

**Ninja ZX-6
ZZ-R600
ZZ-R500**



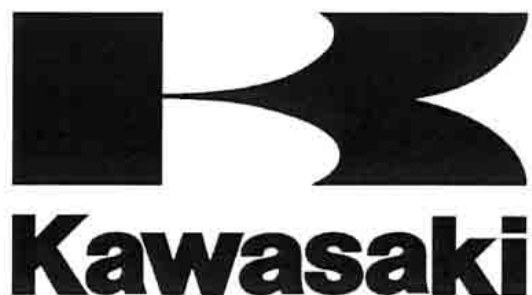
**Motorcycle
Service Manual
Supplement**

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.



Ninja ZX-6
ZZ-R 600
ZZ-R 500

Motorcycle Service Manual Supplement

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

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

All information contained in this publication is based on the latest product information available at the time of publication. Illustrations and photographs in this publication are intended for reference use only and may not depict actual model component parts.

LIST OF ABBREVIATIONS

A	ampere(s)	lb	pound(s)
ABDC	after bottom dead center	m	meter(s)
AC	alternating current	min	minute(s)
ATDC	after top dead center	N	newton(s)
BBDC	before bottom dead center	Pa	pascal(s)
BDC	bottom dead center	PS	horsepower
BTDC	before top dead center	psi	pound(s) per square inch
°C	degree(s) Celsius	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 crankcase emission (1) and exhaust emission (2) control systems in compliance with applicable regulations of the United States Environmental Protection Agency and California Air Resources Board. Additionally, Kawasaki has incorporated an evaporative emission control system (3) in compliance with applicable regulations of the California Air Resources Board on vehicles sold in California only.

1. Crankcase Emission Control System

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

2. Exhaust Emission Control System

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

3. Evaporative Emission Control System

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

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

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

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

(Continued on next page.)

NOTE

- *The phrase "remove or render inoperative any device or element of design" has been generally interpreted as follows:*
 1. *Tampering does not include the temporary 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 Ninja ZX-6/ZZ-R600/ZZ-R500 Service Manual Supplement is designed to be used in conjunction with the Ninja ZX-6/ZZ-R600/ZZ-R 500 Motorcycle Service Manual (P/N 99924-1128-01). The maintenance and repair procedures described in this supplement are only those that are unique to the Ninja ZX-6/ZZ-R600/ZZ-R500 (ZX600E/ZX500D) motorcycle. Most service operation are described in the base Service Manual. Complete and proper servicing of the Ninja ZX-6/ZZ-R600/ZZ-R500 motorcycle therefore requires both this supplement and the base Service Manual.

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

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

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

To get the longest life out of your Motorcycle:

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

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

How to Use this Manual

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

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

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

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

Whenever you see these WARNING and CAUTION symbols, heed their instructions! Always follow safe operating and maintenance practices.

WARNING

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

CAUTION

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

This manual contains 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 WARNING, CAUTION, or NOTE.
- ★ Indicates a conditional step or what action to take based on the results of the test or inspection in the procedural step or sub-step it follows.

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

1

Table of Contents

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(): See the Base Manual

1-2 GENERAL INFORMATION

Model Identification

ZX600-E1



ZX600-E2



General Specifications

Items	ZX600-E1, E2	ZX500-D1, D2
Dimensions:		
Overall length	2 070 mm, (IT) 2 115 mm, (GR, NR, SD, ST, FG, FI, D, TK) 2 140mm	2 070 mm
Overall width	695 mm	←
Overall height	1 175mm	←
Wheelbase	1 430 mm	←
Road clearance	120 mm	←
Seat height	780 mm	←
Dry weight	195 kg, (CA) 195.5 kg	195 kg
Curb weight: Front	111 kg	←
Rear	110 kg, (CA) 110.5 kg	110 kg
Fuel tank capacity	18.0 L	←
Performance:		
Minimum turning radius	2.7 m	←
Engine:		
Type	4-stroke, DOHC, 4-cylinder	←
Cooling system	Liquid-cooled	←
Bore and stroke	64.0 x 46.6 mm	57.5 x 46.6 mm
Displacement	599 mL	484 mL
Compression ratio	12.0	11.8
Maximum horsepower	74 kW (100 PS) @11 500 r/min (rpm), (AR) 70 kW (95 PS) @11 500 r/min (rpm), (CA, US) ---, (FR, UTAC's norm) 71.8 kW @11 500 r/min (rpm), (SD) 47 kW (64 PS) @11 000 r/min (rpm) (ST) 37 kW (50 PS) @6 000 r/min (rpm)	55 kW (75 PS) @11 500 r/min (rpm),
Maximum torque	64 N-m (6.5 kg-m, 47.0 ft-lb) @9 500 r/min (rpm), (AR) 66 N-m (6.7 kg-m, 46.3 ft-lb) @9 000 r/min (rpm) (CA, FR, US) --- (SD) 47 N-m (4.8 kg-m, 34.7 ft-lb) @8 000 r/min (rpm), (ST) 59 N-m (6.0 kg-m, 43.4 ft-lb) @5 500 r/min (rpm),	50 N-m (5.1 kg-m, 36.9 ft-lb) @10 000 r/min (rpm),
Carburetion system	KEIHIN CVKD36 x 4	KEIHIN CVKD30 x 4
Starting system	Electric starter	←
Ignition system	Battery and coil (transistorized)	←
Timing advance	Electronically advanced	←
Ignition timing	From 12.5° BTDC @1 050 r/min (rpm) to 35° BTDC @3 000 r/min (rpm), (CA) From 5° BTDC @1 300 r/min (rpm) to 35° BTDC @5 000 r/min (rpm), (US,CN) From 12.5° BTDC @1 050 r/min (rpm) to 35° BTDC @5 000 r/min (rpm) (AR) From 5° BTDC @1 500 r/min (rpm) to 35° BTDC @3 000 r/min (rpm)	From 5° BTDC @1 500 r/min (rpm) to 35° BTDC 3 000 r/min (rpm)

1-4 GENERAL INFORMATION

Items	ZX600-E1, E2	ZX500-D1, D2
Spark plug	(ST) From 2.5° BTDC @1 300 r/min (rpm) to 32.5° BTDC @3 000 r/min (rpm) NGK CR9E or ND U27ESR-N,	NGK CR9E or ND U27ESR-N
Cylinder numbering method	Left to right, 1-2-3-4	←
Firing order	1-2-4-3	←
Valve timing:		
Inlet	Open	47° BTDC
	Close	73° ABDC
	Duration	300°
Exhaust	Open	73° BBDC
	Close	47° ATDC
	Duration	300°
Lubrication system	Forced lubrication (wet sump with cooler)	←
Engine oil:		
Grade	SE, SF or SG class	←
Viscosity	SAE10W-40, 10W-50, 20W-40, or 20W-50	←
Capacity	3.7 L	←
Drive Train:		
Primary reduction system:		
Type	Gear	←
Reduction ratio	1.792 (95/53)	←
Clutch type	Wet multi disc	←
Transmission:		
Type	6-speed, constant mesh, return shift	←
Gear ratios:		
1st	3.166 (38/12)	←
2nd	2.125 (34/16)	←
3rd	1.666 (35/21)	←
4th	1.380 (29/21)	←
5th	1.217 (28/23)	←
6th	1.083 (26/24)	←
Final drive system:		
Type	Chain drive	←
Reduction ratio	3.000 (48/16)	3.187 (51/16)
Overall drive ratio	5.825 @Top gear	6.189 @Top gear
Frame:		
Type	Tubular, diamond	←
Caster (rake angle)	24.5°	←
Trail	96 mm	←
Front tire:		
Type	Tubeless	←
Size	120/60 ZR17,	←

Items		ZX600-E1, E2	ZX500-D1, D2
Rear tire:	Type	Tubeless	←
	Size	160/60 ZR 17,	←
Front suspension:	Type	Telescopic fork (pneumatic)	←
	Wheel travel	120 mm	←
Rear suspension:	Type	Swing arm (uni-trak)	←
	Wheel travel	130 mm	←
Brake type:	Front	Dual discs	←
	Rear	Single disc	←
Electrical Equipment:			
Battery		12 V 10 Ah	←
Headlight:	Type	Semi-sealed beam	←
	Bulb	12 V 60/55 W (quartz-halogen)	←
Tail/brake light		12 V 5/21 W x 2, (CA, CN, US) 12 V 8/27 W x 2	12 V 5/21 W x 2
Alternator:	Type	Three-phase AC	←
	Rated output	24 A-14V @8 000 r/min (rpm)	

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

(AR) : Austrian Model
 (AS) : Australian Model
 (CA) : California Model
 (CN) : Canadian Model
 (FR) : French Model
 (GR) : Greek Model
 (IT) : Italian Model
 (FI) : Finnish Model

(D) : Danish Model
 (TK) : Turkish Model
 (NR) : Norwegian Model
 (SD) : Swedish Model
 (ST) : Swiss Model
 (US) : U.S. Model
 (FG) : German Model

1-6 GENERAL INFORMATION

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.**

FREQUENCY	Which ever comes first → ↓	† ODOMETER READING						
		800 km	5 000 km	10 000 km	15 000 km	20 000 km	25 000 km	30 000 km
OPERATION	Every							
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 cleanings				•			
Throttle grip play - check*		•	•	•	•	•	•	•
Idle speed - check*		•	•	•	•	•	•	•
Caburetor synchronization - check*		•	•	•	•	•	•	•
Fuel system - check*			•		•		•	
Evaporative emission control system (CA) - check*		•	•	•	•	•	•	•
Fuel hoses, connections - check*			•	•	•	•	•	•
Engine oil - change	year	•	•		•		•	
Oil filter - replace		•	•		•		•	
Radiator hoses, connections - check *	year	•	•		•		•	
Coolant - change	2 years							•
Fuel hose - replace	4 years							
Clutch - adjust		•	•	•	•	•	•	•
Drive chain wear - check *			•	•	•	•	•	•
Drive chain - lubricate	300 mm							
Drive chain slack - check*	800 km							
Brake lining or pad wear - check*			•	•	•	•	•	•
Brake fluid level - check*	month	•	•	•	•	•	•	•
Brake fluid - change	2 years				•			

FREQUENCY	Whichever comes first → ↓	† ODOMETER READING						
		800 km	5 000 km	10 000 km	15 000 km	20 000 km	25 000 km	30 000 km
OPERATION	Every							
Brake hose - replace	4 year							
Break hoses connections - check*			•	•	•	•	•	•
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*			•	•	•	•	•	•
Swingarm pivot, uni-trak linkage - lubricate				•		•		•
General lubrication - perform			•	•	•	•	•	•
Nuts, bolts, and fastener tightness - check*		•		•		•		•
Coolant filter (FG, FR, IT, UK, ST, AR, DU) - check	year							

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

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

(CA): California Model

(FG): German Model

(FR): French Model

(IT): Italian Model

(UK): U.K. Model

(ST): Swiss Model

(AR): Austrian Model

(DU): Dutch Model

1-8 GENERAL INFORMATION

Torque and Locking Agent

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

Letters used in the "Remarks" column mean:

- L** : Apply a non-permanent locking agent to the threads.
- LG** : Apply liquid gasket to the threads.
- Lh** : Left-hand threads
- M** : Apply molybdenum disulfide grease.
- O** : Apply an oil to the threads and seating surface.
- S** : Tighten the fasteners following the specified sequence.
- SS** : Apply silicone sealant.
- St** : Stake the fasteners to prevent loosening.

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use a specific torque valve. All of the values are for use with dry solvent-cleaned threads.

Basic Torque for General fasteners

Threads dia. (mm)	Torque		
	N-m	kg-m	ft-lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in-lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in-lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Fuel System:				
Carburetor Holder Bolts	12	1.2	104 in-lb	
Fuel Tap Plate Screws	7.8	0.80	69 in-lb	
Fuel Tap Knob Mounting Screw	1.0	0.10	9 in-lb	
Cooling System:				
Radiator Hose Clamp Bolts	2.0	0.20	17 in-lb	
Coolant Air Bleeder Bolt (thermostat housing)	7.8	0.80	69 in-lb	
Coolant Air Bleeder Bolt (water pump)	9.8	1.0	87 in-lb	
Coolant Drain Plugs	9.8	1.0	87 in-lb	
Thermostatic Fan Switch	18	1.8	13.0	
Water Temperature Sensor	7.8	0.80	69 in-lb	SS
Engine Top End:				
Spark Plug	14	1.4	10.0	
Cylinder Head Cover Bolts	9.8	1.0	87 in-lb	
Cylinder Head Bolts New Parts	47	4.8	35	S, O (washer)
Used Parts	43	4.4	32	S, O (washer)
Pickup Coil Cover Bolts	12	1.2	104 in-lb	
Cylinder Head Jacket Plugs (PT $\frac{1}{2}$, PT $\frac{3}{8}$)	20	2.0	14.5	
Camshaft Bearing Cap Bolts	12	1.2	104 in-lb	S
Camshaft Chain Tensioner Mounting Bolts	12	1.2	104 in-lb	
Camshaft Sprocket Bolts	15	1.5	11.0	L
Camshaft Chain Guide Bolts (Rear)	12	1.2	104 in-lb	
Oil Hose Banjo Bolts	25	2.5	18.0	
Clutch				
Clutch Cover Bolts	12	1.2	104 in-lb	
Clutch Lever Holder Bolts	7.8	0.80	69 in-lb	
Clutch Spring Bolts	8.8	0.90	78 in-lb	
Clutch Hub Nut	130	13.5	98	
Clutch Cover Damper Bolts	5.9	0.60	52 in-lb	L

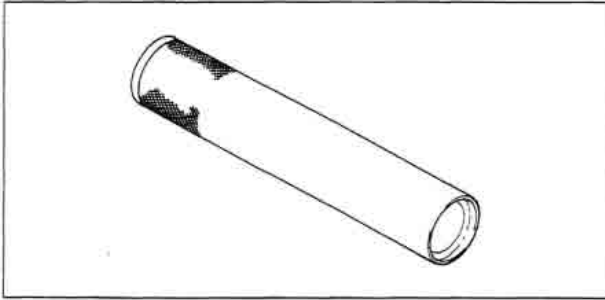
Fastener	Torque			Remarks	
	N-m	kg-m	ft-lb		
Engine Lubrication System:					
Engine Drain Plug	20	2.0	14.5	or hand-tight	
Crankcase Main Oil Passage Plug	15	1.5	11.0		
Oil Pan Bolts	12	1.2	104 in-lb		
Oil Filter	9.8	1.0	87 in-lb		
Oil Filter Mounting Bolt	29	3.0	22		
Oil Pressure Relief Valve	15	1.5	11.0		L
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in-lb		SS
Oil Pressure Switch	15	1.5	11.0		
Oil Hose Banjo Bolts	25	2.5	18.0		L
Oil Hose Clamp Bolts (Lower Crankcase)	8.8	0.90	78 in-lb		
Oil Hose Flange Bolts	12	1.2	104 in-lb		
Oil Separator Cover Bolts (Upper Crankcase)	9.8	1.0	87 in-lb		
Engine Removal/Installation:					
Engine Mounting Bolts	49	5.0	36		
Engine Mounting Adjuster	9.8	1.0	87 in-lb		
Engine Mounting Bracket Bolts	23	2.3	16.5		
Crankshaft/Transmission:					
Oil Separator Cover Bolts	9.8	1.0	87 in-lb	L	
Gear Positioning Lever Mounting Bolt	8.8	0.90	78 in-lb	SS	
Oil Pressure Switch	15	1.5	11.0		
Neutral Switch	15	1.5	11.0	L	
Shift Shaft Return Spring Pin	20	2.0	14.5		
Shift Drum Cam Bolts	12	1.2	104 in-lb	L	
Shift Rod Plug (Left, M14)	15	1.5	11.0	R,O	
Connecting Rod Big End Cap Bolts					
(New)	24 + 120°	2.4 + 120°	17.5 + 120°		
(In Assy)	22 + 120°	2.2 + 120°	16.0 + 120°		
Crankcase Bolts φ8	27	2.8	20	S	
φ6	12	1.2	104 in-lb	S	
Timing Rotor Allen Bolt	25	2.5	18.0	L	
Crankcase Main Oil Passage Plug					
(Left, PT $\frac{3}{8}$)	20	2.0	14.5		
(Right, M18)	15	1.5	11.0		
Oil Hose Banjo Bolts	25	2.5	18.0		
Oil Hose Bracket Bolts	8.8	0.90	78 in-lb		
Wheels/Tires:					
Front Axle Clamp Bolts	20	2.0	14.5		
Front Axle Nut	110	11.0	80		
Rear Axle Nut	110	11.0	80		
Final Drive:					
Engine Sprocket Nut	125	13.0	94	L	
Torque Link Nuts	34	3.5	25		
Rear Sprocket Nuts	74	7.5	54		
Rear Sprocket Studs	-	-	-		
Brakes:					
Bleed Valves	7.8	0.80	69 in-lb		
Brake Hose Banjo Bolts	25	2.5	18.0		

1-10 GENERAL INFORMATION

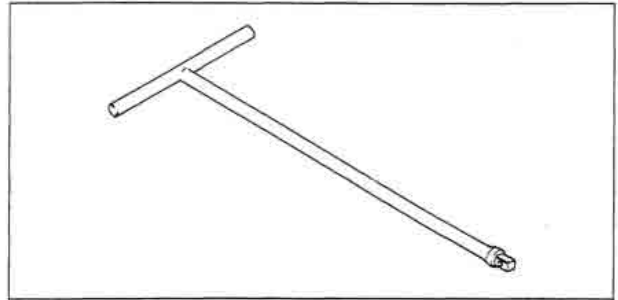
Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Torque Link Nut	34	3.5	25	
Caliper Mounting Bolts (Front)	34	3.5	25	
Caliper Mounting Bolts (Rear)	25	2.5	18.0	
Caliper Bolts (Front)	21	2.1	15.0	
Front Caliper Pad Spring Screws	2.9	0.30	26 in-lb	
Disc Mounting Bolts (Front)	23	2.3	16.5	
Disc Mounting Bolts (Rear)	23	2.3	16.5	
Brake Lever Pivot Bolt	1.0	0.10	9 in-lb	
Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in-lb	
Front Brake Switch Mounting Screws	1.0	0.10	9 in-lb	
Front Brake Reservoir Cap Screws	1.5	0.15	13 in-lb	
Front Master Cylinder Clamp Bolts	9.8	1.0	87 in-lb	
Rear Master Cylinder Mounting Bolts	23	2.3	16.5	
Brake Pedal Shaft Bolts (Right Footpeg Bolt)	8.8	0.90	78 in-lb	
Rear Master Cylinder Bracket Locknut	18	1.8	13.0	
Suspension:				
Front Fork Clamp Bolts (Upper, Lower)	20	2.0	14.5	L
Front Fork Bottom Allen Bolts	20	2.0	14.5	
Front Axle Clamp Bolts	20	2.0	14.5	
Rear Shock Absorber Mounting Nuts	59	6.0	43	
Rear Shock Absorber Preload Adjuster Nut	88	9.0	65	
Tie-Rod Nuts	59	6.0	43	
Rocker Arm Pivot Shaft Nut	59	6.0	43	
Swing Arm Pivot Shaft Nut	88	9.0	65	
Steering				
Steering Stem Head Nut	49	5.0	36	
Steering Stem Nut	Hand-Tight	←	←	
	or 4.9	or 0.50	or 43 in-lb	
Handlebar Holder Mounting Bolts	23	2.3	16.5	
Frame:				
Side Stand Bracket Bolts Mounting Bolts	49	5.0	36	L
Electrical System:				
Pickup Coil Cover Bolts	12	1.2	8.5	
Timing Rotor Allen Bolts	25	2.5	18.0	
Alternator Cover Bolts	12	1.2	8.5	
Alternator Rotor Bolt	78	8.0	58	
Alternator Starter Bolts	12	1.2	104 in-lb	
Starter Relay Terminal Nut	4.9	0.50	43 in-lb	
Starter Motor Terminal Nut	4.9	0.50	43 in-lb	
Starter Clutch Bolt	34	3.5	25	L
Spark Plug	14	1.4	10	
Handlebar Switch Housing Clamp Screws	3.4	0.35	30 in-lb	
Thermostatic Fan Switch	18	1.8	13.0	
Water Temperature Sensor	7.8	0.80	69 in-lb	SS
Oil Pressure Switch	15	1.5	11.0	SS
Neutral Switch	15	1.5	11.0	
Speedometer and Trip Meter Mounting Screws	—	—	—	L

Special Tools and Sealant

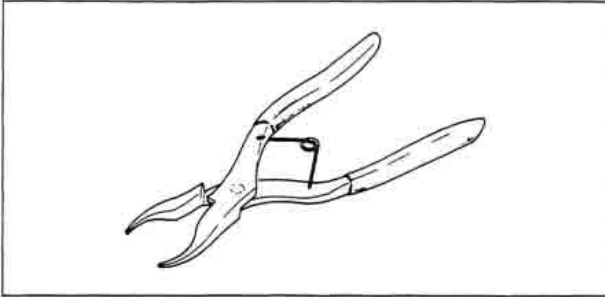
Steering Stem Bearing Driver: 57001-137



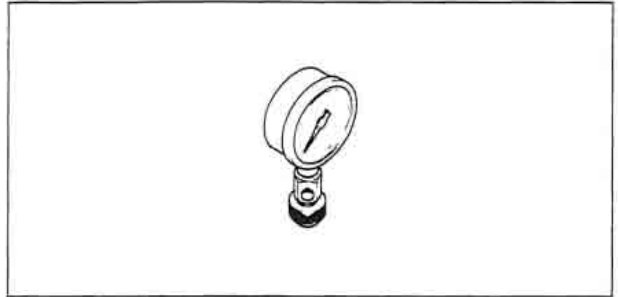
Fork Cylinder Holder Handle: 57001-183



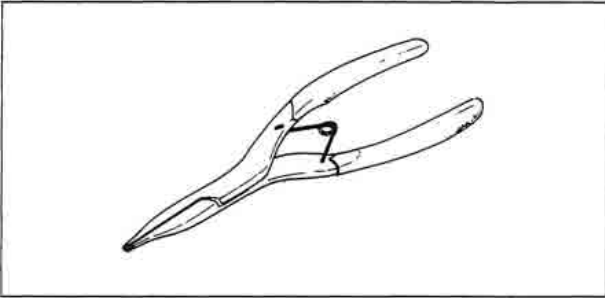
Inside Circlip Pliers: 57001-143



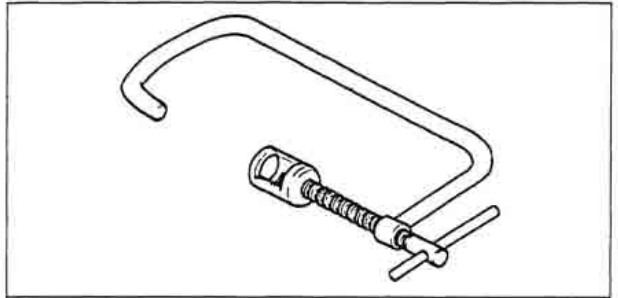
Compression Gauge: 57001-221



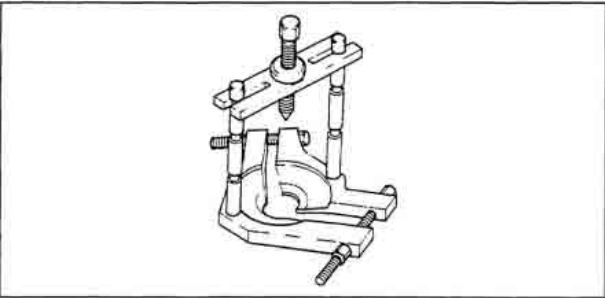
Outside Circlip Pliers: 57001-144



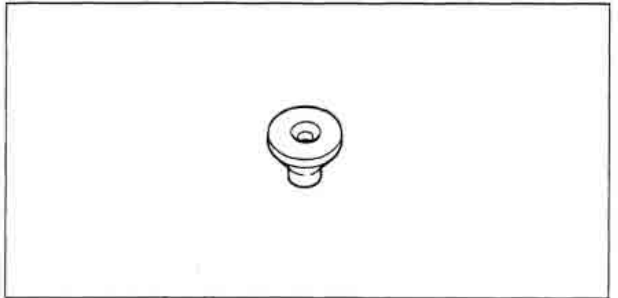
Valve Spring Compressor Assembly: 57001-241



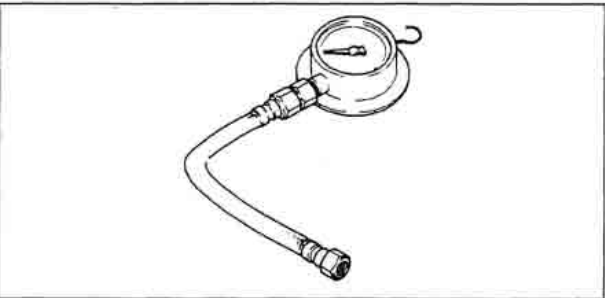
Bearing Puller: 57001-158



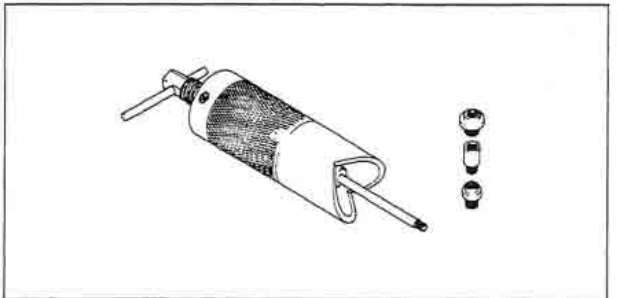
Bearing Puller Adapter: 57001-317



Oil Pressure Gauge, 10 kg/cm²: 57001-164

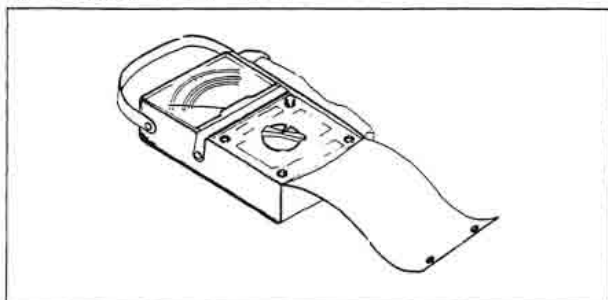


Piston Pin Puller Assembly: 57001-910

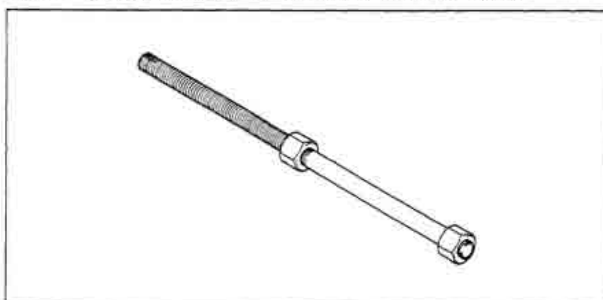


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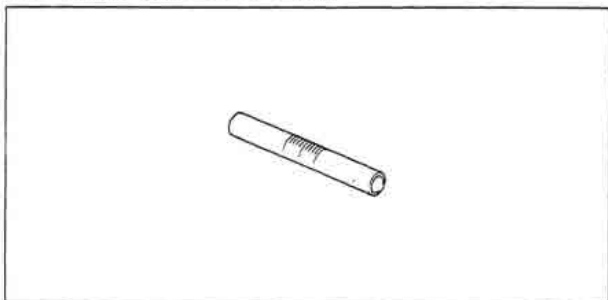
Hand Tester: 57001-1394



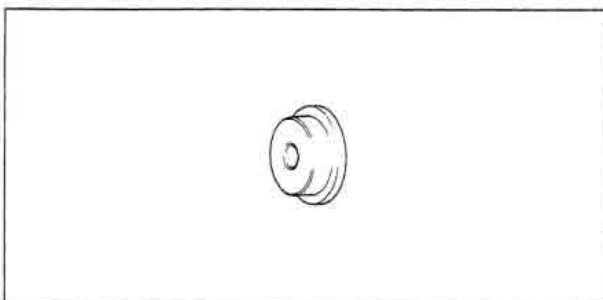
Head Pipe Outer Race Press Shaft: 57001-1075



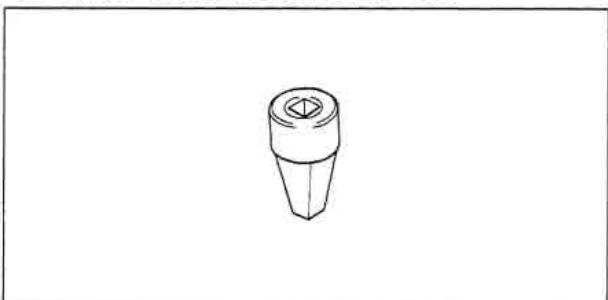
Fuel Level Gauge: 57001-1017



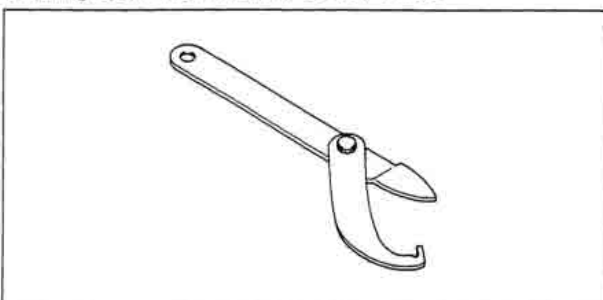
Head Pipe Outer Race Driver: 57001-1076



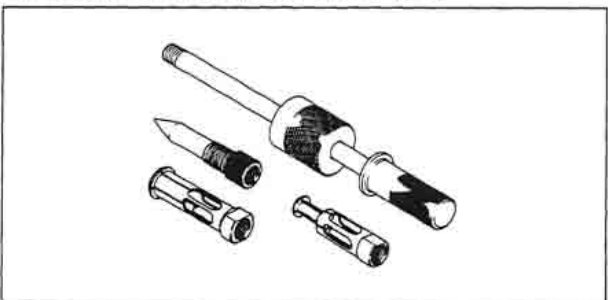
Fork Cylinder Holder Adapter: 57001-1057



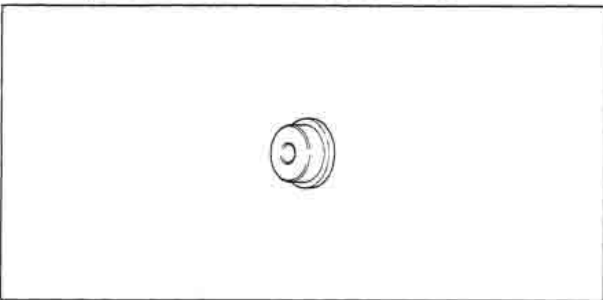
Steering Stem Nut Wrench: 57001-1100



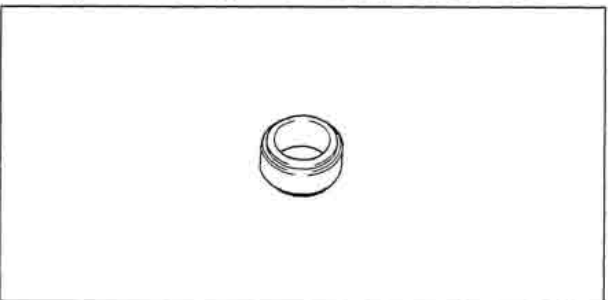
Oil Seal & Bearing Remover: 57001-1058



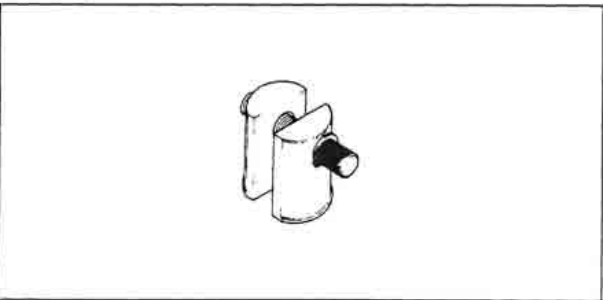
Head Pipe Outer Race Driver: 57001-1106



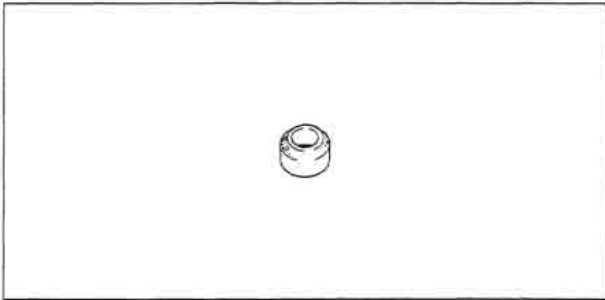
Steering Stem Bearing Driver Adapter: 57001-1074



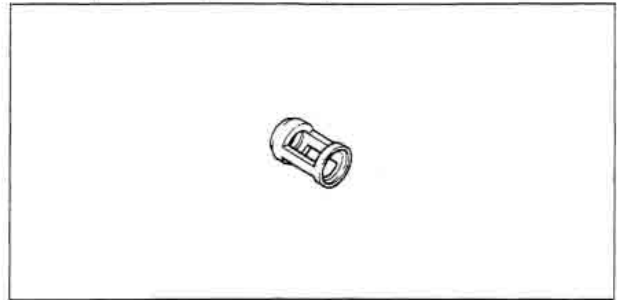
Head Pipe Outer Race Remover: 57001-1107



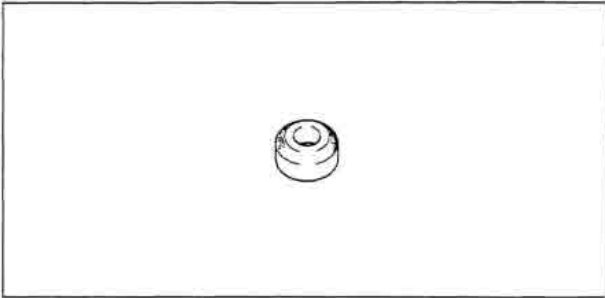
Valve Seat Cutter, 45° – $\phi 24.5$: 57001-1113



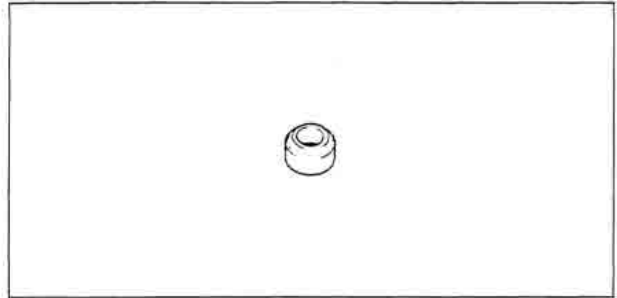
Valve Spring Compressor Adapter, $\phi 20$: 57001-1154



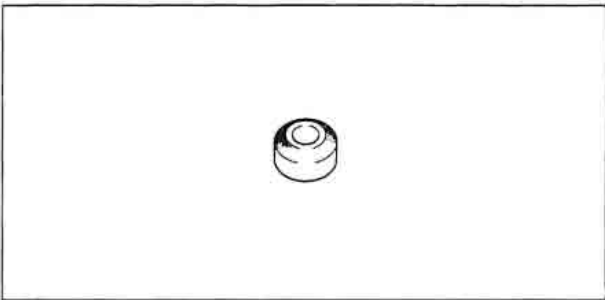
Valve Seat Cutter, 45° – $\phi 27.5$: 57001-1114



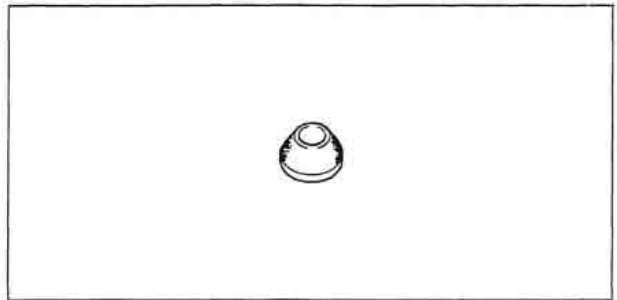
Valve Seat Cutter, 45° – $\phi 22$: 57001-1205



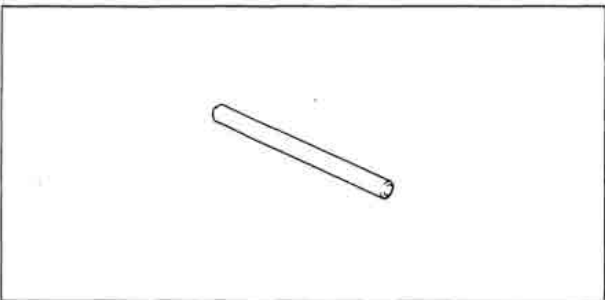
Valve Seat Cutter, 32° – $\phi 28$: 57001-1119



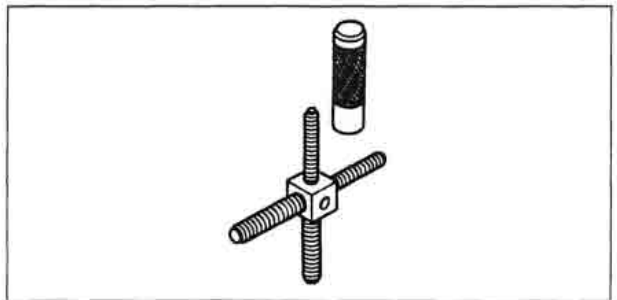
Valve Seat Cutter, 67.5° – $\phi 22$: 57001-1207



Valve Seat Cutter Holder Bar: 57001-1128



Rotor Puller, M16/M18/M20/M22 x 1.5: 57001-1216



Bearing Driver Set: 57001-1129

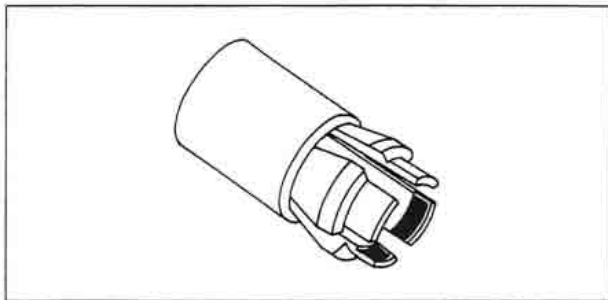


Fork Outer Tube Weight: 57001-1218

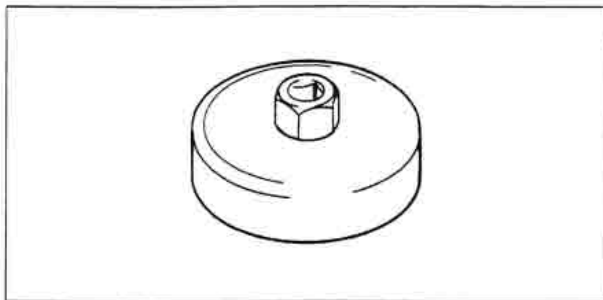


1-14 GENERAL INFORMATION

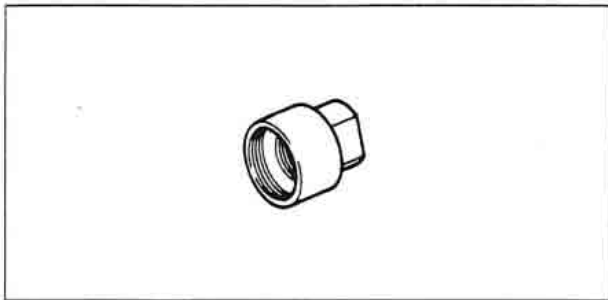
Fork Oil Seal Driver: 57001-1219



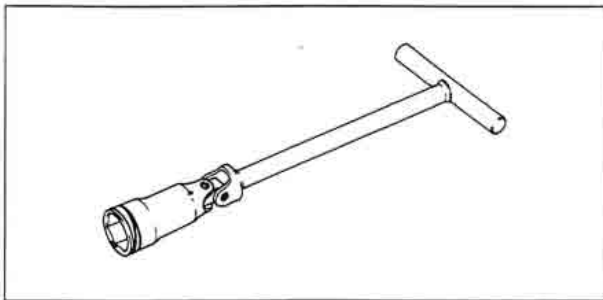
Oil Filter Wrench: 57001-1249



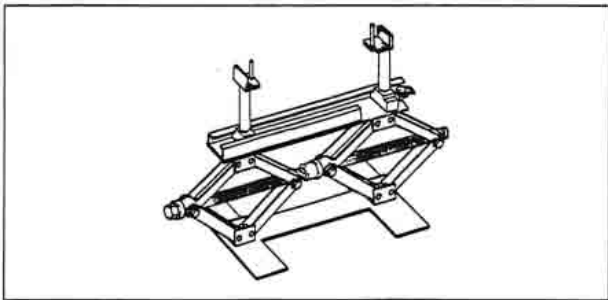
Flywheel Puller, M35 X 1.5: 57001-1223



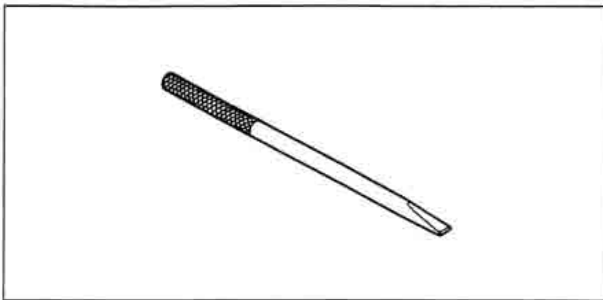
Spark Plug Wrench, Hex 16: 57001-1262



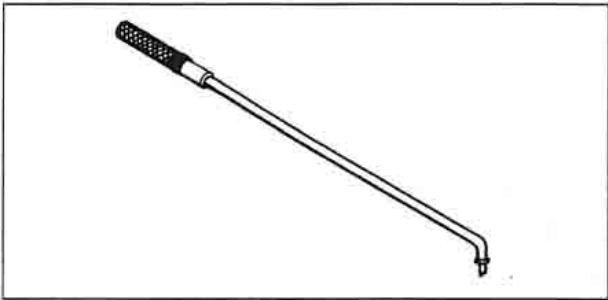
Jack: 57001-1238



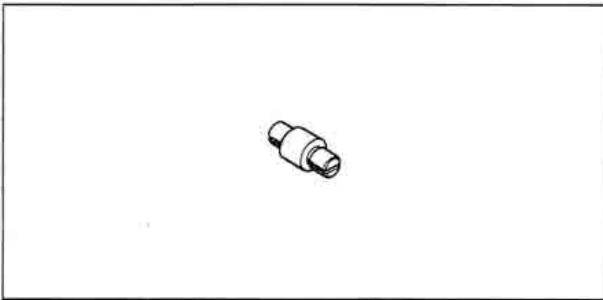
Bearing Remover Shaft: 57001-1265



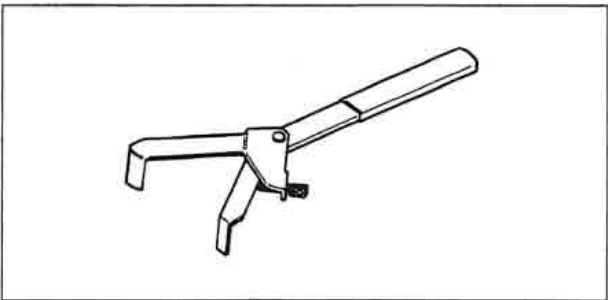
Pilot Screw Adjuster, A: 57001-1239



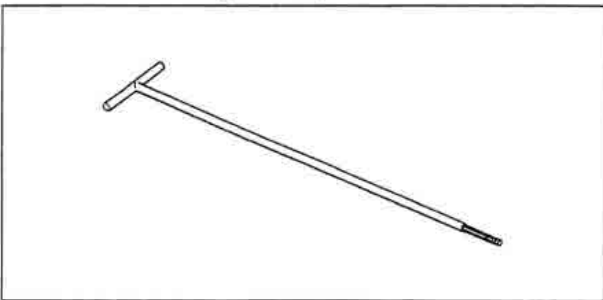
Bearing Remover Head, $\Phi 15 \times \Phi 17$: 57001-1267



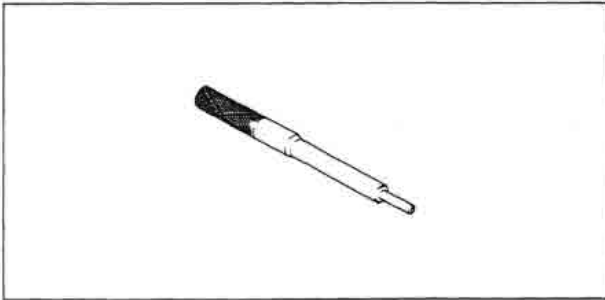
Clutch Holder: 57001-1243



Carburetor Drain Plug Wrench, Hex 3: 57001-1269



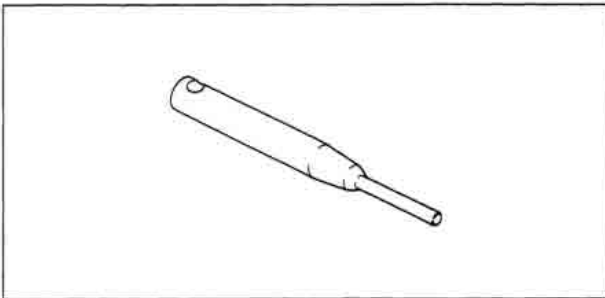
Valve Guide Arbor, $\Phi 4$: 57001-1273



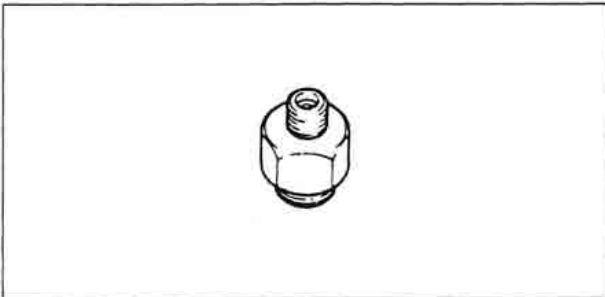
Valve Guide Reamer, $\Phi 4$: 57001-1274



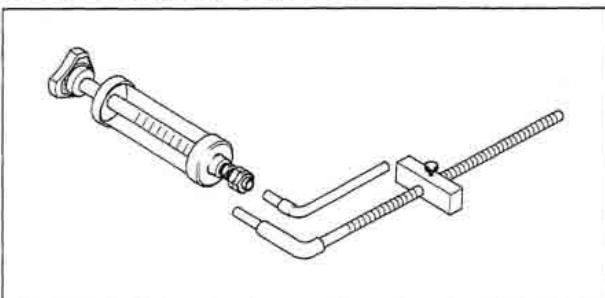
Valve Seat Cutter Holder, $\Phi 4$: 57001-1275



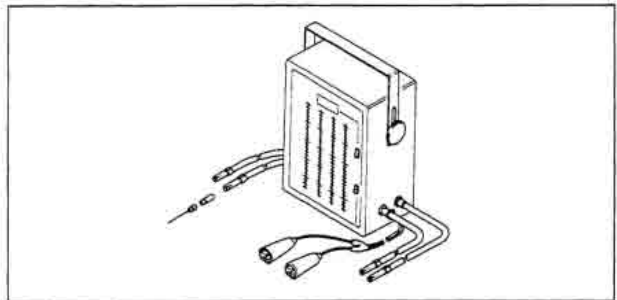
Oil Pressure Gauge Adapter, M18 x 1.5: 57001-1278



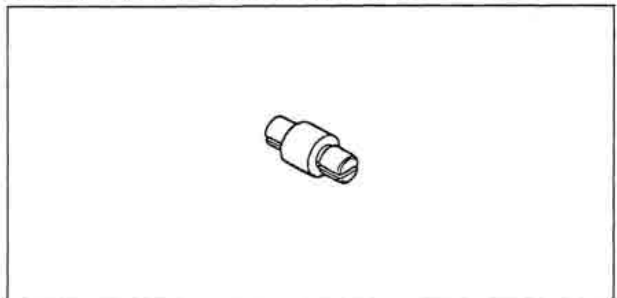
Fork Oil Level Gauge: 57001-1290



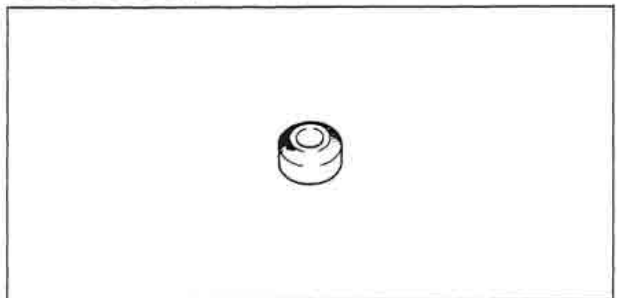
Vacuum Gauge & Tachometer:



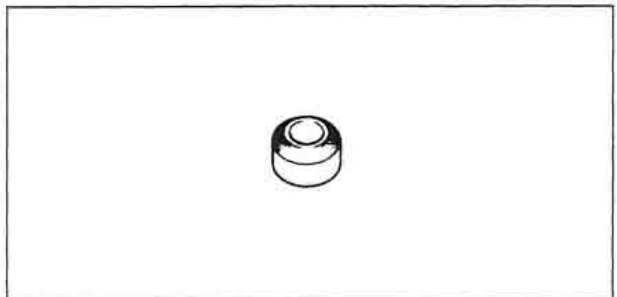
Bearing Remover Head, $\Phi 20 \times \Phi 22$: 57001-1293



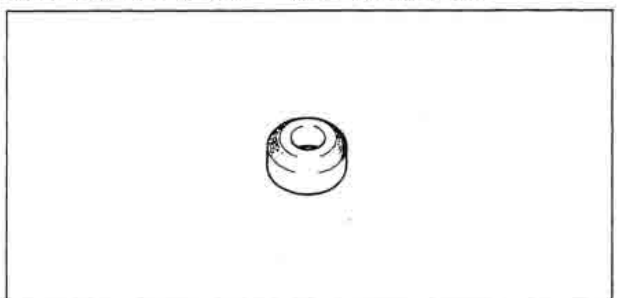
Valve Seat Cutter, $45^\circ - \Phi 18$: 57001-1306



Valve Seat Cutter, $30^\circ - \Phi 18$: 57001-1308

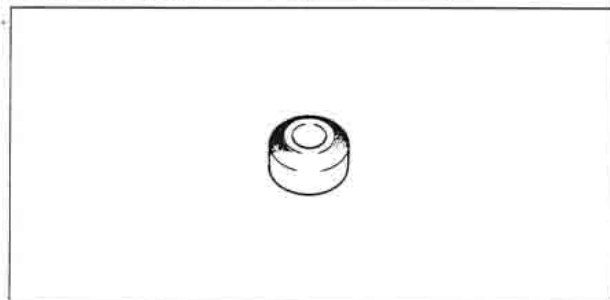


Valve Seat Cutter, $22.5^\circ - \Phi 21$: 57001-1309

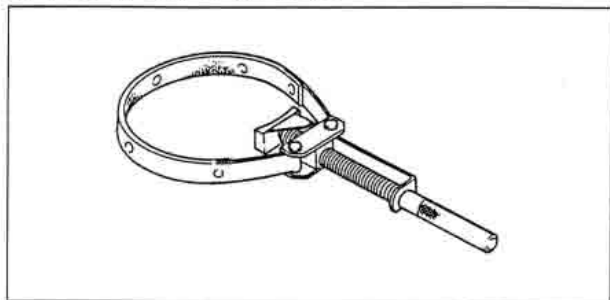


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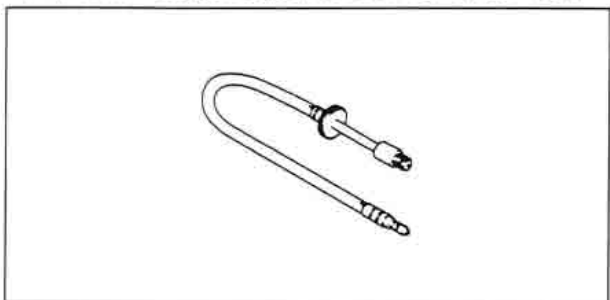
Valve Seat Cutter, 65° – $\Phi 19$: 57001-1310



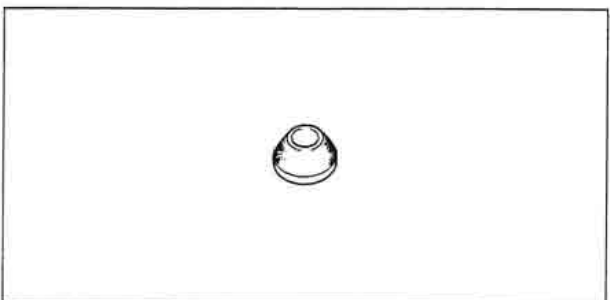
Flywheel Holder: 57001-1313



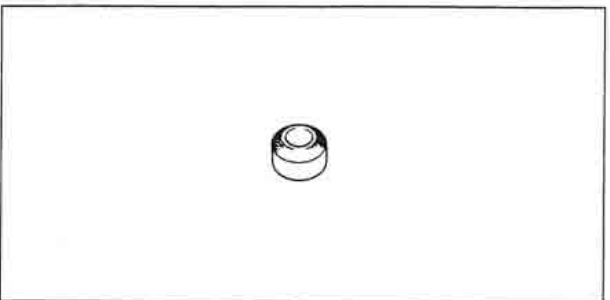
Compression Gauge Adapter, M10 X 1.0: 57001-1317



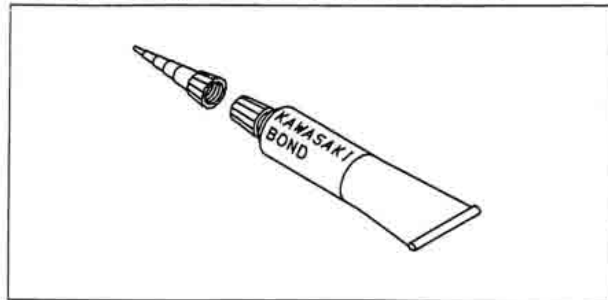
Valve Seat Cutter, 60° – $\Phi 25$: 57001-1328



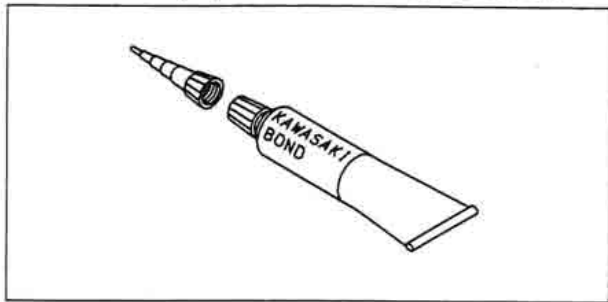
Valve Seat Cutter, 30° – $\Phi 23.5$: 57001-1329



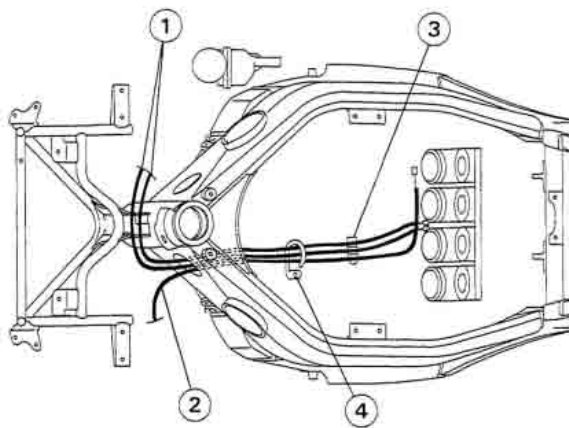
Kawasaki Bond (Silicone Sealant): 56019-120



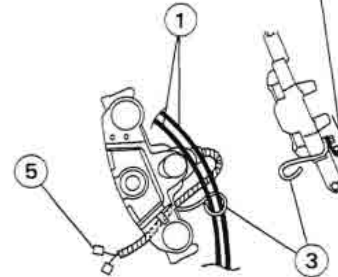
Kawasaki Bond (Liquid Gasket – Silver): 92104-002



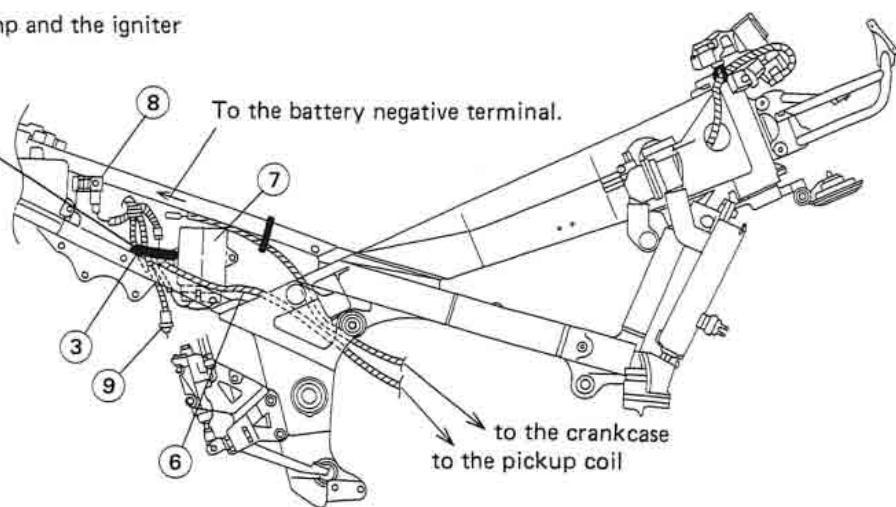
Cable, Wire and Hose Routing



The clamp must be installed with the end to the right side of the frame.

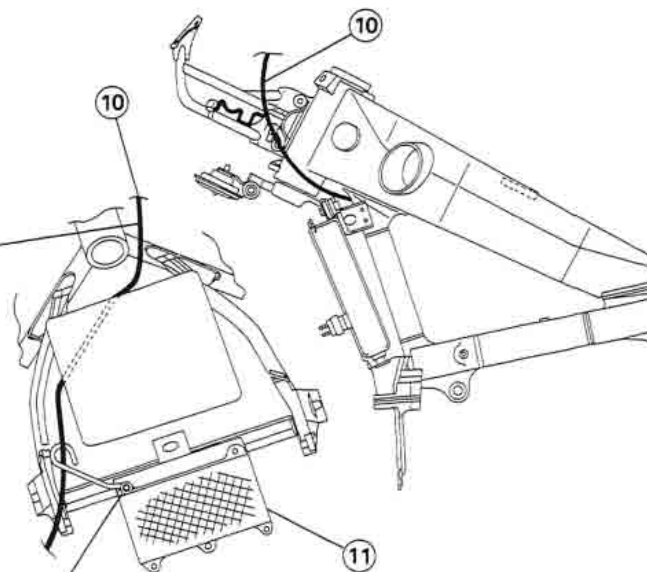


Tighten this clamp and the igniter together.

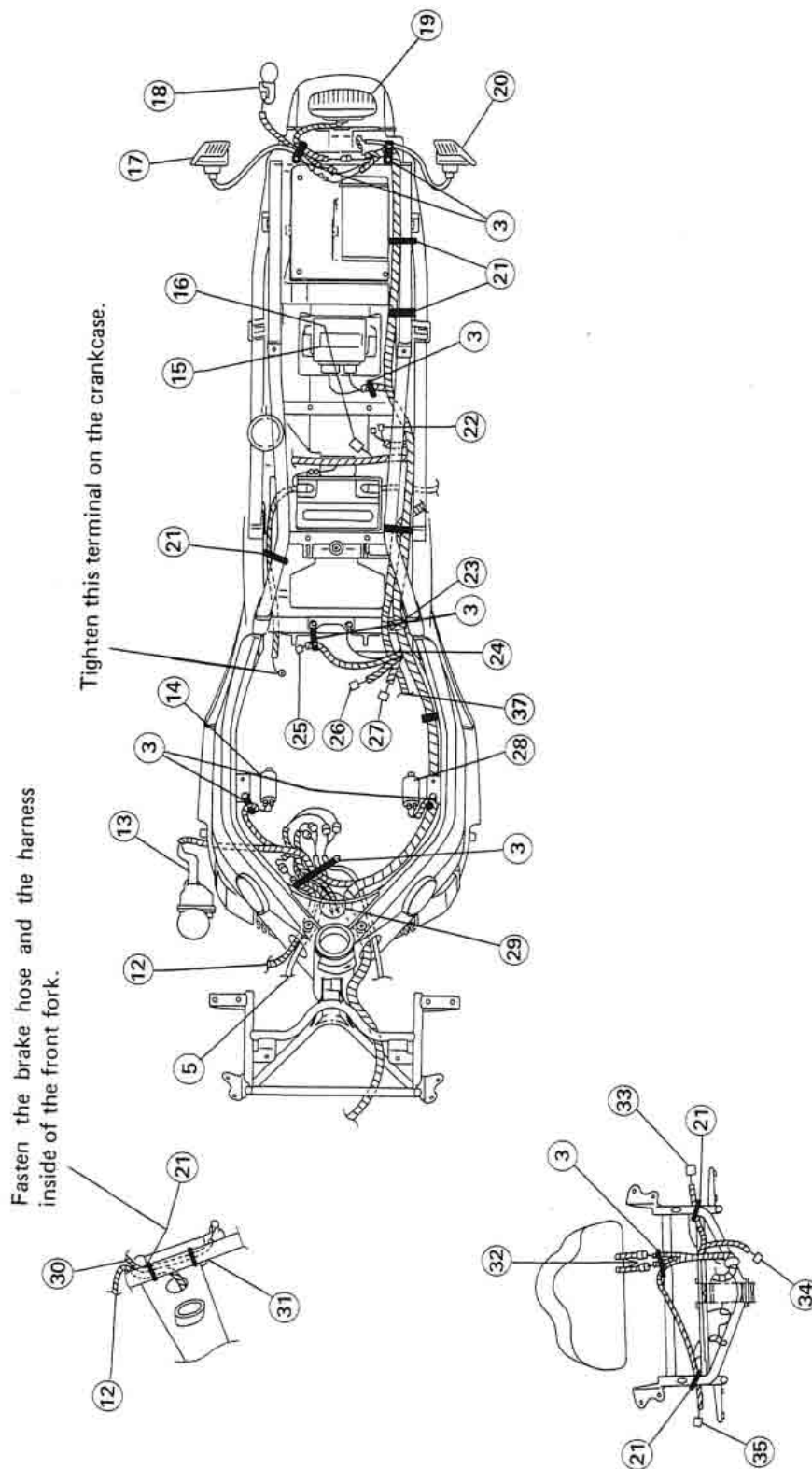


1. Throttle Cables
2. Choke Cable
3. Clamp
4. Bracket
5. Ignition Switch
6. Pickup Coil Lead
7. IC Igniter
8. Fuel Pump Relay
9. Rear Brake Light Switch
10. Clutch Cable
11. Oil Cooler

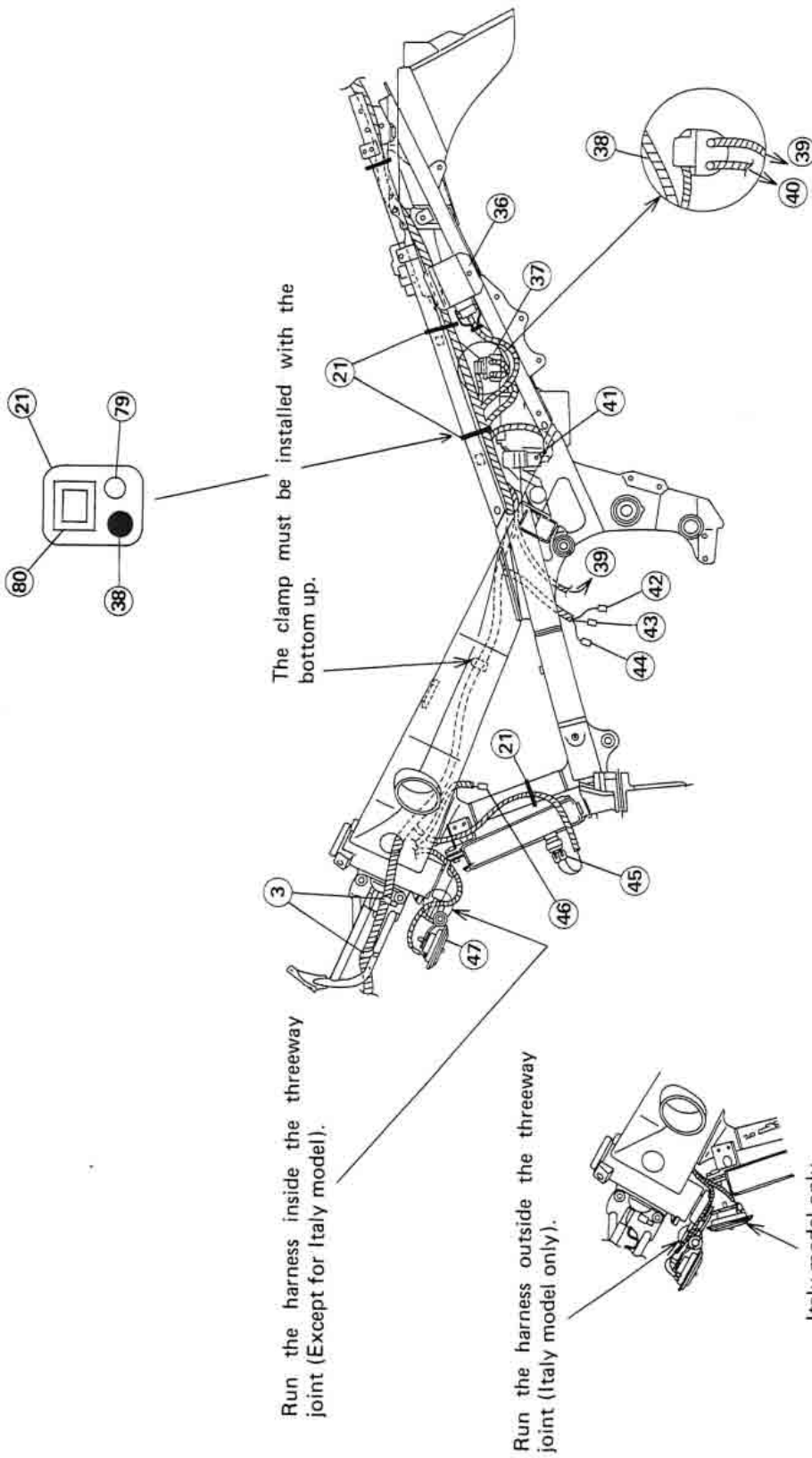
Run the clutch cable on the left side of the head pipe.



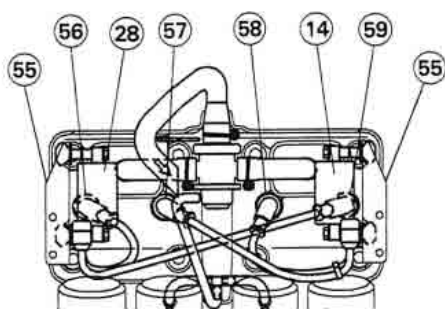
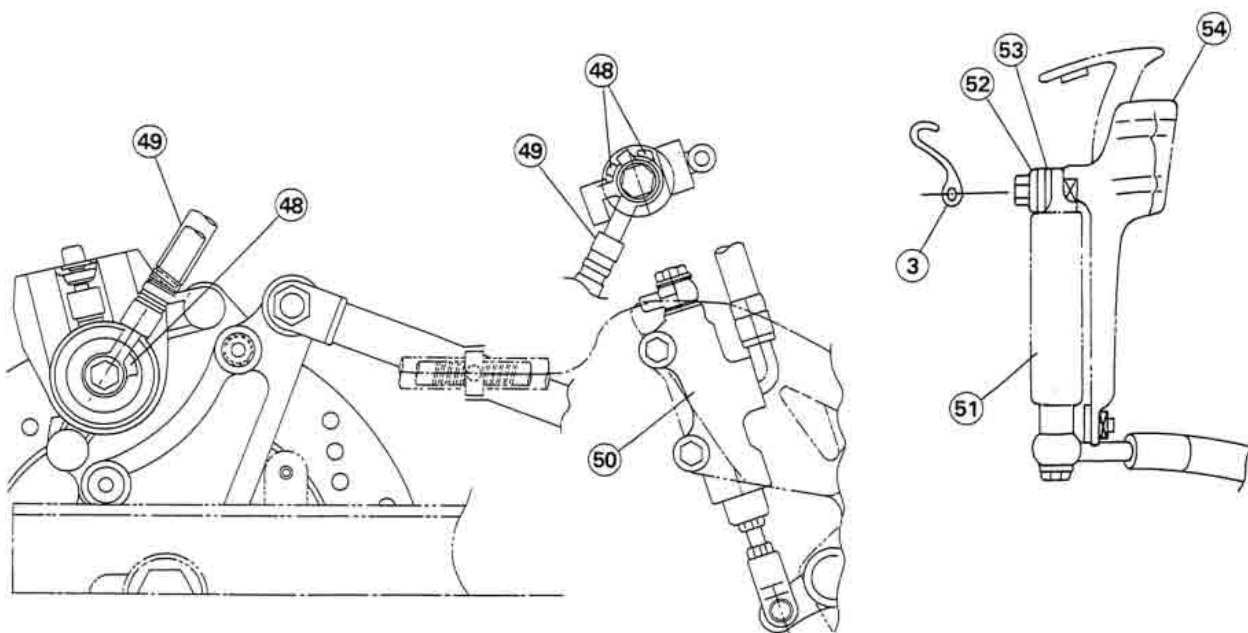
Clamp with the oil cooler mounting bolt.



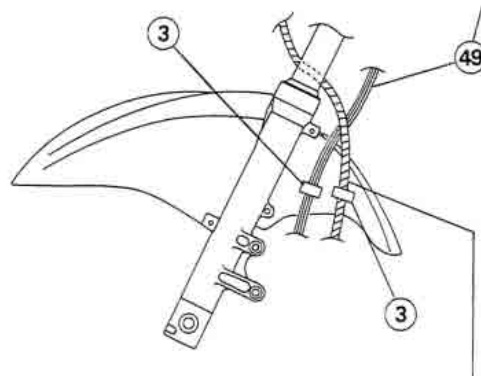
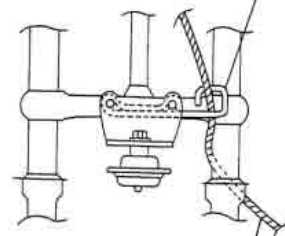
- | | | |
|----------------------------------|--------------------------------------|-----------------------------------|
| 12. Right Handlebar Switch Lead | 20. Rear Left Turn Signal Light | 28. #1, 4 Ignition Coil |
| 13. Thermostat Housing | 21. Band | 29. To Horn and Fan Motor |
| 14. #2, 3 Ignition Coil | 22. Accessory | 30. Brake Hose |
| 15. Junction Box | 23. White Tape (over the cross pipe) | 31. Front Fork |
| 16. Rectifier | 24. Frame Ground Lead | 32. Meter |
| 17. Rear Right Turn Signal Light | 25. Fuel Pump | 33. Front Left Turn Signal Light |
| 18. License Light | 26. Fuel Level Gauge | 34. Headlight |
| 19. Tail Light | 27. Alternator | 35. Front Right Turn Signal Light |



- 36. Regulator
- 37. Starter Relay
- 38. Main Harness
- 39. Starter Motor
- 40. To Battery Positive Terminal
- 41. Signal Light Relay
- 42. Neutral Switch
- 43. Oil Pressure Switch
- 44. Side Stand Switch
- 45. Radiator Fan Switch
- 46. Fan Motor
- 47. Horn
- 79. Battery (-) Lead
- 80. Frame

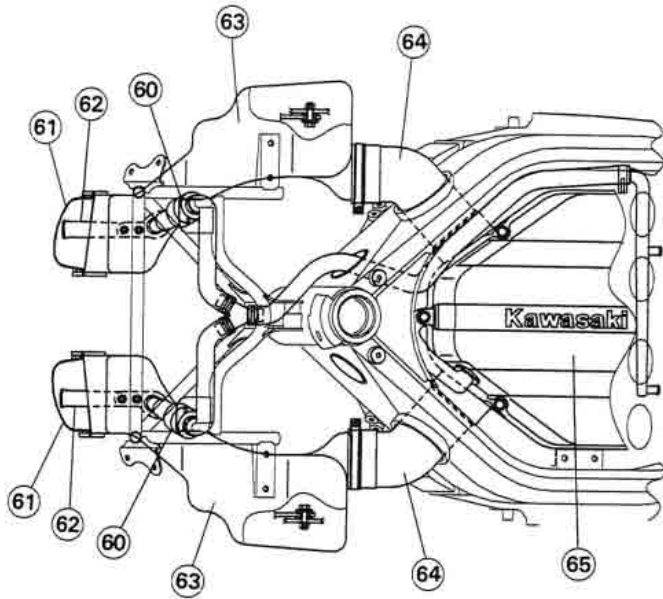


Tighten this clamp between the horn and the three-way joint upward.



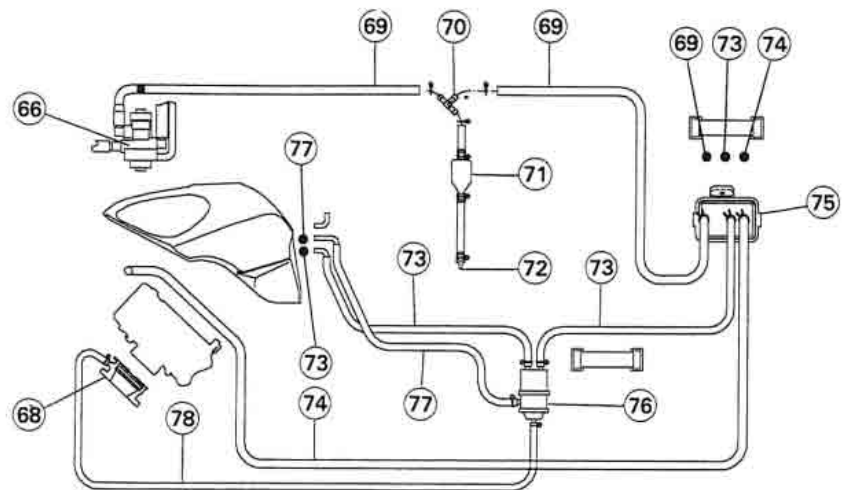
Run the speed meter cable outside the brake hose.

