube (Green)  
Joint (H) → at front of crankcase breather tube → Clamp at (C) → Clamp at (F) → Canister.
23. Tube (Yellow)  
Three Way Joint at (G) → Clamp at (C) → Clamp (F) → Canister.
24. Canister

## 1-30 GENERAL INFORMATION



1. Screen
2. White Paint  
ID mark for R.H.screen
3. Air Vent Filter
4. Vacuum Valve
5. Tube(Yellow)
6. Clamp
7. Air Dust
8. Clamp
9. Tube  
To # 2 Carburetor Holder
10. Clamp

11. Reservoir Tank Hose
12. Pipe  
To #1, 4 Carburetors
13. Pipe
14. Tube
15. Nut
16. Screw
17. Screw
18. Duct ID Mark  
L or R mark should be up.
19. To # 2 Carburetor Holder
20. Air Cleaner Housing

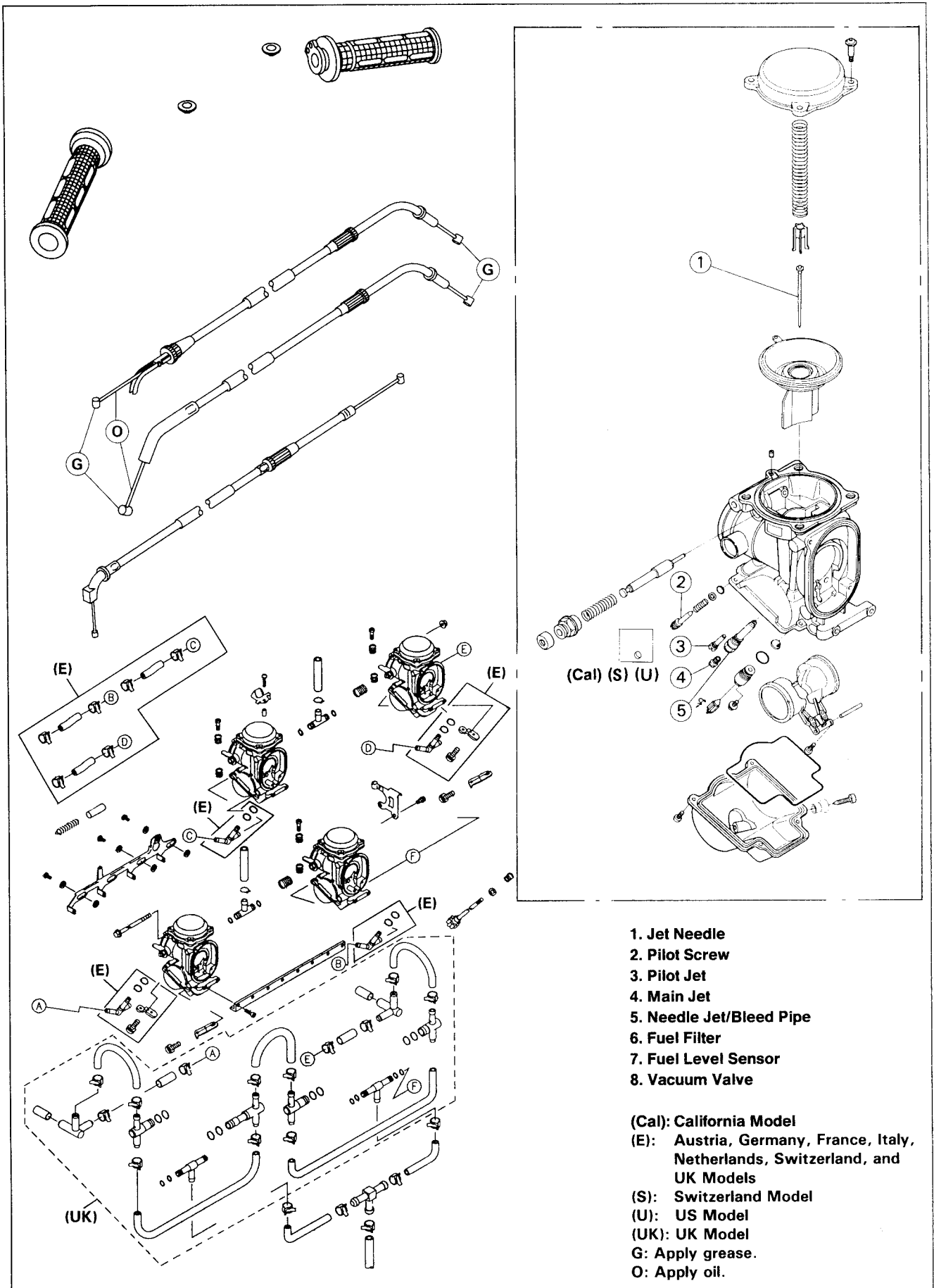
# Fuel System

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## 2-2 FUEL SYSTEM

### Exploded View



1. Jet Needle
2. Pilot Screw
3. Pilot Jet
4. Main Jet
5. Needle Jet/Bleed Pipe
6. Fuel Filter
7. Fuel Level Sensor
8. Vacuum Valve

(Cal): California Model  
 (E): Austria, Germany, France, Italy, Netherlands, Switzerland, and UK Models  
 (S): Switzerland Model  
 (U): US Model  
 (UK): UK Model  
 G: Apply grease.  
 O: Apply oil.



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