- 48. Stopper
- 49. Brake Hoses
- 50. Rear Master Cylinder
- 51. Oil Cooler
- 52. Collar
- 53. Damper
- 54. Bracket
- 55. Coil Bracket
- 56. #1 Hightention Code
- 57. #2 Hightention Code
- 58. #3 Hightention Code
- 59. #4 Hightention Code

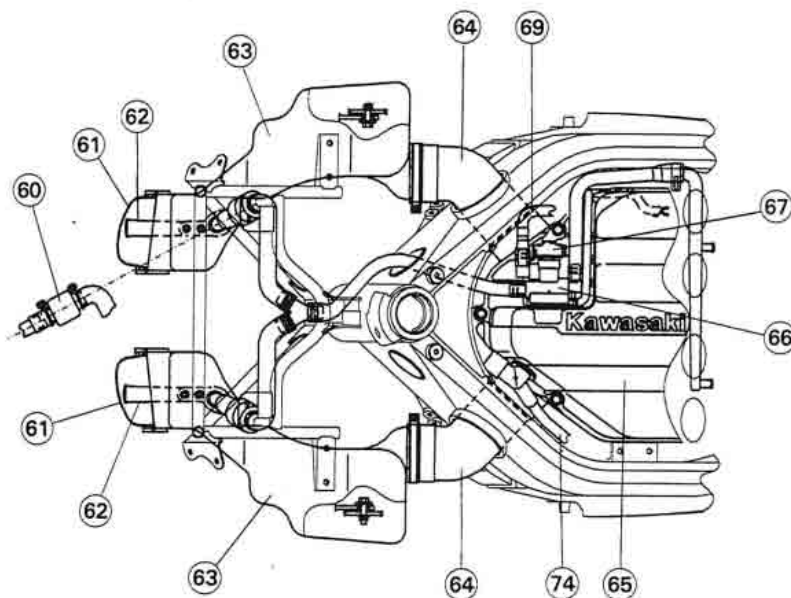


- 60. Filter
- 61. Screen
- 62. Pipe
- 63. Ram Air Duct
- 64. Tube
- 65. Air Cleaner Housing
- 66. Vacuum Valve
- 67. Bracket
- 68. Carburetor Holder

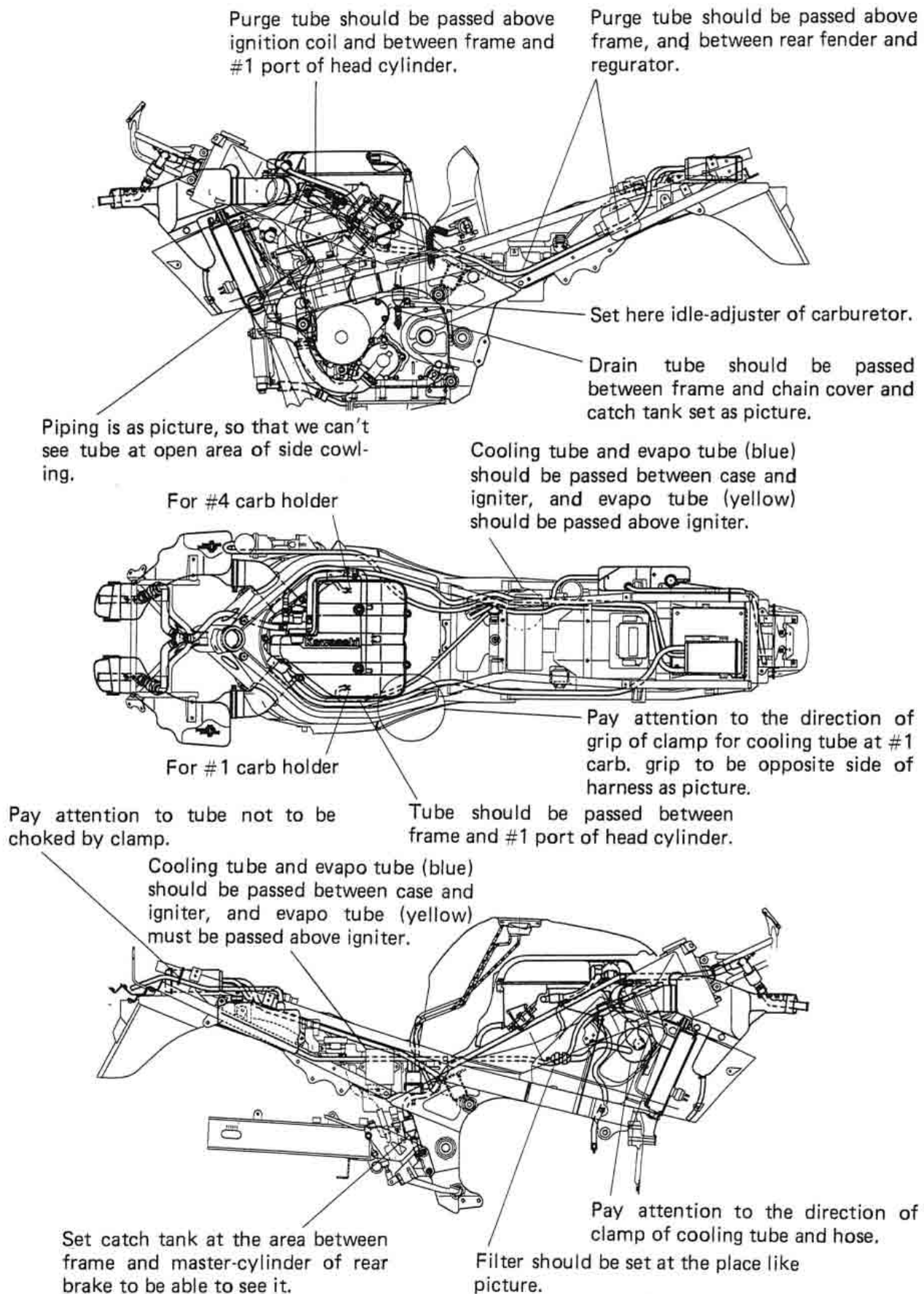
Evaporative Emission Control System



Evapo Model



- 69. Tube (Yellow)
- 70. Fitting
- 71. Breather
- 72. Plug
- 73. Tube (Blue)
- 74. Tube (Green)
- 75. Canister
- 76. Separator
- 77. Tube (Red)
- 78. Tube (White)



Fuel System

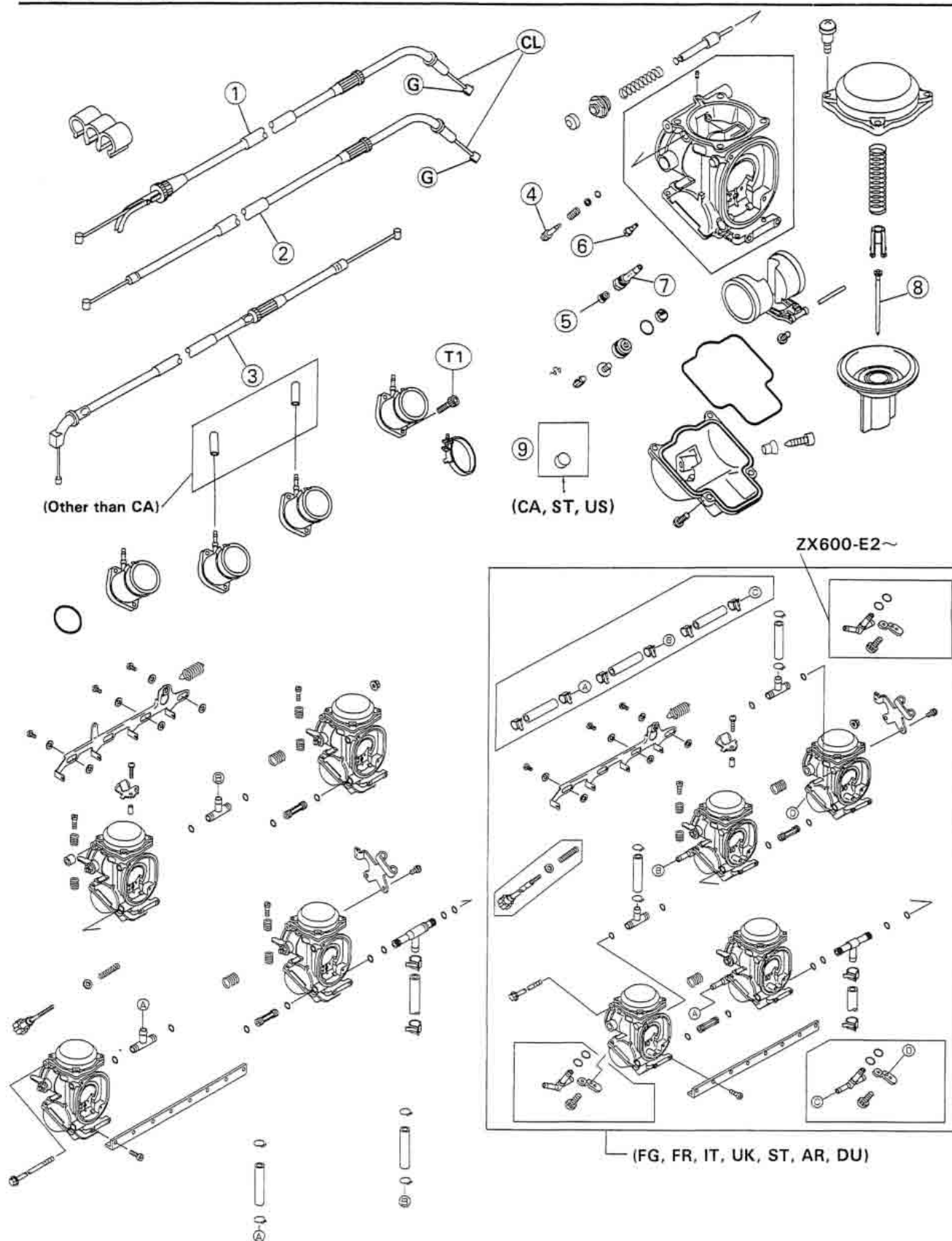
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(): See the Base Manual

2-2 FUEL SYSTEM

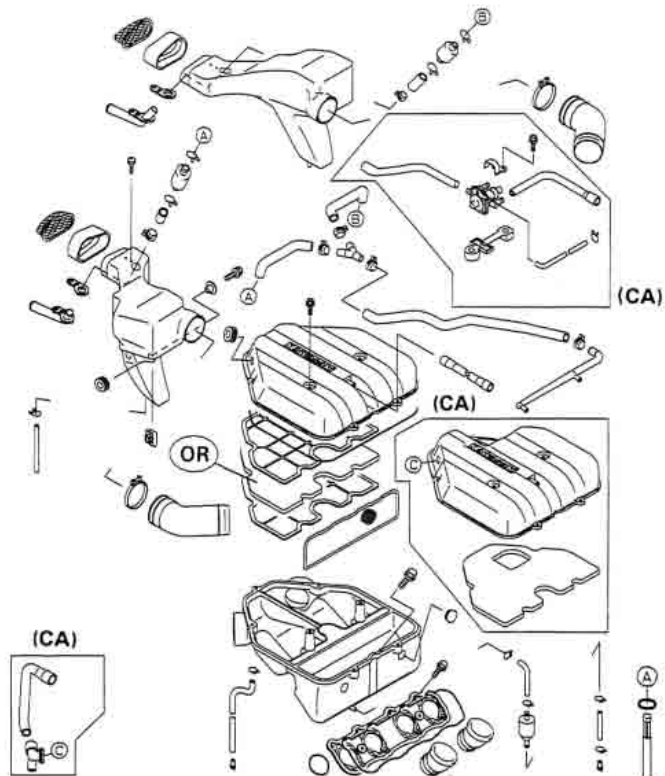
Exploded View



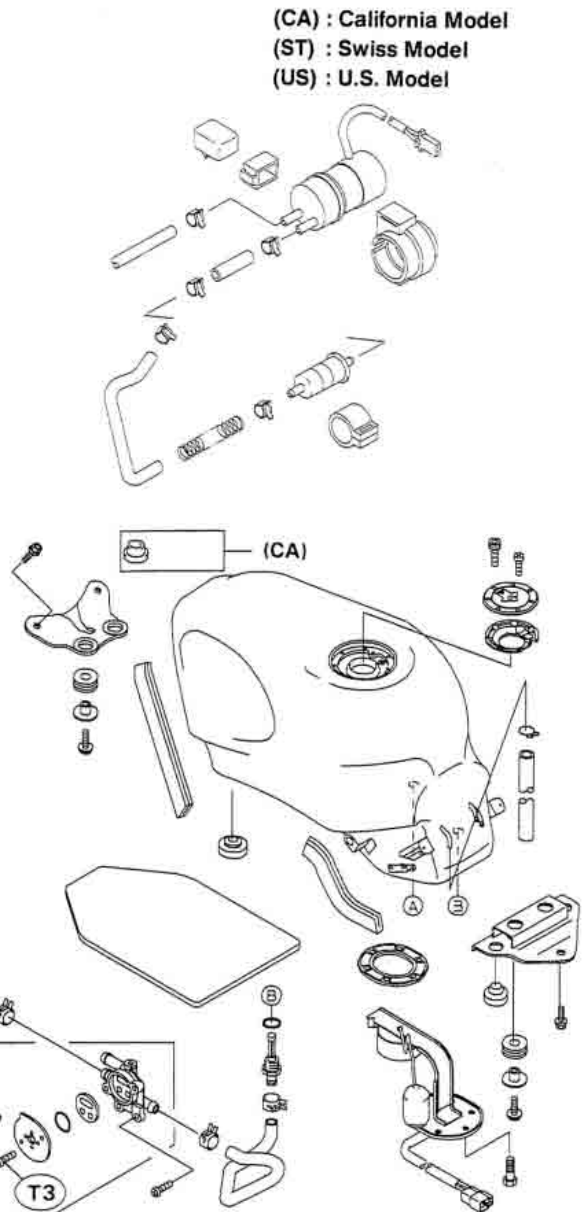
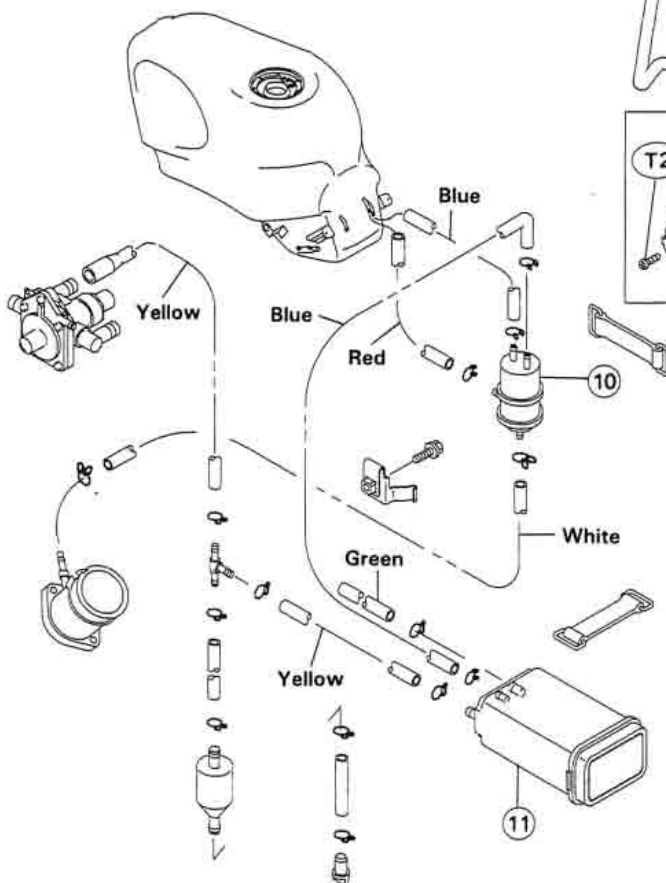
(FG) : German Model
(FR) : French Model

(IT) : Italian Model
(UK) : U.K. Model

(AR) : Austrian Model
(DU) : Dutch Model



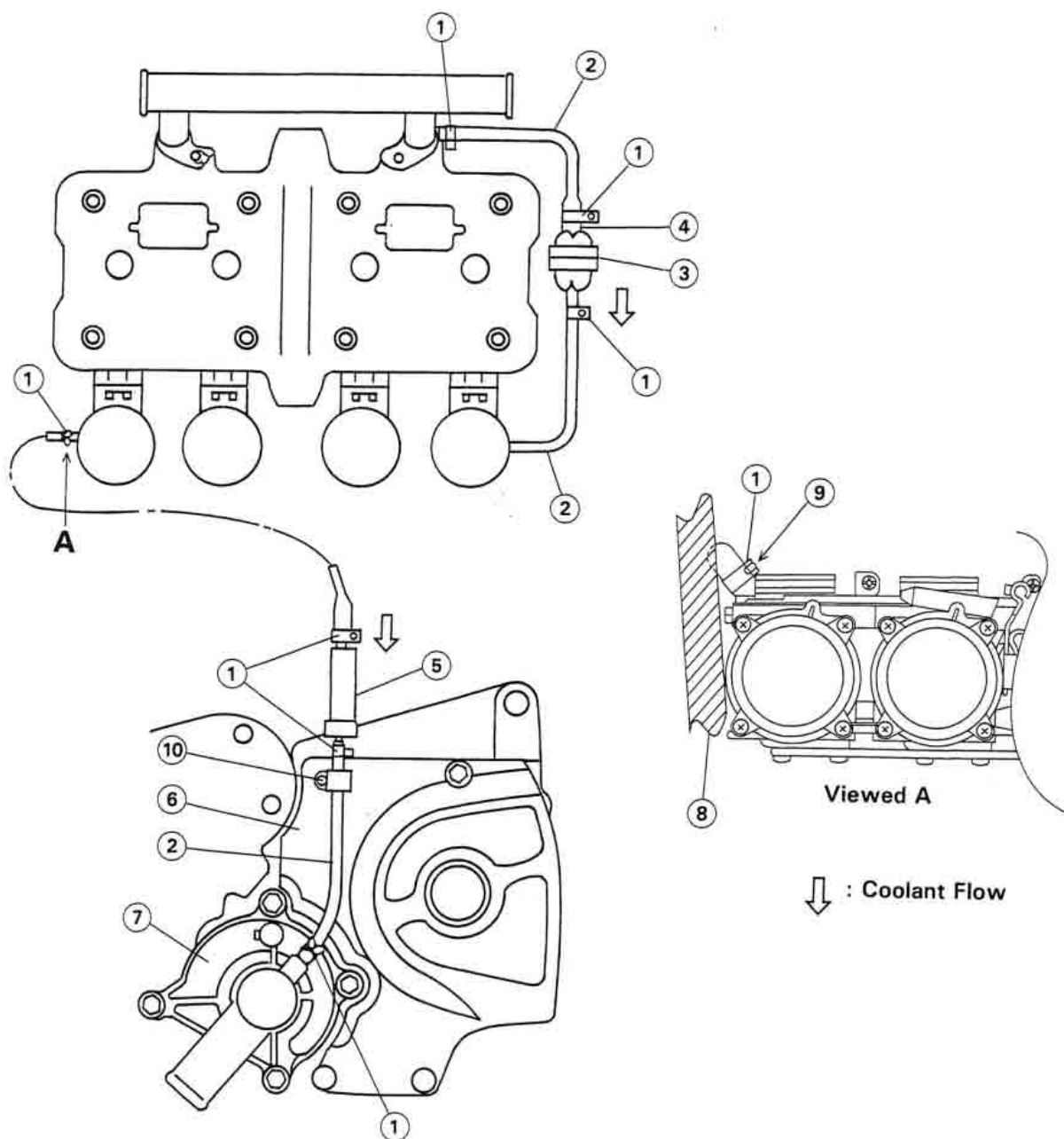
Evaporative Emission Control System
(California Model)



1. Throttle Cable (accelerator)
 2. Throttle Cable (decelerator)
 3. Choke Cable
 4. Pilot Screw
 5. Main Jet
 6. Pilot (Slow) Jet
 7. Needle Jet Holder
 8. Jet Needle
 9. Plug
 10. Separator
 11. Canister
- CL : Apply cable lubricant.
OR : Apply high-quality-foam-air-filter oil.
- T1 : 12 N-m (1.2 kg-m, 104 in-lb)
T2 : 1.0 N-m (0.10 kg-m, 9 in-lb)
T3 : 7.8 N-m (0.8 kg-m, 69 in-lb)

2-4 FUEL SYSTEM

Cooling Hose Routing



1. Clamp
2. Cooling Hose
3. Coolant Filter
4. Thick Side
5. Check Valve
6. Chain Cover
7. Water Pump Cover
8. Main Harness
9. Install the clamp so that its grip to be opposite side of the main harness as figure.
10. Install the clamp with the chain cover.

Specifications

Item	Standard
Throttle Grip and Cables: Throttle grip free play	2 ~ 3 mm
Choke Cable: Choke cable free play	2 ~ 3 mm
Carburetors: Make, type Idle Speed Pilot screw (turns out) Synchronization Service fuel level Float Height Main jet Main air jet Needle jet Jet needle mark Pilot jet (slow jet) Pilot air jet (slow air jet) Starter jet Throttle valve angle High Altitude Carburetor Specifications (US) Pilot jet Main jet	KEIHIN SEIKI CVK-D36 (ZX600E) CVK-D30 (ZX500D) 1050 ± 50 r/min (rpm), (AR) 1500 ± 50 r/min (rpm) (CA, ST) 1300 ± 50 r/min (rpm) 1 ½, (AR) 2, (CA, ST, US) – – 2.7 kPa (2 cmHg) or less difference between two cylinders 2 ~ 4 mm, (ZX500D) 8.5 ~ 10.5 mm below the mark 11 ± 2 mm, (ZX500D) 13 ± 2 mm #135, (AR, CA, ST) #140, (ZX500D) #115 #50, (ZX500D) #100 #6 N1VC, (ST) N23K, (ZX500D) N1QE #35 #110, (CA, ST, AR) #120, (ZX500D) #140 #52 11° #32 (92064-1117) #132 (92063-1076) (CA) #138 (92063-1015)
Air Cleaner Element Oil Grade Viscosity	SE or SF class SAE30

(AR): Austria Model
(CA): California Model

(ST): Switzerland Model
(US): U.S. Model

Special Tools – Fuel Level Gauge: 57001-1017
Pilot Screw Adjuster, A: 57001-1239
Carburetor Drain Plug Wrench, Hex 3: 57001-1269
Vacuum Gauge & Tachometer:

2-6 FUEL SYSTEM

Throttle Grip and Cables

Adjustment

Refer to the Base Manual, noting the following.

- Remove the following to adjust the throttle cables using the adjusters at the middle of cables.

Fuel Tank (see Fuel Tank Removal)

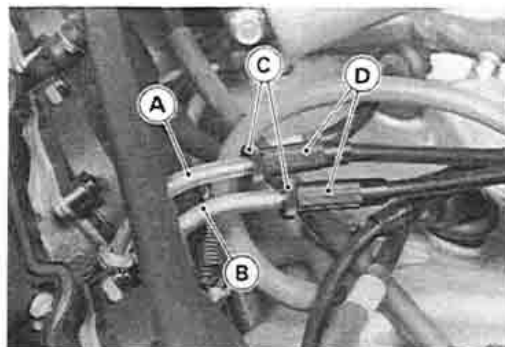
Air Cleaner Housing (see Air Cleaner Housing Removal)

A. Accelerator Cable

B. Decelerator Cable

C. Locknuts

D. Adjusting Nuts



Choke Cable

Adjustment

Refer to the Base Manual, noting the following.

- Remove the following to adjust the choke cable using the adjuster at the middle of the cable.

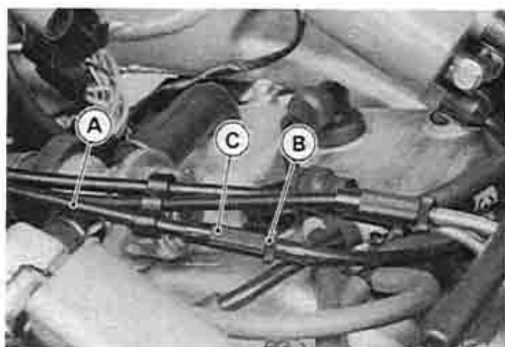
Fuel Tank (see Fuel Tank Removal)

Air Cleaner Housing (see Air Cleaner Housing Removal)

A. Choke Cable

B. Locknut

C. Adjuster



Carburetors

Idle Speed Adjustment

- Start the engine and warm it up thoroughly.
- Turn the handlebar from side to side while idling the engine.
- ★ If idle speed varies, the throttle cables may be poorly routed or they may be damaged.
- Correct any problem before operating the motorcycle.

⚠ WARNING

Operation with an improperly adjusted, incorrectly routed, or damaged cable could result in an unsafe riding condition.

- Check idle speed.

Idle Speed

	1 000 ~ 1100 r/min (rpm)
(CA)(ST)	1 250 ~ 1350 r/min(rpm)
(AR)	1 450 ~ 1 550 r/min (rpm)

- Turn the idle adjusting screw [A] until idle speed is correct.



High Altitude Performance Adjustment (US model)

- To improve the EMISSION CONTROL PERFORMANCE of vehicle operated above **4000 feet**, Kawasaki recommends the following Environmental Protection Agency (EPA) approved modification.
- Change the main jet and pilot jet for high altitude use.

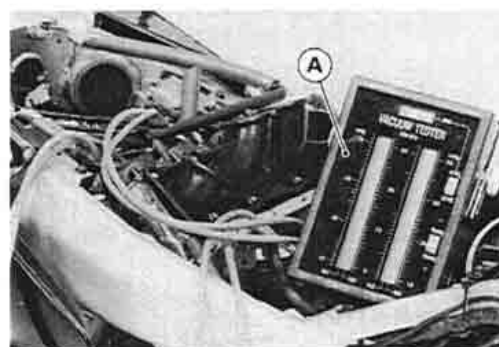
High Altitude Carburetor Specifications

Main Jet	: #132, (CA) #138
Pilot Jet	: #32

Carburetor Synchronization

- Remove:
 - Fuel Tank (see Fuel Tank Removal)
 - Air Cleaner Housing (see Air Cleaner Housing Removal)
- Start the engine and warm it up thoroughly.
- Check idle speed.
- Attach the vacuum gauge & tachometer [A] to the fittings on the carburetor holders.

Special Tool – Vacuum Gauge & Tachometer: 57001-1291



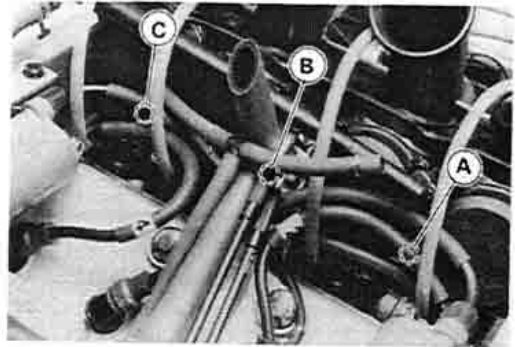
- Start the engine and let it idle to measure the carburetor intake vacuum.

Carburetor Synchronization Vacuum

Standard: Less than 2.7 kPa (2 cm Hg) difference between any two carburetors

2-8 FUEL SYSTEM

- Turn the adjusting screws to synchronize the carburetors.
- First synchronize the left two and then the right two carburetors by means of the left and right adjusting screws [A,C]. Then synchronize the left two carburetors and the right two carburetors using the center adjusting screw [B].
- ★ If the carburetor synchronization cannot be obtained by using the adjusting screws, check for dirt or blockage.



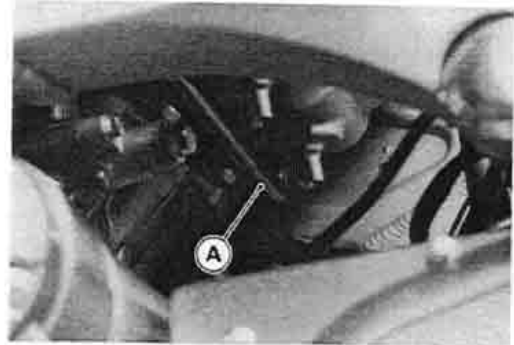
- Check the pilot screw settings using the pilot screw adjuster "A".

Special Tool – Pilot Screw Adjuster, A: 57001-1239 [A]

- Check the carburetor synchronization again.

NOTE

- Do not turn the pilot screws carelessly during carburetor synchronization. You may cause poor running at low engine speed.
- Check idle speed.



Service Fuel Level Adjustment

⚠ 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.

- Prepare a fuel hose (O.D. 6 mm, I.D. 3.5 mm and 300 mm in length).
- Connect the fuel level gauge to the carburetor float bowl with the fuel hose.

Special Tool – Fuel Level Gauge: 57001-1017 [A]

- Situate the motorcycle so that it is perpendicular to the ground.
- Check the fuel level [B] as shown.
- Turn out the carburetor drain plug a few turns (see Fuel System Check). Wait until the fuel level in the gauge settles.

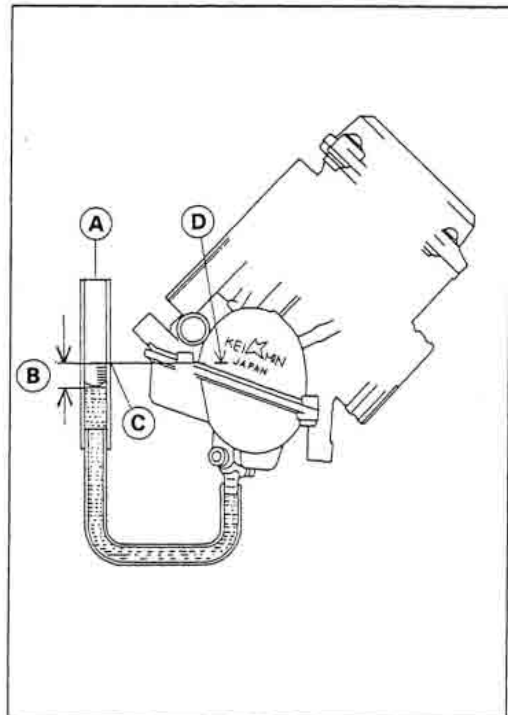
NOTE

- Keeping the gauge vertical, align the top line [C] with the mark [D] on the carburetor body right side. Then turn out the drain plug to feed fuel to the gauge.

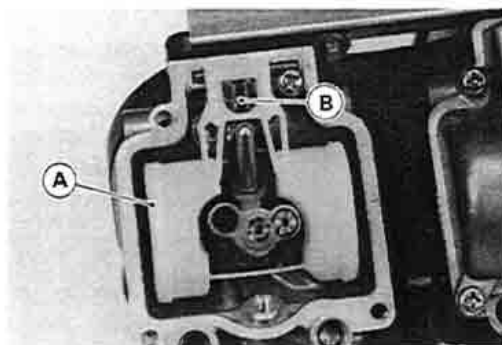
Service Fuel Level

2 ~ 4 mm (ZX500D, 8.5 ~ 10.5 mm) below the mark on the carburetor body

- Repeat the measurement for the other carburetors in the same manner.

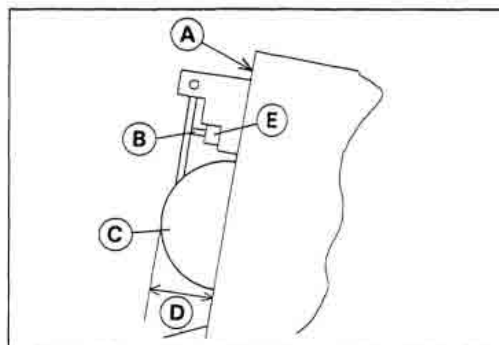


- To adjust the fuel level, remove the float bowl [A], and bend the tang [B] on the float arm to change the float height.



- Measure the float height tilting the carburetor so that the tang on the float just touches the needle rod in the float valve.
- Increasing the float height lowers the fuel level and decreasing the float height raises the fuel level.

- [A] Float Bowl Mating Surface
- [B] Needle Rod
- [C] Float
- [D] Float Height
- [E] Float Valve



Float Height

Standard: 11 ± 2 mm (ZX500D 13 ± 2 mm)

NOTE

- Do not push the needle rod in during the float height measurement.

Fuel System Check

⚠ 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.

- Connect a suitable hose to the fitting at the bottom of each carburetor float bowl.
- Run the lower ends of the hoses into a suitable container.
- Remove the seat (see Frame chapter).
- Turn the fuel tap to the "RES" position.
- Turn out each drain plug a few turns with the carburetor drain plug wrench [A] and drain the float bowls.

Special Tool – Carburetor Drain Plug Wrench, Hex 3: 57001-1269

- Check to see if water or dirt comes out.
- Tighten the drain plugs and turn the fuel tap to the off position.
- ★ If any water or dirt appeared during the above inspection, clean the fuel system.



2-10 FUEL SYSTEM

Carburetor Removal

⚠ 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.

- Remove the following.
 - Fuel Tank (see Fuel Tank Removal)
 - Air Cleaner Housing (see Air Cleaner Housing Removal)
 - Choke Cable
 - Fuel Hose (Inlet)
- Loosen the carburetor clamps and remove the carburetors.
- Split the throttle grip case and remove the throttle cable ends.
- Slip the tips of the throttle inner cable out of the pulley to complete carburetor assembly removal.

Carburetor Installation

- Install the carburetor holder so that the pipe is upward.
- Align the tang areas of the carburetor clamp with the holder grooves and install the clamps as shown being careful of the screw position and the screw head direction (see Engine Top End chapter).

⚠ WARNING

Be sure to install the holder clamp screws in the direction shown. Or, the screws could come in contact with the throttle linkage resulting in an unsafe riding condition.

- Install the holder hoses as shown in the Cable, Wire and Hose Routing section of the General Information chapter.

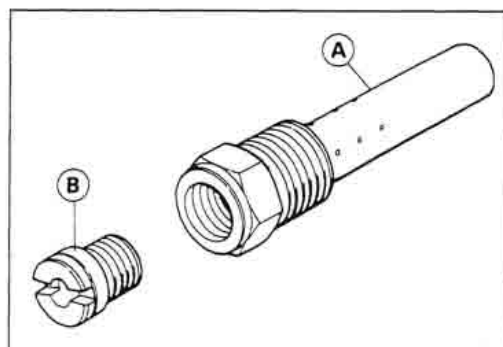
Carburetor Disassembly/Assembly

⚠ 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.

CAUTION

During carburetor disassembly, be careful not to damage the diaphragm. Never use a sharp edge to remove the diaphragm. Do not force the needle jet holder (air bleed pipe) [A] and main jet [B] or overtighten them. They could be damaged requiring replacement.

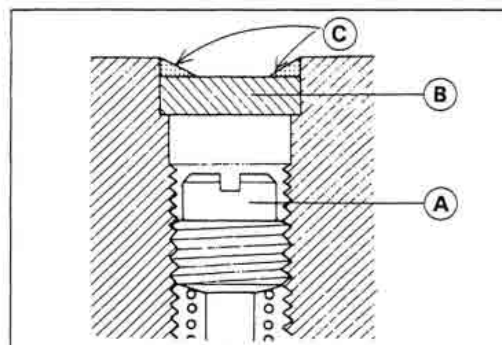


★ If the needle jet is damaged, replace the carburetor.

- For the US and Swiss models, remove and install the pilot screw plug as follows:
 - Punch a hole in the plug and pry it out with an awl or other suitable tool.
 - 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.
 - When installing, turn in the pilot screw [A] fully but not tightly and then back it out the same number of turns counted during disassembly.
 - Install a new plug [B] in the pilot screw hole, and apply a small amount of a bonding agent [C] to the circumference of the plug to fix the plug.

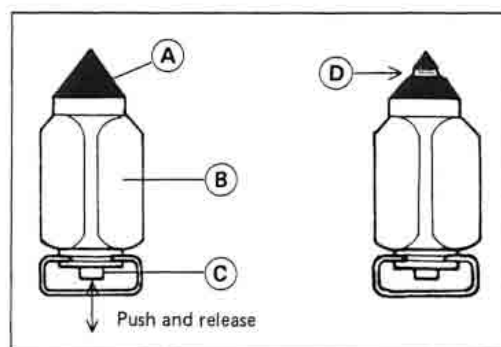
CAUTION

Do not apply too much bonding agent to the plug.

*Carburetor Inspection***⚠ WARNING**

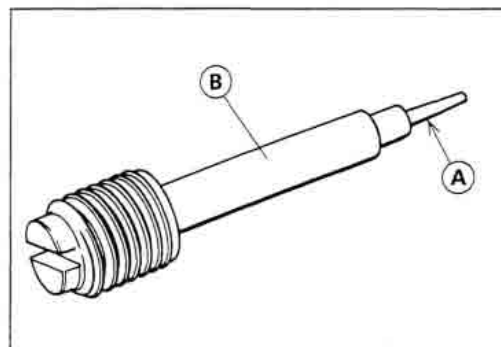
Gasoline is extremely flammable and can be explosive under certain conditions. Turn the ignition switch OFF. Do not smoke. Make sure the area is well ventilated and free from any source of flame or sparks; this includes any appliance with a pilot light.

- Remove the fuel tank (see this chapter).
- Slide the starter plunger lever right to left to check that the starter plungers move smoothly and return with spring tension.
- ★ If the starter plungers do not work properly, replace the carburetors.
- Turn the throttle cable lever to check that the throttle butterfly valves move smoothly and return by spring tension.
- ★ If the throttle valves do not move smoothly. Replace the valves and/or carburetors.
- Remove the carburetors (see this chapter).
- Check that the O-rings on the float bowl and pilot screws and the diaphragm on the vacuum piston are in good condition.
- ★ If any of the O-rings or diaphragms are not in good condition, replace them.
- Check the plastic tip [A] of the float valve needle [B]. It should be smooth without any grooves, scratches, or tears.
- ★ If the plastic tip is damaged [D], replace the needle.
- Push the rod [C] in the valve, then release it.
- ★ If the rod does not spring out, replace the valve.



2-12 FUEL SYSTEM

- Check the tapered portion [A] of the pilot screw [B] for wear or damage.
- ★ If the pilot screw is worn or damaged on the tapered portion, it will prevent the engine from idling smoothly. Replace it.



Coolant Filter Cleaning (FG, FR, IT, UK, ST, AR, DU model)

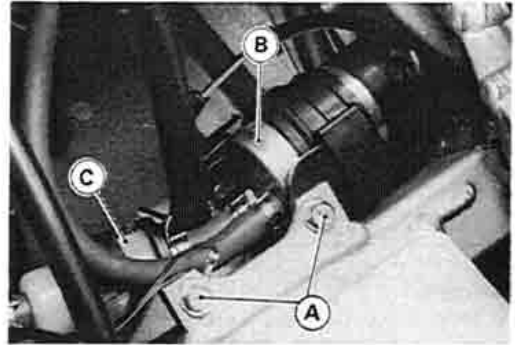
Before winter season starts, clean the filter of carburetor system.

- Drain the coolant (see Cooling System chapter).
- Remove the filter from the cooling hoses of carburetor system.
- Blow off dirt and sediment on the filter with compressed air.

Fuel Pump and Filter

⚠ 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. Be prepared for fuel spillage.



Removal

- Remove:
 - Fuel Tank (see Fuel Tank Removal)
 - Separator (California model)
 - Fuel Hoses
- Disconnect the pump lead connector.
- Remove the bracket mounting bolts [A] and take out the fuel pump [B] and filter [C].

Installation Notes

- Connect the fuel hoses as shown in the Cable, Wire, and Hose Routing section of the General Information chapter.
- Install the fuel filter so that the arrow on it shows the fuel flow from the fuel tank to the fuel pump.
- Be sure to route the hoses so that they will not be kinked or stretched.

Fuel Pump Inspection

Refer to the Electrical System chapter.

Fuel Filter Inspection

- Visually inspect the fuel filter.
- ★ If the filter is clear with no signs of dirt or other contamination, it is OK and need not be replaced.
- ★ If the filter is dark or looks dirty, replace it. Also, check the rest of the fuel system for contamination.
- Replace the fuel filter according to the Periodic Maintenance Chart (see General Information chapter).

2-14 FUEL SYSTEM

Air Cleaner

Element Cleaning

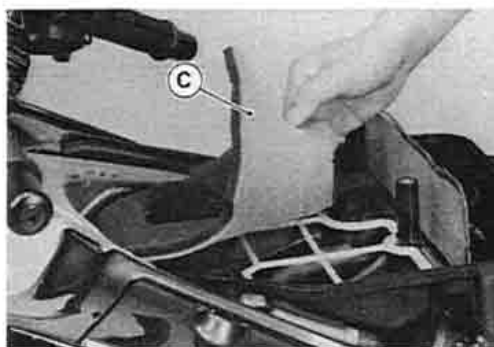
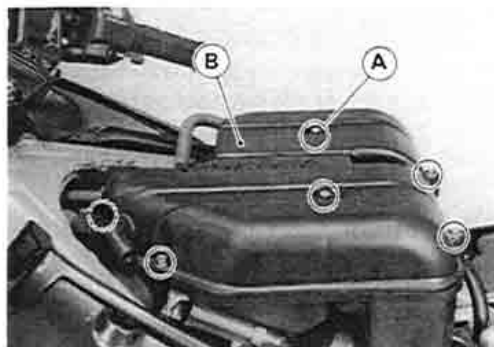
⚠WARNING

Clean the element in a well-ventilated area, and take care that there is no spark or flame anywhere near the working area; this includes any appliance with a pilot light. Because of the danger of highly flammable liquids, do not use gasoline or low-flash point solvents to clean the element. A fire or explosion could result.

- Remove:
 - Fuel Tank (see Fuel Tank Removal)
 - Crankcase Breather Hose
 - Air Cleaner Housing (Upper Mounting Bolts [A])
 - Upper Half of Air Cleaner Housing [B]
- Peel the air cleaner element [C].

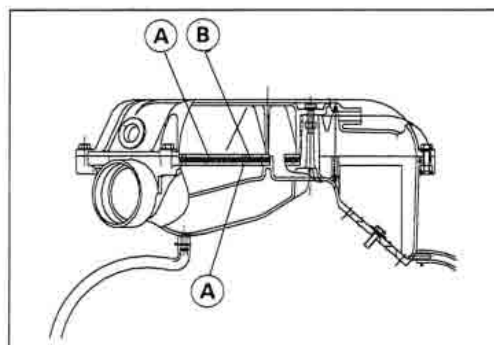
⚠WARNING

If dirt or dust is allowed to pass through into the carburetors, the throttle may become stuck, possibly causing accident.



- Wash the element in a bath of high-flash point solvent and then dry it with compressed air or by shaking it.
- After cleaning, saturate the sponge filter with SE or SF class SAE30 oil, squeeze out the excess, then wrap it in a clean rag and squeeze it dry as possible. Be careful not to tear the sponge filter.

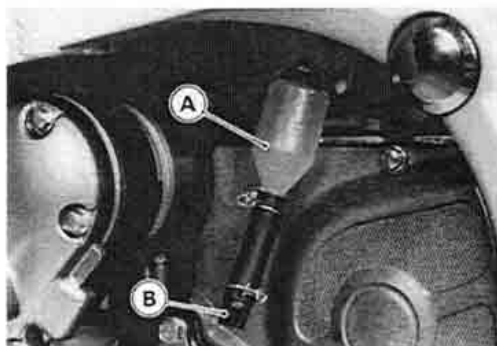
- Install the holders [A], element [B] and screen as shown.
- The element must be installed with the foam element side (gray) up.



Air Cleaner Draining

A catch tank is provided beneath the air cleaner housing, and catches the water or oil from the bottom of the housing. Usually water or oil does not collect at the bottom of the housing. In the event that rain water is drawn in through the air cleaner, or if engine oil is blown back, drain the housing.

- Visually check the catch tank [A] if the water or oil accumulates in the tank.
- ★ If any water or oil accumulates in the tank, drain it by taking off the drain plug [B] at the lower end of the drain hose.
- Be sure to install the plug firmly, or the air will be drawn in through it.

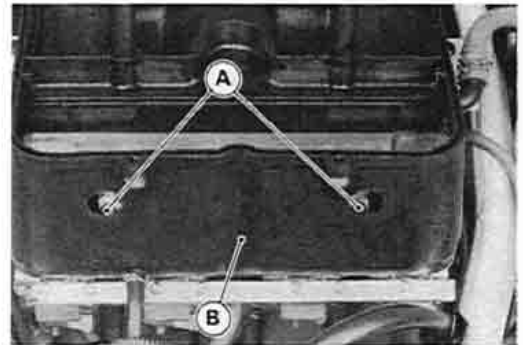


⚠ WARNING

Be sure to install the plug in the drain hose after draining. Oil could drain from the open hose and get on the tires which could cause an accident and injury.

Air Cleaner Housing Removal

- Remove:
 - Fuel Tank (see Fuel Tank Removal)
 - Crankcase Breather Hose
- Pull out plugs and unscrew the mounting bolts [A].
- Remove the air cleaner housing [B].

*Air Cleaner Housing Installation Notes*

- For easier installation of the air cleaner housing, first remove the upper housing and then take off the element with holders (see element cleaning).

2-16 FUEL SYSTEM

Fuel Tank

Removal

- Turn the fuel tap to the OFF position to stop the fuel flow.

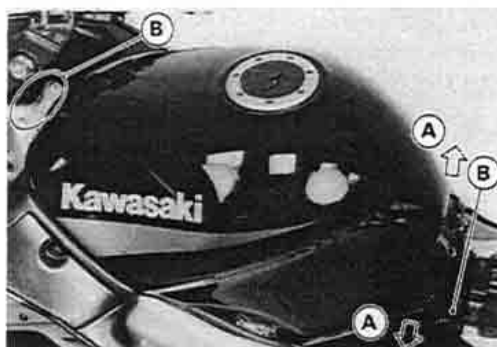
⚠ WARNING

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.

CAUTION

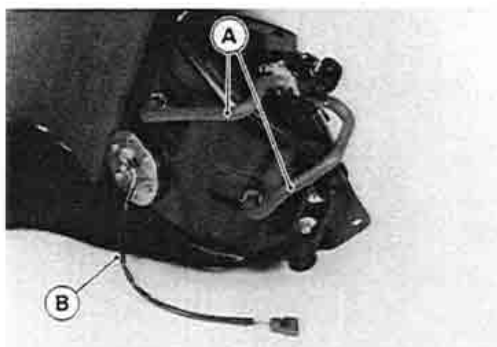
For California model, if gasoline, solvent, water, or any other liquid enters the canister, the canister's vapor absorbing capacity is greatly reduced. If the canister does become contaminated, replace it with a new one.

- Remove:
 - Seat (see Frame chapter)
 - Front Screws of Right and Left Side Covers
 - Evaporative Emission Hoses (CA)
 - Fuel Tap with Fuel Hoses left installed and Fuel Hose to the carburetor removed
- Pull [A] each front part of the side cover outboard to clear the stopper on both sides.
- Remove the fuel tank mounting bolts [B].
- Remove the fuel tank.



Installation

- Install the fuel tank hoses as shown.
 - [A] To Carburetor Fuel Hose
 - [B] Fuel Level Sensor Connector
- For the California model, run the evaporative emission hoses as shown in the Cable, Wire, and Hose Routing section of the General Information chapter.
- Be sure to connect the fuel level sensor connector.



Cooling System

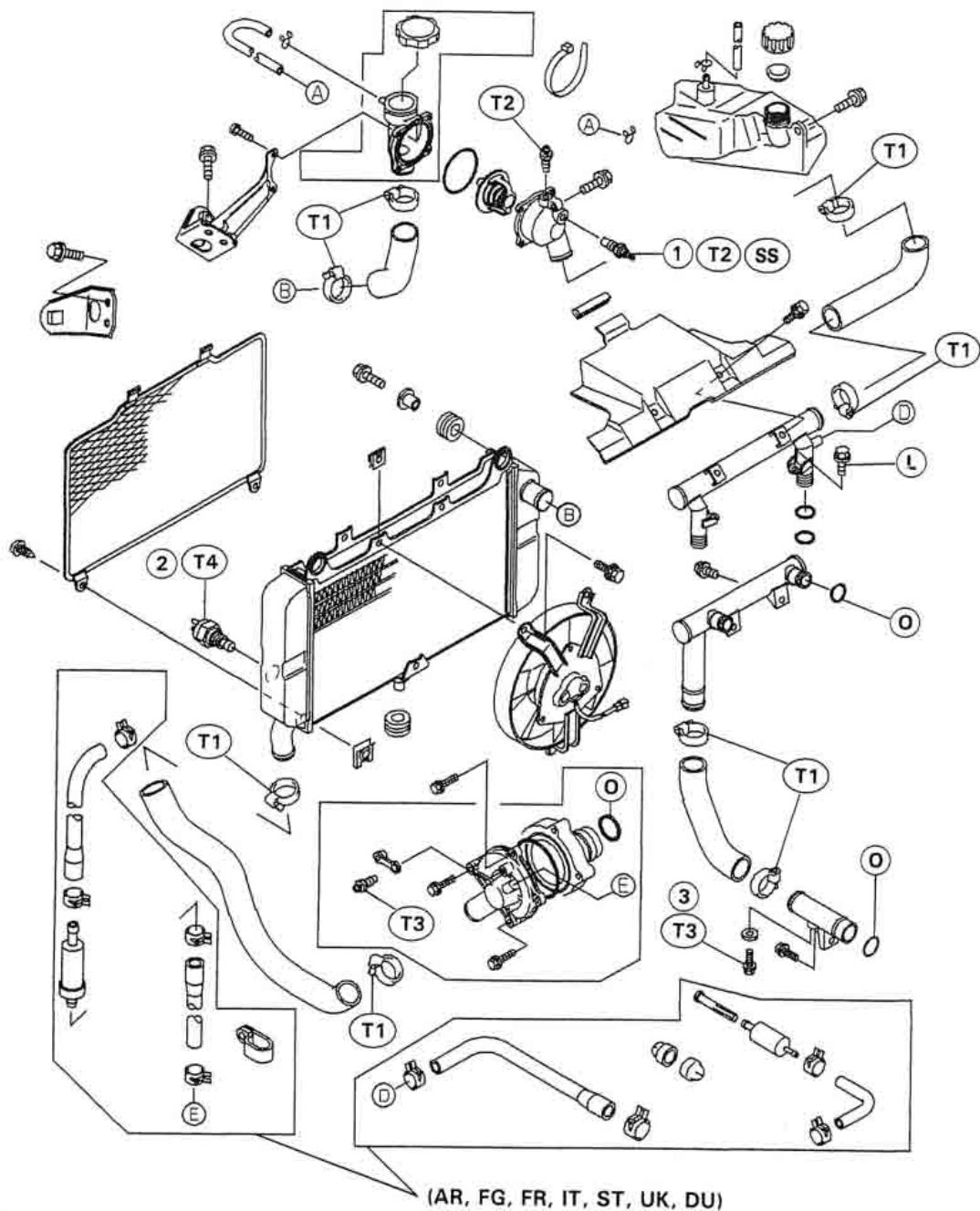
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(): See the Base Manual

3-2 COOLING SYSTEM

Exploded View



- 1. Water Temperature Sensor
- 2. Thermostatic Fan Switch
- 3. Drain Plug

L : Apply a non-permanent locking agent.
SS: Apply silicone sealant.
O : Apply oil.

T1 : 2.0 N-m (0.20 kg-m, 17 in-lb)
T2 : 7.8 N-m (0.80 kg-m, 69 in-lb)
T3 : 9.8 N-m (1.0 kg-m, 87 ft-lb)
T4 : 18 N-m (1.8 kg-m, 13.0 ft-lb)

(AR) : Austrian Model
(FG) : German Model
(FR) : French Model
(IT) : Italian Model
(ST) : Swiss Model
(UK) : U.K. Model
(DU) : Dutch Model

Specifications

Item	Standard
Recommended Coolant: Type Color Mixed ratio Freezing point Total amount	Permanent type of antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators) Green Soft water 50%, coolant 50% -35°C (-31°F) 2.5 L (reservoir tank full level including radiator and engine)
Radiator Cap: Relief pressure	93 ~ 123 kPa (0.95 ~ 1.25 kg/cm ² , 14 ~ 18 psi)
Thermostat: Valve opening temperature Valve full opening lift	80 ~ 84°C (176 ~ 183°F) 8 mm or more @ 95°C (203°F)

Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

Coolant

Coolant Filter Cleaning

Refer to the chapter of Carburetors in Fuel System for the cleaning procedure.

3-4 COOLING SYSTEM

Radiator and Radiator Fan

Removal

⚠WARNING

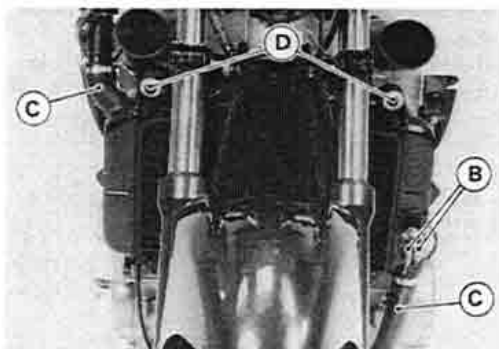
The radiator fan is connected directly to the battery. The radiator fan may start even if the ignition switch is off. NEVER TOUCH THE RADIATOR FAN UNTIL THE RADIATOR FAN CONNECTOR IS DISCONNECTED. TOUCHING THE FAN BEFORE THE CONNECTOR IS DISCONNECTED COULD CAUSE INJURY FROM THE FAN BLADES.



● Remove:

- Fairings (see Frame chapter)
- Coolant (Drain: see Water Pump Removal)
- Fuel Tank (see Fuel System chapter)
- Air Cleaner Housing (see Fuel System chapter)
- Radiator Fan Connector [A]
- Fan Switch Leads [B]
- Radiator Hose [C]
- Radiator Mounting Bolts [D]

● Remove the radiator.



Engine Top End

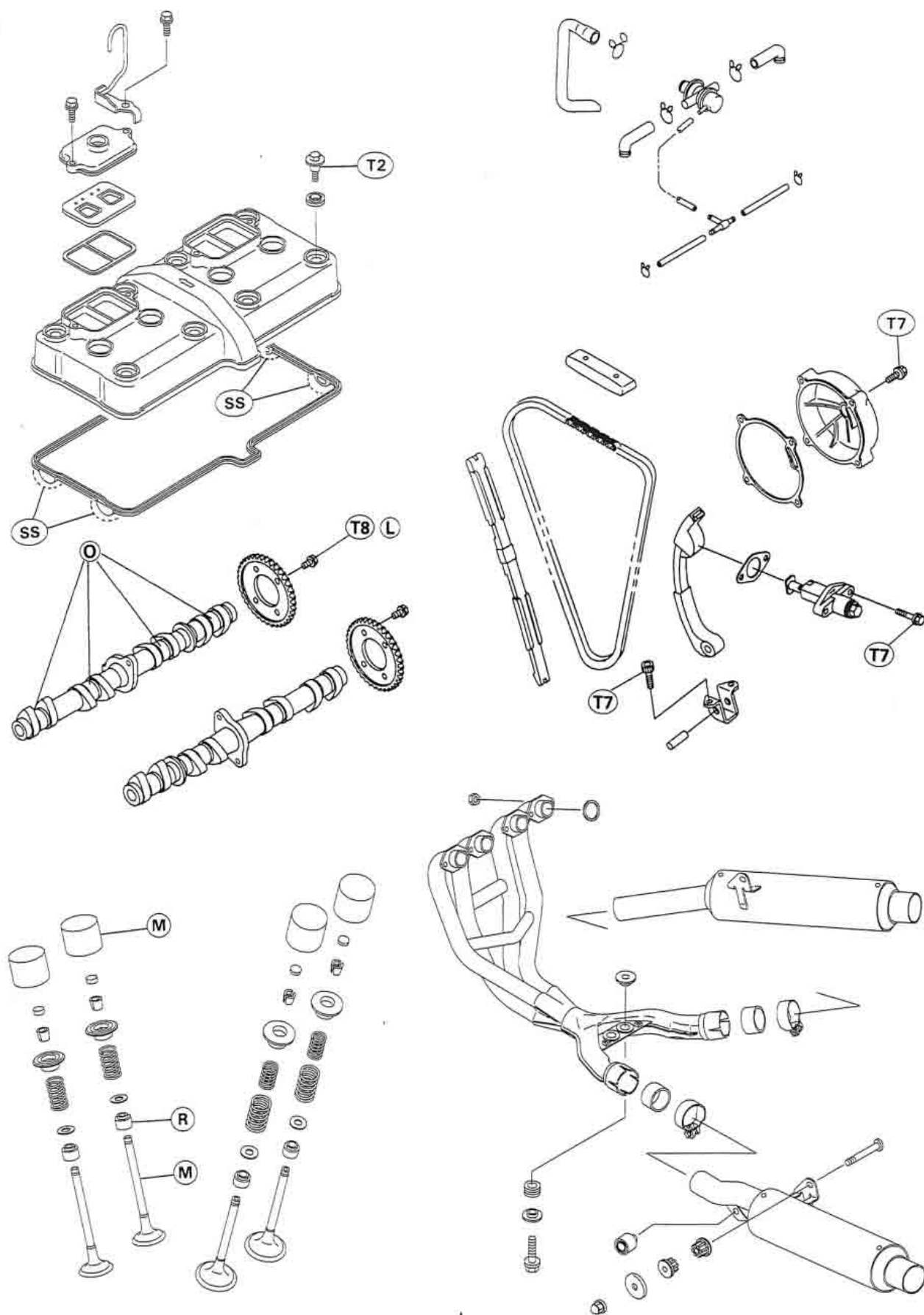
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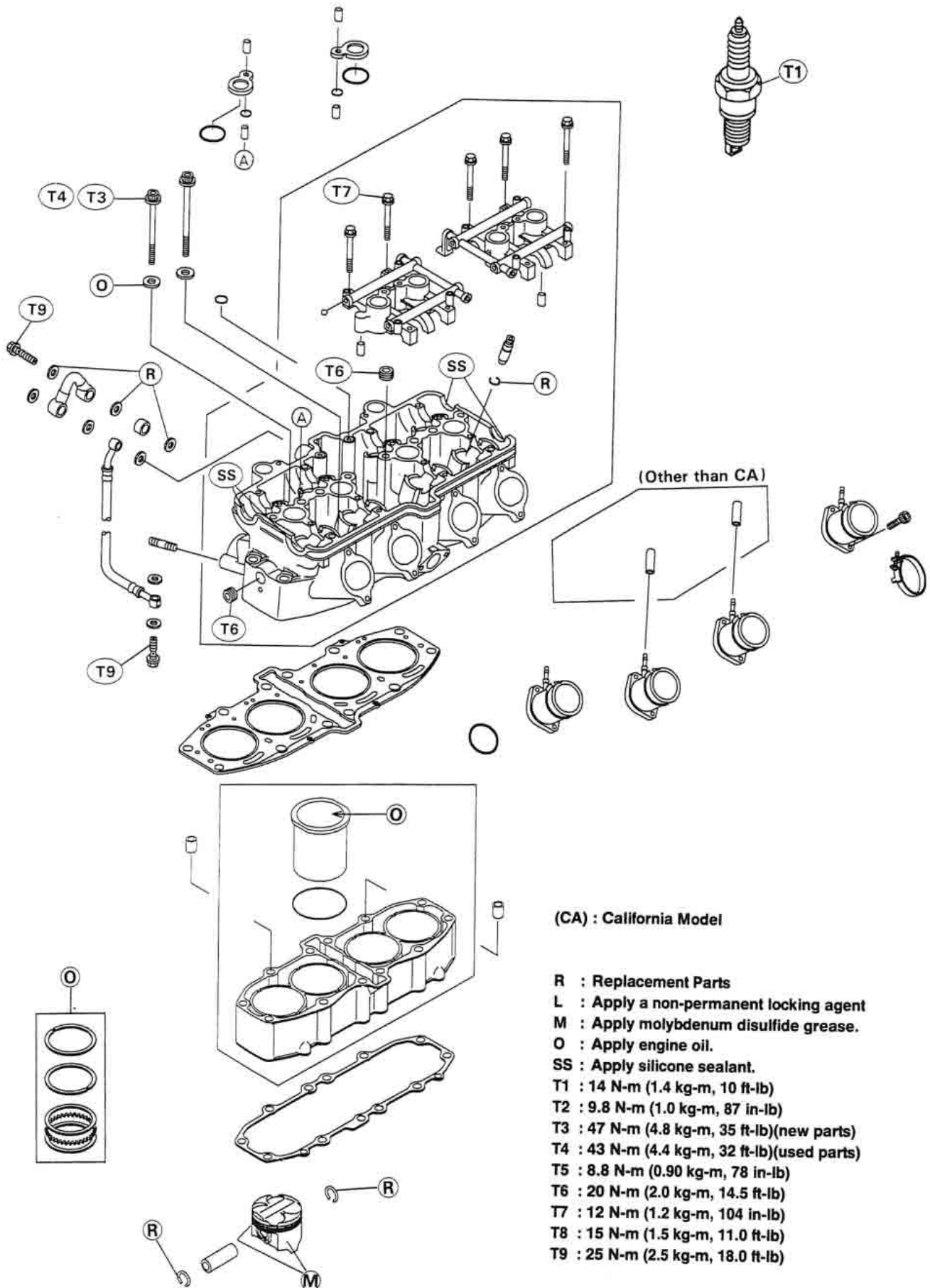
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(): See the Base Manual

4-2 ENGINE TOP END

Exploded View





4-4 ENGINE TOP END

Specifications

Item	Standard	Service Limit
Clean Air System:		
Vacuum switch valve closing pressure:	Open → Close 57 ~ 65 kPa (430 ~ 490 mm Hg)	---
Camshaft:		
Cam height:		
Inlet	34.946 ~ 35.054 mm	34.846 mm
Exhaust ZX600E	34.346 ~ 34.454 mm	34.246 mm
ZX500D	33.93 ~ 34.07 mm	33.83 mm
Camshaft, camshaft cap clearance	0.028 ~ 0.071 mm	0.16 mm
Camshaft journal diameter	23.950 ~ 23.972 mm	23.92 mm
Camshaft bearing inside diameter	24.000 ~ 24.021 mm	24.08 mm
Camshaft runout	0.02 mm TIR or less	0.1 mm TIR
Camshaft chain 20-link length	127.0 ~ 127.4 mm	128.9 mm
Cylinder Head:		
Cylinder compression (Usable range)	960 ~ 1470 kPa (9.8 ~ 15.0 kg/cm ² , 139 ~ 213 psi) @350 r/min (rpm)	---
Cylinder head warp	---	0.05 mm
Valves:		
Valve clearance:		
Inlet	0.15 ~ 0.24 mm	---
Exhaust	0.22 ~ 0.31 mm	---
Valve spring free length:		
Inlet(Inner)	40.00mm	38.6mm
Inlet(Outer)	42.69mm	41.29mm
Exhaust	43.95 mm	42.25 mm
Valve stem bend	0.01 TIR or under	0.05 mm TIR
Valve stem diameter:		
Inlet	3.975 ~ 3.990 mm	3.945 mm
Exhaust	3.955 ~ 3.970 mm	3.925 mm
Valve guide inside diameter:		
Inlet	4.000 ~ 4.012 mm	4.07 mm
Exhaust	4.000 ~ 4.012 mm	4.07 mm
Valve/valve guide clearance (wobble method):		
Inlet	0.034 ~ 0.116 mm	0.33 mm
Exhaust	0.088 ~ 0.167 mm	0.37 mm
Valve seat cutting angle		
ZX600E	45°, 30°, 32°, 60°, 67.5°	---
ZX500D	45°, 22.5°, 30°, 67.5°, 65°	---
Valve seat surface:		
Width:		
Inlet	0.5 ~ 1.0 mm	---
Exhaust	0.5 ~ 1.0 mm	---
Outside diameter:		
ZX600E Inlet	25.13 ~ 25.33 mm	---
Exhaust	21.13 ~ 21.33 mm	---
ZX500D Inlet	19.33 ~ 19.53 mm	---
Exhaust	15.73 ~ 15.93 mm	---
Valve head thickness:		
Inlet	0.5 mm	0.25 mm
Exhaust ZX600E	0.8 mm	0.50 mm
ZX500D	0.7 mm	0.40 mm

Item	Standard	Service Limit
Cylinder, Piston:		
Cylinder inside diameter:		
ZX600E	64.000 ~ 64.012 mm	64.10 mm
ZX500D	57.500 ~ 57.512 mm	57.60 mm
Piston diameter:		
ZX600E	63.940 ~ 63.960 mm	63.79 mm
ZX500D	57.440 ~ 57.460 mm	57.29 mm
Piston/cylinder clearance	0.040 ~ 0.072 mm	---
Oversize piston and rings	+ 0.5 mm	---
Piston ring/groove clearance:		
Top ZX600E	0.03 ~ 0.07 mm	0.17 mm
ZX500D	0.05 ~ 0.09 mm	0.19 mm
Second	0.03 ~ 0.07 mm	0.17 mm
Piston ring groove width:		
Top ZX600E	0.82 ~ 0.84 mm	0.92 mm
ZX500D	0.84 ~ 0.86 mm	0.94 mm
Second	0.82 ~ 0.84 mm	0.92 mm
Piston ring thickness:		
Top	0.77 ~ 0.79 mm	0.7 mm
Second	0.77 ~ 0.79 mm	0.7 mm
Piston ring end gap:		
Top	0.15 ~ 0.30 mm	0.6 mm
Second	0.30 ~ 0.45 mm	0.75 mm

Special Tools – Vacuum Gauge & Tachometer: 57001-1291
Compression Gauge: 57001-221
Compression Gauge Adapter, M10 X 1.0: 57001-1317
Valve Spring Compressor Assembly: 57001-241
Valve Guide Arbor, Φ4: 57001-1273
Valve Guide Reamer, Φ4: 57001-1274
Valve Spring Compressor Adapter, Φ20: 57001-1154
Valve Seat Cutter, 45° – Φ27.5: 57001-1114
Valve Seat Cutter, 32° – Φ28: 57001-1119
Valve Seat Cutter, 60° – Φ25: 57001-1328
Valve Seat Cutter, 45° – Φ24.5: 57001-1113
Valve Seat Cutter, 30° – Φ23.5: 57001-1329
Valve Seat Cutter, 67.5° – Φ22: 57001-1207
Valve Seat Cutter, 45° – Φ22: 57001-1205
Valve Seat Cutter, 22.5° – Φ21: 57001-1309
Valve Seat Cutter, 45° – Φ18: 57001-1306
Valve Seat Cutter, 30° – Φ18: 57001-1308
Valve Seat Cutter, 65° – Φ19: 57001-1310
Valve Seat Cutter Holder, Φ4: 57001-1275
Valve Seat Cutter Bar: 57001-1128
Piston Pin Puller Assembly: 57001-910

Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

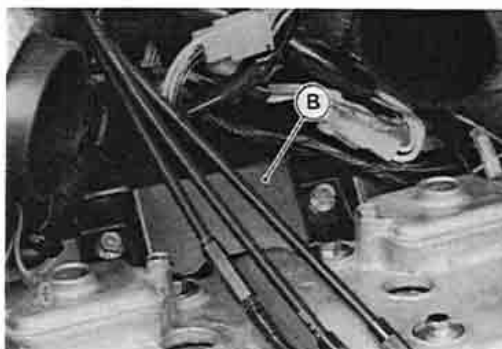
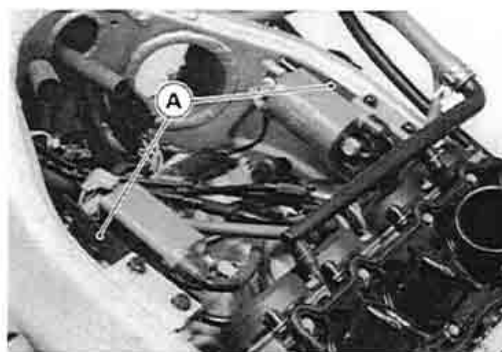
4-6 ENGINE TOP END

Cylinder Head Cover

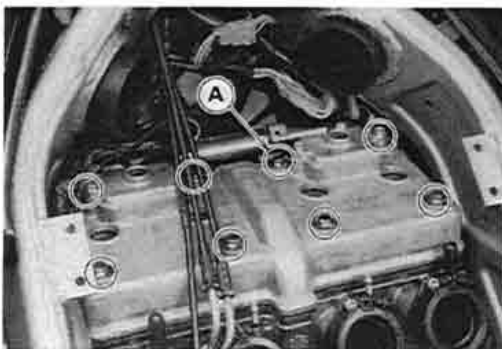
Removal

● Remove:

- Fuel Tank (see Fuel System chapter)
- Air Cleaner Housing
- Ignition Coils with Brackets [A]
- Carburetors (see Fuel System chapter)
- Air Suction Valve
- Baffle Plate [B]



- Remove the cylinder head cover bolts [A] and take off the cover.

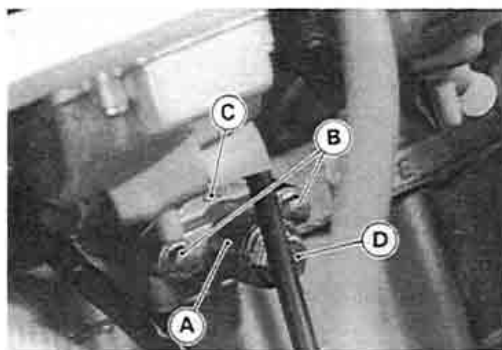


Camshaft Chain Tensioner

Removal

- Remove the fuel tank (see Fuel System chapter).
- Loosen the cap bolt.
- Remove the mounting bolts and take off the camshaft chain tensioner.

- A. Camshaft Chain Tensioner
- B. Mounting Bolts
- C. Arrow Mark
- D. Cap Bolt



CAUTION

This is a non-return type cam chain tensioner. The push rod does not return to its original position once it moves out to take up cam chain slack. Observe all the rules listed below:

When removing the tensioner, do not take out the mounting bolts only halfway. Retightening the mounting bolts from this position could damage the tensioner and the camshaft chain. Once the bolts are loosened, the tensioner must be removed and reset as described in "Chain Tensioner Installation."

Do not turn over the crankshaft while the tensioner is removed. This could upset the cam chain timing, and damage the valves.

4-8 ENGINE TOP END

Camshaft

Camshaft Removal

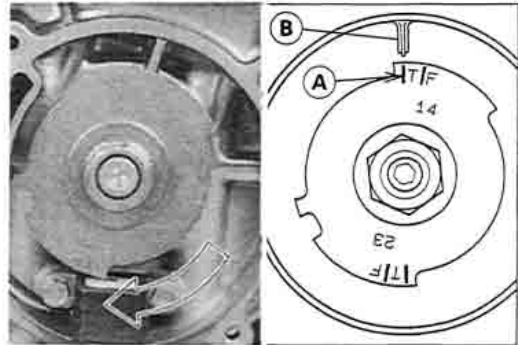
● Remove:

- Fuel Tank (see Fuel System chapter)
- Carburetors (see Fuel System chapter)
- Cylinder Head Cover (see Cylinder Head Cover Removal)
- Pickup Coil Cover (see Electrical System chapter)
- Camshaft Chain Tensioner (see Camshaft Chain Tensioner Removal)

NOTE

- Before removing the chain tensioner, position the crankshaft at #1, 4 piston TDC.

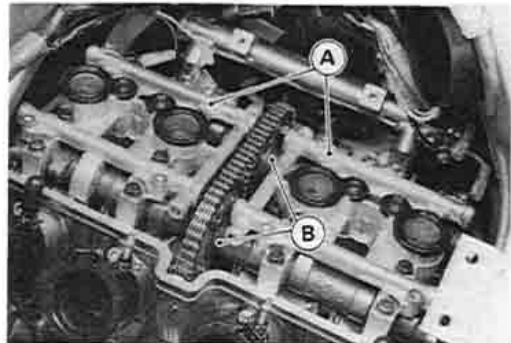
- A. TDC Mark
- B. Timing Mark



- Remove the camshaft cap bolts in the reverse order of the numbers embossed on the caps.
- Take off the camshaft caps [A] and camshafts [B].
- Stuff a clean cloth into the chain tunnel to keep any parts from falling into the crankcase.

CAUTION

The crankshaft may be turned, while the camshafts are removed. Always pull the chain taut while turning the crankshaft. This avoids kinking the chain on the lower (crankshaft) sprocket. A kinked chain could damage both the chain and the sprocket.

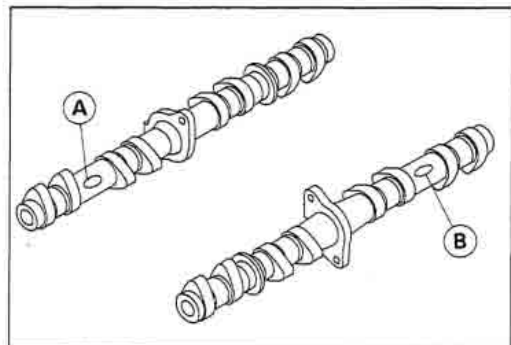


Camshaft Installation

- Installation is the reverse of removal. Note the following.
- Apply engine oil to all cam parts and journals.
- If a new camshaft is to be used, apply a thin coat of molybdenum disulfide grease to the cam surfaces and journals.

NOTE

- The exhaust camshaft has a 250 EX mark [A] and the inlet camshaft has a 250 IN mark [B]. Be careful not to mix them up.
- Position the crankshaft at #1, 4 piston TDC (see Camshaft Removal).



Cylinder Head

Cylinder Compression Measurement

NOTE

○ Use the battery which is fully charged.

- Warm up the engine thoroughly.
- Remove:
 - Fuel Tank (see Fuel System chapter)
 - Air Cleaner Housing
 - Ignition Coil with Bracket
 - Spark Plugs
- Attach the compression gauge, and adapter (special tools) firmly into the spark plug hole.

Special Tool – Compression Gauge: 57001-221 [A]

Adapter 57001-1255 [B]

- Hold the throttle wide open and crank the engine with the starter.
- When the gauge stops rising, stop cranking and read the gauge.

Cylinder Compression

Usable Range:

960 ~ 1470 kPa @350 r/min (rpm)

(9.8 ~ 15 kg/cm², 139 ~ 213 psi)

- ★ If cylinder compression is higher than the specified range, check the following.

Carbon build-up on the cylinder head combustion chamber

Carbon build-up on the piston head

- ★ If cylinder compression is lower than the specified range, check the following.

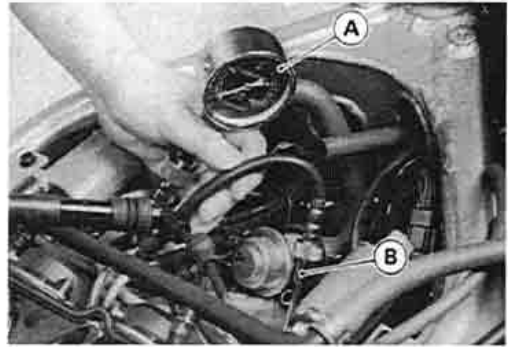
Valve not seating properly

Piston/cylinder clearance excessive

Gas leakage around the cylinder head gasket

Valve clearance too small

Piston ring/piston ring groove clearance



Removal

- Remove the engine (see Engine Removal/Installation chapter).
- Remove the cylinder head bolts and remove the cylinder head.

4-10 ENGINE TOP END

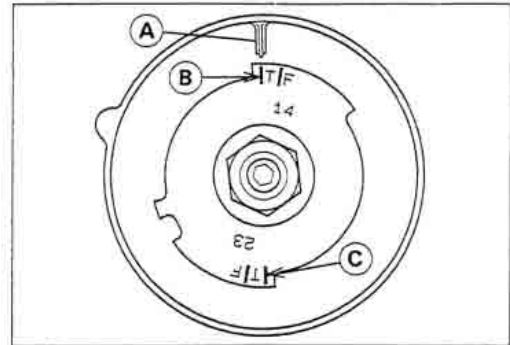
Valves

Valve Clearance Adjustment

NOTE

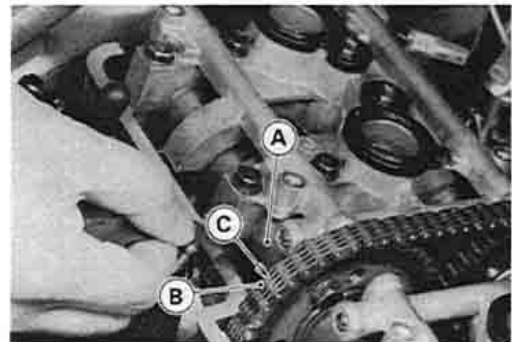
- Valve clearance must be checked and adjusted when the engine is cold (at room temperature).
- Remove:
 - Pickup Coil Cover (see Electrical System chapter)
 - Cylinder Head Cover (see Cylinder Head Cover Removal)
- Check the valve clearance when the pistons are at TDC as follows.
- The pistons are numbered beginning with the engine left side.
- Using a wrench on the timing rotor bolt, turn the crankshaft clockwise until a TDC mark on the rotor is aligned with the timing mark on the crankcase. And the cam lobe is pointing away from the valve lifter: the end of the compression stroke.

- A. Timing Mark
- B. TDC Mark for #1, 4 Pistons
- C. TDC Mark for #2, 3 Pistons



- Using a thickness gauge, measure the valve clearance between the cam and the valve lifter.

- A. Cam
- B. Valve Lifter
- C. Measure here.



Clutch

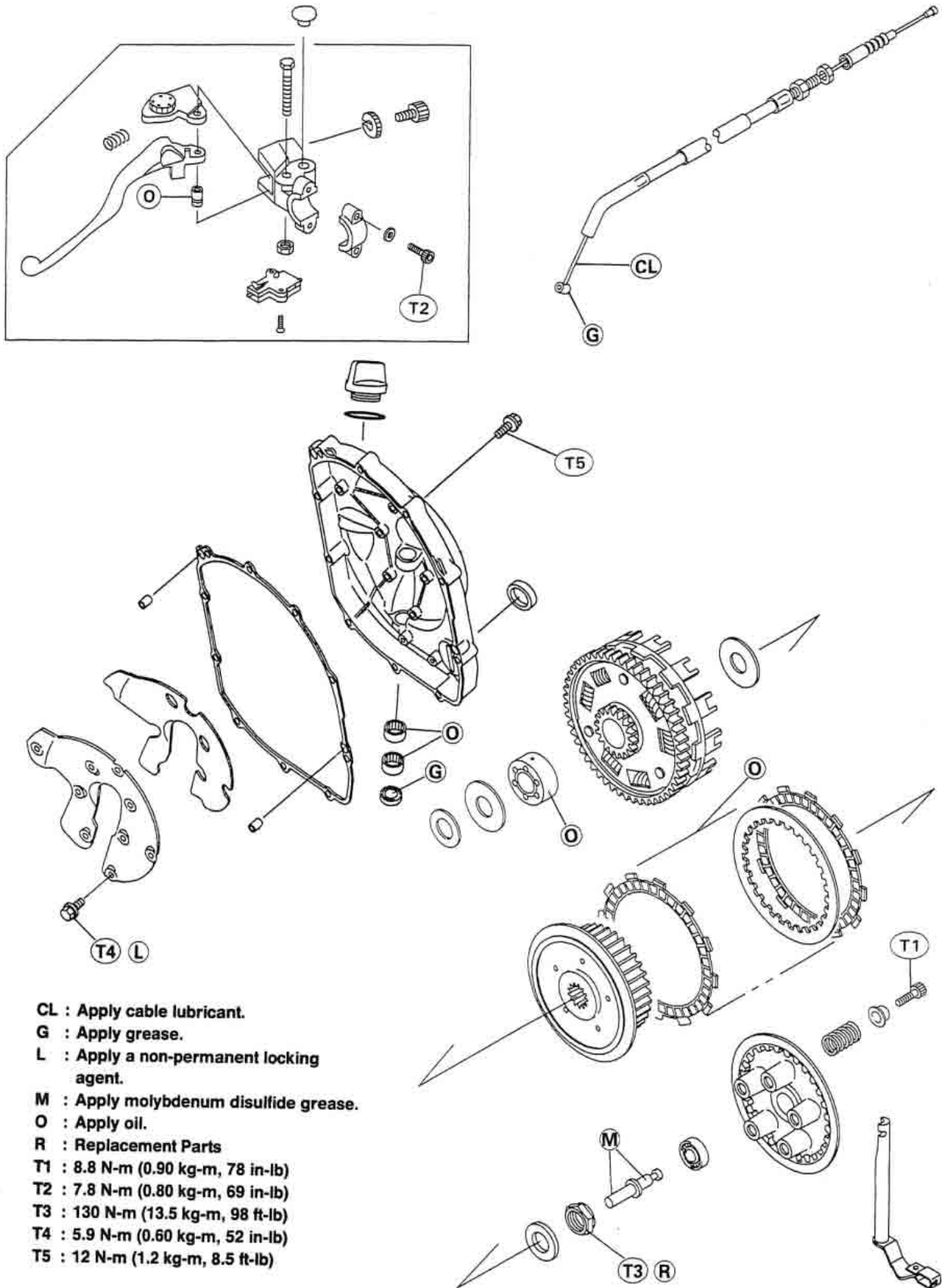
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(): See the Base Manual

5-2 CLUTCH

Exploded View



Specifications

Item	Standard	Service Limit
Clutch lever free play	2 ~ 3 mm	— — —
Friction plate thickness	2.9 ~ 3.1 mm	2.8 mm
Friction and steel plate warp	0.2 mm or under	0.3 mm
Clutch spring free length	60.1 mm	57.3 mm

Special Tool – Clutch Holder: 57001-1243

Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

Engine Lubrication System

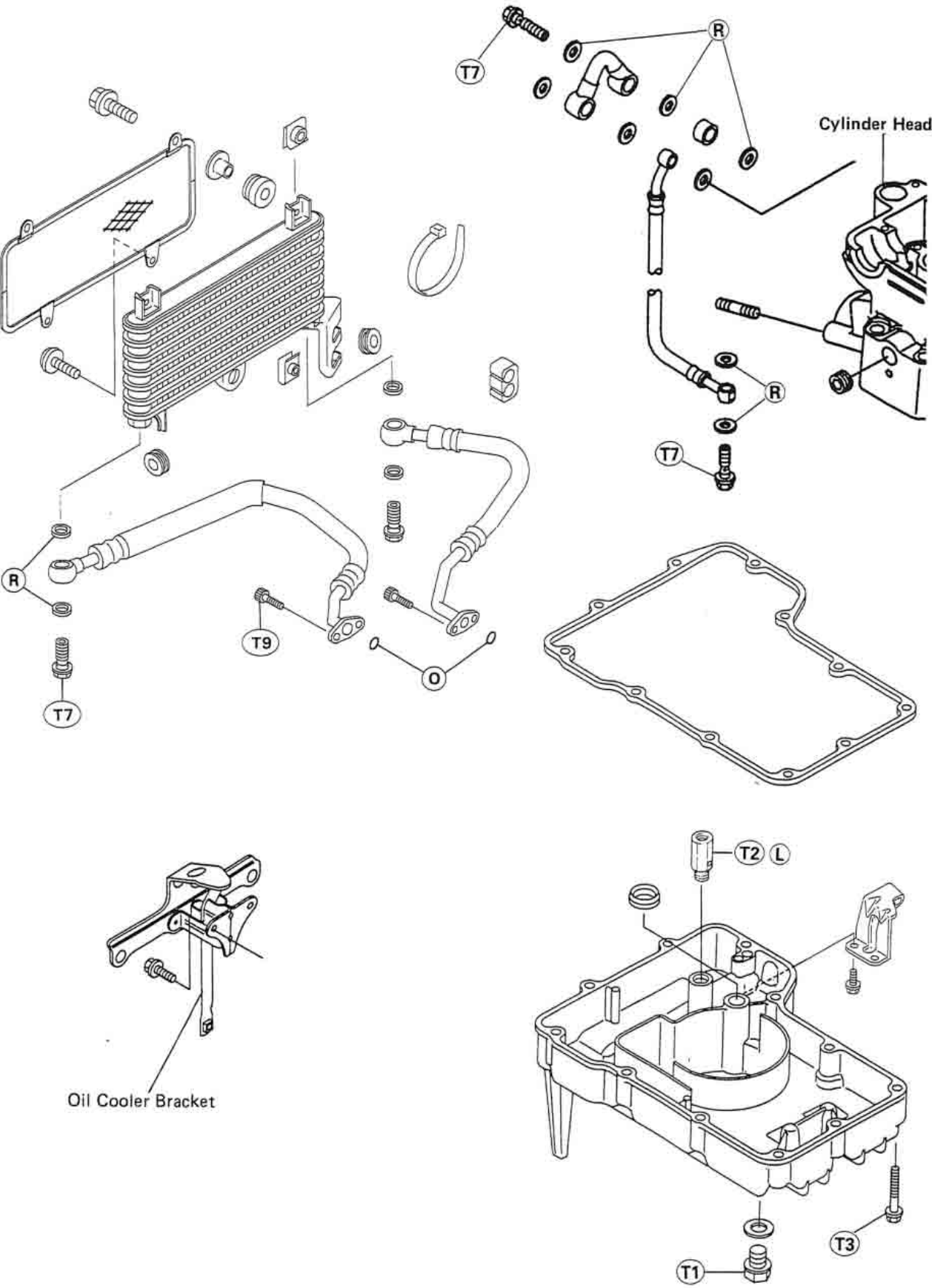
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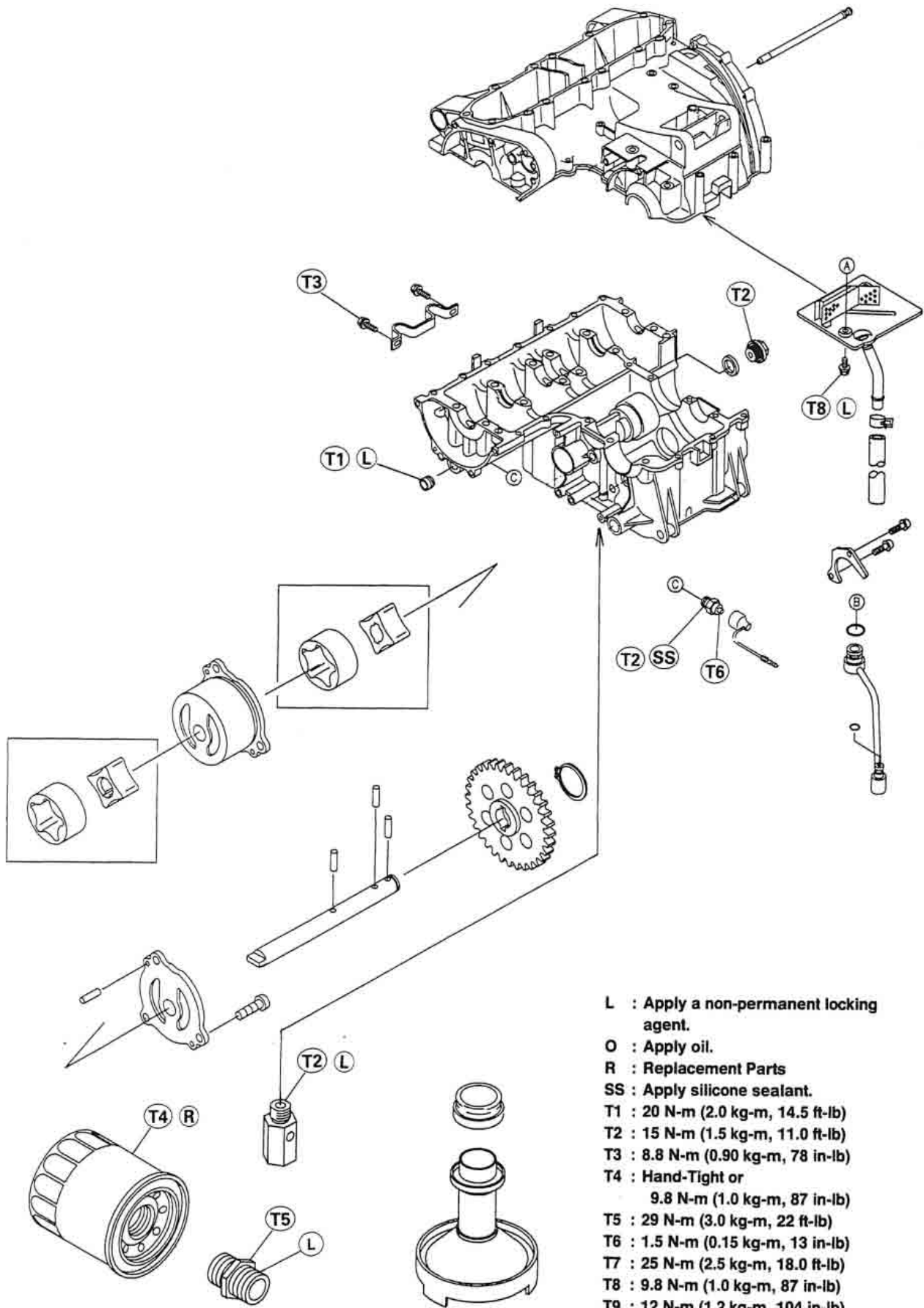
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(): See the Base Manual

6-2 ENGINE LUBRICATION SYSTEM

Exploded View





6-4 ENGINE LUBRICATION SYSTEM

Specifications

Item	Standard
Engine Oil: Grade Viscosity Capacity	SE, SF or SG class SAE 10W-40, 10W-50, 20W-40, or 20W-50 2.8 L (when filter is not removed) 3.2 L (when filter is removed) 3.7 L (when engine is completely dry)
Oil Pressure Measurement: Relief valve opening pressure Oil Pressure @4,000 r/min (rpm), oil temp. 90°C (194°F)	375 ~ 530 kPa (3.8 ~ 5.4 kg/cm ² , 54 ~ 77 psi) 410 ~ 470 kPa (4.2 ~ 4.8 kg/cm ² , 60 ~ 68 psi)

Special Tools — Oil Filter Wrench: 57001-1249
Oil Pressure Gauge, 10 kg/cm²: 57001-164
Oil Pressure Gauge Adapter, M18 x 1.5: 57001-1278

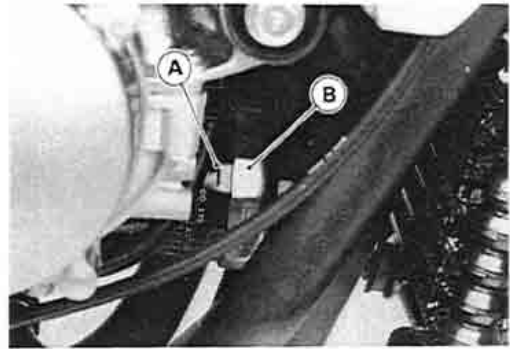
Sealant — Kawasaki Bond (Silicone Sealant): 56019-120

Engine Oil and Oil Filter

Oil Filter Change

- Remove:
 - Lower Fairing (see Frame chapter)
 - Engine Oil (see Engine Oil change)
- Remove the oil filter [A].

Special Tool – Oil Filter Wrench: 57001-1249 [B]



- Replace the filter with a new one.
- When installing the oil filter, be careful of the following.
 - Apply oil to the gasket before installation.
 - Tighten the filter with the oil filter wrench (special tool) to the specified torque or tighten it with hands about 3/4 turns after gasket contacts the mounting surface of engine.

Torque – Oil Filter: Hand Tight or 9.8 N-m (1.0 kg-m, 87 in-lb)

- Pour in the specified type and amount of oil.

Engine Removal / Installation

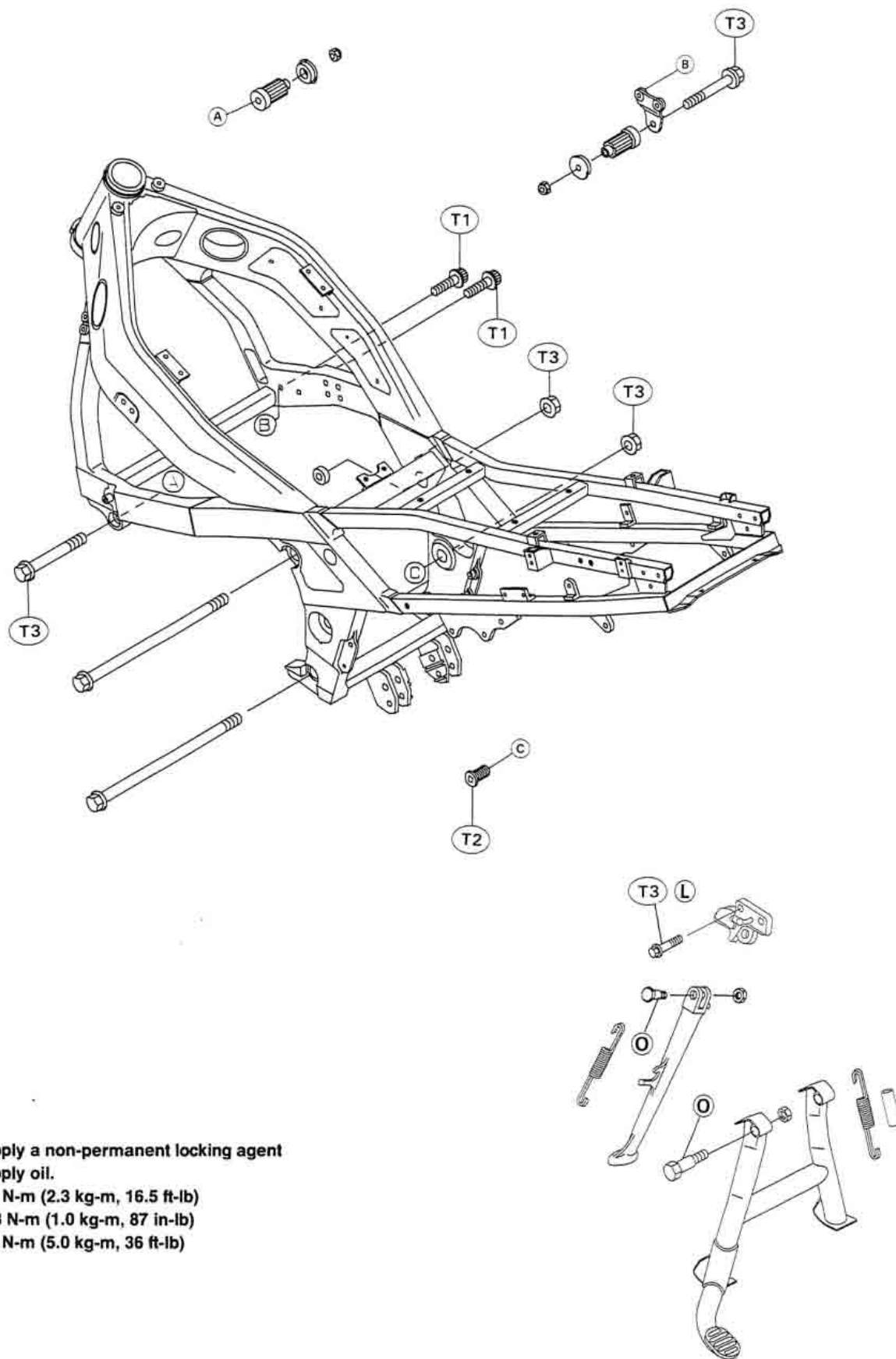
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(): See the Base Manual

7-2 ENGINE REMOVAL / INSTALLATION

Exploded View



L : Apply a non-permanent locking agent

O : Apply oil.

T1 : 23 N-m (2.3 kg-m, 16.5 ft-lb)

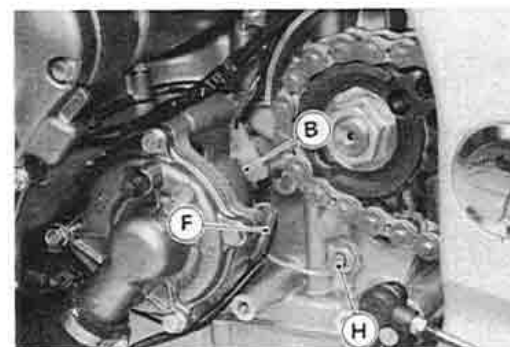
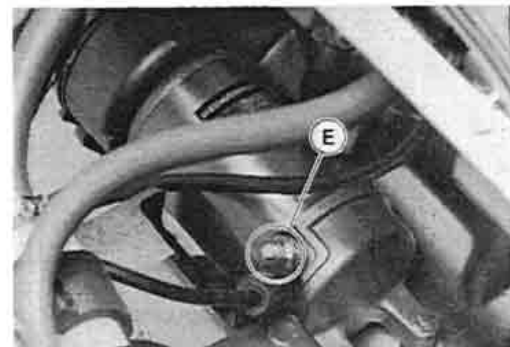
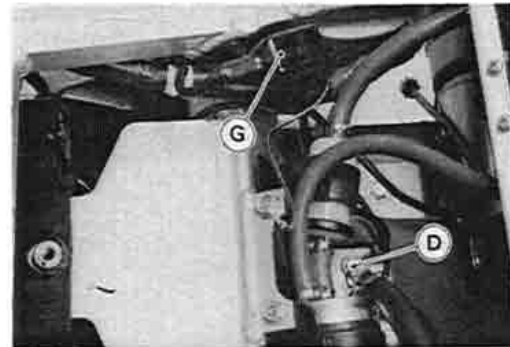
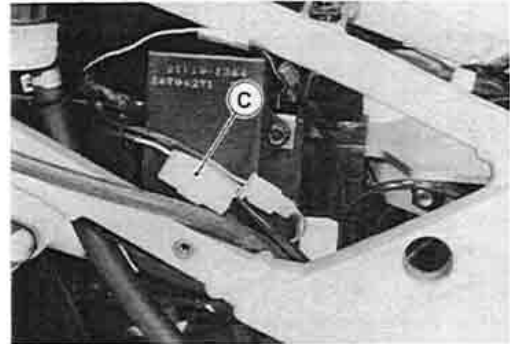
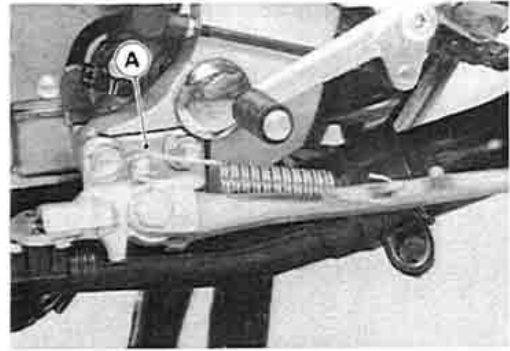
T2 : 9.8 N-m (1.0 kg-m, 87 in-lb)

T3 : 49 N-m (5.0 kg-m, 36 ft-lb)

Engine Removal / Installation

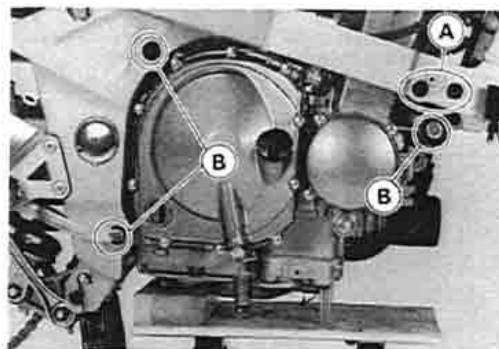
Removal

- Set the motorcycle up on its center stand.
- Remove or disconnect (see appropriate chapters):
 - Fairings
 - Engine Oil (Drain)
 - Coolant (Drain)
 - Side Stand [A] and Switch Connector [B]
 - Fuel Tank
 - Air Cleaner Housing
 - Carburetors
 - Vacuum Switch Valve and Hoses
 - Baffle Plate
 - Oil Cooler
 - Radiator
 - Exhaust Manifold
 - Shift Pedal
 - Engine Sprocket
 - Pickup Coil Lead Connector [C]
 - Battery Ground Lead Terminal [D]
 - Starter Motor Lead [E]
 - Oil Pressure Switch Connector [F]
 - Alternator Leads [G]
 - Neutral Switch Connector [H]
 - Spark Plug Leads
- The following parts may be removed with the engine in the frame.
 - Clutch (see Clutch chapter)
 - Electric Starter (see Electric System chapter)
 - Alternator (see Electric System chapter)

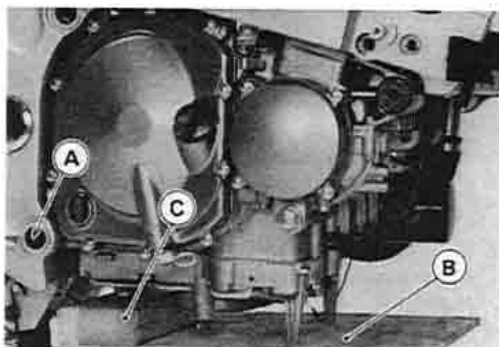


7-4 ENGINE REMOVAL / INSTALLATION

- Support the engine with jacks before taking out the engine mounting bolts.
- Remove the engine bracket [A] and the engine mounting bolts [B] and nuts [B].

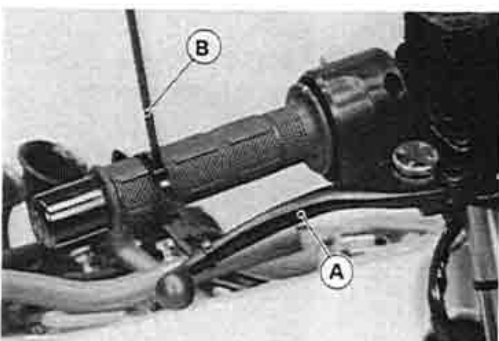


- Screw back the engine mounting adjuster [A] for clearance around the rear of the engine.
- Drape a cloth on the frame down tube cross bar for damage protection.
- Lower the engine and remove the jacks [B] and wooden boards [C].
- Take care not to allow the shift shaft to touch the side stand bracket.



NOTE

- The drive chain will be removed from the output shaft when removing the engine.
- Lift up the engine and move it right to free the output shaft from the drive chain, and then lower the engine.
- Squeeze the brake lever [A] slowly and hold it with a band [B].



- Block [A] the front wheel and lift the front of the frame.
- Tilt [B] the frame toward the vehicle left side with the front brake held to clear the engine, and then take out [C] the engine from the right side.

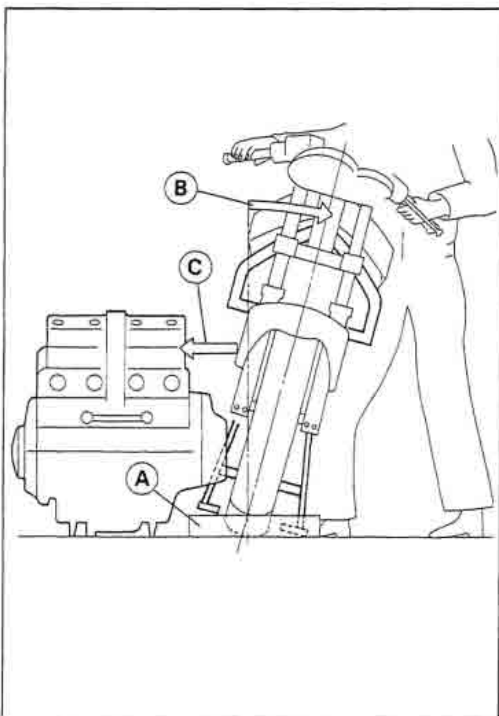
CAUTION

Be sure to hold the front brake when tilting the frame, or the vehicle will fall over. The engine or the vehicle could be damaged.

⚠ WARNING

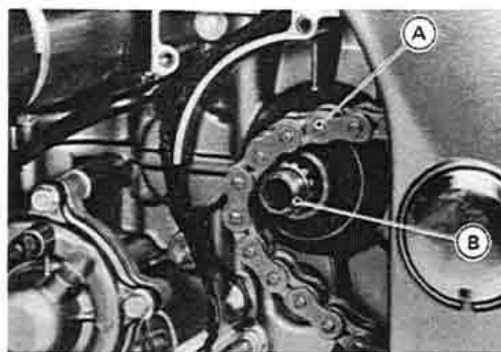
Be sure to hold the front brake when tilting the frame, or the vehicle will fall over. It could cause an accident and injury.

- A person should tilt the frame and another person should take out the engine.

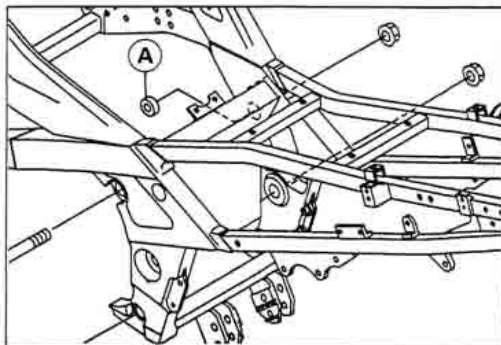


Installation Notes

- Before engine installation, install the engine mounting adjuster (rear) and screw it back.
- Hang the drive chain [A] over the output shaft [B] just before moving the engine into its final position in the frame.



- Insert the rear lower and upper mounting bolts from the engine left side.
- Insert the collar [A] into the upper mounting bolt.



- Insert the rear lower mounting bolt until the distance between the tip of the bolt and the outside surface of engine mounting adjuster come to 10 mm.

A. Rear Lower Mounting Bolt

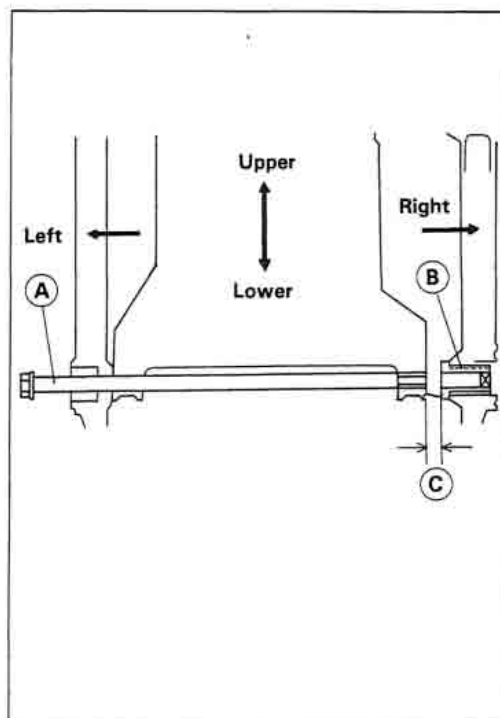
B. Engine Mounting Adjuster

C. 10 mm

- Tighten the engine mounting adjuster with specified torque so that the distance come to zero mm against the engine.

Torque – Mounting Adjuster: About 9.8 N-m (1 kg-m, 87 in-lb)

- Push both mounting bolts through.
- Tighten the following fasteners to the specified torque (see Exploded View).
 - Engine Mounting Bolts and Nuts
 - Engine Mounting Bracket Bolts
- Run the wires, cables, and hoses as shown in the Cable, Wire, and Hose Routing section of the General Information chapter.
- Apply a non-permanent locking agent to the threads of the side stand bracket bolts and tighten the bolts to the specified torque (see Exploded View).
- Adjust the following.
 - Clutch Cable
 - Throttle Cables (see Fuel System chapter)
 - Choke Cable (see Fuel System chapter)
 - Drive Chain (see Final Drive chapter)
- Fill the engine with engine oil (see Engine Lubrication System chapter).
- Fill the engine with coolant and bleed the air from the cooling system (see Cooling System chapter).
- Adjust the carburetor synchronization and idling.



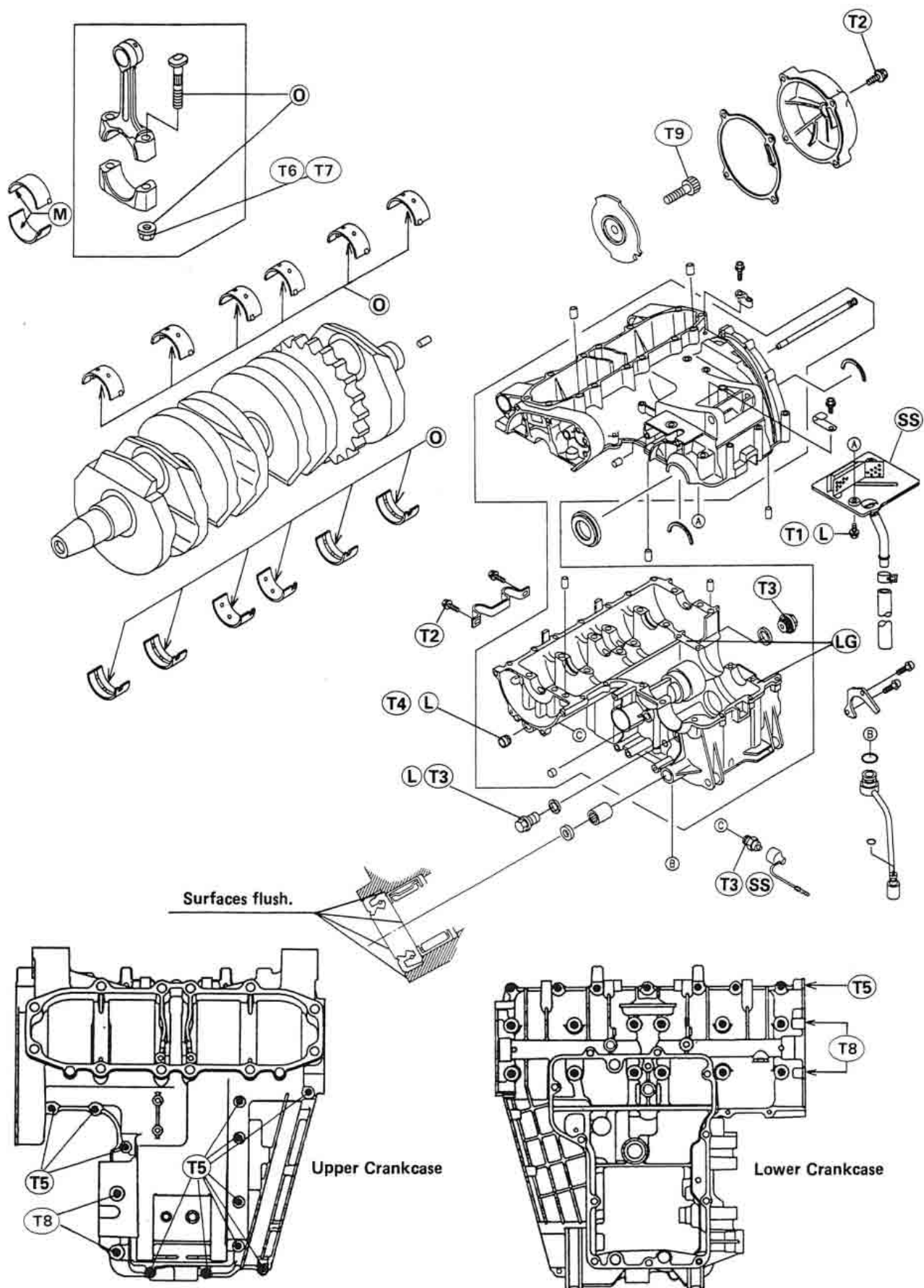
Crankshaft / Transmission

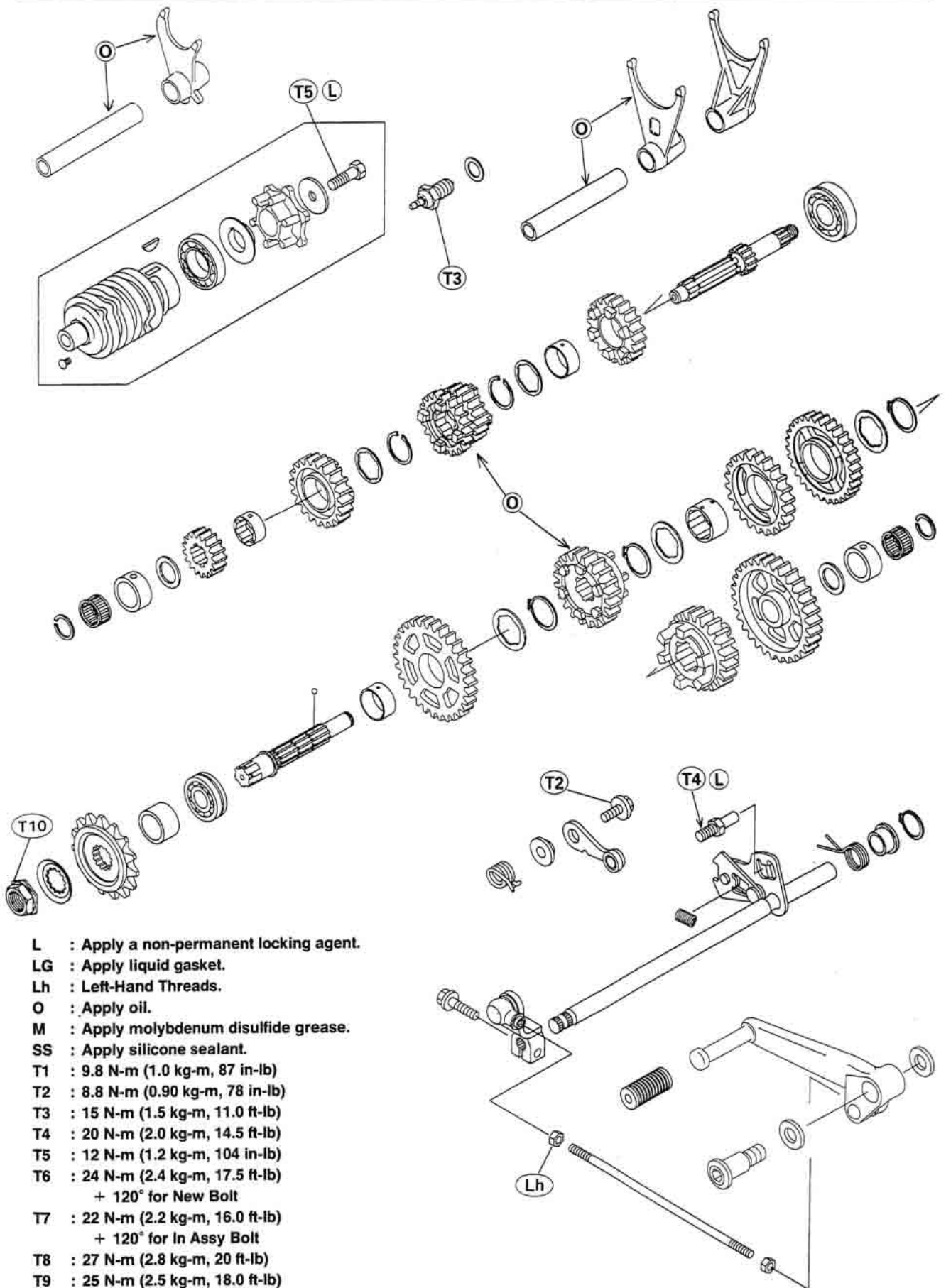
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(): See the Base Manual

8-2 CRANKSHAFT / TRANSMISSION

Exploded View





- L** : Apply a non-permanent locking agent.
- LG** : Apply liquid gasket.
- Lh** : Left-Hand Threads.
- O** : Apply oil.
- M** : Apply molybdenum disulfide grease.
- SS** : Apply silicone sealant.
- T1** : 9.8 N-m (1.0 kg-m, 87 in-lb)
- T2** : 8.8 N-m (0.90 kg-m, 78 in-lb)
- T3** : 15 N-m (1.5 kg-m, 11.0 ft-lb)
- T4** : 20 N-m (2.0 kg-m, 14.5 ft-lb)
- T5** : 12 N-m (1.2 kg-m, 104 in-lb)
- T6** : 24 N-m (2.4 kg-m, 17.5 ft-lb)
+ 120° for New Bolt
- T7** : 22 N-m (2.2 kg-m, 16.0 ft-lb)
+ 120° for In Assy Bolt
- T8** : 27 N-m (2.8 kg-m, 20 ft-lb)
- T9** : 25 N-m (2.5 kg-m, 18.0 ft-lb)
- T10** : 125 N-m (13.0 kg-m, 94 ft-lb)

8-4 CRANKSHAFT / TRANSMISSION

Specifications

Item	Standard	Service Limit																					
Crankshaft, Connecting Rods:																							
Connecting rod big end side clearance	0.13 ~ 0.33 mm	0.50 mm																					
Connecting rod big end bearing insert/crankpin clearance	0.036 ~ 0.066 mm	0.10 mm																					
Crankpin diameter:	29.984 ~ 30.000 mm	29.97 mm																					
Marking None	29.984 ~ 29.994 mm	---																					
○	29.995 ~ 30.000 mm	---																					
Connecting rod big end bore diameter:	33.000 ~ 33.016 mm	---																					
Marking None	33.000 ~ 33.008 mm	---																					
○	33.009 ~ 33.016 mm	---																					
Connecting rod big end bearing insert thickness:																							
Pink	1.475 ~ 1.480 mm	---																					
Brown	1.480 ~ 1.485 mm	---																					
Black	1.485 ~ 1.490 mm	---																					
Connecting rod big end bearing insert selection:																							
<table><tr><th rowspan="2">Con-Rod Big End Bore Diameter Marking</th><th rowspan="2">Crankpin Diameter Marking</th><th colspan="2">Bearing Insert</th></tr><tr><th>Size Color</th><th>Part Number</th></tr><tr><td>None</td><td>○</td><td>Pink</td><td>92028-1709</td></tr><tr><td>None</td><td>None</td><td rowspan="2">Brown</td><td rowspan="2">92028-1494</td></tr><tr><td>○</td><td>○</td></tr><tr><td>○</td><td>None</td><td>Black</td><td>92028-1493</td></tr></table>				Con-Rod Big End Bore Diameter Marking	Crankpin Diameter Marking	Bearing Insert		Size Color	Part Number	None	○	Pink	92028-1709	None	None	Brown	92028-1494	○	○	○	None	Black	92028-1493
Con-Rod Big End Bore Diameter Marking	Crankpin Diameter Marking	Bearing Insert																					
		Size Color	Part Number																				
None	○	Pink	92028-1709																				
None	None	Brown	92028-1494																				
○	○																						
○	None	Black	92028-1493																				
Crankshaft side clearance	0.05 ~ 0.21 mm	0.40 mm																					
Crankshaft runout	0.02 mm TIR	0.05 mm TIR																					
Crankshaft main bearing insert, journal clearance	0.014 ~ 0.038 mm	0.070 mm																					
Crankshaft main journal diameter:	31.984 ~ 32.000 mm	31.96 mm																					
Marking None	31.984 ~ 31.992 mm	---																					
1	31.993 ~ 32.000 mm	---																					
Crankcase main bearing bore diameter:	36.000 ~ 36.016 mm	---																					
Marking ○	36.000 ~ 36.008 mm	---																					
None	36.009 ~ 36.016 mm	---																					
Crankshaft main bearing insert thickness:																							
Brown	1.991 ~ 1.995 mm	---																					
Black	1.995 ~ 1.999 mm	---																					
Blue	1.999 ~ 2.003 mm	---																					

Item	Standard		Service Limit
Crankshaft main bearing insert selection:			
Crankcase Main Bearing Bore Diameter Mark	Crankshaft Main Journal Diameter Mark	Bearing Insert*	
		Size Color	Part Number Journal Nos.
○	1	Brown	13034-1016 1, 2, 5
			13034-1066 3, 4, 6
None	1	Black	13034-1017 1, 2, 5
○	None		13034-1065 3, 4, 6
None	None	Blue	13034-1018 1, 2, 5
			13034-1064 3, 4, 6
*The bearing inserts for Nos. 1, 2, and 5 journals have an oil groove, respectively.			
Transmission:			
Shift fork ear thickness	4.9 ~ 5.0 mm	4.8 mm	
Gear shift fork groove width	5.05 ~ 5.15 mm	5.2 mm	
Shift fork guide pin diameter	7.9 ~ 8.0 mm	7.8 mm	
Shift drum groove width	8.05 ~ 8.20 mm	8.30 mm	

Special Tools – Outside Circlip Pliers: 57001-144
Kawasaki Bond (Liquid Gasket – Black): 92104-1003
Kawasaki Bond (Silicone Sealant): 56019-120

8-6 CRANKSHAFT / TRANSMISSION

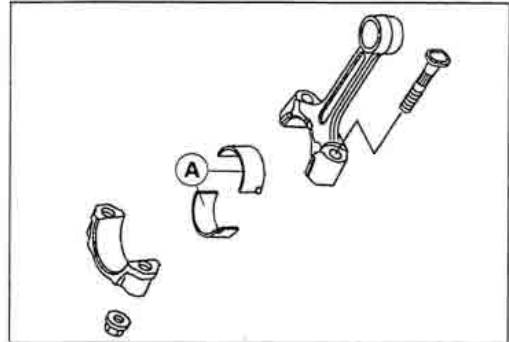
Crankshaft/Connecting Rods

Connecting Rod Installation

CAUTION

To minimize vibration, a pair of connecting rods (left two rods or right two) should have the same weight mark.

- If the connecting rods, big end bearing inserts, or crankshaft are replaced with new ones, select the bearing insert and check clearance with a plastigauge before assembling engine to be sure the correct bearing inserts are installed.
- Apply molybdenum disulfide grease [A] to the inner surface of upper or lower bearing inserts.



- Replace the connecting rod bolts and nuts with new ones.

CAUTION

The connecting rod bolts are designed to stretch when tightened. Never reuse them. Replace the connecting rod bolts and nuts with new ones.

- Be sure to clean the bolt, nut, and connecting rod thoroughly with high-flash point solvent, because the connecting rods, the bolts, and the nuts are treated with an anti-rust solution.
- Before tightening, measure the length of new connecting rod bolts and learn the values to find out the stretch of bolt.

⚠ WARNING

Clean the bolts, nuts, and connecting rods in a well-ventilated area, and take care that there is no spark or flame anywhere near the working area. This includes any appliance with a pilot light. Because of the danger of highly flammable liquids, do not use gasoline or low-flash point solvents to clean them.

CAUTION

Immediately dry the bolts and nuts with compressed air after cleaning.
Clean and dry the bolts and nuts completely.

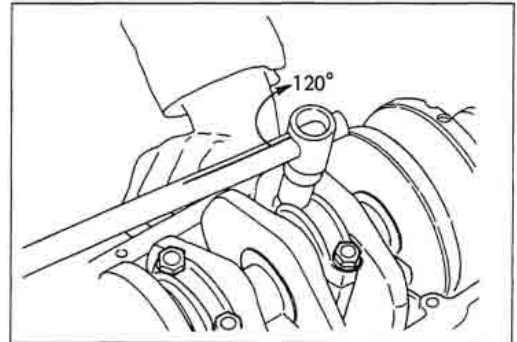
- Apply a small amount of engine oil to the threads and seating surface of the connecting rod bolts and nuts.
- Tighten the nuts to the specified torque, and the specified angle more, according to whether the nut or the connecting rod are new or old.

Specified Torque and Angle

Bolt	Torque + Angle N-m (kg-m, ft-lb)
New	24 (2.4, 17.5) + 120°
In Assy	22 (2.2, 16.0) + 120°

CAUTION

Since the friction force of the seating surface and thread portion of new bolts is different from that of old one, the bolt tightening torque should be changed as specified in the above table.
Be careful not to overtighten the bolts.

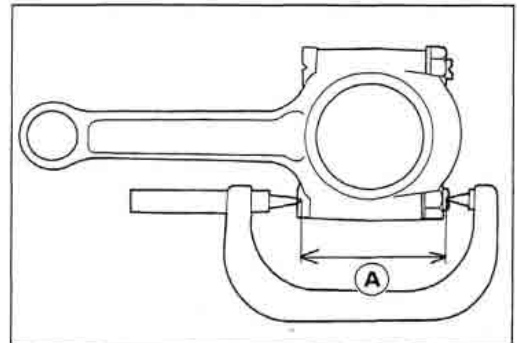


● Check the length [A] of connecting rod bolts.

★ If the stretch is more than the service limit, the bolt has stretched too much. Replace the bolt and nut with new ones. An overelongated bolt may break in use.

$$\begin{array}{l} \text{Bolt Length} \\ \text{after tightening} \end{array} - \begin{array}{l} \text{Bolt Length} \\ \text{before tightening} \end{array} = \text{Stretch}$$

Service Limit: 0.25 ~ 0.35 mm

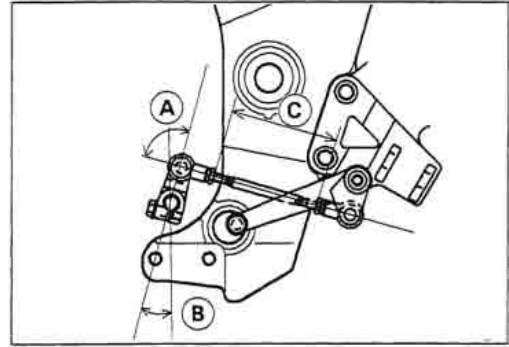


8-8 CRANKSHAFT / TRANSMISSION

Transmission

Shift Pedal Installation

- The standard shift pedal position is at the engine mounting bolt with the shift linkage angles at about 107° as picture.
 - A. 90°
 - B. 16°
 - C. 79 mm



Wheels / Tires

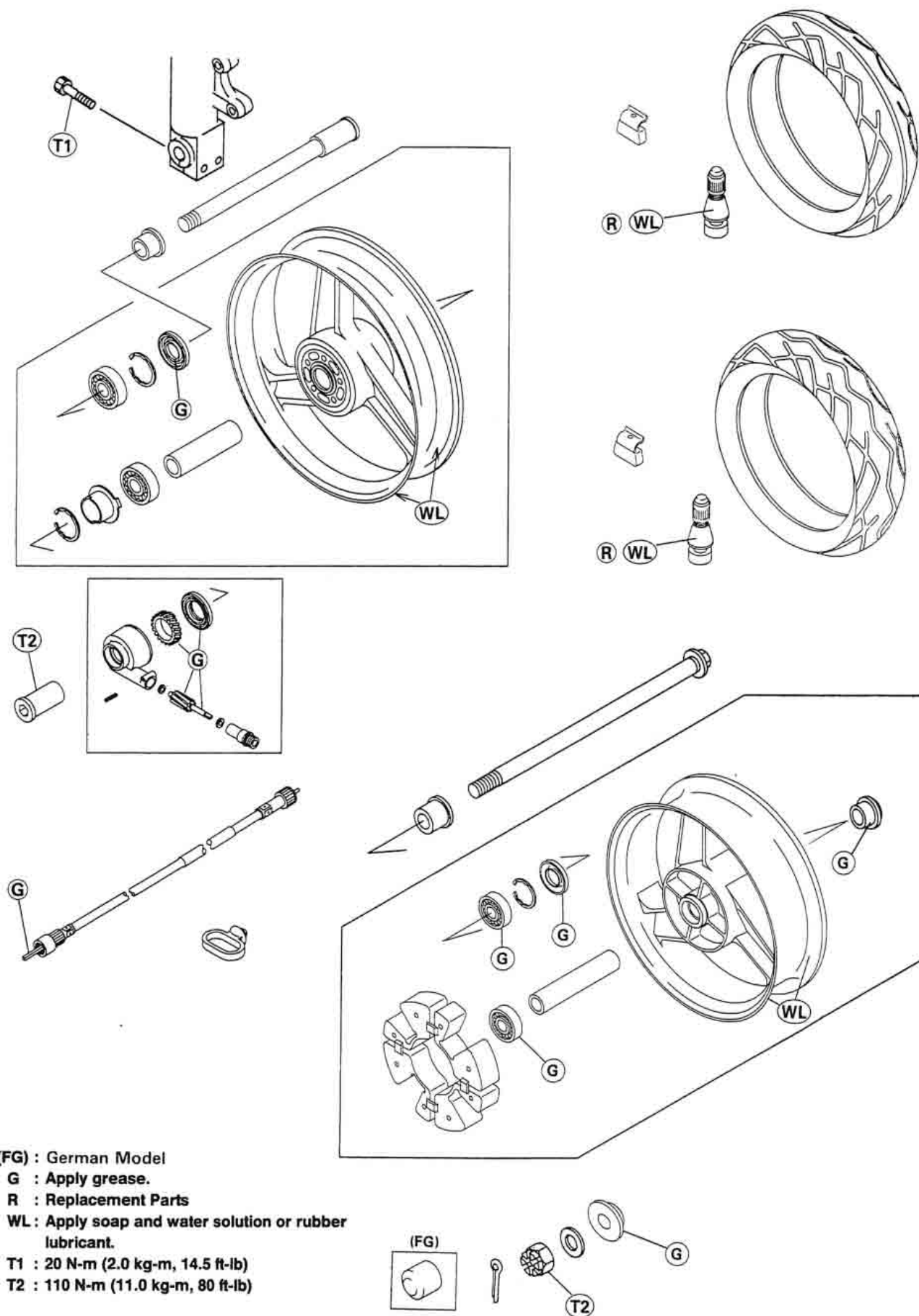
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(): See the Base Manual

9-2 WHEELS / TIRES

Exploded View



(FG) : German Model

G : Apply grease.

R : Replacement Parts

WL : Apply soap and water solution or rubber lubricant.

T1 : 20 N-m (2.0 kg-m, 14.5 ft-lb)

T2 : 110 N-m (11.0 kg-m, 80 ft-lb)

Specifications

Item		Standard	Service Limit
Rim runout:	Axial	---	0.5 mm
	Radial	---	0.8 mm
Axle runout/100 mm:		0.05 mm or under	0.2 mm
Wheel balance		10 g or under	---
Balance weights		10 g, 20 g, 30 g	---
Tire tread depth:	Front	5.0 mm	1 mm
	Rear	7.5 mm	2 mm (Up to 130 km/h) (Up to 80 mph) 3 mm (Over 130 km/h) (Over 80 mph)
Tire air pressure		Load	Air Pressure (when cold)
	Front	Up to 184 kg (406 lb)	250 kPa (2.5 kg/cm ² , 36 psi)
	Rear	Up to 184 kg (406 lb)	290 kPa (2.9 kg/cm ² , 41 psi)
Standard tire		Size	Make, Type
	Front	120/60 ZR17	MICHELIN A 59 x Tubeless
		120/60 ZR17	BRIDGESTONE BATTLAX BT-50F RADIAL Tubeless
		120/60 ZR17	DUNLOP K510F Tubeless
	Rear	160/60 ZR17	MICHELIN M59 x Tubeless
		160/60 ZR17	BRIDGESTONE BATTLAX BT-50R RADIAL G Tubeless
		160/60 ZR17	DUNLOP D202G Tubeless

Special Tools — Jack: 57001-1238

Inside Circlip Pliers: 57001-143

Bearing Driver Set: 57001-1129

Bearing Remover Shaft: 57001-1265

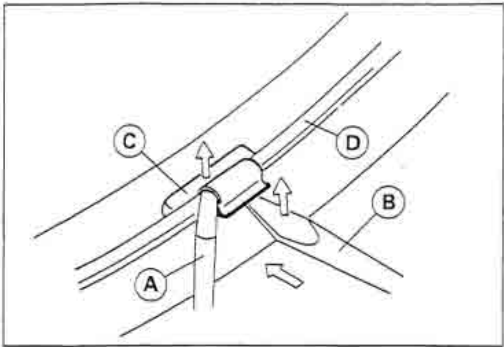
Bearing Remover Head, $\Phi 15 \times \Phi 17$: 57001-1267Bearing Remover Head, $\Phi 20 \times \Phi 22$: 57001-1293

9-4 WHEELS / TIRES

Wheels (Rims)

Balance Weight Removal

- Remove the balance weight as follows.
- Insert a regular tip screw driver [A] in the clip part.
- Insert one more screw driver [B] between the rim surface and the clip.
- While pulling up with the screw drivers, remove the balance weight [C].
- [D] shows the rib.



Balance Weight Installation

- Check if the weight portion has any play on the clip plate.
- ★ If it does, discard it.

⚠ WARNING

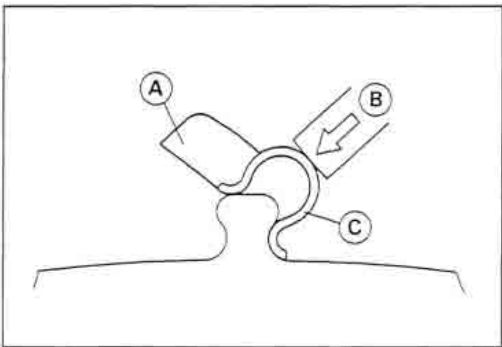
If the balance weight has any play on the rim, the clip of the weight has been stretched. Replace the loose balance weight. Do not reuse used balance weight. Unbalanced wheels can create an unsafe riding condition.

- Install the balance weight on the rib of the rim center.

Balance Weight

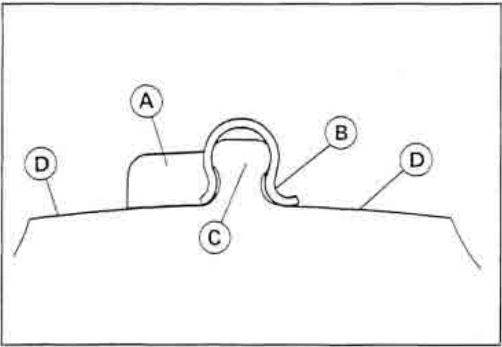
Part Number	Weight (grams)
41075-1056	10
41075-1057	20
41075-1058	30

- Install one to three pieces of the balance weights on the rib to get correct wheel balance.
- Put on the balance weight [A] on the rib and press [B] or lightly hammering the clip part [C] with a suitable bar until the clip seats.
- Check that the weight and clip portions are fully seated on the rim surfaces.



- The illustration shows the balance weight after installation.

- [A] Balance Weight
- [B] Clip Part
- [C] Rib
- [D] Rim Surfaces



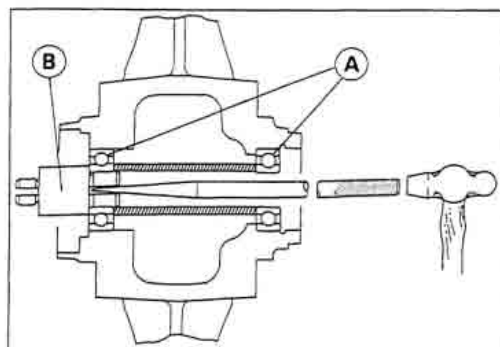
Hub Bearings

Removal

- See the Base Manual, noting the following.
- Take the bearings [A] out of the hub.

CAUTION

Do not lay the wheel on the ground with the disc facing down. This can damage or warp the disc. Place blocks under the wheel so that the disc does not touch the ground.



- Special Tools –** Bearing Remover Shaft: 57001-1265
Bearing Remover Head, $\Phi 15 \times \Phi 17$: 57001-1267
[B] – Front
Bearing Remover Head, $\Phi 20 \times \Phi 22$: 57001-1293
[B] – Rear

Final Drive

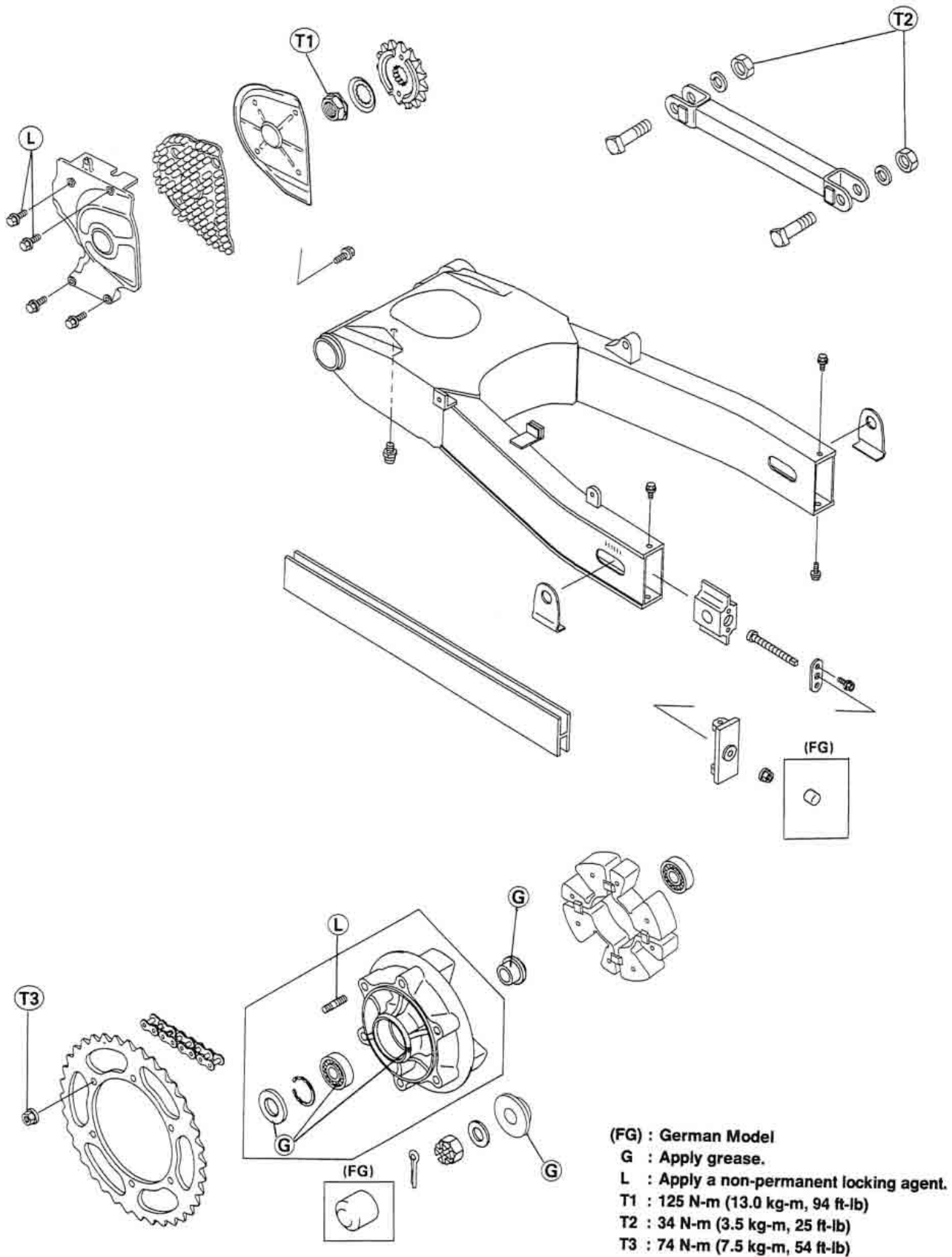
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(): See the Base Manual

10-2 FINAL DRIVE

Exploded View



Specifications

Item	Standard	Service Limit
Drive Chain: Standard Chain: <div> <div>Make</div> <div>Type</div> </div> <div> <div>Link</div> </div> Chain slack 20-link length Sprockets: Rear sprocket warp	ENUMA Endless EK50MV-O (ZX600-E1, ZX500D) EK50MV-X (ZX600-E2 ~) 112 links (ZX600E) 114 links (ZX500D) 35 ~ 40 mm 317.5 ~ 318.2 mm 0.4 mm or under	--- --- --- (Usable range) Less than 45 mm, or more than 35 mm 323 mm 0.5 mm

Special Tools – Inside Circlip Pliers: 57001-143
 Bearing Driver Set: 57001-1129

Brakes

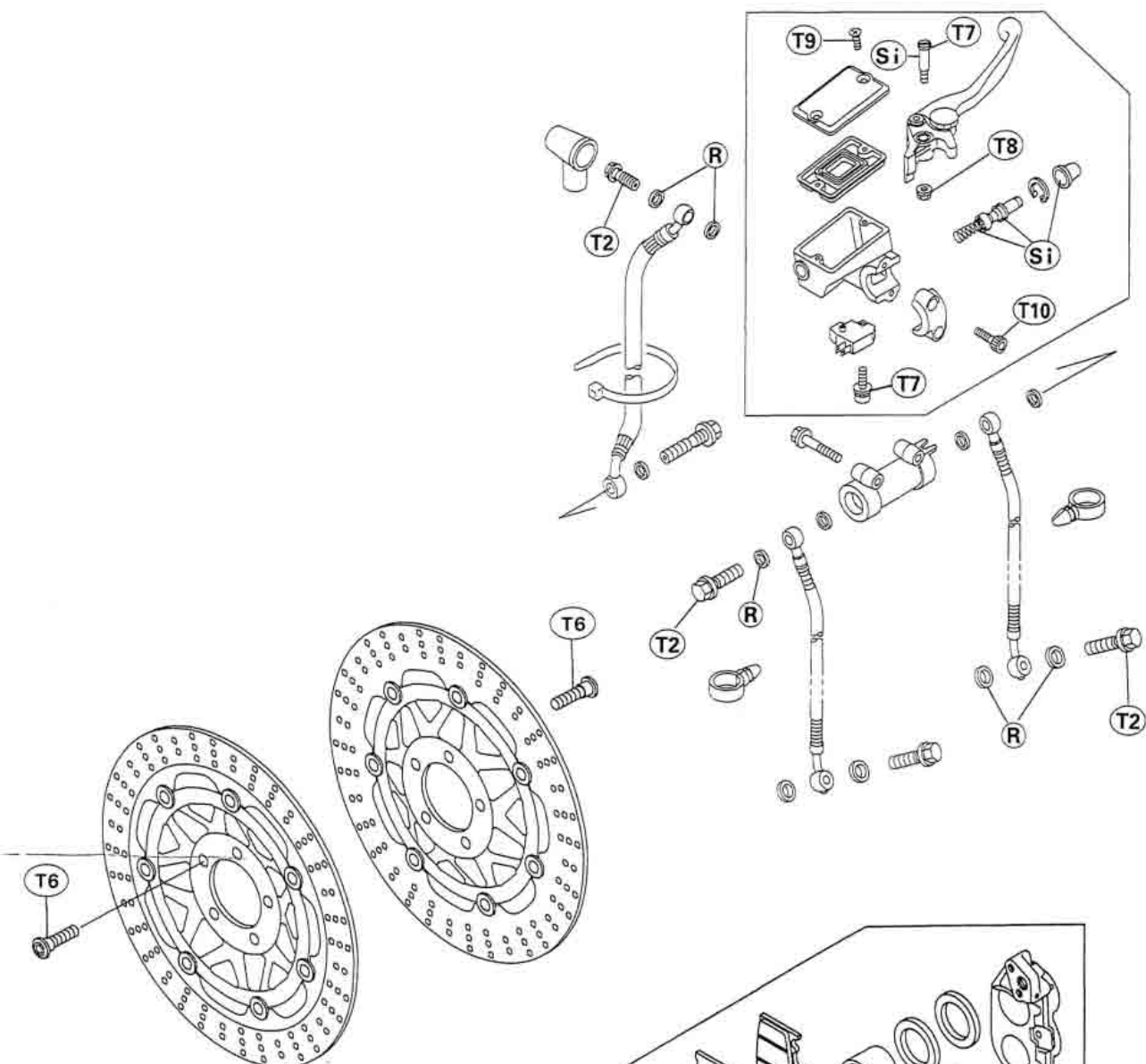
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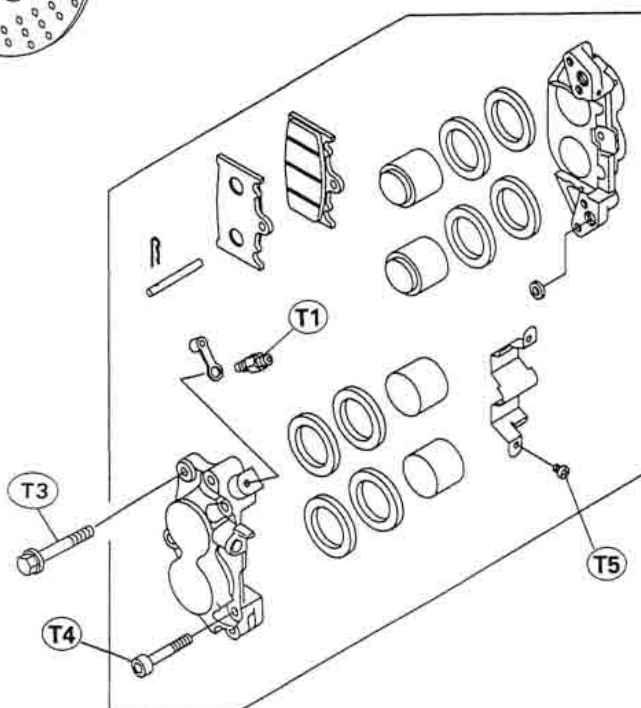
(): See the Base Manual

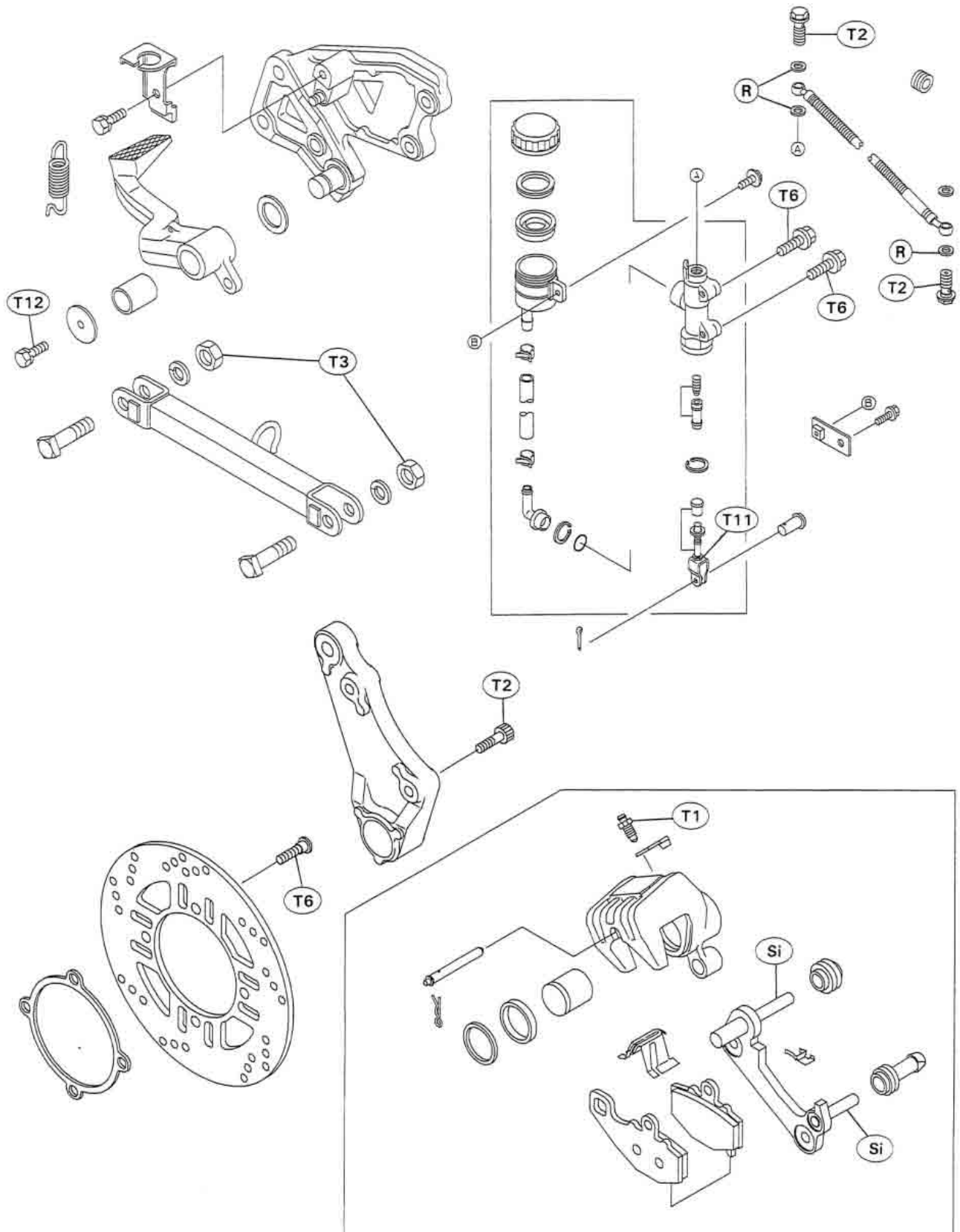
11-2 BRAKES

Exploded View



- G** : Apply grease.
- L** : Apply a non-permanent locking agent.
- R** : Replacement Parts
- Si** : Apply silicone grease.
- T1** : 7.8 N-m (0.80 kg-m, 69 in-lb)
- T2** : 25 N-m (2.5 kg-m, 18.0 ft-lb)
- T3** : 34 N-m (3.5 kg-m, 25 ft-lb)
- T4** : 21 N-m (2.1 kg-m, 15.0 ft-lb)
- T5** : 2.9 N-m (0.30 kg-m, 26 in-lb)
- T6** : 23 N-m (2.3 kg-m, 16.5 ft-lb)
- T7** : 1.0 N-m (0.10 kg-m, 9 in-lb)
- T8** : 5.9 N-m (0.60 kg-m, 52 in-lb)
- T9** : 1.5 N-m (0.15 kg-m, 13 in-lb)
- T10** : 9.8 N-m (1.0 kg-m, 87 in-lb)
- T11** : 18 N-m (1.8 kg-m, 13.0 ft-lb)
- T12** : 8.8 N-m (0.9 kg-m, 78 in-lb)





11-4 BRAKES

Specifications

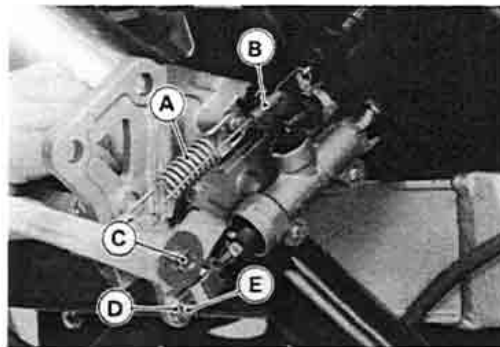
Item	Standard	Service Limit
Brake Fluid: Grade Brand (recommended)	D.O.T.4 Castrol Girling-Universal Castrol GT (LMA) Castrol Disc Brake Fluid Check Shock Premium Heavy Duty	- - -
Brake Lever Free Play:	Non-adjustable	- - -
Brake Pedal: Brake pedal free play Brake pedal position	Non-adjustable 55 mm below footpeg top	- - - - - -
Brake Light Switch: <div>Front</div> <div>Rear</div>	Non-adjustable ON after about 10 mm pedal travel	- - - - - -
Brake Pad Lining Thickness: <div>Front</div> <div>Rear</div>	4 mm 5 mm	1 mm 1 mm
Brake Discs: Disc thickness: <div>Front</div> <div>Rear</div> Disc runout	3.8 ~ 4.2 mm 5.8 ~ 6.1 mm 0.2 mm or under	3.5 mm 5.0 mm 0.3 mm

Special Tool – Inside Circlip Pliers: 57001-143

Brake Pedal

Removal

- Remove:
 - Front Footpeg Bracket (right side)
 - Brake Pedal Return Spring [A]
 - Brake Switch Spring [B]
 - Brake Shaft Bolt [C]
 - Cotter Pin [D] and joint Pin [E]
- Pull out the brake pedal and shaft.



Installation Notes

- Grease the brake shaft.
- Apply a non-permanent locking agent to the threads of the brake shaft bolt and tighten it to the specified torque.

Torque – Brake Shaft Bolt: 34 N-m (3.5 kg-m, 25 ft-lb)

- Check the brake pedal position and adjust it if necessary (see Brake Pedal Position Adjustment).

11-6 BRAKES

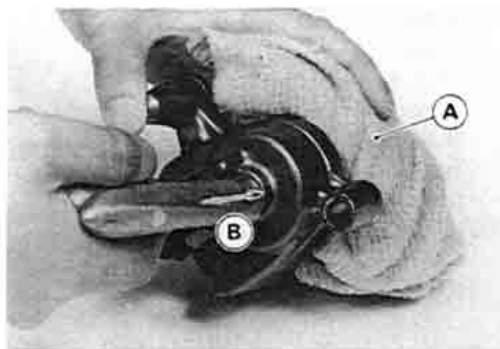
Calipers

Rear Caliper Disassembly

- Remove the pads and spring (see Pad Removal).
- Remove the caliper holder, shaft rubber friction boot and dust cover.
- Using compressed air, remove the piston.
- Cover the caliper opening with a clean, heavy cloth [A].
- Remove the piston by lightly applying compressed air [B] to where the brake line fits into the caliper.

⚠ WARNING

To avoid serious injury, never place your fingers or palm inside the caliper opening. If you apply compressed air into the caliper, the piston may crush your hand or fingers.



NOTE

- If the caliper is to be disassembled after removal and compressed air is not available, remove the piston using the following three steps before disconnecting the brake hose from the caliper.
- Prepare a suitable dished container for brake fluid, and perform the work above it.
- Remove the pads and spring (see Pad Removal).
- Pump the brake pedal to remove the caliper piston.
- Immediately wipe up any brake fluid that spills. It ruins painted or plated surfaces.
- Remove the dust seal and fluid seal.
- Remove the bleed valve and rubber caps.
- For the front caliper assembly notes, see the Base Manual.

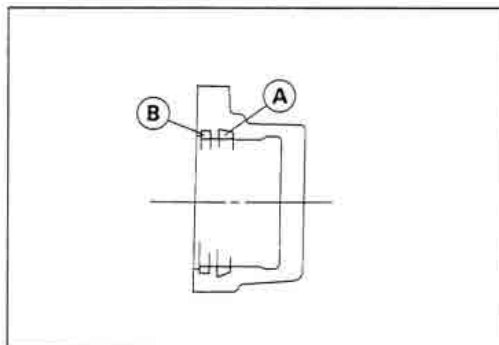
CAUTION

For cleaning the parts, use only disc brake fluid, isopropyl alcohol, or ethyl alcohol.

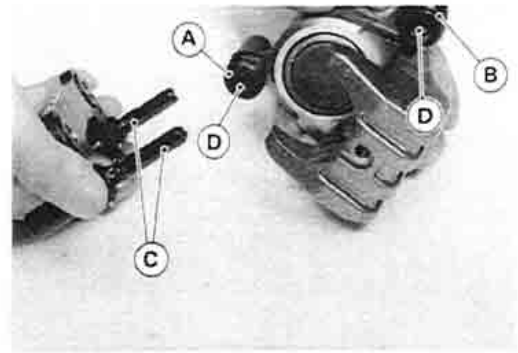
- Install the bleed valve and rubber caps.

Torque – Caliper Bleed Valve: 7.8 N-m (0.8 kg-m, 69 in-lb)

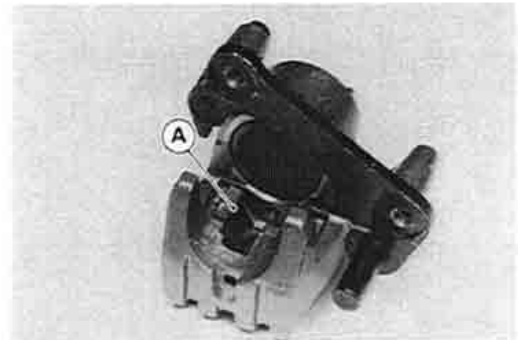
- Replace the fluid seal [A] with new one.
- Apply brake fluid to the fluid seal, and install it into the cylinder by hand.
- Replace the dust seal [B] with new one if it is damaged.
- Apply brake fluid to the dust seal, and install it into the cylinder by hand.



- Apply brake fluid to the outside of the piston, and push it into the cylinder by hand.
- Replace the shaft rubber friction boot [A] and dust cover [B] if they are damaged.
- Apply a thin coat of PBC (Poly Butyl Cuprysil) grease to the caliper holder shafts [C] and holder holes [D] (PBC is a special high temperature, water-resistance grease).



- Install the anti-rattle spring [A] in the caliper as shown.
- Install the pads (see Rear Brake Pad Installation Notes).
- Wipe up any spilled brake fluid on the caliper with wet cloth.

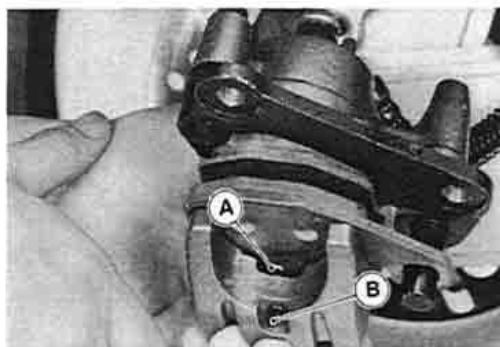


11-8 BRAKES

Brake Pads

Rear Brake Pad Removal

- Remove:
 - Rear Caliper (see this chapter)
 - Clip [A]
 - Pad Pin [B]



- Remove the brake pads.

Installation Notes

- Push the caliper pistons in by hand as far as they will go.
- For the rear caliper, install the pad pin and clip on the original position shown (see Rear Caliper Removal).

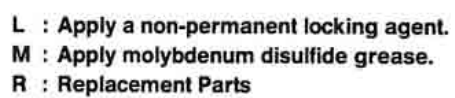
Suspension

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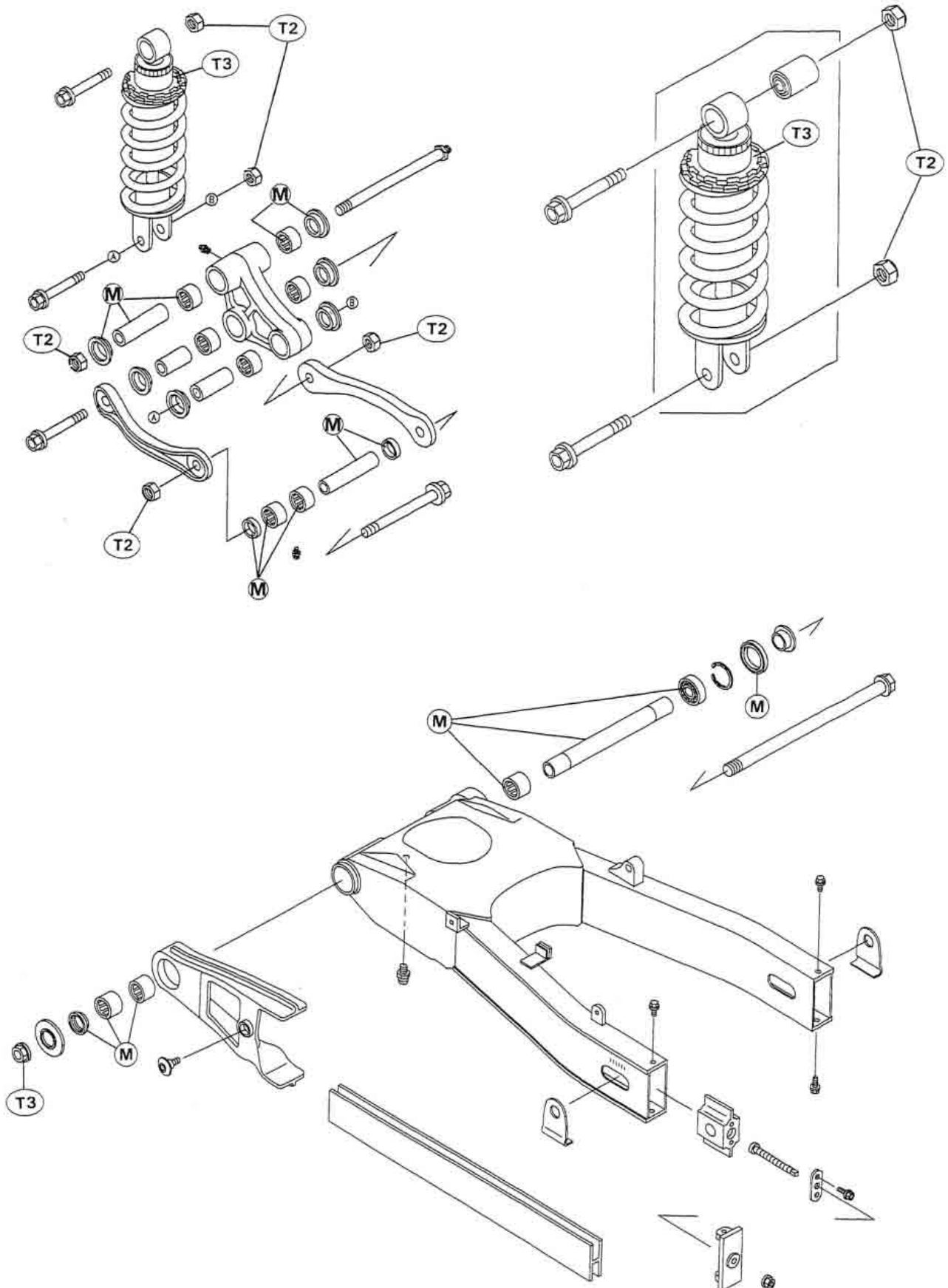
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(): See the Base Manual

Exploded View



T1 : 20 N-m (2.0 kg-m, 14.5 ft-lb)
T2 : 59 N-m (6.0 kg-m, 43 ft-lb)
T3 : 88 N-m (9.0 kg-m, 65 ft-lb)



12-4 SUSPENSION

Specifications

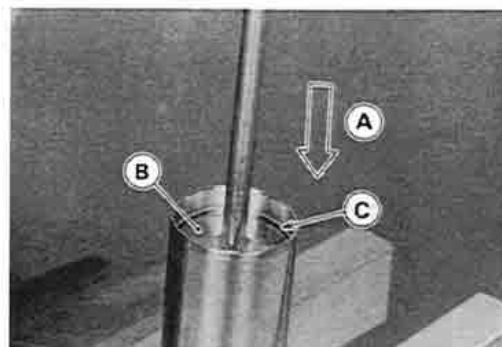
Item	Standard	Service Limit
Front Fork: Fork inner tube diameter Air Pressure Fork oil: Viscosity Amount (per side): When changing oil After disassembly and completely dry Oil level (fully compressed, without spring) Front spring free length	$\phi 41$ mm Atmospheric Pressure (non-adjustable) SAE 10W-20 approx. 429 mL 505 ± 4 mL 98 ± 2 mm 283.6 mm	 --- --- --- 278 mm
Rear Shock Absorber: Damping setting Spring preload setting	1 of 3 positions Spring free length minus 15mm	spring free length minus 15 ~ 24 mm (Usable range)

Special Tools — Fork Oil Level Gauge: 57001-1290
Fork Cylinder Holder Handle: 57001-183
Fork Cylinder Holder Adapter: 57001-1057
Fork Outer Tube Weight: 57001-1218
Fork Oil Seal Driver: 57001-1219

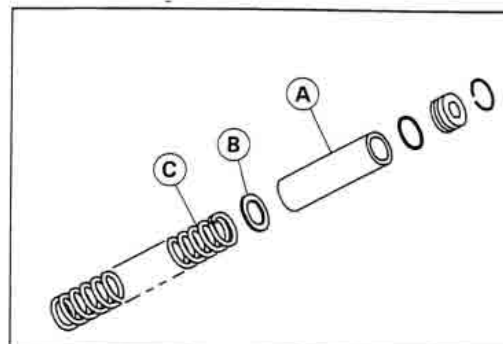
Front Fork

Oil Change

- Remove the front fork (see Front Fork Removal).
- Push [A] the top plug [B] and remove the ring [C] and top plug.



- Take out the spacer [A] the spring seat [B] and main spring [C].



- Drain the fork oil into a suitable container.

NOTE

- Turn the fork upside down, and force out the oil by pumping.
- Pour in the type and amount of fork oil specified.

Fork Oil

Viscosity:	SAE10W-20
Amount (per side):	
When changing oil:	approx. 429 mL
After disassembly and completely dry:	505 ± 4 mL

- Adjust the oil level.

Special Tool – Fork Oil Level Gauge: 57001-1290 [A]

- Set the gauge stopper [B] so that its lower side shows the oil level distance specified.

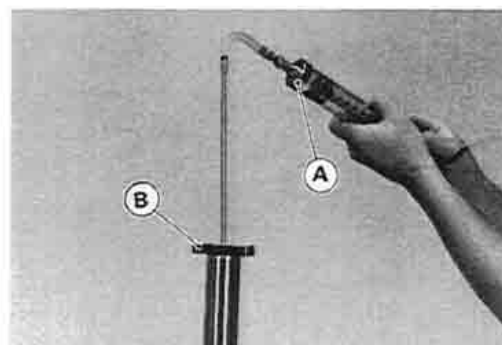
Oil Level (fully compressed, without spring)

Standard: 98 ± 2 mm (from the top of the inner tube)

- With the fork fully compressed, insert the gauge tube into the inner tube and position the stopper across the inner tube top end.

NOTE

- Adjust the oil level with the fork fully compressed and without the fork spring.
- Position the stopper, so that the gauge tube is the center of inner tube diameter, or the specified oil level cannot be obtained.
- Pull the handle slowly to pump out the excess oil until the oil no longer comes out.
- ★ If no oil is pumped out, there is insufficient oil in the inner tube. Pour in enough oil, then pump out the excess oil as shown above.



12-6 SUSPENSION

Front Fork

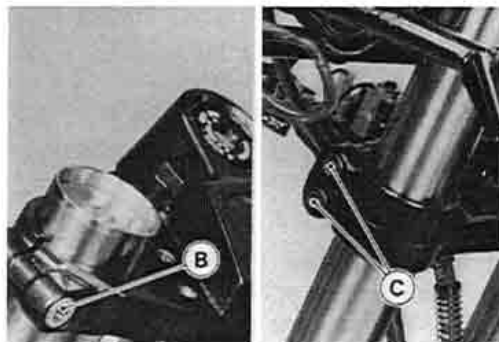
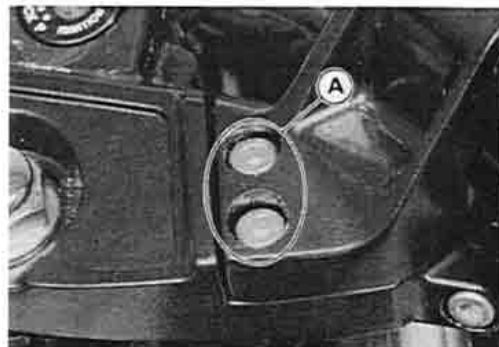
- Install the main spring so that the smaller diameter end downward.
- Install the spring seat and the spacer.
- Check the O-ring at the top plug, and replace it with a new one if damaged.
- Change the oil of the other fork leg in the same manner.
- Install the fork (see Installation Notes).

Torque – Font Fork Clamp Bolts: 20 N-m (2.0 kg-m, 14.5 ft-lb)

Handlebar Clamp Bolts: 23 N-m (2.3 kg-m, 16.5 ft-lb)

Removal (each fork leg)

- Remove:
 - Upper Fairing Assembly
 - Handlebar Holder Bolts [A] and Handlebar Holders
 - Front Wheel (see Wheels/Tires chapter)
 - Fork Clamp Bolts (upper [B] and lower [C] loosen)



- With a twisting motion, work the fork leg down and out.

Disassembly (each fork)

- Refer to the Base Manual, noting the following.
 - ZX600-E1 has no fork oil drain plug. To drain the oil, remove the front fork.

Rear Shock Absorber

Spring Preload Adjustment

- Remove the shock absorber from the frame (see this chapter).
- Loosen the locknut [A] and turn out the adjusting nut [B] to free the spring using stem nut wrenches.

Special Tool – Steering Stem Nut Wrench: 57001-1100

- Measure the spring free length.
- Install the rear shock absorber spring so that the smaller diameter end [C] facing upward.
- Turn in the adjusting nut to the desired position and tighten the locknut to the specified torque.

Torque – Rear Shock Absorber Preload Adjusting Nut:
88 N-m (9.0 kg-m, 65 ft-lb)

- The standard adjusting nut setting for an average build rider of 68 kg (150 lb) with no passenger and no accessories is 15 mm of spring preload from the free length.

Spring Preload Setting

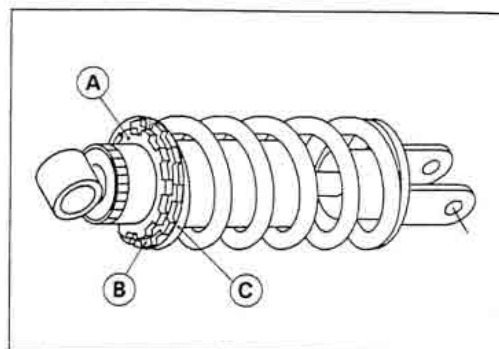
Standard: Spring free length minus 15 mm

Usable Range: Spring free length minus 15 to 24 mm (weaker to stronger)

★ If the spring action feels too soft or too stiff, adjust it.

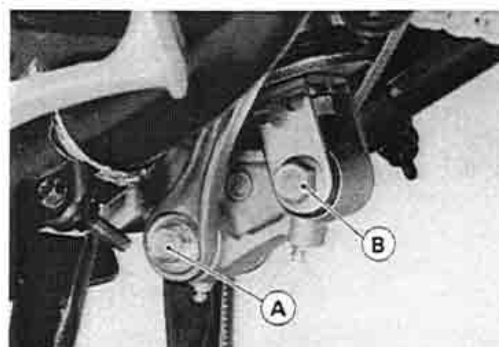
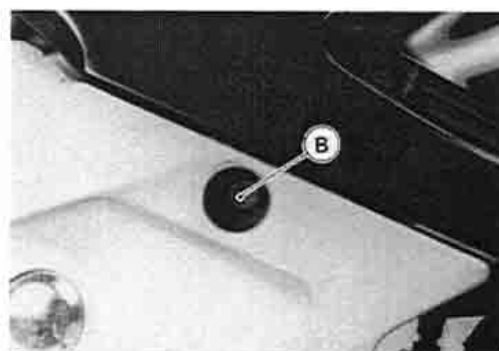
Spring Adjustment

Adjuster Position	Spring Force	Setting	Load	Road	Speed
10 mm	Weak	Soft	Light	Good	Low
↓	↓	↓	↓	↓	↓
19 mm	Strong	Hard	Heavy	Bad	High



Removal

- Set the motorcycle up on its center stand.
- Remove:
 - Lower Tie-Rod Bolts and Nut [A]
 - Shock Absorber Bolts and Nuts [B]
- Support the rocker arm to slide out the bolts.
- Remove the shock absorber toward the ground.



Steering

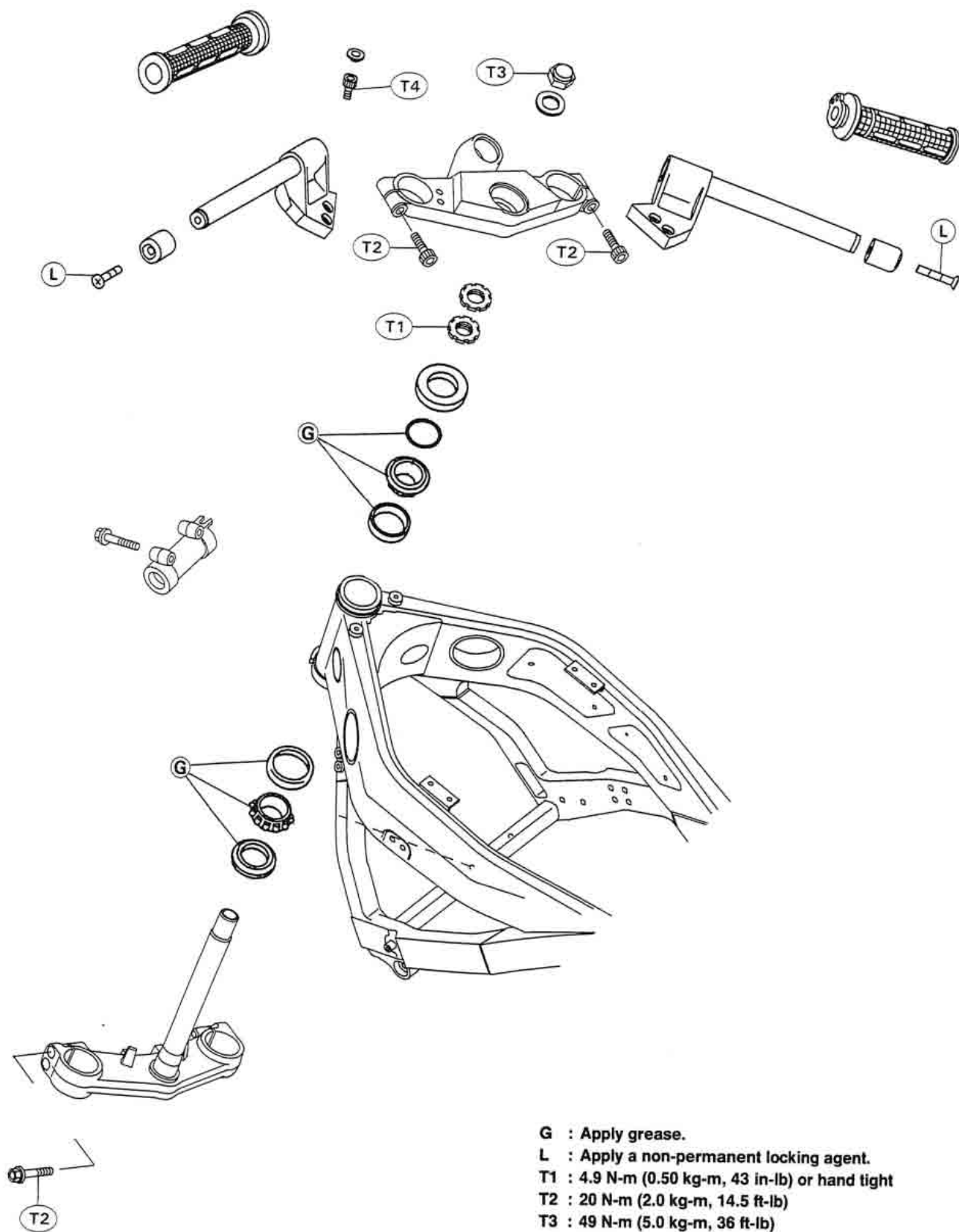
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(): See the Base Manual

13-2 STEERING

Exploded View



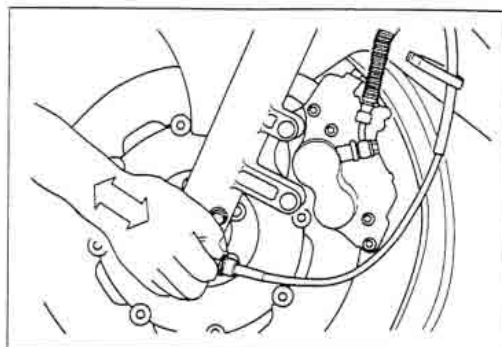
Steering

Adjustment

- Set the motorcycle up on its center stand.
- Check the steering.
- Lift the front wheel off the ground using the jack (see Wheels/Tires chapter).
- With the front wheel pointing straight ahead, alternately tap each end of the handlebar. The front wheel should swing fully left and right from the force of gravity until the lower bracket hits the stop.

Special Tool – Jack: 57001-1238

- ★ If the wheel binds or catches before the stop, the steering is too tight.
- Feel for steering looseness by pushing and pulling the legs.
- ★ If you feel looseness, the steering is too loose.



NOTE

- The cables and wiring will have some effect on the motion of the fork which must be taken into account. Be sure the wires and cables are properly routed.
- The bearings must be in good condition and properly lubricated in order for any test to be valid.
- ★ Adjust the steering if necessary.
- Remove the following parts.
 - Upper Fairing (upper side, see Frame chapter)
 - Fork Lower Clamp Bolts (both sides, loosen)
 - Stem Head Nut (loosen)
- Move back the fuel tank with the hoses installed (see Fuel System chapter).

- With the front wheel raised off the ground, adjust the steering by turning the steering stem locknut [A].
- ★ If the steering is too tight, loosen the stem locknut a fraction of a turn, if the steering is too loose, tighten the locknut a fraction of a turn.

Special Tools – Jack: 57001-1238

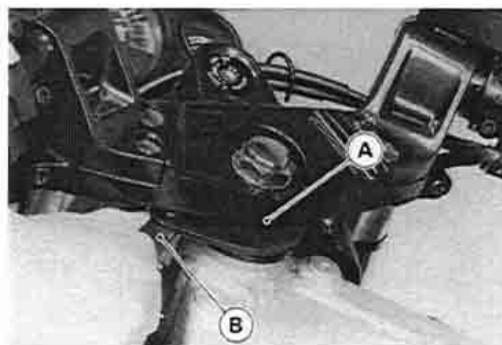
Steering Stem Nut Wrench: 57001-1100 [B]

NOTE

- Do not separate the upper and lower stem locknut. Turn the lower stem locknut counterclockwise when loosening the steering. Turn the upper stem locknut clockwise when tightening the steering. In either case turn the locknut 1/8 turn at a time maximum.
- Tighten the following bolts and nut to the specified torque.

Torque – Front Fork Lower Clamp Bolts: 20 N-m (2.0 kg-m, 14.5 ft-lb)

Steering Stem Head Nut: 49 N-m (5.0 kg-m, 36 ft-lb)



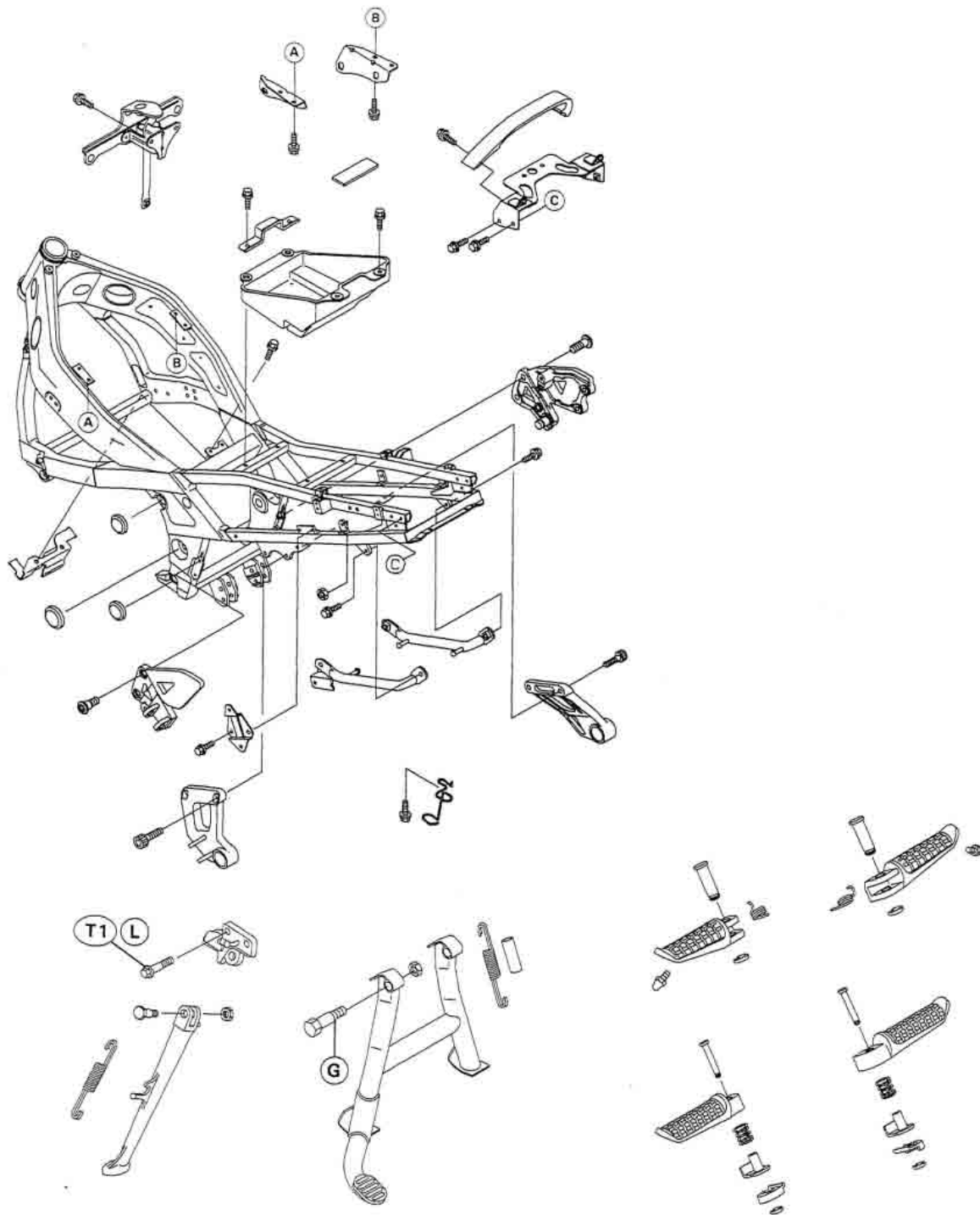
Frame

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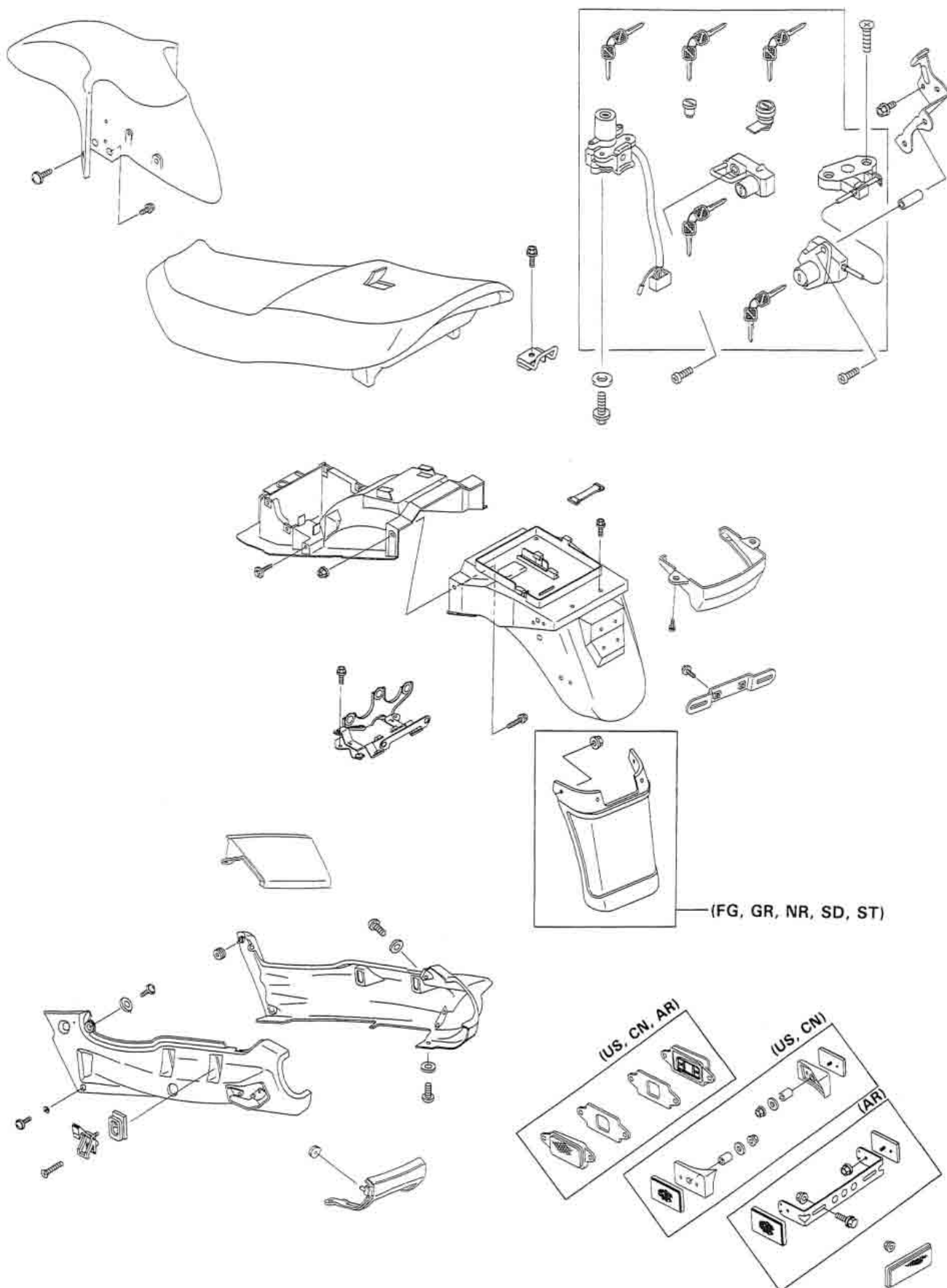
14-2 FRAME

Exploded View

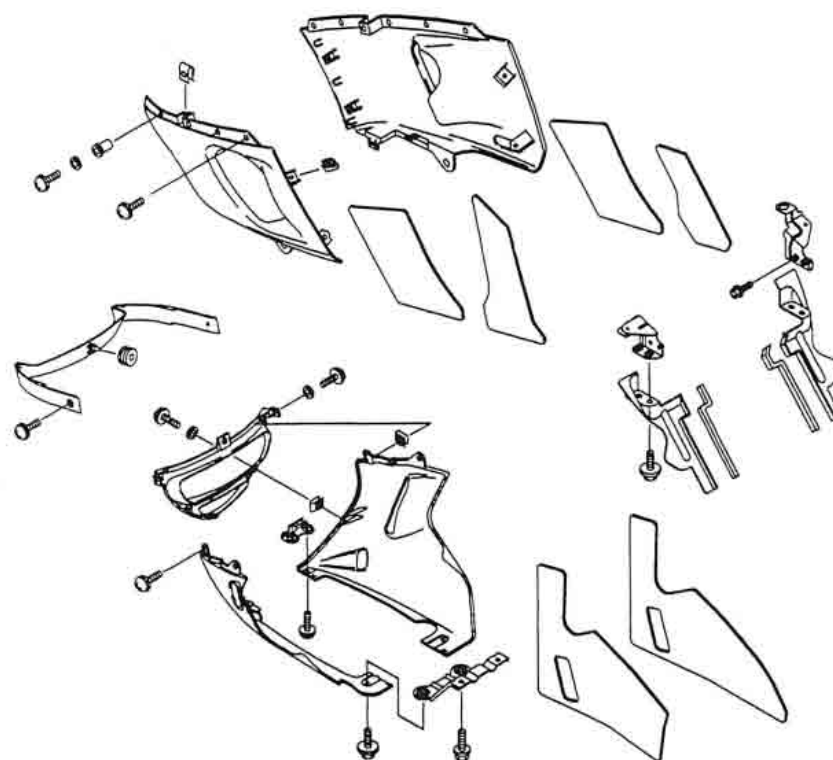
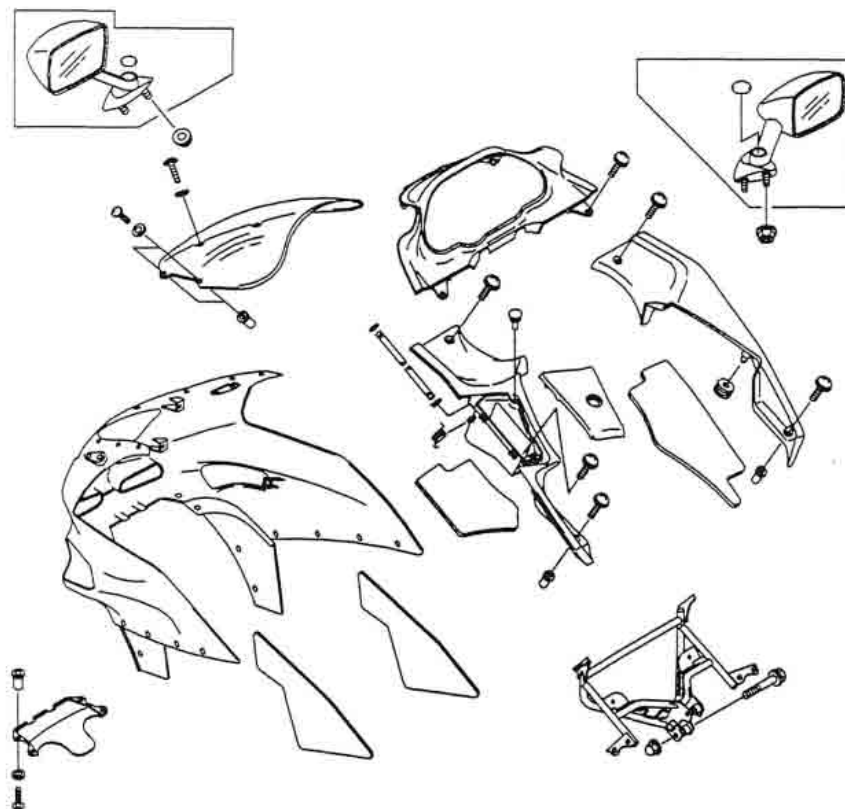


FG: German Model
GR: Greek Model
NR: Norwegian Model
SD: Swedish Model
ST: Swiss Model
US: U.S. Model
CN: Canadian Model
AR: Austrian Model

L: Apply a non-permanent locking agent.
G: Apply grease.
T1: 49 N-m (5.0 kg-m, 36 ft-lb)



14-4 FRAME

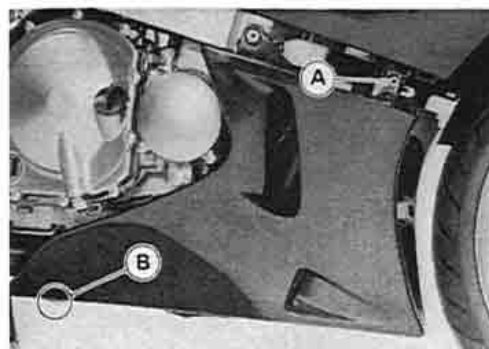
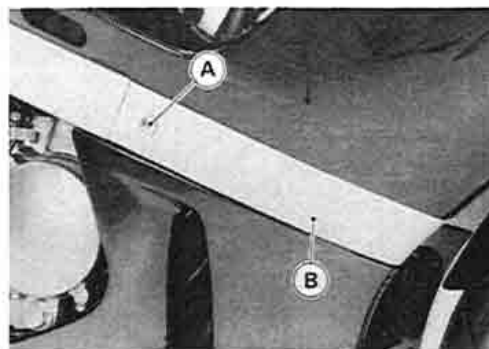


Fairings

Lower Fairing Removal

- Remove the cover screws [A].
- Pull the cover [B] forward to clear the tabs and remove the cover.

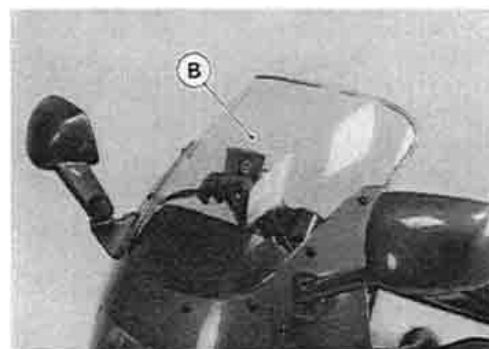
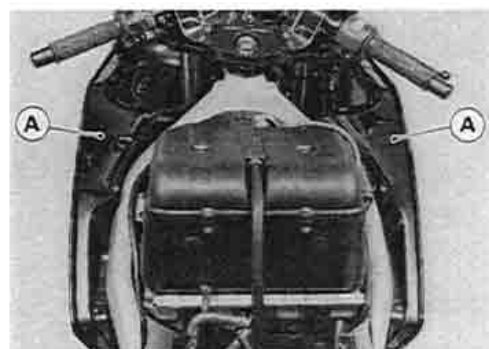
- Remove the lower fairing by taking off the screws [A] and bolts [B].



Upper Fairing Removal

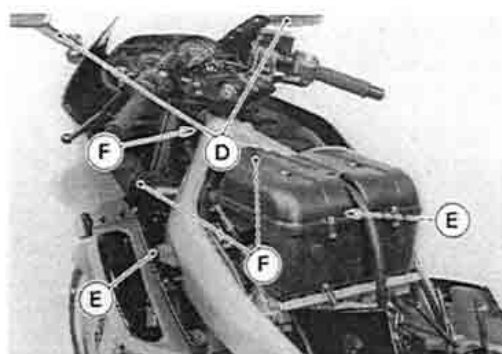
- To remove the upper and middle fairings as a set, remove the following in the order listed.

- Lower Fairing (see this chapter)
- Inner Fairings (right and left) [A]
- Windshield [B]
- Center Inner Fairing [C]



14-6 FRAME

Rear View Mirrors [D]
Fairing Mounting Screws [E]
Ram Air Duct Clamps [F]
Turn Signal Light Connectors
Headlight Connector



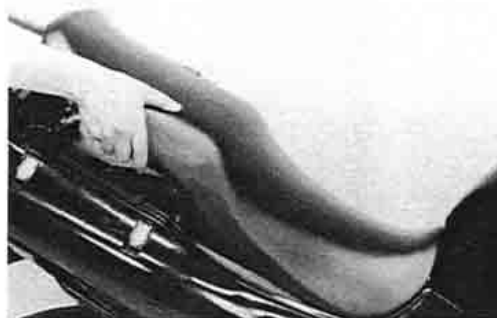
- Remove the upper fairing assembly [A].



Seat and Side Covers

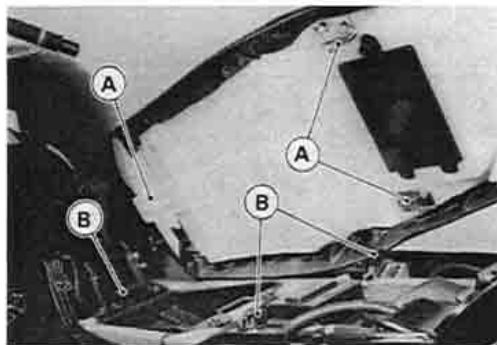
Seat Removal

- Unlock the seat.
- Swing open the rear seat and remove it.



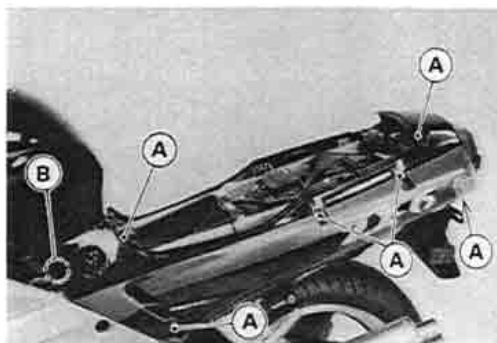
Seat Installation

- Slip the hooks [A] of the seat under the braces [B] on the frame.



Side Cover Removal

- Remove:
 - Seat (see Seat Removal)
 - Grab Rail
 - Side Cover Screws [A]
- Pull the front part of the side cover evenly outward to clear the stoppers [B].
- Remove the side cover.
- Remove the other side over in the same manner.



Electrical System

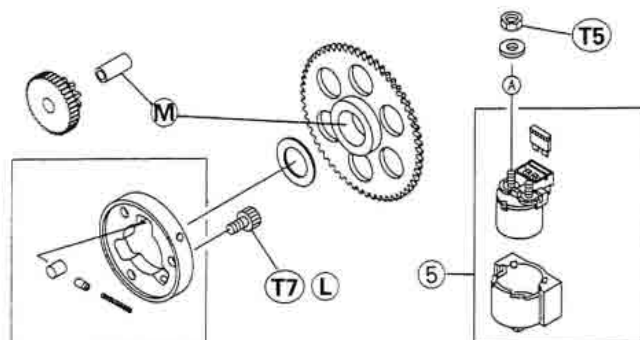
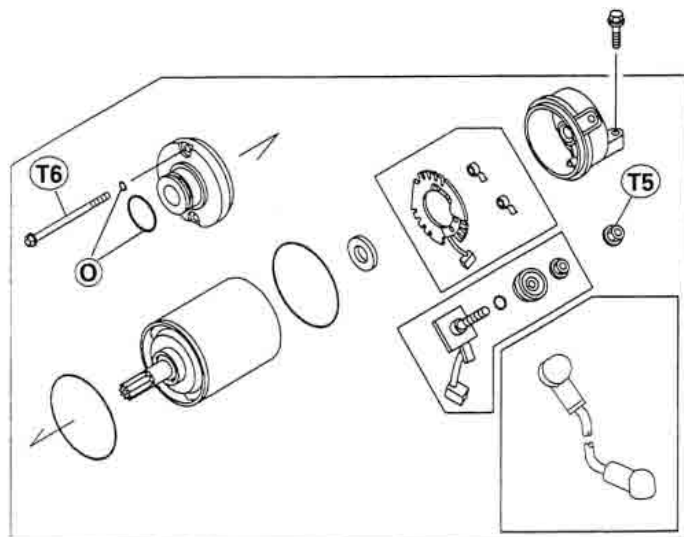
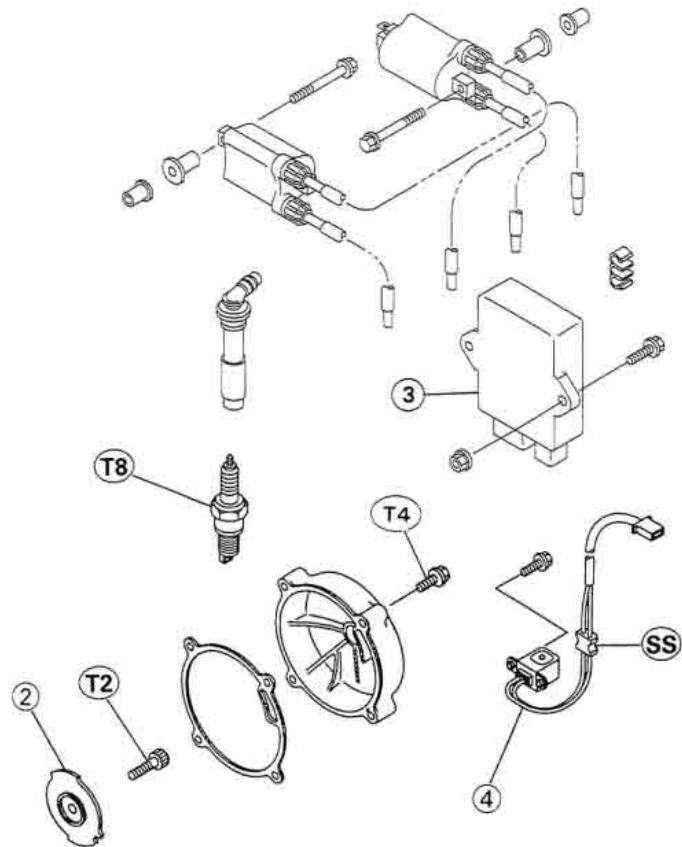
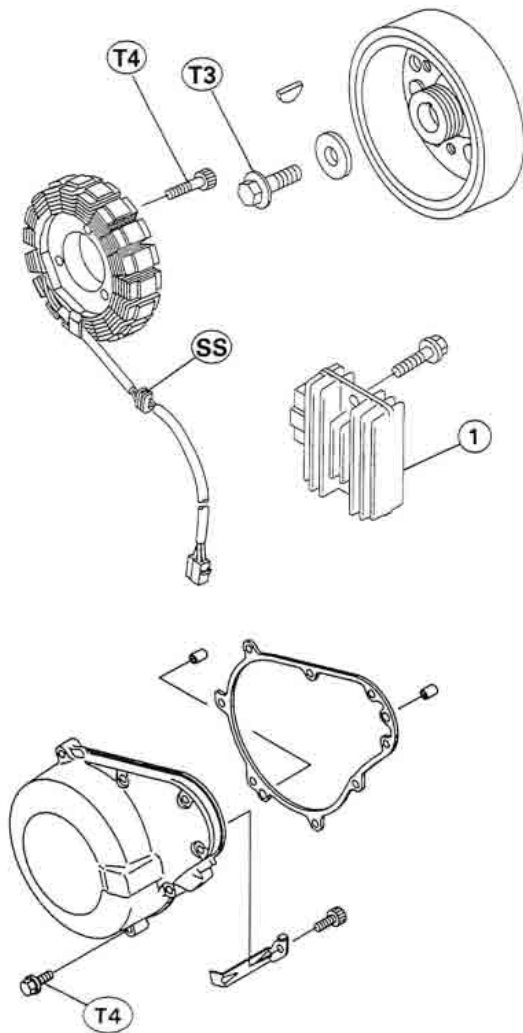
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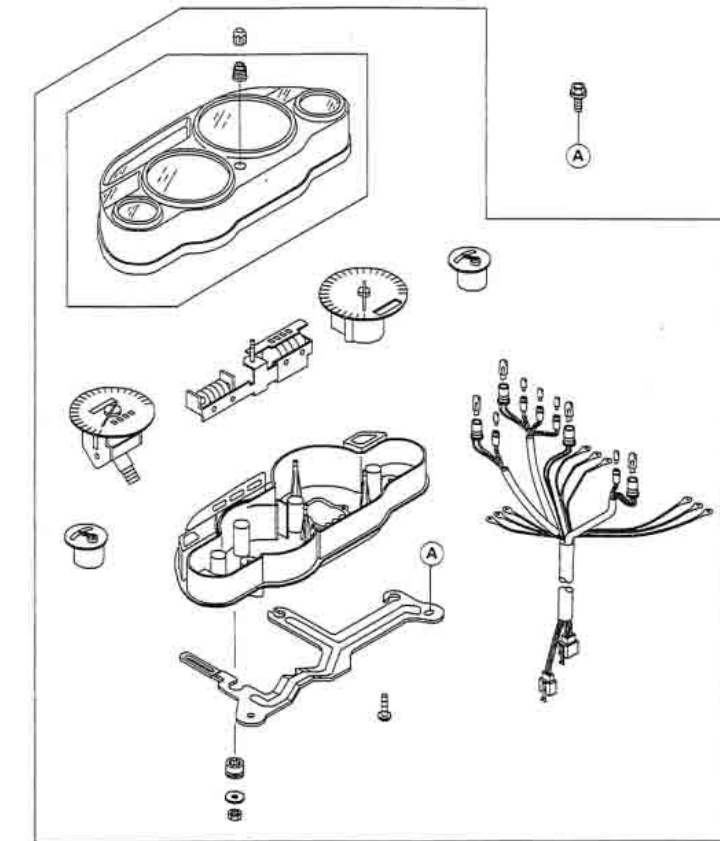
(): See the Base Manual

15-2 ELECTRICAL SYSTEM

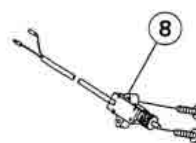
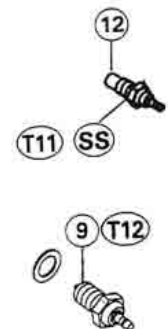
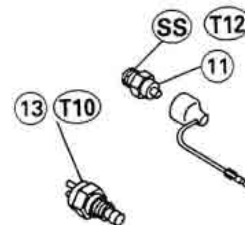
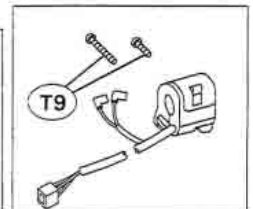
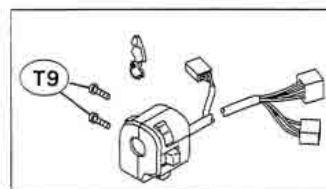
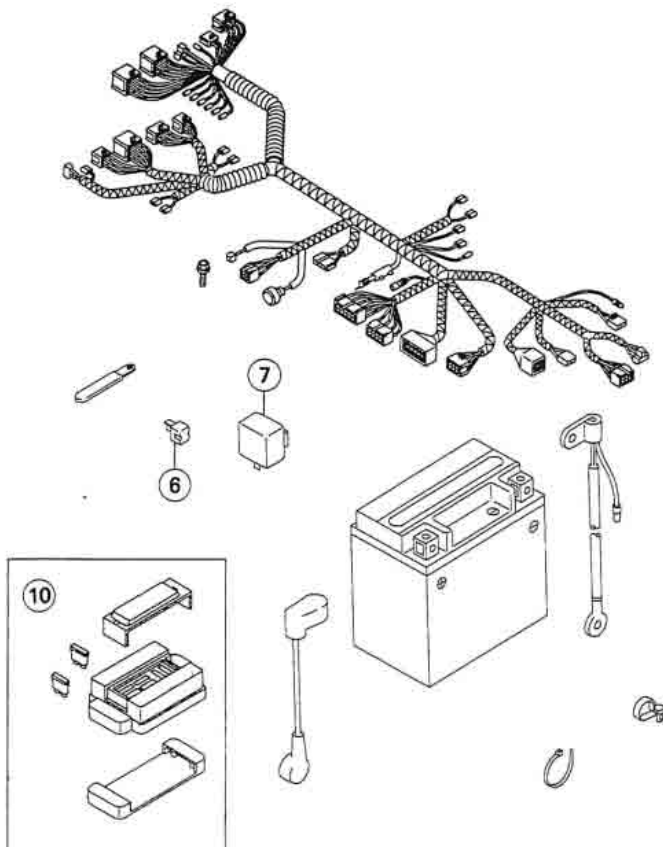
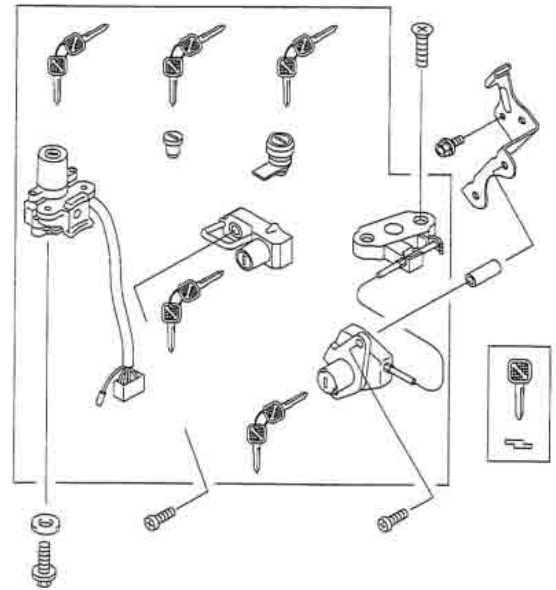
Exploded View



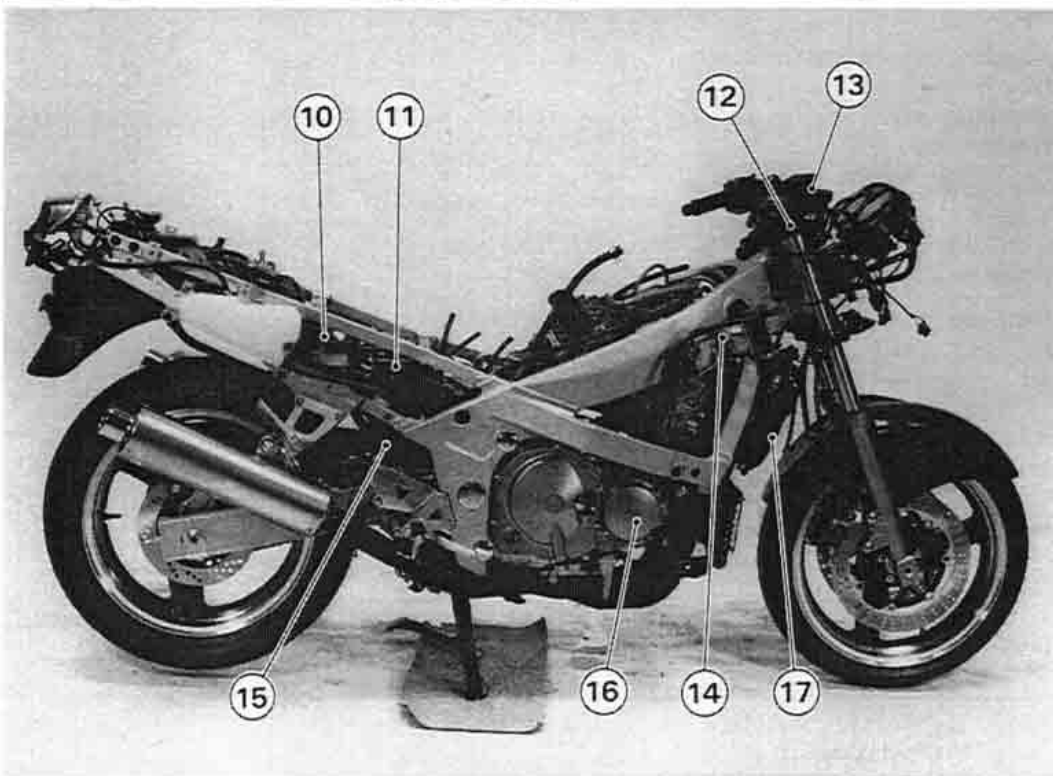
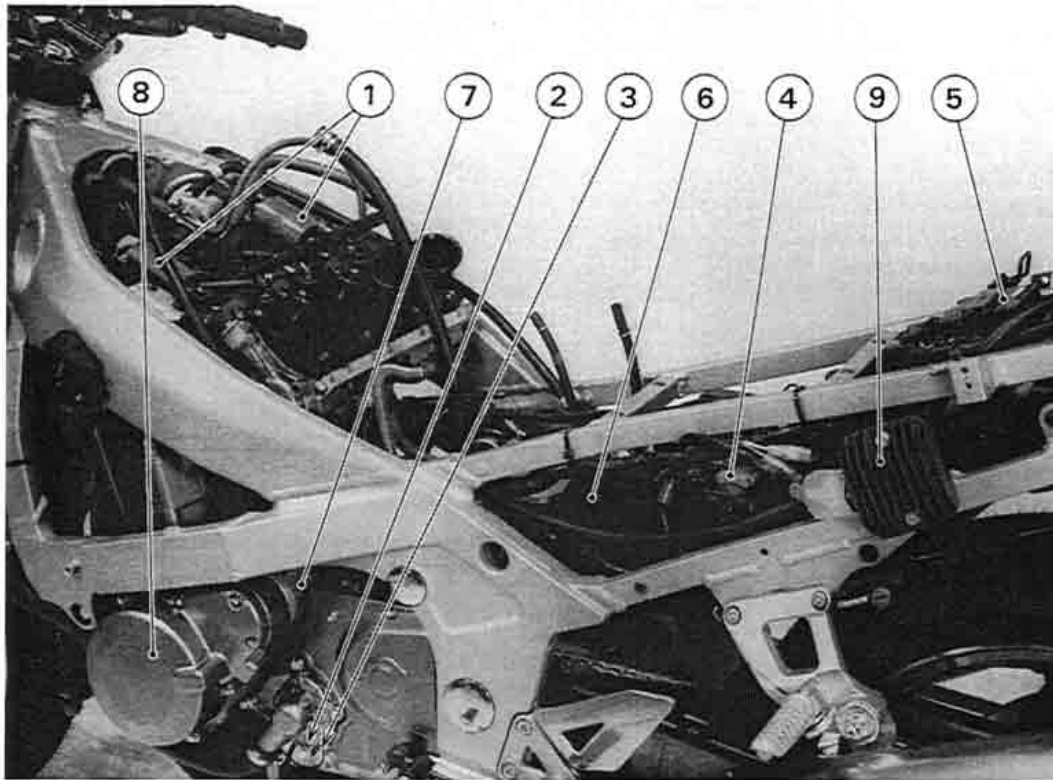
- L** : Apply a non-permanent locking agent.
- M** : Apply molybdenum disulfide grease.
- O** : Apply oil.
- SS** : Apply silicone sealant.
- T1** : 8.8 N-m (0.90 kg-m, 78 in-lb)
- T2** : 25 N-m (2.5 kg-m, 18.0 ft-lb)
- T3** : 78 N-m (8.0 kg-m, 58 ft-lb)
- T4** : 12 N-m (1.2 kg-m, 104 in-lb)
- T5** : 4.9 N-m (0.50 kg-m, 43 in-lb)
- T6** : 5.9 N-m (0.60 kg-m, 52 in-lb)
- T7** : 34 N-m (3.5 kg-m, 25 ft-lb)
- T8** : 14 (1.4 kg-m, 10 ft-lb)
- T9** : 3.4 N-m (0.35 kg-m, 30 in-lb)
- T10** : 18 N-m (1.8 kg-m, 13.0 ft-lb)
- T11** : 7.8 N-m (0.80 kg-m, 69 in-lb)
- T12** : 15 N-m (1.5 kg-m, 11.0 ft-lb)



1. Regulator/Rectifier
2. Timing Rotor
3. IC Igniter
4. Pickup Coil
5. Starter Relay
6. Rectifier
7. Turn Signal Relay
8. Side Stand Switch
9. Neutral Switch
10. Junction Box
11. Oil Pressure Switch
12. Water Temperature Sensor
13. Thermostatic Fan Switch



Parts Location



1. Ignition Coils
2. Oil Pressure Switch
3. Neutral Switch
4. Starter Relay and Main Fuse
5. Junction Box
6. Turn Signal Relay

7. Starter Motor
8. Alternator
9. Regulator/Rectifier
10. Fuel Pump Relay
11. IC Igniter
12. Front Brake Light Switch

13. Starter Lockout Switch
14. Water Temperature Sensor
15. Rear Brake Rear Brake Light Switch
16. Pickup Coil
17. Fan Switch

15-6 ELECTRICAL SYSTEM

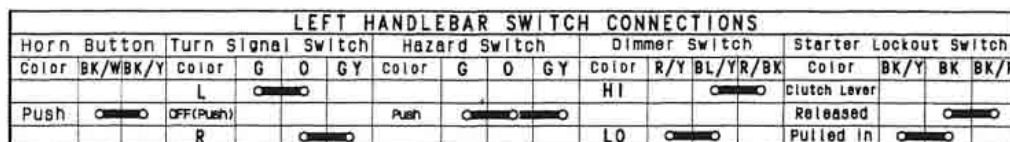
Specifications



Item	Standard	Service Limit
Battery: Terminal voltage	12.6 V or more	---
Charging System: Alternator type Charging voltage (regulator/rectifier output voltage) Alternator output voltage Stator coil resistance	Three-phase AC 14 ~ 15 V 45 V or more 0.2 ~ 0.6 Ω	--- --- --- ---
Ignition System: Pickup coil air gap Pickup coil resistance Ignition timing Ignition coil: 3 needle arcing distance Primary windings resistance Secondary winding resistance Spark plug: Spark plug gap IC igniter resistance	0.4 ~ 0.6 mm 380 ~ 570 Ω From 12.5° BTDC @1 050 r/min (rpm) to 35° BTDC @3 000 r/min (rpm), (US,CN) From 12.5° BTDC @1 050 r/min (rpm) to 35° BTDC @5 000 r/min (rpm) (CA) From 5° BTDC @1 300 r/min (rpm) to 35° BTDC @5 000 r/min (rpm), (ST) From 2.5° BTDC @1 300 r/min (rpm) to 32.5° BTDC @3 000 r/min (rpm) (AR) From 5° BTDC @1 500 r/min (rpm) to 35° BTDC @3 000 r/min (rpm) 6 mm or more 2.3 ~ 3.5 Ω 12.0 ~ 18.0 k Ω 0.7 ~ 0.8 mm in the text	--- --- --- --- --- --- --- ---
Electric Starter System: Starter motor: Brush length Commutator diameter	 11.6 ~ 12.4 mm 27.8 ~ 28.1 mm	 8.5 mm 27.0 mm
Switch and Sensor: Rear brake light timing Engine oil pressure switch connections Fan switch connections: Rising temperature Falling temperature Water temperature sensor resistance	ON after about 10 mm pedal travel when engine is stopped : ON when engine is running : OFF From OFF to On at 96° ~ 100°C (205 ~ 212°F) From ON to OFF at 91 ~ 95°C (196 ~ 203°F) ON : Less than 0.5 Ω OFF : More than 1 M Ω 47 ~ 57 Ω @80°C (175°F) 25 ~ 30 Ω @100°C (212°F)	--- --- --- --- --- --- ---

Special Tools – Flywheel Holder: 57001-1313
Rotor Puller, M16/M18/M20/M22 x 1.5: 57001-1216
Flywheel Puller, M35 X 1.5: 57001-1223
Hand Tester: 57001-1394
Spark Plug Wrench, Hex 16: 57001-1262
Sealant – Kawasaki Bond (Silicone Sealant): 56019-120

ZX600-E1, E2 Wiring Diagram (U.S. and Canada)

- Right Hand
 - 1. Front Br
 - 2. Engine S
 - 3. Starter



IGNITION		
	Ignition	Battery
Color	BR	W
OFF, LOCK		
ON		
P		

ELECTRICAL SYSTEM 15-9

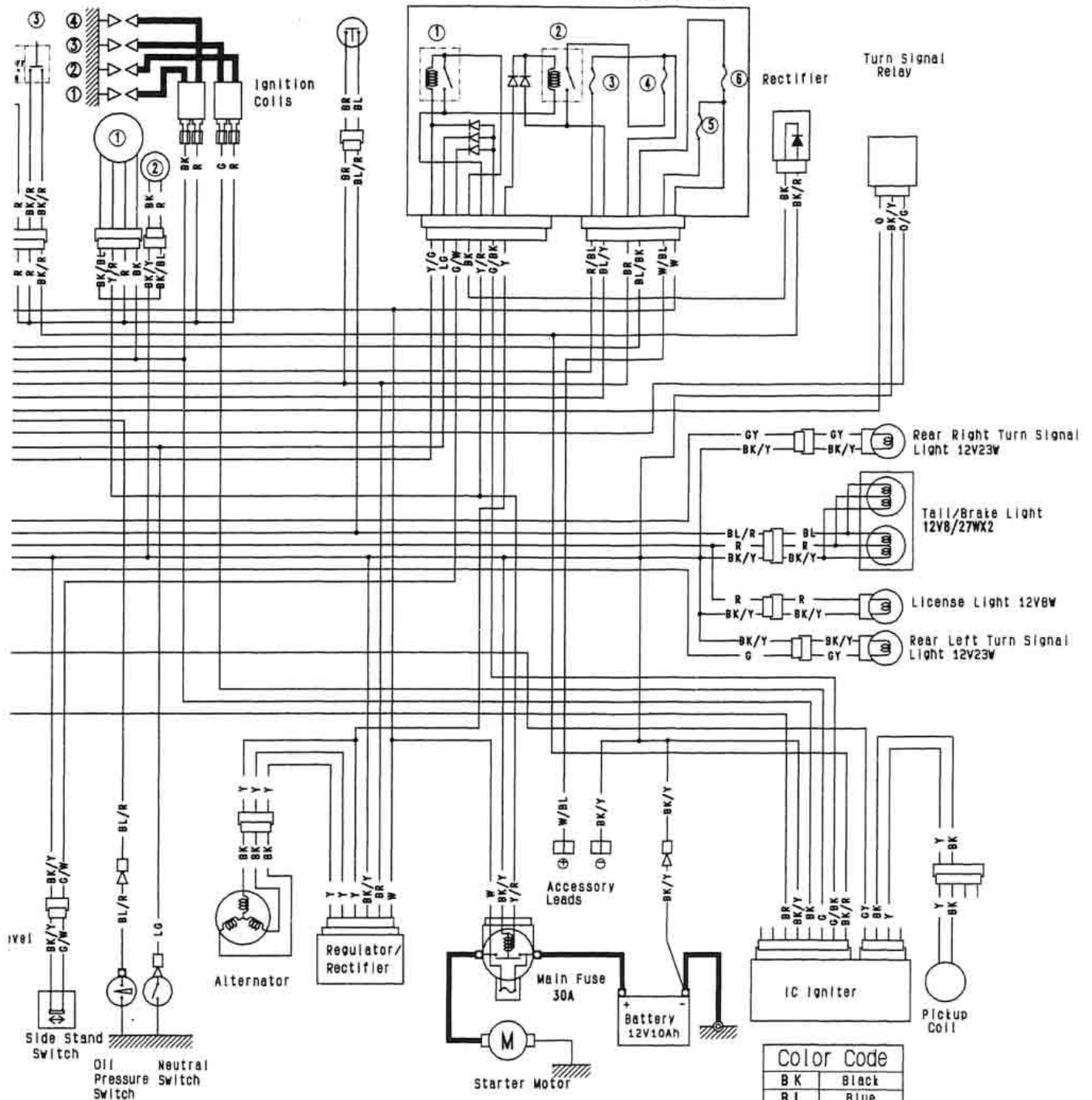
Right Handlebar Switches
1. Front Brake Light Switch
2. Engine Stop Switch
3. Starter Button

Fuel Pump
1. Fuel Pump Relay
2. Fuel Pump

Rear Brake
Light Switch




Spark Plugs

Junction Box
1. Starter Circuit Relay
2. Headlight Relay
3. Taillight Fuse 10A
4. Headlight Fuse 10A
5. Accessory Fuse 10A
6. Fan Fuse 10A



Out Switch

IGNITION SWITCH CONNECTIONS						
Ignition	Battery	Ignition	Tail 1	Tail 2	Battery	Tail 3
BR	W	Y	BL	R	W/BK	O/G

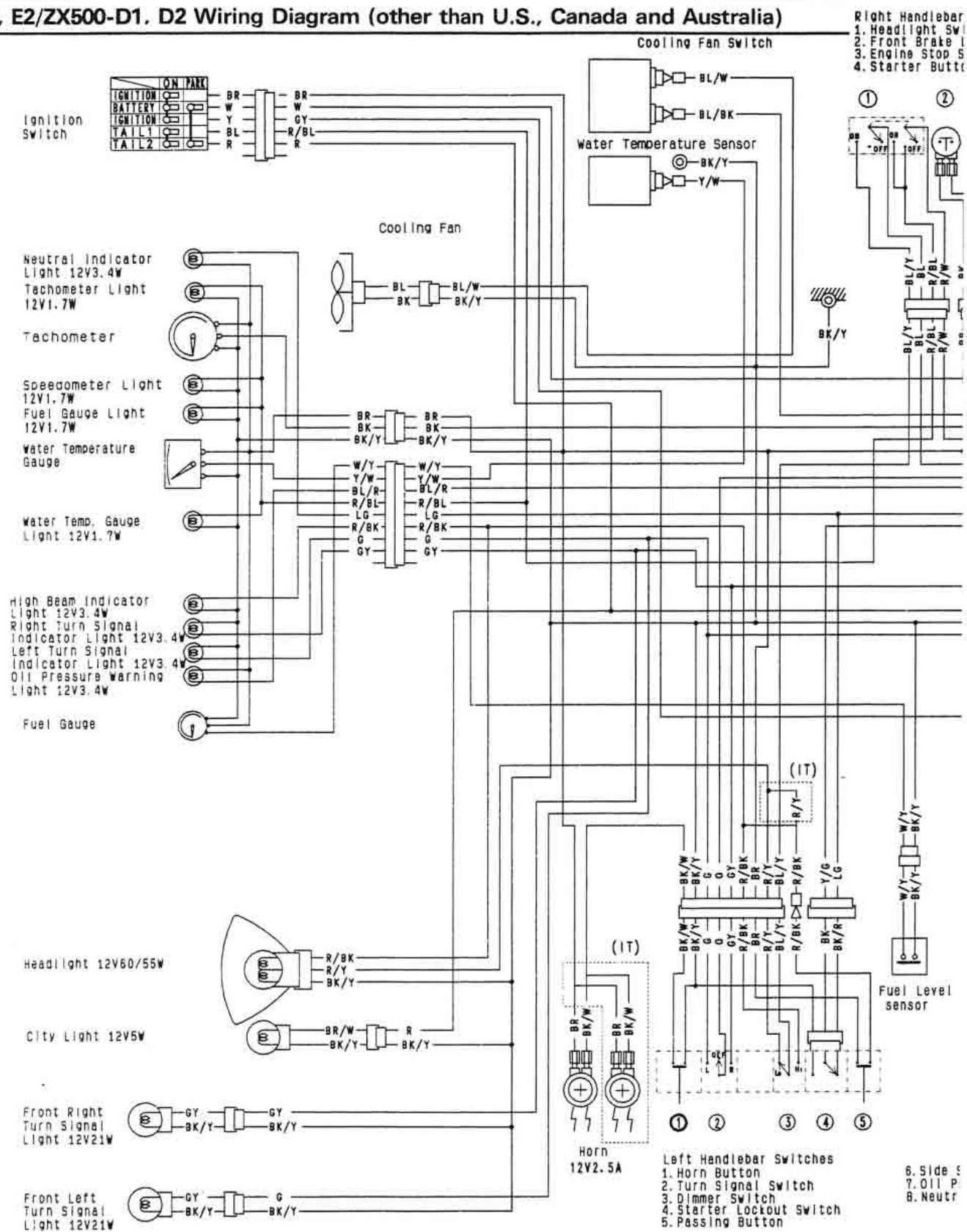
RIGHT HANDLEBAR SWITCH CONNECTIONS							
Front Brake Light Switch		Engine Stop Switch			Starter Button		
Color	BK	BK	Color	Y/R	R	Color	BK/R BK/R
Brake Lever			OFF				
Pulled in			RUN				Push 

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

(98051-13428)C

15-10 ELECTRICAL SYSTEM

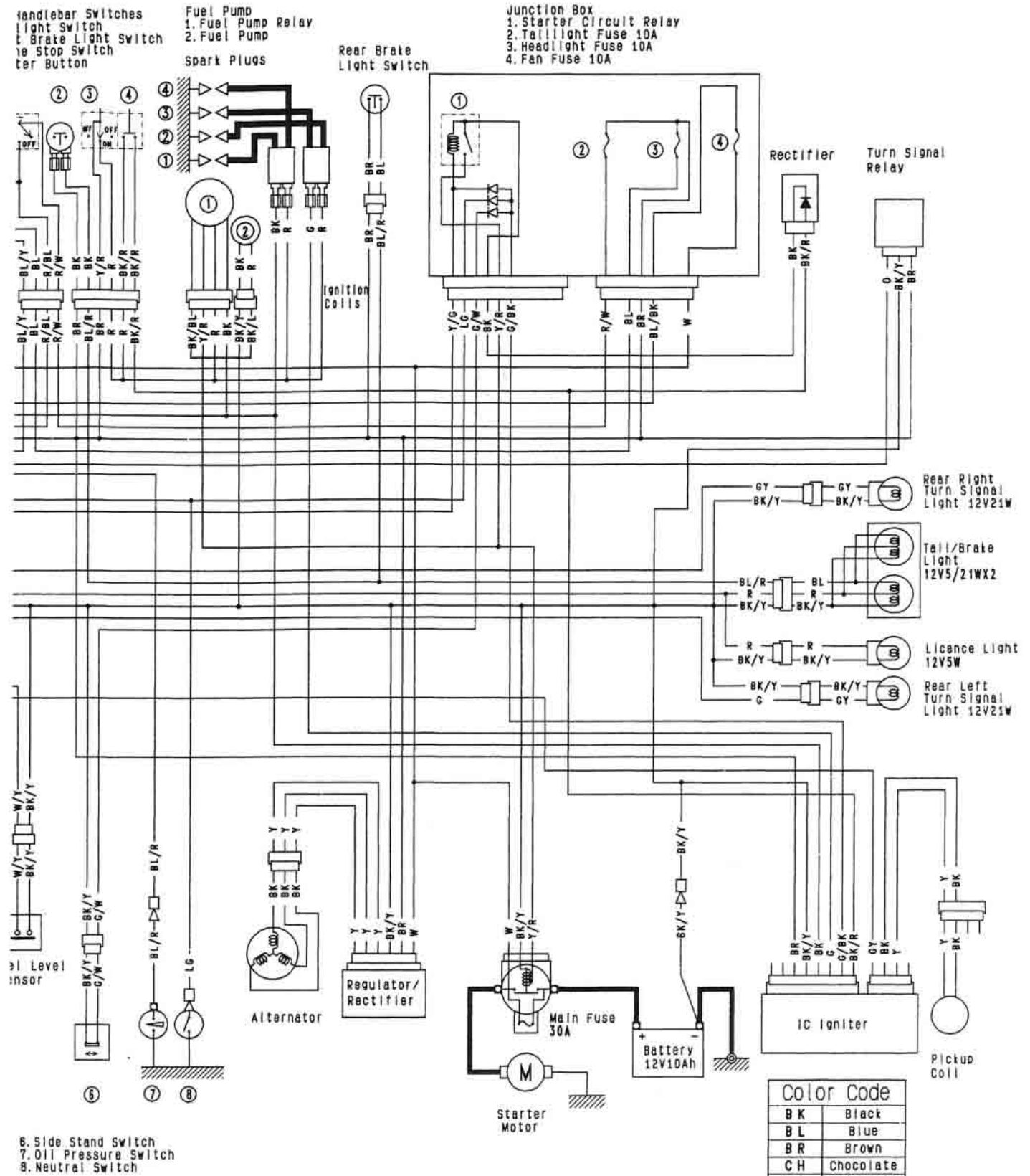
ZX600-E1, E2/ZX500-D1, D2 Wiring Diagram (other than U.S., Canada and Australia)










LEFT HANDLEBAR SWITCH CONNECTIONS															
Horn Button	Turn Signal Switch	Dimmer Switch			Starter Lockout Switch			Passing Button							
Color	BK/WBK/Y	Color	G	O	GY	Color	R/Y	BL/YR/BK	Color	BK/Y	BK	BK/R	Color	BR	R/BK
	L					HI			Clutch Lever						
Push		OFF (Push)							Released				Push		
	R					LO			Pulled In						

IGNITION SWITCH C			
Ignition/Battery/Ignit			
Color	BR	W	Y
OFF, LOCK			
ON			
P			

ELECTRICAL SYSTEM 15-11



SWITCH CONNECTIONS			
Battery	Ignition	Tail 1	Tail 2
W	Y	BL	R
—	—	—	—
—	—	—	—

RIGHT HANDLEBAR SWITCH CONNECTIONS													
Headlight Switch					Front Brake Light Switch			Engine Stop Switch			Starter Button		
Color	R/W	R/BL	BL	BL/Y	Color	BK	BK	Color	Y/R	R	Color	BK/R	BK/R
OFF					Brake Lever			OFF					
					Pulled In			RUN			Push		
ON													

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

(98051-1343B, 1344A, 1345A)C

ZX600-E1, E2 Wiring Diagram (Australia)

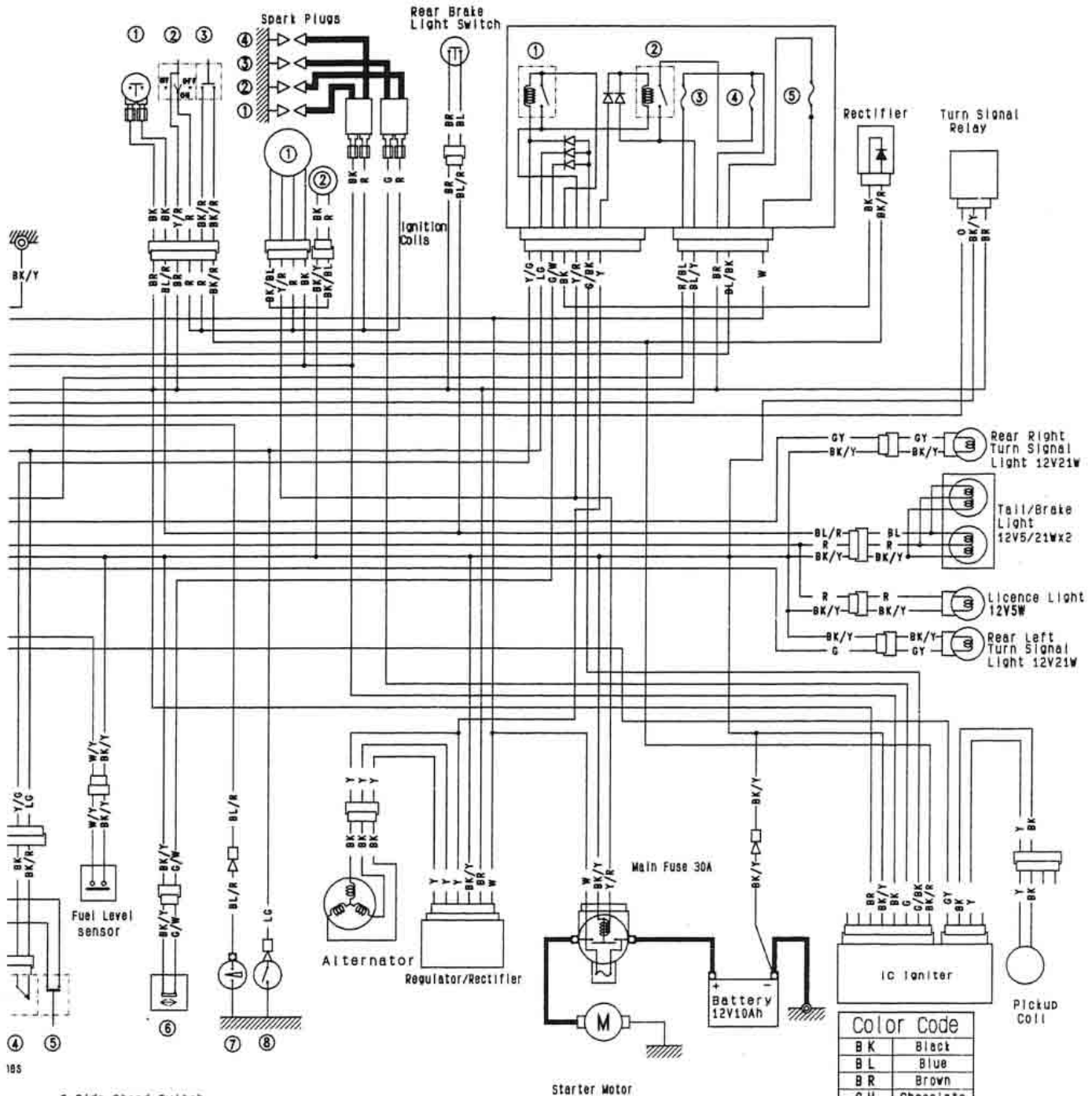
[illegible]

LEFT HANDLEBAR SWITCH CONNECTIONS											
Horn Button	Turn Signal Switch	Dimmer Switch	Starter Lockout Switch	Passing Button							
Color BK/WBK/Y	Color G O GY	Color R/Y BL/YR/BK	Color BK/Y BK BK/R	Color BL/YR/BK							
L	HI	Clutch Lever									
Push	OFF (Push)	Released		Push							
R	LO	Pulled In									

Right Handlebar Switches
 1. Front Brake Light Switch
 2. Engine Stop Switch
 3. Starter Button

Fuel Pump
 1. Fuel Pump Relay
 2. Fuel Pump

Junction Box
 1. Starter Circuit Relay
 2. Headlight Relay
 3. Taillight Fuse 10A
 4. Headlight Fuse 10A
 5. Fan Fuse 10A



185

6. Side Stand Switch
 7. Oil Pressure Switch
 8. Neutral Switch

Passing Button	Color	BL/Y/R/BK
Push		

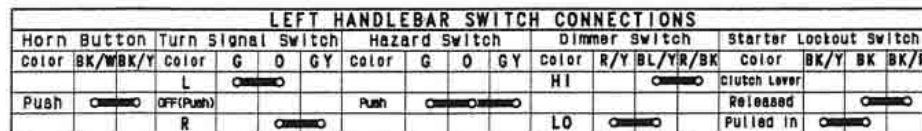
IGNITION SWITCH CONNECTIONS					
	Ignition	Battery	Ignition	Tail 1	Tail 2
Color	BR	W	Y	BL	R
OFF, LOCK					
ON					
P					

RIGHT HANDLEBAR SWITCH CONNECTIONS					
Front Brake Light Switch		Engine Stop Switch		Starter Button	
Color	BK	BK	Color	Y/R	R
Brake Lever			OFF		
Pulled In			RUN		
				Push	

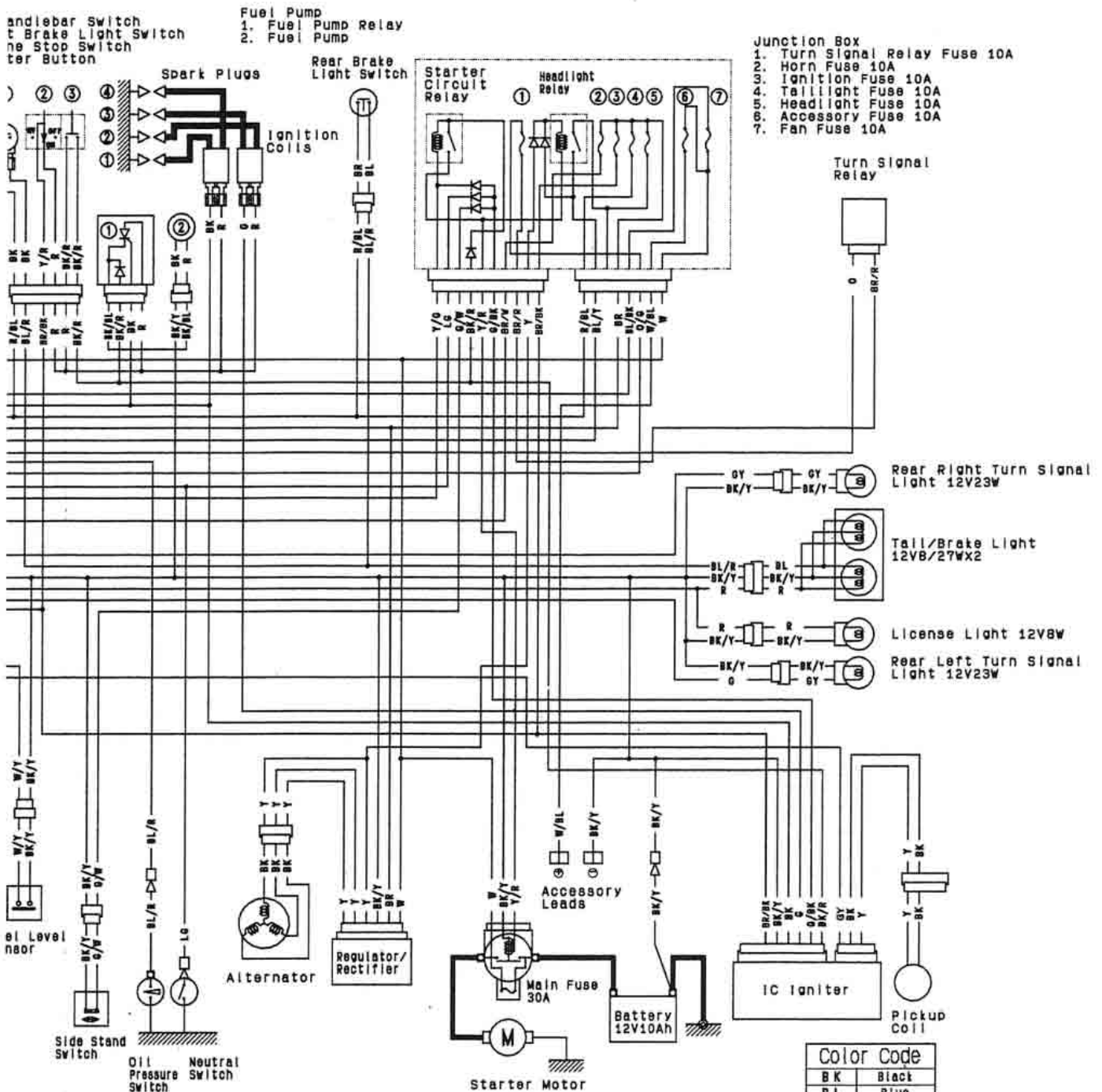
Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

(98051-1366A)C

ZX600-E3, E4 Wiring Diagram (U.S. And Canada)



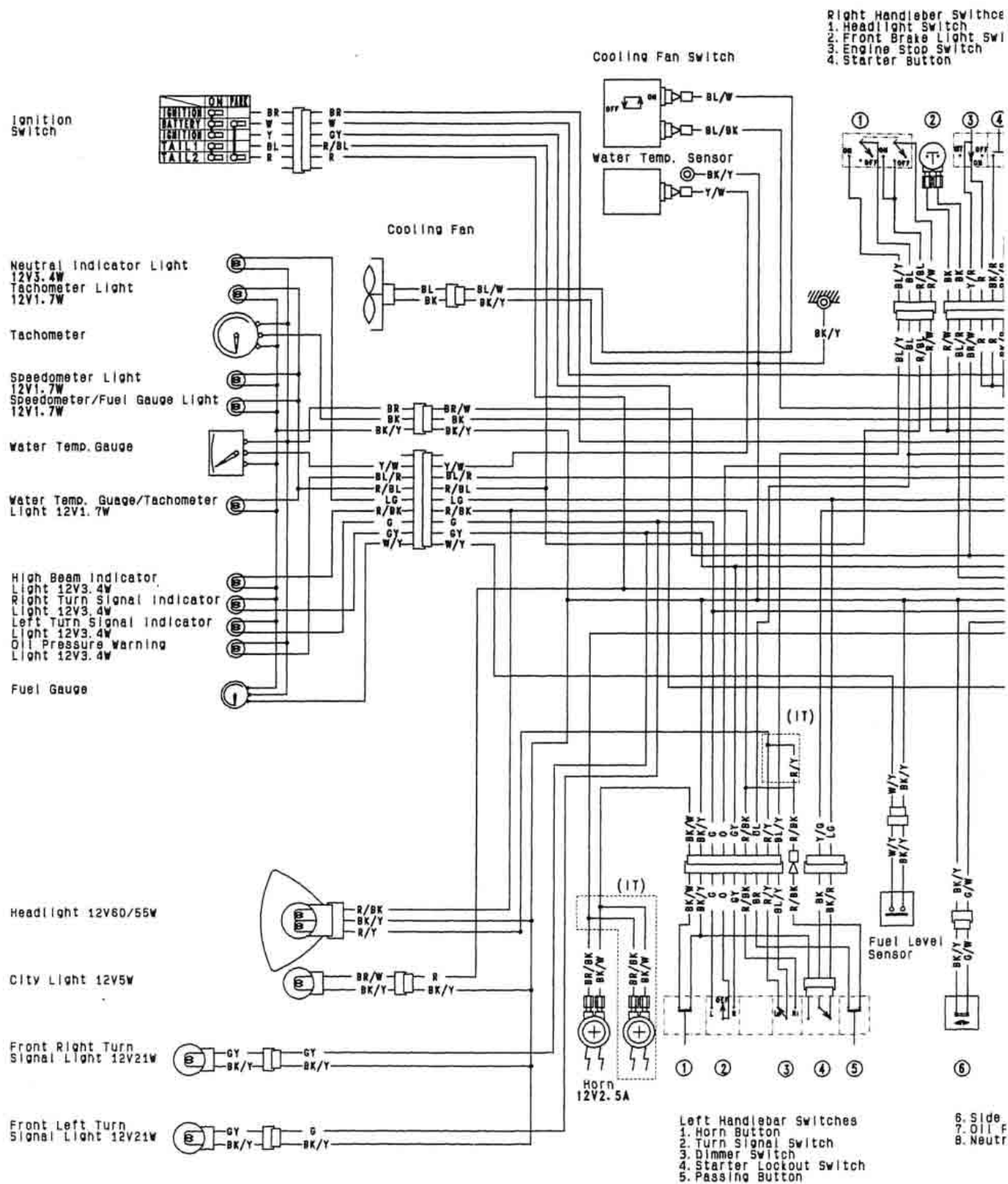
	IGN
	Ignl
Color	B
OFF, LOCK	
ON	C
P	



(98051-1475A)C

15-16 ELECTRICAL SYSTEM

ZX600-E3, E4/ZX500-D3, D4 Wiring Diagram (other than U.S., Canada and Australia)



LEFT HANDLEBAR SWITCH CONNECTIONS									
Horn Button	Turn Signal Switch	Dimmer Switch	Starter Lockout Switch	Passing Button					
Color BK/WBK/Y	Color G O GY	Color R/Y BL/YR/BK	Color BK/Y BK BK/R	Color BR R/BK					
Push	OFF (Push)	HI	Released	Push					
	R	LO	Pulled In						

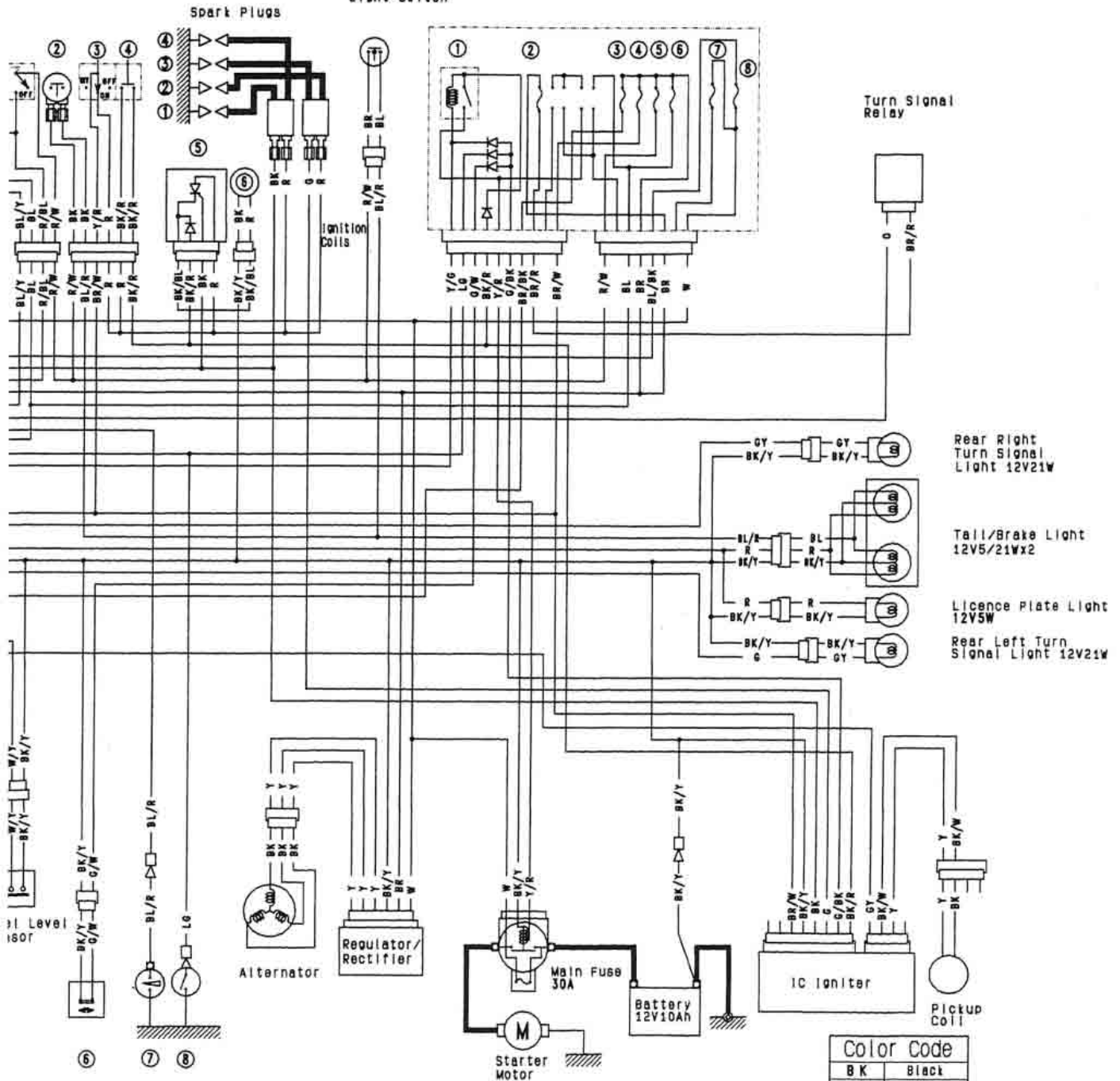
IGNITION SWITCH C			
Color	BR	W	Y
OFF, LOCK			
ON			
P			

Idle Switches
 Light Switch
 Brake Light Switch
 Stop Switch
 Horn Button

Fuel Pump
 5. Fuel Pump Relay
 6. Fuel Pump

Rear Brake
 Light Switch

Junction Box
 1. Starter Circuit Relay
 2. Turn Signal Relay Fuse 10A
 3. Horn Fuse 10A
 4. Ignition Fuse 10A
 5. Tail Light Fuse 10A
 6. Headlight Fuse 10A
 7. ACC Fuse 10A
 8. Fan Fuse 10A








6. Side Stand Switch
 7. Oil Pressure Switch
 8. Neutral Switch

IGNITION SWITCH CONNECTIONS

Ignition	Battery	Ignition	Tail 1	Tail 2
BR	W	Y	BL	R

RIGHT HANDLEBAR SWITCH CONNECTIONS

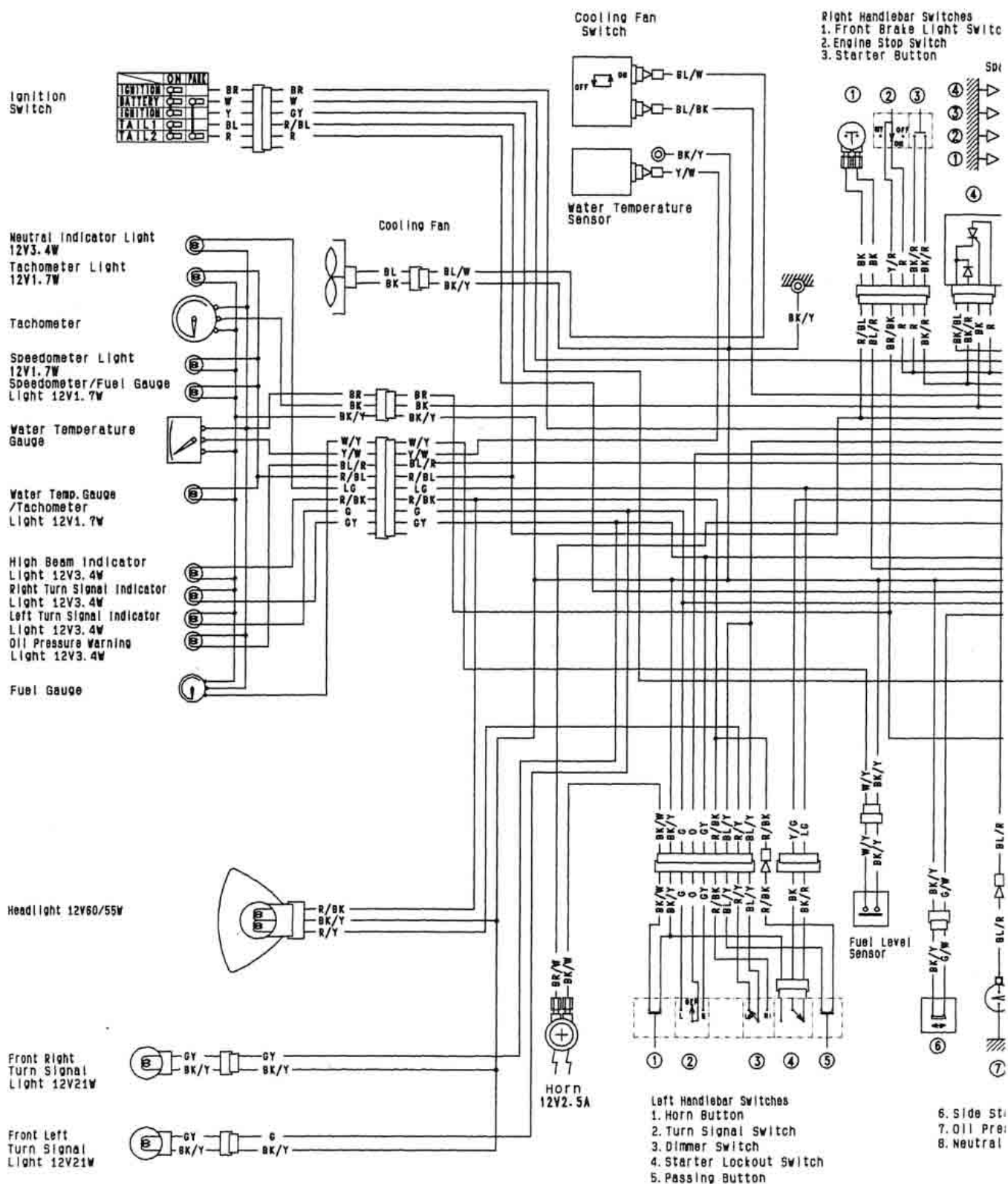
Headlight Switch				Front Brake Light Switch			Engine Stop Switch			Starter Button		
Color	R/W/R/BL	BL	BL/Y	Color	BK	BK	Color	Y/R	R	Color	BK/R	BK/R
OFF				Brake Lever			OFF					
				Pulled In			RUN			Push		
ON												

Color Code

BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

15-18 ELECTRICAL SYSTEM

ZX600-E3, E4 Wiring Diagram (Australia)



LEFT HANDLEBAR SWITCH CONNECTIONS									
Horn Button	Turn Signal Switch	Dimmer Switch	Starter Lockout Switch	Passing Button					
Color BK/WBK/Y	Color G O GY	Color R/Y BL/YR/BK	Color BK/Y BK BK/R	Color BL/YR/BK					
Push	OFF (Push)	HI	Clutch Lever	Push					
	R	LO	Released						
			Pulled In						

IGNIT
Color
OFF, LOCK
ON
P

ELECTRICAL SYSTEM 15-19

Junction Box

1. Starter Circuit Relay
2. Turn Signal Relay Fuse 10A
3. Headlight Relay
4. Horn Fuse 10A
5. Ignition Fuse 10A
6. Taillight Fuse 10A
7. Headlight Fuse 10A
8. ACC Fuse 10A
9. Fan Fuse 10A

Right Handbar Switches

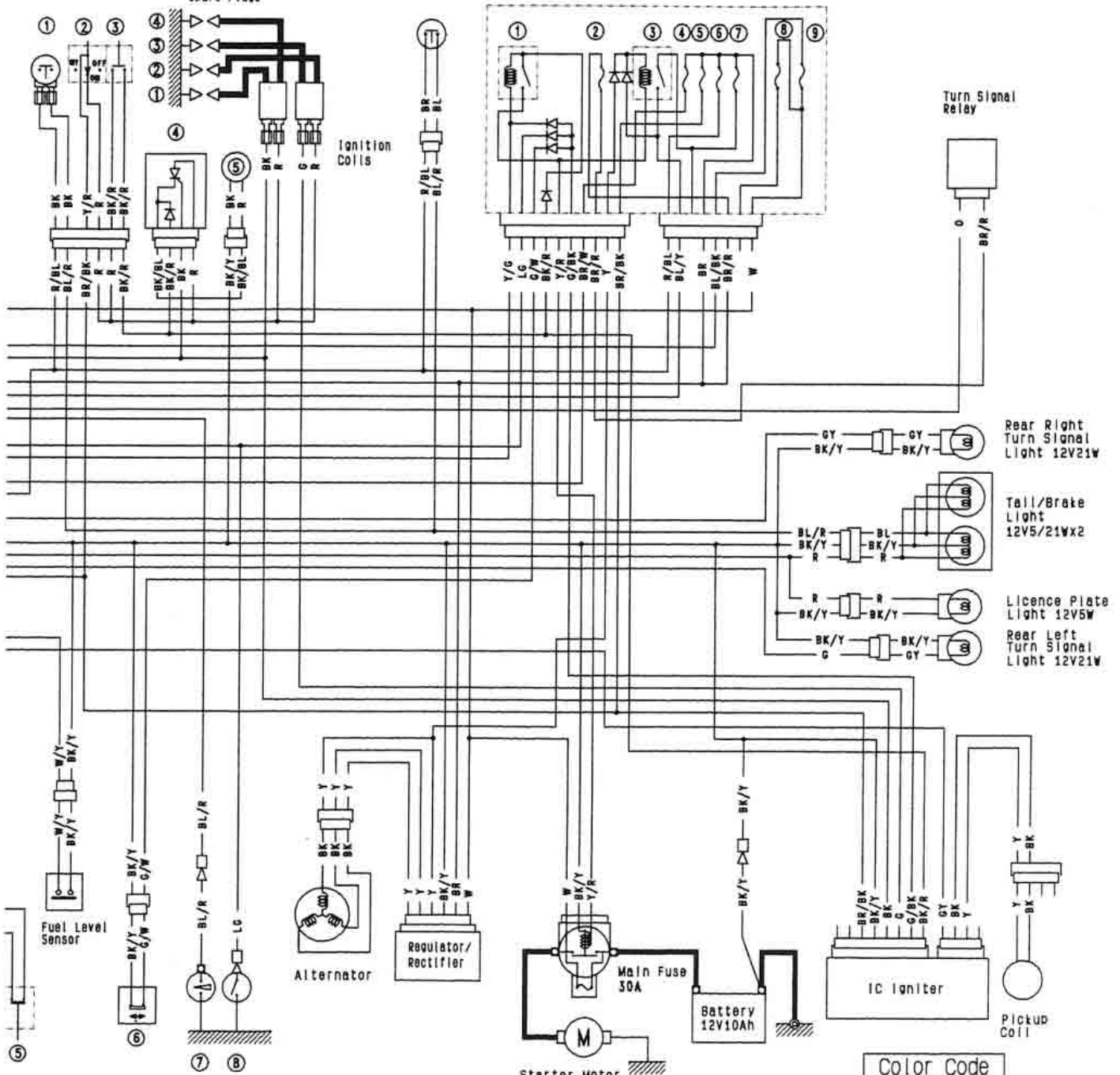
1. Front Brake Light Switch
2. Engine Stop Switch
3. Starter Button

Fuel Pump

4. Fuel Pump Relay
5. Fuel Pump

Rear Brake Light Switch




Spark Plugs



6. Side Stand Switch
7. Oil Pressure Switch
8. Neutral Switch

Passing Button	Color	BL/Y/R/BK
Push		

IGNITION SWITCH CONNECTIONS					
	Ignition	Battery	Ignition	Tail 1	Tail 2
Color	BR	W	Y	BL	R
OFF, LOCK					
ON					
P					

RIGHT HANDLEBAR SWITCH CONNECTIONS								
Front Brake Light Switch		Engine Stop Switch			Starter Button			
Color	BK	BK	Color	Y/R	R	Color	BK/R	BK/R
Brake Lever			OFF					
Pulled In			RUN			Push		

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

(98051-1476A)

15-20 ELECTRICAL SYSTEM

Battery

Charging Condition Inspection

Battery charging condition can be checked by measuring battery terminal voltage.

- Remove:
 - Seat
 - Battery Cover
- Disconnect the battery terminal leads.

CAUTION

Be sure to disconnect the negative terminal lead first.

- Measure the battery terminal voltage.

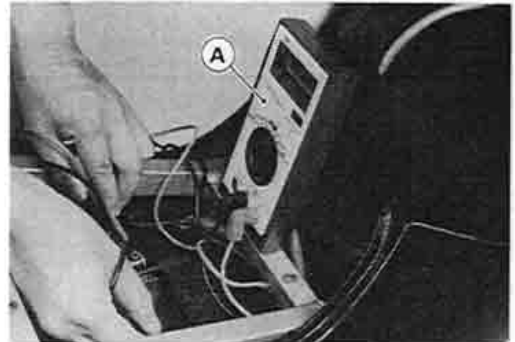
NOTE

○ Measure with a digital voltmeter [A] which can be read to one decimal place voltage.

★ If the reading is below the specified, refreshing charge is required.

Battery Terminal Voltage

Standard: 12.6 V or more

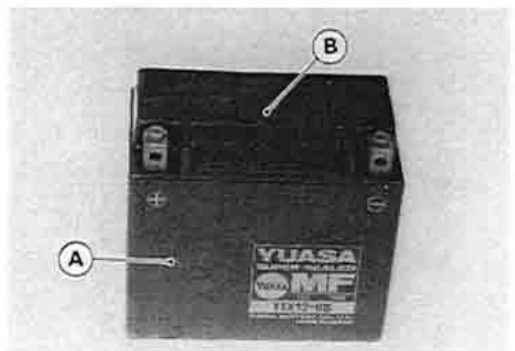


Refreshing Charge

- Remove the battery [A].
- Refresh-charge by following method according to the battery terminal voltage.

CAUTION

This battery is sealed type. Never remove sealing caps [B] even at charging. Never add water. Charge with current and time as stated below.



○ Terminal Voltage: 11.5 ~ 12.6 V or less

Standard Charge: 1.2 A x 5 ~ 10 h (see following chart)

Quick Charge: 5.0 A x 1.0 h

CAUTION

If possible, do not quick charge. If the quick charge is done due to unavoidable circumstances, do standard charge later on.

○ Terminal Voltage: 11.5 V or less

Charging Method: 1.2 A x 20 h

NOTE

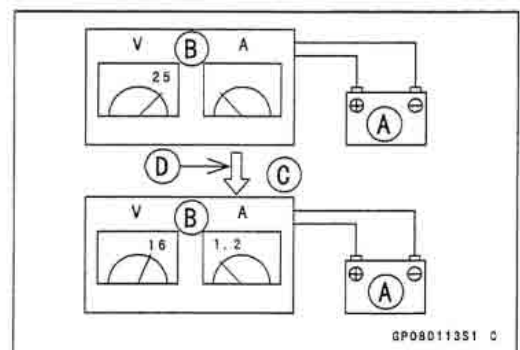
- Raise the voltage initially (25 V as maximum), and let down the voltage to charge when the current starts to flow as a yardstick. (If ammeter shows no change in current after 5 minutes, you need a new battery.) The current, if it can flow into the battery, tends to become excessive. Adjust the voltage as often as possible to keep the current at standard value (1.2 A).

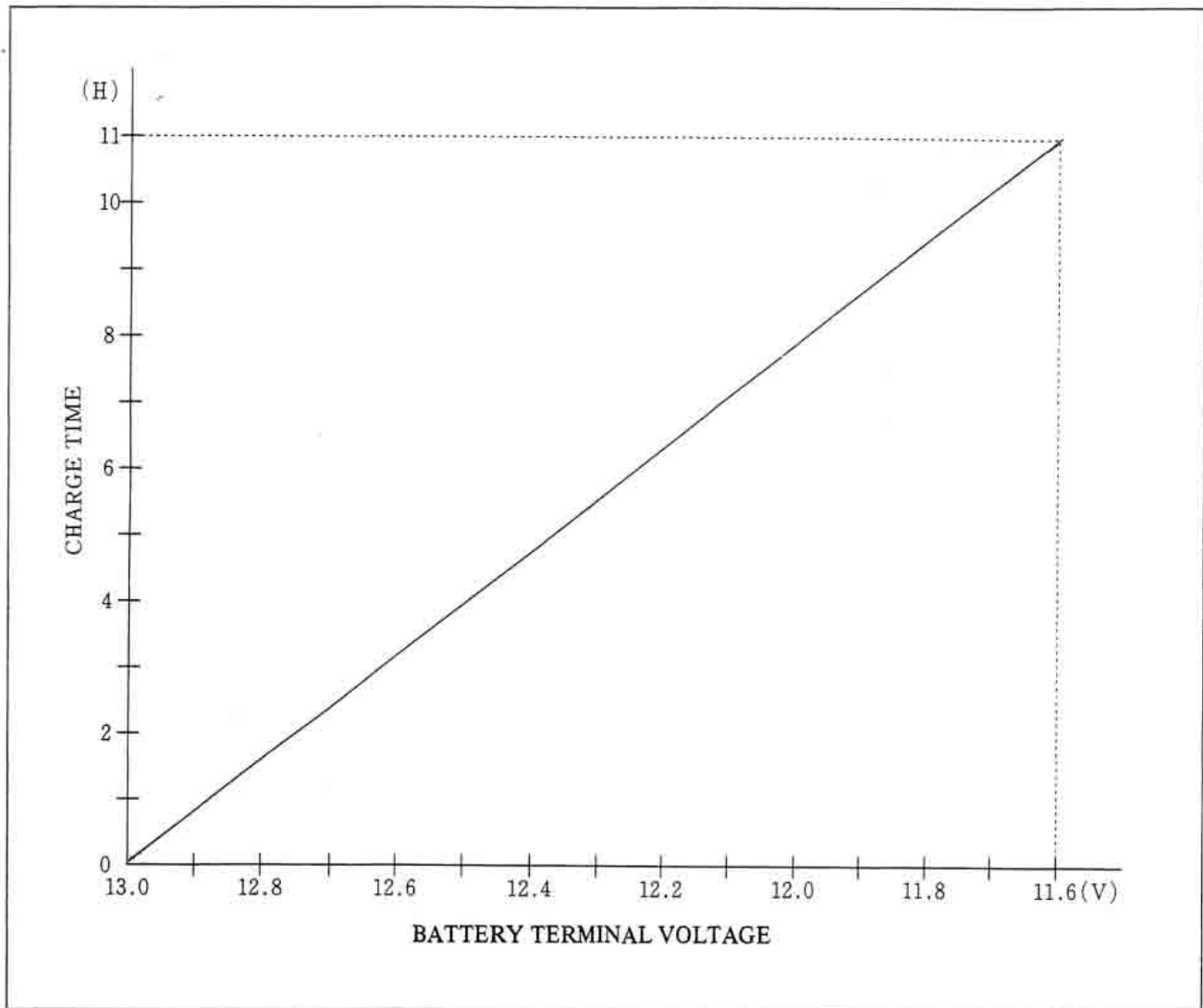
Battery [A]

Battery Charger [B]

Standard Value [C]

Current starts to flow [D]





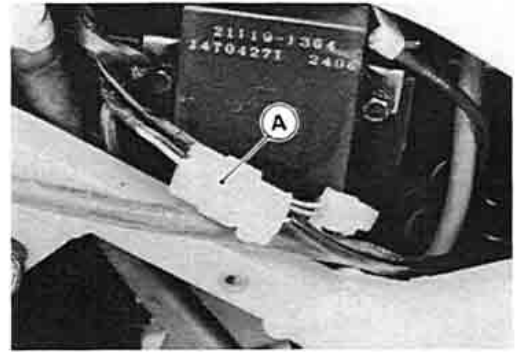
- Determine battery condition after refreshing charge.
- Determine the condition of the battery 30 minutes after completion of the charge by measuring the terminal voltage according to the table below.

Criteria	Judgement
12.6 V or higher	Good
12.0 ~ less than 12.6 V	Charge insufficient → Recharge.
less than 12.0 V	Unserviceable → Replace

Ignition System

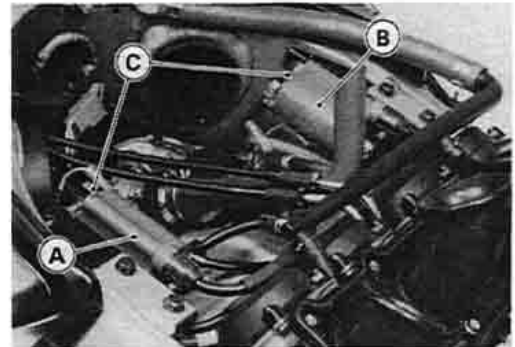
Pickup Coil Inspection

- Refer to the Base Manual, noting the following.
- Remove:
 - Seat (see Frame chapter)
 - Right Side Cover (see Frame chapter)
 - Pickup Coil Lead Connector [A]



Ignition Coil Removal/Installation

- Refer to the Base Manual, noting the following.
- Remove:
 - Fuel Tank (see Fuel System chapter)
 - Air Cleaner Housing (see Fuel System chapter)
- Disconnect the leads and remove the ignition coils.
 - [A] #1, #4 Coil
 - [B] #2, #3 Coil
 - [C] Red Leads



Spark Plug Removal

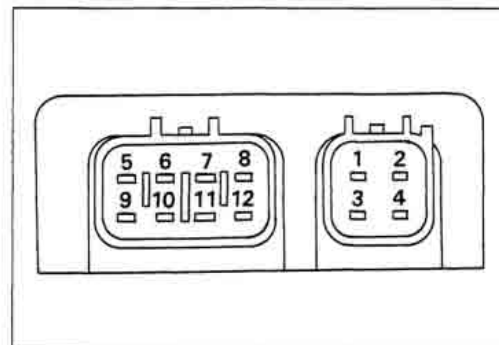
- Remove:
 - Fuel Tank (see Fuel System chapter)
 - Air Cleaner Housing (see Fuel System chapter)
 - Ignition Coil with Bracket [A]
 - Spark Plug Caps
- Remove the spark plugs.
 - Special Tool – Spark Plug Wrench, Hex 16: 57001-1262**



IC Igniter Inspection

- Refer to the Base Manual, noting the following.
- IC Ignitor is mounted on the right side of the battery case (see Parts Location).

15-24 ELECTRICAL SYSTEM



IC Igniter Internal Resistance

Unit : kΩ

		Tester (+) Lead Connection					
(-)*	Terminal	1	2	3	4	5	6
	1	—	∞	∞	∞	—	—
	2	∞	—	0.08 ~ 0.18	36 ~ 78	—	—
	3	∞	0.08 ~ 0.18	—	36 ~ 78	—	—
	4	∞	32 ~ 78	32 ~ 78	—	—	—
	5	—	—	—	—	—	∞
	6	—	—	—	—	32 ~ 132	—
	7	—	—	—	—	∞	∞
	8	—	—	—	—	6.5 ~ 16	6.5 ~ 16
	9	—	—	—	—	∞	∞
	10	—	—	—	—	18 ~ 42	18 ~ 42
	11	—	—	—	—	∞	∞
	12	—	—	—	—	1.9 ~ 5	2.3 ~ 6

(-)*: Tester (-) Lead Connection

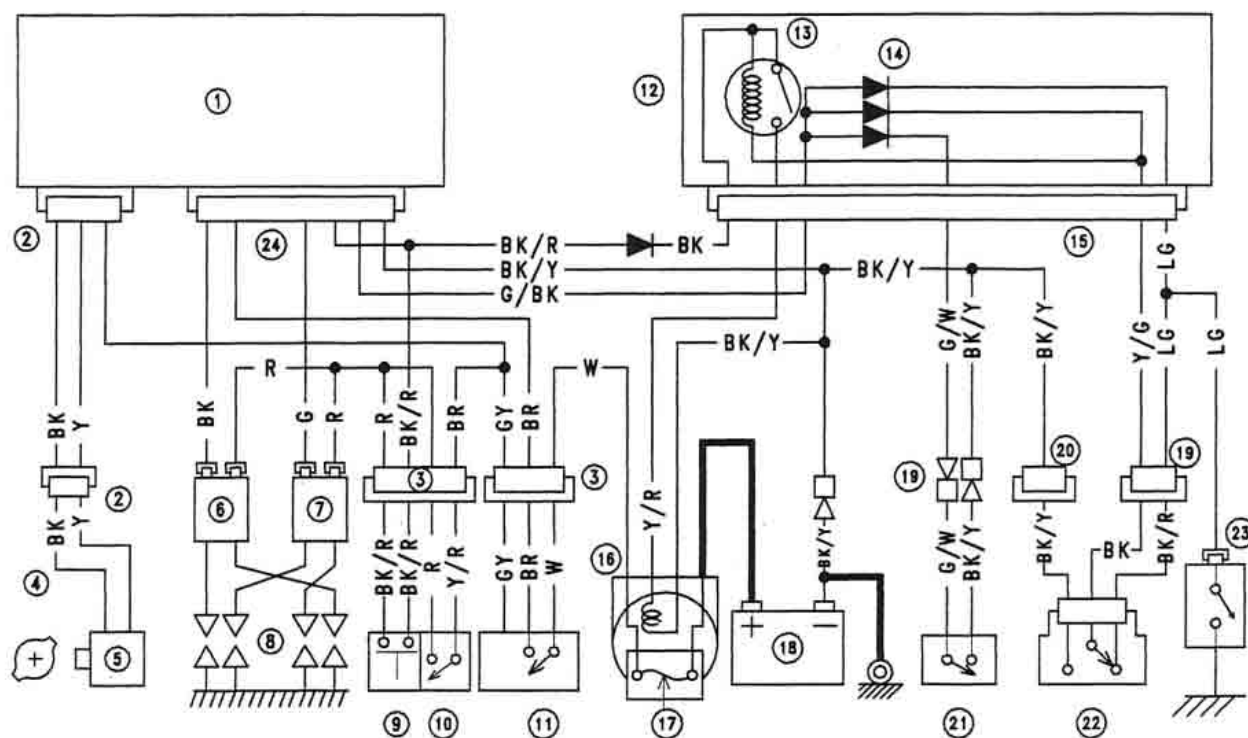
IC Igniter Internal Resistance

Unit : kΩ

		Tester (+) Lead Connection					
(-)*	Terminal	7	8	9	10	11	12
	1	—	—	—	—	—	—
	2	—	—	—	—	—	—
	3	—	—	—	—	—	—
	4	—	—	—	—	—	—
	5	∞	∞	∞	∞	∞	∞
	6	∞	28 ~ 60	32 ~ 132	40 ~ 96	∞	19 ~ 48
	7	—	∞	∞	∞	∞	∞
	8	∞	—	6.5 ~ 16	7.5 ~ 17	∞	3.3 ~ 6.6
	9	∞	∞	—	∞	∞	∞
	10	∞	7.5 ~ 17	18 ~ 43	—	∞	12 ~ 32
	11	∞	∞	∞	∞	—	∞
	12	∞	2.3 ~ 6	1.9 ~ 5	11 ~ 22	∞	—

(-)*: Tester (-) Lead Connection

Ignition System Circuit



1. IC Igniter
2. 4-Pin Connector
3. 6-Pin Connector
4. Timing Rotor
5. Pickup Coil
6. Ignition Coil (for #1, #4 cylinder)
7. Ignition Coil (for #2, #3 cylinder)
8. Spark Plugs

9. Starter Button
10. Engine Stop Switch
11. Ignition Switch
12. Junction Box
13. Starter Circuit Relay
14. Diodes
15. 10-Pin Connector
16. Starter Relay

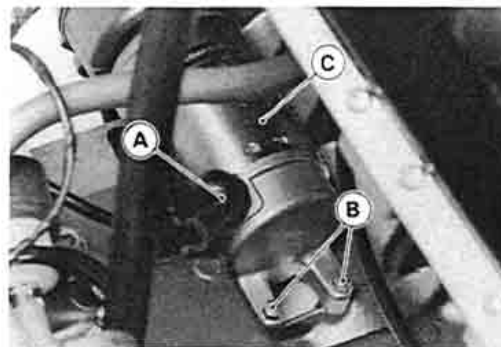
17. 30 A Main Fuse
18. Battery
19. 2-Pin Connector
20. 9-Pin Connector
21. Side Stand Switch
22. Starter Lockout Switch
23. Neutral Switch
24. 8-Pin Connector

15-26 ELECTRICAL SYSTEM

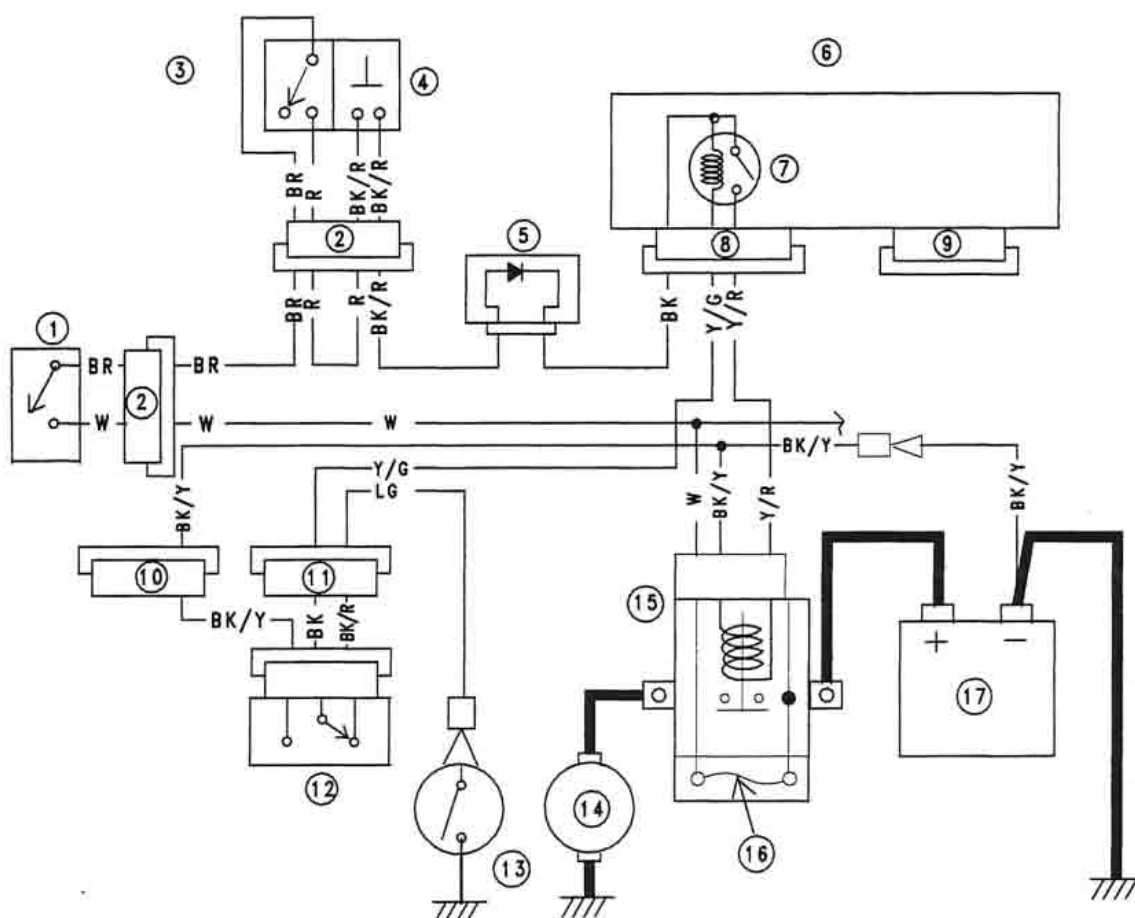
Electric Starter System

Starter Motor Removal

- Remove the fuel tank (see Fuel System chapter).
- Remove the terminal nut [A] and mounting bolts [B], then remove the starter motor [C].



Electric Starter Circuit Wiring Diagram



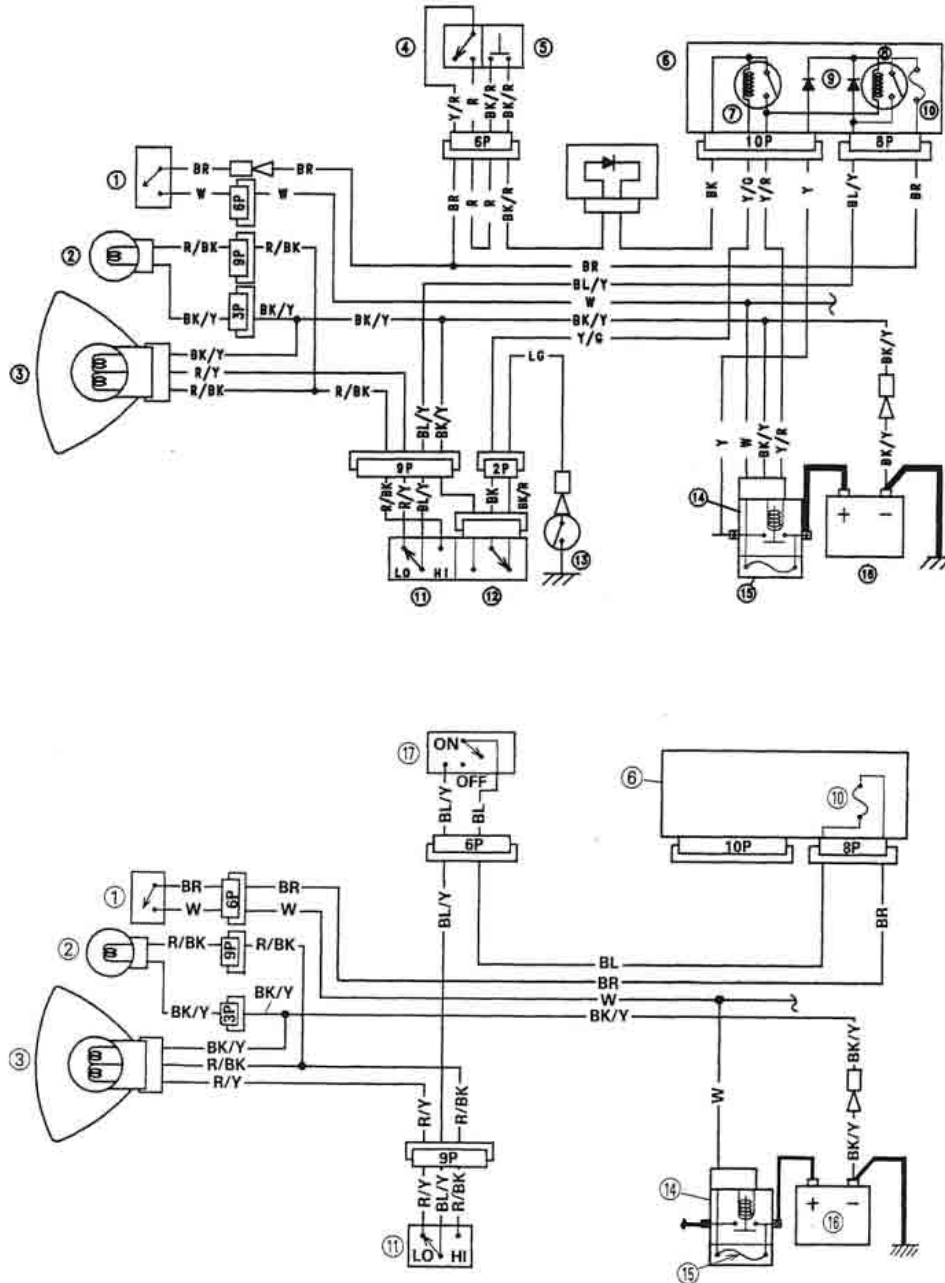
1. Ignition Switch
2. 6 P Connector
3. Engine Stop Switch
4. Starter Button
5. Diode
6. Junction Box

7. Starter Circuit Relay
8. 10 P Connector
9. 8 P Connector
10. 9 P Connector
11. 2 P Connector
12. Starter Lockout Switch

13. Neutral Switch
14. Starter Motor
15. Starter Relay
16. 30 A Main Fuse
17. Battery

Lighting System

Refer to the Base Manual, noting the following. The US, Canada and Australia models have a headlight relay in the junction box.



1. Ignition Switch
2. High Beam Indicator Light
3. Headlight
4. Engine Stop Switch
5. Starter Button
6. Junction Box

7. Starter Circuit Relay
8. Headlight Relay
9. Diodes
10. 10 A Headlight Fuse
11. Dimmer Switch
12. Starter Lockout Switch

13. Neutral Switch
14. Starter Relay
15. 30 A Main Fuse
16. Battery
17. Headlight Switch

15-28 ELECTRICAL SYSTEM

Fuel Pump

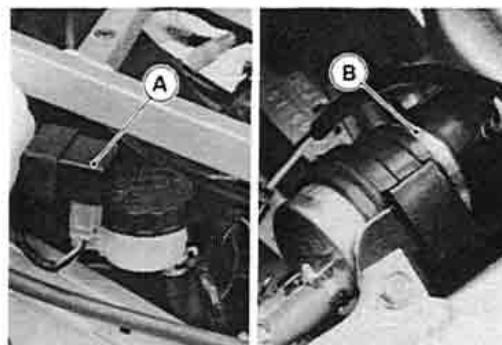
The pump operates when the starter button is pushed on or the engine is running.

When fuel level in the float chamber is low, the fuel pump operate to supply fuel into the float chamber.

When the fuel reaches a certain level, the fuel pressure rises and the fuel pump stops.

A. Fuel Pump Relay

B. Fuel Pump



Removal/Installation

- Refer to the fuel system chapter.

Fuel Pump Relay Inspection

- Remove the left side cover (see Frame chapter) and take out the fuel pump relay.
- Set the hand tester to the x 1 k Ω range and make the measurements shown in the table.

Special Tool - Hand Tester: 57001-1394

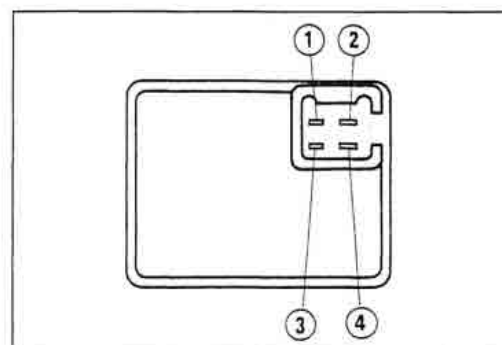
★ If the tester readings are not as specified, replace the fuel pump relay.

★ If the tester readings are normal, check the fuel pump operation.

CAUTION

Use only Hand Tester 57001-1394 for this test. An ohmmeter other than the Kawasaki Hand Tester May show different readings.

If a megger or meter with a larger-capacity battery is used, the pump relay will be damaged.



Fuel Pump Relay Internal Resistance

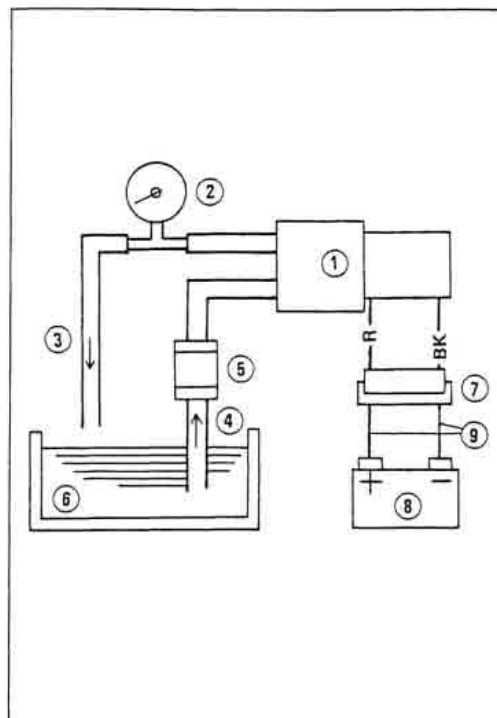
Range x 1 k Ω		Tester (+) Lead Connection			
		1	2	3	4
*	1.	—	∞	∞	∞
	2.	∞	—	∞	∞
	3.	∞	10-100	—	∞
	4.	∞	20-200	1 - 5	—

*: Tester (—) Lead Connection

Pump Operational Inspection

- Remove the fuel pump with the fuel filter (see Fuel System chapter).
- Prepare a container filled with kerosene.
- Prepare the rubber hoses, and connect them to the pump fittings.
- Connect the suitable pressure gauge to the outlet hose as shown.

1. Fuel Pump
2. Pressure Gauge
3. Outlet Hose
4. Inlet Hose
5. Fuel Filter
6. Kerosene
7. 2-Pin Connector
8. Battery
9. Auxiliary Leads



- Connect the pump leads to the battery using auxiliary wires as shown.
- ★ If the pump operates, check the pump relay.
- ★ If the pump does not operate, the pump is defective.
- ★ If the pump operates and the pump relay is normal, close the outlet hose while operating the fuel pump.
- When the pump stops, read the pressure gauge.
- ★ If the pressure gauge reading is out of the specified pressure, the pump is defective.

Fuel Pump Pressure

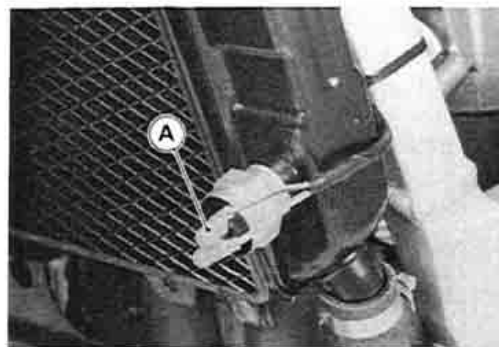
Standard: 11 ~ 16 kPa
(0.11 ~ 0.16 kg/cm², 1.6 ~ 2.3 psi)

15-30 ELECTRICAL SYSTEM

Radiator Fan System

Fan System Circuit Inspection

- Refer to the Base Manual, noting the following.
- Remove the upper fairing assembly and disconnect the leads [A] from the radiator fan switch.

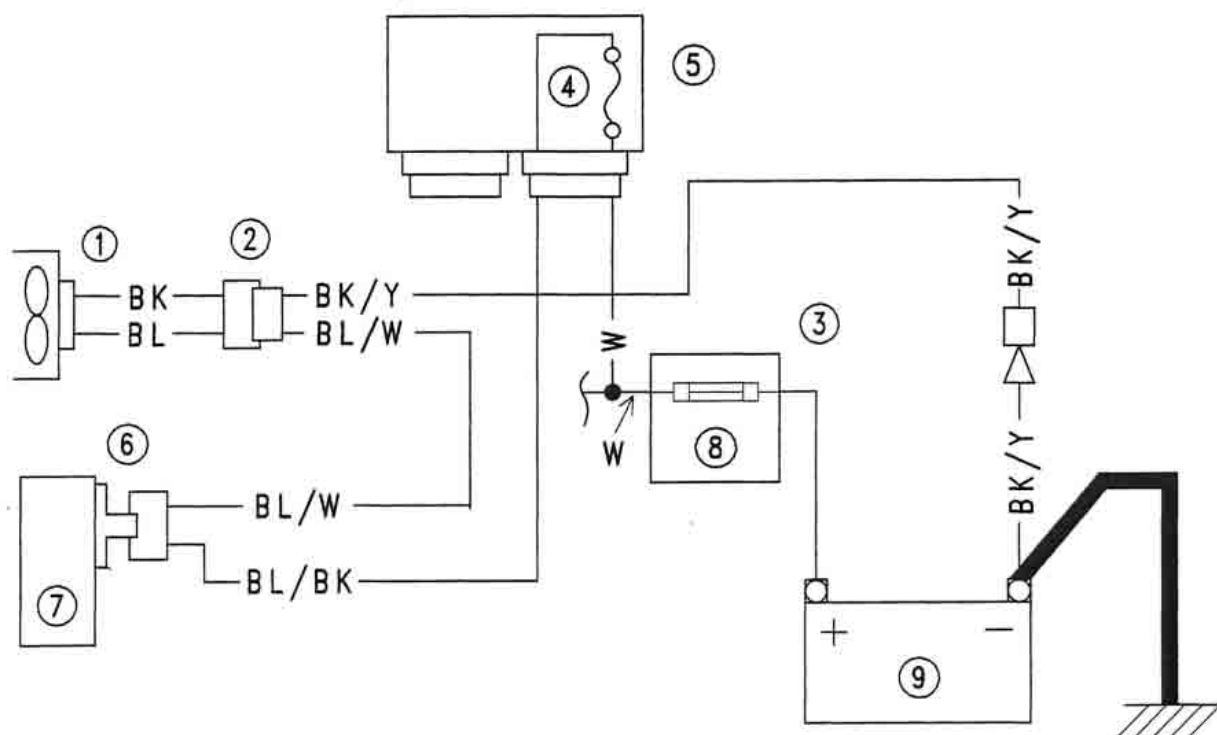


Fan Inspection

- Refer to the Base Manual, noting the following.
- Remove:
 - Fuel Tank (see Fuel System chapter)
 - Air Cleaner Housing (see Fuel System chapter)
- Disconnect the 2-pin connector [A] in the fan leads.



Radiator Fan Circuit



- 1. Radiator Fan
- 2. 2-Pin Connector
- 3. Starter Relay
- 4. 10 A Fan Fuse
- 5. Junction Box

- 6. Fan Switch
- 7. Radiator
- 8. 30 A Main Fuse
- 9. Battery

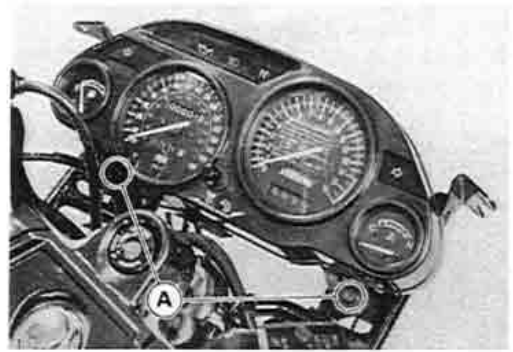
Meters, Gauges

Removal

- Remove the following.
 - Upper Fairing Assembly (see Frame chapter)
 - Speedometer Cable Lower End
 - Wiring Connectors
- Remove the meter unit by taking off the mounting bolts [A].

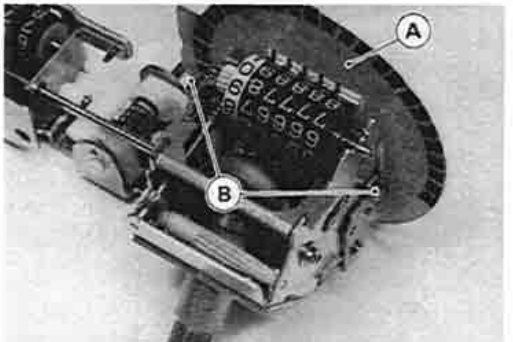
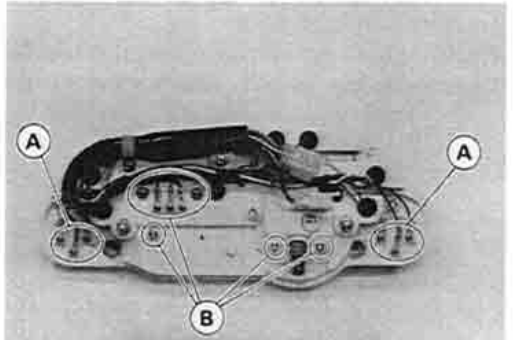
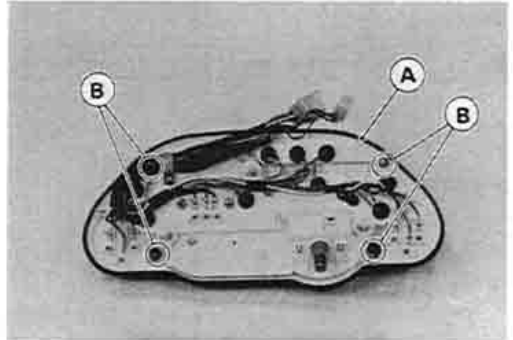
CAUTION

Place the meter or gauge so that the face is up. If a meter or gauge is left upside down or sideways for any length of time, it will malfunction.



Meter, Gauges Disassembly

- Remove the meter unit (see this chapter).
- Remove the nuts and take off the mounting bracket.
- Turn the reset knob counterclockwise and remove it.
- Take off the cover [A] by removing the screws [B].
- Take off the water temperature gauge and fuel gauge by removing the screws [A].
- Take off the tachometer unit, and then the speedometer unit and trip meter unit by removing the screws [B].
- Separate the trip meter from the speedometer [A] by removing the screws [B].

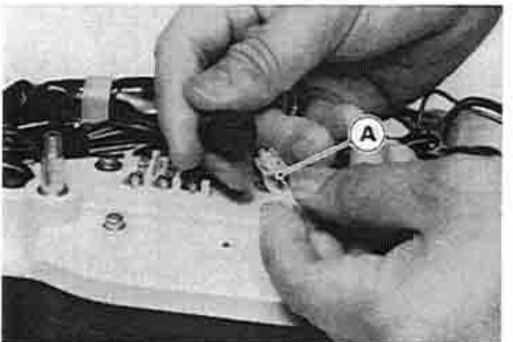


Bulb Replacement

- To remove the wedge-base type bulb, pull the bulb [A] out of the socket.

CAUTION

Do not use bulb rated for greater wattage than the specified value.
Do not turn the bulb to prevent damage to the bulb.



15-32 ELECTRICAL SYSTEM

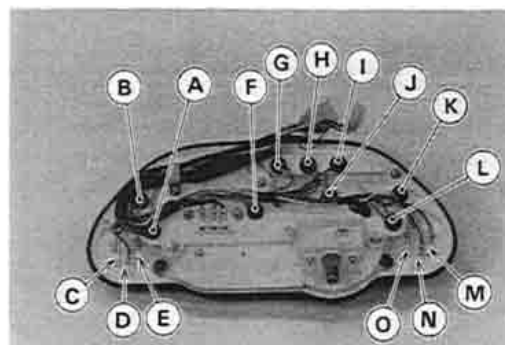
Meter, Gauge Assembly Note

- Tighten the trip meter mounting screws and check that the trip meter gears mesh smoothly.

- Install each lead on the original position shown.

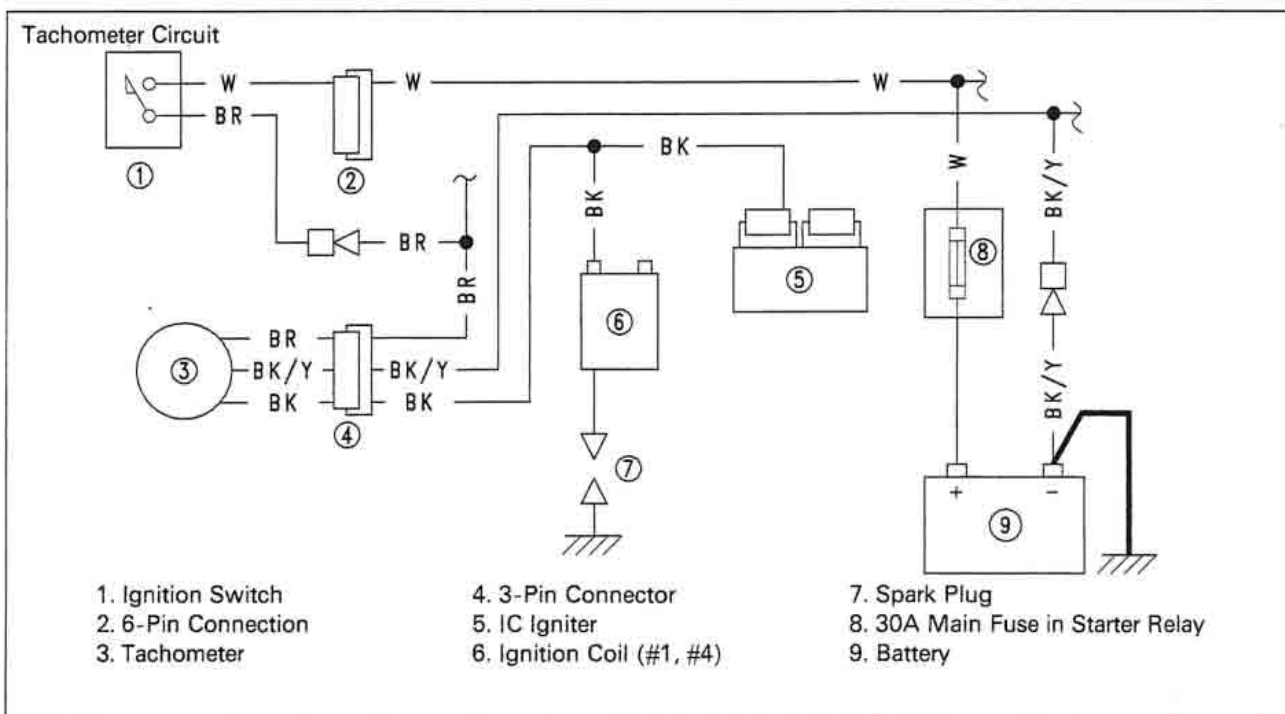
A. BK/Y, BL/R	I. BR, BL/R
B. GY, BK/Y	J. BK/Y, R/BL
C. Y/W	K. G, BK/Y
D. BK/Y	L. BK/Y, R/BL
E. BR	M. BR
F. R/BL, BK/Y	N. BK/Y
G. LG, BR	O. Y/W
H. BK/Y, R/BK	

- Apply a non-permanent locking agent to the threads of the speedometer and trip meter mounting screws.



Tachometer Inspection

- Refer to the Base Manual, noting the following.
- To remove the BK lead of ignition coil, remove the following.
 - Fuel Tank (see Fuel System chapter)
 - Air Cleaner Housing (see Fuel system chapter)

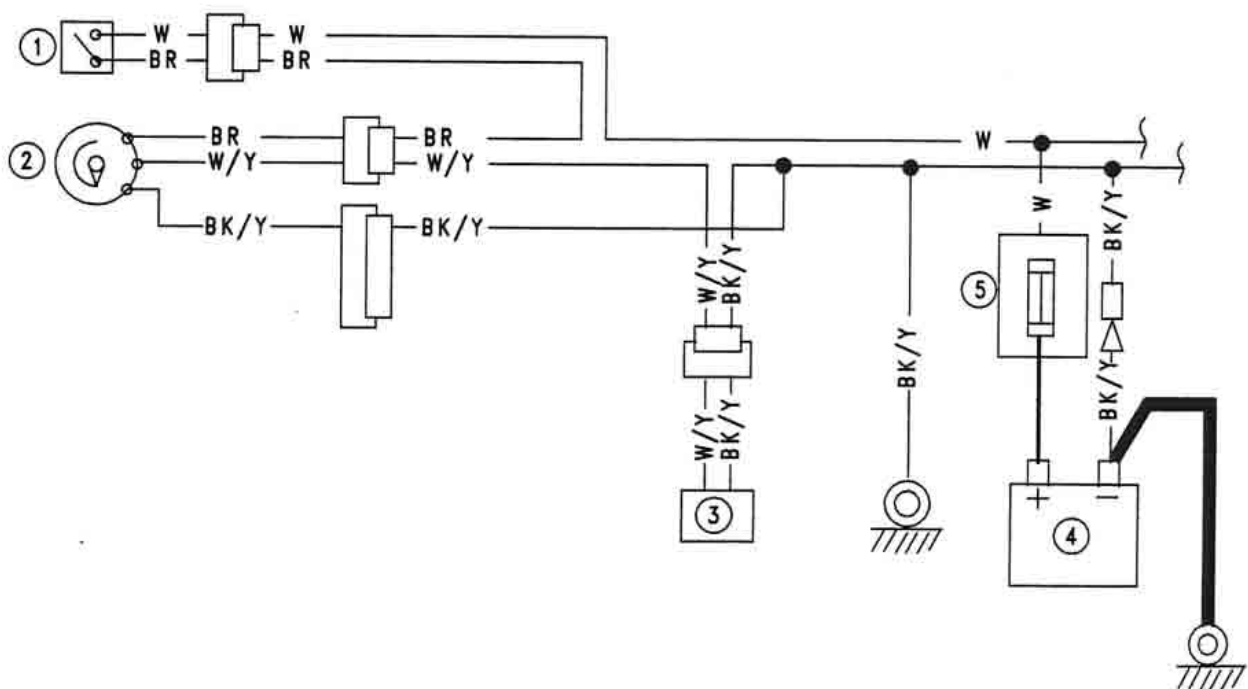


Fuel Gauge Operation Inspection

- Remove the fuel tank and disconnect the fuel level sensor lead connector.
- Turn the ignition switch ON.
- Open or short the terminals in the fuel level sensor lead connector from the main harness using an auxiliary lead. Then check the operation of the fuel gauge [A].
- ★ If the gauge is not read when opening and/or is not read when shoring, the trouble is with the gauge and/or wiring.



- Check the fuel gauge circuit wiring.
- ★ If all wiring and components other than the gauge check out good, the gauge is defective, replace the fuel gauge unit.

Fuel Gauge Circuit

1. Ignition Switch
2. Fuel Gauge
3. Fuel Level Sensor
4. Battery
5. 30A Main Fuse

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(): See the Base Manual

Supplement - 1995 - 1996 Models

This "Supplement - 1995 ~ 1996 Models" chapter is designed to be used in conjunction with the front part of this manual (up to 15-23). The maintenance and repair procedures described in this chapter are only those that are unique to the 1995 to 1996 ZX600E motorcycles. Most service operations for these models remain identical to those described in front of this chapter. Complete and proper servicing of the 1995 to 1996 ZX600E motorcycles, therefore requires mechanics to read both this chapter and the text in front of this chapter.

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General Information

Model Identification

ZX600-E3 (ZX-6)



ZX600-E3 (ZZR)



ZX600-E4 (ZX-6)



ZX600-E4 (ZZR)



General Specifications

Items	ZX600-E3	ZX600-E4
Dimensions:		
Overall length	2 070 mm, (IT) 2 115 mm, (GR, NR, SD, ST, FG, FI, D, TK) 2 140mm	←
Overall width	695 mm	←
Overall height	1 175mm	←
Wheelbase	1 430 mm	←
Road clearance	120 mm	←
Seat height	780 mm	←
Dry weight	195 kg, (CA) 195.5 kg	←
Curb weight: Front	111 kg	←
Rear	110 kg, (CA) 110.5 kg	←
Fuel tank capacity	18.0 L	←
Performance:		
Minimum turning radius	2.7 m	←
Engine:		
Type	4-stroke, DOHC, 4-cylinder	←
Cooling system	Liquid-cooled	←
Bore and stroke	64.0 x 46.6 mm	←
Displacement	599 mL	←
Compression ratio	12.0	←
Maximum horsepower	74 kW (100 PS) @11 500 r/min (rpm), (EU) 74 kW (100 PS) @12 000 r/min (rpm) (AR) 70 kW (95 PS) @10 500 r/min (rpm), (CA, US) ---, (FR, UTAC's norm) 71.8 kW @12 000 r/min (rpm), (SD) 47 kW (64 PS) @11 000 r/min (rpm) (ST) 37 kW (50 PS) @6 000 r/min (rpm)	(FG) 72 kW (98 PS) @12 000 r/min (rpm),
Maximum torque	64 N-m (6.5 kg-m, 47.0 ft-lb) @9 500 r/min (rpm), (FG) 64 N-m (6.5 kg-m, 47.0 ft-lb) @9 300 r/min (rpm) (AR) 66 N-m (6.7 kg-m, 46.3 ft-lb) @9 000 r/min (rpm) (CA, FR, US) --- (SD) 47 N-m (4.8 kg-m, 34.7 ft-lb) @8 000 r/min (rpm), (ST) 59 N-m (6.0 kg-m, 43.4 ft-lb) @5 500 r/min (rpm),	← (FG) 66 N-m (6.7 kg-m, 48 ft-lb) @9 000 r/min (rpm)
Carburetion system	KEIHIN CVKD36 x 4	←
Starting system	Electric starter	←
Ignition system	Battery and coil (transistorized)	←
Timing advance	Electronically advanced	←
Ignition timing	From 12.5° BTDC @1 050 r/min (rpm) to 35° BTDC @3 000 r/min (rpm), (CA) From 5° BTDC @1 300 r/min (rpm) to 35° BTDC @5 000 r/min (rpm), (US,CN) From 12.5° BTDC @1 050 r/min (rpm) to 35° BTDC @5 000 r/min (rpm) (AR) From 5° BTDC @1 500 r/min (rpm) to 35° BTDC @3 000 r/min (rpm) (ST) From 2.5° BTDC @1 300 r/min (rpm) to 32.5° BTDC @3 000 r/min (rpm)	←

17-4 SUPPLEMENT - 1995 - 1996 MODEL

Items	ZX600-E3	ZX600-E4
Spark plug	NGK CR9E or ND U27ESR-N,	←
Cylinder numbering method	Left to right, 1-2-3-4	←
Firing order	1-2-4-3	←
Valve timing:		
Inlet	Open 55°, (ST, AR) 26° BTDC	←
	Close 73°, (ST, AR) 66° ABDC	←
	Duration 308°, (ST, AR) 272°	←
Exhaust	Open 69°, (ST, AR) 57° BBDC	←
	Close 43°, (ST, AR) 31° ATDC	←
	Duration 292°, (ST, AR) 268°	←
Lubrication system	Forced lubrication (wet sump with cooler)	←
Engine oil:		
Grade	SE, SF or SG class	←
Viscosity	SAE10W-40, 10W-50, 20W-40, or 20W-50	←
Capacity	3.7 L	←
Drive Train:		
Primary reduction system:		
Type	Gear	←
Reduction ratio	1.792 (95/53)	←
Clutch type	Wet multi disc	←
Transmission:		
Type	6-speed, constant mesh, return shift	←
Gear ratios:		
1st	3.166 (38/12)	←
2nd	2.125 (34/16)	←
3rd	1.666 (35/21)	←
4th	1.380 (29/21)	←
5th	1.217 (28/23)	←
6th	1.083 (26/24)	←
Final drive system:		
Type	Chain drive	←
Reduction ratio	3.000 (48/16)	←
Overall drive ratio	5.825 @Top gear	←
Frame:		
Type	Tubular, diamond	←
Caster (rake angle)	24.5°	←
Trail	96 mm	←
Front tire:		
Type	Tubeless	←
Size	120/60 ZR17	←

Items		ZX600-E3	ZX600-E4
Rear tire:	Type	Tubeless	←
	Size	160/60 ZR17	←
Front suspension:	Type	Telescopic fork (pneumatic)	←
	Wheel travel	120 mm	←
Rear suspension:	Type	Swing arm (uni-trak)	←
	Wheel travel	130 mm	←
Brake type:	Front	Dual discs	←
	Rear	Single disc	←
Electrical Equipment:			
Battery		12 V 10 Ah	←
Headlight:	Type	Semi-sealed beam	←
	Bulb	12 V 60/55 W (quartz-halogen)	←
Tail/brake light		12 V 5/21 W x 2, (CA, CN, US) 12 V 8/27 W x 2	←
Alternator:	Type	Three-phase AC	←
	Rated output	24 A-14V @8 000 r/min (rpm)	

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

(AR) : Austrian Model
 (AS) : Australian Model
 (CA) : Californian Model
 (CN) : Canadian Model
 (EU) : European Model
 (FR) : French Model
 (FG) : German Model
 (GR) : Greek Model
 (IT) : Italian Model
 (FI) : Finnish Model

(D) : Danish Model
 (TK) : Turkish Model
 (NR) : Norwegian Model
 (SD) : Swedish Model
 (ST) : Swiss Model
 (US) : U.S. Model

17-6 SUPPLEMENT - 1995 - 1996 MODEL

Periodic Maintenance Chart (Other than US and Canadian Models)

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.**

FREQUENCY	Whichever comes first → ↓	* ODOMETER READING						
		1000 km (600 mile)	6 000 km (4 000 mile)	12 000 km (7 500 mile)	18 000 km (12 000 mile)	24 000 km (15 000 mile)	30 000 km (20 000 mile)	36 000 km (24 000 mile)
OPERATION	Every							
Spark plug - clean and gap†		•	•	•	•	•	•	•
Valve clearance check†			•	•	•	•	•	•
Air suction valve - check†		•	•	•	•	•	•	•
Air cleaner element and air vent filter - clean†#			•	•	•	•	•	•
Throttle grip play - check†		•	•	•	•	•	•	•
Idle speed - check†		•	•	•	•	•	•	•
Caburetor synchronization - check†			•	•	•	•	•	•
Fuel hoses, connections - check†			•	•	•	•	•	•
Engine oil - change#	6 months	•	•	•	•	•	•	•
Oil filter - replace		•	•	•	•	•	•	•
Radiator hoses, connections - check †		•						
Coolant - change	2 years				•			
Clutch - adjust		•	•	•	•	•	•	•
Drive chain wear - check †#			•	•	•	•	•	•
Drive chain - lubricate #	600 km							
Drive chain slack - check†#	1 000 km							
Brake hoses, connections - check†			•	•	•	•	•	•
Brake lining or pad wear - check†#			•	•	•	•	•	•
Brake fluid level - check†	month	•	•	•	•	•	•	•
Brake fluid - change	2 years				•			
Brake master cylinder cup and dust seal - replace	4 years							
Caliper piston seal and dust seal - replace	4 years							
Brake light switch - check†		•	•	•	•	•	•	•
Steering - check†		•	•	•	•	•	•	•
Steering stem bearing - lubricate	2 years				•			
Front fork oil - change	2 years				•			
Rear shock absorber oil leak - check†			•		•			•
Front fork oil leak - check†			•		•			•
Tire wear - check†			•	•	•	•	•	•
Swingarm pivot, uni-trak linkage - lubricate			•		•			•
General lubrication - perform			•		•			•
Nuts, bolts, and fastener tightness - check†		•	•	•	•	•	•	•

: Service more frequently when operating in severe conditions, dusty, wet, muddy, high speed, or frequent starting/stopping.

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

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

Fuel System

Specifications

Item	Standard
Throttle Grip and Cables: Throttle grip free play	2 ~ 3 mm
Choke Cable: Choke cable free play	2 ~ 3 mm
Carburetors: Make, type Idle Speed Pilot screw (turns out) Synchronization Service fuel level Float Height Main jet Main air jet Needle jet Jet needle mark #1,4 #2,3 Pilot jet (slow jet) Pilot air jet (slow air jet) Starter jet Throttle valve angle High Altitude Carburetor Specifications (US) Pilot jet Main jet	KEIHIN SEIKI CVK-D36 (ZX600E) 1050 ± 50 r/min (rpm), (ST, CA) 1300 ± 50 r/min (rpm) 1 ½, (CA, ST, US) – – 2.7 kPa (2 cmHg) or less difference between two cylinders 3 ± 1 mm below the mark 11 ± 2 mm #135, (CA, ST) #140 #50 #6 N1VC, (ST) N23K (FG, FR, UK, IT, NL) N31B N1VC, (ST) N23K (FG, FR, UK, IT, NL) N1VT #35 #110, (CA, ST) #120 (FG, FR, UK, IT, NL) #100 #52 11° #32 (92064-1117) #132 (92063-1076) (CA) #138 (92063-1015)
Air Cleaner Element Oil Grade Viscosity	SE or SF class SAE30

(CA): California Model

(FG): FG Model

(FR): French Model

(IT): Italian Model

(NL): Netherland Model

(ST): Switzerland Model

(UK): UK Model

(US): US Model

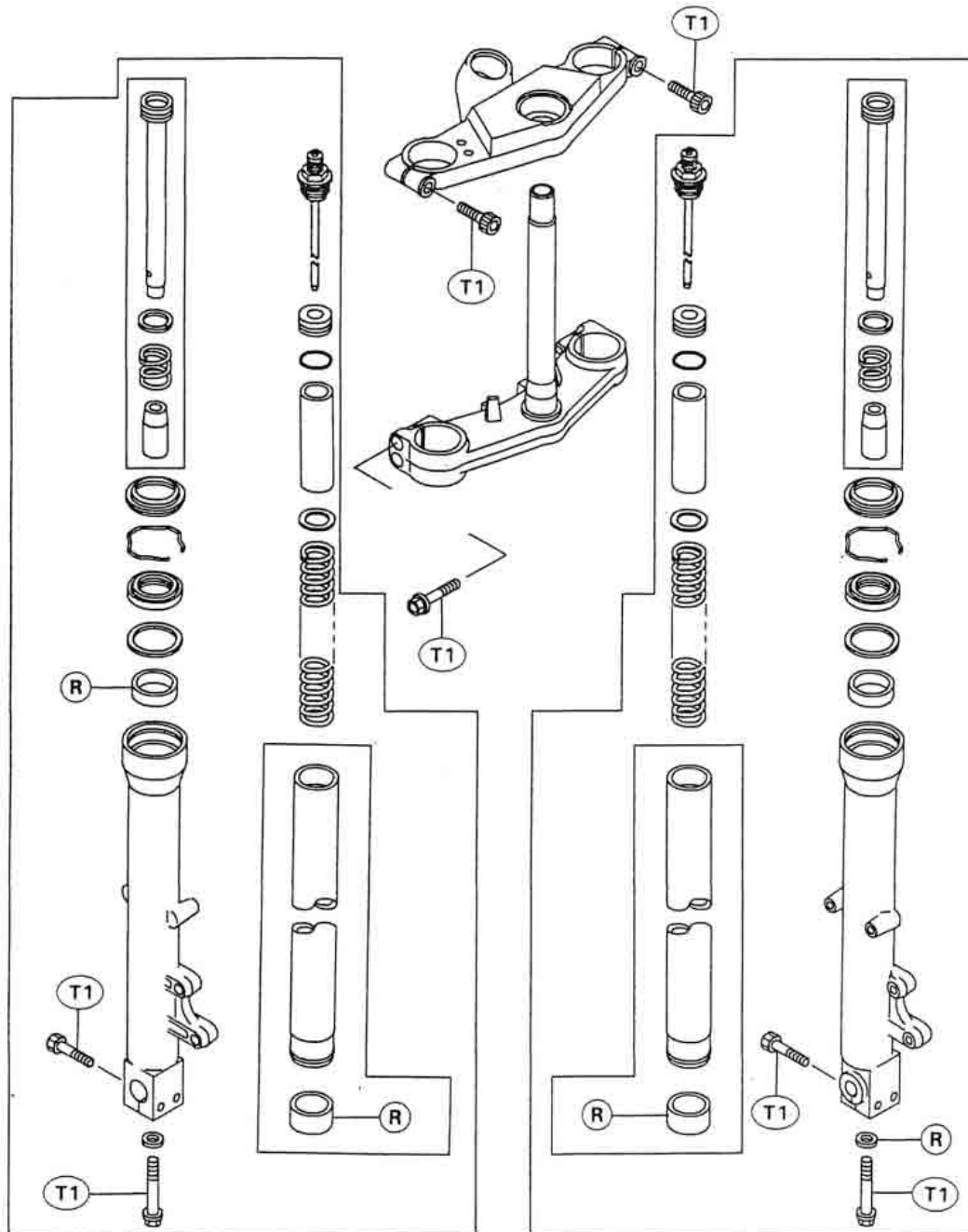
Wheel/Tires

Specifications

Item		Standard	Service Limit
Rim runout:	Axial	---	0.5 mm
	Radial	---	0.8 mm
Axle runout/100 mm:		0.05 mm or under	0.2 mm
Wheel balance		10 g or under	---
Balance weights		10 g, 20 g, 30 g	---
Tire tread depth:	Front	5.0 mm	1 mm
	Rear	7.5 mm	2 mm (Up to 130 km/h) (Up to 80 mph) 3 mm (Over 130 km/h) (Over 80 mph)
Tire air pressure		Load	Air Pressure (when cold)
	Front	Up to 184 kg (406 lb)	250 kPa (2.5 kg/cm ² , 36 psi)
	Rear	Up to 184 kg (406 lb)	290 kPa (2.9 kg/cm ² , 41 psi)
Standard tire		Size	Make, Type
	Front	120/60 ZR17	MICHELIN A89X
			BRIDGESTONE BATTLAX BT-50F RADIAL Tubeless
			DUNLOP SPORTMAX GP
			METZELER MEZ1 Front
			PIRELLI MTR01
	Rear	160/60 ZR17	MICHELIN M89X
			BRIDGESTONE BATTLAX BT-50R RADIAL G Tubeless
			DUNLOP SPORTMAX GP
			METZELER MEZ1
			PIRELLI MTR02

Suspension

Exploded View



L: Apply a non-permanent locking agent.
 M: Apply molybdenum disulfide grease.
 R: Replacement Parts

T1: 20 N-m (2.0 kg-m, 14.5 ft-lb)
 T2: 59 N-m (6.0 kg-m, 43 ft-lb)
 T3: 88 N-m (9.0 kg-m, 65 ft-lb)

17-10 SUPPLEMENT - 1995 - 1996 MODEL

Specifications

Item	Standard	
Front Fork (per one unit): Fork inner tube diameter Air Pressure Rebound damper setting Fork spring preload setting Fork oil viscosity Fork oil capacity Fork oil level Fork spring free length	ϕ 41 mm Atmospheric pressure (Non-adjustable) 2nd click from the first click of the fully clockwise position (Usable Range: 1 \leftrightarrow 12 ~ 13 clicks) Adjuster protrusion is 16 mm (5 Marks) (Usable Range: 6 ~ 21 mm) KAYABA G10 (SAE10W) 477 \pm 4 mL (completely dry) approx. 405 mL (when changing oil) Fully compressed, without fork spring, below from inner tube top 112 \pm 2 mm 412.3 mm (Service limit 404 mm)	
Rear Shock Absorber: Damping setting Spring preload setting	1 of 3 positions Spring free length minus 10 mm	spring free length minus 10 ~ 19 mm (Usable range)

Front Fork

Rebound Damping Force Adjustment

- To adjust the rebound damping force, turn the rebound damping adjuster [A] until you feel a click.
- The standard adjuster setting for the average-build rider of 68 kg (150 lb) with no passenger and no accessories is the **2nd click** from the 1st click of the fully clockwise position.

⚠ WARNING

If both adjusters are not adjusted equally, handling may be impaired and a hazardous condition may result.

- The damping force can be left soft for average riding. But it should be adjusted harder for high speed riding or riding with a passenger. If the damping feels too soft or too stiff, adjust it in accordance with the following table.

Rebound Damping Force Adjustment

Adjuster Position	Damping Force	Setting	Load	Road	Speed
12 ~ 13	Weak	Soft	Light	Good	Low
↑	↑	↑	↑	↑	↑
↓	↓	↓	↓	↓	↓
1	Strong	Hard	Heavy	Bad	High

Spring Preload Adjustment

- Turn the spring preload adjuster [A] to change spring preload setting.
- The standard adjuster setting for the average-build rider of 68 kg (150 lb) with no passenger and no accessories is the 5th mark [B] (16mm) [C] from top as shown.

Adjuster Protrusion (from top)

Standard: 5th Mark (16 mm)

Usable Range 1 ~ 8th Mark (6 ~ 21 mm)

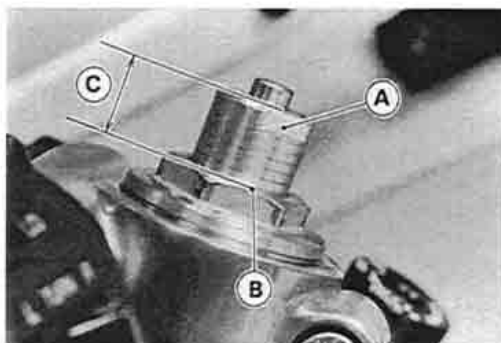
⚠ WARNING

If both adjusters are not adjusted equally, handling may be impaired and a hazardous condition may result.

- The spring preload can be left soft for average riding. But it should be adjusted harder for high speed riding or riding with a passenger. If the spring action feels too soft or too stiff, adjust it in accordance with the following table.

Spring Action

Adjuster Position	Damping Force	Setting	Load	Road	Speed
8(21mm)	Weak	Soft	Light	Good	Low
↑	↑	↑	↑	↑	↑
↓	↓	↓	↓	↓	↓
1(6mm)	Strong	Hard	Heavy	Bad	High



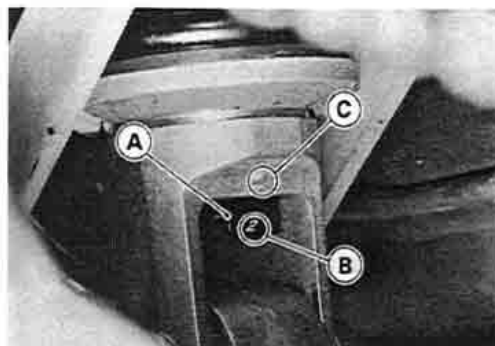
Rear Shock Absorber

Rebound Damping Force Adjustment

- To adjust the rebound damping force, turn the rebound damping adjuster [A] to the desired number [B] until you feel a click and the number aligns with the mark [C].
- The standard adjuster setting for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is number 1.
- ★ If the damping feels too soft or too stiff, adjust it.

Rebound Damping Force Adjustment

Adjuster Position	Damping Force	Setting	Load	Road	Speed
1	Weak	Soft	Light	Good	Low
↑	↑	↑	↑	↑	↑
↓	↓	↓	↓	↓	↓
3	Strong	Hard	Heavy	Bad	High



Spring Preload Adjustment

- Remove the rear shock absorber from the frame (see Rear Shock Absorber Removal).
- Loosen the locknut and turn out the adjusting nut to free the spring.
- Special Tool – Steering Stem Nut Wrenches: 57001-1100 (2)**
- Measure the spring free length.

- To adjust the spring preload, turn in the adjusting nut [A] to the desired position and tighten the locknut [B].
- [C] Spring Length

Spring Preload Setting

Standard: Spring free length minus 10.0 mm

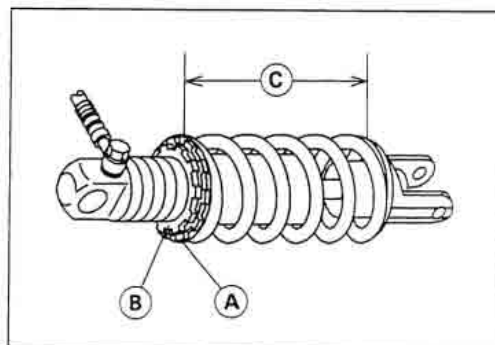
Usable Range: Spring free length minus 10 to 19 mm

- The standard adjusting nut setting for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is compressed 10.0mm than free length.

- ★ If the spring action feels too soft or too stiff, adjust it.

Spring Adjustment

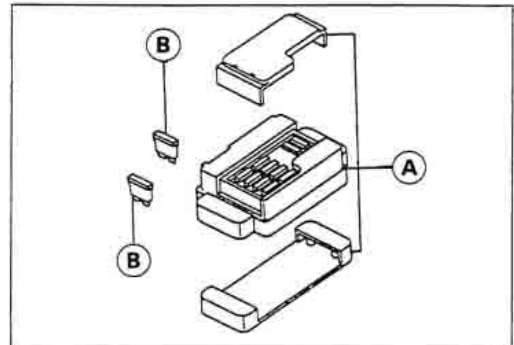
Adjuster Position	Damping Force	Setting	Load	Road	Speed
10 mm	Weak	Soft	Light	Good	Low
↑	↑	↑	↑	↑	↑
↓	↓	↓	↓	↓	↓
19 mm	Strong	Hard	Heavy	Bad	High



Electrical System

Junction Box

The junction box [A] has fuses [B], relays, and diodes. The relays and diodes can not be removed.



Junction Box Fuse Circuit Inspection

- Remove the seat (see Frame chapter).
- Remove the junction box.
- Pull off the connectors from the junction box.
- Make sure all connector terminals are clean and tight, and none of them have been bent.
- ★ Clean the dirty terminals, and straighten slightly-bent terminals.
- Check conductivity of the numbered terminals with the hand tester.
- ★ If the tester does not read as specified, replace the junction box.

Fuse Circuit Inspection

Tester Connection	Tester Reading (Ω)
1 - 1A	0
1 - 2	0
3A - 4	0
6 - 5	0
6 - 10	0
6 - 7	0
6 - 17	0

Tester Connection	Tester Reading (Ω)
1A - 8	∞
2 - 8	∞
3A - 8	∞
6 - 2	∞
6 - 3A	∞
17 - 3A	∞

Starter Circuit/Headlight Relay Inspection

- Remove the junction box.
- Check conductivity of the following numbered terminals by connecting the hand tester and one 12 V battery to the junction box as shown.
- ★ If the tester does not read as specified, replace the junction box.

Relay Circuit Inspection (with the battery disconnected)

	Tester Connection	Tester Reading (Ω)
Headlight Relay	*7 - 8	∞
	*7 - 13	∞
	(+) (-) *13 - 9	Not ∞ **

	Tester Connection	Tester Reading (Ω)
Starter Circuit Relay	9 - 11	∞
	12 - 13	∞
	(+) (-) 13 - 11	∞
	(+) (-) 12 - 11	Not ∞ **

(*): US, Canada, and Australia Models only

(**): The actual reading varies with the hand tester used.

(+): Apply tester positive lead.

(-): Apply tester negative lead.

17-14 SUPPLEMENT - 1995 - 1996 MODEL

Relay Circuit Inspection (with the battery connected)

	Battery Connection (+) (-)	Tester Connection	Tester Reading (Ω)
Headlight Relay	*9 - 13	*7 - 8	0
Starter Circuit Relay	11 - 12	(+) (-) 13 - 11	Not ∞ **

(*): US, Canada, and Australia Models only

(**): The actual reading varies with the hand tester used.

(+): Apply tester positive lead.

(-): Apply tester negative lead.

Diode Circuit Inspection

- Remove the junction box.
- Check conductivity of the following pairs of terminals.

Diode Circuit Inspection

Tester Connection	*13-8, *13-9, 12-11, 12-14, 15-14, 16-14
-------------------	--

*: US, Canada, and Australia Models only

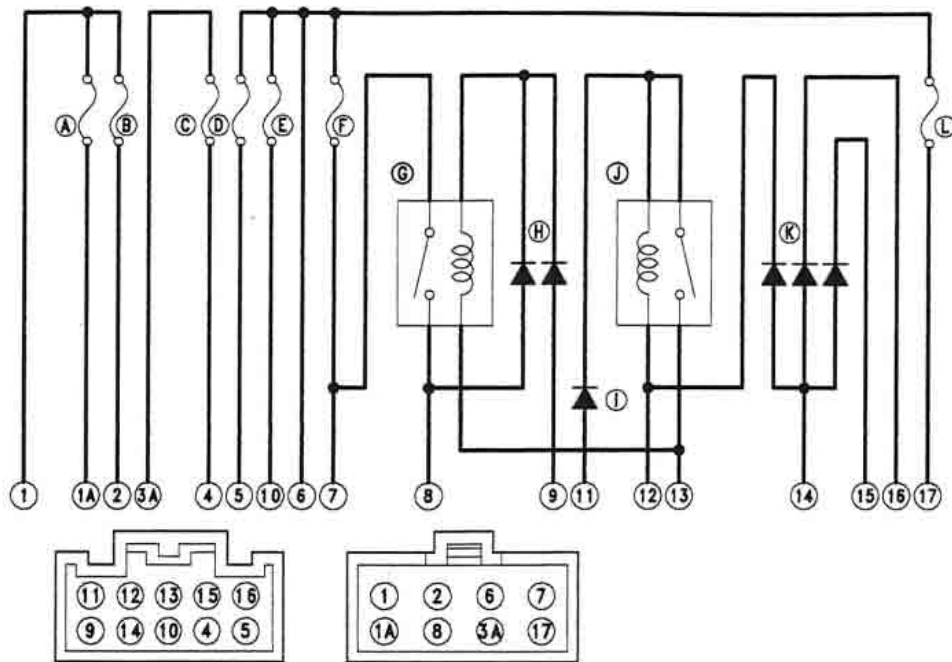
- ★The resistance should be low in one direction and more than ten times as much in the other direction. If any diode shows low or high in both directions, the diode is defective and the junction box must be replaced.

NOTE

- The actual meter reading varies with the meter used and the individual diodes, but, generally speaking, the lower reading should be from zero to one half the scale.

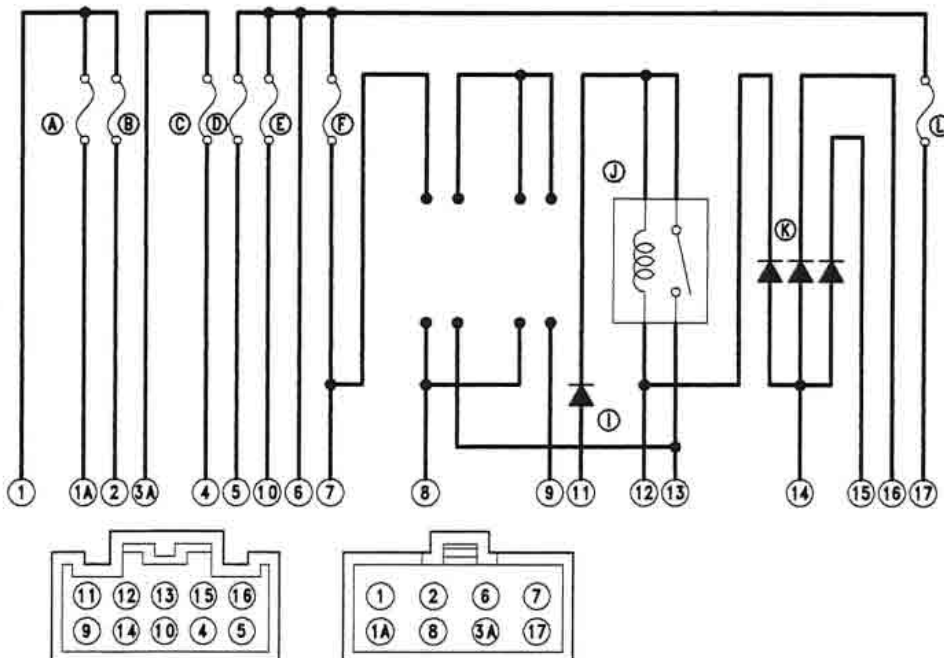
Junction Box Internal Circuit (US, Canada, and Australia)

EC49



Junction Box Internal Circuit (Other than US, Canada, and Australia)

EC54



- A. Accessory Fuse 10A
- B. Fan Fuse 10A
- C. Turn Signal Relay Fuse 10A
- D. Horn Fuse 10A

- E. Ignition Fuse 10A
- F. Headlight Fuse 10A
- G. Headlight Relay
- H. Headlight Diodes

- I. Starter Diode
- J. Starter Circuit Relay
- K. Interlock Diodes
- L. Taillight Fuse 10A

Supplement - 1997 - 1999 Models

This "Supplement - 1997 - 1999 Models" chapter is designed to be used in conjunction with the front part of this manual (up to Page 18-16). The maintenance and repair procedures described in this chapter are only those that are unique to the 1997 - 1999 ZX600-E5 - E7 models. Most service operations for these models remain identical to those described in front of this chapter.

Complete and proper servicing of the 1997 - 1999 ZX600-E5 - E7 models, therefore requires mechanics to read both this chapter and the text in front of this chapter.

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General Information

Model Identification

ZX600-E5 (ZX-6)



ZX600-E5 (ZZR)



General Specifications

Items	ZX600-E5, E6, E7 (German Model only)
Dimensions:	
Overall length	(E5, E6): 2 140 mm, (E7) 2 070 mm
Overall width	695 mm
Overall height	1 175 mm
Wheelbase	1 430 mm
Road clearance	120 mm
Seat height	780 mm
Dry weight	195 kg
Curb weight: Front	111 kg
Rear	110 kg
Fuel tank capacity	18.0 L
Performance:	
Minimum turning radius	2.7 m
Engine:	
Type	4-stroke, DOHC, 4-cylinder
Cooling system	Liquid-cooled
Bore and stroke	64.0 x 46.6 mm
Displacement	599 mL
Compression ratio	12.0
Maximum horsepower	72 kW (98 PS) @12 000 r/min (rpm)
Maximum torque	66 N-m (6.7 kg-m, 48 ft-lb) @9 000 r/min (rpm)
Carburetion system	KEIHIN CVKD36 x 4
Starting system	Electric starter
Ignition system	Battery and coil (transistorized)
Timing advance	Electronically advanced
Ignition timing	From 2.5° BTDC @1 300 r/min (rpm) to 35° BTDC @5 000 r/min (rpm)
Spark plug	NGK CR9E or ND U27ESR-N
Cylinder numbering method	Left to right, 1-2-3-4
Firing order	1-2-4-3
Valve timing:	
Inlet Open	55°
Close	73°
Duration	308°
Exhaust Open	69°
Close	43°
Duration	292°
Lubrication system	Forced lubrication (wet sump with cooler)
Engine oil:	
Grade	SE, SF or SG class
Viscosity	SAE10W-40, 10W-50, 20W-40, or 20W-50
Capacity	3.7 L
Drive Train:	
Primary reduction system:	
Type	Gear
Reduction ratio	1.792 (95/53)
Clutch type	Wet multi disc
Transmission:	
Type	6-speed, constant mesh, return shift

18-4 SUPPLEMENT - 1997 - 1999 MODELS

Items	ZX600-E5, E6, E7 (German Model only)
Gear ratios: 1st 2nd 3rd 4th 5th 6th Final drive system: Type Reduction ratio Overall drive ratio	3.166 (38/12) 2.125 (34/16) 1.666 (35/21) 1.380 (29/21) 1.217 (28/23) 1.083 (26/24) Chain drive 3.000 (48/16) 5.825 @Top gear
Frame: Type Caster (rake angle) Trail Front tire: Type Size Rear tire: Type Size Front suspension: Type Wheel travel Rear suspension: Type Wheel travel Brake type: Front Rear	Tubular, diamond 24.5° 96 mm Tubeless 120/60 ZR17 Tubeless 160/60 ZR17 Telescopic fork (pneumatic) 120 mm Swing arm (uni-trak) 130 mm Dual discs Single disc
Electrical Equipment: Battery Headlight: Type Bulb Tail/brake light Alternator: Type Rated output	12 V 10 Ah Semi-sealed beam 12 V 60/55 W (quartz-halogen) 12 V 5/21 W x 2, Three-phase AC 24 A-14V @8 000 r/min (rpm)

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

Torque and Locking Agent

Refer to P.1-9, noting the following.

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Engine Lubrication System Oil Cooler Screen Screws	4.9	0.5	43 in-lb	

Fuel System

Specifications

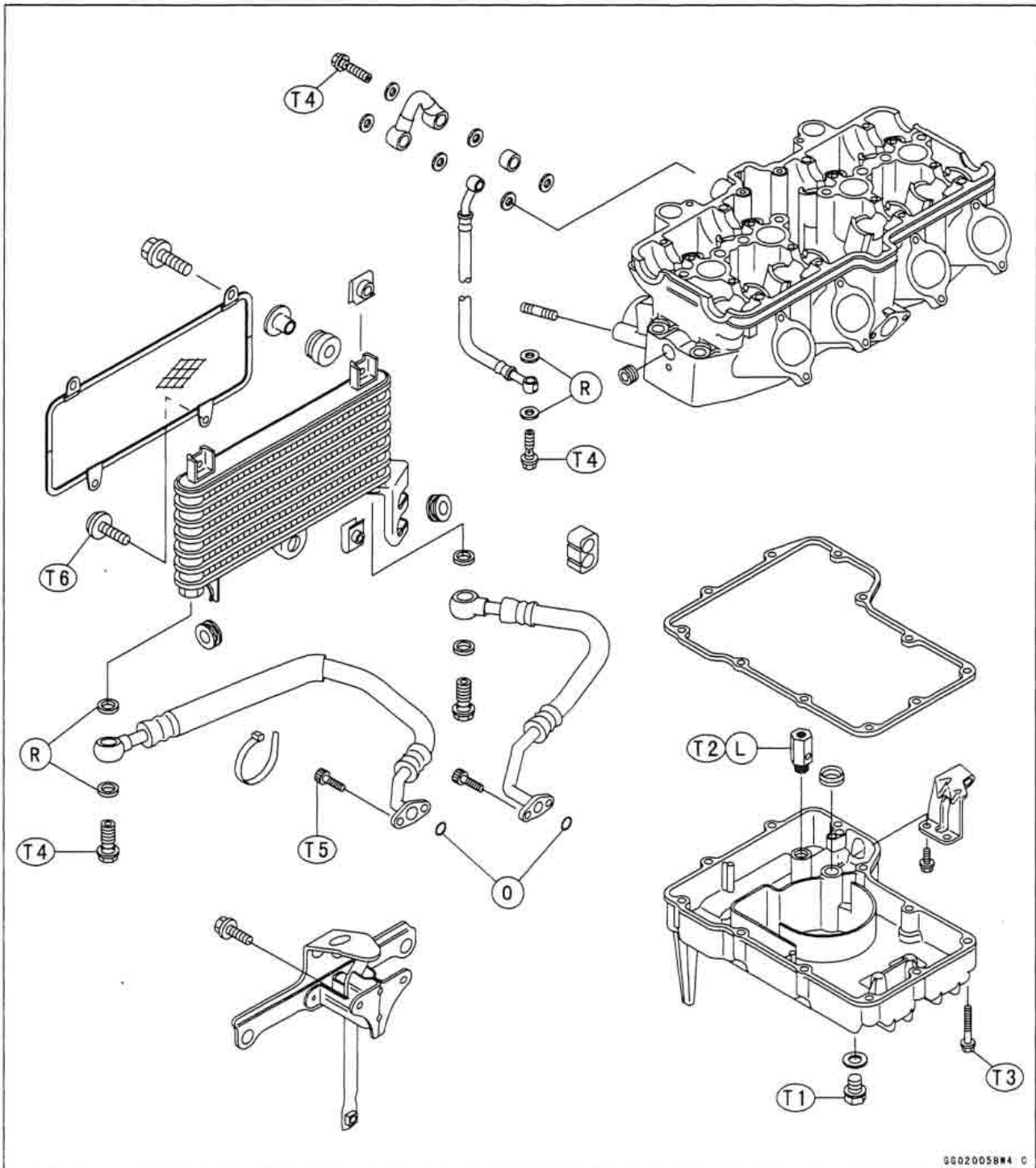
Item	Standard
Throttle Grip and Cables:	
Throttle grip free play	2 ~ 3 mm
Choke Cable:	
Choke cable free play	2 ~ 3 mm
Carburetors:	
Make, type	KEIHIN SEIKI CVK-D36 (ZX600E)
Idle speed	1050 ± 50 r/min (rpm) (ST, CA) 1300 ± 50 r/min (rpm)
Pilot screw (turns out)	1 1/2, (FG) 1 3/8, (CA, ST, US) —
Synchronization	2.7 kPa (2 cmHg) or less difference between two cylinders
Service fuel level	3 ± 1 mm below the mark
Float height	11 ± 2 mm
Main jet	#135, (CA, ST) #140
Main air jet	#50
Needle jet	#6
Jet needle mark #1,4	N31B, (CA, SD, US) N1VC, (ST) N23K
#2,3	N1VT, (CS, SD, US) N1VC, (ST) N23K
Pilot jet (slow jet)	#35
Pilot air jet (slow air jet)	#100 (CA, ST) #120, (US, SD) #110
Starter jet	#52
Throttle valve angle	11°
High Altitude Carburetor Specifications (US)	
Pilot jet	#32 (92064-1117)
Main jet	#132 (92063-1076) (CA) #138 (92063-1015)
Air Cleaner Element Oil	
Grade	SE,SF or SG class
Viscosity	SAE30

(CA): Californian Model
(FG): German Model
(SD): Swedish Model

(ST): Switzerland Model
(US): U.S. Model

Engine Lubrication System

Exploded View



L: Apply a non-permanent locking agent.

O: Apply oil.

R: Replacement Parts

T1: 20 N·m (2.0 kgf·m, 14.5 ft·lb)

T2: 15 N·m (1.5 kgf·m, 11.0 ft·lb)

T3: 8.8 N·m (0.90 kgf·m, 78 in·lb)

T4: 25 N·m (2.5 kgf·m, 18.0 ft·lb)

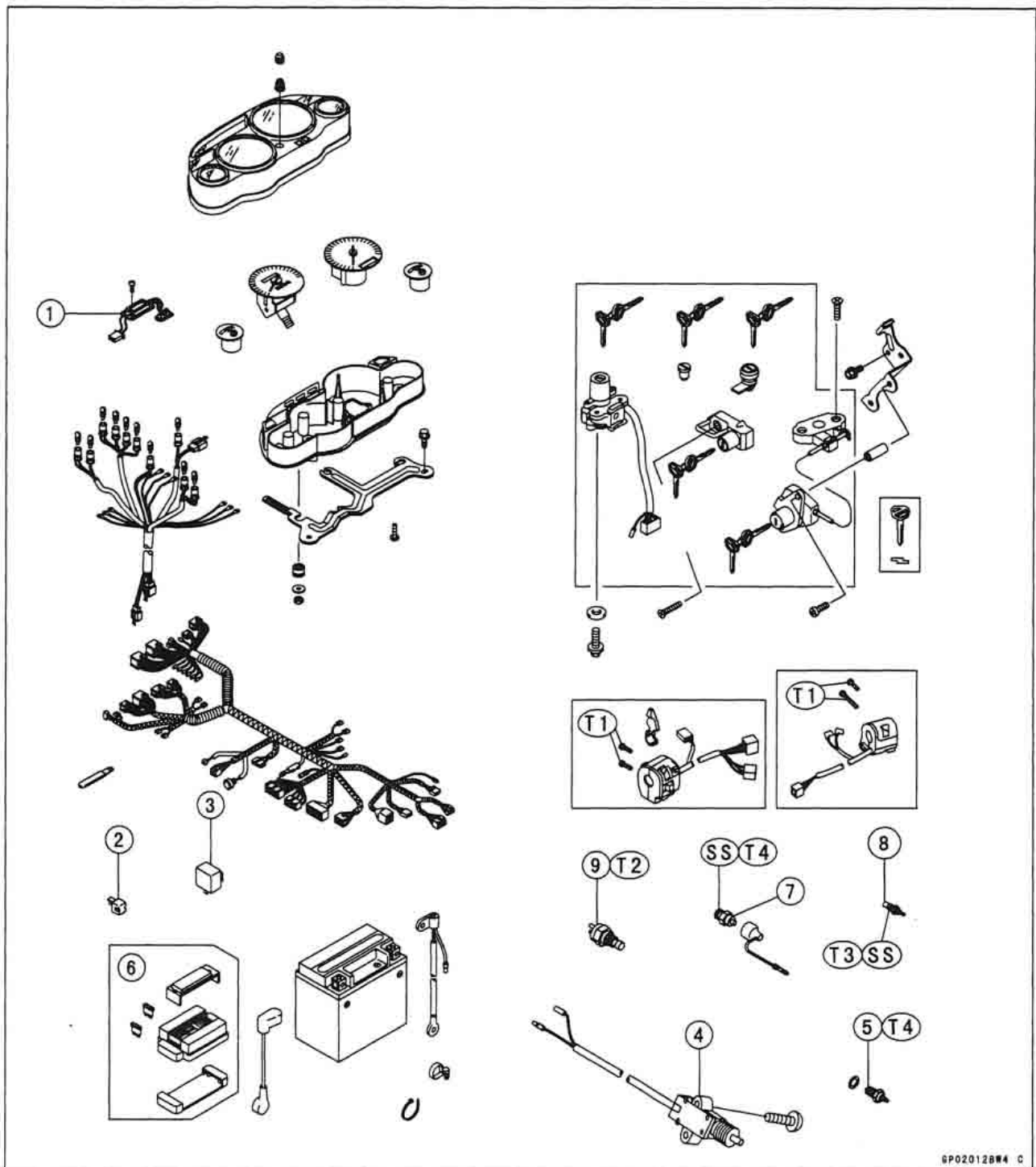
T5: 12 N·m (1.2 kgf·m, 104 in·lb)

T6: 4.9 N·m (0.5 kgf·m, 43 in·lb)

00020058W4 C

Electrical System

Exploded View



1. Digital clock
2. Rectifier
3. Turn Signal Relay
4. Side Stand Switch
5. Neutral Switch
6. Junction Box
7. Oil Pressure Switch
8. Water Temperature Sensor
9. Thermostatic Fan Switch

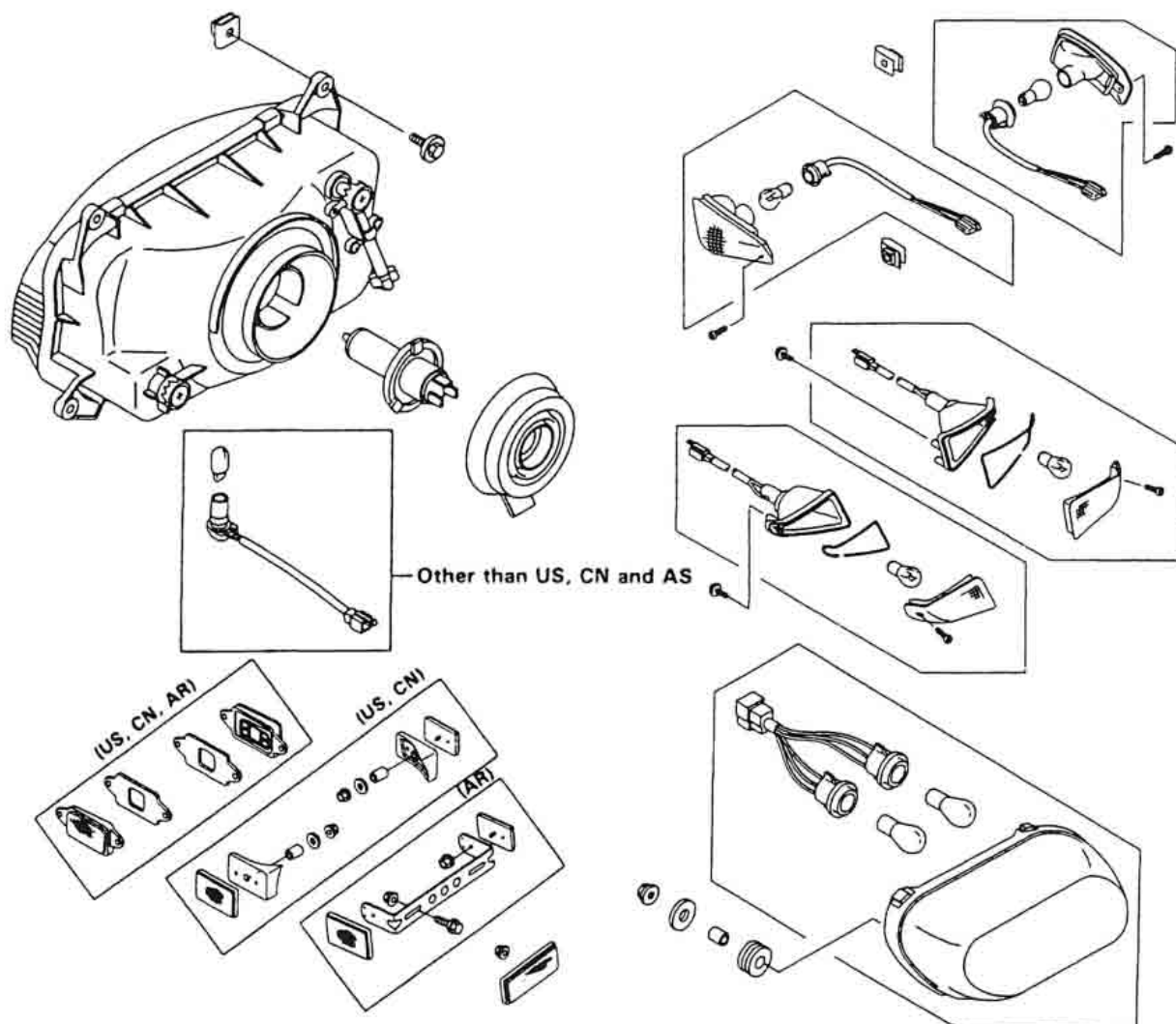
SS: Apply silicone sealant.

T1: 3.4 Nm (0.35 kgf-m 30 in-lb)

T2: 18 Nm (1.8 kgf-m 13.0 ft-lb)

T3: 7.8 Nm (0.80 kgf-m 69 in-lb)

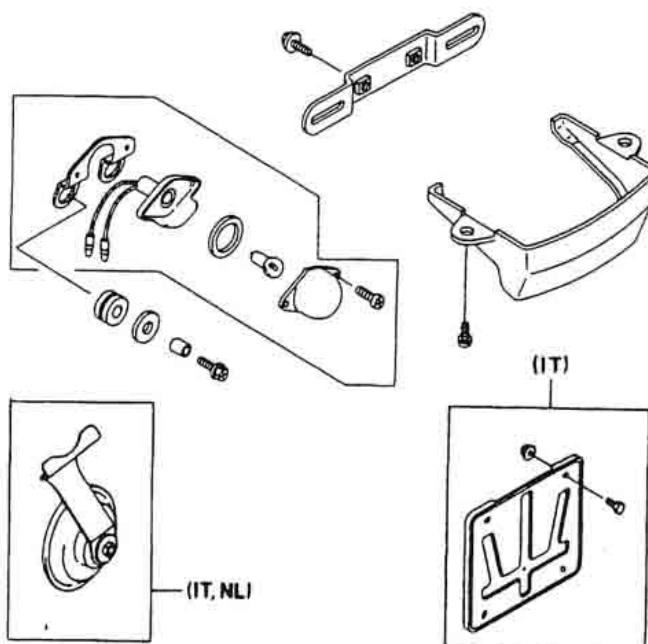
T4: 15 Nm (1.5 kgf-m 11.0 ft-lb)



AR : Austrian Model
 CN : Canadian Model
 FR : French Model
 IT : Italian Model
 US : U.S. Model
 NL : Dutch Model

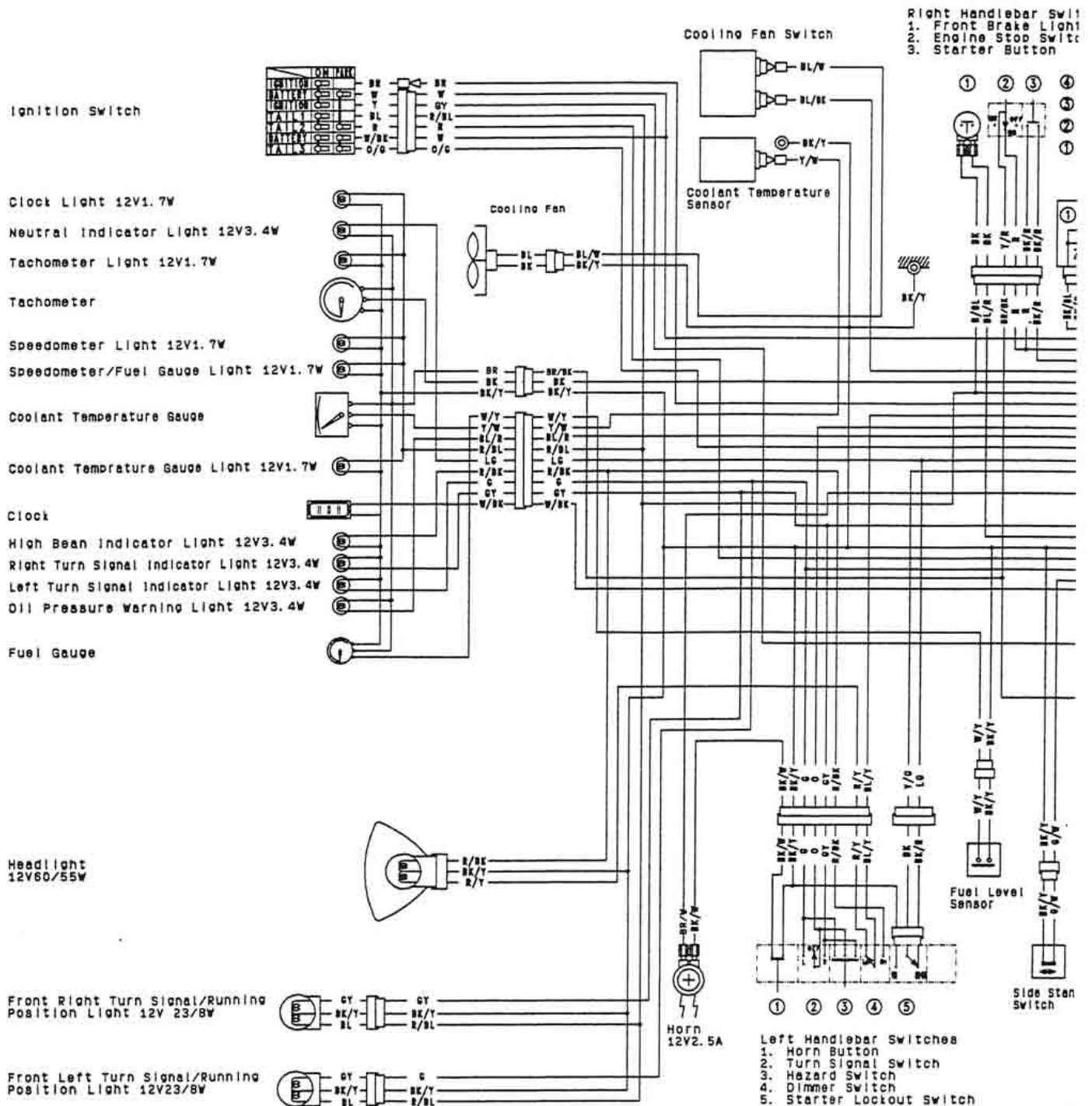


Radiator Fan



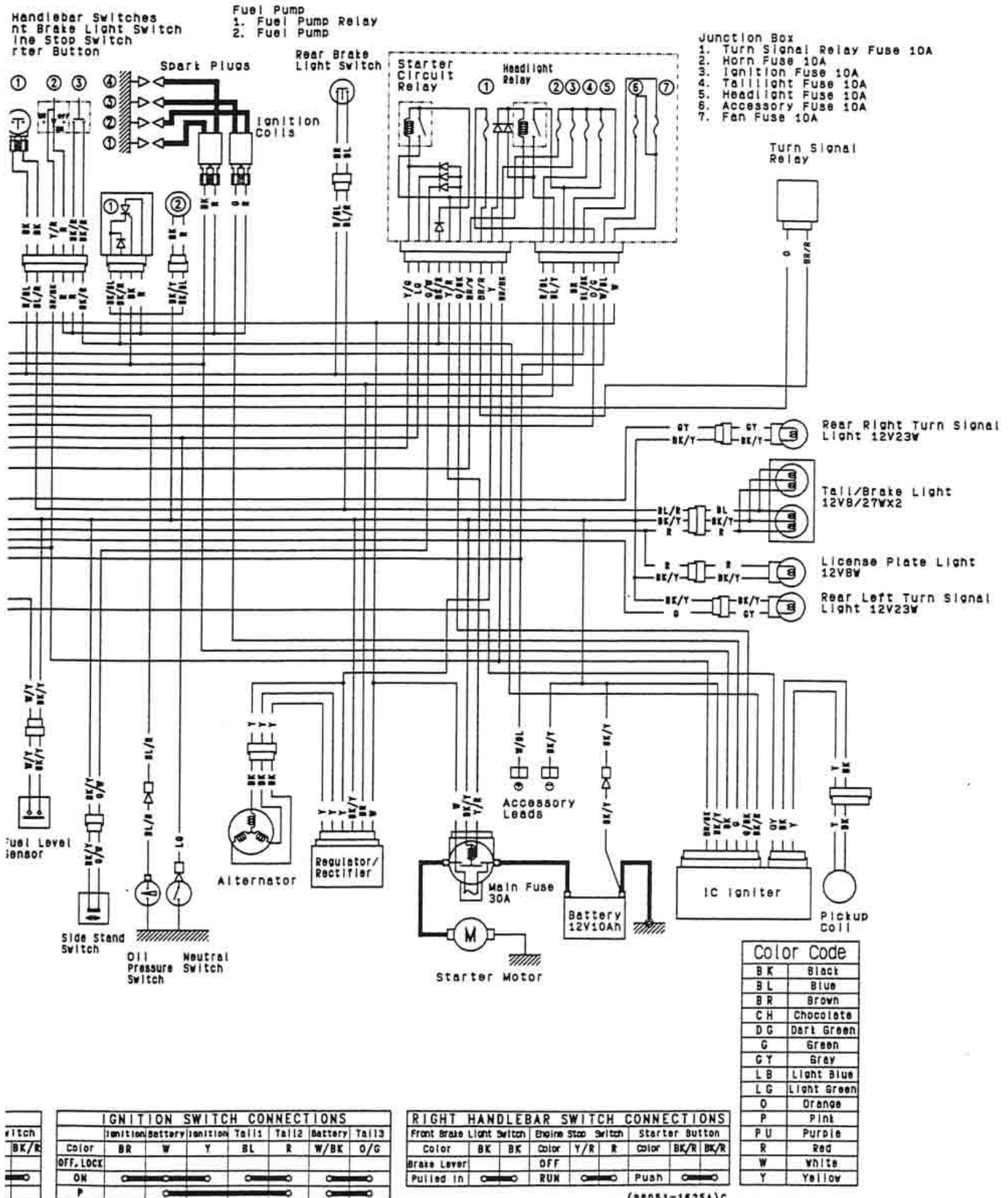
18-10 SUPPLEMENT - 1997 - 1999 MODELS

ZX600-E5, E6, E7 Wiring Diagram (U.S. and Canada)

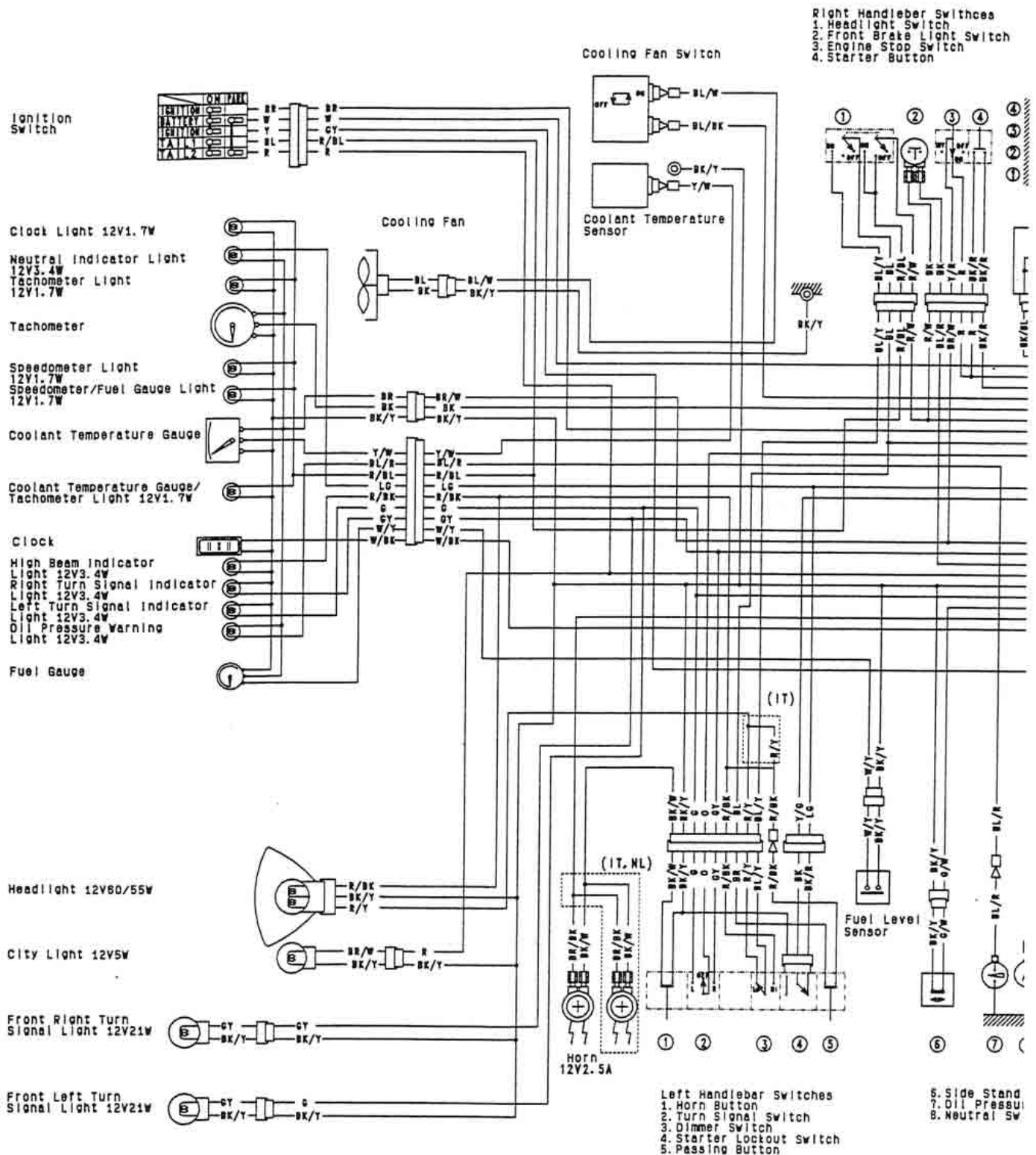


LEFT HANDLEBAR SWITCH CONNECTIONS									
Horn Button	Turn Signal Switch	Hazard Switch	Dimmer Switch	Starter Lockout Switch					
Color BK/WBK/Y	Color G O GY	Color G O GY	Color R/Y BL/YR/BK	Color BK/Y BK BK/R					
Push	OFF (Push)	Push	HI	Clutch Lever					
	R		LO	Released					
				Pulled In					

IG
Color
OFF, LOCK
ON
P



ZX600-E5 Wiring Diagram (Other than U.S., Canada and Australia)



LEFT HANDLEBAR SWITCH CONNECTIONS									
Horn Button	Turn Signal Switch	Dimmer Switch	Starter Lockout Switch	Passing Button					
Color BK/WBK/Y	Color G O GY	Color R/Y BL/YR/BK	Color BK/Y BK BK/R	Color BR R/BK					
Push	L OFF(Push) R	HI LO	Clutch Lever Released Pulled in	Push					

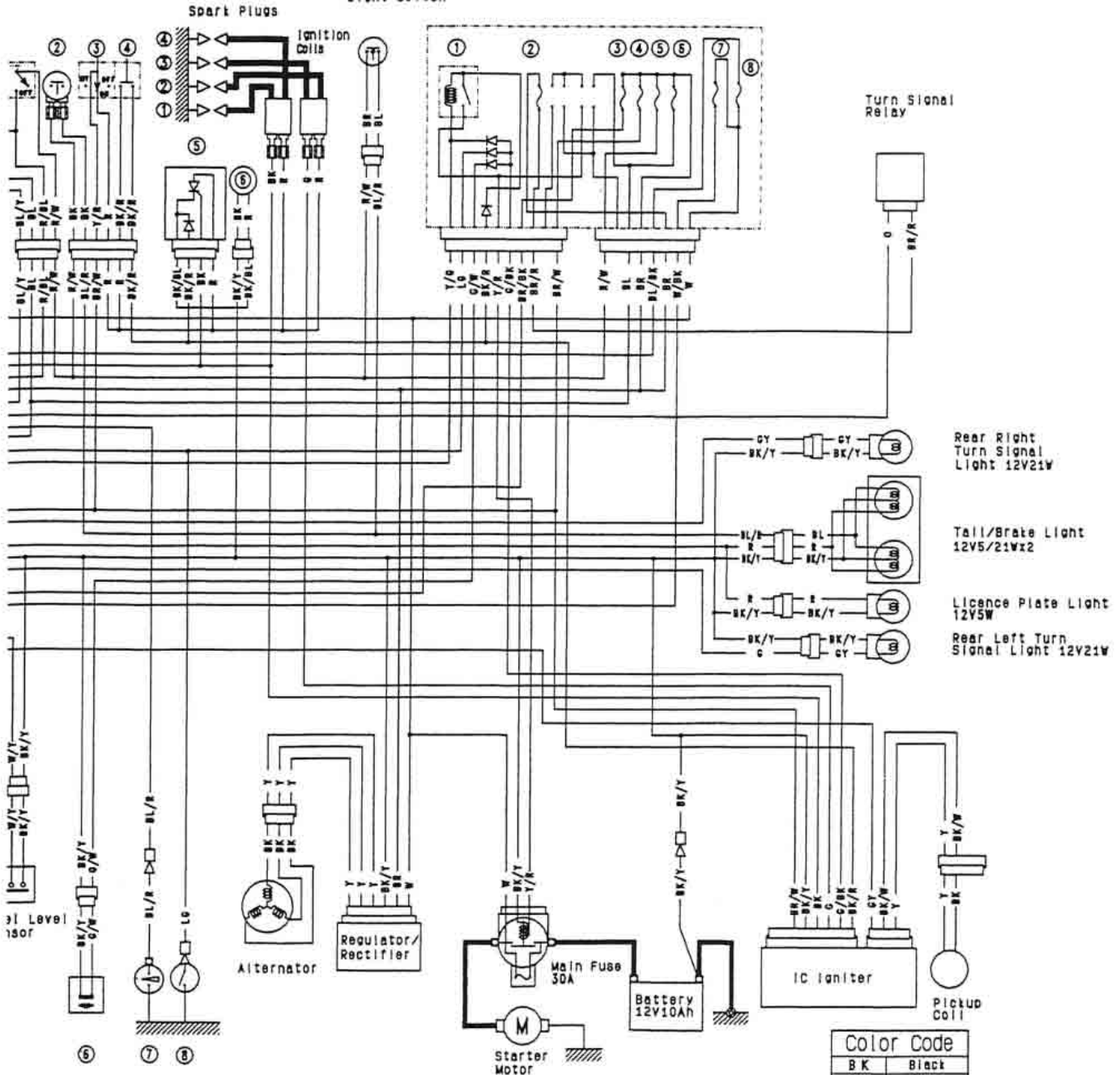
IGNITION SWITCH CONNEC				
	Ignition	Battery	Ignition	Tail
Color	BR	W	Y	BL
OFF, LOCK				
ON				ON
P				

Indiebler Switches
ght Switch
Brake Light Switch
Stop Switch
ir Button

Fuel Pump
5. Fuel Pump Relay
6. Fuel Pump

Rear Brake
Light Switch

Junction Box
1. Starter Circuit Relay
2. Turn Signal Relay Fuse 10A
3. Horn Fuse 10A
4. Ignition Fuse 10A
5. Tail Light Fuse 10A
6. Headlight Fuse 10A
7. ACC Fuse 10A
8. Fan Fuse 10A



6. Side Stand Switch
7. Oil Pressure Switch
8. Neutral Switch

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

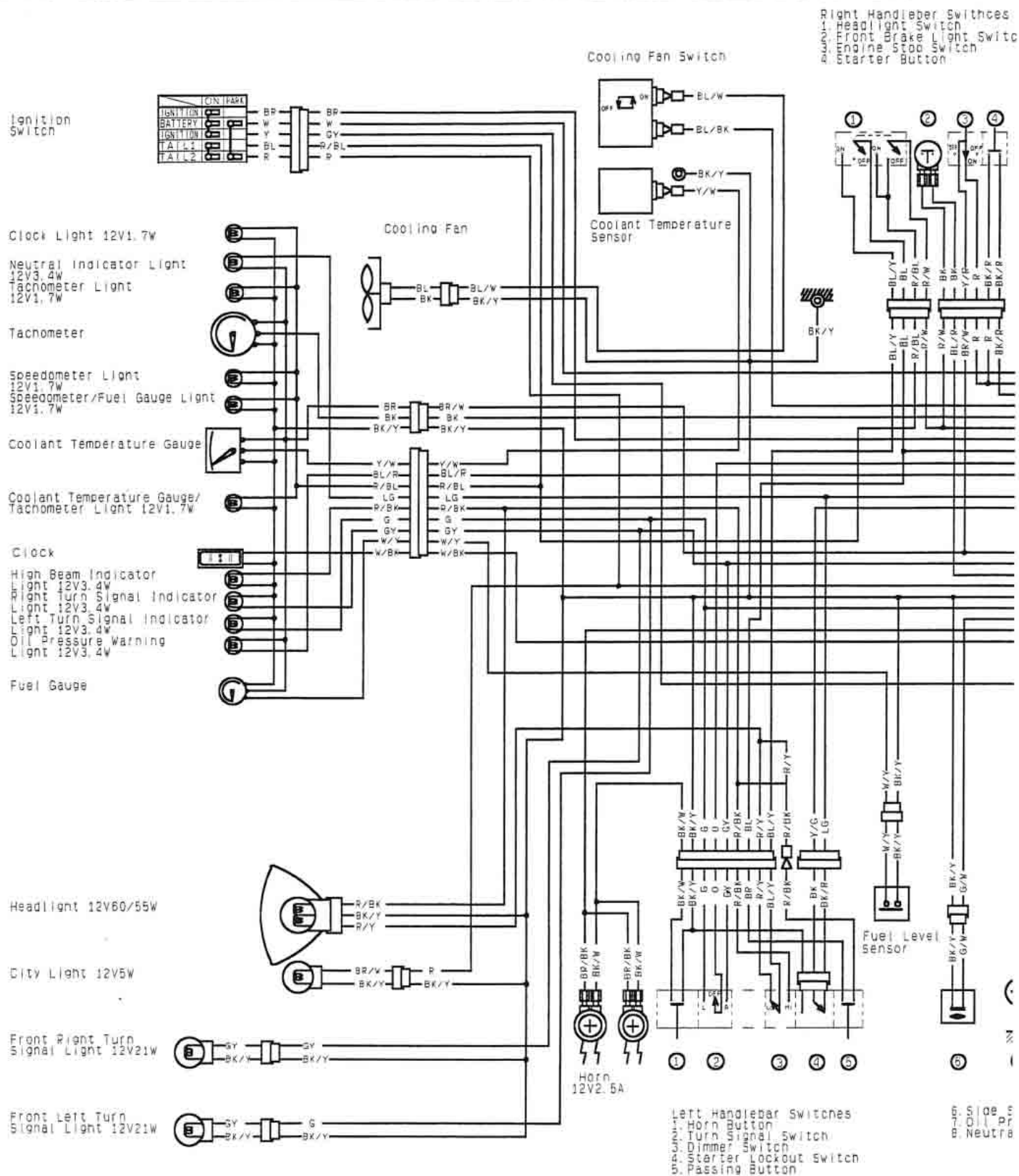
IGNITION SWITCH CONNECTIONS				
Ignition	Battery	Ignition	Tail	Tail
BR	W	Y	BL	R
OFF	ON	ON	ON	ON
ON	ON	ON	ON	ON

RIGHT HANDLEBAR SWITCH CONNECTIONS									
Headlight Switch			Front Brake Light Switch			Engine Stop Switch			Starter Button
Color	R/W	R/BL	BL	BL/Y	Color	BK	BK	Color	Y/R
OFF	ON	ON	ON	ON	OFF	ON	ON	OFF	ON
ON	ON	ON	ON	ON	Pulled In	ON	ON	RUN	ON

(98051-1626A)

18-14 SUPPLEMENT - 1997 - 1999 MODELS

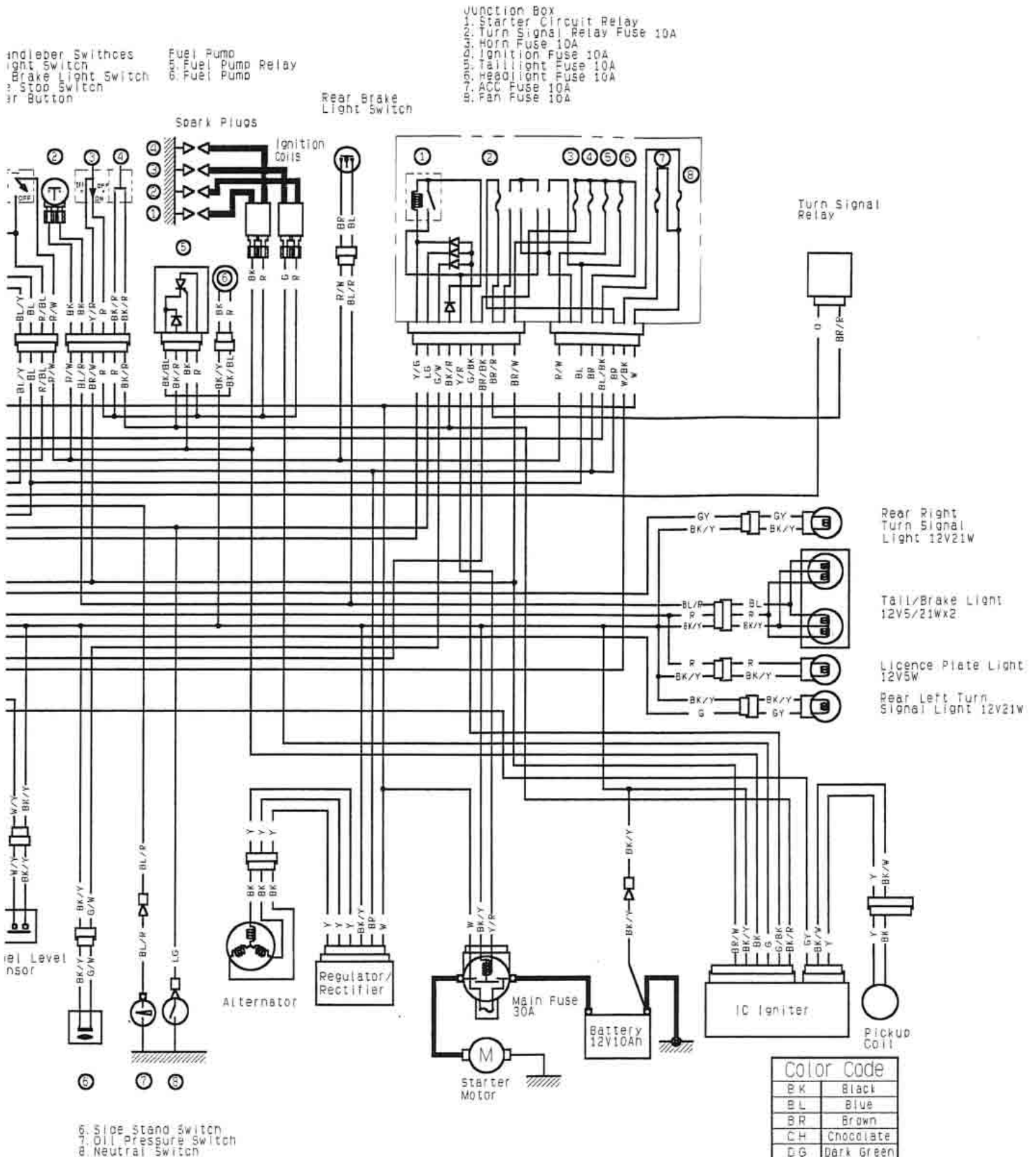
ZX600, E6, E7 Wiring Diagram (Other than U.S., Canada and Australia)



LEFT HANDLEBAR SWITCH CONNECTIONS									
Horn Button	Turn Signal Switch	Dimmer Switch	Starter Lockout Switch	Passing Button					
Color BK/W BK/Y	Color G D GY	Color R/Y BL/Y R/BK	Color BK/Y BK BK/R	Color BR R/BK					
Push	OFF (Push)	HI	Released	Push					
	R	LO	Pulled in						

IGNITION SWITCH CO			
Color	BR	W	Y
OFF, LOCK			
ON			
P			

SUPPLEMENT - 1997 - 1999 MODELS 18-15

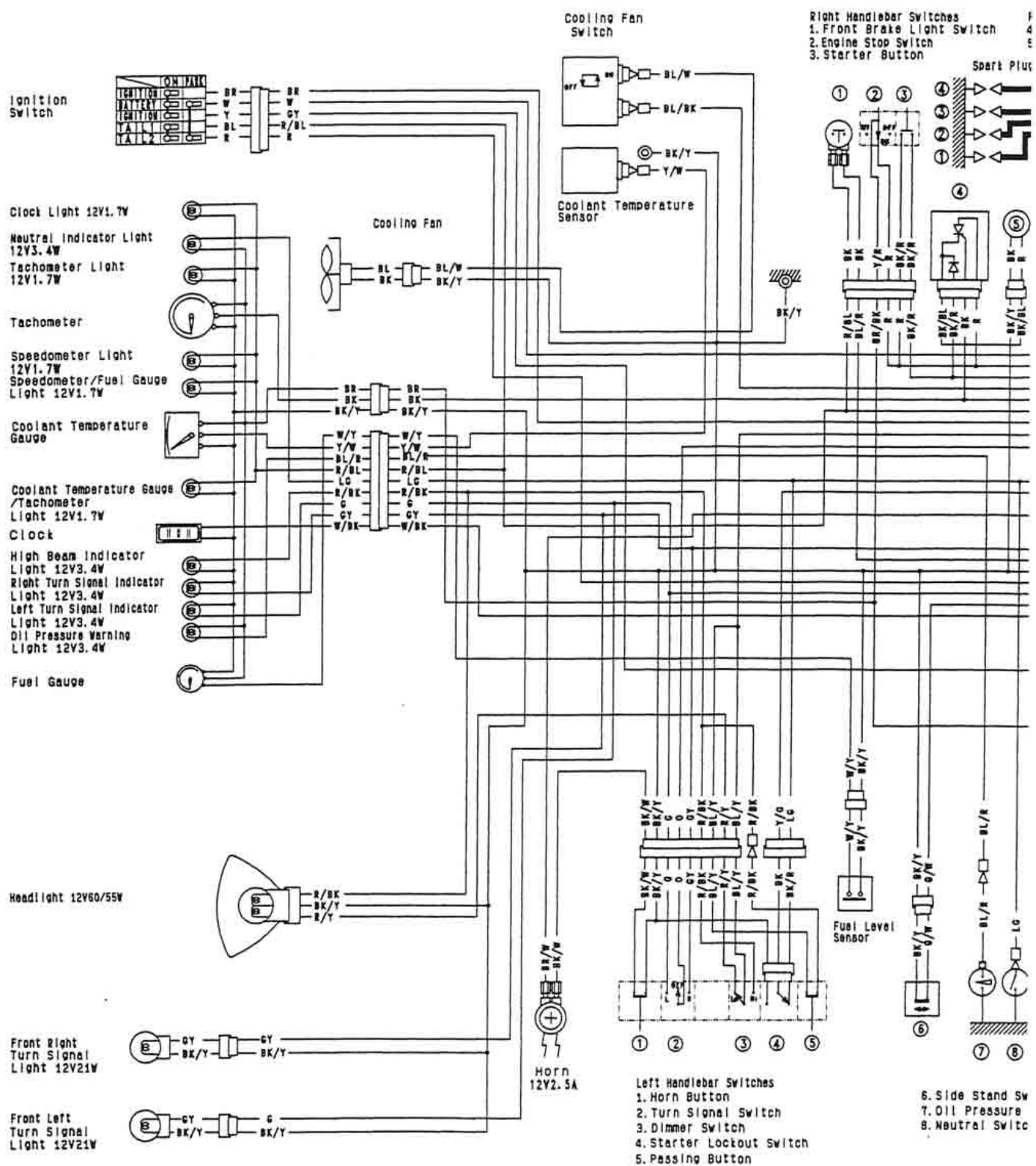


IGNITION SWITCH CONNECTIONS				
Ignition	Battery	Ignition	Tail1	Tail2
BR	W	Y	BL	R

RIGHT HANDLEBAR SWITCH CONNECTIONS									
Headlight Switch				Front Brake Light Switch		Engine Stop Switch		Starter Button	
Color	R/W	R/BL	BL	Color	BK	Color	Y/R	Color	BK/R
OFF				Brake Lever		OFF		Push	
				Pulled In		RUN			
ON									

(98051-1638A)

ZX600-E5, E6, E7 Wiring Diagram (Australia)



LEFT HANDLEBAR SWITCH CONNECTIONS									
Horn Button	Turn Signal Switch	Dimmer Switch	Starter Lockout Switch	Passing Button					
Color BK/WBK/Y	Color G O GY	Color R/Y BL/YR/BK	Color BK/Y BK BK/R	Color BL/YR/BK					
Push	OFF (Push)	LO	Released	Push					
	R		Pulled In						

IGNITION	
Color	Ignite
OFF, LOCK	BR
ON	BR
P	

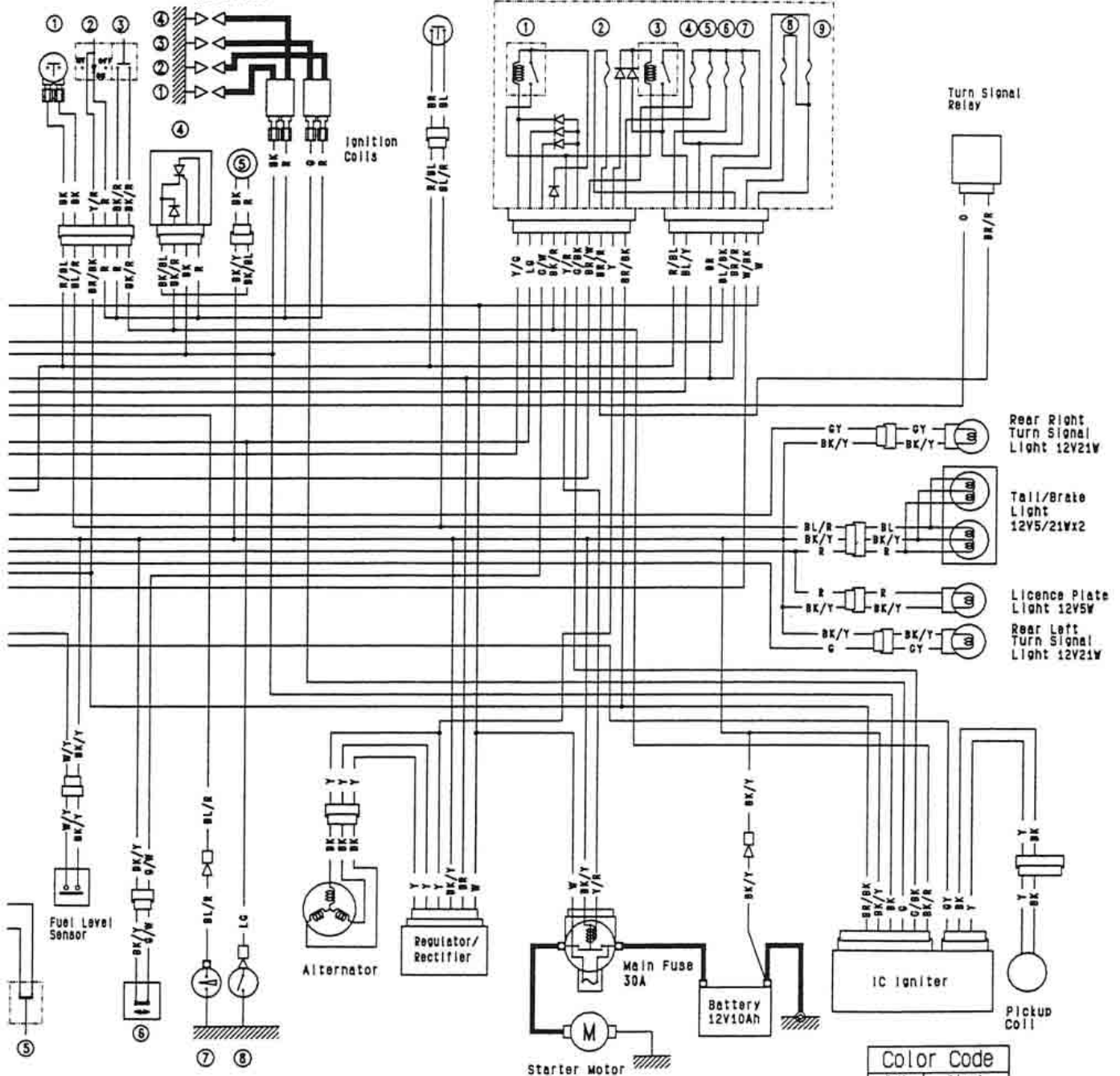
- Junction Box
 1. Starter Circuit Relay
 2. Turn Signal Relay Fuse 10A
 3. Headlight Relay
 4. Horn Fuse 10A
 5. Ignition Fuse 10A
 6. Taillight Fuse 10A
 7. Headlight Fuse 10A
 8. ACC Fuse 10A
 9. Fan Fuse 10A

- Right Handlebar Switches
 1. Front Brake Light Switch
 2. Engine Stop Switch
 3. Starter Button

- Fuel Pump
 4. Fuel Pump Relay
 5. Fuel Pump

- Rear Brake
 Light Switch




Spark Plugs



6. Side Stand Switch
 7. Oil Pressure Switch
 8. Neutral Switch

Passing Button	Color	BL/Y/R/BK
Push		

IGNITION SWITCH CONNECTIONS					
	Ignition	Battery	Ignition	Tail1	Tail2
Color	BR	W	Y	BL	R
OFF, LOCK					
ON					
P					

RIGHT HANDLEBAR SWITCH CONNECTIONS								
Front Brake Light Switch			Engine Stop Switch		Starter Button			
Color	BK	BK	Color	Y/R	R	Color	BK/R	BK/R
Brake Lever			OFF					
Pulled In			RUN			Push		

Color Code	
BK	Black
BL	Blue
BR	Brown
CH	Chocolate
DG	Dark Green
G	Green
GY	Gray
LB	Light Blue
LG	Light Green
O	Orange
P	Pink
PU	Purple
R	Red
W	White
Y	Yellow

(98051-1640A)

Ignition System

Refer to P.15-15, noting the following. (ZX600-E5-E9 German Model only)

IC Igniter Internal Resistance

Unit: k Ω

	Terminal	Tester (+) Lead Connection			
		1	2	3	4
(-)*	1		∞	∞	∞
	2	∞		0.08 ~ 0.18	36 ~ 78
	3	∞	0.08 ~ 0.18		36 ~ 78
	4	∞	32 ~ 78	32 ~ 78	

(-)*: Tester (-) Lead Connection

IC Igniter Internal Resistance (8P)

Unit: k Ω

	Terminal	Tester (+) Lead Connection							
		5	6	7	8	9	10	11	12
(-)*	5		∞	∞	∞	∞	∞	∞	∞
	6	32 ~ 132		∞	28 ~ 60	32 ~ 132	40 ~ 96	∞	19 ~ 48
	7	∞	∞		∞	∞	∞	∞	∞
	8	6.5 ~ 16	6.5 ~ 16	∞		6.5 ~ 16	7.5 ~ 17	∞	3.3 ~ 6.6
	9	∞	∞	∞	∞		∞	∞	∞
	10	18 ~ 42	18 ~ 42	∞	7.5 ~ 17	18 ~ 43		∞	12 ~ 32
	11	∞	∞	∞	∞	∞	∞		∞
	12	1.9 ~ 5	2.3 ~ 6	∞	2.3 ~ 6	1.9 ~ 5	11 ~ 22	∞	

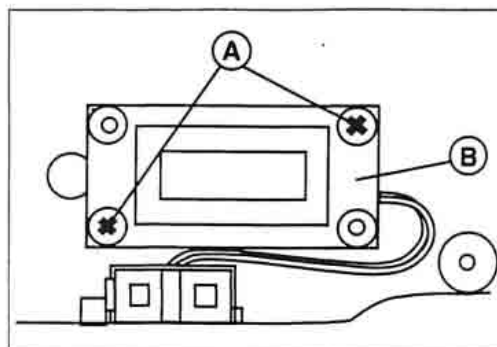
(-)*: Tester (-) Lead Connection

Special Tool - Hand Tester: 57001-1394

Meters, Gauges

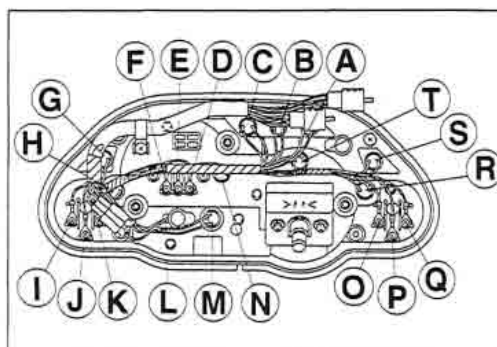
Meter, Gauges Disassembly

- Refer to P.15-23, noting the following.
- Disconnect the clock connector behind the meter unit.
- Remove the clock screws [A] and pull off the digital clock [B].



Meter, Gauges Assembly

- Refer to P.15-24, noting the following.
 - Install each on the original position shown.
- | | | |
|---------------|---------------|---------------|
| A. BL/R, BR | H. GY, BK/Y | O. W/Y |
| B. R/BK, BK/Y | I. Y/W | P. BK/Y |
| C. LG, BR | J. BK/Y | Q. BR |
| D. BK | K. BR | R. R/BL, BK/Y |
| E. BK/Y | L. W/BK, BK/Y | S. G, BK/Y |
| F. BR | M. R/BL, BK/Y | T. R/BL, BK/Y |
| G. R/BL, BK/Y | N. R/BL, BK/Y | |



Supplement - 2000 ~ 2001 Models

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19-2 SUPPLEMENT - 2000 ~ 2001 MODELS

Foreword

How to Use this Manual

This "Supplement – 2000 ~ 2001 Models" designed to be used in conjunction with the front part of this manual (up to 18–18) and/or base Manual Ninja ZX-6 / ZZ-R600 / ZZ-R500 Service Manual - Part No. 99924–1128–01. The specifications and maintenance procedures described in this chapter are only those that are unique to the ZX600–E8~E9 models.

Complete and proper servicing of the ZX600–E8~E9 models therefore requires mechanics to read both this chapter and the front of this manual.

General Information

General Specifications

Items		ZX600-E9
Dimensions:		
Overall length		2070 mm (GR, NR) 2140 mm
Overall width		695 mm
Overall height		1175 mm
Wheelbase		1430 mm
Road clearance		120 mm
Seat height		780 mm
Dry weight		195 kg, (CA) 195.5 kg
Curb weight:	Front	111 kg
	Rear	110 kg, (CA) 110.5 kg
Fuel tank capacity		18.0 L
Performance:		
Minimum turning radius		2.7 m
Engine:		
Type		4-stroke, DOHC, 4-cylinder
Cooling system		Liquid-cooled
Bore and stroke		64.0 × 46.6 mm
Displacement		599 mL
Compression ratio		12.0
Maximum horsepower		74 kW (100 PS) @12000 r/min (rpm) (CN) 74 kW (100 PS) @11500 r/min (rpm) (FG) 72 kW (98 PS) @12000 r/min (rpm) (FR, UTAC's norm) 71.8 kW (98 PS) @12000 r/min (rpm) (CA, US) — — —
Maximum torque		64 N·m (6.5 kgf·m, 47.0 ft·lb) @9300 r/min (rpm) (CN) 64 N·m (6.5 kgf·m, 47.0 ft·lb) @9500 r/min (rpm) (FG) 66 N·m (6.7 kgf·m, 46.3 ft·lb) @9000 r/min (rpm) (CA, FR, US) — — —
Carburetion system		KEIHIN CVKD36 × 4
Starting system		Electric starter
Ignition system		Battery and coil (transistorized)
Timing advance		Electronically advanced
Ignition timing		From 12.5° BTDC @1050 r/min (rpm) to 35° BTDC @3000 r/min (rpm), (CA) From 5° BTDC @1300 r/min (rpm) to 35° BTDC @5000 r/min (rpm), (US, CN) From 12.5° BTDC @1050 r/min (rpm) to 35° BTDC @5000 r/min (rpm), (FG, IT) From 2.5° BTDC @1300 r/min (rpm) to 35° BTDC @5000 r/min (rpm)
Spark plugs		NGK CR9E or ND U27ESR-N
Cylinder numbering method		Left to right 1-2-3-4
Firing order		1-2-4-3
Valve timing:		
Inlet	Open	55° BTDC
	Close	73° ABDC
	Duration	308°
Exhaust	Open	69° BBDC
	Close	43° ATDC
	Duration	292°

19-4 SUPPLEMENT - 2000 ~ 2001 MODELS

General Information

Items		ZX600-E9
Lubrication system		Forced lubrication (wet sump with cooler)
Engine oil:	Type	API SE, SF or SG API SH or SJ with JASO MA
	Viscosity	SAE10W-40
	Capacity	3.7 L
Drive Train:		
Primary reduction system:		
	Type	Gear
	Reduction ratio	1.792 (95/53)
Clutch type		Wet multi disc
Transmission:		
	Type	6-speed, constant mesh, return shift
Gear ratios:	1st	3.166 (38/12)
	2nd	2.125 (34/16)
	3rd	1.666 (35/21)
	4th	1.380 (29/21)
	5th	1.217 (28/23)
	6th	1.083 (26/24)
Final drive system:		
	Type	Chain drive
	Reduction ratio	3.000 (48/16)
Overall drive ratio		5.825 @Top gear
Frame:		
Type		Tubular, diamond
Caster (rake angle)		24.5°
Trail		96 mm
Front tire:	Type	Tubeless
	Size	120/60 ZR17
Rear tire:	Type	Tubeless
	Size	160/60 ZR17
Front suspension:	Type	Telescopic fork (pneumatic)
	Wheel travel	120 mm
Rear suspension:	Type	Swingarm (uni-trak)
	Wheel travel	130 mm
Brake type:	Front	Dual discs
	Rear	Single disc
Electrical Equipment:		
Battery		12 V 10 Ah
Headlight:	Type	Semi-Sealed beam
	Bulb	12 V 60/55W (quartz-halogen)
Tail/brake light		12 V 5/21 W × 2
Alternator:	Type	Three-phase AC
	Rated output	24 A-14 V @8000 r/min (rpm)

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

(CA): California Model

(CN): Canada Model

(FR): France Model

(GR): Greece Model

(NR): Norway Model

(US): U. S. A. Model

(FG): Germany Model

(IT): Italy Model

Engine Lubrication System

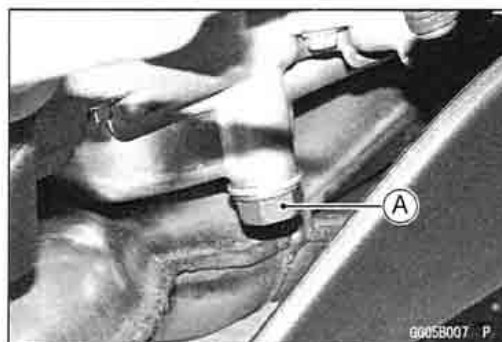
Specifications

Item	Standard
Engine Oil Type	API SE, SF or SG API SH or SJ with JASO MA
Viscosity	SAE10W-40
Capacity	2.8 L (when filter is not removed) 3.2 L (when filter is removed) 3.7 L (when engine is completely dry)

Engine Oil and Oil Filter

Engine Oil Change

- Situate the motorcycle so that it is vertical after warming up the engine.
 - Remove the engine drain plug [A] to drain the oil.
 - The oil in the oil filter can be drained by removing the filter.
 - ★ Replace the drain plug gasket with a new one if it is damaged.
 - Tighten the drain plug.
- Torque - Engine Drain Plug: 20 N·m (2.0 kgf·m, 14.5 ft·lb)**
- Pour in the specified type and amount of oil.

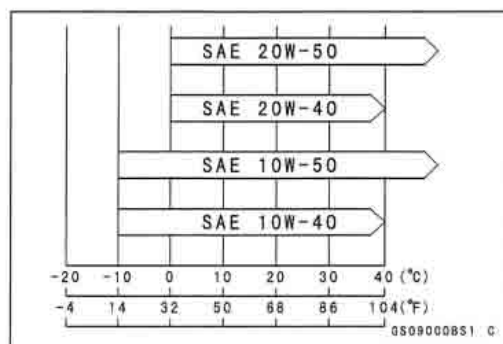


Engine Oil

- Type:** API SE, SF or SG
 API SH or SJ with JASO MA
- Viscosity:** SAE10W-40
- Capacity:** 2.8 L (when filter is not removed)
 3.2 L (when filter is removed)
 3.7 L (when engine is completely dry)

NOTE

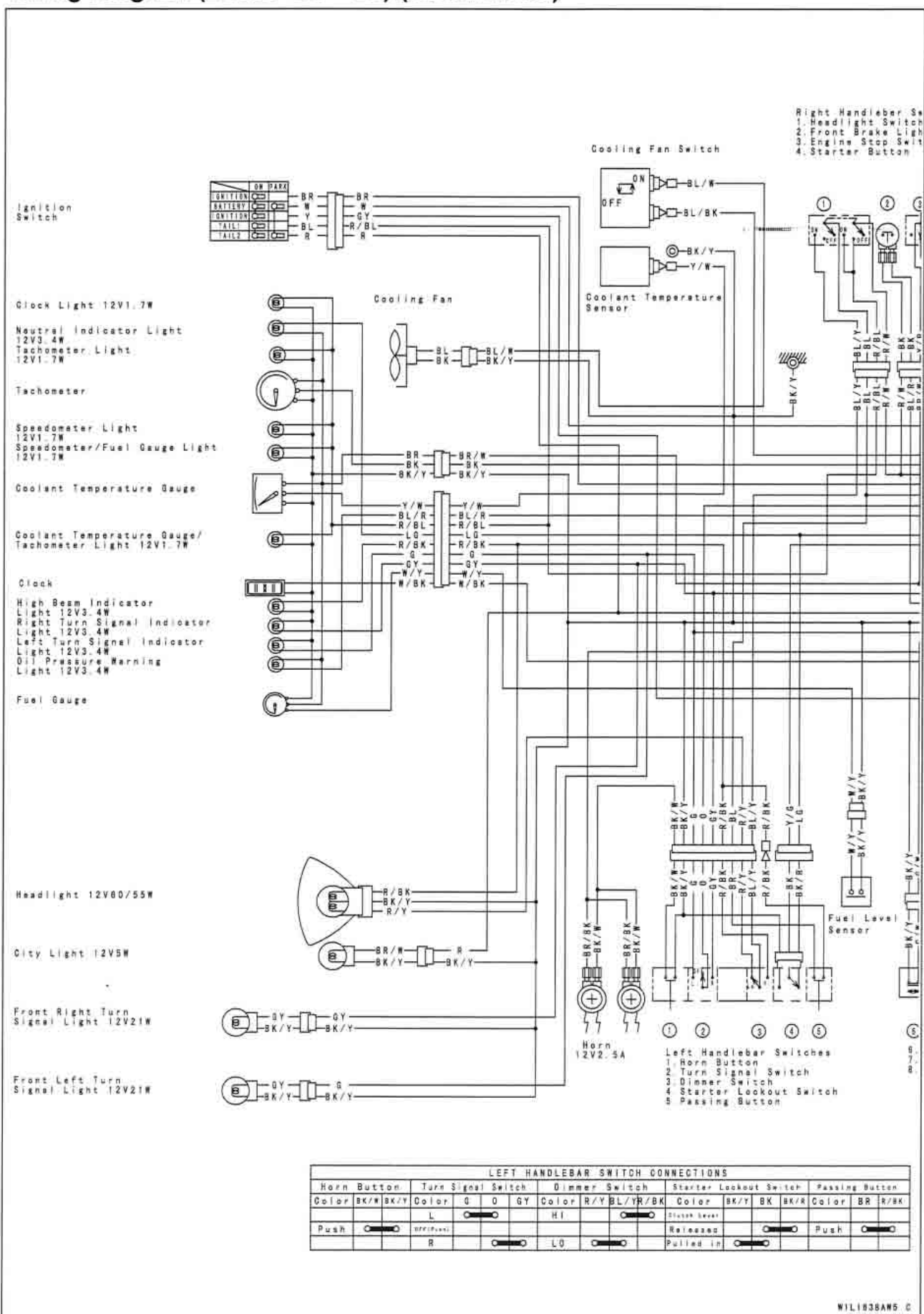
- Although 10W-40 engine oil is the recommended oil for most conditions, the oil viscosity may need to be changed to accommodate atmospheric conditions in your riding area.



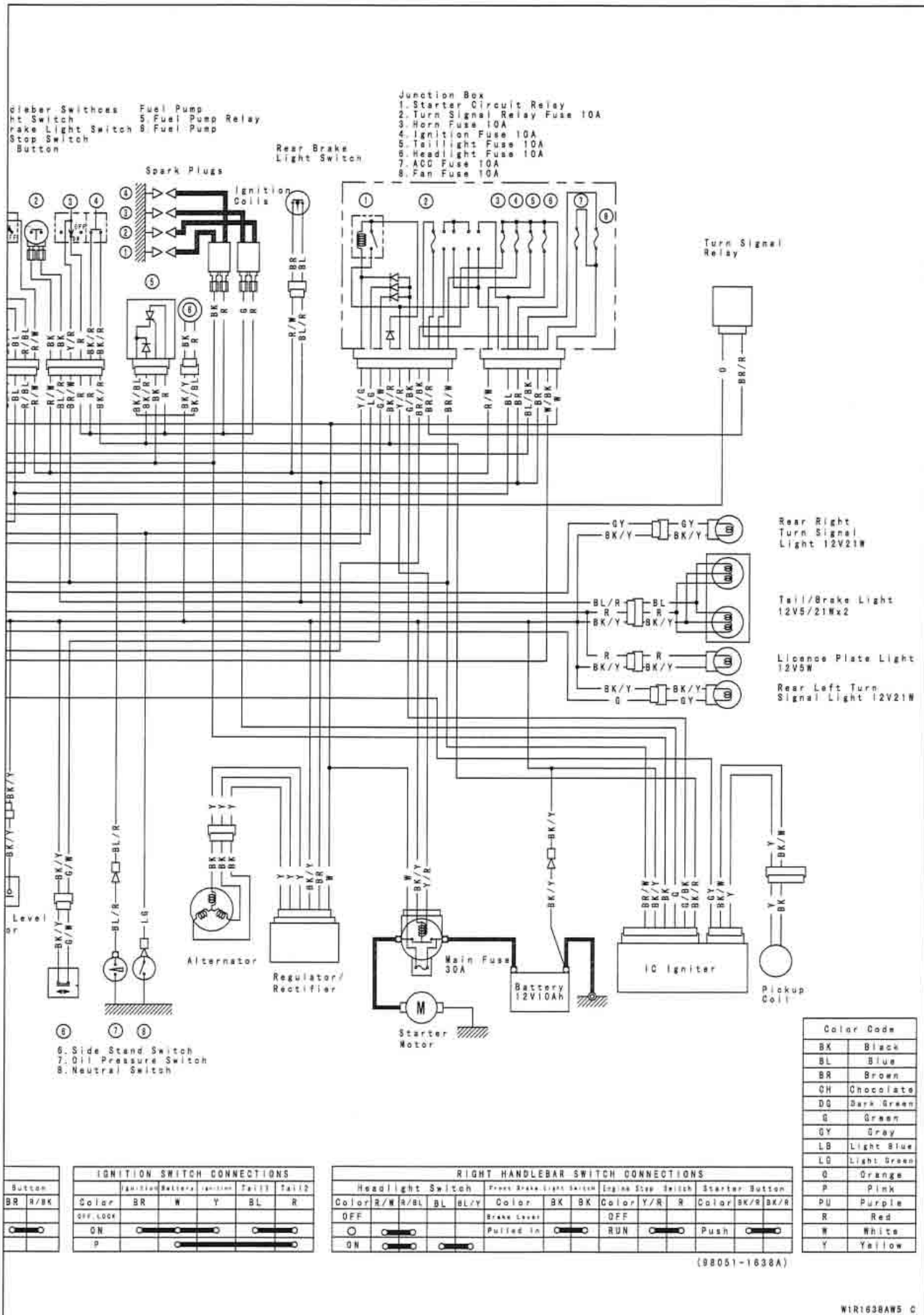
19-6 SUPPLEMENT - 2000 ~ 2001 MODELS

Electrical System

Wiring Diagram (ZX600-E8 ~ E9) (Israel Model)



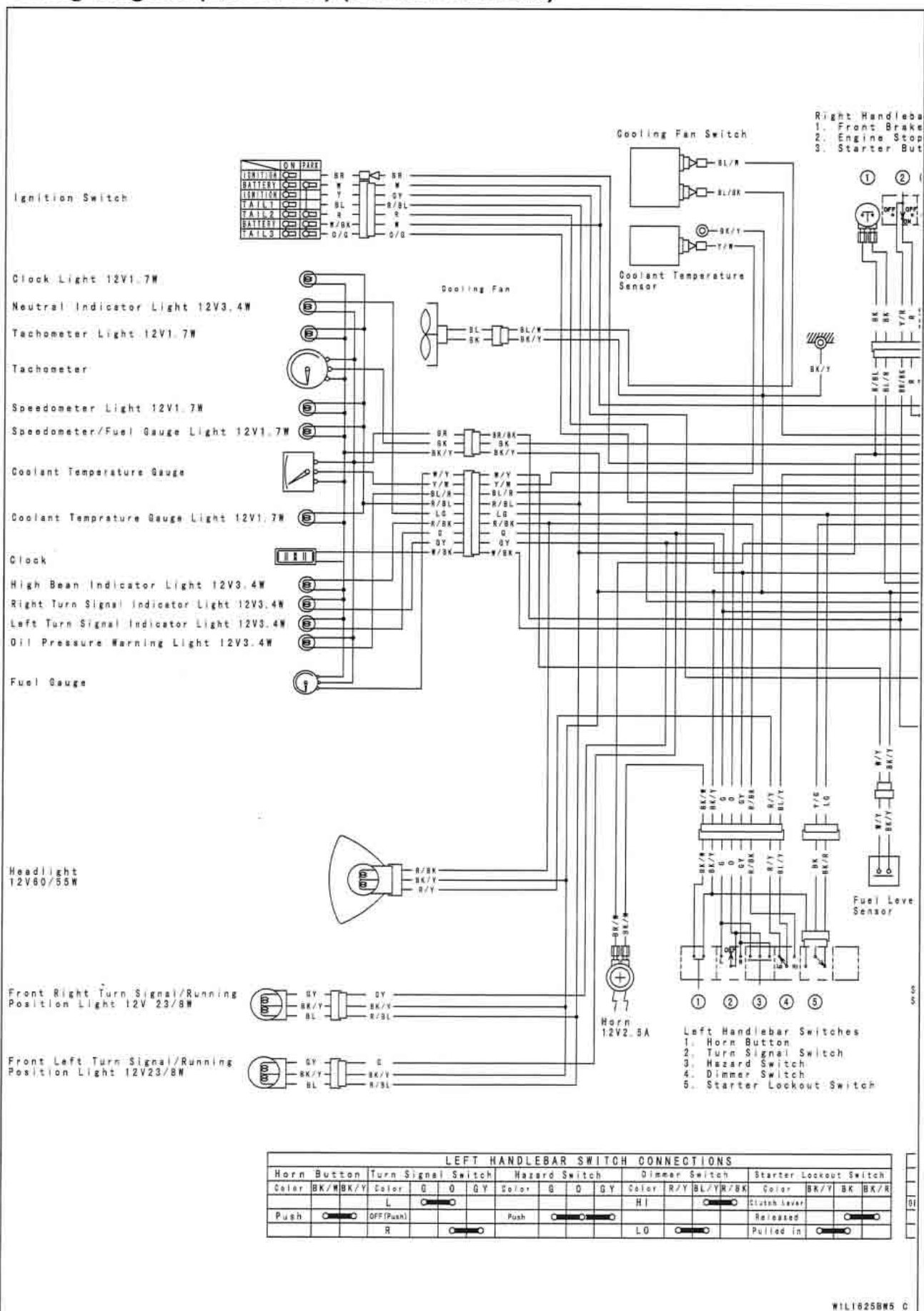
Electrical System



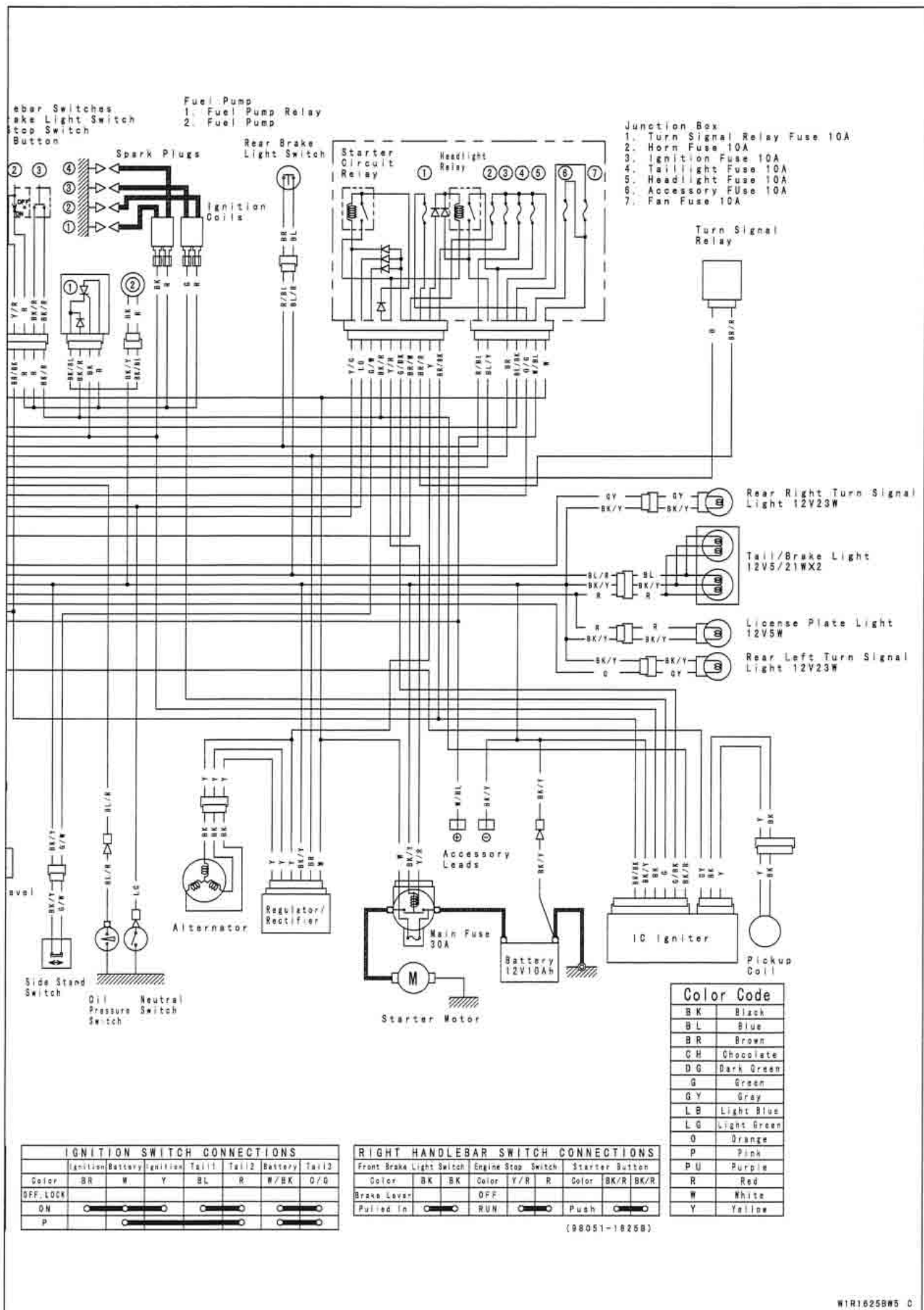
19-8 SUPPLEMENT - 2000 ~ 2001 MODELS

Electrical System

Wiring Diagram (ZX600-E9) (U.S. and Canada)



Electrical System



Supplement - 2002 ~ 2003 Models

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20-2 SUPPLEMENT - 2002 ~ 2003 MODELS

Foreword

How to Use this Manual

This "Supplement - 2002 ~ 2003 Models" designed to be used in conjunction with the front part of this manual (up to 19-9) and/or base Manual Ninja ZX-6/ZZ-R600/ZZ-R500 Service Manual - Part No. 99924-1128-01. The specifications and maintenance procedures described in this chapter are only those that are unique to the ZX600-E10 ~ E11 models.

Complete and proper servicing of the ZX600-E10 ~ E11 models therefore requires mechanics to read both this chapter and the front of this manual.

General Information

General Specifications

Items	ZX600-E10 ~
Dimensions	
Overall Length	2 070 mm
Overall Width	695 mm
Overall Height	1 175 mm
Wheelbase	1 430 mm
Road Clearance	120 mm
Seat Height	780 mm
Dry Weight	195 kg, (CAL) 195.5 kg
Curb Weight:	
Front	111 kg
Rear	110 kg, (CAL) 110.5 kg
Fuel Tank Capacity	18.0 L
Performance	
Minimum Turning Radius	2.7 m
Engine	
Type	4-stroke, DOHC, 4-cylinder
Cooling System	Liquid-cooled
Bore and Stroke	64.0 × 46.6 mm
Displacement	599 mL
Compression Ratio	12.0
Maximum Horsepower	72 kW (98 PS) @ 12 000 r/min (rpm) (CA) 74 kW (100 PS) @ 11 500 r/min (rpm) (CAL, US) — — —
Maximum Torque	61 N·m (6.2 kgf·m, 47.0 ft·lb) @ 8 800 r/min (rpm) (CA) 64 N·m (6.5 kgf·m, 47.0 ft·lb) @ 9 500 r/min (rpm) (CAL, US) — — —
Carburetion System	KEIHIN CVKD36 × 4
Starting System	Electric starter
Ignition System	Battery and coil (transistorized)
Timing Advance	Electronically advanced
Ignition Timing	From 12.5° BTDC @ 1 300 r/min (rpm) to 35° BTDC @ 5 000 r/min (rpm), (CAL) From 5° BTDC @ 1 300 r/min (rpm) to 35° BTDC @ 5 000 r/min (rpm), (US, CA) From 12.5° BTDC @ 1 050 r/min (rpm) to 35° BTDC @ 5 000 r/min (rpm),
Spark Plugs	NGK CR9E or ND U27ESR-N
Cylinder Numbering Method	Left to right 1-2-3-4
Firing Order	1-2-4-3
Valve Timing:	
Inlet	
Open	55° BTDC
Close	73° ABDC

20-4 SUPPLEMENT - 2002 ~ 2003 MODELS

General Information

Items	ZX600-E10 ~
Duration	308°
Exhaust	
Open	69° BBDC
Close	43° ATDC
Duration	292°
Lubrication System	Forced lubrication (wet sump with cooler)
Engine Oil:	
Type	API SE, SF or SG API SH or SJ with JASO MA
Viscosity	SAE10W-40
Capacity	3.7 L
Drive Train	
Primary Reduction System:	
Type	Gear
Reduction Ratio	1.792 (95/53)
Clutch Type	Wet multi disc
Transmission:	
Type	6-speed, constant mesh, return shift
Gear Ratios:	
1st	3.166 (38/12)
2nd	2.125 (34/16)
3rd	1.666 (35/21)
4th	1.380 (29/21)
5th	1.217 (28/23)
6th	1.083 (26/24)
Final Drive System:	
Type	Chain drive
Reduction Ratio	3.000 (48/16)
Overall Drive Ratio	5.825 @Top gear
Frame	
Type	Tubular, diamond
Caster (Rake Angle)	24.5°
Trail	96 mm
Front Tire:	
Type	Tubeless
Size	120/60 ZR17 (55W) 120/60 ZR17 M/C (55W)
Rear tire:	
Type	Tubeless
Size	160/60 ZR17 (69 W) 160/60 ZR17 M/C (69 W)
Front suspension:	
Type	Telescopic fork (pneumatic)
Wheel travel	120 mm

General Information

Items	ZX600-E10 ~
Rear suspension:	
Type	Swingarm (uni-trak)
Wheel travel	130 mm
Brake type:	
Front	Dual discs
Rear	Single disc
Electrical Equipment	
Battery	12 V 10 Ah
Headlight:	
Type	Semi-Sealed beam
Bulb	12 V 60/55 W (quartz-halogen)
Tail/brake light	12 V 5/21 W × 2
Alternator:	
Type	Three-phase AC
Rated output	24 A-14 V @ 8 000 r/min (rpm)

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

(CA): Canada Model

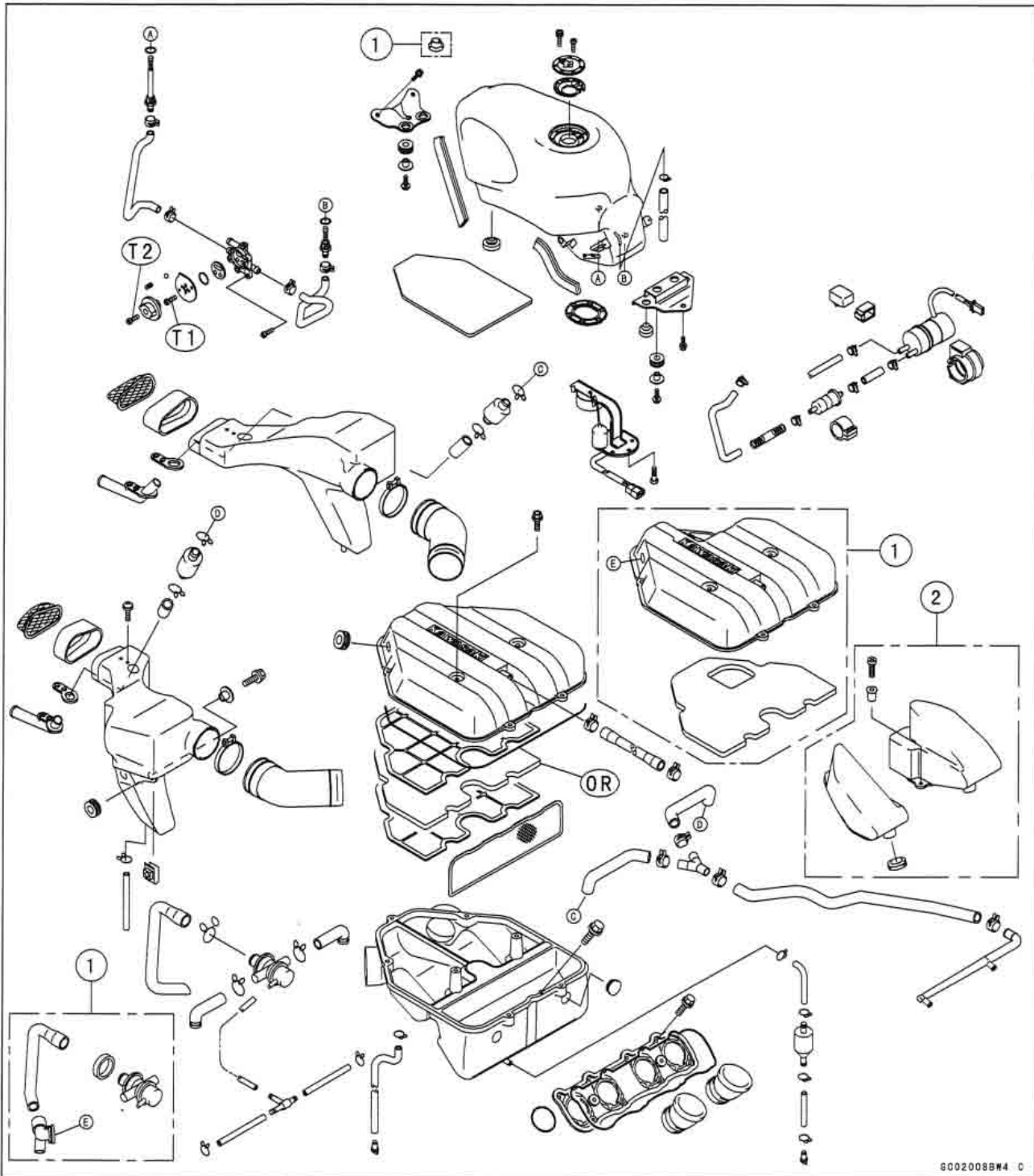
(CAL): California Model

(US): United States Model

20-6 SUPPLEMENT - 2002 ~ 2003 MODELS

Fuel System

Exploded View



6002008BW4 C

Fuel System**Specifications**

Item	Standard
Throttle Grip and Cables	
Throttle Grip Free Play	2 ~ 3 mm
Choke Cable	
Choke Cable Free Play	2 ~ 3 mm
Carburetors	
Make, Type	KEIHIN SEIKI CVK-D36
Idle Speed	1 300 ±50 r/min (rpm) (US, CA) 1 050 ±50 r/min (rpm)
Pilot Screw (Turns Out)	1 3/4, (CA) 1 1/2, (CAL, US) – –
Synchronization	2.7 kPa (2 cmHg) or less difference between two cylinders
Service Fuel Level	3 ±1 mm below the mark
Float Height	11 ±2 mm
Main Jet	
#1,4	#142, (US, CA) #135, (CAL) #140
#2,3	#138, (US, CA) #135, (CAL) #140
Main Air Jet	#50
Needle Jet	#6
Jet Needle Mark	
#1,4	NBAL, (US, CA, CAL) N1VC
#2,3	NBAL, (US, CA, CAL) N1VC
Pilot Jet (Slow Jet)	#35
Pilot Air Jet (Slow Air Jet)	#105, (US, CA) #110, (CAL) #120
Starter Jet	#52
Throttle Valve Angle	11°
High Altitude Carburetor Specifications (US)	
Pilot Jet	#32 (92064-1117)
Main Jet	#132 (92063-1076) (CAL) #138 (92063-1015)
Air Cleaner Element Oil	
Grade	SE,SF or SG class
Viscosity	SAE30

(CA): Canada Model

(CAL): California Model

(US): United States Model

Supplement - 2004 ~ 2005 Models

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21-2 SUPPLEMENT - 2004 ~ 2005 MODELS

Foreword

How to Use this Manual

This "Supplement-2004 ~ 2005 Models" designed to be used in conjunction with the front part of this manual (up to 20-7) and/or base Manual Ninja ZX-6/ZZ-R600/ZZ-R500 Service Manual - Part No. 99924-1128-01. The specifications and maintenance procedures described in this chapter are only those that are unique to the ZX600-E12 ~ E13 models.

Complete and proper servicing of the ZX600-E12 ~ E13 models therefore requires mechanics to read both this chapter and the front of this manual.

General Information

Torque and Locking Agent

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

Letters used in the "Remarks" column mean:

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

LG: Apply liquid gasket to the threads.

Lh: Left-hand threads

M: Apply molybdenum disulfide grease.

O: Apply oil to the threads and seating surface.

S: Tighten the fasteners following the specified sequence.

SS: Apply silicone sealant.

St: Stake the fasteners to prevent loosening.

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	kgf-m	ft-lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in-lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in-lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
Fuel System				
Carburetor Holder Bolts	12	1.2	104 in-lb	
Fuel Tap Plate Screws	7.8	0.80	69 in-lb	
Fuel Tap Knob Mounting Screw	1.0	0.10	9 in-lb	
Cooling System				
Radiator Hose Clamp Bolts	2.0	0.20	17 in-lb	
Coolant Air Bleeder Bolt (Thermostat Housing)	7.8	0.80	69 in-lb	
Coolant Air Bleeder Bolt (Water Pump)	9.8	1.0	87 in-lb	
Coolant Drain Plugs	9.8	1.0	87 in-lb	
Thermostatic Fan Switch	18	1.8	13.0	
Water Temperature Sensor	7.8	0.80	69 in-lb	ss
Engine Top End				
Spark Plug	14	1.4	10.0	
Cylinder Head Cover Bolts	9.8	1.0	87 in-lb	
Cylinder Head Bolts				
New Parts	47	4.8	35	S, O (washer)

21-4 SUPPLEMENT - 2004 ~ 2005 MODELS

General Information

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Used Parts	43	4.4	32	S, O (washer)
Pickup Coil Cover Bolts	12	1.2	104 in·lb	
Cylinder Head Jacket Plugs (Pt1/2, Pt3/8)	20	2.0	14.5	
Camshaft Bearing Cap Bolts	12	1.2	104 in·lb	S
Camshaft Chain Tensioner Mounting Bolts	12	1.2	104 in·lb	
Camshaft Sprocket Bolts	15	1.5	11.0	L
Camshaft Chain Guide Bolts (Rear)	12	1.2	104 in·lb	
Oil Hose Banjo Bolts	25	2.5	18.0	
Clutch				
Clutch Cover Bolts	12	1.2	104 in·lb	
Clutch Lever Holder Bolts	7.8	0.80	69 in·lb	
Clutch Spring Bolts	8.8	0.90	78 in·lb	
Clutch Hub Nut	130	13.5	98	
Clutch Cover Damper Bolts	5.9	0.60	52 in·lb	L
Engine Lubrication System				
Engine Drain Plug	20	2.0	14.5	
Crankshaft Main Oil Passage Plug	15	1.5	11.0	
Oil Pan Bolts	12	1.2	104 in·lb	
Oil Filter	9.8	1.0	87 in·lb	or hand -tight
Oil Filter Mounting Bolt	29	3.0	22	
Oil Pressure Relief Valve	15	.5	11.0	L
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in·lb	
Oil Pressure Switch	15	1.5	11.0	SS
Oil Hose Banjo Bolts	25	2.5	18.0	
Oil Hose Clamp Bolts (Lower Crankcase)	8.8	0.90	78 in·lb	
Oil Hose Flange Bolts	12	1.2	104 in·lb	
Oil Separator Cover Bolts (Upper Crankcase)	9.8	1.0	87 in·lb	L
Engine Removal/Installation				
Engine Mounting Bolts	49	5.0	36	
Engine Mounting Adjuster	9.8	1.0	87 in·lb	
Engine Mounting Bracket Bolts	25	2.5	18.0	
Crankcase/Transmission				
Oil Separator Cover Bolts	9.8	1.0	87 in·lb	L
Gear Positioning Lever Mounting Bolt	8.8	0.90	78 in·lb	
Oil Pressure Switch	15	1.5	11.0	SS
New Switch	15	1.5	11.0	
Shift Shaft Return Spring Pin	20	2.0	14.5	L
Shift Drum Cam Bolts	12	1.2	104 in·lb	L
Shift Rod Plug (Left, M14)	15	1.5	11.0	
Connecting Rod Big End Cap Bolts				R, O
New	24 + 120°	2.4 + 120°	17.5 + 120°	

General Information

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
In Assy	22 + 120°	2.2 + 120°	16.0 + 120°	
Crankcase Bolts				
$\phi 8$	27	2.8	20	S
$\phi 6$	12	1.2	104 in·lb	S
Timing Rotor Allen Bolt	25	2.5	18.0	
Crankcase Main Oil Passage Plug				
Left, Pt3/8	20	2.0	14.5	L
Right, M18	15	1.5	11.0	
Oil Hose Banjo Bolts	25	2.5	18.0	
Oil Hose Bracket Bolts	8.8	0.90	78 in·lb	
Wheels/Tires				
Front Axle Clamp Bolts	20	2.0	14.5	
Front Axle Nut	108	11.0	80	
Rear Axle Nut	108	11.0	80	
Final Drive				
Engine Sprocket Nut	125	13.0	94	
Torque Link Nuts	34	3.5	25	
Rear Sprocket Nuts	59	6.0	43	
Rear Sprocket Studs	—	—	—	L
Brakes				
Bleed Valves	7.8	0.80	69 in·lb	
Brake Hose Banjo Bolts	25	2.5	18.0	
Master Cylinder Reservoir Cap	1.5	0.15	13 in·lb	
Torque Link Nut	34	3.5	25	
Caliper Mounting Bolts (Front)	34	3.5	25	
Caliper Mounting Bolts (Rear)	25	2.5	18.0	
Caliper Bolts (Front)	22	2.3	17.0	
Front Caliper Pad Spring Screw	2.9	0.30	26 in·lb	
Disc Mounting Bolts (Front)	27	2.8	20	L
Disc Mounting Bolts (Rear)	27	2.8	20	
Brake Lever Pivot Bolt	1.0	0.10	9 in·lb	
Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in·lb	
Front Brake Switch Mounting Screws	1.0	0.10	9 in·lb	
Front Brake Reservoir Cap Screws	1.5	0.15	13 in·lb	
Front Master Cylinder Clamp Bolts	8.8	0.9	78 in·lb	
Rear Master Cylinder Mounting Bolts	25	2.5	18.0	
Rear Master Cylinder Pushrod Locknut	18	1.8	13	
Brake Pedal Shaft Bolts (Right Footpeg Bolt)	8.8	0.90	78 in·lb	
Rear Master Cylinder Bracket Locknut	18	1.8	13.0	
Brake Pedal Mounting Bolt	8.8	0.9	78 in·lb	
Suspension				
Front Fork Clamp Bolts (Upper, Lower)	20	2.0	14.5	

21-6 SUPPLEMENT - 2004 ~ 2005 MODELS

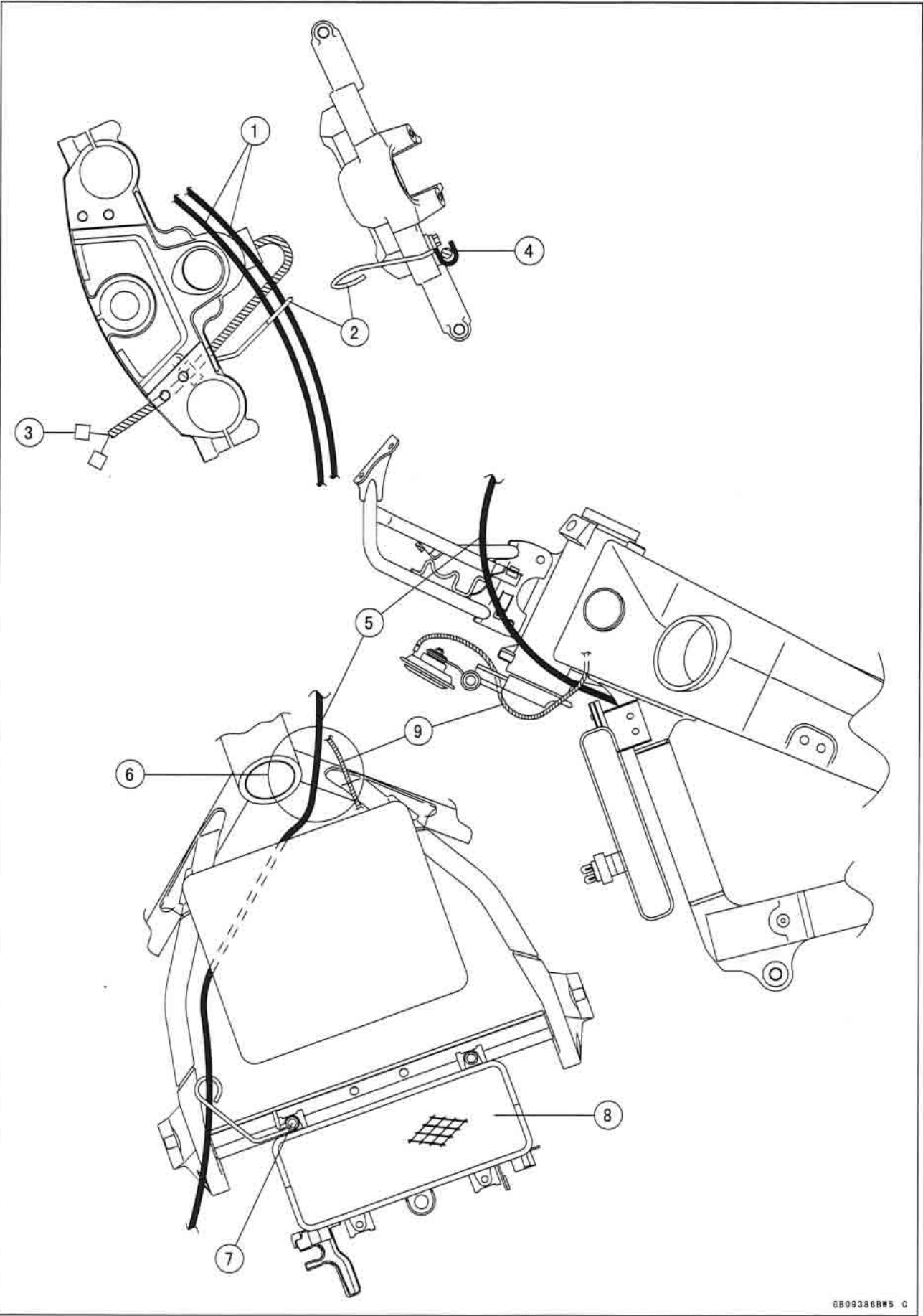
General Information

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
Front Fork Bottom Allen Bolts	20	2.0	14.5	L
Front Axle Clamp Bolts	20	2.0	14.5	
Rear Shock Absorber Mounting Nuts	59	6.0	43	
Rear Shock Absorber Preload Adjuster Nut	88	9.0	65	
Tie-Rod Nuts	59	6.0	43	
Rocker Arm Pivot Shaft Nut	59	6.0	43	
Swing Arm Pivot Shaft Nut	108	11.0	80	
Steering				
Steering Stem Head Nut	49	5.0	36	
Steering Stem Nut	Hand-Tight or 4.9	← or 0.50	← or 43 in·lb	
Handlebar Holder Mounting Bolts	25	2.5	18.0	
Frame				
Side Stand Bolt	44	4.5	32	L
Side Stand Bracket Bolts Mounting Bolts	49	5.0	36	
Front Footpeg Stay Bolts	25	2.5	18.0	
Rear Footpeg Stay Bolts	25	2.5	18.0	
Tail Grip Bracket Mounting Bolts	25	2.5	18.0	
Center Stand Bolt	44	4.5	32	
Electrical System				
Fuel Gauge Bolt	3.9	0.4	35 in·lb	L
Pickup Coil Cover Bolts	12	1.2	8.5	
Timing Rotor Allen Bolts	25	2.5	18.0	
Alternator Cover Bolts	12	1.2	8.5	
Alternator Rotor Bolt	78	8.0	58	
Alternator Stator Bolts	12	1.2	104 in·lb	
Starter Relay Terminal Nut	4.9	0.50	43 in·lb	
Starter Motor Terminal Nut	4.9	0.50	43 in·lb	
Starter Clutch Bolt	34	3.5	25	
Spark Plug	14	1.4	10	
Handlebar Switch Housing Clamp Screws	3.4	0.35	30 in·lb	SS
Thermostatic Fan Switch	18	1.8	13.0	
Water Temperature Sensor	7.8	0.80	69 in·lb	
Oil Pressure Switch	15	1.5	11.0	SS
Neutral Switch	15	1.5	11.0	L
Speedometer And Trip Meter Mounting Screws	—	—	—	
Tail Light Mounting Nut	5.9	0.6	52 in·lb	
Side Stand Switch	3.9	0.4	35 in·lb	

General Information

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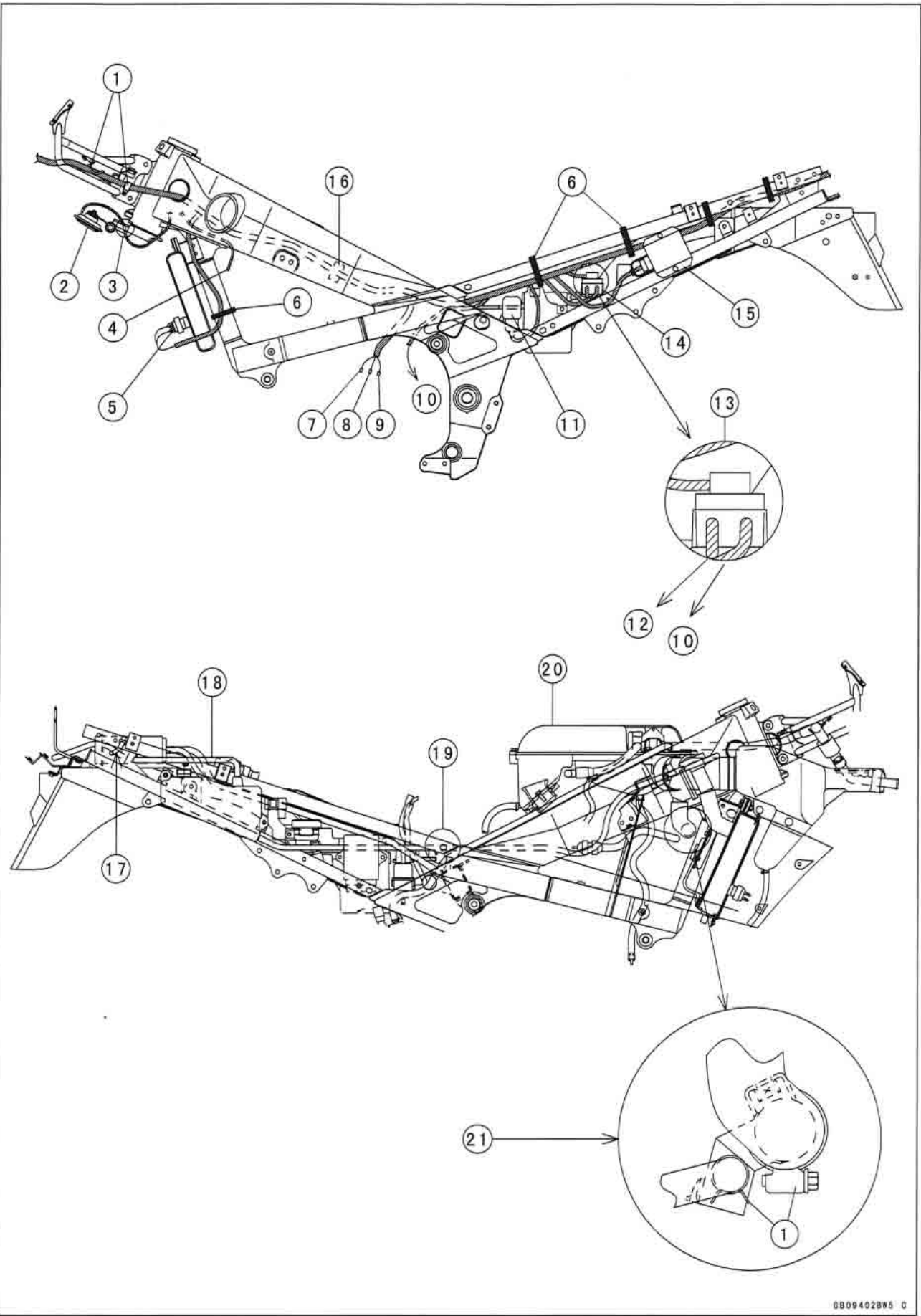
Cable, Wire and Hose Routing



General Information

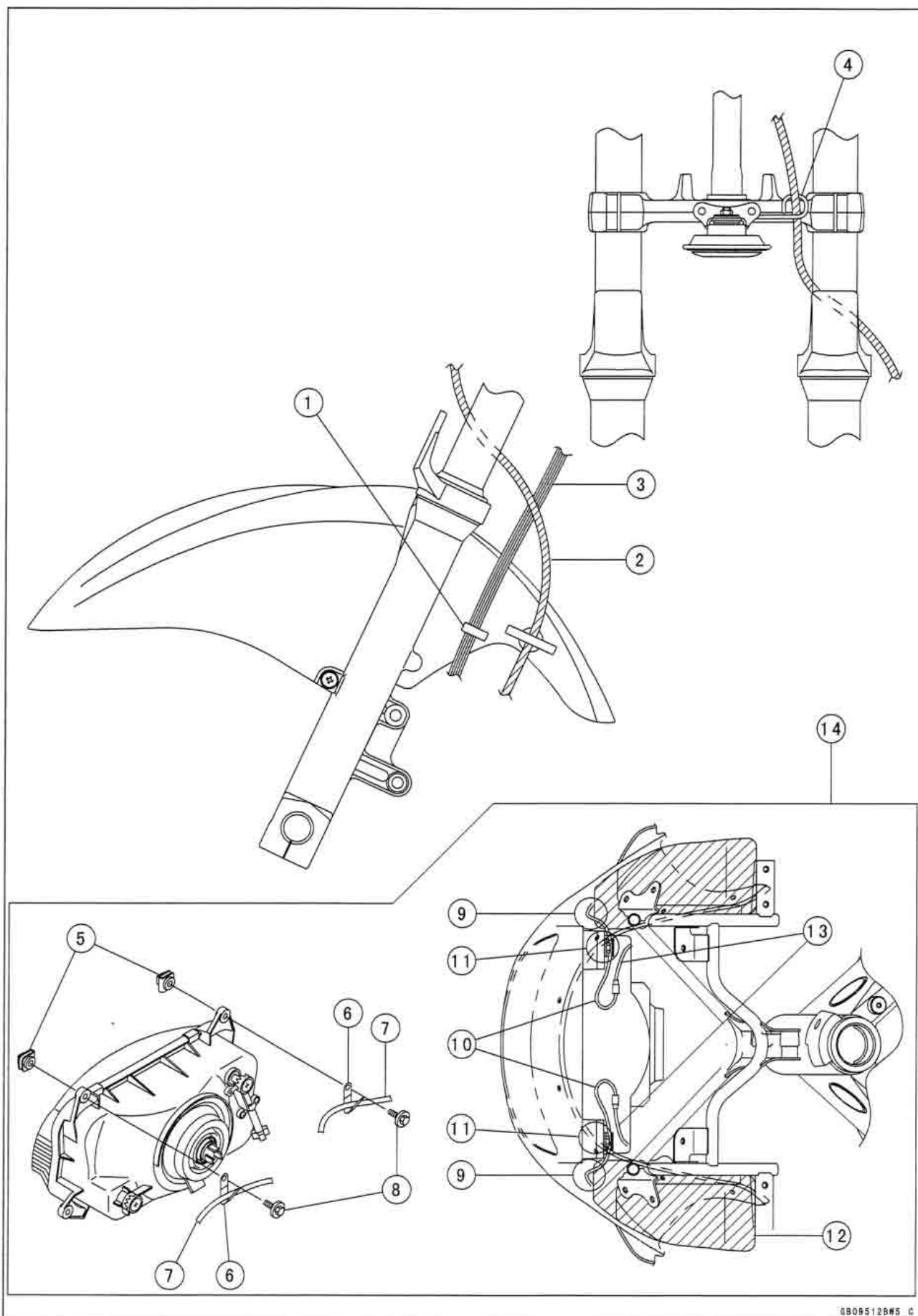
1. Throttle Cable
2. Clamp
3. Ignition Switch Lead
4. The clamp must be installed so that it faces to the outside of the frame.
5. Clutch Cable
6. Run the clutch cable at the left side of the head pipe, and run it inside the horn lead.
7. Tighten the clamp together with the oil cooler mounting bolt.
8. Oil Cooler
9. Horn Lead

General Information



General Information

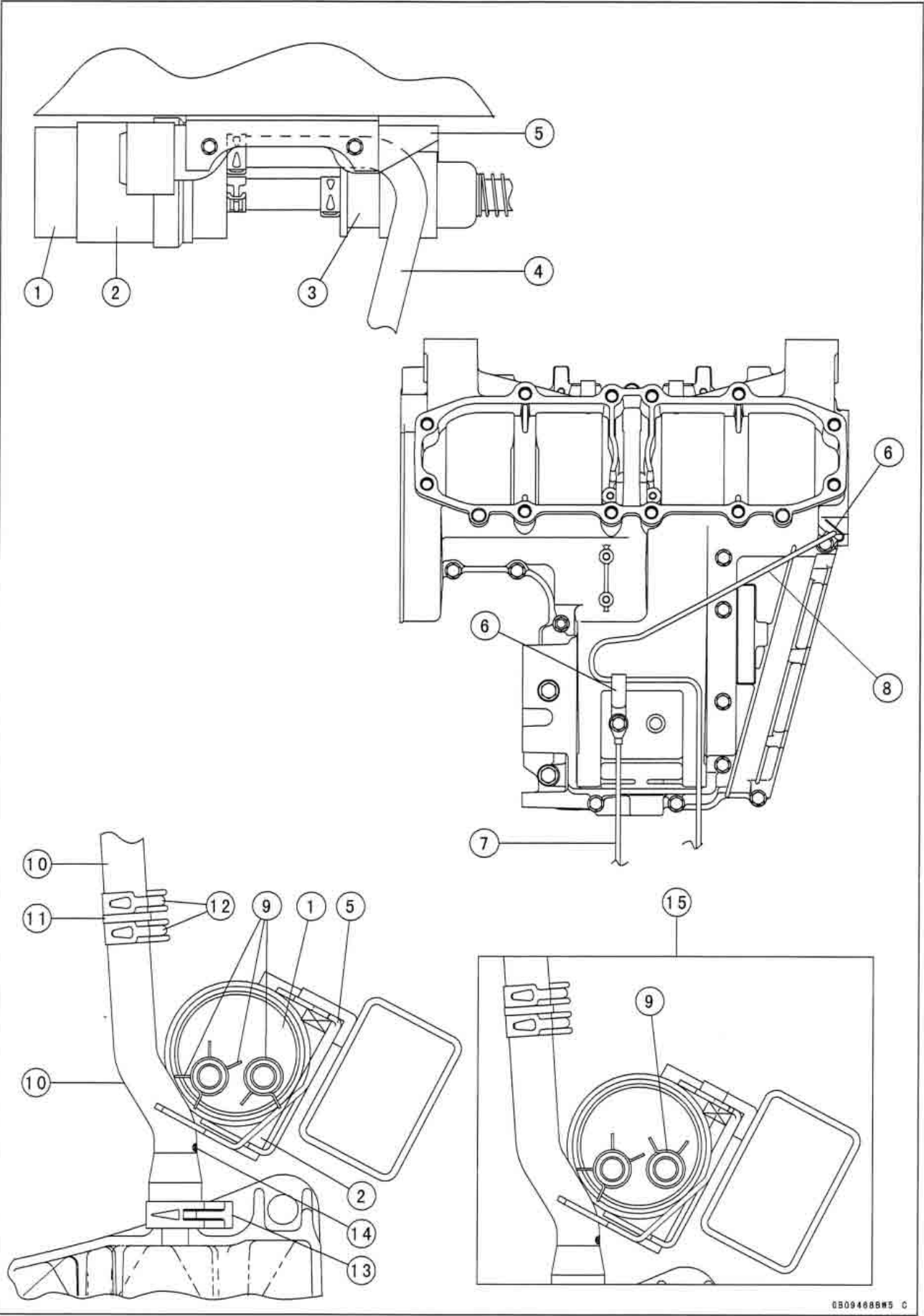
1. Clamp
2. Horn
3. Run the horn lead outside the threeway joint (United States, Canada and Australia models).
4. Fan Motor Lead
5. Radiator Fan Switch
6. Band
7. Side Stand Switch Lead
8. Oil Pressure Switch Lead
9. Neutral Switch Lead
10. To Starter Motor
11. Turn Signal Light Relay
12. To Battery Positive Terminal
13. Main Harness
14. Starter Relay
15. Regulator/Rectifier
16. The clamp must be installed downward.
17. Pay attention not to be choked by clamp.
18. Drain Tube
19. Run the drain tube through outside of the negative (–) cable.
20. Air Cleaner
21. Pay attention to the direction of the clamp of cooling tube and hose.



General Information

1. Clamp
2. Speedometer Cable (Run this cable outside the brake hose)
3. Brake Hose
4. Clamp (Tighten this clamp upward between the horn and the three way joint upward)
5. Nut
6. Clamp
7. Turn Signal Light Lead
8. Bolt
9. Run this harness front side of the resonator.
10. Turn Signal Light Lead
11. Tighten the clamp together with the headlight lead.
12. Resonator
13. Main Harness
14. Other than United States and Canada Models

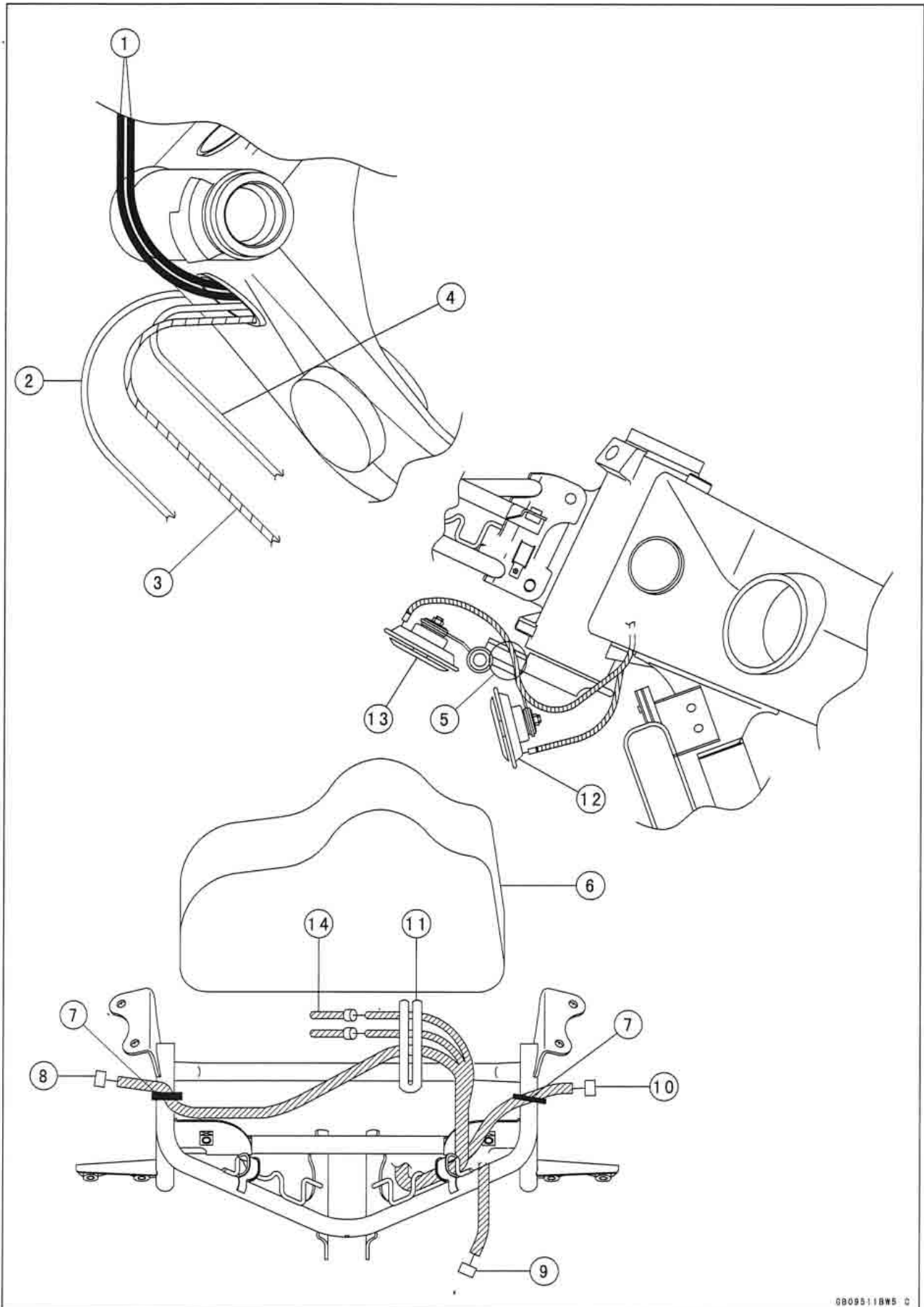
General Information



General Information

1. Fuel Pump
2. Fuel Pump Holder
3. Fuel Filter
4. Fuel Hose (Pump-Carburetor) (Run the hose upper side the brake hose)
5. Bracket
6. Clamp
7. Battery Ground Lead
8. Pickup Coil Lead
9. Clamp (The figure is viewed from left side)
10. Breather Hose
11. Fitting
12. Clamp (The clamp knob shall be faced to rear side)
13. Clamp (The clamp knob shall be faced to rear side)
14. Identification Mark (The mark shall be faced to rear side)
15. ZX600-E13 Model

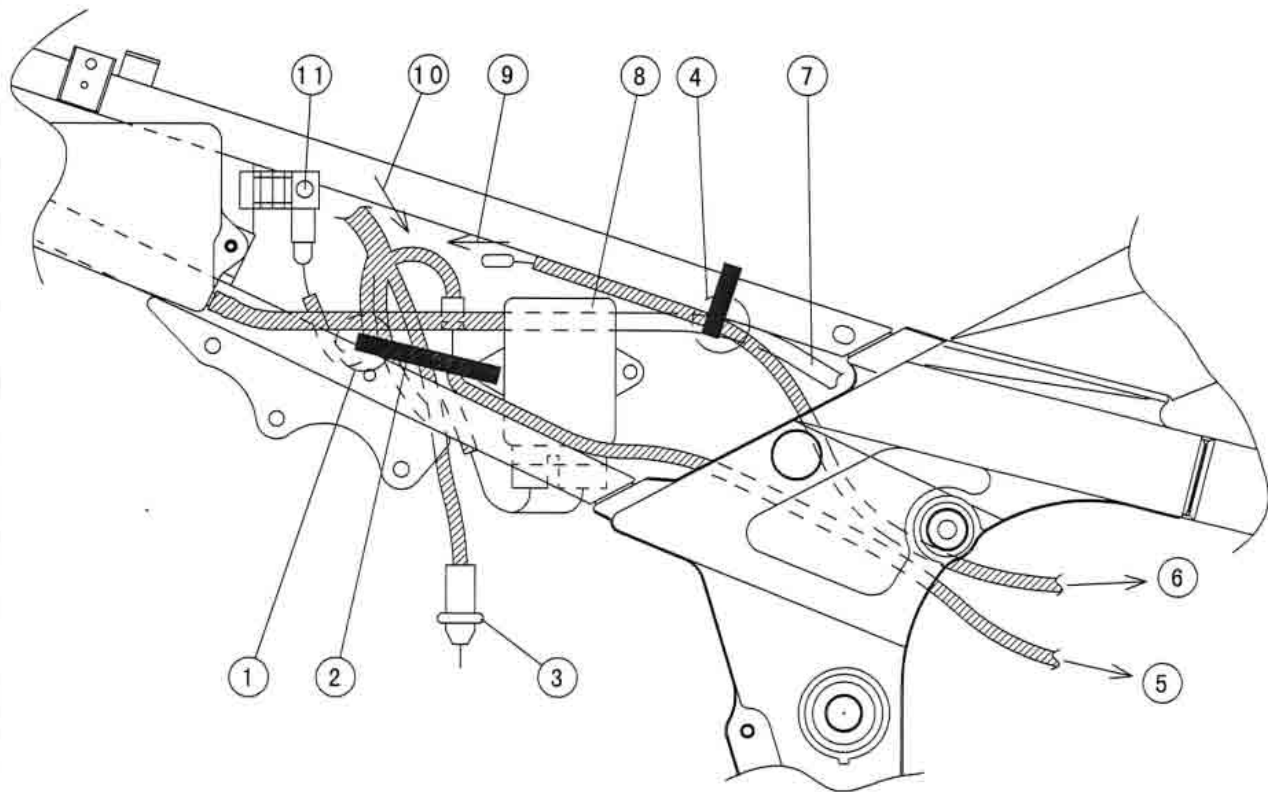
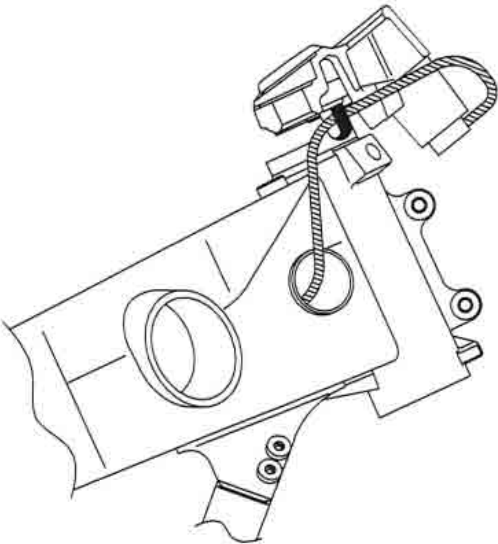
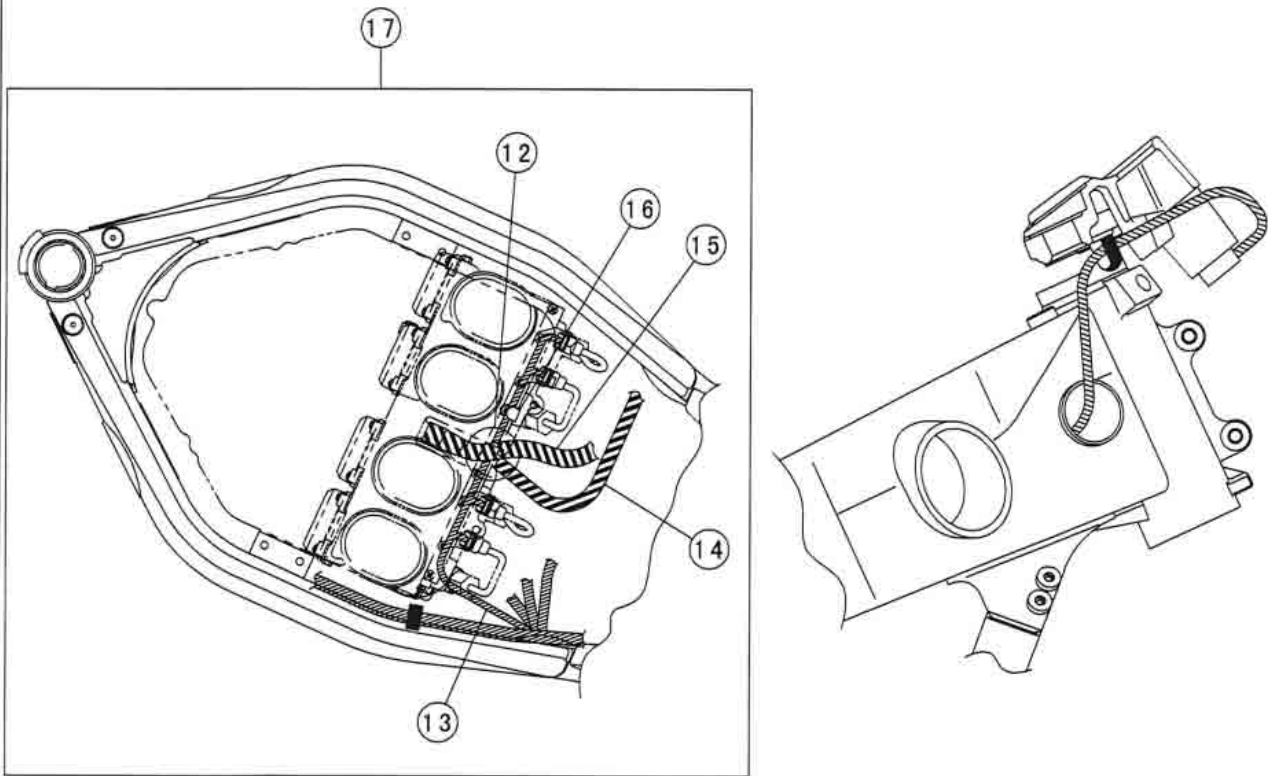
General Information



General Information

1. Throttle Cable
2. Clutch Cable (Run the clutch cable under side the frame)
3. Left Handlebar Switch Lead
4. Chock Cable
5. Run the outside the three way joint (United States, Canada and Australia Models).
6. Meter
7. Band
8. Right Turn Signal Light Lead
9. Headlight Lead
10. Left Turn Signal Light Lead
11. Clamp the headlight and turn signal light leads.
12. Horn (Other than United States, Canada and Australia Models)
13. Horn
14. Headlight Lead

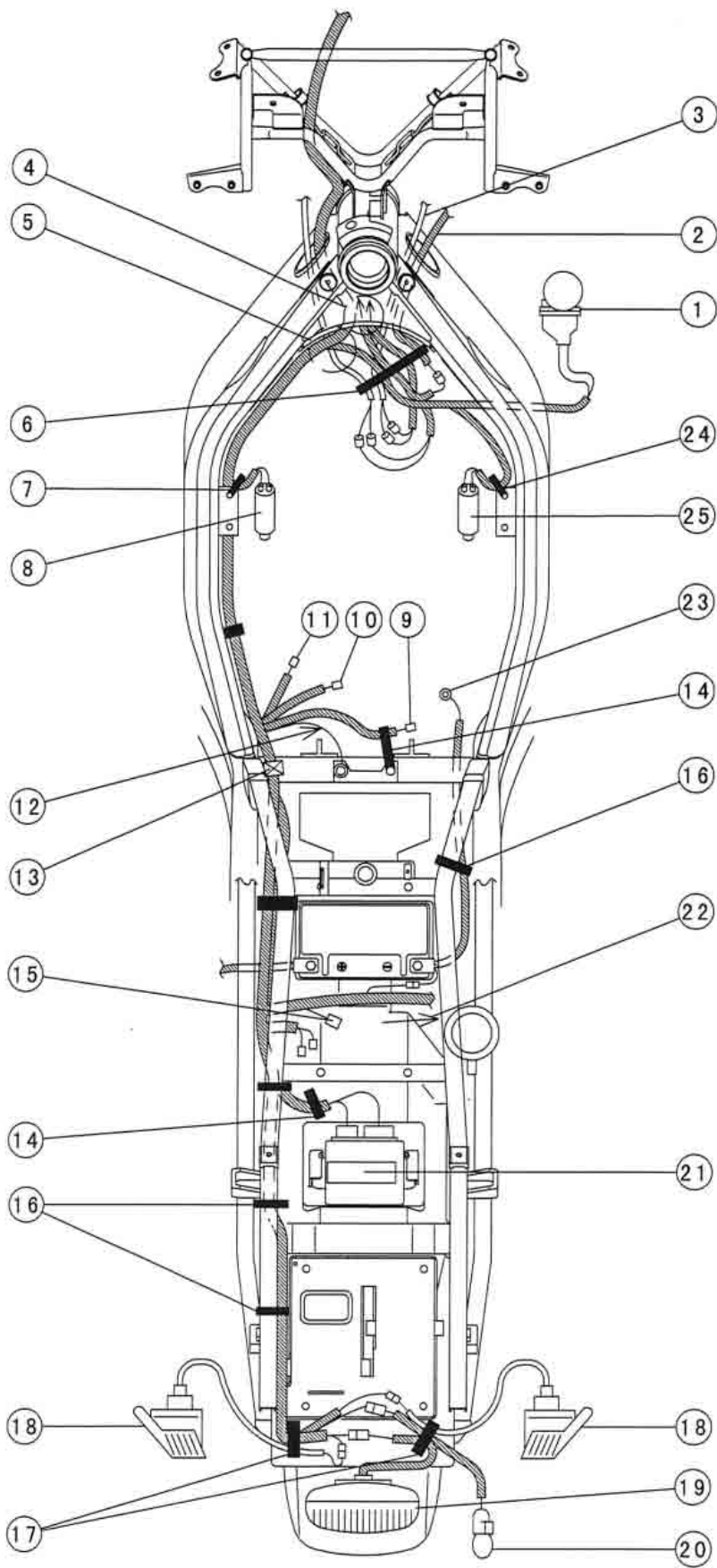
General Information



General Information

1. Run the fuel pump harness in the clamp.
2. Clamp
3. Brake Switch
4. Run the cooling tube in the clamp. (Pay attention not to be choked by clamp)
5. To Pickup Coil
6. To the Crankcase
7. Cooling Tube
8. Igniter
9. To the battery negative terminal
10. From leftside of Frame
11. Fuel Pump Relay
12. Run the fuel cut valve harness inside the blowby gas hose, and above the fuel hose.
13. Fuel Cut Valve Harness
14. Fuel Hose
15. Breather Gas Hose
16. Clamp of Carburetor
17. Other than United States, Canada and Australia Model

General Information



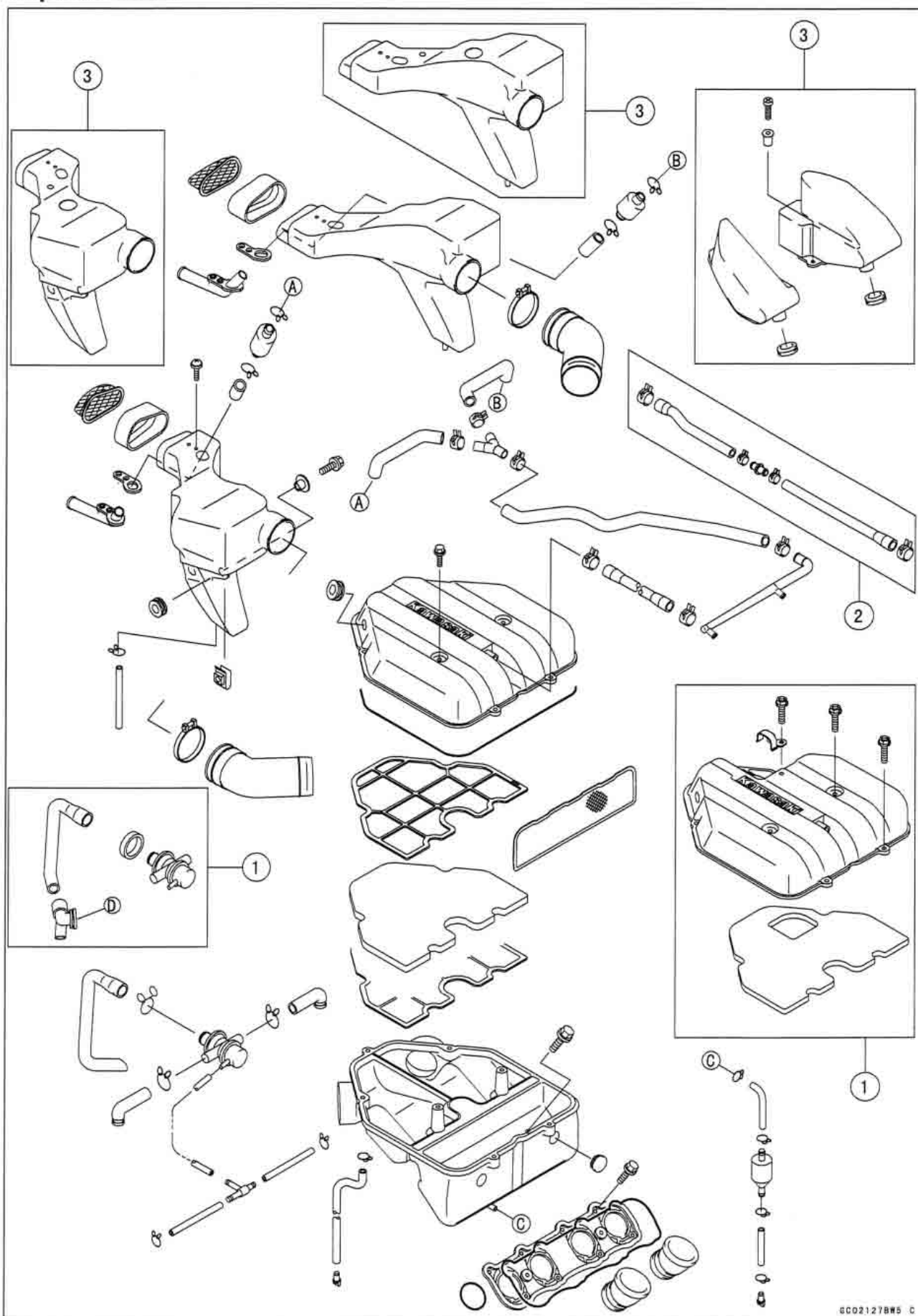
General Information

1. Coolant Temperature Sensor
2. Right Handlebar Switch Lead
3. Ignition Switch Lead
4. To Horn and Fan Motor
5. Run the harness underside of cables, and front side of air tube.
6. Clamp (Tighten the clamp together with the heat cover)
7. Clamp (Tighten the clamp together with the ignition coil bracket)
8. Ignition Coil (#1, #4)
9. Fuel Pump Lead
10. Fuel Level Gauge Lead
11. Alternator Lead
12. Ground Lead
13. White Tape (Over the cross pipe)
14. Clamp
15. Accessory Lead
16. Band
17. Clamp (Tighten the clamp together with the tail light bracket)
18. Turn Signal Light
19. Tail Light
20. License Plate Light
21. Junction Box
22. To Right Side
23. Tighten the terminal on the crank case with a bolt.
24. Tighten the clamp together with the ignition coil bracket.
25. Ignition Coil (#2, #3)

21-22 SUPPLEMENT - 2004 ~ 2005 MODELS

Fuel System

Exploded View

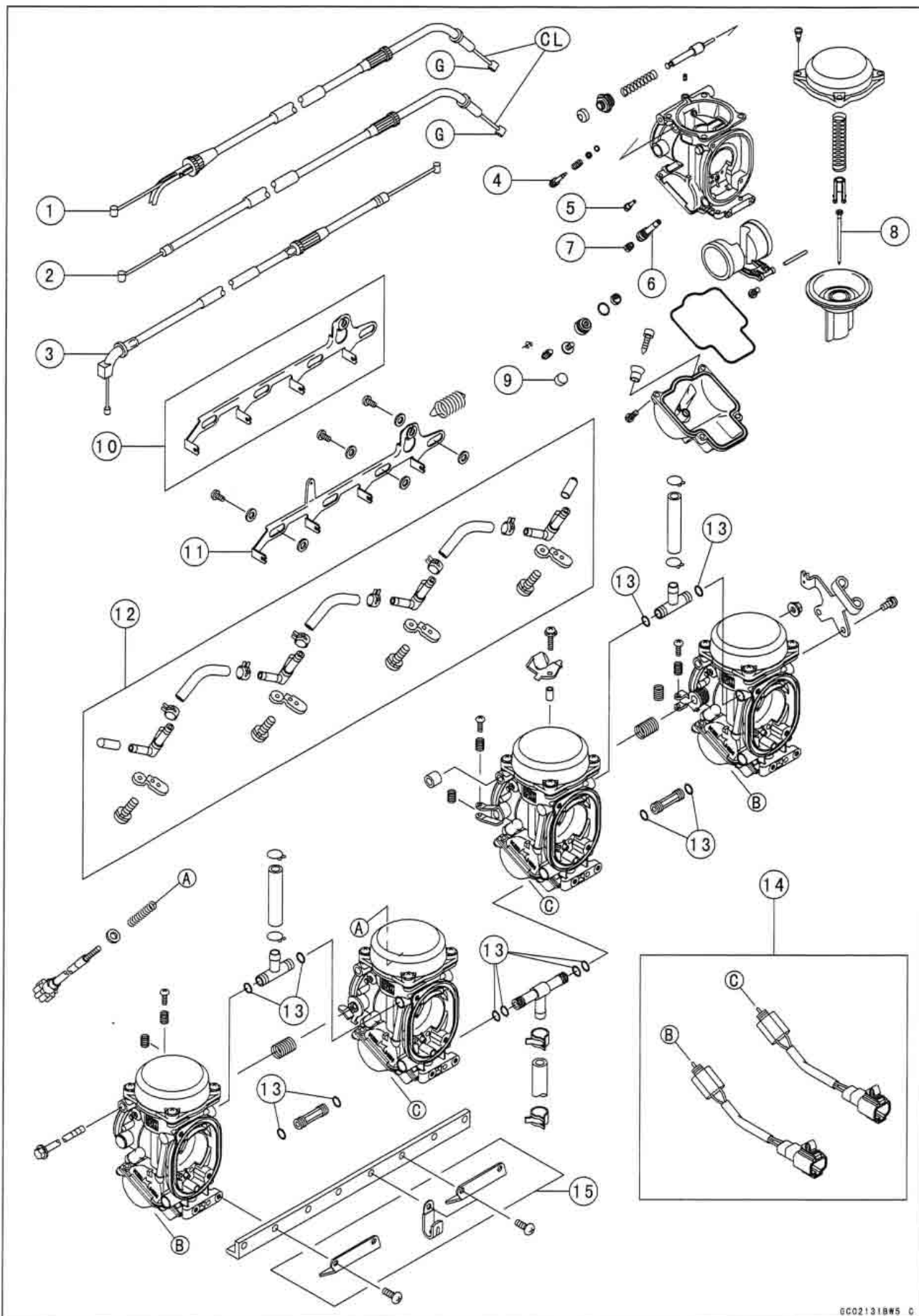


Fuel System

1. California Model
2. Other than United States Model
3. Other than United States and Canada Models

21-24 SUPPLEMENT - 2004 ~ 2005 MODELS

Fuel System

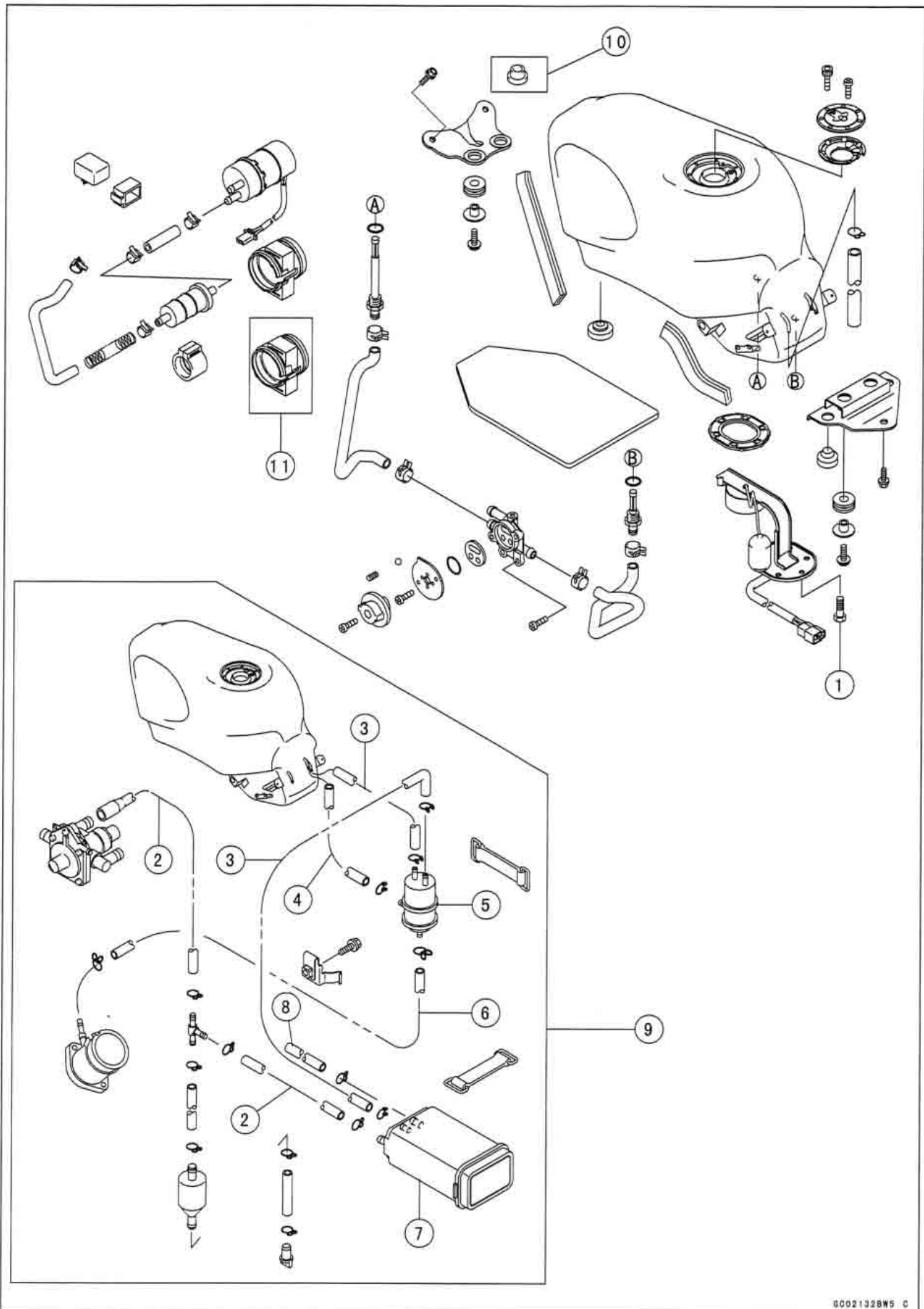


Fuel System

1. Throttle Cable (accelerator)
 2. Throttle Cable (decelerator)
 3. Choke Cable
 4. Pilot Screw
 5. Pilot (Slow) Jet
 6. Needle Jet Holder
 7. Main Jet
 8. Jet Needle
 9. Plug (United States and Canada Models)
 10. Starter Lever (Other than United States and Canada Models)
 11. Starter Lever (United States and Canada Models)
 12. Coolant hoses for the carburetors (Other than United States and Canada Models)
 13. O-ring (United States and Canada Models)
 14. Fuel Cut Valve (Other than United States, Canada and Australia Models)
 15. Bracket and Throttle Sensor Clamp (Other than United States, Canada and Australia Models)
- CL: Apply Cable lubricant.
- G: Apply grease.

21-26 SUPPLEMENT - 2004 ~ 2005 MODELS

Fuel System



Fuel System

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Fuel Pump Bolts	3.9	0.40	35 in·lb	

- 2. Yellow
- 3. Blue
- 4. Red
- 5. Separator
- 6. White
- 7. Canister
- 8. Green
- 9. Evaporative Emission Control System (California Model)
- 10. California Model
- 11. Canada Model

21-28 SUPPLEMENT - 2004 ~ 2005 MODELS

Fuel System

Specifications

Item	Standard
Throttle Grip and Cables	
Throttle grip free play	2 ~ 3 mm
Choke Cable	
Choke cable free play	2 ~ 3 mm
Carburetors	
Make, type	KEIHIN SEIKI CVK-D36
Idle speed	1 050 ±50 r/min (rpm) (US, CA) 1 300 ±50 r/min (rpm) (Other than US, CA and AU) 1 200 ±50 r/min (rpm) (AU)
Pilot screw (turns out)	1 1/2 (CA) 2 1/8 (Other than CA and AU) 1 3/4 (AU), (US) –
Synchronization	2.7 kPa (2 cmHg) or less difference between two cylinders (US, CA)
Service fuel level	3 ±1 mm below the mark
Float height	11 ±2 mm
Main jet	
#1, 4	#142, (US, CA) #135, (CAL) #140
#2, 3	#138, (US, CA) #135, (CAL) #140
Main air jet	#50
Needle jet	#6
Jet needle mark	NBAL, (US, CAL, CA) NIVC
Pilot jet (slow jet)	#35
Pilot air jet (slow air jet)	#105, (US, CA) #110, (CAL) #120
Starter jet	#52
Throttle valve angle	11°
High Altitude Carburetor Specifications (US)	
Pilot jet	#32 (92064-1117)
Main jet	#132 (92063-1076) (CAL) #138 (92063-1015)
Air Cleaner Element Oil	
Grade	SE,SF or SG class
Viscosity-	SAE30

(AU): Australia Model

(CA): Canada Model

(CAL): California Model

(US): United States Model

Engine Top End

Exhaust System

MANIFOLD	SILENCER	ITEM NAME	ORG PRODUCT
<div> Non-Catalyst </div> <div> P/No. 39178-1354 Mark : KHI M 086 </div>	<div> Non-Catalyst </div> <div> P/No. 18091-0079 (L) P/No. 18091-0080 (L) P/No. 18091-0081 (R) P/No. 18091-0082 (R) Mark: KHI K 473 </div>	Australia	ZX600-E12 ~
	<div> Non-Catalyst </div> <div> P/No. 18091-0185 (L) P/No. 18091-0186 (L) P/No. 18091-0187 (R) P/No. 18091-0188 (R) Mark: Non EPA Noise Emission Control Information </div>	United States California Canada	ZX600-E12 ZX600-E12 L ZX600-E12 ~
<div> Honeycomb Type Catalyst </div> <div> P/No. 39178-1353 Mark : KHI M 083 </div>	<div> Honeycomb Type Catalyst </div> <div> P/No. 18091-0083 (L) P/No. 18091-0084 (L) P/No. 18091-0085 (R) P/No. 18091-0086 (R) Mark: KHI K 474 EPA Noise Emission Control Information </div>	H Model Hu Model	ZX600-E12 H ~ ZX600-E12 H ~

GE02108B F

GB: United Kingdom

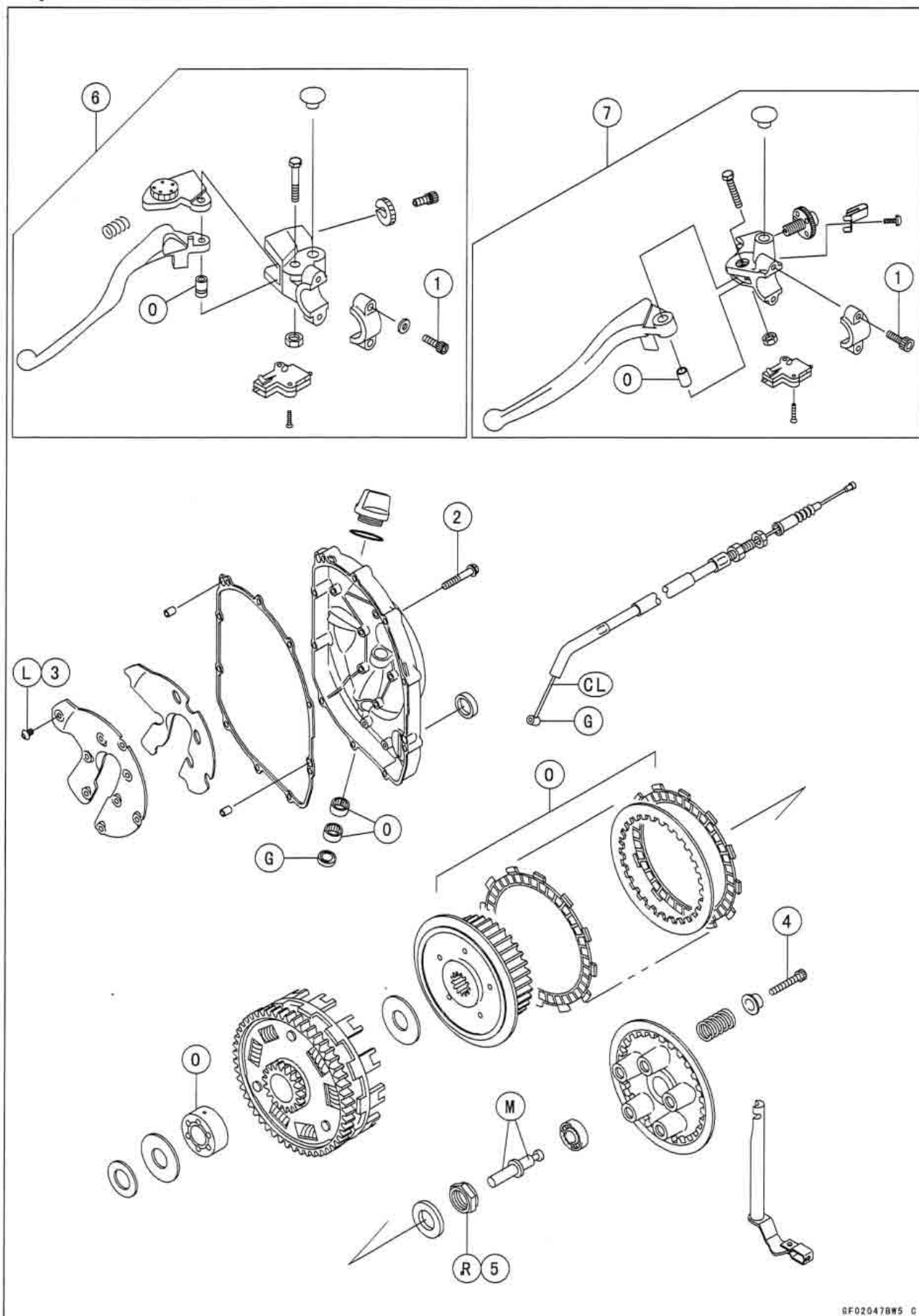
H: WVTA approve model with Honeycomb Catalytic Converter

Hu: WVTA approve model with Honeycomb Catalytic Converter (GB Model)

21-30 SUPPLEMENT - 2004 ~ 2005 MODELS

Clutch

Exploded View



Clutch

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Clutch Lever Clamp Bolts	7.8	0.80	69 in·lb	
2	Clutch Cover Mounting Bolts	12	1.2	8.5	
3	Clutch Cover Plate Bolts	5.9	0.60	52 in·lb	L
4	Clutch Spring Bolts	8.8	0.90	78 in·lb	
5	Clutch Hub Nut	130	13.5	98	R

6. United States Model

7. Other than United States Model

CL: Apply cable lubricant.

G: Apply grease.

L: Apply a non-permanent locking agent.

M: Apply molybdenum disulfide grease.

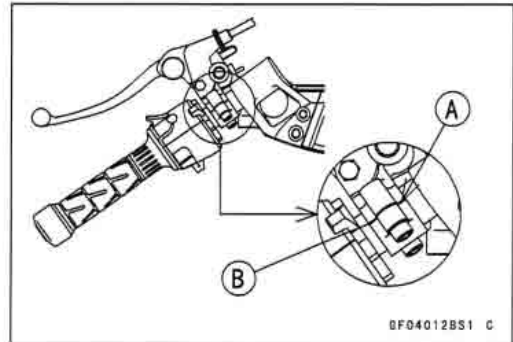
O: Apply Oil.

R: Replacement Parts

Clutch

Clutch Lever Installation

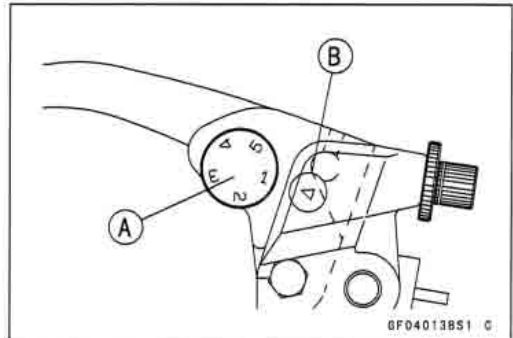
- Install the clutch lever so that the mating surface [A] of the clutch lever clamp is aligned with the punch mark [B].



Clutch Lever Position Adjustment (United States Model)

The adjuster has 5 positions so that the clutch lever position can be adjusted to suit the operator's hand.

- Push the lever forward and turn the adjuster [A] to align the number with the arrow mark [B] on the lever holder.
- The distance from the grip to the lever is minimum at number 5 and maximum at number 1.



Engine Lubrication System

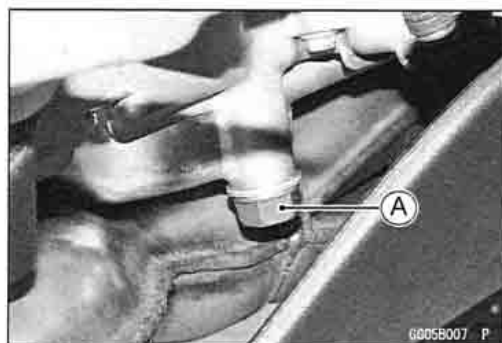
Specifications

Item	Standard
Engine Oil	
Type	API SE, SF or SG API SH or SJ with JASO MA
Viscosity	SAE10W-40
Capacity	2.8 L (when filter is not removed) 3.2 L (when filter is removed) 3.7 L (when engine is completely dry)

Engine Oil and Oil Filter

Engine Oil Change

- Situate the motorcycle so that it is vertical after warming up the engine.
 - Remove the engine drain plug [A] to drain the oil.
 - The oil in the oil filter can be drained by removing the filter.
 - ★ Replace the drain plug gasket with a new one if it is damaged.
 - Tighten the drain plug.
- Torque - Engine Drain Plug: 20 N·m (2.0 kgf·m, 14.5 ft·lb)**
- Pour in the specified type and amount of oil.

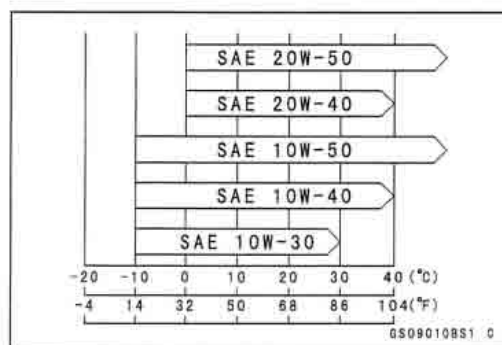


Engine Oil

- Type:** API SE, SF or SG
API SH or SJ with JASO MA
- Viscosity:** SAE10W-40
- Capacity:** 2.8 L (when filter is not removed)
3.2 L (when filter is removed)
3.7 L (when engine is completely dry)

NOTE

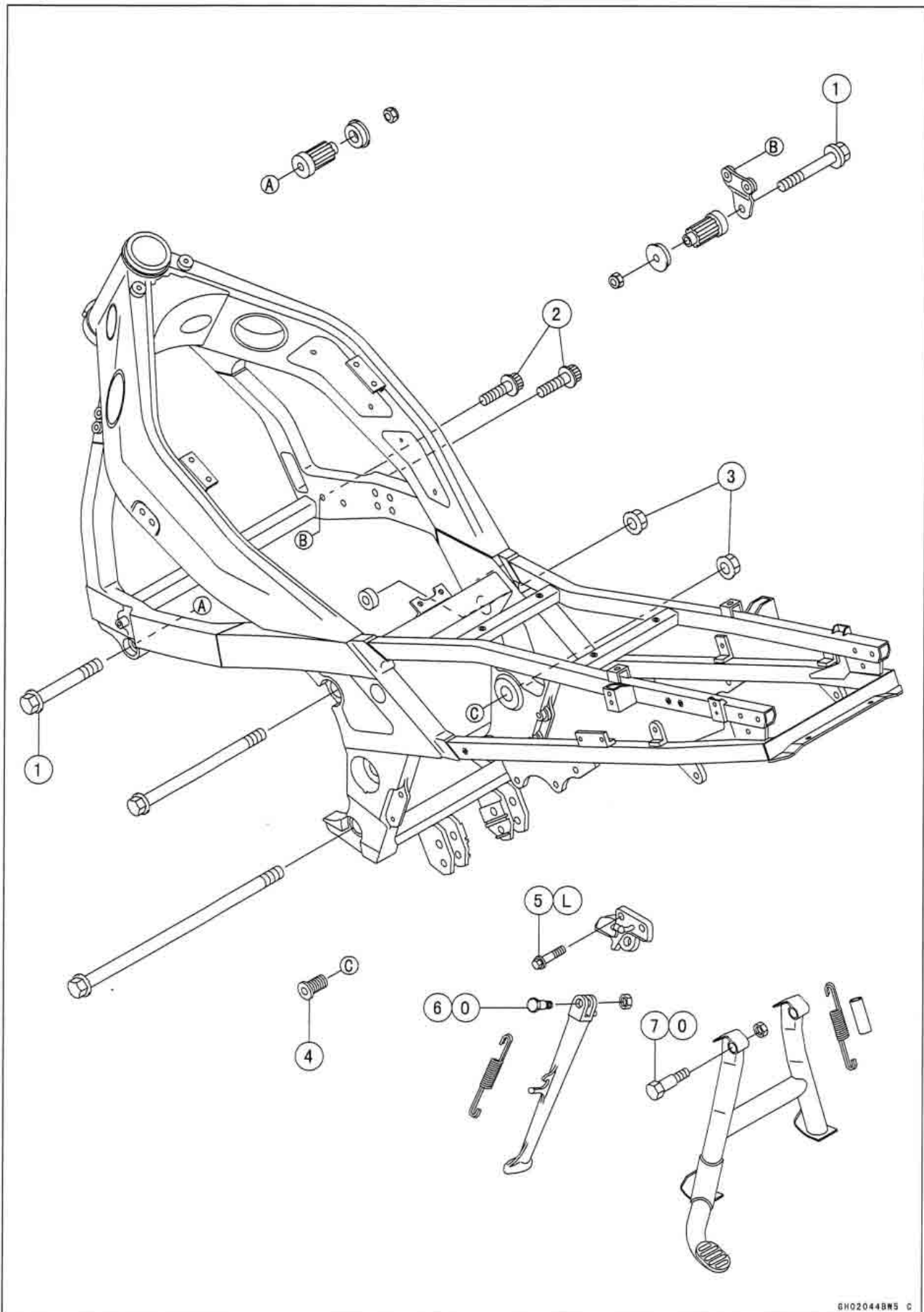
- Although 10W-40 engine oil is the recommended oil for most conditions, the oil viscosity may need to be changed to accommodate atmospheric conditions in your riding area.



21-34 SUPPLEMENT - 2004 ~ 2005 MODELS

Engine Removal/Installation

Exploded View



Engine Removal/Installation

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Engine Mounting Bolts	49	5.0	36	
2	Engine Bracket Mounting Bolts	25	2.5	18	
3	Engine Mounting Bolts and Nuts	49	5.0	36	
4	Adjusting Collar	10	1.0	89 in·lb	
5	Side Stand Bracket Bolts	49	5.0	36	L
6	Side Stand Bolt	44	4.5	32	O
7	Center Stand Bolt	44	4.5	32	O

L: Apply a non-permanent locking agent.

O: Apply oil.

Wheels/Tires

Wheels (Rims)

Rear Wheel Installation Note

NOTE

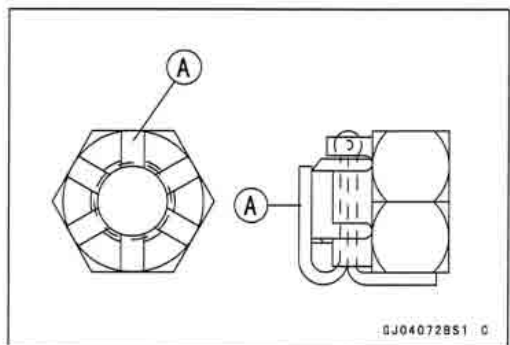
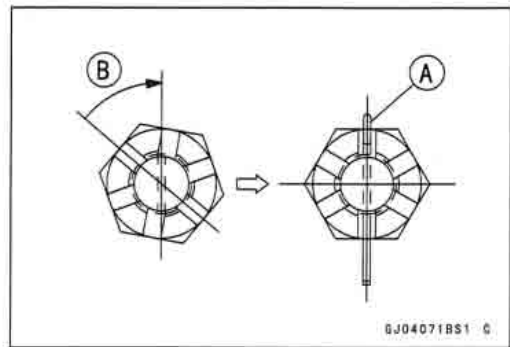
- Insert the axle from the right side of the wheel, and tighten the axle nut.

- Install a new cotter pin.

NOTE

- When inserting the cotter pin, if the slots in the nut do not align with the cotter pin hole in the axle, tighten the nut clockwise [B] up to next alignment.
- It should be within 30 degree.
- Loosen once and tighten again when the slot goes past the nearest hole.

- Bend the cotter pin [A] over the nut.



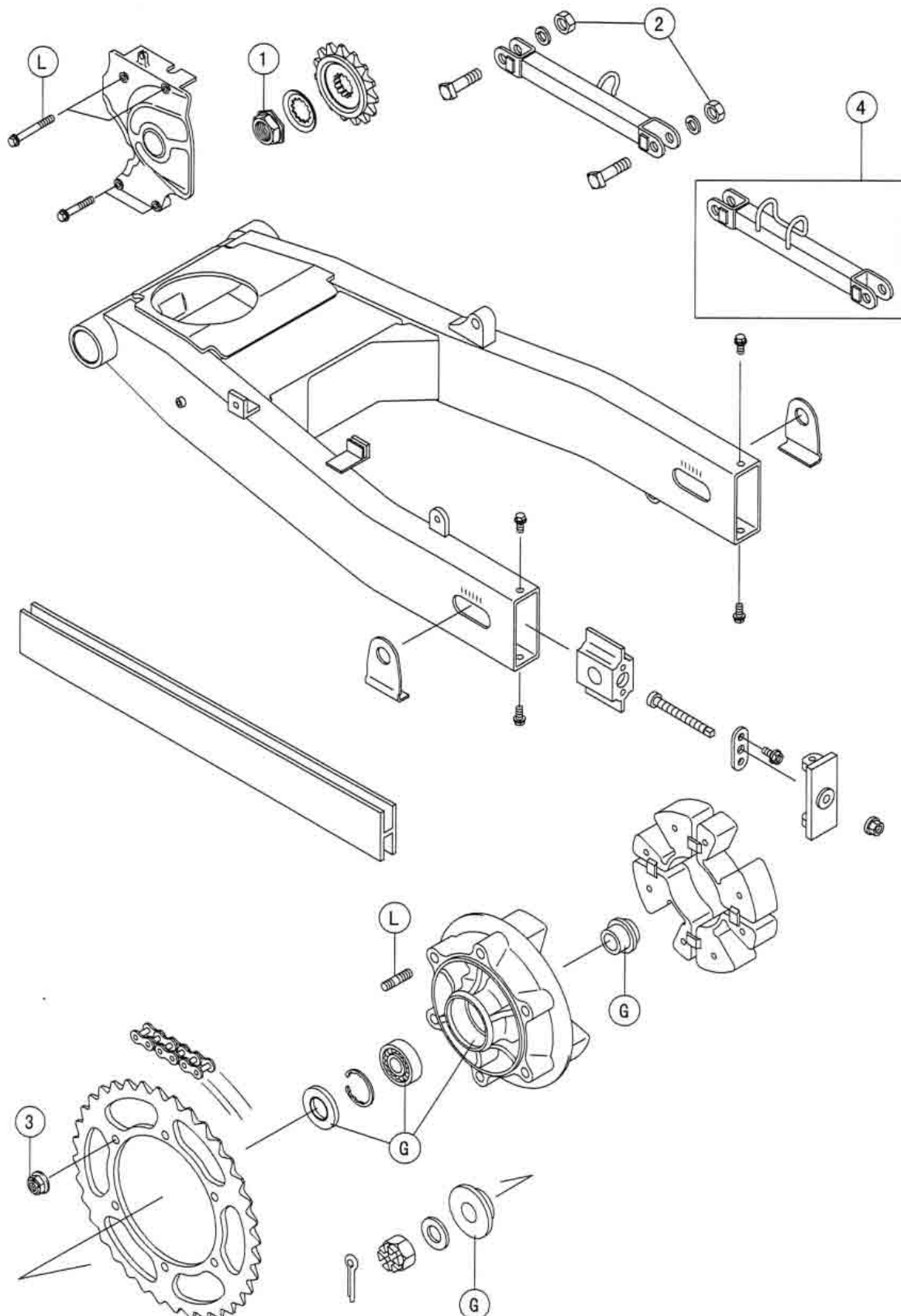
Wheels/Tires

Dummy Page

21-38 SUPPLEMENT - 2004 ~ 2005 MODELS

Final Drive

Exploded View



Final Drive

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Engine Sprocket Nut	125	13	94	
2	Torque Link Nut	34	3.5	25	
3	Rear Sprocket Nut	59	6.0	43	

4. Other than United States Model
 G: Apply grease.
 L: Apply a non-permanent locking agent.

21-40 SUPPLEMENT - 2004 ~ 2005 MODELS

Final Drive

Drive Chain

Drive Chain Replacement

CAUTION

For safety, if the drive chain shall be replaced, replace it using a recommended tool.

Recommended Tool - Type: EK JOINT Tool #50
Brand: ENUMA CHAIN

Body [A]
Handlebar [B]
Cutting and Rivetting Pin [C]
For Cutting [D]
For Rivetting [E]
Plate Holder (A) [F]
Plate Holder (B) [G]
Gauge [H]

Drive Chain Specifications

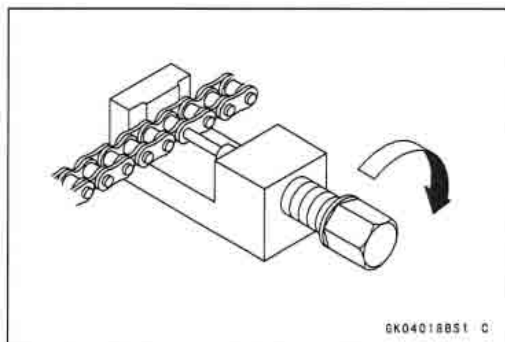
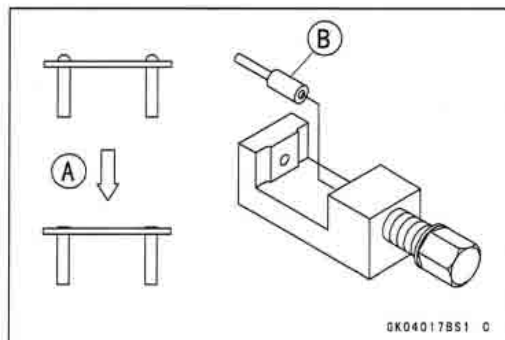
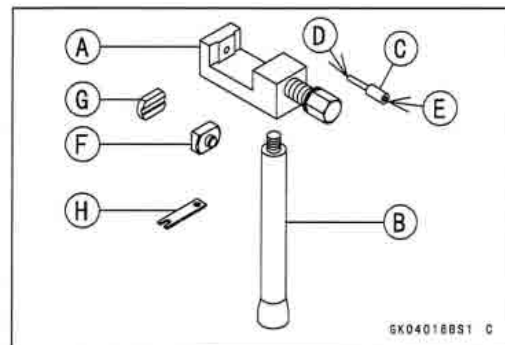
Type: EK50 MV-X

Link: 112 link (MLJ)

- Remove:
Chain Cover
Engine Sprocket Cover (see Engine Sprocket Removal)

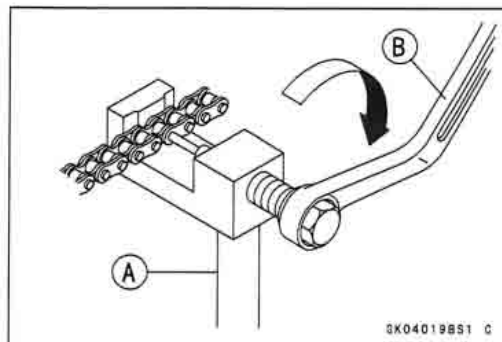
- Grind [A] the pin head to make it flat.
- Set the cutting and rivetting pin [B] as shown.

- Screw the pin holder until it touches the link pin.
- Be sure that the cutting pin hits center of the link pin.

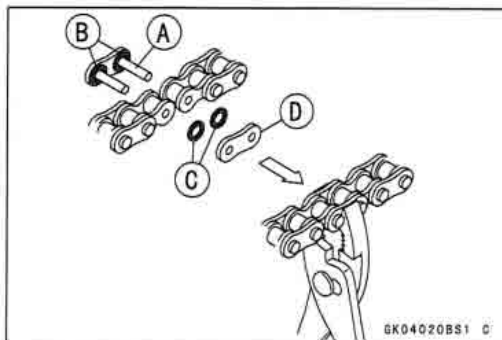


Final Drive

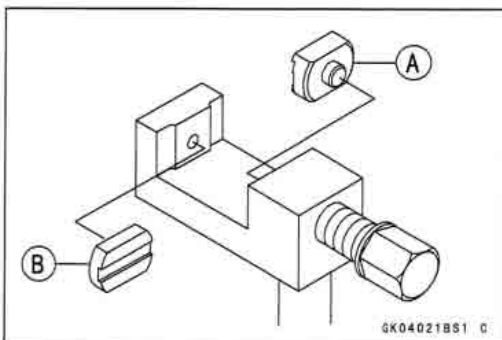
- Screw the handlebar [A] into the body.
- Turn the pin holder with the wrench [B] clockwise to extract the link pin.



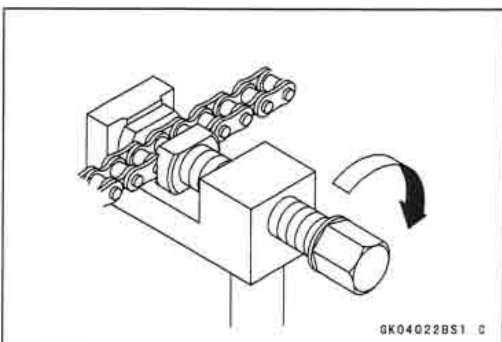
- Replace the link pin, link plate and grease seals.
- Apply grease to the link pins [A] and grease the seals [B] [C].
- Engage the drive chain on the engine and rear sprockets.
- Insert the link pins in the drive chain ends.
- Install the grease seals [C].
- Install the link plate [D] so that the mark faces out.
- Push the link plate by hand or plier to fix it.
- Be sure to set the grease seals correctly.



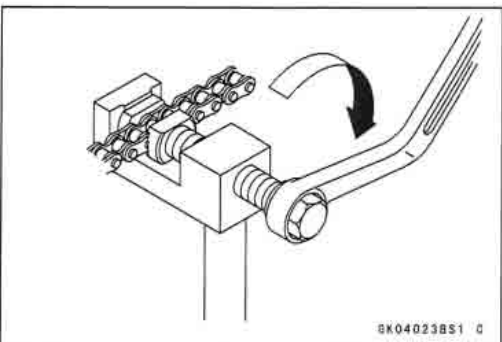
- Set the plate holder (A) [A] and plate holder (B) [B] on the body.



- Fit the plate holder (A) to the link plate.
- Turn the pin holder by hand until the plate holder (B) touches the other link plate.



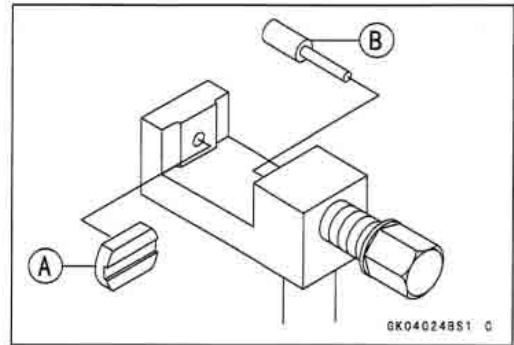
- Turn the pin holder by a wrench clockwise until two pins of link come into groove of the plate holder (A).
- Take off the plate holder.



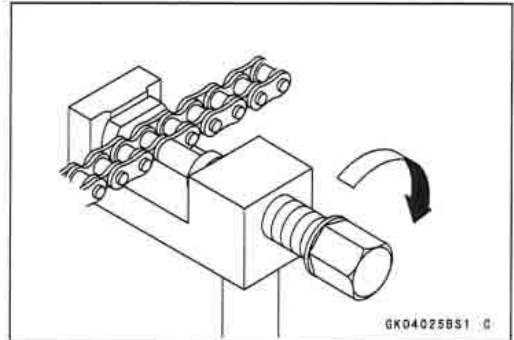
21-42 SUPPLEMENT - 2004 ~ 2005 MODELS

Final Drive

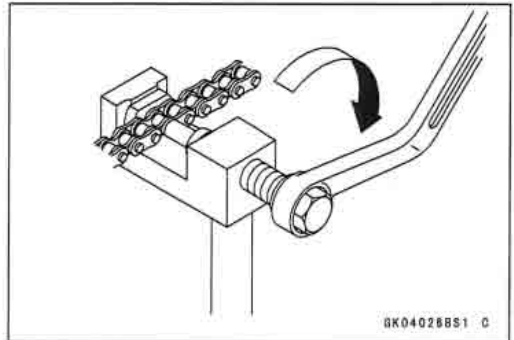
- Set the plate holder (B) [A] and the cutting and rivetting pin [B] as shown.



- Turn the pin holder until the rivetting pin touches the link pin.



- Turn the wrench clockwise until the tip of rivetting pin contact with the link pin.
- Rivet it.
- Repeat the same procedure for the other link pin.



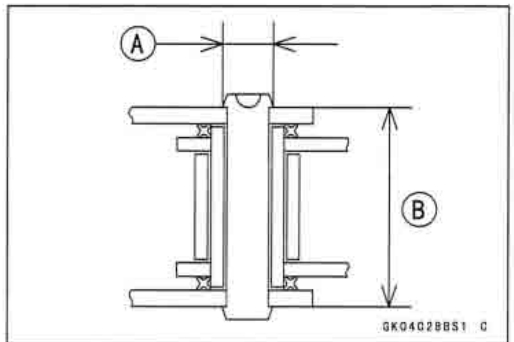
- After staking, check the staked area of the link pin for cracks.
- Measure the outside diameter [A] of the link pin and link plates width [B].

Link Pin Outside Diameter

Standard: 5.6 ~ 6.0 mm (0.22 ~ 0.24 in.)

Link Plates Outside Width

Standard: 21.45 ~ 21.60 mm (0.84 ~ 0.85 in.)



- ★ If the reading exceeds the specified length, cut and rejoin the chain again.
- Check:
 - Movement of the Rollers
- Adjust the drive chain slack after installing the chain.

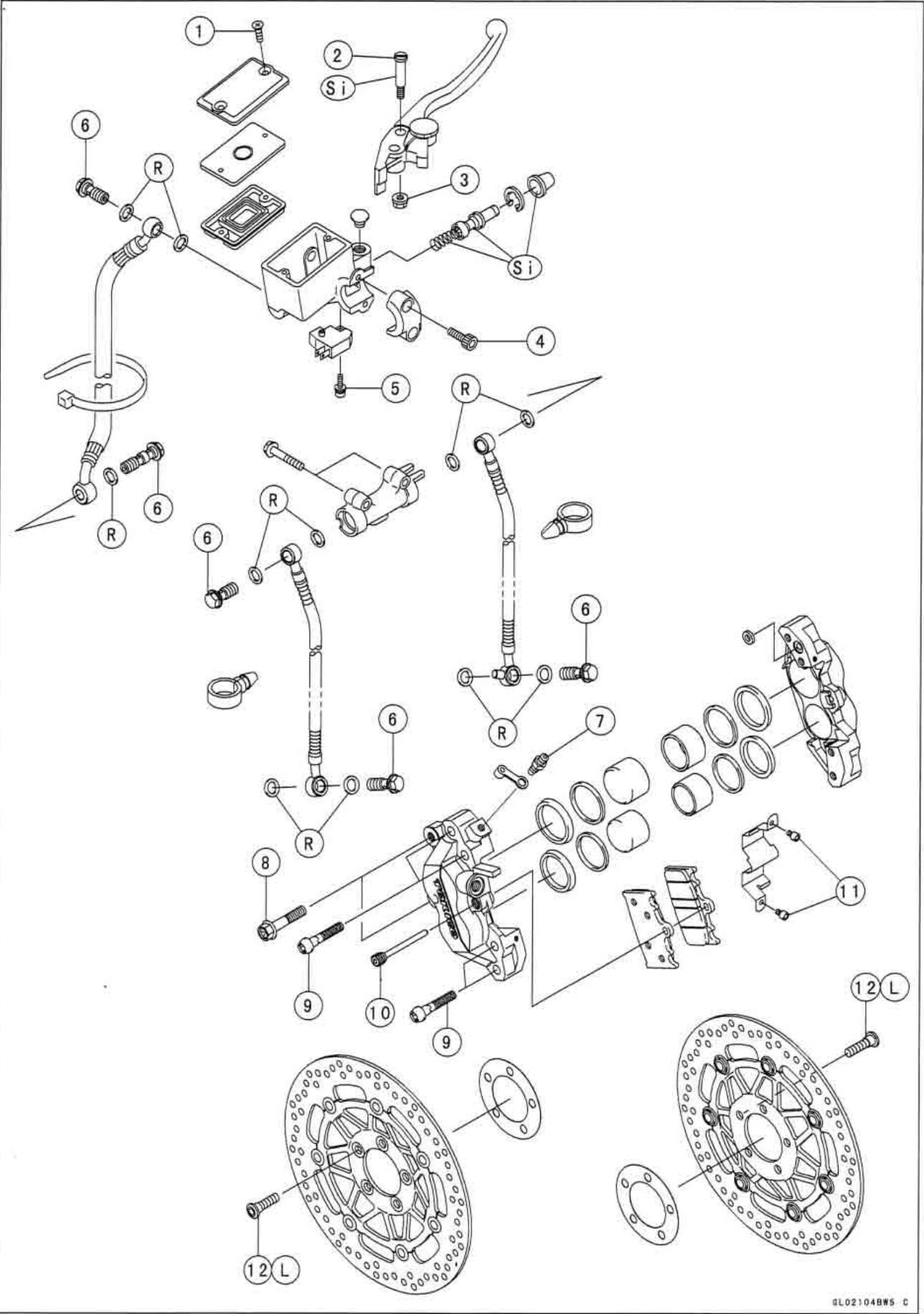
Final Drive

Dummy Page

21-44 SUPPLEMENT - 2004 ~ 2005 MODELS

Brakes

Exploded View (Other than United States Model)



Brakes

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Front Brake Reservoir Cap Screws	1.5	0.15	13 in·lb	
2	Brake Lever Pivot Bolt	1.0	0.10	9.0 in·lb	
3	Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in·lb	
4	Front Master Cylinder Clamp Bolts	8.8	0.9	78 in·lb	
5	Front Brake Light Switch Screw	1.0	0.10	9.0 in·lb	
6	Brake Hose Banjo Bolts	25	2.5	18	
7	Caliper Bleed Valves	7.8	0.80	69 in·lb	
8	Front Caliper Mounting Bolts	34	3.5	25	
9	Front Caliper Assembly Bolts	22	2.3	17	
10	Front Brake Pad Pins	15	1.5	11	
11	Front Brake Pad Spring Bolts	2.9	0.30	26 in·lb	
12	Front Brake Disc Bolts	27	2.8	20	L

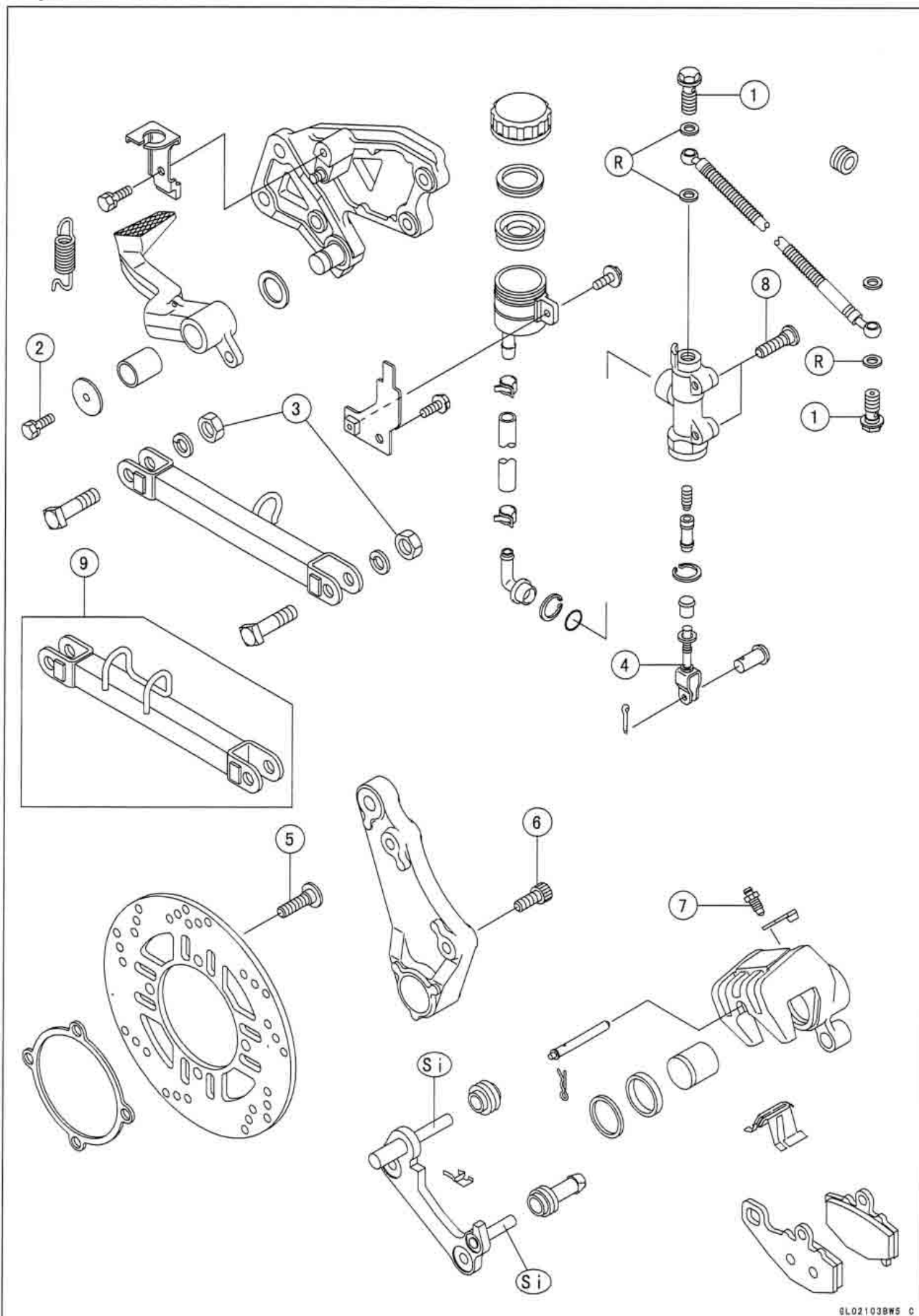
R: Replacement parts.

Si: Apply silicone grease.

21-46 SUPPLEMENT - 2004 ~ 2005 MODELS

Brakes

Exploded View



Brakes

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Brake Hose Banjo Bolt	25	2.5	18	
2	Brake Pedal Bolt	8.8	0.90	78 in·lb	
3	Torque Link Nuts	34	3.5	25	
4	Rear Master Cylinder Pushrod Locknut	18	1.8	13	
5	Rear Brake Disc Mounting Bolts	27	2.8	20	L
6	Rear Caliper Mounting Bolts	25	2.5	18	
7	Bleed Valve	7.8	0.80	69 in·lb	
8	Rear Master Cylinder Mounting Bolts	25	2.5	18	

9. Other than United States Model

R: Replacement Parts.

Si: Apply silicone grease.

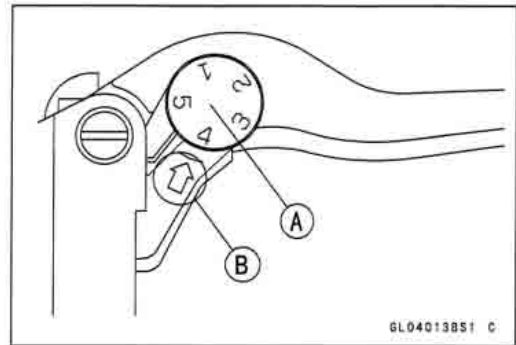
Brakes

Brake Pedal

Brake Lever Position Adjustment (Other than United States Model)

The brake lever adjuster has 5 positions so that the brake lever position can be adjusted to suit the operator's hand.

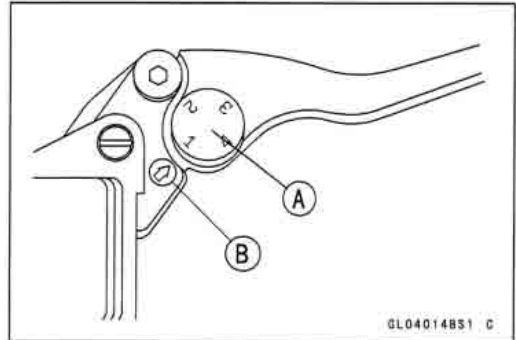
- Push the lever forward and turn the adjuster [A] to align the number with the arrow mark [B] on the lever holder.
- The distance from the grip to the lever is minimum at number 5 and maximum at number 1.



Brake Lever Position Adjustment (United States Model)

The brake lever adjuster has 4 positions so that the brake lever position can be adjusted to suit the operator's hand.

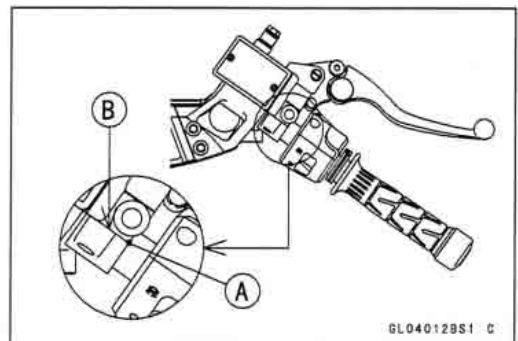
- Push the lever forward and turn the adjuster [A] to align the number with the arrow mark [B] on the lever holder.
- The distance from the grip to the lever is minimum at number 4 and maximum at number 1.



Master Cylinder

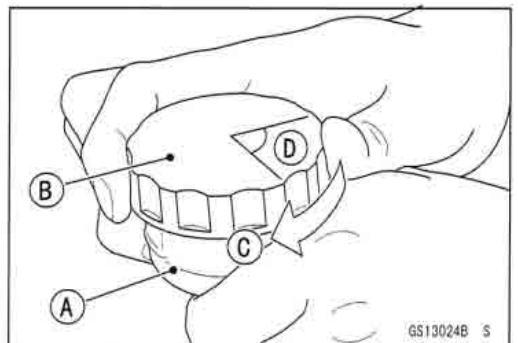
Front Master Cylinder Installation

- Install the front master cylinder so that the punch mark [A] of the handlebar is aligned with the mating surface [B] of the master cylinder clamp to level the reservoir.



Rear Brake Fluid Reservoir Cap Installation Note

- Follow the procedure shown below to install the rear brake fluid reservoir cap correctly.
- First, tighten the rear brake fluid reservoir cap [B] clockwise [C] by hand until slight resistance is felt indicating that the cap is seated on the reservoir body, then tighten the cap and additional 1/6 turn [D] while holding the brake fluid reservoir body [A].



Brakes

Dummy Page

Suspension

This exploded view diagram illustrates the assembly of a vehicle chassis. The main frame is shown at the bottom, with various mounting points and brackets. Above it, the suspension components are detailed, including a coil spring (1), shock absorber (2), control arms (3, 4), and a steering knuckle (5). The diagram uses numbered callouts (1-5) to identify specific parts and lettered labels (A, B, M) to indicate different views or configurations of the same part. The assembly is shown in a disassembled state to clearly show the relationship between the various components.

Suspension

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Rear Shock Absorber Mounting Nuts	59	6.0	43	
2	Rear Shock Absorber Preload Adjuster Nut	88	9.0	65	
3	Rocker Arm Nut	59	6.0	43	
4	Tie-rod Nuts	59	6.0	43	
5	Swingarm Pivot Shaft Nut	108	11	80	

M: Apply molybdenum disulfide grease.

21-52 SUPPLEMENT - 2004 ~ 2005 MODELS

Suspension

specifications

Item	Standard
Front Fork (per one unit)	
Fork Inner Tube Diameter	41 mm (1.6 in.)
Air Pressure	490 kPa (5.00 kgf/cm ² , 71.1 psi)
Rebound Damper Setting	2nd click from the first click of the fully clockwise position [Usable range: 1 ~ 4 clicks]
Fork Spring Preload Setting	Adjuster Protrusion is 16 mm (0.63 in.) [Usable range: 6 ~ 21 mm (0.24 ~ 0.83 in.)]
Fork Oil Viscosity	SHOWA SS-8 or equivalent
Fork Oil Capacity:	
Completely dry	477 ±4 mL (16.13 ±0.14 US oz)
When changing oil	405 mL (13.69 US oz)
Fork Oil Level from the top of the inner tube	112 ±2 mm (4.41 ±0.08 in.) (Fully compressed, without fork spring)
Fork Spring Free Length	412.3 mm (16.2 in.) [Service Limit: 404 mm (15.9 in.)]
Rear Shock Absorber	
Damping Setting	1 of 3 positions
Spring Preload Setting	260.8 mm (10.27 in.) [Usable range: 241.8 ~ 250.8 mm (9.52 ~ 10.27 in.)]

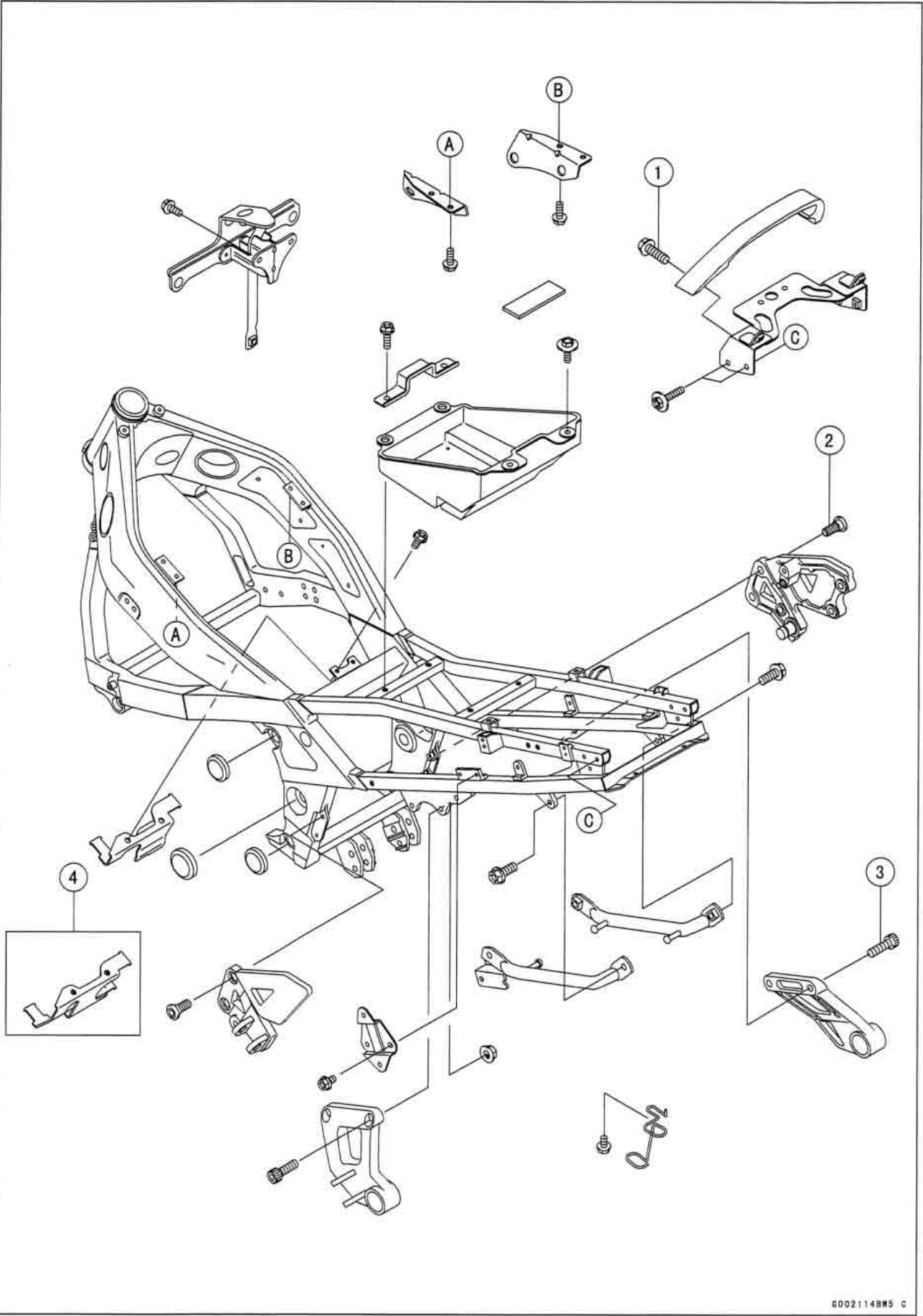
Suspension

Dummy Page

21-54 SUPPLEMENT - 2004 ~ 2005 MODELS

Frame

Exploded View



SUPPLEMENT - 2004 ~ 2005 MODELS 21-55**Frame**

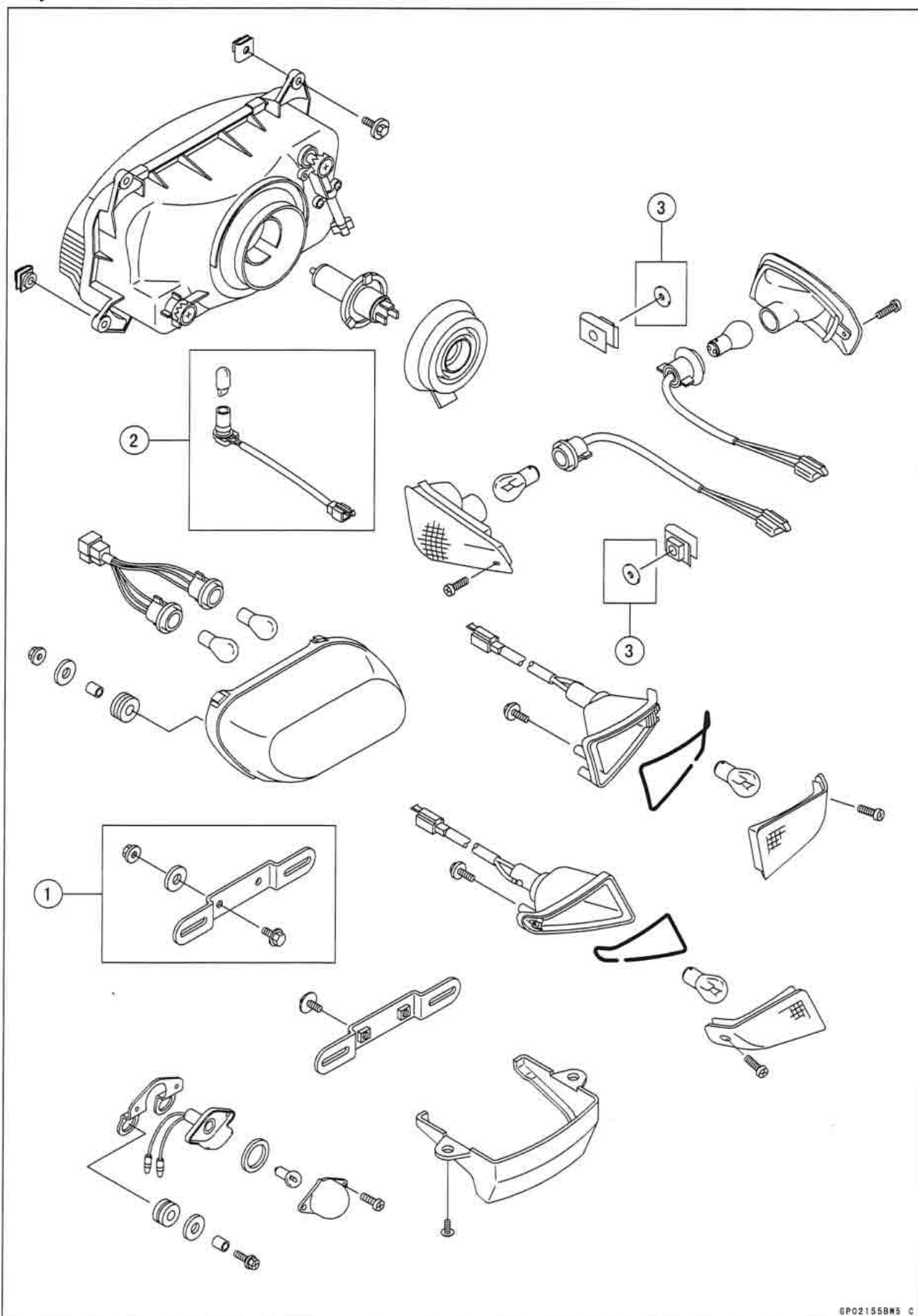
No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Tail Grip Bracket Mounting Bolt	25	2.5	18	
2	Front Footpeg Stay Bolts	25	2.5	18	
3	Rear Footpeg Stay Bolts	25	2.5	18	

4. Other than United States Model

21-56 SUPPLEMENT - 2004 ~ 2005 MODELS

Electrical System

Exploded View

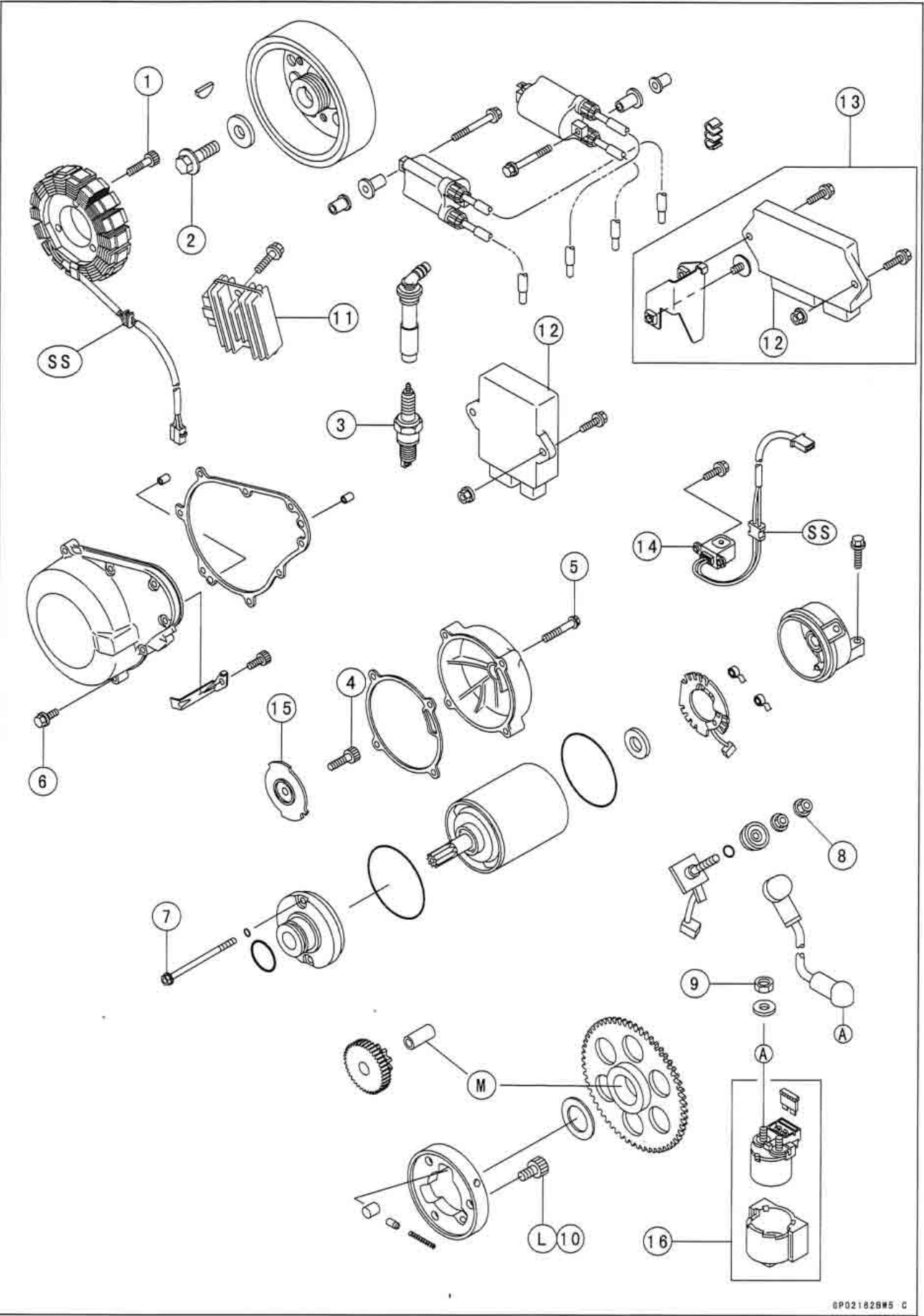


Electrical System

1. Other than United States and Canada Models
2. Other than United States, Canada and Australia Models
3. United States Model

21-58 SUPPLEMENT - 2004 ~ 2005 MODELS

Electrical System



Electrical System

No.	Fastener	Torque			Remarks
		N·m	kgf·m	ft·lb	
1	Stator Coil Bolts	12	1.2	104 in·lb	
2	Alternator Rotor Bolt	78	8.0	58	
3	Spark Plugs	14	1.4	10	
4	Timing Rotor Allen Bolt	25	2.5	18	
5	Pickup Coil Cover Bolts	12	1.2	104 in·lb	
6	Alternator Cover Bolts	12	1.2	104 in·lb	
7	Starter Motor Through Bolts	5.9	0.60	52 in·lb	
8	Starter Motor terminal Nut	4.9	0.50	43 in·lb	
9	Starter Relay Terminal Nut	4.9	0.50	43 in·lb	
10	Starter Clutch Bolts	34	3.5	25	L

11. Regulator/Rectifier

12. IC Igniter

13. Other than United States, Canada and Australia Models

14. Pickup Coil

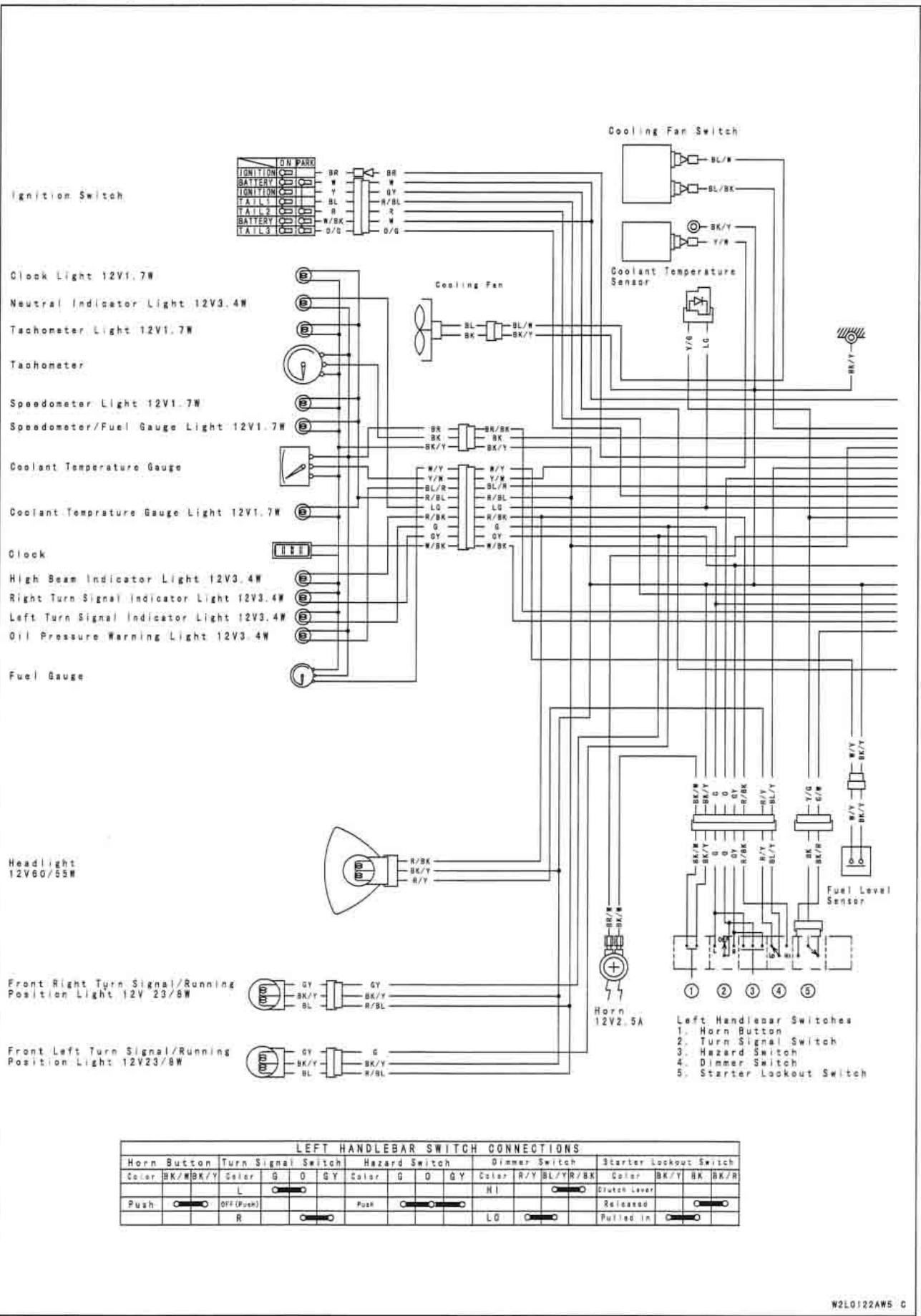
15. Timing Rotor

16. Starter Relay

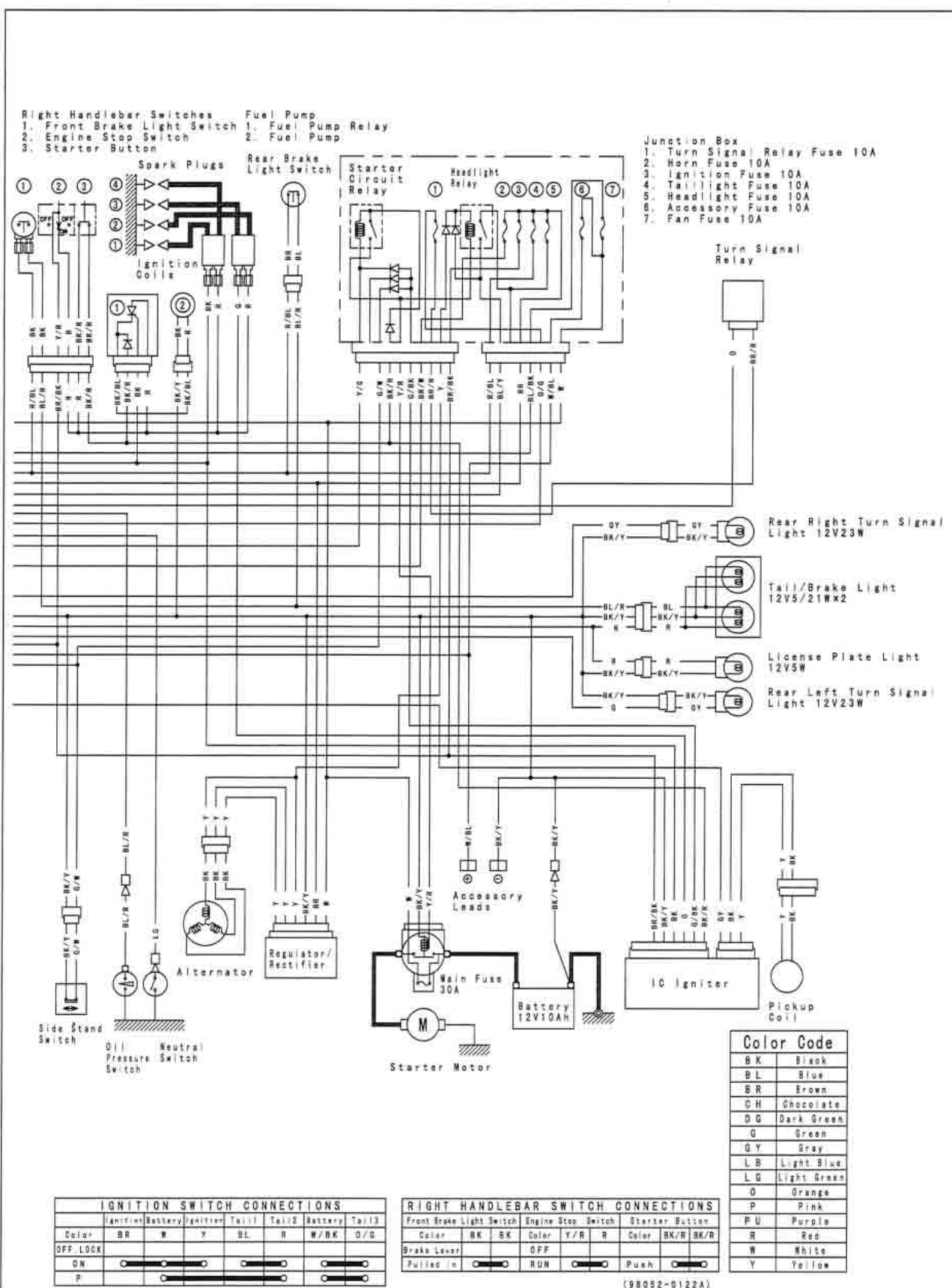
21-60 SUPPLEMENT - 2004 ~ 2005 MODELS

Electrical System

Wiring Diagram (Canada)



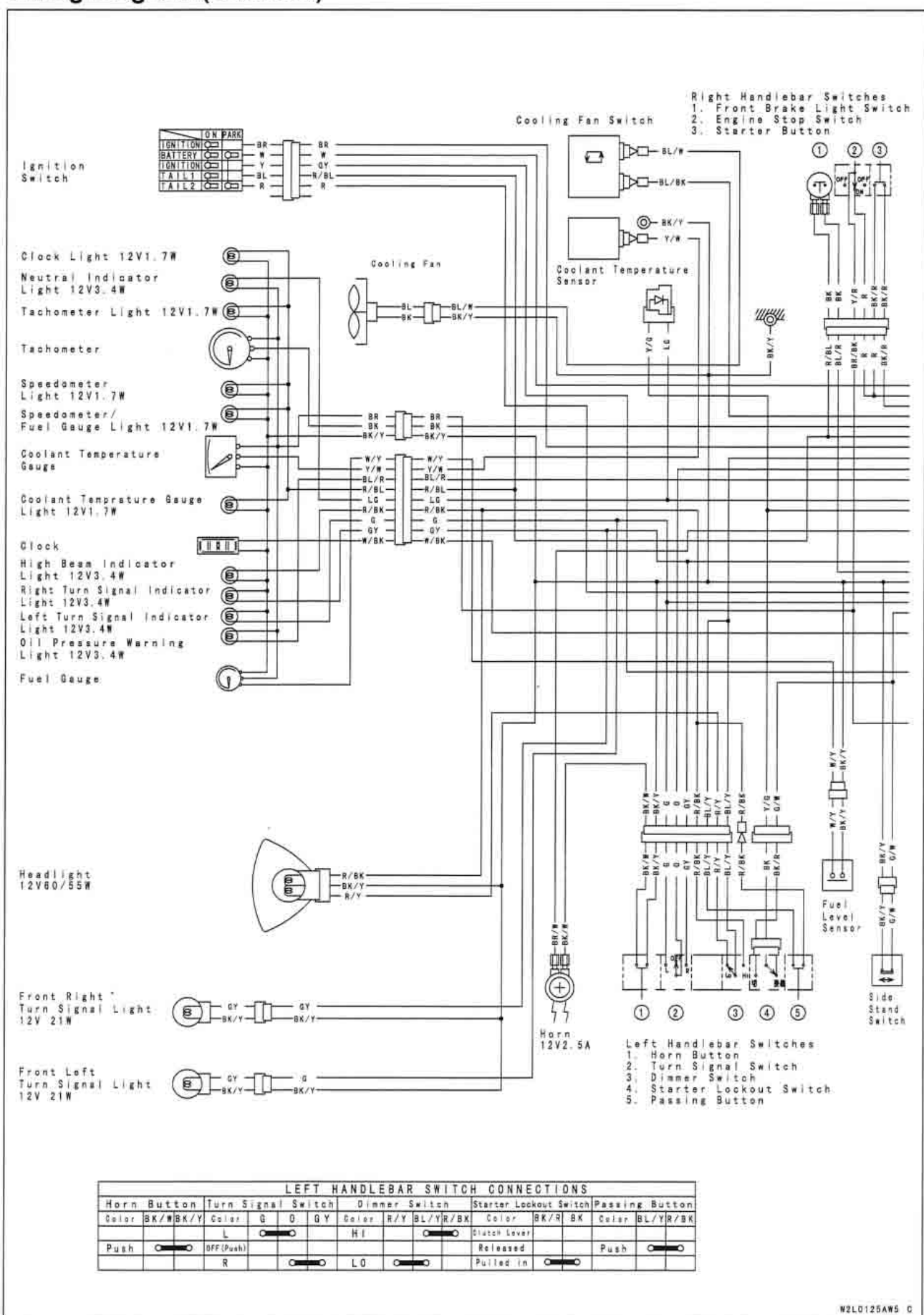
Electrical System



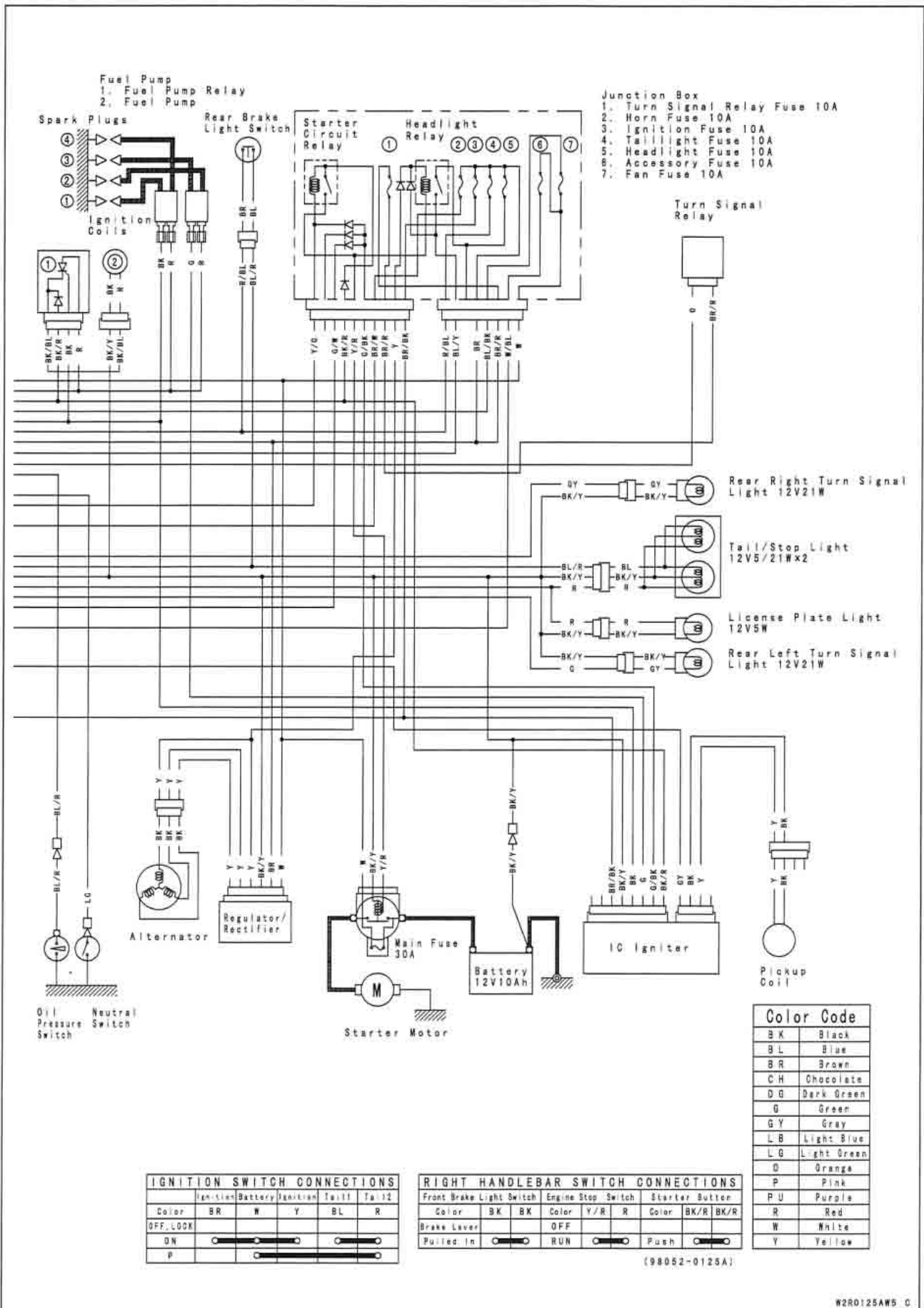
21-62 SUPPLEMENT - 2004 ~ 2005 MODELS

Electrical System

Wiring Diagram (Australia)



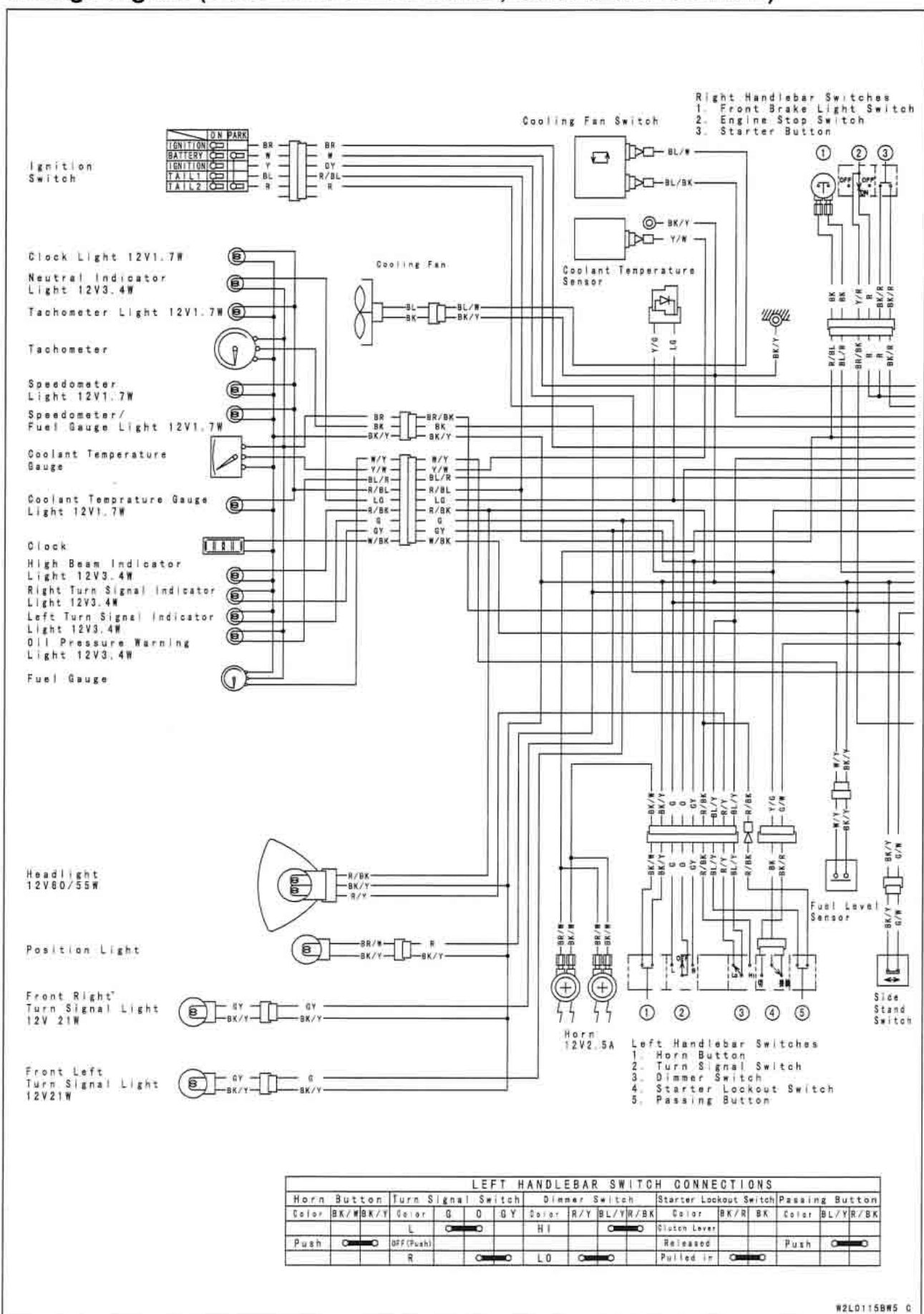
Electrical System



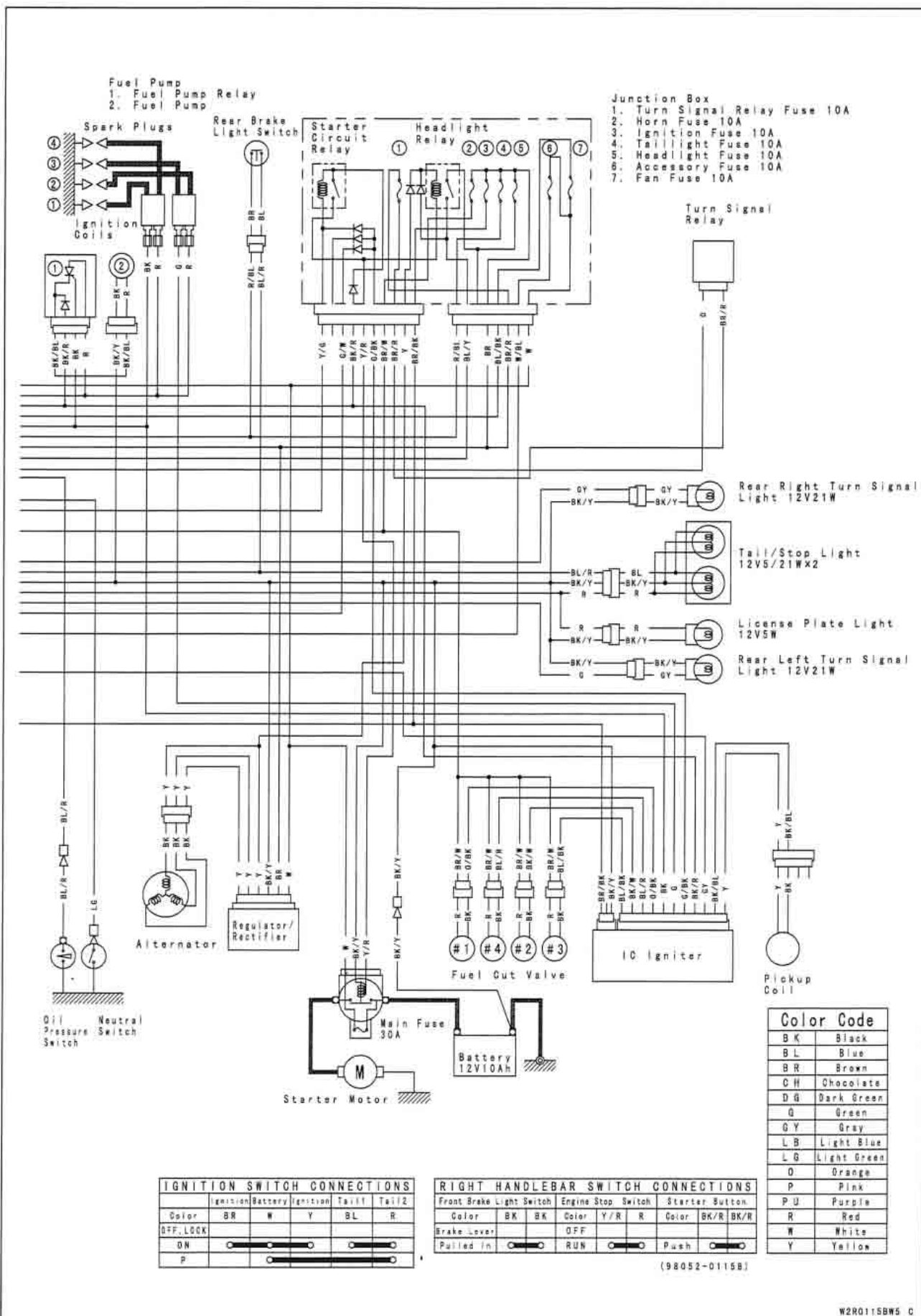
21-64 SUPPLEMENT - 2004 ~ 2005 MODELS

Electrical System

Wiring Diagram (Other than United States, Canada and Australia)



Electrical System



21-66 SUPPLEMENT - 2004 ~ 2005 MODELS

Electrical System

Specifications

Item	Standard
Fuel Cut Valve Fuel cut valve protrusion	When battery is disconnected: 16.6 mm (0.65 in.) When battery is connected: 18.6 ~ 19.1 mm (0.73 ~ 0.75 in.)

Electrical System

Ignition System

IC Igniter Inspection

CAUTION

When inspecting the IC igniter, observe the following to avoid damage to the IC igniter.

Do not disconnect the IC igniter with the ignition switch on. This may damage the IC igniter.

Do not disconnect the battery leads while the engine is running. This may damage the IC igniter.

- Remove the seats (see Frame chapter).
- Remove the seat cover (see Frame chapter).
- Disconnect the IC igniter connector.
- Set the Hand Tester to the $\times 25$ V DC range, and connect it to the connector come from harness side as follows.

Tester (+) terminal \rightarrow BR/BK lead

Tester (-) terminal \rightarrow BK/Y lead

Special Tool - Hand Tester: 57001-1394

- Turn the ignition switch on , and read the voltage.

IC Igniter Operation Voltage: Battery Voltage

- ★ If the tester reading is not specified one, check the battery voltage, ignition switch and ignition fuse.

Fuel Cut Valve Operation Check (Other than Untied States, Canada and Australia Models)

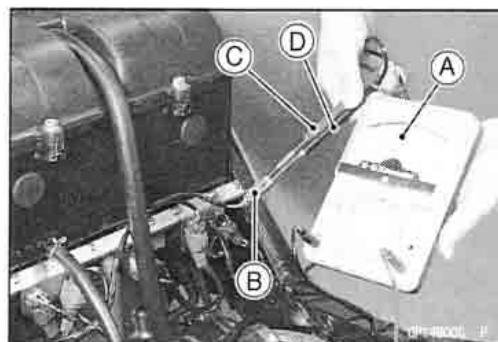
- Be sure the battery is fully charged.
- Remove the fuel tank (see Fuel System chapter).
- Disconnect #1 or #4 the connector.
- Set the Hand Tester [A] to the $\times 25$ V DC range, and connect it to the each fuel cut valve connector [B] as follows.

Hand Tester (+) Terminal [C] \rightarrow BR/W Lead

Hand Tester (-) Terminal [D] \rightarrow O/BK or BL/R or BK/W or BL/BK Lead

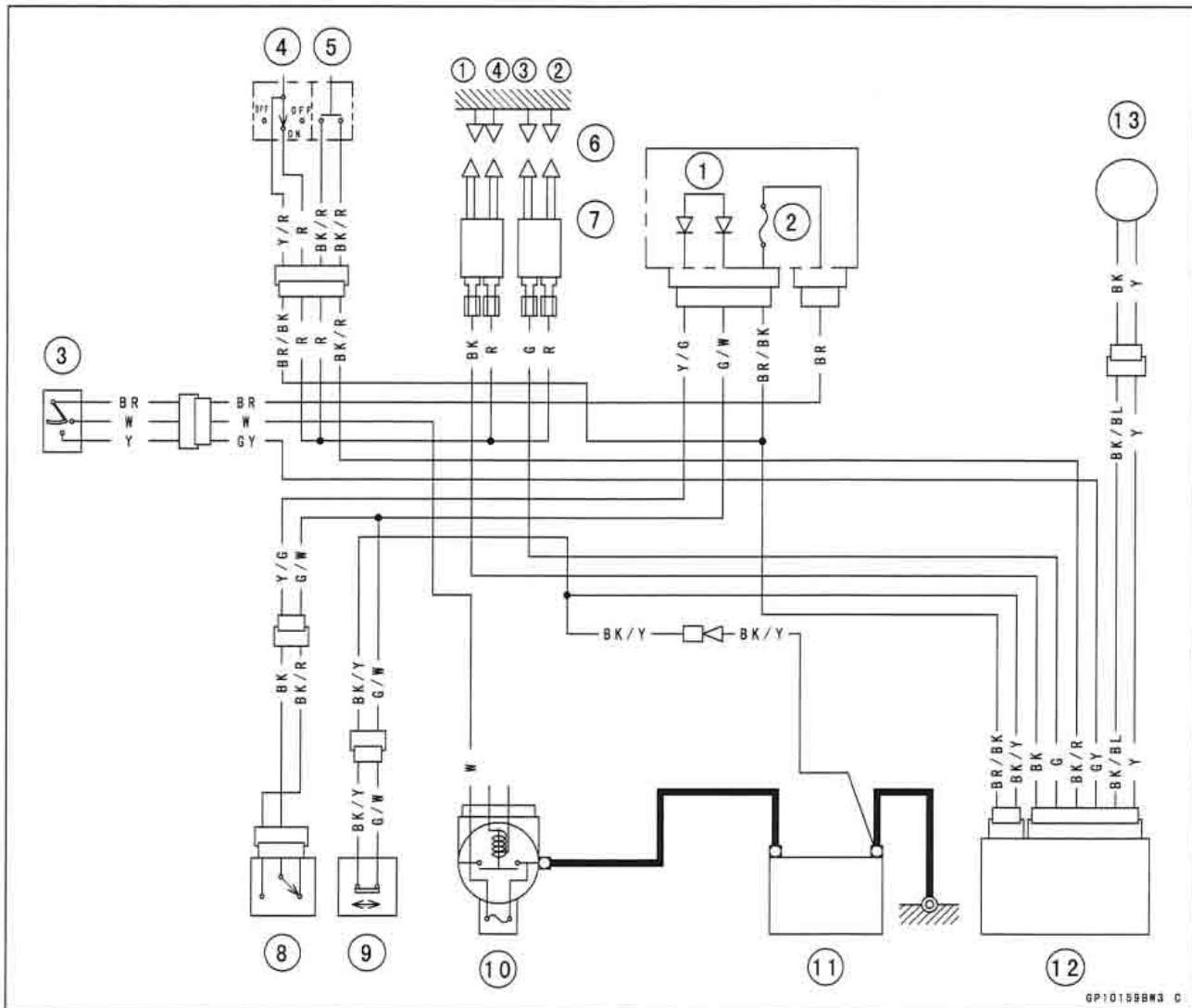
Special Tool - Hand Tester: 57001-1394

- Turn the ignition switch on, and push the starter button.
- Read the voltage on the tester.
- ★ If the tester shows the approximately fully charged battery voltage 0.5 seconds, the fuel cut valve operation is satisfactory condition. If the voltage is not read and there is no problem in the wiring diagram, replace the IC igniter.



Electrical System

Ignition System Circuit

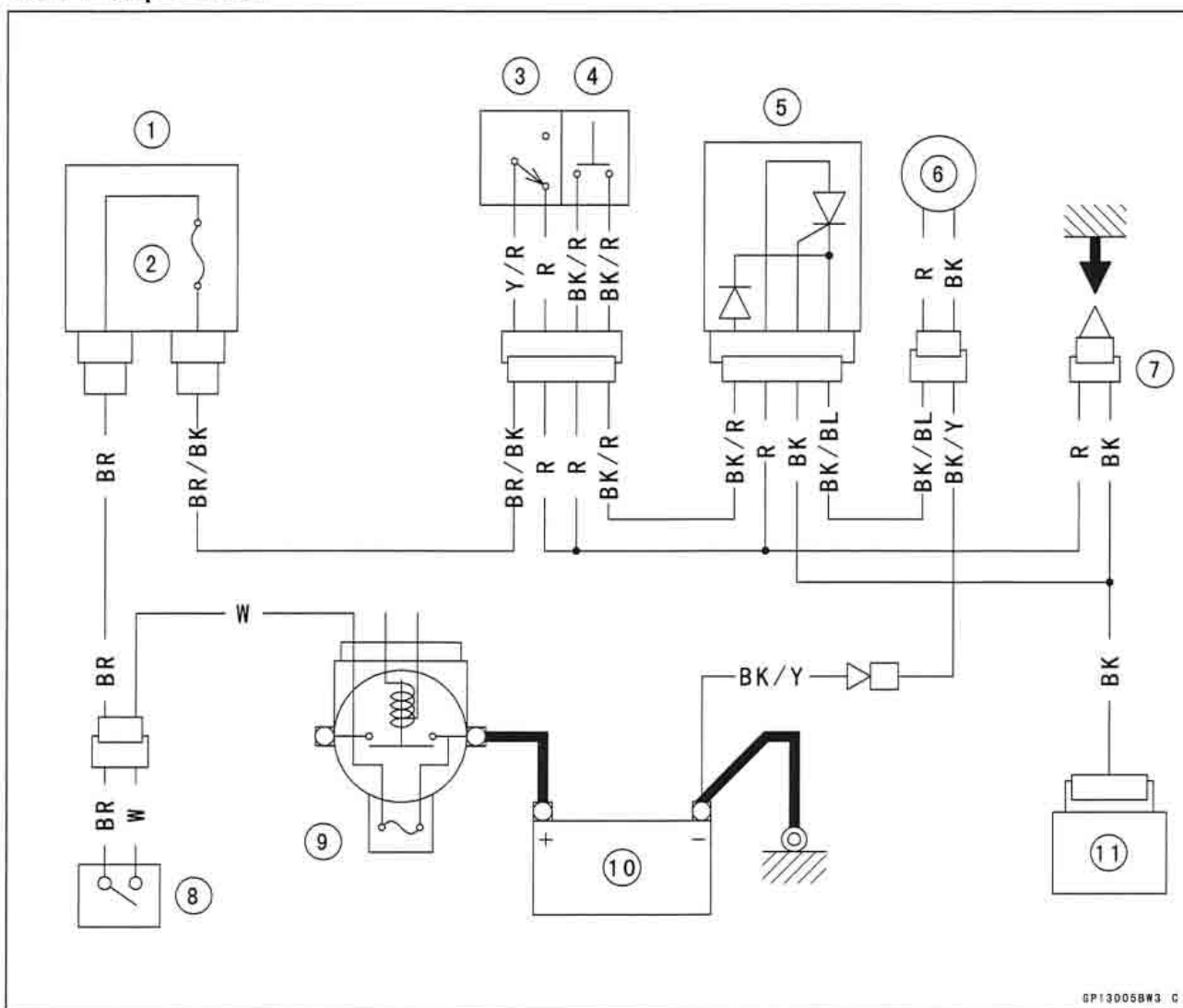


GP10158BW3 C

1. Junction Box
2. Ignition Fuse 10 A
3. Ignition Switch
4. Engine Stop Switch
5. Starter Button
6. Spark Plugs
7. Ignition Coils
8. Starter Lockout Switch
9. Side Stand Switch
10. Main Fuse 30 A
11. Battery
12. IC Igniter
13. Pickup Coil

Electrical System

Fuel Pump Circuit



1. Junction Box
2. Ignition Fuse 10 A
3. Engine Stop Switch
4. Starter Button
5. Fuel Pump Relay
6. Fuel Pump
7. Ignition Coil
8. Ignition Switch
9. Main Fuse 30 A
10. Battery
11. IC Igniter

Electrical System

Fuel Cut Valve (Other than United States, Canada and Australia Model)

Fuel Cut Valve Removal

⚠ 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.

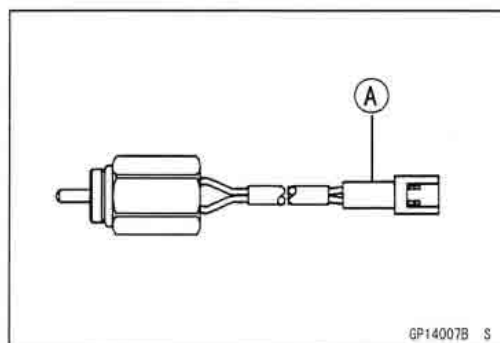
- Remove the fuel tank (see Fuel System chapter).
- Connect a suitable hose to the fitting at the bottom of each carburetor float bowl.
- Run the lower ends of the hoses into a suitable container.
- Turn out each drain plug a few turns and drain the float bowls.

**Special Tool - Carburetor Drain Plug Wrench, Hex 3:
57001-1269**

- Disconnect the connector of the fuel cut valves.
- Loosen the fuel cut valves and remove them.

Fuel Cut Valve Installation

- Install the fuel cut valves with a gray connector [A] on the #1, #4 carburetors.
- Install the fuel cut valves with a brown connector [A] on the #2, #3 carburetors.
- Do not install the fuel cut valves on the wrong carburetors. The fuel cut valves will not work well.

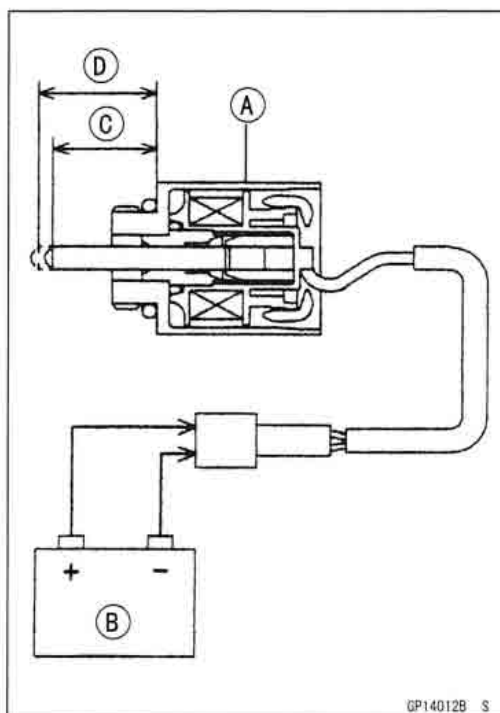


Fuel Cut Valve Inspection

- Remove the fuel cut valve [A].
- Connect and disconnect one 12 V battery [B] to the fuel cut valve connector as shown. The valve rod moves.
- ★ If the protrusion exceeds the standard (too long or too short), the valve is defective and must be replaced.

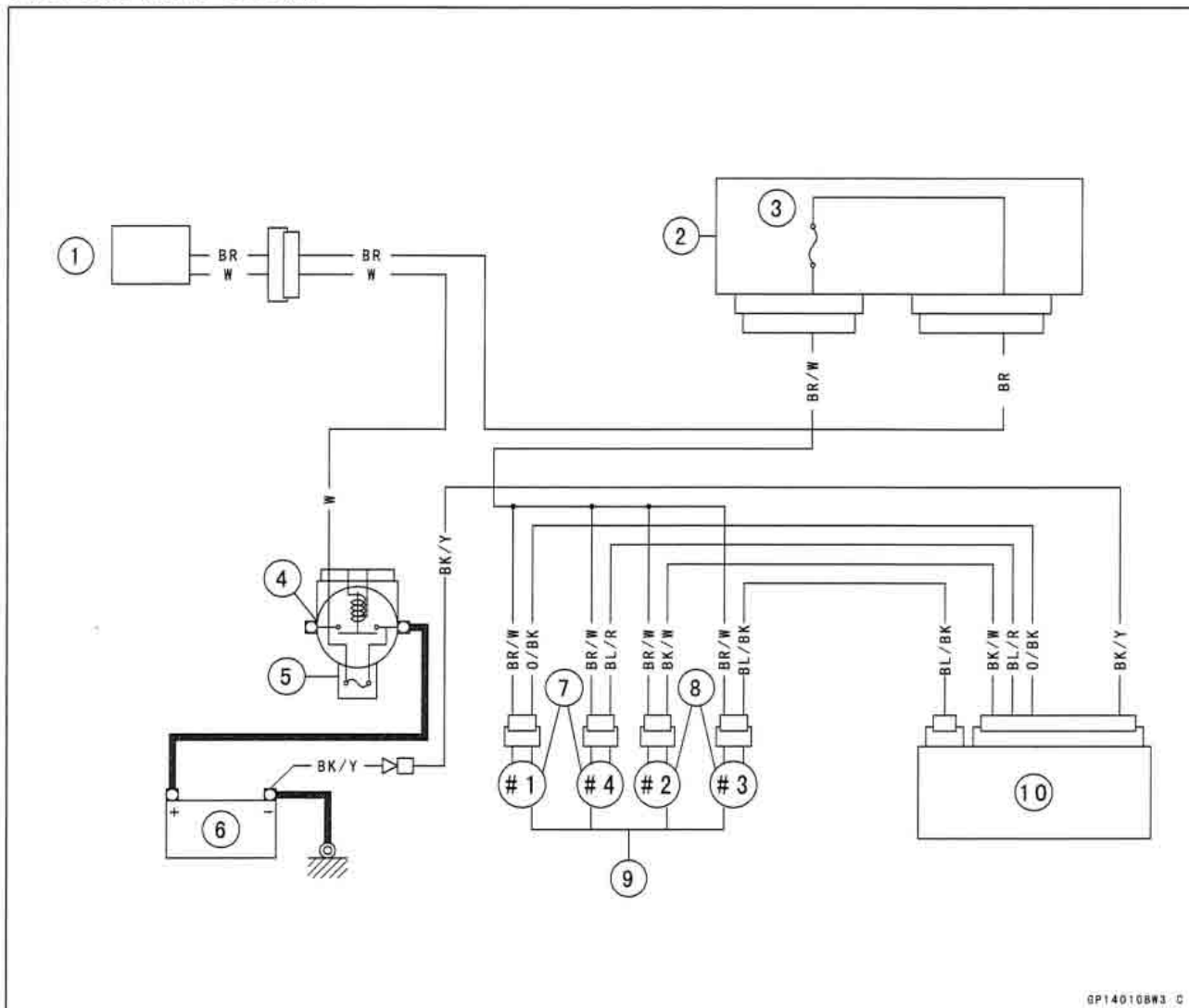
Testing Fuel Cut Valve Standard Protrusion

When battery is disconnected	→	16.6 mm (0.65 in.) [C]
When battery is connected	→	18.6 ~ 19.1 mm (0.73 ~ 0.75 in.) [D]



Electrical System

Fuel Cut Valve Circuit

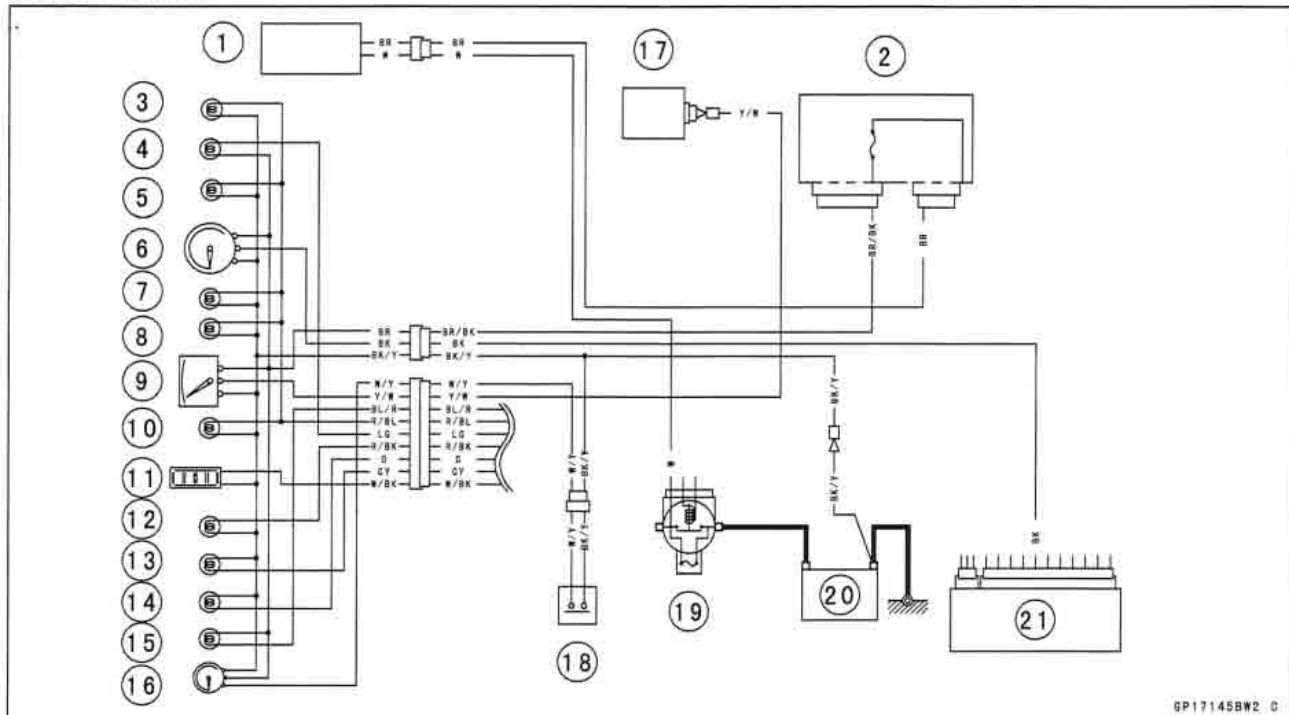


1. Ignition Switch
2. Junction Box
3. Horn Fuse 10 A
4. Starter Relay
5. Main Fuse 30 A
6. Battery
7. Gray Connector
8. Brown Connector
9. Fuel Cut Valves
10. IC Igniter

21-72 SUPPLEMENT - 2004 ~ 2005 MODELS

Electrical System

Meter Circuit



GP17145BW2 C

1. Ignition Switch
2. Junction Box
3. Clock Light 12 V 1.7 W
4. Neutral Indicator Light 12 V 3.4 W
5. Tachometer Light 12 V 1.7 W
6. Tachometer
7. Speedometer Light 12 V 1.7 W
8. Speedometer/Fuel Gauge Light 12 V 1.7 W
9. Coolant Temperature Gauge
10. Coolant Temperature Gauge Light 12 V 1.7 W
11. Clock
12. High Beam Indicator Light 12 V 3.4 W
13. Right Turn Signal Indicator Light 12 V 3.4 W
14. Left Turn Signal Indicator Light 12 V 3.4 W
15. Oil Pressure Warning Light 12 V 3.4 W
16. Fuel Gauge
17. Coolant Temperature Sensor
18. Fuel Level Gauge
19. Main Fuse 30 A
20. Battery
21. IC Igniter

Appendix

Troubleshooting Guide

NOTE

○ *This is not an exhaustive list, giving every possible cause for each problem listed. It is meant simply as a rough guide to assist the troubleshooting for some of the more common difficulties.*

Engine Doesn't Start, Starting Difficulty:

Starter motor not rotating:

- Starter lockout switch or neutral switch trouble
- Starter motor trouble
- Battery voltage low
- Starter relays not contacting or operating
- Starter button not contacting
- Wiring open or shorted
- Ignition switch trouble
- Engine stop switch trouble
- Fuse blown

Starter motor rotating but engine doesn't turn over:

- Starter clutch trouble

Engine won't turn over:

- Valve seizure
- Valve lifter seizure
- Cylinder, piston seizure
- Crankshaft seizure
- Connecting rod small end seizure
- Connecting rod big end seizure
- Transmission gear or bearing seizure
- Camshaft seizure
- Starter idle gear seizure

No fuel flow:

- No fuel in tank
- Fuel pump trouble
- Fuel tank air vent obstructed
- Fuel filter clogged
- Fuel tap clogged
- Fuel line clogged
- Float valve clogged
- Fuel cut valve left close (check fuel cut valve)

Engine flooded:

- Clean spark plug and adjust plug gap
- Fuel level in carburetor float bowl too high
- Float valve worn or stuck open
- Starting technique faulty
- (When flooded, crank the engine with the throttle fully opened to allow more air to reach the engine.)

No spark; spark weak:

- Ignition switch not ON
- Engine stop switch turned OFF
- Battery voltage low
- Spark plug dirty, broken, or maladjusted

- Spark plug cap or high tension wiring trouble

- Spark plug cap shorted or not in good contact

- Spark plug incorrect

- IC igniter trouble

- Neutral, starter lockout, or sidestand switch trouble

- Pickup coil trouble

- Ignition coil trouble

- Ignition or engine stop switch shorted

- Wiring shorted or open

- Fuse blown

Fuel/air mixture incorrect:

- Pilot screw and/or idle adjusting screw maladjusted

- Pilot jet, or air passage clogged

- Air cleaner clogged, poorly sealed, or missing

- Starter jet clogged

Compression Low:

- Spark plug loose

- Cylinder head not sufficiently tightened down

- No valve clearance

- Cylinder, piston worn

- Piston ring bad (worn, weak, broken, or sticking)

- Piston ring/groove clearance excessive

- Cylinder head gasket damaged

- Cylinder head warped

- Valve spring broken or weak

- Valve not seating properly (valve bent, worn, or carbon accumulation on the seating surface)

Poor Running at Low Speed:

Spark weak:

- Battery voltage low

- Spark plug dirty, broken, or maladjusted

- Ignition coil wiring trouble

- Ignition coil not in good contact

- Spark plug incorrect

- IC igniter trouble

- Pickup coil trouble

- Ignition coil trouble

Fuel/air mixture incorrect:

- Pilot screw maladjusted

- Pilot jet, or air passage clogged

- Air bleed pipe bleed holes clogged

- Pilot passage clogged

- Air cleaner clogged, poorly sealed, or missing

- Starter plunger stuck open

- Fuel level in carburetor float bowl too high or too low

- Fuel tank air vent obstructed

Appendix

Fuel cut valve won't fully open (check fuel cut valve and IC igniter)

Carburetor holder loose

Air cleaner duct loose

Air cleaner O-ring damaged

Compression low:

Spark plug loose

Cylinder head not sufficiently tightened down

No valve clearance

Cylinder, piston worn

Piston ring bad (worn, weak, broken, or sticking)

Piston ring/groove clearance excessive

Cylinder head warped

Cylinder head gasket damaged

Valve spring broken or weak

Valve not seating properly (valve bent, worn, or carbon accumulation on the seating surface)

Other:

IC igniter trouble

Carburetor not synchronizing

Carburetor vacuum piston doesn't slide smoothly

Carburetor vacuum piston diaphragm damage

Engine oil viscosity too high

Drive train trouble

Brake dragging

Air suction valve trouble

Vacuum switch valve trouble

Engine overheating

Clutch slipping

Poor Running or No Power at High Speed:

Firing incorrect:

Spark plug dirty, broken, or maladjusted

Ignition coil wiring trouble

Ignition coil not in good contact

Spark plug incorrect

IC igniter trouble

Pickup coil trouble

Ignition coil trouble

Fuel/air mixture incorrect:

Starter plunger stuck open

Main jet clogged or wrong size

Jet needle or needle jet worn

Air jet clogged

Fuel level in carburetor float bowl too high or too low

Fuel cut valve won't fully open (check fuel cut valve)

Bleed holes of needle jet holder or needle jet clogged

Air cleaner clogged, poorly sealed, or missing

Air cleaner duct loose

Air cleaner O-ring damaged

Water or foreign matter in fuel

Carburetor holder loose

Fuel to carburetor insufficient

Fuel tank air vent obstructed

Fuel tap clogged

Fuel line clogged

Fuel pump trouble

Compression low:

Spark plug loose

Cylinder head not sufficiently tightened down

No valve clearance

Cylinder, piston worn

Piston ring bad (worn, weak, broken, or sticking)

Piston ring/groove clearance excessive

Cylinder head gasket damaged

Cylinder head warped

Valve spring broken or weak

Valve not seating properly (valve bent, worn, or carbon accumulation on the seating surface.)

Knocking:

Carbon built up in combustion chamber

Fuel poor quality or incorrect

Spark plug incorrect

IC igniter trouble

Pickup coil trouble

Miscellaneous:

Throttle valve won't fully open

Carburetor vacuum piston doesn't slide smoothly

Carburetor vacuum piston diaphragm damaged

Brake dragging

Clutch slipping

Overheating

Engine oil level too high

Engine oil viscosity too high

Drive train trouble

Air suction valve trouble

Vacuum switch valve trouble

Catalytic converters melt down due to muffler overheating (KLEEN)

Overheating:

Firing incorrect:

Spark plug dirty, broken, or maladjusted

Spark plug incorrect

IC igniter trouble

Muffler overheating:

For KLEEN, do not run the engine even if with only one cylinder misfiring or poor

Appendix

running (Request the nearest service facility to correct it)

For KLEEN, do not push-start with a dead battery (Connect another full-charged battery with jumper cables, and start the engine using the electric starter)

For KLEEN, do not start the engine under misfire due to spark plug fouling or poor connection of the ignition coil

For KLEEN, do not coast the motorcycle with the ignition switch off (Turn the ignition switch ON and run the engine)

IC igniter or fuel cut valve trouble

IC igniter trouble

Fuel/air mixture incorrect:

Main jet clogged or wrong size

Fuel level in carburetor float bowl too low

Carburetor holder loose

Air cleaner duct loose

Air cleaner poorly sealed, or missing

Air cleaner O-ring damaged

Air cleaner clogged

Compression high:

Carbon built up in combustion chamber

Engine load faulty:

Clutch slipping

Engine oil level too high

Engine oil viscosity too high

Drive train trouble

Brake dragging

Lubrication inadequate:

Engine oil level too low

Engine oil poor quality or incorrect

Gauge incorrect:

Water temperature meter broken

Water temperature sensor broken

Coolant incorrect:

Coolant level too low

Coolant deteriorated

Wrong coolant mixed ratio

Cooling system component incorrect:

Radiator fin damaged

Radiator clogged

Thermostat trouble

Radiator cap trouble

Radiator fan switch trouble

Fan motor broken

Fan blade damaged

Water pump not turning

Water pump impeller damaged

Over Cooling:

Gauge incorrect:

Water temperature meter broken

Water temperature sensor broken

Cooling system component incorrect:

Radiator fan switch trouble

Thermostat trouble

Clutch Operation Faulty:

Clutch slipping:

Friction plate worn or warped

Steel plate worn or warped

Clutch spring broken or weak

Clutch hub or housing unevenly worn

No clutch lever play

Clutch inner cable trouble

Clutch release mechanism trouble

Clutch not disengaging properly:

Clutch plate warped or too rough

Clutch spring compression uneven

Engine oil deteriorated

Engine oil viscosity too high

Engine oil level too high

Clutch housing frozen on drive shaft

Clutch hub nut loose

Clutch hub spline damaged

Clutch friction plate installed wrong

Clutch lever play excessive

Clutch release mechanism trouble

Gear Shifting Faulty:

Doesn't go into gear; shift pedal doesn't return:

Clutch not disengaging

Shift fork bent or seized

Gear stuck on the shaft

Gear positioning lever binding

Shift return spring weak or broken

Shift return spring pin loose

Shift mechanism arm spring broken

Shift mechanism arm broken

Shift pawl broken

Jumps out of gear:

Shift fork ear worn, bent

Gear groove worn

Gear dogs and/or dog holes worn

Shift drum groove worn

Gear positioning lever spring weak or broken

Shift fork guide pin worn

Drive shaft, output shaft, and/or gear splines worn

Overshifts:

Gear positioning lever spring weak or broken

Shift mechanism arm spring broken

Abnormal Engine Noise:

Knocking:

IC igniter trouble

Carbon built up in combustion chamber

Fuel poor quality or incorrect

Appendix

Spark plug incorrect
Overheating

Piston slap:

Cylinder/piston clearance excessive
Cylinder, piston worn
Connecting rod bent
Piston pin, piston pin hole worn

Valve noise:

Valve clearance incorrect
Valve spring broken or weak
Camshaft bearing worn
Valve lifter worn

Other noise:

Connecting rod small end clearance excessive
Connecting rod big end clearance excessive
Piston ring/groove clearance excessive
Piston ring worn, broken, or stuck
Piston ring groove worn
Piston seizure, damage
Cylinder head gasket leaking
Exhaust pipe leaking at cylinder head connection
Crankshaft runout excessive
Engine mounts loose
Crankshaft bearing worn
Primary gear worn or chipped
Camshaft chain tensioner trouble
Camshaft chain, sprocket, guide worn
Air suction valve damaged
Vacuum switch valve damaged
Alternator rotor loose
Catalytic converters melt down due to muffler overheating (KLEEN)

Abnormal Drive Train Noise:

Clutch noise:

Clutch rubber damper weak or damaged
Clutch housing/friction plate clearance excessive
Clutch housing gear worn
Wrong installation of outside friction plate

Transmission noise:

Bearings worn
Transmission gears worn or chipped
Metal chips jammed in gear teeth
Engine oil insufficient

Drive line noise:

Drive chain adjusted improperly
Drive chain worn
Rear and/or engine sprocket worn
Chain lubrication insufficient
Rear wheel misaligned

Abnormal Frame Noise:

Front fork noise:

Oil insufficient or too thin
Spring weak or broken

Rear shock absorber noise:

Shock absorber damaged

Disc brake noise:

Pad installed incorrectly
Pad surface glazed
Disc warped
Caliper trouble

Other noise:

Bracket, nut, bolt, etc. not properly mounted or tightened

Oil Pressure Warning Light Goes On:

Engine oil pump damaged
Engine oil screen clogged
Engine oil filter clogged
Engine oil level too low
Engine oil viscosity too low
Camshaft bearing worn
Crankshaft bearings worn
Oil pressure switch damaged
Wiring faulty
Relief valve stuck open
O-ring at the oil passage in the crankcase damaged

Exhaust Smokes Excessively:

White smoke:

Piston oil ring worn
Cylinder worn
Valve oil seal damaged
Valve guide worn
Engine oil level too high

Black smoke:

Air cleaner clogged
Main jet too large or fallen off
Starter plunger stuck open
Fuel level in carburetor float bowl too high

Brown smoke:

Main jet too small
Fuel level in carburetor float bowl too low
Air cleaner duct loose
Air cleaner O-ring damaged
Air cleaner poorly sealed or missing

Handling and/or Stability Unsatisfactory:

Handlebar hard to turn:

Cable routing incorrect
Hose routing incorrect
Wiring routing incorrect
Steering stem locknut too tight
Steering stem bearing damaged

Appendix

Steering stem bearing lubrication inadequate
 Steering stem bent
 Tire air pressure too low

Handlebar shakes or excessively vibrates:

Tire worn
 Swingarm pivot bearings worn
 Rim warped, or not balanced
 Wheel bearing worn
 Handlebar clamp bolts loose
 Steering stem head nut loose
 Front, rear axle runout excessive
 Engine mounting bolt loose

Handlebar pulls to one side:

Frame bent
 Wheel misalignment
 Swingarm bent or twisted
 Swingarm pivot shaft runout excessive
 Steering maladjusted
 Front fork bent
 Right and left front fork oil level uneven

Shock absorption unsatisfactory:

(Too hard)
 Front fork oil excessive
 Front fork oil viscosity too high
 Rear shock absorber adjustment too hard
 Tire air pressure too high
 Front fork bent
 (Too soft)
 Tire air pressure too low
 Front fork oil insufficient and/or leaking
 Front fork oil viscosity too low

Rear shock adjustment too soft
 Front fork, rear shock absorber spring weak
 Rear shock absorber oil leaking

Brake Doesn't Hold:

Air in the brake line
 Pad or disc worn
 Brake fluid leakage
 Disc warped
 Contaminated pad
 Brake fluid deteriorated
 Primary or secondary cup damaged in master cylinder
 Master cylinder scratched inside

Battery Trouble:

Battery discharged:

Charge insufficient
 Battery faulty (too low terminal voltage)
 Battery leads making poor contact
 Load excessive (e.g., bulb of excessive wattage)
 Ignition switch trouble
 Alternator trouble
 Wiring faulty
 Regulator/rectifier trouble

Battery overcharged:

Alternator trouble
 Regulator/rectifier trouble
 Battery faulty

MODEL APPLICATION

Year	Model	Beginning Frame No.
1993	ZX500-D1	ZX500D-000001
1993	ZX600-E1	JKAZX4E1□PA000001, or JKAZX4E1□PB500001, or ZX600E-000001
1994	ZX500-D2	ZX500D-002001
1994	ZX600-E2	JKAZX4E1□RA020001, or JKAZX4E1□RB503201, or ZX600E-020001
1995	ZX600-E3	JKAZX4E1□SA032001, or JKAZX4E1□SB506951, or ZX600E-032001
1996	ZX600-E4	JKAZX4E1□TA038001, or JKAZX4E1□TB510151, or ZX600E-038001
1997	ZX600-E5	JKAZX4E1□VA045001, or JKAZX4E1□VB511801, or ZX600E-045001
1998	ZX600-E6	JKAZX4E1□WA050001, or JKAZX4E1□WB513101, or ZX600E-050001
1999	ZX600-E7	JKAZX4E1□XA057001, or JKAZX4E1□XB514301, or JKAZX600E EA057001
2000	ZX600-E8	JKAZX4E1□YA065001, or JKAZX4E1□YB515601
2001	ZX600-E9	JKAZX4E1□1A068001, or JKAZX4E1□1B516801, or JKAZX600E EA068001
2002	ZX600-E10	JKAZX4E1□2A072001, or JKAZX4E1□2B518401, or JKAZX600E EA072001
2003	ZX600-E11	JKAZX4E1□3A076001, or JKAZX4E1□3B519601, or JKAZX600E EA076001
2004	ZX600-E12	JKAZX4E1□4A079001, or JKAZX4E1□4B520701, or JKAZX600E EA079001
2005	ZX600-E13	JKAZX4E1□5A081001, or JKAZX600E EA081001

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



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